8.12 GUARANTEED TECHNICAL PARTICULARS OF 33kV 1-CORE, 800 mm2 XLPE COPPER CABLES

(To be filled up by the Manufacturer in Manufacturer Letterhead Pad, otherwise the bid shall be rejected)

No.	Description	Unit	WZPDCL'S Requirement	BIDDER'S GUARANTEED VALUES
1.	Name & address of the Manufacturer		To be mentioned	
2.	Type/Model		To be mentioned	
3.	Standard		IEC 60502 IEC 60228	
4.	Nominal System Voltage	kV	33	
5.	Rated voltage of Cable	kV	18/30 (36)	
6.	Process of manufacturing		VCV / CCV	
7.	Number of core and Cross-Sectional area of conductor cores	Sq.mm	1C x 800	
8.	Conductor materials		Copper	
9.	Number of strands	Nos	To be mentioned	
10.	Diameter of each strand	mm	To be mentioned	
11.	Shape of conductor		Compacted Circular	
12.	Type of non-metallic conductor screen		Semi-conducting	
13.	Thickness of semi-conducting conductor screen	mm	≥0.7	
14.	Nominal diameter of Al wire Armour	mm	≥2.5	
15.	Average Thickness of Insulation	mm	≥8.00	
16.	Process of curing		Dry Process	
17.	Material of Insulation		Cross-Linked Poly- ethylene	
18.	Type of non-metallic insulating screen		Semi-conducting	
19.	Thickness of semi-conducting Insulation screen	mm	≥0.7	
20.	Number and diameter of copper Screen strands	No/mm	To be mentioned [Based on design calculation]	
21.	Composition of bedding		Extruded PVC	
22.	Thickness of bedding		To be mentioned [Based on design calculation]	
23.	Number & diameter of amour wire or thickness of corrugated aluminum sheath	No./ mm	To be mentioned [Based on design calculation]	
24.	Average thickness of MDPE over sheath	mm	3.5mm	
25.	Nominal diameter of complete cable	mm	To be mentioned [Based on design calculation]	
26.	Nominal weight per meter of Complete cable	Kg/m	To be mentioned [Based on design calculation]	
27.	Minimum radius of bend round which cable can be laid	mm	To be mentioned [Based on design calculation]	
28.	Maximum D.C. Resistance of Conductor per	Ohm/km	0.0221	

No.	Description	Unit	WZPDCL'S Requirement	BIDDER'S GUARANTEED VALUES
	kilometer at 20° C			
29.	Maximum A.C. Resistance of Conductor per kilometer at a maximum conductor temperature of 90° C	Ohm/km	To be mentioned [Based on design calculation]	
30.	Reactance per kilometer of cable at 50 Hz	Ohm/km	To be mentioned	
31.	Maximum Star capacitance per kilometer of cable at 50 Hz	µF/Km	To be mentioned	
32.	Charging current per conductor per meter at 18000/30000 Volts,50 Hz	mA	To be mentioned [Based on design calculation]	
33.	Maximum current carrying capacity of Conductor in ground	A	To be mentioned [Based on design calculation]	
34.	Maximum Conductor Temperature under continuous loading	°C	To be mentioned [Based on design calculation]	
35.	Short Circuit Withstand Capacity of the Cable for 1 sec duration	KA	114.4	
36.	Conductor temperature at the end of short circuit	°C	250	
37.	Metallic Screen short circuit withstand capacity for 3 second	KA	To be mentioned	
38.	Metallic Screen and armour combined short circuit withstand capacity for 3 second	KA	31.5 (With details calculation)	
39.	Cable resistance & reactance:			
	a) For positive sequence	Ohm/Km	To be mentioned [Based on design calculation]	
	b) For Negative sequence	Ohm/Km	To be mentioned [Based on design calculation]	
	c) For Zero Sequence	Ohm/Km	To be mentioned [Based on design calculation]	

Seal & Signature of the Manufacturer

Seal & Signature of the Bidder

8.13 GUARANTEED TECHNICAL PARTICULARS OF 33KV XLPE, 1-CORE, 800 mm² COPPER CABLE ACCESSORIES

(To be filled up by the Manufacturer in Manufacturer Letterhead Pad, otherwise the bid shall be rejected.)

Sl. No.	Description of Items	WZPDCL'S Requirement	BIDDER'S GUARANTEED VALUES
1.	**Indoor Termination Kits for 33 KV XLPE, 1-Core, 800 mm2 Copper cable**		
i)	Name & address of the manufacturer	Shall be furnished	
ii)	Type/model of the kits	Shall be furnished	
iii)	Application	For 33 KV, 1-core, XLPE 800 mm2 Copper Conductors	
iv)	Installation	For Indoor installation in switchgear terminations	
v)	System	33 KV, effectively earthed system	
vi)	Cable conductor	800 mm2 1- core Copper Conductors	
vii)	Kit content	– Heat shrinkable high voltage insulating and non-tracking tubing – Heat shrinkable stress control tubing – Stress relieving mastic strip – Truck resistant sealant tape – Cable preparation kit – Solderless earth connection kit – Compression lugs for 800 mm2 Copper – Conductors – Installation instructions	
2.	**Outdoor Termination Kits for 33 KV XLPE, 1-Core, 800mm2 Copper Cable**		
i)	Name and address of the manufacturer	Shall be furnished	
ii)	Type/model of the kits	Shall be furnished	
iii)	Application	For 33KV, 1-Core, XLPE 800 mm2 Copper Conductors	
iv)	Installation	For Outdoor installation on poles/structures	
v)	System	33 KV, effectively earthed system	
vi)	Cable conductor	800 mm2 1-core Copper Conductors	
vii)	Kit content	– Heat shrinkable high voltage insulating and nontracking tubing – Heat shrinkable stress control tubing – Stress relieving mastic strip – Truck resistant sealant tape – Heat shrinkable truck resistant rain skirt – Support insulator – Cable preparation kit – Solder less earth connection kit – Compression lugs for 800 mm² Copper Conductors – Support insulators Tee Brackets – Installation instructions	
3.	**Straight-through joint box for 33 KV XLPE, 1-Core, 800mm2 Copper cable**		
i)	Name & address of the manufacturer	Shall be furnished	STL
ii)	Type/model of the kits	Shall be furnished	
iii)	Application	For 33 KV, 1-core, XLPE 800mm2 Copper	

Sl. No.	Description of Items	WZPDCL'S Requirement	BIDDER'S GUARANTEED VALUES
		Conductors	
iv)	Installation	For underground horizontal mounting	
v)	System	33 KV, effectively earthed system	
vi)	Cable conductor	800 mm2 1-core Copper Conductor	
vii)	Construction	The joint shall be proof against Ingress of moisture and water	
viii)	Kit content	– Compression ferrules – Valid filling tape – Heat shrinkable stress control tubing – Truck resistant sealant tape/ Black mastic sealant tape – Heat shrinkable high voltage insulating tape – Heat shrinkable black/red dual wall – Roll spring – Heat shrinkable outer jacket tube – Cable preparation kit – Solderless earth connection kit – Misc. other material – Installation instructions	

Seal & Signature of the Manufacturer

Seal & Signature of the Bidder

8.14 GUARANTEED TECHNICAL PARTICULARS OF 33kV 1-CORE, 500 mm2 XLPE COPPER CABLES

(To be filled up by the Manufacturer in Manufacturer Letterhead Pad, Otherwise the bid shall not be considered for evaluation)

No.	Description	Unit	WZPDCL'S Requirement	BIDDER'S GUARANTEED VALUES
1.	Name & address of the Manufacturer		To be mentioned	
2.	Type/Model		To be mentioned	
3.	Standard		IEC 60502 IEC 60228	
4.	Nominal System Voltage	kV	33	
5.	Rated voltage of Cable	kV	18/30 (36)	
6.	Process of manufacturing		VCV / CCV	
7.	Number of core and Cross-Sectional area of conductor cores	Sq.mm	1C x 500	
8.	Conductor materials		Copper	
9.	Number of strands	Nos	To be mentioned	
10.	Diameter of each strand	mm	To be mentioned	
11.	Shape of conductor		Compacted Circular	
12.	Type of non-metallic conductor screen		Semi-conducting	
13.	Thickness of semi-conducting conductor screen	mm	≥0.7	
14.	Nominal diameter of Al wire Armour	mm	≥2.5	
15.	Average Thickness of Insulation	mm	≥8.00	
16.	Process of curing		Dry Process	
17.	Material of Insulation		Cross-Linked Poly- ethylene	
18.	Type of non-metallic insulating screen		Semi-conducting	
19.	Thickness of semi-conducting Insulation screen	mm	≥0.7	
20.	Number and diameter of copper Screen strands	No/mm	To be mentioned [Based on design calculation]	
21.	Composition of bedding		Extruded PVC	
22.	Thickness of bedding		To be mentioned [Based on design calculation]	
23.	Number & diameter of amour wire or thickness of corrugated aluminum sheath	No./ mm	To be mentioned [Based on design calculation]	
24.	Average thickness of MDPE over sheath	mm	3 mm	
25.	Nominal diameter of complete cable	mm	To be mentioned [Based on design calculation]	
26.	Nominal weight per meter of Complete cable	Kg/m	To be mentioned [Based on design calculation]	
27.	Minimum radius of bend round which cable can be laid	mm	To be mentioned [Based on design calculation]	
28.	Maximum D.C. Resistance of Conductor per	Ohm/km	0.0366	

No.	Description	Unit	WZPDCL'S Requirement	BIDDER'S GUARANTEED VALUES
	kilometer at 20° C			
29.	Maximum A.C. Resistance of Conductor per kilometer at a maximum conductor temperature of 90° C	Ohm/km	To be mentioned [Based on design calculation]	
30.	Reactance per kilometer of cable at 50 Hz	Ohm/km	To be mentioned	
31.	Maximum Star capacitance per kilometer of cable at 50 Hz	µF/Km	To be mentioned	
32.	Charging current per conductor per meter at 18000/30000 Volts,50 Hz	mA	To be mentioned [Based on design calculation]	
33.	Maximum current carrying capacity of Conductor in ground	A	To be mentioned [Based on design calculation]	
34.	Maximum Conductor Temperature under continuous loading	°C	To be mentioned [Based on design calculation]	
35.	Short Circuit Withstand Capacity of the Cable for 1 sec duration	KA	71.5	
36.	Conductor temperature at the end of short circuit	°C	250	
37.	Metallic Screen short circuit withstand capacity for 3 second	KA	To be mentioned	
38.	Metallic Screen and armour combined short circuit withstand capacity for 3 second	KA	31.5 (With details calculation)	
39.	Cable resistance & reactance:			
	a) For positive sequence	Ohm/Km	To be mentioned [Based on design calculation]	
	b) For Negative sequence	Ohm/Km	To be mentioned [Based on design calculation]	
	c) For Zero Sequence	Ohm/Km	To be mentioned [Based on design calculation]	

Seal & Signature of the Manufacturer **Seal & Signature of the Bidder**

8.15 GUARANTEED TECHNICAL PARTICULARS of ACCESSORIES FOR 33kV XLPE, 1-CORE, 500 mm² COPPER CABLE.

(To be filled up by the Manufacturer in Manufacturer Letterhead Pad, otherwise the bid shall be rejected.)

Sl. No.	Description of Items	WZPDCL'S Requirement	BIDDER'S GUARANTEED VALUES
1.	**Indoor Termination Kits for 33 KV XLPE, 1-Core, 500 mm2 Copper cable**		
i)	Name & address of the manufacturer	Shall be furnished	
ii)	Type/model of the kits	Shall be furnished	
iii)	Application	For 33 KV, 1-core, XLPE 500 mm2 Copper Conductors	
iv)	Installation	For Indoor installation in switchgear terminations	
v)	System	33 KV, effectively earthed system	
vi)	Cable conductor	500 mm2 1- core Copper Conductors	
vii)	Kit content	– Heat shrinkable high voltage insulating and non-tracking tubing	-
		– Heat shrinkable stress control tubing	
		– Stress relieving mastic strip	
		– Truck resistant sealant tape	
		– Cable preparation kit	
		– Solder less earth connection kit	
		– Compression lugs for 500 mm2 Copper	
		– Conductors	
		– Installation instructions	
2.	**Outdoor Termination Kits for 33 KV XLPE, 1-Core, 500mm2 Copper Cable**		
i)	Name and address of the manufacturer	Shall be furnished	
ii)	Type/model of the kits	Shall be furnished	
iii)	Application	For 33KV, 1-Core, XLPE 500 mm2 Copper Conductors	
iv)	Installation	For Outdoor installation on poles/structures	
v)	System	33 KV, effectively earthed system	
vi)	Cable conductor	500 mm2 1-core Copper Conductors	
vii)	Kit content	– Heat shrinkable high voltage insulating and non-tracking tubing	
		– Heat shrinkable stress control tubing	
		– Stress relieving mastic strip	
		– Truck resistant sealant tape	
		– Heat shrinkable truck resistant rain skirt	
		– Support insulator	
		– Cable preparation kit	
		– Solder less earth connection kit	
		– Compression lugs for 500 mm² Copper	
		– Conductors	
		– Support insulators Tee Brackets	
		– Installation instructions	
3.	**Straight-through joint box for 33 KV XLPE, 1-Core, 500mm2 Copper cable**		
i)	Name & address of the manufacturer	Shall be furnished	
ii)	Type/model of the kits	Shall be furnished	

Sl. No.	Description of Items	WZPDCL'S Requirement	BIDDER'S GUARANTEED VALUES
iii)	Application	For 33 KV, 1-core, XLPE 500mm2 Copper Conductors	
iv)	Installation	For underground horizontal mounting	
v)	System	33 KV, effectively earthed system	
vi)	Cable conductor	500 mm2 1-core Copper Conductor	
vii)	Construction	The joint shall be proof against Ingress of moisture and water	
viii)	Kit content	– Compression ferrules	
		– Valid filling tape	
		– Heat shrinkable stress control tubing	
		– Truck resistant sealant tape/ Black mastic sealant tape	
		– Heat shrinkable high voltage insulating tape	
		– Heat shrinkable black/red dual wall	
		– Roll spring	
		– Heat shrinkable outer jacket tube	
		– Cable preparation kit	
		– Solder less earth connection kit	
		– Misc. other material	
		– Installation instructions	

Seal & Signature of the Manufacturer **Seal & Signature of the Bidder**

8.16 GUARANTEED TECHNICAL PARTICULARS OF 33KV, 1-CORE, 95 mm^2 UNDERGROUND XLPE COPPER CABLE

(To be filled up by the Manufacturer in Manufacturer Letterhead Pad, otherwise the bid shall be rejected.)

No.	Description	Unit	WZPDCL'S Requirement	BIDDER'S GUARANTEED VALUES
1.	Name & address of the Manufacturer		To be mentioned	
2.	Type/Model		To be mentioned	
3.	Standard		IEC 60502 IEC 60228	
4.	Nominal System Voltage	kV	33	
5.	Rated voltage of Cable	kV	18/30 (36)	
6.	Process of manufacturing		VCV / CCV	
7.	Number of core and Cross-Sectional area of conductor cores	Sq.mm	1C x 95	
8.	Conductor materials		Copper	
9.	Number of strands	Nos	To be mentioned	
10.	Diameter of each strand	mm	To be mentioned	
11.	Shape of conductor		Compacted Circular	
12.	Type of non-metallic conductor screen		Semi-conducting	
13.	Thickness of semi-conducting conductor screen	mm	≥0.7	
14.	Nominal diameter of Al wire Armour	mm	≥2.0	
15.	Average Thickness of Insulation	mm	≥8.00	
16.	Process of curing		Dry Process	
17.	Material of Insulation		Cross-Linked Poly- ethylene	
18.	Type of non-metallic insulating screen		Semi-conducting	
19.	Thickness of semi-conducting Insulation screen	mm	≥0.7	
20.	Number and diameter of copper Screen strands	No/mm	To be mentioned [Based on design calculation]	
21.	Composition of bedding		Extruded PVC	
22.	Thickness of bedding		To be mentioned [Based on design calculation]	
23.	Number & diameter of amour wire or thickness of corrugated aluminum sheath	No./ mm	To be mentioned [Based on design calculation]	
24.	Average thickness of MDPE over sheath	mm	To be mentioned [Based on design calculation]	
25.	Nominal diameter of complete cable	mm	[Based on design calculation] [Based on design calculation]	
26.	Nominal weight per meter of Complete cable	Kg/m	To be mentioned [Based on design calculation]	
27.	Minimum radius of bend round which cable	mm	To be mentioned	

No.	Description	Unit	WZPDCL'S Requirement	BIDDER'S GUARANTEED VALUES
	can be laid		[Based on design calculation]	
28.	Maximum D.C. Resistance of Conductor per kilometer at 20° C	Ohm/km	0.193	
29.	Maximum A.C. Resistance of Conductor per kilometer at a maximum conductor temperature of 90° C	Ohm/km	To be mentioned [Based on design calculation]	
30.	Reactance per kilometer of cable at 50 Hz	Ohm/km	To be mentioned	
31.	Maximum Star capacitance per kilometer of cable at 50 Hz	µF/Km	To be mentioned	
32.	Charging current per conductor per meter at 18000/30000 Volts,50 Hz	mA	To be mentioned [Based on design calculation]	
33.	Maximum current carrying capacity of Conductor in ground	A	To be mentioned [Based on design calculation]	
34.	Maximum Conductor Temperature under continuous loading	°C	To be mentioned [Based on design calculation]	
35.	Short Circuit Withstand Capacity of the Cable for 1 sec duration	KA	13.6	
36.	Conductor temperature at the end of short circuit	°C	250	
37.	Metallic Screen short circuit withstand capacity for 3 second	KA	13.6	
38.	Cable resistance & reactance:			
	a) For positive sequence	Ohm/Km	To be mentioned [Based on design calculation]	
	b) For Negative sequence	Ohm/Km	To be mentioned [Based on design calculation]	
	c) For Zero Sequence	Ohm/Km	To be mentioned [Based on design calculation]	

Seal & Signature of the Manufacturer

Seal & Signature of the Bidder

8.17 GUARANTEED TECHNICAL PARTICULARS OF 33KV XLPE, 1-CORE, 95 mm² COPPER CABLE ACCESSORIES

(To be filled up by the Manufacturer in Manufacturer Letterhead Pad, otherwise the bid shall be rejected.)

Sl. No.	Description of Items	WZPDCL'S Requirement	BIDDER'S GUARANTEED VALUES
1.	**Indoor Termination Kits for 33 KV XLPE, 1-Core, 95 mm2 Copper cable**		
i)	Name & address of the manufacturer	Shall be furnished	
ii)	Type/model of the kits	Shall be furnished	
iii)	Application	For 33 KV, 1-core, XLPE 95 mm2 Copper Conductors	
iv)	Installation	For Indoor installation in switchgear terminations	
v)	System	33 KV, effectively earthed system	
vi)	Cable conductor	95 mm2 1- core Copper Conductors	
vii)	Kit content	– Heat shrinkable high voltage insulating and nontracking tubing – Heat shrinkable stress control tubing – Stress relieving mastic strip – Truck resistant sealant tape – Cable preparation kit – Solderless earth connection kit – Compression lugs for 95 mm2 Copper – Conductors – Installation instructions	-
2. 2	**Outdoor Termination Kits for 33 KV XLPE, 1-Core, 95mm2 Copper Cable**		
i)	Name and address of the manufacturer	Shall be furnished	
ii)	Type/model of the kits	Shall be furnished	
iii)	Application	For 33KV, 1-Core, XLPE 95 mm2 Copper Conductors	
iv)	Installation	For Outdoor installation on poles/structures	
v)	System	33 KV, effectively earthed system	
vi)	Cable conductor	95 mm² 1-core Copper Conductors	
vii)	Kit content	– Heat shrinkable high voltage insulating and nontracking tubing – Heat shrinkable stress control tubing – Stress relieving mastic strip – Truck resistant sealant tape – Heat shrinkable truck resistant rain skirt – Support insulator – Cable preparation kit – Solder less earth connection kit – Compression lugs for 95 mm² Copper – Conductors – Support insulators Tee Brackets – Installation instructions	
3.	**Straight-through joint box for 33 KV XLPE, 1-Core, 95mm2 Copper cable**		
i)	Name & address of the manufacturer	Shall be furnished	
ii)	Type/model of the kits	Shall be furnished	
iii)	Application	For 33 KV, 1-core, XLPE 95mm2 Copper Conductors	

Sl. No.	Description of Items	WZPDCL'S Requirement	BIDDER'S GUARANTEED VALUES
iv)	Installation	For underground horizontal mounting	
v)	System	33 KV, effectively earthed system	
vi)	Cable conductor	95 mm2 1-core Copper Conductor	
vii)	Construction	The joint shall be proof against Ingress of moisture and water	
viii)	Kit content	– Compression ferrules	
		– Valid filling tape	
		– Heat shrinkable stress control tubing	
		– Truck resistant sealant tape/ Black mastic sealant tape	
		– Heat shrinkable high voltage insulating tape	
		– Heat shrinkable black/red dual wall	
		– Roll spring	
		– Heat shrinkable outer jacket tube	
		– Cable preparation kit	
		– Solderless earth connection kit	
		– Misc. other material	
		– Installation instructions	

Seal & Signature of the Manufacturer

Seal & Signature of the Bidder

8.18 GUARANTEED TECHNICAL PARTICULARS FOR 4-CORE, 150 MM2PVC INSULATED AND PVC SHEATHED COPPER CABLE FOR CONNECTION BETWEEN STATION TRANSFORMER TO AC DISTRIBUTION PANEL

(To be filled up by the Manufacturer in Manufacturer's Letterhead Pad with appropriated data)

Sl. no.	Description of Items	Unit	WZPDCL'S Requirement	BIDDER'S GUARANTEED VALUES
	Name & address of the Manufacturer		To be mentioned	
1.	Type/Model of the offered Cable		To be mentioned	
2.	System Voltage	kV	0.415	
3.	Rated Voltage of Cable	kV	0.6/1.1	
4.	Process of manufacturing		Extruded process	
5.	Number of core and cross-sectional area of conductor cores	Sq.mm	4 C × 150	
6.	Conductor material		Annealed Copper	
7.	Shape of conductor		Circular, stranded (Class 2)	
8.	Conductor screen		Not applicable (for PVC cable)	
9.	Thickness of conductor insulation	mm	1.8 (nominal)	
10.	Type of insulation		PVC Type A (as per IS 5831)	
11.	Colour of insulation		Red, Yellow, Blue, Black	
12.	Inner sheath material		Extruded PVC Type ST2	
13.	Type of armouring		Galvanized Steel Strips (for multicore)	
14.	Outer sheath material		PVC Type ST2 (Black)	
15.	Overall diameter of complete cable	mm	To be mentioned	
16.	Nominal weight per meter of complete cable	Kg/m	To be mentioned	
17.	Minimum bending radius	mm	To be mentioned	
18.	Maximum D.C. resistance of conductor at 20 °C	Ohm/km	0.124	
19.	Maximum A.C. resistance of conductor at 90 °C	Ohm/km	To be mentioned	
20.	Current carrying capacity (in air)	A	To be mentioned	
21.	Current carrying capacity (in ground)	A	To be mentioned	
22.	Conductor temperature (continuous)	°C	70	
23.	Conductor temperature (short circuit for 1 sec)	°C	160	
24.	Short-circuit capacity of conductor for 1 sec	kA	15.6	
25.	Applicable standards		IEC 60502-1	
26.	Type of marking on outer sheath		Manufacturer's name, size, voltage grade, ISI	

Sl. no.	Description of Items	Unit	WZPDCL'S Requirement	BIDDER'S GUARANTEED VALUES
			mark, year, etc.	
27.	Cable marking	m	1 (one)	
28.	Standard drum length	m	500 m (±5%) or as specified	
29.	Colour of outer sheath		Black	

Seal & Signature of the Manufacturer

Seal & Signature of the Bidder

8.19 GUARANTEED TECHNICAL PARTICULARS AND GUARANTEES OF SHIELD WIRE, EARTHING GRID AND EARTHING ELECTRODE

(To be filled up by the in Manufacturer Letterhead Pad with appropriate data)

Sl. No.	Description	Unit	WZPDCL's Requirement	BIDDER'S GUARANTEED VALUES
A.	Shield Wires			
1.	Manufacturer's name & country	-	To be mentioned	
2.	Material	-	High Strength Steel	
3.	Grade of Steel	Kg	60000	
4.	Nos. of Strand	Nos.	7	
5.	Diameter of each strand	mm	3.05	
6.	Overall diameter	mm	9.525	
7.	Nominal cross -section	mm^2	35	
8.	Weight per km length	Kg	407	
9.	Maximum rated current (3 seconds)	A	To be mentioned	
10.	Maximum working tension of main	Kg/m^2	To be mentioned	
11.	Resistance of conductors per 1000	ohms	To be mentioned	
12.	Rated Ultimate Tensile Strength	Kg/mm^2	4900	
13.	Maximum permissible span length	m	To be mentioned	
14.	Maximum sag under own weight of	mm	To be mentioned	
15.	Co-efficient of liner expansion	cm/ °C.	To be mentioned	
16.	Class of Zinc Coating	-	Class-A	
17.	Galvanization	-	As per BS-729 OR	
B.	Earthing Grid			
1.	Manufacturer's name & country	-	To be mentioned	
2.	Material	-	Copper	
3.	Overall diameter	mm	To be mentioned	
4.	Nominal cross -section			
	a) Interconnecting the earth electrodes	mm^2	To be mentioned	
	b) Connecting equipment to mesh	mm^2	To be mentioned	
5.	Area of each earthing grid	m x m	To be mentioned	
6.	Depth of bedding of conductor	mm	To be mentioned	
7.	Maximum earth fault current for 3 sec.	KA	31.5	
8.	Resistance of conductors per 1000	Ohms	To be mentioned	
C.	Earthing Electrodes			
1.	Manufacturer's name & country	-	To be mentioned	
2.	Material	-	Copper	
3.	Dimensions:			
	a) Dia	mm	16	
	b) Length	m	4	
4.	Number of electrodes per group	-	As per schedule	
5.	Number of earthing points per	-	To be mentioned	
6.	Calculated resistance of combined earth grid and points	ohm	Less than 0.5	

Seal & Signature of the Manufacturer

Seal & Signature of the Bidder

8.20 GUARANTEED TECHNICAL PARTICULARS AND GUARANTEES OF LED FLOOD LIGHT

(To be filled up by the Manufacturer in Manufacturer Letterhead Pad with appropriate data)

Sl. No.	Description	Unit	WZPDCL's Requirement	BIDDER'S GUARANTEED VALUES
1.	Manufacturer's Name & country of origin	-	To be mentioned	
2.	Manufacturer's model No.	-	To be mentioned	
3.	Input Voltage	V	220	
4.	Operating Voltage	V	180-240	
5.	Rated Wattage	W	50	
6.	Efficacy	lu/W	100	
7.	Driver Efficiency		Min 90%	
8.	Life Span	Hrs	50000	
9.	Operating temperature		-5 to 50degree C	
	(a) color temperature	K	5000-6000	
10.	Housing	-	in two pieces (upper and lower housings) Die cast aluminum housing	
11.	Electrical and gear compartment		Integral Inverter Electronic	
12.	Protection Degree		IP65	
13.	painting		RAL 7035	
14.	Frequency	Hz	50	
15.	Front Glass		F - Flat glass	
16.	Net Wight	Kg	To be mentioned	

Seal & Signature of the Manufacturer

Seal & Signature of the Bidder

8.21 GUARANTEED TECHNICAL PARTICULARS AND GUARANTEES OF LED SIGN BOARD (ELECTRONIC)

(To be filled up by the Manufacturer in Manufacturer Letterhead Pad with appropriate data)

Sl. No	Description	WZPDCL's requirement	BIDDER'S GUARANTEED VALUES
1.	Pixel pitch	P4/ P6	
2.	LED configuration	SMD	
3.	LED density	Minimum 8500 LED/m^2	
4.	Brightness	6,500 nits (calibrated)	
5.	Color Processing	16 bit/color	
6.	Colors	281 trillion	
7.	Hor. viewing angle	-70°/+70°	
8.	Vert. viewing angle	-35°/+10°	
9.	Power consumption (typical)	Max 300 W/m^2	
10.	Heat dissipation (typical)	784 BTU/hr/m^2	
11.	Operational temperature	-20°/+50°C	
12.	Ruggedness	IP65 (front)	
13.	Dimensions (HxWxD)	7 x 5 feet	
14.	Module surface	Minimum 1 m^2	
15.	Weight / Tile	To be mentioned	
16.	Features: Audio, Video, Elkbone frame, Ethernet, HDMI, USB, VGA with all necessary configuration	Yes	
17.	Certifications	CE, ETL, FCC Class A, CEBEC, RohS	

Seal & Signature of the Manufacturer

Seal & Signature of the Bidder

8.22 GUARANTEED TECHNICAL PARTICULARS AND GUARANTEES OF STEEL STRUCTURE DESIGN

(To be filled up by the Manufacturer in Manufacturer Letterhead Pad with appropriate data)

Sl No	Description	Unit	WZPDCL Requirement	BIDDER'S GUARANTEED VALUES
1.	Manufacturer's Name and Country	-	To be mentioned	
2.	**Maximum ratio of unsupported length of steel compression to their least radius of gyration:**			
	a) Main members	mm	120	
	b) Bracing's	mm	180	
	c) Redundant	mm	180	
3.	B.S. 4360 grade 43A steel or other approved standard:			
	a) Elastic limit stress in tension members	Kg/ mm²	To be mentioned	
	b) Ultimate stress in compression members (expressed as function L/R)	Kg/ mm²	Sc=F/S[{1+0.00011x {(L/R)²/ M}]	
4.	B.S. 4360 grade 50C steel or other approved standard:			
	a) Elastic limit stress in tension members	Kg/ mm²	To be mentioned	
	b) Ultimate stress in compression members (expressed as function L/R)	Kg/ mm²	Sc=F/S[{1+0.000166 x{(L/R)²/M}]	
5.	Formula for calculation of ultimate stress in compression.	-	SC=F/S[1+{LE/π²E}x {(L/R)²/M}]	
	Where,			
	SC = Ultimate stress in compression	Kg/ mm²	To be mentioned	
	F = Yield strength	Kg	To be mentioned	
	S = Section	mm²	To be mentioned	
	L/R = Length / Radius of gyration	cm	To be mentioned	
	LE = Elastic limit stress	Mg/mm²	24 or 36	
	E = Elasticity module	Kg/mm²	22000	
	M = Rigidity Coefficient at each end	-	To be mentioned	
	M=1 with only one bolt at each end of member	-	To be mentioned	
	M=2 with two bolts at each end of a member	-	To be mentioned	
	M=4 if L/R between 110 and 130	-	To be mentioned	
	M=3 if L/R over to 130	-	To be mentioned	
6.	Minimum size of member	mm	45 x 45 x --	
7.	Weight of each Column	Kg	To be mentioned	
8.	Weight of each Girder	Kg	To be mentioned	
9.	Total weight	Kg	To be mentioned	

Seal & Signature of the Manufacturer

Seal & Signature of the Bidder

8.23 GUARANTEED TECHNICAL PARTICULARS FOR DESKTOP COMPUTER

(To be filled up by the Manufacturer in Manufacturer Letterhead Pad, otherwise the bid shall be rejected)

Sl. No.	Description	WZPDCL's Requirement	BIDDER'S GUARANTEED VALUES
1.	Brand	To be mentioned (Any International reputed brand operating in the recognized continental markets for decades.)	
2.	Model	To be mentioned	
3.	Country of origin	To be mentioned	
4.	Country of Manufacturer	To be mentioned	
5.	Processor Speed (Clock speed)	3.6 GHz (minimum)	
6.	Processor	14 th Generation Intel Core i7 Processor, 30MB Cache or above	
7.	Storage	1TB SATA HDD 7200 rpm	
8.	Performance		
9.	RAM	8GB (8GBx1) DDR4 upgradable up to 64GB DDR4-2400 SDRAM	
10.	DIMM	4	
11.	Chipset	Intel original Q272 chipset	
12.	Graphics Card	Integrated Intel HD Graphics 630 or above	
13.	Screen		
14.	Screen features	LED Backlight Color Monitor	
15.	Screen size	24 inches	
16.	Connectivity		
17.	Audio	High-Definition Integrated Audio	
18.	Bays	1 internal 3.5" 2 internal 2.5", 1 external 5.25"	
19.	I/O Ports	8 External USB: 4 x 3.0 (2 front/2 rear) and 4 x 2.0 (2 front/2 rear); 1 RJ-45;1 Display Port 1.2; 1 UAJ, 1 Line-out; 1 VGA, 2 low-profile PCIe x16 (one wired as a x4); 2 low-profile PCIe x1; 1 M.2 2230 for optional wireless	
20.	NIC	10/100/1000 base T (built in /Integrated)	
21.	Media		
22.	Optical drive	Super Multi DVD writer	
23.	Features		
24.	Keyboard	USB Entry Business Keyboard (English)	
25.	Mouse	USB Optical Mouse	
26.	Power Supply	220-240V, 50Hz	
27.	General		
28.	Operating system	Windows 11 or latest (Licensed)	
29.	Warranty	International warranty	
30.	Software	a) Windows 11 or latest (Licensed)	
31.		b) MS office 2013 Professional (Licensed)	
32.	Brochure and CDs	All brochure, instructions, manual and driver CDs to be supplied with the product	
33.	Connection Cables	All necessary power and data connection cables to be supplied along with the product, power cables (3 pin flat)	

Seal & Signature of the Manufacturer

Seal & Signature of the Bidder

8.24 GUARANTEED TECHNICAL PARTICULARS FOR UPS

(To be filled up by the Manufacturer in Manufacturer Letterhead Pad, otherwise the bid shall be rejected)

Sl. No.	Description	WZPDCL's Requirement	BIDDER'S GUARANTEED VALUES
1.	Brand & Model	To be mentioned (Any International Reputed Brand & Model)	
2.	Capacity	1000 VA	
3.	Technology	Line Interactive	
4.	Transfer Time	<2 ms	
5.	Input Voltage	140~300 VAC	
6.	Input Frequency	50/60 Hz± 5%	
7.	Output Voltage	220 VAC ± 8%	
8.	Output Frequency	50/60 Hz± 5%	
9.	Output Wave form	AC Mode: Simulated Sine wave	
10.	Backup time	At full load 30 minutes (one computer with monitor)	
11.	Battery Type	Sealed Maintenance free Lead Acid	
12.	Battery Recharging	8-10 Hours	
13.	Noise (EMI/RFI) filter	Built in	
14.	Protection	Spike, Surge, Blackout, Brownouts, Overload, Short circuit, Under & Over Voltage, Battery Low & Battery Over charge as per international Safety Standard	
15.	UPS Warranty	03 (Three) Years Replacement warranty	
16.	Battery Warranty	01 (one) Year warranty from the date of commissioning.	

Seal & Signature of the Manufacturer

Seal & Signature of the Bidder

8.25 GUARANTEED TECHNICAL PARTICULARS FOR NETWORK LASER DUPLEX PRINTER

(To be filled up by the Manufacturer in Manufacturer Letterhead Pad, otherwise the bid shall be rejected)

Sl. No.	Description	Unit	WZPDCL's Requirement	BIDDER'S GUARANTEED VALUES
1.	Brand		To be mentioned (Any International reputed brand operating in the recognized continental markets for decades.)	
2.	Model		To be mentioned	
3.	Country of Origin		To be mentioned	
4.	Country of Manufacturer		To be mentioned	
5.	Toner type		Toner and associated drum unit in single case, No starter toner.	
6.	Fuser Unit		Instant on fuser technology with ceramic heating elements.	
7.	Resolution	dpi	1200 × 1200 dpi (Minimum)	
8.	Processor	MHz	Min. 800 MHz	
9.	Printing Speed	ppm	32-Page-per Minute (Letter), 35 PPM (A4) (min.)	
10.	First Page Print Out	second	As fast as 8 seconds	
11.	Memory	MB	256 MB (Minimum) Expandable to 1 GB	
12.	Memory Slots		2 DIMM Slots Minimum	
13.	Interface		Jet direct Fast Ethernet embedded print server, two open EIO slots, High Speed USB 2.0 Port & Parallel Port (min.)	
14.	Languages		PCL 6, PCL 5e, POST Script 3 emulation	
15.	Duty Cycle	page	2, 75,000 Pages per Month	
16.	Trays		100 sheet multi-purpose input tray, 2 x 500 sheet input tray 50-sheet face up output tray, 250-sheet face down output tray	
17.	Media Sizes		Letter, Legal, A4, A5, B5 and custom sizes	
18.	Media Types		Paper (Plain, Preprinted, Letterhead, Bond, Color, Recycled, Rough), Transparencies, Labels	
19.	Power Requirements		220-240 V / 50Hz	
20.	Client Operating System Supported		Windows XP/7/8/10 Linux etc., server	
21.	Network Operating System Supported		Via Jet direct print server: Me, NT 4.0, 2000, XP, XP 64-bit, Server 2003, Red Hat Linux 6 and later.	
22.	Network Protocols Supported		Via Jet direct print server: TCP/IP, HTTP	
23.	Warranty Period		Full 03(Three) years replacement and instant service warranty. Replacement time maximum 07 (Seven) days.	

Seal & Signature of the Manufacturer

Seal & Signature of the Bidder

8.26 GUARANTEED TECHNICAL PARTICULARS FOR AIR COOLER

(To be filled up by the manufacturer with appropriated data, otherwise the bid will be rejected)

Sl. No.	Item Description	WZPDCL's Requirement	BIDDER'S GUARANTEED VALUES
In Door Unit Specification: Floor Ceiling Unit 4 Ton			
1.	Brand	International reputed Brand like General, Panasonic, Toshiba, Hitachi, Samsung, LG etc.	
2.	Model	To be Mentioned	
3.	Country of Origin	To be Mentioned	
4.	Cooling Capacity (Min)	14 kW	
		48,000 Btu/h	
5.	Heating Capacity (Min)	15 kW	
		48,000 Btu/h	
6.	Air Flow	Min 1600 m^3/h	
		Min 940 CFM	
7.	Sound Pressure Level	<45 dB	
8.	Dimension	To be Mentioned	
9.	Net weight	To be Mentioned	
10.	To be Submitted with Tender Document	Original Brochure & Catalogue supporting the model offered by the Tenderer	
11.	Free Servicing	02 (Two) year from the day of completion of installation testing and commissioning of VRF system.	
12.	Warranty	02 (Two) Year from the day of installation, testing and commissioning of VRF system inclusive of Parts	

Seal & signature of bidder

Seal & signature of Manufacturer

8.27 GUARANTEED TECHNICAL DATA SCHEDULE OF GAS FILLING DEVICE WITH AUXILIARY EQUIPMENT FOR GIS

(To be filled up by the Manufacturer in Manufacturer Letterhead Pad, otherwise the bid shall be rejected.)

Sl. No	DESCRIPTION	UNIT	WZPDCL'S REQUIREMENT	BIDDER'S GUARANTEED VALUES
1.	Name and address of the manufacturer		To be mentioned	
2.	Manufacturer's Model		To be mentioned (as per sec. 7.5)	
3.	Country of Origin		To be mentioned	
4.	Small service cart		To be mentioned	
5.	Compressor		Oil free	
6.	Vacuum Pump	m3/h	≥14	
7.	Filter		1. Dry filter	
			2. Particle filter	
8.	Spare dry and particle filters		shall be provided	
9.	SF6 pressure reducer	bar	0–10orbetter	
10.	Electronic bottle scale		Shall be provided	
11.	Indication		bar/mbar and psi	
12.	Hose length	m	≥5	
13.	SF6 bottle connection		W21.8x1/14"	
14.	Operating voltage	VAC	220-240	
15.	Frequency	Hz	50	
16.	Printed catalogue s shall furnish with		Shall be provided	
17.	All standard accessories		Shall be provided	
18.	SF6 Multi Analyzer			
	SF6 Concentration Measurement	%	0 to100	
19.	Moisture concentration	°C	-40 to+20	
20.	SO2 concentration	ppmv	0to500	
21.	HF concentration	ppmv	0to10	
22.	Input pressure	bar	0.3to9	
23.	Operating temperature	°C	0 to50	
24.	Operating voltage	V	200 to240	
25.	Input frequency	Hz	50	
26.	Storing capacity of measured values		100	
27.	Interface		USB	
28.	Pressure reducer		shall be provided	
29.	Gas collecting unit		shall be provided	
30.	Adapter kit for measuring device		shall be provided	
31.	Connecting extension hose with self-	m	≥6	
32.	Hard carrying case		shall be provided	
33.	Operating and maintenance manual in		shall be provided	
34.	SF6 Leak Detector			
35.	Number of sensor		≥3	
36.	Detection of leak system	mbar	1x10-8	
37.	Power Input		200-240V,50Hz	
38.	Operating temperature	°C	0to50	
39.	Hard carrying case		shall be provided	
40.	All standard accessories		shall be provided	
41.	Operating and maintenance manual in		shall be provided	
42.	SF6 Storage Tank			

Sl. No	DESCRIPTION	UNIT	WZPDCL'S REQUIREMENT	BIDDER'S GUARANTEED VALUES
43.	Filling weight	kg	≥280	
44.	Storage volume	l	≥300	
45.	Operating pressure	bar	≥50	
46.	Standard of tank		EC97/23	
47.	Pressure gauge		shall be provided	
48.	Weighing device		shall be provided	
49.	Trolley carrier		shall be provided	
50.	Hose and valves		shall be provided	
51.	Operating manual in English		shall be provided	

Seal & Signature of the Manufacturer

Seal & Signature of the Bidder

8.28 GUARANTEED TECHNICAL PARTICULARS OF 33KV OUTDOOR TYPE SINGLE PHASE CURRENT TRANSFORMER

(To be filled up by the Manufacturer in Manufacturer Letterhead Pad, otherwise the bid shall be rejected.)

Sl. No.	Description	Unit	WZPDCL's Requirement	BIDDER'S GUARANTEED VALUES
1.	Manufacturer's Name & Country	-	To be mentioned	
2.	Manufacturer's Model No.	-	To be mentioned	
3.	Application	-	Metering and Protection	
4.	Type	-	Induction	
5.	Installation	-	Outdoor	
6.	Construction	-	Sealed Tank	
7.	Insulation	-	Oil	
8.	Number of Phase	-	Single	
9.	Rated Frequency	Hz	50	
10.	Mounting	-	On Supporting Structure	
11.	Primary rated voltage (Phase to Phase)	kV	33	
12.	Maximum System Voltage (Phase to Phase)	kV	36	
13.	System Earthing	-	Effectively Earthed	
14.	Basic Insulation Level (1.2/50 Micro-Sec.)	kV	170	
15.	Power frequency withstand voltage (1 Min. 50 Hz.)	kV	70	
16.	**Ratio for 33KV Line feeder:**			
	33 KV Line		2400-1600/1-1-1A	
17.	Type of Winding:			
	a) Primary	-	Single Winding	
	b) Secondary	-	Three winding (one for protection & two for measuring)	
18.	Accuracy Class:			
	a) for measurement	-	0.2S	
	b) for Protection	-	5P20	
19.	Burden:			
	a) for measurement	VA	30	
	b) for Protection	VA	30	
20.	Short Time Current Rating for 3 Sec.	kA	31.5	
21.	Extended Current Rating (% of rated current)	%	120	
22.	Instrument safety factor	A	≤10	
23.	Creepage Distance	mm/ kV(Min.)	25	
24.	Rated accuracy limit factor	-	To be mentioned	
25.	Knee point voltage	V	To be mentioned	
26.	Bushing	-	Porcelain outdoor type	
27.	Standard	-	IEC 61869	

Seal & Signature of the Manufacturer

Seal & Signature of the Bidder

8.29 GUARANTEED TECHNICAL PARTICULARS OF 33 KV OUTDOOR TYPE SINGLE PHASE POTENTIAL TRANSFORMER

(To be filled up by the Manufacturer in Manufacturer Letterhead Pad, otherwise the bid shall be rejected.)

Sl. No.	Description	Unit	WZPDCL's Requirement	BIDDER'S GUARANTEED VALUES
1.	Manufacturer's Name & Country or origin	-	To be mentioned	
2.	Manufacturer's Model No.	-	To be mentioned	
3.	Type	-	Induction Type	
4.	Installation	-	Outdoor	
5.	Construction	-	Sealed Tank	
6.	Insulation	-	Oil	
7.	Ratio	V	33000/√3:110/ √3:110/√3	
8.	No. of phase	Nos.	Single Phase	
9.	Total capacitance at 100 Hz	PF	To be mentioned	
10.	50 Hz 1 (One) minute withstand voltage wet	KV	To be mentioned	
11.	Impulse withstands (1.2/50 micro sec. wave)	KV	170	
12.	Power frequency withstand voltage (1 Min. 50 Hz.)	KV	70	
13.	Rated burden per phase	VA	50VA	
14.	Class of accuracy	-	0.2+3P	
15.	Temperature co-efficient of ratio per ^{0}C	-	To be mentioned	
16.	System earthing	-	Effectively Earthed	
17.	Creepage Distance	mm/kV	25 (min)	
18.	Maximum errors with 5% primary voltage:			
	a) Ratio	%	To be mentioned	
	b) Phase angle	minutes	To be mentioned	
19.	Total weight complete	Kg	To be mentioned	
20.	Standard	-	IEC 61869	

Seal & Signature of the Manufacturer

Seal & Signature of the Bidder

8.30 GUARANTEED TECHNICAL PARTICULARS OF 33 KV BUS BAR INSULATOR STRING

(To be filled up by the Manufacturer in Manufacturer Letterhead Pad, otherwise the bid shall be rejected.)

Sl. No.	Description	Unit	WZPDCL's Requirement	BIDDER'S GUARANTEED VALUES
1.	Manufacturer's Name & Country	-	To be mentioned	
2.	Manufacturer's model no.	-	To be mentioned	
3.	Insulator material	-	Porcelain	
4.	Number of units per string	Nos.	4	
5.	Insulator Voltage Class	KV	15	
6.	Insulator Materials		Porcelain	
7.	Type of Insulator	-	Ball and socket type disc, security clip made of rod brass alloy.	
8.	Creepage/ leakage distance (min.)	mm	298	
9.	Total creepage distance of string	mm	To be mentioned	
10.	Unit Spacing	mm	146	
11.	Dry Arcing distance (minimum)	mm	171	
12.	Diameter of Insulator	mm	256	
13.	Withstand Voltage, Minimum:			
	a) Power Frequency; dry (one min.)	KV	70	
	b) Power Frequency; wet (one min.)	KV	40	
	c) Impulse 1.2/50 ☐ sec	KV	110	
14.	Flashover Voltage, Minimum:			
	a) Power Frequency, dry	KV	80	
	b) Power Frequency, wet	KV	50	
	c) 50% Impulse 1.2/50 ☐ sec wave, positive or impulse 1.2/50 ☐sec wave positive.	KV	125	
	d) 50% Impulse 1.2/50 ☐ sec wave Negative	KV	130	
15.	Power Frequency Puncture Voltage, minimum	KV	110	
16.	Radio Influence Voltage Data, minimum			
	a) Power frequency test voltage RMS to Ground	KV	10	
	b) Maximum RIV at 1,000 Kc	μV	50	
17.	Minimum Mechanical Strength for Suspension:			
	a) Electro-mechanical Breaking Load	Kg	7260	
	b) Mechanical Breaking load	Kg	6800	
	c) Tension Proof Test Load	Kg	3400	
	d) Time Load Test Value	Kg	4536	
	e) Mechanical Impact Strength	mm Kg	630	
18.	Minimum Mechanical Strength for Strain Stringing:			
	a) Electro-mechanical Breaking	Kg	11340	

Sl. No.	Description	Unit	WZPDCL's Requirement	BIDDER'S GUARANTEED VALUES
	Load			
	b) Mechanical Breaking load	Kg	11340	
	c) Tension Proof Test Load	Kg	3400	
	d) Time Load Test Value	Kg	4536	
	e) Mechanical Impact Strength	mm Kg	530	
19.	Insulator Hardware		Insulator hardware for insulator strings or bus-support such shall have UTS-120 KN and galvanized as per BS-729 OR ASTM A-153.	
20.	Standard		AS per latest editions of IEC-383.	

Seal & Signature of the Manufacturer

Seal & Signature of the Bidder

8.31 GUARANTEED TECHNICAL PARTICULARS OF 33KV FEEDER PCM PANEL FOR OUTDOOR SWITCHGEAR

(To be filled up by the Manufacturer in Manufacturer Letterhead Pad, otherwise the bid shall be rejected.)

Sl. No	Description	Unit	WZPDCL'S Requirement	BIDDER'S GUARANTEED VALUES
1.	Manufacturer's Name and address		Shall be mentioned	
2.	Country of origin		Shall be mentioned	
3.	System nominal voltage	KV	33	
4.	Maximum System Voltage	KV	36	
5.	Rated Frequency	Hz	50	
6.	**PROTECTION IDMT OVER CURRENT & EARTH FAULT WITH DIRECTIONAL FEATURE RELAY**			
i)	Manufacture's Name		Shall be mentioned (Please refer to PE's requirement).	
ii)	Manufacture's model no.	-	Shall be mentioned	
iii)	Type of relay	-	Numerical programmable Multifunction (IED)	
iv)	Directional Feature		Yes	
v)	Maximum through fault at which the protective equipment is stable with recommend settings:			
	a) Earth faults	% of CT Rating	To be mentioned	
	b) Phase faults		To be mentioned	
vi)	Maximum time delay between initiation of fault and energization of breaker trip circuit.	ms	Shall be mentioned	
vii)	Range of timing settings at 10-time CT rating	Sec	Shall be mentioned	
viii)	Burden of relay at 10-time CT rating	VA	Shall be mentioned	
ix)	Percentage of	%	Shall be mentioned	

Sl. No	Description	Unit	WZPDCL'S Requirement	BIDDER'S GUARANTEED VALUES
	current setting at which relay will reset			
x)	Reset time after removal of 10 time CT rated current for:	Sec		
	a) Phase element (100%)		Shall be mentioned	
	b) E/F element (40%)		Shall be mentioned	
xi)	Communication Facilities		SCADA Supported	
xii)	Communication Standard		IEC-61850 (with FO-LC Port)	
	Features: 23 BI (min.), 16 BO (mini.), Mimic Display, and others as per section-7 of technical specification.		Yes	
7.	**Trip Circuit Supervision (TCS) Relay (Separate Relay for each trip coil)**			
i)	Manufacture's Name		Shall be mentioned	
ii)	Country of Origin		Shall be mentioned	
iii)	Manufacture's Model no.		Shall be mentioned	
iv)	Type of Relay		Shall be mentioned	
8.	**Trip Relay (Separate Relay)**			
i)	Manufacture's Name		Shall be mentioned	
ii)	Country of Origin		Shall be mentioned	
iii)	Manufacture's Model no.		Shall be mentioned	
iv)	Type of Relay		Shall be mentioned	
v)	Operating Time		< 10 ms	
vi)	Operating Coil Voltage- 110V DC		Yes	
vii)	Hand & Electrical reset type for all O/C, E/F protection		Yes	
9.	**Annunciator**			
i)	Manufacture's Name		Shall be mentioned	
ii)	Country of Origin		Shall be mentioned	
iii)	Manufacture's Model no.		Shall be mentioned	
iv)	Communication Facilities		SCADA Supported	
v)	Communication		IEC-61850	

Sl. No	Description	Unit	WZPDCL'S Requirement	BIDDER'S GUARANTEED VALUES
	Standard			
vi)	Windows		12 nos	
vii)	Built in buzzer and buttons for accept, mute, test, reset, etc.		Yes	
10.	**Control Switch**			
i)	Manufacture's Name		Shall be mentioned	
ii)	Country of Origin		Shall be mentioned	
iii)	Manufacture's Model no.		Shall be mentioned	
iv)	Separate TNC/Discrepancy switch and Local Remote (L/R) selector switch		Yes	
11.	**INDICATION VOLT & AMPERE METERS**			
A.	**Indication Volt meters**			
i)	Manufacturer's Name and Country		To be mentioned	
ii)	Manufacture's Model no.		To be mentioned	
iii)	Type of meter		Digital	
iv)	Class of Accuracy		1	
v)	Display		3 Line display with Phase Voltage and Line Voltage Selection Option	
vi)	Auxiliary Power Supply		110V DC	
B.	**Indication Ampere meters**			
i)	Manufacturer's Name and Country		To be mentioned	
ii)	Manufacture's Model no.		To be mentioned	
iii)	Type of meter		Digital	
iv)	Class of Accuracy		1	
v)	Display		Three Line display	
vi)	Auxiliary Power Supply		110V DC	
12.	**Multifunctional meter**			
i)	Manufacturer's Name and Country	-	Shall be mentioned	
ii)	Manufacture's Model no.	-	Shall be mentioned	
iii)	Type of Meter	-	Digital, Import/Export	
iv)	Parameters: capable of measuring and displaying MW, MVAR, PF, V, I, f, Φ		Yes	

Sl. No	Description	Unit	WZPDCL'S Requirement	BIDDER'S GUARANTEED VALUES
	etc.			
v)	Class of Accuracy		1	
13.	**Overall dimensions of each Panel unit:**			
i)	a) - Height	mm	2200	
	- Width	mm	To be mentioned	
	- Depth	mm	To be mentioned	

Seal & Signature of the Manufacturer

Seal & Signature of the Bidder

8.32 GUARANTEED TECHNICAL PARTICULARS FOR 2CX2.5 SQ. MM CABLE (VCB AC DC CONTROL)

LV CONTROL

(To be filled up by the Manufacturer in Manufacturer Letterhead Pad, **otherwise the bid shall be rejected.)**

Sl. No.	Description	Unit	WZPDCL's Requirement	Manufacturer's guaranteed Particulars
1.	Manufacturer's Name and country	-	To be mentioned	
2.	Cable Size	sq. mm.	2 C×2.5	
3.	Type of Cable	-	YRGY(FR)	
4.	Rated Voltage	V	1000	
5	Standard Referred	-	IEC-60502-1 or equivalent international standard as applicable	
6	**Conductor**	-	-	
	i) Material	-	Stranded Electrolyte annealed bare Copper Confirming to class 1 or 2 of IEC 60228 or equivalent international standard as applicable	
	ii) Nominal Area of Cross- section of each conductor	sq.mm	2.5	
	iii) Total no. of wire/Conductor	Nos	7	
	iv) Diameter of each wire	mm	0.675	
	v) Shape of conductor	-	Solid & Round	
7	**Insulation**	-	-	
	i) Material	-	FR PVC Type E as per IEC 60227 -1 Standard Ins 90 °C.	
	ii) Nom. Thickness	mm	0.8 (As per IEC 60502-1 or equivalent international standard as applicable)	
	iii) Suitable by with regard to temperature, moisture, acid, oil and alkaline surrounding	-	Yes	
8	**Inner sheath**	-	-	
	i) Material	-	FR PVC Category C-1 PVC Type ST-2, as per IEC 60502-1 or equivalent international standard as applicable)	
	ii) Minimum thickness of sheath	mm	1.0	
9	**Armoring**	-	-	
	i) Material & Type	-	Flat Galvanized Steel/Round Galvanized	

Sl. No.	Description	Unit	WZPDCL's Requirement	Manufacturer's guaranteed Particulars
			Steel Wire (As per IEC60502-1)	
	ii) Nominal Thickness	-	Minimum 0.8mm for Flat Galvanized Steel. or Mention Diameter & Number of Wire for Round Galvanized Steel Wire.	
10	**Outer sheath**	-	-	
	i) Material	-	FRLS Black Type ST-2	
	ii) Nominal thickness of sheath	mm	To be Mentioned (As per OD according to calculation with formula IEC 60502-1)	
11	Approximate overall dia of cable	mm	To be mentioned	
12	Method of core identification	-	2C – Red & Black.	
13	**Electrical Properties**	-	-	
	i) Maximum D.C. resistance of conductor at 20^0 C (Ohm/Km)	-	To be mentioned (As per IEC-60228 or equivalent international standard as applicable)	
	ii) Maximum permissible conductor temperature(°C) under full load	°C	85	
	iii) Rated voltage (KV)	KV	1.1	
	iv) Maximum operating voltage	-	10% Higher than the Rated Voltage	
	v) Permissible voltage variation	%	±10%	
	vi) Rated frequency	Hz	50	
	vii) Permitted frequency variation	%	±5%	
	viii) Minimum volume resistivity at 27°C/ 85°C (Ohm/Cm)	ohm.cm	$1 \times 10^{13}/1 \times 10^{10}$	

Seal & Signature of the Manufacturer **Seal & Signature of the Tenderer**

8.33 GUARANTEED TECHNICAL PARTICULARS FOR 4CX2.5 SQ. MM LV CONTROL CABLE (PT)

(To be filled up by the Manufacturer in Manufacturer Letterhead Pad, otherwise the bid shall be rejected.)

Sl. No.	Description	Unit	WZPDCL's Requirement	Manufacturer's guaranteed Particulars
1.	Manufacturer's Name and country	-	To be mentioned	
2.	Cable Size	sq. mm.	4 C×2.5	
3.	Type of Cable	-	YRGY(FR)	
4.	Rated Voltage	V	1000	
5	Standard Referred	-	IEC-60502-1 or equivalent international standard as applicable	
6	**Conductor**	-	-	
	i) Material	-	Stranded Electrolyte annealed bare Copper Confirming to class 1 or 2 of IEC 60228 or equivalent international standard as applicable	
	ii) Nominal Area of Cross- section of each conductor	sq.mm	2.5	
	iii) Total no. of wire/Conductor	Nos	7	
	iv) Diameter of each wire	mm	0.675	
	v) Shape of conductor	-	Solid & Round	
7	**Insulation**	-	-	
	i) Material	-	FR PVC Type E as per IEC 60227 -1 Standard Ins 90 °C.	
	ii) Nom. Thickness	mm	0.8 (As per IEC 60502-1 or equivalent international standard as applicable)	
	iii) Suitable by with regard to temperature, moisture, acid, oil and alkaline surrounding	-	Yes	
8	**Inner sheath**	-	-	
	i) Material	-	FR PVC Category C-1 PVC Type ST-2, as per IEC 60502-1 or equivalent international standard as applicable)	
	ii) Minimum thickness of sheath	mm	1.0	
9	**Armoring**	-	-	
	i) Material & Type	-	Flat Galvanized Steel/Round Galvanized Steel Wire (As per	

Sl. No.	Description	Unit	WZPDCL's Requirement	Manufacturer's guaranteed Particulars
			IEC60502-1)	
	ii) Nominal Thickness	-	Minimum 0.8mm for Flat Galvanized Steel. or Mention Diameter & Number of Wire for Round Galvanized Steel Wire.	
10	**Outer sheath**	-	-	
	i) Material	-	FRLS Black Type ST-2	
	ii) Nominal thickness of sheath	mm	To be Mentioned (As per OD according to calculation with formula IEC 60502-1)	
11	Approximate overall dia of cable	mm	To be mentioned	
12	Method of core identification	-	4C – Red, Yellow, Blue, Black.	
13	**Electrical Properties**	-	-	
	i) Maximum D.C. resistance of conductor at 20° C (Ohm/Km)	-	To be mentioned (As per IEC-60228 or equivalent international standard as applicable)	
	ii) Maximum permissible conductor temperature(°C) under full load	°C	85	
	iii) Rated voltage (KV)	KV	1.1	
	iv) Maximum operating voltage	-	10% Higher than the Rated Voltage	
	v) Permissible voltage variation	%	±10%	
	vi) Rated frequency	Hz	50	
	vii) Permitted frequency variation	%	±5%	
	viii) Minimum volume resistivity at 27°C/ 85°C (Ohm/Cm)	ohm.cm	$1 \times 10^{13}/1 \times 10^{10}$	

Seal & Signature of the Manufacturer **Seal & Signature of the Tenderer**