

# Annexure-1

## TECHNICAL SPECIFICATION FOR 400 MHz 8 ANALOG CHANNEL OSCILLOSCOPE

Sl. No.	Tender/ Specification	
1	Number of Channels	8 Analog Channels
2	Analog Bandwidth (-3dB) Per Ch	≥ 400 MHz on all eight channels simultaneously
3	Sampling Rate (Real Time) Per Ch	≥ 15 GS/s on all eight channels simultaneously
4	Memory (Record Length) per Ch simultaneously	≥ 350 MPTS/Ch on all eight channels simultaneous
	Real-time update rate	min >150,000 waveforms/sec
5	Input Impedance	50 Ω, 1 MΩ
6	Absolute Maximum Input Voltage	±5 Vmax at 50 Ohm & 30 VRMS or ±40 VMAX (DC +Vpp)
7	ADC Resolution	10 bit of resolution up till 15 GS/s up to full bandwidth 400 MHz
8	Time Base Range	≤ 5 ps/division to ≥200s/division
9	Time Base Accuracy	±1.5x10-6 or better
10	Input sensitivity (Vertical) Range	≤1mV/division to ≥5V/division at 1MΩ ≤1mV/division to ≥1V/division at 50Ω
11	Acquisition Modes	Sample, Averaging, Hi-resolution, Peak detect, Roll mode
12	Trigger Types	Edge (Rising, Falling, Voltage level on any channel or auxiliary trigger), Width, Glitch, Nth Edge, Pulse width, Runt, Patter/state, Burst, Protocol
13	Waveform Measurements	<p>Voltage: Max amplitude, Min &amp; peak to peak, pre-shoot, overshoot, RMS, Top, Threshold.</p> <p>Rise time, fall time, period, frequency, pulse width (+/-), duty cycle, Tmin, Tmax, crossing point time, delta time, pulse count, bursts (width, period, interval).</p> <p>Math function: Add, subtract, multiply, divide, absolute value, average, common mode, delay, differentiate, integrate, max, min, square, square root</p> <p>Statistics: Mean, Standard Deviation, Maximum and Minimum</p> <p>Histogram, Eye Diagram &amp; Clock Recovery features required.</p> <p>4 digit digital voltmeter &amp; 8 digit or more frequency counter required.</p> <p>FFT Frequency magnitude and phase, channel power, power spectral density, occupied bandwidth,</p> <p>Scale: Linear, logarithmic</p> <p>Vertical Units: dBm, dBmV, dBuV,</p> <p>Should be able to set: Start, Stop, Span &amp; Centre Frequency, RBW,</p> <p>Peak detect of user defined level required.</p> <p>Mush support: Flattop, rectangular, Hanning, Blackman Harris, Hamming windows.</p>

15	Input Probes	8 passive probes should be supplied of 400MHz bandwidth
16	Display	Capacitive touch screen with minimum 14 inch display size
17	Operating System	Windows 10
18	CPU	Clock rate greater than 3 GHz
19	System memory	8 GB
20	Hard drives	Removable min 1 TB SSD
21	Power	100V–240V @ 50Hz
22	Warranty	3 year (minimum) on site warranty at IIT Madras
23	Accessories	Mouse, Keyboard and Mousepad
24	Demonstration	Installation and demonstration of all features to the satisfaction of the end user to be done.