



EUROPEAN UNION

DELEGATION TO BOSNIA AND HERZEGOVINA

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Corrigendum No 5

Supply of ICT Equipment for IDDEEA and Judicial Institutions in BiH
Tender No: EC/BIH/09/034; Publication ref: EuropeAid/128496/C/SUP/BA

The following corrections to the Technical Specifications are introduced:

ANNEX II+III Technical Specifications + Technical Offer - the technical specification for the **item 1.1 – Point to Multi – Point (PtMP) Equipment**:

Column 1	Column 2		Column 3	Column 4	Column 5
ID No.	Specifications	Qty	Specifications Offered	Notes, remarks, ref to documentation	Evaluation Committee's notes
1.1	POINT TO MULTI – POINT (PtMP) EQUIPMENT Base Station: <ul style="list-style-type: none">• Frequency: 3600 MHz – 3800MHz:• Radio Access Method: FDD• Channel Bandwidth:<ul style="list-style-type: none">○ 1,75 MHz○ 3,5 MHz• Central Frequency Resolution: 0.125 MHz• Antenna Port: N-Type, 50 ohm• Max. Input Power (at antenna port):<ul style="list-style-type: none">○ -60 dBm before saturation,○ -8 dBm before damage• Output Power (at antenna port):<ul style="list-style-type: none">○ 34 dBm +/-1 dB maximum○ Power control range: 10 dB, in 1 dB steps• Modulation:<ul style="list-style-type: none">○ OFDM in the Downlink	28 pairs (28 base station + 28 CPE)			

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	<ul style="list-style-type: none"> ○ OFDMA-16 in the Uplink (N x SUs per Symbol, N=1-16), ○ 256 FFT points; BPSK, QPSK, QAM16, QAM64 • FEC: Convolution Coding: 1/2, 2/3, 3/4 • Antenna: <ul style="list-style-type: none"> ○ 2 x 15.5 dBi minimum in the 3.3-3.8 GHz band, 90°AZ x 7°EL, dual slant +/- 45° polarization, compliance with ETSI EN 302 326-3 V1.2.1 ○ RoHS • IDU – ODU Communication: <ul style="list-style-type: none"> ○ IF Frequency: <ul style="list-style-type: none"> ▪ Tx: 240 MHz ▪ Rx: 140 MHz ○ Ref Synchronization Frequency: 64 MHz ○ ASK Bi-Directional Control Frequency: 14 MHz • Data Communication (Ethernet Ports): <ul style="list-style-type: none"> ○ Standards Compliance: IEEE 802.3CSMA/CD ○ VLAN Support: IEEE 802.1Q ○ Traffic Classification: IEEE802.1p, DSCP ○ Traffic Prioritization: IEEE 802.16a QoS (air interface) • Configuration and Management: <ul style="list-style-type: none"> ○ Out Of Band (OOB) Management <ul style="list-style-type: none"> ▪ SNMP via Management port ▪ Telnet via Management port ▪ Monitor port ○ In Band (IB) Management via Data Port <ul style="list-style-type: none"> ▪ SNMP ▪ Telnet ○ SNMP Agents <ul style="list-style-type: none"> ▪ SNMP ver. 1 client ▪ MIB II (RFC 1213) ○ Authentication RADIUS 				

Column 1	Column 2		Column 3	Column 4	Column 5
ID No.	Specifications	Qty	Specifications Offered	Notes, remarks, ref to documentation	Evaluation Committee's notes
	<ul style="list-style-type: none"> ○ Software upgrade: Using TFTP ○ Configuration upload/download: Using TFTP • Operating temperature: <ul style="list-style-type: none"> ○ Outdoor Unit: -40°C to 55°C • Services: <ul style="list-style-type: none"> ○ Max number of Services: 1,023 ○ Max number of Service Profiles: 1024 ○ Max number of Forwarding Rules: 255 ○ Max number of Priority Classifiers: 255 ○ Max number of QoS Profiles: 255 ○ Max number of Subscribers: 1,024 (applicable only for permanent SUs) ○ Min number of data connections per Service 2 (1 uplink, 1 downlink) ○ Max number of data connections per Service 8 (4 uplink, 4 downlink) ○ Max number of data connections per SU 32 per direction ○ Max number of data connections: 3,072 - 3 x number of SUs (3 connections are reserved for each SU) ○ Max number of Served SUs: 250 ○ Max number of MAC addresses in Bridging Table: 1,000 ○ Max number of VLANs per Service: 16 ○ Max number of VLANs per SU: 16 ○ Max number of VLANs (VPL IDs): 1,024 • Network Management System <ul style="list-style-type: none"> ○ GUI application with database, which supports both PtP and PtMP links <p>Customer Premise Equipment (CPE): Specification :</p> <ul style="list-style-type: none"> • Frequency: <ul style="list-style-type: none"> ○ Base Station: 				

Column 1	Column 2		Column 3	Column 4	Column 5
ID No.	Specifications	Qty	Specifications Offered	Notes, remarks, ref to documentation	Evaluation Committee's notes
	<ul style="list-style-type: none"> ▪ 3.6 GHz: uplink:3600-3700.0MHz downlink: 3700-3800.0MHz ○ CPE: <ul style="list-style-type: none"> ▪ 3.6 GHz: uplink:3600-3700.0MHz downlink: 3700-3800.0MHz • Radio Access Method: <ul style="list-style-type: none"> ○ TDMA FDD, full duplex • Modulation: <ul style="list-style-type: none"> ○ OFDM 256 FFT, with adaptive sub-carrier modulation: BPSK, QPSK, QAM 16, QAM 64 • Non-line-of-sight (NLOS) operation functionality: <ul style="list-style-type: none"> ○ yes • Channel bandwidth: <ul style="list-style-type: none"> ○ 3,5 MHz; 1,75 MHz; ○ Software selectable • Base station Multi Carrier bandwidth (via IF Mux) <ul style="list-style-type: none"> ○ 14 MHz • Duplexing Scheme: <ul style="list-style-type: none"> ○ AU (Access Unit): full duplex ○ SU (Subscriber Unit): half duplex • Central frequency resolution: <ul style="list-style-type: none"> ○ 125 KHz; • Antenna (CPE): <ul style="list-style-type: none"> ○ 18 dBi, 20°, Vertical and Horizontal polarization, compliant with ETSI EN 302 085 V1.1.2 TS3 • Maximum output power (at antenna port): <ul style="list-style-type: none"> ○ AU (Access Unit): 28 dBm (+/- 1dBm) ○ SU (Subscriber Unit): 20 dBm (+/- 1dBm) • Sensitivity (typical values): <ul style="list-style-type: none"> ○ For highest modulation (QAM 64) @ 3,5/1,75 MHz: -82/85 dBm ○ For lowest modulation (BPSK) @ 3,5/1,75 MHz: - 				

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	<p>100/103 dBm</p> <ul style="list-style-type: none"> Data communications: <ul style="list-style-type: none"> Data: IEEE 802.3 CSMA/CD Air Interface: IEEE 802.16a VLAN support: IEEE 802.1q Traffic Classification: Layer 2 IEEE 802.1p, IP DiffServ Code Points DSCP Indoor unit module <ul style="list-style-type: none"> Ethernet interface: one (1) IEEE 802.3 Ethernet 10/100 BaseT (RJ 45) MAC address supported: 512 Connection to outdoor unit: Category 5E Ethernet cable Provides power (-54 VDC) and control signals to outdoor unit Receives status indications from outdoor unit Configuration and Management: <ul style="list-style-type: none"> Local Management via Ethernet Port <ul style="list-style-type: none"> Telnet Built-in web configuration server (using PC or PDA with http browser) Remote Management <ul style="list-style-type: none"> Via the Base Station Software upgrade <ul style="list-style-type: none"> Using TFTP via the Base Station Using TFTP via Ethernet port Configuration upload/download <ul style="list-style-type: none"> Using TFTP via the Base Station Using TFTP via Ethernet port Operating temperature: <ul style="list-style-type: none"> Outdoor Unit: -40°C to 55°C 				

ANNEX II+III Technical Specifications + Technical Offer - the technical specification for the **item 12.6 – Server Type III**

Column 1	Column 2		Column 3	Column 4	Column 5
ID No.	Specifications	Qty	Specifications Offered	Notes, remarks, ref to documentation	Evaluation Committee's notes
12.6	Server Type III <ul style="list-style-type: none"> - Rack mountable / max 4U - Minimum 8 CPU slots; - Processor: minimum 24 cores, 4 CPUs each with 6 cores, released in 2008 or after; - RAM installed/max: 64 GB DDR3 (or DDR2) ECC / 256GB via 32 DIMM slots - Minimum Total of Disk bays: 4x2.5" hot-swap - Hard disks: 4x140GB 2.5" Hot-Swap HDD SAS - RAID support: Installed RAID 0, 1 - Network: 6x Gigabit Ethernet with TOE ports - SAN: 4x 4Gbps Fibre Channel SAN ports - Optical drive: DVD-ROM/CD-RW Combo Drive - Expansion slots minimum: 7x PCI-express x8 - Service processor/card: Installed - Power: Dual and redundant - Operating system: Windows Server 2003 Enterprise Edition Eng + 5 CAL <u>or equivalent</u> 	2			

ANNEX II+III Technical Specifications + Technical Offer - the technical specification for the **item 17.2 – Point-to-Multipoint Equipment (Base station)**

ID No	Specifications	Qty	Specifications Offered	Notes, remarks, ref to documentation	Evaluation Committee's notes
17.2.	<p>Point-to-Multipoint Equipment (Base station) Point-to-Multipoint equipment has to support the following standards and must have the following characteristics:</p> <ul style="list-style-type: none"> - Maximum number of Sus per BST: 250 Max. Number of VLANs per Service and per SU: 16 - Min. number of data connections per Service: 2 (1 uplink 1 downlink) - Max. number of data connections per Service: 8 (4 uplink, 4 downlink) - Standards ETSI EN 301 489-1 <p>General Specifications:</p> <ul style="list-style-type: none"> - RF Bandwidth: 1.75; 3.5MHz; and 7MHz - Modulation & coding technique: BPSK1/2; BPSK3/4; QPSK1/2; QPSK3/4; QAM16 1/2; QAM16 3/4; QAM64 2/3; QAM64 3/4; - Operation mode: FDD, Full duplex - Bandwidth per single user: 0,71 Mbps to 21,6 Mbps - Supported distance: Up to 10 Km <p>3.6 GHz Base Station Specifications:</p> <ul style="list-style-type: none"> - Transmit: <ul style="list-style-type: none"> o A: 3.6000 - 3.653 GHz o B: 3.646 - 3.700 GHz - Receive <ul style="list-style-type: none"> o A: 3.700 - 3.753 GHz o B: 3.746 - 3.800 GHz - Sectors per cell: 4, 	4			

ID No	Specifications	Qty	Specifications Offered	Notes, remarks, ref to documentation	Evaluation Committee's notes
	<ul style="list-style-type: none"> - The Base Station should be mounted in standard ETSI and 19" racks. - Each Base Station-BaseUnit is a different and completely independent carrier - The Base Station-Base Unit power: external -40.5V÷-60V DC power source connected to a 3W 3-power connector. A grounding pin provided for connection to rack housing earth cable lugs - Operating temperature for outdoor equipment: -40°C ÷55°C - Operating temperature for indoor equipment :0°C ÷ 40°C <p>BS Antennas:</p> <ul style="list-style-type: none"> - 90° sector antenna, 15dBi gain, polarisation V/H - 60° sector antenna, 16,5dBi gain, polarisation V/H - 120°sector antenna, 13 dBi gain, polarisation V - 360°omni antenna, 10dBI gain, polarisation V <p>Configuration and management:</p> <ul style="list-style-type: none"> - Out of Band (OOB) Management : telnet via Management port; SNMP via management port; Monitor port - In Band Management: SNMP; Telnet - Software upgrade: using TFTP - Configuration upload/download: Using TFTP <p>General conditions:</p> <ul style="list-style-type: none"> - Adhere to the health and safety measures; - Adhere to the fire protection measures; - Adhere to the environmental protection measures. 				

Yours sincerely,

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