

**PATENT ASSIGNMENT**

Electronic Version v1.1  
 Stylesheet Version v1.1

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT

**CONVEYING PARTY DATA**

Name	Execution Date
NORTEL NETWORKS LIMITED	05/17/2011

**RECEIVING PARTY DATA**

<b>Name:</b>	CIENA LUXEMBOURG S.A.R.L.
<b>Street Address:</b>	506A, rue de Neudorf
<b>City:</b>	Grand-Duchy of Luxembourg
<b>State/Country:</b>	LUXEMBOURG
<b>Postal Code:</b>	L-2220

**PROPERTY NUMBERS Total: 1**

Property Type	Number
Application Number:	13264764

**CORRESPONDENCE DATA**

Fax Number: (613)788-2247  
 Phone: 613-788-2200  
 Email: sharon.mattocks@blakes.com  
*Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent via US Mail.*  
 Correspondent Name: BLAKE, CASSELS & GRAYDON LLP  
 Address Line 1: 45 O'CONNOR STREET, SUITE 2000  
 Address Line 4: OTTAWA, CANADA K1P 1A4

<b>ATTORNEY DOCKET NUMBER:</b>	102831/00457
<b>NAME OF SUBMITTER:</b>	Kent Daniels

**Total Attachments: 11**  
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**CH \$40.00 13264764**

**501692980**

**PATENT  
 REEL: 027071 FRAME: 0077**

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## UNITED STATES PATENT AND TRADEMARK OFFICE

### Facsimile Transmission

To:           Name:           BLAKE, CASSELS & GRAYDON LLP  
              Company:       45 O'CONNOR STREET, SUITE 2000  
              Fax Number:     16137882247  
              Voice Phone:  
  
From:         Name:           ASSIGNMENT RECORDATION SERVICES  
              Voice Phone:   571-272-3350

37 C.F.R. 1.6 sets forth the types of correspondence that can be communicated to the Patent and Trademark Office via facsimile transmissions. Applicants are advised to use the certificate of facsimile transmission procedures when submitting a reply to a non-final or final Office action by facsimile (37 CFR 1.8(a)).

#### Fax Notes:

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Pg#	Description
1	Cover Page
2	Notice
6	Batch 2486165 Document 1

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Date and time of transmission: Wednesday, June 01, 2011 1:42:52 PM  
Number of pages including this cover sheet: 07

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PATENT  
REEL: 027071 FRAME: 0079



**UNITED STATES PATENT AND TRADEMARK OFFICE**

UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND  
DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

JUNE 01, 2011

PTAS

BLAKE, CASSELS & GRAYDON LLP  
45 O'CONNOR STREET, SUITE 2000  
OTTAWA, K1P 1A4 CANADA



\*501550069\*

UNITED STATES PATENT AND TRADEMARK OFFICE  
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 571-272-3350. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, MAIL STOP: ASSIGNMENT SERVICES BRANCH, P.O. BOX 1450, ALEXANDRIA, VA 22313.

RECORDATION DATE: 06/01/2011

REEL/FRAME: 026368/0477

NUMBER OF PAGES: 6

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).  
DOCKET NUMBER: 102831/00001

ASSIGNOR:

NORTEL NETWORKS LIMITED

DOC DATE: 05/17/2011

ASSIGNEE:

CIENA LUXEMBOURG S.A.R.L.  
560A, RUE DE NEUDORF, L-2220  
LUXEMBOURG, GRAND DUCHY OF  
LUXEMBOURG, LUXEMBOURG

026368/0477 PAGE 2

APPLICATION NUMBER: 12419368 FILING DATE: 04/07/2009  
PATENT NUMBER: ISSUE DATE:  
TITLE: CLOCK RECOVERY WITH CHANNEL COEFFICIENTS

APPLICATION NUMBER: 12420970 FILING DATE: 04/09/2009  
PATENT NUMBER: ISSUE DATE:  
TITLE: ENABLING AN ETHERNET RING NETWORK TO SCALABLY SUPPORT A HUB-  
AND-SPOKE CONNECTIVITY MODEL

APPLICATION NUMBER: 12421227 FILING DATE: 04/09/2009  
PATENT NUMBER: ISSUE DATE:  
TITLE: IN-BAND SIGNALING FOR POINT-MULTIPOINT PACKET PROTECTION  
SWITCHING

APPLICATION NUMBER: 12430671 FILING DATE: 04/27/2009  
PATENT NUMBER: ISSUE DATE:  
TITLE: VIRTUAL LINKS IN A ROUTED ETHERNET MESH NETWORK

APPLICATION NUMBER: 12431493 FILING DATE: 04/28/2009  
PATENT NUMBER: ISSUE DATE:  
TITLE: PRE-COMPUTING ALTERNATE FORWARDING STATE IN A ROUTED  
ETHERNET MESH NETWORK

APPLICATION NUMBER: 12433316 FILING DATE: 04/30/2009  
PATENT NUMBER: ISSUE DATE:  
TITLE: METHOD AND APPARATUS FOR SUB-CARRIER FREQUENCY CONTROL

APPLICATION NUMBER: 12435973 FILING DATE: 05/05/2009  
PATENT NUMBER: ISSUE DATE:  
TITLE: METHOD AND APPARATUS FOR MULTICAST IMPLEMENTATION IN A  
ROUTED ETHERNET MESH NETWORK

APPLICATION NUMBER: 12436470 FILING DATE: 05/06/2009  
PATENT NUMBER: ISSUE DATE:  
TITLE: OPTICAL ROUTING DEVICE AND OPTICAL NETWORK USING SAME

APPLICATION NUMBER: 12463827 FILING DATE: 05/11/2009  
PATENT NUMBER: ISSUE DATE:  
TITLE: DUAL HOMED E-SPRING PROTECTION FOR NETWORK DOMAIN  
INTERWORKING

APPLICATION NUMBER: 12485375 FILING DATE: 06/16/2009  
PATENT NUMBER: ISSUE DATE:  
TITLE: METHOD FOR ASSURING COUNTERBORE DEPTH OF VIAS ON PRINTED  
CIRCUIT BOARDS AND PRINTED CIRCUIT BOARDS MADE ACCORDINGLY

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APPLICATION NUMBER: 12571722 FILING DATE: 10/01/2009  
PATENT NUMBER: ISSUE DATE:  
TITLE: METHOD AND APPARATUS FOR PROVIDING BYPASS CONNECTIVITY  
BETWEEN ROUTERS

APPLICATION NUMBER: 12608022 FILING DATE: 10/29/2009  
PATENT NUMBER: ISSUE DATE:  
TITLE: SOFT DECODING OF DATA IN A COHERENT OPTICAL RECEIVER

APPLICATION NUMBER: 12644409 FILING DATE: 12/22/2009  
PATENT NUMBER: ISSUE DATE:  
TITLE: ZERO MEAN CARRIER RECOVERY

APPLICATION NUMBER: 12696089 FILING DATE: 01/29/2010  
PATENT NUMBER: ISSUE DATE:  
TITLE: REDUCING OPTICAL SERVICE CHANNEL INTERFERENCE IN PHASE  
MODULATED WAVELENGTH DIVISION MULTIPLEXED (WDM)  
COMMUNICATION SYSTEMS

APPLICATION NUMBER: 12699927 FILING DATE: 02/04/2010  
PATENT NUMBER: ISSUE DATE:  
TITLE: METHOD FOR RAPID DETERMINATION OF LOWEST COST WAVELENGTH  
ROUTES THROUGH A PHOTONIC NETWORK BASED ON PRE-VALIDATED  
PATHS

APPLICATION NUMBER: 12718733 FILING DATE: 03/05/2010  
PATENT NUMBER: ISSUE DATE:  
TITLE: FAST VIRTUAL CONCATENATION SETUP

APPLICATION NUMBER: 12721802 FILING DATE: 03/11/2010  
PATENT NUMBER: ISSUE DATE:  
TITLE: SELF TEST OF A DUAL POLARIZATION TRANSMITTER

APPLICATION NUMBER: 12721876 FILING DATE: 03/11/2010  
PATENT NUMBER: ISSUE DATE:  
TITLE: INTEGRATED TRANSMIT AND RECEIVE MODULES FOR A COHERENT  
OPTICAL TRANSMISSION SYSTEM

APPLICATION NUMBER: 12722841 FILING DATE: 03/12/2010  
PATENT NUMBER: ISSUE DATE:  
TITLE: METHOD TO TRANSFORM A DYNAMIC ANALOG OPTICAL NETWORK TO A  
DIGITAL REPRESENTATION

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APPLICATION NUMBER: 12753381 FILING DATE: 04/02/2010  
PATENT NUMBER: ISSUE DATE:  
TITLE: HIGH DENSITY SWITCHING PLATFORM WITH INTERBAY CONNECTIONS  
ARRANGEMENT

APPLICATION NUMBER: 12892959 FILING DATE: 09/29/2010  
PATENT NUMBER: ISSUE DATE:  
TITLE: E-SPRING (G.8032) INTERWORKING TO PROVIDE ACCESS PROTECTION

APPLICATION NUMBER: 13028475 FILING DATE: 02/16/2011  
PATENT NUMBER: ISSUE DATE:  
TITLE: METHOD AND SYSTEM FOR OPTICAL CONNECTION VALIDATION

APPLICATION NUMBER: 12966245 FILING DATE: 12/13/2010  
PATENT NUMBER: ISSUE DATE:  
TITLE: FABRIC EXTRA TRAFFIC

APPLICATION NUMBER: 13040590 FILING DATE: 03/04/2011  
PATENT NUMBER: ISSUE DATE:  
TITLE: MAKE BEFORE BREAK OPTICAL MESH NETWORK ELEMENT

APPLICATION NUMBER: 13047411 FILING DATE: 03/14/2011  
PATENT NUMBER: ISSUE DATE:  
TITLE: SHARED PHOTONIC MESH

APPLICATION NUMBER: 13047356 FILING DATE: 03/14/2011  
PATENT NUMBER: ISSUE DATE:  
TITLE: COHERENT OPTICAL HUBBING

APPLICATION NUMBER: 61140265 FILING DATE: 12/23/2008  
PATENT NUMBER: ISSUE DATE:  
TITLE: INTEGRATED TRANSMIT AND RECEIVE MODULES FOR A COHERENT  
OPTICAL TRANSMISSION SYSTEM

ASSIGNMENT SERVICES BRANCH  
PUBLIC RECORDS DIVISION

PATENT ASSIGNMENT

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06/01/2011  
 501550069

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
Nortel Networks Limited	05/17/2011

RECEIVING PARTY DATA

Name:	Ciena Luxembourg S.a.r.l.
Street Address:	560A, rue de Neudorf, L-2220
City:	Luxembourg, Grand Duchy of Luxembourg
State/Country:	LUXEMBOURG

PROPERTY NUMBERS Total: 27

Property Type	Number
Application Number:	12419368
Application Number:	12420970
Application Number:	12421227
Application Number:	12430671
Application Number:	12431493
Application Number:	12433316
Application Number:	12435973
Application Number:	12436470
Application Number:	12463827
Application Number:	12485375
Application Number:	12571722
Application Number:	12608022
Application Number:	12644409
Application Number:	12696089
Application Number:	12699927
Application Number:	12718733

CH \$1080.00 12419368



Application Number:	12721802
Application Number:	12721876
Application Number:	12722841
Application Number:	12753381
Application Number:	12892959
Application Number:	13028475
Application Number:	12966245
Application Number:	13040590
Application Number:	13047411
Application Number:	13047356
Application Number:	61140265

**CORRESPONDENCE DATA**

Fax Number: (613)788-2247  
*Correspondence will be sent via US Mail when the fax attempt is unsuccessful.*  
Phone: 713-788-2200  
Email: sharon.mattocks@blakes.com  
Correspondent Name: BLAKE, CASSELS & GRAYDON LLP  
Address Line 1: 45 O'CONNOR STREET, SUITE 2000  
Address Line 4: OTTAWA, CANADA K1P 1A4

ATTORNEY DOCKET NUMBER:	102831/00001
NAME OF SUBMITTER:	Kent Daniels

Total Attachments: 4  
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## ASSIGNMENT OF PATENT RIGHTS

THIS PATENT ASSIGNMENT (this "Patent Assignment") between Nortel Networks Limited, a corporation incorporated under the laws of Canada whose registered address is 5945 Airport Road, Suite 360, Mississauga, Ontario, L4V 1R9, Canada ("**Assignor**"), and Ciena Luxembourg S.a.r.l., a Société à responsabilité limitée organized under the laws of the Grand Duchy of Luxembourg having its registered office at 560A, rue de Neudorf, L-2220, Luxembourg, Grand-Duchy of Luxembourg ("**Assignee**").

**WHEREAS**, Assignor owns all right, title, and interest in and to the patents and patent applications set forth on Schedule A attached hereto (the "**Assigned Patents**").



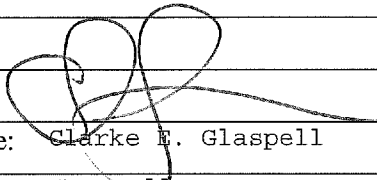
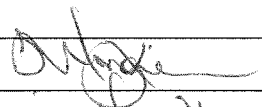
**NOW, THEREFORE**, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor does hereby sell, assign, transfer and set over to Assignee, Assignor's entire right, title and interest in and to the Assigned Patents (and in the case of any patent applications included in the Assigned Patents, any patents issuing from such patent applications), for the United States and all other countries throughout the World, including any continuations, divisions, continuations-in-part, reissues, reexaminations, or extensions which may be filed by Assignee or its successors or assigns, or foreign equivalents thereof, and including the subject matter of all claims which may be obtained therefrom for its own use and enjoyment, and for the use and enjoyment of its successors, assigns or other legal representatives, as fully and entirely as the same would have been held and enjoyed by Assignor if this Patent Assignment and sale had not been made, together with the right to sue and collect for past and future infringement or other unauthorized use thereof, and any and all corresponding rights that, now or hereafter, may be secured in the United States and all other countries throughout the World and the physical patent prosecution files in Assignor's possession or under Assignor's control of any of the foregoing.

Assignor authorizes and requests the appropriate government authority to record Assignee as owner of the Assigned Patents, including any continuations, divisions, continuations-in-part, reissues, reexaminations or extensions thereof which may be filed by Assignee or its successors or assigns, and to issue any and all letters patent of the United States and all other countries throughout the World thereon to Assignee, as assignee of the entire right, title and interest in, to and under the same, for the sole use and enjoyment of Assignee, its successors, assigns or other legal representatives.

Assignor shall take all actions and execute and deliver such other documents that Assignee may reasonably request at Assignee's cost, to effect the terms of this Patent Assignment and to perfect Assignee's title in and to those Assigned Patents assigned to it hereunder.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK;  
SIGNATURE PAGES FOLLOW]

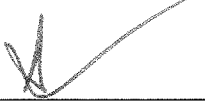
IN WITNESS WHEREOF, Assignor has caused this Patent Assignment to be executed by its duly authorized representatives as of the Effective Date.

<b>ASSIGNOR</b>	
<b>NORTEL NETWORKS LIMITED</b>	
By: 	Witnessed By: 
Name: John M. Doolittle	Name: Taneia Wington
Title: Senior Vice-President, Corporate Services and Chief Financial Officer	Title: Co-ordinator, Board Services
Date:	
At:	
By: 	Witnessed By: 
Name: Clarke E. Glaspell	Name: Taneia Wington
Title: Controller	Title: Co-ordinator, Board Services
Date:	
At:	

Province of Ontario

City of Mississauga

On this 17<sup>\*</sup> day of May 2011, before me personally appeared John M. Doolittle and Clarke E. Glaspell, both known to me, who being duly sworn, did depose and say that the foregoing Patent Assignment was made for the purposes and considerations so stated, and that they were authorized to act of behalf of Nortel Networks Limited in entering into such Patent Assignment.

  
 \_\_\_\_\_

Notary Public:  
 My Commission Expires: \_\_\_\_\_ N/A

**ACKNOWLEDGED BY:**

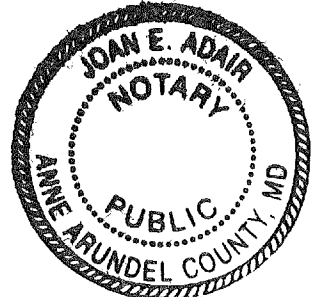
**CIENA LUXEMBOURG S.A.R.L.**

By: *David M. Rothenstein*

Name: **David M. Rothenstein**  
Title: **Senior VP & General Counsel**

State of MARYLAND )  
County Anne Arundel ) ss.  
City of Anne Arundel )

On this 23<sup>rd</sup> day of MAY 2011, before me personally appeared DAVID M. Rothenstein known to me, who being duly sworn, did depose and say that the foregoing Patent Assignment was made for the purposes and considerations so stated, and that they were authorized to act of behalf of Ciena Luxembourg S.a.r.l. in acknowledging such Patent Assignment.



*Joan E. Adair*  
Notary Public: JOAN E. ADAIR  
My Commission Expires: 10/7/2012

## SCHEDULE A

App Filed Country Code	App Serial Number
US	12/419,368
US	12/420,970
US	12/421,227
US	12/430,671
US	12/431,493
US	12/433,316
US	12/435,973
US	12/436,470
US	12/463,827
US	12/485,375
US	12/571,722
US	12/608,022
US	12/644,409
US	12/696,089
US	12/699,927
US	12/718,733
US	12/721,802
US	12/721,876
US	12/722,841
US	12/753,381
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