

Construction of New Air traffic Control Tower (ATCT), Fire Station and Allied Facilities at Skardu International Airport, Skardu

Bill of Quantities

Bill No. 8 - ATC & CNS Equipments

Item No	Description	Quantity	Unit	Rate (USD)	Rate (Rs)	Amount (Rs)
(1)	(2)	(3)	(4)	(5)	(6)	(7) = [(5)*280]+(6)]*(3)
T-1	Provision, installation, Testing & Commissioning of VHF/AM Air Band Multimode Transceiver, frequency range 118–137 MHz, capable of AM voice, ACARS (AM-MSK), and VDL Mode 2 (D8PSK) with lifetime license Features: dual Ethernet ports for VoIP (ED-137 compliant), SNMP remote control, front-panel display, programmable output power up to 50 W, main/standby ready. Including all necessary accessories (power supply, antenna change over relay , RF lightning protector standard 19 inch rack mounting hardware , etc.). Complete in all respect. REF: Technical Specifications Section - 0740	14.00	Job	[Up to 80% Allowed]		
T-2	Provision, installation, Testing & Commissioning of UHF/AM Air Band Digital Transceiver, frequency range 225–400 MHz, output power 50W, with Ethernet connectivity for VoIP (ED-137), SNMP remote control, front-panel display, main/standby ready. Includes all accessories for standard 19 inch rack. Complete in all respect as per Technical Specification CNS-01. REF: Technical Specifications Section - 0740	3.00	Job	[Up to 80% Allowed]		
T-3	Provision, installation, Testing & Commissioning of VHF (AM) Band Pass Dual Cavity Combiner, 2-channel, for combining four VHF transceivers to a single antenna, frequency range 118–137 MHz, 4HU rack-mountable, with front panel. Complete in all respect. REF: Technical Specifications Section - 0740	6.00	Job	[Up to 80% Allowed]		
T-4	Provision, installation, Testing & Commissioning of UHF Dual Cavity Bandpass Filter/Combiner, frequency range 225–400 MHz, 4HU rack-mountable, Complete in all respect. REF: Technical Specifications Section - 0740	2.00	Job	[Up to 80% Allowed]		
T-5	Provision, installation, Testing & Commissioning of VHF Omnidirectional Antenna, dipole, frequency range 118–137 MHz, with appropriate RF connector, suitable for aviation ground station use. Complete in all respect. REF: Technical Specifications Section - 0740	8.00	Job	[Up to 80% Allowed]		
T-6	Provision, installation, Testing & Commissioning of UHF Omnidirectional Antenna, dipole type, frequency range 225–400 MHz, with appropriate RF connector, suitable for aviation ground station use complete in all respect. REF: Technical Specifications Section - 0740	3.00	Job	[Up to 80% Allowed]		
T-7	Provision, installation, Testing & Commissioning of VHF AM 10 watts Vehicle Mounted TX/RX frequency range 118–137 MHz, capable of AM voice 12V DC and (adaptable for vehicles), VoIP complete in all respect. REF: Technical Specifications Section - 0740	5.00	Job	[Up to 80% Allowed]		
T-8	Provision, installation, Testing & Commissioning of VHF AM HANDHELD Walkie Talkie Frequency Range 118 – 137 MHz (aeronautical band) BatteryBuilt in long life rechargeable battery pack (Li ion) REF: Technical Specifications Section - 0740	6.00	Job	[Up to 80% Allowed]		

T-9	Provision, installation, Testing & Commissioning of VHF FM HANDHELD DIGITAL WALKIE TALKIE Frequency Range 146 – 174 MHz (VHF FM) Output Power ≥5 W (adjustable high/low) Battery Built in long life rechargeable battery pack (Li ion) REF: Technical Specifications Section - 0740	10.00	Job	[Up to 80% Allowed]		
T-10	Provision, installation, Testing & Commissioning of HF Transceiver, output power 1 kW, with broadband antenna system covering HF aviation bands, suitable for long-range communication. Complete in all respect. REF: Technical Specifications Section - 0740	2.00	Job	[Up to 80% Allowed]		
T-11	Provision, installation, Testing & Commissioning of HF Transceiver 125 watts , covering HF aviation bands, with broad antenna, for monitoring and replacement in case of main transceiver failure . Complete in all respect. REF: Technical Specifications Section - 0740	3.00	Job	[Up to 80% Allowed]		
T-12	Provision, installation, Testing & Commissioning of Radio Remote Controller System, standalone configuration, comprising: touch-screen display unit, microphone interface with desktop speaker, headset with aviation connector, foot pedal for PTT, monitor arm or desktop mount. The controller shall support ED-137 VoIP, dual LAN redundancy, and be capable of controlling multiple radios , telephone lines and hotlines (Analogue/Digital) Complete in all respect. REF: Technical Specifications Section - 0740	8.00	Job	[Up to 80% Allowed]		
T-13	Provision, installation, Testing & Commissioning of Automatic Low Voltage Control 100 to 230 VAC for (a.) ATC Tower (b.) ECR (c.) OCC Room with at least specification Input Voltage Range: 100-260 VAC Output Voltage 210- 230 VAC or Customized . 50Hz Pure sine wave, Power Factor 90% , Accuracy. +/- 1% Voltage control (this will be read with other applicable technical specifications. REF: Technical Specifications Section - 0740	3.00	Job	Not Applicable		
T-14	Provision, installation, Testing & Commissioning of Earthing / Grounding System including earthing pits for CNS Equipment and other sensitive ICT equipment. Complete in all respect as per Technical Specifications CNS-01. REF: Technical Specifications Section - 0740	1.00	Job	Not Applicable		
T-15	Provision, installation, Testing & Commissioning of AMHS Terminal / Desktop PC along with Compatible Dot Matrix Printer (LQ-310) for AHMS Terminal with redundant lines through PTCL Fiber, Satellite. Complete in all respect. REF: Technical Specifications Section - 0740	1.00	Job	Not Applicable		
T-16	Provision, installation, Testing & Commissioning of Managed Layer 2/3 Ethernet Switch, 48x Gigabit ports, 4x SFP uplink ports, with redundancy features (e.g., dual power supply optional), suitable for rack mounting. Complete in all respect. REF: Technical Specifications Section - 0740	3.00	Job	Not Applicable		
T-17	Provision, installation, Testing & Commissioning of Handheld Capsule Type microphone with bracket. Complete in all respect suitable for aviation RRCU use as per Technical Specifications. REF: Technical Specifications Section - 0740	10.00	Job	Not Applicable		

T-18	Provision, installation, Testing & Commissioning of Gooseneck microphone with suitable connector for RRCU. Complete in all respect as per Technical Specification. REF: Technical Specifications Section - 0740	8.00	Job	Not Applicable		
T-19	Provision, installation, Testing & Commissioning of Aviation headset with noise-canceling microphone and appropriate connector for RRCU & Complete in all respect suitable for aviation use as per Technical Specifications. REF: Technical Specifications Section - 0740	8.00	Job	Not Applicable		
T-20	Provision, installation, Testing & Commissioning of Remote Control and Monitoring System (RCMS) software suite for VHF, UHF, HF radios and DVLS network management, including server software, operator client licenses Qty.04, lifetime device licenses for up to 50 radios, SNMP-based monitoring, alarm management, and reporting. Includes dedicated workstation and laptop (minimum: Intel Core i7 13th Gen. or equivalent, 16GB RAM, 1TB SSD, Windows 11 Pro) for administration. Complete in all respect. REF: Technical Specifications Section - 0740	1.00	Job	Not Applicable		
T-21	Provision, installation, Testing & Commissioning of Low-loss foam dielectric coaxial cable, 50 Ω impedance, ½ inch diameter, suitable for RF feeder runs. Complete in all respect for all systems to be connected and as per Technical Specification. REF: Technical Specifications Section - 0740	1,200.00	meter	Not Applicable		
T-22	Provision, installation, Testing & Commissioning of Digital Voice Logging System (DVLS) with capacity for recording at least 48 channels (analog and VoIP). Dual redundant recording servers operating in parallel (no single point of failure), RAID storage for minimum 31 days recording, synchronized replay capability, NTP synchronization, web-based replay client, and all necessary software and accessories. Shall support ED-137, RTP, SIP, and analog audio inputs. Complete in all respect as per Technical Specification CNS-01. REF: Technical Specifications Section - 0740	1.00	Job	[Up to 80% Allowed]		
T-23	Provision, installation, Testing & Commissioning of DC power supply system with integrated monitoring and charging, using lithium battery bank providing minimum 2 hours backup at full load. Includes rectifiers, distribution, and battery management. Complete in all respect. REF: Technical Specifications Section - 0740	1.00	Job	Not Applicable		
T-24	Provision, installation, Testing & Commissioning of Double conversion online uninterruptible power supply (UPS), capacity suitable for the intended load, with maintenance bypass and battery backup for minimum 60 minutes (or as per site requirement). Complete in all respect. REF: Technical Specifications Section - 0740	3.00	Job	Not Applicable		
T-25	Provision, installation, Testing & Commissioning of Air Traffic Control console furniture for six (6) working positions, ergonomic design, including monitor mounts, keyboard trays, space for remote controllers, and cable management. Materials durable and anti-static. Complete in all respect. REF: Technical Specifications Section - 0740	6.00	Job	Not Applicable		

T-26	Provision, installation, Testing & Commissioning of Automated Weather Observing System (AWOS) for a single runway, meeting ICAO CAT I precision approach requirements. Includes central data unit; sensors for wind speed/direction (ultrasonic or mechanical), barometric pressure (redundant), temperature/humidity, cloud height (ceilometer), visibility/runway visual range (RVR), present weather detector, lightning detector; and appropriate communication interfaces. System shall generate METAR and other aviation reports, and integrate with ATC systems. Includes all accessories, cabling, and mounting hardware. Complete in all respect. REF: Technical Specifications Section - 0740	1.00	Job	[Up to 80% Allowed]		
T-27	Provision, installation, Testing & Commissioning of Desktop Computers (All-In-One) minimum: Intel Core i7 13th Gen. or equivalent, 16GB RAM, 1TB SSD, Windows 11 Pro), and 24 Inch Screen. Complete in all respect. REF: Technical Specifications Section - 0740	3.00	Job	Not Applicable		
T-28	Provision, installation, Testing & Commissioning of FM repeater system for coordination of all area of airport . Complete in all respect. REF: Technical Specifications Section - 0740	1.00	Job	Not Applicable		
T-29	Provision, installation, Testing & Commissioning of ATC Support equipment Complete in all respect as per Technical Specification Section 0740 (SUB-DIVISION 15.2) REF: Technical Specifications Section - 0740	1.00	Lot	Not Applicable		
T-30	Supply, Laying, testing and commissioning of Fiber Cable complete in all respect as per Engineers Instruction. REF: Technical Specifications Section - 0650	1,200.00	meter	Not Applicable		
T-31	Trenching work, including excavation, sand bedding, supply and placement of protection tiles, placement of warning tape, backfilling and compaction complete in all respect as per instruction of Engineer. REF: Technical Specifications Section - 0740	800.00	Cum	Not Applicable		
T-32	Dismantling & re-installation, testing and commissioning of ALCMS in ATCT complete in all respect as per instruction of Engineer. REF: Technical Specifications Section - 0070	1.00	Job	Not Applicable		
T-33	Airfield lighting Control & Monitoring System Relocation Shifting touchscreen, controller, and communication links (fiber/copper).ALCMS Project relocation Programme and ensuring System Transition Support to minimize downtime., complete in all respects. Note:- Above mentioned system should be complete in all respect for proper functioning including cost of items mentioned or not. REF: Technical Specifications Section - 0740, Section - 0770	1.00	Job	Not Applicable		

T-34	Providing, installing, testing and commissioning of Airport Crash Warning System (Crash Horn/Crash Bell Hooter), comprising electronic hooters, central control panel, interface with Air Traffic Control (ATC) console, remote/manual activation stations, control and power cabling, conduits, accessories, terminations, integration, testing, commissioning and all associated works, complete in all respects in accordance with the Drawings and Technical Specifications Section 0910. REF: Technical Specifications Section - 0910	1.00	Job	Not Applicable		
T-35	Providing, installing, testing and commissioning of Aeronautical Beacon, including beacon assembly, mounting structure/supports, obstruction lighting interface (where applicable), power and control cabling, conduits, accessories, earthing, terminations, testing, commissioning and all associated works, complete in all respects in accordance with the Drawings and Technical Specifications Section 0900. REF: Technical Specifications Section - 0900	1.00	Job	Not Applicable		
T-36	FACTORY ACCEPTANCE TEST (FAT):FAT for (03) three PAA officials for (05) five working days at OEM factory (Including Return ticket, Visa fees, insurance, local transport, accommodation & DSA) REF: Technical Specifications Section - 0740, Section - 0010	3.00	Lot	Not Applicable		
T-37	FACTORY TRAINING:Factory Training for (05) five PAA technical Personnel / Engineers for (10) ten working days at OEM factory (including return ticket, visa fees, local transport, accommodation & DSA) REF: Technical Specifications Section - 0740, Section - 0010	4.00	Lot	Not Applicable		
		Total Amount (Rs)				0.00