

	<p><u>BHARAT HEAVY ELECTRICAL LIMITED</u></p> <p><u>UNIT'S ADDRESS:</u></p> <p><u>CONTACT PERSON'S NAME/DESIGN./PHONE NO./E-MAIL</u> <u>(FROM PURCHASE DEPTT.)</u></p>	<p><u>SPECIFICATION CUM COMPLIANCE CERTIFICATE OF SWEEP FREQUENCY</u></p> <p><u>RESPONSE ANALYSER</u></p>																		
<p><u>NOTE:-</u></p>																				

SNO	DESCRIPTION FOR BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED BY	OFFERED	REMARKS
1.0	PURPOSE & WORKPIECE MATERIAL			
1.1	Purpose: (Operations/Jobs involved)	Indentor		
	Frequency response analyser is used for scanning geometrical and mechanical movements and distortion of transformer and reactors windings due to transportation damages, lightning impacts or similar			
1.2	Jobs to be tested : Power transformers, Reactors etc.	Indentor		
1.3	Quantity : 1 No.			
2.0	SPECIFICATION:			
2.1	Mode : Sweep frequency	Vendor to confirm		
2.2	Data collection			
2.2.1	Test Method: Sweep frequency			
2.2.2	Frequency range : 10 -10MHz	Vendor to Confirm		
2.2.2	Sweep mode : Individual settings for customer defined frequency bands	Vendor to confirm		
2.2.4	Accuracy : ± 1 dB	Vendor to confirm		
2.3	Analog Input			
2.3.1	No. of channels : 2 (One reference and one test)	Vendor to confirm		
2.3.2	Sampling: Simultaneous	Vendor to confirm		
2.3.3	Frequency range : 10 Hz -10MHz	Vendor to confirm		
2.3.4	Input impedance : 1M Ω /50 Ω	Vendor to confirm		
2.3.5	Maximum sampling rate: 25 MS/sec	Vendor to confirm		
2.4	Analog Source			
2.4.1	Channel : 1	Vendor to confirm		
2.4.2	Frequency range : 10Hz -10MHz	Vendor to confirm		

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2.4.3	Voltage output : 10 Vpp	Vendor to confirm		
2.2.4	Output coupling : DC	Vendor to confirm		
2.2.7	Sample rate : DDS mode : 1024S/s	Vendor to confirm		
2.5	Controller The system should supplied with external laptop having following minimum requirements			
2.5.1	Processor : 650 MHz	Vendor to confirm		
2.5.2	RAM : 256 MB	Vendor to confirm		
2.5.3	Communication : USB,RS 232	Vendor to confirm		
2.5.4	Data Storage : 40 GB Hard disk drive	Vendor to confirm		
2.2.5	Display : Colour TFT	Vendor to confirm		
2.2.6	Drive: CDR/W	Vendor to confirm		
2.6	Software			
2.6.1	Instrument software of FRA Analyser : Windows XP	Vendor to confirm		
2.6.2	OS for data analysis : Windows 98/NT/2000/XP	Vendor to confirm		
2.6.3	Software for diagnosis of the measuring results	Vendor to confirm		
2.6.4	Software for database handling	Vendor to confirm		
2.6.5	Software for report generation	Vendor to confirm		
2.7	Data Display			
2.7.1	Scaling : logarithmic,linear or combination of both	Vendor to confirm		
2.7.2	Frequency range: 10 Hz-10 MHz, user definable within frequency range	Vendor to confirm		
2.7.3	Plot: Frequency vs. magnitude, impedance, phase	Vendor to confirm		
2.8	Printer: Color Laser (Model and details should be furnished)	Vendor to confirm		

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2.9	SAFETY ARRANGEMENTS: Following safety features in addition to other standard safety features should be provided on the system: 1.System should have adequate and reliable safety interlocks / protective devices to avoid damage to the system, workpiece and the operator due to the malfunctioning or mistakes. 2. EMI / RFI Protection			
		Vendor to confirm		
		Vendor to confirm		
2.10	ENVIRONMENTAL PERFORMANCE OF THE SYSTEM: The Instrument shall conform to following factors related to environment : (a) If any safety / environmental protection enclosure is required it should be built in the system by the vendor.	Vendor to confirm		
	3.0 ACCESSORIES:			
3.1	Measuring cables (20m)	Vendor to confirm		
3.2	Carrying case	Vendor to confirm		
3.3	Pen Drive : 1GB	Vendor to confirm		
	4.0 SPARES:			
4.1	All necessary spares for two years trouble-free operation.	Vendor to Confirm		
5.0	DOCUMENTATION : Four sets of following documents (Hard copies) in English language should be supplied along with the system			
5.1	Operating manuals of Instrument & system	Vendor to confirm		
5.2	Maintenance manual with all drawings and electrical circuit diagrams.	Vendor to confirm		

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5.3	Maintenance, Interface & commissioning manuals for instrument.	Vendor to confirm		
5.4	Test and Guarantee certificate	Vendor to confirm		
5.5	Calibration certificate	Vendor to confirm		
	6.0 SYSTEM INSPECTION:			
6.1	Inspection at suppliers works before dispatch	Vendor to Confirm		
6.2	All routine and type tests and system calibration should be carried out at supplier's works on the system before dispatch in presence of BHEL representatives	Vendor to specify & confirm		
6.3	Demonstration of all features of the sweep frequency analyser and all Accessories.	Vendor to Confirm		
	7.0 TRAINING:			
7.1	BHEL test engineer and maintenance engineer should be trained at supplier's Works for mutually agreed period in the area of (a) Use of all system Features, programming for Measuring Systems & supplied accessories etc. (b) Electrical, Electronic & maintenance for system & other supplied equipments	Vendor to Confirm		
7.2	Air-fare, boarding & lodging for the trainees shall be borne by BHEL.	Vendor to confirm		
7.3	Competent, English speaking experts shall be arranged by the vendor during training for satisfactory & effective training of BHEL personnel.	Vendor to confirm		
7.4	Vendor to quote for training on man-week basis	Vendor to confirm		

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8.0	INSTALLATION & COMMISSIONING			
8.1	Supplier to take full responsibility for carrying out the, start up, commissioning of system.	Vendor to Confirm		
8.2	Successful proving of BHEL components by the supplier shall be considered as part of commissioning. Following tests deemed necessary for system acceptance shall form part of the commissioning activity. i) Operational Tests ii) Calibration Tests	Vendor to specify		
8.3	Demonstration of all features of the Frequency response Analyser & all accessories to the satisfaction of BHEL for their efficient and effective use.	Vendor to confirm		
8.4	Commissioning spares, required for commissioning of the system within stipulated time, shall be brought by the supplier on returnable basis.	Vendor to confirm		
8.5	Schedule of Commissioning shall be submitted with the offer.	Vendor to confirm		
8.6	Charges, duration, terms & conditions for E&C should be furnished in detail separately by vendor along with offer.	Vendor to confirm		

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	9.0 AMBIENT CONDITIONS & THERMAL STABILITY :			
9.1	Total System and all supplied items should work trouble free and efficiently under following operating conditions and should give specified accuracies. Power Supply: Voltage: 90-256 V AC Frequency: 50 Hz +3%, - 3% No. of phases = 1 Ambient Conditions: Temperature = 0 to 50 degree celsius Relative Humidity = 10% to 90% max. (Vendor to confirm that system is suitable for above and details of provisions on the system for the same are to be furnished by Vendor)	Vendor to Confirm		
9.2	Thermal Stability of the complete system keeping in view specified Ambient Conditions and accuracy requirements of BHEL components and trouble free operation of the system should be ensured by vendor. (Vendor to confirm that system is suitable for above and details of provisions on the system for the same should be furnished by Vendor)	Vendor to Confirm		
	10.0 PACKING:			
10.1	Air worthy/Sea worthy & rigid packing for all items of complete system, all Accessories and other supplied items to avoid any damage/loss in transit.	Vendor to Confirm		

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11.0	GUARANTEE :			
11.1	12 months from the date of commissioning of the system.	Vendor to confirm		
12.0	GENERAL : The vendor should submit the following information:			
12.1	Equipment Model	Vendor to Specify		
12.2	Total connected load (KVA):	Vendor to Specify		
12.3	Total weight of the system	Vendor to Specify		
12.4	Vendor to submit, along with offer, the reference list of customers where similar systems have been supplied mentioning the customer, Model, major specifications of the supplied system, Year of Supply etc	Required		
12.5	Detailed catalogues , sketch/ photographs of the m/c and accessories/ attachments should be submitted with the offer.	Required		
13.0	QUALIFYING CONDITIONS :			
13.1	Only those vendors, who have supplied and commissioned at least one Frequency Response Analyser for similar applications in the past ten years and such system is presently working satisfactorily for more than one year after commissioning (more than 6months if supplied to BHEL) , should quote. The following information is to be submitted by the vendor about the companies where similar instrument have been supplied. This is required from all the vendors for qualification of their offer.	Vendor to Confirm		
	1. Name of the customer / company where similar system is installed.			

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	2. Complete postal address of the customer.			
	3. Year of commissioning.			
	4. Application for which the system is supplied with details of accuracies achieved on the job.			
	5. Name and designation of the contact person of the customer.			
	6. Phone, FAX no. and email address of the contact person of the customer.			
	7. Performance certificate from the customers regarding satisfactory performance of system supplied to them			
	8. BHEL reserves thr right to verify information submitted by vendor. In case the information is found to be false / incorrect , the offer shall be rejected.			