CHP Max
Headend Optics Platform

CHP CORWave® II
1 GHz C-Band DWDM
Forward Transmitters

FEATURES

• Consolidation or elimination of OTNs and node splitting by harvesting plant assets with up to 16 full-spectrum ITU wavelengths on a single fiber
• 16 dBm output option helps eliminate the need for EDFAs saving cost and complexity in many designs
• Externally modulated transmitters do not require dispersion compensation in redundant architectures and can support repeated amplifications and long links
• Configure, monitor, and manage with CORView™ Element Management System

PRODUCT OVERVIEW

The CHP CORWave® II 1 GHz C-Band multiwavelength forward transmitter in the CHP form factor is capable of multiplexing up to 16 ITU full-spectrum wavelengths in the 1550 nm range over as little as one fiber, saving cable operators capital that they would otherwise have to spend on new fiber runs. As part of the CORWave II ITU multiwavelength plan, the CHP CORWave also allows operators to run new revenue-generating business services alongside residential services. With long reach capabilities in an all-digital environment, the CHP CORWave II is flexible enough to consolidate or eliminate OTN sites and split nodes in distant locations.
Increase Revenue Faster

Operators with a large base of active CHP Max5000® Converged Headend Platform can use the CHP CORWave® II to deploy new, revenue-generating services, reduce complexity for existing deployments, and transition easily to new CHP installs. In addition, the rapidly deployable CHP CORWave II complements all CHP Max5000 application modules and components and adds robust and scalable capacity at a cost-effective price point. For added operational value, operators can monitor CORWave II transmitters via the CORView Element Management System, which provides an intuitive and user-friendly interface for security, discovery, configuration, and inventory functions.

Reduce Complexity

The CHP CORWave II supports full-spectrum broadcast and narrowcast capability at 54 – 1006 MHz, with BC/NC signal combining done in the environmentally controlled headend or hub. This allows narrowcast tiers to be easily added in an analog environment, and protects investment during the migration to all-digital without stranded capital.

Available in:

- 16 dBm variable output
  - Front or Rear fiber
  - Extended linearized version

- 10 dBm fixed output
  - Front or Rear fiber
  - Extended linearized version

RELATED PRODUCTS

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<tr>
<th>Chassis</th>
<th>Optical Patch Cords</th>
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<tr>
<td>Power Supplies</td>
<td>Optical Passives</td>
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<td>Management Module</td>
<td>Installation Services</td>
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The following diagrams depict typical applications for combining four, eight, and 16 CHP CORWave II ITU wavelengths in forward paths that are multiplexed onto a single fiber. For minimal SBS fiber impairments the recommended launch power is 11 dBm per wavelength for one to four wavelengths, 10 dBm per wavelength for eight wavelengths per fiber, and 7 dBm per wavelength for 16 wavelengths. This facilitates immediate forward path segmentation and reduces the node service group size. **Follow the implementation requirements listed in the table on the next page to ensure a successful implementation.** Contact ARRIS for implementation details and solutions for other applications.
IMPLEMENTATION REQUIREMENTS FOR CONTENT LOADING PER WAVELENGTH

<table>
<thead>
<tr>
<th>Per Fiber*</th>
<th>54 - 250 MHz</th>
<th>250 MHz - 1 GHz</th>
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<tbody>
<tr>
<td>Analog Content per wavelength</td>
<td>Common content</td>
<td>Common content</td>
</tr>
<tr>
<td>Digital Content per wavelength</td>
<td>Common content</td>
<td>Common or Unique content</td>
</tr>
</tbody>
</table>

* Different fibers may carry different content as long as the above implementation requirements per wavelength are met

SPECIFICATIONS

**Optical**
- Wavelength: 1525 to 1565 nm, 16 optimized wavelengths
- Output Power: 9.5 dBm (fixed), 15-17 dBm (variable), typical

**RF**
- Operating Bandwidth: 45 to 1006 MHz
- Channel loading:
  - 79 analog channels plus 75 QAM channels (6 dB below analog)
  - 30 analog channels plus 125 QAM channels (6 dB below analog)
  - 155 QAM channels, 6-MHz QAM channels
- Input RF Power:
  - 14 dBmV for 79 analog channels with 75 QAM channels @ –6 dB
  - 16 dBmV for 30 analog carriers with 125 QAM channels @ –6 dB
  - 12 dBmV for 155 QAM
- RF Input Impedance: 75 Ω
- Flatness: ± 1.0 dB
- Test Point: –20 ± 1.0 dB

**Typical Link Performance**
- CCNR:
  - 50 dB for 79 analog channels, 75 QAM channels (6 dB below analog) \(^1\)
  - 50 dB for 30 analog channels, 125 QAM channels (6 dB below analog) \(^2,3\)
- MER: 38 dB (for all three cases) \(^4\)
- BER: 1E-8 (Annex B test) (for all three cases)
- CSO:
  - –58 dBc for 79 analog channels, 75 QAM channels (6 dB below analog) \(^1,2\)
  - –60 dBc for 30 analog channels, 125 QAM channels (6 dB below analog) \(^2,3\)
- CTB:
  - –58 dBc for 79 analog channels, 75 QAM channels (6 dB below analog) \(^1,2\)
  - –60 dBc for 30 analog channels, 125 QAM channels (6 dB below analog) \(^2,3\)
- SBS Suppression: 11 dBm (fixed), 13 dBm (variable) \(^5\)
**SPECIFICATIONS CONTINUED**

**Electrical/Environmental/Mechanical**

<table>
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<tr>
<th>Specification</th>
<th>Details</th>
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<tr>
<td>Power Consumption</td>
<td>27 W typical (16 dBm), 18 W typical (10 dBm)</td>
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<tr>
<td>Optical Connector</td>
<td>SC/APC</td>
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<tr>
<td>RF Connector</td>
<td>F-type</td>
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<tr>
<td>Control Interface</td>
<td>CORView Enterprise Element Manager Software or CORView Lite Element Manager Software</td>
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<tr>
<td>Dimensions, W x H x D, in (cm)</td>
<td>1.25 x 3.4 x 18.5 (3.2 x 8.7 x 47.0)</td>
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<tr>
<td>Weight, lbs (kg)</td>
<td>2.75 (1.24)</td>
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<tr>
<td>Operating Temperature Range</td>
<td>32° to 122°F (0° to 50°C)</td>
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<tr>
<td>Storage Temperature Range</td>
<td>–4° to 140°F (–20° to 60°C)</td>
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<tr>
<td>Humidity</td>
<td>85%, noncondensing, max.</td>
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</tbody>
</table>

**NOTES:**

1. CNR, MER, and CSO/CTB may degrade up to 0.5, 0.5, and 2.0 dB, respectively, over full operating temperature range and overall polarization states.
2. Link performance based on 8 wavelengths over 40 km or 16 wavelengths over 20 km, including optical passives, at the receiver, 79 NTSC channels measured according to standard procedures, and 0 dBm into the receivers.
3. Link performance based on 8 wavelengths over 40 km or 16 wavelengths over 20 km, including optical passives, at the receiver, 30 NTSC channels measured according to standard procedures, and 0 dBm into the receivers.
4. Link performance based on 8 wavelengths over 40 km or 16 wavelengths over 20 km, including optical passives, at the receiver, measured with respect to ITU Annex B.
5. SBS suppression based on 40 km of fiber. The fixed power version should never exceed 11 dBm, the variable power can handle up to 13 dBm of launch level, but it is highly recommended to keep the per wavelength launch power to 11 dBm if the design can handle it.

**IMPLEMENTATION REQUIREMENTS FOR ONE FIBER MULTIWAVELENGTH APPLICATIONS**

**Unique Requirements**

| Maximum launch power/wavelength | 16 dBm variable units: 13 dBm (single wavelength), 13 dBm (4 wavelengths), 11.5 dBm (8 wavelengths), 8.5 dBm (16 wavelengths) 9.5 dBm fixed units: 11 dBm (single wavelength), 11 dBm (4 wavelengths), 10 dBm (8 wavelengths), 7 dBm (16 wavelengths) ¹ ² |

**Common Requirements**

| Analog Content                  | Must use common analog content                                         |
| Digital Content                 | Must use common digital content below 250 MHz ¹                        |
| Analog RF Input Level           | 16 dBmV/channel, ² 14 dBmV/channel ³                                   |
| Digital RF Input Level          | 10 dBmV/channel, ² 8 dBmV/channel ³                                    |

**NOTES:**

1. Unique digitally modulated narrowcast content only permitted above 250 MHz.
2. 30 analog channels, 125 QAM channels (6 dB below analog).
3. 79 analog channels, 75 QAM channels (6 dB below analog).
## Customer Care
Contact Customer Care for product information and sales:
- United States: 866-36-ARRIS
- International: +1-678-473-5656

### Ordering Information

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<tr>
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<td>H</td>
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<td>7</td>
<td>Connector Type</td>
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</table>

### Specifications
- **Loading**: M (NTSC), E (EURO)
- **Fiber**: W (Rear), F (Front)
- **Power**: 0 (Fixed), V (Variable)
- **Optical Power**: 09 dBm output minimum, 16 dBm output
- **Connector Type**: SC/APC

**Note**: Specifications are subject to change without notice.

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