

FINANCIAL BID

Tender Ref.No. PMD-FI-4.6047-Tender Tambaram07

Work Details : “Provision of Telecommunication arrangements between Sholinghur (including) - Walajah Road-Podaturpet (excluding)section/ stations of Chennai Division in connection with construction of New Line between Tindivanam and Nagari”.

ANNEXURE - A1						
Sl. No.	SOR. No.	Description of work	Unit	Qty	Unit Rate (without GST)	Amount (without GST)
1	021080	Supply of Fault Analysis Terminal for analysis of fault and generating reports for Datalogger installed at stations. As per Technical Specifications.	Nos	2		0.00
2	021350	Installation of Fault Analysis Terminal (for analysis of fault and generating reports for Datalogger installed at stations)	Nos	2		0.00
3	031010	Supply of indicative type Surge Protection Device as per RDSO Spec. No. SPN/165/2023, Version 4.0 Amdt.1 or latest (Lightning and Transient surge protection for power line). The system shall have stage1 (class B) and stage 2(class C) type against Lightning electromagnetic Impulse configuration. The protection of Type 1 and 2 against Lightning electromagnetic Impulse (LEMP) and other high surge, shall be provided at the incoming of the power line at the stations, LC gates before the power equipment's as per the instructions of Engineer in-charge at site. Supply of surge protection with Potential free contacts shall be of approved make like OBO, DEHN, PHOENIX, LPT or better make. All other miscellaneous materials required for the work shall be supplied by the contractor. (as per Technical Specification enclosed)	Nos	2		0.00
4	031040	Supply and Provision of Special Earthing and Bonding System as per RDSO Spec.No.RDSO/SPN/197/2008 or latest. (Miscellaneous materials required for commissioning shall be supplied by the contractor. (Inspection by RDSO)	Nos.	3		0.00
5	031080	Supply of earth electrodes as per Drg no SG/CN/02/13 (RDSO/SPN/TC/75/2008)	Nos.	20		0.00
6	031090	Provision of earth electrodes as per Drg no SG/CN/02/13	Nos.	20		0.00
7	041310	Supply of Stackable type VRLA batteries 2V,300Ah - 1 cell as per RDSO Specifications IRS S: 93/96 with Amnd 1 or latest	Nos.	2		0.00
8	051160	Supply of Underground jelly filled 6 QUAD,0.9MM Dia as per spec IRS:TC 30-05 with amd 5 or latest	Metre	52000		0.00
9	051180	Supply of OFC cable 48 Fibre armoured as per RDSO Specification No. IRS:TC- 55/ 2006 Rev-1amendment. 3 or latest (Inspection by RDSO)	Metre	104000		0.00
10	051200	Supply of Polythene Insulated Polythene Sheathed armoured Jelly Filled Telephone Cable with Poly-AL Moisture Barrier, 20Pairs, 0.63 MM Conductor Diameter as per RDSO Specification No. IRS:TC- 41/97 with amendment 1 or latest	Metre	3000		0.00
11	051230	Supply of OFC Patch cord (FC-PC/SC- PC/LC PC to FC-PC/SC-PC/LC-PC so as to suit for switches and FMS supplied)	Metre	30		0.00
12	051250	supply of switch board cable, finolex/Deltron make or better 0.5mm, 20 pair conforming to IRS/TC/24-91	Mtrs	1000		0.00
13	051270	Supply of UTP Cable /CAT6/6A cable ETL or UL or CE3P certified panduit or Systimax or R&M or AMP or Molex or Krone Or D-Link Makes	Mtrs	1500		0.00
14	051300	Supply and fixing of 20 pair Krone module housed in MS Box Powder coated with Lock and Key and termination of cable (20 pair Krone MS Box, Kongu/ Teak wood planks, and all other miscellaneous materials including GI pipe for cable entry, PVC pipe etc required for the work shall be supplied by the contractor).(Inspection by consignee)	Nos	12		0.00

Sl. No.	SOR. No.	Description of work	Unit	Qty	Unit Rate (without GST)	Amount (without GST)
15	051310	Supply and fixing of 10 pair CT box indoor with finished wooden plank (as per RDSO spec. No TC/18/75) for termination of cables at station, LC Gates & Pump house etc. This includes entry of cable through 50mm GI pipe, fixing of 6 Quad/ PIJF cables/ switch board cables through suitable hard PVC pipe on the wall. 10 pair CT box, finished wood plank and all other miscellaneous materials including 50mm PVC pipe for cable entry shall be supplied by the contractor. Cables will be supplied by railways. (Inspection by Consignee)	Nos	12		0.00
16	051320	Supply and fixing of 20 pair CT box indoor with finished wooden plank (as per RDSO spec. No TC/18/75) for termination of cables at station, LC Gates & Pump house etc. This includes entry of cable through 50mm GI pipe, fixing of 6 Quad/ PIJF cables/ switch board cables through suitable hard PVC pipe on the wall 20 pair CT box, finished wood plank and all other miscellaneous materials including 50mm GI pipe and 50mm PVC pipe for cable entry shall be supplied by the contractor. cables will be supplied by railways. (Inspection by Consignee)	Nos	12		0.00
18	051350	Fixing of 32 way U-Link panels (Wrapping type)with U links and mountable on 19"rack. (Supply by PUNCOM)	Nos	20		0.00
19	051360	Supply of 10way Annunciator with Push button switches and having conference facility. Model No AM-10 similar to Epsilon, Telelinks or better (Inspection by Consignee).	Nos	2		0.00
20	051370	Supply and provision of normal joint using Thermo shrink jointing kit (RDSO specs No TC/77/2012 (Rev.3) with amendment No.1&2 or latest.& jointing kit to be inspected by RDSO) for 4/6 quad cablenormal joint. The work includes excavation of joint pit of size 1mX1.5mX1.5m and closing the same after completion of cable joint as per the instruction of Railway representative at site (Inspection by RDSO).	Nos	65		0.00
21	051380	Supply and provision of derivation joint complete for 6 Quad cables using thermoshrink jointing kit for LC's/stations (Inspection by RDSO).	Nos	55		0.00
22	051390	Supply and installation of 24 Fibre Joint enclosure for armoured optical fibre cable conforming to RDSO spec.RDSO/SPN/TC/68/2014 rev2.0 or latest (Inspection by Consignee)	Nos	10		0.00
23	051400	Supply and installation of 48 fibre Joint enclosure for armoured optical fibre cable conforming to RDSO spec.RDSO/SPN/TC/68/2014 rev2.1 or latest (Inspection by Consignee)	Nos	20		0.00
24	051410	Supply of RCC cable markers (Supply of RCC cable markers as per drawing No.CSTE/CN/OFC/1. The lettering on the cable marker shall be "SIG" / "TELE" / "OFC" as per the instructions of Railway representative at site.) as per drawing enclosed (Inspection by Consignee)	Nos.	1500		0.00
25	051430	Laying of STP/OFC/Power Cable/Switch board(10 pair/ 20 pair/50 pair) Cables in 1" PVC conduit/case capping and clamping on the wall/ Wall/Roof tops/ Shelters with suitable clamping and hose to be provided wherever bends/ curves (PVC conduit/ Case capping and other accessories to be supplied by the contractor)	Mtrs	2000		0.00
26	051440	Excavation of cable trench in all kinds of soil except hard rocky areas including clearing of roots of trees, rocks, bushes etc. to a depth of 1.0 Mtrs and to a width of 0.3 Mtrs. (Laying of cables is not included in this schedule)	Mtrs	104000		0.00
27	051450	Excavation of cable trench in all kinds of soil except hard rocky areas including clearing of roots of trees, rocks, bushes etc. to a depth of 0.5 Mtrs and to a width of 0.3 Mtrs. (Laying of cables is not included in this schedule.)	mtrs	6000		0.00

Sl. No.	SOR. No.	Description of work	Unit	Qty	Unit Rate (without GST)	Amount (without GST)
28	051500	Breaking of Platform concrete having 0.3 feet thickness - 0.5 feet thickness and to a width of 0.3 Mtr using cutter machine and removal of RCC slabs on the Passenger Platform, trenching to a depth of 0.6m to accommodate the additional cables, replacing the slabs removed after the cables are laid and replastering with cement mortar, refilling the trench by ramming and consolidating it as per the instructions of Railway Representatives at site. (Laying of cables is not included in this schedule).	Mtrs.	300		0.00
29	051540	Provision of GI pipes (50/100mm dia) for cable laying with offset at both ends and with couplings over RCC bridges, drainage, culverts, and girder bridges. For RCC bridges, drainage, and culverts, the pipes shall be mounted on concrete masonry supports of size 300mm x 300mm x 300mm at an interval of 2 meters. For girder bridges, the pipes shall be fixed on suitable MS clamps at an interval of 2 meters. The ends of the pipes shall be closed with brick masonry abutments to ensure that no cable is exposed. The work shall be carried out as per the instructions of the Railway representative at the site. (Supply of GI pipes with couplings and laying of cables is not included in this schedule). Stone jelly (20/25mm size), bricks, sand, cement, MS angles, flats, bolts, nuts for manufacturing and fixing clamps, bricks, M sand, cement, and other miscellaneous materials for the work shall be supplied by the contractor.	Mtrs	1500		0.00
30	051590	Laying of signaling/power/ telecommunication cables as per cable plan in cable trenches, masonry ducts, RCC Pipes, DWC pipes, GI Pipes etc. (Supply of cables is not included in this schedule).	Mtrs	60000		0.00
31	051630	Refilling of cable trench 1m depth by 0.3m width throughout, with earth after laying of cables, and consolidating the trench by ramming and levelling.	Mtrs	104000		0.00
32	051640	Refilling of cable trench throughout with earth and consolidating the trench of depth 0.5 Mtrs and to a width of 0.3 Mtrs	mtrs	6000		0.00
33	051680	Digging of pit to a depth of 800mm of size 300mmX300mm, casting of concrete foundation of size 300mmX300mmX300mm and Placing of RCC cable markers on top of the foundation and refilling the pit and consolidating it by ramming. The cable markers shall be provided at an interval of 20 Mtrs. within station limits and 50 Mtrs. outside station limits throughout the cable route, diversions and also at every track/road crossing.	Nos.	1500		0.00
34	051720	Road crossing/ Track Crossing through Horizontal Drilling at approximately depth of 1.5 to 2m below the formation level of the earth including insertion of HDPE pipe/DWC pipe along with couplers, drawl of cable (or) direct drawl of cables etc. (Note: The pilot used for HDD should be of sufficient size to suit insertion of HDPE /DWC pipe of size 120mm (outer dia.) or direct drawl of three cables Signalling/ Power/Quad/OFC) or three nos.of 40mm dia HDPE pipe or any other combination as directed by the site engineer) (Supply of HDPE pipe is not covered in this schedule)	Mtrs	1000		0.00
35	051730	Cutting/Breaking of RCC platform or concrete to a width of 0.5mtrs 0.3 mtrs using cutter machine without damaging the platform. And plastering the removed slabs after laying of cables with proper finishing. (required material should be supplied by the contractor).	Mtrs	400		0.00

Sl. No.	SOR. No.	Description of work	Unit	Qty	Unit Rate (without GST)	Amount (without GST)
36	051740	Blowing/Drawing of OFC cable/Power cable/Signalling cable inside permanently solid lubricated HDPE Pipe already laid. This work includes necessary duct integrity test for solid lubricated HDPE pipe. (This includes Transportation of materials from nominated stores to site)	Mtrs	104000		0.00
37	091010	Supply of Handheld True RMS Multi Meter, as per Technical specification (Inspection by Consignee)	Nos	1		0.00
38	091020	Supply of Handheld True RMS clamp Meter, as per Technical specification (Inspection by Consignee)	Nos	1		0.00
39	091040	Supply of OTDR (mini) with standard accessories for 1310/1550nm with all standard accessories as per TEC specification GR/OTD-02/02 Jan 2005 or latest, (this item should have valid TEC approval certificate) as per Technical specification (Inspection by Consignee)	Nos	1		0.00
40	091060	Supply of Digital Insulation tester (Megger) 50V-500V/1000 mega ohm battery operated with all complete accessories, as per Technical specification	Nos	1		0.00
41	091070	Supply of Cable Route Tracer as per Technical specification (Inspection by Consignee)	Nos	1		0.00
42	091080	Supply of Portable Cable Fault Locator as per Technical specification (Inspection by Consignee)	Nos	1		0.00
43	091110	Supply of Digital Earth clamp Tester as per Technical specification (Inspection by Consignee)	Nos	1		0.00
44	091140	Supply of OFC Power Meters, as per Technical specification (Inspection by Consignee)	Nos	1		0.00
45	091160	Supply of Transmission measuring set (TMS) with accessories as per IRS Spec No. IRS:TC43-87 or latest, as per Technical specification (Inspection by Consignee)	Nos	1		0.00
46	091200	Supply of Fiber Visual Fault Locator with accessories, as per Technical specification (Inspection by Consignee)	Nos	1		0.00
47	091230	Supply of Rodometer as per Technical specification (Inspection by Consignee)	Nos	1		0.00
48	101010	Supply of DWC pipe 103.5 mm inner dia 120mm outer dia (Inspection by Rites)	Mtrs	2000		0.00
49	101020	Supply of GI pipe-50mm dia, 3.65 mm thick	Mtrs	300		0.00
50	101030	Supply of GI pipe-100mm dia, 4.5 mm thick (Inspection by Rites)	Mtrs	1200		0.00
51	101050	Supply of High-Density Polyethylene Pipes (HDPE) of 110 mm Outer Dia, 10 mm Wall Thickness, along with one coupler for every 6 Meters as per specification No. IS 4984:2016 with latest amendments and Material Grade:PE 80 (Inspection by Rites)	mtrs	2000		0.00
52	101070	Supply of Electronic Cable Route Marker 3M make or similar, Model: RFID (1421) and installation, cable detection of capacity to detect the cable upto 5 feet depth. (Inspection by Rites)	Nos	1000		0.00
53	101080	Supply of HDPE Pipe 40mm (outer dia)/33 mm (inner dia) with couplers (Inspection by Rites)	Mtrs	104000		0.00
54	1011100	Supply and Installation of Wall/Rack mountable 24 Fibre management system (FMS) conforming to RDSO/SPN/TC- 37/2000(rev-3 amdt-1 or latest similar to COMMScope make or better, suitable for splicing and front patching 24F cable with all accessories and terminating the optical fibre cable with splicing and front patching in FMS in the Location Box. This includes Supply and Provision of 4 nos of Patch cords of required length (All other materials required for splicing are to be supplied by contractor) (Inspection by consignee)	Nos	8		0.00

Sl. No.	SOR. No.	Description of work	Unit	Qty	Unit Rate (without GST)	Amount (without GST)
55	101110	Supply and Installation of Wall/Rack mountable 48 Fibre management system (FMS) conforming to RDSO/SPN/TC- 37/2000(rev-3 amdt-1 or latest similar to COMMScope make or better, suitable for splicing and front patching 48F cable with all accessories and terminating the optical fibre cable with splicing and front patching in FMS in the Location Box. This includes Supply and Provision of Wooden Plank, L clamps and 4nos of Patch cords of required length (All other materials required for splicing are to be supplied by contractor) (Inspection by consignee)	Nos	10		0.00
56	101130	Supply and Installation of 19", 6U rack of size 600mm x 600mm with complete accessories.(Inspection by consignee)	Nos	10		0.00
57	101150	Supply and Installation of covered 19inch Racks of size 1950mm x600mm x 600mm or higher (Make: HCL/ Vero/President/ Rittal/Puncom or better) complete with all fittings including DC Fans (24V/48V)- 2nos,separator sheet/ plate to keep testing equipment- 1no and AC power distribution panel (Horizontal fitting) with power sockets and fuse protection (min 6 nos of 230V –15/5A combined and other accessories (Inspection by consignee)	Nos	2		0.00
58	101380	Supply of 4 wire DTMF based way station equipment complete as per RDSO specification No.IRS.TC- 60/93 and 4 wire control telephone with audio visual indication and reset button fitted on telephone conforming to specification No.IRS-TC- 38/97 or latest. (Inspection by consignee)	Set	10		0.00
59	101410	Supply of magneto telephone handle type and supply of Ni-cad power pack 4V- 2.2AH with charger to work on 110VAC (Inspection by consignee)	Nos	20		0.00
60	111630	Installation of DTMF equipment	Set	10		0.00
61	111730	Fixing of Annunciator at SM's Room as required by Railways, wiring it as per circuit diagram and painting of particulars. The work includes connecting 1 No. of magneto telephone with Ni-cad power pack 4V-2.2AH with charger to work on 110VAC and connecting the annunciator to the different telephone circuits. The particulars of the circuits and the ringing codes shall be painted on the top of the annunciator box. (Supply of annunciator is not included in this schedule). [Magneto telephone handle type with Nicad power pack 4V-2.2AH with charger to work on 110VAC, wire PVC 16/0.2mm copper, paint and all other miscellaneous materials required for the work shall be supplied by the Contractor].	Nos	2		0.00
62	111750	Installation of magneto telephones with Nicad pack	Nos	20		0.00
63	111920	Provision of HDPE Pipe of dia 40/33 mm	Mtrs	104000		0.00
64	111930	Laying of DWC/Split DWC Pipes for Track Crossing/ Road Cutting/ Trenches	Mtrs	3000		0.00
65	112210	Survey of Cable route, preparation of Cable route plan	Km	104		0.00
66	112250	Protection adjustments and re-instating of S&T gears by deputation of Helpers/Unskilled labour for executing additional S&T portion of the works. The work can involve fixing, releasing,dismantling, replacement, excavation,clearing of vegetation, loading and unloading of material and assisting skilled persons etc as per instruction of Railway representative.	Man days	100		0.00
67	112280	Transportation of Signalling materials more than 100km	per ton. Km.	400		0.00
68	112290	Engaging mechanical excavators like JCB or other machineries for regarding and levelling the formation, dismantling any infringing structures, clearing and removing debris etc., with all leads and lifts etc., complete and as per the instruction of Railway representative at site.	per hour	200		0.00
	TOTAL				Sub-total-A1	0.00

Sl. No.	SOR. No.	Description of work	Unit	Qty	Unit Rate (without GST)	Amount (without GST)
ANNEXURE - A2						
69	NS2001	Design , Fabricate & Supply of rack mountable modular intelligent service IP MPLS aggregator router with minimum switching speed of 160Gbps , unit to supports L2VPN ,L3 VPN,MPLS- TE , unit to be capable to support 8x10Gbe or more, 32x1GbE or more , 64xE1 ,12xSTM 1 ports or 2x8 port WDM support multiple routing functions such as OSPF V3, ISIS, BGP & MP-BGP and support LDP and RSVP – TE to dynamically establish MPLS tunnels & PW service. It should support dual main control card redundancy design supporting 1:1 hot back up.The router should have console and SNMP interface,Fanmodule,control card module and Redundant 48V DC power supply modules including connection cable and fixing accessories etc.The Router should have required interface slots to accommodate 4x10Gbe , 8x1Gbe , 16 E1s and 4xSTM1 or 2x8 interface modules. The router should support all the software features, environmental standards and security features as mentioned in RDSO technical document no STT/TAN/IP-MPLS/2020 Ver1.0 or latest for the LER Router.(Inspection by RDSO)	Set	2		0.00
70	NS2002	Supply of 4 port x10G SFP module card suitable for the IP MPLS router in NS1.(Inspection by Consignee)	Nos	2		0.00
71	NS2003	Supply of 8 port x 1GbE(4 nos of optical ports and 4 nos. of electrical ports) module card suitable for the IP-MPLS router in NS1.(Inspection by Consignee)	Nos	2		0.00
72	NS2004	Supply of 16 port channelised E1 interface card suitable for the IP-MPLS router in NS1.(Inspection by Consignee)	Nos	2		0.00
73	NS2005	Supply of SFPs for 1Gbe (optical)/RJ 45ports as per the site requirement.(Inspection by Consignee)	Nos	36		0.00
74	NS2006	Design , Fabrication & Supply of rack mountable modular intelligent service IP MPLS aggregator router with minimum switching speed of 160 Gbps, unit to support L2VPN ,L3 VPN, MPLS-TE , unit to be capable to support 8x10Gbe or more , 48x1GbE or more , 64xE1 or more ,12xSTM 1 ports or 2x8 port WDM support multiple routing functions such as OSPF, ISIS, BGP & MP-BGP and support LDP and RSVP – TE to dynamically establish MPLS tunnels & PW service. It should support dual main control card redundancy design supporting 1:1 hot back up. The router should have console and SNMP interface, Fan Module , Redundant control card modules and Redundant 48V DC power supply modules including connection cable and fixing accessories etc. The Router should have required interface slots to accommodate 8x10Gbps interface modules. The router should support all the software features, environmental standards and security features as mentioned in RDSO technical document no STT/TAN/IP-MPLS/2020 Ver1.0 or latest for the LSR Router.(Inspection by RDSO)	Set	2		0.00
75	NS2007	Supply of 8x10Gbps SFP module card suitable for the IP-MPLS in NS6. (Inspection by Consignee)	Nos	2		0.00
76	NS2008	Supply of SFP + 10G (40 Km) SMF,1550nm for 40KM transmission working on single or dual fibre as per site requirement.(Inspection by Consignee)	Set	6		0.00
77	NS2009	Supply of Channelised STM1/4(4 Port STM-1 or one port STM-4) card or 2 Nos of 4/8 port X 10Gbps WDM interface module card suitable for the above in NS1 & NS 6 along with 2nos of SFP's(1.2Gbps or 2.5Gbps) as per the site requirement.(Inspection by Consignee)	Nos.	2		0.00

Sl. No.	SOR. No.	Description of work	Unit	Qty	Unit Rate (without GST)	Amount (without GST)
79	NS2011	Installation, wiring and testing and commissioning of PDMUX, surge and lightning protection arrangements with all accessories in already provided rack. This includes connecting primary MUX equipment with all interface cards to the 48V bus including supply of wires and connectors, terminations of VF interface circuits to the Krone type MDF at both mux cable ends including taking cable over runway or a wall and installation and wiring of VF Transformer for each circuits and U link panel in the rack, more then one primary Mux etc may have to be installed at station. (Surge and lightning protection , VF transformer 1120 : 600 Ohms, U link panel, switchboards cables and all other miscellaneous materials including PVC conduit pipe/casing and capping etc shall be supplied by the contractor).	Nos.	2		0.00
82	NS2014	Installation of IP MPLS Router and switches, with power distribution panel and all accessories in the Rack (19" 42 U) , DDF, Aluminum runway ladder, patchcord etc and their testing and commissioning. This includes termination of all E1's on DDF, connection of pigtails, optical patch cords and 48 V bus to the IPMPLS equipment including supply of wires and connectors. It also includes proper mounting of rack, provision of Aluminum runway ladder, casing and capping and conduit pipe as per requirement at each station, other materials from stores supplied by Railways for installation. (Conduit pipe/ casing and capping, aluminium runway ladder and all other miscellaneous materials should be supplied by the contractor).	Nos	2		0.00
83	NS2015	Installation.wiring and testing of battery sets and battery chargers for optic fibre circuits. This includes installation of AC and DC power supply distribution board with MCB's of suitable rating, wiring of external alarm contacts, Fixing arrangements for battery and charger in the equipment room with 25 sq.mm Multistrand single core Copper cable PVC insulated from Battery charger to Battery with suitable copper lugs crimped/soldered to it , 16 sq.mm Multistrand single core Copper cable PVC insulated from battery charger to power distribution panel in the rack with suitable copper lugs crimped/soldered to it . Connection from Battery Charger body and battery+ve terminal to Earth terminal by 16 Sq.mm Multistrand single core Copper cable PVC insulated seperately with suitable copper lugs crimped/soldered to it and Extension of AC 230V power supply wiring through PVC pipe with 6 sqmm cu.wire for phase & neutral and 1 sqmm cu .wire for earth to the 19" rack (Copper cables , 20A metal clad with MCB for AC supply to fix in the wall , conduits and other miscellaneous materials required for the work should be supplied by the contractor. This work also includes transportation of materials from stores/supplied by Railways for installation.	Nos	2		0.00
84	NS2016	Integration, Testing and Final commissioning of equipments at each station for all the equipments confirming with the approved system design including end to end testing for realization of optical fibresystem. This also includes supply of all as made documents for the entire section (six copies) plus technical, maintenace and installation manuals for IPMPLS , NMS, Charger and Power Supply unit.	Job	2		0.00

Sl. No.	SOR. No.	Description of work	Unit	Qty	Unit Rate (without GST)	Amount (without GST)
85	NS2017	Training of Railway staff at the factory premises of manufacturer of IP-MPLS equipment (or) at a reputed training institution as approved by railway executive incharge. This includes boarding and lodging charges. (Travel expenses will be borne by the railways).	Man-week	2		0.00
86	NS2018	Supply of IDC punching tool of Krone make or similar. (Inspection by consignee)	Nos	6		0.00
87	NS2019	Supply, Installation, Testing and Commissioning of 24 port (fully loaded with 12 optical and 12 electrical SFP's) manageable Layer 2 switch as per spec. No: RDSO/SPN/TC/83/2020 Ver 2.0 or latest. (Inspection by consignee)	Nos	2		0.00
					Sub-total-A2	0.00
ANNEXURE-A3						
88	NS 3001	Supply, fixing of shutter and lable type dual port face plate fitted with female keystone jacks of RJ45 along with surface mount PVC back box and termination of telecom cables for data and voice. Dlink or DAX or Krone or Panduit makes (Inspection by Consignee)	Nos	25		0.00
89	NS 3002	Excavation of OFC cable joint pit and provision of RCC joint/ loop chambers of 1.2m dia, 60cm height and 50mm thickness with 2 pieces top and bottom cover with holes for drainages (reinforcement as per DRG No. OFC/2009/17). This includes filling up of sand complete in the joint chamber after cable laying, back filling and consolidation of soil around the chamber, disposal of excess soil as per plan or as advised by railway engineer at site as well as transportation of joint chamber to site at every KM in the section.	Nos	20		0.00
90	NS 3003	Clamping of OFC/ Telecom cable in the station building using PVC spiral hose (green) of suitable dia. (PVC pipe and clamps and other miscellaneous materials will be supplied by the contractor)	Mtrs	200		0.00
91	NS 3004	Supply and installation of GPS double faced platform clock with GPS synchronisation as per RDSO spec RDSO/SPN/TC/62/2008 Rev 3.0 or latest. (Inspection by RDSO)	Nos.	10		0.00
92	NS 3005	Supply of high power public address amplifier 500 Watt, 230 VAC operation similar to model Ahuja SSA-5000EM or better (Inspection by Consignee).	Nos.	2		0.00
93	NS 3006	Supply and laying of data communication cable screened 3/0.7 annealed tinned copper conductor for providing public addresses systems. The cable shall be laid in PVC pipe / flexible hose and clamp as per the instruction of engineer incharge at site. Data cable, PVC pipe flexible hose, clamps, ties and all other miscellaneous material required for the work shall be supplied by the contractor. (Inspection by Consignee)	Mtrs	4000		0.00
94	NS 3007	Supply and Provision 25W Horn Speaker similar to Ahuja make in open areas for public address system of ABS plastic with 100 v line matching transformer with multiple taps/ impedances easily selectable by rotating switch. It should meet EN- 60065 standard. This works includes supply, fabrication and erecting of pole, angles, fastenings and rain hood as per the instruction of railway representative at site. (Inspection by Consignee)	Nos.	50		0.00
95	NS 3008	Supply of Microphone with Stand, make AHUJA, Model AUD - 99MS or ACM66 or similar or higher version. (Inspection by Consignee)	Nos.	4		0.00

Sl. No.	SOR. No.	Description of work	Unit	Qty	Unit Rate (without GST)	Amount (without GST)
96	NS 3009	Supply and Fabrication of Emergency Socket boxes with sockets 6 pin flat as per RDSO drawing no. TCA 120060(adv and socket spec no. IRS/TC/42/97 with latest amendment and drawing no. 15220. Fixing of emergency socket on Rail post and burying the post after entry of cable to a depth of 1M as per drawing No. OFC/2002/14 Alt - 1, and also wiring as per instructions of the Railway engineer. This also includes painting of Emergency socket post with alternate yellow and black stripes of 6" width, painting of socket boxes with Grey colour paint. The EMC post should be concreted (a size of 450 mm x 450 mm x 300 mm) as per drawing no. OFC/2002/14 Alt - 1. (Rail post of different lengths for fabrication and fixing the EMC sockets will be supplied by Railways and has to be transported by the contractor from depot to the site. All fixing bolts and nuts, paint, cement, sand and miscellaneous materials required for the work shall be supplied by the contractor).(Inspection by Consignee)	Nos.	55		0.00
97	NS 3010	Supply of RJ-45 jacks suitable for CAT-6 cable(Each box 100 nos)(Inspection by Consignee)	Nos	2		0.00
98	NS 3011	Supply of suitable enclosure with internal wiring arrangement for VHF AC mains as per the site requirement. (Inspection by Consignee)	Nos	2		0.00
99	NS 3012	Installation, wiring, testing and commissioning of the entire network and releasing of the existing VHF sets and accessories. This schedule includes supply of RG213 RF coaxial cable of minimum 30 meters length and all other miscellaneous materials required for the work shall be supplied by the contractor.	Nos	2		0.00
100	NS 3013	Supply of sealed maintenance free battery of 12V 75AH as per specification.(Inspection by consignee)	Nos	2		0.00
101	NS 3014	Supply and programming of synthesized trans receiver base station of programmable 25 W VHF set similar to Motorola model XiRM 3688 with SFS lite - fiveyear Motorola OEM warranty,superior audio in class, crispand clearer voice with greater coverage in the band of 136-174 Mhz with as per RDSOMIL standards 810 C,D,E,F&G. Analog/ Digital Feature.Voice Communications, Voice Announcement. AlphaNumeric display. DMR standard complaint. IP 54rating on Water & Dust intrusion Receiver sensitivityof 0.3 mV. Audio of 4 Watts(License for 25 W basestations and handsets shall be processed by Railway)(Inspection by Consignee)	Nos	2		0.00
102	NS 3015	Installation, testing and commissioning of VHF sets entire network which works including internal AC wiring,RF cable routing through PVC conduit inside SM room,releasing of existing VHF set etc.	Nos	2		0.00
103	NS 3016	Liaising charges to facilitate obtaining license from WPC department, fill-up the correct forms, the exact parameters on coverage,wattage, location, submission of forms in Online, seek appointment with WPC officerat Delhi. The cost is only for liaising, actual charges for Royalty and License fees shall be paid by the end User to WPC directly as mentioned in the Acceptance In principle letter.	LS	2		0.00
104	NS 3017	Supply of VF transformer 2T cylindrical type 470:1120 ohms impedance conforming to IRS -TC 76/2000 or latest. (Inspection by Consignee)	Nos	55		0.00

Sl. No.	SOR. No.	Description of work	Unit	Qty	Unit Rate (without GST)	Amount (without GST)
105	NS 3018	Supply and provision of 1/2"(or) 1" PVC pipe/ channel and fixing on the wall and wiring of CAT6 UTP Cable/ telephone cable (all accessories for the work shall be supplied by the contractor).(Inspection by Consignee)	Mtrs.	1000		0.00
106	NS 3019	Supply and Installation of 5KVA online UPS APC /NUMERIC/ TATALIBERT with one hour backup.(Inspection by Consignee)	Nos.	1		0.00
107	NS 3020	Supply of Local craft terminal with Intel core i7 processor,8GB RAM, 1TB HDD similar to HP make or better with all accessories, preloaded with Windows operating system compatible to load & operate the NMS for SDH &PD MUX equipment. Item to be supplied with minimum 3 years warranty from OEM.(Inspection by Consignee)	Nos.	1		0.00
108	NS 3021	Supply and installation VHF maintenance free omni directional weather proof antenna of 3dbi gain antenna on GI pipe 40mm dia, 6 mtrs. length, 4mm thick with blue mark along with suitable wall mounts brackets, stay wires, masonry concrete supports at bottom GI pipe to fix antenna and cable of the roof top of station building along with 30 mtrs RG217, RF coaxial cable with male/female connectors, 12V-15A DC power supply unit having Float cum boost charger with indicators for battery as per the instruction of railway representative at site.(Inspection by Consignee).	Nos.	2		0.00
109	NS 3022	Supply and Installation of wireless router similar to linksys E2500 with suitable clamps and all accessories to be supplied by the contractor (Consignee inspection)	Nos	4		0.00
110	NS 3023	Termination of 50p Krone type connectors and terminating of pair cable with Teak wood plank as directed by engineer at site.	Nos.	6		0.00
111	NS 3024	Supply of column speaker 15 watts similar to model no. SCM 15 of ahuja make for public address system with 100 volts line matching transformer with multiple taps/impedances easily selectable by rotating switch. It should meet EN-60065 standard.(Inspection by Consignee)	Nos.	6		0.00
112	NS 3025	Supply and erection of GI pipes 40 mm dia, 6mtrs length, 4 mm thick with blue mark with suitable wall mounts and stay wires to fix the antenna and cable as per the instructions of railway representative at site.(Inspection by Consignee)	Nos	2		0.00
113	NS 3026	Supply, Installation, Testing and Commissioning of Digital Clock with GPS Synchronization Single side at SM Room as per RDSO Specification No.RDSO SPN TC 62/2008 Rev.3.0 or latest (Necessary materials for installation should be supplied by contractor)(Inspection by Consignee)	Nos	2		0.00
114	NS 3027	Supply, Installation , testing and commissioning of Media Convertor fibre to Ethernet to support distance range of 20 Km over single mode Fibre of D- Link / MROTEK make..(Inspection by Consignee)	Pair	8		0.00
115	NS 3028	Supply of LAN extender of lan extender along with 230v AC adapter conforming to RDSO/SPN/TC/82/2013 Rev1.0 or latest similar to Team make vayu (Inspection by Consignee).	pair	8		0.00
116	NS 3029	Supply of fiber(OFC) to E1 Converter of D- Link / MROTEK or Team engg make(Inspection by Consignee).	pair	4		0.00
117	NS 3030	Supply and Installation of computer table and Revolving chair of Godrej/Feather lite make (Inspection by Consignee)	Nos	2		0.00

Sl. No.	SOR. No.	Description of work	Unit	Qty	Unit Rate (without GST)	Amount (without GST)
118	NS 3031	Supply of 7 feet length of factory crimped moulded boot type UTP CAT-6/6A Patch cords. Panduit or systimax or R&M or AMP or MOLEX or Krone makes (Inspection by Consignee)	Nos.	30		0.00
					Sub-total-A3	0.00
Annexure-A4						
119	NS4001	Supply of Central Data Controller Unit (CDC) along with CDS conforming to system requirement as per RDSO Spec.RDSO/SPN/TC/108/2019 Ver.0.0 with Amndt 1 or latest for displaying Train arrival/ departure indication, coach guidance and PC based announcement system and for showing True colour Commercial Advertisements and video displays. The control console shall have main and standby CPU to work in standby mode, one Nos. of 1 KVA UPS with 1 hour back up (With minimum 1600 VAh battery) , one LCD monitor (17 inch), CCU Rack, KVM Switch, CDS (Layer 3, 16 Port Switch) (Minimum 8 Optical , Minimum 8 Copper ports) of make shall be of industrial grade & reputed make like HP, CISCO, Juniper, Brocade, IBM, Alcatel, Lucent, Avaya, Netgear, D-link, Moxa, Phoenix Contact etc and other accessories, housed in a standard size cabinet along with driving Software for integrated passenger information system as per RDSO Specification No. RDSO/SPN/TC/108/2019 Ver.0.0 with Amndt 1 or latest. This includes supply and installation of software for Announcement system with necessary interface and announcement recording (Hindi/English/Local language) (fresh studio copy of voice files.) as per RDSO Specification No.RDSO/SPN/TC/108/2019 Ver.0.0 with Amndt 1 or latest (The same to be interfaced with existing audio and installed at the station.). the software should support all types of Display/announcement by merely adding necessary hardware in future. The software should run the train	Nos.	2		0.00
120	NS4002	Installation, Testing and Commissioning of Central Data Controller (CDC) along with CDS set as per RDSO specification no.RDSO/SPN/TC/108/2019 Ver.0.0 with Amdt 1 or latest as supplied. (as material supplied under NS78) (This includes Transportation of materials from Nominated stores to site).	Nos.	2		0.00
121	NS4003	Supply of Platform display controller (PDC) as per RDSO Specification No.RDSO/SPN/TC/108/2019, Ver-1.0 Amdt-1 or latest. The PDC should drive 55 inch TV display, ,CGDB ,At a glance board, single line train indication boards etc in the respective platforms. (Inspection by RDSO).	Nos.	2		0.00
122	NS4004	Installation, Testing and Commissioning of Platform display controller (PDC) as per RDSO Specification No.RDSO/SPN/TC /108/2019, Ver-1.0 Amdt-1 or latest.	Nos.	2		0.00
123	NS4005	Supply of Train information At a Glance Display Board (Double faced) with all accessories as per RDSO Specification No. RDSO/SPN/TC/108/2019 or latest . (Inspection by RDSO).	Nos.	4		0.00
124	NS4006	Installation, Testing and Commissioning of Train information At a Glance Display Board (Double faced) with all accessories as per RDSO Specification No. RDSO/SPN/TC/108/2019 or latest.	Nos.	4		0.00
125	NS4007	Supply of Double Faced Coach Guidance Display Boards as per RDSO Specification No. RDSO/SPN/TC/108/2019 or latest.(Inspection by RDSO).	Nos.	120		0.00

Sl. No.	SOR. No.	Description of work	Unit	Qty	Unit Rate (without GST)	Amount (without GST)
126	NS4008	Installation, Testing and Commissioning of Double Faced Coach guidance display board and Daisy chain junction boxes as per RDSO Specification No. RDSO/SPN/TC/108/2019 or latest in Shelter /Platform roof with suitable clamping arrangement (All mounting arrangements including splicing of fibres with OFC Patch cords, termination of STP cable with connectors and fixings, clamps, etc whatever required for installation should be supplied by contractor).	Nos.	60		0.00
127	NS4009	Installation, Testing and Commissioning of Double Faced Coach Guidance Display Boards and Daisy chain junction boxes as per RDSO Spec No.RDSO/SPN/TC/108/2019 or latest Open area including supply and installaion of GI pole (50mm Dia, 3.65mm thick with suitable concreating on top (1 ft x 1 ft) and bottom below platfrom/Ground level (3ftx1ft), rain hood and other required accessories) (pole drawing to be submitted before installation for approval) All mounting arrangements including splicing of fibres with OFC Patch cords , termination of STP cable with connectors and fixings, clamps, etc whatever required for installation should be supplied by contractor).	Nos.	60		0.00
128	NS4010	Supply of Daisy chain junction box for running on OFC and Ethernet copper as per RDSO Spec.RDSO/SPN/TC/108/ 2019 Ver.0.0 with Amndt 1 or latest (Inspection by RDSO).	Nos.	120		0.00
129	NS4011	Supply, Installation, Testing and commissioning of Full HD Fixed bullet type IP colour camera along with suitable housing, mounting arrangements and all accessories required for fixing as per technical Specification.(Inspection by consignee)	Nos.	36		0.00
130	NS4012	Supply of Network Video Recorder (Universal, 32 Channel to connect up to 32 network IP Camers), 4 SATA to connect HDDs as per specification enclosed (Inspection by consignee)	Nos.	3		0.00
131	NS4013	Installation, testing and commissioning of 32 channel NVR configuration charges (inspection by consignee)	Nos.	3		0.00
132	NS4014	Supply , Installation and configuring of Video surveillance Internal hard disk drive SATA III 6TB capacity, 5300 RPM, 64MB Cache should be of reputed Make such as Western Digital, Samsung or better(As per specification enclosed)(Inspection by Consignee)	Nos.	3		0.00
133	NS4015	Supply and provision of 55inch TV LED UHD smart TV of reputed make	Nos.	3		0.00
134	NS4016	Supply of Area Work Lighting System 72 Watt Rechargeable use in Signal &Tel- Communication purpose during NonInterlocking Period. Similar to MAKE:RAILTRONIC MODEL : EAW-60SMPSABS body, SMPS Based Area WorkEmergency Lighting System detachableType for the purpose of Emergency/Accident/Non-Interlocking Work andART. One Meter height Telescopic PoleFolding type. Light weight, Easy tocarry, Waterproof, Dustproof,Corrosion-resistant can be packed inshoulder bag for easy carrying . Weight9 Kg including SMF rechargeable LeadAcid battery of 12 V 17 Ah. "4Modes oflighting. Spread Light 360 deg. androtatable up and down.	Nos.	2		0.00

Sl. No.	SOR. No.	Description of work	Unit	Qty	Unit Rate (without GST)	Amount (without GST)
135	NS4017	Supply of voice logging LC gate telephone system as per RDSO Spec. No. RDSO/SPN/TC/51/2011 or latest. One set consist of (a) Master telephone - 1No. (b) LC gate telephone - 6Nos. (c) Power supply unit - 1No. with maintenance free battery as per RDSO spec. No. RDSO/SPN/TC/51/2011 or latest. Inspection by consignee	Set	6		0.00
		Total Annexure A4			Sub-total-A4	0.00
					Sub-tot Ann-1	0.00
					Sub-tot Ann-2	0.00
					Sub-tot Ann-3	0.00
					Sub-tot Ann-4	0.00
					TOTAL	0
					GST @18%	0
					GRAND TOTAL	0.00

Note:-
a) Schedule item no. 17,78,80,81 from Railway Schedule to be supplied by PUNCOM.
b) Sch item no. 18 from Railway Schedule to be supplied by PUNCOM, but Fixing in contractors account, pl quote fixing rate only in above schedule.

(Sign & stamp)
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