Compliance Statement				
S.No	**Specification of Transient Scope Recorder**	**As per BHEL Specification**	**To be filled by the Supplier for the Tranisent Recorder what they offered**	**Remarks**
1	**Specifications of the main Unit**	**Qty: 02**		
A	**SAMPLING RATE of the main unit**	20 MSa/sec or more		
B	**INPUT SECTION**			
	Number of Input Channels to support(Angalog/Digital)	Should support maximum of 128 channels		
	Number of slots for input modules	Minimum 8 slots (7 modules of 2 channel each and 1 module of 16 channel)		
	Time axis setting range/sweep time	100 ns/div to 30sec/div …….1days/div to 3 days/div		
	Time axis accuracy	Less than or equal to +/-0.01%		
C	**DISPLAY**			
	Display	10.4 inch or more, TFT colour LCD monitor		
	Display resolution of waveform	minimum of 800x600 pixel		
	Expansion/reduction of vertical axis direction	multiplied with 0.1 to 100 Div/span set selectable.		
D	**Acquisition**			
	Dual capture	Data acquisition on the same waveform at 2 different sampling rates: Main waveform(low sampling rate) and capture waveform(high sampling rate)		
	Real time hard disk recording	Data should be stored in the hard disc at the same time of acquisition in accordance with trigger mode.		
	Recorder Length	10 Mword/Channel or more if all the 16 channel are used simultaneously. For maximising the record length, minimum of 250 Mega Words has to be provided		
	History memory	Minimum of 4000 screens of past waveforms has to be stored		

E	**ANALYSIS AND COMPUTATION**			
	Zoom	Expand the displayed waveform along time axis		
	History search function	Should search for and display waveforms from the history memory that satisfies specified conditions. Zone search/parameter search		
	Math Functions	MATH operation, Basic operators and user defiend computation should be available like Addition, subtraction, multiplication, FFT, Binary Computation etc.		
	FFT analysis	1). Time window: Rect/Hanning/Hamming/flat top 2). FFT Subject to be computated: CHn, MATHn. 3). Computation points: 1k/2k/5k/10k/20k/50k/100k.		
	Automatic parameter measurements	P-P, Amp, Max, Min, High, Low, Avg, Rms, Sdev, Rise, Fall, Freq, Period, Duty, Pulse, AvgFreq, AvgPeriod, etc		
	Cursor measurements	Vertical & Horizontal axis cursors are required for measurement purpose		
F	**TRIGGER**			
	Trigger modes	Auto, Normal, Single and on start		
	Trigger Sources	Any input channel as well as external source.		
	Trigger Types	Edge, event/patterns, OR, AND, Delay, Wave		
	External I/O functions	Trigger IN/OUT,		
	Trigger level setting range	5 V (+/-) and above		

G	**Power Supply for Probes**	Mimimum of 4 power supply terminals for the active		
H	**GENERAL REQUIREMENTS**			
	Screen image data storage	Should be in any of the formats like PNG, JPEG, BMP		
	External Printer to be supported	By using Ethernet port and USB.		
	Provision for SD or CF card for storing	Either SD card slot or CF card slot shall be part of the instrument.		
	Built in HDD	80 GB or more		
	Save to	HDD, Pendrive and to PC		
	Direct Access Internal Memory(RAM)	Minimum 250 Megaword or Megapoints and expandable upto 2 Gpts or 2 Gigaword;		
	Interfaces	Ethernet and USB interface has to be provided		
	VGA output	should be available		
	Power Supply	180-240V AC, 50/60Hz		
	Auxiliary I/O	EXT CLK IN, EXT TRIG IN, EXT TRIG OUT, EXT I/O, Video Signal Output.		
	Web server function display	Able to start, stop and monitor the scope waveform on PC via Ethernet.		
	Software for post analysis	PC Interface sortware should be included in the offer of main unit. The software should support variety of functions for the PC including like zoom display, cursor measurement, parameter computation, data conversion, creation of report.		
	Remote control	Able to control the instrument remotely by using Ethernet.		
	Operating Temperature range	5 to 40 Degree C		

2	**SIGNAL INPUT MODULE SPECIFICATIONS**			
A	**10 MSa/s Voltage Input Module**	**Qty: 07**		
	Input channels	2		
	Sampling rate required	10MSa/sec or more		
	A/D conversion resolution	12 bits		
	Measurement of wave forms	200V (AC or DC) or more		
	Input range	5mV/div to 20V/div		
	Input type	Isolated		
	Frequency bandwidth	DC to 3MHz		
	Input coupling	AC, DC and GND.		
	DC accuracy	Should be less than or equal to ±(0.5% of 10 div)		
	Input impedence	1M ohms		
	Input Filters required	Minimum of 500 Hz to maximum of 500kHz in regular intervals.		
	Input connector	BNC connector (isolated type)		
	Probe attenuation setting	Various attenuation ratios of 1:1, 10:1, 100:1, 1000:1 has to be provided		
B	**16-CH Voltage Input Module**	**Qty: 01**		
	Input channels	16		
	A/D conversion resolution	16-bit		
	Input coupling	DC, GND		
	Sample rate	20 Sa/sec(single CH) or more		
	Maximum input voltage	40V		
	Vertical (voltage) axis accuracy	Should be less than or equal to ±(0.3% of 10div)		
	Input impedance	1M ohms		
	Input connector	Spring-type terminal or screw type terminal		

3	**PROBES SPECIFICATIONS**			
A	**High Voltage Differential Probe**	**Qty: 01**		
	Attenuation	1000:1 and 100:1; Selectable		
	Frequency range	DC to 50 MHz		
	Allowable differential voltage measurable	5000 Vrms		
	Power requirement	Internal battery as well as external power supply.		
	Input resistance	10 Mohm or more		
B	**Differential Probe**	**Qty: 02**		
	Attenuation	1000:1 and 100:1; Selectable		
	Frequency range	DC to 100 MHz		
	Allowable differential voltage measurable	1000 Vrms or 1400 Vpeak		
	Power requirement	Internal battery as well as external power supply.		
	Input resistance	4 Mohm		
C	**100:1 Isolation Probe**	**Qty: 08**		
	Attenuation ratio	100:1;		
	Reequency range	Dc to 200MHz or more		
	Maximum Voltage Measurable	.+/-1000V (DC+ACPeak)		
	Input Impedance	100 Mohms		

4	**List of Deliverables**			
	Main Unit	Two Units		
	Voltage Input modules (10MSa/s or more)	7 Nos		
	Voltage input module (16 Ch)	1 Nos		
	High voltage differential probe (7 kVpeak)	1 Nos (Along with adaptor for 12 V power supply)		
	Differential probe (1.4 kVpeak)	2 Nos (Along with adaptor for 12 V power supply)		
	100:1 Isolated Probe	8 Nos		
	User manuals	1 set		
	Test reports and calibration certificate of all the items	1 set		
	Power Chords	Has to be part of the main unit, minimum requirements has to supplied with main unit.		
	Carrying case	1 Nos (The cost of the carrying case has to be included in the main unit)		