



## CHP Max5000™ 1GHz Redundant Forward Receivers (CHP-GFRX) Technical Specification

### Specifications

<b>Optical Specifications</b>			
Input Wavelength Range	1200 to 1620nm		
Optical Input Power Range <sup>1</sup>	-10 to 4dBm		
Optical Testpoint Monitor	1.0 ± 10% mW/V		
<b>RF Specifications</b>			
RF Output Bandwidth	42 to 1002MHz		
RF Output Power Level <sup>2,3</sup>	41 dBmV/channel		
Output Return Loss	≥ 16dB		
Flatness, peak-to-valley	±0.75dB with respect to gain slope		
Gain Slope	±1.0dB		
RF Gain Adjustment Range	0 to 16 in 0.2dB steps		
RF Output Stability	±1.0dB referenced at 25°C		
RF Output Testpoint	-20 ± 0.5 dB		
<b>Performance Specifications</b>			
Equivalent Input Noise	< 8pA/Hz <sup>0.5</sup>		
Optical Input to RF Output Isolation	≥ 70dBc		
Spurious Signals	≤ -65dBc		
Redundant Switching Time	≤ 50ms		
GFRX Distortion Contribution <sup>4</sup>	Broadband <sup>5,6</sup>	Broadband <sup>5,6</sup>	Splitband <sup>6,7</sup>
Optical Input/RF Rx Output Level	-3 to 0dBm/≤38dBmV	0 to 3 dBm/≤41 dBmV	-3 to 3dBm/≤41 dBmV
CTB	< -85dBc	< -78dBc	< -85dBc
CSO	< -69dBc	< -64dBc	< -65dBc
CIN <sup>8</sup>	>75dB	>62dB	—
CNR	TX spec plus Equivalent Input Noise (EIN) contribution. CNR increases or decreases proportionally over an optical input range of -3 to 3dBm.		
<b>Power Specifications</b>			
Power Consumption, max.	10.5 Watts		

## Specifications

### Mechanical Specifications

Dimensions (W x H x D) 1.25 x 3.4 x 18.5in. (3.2 x 8.7 x 47.0cm)

### Environmental Specifications

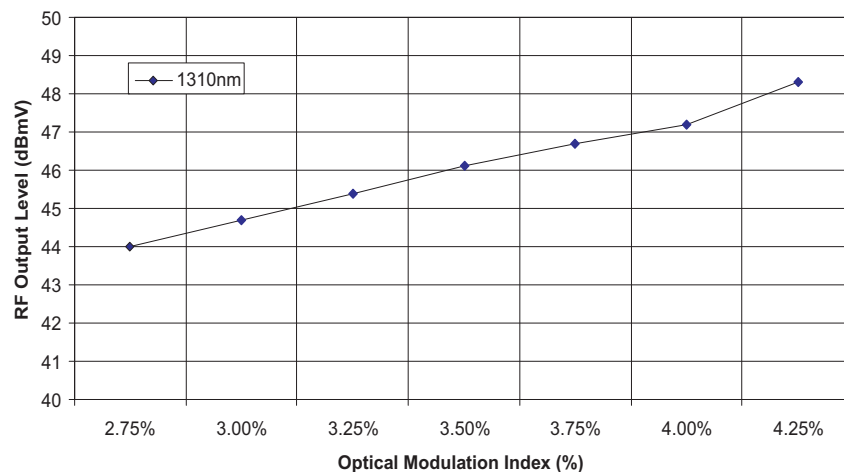
Operating Temperature 0 to 50°C (32 to 122°F)

Operating Humidity, noncondensing 10 to 90%

1. Typical optical input power operating range is -3 to 3dBm.
2. RF output level is 41 dBmV per channel at 0dBm optical input and 3.9% OMI. Maximum RF output level for system use is 41 dBmV/channel. Do not exceed 41 dBmV/channel RF output level from the GFRX.
3. Graph shows minimum forward receiver output level for the stated transmitter optical modulation index per channel, with receiver optical input set to +3dBm and internal attenuator set to 0dBm. To determine RF output levels at other optical input power levels, subtract (or add) 2 dB of RF level for every decrease (or increase) of 1dB in optical input power.
4. Performance listed indicates "receiver only" non-linear distortion performance. This performance is back calculated using transmitter specifications and actual performance to a reference optical receiver, in conjunction with the GFRX.
5. 79 NTSC channels loaded from 55 to 550 MHz plus 450MHz simulated digital loading from 550 to 1002 MHz at -6dBc below equivalent analog channels.
6. Reference transmitter used for 79 NTSC + 450 MHz digital loading is CHP-GFXV series. Reference transmitter used for 40 Analog NTSC loading is CHP-XMOD MU/ML series.
7. 40 NTSC loading occupying lower or upper frequency spectrum in the 55 to 550MHz range.
8. CIN: Composite Intermodulation Noise. Defined as the ratio of the carrier to the noise-like signals generated by the non-linearity of a broadband transmission system carrying a combination of analog and digital signals. These distortion products are analogous to the CSO and CTB products generated by the analog carriers, but due to the pseudo-random nature of the digital modulation signals, appear as noise like interference. Reference test procedure ANSI/SCTE 17 2001 (Test procedure for Carrier to Noise) for CIN measurement standards.

## GFRX Output Level versus Optical Modulation Index (OMI)

GFRX Output Level versus Optical Modulation Index (OMI)



## Ordering Information

### 1 GHz Redundant Forward Receiver

				<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>		<b>5</b>
<b>C</b>	<b>H</b>	<b>P</b>	<b>-</b>	<b>G</b>	<b>F</b>	<b>R</b>	<b>X</b>	<b>-</b>	<b>S</b>

1-4 Module Type	
GFRX	Redundant 1GHz forward receiver

5 Connector Type	
S	SC/APC

Note: The Redundant Communications Link Cable (P/N CHP-RCL2-xx) is required when configuring a CHP forward path receiver as a redundant receiver with the addition of a second receiver module.

### Redundancy Cable

										<b>1</b>	<b>2</b>
<b>C</b>	<b>H</b>	<b>P</b>	<b>-</b>	<b>R</b>	<b>C</b>	<b>L</b>	<b>2</b>	<b>-</b>	<b>x</b>	<b>x</b>	

1-2 Length of Redundancy Cable		
E0	Two inch redundancy cable	a
01	One foot redundancy cable	
05	Five foot redundancy cable	
10	Ten foot redundancy cable	
20	Twenty foot redundancy cable	
a) European installations must only use the CHP-RCL2-E0 redundant cable		