Section 2
SPECIFICATION

Table 2-1
FREQUENCY RELATED CHARACTERISTICS

Characteristic	Performance Requirement	Supplemental Information
Center/Marker Frequency Range		Band 1 5 kHz–4.24 GHz Band 2 4.2 GHz–8.0 GHz
Accuracy		Center frequency accuracy is specified by •initial accuracy (firmware corrected) •center frequency drift during the sweep.
Initial(start of sweep) Bands 1 and 2 with Span/Div >200 kHz	± [(20% of span/div or resolution bandwidth, whichever is greater) + (CF×10^{-5})+ 15 kHz]	The 1st LO is unlocked in these spans. When the center frequency is changed within a band, a settling time of 1 S/GHz change in center frequency must be allowed. Over the operating temperature range this term is CF×1.5×10^{-5}.
Bands 1 and 2 with Span/Div ≤200 kHz	± [(20% of span/div or resolution bandwidth, whichever is greater) + (CF×10^{-5})]	The 1st LO is phaselocked in these spans.
CF Drift after 1 hr warmup Bands 1 and 2 with Span/Div ≤200 kHz	≤50 Hz per minute of sweep time	
Residual FM Bands 1 and 2 with Span/Div >200 kHz	≤7 kHz total excursion in 20 mS	Short term, after 1 hour warmup
Bands 1 and 2 with Span/Div ≤200 kHz	≤12 Hz total excursion in 20 mS	

FREQUENCY RELATED CHARACTERISTICS (con't)

Characteristic	Performance Requirement	Supplemental Information
Resolution Bandwidth (6 dB down)	Within 20% of selected bandwidth.	100 Hz, 1kHz, 10 kHz, 300 kHz, 1 MHz.
IF Frequency, LO Range and Harmonic Number Band and Frequency Range 1 (0 - 4.24 GHz) 2 (4.2 - 8.0 GHz)		 LO Range (MHz) and Harmonic Number 2072-6312 (1−) (1st IF 2072 MHz) 2128-5928 (1+) (1st IF 2072 MHz)
IF Feedthrough		Spectral energy around 2072 MHz will cause a baseline rise which degrades sensitivity and dynamic range. The notch filter provided as a standard accessory will diminish this effect. In Band 2 the LO feeding through the mixer causes a spurious response at 4144 MHz.

AMPLITUDE RELATED CHARACTERISTICS

Characteristic	Performance Requirement	Supplemental Information
Spurious responses (residual) Bands 1 and 2 with Span/Div > 200 kHz	−100 dBm or less	No input signal, referenced to the internal mixer input and fundamental mixing.
Bands 1 and 2 with Span/Div ≤ 200 kHz	−90 dBm or less	
3rd order intermodulation products 5 kHz to 8.0 GHz (Band 1 - 2)	−70 dBc or less from any two on screen signals within any frequency span.	In MIN DISTORTION mode.
LO Emission	Less than 0 dBm to 8 GHz	With 0 dB RF Attenuation.
Harmonic Distortion 5 kHz to 8.0 GHz	−60 dBc or less	Measured at −40 dBm input level in Min Distortion mode.
Sensitivity 50Ω Input Band/Frequency Bands 1 and 2 5 kHz to 8.0 GHz	Equivalent Input Noise in dBm versus resolution bandwidth 100 Hz 1 kHz 10 kHz 300 kHz 1 MHz -125 -115 -105 -90 -85	Theses tables show the equivalent maximum input noise for each resolution bandwidth. The NARROW video filter is activated for all resolution bandwidths. Spectral energy around 2072 MHz will cause a baseline rise which degrades sensitivity and dynamic range. The notch filter provided as a standard accessory will diminish this effect. In Band 2 the LO feeding through the mixer causes a spurious response at 4144 MHz.
Sensitivity 75Ω Input Band/Frequency Bands 1 and 2 5 kHz to 1.8 GHz	Equivalent Input Noise in dBmV versus resolution bandwidth 100 Hz 1kHz 10 kHz 300 kHz 1 MHz -70 -60 -50 -35 -30	
Frequency Response of the 50Ω Input Coaxial (direct) input Bands 1 and 2 5 kHz - 8.0 GHz	±1.5 dB about the midpoint between two extremes	Frequency response is measured with 10 dB of RF attenuation. Response includes the effect on input VSWR, gain variations and mixer.
Frequency Response of the 75Ω Input Coaxial (direct) input 5 kHz - 1.0 GHz	±2.0 dB about the midpoint between two extremes	Typically ±2.0 dBm about the midpoint between two extremes from 5 kHz to 1.8 GHz.

INPUT SIGNAL CHARACTERISTICS

Characteristic	Performance Requirement	Supplemental Information
RF INPUT		Type N female connector, specified to 8 GHz.
1 dB compression point (min.) Bands 1 - 2 5 kHz - 8.0 GHz	−20 dBm	With no RF Attenuation. Measured in MIN DISTORTION mode at the IF output.
Maximum safe input		+30 dBm
Impedance 75Ω input VSWR with RF attenuation ≥10 dB 5 kHz - 50 kHz 50 kHz - 1.8 GHz		 <1.90:1 <1.35:1
VSWR with 0 RF attenuation 5 kHz - 50 kHz 50 kHz - 1.8 GHz		 <2.0:1 <1.90:1
Maximum safe input		+75 dBmV

OUTPUT SIGNAL CHARACTERISTICS

Characteristic	Performance Requirement	Supplemental Information
Calibrator (CAL OUT) (50Ω)	−20 dBm ±0.3 dB at 100 MHz, ±1 kHz	±1.5 kHz over temperature range.
Calibrator (CAL OUT) (75Ω)	+20 dBmV ±0.5 dB at 100 MHz, ±1 kHz	