

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-3
REGISTRATION STATEMENT

UNDER THE SECURITIES ACT OF 1933

HEARTBEAM, Inc.

(Exact name of registrant as specified in its charter)

Delaware

*(State or other jurisdiction of
incorporation or organization)*

47-4881450

*(I.R.S. Employer
Identification Number)*

**2118 Walsh Avenue, Suite 210
Santa Clara, CA 95050
Telephone: 408-899-4443**

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

**Branislav Vajdic
Chief Executive Officer
HeartBeam, Inc.
2118 Walsh Avenue, Suite 210
Santa Clara, CA 95050
Telephone: 408-899-4443**

(Address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

**Joseph M. Lucosky, Esq.
Soyoung Lee, Esq.
Lucosky Brookman LLP
101 Wood Avenue South, 5th Floor
Woodbridge, NJ 08830
(732) 395-4400**

APPROXIMATE DATE OF COMMENCEMENT OF PROPOSED SALE TO THE PUBLIC: From time to time after the effective date of this registration statement.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective on filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input checked="" type="checkbox"/>	Smaller reporting company	<input checked="" type="checkbox"/>
		Emerging growth company	<input checked="" type="checkbox"/>

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the registration statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

EXPLANATORY NOTE

This registration statement contains:

- a base prospectus, which covers the offering, issuance and sales by us of up to \$100,000,000 in the aggregate of the securities identified above from time to time in one or more offerings; and
- a sales agreement prospectus covering the offer, issuance and sale by us of up to a maximum aggregate offering price of up to \$13,000,000 of our common stock that may be issued and sold from time to time under a sales agreement with A.G.P / Alliance Global Partners (the “Sales Agreement”).

The base prospectus immediately follows this explanatory note. The specific terms of any securities to be offered pursuant to the base prospectus will be specified in a prospectus supplement to the base prospectus. The Sales Agreement prospectus immediately follows the base prospectus. The \$13,000,000 of common stock that may be offered, issued and sold under the Sales Agreement prospectus is included in the \$13,000,000 of securities that may be offered, issued and sold by us under the base prospectus. Upon termination of the Sales Agreement, any portion of the \$13,000,000 included in the Sales Agreement prospectus that is not sold pursuant to the Sales Agreement will be available for sale in other offerings pursuant to the base prospectus, and if no shares are sold under the Sales Agreement, the full \$13,000,000 of securities may be sold in other offerings pursuant to the base prospectus.

The information in this prospectus is not complete and may be changed. These securities may not be sold until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell nor does it seek an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

Subject to Completion, dated February 1, 2023.

PROSPECTUS

HeartBeam, Inc.

\$100,000,000

**Common Stock
Preferred Stock
Debt Securities
Warrants
Rights
Units**

We may offer and sell up to \$100,000,000 in the aggregate of the securities identified above from time to time in one or more offerings. This prospectus provides you with a general description of the securities.

Each time we offer and sell securities, we will provide a supplement to this prospectus that contains specific information about the offering and the amounts, prices and terms of the securities. The supplement may also add, update or change information contained in this prospectus with respect to that offering. You should carefully read this prospectus and the applicable prospectus supplement before you invest in any of our securities.

We may offer and sell the securities described in this prospectus and any prospectus supplement to or through one or more underwriters, dealers and agents, or directly to purchasers, or through a combination of these methods. If any underwriters, dealers or agents are involved in the sale of any of the securities, their names and any applicable purchase price, fee, commission or discount arrangement between or among them will be set forth, or will be calculable from the information set forth, in the applicable prospectus supplement. See the sections of this prospectus entitled “About this Prospectus” and “Plan of Distribution” for more information. No securities may be sold without delivery of this prospectus and the applicable prospectus supplement describing the method and terms of the offering of such securities.

INVESTING IN OUR SECURITIES INVOLVES RISKS. SEE THE “RISK FACTORS” ON PAGE S-9 OF THIS PROSPECTUS AND ANY SIMILAR SECTION CONTAINED IN THE APPLICABLE PROSPECTUS SUPPLEMENT CONCERNING FACTORS YOU SHOULD CONSIDER BEFORE INVESTING IN OUR SECURITIES.

Our common stock and warrants are listed on The NASDAQ Capital Market under the symbol “BEAT” and “BEATW”, respectively. On February 1, 2023, the last reported sale price of our common stock on The NASDAQ Capital Market was \$3.83 per share.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus is _____, 2023.

TABLE OF CONTENTS

ABOUT THIS PROSPECTUS	S-ii
THE COMPANY	S-1
RISK FACTORS	S-9
SPECIAL NOTE REGARDING FORWARD LOOKING STATEMENTS	S-9
USE OF PROCEEDS	S-9
DESCRIPTION OF CAPITAL STOCK	S-9
DESCRIPTION OF DEBT SECURITIES	S-13
DESCRIPTION OF WARRANTS	S-18
DESCRIPTION OF RIGHTS	S-19

DESCRIPTION OF UNITS	S-20
PLAN OF DISTRIBUTION	S-21
LEGAL MATTERS	S-23
EXPERTS	S-23
WHERE YOU CAN FIND MORE INFORMATION	S-23
INCORPORATION BY REFERENCE	S-24

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the U.S. Securities and Exchange Commission (the “SEC”), using a “shelf” registration process. By using a shelf registration statement, we may sell securities from time to time and in one or more offerings up to a total dollar amount of \$100,000,000 as described in this prospectus. Each time that we offer and sell securities, we will provide a prospectus supplement to this prospectus that contains specific information about the securities being offered and sold and the specific terms of that offering. The prospectus supplement may also add, update or change information contained in this prospectus with respect to that offering. If there is any inconsistency between the information in this prospectus and the applicable prospectus supplement, you should rely on the prospectus supplement. Before purchasing any securities, you should carefully read both this prospectus and the applicable prospectus supplement, together with the additional information described under the headings “Where You Can Find More Information” and “Incorporation by Reference.”

We have not authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We will not make an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus and the applicable prospectus supplement to this prospectus is accurate as of the date on its respective cover, and that any information incorporated by reference is accurate only as of the date of the document incorporated by reference, unless we indicate otherwise. Our business, financial condition, results of operations and prospects may have changed since those dates.

When we refer to “BEAT,” “we,” “our,” “us” and the “Company” in this prospectus, we mean HeartBeam, Inc., unless otherwise specified. When we refer to “you,” we mean the holders of the applicable series of securities.

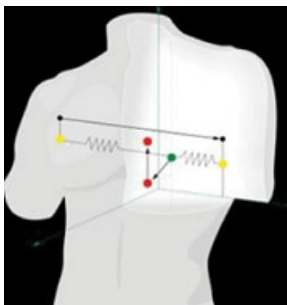
THE COMPANY

Corporate History and Information

HeartBeam was incorporated as a C corporation under the laws of the State of Delaware on June 11, 2015. We do not own any subsidiaries.

Company Overview

We are a medical technology company primarily focusing on developing and commercializing higher resolution ambulatory Electrocardiogram (“ECG”) solutions that enable the detection and monitoring of cardiac disease outside a healthcare facility setting. Our ability to develop higher resolution ECG solutions is achieved through the development of our proprietary and patented Vector Electrocardiography (“VECG”) technology platform. Our vector electrocardiography technology is capable of developing three-dimensional (3D) images of cardiac electrical activity by displaying the spatial locations of ECG waveforms that has demonstrated in early studies to deliver equal or superior diagnostic capability than traditional hospital based ECG systems.



3D projections of cardiac vectors

Our aim is to deliver innovative, remote patient monitoring (“RPM”) technologies that can be used for patients anywhere where critical cardiac care decisions can be made on a more timely basis. Our products require Food and Drug Administration (“FDA”) clearance and have not been cleared for marketing (hereinafter “Product” or “Products”).

We believe our Products and services will benefit many stakeholders, including patients, healthcare providers, and healthcare payors. We are developing Generation 1 of our telehealth product (“HeartBeam AIMIGo™”) to address the rapidly growing field of RPM. HeartBeam AIMIGo is comprised of a credit card sized electrocardiogram device and a powerful cloud-based diagnostic expert software system. We believe that we are uniquely positioned to play a central role in remote monitoring of high-risk coronary artery disease patients, because the initial studies have shown that our ischemia detection system may be more accurate than existing RPM solutions.



Photographs of version 1 HeartBeam AIMiGo devices in planer and ready to use position.

We are also applying our software platform to create a tool for detecting heart attacks in the emergency room environment using traditional ECG devices. The software tool, (“HeartBeam AIMITM”) is designed to enable emergency physicians to more accurately and quickly diagnose heart attacks than currently available. Market release of this Product will precede that of HeartBeam AIMiGo.

To date, we have developed working prototypes for both HeartBeam AIMiGo and HeartBeam AIMI. HeartBeam AIMI has been submitted for FDA 510(k) clearance and we have received questions from the FDA within the statutory 30-day review deadline, discussed the questions via teleconference with the FDA review team and provided written responses addressing the questions to the primary reviewer. We believe we are on track for FDA clearance this quarter.

S-1

The custom software and hardware of our Products, we believe, are classified as Class II medical devices by the FDA, running on an FDA approved Class I registered platform. Class II medical devices are those for which general controls alone are insufficient to provide reasonable assurance of safety and effectiveness and there is sufficient information to establish special controls. Special controls can include performance standards, post-market surveillance, patient histories and FDA guidance documents. Premarket review and clearance by the FDA for these devices is generally accomplished through the 510(k) or 510(k) de-novo premarket notification process.

Recent Developments not Incorporated by Reference

In September 2022, we were granted two patents;

- We were granted a 12-lead ECG patch monitor intended for detection of acute coronary syndrome (“ACS”) and cardiac arrhythmia by the United States Patent and Trademark Office. The innovation builds on our growing intellectual property portfolio enabling synthesized 12-lead ECG diagnostics outside of a medical setting.
- We were also granted a patent that enables generation of a synthesized 12-lead ECG by the HeartBeam AIMiGo credit card-sized device by the United States Patent and Trademark Office. The innovation opens the pathway for a patient to record a set of signals using HeartBeam AIMiGo outside of a medical setting with a diagnostic synthesized 12-lead ECG immediately transmitted to a physician for review and diagnosis. Unlike single-lead ECG products currently in the marketplace, such as other credit card sized devices or smartwatches, our technology is intended to quickly and accurately help a physician identify a heart attack (“Myocardial Infarction” or “MI”).

In October 2022, we announced the expansion of our product pipeline with smartwatch connectivity enablement for 24/7 heart monitoring capability. The product pipeline advancement allows for the addition of arrhythmia detection capabilities to address the multibillion-dollar global market for atrial fibrillation and other arrhythmia monitoring. This capability builds on our recently issued patents. This broader product portfolio enables the following:

- Introducing a 3-lead 3D vector electrocardiogram credit card-sized device, the HeartBeam AIMiGo 3L, that records the X,Y,Z cardiac activity and displays the signals for clinician review, providing the regulatory foundation for subsequent products in our product portfolio. The 510(K) submission to the FDA is planned for Q4 2022.
- Leveraging recently issued patents to incorporate both synthesized baseline and symptomatic 12-lead signals for enhanced diagnostic accuracy as well as the addition of atrial fibrillation detection capability in the HeartBeam AIMiGo 12L device for FDA 510(K) submission in Q2 2023.
- Broadening of the product portfolio profile to enable smartwatch connectivity to our platform in future products as an optional monitoring solution for the clinician and the patient.

In October 2022, we announced the appointment of Peter J. Fitzgerald, MD, Ph. D, as Chief Medical Officer. Dr. Fitzgerald is the Director of the Center for Cardiovascular Technology and Director of the Cardiovascular Core Analysis Laboratory at Stanford University Medical School. In addition to his world-renowned expertise in interventional cardiology, Dr. Fitzgerald is an accomplished inventor, entrepreneur, and investment fund founder.

In November 2022, we announced that our patent for a 12-lead ECG smartwatch-based monitor intended for detection of heart attacks and complex cardiac arrhythmias was allowed by the United States Patent and Trademark Office. The innovation builds on our growing intellectual property portfolio enabling 12-lead ECG diagnostics outside of a medical setting.

Market Overview

Chronic diseases are the number one burden on the healthcare system, driving up costs each year, and cardiovascular illnesses are one of the top contributors. Regulators, payors and providers are focused on shifting the diagnosis and management of these conditions to drive better outcomes at lower cost. Connected medical solutions are expanding rapidly and are projected to reach \$155 billion by 2026, a compound annual growth rate (“CAGR”) of 17%. These solutions are socio-technical models for healthcare management and delivery using technology to provide healthcare services remotely and aim to maximize healthcare resources and provide increased, flexible opportunities for consumers to engage with clinicians and better self-manage their care, using readily available consumer technologies to deliver patient care outside of the hospital or doctor’s office. The types of companies that make up this market include Accenture, IBM, SAP, GE Healthcare, Oracle, Microsoft, Airstrip Technology, Medtronic, Allscripts, Boston Scientific, Athenahealth, Cerner, Philips, Agamatrix, Qualcomm, and AliveCor.

S-2

The market for RPM, is projected to reach \$31.3 billion by the end of 2023. In 2019, 1,800 hospitals in the US were using mobile applications to improve risk management

and quality of care. The number in 2020 was likely larger as the onset of the COVID-19 pandemic greatly accelerated use and acceptance of telehealth by both patients and healthcare providers.

Cardiovascular disease is the number one cost to the healthcare system and is estimated to be responsible for 1 in every 6 healthcare dollars spent in the US. As cardiovascular disease is the leading cause of death worldwide, early detection, diagnosis, and management of chronic cardiac conditions are necessary to relieve the increasing burden on the healthcare infrastructure. Diagnostic tests such as ECGs are used to detect, diagnose and track numerous cardiovascular conditions. With advances in mobile communications, diagnostic monitoring of cardiac conditions is increasingly occurring outside the hospital.

Our initial telemedicine technology Product will address the heart attack detection market as well as the market to monitor coronary artery disease (“CAD”) patients who are typically at high risk for a heart attack. Currently there are no products on the market that are user friendly, easy to carry, and always with the patient in order to provide physicians and patients with timely and highly accurate information about potential ACS and MI events. A tool that is always with the patient, that decreases time to intervention, and that decreases the number of unnecessary ED visits by chest pain patients would have a significant effect on saving lives and healthcare dollars. We believe our technology will address this problem and will provide a convenient, cost-effective, integrated telehealth solution, including software and hardware for physicians and their patients. There are approximately 18 million people in the US who are considered at high risk for a heart attack, including 8 million who already have had prior intervention for MI’s and are therefore considered to be at extreme risk.

In the US, mobile cardiac tests are primarily conducted through outsourced Independent Diagnostic Testing Facilities (“IDTFs”) or as part of an RPM system. Reimbursement rates vary depending on the use case and generally are based on the value a technology offers to patients and healthcare providers. Actual reimbursed pricing is set by the Centers for Medicare & Medicaid Services (“CMS”). Reimbursement rates for private insurers typically provide for similar or better reimbursement rates when compared to those set by the Government for Medicare and Medicaid.

In the ED environment, early and accurate diagnosis of a chest pain patient who is potentially having a heart attack is of immense importance. Guidelines state that every chest pain patient in an ED must receive an ECG within 10 minutes of presentation. The accuracy of these initial ECGs is only approximately 75%. The need for increased ECG accuracy in detecting a heart attack in the ED is well defined, and an improved solution could result in saved lives and healthcare dollars. A 510(K) for our ED Product was submitted for review on August 15, 2022 to the FDA. We believe this Product will offer a marked increase in the accuracy of heart attack detection in EDs. There are approximately 5,000 ED departments in the US.

Products and Technology

The foundation of our novel technology is the concept of VECG, a technology that has long been seen as superior to ECGs in detecting MIs but is no longer used clinically because of the difficulty experienced by physicians interpreting the output. We solved the crucial problem of recording three orthogonal (x, y and z) projections of the heart vector with a device that is sized like a credit card. The thickness of our credit card sized ECG signal collection device is about 1/8 inch (3 mm), and it weighs about 1 ounce (28 grams). The core technology consists of a series of patented inventions and associated algorithms. In addition to using VECG to get a more complete 3D characterization of cardiac activity, we use the concept of a baseline. Our MI marker is a differential marker that measures the change in cardiac parameters between an asymptomatic (baseline) recording and the symptomatic recording. It is personalized for every patient as every patient has a unique baseline. Our increase in diagnostic performance in detecting MIs, when compared to a panel of cardiologists, is attributed to a richer cardiac information set offered by VECG and the fact that our MI marker compares the baseline and symptomatic recordings and does that in the 3D space of VECG.

This novel technology has resulted in two key Products to date: a telehealth Product for high-risk cardiovascular patients (HeartBeam AIMiGo) and a powerful cloud-based diagnostic expert and MI detection system for EDs (HeartBeam AIMI). Our telehealth ECG collection device is the size of a credit card and records cardiac signals with integrated electrodes rather than wires or self-adhesive electrodes. Unlike a standard 12-lead ECG machine that records signals in empirically determined locations on a human body, our approach is focused on recording three projections of the heart vector. The successful recording of the projections of the heart vector enables the synthesis of a 12-lead signal set and internal algorithmic diagnostic work in the space of 3D heart vectors.

There are obvious ease of use advantages when comparing our handheld device that fits in a wallet and can be instantly self-applied versus the current 12-lead ECG machine that requires a trained professional to apply. In addition, there are diagnostic performance advantages, including, based on our initial study, increased accuracy in diagnosing MIs. The system is used by patients at home or elsewhere, with help from their physicians, to assess whether their chest pain is truly the result of an MI.

Our telehealth HeartBeam AIMiGo system will be a prescription-only mobile health system intended for individuals with known or suspected heart disease, especially CAD. It helps guide physicians in choosing the best course of action for their patients who experience chest pain outside of a medical facility. HeartBeam AIMiGo will bring a medical grade ECG to patients and will enable them to receive a plan of action from a physician in a timely manner. At the time of onboarding and at regularly scheduled time intervals, patients record a baseline 30 second cardiac reading using our device. When a patient experiences symptoms, such as irregular heartbeats or chest pain, the patient can simply open the smartphone app and press the credit card sized device against the chest to collect signals that can be converted to a synthesized 12-lead ECG. This synthesized 12-lead ECG is sent to the physician overlaid with the patient’s derived baseline ECG recording. In addition, the patient provides input on their symptoms that are sent, along with the ECG data, to the cloud for interpretation by a physician. A cloud-based algorithm processes the signals and displays the symptom description and patient history to a physician to analyze and prescribe an action plan. From start to finish, the process takes just a few minutes.

The telehealth HeartBeam AIMiGo system consists of:

1. A credit card sized cardiac electrical signal collection device. The device captures cardiac signals that represent x, y and z projections of the heart vector and transmits them via Bluetooth connection to a smartphone. It is always with the patient as it easily fits in a wallet. It is easy to use as all that is required of the patient is that the device be pressed against the chest.
2. A smartphone application that receives the cardiac signals from the HeartBeam signal collection device. The app has several functions: guiding the patient through the signal collection, asking about symptoms, displaying the status of the data collection, and notifying the patient of the plan of action as determined by a physician. In addition, the app will contain HIPAA-compliant video conferencing or text capabilities for the healthcare provider to communicate directly with the patient.
3. A cloud-based software system that serves four basic functions: (1) Performing a final check of the ECG signal quality, (2) Synthesizing a 12-lead ECG from the measured (recorded) 3 vector leads, (3) A diagnostic suggestion based on 3D VECG interpretation, risk factors and symptoms and (4) Preparing a summary report for the physician. These software functions will be introduced to the HeartBeam AIMiGo product in a sequential manner. In order to facilitate a more accurate physician interpretation of the data, the software overlays the patient’s synthesized baseline 12 lead ECG waveform on the synthesized 12 lead ECG waveform from the current event. To ensure high signal quality, the system checks for noise levels in the recorded signals. Those signals that can be effectively filtered are accepted and those that have a noise level above an empirically established threshold are rejected. If a recorded signal is rejected, the user is asked to repeat the recording.
4. A web-based physician portal capable of displaying the relevant information for the physician to analyze: diagnostic suggestion, patient history, symptoms, baseline and current readings, synthesized 12-lead ECG, and recorded 3 vector leads. Our physician portal assists physicians with their diagnostic interpretation by providing both the baseline 12-lead synthesized ECG and the 12-lead synthesized ECG that is under evaluation.

The market release of our telehealth Product will be in multiple generations.

The generation 1 Product will have a limited feature set and introduce a 3-lead 3D VECG credit card-sized device, the HeartBeam AIMIGo 3L, that records the X,Y,Z cardiac activity and displays the signals for clinician review, providing the regulatory foundation for subsequent products in our product portfolio. The 510(K) submission to the FDA is planned for the fourth quarter of 2022.

The generation 2 Product will offer to the physician a pair of baseline and symptomatic 12-lead ECGs both synthesized from 3-lead 3D VECG signals recorded by the HeartBeam AIMIGo device and a symptoms report. It leverages recently issued patents for enhanced diagnostic accuracy of the synthesized 12-lead ECG waveforms. The generation 2 Product is planned to offer an automated atrial fibrillation detection algorithm. This product is an excellent match for existing CPT RPM reimbursement codes. The 510(K) submission to the FDA is planned for the second quarter of 2023.

The generation 3 Product will feature our proprietary MI marker as well as our diagnostic suggestion in addition to all features of the earlier generation Products.

We plan to seek a unique reimbursement code for HeartBeam AIMIGo.

The same core technology is used in the ED Product (HeartBeam AIMI). In this application, the increased accuracy of detecting MIs by the ECG is of utmost importance. An ECG is the first diagnostic test a chest pain patient receives in the ED and it has a major impact on the patient's subsequent clinical path. The ED Product has no hardware and introduces minimal change to the standard of care chest pain diagnostic path. It uses a baseline standard 12-lead ECG from the patient's Electronic Medical Record ("EMR") and the chest pain ECG that is being evaluated. It converts them to a VECG representation and utilizes our proprietary 3D VECG differential marker. An initial clinical study indicates that the ED software Product offers considerable improvement in the accuracy of MI detection compared to a panel of experienced cardiologists interpreting a standard 12 lead ECG. The importance of increased accuracy of the first ECG interpretation for a chest pain patient presenting to an ED is significant, potentially leading to faster intervention or avoiding unnecessary activation of the cardiac catheterization lab.

Market Opportunity

ECGs are key diagnostic tests utilized in the diagnosis and monitoring of cardiovascular disease, the number one cause of death worldwide. In the US in 2016, there were 121.5 million adults living with cardiovascular disease and 18.3 million adults with diagnosed coronary artery disease. The market size is increasing, due to an aging population and lifestyle choices.

Every 40 seconds someone in the US has a heart attack ("MI"). Unfortunately, there is no way for patients to tell whether the symptoms they are experiencing are due to an MI, or some other more benign condition such as indigestion. As a result, patients often ignore symptoms and delay seeking care, which leads to worse outcomes and increased mortality. On the other hand, many patients who go to the Emergency Room with chest pain are not experiencing an MI. Chest pain is the second most common reason for an ED visit, yet fewer than 20% of chest pain ED visits result in a diagnosis of a life-threatening condition. These unnecessary ED visits lead to well over \$10 billion in unnecessary healthcare expenditures.

Most ECGs are conducted in a healthcare facility setting using a 12-lead ECG machine, the gold standard. ECGs taken outside of healthcare facilities are expected to grow more quickly than in-hospital ECGs. Monitoring cardiac patients outside of a hospital is a fast-growing trend, as it is less expensive and provides a better patient experience. However, while ambulatory cardiac monitoring devices are often much easier for patients to use, they have fewer leads than the gold standard and therefore cannot offer as comprehensive a picture of cardiac health.

While a standard 12-lead ECG readout is of great medical value, it is simply impractical to have a machine next to patients when they experience symptoms outside the clinical setting, since recording the event requires attaching multiple electrodes to the patient's body with professional assistance. While existing technologies use predominantly single lead ECG devices to monitor arrhythmias, these technologies do not provide information to the physician on the presence of life-threatening conditions of ACS or heart attacks.

We believe our telehealth technology addresses these market needs and has several key attributes that make it a good fit for these patients. Our telehealth Product is generally used when symptoms occur and offers the potential for lifelong patient usage. The device is always near the patient and ready to be used for recording a cardiac event. It enables real-time cardiac data transmission during a telemedicine visit. It offers a recorded 3 vector lead set of signals and a synthesized 12-lead ECG set of signals. We believe physicians will typically prescribe our solution to chronic cardiovascular patients for long term monitoring, thereby enabling prolonged data collection and delivering a more complete picture for diagnosis. This will also enable the use of artificial intelligence on our future database that will have a unique set of longitudinal synthesized 12-lead ECGs for patients.

Market Strategy

Our goal is to establish our products as key solutions for cardiology practices and hospital EDs. Our efforts to enter the market involve establishing clinical evidence and demonstrating the cost-effectiveness of adopting our products. For both the telehealth (HeartBeam AIMIGo) and the ED Products (HeartBeam AIMI), the initial geographic market is the United States.

We believe that both the telehealth and ED Products will be subject to the US FDA's 510(k) review process. A 510(K) for our HeartBeam AIMI was submitted to the FDA on August 15, 2022 for review and we are in the process of preparing a 510(K) submission for HeartBeam AIMIGo.

For HeartBeam AIMIGo, the primary customers are cardiology practices and the cardiology departments of hospitals. Healthcare insurers are another important customer, as they will potentially benefit from the reduced costs to the healthcare system. We are working to develop new clinical studies and publish results of completed clinical studies and plan to demonstrate real world cost-effectiveness of the use of the solution.

Our long-term strategy is to generate sufficient evidence of clinical efficacy and cost-effectiveness to generate reimbursement coverage and payment specifically for the HeartBeam telehealth Generation 2 solution. We expect to be able to demonstrate significant clinical benefits for patients and savings to the health care system, justifying reimbursement levels well in excess of the amount paid through the RPM pathway.

For the telehealth Product, our primary marketing strategy will focus on the medical community with continued validation of clinical efficacy and cost-effectiveness and

Clinical Data

HeartBeam has performed three clinical studies to assess performance of our technologies.

In the first study (HeartBeam Ischemia Detection Study — HIDES), we collected electrical signal data on patients whose coronary arteries were occluded during a Percutaneous Coronary Intervention (PCI), using simultaneously a traditional 12-lead ECG and our vector signal based device. Our VECG-based signal interpretation system had significantly (21%) higher accuracy in detecting ischemia as more fully discussed in the Business Section.

In a second study (B Score), the HeartBeam diagnostic engine, using ECG, symptoms, and history, matched the diagnostic performance of expert cardiologists in detecting the presence of MIs in patients presenting to an ED with chest pain. This result indicates that the quality of the diagnostic advice produced by our expert system will be extremely valuable to the physician who is assessing the condition of a patient in a telehealth environment.

The third study, ISPEC, which assessed the false positive rate for non-symptomatic patients, is relevant in a telehealth situation. It is important that the system have a low false positive rate when patients are conducting baseline recordings, which are required on at least a monthly basis. The study yielded no false positives.

All three studies are being prepared for peer-reviewed publication.

Intellectual Property

We believe our innovations are protected with our patent portfolio and our goal is to become a leader in the ambulatory VECG sector. For a limited number of aspects of our proprietary technology we rely on trade secret protection. It is our view that the combination of these two methods of intellectual property protection maximizes our chances for success.

The issued and pending U.S. patent applications cover compact VECG systems for remote detection and/or diagnosis of AMI. The pending EU and CN patent applications correspond to the pending and issued US cases. The pending PCT applications cover methods and apparatuses for automatic cardiac diagnosis as well as compact systems including retractable electrodes.

HeartBeam has five issued U.S. patents (U.S.10,433,744, U.S.10,117,592, U.S.11,071,490, U.S.11,419,538 and U.S. 11,445,963), and seven pending U.S applications. Five of the pending applications have been published, the remaining two pending cases are unpublished. Outside of the U.S., HeartBeam has four issued patents in Germany, France, Netherlands and United Kingdom and seven pending applications in Canada, China, the European Union ("EU"), Japan and Australia. HeartBeam has two pending PCT applications. The issued patents are predicted to expire between April 11, 2036 and October 5, 2041.

Research and Development

The primary objective of our research and development program is to provide innovative ambulatory VECG, user friendly solutions with high medical value. To date, we have been highly successful in developing our initial products. The emphasis has been on developing a user-friendly solution that is always with the patient and that provides assistance to physicians in diagnosing heart attacks in chest pain patients.

Our Research team is largely based in Belgrade, Serbia as well as in California, USA. We have assembled a highly capable Belgrade team currently consisting of seven PhD level contributors who are credited with developing our key inventions and patents. The diverse group includes:

- Two nuclear physicists.
- Two Biomedical Engineers experienced in developed digital health applications.
- Two highly experienced Healthcare IT development professionals.
- Two Electrical Engineers (M.S.E.E) with strong signal processing and ECG analysis algorithm expertise from the medical device industry.
- An Electrical Engineer (M.S.E.E) with exceptional implantable medical device development and power optimization expertise.
- A Software Engineer, (PhD Computer Science), with deep expertise in developing mobile applications for medical devices.

Future research and development efforts will focus on the application of signal processing and artificial intelligence to address a range of cardiac conditions.

In the third quarter of 2022 we added 3 development engineers led by our recently hired Chief Technology Officer Ken Persen. This is an experienced development team that worked together previously and was successful in delivering FDA cleared products.

Future Products

Our core technology — the heart vector approach adopted and invented by our research team — is a platform technology that can provide diagnostic solutions to a variety of cardiovascular patients. Our plans call for expanding solutions that diagnose all major cardiac conditions that are diagnosed by ECGs.

Our future plans include the development of a VECG that is a synthesized 12-lead capable patch ECG monitor that will provide advantages over existing single-lead ECG patch products such as the Zio-XT from iRhythm Technologies, Inc. Our approach will offer a synthesized 12-lead ECG with a patch that is very similar, in dimensions and look and feel, to the currently available single lead ECG patches. We believe providing standard of care 12-lead ECG capabilities will have significant diagnostic advantages over a single lead patch.

We also plan to integrate a synthesized 12-lead ECG smartwatch-based monitor intended for detection of heart attacks and complex cardiac arrhythmias. This invention eliminates the need for a dedicated ECG device while offering a synthesized 12-lead ECG capability enabling heart attack and complex arrhythmia detection.

While our initial telehealth Product is powered by a software expert system that serves as a diagnostic aid to a physician, we will develop an AI based diagnostic system that will supplement our diagnostic expert system.

We are committed to continue advancing the full potential inherent in our synthesized 12-lead 3D VECG technology as demonstrated in recently issued and allowed patents with potentially enormous market impacts.

Corporate Information

Our corporate offices are located at 2118 Walsh Avenue, Suite 210, Santa Clara, CA 95050. Our telephone number is (408) 899-4443. The address of our website is <https://www.heartbeam/>. The inclusion of our website address in this prospectus does not include or incorporate by reference the information on our website into this prospectus.

S-8

RISK FACTORS

Investment in any securities offered pursuant to this prospectus and the applicable prospectus supplement involves risks. You should carefully consider the risk factors incorporated by reference to our most recent Annual Report on Form 10-K and any subsequent Quarterly Reports on Form 10-Q or Current Reports on Form 8-K we file after the date of this prospectus, and all other information contained or incorporated by reference into this prospectus, as updated by our subsequent filings under the Exchange Act, and the risk factors and other information contained in the applicable prospectus supplement before acquiring any of such securities. The occurrence of any of these risks might cause you to lose all or part of your investment in the offered securities.

SPECIAL NOTICE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements that involve risks and uncertainties, principally in the sections entitled “Risk Factors.” All statements other than statements of historical fact contained in this prospectus, including statements regarding future events, our future financial performance, business strategy and plans and objectives of management for future operations, are forward-looking statements. We have attempted to identify forward-looking statements by terminology including “anticipates,” “believes,” “can,” “continue,” “could,” “estimates,” “expects,” “intends,” “may,” “plans,” “potential,” “predicts,” “should,” or “will” or the negative of these terms or other comparable terminology. Although we do not make forward looking statements unless we believe we have a reasonable basis for doing so, we cannot guarantee their accuracy. These statements are only predictions and involve known and unknown risks, uncertainties and other factors, including the risks outlined under “Risk Factors” or elsewhere in this prospectus, which may cause our or our industry’s actual results, levels of activity, performance or achievements expressed or implied by these forward-looking statements.

Forward-looking statements should not be read as a guarantee of future performance or results, and will not necessarily be accurate indications of the times at, or by which, that performance or those results will be achieved. Forward-looking statements are based on information available at the time they are made and/or management’s good faith belief as of that time with respect to future events, and are subject to risks and uncertainties that could cause actual performance or results to differ materially from what is expressed in or suggested by the forward-looking statements.

Forward-looking statements speak only as of the date they are made. You should not put undue reliance on any forward-looking statements. We assume no obligation to update forward-looking statements to reflect actual results, changes in assumptions or changes in other factors affecting forward-looking information, except to the extent required by applicable securities laws. If we do update one or more forward-looking statements, no inference should be drawn that we will make additional updates with respect to those or other forward-looking statements.

USE OF PROCEEDS

We intend to use the net proceeds from the sale of the securities as set forth in the applicable prospectus supplement.

DESCRIPTION OF CAPITAL STOCK

The following description of the Company’s capital stock and provisions of its Certificate of Incorporation and Bylaws are summaries and are qualified by reference to the Company’s Certificate of Incorporation and Bylaws, which have been publicly filed with the SEC. See “Where You Can Find More Information” and “Incorporation by Reference.”

S-9

Authorized and Outstanding Capital Stock

The Company is authorized to issue 110,000,000 shares of capital stock, consisting of 100,000,000 shares of Common Stock, par value \$0.0001 per share and 10,000,000 shares of Preferred Stock, par value \$0.0001 per share.

As of December 31, 2022, the Company had 8,009,743 outstanding shares of Common Stock held by approximately 50 shareholders of record. As of the date thereof, there were no shares of preferred stock issued and outstanding.

Common Stock

The holders of our Common Stock are entitled to one vote per share. In addition, the holders of our Common Stock will be entitled to receive dividends ratably, if any, declared by our board of directors out of legally available funds; however, the current policy of the board of directors is to retain earnings, if any, for operations and growth. Upon liquidation, dissolution or winding-up, the holders of our Common Stock are entitled to share ratably in all assets that are legally available for distribution. The holders of our Common Stock have no pre-emptive, subscription, redemption or conversion rights. The rights, preferences and privileges of holders of the our Common Stock are subject to, and may be adversely affected by, the rights of the holders of any series of preferred stock, which may be designated solely by action of the board of directors and issued in the future.

Preferred Stock

Our Board of Directors will have the authority, without further action by our stockholders, to issue up to 10,000,000 shares of preferred stock in one or more series and to fix the rights, preferences, privileges and restrictions thereof. These rights, preferences and privileges could include dividend rights, conversion rights, voting rights, terms of redemption, liquidation preferences, sinking fund terms and the number of shares constituting, or the designation of, such series, any or all of which may be greater than the rights of Common Stock. The issuance of our preferred stock could adversely affect the voting power of holders of Common Stock and the likelihood that such holders will

receive dividend payments and payments upon our liquidation. In addition, the issuance of preferred stock could have the effect of delaying, deferring or preventing a change in control of our company or other corporate action.

Warrants

The following summary of certain terms and provisions of the warrants (the “Warrants”) is not complete and is subject to, and qualified in its entirety by, the provisions of the warrant agency agreement between us and VStock Transfer, LLC (the “Warrant Agent”), and the form of warrant, which have been publicly filed with the SEC. See “Where You Can Find More Information” and “Incorporation by Reference.” As of December 31, 2022, there were 3,162,500 Warrants issued and outstanding trading under BEATW. The exercise price of the Warrants is \$6 per share. Each Warrant is exercisable for one share of our Common Stock, subject to adjustment in the event of stock dividends, stock splits, stock combinations, reclassifications, reorganizations or similar events affecting our common stock as described herein. A holder may not exercise any portion of a warrant to the extent that the holder, together with its affiliates and any other person or entity acting as a group, would own more than 4.99% of the outstanding Common Stock after exercise, as such percentage ownership is determined in accordance with the terms of the Warrants, except that upon notice from the holder to us, the holder may waive such limitation up to a percentage, not in excess of 9.99%. Each warrant will be exercisable immediately upon issuance and will expire five (5) years after the initial issuance date.

In addition to the warrants mentioned above, the Company has issued the following:

- On February 18, 2022, the Company issued 58,000 warrants to purchase 58,000 shares of common stock at an exercise price of \$6.00 per share, with an expiration date of five years from the date thereof.
- On January 14, 2022, the Company issued 72,727 warrants based on performance metrics achieved in 2021 to purchase 72,727 shares of common stock at an exercise price of \$5.50 per share, with an expiration of five years from the date of issuance.
- In connection with the short-term notes issued in 2019, the Board of Directors approved the issuance of 15,277 fully vested warrants as an incentive to investors with the rights to convert into a fixed number of shares of the Company’s common stock for an above market fixed price of \$2.75 per share, exercisable, in whole or in part, for a period of 4 years from the date of issuance.
- During the course of 2019, the Company issued milestone warrants totaling 407,272 units (“Penny Warrants”). These were valued with an exercise price of \$0.0003 and will vest upon meeting certain milestones. The warrant may be exercised, in whole or in part upon the earliest to occur of: (i) following the Company’s initial public offering, the date on which the Company has a market capitalization of at least \$50,000,000 for five consecutive business days; (ii) the closing of a Change of Control transaction with net proceeds to Company equity holders of at least \$50,000,000; (iii) the date on which the Company receives a bona fide pre-money valuation from a third party investor of at least \$50,000,000; (iv) the date on which the Holder’s continuous status as a Service Provider is terminated by the Company without Cause upon or within 12 months after a Change of Control; and (v) the date on which the Holder terminates his continuous status as a Service Provider for Good Reason within 12 months after a Change of Control.
- On November 15, 2022, the Company issued warrants to the lead underwriter, as portion of the underwriting compensation payable in connection with the Company’s initial public offering (“IPO”). The warrants accounted for 7% of the number of common stock sold in the IPO, which was 192,50 warrants, exercisable at a per share exercise price equal to \$7.50 per share and expire five years from the date of issuance. The warrants are subject to a 180-day lock-up period.

S-10

2022 Equity Incentive Plan

On June 15, 2022, the our Board of Directors approved the 2022 Equity Incentive Plan (“2022 Equity Plan”), to attract and retain the best available personnel for positions of substantial responsibility, to provide additional incentive to employees, directors, and consultants, and to promote the success of the Company’s business. The 2022 Equity Plan provides for the grant of stock options and restricted stock awards (“RSUs”) to purchase common stock. The Board of Directors approved 1,900,000 shares of Common Stock issuance under the 2022 Equity Plan.

As of December 31, 2022, there were 747,364 shares available for issuance under the 2022 Equity Plan. The number of shares available for issuance under the 2022 Equity Plan will be increased on the first day of each fiscal year beginning with the 2023 fiscal year, in an amount equal to the least of 3,800,000 Shares, five percent (5%) of the total number of shares of all classes of common stock of the Company outstanding on the last day of the immediately preceding fiscal year, and a lesser number of Shares determined by the Administrator.

Eligible recipients of option awards are employees, officers, consultants, attorneys, advisors or directors (including non-employee directors) of the Company or of any parent, subsidiary or affiliate of the Company. The Board of Directors has the authority to grant to any eligible recipient any options, restricted stock or other awards valued in whole or in part by reference to, or otherwise based on, the Company’s Common Stock; provided, however, that Incentive Options may only be granted to employees of the Company or its subsidiaries.

The provisions of each option granted need not be the same with respect to each option recipient. Option recipients have entered into award agreements with the Company, in such form as the full Board of Directors has determined.

The 2022 Equity Plan is administered by the Board of Directors.

Anti-Takeover Provisions

The following is a summary of certain provisions of Delaware law, our Certificate of Incorporation and our bylaws. This summary does not purport to be complete and is qualified in its entirety by reference to the corporate law of Delaware and our Certificate of Incorporation and bylaws.

Amended Certificate of Incorporation and Amended and Restated Bylaws

Our charter documents include provisions that may have the effect of discouraging, delaying or preventing a change in control or an unsolicited acquisition proposal that a stockholder might consider favorable, including a proposal that might result in the payment of a premium over the market price for the shares held by our stockholders. Certain provisions are summarized in the following paragraphs.

Effects of authorized but unissued common stock. One of the effects of the existence of authorized but unissued common stock may be to enable our board of directors to make more difficult or to discourage an attempt to obtain control of our Company by means of a merger, tender offer, proxy contest or otherwise, and thereby to protect the continuity of management. If, in the due exercise of its fiduciary obligations, the board of directors were to determine that a takeover proposal was not in our best interest, such shares could be issued by the board of directors without stockholder approval in one or more transactions that might prevent or render more difficult or costly the completion of the takeover transaction by diluting the voting or other rights of the proposed acquirer or insurgent stockholder group, by putting a substantial voting block in institutional or other hands that might undertake to support the position of the incumbent board of directors, by effecting an acquisition that might complicate or preclude the takeover, or otherwise.

Special Meeting of Stockholders and Stockholder Action by Written Consent. A special meeting of the stockholders may be called at any time by the Board, Chairperson of the Board, Chief Executive Officer or President (in the absence of a Chief Executive Officer) or by one or more stockholders holding shares in the aggregate entitled to cast not less than 10% of the votes at that meeting.

Section 203 of the Delaware General Corporation Law

We are subject to Section 203 of the DGCL, which prohibits a Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years after the date that such stockholder became an interested stockholder, with the following exceptions:

- before such date, our board of directors approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;
- upon closing of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction began, excluding for purposes of determining the voting stock outstanding (but not the outstanding voting stock owned by the interested stockholder) those shares owned by (i) persons who are directors and also officers and (ii) employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or on or after such date, the business combination is approved by our board of directors and authorized at an annual or special meeting of the stockholders, and not by written consent, by the affirmative vote of at least 66-2/3% of the outstanding voting stock that is not owned by the interested stockholder.

In general, Section 203 defines business combination to include the following:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, pledge or other disposition of 10% or more of the assets of the corporation involving the interested stockholder;
- subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;
- any transaction involving the corporation that has the effect of increasing the proportionate share of the stock or any class or series of the corporation beneficially owned by the interested stockholder; or
- The receipt by the interested stockholder of the benefit of any loss, advances, guarantees, pledges or other financial benefits by or through the corporation.

In general, Section 203 defines an “interested stockholder” as an entity or person who, together with the person’s affiliates and associates, beneficially owns, or within three years prior to the time of determination of interested stockholder status did own, 15% or more of the outstanding voting stock of the corporation.

The NASDAQ Capital Market Listing

Our common stock and warrants are listed on the NASDAQ, under the symbol “BEAT” and “BEATW”, respectively.

Transfer Agent and Warrant Agent

The transfer agent, warrant agent and registrar for our common stock is VStock Transfer with an address of 18 Lafayette Place Woodmere, New York 11598.

DESCRIPTION OF DEBT SECURITIES

General

The debt securities that we may offer by this prospectus consist of notes, debentures, or other evidences of indebtedness. The debt securities may constitute either senior or subordinated debt securities, and in either case may be either secured or unsecured. Any debt securities that we offer and sell will be our direct obligations. Debt securities may be issued in one or more series. All debt securities of any one series need not be issued at the same time, and unless otherwise provided, a series of debt securities may be reopened, with the required consent of the holders of outstanding debt securities, for issuance of additional debt securities of that series or to establish additional terms of that series of debt securities (with such additional terms applicable only to unissued or additional debt securities of that series). The form of indenture has been filed as an exhibit to the registration statement of which this prospectus is a part and is subject to any amendments or supplements that we may enter into with the trustee(s), however, we may issue debt securities not subject to the indenture provided such terms of debt securities are not otherwise required to be set forth in the indenture. The material terms of the indenture are summarized below and we refer you to the indenture for a detailed description of these material terms. Additional or different provisions that are applicable to a particular series of debt securities will, if material, be described in a prospectus supplement relating to the offering of debt securities of that series. These provisions may include, among other things and to the extent applicable, the following:

- the title of the debt securities, including, as applicable, whether the debt securities will be issued as senior debt securities, senior subordinated debt securities or subordinated debt securities, any subordination provisions particular to the series of debt securities;
- any limit on the aggregate principal amount of the debt securities;
- whether the debt securities are senior debt securities or subordinated debt securities and applicable subordination provisions, if any;
- whether the debt securities will be secured or unsecured;
- if other than 100% of the aggregate principal amount, the percentage of the aggregate principal amount at which we will sell the debt securities, such as an original issuance discount;
- the date or dates, whether fixed or extendable, on which the principal of the debt securities will be payable;
- the rate or rates, which may be fixed or variable, at which the debt securities will bear interest, if any, the date or dates from which any such interest will accrue, the interest payment dates on which we will pay any such interest, the basis upon which interest will be calculated if other than that of a 360-day year consisting of twelve 30-day months, and, in the case of registered securities, the record dates for the determination of holders to whom interest is payable;
- the place or places where the principal of and any premium or interest on the debt securities will be payable and where the debt securities may be surrendered for conversion or exchange;
- whether we may, at our option, redeem the debt securities, and if so, the price or prices at which, the period or periods within which, and the terms and conditions upon which, we may redeem the debt securities, in whole or in part, pursuant to any sinking fund or otherwise;
- if other than 100% of the aggregate principal amount thereof, the portion of the principal amount of the debt securities which will be payable upon declaration of acceleration of the maturity date thereof or provable in bankruptcy, or, if applicable, which is convertible or exchangeable;
- any obligation we may have to redeem, purchase or repay the debt securities pursuant to any sinking fund or analogous provisions or at the option of a holder of debt securities, and the price or prices at which, the currency in which and the period or periods within which, and the terms and conditions upon which, the debt securities will be redeemed, purchased or repaid, in whole or in part, pursuant to any such obligation, and any provision for the remarketing of the debt securities;
- the issuance of debt securities as registered securities or unregistered securities or both, and the rights of the holders of the debt securities to exchange unregistered securities for registered securities, or vice versa, and the circumstances under which any such exchanges, if permitted, may be made;

- the denominations, which may be in United States Dollars or in any foreign currency, in which the debt securities will be issued, if other than denominations of \$1,000 and any integral multiple thereof;
- whether the debt securities will be issued in the form of certificated debt securities, and if so, the form of the debt securities (or forms thereof if unregistered and registered securities are issuable in that series), including the legends required by law or as we deem necessary or appropriate, the form of any coupons or temporary global security which may be issued and the forms of any other certificates which may be required under the indenture or which we may require in connection with the offering, sale, delivery or exchange of the debt securities;
- if other than United States Dollars, the currency or currencies in which payments of principal, interest and other amounts payable with respect to the debt securities will be denominated, payable, redeemable or repurchasable, as the case may be;
- whether the debt securities may be issuable in tranches;
- the obligations, if any, we may have to permit the conversion or exchange of the debt securities into common stock, preferred stock or other capital stock or property, or a combination thereof, and the terms and conditions upon which such conversion or exchange will be effected (including conversion price or exchange ratio), and any limitations on the ownership or transferability of the securities or property into which the debt securities may be converted or exchanged;
- if other than the trustee under the indenture, any trustees, authenticating or paying agents, transfer agents or registrars or any other agents with respect to the debt securities;
- any deletions from, modifications of or additions to the events of default with respect to the debt securities or the right of the Trustee or the holders of the debt securities in connection with events of default;
- any deletions from, modifications of or additions to the covenants with respect to the debt securities;
- if the amount of payments of principal of, and make-whole amount, if any, and interest on the debt securities may be determined with reference to an index, the manner in which such amount will be determined;
- whether the debt securities will be issued in whole or in part in the global form of one or more debt securities and, if so, the depository for such debt securities, the circumstances under which any such debt security may be exchanged for debt securities registered in the name of, and under which any transfer of debt securities may be registered in the name of, any person other than such depository or its nominee, and any other provisions regarding such debt securities;
- whether, under what circumstances and the currency in which, we will pay additional amounts on the debt securities to any holder of the debt securities who is not a United States person in respect of any tax, assessment or governmental charge and, if so, whether we will have the option to redeem such debt securities rather than pay such additional amounts, and the terms of any such option;
- whether the debt securities will be secured by any collateral and, if so, a general description of the collateral and the terms of any related security, pledge or other agreements;
- the persons to whom any interest on the debt securities will be payable, if other than the registered holders thereof on the regular record date therefore; and
- any other material terms or conditions upon which the debt securities will be issued.

Unless otherwise indicated in the applicable prospectus supplement, we will issue debt securities in fully registered form without coupons and in denominations of \$1,000 and in integral multiples of \$1,000, and interest will be computed on the basis of a 360-day year of twelve 30-day months. If any interest payment date or the maturity date falls on a day that is not a business day, then the payment will be made on the next business day without additional interest and with the same effect as if it were made on the originally scheduled date. "Business day" means any calendar day that is not a Saturday, Sunday or legal holiday in New York, New York, and on which the trustee and commercial banks are open for business in New York, New York.

Unless we inform you otherwise in a prospectus supplement, each series of our senior debt securities will rank equally in right of payment with all of our other unsubordinated debt. The subordinated debt securities will rank junior in right of payment and be subordinate to all of our unsubordinated debt.

Unless otherwise indicated in the applicable prospectus supplement, the trustee will act as paying agent and registrar for the debt securities under the indenture. We may act as paying agent under the indenture.

The prospectus supplement will contain a description of United States federal income tax consequences relating to the debt securities, to the extent applicable.

Covenants

The applicable prospectus supplement will describe any covenants, such as restrictive covenants restricting us or our subsidiaries, if any, from incurring, issuing, assuming or guarantying any indebtedness or restricting us or our subsidiaries, if any, from paying dividends or acquiring any of our or its capital stock.

Consolidation, Merger and Transfer of Assets

The indenture permits a consolidation or merger between us and another entity and/or the sale, conveyance or lease by us of all or substantially all of our property and assets, provided that:

- the resulting or acquiring entity, if other than us, is organized and existing under the laws of a United States jurisdiction and assumes all of our responsibilities and liabilities under the indenture, including the payment of all amounts due on the debt securities and performance of the covenants in the indenture;
- immediately after the transaction, and giving effect to the transaction, no event of default under the indenture exists; and
- we have delivered to the trustee an officers' certificate stating that the transaction and, if a supplemental indenture is required in connection with the transaction, the supplemental indenture comply with the indenture and that all conditions precedent to the transaction contained in the indenture have been satisfied.

If we consolidate or merge with or into any other entity, or sell or lease all or substantially all of our assets in compliance with the terms and conditions of the indenture, the resulting or acquiring entity will be substituted for us in the indenture and the debt securities with the same effect as if it had been an original party to the indenture and the debt securities. As a result, such successor entity may exercise our rights and powers under the indenture and the debt securities, in our name and, except in the case of a lease, we will be released from all our liabilities and obligations under the indenture and under the debt securities.

Notwithstanding the foregoing, we may transfer all of our property and assets to another entity if, immediately after giving effect to the transfer, such entity is our wholly owned subsidiary. The term "wholly owned subsidiary" means any subsidiary in which we and/or our other wholly owned subsidiaries, if any, own all of the outstanding capital stock.

Modification and Waiver

Under the indenture, some of our rights and obligations and some of the rights of the holders of the debt securities may be modified or amended with the consent of the holders of not less than a majority in aggregate principal amount of the outstanding debt securities affected by the modification or amendment. However, the following modifications and amendments will not be effective against any holder without its consent:

- a change in the stated maturity date of any payment of principal or interest;
- a reduction in the principal amount of or interest on any debt securities;
- an alteration or impairment of any right to convert at the rate or upon the terms provided in the indenture;
- a change in the currency in which any payment on the debt securities is payable;
- an impairment of a holder's right to sue us for the enforcement of payments due on the debt securities; or
- a reduction in the percentage of outstanding debt securities required to consent to a modification or amendment of the indenture or required to consent to a waiver of compliance with certain provisions of the indenture or certain defaults under the indenture.

Under the indenture, the holders of not less than a majority in aggregate principal amount of the outstanding debt securities may, on behalf of all holders of the debt securities:

- waive compliance by us with certain restrictive provisions of the indenture; and
- waive any past default under the indenture in accordance with the applicable provisions of the indenture, except a default in the payment of the principal of or interest on any series of debt securities.

S-15

Events of Default

Unless we indicate otherwise in the applicable prospectus supplement, "event of default" under the indenture will mean, with respect to any series of debt securities, any of the following:

- failure to pay interest on any debt security for 30 days after the payment is due;
- failure to pay the principal of any debt security when due, either at maturity, upon redemption, by declaration or otherwise;
- failure on our part to observe or perform any other covenant or agreement in the indenture that applies to the debt securities for 90 days after we have received written notice of the failure to perform in the manner specified in the indenture; and
- certain events of bankruptcy, insolvency or reorganization.

Remedies Upon an Event of Default

If an event of default occurs and continues, the trustee or the holders of not less than 25% in aggregate principal amount of the outstanding debt securities of such series may declare the entire principal of all the debt securities to be due and payable immediately, except that, if the event of default is caused by certain events in bankruptcy, insolvency or reorganization, the entire principal of all of the debt securities of such series will become due and payable immediately without any act on the part of the trustee or holders of the debt securities. If such a declaration occurs, the holders of a majority of the aggregate principal amount of the outstanding debt securities of such series can, subject to conditions, rescind the declaration.

The indenture requires us to furnish to the trustee not less often than annually, a certificate from our principal executive officer, principal financial officer or principal accounting officer, as the case may be, as to such officer's knowledge of our compliance with all conditions and covenants under the indenture. The trustee may withhold notice to the holders of debt securities of any default, except defaults in the payment of principal of or interest on any debt securities if the trustee in good faith determines that the withholding of notice is in the best interests of the holders. For purposes of this paragraph, "default" means any event which is, or after notice or lapse of time or both would become, an event of default under the indenture.

The trustee is not obligated to exercise any of its rights or powers under the indenture at the request, order or direction of any holders of debt securities, unless the holders offer the trustee satisfactory security or indemnity. If satisfactory security or indemnity is provided, then, subject to other rights of the trustee, the holders of a majority in aggregate principal amount of the outstanding debt securities may direct the time, method and place of:

- conducting any proceeding for any remedy available to the trustee; or
- exercising any trust or power conferred upon the trustee.

The holder of a debt security will have the right to begin any proceeding with respect to the indenture or for any remedy only if:

- the holder has previously given the trustee written notice of a continuing event of default;
- the holders of not less than a majority in aggregate principal amount of the outstanding debt securities have made a written request of, and offered reasonable indemnity to, the trustee to begin such proceeding;
- the trustee has not started such proceeding within 60 days after receiving the request; and
- no direction inconsistent with such written request has been given to the trustee under the indenture.

However, the holder of any debt security will have an absolute right to receive payment of principal of and interest on the debt security when due and to institute suit to enforce this payment.

S-16

Satisfaction and Discharge; Defeasance

Satisfaction and Discharge of Indenture. Unless otherwise indicated in the applicable prospectus supplement, if at any time,

- we have paid the principal of and interest on all the debt securities of any series, except for debt securities which have been destroyed, lost or stolen and which have been replaced or paid in accordance with the indenture, as and when the same shall have become due and payable, or
- we have delivered to the trustee for cancellation all debt securities of any series theretofore authenticated, except for debt securities of such series which have been destroyed, lost or stolen and which have been replaced or paid as provided in the indenture, or
- all the debt securities of such series not theretofore delivered to the trustee for cancellation have become due and payable, or are by their terms to become due and payable within one year or are to be called for redemption within one year, and we have deposited with the trustee, in trust, sufficient money or government obligations, or a combination thereof, to pay the principal, any interest and any other sums due on the debt securities, on the dates the payments are due or become due under the indenture and the terms of the debt securities,

then the indenture shall cease to be of further effect with respect to the debt securities of such series, except for:

- rights of registration of transfer and exchange, and our right of optional redemption;
- substitution of mutilated, defaced, destroyed, lost or stolen debt securities;
- rights of holders to receive payments of principal thereof and interest thereon upon the original stated due dates therefor (but not upon acceleration) and remaining rights of the holders to receive mandatory sinking fund payments, if any;
- the rights, obligations and immunities of the trustee under the indenture; and
- the rights of the holders of such series of debt securities as beneficiaries thereof with respect to the property so deposited with the trustee payable to all or any of them.

Defeasance and Covenant Defeasance. Unless otherwise indicated in the applicable prospectus supplement, we may elect with respect to any debt securities of any series either:

- to defease and be discharged from all of our obligations with respect to such debt securities (“defeasance”), with certain exceptions described below; or
- to be released from our obligations with respect to such debt securities under such covenants as may be specified in the applicable prospectus supplement, and any omission to comply with those obligations will not constitute a default or an event of default with respect to such debt securities (“covenant defeasance”).

We must comply with the following conditions before the defeasance or covenant defeasance can be effected:

- we must irrevocably deposit with the indenture trustee or other qualifying trustee, under the terms of an irrevocable trust agreement in form and substance satisfactory to the trustee, trust funds in trust solely for the benefit of the holders of such debt securities, sufficient money or government obligations, or a combination thereof, to pay the principal, any interest and any other sums on the due dates for those payments; and
- we must deliver to the trustee an opinion of counsel to the effect that the holders of such debt securities will not recognize income, gain or loss for federal income tax purposes as a result of defeasance or covenant defeasance, as the case may be, to be effected with respect to such debt securities and will be subject to federal income tax on the same amount, in the same manner and at the same times as would be the case if such defeasance or covenant defeasance, as the case may be, had not occurred.

In connection with defeasance, any irrevocable trust agreement contemplated by the indenture must include, among other things, provision for:

- payment of the principal of and interest on such debt securities, if any, appertaining thereto when due (by redemption, sinking fund payments or otherwise),
- the payment of the expenses of the trustee incurred or to be incurred in connection with carrying out such trust provisions,
- rights of registration, transfer, substitution and exchange of such debt securities in accordance with the terms stated in the indenture, and
- continuation of the rights, obligations and immunities of the trustee as against the holders of such debt securities as stated in the indenture.

The accompanying prospectus supplement may further describe any provisions permitting or restricting defeasance or covenant defeasance with respect to the debt securities of a particular series.

S-17

Global Securities

Unless otherwise indicated in the applicable prospectus supplement, each debt security offered by this prospectus will be issued in the form of one or more global debt securities representing all or part of that series of debt securities. This means that we will not issue certificates for that series of debt securities to the holders. Instead, a global debt security representing that series will be deposited with, or on behalf of, a securities depository and registered in the name of the depository or a nominee of the depository. Any such depository must be a clearing agency registered under the Exchange Act. We will describe the specific terms of the depository arrangement with respect to a series of debt securities to be represented by a global security in the applicable prospectus supplement.

Notices

We will give notices to holders of the debt securities by mail at the addresses listed in the security register. In the case of notice in respect of unregistered securities or coupon securities, we may give notice by publication in a newspaper of general circulation in New York, New York.

Governing Law

The particular terms of a series of debt securities will be described in a prospectus supplement relating to such series of debt securities. Any indentures will be subject to and governed by the Trust Indenture Act of 1939, as amended, and may be supplemented or amended from time to time following their execution. Unless otherwise stated in the applicable prospectus supplement, we will not be limited in the amount of debt securities that we may issue, and neither the senior debt securities nor the subordinated debt securities will be secured by any of our property or assets. Thus, by owning debt securities, you are one of our unsecured creditors.

Regarding the Trustee

From time to time, we may maintain deposit accounts and conduct other banking transactions with the trustee to be appointed under the indenture or its affiliates in the ordinary course of business.

DESCRIPTION OF WARRANTS

We may offer to sell warrants from time to time. If we do so, we will describe the specific terms of the warrants in a prospectus supplement. In particular, we may issue warrants for the purchase of common stock, preferred stock and/or debt securities in one or more series. We may also issue warrants independently or together with other securities and the warrants may be attached to or separate from those securities.

We will evidence each series of warrants by warrant certificates that we will issue under a separate agreement. We will enter into the warrant agreement with a warrant agent. We will indicate the name and address of the warrant agent in the applicable prospectus supplement relating to a particular series of warrants.

We will describe in the applicable prospectus supplement the terms of the series of warrants, including:

- the offering price and aggregate number of warrants offered;
- the currency for which the warrants may be purchased;
- if applicable, the designation and terms of the securities with which the warrants are issued and the number of warrants issued with each such security or each principal amount of such security;
- if applicable, the date on and after which the warrants and the related securities will be separately transferable;
- in the case of warrants to purchase debt securities, the principal amount of debt securities purchasable upon exercise of one warrant and the price at, and currency in which, this principal amount of debt securities may be purchased upon such exercise;
- in the case of warrants to purchase common stock or preferred stock, the number of shares of common stock or preferred stock, as the case may be, purchasable upon the exercise of one warrant and the price at which these shares may be purchased upon such exercise;
- the effect of any merger, consolidation, sale or other disposition of our business on the warrant agreement and the warrants;

- the terms of any rights to redeem or call the warrants;
- any provisions for changes to or adjustments in the exercise price or number of securities issuable upon exercise of the warrants;
- the dates on which the right to exercise the warrants will commence and expire;
- the manner in which the warrant agreement and warrants may be modified;
- certain United States federal income tax consequences of holding or exercising the warrants;
- the terms of the securities issuable upon exercise of the warrants; and
- any other specific material terms, preferences, rights or limitations of or restrictions on the warrants.

S-18

Holders may exercise the warrants by delivering the warrant certificate representing the warrants to be exercised together with other requested information, and paying the required amount to the warrant agent in immediately available funds, as provided in the applicable prospectus supplement. We will set forth in the applicable prospectus supplement the information that the holder of the warrant will be required to deliver to the warrant agent.

Upon receipt of the required payment and the warrant certificate properly completed and duly executed at the office of the warrant agent or any other office indicated in the applicable prospectus supplement, we will issue and deliver the securities purchasable upon such exercise. If a holder exercises fewer than all of the warrants represented by the warrant certificate, then we will issue a new warrant certificate for the remaining amount of warrants.

Holder will not have any of the rights of the holders of the securities purchasable upon the exercise of warrants until you exercise them. Accordingly, holder will not be entitled to, among other things, vote or receive dividend payments or similar distributions on the securities you can purchase upon exercise of the warrants.

The information provided above is only a summary of the terms under which we may offer warrants for sale. Accordingly, investors must carefully review the applicable warrant agreement for more information about the specific terms and conditions of these warrants before investing in us. In addition, please carefully review the information provided in the applicable prospectus supplement, which contains additional information that is important for you to consider in evaluating an investment in our securities.

DESCRIPTION OF RIGHTS

We may issue rights to our stockholders to purchase shares of our common stock or preferred stock described in this prospectus. We may offer rights separately or together with one or more additional rights, preferred stock, common stock, warrants or any combination of those securities in the form of units, as described in the applicable prospectus supplement. Each series of rights will be issued under a separate rights agreement to be entered into between us and a bank or trust company, as rights agent. The rights agent for any rights we offer will be set forth in the applicable prospectus supplement. The rights agent will act solely as our agent in connection with the certificates relating to the rights of the series of certificates and will not assume any obligation or relationship of agency or trust for or with any holders of rights certificates or beneficial owners of rights. The following description sets forth certain general terms and provisions of the rights to which any prospectus supplement may relate. The particular terms of the rights to which any prospectus supplement may relate and the extent, if any, to which the general provisions may apply to the rights so offered will be described in the applicable prospectus supplement. To the extent that any particular terms of the rights, rights agreement or rights certificates described in a prospectus supplement differ from any of the terms described below, then the terms described below will be deemed to have been superseded by that prospectus supplement. We encourage you to read the applicable rights agreement and rights certificate for additional information before you decide whether to purchase any of our rights.

S-19

The prospectus supplement relating to any rights that we offer will include specific terms relating to the offering, including, among other matters:

- the date of determining the stockholders entitled to the rights distribution;
- the aggregate number of shares of common stock, preferred stock or other securities purchasable upon exercise of the rights;
- the exercise price;
- the aggregate number of rights issued;
- whether the rights are transferrable and the date, if any, on and after which the rights may be separately transferred;
- the date on which the right to exercise the rights will commence, and the date on which the right to exercise the rights will expire;
- the method by which holders of rights will be entitled to exercise;
- the conditions to the completion of the offering;
- the withdrawal, termination and cancellation rights;
- whether there are any backstop or standby purchaser or purchasers and the terms of their commitment;
- whether stockholders are entitled to oversubscription right;
- any U.S. federal income tax considerations; and
- any other terms of the rights, including terms, procedures and limitations relating to the distribution, exchange and exercise of the rights.

If less than all of the rights issued in any rights offering are exercised, we may offer any unsubscribed securities directly to persons other than stockholders, to or through agents, underwriters or dealers or through a combination of such methods, including pursuant to standby arrangements, as described in the applicable prospectus supplement. In connection with any rights offering, we may enter into a standby underwriting or other arrangement with one or more underwriters or other persons pursuant to which such underwriters or other persons would purchase any offered securities remaining unsubscribed for after such rights offering.

DESCRIPTION OF UNITS

We may issue units consisting of any combination of the other types of securities offered under this prospectus in one or more series. We may evidence each series of units by unit certificates that we will issue under a separate agreement. We may enter into unit agreements with a unit agent. We will indicate the name and address of the unit agent in the applicable prospectus supplement relating to a particular series of units.

The following description, together with the additional information included in any applicable prospectus supplement, summarizes the general features of the units that we may offer under this prospectus. You should read any prospectus supplement and any free writing prospectus that we may authorize to be provided to you related to the series of units being offered, as well as the complete unit agreements that contain the terms of the units. Specific unit agreements will contain additional important terms and provisions and we will file as an exhibit to the registration statement of which this prospectus is a part, or will incorporate by reference from another report that we file with the SEC, the form of each unit agreement relating to units offered under this prospectus.

S-20

If we offer any units, certain terms of that series of units will be described in the applicable prospectus supplement, including, without limitation, the following, as applicable:

- the title of the series of units;
- identification and description of the separate constituent securities comprising the units;
- the price or prices at which the units will be issued;
- the date, if any, on and after which the constituent securities comprising the units will be separately transferable;
- a discussion of certain United States federal income tax considerations applicable to the units; and
- any other terms of the units and their constituent securities.

PLAN OF DISTRIBUTION

We may sell our securities from time to time pursuant to underwritten public offerings, negotiated transactions, block trades or a combination of these methods or through underwriters or dealers, through agents and/or directly to one or more purchasers. Our securities may be distributed from time to time in one or more transactions:

- at a fixed price or prices, which may be changed;
- at market prices prevailing at the time of sale;
- at prices related to such prevailing market prices; or
- at negotiated prices.

Each time that we sell securities covered by this prospectus, we will provide a prospectus supplement or supplements that will describe the method of distribution and set forth the terms and conditions of the offering of such securities, including the offering price of the securities and the proceeds to us, if applicable.

Offers to purchase the securities being offered by this prospectus may be solicited directly. Agents may also be designated to solicit offers to purchase the securities from time to time. Any agent involved in the offer or sale of our securities will be identified in a prospectus supplement.

If a dealer is utilized in the sale of the securities being offered by this prospectus, the securities will be sold to the dealer, as principal. The dealer may then resell the securities to the public at varying prices to be determined by the dealer at the time of resale.

If an underwriter is utilized in the sale of the securities being offered by this prospectus, an underwriting agreement will be executed with the underwriter at the time of sale and the name of any underwriter will be provided in the prospectus supplement that the underwriter will use to make resales of the securities to the public. In connection with the sale of the securities, we or the purchasers of securities for whom the underwriter may act as agent, may compensate the underwriter in the form of underwriting discounts or commissions. The underwriter may sell the securities to or through dealers, and those dealers may receive compensation in the form of discounts, concessions or commissions from the underwriters and/or commissions from the purchasers for which they may act as agent. Unless otherwise indicated in a prospectus supplement, an agent will be acting on a best efforts basis and a dealer will purchase securities as a principal, and may then resell the securities at varying prices to be determined by the dealer.

S-21

Any compensation paid to underwriters, dealers or agents in connection with the offering of the securities, and any discounts, concessions or commissions allowed by underwriters to participating dealers will be provided in the applicable prospectus supplement. Underwriters, dealers and agents participating in the distribution of the securities may be deemed to be underwriters within the meaning of the Securities Act of 1933, as amended, and any discounts and commissions received by them and any profit realized by them on resale of the securities may be deemed to be underwriting discounts and commissions. We may enter into agreements to indemnify underwriters, dealers and agents against civil liabilities, including liabilities under the Securities Act, or to contribute to payments they may be required to make in respect thereof and to reimburse those persons for certain expenses.

Any common stock will be listed on the Nasdaq Capital Market, but any other securities may or may not be listed on a national securities exchange. To facilitate the offering of securities, certain persons participating in the offering may engage in transactions that stabilize, maintain or otherwise affect the price of the securities. This may include over-allotments or short sales of the securities, which involve the sale by persons participating in the offering of more securities than were sold to them. In these circumstances, these persons would cover such over-allotments or short positions by making purchases in the open market or by exercising their over-allotment option, if any. In addition, these persons may stabilize or maintain the price of the securities by bidding for or purchasing securities in the open market or by imposing penalty bids, whereby selling concessions allowed to dealers participating in the offering may be reclaimed if securities sold by them are repurchased in connection with stabilization transactions. The effect of these transactions may be to stabilize or maintain the market price of the securities at a level above that which might otherwise prevail in the open market. These transactions may be discontinued at any time.

We may engage in at the market offerings into an existing trading market in accordance with Rule 415(a)(4) under the Securities Act.

In addition, we may enter into derivative transactions with third parties, or sell securities not covered by this prospectus to third parties in privately negotiated transactions. If the applicable prospectus supplement so indicates, in connection with those derivatives, the third parties may sell securities covered by this prospectus and the applicable prospectus supplement, including in short sale transactions. If so, the third party may use securities pledged by us or borrowed from us or others to settle those sales or to close out any related open borrowings of stock, and may use securities received from us in settlement of those derivatives to close out any related open borrowings of stock. The third party in such sale transactions will be an underwriter and, if not identified in this prospectus, will be named in the applicable prospectus supplement (or a post-effective amendment). In addition, we may otherwise loan or pledge securities to a financial institution or other third party that in turn may sell the securities short using this prospectus and an applicable prospectus supplement. Such financial institution or other third party may transfer its economic short position to investors in our securities or in connection with a concurrent offering of other securities.

We do not make any representation or prediction as to the direction or magnitude of any effect that the transactions described above might have on the price of the securities. In addition, we do not make any representation that underwriters will engage in such transactions or that such transactions, once commenced, will not be discontinued without notice.

The specific terms of any lock-up provisions in respect of any given offering will be described in the applicable prospectus supplement.

To comply with applicable state securities laws, the securities offered by this prospectus will be sold, if necessary, in such jurisdictions only through registered or licensed brokers or dealers. In addition, securities may not be sold in some states unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and is complied with.

The underwriters, dealers and agents may engage in transactions with us, or perform services for us, in the ordinary course of business for which they receive compensation.

S-22

LEGAL MATTERS

Lucosky Brookman LLP will pass upon certain legal matters relating to the issuance and sale of the securities offered hereby on behalf of HeartBeam, Inc. Additional legal matters may be passed upon for us or any underwriters, dealers or agents, by counsel that we will name in the applicable prospectus supplement.

EXPERTS

The financial statements of HeartBeam, Inc. as of December 31, 2021 and 2020, and for each of the years in the two year period ended December 31, 2021, incorporated by reference in this Registration Statement, have been included in reliance upon the reports of Friedman LLP, an independent registered public accounting firm, appearing elsewhere herein, and upon the authority of said firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

The SEC maintains a web site that contains reports, proxy and information statements and other information about issuers, such as us, who file electronically with the SEC. The address of that website is <http://www.sec.gov>.

Our website address is <https://www.heartbeam.com>. The information on our website, however, is not, and should not be deemed to be, a part of this prospectus.

This prospectus and any prospectus supplement are part of a registration statement that we filed with the SEC and do not contain all of the information in the registration statement. The full registration statement may be obtained from the SEC or us, as provided below. Forms of the documents establishing the terms of the offered securities are or may be filed as exhibits to the registration statement. Statements in this prospectus or any prospectus supplement about these documents are summaries and each statement is qualified in all respects by reference to the document to which it refers. You should refer to the actual documents for a more complete description of the relevant matters. You may inspect a copy of the registration statement through the SEC's website, as provided above.

S-23

INCORPORATION BY REFERENCE

The SEC's rules allow us to "incorporate by reference" information into this prospectus, which means that we can disclose important information to you by referring you to another document filed separately with the SEC. The information incorporated by reference is deemed to be part of this prospectus, and subsequent information that we file with the SEC will automatically update and supersede that information. Any statement contained in a previously filed document incorporated by reference will be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus modifies or replaces that statement.

We incorporate by reference our documents listed below and any future filings made by us with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, which we refer to as the "Exchange Act" in this prospectus, between the date of this prospectus and the termination of the offering of the securities described in this prospectus. We are not, however, incorporating by reference any documents or portions thereof, whether specifically listed below or filed in the future, that are not deemed "filed" with the SEC, including any information furnished pursuant to Items 2.02 or 7.01 of Form 8-K or related exhibits furnished pursuant to Item 9.01 of Form 8-K.

This prospectus and any accompanying prospectus supplement incorporate by reference the documents set forth below that have previously been filed with the SEC:

- Our Annual Report on [Form 10-K](#) for the year ended December 31, 2021, filed with the SEC on March 24, 2022.
- Our Quarterly Report on Form 10-Q for the quarter ended [March 31, 2022](#), [June 30, 2022](#) and [September 30](#), filed with the SEC on May 12, 2022, August 11, 2022 and November 10, 2022 respectively.
- Our Current Reports on Form 8-K filed with the SEC on [February 2, 2022](#), [February 22, 2022](#), [March 10, 2022](#), [June 16, 2022](#), [August 8, 2022](#), [August 12, 2022](#), [September 21, 2022](#), [November 17, 2022](#) and [January 24, 2023](#).
- The information specifically incorporated by reference into our Annual Report on Form 10-K for the year ended December 31, 2021 from our definitive [proxy statement](#) for the annual meeting of stockholders held on June 15, 2022, filed with the SEC on May 2, 2022.
- Our [proxy statement](#) for the special meeting of stockholders was held on November 14, 2022, filed with the SEC on October 11, 2022.
- The description of our securities contained in our Registration Statement on [Form 8-A](#) filed with the SEC on November 10, 2021, including any amendment or report filed for the purpose of updating such description.

All reports and other documents we subsequently file pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the termination of this offering, including all such documents we may file with the SEC after the date of the initial registration statement and prior to the effectiveness of the registration statement, but excluding any information furnished to, rather than filed with, the SEC, will also be incorporated by reference into this prospectus and deemed to be part of this prospectus from the date of the filing of such reports and documents.

You may request a free copy of any of the documents incorporated by reference in this prospectus (other than exhibits, unless they are specifically incorporated by reference in the documents) by writing or telephoning us at the following address:

Branislav Vajdic
Chief Executive Officer
2118 Walsh Avenue, Suite 210
Santa Clara, CA 95050
Telephone: 408-899-4443

Exhibits to the filings will not be sent, however, unless those exhibits have specifically been incorporated by reference in this prospectus and any accompanying prospectus supplement.

S-24

The information contained in this preliminary prospectus is not complete and may be changed. These securities may not be sold until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell these securities and is not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

PROSPECTUS (Subject to Completion)

Dated , 2023

\$13,000,000



Common Stock

On February 1, 2023, we entered into a certain Sales Agreement (the “Sales Agreement”), with A.G.P. / Alliance Global Partners (“A.G.P.”), relating to shares of our common stock offered by this prospectus. In accordance with the terms of the Sales Agreement, we may offer and sell shares of our common stock having an aggregate offering price of up to \$13,000,000 from time to time through A.G.P.

Our common stock and warrants are listed on The NASDAQ Capital Market under the symbol “BEAT” and “BEATW”, respectively. On February 1, 2023, the last reported sale price of our common stock was \$3.83 per share.

Sales of our common stock, if any, under this prospectus may be made in sales deemed to be “at the market offerings” as defined in Rule 415 promulgated under the Securities Act of 1933, as amended (the “Securities Act”). If authorized by us in writing, A.G.P. may also sell shares of our common stock in negotiated transactions at market prices prevailing at the time of sale or at prices related to such prevailing market prices. A.G.P. is not required to sell any specific number or dollar amount of securities but will act as a sales agent using commercially reasonable efforts consistent with its normal trading and sales practices, on mutually agreed terms between A.G.P. and us. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

The compensation to A.G.P. for sales of common stock sold pursuant to the Sales Agreement will be equal to 3% of the gross proceeds of any shares of common stock sold under the Sales Agreement. In connection with the sale of the common stock on our behalf, A.G.P. will be deemed to be an “underwriter” within the meaning of the Securities Act and the compensation of A.G.P. will be deemed to be underwriting commissions or discounts. We have also agreed to provide indemnification and contribution to A.G.P. with respect to certain liabilities, including liabilities under the Securities Act or the Exchange Act of 1934, as amended (the “Exchange Act”).

Investing in our common stock involves risks. See “Risk Factors” beginning on page 3 of this prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

A.G.P.

_____, 2023

TABLE OF CONTENTS

ABOUT THIS PROSPECTUS	ii
PROSPECTUS SUMMARY	1
RISK FACTORS	3
SPECIAL NOTE REGARDING FORWARD LOOKING STATEMENTS	4
USE OF PROCEEDS	5
MARKET PRICE OF OUR COMMON STOCK	5
DIVIDEND POLICY	5
PLAN OF DISTRIBUTION	5
LEGAL MATTERS	6
EXPERTS	6
INCORPORATION BY REFERENCE	7

ABOUT THIS PROSPECTUS

This prospectus relates to the offering of our common stock. Before buying any of the common stock that we are offering, we urge you to carefully read this prospectus, together with the accompanying base prospectus and the information incorporated by reference as described under the headings “Where You Can Find More Information” and “Incorporation of Certain Information by Reference” in this prospectus, and any free writing prospectus or prospectus supplement that we have authorized for use in connection with this offering. These documents contain important information that you should consider when making your investment decision.

This prospectus describes the terms of this offering of common stock and also adds to and updates information contained in the documents incorporated by reference into this prospectus. To the extent there is a conflict between the information contained in this prospectus, on the one hand, and the information contained in any document incorporated by reference into this prospectus that was filed with the Securities and Exchange Commission (the “SEC”), before the date of this prospectus, on the other hand, you should rely on the information in this prospectus. If any statement in one of these documents is inconsistent with a statement in another document having a later date — for example, a document incorporated by reference into this prospectus — the statement in the document having the later date modifies or supersedes the earlier statement.

We have not, and the sales agent has not, authorized anyone to provide you with information different than that contained or incorporated by reference in this prospectus and any free writing prospectus or prospectus supplement that we have authorized for use in connection with this offering. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. You should assume that the information appearing in this prospectus, the documents incorporated by reference herein, and in any free writing prospectus or prospectus supplement that we have authorized for use in connection with this offering is accurate only as of the date of those respective documents. Our business, financial condition, results of operations and prospects may have changed since those dates. You should read this prospectus, the documents incorporated by reference herein, and any free writing prospectus or prospectus supplement that we have authorized for use in connection with this offering in their entirety before making an investment decision.

We are offering to sell, and are seeking offers to buy, the shares only in jurisdictions where such offers and sales are permitted. The distribution of this prospectus and the offering of the shares in certain jurisdictions or to certain persons within such jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus must inform themselves about and observe any restrictions relating to the offering of the shares and the distribution of this prospectus outside the United States. This prospectus does not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

When we refer to “BEAT,” “we,” “our,” “us” and the “Company” in this prospectus, we mean HeartBeam, Inc., unless otherwise specified. When we refer to “you,” we mean the holders of the applicable series of securities.

INCORPORATION OF DOCUMENTS BY REFERENCE

The SEC’s rules allow us to “incorporate by reference” information into this prospectus, which means that we can disclose important information to you by referring you to another document filed separately with the SEC. The information incorporated by reference is deemed to be part of this prospectus, and subsequent information that we file with the SEC will automatically update and supersede that information. Any statement contained in a previously filed document incorporated by reference will be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus modifies or replaces that statement.

We incorporate by reference our documents listed below and any future filings made by us with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, which we refer to as the “Exchange Act” in this prospectus, between the date of this prospectus and the termination of the offering of the securities described in this prospectus. We are not, however, incorporating by reference any documents or portions thereof, whether specifically listed below or filed in the future, that are not deemed “filed” with the SEC, including any information furnished pursuant to Items 2.02 or 7.01 of Form 8-K or related exhibits furnished pursuant to Item 9.01 of Form 8-K.

- Our Annual Report on [Form 10-K](#) for the year ended December 31, 2021, filed with the SEC on March 24, 2022.
- Our Quarterly Report on Form 10-Q for the quarter ended [March 31, 2022](#), [June 30, 2022](#) and [September 30](#), filed with the SEC on May 12, 2022, August 11, 2022 and November 10, 2022 respectively.
- Our Current Reports on Form 8-K filed with the SEC on [February 2, 2022](#), [February 22, 2022](#), [March 10, 2022](#), [June 16, 2022](#), [August 8, 2022](#), [August 12, 2022](#), [September 21, 2022](#), [November 17, 2022](#) and [January 24, 2023](#).
- The information specifically incorporated by reference into our Annual Report on Form 10-K for the year ended December 31, 2021 from our definitive [proxy statement](#) for the annual meeting of stockholders held on June 15, 2022, filed with the SEC on May 2, 2022.
- Our [proxy statement](#) for the special meeting of stockholders was held on November 14, 2022, filed with the SEC on October 11, 2022.
- The description of our securities contained in our Registration Statement on [Form 8-A](#) filed with the SEC on November 10, 2021, including any amendment or report filed for the purpose of updating such description.

All reports and other documents we subsequently file pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the termination of this offering, including all such documents we may file with the SEC after the date of the initial registration statement and prior to the effectiveness of the registration statement, but excluding any information furnished to, rather than filed with, the SEC, will also be incorporated by reference into this prospectus and deemed to be part of this prospectus from the date of the filing of such reports and documents.

You may request a free copy of any of the documents incorporated by reference in this prospectus (other than exhibits, unless they are specifically incorporated by reference in the documents) by writing or telephoning us at the following address:

Branislav Vajdic
Chief Executive Officer
2118 Walsh Avenue, Suite 210
Santa Clara, CA 95050
Telephone: 408-899-4443

Exhibits to the filings will not be sent, however, unless those exhibits have specifically been incorporated by reference in this prospectus and any accompanying prospectus supplement.

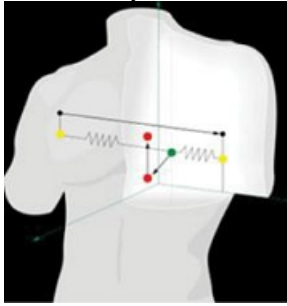
PROSPECTUS SUMMARY

The following summary is qualified in its entirety by, and should be read together with, the more detailed information and financial statements and related notes thereto appearing elsewhere or incorporated by reference in this prospectus. Before you decide to invest in our securities, you should read the entire prospectus carefully, including the risk factors and the financial statements and related notes included or incorporated by reference in this prospectus.

Unless otherwise indicated or unless the context requires otherwise, this prospectus includes the accounts of HeartBeam, Inc., a Delaware corporation and its wholly-owned subsidiaries, collectively referred to as “we”, “us”, “our”, “HeartBeam” or the “Company”.

Overview

We are a medical technology company primarily focusing on developing and commercializing higher resolution ambulatory Electrocardiogram (“ECG”) solutions that enable the detection and monitoring of cardiac disease outside a healthcare facility setting. Our ability to develop higher resolution ECG solutions is achieved through the development of our proprietary and patented Vector Electrocardiography (“VECG”) technology platform. Our vector electrocardiography technology is capable of developing three-dimensional (3D) images of cardiac electrical activity by displaying the spatial locations of ECG waveforms that has demonstrated in early studies to deliver equal or superior diagnostic capability than traditional hospital based ECG systems.



3D projections of cardiac vectors

Our aim is to deliver innovative, remote patient monitoring (“RPM”) technologies that can be used for patients anywhere where critical cardiac care decisions can be made on a more timely basis. Our products require Food and Drug Administration (“FDA”) clearance and have not been cleared for marketing (hereinafter “Product” or “Products”).

We believe our Products and services will benefit many stakeholders, including patients, healthcare providers, and healthcare payors. We are developing Generation 1 of our telehealth product (“HeartBeam AIMIGoTM”) to address the rapidly growing field of RPM. HeartBeam AIMIGo is comprised of a credit card sized electrocardiogram device and a powerful cloud-based diagnostic expert software system. We believe that we are uniquely positioned to play a central role in remote monitoring of high-risk coronary artery disease patients, because the initial studies have shown that our ischemia detection system may be more accurate than existing RPM solutions.



Photographs of version 1 HeartBeam AIMIGo devices in planer and ready to use position.

We are also applying our software platform to create a tool for detecting heart attacks in the emergency room environment using traditional ECG devices. The software tool, (“HeartBeam AIMITM”) is designed to enable emergency physicians to more accurately and quickly diagnose heart attacks than currently available. Market release of this Product will precede that of HeartBeam AIMIGo.

To date, we have developed working prototypes for both HeartBeam AIMIGo and HeartBeam AIMI. HeartBeam AIMI has been submitted for FDA 510(k) clearance and we have received questions from the FDA within the statutory 30-day review deadline, discussed the questions via teleconference with the FDA review team and provided written responses addressing the questions to the primary reviewer. We believe we are on track for FDA clearance this quarter.

The custom software and hardware of our Products, we believe, are classified as Class II medical devices by the FDA, running on an FDA approved Class I registered platform. Class II medical devices are those for which general controls alone are insufficient to provide reasonable assurance of safety and effectiveness and there is sufficient information to establish special controls. Special controls can include performance standards, post-market surveillance, patient histories and FDA guidance documents. Premarket review and clearance by the FDA for these devices is generally accomplished through the 510(k) or 510(k) de-novo premarket notification process.

Corporate Information

HeartBeam was incorporated as a C corporation under the laws of the State of Delaware on June 11, 2015. We do not own any subsidiaries. Our corporate offices are located at 2118 Walsh Avenue, Suite 210, Santa Clara, CA 95050. Our telephone number is (408) 899-4443. The address of our website is [https:// www.heartbeam/](https://www.heartbeam/). The inclusion of our website address in this prospectus does not include or incorporate by reference the information on our website into this prospectus.

The Offering

Common stock offered by us:

Shares of our common stock having an aggregate offering price of up to \$13,000,000.

Common stock to be outstanding after this offering

Up to 3,394,256 shares, assuming sales at a price of \$3.83 per share, which was the closing price of our common stock on The Nasdaq Capital Market on February 1, 2023. The actual number of shares issued will vary depending on the sales price under this offering.

Manner of offering:

“At the market offering” that may be made from time to time through our sales agent, A.G.P. See “Plan of Distribution” on page 5.

Use of proceeds:

We intend to use the net proceeds, if any, from this offering, for working capital and general corporate purposes. See “Use of Proceeds” on page 5.

Risk Factors:

Investing in our common stock involves significant risks. See “Risk Factors” beginning on page 3 of this prospectus and other information included or incorporated by reference into this prospectus for a discussion of factors you should carefully consider before investing in our securities.

NASDAQ Global Market trading symbol:

BEAT

RISK FACTORS

Investment in any securities offered pursuant to this prospectus and the applicable prospectus supplement involves risks. You should carefully consider the risk factors incorporated by reference to our most recent Annual Report on Form 10-K and any subsequent Quarterly Reports on Form 10-Q or Current Reports on Form 8-K we file after the date of this prospectus, and all other information contained or incorporated by reference into this prospectus, as updated by our subsequent filings under the Exchange Act, and the risk factors and other information contained in the applicable prospectus supplement before acquiring any of such securities. The occurrence of any of these risks might cause you to lose all or part of your investment in the offered securities.

Risks Relating to this Offering

We may allocate the net proceeds from this offering in ways that you or other stockholders may not approve.

We currently intend to use the net proceeds of this offering, if any, for working capital and general corporate purposes, which may include capital expenditures, research and development expenditures, regulatory affairs expenditures, clinical trial expenditures, acquisitions of new technologies and investments, and the financing of possible acquisitions or business expansions. This expected use of the net proceeds from this offering represents our intentions based upon our current plans and business conditions. The amounts and timing of our actual expenditures may vary significantly depending on numerous factors, including the progress of our development efforts, the status of and results from clinical trials, as well as any third-party intellectual property or other assets that we may opportunistically identify and seek to license or acquire or any collaborations that we may enter into with third parties for our product candidates, and any unforeseen cash needs. Because the number and variability of factors that will determine our use of the proceeds from this offering, their ultimate use may vary substantially from their currently intended use. As a result, our management will retain broad discretion over the allocation of the net proceeds from this offering and could spend the proceeds in ways that do not necessarily improve our operating results or enhance the value of our common stock. See "Use of Proceeds.

Sales of our common stock in this offering, or the perception that such sales may occur, could cause a drop in the market price of our common stock.

We may issue and sell shares of our common stock for aggregate gross proceeds of up to \$13 million from time to time in connection with this offering. The issuance and sale from time to time of these new shares of common stock, or our ability to issue these new shares of common stock in this offering could have the effect of depressing the market price of our common stock.

The actual number of shares we will issue under the Sales Agreement, at any one time or in total, is uncertain.

Subject to certain limitations in the Sales Agreement and compliance with applicable law, we have the discretion to deliver instruction to our sales agent, A.G.P., to sell shares of our common stock at any time throughout the term of the Sales Agreement. The number of shares that are sold through the sales agent after our instruction will fluctuate based on a number of factors, including the market price of our common stock during the sales period, the limits we set with the sales agent in any instruction to sell shares, and the demand for our common stock during the sales period. Because the price per share of each share sold will fluctuate during this offering, it is not currently possible to predict the number of shares that will be sold or the gross proceeds to be raised in connection with those sales.

The common stock offered hereby will be sold in “at the market offerings,” and investors who buy shares at different times will likely pay different prices.

Investors who purchase shares in this offering at different times will likely pay different prices, and so may experience different levels of dilution, and different outcomes in their investment results. We will have discretion, subject to market demand, to vary the timing, prices, and numbers of shares sold in this offering. Investors may experience a decline in the value of the shares they purchase in this offering as a result of sales made at prices lower than the prices they paid.

We may sell additional shares of our common stock to fund our operations, which sales may occur during or immediately after sales pursuant to this offering are commenced, which would result in dilution to our shareholders.

In order to raise additional funds to support our operations, we may sell additional shares of our common stock, which would result in dilution to all of our shareholders that may adversely impact our business. See “Dilution.” In particular, at any time, including during the pendency of this offering, we may sell additional shares of our common stock, other than pursuant to this offering, in amounts that may be material to us, which may be in amounts that are equal to or greater than the size of this offering, including, without limitation, through underwritten public offerings, privately negotiated transactions, block trades, or any combination of the above, subject, in certain circumstances, to the consent of the Agent. We cannot assure you that we will be able to sell shares or other securities in any other offering at a price per share that is equal to or greater than the price per share paid by investors in this offering, and investors purchasing shares or other securities in the future could have rights superior to existing shareholders. The price per share at which we sell additional shares of our common stock or other securities convertible into or exchangeable for our common stock in future transactions may be higher or lower than the price per share in this offering.

SPECIAL NOTICE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements that involve risks and uncertainties, principally in the sections entitled “Risk Factors.” All statements other than statements of historical fact contained in this prospectus, including statements regarding future events, our future financial performance, business strategy and plans and objectives of management for future operations, are forward-looking statements. We have attempted to identify forward-looking statements by terminology including “anticipates,” “believes,” “can,” “continue,” “could,” “estimates,” “expects,” “intends,” “may,” “plans,” “potential,” “predicts,” “should,” or “will” or the negative of these terms or other comparable terminology. Although we do not make forward looking statements unless we believe we have a reasonable basis for doing so, we cannot guarantee their accuracy. These statements are only predictions and involve known and unknown risks, uncertainties and other factors, including the risks outlined under “Risk Factors” or elsewhere in this prospectus, which may cause our or our industry’s actual results, levels of activity, performance or achievements expressed or implied by these forward-looking statements.

Forward-looking statements should not be read as a guarantee of future performance or results, and will not necessarily be accurate indications of the times at, or by which, that performance or those results will be achieved. Forward-looking statements are based on information available at the time they are made and/or management’s good faith belief as of that time with respect to future events, and are subject to risks and uncertainties that could cause actual performance or results to differ materially from what is expressed

in or suggested by the forward-looking statements.

Forward-looking statements speak only as of the date they are made. You should not put undue reliance on any forward-looking statements. We assume no obligation to update forward-looking statements to reflect actual results, changes in assumptions or changes in other factors affecting forward-looking information, except to the extent required by applicable securities laws. If we do update one or more forward-looking statements, no inference should be drawn that we will make additional updates with respect to those or other forward-looking statements.

USE OF PROCEEDS

We currently intend to use the net proceeds from this offering, if any, for working capital and general corporate purposes.

The timing and amount of our actual expenditures will be based on many factors, including cash flows from operations and the anticipated growth of our business. As of the date of this prospectus, we cannot specify with certainty all of the particular uses for the net proceeds to us from this offering. As a result, our management will have broad discretion regarding the timing and application of the net proceeds from this offering. Pending their ultimate use, we intend to invest the net proceeds in short-term, investment-grade, interest-bearing instruments.

MARKET PRICE OF OUR COMMON STOCK

Our common stock is presently listed on The NASDAQ Global Market under the symbol "BEAT". On February 1, 2023, the last reported sale price of our common stock was \$3.83.

Holders

As of January 21, 2023 we had 50 registered holders of record of our common stock. A substantially greater number of holders of our common stock are "street name" or beneficial holders, whose shares of record are held through banks, brokers, other financial institutions and registered clearing agencies.

DIVIDEND POLICY

We have never declared or paid cash dividends on our capital stock. We currently intend to retain our future earnings, if any, for use in our business and therefore do not anticipate paying cash dividends in the foreseeable future. Payment of future dividends, if any, will be at the discretion of our board of directors after taking into account various factors, including our financial condition, operating results, current and anticipated cash needs and plans for expansion.

PLAN OF DISTRIBUTION

We have entered into the Sales Agreement with A.G.P. under which we may issue and sell shares of our common stock from time to time up to \$13,000,000 to or through A.G.P., acting as our sales agent. The sales of our common stock, if any, under this prospectus supplement will be made at market prices by any method deemed to be an "at the market offering" as defined in Rule 415(a)(4) under the Securities Act, including sales made directly on The NASDAQ Global Market, on any other existing trading market for our common stock or to or through a market maker.

Each time that we wish to issue and sell shares of our common stock under the Sales Agreement, we will provide A.G.P. with a placement notice describing the amount of shares to be sold, the time period during which sales are requested to be made, any limitation on the amount of shares of common stock that may be sold in any single day, any minimum price below which sales may not be made or any minimum price requested for sales in a given time period and any other instructions relevant to such requested sales. Upon receipt of a placement notice, A.G.P., acting as our sales agent, will use commercially reasonable efforts, consistent with its normal trading and sales practices and applicable state and federal laws, rules and regulations and the rules of The NASDAQ Global Market, to sell shares of our common stock under the terms and subject to the conditions of the placement notice and the Sales Agreement. We or A.G.P. may suspend the offering of common stock pursuant to a placement notice upon notice and subject to other conditions.

Settlement for sales of common stock, unless the parties agree otherwise, will occur on the second trading day following the date on which any sales are made in return for payment of the net proceeds to us. There are no arrangements to place any of the proceeds of this offering in an escrow, trust or similar account. Sales of our common stock as contemplated in this prospectus supplement will be settled through the facilities of The Depository Trust Company or by such other means as we and A.G.P. may agree upon.

We will pay A.G.P. commissions for its services in acting as our sales agent in the sale of our common stock pursuant to the Sales Agreement. A.G.P. will be entitled to compensation at a fixed commission rate of 3% of the gross proceeds from the sale of our common stock on our behalf pursuant to the Sales Agreement. We have also agreed to reimburse A.G.P. for its reasonable and documented out-of-pocket expenses (including but not limited to the reasonable and documented fees and expenses of its legal counsel) in an amount not to exceed \$50,000 and up to an additional \$10,000 per fiscal year for maintenance.

We estimate that the total expenses for this offering, excluding compensation payable to A.G.P. and certain expenses reimbursable to A.G.P. under the terms of the Sales Agreement, cannot be estimated at this time, as the fees are based on the securities offered and the number of issuances. The remaining sales proceeds, after deducting any expenses payable by us and any transaction fees imposed by any governmental, regulatory, or self-regulatory organization in connection with the sales, will equal our net proceeds for the sale of such common stock.

Because there are no minimum sale requirements as a condition to this offering, the actual total public offering price, commissions and net proceeds to us, if any, are not determinable at this time. The actual dollar amount and number of shares of common stock we sell through this prospectus supplement will be dependent, among other things, on market conditions and our capital raising requirements.

We will report at least quarterly the number of shares of common stock sold through A.G.P. under the Sales Agreement, the net proceeds to us and the compensation paid by us to A.G.P. in connection with the sales of common stock under the Sales Agreement.

In connection with the sale of the common stock on our behalf, A.G.P. will be deemed to be an "underwriter" within the meaning of the Securities Act, and the compensation of A.G.P. will be deemed to be underwriting commissions or discounts. We have agreed to provide indemnification and contribution to A.G.P. against certain civil liabilities, including liabilities under the Securities Act.

A.G.P. will not engage in any market making activities involving our common stock while the offering is ongoing under this prospectus supplement if such activity would be

prohibited under Regulation M or other anti-manipulation rules under the Securities Act. As our sales agent, A.G.P. will not engage in any transactions that stabilizes our common stock.

The offering pursuant to the Sales Agreement will terminate upon the earlier of (i) the sale of all shares of common stock subject to the Sales Agreement and (ii) termination of the Sales Agreement as permitted therein. We may terminate the Sales Agreement in our sole discretion at any time by giving 5 (five) days' prior notice to A.G.P. A.G.P. may terminate the Sales Agreement under the circumstances specified in the Sales Agreement and in its sole discretion at any time by giving 5 (five) days' prior notice to us.

A.G.P. and/or its affiliates have provided, and may in the future provide, various investment banking and other financial services for us, for which services they have received and may in the future receive customary fees.

This prospectus supplement in electronic format may be made available on a website maintained by A.G.P., and A.G.P. may distribute this prospectus supplement electronically.

LEGAL MATTERS

Lucosky Brookman LLP will pass upon certain legal matters relating to the issuance and sale of the securities offered hereby on behalf of HeartBeam, Inc. Additional legal matters may be passed upon for us or any underwriters, dealers or agents, by counsel that we will name in the applicable prospectus supplement.

EXPERTS

The financial statements of HeartBeam, Inc. as of December 31, 2021 and 2020, and for each of the years in the two year period ended December 31, 2021, incorporated by reference in this Registration Statement, have been included in reliance upon the reports of Friedman LLP, an independent registered public accounting firm, appearing elsewhere herein, and upon the authority of said firm as experts in accounting and auditing.

6

INCORPORATION OF DOCUMENTS BY REFERENCE

The SEC's rules allow us to "incorporate by reference" information into this prospectus, which means that we can disclose important information to you by referring you to another document filed separately with the SEC. The information incorporated by reference is deemed to be part of this prospectus, and subsequent information that we file with the SEC will automatically update and supersede that information. Any statement contained in a previously filed document incorporated by reference will be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus modifies or replaces that statement.

We incorporate by reference our documents listed below and any future filings made by us with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, which we refer to as the "Exchange Act" in this prospectus, between the date of this prospectus and the termination of the offering of the securities described in this prospectus. We are not, however, incorporating by reference any documents or portions thereof, whether specifically listed below or filed in the future, that are not deemed "filed" with the SEC, including any information furnished pursuant to Items 2.02 or 7.01 of Form 8-K or related exhibits furnished pursuant to Item 9.01 of Form 8-K.

- Our Annual Report on [Form 10-K](#) for the year ended December 31, 2021, filed with the SEC on March 24, 2022.
- Our Quarterly Report on Form 10-Q for the quarter ended [March 31, 2022](#), [June 30, 2022](#) and [September 30](#), filed with the SEC on May 12, 2022, August 11, 2022 and November 10, 2022 respectively.
- Our Current Reports on Form 8-K filed with the SEC on [February 2, 2022](#), [February 22, 2022](#), [March 10, 2022](#), [June 16, 2022](#), [August 8, 2022](#), [August 12, 2022](#), [September 21, 2022](#), [November 17, 2022](#) and [January 24, 2023](#).
- The information specifically incorporated by reference into our Annual Report on Form 10-K for the year ended December 31, 2021 from our definitive [proxy statement](#) for the annual meeting of stockholders held on June 15, 2022, filed with the SEC on May 2, 2022.
- Our [proxy statement](#) for the special meeting of stockholders was held on November 14, 2022, filed with the SEC on October 11, 2022.
- The description of our securities contained in our Registration Statement on [Form 8-A](#) filed with the SEC on November 10, 2021, including any amendment or report filed for the purpose of updating such description.

All reports and other documents we subsequently file pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the termination of this offering, including all such documents we may file with the SEC after the date of the initial registration statement and prior to the effectiveness of the registration statement, but excluding any information furnished to, rather than filed with, the SEC, will also be incorporated by reference into this prospectus and deemed to be part of this prospectus from the date of the filing of such reports and documents.

You may request a free copy of any of the documents incorporated by reference in this prospectus (other than exhibits, unless they are specifically incorporated by reference in the documents) by writing or telephoning us at the following address:

Branislav Vajdic
Chief Executive Officer
2118 Walsh Avenue, Suite 210
Santa Clara, CA 95050
Telephone: 408-899-4443

Exhibits to the filings will not be sent, however, unless those exhibits have specifically been incorporated by reference in this prospectus and any accompanying prospectus supplement.

7

\$13,000,000



Common Stock

PROSPECTUS

A.G.P.

_____, 2023

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution

The following is an estimate of the expenses (all of which are to be paid by the registrant) that we may incur in connection with the securities being registered hereby.

SEC registration fee	\$	11,020
FINRA filing fee		*
Printing expenses		*
Legal fees and expenses		*
Accounting fees and expenses		*
Blue Sky, qualification fees and expenses		*
Transfer agent fees and expenses		*
Trustee fees and expenses		*
Warrant agent fees and expenses		*
Miscellaneous		*
Total	\$	*

* These fees are calculated based on the securities offered and the number of issuances and accordingly cannot be estimated at this time.

Item 15. Indemnification of Directors and Officers

Our Certificate of Incorporation and our Bylaws provide for indemnification of our directors and officers. Our Bylaws provide that we will indemnify any person who was or is a party or threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative (other than an action by or in the right of the corporation) by reason of the fact that such person is or was a director or officer of the corporation, against expenses (including attorney's fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the Company, and with respect to any criminal action or proceeding, had no reasonable cause to believe such person's conduct was unlawful. The termination of any action, suit or proceeding by judgment, order, settlement, conviction, or upon a plea of nolo contendere or its equivalent will not, without more, create a presumption that the person did not act in good faith and in a manner which such person reasonably believed to be in or not opposed to the best interest of the corporation, and, with respect to any criminal action or proceeding, had reasonable cause to believe that his conduct was unlawful. The Company may by action of its Board of Directors, grant rights to indemnification and advancement of expenses to employees and agents of the Company with the same scope and effects as the indemnification provisions for officers and directors.

Item 16. Exhibits

(a) Exhibits

A list of exhibits filed with this registration statement on Form S-3 is set forth on the Exhibit Index below.

Exhibit No.	Exhibit Description
1.01*	Sales Agreement, dated February 1, 2023, by and between HeartBeam Inc. and A.G.P. / Alliance Global Partners
4.1*	Form of Indenture relating to the issuance from time to time in one or more series of debentures, notes, bonds or other evidences of indebtedness
5.1*	Opinion of Lucosky Brookman LLP
23.1*	Consent of Friedman LLP.
23.2*	Consent of Lucosky Brookman LLP (reference is made to Exhibit 5.1)
24.1*	Power of Attorney (included on the signature page of this Registration Statement)
107*	Calculation of Registration Fee

* Filed herewith.

+ To be filed by amendment to this registration statement

Item 17. Undertakings

The undersigned registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

- (i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;
 - (ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and
 - (iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement.
- (2) That for the purpose of determining any liability under the Securities Act of 1933 each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
 - (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
 - (4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser, each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A, shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such first use, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such date of first use.

II-2

- (5) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities: The undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:
 - (i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;
 - (ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;
 - (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and
 - (iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.
- (6) The undersigned Registrant hereby undertakes to provide to the underwriters at the closing specified in the underwriting agreement certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.
- (7) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the provisions described in Item 14 above, or otherwise, the Registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.
- (8) The undersigned Registrant hereby undertakes:
 - (1) That for purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4), or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.
 - (2) That for the purpose of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and this offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

II-3

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Santa Clara, State of California, on February 1, 2023.

HEARTBEAM, INC.

Dated: February 1, 2023

By: /s/ Branislav Vajdic
Name: Branislav Vajdic
Title: Chief Executive Officer

Dated: February 1, 2023

By: /s/ Richard Brounstein

Name Richard Brounstein

Title: Chief Financial Officer

POWER OF ATTORNEY: KNOW ALL PERSONS BY THESE PRESENTS that each individual whose signature appears below constitutes and appoints Branislav Vajdic and Richard Brounstein, his true and lawful attorneys-in-fact and agents with full power of substitution, for him and in his name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this Registration Statement, and to sign any registration statement for the same offering covered by the Registration Statement that is to be effective upon filing pursuant to Rule 462(b) promulgated under the Securities Act, and all post-effective amendments thereto, and to file the same, with all exhibits thereto and all documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or his, her or their substitute or substitutes, may lawfully do or cause to be done or by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated:

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Branislav Vajdic</u> Branislav Vajdic	Chief Executive Officer and Director (Principal Executive Officer)	February 1, 2023
<u>/s/ Richard Brounstein</u> Richard Brounstein	Chief Financial Officer (Principal Financial and Accounting Officer)	February 1, 2023
<u>/s/ Richard Ferrari</u> Richard Ferrari	Executive Chairman of the Board of Directors	February 1, 2023
<u>/s/ George deUrioste</u> George deUrioste	Director	February 1, 2023
<u>/s/ Marga Ortigas-Wedekind</u> Marga Ortigas-Wedekind	Director	February 1, 2023
<u>/s/ Willem Elfrink</u> Willem Elfrink	Director	February 1, 2023

HEARTBEAM, INC.
COMMON STOCK
SALES AGREEMENT

February 1, 2023

A.G.P./Alliance Global Partners
590 Madison Avenue
New York, NY 10022

Ladies and Gentlemen:

HeartBeam, Inc., a Delaware corporation (the “**Company**”), confirms its agreement (this “**Agreement**”) with A.G.P./Alliance Global Partners (the “**Sales Agent**”), as follows:

1. **Issuance and Sale of Shares.** The Company agrees that, from time to time during the term of this Agreement, on the terms and subject to the conditions set forth herein, it may issue and sell to or through the Sales Agent shares of the Company’s common stock, par value \$0.0001 per share (the “**Common Stock**”), subject to the limitations set forth in **Section 3(b)** hereof. The issuance and sale of shares of Common Stock to or through the Sales Agent will be effected pursuant to the Registration Statement (as defined below) filed by the Company and which was declared effective under the Securities Act (as defined below) by the U.S. Securities and Exchange Commission (the “**Commission**”).

The Company has filed, in accordance with the provisions of the Securities Act of 1933, as amended, and the rules and regulations thereunder (collectively, the “**Securities Act**”), with the Commission, a shelf registration statement on Form S-3 (File No. [●]), including a base prospectus, relating to certain securities, including the shares of Common Stock, to be issued from time to time by the Company, and which incorporates by reference documents that the Company has filed or will file in accordance with the provisions of the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder (collectively, the “**Exchange Act**”). The Company has prepared a prospectus supplement specifically relating to the offering of Common Stock pursuant to this Agreement (the “**ATM Prospectus**”). The Company will furnish to the Sales Agent, for use by the Sales Agent, copies of the base prospectus included as part of such registration statement at the time it became effective, as supplemented by the ATM Prospectus. Except where the context otherwise requires, such registration statement, as amended at the time of such registration statement’s effectiveness for purposes of Section 11 of the Securities Act, including all documents filed as a part thereof or incorporated by reference therein, and including any information contained in a Prospectus (as defined below) subsequently filed with the Commission pursuant to Rule 424(b) under the Securities Act or deemed to be a part of such registration statement pursuant to Rule 430B or 462(b) of the Securities Act, is herein called the “**Registration Statement**.” The base prospectus, including all documents incorporated therein by reference (to the extent such information has not been superseded or modified in accordance with Rule 412 under the Securities Act (as qualified by Rule 430B(g) of the Securities Act)), and the ATM Prospectus, including all documents incorporated therein by reference (to the extent such information has not been superseded or modified in accordance with Rule 412 under the Securities Act (as qualified by Rule 430B(g) of the Securities Act)), each of which is included in the Registration Statement, as it or they may be supplemented by any additional prospectus supplement, in the form in which such prospectus and/or ATM Prospectus have most recently been filed by the Company with the Commission pursuant to Rule 424(b) under the Securities Act, together with any “issuer free writing prospectus” (“**Issuer Free Writing Prospectus**”), as defined in Rule 433 of the Securities Act (“**Rule 433**”), relating to the Placement Shares (as defined below) that (i) is required to be filed with the Commission by the Company or (ii) is exempt from filing pursuant to Rule 433(d)(5)(i), in each case in the form filed or required to be filed with the Commission or, if not required to be filed, in the form retained in the Company’s records pursuant to Rule 433(g), is herein called the “**Prospectus**.” Any reference herein to the Registration Statement, the Prospectus or any amendment or supplement thereto shall be deemed to refer to and include the documents incorporated by reference therein, and any reference herein to the terms “amend,” “amendment” or “supplement” with respect to the Registration Statement or the Prospectus shall be deemed to refer to and include the filing after the execution hereof of any document with the Commission deemed to be incorporated by reference therein. For purposes of this Agreement, all references to the Registration Statement, the Prospectus or to any amendment or supplement thereto shall be deemed to include any copy filed with the Commission pursuant to either the Electronic Data Gathering Analysis and Retrieval System, or if applicable, the Interactive Data Electronic Applications (collectively “**EDGAR**”).

2. **Placements.** Each time that the Company wishes to issue and sell the Common Stock through the Sales Agent, as agent, hereunder (each, a “**Placement**”), it will notify the Sales Agent by email notice (or other method mutually agreed to in writing by the parties) (a “**Placement Notice**”) containing the parameters in accordance with which it desires the Common Stock to be sold, which shall at a minimum include the number of shares of Common Stock to be issued (the “**Placement Shares**”), the time period during which sales are requested to be made, any limitation on the number of shares of Common Stock that may be sold in any one Trading Day (as defined in **Section 3**) and any minimum price below which sales may not be made, a form of which containing such minimum sales parameters necessary is attached hereto as **Schedule 1**. The Placement Notice shall originate from any of the individuals from the Company set forth on **Schedule 2** (with a copy to each of the other individuals from the Company listed on such schedule), and shall be addressed to each of the individuals from the Sales Agent set forth on **Schedule 2**, as such **Schedule 2** may be amended from time to time. The Placement Notice shall be effective upon receipt by the Sales Agent unless and until (i) in accordance with the notice requirements set forth in **Section 4**, the Sales Agent declines to accept the terms contained therein for any reason, in its sole discretion, (ii) the entire amount of the Placement Shares have been sold, (iii) in accordance with the notice requirements set forth in **Section 4**, the Company suspends or terminates the Placement Notice, (iv) the Company issues a subsequent Placement Notice with parameters superseding those on the earlier dated Placement Notice, or (v) the Agreement has been terminated under the provisions of **Section 11**. The amount of any discount, commission or other compensation to be paid by the Company to the Sales Agent in connection with the sale of the Placement Shares through the Sales Agent, as agent, shall be as set forth in **Schedule 3**. It is expressly acknowledged and agreed that neither the Company nor the Sales Agent will have any obligation whatsoever with respect to a Placement or any Placement Shares unless and until the Company delivers a Placement Notice to the Sales Agent and the Sales Agent does not decline such Placement Notice pursuant to the terms set forth above, and then only upon the terms specified therein and herein. In the event of a conflict between the terms of this Agreement and the terms of a Placement Notice, the terms of the Placement Notice will control.

3. **Sale of Placement Shares by the Sales Agent**

(a) Subject to the terms and conditions set forth herein, upon the Company’s issuance of a Placement Notice, and unless the sale of the Placement Shares described therein has been declined, suspended, or otherwise terminated in accordance with the terms of this Agreement, the Sales Agent, as agent for the Company, will use its commercially reasonable efforts consistent with its normal trading and sales practices and applicable state and federal laws, rules and regulations and the rules of The Nasdaq Capital Market (the “**Exchange**”), for the period specified in the Placement Notice, to sell such Placement Shares up to the amount specified by the Company in, and otherwise in accordance with, the terms of such Placement Notice. If acting as agent hereunder, the Sales Agent will provide written confirmation to the Company (including by email correspondence to each of the individuals of the Company set forth on **Schedule 2**, if receipt of such correspondence is actually acknowledged by any of the individuals to whom the notice is sent, other than via auto-reply) no later than the opening of the Trading Day (as defined below) immediately following the Trading Day on which it has made sales of Placement Shares hereunder setting forth the number of Placement Shares sold on such day, the volume-weighted average price of the Placement Shares, the compensation payable by the Company to the Sales Agent pursuant to **Section 2** with respect to such sales, and the Net Proceeds (as defined below) payable to the Company, with an itemization of the deductions made by the Sales Agent (as set forth in **Section 5(a)**) from the gross proceeds that it receives from such sales. Subject to the terms of the Placement Notice, the Sales Agent may sell Placement Shares by any method permitted by law deemed to be an “at the market” offering as defined in Rule 415 under the Securities Act, including without limitation sales made directly on the Exchange, on any other existing trading market for the Common Stock or to or through a market maker.

Subject to the terms of a Placement Notice, the Sales Agent may also sell Placement Shares by any other method permitted by law, including but not limited to in negotiated transactions with the Company's prior written consent. The Company acknowledges and agrees that (i) there can be no assurance that the Sales Agent will be successful in selling Placement Shares, (ii) the Sales Agent will incur no liability or obligation to the Company or any other person or entity if it does not sell Placement Shares for any reason other than a failure by the Sales Agent to use its commercially reasonable efforts consistent with its normal trading and sales practices and applicable law and regulations to sell such Placement Shares as required under this Agreement and (iii) the Sales Agent shall be under no obligation to purchase Placement Shares on a principal basis pursuant to this Agreement, except as otherwise agreed by the Sales Agent and the Company in writing and expressly set forth in a Placement Notice. For the purposes hereof, "**Trading Day**" means any day on which the Company's Common Stock is purchased and sold on the principal market on which the Common Stock is listed or quoted.

2

(b) Under no circumstances shall the Company cause or request the offer or sale of any Placement Shares if, after giving effect to the sale of such Placement Shares, the aggregate number or gross sales proceeds of Placement Shares sold pursuant to this Agreement would exceed the lesser of: (i) the number or dollar amount of shares of Common Stock registered pursuant to the Registration Statement pursuant to which the offering hereunder is being made, (ii) the number of authorized but unissued and unreserved shares of Common Stock, (iii) the number or dollar amount of shares of Common Stock permitted to be offered and sold by the Company under Form S-3 (including General Instruction I.B.6 of Form S-3, if applicable), (iv) the number or dollar amount of shares of Common Stock authorized from time to time to be issued and sold under this Agreement by the Company's Board of Directors, a duly authorized committee thereof or a duly authorized executive committee, and notified to the Sales Agent in writing, or (v) the number or dollar amount of shares of Common Stock for which the Company has filed the ATM Prospectus or other prospectus supplement specifically relating to the offering of the Placement Shares pursuant to this Agreement. Under no circumstances shall the Company cause or request the offer or sale of any Placement Shares pursuant to this Agreement at a price lower than the minimum price authorized from time to time by the Company's Board of Directors, a duly authorized committee thereof or a duly authorized executive committee, and notified to the Sales Agent in writing. Notwithstanding anything to the contrary contained herein, the parties hereto acknowledge and agree that compliance with the limitations set forth in this Section 3(b) on the number or dollar amount of Placement Shares that may be issued and sold under this Agreement from time to time shall be the sole responsibility of the Company, and that the Sales Agent shall have no obligation in connection with such compliance.

(c) During the term of this Agreement, neither the Sales Agent nor any of its affiliates or subsidiaries shall engage in (i) any short sale of any security of the Company or (ii) any sale of any security of the Company that the Sales Agent does not own or any sale that is consummated by the delivery of a security of the Company borrowed by, or for the account of, the Sales Agent. During the term of this Agreement and notwithstanding anything to the contrary herein, the Sales Agent agrees that in no event will the Sales Agent or its affiliates engage in any market making, bidding, stabilization or other trading activity with regard to the Common Stock or related derivative securities if such activity would be prohibited under Regulation M or other anti-manipulation rules under the Exchange Act.

4. Suspension of Sales.

(a) The Company or the Sales Agent may, upon notice to the other party in writing (including by email correspondence to each of the individuals of the other party set forth on Schedule 2, if receipt of such correspondence is actually acknowledged by any of the individuals to whom the notice is sent, other than via auto-reply) or by telephone (confirmed immediately by verifiable facsimile transmission or email correspondence to each of the individuals of the other party set forth on Schedule 2), suspend any sale of Placement Shares for a period of time (a "Suspension Period"); *provided, however*, that such suspension shall not affect or impair either party's obligations with respect to any Placement Shares sold hereunder prior to the receipt of such notice. Each of the parties hereto agrees that no such notice under this Section 4 shall be effective against the other unless it is made to one of the individuals named on Schedule 2 hereto, as such schedule may be amended from time to time. During a Suspension Period, the Company shall not issue any Placement Notices and the Sales Agent shall not sell any Placement Shares hereunder. The party that issued a suspension notice shall notify the other party in writing of the Trading Day on which the Suspension Period shall expire not later than twenty-four (24) hours prior to such Trading Day.

3

(b) Notwithstanding any other provision of this Agreement, during any period in which the Company is in possession of material non-public information, the Company and the Sales Agent agree that (i) no sale of Placement Shares will take place, (ii) the Company shall not request the sale of any Placement Shares, and (iii) the Sales Agent shall not be obligated to sell or offer to sell any Placement Shares.

5. Settlement.

(a) Settlement of Placement Shares. Unless otherwise specified in the applicable Placement Notice, settlement for sales of Placement Shares will occur on the second (2nd) Trading Day (or such earlier day as is industry practice for regular-way trading) following the respective Point of Sale (as defined below) (each, a "Settlement Date"). The amount of proceeds to be delivered to the Company on a Settlement Date against receipt of the Placement Shares sold (the "Net Proceeds") will be equal to the aggregate sales price received by the Sales Agent at which such Placement Shares were sold, after deduction for (i) the Sales Agent's discount, commission or other compensation for such sales payable by the Company pursuant to Section 2 hereof, (ii) any other amounts due and payable by the Company to the Sales Agent hereunder pursuant to Section 7(g) (Expenses) hereof and (iii) any transaction fees, trading expenses, execution fees or other fees imposed by any clearing organization or any governmental or self-regulatory organization.

(b) Delivery of Placement Shares. On or before each Settlement Date, the Company will, or will cause its transfer agent to, electronically transfer the Placement Shares being sold by crediting the Sales Agent's or its designee's account (provided the Sales Agent shall have given the Company written notice of such designee at least one Trading Day prior to the Settlement Date) at The Depository Trust Company through its Deposit and Withdrawal at Custodian System or by such other means of delivery as may be mutually agreed upon by the parties hereto which in all cases shall be freely tradable, transferable, registered shares in good deliverable form. On each Settlement Date, the Sales Agent will deliver the related Net Proceeds in same day funds to an account designated by the Company on, or prior to, the Settlement Date. The Company agrees that if the Company, defaults in its obligation to deliver duly authorized Placement Shares on a Settlement Date, through no fault of the Sales Agent, the Company agrees that in addition to and in no way limiting the rights and obligations set forth in Section 9(a) (Indemnification and Contribution) hereto, the Company will (i) hold the Sales Agent, its directors, officers, members, partners, employees and agents of the Sales Agent, each broker dealer affiliate of the Sales Agent, and each person, if any, who (A) controls the Sales Agent within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act or (B) is controlled by or is under common control with the Sales Agent (each, a "Sales Agent Affiliate"), and the Sales Agent's clearing organization, harmless against any loss, claim, damage, or expense (including reasonable legal fees and expenses), as incurred, arising out of or in connection with such default by the Company or its transfer agent (if applicable) and (ii) pay to the Sales Agent any commission, discount, or other compensation to which it would otherwise have been entitled absent such default.

6. Representations and Warranties of the Company. The Company represents and warrants to, and agrees with, the Sales Agent that as of each Applicable Time (as defined in Section 22(a)), unless such representation, warranty or agreement specifies a different time or times:

(a) Compliance with Registration Requirements. As of each Applicable Time other than the date of this Agreement, the Registration Statement and any Rule 462(b) Registration Statement have been declared effective by the Commission under the Securities Act. The Company has complied to the Commission's satisfaction with all requests of the Commission for additional or supplemental information related to the Registration Statement and the Prospectus. No stop order suspending the effectiveness of the Registration Statement, or any Rule 462(b) Registration Statement is in effect and no proceedings for such purpose have been instituted or are pending or, to the knowledge of the Company, are contemplated or threatened by the Commission. The Registration Statement and, assuming no act or omission on the part of the Sales Agent that would make

such statements untrue, the offer and sale of the Placement Shares as contemplated hereby meet the requirements of Rule 415 under the Securities Act and comply in all material respects with said Rule. In the section entitled “Plan of Distribution” in the ATM Prospectus, the Company has named A.G.P./Alliance Global Partners as an agent that the Company has engaged in connection with the transactions contemplated by this Agreement. The Company was not and is not an “ineligible issuer” as defined in Rule 405 under the Securities Act.

(b) No Misstatement or Omission. The Registration Statement and any post-effective amendment thereto, at the time it became or becomes effective, complied or will comply in all material respects with the Securities Act. The Prospectus, and any amendment or supplement thereto, on the date of such Prospectus or amendment or supplement, complied or will comply in all material respects with the Securities Act. The Registration Statement and any post-effective amendment thereto, at the time it became or becomes effective, did not and will not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading. The Prospectus, as amended or supplemented, as of its date, did not and, as of each Point of Sale and each Settlement Date, will not contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading. The representations and warranties set forth in the two immediately preceding sentences do not apply to statements in or omissions from the Registration Statement or any post-effective amendment thereto, or the Prospectus, or any amendments or supplements thereto, made in reliance upon and in conformity with information relating to the Sales Agent furnished to the Company in writing by the Sales Agent expressly for use therein. “**Point of Sale**” means, for a Placement, the time at which an acquiror of Placement Shares entered into a contract, binding upon such acquiror, to acquire such Placement Shares.

4

(c) Offering Materials Furnished to the Sales Agent. Copies of the Registration Statement, the Prospectus, and all amendments or supplements thereto and all documents incorporated by reference therein that were filed with the Commission on or prior to the date of this Agreement, have been delivered, or are publicly available through EDGAR, to the Sales Agent. Each Prospectus delivered to the Sales Agent for use in connection with the sale of the Placement Shares pursuant to this Agreement will be identical to the version of such Prospectus filed with the Commission via EDGAR, except to the extent permitted by Regulation S-T.

(d) Distribution of Offering Material By the Company. The Company has not distributed and will not distribute, prior to the completion of the Sales Agent’s distribution of the Placement Shares, any offering material in connection with the offering and sale of the Placement Shares other than the Prospectus or the Registration Statement.

(e) The Sales Agreement. This Agreement has been duly authorized, executed and delivered by the Company, and constitutes a valid, legal, and binding obligation of the Company, enforceable against the Company in accordance with its terms, except as rights to indemnity hereunder may be limited by federal or state securities laws and except as such enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium or similar laws affecting the rights of creditors generally, and subject to general principles of equity. The Company has full corporate power and authority to enter into this Agreement and to authorize, issue and sell the Placement Shares as contemplated by this Agreement. This Agreement conforms in all material respects to the descriptions thereof in the Registration Statement and the Prospectus.

(f) Authorization of the Placement Shares. The Placement Shares, when issued and paid for as contemplated herein, will be validly issued, fully paid and nonassessable, will be issued in compliance with all applicable securities laws, and will be free of preemptive, registration or similar rights, and will conform to the description of the Common Stock contained in the Registration Statement and the Prospectus.

(g) No Applicable Registration or Other Similar Rights. There are no persons with registration or other similar rights to have any equity or debt securities registered for sale under the Registration Statement or included in the offering contemplated by this Agreement, except for such rights as have been duly waived or complied with. No person has the right to act as an underwriter or as a financial advisor to the Company in connection with the offer and sale of the Placement Shares hereunder, whether as a result of the filing or effectiveness of the Registration Statement or the sale of the Placement Shares as contemplated hereby or otherwise.

(h) No Material Adverse Change. Except as otherwise disclosed in the Prospectus, subsequent to the respective dates as of which information is given in the Prospectus: (i) there has been no material adverse change in the business, properties, prospects, operations, condition (financial or otherwise) or results of operations of the Company and its subsidiaries, taken as a whole (any such change is called a “**Material Adverse Change**”), or any development involving a prospective material adverse change, which, individually or in the aggregate, has had or would reasonably be expected to result in a Material Adverse Change; (ii) the Company and its subsidiaries, considered as one entity, have not incurred any material liability or obligation, indirect, direct or contingent, not in the ordinary course of business nor entered into any material transaction or agreement not in the ordinary course of business; (iii) there has been no dividend or distribution of any kind declared, paid or made by the Company; (iv) no executive officer or director of the Company has resigned from any position with the Company; and (v) there has not been any Material Adverse Change in the Company’s long-term or short-term debt.

5

(i) Independent Accountants. To the knowledge of the Company, Friedman LLP and Marcum LLP, whose reports are filed with the Commission and included or incorporated by reference in the Registration Statement and the Prospectus, are independent registered public accounting firms as required by the Securities Act and the Public Company Accounting Oversight Board. Neither Friedman LLP nor Marcum LLP has, during the periods covered by the financial statements included or incorporated by reference in the Registration Statement and the Prospectus, provided to the Company any non-audit services, as such term is used in Section 10A(g) of the Exchange Act.

(j) Financial Statements. The financial statements filed with the Commission as a part of the Registration Statement and included in the Prospectus, together with the related notes and schedules, present fairly, in all material respects, the consolidated financial position of the Company and its subsidiaries as of and at the dates indicated and the results of their operations and cash flows for the periods specified. Such financial statements and supporting schedules have been prepared in conformity with U.S. generally accepted accounting principles (“**GAAP**”) applied on a consistent basis throughout the periods involved, except as may be expressly stated in the related notes thereto. No other financial statements or supporting schedules are required to be included in or incorporated in the Registration Statement.

(k) Forward-Looking Statements. No forward-looking statement (within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act) contained in the Registration Statement or the Prospectus has been made or reaffirmed by the Company without a reasonable basis or has been disclosed by the Company other than in good faith.

(l) Statistical and Marketing-Related Data. The statistical and market-related data included in each of the Registration Statement and the Prospectus are based on or derived from sources that the Company reasonably and in good faith believes are reliable and accurate or represent the Company’s good faith estimates that are made on the basis of data derived from such sources.

(m) XBRL. The interactive data in eXtensible Business Reporting Language included or incorporated by reference in the Registration Statement fairly presents the information called for in all material respects and has been prepared in accordance with the Commission’s rules and guidelines applicable thereto.

(n) Incorporation and Good Standing of the Company and its Subsidiaries. The Company is a corporation duly incorporated and validly existing under the laws of the State of Delaware. The Company has requisite corporate power to carry on its business as described in the Prospectus. The Company is duly qualified to transact business and is

in good standing in all jurisdictions in which the conduct of its business requires such qualification; except where the failure to be so qualified or to be in good standing would not result in a Material Adverse Change. The Company does not own or control, directly or indirectly, any corporation, association or other entity other than the subsidiaries listed in Exhibit 21.1 to the Company's Annual Report on Form 10-K for the most recently ended fiscal year and other than (i) those subsidiaries not required to be listed on Exhibit 21.1 by Item 601 of Regulation S-K under the Exchange Act, (ii) those subsidiaries formed since the last day of the most recently ended fiscal year, and (iii) as disclosed in the Registration Statement and the Prospectus. Each subsidiary is a corporation or limited liability company duly incorporated or formed and validly existing under the laws of the jurisdiction of its incorporation or formation and is in good standing under such laws. Each of the subsidiaries has requisite corporate power to carry on its business as described in the Prospectus. Each of the subsidiaries is duly qualified to transact business and is in good standing in all jurisdictions in which the conduct of its business requires such qualification; except where the failure to be so qualified or to be in good standing would not result in a Material Adverse Change.

6

(o) Capital Stock Matters. All issued and outstanding shares of Common Stock of the Company issued prior to the transactions contemplated by this Agreement have been duly authorized and validly issued and are fully paid and non-assessable; the holders thereof have no rights of rescission with respect thereto, and are not subject to personal liability by reason of being such holders; and none of such securities were issued in violation of the preemptive rights of any holders of any security of the Company or similar contractual rights granted by the Company. The authorized shares of Common Stock conform in all material respects to all statements relating thereto contained in the Registration Statement and the Prospectus. The offers and sales of the outstanding shares of Common Stock were at all relevant times either registered under the Securities Act and the applicable state securities or "blue sky" laws or, based in part on the representations and warranties of the purchasers of such shares, exempt from such registration requirements. The description of the Company's stock option, stock bonus and other stock plans or arrangements, and the options or other rights granted thereunder, as described in the Registration Statement and the Prospectus, accurately and fairly present, in all material respects, the information required to be shown with respect to such plans, arrangements, options and rights.

(p) Non-Contravention of Existing Instruments; No Further Authorizations or Approvals Required. The Company's execution, delivery and performance of this Agreement and consummation of the transactions contemplated hereby or by the Registration Statement and the Prospectus (including the issuance and sale of the Placement Shares and the use of the proceeds from the sale of the Placement Shares as described in the Prospectus under the caption "Use of Proceeds") will not (A) result in a material breach or violation of any of the terms and provisions of, or constitute a default under, any law, order, rule or regulation to which the Company or any subsidiary is subject (including, without limitation, those promulgated by the Food and Drug Administration of the U.S. Department of Health and Human Services (the "FDA") or by any foreign, federal, state or local regulatory authority performing functions similar to those performed by the FDA), or by which any property or asset of the Company or any subsidiary is bound or affected, (B) conflict with, result in any violation or breach of, or constitute a default (or an event that with notice or lapse of time or both would become a default) under, or give to others any right of termination, amendment, acceleration or cancellation (with or without notice, lapse of time or both) (a "**Default Acceleration Event**") of, any agreement, lease, credit facility, debt, note, bond, mortgage, indenture or other instrument ("**Contract**") or obligation or other understanding to which the Company or any subsidiary is a party or by which any property or asset of the Company or any subsidiary is bound or affected, except to the extent that such conflict, default, or Default Acceleration Event is not reasonably likely to result in a Material Adverse Change, or (C) result in a breach or violation of any of the terms and provisions of, or constitute a default under, the Company's certificate of incorporation (as the same may be amended or restated from time to time) or bylaws (as the same may be amended or restated from time to time). Neither the Company nor any of its subsidiaries is in violation, breach or default under its certificate of incorporation (as the same may be amended or restated from time to time), bylaws (as the same may be amended or restated from time to time) or other equivalent organizational or governing documents. Neither the Company nor any of its subsidiaries nor, to its knowledge, any other party is in violation, breach or default of any Contract that has resulted in or could reasonably be expected to result in a Material Adverse Change. Each approval, consent, order, authorization, designation, declaration or filing by or with any regulatory, administrative or other governmental body necessary in connection with the execution and delivery by the Company of this Agreement and the performance of the Company of the transactions herein contemplated has been obtained or made and is in full force and effect, except (i) with respect to any Applicable Time at which the Sales Agent would not be able to rely on Rule 5110(b)(7)(C)(i) of the Financial Industry Regulatory Authority, Inc. ("**FINRA**"), such additional steps as may be required by FINRA, (ii) filings with the Commission required under the Securities Act or the Exchange Act, or filings or notice with the Exchange pursuant to the rules and regulations of the Exchange, in each case that are contemplated by this Agreement to be made after the date of this Agreement, and (iii) such additional steps as may be necessary to qualify the Common Stock for sale by the Sales Agent under state securities or Blue Sky laws.

7

(q) No Material Actions or Proceedings. There is no action, suit, proceeding, inquiry, arbitration, investigation, litigation or governmental proceeding pending or, to the Company's knowledge, threatened against, or involving the Company or, to the Company's knowledge, any executive officer or director of the Company including any proceeding before the FDA or comparable federal, state, local or foreign governmental bodies (it being understood that the interaction between the Company and the FDA and such comparable governmental bodies relating to the clinical development and product approval process shall not be deemed proceedings for purposes of this representation), which is required to be disclosed and has not been disclosed in the Registration Statement or the Prospectus, except as would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Change.

(r) Labor Disputes. There is not pending or, to the knowledge of the Company, threatened, any action, suit or proceeding to which the Company or any of its subsidiaries is a party or of which any property or assets of the Company or any of its subsidiaries is the subject before or by any court or governmental agency, authority or body, or any arbitrator or mediator

(s) Compliance with Certain Applicable Laws. The Company: (A) is and at all times has been in compliance with all statutes, rules, or regulations applicable to the ownership, testing, development, manufacture, packaging, processing, use, distribution, marketing, labeling, promotion, sale, offer for sale, storage, import, export or disposal of any product manufactured or distributed by the Company ("**Applicable Laws**"), except as could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Change; (B) has not received any warning letter, untitled letter or other correspondence or notice from any governmental authority alleging or asserting noncompliance with any Applicable Laws or any licenses, certificates, approvals, clearances, authorizations, permits and supplements or amendments thereto required by any such Applicable Laws ("**Authorizations**"); (C) possesses all material Authorizations and such Authorizations are valid and in full force and effect and are not in material violation of any term of any such Authorizations; (D) has not received notice of any claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action from any governmental authority or third party alleging that any product operation or activity is in violation of any Applicable Laws or Authorizations and has no knowledge that any such governmental authority or third party is considering any such claim, litigation, arbitration, action, suit, investigation or proceeding; (E) has not received notice that any governmental authority has taken, is taking or intends to take action to limit, suspend, modify or revoke any Authorizations and has no knowledge that any such governmental authority is considering such action; and (F) has filed, obtained, maintained or submitted all material reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments as required by any Applicable Laws or Authorizations and that all such reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments were complete and correct on the date filed (or were corrected or supplemented by a subsequent submission).

(t) Tax Law Compliance. Each of the Company and its subsidiaries has (a) filed all foreign, federal, state and local tax returns (as hereinafter defined) required to be filed with taxing authorities prior to the date hereof or has duly obtained extensions of time for the filing thereof and (b) paid all taxes (as hereinafter defined) shown as due and payable on such returns that were filed and has paid all taxes imposed on or assessed against the Company or such respective subsidiary. The provisions for taxes payable, if any, shown on the financial statements included or incorporated by reference in the Registration Statement and the Prospectus are sufficient for all accrued and unpaid taxes, whether or not disputed, and for all periods to and including the dates of such consolidated financial statements. Other than as disclosed in the Registration Statement and the Prospectus, no material issues have been raised (and are currently pending) by any taxing authority in connection with any of the returns or taxes asserted as due from the

Company or its subsidiaries, and no waivers of statutes of limitation with respect to the returns or collection of taxes have been given by or requested from the Company or its subsidiaries. There are no tax liens against the assets, properties or business of the Company or any of its subsidiaries. The term “**taxes**” mean all federal, state, local, foreign, and other net income, gross income, gross receipts, sales, use, ad valorem, transfer, franchise, profits, license, lease, service, service use, withholding, payroll, employment, excise, severance, stamp, occupation, premium, property, windfall profits, customs, duties or other taxes, fees, assessments, or charges of any kind whatever, together with any interest and any penalties, additions to tax, or additional amounts with respect thereto. The term “**returns**” means all returns, declarations, reports, statements, and other documents required to be filed in respect to taxes.

(u) **Company Not an “Investment Company”**. The Company is not, and will not be, either after receipt of payment for the Placement Shares or after the application of the proceeds therefrom as described under “Use of Proceeds” in the Registration Statement or the Prospectus, required to register as an “investment company” under the Investment Company Act of 1940, as amended (the “**Investment Company Act**”).

8

(v) **Insurance**. The Company and each of its subsidiaries carries, or is entitled to the benefits of insurance in such amounts and covering such risks, which the Company believes are adequate for the conduct of its business and the value of its properties and as is customary for companies engaged in similar businesses in similar industries, and all such insurance is in full force and effect. Neither the Company nor any of its subsidiaries has reason to believe that it will not be able (i) to renew its existing insurance coverage as and when such policies expire or (ii) to obtain comparable coverage from similar institutions as may be necessary or appropriate to conduct its business as now conducted and at a cost that would not result in a Material Adverse Change.

(w) **No Price Stabilization or Manipulation**. The Company has not taken, directly or indirectly (without giving any effect to the activities of the Sales Agent), any action designed to or that might cause or result in stabilization or manipulation of the price of the Common Stock or of any “reference security” (as defined in Rule 100 of Regulation M under the Exchange Act (“**Regulation M**”)) with respect to the Common Stock, whether to facilitate the sale or resale of the Placement Shares or otherwise, and has taken no action which would directly or indirectly violate Regulation M.

(x) **Related Party Transactions**. There are no business relationships or related party transactions involving the Company or any other person required to be described in the Registration Statement and the Prospectus that have not been described as required pursuant to the Securities Act.

(y) **Exchange Act Compliance**. The documents incorporated or deemed to be incorporated by reference in the Registration Statement, the Prospectus or any amendment or supplement thereto, at the time they were or hereafter are filed with the Commission under the Exchange Act, complied and will comply in all material respects with the requirements of the Exchange Act, and, when read together with the other information in the Prospectus, at each Point of Sale and each Settlement Date, will not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(z) **Conformity of Issuer Free Writing Prospectus**. Each Issuer Free Writing Prospectus conformed or will conform in all material respects to the requirements of the Securities Act on the date of first use, and the Company has complied or will comply with any filing requirements applicable to such Issuer Free Writing Prospectus pursuant to the Securities Act. Each Issuer Free Writing Prospectus, as of its issue date and at all subsequent times through the completion of the public offer and sale of the Placement Shares, did not, does not and will not include any information that conflicted, conflicts or will conflict with the information contained in the Registration Statement or the Prospectus, including any document incorporated by reference therein that has not been superseded or modified. The Company has not made any offer relating to the Placement Shares that would constitute an Issuer Free Writing Prospectus without the prior written consent of the Sales Agent. The Company has retained in accordance with the Securities Act all Issuer Free Writing Prospectuses that were not required to be filed pursuant to the Securities Act.

9

(aa) **Compliance with Environmental Laws**. The Company and its subsidiaries are in compliance with all foreign, federal, state and local rules, laws and regulations relating to the use, treatment, storage and disposal of hazardous or toxic substances or waste and protection of health and safety or the environment which are applicable to their businesses (“**Environmental Laws**”), except where the failure to comply has not had and would not reasonably be expected to have, singularly or in the aggregate, a Material Adverse Change. There has been no storage, generation, transportation, handling, treatment, disposal, discharge, emission, or other release of any kind of toxic or other wastes or other hazardous substances by, due to, or caused by the Company or any of its subsidiaries (or, to the Company’s knowledge, any other entity for whose acts or omissions the Company or any of its subsidiaries is or may otherwise be liable) upon any of the property now or previously owned or leased by the Company or any of its subsidiaries, or upon any other property, in violation of any law, statute, ordinance, rule, regulation, order, judgment, decree or permit or which would, under any law, statute, ordinance, rule (including rule of common law), regulation, order, judgment, decree or permit, give rise to any liability, except for any violation or liability which has not had and would not reasonably be expected to have, singularly or in the aggregate, a Material Adverse Change; and there has been no disposal, discharge, emission or other release of any kind onto such property or into the environment surrounding such property of any toxic or other wastes or other hazardous substances with respect to which the Company or any of its subsidiaries has knowledge. The Company and its subsidiaries have reviewed the effect of Environmental Laws on their business and assets, in the course of which they identified and evaluated associated costs and liabilities (including, without limitation, any capital or operating expenditures required for clean-up, closure of properties or compliance with Environmental Laws or governmental permits issued thereunder, any related constraints on operating activities and any potential liabilities to third parties). On the basis of such review, the Company has reasonably concluded that such associated costs and liabilities would not have, singularly or in the aggregate, a Material Adverse Change.

(bb) **Intellectual Property**. The Company and each of its subsidiaries own or possess or have valid rights to use all patents, patent applications, trademarks, service marks, trade names, trademark registrations, service mark registrations, copyrights, licenses, inventions, trade secrets and similar rights (“**Intellectual Property Rights**”) necessary for the conduct of the business of the Company and its subsidiaries as currently carried on and as described in the Registration Statement and the Prospectus, except as would not be reasonably likely to result in a Material Adverse Change. To the knowledge of the Company, no action or use by the Company or any of its subsidiaries necessary for the conduct of their business as currently carried on and as described in the Registration Statement and the Prospectus will involve or give rise to any infringement of, or license or similar fees for, any Intellectual Property Rights of others, except where such action, use, license or fee is not reasonably likely to result in a Material Adverse Change. Neither the Company nor any of its subsidiaries have received any notice alleging any such infringement, fee or conflict with asserted Intellectual Property Rights of others. Except as would not reasonably be expected to result, individually or in the aggregate, in a Material Adverse Change (A) to the knowledge of the Company, there is no infringement, misappropriation or violation by third parties of any of the Intellectual Property Rights owned by the Company or any of its subsidiaries; (B) there is no pending or, to the knowledge of the Company, threatened action, suit, proceeding or claim by others challenging the rights of the Company or any of its subsidiaries in or to any such Intellectual Property Rights, and the Company is unaware of any facts which would form a reasonable basis for any such claim, that would, individually or in the aggregate, together with any other claims in this Section 6(bb), reasonably be expected to result in a Material Adverse Change; (C) the Intellectual Property Rights owned by the Company or any of its subsidiaries and, to the knowledge of the Company, the Intellectual Property Rights licensed to the Company have not been adjudged by a court of competent jurisdiction invalid or unenforceable, in whole or in part, and there is no pending or, to the Company’s knowledge, threatened action, suit, proceeding or claim by others challenging the validity or scope of any such Intellectual Property Rights, and the Company is unaware of any facts which would form a reasonable basis for any such claim that would, individually or in the aggregate, together with any other claims in this Section 6(bb), reasonably be expected to result in a Material Adverse Change; (D) there is no pending or, to the Company’s knowledge, threatened action, suit, proceeding or claim by others that the Company or any of its subsidiaries infringes, misappropriates or otherwise violates any Intellectual Property Rights or other proprietary rights of others, neither the Company nor any of its subsidiaries has received any written notice of such

claim and the Company is unaware of any other facts which would form a reasonable basis for any such claim that would, individually or in the aggregate, together with any other claims in this Section 6(bb), reasonably be expected to result in a Material Adverse Change; and (E) to the Company's knowledge, no employee of the Company or any of its subsidiaries is in or has ever been in violation in any material respect of any term of any employment contract, patent disclosure agreement, invention assignment agreement, non-competition agreement, non-solicitation agreement, nondisclosure agreement or any restrictive covenant to or with a former employer where the basis of such violation relates to such employee's employment with the Company or any of its subsidiaries, or actions undertaken by the employee while employed with the Company or any of its subsidiaries and could reasonably be expected to result, individually or in the aggregate, in a Material Adverse Change. To the Company's knowledge, all material technical information developed by and belonging to the Company or any of its subsidiaries which has not been patented has been kept confidential. Neither the Company nor any of its subsidiaries is a party to or bound by any options, licenses or agreements with respect to the Intellectual Property Rights of any other person or entity that are required to be set forth in the Registration Statement and the Prospectus and are not described therein. The Registration Statement and the Prospectus contain in all material respects the same description of the matters set forth in the preceding sentence. None of the technology employed by the Company or its subsidiaries has been obtained or is being used by the Company or any of its subsidiaries in violation of any contractual obligation binding on the Company or any such subsidiary or, to the Company's knowledge, any of its or its subsidiaries' officers, directors or employees, or otherwise in violation of the rights of any persons.

(cc) Brokers. Neither the Company nor any of its subsidiaries is a party to any contract, agreement or understanding with any person (other than as contemplated by this Agreement) that would give rise to a valid claim against the Company or any of its subsidiaries or the Sales Agent for a brokerage commission, finder's fee or like payment in connection with the offering and sale of the Placement Shares by the Sales Agent under this Agreement.

(dd) No Outstanding Loans or Other Indebtedness. There are no outstanding loans, advances (except normal advances for business expenses in the ordinary course of business) or guarantees or indebtedness by the Company or any of its subsidiaries to or for the benefit of any of the officers or directors of the Company or executive officers of any of its subsidiaries to the extent such executive officers may be deemed executive officers of the Company, or any of their respective family members, except as disclosed in the Registration Statement and the Prospectus. The Company has not directly or indirectly extended or maintained credit, arranged for the extension of credit, or renewed an extension of credit, in the form of a personal loan to or for any director or executive officer of the Company.

(ee) No Reliance. The Company has not relied upon the Sales Agent or legal counsel for the Sales Agent for any legal, tax or accounting advice in connection with the offering and sale of the Placement Shares.

(ff) Broker-Dealer Status. Neither the Company nor any of its related entities (i) is required to register as a "broker" or "dealer" in accordance with the provisions of the Exchange Act or (ii) directly or indirectly through one or more intermediaries, controls or is a "person associated with a member" or "associated person of a member" (within the meaning of Article I of the NASD Manual administered by FINRA). To the Company's knowledge, there are no affiliations or associations between any member of FINRA and any of the Company's officers, directors or 5% or greater security holders, except as set forth in the Registration Statement.

(gg) S-3 Eligibility. (i) At the time of filing the Registration Statement and (ii) at the time of the most recent amendment thereto for the purposes of complying with Section 10(a)(3) of the Securities Act (whether such amendment was by post-effective amendment, incorporated report filed pursuant to Section 13 or 15(d) of the Exchange Act or form of prospectus), the Company met the then applicable requirements for use of Form S-3 under the Securities Act, including compliance with General Instruction I.B.1 or General Instruction I.B.6 of Form S-3, as applicable. The Company is not a shell company (as defined in Rule 405 under the Securities Act) and has not been a shell company for at least 12 calendar months previously and if it has been a shell company at any time previously, has filed current Form 10 information (as defined in General Instruction I.B.6 of Form S-3) with the Commission at least 12 calendar months previously reflecting its status as an entity that is not a shell company.

(hh) FINRA Matters. All of the information provided to the Sales Agent or to counsel for the Sales Agent by the Company, its counsel, its officers and directors and, to the Company's knowledge, the holders of any securities (debt or equity) or options to acquire any securities of the Company in connection with the offering of the Placement Shares is true, complete, correct and compliant with FINRA's rules in all material respects and any letters, filings or other supplemental information provided to FINRA pursuant to FINRA Rules or NASD Conduct Rules is true, complete and correct in all material respects. Except as disclosed in the Registration Statement or the Prospectus, there is no (i) officer or director of the Company, (ii) beneficial owner of 5% or more of any class of the Company's securities or (iii) beneficial owner of the Company's unregistered equity securities that were acquired during the 180-day period immediately preceding the date of this Agreement that is an affiliate or associated person of a FINRA member participating in the offer, issuance and sale of the Placement Shares as contemplated by this Agreement and the Registration Statement and the Prospectus (as determined in accordance with the rules and regulations of FINRA).

(ii) Compliance with Orders. Neither the Company nor any of its subsidiaries is in violation of any material judgment, decree, or order of any court, arbitrator or other governmental authority.

(jj) Sarbanes-Oxley Act. There is and has been no failure on the part of the Company or any of the Company's directors or officers, in their capacities as such, to comply in all material respects with any applicable provision of the Sarbanes-Oxley Act of 2002 and the rules and regulations promulgated in connection therewith (the "Sarbanes-Oxley Act"), including Section 402 related to loans and Sections 302 and 906 related to certifications.

(kk) Disclosure Controls and Procedures. Except as set forth in the Registration Statement and the Prospectus, the Company and its subsidiaries maintain systems of "internal control over financial reporting" (as defined under Rules 13a-15 and 15d-15 under the Exchange Act) that comply with the requirements of the Exchange Act and have been designed by, or under the supervision of, their respective principal executive and principal financial officers, or persons performing similar functions, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP, including, but not limited to, internal accounting controls sufficient to provide reasonable assurance that (i) transactions are executed in accordance with management's general or specific authorizations; (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP and to maintain asset accountability; (iii) access to assets is permitted only in accordance with management's general or specific authorization; (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences; and (v) the interactive data in eXtensible Business Reporting Language included or incorporated by references in the Registration Statement and the Prospectus fairly present the information called for in all material respects and are prepared in accordance with the Commission's rules and guidelines applicable thereto. Since the date of the latest audited financial statements included in the Registration Statement and the Prospectus, there has been no change in the Company's internal control over financial reporting that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

(ll) ERISA. The Company, its subsidiaries and any "employee benefit plan" (as defined under the Employee Retirement Income Security Act of 1974, as amended, and the regulations and published interpretations thereunder (collectively, "ERISA")) established or maintained by the Company, its subsidiaries or any of their "ERISA Affiliates" (as defined below) are in compliance in all material respects with ERISA. "ERISA Affiliate" means, with respect to the Company and each of its subsidiaries, any member of any group of organizations described in Sections 414(b),(c),(m) or (o) of the Internal Revenue Code of 1986, as amended, and the regulations and published interpretations thereunder (the "Code") of which the Company or any of its subsidiaries is a member. No "reportable event" (as defined under ERISA) has occurred or is reasonably expected to occur with respect to any "employee benefit plan" established or maintained by the Company, or any of its subsidiaries or any of their ERISA Affiliates. No "employee

benefit plan” established or maintained by the Company, any of its subsidiaries or any of their ERISA Affiliates, if such “employee benefit plan” were terminated, would have any “amount of unfunded benefit liabilities” (as defined under ERISA). Neither the Company nor any of its subsidiaries nor any of their ERISA Affiliates has incurred or reasonably expects to incur any material liability under (i) Title IV of ERISA with respect to termination of, or withdrawal from, any “employee benefit plan” or (ii) Sections 412, 4971, 4975 or 4980B of the Code. Each “employee benefit plan” established or maintained by the Company, any of its subsidiaries or any of their ERISA Affiliates that is intended to be qualified under Section 401(a) of the Code is so qualified and, to the knowledge of the Company, nothing has occurred, whether by action or failure to act, which would cause the loss of such qualification.

12

(mm) Contracts and Agreements. The agreements and documents described in the Registration Statement and the Prospectus conform in all material respects to the descriptions thereof contained therein and there are no agreements or other documents required by the Securities Act to be described in the Registration Statement and the Prospectus or to be filed with the Commission as exhibits to the Registration Statement, that have not been so described or filed. Each agreement or other instrument (however characterized or described) to which the Company or any of its subsidiaries is a party or by which it is or may be bound or affected and (i) that is referred to in the Registration Statement and the Prospectus, or (ii) is material to the Company’s or its subsidiaries’ business, has been duly authorized and validly executed by the Company, is in full force and effect in all material respects and is enforceable against the Company or any of its subsidiaries and, to the Company’s knowledge, the other parties thereto, in accordance with its terms, except (x) as such enforceability may be limited by bankruptcy, insolvency, reorganization or similar laws affecting creditors’ rights generally, (y) as enforceability of any indemnification or contribution provision may be limited under the federal and state securities laws, and (z) that the remedy of specific performance and injunctive and other forms of equitable relief may be subject to the equitable defenses and to the discretion of the court before which any proceeding therefor may be brought. None of such agreements or instruments has been assigned by the Company or its subsidiaries, and neither the Company, its subsidiaries nor, to the Company’s knowledge, any other party is in default thereunder and, to the Company’s knowledge, no event has occurred that, with the lapse of time or the giving of notice, or both, would constitute a default thereunder. To the best of the Company’s knowledge, performance by the Company or any of its subsidiaries of the material provisions of such agreements or instruments will not result in a violation of any existing applicable law, rule, regulation, judgment, order or decree of any governmental agency or court, domestic or foreign, having jurisdiction over the Company, its subsidiaries or any of their assets or businesses (each, a “**Governmental Entity**”), including, without limitation, those relating to environmental laws and regulations.

(nn) Title to Properties. Except as set forth in the Registration Statement and the Prospectus, the Company and each of its subsidiaries have good and marketable title in fee simple to, or have valid rights to lease or otherwise use, all items of real or personal property which are material to the business of the Company, in each case free and clear of all liens, encumbrances, security interests, claims and defects that do not, singly or in the aggregate, materially affect the value of such property and do not interfere with the use made and proposed to be made of such property by the Company or any of its subsidiaries; and all of the leases and subleases material to the business of the Company, and under which the Company or any of its subsidiaries hold properties described in the Registration Statement and the Prospectus, are in full force and effect, and neither the Company nor any of its subsidiaries has received any notice of any material claim of any sort that has been asserted by anyone adverse to the rights of the Company or any of its subsidiaries under any of the leases or subleases mentioned above, or affecting or questioning the rights of the Company or any of its subsidiaries to the continued possession of the leased or subleased premises under any such lease or sublease, which would result in a Material Adverse Change.

13

(oo) No Unlawful Contributions or Other Payments. No payments or inducements have been made or given, directly or indirectly, to any federal or local official or candidate for, any federal or state office in the United States or foreign offices by the Company, any of its subsidiaries or any of their officers or directors, or, to the knowledge of the Company, by any of its employees or agents or any other person in connection with any opportunity, contract, permit, certificate, consent, order, approval, waiver or other authorization relating to the business of the Company or any of its subsidiaries, except for such payments or inducements as were lawful under applicable laws, rules and regulations. Neither the Company, any of its subsidiaries, nor, to the knowledge of the Company, any director, officer, agent, employee or other person associated with or acting on behalf of the Company or any of its subsidiaries, (i) has used any corporate funds for any unlawful contribution, gift, entertainment or other unlawful expense relating to political activity; (ii) made any direct or indirect unlawful payment to any government official or employee from corporate funds; or (iii) made any bribe, unlawful rebate, payoff, influence payment, kickback or other unlawful payment in connection with the business of the Company.

(pp) Foreign Corrupt Practices Act. None of the Company, any of its subsidiaries or, to the knowledge of the Company, any director, officer, agent, employee, affiliate or other person acting on behalf of the Company or any of its subsidiaries, is aware of or has taken any action, directly or indirectly, that would result in a violation by such persons of the Foreign Corrupt Practices Act of 1977, as amended, and the rules and regulations thereunder (collectively, the “**FCPA**”), including, without limitation, making use of the mails or any means or instrumentality of interstate commerce corruptly in furtherance of an offer, payment, promise to pay or authorization of the payment of any money, or other property, gift, promise to give, or authorization of the giving of anything of value to any “foreign official” (as such term is defined in the FCPA) or any foreign political party or official thereof or any candidate for foreign political office, in contravention of the FCPA. The Company and its subsidiaries have conducted their respective businesses in compliance with the FCPA and have instituted and maintains policies and procedures designed to ensure, and which are reasonably expected to continue to ensure, continued compliance therewith.

(qq) Money Laundering Laws. The operations of the Company and its subsidiaries are and have been conducted at all times in compliance with applicable financial recordkeeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, the money laundering statutes of all jurisdictions, the rules and regulations thereunder and any related or similar rules, regulations or guidelines, issued, administered or enforced by any governmental agency (collectively, the “**Money Laundering Laws**”) and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any of its subsidiaries with respect to the Money Laundering Laws is pending or, to the knowledge of the Company, threatened.

14

(rr) OFAC. None of the Company, any of its subsidiaries or, to the knowledge of the Company, any director, officer, agent, employee, affiliate or person acting on behalf of the Company or any of its subsidiaries is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Treasury Department (“**OFAC**”); and the Company will not directly or indirectly use the proceeds of the offering, or lend, contribute or otherwise make available such proceeds to any subsidiary, joint venture partner or other person or entity, for the purpose of financing the activities of any person currently subject to any U.S. sanctions administered by OFAC.

(ss) Exchange Listing. The Common Stock is registered pursuant to Section 12(b) of the Exchange Act and is currently listed on the Exchange under the trading symbol “BEAT”. Except as disclosed in the Registration Statement or the Prospectus, there is no action pending by the Company or, to the Company’s knowledge, the Exchange to delist the Common Stock from the Exchange, nor has the Company received any notification that the Exchange is currently contemplating terminating such listing, except as otherwise disclosed in the Registration Statement or Prospectus. The Company has no intention to delist the Common Stock from the Exchange or to deregister the Common Stock under the Exchange Act, in either case, at any time during the period commencing on the date of this Agreement through and including the 90th calendar day after the termination of this Agreement. The Placement Shares have been approved for listing on the Exchange. The issuance and sale of the Placement Shares under this Agreement does

not contravene the rules and regulations of the Exchange.

(tt) Margin Rules. The Company owns no “margin securities” as that term is defined in Regulation U of the Board of Governors of the Federal Reserve System (the “**Federal Reserve Board**”), and none of the proceeds from the issuance, sale and delivery of the Placement Shares as contemplated by this Agreement and as described in the Registration Statement and the Prospectus will be used, directly or indirectly, for the purpose of purchasing or carrying any margin security, for the purpose of reducing or retiring any indebtedness which was originally incurred to purchase or carry any margin security or for any other purpose which might cause any of the shares of Common Stock to be considered a “purpose credit” within the meanings of Regulation T, U or X of the Federal Reserve Board.

(uu) Underwriter Agreements. The Company is not a party to any agreement with an agent or underwriter for any other “at-the-market” or continuous equity transaction.

(vv) Board of Directors. The qualifications of the persons serving as board members of the Company and the overall composition of the Company’s Board of Directors comply with the applicable requirements of the Exchange Act and the Sarbanes-Oxley Act and the listing rules of the Exchange applicable to the Company. At least one member of the Audit Committee of the Board of Directors of the Company qualifies as an “audit committee financial expert,” as such term is defined under Regulation S-K and the listing rules of the Exchange. In addition, at least a majority of the persons serving on the Board of Directors of the Company qualify as “independent,” as defined under the listing rules of the Exchange.

15

(ww) No Integration. Neither the Company, nor any of its affiliates, nor any person acting on its or their behalf has, directly or indirectly, made any offers or sales of any security or solicited any offers to buy any security, under circumstances that would cause the offer and sale of the Placement Shares hereunder to be integrated with prior offerings by the Company for purposes of the Securities Act that would require the registration of any such securities under the Securities Act.

(xx) No Material Defaults. Neither the Company nor any of its subsidiaries has defaulted on any installment on indebtedness for borrowed money or on any rental on one or more long-term leases, which defaults, individually or in the aggregate, could reasonably be expected to result in a Material Adverse Change. The Company has not filed a report pursuant to Section 13(a) or 15(d) of the Exchange Act since the filing of its last Annual Report on Form 10-K, indicating that it (i) has failed to pay any dividend or sinking fund installment on preferred stock or (ii) has defaulted on any installment on indebtedness for borrowed money or on any rental on one or more long-term leases, which defaults, individually or in the aggregate, could reasonably be expected to result in a Material Adverse Change.

(yy) Books and Records. The minute books of the Company and each of its subsidiaries have been made available to the Sales Agent and counsel for the Sales Agent, and such books (i) contain a substantially complete summary of all meetings and material actions of the board of directors (including each board committee) and stockholders of the Company (or analogous governing bodies and interest holders, as applicable) and each of its subsidiaries since the time of its respective incorporation or organization through the date of the latest meeting and action, and (ii) accurately in all material respects reflect all transactions referred to in such minutes.

(zz) Contracts Affecting Capital. There are no transactions, arrangements or other relationships between and/or among the Company, any of its affiliates (as such term is defined in Rule 405 under the Securities Act) and any unconsolidated entity, including, but not limited to, any structured finance, special purpose or limited purpose entity that could reasonably be expected to materially affect the Company’s liquidity or the availability of or requirements for its capital resources required to be described or incorporated by reference in the Registration Statement and the Prospectus which have not been described or incorporated by reference as required.

(aaa) Regulations. The disclosures in the Registration Statement and the Prospectus concerning the effects of federal, state, local and all foreign regulation on the Company’s business in the past and as currently contemplated are correct in all material respects and no other such regulations are required to be disclosed in the Registration Statement and the Prospectus which are not so disclosed.

16

(bbb) Regulatory Matters: Compliance. The material terms of all preclinical and other nonclinical studies and clinical trials conducted by or on behalf of the Company that are material to the Company have been adequately described in the Registration Statement or the Prospectus, in all material respects. The clinical trials and nonclinical studies conducted by or on behalf of the Company that are described in the Registration Statement and the Prospectus or the results of such trials and studies which are referred to in the Registration Statement and the Prospectus were and, if still ongoing, are being conducted in material compliance with all laws and regulations applicable thereto in the jurisdictions in which they are being conducted. The descriptions in the Registration Statement and the Prospectus of the results of such trials and studies are accurate and complete in all material respects and fairly present the data derived from such trials and studies, and the Company has no knowledge of any clinical trials the aggregate results of which are inconsistent with or otherwise call into question the results of any clinical trial conducted by or on behalf of the Company that are described in the Registration Statement and the Prospectus or the results of which are referred to in the Registration Statement and the Prospectus. Except as disclosed in the Registration Statement or the Prospectus, the Company has not received any written notices or other communications from the FDA, the European Medicines Agency (“**EMA**”) or any other governmental agency or authority imposing, requiring, requesting or suggesting a clinical hold, termination, suspension or material modification of any clinical trial that is described in the Registration Statement and the Prospectus or the results of which are referred to in the Registration Statement and the Prospectus. Except as disclosed in the Registration Statement or the Prospectus, the Company has not received any written notices or other communications from the FDA, the EMA or any other governmental agency, and otherwise has no knowledge of, or reason to believe that, (i) any investigational new drug application for a potential product of the Company is or has been rejected or determined to be non-approvable or conditionally approvable; and (ii) any license, approval, permit or authorization to conduct any clinical trial of any potential product of the Company has been, will be or may be suspended, revoked, modified or limited.

(ccc) Information Technology. The Company’s information technology assets and equipment, computers, systems, networks, hardware, software, websites, applications, and databases (collectively, “**IT Systems**”) are adequate for, and operate and perform in all material respects as required in connection with, the operation of the business of the Company as currently conducted, and to the knowledge of the Company are free and clear of all material bugs, errors, defects, Trojan horses, time bombs, malware and other corruptants. The Company has implemented and maintained commercially reasonable controls, policies, procedures, and safeguards to maintain and protect their material confidential information and the integrity, continuous operation, redundancy and security of all IT Systems and data (including all personal, personally identifiable, sensitive, confidential or regulated data (“**Personal Data**”)) used in connection with their businesses, and except as would not, individually or in the aggregate, result in a Material Adverse Change, there have been no breaches, violations, outages or unauthorized uses of or accesses to same, except for those that have been remedied without material cost or liability or the duty to notify any other person, nor any incidents under internal review or investigations relating to the same. The Company is presently in material compliance with all applicable laws or statutes and all judgments, orders, rules and regulations of any court or arbitrator or governmental or regulatory authority, internal policies and contractual obligations relating to the privacy and security of IT Systems and Personal Data and to the protection of such IT Systems and Personal Data from unauthorized use, access, misappropriation or modification. The disclosures in the Registration Statement and the Prospectus concerning the effects of federal, state, local and all foreign regulation on the Company’s business in the past and as currently contemplated are correct in all material respects and no other such regulations are required to be disclosed in the Registration Statement and the Prospectus which are not so disclosed. The Company has taken all necessary actions to comply materially with the European Union General Data Protection Regulation and all other applicable laws and regulations with respect to Personal Data that have been announced as of the date hereof as becoming effective within 12 months after the date hereof, and for which any non-compliance with same would be reasonably likely to create a material liability.

(ddd) Confidentiality and Non-Competitions. To the Company's knowledge, no director, officer, key employee or consultant of the Company is subject to any confidentiality, non-disclosure, non-competition agreement or non-solicitation agreement with any employer or prior employer that could reasonably be expected to materially affect his ability to be and act in his respective capacity of the Company or be expected to result in a Material Adverse Change.

(eee) Emerging Growth Company Status. From the date of the Company's incorporation through the date hereof, the Company has been and is an "emerging growth company," as defined in Section 2(a) of the Securities Act (an "Emerging Growth Company").

(fff) All Necessary Permits, etc. The Company and each of its subsidiaries holds, and is in compliance with, all franchises, grants, authorizations, licenses, permits, easements, consents, certificates and orders ("Permits") of any governmental or self-regulatory agency, authority or body required for the conduct of its business, and all such Permits are in full force and effect.

(ggg) Cybersecurity. (i)(x) There has been no security breach or other compromise of or relating to any of the Company's or any Subsidiary's information technology and computer systems, networks, hardware, software, data (including the data of its respective customers, employees, suppliers, vendors and any third party data maintained by or on behalf of it), equipment or technology (collectively, "IT Systems and Data") and (y) the Company and the Subsidiaries have not been notified of, and has no knowledge of any event or condition that would reasonably be expected to result in, any security breach or other compromise to its IT Systems and Data; (ii) the Company and the Subsidiaries are presently in compliance with all applicable laws or statutes and all judgments, orders, rules and regulations of any court or arbitrator or governmental or regulatory authority, internal policies and contractual obligations relating to the privacy and security of IT Systems and Data and to the protection of such IT Systems and Data from unauthorized use, access, misappropriation or modification, except as would not, individually or in the aggregate, have a Material Adverse Change; (iii) the Company and the Subsidiaries have implemented and maintained commercially reasonable safeguards to maintain and protect its material confidential information and the integrity, continuous operation, redundancy and security of all IT Systems and Data; and (iv) the Company and the Subsidiaries have implemented backup and disaster recovery technology consistent with commercially reasonable industry standards and practices.

Any certificate signed by an officer of the Company and delivered to the Sales Agent or to counsel for the Sales Agent pursuant to or in connection with this Agreement shall be deemed to be a representation and warranty by the Company to the Sales Agent as to the matters set forth therein.

The Company acknowledges that the Sales Agent and, for purposes of the opinions to be delivered pursuant to Section 7 hereof, counsel to the Company and counsel to the Sales Agent, will rely upon the accuracy and truthfulness of the foregoing representations and hereby consents to such reliance.

7. Covenants of the Company. The Company covenants and agrees with the Sales Agent that:

(a) Registration Statement Amendments. After the date of this Agreement and during any period in which a Prospectus relating to any Placement Shares is required to be delivered by the Sales Agent under the Securities Act (including in circumstances where such requirement may be satisfied pursuant to Rule 153 or Rule 172 under the Securities Act), (i) the Company will notify the Sales Agent promptly of the time when any subsequent amendment to the Registration Statement, other than documents incorporated by reference, has been filed with the Commission and/or has become effective or any subsequent supplement to the Prospectus has been filed and of any request by the Commission for any amendment or supplement to the Registration Statement or Prospectus or for additional information; (ii) the Company will prepare and file with the Commission, promptly upon the Sales Agent's reasonable request, any amendments or supplements to the Registration Statement or Prospectus that, in the Sales Agent's reasonable opinion, may be necessary or advisable in connection with the distribution of the Placement Shares by the Sales Agent (*provided, however*, that the failure of the Sales Agent to make such request shall not relieve the Company of any obligation or liability hereunder, or affect the Sales Agent's right to rely on the representations and warranties made by the Company in this Agreement, and *provided, further*, that the only remedy the Sales Agent shall have with respect to the failure to make such filing shall be to cease making sales under this Agreement until such amendment or supplement is filed); (iii) the Company will not file any amendment or supplement to the Registration Statement or Prospectus, other than documents incorporated by reference, relating to the Placement Shares or a security convertible into the Placement Shares unless a copy thereof has been submitted to the Sales Agent within a reasonable period of time before the filing and the Sales Agent has not reasonably objected thereto (*provided, however*, that the failure of the Sales Agent to make such objection shall not relieve the Company of any obligation or liability hereunder, or affect the Sales Agent's right to rely on the representations and warranties made by the Company in this Agreement, and *provided, further*, that the only remedy the Sales Agent shall have with respect to the failure by the Company to obtain such consent shall be to cease making sales under this Agreement); (iv) the Company will furnish to the Sales Agent at the time of filing thereof a copy of any document that upon filing is deemed to be incorporated by reference into the Registration Statement or Prospectus, except for those documents available via EDGAR; and (v) the Company will cause each amendment or supplement to the Prospectus, other than documents incorporated by reference, to be filed with the Commission as required pursuant to the applicable paragraph of Rule 424(b) of the Securities Act (without reliance on Rule 424(b)(8) of the Securities Act) or, in the case of any documents incorporated by reference, to be filed with the Commission as required pursuant to the Exchange Act, within the time period prescribed.

(b) Notice of Commission Stop Orders. The Company will advise the Sales Agent, promptly after it receives notice or obtains knowledge thereof, of the issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement or any notice objecting to, or other order preventing or suspending the use of, the Prospectus, of the suspension of the qualification of the Placement Shares for offering or sale in any jurisdiction, or of the initiation of any proceeding for any such purpose or any examination pursuant to Section 8(e) of the Securities Act, or if the Company becomes the subject of a proceeding under Section 8A of the Securities Act in connection with the offering of the Placement Shares; and it will promptly use its commercially reasonable efforts to prevent the issuance of any stop order or to obtain its withdrawal if such a stop order should be issued. Until such time as any stop order is lifted, the Sales Agent shall cease making offers and sales under this Agreement.

(c) Delivery of Prospectus; Subsequent Changes. During any period in which a Prospectus relating to the Placement Shares is required to be delivered by the Sales Agent under the Securities Act with respect to a pending sale of the Placement Shares (including in circumstances where such requirement may be satisfied pursuant to Rule 153 or Rule 172 under the Securities Act), the Company will comply in all material respects with all requirements imposed upon it by the Securities Act, as from time to time in force, and to file on or before their respective due dates all reports and any definitive proxy or information statements required to be filed by the Company with the Commission pursuant to Sections 13(a), 13(c), 14, 15(d) or any other provision of or under the Exchange Act. If during such period any event occurs as a result of which the Prospectus as then amended or supplemented would include an untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances then existing, not misleading, or if during such period it is necessary to amend or supplement the Registration Statement or Prospectus to comply with the Securities Act, the Company will promptly notify the Sales Agent to suspend the offering of Placement Shares during such period and the Company will promptly amend or supplement the Registration Statement or Prospectus (at the expense of the Company) so as to correct such statement or omission or effect such compliance; *provided, however*, that the Company may delay any such amendment or supplement if, in the reasonable judgment of the Company, it is in the best interests of the Company to do so.

(d) Listing of Placement Shares. During any period in which the Prospectus relating to the Placement Shares is required to be delivered by the Sales Agent under the Securities Act with respect to a pending sale of the Placement Shares (including in circumstances where such requirement may be satisfied pursuant to Rule 153 or Rule 172 under the Securities Act), the Company will use its commercially reasonable efforts to cause the Placement Shares to be listed on the Exchange and to qualify the Placement Shares for sale under the securities laws of such jurisdictions as the Sales Agent reasonably designates and to continue such qualifications in effect so long as required for the distribution of the Placement Shares; *provided, however*, that the Company shall not be required in connection therewith to qualify as a foreign corporation or dealer in securities or file a general consent to service of process in any jurisdiction.

20

(e) Delivery of Registration Statement and Prospectus. The Company will furnish to the Sales Agent and its counsel (at the expense of the Company) copies of the Registration Statement, the Prospectus (including all documents incorporated by reference therein) and all amendments and supplements to the Registration Statement or Prospectus that are filed with the Commission during any period in which a Prospectus relating to the Placement Shares is required to be delivered under the Securities Act (including all documents filed with the Commission during such period that are deemed to be incorporated by reference therein), in each case as soon as reasonably practicable and in such quantities as the Sales Agent may from time to time reasonably request and, at the Sales Agent's request, will also furnish copies of the Prospectus to each exchange or market on which sales of the Placement Shares may be made; *provided, however*, that the Company shall not be required to furnish any document (other than the Prospectus) to the Sales Agent to the extent such document is available on EDGAR.

(f) Earnings Statement. The Company will make generally available to its security holders as soon as practicable, but in any event not later than 15 months after the end of the Company's current fiscal quarter, an earnings statement of the Company and its subsidiaries (which need not be audited) covering a 12-month period that complies with Section 11(a) and Rule 158 of the Securities Act. The terms "earnings statement" and "make generally available to its security holders" shall have the meanings set forth in Rule 158 under the Securities Act.

(g) Expenses. The Company, whether or not the transactions contemplated hereunder are consummated or this Agreement is terminated in accordance with the provisions of Section 11 hereunder, will pay the following expenses all incident to the performance of its obligations hereunder, including, but not limited to, expenses relating to (i) the preparation, printing and filing of the Registration Statement and each amendment and supplement thereto, of each Prospectus and of each amendment and supplement thereto, (ii) the preparation, issuance and delivery of the Placement Shares, including any stock or other transfer taxes and any stamp or other duties payable upon the sale, issuance or delivery of the Placement Shares to the Sales Agent, (iii) the fees and disbursements of the counsel, accountants and other advisors to the Company in connection with the transactions contemplated by this Agreement; (iv) the qualification of the Placement Shares under securities laws in accordance with the provisions of Section 7(d) of this Agreement, including filing fees (*provided, however*, that any fees or disbursements of counsel for the Sales Agent in connection therewith shall be paid by the Sales Agent except as set forth in (ix) below), (v) the printing and delivery to the Sales Agent of copies of the Prospectus and any amendments or supplements thereto, and of this Agreement, (vi) the fees and expenses incurred in connection with the listing or qualification of the Placement Shares for trading on the Exchange, (vii) the fees and expenses of the transfer agent or registrar for the Common Stock; (viii) filing fees and expenses, if any, of the Commission and the FINRA Corporate Financing Department (*provided, however*, that any fees or disbursements of counsel for the Sales Agent in connection therewith shall be paid by the Sales Agent except as set forth in (ix) below) and (ix) the Company shall reimburse the Sales Agent for its reasonable and documented out-of-pocket expenses (including but not limited to the reasonable fees and documented expenses of counsel to the Sales Agent) in an amount not to exceed \$50,000; *provided further* that the Company shall reimburse the Sales Agent for its expenses (including but not limited to the fees and expenses of counsel to the Sales Agent) on an annual basis in an amount not to exceed \$10,000.

21

(h) Use of Proceeds. The Company will use the Net Proceeds as described in the Prospectus in the section entitled "Use of Proceeds."

(i) Notice of Other Sales. The Company (I) shall provide the Sales Agent notice as promptly as reasonably possible before it offers to sell, contracts to sell, sells, grants any option to sell or otherwise disposes of any shares of Common Stock (other than Placement Shares offered pursuant to the provisions of this Agreement) or securities convertible into or exchangeable for Common Stock, or warrants or any rights to purchase or acquire Common Stock, during the period beginning on the fifth (5th) Trading Day immediately prior to the date on which any Placement Notice is delivered to the Sales Agent hereunder and ending on the fifth (5th) Trading Day immediately following the final Settlement Date with respect to Placement Shares sold pursuant to such Placement Notice (or, if the Placement Notice has been terminated or suspended prior to the sale of all Placement Shares covered by a Placement Notice, the fifth (5th) Trading Day immediately following the date of such suspension or termination), and (II) will not directly or indirectly engage in any other "at-the-market" transaction to dispose of any shares of Common Stock (other than the Placement Shares offered pursuant to this Agreement) or securities convertible into or exchangeable for shares of Common Stock, warrants or any rights to purchase or acquire, shares of Common Stock, specifically relating to the registered "at-the-market" transaction, prior to the termination of this Agreement without the prior written consent of the Sales Agent; *provided, however*, that such notice requirements or restrictions, as the case may be, will not be required in connection with the Company's issuance or sale of (i) shares of Common Stock, options to purchase shares of Common Stock, other equity awards or shares of Common Stock issuable upon the exercise of options or other equity awards, pursuant to any employee or director stock option or benefits plan, stock ownership plan or dividend reinvestment plan of the Company whether now in effect or hereafter implemented, (ii) shares of Common Stock issuable upon exchange, conversion or redemption of securities or the exercise of warrants, options or other rights in effect or outstanding, and disclosed in filings by the Company available on EDGAR or otherwise in writing (including by email correspondence) to the Sales Agent and (iii) shares of Common Stock or securities convertible into or exchangeable for shares of Common Stock as consideration for mergers, acquisitions, sale or purchase of assets or other business combinations or strategic alliances occurring after the date of this Agreement which are not issued for capital raising purposes. Notwithstanding the foregoing, the Company shall provide the Sales Agent notice at least two (2) days prior to pursuing any private or public offerings of equity and/or other securities (including debt securities) in one or more transactions.

(j) Change of Circumstances. The Company will, at any time during a fiscal quarter in which the Company intends to tender a Placement Notice or sell Placement Shares, advise the Sales Agent promptly after it shall have received notice or obtained knowledge thereof, of any information or fact that would alter or affect in any material respect any opinion, certificate, letter or other document provided to the Sales Agent pursuant to this Agreement.

(k) Due Diligence Cooperation. The Company will cooperate with any reasonable due diligence review conducted by the Sales Agent or its agents in connection with the transactions contemplated hereby, including, without limitation, providing information and making available documents and senior corporate officers, during regular business hours and at the Company's principal offices, as the Sales Agent may reasonably request.

22

(l) Required Filings Relating to Placement of Placement Shares. The Company shall set forth in each Annual Report on Form 10-K and Quarterly Report on Form 10-Q filed by the Company with the Commission in respect of any quarter in which sales of Placement Shares were made by or through the Sales Agent under this Agreement, with regard to the relevant period, the amount of Placement Shares sold to or through the Sales Agent, the Net Proceeds to the Company and the compensation payable by the Company to the Sales Agent with respect to such sales of Placement Shares. To the extent that the filing of a prospectus supplement with the Commission with respect to any

sales of Placement Shares becomes required under Rule 424(b) under the Securities Act, the Company agrees that, on or before such dates as the Securities Act shall require, the Company will (i) file a prospectus supplement with the Commission under the applicable paragraph of Rule 424(b) under the Securities Act, which prospectus supplement will set forth, with regard to the relevant period, the amount of Placement Shares sold to or through the Sales Agent, the Net Proceeds to the Company and the compensation payable by the Company to the Sales Agent with respect to such Placement Shares, and (ii) deliver such number of copies of each such prospectus supplement to each exchange or market on which such sales were effected as may be required by the rules or regulations of such exchange or market. The Company shall afford the Sales Agent and its counsel with a reasonable opportunity to review and comment upon, shall consult with the Sales Agent and its counsel on the form and substance of, and shall give due consideration to all such comments from the Sales Agent or its counsel on, any such filing prior to the issuance, filing or public disclosure thereof; provided, however, that the Company shall not be required to submit for review (A) any portion of any periodic reports filed with the Commission under the Exchange Act other than the specific disclosure relating to any sales of Placement Shares and (B) any disclosure contained in periodic reports filed with the Commission under the Exchange Act if it shall have previously provided the same disclosure for review in connection with a previous filing.

(m) **Representation Dates; Certificate.** On or prior to the date the first Placement Notice is given hereunder and each time the Company (i) files the Prospectus relating to the Placement Shares or amends or supplements the Registration Statement or the Prospectus relating to the Placement Shares (other than (A) a prospectus supplement filed in accordance with Section 7(l) of this Agreement or (B) a supplement or amendment that relates to an offering of securities other than the Placement Shares) by means of a post-effective amendment, sticker, or supplement but not by means of incorporation of document(s) by reference to the Registration Statement or the Prospectus relating to the Placement Shares; (ii) files an annual report on Form 10-K under the Exchange Act (including any Form 10-K/A containing amended financial information or a material amendment to the previously filed Form 10-K); (iii) files a quarterly report on Form 10-Q under the Exchange Act; or (iv) files a current report on Form 8-K containing amended financial information (other than an earnings release, to “furnish” information pursuant to Items 2.02 or 7.01 of Form 8-K or to provide disclosure pursuant to Item 8.01 of Form 8-K relating to the reclassification of certain properties as discontinued operations in accordance with Statement of Financial Accounting Standards No. 144) under the Exchange Act (each date of filing of one or more of the documents referred to in clauses (i) through (iv) shall be a “**Representation Date**”), the Company shall furnish the Sales Agent within three (3) Trading Days after each Representation Date with a certificate, in the form attached hereto as **Exhibit 7(m)**. The requirement to provide a certificate under this Section 7(m) shall be waived for any Representation Date occurring at a time at which no Placement Notice is pending, which waiver shall continue until the earlier to occur of the date the Company delivers a Placement Notice hereunder (which for such calendar quarter shall be considered a Representation Date) and the next occurring Representation Date; *provided, however*, that such waiver shall not apply for any Representation Date on which the Company files its annual report on Form 10-K. Notwithstanding the foregoing, if the Company subsequently decides to sell Placement Shares following a Representation Date when the Company relied on such waiver and did not provide the Sales Agent with a certificate under this Section 7(m), then before the Company delivers the Placement Notice or the Sales Agent sells any Placement Shares, the Company shall provide the Sales Agent with a certificate, in the form attached hereto as **Exhibit 7(m)**, dated the date of the Placement Notice.

(n) **Legal Opinion.** On or prior to the date the first Placement Notice is given hereunder, the Company shall cause to be furnished to the Sales Agent the written opinion and negative assurance of Lucosky Brookman LLP, as counsel to the Company, or other counsel reasonably satisfactory to the Sales Agent (“**Company Counsel**”), substantially in the form previously agreed between the Company and the Sales Agent. Thereafter, within three (3) Trading Days after each Representation Date with respect to which the Company is obligated to deliver a certificate pursuant to Section 7(m) for which no waiver is applicable pursuant to Section 7(m), and not more than once per calendar quarter, the Company shall cause to be furnished to the Sales Agent the written opinion and negative assurance of each Company Counsel, as applicable, substantially in the forms previously agreed between the Company and the Sales Agent, modified, as necessary, to relate to the Registration Statement and the Prospectus as then amended or supplemented; *provided, however*, that if each Company Counsel has previously furnished to the Sales Agent such written opinion and negative assurance of such counsel, in each case substantially in the forms previously agreed between the Company and the Sales Agent, then each Company Counsel may, in respect of any future Representation Date, furnish the Sales Agent with a letter signed by such counsel (each, a “**Reliance Letter**”) in lieu of such opinion and negative assurance of such counsel to the effect that the Sales Agent may rely on the prior opinion and negative assurance of such counsel delivered pursuant to this Section 7(n) to the same extent as if it were dated the date of such Reliance Letter (except that statements in such prior opinion and negative assurance shall be deemed to relate to the Registration Statement and the Prospectus as amended or supplemented to the date of such Reliance Letter).

(o) **Comfort Letter.** On or prior to the date the first Placement Notice is given hereunder and within three (3) Trading Days after each subsequent Representation Date with respect to which the Company is obligated to deliver a certificate pursuant to Section 7(m) for which no waiver is applicable pursuant to Section 7(m), other than a Representation Date under Section 7(m)(iii) or Section 7(m)(iv) unless with respect to a Representation Date under Section 7(m)(iv) the Sales Agent reasonably requests delivery thereof, the Company shall cause its independent accountants to furnish the Sales Agent letters (the “**Comfort Letters**”), dated the date that the Comfort Letter is delivered, in form and substance satisfactory to the Sales Agent, (i) confirming that they are an independent registered public accounting firm within the meaning of the Securities Act, the Exchange Act and the rules and regulations of the PCAOB and are in compliance with the applicable requirements relating to the qualification of accountants under Rule 2-01 of Regulation S-X of the Commission, (ii) stating, as of such date, the conclusions and findings of such firm with respect to the financial information and other matters ordinarily covered by accountants’ “comfort letters” to the Sales Agent in connection with registered public offerings (the first such letter, the “**Initial Comfort Letter**”) and (iii) updating the Initial Comfort Letter with any information that would have been included in the Initial Comfort Letter had it been given on such date and modified as necessary to relate to the Registration Statement and the Prospectus, as amended and supplemented to the date of such letter.

(p) **Market Activities.** The Company will not, directly or indirectly, (i) take any action designed to cause or result in, or that constitutes or might reasonably be expected to constitute, the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of the Common Stock or (ii) sell, bid for, or purchase shares of Common Stock in violation of Regulation M, or pay anyone any compensation for soliciting purchases of the Placement Shares other than the Sales Agent.

(q) **Insurance.** The Company and its subsidiaries shall maintain insurance in such amounts and covering such risks as is reasonable and customary for the business in which it is engaged.

(r) **Investment Company Act.** The Company will conduct its affairs in such a manner so as to reasonably ensure that neither it nor its subsidiaries or, after giving effect to the offering and sale of the Placement Shares and the application of proceeds therefrom as described in the Prospectus, will be, an “investment company” within the meaning of such term under the Investment Company Act.

(s) **Securities Act and Exchange Act.** The Company will use its reasonable best efforts to comply with all requirements imposed upon it by the Securities Act and the Exchange Act as from time to time in force, so far as necessary to permit the continuance of sales of, or dealings in, the Placement Shares as contemplated by the provisions hereof and the Prospectus.

(t) **No Offer to Sell.** Other than the Prospectus and an Issuer Free Writing Prospectus approved in advance by the Company and the Sales Agent in its capacity as principal or agent hereunder, neither the Sales Agent nor the Company (including its agents and representatives, other than the Sales Agent in its capacity as such) will make, use, prepare, authorize, approve or refer to any written communication (as defined in Rule 405 under the Securities Act), required to be filed with the Commission, that constitutes an offer to sell or solicitation of an offer to buy Placement Shares hereunder.

(u) **Sarbanes-Oxley Act.** The Company and its subsidiaries will use their reasonable best efforts to comply with all effective applicable provisions of the Sarbanes-Oxley Act.

(v) **Emerging Growth Company Status.** The Company will promptly notify the Sales Agent if the Company ceases to be an Emerging Growth Company at any time during the term of this Agreement.

(w) Transfer Agent. The Company shall maintain, at its sole expense, a registrar and transfer agent for the Common Stock.

8. Conditions to the Sales Agent's Obligations. The obligations of the Sales Agent hereunder with respect to a Placement will be subject to the continuing accuracy and completeness of the representations and warranties made by the Company herein, to the due performance by the Company of its obligations hereunder, to the completion by the Sales Agent of a due diligence review satisfactory to the Sales Agent in its reasonable judgment, and to the continuing satisfaction (or waiver by the Sales Agent in its sole discretion) of the following additional conditions:

(a) Registration Statement Effective. The Registration Statement shall be effective and shall be available for the sale of all Placement Shares contemplated to be issued by any Placement Notice.

(b) Securities Act Filings Made. The Company shall have filed with the Commission the ATM Prospectus pursuant to Rule 424(b) under the Securities Act not later than the Commission's close of business on the second Business Day following the date of this Agreement. All other filings with the Commission required by Rule 424(b) or Rule 433 under the Securities Act to have been filed prior to the issuance of any Placement Notice hereunder shall have been made within the applicable time period prescribed for such filing by Rule 424(b) (without reliance on Rule 424(b)(8) of the Securities Act) or Rule 433, as applicable.

(c) No Material Notices. None of the following events shall have occurred and be continuing: (i) receipt by the Company or any of its subsidiaries of any request for additional information from the Commission or any other federal or state governmental authority during the period of effectiveness of the Registration Statement, the response to which would require any post-effective amendments or supplements to the Registration Statement or the Prospectus; (ii) the issuance by the Commission or any other federal or state governmental authority of any stop order suspending the effectiveness of the Registration Statement or the initiation of any proceedings for that purpose; (iii) receipt by the Company of any notification with respect to the suspension of the qualification or exemption from qualification of any of the Placement Shares for sale in any jurisdiction or the initiation or threatening of any proceeding for such purpose; (iv) the occurrence of any event that makes any material statement made in the Registration Statement or the Prospectus or any material document incorporated or deemed to be incorporated therein by reference untrue in any material respect or that requires the making of any changes in the Registration Statement, related Prospectus or such documents so that, in the case of the Registration Statement, it will not contain any materially untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein not misleading and, that in the case of the Prospectus, it will not contain any materially untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(d) No Misstatement or Material Omission. The Sales Agent shall not have advised the Company that the Registration Statement or Prospectus, or any amendment or supplement thereto, contains an untrue statement of fact that in the Sales Agent's reasonable opinion is material, or omits to state a fact that in the Sales Agent's reasonable opinion is material and is required to be stated therein or is necessary to make the statements therein not misleading.

(e) Material Changes. Except as contemplated in the Prospectus, or disclosed in the Company's reports filed with the Commission, there shall not have been any material adverse change in the authorized capital stock of the Company or any Material Adverse Change or any development that could reasonably be expected to result in a Material Adverse Change, or any downgrading in or withdrawal of the rating assigned to any of the Company's securities (other than asset backed securities) by any rating organization or a public announcement by any rating organization that it has under surveillance or review its rating of any of the Company's securities (other than asset backed securities), the effect of which, in the case of any such action by a rating organization described above, in the reasonable judgment of the Sales Agent (without relieving the Company of any obligation or liability it may otherwise have), is so material as to make it impracticable or inadvisable to proceed with the offering of the Placement Shares on the terms and in the manner contemplated by this Agreement and the Prospectus.

(f) Representation Certificate. The Sales Agent shall have received the certificate required to be delivered pursuant to Section 7(m) on or before the date on which delivery of such certificate is required pursuant to Section 7(m).

(g) Legal Opinions. The Sales Agent shall have received the opinion and negative assurance of each Company Counsel as required to be delivered pursuant to Section 7(n) on or before the date on which delivery of such opinion and negative assurance is required pursuant to Section 7(n).

(h) Comfort Letter. The Sales Agent shall have received the Comfort Letter required to be delivered pursuant to Section 7(o) on or before the date on which delivery of such Comfort Letter is required pursuant to Section 7(o).

(i) Officer's Certificate. On or prior to the date the first Placement Notice is given hereunder, the Sales Agent shall have received a certificate, signed on behalf of the Company by its Chief Financial Officer, certifying as to (i) the certificate of incorporation of the Company (as the same may be amended or restated from time to time), (ii) the bylaws of the Company (as the same may be amended or restated from time to time), (iii) the resolutions of the Board of Directors of the Company (or a committee thereof) authorizing the execution, delivery and performance of this Agreement and the issuance of the Placement Shares and (iv) the incumbency of the officers duly authorized to execute this Agreement and the other documents contemplated by this Agreement.

(j) No Suspension. Trading in the Common Stock shall not have been suspended on the Exchange and the Common Stock shall not have been delisted from the Exchange.

(k) Other Materials. On each date on which the Company is required to deliver a certificate pursuant to Section 7(m), the Company shall have furnished to the Sales Agent such appropriate further opinions, certificates, letters and documents as the Sales Agent may have reasonably requested. All such opinions, certificates, letters and other documents shall have been in compliance with the provisions hereof. The Company will furnish the Sales Agent with such conformed copies of such opinions, certificates, letters and other documents as the Sales Agent shall have reasonably requested.

(l) Approval for Listing. The Placement Shares shall either have been (i) approved for listing on the Exchange, subject only to notice of issuance, or (ii) the Company shall have filed an application for listing of the Placement Shares on the Exchange at, or prior to, the issuance of any Placement Notice.

(m) No Termination Event. There shall not have occurred any event that would permit the Sales Agent to terminate this Agreement pursuant to Section 11(a).

(n) FINRA. The Sales Agent shall have received a letter from the Corporate Financing Department of FINRA confirming that such department has determined to raise

no objection with respect to the fairness or reasonableness of the terms and arrangements related to the sale of the Placement Shares pursuant to this Agreement.

9. Indemnification and Contribution.

(a) Company Indemnification. The Company agrees to indemnify and hold harmless the Sales Agent, the directors, officers, members, partners, employees and agents of the Sales Agent, each broker dealer affiliate of the Sales Agent, and each Sales Agent Affiliate, if any, from and against any and all losses, claims, liabilities, expenses and damages (including, but not limited to, any and all reasonable investigative, legal and other expenses incurred in connection with, and any and all amounts paid in settlement (in accordance with Section 9(c)) of, any action, suit or proceeding between any of the indemnified parties and any indemnifying parties or between any indemnified party and any third party, or otherwise, or any claim asserted), as and when incurred, to which the Sales Agent, or any such person, may become subject under the Securities Act, the Exchange Act or other federal or state statutory law or regulation, at common law or otherwise, insofar as such losses, claims, liabilities, expenses or damages arise out of or are based, directly or indirectly, on (x) any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement or the Prospectus or any amendment or supplement thereto or in any Issuer Free Writing Prospectus or in any application or other document executed by or on behalf of the Company or based on written information furnished by or on behalf of the Company filed in any jurisdiction in order to qualify the Common Stock under the securities laws thereof or filed with the Commission, (y) the omission or alleged omission to state in any such document a material fact required to be stated in it or necessary to make the statements in it not misleading or (z) any breach by any of the indemnifying parties of any of their respective representations, warranties and agreements contained in this Agreement; *provided, however*, that this indemnity agreement shall not apply to the extent that such loss, claim, liability, expense or damage arises from the sale of the Placement Shares pursuant to this Agreement and is caused directly by an untrue statement or omission made in reliance upon and in strict conformity with written information relating to the Sales Agent and furnished to the Company by the Sales Agent or its agents expressly for inclusion in any document as described in clause (x) of this Section 9(a). This indemnity agreement will be in addition to any liability that the Company might otherwise have.

27

(b) The Sales Agent Indemnification. The Sales Agent agrees to indemnify and hold harmless the Company and its directors and each officer of the Company that signed the Registration Statement, and each person, if any, who (i) controls the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act or (ii) is controlled by or is under common control with the Company (each, a "Company Affiliate") from and against any and all losses, claims, liabilities, expenses and damages (including, but not limited to, any and all reasonable investigative, legal and other expenses incurred in connection with, and any and all amounts paid in settlement (in accordance with Section 9(c)) of, any action, suit or proceeding between any of the indemnified parties and any indemnifying parties or between any indemnified party and any third party, or otherwise, or any claim asserted), as and when incurred, to which any such Company Affiliate, may become subject under the Securities Act, the Exchange Act or other federal or state statutory law or regulation, at common law or otherwise, insofar as such losses, claims, liabilities, expenses or damages arise out of or are based, directly or indirectly, on (x) any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement or the Prospectus or any amendment or supplement thereto, or (y) the omission or alleged omission to state in any such document a material fact required to be stated in it or necessary to make the statements in it not misleading; *provided, however*, that this indemnity agreement shall apply only to the extent that such loss, claim, liability, expense or damage is caused directly by an untrue statement or omission made in reliance upon and in strict conformity with written information relating to the Sales Agent and furnished to the Company by the Sales Agent or its agents expressly for inclusion in any document as described in clause (x) of this Section 9(b).

(c) Procedure. Any party that proposes to assert the right to be indemnified under this Section 9 will, promptly after receipt of notice of commencement of any action against such party in respect of which a claim is to be made against an indemnifying party or parties under this Section 9, notify each such indemnifying party of the commencement of such action, enclosing a copy of all papers served, but the omission so to notify such indemnifying party will not relieve the indemnifying party from (i) any liability that it might have to any indemnified party otherwise than under this Section 9 and (ii) any liability that it may have to any indemnified party under the foregoing provision of this Section 9 unless, and only to the extent that, such omission results in the forfeiture of substantive rights or defenses by the indemnifying party. If any such action is brought against any indemnified party and it notifies the indemnifying party of its commencement, the indemnifying party will be entitled to participate in and, to the extent that it elects by delivering written notice to the indemnified party promptly after receiving notice of the commencement of the action from the indemnified party, jointly with any other indemnifying party similarly notified, to assume the defense of the action, with counsel reasonably satisfactory to the indemnified party, and after notice from the indemnifying party to the indemnified party of its election to assume the defense, the indemnifying party will not be liable to the indemnified party for any legal or other expenses except as provided below and except for the reasonable costs of investigation subsequently incurred by the indemnified party in connection with the defense. The indemnified party will have the right to employ its own counsel in any such action, but the fees, expenses and other charges of such counsel will be at the expense of such indemnified party unless (1) the employment of counsel by the indemnified party has been authorized in writing by the indemnifying party, (2) the indemnified party has reasonably concluded (based on advice of counsel) that there may be legal defenses available to it or other indemnified parties that are different from or in addition to those available to the indemnifying party, (3) a conflict or potential conflict exists (based on advice of counsel to the indemnified party) between the indemnified party and the indemnifying party (in which case the indemnifying party will not have the right to direct the defense of such action on behalf of the indemnified party) or (4) the indemnifying party has not in fact employed counsel to assume the defense of such action within a reasonable time after receiving notice of the commencement of the action, in each of which cases the reasonable fees, disbursements and other charges of counsel will be at the expense of the indemnifying party or parties. It is understood that the indemnifying party or parties shall not, in connection with any proceeding or related proceedings in the same jurisdiction, be liable for the reasonable fees, disbursements and other charges of more than one separate firm admitted to practice in such jurisdiction at any one time for all such indemnified party or parties. All such fees, disbursements and other charges will be reimbursed by the indemnifying party promptly as they are incurred. An indemnifying party will not, in any event, be liable for any settlement of any action or claim effected without its written consent. No indemnifying party shall, without the prior written consent of each indemnified party, settle or compromise or consent to the entry of any judgment in any pending or threatened claim, action or proceeding relating to the matters contemplated by this Section 9 (whether or not any indemnified party is a party thereto), unless such settlement, compromise or consent includes an unconditional release of each indemnified party from all liability arising or that may arise out of such claim, action or proceeding.

28

(d) Contribution. In order to provide for just and equitable contribution in circumstances in which the indemnification provided for in the foregoing paragraphs of this Section 9 is applicable in accordance with its terms but for any reason is held to be unavailable from the Company or the Sales Agent, the Company and the Sales Agent will contribute to the total losses, claims, liabilities, expenses and damages (including any investigative, legal and other expenses reasonably incurred in connection with, and any amount paid in settlement of, any action, suit or proceeding or any claim asserted, but after deducting any contribution received by the Company from persons other than the Sales Agent, such as persons who control the Company within the meaning of the Securities Act, officers of the Company who signed the Registration Statement and directors of the Company, who also may be liable for contribution) to which the Company and the Sales Agent may be subject in such proportion as shall be appropriate to reflect the relative benefits received by the Company on the one hand and the Sales Agent on the other. The relative benefits received by the Company on the one hand and the Sales Agent on the other hand shall be deemed to be in the same proportion as the total Net Proceeds from the sale of the Placement Shares (before deducting expenses) received by the Company bear to the total compensation received by the Sales Agent from the sale of Placement Shares on behalf of the Company. If, but only if, the allocation provided by the foregoing sentence is not permitted by applicable law, the allocation of contribution shall be made in such proportion as is appropriate to reflect not only the relative benefits referred to in the foregoing sentence but also the relative fault of the Company, on the one hand, and the Sales Agent, on the other, with respect to the statements or omission that resulted in such loss, claim, liability, expense or damage, or action in respect thereof, as well as any other relevant equitable considerations with respect to such offering. Such relative fault shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or omission or alleged omission to state a material fact relates to information supplied by the Company or the Sales Agent, the intent of the parties and their relative knowledge, access to information and opportunity to correct or prevent such statement or omission. The Company and the Sales Agent agree that it would not be just and equitable if contributions pursuant to this

Section 9(d) were to be determined by pro rata allocation or by any other method of allocation that does not take into account the equitable considerations referred to herein. The amount paid or payable by an indemnified party as a result of the loss, claim, liability, expense, or damage, or action in respect thereof, referred to above in this Section 9(d) shall be deemed to include, for the purpose of this Section 9(d), any legal or other expenses reasonably incurred by such indemnified party in connection with investigating or defending any such action or claim to the extent consistent with Section 9(c) hereof. Notwithstanding the foregoing provisions of this Section 9(d), the Sales Agent shall not be required to contribute any amount in excess of the commissions received by it under this Agreement and no person found guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) will be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. For purposes of this Section 9(d), any person who controls a party to this Agreement within the meaning of the Securities Act will have the same rights to contribution as that party (and any officers, directors, members, partners, employees or agents of the Sales Agent and each broker dealer affiliate of the Sales Agent will have the same rights to contribution as the Sales Agent), and each officer of the Company who signed the Registration Statement and each director of the Company will have the same rights to contribution as the Company, subject in each case to the provisions hereof. Any party entitled to contribution, promptly after receipt of notice of commencement of any action against such party in respect of which a claim for contribution may be made under this Section 9(d), will notify any such party or parties from whom contribution may be sought, but the omission to so notify will not relieve that party or parties from whom contribution may be sought from any other obligation it or they may have under this Section 9(d) except to the extent that the failure to so notify such other party materially prejudiced the substantive rights or defenses of the party from whom contribution is sought. Except for a settlement entered into pursuant to the last sentence of Section 9(c) hereof, no party will be liable for contribution with respect to any action or claim settled without its written consent if such consent is required pursuant to Section 9(c) hereof.

10. Representations and Agreements to Survive Delivery. The indemnity and contribution agreements contained in Section 9 of this Agreement and all representations and warranties of the Company herein or in certificates delivered pursuant hereto shall survive, as of their respective dates, regardless of (i) any investigation made by or on behalf of the Sales Agent, any controlling person of the Sales Agent, or the Company (or any of their respective officers, directors, members or controlling persons), (ii) delivery and acceptance of the Placement Shares and payment therefor or (iii) any termination of this Agreement.

29

11. Termination.

(a) The Sales Agent shall have the right by giving notice as hereinafter specified at any time to terminate this Agreement if (i) any Material Adverse Change, or any development that could reasonably be expected to result in a Material Adverse Change has occurred that, in the reasonable judgment of the Sales Agent, may materially impair the ability of the Sales Agent to sell the Placement Shares hereunder, (ii) the Company shall have failed, refused or been unable to perform any agreement on its part to be performed hereunder; *provided, however*, in the case of any failure of the Company to deliver (or cause another person to deliver) any certification, opinion, or letter required under Sections 7(m), 7(n) or 7(o), the Sales Agent's right to terminate shall not arise unless such failure to deliver (or cause to be delivered) continues for more than thirty (30) days from the date such delivery was required, (iii) any other condition of the Sales Agent's obligations hereunder is not fulfilled, or (iv) any suspension or limitation of trading in the Placement Shares or in securities generally on the Exchange shall have occurred (including automatic halt in trading pursuant to market-decline triggers, other than those in which solely program trading is temporarily halted), or a major disruption of securities settlements or clearing services in the United States shall have occurred, or minimum prices for trading have been fixed on the Exchange. Any such termination shall be without liability of any party to any other party except that the provisions of Section 7(g) (Expenses), Section 9 (Indemnification and Contribution), Section 10 (Representations and Agreements to Survive Delivery), Section 11(f), Section 16 (Applicable Law; Consent to Jurisdiction) and Section 17 (Waiver of Jury Trial) hereof shall remain in full force and effect notwithstanding such termination. If the Sales Agent elects to terminate this Agreement as provided in this Section 11(a), the Sales Agent shall provide the required notice as specified in Section 12 (Notices).

(b) The Company shall have the right, by giving five (5) days' notice as hereinafter specified in Section 12, to terminate this Agreement in its sole discretion at any time after the date of this Agreement. Any such termination shall be without liability of any party to any other party except that the provisions of Section 7(g), Section 9, Section 10, Section 11(f), Section 16 and Section 17 hereof shall remain in full force and effect notwithstanding such termination.

(c) The Sales Agent shall have the right, by giving five (5) days' notice as hereinafter specified in Section 12, to terminate this Agreement in its sole discretion at any time after the date of this Agreement. Any such termination shall be without liability of any party to any other party except that the provisions of Section 7(g), Section 9, Section 10, Section 11(f), Section 16 and Section 17 hereof shall remain in full force and effect notwithstanding such termination.

(d) Unless earlier terminated pursuant to this Section 11, this Agreement shall automatically terminate upon the earlier to occur of (i) issuance and sale of all of the Placement Shares to or through the Sales Agent on the terms and subject to the conditions set forth herein and (ii) the expiration of the Registration Statement on the third (3rd) anniversary of the initial effective date of the Registration Statement pursuant to Rule 415(a)(5) under the Securities Act; *provided* that the provisions of Section 7(g), Section 9, Section 10, Section 11(f), Section 16 and Section 17 hereof shall remain in full force and effect notwithstanding such termination.

(e) This Agreement shall remain in full force and effect unless terminated pursuant to Sections 11(a), (b), (c) or (d) above or otherwise by mutual agreement of the parties; *provided, however*, that any such termination by mutual agreement shall in all cases be deemed to provide that Section 7(g), Section 9, Section 10, Section 11(f), Section 16 and Section 17 shall remain in full force and effect.

30

(f) Any termination of this Agreement shall be effective on the date specified in such notice of termination; *provided, however*, that such termination shall not be effective until the close of business on the date of receipt of such notice by the Sales Agent or the Company, as the case may be. If such termination shall occur prior to the Settlement Date for any sale of Placement Shares, such termination shall not become effective until the close of business on such Settlement Date and such Placement Shares shall settle in accordance with the provisions of this Agreement.

12. Notices. All notices or other communications required or permitted to be given by any party to any other party pursuant to the terms of this Agreement shall be in writing, unless otherwise specified, and if sent to the Sales Agent, shall be delivered to:

A.G.P./Alliance Global Partners
590 Madison Avenue, 28th Floor
New York, NY 10022
Attention: Tom Higgins
Email: atm@allianceg.com

with a copy (which shall not constitute notice) to:

Sullivan & Worcester LLP
1633 Broadway
New York, New York 10019
Attention: Ron Ben-Bassat, Esq.

and if to the Company, shall be delivered to:

HeartBeam, Inc.
2118 Walsh Avenue, Suite 210
Santa Clara, CA 95050
Attention: Branislav Vajdic, Chief Executive Officer
Email: bvajdic@heartbeam.com

with a copy (which shall not constitute notice) to:

Lucosky Brookman LLP
111 Broadway, Suite 807
New York, NY 10006
Attention: Soyoun Lee, Esq.
Email: slee@lucbro.com

Each party may change such address for notices by sending to the other party to this Agreement written notice of a new address for such purpose. Each such notice or other communication shall be deemed given (i) when delivered personally or by verifiable facsimile transmission (with an original to follow) on or before 4:30 p.m., New York City time, on a Business Day or, if such day is not a Business Day, on the next succeeding Business Day, (ii) on the next Business Day after timely delivery to a nationally-recognized overnight courier and (iii) on the Business Day actually received if deposited in the U.S. mail (certified or registered mail, return receipt requested, postage prepaid). For purposes of this Agreement, "**Business Day**" shall mean any day on which the Exchange and commercial banks in the City of New York are open for business.

An electronic communication ("**Electronic Notice**") shall be deemed written notice for purposes of this Section 12 if sent to the electronic mail address specified by the receiving party under separate cover. Electronic Notice shall be deemed received at the time the party sending Electronic Notice receives confirmation of receipt by the receiving party (other than pursuant to auto-reply). Any party receiving Electronic Notice may request and shall be entitled to receive the notice on paper, in a nonelectronic form ("**Nonelectronic Notice**") which shall be sent to the requesting party within ten (10) days of receipt of the written request for Nonelectronic Notice.

13. Successors and Assigns. This Agreement shall inure to the benefit of and be binding upon the Company and the Sales Agent and its successors and permitted assigns and, as to Sections 5(b) and 9, the other indemnified parties specified therein. References to any of the parties contained in this Agreement shall be deemed to include the successors and permitted assigns of such party. Nothing in this Agreement, express or implied, is intended to confer upon any other person any rights, remedies, obligations or liabilities under or by reason of this Agreement, except as expressly provided in this Agreement. Neither party may assign its rights or obligations under this Agreement without the prior written consent of the other party; *provided, however*, that the Sales Agent may assign its rights and obligations hereunder to an affiliate of the Sales Agent without obtaining the Company's consent.

14. Adjustments for Share Splits. The parties acknowledge and agree that all share-related numbers contained in this Agreement shall be adjusted to take into account any share split, share dividend or similar event effected with respect to the Common Stock.

15. Entire Agreement; Amendment; Severability. This Agreement (including all schedules and exhibits attached hereto and Placement Notices issued pursuant hereto) and any other writing entered into by the parties relating to this Agreement constitutes the entire agreement and supersedes all other prior and contemporaneous agreements and undertakings, both written and oral, among the parties hereto with regard to the subject matter hereof. Neither this Agreement nor any term hereof may be amended except pursuant to a written instrument executed by the Company and the Sales Agent. In the event that any one or more of the provisions contained herein, or the application thereof in any circumstance, is held invalid, illegal or unenforceable as written by a court of competent jurisdiction, then such provision shall be given full force and effect to the fullest possible extent that it is valid, legal and enforceable, and the remainder of the terms and provisions herein shall be construed as if such invalid, illegal or unenforceable term or provision was not contained herein, but only to the extent that giving effect to such provision and the remainder of the terms and provisions hereof shall be in accordance with the intent of the parties as reflected in this Agreement.

16. Applicable Law; Consent to Jurisdiction. This Agreement shall be governed by, and construed in accordance with, the internal laws of the State of New York, without regard to the principles of conflicts of laws. Each party hereby irrevocably submits to the non-exclusive jurisdiction of the state and federal courts sitting in the City of New York, Borough of Manhattan, for the adjudication of any dispute hereunder or in connection with any transaction contemplated hereby, and hereby irrevocably waives, and agrees not to assert in any suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such suit, action or proceeding is brought in an inconvenient forum or that the venue of such suit, action or proceeding is improper. Each party hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof (certified or registered mail, return receipt requested) to such party at the address in effect for notices to it under this Agreement and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any manner permitted by law.

17. Waiver of Jury Trial. The Company and the Sales Agent each hereby irrevocably waives any right it may have to a trial by jury in respect of any claim based upon or arising out of this Agreement or any transaction contemplated hereby.

18. Absence of Fiduciary Relationship. The Company acknowledges and agrees that:

(a) the Sales Agent is acting solely as agent in connection with the sale of the Placement Shares contemplated by this Agreement and the process leading to such transactions, and no fiduciary or advisory relationship between the Company or any of its respective affiliates, stockholders (or other equity holders), creditors or employees or any other party, on the one hand, and the Sales Agent, on the other hand, has been or will be created in respect of any of the transactions contemplated by this Agreement, irrespective of whether the Sales Agent has advised or is advising the Company on other matters, and the Sales Agent has no obligation to the Company with respect to the transactions contemplated by this Agreement, except the obligations expressly set forth in this Agreement;

(b) the Company is capable of evaluating and understanding and understands and accepts the terms, risks and conditions of the transactions contemplated by this Agreement;

(c) the Sales Agent has not provided any legal, accounting, regulatory or tax advice with respect to the transactions contemplated by this Agreement, and the Company has consulted its own legal, accounting, regulatory and tax advisors to the extent it has deemed appropriate;

(d) the Company has been advised and is aware that the Sales Agent and its affiliates are engaged in a broad range of transactions which may involve interests that differ from those of the Company and that the Sales Agent has no obligation to disclose such interests and transactions to the Company by virtue of any fiduciary, advisory or agency relationship; and

(e) the Company waives, to the fullest extent permitted by law, any claims it may have against the Sales Agent, for breach of fiduciary duty or alleged breach of fiduciary duty and agrees that the Sales Agent shall have no liability (whether direct or indirect, in contract, tort or otherwise) to the Company in respect of such a fiduciary claim or to any person asserting a fiduciary duty claim on behalf of or in right of the Company, including stockholders, partners, employees or creditors of the Company.

19. Use of Information. The Sales Agent may not provide any information gained in connection with this Agreement and the transactions contemplated by this Agreement, including due diligence, to any third party other than its legal counsel advising it on this Agreement unless expressly approved by the Company in writing.

20. Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Delivery of an executed Agreement by one party to the other may be made by facsimile transmission.

21. Effect of Headings; Knowledge of the Company. The section and Exhibit headings herein are for convenience only and shall not affect the construction hereof. All references in this Agreement to the "knowledge of the Company" or the "Company's knowledge" or similar qualifiers shall mean the actual knowledge of the directors and officers of the Company, after due inquiry.

22. Definitions. As used in this Agreement, the following term has the meaning set forth below:

(a) "Applicable Time" means the date of this Agreement, each Representation Date, each date on which a Placement Notice is given, each Point of Sale, and each Settlement Date.

[Remainder of Page Intentionally Blank]

If the foregoing correctly sets forth the understanding between the Company and the Sales Agent, please so indicate in the space provided below for that purpose, whereupon this letter shall constitute a binding agreement between the Company and the Sales Agent.

Very truly yours,

HEARTBEAM, INC.

By: /s/ Richard Brounstein

Name: Richard Brounstein

Title: Chief Financial Officer

ACCEPTED as of the date first-above written:

A.G.P./ALLIANCE GLOBAL PARTNERS

By: /s/ Tom Higgins

Name: Tom Higgins

Title: Managing Director

SCHEDULE 1

Form of Placement Notice

From: HeartBeam, Inc.
To: A.G.P./Alliance Global Partners
Attention: [●]
Subject: Placement Notice
Date: [●], 202[●]
Ladies and Gentlemen:

Pursuant to the terms and subject to the conditions contained in the Sales Agreement (the "Sales Agreement") between HeartBeam, Inc., a Delaware corporation (the "Company"), and A.G.P./Alliance Global Partners (the "Sales Agent"), dated February 1, 2023, the Company hereby requests that the Sales Agent sell up to [●] shares of the Company's common stock, par value \$0.0001 per share (the "Placement Shares"), at a minimum market price of \$[●] per share, during the time period beginning [month, day, time] and ending [month, day, time] [and with no more than [●] Placement Shares sold in any one Trading Day].

[The Company may include such other sale parameters as it deems appropriate.]

Capitalized terms used and not defined herein shall have the respective meanings assigned to them in the Sales Agreement.

SCHEDULE 2

Notice Parties

HeartBeam, Inc.

Branislav Vajdic (bvajdic@heartbeam.com)

With copies to:

Rick Brounstein (rbrounstein@heartbeam.com)

The Sales Agent

Tom Higgins (thiggins@alliancecg.com)

With copies to:

atm@alliancecg.com

SCHEDULE 3

Compensation

The Company shall pay to the Sales Agent in cash, upon each sale of Placement Shares through the Sales Agent pursuant to this Agreement, an amount equal to 3.00% of the aggregate gross proceeds from each sale of Placement Shares.*

* The foregoing rate of compensation shall not apply when the Sales Agent purchases Placement Shares on a principal basis, in which case the Company may sell the Placement Shares to the Sales Agent as principal at a price to be mutually agreed upon by the Company and the Sales Agent at the relevant Point of Sale pursuant to the applicable Placement Notice (it being hereby acknowledged and agreed that the Sales Agent shall be under no obligation to purchase Placement Shares on a principal basis pursuant to the Sales Agreement, except as otherwise agreed by the Sales Agent and the Company in writing and expressly set forth in a Placement Notice).

Exhibit 7(m)

OFFICER CERTIFICATE

The undersigned, the duly qualified and appointed Chief Financial Officer of HeartBeam, Inc., a Delaware corporation (the "Company"), does hereby certify in such capacity and on behalf of the Company, pursuant to Section 7(m) of the Sales Agreement, dated February 1, 2023 (the "Sales Agreement"), between the Company and A.G.P./Alliance Global Partners, that:

- (i) the representations and warranties of the Company in Section 6 of the Sales Agreement (A) to the extent such representations and warranties are subject to qualifications and exceptions contained therein relating to materiality or Material Adverse Change, are true and correct on and as of the date hereof with the same force and effect as if expressly made on and as of the date hereof, except for those representations and warranties that speak solely as of a specific date and which were true and correct as of such date, and (B) to the extent such representations and warranties are not subject to any qualifications or exceptions, are true and correct in all material respects as of the date hereof as if made on and as of the date hereof with the same force and effect as if expressly made on and as of the date hereof except for those representations and warranties that speak solely as of a specific date and which were true and correct as of such date; and;
- (ii) the Company has complied with all agreements and satisfied all conditions on its part to be performed or satisfied pursuant to the Sales Agreement at or prior to the date hereof;
- (iii) as of the date hereof, (i) the Registration Statement does not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary in order to make the statements therein not misleading, (ii) the Prospectus does not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading and (iii) no event has occurred as a result of which it is necessary to amend or supplement the Registration Statement or the Prospectus in order to make the statements therein not untrue or misleading for clauses (i) and (ii) above, respectively, to be true and correct;
- (iv) there has been no Material Adverse Change since the date as of which information is given in the Prospectus, as amended or supplemented;
- (v) the Company does not currently possess any material non-public information; and

- (vi) the aggregate offering price of the Placement Shares that may be issued and sold pursuant to the Sales Agreement and the maximum number or amount of Placement Shares that may be sold pursuant to the Sales Agreement have been duly authorized by the Company's Board of Directors or a duly authorized committee thereof.

Terms used herein and not defined herein have the meanings ascribed to them in the Sales Agreement.

Dated: February 1, 2023

By: /s/ Richard Brounstein
Name: Richard Brounstein
Title: Chief Financial Officer

HEARTBEAM, INC.
AND
_____,
TRUSTEE
INDENTURE
DATED AS OF
_____, 2023
DEBT SECURITIES
HEARTBEAM, INC.
RECONCILIATION AND TIE BETWEEN TRUST INDENTURE ACT OF 1939
AND INDENTURE, DATED AS OF _____, 2023

Section of Trust Indenture Act of 1939	Section(s) of Indenture
§ 310(a)(1)	609
(a)(2)	609
(a)(3)	Not Applicable
(a)(4)	Not Applicable
(a)(5)	609
(b)	608, 610
§ 311(a)	613
(b)	613
(c)	Not Applicable
§ 312(a)	701, 702 (a)
(b)	702 (b)
(c)	702 (b)
§ 313(a)	703 (a)
(b)	703 (a)
(c)	703 (a)
(d)	703 (b)
§ 314(a)	704, 1005
(b)	Not Applicable
(c)(1)	103
(c)(2)	103
(c)(3)	Not Applicable
(d)	Not Applicable
(e)	103
§ 315(a)	601 (a)
(b)	602
(c)	601 (b)
(d)	601 (c)
(d)(1)	601 (c) (1)
(d)(2)	601 (c) (2)
(d)(3)	601 (c) (3)
(e)	511
§ 316(a)(1)(A)	505
(a)(1)(B)	504
(a)(2)	Not Applicable
(a)(last sentence)	101
(b)	507
(c)	105
§ 317(a)(1)	503
(a)(2)	509
(b)	1003
§ 318(a)	108
(b)	Not Applicable
(c)	108

Note: This reconciliation and tie shall not, for any purpose, be deemed to be a part of the Indenture.

TABLE OF CONTENTS

	Page
ARTICLE I DEFINITIONS AND OTHER PROVISIONS OF GENERAL APPLICATION	1
SECTION 101. DEFINITIONS.	1
SECTION 102. INCORPORATION BY REFERENCE OF TRUST INDENTURE ACT.	7
SECTION 103. COMPLIANCE CERTIFICATES AND OPINIONS.	8
SECTION 104. FORM OF DOCUMENTS DELIVERED TO TRUSTEE.	8
SECTION 105. ACTS OF HOLDERS; RECORD DATES.	9
SECTION 106. NOTICES, ETC., TO TRUSTEE AND COMPANY.	9
SECTION 107. NOTICE TO HOLDERS; WAIVER.	10
SECTION 108. CONFLICT WITH TRUST INDENTURE ACT.	10
SECTION 109. EFFECT OF HEADINGS AND TABLE OF CONTENTS.	10
SECTION 110. SUCCESSORS AND ASSIGNS.	11
SECTION 111. SEPARABILITY CLAUSE.	11

SECTION 112.	BENEFITS OF INDENTURE.	11
SECTION 113.	GOVERNING LAW.	11
SECTION 114.	LEGAL HOLIDAYS.	11
SECTION 115.	CORPORATE OBLIGATION.	11
SECTION 116.	WAIVER OF TRIAL JURY.	11
SECTION 117.	FORCE MAJEURE.	11

ARTICLE II SECURITY FORMS 12

SECTION 201.	FORMS GENERALLY.	12
SECTION 202.	FORM OF TRUSTEE'S CERTIFICATE OF AUTHENTICATION.	12
SECTION 203.	SECURITIES IN GLOBAL FORM.	12
SECTION 204.	BOOK-ENTRY SECURITIES.	13

ARTICLE III THE SECURITIES 15

SECTION 301.	AMOUNT UNLIMITED; ISSUABLE IN SERIES.	15
SECTION 302.	DENOMINATIONS.	17
SECTION 303.	EXECUTION, AUTHENTICATION, DELIVERY AND DATING.	17
SECTION 304.	TEMPORARY SECURITIES.	18
SECTION 305.	REGISTRATION, REGISTRATION OF TRANSFER AND EXCHANGE.	18
SECTION 306.	MUTILATED, DESTROYED, LOST AND STOLEN SECURITIES.	19
SECTION 307.	PAYMENT OF INTEREST; INTEREST RIGHTS PRESERVED.	20
SECTION 308.	PERSONS DEEMED OWNERS.	21
SECTION 309.	CANCELLATION.	21
SECTION 310.	COMPUTATION OF INTEREST.	21
SECTION 311.	CUSIP NUMBERS.	21

ARTICLE IV SATISFACTION AND DISCHARGE; LEGAL DEFEASANCE AND COVENANT DEFEASANCE 22

SECTION 401.	SATISFACTION AND DISCHARGE OF INDENTURE.	22
SECTION 402.	OPTION TO EFFECT LEGAL DEFEASANCE OR COVENANT DEFEASANCE.	22
SECTION 403.	LEGAL DEFEASANCE AND DISCHARGE.	23
SECTION 404.	COVENANT DEFEASANCE.	23
SECTION 405.	CONDITIONS TO LEGAL OR COVENANT DEFEASANCE.	23
SECTION 406.	DEPOSITED MONEY AND U.S. GOVERNMENT OBLIGATIONS TO BE HELD IN TRUST; OTHER MISCELLANEOUS PROVISIONS.	24
SECTION 407.	REPAYMENT TO COMPANY.	25
SECTION 408.	REINSTATEMENT.	25

ARTICLE V REMEDIES 25

SECTION 501.	EVENTS OF DEFAULT.	25
SECTION 502.	ACCELERATION.	26
SECTION 503.	OTHER REMEDIES.	27
SECTION 504.	WAIVER OF PAST DEFAULTS.	27
SECTION 505.	CONTROL BY MAJORITY.	27
SECTION 506.	LIMITATION ON SUITS.	27
SECTION 507.	RIGHTS OF HOLDERS OF SECURITIES TO RECEIVE PAYMENT.	28
SECTION 508.	COLLECTION SUIT BY TRUSTEE.	28
SECTION 509.	TRUSTEE MAY FILE PROOFS OF CLAIM.	28
SECTION 510.	PRIORITIES.	28
SECTION 511.	UNDERTAKING FOR COSTS.	29

ARTICLE VI THE TRUSTEE 29

SECTION 601.	CERTAIN DUTIES AND RESPONSIBILITIES.	29
SECTION 602.	NOTICE OF DEFAULTS.	30
SECTION 603.	CERTAIN RIGHTS OF TRUSTEE.	30
SECTION 604.	NOT RESPONSIBLE FOR RECITALS OR ISSUANCE OF SECURITIES.	31
SECTION 605.	MAY HOLD SECURITIES.	31
SECTION 606.	MONEY HELD IN TRUST.	31
SECTION 607.	COMPENSATION AND REIMBURSEMENT.	31
SECTION 608.	DISQUALIFICATION; CONFLICTING INTERESTS.	32
SECTION 609.	CORPORATE TRUSTEE REQUIRED; ELIGIBILITY.	32
SECTION 610.	RESIGNATION AND REMOVAL; APPOINTMENT OF SUCCESSOR.	33
SECTION 611.	ACCEPTANCE OF APPOINTMENT BY SUCCESSOR.	34
SECTION 612.	MERGER, CONVERSION, CONSOLIDATION OR SUCCESSION TO BUSINESS.	34
SECTION 613.	PREFERENTIAL COLLECTION OF CLAIMS AGAINST COMPANY.	35
SECTION 614.	APPOINTMENT OF AUTHENTICATING AGENT.	35

ARTICLE VII HOLDER'S LISTS AND REPORTS BY TRUSTEE AND COMPANY 36

SECTION 701.	COMPANY TO FURNISH TRUSTEE NAMES AND ADDRESSES OF HOLDERS.	36
SECTION 702.	PRESERVATION OF INFORMATION; COMMUNICATIONS TO HOLDERS.	36
SECTION 703.	REPORTS BY TRUSTEE.	36
SECTION 704.	REPORTS BY COMPANY.	37
ARTICLE VIII CONSOLIDATION, MERGER, CONVEYANCE, TRANSFER OR LEASE		37
SECTION 801.	COMPANY MAY CONSOLIDATE, ETC., ONLY ON CERTAIN TERMS.	37
SECTION 802.	SUCCESSOR PERSON SUBSTITUTED.	38
ARTICLE IX SUPPLEMENTAL INDENTURES		38
SECTION 901.	WITHOUT CONSENT OF HOLDERS.	38
SECTION 902.	WITH CONSENT OF HOLDERS.	38
SECTION 903.	COMPLIANCE WITH TRUST INDENTURE ACT.	40
SECTION 904.	REVOCATION AND EFFECT OF CONSENTS.	40
SECTION 905.	NOTATION ON OR EXCHANGE OF SECURITIES.	40
SECTION 906.	TRUSTEE TO SIGN AMENDMENTS, ETC.	40
ARTICLE X COVENANTS		40
SECTION 1001.	PAYMENT OF PRINCIPAL, PREMIUM AND INTEREST.	40
SECTION 1002.	MAINTENANCE OF OFFICE OR AGENCY.	40
SECTION 1003.	MONEY FOR SECURITIES PAYMENTS TO BE HELD IN TRUST.	41
SECTION 1004.	EXISTENCE.	42
SECTION 1005.	STATEMENT BY OFFICERS AS TO DEFAULT.	42
SECTION 1006.	WAIVER OF CERTAIN COVENANTS.	42
SECTION 1007.	ADDITIONAL AMOUNTS.	42
ARTICLE XI REDEMPTION OF SECURITIES		43
SECTION 1101.	APPLICABILITY OF ARTICLE.	43
SECTION 1102.	ELECTION TO REDEEM; NOTICE TO TRUSTEE.	43
SECTION 1103.	SELECTION BY TRUSTEE OF SECURITIES TO BE REDEEMED.	43
SECTION 1104.	NOTICE OF REDEMPTION.	44
SECTION 1105.	DEPOSIT OF REDEMPTION PRICE.	44
SECTION 1106.	SECURITIES PAYABLE ON REDEMPTION DATE.	44
SECTION 1107.	SECURITIES REDEEMED IN PART.	44
SECTION 1108.	PURCHASE OF SECURITIES.	45
ARTICLE XII SINKING FUNDS		45
SECTION 1201.	APPLICABILITY OF ARTICLE.	45
SECTION 1202.	SATISFACTION OF SINKING FUND PAYMENTS WITH SECURITIES.	45
SECTION 1203.	REDEMPTION OF SECURITIES FOR SINKING FUND.	45
ARTICLE XIII MEETINGS OF HOLDERS OF SECURITIES		46
SECTION 1301.	PURPOSES FOR WHICH MEETINGS MAY BE CALLED.	46
SECTION 1302.	CALL, NOTICE AND PLACE OF MEETINGS.	46
SECTION 1303.	PERSONS ENTITLED TO VOTE AT MEETINGS.	46
SECTION 1304.	QUORUM; ACTION.	46
SECTION 1305.	DETERMINATION OF VOTING RIGHTS; CONDUCT AND ADJOURNMENT OF MEETINGS.	47
SECTION 1306.	COUNTING VOTES AND RECORDING ACTION OF MEETINGS.	47

INDENTURE

THIS Indenture, dated as of _____, 2023, between HeartBeam, Inc., a corporation duly organized and existing under the laws of the State of Delaware (herein called the “Company”), having its principal office at 2118 Walsh Avenue, Suite 210 Santa Clara, CA 95050, and _____, a _____ banking corporation, as Trustee (herein called the “Trustee”) the office of the Trustee at which at the date hereof its corporate trust business is principally administered being _____.

RECITALS OF THE COMPANY

The Company has duly authorized the execution and delivery of this Indenture to provide for the issuance from time to time of its unsecured debentures, notes or other evidences of indebtedness (herein called the “Securities”), to be issued in one or more series as in this Indenture provided.

The Securities of each series will be in such form as may be established by or pursuant to a Board Resolution or in one or more indentures supplemental hereto, in each case with such appropriate insertions, omissions, substitutions, and other variations as are required or permitted by this Indenture, and may have such letters, numbers, or other marks of identification and such legends or endorsements placed thereon as may be required to comply with the rules of any securities exchange or as may, consistently herewith, be determined by the officers executing such Securities, as evidenced by their execution of the Securities.

This Indenture is subject to the provisions of the Trust Indenture Act and the rules and regulations of the SEC promulgated thereunder that are required to be part of this Indenture and, to the extent applicable, shall be governed by such provisions.

All things necessary to make this Indenture a valid agreement of the Company, in accordance with its terms, have been done.

NOW, THEREFORE, THIS INDENTURE WITNESSETH:

For and in consideration of the premises and the purchase of the Securities by the Holders thereof, it is mutually covenanted and agreed, for the equal and proportionate benefit of all Holders of the Securities or of series thereof, as follows:

**ARTICLE I
DEFINITIONS AND OTHER PROVISIONS
OF GENERAL APPLICATION**

SECTION 101. DEFINITIONS.

For all purposes of this Indenture, except as otherwise expressly provided or unless the context otherwise requires:

(1) the terms defined in this Article have the meanings assigned to them in this Article and include the plural as well as the singular;

(2) all accounting terms not otherwise defined herein have the meanings assigned to them in accordance with generally accepted accounting principles in the United States, and, except as otherwise herein expressly provided, the term “generally accepted accounting principles” with respect to any computation required or permitted hereunder shall mean such accounting principles as are generally accepted in the United States at the date of such computation; and

(3) the words “herein,” “hereof” and “hereunder” and other words of similar import refer to this Indenture as a whole and not to any particular Article, Section or other subdivision.

1

Certain terms, used principally in Article V, are defined in Section 102.

“Act” when used with respect to any Holder, has the meaning specified in Section 105.

“Additional Amounts” means any additional amounts that are required by the express terms of a Security or by or pursuant to a Board Resolution, under circumstances specified therein or pursuant thereto, to be paid by the Company with respect to certain taxes, assessments or other governmental charges imposed on certain Holders and that are owing to such Holders.

“Affiliate” of any specified Person means any other Person directly or indirectly controlling or controlled by or under direct or indirect common control with such specified Person. For the purposes of this definition, “control” when used with respect to any specified Person means the power to direct the management and policies of such Person, directly or indirectly, whether through the ownership of voting securities, by contract or otherwise; and the terms “controlling” and “controlled” have meanings correlative to the foregoing.

“Authenticating Agent” means any Person authorized by the Trustee to act on behalf of the Trustee pursuant to Section 614 to authenticate Securities of one or more series.

“Authorized Newspaper” means a newspaper, in the English language or in an official language of the country of publication, customarily published on each Business Day, whether or not published on Saturdays, Sundays or holidays, and of general circulation in the place in connection with which the term is used or in the financial community of such place. Where successive publications are required to be made in Authorized Newspapers, the successive publications may be made in the same or in different newspapers in the same city meeting the foregoing requirements and in each case on any Business Day.

“Board of Directors” means

- (1) with respect to a corporation, the board of directors of the corporation;
- (2) with respect to a partnership, the board of directors of the general partner of the partnership; and
- (3) with respect to any other Person, the board or committee of such Person serving a similar function.

“Board Resolution” means, with respect to any Person, a resolution of such Person duly adopted by the Board of Directors of such Person and in full force and effect.

“Book-Entry Security” has the meaning specified in Section 204.

“Business Day,” when used with respect to any Place of Payment, means each Monday, Tuesday, Wednesday, Thursday and Friday that is not a day on which banking institutions in that Place of Payment or the city in which the Corporate Trust Office is located are authorized or obligated by law or executive order to close.

“Capital Lease Obligation” means, at the time any determination thereof is to be made, the amount of the liability in respect of a capital lease that would at that time be required to be capitalized on a balance sheet in accordance with GAAP.

“Capital Stock” means:

- (i) in the case of a corporation, corporate stock;
- (ii) in the case of an association or business entity, any and all shares, interests, participations, rights or other equivalents (however designated) of corporate stock;
- (iii) in the case of a partnership or limited liability company, partnership or membership interests (whether general or limited); and
- (iv) any other interest or participation that confers on a Person the right to receive a share of the profits and losses of, or distributions of assets of, the issuing Person.

2

“Company” means the Person named as the “Company” in the first paragraph of this instrument until a successor Person shall have become such pursuant to the applicable provisions of this Indenture, and thereafter “Company” shall mean such successor Person.

“Company Request” and “Company Order” mean, respectively, a written request or order signed in the name of the Company by its Chairman of the Board, its President or a Vice President, and by its Treasurer, an Assistant Treasurer, its Controller, an Assistant Controller, its Secretary or an Assistant Secretary, and delivered to the Trustee.

“Corporate Trust Office” means the office of the Trustee at which at any particular time its corporate trust business shall be principally administered, which office at the date hereof is that indicated in the introductory paragraph of this Indenture or such other address as the Trustee may designate from time to time by notice to the Holders and the Company.

“Currency Agreement” means, with respect to any specified Person, any foreign exchange contract, currency swap agreement or other similar agreement or arrangement designed to protect such specified Person against fluctuations in currency values.

“Default” means an event or condition the occurrence of which is, or with the lapse of time or the giving of notice or both would be, an Event of Default.

“Defaulted Interest” has the meaning specified in Section 307.

“Depository” means, with respect to the Securities of any series issuable or issued in the form of a global Security, the Person designated as Depository by the Company pursuant to Section 301 until a successor Depository shall have become such pursuant to the applicable provisions of this Indenture, and thereafter “Depository” shall mean or include each Person who is then a Depository hereunder, and if at any time there is more than one such person, “Depository” as used with respect to the Securities of any series shall mean the Depository with respect to the Securities of that series.

“Dollar” or “\$” means a dollar or other equivalent unit in such coin or “currency of the United States as at the time shall be legal tender for the payment of public and private debts.

“Event of Default” has the meaning specified in Section 501.

“GAAP” means generally accepted accounting principles set forth in the opinions and pronouncements of the Accounting Principles Board of the American Institute of Certified Public Accountants and statements and pronouncements of the Financial Accounting Standards Board or in such other statements by such other entity as may be approved by a significant segment of the accounting profession of the United States of America, as in effect as of the date of issuance of Securities.

“Guarantee” means a guarantee (other than by endorsement of negotiable instruments for collection in the ordinary course of business), direct or indirect, in any manner (including, without limitation, by way of a pledge of assets or through letters of credit or reimbursement agreements), of all or any part of Indebtedness.

“Guarantor” means any Subsidiary that incurs a Guarantee.

“Hedging Agreement” means, with respect to any Person, any agreement with respect to the hedging of price risk associated with the purchase of commodities used in the business of such Person, so long as any such agreement has been entered into in the ordinary course of business and not for purposes of speculation.

“Holder” when used with respect to any Security, means the Person in whose name the Security is registered in the Security Register.

“Indebtedness” means, with respect to any specified Person, any indebtedness of such Person, whether or not contingent, in respect of:

(1) borrowed money;

(2) evidenced by bonds, notes, debentures or similar instruments or letters of credit (or reimbursement agreements in respect thereof) (other than obligations with respect to letters of credit securing obligations (other than obligations described in clause (1), (2) and (4) of this definition) entered into in the ordinary course of business of such Person to the extent that such letters of credit are not drawn upon);

(3) banker’s acceptances;

(4) any Capital Lease Obligations;

(5) the balance deferred and unpaid of the purchase price of any property, except any such balance that constitutes an accrued expense or trade payable incurred in the ordinary course of business; or

(6) any Hedging Agreements,

if and to the extent any of the preceding items (other than letters of credit and Hedging Agreements) would appear as a liability upon a balance sheet of the specified Person prepared in accordance with GAAP. In addition, the term “Indebtedness” includes all Indebtedness of others secured by a Lien on any asset of the specified Person (whether or not such Indebtedness is assumed by the specified Person) and, to the extent not otherwise included, the guarantee by the specified Person of any indebtedness of any other Person.

The amount of any Indebtedness outstanding as of any date shall be:

(1) the accreted value thereof, in the case of any Indebtedness issued with original issue discount; and

(2) the principal amount thereof, together with any interest thereon that is more than 30 days past due, in the case of any other Indebtedness.

“Indenture” means this instrument as originally executed or as it may from time to time be supplemented or amended by one or more indentures supplemental hereto entered into pursuant to the applicable provisions hereof and shall include the terms of particular series of Securities established as contemplated by Section 301 and the provisions of the Trust Indenture Act that are deemed to be a part of and govern this instrument.

“Interest Payment Date,” means the Stated Maturity of an installment of interest on such Security.

“Interest Swap Obligations,” means the obligations of any Person pursuant to any arrangement with any other Person, whereby directly or indirectly, such Person is entitled to receive from time to time periodic payments calculated by applying either a floating or a fixed rate of interest on a stated notional amount in exchange for periodic payments made by such other Person calculated by applying a fixed or a floating rate of interest on the same notional amount and shall include, without limitation, interest rate swaps, options, caps, floors, collars and similar agreements.

“Lien” means any lien, mortgage, deed of trust, pledge, security interest, charge or encumbrance of any kind (including any conditional sale or other title retention agreement, any lease in the nature thereof and any agreement to give any security interest).

“Maturity,” when used with respect to any Security, means the date on which the principal of such Security or an installment of principal becomes due and payable as therein or herein provided, whether at the Stated Maturity or by declaration of acceleration, call for redemption or otherwise.

4

“Officers’ Certificate” means a certificate signed by the Chairman of the Board, the President or a Vice President, and by the Treasurer, the Controller, the Secretary or an Assistant Treasurer, Assistant Controller or Assistant Secretary, of the Company, and delivered to the Trustee, which certificate shall be in compliance with Section 103 hereof.

“Opinion of Counsel” means a written opinion of counsel, who may be counsel for or an employee of the Company, rendered, if applicable, in accordance with Section 314(c) of the Trust Indenture Act, which opinion shall be in compliance with Section 103 hereof.

“Original Issue Discount Security” means any Security that provides for an amount less than the principal amount thereof to be due and payable upon a declaration of acceleration of the Maturity thereof pursuant to Section 502.

“Outstanding” when used with respect to Securities, means, as of the date of determination, all Securities theretofore authenticated and delivered under this Indenture, except:

(i) Securities theretofore cancelled by the Trustee or delivered to the Trustee for cancellation;

(ii) Securities for whose payment or redemption money in the necessary amount has been theretofore irrevocably deposited with the Trustee or any Paying Agent (other than the Company) in trust or set aside and segregated in trust by the Company (if the Company shall act as its own Paying Agent) for the Holders of such Securities; *provided* that, if such Securities are to be redeemed, notice of such redemption has been duly given pursuant to this Indenture or provision therefor satisfactory to the Trustee has been made; and

(iii) Securities that have been paid pursuant to Section 306 or in exchange for or in lieu of which other Securities have been authenticated and delivered pursuant to this Indenture, other than any such Securities in respect of which there shall have been presented to the Trustee proof satisfactory to it that such Securities are held by a bona fide purchaser in whose hands such Securities are valid obligations of the Company;

provided, however, that in determining whether the Holders of the requisite principal amount of the Outstanding Securities have given any request, demand, authorization, direction, notice, consent or waiver hereunder, or whether a quorum is present at a meeting of Holders of Securities, (a) the principal amount of an Original Issue Discount Security that shall be deemed to be Outstanding for such purposes shall be the principal amount thereof that would be due and payable as of the date of such determination upon acceleration of the Maturity thereof pursuant to Section 502, (b) the principal amount of a Security denominated in a foreign currency shall be the U.S. Dollar equivalent, determined by the Company on the date of original issuance of such Security, of the principal amount (or, in the case of an Original Issue Discount Security, the U.S. Dollar equivalent, determined on the date of original issuance of such Security, of the amount determined as provided in (a) above), of such Security and (c) Securities owned by the Company or any other obligor upon the Securities or any Affiliate of the Company or of such other obligor shall be disregarded and deemed not to be Outstanding, except that, in determining whether the Trustee shall be protected in relying upon any such request, demand, authorization, direction, notice, consent or waiver or upon any such determination as to the presence of a quorum, only Securities which the Trustee knows to be so owned shall be so disregarded. Securities so owned which have been pledged in good faith may be regarded as Outstanding if the pledgee establishes to the satisfaction of the Trustee the pledgee’s right so to act with respect to such Securities and that the pledgee is not the Company or any other obligor upon the Securities or any Affiliate of the Company or of such other obligor.

“Paying Agent” means any Person, which may include the Company, authorized by the Company to pay the principal of (and premium, if any) or interest on any one or more series of Securities on behalf of the Company.

“Person” means an individual, partnership, corporation, limited liability company, unincorporated organization, trust or joint venture, or a governmental agency or political subdivision thereof.

5

“Place of Payment” when used with respect to the Securities of any series, means the place or places where the principal of (and premium, if any) and interest on the Securities of that series are payable as specified in accordance with Section 301 subject to the provisions of Section 1002.

“Post-Petition Interest” means any interest that accrues after the commencement of any case, proceeding or other action relating to the bankruptcy, insolvency or reorganization of the Company (or would accrue but for the operation of applicable bankruptcy or insolvency laws), whether or not such interest is allowed or allowable as a claim in any such proceeding.

“Predecessor Security” of any particular Security means every previous Security evidencing all or a portion of the same debt as that evidenced by such particular Security; and, for the purposes of this definition, any Security authenticated and delivered under Section 306 in exchange for or in lieu of a mutilated, destroyed, lost or stolen Security shall be deemed to evidence the same debt as the mutilated, destroyed, lost or stolen Security.

“Redemption Date” when used with respect to any Security to be redeemed, means the date fixed for such redemption by or pursuant to this Indenture.

“Redemption Price” when used with respect to any Security to be redeemed, means the price at which it is to be redeemed pursuant to this Indenture.

“Registered Security” means any Security in the form established pursuant to Section 201 which is registered in the Security Register.

“Regular Record Date” for the interest payable on any Interest Payment Date on the Registered Securities of any series means the date specified for that purpose as contemplated by Section 301, or, if not so specified, the last day of the calendar month preceding such Interest Payment Date if such Interest Payment Date is the fifteenth day of the calendar month or the fifteenth day of the calendar month preceding such Interest Payment Date if such Interest Payment Date is the first day of a calendar month, whether or not such day shall be a Business Day.

“Responsible Officer” when used with respect to the Trustee, means any officer within the corporate trust department of the Trustee including any vice-president, assistant vice-president, assistant treasurer, trust officer or any other officer who customarily performs functions similar to those performed by the Persons who at the time shall be such officers who have direct responsibility for the administration of the Indenture and also means, with respect to a particular corporate trust matter, any other officer to

whom such matter is referred because of his knowledge of and familiarity with the particular subject.

“Securities” has the meaning stated in the first recital of this Indenture and more particularly means any Securities authenticated and delivered under this Indenture.

“Security Register” and “Security Registrar” have the respective meanings specified in Section 305.

“Special Record Date” for the payment of any Defaulted Interest on the Registered Securities of any series means a date fixed by the Trustee pursuant to Section 307.

“Stated Maturity” when used with respect to any Security or any installment of principal thereof or interest thereon, means the date specified in such Security as the fixed date on which the principal of such Security or such installment of principal or interest is due and payable.

6

“Subsidiary” means, with respect to any specified Person:

(i) any corporation of which the outstanding Capital Stock having at least a majority of the votes entitled to be cast in the election of directors under ordinary circumstances shall at the time be owned, directly or indirectly by such Person; or

(ii) any other Person of which at least a majority of the voting interest under ordinary circumstances is at the time, directly or indirectly, owned by such Person.

“Trustee” means the Person named as the “Trustee” in the first paragraph of this instrument until a successor Trustee shall have become such pursuant to the applicable provisions of this Indenture, and thereafter “Trustee” shall mean or include each Person who is then a Trustee hereunder, and if at any time there is more than one such Person, “Trustee” as used with respect to the Securities of any series shall mean the Trustee with respect to Securities of that series.

“Trust Indenture Act” means the Trust Indenture Act of 1939 as in force at the date as of which this instrument was executed, except as provided in Section 903.

“United States” means the United States of America (including the States and the District of Columbia) and its “possessions,” which include Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa, Wake Island and the Northern Mariana Islands.

“United States Alien” means any Person who, for United States federal income tax purposes, is a foreign corporation, a nonresident alien individual, a nonresident alien or foreign fiduciary of an estate or trust, or a foreign partnership.

“U.S. Government Obligations” means direct noncallable obligations of, or noncallable obligations the payment of principal of and interest on which is guaranteed by, the United States of America, or to the payment of which obligations or guarantees the full faith and credit of the United States of America is pledged, or beneficial interests in a trust the corpus of which consists exclusively of money or such obligations or a combination thereof.

“Vice President” when used with respect to the Company or the Trustee, means any vice president, whether or not designated by a number or a word or words added before or after the title “vice president”.

“Wholly Owned Subsidiary” of any Person means any Subsidiary of such Person of which all the outstanding voting securities (other than in the case of a Restricted Subsidiary that is incorporated in a jurisdiction other than a State in the United States of America or the District of Columbia, directors’ qualifying shares or an immaterial amount of shares required to be owned by other Persons pursuant to applicable law) are owned by such Person or any Wholly Owned Subsidiary of such Person.

“Yield to Maturity” when used with respect to any Original Issue Discount Security, means the yield to maturity, if any, set forth on the face thereof.

SECTION 102. INCORPORATION BY REFERENCE OF TRUST INDENTURE ACT.

Whenever this Indenture refers to a provision of the Trust Indenture Act, the provision is incorporated by reference in and made a part of this Indenture. The following Trust Indenture Act terms used in this Indenture have the following meanings:

“Bankruptcy Act” means the Bankruptcy Act or Title 11 of the United States Code, as amended.

“indenture securities” means the Securities.

“indenture securityholder” means a Holder.

“indenture to be qualified” means this Indenture.

“indenture trustee” or “institutional trustee” means the Trustee.

“obligor” on the indenture securities means the Company or any other obligor on the Securities.

7

All terms used in this Indenture that are defined by the Trust Indenture Act, defined by Trust Indenture Act reference to another statute or defined by SEC rule under the Trust Indenture Act and not otherwise defined herein have the meanings assigned to them therein.

SECTION 103. COMPLIANCE CERTIFICATES AND OPINIONS.

Except as otherwise expressly provided by this Indenture, upon any application or request by the Company to the Trustee to take any action under any provision of this Indenture, the Company shall furnish to the Trustee an Officers’ Certificate stating that all conditions precedent, if any (including any covenants the compliance with which constitutes a condition precedent), provided for in this Indenture relating to the proposed action have been complied with and an Opinion of Counsel stating that in the opinion of such counsel all such conditions precedent, if any (including any covenants the compliance with which constitutes a condition precedent), have been complied with, except that in the case of any such application or request as to which the furnishing of such documents is specifically required by any provision of this Indenture relating to such particular application or request, no additional certificate or opinion need be furnished.

Every certificate or opinion with respect to compliance with a condition or covenant provided for in this Indenture shall include

(1) a statement that each Person signing such certificate or opinion has read such covenant or condition and the definitions herein relating thereto;

(2) a brief statement as to the nature and scope of the examination or investigation upon which the statements or opinions contained in such certificate or opinion are based;

(3) a statement that, in the opinion of each such Person, such Person has made such examination or investigation as is necessary to enable such Person to express an informed opinion as to whether or not such covenant or condition has been complied with; and

(4) a statement as to whether or not, in the opinion of each such Person, such condition or covenant has been complied with.

SECTION 104. FORM OF DOCUMENTS DELIVERED TO TRUSTEE.

In any case where several matters are required to be certified by, or covered by an opinion of, any specified Person, it is not necessary that all such matters be certified by, or covered by the opinion of, only one such Person, or that they be so certified or covered by only one document, but one such Person may certify or give an opinion with respect to some matters and one or more other such Persons as to other matters, and any such Person may certify or give an opinion as to such matters in one or several documents.

Any certificate or opinion of an officer of the Company may be based, insofar as it relates to legal matters, upon a certificate or opinion of, or representations by, counsel, unless such officer knows, or in the exercise of reasonable care should know, that the certificate or opinion or representations with respect to the matters upon which his certificate or opinion is based are erroneous. Any such certificate or Opinion of Counsel may be based, insofar as it relates to factual matters, upon a certificate or opinion of, or representations by, an officer or officers of the Company stating that the information with respect to such factual matters is in the possession of the Company, unless such counsel knows, or in the exercise of reasonable care should know, that the certificate or opinion or representations with respect to such matters are erroneous.

Where any Person is required to make, give or execute two or more applications, requests, consents, certificates, statements, opinions or other instruments under this Indenture, they may, but need not, be consolidated and form one instrument.

SECTION 105. ACTS OF HOLDERS; RECORD DATES.

(1) Any request, demand, authorization, direction, notice, consent, waiver or other action provided by this Indenture to be given or taken by Holders may be embodied in and evidenced by one or more instruments of substantially similar tenor signed by such Holders in person or by an agent duly appointed in writing. Except as herein otherwise expressly provided, such action shall become effective when such instrument or instruments or record or both are delivered to the Trustee and, where it is hereby expressly required, to the Company. Such instrument or instruments and any such record (and the action embodied therein and evidenced thereby) are herein sometimes referred to as the "Act" of the Holders signing such instrument or instruments and so voting at any such meeting. Proof of execution of any such instrument or of a writing appointing any such agent, or the holding of any Person of a Security, shall be sufficient for any purpose of this Indenture and (subject to Section 601) conclusive in favor of the Trustee and the Company, if made in the manner provided in this Section. The record of any meeting of Holders of Securities shall be proved in the manner provided in Section 1306.

The Company may set in advance a record date for purposes of determining the identity of Holders of Registered Securities entitled to vote or consent to any action by vote or consent authorized or permitted under this Indenture. If not set by the Company prior to the first solicitation of a Holder of Registered Securities of such series made by any Person in respect of any such action, or in the case of any such vote, prior to such vote, the record date for any such action or vote shall be the later of 30 days prior to such first solicitation of such consent or the date of the most recent list of Holders furnished to the Trustee prior to such solicitation. If a record date is fixed, those Persons who were Holders of Outstanding Registered Securities at such record date (or their duly designated proxies), and only those Persons, shall be entitled with respect to such Securities to take such action by vote or consent or to revoke any vote or consent previously given, whether or not such Persons continue to be Holders after such record date. Promptly after any record date is set pursuant to this paragraph, the Company, at its own expense, shall cause notice thereof to be given to the Trustee in writing in the manner provided in Section 106 and to the relevant Holders as set forth in Section 107.

(2) The fact and date of the execution by any Person of any such instrument or writing may be proved by the affidavit of a witness of such execution or by a certificate of a notary public or other officer authorized by law to take acknowledgments of deeds, certifying that the individual signing such instrument or writing acknowledged to him the execution thereof. Where such execution is by a signer acting in a capacity other than his individual capacity, such certificate or affidavit shall also constitute sufficient proof of his authority. The fact and date of the execution of any such instrument or writing, or the authority of the Person executing the same, may also be proved in any other manner which the Trustee deems sufficient.

(3) The principal amount and serial numbers of Registered Securities held by any Person, and the date of holding the same, shall be proved by the Security Register.

(4) Any request, demand, authorization, direction, notice, consent, waiver or other Act of the Holder of any Security shall bind every future Holder of the same Security and the Holder of every Security issued upon the registration of transfer thereof or in exchange therefor or in lieu thereof in respect of anything done, omitted or suffered to be done by the Trustee or the Company in reliance thereon, whether or not notation of such action is made upon such Security. Any Holder or subsequent Holder may revoke the request, demand, authorization, direction, notice, consent or other Act as to his Security or portion of his Security; *provided, however*, that such revocation shall be effective only if the Trustee receives the notice of revocation before the date the Act becomes effective.

SECTION 106. NOTICES, ETC., TO TRUSTEE AND COMPANY.

Any request, demand, authorization, direction, notice, consent, waiver or Act of Holders or other document provided or permitted by this Indenture to be made upon, given or furnished to, or filed with,

(1) the Trustee by any Holder or by the Company shall be sufficient for every purpose hereunder if made, given, furnished or filed in writing to or with the Trustee at its Corporate Trust Office, Attention: Corporate Trust Administration, or

(2) the Company by the Trustee or by any Holder shall be sufficient for every purpose hereunder (unless otherwise herein expressly provided) if in writing and mailed, first-class postage prepaid, to the Company addressed to it at the address of its principal office specified in the first paragraph of this Indenture or at any other address previously furnished in writing to the Trustee by the Company, Attention: Corporate Secretary.

All notices and communications (other than those sent to the Trustee) shall be deemed to have been duly given: at the time delivered by hand, if personally delivered; five Business Days after being deposited in the mail, postage prepaid, if mailed; when receipt acknowledged, if telecopied; and the next Business Day after timely delivery to the courier, if sent by overnight air courier guaranteeing next-day delivery. All notices and communications to the Trustee shall be deemed duly given and effective only upon receipt.

Any notice or communication to a Holder shall be mailed by first class mail, certified or registered, return receipt requested, or by overnight air courier guaranteeing next-day delivery to its address shown on the Security Register. Any notice or communication shall also be so mailed to any Person described in TIA Section 313(c), to the extent required by the TIA. Failure to mail a notice or communication to a Holder or any defect in it shall not affect its sufficiency with respect to other Holders.

If a notice or communication is mailed in the manner provided above within the time prescribed, it is duly given, whether or not the addressee receives it.

If the Company mails a notice or communication to Holders, it shall mail a copy to the Trustee and each Agent at the same time.

SECTION 107. NOTICE TO HOLDERS; WAIVER.

Where this Indenture provides for notice to Holders of Securities of any event, such notice shall be sufficiently given (unless otherwise herein expressly provided) if in writing and mailed, first-class postage prepaid, to each Holder affected by such event, at the address of such Holder as it appears in the Security Register, not later than the latest date, and not earlier than the earliest date, prescribed for the giving of such notice.

In case by reason of the suspension of regular mail service, or by reason of any other cause it shall be impracticable to give such notice to Holders of Registered Securities by mail, then such notification as shall be made with the approval of the Trustee shall constitute a sufficient notification for every purpose hereunder. In any case in which notice to Holders of Registered Securities is given by mail, neither the failure to mail such notice, nor any defect in any notice so mailed, to any particular Holder of a Registered Security, shall affect the sufficiency of such notice with respect to other Holders of Registered Securities.

Where this Indenture provides for notice in any manner, such notice may be waived in writing by the Person entitled to receive such notice, either before or after the event, and such waiver shall be the equivalent of such notice. Waivers of notice by Holders shall be filed with the Trustee, but such filing shall not be a condition precedent to the validity of any action taken in reliance upon such waiver.

SECTION 108. CONFLICT WITH TRUST INDENTURE ACT.

If any provision hereof limits, qualifies or conflicts with any provision of the Trust Indenture Act or another provision hereof required to be included in this Indenture by any of the provisions of the Trust Indenture Act, such provision of the Trust Indenture Act shall control. If any provision of this Indenture modifies or excludes any provision of the Trust Indenture Act that may be so modified or excluded, the former provision shall be deemed to apply to this Indenture as so modified or to be excluded.

SECTION 109. EFFECT OF HEADINGS AND TABLE OF CONTENTS.

The Article and Section headings herein and the Table of Contents are for convenience only and shall not affect the construction hereof.

SECTION 110. SUCCESSORS AND ASSIGNS.

All covenants and agreements in this Indenture by the Company shall bind its successors and assigns, whether or not so expressed.

SECTION 111. SEPARABILITY CLAUSE.

In case any provision in this Indenture or in the Securities shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

SECTION 112. BENEFITS OF INDENTURE.

Nothing in this Indenture or in the Securities, express or implied, shall give to any Person, other than the parties hereto and their successors hereunder, any Authenticating Agent, Paying Agent and Security Registrar, and the Holders, any benefit or any legal or equitable right, remedy or claim under this Indenture.

SECTION 113. GOVERNING LAW.

This Indenture and the Securities shall be governed by and construed in accordance with the laws of the State of New York, but without giving effect to applicable principles of conflicts of law to the extent the application of the laws of another jurisdiction would be required thereby.

SECTION 114. LEGAL HOLIDAYS.

In any case where any Interest Payment Date, Redemption Date or Stated Maturity of any Security shall not be a Business Day at any Place of Payment, then (notwithstanding any other provision of this Indenture or of the Securities) payment of principal and interest (and premium and Additional Amounts, if any) need not be made at such Place of Payment on such date, but may be made on the next succeeding Business Day at such Place of Payment with the same force and effect as if made on the Interest Payment Date or Redemption Date, or at the Stated Maturity, *provided* that no interest shall accrue for the period from and after such Interest Payment Date, Redemption Date or Stated Maturity, as the case may be.

SECTION 115. CORPORATE OBLIGATION.

No recourse may be taken, directly or indirectly, against any incorporator, subscriber to the capital stock, stockholder, officer, director or employee of the Company or the Trustee or of any predecessor or successor of the Company or the Trustee with respect to the Company's obligations on the Securities or the obligations of the Company or the Trustee under this Indenture or any certificate or other writing delivered in connection herewith.

SECTION 116. WAIVER OF TRIAL JURY.

EACH OF THE COMPANY AND THE TRUSTEE HEREBY IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, ANY AND ALL RIGHT TO TRIAL BY JURY IN ANY LEGAL PROCEEDING ARISING OUT OF OR RELATING TO THIS INDENTURE, THE NOTES OR THE TRANSACTION CONTEMPLATED HEREBY.

SECTION 117. FORCE MAJEURE.

In no event shall the Trustee be responsible or liable for any failure or delay in the performance of its obligations hereunder arising out of or caused by, directly or indirectly, forces beyond its control, including, without limitation, strikes, work stoppages, accidents, acts of war or terrorism, civil or military disturbances, nuclear or natural catastrophes or acts of God, and interruptions, loss or malfunctions of utilities, communications or computer (software and hardware) services; it being understood that the Trustee shall use reasonable efforts which are consistent with accepted practices in the banking industry to resume performance as soon as practicable under the circumstances.

**ARTICLE II
SECURITY FORMS**

SECTION 201. FORMS GENERALLY.

The Securities of each series shall be Registered Securities and shall be in substantially such form or forms (including temporary or permanent global form) as shall be established by or pursuant to a Board Resolution or in one or more indentures supplemental hereto, in each case with such appropriate insertions, omissions, substitutions and other variations as are required or permitted by this Indenture and may have such letters, numbers or other marks of identification and such legends or endorsements placed thereon as may be required to comply with the rules of any securities exchange or as may, consistently herewith, be determined by the officers executing such Securities, as evidenced by their execution of the Securities. If temporary Securities of any series are issued in global form as permitted by Section 304, the form thereof shall be established as provided in the preceding sentence. A copy of the Board Resolution establishing the form or forms of Securities of any series (or any such temporary global Security) shall be delivered to the Trustee at or prior to the delivery of the Company Order contemplated by Section 303 for the authentication and delivery of such Securities (or any such temporary global Security).

The definitive Securities shall be printed, lithographed or engraved on steel engraved borders or may be produced in any other manner, all as determined by the officers executing such Securities, as evidenced by their execution thereof.

SECTION 202. FORM OF TRUSTEE'S CERTIFICATE OF AUTHENTICATION.

The Trustee's certificate of authentication shall be in substantially the following form:

"This is one of the Securities of the series designated therein referred to in the within-mentioned Indenture.

By _____
AUTHORIZED OFFICER"

SECTION 203. SECURITIES IN GLOBAL FORM.

If Securities of a series are issuable in global form, as contemplated by Section 301, then, notwithstanding clause (10) of Section 301 and the provisions of Section 302, any such Security shall represent such of the Outstanding Securities of such series as shall be specified therein and may provide that it shall represent the aggregate amount of Outstanding Securities from time to time endorsed thereon and that the aggregate amount of Outstanding Securities represented thereby may from time to time be reduced to reflect exchanges. Any endorsement of a Security in global form to reflect the amount, or any increase or decrease in the amount, of Outstanding Securities represented thereby shall be made by the Trustee in such manner and upon instructions given by such Person or Persons as shall be specified in such Security or in a Company Order to be delivered to the Trustee pursuant to Section 303 or Section 304. Subject to the provisions of Section 303 and, if applicable, Section 304, the Trustee shall deliver and redeliver any Security in permanent global form in the manner and upon instructions given by the Person or Persons specified in such Security or in the applicable Company Order. If a Company Order pursuant to Section 303 or 304 has been, or simultaneously is, delivered, any instructions by the Company with respect to endorsement or delivery or redelivery of a Security in global form shall be in writing but need not comply with Section 103 and need not be accompanied by an Opinion of Counsel.

The provisions of the last sentence of Section 303 shall apply to any Security in global form if such Security was never issued and sold by the Company and the Company delivers to the Trustee the Security in global form together with written instructions (which need not comply with Section 103 and need not be accompanied by an Opinion of Counsel) with regard to the reduction in the principal amount of Securities represented thereby, together with the written statement contemplated by the last sentence of Section 303.

Notwithstanding the provisions of Sections 201 and 307, unless otherwise specified as contemplated by Section 301, payment of principal of (and premium, if any) and interest on any Security in permanent global form shall be made to the Person or Persons specified therein.

Notwithstanding the provisions of Section 308 and except as provided in the preceding paragraph, the Company, the Trustee and any agent of the Company or of the Trustee shall treat a Person as the Holder of such principal amount of Outstanding Securities represented by a global Security as shall be specified in a written statement, if any, of the Holder of such global Security, which is produced to the Security Registrar by such Holder.

Global Securities may be issued in either temporary or permanent form. Permanent global Securities will be issued in definitive form.

SECTION 204. BOOK-ENTRY SECURITIES.

Notwithstanding any provision of this Indenture to the contrary:

(a) At the discretion of the Company, any Registered Security may be issued from time to time, in whole or in part, in permanent global form registered in the name of a Depository, or its nominee. Each such Registered Security in permanent global form is hereafter referred to as a "Book-Entry Security." Subject to Section 303, upon such election, the Company shall execute, and the Trustee or an Authenticating Agent shall authenticate and deliver, one or more Book-Entry Securities that (i) are denominated in an amount equal to the aggregate principal amount of the Outstanding Securities of such series if elected in whole or such lesser amount if elected in part, (ii) are registered in the name of the Depository or its nominee, (iii) are delivered by the Trustee or an Authenticating Agent to the Depository or pursuant to the Depository's instructions and (iv) bear a legend in substantially the following form (or such other form as the Depository and the Company may agree upon):

UNLESS THIS SECURITY IS PRESENTED BY AN AUTHORIZED REPRESENTATIVE OF [THE DEPOSITARY], TO THE COMPANY OR ITS AGENT FOR REGISTRATION OF TRANSFER, EXCHANGE OR PAYMENT, AND ANY CERTIFICATE ISSUED IS REGISTERED IN THE NAME OF [NOMINEE OF THE DEPOSITARY] OR IN SUCH OTHER NAME AS IS REQUESTED BY AN AUTHORIZED REPRESENTATIVE OF [THE DEPOSITARY] (AND ANY PAYMENT IS MADE TO [NOMINEE OF THE DEPOSITARY] OR TO SUCH OTHER ENTITY AS IS REQUESTED BY AN AUTHORIZED REPRESENTATIVE OF [THE DEPOSITARY]), ANY TRANSFER, PLEDGE OR OTHER USE HEREOF FOR VALUE OR OTHERWISE BY OR TO ANY PERSON IS WRONGFUL INASMUCH AS THE REGISTERED OWNER HEREOF, [NOMINEE OF THE DEPOSITARY], HAS AN INTEREST HEREIN.

(b) Any Book-Entry Security shall be initially executed and delivered as provided in Section 303. Notwithstanding any other provision of this Indenture, unless and until it is exchanged in whole or in part for Registered Securities not issued in global form, a Book-Entry Security may not be transferred except as a whole by the Depositary to a nominee of such Depositary, by a nominee of such Depositary to such Depositary or another nominee of such Depositary, or by such Depositary or any such nominee to a successor Depositary or a nominee of such successor Depositary.

(c) If at any time the Depositary notifies the Company or the Trustee that it is unwilling or unable to continue as Depositary for any Book-Entry Securities, the Company shall appoint a successor Depositary, whereupon the retiring Depositary shall surrender or cause the surrender of its Book-Entry Security or Securities to the Trustee. The Trustee shall promptly notify the Company upon receipt of such notice. If a successor Depositary has not been so appointed by the effective date of the resignation of the Depositary, the Book-Entry Securities will be issued as Registered Securities not issued in global form, in an aggregate principal amount equal to the principal amount of the Book-Entry Security or Securities theretofore held by the Depositary.

13

The Company may at any time and in its sole discretion determine that the Securities shall no longer be Book-Entry Securities represented by a global certificate or certificates, and will so notify the Depositary. Upon receipt of such notice, the Depositary shall promptly surrender or cause the surrender of its Book-Entry Security or Securities to the Trustee. Concurrently therewith, Registered Securities not issued in global form will be issued in an aggregate principal amount equal to the principal amount of the Book-Entry Security or Securities theretofore held by the Depositary.

Upon any exchange of Book-Entry Securities for Registered Securities not issued in global form as set forth in this Section 204(c), such Book-Entry Securities shall be cancelled by the Trustee, and Securities issued in exchange for such Book-Entry Securities pursuant to this Section shall be registered in such names and in such authorized denominations as the Depositary for such Book-Entry Securities, pursuant to instructions from its direct or indirect participants or otherwise, shall instruct the Trustee. The Trustee or any Authenticating Agent shall deliver such Securities to the Persons in whose names such Securities are so registered.

(d) The Company and the Trustee shall be entitled to treat the Person in whose name any Book-Entry Security is registered as the Holder thereof for all purposes of the Indenture and any applicable laws, notwithstanding any notice to the contrary received by the Trustee or the Company; and the Trustee and the Company shall have no responsibility for transmitting payments to, communication with, notifying, or otherwise dealing with any beneficial owners of any Book-Entry Security. Neither the Company nor the Trustee shall have any responsibility or obligations, legal or otherwise, to the beneficial owners or to any other party including the Depositary, except for the Holder of any Book-Entry Security; *provided however*, notwithstanding anything herein to the contrary, (i) for the purposes of determining whether the requisite principal amount of Outstanding Securities have given, made or taken any request, demand, authorization, direction, notice, consent, waiver, instruction or other action hereunder as of any date, the Trustee shall treat any Person specified in a written statement of the Depositary with respect to any Book-Entry Securities as the Holder of the principal amount of such Securities set forth therein and (ii) nothing herein shall prevent the Company, the Trustee, or any agent of the Company or Trustee, from giving effect to any written certification, proxy or other authorization furnished by a Depositary with respect to any Book-Entry Securities, or impair, as between a Depositary and holders of beneficial interests in such Securities, the operation of customary practices governing the exercise of the rights of the Depositary as Holder of such Securities.

(e) So long as any Book-Entry Security is registered in the name of a Depositary or its nominee, all payments of the principal of (and premium, if any) and interest on such Book-Entry Security and redemption thereof and all notices with respect to such Book-Entry Security shall be made and given, respectively, in the manner provided in the arrangements of the Company with such Depositary.

14

ARTICLE III THE SECURITIES

SECTION 301. AMOUNT UNLIMITED; ISSUABLE IN SERIES.

The aggregate principal amount of Securities that may be authenticated and delivered under this Indenture is unlimited.

The Securities may be issued in one or more series. There shall be established in or pursuant to a Board Resolution, and set forth in an Officers' Certificate, or established in one or more indentures supplemental hereto, prior to the issuance of Securities of any series:

(1) the title of the Securities of the series (which shall distinguish the Securities of the series from all other Securities);

(2) any limit, if any, upon the aggregate principal amount of the Securities of the series that may be authenticated and delivered under this Indenture (except for Securities authenticated and delivered upon registration or transfer of, or in exchange for, or in lieu of, other Securities of the series pursuant to Section 304, 305, 306, 905 or 1107);

(3) whether Securities of the series are to be issuable as Registered Securities, whether any Securities of the series are to be issuable initially in temporary global form and whether any Securities of the series are to be issuable in permanent global form, as Book-Entry Securities or otherwise, and, if so, whether beneficial owners of interests in any such permanent global Security may exchange such interests for Securities of such series and of like tenor of any authorized form and denomination and the circumstances under which any such exchanges may occur, if other than in the manner provided in Section 305, and the Depositary for any global Security or Securities;

(4) the manner in which any interest payable on a temporary global Security on any Interest Payment Date will be paid if other than in the manner provided in Section 304;

(5) the date or dates on which the principal of (and premium, if any, on) the Securities of the series is payable or the method of determination thereof;

(6) the rate or rates, or the method of determination thereof, at which the Securities of the series shall bear interest, if any, whether and under what circumstances Additional Amounts with respect to such Securities shall be payable, the date or dates from which such interest shall accrue, the Interest Payment Dates on which such interest shall be payable and, if other than as set forth in Section 101, the Regular Record Date for the interest payable on any Registered Securities on any Interest Payment Date;

(7) if other than the Corporate Trust Office of the Trustee, the place or places where, subject to the provisions of Section 1002, the principal of (and premium, if any), any interest on and any Additional Amounts with respect to the Securities of the series shall be payable;

(8) the period or periods within which, the price or prices (whether denominated in cash, securities or otherwise) at which and the terms and conditions upon which Securities of the series may be redeemed, in whole or in part, at the option of the Company, if the Company is to have that option, and the manner in which the Company must exercise any such option;

(9) the obligation, if any, of the Company to redeem or purchase Securities of the series pursuant to any sinking fund or analogous provisions or at the option of a Holder thereof and the period or periods within which, the price or prices (whether denominated in cash, securities or otherwise) at which and the terms and conditions upon which Securities of the series shall be redeemed or purchased in whole or in part pursuant to such obligation;

(10) the denomination in which any Registered Securities of that series shall be issuable, if other than denominations of \$2,000 and any integral multiple of \$1,000 in excess thereof;

(11) the currency or currencies (including composite currencies) in which payment of the principal of (and premium, if any), any interest on and any Additional Amounts with respect to the Securities of the series shall be payable if other than the currency of the United States of America;

(12) if the principal of (and premium, if any) or interest on the Securities of the series are to be payable, at the election of the Company or a Holder thereof, in a currency or currencies (including composite currencies) other than that in which the Securities are stated to be payable, the currency or currencies (including composite currencies) in which payment of the principal of (and premium, if any) and interest on and any Additional Amounts with respect to Securities of such series as to which such election is made shall be payable, and the periods within which and the terms and conditions upon which such election is to be made;

15

(13) if the amount of payments of principal of (and premium, if any), any interest on and any Additional Amounts with respect to the Securities of the series may be determined with reference to any commodities, currencies or indices, or values, rates or prices, the manner in which such amounts shall be determined;

(14) if other than the entire principal amount thereof, the portion of the principal amount of Securities of the series that shall be payable upon declaration of acceleration of the Maturity thereof pursuant to Section 502;

(15) any additional means of satisfaction and discharge of this Indenture with respect to Securities of the series pursuant to Section 401, any additional conditions to discharge pursuant to Section 401, 402, 403, 404, or 405, and the application, if any, of Section 403 and 404;

(16) any deletions or modifications of or additions to the Events of Default set forth in Section 501, the right of the Trustee or the requisite Holders of such Securities to declare the principal amount thereof due and payable pursuant to Section 502, or the covenants of the Company set forth in Article X pertaining to the Securities of the series;

(17) the terms, if any, on which the Securities of any series may be converted into or exchanged for stock or other securities of the Company or other entities, any specific terms relating to the adjustment thereof and the period during which such Securities may be so converted or exchanged;

(18) whether the Securities of a series will be issued as part of units consisting of Securities and other securities of the Company or another issuer; and

(19) any other terms of the series permitted under the provisions of the Trust Indenture Act.

All Securities of any one series shall be substantially identical except, in the case of Registered Securities, as to denomination and except as may otherwise be provided in or pursuant to the Board Resolution referred to above and (subject to Section 303) set forth, or determined in the manner provided, in the Officers' Certificate referred to above or in any such indenture supplemental hereto.

All Securities of any one series need not be issued at the same time and, unless otherwise provided in such Board Resolution or supplemental indenture, a series may be reopened for issuances of additional Securities of such series pursuant to a Board Resolution or in any indenture supplemental hereto.

At the option of the Company, interest on the Registered Securities of any series that bears interest may be paid by mailing a check or otherwise transmitting payment to the address of any Holder as such address shall appear in the Security Register.

If any of the terms of the series are established by action taken pursuant to a Board Resolution, a copy of an appropriate record of such action together with such Board Resolution shall be certified by the Secretary or an Assistant Secretary of the Company and delivered to the Trustee at or prior to the delivery of the Officers' Certificate setting forth the terms of the series.

16

SECTION 302. DENOMINATIONS.

The Securities of each series shall be issuable in such denominations as shall be specified as contemplated by Section 301. In the absence of any such provisions with respect to the Securities of any series, the Registered Securities of such series denominated in Dollars shall be issuable in denominations of \$2,000 and any integral multiple of \$1,000 in excess thereof. Unless otherwise provided as contemplated by Section 301 with respect to any series of Securities, any Securities of a series denominated in a currency other than Dollars shall be issuable in denominations that are the equivalent, as determined by the Company by reference to the noon buying rate in the City of New York for cable transfers for such currency, as such rate is reported or otherwise made available by the Federal Reserve Bank of New York, on the applicable issue date for such Securities, of \$2,000 and any integral multiple of \$1,000 in excess thereof.

SECTION 303. EXECUTION, AUTHENTICATION, DELIVERY AND DATING.

The Securities shall be executed on behalf of the Company by its Chairman of the Board, its Chief Executive Officer, its President, its Chief Financial Officer, its Treasurer or one of its Vice Presidents, under its corporate seal reproduced thereon or affixed thereto attested by its Secretary or one of its Assistant Secretaries. The signature of any of these officers on the Securities may be manual or facsimile. Coupons shall bear the facsimile signature of the Chairman of the Board, President, Treasurer or any Vice President of the Company.

Securities bearing the manual or facsimile signatures of individuals who were at any time the proper officers of the Company shall bind the Company, notwithstanding that such individuals or any of them have ceased to hold such offices prior to the authentication and delivery of such Securities or did not hold such offices at the date of such Securities.

At any time and from time to time after the execution and delivery of this Indenture, the Company may deliver Securities of any series executed by the Company to the Trustee for authentication, together with a Company Order for the authentication and delivery of such Securities, and the Trustee in accordance with the Company Order shall authenticate and deliver such Securities as in this Indenture provided and not otherwise.

If the form or terms of the Securities of the series have been established in or pursuant to one or more Board Resolutions or Officer's Certificate as permitted by Sections 201 and 301, in authenticating such Securities, and accepting the additional responsibilities under this Indenture in relation to such Securities, the Trustee shall be given (in addition to the other documents required by Section 103 hereof), and (subject to Section 601) shall be fully protected in relying upon, an Opinion of Counsel stating,

(a) if the form of such Securities has been established by or pursuant to Board Resolution as permitted by Section 201, that such form has been established in conformity with the provisions of this Indenture;

(b) if the terms of such Securities have been established by or pursuant to Board Resolution as permitted by Section 301, that such terms have been established in conformity with the provisions of this Indenture; and

(c) that such Securities, when authenticated and delivered by the Trustee and issued by the Company in the manner and subject to any conditions specified in such Opinion of Counsel, will constitute legal, valid and binding obligations of the Company, enforceable in accordance with their terms, except as such enforcement is subject to the effect of bankruptcy, insolvency, fraudulent conveyance, reorganization or other laws relating to or affecting creditors' rights, and general principles of equity (regardless of whether such enforcement is considered in a proceeding in equity or at law); *provided* that such Opinion of Counsel need express no opinion as to whether a court in the United States would render a money judgment in currency other than that of the United States.

If such form or terms have been so established, the Trustee shall not be required to authenticate such Securities if the issue of such Securities pursuant to this Indenture will affect the Trustee's own rights, duties or immunities under the Securities and this Indenture or otherwise in a manner not reasonably acceptable to the Trustee.

Each Security shall be dated the date of its authentication.

No Security shall be entitled to any benefit under this Indenture or be valid or obligatory for any purpose unless there appears on such Security a certificate of authentication substantially in the form provided for herein executed by the Trustee by manual signature, and such certificate upon any Security shall be conclusive evidence, and the only evidence, that such Security has been duly authenticated and delivered hereunder. Notwithstanding the foregoing, if any Security shall have been authenticated and delivered hereunder but never issued and sold by the Company, and the Company shall deliver such Security to the Trustee for cancellation as provided in Section 309 together with a written statement (which need not comply with Section 103 and need not be accompanied by an Opinion of Counsel) stating that such Security has never been issued and sold by the Company, for all purposes of this Indenture such Security shall be deemed never to have been authenticated and delivered hereunder and shall never be entitled to the benefits of this Indenture.

SECTION 304. TEMPORARY SECURITIES.

Pending the preparation of definitive Securities of any series, the Company may execute, and upon Company Order, the Trustee shall authenticate and deliver, temporary Securities that are printed, lithographed, typewritten, mimeographed or otherwise produced, in any authorized denomination, substantially of the tenor of the definitive Securities in lieu of which they are issued, in registered form and with such appropriate insertions, omissions, substitutions and other variations as the officers of the Company executing such Securities may determine, as evidenced by their execution of such Securities.

Except in the case of temporary Securities in global form (which shall be exchanged in accordance with the provisions of the following paragraphs), if temporary Securities of any series are issued, the Company will cause definitive Securities of that series to be prepared without unreasonable delay. After the preparation of definitive Securities of such series, the temporary Securities of such series shall be exchangeable for definitive Securities of such series upon surrender of the temporary Securities of such series at the office or agency of the Company in a Place of Payment for that series, without charge to the Holder. Upon surrender for cancellation of any one or more temporary Securities of any series, the Company shall execute and the Trustee shall authenticate and deliver in exchange therefor a like principal amount of definitive Securities of the same series of authorized denominations. Until so exchanged, the temporary Securities of any series shall in all respects be entitled to the same benefits under this Indenture as definitive Securities of such series.

All Outstanding temporary Securities of any series shall in all respects be entitled to the same benefits under this Indenture as definitive Securities of the same series and of like tenor authenticated and delivered hereunder.

SECTION 305. REGISTRATION, REGISTRATION OF TRANSFER AND EXCHANGE.

The Company shall cause to be kept for each series of Securities at one of the offices or agencies maintained pursuant to Section 1002 a register (the register maintained in such office and in any other office or agency of the Company in a Place of Payment being herein sometimes collectively referred to as the "Security Register") in which, subject to such reasonable regulations as it may prescribe, the Company shall provide for the registration of Registered Securities and of transfers of Registered Securities of such series. The Trustee is hereby initially appointed "Security Registrar" for the purpose of registering Securities and transfers of Securities as herein provided.

Upon surrender for registration of transfer of any Registered Security of any series at the office or agency in a Place of Payment for that series, the Company shall execute, and the Trustee shall authenticate and deliver, in the name of the designated transferee or transferees, one or more new Registered Securities of the same series and of like tenor, of any authorized denominations and of a like aggregate principal amount.

At the option of the Holder, Registered Securities of any series may be exchanged for other Registered Securities of the same series and of like tenor, of any authorized denominations and of a like aggregate principal amount, upon surrender of the Securities to be exchanged at such office or agency. Whenever any Securities are so surrendered for exchange, the Company shall execute, and the Trustee shall authenticate and deliver, the Securities that the Holder making the exchange is entitled to receive.

Notwithstanding the foregoing, except as otherwise specified as contemplated by Section 301, any permanent global Security shall be exchangeable only as provided in this paragraph. If the beneficial owners of interests in a permanent global Security are entitled to exchange such interest for Securities of such series and of like tenor and principal amount of another authorized form and denomination, as specified as contemplated by Section 301, then without unnecessary delay but in any event not later than the earliest date on which such interests may be so exchanged, the Company shall deliver to the Trustee definitive Securities of that series in an aggregate principal amount equal to the principal amount of such permanent global Security, executed by the Company. On or after the earliest date on which such interests may be so exchanged, such permanent global Security shall be surrendered from time to time in accordance with instructions given to the Trustee and the Depository (which instructions shall be in writing but need not comply with Section 103 or be accompanied by an Opinion of Counsel) or such other depository as shall be specified in the Company Order with respect thereto to the Trustee, as the Company's agent for such purpose, to be exchanged, in whole or in part, for definitive Securities of the same series without charge and the Trustee shall authenticate and deliver, in exchange for each portion of such permanent global Security, a like aggregate principal amount of other definitive Securities of the same series of authorized denominations and of like tenor as the portion of such permanent global Security to be exchanged; *provided, however*, that no such exchanges may occur during a period beginning at the opening of business 15 days before any selection of Securities of that series is to be redeemed and ending on the relevant Redemption Date. Promptly following any such exchange in part, such permanent global Security marked to evidence the partial exchange shall be returned by the Trustee to the Depository or such other depository referred to above in accordance with the instructions of the Company referred to above. If a Registered Security is issued in exchange for any portion of a permanent global Security after the close of business at the office or agency where such exchange occurs on (i) any Regular Record Date and before the opening of business at such office or agency on the relevant Interest Payment Date, or (ii) any Special Record Date and before the opening of business at such office or agency on the related proposed date for payment of Defaulted Interest, interest or Defaulted Interest, as the case may be, will not be payable on such Interest Payment Date or proposed date for payment, as the case may be, in respect of such Registered Security, but will be payable on such Interest Payment Date or proposed date for payment, as the case may be, only to the Person to whom interest in respect of such portion of such permanent global Security is payable in accordance with the provisions of this Indenture.

All Securities issued upon any registration of transfer or exchange of Securities shall be the valid obligations of the Company, evidencing the same debt, and entitled to the same benefits under this Indenture, as the Securities surrendered upon such registration of transfer or exchange.

Every Registered Security presented or surrendered for registration of transfer or for exchange shall (if so required by the Company or the Trustee) be duly endorsed, or be accompanied by a written instrument of transfer in form satisfactory to the Company and the Security Registrar duly executed, by the Holder thereof or his attorney duly authorized in writing.

No service charge shall be made for any registration of transfer or exchange of Securities, but the Company may require payment of a sum sufficient to cover any tax or other governmental charge that may be imposed in connection with any registration of transfer or exchange of Securities, other than exchange pursuant to Section 304, 905 or 1107 not involving any transfer.

The Company shall not be required (i) to issue, register the transfer of or exchange Securities of any series during a period beginning at the opening of business 15 days before the day of the mailing of a notice of redemption of Securities of such series selected for redemption and ending at the close of business on the day of the mailing of the relevant notice of redemption or (ii) to register the transfer of or exchange any Registered Security so selected for redemption in whole or in part, except the unredeemed portion of any Security being redeemed in part.

SECTION 306. MUTILATED, DESTROYED, LOST AND STOLEN SECURITIES.

If any mutilated Security is surrendered to the Trustee, the Company shall execute and the Trustee shall authenticate and deliver in exchange therefor a new Security of the same series and of like tenor and principal amount and bearing a number not contemporaneously Outstanding.

If there shall be delivered to the Company and the Trustee (i) evidence to their satisfaction of the destruction, loss or theft of any Security and (ii) such security or indemnity as may be required by them to save each of them and any agent of either of them harmless, then, in the absence of notice to the Company or the Trustee that such Security has been acquired by a bona fide purchaser, the Company shall execute and upon its request the Trustee shall authenticate and deliver, in lieu of any such destroyed, lost or stolen Security, a new Security of the same series and of like tenor and principal amount and bearing a number not contemporaneously Outstanding.

In case any such mutilated, destroyed, lost or stolen Security has become or is about to become due and payable, the Company in its discretion may, instead of issuing a new Security, pay such Security.

Upon the issuance of any new Security under this Section, the Company may require the payment of a sum sufficient to cover any tax or other governmental charge that may be imposed in relation thereto and any other expenses (including the fee and expenses of the Trustee) connected therewith.

Every new Security of any series issued pursuant to this Section in lieu of any destroyed, lost or stolen Security shall constitute an original additional contractual obligation of the Company, whether or not the destroyed, lost or stolen Security shall be at any time enforceable by anyone, and shall be entitled to all the benefits of this Indenture equally and proportionately with any and all other Securities of that series duly issued hereunder.

The provisions of this Section are exclusive and shall preclude (to the extent lawful) all other rights and remedies with respect to the replacement or payment of mutilated, destroyed, lost or stolen Securities.

SECTION 307. PAYMENT OF INTEREST; INTEREST RIGHTS PRESERVED.

Interest on any Registered Security which is payable, and is punctually paid or duly provided for, on any Interest Payment Date shall be paid to the Person in whose name that Security (or one or more Predecessor Securities) is registered at the close of business on the Regular Record Date for such interest. Unless otherwise provided with respect to the Securities of any series, payment of interest may be made at the option of the Company by check mailed or delivered to the address of any Person entitled thereto as such address shall appear in the Security Register.

Any interest on any Registered Security of any series which is payable, but is not punctually paid or duly provided for, on any Interest Payment Date (herein called "Defaulted Interest") shall forthwith cease to be payable to the Holder on the relevant Regular Record Date by virtue of having been such Holder, and such Defaulted Interest may be paid by the Company, at its election in each case, as provided in clause (1) or (2) below:

(1) The Company may elect to make payment of any Defaulted Interest to the Persons in whose names the Registered Securities of such series (or their respective Predecessor Securities) are registered at the close of business on a Special Record Date for the payment of such Defaulted Interest, which shall be fixed in the following manner. The Company shall notify the Trustee in writing of the amount of Defaulted Interest proposed to be paid on each Registered Security of such series and the date of the proposed payment, and at the same time the Company shall deposit with the Trustee an amount of money equal to the aggregate amount proposed to be paid in respect of such Defaulted Interest or shall make arrangements satisfactory to the Trustee for such deposit prior to the date of the proposed payment, such money when deposited to be held in trust for the benefit of the Persons entitled to such Defaulted Interest as in this Clause provided. Thereupon the Trustee shall fix a Special Record Date for the payment of such Defaulted Interest which shall be not more than 15 days and not less than 10 days prior to the date of the proposed payment and not less

than 10 days after the receipt by the Trustee of the notice of the proposed payment. The Trustee shall promptly notify the Company of such Special Record Date and, in the name and at the expense of the Company, shall cause notice of the proposed payment of such Defaulted Interest and the Special Record Date therefor to be mailed, first-class postage prepaid, to each Holder of Registered Securities of such series at his address as it appears in the Security Register, not less than 10 days prior to such Special Record Date. The Trustee may, in its discretion, in the name and at the expense of the Company, cause a similar notice to be published at least once in an Authorized Newspaper, but such publication shall not be a condition precedent to the establishment of such Special Record Date. Notice of the proposed payment of such Defaulted Interest and the Special Record Date therefor having been so mailed, such Defaulted Interest shall be paid to the Persons in whose names the Registered Securities of such series (or their respective Predecessor Securities) are registered at the close of business on such Special Record Date and shall no longer be payable pursuant to the following clause (2).

(2) The Company may make payment of any Defaulted Interest on the Registered Securities of any series in any other lawful manner not inconsistent with the requirements of any securities exchange on which such Securities may be listed, and upon such notice as may be required by such exchange, if, after notice given by the Company to the Trustee of the proposed payment pursuant to this Clause, such manner of payment shall be deemed practicable by the Trustee.

Subject to the foregoing provisions of this Section, each Security delivered under this Indenture, upon registration of transfer of, in exchange for or in lieu of, any other Security, shall carry the rights to interest accrued and unpaid, and to accrue, which were carried by such other Security.

SECTION 308. PERSONS DEEMED OWNERS.

Prior to due presentment of a Registered Security for registration of transfer, the Company, the Trustee and any agent of the Company or the Trustee may treat the Person in whose name such Registered Security is registered as the owner of such Registered Security for the purpose of receiving payment of principal of (and premium, if any) and (subject to Sections 305 and 307) interest on such Registered Security and for all other purposes whatsoever, whether or not such Security be overdue, and neither the Company, the Trustee nor any agent of the Company or the Trustee shall be affected by notice to the contrary.

SECTION 309. CANCELLATION.

All Securities surrendered for payment, redemption, registration of transfer or exchange or for credit against any sinking fund payment shall, if surrendered to any Person other than the Trustee, be delivered to the Trustee. All Registered Securities so delivered shall be promptly cancelled by the Trustee. The Company may at any time deliver to the Trustee for cancellation any Securities previously authenticated and delivered hereunder which the Company may have acquired in any manner whatsoever, and all Securities so delivered shall be promptly cancelled by the Trustee. No Securities shall be authenticated in lieu of or in exchange for any Securities cancelled as provided in this Section, except as expressly permitted by this Indenture. All cancelled Securities held by the Trustee shall be disposed of in its customary manner.

SECTION 310. COMPUTATION OF INTEREST.

Except as otherwise specified as contemplated by Section 301 for Securities of any series, interest on the Securities of each series shall be computed on the basis of a year comprising twelve 30-day months.

SECTION 311. CUSIP NUMBERS.

The Company, in issuing the Securities, may use "CUSIP" numbers (if then generally in use), and, if so, the Trustee shall use "CUSIP" numbers in notices of redemption as a convenience to Holders; *provided* that any such notice may state that no representation is made as to the correctness of such numbers either as printed on the Securities or as contained in any notice of a redemption and that reliance may be placed only on the other identification numbers printed on the Securities, and any such redemption shall not be affected by any defect in or omission of such numbers.

ARTICLE IV SATISFACTION AND DISCHARGE; LEGAL DEFEASANCE AND COVENANT DEFEASANCE

SECTION 401. SATISFACTION AND DISCHARGE OF INDENTURE.

This Indenture shall upon Company Request cease to be of further effect with respect to Securities of any series (except as to any surviving rights of registration of transfer, exchange or replacement of such series of Securities herein expressly provided for), and the Trustee, at the expense of the Company, shall execute proper instruments acknowledging satisfaction and discharge of this Indenture with respect to such Securities, when

(1) either

(A) all such Securities of such series theretofore authenticated and delivered (other than (i) such Securities which have been destroyed, lost or stolen and which have been replaced or paid as provided in Section 306 and (ii) such Securities of such series for whose payment money has theretofore been deposited in trust or segregated and held in trust by the Company and thereafter repaid to the Company or discharged from such trust, as provided in Section 1003) have been delivered to the Trustee for cancellation; or

(B) all such Securities of such series not theretofore delivered to the Trustee for cancellation

(i) have become due and payable, or

(ii) will become due and payable at their Stated Maturity within one year, or

(iii) are to be called for redemption within one year under arrangements satisfactory to the Trustee for the giving of notice of redemption by the Trustee in the name, and at the expense, of the Company,

and the Company, in the case of (B)(i), (ii) or (iii) above, has deposited or caused to be deposited with the Trustee, as funds in trust for such purpose, an amount in the currency or currencies or currency unit or units in which such Securities of such series are payable or U.S. Government Obligations maturing as to principal and interest in such amounts and at such times as will, together with any interest thereon, be sufficient to pay and discharge the entire indebtedness on such Securities of such series not theretofore delivered to the Trustee for cancellation, for principal and any premium and interest to the date of such deposit (in the case of Securities which have

become due and payable) or to the Stated Maturity or Redemption Date, as the case may be;

(2) the Company has paid or caused to be paid all other sums payable hereunder by the Company; and

(3) the Company has delivered to the Trustee an Officers' Certificate and an Opinion of Counsel, each stating that all conditions precedent herein provided for relating to the satisfaction and discharge of this Indenture with respect to such series of Securities have been complied with.

Notwithstanding the satisfaction and discharge of this Indenture with respect to the Outstanding Securities of such series pursuant to this Section 401, the obligations of the Company to the Trustee under Section 607 and to any Authenticating Agent under Section 614 and, if money or U.S. Government Obligations shall have been deposited with the Trustee pursuant to subclause (B) of Clause (1) of this Section, the obligations of the Trustee under Section 406, Article VI and the last paragraph of Section 1003 shall survive such satisfaction and discharge.

SECTION 402. OPTION TO EFFECT LEGAL DEFEASANCE OR COVENANT DEFEASANCE.

In addition to the Company's rights under Section 401 (which shall not be affected by this Section 402), the Company may, at the option of its Board of Directors evidenced by a resolution set forth in an Officers' Certificate, at any time, elect to have either Section 403 or 404 hereof applied to all Outstanding Securities of any series upon compliance with the conditions set forth in Sections 403 through 406 hereof.

22

SECTION 403. LEGAL DEFEASANCE AND DISCHARGE.

Upon the Company's exercise under Section 402 hereof of the option applicable to this Section 403, the Company and the Guarantors shall, subject to the satisfaction of the conditions set forth in Section 405 hereof, be deemed to have been discharged from their obligations with respect to all Outstanding Securities of a series on the date the conditions set forth below are satisfied (hereinafter, "Legal Defeasance"). For this purpose, Legal Defeasance means that the Company shall be deemed to have paid and discharged the entire Indebtedness represented by the Outstanding Securities of a series, which shall thereafter be deemed to be "outstanding" only for the purposes of Section 406 hereof and the other Sections of this Indenture referred to in (a) and (b) below, and to have satisfied all its other obligations under such Securities and this Indenture (and the Trustee, on demand of and at the expense of the Company, shall execute proper instruments acknowledging the same), except for the following provisions which shall survive until otherwise terminated or discharged hereunder: (a) the rights of Holders of Outstanding Securities of any series to receive payments in respect of the principal of, premium, if any, and interest, if any, on such Securities when such payments are due from the trust referred to in Section 405, (b) the Company's obligations with respect to such Securities under Sections 304, 305, 306 and 1002 of this Indenture, (c) the rights, powers, trusts, duties and immunities of the Trustee hereunder and the Company's obligations in connection therewith and (d) this Article IV. Subject to compliance with Sections 402 through 406 hereof, the Company may exercise its option under this Section 403 notwithstanding the prior exercise of its option under Section 404 hereof.

SECTION 404. COVENANT DEFEASANCE.

Upon the Company's exercise under Section 402 hereof of the option applicable to this Section 404, the Company shall, subject to the satisfaction of the conditions set forth in Section 405 hereof, be released from the operation of Section 801 hereof with respect to the Outstanding Securities of a series and any other covenant contained in the Board Resolution or supplemental indenture relating to such series on and after the date the conditions set forth in Section 405 are satisfied (hereinafter, "Covenant Defeasance"), and the Securities of such series shall thereafter be deemed not "outstanding" for the purposes of any direction, waiver, consent or declaration or act of Holders (and the consequences of any thereof) in connection with such covenants, but shall continue to be deemed "outstanding" for all other purposes hereunder (it being understood that such Securities shall not be deemed outstanding for accounting purposes). For this purpose, Covenant Defeasance means that, with respect to the Outstanding Securities of such series, the Company may omit to comply with and shall have no liability in respect of any term, condition or limitation set forth in any such covenant, whether directly or indirectly, by reason of any reference elsewhere herein to any such covenant or by reason of any reference in any such covenant to any other provision herein or in any other document and such omission to comply shall not constitute a Default or an Event of Default under Section 501 hereof, but, except as specified above, the remainder of this Indenture and such series of Securities shall be unaffected thereby. In addition, upon the Company's exercise under Section 402 hereof of the option applicable to this Section 404 hereof, subject to the satisfaction of the conditions set forth in Section 405 hereof, Sections 501(3) through 501(6) and Section 501(9) hereof shall not constitute Events of Default.

SECTION 405. CONDITIONS TO LEGAL OR COVENANT DEFEASANCE.

The following shall be the conditions to the application of either Section 403 or 404 hereof to the Outstanding Securities of any series:

In order to exercise either Legal Defeasance or Covenant Defeasance:

(a) the Company must irrevocably deposit with the Trustee, in trust, for the benefit of the Holders of the Securities, cash in United States dollars, U.S. Government Obligations, or a combination thereof, in such amounts as will be sufficient, to pay the principal of, or interest and premium, if any, on the Outstanding Securities of such series on the Stated Maturity or on the applicable redemption date, as the case may be, and the Company must specify whether the Securities are being defeased to maturity or to a particular redemption date;

(b) in the case of Legal Defeasance, the Company shall have delivered to the Trustee an Opinion of Counsel reasonably acceptable to the Trustee confirming that (i) the Company has received from, or there has been published by, the Internal Revenue Service a ruling or (ii) since the date of this Indenture, there has been a change in the applicable federal income tax law, in either case to the effect that, and based thereon such Opinion of Counsel shall confirm that, the Holders of the Outstanding Securities of such series will not recognize income, gain or loss for federal income tax purposes as a result of such Legal Defeasance and will be subject to federal income tax on the same amounts, in the same manner and at the same times as would have been the case if such Legal Defeasance had not occurred;

23

(c) in the case of Covenant Defeasance, the Company shall have delivered to the Trustee an Opinion of Counsel reasonably acceptable to the Trustee confirming that the Holders of the Outstanding Securities of such series will not recognize income, gain or loss for federal income tax purposes as a result of such Covenant Defeasance and will be subject to federal income tax on the same amounts, in the same manner and at the same times as would have been the case if such Covenant Defeasance had not occurred;

(d) no Default or Event of Default shall have occurred and be continuing either: (i) on the date of such deposit (other than a Default or Event of Default resulting from the borrowing of funds to be applied to such deposit); or (ii) insofar as Events of Default from bankruptcy or insolvency events are concerned, at any time in the period ending on the 91st day after the date of deposit;

(e) such Legal Defeasance or Covenant Defeasance will not result in a breach or violation of, or constitute a default under any material agreement or instrument (other than this Indenture) to which the Company is a party or by which the Company is bound;

(f) the Company must have delivered to the Trustee an Opinion of Counsel to the effect that, assuming no intervening bankruptcy of the Company or any Guarantor between the date of deposit and the 91st day following the deposit and assuming that no Holder is an “insider” of the Company under applicable bankruptcy law, after the 91st day following the deposit, the trust funds will not be subject to the effect of any applicable bankruptcy, insolvency, reorganization or similar laws affecting creditors’ rights generally;

(g) the Company must deliver to the Trustee an Officers’ Certificate stating that the deposit was not made by the Company with the intent of preferring the Holders of Securities over the other creditors of the Company with the intent of defeating, hindering, delaying or defrauding creditors of the Company or others; and

(h) the Company must deliver to the Trustee an Officers’ Certificate and an Opinion of Counsel, each stating that all conditions precedent relating to the Legal Defeasance or the Covenant Defeasance have been complied with.

SECTION 406. DEPOSITED MONEY AND U.S. GOVERNMENT OBLIGATIONS TO BE HELD IN TRUST; OTHER MISCELLANEOUS PROVISIONS.

Subject to Section 407 hereof, all money and non callable U.S. Government Obligations (including the proceeds thereof) deposited with the Trustee (or other qualifying trustee, collectively for purposes of this Section 406, the “Trustee”) pursuant to Section 401 or 404 hereof in respect of the Outstanding Securities of any series shall be held in trust and applied by the Trustee, in accordance with the provisions of such Securities and this Indenture, to the payment, either directly or through any paying agent (including the Company acting as paying agent) as the Trustee may determine, to the Holders of such Securities of all sums due and to become due thereon in respect of principal, premium on , if any, and interest, but such money need not be segregated from other funds except to the extent required by law.

The Company shall pay and indemnify the Trustee against any tax, fee or other charge imposed on or assessed against the cash or non-callable U.S. Government Obligations deposited pursuant to Section 401 or 404 hereof or the principal and interest received in respect thereof other than any such tax, fee or other charge which by law is for the account of the Holders of the Outstanding Securities.

Anything in this Article IV to the contrary notwithstanding, the Trustee shall deliver or pay to the Company from time to time upon the written request of the Company any money or non-callable U.S. Government Obligations held by it as provided in Section 401 or 404 hereof which, in the opinion of a nationally recognized firm of independent public accountants expressed in a written certification thereof delivered to the Trustee, are in excess of the amount thereof that would then be required to be deposited to effect an equivalent Legal Defeasance or Covenant Defeasance or satisfaction and discharge of this Indenture.

SECTION 407. REPAYMENT TO COMPANY.

Any money deposited with the Trustee or any paying agent, or then held by the Company, in trust for the payment of the principal of, premium on, if any, or interest on any Securities and remaining unclaimed for two years after such principal, and premium, if any, or interest has become due and payable shall be paid to the Company on its written request or (if then held by the Company) shall be discharged from such trust; and the Holder of such Securities shall thereafter, as an unsecured creditor, look only to the Company for payment thereof, and all liability of the Trustee or such paying agent with respect to such trust money, and all liability of the Company as trustee thereof, shall thereupon cease; *provided, however*, that the Trustee or such paying agent, before being required to make any such repayment, may at the expense of the Company cause to be published once, in the New York Times and The Wall Street Journal (national edition), notice that such money remains unclaimed and that, after a date specified therein, which shall not be less than 30 days from the date of such notification or publication, any unclaimed balance of such money then remaining will be repaid to the Company.

SECTION 408. REINSTATEMENT.

If the Trustee or Paying Agent is unable to apply any money or U.S. Government Obligations deposited with respect to Securities of any series in accordance with Section 401, 403 or 404 hereof, as the case may be, by reason of any order or judgment of any court or governmental authority enjoining, restraining or otherwise prohibiting such application, then the Company’s obligations under this Indenture with respect to the Securities of such series and the Securities of such series shall be revived and reinstated as though no deposit had occurred pursuant to Section 401, 403 or 404 hereof until such time as the Trustee or Paying Agent is permitted to apply all such money or U.S. Government Obligations in accordance with Section 401, 403 or 404 hereof, as the case may be; *provided, however*, that, if the Company makes any payment of principal of, premium on, if any, or interest on any Securities following the reinstatement of its obligations, the Company shall be subrogated to the rights of the Holders of such Securities to receive such payment from the money or U.S. Government Obligations held by the Trustee or Paying Agent.

ARTICLE V REMEDIES

SECTION 501. EVENTS OF DEFAULT.

An “Event of Default” on a series occurs if:

(1) the Company defaults in the payment of interest on any Security of such series when the same becomes due and payable and the Default continues for a period of 30 days;

(2) the Company defaults in the payment of the principal of any Security of such series when the same becomes due and payable at maturity, upon redemption or otherwise;

(3) the Company fails to comply with any of its other agreements in the Securities of such series or this Indenture (as they relate thereto) and the Default continues for the period and after the notice specified below (except in the case of a default with respect to any Change of Control Provisions or Article VIII (or any replacement provisions contemplated by Article VIII), which will constitute Events of Default with notice but without passage of time);

(4) the acceleration of any Indebtedness of the Company in an amount of \$50 million or more, individually or in the aggregate, and such acceleration does not cease to exist, or such Indebtedness is not satisfied, in either case within five days after such acceleration;

(5) the failure by the Company to make any principal or interest payment in an amount of \$50 million or more, individually or in the aggregate, in respect of Indebtedness of the Company within five days of such principal or interest becoming due and payable (after giving effect to any applicable grace period set forth in the documents governing such Indebtedness);

(6) a final judgment or judgments in an amount of \$50 million or more, individually or in the aggregate, for the payment of money having been entered by a court or courts of competent jurisdiction against the Company and such judgment or judgments is not satisfied, stayed, annulled or rescinded within 90 days after being entered;

(7) the Company pursuant to or within the meaning of any Bankruptcy Law:

- (a) commences a voluntary case,
- (b) consents to the entry of an order for relief against it in an involuntary case,
- (c) consents to the appointment of a Custodian of it or for all or substantially all of its property, or
- (d) makes a general assignment for the benefit of creditors;

(8) a court of competent jurisdiction enters into an order or decree under any Bankruptcy Law that:

- (a) is for relief against the Company in an involuntary case,
- (b) appoints a Custodian of the Company or for all or substantially all of its property, or
- (c) orders the liquidation of the Company,

and the order or decree remains unstayed and in effect for 60 days; or

(9) any other Event of Default occurs with respect to Securities of that series as provided in the supplemental indenture or Board Resolutions establishing such series of Securities.

The term "Bankruptcy Law" means the Bankruptcy Act or any similar Federal or State law for the relief of debtors. The term "Custodian" means any receiver, trustee, assignee, liquidator or similar official under any Bankruptcy Law.

A Default under clause (3) above is not an Event of Default until the Trustee notifies the Company, or the Holders of at least 25% in principal amount of the Securities of the applicable series notify the Company and the Trustee of the Default and (except in the case of a default with respect to any provisions of any supplemental indenture or Board Resolution establishing such series of Securities giving the Holders of Securities of such series the right to require the Company to repurchase or redeem such Securities of such series upon the occurrence of a change of control prior to the final maturity date of such Securities of such series ("Change of Control Provisions") or Article VIII (or any replacement provisions contemplated by Article VIII)) the Company does not cure the Default within 90 days after receipt of the notice. The notice must specify the Default, demand that it be remedied and state that the notice is a "Notice of Default."

SECTION 502. ACCELERATION.

If any Event of Default (other than an Event of Default specified in clause (7) or (8) of Section 501 hereof) with respect to Securities of any series occurs and is continuing, either the Trustee or the Holders of at least 25% in principal amount of the then Outstanding Securities of that series may declare all the Securities of that series to be due and payable immediately. Upon any such declaration, the Securities of that series shall become due and payable immediately, by a notice in writing to the Company (and to the Trustee if given by Holders). Notwithstanding the foregoing, if an Event of Default specified in clause (7) or (8) of Section 501 hereof occurs with respect to any series of Securities, all outstanding Securities of that series shall become due and payable without further action or notice. The Holders of a majority in aggregate principal amount of Securities of any series then Outstanding by notice to the Trustee may on behalf of the Holders of all of the Securities of that series waive any existing Default or Event of Default and its consequences under this Indenture except a continuing Default or Event of Default in the payment of interest or premium, if any, on, or the principal of, the Securities of that series.

SECTION 503. OTHER REMEDIES.

If an Event of Default with respect to Securities of any series occurs and is continuing, the Trustee may pursue any available remedy to collect the payment of principal, premium, if any, and interest on the Securities of that series or to enforce the performance of any provision of the Securities of that series or this Indenture.

The Trustee may maintain a proceeding even if it does not possess any of the Securities in a series or does not produce any of them in the proceeding. A delay or omission by the Trustee or any Holder of a Security in exercising any right or remedy accruing upon an Event of Default shall not impair the right or remedy or constitute a waiver of or acquiescence in the Event of Default. All remedies are cumulative to the extent permitted by law.

SECTION 504. WAIVER OF PAST DEFAULTS.

Holders of not less than a majority in aggregate principal amount of the then outstanding Securities in any series by notice to the Trustee may on behalf of the Holders of all of the Securities of that series waive any existing Default or Event of Default and its consequences hereunder, except a continuing Default or Event of Default in the payment of the principal of, premium, if any, or interest on, the Securities of that series (including in connection with an offer to purchase) (*provided, however*, that the Holders of a majority in aggregate principal amount of the then outstanding Securities of any series may rescind an acceleration and its consequences, including any related payment default that resulted from such acceleration, with respect to that series). Upon any such waiver, such Default shall cease to exist, and any Event of Default arising therefrom shall be deemed to have been cured for every purpose of this Indenture; but no such waiver shall extend to any subsequent or other Default or impair any right consequent thereon.

SECTION 505. CONTROL BY MAJORITY.

With respect to any series of Securities, Holders of a majority in principal amount of the then outstanding Securities of that series may direct the time, method and place of conducting any proceeding for exercising any remedy available to the Trustee or exercising any trust or power conferred on it. However, the Trustee may refuse to follow any direction that conflicts with law or this Indenture that the Trustee determines may be unduly prejudicial to the rights of other Holders of Securities of any series or that may involve the Trustee in personal liability.

SECTION 506. LIMITATION ON SUITS.

A Holder of a Security of any series may pursue a remedy with respect to this Indenture or the Securities of that series only if:

(a) the Holder of a Security of that series gives to the Trustee written notice of a continuing Event of Default;

(b) the Holders of at least 25% in principal amount of the then outstanding Securities of that series make a written request to the Trustee to pursue the remedy;

(c) such Holder of a Security or Holders of Securities offer and, if requested, provide to the Trustee indemnity satisfactory to the Trustee against any loss, liability or expense;

(d) the Trustee does not comply with the request within 60 days after receipt of the request and the offer and, if requested, the provision of indemnity; and

(e) during such 60-day period the Holders of a majority in principal amount of the then outstanding Securities of that series do not give the Trustee a direction inconsistent with the request.

A Holder of a Security may not use this Indenture to prejudice the rights of another Holder of a Security or to obtain a preference or priority over another Holder of a Security.

SECTION 507. RIGHTS OF HOLDERS OF SECURITIES TO RECEIVE PAYMENT.

Notwithstanding any other provision of this Indenture, the right of any Holder of a Security of any series to receive payment of principal, premium, if any, and interest on the Security, on or after the respective due dates expressed in the Security (including in connection with an offer to purchase), or to bring suit for the enforcement of any such payment on or after such respective dates, shall not be impaired or affected without the consent of such Holder.

SECTION 508. COLLECTION SUIT BY TRUSTEE.

With respect to the Securities of any series, if an Event of Default specified in clause (1) or (2) of Section 501 hereof occurs and is continuing, the Trustee is authorized to recover judgment in its own name and as trustee of an express trust against the Company for the whole amount of principal of, premium on, if any, and interest remaining unpaid on the Securities of that series and interest on overdue principal and, to the extent lawful, interest and such further amount as shall be sufficient to cover the costs and expenses of collection, including the reasonable compensation, expenses, disbursements and advances of the Trustee, its agents and counsel.

SECTION 509. TRUSTEE MAY FILE PROOFS OF CLAIM.

The Trustee is authorized to file such proofs of claim and other papers or documents as may be necessary or advisable in order to have the claims of the Trustee (including any claim for the reasonable compensation, expenses, disbursements and advances of the Trustee, its agents and counsel) and the Holders of the Securities of any series allowed in any judicial proceedings relative to the Company (or any other obligor upon the Securities), its creditors or its property and shall be entitled and empowered to collect, receive and distribute any money or other property payable or deliverable on any such claims and any custodian in any such judicial proceeding is hereby authorized by each Holder of that series to make such payments to the Trustee, and in the event that the Trustee shall consent to the making of such payments directly to the Holders, to pay to the Trustee any amount due to it for the reasonable compensation, expenses, disbursements and advances of the Trustee, its agents and counsel, and any other amounts due the Trustee under Section 607 of this Indenture. To the extent that the payment of any such compensation, expenses, disbursements and advances of the Trustee, its agents and counsel, and any other amounts due the Trustee under Section 607 of this Indenture out of the estate in any such proceeding, shall be denied for any reason, payment of the same shall be secured by a Lien on, and shall be paid out of, any and all distributions, dividends, money, securities and other properties that the Holders may be entitled to receive in such proceeding whether in liquidation or under any plan of reorganization or arrangement or otherwise. Nothing herein contained shall be deemed to authorize the Trustee to authorize or consent to or accept or adopt on behalf of any Holder of any series of Securities any plan of reorganization, arrangement, adjustment or composition affecting the Securities of that series or the rights of any Holder, or to authorize the Trustee to vote in respect of the claim of any Holder in any such proceeding.

SECTION 510. PRIORITIES.

If the Trustee collects any money pursuant to this Article, it shall pay out the money in the following order:

(a) First: to the Trustee, its agents and attorneys for amounts due under Section 607 of this Indenture, including payment of all compensation, expense and liabilities incurred, and all advances made, by the Trustee and the costs and expenses of collection;

(b) Second: to Holders of Securities for amounts due and unpaid on the Securities for principal, premium, if any, and interest, ratably, without preference or priority of any kind, according to the amounts due and payable on the Securities for principal, premium, if any, and interest, respectively; and

(c) Third: to the Company or to such party as a court of competent jurisdiction shall direct.

The Trustee may fix a record date and payment date for any payment to Holders of Securities pursuant to this Section 510.

SECTION 511. UNDERTAKING FOR COSTS.

In any suit for the enforcement of any right or remedy under this Indenture or in any suit against the Trustee for any action taken or omitted by it as a Trustee, a court in its discretion may require the filing by any party litigant in the suit of an undertaking to pay the costs of the suit, and the court in its discretion may assess reasonable costs, including reasonable attorneys' fees and expenses, against any party litigant in the suit, having due regard to the merits and good faith of the claims or defenses made by the party litigant. This Section does not apply to a suit by the Trustee, a suit by a Holder of a Security pursuant to Section 507 hereof, or a suit by Holders of more than 10% in principal amount of the then outstanding Securities of any series.

ARTICLE VI THE TRUSTEE

SECTION 601. CERTAIN DUTIES AND RESPONSIBILITIES.

(a) Except during the continuance of an Event of Default with respect to the Securities of any series:

(1) the Trustee undertakes to perform such duties and only such duties as are specifically set forth in this Indenture, and no implied covenants or obligations shall

be read into this Indenture against the Trustee; and

(2) in the absence of bad faith on its part, the Trustee may conclusively rely, as to the truth of the statements and the correctness of the opinions expressed therein, upon certificates or opinions furnished to the Trustee and conforming to the requirements of this Indenture; but in the case of any such certificates or opinions that by any provision hereof are specifically required to be furnished to the Trustee, the Trustee shall be under a duty to examine the same to determine whether they conform to the requirements of this Indenture (but need not confirm or investigate the accuracy of mathematical calculation or other facts stated therein).

(b) In case an Event of Default has occurred and is continuing with respect to the Securities of any series, the Trustee shall exercise such of the rights and powers vested in it by this Indenture, and use the same degree of care and skill in their exercise, as a prudent person would exercise or use under the circumstances in the conduct of his or her own affairs.

(c) No provision of this Indenture shall be construed to relieve the Trustee from liability for its own negligent action, its own negligent failure to act or its own willful misconduct, except that:

(1) this Subsection shall not be construed to limit the effect of Subsection (a) of this Section;

(2) the Trustee shall not be liable for any error of judgment made in good faith by a Responsible Officer, unless it shall be proved that the Trustee was negligent in ascertaining the pertinent facts;

(3) the Trustee shall not be liable with respect to any action it takes or omits to take in good faith in accordance with the direction of the Holders of a majority in principal amount of the Outstanding Securities of any series or of all series, determined as provided in Section 505, relating to the time, method and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred upon the Trustee, under this Indenture with respect to the Securities of such series; and

(4) no provision of this Indenture shall require the Trustee to expend or risk its own funds or otherwise incur any financial liability in the performance of any of its duties hereunder, or in the exercise of any of its rights or powers, if it shall have reasonable grounds for believing that repayment of such funds or indemnity satisfactory to it against such risk or liability is not assured to it.

(d) Whether or not therein expressly so provided, every provision of this Indenture relating to the conduct or affecting the liability of or affording protection to the Trustee shall be subject to the provisions of this Section.

SECTION 602. NOTICE OF DEFAULTS.

Within 90 days after the occurrence of any Default or Event of Default with respect to the Securities of any series, the Trustee shall give notice of such Default or Event of Default known to the Trustee to all Holders of Securities of such series in the manner provided in Section 107 and in compliance with the Trust Indenture Act, unless such Default or Event of Default shall have been cured or waived; *provided, however*, that, except in the case of a Default or Event of Default in the payment of the principal of (or premium, if any) or interest on or any Additional Amounts with respect to any Security of such series or in the payment of any sinking fund installment with respect to Securities of such series, the Trustee shall be protected in withholding such notice if and so long as the board of directors, the executive committee or a trust committee of directors and/or Responsible Officers of the Trustee in good faith determines that the withholding of such notice is in the interest of the Holders of Securities of such series; and *provided, further*, that in the case of any Default or Event of Default of the character specified in Section 501(3) with respect to Securities of such series, no such notice to Holders shall be given until at least 30 days after the occurrence thereof.

SECTION 603. CERTAIN RIGHTS OF TRUSTEE.

Subject to the provisions of Section 601:

(a) the Trustee may conclusively rely and shall be protected in acting or refraining from acting upon any resolution, certificate, statement, instrument, opinion, report, notice, request, direction, consent, order, bond, debenture, note, coupon, other evidence of indebtedness or other paper or document believed by it to be genuine and to have been signed or presented by the proper party or parties;

(b) any request or direction of the Company mentioned herein shall be sufficiently evidenced by a Company Request or Company Order and any resolution of the Board of Directors may be sufficiently evidenced by a Board Resolution;

(c) whenever in the administration of this Indenture the Trustee shall deem it desirable that a matter be proved or established prior to taking, suffering or omitting any action hereunder, the Trustee (unless other evidence be herein specifically prescribed) may, in the absence of bad faith on its part, rely upon an Officers' Certificate;

(d) the Trustee may consult with counsel of its selection and the advice of such counsel or any Opinion of Counsel shall be full and complete authorization and protection in respect of any action taken, suffered or omitted by it hereunder in good faith and in reliance thereon;

(e) the Trustee shall be under no obligation to exercise any of the rights or powers vested in it by this Indenture at the request or direction of any of the Holders pursuant to this Indenture, unless such Holders shall have offered to the Trustee security or indemnity satisfactory to it against the costs, expenses and liabilities that might be incurred by it in compliance with such request or direction;

(f) the Trustee shall not be bound to make any investigation into the facts or matters stated in any resolution, certificate, statement, instrument, opinion, report, notice, request, direction, consent, order, bond, debenture, note, coupon, other evidence of indebtedness or other paper or document, but the Trustee, in its discretion, may make such further inquiry or investigation into such facts or matters as it may see fit, and, if the Trustee shall determine to make such further inquiry or investigation, it shall be entitled to examine the books, records and premises of the Company, personally or by agent or attorney at the sole cost of the Company and shall incur no liability or additional liability of any kind by reason of such inquiry or investigation;

(g) the Trustee may execute any of the trusts or powers hereunder or perform any duties hereunder either directly or by or through agents or attorneys and, except for any Affiliates of the Trustee, the Trustee shall not be responsible for any misconduct or negligence on the part of any agent or attorney appointed with due care by it hereunder;

(h) the Trustee shall not be charged with knowledge of any Default or Event of Default with respect to the Securities of any series for which it is acting as Trustee unless either (1) a Responsible Officer shall have actual knowledge of such Default or Event of Default or (2) written notice of such Default or Event of Default which in fact such a default shall have been received by the Trustee at the Corporate Trust Office of the Trustee and such notice references the Securities and this Indenture by the Company or any other obligor on such Securities or by any Holder of such Securities;

(i) the Trustee shall not be liable for any action taken, suffered or omitted by it in good faith and believed by it to be authorized or within the discretion or rights or powers conferred upon it by this Indenture.

(j) in no event shall the Trustee be responsible or liable for special, indirect, or consequential loss or damage of any kind whatsoever (including, but not limited to, loss of profit) irrespective of whether the Trustee has been advised of the likelihood of such loss or damage and regardless of the form of action;

(k) the rights, privileges, protections, immunities and benefits given to the Trustee, including, without limitation, its right to be indemnified, are extended to, and shall be enforceable by, the Trustee in each of its capacities hereunder, and each agent, custodian and other Person employed to act hereunder; and

(l) the Trustee may request that the Company deliver a certificate setting forth the names of individuals and/or titles of officers authorized at such time to take specified actions pursuant to this Indenture.

SECTION 604. NOT RESPONSIBLE FOR RECITALS OR ISSUANCE OF SECURITIES.

The recitals contained herein and in the Securities, except the Trustee's certificates of authentication, shall be taken as the statements of the Company, and the Trustee assumes no responsibility for their correctness. The Trustee makes no representations as to the validity or sufficiency of this Indenture or of the Securities. The Trustee shall not be accountable for the use or application by the Company of Securities or the proceeds thereof.

SECTION 605. MAY HOLD SECURITIES.

The Trustee, any Authenticating Agent, any Paying Agent, any Security Registrar or any other agent of the Company, in its individual or any other capacity, may become the owner or pledgee of Securities and, subject to Sections 608 and 613, may otherwise deal with the Company with the same rights it would have if it were not the Trustee, Authenticating Agent, Paying Agent, Security Registrar or such other agent.

SECTION 606. MONEY HELD IN TRUST.

Money held by the Trustee in trust hereunder need not be segregated from other funds except to the extent required by law. The Trustee shall be under no liability for interest on any money received by it hereunder except as otherwise agreed with the Company.

SECTION 607. COMPENSATION AND REIMBURSEMENT.

The Company agrees:

(1) to pay to the Trustee from time to time compensation for all services rendered by it hereunder (which compensation shall not be limited by any provision of law in regard to the compensation of a trustee of an express trust);

(2) except as otherwise expressly provided herein, to reimburse the Trustee upon its request for all reasonable expenses, disbursements and advances incurred or made by the Trustee in accordance with any provision of this Indenture (including the compensation and the reasonable expenses and disbursements of its agents and counsel), except any such expense, disbursement or advance as shall be determined to have been caused by its own negligence or willful misconduct; and

(3) to indemnify the Trustee and each of its directors, officers, employees, agents and/or representatives for, and to hold each of them harmless against, any loss, liability or expense incurred without negligence or willful misconduct on each of their part, arising out of or in connection with the acceptance or administration of the trust or trusts hereunder, including the costs and expenses of defending themselves against any claim or liability in connection with the exercise or performance of any of the Trustee's powers or duties hereunder.

As security for the performance of the obligations of the Company under this Section 607, the Trustee shall have a lien prior to the Securities on all property and funds held or collected by the Trustee as such, except funds held in trust for the payment of principal of, premium, if any, or interest, if any, on or any Additional Amounts with respect to particular Securities.

Any expenses and compensation for any services rendered by the Trustee after the occurrence of an Event of Default (including the reasonable charges and expenses of its counsel) specified in clause (7) or (8) of Section 501 shall constitute expenses and compensation for services of administration under all applicable federal or state bankruptcy, insolvency, reorganization or other similar laws.

The provisions of this Section 607 and any lien arising hereunder shall survive the resignation or removal of the Trustee or the discharge of the Company's obligations under this Indenture and the termination of this Indenture.

SECTION 608. DISQUALIFICATION; CONFLICTING INTERESTS.

(a) If the Trustee has or shall acquire any conflicting interest, as defined in this Section 608, with respect to the Securities of any series, it shall, within 90 days after ascertaining that it has such conflicting interest, either eliminate such conflicting interest or resign with respect to the Securities of that series in the manner and with the effect hereinafter specified in this Article.

(b) In the event that the Trustee shall fail to comply with the provisions of Subsection (a) of this Section 608 with respect to the Securities of any series, the Trustee shall, within 10 days after the expiration of such 90-day period, transmit by mail to all Holders of Securities of that series, as their names and addresses appear in the Security Register, notice of such failure in compliance with the Trust Indenture Act.

(c) For the purposes of this Section, the term "conflicting interest" shall have the meaning specified in Section 310(b) of the Trust Indenture Act and the Trustee shall comply with Section 310(b) of the Trust Indenture Act; *provided*, that there shall be excluded from the operation of Section 310(b)(1) of the Trust Indenture Act with respect to the Securities of any series any indenture or indentures under which other securities, or certificates of interest or participation in other securities, of the Company are outstanding, if the requirements for such exclusion set forth in Section 310(b)(1) of the Trust Indenture Act are met. For purposes of the preceding sentence, the optional provision permitted by the second sentence of Section 310(b)(1) of the Trust Indenture Act shall be applicable.

SECTION 609. CORPORATE TRUSTEE REQUIRED; ELIGIBILITY.

There shall at all times be a Trustee hereunder which shall be a corporation organized and doing business under the laws of the United States of America, any State thereof or the District of Columbia, authorized under such laws to exercise corporate trust powers, having a combined capital and surplus of at least \$50 million and subject to supervision or examination by Federal or State (or the District of Columbia) authority. If such corporation publishes reports of condition at least annually, pursuant to law or to the requirements of said supervising or examining authority, then for the purposes of this Section 609, the combined capital and surplus of such corporation shall be deemed to be its combined capital and surplus as set forth in its most recent report of condition so published. If at any time the Trustee shall cease to be eligible in accordance with the provisions of this Section, it shall resign immediately in the manner and with the effect hereinafter specified in this Article.

The Indenture shall always have a Trustee who satisfies the requirements of Sections 310(a)(1), 310(a)(2) and 310(a)(5) of the Trust Indenture Act.

SECTION 610. RESIGNATION AND REMOVAL; APPOINTMENT OF SUCCESSOR.

(a) No resignation or removal of the Trustee and no appointment of a successor Trustee pursuant to this Article shall become effective until the acceptance of appointment by the successor Trustee in accordance with the applicable requirements of Section 611.

(b) The Trustee may resign at any time with respect to the Securities of one or more series by giving written notice thereof to the Company. If the instrument of acceptance by a successor Trustee required by Section 611 shall not have been delivered to the resigning Trustee within 30 days after the giving of such notice of resignation, the resigning Trustee may petition at the expense of the Company any court of competent jurisdiction for the appointment of a successor Trustee with respect to the Securities of such series.

(c) The Trustee may be removed at any time with respect to the Securities of any series by Act of the Holders of a majority in principal amount of the Outstanding Securities of such series, delivered to the Trustee and to the Company. If the instrument of acceptance by a successor Trustee required by Section 611 shall not have been delivered to the resigning Trustee within 30 days after the giving of such notice of resignation, the resigning Trustee may petition at the expense of the Company any court of competent jurisdiction for the appointment of a successor Trustee with respect to the Securities of such series.

(d) If at any time:

(1) the Trustee shall fail to comply with Section 608(a) after written request therefor by the Company or by any Holder who has been a bona fide Holder of a Security for at least six months, or

(2) the Trustee shall cease to be eligible under Section 609 and shall fail to resign after written request therefor by the Company or by any such Holder of Securities, or

(3) the Trustee shall become incapable of acting or shall be adjudged a bankrupt or insolvent or a receiver of the Trustee or of its property shall be appointed or any public officer shall take charge or control of the Trustee or of its property or affairs for the purpose of rehabilitation, conservation or liquidation,

then, in any such case, (i) the Company by a Board Resolution may remove the Trustee with respect to all Securities, or (ii) subject to Section 505, any Holder who has been a bona fide Holder of a Security for at least six months may, on behalf of himself and all others similarly situated, petition any court of competent jurisdiction for the removal of the Trustee with respect to all Securities and the appointment of a successor Trustee or Trustees.

(e) If the Trustee shall resign, be removed or become incapable of acting, or if a vacancy shall occur in the office of Trustee for any cause, with respect to the Securities of one or more series, the Company, by a Board Resolution, shall promptly appoint a successor Trustee or Trustees with respect to the Securities of that or those series (it being understood that any such successor Trustee may be appointed with respect to the Securities of one or more or all of such series and that at any time there shall be only one Trustee with respect to the Securities of any particular series) and such successor Trustee or Trustees shall comply with the applicable requirements of Section 611. If no successor Trustee with respect to the Securities of any series shall have been so appointed by the Company and accepted appointment in the manner required by Section 611, any Holder who has been a bona fide Holder of a Security of such series for at least six months may, on behalf of himself and all others similarly situated, petition any court of competent jurisdiction for the appointment of a successor Trustee with respect to the Securities of such series.

(f) The Company shall give notice of each resignation and each removal of the Trustee with respect to the Securities of any series and each appointment of a successor Trustee with respect to the Securities of any series by mailing written notice of such event by first-class mail, postage prepaid, to all Holders of Securities of such series as their names and addresses appear in the Security Register. Each notice shall include the name of the successor Trustee with respect to the Securities of such series and the address of its Corporate Trust Office.

SECTION 611. ACCEPTANCE OF APPOINTMENT BY SUCCESSOR.

(a) In case of the appointment hereunder of a successor Trustee with respect to all Securities, every such successor Trustee so appointed shall execute, acknowledge and deliver to the Company and to the retiring Trustee an instrument accepting such appointment, and thereupon the resignation or removal of the retiring Trustee shall become effective and such successor Trustee, without any further act, deed or conveyance, shall become vested with all the rights, powers, trusts and duties of the retiring Trustee; but, on the request of the Company or the successor Trustee, such retiring Trustee shall, upon payment of its charges, execute and deliver an instrument transferring to such successor Trustee all the rights, powers and trusts of the retiring Trustee and shall duly assign, transfer and deliver to such successor Trustee all property and money held by such retiring Trustee hereunder.

(b) In case of the appointment hereunder of a successor Trustee with respect to the Securities of one or more (but not all) series, the Company, the retiring Trustee and each successor Trustee with respect to the Securities of one or more series shall execute and deliver an indenture supplemental hereto wherein each successor Trustee shall accept such appointment and which (1) shall contain such provisions as shall be necessary or desirable to transfer and confirm to, and to vest in, each successor Trustee all the rights, powers, trusts and duties of the retiring Trustee with respect to the Securities of that or those series to which the appointment of such successor Trustee relates, (2) if the retiring Trustee is not retiring with respect to all Securities, shall contain such provisions as shall be deemed necessary or desirable to confirm that all the rights, powers, trusts and duties of the retiring Trustee with respect to the Securities of that or those series as to which the retiring Trustee is not retiring shall continue to be vested in the retiring Trustee and (3) shall add to or change any of the provisions of this Indenture as shall be necessary to provide for or facilitate the administration of the trusts hereunder by more than one Trustee, it being understood that nothing herein or in such supplemental indenture shall constitute such Trustees co-trustees of the same trust and that each such Trustee shall be trustee of a trust or trusts hereunder separate and apart from any trust or trusts hereunder administered by any other such Trustee; and upon the execution and delivery of such supplemental indenture, the resignation or removal of the retiring Trustee shall become effective to the extent provided therein and each such successor Trustee, without any further act, deed or conveyance, shall become vested with all the rights, powers, trusts and duties of the retiring Trustee with respect to the Securities of that or those series to which the appointment of such successor Trustee relates; but, on request of the Company or any successor Trustee, such retiring Trustee shall duly assign, transfer and deliver

to such successor Trustee all property and money held by such retiring Trustee hereunder with respect to the Securities of that or those series to which the appointment of such successor Trustee relates.

(c) Upon request of any such successor Trustee, the Company shall execute any and all instruments for more fully and certainly vesting in and confirming to such successor Trustee all such rights, powers and trusts referred to in paragraph (a) or (b) of this Section, as the case may be.

(d) No successor Trustee shall accept its appointment unless at the time of such acceptance such successor Trustee shall be qualified and eligible under this Article.

SECTION 612. MERGER, CONVERSION, CONSOLIDATION OR SUCCESSION TO BUSINESS.

Any corporation into which the Trustee may be merged or converted or with which it may be consolidated, or any corporation resulting from any merger, conversion or consolidation to which the Trustee shall be a party, or any corporation succeeding to all or substantially all the corporate trust business of the Trustee, shall be the successor of the Trustee hereunder, provided such corporation shall be otherwise qualified and eligible under this Article, without the execution or filing of any paper or any further act on the part of any of the parties hereto; *provided, however*, that in the case of a corporation succeeding to all or substantially all the corporate trust business of the Trustee, such successor corporation shall expressly assume all of the Trustee's liabilities hereunder. In case any Securities shall have been authenticated, but not delivered, by the Trustee then in office, any successor by merger, conversion or consolidation to such authenticating Trustee may adopt such authentication and deliver the Securities so authenticated with the same effect as if such successor Trustee had itself authenticated such Securities.

SECTION 613. PREFERENTIAL COLLECTION OF CLAIMS AGAINST COMPANY.

The Trustee shall comply with Section 311(a) of the Trust Indenture Act, excluding any creditor relationship described in Section 311(b) of the Trust Indenture Act. A Trustee who has resigned or been removed shall be subject to Section 311(a) of the Trust Indenture Act to the extent indicated therein.

SECTION 614. APPOINTMENT OF AUTHENTICATING AGENT.

The Trustee may appoint an Authenticating Agent or Agents that shall be authorized to act on behalf of the Trustee to authenticate Securities issued upon original issue and upon exchange, registration of transfer or partial redemption or pursuant to Section 306, and Securities so authenticated shall be entitled to the benefits of this Indenture and shall be valid and obligatory for all purposes as if authenticated by the Trustee hereunder. Wherever reference is made in this Indenture to the authentication and delivery of Securities by the Trustee or the Trustee's certificate of authentication, such reference shall be deemed to include authentication and delivery on behalf of the Trustee by an Authenticating Agent and a certificate of authentication executed on behalf of the Trustee by an Authenticating Agent. Each Authenticating Agent shall be acceptable to the Company and shall at all times be a corporation organized and doing business under the laws of the United States of America, any State thereof or the District of Columbia having a combined capital and surplus of not less than \$50 million or equivalent amount expressed in a foreign currency and subject to supervision or examination by Federal or State (or the District of Columbia) authority or authority of such country. If such Authenticating Agent publishes reports of condition at least annually, pursuant to law or to the requirements of said supervising or examining authority, then for the purposes of this Section 614, the combined capital and surplus of such Authenticating Agent shall be deemed to be its combined capital and surplus as set forth in its most recent report of condition so published. If at any time an Authenticating Agent shall cease to be eligible in accordance with the provisions of this Section 614, such Authenticating Agent shall resign immediately in the manner and with the effect specified in this Section 614.

Any corporation into which an Authenticating Agent may be merged or converted or with which it may be consolidated, or any corporation resulting from any merger, conversion or consolidation to which such Authenticating Agent shall be a party, or any corporation succeeding to the corporate agency or corporate trust business of an Authenticating Agent, shall continue to be an Authenticating Agent, *provided* such corporation shall be otherwise eligible under this Section 614, without the execution or filing of any paper or any further act on the part of the Trustee or the Authenticating Agent.

An Authenticating Agent may resign at any time by giving written notice thereof to the Trustee and to the Company. The Trustee may at any time terminate the agency of an Authenticating Agent by giving written notice thereof to such Authenticating Agent and to the Company. Upon receiving such a notice of resignation or upon such a termination, or in case at any time such Authenticating Agent shall cease to be eligible in accordance with the provisions of this Section 614, the Trustee may appoint a successor Authenticating Agent which shall be acceptable to the Company and shall mail written notice of such appointment by first-class mail, postage prepaid, to all Holders as their names and addresses appear in the Security Register. Any successor Authenticating Agent upon acceptance of its appointment hereunder shall become vested with all the rights, powers and duties of its predecessor hereunder, with like effect as if originally named as an Authenticating Agent. No successor Authenticating Agent shall be appointed unless eligible under the provisions of this Section 614.

The Trustee agrees to pay to each Authenticating Agent from time to time reasonable compensation for its services under this Section 614, and the Trustee shall be entitled to be reimbursed for such payments, subject to the provisions of Section 607.

If an appointment is made pursuant to this Section 614, the Securities may have endorsed thereon, in addition to the Trustee's certificate of authentication, an alternate certificate of authentication in the following form:

"This is one of the Securities of the series designated therein referred to in the within mentioned Indenture.

AS TRUSTEE

By

AS AUTHENTICATING AGENT

By

AS AUTHORIZED SIGNATORY"

Notwithstanding any provision of this Section 614 to the contrary, if at any time any Authenticating Agent appointed hereunder with respect to any series of Securities shall not also be acting as the Security Registrar hereunder with respect to any series of Securities, then, in addition to all other duties of an Authenticating Agent hereunder, such Authenticating Agent shall also be obligated (i) to furnish to the Security Registrar promptly all information necessary to enable the Security Registrar to maintain at all times an accurate and current Security Register and (ii) prior to authenticating any Security denominated in a foreign currency, to ascertain from the Company the units of such foreign currency that are required to be determined by the Company pursuant to Section 302.

**ARTICLE VII
HOLDER'S LISTS AND REPORTS BY TRUSTEE AND COMPANY**

SECTION 701. COMPANY TO FURNISH TRUSTEE NAMES AND ADDRESSES OF HOLDERS.

With respect to each series of Securities, the Company will furnish or cause to be furnished to the Trustee:

(a) semi-annually, not more than 15 days after each Regular Record Date relating to that series (or, if there is no Regular Record Date relating to that series, on January 1 and July 1), a list, in such form as the Trustee may reasonably require, of the names and addresses of the Holders of that series as of such dates, and

(b) at such other times as the Trustee may request in writing, within 30 days after the receipt by the Company of any such request, a list of similar form and content, such list to be dated as of a date not more than 15 days prior to the time such list is furnished;

provided, that so long as the Trustee is the Security Registrar, the Company shall not be required to furnish or cause to be furnished such a list to the Trustee. The Company shall otherwise comply with Section 312(a) of the Trust Indenture Act.

SECTION 702. PRESERVATION OF INFORMATION; COMMUNICATIONS TO HOLDERS.

(a) The Trustee shall preserve, in as current a form as is reasonably practicable, the names and addresses of Holders of each series contained in the most recent list furnished to the Trustee as provided in Section 701 and the names and addresses of Holders of each series received by the Trustee in its capacity as Security Registrar. The Trustee may destroy any list furnished to it as provided in Section 701 upon receipt of a new list so furnished. The Trustee shall otherwise comply with Section 312(a) of the Trust Indenture Act.

(b) Holders of Securities may communicate pursuant to Section 312(b) of the Trust Indenture Act with other Holders with respect to their rights under this Indenture or under the Securities. The Company, the Trustee, the Security Registrar and any other Person shall have the protection of Section 312(c) of the Trust Indenture Act.

SECTION 703. REPORTS BY TRUSTEE.

(a) Within 60 days after May 15 of each year commencing with the year 2018, the Trustee shall transmit by mail to Holders a brief report dated as of such May 15 that complies with Section 313(a) of the Trust Indenture Act. The Trustee shall comply with Section 313(b) of the Trust Indenture Act. The Trustee shall transmit by mail all reports as required by Sections 313(c) and 313(d) of the Trust Indenture Act.

(b) A copy of each report pursuant to Subsection (a) of this Section 703 shall, at the time of its transmission to Holders, be filed by the Trustee with each stock exchange upon which any Securities are listed, with the SEC and with the Company. The Company will notify the Trustee when any Securities are listed or delisted on any stock exchange.

36

SECTION 704. REPORTS BY COMPANY.

The Company shall file with the Trustee, within 15 days after the Company is required to file the same with the SEC, copies of the annual reports and of the information, documents and other reports (or copies of such portions of any of the foregoing as the SEC may from time to time by rules and regulations prescribe) which the Company may be required to file with the SEC pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934, as amended, and shall otherwise comply with Section 314(a) of the Trust Indenture Act.

Delivery of such reports, information and documents to the Trustee is for informational purposes only and the Trustee's receipt of such shall not constitute constructive notice of any information contained therein or determinable from information contained therein, including the Company's compliance with any of its covenants hereunder (as to which the Trustee is entitled to rely exclusively on Officers' Certificates).

**ARTICLE VIII
CONSOLIDATION, MERGER, CONVEYANCE,
TRANSFER OR LEASE**

SECTION 801. COMPANY MAY CONSOLIDATE, ETC., ONLY ON CERTAIN TERMS.

(a) The Company shall not, directly or indirectly, in any transaction or series of related transactions: (1) consolidate or merge with or into another Person (whether or not the Company is the surviving corporation); (2) sell, assign, transfer, convey or otherwise dispose of all or substantially all of the properties or assets of the Company and its Subsidiaries taken as a whole, or (3) assign any of its obligations under the Securities and this Indenture, in one or more related transactions, to another Person; unless:

(i) either: (A) the Company is the surviving corporation; or (B) the Person formed by or surviving any such consolidation or merger (if other than the Company) or to which such sale, assignment, transfer, conveyance or other disposition shall have been made is a corporation organized or existing under the laws of the United States, any state thereof or the District of Columbia;

(ii) the Person formed by or surviving any such consolidation or merger (if other than the Company) or the Person to which such sale, assignment, transfer, conveyance or other disposition shall have been made assumes all the obligations of the Company under the Securities and this Indenture pursuant to agreements reasonably satisfactory to the Trustee;

(iii) immediately after such transaction no Default or Event of Default exists;

(iv) the Company shall have delivered to the Trustee an Officers' Certificate and an Opinion of Counsel, each stating that such merger, consolidation or sale, assignment, transfer, conveyance or other disposition of such properties or assets or assignment of its obligations under the Securities and this Indenture and such supplemental indenture, if any, comply with this Indenture.

(b) The Company shall not, directly or indirectly, lease all or substantially all of its properties or assets, in one or more related transactions, to any other Person.

(c) Notwithstanding the foregoing, this Section 801 shall not apply to a sale, assignment, transfer, conveyance or other disposition of assets between or among the Company and any of its Wholly Owned Subsidiaries.

37

SECTION 802. SUCCESSOR PERSON SUBSTITUTED.

Upon any consolidation or merger, any sale, assignment, transfer, lease, conveyance or other disposition of all or substantially all of the assets of the Company, or any assignment of the obligations under the Securities and this Indenture in accordance with Section 801 hereof, the successor corporation formed by such consolidation or into or with which the Company is merged or to which such sale, assignment, transfer, lease, conveyance or other disposition is made shall succeed to, and be substituted for (so that from and after the date of such consolidation, merger, sale, lease, conveyance or other disposition, the provisions of this Indenture referring to the "Company" shall refer instead to the successor corporation and not to the Company), and may exercise every right and power of the Company under this Indenture with the same effect as if such successor Person had been named as the Company herein; *provided, however*, that the predecessor Company shall not be relieved from the obligation to pay the principal of and interest on the Securities except in the case of a sale of all of the Company's assets that meets the requirements of Section 801 hereof.

ARTICLE IX SUPPLEMENTAL INDENTURES

SECTION 901. WITHOUT CONSENT OF HOLDERS.

Notwithstanding Section 902 of this Indenture, the Company and the Trustee may amend or supplement this Indenture or the Securities of any series without the consent of any Holder of a Security of any series:

(a) to cure any ambiguity, defect or inconsistency;

(b) to provide for uncertificated Securities in addition to or in place of certificated Securities or to alter the provisions of Article II of this Indenture (including the related definitions) in a manner that does not materially adversely affect any Holder;

(c) to establish the form or terms of Securities of any series as permitted by Sections 201 and 301 of this Indenture;

(d) to provide for the assumption of the Company's or any Guarantor's obligations to the Holders of the Securities by a successor to the Company pursuant to Article VIII of this Indenture;

(e) to make any change that would provide any additional rights or benefits to the Holders of the Securities or that does not adversely affect the legal rights hereunder of any such Holder;

(f) to comply with requirements of the SEC in order to effect or maintain the qualification of this Indenture under the Trust Indenture Act;

(g) to evidence and provide the acceptance of the appointment of a successor Trustee pursuant to Sections 610 and 611 of this Indenture; and

(h) to add a Guarantor of the Securities.

Upon the request of the Company accompanied by a resolution of its Board of Directors authorizing the execution of any such amended or supplemental indenture, and upon receipt by the Trustee of the documents described in Section 603 of this Indenture, the Trustee shall join with the Company in the execution of any amended or supplemental indenture authorized or permitted by the terms of this Indenture and to make any further appropriate agreements and stipulations that may be therein contained, but the Trustee shall not be obligated to enter into such amended or supplemental indenture that affects its own rights, duties or immunities under this Indenture or otherwise.

SECTION 902. WITH CONSENT OF HOLDERS.

Except as provided below in this Section 902, the Company and the Trustee may amend or supplement this Indenture and the Securities of any series may be amended or supplemented with the consent of the Holders of at least a majority in aggregate principal amount at maturity of Securities of that series then Outstanding voting as a single class (including, without limitation, consents obtained in connection with a purchase of, or tender offer or exchange offer for, that series of Securities), and, subject to Sections 504 and 507 hereof, any existing Default or Event of Default (other than a Default or Event of Default in the payment of the principal of, premium, if any, and interest, if any, on such Securities, except a payment default resulting from an acceleration that has been rescinded) or compliance with any provision of this Indenture or such Securities may be waived with the consent of the Holders of a majority in aggregate principal amount at maturity of the then Outstanding Securities of that series voting as a single class (including without limitation, consents obtained in connection with a purchase of, or tender offer or exchange offer for, that series of Securities).

Upon the request of the Company accompanied by a Board Resolution authorizing the execution of any such amended or supplemental indenture, and upon the filing with the Trustee of evidence satisfactory to the Trustee of the consent of the Holders of that series of Securities as aforesaid, and upon receipt by the Trustee of the documents described in Section 603 of this Indenture, the Trustee shall join with the Company in the execution of such amended or supplemental indenture unless such amended or supplemental indenture directly affects the Trustee's own rights, duties or immunities under this Indenture or otherwise, in which case the Trustee may in its discretion, but shall not be obligated to, enter into such amended or supplemental indenture.

It shall not be necessary for the consent of the Holders of Securities under this Section 902 to approve the particular form of any proposed amendment or waiver, but it shall be sufficient if such consent approves the substance thereof.

After an amendment, supplement or waiver under this Section becomes effective, the Company shall mail to the Holders of Securities of any series affected thereby a notice briefly describing the amendment, supplement or waiver. Any failure of the Company to mail such notice, or any defect therein, shall not, however, in any way impair or affect the validity of any such amended or supplemental indenture or waiver.

Subject to Sections 504 and 507 hereof, the Holders of a majority in aggregate principal amount at maturity of a series of Securities then Outstanding voting as a single class may waive compliance in a particular instance by the Company with any provision of this Indenture or the Securities. However, without the consent of each Holder of a series of Securities affected, an amendment or waiver under this Section 902 may not (with respect to the series of Securities held by a non-consenting Holder):

(a) reduce the principal amount of the then Outstanding Securities whose Holders must consent to an amendment, supplement or waiver;

(b) reduce the principal of or change the fixed maturity of any Security or alter any of the provisions with respect to the redemption of the Securities unless otherwise specifically provided for in the supplemental indenture;

(c) reduce the rate of or change the time for payment of interest on any Security;

(d) waive a Default or Event of Default in the payment of principal of, or interest or premium, if any, on the Securities (except a rescission of acceleration of the Securities by the Holders of any series of Securities of at least a majority in aggregate principal amount of the then Outstanding Securities of that series and a waiver of the payment default that resulted from such acceleration);

(e) make any Security payable in money other than that stated in the Security;

(f) make any change in the provisions of this Indenture relating to waivers of past Defaults or the rights of Holders of Securities to receive payments of principal of, or interest or premium, if any, on the Securities;

(g) waive a redemption payment with respect to any Security (other than as may be specifically permitted by the supplemental indenture);

(h) cause the Securities to become subordinated in right of payment to any other Indebtedness;

39

(i) release any Guarantor from any of its obligations under its Guarantee or this Indenture, except in accordance with the terms thereof; or

(j) make any change in Sections 504 or 507 or the foregoing amendment and waiver provisions.

SECTION 903. COMPLIANCE WITH TRUST INDENTURE ACT.

Every amendment or supplement to this Indenture or the Securities shall be set forth in a amended or supplemental indenture that complies with the Trust Indenture Act as then in effect.

SECTION 904. REVOCATION AND EFFECT OF CONSENTS.

Until an amendment, supplement or waiver becomes effective, a consent to it by a Holder of a Security is a continuing consent by the Holder of a Security and every subsequent Holder of a Security or portion of a Security that evidences the same debt as the consenting Holder's Security, even if notation of the consent is not made on any Security. However, any such Holder of a Security or subsequent Holder of a Security may revoke the consent as to its Security if the Trustee receives written notice of revocation before the date the waiver, supplement or amendment becomes effective. An amendment, supplement or waiver becomes effective in accordance with its terms and thereafter binds every Holder.

SECTION 905. NOTATION ON OR EXCHANGE OF SECURITIES.

The Trustee may place an appropriate notation about an amendment, supplement or waiver on any Security thereafter authenticated. The Company in exchange for all Securities of a series may issue and the Trustee shall, upon receipt of a written order from the Company to authenticate such Securities, authenticate new Securities that reflect the amendment, supplement or waiver.

SECTION 906. TRUSTEE TO SIGN AMENDMENTS, ETC.

The Trustee shall sign any amended or supplemental indenture authorized pursuant to this Article IX if the amendment or supplement does not adversely affect the rights, duties, liabilities or immunities of the Trustee. The Company may not sign an amendment or supplemental indenture until the Board of Directors approves it. In executing any amended or supplemental indenture, the Trustee shall be given and (subject to Section 601 of this Indenture) shall be fully protected in relying upon, in addition to the documents required by Section 603 this Indenture, an Officer's Certificate and an Opinion of Counsel stating that the execution of such amended or supplemental indenture is authorized or permitted by this Indenture.

ARTICLE X COVENANTS

SECTION 1001. PAYMENT OF PRINCIPAL, PREMIUM AND INTEREST.

The Company covenants and agrees for the benefit of each series of Securities that it will duly and punctually pay the principal of (and premium, if any), interest on and any Additional Amounts with respect to the Securities of that series in accordance with the terms of the Securities and this Indenture.

SECTION 1002. MAINTENANCE OF OFFICE OR AGENCY.

If Securities of a series are issuable only as Registered Securities, the Company will maintain in each Place of Payment for any series of Securities an office or agency where Securities of that series may be presented or surrendered for payment, where Securities of that series may be surrendered for registration of transfer or exchange and where notices and demands to or upon the Company in respect of the Securities of that series and this Indenture may be served. The Company will give prompt written notice to the Trustee of the location, and any change in the location, of such office or agency. If at any time the Company shall fail to maintain any such required office or agency or shall fail to furnish the Trustee with the address thereof, such presentations, surrenders, notices and demands may be made or served at the Corporate Trust Office of the Trustee.

40

The Company may also from time to time designate one or more other offices or agencies where the Securities of one or more series may be presented or surrendered for any or all such purposes and may from time to time rescind such designations; *provided, however*, that no such designation or rescission shall in any manner relieve the Company of its obligation to maintain an office or agency in each Place of Payment for Securities of any series for such purposes. The Company will give prompt written notice to the Trustee of any such designation or rescission and of any change in the location of any such other office or agency.

SECTION 1003. MONEY FOR SECURITIES PAYMENTS TO BE HELD IN TRUST.

If the Company shall at any time act as its own Paying Agent with respect to any series of Securities, it will, on or before each due date of the principal of (and premium, if any) or interest on or any Additional Amounts with respect to any of the Securities of that series, segregate and hold in trust for the benefit of the Persons entitled thereto a sum sufficient to pay the principal (and premium, if any) or interest so becoming due until such sums shall be paid to such Persons or otherwise disposed of as herein provided and will promptly notify the Trustee of its action or failure so to act.

Whenever the Company shall have one or more Paying Agents for any series of Securities, the Company will, on or before each due date of the principal of (and

premium, if any) or interest on any Securities of that series, deposit with a Paying Agent a sum sufficient to pay the principal (and premium, if any) or interest so becoming due, such sum to be held in trust for the benefit of the Persons entitled to such principal, premium or interest, and (unless such Paying Agent is the Trustee) the Company will promptly notify the Trustee of its action or failure so to act.

The Company will cause each Paying Agent for any series of Securities other than the Trustee to execute and deliver to the Trustee an instrument in which such Paying Agent shall agree with the Trustee, subject to the provisions of this Section, that such Paying Agent will:

- (1) hold all sums held by it for the payment of the principal of (and premium, if any), interest on or any Additional Amounts with respect to Securities of that series in trust for the benefit of the Persons entitled thereto until such sums shall be paid to such Persons or otherwise disposed of as herein provided;
- (2) give the Trustee notice of any default by the Company (or any other obligor upon the Securities of that series) in the making of any payment of principal (and premium, if any), interest on or any Additional Amounts with respect to the Securities of that series; and
- (3) at any time during the continuance of any such default, upon the written request of the Trustee, forthwith pay to the Trustee all sums so held in trust by such Paying Agent.

The Company may at any time, for the purpose of obtaining the satisfaction and discharge of this Indenture or for any other purpose, pay, or by Company Order direct any Paying Agent to pay, to the Trustee all sums held in trust by the Company or such Paying Agent, such sums to be held by the Trustee upon the same trusts as those upon which sums were held by the Company or such Paying Agent; and, upon such payment by any Paying Agent to the Trustee, such Paying Agent shall be released from all further liability with respect to such money.

Any money deposited with the Trustee or any Paying Agent, or then held by the Company, in trust for the payment of the principal of (and premium, if any) or interest on any Security of any series and remaining unclaimed for three years after such principal (and premium, if any) or interest has become due and payable shall, unless otherwise required by mandatory provisions of applicable escheat, or abandoned or unclaimed property law, be paid to the Company on Company Request, or (if then held by the Company) shall be discharged from such trust; and the Holder of such Security shall thereafter, as an unsecured general creditor, look only to the Company for payment thereof, and all liability of the Trustee or such Paying Agent with respect to such trust money, and all liability of the Company as trustee thereof, shall thereupon cease; *provided, however*, that the Trustee or such Paying Agent, before being required to make any such repayment, may at the expense of the Company cause to be published once, in an Authorized Newspaper in the Borough of Manhattan, the City of New York and in such other Authorized Newspapers as the Trustee shall deem appropriate, notice that such money remains unclaimed and that, after a date specified herein, which shall not be less than 30 days from the date of such publication, any unclaimed balance of such money then remaining will, unless otherwise required by mandatory provisions of applicable escheat, or abandoned or unclaimed property law, be repaid to the Company.

SECTION 1004. EXISTENCE.

Subject to Article VIII, the Company will do or cause to be done all things necessary to preserve and keep in full force and effect its corporate existence.

SECTION 1005. STATEMENT BY OFFICERS AS TO DEFAULT.

The Company shall deliver to the Trustee, within 120 days after the end of each fiscal year, an Officers' Certificate stating that a review of the activities of the Company and its Subsidiaries during the preceding fiscal year has been made under the supervision of the signing officers with a view to determining whether the Company has kept, observed, performed and fulfilled its obligations under this Indenture, and further stating, as to each such officer signing such certificate, that to the best of his or her knowledge the Company has kept, observed, performed and fulfilled each and every covenant contained in this Indenture and is not in default in the performance or observance of any of the terms, provisions and conditions of this Indenture (or, if a Default or Event of Default shall have occurred, describing all such Defaults or Events of Default of which he or she may have knowledge and what action the Company is taking or proposes to take with respect thereto) and that to the best of his or her knowledge no event has occurred and remains in existence by reason of which payments on account of the principal of or interest, if any, on the Securities is prohibited or if such event has occurred, a description of the event and what action the Company is taking or proposes to take with respect thereto.

The Company shall, so long as any of the Securities are outstanding, deliver to the Trustee, forthwith and in any event within five days upon any officer becoming aware of any Default or Event of Default or an event which, with notice or the lapse of time or both, would constitute an Event of Default, an Officers' Certificate specifying such Default or Event of Default and what action the Company is taking or proposes to take with respect thereto.

SECTION 1006. WAIVER OF CERTAIN COVENANTS.

The Company may omit in any particular instance to comply with any covenant or condition set forth in Section 1005, or any covenant added for the benefit of any series of Securities as contemplated by Section 301 (unless otherwise specified pursuant to Section 301) if before or after the time for such compliance the Holders of a majority in principal amount of the Outstanding Securities of all series affected by such omission (acting as one class) shall, by Act of such Holders, either waive such compliance in such instance or generally waive compliance with such covenant or condition, but no such waiver shall extend to or affect such covenant or condition except to the extent so expressly waived, and, until such waiver shall become effective, the obligations of the Company and the duties of the Trustee in respect of any such covenant or condition shall remain in full force and effect.

SECTION 1007. ADDITIONAL AMOUNTS.

If the Securities of a series expressly provide for the payment of Additional Amounts, the Company will pay to the Holder of any Security of such series Additional Amounts as expressly provided therein. Whenever in this Indenture there is mentioned, in any context, the payment of the principal of or any premium or interest on, or in respect of, any Security of any series or the net proceeds received from the sale or exchange of any Security of any series, such mention shall be deemed to include mention of the payment of Additional Amounts provided for in this Section 1007 to the extent that, in such context, Additional Amounts are, were or would be payable in respect thereof pursuant to the provisions of this Section 1007 and express mention of the payment of Additional Amounts (if applicable) in any provisions hereof shall not be construed as excluding Additional Amounts in those provisions hereof where such express mention is not made.

If the Securities of a series provide for the payment of Additional Amounts, at least 10 days prior to the first Interest Payment Date with respect to that series of Securities (or if the Securities of that series will not bear interest prior to Maturity, the first day on which a payment of principal and any premium is made), and at least 10 days prior to each date of payment of principal and any premium or interest if there has been any change with respect to the matters set forth in the below-mentioned Officers' Certificate, the Company shall furnish the Trustee and the Company's principal Paying Agent or Paying Agents, if other than the Trustee, with an Officers' Certificate instructing the Trustee and such Paying Agent or Paying Agents whether such payment of principal of and any premium or interest on the Securities of that series shall be made

to Holders of Securities of that series who are United States Aliens without withholding for or on account of any tax, assessment or other governmental charge described in the Securities of that series. If any such withholding shall be required, then such Officers' Certificate shall specify by country the amount, if any, required to be withheld on such payments to such Holders of Securities and the Company will pay to such Paying Agent the Additional Amounts required by this Section. The Company covenants to indemnify the Trustee and any Paying Agent for, and to hold them harmless against any loss, liability or expense reasonably incurred without negligence or willful misconduct on their part arising out of or in connection with actions taken or omitted by any of them in reliance on any Officers' Certificate furnished pursuant to this Section 1007.

ARTICLE XI REDEMPTION OF SECURITIES

SECTION 1101. APPLICABILITY OF ARTICLE.

Securities of any series which are redeemable before their Stated Maturity shall be redeemable in accordance with their terms and (except as otherwise specified as contemplated by Section 301 for Securities of any series) in accordance with this Article.

SECTION 1102. ELECTION TO REDEEM; NOTICE TO TRUSTEE.

The election of the Company to redeem any Securities shall be evidenced by a Board Resolution. In case of any redemption at the election of the Company of less than all the Securities of any series, the Company shall, a reasonable period prior to the Redemption Date fixed by the Company (unless a shorter notice shall be satisfactory to the Trustee), notify the Trustee of such Redemption Date and of the principal amount of Securities of such series to be redeemed. In the case of any redemption of Securities prior to the expiration of any restriction on such redemption provided in the terms of such Securities or elsewhere in this Indenture, the Company shall furnish the Trustee with an Officers' Certificate evidencing compliance with such restriction.

SECTION 1103. SELECTION BY TRUSTEE OF SECURITIES TO BE REDEEMED.

If less than all the Securities of any series are to be redeemed, the particular Securities to be redeemed shall be selected not more than 60 days prior to the Redemption Date by the Trustee, from the Outstanding Securities of such series not previously called for redemption, by such method as the Trustee shall deem fair and appropriate and that may provide for the selection for redemption of portions (equal to the minimum authorized denomination for Securities of that series or any integral multiple thereof) of the principal amount of Securities of such series of a denomination larger than the minimum authorized denomination for Securities of that series or of the principal amount of global Securities of such series.

The Trustee shall promptly notify the Company and the Security Registrar in writing of the Securities selected for redemption and, in the case of any Securities selected for partial redemption, the principal amount thereof to be redeemed.

For all purposes of this Indenture, unless the context otherwise requires, all provisions relating to the redemption of Securities shall relate, in the case of any Securities redeemed or to be redeemed only in part, to the portion of the principal amount of such Securities which has been or is to be redeemed.

SECTION 1104. NOTICE OF REDEMPTION.

Notice of redemption shall be given in the manner provided in Section 107 to each Holder of Securities to be redeemed not less than 30 nor more than 60 days prior to the Redemption Date.

All notices of redemption shall state:

- (1) the Redemption Date,
- (2) the Redemption Price,
- (3) if less than all the Outstanding Securities of any series are to be redeemed, the identification (and, in the case of partial redemption, the principal amounts) of the particular Securities to be redeemed,
- (4) that on the Redemption Date the Redemption Price will become due and payable upon each such Security to be redeemed and, if applicable, that interest thereon will cease to accrue on and after said date,
- (5) the place or places where such Securities are to be surrendered for payment of the Redemption Price,
- (6) that the redemption is for a sinking fund, if such is the case, and
- (7) the "CUSIP" number, if applicable.

A notice of redemption as contemplated by Section 107 need not identify particular Registered Securities to be redeemed. Notice of redemption of Securities to be redeemed at the election of the Company shall be given by the Company or, at the Company's request and provision to the Trustee of the notice information 10 days prior to delivery of the notice, by the Trustee in the name and at the expense of the Company.

SECTION 1105. DEPOSIT OF REDEMPTION PRICE.

On or before 10:00 a.m., New York City time, on any Redemption Date, the Company shall deposit with the Trustee or with a Paying Agent (or, if the Company is acting as its own Paying Agent, segregate and hold in trust as provided in Section 1003) an amount of money sufficient to pay the Redemption Price of, and (except if the Redemption Date shall be an Interest Payment Date) accrued interest on and any Additional Amounts with respect to all the Securities to be redeemed on that date.

SECTION 1106. SECURITIES PAYABLE ON REDEMPTION DATE.

Notice of redemption having been given as aforesaid, the Securities so to be redeemed shall, on the Redemption Date, become due and payable at the Redemption Price therein specified, and from and after such date (unless the Company shall default in the payment of the Redemption Price and accrued interest) such Securities shall cease to bear interest. Upon surrender of any such Security for redemption in accordance with said notice, such Security shall be paid by the Company at the Redemption Price, together with accrued interest (and any Additional Amounts) to the Redemption Date; *provided, however*, that installments of interest whose Stated Maturity is on or prior to the Redemption Date shall be payable to the Holders of such Securities, or one or more Predecessor Securities, registered as such at the close of business on the relevant Record Dates according to their terms and the provisions of Section 307.

If any Security called for redemption shall not be so paid upon surrender thereof for redemption, the principal (and premium, if any) shall, until paid, bear interest from

the Redemption Date at the rate prescribed therefor in the Security or, in the case of Original Issue Discount Securities, the Securities' Yield to Maturity.

SECTION 1107. SECURITIES REDEEMED IN PART.

Any Registered Security which is to be redeemed only in part shall be surrendered at a Place of Payment therefor (with, if the Company or the Trustee so requires, due endorsement by, or a written instrument of transfer in form satisfactory to the Company and the Trustee duly executed by, the Holder thereof or his attorney duly authorized in writing), and the Company shall execute, and the Trustee shall authenticate and deliver to the Holder of such Security without service charge, a new Registered Security or Securities of the same series and Stated Maturity, of any authorized denomination as requested by such Holder, in aggregate principal amount equal to and in exchange for the unredeemed portion of the principal of the Security so surrendered.

SECTION 1108. PURCHASE OF SECURITIES.

Unless otherwise specified as contemplated by Section 301, the Company and any Affiliate of the Company may at any time purchase or otherwise acquire Securities in the open market or by private agreement. Such acquisition shall not operate as or be deemed for any purpose to be a redemption of the indebtedness represented by such Securities. Any Securities purchased or acquired by the Company may be delivered to the Trustee and, upon such delivery, the indebtedness represented thereby shall be deemed to be satisfied. Section 309 shall apply to all Securities so delivered.

ARTICLE XII SINKING FUNDS

SECTION 1201. APPLICABILITY OF ARTICLE.

The provisions of this Article shall be applicable to any sinking fund for the retirement of Securities of a series except as otherwise specified as contemplated by Section 301 for Securities of such series.

The minimum amount of any sinking fund payment provided for by the terms of Securities of any series is herein referred to as a "mandatory sinking fund payment," and any payment in excess of such minimum amount provided for by the terms of Securities of any series is herein referred to as an "optional sinking fund payment." Unless otherwise provided by the terms of Securities of any series, the cash amount of any sinking fund payment may be subject to reduction as provided in Section 1202. Each sinking fund payment shall be applied to the redemption of Securities of any series as provided for by the terms of Securities of such series.

SECTION 1202. SATISFACTION OF SINKING FUND PAYMENTS WITH SECURITIES.

The Company (1) may deliver Outstanding Securities of a series (other than any previously called for redemption), and (2) may apply as a credit Securities of a series which have been redeemed either at the election of the Company pursuant to the terms of such Securities or through the application of permitted optional sinking fund payments pursuant to the terms of such Securities, in each case in satisfaction of all or any part of any sinking fund payment with respect to the Securities of such series required to be made pursuant to the terms of such Securities as provided for by the terms of such series; *provided* that such Securities have not been previously so credited. Such Securities shall be received and credited for such purpose by the Trustee at the Redemption Price specified in such Securities for redemption through operation of the sinking fund and the amount of such sinking payment shall be reduced accordingly.

SECTION 1203. REDEMPTION OF SECURITIES FOR SINKING FUND.

Not less than 45 days prior (unless a shorter period shall be satisfactory to the Trustee) to each sinking fund payment date for any series of Securities, the Company will deliver to the Trustee an Officers' Certificate specifying the amount of the next ensuing sinking fund payment for that series pursuant to the terms of that series, the portion thereof, if any, which is to be satisfied by payment of cash and the portion thereof, if any, which is to be satisfied by delivery of or by crediting Securities of that series pursuant to Section 1202 and will also deliver to the Trustee any Securities to be so delivered. Not less than 30 days before each such sinking fund payment date the Trustee shall select the Securities to be redeemed upon such sinking fund payment date in the manner specified in Section 1103 and cause notice of the redemption thereof to be given in the name of and at the expense of the Company in the manner provided in Section 1104. Such notice having been duly given, the redemption of such Securities shall be made upon the terms and in the manner stated in Sections 1106 and 1107.

ARTICLE XIII MEETINGS OF HOLDERS OF SECURITIES

SECTION 1301. PURPOSES FOR WHICH MEETINGS MAY BE CALLED.

A meeting of Holders of Securities of any or all series may be called at any time and from time to time pursuant to this Article to make, give or take any request, demand, authorization, direction, notice, consent, waiver or other action provided by this Indenture to be made, given or taken by Holders of Securities of such series.

SECTION 1302. CALL, NOTICE AND PLACE OF MEETINGS.

(a) The Trustee may at any time call a meeting of Holders of Securities of any series for any purpose specified in Section 1301, to be held at such time and at such place in the Borough of Manhattan, the City of New York, or in any other location, as the Trustee shall determine. Notice of every meeting of Holders of Securities of any series, setting forth the time and the place of such meeting and in general terms the action proposed to be taken at such meeting, shall be given, in the manner provided in Section 107, not less than 20 nor more than 180 days prior to the date fixed for the meeting.

(b) In case at any time the Company, pursuant to a Board Resolution, or the Holders of at least 10% in aggregate principal amount of the Outstanding Securities of any series, shall have requested the Trustee for any such series to call a meeting of the Holders of Securities of such series for any purpose specified in Section 1301, by written request setting forth in reasonable detail the action proposed to be taken at the meeting, and the Trustee shall not have made the first publication of the notice of such meeting within 30 days after receipt of such request or shall not thereafter proceed to cause the meeting to be held as provided herein, then the Company or the Holders of Securities of such series in the amount above specified, as the case may be, may determine the time and the place in the Borough of Manhattan, the City of New York for such meeting and may call such meeting for such purposes by giving notice thereof as provided in Subsection (a) of this Section.

SECTION 1303. PERSONS ENTITLED TO VOTE AT MEETINGS.

To be entitled to vote at any meeting of Holders of Securities of any series, a Person shall be (1) a Holder of one or more Outstanding Securities of such series, or (2) a Person appointed by an instrument in writing as proxy for a Holder or Holders of one or more Outstanding Securities of such series by such Holder or Holders. The only Persons who shall be entitled to be present or to speak at any meeting of Holders of Securities of any series shall be the Persons entitled to vote at such meeting and their counsel, any representatives of the Trustee and its counsel and any representatives of the Company and its counsel.

SECTION 1304. QUORUM; ACTION.

The Persons entitled to vote a majority in aggregate principal amount of the Outstanding Securities of a series shall constitute a quorum for a meeting of Holders of Securities of such series. In the absence of a quorum within 30 minutes of the time appointed for any such meeting, the meeting shall, if convened at the request of Holders of Securities of such series, be dissolved. In any other case, the meeting may be adjourned for a period of not less than 10 days as determined by the chairman of the meeting prior to the adjournment of such meeting. In the absence of a quorum at any such adjourned meeting, such adjourned meeting may be further adjourned for a period of not less than 10 days as determined by the chairman of the meeting prior to the adjournment of such adjourned meeting. Subject to Section 1305(d), notice of the reconvening of any adjourned meeting shall be given as provided in Section 1302(a), except that such notice need be given only once not less than five days prior to the date on which the meeting is scheduled to be reconvened. Notice of the reconvening of an adjourned meeting shall state expressly that Persons entitled to vote a majority in principal amount of the Outstanding Securities of such series shall constitute a quorum.

Except as limited by the proviso to Section 902, any resolution presented to a meeting or adjourned meeting duly reconvened at which a quorum is present as aforesaid may be adopted by the affirmative vote of the Holders of a majority in aggregate principal amount of the Outstanding Securities of that series; *provided, however*, that, except as limited by the proviso to Section 902, any resolution with respect to any request, demand, authorization, direction, notice, consent or waiver which this Indenture expressly provides may be made, given or taken by the Holders of a specified percentage that is less than a majority in aggregate principal amount of the Outstanding Securities of a series may be adopted at a meeting or an adjourned meeting duly reconvened and at which a quorum is present as aforesaid by the affirmative vote of the Holders of such specified percentage in aggregate principal amount of the Outstanding Securities of that series.

Except as limited by the fourth paragraph of Section 902, any resolution passed or decision taken at any meeting of Holders of Securities of any series duly held in accordance with this Section shall be binding on all the Holders of Securities of such series, whether or not present or represented at the meeting.

46

SECTION 1305. DETERMINATION OF VOTING RIGHTS; CONDUCT AND ADJOURNMENT OF MEETINGS.

(a) The holding of Securities shall be proved in the manner specified in Section 105 and the appointment of any proxy shall be proved in the manner specified in Section 105. Such regulations may provide that written instruments appointing proxies, regular on their face, may be presumed valid and genuine without the proof specified in Section 105 or other proof.

(b) The Trustee shall, by an instrument in writing, appoint a temporary chairman of the meeting, unless the meeting shall have been called by the Company or by Holders of Securities as provided in Section 1302(b), in which case the Company or the Holders of Securities of the series calling the meeting, as the case may be, shall appoint a temporary chairman. A permanent chairman and a permanent secretary of the meeting shall be elected by vote of the Persons entitled to vote a majority in aggregate principal amount of the Outstanding Securities of such series represented at the meeting.

(c) At any meeting each Holder of a Security of such series and each proxy shall be entitled to one vote for each \$1,000 principal amount (or such other amount of the minimum denomination of any series of Securities as may be provided in the establishment of such series as contemplated by Section 301 hereof) of the Outstanding Securities of such series held or represented by him; *provided, however*, that no vote shall be cast or counted at any meeting in respect of any Security challenged as not Outstanding and ruled by the chairman of the meeting to be not Outstanding. The chairman of the meeting shall have no right to vote, except as a Holder of a Security of such series or as a proxy.

(d) Any meeting of Holders of Securities of any series duly called pursuant to Section 1302 at which a quorum is present may be adjourned from time to time by Persons entitled to vote a majority in aggregate principal amount of the Outstanding Securities of such series represented at the meeting; and the meeting may be held as so adjourned without further notice.

SECTION 1306. COUNTING VOTES AND RECORDING ACTION OF MEETINGS.

The vote upon any resolution submitted to any meeting of Holders of Securities of any series shall be by written ballots on which shall be subscribed the signatures of the Holders of Securities of such series or of their representatives by proxy and the principal amounts and serial numbers of the Outstanding Securities of such series held or represented by them. The permanent chairman of the meeting shall appoint two inspectors of votes who shall count all votes cast at the meeting for or against any resolution and who shall make and file with the secretary of the meeting their verified written reports in duplicate of all votes cast at the meeting. A record, at least in duplicate, of the proceedings of each meeting of Holders of Securities of any series shall be prepared by the secretary of the meeting and there shall be attached to such record the original reports of the inspectors of votes on any vote by ballot taken thereat and affidavits by one or more Persons having knowledge of the facts setting forth a copy of the notice of the meeting and showing that such notice was given as provided in Section 1302 and, if applicable, Section 1304. Each copy shall be signed and verified by the affidavits of the permanent chairman and secretary of the meeting and one such copy shall be delivered to the Company, and another to the Trustee to be preserved by the Trustee, the latter to have attached thereto the ballots voted at the meeting. Any record so signed and verified shall be conclusive evidence of the matters therein stated.

* * *

This instrument may be executed in any number of counterparts, each of which so executed shall be deemed to be an original, but all such counterparts shall together constitute but one and the same instrument.

[Signatures on following page]

47

IN WITNESS WHEREOF, the parties hereto have caused this Indenture to be duly executed as of the day and year first above written.

HEARTBEAM, INC.

By: _____
Name:
Title:

_____, as Trustee

By: _____

Name: _____

Title: _____



LUCOSKY BROOKMAN LLP
 101 Wood Avenue South
 5th Floor
 Woodbridge, NJ 08830
 T - (732) 395-4400
 F - (732) 395-4401

February 1, 2023

111 Broadway
 Suite 807
 New York, NY 10006
 T - (212) 332-8160
 F - (212) 332-8161

HeartBeam, Inc.
 2118 Walsh Avenue, Suite 210
 Santa Clara, CA 95050

www.lucbro.com

RE: Registration Statement on Form S-3

Ladies and Gentlemen:

We are acting as counsel for HeartBeam, Inc., a Delaware corporation (the "Company"), in connection with the Registration Statement on Form S-3 (such Registration Statement, as amended from time to time, is herein referred to as the "Registration Statement"), filed by the Company with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Securities Act"), on the date hereof, relating to the registration of the proposed public offering from time to time of up to \$100,000,000 of the securities described below. The Registration Statement includes two prospectuses: (i) a base prospectus (the "Base Prospectus") and (ii) a sales agreement prospectus (the "Sales Agreement Prospectus"), covering up to \$13,000,000 of shares of common stock, par value \$0.0001 per share, of the Company (the "Common Stock") that may be sold under the at the market offering agreement, dated February 1, 2023, by and between the Company and A.G.P / Alliance Global Partners. (such agreement, the "ATM Agreement") and such shares, the "Placement Shares"). The Base Prospectus provides it will be supplemented in the future by one or more prospectus supplements (each, a "Prospectus Supplement"). The Registration Statement, including the Base Prospectus (as supplemented from time to time by one or more Prospectus Supplements) and the Sales Agreement Prospectus will provide for the registration by the Company of:

- shares of Common Stock of the Company issuable directly (the "Base Prospectus Shares");
- shares of preferred stock, par value \$0.001 per share (the "Preferred Stock"), of the Company issuable directly;
- debt securities of the Company (the "Debt Securities"),
- warrants of the Company (the "Warrants") entitling the holders to purchase shares of Common Stock, shares of Preferred Stock, or other securities of the Company;



- rights to purchase shares of Common Stock or Preferred Stock (the "Rights");
- units (the "Units") comprised of any combination of other Securities offered in the Registration Statement; and
- the Placement Shares (and, together with the Base Prospectus Shares, the Preferred Stock, the Debt Securities, the Warrants, the Rights, the Units, and any Base Prospectus Shares or Preferred Stock that may be issued upon exercise, conversion or exchange pursuant to the terms of any the foregoing securities, the "Securities").

The shares of Common Stock (including the Base Prospectus Shares and the Placement Shares) are to be issued under the Amended and Restated Certificate of Incorporation of the Company, as amended (the "Certificate of Incorporation"). Each series of Preferred Stock is to be issued under the Certificate of Incorporation and a certificate of designation (a "Certificate of Designation") to be approved by the board of directors of the Company (the "Board of Directors") or a committee thereof and filed with the Secretary of State of the State of Delaware (the "Delaware Secretary of State"). The Debt Securities may be issued pursuant to a senior debt indenture (the "Senior Debt Indenture") between the Company and the trustee to be named therein (the "Senior Debt Trustee") and a subordinated debt indenture (the "Subordinated Debt Indenture," and together with the Senior Debt Indenture, the "Indentures") between the Company and the trustee to be named therein (the "Subordinated Debt Trustee" and, together with the Senior Debt Trustee, the "Trustees"). The Warrants are to be issued under one or more warrant agreements in a form to be filed and incorporated into the Registration Statement, with appropriate insertions (each, a "Warrant Agreement"), to be entered into by the Company, a warrant agent to be named by the Company (the "Warrant Agent"), and the holders from time to time of the Warrants. The Units are to be issued under one or more unit agreements in a form to be filed and incorporated into the Registration Statement, with appropriate insertions (each, a "Unit Agreement"), to be entered into by the Company and the unit agent named therein. The Rights are to be issued under one or more rights agent agreements in a form to be filed and incorporated into the Registration Statement, with appropriate insertions (each, a "Rights Agreement"), to be entered into by the Company and a bank, trust company or other financial institution to be identified therein as rights agents. The Certificate of Incorporation, each Certificate of Designation, each Warrant Agreement, each Unit Agreement, and each Rights Agreement are referred to herein individually as a "Governing Document" and collectively as the "Governing Documents."

As part of the corporate actions taken and to be taken in connection with issuance of any Securities to be issued and sold from time to time under the Registration Statement, the Board of Directors, a committee thereof or certain authorized officers of the Company as authorized by the Board of Directors will, before such Securities are issued under the Registration Statement, duly authorize the issuance and approve the terms of such Securities (the "Corporate Proceedings").

This opinion is being furnished in connection with the requirements of Item 601(b)(5) of Regulation S-K under the Securities Act, and no opinion is expressed herein as to any matter pertaining to the contents of the Registration Statement, the Base Prospectus, the Sales Agreement Prospectus, or any Prospectus Supplement, other than as expressly stated herein with respect to the issue of the Securities. It is understood that the opinions set forth below are to be used only in connection with the offer while the Registration Statement is in effect.

In our capacity as your counsel in connection with such registration, we have reviewed and are familiar with such documents, certificates, Corporate Proceedings and other materials, including an examination of originals or copies certified or otherwise identified to our satisfaction the By-laws of the Company, Governing Documents and the Registration Statement (collectively, the “Constituent Documents”), as amended, and have reviewed such questions of law, as we have considered relevant or necessary as a basis for this opinion.

In our examination, we have assumed the genuineness of all signatures, the authenticity of all documents submitted to us as originals, and the conformity to authentic original documents of all documents submitted to us as copies. For purposes of this opinion, we have assumed that proper proceedings in connection with the authorization and issuance or sale of the Securities will be timely and properly completed, in accordance with all requirements of applicable federal laws and the General Corporation Law of the State of Delaware (the “DGCL”) and, in the manner presently proposed. We have assumed and have not verified the accuracy of the factual matters of each document we have reviewed.

As to facts material to the opinions, statements and assumptions expressed herein, we have, with your consent, relied upon oral or written statements and representations of officers and other representatives of the Company and others. We have specifically relied upon the certification of an officer of the Company signed on even date herewith. In addition, we have obtained and relied upon such certificates and assurances from public officials as we have deemed necessary.

With respect to the Securities to be offered and sold by the Company, we have also assumed that (a) the Registration Statement shall have become and remain effective under the Securities Act, a Prospectus Supplement shall have been prepared and filed with the Commission describing the Securities, and such Securities shall have been issued and sold in accordance with the terms set forth in such Prospectus Supplement; (b) such Securities, as issued and delivered, comply with any requirements and restrictions imposed by any court or governmental or regulatory body applicable to the Company; (c) at the time of any offering or sale of any Securities, there shall be a sufficient number of shares of Common Stock or Preferred Stock, authorized and unissued under the Certificate of Incorporation, and not otherwise reserved for issuance, except in connection with the issuance of the Securities; (d) at the time of issuance or sale of the Securities, the Company shall validly exist and shall be in good standing under the laws of the State of Delaware, and, in the case of Securities, the Company shall have the necessary corporate power for such issuance; (e) any definitive purchase, underwriting or similar agreement with respect to any Securities, if applicable, shall have been duly authorized, executed and delivered by the parties thereto and shall constitute legally valid and binding obligations of the parties thereto, enforceable against each of them in accordance with their respective terms, at the time of issuance of the applicable Securities; (f) certificates representing the Securities, if any, shall have been duly executed, countersigned, registered and delivered, or if uncertificated, valid book-entry notations shall have been made in the share or other register of the Company, in each case in accordance with the Constituent Documents, and in the manner contemplated by the Registration Statement and/or the applicable Prospectus Supplement, against payment therefor in an amount not less than the par value thereof, or such other consideration determined by the Board of Directors, or an authorized committee thereof, as permitted under the DGCL, in accordance with the provisions of any applicable definitive purchase agreement, underwriting agreement, or similar agreement approved by the Company; and (g) the Constituent Documents shall be in full force and effect and shall not have been amended, restated, supplemented or otherwise altered, and there shall be no authorization of any such amendment, restatement, supplement or alteration, in each case since the date hereof.

Subject to the foregoing and the other matters set forth herein, it is our opinion that as of the date hereof:

1. With respect to the Base Prospectus Shares, upon (a) the completion of all required Corporate Proceedings with respect to the issuance of such Base Prospectus Shares, (b) the due execution, registration of issuance and delivery of certificates representing such Base Prospectus Shares against payment of the purchase price therefor in accordance with the applicable purchase, underwriting or other agreement, and as contemplated by the Registration Statement, and (c) receipt by the Company of the consideration therefor, such Base Prospectus Shares will be duly and validly issued, fully paid and nonassessable. The Base Prospectus Shares covered in the opinion in this paragraph includes any Base Prospectus Shares that may be issued upon exercise, conversion or exchange pursuant to the terms of any other Securities.
2. With respect to any Preferred Stock, upon (a) the completion of all required Corporate Proceedings with respect to the issuance and terms of such Preferred Stock, (b) the due authorization, execution, acknowledgment, delivery and filing with, and recording by, the Delaware Secretary of State of a Certificate of Designation in respect of such Preferred Stock, (c) the due execution, registration of issuance and delivery of certificates representing such Preferred Stock against payment of the purchase price therefor in accordance with the applicable purchase, underwriting or other agreement, and as contemplated by the Registration Statement, and (d) receipt by the Company of the consideration therefor, such Preferred Stock will be duly and validly issued, fully paid and nonassessable. The Preferred Stock covered in the opinion in this paragraph includes any shares of Preferred Stock that may be issued upon exercise, conversion or exchange pursuant to the terms of any other Securities.
3. With respect to any Debt Securities, upon (a) the completion of all required Corporate Proceedings with respect to the issuance of such Debt Securities, (b) the due execution, registration of issuance and delivery of the Debt Securities and the applicable Indenture relating to the Debt Securities representing such Debt Securities against payment of the purchase price therefor in accordance with the applicable purchase, underwriting or other agreement, and as contemplated by the Registration Statement, and (c) receipt by the Company of the consideration therefor, such Debt Securities will constitute valid and binding obligations of the Company.
4. With respect to any Warrants, upon (a) the completion of all required Corporate Proceedings relating to the terms and issuance of the Warrants, (b) the due authorization, execution and delivery of a Warrant Agreement, (c) the preparation and due execution and delivery of the related Warrants against payment of the purchase price therefor in accordance with the applicable purchase, underwriting or other agreement, and as contemplated by the Registration Statement, (d) the due authentication of the related Warrants by the Warrant Agent, and (e) receipt by the Company of the consideration therefor, such Warrants will be valid and binding obligations of the Company. The Warrants covered in the opinion in this paragraph includes any Warrants that may be issued upon exercise, conversion or exchange pursuant to the terms of any other Securities.

5. With respect to any Rights, upon (a) the completion of all required Corporate Proceedings relating to the terms and issuance of the Rights, (b) the due authorization, execution and delivery of a Rights Agreement against payment of the purchase price therefor in accordance with the applicable purchase, underwriting or other agreement, and as contemplated by the Registration Statement, (c) the shares of Common Stock or Preferred Stock, as the case may be, underlying such Rights having been deposited with the applicable rights agent, and (d) receipt by the Company of the consideration therefor, such Rights Agreement will be a valid and binding obligation of the Company and the Rights will be valid and binding obligations of the Company. The Rights covered in the opinion in this paragraph includes any Rights that may be issued upon exercise, conversion or exchange pursuant to the terms of any other Securities.
6. With respect to any Units, upon (a) the completion of all required Corporate Proceedings relating to the terms and issuance of the Units, (b) the due authorization, execution and delivery of a Unit Agreement against payment of the purchase price therefor in accordance with the applicable purchase, underwriting or other agreement, and as contemplated by the Registration Statement, (c) the Securities underlying such Units having been deposited with the applicable unit agent, and (d) receipt by the Company of the consideration therefor such Unit Agreement will be a valid and binding obligation of the Company and the Units will be valid and binding obligations of the Company. The Units covered in the opinion in this paragraph includes any Units that may be issued upon exercise, conversion or exchange pursuant to the terms of any other Securities.
7. With respect to the Placement Shares, upon (a) the completion of all required Corporate Proceedings with respect to the issuance of such Placement Shares, (b) the due execution, registration of issuance and delivery of certificates representing such Placement Shares against payment of the purchase price therefor in accordance with the ATM Agreement, and as contemplated by the Sales Agreement Prospectus, and (c) receipt by the Company of the consideration therefor, such Placement Shares will be duly and validly issued, fully paid and nonassessable.

The opinions set forth above are subject to the following exceptions, limitations and qualifications: (i) the effect of bankruptcy, insolvency, reorganization, fraudulent conveyance, moratorium or other similar laws now or hereafter in effect relating to or affecting the rights and remedies of creditors; (ii) the effect of general principles of equity, including without limitation, concepts of materiality, reasonableness, good faith and fair dealing and the possible unavailability of specific performance or injunctive relief, regardless of whether enforcement is considered in a proceeding in equity or at law, and the discretion of the court before which any proceeding therefor may be brought; (iii) the unenforceability under certain circumstances under law or court decisions of provision providing for the indemnification of, or contribution to, a party with respect to liability where such indemnification or contribution is contrary to public policy. We express no opinion concerning the enforceability of any waiver of rights or defenses with respect to stay, extension or usury laws. Our opinion expressed herein is also subject to the qualification that no term or provision hereof shall be included in: (a) the Certificate of Designation relating to any series of the Preferred Stock, (b) the Indenture, (c) the Warrant Agreement, (d) the Unit Agreement, (e) the Rights Agreement, (f) the ATM Agreement or (g) any other agreement or instrument pursuant to which any of the Securities are to be issued that would affect the validity of such opinion. Our opinion is limited to the federal laws of the United States and the DGCL. We express no opinion as to the effect of the law of any other jurisdiction. Our opinion is rendered as of the date hereof, and we assume no obligation to advise you of changes in law or fact (or the effect thereof on the opinions expressed herein) that hereafter may come to our attention.

5



We hereby consent to the filing of this opinion as Exhibit 5.1 to the Registration Statement and to the reference to our firm under the caption "Legal Matters" in the Registration Statement. In so doing, we do not admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act and the rules and regulations of the Commission promulgated thereunder.

Very Truly Yours,

/s/ Lucosky Brookman LLP

Lucosky Brookman LLP

6

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in this Registration Statement on Form S-3 of our report dated March 24, 2022, with respect to our audits of the financial statements of the Company as of December 31, 2021 and 2020 and for each of the years in the two year period ended December 31, 2021. We also consent to the reference to our firm under the heading "Experts" in this Registration Statement.

/s/ Friedman LLP

East Hanover, New Jersey
February 1, 2023

CALCULATION OF REGISTRATION FEE TABLE

Form S-3
(Form Type)

HeartBeam, Inc.

(Exact Name of Registrant as Specified in its Charter)

Table 1: Newly Registered and Carry Forward Securities

Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered	Proposed Maximum Offering Price Per Share	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee	Carry Forward Form Type	Carry Forward File Number	Carry Forward Initial effective date	Filing Fee Previously Paid In Connection with Unsold Securities to be Carried Forward	
Newly Registered Securities												
Fees to Be Paid	Equity	Common Stock, par value \$0.0001 per share	457(o)	(2)	(3)	(3)	0					
	Equity	Preferred Stock, par value \$0.0001 per share	457(o)	(2)	(3)	(3)	0					
	Other	Warrants	457(o)	(2)	(3)	(3)	0					
	Debt	Debt Securities	457(o)	(2)	(3)	(3)	0					
	Other	Rights	457(o)	(2)	(3)	(3)	0					
	Other	Units(1)	457(o)	(2)	(3)	(3)	0					
	Total	Unallocated (Universal) Shelf	457(o)	(2)	(3)	\$100,000,000	0.00011020	\$	11,020			
Fees previously Paid	Carry Forward Securities											
Carry Forward Securities	—	—	—	—	—	—	—	—	—	—	—	
	Total Offering Amounts						\$	100,000,000				
	Total Fees Previously Paid						\$	—				
	Total Fee Offsets						\$	—				
	Net Fees Due						\$	11,020				

- (1) Consisting of some or all of the securities listed above, in any combination, including common stock, preferred stock, debt securities, warrants and subscription rights.
- (2) The securities registered hereunder covers an indeterminate number of shares of common stock, shares of preferred stock, warrants, rights, and units that may be sold by the registrant from time to time, for a maximum aggregate offering price of all securities not to exceed \$100,000,000. Any securities registered hereunder may be sold separately or as units with other securities registered hereunder. The securities registered also include an indeterminate amount and number of shares of common stock as may be issued upon exercise of warrants, conversion of preferred stock, conversion of debt securities, exercise of rights, or pursuant to the anti-dilution provisions of any such securities. The securities registered also include an indeterminate amount and number of shares of preferred stock as may be issued upon exercise of warrants or pursuant to the anti-dilution provisions of any such securities.
- (3) The proposed maximum aggregate offering price per class of security will be determined from time to time by the registrant in connection with the issuance by the registrant of the securities registered hereunder and is not specified as to each class of security pursuant to General Instruction II.D. of Form S-3 under the Securities Act.
- (4) Calculated pursuant to Rule 457(o) under the Securities Act.