2004 Optical Components Market Perception Study

EXECUTIVE SUMMARY

The optical components industry has undergone a massive transformation over the past two years. The collapse of the worldwide telecom market forced many components suppliers, both established companies and startups, out of the business, providing opportunities for wily consolidators to make their mark.

The continuing emergence of China as a source of low-cost optical components is another huge driver of market change: Chinese vendors are now actively marketing their products to the West, while Western manufacturers are setting up operations in China and other Asia/Pacific markets to take advantage of the inexpensive labor that has made China an important force in the optical components market.

The competitive landscape has changed almost beyond recognition. Of the four largest optical components vendors in 2002, only one – JDS Uniphase – remains active today. Hundreds of manufacturers are now vying for market share in dozens of optical component product categories, making for a mind-boggling array of supplier and product options for buyers.

Heavy Reading's 2004 Optical Components Market Perception Study helps clarify the current state of this critical market segment. The core of the study is an invitation-only survey of buyers of optical components worldwide. More than 300 corporate executives, product managers, engineers, and sales and marketing staffs from more than 200 systems vendors, original equipment manufacturers (OEMs), consultancies, and systems integrators participated in the survey.

The survey was set up to accomplish three main objectives:

1. To determine what buyers of optical components consider the most important factors influencing their choices of products and vendors.
2. To measure and evaluate buyer interest in finding suppliers that can deliver most or all of the components they need (the “one-stop shop”) as well as in purchasing products at the subsystem level.
3. To gauge market perceptions of the optical components suppliers that now offer the widest product ranges.

In line with these objectives, the survey focused on manufacturers with the broadest range of optical components in their portfolio. Only vendors with six or more different types of optical components were included in the survey. The final list of manufacturers included 17 public companies and 22 private companies.
In measuring buyer perceptions of suppliers, we grouped optical components into the following eight general categories:

- Commodity passive components (including isolators, circulators, couplers, splitters and combiners, fixed attenuators, waveplates, and collimators)
- DWDM components (multichannel DWDM mux/demux and fixed add-drop modules, based on thin-film, planar waveguide, or grating technology)
- Cable and connectors (with optical fiber, patchcords, pigtails, and connector assemblies)
- Lasers/detectors (including lasers and transmitters for 850nm, 1310nm, and 1550nm communication; modulators and receiver components [in chip form or packaged into a subassembly]; 980 and 14xx pump lasers)
- Optical transceivers (transmitter and receiver components integrated in a single module, including Ethernet, Sonet/SDH, cable TV, FTTH, DWDM, and CWDM products)
- Optical amplifiers (including EDFA, EDWA, Raman, and semiconductor optical amplifiers)
- Optical switching and reconfigurable optical add-drop multiplexer (ROADM) components (ranging from small optomechanical switches to large MEMS matrix switches and including ROADMs and related components such as wavelength blockers and tunable filters)
- Signal conditioning components (including multichannel optical monitors [OCMs], variable optical attenuators [VOAs], and integrated VOA array and mux [VMUX], dynamic gain equalizer [DGE], and tunable dispersion compensator [TDC] modules)

**Key Findings**

**Buyers of optical components want to reduce the number of vendors with which they deal.** Just over 60 percent of survey respondents said they now buy components from six or more suppliers. About the same percentage of respondents said they would prefer to deal with no more than five different suppliers, with most seeing three to five vendors as the ideal source list.

**Although they want to deal with fewer suppliers, buyers have little interest in purchasing all of their optical components from a single source.** The idea of the one-stop shop for optical components did not draw much enthusiasm from survey respondents: Only 3.6 percent said they consider single-sourcing to be “essential” for their purchasing plans.

**Product reliability and product performance are the two most important factors for buyers when they choose optical components suppliers.** More than 54 percent of respondents said product performance was an essential factor in choosing suppliers, and more than 61 percent said product reliability was essential.

**For many vendors, there is a decided disconnect between the types of optical components they offer and buyer perceptions of what they offer.** Manufacturers such as Agilent Technologies and Bookham Technology are widely perceived as having complete or nearly complete product lines, even though they have significant gaps in their portfolios. Other vendors don’t get enough credit for the scope of their product offerings. This is especially the case for some vendors based in China.

**JDS Uniphase is widely recognized as the leading supplier of optical components in terms of both name recognition and market leadership.** JDSU finished first or tied for first in all eight product categories included in the Heavy Reading market perception survey. JDSU’s strong showing is not surprising, considering that it offers the widest range of optical components on the market and has developed a strong brand in the market.
Agilent Technologies has captured significant market mindshare, especially in the optical transceivers sector. Agilent has a stronger reputation than JDSU for market leadership in optical transceivers, and more survey respondents said they have evaluated Agilent's products than components from any other vendor, including JDSU.

A number of privately held companies are perceived as being significant market leaders in some individual product categories. DiCon Fiberoptics tied Agilent for second place in the optical switches/ROADMs sector and finished third among suppliers of signal conditioning components and basic passive components. Gould Fiber Optics earned a first-place tie with Agilent and JDSU in the cables and connectors market perception survey.

Suppliers based in China are suffering from generally low market recognition among prospective buyers. Components buyers generally gave Chinese vendors lower marks for brand recognition and market leadership. Even among buyers from Asia, manufacturers from China did not receive high brand or market leadership recognition.

Survey Components

The market perception survey for this report was conducted in two stages. In the first stage, a list of product categories and vendors was developed using an online report entitled "Who Makes What: Optical Components," published on the Website of Light Reading, the parent company of Heavy Reading. Simultaneously, the "Who Makes What" report was publicized on www.c-fol.net, a Website catering to Chinese telecom vendors. That site posted an open invitation to components vendors to submit their company and product details to Light Reading for inclusion in the "Who Makes What" report, and subsequently to the Heavy Reading survey.

For the second stage of the survey, an online questionnaire was developed based on the product categories and vendor lists from the refined "Who Makes What" report. Rather than survey all vendors in each individual product category, Heavy Reading decided to focus the online survey on those components suppliers with the broadest product ranges. Ultimately, we chose to include vendors with optical components in six or more product categories. This focus allowed for a more meaningful investigation of buyer attitudes toward "one-stop shops."

The first part of the online questionnaire comprised a series of multiple-choice questions devised to assess potential customers' attitudes toward buying from a single supplier and toward purchasing subsystems, as opposed to components. The second part of the survey focused on those buyers' recognition and perception of individual suppliers.

Survey respondents were asked to identify the product categories in which they were familiar with vendors, as well as those categories in which they personally specify, recommend, or purchase products. For the product categories thus identified, respondents were asked to identify from the list of 39 companies all those that sold products in the specific category, as well as those that the respondent considered to be market leaders in that category. In addition, respondents were asked to identify what they consider to be the biggest problem in each of the product categories with which they were familiar. All respondents were then asked to comment on their overall perception of the optical components market.

Survey Respondents

Invitations to participate in the survey were sent on March 15 and March 22, 2004. The survey was open to participation from March 15 through March 26. The invitation drew responses from 762 potential participants. Of those candidates, 301 met Heavy Reading's qualifications to participate and were included in the final survey results. The final base of survey participants represents employees from more than 200 different systems vendors, OEMs, and system integrators. Specific demographic breakouts of the survey base are as follows:
Excerpt 1: Survey Participants by Region

- U.S.: 45.2%
- Europe: 18.9%
- Asia/Pacific (Except China): 13.3%
- Canada: 7.0%
- China: 6.0%
- Middle East: 5.0%
- Central/South America: 3.3%
- Other: 1.3%

Excerpt 2: Survey Participants by Company Type

- OEM: 34.7%
- Systems Vendor: 29.9%
- Systems Integrator: 14.9%
- Other (e.g. Consultant, VAR): 20.5%

Excerpt 3: Survey Participants by Job Function

- Engineer: 43.9%
- Product Manager: 15.0%
- Corporate Manager: 15.6%
- Sales & Marketing: 13.0%
- Other (e.g. R&D, Consultant): 12.5%
- Other (e.g. R&D, Consultant): 12.5%
The questionnaire was constructed so that respondents answered market perception questions involving only those product categories with which they claimed to be familiar. The numbers of respondents who participated in the specific product category surveys are as follows:

**Excerpt 4: Respondents by Product Categories**

<table>
<thead>
<tr>
<th>PRODUCT CATEGORY</th>
<th># OF RESPONDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Passive Components</td>
<td>101</td>
</tr>
<tr>
<td>DWDM Components</td>
<td>99</td>
</tr>
<tr>
<td>Cables and Connectors</td>
<td>81</td>
</tr>
<tr>
<td>Lasers/Detectors</td>
<td>89</td>
</tr>
<tr>
<td>Optical Transceivers</td>
<td>103</td>
</tr>
<tr>
<td>Optical Amplifiers</td>
<td>68</td>
</tr>
<tr>
<td>Optical Switches and ROADMs</td>
<td>65</td>
</tr>
<tr>
<td>Signal Conditioning Components</td>
<td>40</td>
</tr>
</tbody>
</table>

**Report Structure**

The report begins by focusing on the attitudes that buyers of optical components have toward their suppliers in general, including full results and analyses of responses to questions about the number of suppliers with which buyers now deal, what buyers consider to be the optimal number of suppliers, the desirability of buying from suppliers that offer a wide range of optical component types, and overall perception of the range and quality of optical components now on the market. Also included is an analysis of survey responses to the issue of using components or subsystems in building products.

The report then analyzes survey responses regarding the main factors that influence buyers’ choices of optical components suppliers. Factors evaluated include price, product performance, product reliability, a supplier’s reputation for reliability, after-sales and technical support, and a supplier’s product range.

**Excerpt 5: Comparative Scores for Vendor Selection Factors**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>3.250</td>
</tr>
<tr>
<td>Product Performance</td>
<td>3.490</td>
</tr>
<tr>
<td>Product Reliability</td>
<td>3.567</td>
</tr>
<tr>
<td>Supplier's Reputation for Reliability</td>
<td>2.797</td>
</tr>
<tr>
<td>After-Sales and Technical Support</td>
<td>2.820</td>
</tr>
<tr>
<td>Range of Vendor's Product Line</td>
<td>2.063</td>
</tr>
</tbody>
</table>
The report then presents and analyzes overall market perception results for each of the 39 optical components suppliers included in the survey. Results in this section focus primarily on buyer perception of the scope of each vendor’s product line. User perceptions are compared with each vendor’s product offerings to determine the overall accuracy of user perceptions of suppliers.

Following this analysis, the report presents full results and analysis of the market perception survey by product type. Results for each category include name recognition and market leadership ratings for all vendors offering products in that sector. Appendix A of the report provides a detailed description of the methodology used by Heavy Reading for the survey and report.

In addition to the full report, purchasers of this study receive access to a searchable database of all survey results. In addition to reviewing full survey results, the searchable database enables subscribers to analyze data by a range of specific criteria, including:

- Responses by geographic region
- Responses by company type
- Responses by job type

Heavy Reading's 2004 Optical Components Market Perception Study will be essential reading matter for any company selling or buying optical components, investing in the companies that make those products – or looking to sort the leaders from the followers in this important market.

2004 Optical Components Market Perception Study is published in PDF format.