

## FORMAT B.1

Format for Technical Pre-Bid Queries

Tender No TPSODL/OT/2022-23/072

Package Name Rate Contract for Supply of Electrical Testing Equipment at TPSODL

Note : The said format to be used only for Technical Pre-Bid Query. Any Commercial Query has to be strictly in Format B2 Format for Commercial Pre-Bid Query and sent separately

Format to be used for query regarding Technical Pre-Qualification Requirement, Safety Pre-Qualification Requirement, Technical Set of Document

Pre-Bid Query has to be sent in editable Excel file format only

Pre-Bid Query has to be sent through e-mail in TPSODL E-Tender System

Sr. No.	Detailed Reference to TPSODL Technical Document. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	TPSODL Response
1	2	3	4	5
1	Clause No. 1	This specification covers the technical requirements of design, manufacture, testing at manufacturer's works, packing, forwarding, supply and unloading at store/site of Transformer turns ratio meter complete with all accessories for efficient and trouble free operation.	Please Clarify which type of transformer do you want to test ?	33/11kv 1MVA to 10MVA 11kv/415v upto 1MVA ONAN
2	Clause No. 3	The service conditions shall be as follows: 6. Average number of thunderstorm days per annum (isokeraunic level) 70 7. Average number of rainy days per annum 120 8. Average annual rainfall 150cm 9. Earthquakes of an intensity in horizontal direction - equivalent to seismic acceleration of 0.3g 10. Earthquakes of an intensity in vertical direction - equivalent to seismic acceleration of 0.15g (g being acceleration due to gravity) 11. Wind velocity: 300 km/hr, 200 km/hr and 160 km/hr. environmentally, some of the regions, where the work will take place includes coastal areas, subject to high relative humidity, which can give rise to condensation. Onshore winds will frequently be salt laden. On occasions, the combination of salt and condensation may create pollution conditions for outdoor insulators. Some places are in heavily industrial polluted areas. Therefore, Outdoor material and equipment shall be designed and protected for use in exposed, heavily polluted, salty, corrosive and humid coastal atmosphere The design of equipment and accessories shall be suitable to withstand seismic forces corresponding to an acceleration of 0.1 g.	Point No. 6 to 11 is not applicable for this product so <b>please remove these points.</b>	<b>These are for general climatic conditions, not for KIT</b>
3	Clause No. 4	1) Turns Ratio Accuracy ±0.20% (0.8 to 4,000) ±0.25% (4,001 to 10,000) For Excitation Current Values no greater than preset value.	1-2000 ratio is sufficient for Distribution & Power Transformer. So please amend this as <b>Turns Ratio Accuracy ±0.20% 1-2000 ratio.</b>	<b>Accepted</b>
4	Clause No. 4	2) Temperature Range Operating: -20° C to 55° C (-5° F to 130° F) Storage: -50° C to 60° C (-55° F to 140° F)	<b>As per clause no. 3 amend this as</b> Operating: 0° C to 50° C Storage: 0° C to 50° C	<b>Accepted</b>
5	Clause No. 4	4) Protective Devices High voltage side shorting relay, transient voltage suppressors and gas surge voltage protectors	Here we understand that High voltage side shorting relay means Over Current Relay is it Correct ?	<b>These are not over current relays however these are for KIT protection nad ignore gas surge protector</b>
6	Clause No. 4	Measuring Time Less than 5 seconds	<b>Please amend this</b> as measuring time should be approximately 50 Seconds for all 3- phases for accurate measurement.	<b>ok</b>
7	Clause No. 4	6) Phase Angle Measurement (three phase) - 179.9 ° to + 180 ° Max. error ± 0.1 ° ± 2 digit	AS per IEC 60076-1 & ANSI/IEEE C57.12.90 Phase angle measurement is not required so <b>please remove this .</b>	<b>Accepted</b>
8	Clause No. 4	a) Mag. Current Measurement 1 mA – 2000 mA ± 1 mA	<b>please amend this as</b> 1 mA – 500 mA ± 1 mA as per clause 4.9.	<b>Accepted</b>
9	Clause No. 4	7) Accuracy Class 0.1	<b>please amend this as</b> Turns Ratio Accuracy ±0.20% as per clause No. 4.1.	<b>OK</b>
10	Clause No. 4	8) Excitation Voltage 1.8 V, 8V, 40V, 80V, 160V & 230 V.	<b>please amend this as</b> Excitation voltage should be ≥ 40V which is sufficient.	<b>Accepted</b>
11	Clause No. 4	14) Connectivity: able to connect laptop via Bluetooth, LAN & USB cable for data downloading	<b>please amend this as</b> Connectivity: able to connect laptop via Bluetooth/ LAN/USB as suitable for communication between computer & Instrument.	<b>Accepted</b>
12	Clause No. 5	b) Easy to handle tap changer automatic.	<b>Please clarify</b> what is requirement do you want any switch to up- down tap position of transformer along with instrument tap changer is required.	<b>you can ignore this</b>
13	Clause No. 5	c) Test voltage of approx.. 1.8 volts is provided to LT through ON/OFF switch. Thus ensuring safety of personnel and instrument.	please remove this clause because HV should be excited to conduct turn ratio test of transformer which is most safest & world wide approve method of Turns Ratio Test.	<b>ok noted</b>
14	Clause No. 7.0	All Type tests as per latest IS / IEC shall have been carried out as per relevant IS/IEC.	There is no specific standard for Turns ratio meter so please mention standard & list of Tests which are required.	<b>Calibration report from NABL accredited Lab and warranty certificate to be provided</b>
15	Clause No. 7.1	As per Relevant Type test and testing certificate to be submitted.	There is no specific standard for Turns ratio meter so please mention standard & list of Tests which are required.	<b>Calibration report from NABL accredited Lab and warranty certificate to be provided</b>
16	Clause No. 8	The Bidder shall furnish the type test certificates for the tests which is required as per the corresponding standards. All the tests shall be conducted at CPRI/ERDA or any other International Laboratory as per the relevant standards. Type tests shall have been conducted in certified Test laboratories during the period not exceeding 5 years from the date of opening the bid. In the event of any discrepancy in the test reports, i.e. any test report not acceptable or any/all type tests (including additional type tests, if any) not carried out, same shall be carried out without any cost implication to TPSODL, Berhampur.	There is no specific standard for Turns ratio meter so please mention standard & list of Tests which are required.	<b>Calibration report from NABL accredited Lab and warranty certificate to be provided</b>
17	Clause No. 17.2	Special Tools and Gauges	Please remove this clause because this is not applicable for this product.	<b>ok noted</b>

Sr. No.	Detailed Reference to TPSODL Technical Document. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	TPSODL Response
1	2	3	4	5
1	item contact resistance meter / General technical / page no 2/	Instrument operation on inbuilt rechargeable Battery.	inbuild Rechargeable Battery make a tender for specific party / inbuild battery option maximum time Battery leakage and damage the Kit if you not use regularly , request make a specification generalise this feature consider as aoptional	OK noted
2	thermal imager clause no 4 general technical / page no 3 and page no 4 clause no 5	in specification point no 4 resolution 160 x 120 FOV 54° x 42° temperature ange 400 deg C in specification point no 5 general construction resolution 320X240 field of view 24 deg temperature range 500 deg	lower resolution and large field of view use only indore application . For electrical sytem need minium 320 X240 pixel and 34 deg field of view . so consider 5 no spec	Please consider 160X120 FOV 54 x 42
3	4 general technical / page no 3	object temeperature range 0-400	200 Deg C is enough in electrical applaication please change temperature range maximum 250 Deg	Specification to be compiled
4	4 general technical / page no 3	resolution 160X120	Higher Resolution 320 X240	Specification to be compiled
5	ENG-GEN-Ultrasound and Vibration Analyzer	On-board measurements Ultrasound, Vibration, Infrared temperature and Tachometer.	allmspec only specific party orineted please generalise Not mention temperature Range and Other data	Please ignore Infrared temperature and Tachometer. However it should have partial discharge contact based sensor & airbrone Ultrasonic Sensor(Maximum 15 meter)

Sr. No.	Detailed Reference to TPSODL Technical Document. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification from Hi-Tech	TPSODL Response
1	2	3	4	5
1	ENG-EHV-74 /4. GENERAL TECHNICAL REQUIREMENTS	Spatial resolution (IFOV) - 1.3 mrad/pixel	We request TPSODL to change the IFOV to <b>6.3 mrad/pixel</b> . IFOV works hand in hand with detector resolution. IFOV is the smallest target size an infrared camera can discern at a given distance with a given lens type and detector size. $\text{IFOV} = \frac{\text{FOV}}{\text{number of pixels}} \times \text{As per specified Detector resolution and FOV the (IFOV) - 6.3 mrad/pixel}$ <b>.Requested to Modify IFOV to 6.3mrad</b>	<b>Specification to be complied</b>
2	ENG-EHV-74 and point no 5. GENERAL CONSTRUCTIONS to 5.3	5. GENERAL CONSTRUCTIONS from 5.1 to 5.3	Detailed Camera specifications and all accessories are already covered in Point No. 4. We recognise that the points listed in General Contraction Point 5 are an error, and we must adhere to the requirements listed in Point No. 4(GENERAL TECHNICAL REQUIREMENTS).Please confirm	<b>Please consider 160X120 FOV 54 x 42</b>

Sr. No.	Detailed Reference to TPSODL Technical Document. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	TPSODL Response
1	2	3	4	5
1	Technical Specification for IR thermal camera 4. GENERAL TECHNICAL REQUIREMENTS Pt 3	Field of view (FOV) 54° × 42°	54° × 42° or Better (As per practice experience 30 deG. is more suitable Distribution application so you will get multiple offers)	Specification to be compiled
	Technical Specification for IR thermal camera 4. GENERAL TECHNICAL REQUIREMENTS Pt 5	Spatial resolution (IFOV) 1.3 mrad/pixel	2.5 mrad/pixel is sufficient for distribution application	Specification to be compiled
	Technical Specification for IR thermal camera 4. GENERAL TECHNICAL REQUIREMENTS Pt 10	Display resolution 640 × 480 pixels	320 × 240 pixels or better (320*240 display resolution is sufficient because detector resolution is 160*120 pixels)	Accepted
	Technical Specification for IR thermal camera 4. GENERAL TECHNICAL REQUIREMENTS Pt 3	Object temperature range –20 to 400°C (–4 to 752°F)	–20 to 500°C (As per our practice experience in some time temp. goes 450 to 500 °C so keep temp. range -20 to 500 °C)	Better offer can be accepted
	Technical Specification for IR thermal camera 4. GENERAL TECHNICAL REQUIREMENTS Pt 18	Accuracy at ambient temp. 0 to 100°C ±3°C	0 to 100°C ±2°C (As per Neta standard & Level 2 thermography accuracy must be ±2°C)	Better offer can be accepted
2	Specification for Ultrasound and Vibration Analyzer Page 2	Dual Sensor Inputs: One for ultrasound measurement and one for vibration	We urge TPSODL that every party must supply a device with two sensor input, Ultrasound and Vibration. Separate device should not be considered as per tender specs it is mentioned dual sensor input. Using two devices for Ultrasound and vibration would be difficult for user to carry two instruments and capture separate data and maintain separate record. Dual sensor input stands for two inputs in an analyzer, not two separate inputs.	It should have partial discharge contact based sensor & airborne Ultrasonic Sensor(Maximum 15 meter)
	Specification for Ultrasound and Vibration Analyzer Page 2	Time signal and spectrum On-screen time waveform and FFT. Panning and zooming for signal navigation. Display of the 10 highest values	Zooming and panning must be available for signal navigation. Also, on-screen i.e. on device screen time waveform and FFT for Ultrasound and Vibration must be present for on-site analysis. Else, engineer have to go back to office every time to analyse the data and may consume huge time and effort.	Technical Specification to be complied however better offer can be accepted
	Specification for Ultrasound and Vibration Analyzer Page 2	Frequency range Up to 100 kHz (Ultrasound).5Hz to 10 kHz (vibration, ISO 10816/201816 compliant).	Vibration frequency shall be checked and vibration spectrum and vibration time series should be available in a single device (in a dual input manner) along with on-screen FFT, Time-Series and software based Time Series and FFT analysis for ease of use. Using two device is difficult for measuring Ultrasound and Vibration and may end up consuming time and effort.	Technical Specification to be complied however better offer can be accepted
	Specification for Ultrasound and Vibration Analyzer Page 2	Sampling rate 32, 64, 128 and 256 kHz oversampling Focus Mode	We request TPSODL to check for Documentary proof and practical proof in the device during demonstration.	Specification to be compiled
	Specification for Ultrasound and Vibration Analyzer Page 2	Signal length per recording 600 seconds at 32 kHz, 300 seconds at 64 kHz, 150 seconds at 128 kHz, 75 seconds at 256 kHz	We urge TPSODL to check that all the parties must comply with 10 minutes of recording at 32kHz sampling as it is critical for transformer PD monitoring where PD is intermittent and sometime may take upto 10 minutes to find the signature.	Specification to be compiled
3	3.2- 6: Hardware Specification Three phase secondary injection kit	The auxiliary DC supply must provide a power of 50 W and with the following ranges: 0 ... 264 VDC, 0.2 A / 0 ... 132 VDC, 0.4 A / 0 ... 66 VDC, 0.8 A. The auxiliary DC supply error shall not exceed 2% typically and 5% guaranteed	Aux DC power should be 12-260V, 50 Watt, 5%	Technical Specification to be complied however better offer can be accepted
	3.2- 10: Hardware Specification Three phase secondary injection kit	Minimum number of <b>outputs</b> shall be 4 and are completely independent from internal amplifier (voltage & current Source) outputs	Binary Outputs	yes
	3.2- 12: Hardware Specification Three phase secondary injection kit	Kit shall have 2 nos of Ethernet ports & USB for PC communication.	Kit should have Ethernet and USB connectivity	Specification to be compiled

Sr. No.	Detailed Reference to TPSODL Technical Document. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	TPSODL Response
	3.3 SOFTWARE SPECIFICATION:Three phase secondary injection kit A. General functions:	The software must be compatible to RIO & XRIO Standard. Software should have provision to Import Direct software settings which should eliminate to feeding settings. All manufacturers templates should be available with respect to various protections like Distance, Differential, OC and Generator protections. Templates should be upgradeable free-of charge	in distribution, Generator protection does not require	XRIO file only used in distance protection quadrilateral system. The file has download from the Numerical relay and upload in 3 phase testing Kit software. So this function not required in the Testing Kit .
	3.3 pt.5 SOFTWARE SPECIFICATION:Three phase secondary injection kit A. General functions:	The testing software must have the possibility of creating sequence of minimum 100 states for typical pre-fault, fault, postfault applications with flexible trigger conditions time, binary inputs with logical AND and OR, Key Pressed, or External Triggers from GPS. The sequence must be executed in real time, delays between the states are not permissible. When working with a sequence of states it must be possible to trigger them with a GPS signal.	State Sequencer should be part of Software with Minimum 20 states	ok accepted
	3.3 pt.6 SOFTWARE SPECIFICATION:Three phase secondary injection kit A. General functions:	The testing software must have the possibility of adding test points in manual and automatic mode directly as Power (input values as power)	Not Require	Specification to be compiled
	3.3 pt.8 SOFTWARE SPECIFICATION:Three phase secondary injection kit A. General functions:	Control of the GPS satellite receiver must be possible within test software. PTP protocol must be supported to perform end-to-end testing.	GPS not require as distance protection is not available	PTP not required.
	3.3 pt.9 SOFTWARE SPECIFICATION:Three phase secondary injection kit A. General functions:	Test software must have possibility to operate in primary or secondary values (Z, R, X, S, P, Q, V, I) and allow toggling between theses 2 operation modes at any time (before during or after the test)	in distribution, Distance protection does not require Manual Module also provides facility to test any distance relay.	ok accepted
	3.3 pt.10 SOFTWARE SPECIFICATION:Three phase secondary injection kit A. General functions:	The testing software must have the possibility of Impedance quantity ramping as IZI, Phi, R, and X for fault loops LE, LL, and LLL	in distribution, Distance protection does not require. Manual Module also provides facility to test any distance relay.	ok accepted but This kit should be able to test transformer differential and Directional and non directional over current and earth fault protection. 6 Number 's of Current Source (R,Y,B with N) and Voltage Source (R,Y,B with N) it may be Convertable or Seperate source in the 3phase Testing Kit.
	3.3 pt.11 SOFTWARE SPECIFICATION:Three phase secondary injection kit A. General functions:	The test software must have the possibility to export the automatically generated test report as .rtf (Rich Text Format) file, csv format (Comma Separated Values) & .xml format (Extensible Markup Language)	in MS word and PDF.	ok accepted
	3.3 pt.13 SOFTWARE SPECIFICATION:Three phase secondary injection kit A. General functions:	Kit should have internal PTP source.	in distribution, this facility does not require	PTP not required.
	3.3 pt.14 SOFTWARE SPECIFICATION:Three phase secondary injection kit A. General functions:	Software provision to import the template characteristics for Distance Protection relay and does Manual shot testing.	in distribution, this facility does not require	ok accepted
	3.3 pt.16 SOFTWARE SPECIFICATION:Three phase secondary injection kit A. General functions:	The testing device must provide the voltage and current terminals as 4 mm banana plugs and (at least 3 voltages ad 3 currents plus neutrals) in a common connector. It should be connected to the generator combination Socket where 3 voltages and 3 currents can be used directly for the testing.	along with test kit, sufficient number of connecting lead should supply	Specification to be compiled
	3.3 pt.17 SOFTWARE SPECIFICATION:Three phase secondary injection kit A. General functions:	Software should have provision to test Power swing feature using zone characteristics by defining block time and Trip time as per zones	in distribution, Distance protection does not require	ok accepted
	D. OVER CURRENT RELAY TESTING: point 6	• It must be possible to extract (digitize) overcurrent inverse-time characteristics from graphical representations (e.g. from a relay manual image)	Not Require. Justification: as all modern and Electromechanical relays are follow IEC/IEEE standard. Such graph are already part of standard graph library. So additional conversion of any characteristic not require. Latest software for tesing of over current also have facility to draw any customizable graph by change constant values.	ok accepted but This kit should be able to test transformer differential and Directional and non directional over current and earth fault protection. 6 Number 's of Current Source (R,Y,B with N) and Voltage Source (R,Y,B with N) it may be Convertable or Seperate source in the 3phase Testing Kit.
	1.5 Power supply requirements to the equipment shall be as follows:	Operation temperature - 3 0 ... +50 °C (+32 ... +122 °F)	0 - 55°C	Technical Specification to be complied however better offer can be accepted
	CONFORMANCE Standards	MIL-PRF-28800F (10-500 Hz, 2.05 g rms) IEC 60068-2-6 (10-150 Hz, 2 g)	MIL-PRF-28800F (10-500 Hz, 2.05 g rms) or IEC 60068-2-6 (10-150 Hz, 2 g)	As per IEC standard but This kit should be able to test transformer differential and Directional and non directional over current and earth fault protection. 6 Number 's of Current Source (R,Y,B with N) and Voltage Source (R,Y,B with N) it may be Convertable or Seperate source in the 3phase Testing Kit. Also able to test the 2nd, 5th harmonics blocking checking of differential protection
4	CT Analyzer for Protection Current Transformers		We request to consider the attached specification as the required technical specifications are not suitable for Distribution request to consider the same	Tender Specification to be compiled

	Sub-clause		OUR CONCERN ON TESTING EQUIPMENT	OUR SUGGESTION (MADHAV ENGINEERS PVT LIMITED)	TPSODL Response
1			<b>Contact Resistance Meter (CRM 100 B)</b>		
	4	Current:100 A DC	Not clear if current source will be continuous / Regulated DC / Ripple free DC	Please clarify whether this is pulse DC or Regulated Continuous DC current . Regulated Ripple free DC current kit will give consistent reading than other type of measurement	Consider Regulated Ripple free DC current
	5	Display:	Current & Resistance should be displayed.	Manufacturer also display mV drop across contacts. This is helpful for comparison besides direct value of resistance. <b>Please let us know if mV drop also need to be displayed along with current injection as well as resistance value.</b>	Accepted
	8	Battery	Battery operated equipment is not consistent in delivering power and not suitable for continuous use. Request you to kindly remove this clause as none of the equipment you are looking for such feature.	This should be removed	ok noted
	10	CK clamps	This type of clamps use to create cut mark on CB flanges. Better to use quality Battery Clips	Please check	specification to be compiled
	11	Safety Feature	Not relevant to such equipment / not clear	This should be removed	specification to be compiled
2			<b>Transformer Ratio Meter TRM-200</b>		
	4/1	Turns Ratio Accuracy	±0.20% (0.8 to 4,000) ±0.25% (4,001 to 10,000) For Excitation Current Values no greater than preset value.	Accuracy should be 0.8 - 999: ±0.05 % as majority of values will remain within this range. Inaccuracy of 0.2% will give poor result. OR maximum value should be 1000 - 3999: ±0.1 % Also, we could not understand ...For Excitation Current Values no greater than preset value. Kit only measures , there is no preset value. Accuracy should be better for fine measurement.	Better accuracy is acceptable
	4/4	Protective Devices	High voltage side shorting relay, transient voltage suppressors and gas surge voltage protectors	What is gas surge protector??	These are for KIT protection and ignore gas surge protector
	4/6	Phase Angle Measurement (three phase)	- 179.9 ° to + 180 ° Max. error ± 0.1 ° ± 2 digit	This should be from 0 to 360 degree. ±0.05 Degrees with resolution of 0.01 degree. Asked measurement is not covering all quadrant & inaccuracy asked is very high. Accuracy should be better for fine measurement.	Better offer is acceptable
	4/7	Accuracy	Class 0.1	This seems to be of CT. Can be removed !!	ok noted
	4/8	Excitation Voltage	1.8 V, 8V, 40V, 80V, 160V & 230 V.	Generally all power utilities asked for maximum 100 V. In case, you need 230 V, we request you to kindly improve overall specification to optimise benefits otherwise there is NO benefits including accuracy 1. Measurement should be TRUE Three Phase. 2.Measurement of Magnetic Balance Test 3.Automatic Vector Group detection 4.Verification of demagnetization process	We need only turns ratio measurement
	5	General construction	Test voltage of approx.. 1.8 volts is provided to LT through ON/OFF switch. Thus ensuring safety of personnel and instrument. d) Fuse is provided to take care in case of shorting winding. e) Selector switch is provided to test turns ratio of three phase transformer without changing clip	Automatic equipment does not require all these mechanisms.	Technical Specification to be complied
14			<b>Ohm Meter Low Resistance Digital</b>		
		OPEN Circuit Voltage ?	OPEN Circuit Voltage ???	For Better & quick measurement OPEN Circuit voltage is required. Good quality equipment give Open circuit Voltage up to 50 V.	Technical Specification to be complied however better offer can be accepted
		Number of Channels not mentioned??	Number of Channels not mentioned??	We suggest Three Channel (03) channels for quick measurement.	Technical Specification to be complied however better offer can be accepted
		OPTC analysis	OPTC analysis	OLTC DCRM is must for Power Transformer. Kindly put this measurement as this does not increase cost, but supplier may not give software for analysis.	Technical Specification to be complied however better offer can be accepted
		Maximum Current : 25	Maximum Current should be : 50 Amps	50 Amps Regulated DC gives better result.	Technical Specification to be complied however better offer can be accepted
		Weight : NOT Mentioned	Weight	Should not be more than 10 KG . Transformer Loaded kits weights more than 25 KG.	Technical Specification to be complied however better offer can be accepted
		Demagnetisation Process: NOT Mentioned	Demagnetisation Process	This should be included as now a days this is very common.	Technical Specification to be complied however better offer can be accepted
		Discharge Process : NOT Mentioned	Discharge Process (Demagnetisation & Discharge are different)	This should be included as now a days this is very common.: This is safety factor for operator while demagnetisation is to avoid tripping of Transformer while charging	Technical Specification to be complied however better offer can be accepted
15			<b>Primary Current Injection Test Kit</b>		
	4	Power Rating: - 5KVA	5 KVA	<b>ONLY Primary Injection kit is absolute now a days.</b> Multifunction Primary Current Injection & CT PT tester Kit has been present trend as well as avoiding bulky and heavier weight.	Technical Specification to be complied
		Output: - 0-5V/0-600A	0-5V/0-600A	As output current depend on cable length & size , we suggest to keep current from 0-1000 Amps for covering majority of CT	Technical Specification to be complied however better offer can be accepted
				<b>Can we hope to include following measurement simultaneous while doing Primary Injection?</b>	
				1. Burden Test of CT, PT	No need
				2. Ratio , Polarity, Phase angle, Ratio by voltage method of CT & PT	No need
				3. Apparent Power in VA, S (V2A1), Cosφ (V2A1)	No need
				4.Impedance Z (V1Io), Resistance R (V1Io)	No need
				5. Ground Grid:	No need
				6.Short-circuited PT:Impedance, reactance losses,Resistance	No need
				7.Checking of Auto Reclosure function	No need
19			<b>HI Pot Test Set DC 0-40KV DC 50mA</b>		
	#####	Output Voltage	Continuously variable 0-40 kV DC	Hipot with 34 KV DC would be sufficient as Hipot can be done with KV+1 fundamental . Can we keep this 36 KV so that lower model can also fit to the application?	specification to be compiled
			50 mA current	Generally 50 mA current is much higher which is not required for cables. This is required for generator. We request you to kindly keep it 10 mA which is sufficient for any cable.	Minimum 20mA current is required
				Can we use such kit for Insulation Measurement of Line ?	no

				This can be used for IR testing up to 10 mA SC current indicate powerful source for stabilisation: Scaled 100 -1 MΩ with multipliers of x 0.1, x 1, x 10, x 100, x 1 k	Technical Specification to be complied however better offer can be accepted
		<b>Relay Test Kit</b>			
		<b>Point No</b>	<b>Three phase secondary injection kit</b>	<b>Our Request</b>	
		2.	The testing system must generate at least 4 independent voltage	Can we supply 4 Voltage & 6 Current Channel with 3 Convertible Voltage channel to current channel. (3 + 3 current channel) This is common practice in relay testing? KINDLY RELAX . This will help reduction in overall cost.	This kit should be able to test transformer differential and Directional and non directional over current and earth fault protection. 6 Number 's of Current Source (R,Y,B with N) and Voltage Source (R,Y,B,N) it may be Convertable or Seperate source in the 3phase Testing Kit.
				Resolution: 10 mV AC/15 mV DC	
		6.	The setting range and output of current amplifiers shall be con	1000VA for three phase is very high. 250 VA is sufficient. 1000 VA is taken care through single phase relay test kit for electromechanical relay. Kindly relax.	The kit shall be Capable for testing of Differential Slope of Power Transformer. Testing ,As per the rated transformer Load current one Current source is fixed condition and another on source increase step by step up to find out the operating zone.
		9.	Phase angle range must cover from -360° to 360° with a resolu	This seems to be typo error. This should be 0-360 degree	ok Agreed.
		11.	Minimum number of binary inputs shall be 10 nos, should sens	6 Nos binary input seems to be sufficient. Kindly relax.	Three phase Kit Shall be capable for find out out the tripping time of Protection Relay.so this 6 number is acceptable for testing kit.
			Kit shall have 2 nos of Ethernet ports & USB for PC communication.		Kit Should be operated from PC through Suitable Software.I Ethernet Ports & USB For PC communication.
		10.	Kit should have internal PTP source	Is it compulsory?	PTP not required.
		2.	Templates for all manufacturers should be available to p	Need to be specify Name of Manufacturer to corelate with our library.	Seimens, ABB, Alstom, GE, Schnieder
		3.	Kit software should import the relay settings from Relay software u	Product specific	XRIO file only used in distance protection quadrilateral system. The file has download from the Numerical relay and upload in 3 phase testing Kit software. So this function not required in the Testing Kit .
		5.	Kit should capable to inject 25A both sides (Primary and secondary)	It seems RTK has been given from Generator testing point of view.Kindly relax.	Generator slope verification not required . How ever the kit shall be Capable for testing of Differential Slope of Power Transformer. Testing ,As per the rated transformer Load current one Current source is fixed condition and another on source increase step by step up to find out the operating zone.Through Software transformer Differential protection Checking Facility required in the Testing Kit.

Sr. No.	Detailed Reference to TPSODL Technical Document. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Key Features of Motwane Products	TPSODL Response
1	2	3	4		5
1	Contact Resistance Meter Doc No. 1, Clause no-3 GTR, Pageno-2	Accuracy: Value $\pm 1\%$ $\pm 1$ digit	Accuracy: Value $\pm 2\%$ $\pm 5$ digits	Direct mV drop reading Bluetooth connectivity enabled for Motware Mobile App Resistance Range : 0.1microOhm to 20milliOhm(Auto Ranging)	specification to be compiled
2	Contact Resistance Meter Doc No. 1, Clause no-11 GTR, Page no-3	1) In case of opening of control panel, "Auto Cut" feature shall be provided for safety purpose 2) Auto trip provision with alarm signal in case of occurrence of body leakage for safety purpose	Dual grounding Facility is provided for safety purpose		specification to be compiled
3	Transformer Turns Ratio Meter Doc No. 2, Clause no-4 GTR no 5, Pageno-3	Measuring Time Less than 5 seconds	Less Than 40 sec for three phase	Bluetooth connectivity enabled for Motware Mobile App Emergency Safety Push Button Inbuilt Thermal Printer % Deviation Error, Phase Deviation, Excitation Current	OK Accepted
4	Transformer Turns Ratio Meter Doc No. 2, Clause no-4 GTR no 6, Pageno-3	Phase Angle Measurement (three phase) - 179.9° to + 180° Max. error $\pm 0.1^\circ \pm 2$ digit	Phase angle accuracy $\pm 5^\circ$ , $\pm 1$ digit		This will be optional.
5	Transformer Turns Ratio Meter Doc No. 2, Clause no-4 GTR no8, Pageno-3	Excitation Voltage 1.8 V, 8V, 40V, 80V, 160V & 230 V.	Test voltage 10V, 40V, 100V		OK Accepted
6	Transformer Turns Ratio Meter Doc No. 2, Clause no-4 GTR no14, Pageno-3	Connectivity Able to connect laptop via Bluetooth, LAN & USB cable for data downloading	Connectivity Able to connect laptop via Bluetooth & USB cable for data downloading		OK Accepted
7	Transformer winding resistance meter Doc No. 14, Clause no-3 GTR no14, Pageno-1	Accuracy Value of 0.05% (+/-) 1 digit	Accuracy: $\pm 0.1\%$ $\pm 5$ digit	Emergency Safety Push Button Bluetooth connectivity enabled for Motware Mobile App Core Demagnetization Heat Run Test Open Circuit Voltage = 60V Voltage Drop Measurement.	specification to be compiled
8	Transformer winding resistance meter Doc No. 14, Clause no-3 GTR no14, Pageno-2	Housing Rugged with wheels & retractable extension handle	Complied with pelican Box		OK Accepted
9	Clamp On Meter Doc No. 13, Clause no-4 GTR no 3, Pageno-2	4 digits LCD for Accurate Reading	3 1/2 digits(3999) LCD for Accurate Reading		specification to be compiled
10	Insulation Tester Doc No. 9, Clause no-4 GTR no 6, Page No. 2	Crank Generator : 2-3 r.p.s. With moderate strength	Digital Insulation Tester.	Bluetooth connectivity enabled for Motware Mobile App Pass/Fail funtion Diagnostic mode : PUDAR/DO/SV & BDV Complies with latest IEC/IS standards Capacitance Range ; 10nF to 50microF	OK Accepted
11	Insulation Tester Doc No. 9, Clause no-4 GTR no 8, Page No. 2	Electrical Safety : Fouling Factor : 2			specification to be compiled
12	Insulation Tester Doc No. 9, Clause no-4 GTR no 10, Page No. 2	Auto Power Off : Required after 5mins of last operation	Auto Discharge Facility is available		Auto power off feature is needed
13	Digital Earth Tester Doc No. 10, Clause no-4 GTR no 8, Page No. 3	Earth Tester : $\pm 1\%$ rdg $\pm 2$ dg Accuracy	Earth Voltage : $\pm 2\%$ rdg $\pm 2$ dg Accuracy		specification to be compiled
14	Digital Earth Tester Doc No. 10, Clause no-4 GTR no 16, Page No. 3	Display : LCD with automatic Shutoff. 4 Digits.	3 1/2 digit display		specification to be compiled
15	Primary Current Injection Kit Doc No. 15, Clause no-4, GTR no 4, Page No. 1	Power Rating: - 5KVA Output - 0-5V/0-600A	Power Rating: - 3KVA Output - 0-5V/0-600A		OK Accepted
16	Leakage Clamp on meter. Doc No.17, Clause no-4 Page No.2	AC current measurement : 0-400mA	AC current measurement : 30mA/300mA/30A/300A		specification to be compiled
17	Digital Capacitance & Tan Delta Kit. Doc No.12, Clause no-4 GTR no.3 Page No.3	15 to 400HZ independent of input signal with Resolution: 0.1 Hz and Accuracy: $\pm 1\%$ of reading at 4kv.	Frequency 45-70Hz	MOT-WARE cloud Application Automatic Voltage setting through software Automatic Interference Suppression On site printout USB port, Printer Connectivity	specification to be compiled
18	Digital Capacitance & Tan Delta Kit. Doc No.12, Clause no-4 Page No.3	Dissipation factor/Tan delta 0-100 (0-10,000%), 0.001% maximum resolution)	Range : 0%-100% Resolution : 0.01%(0.0001) Accuracy : $\pm 0.5\%$ of the reading + 0.0002		specification to be compiled
19	Digital Capacitance & Tan Delta Kit. Doc No.12, Clause no-4 Page No.3	The kit shall able to nullify Electrostatic and Electromagnetic in charged switch yard so as to measure the parameters accurately with the specified accuracy range & capability to reject noise up to 15mA. EMC Immunity shall be as per IEC 61000-4-2/3/4/5/6/11, IEC 801-2(1984) Electrostatic Discharge ANSI/IEEE C37.90.1 Surge Withstand Capability. Safety shall be as per EN 61010-1:2001 (2nd Edition).	In process		specification to be compiled
20	Hi-pot test set DC(0-40KV DC 50mA) Doc No.19, GTR no. 6(v) Clause no-4	Auto - Discharge System on if HT-OFF			specification to be compiled
21	Hi-pot test set DC(0-40KV DC 50mA) Doc No.19, GTR no.4 Clause no-6	Meter net- A heavy shielding net of 10 swg for the safety of the meters and against any HV charge.			specification to be compiled
22	Hi-pot test set DC(0-40KV DC 50mA) Doc No.19, GTR no.5 Clause no-6	Housing box- HV transformer partially resonant with zero surge factor having minimum PD losses for long life.			specification to be compiled



Sr. No.	Detailed Reference to TPSODL Tender Document. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	TPSODL Response
1	2	3	4	5
1		8. Clamp on Meter Digital- 19 EA	1. In tender the requirement mentioned as clamp on meter but technical sheet attached for Digital Earth tester. 2. We can provide maximum earth resistance range 2000 Ohm	Accepted
2		9. Insulation Tester, PI Megger Di 0.5KV-5KV- 3 EA	1. Crank Generator not available hence it is Digital Insulation tester 2. Communication Interface: We will provide USB Port instead of RS232	Accepted
3		Due Date for Bid Submission: 01-08-2022	please extend the tender due date for another 8-10 day, So that we will able to submit our suitable offer against the tender	Bid due date is 18-08-2022

Sr. No.	Detailed Reference to TPSODL Technical Document. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	TPSODL Response
1	2	3	4	5
1	1. CONTACT RESISTANCE METER			
1.1	6. CALIBRATION CERTIFICATE/TEST REPORTS:	Bidder to provide the Calibration certificate & test reports at the time of supply of material. All the tests shall be conducted at NABL/NPL accredited lab as per the relevant standards. Test should have been conducted in certified test laboratories for all instruments to be supplied. In the event of any discrepancy in the test reports i.e. any test report not acceptable/ type test not carried out, same shall be carried out without any cost implication to TPCL	The instrument should be type tested for various environmental compatibility as per IEC standards IEC 60068-2/IS 9000, IEC 359. The instrument should be type tested to the safety requirements as per IEC standards IEC 61010-1 and IEC 364-4-41 The instrument should be type tested to the EMI EMC as per IEC standard 613216-1 and IEC 61000-4	Technical Specification to be complied however better offer can be accepted
1.2	2. CLIMATIC CONDITIONS OF THE INSTALLATION: PROTECTION	1. Maximum altitude above sea level 1,000m 2. Maximum ambient air temperature 50°C 3. Maximum daily average ambient air temperature 35°C 4. Minimum ambient air temperature 0°C 5. Maximum relative humidity 95% 6. Average number of thunderstorm days per annum (isokeraunic level) 70 7. Average number of rainy days per annum 120 8.	The instrument should be IP rated to IP67	Those are general climatic conditions, No need of IP67
4	Time Interval Meter			
4.1	6. CALIBRATION CERTIFICATE/TEST REPORTS:	Bidder to provide the Calibration certificate & test reports at the time of supply of material. All the tests shall be conducted at NABL/NPL accredited lab as per the relevant standards. Test should have been conducted in certified test laboratories for all instruments to be supplied. In the event of any discrepancy in the test reports i.e. any test report not acceptable/ type test not carried out, same shall be carried out without any cost implication to TPCL	The instrument should be type tested for various environmental compatibility as per IEC standards IEC 60068-2/IS 9000, IEC 359. The instrument should be type tested to the safety requirements as per IEC standards IEC 61010-1 and IEC 364-4-41 The instrument should be type tested to the EMI EMC as per IEC standard 613216-1 and IEC 61000-4	Technical Specification to be complied however better offer can be accepted
4.2	2. CLIMATIC CONDITIONS OF THE INSTALLATION: PROTECTION	1. Maximum altitude above sea level 1,000m 2. Maximum ambient air temperature 50°C 3. Maximum daily average ambient air temperature 35°C 4. Minimum ambient air temperature 0°C 5. Maximum relative humidity 95% 6. Average number of thunderstorm days per annum (isokeraunic level) 70 7. Average number of rainy days per annum 120 8.	The instrument should be IP rated to IP67	Those are general climatic conditions, No need of IP67
11	Portable Dissolved Gas Analyser (DGA)			
11.1	General Functional Requirement:	1.The Kit should analyses dissolved gases with direct display on the screen. Further storing and data transfer facility should be there to prepare report for future comparison. Each measured data should be automated date and time stamped facility	Kit has display to control however for better analysis Laptop is used as it is been done on the expert software designed as per IEC-599	Better offer can be accepted
11.2		7.The kit should measure the value of DGA without any interference between the gasses available and without using any carrier gases.	Being GC carrier Gas is must as per IEC60567 only Gas Chromatograph measurement technique is recommended	Noted as per latest guidelines
11.3	9.0 CALIBRATION FACILITY:	The kit has to be calibrated on yearly basis & certificate is to be issued accordingly	As per IEC 60567;2011 kit need to be calibrated using standard gases at site as and when you want to verify.	Specifications to be compiled

Sr. No.	Detailed Reference to TPSODL Technical Document. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	TPSODL Response
1	2	3	4	5
1	Document No.6(CT Analyzer)/Clause No.1 (Ratio Test)	Range: 5/5 A to 3000/5 A Range: 1/1A to 3000/1 A Accuracy: $\pm 0.2\%$ (5/5 to 3,000/5) Accuracy: $\pm 0.2\%$ (1/1 to 3000/1) Resolution: 4 digits Resolution : 4 digits	It is not convenient to test the CT of 0.2 class with the equipment having accuracy of 0.2. so the specification needs to be updated. Maximum ratio 20,000:5 or 4,000:1 Minimum ratio 2.5:5 or 10:1 1Amp VA rating 150 VA 5 Amp VA rating 300 VA Selectable % primary 1% to 400% Selectable % burden 10% to 100% Accuracy 2.5/5 to 20,000/50.02% typical 20,000/5 to 75,000/50.05%. Typical	Technical Specification to be complied however better offer can be accepted
	Document No.6(CT Analyzer)/Clause No.3 (Insulation)	Range: 1 M $\Omega$ to 10 G $\Omega$ Range: 1M $\Omega$ to 10G $\Omega$ Accuracy: $\pm 3\%$ Accuracy: $\pm 3\%$ Test Voltage: 500V Test Voltage: 500V Resolution: 3 digits Resolution: 3 digits	In secondary injection measurement of insulation resistance is not required	Accepted
	Document No.6(CT Analyzer)/Clause No.4 (Current Display)	Range: 1mA to 15A Range: 1mA to 10A Accuracy: $\pm 2\%$ (5mA to 15A) Accuracy: $\pm 2\%$ (10mA to 10A) Resolution: 3 digits. Resolution: 3 digits.	In secondary injection method current measurement is not applicable and don't have significance.	Accepted
	Document No.6(CT Analyzer)/Clause No.5 (RMS)	Range: 1mA to 10A Range: 1mA to 7A Accuracy: $\pm 2\%$ (5mA to 10A) Accuracy: $\pm 2\%$ (5mA to 7A) Resolution: 3 digits Resolution: 3 digits	Technically not useful	Technical Specification to be complied
	Document No.6(CT Analyzer)/Clause No.6 (Voltage)	Range: 1 to 10,000 V Range: 1 to 10,000 V Accuracy: $\pm 2\%$ $\pm 0.5V$ Accuracy: $\pm 2\%$ $\pm 0.5V$ Resolution: 3 digits. Resolution: 3 digits	Technically not useful	Please consider 1KV maximum
	Document No.6(CT Analyzer)/Clause No.7 (Hysteresis Loss)	Range: 0VA to 10KVA Range: 0VA to 10KVA Best Resolution: 1mVA Best Resolution: 1mVA	No Significance	Technical Specification to be complied
	Document No.6(CT Analyzer)/Clause No.8 (Power Factor)	Range: 0 to 1.0 Range: 0 to 1.0 Resolution: 0.01 Resolution: 0.01	Power Factor from 0.5 to 1 is sufficient for testing	Technical Specification to be complied
	Document No.6(CT Analyzer)/Clause No.11 (Demagnetization)	Accuracy: $\pm 3\%$ Accuracy: $\pm 3\%$	No Significance	Technical Specification to be complied
	Document No.6(CT Analyzer)/Clause No.12 (Output)	Voltage 12 volts DC 24 volts DC Current 20 amperes maximum (Peak) 10 amperes maximum (Peak)	Secondary injection equipment works on voltage principle only so there should be both AC and DC voltage	Technical Specification to be complied however better offer can be accepted
	Document No.6(CT Analyzer)/Clause No.14 (Power)	Battery powered using Battery powered using 5AH,12V Ni-MH Battery 2 X 5AH,12V Ni-MH Battery (Suitable for 6 hrs continuous operation )	A Car battery can be used to test CT but for PT to supply this much VA battery can not be a good option. Also equipment will be supplied with the battery connector	Battery is optional
	Document No.6(CT Analyzer)		Additional PT Testing facility should be there in the instrument either on no load or full load condition To 0.02% from 1.5kV/100V to 110kV/110V. To 0.03% from 110kV/110V to 300kV/110V	better offer can be accepted
	Document No.6(CT Analyzer)		Phase angle measurement and error measurement facility for both CT and PT should be available in the analyzer according to IEC60044/IEC61869 with the accuracy of 0-2min max.	better offer can be accepted
2	Document No.9(Insulation Tester,PI Megger DI 0.5KV-5KV)/Clause No.6	ENG-GEN-STP FOR INSULATION TESTER DIGITAL (Crank Generator)	Not Required as operation of the kit is automatic	ok
3	Document No.19(HI-Pot Test Set DC 0-40KV DC 50mA)/Clause No.4	Current 0-50mA	25mA. This current is sufficient to test 20km of cable length.	Accepted

Sr. No.	Detailed Reference to TPSODL Tender Document. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	TPSODL Response
1	2	3	4	5
1	Evaluation Criteria	The bids will be evaluated commercially on overall lowest cost in Line-Item Basis as calculated in Schedule of Items [Annexure I]. Bidder has to mandatorily quote against each item of Schedule of Items [Annexure I]. Failing to do so, TPSODL may reject the bids.	We kindly request you to evaluate the bid on itemwise basis as we are not the OEM of all the items mentioned in tender and It is difficult to get the support from OEM for other products.	<b>OK accepted</b>
2	Due Date for Bid Submission: 01-08-2022	Due Date for Bid Submission: 01-08-2022	We need more time to prepare our most competitive offer hence we kindly request you to please extend the due date of bid submission at least by 10 working days	<b>Bid due date is 18-08-2022</b>
3	ANNEXURE I Schedule for Items	Item No 08. Clamp on Meter Digital	Item No 08. Clamp on Meter Digital as per tender item description but as per TS it seems Earth resistance Tester(Manual) so please clarify.	<b>Item No 08. Clamp on Meter Digital will be read as Earth resistance tester(Manual)</b>
4	ANNEXURE I Schedule for Items	Item No 10. Earth Tester Clamp on Type Digital	Item No 10. Earth Tester Clamp on Type Digital as per tender item description but as per TS it seems there are two TS available Earth resistance Tester(Manual) & Digital Earth tester or resistance Tester so please clarify.	<b>we will provide clamp on type earth tester specifications</b>
5	ANNEXURE I Schedule for Items	Item No 14. Ohm Meter Low Resistance Digital	Item No 14. Ohm Meter Low Resistance Digital as per tender item description but as per TS it seems Transformer Winding Resistance Meter so please clarify.	<b>Please read as Transformer turns ratio meter</b>
6	ANNEXURE I Schedule for Items	Item no. 19. HI POT TEST SET DC 0-40KV DC 50mA	Item No 19. As per tender item description it is HI Pot Test Set DC 0-40KV DC 50mA but as per TS it seems some where AC and some where DC so please clarify.	<b>Need 40KV DC 50mA only</b>
7	ANNEXURE I Schedule for Items	Item No 08. Clamp on Meter Digital & Item No 13. Clamp on Meter Digital	ANNEXURE I – Schedule of Items; Item no. 8 & Item No. 13 are same i.e. Clamp on Meter Digital. Please correct the annexure I	<b>please read item 08 as earth resistance tester and item 13 as clamp on meter for current measurement</b>

Sr. No.	Detailed Reference to TPSODL Tender Document. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	TPSODL Response
1	2	3	4	5
		8. Clamp on Meter Digital- 19 EA	1. In tender the requirement mentioned as clamp on meter but technical sheet attached for Digital Earth tester. 2. We can provide maximum earth resistance range 2000 Ohm	Accepted
		9. Insulation Tester, PI Megger Di 0.5KV-5KV- 3 EA	1. Crank Generator not available hence it is Digital Insulation tester 2. Communication Interface: We will provide USB Port instead of RS232	Accepted
		Due Date for Bid Submission: 01-08-2022	please extend the tender due date for another 8-10 day, So that we will able to submit our suitable offer against the tender	Bid due date is 18-08-2022