



**Registration of a Charge**

Company name: **BIOCHROM LIMITED**

Company number: **03526954**



X6ZB8INV

Received for Electronic Filing: **07/02/2018**

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**Details of Charge**

Date of creation: **31/01/2018**

Charge code: **0352 6954 0007**

Persons entitled: **CERBERUS BUSINESS FINANCE, LLC**

Brief description: **THE INTELLECTUAL PROPERTY AS DEFINED IN THE CHARGE AND INCLUDING: PATENTS LISTED IN SCHEDULE IV OF THE CHARGE AND TRADEMARKS IN SCHEDULE V OF THE CHARGE. SEE THE CHARGE FOR MORE DETAILS.**

**Contains fixed charge(s).**

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**Authentication of Form**

This form was authorised by: **a person with an interest in the registration of the charge.**

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**Authentication of Instrument**

Certification statement: **I CERTIFY THAT SAVE FOR MATERIAL REDACTED PURSUANT TO S.859G OF THE COMPANIES ACT 2006 THE ELECTRONIC COPY INSTRUMENT DELIVERED AS PART OF THIS APPLICATION FOR REGISTRATION IS A CORRECT COPY OF THE ORIGINAL INSTRUMENT.**

Certified by:

**HERBERT SMITH FREEHILLS LLP**



## **CERTIFICATE OF THE REGISTRATION OF A CHARGE**

Company number: 3526954

Charge code: 0352 6954 0007

The Registrar of Companies for England and Wales hereby certifies that a charge dated 31st January 2018 and created by BLOCHROM LIMITED was delivered pursuant to Chapter A1 Part 25 of the Companies Act 2006 on 7th February 2018 .

Given at Companies House, Cardiff on 9th February 2018

The above information was communicated by electronic means and authenticated  
by the Registrar of Companies under section 1115 of the Companies Act 2006



**Companies House**



**THE OFFICIAL SEAL OF THE  
REGISTRAR OF COMPANIES**

## **U.S. PLEDGE AND SECURITY AGREEMENT**

U.S. PLEDGE AND SECURITY AGREEMENT, dated as of January 31, 2018 (as amended, restated, supplemented or otherwise modified from time to time, including any replacement agreement herefor, this "Agreement"), made by each of the Grantors referred to below, in favor of Cerberus Business Finance, LLC, a Delaware limited liability company, in its capacity as collateral agent for the Secured Parties referred to below (in such capacity, together with its successors and assigns in such capacity, if any, the "Collateral Agent").

### **W I T N E S S E T H:**

WHEREAS, Harvard Bioscience, Inc., a Delaware corporation (the "Parent"), each subsidiary of the Parent listed as a "Borrower" on the signature pages thereto (together with the Parent and each other Person that executes a joinder agreement and becomes a "Borrower" thereunder, each a "Borrower" and collectively, the "Borrowers"), the Guarantors (as defined therein) from time to time party thereto, the lenders from time to time party thereto (each a "Lender" and collectively, the "Lenders"), Cerberus Business Finance, LLC, a Delaware limited liability company ("CBF"), as collateral agent for the Lenders (in such capacity, together with its successors and assigns in such capacity, the "Collateral Agent") and CBF, as administrative agent for the Lenders (in such capacity, together with its successors and assigns in such capacity, the "Administrative Agent" and together with the Collateral Agent, each an "Agent" and collectively, the "Agents") are parties to that certain Financing Agreement, dated as of the date hereof (such agreement, as amended, restated, supplemented, modified or otherwise changed from time to time, including any replacement agreement therefor, being hereinafter referred to as the "Financing Agreement");

WHEREAS, pursuant to the Financing Agreement, the Lenders have agreed to make certain term loans and revolving loans, which revolving loans include a subfacility for the issuance of letters of credit (each a "Loan" and collectively, the "Loans"), to the Borrowers;

WHEREAS, it is a condition precedent to the Lenders making any Loan and providing any other financial accommodation to the Borrowers pursuant to the Financing Agreement that each Grantor (as defined below) shall have executed and delivered this Agreement to the Collateral Agent, for the benefit of the Secured Parties, and, subject to the terms and conditions set forth herein, shall have granted and pledged to the Collateral Agent, for the benefit of the Secured Parties, a perfected first priority security interest in and Lien on the Collateral (as defined below);

WHEREAS, the Grantors are mutually dependent on each other in the conduct of their respective businesses as an integrated operation, with credit needed from time to time by each Grantor often being provided through financing obtained by the other Grantors and the ability to obtain such financing being dependent on the successful operations of all of the Grantors as a whole; and

WHEREAS, each Grantor has determined that the execution, delivery and performance of this Agreement directly benefit, and are in the best interest of, such Grantor;

NOW, THEREFORE, in consideration of the premises and the agreements herein

and in order to induce the Collateral Agent, the Administrative Agent and the Lenders to make and maintain the Loans, to assist in providing Letters of Credit and to provide other financial accommodations to the Borrowers pursuant to the Financing Agreement, the Grantors hereby jointly and severally agree with the Collateral Agent, for the benefit of the Secured Parties, as follows:

SECTION 1. Definitions.

(a) Reference is hereby made to the Financing Agreement for a statement of the terms thereof. All capitalized terms used in this Agreement and the recitals hereto which are defined in the Financing Agreement or in Article 8 or 9 of the Code and which are not otherwise defined herein shall have the same meanings herein as set forth therein; provided that terms used herein which are defined in the Code on the date hereof shall continue to have the same meaning notwithstanding any replacement or amendment of such statute except as the Collateral Agent may otherwise determine.

(b) The following terms shall have the respective meanings provided for in the Code: "Accounts", "Account Debtor", "Cash Proceeds", "Certificate of Title", "Chattel Paper", "Commercial Tort Claim", "Commodity Account", "Commodity Contracts", "Deposit Account", "Documents", "Electronic Chattel Paper", "Equipment", "Fixtures", "General Intangibles", "Goods", "Instruments", "Inventory", "Investment Property", "Letter-of-Credit Rights", "Noncash Proceeds", "Payment Intangibles", "Proceeds", "Promissory Notes", "Record", "Security Account", "Software", "Supporting Obligations" and "Tangible Chattel Paper".

(c) As used in this Agreement, the following terms shall have the respective meanings indicated below, such meanings to be applicable equally to both the singular and plural forms of such terms:

"Additional Collateral" has the meaning specified therefor in Section 4(a)(i) hereof.

"Additional Grantor" has the meaning specified therefore in Section 13(f) hereof.

"Code" means the Uniform Commercial Code as in effect from time to time in the State of New York.

"Collateral" has the meaning specified therefor in Section 2 hereof.

"Collateral Agent" has the meaning specified in the preamble hereto.

"Copyrights" means all domestic and foreign copyrights, whether registered or unregistered, including, without limitation, (i) any and all rights in any published and unpublished works of authorship, whether now or hereafter arising, in any and all media (whether now or hereafter developed), in and to all original works of authorship fixed in any tangible medium of expression (including computer software and internet website content) now or hereafter owned, acquired, developed or used by any Grantor, (ii) all moral rights, (iii) all renewals, extensions, restorations and reversions thereof, (iv) copyright registrations and

recordings thereof and all applications in connection therewith (including, without limitation, applications, registrations and recordings in the United States Copyright Office or in any similar office or agency of the United States or any other country or any political subdivision thereof and those listed on Schedule II hereto), (v) income, license fees, royalties, damages, and payments now and hereafter due or payable under and with respect thereto, including payments under all licenses entered into in connection therewith and damages and payments for past, present, or future infringements thereof, and (vi) the right to sue for past, present, and future infringements thereof.

"Excluded Account" has the meaning set forth in the Financing Agreement.

"Excluded Property" has the meaning specified therefor in Section 2 hereof.

"Existing Issuer" has the meaning specified therefor in the definition of the term "Pledged Shares".

"Financing Agreement" has the meaning specified therefor in the Recitals hereto.

"Grantor" means the Borrowers, the Guarantors and each other Person that executes a supplement hereto and becomes an "Additional Guarantor" hereunder.

"Intellectual Property" means all Copyrights, Patents, Trademarks and Other Intellectual Property.

"Lenders" has the meaning specified therefor in the Recitals hereto.

"Licenses" means, with respect to any Person (the "Specified Party"), (i) any licenses, whether written or oral, provided to the Specified Party in or with respect to Intellectual Property owned or controlled by any other Person, and (ii) any licenses, whether written or oral, provided to any other Person in or with respect to Intellectual Property owned or controlled by the Specified Party, in each case, together with any goodwill connected with and symbolized by any such licenses, contracts or agreements and the right to prepare for sale or lease and sell or lease any and all Inventory now or hereafter owned by any Grantor and now or hereafter covered by such licenses, including (A) any software license agreements (other than license agreements for commercially available off-the-shelf software that is generally available to the public which have been licensed to a Grantor pursuant to end-user licenses) and (B) the right to use any of the licenses described in this definition in connection with the enforcement of any Agents' and the Lenders' rights under the Loan Documents.

"Loans" has the meaning specified therefor in the Recitals hereto.

"Material License" has the meaning specified therefor in Section 5(d).

"Other Intellectual Property" means all trade secrets, know-how, inventions (whether or not patentable), algorithms, software programs (including source code and object code), product designs, industrial designs, blueprints, drawings, data, customer lists, URLs and domain names, specifications, documentations, reports, catalogs, literature, ideas, concepts, methods, techniques, processes, proprietary information, technology, know-how, formulae,

rights of publicity and privacy and other general intangibles of like nature, now or hereafter acquired, owned, developed or used by any Grantor, including all rights therein and all applications for registration or registrations thereof, in each case, to the extent the foregoing are protectable under applicable Requirements of Law.

"Patents" means all domestic and foreign letters patent, patents and patent applications, including, without limitation, (i) the patents and patent applications listed on Schedule IV hereto, (ii) design patents, utility patents, industrial designs, now existing or hereafter acquired, all applications, registrations, recordings thereof and all continuations, divisionals, continuations-in-part, re-examinations, reissues, extensions and renewals thereof and improvements thereon, (iii) all income, royalties, damages and payments now and hereafter due or payable under and with respect thereto, including payments under all licenses entered into in connection therewith and damages and payments for past, present, or future infringements thereof, and (iv) the right to sue for past, present, and future infringements thereof.

"Perfection Requirements" has the meaning specified therefor in Section 5(n) hereof.

"Pledge Amendment" has the meaning specified therefor in Section 4(a)(ii) hereof.

"Pledged Debt" means the indebtedness owned or acquired by a Grantor described in Schedule X hereto and all indebtedness from time to time owned or acquired by a Grantor, the promissory notes and other Instruments evidencing any or all of such indebtedness, and all interest, cash, Instruments, Investment Property, financial assets, securities, Equity Interests, stock options and commodity contracts, notes, debentures, bonds, promissory notes or other evidences of indebtedness and all other property from time to time received, receivable or otherwise distributed in respect of or in exchange for any or all of such indebtedness.

"Pledged Interests" means, collectively, (i) the Pledged Debt, (ii) the Pledged Shares and (iii) all security entitlements in any and all of the foregoing.

"Pledged Issuers" has the meaning specified therefor in the definition of the term "Pledged Shares".

"Pledged Shares" means, subject to Section 2, (i) the shares of Equity Interests described in Schedule XI hereto (which for avoidance of any doubt will not include any Excluded Equity Interests), whether or not evidenced or represented by any stock certificate, certificated security or other Instrument, issued by the Persons described in such Schedule XI (the "Existing Issuers"), (ii) the shares of Equity Interests at any time and from time to time owned or acquired by a Grantor of any and all Persons now or hereafter existing (such Persons, together with the Existing Issuers, being hereinafter referred to collectively as the "Pledged Issuers" and each individually as a "Pledged Issuer"), whether or not evidenced or represented by any stock certificate, certificated security or other Instrument, (iii) the certificates representing such shares of Equity Interests, all options and other rights, contractual or otherwise, in respect thereof and all dividends, distributions, cash, Instruments, Investment Property, financial assets, securities, Equity Interests, stock options and commodity contracts, notes, debentures, bonds,

promissory notes or other evidences of indebtedness and all other property (including, without limitation, any stock dividend and any distribution in connection with a stock split) from time to time received, receivable or otherwise distributed in respect of or in exchange for any or all of such Equity Interests and (iv) without affecting the obligations of any Grantor under any provision prohibiting such action under this Agreement, the Financing Agreement or any other Loan Document, in the event of any consolidation or merger involving any Pledged Issuer and in which such Pledged Issuer is not the surviving entity, all Equity Interests of the successor entity formed by or resulting from such consolidation or merger; provided, however, the term "Pledged Shares" shall not include any Excluded Property.

"Registration Page" has the meaning specified in Section 4(a)(i) hereof.

"Secured Party" means the Agents and the Lenders.

"Secured Obligations" has the meaning specified therefor in Section 3 hereof.

"Security Agreement Supplement" has the meaning specified therefor in Section 13(f) hereof.

"Titled Asset" means any asset from time to time owned or acquired by a Grantor for which the title to such asset is governed by a Certificate of Title or certificate of ownership, including, without limitation, all motor vehicles (including, without limitation, all trucks, trailers, tractors, service vehicles, automobiles and other mobile equipment) for which the title to such motor vehicles is governed by a Certificate of Title or certificate of ownership. For clarity, Titled Assets do not include any application, registration, or issuance of Intellectual Property.

"Trademarks" means all domestic and foreign trademarks, trade names, registered trademarks, trademark applications, service marks, registered service marks, brand names, certification marks, collective marks, logos, symbols, trade dress, assumed names, fictitious names and service mark applications, business names, d/b/a's, Internet domain names, trade styles, designs and other source or business identifiers and all general intangibles of like nature, now or hereafter owned, adopted, acquired or used by any Grantor, including (i) the trade names, Internet domain names, registered trademarks, trademark applications, registered service marks and service mark applications listed on Schedule V hereto, (ii) all applications, registrations and recordings thereof (including without limitation, applications, registrations and recordings in the United States Patent and Trademark Office or in any similar office or agency of the United States, any state thereof or any other country or any political subdivision thereof) and all reissues, (iii) all extensions, modifications and renewals thereof, (iv) all income, royalties, damages and payments now and hereafter due or payable under and with respect thereto, including payments under all licenses entered into in connection therewith and damages and payments for past or future infringements or dilutions thereof, (v) the right to sue for past, present and future infringements and dilutions thereof, and (vi) the goodwill of each Grantor's business symbolized by the foregoing or connected therewith.

SECTION 2. Grant of Security Interest. As collateral security for the payment, performance and observance of all of the Secured Obligations, each Grantor hereby pledges and collaterally assigns to the Collateral Agent (and its agents and designees), and grants



to the Collateral Agent (and its agents and designees), for the benefit of the Secured Parties, a continuing security interest in, all of the personal property and Fixtures of such Grantor, wherever located and whether now or hereafter existing and whether now owned or hereafter acquired, of every kind and description, tangible or intangible, including, without limitation, the following (all being collectively referred to herein as the "Collateral"):

- (a) all Accounts;
- (b) all Chattel Paper (whether tangible or electronic);
- (c) all Commercial Tort Claims;
- (d) all Deposit Accounts, all cash, and all other property from time to time deposited therein or otherwise credited thereto and the monies and property in the possession or under the control of any Agent or any Lender or any affiliate, representative, agent, participant or correspondent of any Agent or any Lender;
- (e) all Documents;
- (f) all General Intangibles (including, without limitation, all Payment Intangibles, Intellectual Property and Licenses);
- (g) all Goods, including, without limitation, all Equipment, Fixtures and Inventory;
- (h) all Instruments (including, without limitation, Promissory Notes);
- (i) all Investment Property;
- (j) all Letter-of-Credit Rights;
- (k) all Pledged Interests;
- (l) all Supporting Obligations;
- (m) all Additional Collateral;
- (n) all other tangible and intangible personal property and Fixtures of such Grantor (whether or not subject to the Code), including, without limitation, all bank and other accounts and all cash and all investments therein, all proceeds, products, offspring, accessions, rents, profits, income, benefits, substitutions and replacements of and to any of the property of such Grantor described in the preceding clauses of this Section 2 hereof (including, without limitation, any proceeds of insurance thereon and all causes of action, claims and warranties now or hereafter held by such Grantor in respect of any of the items listed above), and all books, correspondence, files and other Records, including, without limitation, all tapes, disks, cards, Software, data and computer programs in the possession or under the control of such Grantor or any other Person from time to time acting for such Grantor that at any time evidence or contain information relating to any of the property described in the preceding clauses of this

Section 2 hereof or are otherwise necessary or helpful in the collection or realization thereof; and

(o) all Proceeds, including all Cash Proceeds and Noncash Proceeds, and products of any and all of the foregoing Collateral;

in each case howsoever such Grantor's interest therein may arise or appear (whether by ownership, security interest, claim or otherwise).

Notwithstanding anything herein to the contrary, the term "Collateral" shall not include, and no Grantor is pledging, nor granting a security interest hereunder in, (i) any of such Grantor's right, title or interest in any license, contract or agreement to which such Grantor is a party or any of its right, title or interest thereunder to the extent, but only to the extent, that such a grant (A) would, under the express terms of such license, contract or agreement result in a breach of the terms of, or constitute a default under, such license, contract or agreement or (B) violate any Requirement of Law applicable thereto or principles of equity, (ii) Equity Interests in any non-Loan Party subsidiary that is not a wholly-owned subsidiary of such Grantor if (I) the granting of a security interest in such Equity Interests is prohibited by the Governing Documents of such subsidiary, (II) such Grantor together with its Affiliates do not have voting power sufficient to amend such Governing Documents (or obtain consent) to allow the pledge of such Equity Interests and (III) such prohibition was in existence prior to the date of acquisition of such Equity Interests and was not created in connection with, or in contemplation of, such acquisition (other than to the extent that any such prohibition described in clauses (i) and (ii) above (1) has been waived or (2) would be rendered ineffective pursuant to Sections 9-406, 9-408, 9-409 of the Code or other applicable provisions of the Uniform Commercial Code of any relevant jurisdiction or any other applicable law (including the Bankruptcy Code) or principles of equity); provided that (x) immediately upon the ineffectiveness, lapse, termination or waiver of any such provision, the Collateral shall include, and such Grantor shall be deemed to have granted a security interest in, all such right, title and interest as if such provision had never been in effect and (y) the foregoing exclusion shall in no way be construed so as to limit, impair or otherwise affect the Collateral Agent's unconditional continuing security interest in and liens upon any rights or interests of a Grantor in or to the proceeds of, or any monies due or to become due under, any such license, contract or agreement, (iii) any intent-to-use United States trademark applications for which an amendment to allege use or statement of use has not been filed under 15 U.S.C. § 1051(c) or 15 U.S.C. § 1051(d), respectively, or if filed, has not been deemed in conformance with 15 U.S.C. § 1051(a) or examined and accepted, respectively, by the United States Patent and Trademark Office, provided that, upon such filing and acceptance, such intent-to-use applications shall be included in the definition of Collateral, (iv) any asset of a Grantor if the granting of a security interest therein would result in adverse tax consequences (including, without limitation, as a result of the operation of Section 956 of the Internal Revenue Code or any similar Requirement Law or regulation in any applicable jurisdiction) to any Grantor as reasonably determined by the Borrowing Agent and with the consent of the Collateral Agent (such consent not to be unreasonably withheld, delayed or conditioned), (v) owned real property that does not constitute Real Property Collateral, (vi) margin stock, (vii) any property of a Grantor to the extent and for so long as the grant of a security interest pursuant to this Agreement in such Grantor's right, title or interest therein (A) is prohibited by any applicable Requirement of Law, or (B) requires a consent pursuant to any Requirement of Law that has not been obtained from any Governmental Authority or applicable third party, as required; provided that such security interest shall attach

immediately and automatically when such prohibition, termination right or consent requirement is repealed, rescinded or otherwise ceases to be effective, or when such consent is obtained, (viii) any property now owned or hereafter acquired by any Grantor that is subject to a purchase money Lien or a Capital Lease permitted under the Financing Agreement if the contractual obligation pursuant to which such Lien is granted (or the documentation providing for such purchase money Lien or Capital Lease) validly prohibits the creation by such Grantor of a Lien thereon or expressly requires the consent of any Person (other than such Grantor or any other Loan Party) which consent has not been obtained as a condition to the creation of any other Lien on such property; (ix) any Letter-of-Credit Rights (except to the extent a security interest therein can be perfected by filing of Uniform Commercial Code financing statements); (x) any Excluded Accounts; (xi) the Excluded Equity Interests; and (xii) any other assets as to which the Agents and the Borrowing Agent reasonably agree that the cost of obtaining or perfecting such security interest is excessive in relation to the benefits to the Secured Parties from the security to be afforded thereby, (the foregoing, each "Excluded Property"). Each Grantor agrees to, and to cause its Subsidiaries to, use commercially reasonable efforts to exclude any such provisions from any lease, license, contract or other agreement to be entered into by any of the foregoing in the future (or to provide specific exceptions thereto for the Liens of the Collateral Agent hereunder to permit the inclusion thereof within Collateral for purposes hereof) and, in any event, give written notice to the Collateral Agent prior to entering into any material license, contract, agreement, Intellectual Property, General Intangible or other agreement involving property or payments in excess of \$250,000 which contain any such restriction on the grant of a security interest therein.

Notwithstanding anything herein to the contrary, the term "Collateral" shall not include the following (the "Excluded Equity Interests"): in the case of a Foreign Subsidiary of such Grantor, more than 65% (or such greater percentage that, due to a change in applicable law after the date hereof, (i) would not reasonably be expected to cause the undistributed earnings of such Foreign Subsidiary as determined for United States federal income tax purposes to be treated as a deemed dividend to such Foreign Subsidiary's United States parent and (ii) would not reasonably be expected to cause any material adverse tax consequences) of the issued and outstanding shares of Equity Interests entitled to vote (within the meaning of Treas. Reg. Section 1.956-2(c)(2)) (it being understood and agreed that the Collateral shall include 100% of the issued and outstanding shares of Equity Interests not entitled to vote (within the meaning of Treas. Reg. Section 1.956-2(c)(2)) or other equity interest of such Foreign Subsidiary).

Subject to the previous paragraph, each Grantor agrees that the pledge of the shares of Equity Interests of any Pledged Issuer who is a Foreign Subsidiary may be supplemented by one or more separate pledge agreements, deeds of pledge, share charges, or other similar agreements or instruments, executed and delivered by the relevant Grantors in favor of the Collateral Agent, which pledge agreements will provide for the pledge of such shares of Equity Interests in accordance with the laws of the applicable foreign jurisdiction, unless the Collateral Agent reasonably determines that the costs of obtaining such pledge agreement is excessive in relation to the benefit to the Agents and the Lenders of the security to be afforded thereby. With respect to such shares of Equity Interests, the Collateral Agent may, at any time and from time to time, in its reasonable discretion, take actions in such foreign jurisdictions that will result in the perfection of the Lien created in such shares of Equity Interests, unless the Collateral Agent reasonably determines that the costs of taking such actions in such foreign jurisdictions are

excessive in relation to the benefit to the Agents and the Lenders of the security to be afforded thereby.

SECTION 3. Security for Secured Obligations. The security interest created hereby in the Collateral constitutes continuing collateral security for all of the Obligations and Guaranteed Obligations under the Financing Agreement and other Loan Documents (collectively, the "Secured Obligations").

SECTION 4. Delivery of the Pledged Interests.

(a) (i) All promissory notes evidencing the Pledged Debt (other than any promissory note evidencing Pledged Debt in an amount less than \$100,000, individually, or \$500,000, in the aggregate, for all such promissory notes) and all certificates representing the Pledged Shares, in each case, as of the Effective Date (other than the Pledged Shares which shall be delivered in accordance with Section 5.03 of the Financing Agreement), shall be delivered to the Collateral Agent on or prior to the execution and delivery of this Agreement. All other promissory notes evidencing Pledged Debt, certificates representing the Pledged Shares and Instruments, constituting Pledged Interests from time to time required to be pledged to the Collateral Agent pursuant to the terms of this Agreement or the Financing Agreement (the "Additional Collateral") shall be delivered to the Collateral Agent promptly upon, but in any event within ten (10) days of, receipt thereof by or on behalf of any of the Grantors. All such promissory notes, certificates and Instruments shall be (A) held by or on behalf of the Collateral Agent pursuant hereto and (B) to the extent required to be delivered hereunder, delivered in suitable form for transfer by delivery or shall be accompanied by duly executed instruments of transfer or assignment or undated stock powers executed in blank, all in form and substance reasonably satisfactory to the Collateral Agent. If any Pledged Interests consist of uncertificated securities (for purposes of Article 8 of any relevant Uniform Commercial Code), unless the immediately following sentence is applicable thereto, such Grantor shall promptly notify the Collateral Agent thereof and, at the Collateral Agent's request, cause each issuer of such securities to agree that it will comply with instructions originated by the Collateral Agent with respect to such securities without further consent by such Grantor. If any Pledged Interests consist of security entitlements, such Grantor shall promptly notify the Collateral Agent thereof and at the Collateral Agent's request transfer such security entitlements to the Collateral Agent (or its custodian, nominee or other designee), or cause the applicable securities intermediary to agree that it will comply with entitlement orders by the Collateral Agent without further consent by such Grantor; provided that the Collateral Agent shall not give any such order to the securities intermediary unless an Event of Default shall have occurred and is continuing. Notwithstanding anything to the contrary contained herein, the foregoing requirements shall not apply with respect to Excluded Property.

(ii) Within ten (10) Business Days (or such later time as the Collateral Agent may agree in writing in its sole discretion) of the receipt by a Grantor of any Additional Collateral, a pledge amendment, duly executed by such Grantor, in substantially the form of Exhibit A hereto (a "Pledge Amendment"), shall, unless waived by the Collateral Agent, be delivered to the Collateral Agent, in respect of the Additional Collateral that must be pledged pursuant to this Agreement or the Financing Agreement. The Pledge Amendment shall from and after delivery thereof constitute part of Schedules X and XI hereto. Each Grantor hereby

authorizes the Collateral Agent to attach each Pledge Amendment to this Agreement and agrees that all promissory notes, certificates or Instruments listed on any Pledge Amendment delivered to the Collateral Agent shall for all purposes hereunder constitute Pledged Interests and such Grantor shall be deemed upon delivery thereof to have made the representations and warranties set forth in Section 5 hereof with respect to such Additional Collateral.

(b) If any Grantor shall receive, by virtue of such Grantor being or having been an owner of any Pledged Interests, any Additional Collateral consisting of any (i) certificate (including, without limitation, any certificate representing an Equity Interest dividend or distribution in connection with any increase or reduction of capital, reclassification, merger, consolidation, sale of assets, combination of shares, stock split, spin-off or split-off), promissory note or other Instrument, (ii) option or right, whether as an addition to, substitution for, or in exchange for, any Pledged Interests, or otherwise, (iii) dividends or other distributions payable in cash (except such dividends and/or distributions permitted to be retained by any such Grantor pursuant to Section 7 hereof) or in securities or other property or (iv) dividends, distributions, cash, Instruments, Investment Property and other property in connection with a partial or total liquidation or dissolution or in connection with a reduction of capital, capital surplus or paid-in surplus (other than any such distributions expressly permitted to be retained by such Grantor under the terms of the Financing Agreement or Section 7 hereof), such Grantor shall receive such certificate, promissory note, Instrument, option, right, payment or distribution in trust for the benefit of the Collateral Agent, shall segregate it from such Grantor's other property and shall deliver it forthwith to the Collateral Agent, in the exact form received, with any necessary indorsement and/or appropriate instrument of transfer or assignment duly executed in blank, all in form and substance reasonably satisfactory to the Collateral Agent, to be held by the Collateral Agent as Pledged Interests and as further collateral security for the Secured Obligations.

SECTION 5. Representations and Warranties. Each Grantor jointly and severally represents and warrants as follows:

(a) Schedule I hereto sets forth a complete and accurate list as of the Effective Date of (i) the exact legal name of each Grantor, (ii) the state or jurisdiction of organization of each Grantor, (iii) the type of organization of each Grantor and (iv) the organizational identification number of each Grantor or states that no such organizational identification number exists.

(b) There is no pending or, to the actual knowledge of an Authorized Officer of any Grantor, threatened action, suit, proceeding or claim before any court or other Governmental Authority or any arbitrator, or any order, judgment or award by any court or other Governmental Authority or any arbitrator, that could reasonably be expected to adversely affect the grant by any Grantor, or the perfection, of the security interest purported to be created hereby in the Collateral, or the exercise by the Collateral Agent of any of its rights or remedies hereunder.

(c) Subject to Section 6(b), all Equipment, Fixtures, Inventory and other Goods, in each case with a fair market value in excess of \$100,000, to the extent constituting Collateral, now existing are, and all Equipment, Fixtures, Inventory and other Goods, in each case, to the extent constituting Collateral, hereafter existing will be, located at the

addresses specified therefor in Schedule VI hereto (as amended, supplemented or otherwise modified from time to time in accordance with Section 6(b)). Each Grantor's chief place of business and chief executive office, the place where such Grantor keeps its Records concerning Accounts and all originals of all Chattel Paper are located at the addresses specified therefor in Schedule VI hereto (as amended, supplemented or otherwise modified from time to time in accordance with the terms hereof). Except to the extent the terms hereof have been complied with, none of the Accounts constituting Collateral is evidenced by Promissory Notes or other Instruments (other than items deposited or to be deposited for collection in the ordinary course). Set forth in Schedule VII hereto is a complete and accurate list, as of the date of this Agreement, of each Deposit Account, Securities Account and Commodities Account of each Grantor, together with the name and address of each institution at which each such Account is maintained, the account number for each such Account and a description of the purpose of each such Account. Set forth in Schedule V hereto is (i) a complete and correct list of each trade name used by each Grantor as of the Effective Date and (ii) the legal name of, and each trade name used by, each Person from which such Grantor has acquired any substantial part of the Collateral within five years of the date hereof.

(d) As of the Effective Date, (i) Schedule II provides a complete and correct list of all U.S. registered Copyrights owned by any Grantor and all U.S. federal applications for registration of Copyrights owned by any Grantor; (ii) Schedule III provides a complete and correct list of all material Licenses (excluding Licenses for commercially available software) entered into by any Grantor (each such license, a "Material License"); (iii) Schedule IV provides a complete and correct list of all U.S. issued Patents owned by any Grantor and all U.S. applications for Patents owned by any Grantor; and (iv) Schedule V provides a complete and correct list of all U.S. federal registered Trademarks owned by any Grantor and all U.S. federal applications for registration of Trademarks owned by any Grantor.

(e) (i) Each Grantor owns, or holds Licenses in, or otherwise possesses legally enforceable rights in, all Intellectual Property that is reasonably necessary to the operation of its business as currently conducted, except where such failure to own, hold such Licenses, or otherwise possess legally enforceable rights would not be reasonably expected to result in a Material Adverse Effect. Each Grantor has delivered to the Collateral Agent true, complete and correct copies of each Material License.

(ii) (A) None of the Other Intellectual Property of any Grantor has been divulged, disclosed or appropriated to the material detriment of such Grantor for the benefit of any other Person other than such Grantor; and (B) to the knowledge of any Grantor, no employee, independent contractor or agent of any Grantor is in material default or material breach of any term of any employment agreement, non-disclosure agreement, assignment of inventions agreement or similar agreement, or contract with such Grantor relating in any way to the protection, ownership, development, use or transfer of such Grantor's material Intellectual Property.

(iii) Except for those claims which would not reasonably be expected to result in a Material Adverse Effect, no claims with respect to the Intellectual Property rights of any Grantor are pending or, to the knowledge of any Grantor, threatened against any Grantor or, to the knowledge of any Grantor, any other Person, (i) alleging that the

manufacture, sale, licensing or use of any Intellectual Property as now manufactured, sold, licensed or used by any Grantor infringes on any intellectual property rights of any third party, (ii) against the use by any Grantor of any technology, know-how or computer software used in any Grantor's business as currently conducted or (iii) challenging the ownership by any Grantor, or the validity or effectiveness, of any such Intellectual Property owned (or purported to be owned) by any Grantor.

(f) (i) No Grantor has materially infringed on any intellectual property rights of any third party and (ii) none of the Intellectual Property rights of any Grantor materially infringes on any intellectual property rights of any third party.

(g) All registered Copyrights, registered Trademarks, and issued Patents that are owned by such Grantor and necessary to the conduct of its business are valid, subsisting and enforceable and have at all times been in compliance with all laws, rules, regulations, and orders of any Governmental Authority applicable thereto.

(h) Each Grantor has taken commercially reasonable steps to maintain the confidentiality of and otherwise protect and enforce its rights in all material trade secrets owned by such Grantor that are necessary in the conduct of the business of such Grantor.

(i) [Reserved].

(j) The Pledged Issuers set forth in Schedule XI identified as a Subsidiary of a Grantor are each such Grantor's only direct Subsidiaries existing on the Effective Date. The Pledged Shares have been duly authorized and validly issued and Pledged Shares of any issuer that is a corporation are fully paid and nonassessable and the holders thereof are not entitled to any preemptive, first refusal or other similar rights. Except as noted in Schedule XI hereto, the Pledged Shares constitute 100% of the issued shares of Equity Interests of the Pledged Issuers as of the date hereof. All other shares of Equity Interests of each Grantor's Subsidiaries constituting Pledged Interests will be duly authorized and validly issued, fully paid and nonassessable (other than Equity Interests in limited liability companies and partnerships which are validly issued and fully paid).

(k) To the knowledge of the respective Grantor: (i) the promissory notes evidencing the Pledged Debt have been duly authorized, executed and delivered by the respective makers thereof, and (ii) all such promissory notes are legal, valid and binding obligations of such makers, enforceable against such makers in accordance with their respective terms, except as enforceability may be limited by applicable bankruptcy, insolvency, reorganization, moratorium or other similar laws affecting creditors' rights generally.

(l) Except as otherwise provided in the Financing Agreement, the Grantors are and will be at all times the sole and exclusive owners of, or otherwise have and will have rights in, the Collateral free and clear of any Liens except for the Permitted Liens.

(m) The exercise by the Collateral Agent of any of its rights and remedies hereunder will not contravene any law or Contractual Obligation binding on or otherwise affecting any Grantor or any of its properties and will not result in, or require the

creation of, any Lien upon or with respect to any of its properties except in favor of the Collateral Agent.

(n) No authorization or approval or other action by, and no notice to or filing with, any Governmental Authority, is required for (i) the due execution, delivery and performance by any Grantor of this Agreement, (ii) the grant by any Grantor of the security interest purported to be created hereby in the Collateral or (iii) the exercise by the Collateral Agent or any other Agent of any of its rights and remedies hereunder, except, in the case of this clause (iii), as may be required in connection with any sale of any Pledged Interests by laws affecting the offering and sale of securities generally or as required under the Code. No authorization or approval or other action by, and no notice to or filing with, any Governmental Authority or any other Person, is required for the perfection of the security interest purported to be created hereby in the Collateral, except (A) for the filing under the Code as in effect in the applicable jurisdiction of the financing statements described in Schedule VIII hereto, (B) with respect to the perfection of the security interest created hereby in issued, registered or applied-for United States federal Intellectual Property that is part of the Collateral, for the recording of the appropriate Grant of security interests, substantially in the form of Exhibit B hereto, in the United States Patent and Trademark Office or the United States Copyright Office, as applicable, (C) with respect to the perfection of the security interest created hereby in foreign Intellectual Property and Licenses, for registrations and filings in jurisdictions located outside of the United States and covering rights in such jurisdictions relating to such foreign Intellectual Property and Licenses, (D) with respect to any action that may be necessary to obtain control of Collateral constituting Deposit Accounts, Electronic Chattel Paper, Investment Property or Letter-of-Credit Rights, in each case, to the extent constituting Collateral, the taking of such actions and (E) the Collateral Agent's having possession of all Documents, Chattel Paper, Instruments and cash, in each case, to the extent constituting Collateral (subclauses (A), (B), (C), (D) and (E), each a "Perfection Requirement" and collectively, the "Perfection Requirements").

(o) This Agreement creates a legal, valid and enforceable security interest in favor of the Collateral Agent, for the benefit of the Secured Parties, in the Collateral, as security for the Secured Obligations except as enforceability may be limited by applicable bankruptcy, insolvency, reorganization, moratorium or other similar laws affecting the enforcement of creditors' rights generally and by general principles of equity. The compliance with the Perfection Requirements will result in the perfection of such security interests in the Collateral. After compliance with the Perfection Requirements, such security interests, including in the case of Collateral in which any Grantor obtains rights after the date hereof, will be, perfected, first priority security interests, subject in priority only to the Permitted Liens that, pursuant to the definition of the term "Permitted Liens," are not prohibited from being prior to the Liens in favor of the Collateral Agent, for the benefit of the Secured Parties, and the recording of such instruments of assignment described above.

(p) As of the date hereof, no Grantor holds any Commercial Tort Claims, alleging damages in excess of \$100,000, individually, or \$500,000, in the aggregate, in respect of which a claim has been filed in a court of law or a written notice by an attorney has been given to a potential defendant, except for such claims described in Schedule IX.

(q) (i) Each Grantor and any of its Subsidiaries that is a partnership or



a limited liability company with certificated Equity Interests, has irrevocably opted into (and has caused each of its Subsidiaries that is a partnership or a limited liability company with certificated Equity Interests, and a Pledged Issuer to opt into) Article 8 of the relevant Uniform Commercial Code (collectively, the "Certificated Entities"). Such interests are securities for purposes of Article 8 of the relevant Uniform Commercial Code. (ii) With respect to each Grantor and its Subsidiaries that is a partnership or a limited liability company and is not a Certificated Entity, the partnership interests or membership interests of each such Person are not (A) dealt in or traded on securities exchanges or in securities markets, (B) securities for purposes of Article 8 of any relevant Uniform Commercial Code, (C) investment company securities within the meaning of Section 8-103 of any relevant Uniform Commercial Code or (D) evidenced by a certificate.

SECTION 6. Covenants as to the Collateral. Until the Secured Obligations are Paid in Full:

(a) Further Assurances. Each Grantor will promptly take such action and execute, acknowledge and deliver, at its sole cost and expense, such agreements, instruments or other documents as the Collateral Agent may reasonably require from time to time in order (i) to perfect and protect, or maintain the perfection of, the security interest and Lien purported to be created hereby; (ii) to enable the Collateral Agent to exercise and enforce its rights and remedies hereunder in respect of the Collateral; or (iii) otherwise to effect the purposes of this Agreement, including, without limitation: (A) marking conspicuously all Chattel Paper, Instruments (other than Instruments evidencing Indebtedness between the Grantors and their Subsidiaries), and Licenses, in each case, to the extent constituting Collateral, and, at the request of the Collateral Agent, all of its Records pertaining to the Collateral with a legend, in form and substance reasonably satisfactory to the Collateral Agent, indicating that such Chattel Paper, Instrument (other than items deposited or to be deposited for collection), License or Collateral is subject to the security interest created hereby, (B) if any Account, other than Accounts between the Grantors and their Subsidiaries, shall be evidenced by a Promissory Note or other Instrument or Chattel Paper, with a face value in excess of \$100,000, individually, or \$500,000, in the aggregate, delivering and pledging to the Collateral Agent such Promissory Note, other Instrument or Chattel Paper, duly endorsed and accompanied by executed instruments of transfer or assignment, all in form and substance reasonably satisfactory to the Collateral Agent (C) executing and filing (to the extent, if any, that such Grantor's signature is required thereon) or authenticating the filing of, such financing or continuation statements, or amendments thereto, (D) with respect to issued, registered or applied-for Intellectual Property hereafter existing and not covered by an appropriate security interest grant, at the time required under Section 6(i) hereunder, the executing and recording in the United States Patent and Trademark Office or the United States Copyright Office, as applicable, appropriate instruments granting a security interest, as may be necessary or desirable or that the Collateral Agent may request in order to perfect and preserve the security interest purported to be created hereby, (E) after the occurrence and during the continuance of an Event of Default, at the request of the Collateral Agent, delivering to the Collateral Agent irrevocable proxies in respect of the Pledged Interests, (F) furnishing to the Collateral Agent from time to time statements and schedules further identifying and describing the Collateral and such other reports in connection with the Collateral as the Collateral Agent may reasonably request, all in reasonable detail, (G) if at any time after the date hereof, any Grantor acquires or holds any Commercial Tort Claim alleging damages in

excess of \$100,000, individually, or \$500,000, in the aggregate, promptly notifying the Collateral Agent in a writing signed by such Grantor setting forth a brief description of such Commercial Tort Claim and granting to the Collateral Agent a security interest therein and in the proceeds thereof, which writing shall incorporate the provisions hereof and shall be in form and substance reasonably satisfactory to the Collateral Agent, (H) upon the acquisition after the date hereof by any Grantor of any Titled Assets, with a value in excess of \$100,000, individually, or \$500,000, in the aggregate (other than Equipment that is subject to a purchase money security interest that constitutes a Permitted Lien under the Financing Agreement), promptly notifying the Collateral Agent of such acquisition, setting forth a description of the Titled Assets acquired and a good faith estimate of the current value of such Titled Assets, and if so requested by the Collateral Agent promptly causing the Collateral Agent to be listed as the lienholder on such Certificate of Title or certificate of ownership and delivering evidence of the same to the Collateral Agent, and (I) taking all actions required by law in any relevant Uniform Commercial Code jurisdiction, or by other law as applicable in any foreign jurisdiction. No Grantor shall take or fail to take any action which could in any manner impair the validity or enforceability of the Collateral Agent's security interest in and Lien on any Collateral.

(b) Location of Equipment and Inventory. Each Grantor will keep the Equipment and Inventory constituting Collateral (other than (w) Equipment and Inventory that will be sold pursuant to a Permitted Disposition, (x) Equipment out for repair or loaned to employees (e.g., laptops), (y) Equipment or Inventory in transit or (z) Equipment and Inventory having an aggregate value of less than \$100,000 at the locations specified in Schedule VI hereto or, upon not less than thirty (30) days' (or such shorter time as the Collateral Agent may agree in its sole discretion) prior written notice to the Collateral Agent accompanied by a new Schedule VI hereto indicating each new location of the Equipment and Inventory, at such other locations as the Grantors may elect; provided that (i) all action required under this Agreement has been taken (or will be taken, to the extent such action is required or permitted to be taken at a later date) to grant to the Collateral Agent a perfected, first priority security interest in such Equipment and Inventory that constitutes Collateral hereunder (subject in priority only to Permitted Liens that, pursuant to terms of the Financing Agreement, are not prohibited from being prior to the Liens in favor of the Collateral Agent, for the benefit of the Secured Parties), and (ii) the Collateral Agent's rights in such Equipment and Inventory, including, without limitation, the existence, perfection and priority of the security interest created hereby in such Equipment and Inventory, are not adversely affected thereby.

(c) Condition of Equipment. Each Grantor will maintain and preserve, and cause each of its Subsidiaries to maintain and preserve, all of its Equipment which is necessary or useful in the proper conduct of its business (excluding obsolete or worn-out property in the ordinary course of business) in good working order and condition, ordinary wear and tear and casualty and condemnation excepted.

(d) [Reserved].

(e) [Reserved].

(f) Provisions Concerning the Accounts and the Licenses.

(i) Each Grantor will, except as otherwise provided in this subsection (f) of the Financing Agreement, continue to use commercially reasonable efforts to collect, at its own expense, all amounts due or to become due under the Accounts, except to the extent the Grantor determines in its commercially reasonable business judgment that such collection efforts are no longer worthwhile. In connection with such collections, each Grantor may (and, after the occurrence and during the continuance of an Event of Default, at the Collateral Agent's direction, will) take such action as such Grantor (or, if applicable, the Agents) may deem necessary or advisable to enforce collection or performance of the Accounts; provided, however, that the Agents shall have the right at any time, upon the occurrence and during the continuance of an Event of Default, to notify the Account Debtors or obligors under any Accounts of the assignment of such Accounts to the Agents and to direct such Account Debtors or obligors to make payment of all amounts due or to become due to such Grantor thereunder directly to the Administrative Agent's Account and, upon such notification and at the expense of such Grantor and to the extent permitted by law, to enforce collection of any such Accounts and to adjust, settle or compromise the amount or payment thereof, in the same manner and to the same extent as such Grantor might have done until such time as the subject Event of Default is cured or waived. After receipt by any Grantor of a notice from the Collateral Agent that the Collateral Agent has notified, intends to notify, or has enforced or intends to enforce a Grantor's rights against the Account Debtors or obligors under any Accounts as referred to in the proviso to the immediately preceding sentence, (A) except as otherwise approved by the Collateral Agent, all amounts and proceeds (including Instruments) received by such Grantor in respect of the Accounts shall be received in trust for the benefit of the Collateral Agent hereunder and shall be forthwith paid over to Administrative Agent's Account in the same form as so received (with any necessary endorsement) and applied as specified in Section 9(d) hereof, and (B) such Grantor will not adjust, settle or compromise the amount or payment of any Account or release wholly or partly any Account Debtor or obligor thereof or allow any credit or discount thereon without the consent of the Collateral Agent. Any such securities, cash, investments and other items so received by the Collateral Agent or its designated agent shall (other than Revolver Priority Collateral Proceeds (which shall be sent to the Administrative Agent's Account)) (in the sole and absolute discretion of the Collateral Agent) be held as additional Collateral for the Secured Obligations or distributed in accordance with Section 9 hereof.

(ii) Upon the occurrence and during the continuance of any breach or default under any Material License by any party thereto other than a Grantor, (A) the relevant Grantor will, promptly after obtaining knowledge thereof, give the Collateral Agent written notice of the nature and duration thereof, specifying what action, if any, it has taken and proposes to take with respect thereto, (B) after the occurrence and during the continuance of an Event of Default, no Grantor will, without the prior written consent of the Collateral Agent, declare or waive any such breach or default or affirmatively consent to the cure thereof or exercise any of its remedies in respect of such breach or default, and (C) after the occurrence and during the continuance of an Event of Default, each Grantor will, upon written instructions from the Collateral Agent and at such Grantor's expense, take such action with respect to such circumstances as the Collateral Agent may deem reasonably necessary or advisable in respect of such breach or default.

(iii) Each Grantor will, at its expense, promptly deliver to the Collateral Agent a copy of each material written notice or other communication received by it by which any other party to any Material License (A) declares a breach or default by a Grantor of any material term thereunder, (B) terminates such License or (C) purports to exercise any of its rights or affect any of its obligations under such License, together with a copy of any written response by such Grantor thereto.

(iv) Each Grantor will, to the extent advisable using its commercially reasonable business judgment, exercise promptly and diligently each and every material right which it may have under each Material License, and will duly perform and observe in all respects all of its material obligations under each Material License.

(g) Provisions Concerning the Pledged Interests. Each Grantor will

(i) at the Grantors' joint and several expense, promptly deliver to the Collateral Agent a copy of each material written notice or other material written communication received by it in respect of the Pledged Interests;

(ii) at the Grantors' joint and several expense, use commercially reasonable efforts to defend the Collateral Agent's right, title and security interest in and to the Pledged Interests against the claims of any Person, other than the holders of Permitted Liens;

(iii) not make or consent to any amendment or other modification or waiver with respect to any Pledged Interests or enter into any agreement or permit to exist any restriction with respect to any Pledged Interests to the extent expressly prohibited by the Financing Agreement; and

(iv) except as expressly permitted under the Loan Documents, not permit the issuance of (A) any additional shares of any class of Equity Interests of any Pledged Issuer (except to the extent such shares are issued to a Grantor hereunder and such Grantor complies with the requirements of Section 7.02(l) of the Financing Agreement), (B) any securities convertible voluntarily by the holder thereof or automatically upon the occurrence or non occurrence of any event or condition into, or exchangeable for, any such shares of Equity Interests of any Pledged Issuer or (C) any warrants, options, contracts or other commitments entitling any Person to purchase or otherwise acquire any such Equity Interests of any Pledged Issuer.

(h) [Reserved].

(i) Intellectual Property.

(i) If applicable, each Grantor has duly executed and delivered the applicable Assignment for Security in the form attached hereto as Exhibit B. Except as provided in subsection (ii) below, each Grantor (either itself or through licensees) will, and will cause each Licensee thereof to, take all action necessary to maintain all of the Intellectual Property material to the conduct of its business in full force and effect.

(ii) Each Grantor shall have the duty, with respect to Intellectual Property that is necessary in the conduct of such Grantor's business, to protect and diligently enforce and defend at such Grantor's expense its Intellectual Property. Each Grantor further agrees not to abandon any Intellectual Property or License that is necessary in the conduct of such Grantor's business.

(iii) Grantors acknowledge and agree that the Secured Parties shall have no duties with respect to any Intellectual Property or Licenses of any Grantor. Without limiting the generality of this Section 6(i)(iii), Grantors acknowledge and agree that no member of the Secured Parties shall be under any obligation to take any steps necessary to preserve rights in the Collateral consisting of Intellectual Property or Licenses against any other Person, but any Secured Party may do so at its option from and after the occurrence and during the continuance of an Event of Default, and all expenses incurred in connection therewith (including reasonable fees and out-of-pocket expenses of attorneys and other professionals) shall be for the sole account of the Borrowers and shall be chargeable to the Loan Account.

(iv) Notwithstanding anything herein to the contrary, upon the occurrence and during the continuance of an Event of Default, no Grantor may abandon or otherwise permit any Intellectual Property owned by any Grantor that is material to the business of such Grantor to become invalid without the prior written consent of the Collateral Agent, and if any Intellectual Property owned by any Grantor that is material to the business of such Grantor is infringed, misappropriated, diluted or otherwise violated in any material respect by a third party, the Grantors will take such action as the Collateral Agent shall reasonably deem appropriate under the circumstances to protect such Intellectual Property.

(v) If any Intellectual Property owned by the Grantors that is material to the conduct of its business is infringed, misappropriated, diluted or otherwise violated by a third party, the Grantors shall (A) upon obtaining knowledge of such infringement, misappropriation, dilution or other violation, promptly notify the Collateral Agent and (B) to the extent the Grantors shall deem appropriate under the circumstances, promptly sue for infringement, misappropriation, dilution or other violation, seek injunctive relief where appropriate and recover any and all damages for such infringement, misappropriation, dilution or other violation, or take such other actions as the Grantors shall deem appropriate under the circumstances to protect such Intellectual Property.

(vi) Each Grantor shall promptly file an application with the United States Copyright Office for any material Copyright that has not been registered with the United States Copyright Office if such Copyright is necessary in connection with the conduct of such Grantor's business. Any expenses incurred in connection with the foregoing shall be borne by the Grantors.

(vii) On each date on which financial statements are delivered by Parent pursuant to Section 7.01(a)(ii) and Section 7.01(a)(iii) of the Financing Agreement, each Grantor shall provide the Collateral Agent with a written report of all new U.S. federal Patents, Copyrights or Trademarks that are registered or the subject of pending applications for registrations, and all Material Licenses, if any, in each case, which were acquired, registered, or for which applications for registration were filed by any Grantor during the prior period and any

statement of use or amendment to allege use with respect to intent-to-use trademark applications. In the case of such registrations or applications therefor, which were acquired by any Grantor, each such Grantor shall file the necessary documents with the appropriate Governmental Authority identifying the applicable Grantor as the owner (or as a co-owner thereof, if such is the case) of such Intellectual Property. In each of the foregoing cases, the applicable Grantor shall promptly cause to be prepared, executed, and delivered to the Collateral Agent supplemental schedules to the applicable Loan Documents to identify such Patent and Trademark registrations and applications therefor (with the exception of Trademark applications filed on an intent-to-use basis for which no statement of use or amendment to allege use has been filed) and Licenses as being subject to the security interests created thereunder.

(viii) In the event that any Grantor (A) files an application or registration for any Intellectual Property with the United States Patent and Trademark Office, United States Copyright Office, or any state office or agency, either itself or through any agent, employee, licensee or designee or (B) obtains rights to or develop any new material Intellectual Property or any reissue, divisional, continuation, renewal, extension or continuation-in-part of any existing Intellectual Property, the provisions of Section 2 hereof shall automatically apply thereto. Each Grantor shall give to the Collateral Agent notice of its acquisition of ownership of any applied for, issued or registered Intellectual Property as required under the Financing Agreement, and, upon the reasonable request of the Collateral Agent, each Grantor shall execute and deliver any and all agreements, instruments, documents and papers as the Collateral Agent may reasonably request to evidence the Collateral Agent's security interest in such Intellectual Property, including execution of a Grant of a Security Interest, substantially in the form of Exhibit B hereto, for filing, with the United States Patent and Trademark Office or United States Copyright Office (as applicable) and each Grantor hereby appoints the Collateral Agent as its attorney-in-fact to execute and file such writings for the foregoing purposes, all acts of such attorney being hereby ratified and confirmed; such power, being coupled with an interest, is irrevocable until the date on which all of the Secured Obligations have been Paid in Full in cash after the termination of each Lender's Commitment and each of the Loan Documents.

(ix) Each Grantor shall take commercially reasonable steps to maintain the confidentiality of, and otherwise protect and enforce its rights in, the material Intellectual Property the value of which depends on maintaining its confidentiality.

(j) Deposit, Commodities and Securities Accounts. In accordance with Section 8 of the Financing Agreement, each Grantor shall cause each bank and other financial institution with an account referred to in Schedule VII hereto to execute and deliver to the Collateral Agent (or its designee) a Cash Management Agreement, in form and substance satisfactory to the Collateral Agent, duly executed by such Grantor and such bank or financial institution, or enter into other arrangements in form and substance reasonably satisfactory to the Collateral Agent. Other than the deposit accounts that the foreign (non U.S.) Grantors are in the process of establishing as of the date hereof and disclosed to the Collateral Agent prior to the date hereof, without the prior written consent of the Collateral Agent, no Grantor shall make or maintain any Deposit Account, Commodity Account or Securities Account except for the accounts set forth in Schedule VII hereto. The provisions of this Section 6(j) shall not apply to Excluded Accounts.

(k) Titled Assets.

(i) Each Grantor shall (i) cause all material Collateral, now owned or hereafter acquired by any Grantor, which under applicable law is required to be registered, to be properly registered in the name of such Grantor, (ii) cause all Titled Assets, to be properly titled in the name of such Grantor, and if requested by the Collateral Agent as to any Titled Asset with a value in excess of \$100,000, individually, or \$500,000 in the aggregate, with the Collateral Agent's Lien noted thereon and (iii) if requested by the Collateral Agent, promptly deliver to the Collateral Agent (or its custodian) originals of all such Certificates of Title or certificates of ownership for such Titled Assets, with the Collateral Agent's Lien noted thereon if required hereby, and take such other actions as may be reasonably required by the Collateral Agent.

(l) Control. Each Grantor hereby agrees to perform any or all action that the Collateral Agent may reasonably request in order for the Collateral Agent to obtain control in accordance with Sections 9-104, 9-105, 9-106, and 9-107 of the Code with respect to the following Collateral: (i) Deposit Accounts other than the Excluded Accounts, (ii) Securities Accounts; (iii) Electronic Chattel Paper, (iv) Investment Property and (v) Letter-of-Credit Rights. Each Grantor hereby acknowledges and agrees that any agent or designee of the Collateral Agent shall be deemed to be a "secured party" with respect to the Collateral under the control of such agent or designee for all purposes.

(m) Records; Inspection and Reporting.

(i) Each Grantor shall keep adequate records concerning the Accounts, Chattel Paper and Pledged Interests.

(ii) Except as otherwise expressly permitted by Section 7.02(l) of the Financing Agreement, no Grantor shall, without the prior written consent of the Agents, amend, modify or otherwise change (A) its name, identity, organizational structure, identification number or FEIN (B) its jurisdiction of incorporation or organization as set forth in Schedule I hereto or (C) its chief executive office as set forth in Schedule VI hereto. Each Grantor shall promptly, but in any event within ten (10) Business Days, notify the Agents upon obtaining an organizational identification number, if on the date hereof such Grantor did not have such identification number.

(n) Partnership and Limited Liability Company Interests.

(i) Except with respect to partnership interests and limited liability company interests evidenced by a certificate, which certificate has been pledged and delivered to the Collateral Agent pursuant to Section 4 hereof, no Grantor that is a partnership or a limited liability company shall, nor shall any Grantor with any Subsidiary that is a partnership or a limited liability company, permit such partnership interests or membership interests to (A) be dealt in or traded on securities exchanges or in securities markets, (B) become a security for purposes of Article 8 of any relevant Uniform Commercial Code, (C) become an investment company security within the meaning of Section 8-103 of any relevant Uniform Commercial Code or (iv) be evidenced by a certificate, unless such certificate is delivered to the Collateral

Agent. Each Grantor agrees that such partnership interests or membership interests shall constitute General Intangibles.

SECTION 7. Voting Rights, Dividends, Etc. in Respect of the Pledged Interests.

(a) So long as no Event of Default shall have occurred and be continuing:

(i) each Grantor may exercise any and all voting and other consensual rights pertaining to any Pledged Interests for any purpose not inconsistent with the terms of this Agreement, the Financing Agreement or the other Loan Documents; provided, however, that (A) each Grantor will give the Collateral Agent at least five (5) Business Days' prior notice of the manner in which it intends to exercise, or the reasons for refraining from exercising, any such right that could reasonably be expected to adversely affect in any material respect the value, liquidity or marketability of any Collateral or the creation, perfection and priority of the Collateral Agent's Lien; and (B) none of the Grantors will exercise or refrain from exercising any such right, as the case may be, if the Collateral Agent gives a Grantor notice that, in the Collateral Agent's reasonable judgment, such action (or inaction) could reasonably be expected to adversely affect in any material respect the value, liquidity or marketability of any Collateral or the creation, perfection and priority of the Collateral Agent's Lien or violate the terms of any Loan Document or have a Material Adverse Effect on the Grantors; and

(ii) each Grantor may receive, retain and utilize any and all dividends, interest or other distributions paid in respect of the Pledged Interests to the extent permitted by the Financing Agreement; provided, however, that any and all (A) dividends and interest paid or payable other than in cash in respect of, and Instruments and other property received, receivable or otherwise distributed in respect of or in exchange for, any Pledged Interests, (B) dividends and other distributions paid or payable in cash in respect of any Pledged Interests in connection with a partial or total liquidation or dissolution or in connection with a reduction of capital, capital surplus or paid-in surplus, and (C) cash paid, payable or otherwise distributed in redemption of, or in exchange for, any Pledged Interests, together with any dividend, interest or other distribution or payment which, at the time of such payment was not permitted by the Financing Agreement, shall be, and shall forthwith be delivered to the Collateral Agent, to hold as, Pledged Interests and shall, if received by any of the Grantors, be received in trust for the benefit of the Collateral Agent, and shall be forthwith promptly delivered to the Collateral Agent in the exact form received with any necessary endorsement and/or appropriate stock powers duly executed in blank, to be held by the Collateral Agent as Pledged Interests and as further collateral security for the Secured Obligations;

(b) Upon the occurrence and during the continuance of an Event of Default:

(i) all rights of each Grantor to exercise the voting and other consensual rights which it would otherwise be entitled to exercise pursuant to Section 7(a)(i) hereof, and to receive the dividends, distributions, interest and other payments that it would otherwise be authorized to receive and retain pursuant to Section 7(a)(ii) hereof, shall cease, and all such rights shall thereupon become vested in the Collateral Agent, which shall thereupon



have the sole right to exercise such voting and other consensual rights and to receive and hold as Pledged Interests such dividends, distributions and interest payments, and the Collateral Agent (personally or through an agent) shall thereupon be solely authorized and empowered to transfer and register in the Collateral Agent's name, or in the name of the Collateral Agent's nominee, the whole or any part of the Pledged Interests, it being acknowledged by each Grantor that such transfer and registration may be effected by the Collateral Agent by the delivery of a Registration Page to the Grantor or to the Pledged Issuer, as applicable, reflecting the Collateral Agent or its designee as the holder of such Pledged Interests, or otherwise by the Collateral Agent through its irrevocable appointment as attorney-in-fact pursuant to Section 8 hereof until the date on which all of the Secured Obligations have been Paid in Full in cash after the termination of each Lender's Commitment and each of the Loan Documents;

(ii) the Collateral Agent is authorized to notify each debtor with respect to the Pledged Debt to make payment directly to the Collateral Agent (or its designee) and may collect any and all moneys due or to become due to any Grantor in respect of the Pledged Debt, and each of the Grantors hereby authorizes each such debtor to make such payment directly to the Collateral Agent (or its designee) without any duty of inquiry;

(iii) without limiting the generality of the foregoing, the Collateral Agent may at its option exercise any and all rights of conversion, exchange, subscription or any other rights, privileges or options pertaining to any of the Pledged Interests as if it were the absolute owner thereof, including, without limitation, the right to exchange, in its discretion, any and all of the Pledged Interests upon the merger, consolidation, reorganization, recapitalization or other adjustment of any Pledged Issuer, or upon the exercise by any Pledged Issuer of any right, privilege or option pertaining to any Pledged Interests, and, in connection therewith, to deposit and deliver any and all of the Pledged Interests with any committee, depository, transfer agent, registrar or other designated agent upon such terms and conditions as it may determine; and

(iv) all dividends, distributions, interest and other payments that are received by any of the Grantors contrary to the provisions of Section 7(b)(i) hereof shall be received in trust for the benefit of the Collateral Agent, shall be segregated from other funds of the Grantors, and shall be forthwith paid over to the Collateral Agent as Pledged Interests in the exact form received with any necessary indorsement and/or appropriate instruments of transfer or assignment or undated Equity Interest powers duly executed in blank, to be held by the Collateral Agent as Pledged Interests and as further collateral security for the Secured Obligations.

#### SECTION 8. Additional Provisions Concerning the Collateral.

(a) To the maximum extent permitted by Requirements of Law, and for the purpose of taking any action that the Collateral Agent may deem necessary or advisable to perfect the security interests in the Collateral granted by Grantors to the Collateral Agent under this Agreement, each Grantor hereby (i) authorizes the Collateral Agent to execute any such agreements, instruments or other documents in such Grantor's name and to file such agreements, instruments or other documents in such Grantor's name and in any appropriate filing office, (ii) authorizes the Collateral Agent at any time and from time to time to file, one or more financing or continuation statements and amendments thereto, relating to the Collateral

(including, without limitation, any such financing statements that (A) describe the Collateral as "all assets" or "all personal property" (or words of similar effect) or that describe or identify the Collateral by type or in any other manner as the Collateral Agent may determine, regardless of whether any particular asset of such Grantor falls within the scope of Article 9 of the Uniform Commercial Code or whether any particular asset of such Grantor constitutes part of the Collateral, and (B) contain any other information required by Part 5 of Article 9 of the Code for the sufficiency or filing office acceptance of any financing statement, continuation statement or amendment, including, without limitation, whether such Grantor is an organization, the type of organization and any organizational identification number issued to such Grantor and (iii) ratifies such authorization to the extent that the Collateral Agent has filed any such financing statements, continuation statements, or amendments thereto, prior to the date hereof. A photocopy or other reproduction of this Agreement or any financing statement covering the Collateral or any part thereof shall be sufficient as a financing statement where permitted by law.

(b) Each Grantor hereby irrevocably appoints the Collateral Agent as its attorney-in-fact and proxy, with full authority in the place and stead of such Grantor and in the name of such Grantor or otherwise, from time to time in the Collateral Agent's discretion, to take any action and to execute any instrument that the Collateral Agent may deem necessary or advisable to accomplish the purposes of this Agreement (subject to the rights of a Grantor under Section 6 hereof and Section 7 hereof), including, without limitation, (i) to obtain and adjust insurance required to be paid to the Collateral Agent pursuant to the Financing Agreement, (ii) to ask, demand, collect, sue for, recover, compound, receive and give acquittance and receipts for moneys due and to become due under or in respect of any Collateral, (iii) to receive, endorse, and collect any drafts or other Instruments, Documents and Chattel Paper, in each case to the extent constituting Collateral, in connection with clause (i) or (ii) above, (iv) to receive, indorse and collect all Instruments constituting Collateral made payable to such Grantor representing any dividend, interest payment or other distribution in respect of any Pledged Interests and to give full discharge for the same, (v) to file any claims or take any action or institute any proceedings which the Collateral Agent may deem necessary or desirable for the collection of any Collateral or otherwise to enforce the rights of each Secured Party with respect to any Collateral, (vi) to execute assignments, licenses and other documents to enforce the rights of each Secured Party with respect to any Collateral, (vii) to pay or discharge taxes or Liens levied or placed upon or threatened against the Collateral, the legality or validity thereof and the amounts necessary to discharge the same to be determined by the Collateral Agent in its sole discretion, and such payments made by the Collateral Agent to become Obligations of such Grantor to the Collateral Agent, due and payable immediately without demand, and shall bear interest from the date payment of said amounts is demanded at the Post Default Rate, and (viii) to sign and endorse any invoices, freight or express bills, bills of lading, storage or warehouse receipts, assignments, verifications and notices in connection with Accounts, Chattel Paper and other documents relating to the Collateral. This power is coupled with an interest and is irrevocable until the date on which all of the Secured Obligations have been Paid in Full in cash after the termination of each Lender's Commitment and each of the Loan Documents.

(c) For the purpose of enabling the Collateral Agent to exercise rights and remedies hereunder, at such time after the occurrence and continuance of an Event of Default as the Collateral Agent shall be lawfully entitled to exercise such rights and remedies, and for no other purpose, each Grantor hereby (i) grants to the Collateral Agent an irrevocable

(until the date on which all of the Secured Obligations have been Paid in Full in cash after the termination of each Lender's Commitment and each of the Loan Documents), non-exclusive license (exercisable without payment of royalty or other compensation to any Grantor) to use or sublicense any Intellectual Property now or hereafter owned by any Grantor, wherever the same may be located, including in such license reasonable access to all media in which any of the licensed items may be recorded or stored and to all computer programs used for the compilation or printout thereof; and (ii) assigns to the Collateral Agent, to the extent assignable, all of its rights to any Intellectual Property now or hereafter licensed or used by any Grantor.

(d) Each Grantor hereby releases the Collateral Agent from, and indemnifies the Collateral Agent against, any claims, causes of action and demands at any time arising out of or with respect to any actions taken or omitted to be taken by the Collateral Agent under the powers of attorney granted herein other than actions taken or omitted to be taken through the Collateral Agent's gross negligence or willful misconduct, as determined by a final determination of a court of competent jurisdiction.

(e) If any Grantor fails to perform any agreement or obligation contained herein, the Collateral Agent may itself perform, or cause performance of, such agreement or obligation, in the name of such Grantor or the Collateral Agent, and the fees and expenses of the Collateral Agent incurred in connection therewith shall be jointly and severally payable by the Grantors pursuant to Section 10 hereof constitute additional Secured Obligations of the Grantor to the Collateral Agent, be due and payable immediately without demand and bear interest from the date payment of said amounts is demanded at the Post Default Rate.

(f) The powers conferred on the Collateral Agent hereunder are solely to protect its interest in the Collateral and shall not impose any duty upon it to exercise any such powers. Other than the exercise of reasonable care to assure the safe custody of any Collateral in its possession and the accounting for moneys actually received by it hereunder, the Collateral Agent shall have no duty as to any Collateral or as to the taking of any necessary steps to preserve rights against other parties or any other rights pertaining to any Collateral and shall be relieved of all responsibility for any Collateral in its possession upon surrendering it or tendering surrender of it to any of the Grantors (or whomsoever shall be lawfully entitled to receive the same or as a court of competent jurisdiction shall direct). The Collateral Agent shall be deemed to have exercised reasonable care in the custody and preservation of any Collateral in its possession if such Collateral is accorded treatment substantially equal to that which the Collateral Agent accords its own property, it being understood that the Collateral Agent shall not have responsibility for ascertaining or taking action with respect to calls, conversions, exchanges, maturities, tenders or other matters relating to any Collateral, whether or not the Collateral Agent has or is deemed to have knowledge of such matters. The Collateral Agent shall not be liable or responsible for any loss or damage to any of the Collateral, or for any diminution in the value thereof, by reason of the act or omission of any warehouseman, carrier, forwarding agency, consignee or other agent or bailee selected by the Collateral Agent in good faith.

(g) Anything herein to the contrary notwithstanding (i) each Grantor shall remain liable under the Licenses and otherwise in respect of the Collateral to the extent set forth therein to perform all of its obligations thereunder to the same extent as if this Agreement had not been executed, (ii) the exercise by the Collateral Agent of any of its rights hereunder

shall not release any Grantor from any of its obligations under the Licenses or otherwise in respect of the Collateral, and (iii) the Collateral Agent shall not have any obligation or liability by reason of this Agreement under the Licenses or otherwise in respect of the Collateral, nor shall the Collateral Agent be obligated to perform any of the obligations or duties of any Grantor thereunder or to take any action to collect or enforce any claim for payment assigned hereunder.

(h) The Collateral Agent may at any time in its discretion (i) after the occurrence and during the continuance of an Event of Default without notice to any Grantor other than as required pursuant to Section 7(b), transfer or register in the name of the Collateral Agent or any of its nominees any or all of the Pledged Interests, subject only to the revocable rights of such Grantor under Section 7(a) hereof, and (ii) exchange certificates or Instruments constituting Pledged Interests for certificates or Instruments of smaller or larger denominations.

SECTION 9. Remedies Upon Default. If any Event of Default shall have occurred and be continuing:

(a) The Collateral Agent may exercise in respect of the Collateral, in addition to any other rights and remedies provided for herein or otherwise available to it, all of the rights and remedies of a secured party upon default under the Code (whether or not the Code applies to the affected Collateral), and also may (i) take absolute control of the Collateral, including, without limitation, transfer into the Collateral Agent's name or into the name of its nominee or nominees (to the extent the Collateral Agent has not theretofore done so) and thereafter receive, for the benefit of each Secured Party, all payments made thereon, give all consents, waivers and ratifications in respect thereof and otherwise act with respect thereto as though it were the outright owner thereof, (ii) require each Grantor to, and each Grantor hereby agrees that it will at its expense and upon request of the Collateral Agent forthwith, assemble all or part of the Collateral as directed by the Collateral Agent and make it available to the Collateral Agent at a place or places to be designated by the Collateral Agent that is reasonably convenient to both parties, and the Collateral Agent may enter into and occupy any premises owned or leased by any Grantor where the Collateral or any part thereof is located or assembled for a reasonable period in order to effectuate the Collateral Agent's rights and remedies hereunder or under law, without obligation to any Grantor in respect of such occupation, and (iii) without notice except as specified in Section 7 or 8 or above and without any obligation to prepare or process the Collateral for sale, (A) sell the Collateral or any part thereof in one or more parcels at public or private sale, at any of the Collateral Agent's offices, at any exchange or broker's board or elsewhere, for cash, on credit or for future delivery, and at such price or prices and upon such other terms as the Collateral Agent may deem commercially reasonable and/or (B) lease, license or otherwise dispose of the Collateral or any part thereof upon such terms as the Collateral Agent may deem commercially reasonable. Each Grantor agrees that, to the extent notice of sale or any other disposition of the Collateral shall be required by law, at least ten (10) days' prior notice to the applicable Grantor of the time and place of any public sale or the time after which any private sale or other disposition of the Collateral is to be made shall constitute reasonable notification. If the Collateral Agent sells any of the Collateral upon credit, the Grantors will be credited only with payments actually received by the Collateral Agent from the purchaser thereof, and if such purchaser fails to pay for the Collateral, the Collateral Agent may resell the Collateral and the Grantors shall be credited with proceeds of the sale. The Collateral Agent shall not be obligated to make any sale or other disposition of Collateral regardless of

notice of sale having been given. The Collateral Agent may adjourn any public or private sale from time to time by announcement at the time and place fixed therefor, and such sale may, without further notice, be made at the time and place to which it was so adjourned. To the fullest extent permitted by applicable law, each Grantor hereby waives (x) any claims against each Secured Party arising by reason of the fact that the price at which the Collateral may have been sold at a private sale was less than the price which might have been obtained at a public sale or was less than the aggregate amount of the Secured Obligations, even if the Collateral Agent accepts the first offer received and does not offer the Collateral to more than one offeree, and (y) all rights that such Grantor may have to require that all or any part of the Collateral be marshaled upon any sale (public or private) thereof. Each Grantor hereby acknowledges that (i) any such sale of the Collateral by the Collateral Agent shall be made without warranty, (ii) the Collateral Agent may specifically disclaim any warranties of title, possession, quiet enjoyment or the like, (iii) the Collateral Agent may bid (which bid may be, in whole or in part, in the form of cancellation of indebtedness), if permitted by law, for the purchase, lease, license or other disposition of the Collateral or any portion thereof for the account of the Collateral Agent (on behalf of itself and each Secured Party) and (iv) such actions set forth in clauses (i), (ii) and (iii) above shall not adversely affect the commercial reasonableness of any such sale of the Collateral. In addition to the foregoing, (i) upon written notice to any Grantor from the Collateral Agent, each Grantor shall cease any use of the Intellectual Property or any trademark, patent or copyright similar thereto for any purpose described in such notice; (ii) the Collateral Agent may, at any time and from time to time, upon ten (10) days' prior notice to any Grantor, license, on a non-exclusive basis, any of the Intellectual Property, throughout the universe for such term or terms, on such conditions, and in such manner, as the Collateral Agent shall in its sole discretion determine, subject to compliance with any applicable license; and (iii) the Collateral Agent may, at any time, pursuant to the authority granted in Section 8 hereof, execute and deliver on behalf of a Grantor, one or more instruments of assignment of the Intellectual Property Collateral owned by such Grantor (or any application or registration thereof in form suitable for filing, recording, or registration in any Country).

(b) Reserved.

(c) Each Grantor recognizes that the Collateral Agent may deem it impracticable to effect a public sale of all or any part of the Pledged Shares or any other securities constituting Pledged Interests and that the Collateral Agent may, therefore, determine to make one or more private sales of any such securities to a restricted group of purchasers who will be obligated to agree, among other things, to acquire such securities for their own account, for investment and not with a view to the distribution or resale thereof. Each Grantor acknowledges that any such private sale may be at prices and on terms less favorable to the seller than the prices and other terms which might have been obtained at a public sale and, notwithstanding the foregoing, agrees that such private sales shall be deemed to have been made in a commercially reasonable manner and that the Collateral Agent shall have no obligation to delay the sale of any such securities for the period of time necessary to permit the issuer of such securities to register such securities for public sale under the Securities Act. Each Grantor further acknowledges and agrees that any offer to sell such securities which has been (i) publicly advertised on a bona fide basis in a newspaper or other publication of general circulation in the financial community of New York, New York (to the extent that such an offer may be so advertised without prior registration under the Securities Act) or (ii) made privately in the

manner described above to not less than fifteen bona fide offerees shall be deemed to involve a "public disposition" for the purposes of Section 9-610(c) of the Code (or any successor or similar, applicable statutory provision) as then in effect in the State of New York, notwithstanding that such sale may not constitute a "public offering" under the Securities Act, and that the Collateral Agent may, in such event, bid for the purchase of such securities.

(d) Any cash held by the Collateral Agent (or its agent or designee) as Collateral and all Cash Proceeds received by the Collateral Agent (or its agent or designee) in respect of any sale of or collection from, or other realization upon, all or any part of the Collateral, shall be applied (after payment of any amounts payable to the Collateral Agent pursuant to Section 10 hereof) in whole or in part against, all or any part of the Secured Obligations as is consistent with the provisions of the Financing Agreement. Any surplus of such cash or Cash Proceeds held by the Collateral Agent (or its agent or designee) and remaining after the date on which all of the Secured Obligations have been Paid in Full after the termination of each Lender's Commitment and each of the Loan Documents, shall be paid over to whomsoever shall be lawfully entitled to receive the same or as a court of competent jurisdiction shall direct.

(e) In the event that the proceeds of any such sale, collection or realization are insufficient to pay all amounts to which the each Secured Party is legally entitled, the Grantors shall be jointly and severally liable for the deficiency, together with interest thereon at the highest rate specified in any applicable Loan Document for interest on overdue principal thereof or such other rate as shall be fixed by applicable law, together with the costs of collection and the reasonable fees, and other reasonable client charges of any attorneys employed by the Agents to collect such deficiency.

(f) Each Grantor hereby acknowledges that if the Collateral Agent complies with any applicable Requirements of Law in connection with a disposition of the Collateral, such compliance will not adversely affect the commercial reasonableness of any sale or other disposition of the Collateral.

(g) The Collateral Agent shall not be required to marshal any present or future collateral security (including, but not limited to, this Agreement and the Collateral) for, or other assurances of payment of, the Secured Obligations or any of them or to resort to such collateral security or other assurances of payment in any particular order, and all of the Collateral Agent's rights hereunder and in respect of such collateral security and other assurances of payment shall be cumulative and in addition to all other rights, however existing or arising. To the extent that any Grantor lawfully may, such Grantor hereby agrees that it will not invoke any law relating to the marshalling of collateral which might cause delay in or impede the enforcement of the Collateral Agent's rights under this Agreement or under any other instrument creating or evidencing any of the Secured Obligations or under which any of the Secured Obligations is outstanding or by which any of the Secured Obligations is secured or payment thereof is otherwise assured, and, to the extent that it lawfully may, each Grantor hereby irrevocably waives the benefits of all such laws.

SECTION 10. Indemnity and Expenses.

(a) Each Grantor jointly and severally agrees to defend, protect, indemnify and hold harmless each Agent and each other Indemnitee in accordance with Section 12.15 of the Financing Agreement.

(b) Each Grantor jointly and severally agrees to pay to the Agents costs and expenses in accordance with Section 12.04 of the Financing Agreement.

SECTION 11. Notices, Etc. All notices and other communications provided for hereunder shall be given in accordance with the notice provision of the Financing Agreement.

SECTION 12. Security Interest Absolute; Joint and Several Obligations.

(a) All rights of the Secured Parties, all Liens and all obligations of each of the Grantors hereunder shall be absolute and unconditional irrespective of (i) any lack of validity or enforceability of the Financing Agreement or any other Loan Document, (ii) any change in the time, manner or place of payment of, or in any other term in respect of, all or any of the Secured Obligations, or any other amendment or waiver of or consent to any departure from the Financing Agreement or any other Loan Document, (iii) any exchange or release of, or non-perfection of any Lien on any Collateral, or any release or amendment or waiver of or consent to departure from any guaranty, for all or any of the Secured Obligations, or (iv) any other circumstance that might otherwise constitute a defense available to, or a discharge of, any of the Grantors in respect of the Secured Obligations. All authorizations and agencies contained herein with respect to any of the Collateral are irrevocable and powers coupled with an interest until the date on which all of the Secured Obligations have been Paid in Full in cash after the termination of each Lender's Commitment and each of the Loan Documents.

(b) Each Grantor hereby waives, to the extent permitted by applicable law, (i) promptness and diligence, (ii) notice of acceptance and notice of the incurrence of any Secured Obligation by any Grantor, (iii) notice of any actions taken by any Agent, any Lender, any Grantor or any other Person under any Loan Document or any other agreement, document or instrument relating thereto (except for any such notices expressly required pursuant to the Loan Documents), (iv) all other notices, demands and protests, and all other formalities of every kind (except for any such notices and formalities expressly required pursuant to the Loan Documents) in connection with the enforcement of the Secured Obligations, the omission of or delay in which, but for the provisions of this subsection (b), might constitute grounds for relieving such Grantor of any such Grantor's obligations hereunder and (v) any requirement that any Agent or any Lender protect, secure, perfect or insure any security interest or other lien on any property subject thereto or exhaust any right or take any action against any Grantor or any other Person or any collateral.

(c) All of the obligations of the Grantors hereunder are joint and several. The Collateral Agent may, in its sole and absolute discretion, enforce the provisions hereof against any of the Grantors and shall not be required to proceed against all Grantors jointly or seek payment from the Grantors ratably. In addition, the Collateral Agent may, in its sole and absolute discretion, select the Collateral of any one or more of the Grantors for sale or

application to the Secured Obligations, without regard to the ownership of such Collateral, and shall not be required to make such selection ratably from the Collateral owned by all of the Grantors. The release or discharge of any Grantor by the Collateral Agent shall not release or discharge any other Grantor from the obligations of such Person hereunder.

SECTION 13. Miscellaneous.

(a) No amendment of any provision of this Agreement (including any Schedule attached hereto) shall be effective unless it is in writing and signed by each Grantor affected thereby and the Collateral Agent, and no waiver of any provision of this Agreement, and no consent to any departure by any Grantor therefrom, shall be effective unless it is in writing and signed by the Collateral Agent, and then such waiver or consent shall be effective only in the specific instance and for the specific purpose for which given.

(b) No failure on the part of the Secured Parties to exercise, and no delay in exercising, any right hereunder or under any other Loan Document shall operate as a waiver thereof; nor shall any single or partial exercise of any such right preclude any other or further exercise thereof or the exercise of any other right. The rights and remedies of the Secured Parties provided herein and in the other Loan Documents are cumulative and are in addition to, and not exclusive of, any rights or remedies provided by law. The rights of the Secured Parties under any Loan Document against any party thereto are not conditional or contingent on any attempt by such Person to exercise any of its rights under any other Loan Document against such party or against any other Person, including but not limited to, any Grantor.

(c) This Agreement shall create a continuing security interest in the Collateral and shall (i) remain in full force and effect, subject to paragraph (e) below, until the date on which all of the Secured Obligations have been Paid in Full after the termination of each Lender's Commitment and each of the Loan Documents, at which time this Agreement shall automatically terminate as described in clause (d) immediately below and (ii) be binding on each Grantor all other Persons who become bound as debtor to this Agreement in accordance with Section 9-203(d) of the Code, and shall inure, together with all rights and remedies of the Secured Parties hereunder, to the benefit of the Secured Parties and their respective successors, transferees and assigns. Without limiting the generality of clause (ii) of the immediately preceding sentence, each Secured Party may assign or otherwise transfer its respective rights and obligations under this Agreement and any other Loan Document to any other Person pursuant to the terms of the Financing Agreement, and such other Person shall thereupon become vested with all of the benefits in respect thereof granted to the Secured Parties herein or otherwise. Upon any such permitted assignment or transfer, all references in this Agreement to any Secured Party shall mean the permitted assignee of any such Secured Party. None of the rights or obligations of any Grantor hereunder may be assigned or otherwise transferred without the prior written consent of the Collateral Agent, and any such assignment or transfer shall be null and void.

(d) Upon the date on which all of the Secured Obligations have been Paid in Full after the termination of each Lender's Commitment and each of the Loan Documents, (i) subject to paragraph (e) below, this Agreement and the security interests and licenses created



hereby shall automatically terminate and all rights to the Collateral shall revert to the Grantors and (ii) the Collateral Agent will, upon the Grantors' request and at the Grantors' cost and expense, without any representation, warranty or recourse whatsoever, (A) return to the Grantors (or whomsoever shall be lawfully entitled to receive the same or as a court of competent jurisdiction shall direct) such of the Collateral as shall not have been sold or otherwise disposed of or applied pursuant to the terms hereof and (B) execute and deliver to the Grantors such documents as the Grantors shall reasonably request to evidence such termination. If any of the Collateral shall be sold, transferred or otherwise disposed of by any Grantor in a transaction expressly permitted by the Financing Agreement, then the Collateral Agent, at the reasonable request and sole expense of such Grantor, shall execute and deliver to such Grantor all releases or other documents necessary to evidence the release of the Liens created hereby on such Collateral.

(e) This Agreement shall (i) remain in full force and effect and continue to be effective should any petition be filed by or against any Grantor for liquidation or reorganization, should any Grantor become insolvent or make an assignment for the benefit of any creditor or creditors or should a receiver or trustee be appointed for all or any significant part of any Grantor's assets at any time prior to the date on which all of the Secured Obligations have been Paid in Full after the termination of each Lender's Commitment and each of the Loan Documents and (ii) continue to be effective or be reinstated, as the case may be, if at any time payment or performance of the Secured Obligations, or any part thereof, is, pursuant to applicable law, rescinded or reduced in amount, or must otherwise be restored or returned by any obligee of the Secured Obligations, whether as a "voidable preference," "fraudulent conveyance," or otherwise, all as though such payment or performance had not been made. In the event that any payment, or any part thereof, is rescinded, reduced, restored or returned, the Secured Obligations shall be reinstated and deemed reduced only by such amount paid and not so rescinded, reduced, restored or returned.

(f) Upon the execution and delivery, or authentication, by any Person of a security agreement supplement in substantially the form of Exhibit C hereto (each a "Security Agreement Supplement") in accordance with the terms of the Financing Agreement, (i) such Person shall be referred to as an "Additional Grantor" and shall be and become a Grantor, and each reference in this Agreement to "Grantor" shall also mean and be a reference to such Additional Grantor, and each reference in this Agreement and the other Loan Documents to "Collateral" shall also mean and be a reference to the Collateral of such Additional Grantor, and (ii) the supplemental Schedules I-XI attached to each Security Agreement Supplement shall be incorporated into and become a part of and supplement Schedules I-XI, respectively, hereto, and the Collateral Agent may attach such Schedules as supplements to such Schedules, and each reference to such Schedules shall mean and be a reference to such Schedules, as supplemented pursuant hereto.

**(g) THIS AGREEMENT SHALL BE GOVERNED BY, CONSTRUED AND INTERPRETED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NEW YORK, EXCEPT AS REQUIRED BY MANDATORY PROVISIONS OF LAW AND EXCEPT TO THE EXTENT THAT THE VALIDITY AND PERFECTION OR THE PERFECTION AND THE EFFECT OF PERFECTION OR NON-PERFECTION OF THE SECURITY INTEREST CREATED HEREBY, OR**

**REMEDIES HEREUNDER, IN RESPECT OF ANY PARTICULAR COLLATERAL ARE GOVERNED BY THE LAW OF A JURISDICTION OTHER THAN THE STATE OF NEW YORK.**

(h) In addition to and without limitation of any of the foregoing, this Agreement shall be deemed to be a Loan Document and shall otherwise be subject to all of terms and conditions contained in Sections 12.10 and 12.11 of the Financing Agreement, *mutatis mutandi*.

(i) Each party hereto irrevocably and unconditionally waives any right it may have to claim or recover in any legal action, suit or proceeding with respect to this Agreement any special, exemplary, punitive or consequential damages.

(j) Any provision of this Agreement which is prohibited or unenforceable in any jurisdiction shall, as to such jurisdiction, be ineffective to the extent of such prohibition or unenforceability without invalidating the remaining portions hereof or thereof or affecting the validity or enforceability of such provision in any other jurisdiction.

(k) Section headings herein are included for convenience of reference only and shall not constitute a part of this Agreement for any other purpose.

(l) This Agreement may be executed in any number of counterparts and by the different parties hereto on separate counterparts, each of which shall be deemed an original, but all of such counterparts taken together shall constitute one and the same agreement. Delivery of an executed counterpart of this Agreement by facsimile or electronic mail shall be equally effective as delivery of an original executed counterpart.

(m) For purposes of this Agreement, all references to Schedules attached hereto shall be deemed to refer to each such Schedule as updated from time to time to the extent required to be updated in accordance with the terms of this Agreement.

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IN WITNESS WHEREOF, each Grantor has caused this Agreement to be executed and delivered by its officer thereunto duly authorized, as of the date first above written.

GRANTORS:

HARVARD BIOSCIENCE, INC.

By: 

Name: Robert E. Gagnon  
Title: Chief Financial Officer

PLYMOUTH SUB, INC. (prior to giving effect to the Acquisition)

By: Harvard Bioscience, Inc., its sole shareholder

By: 

Name: Robert E. Gagnon  
Title: Chief Financial Officer

DATA SCIENCES INTERNATIONAL, INC. (after giving effect to the Acquisition)

By: Harvard Bioscience, Inc., its sole shareholder

By: 

Name: Robert E. Gagnon  
Title: Chief Financial Officer

HOEFER, INC.

By: Harvard Bioscience, Inc., its sole shareholder

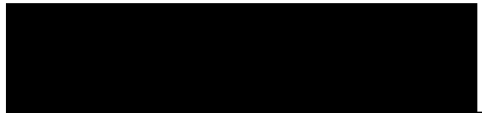
By: 

Name: Robert E. Gagnon  
Title: Chief Financial Officer

WARNER INSTRUMENTS LLC

By: Harvard Bioscience, Inc., its sole member


By:

  
Name: Robert E. Gagnon  
Title: Chief Financial Officer

TRIANGLE BIOSYSTEMS, INC.

By: Harvard Bioscience, Inc., its sole shareholder


By:

  
Name: Robert E. Gagnon  
Title: Chief Financial Officer

DENVILLE SCIENTIFIC, INC.

By: Harvard Bioscience, Inc., its sole shareholder

By:

  
Name: Robert E. Gagnon  
Title: Chief Financial Officer

COULBOURN INSTRUMENTS, LLC

By: Denville Scientific, Inc., its sole member

By: Harvard Bioscience, Inc., its sole shareholder

By:

  
Name: Robert E. Gagnon  
Title: Chief Financial Officer

BIOCHROM US, INC.

By: Harvard Bioscience, Inc., its sole shareholder

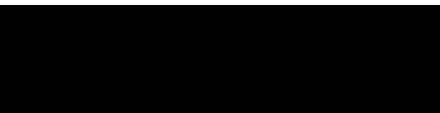
By:



Name: Robert E. Gagnon  
Title: Chief Financial Officer

BIOCHROM LIMITED

By:



Name: Robert E. Gagnon  
Title: Director

EALING SCIENTIFIC LIMITED /  
LA COMPAGNIE SCIENTIFIQUE EALING  
LIMITÉE

By: Harvard Bioscience, Inc., its sole shareholder

By:



Name: Robert E. Gagnon  
Title: Chief Financial Officer

DATA SCIENCES UK (MN) LIMITED

By:



Name: Robert E. Gagnon  
Title: Director

## SCHEDULE I

### LEGAL NAMES; ORGANIZATIONAL IDENTIFICATION NUMBERS; STATES OR JURISDICTIONS OF ORGANIZATION

<u>Company Name</u>	<u>Jurisdiction of Organization/ Incorporation</u>	<u>Type of Organization</u>	<u>Organizational I.D. / Company Number</u>
Harvard Bioscience, Inc.	Delaware	Corporation	3275687
Hoefer, Inc.	Delaware	Corporation	3711700
Biochrom US, Inc.	Delaware	Corporation	4627827
Warner Instruments LLC	Delaware	Limited Liability Company	3384158
Denville Scientific, Inc.	Delaware	Corporation	4709574
Coulbourn Instruments, LLC	Delaware	Limited Liability Company	4859805
Triangle Biosystems, Inc.	Delaware	Corporation	0610800
Data Sciences International, Inc.	Delaware	Corporation	4026757
Plymouth Sub, Inc.	Delaware	Corporation	6713217

Ealing Scientific Limited  (La Compagnie Scientifique Ealing Limitée)	Canada	Corporation	042557-5
Biochrom Limited	England and Wales	Limited Company	03526954
Data Sciences UK (MN) Limited	England and Wales	Limited Company	07546674

**SCHEDULE II**  
**COPYRIGHTS**

None.



### **SCHEDULE III**

#### **MATERIAL LICENSES**

- a. License Agreement, dated November 22, 2010 by and between the Borrower and Collectis S.A., a French *société anonyme*.
- b. “Harvard” is a registered trademark of Harvard University. The marks “Harvard Apparatus” and “Harvard Bioscience” are being used pursuant to that Trademark License Agreement, dated December 9, 2002, by and between the Borrower and President and Fellows of Harvard College.
- c. Zarlink Source Code License Agreement between DSI as licensee and Zarlink Semiconductor (U.S.) Inc. as licensor, dated April 27, 2010.
- d. Zarlink Source Code License Agreement between DSI as licensee and Zarlink Semiconductor (U.S.) Inc. as licensor, dated January 7, 2008.

## **SCHEDULE IV**

### **PATENTS**

See attached summary of patents.

	Owner	Title	Country	Application No	Filing Date	Patent No.	Issue Date
1	Data Sciences International, Inc	Plethysmograph With Animal Restraint	US	14/084,668	11/20/2013	8,827,921	9/9/2014
2	Data Sciences International, Inc	Plethysmograph With Animal Restraint	US	12/589,332	10/22/2009	8,628,479	1/14/2014
3	Data Sciences International, Inc	Integrated Ventilator With Calibration	US	12/103,074	4/15/2008	8,316,849	11/27/2012
4	Data Sciences International, Inc	Large Diameter Plethysmograph	US	11/291,190	12/1/2005	8,066,646	11/29/2011
5	Data Sciences International, Inc	Adjustable Table Plethysmograph	US	10/838,392	5/4/2004	7,402,137	7/22/2008
6	Data Sciences International, Inc	Collapsible (Folding) Graph	US	10/995,584	11/23/2004	7,233,333	6/19/2007
7	Data Sciences International, Inc	Reduced-Noise Plethysmograph	US	10/461,008	6/12/2003	6,902,532	6/7/2005
8	Data Sciences International, Inc	Cough/Sneeze Analyzer And Method	US	10/872,255	6/18/2004	7,104,962	9/12/2006
9	Data Sciences International, Inc	Respiration Measurements And Dosimetry Control In Inhalation	US	12/715,503	3/2/2010	8,491,491	7/23/2013
10	Data Sciences International, Inc	Cardiac Rhythm Management Device	US	13/087,997	4/15/2011	8,321,036	11/27/2012

11	Data Sciences International, Inc	Pressure Sensing Lead Systems For Implantable Stimulators	US	12/165,557	6/30/2008	7,945,324	5/17/2011
12	Data Sciences International, Inc	Physiologic Signal Processing To Determine A Cardiac Condition	US	12/323,828	11/26/2008	8,086,304	12/27/2011
13	Data Sciences International, Inc	Pressure Transmission Catheter With Sheath	US	11/479,932	6/30/2006	7,464,602	12/16/2008
14	Data Sciences International, Inc	High Stability Fast Start Up Oscillator For Implants	US	11/409,224	4/20/2006	7,489,209	2/10/2009
15	Data Sciences International, Inc	Implantable Housing	US	29/258,087	4/14/2006	D572,364	7/1/2008
16	Data Sciences International, Inc	Reference Sensor Correction For Implantable Sensors	US	10/984,111	11/8/2004	7,413,547	8/19/2008
17	Data Sciences International, Inc	Wireless Communication With Implantable Medical Device	US	10/688,253	10/16/2003	7,280,872	10/9/2007
18	Data Sciences International, Inc	Devices And Methods For Detecting And Treating Inadequate Tissue Perfusion	US	11/485,747	7/12/2006	7,967,758	6/28/2011
19	Data Sciences International, Inc	Devices And Methods For Detecting And Treating Inadequate Tissue Perfusion	US	10/797,584	3/9/2004	7,097,618	8/29/2006
20	Data Sciences International, Inc	Barriers And Methods For Pressure Measurement Catheters	US	10/272,489	10/15/2002	7,344,505	3/18/2008
21	Data Sciences International, Inc	Vascular Access Port With Physiological Sensor	US	10/246,348	9/17/2002	7,070,591	7/4/2006

22	Data Sciences International, Inc.	Vascular Access Port With Needle Detector	US	11/190,789	7/26/2005	7,347,843	3/25/2008
23	Data Sciences International, Inc.	Assessing Noise On A Communication Channel	US	12/198,681	8/26/2008	8,996,124	3/31/2015
24	Data Sciences International, Inc.	Frame Length Modulation And Pulse Position Modulation System	US	11/193,818	7/28/2005	7,418,297	8/26/2008
25	Data Sciences International, Inc.	Frame Length Modulation And Pulse Position Modulation For Telemetry Of Analog And Digital Data	US	09/968,644	10/1/2001	6,947,795	9/20/2005
26	Data Sciences International, Inc.	Adjustable Flow Probe	US	09/735,378	12/12/2000	6,709,430	3/23/2004
27	Data Sciences International, Inc.	Multiplexed Phase Detector	US	09/479,268	1/6/2000	6,435,037	08/20/2002
28	Data Sciences International, Inc.	Catheter With Physiological Sensor	US	09/825,130	4/3/2001	6,659,959	12/9/2003
29	Data Sciences International, Inc.	Catheter With Physiological Sensor	US	09/264,147	3/5/1999	6,296,615	10/2/2001
30	Triangle Biosystems, Inc.	Headstage	US	12/033,220	2/19/2008	7,639,983	12/29/2009

31	Triangle Biosystems, Inc.	Wireless Neural Data Acquisition System	US	10/971,915	10/23/2004	7,346,312	3/18/2008
32	Biochrom LTD	Sample Head For Spectrophotometer	US	29/483,490	2/28/2014	D729,662	5/19/2015
33	Biochrom LTD	Spectrophotometer	US	29/483,485	2/28/2014	D729,661	5/19/2015
34	Biochrom LTD	Spectrophotometer	US	29/483,483	2/28/2014	D729,660	5/19/2015
35	Biochrom Limited	Analytical Apparatus	US	12/304,225	6/30/2009	8,208,145	6/26/2012

36	Biochrom LTD	Cuvette	US	29/436,034	10/31/2012	D698,036	1/21/2014
37	Warner Instruments, Inc	Apparatus For Effecting Transfer Of Fluid From Any One Of A Plurality Of Fluid Sources To A Single Fluid Outlet	US	09/339,509	6/24/1999	6,119,726	9/19/2000
38	Harvard Bioscience Inc. [Merger documents evidencing transfer from Harvard Apparatus Inc. to Harvard Bioscience Inc. have been filed 01-30-2018]	Staining, De-Staining And Quantification Of Proteins By Coomassie-Blue And Related Dyes	US	08/903,456	7/28/1997	5,922,186	7/13/1999
39	Harvard Bioscience Inc. [Merger documents evidencing transfer from Harvard Apparatus Inc. to Harvard Bioscience Inc. have been filed 01-30-2018]	Multi-Well Equilibrium Dialysis System	US	09/586,985	6/5/2000	6,458,275	10/1/2002

40	Harvard Bioscience Inc. [Merger documents evidencing transfer from Harvard Apparatus Inc. to Harvard Bioscience Inc. have been filed 01-30-2018]	Micro-Volume Spin Columns For Sample Preparation	US	08/908,931	8/8/1997	6,103,195	8/15/2000
41	Harvard Bioscience Inc. [Merger documents evidencing transfer from Harvard Apparatus Inc. to Harvard Bioscience Inc. have been filed 01-30-2018]	Microdialysis/Microelectrodialysis System	US	08/225,667	4/11/1994	5,733,442	3/31/1998
42	Harvard Bioscience Inc. [Merger documents evidencing transfer from Harvard Apparatus Inc. to Harvard Bioscience Inc. have been filed 01-30-2018]	Low Fluid Level Warning Device	US	08/201,793	2/25/1994	5,625,344	4/29/1997




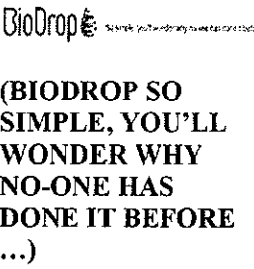
43	Harvard Bioscience Inc. [Merger documents evidencing transfer from Harvard Apparatus Inc. to Bioscience Inc. have been filed 01-30-2018]	Hydrophobic Particle-Coated Aqueous Droplet Reaction Chamber	US	09/360,581	7/26/1999	6,114,153	9/5/2000
44	Harvard Bioscience Inc. [Merger documents evidencing transfer from Harvard Apparatus Inc. to Bioscience Inc. have been filed 01-30-2018]	Droplet Chemical Reaction Chamber	US	08/499,667	7/7/1995	5,773,238	6/30/1998
45	Harvard Bioscience, Inc.	Apparatus And Method For Drying A Solid Or Liquid Sample	US	12/038,405	2/27/2008	8,061,056	11/22/2011
46	Harvard Bioscience, Inc.	Centrifugal Fraction Collection System And Method	US	11/901,817	9/19/2017	7,909,993	3/22/2011
47	Hoefler, Inc.	Vertical Gel Sandwich For Use In Electrophoresis And Method Therefor	US	06/581,695	2/21/1984	4,560,459	12/24/1985

**SCHEDULE V**  
**TRADEMARKS**

See attached summary of trademarks.

## USA TRADEMARKS



**BIOCHROM LTD. aka BIOCHROM LIMITED, a United Kingdom entity**

MARK	SERIAL NO.	REG. NO	APPLICATION OR REGISTRATION DATE
<b>SIMPLINANO</b>	86111923	4761064	REGISTRATION DATE: 06/23/2015
<b>BioDrop</b> 	85751209	4461000	REGISTRATION DATE: 01/07/2014
 (BIODROP SO SIMPLE, YOU'LL WONDER WHY NO-ONE HAS DONE IT BEFORE ...)	85751217	4461001	REGISTRATION DATE: 01/07/2014
<b>BIOCHROM</b>	79053995	3712169	REGISTRATION DATE: 11/17/2009
<b>MULTIREAD</b>	79049534	3602685	REGISTRATION DATE: 04/07/2009
<b>NANOVUE</b>	77337692	3570673	REGISTRATION DATE: 02/03/2009
<b>GENEQUANT</b>	79041744	3454092	REGISTRATION DATE: 06/24/2008

**COULBOURN INSTRUMENTS, LLC, a Delaware, United States entity**

MARK	SERIAL NO.	REG. NO	APP. OR REG. DATE
COULBOURN	78338777	3048658	REGISTRATION DATE 01/24/2006
GRAPHIC STATE	75597123	2547737	REGISTRATION DATE 03/12/2002
<b>Tru Scan</b>	75397978	2273647	REGISTRATION DATE 08/31/1999
	78338921	2970145	REGISTRATION DATE 07/19/2005
	78338997	2925160	REGISTRATION DATE 02/08/2005

**HARVARD BIOSCIENCE, INC., a Delaware, United States entity**

MARK	SERIAL NO.	REG. NO	APP. OR REG. DATE
QUIKPREP (standard character mark)	87624762		APPLICATION DATE 09/27/2017
	86193738	4765382	REGISTRATION DATE 06/30/2015
	86193741	4851881	REGISTRATION DATE 11/10/2015


<b>CENTRIFAN</b>	85658942	4398632	REGISTRATION DATE 09/10/2013
<b>LEGATO</b>	85145688	4159849	REGISTRATION DATE: 06/19/2012
<b>ADAGIO</b>	85448228	4157593	REGISTRATION DATE: 06/12/2012
<b>PHD ULTRA</b>	85145669	4058629	REGISTRATION DATE: 11/22/2011
<b>BTXPRESS</b>	77825004	3901596	REGISTRATION DATE 01/04/2011
<b>BIOCHROM</b>	75833717	2433199	REGISTRATION DATE 03/06/2001
<b>ENHANCER</b>	75582363	2313868	REGISTRATION DATE 02/01/2000
<b>GENETRODES</b>	75578621	2493062	REGISTRATION DATE 09/25/2001
<b>BTX</b>	75304701	2223723	REGISTRATION DATE 02/16/1999
<b>STRONGHOLD</b>	73781378	1574413	REGISTRATION DATE 01/02/1990
<b>CPK</b>	72247205	0826093	REGISTRATION DATE 03/21/1967

**HOEFER, INC., a Delaware, United States entity**

<b>MARK</b>	<b>SERIAL NO.</b>	<b>REG. NO</b>	<b>APPLICATION OR REGISTRATION DATE</b>
<b>RUBY</b>	76052755	2663974	REGISTRATION DATE 12/17/2002

<b>HOEFER</b>	74353610	1946172	REGISTRATION DATE 01/09/1996
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**TRIANGLE BIOSYSTEMS, INC.**  
**DBA TRIANGLE BIOSYSTEMS INTERNATIONAL, a Delaware, United States entity**

<b>MARK</b>	<b>SERIAL NO.</b>	<b>REG. NO</b>	<b>APPLICATION OR REGISTRATION DATE</b>
<b>STIMWARE</b>	86079282	4533206	05/20/2014
	86333816	4695392	03/03/2015

## Data Sciences International, Inc. Trademark Portfolio Report Sorted by Mark


File Number Class/Description	Owner	Trademark	Jurisdiction Status	Application No. Filing Date	Registration No. Registration Date
T244148.CN.01	Buxco Electronics, Inc.	ASPIRE RESEARCH SYSTEMS	China Registered	4395416 Dec 3, 2004	4395416 Dec 7, 2007
009: Laboratory equipment; systems for use in animal research studies; components for use in animal research studies. To Be Abandoned					
T244146.CN.01	Buxco Electronics, Inc.	BUXCO	China Registered	4395419 Dec 3, 2004	4395419 Aug 14, 2007
009: Laboratory equipment; systems for use in animal research studies; components for use in animal research studies. software for use in animal research studies.					
T244192.EM.01	Data Sciences International, Inc.	BUXCO	European Union Registered	004893103 Feb 10, 2006	004893103 Mar 5, 2007
009: Laboratory equipment, namely, electronic animal respiratory systems and components for pulmonary, cardiovascular and edema research studies; computer software for pulmonary, cardiovascular and edema analysis for use in animal research studies.					
T244199.US.01	Data Sciences International, Inc.	BUXCO	United States of America Registered	76/591,914 May 12, 2004	2947567 May 10, 2005
009: Laboratory equipment, namely, electronic animal respiratory systems and components for pulmonary, cardiovascular and edema analysis for use in small animal research studies; computer software for pulmonary, cardiovascular and edema analysis for use in small animal research studies.					
T244147.CN.01	Buxco Electronics, Inc.	BUXCO RESEARCH SYSTEMS	China Registered To Be Abandoned	4395418 Dec 3, 2004	4395418 Aug 14, 2007
009: Laboratory equipment; systems for use in animal research studies; components for use in animal research studies. software for use in animal research studies.					
T018658.US.01	Data Sciences International, Inc.	DATA SCIENCES	United States of America Registered Supplemental	73/590,450 Mar 28, 1986	1490684 May 31, 1988
009: Telemetry transmitters and receivers for monitoring animals and electrodes for use with telemetry transmitters.					
T018656.US.01	Data Sciences International, Inc.	DATA SCIENCES INTERNATIONAL	United States of America Registered	74/635,715 Feb 17, 1995	1983696 Jul 2, 1996
009: Telemetry transmitters, receivers and electrodes; computer hardware and computer operating programs for use in acquisition and analysis of physiological data; electrical circuits, computer hardware and computer software for conversion of telemetered physiological data to analog signal format; electrical circuits and connectors for interfacing telemetry devices, laboratory equipment and computer hardware and software; prerecorded video tapes featuring instruction of telemetry.					
010: Catheters for all types of medical applications: cannulae.					
016: Printed instructional manuals in the fields of surgery and telemetry.					
T018660.US.01	Data Sciences International, Inc.	DATAQUEST	United States of America Registered	75/195,070 Nov 8, 1996	2112255 Nov 11, 1997
009: Computer software and computerized analyzers for collection and processing of physiological data collected from animals; and instructional/user manuals sold therewith as a unit.					

## Data Sciences International, Inc. Trademark Portfolio Report Sorted by Mark

File Number Class/Description	Owner	Trademark	Jurisdiction Status	Application No. Filing Date	Registration No. Registration Date
T069967.AU.01	Data Sciences International, Inc.	DSI DATA SCIENCES INTERNATIONAL	Australia Registered	1159076 Jan 31, 2007	1159076 Sep 3, 2007
<p>009: Monitors, transmitters, receivers and relay stations for sensing, collecting, transmitting, and analyzing physiological data, and instructional/user manuals sold therewith as a unit; apparatus for the acquisition, recording, storage and display of data, and instructional/user manuals sold therewith as a unit; computer hardware and software for use in the acquisition and analysis of physiological data; computer hardware and computer software for conversion of physiological data from wired or wireless systems to analog signal and digital formats; computer software for use in animal research studies; computer software and computerized analyzers for collection and processing of physiological data collected from animals; transmitters and receivers for animal telemetry; electrical circuits and connectors for interfacing sensors and telemetry devices; computer programs for acquisition, analysis and processing of physiological data in the fields of medical care for humans and animals and for clinical diagnosis and research purposes; laboratory equipment for the clinical care of animals; electronic animal confinement system; electronic animal identification apparatus; medical imaging apparatus for animals in a research laboratory environment; prerecorded video tapes, CDs, and DVDs featuring instruction on and information about physiological data and telemetry.</p>					
T069968.CA.01	Data Sciences International, Inc.	DSI DATA SCIENCES INTERNATIONAL	Canada Registered	1,349,552 May 30, 2007	771430 Jul 7, 2010
<p>N/A: Monitors, transmitters, receivers and relay stations for sensing, collecting, transmitting, and analyzing physiological data, and instructional/user manuals sold therewith as a unit; computer hardware and software for use in the acquisition and analysis of physiological data; computer hardware and computer software for conversion of physiological data from wired or wireless systems to analog signal and digital formats; computer software and computerized analyzers for collection and processing of physiological data collected from animals; transmitters and receivers for animal telemetry; electrical circuits and connectors for interfacing sensors and telemetry devices; computer programs for acquisition, analysis and processing of physiological data in the fields of medical care for humans and animals and for clinical diagnosis and research purposes; medical imaging apparatus for animals in a research laboratory environment; prerecorded video tapes, CDs, and DVDs featuring instruction on and information about physiological data and telemetry.</p>					
T069971.CN.01	Data Sciences International, Inc.	DSI DATA SCIENCES INTERNATIONAL	China Registered	5931718 Mar 6, 2007	5931718 Feb 28, 2011
<p>009: Monitoring apparatus, electric; transmitters of electronic signals; data processing apparatus; readers (data processing equipment); central processing units (processors); relays, electric; computer software (recorded); computer hardware; prerecorded CDs; prerecorded DVDs; audio and video receivers; sensors; remote control apparatus; electro-dynamic apparatus for the remote control of signals.</p>					
T069972.EM.01	Data Sciences International, Inc.	DSI DATA SCIENCES INTERNATIONAL	European Union Registered	005956883 May 31, 2007	005956883 May 5, 2008
<p>009: Monitors, transmitters, receivers and relay stations for sensing, collecting, transmitting, and analyzing physiological data; apparatus for the acquisition, recording, storage and display of data; computer hardware and software for use in the acquisition and analysis of physiological data; computer hardware and computer software for conversion of physiological data from wired or wireless systems to analogue signals and digital formats; computer software for use in animal research studies; computer software and computerized analyzers for collection and processing of physiological data collected from animals; transmitters and receivers for animal telemetry; electrical circuits and connectors for interfacing sensors and telemetry devices; computer programs for acquisition, analysis and processing of physiological data in the fields of medical care for humans and animals; computer programs for acquisition, analysis and processing of physiological data for clinical diagnosis and research purposes; laboratory equipment for the clinical care of animals; electronic animal confinement apparatus; equipment and systems; electronic animal identification apparatus; medical imaging apparatus for animals in a research laboratory environment; audio, video and data recordings, and prerecorded video tapes, CDs, and DVDs, all featuring instruction on and information about physiological data and telemetry; parts and fittings for all the aforesaid goods.</p>					
<p>010: Surgical, medical, dental and veterinary apparatus and instruments; artificial limbs, eyes and teeth; orthopaedic articles; sutures and suture materials; electronic medical devices; implantable physiologic monitors, transmitters, transponders and relay stations, all for measuring and transmitting information to aid in medical diagnosis; parts and fittings for all the aforesaid goods.</p>					
<p>016: Printed matter in the fields of medicine, surgery, data processing and data telemetry; instructional and user manuals for electrical and electronic apparatus and instruments and for surgical, medical, dental and veterinary apparatus and instruments.</p>					



# Data Sciences International, Inc. Trademark Portfolio Report Sorted by Mark

File Number Class/Description	Owner	Trademark	Jurisdiction Status	Application No. Filing Date	Registration No. Registration Date
T069969.IN.01	Data Sciences International, Inc.	DSI DATA SCIENCES INTERNATIONAL	India Pending	1527381 Feb 1, 2007	
<p>009: Monitors, transmitters, receivers and relay stations for sensing, collecting, transmitting, and analyzing physiological data, and instructional/user manuals sold therewith as a unit; apparatus for the acquisition, recording, storage and display of data, and instructional/user manuals sold therewith as a unit; computer hardware and software for use in the acquisition and analysis of physiological data; computer hardware and computer software for conversion of physiological data from wired or wireless systems to analog signal and digital formats; computer software for use in animal research studies; computer software and computerized analyzers for collection and processing of physiological data collected from animals; transmitters and receivers for animal telemetry; electrical circuits and connectors for interfacing sensors and telemetry devices; computer programs for acquisition, analysis and processing of physiological data in the fields of medical care for humans and animals and for clinical diagnosis and research purposes; laboratory equipment for the clinical care of animals; electronic animal confinement system; electronic animal identification apparatus; medical imaging apparatus for animals in a research laboratory environment; prerecorded video tapes, CDs, and DVDs featuring instruction on and information about physiological data and telemetry.</p>					
T018657.US.01	Data Sciences International, Inc.	DSI DATA SCIENCES INTERNATIONAL & Design	United States of America Registered	74/635,725 Feb 17, 1995	1983698 Jul 2, 1996
 <p>009: Telemetry transmitters, receivers and electrodes; computer hardware and computer operating programs for use in acquisition and analysis of physiological data; electrical circuits, computer hardware and computer software for conversion of telemetered physiological data to analog signal format; electrical circuits and connectors for interfacing telemetry devices, laboratory equipment and computer hardware and software; prerecorded video tapes featuring instruction on telemetry.</p> <p>010: Catheters for all types of medical applications; cannulae.</p> <p>016: Printed instructional manuals in the fields of surgery and telemetry.</p>					
T244200.US.01	Data Sciences International, Inc.	HALCYON	United States of America Registered	78/880,376 May 10, 2006	3455600 Jun 24, 2008
010: Plethysmographs, namely, instruments for the measurement of respiratory patterns of laboratory test subjects in a research environment.					
T069347.US.01	Data Sciences International, Inc.	JET	United States of America Registered	77/033,914 Nov 1, 2006	3450109 Jun 17, 2008
009: Transmitters, receivers and electronic relay stations for collecting, transmitting, and analyzing physiological data collected from animals, and instructional/user manuals sold therewith as a unit.					
T070578.US.01	Data Sciences International, Inc.	NEUROSCORE	United States of America Registered	77/155,536 Apr 12, 2007	3463543 Jul 8, 2008
009: Computer software for collecting, analyzing, storing, and displaying physiological data, and instructional/user manuals sold therewith.					
T018654.US.01	Data Sciences International, Inc.	PHYSIOTEL	United States of America Registered	73/590,452 Mar 28, 1986	1411178 Sep 30, 1986
009: Transmitters and receivers for animal telemetry.					

## Data Sciences International, Inc. Trademark Portfolio Report Sorted by Mark

File Number Class/Description	Owner	Trademark	Jurisdiction Status	Application No. Filing Date	Registration No. Registration Date
T018655.US.01	Data Sciences International, Inc.	PHYSIOTEL	United States of America Registered	74/648,456 Mar 13, 1995	1954917 Feb 6, 1996

010: Veterinary implants, namely transmitters and receivers for animal telemetry.

T067816.EM.01	Data Sciences International, Inc.	PONEMAH	European Union Registered	005956818 May 31, 2007	005956818 May 5, 2008
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009: Monitors, transmitters, receivers and relay stations for sensing, collecting, transmitting, and analyzing physiological data; apparatus for the acquisition, recording, storage and display of data; computer hardware and software for use in the acquisition and analysis of physiological data; computer hardware and computer software for conversion of physiological data from wired or wireless systems to analogue signals and digital formats; computer software for use in animal research studies; computer software and computerized analyzers for collection and processing of physiological data collected from animals; transmitters and receivers for animal telemetry; electrical circuits and connectors for interfacing sensors and telemetry devices; computer programs for acquisition, analysis and processing of physiological data in the fields of medical care for humans and animals; computer programs for acquisition, analysis and processing of physiological data for clinical diagnosis and research purposes; laboratory equipment for the clinical care of animals; electronic animal confinement apparatus, equipment and systems; electronic animal identification apparatus; medical imaging apparatus for animals in a research laboratory environment; audio, video and data recordings, and prerecorded video tapes, CDs, and DVDs, all featuring instruction on and information about physiological data and telemetry; parts and fittings for all the aforesaid goods.

010: Surgical, medical, dental and veterinary apparatus and instruments; artificial limbs, eyes and teeth; orthopaedic articles; sutures and suture materials; electronic medical devices; implantable physiologic monitors; transmitters, transponders, and relay stations, all for measuring and transmitting information to aid in medical diagnosis; parts and fittings for all the aforesaid goods.

016: Printed matter in the fields of medicine, surgery, data processing and data telemetry; instructional and user manuals for electrical and electronic apparatus and instruments and for surgical, medical, dental and veterinary apparatus and instruments.

Trade Names:

Harvard Apparatus, Inc.  
F11310 Securities Corp.\*\*  
HACQ, Inc.  
Hoefer, Inc.  
Amika  
Warner Instruments, Inc.  
Warner Instruments LLC (successor to Warner Instruments, Inc.)  
Harvard Apparatus FSC, Inc.\*\*  
Harvard Apparatus Limited  
Harvard Apparatus S.A.R.L.  
Ealing Scientific Limited (d/b/a Harvard Apparatus Canada)  
Hugo Sachs Elektronik GmbH  
Hugo Sachs Elektronik Harvard Apparatus GmbH  
Biochrom Limited  
Biochrom US  
Scie-Plas Ltd.  
Asys Hitech GmbH  
Walden Precision Apparatus Ltd.  
Union Biometrica, Inc. Now FKA UBI, Inc.  
Union Biometrica NV\*\*  
Maia Scientific\*\*  
Union Biometrica Europe\*\*  
Union Biometrica GmbH\*\*  
Genomic Solutions Inc. - now FKA GSI US, Inc.  
Cartesian Technologies, Inc.  
Cartesian Technologies Europe Limited\*\*  
Genomic Solutions Limited - now FKA GSI UK LTD.\*\*  
Genomic Solutions Canada, Inc.  
Genomic Solutions Acquisitions Ltd. - now FKA GSAL LTD.\*\*  
BTX  
GeneMachines  
Bio Robotics\*\*  
KD Scientific  
Panlab, S.L.  
CAC Investment Holding LLC changed to Coulbourn Instruments LLC  
Newco 3349 Sweden AB changed to CMA Microdialysis AB  
AHN Biotechnologie GmbH\*\*  
Biodrop  
Nanovue  
Simplinano  
Data Sciences International

\*\* - dissolved

**SCHEDULE VI**  
**LOCATIONS OF GRANTORS**

<u>Company</u>	<u>Chief Executive Office</u>	<u>Chief Place of Business</u>	<u>Books and Records</u>	<u>Inventory, Equipment, Etc.</u>
Harvard Bioscience, Inc.	84 October Hill Road, Holliston, MA 01746	84 October Hill Road, Holliston, MA 01746	Same	N/A
Hoefer, Inc.	84 October Hill Road, Holliston, MA 01746	84 October Hill Road, Holliston, MA 01746	Same	760 National Court, Richmond, CA 94804
Biochrom US, Inc.	84 October Hill Road, Holliston, MA 01746	84 October Hill Road, Holliston, MA 01746	Same	Same
Warner Instruments LLC	84 October Hill Road, Holliston, MA 01746	84 October Hill Road, Holliston, MA 01746	Same, and 1125 Dixwell Ave., Hamden, CT 06514	1125 Dixwell Ave., Hamden, CT 06514
Denville Scientific, Inc.	84 October Hill Road, Holliston, MA 01746	84 October Hill Road, Holliston, MA 01746	Same, and 6431-H Reames Road, Charlotte, NC 28216	6431-H Reames Road, Charlotte, NC 28216
Coulbourn Instruments, LLC	84 October Hill Road, Holliston, MA 01746	84 October Hill Road, Holliston, MA 01746	Same	Same
Triangle Biosystems, Inc.	2224 Page Road, Suite 108, Durham, NC 27703	84 October Hill Road, Holliston, MA 01746	Same	Same
Data Sciences International, Inc.	119 14 <sup>th</sup> Street NW, Suite 100, St. Paul, MN 55112	84 October Hill Road, Holliston, MA 01746	Same	Same

Plymouth Sub, Inc.	84 October Hill Road, Holliston, MA 01746	84 October Hill Road, Holliston, MA 01746	Same	Same
Ealing Scientific Limited  La Compagnie Scientifique Ealing Limitée	6010 Vanden Abeelee Saint-Laurent Quebec H4S 1R9, Canada	6010 Vanden Abeelee Saint-Laurent Quebec H4S 1R9, Canada	Same	Same
Biochrom Limited	East Wing Building 1020 Cambourne Business Park Cambourne, Cambridgeshire CB236DN	East Wing Building 1020 Cambourne Business Park Cambourne, Cambridgeshire CB236DN	Hewitsons, Shakespeare House 42 Newmarket Road, Cambridge, Cambridgeshire, UK, CB5 8EP	Same
Data Sciences UK (MN) Limited	28 St. Thomas's Road, Chorley, PR7 1HX, United Kingdom	28 St. Thomas's Road, Chorley, PR7 1HX, United Kingdom	Same	Same

## **SCHEDULE VII**

### **DEPOSIT ACCOUNTS, SECURITIES ACCOUNTS AND COMMODITIES ACCOUNTS**

See attached.

Subsidiary	Bank Name	Bank Address	Subsidiary Name	Account Type	Account Number	Currency	Active/Inactive Status
Harvard Bioscience, Inc.	Brown Brothers	40 Water Street, Boston MA 02109	Harvard Apparatus, Inc.	Checking		USD	Active
	First National Bank of Newtown	40 South State Street Newtown, PA 18940	KD Scientific Inc.	Commercial		USD	Inactive
	Bank of America	300 Elliot Street Ashland MA 01721	Harvard Bioscience, Inc.	Checking		USD	Active
	Wachovia	Hamden Plaza Hamden CT 06514	Warner Instruments LLC	Checking		USD	Inactive
Biochrom US, Inc.	Bank of America	300 Elliot Street Ashland MA 01721	Biochrom US, Inc.	Checking		USD	Active
Hofer, Inc.	Bank of America	300 Elliot Street Ashland MA 01721	Hofer, Inc.	Checking		USD	Active
Biochrom	Barclays	PO Box 885, Monlock House, Vision Park, Histon, Cambridge, CB4 9DE	Biochrom Ltd	Current (Checking) (A)		GBP	Active
	Barclays	PO Box 885, Monlock House, Vision Park, Histon, Cambridge, CB4 9DE	Biochrom Ltd	Current (Checking)		USD	Active
	Barclays	PO Box 885, Monlock House, Vision Park, Histon, Cambridge, CB4 9DE	Biochrom Ltd	Current (Checking)		EURO	Active
Deville Scientific, Inc.	Bank of America	300 Elliot Street Ashland MA 01721	Deville Scientific, Inc.	Checking		USD	Active
Coulbourn Instruments LLC	Bank of America	300 Elliot Street Ashland MA 01721	Coulbourn Instruments LLC	Checking		USD	Active
Triangle Biosystems, Inc.	Bank of America	PO BOX 15284, Wilmington, DE 19850	Triangle Biosystems, Inc.	Checking		USD	Active
Data Sciences International, Inc.	Silicon Valley Bank		Data Sciences International, Inc.	Checking		USD	Active
	Silicon Valley Bank		Data Sciences International, Inc.	Flex Spending Account		USD	Active
	Silicon Valley Bank		Data Sciences International, Inc.	Cash Collateral		USD	Active
	Silicon Valley Bank		Data Sciences International, Inc.	Cash Sweep		USD	Active
Harvard Apparatus Canada	Bank of Montreal	274 Dorval Avenue, Dorval, QC H9S 3H3	Ealing Scientific Ltd - o/s Harvard Apparatus Canada	CAD Chequing Account		CAD	Active
	Bank of Montreal	274 Dorval Avenue, Dorval, QC H9S 3H3	Ealing Scientific Ltd - o/s Harvard Apparatus Canada	U.S. Chequing Account		US \$	Active
	Bank of Montreal	274 Dorval Avenue, Dorval, QC H9S 3H3	Ealing Scientific Ltd - o/s Harvard Apparatus Canada	Wires/ EFTs		US	Active
	Bank of Montreal	274 Dorval Avenue, Dorval, QC H9S 3H3	Ealing Scientific Ltd - o/s Harvard Apparatus Canada	Wires/ EFTs		CAD	Active
	Bank of Montreal	274 Dorval Avenue, Dorval, QC H9S 3H3	Ealing Scientific Ltd - o/s Harvard Apparatus Canada	CAD Payroll Account		CAD	Active

**SCHEDULE VIII**  
**UCC FINANCING STATEMENTS**

UCC Financing Statements have been filed in the jurisdictions below against the Grantors:

<b>Name of Grantor</b>	<b>Secretary of State</b>
Harvard Bioscience, Inc.	Delaware
Hoefer, Inc.	Delaware
Biochrom US, Inc.	Delaware
Warner Instruments LLC	Delaware
Denville Scientific, Inc.	Delaware
Coulbourn Instruments, LLC	Delaware
Triangle Biosystems, Inc.	Delaware
Data Sciences International, Inc.	Delaware
Ealing Scientific Limited (La Compagnie Scientifique Ealing Limitée)	District of Columbia
Biochrom Limited	District of Columbia
Data Sciences UK (MN) Limited	District of Columbia



**SCHEDULE IX**  
**COMMERCIAL TORT CLAIMS**

None.

**SCHEDULE X**  
**PLEDGED DEBT**

None.

**SCHEDULE XI**

**PLEDGED SHARES**

<b>Grantor</b>	<b>Pledged Issuer</b>	<b>Number of Shares</b>	<b>Percentage of Outstanding Shares</b>	<b>Class</b>	<b>Certificate Number</b>
Harvard Bioscience, Inc.	Warner Instruments LLC	100%	100%	Common	Not certificated
Harvard Bioscience, Inc.	FKAUBI, Inc.	1,000	100%	Common	R-1A
Harvard Bioscience, Inc.	FKA GSI US, Inc.	1,000	100%	Common	R-1A
Harvard Bioscience, Inc.	Hoefer, Inc.	1,000	100%	Common	R-1A
Harvard Bioscience, Inc.	Harvard Apparatus S.A.R.L.	1,006.85	65%	Common	*
Ealing Scientific Limited	Harvard Apparatus S.A.R.L.	0.65	65%	Common	*
Harvard Bioscience, Inc.	Ealing Scientific Limited	50,000	100%	Common	*
Harvard Bioscience, Inc.	Hugo Sachs Elektronik Harvard Apparatus GmbH	65%	65%	Common	N/A
Harvard Bioscience, Inc.	Biochrom Limited	100	100%	Common	*
Biochrom Limited	Walden Precision Apparatus Ltd.	12,499	100%	Common	*
Biochrom Limited	Scie-Plas Ltd.	1,000	100%	Common	*
Biochrom Limited	Asys Hitech GmbH	100%	100%	Common	*
Harvard Bioscience, Inc.	Denville Scientific, Inc.	100	100%	Common	R-1A

<b>Grantor</b>	<b>Pledged Issuer</b>	<b>Number of Shares</b>	<b>Percentage of Outstanding Shares</b>	<b>Class</b>	<b>Certificate Number</b>
Denville Scientific, Inc.	Coulbourn Instruments LLC	100%	100%	Common	Not certificated
Harvard Bioscience, Inc.	KD Scientific, Inc.	100	100%	Common	R-1A
Harvard Bioscience, Inc.	Panlab, S.L.	31,200	65%	Common	*
Harvard Bioscience, Inc.	Biochrom US, Inc.	200	100%	Common	R-1
Biochrom Limited	CMA Microdialysis AB	1,100	100%	Common	*
Biochrom Limited	BioDrop Ltd.	100	100%	Common	*
Ealing Scientific Limited	HEKA Electronics Incorporated	1,000	100%	Common	*
Biochrom Limited	Multi Channel Systems MCS GmbH	2	100%	Common	*
Harvard Bioscience, Inc.	Triangle Biosystems, Inc.	1,000	100%	Common	R-1
Harvard Bioscience, Inc.	Data Sciences International, Inc.	5,000	100%	Common	PRS 763
Data Sciences International, Inc.	Data Sciences GmbH	32,500	65%	Common	*
Data Sciences International, Inc.	Data Sciences EURL	520	65%	Common	*
Data Sciences International, Inc.	Data Sciences UK (MN) Limited	100	100%	Common	I
Data Sciences International, Inc.	DSI (Shanghai) Trading Co., Ltd.	65%	65%	Common	*
FKA GSI US, Inc.	Cartesian Technologies,	100	100%	Common	R-1A

Grantor	Pledged Issuer	Number of Shares	Percentage of Outstanding Shares	Class	Certificate Number
	Inc.				
FKA GSI US, Inc.	Genomic Solutions Canada, Inc.	2,100	100%	Common	R-1A
Biochrom Limited	AHN Acquisition GmbH	100%	100%	Common	*

## EXHIBIT A

### PLEDGE AMENDMENT

This Pledge Amendment, dated \_\_\_\_\_, \_\_\_, is delivered pursuant to Section 4 of the Pledge and Security Agreement referred to below. The undersigned hereby agrees that this Pledge Amendment may be attached to the Pledge and Security Agreement, dated January 31, 2018, as it may heretofore have been or hereafter may be amended, restated, amended and restated, supplemented, modified or otherwise changed from time to time (the "Security Agreement") and that the promissory notes or shares listed on this Pledge Amendment shall be hereby pledged and collaterally assigned to the Collateral Agent and become part of the Pledged Interests referred to in such Security Agreement and shall secure all of the Secured Obligations referred to in such Security Agreement.

<u>Pledged Debt</u>			
<u>Grantor</u>	<u>Name of Maker</u>	<u>Description</u>	<u>Principal Amount Outstanding as of</u>

<u>Pledged Shares</u>					
<u>Grantor</u>	<u>Name of Pledged Issuer</u>	<u>Number of Shares</u>	<u>Percentage of Outstanding Shares</u>	<u>Class</u>	<u>Certificate Number</u>

[GRANTOR]

By: \_\_\_\_\_

Name:

Title:

**CERBERUS BUSINESS FINANCE, LLC,**  
as the Collateral Agent

By: \_\_\_\_\_

Name:

Title:

EXHIBIT B

ASSIGNMENT FOR SECURITY - - [TRADEMARKS] [PATENTS] [COPYRIGHTS]

WHEREAS, \_\_\_\_\_ (the "Assignor") [has adopted, used and is using, and holds all right, title and interest in and to, the trademarks and service marks listed on the attached Schedule A, which trademarks and service marks are registered or applied for in the United States Patent and Trademark Office (the "Trademarks") [holds all right, title and interest in the letter patents, design patents and utility patents listed on the attached Schedule A, which patents are issued or applied for in the United States Patent and Trademark Office (the "Patents") [holds all right, title and interest in the copyrights listed on the attached Schedule A, which copyrights are registered or applied for in the United States Copyright Office (the "Copyrights")];

WHEREAS, the Assignor has entered into a Pledge and Security Agreement, dated January 31, 2018 (as amended, restated, supplemented, modified or otherwise changed from time to time, the "Security Agreement"), in favor of \_\_\_\_\_, as the [Collateral] Agent for itself and certain lenders (in such capacity, together with its successors and assigns, if any, the "Assignee"); and

WHEREAS, pursuant to the Security Agreement, the Assignor has assigned to the Assignee and granted to the Assignee for the benefit of the Secured Parties (as defined in the Security Agreement) a continuing security interest in all right, title and interest of the Assignor in, to and under the [Trademarks, together with, among other things, the good-will of the business symbolized by the Trademarks] [Patents] [Copyrights] and the applications and registrations thereof, and all proceeds thereof, including, without limitation, any and all causes of action which may exist by reason of infringement thereof and any and all damages arising from past, present and future violations thereof (the "Collateral"), to secure the payment, performance and observance of the Secured Obligations (as defined in the Security Agreement);

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Assignor does hereby pledge, convey, sell, assign, transfer and set over unto the Assignee and grants to the Assignee for the benefit of the Assignee and the Secured Parties a continuing security interest in the Collateral to secure the prompt payment, performance and observance of the Secured Obligations.

The Assignor does hereby further acknowledge and affirm that the rights and remedies of the Assignee with respect to the Collateral are more fully set forth in the Security Agreement, the terms and provisions of which are hereby incorporated herein by reference as if fully set forth herein.

IN WITNESS WHEREOF, the Assignor has caused this Assignment to be duly executed by its officer thereunto duly authorized as of \_\_\_\_\_, 20\_\_\_\_.

[GRANTOR]

By: \_\_\_\_\_  
Name:  
Title:

\_\_\_\_\_



SCHEDULE A TO ASSIGNMENT FOR SECURITY

[Trademarks and Trademark Applications]

[Patent and Patent Applications]

[Copyright and Copyright Applications]

Owned by \_\_\_\_\_

## EXHIBIT C

### FORM OF SECURITY AGREEMENT SUPPLEMENT

[Date of Security Agreement Supplement]

Cerberus Business Finance, LLC, as Collateral Agent  
875 Third Avenue  
New York, NY 10022

Ladies and Gentlemen:

Reference hereby is made to (i) the Financing Agreement, dated as of January 31, 2018 (as amended, restated, supplemented, modified or otherwise changed from time to time, including any replacement agreement therefor, being hereinafter referred to as the "Financing Agreement") by and among Harvard Bioscience, Inc., a Delaware corporation (the "Parent"), each subsidiary of the Parent listed as a "Borrower" on the signature pages thereto (together with the Parent and each other Person that executes a joinder agreement and becomes a "Borrower" thereunder, each a "Borrower" and collectively, the "Borrowers"), the Guarantors (as defined therein) from time to time party thereto, the lenders from time to time party thereto (each a "Lender" and collectively, the "Lenders"), Cerberus Business Finance, LLC, a Delaware limited liability company ("CBF"), as collateral agent for the Lenders (in such capacity, together with its successors and assigns in such capacity, the "Collateral Agent"), and CBF, as administrative agent for the Lenders (in such capacity, together with its successors and assigns in such capacity, the "Administrative Agent" and together with the Collateral Agent, each an "Agent" and collectively, the "Agents") and (ii) the Pledge and Security Agreement, dated as of January 31, 2018 (as amended, restated, supplemented, modified or otherwise changed from time to time, the "Security Agreement"), made by the Grantors from time to time party thereto in favor of the Collateral Agent. Capitalized terms defined in the Financing Agreement or the Security Agreement and not otherwise defined herein are used herein as defined in the Financing Agreement or the Security Agreement.

SECTION 1. Grant of Security. The undersigned hereby grants to the Collateral Agent, for the ratable benefit of each Secured Party, a security interest in, all of its right, title and interest in and to all of the Collateral (as defined in the Security Agreement) of the undersigned, whether now owned or hereafter acquired by the undersigned, wherever located and whether now or hereafter existing or arising, including, without limitation, the property and assets of the undersigned set forth on the attached supplemental schedules to the Schedules to the Security Agreement.

SECTION 2. Security for Obligations. The grant of a security interest in the Collateral by the undersigned under this Security Agreement Supplement and the Security Agreement secures the payment of all Secured Obligations of the undersigned now or hereafter existing under or in respect of the Loan Documents. Without limiting the generality of the foregoing, each of this Security Agreement Supplement and the Security Agreement secures the payment of all amounts that constitute part of the Secured Obligations and that would be owed

by the undersigned to the Collateral Agent or any Secured Party under the Loan Documents but for the fact that such Secured Obligations are unenforceable or not allowable due to the existence of a bankruptcy, reorganization or similar proceeding involving a Grantor.

SECTION 3. Supplements to Security Agreement Schedules. The undersigned has attached hereto supplemental Schedules I through XI to Schedules I through XI, respectively, to the Security Agreement, and the undersigned hereby certifies, as of the date first above written, that such supplemental Schedules have been prepared by the undersigned in substantially the form of the equivalent Schedules to the Security Agreement, and such supplemental Schedules include all of the information required to be scheduled to the Security Agreement and do not omit to state any information material thereto.

SECTION 4. Representations and Warranties. The undersigned hereby makes each representation and warranty set forth in Section 5 of the Security Agreement (as supplemented by the attached supplemental Schedules) to the same extent as each other Grantor.

SECTION 5. Obligations Under the Security Agreement. The undersigned hereby agrees, as of the date first above written, to be bound as a Grantor by all of the terms and provisions of the Security Agreement to the same extent as each of the other Grantors. The undersigned further agrees, as of the date first above written, that each reference in the Security Agreement to an "Additional Grantor" or a "Grantor" shall also mean and be a reference to the undersigned.

SECTION 6. Governing Law. This Security Agreement Supplement shall be governed by, and construed in accordance with, the laws of the State of New York.

SECTION 7. Loan Document. In addition to and without limitation of any of the foregoing, this Security Agreement Supplement shall be deemed to be a Loan Document and shall otherwise be subject to all of terms and conditions contained in Sections 12.10 and 12.11 of the Financing Agreement, *mutatis mutandi*.

Very truly yours,

[NAME OF ADDITIONAL GRANTOR]

By: \_\_\_\_\_  
Name:  
Title:

Acknowledged and Agreed:

**CERBERUS BUSINESS FINANCE, LLC,**  
as Collateral Agent

By: \_\_\_\_\_

Name:

Title: