

**'TYPE TEST REPORT**

ITEM :									
VENDOR :									
Sr. No.	Type Tests stipulated as per Tender Spec.	Applicable standard	Acceptance Norms as per IS / IEC & Specs	Tests conducted by the Mfr ( Yes/No)	Date of Tests Conducted	Name of the test Lab	Any Deviation from test procedure defined in IEC . If yes , pl specify with justification and supportion	Test Values as per report	Remarks (for AEML only)
Signed by Vendor		Signed by Client							

**Reliance Infra I/O List and mapping List IEC61850 For 11kV Switchboard**

Signal Description- Input / Output	SCHEMATICS IO(HARDWIRE CONNECTIONS)	MAPPING IO				
			IC	BC	OG	CAP
<b>MEASUREMENTS</b>						
VOLTAGE_RY and RN	√	Soft	√			√
VOLTAGE_YB and YN	√	Soft	√			√
VOLTAGE_BR and BN	√	Soft	√			√
CURRENT_R	√	Soft	√	√	√	√
CURRENT_Y	√	Soft	√	√	√	√
CURRENT_B	√	Soft	√	√	√	√
IO/Neutral Current			√	√	√	√
Active Power (KW)		Soft	√	√	√	√
Reactive Power (KVAR)		Soft	√	√	√	√
Apparent Power (KVA)		Soft	√	√	√	√
Power Factor		Soft	√	√	√	√
<b>RECORDED VALUES</b>						
IL1/ Current on phase 1 (Recd)			√	√	√	√
IL2/ Current on phase 2 (Recd)			√	√	√	√
IL3/ Current on phase 3 (Recd)			√	√	√	√
VL1			√	√	√	√
VL2			√	√	√	√
VL3			√	√	√	√
VL12			√	√	√	√
VL23			√	√	√	√
VL31			√	√	√	√
LED RESET START/TRIP			√	√	√	√
LED RESET PROGRAMMABLE			√	√	√	√
Operation of stage I>			√	√	√	√
Operation of stage I>>			√	√	√	√
Operatiion of stage I>>>			√	√		
Operation of stage I0>			√	√	√	√
Operation of stage I0>>			√	√	√	√
Phase L1 pu			√	√	√	√
Phase L2 pu			√	√	√	√
Phase L3 pu			√	√	√	√
Phase I0 pu			√	√	√	√
LED RESET						√
V<<TRIP			√			√
V<TRIP			√			√
V>TRIP			√			√
NUBTRIP1						√
NUBTRIP2						√

Minutes of Meeting between M/s AEML and participating vendors of 11kV AIS Panels tender during Prebid Meeting held on 03.07.19 at Devadas Lane, Borivali West Office.

Reference Tender Doc No: AEML/MDB/2019-20/29 for Supply, Installation, Testing and Commissioning of Assorted ratings of 11kV AIS panels.

**Members Present:**

**AEML**

1. Ashish Nema - CES
2. Ketan Bhagat -CPG

**Vendors**

1. Avinash Kulkarni – Siemens
2. . Chetan Chandrate –Schneider

In the pre bid meet technical clarifications have been issued to all the vendors and scope of bid explicitly made clear with respect to AEML specification and tender document.

**A. 11 kV AIS:**

1. Sheet shall be Galvanized / Aluzinc (min 60 microns epoxy-based powder coated on GI sheet) end panels shall be painted with RAL 7032. Salt spray test to be performed as per QAP. Temperature Rise test as per QAP.
2. Vendors to offer Conformal coated relays. Arc flash relay is not a part of this tender.
3. ABB REU 615 relay shall be additionally acceptable for as RTCC relay. Digital RTCC relay OEM engineer shall be deputed for functional testing and point to point testing with RTU and control center.
4. One Common BCU (36 BI) shall be provided in Each 9 PANEL board.
5. IEC 61850 Panels--: Each O/C and E/F protection relay shall have relay shall be 24BI+14 BO.
6. IEC 103 Panels- Incomer panel and Bus coupler panel shall have 16DI and 14 DO, and OG shall have 7 DI& 8DO.
7. With reference to specification cl No 16.1.19 - Event, Fault and Disturbance recording, sample signal list is attached as Annexure **B**. Relay shall be offered accordingly.
8. OEM Relay Engineers shall be deputed on site for functional testing and point to point testing with RTU and control center.
9. PQ Meter is excluded from the scope of supply,
10. Delivery requirement and site details and relay protocols are listed below.

Sr No	R/S	11 kv panels configuration	Delivery month	11 Kv Location	Relay Protocol
1	Dahisar Staff Qtrs	10+9	March 20	Ground Floor – Panels in one line with 2 Dummy panels.	11kV-IEC 61850
2	Vinamra	10+9	Nov-19.	Ground Floor – Panels in one line with 2 Dummy panels	11kV-IEC 61850
3	Bhynder West	9 panel with Buscoupler	Nov-19.	Ground floor	33kV-IEC 103 11kV-IEC 103 Digital RTCC-IEC103.
4	Will be confirmed in due course.	9 panel w/o Bus coupler.	Nov 19.	Ground floor	IEC 103

- For item No 3 – 9 panel with bus coupler shall have 1 Incomer + 6 OG +1BPT+1BC suitable for 2X1000 sq mm cable connection.
  - For Item No 4 – 9 Panel w/o Bus coupler shall have 1 Incomer + 7 OG + 1 BPT suitable for 2x1CX 1000 sq mm in Bus PT panel.
11. Surge Arrestors to be excluded from offer.
  12. Vendors to provide one number of Industrial Grade laptop with chord for relay communication for this project.
  13. For 61850 panels, Ethernet switches (2 nos per board) shall have 16 RJ45 port with 4 FO Ports. FO cable loop lengths shall be as follows:
    - a. End loop from Ethernet switches of Panel 1&2 to RTU- 60Mtrs -2Nos.
    - b. 11 kV Panel Switch-1 to Switch-2 1 Mtr – 1 Nos per board.
    - c. Panel 1 to Panel 2 - 1 No - 30Mtrs.
    - d. Cat 6 cable from 33 Kv relays to Switch1 and Switch2 in corresponding 11 Kv Board –40 meters for each relay port. Laying in conduit in scope of Vendor.
  14. MFM to be excluded from the offer for 61850 panels. For 103, mandatory.
  15. Filled Type test review Format (Annexure A) to be submitted.
  16. ITC services will be provided for all the panels. In old stations, Removal of existing panels shall be in scope of AEML. Agency engaged for ITC shall hold Electrical Contractor License on behalf of State Government. Agency shall engage authorized (Designated) Person, who is also a person authorized under Regulation 3 of the CEA Regulations, 2010 (Measures relating to Safety and

Electric Supply) to carry out such duties incidental to the distribution and use of electrical energy.

17. OEM engineer shall be available on site for ITC supervision round the clock.

18. As per CI 5.3.6, 1-meter extension cable with male female connector included.

Submission date for all the bids shall be strictly as per Tender publication.

**PRICE BREAKUP\_BOQ**

**SUPPLY & SERVICE FOR 11KV 9 & 10 PANEL SWBD FOR MUMBAI DISCOM (CAPEX 19-20)**

						<b>BIDDER</b>	
<b>S.No</b>	<b>Item Code</b>	<b>Item description</b>	<b>Qty</b>	<b>Unit</b>	<b>HSN Code</b>	<b>Unit Price in Rs.</b>	<b>Total Price in Rs.</b>
<b>(A)</b>	<b>Supply -</b>						
1	2100014925	Supply of 11kV, 2000A, 26.3kA, <b>10 Panel</b> VCB Board with Bus coupler as per AEML Specification No:SP-EPHN-01-R3 IC -2000A - 1No Bus Coupler -2000A -1No BR/BPT -1No OG Feeders -800A -5Nos Station Transformer-800A -1No Capacitor Feeder -800A -1No <b>(with IEC 61850 ) for 1 set for Vinamra and 1 Set for Dahisar Quarters.</b>	2	Set			
2	2100084335	Supply of 11kV, 2000A, 26.3kA, <b>9 Panel</b> VCB Board without Bus coupler as per AEML Specification No:SP-EPHN-01-R3 IC -2000A - 1No BR/BPT -1No OG Feeders-800A-5Nos Station Transformer-800A -1No Capacitor Feeder -1No <b>(with IEC 61850 ) for 1 set for Vinamra and 1 Set for Dahisar Quarters.</b>	2	Set			
3	2100084339	Supply of 11kV, 2000A, 26.3kA <b>Dummy panel</b> as per AEML Specification No:SP-EPHN-01-R3. <b>2 Nos</b> <b>for Vinamra and 2 Nos for Dahisar Quarters.</b>	4	Nos			
4	2100231637	Supply of 11kV, 2000A, 26.3kA, <b>9 Panel</b> VCB Board without Bus coupler as per AEML Specification No:SP-EPHN-01-R3 IC -2000A - 1No BR/BPT -1No OG Feeders-800A-5Nos Station Transformer-800A -1No Capacitor Feeder -1No <b>(with IEC 103 ) 1 set For Meghwadi Receiving Station.</b>	1	Set			
5	2100237217	Supply of 11kV, 2000A, 26.3kA, <b>9 Panel</b> VCB Board with Bus coupler as per AEML Specification No:SP-EPHN-01-R3 IC -2000A - 1No BR/BPT -1No OG Feeders-800A-5Nos Bus Coupler -1No Capacitor Feeder -1No <b>(with IEC 103 ) 1 Set for Bhyander West Rest Station.</b>	1	Set			
6		Mandatory Spares for 11kV AIS as per AEML Specification No:SP-EPHN-01-R3	1	Set			
<b>Total Basic Value</b>							-
<b>Freight &amp; Insurance Charges</b>							
<a href="#">GST@18%</a>							
<b>TOTAL SUPPLY - (A)</b>							-
<b>S.No</b>		<b>Item description</b>	<b>Qty</b>	<b>Unit</b>	<b>SAC Code</b>	<b>Unit Price in Rs.</b>	<b>Total Price in Rs.</b>
<b>(B)</b>	<b>Service -</b>						
1	2040200243	Unloading, Installation, Testing & Commissioning of 11kV, 2000A, 26.3kA, <b>10 Panel</b> VCB Board with Bus coupler as per AEML Specification No:SP-EPHN-01-R3 (with IEC 61850 )	2	Set			

**SUPPLY & SERVICE FOR 11KV 9 & 10 PANEL SWBD FOR MUMBAI DISCOM (CAPEX 19-20)**

						BIDDER	
S.No	Item Code	Item description	Qty	Unit	HSN Code	Unit Price in Rs.	Total Price in Rs.
2	2500301299	Unloading,Installation, Testing & Commissioning of 11kV, 2000A, 26.3kA, <b>9 Panel</b> VCB Board without Bus coupler as per AEML Specification No:SP-EPHN-01-R3.(with IEC 61850	2	Set			
3	2500301300	Unloading, Installation, Testing & Commissioning of 11kV, 2000A, 26.3kA <b>Dummy panel</b> as per AEML Specification No:SP-EPHN-01-R3.	4	Nos			
4	2500301301	Unloading,Installation, Testing & Commissioning of 11kV, 2000A, 26.3kA, <b>9 Panel</b> VCB Board without Bus coupler as per AEML Specification No:SP-EPHN-01-R3.(With IEC-103)	1	Set			
5	2500301302	Unloading,Installation, Testing & Commissioning of 11kV, 2000A, 26.3kA, <b>9 Panel</b> VCB Board with Bus coupler as per AEML Specification No:SP-EPHN-01-R3.( With IEC 103)	1	Set			
<b>Total Ex-work Price</b>							-
<b>GST@18%</b>							-
<b>TOTAL SERVICE ----- (B)</b>							-
<b>Grand Total ----- (A) + (B)</b>							-

**BOQ for Spares of 11 kV AIS Panels**

						BIDDER	
Sr. No.	Item Description	Qty	Unit	HSN Code	Details	Unit Price in Rs.	
1	AUX RELAY - Auxiliary Relay, 110 V, Master Trip,	1	Nos				
2	AUX SWITCH - Auxiliary Switch, 11 kVCB, 12 No+12 NC	2	Nos				
3	BCPU OG - Protection cum Control Relay,110 V DC For 11 kV Outgoing Panel, IEC 61850	2	Nos				
4	BUSHING BUS , IC - Bus Side Bushing with Current Carrying Part for 11 kV CB , Incomer Panel	6	Nos				
5	BUSHING BUS , OG -Bus Side Bushing with Current Carrying Partfor 11 kV CB , Outgoing Panel	6	Nos				
6	BUSHING CKT ,IC - Circuit Side Bushing with Current Carrying Part for 11 kV CB , Incomer Panel	6	Nos				
7	BUSHING CKT ,OG - Circuit Side Bushing with Current Carrying Partfor 11 kV CB , Outgoing	6	Nos				
8	CB , IC, 11 KV - OEM Standard CB Trolley , 11 kV Incomer	1	Nos				
9	DC CONTACTOR - 110 V DC Contactors	2	Nos				
10	CB, OG, 11KV - OEM Standard CB Trolley, 11 kV Outgoing	1	Nos				
11	MOTOR, 11KV - 11 kV VCB, Spring Charging Motor	1	Nos				
12	64 PIN PLUG and SOCKET	1	Nos				
13	REMOTE IO - IO Unit for 11 kV Borad	2	Nos				
14	TNC Switch - Breaker Control (TNC) Switch, 11 kV Panel, 110 V DC	2	Nos				
15	TRIP/CLOSE COIL ,11KV - Trip Coil, 11 kV VCB, 110 V DC	4	Nos				
16	TULIP CONTACT,IC - Tulip Contacts -Incomer CB ( 1set - 6Nos)	1	Set				
17	TULIP CONTACT,OG - Tulip Contacts -OutgoingCB ( 1set - 6Nos)	1	Set				
18	CT , 11 KV , IC - TRAF0,CURR,800-1600/5A;7.5/20VA;3CORE	3	Nos				
19	CT , 11 KV , OG - TRAF0,CURR,EPOXY;400/5-5A;15VA;0.5/5P20	3	Nos				
20	CVI - Capacitive Voltage Indicator , 12 kV, Sensor +Indicator	1	Nos				
21	ETHERNET SWITCH - Ethernet Switch, 88-300 V DC, 14 RJ 45 and 4 FO Ports	1	Nos				

**SUPPLY & SERVICE FOR 11KV 9 & 10 PANEL SWBD FOR MUMBAI DISCOM (CAPEX 19-20)**

					<b>BIDDER</b>	
Sr.No	Item description	Qty	Unit	HSN Code	Unit Price in Rs.	Total Price in Rs.
22	FO CABLE - Fibre Optic Cable, 100 Mtr - With FO Connectors	2 Set /100 Mtr	Set / Mtr			
23	LAMP AMBER - Indication Lamp, LED, 120 V DC, 22.5 mm Dia, W/ Legends,Amber	2	Nos			
24	LAMP BLUE - Indication Lamp, LED, 120 V DC, 22.5 mm Dia, W/ Legends,Blue	2	Nos			
25	LAMP GREEN - Indication Lamp, LED, 120 V DC, 22.5 mm Dia, W/ Legends,Green	2	Nos			
26	LAMP RED - Indication Lamp, LED, 120 V DC, 22.5 mm Dia, W/ Legends,Red	2	Nos			
27	LAMP WHITE - Indication Lamp, LED, 120 V DC, 22.5 mm Dia, W/ Legends,White	2	Nos			
28	LAMP YELLOW - Indication Lamp, LED, 120 V DC, 22.5 mm Dia, W/ Legends,Yellow	2	Nos			
29	PT, 11KV - TRAFO,POTENTIAL,12KV/SQRT3/120V/SQRT3V	3	Nos			
<b>Total Basic Price in Rs.</b>						