VIAVI Solutions

Data Sheet

VIAVI
CX100 ComXpert

General Specifications

General	
Size	
Weight	11 lbs (5 kg)
Dimensions	12 in x 9.5 in x 4.3 in 30.5 cm x 24.1 cm x 10.9 cm
Display	
Size	5 in (12.7 cm), diagonal
Timebase	
Frequency drift	0.05 ppm (-10 to 40°C) (temperature variation <2°C/min) typical
Aging	0.5 ppm/year (after first year)
Warm-up time	3 minutes: within ±0.1 ppm at 25°C typical
RF Generator	
Frequency	
Range	1 MHz to 6 GHz
Resolution	1 Hz
Accuracy	Same as timebase
Level	
T/R Duplex Port Range	-120 dBm to -30 dBm (CW)
ANT/SWR Port Range	-100 dBm to 0 dBm CW
Resolution	0.1 dB
T/R Duplex Port Accuracy	±2.0 dB for level >-100 dBm, ±3.0 dB for level <-100 dBm
ANT/SWR Port Accuracy	±2.0 dB
Bandwidth	
VSG	8 MHz (for IQ playback)
VSWR	
T/R Duplex Port	≤1.4 (1 MHz to 6 GHz)
Spectral Purity	
Phase noise	<-105 dBc/Hz at 10 kHz offset, RF < 900 MHz <-90 dBc/Hz at 10 kHz offset, RF ≥ 900 MHz
Harmonics	-30 dBc
Non-Harmonics	-60 dBc typical, output level >-50 dBm
Residual AM	<0.20% RMS, post detection BW 15 kHz
Residual FM	<20 Hz RMS, post detection BW 3 kHz
Analog Modulation	
Modulation	
Modes	AM, FM
AM	
Range	0.1% to 100%
Resolution	0.10%
Accuracy (internal source)	<±3% of setting from 10% to 90% (20 Hz to 10 kHz rate)
FM	
Range	0 to 100 kHz
Resolution	0.1 Hz
Accuracy (internal source)	<±3% of setting (from 1 kHz to 100 kHz deviation, 20 Hz to 15 kHz rate)
Internal Modulation Sources	
Number of sources	2
Sources	
Waveforms	Sine
Sine Wave	
Range	0 to 100 kHz
RF Receiver	
Frequency	
Range	1 MHz to 6 GHz
Maximum Input Power	
ANT/SWR Port	+10 dBm dBm (de-rated below 50 MHz)
T/R Duplex Port	+43 dBm (Duty-cycled)
VSWR	
T/R Duplex Port	≤1.4 (1 MHz to 6 GHz)
Harmonic Response	
2nd Harmonic	<-30 dB
3rd Harmonic	<-50 dB

Spurious Response	
1 MHz to 1 GHz	<-45 dB (Note: exceptions may apply)
1 GHz to 6 GHz	<-55 dB (Note: exceptions may apply)
Phase Noise	
<-105 dBc/Hz at 10 kHz offset, RF < 900 MHz	
<-90 dBc/Hz at 10 kHz offset, RF ≥ 900 MHz	
Dynamic Range	
2/3 * (TOI-DANL) at 900 MHz	110 dB (0 dB attenuation), 107 dB (preamp)
2/3 * (TOI-DANL) at 1000 MHz	107 dB (0 dB attenuation), 106 dB (preamp)
TOI	
>+19 dBm (0 dB attenuation), >-1 dB (preamp)	
DANL	
900 MHz	<-144 dBm (0 dB attenuation), <-162 dBm (preamp)
1000 MHz	<-138 dBm (0 dB attenuation), <-158 dBm (preamp)
Sensitivity	
Analog	10 dB SINAD for -100 dBm input level
RF Bandpass Filter (IF Filters)	5 kHz, 6.25 kHz, 8.33 kHz, 10 kHz, 12.5 kHz, 25 kHz, 30 kHz, 100 kHz, 300 kHz
Power Meter	
Frequency	
Range	1 MHz to 6 GHz
Level	
Range	Up to 43 dBm into T/R Duplex Port, (20 mW to 20 W)
Resolution	1% of full scale or 1 mW
Accuracy	
T/R Duplex Port	±10%
RF Frequency Counter / RF Frequency Meter	
Frequency	
Range	1 MHz to 6 GHz
Resolution	1 Hz
Accuracy	Frequency Reference
Input Level Range	
T/R Duplex Port	-50 dBm to 43 dBm
ANT/SWR Port	-80 dBm to +10 dBm (-80 dBm to -20 dBm w/pre-amp and over-the-air)
Analog Modulation Measurements	
FM	
Measurement Range	0 to 100 kHz
Accuracy	±2% ±1.0% from 1.5 kHz to 3 kHz at 1 kHz rate
FM Distortion	<1%, 1 kHz to 5 kHz deviation (50 Hz to 3 kHz rate) ≤0.5%, 1.5 kHz to 3 kHz deviation (1 kHz rate)
Residual FM	≤5 Hz rms (300 to 3000 Hz)
AF Frequency Range	10 Hz to 20 kHz

AM	
Measurement Range	0 to 100%
Accuracy	<1%
AM Frequency Response	±0.1 dB 50 Hz to 6 kHz ±0.05 dB 50 Hz to 6 kHz rate for Subscriber testing
AM Distortion	<1%, 1 to 5 kHz deviation (50 Hz to 3 kHz rate) ≤0.5%, 1.5 to 3 kHz deviation (1 kHz rate)
AF Frequency Range	10 Hz to 20 kHz
Residual AM	<0.1% (30 MHz to 3 GHz)
Audio and Demodulation Meters	
Distortion Meter	
Frequency Range	DC to 100 kHz (audio in) Limited by IF bandwidth (demodulation)
Measurement Range	0 to 100%
Accuracy	<3% of reading +0.1% distortion, 1% to 20%
SINAD Meter	
Frequency Range	DC to 100 kHz (audio in) Limited by IF bandwidth (demodulation)
Measurement Range	0 to 63 dB
Accuracy	<1 dB at 12 dB SINAD
S/N Meter	
Frequency Range	DC to 100 kHz (audio in) Limited by IF bandwidth (demodulation)
Measurement Range	0 to 63 dB
Accuracy	<1 dB
AF Counter	
Frequency Range	DC to 100 kHz (audio in) Limited by IF bandwidth (demodulation)
Accuracy	Timebase +0.1 Hz
Audio Analyzer	
Frequency Range	DC to 100 kHz (audio in) Limited by IF bandwidth (demodulation)
FFT Windows	Blackman-Harris
Level	
Range	2 mV to 20 Vpk
Accuracy	DC Accuracy: ±1% of reading (>200 mV), ±2 mV (<200 mV) AC Accuracy: ±2% of reading (200 mV to 2 V, 20 Hz to 20 kHz), ±5% (200 mV to 20 V, 20 Hz to 100 kHz) typical
Purity	
THD+Noise	<80 dB (20 Hz to 20 kHz)
Audio Filters	
Lowpass	300 Hz, 3 kHz, 3.4 kHz, 5 kHz, 15 kHz, 20 kHz
Highpass	20 Hz, 50 Hz, 300 Hz
Other	C-MSG, CCITT

Spectrum Analyzer	
Frequency Range	1 MHz to 6 GHz
Span	
Range	1 kHz/Div, full span and zero span
Accuracy	±5% of span width
Vertical	
Scale	10 dB/div and 2 dB/div; All available ranges in dB/div: 1, 2, 5, 10, 20
Range	80 dB
RBW Range	100 Hz to 5 MHz
VBW Range	100 Hz to 5 MHz
Sweep Time Range	1 µs to 100 s
Detector	Normal, positive peak, negative peak, sample, Average (RMS)
Digital Modulation (Vector Signal Analyzer)	
Modulation	
Type	BPSK, QPSK, 8-PSK, 16-PSK 4-QAM, 16-QAM, 64-QAM
Rate	
Symbol rate	≤ 3.75MSymbol/s
Oversampling	≥ 4, Product of Symbol rate and oversampling ≤ 15Msample/s
Number of Symbol	≤ 16,000
Reference Filter	
Type	Raised Cosine, Square Root Raised Cosine
Roll-off Factor	< 1
Filter Length	4-30
Measurement Filter	
Type	Raised Cosine, Square Root Raised Cosine
Roll-off Factor	< 1
Filter Length	8-40
Measurement Input Level Range	
T/R Duplex Port	-50 dBm to 43 dBm
ANT/SWR Port	-80 dBm to +10 dBm (-80 dBm to -20 dBm w/pre-amp and over-the-air)
Measurements	
Type	Signal Power, EVM, Frequency Error, MER, Symbol Error Rate, IQ Offset, Gain Imbalance, IQ Imbalance, rho
EVM Residual	2% typical for QPSK 10MHz BW @ 1GHz, input level -50dBm ANT/SWR Port, Preamp Enabled
Graphical Display	Constellation plot

AF Generator	
Output	
Impedance	<4 Ω
Max Output Current	20 mA
Frequency	
Range	DC to 100 kHz (±0.5 dB), 20 Hz to 20 kHz (±0.1 dB)
Resolution	0.1 Hz
Accuracy	Timebase +0.5 Hz
Level	
Range	0 to ±8 Vpk into 600 Ω, 4 Vpk into 50 Ω
Accuracy	DC Accuracy: ±1% (>200 mV), ±2 mV (<200 mV) AC Accuracy: ±2% (>200 mV, 20 Hz to 20 kHz), ±5% (>2 mV, 20 Hz to 100 kHz) typical
Distortion	
THD+N	<80 dB (20 Hz to 20 kHz)
Oscilloscope	
Display	
Traces	2
Markers	2
Horizontal	
Sweep per div	20 µs to 1 s/div
Bandwidth	100 kHz Audio Input
Input Accuracy	<5%
Trigger	
Modes	Single, Normal, Automatic, Free run
Vector Network Analyzer	
Frequency	
Range	1 MHz to 6 GHz
Resolution	0.1 Hz
Accuracy	Same as timebase
Test Port Power	
Port	+5 dBm
Dynamic Range	90 dB
Measurements	
Parameters	S_{11}
Graph Type	Log Magnitude (dB), SWR (Linear)
Domains	Frequency, Distance
Calibration Type	Full S_{11}
Calibration Method	Short-Open-Load
Corrected Accuracy	Source Match >40 dB (<900 MHz) (95th percentile) max 35 dB
	>30 dB (≥900 MHz) (80th percentile) max 20 dB
	Reflection Tracking ±0.5 dB typical
Distance Domain	
Maximum Distance	100 m (328 ft) or 40 dB Return Loss whichever comes first for a 6 GHz span
Measurement Display	Return Loss, VSWR
Measurement Format	dB, VSWR

Environmental/Physical

Temperature, Not Operating	-20°C to +60°C
Temperature, Operating	-10°C to +40°C
Relative Humidity	95% RH (noncondensing)
Altitude	4600 m
Vibration	MIL-PRF-28800F Class 2
Shock, functional	MIL-PRF-28800F Class 2
Bench handling	MIL-PRF-28800F Class 2
Transit Drop	MIL-PRF-28800F Class 2
Battery	
Type	Lithium Ion, 14.4 V, 6.8 Ah
Operating Time	3+ hours
Battery Charging Limits	0°C to 45°C (32°F to 113°F) ≤85% RH

VIAVI Solutions

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