

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

EPAS ID: PAT2949771

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
DIGITALOPTICS CORPORATION EAST	08/09/2013
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	FLIR SYSTEMS TRADING BELGIUM BVBA
<b>Street Address:</b>	LUXEMBURGSTRAAT 2
<b>City:</b>	MEER
<b>State/Country:</b>	BELGIUM
<b>Postal Code:</b>	2321
<b>PROPERTY NUMBERS Total: 9</b>	
<b>Property Type</b>	<b>Number</b>
Application Number:	12935633
Application Number:	12630557
Application Number:	13145830
Application Number:	13375526
Application Number:	12908747
Application Number:	13144655
Application Number:	13154034
Application Number:	12957112
Application Number:	12970680
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(336)607-7500
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
<b>Phone:</b>	336/607-7300
<b>Email:</b>	lsmith@kilpatricktownsend.com
<b>Correspondent Name:</b>	JASON LINK - KILPATRICK TOWNSEND
<b>Address Line 1:</b>	1001 WEST FOURTH STREET
<b>Address Line 4:</b>	WINSTON-SALEM, NORTH CAROLINA 27101
<b>NAME OF SUBMITTER:</b>	LAURA J. SMITH
<b>SIGNATURE:</b>	/Laura J. Smith 09648/
<b>DATE SIGNED:</b>	07/23/2014

PATENT

**Total Attachments: 23**

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ASSIGNMENT OF PATENTS

THIS ASSIGNMENT OF PATENTS is entered this 9<sup>th</sup> day of August, 2013, by and between DigitalOptics Corporation East, a Delaware corporation, having a principal place of business at Charlotte, North Carolina ("Assignor") and FLIR Systems Trading Belgium BVBA, having a principal place of business at Meer, Belgium ("Assignee").

WHEREAS, Assignor and Assignee are parties to a certain Asset Purchase Agreement dated as of August 9, 2013 (the "Purchase Agreement"), pursuant to which Assignee has agreed to purchase certain assets of Assignor, and Assignor has agreed to cause the same to be transferred, assigned and contributed to Assignee;

WHEREAS, Assignor owns all right, title and interest in and to and is the sole exclusive owner of the patents and patent applications listed on Schedule A, attached hereto and incorporated herein (the "Patents"); and

WHEREAS, pursuant to the Purchase Agreement, Assignor desires to assign and transfer to Assignee all of its right, title and interest in and to the Patents and Assignee is desirous of acquiring the same.

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, Assignor has sold, assigned and transferred, and does hereby sell, assign and transfer to Assignee all of the worldwide right, title and interest in (i) the Patents and the inventions and improvements disclosed on Schedule A; (ii) all reissues, divisionals, continuations, continuations-in-part, extensions, renewals, reexaminations and foreign counterparts thereof, and other patents, patent applications, certificates of invention other governmental grants resulting from the Patents; (iii) all patents and applications which claim priority to or have common disclosure or common priority with any such patents or patent applications; and (iv) any patent or patent application that as of the date of the Purchase Agreement referenced above is subject to a Disclaimer Issue with respect to any other such patent or patent application assigned under sections (i)-(iii) hereof; and (v) all rights corresponding to any of the foregoing throughout the world (including the right to claim the priority date of any of the Patents and the right to sue for and recover damages for any past, present or future infringement of the Patents), the same to be held and enjoyed by Assignee for its own use and enjoyment, and for the use and enjoyment of its successors, assigns and other legal representatives, to the end of the term or terms of said Patents granted or reissued or reexamined as fully and entirely as the same would have been held and enjoyed by Assignor, if this assignment and sale had not been made. As used herein, a "Disclaimer Issue" means a terminal disclaimer (including under 35 U.S.C. § 253 or 37 CFR 1.321 or the equivalent laws or regulation of any other patent authority) that exists or is or should reasonably be required to be made in a patent or patent application to address a double patenting issue, including such an issue raised in a judicial or administrative proceeding (including any proceeding with the U.S. Patent and Trademark Office or any corresponding foreign patent authority).

If the issue date and/or patent number of any of the Patents is unknown to Assignor and Assignee at the time this Assignment is executed, Assignor does hereby authorize its attorneys to insert on this Assignment the issue date and patent number of said any patent when known.

Assignor hereby declares that Assignee may take the steps to record this assignment in the sole name of Assignee, including with the Commissioner of Patents in the U.S. and all foreign counterparts.

Assignor hereby undertakes that it shall, without further consideration, execute all documents and do all such acts and things as Assignee may in its absolute discretion consider necessary or desirable to enable Letters Patent or any other form of protection to be issued in respect of any of said Patents and the inventions disclosed therein in any part of the world and to enable or to assist Assignee to defend oppositions thereto, to maintain the Patents and to prosecute for the infringement thereof.

*[Signature page follows]*

IN WITNESS WHEREOF Assignor and Assignee have executed this assignment  
as of the date first written above.

Assignee

Assignor

FLIR SYSTEMS TRADING BELGIUM  
BVBA

DIGITALOPTICS CORPORATION EAST

By: 

Name: Anthony L. Trunzo

Title: Manager

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

Name: \_\_\_\_\_

Title: \_\_\_\_\_

[Assignment of Patents]

**PATENT**  
**REEL: 033369 FRAME: 0005**

State of OREGON

County of  
Clackamas

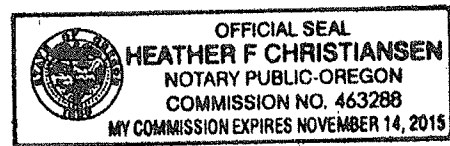
This instrument was acknowledged before me on August 8, 2013 by Anthony L. Trunzo as  
Manager of FLIR Systems Trading Belgium BVBA.



Heather F. Christiansen

My Commission Expires: November 14, 2015

Notary Public – State of Oregon



[Assignment of Patents]

**PATENT**  
**REEL: 033369 FRAME: 0006**

IN WITNESS WHEREOF Assignor and Assignee have executed this assignment as of the date first written above.


Assignee

Assignor

**FLIR SYSTEMS TRADING BELGIUM  
BVBA**

**DIGITALOPTICS CORPORATION EAST**

By: \_\_\_\_\_  
Name: Anthony L. Trunzo  
Title: Manager

By:   
Name: John Thode  
Title: President

[Assignment of Patents]

**PATENT**  
**REEL: 033369 FRAME: 0007**

State of: \_\_\_\_\_ )

\_\_\_\_\_ )

County of: \_\_\_\_\_ )

\_\_\_\_\_

On this \_\_\_ day of \_\_\_\_\_, 201\_\_, before me appeared \_\_\_\_\_, the person who signed this instrument on behalf of \_\_\_\_\_, who acknowledged that he/she signed it on behalf of the identified \_\_\_\_\_ as \_\_\_\_\_ of the identified \_\_\_\_\_ and pursuant to authority duly received.

~~Please see attached California  
compliant Acknowledgment / Jurat form~~

\_\_\_\_\_  
Notary Public

[Assignment of Patents]



CALIFORNIA ALL-PURPOSE  
ACKNOWLEDGMENT

State of California  
County of LOS Angeles

On August 08, 2013 before me, Shannon Ziccardi, Notary Public, personally appeared

JOHN THODE, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under penalty of perjury under the laws of the State of California that the foregoing paragraph is true and correct.



WITNESS my hand and official seal.  
  
Signature of Notary Public

OPTIONAL

Description of attached document:

Title or Type of Document: Assignment of Patents

Document Date: August 8, 2013 Number of Pages: \_\_\_\_\_

Signers other than named above: \_\_\_\_\_

Capacity(ies) claimed by signer

Signer's Name \_\_\_\_\_

Top of thumb here

Signer is Representing: \_\_\_\_\_

- Individual(s)
- Corporate Officer - Title(s): \_\_\_\_\_
- Partner(s) -  Limited  General
- Attorney-in-Fact
- Trustee(s)
- Guardian(s) or Conservator(s)
- Other: \_\_\_\_\_

## SCHEDULE A

### Issued US Patents

Application Number	US Patent Number	Filing Date	Issue Date	Title	Expiration
08/203,188	5610733	28-Feb-94	11-Mar-97	BEAM HOMOGENIZER	11-Mar-14
08/481,587	5694230	7-Jun-95	2-Dec-97	DIFFRACTIVE OPTICAL ELEMENTS AS COMBINERS	7-Jun-15
08/668,976	5718496	25-Jun-96	17-Feb-98	PROJECTION POINTER	25-Jun-16
08/381,169	5728324	31-Jan-95	17-Mar-98	MOLDING DIFFRACTIVE OPTICAL ELEMENTS	31-Jan-15
08/727,837	5771218	27-Sep-96	23-Jun-98	PASSIVELY ALIGNED INTEGRATED OPTICAL HEAD INCLUDING LIGHT SOURCE, DETECTOR, AND OPTICAL ELEMENT AND METHODS OF FORMING SAME	27-Sep-16
08/770,524	5850300	20-Dec-96	15-Dec-98	DIFFRACTIVE OPTICAL ELEMENT HAVING FREE FORM FRINGES	28-Feb-14
08/994,205	5872762	29-Dec-97	16-Feb-99	OPTICAL HEAD STRUCTURES INCLUDING ELECTRONIC DEVICES ADJACENT TRANSPARENT SUBSTRATES AND RELATED METHODS	27-Sep-16
08/994,281	5886971	19-Dec-97	23-Mar-99	OPTICAL HEAD STRUCTURES INCLUDING SUPPORT SUBSTRATES ADJACENT TRANSPARENT SUBSTRATES AND RELATED METHODS	19-Dec-17
08/942,121	5909312	1-Oct-97	1-Jun-99	PHASE-ONLY FILTER FOR GENERATING AN ARBITRARY ILLUMINATION PATTERN	1-Oct-17
09/018,891	5912872	5-Feb-98	15-Jun-99	INTEGRATED OPTICAL APPARATUS PROVIDING SEPARATED BEAMS ON A DETECTOR AND ASSOCIATED METHODS	27-Sep-16
08/904,556	5938308	4-Aug-97	17-Aug-99	PROJECTION POINTER	25-Jun-16
08/982,475	6005714	2-Dec-97	21-Dec-99	TWO LAYER OPTICAL ELEMENTS	2-Dec-17
09/095,135	6021106	10-Jun-98	1-Feb-00	MOLDING DIFFRACTIVE OPTICAL ELEMENTS	31-Jan-15
09/160,322	6025938	25-Sep-98	15-Feb-00	BEAM HOMOGENIZER	28-Feb-14
09/109,914	6027595	2-Jul-98	22-Feb-00	METHOD OF MAKING OPTICAL REPLICAS BY STAMPING IN PHOTORESIST AND REPLICAS FORMED THEREBY	2-Jul-18
09/276,805	6061169	26-Mar-99	9-May-00	INTEGRATED MICRO-OPTICAL SYSTEMS	26-Mar-19
09/044,864	6071652	20-Mar-98	6-Jun-00	FABRICATING OPTICAL ELEMENTS USING A PHOTORESIST FORMED FROM CONTACT PRINTING OF A GRAY LEVEL MASK	20-Mar-17
09/296,397	6075627	23-Apr-99	13-Jun-00	DIFFUSING IMAGER AND ASSOCIATED METHODS	23-Apr-19
08/943,274	6096155	3-Oct-97	1-Aug-00	METHOD OF DICING WAFER LEVEL INTEGRATED MULTIPLE OPTICAL ELEMENTS	27-Aug-17
09/274,310	6104690	23-Mar-99	15-Aug-00	INTEGRATED OPTICAL APPARATUS AND ASSOCIATED METHODS	27-Sep-16
09/071,762	6118559	5-May-98	12-Sep-00	BROADBAND DIFFRACTIVE DIFFUSER AND ASSOCIATED METHODS	20-Dec-16
08/917,865	6128134	27-Aug-97	3-Oct-00	INTEGRATED BEAM SHAPER AND USE THEREOF	27-Aug-17
09/227,531	6235141	8-Jan-99	22-May-01	METHOD OF MASS PRODUCING AND PACKAGING INTEGRATED OPTICAL SUBSYSTEMS	27-Sep-16
09/484,050	6278550	18-Jan-00	21-Aug-01	BEAM HOMOGENIZER	28-Feb-14
09/566,818	6295156	8-May-00	25-Sep-01	METHODS FOR MAKING INTEGRATED MICRO-OPTICAL SYSTEMS	26-Mar-19
09/386,280	6314223	31-Aug-99	6-Nov-01	DIFFRACTIVE VERTICAL CAVITY SURFACE EMITTING LASER POWER MONITOR AND SYSTEM	31-Aug-19
09/277,322	6343307	26-Mar-99	29-Jan-02	SYNTHESIS OF LIGHT BEAMS	26-Mar-19
09/418,022	6374004	14-Oct-99	16-Apr-02	OPTICAL SUBASSEMBLY	14-Oct-19
09/240,611	6392808	1-Feb-99	21-May-02	BROAD BAND CONTROLLED ANGLE ANALOG DIFFUSER AND ASSOCIATED METHODS	31-Aug-19
09/902,740	6396635	12-Jul-01	28-May-02	BEAM SHAPING ELEMENT FOR USE IN A LITHOGRAPHIC SYSTEM	28-Feb-14

Application Number	US Patent Number	Filing Date	Issue Date	Title	Expiration
09/702,830	6404958	31-Oct-00	11-Jun-02	INTEGRATED OPTICAL COUPLER	4-Nov-20
09/984,915	6404959	31-Oct-01	11-Jun-02	DIFFRACTIVE VERTICAL CAVITY SURFACE EMITTING LASER POWER MONITOR AND SYSTEM	31-Aug-19
09/418,365	6406195	14-Oct-99	18-Jun-02	INTERFACE BETWEEN OPTO-ELECTRONIC DEVICES AND FIBERS	14-Oct-19
09/514,252	6406583	28-Feb-00	18-Jun-02	WAFER LEVEL CREATION OF MULTIPLE OPTICAL ELEMENTS	27-Sep-16
09/584,095	6420073	31-May-00	16-Jul-02	FABRICATING OPTICAL ELEMENTS USING A PHOTORESIST FORMED FROM PROXIMITY PRINTING OF A GRAY LEVEL MASK	20-Mar-17
09/860,550	6451150	21-May-01	17-Sep-02	METHOD OF MASS PRODUCING AND PACKAGING INTEGRATED OPTICAL SUBSYSTEMS	27-Sep-16
09/548,018	6452669	12-Apr-00	17-Sep-02	TRANSMISSION DETECTION FOR VERTICAL CAVITY SURFACE EMITTING LASER POWER MONITOR AND SYSTEM	12-Apr-20
09/961,303	6483627	25-Sep-01	19-Nov-02	INTEGRATED MICRO-OPTICAL SYSTEMS	26-Mar-19
09/614,184	6496621	11-Jul-00	17-Dec-02	FIBER COUPLER SYSTEM AND ASSOCIATED METHODS FOR REDUCING BACK REFLECTIONS	11-Jun-19
09/637,364	6522618	15-Aug-00	18-Feb-03	INTEGRATED OPTICAL APPARATUS AND ASSOCIATED METHODS	27-Sep-16
09/329,996	6530697	11-Jun-99	11-Mar-03	MULTI-MODE FIBER COUPLER, SYSTEM AND ASSOCIATED METHODS	11-Jun-19
10/032,911	6533471	28-Dec-01	18-Mar-03	OPTICAL SUBASSEMBLY	14-Oct-19
10/171,621	6588945	17-Jun-02	8-Jul-03	INTERFACE BETWEEN OPTO-ELECTRONIC DEVICES AND FIBERS	14-Oct-19
10/164,419	6591043	10-Jun-02	8-Jul-03	DIFFRACTIVE MONITOR AND SYSTEM	31-Aug-19
09/690,763	6600845	18-Oct-00	29-Jul-03	INTEGRATED PARALLEL TRANSMITTER	18-Oct-20
09/682,178	6606173	31-Jul-01	12-Aug-03	Illumination Device and Method for Laser Projector	31-Jul-21
09/503,249	6610166	14-Feb-00	26-Aug-03	METHOD FOR REPLICATING OPTICAL ELEMENTS, PARTICULARLY ON A WAFER LEVEL, AND REPLICAS FORMED THEREBY	27-Sep-16
10/238,576	6630994	11-Sep-02	7-Oct-03	TRANSMISSION DETECTION FOR A LASER POWER MONITOR AND SYSTEM	11-Sep-22
10/158,941	6638667	3-Jun-02	28-Oct-03	FABRICATING OPTICAL ELEMENTS USING A PHOTORESIST FORMED USING OF A GRAY LEVEL MASK	20-Mar-17
10/178,337	6643420	25-Jun-02	4-Nov-03	OPTICAL SUBASSEMBLY	14-Oct-19
10/238,604	6649008	11-Sep-02	18-Nov-03	METHOD OF MASS PRODUCING AND PACKAGING INTEGRATED SUBSYSTEMS	27-Sep-16
09/672,445	6669803	29-Sep-00	30-Dec-03	SIMULTANEOUS PROVISION OF CONTROLLED HEIGHT BONDING MATERIAL AT A WAFER LEVEL AND ASSOCIATED STRUCTURES	3-Oct-17
09/749,773	6684010	28-Dec-00	27-Jan-04	WAVELENGTH COMPENSATED OPTICAL WAVELENGTH DIVISION COUPLER AND ASSOCIATED METHODS	28-Dec-20
10/298,545	6741380	19-Nov-02	25-May-04	INTEGRATED MICRO-OPTICAL SYSTEMS	26-Mar-19
10/087,989	6777311	5-Mar-02	17-Aug-04	THICK WAFER PROCESSING AND RESULTANT PRODUCTS	23-Oct-21
10/138,522	6788423	6-May-02	7-Sep-04	CONIC CONSTANT MEASUREMENT METHODS FOR REFRACTIVE MICROLENSSES	6-May-22
09/983,278	6798931	23-Oct-01	28-Sep-04	SEPARATING OF OPTICAL INTEGRATED MODULES AND STRUCTURES FORMED THEREBY	23-Oct-21
10/231,487	6821028	30-Aug-02	23-Nov-04	OPTICAL AND MECHANICAL INTERFACE BETWEEN OPTO-ELECTRONIC DEVICES AND FIBERS	30-Aug-22
10/170,726	6844978	14-Jun-02	18-Jan-05	WAFER LEVEL CREATION OF MULTIPLE OPTICAL ELEMENTS	3-Oct-17
10/155,178	6847485	28-May-02	25-Jan-05	BEAM SHAPING ELEMENT FOR USE IN A LITHOGRAPHIC SYSTEM	28-Feb-14
09/994,867	6869754	28-Nov-01	22-Mar-05	TRANSFER OF OPTICAL ELEMENT PATTERNS ON A SAME SIDE OF A SUBSTRATE ALREADY HAVING A FEATURE THEREON	28-Nov-21
10/453,960	6870650	4-Jun-03	22-Mar-05	Illumination Device and Method for Laser Projector	31-Jul-21

Application Number	US Patent Number	Filing Date	Issue Date	Title	Expiration
10/628,575	6881600	29-Jul-03	19-Apr-05	ETCHING IN COMBINATION WITH OTHER PROCESSING TECHNIQUES TO FACILITATE ALIGNMENT OF A DIE IN A SYSTEM AND STRUCTURES FORMED THEREBY	29-Jul-23
10/291,805	6952507	12-Nov-02	4-Oct-05	MULTI-MODE FIBER COUPLER SYSTEM	11-Jun-19
11/034,050	6970292	13-Jan-05	29-Nov-05	BEAM SHAPING ELEMENT FOR USE IN A LITHOGRAPHIC SYSTEM	28-Feb-14
10/231,485	7064899	30-Aug-02	20-Jun-06	REDUCED LOSS DIFFRACTIVE STRUCTURE	30-Aug-22
10/945,090	7208771	21-Sep-04	24-Apr-07	SEPARATING OF OPTICAL INTEGRATED MODULES AND STRUCTURES FORMED THEREBY	21-Sep-24
10/320,525	7221823	17-Dec-02	22-May-07	FIBER COUPLER, SYSTEM AND ASSOCIATED METHODS FOR REDUCING BACK REFLECTIONS	11-Jun-19
10/809,914	7224856	26-Mar-04	29-May-07	WAFER BASED OPTICAL CHASSIS AND ASSOCIATED METHODS	23-Oct-21
11/802,044	7343069	18-May-07	11-Mar-08	OPTICAL ELEMENT AND SYSTEM USING THE SAME	11-Jun-19
11/127,284	7375315	12-May-05	20-May-08	INTEGRATED OPTICAL TRANSCEIVER AND RELATED METHODS	12-May-25
11/211,100	7406224	25-Aug-05	29-Jul-08	DIFFRACTIVE COUPLER OPTIMIZED FOR ALIGNMENT TOLERANCES	24-Feb-24
11/391,486	7422842	29-Mar-06	9-Sep-08	REDUCED LOSS HIGH EFFICIENCY DIFFRACTIVE AND ASSOCIATED METHODS	30-Aug-22
10/298,048	7463401	18-Nov-02	9-Dec-08	INTEGRATED MICRO-OPTICAL SYSTEMS	10-May-21
11/295,720	7466502	7-Dec-05	16-Dec-08	OPTICAL WAVELENGTH DIVISION COUPLER AND ASSOCIATED METHODS	23-Oct-26
12/073,748	7529446	10-Mar-08	5-May-09	OPTICAL ELEMENT AND SYSTEM USING THE SAME	22-Sep-18
11/073,893	7554737	7-Mar-05	30-Jun-09	Illumination Device and Method Using Adaptable Source and Output Format	6-Dec-22
12/379,279	7750289	18-Feb-09	6-Jul-10	INTEGRATED OPTICAL TRANSCEIVER	6-Mar-21
11/783,530	7751659	10-Apr-07	6-Jul-10	WAFER BASED OPTICAL CHASSIS AND ASSOCIATED METHODS	23-Oct-21
12/453,229	7769258	4-May-09	3-Aug-10	OPTICAL ELEMENT AND SYSTEM USING THE SAME	11-Jun-19
12/230,920	7787183	8-Sep-08	31-Aug-10	REDUCED LOSS HIGH EFFICIENCY DIFFRACTIVE AND ASSOCIATED METHODS	30-Aug-22
12/292,313	7817883	17-Nov-08	19-Oct-10	OPTICAL ASSEMBLY AND METHOD OF MAKING SAME	7-Dec-25
11/931,767	7842914	31-Oct-07	30-Nov-10	OPTOELECTRONIC PACKAGE, CAMERA INCLUDING THE SAME AND RELATED METHODS	5-Jul-21
11/487,580	8049806	17-Jul-06	1-Nov-11	THIN CAMERA AND ASSOCIATED METHODS	15-May-27
12/662,867	8054564	7-May-10	8-Nov-11	Optical Device and Associated Methods	7-May-30
12/801,940	8233757	2-Jul-10	31-Jul-12	WAFER BASED OPTICAL CHASSIS AND ASSOCIATED METHODS	23-Oct-21
10/647,262	8318057	26-Aug-03	27-Nov-12	METHOD FOR REPLICATING OPTICAL ELEMENTS, PARTICULARLY ON A WAFER LEVEL, AND REPLICAS FORMED THEREBY	27-Sep-16
13/290,908	8411379	7-Nov-11	2-Apr-13	Optical Device and Associated Methods	7-May-30
12/947,555	8447151	16-Nov-10	21-May-13	Triplexer for an optical fiber, package including the same, and associated methods	24-Nov-31

#### Issued Foreign Patents

Application Number	Country	Foreign Patent Number	Filing Date	Issue Date	Title	Expiration
97952596.1	AT	AT_0946894	20-Jul-99	20-Sep-00	BEAM HOMOGENIZER	19-Dec-17
2304670	CA	CA_2304670	27-Mar-00	29-Mar-05	WAFER LEVEL INTEGRATION OF MULTIPLE OPTICAL ELEMENTS	27-Aug-18
2492335	CA	CA_2492335	7-Jan-05	19-Dec-06	WAFER LEVEL INTEGRATION OF MULTIPLE OPTICAL ELEMENTS	2-Oct-18

Application Number	Country	Foreign Patent Number	Filing Date	Issue Date	Title	Expiration
2330862	CA	CA_2330862	30-Oct-00	27-Jan-04	BROADBAND DIFFRACTIVE DIFFUSER AND ASSOCIATED METHODS	4-May-19
2319420	CA	CA_2319420	28-Jul-00	24-Dec-02	INTEGRATED OPTICAL APPARATUS PROVIDING SEPARATED BEAMS ON A DETECTOR AND ASSOCIATED METHODS	1-Feb-19
2336467	CA	CA_2336467	2-Jan-01	13-Jan-00	METHOD OF MAKING OPTICAL REPLICAS BY STAMPING IN PHOTORESIST AND REPLICAS FORMED THEREBY	30-Jun-19
2324600	CA	CA_2324600	19-Sep-00	30-Dec-03	INTEGRATED MICRO-OPTICAL SYSTEMS	26-Mar-19
2403682	CA	CA_2403682	19-Sep-02	6-Oct-09	FIBER COUPLER, SYSTEM AND ASSOCIATED METHODS FOR REDUCING BACK REFLECTIONS	10-Jul-21
2306845	CA	CA_2306845	18-Apr-00	3-May-05	DIFFRACTIVE VERTICAL CAVITY SURFACE EMITTING LASER POWER MONITOR AND SYSTEM	31-Aug-19
2370746	CA	CA_2370746	2-Nov-01	5-Jun-07	WAVELENGTH COMPENSATED OPTICAL WAVELENGTH DIVISION COUPLER AND ASSOCIATED METHODS	2-Mar-21
2439010	CA	CA_2439010	22-Aug-03	12-Sep-02	SEPARATING OF OPTICAL INTEGRATED MODULES AND STRUCTURES FORMED THEREBY	5-Mar-22
2523418	CA	CA_2523418	22-Dec-05	3-May-11	PACKAGE FOR OPTOELECTRONIC DEVICE ON WAFER LEVEL AND ASSOCIATED METHODS	26-Mar-24
99933617.5	CH	CH_1110124	2-Feb-01	17-Dec-08	METHOD OF MAKING OPTICAL REPLICAS BY STAMPING IN PHOTORESIST AND REPLICAS FORMED THEREBY	30-Jun-19
01952595.5	CH	CH_1264204	9-Sep-02	18-May-05	FIBER COUPLER, SYSTEM AND ASSOCIATED METHODS FOR REDUCING BACK REFLECTIONS	10-Jul-21
02721257.0	CH	CH_1415374	6-Oct-03	27-Sep-06	SEPARATION OF INTEGRATED OPTICAL MODULES AND STRUCTURES FORMED THEREBY	5-Mar-22
199800809805.9	CN	CN_1276916	3-Apr-00	8-Sep-04	Wafer Level Integration of Multiple Optical Elements	27-Aug-18
200100806175.3	CN	CN_01806175.3	6-Sep-02	12-Dec-07	INTEGRATED OPTICAL TRANSCEIVER AND RELATED METHODS	6-Mar-21
200200805993.X	CN	CN_02805993.X	7-Sep-05	3-Dec-08	SEPARATING OF OPTICAL INTEGRATED MODULES AND STRUCTURES FORMED THEREBY	5-Mar-22
200780033627.5	CN	CN_101512768	11-Mar-09	21-Nov-12	CAMERA SYSTEM AND ASSOCIATED METHODS	17-Jul-27
98949707.8	DE	DE_69838071	3-May-00	11-Jul-07	WAFER LEVEL INTEGRATION OF MULTIPLE OPTICAL ELEMENTS	27-Aug-18
97952596.1	DE	DE_69703165	20-Jul-99	20-Sep-00	BEAM HOMOGENIZER	19-Dec-17
99904399.5	DE	DE_1053545	5-Sep-00	9-Apr-03	INTEGRATED OPTICAL APPARATUS PROVIDING SEPARATED BEAMS ON A DETECTOR AND ASSOCIATED METHODS	1-Feb-19
99933617.5	DE	DE_69940118.6-08	2-Feb-01	17-Dec-08	METHOD OF MAKING OPTICAL REPLICAS BY STAMPING IN PHOTORESIST AND REPLICAS FORMED THEREBY	30-Jun-19
99915050.1	DE	DE_69908325	26-Oct-00	28-May-03	INTEGRATED MICRO-OPTICAL SYSTEMS	26-Mar-19
01952595.5	DE	DE_60110901.5	9-Sep-02	18-May-05	FIBER COUPLER, SYSTEM AND ASSOCIATED METHODS FOR REDUCING BACK REFLECTIONS	10-Jul-21
01934845.7	DE	DE_1210631	13-Nov-01	19-Oct-05	WAVELENGTH COMPENSATED OPTICAL WAVELENGTH DIVISION COUPLER AND ASSOCIATED METHODS	2-Mar-21
02721257.0	DE	DE_60215019	6-Oct-03	27-Sep-06	SEPARATION OF INTEGRATED OPTICAL MODULES AND STRUCTURES FORMED THEREBY	5-Mar-22
04758439.6	DE	DE_602004013945	26-Oct-05	21-May-08	PACKAGE FOR OPTOELECTRONIC DEVICE ON WAFER LEVEL	26-Mar-24
08009231.5	DE	DE_1953577	20-May-08	17-Jul-13	PACKAGE FOR OPTOELECTRONIC DEVICE ON WAFER LEVEL AND ASSOCIATED METHODS	26-Mar-24

Application Number	Country	Foreign Patent Number	Filing Date	Issue Date	Title	Expiration
04758439.6	DK	DK_1611468	26-Oct-05	21-May-08	PACKAGE FOR OPTOELECTRONIC DEVICE ON WAFER LEVEL	26-Mar-24
98949707.8	FR	FR_1036415	3-May-00	11-Jul-07	WAFER LEVEL INTEGRATION OF MULTIPLE OPTICAL ELEMENTS	27-Aug-18
97952596.1	FR	FR_0946894	20-Jul-99	20-Sep-00	BEAM HOMOGENIZER	19-Dec-17
99904399.5	FR	FR_1053545	5-Sep-00	9-Apr-03	INTEGRATED OPTICAL APPARATUS PROVIDING SEPARATED BEAMS ON A DETECTOR AND ASSOCIATED METHODS	1-Feb-19
99933617.5	FR	FR_1110124	2-Feb-01	17-Dec-08	METHOD OF MAKING OPTICAL REPLICAS BY STAMPING IN PHOTORESIST AND REPLICAS FORMED THEREBY	30-Jun-19
99915050.1	FR	FR_1064650	26-Oct-00	28-May-03	INTEGRATED MICRO-OPTICAL SYSTEMS	26-Mar-19
01952595.5	FR	FR_1264204	9-Sep-02	18-May-05	FIBER COUPLER, SYSTEM AND ASSOCIATED METHODS FOR REDUCING BACK REFLECTIONS	10-Jul-21
01934845.7	FR	FR_1210631	13-Nov-01	19-Oct-05	WAVELENGTH COMPENSATED OPTICAL WAVELENGTH DIVISION COUPLER AND ASSOCIATED METHODS	2-Mar-21
02721257.0	FR	FR_1415374	6-Oct-03	27-Sep-06	SEPARATION OF INTEGRATED OPTICAL MODULES AND STRUCTURES FORMED THEREBY	5-Mar-22
04758439.6	FR	FR_1611468	26-Oct-05	21-May-08	PACKAGE FOR OPTOELECTRONIC DEVICE ON WAFER LEVEL	26-Mar-24
08009231.5	FR	FR_1953577	20-May-08	17-Jul-13	PACKAGE FOR OPTOELECTRONIC DEVICE ON WAFER LEVEL AND ASSOCIATED METHODS	26-Mar-24
98949707.8	GB	GB_1036415	3-May-00	11-Jul-07	WAFER LEVEL INTEGRATION OF MULTIPLE OPTICAL ELEMENTS	27-Aug-18
97909876.1	GB	GB_0928481	27-Apr-99	25-Jul-01	Method for Making a Plurality of Integrated Optical Heads	26-Sep-17
97952596.1	GB	GB_0946894	20-Jul-99	20-Sep-00	BEAM HOMOGENIZER	19-Dec-17
99904399.5	GB	GB_1053545	5-Sep-00	9-Apr-03	INTEGRATED OPTICAL APPARATUS PROVIDING SEPARATED BEAMS ON A DETECTOR AND ASSOCIATED METHODS	1-Feb-19
99933617.5	GB	GB_1110124	2-Feb-01	17-Dec-08	METHOD OF MAKING OPTICAL REPLICAS BY STAMPING IN PHOTORESIST AND REPLICAS FORMED THEREBY	30-Jun-19
99915050.1	GB	GB_1064650	26-Oct-00	28-May-03	INTEGRATED MICRO-OPTICAL SYSTEMS	26-Mar-19
01952595.5	GB	GB_1264204	9-Sep-02	18-May-05	FIBER COUPLER, SYSTEM AND ASSOCIATED METHODS FOR REDUCING BACK REFLECTIONS	10-Jul-21
01934845.7	GB	GB_1210631	13-Nov-01	19-Oct-05	WAVELENGTH COMPENSATED OPTICAL WAVELENGTH DIVISION COUPLER AND ASSOCIATED METHODS	2-Mar-21
02721257.0	GB	GB_1415374	6-Oct-03	27-Sep-06	SEPARATION OF INTEGRATED OPTICAL MODULES AND STRUCTURES FORMED THEREBY	5-Mar-22
08009231.5	GB	GB_1953577	20-May-08	17-Jul-13	PACKAGE FOR OPTOELECTRONIC DEVICE ON WAFER LEVEL AND ASSOCIATED METHODS	26-Mar-24
97952596.1	IE	IE_0946894	20-Jul-99	20-Sep-00	BEAM HOMOGENIZER	19-Dec-17
119341	IL	IL_119341	2-Oct-96	23-Dec-99	PHASE-ONLY FILTER FOR GENERATING AN ARBITRARY ILLUMINATION PATTERN	2-Oct-16
2000-508026	JP	JP_4221513	28-Feb-00	28-Nov-08	INTEGRATED BEAM SHAPER AND USE THEREOF	21-Aug-18
2000-515296	JP	JP_4310410	3-Apr-00	22-May-09	Method of dicing wafer level integrated multiple optical elements	2-Oct-18
2009-164638	JP	JP_5053336	13-Jul-09	17-Oct-12	Integrated Optical Head for Disk Drives and Method of Forming Same	26-Sep-17
1998-529036	JP	JP_4787944	21-Jun-99	29-Jul-11	DIFFRACTIVE OPTICAL ELEMENT HAVING FREE FORM FRINGES	19-Dec-17

Application Number	Country	Foreign Patent Number	Filing Date	Issue Date	Title	Expiration
2009-292936	JP	JP_4951670	24-Feb-10	16-Mar-12	BEAM HOMOGENIZER	19-Dec-17
2010-225418	JP	JP_5021064	5-Oct-10	22-Jun-12	DIFFRACTIVE VERTICAL CAVITY SURFACE EMITTING LASER POWER MONITOR AND SYSTEM	31-Aug-19
2001-530631	JP	JP_4479875	12-Aug-02	26-Mar-10	OPTICAL SUBASSEMBLY	11-Oct-20
2002-570363	JP	JP_4474588	5-Sep-03	19-Mar-10	SEPARATING OF OPTICAL INTEGRATED MODULES AND STRUCTURES FORMED THEREBY	5-Mar-22
2009-520799	JP	JP_5292291	16-Jan-09	14-Jun-13	CAMERA SYSTEM AND ASSOCIATED METHODS	17-Jul-27
10-1999-7005665	KR	KR_486997	21-Jun-99	25-Apr-05	BEAM SHAPING ELEMENT FOR USE IN A LITHOGRAPHIC SYSTEM	19-Dec-17
10-2009-7003164	KR	KR_10-1185881	16-Feb-09	19-Sep-12	CAMERA SYSTEM AND ASSOCIATED METHODS	17-Jul-27
10-2011-0071416	KR	KR_10-1131782	19-Jul-11	23-Mar-12	TSV Substrate for Integrated Modules	19-Jul-31
97952596.1	NL	NL_0946894	20-Jul-99	20-Sep-00	BEAM HOMOGENIZER	19-Dec-17
99933617.5	NL	NL_1110124	2-Feb-01	17-Dec-08	METHOD OF MAKING OPTICAL REPLICAS BY STAMPING IN PHOTORESIST AND REPLICAS FORMED THEREBY	30-Jun-19
04758439.6	NL	NL_1611468	26-Oct-05	21-May-08	PACKAGE FOR OPTOELECTRONIC DEVICE ON WAFER LEVEL	26-Mar-24
04758439.6	SE	SE_1611468	26-Oct-05	21-May-08	PACKAGE FOR OPTOELECTRONIC DEVICE ON WAFER LEVEL	26-Mar-24

### Pending US Patent Applications

Application Number	US Publication Number	Filing Date	Title
10/784,472	US_20050162539	24-Feb-04	FOCAL PLANE CODING FOR DIGITAL IMAGING
11/790,029	US_20070200132	23-Apr-07	ELECTRICAL CONNECTION FOR OPTOELECTRONIC DEVICES
12/453,650	US_20090225422	18-May-09	TRANSFER OF OPTICAL ELEMENT PATTERNS ON A SAME SIDE OF A SUBSTRATE ALREADY HAVING A FEATURE THEREON
12/630,557	US_20100177390	3-Dec-09	Wavelength Dependent Optical Elements and Applications Thereof
12/654,316	US_20110141567	16-Dec-09	SELECTIVE DIFFRACTIVE OPTICAL ELEMENT AND A SYSTEM INCLUDING THE SAME
12/805,478	US_20120076456	2-Aug-10	OPTICAL ELEMENT AND SYSTEM USING THE SAME
12/805,617	US_20100321564	10-Aug-10	CAMERA SYSTEM AND ASSOCIATED METHODS
12/850,410	US_20110057336	4-Aug-10	CONTROL SURFACE ROUGHNESS AND PATTERNS BY LIGHT ORIENTATION
12/886,312	US_20110068258	20-Sep-10	NONROTATIONALLY SYMMETRIC LENS, IMAGING SYSTEM INCLUDING THE SAME, AND ASSOCIATED METHODS
12/906,581	US_20110033152	18-Oct-10	OPTICAL WAVELENGTH DIVISION COUPLER AND ASSOCIATED METHODS
12/908,747	US_20110181854	20-Oct-10	Focus Compensation for Optical Elements and Applications Thereof
12/935,633	US_20110027032	30-Sep-10	SYSTEMS AND METHODS FOR MACHINING MATERIALS
12/957,112	US_20120133916	30-Nov-10	Wafer Level Optical Elements and Applications Thereof
12/970,680	US_20120154945	16-Dec-10	Optical Apertures and Applications Thereof
13/144,655	US_20110304930	14-Jul-11	Focus Compensation for Optical Elements and Applications Thereof
13/145,830	US_20110273600	22-Jul-11	OPTICAL IMAGING APPARATUS AND METHODS OF MAKING THE SAME
13/154,034	US_20110299165	6-Jun-11	Diffraction Optical Elements And Applications Thereof
13/324,453	US_20120094066	13-Dec-11	INTEGRATED MICRO-OPTICAL SYSTEMS AND CAMERAS INCLUDING THE SAME
13/356,211		23-Jan-12	LWIR Imaging Lens, Image Capturing System Having the Same, and Associated Methods

Application Number	US Publication Number	Filing Date	Title
13/375,526	US_20120075725	1-Dec-11	LENS AND APPLICATIONS THEREOF
13/428,378	US_20130023072	23-Mar-12	Substrate For Integrated Modules
13/835,188		15-Mar-13	LWIR Imaging Lens, Image Capturing System Having the Same, and Associated Methods

### Pending Foreign Patent Applications

Application Number	Country	Foreign Pub. Number	Filing Date	Title
2616311	CA	CA_2616311	21-Jan-08	OPTICAL WAVELENGTH DIVISION COUPLER AND ASSOCIATED METHODS
200980145025.8	CN	CN_102209941	11-May-11	SYSTEMS AND METHODS FOR MACHINING MATERIALS
201080006564.6	CN	CN_102356463	23-Aug-11	OPTICAL IMAGING APPARATUS AND METHODS OF MAKING THE SAME
201080026002.8	CN	CN_102460265	11-Jun-10	LENS AND APPLICATIONS THEREOF
201080047536.9	CN	CN_102668082	20-Apr-12	Focus Compensation for Optical Elements and Applications Thereof
201080063463.2	CN	CN_102763021	3-Dec-10	SELECTIVE DIFFRACTIVE OPTICAL ELEMENT AND A SYSTEM INCLUDING THE SAME
201180033621.4	CN	CN_102971138	6-May-11	Optical Device and Associated Methods
01963771.9	EP	EP_1356348	28-Feb-03	ILLUMINATION DEVICE AND METHOD FOR LASER PROJECTOR
03004782.3	EP	EP_1324324	5-Sep-00	INTEGRATED OPTICAL APPARATUS PROVIDING SEPARATED BEAMS ON A DETECTOR AND ASSOCIATED METHODS
06120847.6	EP	EP_1785746	18-Sep-06	Wafer level manufacturing of optical elements
06788267.0	EP	EP_1910880	22-Feb-08	OPTICAL WAVELENGTH DIVISION COUPLER AND ASSOCIATED METHODS
07796897.2	EP	EP_2044629	16-Jan-09	CAMERA SYSTEM AND ASSOCIATED METHODS
09815267.1	EP	EP_2344936	6-Apr-11	SYSTEMS AND METHODS FOR MACHINING MATERIALS
10171900.3	EP	EP_2281681	4-Aug-10	CONTROL SURFACE ROUGHNESS AND PATTERNS BY LIGHT ORIENTATION
10703750.9	EP	EP_2491590	17-May-12	Focus Compensation for Optical Elements and Applications Thereof
10790706.5	EP	EP_2513703	16-Jul-12	SELECTIVE DIFFRACTIVE OPTICAL ELEMENT AND A SYSTEM INCLUDING THE SAME
11170112.4	EP	EP_2372421	16-Jun-11	OPTICAL WAVELENGTH DIVISION COUPLER AND ASSOCIATED METHODS
11724079.6	EP	EP_2566685	7-Dec-12	Optical Device and Associated Methods
99945268.3	EP	EP_1047970	27-May-00	DIFFRACTIVE VERTICAL CAVITY SURFACE EMITTING LASER POWER MONITOR AND SYSTEM
2008-013886	JP	JP_2009503567	22-Jan-08	OPTICAL WAVELENGTH DIVISION COUPLER AND ASSOCIATED METHODS
2009-284825	JP	JP_2010068001	16-Dec-09	SEPARATING OF OPTICAL INTEGRATED MODULES AND STRUCTURES FORMED THEREBY
2009-520799	JP	JP_2009544226	16-Jan-09	CAMERA SYSTEM AND ASSOCIATED METHODS
2010-255960	JP	JP_2011107705	16-Nov-10	Triplexer for an optical fiber, package including the same, and associated methods
2013-077081	JP		2-Apr-13	OPTICAL WAVELENGTH DIVISION COUPLER AND ASSOCIATED METHODS
2013-087770	JP		18-Apr-13	CAMERA SYSTEM AND ASSOCIATED METHODS
10-2011-0112638	KR	KR_20130010819	1-Nov-11	Substrate for Integrated Modules
10-2012-7000708	KR	KR_20120050427	18-May-12	LENS AND APPLICATIONS THEREOF
10-2012-7012939	KR	KR_20120087154	18-May-12	Focus Compensation for Optical Elements and Applications Thereof
201105525-8	SG	SG_173197	1-Aug-11	OPTICAL IMAGING APPARATUS AND METHODS OF MAKING THE SAME
098131685	TW	TW_201021960	18-Sep-09	SYSTEMS AND METHODS FOR MACHINING MATERIALS



Application Number	Country	Foreign Pub. Number	Filing Date	Title
099103222	TW	TW_201115204	3-Feb-10	Focus Compensation For Optical Elements And Applications Thereof
099103223	TW	TW_201037825	3-Feb-10	Optical Imaging Apparatus And Methods Of Making The Same
100141876	TW	TW_201232046	16-Nov-11	Wafer Level Optical Elements and Applications Thereof
PCT/US12/030254	WO	WO_2013012455	23-Mar-12	Substrate For Integrated Modules
PCT/US13/022530	WO		22-Jan-13	LWIR Imaging Lens, Image Capturing System Having the Same, and Associated Methods

### Abandoned and Expired Patents and Patent Applications

Status	Country	Application Number	Patent Number	Publication Number	Filing Date	Issue Date	Title
Abandoned	AT	99915050.1	AT_1064650	AT_1064650	26-Oct-00	28-May-03	INTEGRATED MICRO-OPTICAL SYSTEMS
Abandoned	AU	200184694		AU_200184694	01-Aug-01		ILLUMINATION DEVICE AND METHOD FOR LASER PROJECTOR
Abandoned	CA	2329924	CA_2329924	CA_2329924	24-Oct-00	11-Nov-03	DIFFUSING IMAGER AND ASSOCIATED METHODS
Abandoned	CA	2387538		CA_2387538	12-Aug-02		OPTICAL SUBASSEMBLY
Abandoned	CA	2538965		CA_2538965	10-Mar-06		WAVELENGTH COMPENSATED OPTICAL WAVELENGTH DIVISION COUPLER AND ASSOCIATED METHODS
Abandoned	CA	2401976			04-Sep-02		INTEGRATED OPTICAL TRANSCEIVER AND RELATED METHODS
Abandoned	CN	199800809733.8		CN_1276064	30-Mar-00		Integrated Beam Shaper and Use Thereof
Abandoned	CN	199980004499.7	CN_99804499.7	CN_1295678	26-Sep-00	26-Nov-03	INTEGRATED MICRO-OPTICAL SYSTEMS
Abandoned	DE	97909876.1	DE_69705848	DE_1053545	27-Apr-99	25-Jul-01	Method for Making a Plurality of Integrated Optical Heads
Expired / Validated EP	EP	98949707.8	EP_1036415	EP_1036415	3-May-00	11-Jul-07	WAFER LEVEL INTEGRATION OF MULTIPLE OPTICAL ELEMENTS
Expired / Validated EP	EP	97909876.1	EP_0928481	EP_0928481	27-Apr-99	25-Jul-01	METHOD FOR MAKING A PLURALITY OF INTEGRATED OPTICAL HEADS
Expired / Validated EP	EP	97952596.1	EP_0946894	EP_0946894	20-Jul-99	20-Sep-00	BEAM HOMOGENIZER
Abandoned	EP	99922784.6	EP_1076835	EP_1076835	05-Dec-00	21-Apr-04	BROADBAND DIFFRACTIVE DIFFUSER AND ASSOCIATED METHODS
Expired / Validated EP	EP	99904399.5	EP_1053545	EP_1053545	5-Sep-00	9-Apr-03	INTEGRATED OPTICAL

Status	Country	Application Number	Patent Number	Publication Number	Filing Date	Issue Date	Title
							APPARATUS PROVIDING SEPARATED BEAMS ON A DETECTOR AND ASSOCIATED METHODS
Expired / Validated EP	EP	99933617.5	EP_1110124	EP_1110124	2-Feb-01	17-Dec-08	METHOD OF MAKING OPTICAL REPLICAS BY STAMPING IN PHOTORESIST AND REPLICAS FORMED THEREBY
Expired / Validated EP	EP	99915050.1	EP_1064650	EP_1064650	26-Oct-00	28-May-03	INTEGRATED MICRO-OPTICAL SYSTEMS
Expired / Validated EP	EP	01952595.5	EP_1264204	EP_1264204	9-Sep-02	18-May-05	FIBER COUPLER, SYSTEM AND ASSOCIATED METHODS FOR REDUCING BACK REFLECTIONS
Abandoned	EP	00972075.6		EP_1224495	14-May-02		OPTICAL SUBASSEMBLY
Expired / Validated EP	EP	01934845.7	EP_1210631	EP_1210631	13-Nov-01	19-Oct-05	WAVELENGTH COMPENSATED OPTICAL WAVELENGTH DIVISION COUPLER AND ASSOCIATED METHODS
Abandoned	EP	01920210.0			09-Sep-02		INTEGRATED OPTICAL TRANSCEIVER AND RELATED METHODS
Expired / Validated EP	EP	02721257.0	EP_1415374	EP_1415374	6-Oct-03	27-Sep-06	SEPARATION OF INTEGRATED OPTICAL MODULES AND STRUCTURES FORMED THEREBY
Expired / Validated EP	EP	04758439.6	EP_1611468	EP_1611468	26-Oct-05	21-May-08	PACKAGE FOR OPTOELECTRONIC DEVICE ON WAFER LEVEL
Expired / Validated EP	EP	08009231.5	EP_1953577	EP_1953577	20-May-08	17-Jul-13	PACKAGE FOR OPTOELECTRONIC DEVICE ON WAFER LEVEL AND ASSOCIATED METHODS
Abandoned	FR	97909876.1	FR_0928481	FR_1053545	27-Apr-99	25-Jul-01	Method for Making a Plurality of Integrated Optical Heads
Abandoned	IT	97909876.1	IT_0928481	IT_1053545	27-Apr-99	25-Jul-01	Method for Making a Plurality of Integrated Optical Heads
Abandoned	IT	02721257.0	IT_1415374	IT_1415374	06-Oct-03	27-Sep-06	SEPARATION OF INTEGRATED OPTICAL MODULES AND STRUCTURES FORMED THEREBY
Abandoned	JP	8-524300			31-Jul-97		Molding Diffractive Optical Elements

Status	Country	Application Number	Patent Number	Publication Number	Filing Date	Issue Date	Title
Abandoned	JP	1998-515930		JP_2001501351	29-Mar-99		INTEGRATED OPTICAL APPARATUS PROVIDING SEPARATED BEAMS ON A DETECTOR AND ASSOCIATED METHODS
Abandoned	JP	2007-014833		JP_2007150345	25-Jan-07		BEAM HOMOGENIZER
Abandoned	JP	2000-547496	JP_2330862		01-Nov-00		BROADBAND DIFFRACTIVE DIFFUSER AND ASSOCIATED METHODS
Abandoned	JP	2000-530907		JP_2002503011	04-Aug-00		INTEGRATED OPTICAL APPARATUS PROVIDING SEPARATED BEAMS ON A DETECTOR AND ASSOCIATED METHODS
Abandoned	JP	2000-546283			24-Oct-00		DIFFUSING IMAGER AND ASSOCIATED METHODS
Abandoned	JP	2000-538348		JP_2003524849	26-Sep-00		INTEGRATED MICRO-OPTICAL SYSTEMS
Abandoned	JP	2009-235381			09-Oct-09		INTEGRATED MICRO-OPTICAL SYSTEMS
Abandoned	JP	2000-567979		JP_2002523910	01-May-00		DIFFRACTIVE VERTICAL CAVITY SURFACE EMITTING LASER POWER MONITOR AND SYSTEM
Abandoned	JP	2001-566062		JP_2003526909	04-Sep-02		INTEGRATED OPTICAL TRANSCEIVER AND RELATED METHODS
Abandoned	JP	2002-515522		JP_2004525390	31-Jan-03		ILLUMINATION DEVICE AND METHOD FOR LASER PROJECTOR
Abandoned	KR	10-2000-7002100		KR_20010023457	28-Feb-00		INTEGRATED BEAM SHAPER AND USE THEREOF
Abandoned	KR	10-2000-7003622		KR_20010030924	03-Apr-00		Method of dicing wafer level integrated multiple optical elements
Abandoned	US	11/647,397		US_20070110361	29-Dec-06		WAFER LEVEL INTEGRATION OF MULTIPLE OPTICAL ELEMENTS
Abandoned	US	11/929,381		US_20080136955	30-Oct-07		INTEGRATED CAMERA AND ASSOCIATED METHODS
Abandoned	US	09/507,669			22-Feb-00		METHOD OF MAKING OPTICAL REPLICAS BY STAMPING IN POLYMER

Status	Country	Application Number	Patent Number	Publication Number	Filing Date	Issue Date	Title
Abandoned	US	09/592,786			13-Jun-00		DIFFUSING IMAGER AND ASSOCIATED METHODS
Abandoned	US	11/976,730		US_20080128844	26-Oct-07		INTEGRATED MICRO-OPTICAL SYSTEMS AND CAMERAS INCLUDING THE SAME
Reissue Abandoned	US	11/339,824			26-Jan-06		WAVELENGTH COMPENSATED OPTICAL WAVELENGTH DIVISION COUPLER AND ASSOCIATED METHODS
Abandoned	US	10/231,483		US_20040041081	30-Aug-02		INTEGRATED OPTICAL TRANSCEIVER AND RELATED METHODS
Abandoned	US	11/651,525		US_20070181781	10-Jan-07		INTEGRATED OPTICAL TRANSCEIVER
Abandoned	US	12/801,941		US_20100272390	02-Jul-10		INTEGRATED OPTICAL TRANSCEIVER
Abandoned	US	13/285,706		US_20120155798	31-Oct-11		INTEGRATED OPTICAL DEVICE INCLUDING SUBSTRATES STACKED ALONG AN OPTICAL AXIS THEREOF
Abandoned	US	10/164,711		US_20030002789	10-Jun-02		INTEGRATED OPTICAL COUPLER
Expired / Provisional	US	60/330,504			23-Oct-01		TRANSFER OF OPTICAL ELEMENT PATTERNS ON A SAME SIDE OF A SUBSTRATE ALREADY HAVING A FEATURE THEREON
Abandoned	US	11/004,963		US_20050094276	07-Dec-04		TRANSFER OF OPTICAL ELEMENT PATTERNS ON A SAME SIDE OF A SUBSTRATE ALREADY HAVING A FEATURE THEREON
Expired / Provisional	US	60/316,000			31-Aug-01		ASPHERE TESTING USING MICROLUPI
Expired / Provisional	US	60/398,799			29-Jul-02		Etching in combination with other processing techniques to facilitate alignment of a die in a system and structures formed thereby
Expired / Provisional	US	60/449,657			25-Feb-03		DIFFRACTIVE COUPLER OPTIMIZED FOR ALIGNMENT TOLERANCES

Status	Country	Application Number	Patent Number	Publication Number	Filing Date	Issue Date	Title
Expired / Provisional	US	60/457,664			26-Mar-03		WAFER BASED OPTICAL CHASSIS
Expired / Provisional	US	60/538,506			26-Jan-04		FOCAL PLANE CODING FOR DIGITAL IMAGING
Expired / Provisional	US	60/855,365			31-Oct-06		CAMERA SYSTEM AND ASSOCIATED METHODS
Expired / Provisional	US	60/701,505			22-Jul-05		OPTICAL WAVELENGTH DIVISION COUPLER AND ASSOCIATED METHODS
Expired / Provisional	US	61/272,387			18-Sep-09		NONROTATIONALLY SYMMETRIC LENS, IMAGING SYSTEM INCLUDING THE SAME, AND ASSOCIATED METHODS
Expired / Provisional	US	61/272,891			16-Nov-09		Triplexer for an optical fiber, package including the same, and associated methods
Expired / Provisional	US	61/213,976			04-Aug-09		CONTROL SURFACE ROUGHNESS AND PATTERNS BY LIGHT ORIENTATION
Expired / Provisional	US	60/222,301			01-Aug-00		Illumination device and method for laser projection
Expired / Provisional	US	60/257,045			20-Dec-00		Method and apparatus for combining polychromatic collimated light beams using an achromatic diffuser
Expired / Provisional	US	60/257,046			20-Dec-00		Illumination device using multiple laser light sources and having zero-order light leak correction
Expired / Provisional	US	60/257,047			20-Dec-00		Method and apparatus for eliminating laser speckle in a display device
Expired / Provisional	US	60/257,061			20-Dec-00		Method and apparatus for combining parallel collimated lightbeams
Expired / Provisional	US	60/257,062			20-Dec-00		Method and apparatus for eliminating zero-order light leak in an illumination device
Expired / Provisional	US	60/257,063			20-Dec-00		Method and apparatus for providing an illumination source using a segmented diffuser
Expired / Provisional	US	60/282,734			10-Apr-01		Polychromatic display device using monochromatic diffusers, a beam

Status	Country	Application Number	Patent Number	Publication Number	Filing Date	Issue Date	Title
							splitter and a combiner in an optical processor space
Expired / Provisional	US	60/282,735			10-Apr-01		Monochromatic display device using a monochromatic diffuser and a beamsplitter in an optical processor space
Expired / Provisional	US	60/282,736			10-Apr-01		Method and apparatus for combining multiple monochromatic images using a combiner in an optical processor space
Expired / Provisional	US	60/282,737			10-Apr-01		Polychromatic display device using a chromatic combiner, an achromatic diffuser and a beamsplitter in an optical processor space
Expired / Provisional	US	60/282,738			10-Apr-01		Method and apparatus for combining monochromatic light sources using monochromatic diffusers into a polychromatic light source
Expired / Provisional	US	60/284,455			18-Apr-01		Method and apparatus for providing selectable illumination sources in a display device
Expired / Provisional	US	61/098,065			18-Sep-08		SYSTEMS AND METHODS FOR MACHINING MATERIALS
Expired / Provisional	US	61/119,536			03-Dec-08		WAVELENGTH DEPENDENT OPTICAL ELEMENTS AND APPLICATIONS THEREOF
Expired / Provisional	US	61/149,558			03-Feb-09		OPTICAL IMAGING APPARATUS AND METHODS OF MAKING THE SAME
Expired / Provisional	US	61/186,273			11-Jun-09		LENS AND APPLICATIONS THEREOF
Expired / Provisional	US	61/253,337			20-Oct-09		Focus Compensation for Optical Elements and Applications Thereof
Expired / Provisional	US	61/351,630			04-Jun-10		DIFFRACTIVE OPTICAL ELEMENTS AND APPLICATIONS THEREOF
Expired / Provisional	US	61/363,558			12-Jul-10		Focus Compensation For Optical Elements And Applications Thereof
Expired	WO	PCT/US96/01216		WO_1996024864	31-Jan-95		Molding Diffractive Optical Elements

Status	Country	Application Number	Patent Number	Publication Number	Filing Date	Issue Date	Title
Expired	WO	PCT/US98/17295		WO_199910765	21-Aug-98		INTEGRATED BEAM SHAPER AND USE THEREOF
Expired	WO	PCT/US98/20666		WO_199918612	02-Oct-98		WAFER LEVEL INTEGRATION OF MULTIPLE OPTICAL ELEMENTS
Expired	WO	PCT/US97/17279		WO_199813825	26-Sep-97		INTEGRATED OPTICAL HEAD APPARATUS AND ASSOCIATED METHODS
Expired	WO	PCT/US97/23715		WO_199828650	19-Dec-97		BEAM HOMOGENIZER
Expired	WO	PCT/US99/09704		WO_1999057583	04-May-99		BROADBAND DIFFRACTIVE DIFFUSER AND ASSOCIATED METHODS
Expired	WO	PCT/US99/01887		WO_199940578	01-Feb-99		INTEGRATED OPTICAL APPARATUS PROVIDING SEPARATED BEAMS ON A DETECTOR AND ASSOCIATED METHODS
Expired	WO	PCT/US99/14792		WO_2000002089	30-Jun-99		METHOD OF MAKING OPTICAL REPLICAS BY STAMPING IN PHOTORESIST AND REPLICAS FORMED THEREBY
Expired	WO	PCT/US99/08910		WO_199956182	23-Apr-99		DIFFUSING IMAGER AND ASSOCIATED METHODS
Expired	WO	PCT/US99/06661		WO_199949455	26-Mar-99		INTEGRATED MICRO-OPTICAL SYSTEMS
Expired	WO	PCT/US01/21761		WO_2002005004	10-Jul-01		FIBER COUPLER, SYSTEM AND ASSOCIATED METHODS FOR REDUCING BACK REFLECTIONS
Expired	WO	PCT/US99/19694		WO_2000013051	31-Aug-99		DIFFRACTIVE VERTICAL CAVITY SURFACE EMITTING LASER POWER MONITOR AND SYSTEM
Expired	WO	PCT/US00/28086		WO_2001027676	11-Oct-00		OPTICAL SUBASSEMBLY
Expired	WO	PCT/US01/06570		WO_2001065291	02-Mar-01		WAVELENGTH COMPENSATED OPTICAL WAVELENGTH DIVISION COUPLER AND ASSOCIATED METHODS

Status	Country	Application Number	Patent Number	Publication Number	Filing Date	Issue Date	Title
Expired	WO	PCT/US01/07053		WO_2002075877	06-Mar-01		INTEGRATED OPTICAL TRANSCEIVER AND RELATED METHODS
Expired	WO	PCT/US02/06688		WO_2002071560	05-Mar-02		SEPARATING OF OPTICAL INTEGRATED MODULES AND STRUCTURES FORMED THEREBY
Expired	WO	PCT/US02/33279		WO_2003036339	17-Oct-02		TRANSFER OF OPTICAL ELEMENT PATTERNS ON A SAME SIDE OF A SUBSTRATE ALREADY HAVING FEATURE THEREON
Expired	WO	PCT/US02/27478		WO_2003019129	30-Aug-02		CONIC CONSTANT MEASUREMENT METHODS FOR REFRACTIVE MICROLENSES
Expired	WO	PCT/US04/05329		WO_2004077119	24-Feb-04		DIFFRACTIVE COUPLER OPTIMIZED FOR ALIGNMENT TOLERANCES
Expired	WO	PCT/US04/09383		WO_2004088380	26-Mar-04		WAFER BASED OPTICAL CHASSIS AND ASSOCIATED METHODS
Expired	WO	PCT/US07/16156		WO_2008011003	17-Jul-07		CAMERA SYSTEM AND ASSOCIATED METHODS
Expired	WO	PCT/US06/28610		WO_2007014125	24-Jul-06		OPTICAL WAVELENGTH DIVISION COUPLER AND ASSOCIATED METHODS
Expired	WO	PCT/US11/35609		WO_2011140495	06-May-11		Optical Device and Associated Methods
Expired	WO	PCT/US10/49519		WO_2011003066	20-Sep-10		NONROTATIONALLY SYMMETRIC LENS, IMAGING SYSTEM INCLUDING THE SAME, AND ASSOCIATED METHODS
Expired	WO	PCT/US10/58897			03-Dec-10		SELECTIVE DIFFRACTIVE OPTICAL ELEMENT AND A SYSTEM INCLUDING THE SAME
Expired	WO	PCT/US01/24195		WO_2002010855	01-Aug-01		ILLUMINATION DEVICE AND METHOD FOR LASER PROJECTOR
Expired	WO	PCT/US09/57482		WO_2010033805	18-Sep-09		SYSTEMS AND METHODS FOR MACHINING MATERIALS



Status	Country	Application Number	Patent Number	Publication Number	Filing Date	Issue Date	Title
Expired	WO	PCT/US10/2299 9		WO_2010091053	03-Feb-10		Optical Imaging Apparatus And Methods Of Making The Same
Expired	WO	PCT/US10/3839 1		WO_2010144853	11-Jun-10		LENS AND APPLICATIONS THEREOF
Expired	WO	PCT/US10/2297 1		WO_2011049635	03-Feb-10		Focus Compensation For Optical Elements And Applications Thereof
Expired	WO	PCT/US11/6093 8		WO_2012074748	16-Nov-11		Wafer Level Optical Elements and Applications Thereof