

**LEXINGTON-FAYETTE URBAN COUNTY
GOVERNMENT**

**“PUBLIC SAFETY RADIO SYSTEM SUBSCRIBER
UNITS”**

INVITATION TO BID #207-2014

DECEMBER 29, 2014

OWENS COMMUNICATIONS INC



About Owens Communications, Inc.

Owens Communications Inc. (OCI) was founded in 1995 and is a premier wireless communications provider specializing in design, sales, comprehensive service, and installation of the most state-of-the-art telecommunication products.

OCI added our fourth location with our acquisition of Commonwealth Communications in Lexington in spring of 2013. We believe that having a local shop and staff will allow us to meet the requirements of this Invitation to Bid and any future procurement process.

In addition to our strong relationship with Motorola, we were selected by Cassidian to partner with them to provide maintenance support for the Lexington-Fayette Urban County Government P25 system. We were also selected to perform mobile radio installs for the Lexington Police during the summer of this year.

OCI is proud of our extensive partnership with Motorola, we have been appointed to the following distribution designations with Motorola:

Motorola Authorized Dealer

This relationship provides OCI with the full line of Motorola's products for Business, Industry, Government, and Public Safety.



Manufacturer's Representative (MR) and Agent

This designation allows us to provide products and services under the State of Kentucky and the State of Indiana QPA, Including all of the mission critical radios for use on Project Hoosier SAFE-T.



In addition to our relationships with Motorola, we have teamed up with many other vendors of public safety related products and are able to provide, and repair the following products, as well as many not listed:



Owens Communications Inc has been providing mission critical service to area public safety agencies for over almost 20 years. We have a combined total of almost 100 years of public safety experience in the law enforcement, Fire and Emergency services fields on our staff.

OCI provides service on almost any brand of communication, emergency warning equipment, and adjunct equipment.

Owens Communications has four locations in Indiana and Kentucky as follow:

- 1815 21st Street, Columbus, IN 47201 – Headquarters
- 2331 Fortune Drive, suite 210, Lexington, KY 40509 – Branch
- 1365 W. Bloomfield Road, Suite B, Bloomington, IN 47403 – Branch Location
- 1621 W. Main Street, Louisville, KY 40203 – Branch Location

Service Capabilities

Motorola Premier Service Partner

As to the question about our qualifications as it pertains to the technical and installation standards set forth in this bid specification, OCI was previously an MSS (Motorola Service Station) for Motorola. Over the years Motorola recognized that not all of it's MSS's had the same capabilities, and a more specific categorization was required. In 2007 Motorola re-classified their service partners, based on their employees, equipment, and training.



Owens Communications Inc. achieved the highest possible status as a **Motorola Premier Service Partner** in 2007. The **Motorola Premier Service Partner** is the highest level of Motorola/Service agreement and interdependence. It provides us with the ability to service and maintain anything Motorola either in the warranty period, or outside of the warranty period. Motorola Service partners who attain this level have demonstrated consistent capabilities in performance, personnel and commitment to Motorola products and services. Requirements of the **Motorola Premier Service Partner**:

- Achieve and maintain Certified Service Center accreditation (CSC)
- Register/document and keep current all test equipment calibration required for support of Motorola Maintenance Contracts, and all service customers.
- Achieve and maintain Quality Goals and continuous Quality Improvement programs (Customer Satisfaction/Contract Compliance/Case Resolution)
- Verification of OCI's status as a Motorola Premier Service Partner can be obtained by contacting Dan Kimpe of Motorola. Contact information will be provided upon request.

Certified Service Center (CSC)



OCI achieved Certified Service Center Status in 2007. The Certified Service Center program is designed as a tool to help consumers find quality service centers, to help electronics manufacturer's select service centers for in-warranty repairs, and to provide a standard for professional service firms that desire to offer outstanding customer service. This designation is not

specific to a particular industry, it encompasses servicers of many types, and authorized servicers for many brands.

Becoming a Certified Service Center demonstrates to our customers that customer service and satisfaction are paramount to our service center. It guarantees high quality.

To attain Certified Service Center status, a service center must comply with specified requirements determined by representative of all facets of the service industry.

Certification Requirement:

- Facility Service Capability
- Technician Certifications
- Code of Conduct
- Appropriate Test Equipment and Tools
- Customer Service and Warranty Policy
- Management Skills
- Professional Appearance
- Licensing and Insurance

Additional information and verification can be found at: www.c-csc.org. We are confident that we can meet your qualifications for quality installation practices if awarded this bid.

Personnel

Owens Communications maintains a staff of highly trained and proficient personnel. Our staff receives continual and on-going training. We take full advantage of the training and support offered by all our vendors.

Service Staff:

Owens Communications Inc is staffed with highly trained, experienced technicians equipped to address everything from the most complex state of the art systems, to the most conventional. OCI's service personnel are equipped with the latest diagnostic equipment and backed by all factory support teams providing the highest quality service and repair for today's sophisticated wireless systems, and other products.

Our experienced technical staff and installation personnel are well trained, and equipped for all service and repair needs. All installations are customized based on the needs of the customer. We pride ourselves in the result in our professional appearance, optimal performance and total customer satisfaction.

Our people are OCI, and their dedication, competence, and superior qualifications, and experience have made our company the leader in Indiana and Kentucky. We have over 300 years of combined experience in this industry...here to help you.

Key Staff:

Employee	Position	Years	FCC	ETA	Motorola
Tony Owens	President / Sales	24			✓
Matt McCord	General Manager	5			✓
Travis Edwards	Service Manager	14		✓	✓
David Harris	Senior Technician	36	✓	✓	✓
Tim Morrison	Senior Technician	39	✓	✓	✓
Dan Parker	Technician	26	✓		✓
Don VanTimmeren	Technician	29			✓
Nick Durig	Installer	2			
Shawn Shafer	Installation Mgr / Tech	16			✓
Mary VanBrackel	Inside Sales	15			
Bob Jwina	Technician	25		✓	✓
Jerry Felice	Technician	30	✓	✓	✓
Jim Wierwille	Technician	25	✓	✓	✓
Tony Martinez	Technician	5			✓
Jake Bogle	Technician / Installations	6			
Jessie Hyers	Technician / Installations	10			
Mark Schofner	Technician / Installations	15			
John Riley	Technician / Installations	1			
Sam Carpenter	Sales Specialist	24	✓		✓
Shane Hanna	Systems Engineer	14	✓	✓	✓
Bob Jarrard	Sales Specialist	5			✓
Matt Alexander	Sales Specialist	1			✓
Frank Boykin	Territory Manager	7			✓
Jeff Brangers	Sales Specialist	1			✓
Micah Reed	Sales Specialist	2			✓
Roy Sutherland	Technician/Installations	1		✓	
Steve McManus	Sales Specialist	25			✓
Amy Kilby	Sales / Administrative	10			✓
Lori Sweet	Sales / Administrative	10			
Pam Cunningham	Sales / Administrative	20			✓
Mike Clark	Sales Specialist	1			
Michelle Owens	Human Resources	5			✓
Shari Niemoeller	AP / AR	10			
Allison Edwards	Purchasing / Inventory	1			✓
Steve Dhondt	Sales Specialist	5			✓
Michele Foley	Sales Specialist	2			✓
Mark Wozniak	Business Manager	3			
Nancy VanTilburg	Manager	20			

Years = Years of Experience in the Wireless Telecommunications Field

FCC = Federal Communications Commission License - GROL

ETA = Electronics Technicians Association International – Certification (Various)

Motorola = Motorola training, and certifications achieved (Various types of training).

OCI's service department has roughly 200 years of combined experience in the service and installation of land mobile radio products.

Bid Clarifications and/or Exceptions

We have read and will comply with the provisions as described in set forth in the Invitation to bid.

OCI will comply with any and all stated federal, state and local laws and ordinances as described.

Clarification: If a public safety vehicle is equipped with a mobile vehicle repeater, it must be connected to a remote mount style radio (not dash mount).

Clarification: Public safety grade radio features, page 30, "o, 16 position rotary knob with stops" – the Motorola mobile radios proposed have voice announcement on each channel which act as an electronic "stop". This has replaced a physical stop in previous models.

Clarification: DTMF signaling. Motorola has a planned firmware upgrade (7.15.5) which will add this function to the APX radios. If awarded this bid, OCI and Motorola will work with the customer to optimize this function. A specific release date for this update, nor cost, have been released at this point.

Overview

According to the Invitation to Bid there are four categories of radios being considered. Here is a list of the Motorola radios we believe should be considered in each category of radios:

- Public Service: APX 4000 portable radio, APX 4500 mobile radio
- Public Safety- Field Operations: APX 6000LI portable radio. The mobile radio suggested will depend on what style is required: APX 4500 dash mount, APX 4500 single remote mount or APX 6500 dual head remote mount.
- Public Safety – Support: Same as Public Safety Field Operations
- Commander: APX 7000 portable radios are capable of multi-band operation. The mobile radio options for Command level are the same as above.

Testing

Lexington Fire tested the APX radios that OCI programmed on the Cassidian system and we were advised there were no issues. We have saved code plugs with the configurations for these radios to work on the Cassidian system.

Financing Options

Motorola Financing has options available for governmental entities. Specifics on this program were made available during the RFI and will be readdressed if we are awarded the bid and the customer desires updated information.

General Radio Information

Previous RFI submittal included all specific requested information on warranties, batteries, dates when various models were released, existing Motorola users with 500+ units on a Cassidian system etc.



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
12/17/2014

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER ZELLER INSURANCE, LLC 911-25th Street Columbus IN 47201	CONTACT NAME: Kathleen White PHONE (A/C No. Ext): (877) 372-8456 FAX (A/C, No): (812) 372-3543 E-MAIL ADDRESS: kathy@zellerinsurance.com
	INSURER(S) AFFORDING COVERAGE INSURER A: Cincinnati Insurance Co. NAIC # 10677 INSURER B: Cin. Casualty Co. 0018 INSURER C: INSURER D: INSURER E: INSURER F:

COVERAGES **CERTIFICATE NUMBER:** 2013-2016 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDITIONAL INSURER	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GENL AGGREGATE LIMIT APPLIES PER <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input type="checkbox"/> LOC	X	EPP0033547	8/1/2013	8/1/2016	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMPROP AGG \$ 2,000,000
	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO ALL OWNED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> SCHEDULED AUTOS NON-OWNED AUTOS	X	EPP0033547	8/1/2013	8/1/2016	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ Underinsured motorist \$
A	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DED <input checked="" type="checkbox"/> RETENTION \$ 0		EPP0033547	8/1/2013	8/1/2016	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N <input type="checkbox"/> N/A	NC 896 29 71	8/1/2014	8/1/2015	<input checked="" type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$ 500,000 E.L. DISEASE - EA EMPLOYEE \$ 500,000 E.L. DISEASE - POLICY LIMIT \$ 500,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)
 Subject to policy terms, conditions, limitations, and exclusions.
 Lexington Fayette Urban County Government is an additional insured. General Liability & Auto Liability coverage is primary and non-contributory in favor of LFUCG.

CERTIFICATE HOLDER Lexington-Fayette Urban County Government Division of Central Purchasing 200 E Main St Room 338 Lexington, KY 40507	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE Kathleen White/KW



Lexington-Fayette Urban County Government
DEPARTMENT OF FINANCE & ADMINISTRATION

Jim Gray
Mayor

William O'Mara
Commissioner

ADDENDUM #1

Bid Number: **#207-2014**

Date: December 29, 2014

Address inquiries to:
Todd Slatin
(859) 258-3320

Subject: Public Safety Radio System Subscriber Units

TO ALL PROSPECTIVE SUBMITTERS:

Please be advised of the following clarifications to the above referenced Bid:

1. "Batch cloning of radios" as listed in system compatibility section of 1.1.2 Mobile Radio. Trunked radios require an individual ID so they can't be cloned in batches. Please define further what is desired here.
This is an oversight on our part. It is understood that trunked radios require an individual ID and programming.
2. How will the auction work? Will each vendor be requested to bid only one model of radio per user group as defined in 1.1.1 "Overview"?
It is intended that the vendor will limit the radio offering to the models that were submitted for testing under RFI 6-2014. There should be one radio per vendor per defined radio group which are listed in Section 1.1.7.
3. For "public service" radios, will AES encryption be required like in the other "public safety" user groups?
The option for AES encryption is required. AES encryption may be purchased with some public service radios.
4. Are there any additional costs to participate in the auction other than those bore by the winner of the auction as described in the bid packet?
There is no cost to participate.
5. Will Buy-Rites fee structure also include awards for labor costs associated w/ programming and installation of radios?
Yes, the fee will be based on the total amount of the Purchase Order.

6. Will LFUCG be using credit cards or procurement cards in the payment of invoices received for this project? If so, what are the fees charged by these credit card companies to the vendors?

Purchase Orders will be used.

7. Will there be a specific set of specifications for each of the four user groups described? For example, for commander level radios it states in the bid spec "these radios may have additional features available including multi-band operation". If this is desired it will have to be known prior to the auction.

A list of requirements/features for each level of radio is provided in Section 1.1.7. It is intended that the Command Level Radio will operate in the 700/800MHz frequency band and the VHF frequency band at a minimum.



Todd Slatin, Director
Division of Central Purchasing

All other terms and conditions of the Bid and specifications are unchanged.
This letter should be signed, attached to and become a part of your Bid.

COMPANY NAME: Owens Communications Inc

ADDRESS: 2331 FORTUNE DR STE 210 LEXINGTON, KY 40509

SIGNATURE OF BIDDER: Matthew P. McCord

MATTHEW P. MCCORD, GM

The Lexington-Fayette Urban County Government assumes no responsibility for Sealed Specification Responses that are not addressed and delivered as indicated above. Sealed Specification Responses that are not delivered to the Division of Central Purchasing by the stated time and date will be rejected.

All bids must have the company name and address, bid invitation number, and the commodity/service on the outside of the envelope.

Bids are to include all shipping costs to the point of delivery located at: See Specifications.

Bid Security Required: Yes No Performance Bond Required: Yes No
 Cashier Check, Certified Check, Bid Bond (Personal checks and company checks will not be acceptable).

Quantity	Commodity/Service
PCT	Public Safety Radio System Subscriber Units
	See specifications.

<input checked="" type="checkbox"/> Bid Specifications Met <input type="checkbox"/> Exceptions to Bid Specifications. <i>Exceptions shall be itemized and attached to bid proposal submitted.</i>	Proposed Delivery: 60 days after acceptance of bid.
Procurement Card Usage	
<input type="checkbox"/> Yes The Lexington-Fayette Urban County Government will be using Procurement Cards to purchase goods and services and also to make payments. Will you accept Procurement Cards? <input checked="" type="checkbox"/> No	

Submitted by: OWENS COMMUNICATIONS INC
 Firm
2331 FORTUNE DRIVE SUITE 210
 Address
LEXINGTON, KY 40509
 City, State & Zip

**Bid must be signed:
 (original signature)**

Matthew P. McCord - GENERAL MANAGER
 Signature of Authorized Company Representative - Title
MATTHEW P. McCORD
 Representative's Name (Typed or printed)

(859) 293-1675 (859) 299-8130
 Area Code - Phone - Extension Fax #

MATT.McCORD@OWENS COMMUNICATIONS.COM
 E-Mail Address

The Affidavit in this bid must be completed before your firm can be considered for award of this contract.

AFFIDAVIT

Comes the Affiant, MATTHEW P. McCORD, and after being first duly sworn under penalty of perjury as follows:

1. His/her name is MATTHEW P. McCORD and he/she is the individual submitting the bid or is the authorized representative of

OWENS COMMUNICATIONS INC,

the entity submitting the bid (hereinafter referred to as "Bidder").

2. Bidder will pay all taxes and fees, which are owed to the Lexington-Fayette Urban County Government at the time the bid is submitted, prior to award of the contract and will maintain a "current" status in regard to those taxes and fees during the life of the contract.

3. Bidder will obtain a Lexington-Fayette Urban County Government business license, if applicable, prior to award of the contract.

4. Bidder has authorized the Division of Central Purchasing to verify the above-mentioned information with the Division of Revenue and to disclose to the Urban County Council that taxes and/or fees are delinquent or that a business license has not been obtained.

5. Bidder has not knowingly violated any provision of the campaign finance laws of the Commonwealth of Kentucky within the past five (5) years and the award of a contract to the Bidder will not violate any provision of the campaign finance laws of the Commonwealth.

6. Bidder has not knowingly violated any provision of Chapter 25 of the Lexington-Fayette Urban County Government Code of Ordinances, known as "Ethics Act."

7. Bidder acknowledges that "knowingly" for purposes of this Affidavit means, with respect to conduct or to circumstances described by a statute or ordinance defining an offense, that a person is aware or should have been aware that his conduct is of that nature or that the circumstance exists.

Further, Affiant sayeth naught.

Matthew P. McCord

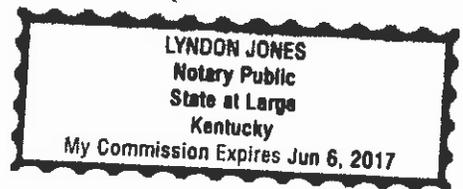
STATE OF KY

COUNTY OF Jefferson

The foregoing instrument was subscribed, sworn to and acknowledged before me

by Matthew McCord on this the 23rd day of December, 2015.

My Commission expires: 6.6.2017



Lyndon Jones
NOTARY PUBLIC, STATE AT LARGE

Please refer to Section II. Bid Conditions, Item "U" prior to completing this form.

I. GREEN PROCUREMENT

A. ENERGY

The Lexington-Fayette Urban County Government is committed to protecting our environment and being fiscally responsible to our citizens.

The Lexington-Fayette Urban County Government mandates the use of Energy Star compliant products if they are available in the marketplace (go to www.Energystar.gov). If these products are available, but not submitted in your pricing, your bid will be rejected as non-compliant.

ENERGY STAR is a government program that offers businesses and consumers energy-efficient solutions, making it easy to save money while protecting the environment for future generations.

Key Benefits

- These products use 25 to 50% less energy
- Reduced energy costs without compromising quality or performance
- Reduced air pollution because fewer fossil fuels are burned
- Significant return on investment
- Extended product life and decreased maintenance

B. GREEN SEAL CERTIFIED PRODUCTS

The Lexington-Fayette Urban County Government is also committed to using other environmentally friendly products that do not negatively impact our environment. Green Seal is a non-profit organization devoted to environmental standard setting, product certification, and public education.

Go to www.Greenseal.org to find available certified products. These products will have a reduced impact on the environment and on human health. The products to be used must be pre-approved by the LFUCG prior to commencement of any work in any LFUCG facility. If a Green Seal product is not available, the LFUCG must provide a signed waiver to use an alternate product. Please provide information on the Green Seal products being used with your bid response.

C. GREEN COMMUNITY

The Lexington-Fayette Urban County Government (LFUCG) serves as a principal, along with the University of Kentucky and Fayette County Public Schools, in the Bluegrass Partnership for a Green Community. The Purchasing Team component of the Partnership collaborates on economy of scale purchasing that promotes and enhances environmental initiatives. Specifically, when applicable, each principal is interested in obtaining best value products and/or services which promote environment initiatives via solicitations and awards from the other principals.

If your company is the successful bidder on this Invitation For Bid, do you agree to extend the same product/service pricing to the other principals of the Bluegrass Partnership for a Green Community (i.e. University of Kentucky and Fayette County Schools) if requested?

Yes X No

EQUAL OPPORTUNITY AGREEMENT

The Law

Title VII of the Civil Rights Act of 1964 (amended 1972) states that it is unlawful for an employer to discriminate in employment because of race, color, religion, sex, age (40-70 years) or national origin.

Executive Order No. 11246 on Nondiscrimination under Federal contract prohibits employment discrimination by contractor and sub-contractor doing business with the Federal Government or recipients of Federal funds. This order was later amended by Executive Order No. 11375 to prohibit discrimination on the basis of sex.

Section 503 of the Rehabilitation Act of 1973 states:

The Contractor will not discriminate against any employee or applicant for employment because of physical or mental handicap.

Section 2012 of the Vietnam Era Veterans Readjustment Act of 1973 requires Affirmative Action on behalf of disabled veterans and veterans of the Vietnam Era by contractors having Federal contracts.

Section 206(A) of Executive Order 12086, Consolidation of Contract Compliance Functions for Equal Employment Opportunity, states:

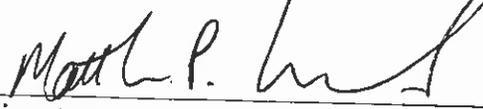
The Secretary of Labor may investigate the employment practices of any Government contractor or sub-contractor to determine whether or not the contractual provisions specified in Section 202 of this order have been violated.

The Lexington-Fayette Urban County Government practices Equal Opportunity in recruiting, hiring and promoting. It is the Government's intent to affirmatively provide employment opportunities for those individuals who have previously not been allowed to enter into the mainstream of society. Because of its importance to the local Government, this policy carries the full endorsement of the Mayor, Commissioners, Directors and all supervisory personnel. In following this commitment to Equal Employment Opportunity and because the Government is the benefactor of the Federal funds, it is both against the Urban County Government policy and illegal for the Government to let contracts to companies which knowingly or unknowingly practice discrimination in their employment practices. Violation of the above mentioned ordinances may cause a contract to be canceled and the contractors may be declared ineligible for future consideration.

Please sign this statement in the appropriate space acknowledging that you have read and understand the provisions contained herein. Return this document as part of your application packet.

Bidders

I/We agree to comply with the Civil Rights Laws listed above that govern employment rights of minorities, women, Vietnam veterans, handicapped and aged persons.


Signature

MATTHEW P. MCCORD


Name of Business

WORKFORCE ANALYSIS FORM

Name of Organization: Owens Communications Inc

Date: 12 / 23 / 14

Categories	Total	White		Latino		Black		Other		Total	
		M	F	M	F	M	F	M	F	M	F
Administrators	6	5	1								
Professionals	13	8	5								
Superintendents											
Supervisors	1	1									
Foremen											
Technicians	7	6		1							
Protective Service											
Para-Professionals											
Office/Clerical	3		3								
Skilled Craft	7	7									
Service/Maintenance											
Total:	37	27	9	1	1	1	1	1	1	1	1

Prepared by: MATTHEW P. McCORD - GENERAL MANAGER
Name & Title

DIRECTOR, DIVISION OF CENTRAL PURCHASING
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
200 EAST MAIN STREET
LEXINGTON, KENTUCKY 40507

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE
EQUAL EMPLOYMENT OPPORTUNITIES AND DBE CONTRACT
PARTICIPATION

The Lexington-Fayette Urban County Government has set a goal that not less than ten percent (10%) of the total value of this contract be subcontracted to MBE/WBE's. The goal for the utilization of certified MBE/WBE's as subcontractors are recommended goals. Contractors who fail to meet such goals will be expected to provide written explanations to the Director of the Division of Central Purchasing of efforts they have made to accomplish the recommended goals and the extent to which they are successful in accomplishing the recommended goals will be a consideration in the procurement process.

For assistance in locating MBE/WBE Subcontractors contact Marilyn Clark at 859/258-3320 or by writing the address listed below:

Marilyn Clark, Division of Central Purchasing
Lexington-Fayette Urban County Government
200 East Main Street - Room 338
Lexington, Kentucky 40507

WRITTEN EXPLANATION

TO LFUCG -

IN REGARDS TO #207-2014, ALL WORK COMPLETED FOR THIS B.I.O IF AWARDED TO OCI WILL BE DONE BY OUR OWN EMPLOYEES. WE WILL NOT BE USING ANY SUB-CONTRACTORS SO WE WILL NOT BE ABLE TO MEET THE LFUCG STATED GOAL OF 10% MBE/WBE. FURTHERMORE, WE WILL BE QUOTING MOTOROLA PUBLIC SAFETY RADIOS AS PART OF THIS PROJECT. MOTOROLA SOLUTIONS IS NEITHER AN MBE OR WBE, SO WE WILL NOT BE PURCHASING ANY PERCENTAGE OF GOODS FROM A MBE OR WBE. IF EITHER OF THE ABOVE CIRCUMSTANCES CHANGE WE WILL MAKE A GOOD FAITH EFFORT.

Sincerely,

MATTHEW P. McCORD
GENERAL MANAGER

LFUCG MBE/WBE PARTICIPATION FORM
 Bid/RFP/Quote Reference # 207-2014

The MBE/WBE subcontractors listed have agreed to participate on this Bid/RFP/Quote. If any substitution is made or the total value of the work is changed prior to or after the job is in progress, it is understood that those substitutions must be submitted to Central Purchasing for approval immediately.

MBE/WBE Company, Name, Address, Phone, Email	Work to be Performed	Total Dollar Value of the Work	% Value of Total Contract
1. NA			
2.			
3.			
4. ↓			

The undersigned company representative submits the above list of MBE/WBE firms to be used in accomplishing the work contained in this Bid/RFP/Quote. Any misrepresentation may result in the termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and false claims.

OWENS COMMUNICATIONS Inc
 Company
12/23/14
 Date

MATTHEW P. McCORD
 By G.M.
 Title

LFUCG MBE/WBE SUBSTITUTION FORM

Bid/RFP/Quote Reference # 207-2014

The substituted MBE/WBE subcontractors listed below have agreed to participate on this Bid/RFP/Quote. These substitutions were made prior to or after the job was in progress. These substitutions were made for reasons stated below and are now being submitted to Central Purchasing for approval. By the authorized signature of a representative of our company, we understand that this information will be entered into our file for this project.

SUBSTITUTED MBE/WBE Company Name, Address, Phone, Email	MBE/WBE Formally Contracted/ Name, Address, Phone, Email	Work to Be Performed	Reason for the Substitution	Total Dollar Value of the Work	% Value of Total Contract
1. NA					
2.					
3.					
4. ↓					

The undersigned acknowledges that any misrepresentation may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and false claims.

OWENS COMMUNICATIONS Inc
Company

12/23/14
Date

MATTHEW P. McCORD
Company Representative

G.M.
Title



MBE QUOTE SUMMARY FORM

Bid/RFP/Quote Reference # 207-2014

The undersigned acknowledges that the minority subcontractors listed on this form did submit a quote to participate on this project.

Company Name	Contact Person
Address/Phone/Email	Bid Package / Bid Date

MBE/WBE Company Address	Contact Person	Contact Information (work phone, Email, cell)	Date Contacted	Services to be performed	Method of Communication (email, phone meeting, ad, event etc)	Total dollars \$\$ Do Not Leave Blank (Attach Documentation)	MBE * AA HA AS NA Female
NA							

(MBE designation / AA=African American / HA= Hispanic American/AS = Asian American/Pacific Islander/ NA= Native American)

The undersigned acknowledges that all information is accurate. Any misrepresentation may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and claims.

Owens Communications Inc
Company

12/23/14
Date

Matthew P. McCord
Company Representative

GM.
Title



LFUCG SUBCONTRACTOR MONTHLY PAYMENT REPORT

The LFUCG has a 10th goal plan adopted by city council to increase the participation of minority and women owned businesses in the procurement process. In order to measure that goal LFUCG will track spending with MBE/WBE vendors on a monthly basis. By the signature below of an authorized company representative, you certify that the information is correct, and that each of the representations set forth below is true. Any misrepresentation may result in termination of the contract and/or prosecution under applicable Federal and State laws concerning false statements and false claims. Please submit this form monthly to the Division of Central Purchasing/ 200 East Main Street / Room 338 / Lexington, KY 40507.

Bid/RFP/Quote # 207-2014

Total Contract Amount Awarded to Prime Contractor for this Project _____

Project Name/ Contract #	Work Period/ From: _____ To: _____
Company Name:	Address:
Federal Tax ID:	Contact Person:

Subcontractor Vendor ID (name, address, phone, email)	Description of Work	Total Subcontract Amount	% of Total Contract Awarded to Prime for this Project	Total Amount Paid for this Period	Purchase Order number for subcontractor work (please attach PO)	Scheduled Project Start Date	Scheduled Project End Date
NA							
↓							
↓							

By the signature below of an authorized company representative, you certify that the information is correct, and that each of the representations set forth below is true. Any misrepresentations may result in the termination of the contract and/or prosecution under applicable Federal and State laws concerning false statements and false claims.

DWENS COMMUNICATIONS INC MATTHEW P. McCORM
 Company _____ Company Representative _____

12/23/14 _____
 Date _____ Title _____

LFUCG STATEMENT OF GOOD FAITH EFFORTS

Bid/RFP/Quote # 207-2014

By the signature below of an authorized company representative, we certify that we have utilized the following methods to obtain the maximum practicable participation by minority and women owned business enterprises on the project. Please indicate which methods you used by placing an X in the appropriate place.

- Attended LFUCG Central Purchasing Economic Inclusion Outreach Event
- Sponsored Economic Inclusion event to provide networking opportunities
- Requested a list of MBE/WBE subcontractors or suppliers from LFUCG Economic Engine
- Advertised for MBE/WBE subcontractors or suppliers in local or regional newspapers
- Showed evidence of written notice of contracting and/or supplier opportunities to MBE/WBE firms at least seven days prior to the bid opening date
- Provided copies of quotations submitted by MBE/WBE firms which were not used and/or responses from firms indicating they would not be submitting a quote
- Provided plans, specifications, and requirements to interested MBE/WBE subcontractors
- Other
Please list any other methods utilized that aren't covered above.

The undersigned acknowledges that all information is accurate. Any misrepresentations may result termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and claims.

Owens Communications Inc
Company

Matthew P. McCord
Company Representative

12/23/14
Date

G.M.
Title

* See WRITTEN EXPLANATION PROVIDED IN THIS SUBMITTAL FOR FURTHER.

BID REQUIREMENT	OCI RESPONSE	CLARIFICATIONS
<p>Vendors will propose suitable user equipment for 3 different groups of users:</p> <p>a. <u>Public service</u> grade radios; these mobiles, portables and control stations will be economy units, meeting all Phase I P25 mandatory requirements</p>	UNDERSTOOD	Offering for public service: APX 4000 Portables
<p>b. Full featured public safety grade radios as described below: these radios will be the most common model used by all first responders in the LFUCG system</p>	UNDERSTOOD	Offering for public safety: APX 6000 Portable (also available in a light version and an XE for more ruggedized needs), APX 4500 FOR DASHMOUNT OR SINGLE REMOTE MOUNT, APX 6500 FOR DUAL REMOTE MOUNT RADIOS
<p>c. High end user radios for Commander/Management level: vendors will describe and provide their top performance models meeting all requirements as defined for public safety grade units with all additionally available features including multi-band operation.</p>	UNDERSTOOD	APX 7000 is a dual band radio for Commander/Management level. This radio also available in XE.
Public Safety grade radio features:		
a. APCO P25 Phase I trunked radio	COMPLY	
b. Upgradable to APCO P25 Phase II	COMPLY	
c. Minimum 32 conventional channels	COMPLY	
d. Minimum 256 system/talkgroups	COMPLY	
e. Programmable time-out-timer	COMPLY	
f. Digital and analog talk-around	COMPLY	
g. Individual call	COMPLY	
h. Emergency operation	COMPLY	
i. Group scan	COMPLY	
j. PC programmable	COMPLY	
k. Alphanumeric display	COMPLY	
l. Back lighting of display with dimmer control	COMPLY	
m. Encryption capable, AES, minimum 15 keys	COMPLY	
n. On/off volume knob	COMPLY with clarification	The APX 4000 complies with clarification: It offers a dual function rotary knob for volume control and channel selection without a stop. We would be offering this as a "Public Service" radio. All others comply.
o. 16 position rotary knob with stops	COMPLY with clarification	yes on "public safety" radios as an electronic voice automated stop. User will hear when they have reached the end of the talk group list
p. Dynamic regrouping capable	COMPLY	
q. Mil Specs 810C, D, E and F	COMPLY	
r. Accessories		
i. Black leather swivel case with radio retention capability & belt loop	COMPLY	

<p>ii. Black nylon swivel case with radio retention capability & belt loop</p>	<p>COMPLY with clarification</p>	<p>A nylon case with fixed belt is available only for the APX 7000 Portable only. A nylon swivel case with swivel loop is not offered for any portables.</p>
<p>iii. Rapid rate desk charger (1 hour full recharge)</p>	<p>COMPLY</p>	<p>a fully depleted battery would not fully recharge in 1 hour</p>
<p>iv. Choice of antenna types</p>	<p>COMPLY</p>	<p>APX 4000 is fully compliant. APX 6000 comes with a plastic carry case which includes belt clip.</p>
<p>v. Spring-loaded belt clip</p>	<p>COMPLY</p>	<p></p>
<p>vi. Choice of battery types</p>	<p>COMPLY</p>	<p></p>
<p>vii. Multi unit charger (standard charge)</p>	<p>COMPLY</p>	<p></p>
<p>viii. Public Safety remote speaker-mic (no antenna)</p>	<p>COMPLY</p>	<p></p>
<p>x. Covert surveillance earpiece to work with lapel mic</p>	<p>COMPLY</p>	<p></p>
<p>xi. Noise cancelling mic</p>	<p>COMPLY</p>	<p></p>
<p>xii. Complete programming set – software, licenses, cables and connectors</p>	<p>COMPLY</p>	<p></p>
<p>s. Options:</p>	<p></p>	<p></p>
<p>xiv. GPS</p>	<p>COMPLY</p>	<p>Motorola has not tested subscriber data features on Cassidian Infrastructure so we don't know if it would work. Note: GPS receiver in the radio is used or all Location-related features including Location Request Response Protocol (LRRP) requests from the FNE (Fixed Network Equipment). LRRP is a Motorola Proprietary protocol used to exchange location information (longitude and latitude) between the radio and a data device such as a Mobile Computer in the CEN (Customer Enterprise Network).</p>
<p>xv. UL Intrinsically safe portable model</p>	<p>COMPLY</p>	<p></p>
<p>xvi. 3-year factory warranty</p>	<p>COMPLY</p>	<p></p>
<p>xvii. Detailed service manual</p>	<p>COMPLY</p>	<p></p>
<p>Submitters shall provide a detailed explanation of the offering including the impact of potential P25 Phase II system upgrade on all user radio equipment, specifically whether or not the radios proposed are currently P25 Phase II capable, or are upgradeable from Phase I to Phase II. If they are upgradeable to Phase II, describe the process required to upgrade them to Phase II operation, whether it is a simple software update, requires modification to the radios or required replacement of the radios. If the radios require modification, describe the process.</p>	<p>UNDERSTOOD</p>	<p>All APX subscribers are phase II compliant out of the box.</p>
<p>LFUCG will procure a complex system infrastructure throughout which the radio units will operate. Superior performance of the system will depend on the radio units' abilities to properly and predictably roam throughout the system. The Submitters shall provide a detailed discussion of the methodology with which the radio units roam, including:</p>	<p>UNDERSTOOD</p>	<p></p>

<p>Methodology by which the radio units choose on which site/subsystem to register</p>	<p>UNDERSTOOD</p>	<p>When the radio is turned on, a multi-step process is used to locate the control channel of the nearest site. First, the radio will check the last known control channel and the list of adjacent site control channels that is broadcast by every trunked site. If unsuccessful, the radio will next check the full list of available control channels previously programming into the radio. After this attempt, the radio will begin scanning the pre-programmed fallback channels. As a last resort, the radio will enter a full spectrum scan to find any available trunked control channels within the frequency band.</p>
<p>◆ How the radio units avoid remaining on a low signal site when in range of a higher-signal site.</p>	<p>UNDERSTOOD</p>	<p>One of the key features of the Motorola subscribers are their ability to proactively select the optimum site as a radio user moves throughout the coverage area. Using signal quality, the radio is able to monitor the health of control channel frequencies at adjacent sites and automatically make the necessary site changes when appropriate. The result is improved user communications by operating on the optimum <small>RE site</small></p>
<p>◆ The radio units' algorithm for accessing a site upon power-up and upon requiring a site change.</p>	<p>UNDERSTOOD</p>	<p>Radio units access sites using an automatic registration process that takes place whenever a radio is turned on or when the user roams from one trunking site to another. No operator intervention is required. This enables continuous call processing for the user and effortless user roaming throughout the system.</p>
<p>◆ Any features in the radio units' roaming algorithm, which might provide for more efficient system operation (automatically favoring a higher-capacity site, etc.); Please provide details on how these features operate.</p>	<p>UNDERSTOOD</p>	<p>Motorola's Site Preferences feature provides for more efficient system operation by allowing a radio to search for an alternative, pre-programmed site that is operationally preferred over the current site. A radio will look for a preferred site when it roams into another site in the system. If a unit is in an overlap area of multiple sites, it will favor its preferred site. This capability allows users to more intelligently manage and conserve repeater resources in coverage overlap areas.</p>
<p>◆ Describe how the radios' operating algorithm protects from conditions that might entail numerous radios registering simultaneously, thus potentially overloading the system.</p>	<p>UNDERSTOOD</p>	<p>When a radio fails to register due to control channel congestion, the radio will generate a random hold-off timer to force a delay before a second registration attempt is made.</p>

<ul style="list-style-type: none"> Please describe the radio units' flexibility for operating in preferred conditions upon infrastructure failures. Such as, changing to an available wide-area subsystem when a "site trunking" condition occurs, or conversely, remaining in the "site trunking" condition. Also, describe the radios' ability to switch to and handle conventional fallback operation. 	UNDERSTOOD	<p>Motorola's Site Preference subscriber feature is used to ensure that the device operates in the city-preferred mode of operation when it encounters an RF site in "site trunking" or other failure mode. Subscriber can be programmed to either remain in site trunking or look for other sites. Fallback operation is dependent upon the Infrastructure and therefore the functionality with Motorola radios should be addressed by the Infrastructure vendor.</p>
<ul style="list-style-type: none"> Please describe any added value features of the proposed units. <p>The Submitter shall describe the process by which system frequencies are programmed into the radio units. Specifically, if sites and/or channels are added to the system at a later date, what must be performed to the radio units to accommodate these additional sites/channels.</p>	UNDERSTOOD	<p>See attached files for further on value added</p> <p>Motorola has designed our radio units so that nothing needs to accommodate additional sites/channels. Subscribers will tune to the frequency assignments that are broadcasted by the Infrastructure. If control channels are changed/reprogramming of radios is necessary.</p>
<p>1.1.2 Mobile Radio, 700/800 MHz</p> <p>Mobile radios shall be frequency synthesized and furnished to operate on all channels in the 700/800 MHz land mobile bands. Specific channel assignment will be made by the trunking control system. In the event the mobile radio unit begins operating on a site or subsystem which is in a failed mode, a unique tone will be heard on the unit's speaker and indicated on the displaying if applicable. Submitters shall describe the capabilities of the proposed mobile radios to provide an indication to the user that the trunked system is operating in a mode that is not normal. It is preferred that users have the ability to silence the failure indication tone.</p>	UNDERSTOOD	<p>All the radios proposed by Motorola are capable of operating on all channels in the 700/800 MHz land mobile bands. If the trunked system is operating in a mode that is not normal, the user will hear a unique tone during audio traffic and will see an indication on the display. Site trunking tones can be silenced. Fallback operation is dependent upon the Infrastructure and therefore the functionality with Motorola radios should be addressed by the Infrastructure vendor.</p>
<p>Detailed operational and technical instructions on programming shall be supplied. The RF output power into 50 Ohms shall be 15 Watts minimum.</p>	COMPLY	
<p>Mobile stations shall have an engraved or stamped multi-digit unique serial number applied to each unit. These shall be of such type, and located in such a position that their removal or alteration is as difficult to do and as obvious to spot as economically feasible. It is not the intent of LFUCG in requiring this identification to raise the cost of the units by any significant percentage. Submitters must be aware of this intent when proposing a suitable method of identification</p>	AVAILABLE	
<p>Additionally, the Contractor must provide LFUCG with a paper copy and an electronic copy (Inventory) of a complete listing of all unique serial numbers by department used for identification, and must also maintain a copy in its records to facilitate system support and future purchases.</p>	COMPLY	

<p>The mobile station exterior housing shall be made of plated or painted steel or aluminum of sufficient gauge to provide for adequate protection and theft deterrence. Plastic, nylon or other suitable synthetic material may be used for the radio enclosure/housing if its usage is adequately justified and it can meet the required performance specifications.</p>	COMPLY	
<p>The interconnecting cable, including + and - DC power, shall be of such construction that frequent exposure to hydraulic fluids and petroleum based oils will cause minimal damage such as cracking or softening of the cable jacket.</p>	COMPLY	
<p>All mobile units and operation radios shall be supplied with control unit, speaker, microphone and all accessories required for installation. Submitters shall include the price of one (1) control unit for each trunk-mounted radio, unless otherwise noted in the pricing section.</p>	COMPLY	
<p>The successful vendors shall be required to demonstrate that the microprocessor-based equipment is totally functional in the vehicular environment, in which LFUCG intends it to be used. This test shall include, but not be limited to, RF immunity, DC input voltage fluctuations, noise introduced in the DC line and typical usage impact. Any degradation of functional parameters of the equipment supplied due to normal or emergency operation of the vehicle in which it is installed shall be corrected by the contractor.</p>	COMPLY	
<p>Open air mobile units and all external headsets, microphones and speakers must be weatherproofed and suitable for outdoor mounting. All installation and operating cabling, brackets, etc must be part of this procurement.</p>	COMPLY	
<p>Control head mounting locations shall be subject to the approval of the particular department being supplied. Mobile antennas and cabling to trunk or dash mounted units must be supplied as part of this procurement, replacing any existing cabling and antennas.</p>	COMPLY	
<p>The housing shall be devoid of any louvers or other openings thereby protecting the radio set from dirt, dust, and moisture and splashing water.</p>	COMPLY	
<p>The mobile radio shall be capable of operation from a nominal 12-volt dc primary power source, with positive action reverse polarity protection to avoid damage if the radio were to be incorrectly installed. In that event, the only damage allowed shall be blown fuses if the radio were turned "ON". The radio set shall operate from a negative ground primary source.</p>	COMPLY	
<p>All power should be derived directly from the vehicle battery, without using active components such as transistors in an oscillator circuit, step-up transformers, or rectifiers. Primary power input shall be adequately fused to assure fast and positive action.</p>	COMPLY	

Some mobile radios will require priority-scanning capability. These units shall be capable of scanning a minimum of ten (10) fleets/sub fleets. The operator shall be readily able to select the fleets/sub fleets to be scanned, to designate and change the priority channel, and to enable or disable the scanning mode.

COMPLY

Radios provided in this RFI are capable of priority-scan as described. This must be programmed in the system as well to work. Demo radios were not programmed with scan.

Additional equipment specifications are listed below.

System Compatibility - Mobile radios shall be equipped and compatible with software related features of the trunking system:

◆ **Dynamic talkgroup reconfiguration**

COMPLY

◆ **System access priority**

Comply with clarification

Compatible with trunking controller failure operating modes a defined in the P25 Standards

◆ **Trunking controller failure operating mode**

Comply

◆ **Signaling error correction** (To correct erroneous talkgroup assignments, software shall provide for the mobile to revert to the signaling channel in the event that a unit is assigned to an incorrect talkgroup)

COMPLY

◆ **Wide area operation capability**

COMPLY

◆ **Selective inhibit and uninhibit**

COMPLY

◆ **Multitkey Encryption (Selected Public Safety radios)**

COMPLY

◆ **Over-The-Air-Rekeying (OTAR) (Selected Public Safety radios) (optional)**

COMPLY with clarification

APX 6500 offers Tactical OTAR (radio-to-radio). OTAR has been successfully demonstrated on a Cassidian system.

◆ **Software driven tuning and alignment capabilities**

COMPLY

◆ **Batch cloning capability**

COMPLY

◆ **Over-The-Air-Programming (OTAP) (optional)**

COMPLY with clarification

Motorola radios can do OTAP. However, OTAP has not been successfully demonstrated on a Cassidian infrastructure.

Emergency Alarm Switch - Mobile radio control heads shall be equipped with an emergency switch which will encode a unit identification and emergency status message when depressed. The emergency signaling shall be placed onto the system immediately to be decoded and displayed at the user's dispatch center.

COMPLY

Status Tones - Audible programmable indication shall be provided for the following operational conditions:

COMPLY

◆ **Callback when channel is available**

COMPLY

◆ **Trunking controller failure**

COMPLY

◆ **Time out timer operation**

COMPLY

◆ **Access to system denied**

COMPLY

◆ **Out of range of trunked system**

COMPLY

Control Head

◆ **Mounting** - Shall provide for mounting on vertical or horizontal plane mounting surface

COMPLY

◆ **Displays** - Shall be clearly labeled and shall be backlit for nighttime visibility

COMPLY

◆ **Microphone** - Palm type, with push to talk switch

COMPLY

◆ **Selector Switches** - Rotary selectors and volume controls are required on Public Safety radios; however, rocker buttons are acceptable.

COMPLY

<ul style="list-style-type: none"> ◆ Multiple control heads - Some vehicles require a front and rear control heads ◆ An "on-off" switch shall control primary power to the radio set. ◆ A volume control shall regulate the audio level of the speaker. ◆ Indicator lamps (either LED or LCD devices) shall be provided which indicate "radio set on" and "transmitter carrier on" functions. ◆ A talkgroup selector switch or switches, if applicable. 	COMPLY with clarification	APX 6500 can accommodate dual control heads
<p>Service Facilities - A central metering jack shall be provided for connecting test apparatus to the radio for measuring transmitter and receiver circuitry alignment.</p> <p style="text-align: center;">Selective Signaling and Alert Decoder</p> <ul style="list-style-type: none"> ◆ Shall allow for selective signaling of mobile units ◆ Shall provide a visual or audible indication on the control head of a call waiting 	COMPLY COMPLY	
<p>Talk-around and Conventional Operation - Shall provide for direct, simplex, mobile-to-mobile communication in analog or digital mode</p>	COMPLY	
1.1.3 Portable Radio, 700/800 MHz		
<p>The portable radio shall meet MIL 810 C, D, E and F standards for shock, vibration, salt, fog, dust and rain, and shall consist of weather resistant, FM transmitter, receiver battery power supply and operating controls, all housed in a durable, attractive, weather resistant enclosure. The case of the unit shall fit comfortably in, and permit, one hand operation. Power output of the transmitter shall be a minimum of 3 Watts minimum.</p>	COMPLY	
<p>Portable radios supplied under this procurement shall be frequency synthesized and furnished to operate on all channels in the 700/800 MHz land mobile bands. Specific channel assignment will be made by the trunking control system. In the event the portable radio unit begins operating on a site or subsystem which is in a failed mode, a unique tone will be heard on the unit's speaker and indicated on the display if applicable. Submitters shall describe the capabilities of the proposed portable radios to provide an indication to the user that the trunked system is operating in a mode that is not normal. It is preferred that users have the ability to silence the failure indication tone.</p>	COMPLY	
<p>Radios shall be delivered with all necessary channels already programmed. Detailed operational and technical Instructions on programming shall also be supplied.</p>	COMPLY	
<p>The radio set shall be small, lightweight and rugged. The radio set shall be capable of withstanding severe operating conditions. The portable housing shall be constructed of high impact resistant material. It shall be sealed and gasketed to protect internally mounted circuitry against dust, foreign particles, moisture and splashing water. Opening the battery compartment shall not break the seal to the radio circuitry. "Ruggedized" portable radios are preferred. If available, ruggedized portable radios shall be offered and thoroughly described.</p>	COMPLY	

<p>The radio shall be single battery operated to insure uniform battery depletion. Submitters shall propose a rechargeable battery, which shall be quickly and easily removed. Battery life, based on a 10% transmit, 10% receive, 80% stand-by duty cycle, measured in accordance with EIA RS-316 at 250 milliwatts of audio output, shall be at least twelve (12) hours. Batteries must be capable of full recharge in one (1) hour or less. Batteries provided must be capable of withstanding a 3' drop test to concrete without damaging battery performance or visibly cracking the battery housing.</p>	<p>COMPLY with clarification</p>	<p>12 hours of talk time on a 10-10-80 duty cycle is achieved using the high capacity 4200mAh battery. If the battery is depleted it will not fully charge in 1 hour or less.</p>
<p>LFUCG is interested in considering different types of batteries. The Submitter shall include in their bid a section describing the pros and cons of their available battery types, including their operational parameters. LFUCG intends on making final decisions on battery types after evaluating this response. LFUCG is also interested in compatible battery cases that would allow the use of standard commercially available AA Alkaline batteries with your portable radio equipment.</p>	<p>UNDERSTOOD</p>	<p>APX does offer a "clamshell" battery case that allows for use of AA Alkaline batteries</p>
<p>The volume and mode selection controls on the portable radios shall be mounted on the top of the unit for easy access. A rotary control knob shall be provided to select talkgroups as desired, simultaneously selecting the correct transmitter and receiver digital code. The switch shall not rotate through more than 355 degrees. Other controls shall include a volume control/on-off switch. A sealed transmitter "push-to-talk" (PTT) switch shall be provided on the side of the unit, and an emergency switch shall be provided for user defined quantities of radios.</p>	<p>COMPLY</p>	
<p>The audio output level of the tone shall be independent of the volume control.</p> <p>All portables shall be available with a variety of devices such as belt clips, leather cases, etc. Public safety speaker/microphone assemblies shall be available and thoroughly described in the bid. Further, it must be possible for an operator to remove the public safety speaker-er/microphone assembly from a portable radio without the use of tools, and then operate the radio in normal fashion. Speaker/microphones shall not have antennas on the microphone. All speaker/microphones shall use coiled cords to connect the speaker microphone to the radio, and shall be available in at least three (3) different lengths. Speaker microphones shall be noise canceling.</p>	<p>COMPLY with clarification</p>	<p>All Coiled Speaker microphones without antennas have approximately same length of cord. Different lengths are available with Public safety microphones with antennas.</p>
<p>Additional equipment specifications are listed below.</p>		
<p>Unit Identification - Shall transmit a digital unit identification when the PTT switch is depressed</p>	<p>COMPLY</p>	
<p>System Compatibility - Radios shall be equipped and compatible with the following trunked system software or firmware related functions:</p>		
<p>◆ Dynamic talkgroup reconfiguration</p>	<p>COMPLY</p>	
<p>◆ System access priority</p>	<p>COMPLY</p>	
<p>◆ Trunking controller failure operating mode</p>	<p>COMPLY</p>	<p>Compatible with trunking controller failure operating modes as defined in the P25 standards</p>

Battery charging units operating from 110V AC, 60 Hz primary power shall be provided. Multi-unit chargers shall be capable of fully charging batteries in two (2) hours or less. All chargers shall automatically switch to trickle charge when the battery is 70% (or more) charged. Miniature meters (scaleless) or lighted indicators shall be provided which will indicate when a battery is charging and also when it is fully charged.

Four types of battery chargers shall be provided:

- ◆ Desktop charger capable of holding a single radio unit or battery.
- ◆ Multi-unit charger suitable for wall mounting or desktop placement.
- ◆ Multi-unit battery charger/conditioner capable of diagnosing/ restoring battery performance.
- ◆ Rapid rate vehicle mountable radio charger.

Each charger provided shall be capable of recharging batteries with the nickel-cadmium or nickel metal hydride battery either connected to, or removed from, the radio set. The charger shall be equipped with automatic full discharge option to first fully discharge the battery to a minimum of 1 volt per cell and then recharge the battery, or else the bidder shall certify that this feature is not needed, because the batteries being supplied are not susceptible to developing "battery memories".

In addition LFUCG is interested in the following list of accessories/items for potential future purchases of fire service grade radio equipment:

- Ruggedized lapel microphone with emergency activation button and earpiece connection (no antenna provision)
- Standard lapel microphone with emergency activation button and earpiece connection (no antenna provision)
- Belt clips
- Earpiece accessories
- Skull/bone microphone options (for fire and for police tactical and haz mat units)
- Antenna options (length, gain)

1.1.4 Control Stations

COMPLY with clarification	Based on the size of the battery and how depleted the charge is will determine how long a battery will take to charge while following cell manufacturer recharging specs
COMPLY	
COMPLY	
COMPLY	
COMPLY with clarification	All Impress Batteries and chargers proposed meet this requirement
COMPLY	
COMPLY	
COMPLY	
COMPLY	
COMPLY	
COMPLY	
COMPLY	
COMPLY	

<p>Radio operation in the trunked radio system from various fixed locations within the system is required. Control stations must include antennas and transmission lines if applicable. Control Stations shall have the capability to be mounted in a 19" rack. Proposer shall describe available methods with which Control Stations can be interfaced with common console systems.</p>	COMPLY	
<p>All radio equipment shall be FCC type accepted under Part 90 of the FCC Rules and Regulations. Control stations shall be available with an optional auxiliary power system capable of sustaining operation for a period of four hours. Additional equipment specifications are listed below.</p>	COMPLY	
<p>Automatic Unit Identification - Shall transmit digital unit identification on push to talk.</p>	COMPLY	
<p>System Compatibility - Control Stations shall be equipped and compatible with software related features of the trunking system:</p>		
<ul style="list-style-type: none"> ◆ Dynamic talkgroup reconfiguration 	COMPLY	
<ul style="list-style-type: none"> ◆ System access priority 	COMPLY	
<ul style="list-style-type: none"> ◆ Trunking controller failure operating mode 	COMPLY	
<ul style="list-style-type: none"> ◆ Signaling error correction (To correct erroneous talkgroup assignments, software shall provide for the mobile to revert to the signaling channel in the event that a unit is assigned to an incorrect talkgroup) 	COMPLY with clarification	Compatible with trunking controller failure operating modes as defined in the P25 Standards
<ul style="list-style-type: none"> ◆ Wide area operation capability 	COMPLY	
<ul style="list-style-type: none"> ◆ Selective inhibit and uninhibit 	COMPLY	
<ul style="list-style-type: none"> ◆ Multikkey Encryption (selected Public Safety radios) 	COMPLY	
<ul style="list-style-type: none"> ◆ Over-The-Air-Rekeying (OTAR) (selected Public Safety radios) (optional) 	COMPLY with clarification	APX 6500 offers Tactical OTAR (radio-to-radio). OTAR has been successfully demonstrated on a Cassidian system.
<ul style="list-style-type: none"> ◆ Software driven tuning and alignment capabilities 	COMPLY	
<ul style="list-style-type: none"> ◆ Batch cloning capability 	COMPLY	
<ul style="list-style-type: none"> ◆ Over-The-Air-Programming (OTAP) (optional) 	COMPLY with clarification	Motorola radios can do OTAP. However, OTAP has not been successfully demonstrated on a Cassidian Infrastructure.
<p>Emergency Alarm Switch - As outlined in the pricing section, control stations shall be equipped with an emergency switch which will encode a unit identification and emergency status message when depressed. This indication shall be placed onto the system immediately, and shall be decoded and displayed at the user's dispatch center.</p>	COMPLY	
<p>Status Tones - Audible indication shall be provided for the following operational conditions:</p>	COMPLY	
<ul style="list-style-type: none"> ◆ System busy 	COMPLY	
<ul style="list-style-type: none"> ◆ Callback when channel is available 	COMPLY	
<ul style="list-style-type: none"> ◆ Trunking controller failure 	COMPLY	
<ul style="list-style-type: none"> ◆ Time out timer operation 	COMPLY	
<ul style="list-style-type: none"> ◆ Access to system denied 	COMPLY	

◆ Out of range of trunked system		COMPLY	
Controls			
◆ Displays - Shall be clearly labeled and shall be backlit for nighttime visibility		COMPLY	
◆ Microphone – Desk or palm type, with push to talk switch		COMPLY	
◆ Selector Switches - Rotary selectors and volume controls are required on Public Safety radios, instead of rocker buttons		COMPLY	
◆ An "on-off" switch shall control primary power to the radio set.		COMPLY	
◆ A volume control shall regulate the audio level of the speaker.		COMPLY	
◆ Indicator lamps (either LED or LCD devices) shall be provided which indicate "radio set on" and "transmitter carrier on" functions.		COMPLY	
◆ A talkgroup selector switch or switches, if applicable.		COMPLY	
Service Facilities - A central metering jack shall be provided for connecting test apparatus to the radio for measuring transmitter and receiver circuitry alignment.		COMPLY	
Selective Signaling and Alert Decoder			
◆ Shall allow for selective signaling of radio units		COMPLY	
◆ Shall provide a visual or audible indication on the control head of a call waiting		COMPLY	
Talk-around and Conventional Operation - Shall provide for direct, simplex, radio-to-radio communication on the base station transmit frequency or other frequency, and conventional mobile relay operation		COMPLY	
1.1.5 Offering			
Submitters will provide the following demo units for LFUCG's testing:			
One mobile radio of submitter's choice		COMPLY	COMPLETED DURING RF:
One control station of submitter's choice		COMPLY	
At least one public service grade portable with accessories		COMPLY	
At least one public safety grade portable with accessories		COMPLY	
Additional portables of submitter's choice		COMPLY	

- ◆ Call back when channel available
- ◆ Trunking controller failure
- ◆ Time out timer activation
- ◆ Access to system denied
- ◆ Out of trunked radio system range
- ◆ Master Network Controller failure
- ◆ Other reduced capability indicator

Selector Switches - Rotary selectors are required on Public Safety models. Ease of use while wearing firefighting gloves will be considered.

Talk-around and Conventional Operation – Proposed radio shall provide for direct, simplex, and radio-to-radio communication in analog or digital mode. Programming should allow user selection of a trunked talk group, a conventional channel or a talk-around channel from the same bank utilizing the top selector control. This operational method shall not result in loss of radio features or the functional system/group (channel) capacity.

Accountability Tone Operation – Radio shall be capable generating the Lexington Fire Department Accountability Tone as demonstrated during RFI 6-2014. If selected as finalist, the vendor shall be required to demonstrate this capability prior to the final awarding of any purchase contract.

Batteries - Proposed portable handheld radio batteries shall use nickel metal hydride, lithium-ion or lithium polymer chemistry. The following table shall be completed for each battery submitted in this RFB. Battery options for each radio should be outlined using the format listed below:

Battery Model #	Capacity (maH)	Chemistry (NiH, LiON, LiPoly)	Avg radio run time 5/5/90	Is there a limited number of Charging Cycles?	Typical Number of Charging Cycles	Recommended Single Unit Charger	Recommended Multi-Unit Charger
NNTN7038	2900	LI-ON	8 hrs	NO	UNTIL NO SET	WPLN7080A	NNTN7065B
NNTN8128	1900	LI-POLY	8 hrs	NO	NO SET	WPLN4232A	WPLN4219B

Battery Chargers - Battery charging units operating from 110V AC, 60 Hz primary power shall be provided. Multi-unit chargers shall be capable of fully charging batteries in one (1) hour or less. All chargers shall automatically switch to trickle charge when the battery is 70% (or more) charged. Miniature meters (scaleless) or lighted indicators shall be provided which will indicate when a battery is charging and also when it is fully charged.

Three types of battery chargers shall be provided:

- ◆ Desktop charger capable of holding a single radio unit or battery.
- ◆ Multi-unit charger suitable for wall mounting or desktop placement.
- ◆ Rapid rate vehicle mountable radio charger.

Remote Mount Mobile Radio

Radio Model: MOTOROLA APX 6500 – DUAL CONTROL HEAD

	Included?: Y/N	
Vehicle mounted mobile radio operating in the 700/800MHz frequency band.	Y	
Control head	Y (DUAL)	
Convention Analog Operation	Y	
P25 Conventional Operation	Y	
APCO P25 Phase I trunked radio	Y	
Software Upgradeable to APCO P25 Phase II	Y	
Minimum 32 conventional channels	Y	
Minimum 256 system/talkgroups	Y	
Programmable time-out-timer	Y	
Digital and analog talk-around	Y	
Individual call	Y	
Emergency operation	Y	
Group scan	Y	
PC programmable	Y	
Alphanumeric display	Y	
Back lighting of display with dimmer control	Y	
Encryption, AES multi-key (min. 15 key capacity)	Y	
On/off volume knob	Y	
16 position rotary knob with stops	Y	
Advanced System Key	Y	
Dynamic regrouping capable	Y	
Mil Specs 810C, D, E, F, and G	Y	
Microphone	Y	
External Speaker	Y	
Cable for connection between the transceiver and the control head (30' min.)	Y	
Power cables and mounting hardware	Y	
Mixed Mode Operation (Trunked talk groups and Conventional Channels in the same bank of frequencies)	Y	
		One Time Discounts
Cost per Radio	All pricing and discount information to be provided at auction event on January 14th!	
Cost for 50 radios		
Cost for 100 radios		
Cost for 150 radios		
Cost for 200 radios		

LFUCG Radio Purchase Information Sheet

Front Mount Mobile Radio

Radio Model: MOTOROLA APX 4500 – DASHMOUNT

	Included?: Y/N	
Vehicle mounted mobile radio operating in the 700/800MHz frequency band.	Y	
Control head	Y	
Convention Analog Operation	Y	
P25 Conventional Operation	Y	
APCO P25 Phase I trunked radio	Y	
Software Upgradeable to APCO P25 Phase II	Y	
Minimum 32 conventional channels	Y	
Minimum 256 system/talkgroups	Y	
Programmable time-out-timer	Y	
Digital and analog talk-around	Y	
Individual call	Y	
Emergency operation	Y	
Group scan	Y	
PC programmable	Y	
Alphanumeric display	Y	
Back lighting of display with dimmer control	Y	
Encryption, AES multi-key (min. 15 key capacity)	Y	
On/off volume knob	Y (1 KNOB FOR VOLUME/CH SELECT)	
16 position rotary knob with stops	Y	
Advanced System Key	Y	
Dynamic regrouping capable	Y	
Mil Specs 810C, D, E , F, and G	Y	
Microphone	Y	
External Speaker	Y	
Power cables and mounting hardware	Y	
Mixed Mode Operation (Trunked talk groups and Conventional Channels in the same bank of frequencies)	Y	
		One Time Discounts
Cost per Radio		All pricing and discount information to be provided at auction event on January 14th!
Cost for 50 radios		
Cost for 100 radios		
Cost for 150 radios		
Cost for 200 radios		

Remote Mount Mobile Radio

Radio Model: MOTOROLA APX 4500 – SINGLE CONTROL HEAD

	Included?: Y/N	
Vehicle mounted mobile radio operating in the 700/800MHz frequency band.	Y	
Control head	Y	
Convention Analog Operation	Y	
P25 Conventional Operation	Y	
APCO P25 Phase I trunked radio	Y	
Software Upgradeable to APCO P25 Phase II	Y	
Minimum 32 conventional channels	Y	
Minimum 256 system/talkgroups	Y	
Programmable time-out-timer	Y	
Digital and analog talk-around	Y	
Individual call	Y	
Emergency operation	Y	
Group scan	Y	
PC programmable	Y	
Alphanumeric display	Y	
Back lighting of display with dimmer control	Y	
Encryption, AES multi-key (min. 15 key capacity)	Y	
On/off volume knob	Y (1 KNOB FOR VOLUME/ CH SELECT)	
16 position rotary knob with stops	Y	
Advanced System Key	Y	
Dynamic regrouping capable	Y	
Mil Specs 810C, D, E, F, and G	Y	
Microphone	Y	
External Speaker	Y	
Cable for connection between the transceiver and the control head (30' min.)	Y	
Power cables and mounting hardware	Y	
Mixed Mode Operation (Trunked talk groups and Conventional Channels in the same bank of frequencies)	Y	
		One Time Discounts
Cost per Radio	All pricing and discount information to be provided at auction event on January 14 th	
Cost for 50 radios		
Cost for 100 radios		
Cost for 150 radios		
Cost for 200 radios		

Control Station Radio
Radio Model: MOTOROLA APX 4500

	Included?: Y/N	
Control Station radio operating in the 700/800MHz frequency band.	Y	
Convention Analog Operation	Y	
P25 Conventional Operation	Y	
APCO P25 Phase I trunked radio	Y	
Software Upgradeable to APCO P25 Phase II	Y	
Minimum 32 conventional channels	Y	
Minimum 256 system/talkgroups	Y	
Programmable time-out-timer	Y	
Digital and analog talk-around	Y	
Individual call	Y	
Emergency operation	Y	
Group scan	Y	
PC programmable	Y	
Alphanumeric display on the face of the radio	Y	
Back lighting of display with dimmer control	Y	
Encryption, AES multi-key (min. 15 key capacity)	Y	
On/off volume knob	Y (1 KNOB FOR VOLUME/CHSELECT)	
16 position rotary knob with stops	Y	
Advanced System Key	Y	
Dynamic regrouping capable	Y	
Mil Specs 810C, D, E, F, and G	Y	
Mixed Mode Operation (Trunked talk groups and Conventional Channels in the same bank of frequencies)	Y	
		One Time Discounts
	Cost per Radio	All pricing and discount information to be provided at auction event on January 14th!
	Cost for 50 radios	
	Cost for 100 radios	
	Cost for 160 radios	

**Public Safety Grade Portable Radio for Command Level Use
Radio Model: MOTOROLA APX 7000 DUAL BAND**

	Included?: Y/N	
Hand-held radio operating in the VHF frequency band.	Y	
Hand-held radio operating in the UHF frequency band.	N (OPTION)	
Hand-held radio operating in the 700/800MHz frequency band.	Y	
Battery - 2400maH Li-Ion minimum (List battery supplied in the 'Included' column to the right)	Y	
Antenna (Indicate which antenna is being offered in the 'Included' column to the right)	Y	
Convention Analog Operation	Y	
P25 Conventional Operation	Y	
APCO P25 Phase I trunked radio	Y	
Software Upgradeable to APCO P25 Phase II	Y	
Minimum 32 conventional channels	Y	
Minimum 256 system/talkgroups	Y	
Programmable time-out-timer	Y	
Digital and analog talk-around	Y	
Individual call	Y	
Emergency operation	Y	
Group scan	Y	
PC programmable	Y	
Alphanumeric display on the face of the radio	Y (ON MODEL 3.5)	
Back lighting of display with dimmer control	Y	
Encryption, AES multi-key (min. 15 key capacity)	Y	
On/off volume knob	Y	
16 position rotary knob with stops	Y	
Advanced System Key	Y	
Dynamic regrouping capable	Y	
Mil Specs 810C, D, E, F, and G	Y	
Public Safety Grade Speaker/Microphone with Emergency Button	Y	
Mixed Mode Operation (Trunked talk groups and Conventional Channels in the same bank of frequencies)	Y	
Spring-loaded Belt Clip	Y	
		One Time Discounts
	Cost per Radio	All pricing and discount information to be provided at auction event on January 14th!
	Cost for 50 radios	

Public Safety Grade Portable Radio for Field Operations
Radio Model: MOTOROLA APX 6000LI

	Included?: Y/N	
Hand-held radio operating in the 700/800MHz frequency band.	Y	
Battery - 2400maH Li-Ion minimum (List battery supplied in the 'Included' column to the right)	Y (LI-ION 2900MAH)	
Antenna (Indicate which antenna is being offered in the 'Included' column to the right)	Y	
Convention Analog Operation	Y	
P25 Conventional Operation	Y	
APCO P25 Phase I trunked radio	Y	
Software Upgradeable to APCO P25 Phase II	Y	
Minimum 32 conventional channels	Y	
Minimum 256 system/talkgroups	Y	
Programmable time-out-timer	Y	
Digital and analog talk-around	Y	
Individual call	Y	
Emergency operation	Y	
Group scan	Y	
PC programmable	Y	
Alphanumeric display on the face of the radio	Y	
Alphanumeric display on the top of the radio	Y	
Back lighting of display with dimmer control	Y	
Encryption, AES multi-key (min. 15 key capacity)	Y	
On/off volume knob	Y	
16 position rotary knob with stops	Y	
Advanced System Key	Y	
Dynamic regrouping capable	Y	
Mil Specs 810C, D, E, F, and G	Y	
Public Safety Grade Ruggedized Speaker/Microphone with Emergency Button	Y	
Mixed Mode Operation (Trunked talk groups and Conventional Channels in the same bank of frequencies)	Y	
Spring-loaded Belt Clip	Y	
		One Time Discounts
	Cost per Radio	All pricing and discount information to be provided at auction event on January 14th!
	Cost for 50 radios	
	Cost for 100 radios	
	Cost for 150 radios	
	Cost for 200 radios	
	Cost for 250 radios	
	Cost for 300 radios	

Public Safety Grade Portable Radio for Support Operations
Radio Model: MOTOROLA APX 6000LI

	Included?: Y/N	
Hand-held radio operating in the 700/800MHz frequency band.	Y	
Battery - 2400maH Li-Ion minimum (List battery supplied in the 'Included' column to the right)	Y (LI-ION 2900 MAH)	
Antenna (Indicate which antenna is being offered in the 'Included' column to the right)	Y	
Convention Analog Operation	Y	
P25 Conventional Operation	Y	
APCO P25 Phase I trunked radio	Y	
Software Upgradeable to APCO P25 Phase II	Y	
Minimum 32 conventional channels	Y	
Minimum 256 system/talkgroups	Y	
Programmable time-out-timer	Y	
Digital and analog talk-around	Y	
Individual call	Y	
Emergency operation	Y	
Group scan	Y	
PC programmable	Y	
Alphanumeric display on the face of the radio	Y (MOD 2.5 & 3.5)	
Back lighting of display with dimmer control	Y	
Encryption, AES multi-key (min. 15 key capacity)	Y	
On/off volume knob	Y	
16 position rotary knob with stops	Y	
Advanced System Key	Y	
Dynamic regrouping capable	Y	
Mil Specs 810C, D, E, F, and G	Y	
Public Safety Grade Speaker/Microphone with Emergency Button	Y	
Mixed Mode Operation (Trunked talk groups and Conventional Channels in the same bank of frequencies)	Y	
Spring-loaded Belt Clip	Y	
		One Time Discounts
	Cost per Radio	All pricing and discount information to be provided at auction event on January 14th
	Cost for 50 radios	
	Cost for 100 radios	
	Cost for 150 radios	
	Cost for 200 radios	

Public Service Grade Portable Radio
Radio Model: MOTOROLA APX 4000

	Included?: Y/N	
Hand-held radio operating in the 700/800MHz frequency band.	Y	
Battery (List battery supplied in the 'Included' column to the right)	Y (LI-ION 1900MAH)	
Antenna (Indicate which antenna is being offered in the 'Included' column to the right)	Y	
Convention Analog Operation	Y	
P25 Conventional Operation	Y	
APCO P25 Phase I trunked radio	Y	
Software Upgradeable to APCO P25 Phase II	Y	
Minimum 32 conventional channels	Y	
Minimum 256 system/talkgroups	Y	
Programmable time-out-timer	Y	
Digital and analog talk-around	Y	
Individual call	Y	
Emergency operation	Y	
Group scan	Y	
PC programmable	Y	
Back lighting of display with dimmer control	Y	
Encryption, AES multi-key (min. 15 key capacity)	Y	
On/off volume knob	Y	
16 position rotary knob with stops	Y	
Advanced System Key	Y	
Dynamic regrouping capable	Y	
Mil Specs 810C, D, E, F, and G	Y	
Mixed Mode Operation (Trunked talk groups and Conventional Channels in the same bank of frequencies)	Y	
Spring-loaded Belt Clip	Y	
		One Time Discounts
Cost per Radio	All pricing and discount information to be provided at auction event on January 14th!	
Cost for 50 radios		
Cost for 100 radios		
Cost for 150 radios		

**Public Safety Grade Portable Radio for Command Level Use
Radio Model: MOTOROLA APX 7000 DUAL BAND**

	Included?: Y/N	
Hand-held radio operating in the VHF frequency band.	Y	
Hand-held radio operating in the UHF frequency band.	N (OPTION)	
Hand-held radio operating in the 700/800MHz frequency band.	Y	
Battery - 2400maH Li-Ion minimum (List battery supplied in the 'Included' column to the right)	Y	
Antenna (Indicate which antenna is being offered in the 'Included' column to the right)	Y	
Convention Analog Operation	Y	
P25 Conventional Operation	Y	
APCO P25 Phase I trunked radio	Y	
Software Upgradeable to APCO P25 Phase II	Y	
Minimum 32 conventional channels	Y	
Minimum 256 system/talkgroups	Y	
Programmable time-out-timer	Y	
Digital and analog talk-around	Y	
Individual call	Y	
Emergency operation	Y	
Group scan	Y	
PC programmable	Y	
Alphanumeric display on the face of the radio	Y (ON MODEL 3.5)	
Back lighting of display with dimmer control	Y	
Encryption, AES multi-key (min. 15 key capacity)	Y	
On/off volume knob	Y	
16 position rotary knob with stops	Y	
Advanced System Key	Y	
Dynamic regrouping capable	Y	
Mil Specs 810C, D, E, F, and G	Y	
Public Safety Grade Speaker/Microphone with Emergency Button	Y	
Mixed Mode Operation (Trunked talk groups and Conventional Channels in the same bank of frequencies)	Y	
Spring-loaded Belt Clip	Y	
		One Time Discounts
	Cost per Radio	All pricing and discount information to be provided at auction event on January 14 th
	Cost for 50 radios	



THE FIRST CHOICE OF FIRST RESPONDERS

APX™ 7000 MULTIBAND PORTABLE RADIO

On surveillance, on border patrol or on a multi-agency response, you want a radio that keeps you connected, no matter how loud the background noise, harsh the weather or long the hours. You depend on a ruggedly reliable portable with crystal-clear communication so every word is heard. You need a multiband radio so interoperable, multiple federal, state and local agencies can communicate and collaborate seamlessly together – without having to carry two radios.

Working with public safety and federal personnel around the world, we developed the smallest multiband portable on the market: the APX™ 7000. We engineered our radio with their requests in mind – from easy-to-use design and seamless interoperability to best-in-class audio. The result is an interoperable multiband radio that is 50% louder than comparable radios in its class.*

INTEROPERATE IN AN INSTANT

Rushing to a fire or reporting from a covert operation, you don't want to carry two radios in order to communicate.

That's why the APX 7000 is so valuable. It performs across

HEAR EVERY WORD

The frenzy of city streets. The blare of sirens. The whine of equipment. Background noise can block communications. But with a dual-sided two-microphone design for exceptional noise-canceling, dual speakers for the loudest, clearest audio available and the latest AMBE digital voice vocoder, the APX 7000 cuts through the clamor – so every word is heard and every message is understood, everywhere you go.

FUTURE-READY WHEN YOU ARE

How can you protect your radio investment and make sure your new purchases are easily updated as technology evolves? Every APX 7000 radio is backward and forward compatible, meets current P25 standards and is future-ready to support new technology and data applications. So you can achieve your interoperability objectives – whether upgrading an existing system or designing a new one – at your own pace.

APX 7000 PROJECT 25 MULTIBAND PORTABLE RADIO

FEATURES AND BENEFITS:

Available in 700-800 MHz, VHF, UHF, Range 1, and UHF Range 2 bands

Optional multiband operation

Trunking standards supported:

- Clear or digital encrypted ASTRO®25 Trunked Operation
- Capable of SmartZone®, SmartZone Omnilink, SmartNet®

Analog MDC-1200 and Digital APCO P25 Conventional System Configurations

Narrow and wide bandwidth digital receiver* (6.25 kHz equivalent / 12.5 kHz / 30 kHz / 75 kHz)

Embedded digital signaling (ASTRO & ASTRO 25)

Integrated GPS capable

Seamless wideband scan

Intelligent lighting

Radio Profiles

Unified Call List (Dual Display model only)

Expansion Slot

Micro SD removable memory card

User programmable voice announcement

Meets Applicable MIL-STD-810C, D, E, F, and G

Submersible to 1 meter for 30 minutes (IP67)

Custom recessed label areas

Superior Audio Features:

- 1W high audio speaker
- Dual speakers (Dual Display model only)
- Dual microphones
- 2-mic noise canceling technology

Utilizes Windows XP, Windows 7, and Vista Customer Programming Software (CPS)

- Supports USB communications
- Built in FLASHport™ support

Full portfolio of accessories including IMPRES batteries, chargers and audio devices

OPTIONAL FEATURES:

Enhanced Encryption capability

Programming Over Project 25

Over the Air Rekey

Text Messaging

Mission Critical Wireless***

Man Down

Submersible to 2 meters for 2 hours (with Rugged Option)

Public Safety Yellow and High Impact Green housing options

Submersible to 1 meter for 30 minutes (IP67)

TRANSMITTER - TYPICAL PERFORMANCE SPECIFICATIONS

	700 MHz	800 MHz	VHF	UHF Range 1	UHF Range 2
Frequency Range/Bandspurs	763.776 MHz 793.806 MHz	806.824 MHz 851.870 MHz	136.174 MHz	380.470 MHz	450.520 MHz
Channel Spacing	25/12.5 kHz	25/12.5 kHz	30/25/12.5 kHz	25/20/12.5 kHz	25/12.5 kHz
Maximum Frequency Separation	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit
Rated RF Output Power Adj	1.2.5 Watts	1.3 Watts	1.6 Watts	1.5 Watts	1.5 Watts
Frequency Stability (-30°C to +60°C, +25°C Ref.)	+0.8 ppm	+0.8 ppm	+0.8 ppm	+0.8 ppm	+0.8 ppm
Modulation Limiting ¹	+5 kHz / +4 kHz / +2.5 kHz	+5 kHz / +4 kHz / +2.5 kHz	+5 kHz / +4 kHz / +2.5 kHz	+5 kHz / +4 kHz / +2.5 kHz	+5 kHz / +4 kHz / +2.5 kHz
Emissions (Conducted and Radiated) ¹	-75 dB	-75 dB	-75 dB	-75 dB	-75 dB
Audio Response ²	+1, -3 dB	+1, -3 dB	+1, -3 dB	+1, -3 dB	+1, -3 dB
F-M Hum & Noise	25 kHz -48 dB -45 dB	-47 dB -45 dB	-47 dB -45 dB	-47 dB -45 dB	-47 dB -45 dB
Audio Distortion ¹	0.60 %	1 %	0.50 %	0.50 %	0.50 %

BATTERIES FOR APX 7000

Battery Capacity / Type	Dimensions (HxWxD)	Weight	Battery Part Number	Battery Capacity
Li-Ion IMPRES 2900 mAh Rugged ¹ **	3.07" x 2.34" x 1.65"	6.53 oz	NN1N/038	2900 mAh
Li-Ion IMPRES 4200 mAh (IP67)	5.12" x 2.34" x 1.65"	11.29 oz	NN1N/034	4200 mAh
Li-Ion IMPRES 4100 mAh (IP67)	5.12" x 2.34" x 1.65"	11.29 oz	NN1N/033	4100 mAh

PRODUCT SPEC SHEET
APX 7000

RECEIVER - TYPICAL PERFORMANCE SPECIFICATIONS

	700 MHz	800 MHz	VHF	UHF Range 1	UHF Range 2
Frequency Range/Bandwidth	763-776 MHz	851-870 MHz	136-174 MHz	390-470 MHz	450-520 MHz
Channel Spacing	25/12.5 kHz	25/12.5 kHz	30/25/12.5 kHz	25/12.5 kHz	25/12.5 kHz
Maximum Frequency Separation	Full Bandwidth	Full Bandwidth	Full Bandwidth	Full Bandwidth	Full Bandwidth
Audio Output Power at Rated ¹	1000 mW	1000 mW	1000 mW	1000 mW	1000 mW
Frequency Stability ² (-30°C to +60°C, 32% C Ref.)	±0.8 ppm	±0.8 ppm	±0.8 ppm	±0.8 ppm	±0.8 ppm
Analog Sensitivity ³	12 dB SINAD 0.250 µV	0.250 µV	0.216 µV	0.234 µV	0.234 µV
Digital Sensitivity ⁴	1% BER 0.347 µV	0.333 µV	0.277 µV	0.307 µV	0.307 µV
	5% BER 0.251 µV	0.251 µV	0.188 µV	0.207 µV	0.207 µV
Selectivity ⁵	25 kHz channel 75.7 dB	75.7 dB	79.3 dB	78.3 dB	78.3 dB
	12.5 kHz channel 67.5 dB	67.5 dB	70 dB	69.1 dB	67.5 dB
Intermodulation	80 dB	80 dB	80.5 dB	80.2 dB	80.2 dB
Spurious Rejection	76.6 dB	76.6 dB	93.2 dB	80.3 dB	80.3 dB
FM Hum & Noise	25 kHz -54 dB	-54 dB	-53.8 dB	-53.5 dB	-53.5 dB
	12.5 kHz -48 dB	-48 dB	-48 dB	-47.4 dB	-47.4 dB
Auto Distortion ⁶	0.9 %	0.9 %	1.20 %	0.91 %	0.91 %

RADIO MODELS

Model 1.5 Top Display

Full bitmap monochrome LCD display ■ 1 line text, 8 characters ■ 1 line of icons ■ No menu support ■ Multi-color backlight

Display	None
Keypad	1200
Channel Capacity	1200
FLASHport Memory	64 MB
700/800 MHz (763-870 MHz)	Primary: DA00569 Secondary: DA00573 Keypad DA00577
VHF (136-174 MHz)	Primary: DA00570 Secondary: DA00574 Keypad DA00577
UHF Range 1 (390-470 MHz)	Primary: DA00571 Secondary: DA00575 Keypad DA00577
UHF Range 2 (450-520 MHz)	Primary: DA00572 Secondary: DA00576 Keypad DA00577
Buttons & Switches	Large PTT button ■ Angled On/Off Volume knob ■ Change emergency button ■ 16 position top mounted rotary switch ■ 2-position concentric switch ■ 3-position toggle switch ■ 3 programmable side buttons ■ Multi-color backlight
Embedded	GPS LED Multi-color

Model 3.5 Dual Display

Top display plus full bitmap color display ■ LCD display ■ 4 lines text, 14 characters ■ 2 lines of icons ■ 1 menu line, 3 menus

Display	Multi-color backlight ■ Full Keypad ■ 3 soft keys ■ 4-direction navigation key ■ 4x3 keypad ■ Home and Data buttons
Keypad	3000
Channel Capacity	3000
FLASHport Memory	64 MB
700/800 MHz (763-870 MHz)	Primary: DA00569 Secondary: DA00573 Keypad DA00577
VHF (136-174 MHz)	Primary: DA00570 Secondary: DA00574 Keypad DA00577
UHF Range 1 (390-470 MHz)	Primary: DA00571 Secondary: DA00575 Keypad DA00577
UHF Range 2 (450-520 MHz)	Primary: DA00572 Secondary: DA00576 Keypad DA00577
Buttons & Switches	Large PTT button ■ Angled On/Off Volume knob ■ Orange emergency button ■ 16 position top mounted rotary switch ■ 2-position concentric switch ■ 3-position toggle switch ■ 3 programmable side buttons ■ Multi-color backlight
Embedded	GPS LED Multi-color

Transmitter Certification

VHF - 700/800 MHz	A24891F 17036 (136-174 MHz and 764-869 MHz)
UHF R1 - 700/800 MHz	A24891F 17040 (390-470 MHz and 764-869 MHz)
UHF R1 - VHF	A24891F 14886 (390-470 MHz and 136-174 MHz)
UHF R2 - 700/800 MHz	A24891F 17042 (450-520 MHz and 764-869 MHz)
UHF R2 - VHF	A24891F 14903 (450-520 MHz and 136-174 MHz)

PRODUCT SPEC SHEET
APX 7000

GPS SPECIFICATIONS

Channels	12
Tracking Sensitivity	-151 dbm
Accuracy ¹	<10 meters (95%)
Cold Start	<80 seconds (95%)
Hot Start	<10 seconds (95%)
Mode of Operation	Autonomous (Non Assisted) GPS

DIMENSIONS OF THE RADIOS WITHOUT BATTERY

	Inches	Millimeters
Length	6.29	159.7
Width Push To-Talk button	2.31	58.6
Depth Push To-Talk button	1.34	34.0
Width Top	2.98	75.6
Depth Top	1.6	40.5
Depth Bottom of Battery	1.85	41.7
Weight of the radios without battery	12.2 oz	346 g

PORTABLE MILITARY STANDARDS: H10, C, D, E, F, G

	MIL-STD 810C	MIL-STD 810D	MIL-STD 810E	MIL-STD 810F	MIL-STD 810G
	Method Proc./Out.	Method Proc./Out.	Method Proc./Out.	Method Proc./Out.	Method Proc./Out.
Low Pressure	500.1 I	500.2 II	500.3 II	500.4 II	500.5 II
High Temperature	501.1 I, II	501.2 I/A1, II/A1	501.3 I/A1, II/A1	501.4 I/Hot, II/Basic	501.5 I/A1, II/A2
Low Temperature	502.1 I	502.2 I/C3, II/C1	502.3 I/C3, II/C1	502.4 I/C3, II/C1	502.5 I/C3, II/C1
Temperature Shock	503.1 I Proc	503.2 I/A1/C3	503.3 I/A1/C3	503.4 I	503.5 I/C
Solar Radiation	506.1 II	506.2 I	506.3 I	506.4 I	506.5 I/A1
Rain	508.1 I, II	508.2 I, II	508.3 I, II	508.4 I, III	508.5 I, III
Humidity	507.1 II	507.2 II	507.3 II	507.4 I Proc	507.5 II/Aggravated
Salt Fog	509.1 I Proc	509.2 I	509.3 I	509.4 I Proc	509.5 I Proc
Blowing Dust	510.1 I	510.2 I	510.3 I	510.4 I	510.5 I
Blowing Sand	1 Proc	510.2 II	510.3 II	510.4 II	510.5 II
Immersion	512.1 I	512.2 I	512.3 I	512.4 I	512.5 I
Vibration	514.2 VIII/F, Core/W	514.3 I/70, II/3	514.4 I/10, II/3	514.5 I/24	514.6 I/24
Shock	516.2 I, III, V	516.3 I, V, VI	516.4 I, V, VI	516.5 I, V, VI	516.6 I, V, VI
Shock (Drop)	516.2 II	516.2 IV	516.4 IV	516.5 IV	516.6 IV

ENCRYPTION

Supported Encryption Algorithms	ADP, AES, DES, DES-XL, DES OFB, DVP, XI
Encryption Algorithm Capacity	8
Encryption Keys per Radio	Module capable of storing 1024 keys Programmable for 128 Common Key Reference (CKR) or 16 Physical Identifier (PID)
Encryption Frame Re Sync Interval	275 CAI 300 mSec
Encryption Keying	Key loader
Synchronization	XI – Counter Addressing OFB – Output Feedback
Vector Generator	National Institute of Standards and Technology (NIST) approved random number generator
Encryption Type	Digital
Key Storage	Tamper protected volatile or non-volatile memory
Key Erasure	Keyboard command and tamper detection
Standards	FIPS 140 2 Level 3 FIPS 197

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-30°C / +60°C
Storage Temperature ¹	-40°C / +85°C
Humidity	Per MIL-STD
ESD	IEC 801-2 KV
Water and Dust Ingression	IP67 MIL-STD
Immersion (Delta T)	MIL-STD 512 X/1



APX™ 7000 P25 Dual Band Portable Radio

- 700/800 MHz & VHF
- UHFRI & 700/800 MHz
- UHFRI & VHF
- UHFRR2 & 700/800 MHz
- UHFRR2 & VHF
- UHFRI & UHFRR2



Note: APX digital mobile and portable radios require either a SOFTWARE KEY (QA01749) OR HARDWARE KEY (QA01648) OR WACN KEY (QA02018) to be ordered to operate/program on a trunking system. IF QA01648- HARDWARE KEY is ORDERED, SUPPLEMENTAL DATA is required to be entered. Please be sure the CORRECT SYSTEM ID is entered. If an incorrect ID is entered, FLASHport will need to be ordered to FIX this error.

Special Note for United States - State & Local Markets only:
In accordance with FCC mandate, the APX7000 UHFRI & UHFRR2 combination (QA00571 with QA00576 OR QA00572 with QA00575) dual band radio is restricted to 12.5 KHz operation only. Therefore, UHFRI & UHFRR2 do NOT support 25 KHz.

[Ship Card](#)

PRICE ESCALATION ANNOUNCEMENT:
PRICES FOR TDMA - QA00580, GPS - QA00782, AND IV&D - Q947 WILL INCREASE BY \$50
ALL APX FLASHPORT FEATURES WILL INCREASE BY 15% STARTING JANUARY 1, 2015

Features

All APX 7000 P25 Portable Radio models include the following features:

- Dual Microphone
- 1 Watt Rated Audio
- Integrated GPS Hardware Capable*
- Integrated Mission Critical Wireless Bluetooth (Hardware Capable)*
- 3 Programmable Side Buttons
- Orange Programmable Button
- 16 Position Mode Rotary Select Switch
- Angled On/Off Volume Knob

- Seamless Wideband Scan
 - Detachable Belt Clip for Top Display
 - IP67 Standard
 - Li-Ion 2900mAh Battery
 - Intelligent Lighting
 - Antenna (Dependent on Frequency Band and Type)
 - Universal Carry Holder
 - Unified Call List
 - Dual Speakers
 - Low Battery Alert Tone
 - Noise Cancellation Software
 - 1 Top Mounted Programmable 3 Position Toggle Switch
 - Top Display: 1 line of text, 1 line of icons, 0 menu lines
 - Advanced Digital Privacy (ADP) Hardware/Software Encryption ships standard w/ Single Key.
- Model 3.5 (Dual-Display) Model also includes:**
- Front Color Display: 4 lines of text, 2 lines of icon, 1 menu line
 - Radio Profiles
 - Full Keypad: 3 x 4 alpha-numeric 3 programmable button, 4 way navigation, home and data buttons

*Must purchase Software to ENABLE.

All APX 7000 P25 Portable Radios are part of the FLASHport® program and ship standard with a FLASH EE Prom, which allows for feature and system upgrades (contingent upon remaining within the current RF capabilities of the radio)

****NOTE: APX digital mobile and portable radios require either a SOFTWARE KEY (QA01749), HARDWARE KEY (QA01648), OR WACN KEY SUPPLEMENTAL DATA (QA02018) to be ordered to operate/program on a trunking system. IF QA01648- HARDWARE KEY or QA02018- WACN KEY is ORDERED, SUPPLEMENTAL DATA is required to be entered. Please be sure the CORRECT SYSTEM ID is entered. If an incorrect ID is entered, FLASHport will need to be ordered to FIX this error. ****

<http://ecacomm.mot.com/ecacal/pricetools/dup/ASK.htm>

PRICE ESCALATION ANNOUNCEMENT:

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General Information

The APX 7000 P25 Portable Radio Line offers TWO different radio hardware models:

Hardware Model	Modes	Alphanumeric Display Lines/Characters	Keypad	Navigation Pad
APX 7000 Top Display	1200	8 (top)	-	No
APX 7000 Dual Display	3000	14 (front) & 8 (top)	3 x 4	Yes

OPERATING MODES

The APX 7000 P25 Portable Radio Models are capable of operating in FOUR different voice communication modes:

- Normal Analog (clear voice)
- 3.6KB ASTRO Digital (both clear and coded voice)
- 9.6 KB ASTRO 25 Digital (both Clear and Coded voice)
- 9.6KB 12.5kHz 2 slot digital TDMA (Both clear & coded voice).

MULTI BAND/SINGLE BAND

TDMA

APX 7000 meets P25 public safety specifications for seamless multi-agency collaboration by offering the option to operate in two separate band configurations. APX 7000 is capable of operating in 700/800MHz, VHF, UHF, & UHF/R2 enabling instant, interoperable communications for improved coordination, response, and first responder safety. Public safety officials can now reduce the amount of equipment responders must carry and maintain.

FDMA (Frequency Division Multiple Access) is a proven technology that is widely used today in radio systems and is part of Project 25 Phase 1 standard. FDMA carries one call per channel. TDMA (Time Division Multiple Access) is part of P25 Phase 2 standard and provides double the voice capacity as 2 calls can share 1 channel. Customers can add more users to their systems without the need of additional frequencies or infrastructure. The APX radios support both P25 Phase 1 and TDMA technologies seamlessly. Using Motorola's unique Dynamic Dual Mode (DDM) capability, the radios dynamically switch between FDMA and TDMA without the user having to change channels. This provides interoperability on demand with existing and future networks.

FLASHPORT AETERMARKET UPGRADES

The APX 7000 P25 Portable Radios are part of the FLASHPORT Program. This means that APX 7000 hardware models can be loaded with different software packages that provide the features and functionalities that our customers require.

System Enhancement Options can be loaded at the time of radio purchase or at a later date through the use of software field upgrades (a USB cable is required for all software upgrades.) The APX 7000 portable can be upgraded electronically in the field with new features in the current system or to new systems operation (contingent upon remaining within the same RF sub-band) by ordering upgrade kits.

Common Software Features Supported By

	Analog Operation(Q241) (3600 Baud)	*ASTRO Digital*(Q806) (3600 Baud)	*ASTRO Digital*(H38/Q806/Q361) Project 25 (9600 Baud)	*TDMA*(QA00590AA) TDMA OPERATION
RADIO WIDE FEATURES				
<i>Maximum Modes</i>				
APX 7000 Top Display	1200	1200	1200	1200
APX 7000 Dual Display	3000	3000	3000	3000
Analog and Digital Operation	Yes	Yes	Yes	Yes
6.25/12.5/20/25 KHz Programmable Channels	Yes	Yes	Yes	Yes
Secure Capable	No	Yes (Digital Only)	Yes (Digital Only)	Yes (Digital Only)
One Touch Operation	Yes	Yes	Yes	Yes
Real Time Clock	Yes	Yes	Yes	Yes
Surveillance Mode	Yes	Yes	Yes	Yes
Keypad Lock	Yes	Yes	Yes	Yes
Radio Lock	Yes	Yes	Yes	Yes
Smart Battery	Yes	Yes	Yes	Yes
Radio Wide Transmit Inhibit	Yes	Yes	Yes	Yes
Time Out Timer	Yes	Yes	Yes	Yes
FLASHport	Yes	Yes	Yes	Yes
ANALOG CONVENTIONAL FEATURES				
Conventional Features are additional radio wide features beyond those specified above.				
CSO/PU/DPL	Yes	Yes	Yes	Yes

Dual Priority Channel Scan	Yes	Yes	Yes	Yes
Adaptive Power Control	No	Yes	Yes	Yes
Repeater/Talkaround Operation	Yes	Yes	Yes	Yes
Scan (Auto, Pre-programmed, Operator Selectable)	Yes	Yes	Yes	Yes
Smart PTT Monitor	Yes	Yes	Yes	Yes
DTMF Tone Generation Monitor	Yes	Yes	Yes	Yes
DTMF Signaling	Future	Future	Future	Future
Quick-Call Signaling	Yes	Yes	Yes	Yes
DIGITAL CONVENTIONAL SIGNALING FEATURES				
These features are APCO Project 25 Conventional Interoperable Features when used in the ASTRO Digital CAI Mode (Q809).				
Unaddressed Voice Call (Dispatch Call)	Yes	Yes	Yes	Yes
Talk Group Call	Yes	Yes	Yes	Yes
Group Call Alert™	Yes	Yes	Yes	Yes
Talk Group Identification (TGID)	Yes	Yes	Yes	Yes
Selective Call (Individual Voice Call)	MDC-1200 Only	Yes	Yes	Yes
Selective Call Decode (Individual Voice Call)	MDC-1200 Only	Yes	Yes	Yes
PTT ID (Individual Identification)	MDC-1200 Only	Yes	Yes	Yes
Call Alert Encoder/Decode	MDC-1200 Only	Yes	Yes	Yes
Emergency Alarm w/Channel Revert & Ack	MDC-1200 Only	Yes	Yes	Yes
Telephone Interconnect	Yes	Yes	Yes	Yes
Manual Phone Number Entry	Dual Display Only	Dual Display Only	Dual Display Only	Dual Display Only
Selective Radio Inhibit	MDC-1200 Only	Yes	Yes	Yes
Radio Check	MDC-1200 Only	Yes	Yes	Yes
Status/Message	MDC-1200 Only	Yes	Yes	Yes
Trunking Type II Only Features				
Maximum Number of Trunked Systems-20	Yes	Yes	Yes	Yes
Talkgroup Calls	Yes	Yes	Yes	Yes
PTT ID	Yes	Yes	Yes	Yes
Call Alert Encoder/Decode	Yes	Yes	Yes	Yes
Analog/Digital Dual Mode Scan	No	Yes	Yes	Yes
Failsoft by Talkgroup	Yes	Yes	Yes	Yes
Telephone Interconnect Encoder/Decode	Yes	Yes	Yes	Yes
System Wide Call (Receive Only)	Yes	Yes	Yes	Yes
Selective Radio Inhibit	Yes	Yes	Yes	Yes
Priority Monitor Scan	Yes	Yes	Yes	Yes
Dynamic Regrouping	Yes	Yes	Yes	Yes
Status/Message	Yes	Yes	Status Only	Status Only
Private/Enhanced Conversation Encoder/Decode	Yes	Yes	Yes	Yes
Remote Monitor/Radio Trace	Yes	Yes	Yes	Yes
Reprogram Request	Yes	Yes	Yes	Yes

"Analog Operator" (Q241)	"ASTRO Digital" (Q809)	"ASTRO Digital" (H38/Q806/Q381)	"TDMA" (QA00580AA)
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Trunking Type II Only Features	Non-Project 25 (3600 Baud)	Project 25 (9600 Baud)	Project 25 (TDMA Operation)
Voice on Control	-	-	-
SmartZone Automatic Site Registration	Yes	Yes	Yes
SmartZone RSSI Operation	Yes	Yes	Yes
SmartZone Preferred Site	Yes	Yes	Yes
SmartZone Forced Site Search	Yes	Yes	Yes
SmartZone Site Lock/Unlock	Yes	Yes	Yes
SmartZone Adjacent Control Channel OSW	Yes	Yes	Yes
Emergency Alarm Call Receive Indication	Yes	Yes	Yes

CHANNEL SPACING

There are no maximum frequency separation conditions that must be adhered to on the APX 7000 P25 Portable Radio series. Separation of frequencies can be as wide as the allowable band per radio model with no degradation of any performance specifications. If an incorrect antenna is used, degraded performance may be experienced.

ZONED OPERATION

This feature converts APX 7000 P25 Portable Radios to Zone Operation radios.

For Top Display radios, a maximum of 16 channels (conventional Rx and Tx pairs or trunking talkgroups) can be placed into a zone. There is a maximum of six zones (1200 modes) when zone selection operation is programmed on the 3 position toggle switch and the Zone Bank feature is programmed on a button. The Zone Bank feature allows the 3 position toggle switch to access zones 1-3 or 4-5.

For the Dual Display radios there is a maximum of 200 zones, 825 channels per zone with the overall maximum of 3000 modes. The zones and channels can be accessed with the same method as the Top Display radio. In addition, the Dual Display radio provides "ZONE" and "CHAN" menus that allows access to zones and channels not accessible via the switches.

PROJECT 25 ENCRYPTION

Encryption is available for Project 25 voice (Phase 1 FDMA and Phase 2 TDMA) and data communications. The mode of operation is programmed on a channel-by-channel basis. With the coded/clear switch set to the clear mode, the APX 7000 P25 Portable Radio is capable of transmitting clear analog voice or clear (unencrypted) ASTRO Digital voice, depending on the channel programming. With the coded/clear switch set to the coded mode, the APX 7000 P25 Portable Radio is capable of transmitting encrypted CVSD (analog) voice or encrypted ASTRO Digital encryption voice, depending on the channel programming.

An encryption option is not required for either clear analog operation or clear ASTRO Digital operation. Encryption can be ordered with the APX 7000 P25 Portable Radio either as a factory installed option or separate from the radio for later field installation. APX 7000 P25 Portable Radio functions include selected ASTRO digital signaling and digital speech coding.

When ordering any of the Encryption Algorithms:

- The DES-OFB and AES encryption algorithms offered are compliant with Project 25 standards, neither of which support CVSD (analog) encryption operation. These algorithms require ASTRO Digital CA1 (Q800) to operate.
- The ADP, DES-XL, and DVP-XL encryption algorithms can operate in CA1 digital mode, but will not be compliant with the APCO Project 25 standard.
- The DES, DES-XL, and DVP-XL encryption algorithms can operate in CVSD (analog) mode.
- If ordering multiple encryption options, the Multibyte (H889) option is required for purchase.

Additional encryption algorithms can be ordered later via APX MACE Upgrades:

1. If using a KVL 4000, please [click here](#).
2. If using a KVL 3000 Plus, please [click here](#).

FIPS 140-2 COMPLIANCE

Encryption Modules equipped with AES are FIPS 140-2 compliant. Details regarding the certification, and copies of the relevant certificates, can be obtained on the NIST website at: <http://csrc.nist.gov/groups/STM/cryptv/validation.html>.

In order to obtain an initial GPS fix position, the radio must be located in an open sky, outdoor environment with no barriers that could affect the signal around you or above you. During this initial fix, the radio should NOT be worn on the body as this may affect the process of acquiring signal and/or add additional time to first fix.

NOTE LIMITATIONS OF USE:

GPS works best in an open sky (clear view of the sky with no obstructions) environment. Due to the limitations of the technology, there are certain situations which prevent GPS coverage. These situations include but are not limited to:

- Underground locations (tunnels, subways, etc.)
- Inside of buildings, elevators, parking garages, trains, other covered vehicles, etc.
- Under metal or concrete roof structures
- Urban canyons (between tall buildings or under dense tree coverage)

*****GPS Performance may be degraded when the radio is worn against the body and/or against the body within a vehicle.**

Due to the limitations mentioned above, GPS should only be utilized as a method to assist the user with location information but not as a means for mission critical communication. Therefore, in any emergency situation, the location should always be verbally reported to the dispatcher.

For further information regarding System Requirements, go to the location solutions price pages at: <http://local.comms.mot.com/central/pricebooks/dup/APX7000.htm>

Ordering GPS for APX 7000 P26 Portable Radios Require:

- APX GPS Activation (QA00782)
- Integrated Voice & Data (Q947)

VHF SELF-QUIETING SPURS

Model 1 Outlets	Model 3 Outlets	Identified Source
147 455	138.66 143.99 147.455 149.326 154.8575 159.99 166.32 170.655	5.333MHz LCD PCCLK 5.333MHz LCD PCCLK 24.576MHz MAKO clock 5.333MHz LCD PCCLK 5.333MHz LCD PCCLK 5.333MHz LCD PCCLK 5.333MHz LCD PCCLK 5.333MHz LCD PCCLK 24.576MHz MAKO clock
172.03	172.03	

700/800 MHz SELF-QUIETING SPURS

Model 1 Outlets	Model 3 Outlets	Identified Source
767.95000	767.95000	191.9875MHz OMAP clock

UHF SELF-QUIETING SPURS

Model 1 Quilters	Model 3 Quilters	Identified Sources
383 8750	383 8750	181.8875MHz OMAP clock
389 2125	389 2125	24.576MHz MAKO clock
384 8375	384 8375	5.33MHz LCD PCLK
389 8750	389 8750	5.33MHz LCD PCLK
406 3100	406 3100	5.33MHz LCD PCLK
410 8375	410 8375	5.33MHz LCD PCLK
415 8750	415 8750	5.33MHz LCD PCLK
417 7875	417 7875	24.576MHz MAKO clock
	421 3000	5.33MHz LCD PCLK
	428 8375	5.33MHz LCD PCLK
	431 8750	5.33MHz LCD PCLK
	437 3050	5.33MHz LCD PCLK
442 3825	442 3825	24.576MHz MAKO clock
442 8375	442 8375	5.33MHz LCD PCLK
447 8750	447 8750	5.33MHz LCD PCLK

Model 1 Quilters	Model 3 Quilters	Identified Sources
453 30500	453 30500	5.333MHz LCD PCLK
458 63750	458 63750	5.333MHz LCD PCLK
463 97500	463 97500	5.333MHz LCD PCLK
466 94000	466 94000	24.576MHz MAKO clock
469 30500	469 30500	5.333MHz LCD PCLK
470 40000	470 40000	16.8MHz TCXO
	474 63750	5.333MHz LCD PCLK
	479 97500	5.333MHz LCD PCLK
	485 30500	5.333MHz LCD PCLK
	490 63750	5.333MHz LCD PCLK
491 51500	491 51500	24.576MHz MAKO clock
	485 97000	5.333MHz LCD PCLK
	501 30000	5.333MHz LCD PCLK
504 00000	504 00000	16.8MHz TCXO
	506 63750	5.333MHz LCD PCLK
	511 97000	5.333MHz LCD PCLK
516 09500	516 09500	24.576MHz MAKO clock
	517 30000	5.333MHz LCD PCLK

CPS INFORMATION

NOTE: A NEW version of Customer Programming Software (CPS) (Part #RVN5224) is required for initial customer orders for APX radios.

**** APX CPS version CPS R12.00.00 and greater ordered after June 2014 will only support Windows 7 and 8. ****

How to order RVN5224 through COF:

1. Sign and return the Software License Agreement
2. Order the software part number

3. New releases on disk will be automatically sent for a three-year period.
4. If customer prefers to download, call 1-800-422-4210 to request an MOL account or have their existing account enabled.

FCC Information

Band Combination	Power Output	FCC ID	Emission Designators	Applicable Rules
VHF - 700/800 MHz (136-174 MHz) and (764-775, 794-805, 806-824, and 851-869 MHz)	1-6W, 1-2.5W, 1-3W	AZ489FT70368K10F1E, AZ489FT700800M1Z	16K0F3E**, 11K0F3E, 8K10F1D, 8K10F1W, 20K0F1E**	90 & 80
UHF R1 - 700/800 MHz (380-470 MHz) and (764-776, 793-806, 806-824, and 851-869 MHz)	1-5W, 1-2.5W, 1-3W	AZ489FT70408K10F1E, AZ489FT700800M1Z	16K0F3E**, 11K0F3E, 8K10F1D, 8K10F1W, 20K0F1E**	90
UHF R1 - VHF (380-470 MHz) and (136-174 MHz)	1-5W, 1-6W	AZ489FT48868K10F1E, AZ489FT48868K10F1E	16K0F3E**, 11K0F3E, 8K10F1D, 8K10F1W, 20K0F1E**	90
UHF R2 - 700/800 MHz (450-512 MHz) and (764-775, 794-805, 806-824, and 851-869 MHz)	1-5W, 1-2.5W, 1-3W	AZ489FT70428K10F1E, AZ489FT700800M1Z	16K0F3E**, 11K0F3E, 8K10F1D, 8K10F1W, 20K0F1E**	90
UHF R2 - VHF (450-520 MHz) and (136-174 MHz)	1-5W, 1-6W	AZ489FT48938K10F1E, AZ489FT48938K10F1E	16K0F3E**, 11K0F3E, 8K10F1D, 8K10F1W, 20K0F1E**	90
UHF R1 - UHF R2* (380-406 MHz) and (406, 1-520 MHz) Bluetooth (2402-2480 MHz)	1-5W, 1-5W	AZ489FT4906, AZ489FT4906	11K0F3E, 8K10F1E, 8K10F1D, 8K10F1W	90
	0.012W	AZ489FT6000884K1F1D, AZ489FT6000884K1F1D	1M27G1D	15

REBANDING Frequency Range for 700/800MHz In the CPS:

700 MHz
 Rx/Tx: 764,006250 to 776,993750
 Tx Only: 794,006250 to 806,993750
 800 MHz
 Tx Only: 806,000000 to 824,993750
 Rx/Tx: 851,000000 to 869,993750

NOTE: The FCC is mandating all Public Safety and Industrial/Business licensees convert existing 25 kHz efficiency operations in the VHF and UHF bands to minimum 12.5 kHz efficiency analog or digital operation, and that going forward they implement no more 25 kHz efficiency systems. To implement this mandate, the FCC developed rules and deadlines that impact both radio users and equipment providers.

[Ordering Guide](#)

[Fleet Management Ordering Guide](#)

[APX 7000 FAQ](#)

[Brochure](#)

[Spec Sheet](#)

[Radio Applications \ Advanced System Key](#)

[Fleet Management Ordering Guide](#)

[Fleet Management Program Download Information](#)

Fleet Management software was previously distributed on DVDs shipped out of Elgin. It is now downloadable from motaolutions.com at the link below. Look at the right edge of the page under Resources Spotlight. The first link is the Order Guide which tells you what you need. The second link is a free 90 day trial version that they can download and evaluate free for 90 days. The third link is the actual program, you need to purchase a license to use it (explained in the order guide).

Accessories for APX 7000 can now be found on the following ECAT Price Page: [CLICK HERE](#)

Models

1: Main Model (Must Select One)

Description	Nomenclature	APC	Price
APX7000 DIGITAL PORTABLE RADIO	H97TGDPPW1 N	655	\$2,797.00

Options

2: Frequency Band (Must Select One Primary and One Secondary)

Description	Nomenclature	APC	Price
ADD: 71800MHZ PRIMARY BAND Required to Choose One Primary Band	QA00599	655	\$0.00
ADD: VHF PRIMARY BAND Required to Choose One Primary Band	QA00570	655	\$0.00
ADD: UHF RANGE 1 PRIMARY BAND Required to Choose One Primary Band	QA00571	655	\$0.00
ADD: UHF RANGE 2 PRIMARY BAND Required to Choose One Primary Band	QA00572	655	\$0.00
ADD: 71800MHZ SECONDARY BAND Required to Choose One Secondary Band	QA00573	655	\$0.00
ADD: VHF SECONDARY BAND Required to Choose One Secondary Band	QA00574	655	\$0.00
ADD: UHF RANGE 1 SECONDARY BAND Required to Choose One Secondary Band	QA00575	655	\$0.00

ADD: UHF RANGE 2 SECONDARY BAND
Required to Choose One Secondary Band.

3: Operating (Optional)

Description
ADD: LARGE COLOR DISPLAY AND FULL KEYPAD
This option upgrades the radio to the Dual Display version. Provides large, color display and full alpha-numeric, navigation, and programmable keypad.
ADD: ENABLE DUAL BAND OPERATION
Required to Enable Dual Band Operation. When this option is chosen, an internal dual band antenna will be generated and there is no need to ADD an antenna option.

Nomenclature	APC	Price
QA00577	655	\$500.00
QA00578	655	\$1,000.00

4: Operation Mode (Must Select One)

Description
ADD: ANALOG OPERATION
ADD: ASTRO. DIGITAL CAI OPERATION

Nomenclature	APC	Price
Q241	655	\$0.00
Q808	655	\$515.00

5: System Enhancement Software (Refer to ordering guide for help)

Description
ADD: CONVENTIONAL OPERATION
ADD: SMARTZONE OPERATION
A SOFTWARE or HARDWARE KEY or WACN KEY is REQUIRED to be purchased with any APX Radio operating in Trunking. HARDWARE KEY or WACN KEY will still REQUIRE a DVN4048 to be purchased.
ADD: SMARTZONE OMNILINK
ONLY compatible with H38 SmartZone and Q808 Digital Operation (required for 8500 band only trunked systems). Auto roaming across zones, zone registration, bypass protection, over the air site alias, 32 preferred sites, FastStart and ASSISTANT Call Set-up. The APX 7000 digital radios require Advanced System Keys (ASK - DVN4048) to be configured to operate on a trunking system.
ADD: P25 8800 BAUD TRUNKING
MUST also order H38 & Q808, INCLUDED in "NO Charge" Q173-Omnilink. The APX 7000 digital radios require Advanced System Keys (ASK - DVN4048) to be configured to operate on a trunking system.

Nomenclature	APC	Price
H35	655	\$800.00
H38	655	\$1,500.00
Q173	655	\$200.00
Q381	655	\$300.00
QA00580	655	\$400.00

ADD: TDMA OPERATION
Requires Q808, H38, Q381. A SOFTWARE or HARDWARE KEY or WACN KEY is REQUIRED to be purchased with any APX Radio operating in Trunking. HARDWARE KEY or WACN KEY will still REQUIRE a DVN4048 to be purchased.

6: System Key Software (Must Select One for Radios Operating on Trunking System)

Description
ADD: ADVANCED SYSTEM KEY - HARDWARE KEY
A SOFTWARE or ADVANCED SYSTEM KEY or WACN KEY is REQUIRED to be purchased with any APX Radio operating in Trunking. A SUPPLEMENTAL ID is REQUIRED to be entered when this option is ordered. Please be sure the CORRECT SYSTEM ID is entered. If an incorrect ID is entered, FLASHport will need to be ordered to fix this error. ADVANCED SYSTEM KEY or WACN KEY will still REQUIRE a DVN4048 to be purchased.
SWKEY SUPPLEMENTAL DATA
A SOFTWARE or ADVANCED SYSTEM KEY or WACN KEY is REQUIRED to be purchased with any APX Radio operating in Trunking.
ADD: ADVANCED WACN KEY SUPP DATA
A SOFTWARE or ADVANCED SYSTEM KEY or WACN KEY is REQUIRED to be purchased with any APX Radio operating in Trunking. A SUPPLEMENTAL ID is REQUIRED to be entered when this option is ordered. Please be sure the CORRECT SYSTEM ID is entered. If an incorrect ID is entered, FLASHport will need to be ordered to fix this error. ADVANCED SYSTEM KEY or WACN KEY will still REQUIRE a DVN4048 to be purchased.

Nomenclature	APC	Price
QA01848	655	\$5.00
QA01748	655	\$0.00
QA02018	655	\$0.00

7: System Enhancement Options (optional)

Description	Nomenclature	APC	Price
ADD: ENABLE INTERNAL GPS OPERATION Must have VAD (Q947) enabled Radio requires GPS antenna (NA04000) when Public Safety Microphone is attached	QA00782	856	\$100.00
ADD: MISSION CRITICAL WIRELESS BLUETOOTH.	QA00583	655	\$150.00
ADD: PROGRAMMING OVER P25 (OTAP) Compatible with P25 Trunking only. Requires Q947 Data option. To do in field POP/P25 programming must use Advanced System Key (DMM4040A). Single unit POP25 with batch programming for trunking configuration coming in future.	G996	855	\$100.00
ADD: MULTICAST VOTING SCAN Requires Q908 (ASTRO DIGITAL CALL OPERATION)	Q387	855	\$200.00
ADD: ASTRO 25 INTEGRATED VOICE & DATA This option is only capable of being used on P25 Digital Conventional and 8000 Trunking Systems. This option is required for IV & D operation.	Q947	855	\$200.00
ADD: P25 LINK LAYER AUTHENTICATION Requires P25 Trunking (Q381)	QA01767	855	\$100.00
ADD: MANDOWN OPERATION	QA01843	855	\$150.00
ADD: DVRS PSU ACTIVATION Enables DVRS Enhanced PSU functionality on APX Mobile Radios. Requires Digital Operation. QA00831 is to be ordered for radios that are not connected directly to a DVR. If you are connecting your radio directly to a DVR then order GA00831.	QA00831	855	\$100.00
ADD: APX Personnel Accountability	Q445	481	\$150.00
ENH: MULTIKEY	H869	855	\$330.00
ENH: ASTRO 25 OTAR W/ MULTIKEY Includes Tactical OTAR. Tactical OTAR can only be utilized when VAD is purchased.	Q498	855	\$740.00
ADD: ENHANCED DATA Smartzone (P300301), Digital (C000000), VAD (Q947/M947) and P25 Trunking (Q381/Q381) are required when ordering the Enhanced Data option	QA03399	856	\$150.00
ADD: SITE SELECTABLE ALERT FOR P25 TRUNKING	QA00962	659	\$150.00
ADD: EXTREME 1-SIDED NOISE REDUCTION	QA01833	655	\$25.00
ADD: APX GEOFENCE PORTABLE FEATURE AVAILABLE DECEMBER 2014	QA04447	655	\$150.00
ENH: TACTICAL RADIO STUN/KILL Tactical Stun Kill is not compatible with DVRS QA00831	H02	481	\$75.00
8: Encryption Algorithm (optional)			
Description	Nomenclature	APC	Price
ENH: DVP-XL ENCRYPTION (Analog 25 kHz Only)	H797	655	\$487.00
ENH: DES,DES-XL,DES-OFB ENCRYPTION (Analog 25 kHz) / DES-OFB (Digital 12.5 kHz Only)	Q825	855	\$599.00
ENH: AES ENCRYPTION	Q829	855	\$475.00

ENH: AES/DES, DES, XL, DES, OFB
 NOT compatible with Q828 or Q825. Must order multiple if you want to use both algorithms.

Q15 655 \$799.00

9: Antenna (optional- Can Only Select One)

Description
 ALT: GPS STUBBY ANTENNA (NAG4000A)
 Deletes Standard Antenna and ADDS GPS ONLY antenna

Nomenclature APC
 QA00785 655 \$18.00

ALT: 1/4 WAVE 7/8 STUBBY (NAR6595)
 Length: 3.93"

H122 655 \$24.00

DEL: DELETE STANDARD ANTENNA

H112 481 (\$10.00)

ALT: DUAL BAND 7/800 VHF (136-174MHZ) GPS ANTENNA (NAR6594A)

QA00787 655 \$65.00

ADD: 7/800 UHF (380-520) GPS ANTENNA
 Length: 7.75"

QA01372 655 \$95.00

ADD: UHF (380-520) GPS ANTENNA
 Length: 8.98"

QA01374 655 \$55.00

ADD: VHF (136-168) UHF (380-520) GPS ANTENNA

QA01378 655 \$65.00

ALT: UHF/R1 GPS STUBBY ANTENNA (FAF52)
 This UHF R1 stubby antenna is compatible with Public Safety Microphone (PSM) accessory. The APX radio requires GPS antenna (NAG4000) when Public Safety Microphone is attached.
 Length: 3.66"

QA02017 655 \$24.00

8: Battery (optional- Can Only Select One)

Description
 DEL: DELETE BATTERY (NNTN7038)
 The option will delete the IMPRES Lilon 2800mAh standard battery

Nomenclature APC
 H207 655 (\$47.00)

ALT: NIMH IMPRES 2100MAH IP67 (NNTN7037A)
 The option will delete the IMPRES Lilon 2900mAh standard battery (NNTN7039)
 Dimensions (HxWxD)
 5.07" x 2.34" x 1.57"

H335 655 \$78.00

ALT: NIMH IMPRES 2000MAH FM/CSA IP67 (NNTN7036)
 The option will delete the IMPRES Lilon 2900mAh standard battery (NNTN7039)
 Dimensions (HxWxD)
 5.07" x 2.34" x 1.57"

Q393 655 \$95.00

Provides full FM certification on Radio when this battery is ordered

ALT: NIMH IMPRES 2000 MAH FM/CSA DELTA T (NNTN7035)
 The option will delete the NIMH IMPRES 2100MAH DELTA T NON-FM battery (NNTN7579A)
 Dimensions (HxWxD)
 5.07" x 2.34" x 1.57"

QA00581 655 \$100.00

Provides full FM certification on Radio when this battery is ordered

ALT: LILION IMPRES 4100 MAH FM/CSA IP67 (NNTN7033A)
 The option will delete the IMPRES Lilon 2800mAh standard battery (NNTN7039)
 Dimensions (HxWxD)
 5.12" x 2.34" x 1.95"

QA00582 655 \$130.00

Provides full FM certification on Radio when this battery is ordered

ALT: LIION IMPRES 4200 MAH IP87 (NNTN7034A)
 The option will delete the IMPRES Liion 2900mah standard battery (NNTN7032)
 Dimensions (HXWXD)
 5.12" x 2.34" x 1.85"

LIION IMPRES FM/CSA 2300 MAH (NNTN8082)
 Provides full FM certification on Radio when this battery is ordered.

10: Belt Clips (Optional-Can Only Select One)

Description	Nomenclature	APC	Price
ALT: BASIC CARRY HOLDER (PMLN5331) This carry holder equipped with a 2.5" belt clip ships standard with the Top Display model.	QA00779	655	\$28.00
ADD: BELT CLIP 3.0" (HLN8875) Replaces the standard 2.5" belt clip that ships with the Model 1 radio with a 3"	QA01222	655	\$12.00
DEL: DELETE BELT CLIP/BASIC CARRY HOLDER This option delete the standard belt clip that ships with the Top Display model -or- deletes the standard universal carry holder that ships with the Dual Display model.	H301	655	(\$10.00)

11: Cable (Optional)

Description	Nomenclature	APC	Price
ADD: DATA CABLE PKKN40128- Used to program the radio with Customer Programming Software and Tuner Software. PKKN4013C - Used to program and service the radio with Customer Programming Software and Tuner Software. Compatible on ALL APX Portable Radios	Q157	655	\$75.00

12: Housing (Optional-Can Only Select One)

Description	Nomenclature	APC	Price
ENH: SUBMERSIBLE (DELTA T) Radio Ships Standard with LIION IMPRES FM DELTA T 2300MAH (NNTN8082). If FM is Required order QA02816	H499	655	\$250.00
ALT: PUBLIC SAFETY YELLOW HOUSING IP87 unless ordered with H499 Delta T option	H64	655	\$25.00
ALT: IMPACT GREEN HOUSING IP87 unless ordered with H499 Delta T option	QA01427	655	\$25.00

13: Programming (Optional)

Description	Nomenclature	APC	Price
ADD: FRONT PANEL PROGRAMMING (FPP) The APX radio can do FPP on a Trunking equipped radio only on conventional channels. Requires FPP HW dongle (NNTN7528A) to be purchased	Q53	655	\$150.00

14: Service Options (Optional- Can Only Select One)

Description	Nomenclature	APC	Price
ENH:STD WARRANTY APPLIES-NO SFS Provides no extended repair coverage after the standard warranty period expires. Required if no other SFS option is selected.	QA05100	165	\$0.00

ENH: 1 YR SFS LITE

Q57

185

\$56.00

ENH: 2 YR SFS LITE

Q58

185

\$102.00

ADD: 3 YR REPAIR SERVICE ADVANTAGE

GA00232

185

\$125.00

ENH: 4 YR SFS LITE

Q887

185

\$195.00

Provides 4 years of extended hardware repair coverage beginning after the standard warranty period expires. Repairs will be made only at the designated Motorola repair depot. Local services are not included. Motorola will pay the inbound shipping charges only with use of the Motorola designated delivery service. Motorola will pay for outbound shipping via Motorola's normal shipping methods. No discounts are allowed on this option.

ENH: SFS COMPREHENSIVE

HA00025AB

185

\$229.00

This service includes any liquid, chemical or physical damage to the unit.

ENH: CANADA 3 YR SFS LITE ENCR

HA00048

386

\$191.00

Updates the standard warranty period to a full three (3) years of hardware service coverage on the internal components of your radio equipment. Repairs will be made only at Motorola authorized service centers. No discounts are allowed on this option.

ENH: CANADA 5 YR SFS LITE

HA00049

396

\$262.00

Updates the standard warranty period to a full five (5) years of hardware service coverage on the internal components of your radio equipment. Repairs will be made only at Motorola authorized service centers. No discounts are allowed on this option.

16: Manual (Optional)

Description

ADD: DATA LINK MANAGER APP CD- PORTABLES

Nomenclature
QA00205

APC
655

Price
\$0.00

Option provides the NVIS24 Data CD. Please order this option if you would like the Data CD, and are unable to obtain it through other sources such as MOL.

DEL: USER GUIDE CD

QA01274

655

\$0.00

This deletes the user guide CD that ships standard with the radio.

16: Packaging (Optional)

Description

PACKAGING KIT,ADD: SINGLE PACK LTE UPGRADE KIT

Nomenclature
H842

APC
655

Price
\$0.00

Orders ship in Single Unit Boxes

17: Test Results (Optional)

Description

ADD: TEST RESULTS/RATED AUDIO PRINTOUT

Nomenclature
H799

APC
655

Price
\$10.00

Accessories

Cables

Description
KEYLOAD CABLE FOR MACK PORTABLE

Nomenclature
CKN6904

APC
655

Price
\$110.00

PROGRAMMING, TEST & ALIGNMENT CABLE

PMKN4013C

037

\$62.00

PMKN4012B - Used to program the radio with Customer Programming Software and Tuner Software. Not compatible with APX 4000
PMKN4013C - Used to program and service the radio with Customer Programming Software and Tuner Software. Compatible on ALL APX Portable Radios

(APX7000\80004000\U2000)

APX7000 KEYLOAD RS-232 CABLE

WPLN6905B

644

\$155.00

Housing

Please contact NA Parts for Pricing Information

ASSY, HOUSING, FULL M3 ORANGE

NHNT7055AS

ASSY, HOUSING, FULL M3 BLUE

NHNT7056AS

ASSY, HOUSING, FULL M3 RED

NHNT7057AS

ASSY, MAIN HOUSING, TOP M1 ORANGE

NHNT7059AS

ASSY, MAIN HOUSING, TOP M1 BL

NHNT7060AS

ASSY, MAIN HOUSING, TOP M1 RED

NHNT7061AS

Data Compiled 01-Dec-2014 using DUP and all prices in USD

**Public Safety Grade Portable Radio for Support Operations
Radio Model: MOTOROLA APX 6000LI**

	Included?: Y/N	
Hand-held radio operating in the 700/800MHz frequency band.	Y	
Battery - 2400maH Li-Ion minimum (List battery supplied in the 'Included' column to the right)	Y (LI-ION 2900 MAH)	
Antenna (Indicate which antenna is being offered in the 'Included' column to the right)	Y	
Convention Analog Operation	Y	
P25 Conventional Operation	Y	
APCO P25 Phase I trunked radio	Y	
Software Upgradeable to APCO P25 Phase II	Y	
Minimum 32 conventional channels	Y	
Minimum 256 system/talkgroups	Y	
Programmable time-out-timer	Y	
Digital and analog talk-around	Y	
Individual call	Y	
Emergency operation	Y	
Group scan	Y	
PC programmable	Y	
Alphanumeric display on the face of the radio	Y (MOD 2.5 & 3.5)	
Back lighting of display with dimmer control	Y	
Encryption, AES multi-key (min. 15 key capacity)	Y	
On/off volume knob	Y	
16 position rotary knob with stops	Y	
Advanced System Key	Y	
Dynamic regrouping capable	Y	
Mil Specs 810C, D, E, F, and G	Y	
Public Safety Grade Speaker/Microphone with Emergency Button	Y	
Mixed Mode Operation (Trunked talk groups and Conventional Channels in the same bank of frequencies)	Y	
Spring-loaded Belt Clip	Y	
		One Time Discounts
Cost per Radio	All pricing and discount information to be provided at auction event on January 14th!	
Cost for 50 radios		
Cost for 100 radios		
Cost for 150 radios		
Cost for 200 radios		



THE RIGHT PERFORMER AT THE RIGHT PRICE

APX™ 6000Li P25 PORTABLE RADIO

Wherever the mission takes you, you want a radio that gives you everything you need at a price you can afford, without sacrificing quality, safety or response time. Whether it's a lightweight design or a specific set of features, you expect performance that is second to none.

The APX 6000Li P25 Phase 2 capable portable radio delivers all that you want at a price that fits your budget. Pay only for the functionality you need at the level you can afford, without giving up the exceptional quality, design excellence and reliability you expect from APX.

SOPHISTICATED YET SIMPLY INTUITIVE

Everything about the APX 6000Li was designed to help

communicate in the most efficient and safe

**IMPROVE SAFETY WITH
SMARTER TECHNOLOGY**

The APX 6000Li is the affordable solution that gives

you the safety you need

**SMALL SIZE,
BIG TECHNOLOGY,
LOW COST**

Single band, technology-rich solution

Pay for only the features you need

Three lightweight models

Ideal for firefighters, law enforcement, military and more

P25 Phase 2 capable for twice the voice capacity

Backwards and forwards compatible with all Motorola mission critical

PRODUCT SPEC SHEET
APX™ 6000LI



FEATURES AND BENEFITS:

- Available in 700/800 MHz, VHF, UHF R1, and UHF R2 bands
Trunking standards supported:
- Clear or digital encrypted ASTRO®25 Trunked Operation
 - Capable of SmartZone®, SmartZone Omnilink, SmartNet® Analog MDC-1200 and Digital APCO P25 Conventional System Configurations
 - Narrow and wide bandwidth digital receiver (6.25 kHz equivalent / 12.5 kHz / 30 kHz / 25 kHz)*
 - Embedded digital signaling (ASTRO & ASTRO 25)
- Available in 3 models
- Man Down
- Integrated GPS capable
- Intelligent Lighting
- Radio Profiles
- Unified Call List (Models 2.5 and 3.5 only)
- User programmable voice announcement
- Meets Applicable MIL-STD-810C, D, E, F and G IP67 standard (submersible 1 meter, 30 minutes)**
- Custom recess label areas

- Superior Audio Features:
- 0.5 W high audio speaker
 - Dual microphones
 - 2-mic noise canceling technology
- Utilizes Windows XP, Vista and Windows 7 Customer Programming Software (CPS)
- Supports USB communications
 - Built in FLASHport™ support
- Full portfolio of accessories including IMPRES batteries, chargers and audio devices

OPTIONAL FEATURES:

- Mission Critical Wireless
- Single Algorithm Encryption
- Programming Over Project 25
- Tactical OTAR
- Text Messaging

*Per the FCC Narrowbanding rules, new products (APX6000LI, UHFH1, UHFH2) submitted for FCC certification after January 1, 2011 are restricted from being granted certification at 25KHz for United States - State & Local Markets only

** Radios meet industry standards (IP67) for immersion.

TRANSMITTER - TYPICAL PERFORMANCE SPECIFICATIONS

	700/800	VHF	UHF Range 1	UHF Range 2
Frequency Range/Bandsplits	700 MHz 800 MHz	763-776, 793-806 MHz 806-824, 851-870 MHz	136-174 MHz	380-470 MHz 450-520 MHz
Channel Spacing	25/12.5 kHz	30/25/12.5 kHz	25/12.5 kHz	25/12.5 kHz
Maximum Frequency Separation	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit
Rated RF Output Power Adj ¹	1-3 Watts Max	1-6 Watts Max	1-5 Watts Max	1-5 Watts
Frequency Stability ¹ (-30°C to +50°C, +25°C Ref.)	±0.00010 %	±0.00010 %	±0.00010 %	±0.00010 %
Modulation Limiting ¹	±5 kHz / ±4 kHz / ±2.5 kHz	±5 kHz / ±2.5 kHz	±5 kHz / ±2.5 kHz	±5 kHz / ±4 kHz / ±2.5 kHz
Emissions (Conducted and Radiated) ¹	-75 dB	-75 dB	-75 dB	-75 dB
Audio Response ¹	+1, -3 dB	+1, -3 dB	+1, -3 dB	+1, -3 dB
FM Hum & Noise	700 MHz 800 MHz	-48 dB/-47 dB -46 dB/-45 dB	-47 dB -45 dB	-47 dB -45 dB
Audio Distortion ¹	700 MHz 800 MHz	0.60 % 1 %	0.50 %	0.50 %

BATTERIES FOR APX 6000

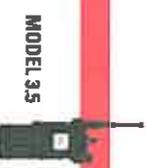
Battery Capacity / Type	Dimensions (HxWxD)	Weight	Battery Part Number	Battery Capacity
Li-Ion IMPRES 2150 mAh IP67**	3.39" x 2.34" x 1.46"	5.0z	PMANN4403	2150 mAh
Li-Ion IMPRES 2900 mAh IP67	3.07" x 2.34" x 1.55"	6.53 oz	NNTN7038	2900 mAh
Li-Ion IMPRES 4200 mAh IP67	5.07" x 2.34" x 1.55"	11.29 oz	NNTN7034	4200 mAh
Li-Ion IMPRES 4100 mAh FMF IP67	5.07" x 2.34" x 1.55"	11.29 oz	NNTN7033	4100 mAh

PRODUCT SPEC SHEET
APX™ 6000LI

RECEIVER - TYPICAL PERFORMANCE SPECIFICATIONS

	700/800	VHF	UHF Range 1	UHF Range 2
Frequency Range/Bandsplit	700 MHz 800 MHz	136-174 MHz	380-470 MHz	450-520 MHz
Channel Spacing	25/12.5 KHz	30/25/12.5 KHz	25/12.5 KHz	25/12.5 KHz
Maximum Frequency Separation	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit
Audio Output Power at Rated ¹	500mW	500mW	500mW	1000 mW
Frequency Stability ¹ (-30°C to +60°C, +25°C Ref.)	±0.00010 %	±0.00010 %	±0.00010 %	±0.00010 %
Analog Sensitivity ²	12 dB SINAD 1% BER (800 MHz)	0.216 µV 0.277 µV 0.189 µV	0.234 µV 0.307 µV 0.207 µV	0.234 µV 0.307 µV 0.207 µV
Digital Sensitivity ⁴	5% BER	0.251 µV	0.207 µV	0.207 µV
Selectivity ⁵	25 KHz channel 12.5 KHz channel	75.7 dB 67.5 dB	79.3 dB 70 dB	78.3 dB 68.1 dB
Intermodulation	25 KHz 12.5 KHz	80 dB 76.6 dB	80.5 dB 93.2 dB	80.2 dB 80.3 dB
Spurious Rejection				
FM Hum and Noise				
Audio Distortion ¹				

RADIO MODELS



MODEL 1.5

Full bitmap monochromatic LCD top display
1 line text x 8 characters
1 line of icons
No menu support
Multi-color backlight

MODEL 2.5

Top display plus:
Full bitmap color LCD display
4 lines of text x 14 characters
2 lines of icons
1 menu line x 3 menus
White backlight

Backlight keypad
3 soft keys
4 direction Navigation key
Home and Data buttons

MODEL 3.5

Top display plus:
Full bitmap color LCD display
4 lines of text x 14 characters
2 lines of icons
1 menu line x 3 menus
White backlight

Backlight keypad
3 soft keys
4 direction navigation key
4x3 keypad
Home and Data buttons

Channel Capacity	96	64 MB	64 MB	64 MB
FLASHport Memory				
700/800 MHz (753-870 MHz)	H88UCD9PW5AN Q360EF	H90UC9PW6AN Q360EF	H90UC9PW7AN Q360EF	
VHF (136-174 MHz)	H88KGD9PW5AN Q360EG	H88KGF9PW6AN Q360EG	H88KG9PW7AN Q360EG	
UHF Range 1 (380-470 MHz)	H88ODD9PW5AN Q360EH	H89DDF9PW6AN Q360EH	H89DDH9PW7AN Q360EH	
UHF Range 2 (450-520 MHz)	H88SDD9PW5AN Q360FC	H88SDF9PW6AN Q360FC	H88SDH9PW7AN Q360FC	

Large PTT button ■ Angled On/Off volume control ■ Orange emergency button ■ 16 position top-mounted rotary switch
■ 2-position concave switch ■ Multi-color backlight ■ 3-position toggle switch ■ 3 programmable side buttons

Transmitter Certification

- 700/800 (764-969 MHz) AZ489FT5963
- VHF (136-174 MHz) AZ489FT3829
- UHF Range 1 (380-470 MHz) AZ489FT4892
- UHF Range 2 (450-520 MHz) AZ489FT4903

PRODUCT SPEC SHEET
APX™ 8000L1

PORTABLE MILITARY STANDARDS 810C, D, E, F, G

	MIL-STD 810C		MIL-STD 810D		MIL-STD 810E		MIL-STD 810F		MIL-STD 810G	
	Method	Proc./Cyl.	Method	Proc./Cyl.	Method	Proc./Cyl.	Method	Proc./Cyl.	Method	Proc./Cyl.
Low Pressure	500.1	I	500.2	II	500.3	II	500.4	II	500.5	II
High Temperature	501.1	I, II	501.2	I/A1, II/A1	501.3	I/A1, II/A1	501.4	I/Hot, II/Basic Hot	501.5	I/A1, II/A2
Low Temperature	502.1	I	502.2	I/C3, II/C1	502.3	I/C3, II/C1	502.4	I/C3, II/C1	502.5	I/C3, II/C1
Temperature Shock	503.1	I	503.2	I/A1/C3	503.3	I/A1/C3	503.4	I	503.5	I/C
Solar Radiation	505.1	II	505.2	I	505.3	I	505.4	I	505.5	I/A1
Rain	506.1	I, II	506.2	I, II	506.3	I, II	506.4	I, III	506.5	I, III
Humidity	507.1	II	507.2	II	507.3	II	507.4	I Proc	507.5	II/Aggravated
Salt Fog	509.1	I	509.2	I	509.3	I	509.4	I Proc	509.5	I Proc
Blowing Dust	510.1	I	510.2	I	510.3	I	510.4	I	510.5	I
Blowing Sand	1 Proc	I Proc	510.2	II	510.3	II	510.4	II	510.5	II
Immersion	512.1	I	512.2	I	512.3	I	512.4	I	512.5	I
Vibration	514.2	VIII/F, Curve-W	514.3	I/10, II/3	514.4	I/10, II/3	514.5	I/24	514.6	I/24
Shock	516.2	I, III, V	516.3	I, V, VI	516.4	I, V, VI	516.5	I, V, VI	516.6	I, V, VI
Shock (Drops)	516.2	II	516.2	IV	516.4	IV	516.5	IV	516.6	IV

DIMENSIONS OF THE RADIOS WITHOUT BATTERY

	Inches	Millimeters
Length	5.47	139
Width Push-To-Talk button	2.39	60.7
Depth Push-To-Talk button	1.40	35.6
Width Top	2.98	75.7
Depth Top	1.58	40.1
Depth Bottom of Battery	1.24	31.5
Weight of the radio without battery	10.9 oz	309 g

ENCRYPTION

Supported Encryption Algorithms	AOP, AES, DES, DES-XL, DES-OFB, DVP-XL
Encryption Algorithm Capacity	1
Encryption Keys per Radio	Module capable of storing 1024 keys. Programmable for 64 Common Key Reference (CKR) or 16 Physical Identifier (PID)
Encryption Frame Re-sync Interval	P25 CA1 300 mSec
Encryption Keying	Key Loader
Synchronization	XL – Counter Addressing OFB – Duplex Feedback
Vector Generator	National Institute of Standards and Technology (NIST) approved random number generator
Encryption Type	Digital
Key Storage	Tamper protected volatile or non-volatile memory
Key Erasure	Keyboard command and tamper detection
Standards	FIPS 140-2 Level 3 FIPS 197

GPS SPECIFICATIONS

Channels	12
Tracking Sensitivity	-159 dbm
Accuracy ¹	<10 meters (95%)
Cold Start	<60 seconds (95%)
Hot Start	<10 seconds (95%)
Mode of Operation	Autonomous (Non-Assisted) GPS

RUGGED OPTION SPECIFICATIONS

Leakage (Immersion)	MIL-STD-810 C,D,E,F and G
Housing Availability	Method 512 X Procedure I Black

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature ²	-30°C / +60°C
Storage Temperature ³	-40°C / +85°C
Humidity	Per MIL-STD
ESD	IEC 801-2 KV
Water and Dust Intrusion	IP67, MIL-STD
Immersion	MIL-STD 512 X/I

¹ Measured in the average mode per TIA / EIA 603 under normal conditions
² When used with an FM approved intrinsically safe radio
³ Measured conductivity in average mode per TIA / EIA 603 under normal conditions
⁴ Measured conductivity in digital mode per TIA / EIA S 102 CAA under normal conditions
⁵ Accuracy specs are for long-term fading (5db) percentage values >5 satellites visible at a nominal -130 dbm signal strength
⁶ Temperatures listed are for radio specifications. Battery storage is recommended at 25°C, ±5°C to ensure best performance
 Specifications subject to change without notice. All specifications shown are typical.
 Radio meets applicable regulatory requirements



ASTRO® Digital APX 6000Li™ Portable Series

700/800 Band

P25 Phase 2 Single Band Capable Radio



***NOTE: APX digital mobile and portable radios require either a SOFTWARE KEY (QA01749), HARDWARE KEY (QA01648), OR WACN KEY SUPPLEMENTAL DATA (QA02018) to be ordered to operate/program on a trunking system. IF QA01648- HARDWARE KEY or QA02018- WACN KEY is ORDERED, SUPPLEMENTAL DATA is required to be entered. Please be sure the CORRECT SYSTEM ID is entered. If an incorrect ID is entered, FLASHport will need to be ordered to FIX this error. ***

PRICE ESCALATION ANNOUNCEMENT:

PRICES FOR TDMA - QA00580, GPS - QA00782, AND IV&D - Q947 WILL INCREASE BY \$50

ALL APX FLASHPORT FEATURES WILL INCREASE BY 15% STARTING JANUARY 1, 2015

[Ship Card](#)

Features

All ASTRO Digital APX 6000Li models include the following features:

- Dual Microphone
 - 0.5 Watt Rated Audio
 - Integrated GPS Hardware Capable*
 - Integrated Bluetooth Hardware Capable*
 - Detachable Belt Clip for Top Display Model
 - Slim LIION 2150 mAh Battery (PMN14403A)
 - Antenna (Dependent on Frequency Band and Type)
 - Intelligent Lighting
 - ADP Privacy - ships standard with Single Key
 - 3 Programmable Side Buttons
 - Orange Programmable Button
 - 16 Position Mode Rotary Select Switch
 - Angled On/Off Volume Knob
 - Low Battery Alert Tone
 - Noise Cancellation Software
 - 1 Top Mounted Programmable 3 Position Toggle Switch
 - Top Display: 1 line of text, 1 line of icons, 0 menu lines
 - IP67 ships standard with every radio model
- ASTRO Digital APX 6000 Limited Keypad and Full Keypad with Dual Display Model also Includes:**
- Universal Carry Holder
 - Unified Call List
 - Front Color Display: 4 lines of text, 2 lines of icon
 - Radio Profiles
 - Full Keypad: 4 x 3 alpha-numeric 3 programmable button, 4 way navigation, home and data buttons

* Must purchase Software to **ENABLE**

* All APX6000 Portable Radios ship standard with SW and HW ADP Privacy

All ASTRO Digital APX 6000LI Portables are part of the FLASHport® program and ship standard with a FLASH EE Prom, which allows for feature and system upgrades (contingent upon remaining within the current RF capabilities of the radio)

******NOTE: APX digital mobile and portable radios require either a SOFTWARE KEY (QA01749), HARDWARE KEY (QA01648), OR WACN KEY SUPPLEMENTAL DATA (QA02018) to be ordered to operate/program on a trunking system. IF QA01648- HARDWARE KEY or QA02018- WACN KEY is ORDERED, SUPPLEMENTAL DATA is required to be entered. Please be sure the CORRECT SYSTEM ID is entered. If an incorrect ID is entered, FLASHport will need to be ordered to FIX this error. Also, an Advanced System Keys (ASK- DVN4046) will be required to be ordered. ******

<http://ecat.comm.mot.com/ecat/pricebooks/dup/ASK.htm>

General Information

The ASTRO Digital APX 6000LI Portable Line offers **THREE** different radio hardware models:

Hardware Model	Modes	Alphanumeric Display Lines/Characters	Keypad	Navigation Pad
ASTRO APX 6000 Top Display	96	8 (top)	-	No
ASTRO APX 6000 Limited Keypad	1000	14 (front) & 8 (top)	-	Yes
ASTRO APX 6000 Full Keypad	1000	14 (front) & 8 (top)	4 x 3	Yes

Operating Modes

ASTRO Digital APX 6000LI Radio Models are capable of operating in four different voice communication modes:

- Normal Analog (clear voice)
- 3.6KB ASTRO Digital (both clear and coded voice)
- 9.6 KB ASTRO 25 Digital (both Clear and Coded voice)
- 9.6KB 12.5KHz 2 slot digital TDMA (both clear and coded voice).
- Will be capable of APCO25 Phase 2

functionality in future software releases.

TDMA

FDMA (Frequency Division Multiple Access) is a proven technology that is widely used today in radio systems and is part of APCO 25 Project 25 Phase 1 standard. FDMA carries one call per channel. TDMA (Time Division Multiple Access) will be part of P25 Phase 2 standard and provides double the voice capacity as 2 calls can share 1 channel. Customers can add more users to their systems without the need of additional frequencies or infrastructure. The APX radios support both P25 Phase 1 and TDMA technologies seamlessly. Using Motorola's unique Dynamic Dual Mode (DDM) capability, the radios dynamically switch between FDMA and TDMA without the user having to change channels. This provides interoperability on demand with existing and future networks.

FLASHport AFTERMARKEt UPGRADES

The ASTRO Digital APX 6000Li Portable Series Radios are part of the FLASHport Program. This means that ASTRO Digital APX 6000Li hardware models can be loaded with different software packages that provide the features and functionalities that our customers require.

System Enhancement Options can be loaded at the time of radio purchase or at a later date through the use of software field upgrades (a USB cable is required for all software upgrades.) The ASTRO Digital APX 6000Li portable can be upgraded electronically in the field with new features in the current system or to new systems operation (contingent upon remaining within the same RF sub-band) by ordering upgrade kits.

Ordering Requirements

Ordering procedure is as follows...

Steps	Required Options	Comments
1	APX 6000Li 700/800 Main Model	APX Digital Portable Radio-
2	APX 6000Li 36 or 96 Digital Trunking Package Option	a. H98UCD9PW5AN b. H98UCF9PW6AN c. H98UCH9PW7AN
1.	Order the APX 6000Li Portable Series as the main line item.	a. QA02756AA

- Default battery is LiIon 2150mAh (-20°c)
- Default belt clip for top display models and carry holder for limited keypad and full keypad models
- Default Antenna is the single appropriate antenna for your RF configuration.
- Note - APX Radio ships with 12 month standard warranty.

2. Choose a Software Package Option

- **QA02756AA: APX 6000 3600 or 9600 Digital Trunking Package Option-** Includes either P25 Trunking OR SmartZone/SmartNet, and Omnilink. Only 9600 OR 3600 Trunking can be configured. Does NOT include 9600/3600 interoperability.
- **Q443BP: APX6000 Analog 3600 Trunking Package Option-** Includes Analog SmartZone/SmartNet, and Omnilink.
- **Q811BP: APX6000 Digital Conventional Package Option-** Includes Digital Conventional and P25 Conventional operation.
- **QA02829AA: APX6000 Analog Conventional Package Option-** Includes Analog Conventional operation.

*APX 6000LI Limitations

- No Infrastructure OTAR Capability
- No Delta T (*P67 Ships Standard*)
- No Color Housing (Yellow/Green)
- No Multiple Encryption Algorithms not including ADP, such as AES and DES
- No 3600/9600 Interoperability Option
- No Enhanced Level 2 Option Available

Common Software Features Supported By

H38 "SmartZone"			
	"Analog Operation"(Q241/H38)	"ASTRO Digital"(Q806/H38)	"ASTRO Digital"(H38/Q806/Q361)
			"TDMA"(QA00580AA)

RADIO WIDE FEATURES	Non-Project 25 (3600 Baud)		Project 25 (9600 Baud)		TDMA OPERATION
	Non-Project 25 (3600 Baud)	Non-Project 25 (3600 Baud)	Project 25 (9600 Baud)	Project 25 (9600 Baud)	
Maximum Modes					
ASTRO Digital APX 6000 Top Display	96	96	96	96	96
ASTRO Digital APX 6000 Limited Keypad	1000	1000	1000	1000	1000
ASTRO Digital APX 6000 Full Keypad	1000	1000	1000	1000	1000
Analog and Digital Operation	Yes	Yes	Yes	Yes	Yes
12.5/20/25 KHz Programmable Channels	Yes	Yes	Yes	Yes	Yes
Secure Capable	No	Yes (Digital Only)	Yes (Digital Only)	Yes (Digital Only)	Yes (Digital Only)
One Touch Operation	Yes	Yes	Yes	Yes	Yes
Real Time Clock	Yes	Yes	Yes	Yes	Yes
Surveillance Mode	Yes	Yes	Yes	Yes	Yes
Keypad Lock	Yes	Yes	Yes	Yes	Yes
Radio Lock	Yes	Yes	Yes	Yes	Yes
Smart Battery	Yes	Yes	Yes	Yes	Yes
Radio Wide Transmit Inhibit	Yes	Yes	Yes	Yes	Yes
Time Out Timer	Yes	Yes	Yes	Yes	Yes
FLASHport	Yes	Yes	Yes	Yes	Yes
ANALOG CONVENTIONAL FEATURES					
Conventional Features are additional radio wide features beyond those specified above.					
CSQ/PLDPL	Yes	Yes	Yes	Yes	Yes
Dual Priority Channel Scan	Yes	Yes	Yes	Yes	Yes
Adaptive Power Control	No	Yes	Yes	Yes	Yes
Repeater/Talkaround Operation	Yes	Yes	Yes	Yes	Yes
Scan (Auto, Pre-programmed, Operator Selectable)	Yes	Yes	Yes	Yes	Yes
Smart PTT	Yes	Yes	Yes	Yes	Yes
Monitor	Yes	Yes	Yes	Yes	Yes
DTMF Tone Generation	Yes	Yes	Yes	Yes	Yes
DTMF Signaling	Future	Future	Future	Future	Future
Quick-Call Signaling	Future	Future	Future	Future	Future

DIGITAL CONVENTIONAL SIGNALING FEATURES

These features are APCO Project 25 Conventional Interoperable Features when used in the ASTRO Digital CAI Mode (Q806).

Unaddressed Voice Call (Dispatch Call)	Yes	Yes	Yes	Yes
Talk Group Call	Yes	Yes	Yes	Yes
Group Call Alert™	Yes	Yes	Yes	Yes
Talk Group Identification (TGID)	Yes	Yes	Yes	Yes
Selective Call (Individual Voice Call)	MDC-1200 Only	Yes	Yes	Yes
Selective Call Decode (Individual Voice Call)	MDC-1200 Only	Yes	Yes	Yes
PTT ID (Individual Identification)	MDC-1200 Only	Yes	Yes	Yes
Call Alert Encode/Decode	MDC-1200 Only	Yes	Yes	Yes
Emergency Alarm w/Channel Revert & Ack.	MDC-1200 Only	Yes	Yes	Yes
Telephone Interconnect	Yes	Yes	Yes	Yes
Manual Phone Number Entry	Dual Display Only	Dual Display Only	Dual Display Only	Dual Display Only
Selective Radio Inhibit	MDC-1200 Only	Yes	Yes	Yes
Radio Check	MDC-1200 Only	Yes	Yes	Yes
Status/Message	MDC-1200 Only	Yes	Yes	Yes
Trunking Type II Only Features				
Maximum Number of Trunked Systems-20	Yes	Yes	Yes	Yes
Talkgroup Calls	Yes	Yes	Yes	Yes
PTT ID	Yes	Yes	Yes	Yes
Call Alert Encode/Decode	Yes	Yes	Yes	Yes
Analog/Digital Dual Mode Scan	No	Yes	Yes	Yes
Failsafe by Talkgroup	Yes	Yes	Yes	Yes
Telephone Interconnect Encode/Decode	Yes	Yes	Yes	Yes
System Wide Call (Receive Only)	Yes	Yes	Yes	Yes
Selective Radio Inhibit	Yes	Yes	Yes	Yes
Priority Monitor Scan	Yes	Yes	Yes	Yes
Dynamic Regrouping	Yes	Yes	Yes	Yes
Status/Message	Yes	Yes	Status Only	Status Only

Private/Enhanced Conversation Encode/Decode	Yes	Yes	Yes	Yes
Remote Monitor/Radio Trace	Yes	Yes	Yes	Yes
Reprogram Request	Yes	Yes	Yes	Yes
H38 "SmartZone"				
	"Analog Operation" (Q241)	"ASTRO Digital" (Q806) Non-Project 25 (3600 Baud)	"ASTRO Digital" (H37/Q806/Q361) Project 25 (9600 Baud)	"TDMA" (QA00580AA) Project 25 (TDMA Operation)
Trunking Type II Only Features				
Voice on Control	-	-	-	-
SmartZone Automatic Site Registration	Yes	Yes	Yes	Yes
SmartZone RSSI Operation	Yes	Yes	Yes	Yes
SmartZone Preferred Site	Yes	Yes	Yes	Yes
SmartZone Forced Site Search	Yes	Yes	Yes	Yes
SmartZone Site Lock/Unlock	Yes	Yes	Yes	Yes
SmartZone Adjacent Control Channel OSW	Yes	Yes	Yes	Yes
Emergency Alarm Call Receive Indication	Yes	Yes	Yes	Yes

CHANNEL SPACING

There are no maximum frequency separation conditions that must be adhered to on the APX 6000 portable series. Separation of frequencies can be as wide as the allowable band per radio model with no degradation of any performance specifications. If an incorrect antenna is used, degraded performance may be experienced.

ZONED OPERATION

This option converts MODE-ONLY ASTRO Digital APX 6000 portables to Zone Operation radios.

For Top Display radios, a maximum of 16 channels (conventional RX and TX pairs or trunking talkgroups) are accessible in a zone. There is a maximum of six accessible zones (96 channels) when zone selection operation is programmed on the 3 position toggle switch and the Zone Bank feature is programmed on a button. The Zone Bank feature allows the 3 position toggle switch to access zones 1-3 or 4-6.

For the Top Display radio there is a maximum of 6 accessible zones, and 16 accessible channels per zone with the overall maximum of 96 channels. For the Dual Display Radios with Limited keypad or Full Keypad, there is a maximum of 50 zones, 625 channels per zone with the overall maximum of 1000 channels. These radios provide "ZONE" and "CHAN" menus that allows access to zones and channels not accessible via the switches.

*Note: Top Display Radio codeplugs can be programmed with the same zone/channel configuration as the Dual Display Radios even though not all of the zones and channels are accessible. This is useful for having a common zone/channel template that can be shared between the different radio models.

PROJECT 25 ENCRYPTION

The mode of operation is programmed on a channel-by-channel basis. With the coded/clear switch set to the clear mode, the ASTRO Digital APX6000 radio is capable of transmitting clear analog voice or clear (unencrypted) ASTRO Digital voice, depending on the channel programming. With the coded/clear switch set to the coded mode, the ASTRO Digital APX 6000 radio will transmit ASTRO Digital encryption depending on the channel programming. ASTRO Digital encryption provides secure communications. ASTRO Digital Encryption (operation in encrypted mode while also operation in 3.6KB or 9.6KB and TDMA ASTRO mode) is capable of XL type encryptions; ASTRO Digital Encryptions does not operate with non-XL encryptions.

An encryption option is not required for either clear analog operation or clear ASTRO Digital operation. Encryption can be ordered with the ASTRO Digital APX 6000 radio either as a factory installed option or separate from the radio for later field installation. ASTRO Digital APX 6000 radio functions include selected ASTRO digital signaling and digital speech coding.

When ordering any of the Encryption Algorithms:

- The DES-OFB and AES encryption algorithms offered are compliant with digital Project 25 standards and does not support analog encryption operation.
- **Requires** the ASTRO Digital CAI (Q806) to operate the DES-OFB and AES encryption.

When used in CAI mode, the non-OFB Encryption will not be Project 25 compliant.

- Encryption Algorithms can be ordered later via Flash Port.

FIPS 140-2 Compliance

Encryption Modules equipped with AES are FIPS 140-2 compliant. Details regarding the certification, and copies of the relevant certificates, can be obtained on the NIST website at: <http://csrc.nist.gov/groups/STM/cmvp/validation.html>.

Further information regarding FIPS 140-2 certification may be found using the following link - FIPS 140-2 Crypto Module Validation Program (CMVP) <http://csrc.nist.gov/groups/STM/cmvp/index.html>

FM INFORMATION

APX 6000 Portable Radio when properly equipped with options Q393 OR QA00581 OR QA00582 OR QA02818 are Factory Mutual (FM/CSA) Approved as intrinsically safe for use in Div 1, Class I, Groups C,D, Class II groups E, F, G, Class III Div 2, Class I A, B,C,D.

ASTRO Text Messaging Service

ASTRO Text Messaging Service will be available on APX 6000 Dual Display Portable radios. Text Messaging Service (TMS) allows subscriber users to send and receive text messages to other subscribers or dispatch operators. Users can select messages and addresses from a predefined list or enter freetext messages and addresses via the keypad. Text Messaging Service is available on ASTRO P25 Conventional and Trunked IV&D Systems and Subscribers.

Text Message is NOT supported on APX 6000 (Model I) Top Display Portable radio.

Ordering ASTRO Text Messaging for APX 6000 Portable Requires:

- APX 6000 Dual Display
- Q811BP Software Package
- Packet Data Interface (Q947)

OR

- APX 6000 Dual Display
- QA02756AA Software Package
- Packet Data Interface (Q947)

NOTE: *There is no specific option to order for the Text Messaging Service on the subscribers as the functionality is included in the Packet Data option.*

Outdoor Personnel Location Global Positioning Satellite (GPS) Feature

The personnel outdoor location tracking GPS feature enables a dispatcher the ability to locate on-foot patrols and out of the vehicle officers who are involved in life threatening situations. The radio user's GPS position information is sent over the ASTRO 25 Integrated Voice & Data (IV&D) network and is delivered to the dispatch operator using a third party mapping display application at the dispatch center (*Mapping Application is not yet available through Motorola at this time, however an Application Developers Tool Kit is available for 3rd party vendors to use to modify existing applications. See link below for more details.*) On the Dual Display model only it is possible to the user to determine their own location (latitude/longitude) through the use of the location menu.

During normal operation the radio battery capacity will be reduced by 10% to 16%.

In order to obtain an initial GPS fix position, the radio must be located in an open sky, outdoor environment with no barriers that could affect the signal around you or above you. During this initial fix, the radio should NOT be worn on the body as this may affect the process of acquiring signal and/or add additional time to first fix.

NOTE LIMITATIONS OF USE:

Initial customer orders for APX radios. ****
****** APX CPS version CPS R12.00.00 and greater ordered after June 2014 will only support Windows 7 and 8.**

FCC Information

Band/Model	Power Output	Transmitter Certification	Emissions	Applicable Rules
700/800 (764-870 MHz)	700 - 1 to 2.5W 800 - 1 to 3W	AZ489FT5863	11K0F3E, 16K0F3E, 8K10F1D, 8K10F1E, 8K10F1W, 20K0F1E	90

[Spec Sheet](#)

[Ordering Guide](#)

[RSA Comprehensive](#)

[RSA](#)

[ASTRO 25 Subscriber At A Glance Brochure](#)

[Portable Accessories Catalog](#)

[PSM User Guide](#)

[Radio Applications \ Advanced System Key](#)

[Fleet Management Ordering Guide](#)

Fleet Management software was previously distributed on DVDs shipped out of Elgin. It is now downloadable from motsolutions.com at the link below. Look at the right edge of the page under Resources Spotlight. The first link is the Order Guide which tells you what you need. The

ADD: ADVANCED SYSTEM KEY - HARDWARE KEY	QA01648	655	\$5.00
A SOFTWARE or ADVANCED SYSTEM KEY or WACN KEY is REQUIRED to be purchased with any APX Radio operating in trunking. A SUPPLEMENTAL ID is REQUIRED to be entered when this option is ordered. Please be sure the CORRECT SYSTEM ID is entered. If an Incorrect ID is entered, FLASHport will need to be ordered to FIX this error. ADVANCED SYSTEM KEY or WACN KEY will still REQUIRE a DVN4046 to be purchased.			
SW KEY SUPPLEMENTAL DATA	QA01749	655	\$0.00
A SOFTWARE or ADVANCED SYSTEM KEY or WACN KEY is REQUIRED to be purchased with any APX Radio operating in trunking.			
ADD: ADVANCED WACN KEY SUPP DATA	QA02018	655	\$0.00
A SOFTWARE or ADVANCED SYSTEM KEY or WACN KEY is REQUIRED to be purchased with any APX Radio operating in trunking. A SUPPLEMENTAL ID is REQUIRED to be entered when this option is ordered. Please be sure the CORRECT SYSTEM ID is entered. If an Incorrect ID is entered, FLASHport will need to be ordered to FIX this error. ADVANCED SYSTEM KEY or WACN KEY will still REQUIRE a DVN4046 to be purchased.			

System Enhancement Options (Optional)

ADD: PROGRAMMING OVER P25 (OTAP)	G996	481	\$100.00
Compatible with P25 Trunking and Conventional Operation. POP25 requires AES encryption for ASTRO Conventional operation. Must have IV&D (Q947) enabled. To do in field POP25 programming must use Advanced System Key (DVN4048A)			
ENH: RADIO TRACE/ REMOTE MONITOR	H43	481	\$75.00
Requires Q806 and either H37, H38, or H35.			
ENH: ONE TOUCH/STATUS MSG	H46	481	\$75.00
Only compatible with Model 2.5 and 3.5 Radios			
ADD: MULTICAST VOTING SCAN	Q387	481	\$200.00
Requires Q806 (ASTRO DIGITAL CAI OPERATION)			
ADD: ASTRO 25 INTEGRATED VOICE & DATA	Q947	481	\$200.00
This option is only capable of being used on P25 Digital Conventional and 9600 Trunking Systems. This option is required for IV & D operation.			
ADD: P25 LINK LAYER AUTHENTICATION	QA01767	481	\$100.00
Requires P25 Trunking (Q361)			
ADD: DVRS PSU ACTIVATION	QA00631	655	\$100.00
Enables DVRS Enhanced PSU functionality on APX Mobile Radios. Requires Digital Operation. QA00631 is to be ordered for radios that are not connected directly to a DVR. If you are connecting your radio directly to a DVR then order QA00631.			
ADD: TDMA OPERATION	QA00580	481	\$400.00
For APX6000 and APX6000XE, QA00580 requires Q806, H38, Q361. If ordering an APX6000L1, QA00580 requires QA02756. A SOFTWARE or HARDWARE KEY or WACN KEY is REQUIRED to be purchased with any APX Radio operating in trunking. HARDWARE KEY or WACN KEY will still REQUIRE a DVN4046 to be purchased.			
ADD: MISSION CRITICAL WIRELESS BLUETOOTH.	QA00583	481	\$150.00
ENH: APX GPS ACTIVATION	QA00782	481	\$100.00
Must have IV&D (Q947) enabled.			
Radio requires GPS antenna (NA-G4000) when Public Safety Microphone is attached			
ENH: ENHANCED ZONE BANK	QA01768	481	\$75.00

This option will increase the channel/group capacity on a Model 1 and Model 1.5 from 96 to 1000. Zone Up/Zone Down, Zone Bank Up/Zone Bank Down will be unlocked with this option.

ADD: APX Personnel Accountability
ADD: MANDOWN OPERATION

Q445 481 \$150.00
 QA01843 481 \$150.00

APX6000 customers ONLY - with radios using tanapas with revision A or B will also need to order the APX6000 MAN DOWN UPGRADE HW KIT in addition to the Man Down SW flashport option QA01843AB. Please contact your sales representative for further details.

Select ONE of the following APX6000 MAN DOWN UPGRADE HW KIT parts in addition to Man Down SW flashport option QA01843:

NNTN8320AS: contains parts for 100 radios + instructions
 NNTN8321AS: contains parts for 50 radios + instructions
 NNTN8322AS: contains parts for 10 radios + instructions

ADD: ENHANCED DATA

QA03399 656 \$150.00

Smartzone (H38/G51), Digital (Q806/G806), IV&D (Q947M/947) and P25 Trunking (Q361/G361) are required when ordering the Enhanced Data option

ADD: EXTREME 1-SIDED NOISE REDUCTION

QA01833 481 \$25.00

Compatible with all APX6000 Radios. Comes standard on APX6000XE.

Algorithm Option (Can only pick one Encryption Algo)

Description

ENH: DVP-XL ENCRYPTION

Nomenclature APC Price
 H797 481 \$487.00

Compatible with Digital and Analog (25KHz Only) operations. ADP Privacy ships standard with Single Key. Multitkey is required for multiple algorithms, such as ADP/AES or ADP/DES.

ENH: MULTIKEY

H869 481 \$330.00

ENH: DES,DES-XL,DES-OFB ENCRYPTION

Q625 481 \$599.00

Compatible with Analog 25KHzDES-OFB Digital (2.5KHz Only). ADP Privacy ships standard with Single Key. Multitkey is required for multiple algorithms, such as ADP/AES or ADP/DES

ENH: AES ENCRYPTION

Q629 481 \$475.00

ADP Privacy ships standard with Single Key. Multitkey is required for multiple algorithms, such as ADP/AES or ADP/DES

ADD: TACTICAL REKEY WITH MULTIKEY

H04 481 \$350.00

This feature REQUIRES IV&D (Q947) AND Digital Encryption ? AES (Q629) or DES, DES-XL, DES-OFB (Q625), AES/DES (Q15) to operate. Incompatible with MDC/ASTRO P25 OTAR with Multitkey. Tactical OTAR is not compatible with DVRS QA00631.

Antenna

Description

ALT: 1/4 WAVE 7/800 GPS STUBBY (NAR6595A)

Nomenclature APC Price
 H122 481 \$24.00

Length: 3.93"

Description

ADD: GPS STUBBY ANTENNA (NAG4000)

Nomenclature APC Price
 QA00785 481 \$18.00

Deletes Standard Antenna and ADDS GPS ONLY antenna.

Battery

Description	Nomenclature	APC	Price
DEL: DELETE STANDARD BATTERY			
Deletes standard battery. PMNN4403 for APX6000 or NNTN8092 for APX6000XE	H207	481	(\$30.00)
ALT: NIMH IMPRES 2100MAH IP67 BATTERY (NNTN7037)			
The option will delete the standard option and replace with NIMH IMPRES 2100MAH IP67 BATTERY(NNTN7037)	H335	481	\$78.00
ALT: NIMH IMPRES 2000MAH FM/CSA IP67 (NNTN7036)			
The option will delete the standard battery and replace with NIMH IMPRES 2000MAH FM IP67 BATT (NNTN7036)	Q393	481	\$95.00
ALT: NIMH IMPRES 2000 MAH FM/CSA DELTA T (NNTN7035)			
The option will delete the standard battery and replace with LIION 2000 MAH DELTA-T (NNTN7035). This battery is compatible with H499 and meets FM certification.	QA00581	481	\$133.00
ALT: LIION IMPRES 4100 MAH FM/CSA IP67 (NNTN7033A)			
This option will delete the standard battery and replace it with LITHIUM ION 4000MAH IMPRES (NNTN7033). This battery meets FM certification.	QA00582	481	\$165.00
ALT: LIION 4200MAH IMPRES DELTA-T			
This option will delete the standard battery and replace it with LIION 4200MAH IMPRES(NNTN7034). This battery is compatible with H499.	QA00781	481	\$115.00
ALT: LIION IMPRES IP67 2900MAH (NNTN7038)			
This option will delete the standard battery and replace it with LIION IMPRES 2900MAH IP67 (NNTN7038).	QA01837	481	\$100.00
ALT:LIION IMPRES FM/CSA 2300M (NNTN8092)			
This option will delete the standard battery and replace it with LIION IMPRES 2300M (NNTN8092). This option is compatible with H499 and meets FM certification.	QA02818	481	\$50.00

Belt Clip (s)

Model 1.5 comes standard with 2.5" belt clip.

Description	Nomenclature	APC	Price
DEL: DELETE BELT CLIP/ BASIC CARRY HOLDER			
	H301	481	(\$10.00)
Description			
ALT: BASIC CARRY HOLDER (PMLN5709)			
This carry holder equipped with a 2.5" belt clip ships standard with the Dual Display model. It is an alternative to the 2.5" Belt Clip that ships standard with the Top Display model.	QA00779	481	\$29.00
Description			
ADD: BELT CLIP 3.0" (HLN6875)			
Replaces the standard 2.5" belt clip that ships with the Model 1.5 radio with a 3" Model 1.5 radios in 700/800 and VHF will ship standard with the 2.5" belt clip, and UHF radios will ship with the 3" belt	QA01222	481	\$12.00

clip.

Cable (s)

Description	Nomenclature	APC	Price
ADD: DATA CABLE			
PMKNA012B- Used to program the radio with Customer Programming Software and Tuner Software.	Q157	655	\$75.00
PMKNA013C - Used to program and service the radio with Customer Programming Software and Tuner Software.			
Compatible on ALL APX Portable Radios			

Programming

Description	Nomenclature	APC	Price
ENH: FRONT PANEL PROGRAMMING	Q53	430	\$150.00
Compatible with model 3.5 radios only			
ADD: FRONT PANEL PROGRAMMING (FEDERAL)	Q52	470	\$150.00
			New Price Effective 01-Jan-2015: \$173.00

Service Options

Description	Nomenclature	APC	Price
ENH:STD WARRANTY APPLIES-NO SFS	QA05100	185	\$0.00
Provides no extended repair coverage after the standard warranty period expires. Required if no other SFS option is selected.			
ENH: 2 YR SFS LITE	H885BK	185	\$84.00
Provides 2 years of extended hardware repair coverage beginning after the standard warranty period expires. Repairs will be made only at the designated Motorola repair depot. Local services are not included. Motorola will pay the inbound shipping charges only with use of the Motorola designated delivery service. Motorola will pay for outbound shipping via Motorola's normal shipping methods. No discounts are allowed on this option.			
ENH: 3 YR SFS LITE	H886AQ	185	\$104.00
Provides 3 years of extended hardware repair coverage beginning after the standard warranty period expires. Repairs will be made only at the designated Motorola repair depot. Local services are not included. Motorola will pay the inbound shipping charges only with use of the Motorola designated delivery service. Motorola will pay for outbound shipping via Motorola's normal shipping methods. No discounts are allowed on this option.			
ENH: SFS COMPREHENSIVE	HA00022AB	185	\$190.00
Provides for extended hardware repair coverage and chemical, liquid, and other physical damage on your Motorola portable and mobile subscriber radios. Comprehensive coverage starts from the first day the radio is put into use and last for 3 YEARS. Repairs will be made only at the designated Motorola repair depot. Local services are not included. Motorola will pay the inbound shipping charges only with use of the Motorola designated delivery service. Motorola will pay for outbound shipping via Motorola's normal shipping methods. No discounts are allowed on this option.			
ENH: 1 YR SFS LITE	Q884	185	\$44.00
Provides 1 year of extended hardware repair coverage beginning after the standard warranty period expires. Repairs will			

be made only at the designated Motorola repair depot. Local services are not included. Motorola will pay the inbound shipping charges only with use of the Motorola designated delivery service. Motorola will pay for outbound shipping via Motorola's normal shipping methods. No discounts are allowed on this option.

ENH: 4 YR SFS LITE

Q887

185

\$130.00

Provides 4 years of extended hardware repair coverage beginning after the standard warranty period expires. Repairs will be made only at the designated Motorola repair depot. Local services are not included. Motorola will pay the inbound shipping charges only with use of the Motorola designated delivery service. Motorola will pay for outbound shipping via Motorola's normal shipping methods. No discounts are allowed on this option.

ENH: CANADA 3 YR SFS LITE ENCR

HA00048

386

\$191.00

Upgrades the standard warranty period to a full three (3) years of hardware service coverage on the internal components of your radio equipment. Repairs will be made only at Motorola authorized service centers. No discounts are allowed on this option.

ENH: CANADA 5 YR SFS LITE

HA00049

386

\$262.00

Upgrades the standard warranty period to a full five (5) years of hardware service coverage on the internal components of your radio equipment. Repairs will be made only at Motorola authorized service centers. No discounts are allowed on this option.

ENH: CANADA DEALER ONLY 3 YR ENCR

HA00070

386

\$147.00

ENH: CANADA DEALER ONLY 5 YR ENCR

HA00071

386

\$207.00

Manual

Description

DEL: USER GUIDE CD

Nomenclature
QA01274

APC
481

Price
\$0.00

This deletes the user guide CD that ships standard with the radio.

ADD: DATA LINK MANAGER APP CD- PORTABLES

QA00205

655

\$0.00

Option provides the NVN5424 Data CD. Please order this option if you would like the Data CD, and are unable to obtain it through other sources such as MOL.

Packaging

Description

ADD: SINGLE UNIT PACKING

Nomenclature
H842

APC
481

Price
\$0.00

Section D: Aftermarket Accessories

Cables

Description	Nomenclature	APC	Price
PORTABLE PROGRAMMING CABLE	PMKN4012B	037	\$75.00
PMKN4012B- Used to program the radio with Customer Programming Software and Tuner Software. APX7000 / APX6000 ONLY or NOT Compatible ON APX4000			
PMKN4013C - Used to program and service the radio with Customer Programming Software and Tuner Software. Compatible on ALL APX Portable Radios (APX7000/6000/4000/LI3000)			

Data Compiled 01-Dec-2014 using DUP and all prices in USD

Public Safety Grade Portable Radio for Field Operations

Radio Model: MOTOROLA APX 6000LI

	Included?: Y/N	
Hand-held radio operating in the 700/800MHz frequency band.	Y	
Battery - 2400maH Li-Ion minimum (List battery supplied in the 'Included' column to the right)	Y (LI-ION 2900MAH)	
Antenna (Indicate which antenna is being offered in the 'Included' column to the right)	Y	
Convention Analog Operation	Y	
P25 Conventional Operation	Y	
APCO P25 Phase I trunked radio	Y	
Software Upgradeable to APCO P25 Phase II	Y	
Minimum 32 conventional channels	Y	
Minimum 256 system/talkgroups	Y	
Programmable time-out-timer	Y	
Digital and analog talk-around	Y	
Individual call	Y	
Emergency operation	Y	
Group scan	Y	
PC programmable	Y	
Alphanumeric display on the face of the radio	Y	
Alphanumeric display on the top of the radio	Y	
Back lighting of display with dimmer control	Y	
Encryption, AES multi-key (min. 15 key capacity)	Y	
On/off volume knob	Y	
16 position rotary knob with stops	Y	
Advanced System Key	Y	
Dynamic regrouping capable	Y	
Mil Specs 810C, D, E, F, and G	Y	
Public Safety Grade Ruggedized Speaker/Microphone with Emergency Button	Y	
Mixed Mode Operation (Trunked talk groups and Conventional Channels in the same bank of frequencies)	Y	
Spring-loaded Belt Clip	Y	
		One Time Discounts
	Cost per Radio	All pricing and discount information to be provided at auction event on January 14th!
	Cost for 50 radios	
	Cost for 100 radios	
	Cost for 150 radios	
	Cost for 200 radios	
	Cost for 250 radios	
	Cost for 300 radios	



THE RIGHT PERFORMER AT THE RIGHT PRICE

APX™ 6000Li P25 PORTABLE RADIO

Wherever the mission takes you, you want a radio that gives you everything you need at a price you can afford, without sacrificing quality, safety or response time. Whether it's a lightweight design or a specific set of features, you expect performance that is second to none.

The APX 6000Li P25 Phase 2 capable portable radio delivers all that you want at a price that fits your budget. Pay only for the functionality you need at the level you can afford, without giving up the exceptional quality, design excellence and reliability you expect from APX.

SOPHISTICATED YET SIMPLY INTUITIVE

Everything about the APX 6000Li was designed to help

professionals do their jobs more effectively and safely.

IMPROVE SAFETY WITH

SMARTER TECHNOLOGY

SMALL SIZE, BIG TECHNOLOGY, LOW COST

Single band, technology-rich solution

Pay for only the features you need

Three lightweight models

Ideal for firefighters, law enforcement, military and more

P25 Phase 2 capable for twice the voice capacity

Backwards and forwards compatible with all

PRODUCT SPEC SHEET
APX™ 6000i



FEATURES AND BENEFITS:

- Available in 700/800 MHz, VHF, UHF R1, and UHF R2 bands
- Trunking standards supported:
 - Clear or digital encrypted ASTRO®25 Trunked Operation
 - Capable of SmartZone®, SmartZone Omnitalk, SmartNet®
- Analog MDC-1200 and Digital APCO P25 Conventional System Configurations
- Narrow and wide bandwidth digital receiver (6.25 kHz equivalent / 12.5 kHz / 30 kHz / 25 kHz)*
- Embedded digital signaling (ASTRO & ASTRO 25)
- Available in 3 models
 - Man Down
 - Integrated GPS capable
 - Intelligent Lighting
 - Radio Profiles
 - Unified Call List (Models 2.5 and 3.5 only)
 - User programmable voice announcement
 - Meets Applicable MIL-STD-810C, D, E, F and G IP67 standard (submersible 1 meter, 30 minutes)**
 - Custom recess label areas

Superior Audio Features:

- 0.5 W high audio speaker
- Dual microphones
- 2-mic noise canceling technology
- Utilizes Windows XP, Vista and Windows 7 Customer Programming Software (CPS)
- Supports USB communications
- Built in FLASHport™ support
- Full portfolio of accessories including IMPRES batteries, chargers and audio devices

OPTIONAL FEATURES:

- Mission Critical Wireless
- Single Algorithm Encryption
- Programming Over Project 25
- Tactical OTAR
- Text Messaging

*Per the FCC Narrowbanding rules, new products (APX6000i, UHF R1, UHF R2) submitted for FCC certification after January 1, 2011 are restricted from being granted certification at 25KHz for United States - State & Local Markets only
** Radios meet industry standards (IP67) for immersion.

TRANSMITTER - TYPICAL PERFORMANCE SPECIFICATIONS

	700/800	VHF	UHF Range 1	UHF Range 2
Frequency Range/Bandsplit	700 MHz 800 MHz	763-776, 793-806 MHz 806-824, 851-870 MHz	136-174 MHz	380-470 MHz 450-520 MHz
Channel Spacing	25/12.5 kHz	30/25/12.5 kHz	25/12.5 kHz	25/12.5 kHz
Maximum Frequency Separation	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit
Rated RF Output Power Adj ¹	1-3 Watts Max	1-6 Watts Max	1-5 Watts Max	1-5 Watts
Frequency Stability ¹	±0.00010 %	±0.00010 %	±0.00010 %	±0.00010 %
(-30°C to +60°C, +25°C Ref.)				
Modulation Limiting ¹	±5 kHz / ±4 kHz / ±2.5 kHz	±5 kHz / ±2.5 kHz	±5 kHz / ±2.5 kHz	±5 kHz / ±4 kHz / ±2.5 kHz
Emissions (Conducted and Radiated) ¹	-75 dB	-75 dB	-75 dB	-75 dB
Audio Response ¹	+1, -3 dB	+1, -3 dB	+1, -3 dB	+1, -3 dB
FM Hum & Noise	700 MHz 800 MHz	-48 dB/-47 dB -46 dB/-45 dB	-47 dB -45 dB	-47 dB -45 dB
Audio Distortion ¹	700 MHz 800 MHz	0.50 % 1 %	0.50 %	0.50 %

BATTERIES FOR APX 6000

Battery Capacity / Type	Dimensions (HxWxD)	Weight	Battery Part Number	Battery Capacity
Li-Ion IMPRES 2150 mAh IP67**	3.39" x 2.34" x 1.46"	5 oz	PMANN4403	2150 mAh
Li-Ion IMPRES 2900 mAh IP67	3.07" x 2.34" x 1.65"	6.53 oz	NNTN7038	2900 mAh
Li-Ion IMPRES 4200 mAh IP67	5.07" x 2.34" x 1.65"	11.29 oz	NNTN7034	4200 mAh
Li-Ion IMPRES 4100 mAh R4P IP67	5.07" x 2.34" x 1.65"	11.29 oz	NNTN7033	4100 mAh

PRODUCT SPEC SHEET
APX™ 6000U

RECEIVER - TYPICAL PERFORMANCE SPECIFICATIONS

	700/800	VHF	UHF Range 1	UHF Range 2
Frequency Range/Bandsplit	700 MHz 800 MHz	136-174 MHz	380-470 MHz	450-520 MHz
Channel Spacing	25/12.5 kHz	30/25/12.5 kHz	25/12.5 kHz	25/12.5 kHz
Maximum Frequency Separation	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit
Audio Output Power at Rated ¹	500mW	500mW	500mW	1000 mW
Frequency Stability ¹ (-30°C to +60°C, +25°C Ref.)	±0.00010 %	±0.00010 %	±0.00010 %	±0.00010 %
Analog Sensitivity ²	12 dB SINAD 1% BER (800 MHz)	0.250 µV 0.347 µV (0.333 µV)	0.234 µV 0.307 µV	0.234 µV 0.307 µV
Digital Sensitivity ²	5% BER	0.251 µV	0.207 µV	0.207 µV
Selectivity ¹	25 kHz channel 12.5 kHz channel	75.7 dB 67.5 dB	78.3 dB 68.1 dB	78.3 dB 67.5 dB
Intermodulation		80 dB	80.2 dB	80.2 dB
Spurious Rejection		76.6 dB	93.2 dB	80.3 dB
FM Hum and Noise	25 kHz 12.5 kHz	-54 dB -48 dB	-53.8 dB -47.4 dB	-53.5 dB -47.4 dB
Audio Distortion ¹		-9 %	1.20 %	0.91 %

RADIO MODELS

MODEL 1.5



MODEL 2.5



MODEL 3.5



Display Full bitmap monochromatic LCD top display
1 line text x 8 characters
1 line of icons
No menu support
Multi-color backlight

Top display plus:
Full bitmap color LCD display
4 lines of text x 14 characters
2 lines of icons
1 menu line x 3 menus
White backlight

Top display plus:
Full bitmap color LCD display
4 lines of text x 14 characters
2 lines of icons
1 menu line x 3 menus
White backlight

Keypad none
Backlight keypad
3 soft keys
4 direction Navigation key
Home and Data buttons

Backlight keypad
3 soft keys
4 direction navigation key
4x3 keypad
Home and Data buttons

Channel Capacity 96

870

870

FLASHport Memory 64 MB

H98UCD9PW5AN Q360EF

H98UC9PW6AN Q360EF

64 MB

VHF (136-174 MHz)

H98KGD9PW5AN Q360EG

H98K99PW6AN Q360EG

H98UCH9PW7AN Q360EF

UHF Range 1 (380-470 MHz)

H98ODD9PW5AN Q360EH

H98OD9PW6AN Q360EH

H98KGH9PW7AN Q360EG

UHF Range 2 (450-520 MHz)

H98SD9PW5AN Q360FC

H98SD9PW6AN Q360FC

H98ODH9PW7AN Q360EH

Buttons & Switches

Large PTT button ■ Angled On/Off volume control ■ Orange emergency button ■ 16 position top-mounted rotary switch
■ 2-position concentric switch ■ Multi-color backlight ■ 3-position toggle switch ■ 3 programmable side buttons

Transmitter Certification

700/800 (764-869 MHz)

AZ489FT5863

VHF (136-174 MHz)

AZ489FT3829

UHF Range 1 (380-470 MHz)

AZ489FT4892

UHF Range 2 (450-520 MHz)

AZ489FT4913

PRODUCT SPEC SHEET
APX™ 8000L1

PORTABLE MILITARY STANDARDS 810 C, D, E, F, G

	MIL-STD 810C		MIL-STD 810D		MIL-STD 810E		MIL-STD 810F		MIL-STD 810G	
	Method	Proc./Cyl.	Method	Proc./Cyl.	Method	Proc./Cyl.	Method	Proc./Cyl.	Method	Proc./Cyl.
Low Pressure	500.1	I	500.2	II	500.3	II	500.4	II	500.5	II
High Temperature	501.1	I, II	501.2	I/A1, II/A1	501.3	I/A1, II/A1	501.4	I/Hol, II/Basic Hol	501.5	I/A1, II/A2
Low Temperature	502.1	I	502.2	I/C3, II/C1	502.3	I/C3, II/C1	502.4	I/C3, II/C1	502.5	I/C3, II/C1
Temperature Shock	503.1	I	503.2	I/A1/C3	503.3	I/A1/C3	503.4	I	503.5	I/C
Solar Radiation	505.1	II	505.2	I	505.3	I	505.4	I	505.5	I/A1
Rain	506.1	I, II	506.2	I, II	506.3	I, II	506.4	I, III	506.5	I, III
Humidity	507.1	II	507.2	II	507.3	II	507.4	I Proc	507.5	II/Aggravated
Salt Fog	509.1	I	509.2	I	509.3	I	509.4	I Proc	509.5	I Proc
Blowing Dust	510.1	I	510.2	I	510.3	I	510.4	I	510.5	I
Blowing Sand	1 Proc	I Proc	510.2	II	510.3	II	510.4	II	510.5	II
Immersion	512.1	I	512.2	I	512.3	I	512.4	I	512.5	I
Vibration	514.2	VIII/E Curve-W	514.3	I/10, II/3	514.4	I/10, II/3	514.5	I/24	514.6	I/24
Shock	516.2	I, III, V	516.3	I, V, VI	516.4	I, V, VI	516.5	I, V, VI	516.6	I, V, VI
Shock (Drop)	516.2	II	516.2	IV	516.4	IV	516.5	IV	516.6	IV

DIMENSIONS OF THE RADIOS WITHOUT BATTERY

	inches	Millimeters
Length	5.47	139
Width Push-To-Talk Button	2.39	60.7
Depth Push-To-Talk Button	1.40	35.6
Width Top	2.98	75.7
Depth Top	1.58	40.1
Depth Bottom of Battery	1.24	31.5
Weight of the radios without battery	10.9 oz	309 g

ENCRYPTION

Supported Encryption Algorithms	ADP, AES, DES, DES-XL, DES-OFB, DVP-XL
Encryption Algorithm Capacity	1
Encryption Keys per Radio	Module capable of storing 1024 keys. Programmable for 64 Common Key Pairs (CKP) or 16 Physical Identifiers (PID)
Encryption Frame Re-sync Interval	P25 CA1 300 mSec
Encryption Keying	Key Loader
Synchronization	XL – Counter Addressing OFB – Output Feedback
Vector Generator	National Institute of Standards and Technology (NIST) approved random number generator
Encryption Type	Digital
Key Storage	Tamper protected volatile or non-volatile memory
Key Erasure	Keyboard command and tamper detection
Standards	FIPS 140-2 Level 3 FIPS 197

GPS SPECIFICATIONS

Channels	12
Tracking Sensitivity	-159 dbm
Accuracy*	<10 meters (95%)
Cold Start	<60 seconds (95%)
Hot Start	<10 seconds (95%)
Mode of Operation	Autonomous (Non-Assisted) GPS

RUGGED OPTION SPECIFICATIONS

Leakage (Immersion)	MIL-STD-810 C,D,E,F and G Method 512.X Procedure I
Housing Availability	Black

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature*	-30°C / +90°C
Storage Temperature*	-40°C / +85°C
Humidity	Per MIL-STD
ESD	IEC 801-2 KV
Water and Dust Intrusion	IP67, MIL-STD
Immersion	MIL-STD 512 X/I

* Measured in the storage mode per TIA/EIA 813 under normal conditions
 † When used with an FM approved intrinsically safe radio
 ‡ Measured conductivity in storage mode per TIA/EIA 813 under normal conditions
 § Measured conductivity in digital mode per TIA/EIA 15 192 CA1A under normal conditions
 ¶ Accuracy specs are for long-term tracking (500 percentile) vehicles >> satellites visible at a nominal ~130 dbm signal strength
 ** Temperatures listed are for radio specifications. Battery storage is recommended at 25°C ±5°C to ensure best performance
 Specifications subject to change without notice. All specifications shown are typical. Radio meets applicable regulatory requirements.



ASTRO® Digital APX 6000Li™ Portable Series

700/800 Band

P25 Phase 2 Single Band Capable Radio



****NOTE: APX digital mobile and portable radios require either a SOFTWARE KEY (QA01749), HARDWARE KEY (QA01648), OR WACN KEY SUPPLEMENTAL DATA (QA02018) to be ordered to operate/program on a trunking system. IF QA01648- HARDWARE KEY or QA02018- WACN KEY is ORDERED, SUPPLEMENTAL DATA is required to be entered. Please be sure the CORRECT SYSTEM ID is entered. If an incorrect ID is entered, FLASHport will need to be ordered to FIX this error. ****

PRICE ESCALATION ANNOUNCEMENT:

PRICES FOR TDMA - QA00580, GPS - QA00782, AND IV&D - Q947 WILL INCREASE BY \$50

ALL APX FLASHPORT FEATURES WILL INCREASE BY 15% STARTING JANUARY 1, 2015

Ship Card

Features

All ASTRO Digital APX 6000LI models include the following features:

- Dual Microphone
- 0.5 Watt Rated Audio
- Integrated GPS Hardware Capable*
- Integrated Bluetooth Hardware Capable*
- Detachable Belt Clip for Top Display Model
- Slim LIION 2150 MAH Battery (PMNNA403A)
- Antenna (Dependent on Frequency Band and Type)
- Intelligent Lighting
- ADP Privacy - ships standard with Single Key
- 3 Programmable Side Buttons
- Orange Programmable Button
- 16 Position Mode Rotary Select Switch
- Angled On/Off Volume Knob
- Low Battery Alert Tone
- Noise Cancellation Software
- 1 Top Mounted Programmable 3 Position Toggle Switch
- Top Display: 1 line of text, 1 line of icons, 0 menu lines
- IP67 ships standard with every radio model

ASTRO Digital APX 6000 Limited Keypad and Full Keypad with Dual Display Model also includes:

- Universal Carry Holder
- Unified Call List
- Front Color Display: 4 lines of text, 2 lines of icon
- Radio Profiles
- Full Keypad: 4 x 3 alpha-numeric 3 programmable button, 4 way navigation, home and data buttons

* Must purchase Software to ENABLE

* All APX6000 Portable Radios ship standard with SW and HW ADP Privacy

All ASTRO Digital APX 6000Li Portables are part of the FLASHport® program and ship standard with a FLASH EE Prom, which allows for feature and system upgrades (contingent upon remaining within the current RF capabilities of the radio)

******NOTE: APX digital mobile and portable radios require either a SOFTWARE KEY (QA01749), HARDWARE KEY (QA01648), OR WACN KEY SUPPLEMENTAL DATA (QA02018) to be ordered to operate/program on a trunking system. IF QA01648- HARDWARE KEY or QA02018- WACN KEY is ORDERED, SUPPLEMENTAL DATA is required to be entered. Please be sure the CORRECT SYSTEM ID is entered. If an incorrect ID is entered, FLASHport will need to be ordered to FIX this error. Also, an Advanced System Keys (ASK- DVN4046) will be required to be ordered. ******

<http://ecat.comm.mot.com/ecat/pricebooks/dup/ASK.htm>

General Information

The ASTRO Digital APX 6000Li Portable Line offers **THREE** different radio hardware models:

Hardware Model	Modes	Alphanumeric Display Lines/Characters	Keypad	Navigation Pad
ASTRO APX 6000 Top Display	96	8 (top)	-	No
ASTRO APX 6000 Limited Keypad	1000	14 (front) & 8 (top)	-	Yes
ASTRO APX 6000 Full Keypad	1000	14 (front) & 8 (top)	4 x 3	Yes

Operating Modes

ASTRO Digital APX 6000Li Radio Models are capable of operating in four different voice communication modes:

- Normal Analog (clear voice)
- 3.6KB ASTRO Digital (both clear and coded voice)
- 9.6 KB ASTRO 25 Digital (both Clear and Coded voice)
- 9.6KB 12.5KHz 2 slot digital TDMA (both clear and coded voice).
- Will be capable of APCO25 Phase 2

functionality in future software releases.

TDMA

FDMA (Frequency Division Multiple Access) is a proven technology that is widely used today in radio systems and is part of APCO 25 Project 25 Phase 1 standard. FDMA carries one call per channel. TDMA (Time Division Multiple Access) will be part of P25 Phase 2 standard and provides double the voice capacity as 2 calls can share 1 channel. Customers can add more users to their systems without the need of additional frequencies or infrastructure. The APX radios support both P25 Phase 1 and TDMA technologies seamlessly. Using Motorola's unique Dynamic Dual Mode (DDM) capability, the radios dynamically switch between FDMA and TDMA without the user having to change channels. This provides interoperability on demand with existing and future networks.

FLASHPORT AFTERMARKEt UPGRADES

The ASTRO Digital APX 6000LI Portable Series Radios are part of the FLASHport Program. This means that ASTRO Digital APX 6000LI hardware models can be loaded with different software packages that provide the features and functionalities that our customers require.

System Enhancement Options can be loaded at the time of radio purchase or at a later date through the use of software field upgrades (a USB cable is required for all software upgrades.) The ASTRO Digital APX 6000LI portable can be upgraded electronically in the field with new features in the current system or to new systems operation (contingent upon remaining within the same RF sub-band) by ordering upgrade kits.

Ordering Requirements

Ordering procedure is as follows...

Steps	Required Options	Comments
1	APX 6000LI 700/800 Main Model	APX Digital Portable Radio-
2	APX 6000LI 36 or 96 Digital Trunking Package Option	a. H98UCD9PW5AN b. H98UCF9PW6AN c. H98UCH9PW7AN a. QA02756AA

- Order the APX 6000LI Portable Series as the main line item.

- Default battery is LiIon 2150mAh (-20°C)
- Default belt clip for top display models and carry holder for limited keypad and full keypad models
- Default Antenna is the single appropriate antenna for your RF configuration.
- Note - APX Radio ships with 12 month standard warranty.

2. Choose a Software Package Option

- **QA02756AA:** APX 6000 3600 or 9600 Digital Trunking Package Option- Includes either P25 Trunking OR SmartZone/SmartNet, and Omnilink. Only 9600 OR 3600 Trunking can be configured. Does NOT include 9600/3600 Interoperability.
- **Q443BP:** APX6000 Analog 3600 Trunking Package Option- Includes Analog SmartZone/SmartNet, and Omnilink.
- **Q811BP:** APX6000 Digital Conventional Package Option- Includes Digital Conventional and P25 Conventional operation.
- **QA02829AA:** APX6000 Analog Conventional Package Option- Includes Analog Conventional operation.

*APX 6000LI Limitations

- No Infrastructure OTAR Capability
- No Delta T (*P67 Ships Standard*)
- No Color Housing (Yellow/Green)
- No Multiple Encryption Algorithms not including ADP, such as AES and DES
- No 3600/9600 Interoperability Option
- No Enhanced Level 2 Option Available

Common Software Features Supported By

H38 "SmartZone"			
	"Analog Operation"(Q241/H38)	"ASTRO Digital"(Q806/H38)	"ASTRO Digital"(H38/Q806/Q361)
			"TDMA"(QA00580AA)

	Non-Project 25 (3600 Baud)	Non-Project 25 (3600 Baud)	Project 25 (9600 Baud)	TDMA OPERATION
RADIO WIDE FEATURES				
<i>Maximum Modes</i>				
ASTRO Digital APX 6000 Top Display	96	96	96	96
ASTRO Digital APX 6000 Limited Keypad	1000	1000	1000	1000
ASTRO Digital APX 6000 Full Keypad	1000	1000	1000	1000
Analog and Digital Operation	Yes	Yes	Yes	Yes
12.5/20/25 KHz Programmable Channels	Yes	Yes	Yes	Yes
Secure Capable	No	Yes (Digital Only)	Yes (Digital Only)	Yes (Digital Only)
One Touch Operation	Yes	Yes	Yes	Yes
Real Time Clock	Yes	Yes	Yes	Yes
Surveillance Mode	Yes	Yes	Yes	Yes
Keypad Lock	Yes	Yes	Yes	Yes
Radio Lock	Yes	Yes	Yes	Yes
Smart Battery	Yes	Yes	Yes	Yes
Radio Wide Transmit Inhibit	Yes	Yes	Yes	Yes
Time Out Timer	Yes	Yes	Yes	Yes
FLASHport	Yes	Yes	Yes	Yes
ANALOG CONVENTIONAL FEATURES				
Conventional Features are additional radio wide features beyond those specified above.				
CSQ/PLDPL				
Dual Priority Channel Scan	Yes	Yes	Yes	Yes
Adaptive Power Control	Yes	Yes	Yes	Yes
Repeater/Talkaround Operation	No	Yes	Yes	Yes
Scan (Auto, Pre-programmed, Operator Selectable)	Yes	Yes	Yes	Yes
Smart PTT	Yes	Yes	Yes	Yes
Monitor	Yes	Yes	Yes	Yes
DTMF Tone Generation	Yes	Yes	Yes	Yes
DTMF Signaling	Future	Future	Future	Future
Quick-Call Signaling	Future	Future	Future	Future

DIGITAL CONVENTIONAL SIGNALING FEATURES

These features are APCO Project 25 Conventional Interoperable Features when used in the ASTRO Digital CAI Mode (Q806).

Unaddressed Voice Call (Dispatch Call)	Yes	Yes	Yes	Yes
Talk Group Call	Yes	Yes	Yes	Yes
Group Call Alert™	Yes	Yes	Yes	Yes
Talk Group Identification (TGID)	Yes	Yes	Yes	Yes
Selective Call (Individual Voice Call)	MDC-1200 Only	Yes	Yes	Yes
Selective Call Decode (Individual Voice Call)	MDC-1200 Only	Yes	Yes	Yes
PTT ID (Individual Identification)	MDC-1200 Only	Yes	Yes	Yes
Call Alert Encode/Decode	MDC-1200 Only	Yes	Yes	Yes
Emergency Alarm w/Channel Revert & Ack.	MDC-1200 Only	Yes	Yes	Yes
Telephone Interconnect	Yes	Yes	Yes	Yes
Manual Phone Number Entry	Dual Display Only	Dual Display Only	Dual Display Only	Dual Display Only
Selective Radio Inhibit	MDC-1200 Only	Yes	Yes	Yes
Radio Check	MDC-1200 Only	Yes	Yes	Yes
Status/Message	MDC-1200 Only	Yes	Yes	Yes
Trunking Type II Only Features				
Maximum Number of Trunked Systems-20	Yes	Yes	Yes	Yes
Talkgroup Calls	Yes	Yes	Yes	Yes
PTT ID	Yes	Yes	Yes	Yes
Call Alert Encode/Decode	Yes	Yes	Yes	Yes
Analog/Digital Dual Mode Scan	No	Yes	Yes	Yes
Fallsort by Talkgroup	Yes	Yes	Yes	Yes
Telephone Interconnect Encode/Decode	Yes	Yes	Yes	Yes
System Wide Call (Receive Only)	Yes	Yes	Yes	Yes
Selective Radio Inhibit	Yes	Yes	Yes	Yes
Priority Monitor Scan	Yes	Yes	Yes	Yes
Dynamic Regrouping	Yes	Yes	Yes	Yes
Status/Message	Yes	Yes	Status Only	Status Only

	Private/Enhanced Conversation Encode/Decode	Yes	Yes	Yes	Yes
Remote Monitor/Radio Trace	Yes	Yes	Yes	Yes	Yes
Reprogram Request	Yes	Yes	Yes	Yes	Yes
H38 "SmartZone"					
	"Analog Operation" (Q241)	"ASTRO Digital" (Q806) Non-Project 25 (3600 Baud)	"ASTRO Digital" (H37/Q806/Q361) Project 25 (9600 Baud)	"TDMA" (QA00580AA) Project 25 (TDMA Operation)	
Trunking Type II Only Features					
Voice on Control	-	-	-	-	-
SmartZone Automatic Site Registration	Yes	Yes	Yes	Yes	Yes
SmartZone RSSI Operation	Yes	Yes	Yes	Yes	Yes
SmartZone Preferred Site	Yes	Yes	Yes	Yes	Yes
SmartZone Forced Site Search	Yes	Yes	Yes	Yes	Yes
SmartZone Site Lock/Unlock	Yes	Yes	Yes	Yes	Yes
SmartZone Adjacent Control Channel OSW	Yes	Yes	Yes	Yes	Yes
Emergency Alarm Call Receive Indication	Yes	Yes	Yes	Yes	Yes

CHANNEL SPACING

There are no maximum frequency separation conditions that must be adhered to on the APX 6000 portable series. Separation of frequencies can be as wide as the allowable band per radio model with no degradation of any performance specifications. If an incorrect antenna is used, degraded performance may be experienced.

ZONED OPERATION

This option converts MODE-ONLY ASTRO Digital APX 6000 portables to Zone Operation radios.

For Top Display radios, a maximum of 16 channels (conventional RX and TX pairs or trunking talkgroups) are accessible in a zone. There is a maximum of six accessible zones (96 channels) when zone selection operation is programmed on the 3 position toggle switch and the Zone Bank feature is programmed on a button. The Zone Bank feature allows the 3 position toggle switch to access zones 1-3 or 4-6.

For the Top Display radio there is a maximum of 6 accessible zones, and 16 accessible channels per zone with the overall maximum of 96 channels. For the Dual Display Radios with Limited keypad or Full Keypad, there is a maximum of 50 zones, 625 channels per zone with the overall maximum of 1000 channels. These radios provide "ZONE" and "CHAN" menus that allows access to zones and channels not accessible via the switches.

*Note: Top Display Radio codeplugs can be programmed with the same zone/channel configuration as the Dual Display Radios even though not all of the zones and channels are accessible. This is useful for having a common zone/channel template that can be shared between the different radio models.

PROJECT 25 ENCRYPTION

The mode of operation is programmed on a channel-by-channel basis. With the coded/clear switch set to the clear mode, the ASTRO Digital APX6000 radio is capable of transmitting clear analog voice or clear (unencrypted) ASTRO Digital voice, depending on the channel programming. With the coded/clear switch set to the coded mode, the ASTRO Digital APX 6000 radio will transmit ASTRO Digital encryption depending on the channel programming. ASTRO Digital encryption provides secure communications. ASTRO Digital Encryption (operation in encrypted mode while also operation in 3.6KB or 9.6KB and TDMA ASTRO mode) is capable of XL type encryptions; ASTRO Digital Encryption does not operate with non-XL encryptions.

An encryption option is not required for either clear analog operation or clear ASTRO Digital operation. Encryption can be ordered with the ASTRO Digital APX 6000 radio either as a factory installed option or separate from the radio for later field installation. ASTRO Digital APX 6000 radio functions include selected ASTRO digital signaling and digital speech coding.

When ordering any of the Encryption Algorithms:

- The DES-OFB and AES encryption algorithms offered are compliant with digital Project 25 standards and does not support analog encryption operation.
- Requires the ASTRO Digital CAI (Q806) to operate the DES-OFB and AES encryption.

When used in CAI mode, the non-OFB Encryption will not be Project 25 compliant.

- Encryption Algorithms can be ordered later via Flash Port.

FIPS 140-2 Compliance

Encryption Modules equipped with AES are FIPS 140-2 compliant. Details regarding the certification, and copies of the relevant certificates, can be obtained on the NIST website at: <http://csrc.nist.gov/groups/STM/cmvp/validation.html>.

Further information regarding FIPS 140-2 certification may be found using the following link - FIPS 140-2 Crypto Module Validation Program (CMVP) <http://csrc.nist.gov/groups/STM/cmvp/index.html>

FM INFORMATION

APX 6000 Portable Radio when properly equipped with options Q393 OR QA00581 OR QA00582 OR QA02818 are Factory Mutual (FM/CSA) Approved as intrinsically safe for use in Div 1, Class I, Groups C,D, Class II groups E, F, G, Class III Div 2, Class I A, B,C,D.

ASTRO Text Messaging Service

ASTRO Text Messaging Service will be available on APX 6000 Dual Display Portable radios. Text Messaging Service (TMS) allows subscriber users to send and receive text messages to other subscribers or dispatch operators. Users can select messages and addresses from a predefined list or enter freemform text messages and addresses via the keypad. Text Messaging Service is available on ASTRO P25 Conventional and Trunked IV&D Systems and Subscribers.

Text Message is NOT supported on APX 6000 (Model 1) Top Display Portable radio.

Ordering ASTRO Text Messaging for APX 6000 Portable Requires:

- APX 6000 Dual Display
- Q81 1BP Software Package
- Packet Data Interface (Q947)

OR

- APX 6000 Dual Display
- QA02756AA Software Package
- Packet Data Interface (Q947)

NOTE: *There is no specific option to order for the Text Messaging Service on the subscribers as the functionality is included in the Packet Data option.*

Outdoor Personnel Location Global Positioning Satellite (GPS) Feature

The personnel outdoor location tracking GPS feature enables a dispatcher the ability to locate on-foot patrols and out of the vehicle officers who are involved in life threatening situations. The radio user's GPS position information is sent over the ASTRO 25 Integrated Voice & Data (IV&D) network and is delivered to the dispatch operator using a third party mapping display application at the dispatch center (*Mapping Application is not yet available through Motorola at this time, however an Application Developers Tool Kit is available for 3rd party vendors to use to modify existing applications. See link below for more details.*) On the Dual Display model only it is possible to the user to determine their own location (latitude/longitude) through the use of the location menu.

During normal operation the radio battery capacity will be reduced by 10% to 16%.

In order to obtain an initial GPS fix position, the radio must be located in an open sky, outdoor environment with no barriers that could affect the signal around you or above you. During this initial fix, the radio should NOT be worn on the body as this may affect the process of acquiring signal and/or add additional time to first fix.

NOTE LIMITATIONS OF USE:

GPS works best in an open sky (clear view of the sky with no obstructions) environment. Due to the limitations of the technology, there are certain situations which prevent GPS coverage. These situations include but are not limited to:

- Underground locations (tunnels, subways, etc.)
- Inside of buildings, elevators, parking garages, trains, other covered vehicles, etc.
- Under metal or concrete roof structures
- Urban canyons (between tall buildings or under dense tree coverage)

*****GPS Performance may be degraded when the radio is worn against the body and/or against the body within a vehicle.**

Due to the limitations mentioned above, GPS should only be utilized as a method to assist the user with location information but not as a means for mission critical communication. Therefore, in any emergency situation, the location should always be verbally reported to the dispatcher.

For further information regarding System Requirements, go to the location solutions price pages at: <http://lecat.com/mot.com/lecat/pricebooks/dup/ALLOCATION.htm>

Ordering GPS for APX 6000 Portable Requires:

- Enable Internal GPS Operation (QA00782)
- Packet Data Interface (Q947)

700/800 MHz SELF-QUIETTING SPURS				
700/800 Models (1.5, 2.5, 3.5)	Frequencies	Model 1.5	Model 2.5	Model 3.5
700 MHz	767.95	X	X	X
800 MHz	855.95		X	X
	863.95	X	X	X

CPS INFORMATION

******Please note that NEW version of Customer Programming Software (CPS) (Part #RVN5224) is required for**

initial customer orders for APX radios. *****
 ***** APX CPS version CPS R12.00.00 and greater ordered after June 2014 will only support Windows 7 and 8.

FCC Information

Band/Model	Power Output	Transmitter Certification	Emissions	Applicable Rules
700/800 (764-870 MHz)	700 - 1 to 2.5W 800 - 1 to 3W	AZ489FT5863	11K0F3E, 16K0F3E, 8K10F1D, 8K10F1E, 8K10F1W, 20K0F1E	90

[Spec Sheet](#)

[Ordering Guide](#)

[RSA Comprehensive](#)

[RSA](#)

[ASTRO 25 Subscriber At A Glance Brochure](#)

[Portable Accessories Catalog](#)

[PSM User Guide](#)

[Radio Applications \ Advanced System Key](#)

[Fleet Management Ordering Guide](#)

Fleet Management software was previously distributed on DVDs shipped out of Elgin. It is now downloadable from motsolutions.com at the link below. Look at the right edge of the page under Resources Spotlight. The first link is the Order Guide which tells you what you need. The

second link is a free 90 day trial version that they can download and evaluate free for 90 days. The third link is the actual program, you need to purchase a license to use it (explained in the order guide).

[Fleet Management Program Download Information](#)

Accessories for APX 6000Li can now be found on the following ECAT Price Page: [CLICK HERE](#)

Section A: Required Main Model and Options

For standard Radio Operation Steps 1 - 6

PLEASE READ ALL OPTION DESCRIPTIONS BEFORE MAKING YOUR SELECTION

Main Model (Must Select One)

Description	Nomenclature	APC	Price
APX6000 7/800 MHZ MODEL 1.5 PORTABLE	H98UCD9PW5 N	481	\$1,900.00
Description	Nomenclature	APC	Price
APX6000 700/800 MODEL 2.5 PORTABLE	H98UCF9PW6 N	481	\$2,200.00
Description	Nomenclature	APC	Price
APX6000 700/800 MODEL 3.5 PORTABLE	H98UCH9PW7 N	481	\$2,600.00

Software Packages (Must Select One)

Description	Nomenclature	APC	Price
ADD: 9600 TRUNKING OR 3600 DIGITAL TRUNKING	QA02756	755	\$1,570.00
<i>When ordering trunking mode, you must select a QA01748 software key, QA01848 hardware key or a QA02018 WACN Key.</i>			
ENH: LI ANALOG 3600 TRUNKING	Q443	755	\$1,100.00
ENH: LI DIGITAL CONVENTIONAL	Q811	755	\$650.00
ENH: LI ANALOG CONVENTIONAL	QA02829	755	\$400.00

System Key (Must Select One)

ADD: ADVANCED SYSTEM KEY - HARDWARE KEY

A SOFTWARE or ADVANCED SYSTEM KEY or WACN KEY is REQUIRED to be purchased with any APX Radio operating in trunking. A SUPPLEMENTAL ID is REQUIRED to be entered when this option is ordered. Please be sure the CORRECT SYSTEM ID is entered. If an Incorrect ID is entered, FLASHport will need to be ordered to FIX this error. ADVANCED SYSTEM KEY or WACN KEY will still REQUIRE a DVN4046 to be purchased.

QA01648 655 \$5.00

SW KEY SUPPLEMENTAL DATA

A SOFTWARE or ADVANCED SYSTEM KEY or WACN KEY is REQUIRED to be purchased with any APX Radio operating in trunking.

QA01749 655 \$0.00

ADD: ADVANCED WACN KEY SUPP DATA

A SOFTWARE or ADVANCED SYSTEM KEY or WACN KEY is REQUIRED to be purchased with any APX Radio operating in trunking. A SUPPLEMENTAL ID is REQUIRED to be entered when this option is ordered. Please be sure the CORRECT SYSTEM ID is entered. If an Incorrect ID is entered, FLASHport will need to be ordered to FIX this error. ADVANCED SYSTEM KEY or WACN KEY will still REQUIRE a DVN4046 to be purchased.

QA02018 655 \$0.00

System Enhancement Options (Optional)

ADD: PROGRAMMING OVER P25 (OTAP)

Compatible with P25 Trunking and Conventional Operation. POP25 requires AES encryption for ASTRO Conventional operation. Must have IV&D (Q947) enabled. To do In field POP25 programming must use Advanced System Key (DVN4046A)

G996 481 \$100.00

ENH: RADIO TRACE/ REMOTE MONITOR

Requires Q806 and either H37, H38, or H35.

H43 481 \$75.00

ENH: ONE TOUCH/STATUS MSG

Only compatible with Model 2.5 and 3.5 Radios

H46 481 \$75.00

ADD: MULTICAST VOTING SCAN

Requires Q806 (ASTRO DIGITAL CAI OPERATION)

Q387 481 \$200.00

ADD: ASTRO 25 INTEGRATED VOICE & DATA

This option is only capable of being used on P25 Digital Conventional and 9600 Trunking Systems. This option is required for IV & D operation.

Q947 481 \$200.00

ADD: P25 LINK LAYER AUTHENTICATION

Requires P25 Trunking (Q361)

QA01767 481 \$100.00

ADD: DVRS PSU ACTIVATION

Enables DVRS Enhanced PSU functionality on APX Mobile Radios. Requires Digital Operation. QA00631 is to be ordered for radios that are not connected directly to a DVR. If you are connecting your radio directly to a DVR then order QA00631.

QA00631 655 \$100.00

ADD: TDMA OPERATION

For APX6000 and APX6000XE, QA00580 requires Q806, H38, Q361. If ordering an APX6000LI, QA00580 requires QA02756. A SOFTWARE or HARDWARE KEY or WACN KEY is REQUIRED to be purchased with any APX Radio operating in trunking. HARDWARE KEY or WACN KEY will still REQUIRE a DVN4046 to be purchased.

QA00580 481 \$400.00

ADD: MISSION CRITICAL WIRELESS BLUETOOTH.

ENH: APX GPS ACTIVATION

Must have IV&D (Q947) enabled.

QA00583 481 \$150.00

Radio requires GPS antenna (NA04000) when Public Safety Microphone is attached

QA00782 481 \$100.00

ENH: ENHANCED ZONE BANK

QA01768 481 \$75.00

This option will increase the channel/talkgroup capacity on a Model 1 and Model 1.5 from 96 to 1000. Zone Up/Zone Down, Zone Bank Up/Zone Bank Down will be unlocked with this option.

ADD: APX Personnel Accountability

ADD: MANDOWN OPERATION

APX6000 customers ONLY - with radios using tanapas with revision A or B will also need to order the APX6000 MAN DOWN UPGRADE HW KIT in addition to the Man Down SW flashport option QA01843AB. Please contact your sales representative for further details.

Select ONE of the following APX6000 MAN DOWN UPGRADE HW KIT parts in addition to Man Down SW flashport option QA01843:

NNTN8320AS: contains parts for 100 radios + instructions
 NNTN8321AS: contains parts for 50 radios + instructions
 NNTN8322AS: contains parts for 10 radios + instructions

ADD: ENHANCED DATA

Smartzone (H36/G51), Digital (Q806/G806), IV&D (Q947/W947) and P25 Trunking (Q361/G361) are required when ordering the Enhanced Data option

ADD: EXTREME 1-SIDED NOISE REDUCTION

Compatible with all APX6000 Radios. Comes standard on APX6000XE.

Algorithm Option (Can only pick one Encryption Algo)

Description

ENH: DVP-XL ENCRYPTION

Compatible with Digital and Analog (25kHz Only) operations. ADP Privacy ships standard with Single Key. Multkey is required for multiple algorithms, such as ADP/AES or ADP/DES.

ENH: MULTIKEY

ENH: DES,DES-XL,DES-OFB ENCRYPTION

Compatible with Analog 25KHZ/DES-OFB Digital 12.5KHZ Only. ADP Privacy ships standard with Single Key. Multkey is required for multiple algorithms, such as ADP/AES or ADP/DES

ENH: AES ENCRYPTION

ADP Privacy ships standard with Single Key. Multkey is required for multiple algorithms, such as ADP/AES or ADP/DES

ADD: TACTICAL REKEY WITH MULTIKEY

This feature REQUIRES IV&D (Q947) AND Digital Encryption ? AES (Q629) or DES, DES-XL, DES-OFB (Q825), AES/DES (Q15) to operate. Incompatible with MDC/ASTRO P25 OTAR with Multkey. Tactical OTAR is not compatible with DVRe QA00631.

Antenna

Description

ALT: 1/4- WAVE 7/800 GPS STUBBY (NAR6595A

Length: 3.93"

Description

ADD: GPS STUBBY ANTENNA (NAG4000)

Q445	481	\$150.00
QA01843	481	\$150.00

QA03399	656	\$150.00
QA01833	481	\$25.00

Nomenclature	APC	Price
H797	481	\$487.00

H869	481	\$330.00
Q625	481	\$599.00

Q629	481	\$475.00
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H04	481	\$350.00
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Nomenclature	APC	Price
H122	481	\$24.00
Nomenclature	APC	Price
QA00785	481	\$18.00

Deletes Standard Antenna and ADDS GPS ONLY antenna.

Battery

Description

DEL: DELETE STANDARD BATTERY

Deletes standard battery PMN4403 for APX6000 or NNTN8092 for APX6000XE

ALT: NIMH IMPRES 2100MAH IP67 BATTERY (NNTN7037)

The option will delete the standard option and replace with NIMH IMPRES 2100MAH IP67 BATTERY(NNTN7037)

ALT: NIMH IMPRES 2000MAH FM/CSA IP67 (NNTN7036)

The option will delete the standard battery and replace with NIMH IMPRES 2000MAH FM IP67 BATT (NNTN7036)

ALT: NIMH IMPRES 2000 MAH FM/CSA DELTA T (NNTN7035)

The option will delete the standard battery and replace with LIION 2000 MAH DELTA-T (NNTN7035). This battery is compatible with H499 and meets FM certification.

ALT: LIION IMPRES 4100 MAH FM/CSA IP67 (NNTN7033A)

This option will delete the standard battery and replace it with LITHIUM ION 4000MAH IMPRES (NNTN7033). This battery meets FM certification.

ALT: LIION 4200MAH IMPRES DELTA-T

This option will delete the standard battery and replace it with LIION 4200MAH IMPRES(NNTN7034). This battery is compatible with H499.

ALT: LIION IMPRES IP67 2900MAH (NNTN7038)

This option will delete the standard battery and replace it with LIION IMPRES 2900MAH IP67 (NNTN7038).

ALT: LIION IMPRES FM/CSA 2300M (NNTN8092)

This option will delete the standard battery and replace it with LIION IMPRES 2300M (NNTN8092). This option is compatible with H499 and meets FM certification.

ALT: LIION IMPRES FM/CSA 2300M (NNTN8092)

Belt Clip (s)

Model 1.5 comes standard with 2.5" belt clip.

Description

DEL: DELETE BELT CLIP/ BASIC CARRY HOLDER

Description

ALT: BASIC CARRY HOLDER (PMLN5709)

This carry holder equipped with a 2.5" belt clip ships standard with the Dual Display model. It is an alternative to the 2.5" Belt Clip that ships standard with the Top Display model.

Description

ADD: BELT CLIP 3.0" (HLN6875)

Replaces the standard 2.5" belt clip that ships with the Model 1.5 radio with a 3" Model 1.5 radios in 700/800 and VHF will ship standard with the 2.5" belt clip, and UHF radios will ship with the 3" belt

Nomenclature	APC	Price
H207	481	(\$30.00)
H335	481	\$78.00
Q393	481	\$95.00
QA00581	481	\$133.00
QA00582	481	\$165.00
QA00781	481	\$115.00
QA01837	481	\$100.00
QA02818	481	\$50.00
H301	481	(\$10.00)
QA00779	481	\$29.00
QA01222	481	\$12.00

clip.

Cable (s)

Description	Nomenclature	APC	Price
ADD: DATA CABLE	Q157	655	\$75.00
PMKN4012B - Used to program the radio with Customer Programming Software and Turner Software. PMKN4013C - Used to program and service the radio with Customer Programming Software and Turner Software. Compatible on ALL APX Portable Radios			

Programming

Description	Nomenclature	APC	Price
ENH: FRONT PANEL PROGRAMMING	Q53	430	\$150.00
Compatible with model 3.5 radios only			
ADD: FRONT PANEL PROGRAMMING (FEDERAL)	Q52	470	\$150.00
New Price Effective 01-Jan-2015: \$173.00			

Service Options

Description	Nomenclature	APC	Price
ENH:STD WARRANTY APPLIES-NO SFS	QA05100	185	\$0.00
Provides no extended repair coverage after the standard warranty period expires. Required if no other SFS option is selected.			
ENH: 2 YR SFS LITE	H885BK	185	\$84.00
Provides 2 years of extended hardware repair coverage beginning after the standard warranty period expires. Repairs will be made only at the designated Motorola repair depot. Local services are not included. Motorola will pay the inbound shipping charges only with use of the Motorola designated delivery service. Motorola will pay for outbound shipping via Motorola's normal shipping methods. No discounts are allowed on this option.			
ENH: 3 YR SFS LITE	H886AQ	185	\$104.00
Provides 3 years of extended hardware repair coverage beginning after the standard warranty period expires. Repairs will be made only at the designated Motorola repair depot. Local services are not included. Motorola will pay the inbound shipping charges only with use of the Motorola designated delivery service. Motorola will pay for outbound shipping via Motorola's normal shipping methods. No discounts are allowed on this option.			
ENH: SFS COMPREHENSIVE	HA00022AB	185	\$190.00
Provides for extended hardware repair coverage and chemical, liquid, and other physical damage on your Motorola portable and mobile subscriber radios. Comprehensive coverage starts from the first day the radio is put into use and last for 3 YEARS. Repairs will be made only at the designated Motorola repair depot. Local services are not included. Motorola will pay the inbound shipping charges only with use of the Motorola designated delivery service. Motorola will pay for outbound shipping via Motorola's normal shipping methods. No discounts are allowed on this option.			
ENH: 1 YR SFS LITE	Q884	185	\$44.00
Provides 1 year of extended hardware repair coverage beginning after the standard warranty period expires. Repairs will			

be made only at the designated Motorola repair depot. Local services are not included. Motorola will pay the inbound shipping charges only with use of the Motorola designated delivery service. Motorola will pay for outbound shipping via Motorola's normal shipping methods. No discounts are allowed on this option.

ENH: 4 YR SFS LITE

Q887 185 \$130.00

Provides 4 years of extended hardware repair coverage beginning after the standard warranty period expires. Repairs will be made only at the designated Motorola repair depot. Local services are not included. Motorola will pay the inbound shipping charges only with use of the Motorola designated delivery service. Motorola will pay for outbound shipping via Motorola's normal shipping methods. No discounts are allowed on this option.

ENH: CANADA 3 YR SFS LITE ENCR

HA00048 386 \$191.00

Upgrades the standard warranty period to a full three (3) years of hardware service coverage on the internal components of your radio equipment. Repairs will be made only at Motorola authorized service centers. No discounts are allowed on this option.

ENH: CANADA 5 YR SFS LITE

HA00049 386 \$262.00

Upgrades the standard warranty period to a full five (5) years of hardware service coverage on the internal components of your radio equipment. Repairs will be made only at Motorola authorized service centers. No discounts are allowed on this option.

ENH: CANADA DEALER ONLY 3 YR ENCR

HA00070 386 \$147.00

ENH: CANADA DEALER ONLY 5 YR ENCR

HA00071 386 \$207.00

Manual

Description

DEL: USER GUIDE CD

This deletes the user guide CD that ships standard with the radio.

Nomenclature APC Price
QA01274 481 \$0.00

ADD: DATA LINK MANAGER APP CD- PORTABLES

Option provides the NVN5424 Data CD. Please order this option if you would like the Data CD, and are unable to obtain it through other sources such as MOL.

QA00205 655 \$0.00

Packaging

Description
ADD: SINGLE UNIT PACKING

Nomenclature APC Price
H842 481 \$0.00

Section D: Aftermarket Accessories

Cables

Description	Nomenclature	APC	Price
PORTABLE PROGRAMMING CABLE	PMKN4012B	037	\$75.00
PMKN4012B- Used to program the radio with Customer Programming Software and Tuner Software. APX7000 / APX8000 ONLY or NOT Compatible ON APX4000			
PMKN4013C - Used to program and service the radio with Customer Programming Software and Tuner Software. Compatible on ALL APX Portable Radios (APX7000/8000/4000/LI3000)			

Data Compiled 01-Dec-2014 using DUP and all prices in USD

Public Service Grade Portable Radio
Radio Model: MOTOROLA APX 4000

	Included?: Y/N	
Hand-held radio operating in the 700/800MHz frequency band.	Y	
Battery (List battery supplied in the 'Included' column to the right)	Y (LI-ION 1900MAH)	
Antenna (Indicate which antenna is being offered in the 'Included' column to the right)	Y	
Convention Analog Operation	Y	
P25 Conventional Operation	Y	
APCO P25 Phase I trunked radio	Y	
Software Upgradeable to APCO P25 Phase II	Y	
Minimum 32 conventional channels	Y	
Minimum 256 system/talkgroups	Y	
Programmable time-out-timer	Y	
Digital and analog talk-around	Y	
Individual call	Y	
Emergency operation	Y	
Group scan	Y	
PC programmable	Y	
Back lighting of display with dimmer control	Y	
Encryption, AES multi-key (min. 15 key capacity)	Y	
On/off volume knob	Y	
16 position rotary knob with stops	Y	
Advanced System Key	Y	
Dynamic regrouping capable	Y	
Mil Specs 810C, D, E, F, and G	Y	
Mixed Mode Operation (Trunked talk groups and Conventional Channels in the same bank of frequencies)	Y	
Spring-loaded Belt Clip	Y	
		One Time Discounts
	Cost per Radio	All pricing and discount information to be provided at auction event on January 14 th !
	Cost for 50 radios	
	Cost for 100 radios	
	Cost for 150 radios	



MISSION READY WHEN IT MATTERS MOST

APX™ 4000 PROJECT 25 PORTABLE RADIO

Chemical spill. Catastrophic storm. Power outage. When every minute matters, you must communicate instantly with other agencies and responders. But how do you prepare for a disaster and keep control of operating costs? That's where the APX 4000 P25 portable radio answers the call, expertly and affordably.

The APX 4000 delivers all the benefits of TDMA technology in the smallest P25 capable portable in the industry. Easy to use, tough as nails, a hard value to beat, it seamlessly connects agencies throughout your city for fast, interoperable communications.

EVERY INCH AN APX

The APX 4000 leverages the leading attributes of the APX family of P25 TDMA portables. From the 2-microphone design that reduces background noise so you can speak and hear clearly over heavy equipment, diesel engines and sirens to the high-spec RF performance for excellent coverage in challenging environments

COMPACT AND UNCOMPROMISING

A compact P25 Phase 2 capable portable, the APX 4000 gets the job done without getting in the way. Simplified controls and a choice of either dedicated volume and channel knobs (2 knob model), or an enlarged multifunction knob (1 knob model), the APX 4000 provides readiness for any type of work setting. And its standard IP67 and MIL-STD certified to withstand dust, heat, shock, drops and water immersion, so you can count on it wherever you need it – at the factory line, power line or fire line

P25 PERFORMANCE, INSIDE AND OUT

Loaded with key P25 features to increase safety, the APX 4000 features Mission Critical Wireless, a unique Bluetooth® solution that provides an encrypted link to a high performance earpiece, GPS for quickly locating personnel outdoors, AES encryption for improved security, and over-the-air programming to program radios in the field without interrupting voice operation

POWER UP WITH APX 4000 ACCESSORIES

- Designed, tested and certified for optimum performance with your radio
- Complete portfolio of remote speaker microphones, headsets and Mission Critical Wireless Bluetooth® accessories
- High-powered IMPPRES™ batteries that have a slim design to fit the compact radio size

IMPROVE RESPONSE AND EFFICIENCY

PRODUCT DATA SHEET
APX™ 4000 P25 PORTABLE RADIO



FEATURES AND BENEFITS

- Available in 700/800 MHz, VHF, UHF R1, UHF R2 and 900 MHz bands
- Trunking standards supported:
 - Clear or digital encrypted ASTRO™25 Trunked Operation
 - Capable of SmartZone™, SmartZone Omnilink, SmartNet™
- Analog MDC-1200 and Digital APCO P25 Conventional System Configurations
- Narrow and wide bandwidth digital receiver (6.25 kHz equivalent / 12.5 kHz / 30 kHz / 25 kHz)¹
- Standard with 2 dedicated control knobs for volume and channel changes
- Embedded digital signaling (ASTRO & ASTRO 25)
- Man Down
- Available in 2 models
- Integrated GPS capable
- Lightbar with intelligent lighting
- Radio Profiles
- Unified Call List
- User programmable Voice Announcement
- Meets Applicable MIL-STD-810C, D, E, F and G
- IP67 standard (submersible 1 meter, 30 minutes)
- 2-Knob Model Only - Rugged Submersible housing (2 meters for 2 hours)²

OPTIONAL FEATURES

- 2-Knob Model Only - Rugged Submersible housing (2 meters for 2 hours)²
- Superior **Audio Features**:
 - 0.5 W high audio speaker
 - 2 mic noise canceling technology
- Unless Windows XP, Vista and Windows 7 Customer Programming Software (CPS)
- Supports USB communications
- Built in FLASHport™ support
- Full portfolio of accessories including IMPRES batteries, chargers and audio devices³
- Mission Critical Wireless**⁴
- AES Encryption
- Programming Over Project 25
- Text Messaging
- GPS Location Tracking
- Man Down
- Site Selectable Alert Tones
- P25 Over the Air re-keying
- P25 Link Layer Authentication
- Enhanced Data
- Multifunction Knob

TRANSMITTER - TYPICAL PERFORMANCE SPECIFICATIONS

	700/800	VHF	UHF Range 1	UHF Range 2	900 MHz ²
Frequency Range/ Bandplus	700 MHz 800 MHz	136-174 MHz	380-470 MHz	450-520 MHz	896-901, 935-940 MHz
Channel Spacing	25/12.5 kHz	30/25/12.5 kHz	25/12.5 kHz	25/12.5 kHz	12.5 kHz
Maximum Frequency Separation	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit
Rated RF Output Power Adj. ¹	1.3 Watts Max	1.5 Watts Max	1.5 Watts Max	1.5 Watts Max	1.2.5 Watts Max
Frequency Stability (-30°C to +60°C, +25°C Ref 1)	±0.00010 %	±0.00010 %	±0.00010 %	±0.00010 %	±0.00010 %
Modulation Limiting	±5 kHz / ±4 kHz / ±2.5 kHz	±5 kHz / ±4 kHz / ±2.5 kHz	±5 kHz / ±4 kHz / ±2.5 kHz	±5 kHz / ±4 kHz / ±2.5 kHz	±2.5 kHz
Emissions (Conducted and Radiated) ¹	-75 dB	-75 dB	-75 dB	-75 dB	-75 dB
Audio Response ¹	+1, -3 dB	+1, -3 dB	+1, -3 dB	+1, -3 dB	+1, -3 dB
FM Hum & Noise	25 kHz 12.5 kHz	-47 dB -45 dB	-47 dB -45 dB	-47 dB -45 dB	-45 dB
Audio Distortion ¹	25 kHz 12.5 kHz	1.00%	1.00%	1.00%	1.00%

¹ Per the FCC Marketing rules, new products (APX4000 VHF, UHF R1, UHF R2) submitted for FCC certification after January 1, 2011 are restricted from being granted identification at 25kHz for United States, State & Local Markets only.
² Radios meet industry standards (IPX7) for immersion.
³ Changes and batteries for the APX 4000 radios do not incorporate with other APX radios.
⁴ Compatible with BT 2.0 and HSP and PAN BT Profiles.
 *When used with a Hazardous Location tested radio.
 †Only available in multifunction knob model.

BATTERIES FOR APX 4000

Battery Capacity / Type	Dimensions (HxWxD)	Weight	Battery Part Number	Battery Capacity

PRODUCT DATA SHEET
APX™ 4000 P25 PORTABLE RADIO

RADIO MODELS



MODEL 2



MODEL 3

Display
Full bitmap color LCD display
3 lines of text x 14 characters
1 line of icons
1 menu line x 3 menus
White backlight

Full bitmap color LCD display
3 lines of text x 14 characters
1 line of icons
1 menu line x 3 menus
White backlight

Keypad
Backlight keypad
3 soft keys
4 direction Navigation key
Home and Data buttons

Backlight keypad
3 soft keys
4 direction navigation key
4x3 keypad
Home and Data buttons

Channel Capacity

512

512

FLASHport Memory

64 MB

64 MB

700/800 MHz (753- 870 MHz)

H51UCF9PW6AN Q360GK

H51UCH9PW7AN Q360GK

VHF (136-174 MHz)

H51KDF9PW6AN Q360GX

H51KD9PW7AN Q360GX

UHF Range 1 (380-470 MHz)

H51ODF9PW6AN Q360GL

H51ODH9PW7AN Q360GL

UHF Range 2 (450-520 MHz)

H51SDF9PW6AN Q360HA

H51SDH9PW7AN Q360HA

900 MHz (896-940 MHz)
(1 knob model only)

H51WCF9PW6AN Q360JF

H51WCH9PW7AN Q360JF

Buttons & Switches

Large PTT button ■ Angled On/Off Volume Control ■ 16 position top-mounted rotary switch ■
Orange emergency button ■ 3 programmable side buttons

TRANSMITTER CERTIFICATION

700/800 (764-869 MHz)

AZ489FT7049

VHF (136-174 MHz)

AZ489FT3828

UHF Range 1 (380-470 MHz)

AZ489FT4905

UHF Range 2 (450-520 MHz)

AZ489FT4910

900 MHz (896-901, 935-940 MHz)

AZ489FT5864

FCC EMISSIONS DESIGNATORS

FCC Emissions Designators

11K0F3E, 16K0F3E, 8K10F1D, 8K10F1E, 8K10F1W, 20K0F1E*

FCC Emissions Designators for 900 MHz

11K0F3E, 8K10F1D, 8K10F1E, 8K10F1W

POWER SUPPLY

Power Supply
One rechargeable Li-Ion 1900 mAh battery standard, or 2300 mAh/2700 mAh high cap Li-Ion

RECEIVER - TYPICAL PERFORMANCE SPECIFICATIONS

	700/800	VHF	UHF Range 1	UHF Range 2	900 MHz (1 knob model only)
Frequency Range/Bandsplit	700 MHz 800 MHz	763-776 MHz 861-870 MHz	136-174 MHz	380-470 MHz	450-520 MHz
Channel Spacing	25/12.5 kHz	30/25/12.5 kHz	25/12.5 kHz	25/12.5 kHz	12.5 kHz
Maximum Frequency Separation	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit
Audio Output Power at Rated ¹	500mW	500mW	500mW	500mW	500mW
Frequency Stability ² (-30°C to +60°C, +25°C Ref.)	±0.00010 %	±0.00010 %	±0.00010 %	±0.00010 %	±0.00010 %
Analog Sensitivity ³	12 dB SINAD 1% BER (800 MHz)	0.286µV	0.216µV	0.234µV	0.236µV
Digital Sensitivity ⁴	5% BER	0.400µV	0.277µV	0.307µV	0.33µV
Selectivity ⁵	25 kHz channel 12.5 kHz channel	0.286µV	0.186µV	0.207µV	0.222µV
		-76 dB -67 dB	-76 dB -67 dB	-76 dB -67 dB	-76 dB -67 dB

PRODUCT DATA SHEET
APX™ 4000 P25 PORTABLE RADIO

PORTABLE MILITARY STANDARDS 301 C, D, E, F & G

	MIL-STD 810C		MIL-STD 810D		MIL-STD 810E		MIL-STD 810F		MIL-STD 810G	
	Method	Proc./Cat.	Method	Proc./Cat.	Method	Proc./Cat.	Method	Proc./Cat.	Method	Proc./Cat.
Low Pressure	500 1	I	500 2	II	500 3	II	500 4	II	500 5	II
High Temperature	501 1	I, II	501 2	I/A1, II/A1	501 3	I/A1, II/A1	501 4	I/Hot, II/Basic Hot	501 5	I/A1, II/A2
Low Temperature	502 1	I	502 2	I/C3, II/C1	502 3	I/C3, II/C1	502 4	I/C3, II/C1	502 5	I/C3, II/C1
Temperature Shock	503 1	I	503 2	I/A1/C3	503 3	I/A1/C3	503 4	I	503 5	I/C
Solar Radiation	505 1	II	505 2	I	505 3	I	505 4	I	505 5	I/A1
Rain	506 1	I, II	506 2	I, II	506 3	I, II	506 4	I, III	506 5	I, III
Humidity	507 1	II	507 2	II	507 3	II	507 4	1 Proc.	507 5	II/Aggravated
Salt Fog	509 1	I	509 2	I	509 3	I	509 4	1 Proc.	509 5	1 Proc.
Blowing Dust	510 1	I	510 2	I	510 3	I	510 4	I	510 5	I
Blowing Sand	1 Proc.	1 Proc.	510 2	II	510 3	II	510 4	II	510 5	II
Vibration	514 2	VIII/F, Curve-W	514 3	I/10, II/3	514 4	I/10, II/3	514 5	I/24	514 6	I/24
Shock	516 2	I, III, V	516 3	I, V, VI	516 4	I, V, VI	516 5	I, V, VI	516 6	I, V, VI
Shock (Drop)	516 2	II	516 2	IV	516 4	IV	516 5	IV	516 6	IV

DIMENSIONS OF THE RADIOS WITHOUT BATTERY

	Inches (1 knob/2 knob)	Millimeters (1 knob/2 knob)	Channels	GPS SPECIFICATIONS
Length	5.26/5.42	133/137.7	12	
Width Push-to-Talk button	2.37/2.42	60.2/61.4	Tracking Sensitivity	-159 dBm
Depth Push-to-Talk button	1.72/1.41	43.8/35.75	Accuracy ⁵	<10 meters (95%)
Width Top	2.56/2.62	65/66.55	Cold Start	<60 seconds (95%)
Depth Top	2.13/1.84	43/46.7	Hot Start	<10 seconds (95%)
Weight of the radios without battery	9.17 oz./10.05 oz	260 g/285 g	Mode of Operation	Autonomous (Non-Assisted) GPS

ENCRYPTION

Supported Encryption Algorithms ADP, AES, (DES-XL, DES-OFB)

Encryption Algorithm Capacity 8

Encryption Keys per Radio

Module capable of storing 1024 keys
Programmable for 64 Common Key Reference (CKR) or
16 Physical Identifier (PID)
P25 CA1 300 mSec
Interval

Encryption Keying

Key Loader
XL – Counter Addressing
OFB – Output Feedback

Synchronization

National Institute of Standards and Technology
(NIST) approved random number generator

Vector Generator

Digital or Analog

Encryption Type

Tamper protected volatile or non-volatile memory

Key Storage

Keyboard command and tamper detection

Key Erasure

FIPS 140-2 Level 3, FIPS 197

Standards

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature ⁶	-30°C / +60°C
Storage Temperature ⁶	-40°C / +85°C
Humidity	Per MIL-STD
ESD	IEC 801-2 KV
Water and Dust Intrusion	IP67
Immersion	MIL-STD 512 X/I



*****NOTE: THE KNOB CONFIGURATION OF THE APX 4000 IS CHANGING. STARTING ON NOVEMBER 10, 2014 ANY ORDER FOR THE APX 4000 WILL REQUIRE A MANDATORY SELECTION OF A ONE KNOB OR A TWO KNOB CONFIGURATION. IF YOU PREFER ONE MULTI-FUNCTION KNOB CONFIGURATION YOU WILL NEED TO ORDER THE RADIO WITH THE ONE-KNOB OPTION (QA04864). IF YOU PREFER A TWO KNOB CONFIGURATION YOU WILL NEED TO ORDER (QA04865) TWO KNOB ORDERS WILL GO ON BACKORDER. ******

ASTRO® Digital APX 4000™ Portable Series

700/800 MHz Band

P25 Phase 2 Single Band Capable Radio

*****NOTE: APX digital mobile and portable radios require either a SOFTWARE KEY (QA01749) OR HARDWARE KEY (QA01648) OR WACN KEY (QA02018) to be ordered to operate/program on a trunking system. IF QA01648- HARDWARE KEY IS ORDERED, SUPPLEMENTAL DATA is required to be entered. Please be sure the CORRECT SYSTEM ID is entered. If an incorrect ID is entered, FLASHport will need to be ordered to FIX this error. ******

[Ship Card](#)

Note: On January 1, 2015, the list price on the following features: GPS (QA00782), IVD (Q947) & TDMA (QA00580) will increase by \$50.

Features

All ASTRO Digital APX 4000 models include the following features:

- Dual Microphone
- 0.5 Watt Rated Audio
- Integrated GPS Hardware Capable*
- Integrated Bluetooth Hardware Capable*
- 2" Belt Clip
- Lilon 1900 mAh Battery (NNTN8128)
- Antenna (Dependent on Frequency Band and Type)
- IP67 ships standard with every radio model

ASTRO Digital APX 4000 Limited Keypad and Full Keypad with Dual Display Model also includes:

- Universal Carry Holder
- Unified Call List
- Front Color Display: 2 lines of text, 2 lines of icon
- 3 Programmable Side Buttons
- Orange Programmable Button
- Continuous rotary multifunction knob
- Low Battery Alert Tone
- Noise Cancellation Software
- Intelligent Lighting
- Radio Profiles
- Full Keypad: 4 x 3 alpha-numeric 3 programmable button, 4 way navigation, home and data buttons

*** Must purchase Software to ENABLE.**

All ASTRO Digital APX 4000 Portables are part of the FLASHport® program and ship standard with a FLASH EE Prom, which allows for feature and system upgrades (contingent upon remaining within the current RF capabilities of the radio)

*****NOTE: APX digital mobile and portable radios require either a SOFTWARE KEY (QA01749) OR HARDWARE KEY (QA01648) OR WACN KEY (QA02018) to be ordered to operate/program on a trunking system. IF QA01648- HARDWARE KEY is ORDERED, SUPPLEMENTAL DATA is required to be entered. Please be sure the CORRECT SYSTEM ID is entered. If an incorrect ID is entered, FLASHport will need to be ordered to FIX this error.*****

<http://ecat.comm.mot.com/ecat/pricebooks/duup/ASK.htm>

General Information

The ASTRO Digital APX 4000 Portable Line offers TWO different radio hardware models:

Hardware Model	Modes	Alphanumeric Display Lines/Characters	Keypad	Navigation Pad
ASTRO APX 4000 Limited Keypad	512	14 (front)	-	Yes
ASTRO APX 4000 Full Keypad	512	14 (front)	4 x 3	Yes

Operating Modes

ASTRO Digital APX 4000 Radio Models are capable of operating in four different voice communication modes:

- Normal Analog (clear voice)
- 3.6KB ASTRO Digital (both clear and coded voice)
- 9.6 KB ASTRO 25 Digital (both Clear and Coded voice)
- 9.6KB 12.5KHz 2 slot digital TDMA (both clear and coded voice)

TDMA

FDMA (Frequency Division Multiple Access) is a proven technology that is widely used today in radio systems and is part of APCO 25 Project 25 Phase 1 standard. FDMA carries one call per channel. TDMA (Time Division Multiple Access) will be part of P25 Phase 2 standard and provides double the voice

capacity as 2 calls can share 1 channel. Customers can add more users to their systems without the need of additional frequencies or infrastructure. The APX radios support both P25 Phase 1 and TDMA technologies seamlessly. Using Motorola's unique Dynamic Dual Mode (DDM) capability, the radios dynamically switch between FDMA and TDMA without the user having to change channels. This provides interoperability on demand with existing and future networks.

FLASHPORT AFTERMARKET UPGRADES

The ASTRO Digital APX 4000 Portable Series Radios are part of the FLASHport Program. This means that ASTRO Digital APX 4000 hardware models can be loaded with different software packages that provide the features and functionalities that our customers require.

System Enhancement Options can be loaded at the time of radio purchase or at a later date through the use of software field upgrades (a USB cable is required for all software upgrades.) The ASTRO Digital APX 4000 portable can be upgraded electronically in the field with new features in the current system or to new systems operation (contingent upon remaining within the same RF sub-band) by ordering upgrade kits.

Ordering Requirements

Ordering procedure is as follows:

Steps	Required Options	Comments
1	APX 4000 700/800 MHz Main Model	APX Digital Portable Radio- a. H51UCF9PW6AN- APX 4000 700/800 MODEL 2 b. H51UCH9PW7AN- APX 4000 700/800 MODEL 3
2	Operation Mode	a. QA02756- ENH: 3600 OR 9600 TRUNKING BAUD SINGLE SYSTEM b. Q811- ENH: SOFTWARE P25 CONVENTIONAL c. QA02829- ANALOG CONVENTIONAL d. Q443- ENH: SOFTWARE ANALOG 3600 BAUD a. G996- ADD: PROGRAMMING OVER P25

(OTAP)

3 System Enhancement b. QA00583- ADD: ENABLE BLUETOOTH SW

c. QA00580- ADD: TDMA OPERATION

1. Order the APX 4000 Portable Series as the main line item.
 - Each hardware model MUST be ordered with one operation mode.
 - Default battery is Lilon 1900mAh
 - Default 2" belt clip
 - Default Antenna is the single appropriate antenna for your RF configuration.
2. Select software package for radio.
 - Note - APX Radio ships with 12 month standard warranty.

Common Software Features Supported By

H38 "SmartZone"					
	Analog Operation	ASTRO Digital	ASTRO P25 Digital		TDMA
RADIO WIDE FEATURES	Non-Project 25 (3600 Baud)	Non-Project 25 (3600 Baud)	Project 25 (9600 Baud)		TDMA OPERATION
Maximum Modes					
ASTRO Digital APX 4000 Limited Keypad	512	512	512		512
ASTRO Digital APX 4000 Full Keypad	512	512	512		512
Analog and Digital Operation	Yes	Yes	Yes		Yes
12.5/20/25 KHz Programmable Channels	Yes	Yes	Yes		Yes
		Yes (Digital)	Yes (Digital)		

Secure Capable	No	Only	Only	Yes (Digital Only)
One Touch Operation	Yes	Yes	Yes	Yes
Real Time Clock	Yes	Yes	Yes	Yes
Surveillance Mode	Yes	Yes	Yes	Yes
Keypad Lock	Yes	Yes	Yes	Yes
Radio Lock	Yes	Yes	Yes	Yes
Smart Battery	Yes	Yes	Yes	Yes
Radio Wide Transmit Inhibit	Yes	Yes	Yes	Yes
Time Out Timer	Yes	Yes	Yes	Yes
FLASHport	Yes	Yes	Yes	Yes
ANALOG CONVENTIONAL FEATURES				
Conventional Features are additional radio wide features beyond those specified above.				
CSQ/PLDPL	Yes	Yes	Yes	Yes
Dual Priority Channel Scan	Yes	Yes	Yes	Yes
Adaptive Power Control	No	Yes	Yes	Yes
Repeater/Talkaround Operation	Yes	Yes	Yes	Yes
Scan (Auto, Pre-programmed, Operator Selectable)	Yes	Yes	Yes	Yes
Smart PTT	Yes	Yes	Yes	Yes
Monitor	Yes	Yes	Yes	Yes
DTMF Tone Generation	Yes	Yes	Yes	Yes
DTMF Signaling	Future	Future	Future	Future
Quick-Call Signaling	Future	Future	Future	Future
DIGITAL CONVENTIONAL SIGNALING FEATURES				
These features are APCO Project 25 Conventional Interoperable Features when used in the ASTRO Digital CAI Mode (Q806).				
Unaddressed Voice Call (Dispatch Call)	Yes	Yes	Yes	Yes
Talk Group Call	Yes	Yes	Yes	Yes
Group Call Alert™	Yes	Yes	Yes	Yes
Talk Group Identification (TGID)	Yes	Yes	Yes	Yes
Selective Call (Individual Voice Call)	MDC-1200 Only	Yes	Yes	Yes

Selective Call Decode (Individual Voice Call)	MDC-1200 Only	Yes	Yes	Yes
PTT ID (Individual Identification)	MDC-1200 Only	Yes	Yes	Yes
Call Alert Encode/Decode	MDC-1200 Only	Yes	Yes	Yes
Emergency Alarm w/Channel Revert & Ack.	MDC-1200 Only	Yes	Yes	Yes
Telephone Interconnect	Yes	Yes	Yes	Yes
Selective Radio Inhibit	MDC-1200 Only	Yes	Yes	Yes
Radio Check	MDC-1200 Only	Yes	Yes	Yes
Status/Message	MDC-1200 Only	Yes	Yes	Yes
Trunking Type II Only Features				
Maximum Number of Trunked Systems-20	Yes	Yes	Yes	Yes
Talkgroup Calls	Yes	Yes	Yes	Yes
PTT ID	Yes	Yes	Yes	Yes
Call Alert Encode/Decode	Yes	Yes	Yes	Yes
Analog/Digital Dual Mode Scan	No	Yes	Yes	Yes
Fallsort by Talkgroup	Yes	Yes	Yes	Yes
Telephone Interconnect Encode/Decode	Yes	Yes	Yes	Yes
System Wide Call (Receive Only)	Yes	Yes	Yes	Yes
Selective Radio Inhibit	Yes	Yes	Yes	Yes
Priority Monitor Scan	Yes	Yes	Yes	Yes
Dynamic Regrouping	Yes	Yes	Yes	Yes
Status/Message	Yes	Yes	Status Only	Status Only
Private/Enhanced Conversation Encode/Decode	Yes	Yes	Yes	Yes
Remote Monitor/Radio Trace	Yes	Yes	Yes	Yes
Reprogram Request	Yes	Yes	Yes	Yes

SmartZone				
	Analog Operation	ASTRO Digital	ASTRO Digital	TDMA

Trunking Type II Only Features	Project 25		
	Non-Project 25 (3600 Baud)	Project 25 (9600 Baud)	Project 25 (TDMA Operation)
Voice on Control	-	-	-
SmartZone Automatic Site Registration	Yes	Yes	Yes
SmartZone RSSI Operation	Yes	Yes	Yes
SmartZone Preferred Site	Yes	Yes	Yes
SmartZone Forced Site Search	Yes	Yes	Yes
SmartZone Site Lock/Unlock	Yes	Yes	Yes
SmartZone Adjacent Control Channel OSW	Yes	Yes	Yes
Emergency Alarm Call Receive Indication	Yes	Yes	Yes

CHANNEL SPACING

There are no maximum frequency separation conditions that must be adhered to on the APX 4000 portable series. Separation of frequencies can be as wide as the allowable band per radio model with no degradation of any performance specifications. If an incorrect antenna is used, degraded performance may be experienced.

ZONED OPERATION

This option converts MODE-ONLY ASTRO Digital APX 4000 portables to Zone Operation radios.

For the Limited keypad and Full Keypad radios there is a maximum of 50 zones, with 512 channels per zone.

PROJECT 25 ENCRYPTION

The mode of operation is programmed on a channel-by-channel basis. With the coded/clear switch set to the clear mode, the ASTRO Digital APX4000 radio is capable of transmitting clear analog voice or clear (unencrypted) ASTRO Digital voice, depending on the channel programming. With the coded/clear switch set to the coded mode, the ASTRO Digital APX 4000 radio will transmit ASTRO Digital encryption depending on the channel programming. ASTRO Digital encryption provides secure communications. ASTRO Digital Encryption (operation in encrypted mode while also operation in 3.6KB or 9.6KB and TDMA ASTRO mode) is capable of XL type encryptions; ASTRO Digital Encryptions does not operate with non-XL encryptions.

An encryption option is not required for either clear analog operation or clear ASTRO Digital operation. Encryption can be ordered with the ASTRO Digital APX 4000 radio either as a factory installed option or separate from the radio for later field installation. ASTRO Digital APX 4000 radio functions include selected ASTRO digital signaling and digital speech coding.

When ordering any of the Encryption Algorithms:

- The AES encryption algorithms offered are compliant with digital Project 25 standards and does not support analog encryption operation.
- **Requires** the ASTRO Digital CAI (Q806) to operate the AES encryption.
- Encryption Algorithms can be ordered later via Flash Port.

FIPS 140-2 Compliance

Encryption Modules equipped with AES are FIPS 140-2 compliant. Details regarding the certification, and copies of the relevant certificates, can be obtained on the NIST website at: <http://csrc.nist.gov/groups/STM/cmvp/validation.html>.

Further information regarding FIPS 140-2 certification may be found using the following link - FIPS 140-2 Crypto Module Validation Program (CMVP) <http://csrc.nist.gov/groups/STM/cmvp/index.html>

FM INFORMATION

APX 4000 Portable Radio when properly equipped with QA00582AF is Factory Mutual (FM/CSA) Approved as intrinsically safe for use in Div 1, Class I, Groups C,D, Class II groups E, F, G, Class III Div 2, Class I A, B,C,D.

UL INFORMATION

APX 4000 Portable Radio when properly equipped with QA00582AJ or QA04934AA is Underwriters Laboratory (UL/CSA) Approved. APX 4000 (Two-Knob) UL Approval certified to standards TIA4950. CAN/CSA C22.2 NO. 157-92. Div 1, Class I, Groups C,D, Class II groups E, F, G, Class III Div 2, Class I A, B,C,D.

ASTRO Advanced Messaging Solution (ASM)

The ASTRO 25 Advanced Messaging Solutions is the latest messaging platform from Motorola Solutions and will replace ASTRO Text Messaging Service (TMS). As a complete end-to-end solution it leverages the core assets of ASTRO 25 IV&D/CID networks, ASTRO 25 radios, Integrated Command Center applications and Unified Network Services. The application allows responders to send/receive messages and run database queries from ASTRO 25 data enabled portable radios, extending real time information access to the field so dispatchers and first responders can be more efficient and achieve safer outcomes.

Provides functional parity with TMS and leverages the PremierOne messaging services platform, offering multiple configurations to enhance and extend core messaging functionality that can include queries and dispatch notifications. Based upon the configuration chosen, ASTRO 25 Advanced Messaging Solution extends Computer Aided Dispatch (CAD) information beyond the vehicle to select ASTRO 25 Portable radios.

Many Public Safety agencies have experienced the benefits of messaging and sharing important information to/from the communication center (dispatch) and vehicles equipped with MDTs. With ASTRO 25 Advanced Messaging Solution we are extending that capability to responders when Outside the Vehicle.

Ordering ASTRO Text Messaging for APX 4000 Portable Requires:

1. APX 4000 Radio
2. P25 Digital Conventional (Q811)
3. Radio Packet Data (Q947)

OR

1. APX 4000 Radio
2. 9600 or 3600 Digital Trunking (QA02756)
3. Radio Packet Data (Q947)

NOTE: *There is no specific option to order for the Advanced Messaging Solution on the subscribers as the functionality is included in the Packet Data option. Also, the text messaging functionality carries a per-radio charge on the server side of \$50 (one time license fee to access messaging services) per radio. When adding query the fee is \$125 per radio. For additional ordering guidelines of the AMS feature which includes the server and radio license fees, please visit -*

<http://ecat.comm.mot.com/ecat/pricebooks/dup/MCCP.htm>

Outdoor Personnel Location Global Positioning Satellite (GPS) Feature

The personnel outdoor location tracking GPS feature enables a dispatcher the ability to locate on-foot patrols and out of the vehicle officers who are involved in life threatening situations. The radio user's GPS position information is sent over the ASTRO 25 Integrated Voice & Data (V&D) network and is delivered to the dispatch operator using a third party mapping display application at the dispatch center (*Mapping Application is not yet available through Motorola at this time, however an Application Developers Tool Kit is available for 3rd party vendors to use to modify existing applications. See link below for more details.*) On the Dual Display model only it is possible to the user to determine their own location (latitude/longitude) through the use of the location menu.

During normal operation the radio battery capacity will be reduced by 10% to 16%.

In order to obtain an initial GPS fix position, the radio must be located in an open sky, outdoor environment with no barriers that could affect the signal around you or above you. During this initial fix, the radio should NOT be worn on the body as this may affect the process of acquiring signal and/or add additional time to first fix.

NOTE LIMITATIONS OF USE:

GPS works best in an open sky (clear view of the sky with no obstructions) environment. Due to the limitations of the technology, there are certain situations which prevent GPS coverage. These situations include but are not limited to:

- Underground locations (tunnels, subways, etc.)
- Inside of buildings, elevators, parking garages, trains, other covered vehicles, etc.
- Under metal or concrete roof structures
- Urban canyons (between tall buildings or under dense tree coverage)

******GPS Performance may be degraded when the radio is worn against the body and/or against the body within a vehicle.**

Due to the limitations mentioned above, GPS should only be utilized as a method to assist the user with location information but not as a means for mission critical communication. Therefore, in any emergency situation, the location should always be verbally reported to the dispatcher.

For further information regarding System Requirements, go to the location solutions price pages at: <http://ecat.com.mot.com/ecat/pricebooks/dup/ALLOCATION.htm>

Ordering GPS for APX 4000 Portable Requires:

- Enable GPS Operation (QA00782)
- Radio Packet Data (Q947)

700/800 Models (2, 3)	Frequencies
700 MHz	767.950
700 MHz	772.800
800 MHz	856.800
800 MHz	863.025

*within +/-25kHz of the specified frequency

REBANDING Frequency Range for 700/800MHz In the CPS:

700 MHz:

Rx/Tx: 764.006250 to 775.993750

Tx Only: 794.006250 to 805.993750

800 MHz

Tx Only: 806.000000 to 824.993750

Rx/Tx: 851.000000 to 869.993750

CPS INFORMATION

******Please note that a NEW version of CPS (RVN5224) is required for initial customer orders for this product. This new version of CPS is required for the APX radio shipments. ******

FCC Information

Grant Notes	FCC Rule Parts	Frequency Range (MHZ)	Output Watts	Frequency Tolerance	Emission Designator
AZ489FT7049	90	764.0 - 775.0	2.65	1.5 PM	Note 1: 11K0F3E, 8K10F1D, 8K10F1E, 8K10F1W, 16K0F3E, 20K0F1E
AZ489FT7049	90	793.0 - 805.0	2.65	1.5 PM	Note 1: 11K0F3E, 8K10F1D, 8K10F1E, 8K10F1W, 16K0F3E, 20K0F1E
AZ489FT7049	90	806.0 - 824.0	3.3	1.5 PM	Note 1: 11K0F3E, 8K10F1D, 8K10F1E, 8K10F1W, 16K0F3E, 20K0F1E
AZ489FT7049	90	851.0 - 870.0	3.3	1.5 PM	Note 1: 11K0F3E, 8K10F1D, 8K10F1E, 8K10F1W, 16K0F3E, 20K0F1E
Grant Notes	FCC Rule Parts	Frequency Range (MHZ)	Output Watts	Frequency Tolerance	Emission Designator
BH EF-AZ489FT7050	90	764.0 - 775.0	2.65	1.5 PM	Note 1: 11K0F3E, 8K10F1D, 8K10F1E, 8K10F1W, 16K0F3E, 20K0F1E
BH EF-AZ489FT7050	90	793.0 - 805.0	2.65	1.5 PM	Note 1: 11K0F3E, 8K10F1D, 8K10F1E, 8K10F1W, 16K0F3E, 20K0F1E
BH EF-AZ489FT7050	90	806.0 - 824.0	3.3	1.5 PM	Note 1: 11K0F3E, 8K10F1D, 8K10F1E, 8K10F1W, 16K0F3E, 20K0F1E
BH EF-AZ489FT7050	90	851.0 - 869.0	3.3	1.5 PM	Note 1: 11K0F3E, 8K10F1D, 8K10F1E, 8K10F1W, 16K0F3E, 20K0F1E

Ordering Guide

Advanced System Key

Enhancement Level Guide

APX Series Sales Presentation

[Fleet Management Ordering Guide](#)

[Spec Sheet](#)

[APX Family Brochure](#)

[RSA](#)

[RSA Comprehensive](#)

[Portable Accessory Catalog](#)

[ASTRO 25 Subscriber At A Glance Brochure](#)

Models

1: Main Model (Must Select One)

Description
 APX 4000 7/800 MHZ MODEL 2 PORTABLE
Description
 APX 4000 7/800 MHZ MODEL 3 PORTABLE

Nomenclature	APC	Price
H51UCF9PW6 N	426	\$1,400.00
Nomenclature	APC	Price
H51UCH9PW7 N	426	\$1,800.00

Configuration

2: Knob Configuration (Must Select One)

Description
 ALT: ONE MULTI-FUNCTION KNOB
 This configuration is available in FM
Description
 ADD: TWO KNOB CONFIGURATION
 This configuration is available in UL

Nomenclature	APC	Price
QA04864	426	\$0.00
Nomenclature	APC	Price
QA04865	411	\$0.00

Options

3: Operation Mode (Must Select One)

Description	Nomenclature	APC	Price
ENH: SOFTWARE ANALOG 3600 BAUD	Q443	426	\$1,100.00
ENH: SOFTWARE P25 CONVENTIONAL	Q811	426	\$650.00
Description	Nomenclature	APC	Price
ENH: 3600 OR 9600 TRUNKING BAUD SIN	QA02756	426	\$1,570.00
This option provide P25 Trunking functionality when programmed in 9600 Trunking. When ordering trunking mode, you must select a QA01749 software key, QA01648 hardware key or a QA02018 WACN Key.			
Description	Nomenclature	APC	Price
ENH: ANALOG CONVENTIONAL	QA02829	426	\$400.00

4: System Enhancement Software (Refer to ordering guide for help)

Description	Nomenclature	APC	Price
ADD: PROGRAMMING OVER P25 (OTAP)	G996	426	\$100.00
Compatible with P25 Trunking only. Requires Q947 Data option. To do in field POP25 programming must use Advanced System Key (DVN4046A).			

ADD: TDMA OPERATION	QA00580	426	\$400.00
Requires P25 Trunking. A SOFTWARE or HARDWARE KEY or WACN KEY is REQUIRED to be purchased with any APX Radio operating in trunking. HARDWARE KEY or WACN KEY will still REQUIRE a DVN4046 to be purchased			
ADD: ADVANCED SYSTEM KEY - HARDWARE KEY	QA01648	655	\$5.00
A SOFTWARE or ADVANCED SYSTEM KEY or WACN KEY is REQUIRED to be purchased with any APX Radio operating in trunking. A SUPPLEMENTAL ID is REQUIRED to be entered when this option is ordered. Please be sure the CORRECT SYSTEM ID is entered. If an incorrect ID is entered, FLASHport will need to be ordered to FIX this error. ADVANCED SYSTEM KEY or WACN KEY will still REQUIRE a DVN4046 to be purchased.			
SW KEY SUPPLEMENTAL DATA	QA01749	655	\$0.00
A SOFTWARE or ADVANCED SYSTEM KEY or WACN KEY is REQUIRED to be purchased with any APX Radio operating in trunking.			

ADD: ADVANCED WACN KEY SUPP DATA	QA02018	655	\$0.00
A SOFTWARE or ADVANCED SYSTEM KEY or WACN KEY is REQUIRED to be purchased with any APX Radio operating in trunking. A SUPPLEMENTAL ID is REQUIRED to be entered when this option is ordered. Please be sure the CORRECT SYSTEM ID is entered. If an incorrect ID is entered, FLASHport will need to be ordered to FIX this error. ADVANCED SYSTEM KEY or WACN KEY will still REQUIRE a DVN4046 to be purchased.			

5: System Enhancement Options (Optional)

Description	Nomenclature	APC	Price
ENH: APX GPS ACTIVATION Must have IV&D (Q947) enabled.	QA00782	426	\$100.00
ENABLE BLUETOOTH SW	QA00583	426	\$150.00
ADD: MULTICAST VOTING SCAN	Q387	426	\$200.00
ADD: ASTRO 25 INTEGRATED VOICE & DATA Requires Digital functionality.	Q947	426	\$200.00
ENH: TRUNKED RADIO TRACE/ REMOTE MO	H43	426	\$75.00
ENH: ONE TOUCH/STATUS MSG	H46	426	\$75.00
ADD: P25 LINK LAYER AUTHENTICATION Requires P25 Trunking operation and MACE hardware.	QA01767	426	\$100.00
ENH: ENHANCEMENT LEVEL 1 Please reference the Enhancement Level Reference Guide for more details. This option allows for a few parameters (ZONES, CHANNELS, SYSTEMS PERSONALITIES, UCL ENTRIES, VOICE ANNOUNCEMENT, ENCRYPTION KEYS) on the entry tier to go to a mid tier level.	QA01770	426	\$200.00
ADD: MANDOWN OPERATION	QA01843	426	\$150.00
ADD: DVRS PSU ACTIVATION Enables DVRS Enhanced PSU functionality on APX Mobile Radios. Requires Digital Operation. QA00631 is to be ordered for radios that are not connected directly to a DVR. If you are connecting your radio directly to a DVR then order QA00631.	QA00631	655	\$100.00
ADD: APX Personnel Accountability	Q445	481	\$150.00
ADD: ENHANCED DATA Smartzone (H38/G51), Digital (Q806/G906), IV&D (Q947/W947)and P25 Trunking (Q361/G361) are required when ordering the Enhanced Data option	QA03399	656	\$150.00
ADD: SITE SELECTABLE ALERT FOR P25 TRUNKING	QA00982	656	\$150.00
ADD: EXTREME NOISE REDUCTION	QA01833	426	\$25.00

ADD: APX GEOFENCE PORTABLE
 FEATURE AVAILABLE DECEMBER 2014
 QA04447 655 \$150.00

ADD: REFLECTIVE LABEL
 Available on the Two Knob Configuration ONLY (QA04865)
 QA04776 411 \$10.00

6: Algorithm Options (Optional)

Description	Nomenclature	APC	Price
ADD: TACTICAL REKEY WITH MULTIKEY Must order IV&D (Q947). Incompatible with MDC/ASTRO P25 OTAR with Multkey (Q498). Tactical OTAR is not compatible with DV/Rs QA00631.	H04	426	\$350.00

ENH: MULTIKEY	H869	426	\$330.00
ENH: AES ENCRYPTION	Q629	426	\$475.00

7: Antenna (Optional- Can Only Select One)

DEL: DELETE STANDARD VHF ANTENNA (N) Deletes the standard antenna. 7/800-NAF5085, VHF-NAF6593, UHF/R1/R2-PMMAE4065.	H112	426	(\$10.00)
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DEL: ANTENNA, HIGH BAND W/RADIO VHF	H112	402	(\$10.00)
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8: (One Knob) Battery (Optional- Can Only Select One)

Description	Nomenclature	APC	Price
DEL: DELETE BATTERY (NNTN8128)	H207	426	(\$47.00)

ALT: IMPRES LI-ION 2300MAH FM (NNTN)	QA00582	426	\$110.00
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IMPRES LI-ION 2300MAH	QA02749	426	\$85.00
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9: (Two Knob) Battery (Optional- Can Only Select One)

Description	Nomenclature	APC	Price
DEL: DELETE BATTERY (NNTN8128)	H207	426	(\$47.00)

ALT: IMPRES LI-ION 2300MAH UL BATTERY (NNTN8560A)	QA00582	411	\$130.00
Available for the Two Knob Option (QA04865) Configuration ONLY. Aftermarket Kit for this UL Battery is NNTN8560A			

ALT: IMPRES LI-ION 2300MAH RUGGED UL BATTERY	QA04934	411	\$50.00
This option requires H499			

IMPRES LI-ION 2300MAH	QA02749	426	\$85.00
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10: Rugged Option (Optional-Can Only Select One)

Description	Nomenclature	APC	Price
ENH: SUBMERSIBLE (DELTA T)	H499	411	\$250.00
Available on the Two Knob Configuration ONLY. Select this option for Non-UL Rugged. If UL Rugged option is desired, this option should be selected along with option (QA04934)			

11: Belt Clips (Optional-Can Only Select One)

ADD: 2.5 INCH BELT CLIP	Q698	426	\$12.00
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DEL: DELETE STANDARD BELT CLIP	H301	426	(\$10.00)
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12: Cable (Optional)

Description	Nomenclature	APC	Price
ADD: DATA CABLE	Q157	655	\$75.00

PMKNN4012B - Used to program the radio with Customer Programming Software and Tuner Software.
 PMKNN4013C - Used to program and service the radio with Customer Programming Software and Tuner Software.
 Compatible on ALL APX Portable Radios

13: Programming (Optional)

Description	Nomenclature	APC	Price
ADD: FRONT PANEL PROGRAMMING	Q53	426	\$150.00

14: Service Options (Optional- Can Only Select One)

Description	Nomenclature	APC	Price
ENH:STD WARRANTY APPLIES-NO SFS	QA05100	185	\$0.00

Provides no extended repair coverage after the standard warranty period expires. Required if no other SFS option is selected.

ENH: 1 YR SFS LITE	Q884	185	\$44.00
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Provides 1 year of extended hardware repair coverage beginning after the standard warranty period expires. Repairs will be made only at the designated Motorola repair depot. Local services are not included. Motorola will pay the inbound shipping charges only with use of the Motorola designated delivery service. Motorola will pay for outbound shipping via Motorola's normal shipping methods. No discounts are allowed on this option.

ENH: 2 YR SFS LITE	H885BK	185	\$84.00
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Provides 2 years of extended hardware repair coverage beginning after the standard warranty period expires. Repairs will be made only at the designated Motorola repair depot. Local services are not included. Motorola will pay the inbound shipping charges only with use of the Motorola designated delivery service. Motorola will pay for outbound shipping via Motorola's normal shipping methods. No discounts are allowed on this option.

ENH: 3 YR SFS LITE	H886	185	\$108.00
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Express Service Plus Plan (ESP) 3 Year - Provides for 3 years of extended hardware repair coverage beginning after the standard warranty period. Repairs will be made at the Radio Support Center. The customer pays for inbound shipping. No discounts are allowed on this option.

ENH: 4 YR SFS LITE	Q887	185	\$130.00
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Provides 4 years of extended hardware repair coverage beginning after the standard warranty period expires. Repairs will be made only at the designated Motorola repair depot. Local services are not included. Motorola will pay the inbound shipping charges only with use of the Motorola designated delivery service. Motorola will pay for outbound shipping via Motorola's normal shipping methods. No discounts are allowed on this option.

ENH: SFS COMPREHENSIVE	HA00022AB	185	\$190.00
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Provides for extended hardware repair coverage and chemical, liquid, and other physical damage on your Motorola portable and mobile subscriber radios. Comprehensive coverage starts from the first day the radio is put into use and last for 3 YEARS. Repairs will be made only at the designated Motorola repair depot. Local services are not included. Motorola will pay the inbound shipping charges only with use of the Motorola designated delivery service. Motorola will pay for outbound shipping via Motorola's normal shipping methods. No discounts are allowed on this option.

ENH: CANADA 3 YR SFS LITE ENCR	HA00048	386	\$191.00
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Upgrades the standard warranty period to a full three (3) years of hardware service coverage on the internal components of your radio equipment. Repairs will be made only at Motorola authorized service centers. No discounts are allowed on this option.

ENH: CANADA 5 YR SFS LITE HA00049 386 \$262.00
 Upgrades the standard warranty period to a full five (5) years of hardware service coverage on the Internal components of your radio equipment. Repairs will be made only at Motorola authorized service centers. No discounts are allowed on this option.

15: Manual (Optional)

ADD: DATA LINK MANAGER APP CD- PORTABLES QA00205 655 \$0.00
 Option provides the NVN5424 Data CD. Please order this option if you would like the Data CD, and are unable to obtain it through other sources such as MOL.

DEL: USER GUIDE CD QA01274 481 \$0.00
 This deletes the user guide CD that ships standard with the radio.

16: Packaging (Optional)

Description Nomenclature APC Price
ADD: SINGLE UNIT PACKAGING H842 426 \$0.00

17: Test Results (Optional)

Description Nomenclature APC Price
ADD: TEST RESULTS / RATED AUDIO PRI H799 426 \$0.00

Data Compiled 01-Dec-2014 using DUP and all prices in USD

Frank Boykin

From: Equipment Site-SITEQUIP (Application)
Sent: Tuesday, December 30, 2014 2:14 PM
To: frank@owenscommunications.com
Subject: APX4000 Accys

2-WAY RADIO ACCESSORIES

APX 3000 & APX 4000 Product Series Radios

NOTE: otherwise stated please assume any accessories are compatible with all of the products listed above

[Ship Card](#)

General Information

The APX P25 mission critical two-way radio series redefines safety in portable communication. From the fire line to the factory line, APX puts the right devices into the hands of the right user. Every feature and function is designed with its users in mind - from the rugged, easy to operate design to the loudest, clearest audio. The result is the ability to keep your people and community safer than ever before.

Extend the power and reliability of your radio with the only complete line of accessories designed, tested and certified for optimal performance with APX portables. This flexible portfolio offers solutions that meet your customers' specific needs. This includes a robust and complete portfolio of remote speaker microphones including the XE Remote Speaker Microphone which has been designed specifically for harsh conditions for the fireground. And the APX Mission Critical Wireless portfolio delivers best-in-class Bluetooth® wireless designed specifically for first responders. While our IMPRES smart battery and charger solutions ensure your responders have a battery that is ready to go at the moment they need it.

Every Motorola battery, charger, audio accessory, carry case and antenna is best-in-class technology, designed and optimized specifically for your APX portable.

[Two-Way Radio Accessories Home Page](#)

[APX Accessory & Energy Catalog](#)

[Battery Warranty](#)

[Battery Storage, Handling & Care Tips](#)

Note: many of the below categories contain hyperlinks. External links need to be opened in a New Tab or New Window

2-Way Radio Accessories

Adapters

Description
 APX SURVEILLANCE KEYLOAD A
 APX FPP HW KEY (DONGLE)
 AUDIO ACCY ADPT 3.5MM W/PTT

Nomenclature	APC	Price
NNTN7869A	742	\$65.00
NNTN7526	655	\$37.00
BDN6783B	795	\$73.00

[Antennas - APX 3000](#)

Description
 APX 7000 700/800- GPS ANTENNA
 UHF (380-520) GPS ANTENNA

Nomenclature	APC	Price
NAF5085A	555	\$45.00
PMAE4065A	795	\$21.00

PSM is tested and certified to support PMAE4065 for UHF R1/R2 MHz (380-520) on APX 6000/XE/LI and APX 7000/XE. When a PSM is attached to APX 7000 U1/78 or U2/78 (dual band): UHF frequencies- RF will not route to the PSM antenna port. RF will route to the radio's antenna. 7/800 frequencies- RF will route to the PSM antenna port. RF will not route to the radio's antenna.
 Radio requires GPS antenna (NAG4000) when Public Safety Microphone is attached

ANT_HLCL_136MHZ MIN, 1.577GHZ M
 DRIBBLE ANTENNA 764-870MHZ + GPS

NAR6593A	555	\$38.00
PMAF4006A	536	\$100.00

ANTENNA, FLEXIBLE, 380-520MHZ + GPS
 DRIBBLE ANTENNA 136-174MHZ + GPS

PMAE4080A 536 \$100.00
 PMAD4125 536 \$100.00

Antennas - APX 4000

Description
 APX 7000 700/800- GPS ANTENNA
 UHF (380-520) GPS ANTENNA

Nomenclature
 NAF5085A 555 \$45.00
 PMAE4065A 795 \$21.00

PSM is tested and certified to support PMAE4065 for UHF R1/R2 MHz (380-520) on APX 6000/XELI and APX 7000/XE. When a PSM is attached to APX 7000 U1/778 or U2/778 (dual band); UHF frequencies- RF will not route to the PSM antenna port; RF will route to the radio's antenna. 7/800 frequencies- RF will route to the PSM antenna port; RF will not route to the radio's antenna. Radio requires GPS antenna (NAG4000) when Public Safety Microphone is attached

ANT_HLCL,136MHZ MIN,1.577GHZ M
 ANT_1/4 WAVE 7/800 STUBBY

NAR6593A 555 \$38.00
 NAR6595A 555 \$29.00

PSM is tested and certified to use antenna NAR6595 for 700/800 MHz on APX 6000/XELI and APX 7000/XE. When a PSM is attached to APX 7000 U1/778 or U2/778 (dual band); UHF frequencies- RF will not route to the PSM antenna port; RF will route to the radio's antenna. 7/800 frequencies- RF will route to the PSM antenna port; RF will not route to the radio's antenna

UHF1 GPS STUBBY ANTENNA

FAF5259A 481 \$60.00

PSM is tested and certified to support FAF5259A for UHF R1 MHz on APX 6000/XELI and APX 7000/XE. When a PSM is attached to APX 7000 U1/778 or U2/778 (dual band); UHF frequencies- RF will not route to the PSM antenna port; RF will route to the radio's antenna. 7/800 frequencies- RF will route to the PSM antenna port; RF will not route to the radio's antenna. Radio requires GPS antenna (NAG4000) when Public Safety Microphone is attached

UHF/R2 GPS STUBBY ANTENNA

FAF5260A 481 \$60.00

PSM is tested and certified to support FAF5260A for UHF R1 MHz (380-520) on APX 6000/XELI and APX 7000/XE. When a PSM is attached to APX 7000 U1/778 or U2/778 (dual band); UHF frequencies- RF will not route to the PSM antenna port; RF will route to the radio's antenna. 7/800 frequencies- RF will route to the PSM antenna port; RF will not route to the radio's antenna. Radio requires GPS antenna (NAG4000) when Public Safety Microphone is attached

Batteries

Description
 BATT IMP STD LI ION 1900M 2000T
 BATT IMP FM LI ION 2300M/2350T
 BATT IMP LI ION 2300M 2350T
 BATTERY PACK, MAH, BATT IMP STD IP67 LIION2700M/2800T
 BATT IMP STD LI ION 1250M 1300T
 ONLY compatible with APX 3000 series radios

Nomenclature
 NNTN8128BR 453 \$100.00
 NNTN8129AR 453 \$130.00
 PMNN4424AR 453 \$115.00
 PMNN4448AR 453 \$125.00
 NNTN8305AR 453 \$100.00

Battery Chargers

Description
 110 VAC 50/60 HZ US IMPRES SUC

Nomenclature
 WPLN4232A 785 \$63.00

ACCESSORY,ACCESSORY,CHARGER,IMPRES MUC W/DISPLAY - US/NA PLUG	WPLN4219B	785	\$590.00
ACCESSORY,ACCESSORY,CHARGER,IMPRES MUC - US/NA PLUG	WPLN4212B	785	\$495.00
ACCESSORY KIT,CHR IMP VEH EXT NAEU BASE	NNTN7616C	785	\$380.00
MOTO TRBO TRAVEL CHARGER	RLN6433B	785	\$95.00
ACCESSORY IMPRES CHARGER DISPLAY SALES MODULE (CDM)	RLN5382C	785	\$95.00
Display Module for IMPRES Multi-Unit Charger			
WALL MOUNT KIT FOR IMPRES MULTI-UNIT CHARGER	NLN7967	476	\$21.00
Wall Mount Bracket for IMPRES Multi-Unit Charger			
INSERT, UNIVERSAL MUC	NNTN8170A	453	\$207.00
Only compatible with XTS Multi Unit Chargers			
INSERT, UNIVERSAL SUC	NNTN8169A	453	\$45.00
Only compatible with XTS Single Unit Chargers			

Battery Fleet Management

Description	Nomenclature	APC	Price
FLEET MANAGEMENT CHRGR INTERFACE UNIT			
Multi-Unit Charger Interface Unit, attaches to an APX or XTS IMPRES multi-unit charger to enable the data transfer to IMPRES Battery Fleet Management. A CIU is required for IMPRES chargers that report data to IMPRES Battery Fleet Management.	NNTN7677A	291	\$80.00
CHARGR INTFRCE UNT GEN1 IMPRES SUC			
Single-Unit Charger Interface Unit, attaches to an APX IMPRES single-unit charger to enable the data transfer to IMPRES Battery Fleet Management. A CIU is required for IMPRES chargers that report data to the IMPRES Battery Fleet Management.	NNTN8045A	291	\$35.00
NA FLEET MANAGEMENT LICENSE KEY			
NA FLEET MANAGEMENT LICENSE KEY	HKVN4036A	785	\$489.00
IMPRES BATTERY DATA READER			
Provides IMPRES battery users ability to access key usage data via PC. Compatible w/all IMPRES batteries (HTT/PRO,TRBO & APX adapter included)	NNTN7392	785	\$250.00

Bluetooth Mission Critical Wireless

Note: requires QA00583 to be ordered in the APX radio in order to enable Bluetooth software

Description	Nomenclature	APC	Price
ASSEMBLY ACCESSORY WIRELESS ACCY KIT NFP 12 CABLE			
Mission Critical Wireless Earpiece with 12 inch cable and Push-To-Talk pod	NTN2570C	742	\$295.00
WIRELESS 2.0 COMMPORT IC MODULE			
Mission Critical Wireless Push-To-Talk pod (POD ONLY)	NTN2571B	742	\$139.00
MC WIRELESS REMOTE CONTROL KEYFOB & US CHARGER			
COVERT PACK-N-GO KIT	NNTN8442A	742	\$350.00
COVERT PACK-N-GO KIT, ADVANCED	RLN6489A	742	\$700.00
	RLN6501A	742	\$1,100.00

COMPLETELY DISCREET WRLS SURVEILLANCE KIT				
Kit includes: Wireless Neckloop Y-adapter and retention hook (NNTN8385), Completely Discreet Earpiece Kit (RLN4922), Mission Critical Wireless Push-To-Talk pod (NTN2571). Optional item not included: Neckloop Retention Clip: (NNTN8457A)				
COMPLETELY DISCREET EARPIECE KIT				
Wireless Earpiece, communicates to the radio through an inductive neckloop. The kit includes the wireless receiver, six spare batteries and five spare earguards				
Y-ADAPTER FOR WRLS BLUETOOTH PTT POD				
Wireless neckloop Y-adapter and retention hook				
1-WIRE EARBUD,29CM CORD,BLACK				
1-WIRE EARBUD,116CM CORD,BLACK				
2-WIRE EARBUD,116CM CORD,BLACK				
ACCY,KIT,EAR PIECE,2W SHORT CORD,BL				
This covert kit includes 2 sets of two-wire earbud headphones (1 black and 1 white), a single-wire black earbud headphone and a 3.5mm adapter that allows to plug in any consumer off-the-shelf headphones. A Mission Critical Wireless Push-To-Talk pod (NTN2571) must be ordered separately to power the earpieces				
1-WIRE SURVEILLANCE KIT FOR OCW/MCW				
	NNTN8434A	372		\$515.00
	RLN4922	742		\$340.00
	NNTN8385A	742		\$100.00
	NNTN8294A	742		\$40.00
	NNTN8295A	742		\$40.00
	NNTN8298A	742		\$50.00
	NNTN8296A	742		\$180.00
	PMLN7052A	742		\$52.00

Bluetooth Mission Critical Wireless Replacement Parts

Description	Nomenclature	APC	Price
EARTIPS, REPLACEMENT	NNTN8299A	742	\$3.15
Replacement eartips for NNTN8294A, NNTN8295A or NNTN8296A. Contains two ear tips in each size and one clip.			
EARTIPS, BULK REPLACEMENT	NNTN8361A	742	\$29.50
Replacement ear tips kit for wireless ear buds. Contains: 20 Small ear buds, 20 Medium, 20 Large, and 10 clips			
EARPIECE W/12" CABLE	NTN2572A	742	\$156.00
Replacement cable for NTN2570C. FM Certified; MCW BT			
COMMPORT MAINTENANCE KIT	NTN8821	115	\$46.00
Earpiece Maintenance Kit. Includes 10 silicone ear tubes, 10 microphone seal strips and 2 foam windscreens for Over-the-Ear earpiece			
COMMPORT EAR STRAP (PACK OF 10)	NTN8988A	115	\$17.25
COMMPORT EAR TUBES (PACK OF 10)	RLN5037	115	\$26.00
WIRELESS POD SWIVEL CLIP	PMLN6246A	742	\$4.50
PWR SUPPLY, SMPS, MICRO USB-NA	PMPN4027A	785	\$15.00
Replacement or spare micro-usb plug-in charger for wireless Push-To-Talk Pod			
COMMERCIAL 3.5 EARBUD HEADSET ADAPTER, MULTIPACK	NNTN8737A	742	\$401.00
Pack of 10 adapters			
NECKLOOP RETENTION HOOK, BULK REPLACEMENT	NNTN8457A	372	\$30.00
Pack of 10 units			

Belt Clips

Description
BELT CLIP 2"
 Compatible with NNTN8128, NNTN8129, PMNN4424, PMNN4448 batteries only
2.5-INCH BELT CLIP
 Compatible with NNTN8128, NNTN8129, PMNN4424, PMNN4448 batteries only

Nomenclature
 PMLN4651A
APC
 271
Price
 \$11.00

Nomenclature
 PMLN7008A
APC
 271
Price
 \$12.00

Carrying Solutions - APX 3000

Description
 APX3000 COVERT CARRY HOLSTER

Nomenclature
 PMLN6327A
APC
 271
Price
 \$30.00

Carrying Solutions - APX 4000

Description
 APX2000/4000 SW LEATHER CARRY CASE2
 ONLY compatible with the APX 4000 one-knob configuration
 CARRY ACCESSORY-CASE,HARD LEATHER CARRY CASE
 ONLY compatible with the APX 4000 two-knob configuration
 APX 7000 2.5" REPLACEMENT SWIVEL BELT LOOP
 Replacement 2.5 Inches Leather Swivel Belt Loop

Nomenclature
 PMLN6085A
APC
 271
Price
 \$60.00

Nomenclature
 PMLN7182A
APC
 271
Price
 \$60.00

Nomenclature
 PMLN5407
APC
 271
Price
 \$12.00

CommPort

Description
 COMMPORT APX W/ PALM PTT
 COMMPORT APX W/ RADIO ADAPTER PTT
 COMMPORT APX W/ RING PTT
 COMMPORT APX W/ SNAP-ON-SIDE PTT
 COMMPORT APX W/ BODY PTT

Nomenclature
 RLNG480A
APC
 742
Price
 \$419.00

Nomenclature
 RLNG481A
APC
 742
Price
 \$419.00

Nomenclature
 RLNG482A
APC
 742
Price
 \$429.00

Nomenclature
 RLNG483A
APC
 742
Price
 \$429.00

Nomenclature
 RLNG484A
APC
 742
Price
 \$513.00

CommPort Replacement Items

Description
 REPLACEMENT PALM PTT CABLE FOR NTN1624 & NTN1723
 REPLACEMENT CABLE FOR NTN1625 & NTN1722
 REPLACEMENT SNAP ON SIDE PTT CABLE FOR NTN1736 & NTN1737
 REPLACEMENT RING PTT CABLE FOR NTN1663 & NTN1724
 COMMPORT REPLACE REMOTE PTT BODY

Nomenclature
 NKN6510
APC
 115
Price
 \$53.00

Nomenclature
 NKN6508
APC
 115
Price
 \$34.50

Nomenclature
 NKN6525
APC
 115
Price
 \$75.00

Nomenclature
 NKN6512
APC
 115
Price
 \$60.25

Nomenclature
 NNTN4188
APC
 115
Price
 \$180.00

EAR MIC ASSEMBLY
COMMPORT MAINTENANCE KIT
 Earpiece Maintenance Kit. Includes: 10 silicone ear tubes, 10 microphone seal strips and 2 foam windscreens for Over-the-Ear earpiece

COMMPORT EAR STRAP (PACK OF 10)
COMMPORT EAR TUBES (PACK OF 10)
CLIP COLLAR
CLIP BELT

NTN8819B	115	\$291.00
NTN8821	115	\$46.00
NTN8988A	115	\$17.25
RLN5037	115	\$26.00
4285838B01	115	\$3.45
4202006A01	742	\$20.00

[Earpieces](#)

Description
BONE CONDUCTION EAR MIC
 IMPRES Ear Microphone System with Programmable Button and Large Push-to-Talk: Lightweight earpiece that picks up sound through bone conduction

Nomenclature	APC	Price
PMLN5653A	742	\$399.00

In digital mode, bone conduction can have a bassier (muffled) sound quality depending on the user

EARGUARD
EARHOLDER SMALL BLK
EARHOLDER MEDIUM BLK
EARHOLDER LARGE BLK
EARHOLDER MEDIUM CLR
EARHOLDER LARGE CLR

0180300E25	742	\$68.00
0180358B32	742	\$20.00
0180358B33	742	\$19.00
0180358B34	742	\$20.00
0180358B36	742	\$20.00
0180358B37	742	\$20.00

[Headsets](#)

Description
IMPRES TEMPLE TRANSDUCER
 IMPRES Temple Transducer with boom microphone and Inline push-to-talk. FM Certified and UL Approved

New earseals & increased seal pressure C style. It is not FM approved.
Heavy-Duty Behind-the-Head Headset with Noise-Cancelling boom microphone, noise reduction = 24dB, FM Certified
CORE LW HEADSET
 Lightweight Over-the-Head Headset single muff with in-line push-to-talk and boom mic. FM Certified

XBT HEADSET BTN, HEAVY DUTY HEADSET, BT
 XBT Operations Critical Wireless Behind-the-Neck Headset

XBT HEADSET HB, HEAVY DUTY HEADSET, BT
 XBT Operations Critical Wireless Headband Style Headset

Nomenclature	APC	Price
PMLN5101A	742	\$228.00
PMLN5275B	742	\$485.00
RMN5058A	742	\$90.00
RLN6490A	742	\$699.00
RLN6491A	742	\$699.00

[Hearing Protection](#)

Description
 ACCESSORY KIT,EP7-SM SONIC DEFENDERS ULTRA EARPLUGS
 ACCESSORY KIT,EP7-M SONIC DEFENDERS ULTRA EARPLUGS
 ACCESSORY KIT,EP7-LG SONIC DEFENDERS ULTRA EARPLUGS

Nomenclature
 RLN6511A
 RLN6512A
 RLN6513A

APC
 742
 742
 742

Price
 \$28.50
 \$28.50
 \$28.50

Heavy Duty Headsets by 3M Pelcor

Description

Nomenclature

APC

Price

3M PELTOR MT SERIES 2-WAY COMM HDST MT7H79A-C5063-34, HEADBAND
 MT Series Over-The-Head Headset, direct radio connect. Noise Reduction Rating: 25 dB

RMN5137A

742

\$587.00

3M PELTOR MT SERIES 2-WAY COMM HDST MT7H79B-C5063-34, NECKBAND
 MT Series Neckband Headset, direct radio connect. Noise Reduction Rating: 24 dB

RMN5138A

742

\$587.00

3M PELTOR MT SERIES 2-WAY COMM HDST MT7H79P3E-HARD HAT ATTACH
 MT Series Hard Hat Attached Headset, direct radio connect. Noise Reduction Rating: 21 dB

RMN5139A

742

\$587.00

HEADBAND HEADSET W/ NEXUS JACK
 MT Series Over-the-Head Headset with Nexus connector. Requires PTT Adapter PMLN6095. Noise Reduction Rating: 25 dB

PMLN6088A

742

\$275.00

HEAVY-DUTY HEADSET
 MT Series Neckband Headset with Nexus connector. Requires PTT Adapter PMLN6095. Noise Reduction Rating: 24 dB

RLN6477A

742

\$335.00

2-WAY HARD-HAT MOUNT HEADSET, BLACK
 MT Series Hard Hat Attached with Nexus connector. Requires PTT Adapter PMLN6095. Noise Reduction Rating: 21 dB

RMN4051

742

\$299.00

TACTICAL HEADBAND-STYLE HEADSET, GRAY
 TacticalPro Series Over-The-Head Headset with Nexus connector. Requires PTT Adapter PMLN6095. Noise Reduction Rating: 28 dB

RMN4052

742

\$388.00

AUDIO ACCESSORY-HEADSET,3M PELTOR TACTICALPRO 2-WAY COMMUNICATIONS
 HEA
 TacticalPro Series Neckband Headset with Nexus connector. Requires PTT Adapter PMLN6095. Noise Reduction Rating: 25 dB

RMN5135A

742

\$440.00

TACTICAL HARD-HAT MOUNT HEADSET, GRAY
 TacticalPro Series Hard Hat Attached with Nexus connector. Requires PTT Adapter PMLN6095. Noise Reduction Rating: 22 dB

RMN4053

742

\$388.00

IN-LINE PTT ADAPTER, GCAI
 PTT Nexus Adapter

PMLN6095A

742

\$316.00

RX ONLY HDBND HDST 3.5MM RT ANGLE P
 HT Series Listen Only Over-The-Head Headset with 3.5mm NON threaded connector. Noise Reduction Rating: 25 dB.
 APX radios require RSM: PMMN4062, PMMN4069 or PMMN4084

RMN4055B

742

\$110.00

AUDIO ACCESSORY-HEADSET,3M PELTOR HT SERIES LISTEN ONLY HEADSETHTM79B
 HT Series Listen Only Neckband Headset with 3.5mm NON threaded connector. Noise Reduction Rating: 24 dB.
 APX radios require RSM: PMMN4062, PMMN4069 or PMMN4084

RMN5132A

742

\$147.00

AUDIO ACCESSORY-HEADSET,3M PELTOR HT SERIES LISTEN ONLY HEADSETHTM79P
 HT Series Listen Only Hard Hat Attached Headset with 3.5mm NON threaded connector. Noise Reduction Rating: 23 dB.
 APX radios require RSM: PMMN4062, PMMN4069 or PMMN4084

RMN5133A

742

\$147.00

RX ONLY HRDHAT MNT 3.5MM RT ANGLE PLUG
 HT Series Listen Only Over-The-Head Headset with 3.5 threaded connector. Noise Reduction Rating: 25 dB.

RMN4056B

742

\$145.00

APX radios require RSM: PMMN4084.
 RECEIVE-ONLY HARDHAT MOUNT HEADSET WITH 3.5MM THREADED PLUG
 HT Series Listen Only Hard Hat Attached Headset with 3.5 threaded connector. Noise Reduction Rating: 23 dB.
 APX radios require RSM: PMMN4084.

RMN4057

742

\$125.00

Public Safety Microphones (PSMs) - APX 3000 ONLY

Description
 PSM IP55 WITH 3.5MM JACK RX 18IN
 IMPRES Windporting Public Safety Microphone (18 Inch cable) with 3.5mm NON-Threaded Audio Jack, Volume Control, Orange Button, IP Rating IP55, FM Approved.
 PSM Antenna needs to be purchased separately. The only antenna currently qualified to work with UHFR1 PSM is PMAE4065A
 PSM IP55 WITH 3.5MM JACK RX 24IN
 IMPRES Windporting Public Safety Microphone (24 Inch cable) with 3.5mm NON-Threaded Audio Jack, Volume Control, Orange Button, IP Rating IP55, FM Approved.
 PSM Antenna needs to be purchased separately. The only antenna currently qualified to work with UHFR1 PSM is PMAE4065A
 PSM IP55 WITH 3.5MM JACK RX 30IN
 IMPRES Windporting Public Safety Microphone (30 Inch cable) with 3.5mm NON-Threaded Audio Jack, Volume Control, Orange Button, IP Rating IP55, FM Approved.
 PSM Antenna needs to be purchased separately

Nomenclature
 PMMN4059B

APC
 372

Price
 \$164.00

PMMN4060B

372

\$164.00

PMMN4061B

372

\$164.00

Remote Speaker Microphones (RSMs)

Description
 IMPRES RSM DSPLY W JACK, W CHNL
 IMPRES Display RSM with Audio Jack, Channel Selector, Volume Control, 2-Programmable Buttons and Orange Button, Windporting, Rugged, Submersible (IP68), Indoor/Outdoor use. FM Approved and UL Approved
 IMPRES RSM DSPLY W JACK, NO CHNL
 IMPRES Display RSM with Audio Jack, Volume Control, 2-Programmable Buttons and Orange Button, Windporting, Rugged, Submersible (IP68), Indoor/Outdoor use. FM Approved and UL Approved
 IMPRES RSM NO DSPLY W JACK, NO CHNL
 IMPRES RSM with Audio Jack, Volume Control, 2-Programmable Buttons and Orange Button, Windporting, Rugged, Submersible (IP68), Indoor/Outdoor use. FM Approved and UL Approved
 APX7000 IMPRES RSM, NOISE CANG. EMERGENCY BUTTON 3.5MM JACK IP54
 IMPRES RSM with NON-Threaded Audio Jack, Orange Button, Noise Cancelling (IP54), Indoor use. FM Approved and UL Approved
 APX IMPRES RSM WVOL, IP57
 IMPRES RSM with Volume Toggle Switch, Orange Button and 1-Programmable Button, Windporting (IP57), Indoor/Outdoor use. FM Approved and UL Approved
 IMPRES RSM, 3.5MM AUDIO JACK
 IMPRES RSM with NON-Threaded Audio Jack, Windporting (IP55), Indoor use. FM Approved and UL Approved
 IMPRES RSM DELTA-T,
 IMPRES RSM Windporting, Rugged (IP68), Indoor/Outdoor use. FM Approved
 PLUS RSM NC IP54 THRD 3.5MM JACK RX

Nomenclature
 HMN4104B

APC
 372

Price
 \$375.00

HMN4103B

372

\$345.00

HMN4101B

372

\$300.00

PMMN4062A

372

\$107.00

PMMN4065A

372

\$97.00

PMMN4069A

372

\$110.00

PMMN4083A

795

\$125.00

PMMN4084A

795

\$95.00

IMPRES RSM with 3.5mm Threaded and NON-Threaded Audio Jack and Orange Button, Noise Cancelling (IP54). Indoor use. FM Approved				
AUDIO ACCESSORY-REMOTE SPEAKER MICROPHONE,IMPRES WINDPORTING RSM, IP55				
IMPRES Windporting RSM with Volume Toggle Switch, Orange Button, 3.5mm NON-Threaded Jack (IP55). Indoor use				
IMPRES XP RSM FOR APX W/ DUAL MIC NOISE SUPPRESSION				
IMPRES RSM with Dual microphone noise cancellation technology, Volume Control, 1-Programmable Button and Orange Button, Rugged, Submersible (IP68)				
IMPRES XP RSM FOR APX W/ DUAL MIC NOISE SUPPRESSION, 3.5MM THRDJACK				
IMPRES RSM with Dual microphone noise cancellation technology, 3.5mm threaded Jack, Volume Control, 1-Programmable Button and Orange Button (IP55)				
ACCESSORY KIT,APX WIRELESS RSM W/ DUC US/NA/JPTW				
APX Wireless RSM Kit: Includes battery, clip, dual-usb charger (DUC), and power supply				
MISSION CRITICAL WIRELESS RSM W/ BATTERY AND CLIP				
APX Wireless RSM: Includes battery and clip. DOES NOT INCLUDE CHARGER				

Remote Speaker Microphones (RSMs) Accessories and Replacement Parts

Description	Nomenclature	APC	Price
RX/TX BOOMLESS TEMPLE TRANSDUC			
Temple Transducer Headset will ONLY work with: Microphone Compatibility HMN4101, HMN4103, HMN4104. FM Approved and UL Approved			
RECEIVE-ONLY FOAM EARBUD WITH 3.5MM PLUG - INTRINSICALLY SAFE			
UL Approved			
RX ONLY EARPIECE W/TRANSLUCENT TUBE			
Compatible with HMN4104, HMN4103 and HMN4101 Remote Speaker Mics ONLY. FM Approved and UL Approved			
RECEIVE ONLY EARPIECE W/TRANSLUCENT TUBE			
EAR RCVR W/COIL CBL&3.5MM PLUG			
REPLACEMENT CLEAR ACOUSTIC TUBE			
RUBBER EAR TIP, CLEAR			
Pack of 10 clear rubber ear tips			
REPLACEMENT RUBBER EARTIPS, CLEAR - PACK OF 25			
FOAM EARPLUGS (PACK OF 50) - FOR USE WITH NTN8370			
Noise Reduction Rating = 26dB.			
DISPLAY RSM EXT CABLE			
DRSM INTERFACE CABLE NEXUS M-4			
DRSM INTERFACE CABLE HIROSE F-			
DISPLAY RSM GCAI, REPLACEABLE CABLE			
Replacement Coil Cord Kit for HMN4104, HMN4103 and HMN4101			
IMPRES RSM REPL COIL CORD			

Replacement Coil Cord Kit for PMMIN4082, PMMIN4085, PMMIN4089, PMMIN4083 and PMMIN4099
CHR STD DUC EXT US/INA/JPN/TAIWAN
 Wireless RSM Dual Unit Charger (desk charger). Includes power supply
CHR STD TRVL EXT REGION
 Wireless RSM Vehicular Charger
BATT STD LIION 1800T
 Wireless RSM Battery, 1800mA LiIon

PMLN7120A	785	\$36.00
PMLN6716A	785	\$72.00
PMNN4461A	453	\$65.00

Surveillance Kits (Wired)

Description	Nomenclature	APC	Price
IMPRES 3 WIRE W/ TRANS TUBE-BLK			
IMPRES 3-Wire Surveillance Kit with translucent tube, programmable button, black. FM Approved	PMLN6123A	742	\$173.00
IMPRES 3 WIRE W/ TRANS TUBE-BGE			
IMPRES 3-Wire Surveillance Kit with translucent tube, programmable button, beige. FM Approved	PMLN6124A	742	\$173.00
1 WIRE SURVEILLANCE KIT-BLACK			
1-Wire Receive-only earpiece, black. FM Approved	PMLN6125A	742	\$40.00
1 WIRE SURVEILLANCE KIT-BIEGE			
1-Wire Receive-only earpiece, beige. FM Approved	PMLN6126A	742	\$40.00
IMPRES 2 WIRE SURVEILLANCE -BLK			
IMPRES 2-Wire Surveillance Kit, programmable button, black. FM Approved	PMLN6127A	742	\$105.00
IMPRES 2 WIRE SURVEILLANCE-BGE			
IMPRES 2-Wire Surveillance Kit, programmable button, beige. FM Approved	PMLN6128A	742	\$105.00
SMART 2 WIRE W/TRANS TUBE BLK			
IMPRES 2-Wire Surveillance Kit with translucent tube, programmable button, black. FM Approved	PMLN6129A	742	\$122.00
SMART 2 WIRE W/TRANS TUBE BIEGE			
IMPRES 2-Wire Surveillance Kit with translucent tube, programmable button, beige. FM Approved	PMLN6130A	742	\$122.00
SPKR MIC W XLOAD EARPIECE			
3-Wire Surveillance Kit, with Extra Loud Earpiece, Beige, Hirose Connector. *APX series require NNTN7869 Hirose Adapter.	ZMNG6039	742	\$190.00
2-WIRE SURVEILLANCE KIT WITH MICROPHONE AND PTT COMBINED - EXTRA LOUD			
3-Wire Surveillance Kit, with Extra Loud Earpiece, Beige, Hirose Connector. *APX series require NNTN7869 Hirose Adapter.	ZMNG6038	476	\$149.00
3-WIRE SURVEILLANCE KIT WITH MICROPHONE & PTT COMBINED, BEIGE			
3-Wire Surveillance Kit, Beige, Hirose Connector. *APX series require NNTN7869 Hirose Adapter. *PR1500 requires NNTN8613 adapter.	ZMNG6031	742	\$177.00
2-WIRE SURVEILLANCE KIT WITH MICROPHONE AND PTT COMBINED			
2-Wire Surveillance Kit, Beige, Hirose Connector. Requires NNTN7869 Hirose Adapter. *PR1500 - requires NNTN8613 adapter.	ZMNG6032	476	\$143.00
EARPIECE RECEIVE ONLY WITH STANDARD EARPHONE - BEIGE (SINGLE WIRE)			
	BDN6664	742	\$40.00

<ul style="list-style-type: none"> 1-Wire Receive-Only Surveillance Kit with Earpiece, Beige, 3.5mm Threaded. *APX series require BDN6783 adapter. FM Approved with APX6000/6000XE and APXT7000/7000XE. *HT1000, XTS 2500, XTS 3000, & XTS 5000 require BDN6676 adapter. If being used with Remote Speaker Microphone with 3.5mm audio jack, audio adapter is not required. *EX500 & EX600 XLS require PMLN4455 adapter. FM Approved. *PR1500 requires BDN6676 adapter. FM Approved. 	BDN6726	742	\$40.00
EARPIECE RECEIVE ONLY WITH STANDARD EARPHONE - BLACK (SINGLE WIRE)			
<ul style="list-style-type: none"> 1-Wire Receive-Only Surveillance Kit with Earpiece, Black, 3.5mm Threaded. *APX series require BDN6783 adapter. FM Approved with APX6000/6000XE and APXT7000/7000XE. *HT1000 & XTS 3000 require BDN6676 adapter. If being used with Remote Speaker Microphone with 3.5mm audio jack, audio adapter is not required. *EX500 & EX600 XLS require PMLN4455 adapter. FM Approved. *PR1500 requires BDN6676 adapter. FM Approved. 	BDN6665	742	\$42.00
EARPIECE RECEIVE ONLY WITH EXTRA LOUD EARPHONE - BEIGE (SINGLE WIRE)			
<ul style="list-style-type: none"> 1-Wire Receive-Only Surveillance Kit with Extra-Loud Earpiece, Beige, 3.5mm Threaded. *APX series require BDN6783 adapter. FM Approved with APX6000/6000XE and APXT7000/7000XE. *HT1000, XTS 2500, XTS 3000, & XTS 5000 require BDN6676 adapter. If being used with Remote Speaker Microphone with 3.5mm audio jack, audio adapter is not required. *EX500 & EX600 XLS require PMLN4455 adapter. FM Approved. *PR1500 requires BDN6676 adapter. FM Approved. 	BDN6727	742	\$42.00
RECEIVE ONLY EARPIECE WITH EXTRA LOUD EARPHONE - BLACK (SINGLE WIRE)			
<ul style="list-style-type: none"> 1-Wire Receive-Only Surveillance Kit with Extra-Loud Earpiece, Black, 3.5mm Threaded. *APX series require BDN6783 adapter. FM Approved with APX6000/6000XE and APXT7000/7000XE. *HT1000 & XTS 3000 require BDN6676 adapter. If being used with Remote Speaker Microphone with 3.5mm audio jack, audio adapter is not required. *EX500 & EX600 XLS require PMLN4455 adapter. FM Approved. *PR1500 requires BDN6676 adapter. FM Approved. 	BDN6666	742	\$53.00
EARPIECE RECEIVE ONLY WITH VOLUME CONTROL - BEIGE (SINGLE WIRE)			
<ul style="list-style-type: none"> 1-Wire Receive-Only Surveillance Kit with Volume Control and Earpiece, Beige, 3.5mm Threaded. *APX series require BDN6783 adapter. FM Approved with APX6000/6000XE and APXT7000/7000XE. *HT1000, XTS 2500, XTS 3000, & XTS 5000 require BDN6676 adapter. If being used with Remote Speaker Microphone with 3.5mm audio jack, audio adapter is not required. *EX500 & EX600 XLS require PMLN4455 adapter. FM Approved. *PR1500 requires BDN6676 adapter. FM Approved. 	BDN6728	742	\$53.00
EARPIECE RECEIVE ONLY WITH VOLUME CONTROL - BLACK (SINGLE WIRE)			
<ul style="list-style-type: none"> 1-Wire Receive-Only Surveillance Kit with Volume Control and Earpiece, Black, 3.5mm Threaded. *APX series require BDN6783 adapter. FM Approved with APX6000/6000XE and APXT7000/7000XE. *XTS 3000 requires BDN6676 adapter. If being used with Remote Speaker Microphone with 3.5mm audio jack, audio adapter is not required. *XTS 2500 & XTS 5000 requires new adapter. FM Approved. *EX500 & EX600 XLS require PMLN4455 adapter. FM Approved. *PR1500 requires BDN6676 adapter. FM Approved. 	BDN6667	742	\$114.00
EARPIECE WITH MICROPHONE & PTT COMBINED - BEIGE (2 WIRE)			
<ul style="list-style-type: none"> 2-Wire Receive-Only Surveillance Kit with Earpiece, Beige, 3.5mm Threaded. *APX series require BDN6783 adapter. FM Approved with APX6000/6000XE and APXT7000/7000XE. *XTS 2500, XTS 3000 & XTS 5000 require BDN6676 adapter. If being used with Remote Speaker Microphone with 3.5mm audio jack, audio adapter is not required. *EX500 & EX600 XLS require PMLN4455 adapter. FM Approved. *PR1500 requires BDN6676 adapter. FM Approved. 	BDN6729	742	\$114.00
EARPIECE WITH MICROPHONE & PTT COMBINED - BLACK (2 WIRE)			

*APX series require BDN6783 adapter.
 CMFRT EARPC W/MIC & PTT BLK
 Wire Receive-Only Surveillance Kit with Translucent Tube, Black, 3.5mm Threaded.
 *APX series require BDN6783 adapter.

RLN5312B 742 \$123.00

[Surveillance \(Wired\) Accessory Replacement Parts](#)

Description	Nomenclature	APC	Price
QUICK DISCONNECT ACOUSTIC TUBE	RLN6242A	742	\$7.90
REPLACEMENT EAR TIPS, CLEAR-50/PAK	RLN6282A	742	\$45.25
FOAM EARPLUGS (PACK OF 50) - FOR USE WITH NTN8370 Noise Reduction Rating = 26dB.	5080384F72	644	\$117.00
SURVEILLANCE LOW NOISE KIT	RLN5886A	742	\$20.00
SURVEILLANCE HIGH NOISE KIT	RLN5887A	742	\$32.00
SMALL CUSTOM EARPIECE, RIGHT EAR	RLN4760	742	\$20.50
MEDIUM CUSTOM EARPIECE, RIGHT EAR	RLN4761	742	\$20.50
LARGE CUSTOM EARPIECE, RIGHT EAR	RLN4762	742	\$20.50
SMALL CUSTOM EARPIECE, LEFT EAR	RLN4763	742	\$20.50
MEDIUM CUSTOM EARPIECE, LEFT EAR	RLN4764	742	\$20.50
LARGE CUSTOM EARPIECE, LEFT EAR	RLN4765	742	\$20.50

[Useful Documents](#)

[Motorola Battery Warranty](#)

[IMPRES Battery Storage, Handling & Care Tips](#)

[APX Accessory Catalog](#)