

Tested By: Jay Copti**Date: 04/03/2014****ASC (WFS) Style Single Frequency Detector Measured Parameters**

All transimpedance measurements are referred to plane of the physical output connector and include the effect of the voltage divider created by the 50 Ω termination. The notch rejection ratios are relative to the magnitude of the transimpedance at the respective RF detection center frequency of the given RF output port. The notation, Q1 to Q4 refers to the specific quadrant of a four section (Quad) diode.

Table 1: Identification

Unit identification	Value
Photodetector serial number	S1300514
Detector schematic D# and revision	D1200066-v3
Diode element manufacturer's Part and serial number	N/A

Table 2: Supply data

DC Parameters	Value
Quiescent DC current (amps at +18 VDC)	119.1 mA
Quiescent DC current (amps at -18 VDC)	125.0 mA
PD bias regulator output voltage (VDC)	5.05 VDC
RF opamp positive voltage regulator (VDC)	5.88 VDC
RF opamp negative voltage regulator (VDC)	-6.02 VDC
Audio opamp positive voltage regulator (VDC)	14.84 VDC
Audio opamp negative voltage regulator (VDC)	-15.30 VDC

Table 3: DC outputs

Quadrant number	DC readout transimpedance (Ω at differential output)	Zero light DC offset (VDC)
Q1	996 Ω	0.0 mVDC
Q2	996 Ω	0.1 mVDC
Q3	996 Ω	0.2 mVDC
Q4	996 Ω	0.0 mVDC

Table 4: Tuning

Global RF parameters	Value
RF detection center frequency (MHz)	24.078 MHz
2 ω Notch frequency (MHz)	48.156 MHz

Table 5: Notch depth

Quadrant number	Rejection at 2 ω notch, relative to center frequency response (dB)	DC photocurrent for notch measurement (mA)
Q1	-27.6 dB	0.080 mA
Q2	-27.7 dB	0.105 mA
Q3	-28.3 dB	0.126 mA
Q4	-28.8 dB	0.142 mA

Table 6: Response at detection frequency

Quadrant number	RF transimpedance (Ohms)
Q1	478 Ω
Q2	491 Ω
Q3	498 Ω
Q4	473 Ω

Table 7: Output Noise at detection frequency (dark)

RF Preamp Gain (dB)	20.4 dB
Quadrant number	Noise into 50 ohm (dBm/Hz)
Q1	-126.2 dBm/Hz
Q2	-126.7 dBm/Hz
Q3	-126.7 dBm/Hz
Q4	-127.4 dBm/Hz

Table 8: Equivalent shot-noise limited DC photocurrent (calculated)

Quadrant number	I_{DC}
Q1 (mA)	1.47 mA
Q2 (mA)	1.24 mA
Q3 (mA)	1.20 mA
Q4 (mA)	1.13 mA