DATA SHEET

VXT Vector Signal Transceiver

VXT2008M

- ✓ Frequency range: 400MHz ~ 8GHz.
- ✓ Bandwidth: 960MHz.
- ✓ Input level range: -100dBm ~ +20dBm
- ✓ Output level range (CW mode): -110 ~ +20dBm.
- ✓ Supporting waveform file formats: *.bin, *.wfm, *.txt, *.mat.
- ✓ EVM (Vector mode) : 802.11ax(80MHz) ≤-51dBm (typical)

中科四点零
RF-Cube

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Definitions and conditions

Technical Specifications refer to the performance of a calibrated instrument that can be guaranteed under specified operating conditions, which includes measurement uncertainty.

Typical values describe additional product performance information that is not covered by the product Warranty. It is performance beyond specifications that 80 percent of the units exhibit with a 90 percent confidence level, The data does not include measurement uncertainty and is valid only at room temperature (approximately 25℃) after alignment within the stated alignment time and temperature limits.

Nominal values indicate expected performance or describe product performance that is useful in the application of the product but are not covered by the product warranty, which are Measured at room temperature (approximately 25℃). Unless otherwise noted, the data in this document is nominal.

Measured values represent the performance characteristics measured during the design phase for comparison with expected performance, which not covered by the product warranty and are Measured at room temperature (approximately 25℃).

General Specifications

Capture depth		
IQ data	512MSa	

Frequency		
Range	400MHz to 8GHz	
Frequency reference		
Accuracy	±200ppb	Ref to nominal frequency
Aging rate	±1ppb per day	
Temperature Stability	±20ppb	ref to 25°C
Analysis Bandwidth		
400 to 550 MHz	100MHz	
550 MHz to 1.31 GHz	200 MHz	
1.31 to 2 GHz	600 MHz	
2 to 8 GHz	1.2GHz	
Triggering		
IQ analyzer	Free run, External 1, External 2, RF burst, Video, Periodic, PXI, Internal	
Trigger delay range	–150 to 500 ms	
Resolution	1/sample rate	

Maximum Safe Input Level	
Average power input	+27dBm
DC Volts	30Vdc
Maximum Reverse Power	
Average power input	+27dBm
DC Volts	30Vdc

Vector Signal Generator

Output Level Range (CW mode)				
RF output port	+25dBm settable			
400MHz to 3GHz	-110 to +25dBm			
3GHz to 6GHz	-110 to +24dBm			
6GHz to 8GHz	-110 to +22dBm			
Absolute Level Accuracy (CW mode)				
RF output port, typical indicated by *italics*				
Frequency range	**400 to 550 MHz**	**550 MHz to 4.3 GHz**	**4.3 to 6 GHz**	**6 to 8 GHz**
+10 dBm < Level ≤ +20 dBm	< ± 0.7 dB, *< ± 0.45 dB*	< ± 0.85 dB, *< ± 0.35 dB*	< ±1.00dB, *< ± 0.45dB*	< ±1.10dB, *< ± 0.45dB*
0 dBm < Level ≤ +10 dBm	< ± 0.65dB, *< ± 0.45 dB*	< ± 0.75 dB, *< ± 0.40 dB*	< ±0.90dB, *< ± 0.45dB*	< ±0.95dB, *<± 0.45 dB*
–60 dBm ≤ Level ≤ 0 dBm	< ± 0.65dB, *< ± 0.45 dB*	< ± 0.65 dB, *< ± 0.35 dB*	< ±0.70dB, *< ± 0.45dB*	< ±0.70dB, *< ± 0.45dB*
–90 dBm ≤ Level < –60 dBm	< ± 0.75dB, *< ± 0.50 dB*	< ± 0.75 dB, *< ± 0.50 dB*	< ±0.75dB, *< ± 0.50dB*	< ±1.05dB, *< ± 0.50dB*
–100 dBm ≤ Level < –90 dBm	< ± 0.85dB, *< ± 0.55 dB*	< ± 0.85 dB, *< ± 0.55 dB*	< ±0.85dB, *< ± 0.55dB*	< ±1.05dB, *< ± 0.50dB*
–110 dBm ≤ Level < –100 dBm	< ± 0.95dB, *< ± 0.55 dB*	< ± 0.95 dB, *< ± 0.55 dB*	< ±0.95dB, *< ± 0.55dB*	< ±1.05dB, *< ± 0.55dB*
Measured Amplitude Repeatability				
RF output port, 0 dBm output power, 1 GHz, 25 °C				
Delta from initial value	< ± 0.10 dB nominal			
Setting Resolution				
＜0.1dB				
Output Voltage Standing Wave Ratio (VSWR)				
RF output port				
400MHz to 1.31GHz	< 1.5:1, *< 1.3:1 typical*			
1.31GHz to 4.3GHz	< 1.6:1, *< 1.4:1 typical*			
4.3GHz to 5.8GHz	< 1.4:1, *< 1.25:1 typical*			
5.8GHz to 8GHz	< 1.5:1, *< 1.4:1 typical*			

Harmonics	
RF output port,0 dBm output power	
400MHz to 4.3GHz	< –45 dBc, < *–50 dBc typical*
4.3GHz to 5.8GHz	< –48 dBc, < *–52 dBc typical*
5.8GHz to 8GHz	< –55 dBc, < *–60 dBc typical*
Non-harmonic Spurious (CW mode)	
RF output port,0 dBm output power	
400MHz to 4.3GHz	< –65 dBc, < *–70 dBc typical*
4.3GHz to 5.8GHz	< –56 dBc, < *–60dBc typical*
5.8GHz to 8GHz	< –65 dBc, < *–70 dBc typical*
LO Leakage	
RF output port,0 dBm output power	
400MHz to 1.31GHz	< –64 dBc, < *–67 dBc typical*
1.31GHz to 2GHz	< –66 dBc, < *–73 dBc typical*
2GHz to 4.3GHz	< –60 dBc, < *–68 dBc typical*
4.3GHz to 8GHz	< –50 dBc, < *–51 dBc typical*

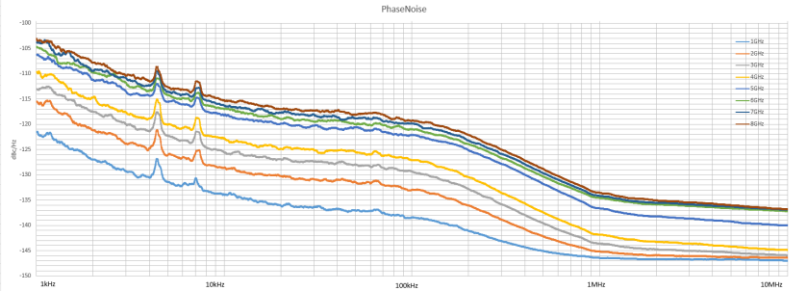
Image Responses

RF output port, 0 dBm output power, typical indicated by *italics*

Center frequency	100MHz BW	200MHz BW	400MHz BW	600MHz BW	800MHz BW	1.2GHz BW
400MHz to 550MHz	-73dBc, *-77dBc*	N/A	N/A	N/A	N/A	N/A
550MHz to 1.31GHz	-71dBc, *-73dBc*	-71dBc, *-73dBc*	N/A	N/A	N/A	N/A
1.31GHz to 2GHz	-71dBc, *-73dBc*	-72dBc, *-73dBc*	-72dBc, *-73dBc*	-72dBc, *-74dBc*	N/A	N/A
2 to 8 GHz	-68dBc, *-72dBc*	-68dBc, *-72dBc*	-71dBc, *-73dBc*	-72dBc, *-74dBc*	-71dBc, *-75dBc*	-69dBc, *-72dBc*

Phase Noise

RF output port, 0 dBm output power, center frequency = 1 GHz	
1kHz offset	< –119 dBc/Hz, < *–121 dBc/Hz typical*
10kHz offset	< –131 dBc/Hz, < *–133 dBc/Hz typical*
100kHz offset	< –136 dBc/Hz, < *–138 dBc/Hz typical*
1MHz offset	< –144 dBc/Hz, < *–146 dBc/Hz typical*
10MHz offset	< –145 dBc/Hz, < *–147 dBc/Hz typical*



Broadband Noise Floor	
RF output port, output level=0 dBm	
400MHz to 4.3GHz	-141dBm/Hz, *-143dBm/Hz typical*
4.3GHz to 8GHz	-140dBm/Hz, *-142dBm/Hz typical*
Third-order Intermodulation distortion (TOI)	
RF output port, output level = 0 dBm	
400MHz to 2GHz	+32dBm, *+33dBm typical*
2GHz to 4.3GHz	+30dBm, *+33dBm typical*
4.3GHz to 8GHz	+26dBm, *+28dBm typical*

WLAN Error Vector Magnitude (EVM)	
RF output port, at –5 dBm to –15 dBm output power, nominal	
802.11ax 5.8 GHz 80 MHz,1024QAM	⩽–51dB
802.11ax 5.8 GHz 160 MHz,1024QAM	⩽ –49dB
802.11ax 7 GHz 80 MHz,1024QAM	⩽ –50dB
802.11ax 7 GHz 160 MHz,1024QAM	⩽ –48dB
5GNR Source	
Error Vector Magnitude (EVM),RF output port, at –10 dBm output power, nominal	
30 kHz SCS, 4 GHz, 100 MHz (256QAM)	0.33%
30 kHz SCS, 5 GHz, 100 MHz (256QAM)	0.32%
Adjacent channel power (ACP),RF output port, at –10 dBm output power, nominal	
30 kHz SCS, 4 GHz, 100 MHz (256QAM)	-61dBc
30 kHz SCS, 5 GHz, 100 MHz (256QAM)	-60dBc

Vector Signal Analyzer

Frequency readout accuracy	
Resolution	1Hz

Absolute Amplitude accuracy (CW mode)				
RF input port, typical indicated by *italics*				
Frequency range	**400 to 550 MHz**	**550 MHz to 4.3 GHz**	**4.3 to 6 GHz**	**6 to 8 GHz**
+10 dBm < Level ≤ +20 dBm	< ± 0.7 dB, *< ± 0.45 dB*	< ± 0.85 dB, *< ± 0.35 dB*	< ± 1.00 dB, *< ± 0.45 dB*	<±1.10dB, *< ±0.45dB*
0 dBm < Level ≤ +10 dBm	< ± 0.65 dB, *< ± 0.45 dB*	< ± 0.75 dB, *< ± 0.40 dB*	< ± 0.90 dB, *< ± 0.45 dB*	<±0.95dB, *< ±0.45dB*
–70 dBm ≤ Level ≤ 0 dBm	< ± 0.65 dB, *< ± 0.45 dB*	< ± 0.65 dB, *< ± 0.35 dB*	< ± 0.70 dB, *< ± 0.45 dB*	<±0.70dB, *< ±0.45dB*

Input Voltage Standing Wave Ratio (VSWR)	
RF output port	
400MHz to 1.31GHz	< 1.6:1, *< 1.4:1 typical*
1.31GHz to 4.3GHz	< 1.8:1, *< 1.5:1 typical*
4.3GHz to 5.8GHz	< 1.75:1, *< 1.5:1 typical*
5.8GHz to 8GHz	< 1.65:1, *< 1.4:1 typical*

Displayed Average Noise Floor (DANL)	
RF input port, with analyzer ranged to –60 dBm	
400MHz to 2GHz	-160dBm, *-162dBm typical*
2GHz to 4.3GHz	-159dBm, *-161dBm typical*
4.3GHz to 6GHz	-159dBm, *-161dBm typical*
6GHz to 8GHz	-158dBm, *-160dBm typical*
Third-order Intermodulation distortion (TOI)	
RF input port, input ranged to 0 dBm	
400MHz to 2GHz	+32dBm, *+33dBm typical*
2GHz to 4.3GHz	+30dBm, *+33dBm typical*
4.3GHz to 8GHz	+26dBm, *+28dBm typical*
Phase Noise Sidebands(CF=1GHz)	
1kHz offset	< –116 dBc/Hz, *< –119 dBc/Hz typical*
10kHz offset	< –128 dBc/Hz, *< –130 dBc/Hz typical*
100kHz offset	< –133 dBc/Hz, *< –135 dBc/Hz typical*
1MHz offset	< –141 dBc/Hz, *< –143 dBc/Hz typical*
10MHz offset	< –142 dBc/Hz, *< –144 dBc/Hz typical*

Spurious Responses

Image responses, nominal

Center frequency	**100MHz BW**	**200MHz BW**	**400MHz BW**	**600MHz BW**	**800MHz BW**	**1.2GHz BW**
400MHz to 550MHz	-70dBc	N/A	N/A	N/A	N/A	N/A
550MHz to 1.31GHz	-68dBc	-68dBc	N/A	N/A	N/A	N/A
1.31GHz to 2GHz	-68dBc	-69dBc	-69dBc	-69dBc	N/A	N/A
2 to 8 GHz	-65dBc	-65dBc	-68dBc	-69dBc	-68dBc	-66dBc

LO Leakage(dBr)	
RF input port, with analyzer ranged from –30 to +27 dBm	
2GHz to 4.3GHz	-55dBr, *-60dBr typical*
4.3GHz to 8GHz	-60dBr, *-65dBr typical*

Other Specifications

Environmental Characteristics	
Operating temperature	0 to +45 °C
Storage temperature	–40 to +65 °C
Maximum Power Consumption	
VXT2008M	100W nominal
Weight	
Net	1.6kg
Dimension	
H x W x D	129 mm x 61 mm x 211 mm

Front Panel

Reference	
10M in,10M out	Frequency:10MHz
	Connector: MMPX female, 50 Ω nominal
	Lock range: ± 1 ppm, nominal
	Input amplitude: >0 dBm, nominal
	Output amplitude: >0 dBm, nominal
RF connections	
RF Input	Connector: 3.5 mm female, 50 Ω nominal
RF Output	Connector: 3.5 mm female, 50 Ω nominal
Trigger connections	
Trig 1, Trig 2 (Input/Output, selectable)	Connector: MMPX female
	Input impedance: 1 kΩ or 50 Ω nominal
	Input level range: 0 to +3.3 V
	Output impedance: 50 Ω nominal
	Output level range: 3.3 V LVTTL
DIO connections	
DIO1, DIO2	Connector: Micro-HDMI female
	Level range: 3.3 V LVTTL, LVDS