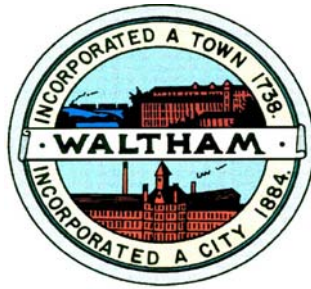


The City of Waltham



**Invites
Interested Parties
To propose the best offer and or bid
For the service or product herewith described:**

Aruba, Wireless

The bid opening will be held: Wednesday June 5, 2013 at 11:00 AM

Phone: 781-314-3244, Fax: 781-314-3245

Table of Contents:

- **Invitation to Bid**
- **Intent of the Project**
- **Agreement**
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Invitation to Bid

The City of Waltham
Purchasing Department

REQUEST FOR BID (RFB)

Under the rules of M.G.L. Chapter 30B, the Chief Procurement Officer of the City of Waltham Purchasing Department hereby requests sealed bids for:

Aruba, Wireless

Price Proposals will be received at the office of the Purchasing Agent, City Hall, 610 Main Street, Waltham MA 02452, until,

Wednesday June 5, 2013 at 11:00 am

At which time and place the bids will be publicly opened and read.

Specifications and information available on line by visiting the Waltham Purchasing Department web site at www.city.waltham.ma.us/open-bids

BIDS MUST BE SIGNED AND ENCLOSED IN A SEALED ENVELOPE AND MARKED:

BID FOR: ARUBA, WIRELESS

A 5% Bid Bond or Certified Check must accompany each bid submitted and made payable to, and become the property of the City of Waltham, if the successful bidder refuses or neglects to comply with the terms of the Contract.

If the Bidder is a corporation, state your correct corporate name and State of incorporation. If Bidder is a partnership, state names and addresses of partners. If Bidder is a trust or other legal entity, state correct names and addresses of trustees or names and address of those legally authorized to bid and enter into contracts.

EXCEPTION OR ALTERNATES TO SPECIFICATIONS, TERMS OF SALE, AND DISCOUNTS AVAILABLE, MUST BE INCLUDED IN THE BID PRIOR TO OPENING DATE.

Intent of Project

**The School Department of the City of Waltham wishes to purchase 81 Aruba AP 105
Wireless Access Point**

AGREEMENT

CITY OF WALTHAM

ARTICLE 1. This agreement, made this _____ day of _____, 2012 by and between the CITY OF WALTHAM, party of the first part, hereinafter called the CITY, by its MAYOR, and

_____ hereinafter called the CONTRACTOR.

ARTICLE 2. Witnesseth, that the parties to this agreement, each in consideration of the agreement on the part of the others herein contained, do hereby agree, the CITY OF WALTHAM for itself, and said contractor for his heirs, executors, administrators and assigns as follows:

To furnish all equipment, machinery, tools and labor, to furnish and deliver all materials required to be furnished (except as otherwise specified) and deliver in and about the project and to do and perform all work in strict conformity with the provisions of this Contract and of the Notice to Bidders, bid, Project Manual, and Drawings hereto annexed. The said Notice to Bidders, bid, Project Manual, and Drawings are hereby made a part of this contract as fully and to the same effect as if the same had been set forth at length and incorporated in the contracts.

ARTICLE 3. In consideration of the foregoing premises the CITY agrees to pay and the CONTRACTOR agrees to receive as full compensation for everything furnished and done by the CONTRACTOR under this contract, including all work required by not included in the items herein mentioned, and also for all loss or damage arising out of the nature of the work aforesaid, or from the action of the elements, or from any unforeseen obstruction or difficulty encountered in the prosecution of the work, and for all expenses incurred by or in consequence of the suspension or discontinuance of the work specified, and for well and faithfully completing the work, and the whole thereof, as herein provided, such prices as are set forth in the accompanying bid.

This Agreement entered into as of the day and year first written above.

CITY OF WALTHAM, MASSACHUSETTS

FOR THE CITY

Jeannette A. McCarthy, MAYOR,
City of Waltham
Date: _____

John B. Cervone, City Solicitor
Date: _____

APPROVED AS TO FORM ONLY

Susan Nicholson, Superintendent of Schools
Date: _____

Joseph Pedulla, Purchasing Agent
Date: _____

Paul Centofanti, Auditor
Date: _____

I CERTIFY THAT SUFFICIENT FUNDS
ARE AVAILABLE FOR THIS CONTRACT

FOR THE COMPANY

CONTRACTOR (Signature),
Date: _____

Company

Address

Instructions

INSTRUCTIONS FOR BIDDERS

1. **READ ALL DOCUMENTS.**

Bidders should familiarize themselves with all the documents contained herein; it is mandatory that all Bids be in compliance with all the provisions contained in said documents.

2. **FORMS AND ATTACHMENTS.**

Bids are to be completed on the forms provided ONLY and enclosed in a sealed envelope marked on the outside "BID (title)" and the name and address of bidder. Attachments submitted in addition to the Waltham Purchasing Department produced forms may not be considered.

3. **PRINTED OR TYPED RESPONSE.**

All information must be typewritten or printed in ink, including the price the bidder offers in the space as provided on the bid form.

4. **CORRECTIONS.**

Bids that are submitted containing cross outs, white outs or erasures, will be rejected. All corrections or modifications to the original bid are to be submitted in a separate envelope, properly marked on the outside, "CORRECTION/ MODIFICATION TO BID (title)" and submitted prior to the bid opening.

ALL DOCUMENTS SUBMITTED WITH YOUR RESPONSE WILL BE INCORPORATED INTO THE CONTRACT.

5. **PRICE IS ALL INCLUSIVE.**

Bid prices shall encompass everything necessary for furnishing all items, materials, supplies or services as specified, and in accordance with the specifications, including proper packing, cost of delivery, and in the case of services, completion of same, as per specifications.

6. **PRICE DISCREPANCY.**

In the event of a discrepancy between the Unit Price and the Extension, the Unit Price shall prevail.

7. **EXPLANATIONS, EXCEPTIONS**

Explanations, exceptions or other information pertinent to the specifications may be made in writing and included in the same envelope with the bid.

8. **BID DEPOSITS.**

Bid deposits are to be made payable to the City of Waltham. In the event that the successful bidder fails to execute a Contract within (10) days of the receipt of said contract, such security shall be retained by the city as liquidated damages.

Unsuccessful bidders' deposits will be returned immediately following the award to said successful bidder.

9. **WITHDRAW.**

A Bid may be withdrawn by written request prior to the schedule for the Bid Opening. No withdrawals are permitted after the bid opening date and time. Withdrawals after the bid opening date will cause the forfeit of the bid Deposit.

10. **AWARD.**

Bids will be awarded not later than (90) ninety days after the scheduled bid opening date, unless otherwise stated, in the specifications. Unless otherwise specified, bids will be evaluated on the basis of, completeness of your RFP response, responsiveness, responsibility, best price and experience.

11. **AWARD CRITERIA.**

Qualified and responsive proposals will be evaluated based on Price, Technical, and Compliance requirements.

12. **DISCOUNTS.**

Discounts for prompt payments will be considered when making awards.

13. **TAX EXEMPT.**

Purchases by the City of Waltham is exempt from any Federal, State or Massachusetts Municipal Sales and/or Excise Taxes.

14. **SAMPLES.**

The City of Waltham may require the submission of samples either before or after the awarding of a contract. Samples are to be submitted, at no charge to the City, so as to ascertain the product's suitability. If specifically stated in the Bid that samples are required, said samples must be submitted with the Bid prior to the Official Bid Opening. Failure to submit said samples would be cause for rejection of Bid. All

samples must be called for and picked up within (30) thirty days of award or said samples will be presumed abandoned and will be disposed of.

15. **ACTIVE VENDOR LIST.**

Vendors who wish to remain on the Active Bid List must either submit a Bid, No Bid, or a letter requesting same, no later than the Official Bid Opening. This is applicable to those vendors who have received the Invitation to Bid.

16. **FUNDS APPROPRIATION.**

THE CONTRACT OBLIGATION ON BEHALF OF THE CITY IS SUBJECT TO PRIOR APPROPRIATION OF MONIES FROM THE GOVERNMENTAL BODY AND AUTHORIZATION BY THE MAYOR.

17. **THE AWARDING AUTHORITY RESERVES THE RIGHT TO REJECT ANY OR ALL BIDS, OR ANY PART OF ANY BID, WHICH IN THE OPINION OF THE AWARDING AUTHORITY, IS IN THE BEST INTERESTS OF THE CITY OF WALTHAM.**

18. **THE TAX ATTESTATION CLAUSE, CERTIFICATION OF NON-COLLUSION AND THE CERTIFICATE OF VOTE AUTHORIZATION,** are required by statute and are an integral part of the Invitation for Bid and must be completed and signed by the person submitting the Bid, or by the person/persons who are officially authorized to do so. Failure to do so may disqualify the bid.

19. **STANDARD OF QUALITY.**

Where, in the specifications, one certain kind, type, catalog number, brand or manufacturer of material is named, it shall be regarded as the required standard of quality. Where two or more are named, these are presumed to be equal and the Bidder may select one or the other. If the Bidder proposes to offer a substitute as an equal, he shall so indicate on the Bid Form, the kind, type, catalog number, brand, or manufacturer of material that is offered as an equal, and describe where it differs from the specifications. Substituted items must be capable of performing all the functions and/or operational features described or indicated in the specifications. Failure to indicate the description of any substitute item on the Bid will be interpreted to mean that the Bidder will furnish the item or service as specified.

20. MODIFICATION.

No agreement, understanding, alteration or variation of the agreement, terms or provisions herein contained shall bind the parties, hereto unless made and executed in writing by the parties hereto.

21. ASSIGNMENT.

The final payment for work done under this Contract shall be made only after the Contractor has signed a statement under the penalty of perjury, certifying that he has completed the work described in the final estimate. Neither party hereto shall assign this Contract or sublet it in part or as a whole without the prior written consent of the other party hereto. The Contractor shall not assign any sum or sums due or becoming due to him hereunder without the prior written consent of the City.

22. DELIVERIES:

a) The Contractor shall pay all freight and delivery charges. The Waltham Purchasing Department does not pay for shipping and packaging expenses. Items must be delivered as stipulated in the specifications. All deliveries must be made to the inside of city buildings. Sidewalk deliveries will not be accepted. City personnel are not required to assist in the deliveries and contractors are cautioned to notify their shippers that adequate assistance must be provided at the point of delivery, when necessary.

b) All items of furniture must be delivered inside the building, set up, in place and ready for use. Deliveries are to be made between the hours of 8:30 a.m. and 3:00 p.m., Monday through Friday, except on holidays.

c) All damaged items, or items which do not comply with specifications will not be accepted and title therefore will not vest to the Waltham Purchasing Department until such items are accepted and signed for, in good order, by the receiving department.

d) The contractor must replace, without further cost to the Waltham Purchasing Department, such damaged or non-complying items before payment will be made.

23. LABELING.

All packages cartons or other containers must be clearly marked with (a) building and room destination; (b) description of contents of item number from specifications; (c)

quantity; (d) City of Waltham Purchase Order Number and (e) Vendor's name and order number.

24. GUARANTEES.

Unless otherwise stipulated in the specifications, furniture, equipment and similar durable items shall be guaranteed by the contractor for a period of not less than one year from the date of delivery and acceptance by the receiving department. In addition, the manufacturer's guarantee shall be furnished. Any items provided under this contract which are or become defective during the guarantee period shall be replaced the contractor free of charge with the specific understanding that all replacements shall carry the same guarantee as the original equipment. The contractor shall make such replacement immediately upon receiving notice from the Purchasing Agent.

25. SINGLE VENDOR.

The Waltham Purchasing Department desires to award a single contract based on the Grand Total Price. However, where applicable, the City reserves the right to make multiple awards on a unit price basis if, in the opinion of the Waltham Purchasing Department, it is in the best interest of theWaltham Purchasing Department.

26. BID OPENING INCLEMENT WEATHER

If, at the time of the originally scheduled bid opening, City Hall is closed to inclement weather or another unforeseeable event, the bid opening will be extended until 2:00 PM on the next normal business day. Bids will be accepted until that date and time.

GENERAL CONDITIONS

GENERAL CONDITIONS

1. INFORMATION

All information shall come from the Office of the City Purchasing Agent. The Contractor shall inquire at this office for any information needed. Wherever the words “or equal as approved” are used, it is to be understood that the opinion of the City Purchasing Agent shall govern.

2. SUITS

The Contractor shall assume defense of and shall indemnify and hold the City and its agents harmless from all suits and claims against the City and its sub-contractors arising from the use of any invention, patent right labor or employment, or from any act of omission or neglect of the City, its agents, employees or any subcontractor in performing the work, under this contract.

3. LAWS AND REGULATIONS

The Contractor shall conform to all the applicable rules, regulations, laws and ordinances of the City of Waltham, the Commonwealth of Massachusetts, the United States of America and all agencies having jurisdiction over this contract.

4. PROTECTION OF PROPERTY

The Contractor shall take all proper precautions to protect the City’s property from damage and unnecessary inconvenience. Any City property damaged by the Contractor in carrying out the provisions of this contract shall be restored to its original condition, by and at the expense of the Contractor.

5. PROTECTION OF PERSONS

The Contractor shall take all proper precautions to protect persons from injury, unnecessary inconvenience, and shall be responsible for his failure to do so. The Contractor agrees to hold the City harmless from any and all liabilities of every nature and description, which may be suffered through bodily injury, including death, to any person, by reason of negligence of the Contractor, his agents or employees, or any subcontractor.

6. CONTRACT DURATION.

This contract is for the period required to complete the project.

7. **INSURANCE**

A. **WORKMAN'S COMPENSATION:** The Contractor shall provide insurance for the payment of compensation and furnishing of other benefits under Chapter 152 of the General Laws of the Commonwealth of Massachusetts to all persons to be employed under this contract, the premiums for which shall be paid by the Contractor. Contractors shall provide insurance on a primary basis and the contractor's policy shall be exhausted before resorting to other policies. The contractor's policy is the primary one not the contributory.

B. **COMPREHENSIVE GENERAL LIABILITY**

Bodily Injury:	\$1,000,000 Each Occurrence
	\$2,000,000 Aggregate
Property Damage:	\$1,000,000 Each Occurrence
	\$2,000,000 Aggregate

C. **AUTOMOBILE (VEHICLE) LIABILITY**

Bodily Injury	\$2,000,000 Each Occurrence
Property Damage	\$1,000,000 Aggregate

D. **UMBRELLA POLICY**

General liability	\$1,000,000
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Your bid response must include a Certificate of Insurance with the above limits as a minimum. In addition, the Certificate of Insurance must have the following text contained in the bottom left box of the Certificate: *"The City of Waltham is a named additional insured for all insurances under the contract, excluding Automobile and Workers Compensation coverage"*. The Certificate of Insurance must be mailed directly to:

Office of the Purchasing Agent
Purchasing Department
City of Waltham
610 Main Street
Waltham, MA 02452

A LETTER FROM A SURETY COMPANY CERTIFYING THAT THE CONTRACTOR IS QUALIFIED AND CAPABLE OF OBTAINING THE ABOVE BONDS MUST BE INCLUDED WITH HIS/HERS BID.

8. PERSONNEL:

The Contractor shall employ a competent supervisor and all properly licensed personnel necessary to perform the services required in this contract. The City Purchasing Agent shall have the right to require the Contractor to remove and/or replace any of the personnel for nonperformance or for unprofessional behavior. The City Purchasing Agent may require the Contractor to submit a weekly performance record of the areas and of the work performed, on forms approved by the City Purchasing Agent. The Contractor or his supervisor shall be available to inspect such work as required by the City Purchasing Agent.

9. MATERIALS

The City or its Agent reserves the right to approve or reject any supplies, material or equipment used by the Contractor. The Contractor agrees to replace any supplies, material or equipment used by the Contractor. The Contractor agrees to replace any rejected supplies, materials or equipment, to the satisfaction of the City or its Agents.

10. TERMINATION OF CONTRACT

This contract may be terminated by the City upon deliverance to the Contractor of a five-day written notice of said termination.

11. CONTRACT OBLIGATIONS

Contract obligations on behalf of the City are subject to an annual appropriation to cover the contract obligation.

12. BIDDER EXPERIENCE EVALUATION

Each bidder shall submit with his bid, all the information relative to their experience and qualifications in performing the work required under this contract and shall have been in business for a minimum of five (5) years, in order for their bid to be considered.

15. NOT-TO-EXCEED AMOUNT

The bid amount proposed in your company's response is a "not-to- Exceed" amount unless the City makes changes, in writing, to the scope of work to be performed. The Change Order must be signed and approved by the City's Purchasing Agent, City Auditor, Law Department and the Mayor prior to the commencement of the change order work. No work is to begin until the proper approvals have been obtained. A change order will be priced at the unit price. Failure to comply with this procedure will result in the cancellation of the contract and the non-payment of services provided

16. **FINANCIAL STATEMENTS.**

The City may require, within five (5) days after the bid opening, a complete and detailed Financial Statement prepared by a Certified Public Account, to determine a bidder's financial stability.

17 **BREACH OF CONTRACT/ NON PERFORMANCE**

If the Contractor shall provide services in a manner, which is not to the satisfaction of the City, the City may request that the Contractor refurnish services at no additional cost to the City until approved by the City. If the Contractor shall fail to provide services, which are satisfactory to the City, the City in the alternative may make any reasonable purchase or Contract to purchase services in substitution for those due from the Contractor. The City may deduct the cost of any substitute Contract for nonperformance of services together with incidental and consequential damages from the Contract price and shall withhold such damages from sums due or to become due to the Contractor. If the damages sustained by the City exceed sums due or to become due, the Contractor shall pay the difference to the City upon demand. The Contractor shall not be liable for any damages sustained by the City due to the Contractor's failure to furnish services under the terms of this Contract if such failure is in fact caused by the occurrence of a contingency the nonoccurrence of which was a basic assumption under which this Contract was made, including a state of war, embargoes, expropriation of labor strike or any unanticipated federal, state or municipal governmental regulation of order, provided that the Contractor has notified the City in writing of such cause within seven (7) days after its occurrence.

18 **RIGHT TO AUDIT**

The City of Waltham has the right to review and audit documents related to this

contract. This right extends to any subcontractor, supplier or other entity used by the prime contractor to fulfill the obligations under this contract.

19. **CITY ORDINANCE. APPROVAL OF CONTRACTS BY MAYOR, SEC. 3-12 OF THE CITY ORDINANCES.**

All contract made by any department, board or commission where the amount involved is two thousand dollars (\$2,000) or more shall be in writing, and no such contract shall be deemed to have been made or executed until the approval of the Mayor is affixed thereto. Any construction contract shall, and all other contracts may, where the contract exceed five thousand dollars (\$5,000) be required to be accompanied by a bond with sureties satisfactory to the Mayor.

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal

Specifications

Aruba, Wireless

The Waltham Public Schools Wireless project will purchase 150 Access Points, 192 Access Point Licenses, 10 PoE switches and 300 Cat-5e patch cables

Equipment only - [No installation required](#)

Access Points: Aruba Networks AP-105 with ceiling mount hardware

Switches: HP Procurve 24Port Gigabit PoE switch (2520G-24-POE model J9299A#ABA or Better)

Patch Cables: 5' Cat 5e or better

See attached technical brochures

Please note that the City will consider equal or better equipment than specified.

Acceptance of the substituted equipment rest ONLY with the City.

ARUBA 100 SERIES ACCESS POINTS

For high-density Wi-Fi client environments



Multifunctional and affordable 100 series wireless access points (APs) deliver enterprise-grade Wi-Fi to high-density client environments in offices, hospitals, schools, retail stores and warehouses.

These high-performance 802.11n APs deliver wireless data rates up to 300 Mbps per radio and ensure peak performance by utilizing channel bonding, block acknowledgement and MIMO radios. Advanced antenna technology also increases RF signal range and reliability.

The 105 series of APs features two dual-band 2.4-GHz and 5-GHz radios with 2x2 MIMO and four integrated omni-directional downtilt antennas, making it ideal for warehouses and high-ceiling deployments. The 104 series features the same radios with external antenna connectors.

BEST-IN-CLASS RF MANAGEMENT

All Aruba APs include Adaptive Radio Management™ technology, which is essential to creating the most reliable, high-performance WLANs. ARM™ manages the 2.4-GHz and 5-GHz radio bands to optimize Wi-Fi client performance and ensures that APs stay clear of RF interference.

The 100 series can be configured to provide part-time or dedicated air monitoring for spectrum analysis and wireless intrusion protection, VPN tunnels to extend remote locations to corporate resources, and wireless mesh connections where Ethernet drops are not available.

CHOOSE YOUR OPERATING MODE

The 100 series of APs offers a choice of operating modes to meet your unique management and deployment requirements.

- **Controller-managed mode.** When managed by Aruba Mobility Controllers, 100 series APs offer centralized configuration, data encryption, policy enforcement and network services, as well as distributed and centralized traffic forwarding. Please refer to the Aruba [Mobility Controller](#) data sheets for more details.

- **Aruba Instant™ mode.** In Aruba Instant mode, a single AP automatically distributes the network configuration to other Instant APs in the WLAN. Simply power-up one Instant AP, configure it over the air, and plug in the other APs – the entire process takes about five minutes.

For large installations across multiple sites, the Aruba Activate™ service significantly reduces deployment time by automating device provisioning, firmware upgrades, and inventory management. With Aruba Activate, Instant APs are factory-shipped to any site and configure themselves when powered up.

If WLAN and network requirements change, a built-in migration path allows 100 series Instant APs to become part of a WLAN that is centrally managed by a Mobility Controller.

ADVANCED FEATURES

- Spectrum Analysis:
 - Spectrum analyzer remotely scans the 2.4-GHz and 5-GHz radio bands to identify sources of RF interference.
- Security:
 - With an [OpenDNS](#) service subscription, Aruba Instant delivers integrated web filtering, malware and botnet protection to every device connected to the WLAN
 - Integrated Trusted Platform Module (TPM) for secure storage of credentials and keys
 - SecureJack-capable for secure tunneling of wired Ethernet traffic

OPERATING MODES

- 802.11a/b/g/n Aruba Instant AP
- 802.11a/b/g/n Mobility Controller-managed AP
- Air monitor (AM)
- Secure enterprise mesh
- Remote AP (RAP) when used with a Mobility Controller

WIRELESS RADIO SPECIFICATIONS

- AP type: Dual-radio, dual-band 802.11n indoor
- Software-configurable dual radio supports 2.4 GHz and 5 GHz
- 2x2 MIMO 802.11n with two spatial streams and up to 300 Mbps per radio

- Supported frequency bands (country-specific restrictions apply):
 - 2.400 to 2.4835 GHz
 - 5.150 to 5.250 GHz
 - 5.250 to 5.350 GHz
 - 5.470 to 5.725 GHz
 - 5.725 to 5.875 GHz
- Available channels: Dependent upon configured regulatory domain
- Controller-managed, dependent upon configured regulatory domain
- Dynamic frequency selection (DFS) optimizes the use of available RF spectrum
- Supported radio technologies:
 - 802.11b: Direct-sequence spread-spectrum (DSSS)
 - 802.11a/g/n: Orthogonal frequency division multiplexing (OFDM)
 - 802.11n: 2x2 MIMO with two spatial streams
- Supported modulation types:
 - 802.11b: BPSK, QPSK, CCK
 - 802.11a/g/n: BPSK, QPSK, 16-QAM, 64-QAM
- Transmit power: Configurable in increments of 0.5 dBm
- Maximum transmit power:
 - 2.4 GHz: 23 dBm (limited by local regulatory requirements)
 - 5 GHz: 23 dBm (limited by local regulatory requirements)
- Maximum ratio combining (MRC) for improved receiver performance
- Cyclic delay diversity for improved downlink RF performance
- Space time blocking code (STBC) for increased range and improved reception
- Association rates (Mbps):
 - 802.11b: 1, 2, 5.5, 11
 - 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54
 - 802.11n: MCS0 to MCS15 (6.5 Mbps to 300 Mbps)
- 802.11n high-throughput (HT) support: HT 20/40
- 802.11n packet aggregation: A-MPDU, A-MSDU

POWER

- 48 volts DC 802.3af power over Ethernet (PoE)
- 12 volts DC for external AC supplied power (adapter sold separately)
- Maximum power consumption: 12.5 watts

ANTENNA

- RF interconnect attenuation (between radio and connectors or antennas): 0.5 dB
- AP-104 and IAP-104: Four RP-SMA connectors for external single-band antennas
- AP-105 and IAP-105: Four integrated downtilt omni-directional antennas for 2x2 MIMO with maximum antenna gain of 3.0 dBi in 2.4 GHz and 4.5 dBi in 5 GHz

INTERFACES

- Network: One 10/100/1000BASE-T Ethernet (RJ-45), auto-sensing link speed and MDI/MDX
- Power: One DC power connector
- Other: One RJ-45 console interface

MOUNTING

- Included with AP:
 - Molded mounting tabs for attaching to 15/16" T-bar drop-tile ceiling
 - Slotted tabs for screw mounting to a wall, ceiling or other flat surface

- Optional mounting kits:
 - AP-105-MNT: Aruba 100 series AP mount kit contains one flat-surface wall/ceiling secure mount cradle and one wall-box secure mount cradle.
 - AP-105-MNT-DC: Aruba 100 series AP mount kit contains one flat-surface wall/ceiling secure mount cradle and one wall-box secure mount cradle. Both cradles are modified to allow access to AP DC power interface.
 - AP-105-MNT-C: Aruba 100 series AP mount kit contains two ceiling-grid rail adapters for 9/16" and 15/16" flat rails.

MECHANICAL

- Dimensions/weight (unit):
 - 132 mm x 135 mm x 45 mm (5.2" x 5.3" x 1.8")
 - 0.3 kg (.66 lb)
- Dimensions/weight (shipping):
 - 195 mm x 170 mm x 55 mm (7.7" x 6.7" x 2.2")
 - 0.44 kg (.97 lb)

ENVIRONMENTAL

- Operating:
 - Temperature: 0° C to 50° C (+32° F to +122° F)
 - Humidity: 5% to 95% non-condensing
- Storage and transportation temperature range:
 - Temperature: -40° C to +70° C (-40° F to +158° F)

REGULATORY

- FCC/Industry of Canada
- CE Marked
- R&TTE Directive 1995/5/EC
- Low Voltage Directive 72/23/EEC
- EN 300 328
- EN 301 489
- EN 301 893
- UL/IEC/EN 60950
- EN 60601-1-1, EN60601-1-2

For more country-specific regulatory information and approvals, please see your Aruba representative.

CERTIFICATIONS

- CB Scheme Safety, cTUVus
- UL2043 plenum rating
- Wi-Fi certified 802.11a/b/g/n



WARRANTY

- Limited lifetime warranty



MINIMUM ARUBAOS VERSION

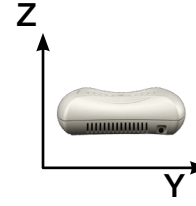
- AP-104: ArubaOS 6.1.3.0 on an Aruba Mobility Controller
- AP-105: ArubaOS 3.4.1.0 on an Aruba Mobility Controller
- Aruba Instant 2.0.0.3 software

100 SERIES AP RF PERFORMANCE TABLE

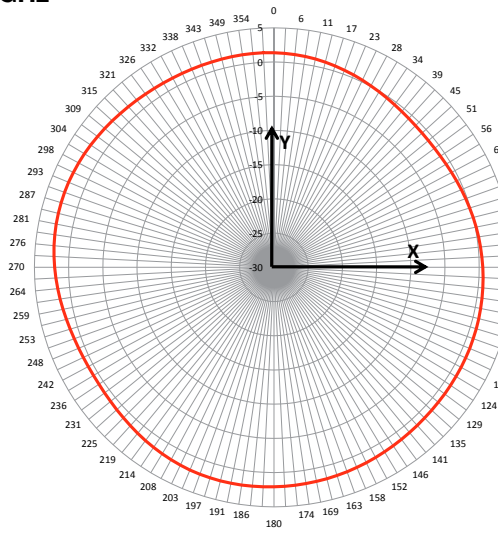
	Max transmit power per active transmit chain (dBm)	Receive sensitivity (dBm)	Max transmit power per active transmit chain (dBm)	Receive sensitivity (dBm)
	2.4 GHz		5 GHz	
802.11b				
1 Mbps	20	-96	-	-
2 Mbps	20	-96	-	-
5.5 Mbps	20	-94	-	-
11 Mbps	20	-93	-	-
802.11a/g				
6 Mbps	20	-96	20	-96
9 Mbps	20	-96	20	-96
12 Mbps	20	-96	20	-96
18 Mbps	20	-95	20	-95
24 Mbps	20	-92	20	-91
36 Mbps	19	-89	19	-88
48 Mbps	18	-85	18	-84
54 Mbps	17	-83	17	-83
802.11n HT20				
MCS0	20	-96	20	-96
MCS1	20	-95	20	-94
MCS2	20	-93	20	-92
MCS3	20	-90	20	-89
MCS4	19	-87	19	-86
MCS5	18	-82	18	-82
MCS6	17	-81	17	-80
MCS7	15	-80	15	-79
MCS8	20	-95	20	-95
MCS9	20	-93	20	-92
MCS10	20	-91	20	-90
MCS11	20	-87	20	-87
MCS12	19	-84	19	-84
MCS13	18	-81	18	-80
MCS14	17	-80	17	-78
MCS15	15	-77	15	-77
802.11n HT40				
MCS0	20	-93	20	-92
MCS1	20	-93	20	-92
MCS2	20	-90	20	-89
MCS3	20	-86	20	-86
MCS4	19	-83	19	-83
MCS5	18	-79	18	-80
MCS6	17	-77	17	-77
MCS7	15	-76	15	-76
MCS8	20	-92	20	-92
MCS9	20	-89	20	-90
MCS10	20	-87	20	-87
MCS11	20	-84	20	-84
MCS12	19	-82	19	-81
MCS13	18	-76	18	-77
MCS14	17	-76	17	-75
MCS15	15	-73	15	-73

Maximum capability of the hardware provided. Maximum transmit power is limited by local regulatory settings.

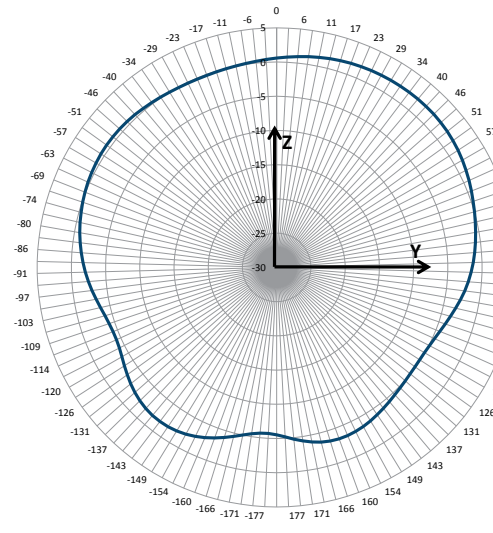
IAP-105 AND AP-105 ANTENNA PATTERN PLOTS



2.45 GHz

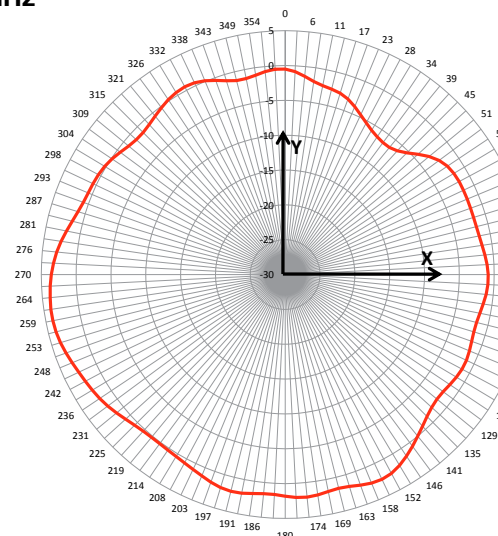


Horizontal (azimuth) plane

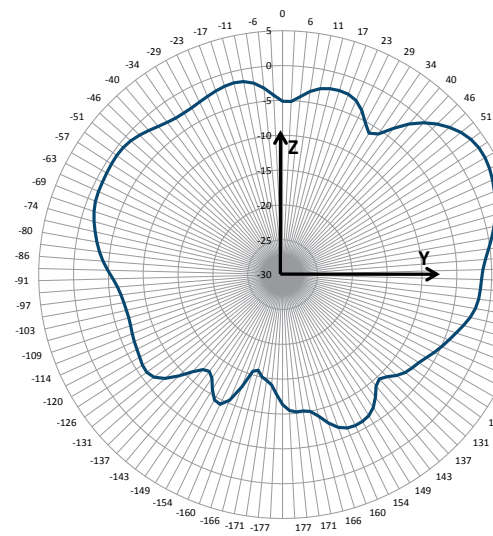


Vertical (elevation) plane

5.5 GHz



Horizontal (azimuth) plane



Vertical (elevation) plane

ORDERING INFORMATION	
Part Number	Description
IAP-105	Aruba Instant 105 wireless AP, 802.11a/b/g/n, 2x2:2, dual radio, integrated antennas. Unrestricted regulatory domain. These products should be considered <i>rest-of-world products</i> and must not be deployed in the United States, Japan or Israel.
IAP-105-US	Aruba Instant 105 wireless AP, 802.11a/b/g/n, 2x2:2, dual radio, integrated antennas. Restricted regulatory domain – US
IAP-105-IL	Aruba Instant 105 wireless AP, 802.11a/b/g/n, 2x2:2, dual radio, integrated antennas. Restricted regulatory domain – IL
IAP-105-JP	Aruba Instant 105 wireless AP, 802.11a/b/g/n, 2x2:2, dual radio, integrated antennas. Restricted regulatory domain – JP
AP-105	Aruba 105 wireless AP, 802.11a/b/g/n, 2x2:2, dual radio, integrated antennas
AP-105-1	Aruba 105 wireless AP, TAA compliant
AP-105-F1	Aruba 105 wireless AP, FIPS/TAA
AP-105-MNT	Aruba 100 series AP mount kit contains one flat-surface wall/ceiling secure mount cradle and one wall-box secure mount cradle.
AP-105-MNT-C	Aruba 100 series AP mount kit contains two ceiling-grid rail adapters for 9/16" and 15/16" flat rails.
AP-105-MNT-C2	Aruba 100 Series Access Point Mount Kit (ceiling grid). Contains 2x ceiling grid rail adapters (for Interlude and Silhouette style rails).
AP-105-MNT-DC	Aruba 100 series AP mount kit contains one flat-surface wall/ceiling secure mount cradle and one wall-box secure mount cradle. Both cradles are modified to allow access to AP DC power interface.
IAP-104	Aruba Instant 104 wireless AP, 802.11a/b/g/n, dual band, dual radio, external antenna connectors. Unrestricted regulatory domain. These products should be considered <i>rest-of-world products</i> and must not be deployed in the United States, Japan or Israel.
IAP-104-US	Aruba Instant 104 wireless AP, 802.11a/b/g/n, dual band, dual radio, external antenna connectors. Restricted regulatory domain: United States
IAP-104-IL	Aruba Instant 104 wireless AP, 802.11a/b/g/n, dual band, dual radio, external antenna connectors. Restricted regulatory domain: Israel
IAP-104-JP	Aruba Instant 104 wireless AP, 802.11a/b/g/n, dual band, dual radio, external antenna connectors. Restricted regulatory domain: Japan
AP-104	Aruba 104 wireless AP, 802.11a/b/g/n 2x2:2, dual radio, antenna connectors.
AP-104-F1	Aruba 104 wireless AP, FIPS/TAA
AP-AC-UN	12-volt DC universal AC power adapter kit – North America, Japan, United Kingdom, Italy, EC (Europlug), Australia, China, India, Korea
AP-AC-12V18	12-volt DC/18-watt AC power adapter. Does not include country specific power cord



www.arubanetworks.com

1344 Crossman Avenue. Sunnyvale, CA 94089

1-866-55-ARUBA | Tel. +1 408.227.4500 | Fax. +1 408.227.4550 | info@arubanetworks.com



HP E2520 Switch Series

Data sheet

Product overview

The HP E2520 switch series is ideally suited for small and medium businesses looking to deploy voice, video, or wireless solutions that require Power over Ethernet (PoE) connectivity. The series consists of four switches: the HP E2520-8-PoE, E2520-24-PoE, E2520-8G-PoE, and E2520-24G-PoE Switches. The four models offer a choice of either Fast Ethernet or Gigabit Ethernet connectivity. All models also include support for dual-personality Gigabit Ethernet ports that can be used for either copper or fiber connectivity. All products are fully managed via SNMP, command-line interface (CLI), and graphical user interface (GUI) and offer a Layer 2 feature set. In addition, the products provide deployment flexibility with compact, quiet, and energy-efficient designs.

Key features

- Fully managed Layer 2 switch in 8 or 24 ports
- Choice of Fast Ethernet or Gigabit PoE models
- Power over Ethernet for voice, video, and wireless
- Energy-efficient design and quiet operation
- Rack-mountable and compact form factors



Features and benefits

Quality of Service (QoS)

- **Selectable queue configuration:** allows you to increase performance and/or traffic reliability by selecting the number of queues that best meet the requirements of your network applications; switch will map 8 priorities to either 2 or 4 queues
- **Simplified QoS configuration:**
 - **Port-based:** prioritize traffic by specifying a port and priority level
 - **VLAN based:** prioritize traffic by specifying a VLAN and priority level
- **IEEE 802.1p traffic prioritization:** honors and sets IEEE 802.1p priority in the VLAN tag
- **Type of service:**
 - **IP precedence:** honors IP precedence bits and allows mapping to a priority queue
 - **Differentiated Services Code Point values:** honors Differentiated Services Code Point (DSCP) bits and allows mapping to a priority queue
- **Flow control:** helps ensure reliable communications during full-duplex operation

Management

- **Choice of management interfaces:**
 - **Web graphical user interface (GUI):** easy-to-use graphical interface allows configuration of the switch from any Web browser
 - **Command-line interface (CLI):** robust command-line interface provides advanced configuration and diagnostics
 - **Simple Network Management Protocol (SNMPv2c/SNMPv3):** allows switch to be managed with a variety of third-party network management applications
- **Integration with HP PCM:** enables discovery, mapping, logging, and configuration via HP PCM, which is available as a free download from the Web
- **Virtual stacking:** single IP address manages up to 16 switches
- **Port mirroring:** allows traffic to be mirrored on any port or a network analyzer to assist with diagnostics or detecting network attacks
- **Multiple configuration files:** configuration file management tools allow up to three configuration files to be managed and stored on the switch

- **Dual flash images:** provide independent primary and secondary operating system files for backup while upgrading
- **Network tools:** command-line interface includes telnet client, ping, traceroute, and Layer 2 link test tools for diagnostics
- **IEEE 802.1AB Link Layer Discovery Protocol (LLDP):** automated device discovery protocol for easy mapping by network management applications
- **Command authorization:** leverages RADIUS to link a custom list of CLI commands to an individual network administrator's login; also provides an audit trail
- **Logging:** local and remote logging of events via SNMP (v2c and v3) and syslog
- **IPv6 host:** allows switches to be managed using IPv6
- **RMON:** provides advanced monitoring and reporting capabilities for statistics, history, alarms, and events
- **Find-Fix-Inform:** finds and fixes common network problems automatically, then informs the administrator
- **Front-panel LEDs:**
 - **Locator LED:** allows users to set the locator LED on a specific switch to either turn on, blink, or turn off; simplifies troubleshooting by making it easy to locate a particular switch within a rack of similar switches
 - **Per-port LEDs:** provides an at-a-glance view of status, activity, speed, and full-duplex operation
 - **Power and fault LEDs:** display any issues

Connectivity

- **Auto-MDIX:** automatically adjusts for straight-through or crossover cables on all ports
- **Small Form-Factor Pluggable (SFP) slots:** dual-personality ports allow for either copper or fiber connectivity such as Gigabit-SX, -LX, -LH, and -BX or 100-FX and -BX
- **IEEE 802.3af Power over Ethernet:** provides up to 15.4 W per port to IEEE 802.3af-compliant PoE-powered devices such as IP phones, wireless access points, and security cameras (see product specifications for total PoE power available); supports some prestandard PoE devices (see product FAQs for more details)
- **RJ-45 serial console port:** front of unit location provides easy access to the switch CLI

Performance

- **Switch on a chip:** provides highly integrated, high-performance switch design with a non-blocking architecture
- **Jumbo packet support:** supports up to 9216-byte frame size to improve performance of large data transfers (2520G switch)

Resiliency and high availability

- **Port trunking and link aggregation:**
 - **Trunking:** supports up to eight links per trunk to increase bandwidth and create redundant connections
 - **IEEE 802.3ad Link Aggregation Protocol (LACP):** eases configuration of trunks through automatic configuration
- **IEEE 802.1s Multiple Spanning Tree Protocol (MSTP):** provides high link availability in multiple VLAN environments by allowing multiple spanning trees; provides legacy support for IEEE 802.1w (Rapid Reconfiguration of Spanning Tree Protocol) and IEEE 802.1d (Spanning Tree Protocol)

Layer 2 switching

- **VLAN support and tagging:** supports the IEEE 802.1Q (4,094 VLAN IDs) and up to 256 port-based VLANs simultaneously
- **GARP VLAN Registration Protocol (GVRP):** allows automatic learning and dynamic assignment of VLANs
- **Broadcast control:** allows limitation of broadcast traffic rate to cut down on unwanted broadcast traffic on the network

Security

- **Manager and operator privilege levels:** enables read-only (operator) and read-write (manager) access on management interfaces
- **RADIUS/TACACS+ for management access authentication:** eases switch management security administration by using a password authentication server

• Secure protocols for encryption of management traffic:

- **Secure Shell (SSHv2):** encrypts all transmitted data for secure, remote CLI access over IP networks
- **Secure Sockets Layer (SSL):** encrypts all HTTP traffic, allowing secure access to the browser-based management GUI in the switch
- **Simple Network Management Protocol (SNMP) v3:** allows encryption of traffic between switch MIBs and network management software
- **Secure FTP (SFTP):** encrypts uploads and downloads of configuration file

- **Protected ports:** prevents designated ports from communicating with each other while allowing access to unprotected ports

- **Port security:** allows access only to specified MAC addresses, which can be learned or specified by the administrator

- **MAC address lockout:** prevents particular configured MAC addresses from connecting to the network

- **MAC address lockdown:** allows only specified MAC addresses access to the network on a specified port

- **Denial-of-service (DoS) attack filtering:** automatically filters and drops common DoS attack traffic types

• User authentication for port access:

- **IEEE 802.1X:** utilizes an industry-standard user authentication with an IEEE 802.1X supplicant on the client in conjunction with a RADIUS server
- **Web-based:** similar to IEEE 802.1X, it provides a browser-based environment to authenticate clients
- **MAC-based:** client is authenticated with the RADIUS server based on MAC address
- **Concurrent authentication schemes:** each switch port will accept up to two sessions of IEEE 802.1X, Web, and/or MAC authentications concurrently

- **Custom banner:** displays security policy when users log in to the switch

- **Spanning Tree Protocol Bridge Protocol Data Unit (BPDU) port protection:** blocks BPDUs on ports that do not require BPDUs, preventing forged BPDU attacks

- **Spanning Tree Protocol Root Guard:** when running the spanning tree protocol, protects root bridge from malicious attack or configuration mistakes

- **Physical security:**

- **Front-panel buttons:** provides the ability to disable reset and clear buttons on front panel for added security
- **Kensington Lock:** 2520-8-PoE and 2520G-8-PoE switches include a Kensington Lock slot for securing the switches in open-space deployments

Convergence

- **LLDP-MED (Media Endpoint Discovery):** is a standard extension of LLDP that automatically configures network devices such as IP phones
- **IP multicast snooping and data-driven IGMP:** automatically prevents flooding of IP multicast traffic
- **Voice VLAN:** uses LLDP-MED to automatically configure a VLAN for IP phones

Flexibility

- **Quiet operation:**
 - **Fanless design (2520-8-PoE and 2520G-8-PoE switches):** enables quiet operation for deployment in open spaces
 - **Variable-speed fans (2520-24-PoE and 2520G-24-PoE switches):** improves fan speed for the operating environment while lowering noise and energy consumption levels
- **Flexible mounting:**
 - **Rackable:** is mountable in a standard 19-inch rack with included hardware (2520-8-PoE and 2520G-8-PoE rack kit available free of charge via the Web)
 - **Wall mountable:** allows the switch to be mounted to a wall using included hardware
 - **Surface mountable:** allows the product to be mounted above or below a surface (such as a desk or table) with included hardware
- **Compact size:** products are designed to reduce space requirements (see product specifications for exact dimensions)

Product architecture

- **Energy-efficient design:**

- **Fans:** fanless (2520-8-PoE and 2520G-8-PoE switches) and variable-speed fans (2520-24-PoE and 2520G-24-PoE switches) help reduce power consumption
- **Port LEDs:** port link and activity LEDs can be turned off to conserve energy
- **Port low-power mode:** when no link is detected on a port, the port will automatically go into low-power mode to conserve energy (2520G switch)

Warranty and support

- **Lifetime warranty:** for as long as you own the product with advance replacement and next-business-day delivery (available in most countries)*
- **Electronic and telephone support:** limited electronic and telephone support is available from HP; refer to www.hp.com/networking/warranty for details on the support provided and the period during which support is available
- **Software releases:** refer to www.hp.com/networking/warranty for details on the software releases provided and the period during which software releases are available for your product(s)

*Hardware warranty replacement for as long as you own the product, with next business day advance replacement (available in most countries) with a five-year hardware warranty replacement for the disk drive included with HP AllianceONE Services zl Module, HP Threat Management Services zl Module, HP PCM+ Agent with AllianceONE Services zl Module, and HP E-MSM765 zl Mobility Controller. For details, refer to the HP Software License, Warranty, and Support booklet at www.hp.com/networking/warranty.

HP E2520 Switch Series

Specifications



HP E2520-8-PoE Switch (J9137A)



HP E2520-24-PoE Switch (J9138A)

Ports	<p>8 RJ-45 autosensing 10/100 PoE ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3af PoE); Media Type: Auto-MDIX; Duplex: half or full</p> <p>2 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; IEEE 802.3u Type 100Base-TX; IEEE 802.3ab 1000Base-T Gigabit Ethernet) or as a SFP slot (for use with SFP transceivers)</p> <p>1 RJ-45 serial console port</p>	<p>24 RJ-45 autosensing 10/100 PoE ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3af PoE); Media Type: Auto-MDIX; Duplex: half or full</p> <p>2 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only</p> <p>2 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; IEEE 802.3u Type 100Base-TX; IEEE 802.3ab 1000Base-T Gigabit Ethernet) or as a SFP slot (for use with SFP transceivers)</p> <p>1 RJ-45 serial console port</p>
Physical characteristics		
Dimensions	6.28(d) x 10(w) x 1.75(h) in. (15.95 x 25.4 x 4.45 cm) (1U height)	9.69(d) x 17.44(w) x 1.75(h) in. (24.61 x 44.3 x 4.45 cm) (1U height)
Weight	3.62 lb. (1.64 kg) including power adapter and power cord	7.1 lb. (3.22 kg)
Memory and processor		
Processor	Freescall PowerPC 8313 @ 266 MHz, 32 MB flash, 128 MB DDR2 SDRAM; packet buffer size: 384 KB dynamically allocated	Freescall PowerPC 8313 @ 266 MHz, 32 MB flash, 128 MB DDR2 SDRAM; packet buffer size: 384 KB dynamically allocated
Mounting	Mounts in an EIA-standard 19-inch telco rack or equipment cabinet (rack-mounting kit available); horizontal surface mounting; wall mounting	Mounts in an EIA-standard 19-inch telco rack or equipment cabinet (rack-mounting kit available); horizontal surface mounting; wall mounting
Performance		
100 Mb Latency	< 1.9 μs (LIFO 64-byte packets)	< 1.9 μs (LIFO 64-byte packets)
1000 Mb latency	< 1.5 μs (LIFO 64-byte packets)	< 1.5 μs (LIFO 64-byte packets)
Throughput	4.1 million pps	9.5 million pps
Switching capacity	5.6 Gbps	12.8 Gbps
MAC address table size	8000 entries	8000 entries
Environment		
Operating temperature	32°F to 113°F (0°C to 45°C)	32°F to 113°F (0°C to 45°C)
Operating relative humidity	15% to 95% @ 104°F (40°C), noncondensing	15% to 95% @ 104°F (40°C), noncondensing
Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity	15% to 95% @ 149°F (65°C), noncondensing	15% to 95% @ 149°F (65°C), noncondensing
Altitude	up to 10,000 ft. (3 km)	up to 10,000 ft. (3 km)
Acoustic	Power: 0 dB, Pressure: 0 dB	Power: 27.9 dB, Pressure: 36.0 dB; DIN 45635T.19 per ISO 7779
Electrical characteristics		
Description	Use only the external power adapter module (5070-6082, PA1 AC adapter) supplied with this product	
Maximum heat dissipation	87 BTU/hr (91.79 kJ/hr)	208 BTU/hr (219.44 kJ/hr)
Voltage	100-240 VAC	100-127/200-240 VAC
Current	1.5 A	3.3/1.6 A
Idle power	9.4 W	21.6 W
Maximum power rating	85.5 W	257 W
PoE power	67 W	195 W
Frequency	50/60 Hz	50/60 Hz
Notes	<p>Idle power is the actual power consumption of the device with no ports connected.</p> <p>Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.</p> <p>PoE power is the total power budget available to all PoE ports.</p>	<p>Idle power is the actual power consumption of the device with no ports connected.</p> <p>Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.</p> <p>PoE power is the total power budget available to all PoE ports.</p>
Safety	cUL (CSA 22.2 No. 60950); CE Labeled; UL 60950-1; UL Listed; CAN/CSA 22.2 No. 60950; EN 60825; AS/NZS 60950; IEC 60950-1; EN 60950-1	cUL (CSA 22.2 No. 60950); CE Labeled; UL 60950-1; UL Listed; CAN/CSA 22.2 No. 60950; EN 60825; AS/NZS 60950; IEC 60950-1; EN 60950-1
Emissions	FCC part 15 Class A; VCCI Class A; EN 55022 Class A; CISPR 22 Class A; ICES-003 (Canada); AS/NZS CISPR 22; IEC/EN 61000-3-2; IEC/EN 61000-3-3; IEC 61000-4-2, 4-3, 4-4, 4-5, 4-6, 4-8, 4-11	FCC part 15 Class A; VCCI Class A; EN 55022 Class A; CISPR 22 Class A; ICES-003 (Canada); AS/NZS CISPR 22; IEC/EN 61000-3-2; IEC/EN 61000-3-3; IEC 61000-4-2, 4-3, 4-4, 4-5, 4-6, 4-8, 4-11
Immunity		
Generic	EN 55024, CISPR 24	EN 55024, CISPR 24
EN	EN 55024, CISPR 24	EN 55024, CISPR 24
ESD	IEC 61000-4-2	IEC 61000-4-2
Radiated	IEC 61000-4-3	IEC 61000-4-3
EFT/Burst	IEC 61000-4-4	IEC 61000-4-4

HP E2520 Switch Series

Specifications (continued)

	HP E2520-8-PoE Switch (J9137A)	HP E2520-24-PoE Switch (J9138A)	
Surge	IEC 61000-4-5	IEC 61000-4-5	
Conducted	IEC 61000-4-6	IEC 61000-4-6	
Power frequency magnetic field	IEC 61000-4-8	IEC 61000-4-8	
Voltage dips and interruptions	IEC 61000-4-11	IEC 61000-4-11	
Harmonics	EN 61000-3-2, IEC 61000-3-2	EN 61000-3-2, IEC 61000-3-2	
Flicker	EN 61000-3-3, IEC 61000-3-3	EN 61000-3-3, IEC 61000-3-3	
Management	HP PCM+; HP PCM; command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C); IEEE 802.3 Ethernet MIB; Repeater MIB; Ethernet Interface MIB	HP PCM+; HP PCM; command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C); IEEE 802.3 Ethernet MIB; Repeater MIB; Ethernet Interface MIB	
Notes	When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, for example, J4858B, J4859C) are required.	When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, for example, J4858B, J4859C) are required.	
Services	<p>3-year, 4-hour onsite, 13x5 coverage for hardware (U4683E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware (U4835E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (U6321E)</p> <p>3-year, 24x7 SW phone support, software updates (UF792E)</p> <p>Installation with minimum configuration, system-based pricing (U4826E)</p> <p>Installation with HP-provided configuration, system-based pricing (U4830E)</p> <p>4-year, 4-hour onsite, 13x5 coverage for hardware (UR9548E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware (UR949E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR950E)</p> <p>4-year, 24x7 SW phone support, software updates (UR951E)</p> <p>5-year, 4-hour onsite, 13x5 coverage for hardware (UR952E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware (UR953E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR954E)</p> <p>5-year, 24x7 SW phone support, software updates (UR955E)</p> <p>3 Yr 6 hr Call-to-Repair Onsite (UW368E)</p> <p>4 Yr 6 hr Call-to-Repair Onsite (UW369E)</p> <p>5 Yr 6 hr Call-to-Repair Onsite (UW370E)</p>	<p>3-year, 4-hour onsite, 13x5 coverage for hardware (U4683E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware (U4835E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (U6321E)</p> <p>3-year, 24x7 SW phone support, software updates (UF792E)</p> <p>Installation with minimum configuration, system-based pricing (U4826E)</p> <p>Installation with HP-provided configuration, system-based pricing (U4830E)</p> <p>4-year, 4-hour onsite, 13x5 coverage for hardware (UR948E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware (UR949E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR950E)</p> <p>4-year, 24x7 SW phone support, software updates (UR951E)</p> <p>5-year, 4-hour onsite, 13x5 coverage for hardware (UR952E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware (UR953E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR954E)</p> <p>5-year, 24x7 SW phone support, software updates (UR955E)</p> <p>3 Yr 6 hr Call-to-Repair Onsite (UW368E)</p> <p>4 Yr 6 hr Call-to-Repair Onsite (UW369E)</p> <p>5 Yr 6 hr Call-to-Repair Onsite (UW370E)</p>	
	Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	
Standards and protocols (applies to all products in series)	<p>Denial of service protection</p> <p>CPU DoS Protection</p> <p>Device management</p> <p>RFC 1591 DNS (client)</p> <p>SSHv1/SSHv2 Secure Shell</p> <p>General protocols</p> <p>IEEE 802.1D MAC Bridges</p> <p>IEEE 802.1p Priority</p> <p>IEEE 802.1Q VLANs</p> <p>IEEE 802.1s Multiple Spanning Trees</p> <p>IEEE 802.1w Rapid Reconfiguration of Spanning Tree</p> <p>IEEE 802.3 Type 10BASE-T</p> <p>IEEE 802.3ab 1000BASE-T</p> <p>IEEE 802.3ad Link Aggregation Control Protocol (LACP)</p> <p>IEEE 802.3af Power over Ethernet</p> <p>IEEE 802.3x Flow Control</p> <p>RFC 768 UDP</p> <p>RFC 783 TFTP Protocol (revision 2)</p> <p>RFC 792 ICMP</p> <p>RFC 793 TCP</p> <p>RFC 826 ARP</p> <p>RFC 854 TELNET</p> <p>RFC 868 Time Protocol</p> <p>RFC 951 BOOTP</p> <p>RFC 1350 TFTP Protocol (revision 2)</p> <p>RFC 1542 BOOTP Extensions</p> <p>RFC 2030 Simple Network Time Protocol (SNTP) v4</p> <p>RFC 2131 DHCP</p>	<p>IP multicast</p> <p>RFC 3376 IGMPv3 (host joins only)</p> <p>IPv6</p> <p>RFC 1981 IPv6 Path MTU Discovery</p> <p>RFC 2460 IPv6 Specification</p> <p>RFC 2925 Remote Operations MIB (Ping only)</p> <p>RFC 3315 DHCPv6 (client only)</p> <p>RFC 3513 IPv6 Addressing Architecture</p> <p>RFC 3596 DNS Extension for IPv6</p> <p>RFC 4022 MIB for TCP</p> <p>RFC 4113 MIB for UDP</p> <p>RFC 4251 SSHv6 Architecture</p> <p>RFC 4252 SSHv6 Authentication</p> <p>RFC 4253 SSHv6 Transport Layer</p> <p>RFC 4254 SSHv6 Connection</p> <p>RFC 4293 MIB for IP</p> <p>RFC 4419 Key Exchange for SSH</p> <p>RFC 4443 ICMPv6</p> <p>RFC 4861 IPv6 Neighbor Discovery</p> <p>RFC 4862 IPv6 Stateless Address Auto-configuration</p> <p>MIBs</p> <p>RFC 1213 MIB II</p> <p>RFC 1493 Bridge MIB</p> <p>RFC 2021 RMONv2 MIB</p> <p>RFC 2613 SMON MIB</p> <p>RFC 2618 RADIUS Client MIB</p> <p>RFC 2620 RADIUS Accounting MIB</p> <p>RFC 2665 Ethernet-Like-MIB</p> <p>RFC 2668 802.3 MAU MIB</p> <p>RFC 2674 802.1p and IEEE 802.1Q Bridge MIB</p> <p>RFC 2737 Entity MIB (Version 2)</p> <p>RFC 2863 The Interfaces Group MIB</p>	<p>Network management</p> <p>IEEE 802.1AB Link Layer Discovery Protocol (LLDP)</p> <p>RFC 1098 A Simple Network Management Protocol (SNMP)</p> <p>RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events)</p> <p>ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)</p> <p>SNMPv1/v2c/v3</p> <p>QoS/CoS</p> <p>RFC 2474 DiffServ precedence, with 4 queues per port</p> <p>RFC 2475 DiffServ Architecture</p> <p>RFC 2597 DiffServ Assured Forwarding (AF)</p> <p>RFC 2598 DiffServ Expedited Forwarding (EF)</p> <p>Security</p> <p>IEEE 802.1X Port Based Network Access Control</p> <p>RFC 1492 TACACS+</p> <p>RFC 2138 RADIUS Authentication</p> <p>RFC 2866 RADIUS Accounting</p> <p>Secure Sockets Layer (SSL)</p>

HP E2520 Switch Series

Specifications (continued)



HP E2520-8G-PoE Switch (J9298A)



HP E2520-24G-PoE Switch (J9299A)

Ports	8 RJ-45 autosensing 10/100/1000 PoE ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3af PoE); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 2 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; IEEE 802.3u Type 100Base-TX; IEEE 802.3ab 1000Base-T Gigabit Ethernet) or as a SFP slot (for use with SFP transceivers) 1 RJ-45 serial console port	20 RJ-45 autosensing 10/100/1000 PoE ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T, IEEE 802.3af PoE); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 4 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 PoE port (IEEE 802.3 Type 10Base-T; IEEE 802.3u Type 100Base-TX; IEEE 802.3ab 1000Base-T Gigabit Ethernet, IEEE 802.3af) or as an SFP slot (for use with SFP transceivers) 1 RJ-45 serial console port
Physical characteristics		
Dimensions	6.28(d) x 10(w) x 1.75(h) in. (15.95 x 25.4 x 4.45 cm) (1U height)	9.69(d) x 17.44(w) x 1.75(h) in. (24.61 x 44.3 x 4.45 cm) (1U height)
Weight	3.66 lb. (1.66 kg) including power adapter and power cord	7.21 lb. (3.27 kg)
Memory and processor		
Processor	Freescale PowerPC 8313 @ 266 MHz, 32 MB flash, 128 MB DDR2 SDRAM; packet buffer size: 512 KB dynamically allocated	Freescale PowerPC 8313 @ 266 MHz, 32 MB flash, 128 MB DDR2 SDRAM; packet buffer size: 512 KB dynamically allocated
Mounting	Mounts in an EIA-standard 19-inch telco rack or equipment cabinet (rack-mounting kit available); horizontal surface mounting; wall mounting	Mounts in an EIA-standard 19-inch telco rack or equipment cabinet (rack-mounting kit available); horizontal surface mounting; wall mounting
Performance		
100 Mb Latency	< 5.3 μ s (LIFO 64-byte packets)	< 5.3 μ s (LIFO 64-byte packets)
1000 Mb Latency	< 2.7 μ s (LIFO 64-byte packets)	< 2.7 μ s (LIFO 64-byte packets)
Throughput	14.8 million pps	35.7 million pps
Switching capacity	20 Gbps	48 Gbps
MAC address table size	8000 entries	8000 entries
Environment		
Operating temperature	32°F to 113°F (0°C to 45°C)	32°F to 122°F (0°C to 50°C)
Operating relative humidity	15% to 95% @ 104°F (40°C), noncondensing	15% to 95% @ 104°F (40°C), noncondensing
Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity	15% to 95% @ 149°F (65°C), noncondensing	15% to 95% @ 149°F (65°C), noncondensing
Altitude	up to 10,000 ft. (3 km)	up to 10,000 ft. (3 km)
Acoustic	Power: 0 dB, Pressure: 0 dB	Power: 28.3 dB, Pressure: 37.7 dB; DIN 45635T.19 per ISO 7779
Electrical characteristics		
Description	Use only the external power adapter module (5070-6082, PA1 AC adapter) supplied with this product	
Maximum heat dissipation	89 BTU/hr (93.9 kJ/hr)	223 BTU/hr (235.27 kJ/hr)
Voltage	100-240 VAC	100-127/200-240 VAC
Current	1.5 A	3.3/1.6 A
Idle power	9.3 W	21.8 W
Maximum power rating	86.2 W	260.4 W
PoE power	67 W	195 W
Frequency	50/60 Hz	50/60 Hz
Notes	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. PoE power is the total power budget available to all PoE ports.	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. PoE power is the total power budget available to all PoE ports.
Safety	cUL (CSA 22.2 No. 60950); CE Labeled; UL 60950-1; UL Listed; CAN/CSA 22.2 No. 60950; EN 60825; AS/NZS 60950; IEC 60950-1; EN 60950-1	cUL (CSA 22.2 No. 60950); CE Labeled; UL 60950-1; UL Listed; CAN/CSA 22.2 No. 60950; EN 60825; AS/NZS 60950; IEC 60950-1; EN 60950-1
Emissions	FCC part 15 Class A; VCCI Class A; EN 55022 Class A; CISPR 22 Class A; ICES-003 (Canada); AS/NZS CISPR 22; IEC/EN 61000-3-2; IEC/EN 61000-3-3; IEC 61000:4-2, 4-3, 4-4, 4-5, 4-6, 4-8, 4-11	FCC part 15 Class A; VCCI Class A; EN 55022 Class A; CISPR 22 Class A; ICES-003 (Canada); AS/NZS CISPR 22; IEC/EN 61000-3-2; IEC/EN 61000-3-3; IEC 61000:4-2, 4-3, 4-4, 4-5, 4-6, 4-8, 4-11
Immunity		
Generic	EN 55024, CISPR 24	EN 55024, CISPR 24
EN	EN 55024, CISPR 24	EN 55024, CISPR 24
ESD	IEC 61000-4-2	IEC 61000-4-2
Radiated	IEC 61000-4-3	IEC 61000-4-3
EFT/Burst	IEC 61000-4-4	IEC 61000-4-4
Surge	IEC 61000-4-5	IEC 61000-4-5
Conducted	IEC 61000-4-6	IEC 61000-4-6
Power frequency magnetic field	IEC 61000-4-8	IEC 61000-4-8

HP E2520 Switch Series

Specifications (continued)

	HP E2520-8G-PoE Switch (J9298A)	HP E2520-24G-PoE Switch (J9299A)	
Voltage dips and interruptions	IEC 61000-4-11	IEC 61000-4-11	
Harmonics	EN 61000-3-2, IEC 61000-3-2	EN 61000-3-2, IEC 61000-3-2	
Flicker	EN 61000-3-3, IEC 61000-3-3	EN 61000-3-3, IEC 61000-3-3	
Management	HP PCM+; HP PCM; command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C); IEEE 802.3 Ethernet MIB; Repeater MIB; Ethernet Interface MIB	HP PCM+; HP PCM; command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C); IEEE 802.3 Ethernet MIB; Repeater MIB; Ethernet Interface MIB	
Notes	When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, for example, J4858B, J4859C) are required.	When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, for example, J4858B, J4859C) are required.	
Services	<p>3-year, 4-hour onsite, 13x5 coverage for hardware (U4683E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware (U4835E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (U6321E)</p> <p>3-year, 24x7 SW phone support, software updates (UF792E)</p> <p>Installation with minimum configuration, system-based pricing (U4826E)</p> <p>Installation with HP-provided configuration, system-based pricing (U4830E)</p> <p>4-year, 4-hour onsite, 13x5 coverage for hardware (UR948E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware (UR949E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR950E)</p> <p>4-year, 24x7 SW phone support, software updates (UR951E)</p> <p>5-year, 4-hour onsite, 13x5 coverage for hardware (UR952E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware (UR953E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR954E)</p> <p>5-year, 24x7 SW phone support, software updates (UR955E)</p> <p>3 Yr 6 hr Call-to-Repair Onsite (UW368E)</p> <p>4 Yr 6 hr Call-to-Repair Onsite (UW369E)</p> <p>5 Yr 6 hr Call-to-Repair Onsite (UW370E)</p>	<p>3-year, 4-hour onsite, 13x5 coverage for hardware (U4683E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware (U4835E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (U6321E)</p> <p>3-year, 24x7 SW phone support, software updates (UF792E)</p> <p>Installation with minimum configuration, system-based pricing (U4826E)</p> <p>Installation with HP-provided configuration, system-based pricing (U4830E)</p> <p>4-year, 4-hour onsite, 13x5 coverage for hardware (UR948E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware (UR949E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR950E)</p> <p>4-year, 24x7 SW phone support, software updates (UR951E)</p> <p>5-year, 4-hour onsite, 13x5 coverage for hardware (UR952E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware (UR953E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR954E)</p> <p>5-year, 24x7 SW phone support, software updates (UR955E)</p> <p>3 Yr 6 hr Call-to-Repair Onsite (UW368E)</p> <p>4 Yr 6 hr Call-to-Repair Onsite (UW369E)</p> <p>5 Yr 6 hr Call-to-Repair Onsite (UW370E)</p>	
	Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	Refer to the HP website at www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	
Standards and protocols (applies to all products in series)	<p>Denial of service protection</p> <p>CPU DoS Protection</p> <p>Device management</p> <p>RFC 1591 DNS (client)</p> <p>SSHv1/SSHv2 Secure Shell</p> <p>General protocols</p> <p>IEEE 802.1D MAC Bridges</p> <p>IEEE 802.1p Priority</p> <p>IEEE 802.1Q VLANs</p> <p>IEEE 802.1s Multiple Spanning Trees</p> <p>IEEE 802.1w Rapid Reconfiguration of Spanning Tree</p> <p>IEEE 802.3 Type 10BASE-T</p> <p>IEEE 802.3ab 1000BASE-T</p> <p>IEEE 802.3ad Link Aggregation Control Protocol (LACP)</p> <p>IEEE 802.3af Power over Ethernet</p> <p>IEEE 802.3x Flow Control</p> <p>RFC 768 UDP</p> <p>RFC 783 TFTP Protocol (revision 2)</p> <p>RFC 792 ICMP</p> <p>RFC 793 TCP</p> <p>RFC 826 ARP</p> <p>RFC 854 TELNET</p> <p>RFC 868 Time Protocol</p> <p>RFC 951 BOOTP</p> <p>RFC 1350 TFTP Protocol (revision 2)</p> <p>RFC 1542 BOOTP Extensions</p> <p>RFC 2030 Simple Network Time Protocol (SNTP) v4</p> <p>RFC 2131 DHCP</p>	<p>IP multicast</p> <p>RFC 3376 IGMPv3 (host joins only)</p> <p>IPv6</p> <p>RFC 1981 IPv6 Path MTU Discovery</p> <p>RFC 2460 IPv6 Specification</p> <p>RFC 2925 Remote Operations MIB (Ping only)</p> <p>RFC 3315 DHCPv6 (client only)</p> <p>RFC 3513 IPv6 Addressing Architecture</p> <p>RFC 3596 DNS Extension for IPv6</p> <p>RFC 4022 MIB for TCP</p> <p>RFC 4113 MIB for UDP</p> <p>RFC 4251 SSHv6 Architecture</p> <p>RFC 4252 SSHv6 Authentication</p> <p>RFC 4253 SSHv6 Transport Layer</p> <p>RFC 4254 SSHv6 Connection</p> <p>RFC 4293 MIB for IP</p> <p>RFC 4419 Key Exchange for SSH</p> <p>RFC 4443 ICMPv6</p> <p>RFC 4861 IPv6 Neighbor Discovery</p> <p>RFC 4862 IPv6 Stateless Address Auto-configuration</p> <p>MIBs</p> <p>RFC 1213 MIB II</p> <p>RFC 1493 Bridge MIB</p> <p>RFC 2021 RMONv2 MIB</p> <p>RFC 2613 SMON MIB</p> <p>RFC 2618 RADIUS Client MIB</p> <p>RFC 2620 RADIUS Accounting MIB</p> <p>RFC 2665 Ethernet-Like-MIB</p> <p>RFC 2668 802.3 MAU MIB</p> <p>RFC 2674 802.1p and IEEE 802.1Q Bridge MIB</p> <p>RFC 2737 Entity MIB (Version 2)</p> <p>RFC 2863 The Interfaces Group MIB</p>	<p>Network management</p> <p>IEEE 802.1AB Link Layer Discovery Protocol (LLDP)</p> <p>RFC 1098 A Simple Network Management Protocol (SNMP)</p> <p>RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events)</p> <p>ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)</p> <p>SNMPv1/v2c/v3</p> <p>QoS/CoS</p> <p>RFC 2474 DiffServ precedence, with 4 queues per port</p> <p>RFC 2475 DiffServ Architecture</p> <p>RFC 2597 DiffServ Assured Forwarding (AF)</p> <p>RFC 2598 DiffServ Expedited Forwarding (EF)</p> <p>Security</p> <p>IEEE 802.1X Port Based Network Access Control</p> <p>RFC 1492 TACACS+</p> <p>RFC 2138 RADIUS Authentication</p> <p>RFC 2866 RADIUS Accounting</p> <p>Secure Sockets Layer (SSL)</p>

HP E2520 Switch Series accessories

Transceivers

HP X111 100M SFP LC FX Transceiver (J9054B)
HP X112 100M SFP LC BX-D Transceiver (J9099B)
HP X112 100M SFP LC BX-U Transceiver (J9100B)
HP X121 1G SFP LC SX Transceiver (J4858C)
HP X121 1G SFP LC LX Transceiver (J4859C)
HP X121 1G SFP LC LH Transceiver (J4860C)
HP X122 1G SFP LC BX-D Transceiver (J9142B)
HP X122 1G SFP LC BX-U Transceiver (J9143B)

Cables

HP 0.5 m Multimode OM3 LC/LC Optical Cable (AJ833A)
HP 1 m Multimode OM3 LC/LC Optical Cable (AJ834A)
HP 2 m Multimode OM3 LC/LC Optical Cable (AJ835A)
HP 5 m Multimode OM3 LC/LC Optical Cable (AJ836A)
HP 15 m Multimode OM3 LC/LC Optical Cable (AJ837A)
HP 30 m Multimode OM3 LC/LC Optical Cable (AJ838A)
HP 50 m Multimode OM3 LC/LC Optical Cable (AJ839A)
NEW HP 0.5 m PremierFlex OM3+ LC/LC Optical Cable (BK837A)
NEW HP 1 m PremierFlex OM3+ LC/LC Optical Cable (BK838A)
NEW HP 2 m PremierFlex OM3+ LC/LC Optical Cable (BK839A)
NEW HP 5 m PremierFlex OM3+ LC/LC Optical Cable (BK840A)

NEW HP 15 m PremierFlex OM3+ LC/LC Optical Cable (BK841A)

NEW HP 30 m PremierFlex OM3+ LC/LC Optical Cable (BK842A)

NEW HP 50 m PremierFlex OM3+ LC/LC Optical Cable (BK843A)

Mounting Kit

HP X410 E-Series 1U Universal 4-Post Rack Mounting Kit (J9583A)

HP E2520-8-PoE Switch (J9137A)

NEW HP E2915/E2615/E2520 Cable Guard (J9700A)

NEW HP E2915/E2615/E2520 Power Supply Shelf (J9701A)

HP E2520-8G-PoE Switch (J9298A)

NEW HP E2915/E2615/E2520 Cable Guard (J9700A)

NEW HP E2915/E2615/E2520 Power Supply Shelf (J9701A)

To learn more, visit www.hp.com/networking

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4AA2-9310ENW, Created September 2009; Updated May 2011, Rev. 3



Compliance

(Required Documents.)

Compliance

The compliance documents in this section must be completed, signed and returned **with your bid package.**

Purchasing Department

City of Waltham

610 Main Street

Waltham, MA 02452

Failure to submit the completed documents will cause the disqualification of the proposal.

Section Index

Check when Complete

- Non-collusion form and Tax Compliance form..... _____
- Corporation Identification Form..... _____
- Certificate of Vote Authorization..... _____
- Certificate of Insurance (showing all limits of WC &GL)..... _____
- Three (3) References..... _____
- 5% Bid Bond or Certified Check..... _____
- Debarment Certificate _____
- Right-to-know Law..... _____

Your Company's Name: _____

Service or Product Bid _____

NOTE: Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.

NON-COLLUSION FORM AND TAX COMPLIANCE FORM

CERTIFICATE OF NON-COLLUSION

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity or group of individuals. The undersigned certifies that no representations made by any City officials, employees, entity, or group of individuals other than the Purchasing Agent of the City of Waltham was relied upon in the making of this bid

_____, _____
(Signature of person signing bid or proposal) Date

(Name of business)

TAX COMPLIANCE CERTIFICATION

Pursuant to M.G.L. c. 62C, & 49A, I certify under the penalties of perjury that, to the best of my knowledge and belief, I am in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

_____, _____
Signature of person submitting bid or proposal Date

Name of business

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.

CERTIFICATE OF VOTE OF AUTHORIZATION

Date:

I _____, Clerk of _____ hereby certify that at a meeting of the Board of Directors of said Corporation duly held on the _____ day of _____ at which time a quorum was present and voting throughout, the following vote was duly passed and is now in full force and effect:

VOTED: That _____ (*name*) is hereby authorized, directed and empowered for the name and on behalf of this Corporation to sign, seal with the corporate seat, execute, acknowledge and deliver all contracts and other obligations of this Corporation; the execution of any such contract to be valid and binding upon this Corporation for all purposes, and that this vote shall remain in full force and effect unless and until the same has been altered, amended or revoked by a subsequent vote of such directors and a certificate of such later vote attested by the Clerk of this Corporation.

I further certify that _____ is duly elected/appointed _____ of said corporation

SIGNED:

(Corporate Seal)

Clerk of the Corporation:

Print Name: _____

COMMONWEALTH OF MASSACHUSETTS

County of _____

Date:

Then personally appeared the above named and acknowledged the foregoing instrument to be their free act and deed before me, _____

Notary Public;

My Commission expires: _____

CORPORATION IDENTIFICATION

The bidder for the information of the Awarding Authority furnishes the following information.

If a Corporation:

Incorporated in what state _____

President _____

Treasurer _____

Secretary _____

Federal ID Number _____

If a foreign (out of State) Corporation – Are you registered to do business in Massachusetts?

Yes _____, No _____

If you are selected for this work you are required under M.G.L.ch. 30S, 39L to obtain from the Secretary of State, Foreign Corp. Section, State House, Boston, a certificate stating that you Corporation is registered, and furnish said certificate to the Awarding Authority prior to the award.

If a Partnership: (Name all partners)

Name of partner _____

Residence _____

Name of partner _____

Residence _____

If an Individual:

Name _____

Residence _____

If an Individual doing business under a firm's name:

Name of Firm _____

Name of Individual _____

Business Address _____

Residence _____

Date _____

Name of Bidder _____

By _____

Signature

Title

Business Address

(POST OFFICE BOX NUMBER NOT ACCEPTABLE)

City

State

Telephone Number

Today's Date

PROVIDE THREE (3) SERVICE APPROPRIATE REFERENCES

1. Company Name:

Address:

Contact Name:

Phone #

Type of service/product provided to this Company:

Dollar value of service provided to this Company:

2. Company Name:

Address:

Contact Name:

Phone #

Type of service/product provided to this Company:

Dollar value of service provided to this Company:

3. Company Name:

Address:

Contact Name:

Phone #

Type of service/product provided to this Company:

Dollar value of service provided to this Company:

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package will be cause for the disqualification of your company.

RIGHT TO KNOW LAW

Any vendor who receives an order or orders resulting from this invitation agrees to submit a Material Safety Data Sheet (MSDS) for each toxic or hazardous substance or mixture containing such substance, pursuant to M.G.L. c. 111F, §§8,9 and 10 and the regulations contained in 441 CMR 21.06 when deliveries are made. The vendor agrees to deliver all containers properly labeled pursuant to M.G.L. c. 111F §7 and regulations contained in 441 CMR 21.05. Failure to furnish MSDS and/or labels on each container may result in civil or criminal penalties, including bid debarment and action to prevent the vendor from selling said substances, or mixtures containing said substances within the Commonwealth. All vendors furnishing substances or mixtures subject to Chapter 111F or M.G.L. are cautioned to obtain and read the laws, rules and regulations referenced above. Copies may be obtained from the State House Bookstore, Secretary of State, State House, Room 117, Boston, MA (617) 727-2834.

Authorized Signature Indicating Compliance with the Right-to-know laws:

Signature

Date

Print Name

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.

DEBARMENT CERTIFICATION

In connection with this bid and all procurement transactions, by signature thereon, the respondent certifies that neither the company nor its principals are suspended, debarred, proposed for debarment, declared ineligible, or voluntarily excluded from the award of contracts, procurement or non procurement programs from the Commonwealth of Massachusetts, the US Federal Government and /or the City of Waltham. "Principals" means officers, directors, owners, partners and persons having primary interest, management or supervisory responsibilities with the business entity. Vendors shall provide immediate written notification to the Purchasing Agent of the City of Waltham at any time during the period of the contract of prior to the contract award if the vendor learns of any changed condition with regards to the debarment of the company or its officers. This certification is a material representation of fact upon which reliance will be placed when making the business award. If at any time it is determined that the vendor knowingly misrepresented this certification, in addition to other legal remedies available to the city of Waltham, the contract will be cancelled and the award revoked.

Company Name _____

Address _____

City _____, State _____, Zip Code _____

Phone Number (____) _____

E-Mail Address _____

Signed by Authorized Company Representative:

Print name _____

Date _____

BID PRICE FORM

(Follows)

PRICE SHEET

My Company offers to deliver the items described within this document for the ALL INCLUSIVE PRICE OF:

\$ _____

Company's Name: _____

Authorized Signature: _____

Print Name: _____

Date: _____