

## PATENT ASSIGNMENT

Electronic Version v1.1  
 Stylesheet Version v1.1

| SUBMISSION TYPE:   | NEW ASSIGNMENT         |               |                   |                       |                 |                    |            |                |          |              |       |
|--|------------------------|---------------|-------------------|-----------------------|-----------------|--------------------|------------|----------------|----------|--------------|-------|
| NATURE OF CONVEYANCE:  | ASSIGNMENT             |               |                   |                       |                 |                    |            |                |          |              |       |
| CONVEYING PARTY DATA   |                        |               |                   |                       |                 |                    |            |                |          |              |       |
| <table border="1"> <thead> <tr> <th>Name</th> <th>Execution Date</th> </tr> </thead> <tbody> <tr> <td>Vladimir S. Grigoryan</td> <td>08/17/2012</td> </tr> <tr> <td>Michael Y. Frankel</td> <td>08/17/2012</td> </tr> </tbody> </table>  |                        | Name          | Execution Date    | Vladimir S. Grigoryan | 08/17/2012      | Michael Y. Frankel | 08/17/2012 |                |          |              |       |
| Name   | Execution Date         |               |                   |                       |                 |                    |            |                |          |              |       |
| Vladimir S. Grigoryan  | 08/17/2012             |               |                   |                       |                 |                    |            |                |          |              |       |
| Michael Y. Frankel   | 08/17/2012             |               |                   |                       |                 |                    |            |                |          |              |       |
| RECEIVING PARTY DATA   |                        |               |                   |                       |                 |                    |            |                |          |              |       |
| <table border="1"> <tr> <td>Name:</td> <td>Ciena Corporation</td> </tr> <tr> <td>Street Address:</td> <td>7035 Ridge Road</td> </tr> <tr> <td>City:</td> <td>Hanover</td> </tr> <tr> <td>State/Country:</td> <td>MARYLAND</td> </tr> <tr> <td>Postal Code:</td> <td>21076</td> </tr> </table>  |                        | Name:         | Ciena Corporation | Street Address:       | 7035 Ridge Road | City:              | Hanover    | State/Country: | MARYLAND | Postal Code: | 21076 |
| Name:  | Ciena Corporation      |               |                   |                       |                 |                    |            |                |          |              |       |
| Street Address:  | 7035 Ridge Road        |               |                   |                       |                 |                    |            |                |          |              |       |
| City:  | Hanover                |               |                   |                       |                 |                    |            |                |          |              |       |
| State/Country:   | MARYLAND               |               |                   |                       |                 |                    |            |                |          |              |       |
| Postal Code:   | 21076                  |               |                   |                       |                 |                    |            |                |          |              |       |
| PROPERTY NUMBERS Total: 1  |                        |               |                   |                       |                 |                    |            |                |          |              |       |
| <table border="1"> <thead> <tr> <th>Property Type</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>Application Number:</td> <td>13589470</td> </tr> </tbody> </table>  |                        | Property Type | Number            | Application Number:   | 13589470        |                    |            |                |          |              |       |
| Property Type  | Number                 |               |                   |                       |                 |                    |            |                |          |              |       |
| Application Number:  | 13589470               |               |                   |                       |                 |                    |            |                |          |              |       |
| CORRESPONDENCE DATA  |                        |               |                   |                       |                 |                    |            |                |          |              |       |
| <p>Fax Number: 7043669744<br/>         Phone: 704-790-3600<br/>         Email: bbrown@worldpatents.com<br/> <i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent via US Mail.</i></p> <p>Correspondent Name: Clements Bernard PLLC<br/>         Address Line 1: 1901 Roxborough Road<br/>         Address Line 2: Suite 250<br/>         Address Line 4: Charlotte, NORTH CAROLINA 28211</p> |                        |               |                   |                       |                 |                    |            |                |          |              |       |
| ATTORNEY DOCKET NUMBER:  | 10.2110/CIENA          |               |                   |                       |                 |                    |            |                |          |              |       |
| NAME OF SUBMITTER:   | Christopher L. Bernard |               |                   |                       |                 |                    |            |                |          |              |       |
| Total Attachments: 1<br>source=10_2110_Assignment#page1.tif  |                        |               |                   |                       |                 |                    |            |                |          |              |       |

OP \$40.00 13589470

**ASSIGNMENT**

WHEREAS, **Vladimir S. Grigoryan and Michael Y. Frankel** (hereinafter referred to as "ASSIGNORS") have invented certain new and useful improvements in an invention entitled:

SYSTEMS AND METHODS FOR THE COMPENSATION OF  
NONLINEAR CROSS POLARIZATION AND CROSS PHASE MODULATION  
IN DUAL POLARIZATION COHERENT CHANNELS

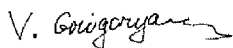
for which U.S. Patent Application No. **13/589,470** was filed on **08-20-2012**.

WHEREAS, **CIENA CORPORATION**, 7035 Ridge Road, Hanover, MD 21076 USA (hereinafter referred to as "ASSIGNEE") is desirous of acquiring the entire right, title, and interest in and to said invention, and in and to said application and any Letters Patent that may issue thereon;

NOW, THEREFORE, in accordance with obligations entered into pursuant to an Employment Agreement or other agreement and/or for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, ASSIGNORS hereby sell, transfer and assign to said ASSIGNEE, and to ASSIGNEE'S successors and assigns, ASSIGNORS' entire right, title, and interest in and to said invention and improvements invented and originated by ASSIGNORS in the United States and its territorial possessions and in any and all foreign countries and to all Letters Patent or similar legal protections in the United States and its territorial possessions and in any and all foreign countries to be obtained for said invention by said application or any application claiming priority to/from the application, or any continuation, division, continuation-in-part, reexamination, renewal, substitute, extension, or reissue thereof or any legal equivalent thereof in a foreign country for the full term(s) for which the same may be granted; and authorize and request the Commissioner for Patents of the United States and any official of any foreign country whose duty it is to issue patents or legal equivalents thereof, to issue same for this invention to ASSIGNEE, its lawful successors and assigns.

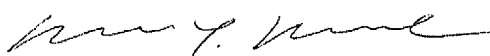
ASSIGNORS further covenant that ASSIGNEE will, upon its request, be provided promptly with all pertinent facts and documents relating to said invention, said application, and said Letters Patent and legal equivalents thereof in foreign countries as may be known and accessible to ASSIGNORS and will testify as to the same in any interference or litigation related thereto and will promptly execute and deliver to ASSIGNEE or its legal representative any and all papers, instruments, or affidavits required to apply for, obtain, maintain, issue, and/or enforce said invention, said application, and said Letters Patent and legal equivalents thereof in foreign countries which may be necessary or desirable to carry out the purposes thereof.

IN WITNESS WHEREOF, we have hereunto set hand and signed on the date indicated below:



**Vladimir S. Grigoryan**

Date: August 17, 2012



**Michael Y. Frankel**

Date:    August 17, 2012