

CENTRALIZED CONTRACTS GROUP**NIT No.: TPCODL / CCG / 2025-26 / 1000002512****Corrigendum- I****NIT No.: TPCODL / CCG / 2025-26 / 1000002512****Rate Contract - Supply of Three-Phase Smart Meters for Odisha DISCOMs****Dated 06th May 2025****Following changes in tender document is made;****1.3 Calendar of Events (Page No. 6)**

(e)	Due date and time of receipt of Bids	22-05-2025 [15:00 Hrs]
(f)	Date & Time of opening technical bids	22-05-2025 [15:30 Hrs]
(g)	Due Date for receipt of Sample Meter for testing as per below address	22-05-2025
(h)	Date & Time of opening of Price of qualified bids	To be notified to the successful bidders

Pre-bid response as attached below;

All other terms and conditions of the above tender shall remain unaltered.

Yours faithfully,**-sd-****HoD - Contracts (TPCODL) & CCG**

Format for Pre-Bid Queries				
Tender No: TPXODL / CCG / 2024-25 / 1000002512				
Tender Description: Rate Contract - Supply of Three-Phase Smart Meters for Odisha DISCOMs				
Sr. No.	Detailed Reference to Tata Power Technical Document. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Tata Power Response
1	2	3	4	5
1	Please refer, Page No. 46, Clause no. 5.1, 'METER BODY'	Meter base shall be opaque with polycarbonate LEXAN 500R or equivalent on prior approval from the TPXODL. Meter cover shall be transparent with polycarbonate LEXAN 143R/943A or equivalent on prior approval from the TPXODL.	Comment: - Please also accept equivalent material like LEXAN 143/143R for Meter base also. Since, the same material grade is also accepted for Meter cover. Since, it is also a superior grade material. We request you to please also consider the same.	Noted
2	Please refer, Page No. 46, Clause no. 5.1, 'METER BODY', Page No. 64, Clause no. 19, 'GUARANTEED TECHNICAL PARTICULARS' s.no. 47	Meter cover & base shall be provided with continuous and seamless chemical welding such that it is not opened without breaking the enclosure. Similarly in clause no. 19 "GUARANTEED TECHNICAL PARTICULARS" s.no. 47, it is mentioned that Ultrasonic welding of cover and base.	Comment: From above clauses, we understand that both ultrasonic & Chemical welding are acceptable. We shall provide ultrasonic welding of cover and base.	Meter cover & base shall be provided with continuous and seamless chemical welding such that it is not opened without breaking the enclosure.
3	Please refer, Page No. 46, Clause no. 5.2, 'Terminals, Terminal Block	Terminal block should be in single mould with meter body base. (Not separate)	Comment:- Kindly note that terminal block shall have top sliding arrangement with proper grooves and after fixing the meter cover it becomes integral part of the meter. We request you to kindly accept the same.	This shall be verified at the time of tender sample testing.
4	Please refer, Page No. 48, Clause no. 5.2.14, 'Terminals, Terminal Block	The preferred meter size shall be HxWxT= 235x300x120mm.	Comment:- Against the above said dimensional requirement our existing size of TPDDDL 3P Meter Casing size as follows: 3P Smart Meter: 299mm x 193mm x 104mm approx. (With Terminal Cover). We request you to kindly accept the same.	This shall be verified at the time of tender sample testing.
5	For 3P SMART METER (HT)			
6	Please refer, Page No. 82, Clause no. 5.1, 'METER BODY'	Meter base shall be opaque with polycarbonate LEXAN 500R or equivalent on prior approval from the TPXODL. Meter cover shall be transparent with polycarbonate LEXAN 143R/943A or equivalent on prior approval from the TPXODL.	Comment: - Please also accept equivalent material like LEXAN 143/143R for Meter base also. Since, the same material grade is also accepted for Meter cover. Since, it is also a superior grade material. We request you to please also consider the same.	Noted
7	Please refer, Page No. 83, Clause no. 5.1, 'METER BODY', Page No. 74, Clause no. 4.34, 'GENERAL TECHNICAL REQUIREMENTS'	Meter cover & base shall be provided with continuous and seamless chemical welding such that it is not opened without breaking the enclosure. Similarly in clause no. 19 "GENERAL TECHNICAL REQUIREMENTS" s.no. 47, it is mentioned that Meter cover and body should be continuous and seamless chemically bonded, so that meter should not open without leaving clear mark.	Comment:- We shall provide ultrasonic welding of cover and base.	Meter cover & base shall be provided with continuous and seamless chemical welding such that it is not opened without breaking the enclosure.
8	For 3P SMART METER (20-100A)			
9	Please refer, Clause no. 112, Page No. 8 'METER BODY'	Meter base shall be opaque with polycarbonate LEXAN 500R or equivalent on prior approval from the TPXODL. Meter cover shall be transparent with polycarbonate LEXAN 143R/943A or equivalent on prior approval from the TPXODL.	Comment: - Please also accept equivalent material like LEXAN 143/143R for Meter base also. Since, the same material grade is also accepted for Meter cover. Since, it is also a superior grade material. We request you to please also consider the same.	Noted
10	Please refer, Clause no. 112, Page No. 8 'METER BODY'	Meter cover shall be transparent with polycarbonate LEXAN 143R/943A or equivalent on prior approval from the TPXODL.	Comment: - Please also accept Meter cover in both transparent / opaque with LCD/led area in transparent.	Specification to be complied
11	Please refer, Page No. 113, Clause no. 5.2, 'Terminals, Terminal Block	Terminal block should be in single mould with meter body base. (Not separate)	Comment:- Kindly note that terminal block shall have top sliding arrangement with proper grooves and after fixing the meter cover it becomes integral part of the meter. We request you to kindly accept the same.	This shall be verified at the time of tender sample testing.
12	Please refer, Page No. 113, Clause no. 5.2, 'Terminals, Terminal Block	The material of which the terminal block is made shall be capable of passing the Heat Deflection temperature test given in ISO 75 for temperature of 180°C and pressure of 1.8M Pa. Tested as per ISO 75-2/A or ASTM D648.	Comment: We request you please accept the properties with its typical values for Meter of polycarbonate material - Heat Deflection Temp. -135°C As per material manufacturers of transparent polycarbonate the HDT value of polycarbonate varies from 135°C as per IS 13779. We request you to kindly confirm the same	Specification to be complied

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13	Please refer, Page No. 114 Clause no. 5.2, 'Terminals, Terminal Block	Clearance between adjacent terminals shall be 10 mm. Similarly in clause no. 4.28 "GENERAL TECHNICAL REQUIREMENTS" it is mentioned that clearance between adjacent terminals shall be 10 mm.	Comment:- We request you to kindly also accept clearance and creepage distance between adjacent terminals as per clause no. 6.60 of IS 13779 /CBIP-325. Please confirm the acceptability of the same.	As per IS
14	3P SMART METER BOX	Cable Entry & Exit through Side of Box.	Comment:- We request you to kindly also accept Cable Entry & Exit through Side /bottom of the Box. Kindly confirm the same.	Specification to be complied. Direct access to meter terminal shall not be possible from outside of the box through the glands.
15	Please refer, Page No. 124 Clause no. 7.3 (a), 'METER BOX,			Specification to be complied
16	Please refer page no. 7 Clause no. 3.0 Evaluation Criteria	Bidder has to mandatorily quote against each item of Schedule of Items [Annexure I]. Failing to do so, CCG may reject the bids	We would request you please delete the requirement to quote each item of schedule of items	Specification to be complied
17	3.0 Evaluation Criteria	Bidder has to mandatorily quote against each item of Schedule of Items [Annexure I]. Failing to do so, CCG may reject the bids.	Requesting to kindly allow to participate against the selective line item as all the meter manufacturers doesn't have the complete product line and restricting for participating against all the line items will reduce the competition in tender participation	Specification to be complied
18	TECHNICAL SPECIFICATION THREE PHASE LTCT METER	4.40 The preferred meter size shall be 235x300x120mm	282x 197x 80 mm	This shall be verified at the time of tender sample testing.
19	TECHNICAL SPECIFICATION THREE PHASE LTCT METER	4.3 Immunity against external influencing signals	In case of Magnet, the logging will be as per IS 16444.	Specification to be complied
20	TECHNICAL SPECIFICATION THREE PHASE LTCT METER	4.3.2 Electrostatic Discharge (ESD) Meter shall be immune up to 50 kV and shall record accurate energy as per IS-14697:1999/CBIP-325. Meter shall log the event into memory as "ESD" with date & time stamp for any ESD greater than 50 kV with snap shot, the event logging threshold values as per table no. 1 in 4.5. 4.3.3 The shielding around the meter shall be such that it does not get affected by high Voltage and high energy or low energy impulse when comes in contact with meter from any side. 4.3.4 Meter should immune to high/low frequency jammer devices. Meter shall log the event in its memory as "JAMMER" with date and time stamp along with snapshot, the threshold values as per table no. 1 in 4.5. 4.3.5 The meter should be immune or log the tamper on application of any other higher magnetic field of any frequency waves, micro waves like magnetron etc. the threshold values as per table no. 1 in 4.5.	The offered Meter will be immune but logging is not provided.	Specification to be complied
21	TECHNICAL SPECIFICATION THREE PHASE LTCT METER	4.5 Abnormal Tamper conditions ESD/JAMMER	The offered Meter will be immune but logging is not provided.	Specification to be complied
22	TECHNICAL SPECIFICATION THREE PHASE LTCT METER	4.5 Abnormal Tamper conditions Microwave	The offered Meter does not have event logging against the same.	This clause is deleted (Magnetron)

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23	TECHNICAL SPECIFICATION THREE PHASE LTCT METER	5.1 Meter Body 5.1.1 Meter body shall be made of unbreakable, high grade, fire retardant reinforced Insulating material (protective Class II) with FV0 Fire Retardant, self-extinguishing, UV stabilize, recyclable (first use) and Anti oxidation properties.	In the offered meter, meter body will be FV2 complied, kindly accept the same	Specification to be complied
24	TECHNICAL SPECIFICATION THREE PHASE LTCT METER	5.1 Meter Body 5.1.3 Meter base shall be opaque with polycarbonate LEXAN 500R or equivalent (i.e chart of Lexan 500R compared with the alternative material) on prior approval from the TP(C/N/S/W)ODL. (the bidders should submit material data sheet in technical bid)	The Meter base and cover will be opaque in nature and will be of High grade Polycarbonate material.	Specification to be complied
25	TECHNICAL SPECIFICATION THREE PHASE LTCT METER	5.1 Meter Body 5.1.4 Meter cover shall be transparent with polycarbonate LEXAN 143R / 943A or equivalent on prior approval from the TP(C/N/S/W)ODL. (the bidders should submit material data sheet in technical bid)	The Meter base and cover will be opaque in nature and will be of High grade Polycarbonate material.	Specification to be complied
26	TECHNICAL SPECIFICATION THREE PHASE LTCT METER	5.2 Terminals, Terminal Block 5.2.4 Terminal block and terminal cover shall be of a material which complies with the requirements of IS11731 (part 1) method FH1. The material of which the terminal block is made shall be capable of passing the Heat Deflection temperature test given in ISO 75 for temperature of 135°C and pressure of 1.8MPa as mentioned in IS 14697. Tested as per ISO 75-2/A or ASTM D648.	The Terminal block will be FV0 complied.	Specification to be complied
27	TECHNICAL SPECIFICATION THREE PHASE LTCT METER	5.7.1 Load survey The meter shall be capable of recording 15 minutes average of the following parameters for at least last 45 days	Requesting you to kindly consider the load survey capable of recording 15 minutes average of the following parameters for 30 days	Specification to be complied
28	Technical Specification for Three Phase Whole Current Energy Meter	4.4 Immunity against external influencing signals	In case of Magnet, the logging will be as per IS 16444.	Specification to be complied
29	Technical Specification for Three Phase Whole Current Energy Meter	4.6 Abnormal and Tamper conditions ESD/JAMMER	The offered Meter will be immune but logging is not provided.	Specification to be complied
30	Technical Specification for Three Phase Whole Current Energy Meter	4.6 Abnormal and Tamper conditions Microwave	The offered Meter does not have event logging against the same.	This clause is deleted(Magnetron)
31	Technical Specification for Three Phase Whole Current Energy Meter	5.1 Meter Body 5.1.1 Meter body shall be made of unbreakable, high grade, fire retardant reinforced Insulating material (protective Class II) with FV0 Fire Retardant, self-extinguishing, UV stabilize, recyclable (first use) and Anti oxidation properties.	In the offered meter, meter body will be FV2 complied, kindly accept the same	Specification to be complied
32	Technical Specification for Three Phase Whole Current Energy Meter	5.1 Meter Body 5.1.3 Meter base shall be opaque with polycarbonate LEXAN 500R or equivalent (i.e chart of Lexan 500R compared with the alternative material) on prior approval from the TP(C/N/S/W)ODL. (the bidders should submit material data sheet in technical bid)	The Meter base and cover will be opaque in nature and will be of High grade Polycarbonate material.	Specification to be complied
33	Technical Specification for Three Phase Whole Current Energy Meter	5.1 Meter Body 5.1.4 Meter cover shall be transparent with polycarbonate LEXAN 143R / 943A or equivalent on prior approval from the TP(C/N/S/W)ODL. (the bidders should submit material data sheet in technical bid)	The Meter base and cover will be opaque in nature and will be of High grade Polycarbonate material.	Specification to be complied

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34	Technical Specification for Three Phase Whole Current Energy Meter	5.2 Terminals, Terminal Block 5.2.3 Terminal block and terminal cover shall be of a material which complies with the requirements of ISI1731 (part 1) method FH1. The material of which the terminal block is made shall be capable of passing the Heat Deflection temperature test given in ISO 75 for temperature of 180°C and pressure of 1.8M Pa. Tested as per ISO 75-2/A or ASTM D648.	The Terminal block will be FV0 complied.	Specification to be complied
35	Technical Specification for Three Phase Whole Current Energy Meter	5.7.1 Load survey The meter shall be capable of recording 15 minutes average of the following parameters not limited to mentioned below (refer IS 15959) for at least last 45 power ON days. Load survey data should be at least with 5 decimal place	Requesting you to kindly consider the load survey capable of recording 15 minutes average of the following parameters for 30 days Also please accept the load survey data with atleast 3 decimal place.	Specification to be complied.
36	TENDER SPECIFICATION Pg No. 4 of 371, Clause 1.1 (Scope of Work)	Material Description : 1. METER SMART 3P4W LTCT 100/5A 2. METER SMART 3P4W LTCT 200/5A 3. METER SMART 3P4W LTCT -/5A 0.5s 4. SMART HT METER (11KV -/5A) 0.5s 5. SMART HT METER (33KV -/5A) 0.5s Class 6. SMART HT METER (33KV -/5A) 0.2s Class 7. SMART HT METER (-/1A, 110V) 0.2s Class 8. METER SMART W/C 3PH 20-100A with BOX	Please confirm that Reverse Auction will be conducted Item wise.	Item wise / Group wise / Part of Group wise
37	TENDER SPECIFICATION Pg No. 15 of 371, Clause 10	Reverse Auctions : CCG reserves the right to conduct the reverse auction for the products/ services being asked for in the tender.		Same as above
38	TENDER SPECIFICATION Pg No. 19 of 371, Annexure - 1	Price Schedule The quantity mentioned above are for evaluation purpose only and may vary as per actual site requirement.	Request specify the quantity variation in percentage.	As per Tender
39	Technical Specification for Three Phase Whole Current Energy Meter Clause 1, Pg.96	Ib= 20A; Imax= 100Amps	Request accept Ib=10A ; Imax=100A.	Noted
40	Technical Specification for Three Phase Whole Current Energy Meter Clause 1, Pg.96	Vref=230V	Request accept Vref= 240V	240V (Complying with 230V)
41	Technical Specification for Three Phase LTCT Meter Clause 4.04, Pg.31			
42	Technical Specification for Three Phase Whole Current Energy Meter Clause 4.03, Pg.97	Meter shall be able to continuously carry 120% of Imax Meeting the accuracy requirements	As per IS 16444 Part 1, Meter will be able to carry 100% Imax current continuously meeting accuracy requirements. Request accept the same.	Specification to be complied
43	Technical Specification for Three Phase Whole Current Energy Meter Clause 4.07, Pg.98	Power Consumption Voltage circuit: Maximum 5.0 W and 15 VA Current Circuit :Maximum 18.4 VA as per IS 16444 part 1 (amendment)	Request accept the same below. Power Consumption :- Voltage circuit: Maximum 5.0 W and 15 VA Current Circuit :Maximum 19.2 VA as per IS 16444 part 1 (at Vref =240V)	As per IS

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44	Technical Specification for Three Phase Whole Current Energy Meter Clause 4.33, Pg.100	Size /form factor of NIC card will be provided by TPXODL to the bidder and bidder should make necessary arrangement for the same.	NIC card design/Size /form factor shall be manufacturer specific, as implementing TPXODL specific NIC size calls for a complete new design. Hence, request accept the same.	Specification to be complied
45	Technical Specification Three Phase LTCT Meter Clause 4.35, Pg.34			
46	Technical Specification for Three Phase Whole Current Energy Meter Clause 4.36, Pg.100			
47	Technical Specification Three Phase LTCT Meter Clause 4.38 Pg.34			
48	Technical Specification of HT Meter Clause 4.38 Pg.74			
49	Technical Specification for Three Phase Whole Current Energy Meter Clause 4.1, Pg.101	1. Operating Voltage range : 130 V to 470 V 2. Operating Current range : 20 mA to 120 A 7. Min. Number of operation : 1500 (close, open each) 8. Relay Disconnection / Connection status : Should be displayed in Meter 9. Default Relay operation : Relay should be disconnect when current reached to 105% Imax	Relays provided with following specification : Max. current carrying capacity is 120A Max. switching current is 100A (Marked on the Relay) Request accept the same.	Specification to be complied
50	Technical Specification for Three Phase Whole Current Energy Meter Table 1, Pg.109	Invalid Ph Association :- Occ: Change of phase Association (10 Min) Res: Restoration of phase Association (2 Min)	This tamper is not applicable for Whole Current meter. Kindly amend.	Noted
51	Technical Specification for Three Phase Whole Current Energy Meter Clause 4.6.16, Pg.110	Meter Cover Open Event should log Attributes like Voltage, Current, pf, Active energy etc.	For Cover Open, Date & Time will be provided. Attributes like Voltage, Current, pf, Active energy etc. cannot be provided. Kindly accept.	Specification to be complied
52	Technical Specification for Three Phase Whole Current Energy Meter Clause 7.3(a), Pg.124	Meter box shall be of polycarbonate transparent type (Degree of protection- IP55)	Box will be of IP-54. Kindly accept.	Specification to be complied
53	Technical Specification for Three Phase Whole Current Energy Meter Clause 7.3(a), Pg.124	Cable Entry & Exit through Side of Box.	Bottom entry will be provided which will prevent ingress of rain water. Kindly accept.	Specification to be complied
54	Technical Specification for Three Phase Whole Current Energy Meter GTP-49, Pg.130	Allen Screw head size	Minus type screw will e provided as per Specification. Kindly amend the GTP.	Noted (Nickel Plated brass screw shall be provided. MS Material shall not be acceptable)
55	Technical Specification for Three Phase Whole Current Energy Meter Clause 4.3.3, Pg.103	It shall be possible to reconfigure the meters for RTC, TOD slots reprogramming, DIP (Demand Integration period), billing date, display		

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56	Technical Specification Three Phase LTCT Meter Clause 4.3.3, Pg.36	parameters etc. through proper authentication process locally through MRI / Mobile App, BCS and remotely over the air (OTA). Meter data should remain intact with timings. And billing should be done whenever any above-mentioned attribute is changed. The change should be recorded as upgrade event	Billing shall not be required during reconfiguration/ programming of RTC or display parameters. Request accept the same.	Noted
57	Technical Specification of HT Meter Clause 4.2.3 Pg.75			
58	Technical Specification for Three Phase Whole Current Energy Meter Clause 4.3.13, Pg.104	The Bidder's supplied meter with third party communication module should have suitable hand-shaking features to allow a third-party MDMS(procured by TPXODL) to configure, command, read and control smart meters installed at site.The Bidder shall extend all necessary assistance in developing the adaptor software through a third-party for facilitating the above	Handshaking facility with MDMS, and providing adaptor software shall be in the scope of HES, but not in Meter manufacturer's scope. However, necessary support will be provided to HES for implementation of any such software, in the event of order. Request acknowledge the same.	Specification to be complied
59	Technical Specification Three Phase LTCT Meter Clause 4.3.15, Pg.37			
60	Technical Specification for Three Phase Whole Current Energy Meter Clause 4.3.16, Pg.104			
61	Technical Specification Three Phase LTCT Meter Clause 4.3.15, Pg.37	Communication NIC/network should be immune with any external Magnetic field/ESD/Jammer/HV voltage influence such that it shall not affect the normal overall functionality.	Immunity cannot provided for NIC, for application of external Magnetic field/ESD/Jammer/HV voltage influence. Request accept the same,	Specification to be complied
62	Technical Specification of HT Meter Clause 4.2.17 Pg.76			
63	Technical Specification for Three Phase Whole Current Energy Meter Clause 4.4.4, Pg.106			
64	Technical Specification Three Phase LTCT Meter Clause 4.3.18, Pg.37	Meter should immune to high/low frequency jammer devices. Meter shall log the event in its memory as "JAMMER" with date and time stamp, the threshold values as per table no. 1 in 4.6.	Logging during Jammer application cannot be provided. Request accept the same.	Specification to be complied
65	Technical Specification of HT Meter Clause 4.3.2 Pg.77			
66	Technical Specification for Three Phase Whole Current Energy Meter Clause 4.6, Pg.107			
67	Technical Specification Three Phase LTCT Meter Clause 4.5, Pg.40	Abnormal and Tamper conditions Table No.1	Manufacturer specific Tamper logics along with Occurrence & Restoration time will be provided, for the ease & pace of implementation. And, the same will be submitted for TPXODL approval, in the event of order. Request accept the same.	Specification to be complied
68	Technical Specification of HT Meter Clause 4.5 Pg.78			
69	Technical Specification Three Phase LTCT Meter Clause 4.5.13, Pg.44	OEM should provide all required features as per OERC billing criteria in meter even if it is not mentioned in the specifications.	Request provide the required features as per OERC billing criteria, to evaluate and confirm the same.	This shall be shared during detailed engineering.

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70	Technical Specification Three Phase LTCT Meter Clause 5.4.7, Pg.49	Keys of meter should also be provided at this stage to respective engineer of TPXODL without marking copy of this E-Mail to any other person.	Will be confirmed upon mutual discussion with TPXODL, in the event of order.	Specification to be complied
71	Technical Specification for Three Phase Whole Current Energy Meter Clause 4.6.16, Pg.110	Meter Cover Open Event should log Attributes like Voltage, Current, pf, Active energy etc.)	Will be confirmed along with Tamper logic that shall be submitted for approval, during order.	Specification to be complied
72	Technical Specification for Three Phase Whole Current Energy Meter Clause 5.2.8, Pg.113	Temperature sensor to be provided from inside near the terminal block of the energy meter for sensing the temperature	Temperature sensor will be provided near the micro controller, instead of terminal block. Request accept the same.	Specification to be complied
73	Technical Specification for Three Phase Whole Current Energy Meter Clause 5.7.1, Pg.116	Load survey (for pre-paid & postpaid meter mode) i. Temperature near terminal block (C)		Specification to be complied
74	Technical Specification for Three Phase Whole Current Energy Meter Clause 5.7.1, Pg.116			
75	Technical Specification Three Phase LTCT Meter Clause 5.7.1 Pg.50	Load survey data should be at least with 5 decimal place	Load survey data will be provided upto 2 decimal places only. Request accept the same.	Specification to be complied
76	Technical Specification of HT Meter Clause 5.7.1 Pg.86			
77	Technical Specification for Three Phase Whole Current Energy Meter Clause 5.7.1, Pg.116	Load survey (for pre-paid & postpaid meter mode) : The meter shall be capable of recording 15 minutes average of the following parameters for at least last 45 days - a) Voltage for each phase b) Current of each phase c) Actual Neutral current d) Average PF e) Average kWh f) Average kVAh (lag only) g) kVArh(Lagging) h) kVArh(Leading) i) Demand kW	e & f) kWh & kVAh value for the entire Integration Period will be provided (these will not be Avg. values). i & j) Demand KW & KVA values are derived parameters (from kWh & kVAh respectively). k & l) Phase wise THD Voltage & Current cannot be provided. Request acceptance on the above.	Specification to be complied
78	Technical Specification Three Phase LTCT Meter Clause 5.7.1 Pg.50			
79	Technical Specification of HT Meter Clause 5.7.1 Pg.86			
80	Technical Specification for Three Phase Whole Current Energy Meter Clause 5.7.2, Pg.116	Instantaneous Parameters Voltage –R 000.000V Voltage –Y 000.000V Voltage –B 000.000V		
81	Technical Specification Three Phase LTCT Meter Clause 5.7.2 Pg.50		Instantaneous data will be provided upto 2 decimal places only. Request accept the same.	specification to be complied
82	Technical Specification of HT Meter Clause 5.7.2 Pg.87			

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83	Technical Specification for Three Phase Whole Current Energy Meter Clause 5.7.2, Pg.116	Instantaneous Parameters : Cumulative Tamper count 00000 Cumulative Tamper duration 00000 Cumulative Billing Count 00000 Last Billing date dd:mm:yy No of Power failure 00000	Rollover for Tamper Count. Billing Count & Power Failure event will happen after 3 digits. Kindly accept.	Specification to be complied
84	Technical Specification Three Phase LTCT Meter Clause 5.7.2 Pg.50			
85	Technical Specification of HT Meter Clause 5.7.2 Pg.87			
86	Technical Specification Three Phase LTCT Meter Clause 6.0 Pg.57	Communication Technology is IHD supported (with carrier frequency).	Mobile app provided by MDM provider can be treated as IHD. No separate IHD will be provided by Meter manufacturer. Request accept the same.	BCS & Mobile App to be provided . In the mobile app , all data (Instant, Billing, Event, etc.) can be viewed and the file can be uploaded in the BCS so that all data can be viewd and analysed.
87	Technical Specification for Three Phase Whole Current Energy Meter Clause 5.7.4, Pg.117	Billing Parameters	Provision of TOD-wise parameters in the billing profile meter data requires a very high memory in the meter., which impacts heavily on the meter cost & design. However, same data can be obtained from HES. Hence, TOD-wise parameters will not be provided. Request accept the same.	Specification to be complied.
88	Technical Specification Three Phase LTCT Meter Clause 5.7.4 Pg.52			
89	Technical Specification of HT Meter Clause 5.7.4 Pg.88			
90	Technical Specification for Three Phase Whole Current Energy Meter Clause 4.38, Pg.100	Chemical Bonding Meter cover and body should be seamlessly chemically bonded, so that meter should not open without leaving clear mark.	Seamless Ultrasonic welding will provided instead of Chemical bonding. Request accept the same.	Chemical Bonding Meter cover and body should be seamlessly chemically bonded, so that meter should not open without leaving clear mark.
91	Technical Specification Three Phase LTCT Meter Clause 4.34, Pg.34			
92	Technical Specification Three Phase HT Meter Clause 4.34, Pg.74			
93	Technical Specification for Three Phase Whole Current Energy Meter Clause 4.1 (m), Pg.102	NIC MODULE DETAILS & INTEGRATION Attributes such as Firmware version,, Hardware version, Signal strength values, packet error rate, should be pushed periodically to HES for effective communication management.	These Attributes (Firmware version, Hardware version, Signal strength values, packet error rate) cannot be be pushed periodically to HES. Kindly accept.	Specification to be complied
94	Technical Specification Three Phase LTCT Meter Clause 4.1 (m), Pg.35			
95	Technical Specification Three Phase HT Meter Clause 4.1 (m), Pg.75			

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96	Technical Specification for Three Phase Whole Current Energy Meter Clause 4.3.1, Pg.103	The data downloaded in MRI/hand held device shall be integrated to HES data base.	Data downloaded in MRI/hand held device can be further downloaded to our BCS (for viewing & analysis). It cannot be integrated to HES data base. Kindly accept.	Specification to be complied.
97	Technical Specification Three Phase LTCT Meter Clause 4.3.1, Pg.36			
98	Technical Specification Three Phase HT Meter Clause 4.2.1, Pg.75			
99	Technical Specification for Three Phase Whole Current Energy Meter Clause 4.3.3, Pg.103			
100	Technical Specification Three Phase LTCT Meter Clause 4.3.3, Pg.36	It shall be possible to reconfigure the meters for RTC, TOD slots reprogramming, DIP (Demand Integration period), billing date, display parameters etc. through proper authentication process locally through MRI & BCS and remotely over the air (OTA). Meter data should remain intact with timings. And billing should be done whenever any above mentioned attribute is changed. The change should be recorded as upgrade event.	Display Parameters can be programmed for supported parameters. For only Display Parameter programming, billing will no happen. Kindly accept the same.	Specification to be complied. Billing not required only in display parameters are configured.
101	Technical Specification Three Phase HT Meter Clause 4.2.3, Pg.75			
102	Technical Specification for Three Phase Whole Current Energy Meter Clause 4.3.14, Pg.104	The required firmware and any required support for integration with HES shall be provided free of cost till the useful life of the meter.	Support can be provided till expiry of Guarantee of the meters. Request you to consider the same.	Specification to be complied.
103	Technical Specification Three Phase LTCT Meter Clause 4.3.16, Pg.37			
104	Technical Specification Three Phase HT Meter Clause 4.2.15, Pg.76	Meter shall be immune up to 50 kV and shall record accurate energy as per IS-14697:1999/IS-13779:1999/ CBIP-325. Meter shall log the event into memory as 'ESD' with date & time stamp for any ESD greater than 50 kV with snap shot, the event logging threshold values as per table no. 1 in 4.5.	Immunity against ESD will be provided. Logging cannot be provided. Kindly accept.	specification to be complied.
105	Technical Specification for Three Phase Whole Current Energy Meter Clause 4.3.2, Pg.106			
106	Technical Specification Three Phase LTCT Meter Clause 4.4.2, Pg.39			
107	Technical Specification Three Phase HT Meter Clause 4.3.2, Pg.78			
108	Technical Specification for Three Phase Whole Current Energy Meter Clause 4.4.4, Pg.106			

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109	Technical Specification Three Phase LTCT Meter Clause 4.3.4, Pg.39	Meter should immune to high/low frequency jammer devices. Meter shall log the event in its memory as "JAMMER" with date and time stamp along with snapshot, the threshold values as per table no. 1 in 4.5.	Immunity against JAMMER cannot be guaranteed and logging also cannot be provided. Kindly accept.	specification to be complied.
110	Technical Specification Three Phase HT Meter Clause 4.3.2(b), Pg.78			
111	Technical Specification for Three Phase Whole Current Energy Meter Clause 4.4.5, Pg.106			
112	Technical Specification Three Phase LTCT Meter Clause 4.3.5, Pg.39	The meter should be immune or log the tamper on application of any other higher magnetic field of any frequency waves, micro waves like magnetron etc. the threshold values as per table no. 1 in 4.5.	Immunity against micro waves like magnetron etc. cannot be guaranteed and logging also cannot be provided. Kindly accept.	This clause is deleted(Magnetron)
113	Technical Specification for Three Phase Whole Current Energy Meter Clause 4.4.5, Pg.106			
114	Technical Specification Three Phase LTCT Meter Clause 4.3.5, Pg.39	The meter should be immune or log the tamper on application of any other higher magnetic field of any frequency waves, micro waves like magnetron etc. the threshold values as per table no. 1 in 4.5.	Immunity against micro waves like magnetron etc. cannot be guaranteed and logging also cannot be provided. Kindly accept.	This clause is deleted (Magnetron)
115	Technical Specification for Three Phase Whole Current Energy Meter Clause 4.7.3, Pg.110			
116	Technical Specification Three Phase LTCT Meter Clause 4.6.3, Pg.44	Transaction events compartment size shall be minimum 100 events.	Last 20 nos. Transaction Event will be available in meter's meemory (previous Events anyway will be available at HES). Kindly accept.	Specification to be complied
117	Technical Specification for Three Phase Whole Current Energy Meter Clause 5.7, Pg.115			
118	Technical Specification Three Phase LTCT Meter Clause 5.7, Pg.49	Transaction events compartment size shall be minimum 100 events.	Last 20 nos. Transaction Event will be available in meter's meemory (previous Events anyway will be available at HES). Kindly accept.	Specification to be complied
119	Technical Specification for Three Phase Whole Current Energy Meter Clause 5.7, Pg.122			
120	Technical Specification Three Phase LTCT Meter Clause 5.7, Pg.56	Transaction events compartment size shall be minimum 100 events.	Last 20 nos. Transaction Event will be available in meter's meemory (previous Events anyway will be available at HES). Kindly accept.	Specification to be complied
121	Technical Specification for Three Phase Whole Current Energy Meter Clause 4.3.2, Pg.127			

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122	Technical Specification Three Phase LTCT Meter Clause 4.4.2, Pg.63	SPARES, ACCESSORIES AND TOOLS 5 % of NIC Card (5 NIC card per 100 Meter) for maintaining rolling stock for troubleshooting purpose.	5% NIC Card is too huge quantity. 1% NIC Card can be kept which can be used in Rolling stock basis. Kindly accept.	Specification to be complied
123	Technical Specification Three Phase HT Meter Clause 4.3.2, Pg.94			
124	Technical Specification for Three Phase Whole Current Energy Meter Clause 4.3.2, Pg.127	SPARES, ACCESSORIES AND TOOLS Bidder to be provide free of cost 02 nos of jig (irrespective of order lot) for retrieving data from memory of meter	Jig cannot be provided for data retrieval. Defective meters need to send to Factory for possible data retrieval. Kindly accept.	Specification to be complied
125	Technical Specification Three Phase LTCT Meter Clause 4.4.2, Pg.63			
126	Technical Specification Three Phase LTCT Meter Clause 4.40, Pg.35	Preferred meter size shall be 235x300x120mm (further the bidder can check details space available in existing box at our MMG store before design)	Meter dimension shall be manufacturer specific. Kindly accept the same.	This shall be verified at the time of tender sample testing.
127	Technical Specification Three Phase LTCT Meter Clause 4.3.2, Pg.36	The fall back provision shall be taken through optical port with external modem by TPXODL. Meter should be capable for sending all data from 4G NIC and optical port.	Integration with external modem provided by TPXODL shall be confirmed based on model, type and feasibility, in the event of order.	Specification to be complied
128	Technical Specification Three Phase LTCT Meter Clause 5.8, Pg.52-55	Display units/ parameters	It is mentioend in Three phase whole current specification that "Final list shall be approved during GTP approval stage". Request accept the same for L.T & HT smart meters as well.	Specification to be complied
129	SPECIFICATION FOR THREE PHASE 4 WIRE LTCT ENERGY METER Pg. No. 33 of 321 Clause 4.31	Software and communication compatibility : The bidder shall supply software required for local (MRI – conventional/4G) & remote (AMI) connectivity including required training to use the software free of cost. Following parameters may be updated multiple times during life cycle of meters over the air : PostPaid to Prepaid mode and vice-versa	Prepaid Mode is not applicable for this variant. Request modify the clause.	Prepaid Mode is not applicable for LTCT / HT Meters
130	SPECIFICATION FOR THREE PHASE 4 WIRE LTCT ENERGY METER Pg. No. 38 of 321 Clause 4.3.24	Following parameters may be updated multiple times during life cycle of meters over the air : Post Paid to Prepaid mode and vice versa Import mode to export Mode and vice versa. Accordingly Display parameters shall be updated remotely.		
131	SPECIFICATION FOR THREE PHASE 4 WIRE LTCT ENERGY METER Pg. No. 35 of 321 Clause 4.1(r)	NIC MODULE DETAILS & INTEGRATION r) Meter display should have provision for showing if NIC card if : 1. Installed, 2. Getting Network, 3. Latched with HES, 4. Communicating with HES	This information is available in the NIC, not in meter's display. Kindly accept.	Specification to be complied
132	SPECIFICATION FOR THREE PHASE 4 WIRE LTCT ENERGY METER Pg. No. 34 of 321 Clause 4.35	Size /form factor of NIC card will be provided by TPWODL to the bidder and bidder should make necessary arrangement for the same.	NIC card design/Size /form factor is manufacturer specific. Request accept the same.	Specification to be complied

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133	SPECIFICATION FOR THREE PHASE 4 WIRE LTCT ENERGY METER Pg. No. 36 of 321 Clause 4.3.5	The complete data shall be downloaded within 5 minutes OTA.	Data downloading time depends upon the type & size of data & Network strength also. Kindly amend.	Specification to be complied
134	SPECIFICATION FOR THREE PHASE 4 WIRE LTCT ENERGY METER Pg. No. 37 of 321 Clause 4.3.13	Last mile mesh network must support auto-registration and self-healing feature to continue operation using easiest possible available route in case of failure of any communication device in the mesh.	Not applicable for Cellular meter. Kindly amend.	Noted
135	SPECIFICATION FOR THREE PHASE 4 WIRE LTCT ENERGY METER Pg. No. 52 of 321, Clause 5.7.4	Billing Parameter Last five modes with date & time of switching with cumulative energy parameters kWh, kVAh (lag only), kVAh lead, lag (all import and export) and TOD1 kWh, TOD2 kWh, TOD1 kVAh (lag only), TOD2 kVAh (lag only)	Switching related parameters are not applicable for this variant as there is no switch(relay) present in this meter variant. Request modify the clause.	Noted
136	SPECIFICATION FOR THREE PHASE 4 WIRE LTCT ENERGY METER Pg. No. 52 of 321, Clause 5.7.4	Meter Should push mid night reads with all billing parameters and rising demand for KW and KVA on daily basis	Rising Demand cannot be pushed. Maxi mum Demand values will be pushed. Kinly amend.	Noted
137	SPECIFICATION FOR THREE PHASE 4 WIRE LTCT ENERGY METER Pg. No. 53 of 321, Clause 5.8.1	Auto Scroll Display : 13. H 1 KWh kWh reading on 1st of last month at 00.00 hrs. 15. H 1 MD in kW on 1st of last month at 00.00 hrs. 16. H 1 kVAh(lag only) reading on 1st of last month at 00.00 hrs. 17. H1 Individual cumulative kVAh (lag only) for T1,T2,T3,T4for last month 18. H 1 MD in kVA reading on 1st of last month at 00.00 hrs	H1 values will be 1st of Present month at 00.00 hrs. Kindly amend.	Noted
138	SPECIFICATION FOR THREE PHASE 4 WIRE HT ENERGY METER Pg. No. 54 of 321, Clause 4.39	The terminal pin shall be 10 pin Zigzag / straight arrangement.	Understood Neutral CT is not required in the HT meter. Kindly confirm.	Neutral CT terminal is not required in the HT meter.
139	SPECIFICATION FOR THREE PHASE 4 WIRE HT ENERGY METER Pg. No. 78 of 321, Clause 4.5.3	During abnormal & tamper conditions, the current shall be recorded as active current and line current.	Phase wise Line Current values will be recorded. Kindly accept.	Specification to be complied
140	SCOPE	Sr. No. PT Ratio (Ph to Ph) CT Ratio (lb) Accuracy Class 1 -/110V -/1A 0.2S 2 -/110V -/5A 0.5S 3 -/110V -/5A 0.2S 4 11kV/110V -/5A 0.5S 5 11kV/110V -/1A 0.5S 6 33kV/110V -/5A 0.2S 7 33kV/110V -/1A 0.2S	We will submit HT CT meters as below qty and rating:- 2 Nos. 11KV,CL-0.5S 2 Nos. 11KV,CL-0.2S Please confirm.	Noted

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141	CI 4.38 Harmonics recording	The meter shall generate a flag whenever the threshold (user configurable) of the 5% THD of the load current and voltage is breached.	Please accept THD threshold value factory programmed.	Specification to be complied
142	CI 4.25 Alternate mode of supply to the meters	In case of meter power failure, the reading/data should be retrieved with the help of battery or other power source	In case of Power failure, the meter data will be retrieved on battery by downloading through optical port only.	Noted
143	CI 4.27 Minimum Internal diameter of the terminal holes & minimum Depth of the terminal holes	20mm (minimum)	Please accept suitable for HT-CT meter Minimum Depth of the terminal holes : 17mm +/- 2mm	Noted
144	4.4 Neutral Disturbance & other tamper	4.4.2 The meter shall not saturate on passage of direct current, which can cause the meter either to stop recording/ record inaccurately. DC injection shall be tested both in phase and neutral.	Pls provide the testing circuit diagram for chopping and DC injection applicable only neutral element.	Specification to be complied
145	4.5 Abnormal Tamper Conditions	4.5.3 During abnormal & tamper conditions, the current shall be recorded as active current and line current	You are request to please accept line current in tamper snap shot. active current twill be provide in instant profile.	Specification to be complied
146	CI 4.1 NIC MODULE DETAILS & INTEGRATION	(i) Meter display should have provision for showing if NIC card if: 1. Installed, 2. Getting Network, 3. Latched with HES, 4. Communicating with HES.	Signal Strength on display and LED's on module will be provided for the communication status	Specification to be complied (11 Error codes shall be displayed for NIC status)
147	CI 4.2 Communication capabilities and software feasibilities	4.2.17 Communication NIC/ network should be immune with any external Magnetic field/ESD/ Jammer/ HV voltage influence such that it shall not affect the normal overall functionality.	Meter immunity will be as per CBIP325	Specification to be complied
148	CI 4.3 IMMUNITY AGAINST EXTERNAL INFLUENCING SIGNALS	4.3.1 Abnormal Magnetic field is defined as below; a) Continuous DC magnetic induction: $>0.20 \text{ Tesla} \pm 5\%$ (Value of the magneto motive force to be applied shall be generally $>10000 \text{ AT}$. b) AC magnetic induction: $>10 \text{ milli Tesla}$ (if produced with circular metal core with square cross section as specified in CBIP latest report with 2800 AT) c) Permanent Magnet: Immune up to 0.5T and Event logging $>0.5T$.	Meter will comply the magnet clause as per CBIP325	Specification to be complied
149	5.7.1 Load survey (for post-paid& NET meter mode)	The load survey data shall be recorded for 45 days with 15 minute IP & 90 days with 30 minute IP . Voltage for each phase Current of each phase Average PF (Lag / Lead with sign) Average frequency Average kWh Average kVAh (lag only, for import only) kVArh(Q1,Q2,Q3,Q4) Demand (KW) Demand (KVA) Temperature near terminal block (°C) THD Voltage phase wise THD Current phase wise	Average PF (Lag / Lead with sign) Demand (KW) Demand (KVA) Above these parameters will calculated from BCS/HES side.	Specification to be complied
150	Table No.1 Tamper table	ESD/JAMMER	Meter immune as Per CBIP 325 , No tamper logging in this condition	Specification to be complied

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151	Table No.1 Tamper table	Meter shall be provided with feature for terminal cover opening with time stamping.	Terminal cover Open tamper not applicable as per IS15959 Part-3	Noted
152	Table No.1 Tamper table	Microwave immediate (record only 1eventon first application & only one event for next 1min)	Not applicable as per IS-16444/15959.	This clause is deleted(Magnetron)
153	Cl 5 General Constructions	Components make list	Component make list will be as per the the attached sheet in the mail.	Specification to be complied
154	Cl 4.39 TERMINALS, TERMINAL BLOCK	The terminal pin shall be 10 pin Zigzag / straight arrangement with phase voltage terminal in between current terminals as mentioned in clause no. 5.2.11	Please accept Meter terminal should have 11 terminals arrangement.Terminal configuration shall be R-Cin, R volt, R-Cout, Y-Cin, Y volt, Y-Cout, B-Cin, B-volt, B-Cout, N-in, N-out	Specification to be complied
155	Cl 5.9 Output devices	5.9.2 Communication LCD indicator-Meter display shall have indication in context to NIC. The blinking should be slow when NIC is detected; blinking should be fast when NIC had searched the network and it should be stable when it is successfully latched to the HES.	We will provide the status LED on module.	Specification to be complied
156	4.0	4.04: Reference Conditions for testing the performance: Vref = 230 V, Frequency = 50Hz. Temperature= 27 °C	Vref=240V may also be acceptable	240V (Complying with 230V)
157	4.0	4.23: Self-Diagnostic feature The meter shall have indications on meter display, for anomaly/ unsatisfactory/non-functioning of (i) Real Time Clock (ii) Battery (iii) Non Volatile Memory (iv) Status of NIC	Meter have separate page to display diagnostic information: Health status - Good, oscillator crystal fail, RTC fail, low battery Communication module status can be shown as : Signal strength - Good, Moderate, weak Network - 4G, 3G, 2G, No signal AMI On – Communication module supply is On kindly accept the same	Specification to be complied
158	4.0	4.38 Harmonic recording: The meter should record the current and voltage THD. The meter should record harmonics up to 20th harmonic Average THD of all phase for voltage THD and current THD.	Kindly accept harmonics up to 15th harmonic average THD	Specification to be complied
159	4.0	4.39 Terminal Pin Arrangement Terminal Pin shall be 12 pin, zig-zag arrangement with Voltage terminal in between Current terminals	Terminal Pin will be 11 pin linear arrangement (2pin for neutral terminals) kindly accept the same.	Specification to be complied. The standardized terminal arrangement shall be shared.
160	4.0	4.40 Maximum size of meter 235x300x120mm (however, smaller size meter will be preferred maintaining the terminal sizing as per existing CT Unit.)	Meter size is 265 mm x 179 mm x 70 mm with Tolerance ±5mm. kindly accept the same.	This shall be verified at the time of tender sample testing.
161	4.1	p) LED indication for System, Power ON indicator. q) Colour coded LED (a) For latching on to the network (b) For latched on to the network (c) For data flow indication. r) Meter display should have provision for showing if NIC card if : 1. Installed, 2. Getting Network, 3. Latched with HES, 4. Communicating with HES	Comms module does not have LED indication for System, Power ON indicator. Comms module status is installed, getting network, Latched with HES, Communication with HES, however comms status and signal status can be verified through display parameters and display icons.	Specification to be complied
162	4.2	4.3.1 The meter shall have facilities for data transfer locally through Meter Reading Instrument (MRI) (Using optical port/NIC card) and remotely by 4G with proper security via Plug in type NIC. Data transfer locally through optical port via MRI is desired along with data transfer through NIC card. The data downloaded in MRI/hand held device shall be integrated to HES data base.	For local communication kindly accept mobile app and BCS in place of CMRI application.	BCS & Mobile App to be provided . In the mobile app , all data(Instant, Billing, Event, etc.) can be viewed and the file can be uploaded in the BCS so that all data can be viewd and analysed.

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163	4.3.21	4.3.21 Meter display should have provision for showing if NIC card if : 1. Installed, 2. Getting Network, 3. Latched with HES, 4. Communicating with HES If there are any other codes OEM to specify the same	Meter display have following indications for Communication module status: Signal strength - Good, Moderate, weak Network - 4G, 3G, 2G, No signal AMI On – Communication module supply is On Meter also have separate icon on display to indicate : SIM is registered, communication status	Specification to be complied
164	4.3	4.4.1 Magnetic Field: Meter shall record accurate energy in case of any external influencing signals in line with IS 13779:1999 Cl.11.2 and variation in limits of error (up to 100% I _{max}) shall be as per the table 17 of IS 14697. Meter shall preferred to be immune to magnetic field such that it shall not affect the normal overall functionality. However, in case of abnormal magnetic field as defined below meter shall perform as per the following actions: a. Meter shall log the event in memory as "MAGNET" with date and time stamp, the event logging threshold values as per table no.1 in 4.5 b. The energy recording to shift on I _{max} . Vref with UPF c. Snapshot parameter should show the I _{max} Current in Phase and Actual Current in Neutral Abnormal Magnetic field is defined as below: a. Continuous DC magnetic induction: >0.20 Tesla ± 5% (Value of applied Magneto Motive Force shall be generally >10000 AT. b. AC magnetic induction: >10 milli Tesla (if produced with circular metal core with square cross section with 2800AT as specified in CBIP-325 latest version) c. Permanent Magnet: Immune up to 0.5T and Event logging ≥0.5T.	4.3.1 Whenever the meter functionality gets affected on account of magnetic field, meter log it as an event and recording starts on I _{max} or it remains immune. Same shall be logged with date & time stamp. Meter will log suitable abbreviation for Magnet event in meter memory. Kindly accept the same.	Specification to be complied
165	4.3	4.3.2. Electrostatic Discharge (ESD) Meter shall preferred to be immune up to 50kV and shall record accurate energy as per IS 14697:1999/CBIP-325. Meter shall log the event in memory as "ESD" with date & time stamp for any ESD greater than 50kV with snap shot the event logging threshold values shall be as per table no. 1 in 4.5 4.3.3 The shielding around the meter shall be such that it does not get affected by High Voltage and High Energy or Low Energy Impulse when comes in contact with meter from any side. 4.3.4 Meter should be immune to high/low frequency Jammer devices. Meter shall log the event in its memory as "JAMMER" with date and time stamp, the threshold values shall be as per table no. 1 in 4.5. 4.3.5 The meter should be immune or log the tamper on application of any other higher magnetic field of any frequency waves, micro waves like Magnetron etc. the threshold values shall be as per table no. 1 in 4.5.	Meter is immune up to 35 kV ESD however event logging is not available. 4.3.5 Meter is immune to influence quantities mentioned in IS16444 part 2	Specification to be complied

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166	4.4	4.4.1 The meter shall not saturate on passage of direct current, which can cause the meter either to stop recording/ record inaccurately. DC injection shall be tested both in phase and neutral. Measurement by meter shall not get influenced by injection of Chopped signal/ DC signal/ DC pulse upto 330V and for any value beyond this. Meter shall log the event into memory as 'Neutral Disturbance' with date & time stamp the thresholds are as per table no. 1 in 4.5 4.4.2 The meter should log event with snapshot when all three phase currents are zero and neutral current is present. 4.4.3 Aneventobeprovidedforinvalidphaseassociationwithname'Invalidphase association'	In such condition meter will be either immune or log the ND event.	Specification to be complied
167	4.5	4.5.2 For all tamper events the time stamp and snapshot parameters shall be recorded at the start time of event for occurrence (T1) and for restoration the time stamp and snapshot parameters shall be recorded at the end time of the event (T3).	Snapshot will be recorded after confirmation of event (Persistence time) of occurrence and restoration.	Specification to be complied
168	4.5.4	4.5.4 The events for which the restoration not occurred those should not be removed from meter memory and FIFO should not be applicable for unrestored event.	Event will be logged in their respective compartment ob FIFO basis as per IS 15959 part 3	Specification to be complied
169	4.5	ESD/JAMMER Threshold Value for Occurrence of Events: Immunity up to 50KV with NIC and logging of event>50KV	Meter is immune up to 35 kV ESD however event logging is not available.	Specification to be complied
170	4.5	MAGNET	For Occurrence : Whenever the meter functionality gets affected on account of magnetic field, meter log it as an event and recording starts on Inax or it remains immune. For Restoration : On removal of magnetic field	Specification to be complied
171	4.5	Voltage Unbalance Threshold Value for Occurrence of Events: 20% or more between the phases and current > 2% Ibasic Threshold Value for Restoration of Events: Shall be less than 10 % between the phases and current > 2% Ibasic	For voltage unbalance line current is ignored for occurrence and restoration.	Specification to be complied
172	4.5	CT Open Threshold Value for Occurrence of Events: Ir + Iy + Ib + In >=10% of Ibasic (vector Sum) AND Phase current < 1% of Ibasic with All current positive Threshold Value for Restoration of Events: Ir+Iy+Ib+In<5 % of Ibasic. (vector Sum) AND Phase current > 10% of Ibasic with All current positive	For CT open event Threshold Value for Restoration of Events: Ir+Iy+Ib+In<10 % of Ibasic. (vector Sum) AND Phase current ignored	Specification to be complied
173	4.5	Low Power Factor Threshold Value for Occurrence of Events: I >1% of Ib and Power Factor <=0.5 in any phase Threshold Value for Restoration of Events: I >1% of Ib and Power Factor >=0.7 in respective phase	For Occurrence : I >1% of Ib and Power Factor < 0.5 in any phase For Restoration : I >1% of Ib and Power Factor > 0.5 in respective phase	Specification to be complied
174	4.5	Neutral Disturbance Threshold Value for Occurrence of Events: Voltage > 145% of Vref & Current >10% Ib OR Frequency < 47 Hz OR Frequency > 53 Hz OR DC voltage / signal/ pulse/ chopped signal injection Threshold Value for Restoration of Events: Voltage <115% of Vref&Current > 10% Ib AND Frequency > 47 Hz OR Frequency < 53 Hz	For occurrence: In case meter is get affected by external signal injection (chopped DC, Chopped AC & Dc injection through diode) or both active. For restoration: If neutral is restored and meter is in normal condition	Specification to be complied
175	4.5	Microwave	Event logging for Microwave is not available. Kindly accept the same.	This clause is deleted(Magnetron)

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176	4.5	Temperature Rise Threshold Value for Occurrence of Events: Temperature >70 C Threshold Value for Restoration of Events: Temperature <60 C	Threshold Value for Restoration of Events: Temperature <70 C	Specification to be complied
177	4.5	4.5.12 The Meter Shall be able to differentiate between actual CT reversal and condition arising out of unbalanced / unhealthy capacitor bank. The logics for the same to be provided in tender samples also.	For Occurrence : CT polarity reversal For Restoration : Correct CT polarity Kindly accept the same	Specification to be complied
178	4.6.1	4.6.1 The event compartments shall be IS 15959 Part-1 table 9.	we are complying with 4.6.1 however in specification table no 1 compartment size is mentioned for every separate event which is not in line with IS15959	Specification to be complied
179	5.0	I. Measurement/ computing chips : The Measurement/ computing chips used in the meter should be with the Surface mount type along with the ASICs USA: Analog Devices, Cyrus Logic, Amel, Phillips, Free scale semiconductor, Texas Instruments, ST Microelectronics South Africa: SAMES Japan: NEC, Renesas	NXP or any reputed make may also be accepted however we will furnish the make of components at the time of supply.	Specification to be complied
180	5.0	7. Battery Lithium with guaranteed life of 15 years Varta / Tadiran / Vitzrocell / Sanyo.	EVE or any reputed make may also be accepted however we will furnish the make of components at the time of supply.	Specification to be complied. EVE Not accepted
181	5.0	8. Micro controller and RTC having separate battery The accuracy of RTC shall be as per relevant IEC / IS standards and RTC shall be provided with separate battery in its ekt. The micro controller shall be of superior quality from reputed make with long life. USA: Philips , Dallas. Amel, Motorola, Texas Instruments, ST Microelectronics Japan: NEC or Oki, Renesas	NXP , Micro, EPSON or any reputed make may also be accepted however we will furnish the make of components at the time of supply.	Specification to be complied
182	5.0	9. Temperature sensor	Manufacturer specific any reputed make may also be accepted however we will furnish the make of components at the time of supply.	Specification to be complied
183	5.1	5.1.1 Meter body shall be made of unbreakable,high grade,fire retardant reinforced Insulating material (protective Class II) with FV0 Fire Retardant, self - extinguishing, UV stabilizer, recyclable and Anti oxidation properties.	Meter body is complying with V2 grade however terminal block is complying with FV0 grade. Kindly accept the same.	Specification to be complied
184	5.1	5.1.2 The minimum thickness of the meter enclosure shall be 2mm.	Thickness of the meter enclosure will be 2±0.2 mm. Kindly accept the same.	Specification to be complied
185	5.1	5.1.4 Meter cover shall be transparent with VIRGIN POLYCARBONATE LEXAN 143R/943A or equivalent on prior approval from the TPWODL. (Bidders should submit material data sheet in technical bid).	Meter cover will be opaque and PC-FR material. Kindly accept the same.	Specification to be complied
186	5.1	5.1.8 Unidirectional screws to be used on meter covers where ever required.	Meter have seamless Chemical welding between base and cover with break to open feature. It is screw less design and also have sealing provision. Kindly accept the same	Specification to be complied
187	5.2	5.2.4 Terminal block and terminal cover shall be of a material which complies with the requirements of IS11731 (part 1) method FH1. The material of which the terminal block is made shall be capable of passing the Heat Deflection temperature test given in ISO 75 for temperature of 135°C and pressure of 1.8MPa as mentioned in IS 14697. Tested as per ISO 75-2/A or ASTM D648.	Meter complies with HDT 125 ±10 degree Kindly accept the same.	Specification to be complied

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188	5.2	5.2.12 Meter terminal should have 12 pins, zig zag arrangement. The terminals should have center to center distance of 11.5mm.	Terminal Pin will be 11 pin (2pin for neutral terminals) kindly accept the same.	Specification to be complied. The standardized terminal arrangement shall be shared.
189	5.2	5.2.13 Pin configuration shall be R-Cin, R volt, R-Cout, Y-Cin, Y volt, Y-Cout, B-Cin, B-volt, B-Cout, Neutral-in, N, N-out	5.2.13 Pin configuration (11 PIN) will be R-Can, R volt, R-Cout, Y-Can, Y volt, Y-Cout, B-Can, B-volt, B-Cout, N-in, N-out. Kindly accept the same.	Specification to be complied
190	5.2	5.2.14 The preferred meter size shall be HxWxT= 235x300x120mm.	Meter size is 265 mm x 179 mm x 70 mm with Tolerance ± 5 mm. kindly accept the same.	This shall be verified at the time of tender sample testing.
191	5.3	5.3.3 The terminal cover design should be such that the sealing screw locking provision on cover should have min. dimension of 3mmx3mm. (Excluding seal lock hole).	Kindly explain the requirement	The terminal cover shall have sealing arrangement at two sides with sealing screw & a locking arrangement. This shall be verified at the time of sample testing.
192	5.7	Last twelve months history data (kWh & kVAh* (lag only) cumulative & TOD reading and MD(kW & kVA*(lag only) current, history& TOD) with data and time) and at least last 25 tamper events for each tamper shall be available in the non volatile Memory. Fail' to be log in memory in the following conditions only in BCS not in display a) RTC fail b) NVM memory fail c) Battery fail d) NIC card status	Meter will indicate these conditions on display also for better visibility.	Noted.Specification to be complied
193	5.7.1	The meter shall be capable of recording 15 minutes average of the following parameters for at least last 45 days a) Voltage for each phase b) Current of each phase c) Actual Neutral current d) Average PF e) Average kWh f) Average kVAh (lag only) g) kVArh(Lagging) h) kVArh(Leading) i) Demand kW j) Demand KVA k) THD Voltage phase wise l) THD Current phase wise Meter shall be capable of recording daily Energy and Demand 00:00 to 24:00 Hrs kWh/kVAh, kW/kVA for 45 days. Midnight energy value of cumulative kWh, KVAh and daily consumption kWh/KVAh should be available in meter memory for last 45 days. Load survey data should be at least with 5 decimal place	Daily consumption kWh & kVAh is not available in midnight energy however cumulative values will be recorded for these energies. Kindly accept the same.	Specification to be complied
194	5.7.2	Cumulative Tamper duration	Event recording with snapshot is available for every event however Cumulative Tamper duration is not available.	Specification to be complied
195	5.7.2	Manufacture Date (MM/YY)	Manufacture Date (YYYY)	Specification to be complied
196	5.7.2	TOD profile showing timing and seasons #NIC Sr.no. NIC make	NIC serial number is not available as NIC serial no will be same as meter serial no with prefix 'H' NIC make is Secure make, so it will not be available separately. In TOD profile time and seasons are not available on meter display/ BCS.	Specification to be complied
197	5.8.1	2 Meter Sr. No.* > Complete Meter Serial no. should be there in single shot.	8 digit serial no can be provide in single shot	Specification to be complied

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198	5.8.2	36 MAG 00 (cumulative count) 36a Date of last occurrence 36b Time of last occurrence 37 ESD 00 (cumulative count) 37a Date of last occurrence 37b Time of last occurrence 38 TC OPEN 00 (cumulative count) 38a First occurrence date 38b First occurrence time	Following displays are not available: 36a Date of last occurrence 36b Time of last occurrence 37 ESD 00 (cumulative count) 37a Date of last occurrence 37b Time of last occurrence 38 TC OPEN 00 (cumulative count) 38a First occurrence date 38b First occurrence time However meter have separate display to show status of present tamper . Kindly accept the same.	Specification to be complied
199	5.8.2	Meter display should be locked in high resolution mode by holding the push button for 10 seconds and meter should come out of high resolution mode after 5 Minutes if no further command is given .	To lock a parameter, the desired parameter is to be selected, and the touch key is to be kept pressed for four seconds. By pressing touch key, the next parameter will be displayed, and after four seconds, the desired parameter will be locked and displayed continuously. By default, the locked parameter will be reset at midnight. If the touch key is again pressed for the next four seconds, then the parameter will be unlocked.	Specification to be complied
200	5.9	5.9.1 Pulse Rate: The meters shall have a suitable test output device. 2 nos. of Red color blinking LED (marked as imp/kWh and imp/kVArh) shall be provided in the front. This device shall be suitable for using with sensing probe used with test benches or reference standard meters. The test output device shall have constant pulse rate of (preferred value- 400) pulse / kWh & pulse/kVArh. Meter constant shall be indelibly printed on the name plate as imp / kWh & imp/kV Arh. Meter constant shall be as per actual without multiplying factor.	5.9.1 The offered meter is a CT meter, the pulse count/meter constant depends on CT commissioning.	Specification to be complied
201	6	Meters shall have a name plate clearly visible and effectively secured against removal. The name plate data should be laser printed. The base color of Name plate shall be blue (as of TPWODL logo) indelibly and distinctly marked with all essential particulars as per relevant standards along with the following, relevant standards along with the following. i. Manufacturer's name ii. Type designation iii. Number of phases and wires iv. Serial number (Meter serial number shall be laser printed on name plate instead on sticker). v. Month and Year of manufacture vi. Unit of measurement vii. Reference voltage ,frequency viii. Ref. temperature if different from 27 deg. C ix. Rated basic and maximum Current x. Meter constant (imp/kWh) xi. Meter constant (imp/kVArh) xii. 'BIS' Mark xiii. Class index of meter xiv. "Property of TPXODL" xv. Purchase Order No. & date xvi. Guarantee period. xvii. Rated frequency xviii. Sign of double square xix. Country of manufacture. xx. Firmware version for meter xxi. Category xxii. Communication Tech for WAN and NAN(with carrier frequency) xxiii. Communication Technology is IHD connected (with carrier frequency)	The name plate information is laser printed on meter case . In black color. Communication Tech for WAN (with carrier frequency) will be printed on comms module. Barcode will have meter serial number only. NIC have following information printed in it's body: 1. Type Code 2. Gateway Number 3. Communication technology with carrier frequency. xxiii. Communication Technology IHD supported (with carrier frequency) is not available as meter does not support IHD. There is no provision of printing PCB serial no. Kindly accept the same.	specification to be complied

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202	6	Barcode / QR Code-2 Serial No details Given by TPXODL Barcode/QR Code 3 NIC card Serial No to be provided on NIC Card through QR/Bar Code The PCB Serial number should be printed on PCB instead of sticker. Content Format for bar code: XXXXXXXXX(9-digit Serial no.) Bidder should ensure that NIC provided in meters are having laser printed Sr. No., MFG date, 'Property of TPXODL' marked, PO date and no. (same as that of meter PO)	NIC have following information printed in it's body: 1. Type Code 2. Gateway Number 3. Communication technology with carrier frequency. 4. QR code for NIC serial no ans IMEI no.	specification to be complied.
203	7.1	1) All tests as defined in IS 16444 part-2 and IS 15959(Part-3):2016 2) Test against abnormal magnetic influence as per CBIP TR 325. 3) Smart meter communicability as per 15959 part-3 4) Meter shall be type tested as per BIS16444 part-2	We have type test report as per IS16444 and IS15959 only. For abnormal magnetic influence both IS14697 and CBIP have same limits and thresholds so there is no need to have separate report as per CBIP325. Kindly accept the same.	specification to be complied.
204	7.2	1) AC High Voltage test 2) Insulation test 3) Test on limits of error 4) Test of starting current 5) Test of no load condition 6) Communication check of NIC	Communication check of NIC is not covered in routine test. It is the part of final quality test. Kindly accept the same.	specification to be complied.
205	12.0	2. Individual meter should be packed in separate box. Routine test report (with manufacturing company logo) of the individual meter shall be kept inside each card board carton of the meter. 3. On back side of routine test certificate(RTC) the bidder shall print a picture of the meter with its small details like for consumer to know about meter or display parameters sheet.	Pigeon packing of 7 meters . RTC does not have any picture however it have information about meter serial no.	specification to be complied.
206	12.0	5. QR Code should be provided in meter cartoon in which meter serial no to be provided. These QR code should be readable using QR code scanner without changing the position of meter.	Barcode may also be acceptable	Specification to be complied
207	14.0	The bidder shall submit with the offer Quality assurance plan indicating the various stages of inspection, the tests and checks which will be carried out on the material of construction, components during manufacture and bought out items and fully assembled component and equipment after finishing. As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished. Quality should be ensured at the following stages: At PCB manufacturing stage, each board shall be subjected to computerizedbare board testing At insertion stage, all components should under go computerized testing for conforming to design parameter and orientation. CompleteassembledandsolderedPCBshouldundergofunctionaltestingusing Automatic Test Equipment (ATEs). Prior to final testing and calibration, sample meters shall be subjected to aging test (i.e. meters will be kept in ovens for 24 hours at 55 Deg. C temperature and atmospheric humidity under real-life condition at its full load current. After 24 hours meter should work satisfactorily.	Aging test is not performed in our manufacturing process. However we are following our standard manufacturing practices for production.	Specification to be complied

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208	17.0	1. Bidder to be provide free of cost 02 nos of jig (irrespective of order lot)forretrieving data from memory of meter with every new design of meter in whichprevious jig is supplied cannot be used. Jig should be such that NVM can be push fit on this jig and data can be retrieve from this NVM. 2. Five (5) nos. of optical cord againsteach 100 meter lot pro-rata basis for retrieving the data of meter through optical port should be provided, if design of optical port is changed from those of previously supplied meters	We are not recommending opening of meters on field and we will not providing zig to TPNODL. Data retrieval can be done at our works.	Specification to be complied
209	General (For LTCT and HT Smart Meters)	In few cases standard OBIS codes are defined as per DLMS in Blue book but still TPXODL has implemented manufacturer specific OBIS codes.		Specification to be complied. There exists separate & distinct HES in four TP Odisha Discoms. Bidder has to integrate with all four pre-existing HES at individual utilities. The data table & OBIS codes & Discom specific codes shall be shared during detailed engineering & integration validation.
210	General (For LTCT and HT Smart Meters)	OBIS codes: Block load profile (Common for all discoms): Neutral current (1.0.91.29.0.255)	As per DLMS D field should be 27 instead of 29 because the value of load profile would be on average basis and the same is defined as 27 in DLMS blue book. 27 is used for instantaneous parameter, which could not be a part of Block load profile data.	Specification to be complied. There exists separate & distinct HES in four TP Odisha Discoms. Bidder has to integrate with all four pre-existing HES at individual utilities. The data table & OBIS codes & Discom specific codes shall be shared during detailed engineering & integration validation.
211	General (For LTCT and HT Smart Meters)	OBIS codes: Block load profile (Common for all discoms): a) THD R phase Voltage: 1.0.32.128.124.255 b) THD Y phase Voltage: 1.0.52.128.124.255 c) THD B phase Voltage: 1.0.72.128.124.255 d) THD R phase Current: 1.0.31.128.124.255 e) THD R phase Current: 1.0.32.128.124.255 f) THD R phase Current: 1.0.33.128.124.255	For all these parameters, Standard has already defined standard OBIS codes and the same is implemented in Secure make meters. Requesting Tata Power to please review the implementation and parameters which are already defined in standard should be implemented.	Specification to be complied.

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212	General (For LTCT and HT Smart Meters)	Difference between implementation of discoms: Block load profile: a. Average temperature: TPNODL implementation is with OBIS code 1.0.128.8.98.255 however in all other discoms OBIS codes are 0.0.96.9.129.255 Name plate profile: a. Meter Voltage Rating: TPNODL implementation is with OBIS code 0.128.141.128.128.255 however in all other discoms OBIS codes are 0.0.94.91.15.255 b. NIC Serial Number: TPNODL implementation is with OBIS code 0.128.96.0.3.255 however in all other discoms OBIS codes are 0.0.96.1.5.255 c. NIC firmware version: TPWODL implementation is with OBIS code 0.0.0.2.129.255 however in TPSODL and TPCODL OBIS codes are 0.128.96.0.9.255 d. MD integration period: TPWODL implementation is with OBIS code 1.0.0.4.2.255 however in TPSODL and TPCODL OBIS codes are 1.0.0.8.0.255 e. Load survey integration period: TPWODL implementation is with OBIS code 1.0.0.4.3.255 however in TPSODL and TPCODL OBIS codes are 1.0.0.8.4.255 f. SIM serial number (SIM ICCID): TPWODL implementation is with OBIS code 0.0.96.1.6.255 however in TPCODL OBIS codes are 0.0.96.1.9.255	We have identified different OBIS codes implemented between the Tata Power Discoms. Requesting for common implementation of OBIS for effective integration among all systems. With this change, we request Tata Power to be advice system implementers to make changes as well.	Specification to be complied. There exists separate & distinct HES in four TP Odisha Discoms. Bidder has to integrate with all four pre-existing HES at individual utilities. The data table & OBIS codes & Discom specific codes shall be shared during detailed engineering & integration validation.
213	For HT Smart Meters			
214	4.0	4.23: Self-Diagnostic feature The meter shall have logging with date and time in memory for un satisfactory / non-functioning of Real Time Clock RTC battery Non Volatile Memory Status of NIC (installed/ discovered/ normal)/Signal Strength	Meter have separate page to display diagnostic information: Health status - Good, oscillator crystal fail, RTC fail, low battery Communication module status can be shown as : Signal strength - Good, Moderate, weak Network - 4G, 3G, 2G, No signal AMI On - Communication module supply is On kindly accept the same	Specification to be complied
215	4.0	4.38 Harmonic recording: The meter should record the current and voltage THD. The meter should record harmonics up to 20th harmonic Average THD of all phase for voltage THD and current THD.	Kindly accept harmonics up to 15th harmonic average THD	Specification to be complied
216	4.0	4.39The terminal pin shall be 10 pin Zigzag / straight arrangement with phase voltage terminal in between current terminals as mentioned in clause no. 5.2.11	Terminal Pin will be 10 pin linear arrangement (1pin for neutral terminal) kindly accept the same.	specification to be complied. (HT)
217	4.1	p) LED indication for System, Power ON indicator. q) Colour coded LED (a) For latching on to the network (b) For latched on to the network (c) For data flow indication.	Comms module does not have LED indication for System, Power ON indicator. Comms module status is installed, getting network, Latched with HES, Communication with HES, however comms status and signal status can be verified through display parameters and display icons.	Specification to be complied
218	4.2.7	4.2.7 Meter should be supplied to TPXODL along with NIC card. NIC card should be plug in type with proper sealing arrangement. The guarantee of NIC card shall be same as meter and shall be replaced by bidder free of cost. 5 Nos of NIC card on 100 No of Meter should be supply as free of cost, for troubleshooting of faulty NIC cards and should be replenish on return of faulty NIC card.	5 Nos of NIC card on 100 No of Meter is too higher side. Kindly review the requirement.	Specification to be complied. Cords to be provided for connecting the optical port to android based mobile app.

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219	4.3	4.3.1 Magnetic Field: Meter shall record accurate energy in case of any external influencing signals in line with IS 13779:1999 Cl.11.2 and variation in limits of error (up to 100% I_{max}) shall be as per the table 17 of IS 14697. Meter shall preferred to be immune to magnetic field such that it shall not affect the normal overall functionality. However, in case of abnormal magnetic field as defined below meter shall perform as per the following actions: a. Meter shall log the event in memory as "MAGNET" with date and time stamp, the event logging threshold values as per table no. 1 in 4.5 b. The energy recording to shift on I_{max}, V_{ref} with UPF c. Snapshot parameter should show the I_{max} Current in Phase and Actual Current in Neutral Abnormal Magnetic field is defined as below: a. Continuous DC magnetic induction: >0.20 Tesla ± 5% (Value of applied Magneto Motive Force shall be generally >10000 AT. b. AC magnetic induction: >10 milli Tesla (if produced with circular metal core with square cross section with 2800AT as specified in CBIP-325 latest version) c. Permanent Magnet: Immune up to 0.5T and Event logging >0.5T.	4.3.1 Whenever the meter functionality gets affected on account of magnetic field, meter log it as an event and recording starts on I_{max} or it remains immune. Same shall be logged with date & time stamp. Meter will log suitable abbreviation for Magnet event in meter memory. Kindly accept the same.	Specification to be complied
220	4.3	4.3.2. Electrostatic Discharge (ESD) Meter shall preferred to be immune up to 50kV and shall record accurate energy as per IS 14697:1999/CBIP-325. Meter shall log the event in memory as "ESD" with date & time stamp for any ESD greater than 50kV with snap shot the event logging threshold values shall be as per table no. 1 in 4.5 4.3.3 The shielding around the meter shall be such that it does not get affected by High Voltage and High Energy or Low Energy Impulse when comes in contact with meter from any side. 4.3.4 Meter should be immune to high/low frequency Jammer devices. Meter shall log the event in its memory as "JAMMER" with date and time stamp, the threshold values shall be as per table no. 1 in 4.5. 4.3.5 The meter should be immune or log the tamper on application of any other higher magnetic field of any frequency waves, micro waves like Magnetron etc. the threshold values shall be as per table no. 1 in 4.5.	Meter is immune up to 35 kV ESD however event logging is not available. 4.3.5 Meter is immune to influence quantities mentioned in IS16444 part 2	Specification to be complied
221	4.4	4.4.1 The meter shall log the event in memory on thresholds defined in table 1 in 4.5 4.4.2 The meter shall not saturate on passage of direct current, which can cause the meter either to stop recording/ record inaccurately. DC injection shall be tested both in phase and neutral. Measurement by meter shall not get influenced by injection of Chopped signal/ DC signal/ DC pulse up to 330V (both + & - DC) and for any value beyond this, of any low frequency and harmonics. Meter shall log the event into memory as 'Neutral Disturbance' with date & time stamp the thresholds are as per table no. 1 in clause 4.5 below.	In such condition meter will be either immune or log the ND event.	Specification to be complied
222	4.5	4.5.2 For all tamper events the time stamp and snapshot parameters shall be recorded at the start time of event for occurrence (T1) and for restoration the time stamp and snapshot parameters shall be recorded at the end time of the event (T3).	Snapshot will be recorded after confirmation of event (Persistence time) of occurrence and restoration.	Specification to be complied

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223	4.5.4	4.5.4.4.5.4 Multiple occurrences of same event, with different time stamps should not be logged without restoration of first occurrence, except for the case of Top Cover Open.	Event will be logged in their respective compartment ob FIFO basis as per IS 15959 part 3	Specification to be complied
224	4.5	ESD/JAMMER Threshold Value for Occurrence of Events: Immunity up to 50KV with NIC and logging of event>50KV	Meter is immune up to 35 kV ESD however event logging is not available.	Specification to be complied
225	4.5	MAGNET	For Occurrence : Whenever the meter functionality gets affected on account of magnetic field, meter log it as an event and recording starts on Imax or it remains immune. For Restoration : On removal of magnetic field	Specification to be complied
226	4.5	Voltage Unbalance Threshold Value for Occurrence of Events: 20% or more between the phases and current > 2% Ibasic Threshold Value for Restoration of Events: Shall be less than 10 % between the phases and current ≥ 2% Ibasic	For voltage unbalance line current is ignored for occurrence and restoration.	Specification to be complied
227	4.5	CT Open Threshold Value for Occurrence of Events:Phase Current < 1% of Ibasic AND Current on other phases > 10% of Ibasic with all current positive Threshold Value for Restoration of Events:Phase Current > 10% of Ibasic with all current positive	CT Open Threshold Value for Occurrence of Events: Ir +Iy +Ib + In ≥10% of Ibasic (vector Sum) AND Phase current < 1% of Ibasic with All current positive Threshold Value for Restoration of Events: Ir-Iy+Ib-In<10 % of Ibasic. (vector Sum) AND Phase current ignored	Specification to be complied
228	4.5	Invalid Phase Association Incorrect Phase connections (logic to be provided by bidder)	For Occurrence : Phase Sequence of Voltage & current In Different Sequence and Current > 5% Ib For Restoration : Phase Sequence of Voltage & current In same Sequence and Current > 5% Ib	Specification to be complied
229	4.5	Current Unbalance For Occurrence : Phases and Imin 10% of Ibasic I >1% of Ib and Power Factor ≤ 0.5 in any phase For Restoration : phases and Imin >5% of Ib I >1% of Ib and Power Factor ≤ 0.7 in respective phase	For Occurrence : difference of current between two phases 10% of Ibasic and I >1% of Ib For Restoration : difference of current between two phases <5% of Ib I >1% of Ib	Specification to be complied
230	4.5	Neutral Disturbance Threshold Value for Occurrence of Events: Voltage >145% of Vref & Current >10% Ib OR Frequency < 47 Hz OR Frequency > 53 Hz OR DC voltage / signal/ pulse/ chopped signal injection Threshold Value for Restoration of Events: Voltage <115% of Vref&Current > 10% Ib AND Frequency > 47 Hz OR Frequency < 53 Hz	For occurrence: In case meter is get affected by external signal injection (chopped DC, Chopped AC & Dc injection through diode) or both active. For restoration: If neutral is restored and meter is in normal condition	Specification to be complied
231	4.5	Microwave	Event logging for Microwave is not available. Kindly accept the same.	This clause is deleted(Magnetron)
232	4.5	4.5.6 The Meter Shall be able to differentiate between actual CT reversal and condition arising out of unbalanced / unhealthy capacitor bank. The logics for the same to be provided in meter.	For Occurrence : CT polarity reversal For Restoration : Correct CT polarity Kindly accept the same	Specification to be complied
233	4.6.1	4.6.1 The event compartments shall be IS 15959 Part-1 table 9.	we are complying with 4.6.1 however in specification table no 1 compartment size is mentioned for every separate event which is not in line with IS15959	Refer Table 1

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234	5.0	1. Measurement/ computing chips : The Measurement/ computing chips used in the meter should be with the Surface mount type along with the ASICs USA: Analog Devices, Cypress Logix, Atmel, Philips, Free scale semiconductor, Texas Instruments, ST Microelectronics South Africa: SAMES Japan: NEC, Renesas	NXP or any reputed make may also be accepted however we will furnish the make of components at the time of supply.	specification to be complied. Approval to taken for any deviation of component makes.
235	5.0	7. Battery Lithium with guaranteed life of 15 years Varta / Tedirun / Vitzrocell / Sanyo.	EVE or any reputed make may also be accepted however we will furnish the make of components at the time of supply.	specification to be complied. Approval to taken for any deviation of component makes. EVE shall not be accepted.
236	5.0	8. Micro controller and RTC having separate battery The accuracy of RTC shall be as per relevant IEC / IS standards and RTC shall be provided with separate battery in its ckt. The micro controller shall be of superior quality from reputed make with long life. USA: Philips , Dallas, Atmel, Motorola, Texas Instruments, ST Microelectronics Japan: NEC or Oki, Renesas	NXP , Micro, EPSON or any reputed make may also be accepted however we will furnish the make of components at the time of supply.	specification to be complied. Approval to taken for any deviation of component makes.
237	5.1	5.1.1 Meter body shall be made of unbreakable, high grade, fire retardant reinforced Insulating material (protective Class II) with FV0 Fire Retardant, self - extinguishing, UV stabilize, recyclable and Anti oxidation properties.	Meter body is complying with V2 grade however terminal block is complying with FV0 grade. Kindly accept the same. It is not reinforced.	specification to be complied.
238	5.1	5.1.2 The minimum thickness of the meter enclosure shall be 2mm.	Thickness of the meter enclosure will be 2±0.2 mm. Kindly accept the same.	specification to be complied.
239	5.1	5.1.4 Meter cover shall be transparent with VIRGIN POLYCARBONATE LEXAN 143R/943A or equivalent on prior approval from the TPWDL. (Bidders should submit material data sheet in technical bid).	Meter cover will be opaque and PC-FR material. Kindly accept the same.	specification to be complied.
240	5.1	5.1.8 Unidirectional screws to be used on meter covers where ever required.	Meter have seamless Chemical welding between base and cover with break to open feature. It is screw less design and also have sealing provision. Kindly accept the same	specification to be complied.
241	5.2	5.2.3 Terminal block and terminal cover shall be of a material which complies with the requirements of ISI 1731 (part 1) method FH1. The material of which the terminal block is made shall be capable of passing the Heat Deflection temperature test given in ISO 75 for temperature of 135°C and pressure of 1.8MPa as mentioned in IS 14697. Tested as per ISO 75-2/A or ASTM D648.	Meter complies with HDT 125 ±10 degree . Kindly accept the same.	specification to be complied.
242	5.2	5.2.11 Meter terminal should have 10 terminals arrangement. The terminals should have center to center distance of min. 11.5mm. Terminal configuration shall be R-Cin, R volt, R-Cout, Y- Cin, Y volt, Y-Cout, B-Cin, B-volt, B-Cout, Neutral.	Terminal Pin will be 10 pin linear arrangement (1pin for neutral terminal) kindly accept the same. Design is complying with IS 16444 . Kindly accept the same.	specification to be complied. (HT)
243	5.2	5.2.13 Pin configuration shall be R-Cin, R volt, R-Cout, Y-Cin, Y volt, Y-Cout, B-Cin, B-volt, B-Cout, Neutral-in, N, N-out	5.2.13 Pin configuration (11 PIN) will be R-Can, R volt, R-Cout, Y-Can, Y volt, Y-Cout, B-Can, B-volt, B-Cout, N-in, N-out. Kindly accept the same.	specification to be complied. (LTCT)
244	5.3	5.3.3 The terminal cover design should be such that the sealing screw locking provision on cover should have min. dimension of 3mmx3mm. (Excluding seal lock hole).	Kindly explain the requirement	The terminal cover shall have sealing arrangement at two sides with sealing screw & a locking arrangement. This shall be verified at the time of sample testing.

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245	5.7	Last twelve months history data (kWh & kVAh* (lag only) cumulative & TOD reading and MDI kW & kVA* (lag only) current, history & TOD) with data and time) and at least last 25 tamper events for each tamper shall be available in the non volatile Memory. Fail' to be log in memory in the following conditions only in BCS not in display a) RTC fail b) NVM memory fail c) Battery fail	Meter will indicate these conditions on display also for better visibility.	specification to be complied.
246	5.7.1	The meter shall be capable of recording 15 minutes average of the following parameters for at least last 45 days a) Voltage for each phase b) Current of each phase c) Actual Neutral current d) Average PF e) Average kWh f) Average kVAh (lag only) g) kVAh(Lagging) h) kVAh(Leading) i) Demand kW j) Demand kVA k) THD Voltage phase wise l) THD Current phase wise Meter shall be capable of recording daily Energy and Demand 00:00 to 24:00 Hrs kWh/kVAh, kW/kVA for 45 days. Midnight energy value of cumulative kWh, kVAh and daily consumption kWh/kVAh should be available in meter memory for last 45 days. Load survey data should be at least with 5 decimal place	Daily consumption kWh & kVAh is not available in midnight energy however cumulative values will be recorded for these energies. Kindly accept the same.	specification to be complied.
247	5.7.2	Terminal Block Temperature (°C)	Not available, however event can be configured for temperature	specification to be complied.
248	5.7.2	Manufacture Date (DD/MM/YY)	Manufacture Date (YYYY)	specification to be complied.
249	5.8.2	51 Latest Magnetic tamper occurrence date 52 Latest Magnetic tamper occurrence Time 53 ESD Tamper count 54 Latest ESD tamper occurrence date 55 Latest ESD tamper occurrence time 56 TC Open tamper count 57 TC Open occurrence date of very first event 58 TC Open occurrence time of very first event	These displays are not available: However meter have separate display to show status of present tamper . Kindly accept the same.	specification to be complied.
250	5.8.2	High Resolution Mode Meter Should have high resolution Mode for Kwh, KVAh,kvarh,Lag and Lead upto 4 decimal place .this Mode should be activated on holding the push button for 10 seconds and meter should come automatically out Of this mode after 5 minutes if no further command is Given.	To lock a parameter, the desired parameter is to be selected, and the touch key is to be kept pressed for four seconds. By pressing touch key, the next parameter will be displayed, and after four seconds, the desired parameter will be locked and displayed continuously. By default, the locked parameter will be reset at midnight. If the touch key is again pressed for the next four seconds, then the parameter will be unlocked. We can also configure separate page for High resolution mode. Please suggest the requirement.	specification to be complied.

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251	5.9	5.9.1 Pulse Rate: The meters shall have a suitable test output device. 2 nos. of Red color blinking LED (marked as imp/kWh and imp/kVArh) shall be provided in the front. This device shall be suitable for using with sensing probe used with test benches or reference standard meters. The test output device shall have constant pulse rate of (preferred value- 400) pulse / kWh & pulse/kVArh. Meter constant shall be indelibly printed on the name plate as imp / kWh & imp/kVArh. Meter constant shall be as per actual without multiplying factor. Meters shall have a name plate clearly visible and effectively secured against removal. The name plate data should be laser printed. The base color of Name plate shall be blue (Pantone 2727C) indelibly and distinctly marked with all essential particulars as per relevant standards along with the following: Manufacturer's name Type designation Number of phases and wires Serial number (Meter serial number shall be laser printed on name plate instead on sticker). Meter serial number shall be alpha numeric. Alphanumeric part detail shall be shared by TPXODL. Month and Year of manufacture (MM/YYYY) Unit of measurement Reference voltage, frequency Ref. temperature if different from 27 deg. C Rated basic and maximum Current Meter constant (imp/kWh, Imp/kVArh) 'BIS' Mark Class index of meter 'Property of TPXODL' Purchase Order No. & date Guarantee period Rated frequency Sign of double square Country of manufacture. Firmware version for meter Category Communication Tech for WAN However the following shall be printed in bar code on the meter nameplate (shall be laserprinted on name plate instead of any sticker). All data shall be laser printed on meter along with Sr.NO and date of manufacturing. No sticker to be used to avoid loss of data in event of fire. Content Format for bar code: TPXODL MMY XXXXXXXXXX (9-digit Serial no.) The PCB Serial number should be printed on the PCB instead of sticker. Bidder should ensure that each NIC provided in meters are having laser printed Sr. No., MFG date, 'Property of TPXODL' marked, PO date and no. (same as that of meter PO)	5.9.1 The offered meter is a HT meter, the pulse count/meter constant depends on CT PT commissioning.	specification to be complied.
252	6	1. Type Code 2. Gateway Number 3. Communication technology with carrier frequency. xxiii Communication Technology IHD supported (with carrier frequency) is not available as meter does not support IHD. There is no provision of printing PCB serial no. Kindly accept the same.	The name plate information is laser printed on meter case. In black color. Communication Tech for WAN (with carrier frequency) will be printed on comms module. NIC have following information printed in it's body:	specification to be complied.
253	6	Barcode /QR Code-2 Serial No details Given by TPXODL Barcode/QR Code 3 NIC card Serial No to be provided on NIC Card through QR/Bar Code The PCB Serial number should be printed on PCB instead of sticker. Content Format for bar code: XXXXXXXXX(9-digit Serial no.) Bidder should ensure that NIC provided in meters are having laser printed Sr. No., MFG date, 'Property of TPXODL' marked, PO date and no. (same as that of meter PO)	NIC have following information printed in it's body: 1. Type Code 2. Gateway Number 3. Communication technology with carrier frequency. 4. QR code for NIC serial no and IMEI no.	specification to be complied.
254	7.1	1) All tests as defined in IS 16444 part-2 and IS 15959(Part-3):2016 2) Test against abnormal magnetic influence as per CBIP TR 325. 3) Smart meter communicability as per 15959 part-3 4) Meter shall be type tested as per BIS16444 part-2	We have type test report as per IS16444 and IS15959 only. For abnormal magnetic influence both IS14697 and CBIP have same limits and thresholds so there is no need to have separate report as per CBIP325. Kindly accept the same.	specification to be complied.

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255	7.2	AC High Voltage test (Clause no. 12.7.6.3 of IS 14697) Insulation test (Table 18 of Clause no. 12.7.6 of IS 14697) Test on limits of error (Clause no. 11 of IS 14697) Test of starting current (Clause no. 12.13 of IS 14697) Test of no load condition (Clause no. 12.12 of IS 14697) Communication check of NIC (Table 27 of IS 15959 (Part 3); Clause no. 9.5 & 10 of IS 16444 Part-2) 2. Individual meter should be packed in separate box. Routine test report (with manufacturing company logo) of the individual meter shall be kept inside each card board carton of the meter. 3. On back side of routine test certificate(RTC) the bidder shall print a picture of the meter with its small details like for consumer to know about meter or display parameters sheet.	Communication check of NIC is not covered in routine test. It is the part of final quality test. Kindly accept the same.	specification to be complied.
256	12.0		Pigeon packing of 7 meters . RTC does not have any picture however it have information about meter serial no.	specification to be complied.
257	15.0	The bidder shall submit with the offer Quality assurance plan indicating the various stages of inspection, the tests and checks which will be carried out on the material of construction, components during manufacture and bought out items and fully assembled component and equipment after finishing. As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished. Quality should be ensured at the following stages: At PCB manufacturing stage, each board shall be subjected to computerized bare board testing. At insertion stage, all components should undergo computerized testing for conforming to design parameter and orientation. Complete assembled and soldered PCB should undergo functional testing using Automatic Test Equipment (ATEs). Prior to final testing and calibration, sample meters shall be subjected to aging test (i.e. meters will be kept in ovens for 24 hours at 55 Deg. C temperature and atmospheric humidity under real-life condition at its full load current. After 24 hours meter should work satisfactorily.	Aging test is not performed in our manufacturing process. However we are following our standard manufacturing practices for production.	Specification to be complied.
258	18.0	1. Bidder to be provide free of cost 02 nos of jig (irrespective of order lot) for retrieving data from memory of meter with every new design of meter in which previous jig is supplied cannot be used. Jig should be such that NVM can be push fit on this jig and data can be retrieve from this NVM. 2. Five (5) nos. of optical cord against each 100 meter lot pro-rata basis for retrieving the data of meter through optical port should be provided, if design of optical port is changed from those of previously supplied meters	We are not recommending opening of meters on field and we will not providing zig to TPNODL. Data retrieval can be done at our works. 2. 5 nos cords for every 100 meters is too higher side, for smart meters kindly reconfirm the quantities.	Specification to be complied. Cords to be provided for connecting the optical port to android based mobile app.