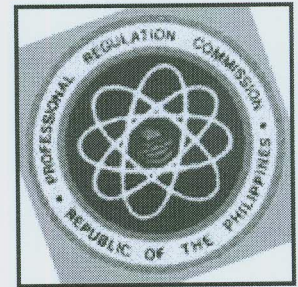





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## Section VII. Technical Specifications

Item #	Description	Quantity
1 Lot	<b>PABX SYSTEM</b>	
	<b>Telephony Requirements:</b> The IP-PABX system must be equipped for the following configuration: <ul style="list-style-type: none"><li>a. Connectivity to 1 ISDN PRI</li><li>b. 18 units of entry level IP phones</li><li>c. 24 units of mid-level IP phones</li><li>d. 4 units of executive –level IP phones</li><li>e. 18 units of remote IP phones</li><li>f. Connectivity to existing 28 analog phones</li><li>g. 60 ports Auto - Attendant</li></ul>	
	<b>IP – PABX Hardware Specifications and functionalities:</b> <ul style="list-style-type: none"><li>a. Interface to 1 ISDN PRI trunk for telco connectivity</li><li>b. IP-PABX must be certified or typed-approved to interoperate with the ISDN trunk provider of PRC</li><li>c. 19 inch rack mountable in design</li><li>d. Scalable up to 4,500 users and should be able to upgrade seamlessly as the company expands (must not change IP-PABX model when the system scales to 4,500 users</li><li>e. Capability to support third party SIP Phones</li><li>f. Must be solid-state and applanced based in design and not based on server or line card technology.</li><li>g. IP-PABX's voice hardware must have dual Local Area Network (LAN) ports to provide high availability</li><li>h. IP-PABX's voice hardware must have 10/100/1000 Mbps Ethernet interface</li><li>i. The main IP-PABX and branch gateways must function as a single image system and can be managed in a centralized location</li><li>j. Standard local survivability on branch gateway side in case of WAN outage</li><li>k. Voice gateway should have the capability to survive in case main server fails (e.g. connectivity to outside line using trunk)</li><li>l. No existing extension or trunk calls should be dropped during IP-PABX server failure</li><li>m. Must be distributed in design to easily transfer hardware to other branches or sites</li><li>n. IP-PABX hardware redundancy must be included</li><li>o. The proposed PABX hardware, IP phones and telephony software must be of the same brand to avoid complexity.</li></ul>	
	<b>IP-PABX Software Specifications and functionalities:</b> <ul style="list-style-type: none"><li>a. Offered phone licenses can be used for either IP or analog. This is to avoid buying additional phone licenses in the future and having the capability to use any available telephone set.</li></ul>	





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- b. Should exhibit a global licensing scheme where in user licenses can be used and transferrable in any site of the telephony deployment.
- c. System licenses (e.g. extension, application and device) should be perpetual and must not be renewed monthly or annually
- d. Patches, bug fixes, minor and major software upgrades for the proposed system during warranty period should be included at no additional cost.
- e. Should have the capability to be deployed in a virtual environment such as VMware and HyperV
- f. Management system for administration and monitoring that supports on-premise and remote access.
- g. Full management configuration can be accessed using the following web browsers: Internet Explorer, Firefox, Chrome and Safari
- h. The entire configuration, management and reporting could be done from a centralized location. The configuration done at the main site should be replicated at remote branches automatically.
- i. The IP-PABX management system should be able to display connectivity and service status for all PABX hardware and IP phones in any site of the telephony deployment
- j. The IP-PABX management system should be able to monitor at least 50 sites under a single application window.
- k. In case of any minor or major failure with IP-PABX, administration/s should get a notification via e-mail
- l. Should have the capability to manage and control the bandwidth of voice calls that goes in/out on the main site or remote branches.
- m. Real time monitoring for all PSTN trunks
- n. The System Directory of IP phones must be managed by the IP-PABX server. Any changes done in the system directory must automatically populate in all IP phones.
- o. Single server deployment for the following applications:
  - IP-PABX management portal
  - Auto Attendant
  - Voice Mail application and storage
  - Automatic Call Distribution (ACD)
  - Call Detail or Call Accounting Reports
  - Unified Communications

### IP-PABX FEATURES

Shall include but not limited to the following IP-PABX features:

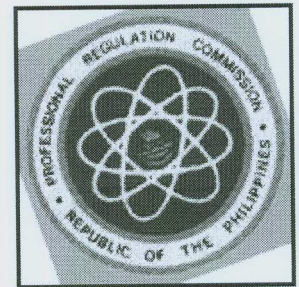
- a. Account or PIN Codes
- b. Automated Attendant
  - At least 60 channels to support all telco trunks and future expansion
  - Should have at least 200 sub-menus
  - Should have backup Auto Attendant in case the main AA source fails
  - Dial by name functionality
  - Scheduled Greetings (On and Off Hours, Holiday)
- c. Automatic Call Distribution (ACD) for all departments / users with historical reports





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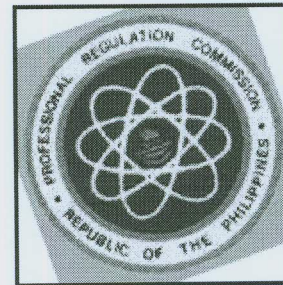
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	<ul style="list-style-type: none"><li>• Individual User Report</li><li>• Group Report</li><li>• Abandoned Call Report</li><li>• Service Level Report</li></ul> <p>d. Call Detail or Call Accounting Reports (CDR) for all users</p> <ul style="list-style-type: none"><li>• Trunk Traffic Reports</li><li>• Account or PIN Codes Reports</li><li>• LAN / WAN Reports</li><li>• User Activity Reports</li></ul> <p>e. Call Quality reports which include the following parameters:</p> <ul style="list-style-type: none"><li>• Packet Loss</li><li>• Mean Opinion Score (MOS)</li><li>• Jitter</li><li>• Delay</li><li>• IP Route</li><li>• PCAP capturing</li></ul> <p>f. Call Forwarding</p> <p>g. Call Pick-up</p> <p>h. Call Waiting</p> <p>i. Conferencing (3-party)</p> <p>j. Direct Inward Dialing (DID)</p> <p>k. Last Number Redial</p> <p>l. Least Cost Routing</p> <p>m. Music on Hold</p> <p>n. Paging</p> <p>o. Transfer</p> <p>p. Intercom</p> <p>q. Voice Mail for 10 users</p> <ul style="list-style-type: none"><li>• At least 50 voice mail ports</li><li>• 30 hours of voice mail storage</li><li>• Voicemail to E-mail feature</li></ul> <p>r. Unified Communications for 10 users</p> <ul style="list-style-type: none"><li>• UC Windows / MAC client</li><li>• Presence Information</li><li>• Softphone</li><li>• E-mail Integration</li><li>• Web Dialer</li></ul>	
	<b>ENTRY LEVEL IP PHONES</b> <b>Specifications:</b> <ul style="list-style-type: none"><li>a. Backlit or colored graphics display</li><li>b. Minimum of 1 line key</li><li>c. Must support at least one of the following industry standard protocols: SCCP, H.323, MGCP or SIP</li><li>d. Must have standards-based support for the following codecs:<ul style="list-style-type: none"><li>• G.711</li><li>• G.722</li><li>• G.729</li></ul></li><li>e. Must have Ethernet (at least 10/100 Mbps) line interface, Secondary Ethernet interface (at least 10/100 Mbps)</li><li>f. Speakerphone capability</li><li>g. Feature buttons</li></ul>	<b>18 UNITS</b>



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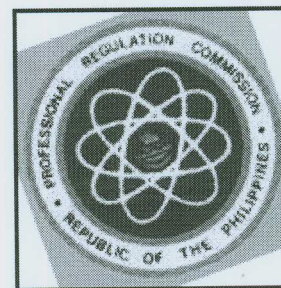
	<ul style="list-style-type: none"><li>• Mute</li><li>• Volume</li><li>• Hold</li><li>• Conference</li><li>• Voicemail</li><li>• Transfer</li><li>• Call History</li></ul> <p>h. Ring tone selection i. Caller ID name display and number j. Message Waiting Indicator k. Table-top use with option for wall mount l. Supports VLAN configuration m. Synchronization of Time and Date to a Network Time Protocol (NTP) Server n. Supports at least 6 octaves of sound quality</p>	
	<b>MID LEVEL IP PHONES</b> <b>Specifications:</b> <ul style="list-style-type: none"><li>a. Backlit or colored graphics display</li><li>b. Minimum of 7 line keys</li><li>c. Must support at least one of the following industry standard protocols: SCCP, H.323, MGCP or SIP</li><li>d. Must have standards-based codec support for the following codecs:<ul style="list-style-type: none"><li>• G.711</li><li>• G.722</li><li>• G.729</li><li>• iLBC</li></ul></li><li>e. Must have Ethernet (at least 10/100 Mbps) line interface, Secondary Ethernet interface (at least 10/100 Mbps)</li><li>f. Must employ Secure Real-time Transport Protocol (SRTP) for media encryption</li><li>g. Speakerphone capability</li><li>h. Headset port</li><li>i. Feature buttons<ul style="list-style-type: none"><li>• Mute</li><li>• Volume</li><li>• Hold</li><li>• Conference</li><li>• Voicemail</li><li>• Directory</li><li>• Transfer</li><li>• Call History</li></ul></li><li>j. Ring tone selection</li><li>k. Caller ID name display and number</li><li>l. Message Waiting Indicator</li><li>m. Table-top use with option for wall mount</li><li>n. Supports VLAN configuration</li><li>o. Synchronization of Time and Date to a Network Time Protocol (NTP) Server</li><li>p. Visual Voicemail</li><li>q. Supports at least 6 octaves of sound quality</li><li>r. Supports unlimited system directory</li></ul>	24 UNITS
	<b>EXECUTIVE LEVEL IP PHONES</b> <b>Specifications:</b> <ul style="list-style-type: none"><li>a. Colored graphics touchscreen display</li></ul>	4 UNITS






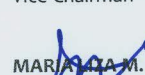
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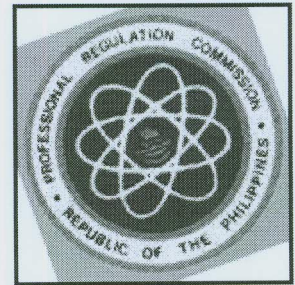
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	<p>b. Minimum of 12 line keys</p> <p>c. Must support at least one of the following industry standard protocols: SCCP, H.323, MGCP or SIP</p> <p>d. Must have standards-based codec support for the following codecs:</p> <ul style="list-style-type: none"><li>• G.711</li><li>• G.722</li><li>• G.729</li><li>• iLBC</li></ul> <p>e. Must have Ethernet (at least 10/100/1000 Mbps) line interface, Secondary Ethernet interface (at least 10/100/1000 Mbps)</p> <p>f. Must employ Secure Real-time Transport Protocol (SRTP) for media encryption</p> <p>g. Speakerphone capability</p> <p>h. Headset port</p> <p>i. Feature buttons</p> <ul style="list-style-type: none"><li>• Mute</li><li>• Volume</li><li>• Hold</li><li>• Conference</li><li>• Voicemail</li><li>• Directory</li><li>• Transfer</li><li>• Call History</li></ul> <p>j. Ring tone selection</p> <p>k. Caller ID name display and number</p> <p>l. Message Waiting Indicator</p> <p>m. Table-top use with option for wall mount</p> <p>n. Supports VLAN configuration</p> <p>o. Synchronization of Time and Date to a Network Time Protocol (NTP) Server</p> <p>p. Visual Voicemail</p> <p>q. Native VPN client for off-premise access</p> <p>r. Supports at least 6 octaves of sound quality</p> <p>s. Supports unlimited system directory</p>	
	<p><b>REMOTE IP PHONES</b></p> <p><b>Specifications:</b></p> <p>a. Backlit or colored graphics display</p> <p>b. Minimum of 7 line keys</p> <p>c. Must support at least one of the following industry standard protocols: SCCP, H.323, MGCP or SIP</p> <p>d. Must have standards-based codec support for the following codecs:</p> <ul style="list-style-type: none"><li>• G.711</li><li>• G.722</li><li>• G.729</li><li>• iLBC</li></ul> <p>e. Must have Ethernet (at least 10/100 Mbps) line interface, Secondary Ethernet interface (at least 10/100 Mbps)</p> <p>f. Must employ Secure Real-time Transport Protocol (SRTP) for media encryption</p> <p>g. Speakerphone capability</p> <p>h. Headset port</p> <p>i. Feature buttons</p>	<b>18 UNITS</b>





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|--|--|--|

(Inclusive of Installation-Labor and Materials)

1. Compliance with the statements 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.
2. 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.
3. A statement either in the Bidders 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 provisions of ITB Clause 3.1 (a) (ii) and/or GCC Clause 2.1 (a) (ii).

### ACKNOWLEDGMENT AND COMPLIANCE WITH THE TERMS OF REFERENCE FOR THE PROCUREMENT OF PABX SYSTEM FOR PRC CENTRAL OFFICE

\_\_\_\_\_  
SIGNATURE OVER PRINTED NAME  
OF AUTHORIZED REPRESENTATIVE,  
DESIGNATION AND PRINTED NAME OF COMPANY