

PATENT ASSIGNMENT

Electronic Version v1.1
 Stylesheet Version v1.1

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| SUBMISSION TYPE: | NEW ASSIGNMENT |
| NATURE OF CONVEYANCE: | MORTGAGE |
| CONVEYING PARTY DATA | |
| Name | Execution Date |
| MONOCHROMATIC X-RAY FILTER TECHNOLOGIES, INC. | 04/16/2009 |
| RECEIVING PARTY DATA | |
| Name: | MXF TECHNOLOGIES KOREA |
| Street Address: | 275-4 Yangjae-dong, Seocho-gu |
| Internal Address: | #1117 Twin Tower Building B. |
| City: | Seoul |
| State/Country: | REPUBLIC OF KOREA |
| PROPERTY NUMBERS Total: 3 | |
| Property Type | Number |
| Patent Number: | 7257197 |
| Patent Number: | 7321654 |
| Patent Number: | 7315611 |
| CORRESPONDENCE DATA | |
| Fax Number: | (703)518-5499 |
| <i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i> | |
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| Address Line 4: | Alexandria, VIRGINIA 22314 |
| ATTORNEY DOCKET NUMBER: | G110989-01 |
| NAME OF SUBMITTER: | Yoon S. Ham |
| Total Attachments: 24 | |

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LOAN AGREEMENT

THIS LOAN AGREEMENT (this "Agreement") is entered into as of April 16, 2009 by and between

(1) MXF Technologies Korea, a company incorporated and existing under the laws of the Republic of Korea ("Korea"), with its principal address at #1117 Twin Tower Building B, 275-4 Yangjae-dong, Seocho-gu, Seoul, Korea (the "Lender"); and

(2) Monochromatic X-Ray Filter Technologies, Inc., a company incorporated and existing under the laws of Maryland, U.S.A., with its principal address at 5000 College Ave., Suite 2200, College Park, Maryland, U.S.A. 20740-2814 (the "Borrower").

NOW THEREFORE, in consideration of the mutual covenants and agreements contained herein and other good and valuable consideration, the Lender and the Borrower agree as follows:

1. LOAN

1.1 Loan. Subject to and upon the terms and conditions herein set forth, the Lender shall lend to the Borrower, and the Borrower shall borrow from the Lender in the aggregate principal amount of Five Hundred Seventy-Six Thousand Dollars (USD 576,000) which shall be advanced in the following manner:

(a) Three Hundred Twenty Six Thousand Dollars (USD 326,000) within three (3) days after the date of this Agreement.

(b) Additional Two Hundred Fifty Thousand Dollars (USD 250,000) within seven (7) days after the date when the Borrower provides the Lender with the Security Documents (as defined below) which are duly filed, reported and perfected in accordance with the terms and conditions contained herein and to the satisfaction of the Lender, unless the Lender and the Borrower agree otherwise.

1.2 Purpose of Loan. The Borrower shall use the Loan for the operational purposes unless otherwise agreed by the Borrower and the Lender.

1.3 Repayment of Principal. The Borrower shall repay the principal amount of the Loan plus interest accrued thereon on [April 16, 2010] or such other date as the Lender and the Borrower may otherwise agree to a bank account designated by the Lender.

1.4 Banking Day. As used herein, the Banking Day shall mean a day on which banks are open for business in Seoul. Whenever any payment or calculation is to be made on a day which is not a Banking Day, such payment or calculation may be made on the immediately succeeding Banking Day unless, with respect to payments, as a result thereof, such payment would be made in the next calendar month, in which case payment shall be made on the immediately preceding Banking Day.

1.5 Interest. The Loan shall bear interest. The interest rate shall be nine percent (9%) per annum on the balance of the principal amount of loan, calculated on the basis of the actual days elapsed and a year of 360 days.

1.6 Delay Interest. Without prejudice to any other provision herein, if the Borrower fails to make payment of all or any portion of the principal amount of the Loan and the interest accrued thereon by the Repayment Date, the Borrower shall pay delay interest at the rate of twelve and five tenth percent (12.5%) per annum compounded annually on the principal amount of the Loan, from (and including) loan advance date to the date of actual payment in full of the principal and the interest.

2. SECURITY.

As security for full satisfaction of the payment obligations under this Agreement, the Borrower shall deliver to the Lender the following securities as soon as possible but no later than [2] days after the date of this Agreement:

(a) Mortgages officially and duly registered in the United States evidencing a first priority mortgage over the Equipment established by the Borrower in favor of the Lender or Lender's local designee in the United States in accordance with a certain mortgage agreement (the "Mortgage Agreement") to be entered into by and between the Borrower and the Lender in substantially the form attached hereto as Exhibit A; and

(b) Pledges officially and duly established in favor of the Lender on all of the intellectual property rights owned by the Borrower in accordance with a certain pledge agreement (the "Pledge Agreement") in substantially the form attached hereto as Exhibit B (together with the Mortgage Agreement, the "Security Documents").

3. CONVERSION INTO CAPITAL CONTRIBUTION

In the event the Borrower is successful in procuring a funding from investors in the aggregate amount of Dollars (USD 576,000) or more within four (4) months after the date of this Agreement, all or part of the Loan, as determined by the Lender, may be deemed to be an investment made by the Lender to the Borrower and therefore converted into shares of the Borrower. The Lender shall be entitled to subscribe shares of the Borrower at the subscription price per share which is fifty per cent. (50%) of the subscription price per share paid by such investor.

4. BORROWER'S REPRESENTATIONS AND WARRANTIES.

The Borrower represents and warrants to the Lender as follows:

4.1 Incorporation. The Borrower is a juridical person duly organized and validly existing under the laws of Maryland, U.S.A., has its registered head office at the address set forth above and has full legal right, power and authority to execute, deliver, and perform its obligations under this Agreement, and the Security Documents, to perform the terms and

conditions hereof and thereof, and to carry on business as it is presently being conducted.

4.2 Restrictions. There is no law, regulation, decree or similar authority and no provision of the Borrower's articles of incorporation and no provision of any existing contract, agreement or instrument binding on the Borrower which has been or would be contravened by the execution, delivery and performance of this Agreement, or the Security Documents or by the performance or observance by the Borrower of any of the terms hereof and thereof.

4.3 Authorizations. All authorizations, approvals, consents and licenses from all legislative bodies of government, ministries, agencies, exchange control authorities or other authorities required by the laws of Maryland, U.S.A., in order for the Borrower (i) to incur the obligations provided for in this Agreement and the Security Documents, (ii) to execute and deliver this Agreement and the Security Documents to be delivered by the Borrower hereunder and (iii) to perform and observe the terms and provisions hereof and thereof have been duly obtained and are in full force and effect. The person who executed this Agreement on behalf of the Borrower has full legal right, power and authority to execute and deliver this Agreement on behalf of the Borrower.

4.3 Agreement Binding. This Agreement and the Security Documents to be executed and delivered pursuant to the terms of this Agreement (or will, when executed and delivered, constitute) constitute the legal, valid and binding obligations of the Borrower enforceable in accordance with their respective terms.

4.4 Other Obligations. The Borrower is not in default under any agreement to which it is a party or by which it may be bound, a default in respect of which might have a material adverse effect on the Borrower or its operations, properties or financial condition.

4.5 Litigation. No litigation, administrative proceeding or arbitration is presently pending or, to the best knowledge of the Borrower, threatened against it or any of its properties, which might have a material adverse effect on the Borrower's operations, properties or financial condition.

5. EVENTS OF DEFAULT.

5.1 Each of the following events or occurrences shall constitute an Event of Default under this Agreement:

(a) The Borrower fails to pay any amount of principal, interest, or any other amount payable under this Agreement on the date when such amount is due, and such failure to pay shall continue for a period of fifteen (15) days.

(b) The Borrower fails to perform or observe any of the covenants or provisions set forth in this Agreement or Security Documents, exclusive of any events specified as Events of Default in this Section, and such failure remains unremedied for a period of fifteen (15) days after written notice thereof has been given to the Borrower by the Lender.

(c) Any representation or warranty made or deemed to be made by the Borrower in this Agreement proves to have been incorrect in any material respect and, if

capable of being cured, shall not have been corrected to the satisfaction of the Lender within fifteen (15) days after receipt by the Borrower of a written notice from the Lender requiring to cure such incorrectness.

(d) The Borrower becomes insolvent or commits or permits any act of bankruptcy, reorganization, liquidation or winding-up.

(e) A writ of attachment or execution or similar process is issued against a substantial part of the assets of the Borrower which remains undismissed, unbonded or undischarged for a period of fifteen (15) days.

(f) Any governmental authorization necessary for the performance of any obligations of the Borrower under this Agreement fails to become or remain valid and subsisting in full force and effect; or

(g) Any other event occurs or any other circumstance arises which, in the reasonable judgment of the Lender, is likely materially and adversely to affect the ability of the Borrower to perform all or any of their respective obligations under this Agreement.

5.2 If any Event of Default shall occur and be continuing, the Lender may, at its option, declare the Loan, together with all accrued interest and any other amounts payable under this Agreement, to be forthwith due and payable whereupon the same shall immediately become due and payable without further notice or formality.

6. NOTICES.

Any communication, demand or notice to be given hereunder shall be deemed to be duly given when delivered in writing or by mail or when sent by telex or facsimile as follows:

To the Borrower:

Attention: Monochromatic X-Ray Filter Technologies, Inc

Telephone: (301) 277-4801

Facsimile: (301) 277-4807

To the Lender:

Attention: MXF Technologies Korea

Telephone: (02) 6242-7369

Facsimile: (02) 6246-7369

7. INDEMNIFICATION.

The Borrower agrees to indemnify and hold harmless the Lender from and against any and all losses, claims, damages and liabilities caused by any breach or violation of the

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Borrower's representations and warranties, covenants and agreements, and any untrue or misleading statements made to the Lender or caused by any omission of a material fact necessary to make the statements so made not misleading.

8. GOVERNING LAW AND JURISDICTION

This Agreement shall be governed by and construed in accordance with the laws of Korea. All disputes arising out of or in connection with this Agreement shall be finally settled in Seoul in accordance with the Arbitration Rules of the Korean Commercial Arbitration Board. The award rendered by the arbitrator(s) shall be final and conclusive, and the parties agree to be bound by it. The arbitral award thereon may be entered and enforced in any court of competent jurisdiction. The foregoing provisions shall not limit the right of the Lender to bring any such action or proceeding in any other appropriate jurisdiction.

9. WAIVER OF IMMUNITY

The Borrower irrevocably waives, to the fullest extent permitted by applicable law, all immunity to which it or its property may be or become entitled, whether on the basis of sovereignty or otherwise, from jurisdiction, attachment or execution in any action or proceeding arising out of or relating to this Agreement.

10. ENTIRE AGREEMENT; AMENDMENT

This Agreement constitutes the entire obligation of the parties hereto and supersedes any prior expressions of intent or understandings with respect to this transaction. Any amendment of this Agreement shall be in writing and shall be signed by duly authorized representatives of both parties hereto.

11. WAIVER; CUMULATIVE RIGHTS

No failure or delay on the part of the Lender to exercise any right provided for in this Agreement shall constitute a waiver of such right or any obligation of the Borrower under this Agreement, nor shall any single or partial exercise of any such right preclude any further exercise thereof. No waiver by the Lender hereunder shall be effective unless it is in writing. The rights and remedies provided for in this Agreement are cumulative and not exclusive of any other rights or remedies which the Lender may otherwise have.

12. ASSIGNMENT

This Agreement shall be binding upon and inure to the benefit of each party hereto and its successors and assigns, provided that the Borrower may not assign or transfer any of its obligations under this Agreement without the prior written consent of the Lender. The Lender may assign or transfer, with prior notice to the Borrower, all or any portion of the Loan and its rights and benefits under this Agreement.

13. SEVERABILITY OF PROVISIONS.

If any one or more of the provisions of this Agreement or any document executed in connection herewith shall be invalid, illegal or unenforceable in any respect under any applicable law, the validity, legality and enforceability of the remaining provisions contained herein shall not in any way be affected or impaired thereby.

14. COUNTERPARTS.

This Agreement may be executed in any number of counterparts. Any single counterpart or a set of counterparts signed, in either case, by both parties hereto shall constitute a full and original agreement for all purposes.

15. EXECUTION.

This Agreement shall be signed by an authorized representative of each party, or a signature of each party or its representative shall be exchanged by fax. A signature of each party shall appear on a separate page at the end of this Agreement.

IN WITNESS WHEREOF, the Lender and the Borrower executed this Agreement as of the date first above written.

LENDER:

MXF TECHNOLOGIES KOREA

By: 

Name: Kew Chul Chee

Title: President

BORROWER

MONOCHROMATIC X-RAY FILTER TECHNOLOGIES, INC.

By: 

Name: Yong M Cho

Title: President, CEO & CTO

Exhibit A

MORTGAGE AGREEMENT

THIS MORTGAGE AGREEMENT (the "Agreement") is entered into as of April [16], 2009 by and between:

(1) Monochromatic X-Ray Filter Technologies, Inc., a company incorporated and existing under the laws of Maryland, U.S.A., with its principal address at 5000 College Ave., Suite 2200, College Park, U.S.A. 20740-2814 (the "Mortgagor"); and

(2) MXF Technologies Korea, a company incorporated and existing under the laws of the Republic of Korea ("Korea"), with its principal address at #1117 Twin Tower Building B, 275-4 Yangjae-dong, Seocho-gu, Seoul, Korea ("Mortgagee").

RECITALS

A. The Mortgagor and the Mortgagee entered into a certain loan agreement dated as of April [16], 2009 (the "Loan Agreement") by which the Mortgagee has agreed to extend a loan to the Mortgagor in the aggregate principal amount of Five Hundred Seventy Six Thousand Dollars (USD 576,000).

B. Pursuant to the Loan Agreement, the Mortgagor has agreed to provide to the Mortgagee, a first preferred mortgage on certain equipment of the Borrower for the purposes of securing the obligations of the Mortgagor including, but not limited to, due and punctual payment of all amounts payable under the Loan Agreement (the "Secured Obligations") in accordance with the terms and conditions contained herein.

C. For the purposes of securing the Secured Obligations of the Mortgagor from time to time owing to the Mortgagee under the Loan Agreement, the Mortgagor desires to grant a first preferred mortgage on the Equipment to the Mortgagee pursuant to the terms and conditions contained herein.

NOW THEREFORE, in consideration of the mutual covenants and agreements contained herein and other good and valuable consideration, the Mortgagor and the Mortgagee agree as follows:

I. INTERPRETATION

Words and expressions defined in the Loan Agreement shall, unless otherwise defined herein or the context otherwise requires, have the same meaning when used in this Agreement. References to any agreement or document shall be construed as references to such agreement or document as varied, amended, novated or supplemented from time to time. In addition thereto, as used in this Agreement:

1.1 "Assignee" shall have the meaning as ascribed in Section 6.

- 1.2 "Encumbrance" shall mean any lien, pledge, hypothecation, charge, mortgage, security interest, encumbrance, easement, license, assessment, attachment, seizure, claim or restriction of any nature.
- 1.3 "Event of Default" shall mean any Event of Default under the Loan Agreement, regardless of whether any such event shall be voluntary or involuntary, or be effected by operation of law or pursuant to any judgment or order of any court or any order, rule or regulation of any governmental or non-governmental body.
- 1.4 "Mortgage" shall have the meaning as ascribed in Section 2.
- 1.5 "Mortgagee" shall have the meaning as ascribed in the Preamble.
- 1.6 "Mortgagor" shall have the meaning as ascribed in the Preamble.
- 1.7 "Mortgaged Property" shall have the meaning as ascribed in Section 2.
- 1.8 "Secured Obligations" shall have the meaning as ascribed in the Recitals.

2. ESTABLISHMENT OF MORTGAGE

- 2.1 The Mortgagor does hereby grant to the Mortgagee a first preferred mortgage (the "Mortgage") on the equipment as described in Schedule 1 hereto (the "Mortgaged Property") which it owns to secure the Secured Obligations for the benefit of the Mortgagee.
- 2.2 The Mortgagor undertakes to execute such other instruments or notices as may be necessary in order to perfect and preserve the Mortgage granted over the Mortgaged Property hereby.
- 2.3 The Mortgagor undertakes not to attempt to assign, transfer, sell, further pledge or otherwise encumber the Mortgaged Property and shall not do any other act which may reduce the amounts thereof except as permitted under this Agreement.

3. REPRESENTATIONS AND WARRANTIES OF MORTGAGOR

The Mortgagor hereby represents, warrants and covenants to the Mortgagee that as of the date hereof:

- (a) The execution, delivery and performance of this Agreement have been duly authorized by the Mortgagor, and does not violate or contravene the applicable law or the articles of incorporation of the Mortgagor or any other indenture, agreement or undertaking by which the Mortgagor is bound;
- (b) This Agreement constitutes valid obligations of the Mortgagor, legally binding upon it and enforceable in accordance with its terms, subject, as to enforceability, to laws relating to bankruptcy, insolvency, liquidation, reorganization, court schemes, moratoria, administration and other laws generally affecting the rights of creditors. The person who executed this Agreement on behalf of the Mortgagor has full legal right, power and

authority to execute and deliver this Agreement on behalf of the Mortgagor;

- (c) It has titles to the Mortgaged Property (including, but not limited to, any and all movable property, fixtures, fittings, etc. affixed, attached or installed to or in the Mortgaged Property that are used in connection with ownership, maintenance and operation of the Mortgaged Property) free and clear of any Encumbrance; and
- (d) It has obtained all authorization, approvals and consents from all the governmental authority or any third parties in order to execute, deliver and perform this Agreement and there has been no default under the conditions of any of the same which would have a material adverse effect.

4. COVENANT OF MORTGAGOR

4.1 The Mortgagor shall make all registrations, filings and recordings, and take all other actions as are necessary or advisable to ensure the continued legality, validity, enforceability and admissibility in evidence of this Agreement.

4.2 The Mortgagor shall not transfer the Mortgaged Property or materially change the nature or condition of the Mortgaged Property (other than as a consequence of normal wear and tear), without the prior written consent of the Mortgagee, nor do any act (legal or otherwise) which may, in the reasonable opinion of the Mortgagee, cause damage or losses to the Mortgagee.

4.3 The Mortgagor shall give prompt notice to the Mortgagee in the event there is any material damage, destruction or expropriation, or there occurs any event that may cause material impairment in the value of the Mortgaged Property.

4.4 In the event any party (other than the Mortgagee) acquires any Encumbrance over the Mortgaged Property, the Mortgagor shall promptly notify the Mortgagee and take all necessary actions to dismiss, discharge and release such Encumbrance.

4.5 The Mortgagor shall maintain and operate the Mortgaged Property with such care as is required of a good manager.

5. ENFORCEMENT OF MORTGAGE

5.1 If an Event of Default has occurred, the Mortgagee shall become forthwith entitled, as and when they see fit, to put into force and to exercise all or any of the rights and powers possessed by it as the Mortgagee of the Mortgaged Property, including without limitation, the power to:

- (a) Exercise its rights to any of the Mortgaged Property, regardless of whether such Mortgaged Property is in its name, in the name of the Mortgagor or otherwise;
- (b) Assign, sell or otherwise dispose of the Mortgaged Property to such person, at a public or a private sale, and upon such terms as the Mortgagees may

reasonably determine (*provided* that any such disposition shall be in a commercially reasonable manner), and the Mortgagee or anyone else may be the purchaser, assignee or recipient of any or all of the Mortgaged Property and thereafter hold the same absolutely free from any claims or rights of the Mortgagor whatsoever;

- (c) Take over or instigate (by using the name of the Mortgagor, if necessary) all such proceedings in connection with the Mortgaged Property as the Mortgagee may in its sole discretion think fit (but shall be under no obligation to do so); and
- (d) Make any reasonable compromise or settlement deemed desirable with respect to any of the Mortgaged Property.

5.2 The Mortgagee shall incur no liability as a result of the sale of the Mortgaged Property or any part thereof, at any private sale pursuant to Section 5.1 conducted in a commercially reasonable manner. The Mortgagor hereby waives any claims against the Mortgagee arising by reason of the fact that the price at which the Mortgaged Property has been sold at such private sale may be less than the price at which it could have been sold if the Mortgagee had not accepted the first offer received or had offered the Mortgaged Property to more than one offeree.

5.3 The Mortgagor hereby irrevocably appoints Mortgagee as its attorney-in-fact, for and on behalf of the Mortgagor and in its name, to: (i) execute, seal and deliver to any purchaser of the Mortgaged Property from the Mortgagee in the exercise of the Mortgagee's power under this Section 5, a bill of sale or other assurance of title; and (ii) execute all such documents as the Mortgagor could execute in respect of the Mortgage, registration or deregistration of the Mortgaged Property or Mortgage with the relevant registry office in connection with the exercise of the Mortgagee's powers under this Section 5.

6. ASSIGNMENT

6.1 This Agreement and the Mortgage created hereunder shall be binding upon and inure to the benefit of the Mortgagor and the Mortgagee and their respective heirs, successors and assigns.

6.2 The Mortgagee may, in the ordinary course of business in accordance with the applicable law, and subject to the Loan Agreement, assign all or any part of its rights or obligations hereunder to a third party (each an "Assignee").

6.3 The parties hereto agree that to the extent of any assignment, the Assignee shall be deemed to have the same rights and benefits under this Agreement as it would have had if it were a signatory Mortgagee hereunder.

6.4 The Mortgagor may not assign any of its rights or obligations hereunder without the prior written consent of the Mortgagee.

7. FURTHER ASSURANCE

7.1 The Mortgagor covenants that it will promptly from time to time at the reasonable request of the Mortgagee do all such things and execute all such documents as the Mortgagee may reasonably consider necessary or desirable for giving full effect to this Agreement or for securing the rights of the Mortgagee hereunder.

7.2 Upon the reasonable request of the Mortgagee at the Mortgagor's expense, the Mortgagor hereby agree to take any and all necessary actions for the registration, recordation or any other procedures that may be required for the creation, amendment, refiling or deregistration of the Mortgage.

8. TERM, TERMINATION AND DISCHARGE

The term of this Agreement shall commence on the date of this Agreement and end on the date on which all Secured Obligations shall have been unconditionally and irrevocably paid and discharged in full; provided, however, that this Agreement shall continue to be effective or be reinstated, as the case may be, if at any time any amount received by the Mortgagee in respect of the Secured Obligations is rescinded or must otherwise be restored or returned by the Mortgagee upon the insolvency, bankruptcy, dissolution, liquidation or reorganization of the Mortgagor or upon the appointment of an intervenor, administrator or conservator of, or agent or similar official for, the Mortgagor or any part of its assets, or otherwise, all as though such payment had not been made. Promptly after the termination of this Agreement, the Mortgagee shall cooperate with the Mortgagor, at the request and the cost of the Mortgagor, in order for the Mortgagor to de-register the Mortgage from the relevant registry office.

9. GOVERNING LAW AND JURISDICTION

9.1 This Agreement and the Mortgage created pursuant hereto shall be governed by and construed in accordance with the laws of Maryland, U.S.A. or other jurisdictions where the Mortgaged Property is located in all respects, including matters of construction, validity and performance.

9.2 All disputes arising out of or in connection with this Mortgage shall be finally settled in Seoul in accordance with the Arbitration Rules of the Korean Commercial Arbitration Board. The award rendered by the arbitrator(s) shall be final and conclusive, and the parties agree to be bound by it. The arbitral award thereon may be entered and enforced in any court of competent jurisdiction.

10. AMENDMENT

Any amendment or waiver of any provision of this Agreement and any waiver of any default under this Agreement shall only be effective if made in writing and signed by or on behalf of the party against whom the amendment or waiver is asserted.

11. MISCELLANEOUS

11.1 Notices. Any communication, demand or notice to be given hereunder shall be given to:

To the Mortgagee:

Attention: MXF Technologies Korea

Telephone: (02) 6212-7369

Facsimile: (02) 6246-7369

To the Mortgagor:

Attention: Monochromatic X-Ray Filter Technologies, Inc.

Telephone: (301) 277-4801

Facsimile: (301) 277-4807

11.2 If any of the provisions of this Agreement shall contravene any law or regulation or be held invalid, this Agreement shall be construed as if not containing those provisions, and the rights and obligations of the parties hereto shall be construed and enforced accordingly.

11.3 This Agreement may be executed in multiple counterparts, each of which, when executed, shall constitute an original but all of which together shall constitute one and the same instrument.

11.4 This Agreement is intended by the parties as the written final expression of each party's obligations and rights in connection with the Mortgaged Property and supersedes all prior and contemporaneous understandings or agreements concerning the subject matter hereof.

11.5 In the case of a conflict between the provisions of this Agreement and the provisions of the Loan Agreement, this Agreement shall prevail.

11.6 No failure to exercise, nor any delay in exercising on the part of the Mortgagee, any rights, power or privilege hereunder shall operate as a waiver thereof. No single or partial exercise of any right, power, privilege hereunder shall preclude any other or further exercise thereof or the exercise of any other right, power or privilege.

11.7 The rights and remedies provided herein are cumulative and may be exercised individually or concurrently, and are not exclusive of any other rights or remedies provided by law.

11.8 The Mortgage (and the associated rights, interests and title) created pursuant to this Agreement shall remain in full force and effect and a continuing security for the Secured Obligations unless and until discharged by the Mortgagee in accordance with Section 8.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed as of the day and year first above written.

MORTGAGOR

MONOCHROMATIC X-RAY FILTER TECHNOLOGIES, INC.

By: 

Name: Yong M. Cho

Title: President, CEO & CTO


MORTGAGEE

MXF TECHNOLOGIES KOREA

By: 

Name: Kew Chul Chee

Title: President



Schedule I

| Vendor | Description | Cost | Acquisition Date |
|--------------------------------|---|---------------|------------------|
| Trans Photonics, LLC | A/A RF Multi-Layer Sputter System | \$ 28,200.00 | 2004-05-21 |
| T-M Vacuum Products, Inc. | Multi Layer Sputter System | \$ 202,735.00 | 2004-05-24 |
| Norman Machine Tool, Ltd. | Milling Machine (Incl. Lathe, Band Saw) | \$ 39,260.00 | 2004-07-09 |
| ETS Equipment | Laser Scanning Instrument | \$ 12,975.00 | 2004-07-23 |
| ETS Equipment | Inspection Scope, Translation Stage & Controller, Breadboard | \$ 10,925.00 | 2004-08-31 |
| Applied Industrial Tech., Inc. | Adhesives Dispenser | \$ 1,133.60 | 2004-09-01 |
| PA Nalytical, Inc. | Reflectometer | \$ 183,750.00 | 2004-09-14 |
| Xenon Corporation | Power Controller Assy, RC-500B | \$ 3,936.70 | 2004-09-22 |
| KODEX | X-ray Spectrum Cabinet (Used X-ray Cabinet TXII) | \$ 1,500.00 | 2004-10-14 |
| McMaster (KEMCOR) | Cooling system (2nd floor) | \$ 6,244.67 | 2004-10-15 |
| DR Tech Corp. (Korea) | Detector | \$ 29,000.00 | 2004-10-27 |
| NewPort Corp. | X-ray Spectrum Cabinet (Universal Motion Controller, Driver (3sets) | \$ 25,549.02 | 2004-11-01 |
| Amptek, Inc. | X-Ray Detector, Power Supply w/Amplifier, MCA(TK3) | \$ 9,993.90 | 2004-11-18 |
| Oxford Instrument | Series 5000 Apogee Packaged set | \$ 6,010.00 | 2004-11-24 |

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|------------------------------|-----------------------------------|---------------|------------|
| KODEX | X-ray Spectrum Cabinet (SB-80-50) | \$ 8,246.00 | 2004-11-30 |
| PA Nalytical, Inc. (HASKRIS) | Cooling system (1st floor) | \$ - | |
| Total (Yr 2004) | | \$ 569,458.89 | |

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|------------------------|---|---------------|------------|
| AJA International Inc. | 1 Main Deposition Chamber | \$ 279,000.00 | 2003-03-11 |
| NewPort Corp. | 3 Axis Control (TK1) | \$ 5,591.43 | 2005-04-07 |
| NewPort Corp. | IMS Series High Performance Long-Travel Linear Stages(TK1) | \$ 6,111.80 | 2005-07-19 |
| Amptek, Inc. | X-Ray Detector, Power Supply w/Amplifier, MCA, 7 tungsten collimator disks(TK1) | \$ 11,296.00 | 2005-08-23 |
| CPI | Indico 100, Generator | \$ 14,151.26 | 2005-09-05 |
| Varian | X-ray Source | \$ 11,904.17 | 2005-09-19 |
| Varian | X-ray Source | \$ 11,967.84 | 2005-10-26 |
| Total (Yr 2005) | | \$ 340,022.50 | |

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|----------------|--------------------|--------------|------------|
| Varian | X-ray Source | \$ 13,985.13 | 2006-01-13 |
| Varian | Heat Exchanger | \$ 2,391.66 | 2006-01-13 |
| Oriental Motor | Controller & Cable | \$ 3,794.38 | 2006-02-15 |

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|--------------|---|--------------|------------|
| CPI | Indico 100i Generator (1 pcs) | \$ 33,967.72 | 2006-01-30 |
| | | (\$12,794) | 2006-04-04 |
| Amptek, Inc. | X-Ray Detector, Power Supply w/Amplifier(X-ray Cabinet) | \$ 6,503.00 | 2006-04-17 |

Total (Yr 2006)

\$ 47,847.89

Grand Total (Yr 2004, 2005 & 2006)

\$ 957,329.28

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Exhibit B

PLEDGE AGREEMENT

THIS PLEDGE AGREEMENT (the "Agreement") is entered into as of April [16], 2009 by and among:

(1) Monochromatic X-Ray Filter Technologies, Inc. a company incorporated and existing under the laws of Maryland, U.S.A., with its principal address at 5000 College Ave., Suite 2200, College Park, Maryland, U.S.A. 20740-2814 (the "Pledgor"); and

(2) MXF Technologies Korea, a company incorporated and existing under the laws of the Republic of Korea ("Korea"), with its principal address at #1117 Twin Tower Building B, 275-4 Yangjae-dong, Seocho-gu, Seoul, Korea ("Pledgee").

The Pledgor and the Pledgee shall be referred hereinafter as the "Parties" collectively and the "Party" individually.

RECITALS

A. The Pledgor and the Pledgee entered into to a certain loan agreement dated as of April [16], 2009 (the "Loan Agreement") by which the Pledgee has agreed to extend a loan to the Pledgor in the aggregate principal amount of Five Hundred Seventy Six Thousand Dollars (USD 576,000).

B. Pursuant to the Loan Agreement, the Pledgor has agreed to provide to the Pledgee, a pledge on the ownership interests in the Pledgor's currently existing intellectual property rights as described in Schedule I (the "Pledged IP") for the purposes of securing the obligations of the Pledgor including, but not limited to, due and punctual payment of all amounts payable under the Loan Agreement (the "Secured Obligations") in accordance with the terms and conditions contained herein.

C. Pursuant to the Loan Agreement, the Pledgor and the Pledgee have agreed to enter into this Agreement to create the Pledge which shall be held by the Pledgee on trust for the benefit of the Pledgee.

NOW THEREFORE, in consideration of the mutual covenants and agreements contained herein and other good and valuable consideration, the Pledgor and the Pledgee agree as follows:

1. DEFINITIONS AND INTERPRETATIONS

1.1 Whenever the following terms are used herein, they shall have the following meanings:

"Charged Property" has the meaning given to it in Section 2.

"Event of Default" shall have the meaning set forth in Section 6 hereof.

"Pledged IP" means the intellectual property rights as ascribed in the Recitals.

"Secured Obligations" means (i) any and all debts, obligations and liabilities of the Borrower to the Pledgee under, arising out of, connected with or related to the Loan Agreement or other related documents whether now existing or hereafter arising, voluntary or involuntary whether or not jointly owed with others, direct or indirect, absolute or contingent, liquidated or unliquidated, and whether or not from time to time decreased or extinguished and later increased, created or incurred.

1.2 Words and expressions defined in the terms and conditions of the Loan Agreement and not otherwise defined in this Agreement shall have the same meanings when used in this Agreement.

2. PLEDGE

The Pledgor hereby creates a first priority security interest by way of pledge in favour of the Pledgee (the "Pledge") over all of the Pledgor's rights, title and interest in and to the Pledged IP, including, without limitation, all proceeds thereof (for example, license royalties and proceeds of infringement suits), the right to sue for past, present and future infringements, all rights corresponding thereto throughout the world and all reissues, divisions, continuations, renewals, extensions and continuations-in-part thereof (collectively, the "Charged Property"), and the Pledgee hereby accepts the Pledge over the Charged Property for the due and punctual payment, performance and discharge of the Secured Obligations.

3. PERFECTION OF PLEDGE IN CHARGED PROPERTY

3.1 The Pledgor undertakes to execute such other instruments or notices as may be necessary in order to perfect and preserve the Pledge granted over the Charged Property hereby.

3.2 The Pledgor undertakes not to attempt to assign, transfer, sell, further pledge or otherwise encumber the Charged Property and shall not do any other act which may reduce the amounts thereof except as permitted under this Agreement.

4. REPRESENTATIONS, COVENANTS AND WARRANTIES

The Pledgor hereby represents, covenants and warrants that:

4.1 The Pledged IP is subsisting and has not been adjudged invalid or unenforceable, in whole or in part;

4.2 The Pledgor is the sole and exclusive owner of the entire and unencumbered right, title and interest in and to each of the Pledged IP, free and clear of any liens, charges and encumbrances, including without limitation pledges, assignments and licenses;

4.3 The Pledgor agrees that, until all of the Secured Obligations shall have been satisfied in full, it will not enter into any agreement (for example, a license agreement) which is inconsistent with such Pledgor's obligations under this Agreement, without the Pledgee's prior written consent.

4.4 The Pledgor has full power and authority to execute and deliver and to perform all of its obligations under this Agreement and any other documents required to be executed hereunder. The execution, delivery or performance of this Agreement will not violate or constitute a default under any law, rule, regulation, order, decree, contract, agreement, or its constitution or obligation of, or applicable to, the Pledgor. This Agreement is a valid and binding obligation of the Pledgor, enforceable against the Pledgor in accordance with its terms, subject to applicable bankruptcy, reorganisation, insolvency, moratorium or similar laws affecting creditors' rights generally.

4.5 The Pledgor shall hereby execute, acknowledge and deliver or cause to be executed, acknowledged and delivered to the Pledgee and at any time or times hereafter at the request of the Pledgee, all documents, instruments, letters of direction, notices, reports, acceptances, receipts, consents, waivers, affidavits and certificates as the Pledgee may request, in form and substance satisfactory to the Pledgee, to perfect and maintain the first priority security interest granted by the Pledgor pursuant to this Agreement and in order to consummate fully all of the transactions contemplated under this Agreement.

4.6 Upon completion of the actions described in Sections 4.5 hereof relating to the perfection of the Pledge of the Pledged IP immediately after the execution of this Agreement, this Agreement will create a valid first lien upon and perfected security interest in the Charged Property.

4.7 The representations, warranties and undertakings set out in this Section 4 are made on the date hereof and deemed to be repeated for so long as any of the Secured Obligations are outstanding by reference to the facts and circumstances then existing.

5. UNDERTAKINGS IN RELATION TO THE CHARGED PROPERTY

5.1 Prior to any reassignment of the Charged Property to the Pledgor pursuant to Section 9, the Pledgor undertakes to (i) keep the Charged Property free and clear of all levies, liens, encumbrances and other security interests other than the Pledge created under this Agreement; (ii) comply with all laws, statutes and regulations pertaining to it and the Charged Property; (iii) pay when due all taxes, license fees, charges and other impositions on

or for it and the Charged Property; and (iv) execute, file and record such statements, notices and agreements and take such action and obtain such certificates and documents in accordance with all applicable laws, statutes and regulations, as necessary to perfect, evidence and continue the Pledgee's interest in the Charged Property.

5.2 Prior to any reassignment of the Charged Property to the Pledgor pursuant to Section 9, the Pledgor undertakes that it shall not, without the prior written consent of the Pledgee, permit anything to be done that may impair, or fail to do anything necessary or advisable to preserve the value of, the Charged Property. In particular, the Pledgor shall promptly inform the Pledgee upon any rights or powers becoming exercisable or being executed under or in relation to the security interests in the Charged Property and the Pledgor undertakes to act in accordance with the instructions of the Pledgee in all matters in connection with the Charged Property.

5.3 Without limiting the generality of the foregoing, the Pledgor hereby agrees and undertakes that until payment in full of the Secured Obligations, the Pledgee is and will remain the attorney-in-fact of the Pledgor authorized to do all acts and things which the Pledgor could do in relation to the Charged Property including, without limitation, the sale or other disposition (whether absolute or by way of security) of the Charged Property and the exercise of any rights or powers of the Pledgor in, under, arising from or in connection with the Charged Property.

6. EVENTS OF DEFAULT

If any Event of Default as defined under the Loan Agreement occurs, regardless of whether any such event shall be voluntary or involuntary, or be effected by operation of law or pursuant to any judgment or order of any court or any order, rule or regulation of any governmental or non-governmental body, the Pledgee shall have the remedies specified herein.

7. REMEDIES

Upon the occurrence and during the continuance of an Event of Default, the Pledgee shall have all of the rights, powers and remedies granted to secured parties to enforce the Pledge and take possession of the Charged Property under laws of Maryland, U.S.A. In addition, all rights, powers and remedies of the Pledgee under this Agreement shall be cumulative and not alternative and shall be in addition to all rights, powers and remedies given to the Pledgee by virtue of any statute, rule of law or any other agreement between the Pledgee and the Pledgor. Any forbearance, failure or delay by the Pledgee in exercising any right, power or remedy under this Agreement shall not be deemed to be a waiver of such right, power or remedy, and any single or partial exercise of any such right, power or remedy under this Agreement shall not preclude the further exercise thereof, and every right, power and remedy of the Pledgee shall continue in full force and effect until such right, power or remedy is specifically waived by an instrument in writing executed by the Pledgee.

8. SALE OR DISPOSITION OF CHARGED PROPERTY

8.1 The Pledgor hereby authorises the Pledgee to purchase or sell the Charged Property in whole or any part thereof in such manner and upon such terms and conditions as the Pledgee shall in its sole discretion decide upon occurrence, and during the continuance, of an Event of Default. For the avoidance of doubt, the sale of the Charged Property herein shall include, without limitation, all acts and things as may be done by the Pledgee to enforce its Pledge over the Charged Property.

8.2 If any consent, approval or authorisation of any state, municipal or other governmental department, agency or authority should be necessary to effectuate any sale or other disposition of the Charged Property, the Pledgor undertakes to execute such applications and other instruments as may be reasonably required in connection with securing any such consent, approval or authorisation, and shall otherwise use its best efforts to secure the same.

9. TERMINATION AND RELEASE OF THE SECURITY

Subject to there being no Event of Default, on the date on which all of the Secured Obligations have been fully and completely discharged to the satisfaction of the Pledgee, the Pledgee shall reassign to the Pledgor, at the cost of the Pledgor, free and clear of the Pledgee's security interest and any lien created hereunder, the Charged Property, if any remaining, then held by the Pledgee under this Agreement, whereupon the duties and responsibilities of the Pledgee with respect to the Charged Property and this Agreement shall cease and terminate.

10. FURTHER ASSURANCES

The Pledgor agrees that from time to time, at the expense of the Pledgor, the Pledgor will promptly execute and deliver all further instruments and documents, and take all further action, that may be necessary or desirable, or that the Pledgee may request, in order to perfect and protect the Pledge over the Charged Property or to enable the Pledgee to exercise and enforce its rights and remedies hereunder with respect to the Charged Property.

11. BINDING AGREEMENT

This Agreement shall bind and inure to the benefit of the parties hereto, their successors and permitted assigns.

12. ASSIGNMENTS

The Pledgor may not assign or transfer any of the Pledgor's rights or obligations under this Agreement without the prior written consent of the Pledgee.

13. NON-WAIVER

The Pledgee shall not, by any act, delay, indulgence, omission or otherwise, except by an express written instrument clearly indicating an intention to waive, be deemed to have waived any right or remedy hereunder. No failure to exercise, nor any delay in exercising on the part of the Pledgee, any right, power or privilege hereunder shall operate as a waiver thereof. No single or partial exercise of any right, power, privilege hereunder shall preclude any other or further exercise thereof or the exercise of any other right, power or privilege.

14. AMENDMENTS, CHANGES AND MODIFICATIONS

This Agreement may be amended, changed, modified, altered or terminated only with the prior written approval of the Pledgee. This Agreement may not be amended by an oral agreement.

17. NOTICES

Any communication, demand or notice to be given hereunder shall be given as provided in the Loan Agreement.

18. SEVERABILITY

Any provision of this Agreement that is held invalid or unenforceable by any court of competent jurisdiction shall be so only as to such jurisdiction and only to the extent of such invalidity or unenforceability, but such holding shall not invalidate or render unenforceable any other provision hereof.

19. GOVERNING LAW AND JURISDICTION

19.1 This Agreement shall be governed by and construed in accordance with the laws of Maryland, U.S.A.

19.2 All disputes arising out of or in connection with this Agreement shall be finally settled in Seoul in accordance with the Arbitration Rules of the Korean Commercial Arbitration Board. The award rendered by the arbitrator(s) shall be final and conclusive, and the parties agree to be bound by it. The arbitral award thereon may be entered and enforced in any court of competent jurisdiction.

20. COUNTERPARTS

This Agreement may be executed in multiple counterparts, each of which shall be an original but all of which together shall constitute one and the same instrument.

21. INDEMNIFICATION

The Pledgor shall indemnify the Pledgee, its employees, officers, directors, shareholders, affiliates, agents and representatives against, and hold each such person harmless from, all claims, actions, losses, costs and expenses (including, without limitation, attorneys' fees and costs, whether or not suit is instituted) incurred by any such person arising out of or in connection with a Event of Default, this Agreement, the Charged Property or its disposition or any third party action challenging any aspect of or the enforceability of this Agreement. The Pledgor, however, shall not be responsible to indemnify for any claims, actions, losses, costs and expenses (including, without limitation, attorneys' fees and costs, whether or not suit is instituted) to the extent that they have resulted from the gross negligence or willful misconduct of the Pledgee, its employees, officers, directors, shareholders, affiliates, agents and representatives. Further, the Pledgor at their own expenses shall defend the Pledgee over the Charged Property against all other third party claims and demands.

22. REIMBURSEMENT

The Pledgor shall reimburse upon demand the Pledgee for all costs and expenses (including, without limitation, attorneys' fees and costs, whether or not suit is instituted) expended or incurred by the Pledgee in connection with the amendment and enforcement of this Agreement, including, without limitation, during any workout in collecting any sum which becomes due to the Pledgee under this Agreement; in connection with any action for declaratory relief, any counterclaim to any action or cause of action, or any appeal; in the protection or preservation of the Charged Property; or in the enforcement of payment of the obligations of the Pledgor by any action or participation in, or in connection with, a case or proceeding under relevant insolvency laws.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed as of the day and year first above written.

THE PLEDGOR

MONOCHROMATIC X-RAY FILTER TECHNOLOGIES, INC.

By: 

Name: Yong M. Cho

Title: President, CEO & CTO

THE PLEDGEE

MXF TECHNOLOGIES KOREA

By: 

Name: Kew Chul Chee

Title: President

Schedule I

DESCRIPTION OF THE PLEDGED IP

| Patent | Description |
|---|--|
| US Patent No.: US7,257,197 B2, August 14, 2007 | Reflector Rack Fabrication Method Thereof, and Narrow Band X-ray Filter and System Including Same |
| US Patent No.: US7,321,654 B2, January 22, 2008 | Narrow Band X-ray System and Fabrication Method Thereof |
| US Patent No.: US7,315,611 B2, January 1, 2008 | X-ray Reflector Exhibiting Taper, Method of Making Same, Narrow Band X-ray Filters Multispectral X-ray Production via Multispectral Filter |