


RF Diplexer Amplifier

DCC:  E1300852

Description

This RF preamplifier with a diplexer is a 1U rack mount unit which takes an RF signal and splits it into 2 bandpass filters forming a diplexer. Each bandpass filter is followed by an additional gain stage to amplify the desired frequency component. A direct output is also provided which samples the input signal and has a coupling efficiency of -12 dB. The center frequency of the bandpass filters are at 27.3 MHz (LF) and 136.5 MHz (HF), respectively. The overall gain of the lower frequency signal chain is 18 dB, whereas the gain of the higher frequency chain is a nominal 43 dB. No power monitors are available; only the power supply monitor is implemented through a 25-pin D-sub on the read panel. The unit requires ± 24 V and ± 16.5 V.

Specifications

DCC:  E1300864-v1

Frequency range:

- 5 MHz to 500 MHz

Input:

- smaller than -2 dBm near 27.3 MHz (LF)
- smaller than -30 dBm near 136.5 MHz (HF)
- smaller than 20 dBm at other frequencies
- N female

Output (direct):

- 12 dB loss nominal
- N female

Output (LF):

- Center frequency at 27.3 MHz
- 0.5 dB bandwidth >1 MHz
- Filter loss at center frequency <3dB
- Rejection >50 dB at frequencies <18.2 MHz and >45.5 MHz
- 18 dB gain nominal
- N female

Output (HF):

- Center frequency at 136.5 MHz
- 0.5 dB bandwidth >2 MHz
- Filter loss at center frequency <6dB
- Rejection >26 dB at frequencies <127.4 MHz and >145.6 MHz
- Rejection >50 dB at frequencies <91 MHz
- 43 dB gain nominal
- N female

Noise figure:

- <1 dB (direct)
- <7 dB (LF)
- <10 dB (HF)

Harmonics:

- < -30 dBc

Phase noise (outputs 1 and 2):

Frequency	Phase noise spec
10 Hz	-100 dBc/Hz
100 Hz	-135 dBc/Hz
1 kHz	-135 dBc/Hz
10 kHz	-135 dBc/Hz

Amplitude noise (outputs 1 and 2):

Frequency	AM noise spec
10 Hz	-140 dBc/Hz
100 Hz	-140 dBc/Hz
1 kHz	-140 dBc/Hz
10 kHz	-140 dBc/Hz