

WDM 5000 Series Specifications

	WDM 5044 2 channel mode	WDM 5044 4 channel mode	WDM 5082	WDM 5121
Vertical				
Input Channels	2	4	2	1
Maximum real time sample rate	20 GS/Sec	10 GS/Sec	20 GS/Sec	40 GS/Sec
Analog Bandwidth (-3db) ^{1,2}	6 GHz	4 GHz	8 GHz	13 GHz
Vertical Resolution	8 bits			
Connectors	SMA			
Input Impedance	50 ohm ± 3%			
Input Coupling	DC			
Maximum Input Voltage	± 5 V			
Sensitivity ³	1 mV/Div to 1 V/Div			
Bandwidth Flatness (-6 dBFs) ^{1,2}	± 0.5 dB to 5 GHz -3 dB at 6 GHz	± 0.5 dB to 3.5 GHz -3 dB at 4 GHz	± 0.5 dB to 7 GHz -3 dB at 8 GHz	± 0.5 dB to 11 GHz -3 dB at 12.5 GHz
Effective bits, -1 dBFS ^{1,4} (50 mV/Div)				
Frequency				
100 MHz	5.5	5.7	6.0	5.6
1 GHz	5.4	5.7	5.9	5.6
2 GHz	5.3	5.5	5.7	5.5
3 GHz	5.0	5.5	5.6	5.4
4 GHz	5.4	5.3	5.5	5.2
6 GHz	5.2	-	5.1	5.0
8 GHz	-	-	4.8	4.6
10 GHz	-	-	-	4.3
13 GHz	-	-	-	4.2
Rise time / fall time (10%-90%) ^{1,4}	68 ps	104 ps	49 ps	32 ps
RMS Noise Floor ¹				
Sensitivity Volts/div				
5 mV	410 µV	241 µV	315 µV	485 µV
10 mV	723 µV	426 µV	400 µV	550 µV
20 mV	1.35 mV	817 µV	580 µV	670 µV
50 mV	2.56 mV	1.86 mV	1.60 mV	2.10 mV
100 mV	4.54 mV	3.67 mV	3.10 mV	3.80 mV

200 mV	13.1 mV	8.32 mV	6.00 mV	7.40 mV
500 mV	24.3 mV	18.9 mV	17.0 mV	21.6 mV
1 V	45.5 mV	36.9 mV	32.5 mV	45.8 mV

Spurious Free Dynamic Range (SFDR),
-1 dBFs^{1,4} (50 mV/Div)

Frequency				
100 MHz	44 dBc	43 dBc	52 dBc	52 dBc
1 GHz	48 dBc	50 dBc	52 dBc	52 dBc
2 GHz	40 dBc	45 dBc	50 dBc	52 dBc
3 GHz	34 dBc	45 dBc	52 dBc	48 dBc
4 GHz	52 dBc	46 dBc	50 dBc	45 dBc
6 GHz	42 dBc	-	45 dBc	45 dBc
8 GHz	-	-	40 dBc	42 dBc
10 GHz	-	-	-	38 dBc
13 GHz	-	-	-	32 dBc

DC Gain Accuracy $\pm 2\%$ of full scale at full resolution channel scale ($\pm 2.5\%$ for 5 mV/div)

Offset Range

Vertical sensitivity	Available offset
0 mV/div to ≥ 40 mV/div	± 0.4 V
> 40 mV/div to ≥ 75 mV/div	± 0.9 V
> 75 mV/div to ≥ 130 mV/div	± 1.6 V
> 130 mV/div to ≥ 240 mV/div	± 3.0 V
> 240 mV/div	± 4.0 V

Offset Accuracy ≤ 3.5 V: $\pm (2\%$ of channel offset + 1% of full scale) + 1 mV
 > 3.5 V: $\pm (2\%$ of channel offset + 1% of full scale)

Dynamic range ± 4 div from center screen

Channel to Channel Isolation (any two channels with equal V/Div settings)	DC to 2 GHz: 60dB 2 GHz t 4 GHz: 46dB	DC to 4 GHz: 50dB 4 GHz t 6 GHz: 30dB	DC to 8 GHz: 48dB	-
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Return Losses < -12 dB to 4 GHz < -12 dB to 6 GHz < -14 dB to 8 GHz < -12 dB to 12.5 GHz

Acquisition

Maximum real time sample rate	20 GS/Sec	10 GS/Sec	20 GS/Sec	40 GS/Sec
Memory depth per channel	2 Gpts	4 Gpts	2 Gpts	4 Gpts
Maximum acquired time at highest real time sample rate	100 ms	50 ms	100 ms	100 ms
Time scale accuracy	± 2 ppm at 15 C to 35 C			

Jitter	TBD
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Trigger

External Trigger Inputs

Number of inputs	2
Maximum Input Voltage	± 5V
Level range	± 5V
Maximum frequency	100 MHz
Nominal Impedance	50 Ohm

Control Signal Connections

Calibrator output	Yes
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100 MHz Reference In/Out

External 1 GHz Clock Input

Level	Minimum -6 dBm, Maximum +6 dBm
Nominal Impedance	50 Ohm
Nominal frequency	1 GHz

Test Outputs

Number of outputs	3
Output Level	LV TTL

Host Computer

Transfer Interface	PCI-Express
Transfer Speed	120 Mbytes/Sec

General

Line Voltage and Frequency Range	110 V or 220 V
Current Requirements	2.5A at 110V 1.5A at 220V
Power consumption	~ 300 W
Operating Temperature Range	+5 C to +40 C
Non-Operating Temperature	-40 C to +70 C
Operating Altitude	Up to 4,000 meters (12,000 feet)
Non-operating Altitude	Up to 15,300 meters (50,000 feet)
Physical Dimensions	131mm X 441.8mm X 416.5mm (5.16" X 17.39" X 16.40")
Weight	15.9 kg (35 lbs)

- 1) With hardware FPGA digital equalization
- 2) 6-pole Butterworth approximation
- 3) Magnification is used below 5 mV/div. The major scale settings are 5 mV, 10 mV, 20 mV, 50 mV, 100 mV, 200 mV, 500 mV, 1 V
- 4) Specification values are typical. Specifications are subject to change.