

Section VII. Technical Specifications

Notes for Preparing the Technical Specifications

A set of precise and clear specifications is a prerequisite for Bidders to respond realistically and competitively to the requirements of the Procuring Entity without qualifying their Bids. In the context of Competitive Bidding, the specifications (e.g. production/delivery schedule, manpower requirements, and after-sales service/parts, descriptions of the lots or items) must be prepared to permit the widest possible competition and, at the same time, present a clear statement of the required standards of workmanship, materials, and performance of the goods and services to be procured. Only if this is done will the objectives of transparency, equity, efficiency, fairness, and economy in procurement be realized, responsiveness of bids be ensured, and the subsequent task of bid evaluation and post-qualification facilitated. The specifications should require that all items, materials and accessories to be included or incorporated in the goods be new, unused, and of the most recent or current models, and that they include or incorporate all recent improvements in design and materials unless otherwise provided in the Contract.

Samples of specifications from previous similar procurements are useful in this respect. The use of metric units is encouraged. Depending on the complexity of the goods and the repetitiveness of the type of procurement, it may be advantageous to standardize the General Technical Specifications and incorporate them in a separate subsection. The General Technical Specifications should cover all classes of workmanship, materials, and equipment commonly involved in manufacturing similar goods. Deletions or addenda should then adapt the General Technical Specifications to the particular procurement.

Care must be taken in drafting specifications to ensure that they are not restrictive. In the specification of standards for equipment, materials, and workmanship, recognized Philippine and international standards should be used as much as possible. Where other particular standards are used, whether national standards or other standards, the specifications should state that equipment, materials, and workmanship that meet other authoritative standards, and which ensure at least a substantially equal quality than the standards mentioned, will also be acceptable. The following clause may be inserted in the Special Conditions of Contract or the Technical Specifications.

Sample Clause: Equivalency of Standards and Codes

Wherever reference is made in the Technical Specifications to specific standards and codes to be met by the goods and materials to be furnished or tested, the provisions of the latest edition or revision of the relevant standards and codes shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national or relate to a particular country or region, other authoritative standards that ensure substantial equivalence to the standards and codes specified will be acceptable.

Reference to brand name and catalogue number should be avoided as far as possible; where unavoidable they should always be followed by the words "*or at least equivalent.*" References to brand names cannot be used when the funding source is the GOP.

Where appropriate, drawings, including site plans as required, may be furnished by the Procuring Entity with the Bidding Documents. Similarly, the Supplier may be requested to provide drawings or samples either with its Bid or for prior review by the Procuring Entity during contract execution.

Bidders are also required, as part of the technical specifications, to complete their statement of compliance demonstrating how the items comply with the specification.

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Technical Specifications

Item No.	Specification	Statement of Compliance
		<p><i>[Bidders must state here either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of "Comply" or "Not Comply" must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidder's statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the applicable laws and issuances.]</i></p>
1	<p>Branded Enterprise-Grade IP PBX System</p> <ul style="list-style-type: none"> · IP Based Communications System · Analog Telephone FXS Ports: 8 RJ11 Port · PSTN Line FXO Ports: 8 RJ11 Port · Users: 6000 · Concurrent calls: 400 · Max concurrent SRTP calls: 240 · Video Conference: Up to 40 · Voice Conference: Up to 160 · Three self-adaptive Gigabit ports (switched, routed or dual card mode) with PoE+ · 1USB 2.0, 1USB 3.0, 1SD card interface · 320x240 color LCD with touch screen for Shortcut Keys and Scroll Bar 	

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	<p>Branded VoIP GSM Gateway</p> <ul style="list-style-type: none"> · 2 SIM ports · GSM Frequency: 850/900/1800/1900 MHz · WCDMA Frequency: 850/1900 MHz, 850/2100 MHz, 900/2100 MHz · 4G LTE Band · Protocol:SIP, IAX2 · Transport:UDP, TCP, TLS, SRTP · Voice Codec:G.711 (alaw/ulaw), G.722, G.726, G.729A, GSM, ADPCM, Speex · DTMF Mode: RFC2833, SIP Info, In-band · Echo Cancellation:ITU-T G.168 LEC · Calling Type:Termination (VoIP to GSM/WCDMA), Origination (GSM/WCDMA to VoIP) · Network Protocol:FTP, TFTP, HTTP, SSH · LAN:1 10/100 Mbps Ethernet Interface + 2 10/100 Mbps Ethernet Interfaces · NAT Traversal:Static NAT, STUN · Network:DHCP, DDNS, Firewall, OpenVPN, Static IP, QoS, Static Route, VLAN 	
	<p>Enterprise IP Phone</p> <ul style="list-style-type: none"> · 12 lines, 6 SIP accounts, 5 soft keys and 5-way voice conferencing · 48 on-screen digitally customizable BLF/speed-dial keys · 4.3 inch (480x272) color-screen LCD · Dual Gigabit ports, integrated PoE · Integrated Bluetooth · Supports up to four Extension Modules for BLF/speed-dial access to up to 160 contacts · Protocol: SIP RFC3261, TCP/IP/UDP, RTP/RTCP, HTTP/HTTPS, ARP, ICMP, DNS (A record, SRV,NAPTR), DHCP, PPPoE, SSH, TELNET, TFTP, NTP, STUN, SIMPLE, LLDP, LDAP, TR-069,802.1x, TLS, SRTP, IPV6, CDP/SNMP/RTCP-XR · Codec:G7.29A/B, G.711μ/a-law, G.726, G.722(wide-band), G723.1, iLBC, Opus,in-band and out-of-band DTMF(in audio, RFC2833, SIP INFO), VAD, CNG, AEC, PLC, AJB,AGC · 12 line keys with up to 6 SIP accounts, 5 XML programmable context sensitive softkeys, 5 navigation/menu keys, 11 dedicated function keys for : MESSAGE (with LED indicator), PHONEBOOK, TRANSFER, CONFERENCE, 	

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<p>HOLD, HEADSET, MUTE, SEND/REDIAL, SPEAKERPHONE, VOL+, VOL</p>	
<p>IP Phone Expansion Module</p> <ul style="list-style-type: none"> · large 128 x 384 graphic LCD and 20 programmable buttons (each with dual color LED). It offers up to 40 extensions per module by using the 2 page switch keys 	
<p>3-Line Essential IP Phone (150units)</p> <ul style="list-style-type: none"> · 3 lines, 6 SIP accounts, up to 3 call appearances · Dual switched autosensing 10/100/1000 Mbps Gigabit Ethernet ports with integrated PoE · Supports 5-way audio conferencing for easy conference calls · 132 x 64 (2.7") backlit graphical LCD display · Full-duplex speakerphone with HD audio to maximize audio quality and clarity · Equipped with noise shield technology to minimize background noise · Enterprise-level protection including secure boot, dual firmware images, and encrypted data storage · 3 line keys with dual-color LED and support for 6 SIP accounts, 4 XML programmable context sensitive soft keys, 5 (navigation, menu) keys. 9 dedicated function keys for: MESSAGE (with LED indicator), TRANSFER, HOLD, HEADSET, MUTE, SEND/REDIAL, SPEAKERPHONE, VOL+, VOL 	
<p>Power Supply for IP Phone Essentials (25 units)</p> <p>Input 100-240VAC 50-60Hz; Output +5VDC, .600mA;</p>	
<p>Branded Enterprise 10/100/1000 24 PORT, Full POE, 370W 4 SFP+ for 10G Uplink , 3 Yrs Warranty (8 units)</p> <ul style="list-style-type: none"> · Gigabit Ethernet / FE ports : 24 10/100/1000 RJ45 PoE+ · Uplink interfaces : 4 SFP+ · 8X5XNBD 24port GE, 4x10G SFP, LANB, 36-Months · PoE+power budget: 370W · CPU:ARM v7 800 MHz · DRAM:512 MB · Flash memory:256 MB · Forwarding bandwidth:FE: 6.4 Gbps 1G: 28 Gbps 10G: 64 Gbps 	

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<ul style="list-style-type: none"> · Switching bandwidth: FE: 12.8 Gbps 1G: 56 Gbps 10G: 128 Gbps · Forwarding rate (64-byte L3 packets) : FE: 9.52 Mpps 1G: 41.67 Mpps 10G: 95.23 Mpps · Console ports : RJ45-Ethernet USB mini-B USB-A port for storage and Bluetooth console · POE : IEEE 802.3af PoE and IEEE 802.3at PoE+ · Redundancy and resiliency: IEEE 802.1s/w Rapid Spanning Tree Protocol (RSTP) and Multiple Spanning Tree Protocol (MSTP) ,Per-VLAN Rapid Spanning Tree (PVRST+),Switch-port auto-recovery (error disable),Link state tracking · Enhanced QoS: Up to eight egress queues,Ingress policing,QoS through Differentiated Services Code Point (DSCP) mapping and filtering, QoS through traffic ,classification,Trust boundary, AutoQoS, Shaped Round Robin , Weighted Tail Drop , 802.1p Class of Service · Network security: Comprehensive 802.1X 802.1X support with Network Edge Access Topology (NEAT) IEEE 802.1X user distribution Ability to disable per-VLAN MAC learning Multidomain authentication Authentication, Authorization, and Accounting (AAA) command authorization Access Control Lists (ACLs) Port-based ACLs for Layer 2 interfaces SSH, Kerberos, and SNMP v3 SPAN, with bidirectional data support TACACS+ and RADIUS authentication MAC address notification to notify administrators about users added MAC Authentication Bypass (MAB) and WebAuth with downloadable ACLs Web authentication redirection Multilevel security on console access BPDU Guard IP Source Guard SSH v2 Spanning Tree Root Guard (STRG) Internet Group Management Protocol (IGMP) Dynamic VLAN assignment · Configuration Professional: Bluetooth for over-the-air access · Warranty : 8X5XNBD 36-Months 	
<p>Branded Enterprise CORE SWITCH , 24 GE ports , 8 x 10GE Network Module, 3 yrs Warranty</p> <ul style="list-style-type: none"> · 24-port data only, Network Advantage · 8X5XNBD 24-port data only, Network, 36-Months 	

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<ul style="list-style-type: none"> · DNA Premier, 24-Port, 3 Year Term License · 8 x 10GE Network Module · Switching capacity: 104 Gbps on 24-port Gigabit Ethernet model · Stacking bandwidth 480 Gbps · DRAM: 8 GB; Flash: 16 GB; VLAN IDs: 4000 · Total Switched Virtual Interfaces (SVIs): 2000 · Jumbo frames: 9198 bytes · Total routed ports per 9300 Series stack: 208 · Forwarding Rate: 154.76 Mbps · Switch fundamentals: STP, Trunking, private VLAN (PVLAN), Q-in-Q, IPv6, OSPF Routed Access, RIP, Policy-Based Routing (PBR), Virtual Router Redundancy Protocol (VRRP), Internet Group Management Protocol (IGMP), PIM Stub, Weighted Random Early Detection (WRED), Cisco UPOE, First Hop Security (FHS), 802.1X, MACsec-128, Control Plane Policing (CoPP) · Advanced switch capabilities and scale: BGP, EIGRP, Hot Standby Router Protocol (HSRP), IS-IS, Bootstrap Router (BSR), Multicast Source Discovery Protocol (MSDP), Class-Based Weighted Fair Queuing (CBWFQ), MACsec-256 · Management automation NETCONF/YANG, PnP, ZTP/Open PnP · Capacity planning, performance monitoring, and troubleshooting: Streaming telemetry, sampled NetFlow, Switched Port Analyzer (SPAN), Remote SPAN (RSPAN) · Flexible network segmentation for isolation: VPN Routing and Forwarding (VRF), Multiprotocol Label Switching (MPLS) VPNs – Layer 3 VPN (L3VPN), Ethernet over MPLS (EoMPLS), Hierarchical Virtual Private LAN Services (H-VPLS), IPv6 Provider Edge (6PE), IPv6 on Virtual Provider Edge (6VPE), Multicast VPN (MVPN) 	
<p>Transceiver for offered Switches 10G, SMh (16 units)</p>	
<p>Branded Storage Server</p> <ul style="list-style-type: none"> · Branded 12TB Network Attached Storage, 5-Years Warranty · 12-bay Rack Station (up to 36-bay) · Quad Core 2.4 GHz (turbo to 2.7 GHz) · 8GB RAM (up to 64GB) · Railing Kit · 3 x 1GbE port, optional 10GbE NIC support 	

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· 8 x Seagate Enterprise EXOS 4TB, SATA 6Gb/s,128MB Cache, 7200RPM	
Branded UPS UPS 3000VA, 230V Rackmount 2U (8) IEC C13 (10A), (1) IEC C19 (16A Topology: On-line double conversion with PFC (Power Factor Correction) system Configuration:Rack Rating(VA/Watts):3000/2700 Warranty:2 years warranty	
SM Fiber Optic Patch Cord Jumper Cable SC to LC, 3m , SM, Duplex (12 units)	
SM Fiber Optic Patch Cord Jumper Cable ST to LC, 3m , SM , Duplex (4 units)	
Branded 16-Port Gigabit PoE Switch (8 units) 16-port switch with 8 PoE+ and dedicated	
Installation, Configuration and Commissioning (Electrical Works, with consumables, Grounding and Data Cabinet with PDU) RJ45 - snap-in type (100 units) CAT 6 UTP Cable (5 boxes) Royal Cord(3 wires, no. 6) (30 meters) 3 Phase Breaker , DIN rail, 63A (2 units) Single-Phase Breaker, DIN rail, 63 A Panel Box Rail Type for 8-12 Miniature Circuit Breakers Automatic Transfer Switch, 63A Grounding Kit (Bus bar, broze ground clamp, 1/2' diameter Ground rod copper coated , 35mm2 thhn copper wire, bracket) (3 units) Configuration: IP Telephone System and Mail Server(Text messaging) Configuration and Training	
Note: Quarter maintenance check-up for one (1) year;	
***** Nothing Follows*****	

Additional Requirements:

The technical specification that shall be submitted by the Bidder shall include, among others:

1. *product specifications as supported by brochures or catalogues;*
2. *bidder's certification that it has after-sales support in Region X;*
3. *bidder's certification for three (3) years warranty;*
4. *certification of Service Center within the Region X;*
5. *bidder's certification that they have certified VOIP Engineer/Installer/ECE/EE for Electrical and grounding installation); and*
6. *Work Force of the Project.*

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