

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

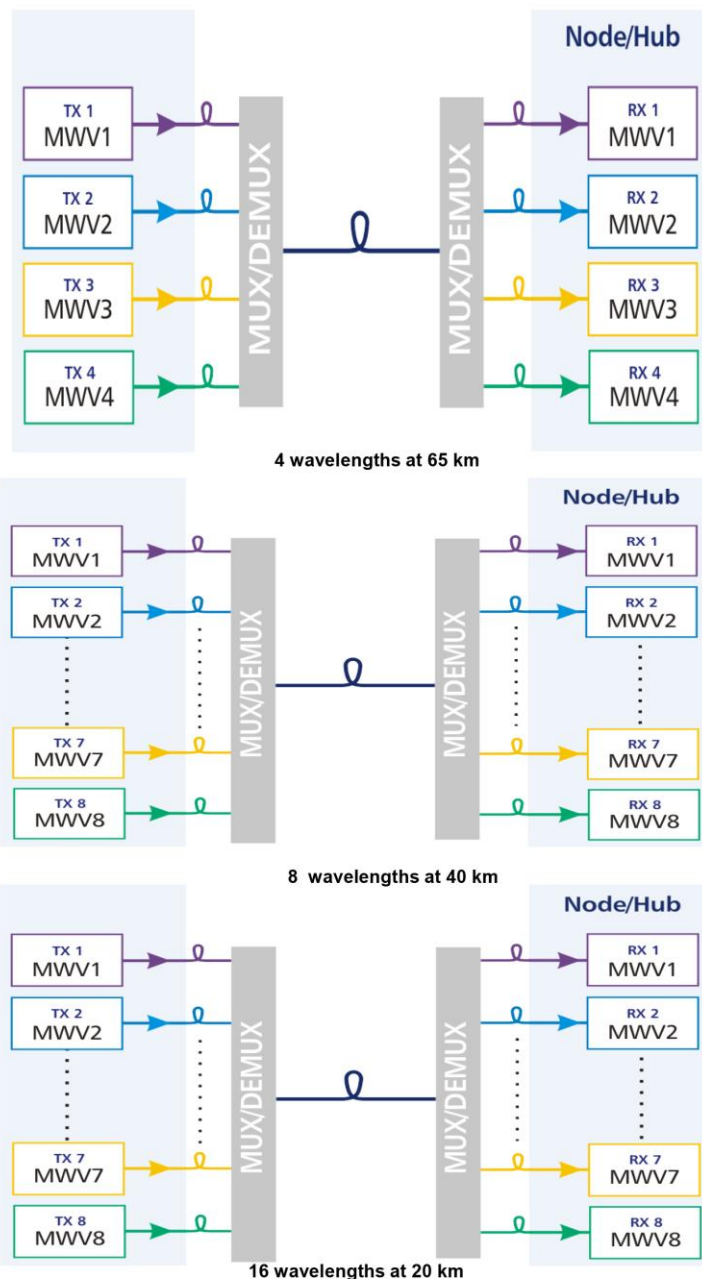
- 10 dBm fixed output
 - Front or Rear fiber
 - Extended linearized version

RELATED PRODUCTS

CHP Chassis	Optical Patch Cords
Power Supplies	Optical Passives
Management Module	Installation Services

APPLICATIONS

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

Per Fiber*

	54 - 250 MHz	250 MHz - 1 GHz
Analog Content per wavelength	Common content	Common content
Digital Content per wavelength	Common content	Common or Unique content

* 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) ^{1,2} 50 dB for 30 analog channels, 125 QAM channels (6 dB below analog) ^{2,3}
MER	38 dB (for all three cases) ^{1,4}
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

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

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}
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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).

ORDERING INFORMATION

							1	2	3	4			5	6		7
C	H	P	-	C	2	-	M	W	0	1	-	x	x	-	S	

1	Loading
M	NTSC
E	EURO

5-6	Optical Power
09	09 dBm output minimum
16	16 dBm output

2	Fiber
W	Rear
F	Front

7	Connector Type
S	SC/APC

3	Power
0	Fixed
V	Variable

4	Wavelength
1	ITU 21
2	ITU 22
3	ITU 24
4	ITU 26
5	ITU 28
6	ITU 33
7	ITU 36
8	ITU 39
9	ITU 44
A	ITU 48
B	ITU 52
C	ITU 54
D	ITU 57
E	ITU 60
F	ITU 61
G	ITU 62

Note: Specifications are subject to change without notice.

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