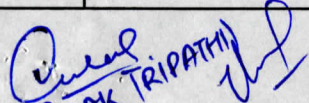
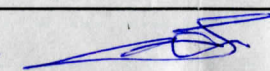
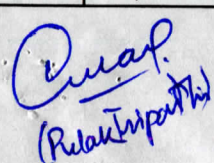
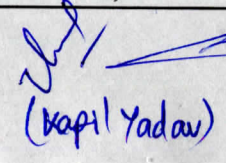
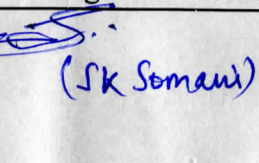


			Indent No. :	20164298
SCOPE:	SUPPLY & COMMISSIONING OF PORTABLE FFT ANALYSER WITH SPECIFICATIONS AS BELOW : No of Machines : 01 No			
SL. NO.	DESCRIPTION OF BHEL REQUIREMENT	REQUIRED	OFFERED	REMARKS
1.0	PURPOSE & WORK PIECE MATERIAL			
1.1	Purpose: The vibration frequency measuring instrument is intended to be used in shop floor for natural frequency testing of turbine blades in static conditions. Blade types : Maximum blade length will be upto 1500 mm and weight upto 70 kg, width upto 450mm. The machine will be used for blades having different sizes of roots of curved Fir-tree , T-root, fork (finger type) & dove-tail.	Vendor to accept		
1.2	Major Technical Specification:			
1.2.1	Minimum two Nos. active Channel	Vendor to confirm		
1.2.2	Connectors: BNC Type with 10-32UNF female for accelerometer connection	Vendor to confirm		
1.2.3	Connectors: BNC Type for voltage input	Vendor to confirm		
1.2.4	Dynamic range : 120 dB or more	Vendor to confirm		
1.2.5	AC/DC/ICP coupling	Vendor to confirm		
1.2.6	Frequency Range : Suitable Instrument to measure Frequency 20Hz TO 2000Hz atleast.	Vendor to confirm		
1.2.7	Frequency resolution: 6400 lines or more	Vendor to confirm		
1.2.8	Window Function: Hanning at least	Vendor to confirm		
1.2.9	Average Mode: Time (STA), Spectral, Linear Exponential peak hold and reference peak hold modes.	Vendor to confirm		
1.2.10	Measurement Mode: On-line and Off-line	Vendor to confirm		
1.2.11	Measuring accuracy: All input ranges at 1KHz:±0.05dB (typical 0.015 dB) at Temperature variability :< 0.1 dB/10 deg C	Vendor to confirm		
1.2.12	Analyser type : Channel Processing Should be Real time.	Vendor to confirm		
1.2.13	Display Type : Time signal, Spectral, monitoring waterfall, Monitoring / Compressed signal, Constant Band Tracking at least, more than 5" colour TFT VGA.	Vendor to confirm		
1.2.14	Display Resolution: Input resolution: 24 bits (144dB) or better	Vendor to confirm		

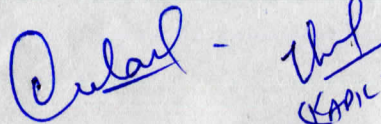
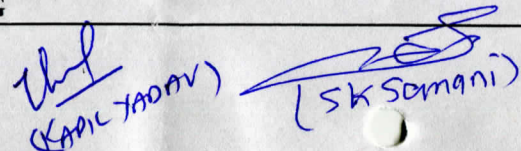

 RAKESH TRIPATHI
 (KAPIL YADAV)


 (SK SOMANI)

SL. NO.	DESCRIPTION OF BHEL REQUIREMENT	REQUIRED	OFFERED	REMARKS
1.2.15	Display Mode : Time signal, Spectral, Orbit, waterfall, Monitoring/ Compressed signal, Profile, Complex profile, Constant Band Tracking at least	Vendor to confirm		
1.2.16	Display Y/ Vertical axis unit: Any physical quantity in any physical unit (in Linear, Log and dB). Display in RMS, Peak, Peak-peak, RMS at least.	Vendor to confirm		
1.2.17	Display X/Horizontal axis : Linear, Logarithmic of frequency in Hz	Vendor to confirm		
1.2.18	operating temperature condition : 0 to 50 deg C	Vendor to confirm		
1.2.19	It should be portable in nature not having weight more than 5 kg, not more than dim.300x250x150	Vendor to confirm		
1.2.20	Input Range : $\pm 10V_{pk}$ or wider.	Vendor to confirm		
1.2.21	Power supply : 100 to 240 V AC to adapter. Instrument should be operated under battery DC and also directly with adapter. High performance battery with more than 8 hrs of continuous	Vendor to confirm		
1.3	REPORTING SOFTWARE :			
1.3.1	Instrument should be capable to transfer data to PC and have internal memory of 4GB atleast.	Vendor to confirm		
1.3.2	Instrument should be capable to store data of frequency peaks selected by operator for a lot (having specific blade IDs) and it can be possible to download same data in excel format in PC.	Vendor to confirm		
1.4	General requirements			
1.4.1	Party should quote all the items required for satisfactory operation of the equipment even if it is not specified in item list.	Vendor to confirm		
1.4.2	The Party should commission the equipments at our works on the minimum two set of (fir-tree blade Drawing Nos 01030756002, 01030756004 or any other design) blades. During commissioning Party should also demonstrate interfacing of instrument with personal computer & data transfer to computer.	Vendor to accept		
1.4.3	The Party will provide 04 sets of the following documents in English Language in Hard copy and one soft copy on CD:	Vendor to confirm		
1.4.3.1	Technical Operational manual including Operating instructions for the Software, data trasfering to PC , Do's & Don'ts,Trouble shooting & service manual etc.	Vendor to confirm		

 (Rakesh Kumar)
 (Kapil Yadav)
 (Sk Soman)

SL. NO.	DESCRIPTION OF BHEL REQUIREMENT	REQUIRED	OFFERED	REMARKS
1.4.4	Accelerometer and cable should be detachable separate item identity.	Vendor to accept		
1.4.5	Throughout the guarantee period, in the event of breakdown, if equipment needs any repair and needs to be taken out of the plant, the same shall be done by the vendor after providing a standby	Vendor to accept		
1.4.6	For safety of instrument during transit (for use at site), the party shall provide a hard flight case with proper locking arrangement.	Vendor to accept		
1.5	ACCESSORIES & MANDATORY SPARES			
1.5.1	ACCESSORIES :			
1.5.1.1	Data uploading/down loading software for the measuring unit along with connecting cable (if required) should be supplied alongwith the equipment	Vendor to confirm and provide details		
1.5.2	MANDATORY SPARES:			
1.5.2.1	ICP Type with minimum 10mV/g sensitivity, more than 7KHz frequency range, weight not more than 10gms, measuring range minimum 250 gpk, Connection 10-32 UNF at side or top mounting.	Vendor to quote on single piece basis		
1.5.2.2	Flexible cable of 3m length, 3-4mm diameter with end protection (for preventing breakage/ discontinuity at connectors joint) inbuilt with both side connector 10-32 UNF (male). Suitable BNC connectors required to connect cable with instrument.	Vendor to quote on single piece basis		
1.5.2.3	AC adaptor (with indian system of plugs) to power supply socket for running analyzer with AC supply apart from DC battery..	Vendor to quote on single piece basis		
1.5.2.4	Light weight (not heavier than 30 gms) magnetic base for fixing accelerometer sensor .	Vendor to quote on single piece basis		
1.6	ACCURACY TESTS			
1.6.1	Accuracy Tests shall be done at supplier's end & shall be reported in calibration certificate. Same calibration certificate with test results shall be provided.	Vendor to confirm and provide.		
1.6.2	Repeatability of measured values shall be proved at BHEL within +/- 0.5Hz.	Vendor to confirm and provide.		
1.7.	TRAINING			
1.7.1	Competent, English speaking experts shall be arranged by the vendor for satisfactory & effective training of BHEL personnel for total two days during commissioning at BHEL works.	Vendor to accept & confirm		
1.8.	COMMISSIONING			

 - 
 (Karan Yadav) (SK Samani)

