CHP Max5000® Converged Headend Platform

CORWave™ Dual Density (CORWave DW) 1 GHz Multi Wavelength Forward Transmitters

Implementation Requirements for Multi-Wavelength Applications

Implementation Requirements	**Multi-Wavelength Application**
Unique Requirements	
Available wavelengths (Note 1)	CHP-DW0x: DW00-9191, DW01-9193, DW02-9590 CHP-DW(F)Vx: DW(F)V0-9191, DW(F)V1-9193, DW(F)V2-9590 CHP-DW(F)Xx: DW(F)X0-9191, DW(F)X1-9193, DW(F)X2-9590 (Note 2)
Maximum launch power/wavelength	11 dBm (4 wavelengths)
Common Requirements	
Analog content	Must use common analog content (Note 1)
Digital content	Can use different, digitally modulated narrowcast content

Note:
1. Maximum RF input cable length difference to transmitters is 100 feet.
2. Available as front and rear fiber optioned units (CHP-DF denotes front fiber optioned units; CHP-DW denotes rear fiber optioned units).

Transmitter Specifications

Optical	**DW0x**	**DW(F)Vx**	**DW(F)Xx**
Optical Wavelength	DW00-9191, DW01-9193, DW02-9590	DW(F)V0-9191, DW(F)V1-9193, DW(F)V2-9590	DWX(F)0-9191, DWX(F)1-9193, DWX(F)2-9590
Optical Output Power	4, 6, 8, 10, 13 dBm	2-4, 4-6, 6-8, 8-10 dBm	4, 6, 8, 10 dBm
RF	**DW0x**	**DW(F)Vx**	**DW(F)Xx**
Bandwidth Operational Range	54 to 1002 MHz	54 to 1002 MHz	45 to 1002 MHz
Response Flatness, P–V, typ./max.	1.0/2.0 dB	1.0/2.0 dB	1.0/2.0 dB
Input Return Loss	16 dB	16 dB	16 dB
Port-to-Port Isolation (Note 1)	50 dB, 54 to 1002 MHz	50 dB, 54 to 1002 MHz	50 dB, 45 to 1002 MHz
Port-to-Port Gain Variation, typ./max.	±0.5 dB/±1.0 dB	±0.5 dB/±1.0 dB	±0.5 dB/±1.0 dB
Powering	**DW0x**	**DW(F)Vx**	**DW(F)Xx**
Power Consumption, max.	15 W (combined)	15 W (combined)	15 W (combined)

Technical Specification

Transmitter Specifications (Cont.)

Performance	DW0x	DW(F)Vx	DW(F)Xx
Channel Plan	80 NTSC channels and up to 75 digital channels 30 analog channels and 125 digital channels	80 NTSC channels and up to 75 digital channels 30analog channels and 125 digital channels	42 CENELEC channels 60 PAL and up to 48 digital channels
Composite CNR	Refer to tables below	Refer to tables below	Refer to tables below
Composite Second Order, typ. (Notes 2 and 3)	-62dBc	-62dBc	–62 dBc
Composite Triple Beat, typ. (Note 2)	-68 dBc	-68 dBc	-68 dBc
Launch Power into Fiber	4 wavelengths: 11.0 dBm max. each 2 wavelengths: 11.5 dBm max. each	4 wavelengths: 11.0 dBm max. each 2 wavelengths: 11.5 dBm max. each	4 wavelengths: 11.0 dBm max. each 2 wavelengths: 11.5 dBm max. each
Mechanical	**DW0x**	**DW(F)Vx**	**DW(F)Xx**
Optical Connector	LC/APC (8 degrees)	LC/APC (8 degrees)	LC/APC (8 degrees)
RF Connector	F-type	F-type	F-type
RF Input Test Point	–20 ± 1.0 dB	–20 ± 1.0 dB	–20 ± 1.0 dB
Dimensions (W x H x D) in (cm) (Note 4)	1.25 x 3.4 x 18.5 in (3.2 x 8.7 x 47.0 cm)	1.25 x 3.4 x 18.5 in (3.2 x 8.7 x 47.0 cm)	1.25 x 3.4 x 18.5 in (3.2 x 8.7 x 47.0 cm)
Weight	3.0 lbs (1.4 kg)	3.0 lbs (1.4 kg)	3.0 lbs (1.4 kg)
Environmental	**DW0x**	**DW(F)Vx**	**DW(F)Xx**
Operational Temperature (Note 5)	32 to 122°F (0 to 50°C)	32 to 122°F (0 to 50°C)	32 to 122°F (0 to 50°C)
Storage Temperature	–40 to 158°F (–40 to 70 °C)	–40 to 158°F (–40 to 70 °C)	–40 to 158°F (–40 to 70 °C)
Humidity, noncondensing, max.	85%, noncondensing, max.	85%, noncondensing, max.	85%, noncondensing, max.

Notes:
1. Typical isolation. For minimum isolation, subtract 4 dB from typical.
2. Distortions are measured using analog channels only by standard RF test methods. For minimum CSO and CTB, subtract 2dB from typical. CSO performance is for the transmitter only. CSO specifications for CORWave transmitter is obtained over specified fiber links. The typical system CSO is –60 dBc assuming an11 dBm launch per wavelength for a four-wavelength system.
3. CSO performance for NTSC channels is for the in-band (high-side) beats.
4. Includes handles and connectors.
5. Temperature measured at transmitter module's air inlet.

CNR vs. Link Budget

CHP-DW0x, CHP-DWVx and CHP-DFVx

Channel Plan	RF Input	CNR (dB)	CCNR (dB)	BER
80 NTSC Analog Channels	15 dBmV/Channel	53.2	—	—
80 NTSC Analog Channels and 75 Digital Channels	14 dBmV/Channel Analog, 8 dBmV/Channel Digital	—	50	$<10^{-06}$
30 NTSC Analog Channels and 125 Digital Channels	16 dBmV/Channel Analog, 10 dBmV/Channel Digital	—	52	$<10^{-06}$

CHP-DWXx and CHP-DFXx

Channel Plan	RF Input	CNR (dB)	CCNR (dB)	BER
42 CENELEC Analog Channels	18 dBmV/Channel	54.4	—	—
60 PAL Analog Channels and 48 Digital Channels	15.5 dBmV/Channel, 9.5 dBmV/Channel	—	50.2	$<10^{-06}$

Notes:
1. Transmitter with output power of 4,6 and 8 dBm assumes a passive loss of 2 dB and fiber length of 5,10 and 15 Km respectively.
2. Transmitter with output power of 10 dBm assumes a passive loss of 4 dB for DWDM mux - demux and a fiber length of 15 Km.
3. For Variable transmitter, the specifications assume maximum optical output power.

Specifications are subject to change without notice.

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