REGULAR MEETING - OCTOBER 23, 2012

MBERED, that on this 23rd day of October A.D., 2012, there was begun and held MEETING of the Honorable Commissioners' Court of Hidalgo County, Texas, wherein the following members thereof were present, to-wit:

HONORABLE RAMON GARCIA	**HIDALGO COUNTY JUDGE**
HONORABLE JOEL QUINTANILLA	**COMMISSIONER, PRECINCT NO. 1**
HONORABLE HECTOR "TITO" PALACIOS	**COMMISSIONER, PRECINCT NO. 2**
HONORABLE JOSEPH PALACIOS	**COMMISSIONER, PRECINCT NO. 4**

and ARTURO GUAJARDO, JR., COUNTY CLERK & EX-OFICIO CLERK OF THE COMMISSIONERS' COURT of Hidalgo County, Texas, wherein the following proceedings were had, to-wit:

Create	0031	Internal Auditor III	13

2. Approval of revised salary schedule.

On motion by COMMISSIONER, PCT. 4 JOSEPH PALACIOS, seconded by COMMISSIONER, PCT. 2 HECTOR PALACIOS , the Court made a UNANIMOUS vote to approve items 13.B.1 & 2.

Vote: 3 - 0 - Unanimously

14. Elections Administration - Yvonne Ramon:

A. Discussion and/or action, including but not limited to Elections updates

Ms. Ramon notified the Court that there is a rise in voter turnout and mail in ballots during this Early Voting. She encouraged everyone to go out and vote and disclosed the various locations.

15. Head Start Program - Teresa Flores:

A. Presentation of Bids Received as Detailed in Tabulation Sheet Contained Herein, Meeting all Specifications and/or Requirements for the Purpose of Award and Approval of Contract for Request for Bid Titled: "Building Relocation Palmview I Center" Through Project No.:2012-024-10-10

On motion by COMMISSIONER, PCT. 4 JOSEPH PALACIOS, seconded by COMMISSIONER, PCT. 2 HECTOR PALACIOS , the Court made a UNANIMOUS vote of approval.

Vote: 3 - 0 - Unanimously

B. Discussion, Approval and Appointment of One (1) Community Representative by Each Member of the Commissioners' Court to Serve on the Hidalgo County Head Start Program Policy Council, for a One (1) Year Term According to 45 CFR Chapter XIII, 1304.50(b)(1)-(b)(7) Beginning October 2012

NO ACTION taken on this item.

16. Budget & Management - Sergio Cruz:

A. Presentation for discussion, consideration and applicable action to the following and any other topic relevant to this project as follows:

1) Acceptance and approval to update Hidalgo County Sheriff Department's current communication systems by means of procurement through the County's membership with Houston Galveston Area Council (H-GAC Contract #RA05-12) through awarded vendor "Motorola Solutions, Inc." the purchase of radio communications equipment/license and maintenance support/warranties and any other pertinent accessories applicable to the upgrading in an amount of $7,991,778.68 by means of financing which includes the H-GAC administration fee; and

On motion byCOMMISSIONER, PCT. 2 HECTOR PALACIOS, seconded byCOMMISSIONER, PCT. 4 JOSEPH PALACIOS, the Court made a UNANIMOUS vote of approval in the corrected amount of $7,991,778.66.

APPROVED

AI-34857 **Budget and Management** **16. A.**
CC REGULAR
Meeting Date: 10/23/2012
Submitted For: Sergio Cruz **Submitted By:** Vangie Garcia, PURCHASING DEPT.
Department: PURCHASING DEPT.

Information

CAPTION

Presentation for discussion, consideration and applicable action to the following and any other topic relevant to this project as follows:

1) Acceptance and approval to update Hidalgo County Sheriff Department's current communication systems by means of procurement through the County's membership with Houston Galveston Area Council (H-GAC Contract #RA05-12) through awarded vendor "Motorola Solutions, Inc." the purchase of radio communications equipment/license and maintenance support/warranties and any other pertinent accessories applicable to the upgrading in an amount of $7,991,778.68 by means of financing which includes the H-GAC administration fee; and

2) Acceptance and approval of the "System Purchase Agreement-Radio Systems" as reviewed and approved by legal for the above aforementioned under line item a; and

3) Acceptance and approval of Equipment Lease-Purchase Agreement No. 23355 in the amount of $7,991,778.68 between Motorola Solutions, Inc. and Hidalgo County, Texas with authority for County Judge to sign all related documents for the financing purposes.

BACKGROUND

Attachments

Motorola
Lease

Form Review

Inbox	Reviewed By	Date
Budget & Management	Merlen P. Munoz	10/22/2012 11:18 AM
Manuel Chapa	Angela Garcia	10/25/2012 02:16 PM
Budget & Management	Merlen P. Munoz	10/22/2012 11:18 AM
Manuel Chapa	Angela Garcia	10/25/2012 02:16 PM
Auditor's Office		
Purchasing Department		

Form Started By: Vangie Garcia Started On: 10/19/2012 04:19 PM

ATLAS, HALL & RODRIGUEZ, LLP
ATTORNEYS AT LAW

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FAX (956) 574-9337

October 23, 2012

Motorola Credit Corporation
1301 E. Algonquin Rd.
Schaumburg, IL 60196

Ladies and Gentlemen:

We have acted as counsel to County of Hidalgo ("Lessee"), in connection with the County of Hidalgo Equipment Lease-Purchase Agreement No. 23355, dated October 23, 2012 by and between Motorola, Inc. as Lessor ("Lessor") and County of Hidalgo as Lessee (the "Lease").

In expressing the opinion below we have examined and relied upon the Lease between Motorola, Inc. and County of Hidalgo.

In addition, we have examined and relied upon the originals, or copies certified or otherwise identified to our satisfaction as being true copies of authentic originals, and such other documents, certificates and laws as we have deemed necessary in order to render the opinions set forth herein.

In rendering the opinions expressed below, we have assumed (i) the genuineness of all signatures on original documents except the signatures on behalf of the Motorola Credit Corporation, and its agents or officers, (ii) the due authorization, execution and delivery by all parties of all documents that we have examined, (iii) the genuineness of all signatures on conformed copies, (iv) the legal capacity of natural persons, (v) the conformity to authentic original documents of all documents submitted to us as copies, and (vi) the enforceability of all documents against all parties thereto. Based upon and subject to the foregoing and the other limitations, qualifications, assumptions and exceptions set forth herein, we are of the opinion, having due regard for such legal considerations as we deem relevant, that:

1. The Lessee is, within the meaning of Section 103 of the Internal Revenue Code of 1986, a state or a fully constituted political subdivision or agency of the State of the Equipment Location described in Schedule A of the Lease;

2. The execution, delivery and performance by the Lessee of the Lease have been duly authorized by all necessary action on the part of the Lessee,

3. The Lease constitutes a legal, valid and binding obligation of the Lessee enforceable in accordance with its terms; and

4. Lessee has sufficient monies available to make all payments required to be paid under the Lease during the current fiscal year of the Lease, and such monies have been properly budgeted and appropriated for this purpose in accordance with State law.

The above opinions may be relied upon by the Lessee, Lessor, or its assigns.

We are furnishing this letter solely for your benefit at the request of the County of Hidalgo. This opinion is not to be used, circulated, quoted or otherwise referred to for any other purpose, nor is it to be relied upon by any other person or entity or by you in any other context without our express written consent.

This opinion is as of the date hereof, and we undertake no obligation to supplement the opinions set forth herein as facts and circumstances come to our attention or changes in the law occur which could affect such opinions.

Very truly yours,

Atlas, Hall & Rodriguez, LLP

ATLAS, HALL & RODRIGUEZ, LLP

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P25 MIGRATION CONTRACT BOOK

MOTOROLA

The design, technical, and cost information furnished with this proposal is proprietary information of Motorola Solutions, Inc. (Motorola). Such information is submitted with the restriction that it is to be used only for the evaluation of the proposal, and is not to be disclosed publicly or in any manner to anyone other than those required to evaluate the proposal, without the express written permission of Motorola Solutions, Inc.

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Purchase Agreement

SECTION 1

SYSTEM PURCHASE AGREEMENT

P25 MIGRATION CONTRACT BOOK **28 SEPTEMBER 2012**

MOTOROLA

The design, technical, and cost information furnished with this proposal is proprietary information of Motorola Solutions, Inc. (Motorola). Such information is submitted with the restriction that it is to be used only for the evaluation of the proposal, and is not to be disclosed publicly or in any manner to anyone other than those required to evaluate the proposal, without the express written permission of Motorola Solutions, Inc.

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SECTION 1

SYSTEM PURCHASE AGREEMENT

The System Purchase Agreement is included on the following pages.

This page intentionally left blank.

SYSTEM PURCHASE AGREEMENT (Radio Systems)

THIS AGREEMENT ("Agreement") is made and entered into this 24th day of October, 2012 by and between Motorola Solutions, Inc., a Delaware corporation duly authorized to conduct business in the State of Texas ("Motorola" or "Seller") and Hidalgo County, Texas, a body corporate and politic ("Purchaser").

WITNESSETH:

WHEREAS, the Purchaser desires to purchase a Communications System; and

WHEREAS, Motorola desires to sell a Communications System to Purchaser; and

WHEREAS, Houston-Galveston Area Council ("H-GAC"), acting as the agent for various local governmental entities who are "End Users" under interlocal agreements (including the Purchaser) has solicited proposals for radio communications equipment and conducted discussions with Motorola concerning its proposal and, where applicable, in accordance with the competitive procurement procedures of Texas law; and

WHEREAS, on May 30th, 2012 H-GAC and Motorola entered into a contract (the "Contract"), which provides that End Users may purchase radio communications equipment from Motorola pursuant to certain terms contained therein; and

WHEREAS, pursuant to Article 6 of the Contract, Motorola and Purchaser now wish to enter into this System Purchase Agreement to delineate the specific terms of the purchase of radio communications equipment from Motorola by the Purchaser.

THEREFORE, the parties hereby enter into an agreement pursuant to which Motorola shall perform the work and furnish the equipment and services as more fully set forth herein and in the following exhibits, which are either attached hereto or incorporated by reference and hereby made a part of this Agreement:

Exhibit A	General Provisions.
Exhibit B	Motorola Software License Agreement.
Exhibit C	Technical and Implementation Documents, consisting of: System Description, System Drawings, Equipment List, Acceptance Test Plan, Statement of Work, Training Plan, Warranty and Maintenance Plan, Pricing Summary, all dated September 28, 2012.
Exhibit D	May 30, 2012 Motorola/H-GAC Contract
Exhibit E	Warranty and Maintenance Plan and Service Terms and Conditions (if applicable).

NOW, THEREFORE, for and in consideration of the mutual promises and covenants contained herein, the parties agree as follows:

Section 1 SCOPE OF WORK

A. Motorola shall furnish all of the equipment and software as outlined in Exhibit C and provide the tools, supplies, labor and supervision necessary for the installation of the items purchased in accordance with Exhibit C.

B. In addition to responsibilities described in the Statement of Work, Purchaser shall perform the following coincident with the performance of this Agreement:

(1) Provide a designated Project Director.

(2) Provide ingress and egress to Purchaser's facilities and/or sites as requested by Motorola and have such facilities available for installation of the equipment to be installed.

(3) Provide adequate telephone or other communications lines (including modem access and adequate interfacing networking capabilities) for the installation, operation and support of the equipment.

(4) Provide adequate space, air conditioning and other environmental conditions, and adequate and appropriate electrical power outlets, distribution, equipment and connections for the installation, operation and support of the equipment.

(5) Provide a designated work area with adequate heat and light, and a secure storage area for equipment delivered to the Purchaser. The Purchaser shall be solely liable for loss or damage to equipment prior to, during and following installation when such equipment is on or within Purchaser's facilities and/or vehicles.

Section 2 SITES

This Agreement is predicated on the utilization of sites and site configurations, which have been selected either by the Purchaser or by Motorola and set forth in Exhibit C. In either situation, should it be determined by either Motorola or Purchaser during the course of performance on this Agreement that the sites or configuration selected are no longer available or desired, new or replacement sites or configuration will be selected and approved by both Motorola and the Purchaser. If any price or schedule adjustments are necessary as a result of these new or replacement sites, such adjustments will be added to this Agreement by change order in accordance with Section 4 of the General Provisions.

Section 3 SUBSURFACE/STRUCTURAL CONDITIONS

This Agreement is predicated upon normal soil conditions defined by E.I.A. standard RS-222 (latest revision). Should Motorola encounter subsurface, structural, adverse environmental and/or latent conditions at any site differing from those indicated on the specifications, or as used in the preparation of the bid price, the Purchaser will be given immediate notice of such

conditions before they are further disturbed. Thereupon, Motorola and the Purchaser shall promptly investigate the conditions and, if found to be different, will adjust the plans and/or specifications as may be necessary. Any changes that cause an adjustment in the contract price or in time required for the performance of any part of the contract shall result in a contract modification in accordance with Section 4 of the General Provisions.

Section 4 PERIOD OF PERFORMANCE

A. Motorola projects that it will be able to obtain final acceptance and completion of the Acceptance Test Plan within the time interval specified in Exhibit C (if applicable). A more detailed timeline shall be provided to Purchaser after the design review and customer kick-off meeting.

B. Whenever a party knows or reasonably should know that any actual or potential condition due to circumstances beyond its control is delaying or threatens to delay the timely performance of the work, the party shall within thirty (30) days give the other party notice thereof and may request an extension of time to perform the work.

C. In order to successfully integrate and implement this project, shipments will be made F.O.B. Destination to Purchaser facilities, local Motorola staging facilities, warehousing facilities, or any combination thereof. It is agreed that this plan is acceptable to Purchaser and that Motorola will advise prior to shipment of actual destination and that Purchaser will accept shipment, and make payment as required by this Agreement.

D. It is also agreed that equipment shipping dates reflected in this Agreement are estimates only, and that shipment may be made at any time prior to, or subsequent to these estimated shipping dates.

Section 5 ACCEPTANCE CRITERIA

A. Motorola will test the Communications System in accordance with the Acceptance Test Plan. System acceptance will occur upon the successful completion of such testing ("System Acceptance") at which time both parties shall promptly execute a certificate of system acceptance. If the Acceptance Test Plan includes separate tests for individual subsystems or phases of the System, both parties shall promptly execute certificates of subsystem acceptance upon the successful completion of testing of such subsystems or phases. Minor omissions or variances in performance which do not materially affect the operation of the Communications System as a whole will not postpone System Acceptance. Purchaser and Motorola will jointly prepare a list of such omissions and variances which Motorola will correct according to an agreed upon schedule.

B. Motorola agrees to notify Purchaser when the Communications System is ready for acceptance testing. Motorola and Purchaser agree to commence acceptance testing within ten (10) business days after receiving such notification. If testing is delayed for reasons within the control of Purchaser or its employees, contractors, agents or consultants for more than ten (10) business days after notification, final payment will be due within thirty (30) days after such notification and the Warranty Period will commence immediately.

C. Motorola may, but is not obligated to, issue written authorization for Purchaser to use the Communications System or its subsystem(s) for limited training or testing purposes, prior to the completion of testing by Motorola. Any use of the Communications System without prior written authorization by Motorola shall constitute System Acceptance.

Section 6 PAYMENT SCHEDULE

Motorola agrees to sell all of the equipment and perform the services as outlined in the Scope of Work, and Purchaser agrees to buy the aforementioned equipment and services for the sum of Seven Million Nine Hundred Ninety One Thousand Seven Hundred Seventy Eight Dollars and Sixty Six Cents ($7,991,778.66), which includes the H-GAC administration fee. The final price may be adjusted by change orders approved pursuant to Statement of Work attached hereto as Exhibit "C".

B. Customer will make a down payment of $0.00 in the form of a wire transfer, check, or cashier's check from a U.S. financial institution. The balance of the purchase price will be paid via the disbursement of the financing proceeds pursuant to the Equipment Lease-Purchase Agreement No. 23355 executed between the parties. For customer's reference, the Federal Tax Identification number for Motorola is 36-1115800.

Motorola reserves the right to make partial shipments of equipment and to request payment upon shipment of such equipment. In addition, Motorola reserves the right to invoice for installations or civil work completed on a site-by-site basis, when applicable.

C. In the event of failure or delay by the Purchaser in providing sites, space, approvals, licenses, or any other Purchaser obligations required preceding delivery of Motorola equipment, it is agreed that Motorola, at its sole discretion, may ship equipment as planned and that the Purchaser will accept the equipment and make payment in accordance with the terms of this Agreement. Any additional costs incurred by Motorola for storage of equipment will be invoiced and paid by Purchaser.

D. For any additional payments, payments to Motorola shall be made as follows:

(i) Motorola shall immediately forward an invoice for the payment requested in Section 6(B) above to Purchaser.

(ii) Purchaser shall pay the Motorola invoice within thirty (30) calendar days of receipt.

E. Motorola will pay H-GAC's administrative fee in accordance with the payment terms of Motorola/H-GAC Contract dated May 25, 2012.

F. TERM. Unless terminated in accordance with other provisions of this Agreement or extended by mutual agreement of the Parties, the term of this Agreement begins on the date as set forth above and continues until the date of Final Project Acceptance or expiration of the Warranty Period, whichever occurs last.

Section 7 PROJECT MANAGEMENT

A. If the size or complexity of the project warrants, Motorola will assign a Project Manager, who is authorized to exercise technical direction of this project. Motorola, at any time, may designate a new or alternate Project Manager with written notice to Purchaser and H-GAC.

B. All matters affecting the terms of this Agreement or the administration thereof shall be referred to Motorola's cognizant Contract Administrator who shall have authority to negotiate changes in or amendments to this Agreement.

Section 8 NOTICE ADDRESSES

A. Motorola Solutions, Inc.
1303 East Algonquin Road
Schaumburg, IL 60196
Attn.: Law Department

B. Hidalgo County
Attn: County Judge
100 E. Cano Street, 2nd Floor
Edinburg, Texas 78539

C. Houston-Galveston Area Council
3555 Timmons Lane, Suite 120
Houston, Texas 77027
Attn.: Public Services Manager

Section 9 ORDER OF PRECEDENCE

In the event of an inconsistency in this Agreement, the inconsistency shall be resolved in the following order:

The main body of this Agreement.

Exhibit A General Provisions.

Exhibit B Motorola Software License.

Exhibit C Technical and Implementation Documents, consisting of: System Description, System Drawings, Equipment List, Acceptance Test Plan, Statement of Work, Training Plan, Warranty and Maintenance Plan, Pricing Summary.

Exhibit E Warranty and Maintenance Plan and Service Terms and Conditions (if applicable)

Exhibit D May 30, 2012 Motorola/H-GAC Contract

Section 10 DISPUTES

Motorola and the Purchaser will attempt to settle any claim or controversy arising out of this Agreement through consultation and negotiation in good faith and a spirit of mutual cooperation. If those attempts fail, then the dispute will be mediated by a mutually acceptable mediator to be chosen by Motorola and the Purchaser within thirty (30) days after written notice by one of the parties demanding non-binding mediation. Neither party may unreasonably withhold consent to the selection of a mediator. Motorola and the Purchaser will bear their own costs but will share the cost of the mediator equally. By mutual agreement, however, Motorola and Purchaser may postpone mediation until both parties have completed some specified but limited discovery about the dispute. The parties may also agree to replace mediation with some other form of non-binding alternate dispute resolution procedure ("ADR").

Any dispute which cannot be resolved between the parties through negotiation or mediation within two (2) months of the date of the initial demand for it by one of the parties may then be submitted to a court of competent jurisdiction in Texas. Both Motorola and Purchaser consent to jurisdiction over it by such a court. All communications pursuant to the negotiation and mediation will be treated as compromise and settlement negotiations for purposes of applicable rules of evidence and any additional confidentiality protections provided by applicable law. The use of any ADR procedures will not be considered under the doctrine of laches, waiver or estoppel to affect adversely the rights of either party. Nothing shall prevent either of the parties from resorting to the judicial proceedings mentioned in this paragraph if (a) good faith efforts to attempt resolution of the dispute under these procedures have been unsuccessful or (b) interim relief from the court is necessary to prevent serious and irreparable injury to one of the parties or others.

Section 11 SEVERABILITY

If any portion of this Agreement or any exhibits hereto is held to be invalid, such provision or portion of such provision shall be considered severable, and the remainder of this Agreement shall not be affected.

Section 12 HEADINGS AND SECTION REFERENCES

The headings given to the paragraphs are inserted for convenience only and are in no way to be construed as part of this Agreement or as a limitation of the scope of the particular paragraph to which the heading refers.

Section 13 SURVIVAL OF TERMS

The following provisions will survive the expiration or termination of this Agreement for any reason: Section 6 (Payment Schedule) if any payment obligations exist; Section 9 (Order of Precedence); Section 10 (Disputes); Section 11 (Severability); Section 12 (Headings and Section References); Section 13 (Survival of Terms) and Section 14 (Full Agreement).

Section 14 FULL AGREEMENT

This Agreement and its Exhibits constitute the final expression of the agreement of the parties and supersedes all previous agreements and understandings, whether written or oral, relating to the work. This Agreement may be executed in multiple counterparts, each of which shall be an original and all of which shall constitute one and the same instrument. A facsimile copy or computer image, such as a PDF or tiff image, or a signature shall be treated as and shall have the same effect as an original signature. In addition, a true and correct facsimile copy or computer image of this Agreement shall be treated as and shall have the same effect as an original signed copy of this document. This Agreement may not be altered, amended, or modified except by written instrument signed by duly authorized representatives of the parties. The preprinted terms and conditions found on any Purchaser purchase order, acknowledgment or other form will not be considered an amendment or modification of this Agreement, even if a representative of each party signs that document.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly authorized representatives as of the last day and year written below.

MOTOROLA SOLUTIONS, INC.	**PURCHASER**
By: _____ (Signature)	By: _____ (Signature)
Name: Edward Fuerst (Print - Block Letters)	Name: Ramon Garcia (Print - Block Letters)
Title: MSSS) Vice President (Print - Block Letters)	Title: County Judge (Print - Block Letters)
Date: 10/18/2012	Date: 10-24-2012

Approved by Commissioners' Court
on 10/23/12 RO

Motorola Solutions, Inc.

October 19, 2012

Mr. Sergio Cruz
County of Hidalgo
2818 S. Business Highway 281
Edinburg TX 78539

Dear Mr. Cruz:

Enclosed for your review, please find the **Municipal Lease** documentation in connection with the radio equipment to be leased from Motorola. The interest rate and payment streams outlined in Equipment Lease-Purchase Agreement #23355 are valid for contracts that are executed and returned to Motorola on or before **October 25, 2012**. This offer to finance further assumes that the attached "Financing Commitment Letter" will be signed and returned to the Lessor as specified in the Rate Lock section of the letter. It is acceptable to fax the commitment document to 847-538-4437 or scan and email to bill.stancik@motorolasolutions.com. Originals should be sent overnight to the address listed below.

After **10/25/12** the Lessor reserves the option to re-quote and re-price the transaction based on current market interest rates or pursue any remedies that are available under the terms of the Financing Commitment letter.

Please have the documents executed where indicated and forward the documents to the following address:

Motorola Solutions, Inc.
Attn: Bill Stancik / 9th Floor
1303 E. Algonquin Rd
Schaumburg, IL 60196

Should you have any questions, please contact me at 847-538-4531.

Thank You,

MOTOROLA SOLUTIONS CREDIT COMPANY LLC
Bill Stancik

HIDALGO COUNTY
BUDGET OFFICE
2012 OCT 23 PM 4 54

Financing Commitment Letter

Lessor:	Motorola Solutions, Inc.
Lessee:	County of Hidalgo, TX
Amount Financed:	$7,991,778.66
Term:	10.21 years
Payment Terms:	10 Annual (arrears) payments of $911,620.93. 1st payment due January 15, 2014, remaining 9 payments due annually thereafter (see attached Schedule B amortization)
Interest Rate:	**2.374%**
Execution date of: Lease	on or before October 25, 2012
Documentation:	Offer and commitment are predicated upon the use of mutually agreed upon documentation, subject to applicable state and local laws.
Rate Lock:	In order to lock the interest rate, Lessee will need to execute this commitment letter and return it to the Lessor on or before 4:30 pm (cst) on 10/23/2012. The executed commitment letter can be faxed to 847-538-4437 or an electronic copy can be sent to bill.stancik@motorolasolutions.com. Upon receiving the executed commitment letter, the stated interest rate and the rate outlined in Equipment Lease-Purchase Agreement #23355 will be locked. Lessor may intend to protect itself from interest rate fluctuations by purchasing an interest rate swap for this transaction or use some other means to minimize its interest rate exposure. If for any reason the Lessee fails to enter into a Lease Agreement (containing the terms and conditions outlined herein) with the Lessor on or before October 25, 2012, the Lessee agrees to pay all costs associated with terminating the interest rate swap or any other costs the Lessor may have related to terminating this transaction.
Lessee Insurance:	Lessee to be insured through a commercial carrier or self-insurance and provide evidence of coverage amount and type (fire and extended coverage, public liability and property damage insurance) as contractually required.
Fees or Closing Costs:	None. However, the Lessee will be responsible for any of its own fees or expenses, or those of any attorneys, consultants or advisors it may engage.

Agreed and accepted this 24th **day of October, 2012.**

County of Hidalgo

By: Ramon Garcia

Title: County Judge

Approved by Commissioners' Court
on 10/23/12-RO

LESSEE FACT SHEET

Please help Motorola Solutions, Inc. provide excellent billing service by providing the following information:

1. Complete **Billing** Address: County of Hidalgo
   2818 S. Business Hwy. 281
   Edinburg, TX 78539

   Attention: Sergio Cruz

   Phone: 956-292-7025

2. Lessee County Location: _____

3. Federal Tax I.D. Number: 74-6000717

4. Purchase Order Number to be referenced on invoice (if necessary) or other "descriptions" that may assist in determining the applicable cost center or department: _____

5. Equipment description that you would like to appear on your invoicing: _____

Appropriate Contact for Documentation / System Acceptance Follow-up:

6. Appropriate Contact & Mailing Address:
   Richard Ozuna
   Sheriff's Office
   711 El Cibolo Road
   Edinburg, TX 78541

   Phone: 956-383-8114

   Fax: 956-393-6179

7. Payment remit to address:

Motorola Credit Corp.
P.O. Box 71132
Chicago IL 60694-1132

Thank you

EQUIPMENT LEASE-PURCHASE AGREEMENT

Lease Number: 23355

LESSEE:

County of Hidalgo
2818 S. Business Highway 281
Edinburg TX 78539

LESSOR:

Motorola Solutions, Inc.
1303 E. Algonquin Rd.
Schaumburg, IL 60196

Lessor agrees to lease to Lessee and Lessee agrees to lease from Lessor, the Equipment described in any Schedule A now or hereafter attached hereto ("Equipment") in accordance with the following terms and conditions of this Equipment Lease-Purchase Agreement ("Lease").

1. TERM. This Lease will become effective upon the execution hereof by Lessor. The Term of this Lease will commence on date specified in Schedule A and unless terminated according to terms hereof or the purchase option, provided in Section 18, is exercised this Lease will continue until the Expiration Date set forth in Schedule B attached hereto ("Lease Term").

2. RENT. Lessee agrees to pay to Lessor or its assignee the Lease Payments (herein so called), including the interest portion, in the amounts specified in Schedule B. The Lease Payments will be payable without notice or demand at the office of the Lessor (or such other place as Lessor or its assignee may from time to time designate in writing), and will commence on the first Lease Payment Date as set forth in Schedule B and thereafter on each of the Lease Payment Dates set forth in Schedule B. Any payments received later than ten (10) days from the due date will bear interest at the highest lawful rate from the due date. Except as specifically provided in Section 5 hereof, the Lease Payments will be absolute and unconditional in all events and will not be subject to any set-off, defense, counterclaim, or recoupment for any reason whatsoever. Lessee reasonably believes that funds can be obtained sufficient to make all Lease Payments during the Lease Term. It is Lessee's intent to make Lease Payments for the full Lease Term if funds are legally available therefor and in that regard Lessee represents that the Equipment will be used for one or more authorized governmental or proprietary functions essential to its proper, efficient and economic operation.

3. DELIVERY AND ACCEPTANCE. Lessor will cause the Equipment to be delivered to Lessee at the location specified in Schedule A ("Equipment Location"). Lessee will accept the Equipment as soon as it has been delivered and is operational. Lessee will evidence its acceptance of the Equipment by executing and delivering to Lessor a Delivery and Acceptance Certificate in the form provided by Lessor.

Even if Lessee has not executed and delivered to Lessor a Delivery and Acceptance Certificate, if Lessor believes the Equipment has been delivered and is operational, Lessor may require Lessee to notify Lessor in writing (within five (5) days of Lessee's receipt of Lessor's request) whether or not Lessee deems the Equipment (i) to have been delivered and (ii) to be operational, and hence be accepted by Lessee. If Lessee fails to so respond in such five (5) day period, Lessee will be deemed to have accepted the Equipment and be deemed to have acknowledged that the Equipment was delivered and is operational as if Lessee had in fact executed and delivered to Lessor a Delivery and Acceptance Certificate.

4. REPRESENTATIONS AND WARRANTIES. Lessor acknowledges that the Equipment leased hereunder is being manufactured and installed by Motorola Solutions, Inc. pursuant to contract (the "Contract") covering the Equipment. Lessee acknowledges that on or prior to the date of acceptance of the Equipment, Lessor intends to sell and assign Lessor's right, title and interest in and to this Agreement and the Equipment to an assignee ("Assignee"). LESSEE FURTHER ACKNOWLEDGES THAT EXCEPT AS EXPRESSLY SET FORTH IN THE CONTRACT, LESSOR MAKES NO EXPRESS OR IMPLIED WARRANTIES OF ANY NATURE OR KIND WHATSOEVER, AND AS BETWEEN LESSEE AND THE ASSIGNEE, THE PROPERTY SHALL BE ACCEPTED BY LESSEE "AS IS" AND "WITH ALL FAULTS". LESSEE AGREES TO SETTLE ALL CLAIMS DIRECTLY WITH LESSOR AND WILL NOT ASSERT OR SEEK TO ENFORCE ANY SUCH CLAIMS AGAINST THE ASSIGNEE. NEITHER LESSOR NOR THE ASSIGNEE SHALL BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER AS A RESULT OF THE LEASE OF THE EQUIPMENT, INCLUDING WITHOUT LIMITATION, LOSS OF PROFITS, PROPERTY DAMAGE OR LOST PRODUCTION WHETHER SUFFERED BY LESSEE OR ANY THIRD PARTY.

Lessor is not responsible for, and shall not be liable to Lessee for damages relating to loss of value of the Equipment for any cause or situation (including, without limitation, governmental actions or regulations or actions of other third parties).

5. NON-APPROPRIATION OF FUNDS. Notwithstanding anything contained in this Lease to the contrary, in the event the funds appropriated by Lessee's governing body in any fiscal period of Lessee for Lease Payments or other amounts due under this Lease are insufficient therefor, this Lease shall terminate on the last day of the fiscal period for which appropriations were received without penalty or expense to Lessee of any kind whatsoever, except as to the portions of Lease Payments or other amounts herein agreed upon for which funds shall have been appropriated and budgeted. The Lessee will immediately notify the Lessor or its Assignee of such occurrence. In the event of such termination, Lessee agrees to peaceably surrender possession of the Equipment to Lessor or its Assignee on the date of such termination, packed for shipment in accordance with manufacturer specifications and freight prepaid and insured to any location in the continental United States designated by Lessor. Lessor will have all legal and equitable rights and remedies to take possession of the Equipment. Notwithstanding the foregoing, Lessee agrees, to the extent not prohibited by law, that it will not cancel this Lease under the provisions of this Section if any funds are appropriated to it, or by it, for the acquisition, retention or operation of the Equipment for the fiscal period in which such termination occurs or the next succeeding fiscal period thereafter.

6. LESSEE CERTIFICATION. Lessee represents, covenants and warrants that: (i) Lessee is a state or a duly constituted political subdivision or agency of the state of the Equipment Location; (ii) the interest portion of the Lease Payments shall be excludable from Lessor's gross income pursuant to Section 103 of the Internal Revenue Code of 1986, as it may be amended from time to time (the "Code"); (iii) the execution, delivery and performance by the Lessee of this Lease have been duly authorized by all necessary action on the part of the Lessee; (iv) this Lease constitutes a legal, valid and binding obligation of the Lessee enforceable in accordance with its terms; (v) Lessee will comply with the information reporting requirements of Section 149(e) of the Code, and such compliance shall include but not be limited to the execution of information statements requested by Lessor; (vi) Lessee will not do or cause to be done any act which will cause, or by omission of any act allow, the Lease to be an arbitrage bond within the meaning of Section 148(a) of the Code; (vii) Lessee will not do or cause to be done any act which will cause, or by omission of any act allow, this Lease to be a private activity bond within the meaning of Section 141(a) of the Code; (viii) Lessee will not do or cause to be done any act which will cause, or by omission of any act allow, the interest portion of the Lease Payments to be or become includible in gross income for Federal income taxation purposes under the Code; and (ix) Lessee will be the only entity to own, use and operate the Equipment during the Lease Term.

Lessee represents, covenants and warrants that (i) it will do or cause to be done all things necessary to preserve and keep the Lease in full force and effect, (ii) it has complied with all public bidding and Bond Commission requirements (as defined in the Code) where necessary and by due notification presented this Lease for approval and adoption as a valid obligation on its part, and (iii) it has sufficient appropriations or other funds available to pay all amounts due hereunder for the current fiscal period.

If Lessee breaches the covenant contained in this Section, the interest component of Lease Payments may become includible in gross income of the owner or owners thereof for federal income tax purposes. In such event, notwithstanding anything to the contrary contained in Section 11 of this Agreement, Lessee agrees to pay promptly after any such determination of taxability and on each Lease Payment date thereafter to Lessor an additional amount determined by Lessor to compensate such owner or owners for the loss of such excludibility (including, without limitation, compensation relating to interest expense, penalties or additions to tax), which determination shall be conclusive (absent manifest error). Notwithstanding anything herein to the contrary, any additional amount payable by Lessee pursuant to this Section 6 shall be payable solely from Legally Available Funds.

It is Lessor's and Lessee's intention that this Agreement not constitute a "true" lease for federal income tax purposes and, therefore, it is Lessor's and Lessee's intention that Lessee be considered the owner of the Equipment for federal income tax purposes.

7. TITLE TO EQUIPMENT; SECURITY INTEREST. Upon delivery of the Equipment to Lessee hereunder, title to the Equipment will vest in Lessee; provided, however, that (i) in the event of termination of this Lease by Lessee pursuant to Section 5 hereof; (ii) upon the occurrence of an Event of Default hereunder, and as long as such Event of Default is continuing; or (iii) in the event that the purchase option has not been exercised prior to the Expiration Date, title will immediately vest in Lessor or its Assignee. In order to secure all of its obligations hereunder, Lessee hereby (i) grants to Lessor a first and prior security interest in any and all right, title and interest of Lessee in the Equipment and in all additions, attachments, accessions, and substitutions thereto, and on any proceeds therefrom; (ii) agrees that this Lease may be filed as a financing statement evidencing such

security interest; and (iii) agrees to execute and deliver all financing statements, certificates of title and other instruments necessary or appropriate to evidence such security interest.

8. USE; REPAIRS. Lessee will use the Equipment in a careful manner for the use contemplated by the manufacturer of the Equipment and shall comply with all laws, ordinances, insurance policies and regulations relating to, and will pay all costs, claims, damages, fees and charges arising out of the possession, use or maintenance of the Equipment. Lessee, at its expense will keep the Equipment in good repair and furnish all parts, mechanisms and devices required therefor.

9. ALTERATIONS. Lessee will not make any alterations, additions or improvements to the Equipment without Lessor's prior written consent unless such alterations, additions or improvements may be readily removed without damage to the Equipment.

10. LOCATION; INSPECTION. The Equipment will not be removed from, [or if the Equipment consists of rolling stock, its permanent base will not be changed from] the Equipment Location without Lessor's prior written consent which will not be unreasonably withheld. Lessor will be entitled to enter upon the Equipment Location or elsewhere during reasonable business hours to inspect the Equipment or observe its use and operation.

11. LIENS AND TAXES. Lessee shall keep the Equipment free and clear of all levies, liens and encumbrances except those created under this Lease. Lessee shall pay, when due, all charges and taxes (local, state and federal) which may now or hereafter be imposed upon the ownership, leasing, rental, sale, purchase, possession or use of the Equipment, excluding however, all taxes on or measured by Lessor's income. If Lessee fails to pay said charges and taxes when due, Lessor shall have the right, but shall not be obligated, to pay said charges and taxes. If Lessor pays any charges or taxes, Lessee shall reimburse Lessor therefor within ten days of written demand.

12. RISK OF LOSS: DAMAGE; DESTRUCTION. Lessee assumes all risk of loss or damage to the Equipment from any cause whatsoever, and no such loss of or damage to the Equipment nor defect therein nor unfitness or obsolescence thereof shall relieve Lessee of the obligation to make Lease Payments or to perform any other obligation under this Lease. In the event of damage to any item of Equipment, Lessee will immediately place the same in good repair with the proceeds of any insurance recovery applied to the cost of such repair. If Lessor determines that any item of Equipment is lost, stolen, destroyed or damaged beyond repair, Lessee at the option of Lessor will: either (a) replace the same with like equipment in good repair; or (b) on the next Lease Payment date, pay Lessor the sum of : (i) all amounts then owed by Lessee to Lessor under this Lease, including the Lease payment due on such date; and (ii) an amount equal to all remaining Lease Payments to be paid during the Lease Term as set forth in Schedule B.

In the event that Lessee is obligated to make such payment with respect to less than all of the Equipment, Lessor will provide Lessee with the pro rata amount of the Lease Payment and the Balance Payment (as set forth in Schedule B) to be made by Lessee with respect to that part of the Equipment which has suffered the Event of Loss.

13. INSURANCE. Lessee will, at its expense, maintain at all times during the Lease Term, fire and extended coverage, public liability and property damage insurance with respect to the Equipment in such amounts, covering such risks, and with such insurers as shall be satisfactory to Lessor, or, with Lessor's prior written consent, Lessee may self-insure against any or all such risks. All insurance covering loss of or damage to the Equipment shall be carried in an amount no less than the amount of the then applicable Balance Payment with respect to such Equipment. The initial amount of insurance required is set forth in Schedule B. Each insurance policy will name Lessee as an insured and Lessor or it's Assigns as an additional insured, and will contain a clause requiring the insurer to give Lessor at least thirty (30) days prior written notice of any alteration in the terms of such policy or the cancellation thereof. The proceeds of any such policies will be payable to Lessee and Lessor or it's Assigns as their interests may appear. Upon acceptance of the Equipment and upon each insurance renewal date, Lessee will deliver to Lessor a certificate evidencing such insurance. In the event that Lessee has been permitted to self-insure, Lessee will furnish Lessor with a letter or certificate to such effect. In the event of any loss, damage, injury or accident involving the Equipment, Lessee will promptly provide Lessor with written notice thereof and make available to Lessor all information and documentation relating thereto.

14. INDEMNIFICATION. Lessee shall, to the extent permitted by law, indemnify Lessor against, and hold Lessor harmless from, any and all claims, actions, proceedings, expenses, damages or liabilities, including attorneys' fees and court costs, arising in connection with the Equipment, including, but not limited to, its selection,

purchase, delivery, possession, use, operation, rejection, or return and the recovery of claims under insurance policies thereon.

15. ASSIGNMENT. Without Lessor's prior written consent, Lessee will not either (i) assign, transfer, pledge, hypothecate, grant any security interest in or otherwise dispose of this Lease or the Equipment or any interest in this Lease or the Equipment or; (ii) sublet or lend the Equipment or permit it to be used by anyone other than Lessee or Lessee's employees. Lessor may assign its rights, title and interest in and to this Lease, the Equipment and any documents executed with respect to this Lease and/or grant or assign a security interest in this Lease and the Equipment, in whole or in part. Any such assignees shall have all of the rights of Lessor under this Lease. Subject to the foregoing, this Lease inures to the benefit of and is binding upon the heirs, executors, administrators, successors and assigns of the parties hereto.

Lessee covenants and agrees not to assert against the Assignee any claims or defenses by way of abatement, setoff, counterclaim, recoupment or the like which Lessee may have against Lessor. No assignment or reassignment of any Lessor's right, title or interest in this Lease or the Equipment shall be effective unless and until Lessee shall have received a notice of assignment, disclosing the name and address of each such assignee; provided, however, that if such assignment is made to a bank or trust company as paying or escrow agent for holders of certificates of participation in the Lease, it shall thereafter be sufficient that a copy of the agency agreement shall have been deposited with Lessee until Lessee shall have been advised that such agency agreement is no longer in effect. During the Lease Term Lessee shall keep a complete and accurate record of all such assignments in form necessary to comply with Section 149(a) of the Code, and the regulations, proposed or existing, from time to time promulgated thereunder. No further action will be required by Lessor or by Lessee to evidence the assignment, but Lessee will acknowledge such assignments in writing if so requested.

After notice of such assignment, Lessee shall name the Assignee as additional insured and loss payee in any insurance policies obtained or in force. Any Assignee of Lessor may reassign this Lease and its interest in the Equipment and the Lease Payments to any other person who, thereupon, shall be deemed to be Lessor's Assignee hereunder.

16. EVENT OF DEFAULT. The term "Event of Default", as used herein, means the occurrence of any one or more of the following events: (i) Lessee fails to make any Lease Payment (or any other payment) as it becomes due in accordance with the terms of the Lease, and any such failure continues for ten (10) days after the due date thereof; (ii) Lessee fails to perform or observe any other covenant, condition, or agreement to be performed or observed by it hereunder and such failure is not cured within twenty (20) days after written notice thereof by Lessor; (iii) the discovery by Lessor that any statement, representation, or warranty made by Lessee in this Lease or in writing ever delivered by Lessee pursuant hereto or in connection herewith is false, misleading or erroneous in any material respect; (iv) proceedings under any bankruptcy, insolvency, reorganization or similar legislation shall be instituted against or by Lessee, or a receiver or similar officer shall be appointed for Lessee or any of its property, and such proceedings or appointments shall not be vacated, or fully stayed, within twenty (20) days after the institution or occurrence thereof; or (v) an attachment, levy or execution is threatened or levied upon or against the Equipment.

17. REMEDIES. Upon the occurrence of an Event of Default, and as long as such Event of Default is continuing, Lessor may, at its option, exercise any one or more of the following remedies: (i) by written notice to Lessee, declare all amounts then due under the Lease, and all remaining Lease Payments due during the Fiscal Year in effect when the default occurs to be immediately due and payable, whereupon the same shall become immediately due and payable; (ii) by written notice to Lessee, request Lessee to (and Lessee agrees that it will), at Lessee's expense, promptly return the Equipment to Lessor in the manner set forth in Section 5 hereof, or Lessor, at its option, may enter upon the premises where the Equipment is located and take immediate possession of and remove the same; (iii) sell or lease the Equipment or sublease it for the account of Lessee, holding Lessee liable for all Lease Payments and other amounts due prior to the effective date of such selling, leasing or subleasing and for the difference between the purchase price, rental and other amounts paid by the purchaser, Lessee or sublessee pursuant to such sale, lease or sublease and the amounts payable by Lessee hereunder; and (iv) exercise any other right, remedy or privilege which may be available to it under applicable laws of the state of the Equipment Location or any other applicable law or proceed by appropriate court action to enforce the terms of the Lease or to recover damages for the breach of this Lease or to rescind this Lease as to any or all of the Equipment. In addition, Lessee will remain liable for all covenants and indemnities under this Lease and for all legal fees and other costs and expenses, including court costs, incurred by Lessor with respect to the enforcement of any of the remedies listed above or any other remedy available to Lessor.

18. PURCHASE OPTION. Upon thirty (30) days prior written notice from Lessee to Lessor, and provided that no Event of Default has occurred and is continuing, or no event, which with notice or lapse of time, or

both could become an Event of Default, then exists, Lessee will have the right to purchase the Equipment on the Lease Payment dates set forth in Schedule B by paying to Lessor, on such date, the Lease Payment then due together with the Balance Payment amount set forth opposite such date. Upon satisfaction by Lessee of such purchase conditions, Lessor will transfer any and all of its right, title and interest in the Equipment to Lessee as is, without warranty, express or implied, except that the Equipment is free and clear of any liens created by Lessor.

19. NOTICES. All notices to be given under this Lease shall be made in writing and mailed by certified mail, return receipt requested, to the other party at its address set forth herein or at such address as the party may provide in writing from time to time. Any such notice shall be deemed to have been received five days subsequent to such mailing.

20. SECTION HEADINGS. All section headings contained herein are for the convenience of reference only and are not intended to define or limit the scope of any provision of this Lease.

21. GOVERNING LAW. This Lease shall be construed in accordance with, and governed by the laws of, the state of the Equipment Location.

22. DELIVERY OF RELATED DOCUMENTS. Lessee will execute or provide, as requested by Lessor, such other documents and information as are reasonably necessary with respect to the transaction contemplated by this Lease.

23. ENTIRE AGREEMENT; WAIVER. This Lease, together with the Delivery and Acceptance Certificate and other attachments hereto, and other documents or instruments executed by Lessee and Lessor in connection herewith, constitutes the entire agreement between the parties with respect to the Lease of the Equipment, and this Lease shall not be modified, amended, altered, or changed except with the written consent of Lessee and Lessor. Any provision of the Lease found to be prohibited by law shall be ineffective to the extent of such prohibition without invalidating the remainder of the Lease.

The waiver by Lessor of any breach by Lessee of any term, covenant or condition hereof shall not operate as a waiver of any subsequent breach thereof.

24. EXECUTION IN COUNTERPARTS. This Lease may be executed in several counterparts, each of which shall be deemed an original and all of which shall constitute but one and the same instrument.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the 24th day of October 2012

LESSEE:

COUNTY OF HIDALGO

By: Ramon Garcia
Title: County Judge

LESSOR:

MOTOROLA SOLUTIONS, INC.

By: Larry P. Raymond
Title: Sr VP & Treasurer

Approved by Commissioners' Court
on 10/23/12 RU

OPINION OF COUNSEL

With respect to that certain Equipment Lease-Purchase Agreement #23355 dated 10-24-12 by and between Motorola Solutions, Inc. and the Lessee, I am of the opinion that: (i) the Lessee is, within the meaning of Section 103 of the Internal Revenue Code of 1986, a state or a fully constituted political subdivision or agency of the State of the Equipment Location described in Schedule A hereto; (ii) the execution, delivery and performance by the Lessee of the Lease have been duly authorized by all necessary action on the part of the Lessee, (III) the Lease constitutes a legal, valid and binding obligation of the Lessee enforceable in accordance with its terms; and (iv) Lessee has sufficient monies available to make all payments required to be paid under the Lease during the current fiscal year of the Lease, and such monies have been properly budgeted and appropriated for this purpose in accordance with State law.

_____

Attorney for **COUNTY OF HIDALGO**

SCHEDULE A
EQUIPMENT LEASE-PURCHASE AGREEMENT

Schedule A Lease Number: 23355

This Equipment Schedule dated as of 10-24-12 is being executed by MOTOROLA SOLUTIONS, INC. ("Lessor") and **COUNTY OF HIDALGO** (Lessee"), as a supplement to, and is hereby attached to and made a part of that certain Equipment Lease-Purchase Agreement Number **23355** dated as of 10-24-12 ("Lease"), between Lessor and Lessee.

Lessor hereby leases to Lessee under and pursuant to the Lease, and Lessee hereby accepts and leases from Lessor under and pursuant to the Lease, subject to and upon the terms and conditions set forth in the Lease and upon the terms set forth below, the following items of Equipment

QUANTITY	DESCRIPTION (Manufacturer, Model, and Serial Nos.)
	Refer to attached Equipment List.
Equipment Location: TX	

Initial Term: 122.5 Months

Commencement Date: 11/1/2012
First Payment Due Date: 1/15/2014

10 annual payments of $911,620.93 as outlined in the attached Schedule B, plus Sales/Use Tax of $0.00, payable on the Lease Payment Dates set forth in Schedule B.

EXECUTED as of the date first herein set forth.

LESSEE:

COUNTY OF HIDALGO

By: Ramon Garcia

Title: County Judge

LESSOR:

Motorola Solutions, Inc.

By: Larry R. Raymond

Title: Sr VP + Treasurer

Approved by Commissioners' Court
on 10/23/12 RO

SECTION 4C

EQUIPMENT LIST

4.1 DISPATCH EQUIPMENT

QTY	NOMENCLATURE	DESCRIPTION
		MASTER SITE LICENSE
1	SQM01SUM0200	MASTER SITE UPGRADE MODEL
1	CA00996AJ	ADD: NM/ZC LICENSE KEY 7.11
1	CA00997AJ	ADD: UCS LICENSE KEY 7.11
1	CA01225AB	ENH: MCC 7500 CONSOLE LICENSES (QTY 5)
2	CA01588AA	ADD: ANTI-VIRUS SERVICE
		DISPATCH EQUIPMENT
1	B1905	MCC 7500 ASTRO 25 SOFTWARE
2	B1933	MOTOROLA VOICE PROCESSOR MODULE
2	CA01642AA	ADD: MCC 7500 BASIC CONSOLE FUNCTIONALITY SOFTWARE LICENSE
2	CA01644AA	ADD: MCC 7500 ADV CONVL OPERATION
2	CA01643AA	ADD: MCC 7500 / MCC 7100 TRUNKING OPERATION
2	CA00147AF	ADD: MCC 7500 SECURE OPERATION
2	CA00182AB	ADD: AES ALGORITHM
2	CA00140AA	ADD: AC LINE CORD, NORTH AMERICAN
2	DS019BLK	19" LCD, BLACK, NON-TOUCH
2	TT2538	Z420 LOW TIER WITH WINDOWS 7 (64-BIT)
2	T7448	WINDOWS SUPPLEMENTAL FULL CONFIG
2	DSRMP615A	SPD, TYPE 3, 120V RACK MOUNT, 15A PLUG-IN WITH (6) 15A OUTLETS
4	B1912	MCC SERIES DESKTOP SPEAKER
2	B1914	MCC SERIES DESKTOP GOOSENECK MICROPHONE
4	B1913	MCC SERIES HEADSET JACK
4	RLN6098	HDST MODULE BASE W/PTT, 15' CBL
8	RMN5077B	SUPRAPLUS SINGLE MUFF HEADSET
2	DSTWIN6328A	PROVIDES ONE DUAL PEDAL FOOTSWITCH FOR USE WITH MOTOROLA MCC 7500 DISP
2	DDN9979	SYMANTEC ENDPOINT PROTECTION V11.0 CORP ED LIC & MEDIA SINGLE COPY
2	DDN1245	DUAL IRR SW USB HASP WITH LICENSE (VERSION 45)
2	DDN1118	PCI EXPRESS SOUND BLASTER X-FI XTREME AUDIO
2	CDN6673	CREATIVE LABS INSPIRE A60
2	DSSMART1500	UPS,1500VA SMARTPRO TOWER LINE-INTERACTIVE 120V 6 OUTLET -

QTY	NOMENCLATURE	DESCRIPTION
		CONTROL STATIONS
3	M30URS9PW1 N	APX7500 SINGLE BAND 7/800 MID POWER
3	G806	ENH: ASTRO DIGITAL CAI OP APX
3	G51	ENH: SMARTZONE OPERATION APX
3	QA01648	ADD: ADVANCED SYSTEM KEY - HARDWARE KEY
3	G361	ADD: P25 TRUNKING SOFTWARE
3	G442	ADD: APX O5 CONTROL HEAD
3	G444	ADD: CONTROL HEAD SOFTWARE
3	G66	ADD: DASH MOUNT 05
3	G89	ADD: NO RF ANTENNA NEEDED
3	W382	ADD: CONTROL STATION DESK GCAI MIC
3	G142	ADD: NO SPEAKER NEEDED
3	G91	ADD: CONTROL STATION POWER SUPPLY
3	W665	ADD: CONTROL STATION OPERATION
3	G843	ADD: AES ENCRYPTION APX
3	G996	ENH: OVER THE AIR PROVISIONING
3	W947	ADD: RS232 PACKET DATA INTERFACE
		CONTROL STATIONS DUAL BAND
1	M30TSS9PW1 N	APX7500 DUAL BAND MID POWER
1	G806	ENH: ASTRO DIGITAL CAI OP APX
1	G51	ENH: SMARTZONE OPERATION APX
1	QA01648	ADD: ADVANCED SYSTEM KEY - HARDWARE KEY
1	G361	ADD: P25 TRUNKING SOFTWARE
1	G442	ADD: APX O5 CONTROL HEAD
1	G444	ADD: CONTROL HEAD SOFTWARE
1	G66	ADD: DASH MOUNT 05
2	G89	ADD: NO RF ANTENNA NEEDED
1	W382	ADD: CONTROL STATION DESK GCAI MIC
1	G142	ADD: NO SPEAKER NEEDED
1	G91	ADD: CONTROL STATION POWER SUPPLY
1	W665	ADD: CONTROL STATION OPERATION
1	G843	ADD: AES ENCRYPTION APX
1	GA00244	ADD: 7/800MHZ PRIMARY BAND
1	GA00308	ADD: VHF MP SECONDARY BAND
1	GA00579	ADD: ENABLE DUAL BAND OPERATION
1	G996	ENH: OVER THE AIR PROVISIONING
1	W947	ADD: RS232 PACKET DATA INTERFACE

QTY	NOMENCLATURE	DESCRIPTION
		NETWORK EQUIPMENT
1	CLN1836	2610-24 ETHERNET SWITCH
		CCGW FOR CONVENTIONAL RESOURCES
3	SQM01SUM0205	GGM 8000 GATEWAY
3	CA01616AA	ADD: AC POWER
3	CA01618AA	ADD: CONV CHAN GATEWAY
		TONE REMOTE ADAPTER
2	L3276AC	TONE REMOTE ADAPTER
2	DDN6340	GENERIC RADIO CABLE WITH UNTERMINATED BARE LEADS
2	DDN7066	REMOTE ADAPTER 120/220V AC POWER SUPPLY
1	DDN6335	RACKMOUNT SHELF
		4-WIRE BRIDGE
1	DS40200A208	BRIDGE SHELF WIRED FOR UP TO EIGHT 4WAY, 6-WAY, OR 8-WAY BRIDGE MODULE
8	DSX41685	4-WAY/4-WIRE ACTIVE BRIDGE
2	DSX416904	QUAD 2-WIRE TO 4-WIRE HYBRID
		GPS INTERFACING EQ
1	DDN9590	SSG140 FIREWALL W/2YR SUPPORT
1	CLN1836	2610-24 ETHERNET SWITCH
1	SQM01SUM0205	GGM 8000 GATEWAY
1	CA01616AA	ADD: AC POWER
23	DVN1408C	ASTRO 25 MUPS LICENSE UP TO 50 SU
		7/800 CONSOLETTES
6	L30URS9PW1 N	APX7500 SINGLE BAND 7/800
6	G806	ENH: ASTRO DIGITAL CAI OP APX
6	G51	ENH: SMARTZONE OPERATION APX
6	QA01648	ADD: ADVANCED SYSTEM KEY - HARDWARE KEY
6	GA00469	ENH: EXTENDED DISPATCH APX CONSOLETTE
6	G361	ADD: P25 TRUNKING SOFTWARE
6	G843	ADD: AES ENCRYPTION APX
6	L999	ADD: FULL FP W/05/KEYPAD/CLOCK/VU
6	G90	ADD: NO MICROPHONE NEEDED
6	CA01598	ADD: AC LINE CORD US
6	G996	ENH: OVER THE AIR PROVISIONING
6	W947	ADD: RS232 PACKET DATA INTERFACE
6	HKN6233B	APX CONSOLETTE RACK MOUNT KIT

QTY	NOMENCLATURE	DESCRIPTION
		CONTROL STATION ANTENNA ASSEMBLY
		7/800 ANTENNA ASSEMBLY
4	DDN9682	1/2" TYPE N MALE PLATED CONNECTOR
100	L1702	CABLE: 1/2" SUPERFLEX POLY JKT PER FOOT
4	DDN9682	1/2" TYPE N MALE PLATED CONNECTOR
		CONTROL STATION COMBINERS
2	DSCS74860805SN	STANDARD CONTROL STATION COMBINER, 746-869 MHZ 8 CH.
		CONSOLETTE JUMPER
10	DDN9769	1/4" TYPE N MALE CONNECTOR FOR FSJ1-50A CABLE
100	L1700	CABLE: 1/4" SUPERFLEX POLY JKT PER FOOT
10	DDN9769	1/4" TYPE N MALE CONNECTOR FOR FSJ1-50A CABLE
		MOBILE JUMPER (AT OPERATOR DESK)
4	DDN9682	1/2" TYPE N MALE PLATED CONNECTOR
720	DSAFSJ4RK50B	1/2" SUPERFLEX COAXIAL CABLE, 50 OHM, RISER RATED (FT)
4	TDN8810	1/2" TYPE N FEMALE CONNECTOR
4	DDN9769	1/4" TYPE N MALE CONNECTOR FOR FSJ1-50A CABLE
100	L1700	CABLE: 1/4" SUPERFLEX POLY JKT PER FOOT
4	DSF1MU	1/4" MINI UHF MALE S FLEX CONNECTOR
		VHF ANTENNA FOR DUAL BAND CONTROL STATION
1	DSSC225MSF3SNM	COLINEAR OMNIDIRECTIONAL, 0 DBD GAIN,147-157 MHZ
		MAIN LINE
1	DDN1088	TYPE N MALE PS FOR 1/2 IN LDF4-50A CABLE
1	TDN9289	CABLE WRAP WEATHERPROOFING
75	L1705	CABLE: 1/2" LDF HELIAX POLY JKT PER FOOT
1	DSSG1206B2A	1/2" SURE GROUND GROUNDING KIT
1	DDN1088	TYPE N MALE PS FOR 1/2 IN LDF4-50A CABLE
		SURGE ARRESTOR
1	DSVHF50HN	VHF COMB COAXIAL SURGE PROT- 100 TO 512 MHZ - N CONN - DC BLOCK
		LOWER JUMPER
1	DDN9682	1/2" TYPE N MALE PLATED CONNECTOR
200	DSAFSJ4RK50B	1/2" SUPERFLEX COAXIAL CABLE, 50 OHM, RISER RATED (FT)
1	TDN8810	1/2" TYPE N FEMALE CONNECTOR
		MOBILE JUMPER
1	DDN9769	1/4" TYPE N MALE CONNECTOR FOR FSJ1-50A CABLE
25	L1700	CABLE: 1/4" SUPERFLEX POLY JKT PER FOOT
1	DSF1MU	1/4" MINI UHF MALE S FLEX CONNECTOR
		UPS
1	DS917010D4N0016	UPS, 9170 12KVA/10KW, 16 MIN RUN

QTY	NOMENCLATURE	DESCRIPTION
		RACK AND POWER
1	TRN7343	SEVEN AND A HALF FOOT RACK
3	DSRMP615A	SPD, TYPE 3, 120V RACK MOUNT, 15A PLUG-IN WITH (6) 15A OUTLETS
1	DSTSJ100BT	SPD, RJ-48 CONNECTED FOR T1/E1, 10/100BT PROTECTS/PASSES ON ALL 8 PIN
1	DSTSJADP	RACK MOUNT GROUND BAR, 19 IN FOR TSJ AND WPH SERIES DATA SPDS
1	DSOP820B	PDU, 120V HARDWIRE (8) 20A OUTLET PDU WITH TYPE 3 SAD PROTECTION
1	DSAPEXIMAX808M	240/120 1 PHASE TYPE-1 METAL ENCLOSURE
		WATSON FURNITURE
1	DQWATSONHIDALGO	6 POSITION WATSON FURNITURE OPTION A
		SPARES
1	B1912	MCC SERIES DESKTOP SPEAKER
1	B1914	MCC SERIES DESKTOP GOOSENECK MICROPHONE
1	B1913	MCC SERIES HEADSET JACK
1	TT2538	Z420 LOW TIER WITH WINDOWS 7 (64-BIT)
1	B1934	MCC 7500 VOICE PROCESSOR MODULE FRU
1	CA00147AF	ADD: MCC 7500 SECURE OPERATION
1	CA00182AB	ADD: AES ALGORITHM
1	01009513001	PWR SPLY 108W AC INP 12VDC OUT W18
1	CLN1836	2610-24 ETHERNET SWITCH
1	DSRMP615A	SPD, TYPE 3, 120V RACK MOUNT, 15A PLUG-IN WITH (6) 15A OUTLETS
1	SQM01SUM0205	GGM 8000 GATEWAY
1	CA01616AA	ADD: AC POWER
1	CA01618AA	ADD: CONV CHAN GATEWAY
1	L3276AC	TONE REMOTE ADAPTER
1	DDN6340	GENERIC RADIO CABLE WITH UNTERMINATED BARE LEADS
1	DDN7066	REMOTE ADAPTER 120/220V AC POWER SUPPLY
1	DSF1MU	1/4" MINI UHF MALE S FLEX CONNECTOR
1	DDN9769	1/4" TYPE N MALE CONNECTOR FOR FSJ1-50A CABLE
1	DDN9682	1/2" TYPE N MALE PLATED CONNECTOR
1	DDN1088	TYPE N MALE PS FOR 1/2 IN LDF4-50A CABLE

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4.2 SUBSCRIBER EQUIPMENT

QTY	NOMENCLATURE	DESCRIPTION
		APX 4000
168	H51UCF9PW6 N	APX 4000 7/800 MHZ MODEL 2 PORTABLE
168	QA02756	ENH: 3600 OR 9600 TRUNKING BAUD SIN
168	G996	ADD: PROGRAMMING OVER P25 (OTAP)
168	QA00782	ENH: INTERNAL ACTIVATION AND GPS BAENH: INTERNAL ACTIVATION AND GPS BA
168	QA01648	ADD: ADVANCED SYSTEM KEY - HARDWARE KEY
168	Q947	ADD: PACKET DATA (IV&D AND RS232)
168	QA02749	ALT: IMPRES LI-ION 2300MAH
168	H885BK	ENH: 2 YEAR REPAIR SERVICE ADVANTAGE
168	H842	ADD: SINGLE UNIT PACKAGING
168	H799	ADD: TEST RESULTS / RATED AUDIO PRI
168	PMNN4424AR	BATT IMP LI ION 2300M 2350T
168	PMMN4069A	IMPRESS RSM, 3.5MM AUDIO JACK
168	WPLN4232A	110 VAC 50/60 HZ US IMPRES SUC
168	PMLN6085A	APX2000/4000 SW LEATHER CARRY CASE2
1	WPLN4219A	IMPRES MUC W/DISPLAY - US/NA PLUG
		APX 7000
378	H97TGD9PW1 N	APX7000 DIGITAL PORTABLE RADIO
378	QA00569	ADD: 7/800MHZ PRIMARY BAND
378	QA00574	ADD: VHF SECONDARY BAND
378	QA00577	ADD: LARGE COLOR DISPLAY AND FULL KEYPAD
378	QA00579	ADD: ENABLE DUAL BAND OPERATION
378	Q806	ADD: ASTRO DIGITAL CAI OPERATION
378	H38	ADD: SMARTZONE OPERATION
378	Q361	ADD: P25 9600 BAUD TRUNKING
378	QA01648	ADD: ADVANCED SYSTEM KEY - HARDWARE KEY
378	G996	ADD: PROGRAMMING OVER P25 (OTAP)
378	Q947	ADD: RADIO PACKET DATA
378	QA00782	ADD: ENABLE INTERNAL GPS OPERATION
378	Q629	ENH: AES ENCRYPTION
378	Q58	ADD: 2 YR REPAIR SERVICE ADVANTAGE
378	H842	ADD: SINGLE UNIT PACKAGING
378	NNTN7038	BATT IMP STD IP67 LIION 2900M 3100T BLK
378	PMLN5324B	LEATHER CASE 2.75" SWL BL 2500MAH
378	NNTN7080A	APX 7000 IMPRES SINGLE UNIT CHARGER US/NA/CA/LA
378	PMMN4069A	IMPRES RSM, 3.5MM AUDIO JACK
378	RLN4941A	RECEIVE ONLY EARPIECE W/TRANSLUCENT TUBE
1	NNTN7073B	IMPRESS CG MUD MACKINAW US/NA/CA/LA

QTY	NOMENCLATURE	DESCRIPTION
		APX 4500
123	M22URS9PW1 N	APX4500 7/800
123	B18	ADD: AUXILARY SPKR 7.5 WATT
123	G174	ADD: ANT 3DB LOW-PROFILE 762-870
123	G24	ENH: 2 YEAR REPAIR SERVICE ADVANTAGE
123	GA00229	ADD: GPS ACTIVATION
123	GA00226X	ADD: GPS ANTENNA
123	G996X	ENH: OVER THE AIR PROVISIONING
123	W947X	ADD: RS232 PACKET DATA INTERFACE
123	QA01648	ADD: ADVANCED SYSTEM KEY - HARDWARE KEY
123	QA02756	ADD: 3600 OR 9600 TRUNKING BAUD SINGLE SYSTEM
123	G799	ADD: PRINTED TEST RESULTS APEX
123	G444	ADD: CONTROL HEAD SOFTWARE
123	G66	ADD: DASH MOUNT 05
123	GA00804	APX O2 CONTROL HEAD
123	W22	ADD: PALM MICROPHONE
		APX 7500
481	M30TSS9PW1 N	APX7500 DUAL BAND MID POWER
481	GA00244	ADD: 7/800MHZ PRIMARY BAND
481	GA00308	ADD: VHF MP SECONDARY BAND
481	GA00579	ADD: ENABLE DUAL BAND OPERATION
481	G806	ENH: ASTRO DIGITAL CAI OP APX
481	G51	ENH: SMARTZONE OPERATION APX
481	QA01648	ADD: ADVANCED SYSTEM KEY - HARDWARE KEY
481	G361	ADD: P25 TRUNKING SOFTWARE
481	G442	ADD: APX O5 CONTROL HEAD
481	G444	ADD: CONTROL HEAD SOFTWARE
481	G67	ADD: REMOTE MOUNT MID POWER
481	G174	ADD: ANT 3DB LOW-PROFILE 762-870
481	G629	1/4 WAVE BROADBAND ANT 146-174
481	W22	ADD: PALM MIC
481	B18	ADD: AUXILARY SPKR 7.5 WATT
481	G996	ENH: OVER THE AIR PROVISIONING
481	W947	ADD: RS232 PACKET DATA INTERFACE
481	GA00229	ADD: GPS ACTIVATION
481	GA00226	ADD: GPS ANTENNA
481	G843	ADD: AES ENCRYPTION APX
481	G78	ENH: 2 YR REPAIR SERVICE ADVANTAGE
481	G799	ADD: PRINTED TEST RESULTS APEX

QTY	NOMENCLATURE	DESCRIPTION
		APX 7500 FLASH UPGRADES
1	T7563	ANALOG SMARTZONE
12	GA00229AB	ENH: ENABLE GPS ACTIVATION APX7500
		APX 7500 CONSOLETTES FOR LAW
10	L30TSS9PW1 N	APX7500 CONSOLETTE DUAL BAND MODEL
10	GA00244	ADD: 7/800MHZ PRIMARY BAND
10	GA00308	ADD: VHF MP SECONDARY BAND
10	GA00579	ADD: ENABLE DUAL BAND OPERATION
10	G806	ENH: ASTRO DIGITAL CAI OP APX
10	G51	ENH: SMARTZONE OPERATION APX
10	QA01648	ADD: ADVANCED SYSTEM KEY - HARDWARE KEY
10	G361	ADD: P25 TRUNKING SOFTWARE
10	G996	ENH: OVER THE AIR PROVISIONING
10	W947	ADD: RS232 PACKET DATA INTERFACE
10	G843	ADD: AES ENCRYPTION APX
10	L999	ADD: FULL FP W/05/KEYPAD/CLOCK/VU
10	W382	ADD: CONTROL STATION DESK GCAI MIC
10	CA01598	ADD: AC LINE CORD US
10	G78	ENH: 2 YR REPAIR SERVICE ADVANTAGE
10	G799	ADD: PRINTED TEST RESULTS APEX
		ANTENNA FOR CONSOLETTES FOR LAW
		7/800 ANTENNA
10	DSMFBW7463	WIDEBAND FIBERGLASS OMNI ANTENNA 746-869 NFM BULKHEAD
10	DSMMK12	ANTENNA MOUNTING BRACKET
		MAIN LINE
10	DDN1088	TYPE N MALE PS FOR 1/2 IN LDF4-50A CABLE
10	TDN9289	CABLE WRAP WEATHERPROOFING
200	L1705	CABLE: 1/2" LDF HELIAX POLY JKT PER FOOT
20	DSSG1206B2A	1/2" SURE GROUND GROUNDING KIT
10	DDN1088	TYPE N MALE PS FOR 1/2 IN LDF4-50A CABLE
		SURGE ARRESTOR
10	DSDSXL	DC BLOCK, HIGH POWER 700 TO 2200MHZ, N CONN FEMALE/FEMALE
		LOWER JUMPER
10	DDN9682	1/2" TYPE N MALE PLATED CONNECTOR
1500	DSAFSJ4RK50B	1/2" SUPERFLEX COAXIAL CABLE, 50 OHM, RISER RATED (FT)
10	DDN9682	1/2" TYPE N MALE PLATED CONNECTOR
		VHF ANTENNA
10	DSSC225MSF3SNM	COLINEAR OMNIDIRECTIONAL, 0 DBD GAIN,147-157 MHZ

QTY	NOMENCLATURE	DESCRIPTION
		MAIN LINE
10	DDN1088	TYPE N MALE PS FOR 1/2 IN LDF4-50A CABLE
10	TDN9289	CABLE WRAP WEATHERPROOFING
200	L1705	CABLE: 1/2" LDF HELIAX POLY JKT PER FOOT
20	DSSG1206B2A	1/2" SURE GROUND GROUNDING KIT
10	DDN1088	TYPE N MALE PS FOR 1/2 IN LDF4-50A CABLE
		SURGE ARRESTOR
10	DSVHF50HN	VHF COMB COAXIAL SURGE PROT- 100 TO 512 MHZ - N CONN - DC BLOCK
		LOWER JUMPER
10	DDN9682	1/2" TYPE N MALE PLATED CONNECTOR
1500	DSAFSJ4RK50B	1/2" SUPERFLEX COAXIAL CABLE, 50 OHM, RISER RATED (FT)
10	TDN8810	1/2" TYPE N FEMALE CONNECTOR
		APX 4500 CONTROL STATIONS NON-LAW
14	M22URS9PW1 N	APX4500 7/800
14	G24	ENH: 2 YR REPAIR SERVICE ADVANTAGE
14	G142	ADD: NO SPEAKER NEEDED
14	G91	ADD: CONTROL STATION POWER SUPPLY
14	W665	ADD: CONTROL STATION OPERATION
14	W382	ADD: CONTROL STATION DESK GCAI MIC
14	QA01648	ADD: ADVANCED SYSTEM KEY - HARDWARE KEY
14	QA02756	ADD: 3600 OR 9600 TRUNKING BAUD SINGLE SYSTEM
14	G996X	ENH: OVER THE AIR PROVISIONING
14	W947X	ADD: RS232 PACKET DATA INTERFACE
14	G444	ADD: CONTROL HEAD SOFTWARE
14	G66	ADD: DASH MOUNT 05
14	GA00804	APX O2 CONTROL HEAD
		ANTENNA FOR CONTROL STATIONS FOR NON-LAW
		7/800 ANTENNA
14	DSMFBW7463	WIDEBAND FIBERGLASS OMNI ANTENNA 746-869 NFM BULKHEAD
14	DSMMK12	ANTENNA MOUNTING BRACKET
		MAIN LINE
14	DDN1088	TYPE N MALE PS FOR 1/2 IN LDF4-50A CABLE
14	TDN9289	CABLE WRAP WEATHERPROOFING
280	L1705	CABLE: 1/2" LDF HELIAX POLY JKT PER FOOT
28	DSSG1206B2A	1/2" SURE GROUND GROUNDING KIT
14	DDN1088	TYPE N MALE PS FOR 1/2 IN LDF4-50A CABLE
		SURGE ARRESTOR
14	DSDSXL	DC BLOCK, HIGH POWER 700 TO 2200MHZ, N CONN FEMALE/FEMALE
		LOWER JUMPER
14	DDN9682	1/2" TYPE N MALE PLATED CONNECTOR
2100	DSAFSJ4RK50B	1/2" SUPERFLEX COAXIAL CABLE, 50 OHM, RISER RATED (FT)
14	TDN8810	1/2" TYPE N FEMALE CONNECTOR
14	DDN9769	1/4" TYPE N MALE CONNECTOR FOR FSJ1-50A CABLE
210	L3579	CABLE: 1/4" FSJ, FLAME RETARD.JKT. 50-OHM
14	DSF1MU	1/4" MINI UHF MALE S FLEX CONNECTOR

4.3 M2 MASTER SITE

QTY	NOMENCLATURE	DESCRIPTION
1	SQM01SUM0199	MASTER SITE CONFIGURATION
1	CA01428AD	ADD: 7.11 ZC/NM HW 24 SITES OR LESS
1	CA01429AD	ADD: 7.11 REDUNDANT HW 24 SITE/LESS
1	CA01770AA	ADD: DUAL COMMON PLATFORM HARDWARE MAX 24 SITES
1	CA01784AA	ADD: STORAGE DEVICE
1	CA01471AA	ADD: WINDOWS SUPPLEMENTAL TRANS CONFIG
1	QA01205AA	ENH: ASTRO 25 WITH IV&D
1	CA01223AA	ADD: HIGH AVAILABILITY ZC LICENSE
1	CA01723AA	ADD: BASELINE BACK UP
1	CA01395AA	ADD: 700/800 MIXED SITE OPERATION
10	CA01209AB	ENH: ASTRO 25 IV&D SITE
1	CA01225AB	ENH: MCC 7500 CONSOLE LICENSES (QTY 5)
4	CA01208AA	ENH: 500 RADIO USER LICENSES
2	Z13AG	ENH: UNIFIED NETWORK CONFIGURATOR (UNC)
2	Z802AF	ENH: USER CONFIGURATION MANAGER (UCM)
2	CA01224AB	ENH: UNIFIED EVENT MANAGER (UEM)
1	D999AL	ENH: SECURITY PARTITIONING
2	D52AJ	ENH: ZONEWATCH
2	DA00148AG	ENH: ZONE HISTORICAL REPORTS
2	Z801AM	ENH: RADIO CONTROL MANAGER
1	CA01720AA	ADD: ANTI-VIRUS SERVICE (SERVERS)
10	CA01588AA	ADD: ANTI-VIRUS SERVICE
1	TT2311	Z400 HIGH TIER WITH WINDOWS 7 (64-BIT) NON-RETURNABLE
1	T7702	ASTRO 7.11 CLIENT APPLICATION SOFTWARE
1	DS019BLK	19" LCD, BLACK, NON-TOUCH
1	SQM01SUM0189	SRC7500 SWITCHING ROUTING CENTER (7.5 - 7.12)
1	CA01420AA	ADD: DUAL CORE LAN 1-24 SITES
1	CA01345AA	ADD: DUAL GATEWAY ROUTERS STANDARD
1	CA01425AA	ADD: RED CORE ROUTER 1-24 SITES CWR
1	CA01361AA	ADD: GGSN
1	T7472	SWITCH ROUTER TERMINAL SERVER SW
1	CLN1836	2610-24 ETHERNET SWITCH
1	SQM01SUM0197	PACKET DATA GATEWAY (RACKMOUNT SERVER)
1	CA01621AA	ADD: PDG SOFTWARE FOR INTEGRATED VOICE & DATA
1	ST6000	S6000 MNR MULTI-PROTOCOL ROUTER
2	ST6017B	S6000 4 PORT ULTRAWAN II MODULE
1	CLN1836	2610-24 ETHERNET SWITCH

QTY	NOMENCLATURE	DESCRIPTION
1	THN1013	RACK 7.5' OPEN
4	DSOP820B	PDU, 120V HARDWIRE (8) 20A OUTLET PDU WITH TYPE 3 SAD PROTECTION
1	DVN4046	MASTER SYSTEM KEY STARTER KIT
1	DDN1069	DL360 G6 SERVER, HIGH TIER, WINDOWS 2008 OS
1	DDN9979	SYMANTEC ENDPOINT PROTECTION V11.0 CORP ED LIC & MEDIA SINGLE COPY
1	T7290	ASTRO PRESENCE NOTIFIER APPLICATION
1	DDN1069	DL360 G6 SERVER, HIGH TIER, WINDOWS 2008 OS
1	DDN9979	SYMANTEC ENDPOINT PROTECTION V11.0 CORP ED LIC & MEDIA SINGLE COPY
1	DVN1408C	ASTRO 25 MUPS LICENSE UP TO 50 SU
1	DLN6673C	ASTRO25 LOCATION SYSTEM SOLUTION CD
1	DDN1069	DL360 G6 SERVER, HIGH TIER, WINDOWS 2008 OS
1	DDN9979	SYMANTEC ENDPOINT PROTECTION V11.0 CORP ED LIC & MEDIA SINGLE COPY
1	T7228	TEXT MESSAGING SERVICES SERVER APPLICATION
1	CA01514AA	ADD: TMS SERVER STANDARD EDITION
1	CA01516AA	ADD: MS SQL SERVER SOFTWARE
1	TT2312	Z400 MID TIER WITH WINDOWS 7 (64-BIT) NON-RETURNABLE
1	DDN9979	SYMANTEC ENDPOINT PROTECTION V11.0 CORP ED LIC & MEDIA SINGLE COPY
1	DS019BLK	19" LCD, BLACK, NON-TOUCH
1	RVN5224J	CPS R05.01.00 ASTRO DIG APX POR MOB
1	DDN9590	SSG140 FIREWALL W/ 2 YEARS SUPPORT
1	T7688	KEY MANAGEMENT FACILITY
1	ZA00860AA	ADD: KMF SERVER AND CLIENT SOFTWARE
1	SQM01SUM0134	KEY MANAGEMENT FACILITY ENCRYPTION
1	CA00147AB	ADD: BASIC SOFTWARE OPTION
1	CA00182AC	ADD: AES ENCRYPTION KIT
1	TT2310	KMF G6 SERVER NON-RETURNABLE
1	TT2312	Z400 MID TIER WITH WINDOWS 7 (64-BIT) NON-RETURNABLE
1	DS019BLK	19" LCD, BLACK, NON-TOUCH
2	DDN9979	SYMANTEC ENDPOINT PROTECTION V11.0 CORP ED LIC & MEDIA SINGLE COPY
5	T7537	KVL 4000 KEYLOADER
5	U239AD	ADD: ASTRO 25 MODE
5	CA01598AA	ADD: AC LINE CORD US
5	CA00182AP	ADD: AES ENCRYPTION SOFTWARE
5	C543	ADD: CABLE FOR RNC, DIU, MGEG
5	C724	CABLE, KEYLOAD

QTY	NOMENCLATURE	DESCRIPTION
5	C725AA	ADD: KEYLOAD CABLE FOR APX PORTABLE
5	C954	ADD: CABLE FOR SPECTRA/SPECTRO
5	CA01603AA	ADD: USB COMM/CHARGE CABLE W/ CUP
5	CA01803	ADD: KVL 4000 SLEEVE COVER
5	HKN6182	KEYLOADING CABLE ADAPTER (GCAI)
5	WPLN6905A	APX7000 KEYLOAD RS-232 CABLE
5	TKN8531C	MOBILE KEYLOAD CABLE (RNC DUI MGEG)
5	WPLN6904A	KEYLOAD CABLE FOR APX7000
1	T7376	JUNIPER/FIREWALL GATEWAY
1	DSFAP17BLK	17" NEC LCD, BLACK, NON-TOUCH MONITOR, W/ ADJ STAND
1	L3225A	CERTIFIED KEYBOARD FOR RSD SERVERS AND WORKSTATIONS
1	L3226A	CERTIFIED OPTICAL WHEEL MOUSE FOR RSD SERVERS AND WORKSTATIONS
1	DSF1DA108Z	PRO3 8-PORT KVM SWITCH PS2 & USB IN/OUT
4	DSF1D940106	BELKIN OMNIVIEW ENTERPRISE SERIES - KVM CABLE
4	DSF1D940006	PRO3 OR QUAD-BUS KVM SWITCH ALL-IN-ONE KVM CABLE KIT, PS/2, 6FT.
1	DSRM691	KEYBOARD MONITOR SHELF
1	DSRM385	19" SLIDING PIVOTING KEYBOARD W/MOUSE TRAY
1	TDN8533	RACK MOUNT SHELF 19 INCH
1	T7140	G-SERIES SOFTWARE UPGRADE
6	CA01116AA	ADD: SITE REPEATER BR SW UPGRADE
2	CA01135AA	ADD: SITE REPEATER SC SW UPGRADE
1	T7140	G-SERIES SOFTWARE UPGRADE
6	CA01116AA	ADD: SITE REPEATER BR SW UPGRADE
2	CA01135AA	ADD: SITE REPEATER SC SW UPGRADE
1	T7140	G-SERIES SOFTWARE UPGRADE
6	CA01116AA	ADD: SITE REPEATER BR SW UPGRADE
2	CA01135AA	ADD: SITE REPEATER SC SW UPGRADE
1	T7140	G-SERIES SOFTWARE UPGRADE
6	CA01116AA	ADD: SITE REPEATER BR SW UPGRADE
2	CA01135AA	ADD: SITE REPEATER SC SW UPGRADE
1	T7140	G-SERIES SOFTWARE UPGRADE
6	CA01116AA	ADD: SITE REPEATER BR SW UPGRADE
2	CA01135AA	ADD: SITE REPEATER SC SW UPGRADE
1	T7140	G-SERIES SOFTWARE UPGRADE
6	CA01116AA	ADD: SITE REPEATER BR SW UPGRADE

QTY	NOMENCLATURE	DESCRIPTION
2	CA01135AA	ADD: SITE REPEATER SC SW UPGRADE
1	T7140	G-SERIES SOFTWARE UPGRADE
6	CA01116AA	ADD: SITE REPEATER BR SW UPGRADE
2	CA01135AA	ADD: SITE REPEATER SC SW UPGRADE
1	T7140	G-SERIES SOFTWARE UPGRADE
6	CA01116AA	ADD: SITE REPEATER BR SW UPGRADE
2	CA01135AA	ADD: SITE REPEATER SC SW UPGRADE
1	SQM01SUM0200	MASTER SITE UPGRADE MODEL
1	CA00996AJ	ADD: NM/ZC LICENSE KEY 7.11
1	CA00997AJ	ADD: UCS LICENSE KEY 7.11
1	CA01238AA	ENH: EMAIL ALARM NOTIFICATIONS
1	ZA00151AG	ENH: AFFILIATION USER REPORTS
1	ZA00149AD	ENH: DYNAMIC REPORTS

4.4 M2-M3 UPGRADE

QTY	NOMENCLATURE	DESCRIPTION
2	CLN1838	FRU: 3500-48 ETHERNET SWITCH
1	CLN1837A	620 REDUNDANT/EXTERNAL POWER SUPPLY
2	DLN6699	SUN NETRA T5220 SERVER WITHOUT SOFTWARE
1	ST6202	SRC 24 PORT T1/E1EXP II
1	DLN6699	SUN NETRA T5220 SERVER WITHOUT SOFTWARE
1	SQM01SUM0205	GGM 8000 GATEWAY
1	CA01616AA	ADD: AC POWER
1	CLN1836	2610-24 ETHERNET SWITCH
1	CLN1838	FRU: 3500-48 ETHERNET SWITCH
1	CLN1836	2610-24 ETHERNET SWITCH
1	CLN1837A	620 REDUNDANT/EXTERNAL POWER SUPPLY
1	CLN8489	48 PORT TERMINAL SERVER
1	ST6018	S6000 12 PORT T1/E1 II MODULE
1	T7380	CO-OP WAN ROUTER RELAY PANEL
1	ST6011	S6000 4-PORT FLEXWAN MODULE
1	DKN6144A	ASSY,CBL,3 FT,RELAY PNL,CWR,S6000
1	DDN1073	DL360 VIRTUAL SERVER - NO OS NON-RETURNABLE
1	DLN6744	300 GB SAS HARD DISK DRIVE

County of Hidalgo (Schedule B)

Compound Period .....: Annual

Nominal Annual Rate ... : 2.374 %
Effective Annual Rate .. : 2.374 %
Periodic Rate ..... : 2.3740 %
Daily Rate ..... : 0.00650 %

CASH FLOW DATA

	Event	Start Date	Amount	Number	Period	End Date
1	Loan	11/01/2012	7,991,778.66	1		
2	Payment	01/15/2014	911,620.93	10	Annual	01/15/2023

AMORTIZATION SCHEDULE - Normal Amortization

	Date	Payment	Interest	Principal	Balance
Loan	11/01/2012				7,991,778.66
2012	Totals	0.00	0.00	0.00	
1	01/15/2014	911,620.93	229,634.87	681,986.06	7,309,792.60
2014	Totals	911,620.93	229,634.87	681,986.06	
2	01/15/2015	911,620.93	173,534.48	738,086.45	6,571,706.15
2015	Totals	911,620.93	173,534.48	738,086.45	
3	01/15/2016	911,620.93	156,012.30	755,608.63	5,816,097.52
2016	Totals	911,620.93	156,012.30	755,608.63	
4	01/15/2017	911,620.93	138,074.16	773,546.77	5,042,550.75
2017	Totals	911,620.93	138,074.16	773,546.77	
5	01/15/2018	911,620.93	119,710.15	791,910.78	4,250,639.97
2018	Totals	911,620.93	119,710.15	791,910.78	
6	01/15/2019	911,620.93	100,910.19	810,710.74	3,439,929.23
2019	Totals	911,620.93	100,910.19	810,710.74	
7	01/15/2020	911,620.93	81,663.92	829,957.01	2,609,972.22
2020	Totals	911,620.93	81,663.92	829,957.01	
8	01/15/2021	911,620.93	61,960.74	849,660.19	1,760,312.03
2021	Totals	911,620.93	61,960.74	849,660.19	
9	01/15/2022	911,620.93	41,789.81	869,831.12	890,480.91
2022	Totals	911,620.93	41,789.81	869,831.12	
10	01/15/2023	911,620.93	21,140.02	890,480.91	0.00
2023	Totals	911,620.93	21,140.02	890,480.91	

County of Hidalgo (Schedule B)

Date	Payment	Interest	Principal	Balance
Grand Totals	9,116,209.30	1,124,430.64	7,991,778.66	

INITIAL INSURANCE REQUIREMENT: $7,991,778.66

Except as specifically provided in Section five of the Lease hereof, Lessee agrees to pay to Lessor or its assignee the Lease Payments, including the interest portion, in the amounts and dates specified in the above payment schedule.

LESSEE:

COUNTY OF HIDALGO

By: Ramon Garcia

Title: County Judge

Date: Oct 24, 2012

LESSOR:

Motorola Solutions, Inc.

By: Tony F. Raymond

Title: Sr VP & Treasurer

Date: 11-5-12

Approved by Commissioners' Court
on 10/23/12 RO

CERTIFICATE OF INCUMBENCY

I, _____ do hereby certify that I am the duly elected or
(Signature of Secretary/Clerk)
appointed and acting Secretary or Clerk of the **COUNTY OF HIDALGO,** an entity duly organized and existing under the laws of the **State of Texas** that I have custody of the records of such entity, and that, as of the date hereof, the individuals named below are the duly elected or appointed officers of such entity holding offices set forth opposite of their respective names. I further certify that (i) the signatures set opposite their respective names and titles are their true and authentic signatures and (ii) such officers have the authority on behalf of such entity to enter into that certain Equipment Lease Purchase Agreement number **23355** dated 10-24-12, and Schedule A number **23355** dated 10-24-12, between **COUNTY OF HIDALGO** and Motorola Solutions, Inc. .

Name	Title	Signature
RAMON GARCIA	County Judge	

(Individual who signed Lease documents should be listed here and sign where applicable)

Approved by Commissioners' Court
on 10/23/12 - RO

IN WITNESS WHEREOF, I have executed this certificate and affixed the seal of **COUNTY OF HIDALGO,** hereto this 1 day of _____, 2012.

By: _____
(Signature of Secretary/Clerk)

SEAL

EVIDENCE OF INSURANCE

Fire, extended coverage, public liability and property damage insurance for all of the Equipment listed on Schedule A number **23355** dated 10-24-12 to that certain Equipment Lease Purchase Agreement number **23355** dated 10-24-12 will be maintained by the **COUNTY OF HIDALGO** as stated in the Equipment Lease Purchase Agreement.

This insurance shall name MOTOROLA SOLUTIONS, INC. or its assignee as additional insured and loss payee for the term of the Schedule A number **23355** dated 10-24-12.

This insurance is provided by:

_____
Name of insurance provider

_____
Address of insurance provider

_____
City, State and Zip Code

_____
Phone and fax numbers of insurance provider

_____
Email address of insurance provider

In accordance with the Equipment Lease Purchase Agreement Number **23355** , **COUNTY OF HIDALGO,** hereby certifies that following coverage are or will be in full force and effect:

Type	Amount	Effective Date	Expiration Date	Policy Number
Fire and Extended Coverage				
Property Damage				
Public Liability				

Lessee:

COUNTY OF HIDALGO

By: Ramon Garcia

Its: County Judge

Date: Oct 24, 2012

Approved by Commissioners' Court
on 10/23/12 RO

STATEMENT OF ESSENTIAL USE/SOURCE OF FUNDS

To further understand the essential governmental use intended for the equipment together with an understanding of the sources from which payments will be made, please address the following questions by completing this form or by sending a separate letter:

1. What is the specific use of the equipment?
This equipment is used for public safety two-way radio communications on the Rio Grande Valley Communications Group (RGVCG) 700/800 MHz Regional Radio System, a trunked, P25 radio system. This equipment provides "mission critical two-way voice communications capabilities for all County of Hidalgo personnel.
2. Why is the equipment essential to the operation of COUNTY OF HIDALGO?
All two-way radios on the RGVCG 700/800 MHz Regional System are intended to provide mission-critical communications capability and are therefore essential to the County's public safety mission. These radios are intended to replace existing equipment that will soon be at the end of its scheduled service lif
3. Does the equipment replace existing equipment?
Yes.
If so, why is the replacement being made?
Needed to comply with federal communications standards. Also the new digital equipment is required to function within the RGVCG 700/800 MHz Regional radio network.
4. Is there a specific cost justification for the new equipment?
Yes.
If yes, please attach outline of justification.
The equipment purchased is completely necessary to operate on the 700/800 MHz RGVCG Regional radio network which will provide Hidalgo County personnel with greatly improved mobile and portable coverage. System also provides interoperability with other State & local public safety agencies.
5. What is the expected source of funds for the payments due under the Lease for the current fiscal year and future fiscal years?
First/current fiscal year, there is no payment due. Payments in the future will come from the County's general fund.

Lessee: **COUNTY OF HIDALGO**

By: Ramon Garcia

Its: County Judge

Date: Oct 24, 2012

Approved by Commissioners' Court
on 10/23/12 RO

EQUIPMENT LEASE PURCHASE AGREEMENT DELIVERY AND ACCEPTANCE CERTIFICATE

The undersigned Lessee hereby acknowledges receipt of the Equipment described below ("Equipment") and Lessee hereby accepts the Equipment after full inspection thereof as satisfactory for all purposes of lease Schedule A to the Equipment Lease Purchase Agreement executed by Lessee and Lessor.

Equipment Lease Purchase Agreement Date: October 24, 2012

Lease Schedule A Date: October 24, 2012

Equipment Lease Purchase Agreement No.: 23355 Lease Schedule A No. : 23355

EQUIPMENT INFORMATION

QUANTITY	MODEL NUMBER	EQUIPMENT DESCRIPTION
		Equipment referenced in lease Schedule A# 23355 dated 10-24-12. See Schedule A for a detailed Equipment List.

LESSEE:

COUNTY OF HIDALGO

By: Ramon Garcia

Date: Oct 24, 2012

Approved by Commissioners' Court
on 10/23/12 RD

LESSEE RESOLUTION

At a duly called meeting of the Governing Body of the Lessee (as defined in the Lease Agreement) held on 10-23, 2012 the following resolution was introduced and adopted.

BE IT RESOLVED by the Governing Board of Lessee as follows:

1. **Determination of Need.** The Governing Body of Lessee has determined that a true and very real need exists for the acquisition of the Equipment or other personal property described in the Lease Schedule dated as of 10-24, 2012, between **COUNTY OF HIDALGO**(Lessee) and Motorola Solutions, Inc. (Lessor).
2. **Approval and Authorization.** The Governing body of Lessee has determined that the Lease Agreement, substantially in the form presented to this meeting, is in the best interests of the Lessee for the acquisition of such Equipment or other personal property, and the Governing Board hereby approves the entering into of the Lease Agreement by the Lessee and hereby designates and authorizes the following person(s) to execute and deliver the Lease Agreement on Lessee's behalf sith such changes thereto as such person deems appropriate, and any related documents, including any escrow agreement, necessary to the consummation of the transactions contemplated by the Lease Agreement.

   Authorized Individual(s): Ramon Garcia, County Judge
   Printed or typed name(s) and title(s) of Individual(s) authorized to execute the Lease Agreement.

3. **Adoption of Resolution.** The signatures below from the designated individuals for the Governing Body of the Lessee evidence the adoption by the Governing Body of this Resolution.

Signature: Ramon Garcia

Name and Title : Ramon Garcia
County Judge

Attested By:

Name and Title: Arturo Guajardo, Jr.
Hidalgo County Clerk

Approved by Commissioners' Court
on 10/23/12 RO

Form **8038-G** (Rev. May 2010)
Department of the Treasury
Internal Revenue Service

Information Return for Tax-Exempt Governmental Obligations

▶ Under Internal Revenue Code section 149(e)
▶ See separate instructions.
Caution: *If the issue price is under $100,000, use Form 8038-GC.*

OMB No. 1545-0720

Part I Reporting Authority

If Amended Return, check here ▶ ☐

1 Issuer's name
County of Hidalgo

2 Issuer's employer identification number (EIN)

3 Number and street (or P.O. box if mail is not delivered to street address)
2818 S. Business 281

Room/suite

4 Report number (For IRS Use Only)
3

5 City, town, or post office, state, and ZIP code
Edinburg TX 78539

6 Date of issue
11/1/2012

7 Name of issue
Equipment Lease-Purchase #23355

8 CUSIP number

9 Name and title of officer of the issuer or other person whom the IRS may call for more information

10 Telephone number of officer or other person
( )

Part II Type of Issue (enter the issue price) See instructions and attach schedule

11	Education	11		
12	Health and hospital	12		
13	Transportation	13		
14	Public safety	14	7,771,502.16	
15	Environment (including sewage bonds)	15		
16	Housing	16		
17	Utilities	17		
18	Other. Describe ▶	18		
19	If obligations are TANs or RANs, check only box 19a ▶ ☐ If obligations are BANs, check only box 19b ▶ ☐			
20	If obligations are in the form of a lease or installment sale, check box ▶ ☐			

Part III Description of Obligations. Complete for the entire issue for which this form is being filed.

	(a) Final maturity date	(b) Issue price	(c) Stated redemption price at maturity	(d) Weighted average maturity	(e) Yield
21	1/15/23	$ 7,771,502.16	$	10.21 years	2.896 %

Part IV Uses of Proceeds of Bond Issue (including underwriters' discount)

22	Proceeds used for accrued interest			22	
23	Issue price of entire issue (enter amount from line 21, column (b))			23	7,771,502.16
24	Proceeds used for bond issuance costs (including underwriters' discount)	24			
25	Proceeds used for credit enhancement	25			
26	Proceeds allocated to reasonably required reserve or replacement fund	26			
27	Proceeds used to currently refund prior issues	27			
28	Proceeds used to advance refund prior issues	28			
29	Total (add lines 24 through 28)			29	
30	Nonrefunding proceeds of the issue (subtract line 29 from line 23 and enter amount here)			30	

Part V Description of Refunded Bonds (Complete this part only for refunding bonds.)

31 Enter the remaining weighted average maturity of the bonds to be currently refunded ▶ _____ years

32 Enter the remaining weighted average maturity of the bonds to be advance refunded ▶ _____ years

33 Enter the last date on which the refunded bonds will be called (MM/DD/YYYY) ▶ _____

34 Enter the date(s) the refunded bonds were issued ▶ (MM/DD/YYYY)

Part VI Miscellaneous

35	Enter the amount of the state volume cap allocated to the issue under section 141(b)(5) . . .	35	
36a	Enter the amount of gross proceeds invested or to be invested in a guaranteed investment contract (GIC) (see instructions) . . .	36a	
b	Enter the final maturity date of the GIC ▶ _____		
37	Pooled financings: a Proceeds of this issue that are to be used to make loans to other governmental units . . .	37a	

b If this issue is a loan made from the proceeds of another tax-exempt issue, check box ▶ ☐ and enter the name of the issuer ▶ _____ and the date of the issue ▶ _____

38 If the issuer has designated the issue under section 265(b)(3)(B)(i)(III) (small issuer exception), check box . . . . ▶ ☐

39 If the issuer has elected to pay a penalty in lieu of arbitrage rebate, check box . . . . ▶ ☐

40 If the issuer has identified a hedge, check box . . . . ▶ ☐

Signature and Consent

Under penalties of perjury, I declare that I have examined this return and accompanying schedules and statements, and to the best of my knowledge and belief, they are true, correct, and complete. I further declare that I consent to the IRS's disclosure of the issuer's return information, as necessary to process this return, to the person that I have authorized above.

▶ Ramon Garcia — Signature of issuer's authorized representative — Date

▶ Ramon Garcia, County Judge — Type or print name and title

Paid Preparer's Use Only

Preparer's signature ▶		Date	Check if self-employed ☐
Preparer's SSN or PTIN			
Firm's name (or yours if self-employed), address, and ZIP code ▶		EIN	:
		Phone no.	( )

Exhibit A

SECTION 2

EXHIBIT A: GENERAL PROVISIONS

P25 MIGRATION CONTRACT BOOK **28 SEPTEMBER 2012**



The design, technical, and cost information furnished with this proposal is proprietary information of Motorola Solutions, Inc. (Motorola). Such information is submitted with the restriction that it is to be used only for the evaluation of the proposal, and is not to be disclosed publicly or in any manner to anyone other than those required to evaluate the proposal, without the express written permission of Motorola Solutions, Inc.

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SECTION 2

EXHIBIT A: GENERAL PROVISIONS

General Provisions are included on the following pages.

This page intentionally left blank.

EXHIBIT A
GENERAL PROVISIONS
MOTOROLA SOLUTIONS, INC.

Section 1 STANDARDS OF WORK

Motorola agrees that the performance of work described in this Agreement and pursuant to this Agreement shall be done in a professional manner and shall conform to professional standards. All packaging and packing shall be in accordance with good commercial practice.

Section 2 TAXES

The prices set forth in the Agreement are exclusive of any amount for Federal, State or Local excise, sales, lease, gross income service, rental, use, property, occupation or similar taxes. If any taxes are determined applicable to this transaction or Motorola is required to pay or bear the burden thereof, the Purchaser agrees to pay to Motorola the amount of such taxes and any interest or penalty thereon no later than thirty (30) days after receipt of an invoice therefor.

Section 3 SHIPPING, TITLE AND RISK OF LOSS

All sales and deliveries are F.O.B. Destination. Motorola reserves the right to make deliveries in installments and the Agreement shall be severable as to such installments. Title to the equipment shall pass to the Purchaser upon receipt at the F.O.B. Destination. After delivery to the F.O.B. Destination, risk of loss and damage to the articles shall be borne by the Purchaser. The above notwithstanding, title to software and any third party supplied software shall not pass upon payment of the license fee therefor or under any circumstances.

Section 4 CHANGES IN THE WORK

A. The Purchaser may, at any time, by written order, make changes within the general scope of the work, including but not limited to revisions of, or additions to, portions of the work, or changes in method of shipment or packaging and place of delivery.

B. If any order under this Section 4 causes an increase or decrease in the cost of or time required for the performance of any part of the work under this Agreement, an equitable adjustment shall be made in the Agreement price or delivery schedule, or both, and the Agreement shall be modified in writing accordingly. Motorola is not obligated to comply with any order hereunder unless and until the parties reach agreement as to the aforementioned equitable adjustment and same is reflected as an addendum to this Agreement.

Section 5 LIMITATION OF LIABILITY

Except for personal injury or death, Motorola's total liability whether for breach of contract, warranty, negligence, indemnification, strict liability in tort or otherwise, is limited to the price of the particular products or services sold hereunder with respect to which losses or damages are claimed. IN NO EVENT WILL MOTOROLA BE LIABLE FOR ANY LOSS OF USE, LOSS OF TIME, INCONVENIENCE, COMMERCIAL LOSS, LOST PROFITS OR SAVINGS OR OTHER INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES TO THE FULL EXTENT SUCH MAY BE DISCLAIMED BY LAW. This limitation of liability provision survives the expiration or termination of the Agreement and applies notwithstanding any contrary provision. No action shall be brought for any breach of this contract more than two (2) years after the accrual of such cause of action except for money due upon an open account.

Section 6 EXCUSABLE DELAYS

A. Neither Motorola nor the Purchaser shall be responsible for delays or lack of performance resulting from acts beyond the reasonable control of the party or parties. Such acts shall include, but are not be limited to, acts of God; fire; strikes; material shortages; compliance with laws or regulations; riots; acts of war; or any other conditions beyond the reasonable control of the party or parties.

B. Delays as identified herein may cause an impact on the Period of Performance stated in the Agreement. Such delays will be subject to an Agreement addendum as described in Section 4.

Section 7 DEFAULT

A. If either party fails to perform a material obligation under this Agreement, the other party may consider the non-performing party to be in default (unless such failure has been caused by the conditions set forth in Section 6 of these General Provisions) and may assert a default claim by giving the non-performing party a written and detailed notice of default. Except for a default by Purchaser for failing to pay any amount when due under this Agreement which must be cured immediately, the defaulting party will have thirty (30) days after receipt of the notice of default to either cure the default or, if the default is not curable within thirty (30) days, provide a written cure plan. The defaulting party will begin implementing the cure plan immediately after receipt of notice by the other party that it approves the plan. If Purchaser is the defaulting party, Motorola may stop work on the project until it approves the Purchaser's cure plan.

B. If a defaulting party fails to cure the default as provided above in Section 7.A, unless otherwise agreed in writing, the non-defaulting party may terminate any unfulfilled portion of this Agreement. In the event of termination for default, the defaulting party will promptly return to the non-defaulting party any of its confidential information. If Purchaser is the non-defaulting party, terminates this Agreement as permitted by this Section, and completes the System through a third party, Purchaser may

as its exclusive remedy recover from Motorola reasonable costs incurred to complete the System to a capability not exceeding that specified in this Agreement less the unpaid portion of the contract price. Purchaser will mitigate damages and provide Motorola with detailed invoices substantiating the charges. IN THE EVENT OF DEFAULT, MOTOROLA SHALL NOT BE LIABLE FOR ANY INCIDENTAL, LIQUIDATED, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES.

Section 8 DELAYS BY PURCHASER

If the Purchaser is responsible for delays in the schedule set forth in the Agreement, the Purchaser shall be liable for actual costs incurred by Motorola resulting from these delays if Motorola requests compensation. Such charges may include, but are not limited to, additional Engineering; rescheduling charges; storage charges; maintenance charges; and transportation charges. The Purchaser shall have the option to attempt to minimize actual costs incurred by storing and transporting equipment at its own expense. Such delays will be subject to an Agreement addendum as described in Section 4.

Section 9 LICENSES/AUTHORIZATION

The Purchaser is solely responsible for obtaining any licenses or other authorizations required by the Federal Communications Commission and for complying with FCC rules. Neither Motorola nor any of its employees is an agent or representative of the Purchaser in FCC matters or otherwise. Motorola, however, may assist in the preparation of the license application at no charge to the Purchaser. Purchaser acknowledges that project implementation is predicated on receipt of proper FCC licensing.

Section 10 INDEMNIFICATION

Motorola agrees to and hereby indemnifies and saves Purchaser harmless from all liabilities, judgments, costs, damages and expenses which may accrue against, be charged to, or recovered from the Purchaser by reason of or on account of damage to the tangible property of the Purchaser or the property of, injury to, or death of any person, to the extent and in the proportion that such damage or injury is caused by Motorola's negligent acts or omissions or that of its employees, subcontractors, or agents while on the premises of the Purchaser during the delivery and installation of the communications equipment. IN NO EVENT WILL MOTOROLA BE LIABLE FOR INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES.

Section 11 WARRANTIES

A. WARRANTY PERIOD. Upon System Acceptance, the System Functionality representation described below is fulfilled. The Equipment and Motorola Software is warranted for a period of one (1) year after System Acceptance ("Warranty Period") in accordance with the applicable limited warranties shown below. In no event will the warranty period last longer than eighteen (18) months after the Equipment and Software is shipped from Motorola. Purchaser must notify Motorola in writing if Equipment or

Motorola Software does not conform to these warranties no later than one month after the expiration of the Warranty Period.

B. SYSTEM FUNCTIONALITY. Motorola represents that the Communications System will satisfy the functional requirements in Exhibit C. Upon System Acceptance, this System Functionality representation is fulfilled. After System Acceptance, the Equipment Warranty set forth below and the Software Warranty set forth in the Software License Agreement will apply.

Motorola will not be responsible for performance deficiencies of the System caused by ancillary equipment not furnished by Motorola which is attached to or used in connection with the System provided hereunder. Additionally, Motorola will not be responsible for System performance when the functionality is reduced for reasons beyond Motorola's control including, but not limited to, i) an earthquake, adverse atmospheric conditions or other natural causes; ii) the construction of a building that adversely affects the microwave path reliability or RF coverage; iii) the addition of additional frequencies at System sites that cause RF interference or intermodulation; iv) Purchaser changes to load usage and/or configuration outside the parameters specified in Exhibit C; v) any other act of parties who are beyond Motorola's control, including Purchaser or its employees, contractors, consultants or agents.

C. EQUIPMENT WARRANTY. Motorola warrants the Equipment against material defects in material and workmanship under normal use and service during the Warranty Period. Unless otherwise specified in writing, the Warranty Period for non-Motorola manufactured Equipment will be as stated in this Section. At no additional charge and at its option, Motorola will either repair the defective Equipment, replace it with the same or equivalent Equipment, or refund the purchase price of the defective Equipment, and such action on the part of Motorola will be the full extent of Motorola's liability hereunder. Repaired or replaced Equipment is warranted for the balance of the original applicable warranty period. All replaced parts of the Equipment shall become the property of Motorola.

THIS WARRANTY DOES NOT APPLY TO

a) Defects or damage resulting from use of the Equipment in other than its normal and customary manner.

b) Defects or damage occurring from misuse, accident, liquids, neglect or acts of God.

c) Defects or damage occurring from testing, maintenance, installation, alteration, modification, or adjustment not provided by Motorola pursuant to this System Purchase Agreement.

d) Breakage of or damage to antennas unless caused directly by defects in material or workmanship.

e) Equipment that has been subjected to unauthorized modifications, disassembly or repairs (including the addition to the Equipment of non-Motorola supplied equipment if not authorized by Motorola) which adversely affect performance of the Equipment or interfere with Motorola's normal warranty inspection and testing of the Equipment to verify any warranty claim.

f) Equipment that has had the serial number removed or made illegible.

g) Batteries (because they carry their own separate limited warranty).

h) Freight costs to the repair depot.

i) Equipment that has been subject to illegal or unauthorized alteration of the software/firmware in the Equipment.

j) Scratches or other cosmetic damage to Equipment surfaces that does not affect the operation of the Equipment.

k) Software.

l) Normal or customary wear and tear.

D. Motorola Software Warranty. Motorola Software is warranted in accordance with the terms of the Software License Agreement attached as Exhibit B.

E. These express limited warranties as set forth in this Section are extended by Motorola to the original end user purchasing or leasing the System for commercial, industrial, or governmental use only, and are not assignable or transferable. These are the complete warranties for the Equipment and Software provided pursuant to this Agreement.

F. THESE WARRANTIES ARE GIVEN IN LIEU OF ALL OTHER WARRANTIES. MOTOROLA DISCLAIMS ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT WILL MOTOROLA BE LIABLE FOR DAMAGES IN EXCESS OF THE PURCHASE PRICE OF THE EQUIPMENT. IN NO EVENT WILL MOTOROLA BE LIABLE FOR ANY LOSS OF USE, LOSS OF TIME, INCONVENIENCE, COMMERCIAL LOSS, LOST PROFITS OR SAVINGS OR OTHER INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE EQUIPMENT, TO THE FULL EXTENT SUCH MAY BE DISCLAIMED BY LAW.

Section 12 CONFIDENTIAL INFORMATION

Motorola proprietary computer programs will be released in accordance with the Software License provisions set forth elsewhere, if applicable. All other material and information of confidential nature marked Motorola PROPRIETARY and/or CONFIDENTIAL will be released as necessary under the following conditions:

(1) Purchaser shall exercise reasonable and prudent measures to keep these items in confidence.

(2) Purchaser shall not disclose these items to third parties without prior written permission, unless Motorola makes them public or Purchaser learns them rightfully from sources independent of Motorola, or it is required by law to be disclosed.

(3) Motorola, where necessary, retains the right to prescribe specific security measures for the Purchaser to follow to maintain the confidentiality.

In the event disclosure of such information is necessary, a separate Non-Disclosure Agreement will be required.

Section 13 SOFTWARE LICENSE

A. Motorola Software. Any Motorola Software furnished will be licensed to Purchaser solely according to the terms and restrictions of the Software License Agreement attached as Exhibit B. Purchaser hereby accepts all of the terms and restrictions of the Software License Agreement.

B. Non-Motorola Software. Any Non-Motorola Software furnished by Motorola will be subject to the terms and restrictions of its copyright owner unless such copyright owner has granted to Motorola the right to sublicense such Non-Motorola Software pursuant to the Software License Agreement, in which case the Software License Agreement (including any addendum to satisfy such copyright owner's requirements) shall apply and and the copyright owner will have all of Motorola's rights and protections under the Software License Agreement.

Section 14 PATENT INDEMNIFICATION

A. Motorola will defend at its expense any suit brought against Purchaser to the extent it is based on a third-party claim alleging that the Equipment manufactured by Motorola or the Motorola Software ("Motorola Product") directly infringes a United States patent or copyright ("Infringement Claim"). Motorola's duties to defend and indemnify are conditioned upon: Purchaser promptly notifying Motorola in writing of the Infringement Claim; Motorola having sole control of the defense of the suit and all negotiations for its settlement or compromise; and Purchaser providing to Motorola cooperation and, if requested by Motorola, reasonable assistance in the defense of the Infringement Claim. In addition to Motorola's obligation to defend, and subject to the same conditions, Motorola will pay all damages finally awarded against Purchaser by a

court of competent jurisdiction for an Infringement Claim or agreed to, in writing, by Motorola in settlement of an Infringement Claim.

B. If an Infringement Claim occurs, or in Motorola's opinion is likely to occur, Motorola may at its option and expense: (a) procure for Purchaser the right to continue using the Motorola Product; (b) replace or modify the Motorola Product so that it becomes non-infringing while providing functionally equivalent performance; or (c) accept the return of the Motorola Product and grant Purchaser a credit for the Motorola Product, less a reasonable charge for depreciation. The depreciation amount will be calculated based upon generally accepted accounting standards.

C. Motorola will have no duty to defend or indemnify for any Infringement Claim that is based upon: (a) the combination of the Motorola Product with any software, apparatus or device not furnished by Motorola; (b) the use of ancillary equipment or software not furnished by Motorola and that is attached to or used in connection with the Motorola Product; (c) Motorola Product designed or manufactured in accordance with Purchaser's designs, specifications, guidelines or instructions, if the alleged infringement would not have occurred without such designs, specifications, guidelines or instructions; (d) a modification of the Motorola Product by a party other than Motorola; (e) use of the Motorola Product in a manner for which the Motorola Product was not designed or that is inconsistent with the terms of this Agreement; or (f) the failure by Purchaser to install an enhancement release to the Motorola Software that is intended to correct the claimed infringement. In no event will Motorola's liability resulting from its indemnity obligation to Purchaser extend in any way to royalties payable on a per use basis or the Purchaser's revenues, or any royalty basis other than a reasonable royalty based upon revenue derived by Motorola from Purchaser from sales or license of the infringing Motorola Product.

D. This Section 14 provides Purchaser's sole and exclusive remedies and Motorola's entire liability in the event of an Infringement Claim. Purchaser has no right to recover and Motorola has no obligation to provide any other or further remedies, whether under another provision of this Agreement or any other legal theory or principle, in connection with an Infringement Claim. In addition, the rights and remedies provided in this Section 14 are subject to and limited by the restrictions set forth in Section 5.

Section 15 DISCLAIMER OF PATENT LICENSE

Nothing contained in this Agreement shall be deemed to grant, either directly or by implication, estoppel, or otherwise, any license under any patents or patent applications of Motorola, except that Purchaser shall have the normal non-exclusive royalty-free license to use that is implied, or otherwise arises by operation of law, in the sale of a product.

Section 16 WAIVER

Failure or delay on the part of Motorola or Purchaser to exercise a right or power hereunder shall not operate as a waiver of the right or power. For a waiver of a right or

power to be effective, it must be in a writing signed by the waiving party. An effective waiver of a right or power will not be construed as either a future or continuing waiver of that same right or power, or the waiver of any other right or power.

Section 17 GOVERNING LAW

This Agreement shall be governed by and construed in accordance with the laws of the State of Texas.

Section 18 ASSIGNABILITY

Except as provided herein, neither party may assign this Agreement or any of its rights or obligations hereunder without the prior written consent of the other party, which consent will not be unreasonably withheld. Any attempted assignment, delegation, or transfer without the necessary consent will be void. Notwithstanding the foregoing, Motorola may assign this Agreement to any of its affiliates or its right to receive payment without the prior consent of Purchaser. In addition, in the event Motorola separates one or more of its businesses (each a "Separated Business"), whether by way of a sale, establishment of a joint venture, spin-off or otherwise (each a "Separation Event"), Motorola may, without the prior written consent of the other party and at no additional cost to Motorola, assign this Agreement such that it will continue to benefit the Separated Business and its affiliates (and Motorola and its affiliates, to the extent applicable) following the Separation Event. Motorola may subcontract any of the work, but subcontracting will not relieve Motorola of its duties under this Agreement..

Section 19 SURVIVAL OF TERMS

The following provisions will survive the expiration or termination of this Agreement for any reason: Section 2 (Taxes); Section 5 (Limitation of Liability); Section 7 (Default); Subsection 11.F (Disclaimer of Implied Warranties); Section 12 (Confidential Information); Section 13 (Software License); and Section 16 (Waiver); Section 17 (Governing Law) and Section 19 (Survival of Terms).

Section 20 ADMINISTRATOR LEVEL ACCOUNT ACCESS

Motorola will provide Purchaser with Administrative User Credentials. Purchaser agrees to only grant Administrative User Credentials to those personnel with the training or experience to correctly use the access. Purchaser is responsible for protecting Administrative User Credentials from disclosure and maintaining Credential validity by, among other things, updating passwords when required. Purchaser may be asked to provide valid Administrative User Credentials when in contact with Motorola System support. Purchaser understands that changes made as the Administrative User can significantly impact the performance of the System. Purchaser agrees that it will be solely responsible for any negative impact on the System or its users by any such changes. System issues occurring as a result of changes made by an Administrative User may impact Motorola's ability to perform its obligations under the Agreement or its Maintenance and Support Agreement. In such cases, a revision to the appropriate provisions of the Agreement, including the Statement of Work, may be necessary. To the

extent Motorola provides assistance to correct any issues caused by or arising out of the use of or failure to maintain Administrative User Credentials, Motorola will be entitled to bill Purchaser and Purchaser will pay Motorola on a time and materials basis for resolving the issue.

Section 21 MAINTENANCE SERVICE

If this Agreement contains a Warranty and Maintenance Plan, then, during the Warranty Period, in addition to warranty services, Motorola will provide maintenance services for the Equipment and support for the Motorola Software pursuant to the terms of this Agreement, including the Warranty and Maintenance Plan and Service Terms and Conditions. Such services and support are included in the Contract Price. If Customer wishes to purchase additional maintenance and support services during the Warranty Period, or any maintenance and support services after the Warranty Period, the description of and pricing for such services will be set forth in a separate document. Unless otherwise agreed by the Parties in writing, the terms and conditions applicable to such maintenance and support will be Motorola's standard Service Terms and Conditions, together with the appropriate statements of work.

Exhibit B

SECTION 3

EXHIBIT B: MOTOROLA SOFTWARE LICENSE AGREEMENT

P25 MIGRATION CONTRACT BOOK 28 SEPTEMBER 2012

MOTOROLA

The design, technical, and cost information furnished with this proposal is proprietary information of Motorola Solutions, Inc. (Motorola). Such information is submitted with the restriction that it is to be used only for the evaluation of the proposal, and is not to be disclosed publicly or in any manner to anyone other than those required to evaluate the proposal, without the express written permission of Motorola Solutions, Inc.

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SECTION 3

EXHIBIT B: MOTOROLA SOFTWARE LICENSE AGREEMENT

The Motorola Software License Agreement is included on the following pages.

This page intentionally left blank.

Exhibit B

Software License Agreement

This Exhibit B, Software License Agreement ("Agreement") is between Motorola Solutions, Inc., ("Motorola"), and Hidalgo County, Texas ("Licensee").

For good and valuable consideration, the parties agree as follows:

Section 1 DEFINITIONS

1.1 "Designated Products" means products provided by Motorola to Licensee with which or for which the Software and Documentation is licensed for use.

1.2 "Documentation" means product and software documentation that specifies technical and performance features and capabilities, and the user, operation and training manuals for the Software (including all physical or electronic media upon which such information is provided).

1.3 "Open Source Software" means software with either freely obtainable source code, license for modification, or permission for free distribution.

1.4 "Open Source Software License" means the terms or conditions under which the Open Source Software is licensed.

1.5 "Primary Agreement" means the agreement to which this exhibit is attached.

1.6 "Security Vulnerability" means a flaw or weakness in system security procedures, design, implementation, or internal controls that could be exercised (accidentally triggered or intentionally exploited) and result in a security breach such that data is compromised, manipulated or stolen or the system damaged.

1.7 "Software" (i) means proprietary software in object code format, and adaptations, translations, de-compilations, disassemblies, emulations, or derivative works of such software; (ii) means any modifications, enhancements, new versions and new releases of the software provided by Motorola; and (iii) may contain one or more items of software owned by a third party supplier. The term "Software" does not include any third party software provided under separate license or third party software not licensable under the terms of this Agreement.

Section 2 SCOPE

Motorola and Licensee enter into this Agreement in connection with Motorola's delivery of certain proprietary Software or products containing embedded or pre-loaded proprietary Software, or both. This Agreement contains the terms and conditions of the license Motorola is providing to Licensee, and Licensee's use of the Software and Documentation.

Section 3 GRANT OF LICENSE

3.1. Subject to the provisions of this Agreement and the payment of applicable license fees, Motorola grants to Licensee a personal, limited, non-transferable (except as permitted in Section 7) and non-exclusive license under Motorola's copyrights and Confidential Information (as defined in the Primary Agreement) embodied in the Software to use the Software, in object code form, and the Documentation solely in connection with Licensee's use of the Designated Products. This Agreement does not grant any rights to source code.

3.2. If the Software licensed under this Agreement contains or is derived from Open Source Software, the terms and conditions governing the use of such Open Source Software are in the Open Source Software Licenses of the copyright owner and not this Agreement. If there is a conflict between the terms and conditions of this Agreement and the terms and conditions of the Open Source Software Licenses governing Licensee's use of the Open Source Software, the terms and conditions of the license grant of the applicable Open Source Software Licenses will take precedence over the license grants in this Agreement. If requested by Licensee, Motorola will use commercially reasonable efforts to: (i) determine whether any Open Source Software is provided under this Agreement; (ii) identify the Open Source Software and provide Licensee a copy of the applicable Open Source Software License (or specify where that license may be found); and, (iii) provide Licensee a copy of the Open Source Software source code, without charge, if it is publicly available (although distribution fees may be applicable).

Section 4 LIMITATIONS ON USE

4.1. Licensee may use the Software only for Licensee's internal business purposes and only in accordance with the Documentation. Any other use of the Software is strictly prohibited. Without limiting the general nature of these restrictions, Licensee will not make the Software available for use by third parties on a "time sharing," "application service provider," or "service bureau" basis or for any other similar commercial rental or sharing arrangement.

4.2. Licensee will not, and will not allow or enable any third party to: (i) reverse engineer, disassemble, peel components, decompile, reprogram or otherwise reduce the Software or any portion to a human perceptible form or otherwise attempt to recreate the source code; (ii) modify, adapt, create derivative works of, or merge the Software; (iii) copy, reproduce, distribute, lend, or lease the Software or Documentation to any third party, grant any sublicense or other rights in the Software or Documentation to any third party, or take any action that would cause the Software or Documentation to be placed in the public domain; (iv) remove, or in any way alter or obscure, any copyright notice or other notice of Motorola's proprietary rights; (v) provide, copy, transmit, disclose, divulge or make the Software or Documentation available to, or permit the use of the Software by any third party or on any machine except as expressly authorized by this Agreement; or (vi) use, or permit the use of, the Software in a manner that would result in the production of a copy of the Software solely by activating a machine containing the Software. Licensee may make one copy of Software to be used solely for archival, back-up, or disaster recovery purposes; *provided* that Licensee may not operate that copy of the Software at the same time as the original Software is being operated. Licensee may make as many copies of the Documentation as it may reasonably require for the internal use of the Software.

4.3. Unless otherwise authorized by Motorola in writing, Licensee will not, and will not enable or allow any third party to: (i) install a licensed copy of the Software on more than one unit of a Designated Product; or (ii) copy onto or transfer Software installed in one unit of a Designated Product onto one other device. Licensee may temporarily transfer Software installed on a Designated Product to another device if the Designated Product is inoperable or malfunctioning, if Licensee provides written notice to Motorola of the temporary transfer and identifies the device on which the Software is transferred. Temporary transfer of the Software to another device must be discontinued when the original Designated Product is returned to operation and the Software must be removed from the other device. Licensee must provide prompt written notice to Motorola at the time temporary transfer is discontinued.

4.4. When using Motorola's Radio Service Software ("RSS"), Licensee must purchase a separate license for each location at which Licensee uses RSS. Licensee's use of RSS at a licensed location does not entitle Licensee to use or access RSS remotely. Licensee may make one copy of RSS for each licensed location. Licensee shall provide Motorola with a list of all locations at which Licensee uses or intends to use RSS upon Motorola's request.

4.5. Licensee will maintain, during the term of this Agreement and for a period of two years thereafter, accurate records relating to this license grant to verify compliance with this Agreement. Motorola or an independent third party ("Auditor") may inspect Licensee's premises, books and records, upon reasonable prior notice to Licensee, during Licensee's normal business hours and subject to Licensee's facility and security regulations. Motorola is responsible for the payment of all expenses and costs of the Auditor. Any

information obtained by Motorola and the Auditor will be kept in strict confidence by Motorola and the Auditor and used solely for the purpose of verifying Licensee's compliance with the terms of this Agreement.

Section 5 OWNERSHIP AND TITLE

Motorola, its licensors, and its suppliers retain all of their proprietary rights in any form in and to the Software and Documentation, including, but not limited to, all rights in patents, patent applications, inventions, copyrights, trademarks, trade secrets, trade names, and other proprietary rights in or relating to the Software and Documentation (including any corrections, bug fixes, enhancements, updates, modifications, adaptations, translations, de-compilations, disassemblies, emulations to or derivative works from the Software or Documentation, whether made by Motorola or another party, or any improvements that result from Motorola's processes or, provision of information services). No rights are granted to Licensee under this Agreement by implication, estoppel or otherwise, except for those rights which are expressly granted to Licensee in this Agreement. All intellectual property developed, originated, or prepared by Motorola in connection with providing the Software, Designated Products, Documentation or related services, remains vested exclusively in Motorola, and Licensee will not have any shared development or other intellectual property rights.

Section 6 LIMITED WARRANTY; DISCLAIMER OF WARRANTY

6.1. The commencement date and the term of the Software warranty will be a period of ninety (90) days from Motorola's shipment of the Software (the "Warranty Period"). If Licensee is not in breach of any of its obligations under this Agreement, Motorola warrants that the unmodified Software, when used properly and in accordance with the Documentation and this Agreement, will be free from a reproducible defect that eliminates the functionality or successful operation of a feature critical to the primary functionality or successful operation of the Software. Whether a defect occurs will be determined by Motorola solely with reference to the Documentation. Motorola does not warrant that Licensee's use of the Software or the Designated Products will be uninterrupted, error-free, completely free of Security Vulnerabilities, or that the Software or the Designated Products will meet Licensee's particular requirements. Motorola makes no representations or warranties with respect to any third party software included in the Software.

6.2 Motorola's sole obligation to Licensee and Licensee's exclusive remedy under this warranty is to use reasonable efforts to remedy any material Software defect covered by this warranty. These efforts will involve either replacing the media or attempting to correct significant, demonstrable program or documentation errors or Security Vulnerabilities. If Motorola cannot correct the defect within a reasonable time, then at Motorola's option, Motorola will replace the defective Software with functionally-equivalent Software, license to Licensee substitute Software which will accomplish the same objective, or terminate the license and refund the Licensee's paid license fee.

6.3. Warranty claims are described in the Primary Agreement.

6.4. The express warranties set forth in this Section 6 are in lieu of, and Motorola disclaims, any and all other warranties (express or implied, oral or written) with respect to the Software or Documentation, including, without limitation, any and all implied warranties of condition, title, non-infringement, merchantability, or fitness for a particular purpose or use by Licensee (whether or not Motorola knows, has reason to know, has been advised, or is otherwise aware of any such purpose or use), whether arising by law, by reason of custom or usage of trade, or by course of dealing. In addition, Motorola disclaims any warranty to any person other than Licensee with respect to the Software or Documentation.

Section 7 TRANSFERS

Licensee will not transfer the Software or Documentation to any third party without Motorola's prior written consent. Motorola's consent may be withheld at its discretion and may be conditioned upon

transferee paying all applicable license fees and agreeing to be bound by this Agreement. If the Designated Products are Motorola's radio products and Licensee transfers ownership of the Motorola radio products to a third party, Licensee may assign its right to use the Software (other than RSS and Motorola's FLASHport® software) which is embedded in or furnished for use with the radio products and the related Documentation; *provided* that Licensee transfers all copies of the Software and Documentation to the transferee, and Licensee and the transferee sign a transfer form to be provided by Motorola upon request, obligating the transferee to be bound by this Agreement.

Section 8 TERM AND TERMINATION

8.1 Licensee's right to use the Software and Documentation will begin when the Primary Agreement is signed by both parties and will continue for the life of the Designated Products with which or for which the Software and Documentation have been provided by Motorola, unless Licensee breaches this Agreement, in which case this Agreement and Licensee's right to use the Software and Documentation may be terminated immediately upon notice by Motorola.

8.2 Within thirty (30) days after termination of this Agreement, Licensee must certify in writing to Motorola that all copies of the Software have been removed or deleted from the Designated Products and that all copies of the Software and Documentation have been returned to Motorola or destroyed by Licensee and are no longer in use by Licensee.

8.3 Licensee acknowledges that Motorola made a considerable investment of resources in the development, marketing, and distribution of the Software and Documentation and that Licensee's breach of this Agreement will result in irreparable harm to Motorola for which monetary damages would be inadequate. If Licensee breaches this Agreement, Motorola may terminate this Agreement and be entitled to all available remedies at law or in equity (including immediate injunctive relief and repossession of all non-embedded Software and associated Documentation unless Licensee is a Federal agency of the United States Government).

Section 9 UNITED STATES GOVERNMENT LICENSING PROVISIONS

This Section applies if Licensee is the United States Government or a United States Government agency. Licensee's use, duplication or disclosure of the Software and Documentation under Motorola's copyrights or trade secret rights is subject to the restrictions set forth in subparagraphs (c)(1) and (2) of the Commercial Computer Software-Restricted Rights clause at FAR 52.227-19 (JUNE 1987), if applicable, unless they are being provided to the Department of Defense. If the Software and Documentation are being provided to the Department of Defense, Licensee's use, duplication, or disclosure of the Software and Documentation is subject to the restricted rights set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013 (OCT 1988), if applicable. The Software and Documentation may or may not include a Restricted Rights notice, or other notice referring to this Agreement. The provisions of this Agreement will continue to apply, but only to the extent that they are consistent with the rights provided to the Licensee under the provisions of the FAR or DFARS mentioned above, as applicable to the particular procuring agency and procurement transaction.

Section 10 CONFIDENTIALITY

Licensee acknowledges that the Software and Documentation contain Motorola's valuable proprietary and confidential information and are Motorola's trade secrets. Licensee will not disclose the Software and Documentation to any third party except as permitted by this Agreement or expressly in writing by Motorola. Licensee will take necessary and appropriate precautions to maintain the confidentiality and guard against the unauthorized disclosure of the Software and Documentation. Licensee will limit access to the Software and Documentation only to Licensee's employees who "need to know" and are authorized to use the Software and Documentation as permitted by this Agreement.

Section 11 LIMITATION OF LIABILITY

The Limitation of Liability provision is described in the Primary Agreement.

Section 12 NOTICES

Notices are described in the Primary Agreement.

Section 13 GENERAL

13.1. COPYRIGHT NOTICES. The existence of a copyright notice on the Software will not be construed as an admission or presumption of publication of the Software or public disclosure of any trade secrets associated with the Software.

13.2. COMPLIANCE WITH LAWS. Licensee acknowledges that the Software is subject to the laws and regulations of the United States and Licensee will comply with all applicable laws and regulations, including export laws and regulations of the United States. Licensee will not, without the prior authorization of Motorola and the appropriate governmental authority of the United States, in any form export or re-export, sell or resell, ship or reship, or divert, through direct or indirect means, any item or technical data or direct or indirect products sold or otherwise furnished to any person within any territory for which the United States Government or any of its agencies at the time of the action, requires an export license or other governmental approval. Violation of this provision is a material breach of this Agreement.

13.3. ASSIGNMENTS AND SUBCONTRACTING. Motorola may assign its rights or subcontract its obligations under this Agreement, or encumber or sell its rights in any Software, without prior notice to or consent of Licensee.

13.4. GOVERNING LAW. This Agreement is governed by the laws of the United States to the extent that they apply and otherwise by the internal substantive laws of the State to which the Software is shipped if Licensee is a sovereign government entity, or the internal substantive laws of the State of Illinois if Licensee is not a sovereign government entity. The terms of the U.N. Convention on Contracts for the International Sale of Goods do not apply. In the event that the Uniform Computer Information Transaction Act, any version of this Act, or a substantially similar law (collectively "UCITA") becomes applicable to a party's performance under this Agreement, UCITA does not govern any aspect of this Agreement or any license granted under this Agreement, or any of the parties' rights or obligations under this Agreement. The governing law will be that in effect prior to the applicability of UCITA.

13.5. THIRD PARTY BENEFICIARIES. This Agreement is entered into solely for the benefit of Motorola and Licensee. No third party has the right to make any claim or assert any right under this Agreement, and no third party is deemed a beneficiary of this Agreement. Notwithstanding the foregoing, any licensor or supplier of third party software included in the Software will be a direct and intended third party beneficiary of this Agreement.

13.6. SURVIVAL. Sections 4, 5, 6.4, 7, 8, 9, 10, 11 and 13 survive the termination of this Agreement.

13.7. ORDER OF PRECEDENCE. In the event of inconsistencies between this Exhibit and the Primary Agreement, the parties agree that this Exhibit prevails, only with respect to the specific subject matter of this Exhibit, and not the Primary Agreement or any other exhibit as it applies to any other subject matter.

13.8 SECURITY. Motorola uses reasonable means in the design and writing of its own Software and the acquisition of third party Software to limit Security Vulnerabilities. While no software can be guaranteed to be free from Security Vulnerabilities, if a Security Vulnerability is discovered, Motorola will take the steps set forth in Section 6 of this Agreement.

Exhibit C

SECTION 4

EXHIBIT C: TECHNICAL AND IMPLEMENTATION DOCUMENTS

P25 MIGRATION CONTRACT BOOK **28 SEPTEMBER 2012**

MOTOROLA

The design, technical, and cost information furnished with this proposal is proprietary information of Motorola Solutions, Inc. (Motorola). Such information is submitted with the restriction that it is to be used only for the evaluation of the proposal, and is not to be disclosed publicly or in any manner to anyone other than those required to evaluate the proposal, without the express written permission of Motorola Solutions, Inc.

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SECTION 4

EXHIBIT C: TECHNICAL AND IMPLEMENTATION DOCUMENTS

Technical and Implementation Documents are included on the following pages.

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Exhibit C

Technical and Implementation Documents

SECTION 4A

EXHIBIT C-1: SYSTEM DESCRIPTION

P25 MIGRATION CONTRACT BOOK **28 SEPTEMBER 2012**

MOTOROLA

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SYSTEM DESCRIPTION

In response to Hidalgo County Sheriffs Offices' request for an upgrade dispatch solution, Motorola is proposing the MCC 7500 Dispatch Console. Motorola's solution consists of two MCC 7500 Dispatch consoles to replace their current dispatch consoles. Hidalgo County has also received two additional MCC 7500 Dispatch Consoles from a separate proposal from Homeland Security Advisory Council (HSAC). Together there will be a total of four dispatch positions. Six Watson Dispatch Furniture positions are also included in this proposal for the new dispatch room. Mobile and portable subscribers have also been included in this proposal.

4.1 HIDALGO COUNTY SHERIFF'S OFFICE DISPATCH OVERVIEW

Motorola Solutions proposes two new MCC 7500 Dispatch Consoles for Hidalgo County Sheriff's Office (HCSO). HCSO currently operates on four dispatch consoles. The proposed console system is a dispatch solution that provides seamless integration with Regional P25 system. The solution will provide HCSO dispatch operators with wired and wireless access to users on the Regional P25 system. Six positions of Watson Furniture have also been proposed to furnish the new dispatch operator room.

The following diagram below in Figure 4-1 provides a high level view of the proposed solution.

11 x 17 views of all drawings are included in Section 2, System Drawings.

Figure 4-1: High Level Diagram.

4.1.1 Hidalgo County SO Proposed Solution

Motorola Solutions proposes four positions of MCC 7500 dispatch consoles. A Voice processing Module (VPM) and an HP Workstation are the main components of the MCC 7500 Dispatch solution. The MCC 7500 uses a T1 connection back to the Regional P25 system. In the event of a failure of the T1 connection to the Regional P25 system, consolettes have been proposed as an RF backup solution to the nearest Regional tower site. Mobile radios, configured as control stations, have also been proposed as a third orders backup dispatch solution in the event the dispatch console fails. Additionally, the proposed solution includes coax system for the consolettes and control stations, and will use the existing antennas.

The following diagram shown below in Figure 4-2 depicts the system interconnection.

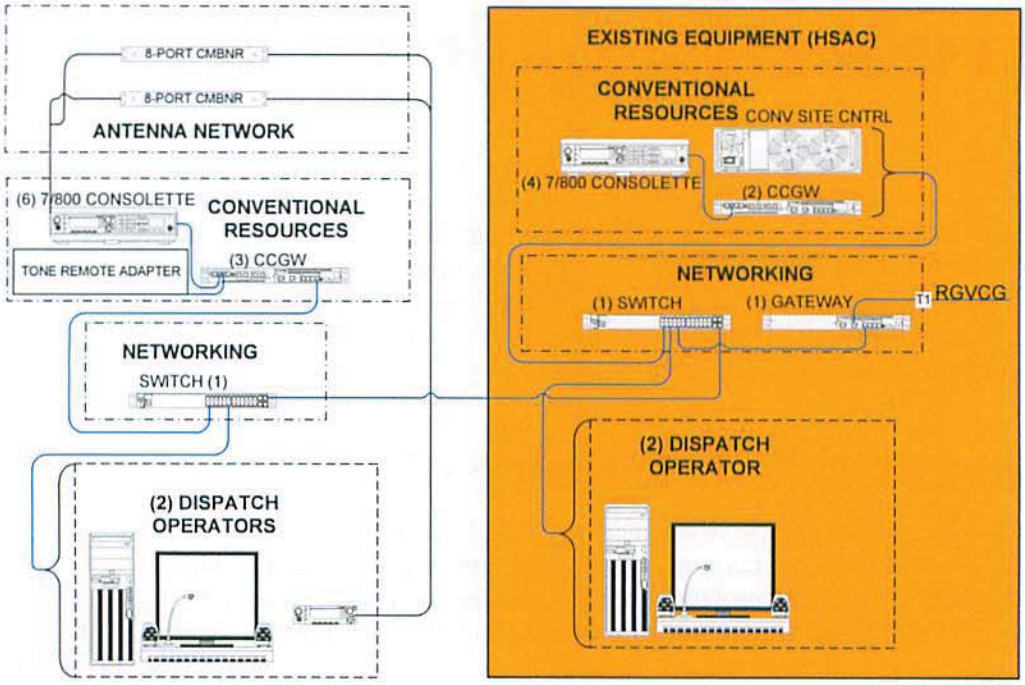


Figure 4-2: System Interconnection Diagram.

4.1.2 Hidalgo County SO Dispatch Equipment

The following is a high level equipment summary of the proposed design. Not all equipment is listed.

The MCC 7500 Dispatch Console consists of the following elements:

- (2) Dispatch Position, consisting of:
  - (1) HP Z420 Desktop w/Windows 7
  - (1) Dual Instant Recall Recorder
  - (1) 19" LCD Monitor
  - (1) Gooseneck Microphone
  - (2) Desktop Speakers
  - (1) Dual Pedal Foot Switch
  - (1) Voice Processing Module (VPM)
  - (1) UPS Backup Tower
- (1) HP 24-port Switch
- (3) Conventional Channel Gateway (CCGW)
- (6) APX Consolettes
- (3) 7/800 APX Control Station
- (1) 7/800-VHF Dual Band Control Station
- (1) UPS

4.1.3 Hidalgo County SO Rack Elevation

The proposed solution calls for one new rack located in the server room. The racked equipment requires (8) 20amp circuits. Figure 4-3 below illustrates the installation of equipment in the rack.

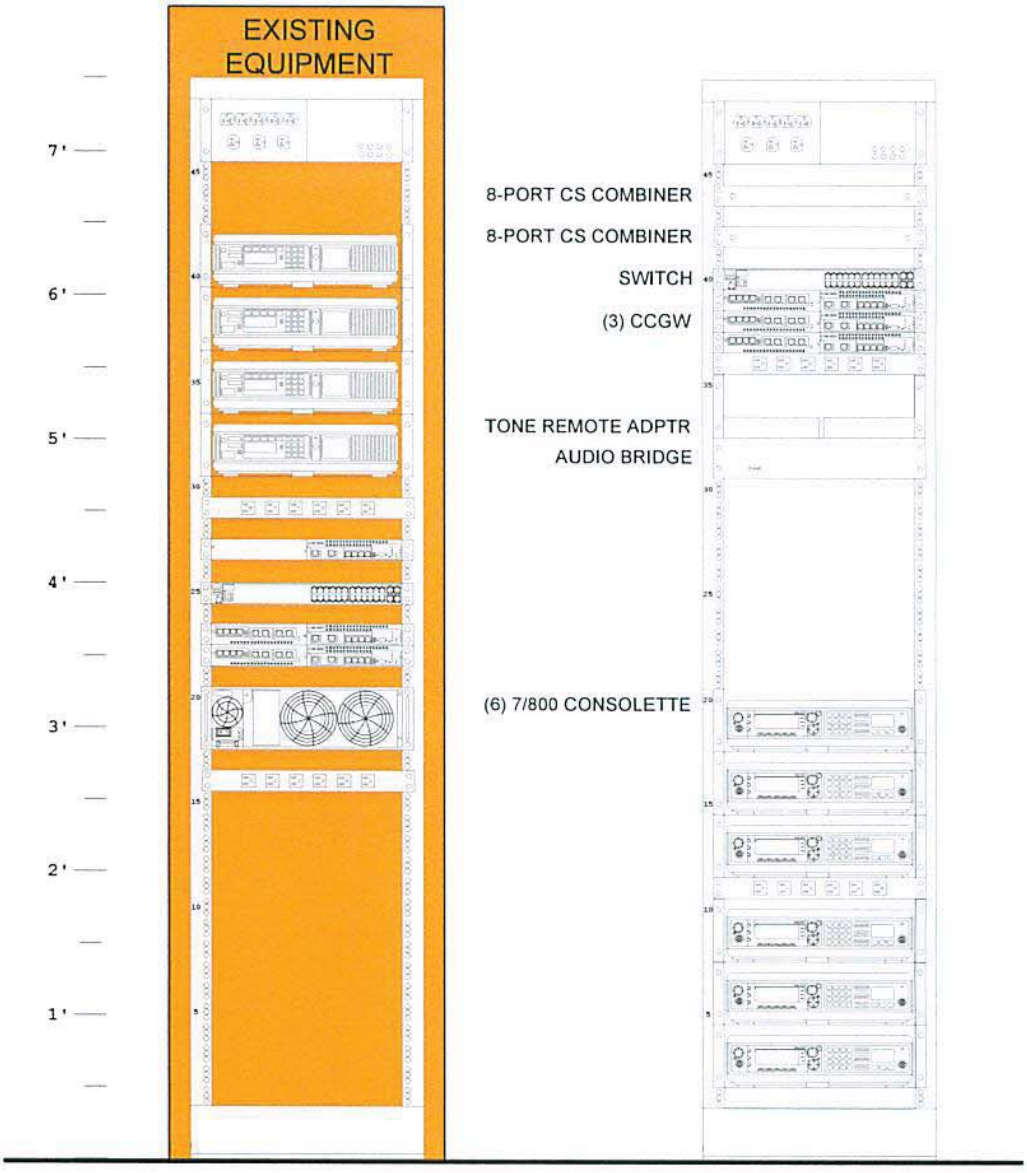


Figure 4-3: Illustration of the installation of equipment in the rack.

4.1.4 Hidalgo County SO Antenna Network

Four existing 7/800 Antennas currently located at HCSO will be utilized. They will connect to two control station combiners to allow the proposed and existing resources to operate on a reduced set of antennas. This will also allow for any future 7/800MHz resources to use the proposed antenna system. A single VHF antenna has also been proposed to interface to a Dual Band Control Station located at one of the operator positions. Figure 4-4 below illustrates the proposed antenna systems.

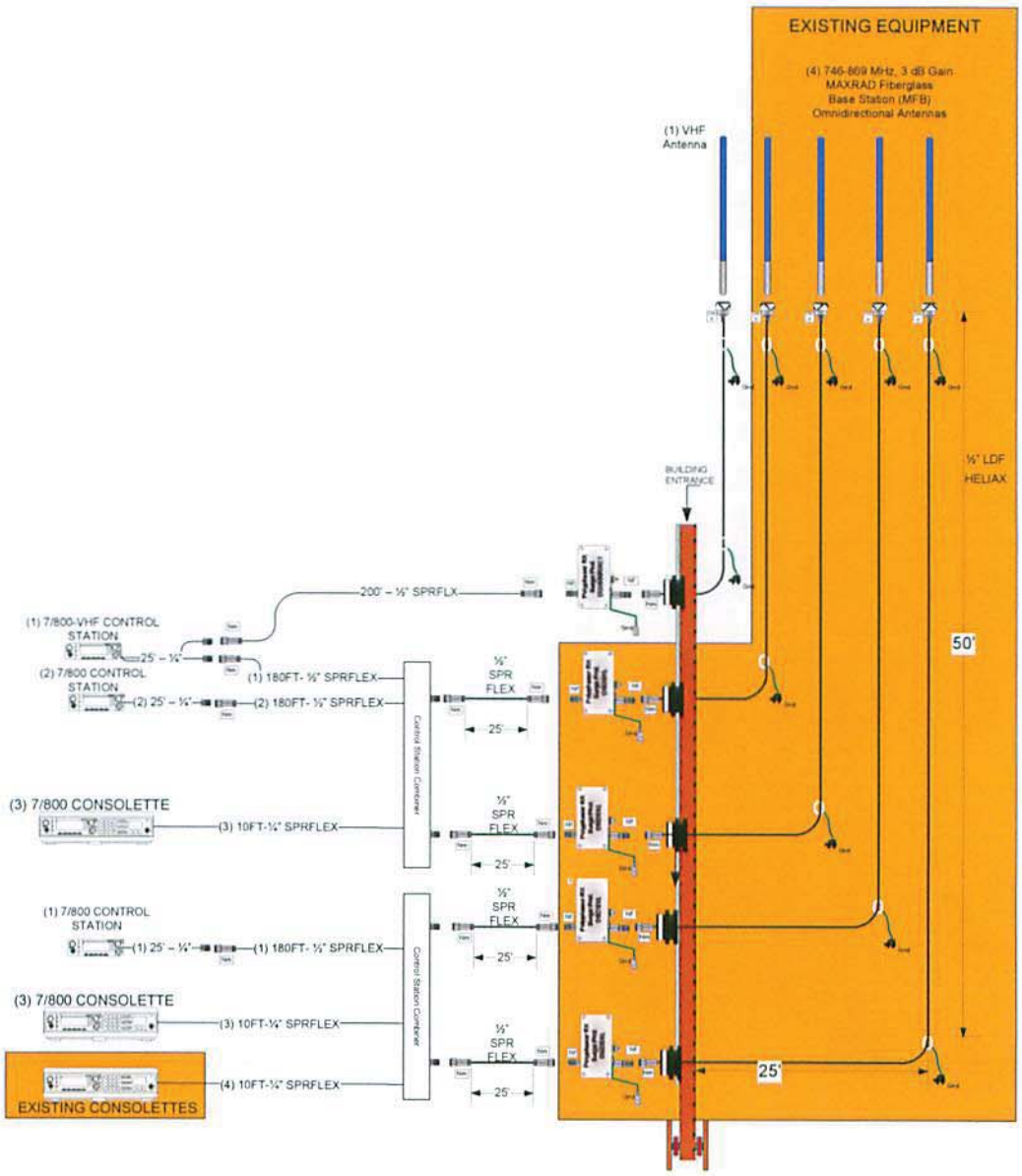


Figure 4-4: Illustration the proposed antenna systems.

4.2 MCC 7500 DISPATCH SOLUTION OVERVIEW

The MCC 7500 Dispatch Console will provide Hidalgo County SO with a scalable, flexible system architecture, sophisticated network management and security, and an easy migration to future capabilities.

Cost Savings and Ease of Use

The MCC 7500 is designed to help reduce the total cost of owning an IP-based, feature-rich dispatch system without compromising quality and reliability. Specific benefits of the MCC 7500 include the following:

- The intuitive, easy to use Graphical User Interface (GUI) enhances dispatchers' efficiency and accuracy.
- Robust API allows CAD systems to have complete access to console status and features for further improvements in efficiency and accuracy.
- Software-based upgrades facilitate system and feature expansion.
- Installation is simplified and site costs are reduced because console positions function without backroom electronics.
- Console configuration is performed at centralized Network Management clients, and changes are automatically distributed, which saves valuable technician and administrator time.
- Offers robust service logs that contain real-time information to facilitate maintenance activities.
- Consoles are integrated into the ASTRO 25 fault management system, which uses industry-standard event monitoring protocols, resulting in fewer dispatch site visits.
- Flexible bandwidth requirements minimize operating costs for remote console sites.
- Conventional audio can be transported over the IP network, which eliminates the need for channel banks or a separate circuit-switched network.

MCC 7500 Console Configuration for the Hidalgo County Sheriff's Office

The proposed solution offers Hidalgo four MCC 7500 Dispatch Console to interface with the Regional ASTRO 25 system.

As the most advanced dispatch console in Motorola's portfolio of mission-critical communications technologies, the MCC 7500's standard features offer Hidalgo County state-of-the-art communications, console management and configuration functionality, dispatch operation, and communications security.

4.2.1 Interoperability Features

ASTRO 25 is specifically designed around the APCO P25 standards. All voice messages are digitized, all LMR system features are compliant with P25 standards, and the system uses the P25-defined, 9600-bps control channel format for all control channel commands. As part of ongoing enhancements to this solution, Motorola has joined and actively participated in the P25 interoperability committee to ensure continuously improving interoperability with the radios of other P25 vendors. ASTRO 25 is also fully Common Air Interface (CAI) compliant.

MUTUAL AID INTEROPERABILITY OFFERS FLEXIBILITY AND FUTURE EXPANSION.

Motorola can use multiple Hidalgo County-furnished (CF) interoperability radios to install, configure, and make operational the necessary hardware and software to provide two-way communications between the MCC 7500 consoles and mutual aid channels.

As shown in Figure 4-5, interoperable communications can be provided through a dispatcher-initiated interface (patch) to the CF mutual aid radios. The Motorola Conventional Channel Gateway (CCGW) forms the bridge between the MCC 7500 dispatch console on the ASTRO 25 trunked radio network and the CF mutual aid radios. This allows the dispatcher to patch together mutual aid radios and required subscribers on the ASTRO 25 system as situations dictate. Each CCGW can connect with up to four conventional or trunked mutual aid channels. Multiple (up to three) CCGWs can be installed per site to support a total of 12 Mutual Aid radios to communicate with various agencies. One CCGW can be placed any RF or console site allowing flexibility of connecting to the MCC 7500 consoles. CCGW interfaces can be installed at any location as long as there is network connectivity back to the Zone Core. Additional CCGWs can easily be added anywhere on the LMR network as mutual aid requirements change.

As an incident occurs, local mutual aid agencies can initiate radio conversation to a MCC 7500 dispatch location via a programmed channel. By selecting an icon on the console monitor, the dispatcher will initiate a patch to a talkgroup for First Responders as necessary. Incident conversations will be seamless from the moment of the patch and can be recorded like any talk group conversation within the LMR network. The dispatcher will also be able to take part in and monitor conversations for the duration of the incident, as necessary.

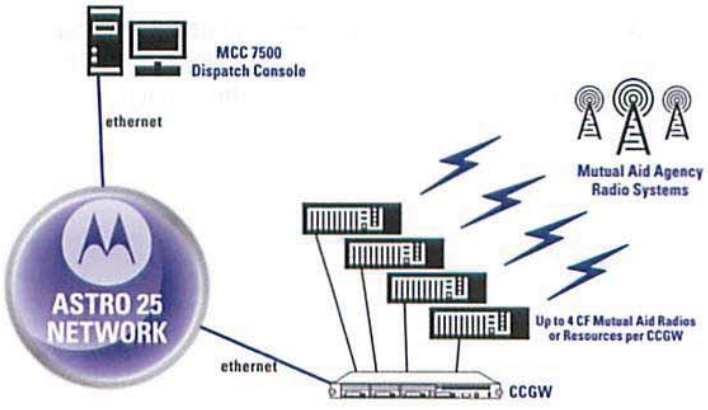


Figure 4-5: Mutual Aid Components.

4.2.1.1 Integration with the ASTRO 25 Network

The MCC 7500 IP Dispatch Consoles will be seamlessly integrated into the ASTRO 25 system, without interface boxes, digital voice gateways or backroom electronics for an integrated mission critical network. This tight union between radio infrastructure and dispatch console equipment has several operational benefits to Hidalgo County.

THE MCC 7500 CONSOLE'S IMPROVED USE OF BANDWIDTH ENSURES THAT EMERGENCY CALLS WILL MAKE IT THROUGH TO THE DISPATCH OPERATOR, REGARDLESS OF SYSTEM TRAFFIC.

This modular IP approach substantially reduces the amount of space needed for backroom electronics. All dispatch activity is performed over IP. The physical space needed to accommodate the MCC 7500 console position is comparable to that required for a personal computer.

Both trunked talkgroups and conventional radio channels can be accessed and controlled from one MCC 7500 IP Dispatch Console over the same network. This reduces overall transport costs and the need for duplicate fixed network equipment. Table 4-1 outlines the benefits of the MCC 7500's seamless integration to the ASTRO 25 network.

Table 4-1: Benefits of Seamless Integration of the MCC 7500 IP Console with Regional ASTRO 25 Network.

Feature	Benefit to Hidalgo County
Tight coordination between the IP network and IP console eliminates the potential for audio degradation.	Subscribers and console operators will be able to communicate without loss of information.
Emergency calls are prioritized for successful delivery regardless of network traffic.	Console operators will always be able to hear emergency calls from users in the field.
IP network redundancy ensures call traffic delivery.	No lost communications.
Inherent access to all system resources within the network provides dispatch priority to reach any user when needed.	Console operators will always be able to reach out to users in the field.
Rapid call set up times and quality of service, regardless of the size of the system.	The ability to scale the system to handle future capacity, while maintaining efficient dispatch operations.
True end-to-end encryption from the subscriber to the console operator position, enhancing operational security.	Assurance that sensitive, private communications will remain secure, from the user in the field to the console dispatch operator.
Improved bandwidth efficiencies reduce transport costs.	Ongoing cost savings for Hidalgo County.

Connection to ASTRO 25 System

The site router provides an interface that handles all of the IP Network Management traffic between the MCC 7500 Dispatch Console center and the ASTRO 25 system's master site. The site router fragments large IP packets according to industry standards, prioritize packets, and converts Ethernet data to the desired transport medium.

The site LAN switch provides a LAN interface for dispatch site equipment and a LAN port for the site router. Through the switch, service technicians can access the system's configuration manager and service the equipment.

4.2.1.2 Conventional Base Station Interfaces

The MCC 7500 is capable of accessing and controlling Hidalgo's analog and digital conventional base stations through the use of conventional channel gateways (CCGW). This capability lowers their cost of ownership in two ways:

- It uses the same transport network, reducing the requirements for dedicated backhaul.
- It reduces the hardware requirements for interoperability, lowering fixed network equipment costs.

The dispatch console processes audio received from the station, and controls various features on the stations, such as frequency selection, private line selection, and repeater on/off.

Each GGM 8000 router can support up to 10 IP interfaced base stations. With the optional CCGW interface card, up to 4 additional conventional resources can be integrated using any combination of 4-wire analog, and v.24 interfaces. Through the use of one of the analog ports, and one of the v.24 ports, a digital and analog mixed mode channel may be interfaced to the system, utilizing one of the four available channel slots of the CCGW. Additionally, the GGM 8000 CCGWs allow for recovery of MDC1200 and digital signaling, such as unit ID, and emergency alarm, which is in turn, passed to the MCC 7500 dispatch operator position(s).

4.2.2 Console Operations

The MCC 7500 IP Console is designed to provide mission-critical audio between the dispatch console and users in the field. It is optimized for real-time audio, prioritizing emergency calls over other traffic, minimizing voice queuing, and transmitting calls in 450 milliseconds or less.

Using robust error mitigation to maintain call quality even when the system is heavily loaded, the MCC 7500 IP Console reduces communication errors that may force dispatch console operators to repeat their transmissions.



4.2.2.1 Dispatch Interface

The MCC 7500's graphical user interface (GUI) optimizes user efficiency. It is designed to display the maximum number of resources a dispatch operator is able to easily view and control. The Hidalgo County Sheriff's Office can customize the MCC 7500's GUI by agency or by individual user to meet their dynamic needs and requirements.

EASY TO USE, FLEXIBLE, AND CUSTOMIZABLE USER INTERFACE

Elite Dispatch Graphical User Interface

The MCC 7500 Elite Dispatch GUI is an enhanced version of Motorola's Gold Elite Dispatch GUI. For existing Gold Elite users, the GUI allows a smooth transition and minimal training for radio dispatch operators. For new users, the graphical icons and customization options make the MCC 7500 IP console GUI easy to learn and operate.

An example of the MCC 7500's GUI is shown in Figure 4-6.

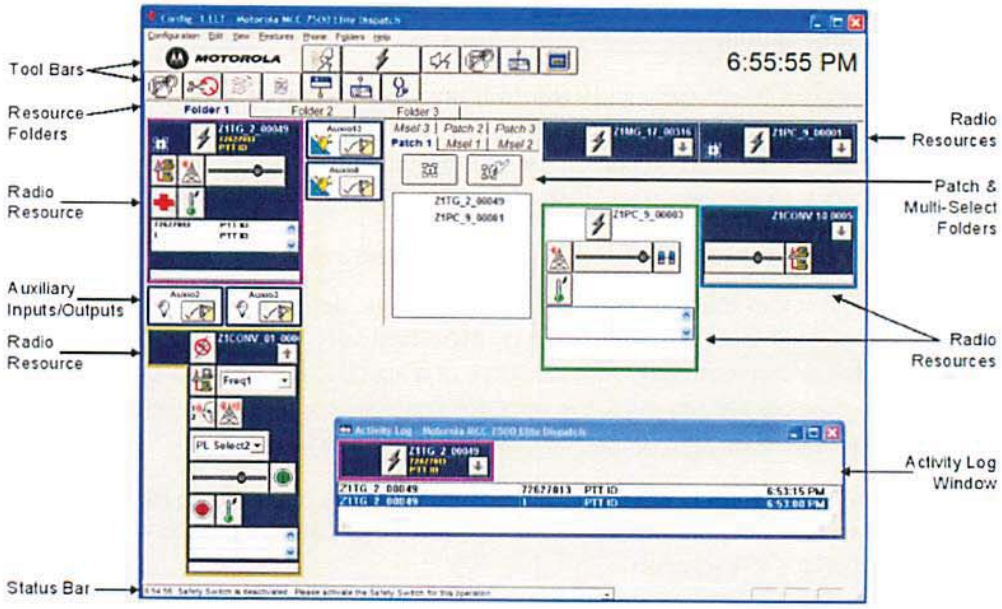


Figure 4-6: The MCC 7500's GUI delivers critical real-time information is delivered to the console operator when and where they need it.

Based on operator preference, the MCC 7500 GUI can be customized to show details of trunked and conventional channels on a per-channel basis. Various controls can be highlighted, such as patch status, frequency select, coded/clear select, and individual volume control. Per-channel controls can be fully or partially shown, or hidden to save space on the screen. Busy dispatch operators can respond to a missed call by simply clicking on an entry in the Activity Log. The number of calls and call information displayed in the Activity Log is customizable to suit the needs of the user. The status of auxiliary inputs and outputs can be conveniently interpreted from the GUI with the use of familiar graphical icons, such as a door shown open or closed.

4.2.2.2 Standard Radio Transmission and Reception

A typical MCC 7500 console has two speakers, one for selected audio and the second for all remaining unselected audio. Additional speakers can be added to the console, allowing dispatch operators to configure a specific speaker for a set of designated audio sources. This simplifies multitasking between multiple audio sources, allowing flexibility in the way the audio is presented to the dispatch operator.

Receiving Calls from the Field and Other Dispatch Operators

Dispatch operators have great flexibility as to how to hear calls from field radio users and other dispatch operators. Each console dispatch operator can define his or her own audio reception profile. They can select a single audio source, whether conventional or talkgroup, to be heard on a selected speaker ("Single Select"). They can also define groups of radio resources that can all be heard on a selected speaker ("Multi-Select").

Initiating Calls to the Field and Other Dispatch Operators

The dispatch operator has several different ways of initiating a call. In most circumstances, a "General Transmit" is appropriate. With the general transmit, the dispatch operator selects a resource on the console and activates the transmission through a footswitch, headset transmit button, microphone transmit button.

If the dispatch operator needs to quickly transmit on a resource, they use the "Instant Transmit" function, which activates the resource regardless of whether it is selected. To prevent accidental activation of "Instant Transmit," it can be limited through an "Instant Transmit Safety Switch," which must be pressed prior to activation of "Instant Transmit."

Making Calls to the Field and Other Dispatch Operators

The dispatch operator can transmit audio in different ways, depending on who they need to speak with and how important that communication is. Most basically, they can make calls to all users listening to a specific conventional radio resource or a specific talkgroup ("Trunking Talkgroup"). When multiple resources are required, the operator can select additional talkgroups and/or conventional channels as needed for the call using the multi-select feature.

The MCC 7500 system enables dispatch operators to make private calls to individual field radio users or dispatch operators. Once this private call is established, it can be patched in with another resource at the dispatch operator's discretion.

Controlling Console Audio

The MCC 7500 IP Dispatch Console offers the operator several different ways of controlling or muting the audio on their console. The operator can change the audio volume of any specific resource routed to a selected speaker and, if they desire, can mute and un-mute all non-selected resources on the console ("All Mute") for 30 seconds.

The console enables the dispatcher to transmit on a resource while receiving audio from other resources. It also can prevent acoustic feedback when a co-located operator position transmits by muting the transmitting operator position's audio on a shared resource.

Controlling Network Audio

Dispatch operators can control the audio on the ASTRO 25 network. Using the console, the operator can enable or disable radio users in a talkgroup from hearing transmissions of other radio users in that talkgroup, in order to compartmentalize traffic, reduce interruptions, and maintain communications between dispatch and the field. When this function is enabled or disabled, all dispatch consoles with this resource assigned are updated with the current status of the feature. This feature can be controlled from any dispatch console.

4.2.2.3 Dispatch Audio Experience

Emergency Alarms

The MCC 7500 IP Dispatch Console is capable of monitoring radio subscribers for user initiated emergency activations. On subscriber radios that are equipped and programmed to transmit an emergency alarm, the MCC 7500 detects that this emergency has occurred and displays the emergency on operator positions that are preprogrammed to receive the emergency notification.

Operator positions can be programmed to either receive the emergency or to completely ignore it. In the event of an emergency condition from a radio user, all programmed consoles with give both an audible and visual indication of the event. The dispatch operator can then silence the emergency leaving the visual indication on the screen indicating information on the initiating radio allowing the call to be handled and dispatched appropriately.

Once an emergency is received all programmed operator positions will give the audible and visual indication of the event. Any one of these operator positions has the ability to silence the emergency at only their position or for all operator positions on the system.

In the event of a system that all channels are busy at the RF site that receives the emergency, that event is automatically given a Priority Level 1. This is the highest priority possible, putting the emergency call at the top of any busy queue. The emergency call will be given the next available voice channel at that site bumping all non-emergency calls in the queue.

Headset Jack

Each dispatch console is capable of supporting up to two headset jacks. A headset jack allows a dispatch console user to use a headset while operating the dispatch console. Each headset can either be connected to the console for supervisory applications, or to a desk telephone.

The headset jack contains two volume controls: one for adjusting the level of received radio audio and one for adjusting the level of received telephone audio.

The headset jack supports headsets which use either PJ7 (6-wire) or PJ327 (4-wire) longframe connectors (6-wire headsets have a PTT button while 4-wire headsets do not have a PTT button).

Desktop Speakers

Each dispatch console is capable of supporting up to 8 audio speakers. These speakers supply audio for select/unselect, as well as pre-determined audio sources to specific monitor speakers., each of which transmits unique audio—that is, an audio source cannot appear in multiple speakers at a single dispatch console. Each position supports up to eight audio speakers. Monitor speakers – can tie specific talkgroups to a certain speaker, such as all fire resources to speaker 3.

Each speaker has individual volume controls, and contains an amplifier that provides a maximum of 2 Watts of power output. Speakers are self-contained units, and can be placed on a desktop, mounted in a rack/furniture, mounted on a wall, or mounted on a computer monitor. A mounting bracket is included with each speaker.

Footswitch

Each dispatch console is capable of a dual pedal footswitch. The footswitch can be configured to control general transmit and monitor functions.

Telephone/Headset Port

The telephone/headset port allows an external telephone set to be connected to the dispatch console. The dispatch console's headset can then be used to communicate on both the radio system and a telephone system (i.e. a 911 system).

When a telephone call occurs at a dispatch position, radio audio is directed from the headset to the appropriate console speaker. The headset microphone audio is routed to the telephone, allowing the dispatch console user to communicate hands-free on the telephone set. When the dispatch operator ends their call, the headset reverts back to full radio operation.

When the dispatch operator transmits on a radio resource during a telephone call, the headset microphone is re-routed to the radio system for the duration of the transmission. Once the transmission is completed, the headset microphone is routed back to the telephone. During the transmission, the dispatch operator continues to hear the telephone audio through the headset.

Instant Recall Recorder Port (for Radio)

Short-term, console-specific audio recording is a mechanism used to record a portion of the inbound audio present on a specific dispatch console and make it readily available to the dispatch console user. This recorded audio is retained by the recording system for a short period (typically about 60 minutes) and is easily played back by the dispatch console user. This allows the dispatch console user to replay received audio that the user may have missed.

The instant recall recorder port (for radio) allows an instant recall recorder to be connected to a dispatch console. The port provides an output containing the receive radio audio on the selected channels. Transmit audio of any type (from either this dispatch console or a parallel dispatch console) as well as tones generated by the dispatch console (emergency tones, callback tones, busy tones) are not included in the audio output.

Dispatch console generated tones (e.g., emergency alarm tones, trunking busy tones, error tones, etc.) are not included in the audio appearing at the analog audio output. This is done so that they do not interfere with the dispatch console user's ability to understand the voice audio that was recorded.

4.2.2.4 Emergency Radio Transmission and Reception

As part of a mission-critical communications network, the MCC 7500 facilitates immediate prioritization and resolution of emergency communications between Hidalgo County dispatch and first responders in the field. This enables dispatch operators and first responders to focus on their mission, not their equipment—especially during critical situations.

When a field user or another dispatch operator makes a trunking emergency call, the console emits both visual and audible indications ("Emergency Alarm"). The operator can then "recognize" the emergency call, which ends the audible emergency indication and notifies all console operators that the emergency is being addressed ("Emergency Recognize"). The audible emergency indication may also be muted by a console operator without recognizing the emergency alarm ("Mute Tones at a Single Op"). When an emergency is over, the dispatch console user can end the Emergency Alarm. The emergency mode remains active on the initiating radio unit until it is ended (reset) by the radio user.

Receiving an Emergency Call

When a field user or another dispatch operator makes a trunking emergency call, the console emits both visual and audible indications ("Emergency Alarm"). The audible indication works to alert the dispatch operator that an emergency is underway; the visual indication directs the dispatch operator's attention to the specific resource on which the emergency call is being made. The dispatch operator can immediately reserve a voice channel for the duration of the emergency.

The audible indication for an emergency is generated at the maximum level of the received audio, regardless of what volume the console has set that resource to. This is to ensure that the console operator does not miss the call. When the emergency call has been acknowledged, the volume for that resource is returned to its previous level.

Responding to an Emergency Call

When a console operator wishes to respond to the trunking emergency call, they can bypass the standard console interface to auto-open a quick list, which contains specific controls for recognizing an emergency call, initiating an emergency call, and ending an emergency call ("Auto-Open of Quick List"). The operator can then "recognize" the emergency call, which ends the audible emergency indication and notifies all console operators that the emergency is being addressed ("Emergency Recognize").

The audible emergency indication may also be muted by a console operator without recognizing the emergency alarm ("Mute Tones at a Single Op"). This would be used in a situation where one agency is monitoring a channel that belongs to another agency. If an emergency alarm comes in on the second agency's channel, the first agency could mute the tones at their dispatch consoles without having to wait for the second agency to recognize it.

Ending an Emergency Call

When an emergency is over, the dispatch console user can end the Emergency Alarm. The visual indication on the console GUI is removed, and the console informs the trunking controller and other consoles that the emergency is over ("Emergency End/Knockdown").

The emergency mode remains active on the initiating radio unit until it is ended (reset) by the radio user.

4.2.2.5 Radio Patch Control

MCC 7500 console users can patch communication between trunked and/or conventional radios that are normally unable to communicate with each other due to different features, programming, or even different frequency bands. A patch group is a group of linked resources that can both receive messages from a console and transmit to all other members of the patch group. The MCC 7500 supports a maximum of 16 active patch groups.

Setting up a Standard Patch

A dispatch operator can set up a standard patch between trunked resources and/or conventional resources. After the patch is created, the dispatch console transmits all audio on one resource to all other resources in the patch group.

Patched radio users see the ID or alias of the other patched radio(s), as opposed to that of the console, provided that the radio subscriber is capable of displaying IDs. This minimizes confusion and the need for the dispatch operator to intervene in the call. Patches are automatically re-established if interrupted so the MCC 7500 user can concentrate on continuing operations.

Pre-Defined Patches

Patches can also be pre-defined, and be automatically re-initiated each time a dispatch console computer is restarted ("Patch Auto-Start").

Using Multi-Select

The Multi-Select feature allows a dispatch console to define groups of selected radio resources. When a Multi-Select group is opened, all of the resources in the group are simultaneously selected. Resources can be added or removed from a Multi-Select group while it is open or while it is closed.

The Multi-Select feature:

- Selects multiple resources simultaneously.
- Defines and stores groups of resources so that multiple resources can be conveniently selected and deselected.

Note: This operation is different than that of the patch folders. A dispatch console can only have one multi-select group active at a time, but it can have multiple patch groups simultaneously active.

4.2.2.6 Call Management and Control

Automatic Prioritization of Calls

Calls on the MCC 7500 Dispatch Console are prioritized through a transmission hierarchy. Calls from primary supervisors take priority over those from secondary supervisors, which in turn take priority over non-supervisors. Instant Transmit or All-Points Bulletin (APB) transmissions, regardless of whether they are from a supervisor, will take priority over general or patch transmissions.

Multiple dispatch console operators can be designated as primary supervisors on the same system, which is useful when multiple agencies share one system, each with their own primary supervisor.

Console supervisors have the capability to disable and enable operator console functionality as necessary.

Manual Prioritization of Calls

"System Access Priority Select" allows a dispatch operator to prioritize trunked resources on the system as either "normal" or "tactical." A dispatch operator can change the priority of a trunked resource to tactical in order to give the resource a better chance of gaining communication access on a busy system. Only emergency calls have a higher priority than tactical. When the System Access Priority status of a resource is changed, it is updated at all dispatch consoles in the systems that are monitoring that trunked resource.

Standard Call Indications

The MCC 7500 Console indicates the availability of any given trunking resource, whether or not it is being transmitted on at the moment. It will also give an inbound call indication that provides the console operator with a visual cue of audio activity on a radio resource. This functionality makes it easy for an operator to see at a glance what the status of a resource is at any moment.

Resource Identification

To identify a resource, the console reads its unit ID, a string of digits that uniquely represent that resource. The console makes it easy for operators to read unit IDs by replacing them with user-friendly 16-character aliases. These aliases, which are defined during the configuration of the console system, can replace the unit IDs of the following resources:

- Trunking Talkgroup Resource
- Trunking Announcement Group Resource
- Trunking Individual Call Resource
- Conventional Channel Resource
- Conventional Channel Frequency Selection Control
- Conventional Channel PL Selection Control
- Unit ID
- Aux I/O Resource

On large systems, unit IDs can be conserved by grouping all individual call resources on a specific trunking talkgroup together under a certain ID. This flexibility simplifies the daily work of] dispatch operators.

Call Alerting

When an operator needs to reach a radio user or dispatch operator and they are not near their radio or console, the dispatch operator can "page" the unattended radio or console through a series of beeps and an indication of the sender's ID. When the radio user or dispatch operator becomes available, they will see the unit ID of the calling dispatch operator's console, and be able to return the call. Additionally, a Call Alert can be used to trigger an activity. For instance, a Call Alert may cause a vehicle's horn to sound and its lights to flash.

The console operator can even send a call alert to a user who is involved in voice and data communications over the network.

4.2.3 Console System Security

The MCC 7500 Console supports the Information Assurance capabilities of the ASTRO 25 network by enabling end-to-end encryption from the operator position, so that at no point will communications be undermined by unencrypted transmissions. Each dispatch operator will be able to fully participate in secure communications while being confident that sensitive, vital information will not be heard by unauthorized individuals.

Secure Access to the Console

To use the dispatch console, an operator must enter a valid radio system user account name and password. The dispatch console validates that information with the radio system's network manager and allows the user to access only the resources for which the user has access rights. This also applies to third party applications that use the dispatch console's API.

Secure Communications at the Console

The console itself encrypts and decrypts radio voice messages. Thus, radio voice messages are encrypted end-to-end, from the field radio user to the dispatch console. The console operator can choose whether or not to encrypt their transmissions on a particular trunked resource. Console operators can interface with agencies that have different encryption configurations without any manual intervention or delay. The MCC 7500 Console can support up to 60 calls simultaneously, using up to four different algorithms and multiple encryption keys.

To help reduce potential errors when managing encrypted communications, the MCC 7500 interface provides alerts when the console mode does not match that of a received call, and when a patch or multi-select group is being set up between a mix of clear and secure channels. The set of alerts available on the console are in Table 4-2 below.

Table 4-2: Security Indications.

Indication/Alert	Indication/Alert Description
Receive Cross-Mode Indication	Indicates when an inbound call's secure mode does not match the console's outbound mode, so that the console operator can respond in the correct mode.
Clear Audio Alert	Provides visual and audible indication that a trunked radio transmission or reception is unencrypted.
Multi-Select Cross-Mode Alert	Indicates that different trunked resources in a multi-select group have different secure modes, preventing console operators from transmitting audio in both secure and non-secure modes.
Patch Cross-Mode Alert	Indicates that different trunked resources in a patch group have different secure modes, preventing console operators from transmitting audio that is intended to be secure in an unencrypted state.
Key Fail Indication	Indicates that a console cannot decrypt or encrypt a call due to a problem with an encryption key.
Panic Key Zeroizing	Erases all encryption keys at a specific console or AIS at the push of a button. The button is recessed in a panel to reduce the chance of accidentally pressing it.
Keyset/Indexset Selection via GUI	Enables the dispatch operator to manually select the keyset/indexset the dispatch console uses.
Key Management via KVL	Enables the operator to use the KVL to manage all keys for a dispatch console or archiving interface server.
Key Management via Store and Forward	Enables the operator to use a KVL and KMF to manage all keys for a console or archiving interface server.

4.2.4 Console Configuration and Management

The MCC 7500 console system is configured and managed by the same configuration manager, fault manager, and performance reporting applications as the radio system. The user can define exactly which resources are available and how they are presented to the dispatch console user. This provides Hidalgo County Sheriff's Office with a single point for configuring and managing the entire ASTRO 25 system. Changes are automatically distributed throughout the system. This centralized approach saves valuable time and effort for system administrators and technicians, and reduces the errors that can occur when radio IDs and other data are entered at multiple locations.

In addition, call traffic and performance reports for each console can be generated from the system's network manager. This enables administrators to quickly and easily ensure optimal effectiveness and efficiency.

4.3 MCC 7500 DISPATCH CONSOLE COMPONENT DESCRIPTION

An MCC 7500 Dispatch IP Console consists of the following elements:

- Operator position computer
- Voice Processing Module (VPM)
- Network equipment
- Conventional Channel Interface equipment

This section discusses the various components that make up the proposed MCC 7500 Dispatch Console system. These components are connected together and to the rest of the ASTRO 25 system on an IP network via console site routers and switches. The MCC 7500 Dispatch Console functions as an integrated component of the total radio system, fully participating in system level features such as end-to-end encryption and agency partitioning.

Since the network is IP-based, the system's interfaces and components can be distributed physically throughout the network. Logging components can be centrally located at the zone core or distributed at console sites. CCGWs can be located at conventional-only RF sites, at trunking RF sites, the master site, or at console sites with conventional stations. Aux I/O Servers can be placed anywhere in the zone, closest to where they are needed.

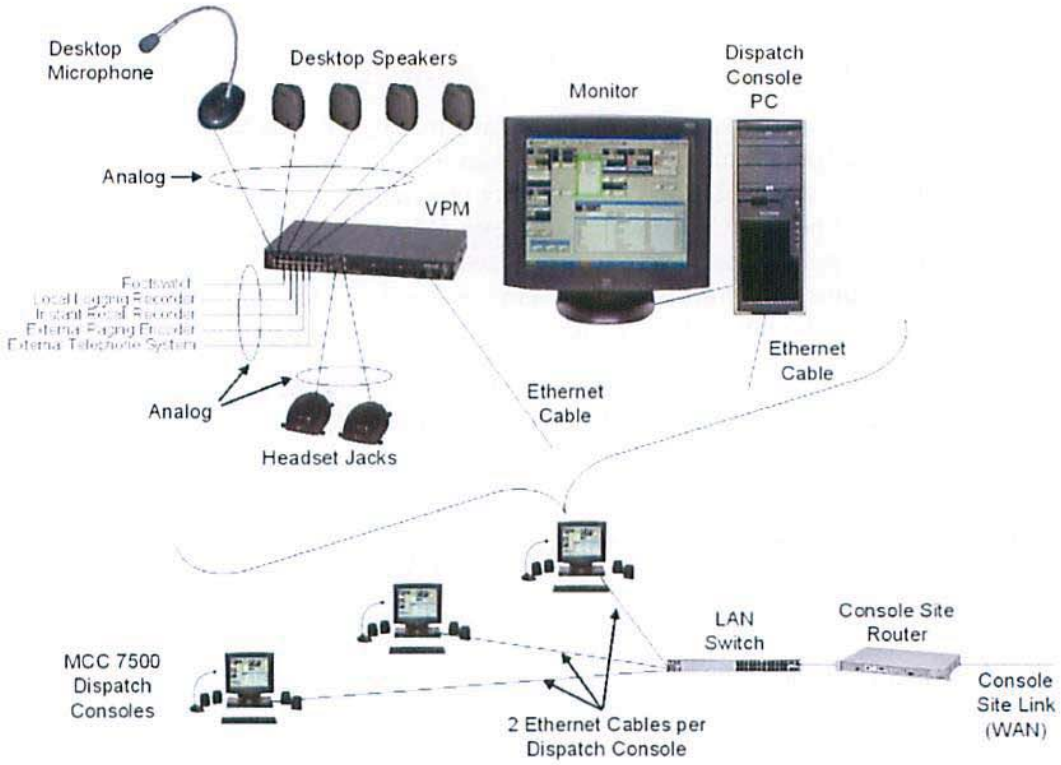


Figure 4-7: Motorola MCC 7500 Dispatch Console Hardware Architecture.

4.3.1 Operator Position Components

MCC 7500 operator positions connect directly to the radio system's IP transport network without gateways or interface boxes. Audio processing, encryption, and switching intelligence for dispatch are performed within each software-based operator position, without additional centralized electronics.

An MCC 7500 operator position consists of a computer, a Voice Processing Module (VPM), one select speaker, up to three unselect speakers, a desktop gooseneck microphone and/or headset jack box with in-line PTT amplifier and headset, and optional footswitch (Figure 4-8 below).



Figure 4-8: MCC 7500 Operator Position Components.

Voice Processing Module (VPM)

The VPM provides vocoding and audio processing services for the dispatch console. It connects to the console site LAN switch and communicates with the dispatch console PC via Ethernet. Each operator position includes a PC and a dedicated VPN. The VPM also provides connections for analog devices to be connected to the digital console.

The VPM has connectors for the following devices:

- One desktop microphone
- Two headset jacks
- Eight desktop speakers (four speakers max supported in the initial releases)
- Logging recorder
- Radio instant recall recorder
- Telephone instant recall recorder (not supported in initial releases)
- External telephone set
- External paging encoder
- Footswitch
- Generic transmit audio input

Some of the connectors listed above can be used to provide audio inputs and outputs for connecting other types of dispatch consoles to the Motorola radio system in conjunction with the Motorola MCC 7500 Dispatch APIs.

An optional secure card provides encryption and decryption services for the dispatch console. It is capable of supporting multiple, simultaneous encryption/decryption sessions using multiple algorithms and multiple secure keys.

Personal Computer (PC)

The dispatch console uses a customized Motorola-certified PC running the Microsoft Windows operating system and containing a Motorola-designed voice card and a Motorola-designed secure card. The PCs used in ASTRO 25 systems have a mini-tower form factor.

The PCs are processed through Motorola factories in Schaumburg so that the application software, voice cards, and secure cards can be installed and tested to ensure they are operating properly.

4.3.2 Conventional Channel Gateway Equipment

The MCC 7500 Dispatch Console system includes a GGM 8000 router, which can support up to 10 IP interfaced base stations. With the addition of the optional CCGW interface card, up to 4 additional conventional resources can be integrated using any combination of 4-wire analog, and v.24 interfaces. Mixed-mode channels occupy 2 of the physical resource ports; one analog, and one v.24, but only one of the 4 channel slots. As such, you may have up to four channels in any combination of analog, v.24 digital, or mixed mode.

playback audio from the vocoded samples that had been sent to the logging subsystem when the call occurred.

4.3.3 Dispatch Uninterruptable Power Supply

An Uninterruptable Power Supply (UPS) has been included for equipment room. The UPS will provide emergency power to the system when the input power source fails. The UPS contains batteries that become active when the utility power is lost. The described UPS, when under a full load of 12kW, will provide up to 16 minutes of backup power to the system.

4.4 WATSON FURNITURE

Motorola has provided six positions of Watson Dispatch furniture. Emergency communications Consoles are utilized 24/7 by different employees with different physical sizes and needs. It is recognized that this user environment will receive at least five times the use of typical office furniture each year. With this in mind, only console furniture specifically designed and engineered for Emergency Communications Centers will be acceptable.

Synergy 1, offered by Watson Furniture, serves as the base level product and foundation for the Synergy design. Available in Centre Lift and linear configurations, Synergy 1 consoles feature a sturdy open-leg design, front-access technology cavities, easy access wire management, and solid core structural fabric screens to soften the environment's acoustic glare. Backed by the Watson's industry-best warranty, Synergy 1 was designed with the rugged styling and structural integrity that has distinguished Watson Dispatch for over 24 years.

4.5 SITE LINK

Hidalgo County SO will connect to the RGVDC's P25 Master Site using T1 link.

For optimal functioning of the ASTRO 25 system, the T1 provided should meet the following specifications:

T1 Specifications	
Bit Error Rate–BER	1×10^{-6}
Stratum Level	2 or Better
Max. Delay	5 milliseconds (ms)
Availability	99.999 %
Line Coding	B8ZS (bit 8 zero substitution)
Signaling	Clear Channel
Compression	None
Framing	ESF (extended super frame)
Pulse Amplitude	0 dBdsx (3.0V +/- 0.3V or 6V P-P)
Dry or Wet	Dry, No voltage (-48 VDC or other) Present

4.6 MOBILES AND PORTABLES

APX mobile and portable subscribers have been included in this proposal. Motorola created the APX series to redefine safety in mission critical radio communication. Every feature and function on an APX two-way radio is designed with its user in mind – from rugged, easy to operate design, to the loudest, clearest audio. The result is improved safety for mission critical users.

4.6.1 APX 4000 Portables

The APX 4000 delivers all the benefits of P25 technology in the smallest P25 Phase 2 portable in the industry. Easy to use, tough as nails, a hard value to beat, it connects public works, utilities and rural public safety users to the first responders for fast, interoperable communications. Durable enough to withstand dust, heat, shock and submersion, the APX 4000 is IP67 and MIL-STD certified. Its packed with key features to help keep you safe, like mission-critical wireless, 2-microphone noise suppression, GPS outdoor location and AES encryption. And it's designed with simpler controls and large multifunction knob for ease of use.

The following is a list of select options on the portable.

- (168) APX 4000 Portables, with:
  - ASTRO Digital CAI Operation
  - Smartzone Operation
  - P25 9600 Baud Trunking
  - Enable GPS Basic Functionality
  - Programming over P25 (POP25)
  - Radio Packet Data
  - 2 Year Repair Service Advantage
  - Battery
  - Leather Carry Case
  - Single Unit Charger
  - Remote Speaker Mic

4.6.2 APX 7000 Portables

The APX 7000 multi-band radio places instant interoperability into the hands of mission-critical first responders. Motorola's 4th generation P25 subscriber is capable f multi-band interoperability in one radio and can operate in any 2 following frequency bands: 7/800, VHF, UHF R1, and UHF R2 offers backward and forward compatibility (FDMA and TDMA), and integrated GPS for outdoor location tracking. Designed with mission-critical technology, the radio amplifies public safety official's ability to keep the community safer than ever before.

- (378) APX 7000 Portables, with:
  - 7/800 and VHF Dual Band Operation
  - ASTRO Digital CAI Operation
  - Smartzone Operation
  - P25 9600 Baud Trunking
  - Enable GPS Basic Functionality
  - Programming over P25 (POP25)
  - Radio Packet Data
  - AES Encryption
  - 2 Year Repair Service Advantage
  - Battery
  - Leather Carry Case
  - Single Unit Charger
  - Impress Remote Speaker Mic
  - Receive Only Earpiece

4.6.3 APX 4500 Mobiles

The APX 4500 brings together powerful technology in a compact, rugged, mobile radio that's easy on your budget. It seamlessly unifies public works, utility, rural public safety and transportation users to first responders so they can communicate effectively in the moments that matter. A simplified dash mount design makes installation quick and easy. Its IP56 durability rating meets the highest level of certification for uncompromising performance in wet, dusty, and hazardous conditions. Equipped with safety features such as integrated GPS, intelligent lighting, voice announcement, and AES encryption, your teams can safely effectively complete the mission and hand.

- (123) APX 4500 Mobiles, with:
  - ASTRO Digital CAI Operation
  - Smartzone Operation
  - P25 9600 Baud Trunking
  - Enable GPS Basic Functionality
  - Programming over P25 (POP25)
  - Radio Packet Data
  - 3dB Low Profile Antenna
  - Palm Microphone
  - 7.5 Watt Speaker
  - 2 Year Repair Service Advantage

4.6.4 APX 7500 Mobiles

The APX 7500 multi-band radio delivers instant interoperability into the hands of mission critical first responders. Motorola's fourth generation P25 mobile radio is capable of multi-band interoperability and can operate in any two of the following frequency bands (700/800 MHz, VHF, UHF Range 1, and UHF Range 2). It provides backwards and forwards compatibility (FDMA and TDMA) and integrated GPS for outdoor location tracking. The APX 7500 offers a complete control head portfolio with 5 options, giving users the flexibility to choose the control head that best meets their operational needs. Designed with mission critical technology, the radio amplifies public safety officials' ability to keep the community safer than ever before.

- (481) APX 7500 mobiles, with:
  - 7/800 and VHF Dual Band Operation
  - ASTRO Digital CAI Operation
  - Smartzone Operation
  - P25 9600 Baud Trunking
  - Enable GPS Basic Functionality
  - Programming over P25 (POP25)
  - Radio Packet Data
  - AES Encryption
  - APX 05 Control Head with Remote Mount
  - 3dB Low Profile Antenna for 7/800
  - ¼ Wave Antenna for VHF
  - Palm Microphone
  - 7.5 Watt Speaker
  - 2 Year Repair Service Advantage

4.6.5 Flash Upgrades

Flashport Aftermarket software is used to upgrade to the latest version of your System Enhancement Software Package to upgrade to a different System Enhancement Software Package or to order enhancements for existing ASTRO Digital APX 75000 radios in the field.

The following enhancements will be performed to existing subscribers in the field:

- (12) APX 7500 Portables, with:
  - Enable GPS Functionality

4.7 CONSOLETTES AND CONTROL STATIONS

APX Consolettes and Control Stations have been included in this proposal. APX 7500 Dual Band 7/800-VHF Consolettes will be provided for the ten different Law Enforcement locations specified by the County. The APX 4500 Control Stations will be provided for the fourteen different Non-Law Enforcement locations.

4.7.1 APX 7500 Consolette

Equipped with the leading edge P25 Phase 2 TDMA technology and multiband interoperability, the APX 7500 Consolette is the first choice for public safety and federal users. These consolettes will be located at ten different locations, which include but are not limited to Precinct 1, 2, 3, 4, 5, EOC, Fire Marshal, etc.

- (10) APX 7500 Dual Band Consolettes, with:
  - Dual Band Operation
  - ASTRO Digital CAI Operation
  - Smartzone Operation
  - P25 9600 Baud Trunking
  - Programming over P25 (POP25)
  - Radio Packet Data
  - AES Encryption
  - Full Front Panel Display
  - Control Station Mic
  - 2 Year Repair Service Advantage
  - Antenna System
    - 7/800 and VHF Antennas
    - ½" and ¼" Coax
    - N-Connectors
    - Grounding Kits

4.7.2 APX 4500 Control Station

These control stations will be located at 14 different non-law enforcement locations to be specified by the County

- (14) APX 4500 Control Stations, with:
  - ASTRO Digital CAI Operation
  - Smartzone Operation
  - P25 9600 Baud Trunking
  - Programming over P25 (POP25)
  - Radio Packet Data
  - Control Station Mic and Speaker
  - 2 Year Repair Service Advantage
  - Antenna System
    - 7/800 Antenna
    - ½" and ¼" Coax
    - N-Connectors
    - Grounding Kits

4.8 P25 M2 MASTER SITE OPTION WITH UPGRADE TO M3

In order to meet the growing capacity and future needs of Hidalgo County SO, Motorola Solutions has compiled an upgraded Master Core quotation to incorporate the current infrastructure investment and expand the system.

By providing an upgraded 7.11 Master Core to Hidalgo County SO, they will be able to make use of the following features and capabilities:

- Upgraded Zone Server Hardware to current models
- Support to add MCC 7500 VPM based Dispatch Consoles
- Support for greater than ten RF sites
- Support for Expanded Network Management
- GPS Location Server for distributing capable subscriber location to a customer CAD System
- Subscriber and Dispatch based Text Messaging (on applicable Subscribers)
- Over the Air Subscriber Reprogramming (on applicable Subscribers)
- Customer Network Interface to the Radio Network
- Text Messaging Server
- Encryption Key Management Server
- Security Partitioning for System Element Access Restriction

4.8.1 System Components

Our proposed solution includes the following summary of equipment. A detailed equipment list will be provided to Hidalgo County during a detailed design review.

For the Single Zone Redundant ASTRO 25 Master Core:

- (1) ASTRO 25 Single Zone Redundant Master Core configuration:
  - (10) IV&D site licenses
  - (4) Radio licenses (each license supports 500 radios)
  - (5) MCC 7500 Operator licenses
  - (1) GAS (Generic Application Server) with ZC, ZDS, UEM, UNC, UCS, ZSS and ATR
  - (1) GAS with redundant ZC
  - (1) Network Time Protocol Server
  - (2) Virtual Management Servers with Domain Controllers
  - (2) Core LAN Switches
  - (2) Gateway Routers
  - (2) Core Routers
  - (1) T1 Relay Panels
  - (1) Terminal Server for Out-of-band Management
  - (1) IV&D PDG (Packet Data Gateway)
  - (1) GGSN (Gateway GPRS (General Packet Radio Service) Support Node) Router
  - (1) Local NM (Network Management) Clients. Each NM Client includes:
    - (1) UNC application
    - (1) UCM application
    - (1) UEM application
    - (1) Zonewatch application
    - (1) Zone Historical Report application
    - (1) Radio Control Manager application
  - (1) CNI Firewall SSG 140
  - (1) DMZ (De-militarized Zone) Switch
  - (1) PN (Peripheral Network) Router with T1 daughter board
  - (1) Co-located Border Router
  - (1) Co-located Customer Enterprise Switch
  - (1) Key Management Facility for Encryption Management
  - (5) Key Variable Loaders

For the existing GTR Based Project 25 RF Sites:

- (2) GCM8000 Site Controller Flashes for 7.11 capability
- (6) GTR8000 Base Radio Flashes for 7.11 capability

4.8.2 ASTRO 25 Master Core

A master core designates the central point of control for the operation of the radio communication system. The Master Core system consists of a complex network of servers, computer workstations, high-speed Local Area Network (LAN)/Wide Area Network (WAN) devices, databases, and software applications. At any Master Core, the zone controller (ZC), audio distribution, and network management work together to process calls, distribute audio, assign channel resources, and conduct network management functions. Master Core Scalability is a new feature introduced to ASTRO® 25 systems to provide flexibility in designing a master core to fit the needs of the system users. An extensive ATP (Acceptance Test Plan) will be devised under the direction of Hidalgo County to test the different capabilities of the system.

4.8.2.1 ASTRO 25 Single Zone Redundant Master Core

The Single Zone Redundant configuration is available for customers that desire a P25 compliance for a single or multiple county system. Application virtualization supports multiple applications residing on a reduced number of hardware platforms, thus reducing hardware and space requirements without affecting the system's functionality.

The Single Zone configuration is a full IV&D high capacity, single zone system. Two T5220 servers host two zone controllers and Network Management applications. Each application on the server platform is managed by the Generic Application Server software that assigns and controls access to platform resources. The Generic Application Server is also responsible for sending environmental related traps (temperature, voltage, current) to the network manager.

The Master Core in a Single Zone Capable configuration is built around two 48-port core switches, two gateway routers, and two core routers. The data subsystem is comprised of the Packet Data Gateway (PDG) and the GGSN router.

The main components included at the Master Core for a Single zone capable redundant IV&D configuration are summarized below.

Table 4-3: List of Master Core Main Components for the Proposed System.

Master Core Component	Function
GAS 01	**Zone Controller (ZC):** Responsible for processing calls, managing audio paths, controlling zone infrastructure and providing services to subscribers and console operators. **Zone Database Server (ZDS):** Distributes configuration information to the following devices: Console, CCGW, and MGEG. **Air Traffic Router:** Collects air traffic information from the zone controller and distributes the information to the statistical servers. **Zone Statistical Server (ZSS):** Collects and stores zone-wide statistics regarding call processing traffic. **Unified Network Configurator (UNC):** Provides controlled and validated configuration management of system devices.

Master Core Component	Function
	User Configuration Server (UCS): Houses the database containing configuration records for home zone maps, users, radios, talk groups, and other system-level parameters. **Unified Event Manager (UEM):** Provides fault management for the system.
GAS 02	Redundant Zone Controller: Responsible for processing calls, managing audio paths, controlling zone infrastructure, and providing services to subscribers and console operators.
Virtual Management Servers	Holds the System Domain Controller, Zone Domain Controller, Backup and Restore Server, and CSMS (Core Security Management Server).
Core LAN Switch	Interfaces with network management servers, zone controllers, various Master Core routers, and other components. It determines the device for which a packet is intended and switches out the packet towards that device.
Gateway Router	Provides functional support for the zone controller, Ambassador Electronics Bank, MGEG, Packet Data Gateway, and Network Management routing.
Core Router	Handles network traffic between the Master Core and other sites within a zone (intrazone support only).
Network Time Protocol (NTP) Server	The NTP server provides Network Time Protocol services for the servers and the network transport equipment on the Master Core LAN. The TRAK9100 is configured as the NTP Server and uses its GPS receiver that supplies Stratum 1 frequency and time reference for equipment at the Master Core.
Terminal Server	Is the access point for all administration with the Network Management servers, zone controllers, and other IP devices in the zone.
IV&D PDG	Is a hardware and software platform designed to link a customer's data network to the trunked IV&D network. There are two applications in the Packet Data Gateway: PDR (Packet Data Router) and RNG (Radio Network Gateway).
GGSN Router	Serves as the network interface between the Motorola Radio Network and the NYSP Enterprise Network.
NM Client	Used to start and run the software applications for configuring, viewing equipment operational status, and monitoring network utilization and performance.
CNI Firewall	Provides network boundary enforcement and attack detection features. Restricts traffic to known sources, destinations, and protocols, based on the hosts and services that are specified in the firewall configuration.
DMZ Switch	Provides the external LAN for connecting CENs.
Peripheral Network Router	Connects to the DMZ Switch and provides LAN to WAN connectivity across the peripheral network.
Border Router	Gateway device between ASTRO 25 radio network infrastructure and a customer's enterprise network.

4.8.2.2 Voice Encryption

An encryption algorithm is a mathematical formula which uses a set of bit shifts, permutations, and logic operations to transform clear data into encrypted code that can only be decrypted by the intended recipient. The algorithm uses a key to uniquely encrypt traffic. This requires the recipient to have the same key and use the same algorithm to decrypt the traffic. Anyone trying to decrypt traffic without the same key and the same algorithm will not be able to recover the original data. A device supporting encryption can implement an algorithm as a function of software, hardware, or a combination of both hardware and software. Secure devices in the ASTRO® 25 system support drop-in algorithms which can be loaded into the secure devices.

The Advanced Encryption Standard (AES) is an improvement over Data Encryption Standard (DES) algorithms, using keys of 128, 192 or 256 bits to encrypt blocks of 128-bit traffic. The Motorola secure voice solution uses a 256-bit key. AES uses the Rijndael algorithm with symmetric block cipher. Between 3.4x1038 and 1.1x1077 possible unique keys can be used with this algorithm, depending on the size of the key used. This enhances communication security by providing a range of at least 1021 more unique keys than DES.

ADP is an encryption option, which can be used for secure communication, but where extensive encryption capabilities are not required. The algorithm and keys for ADP can be installed on adios (with or without a Universal Crypto Module). The keys are loaded into a radio either through Customer Programming Software (CPS) or via KVL. ADP uses a 40-bit key and the RC4 cipher algorithm to encrypt and decrypt voice traffic. Up to 8 ADP keys can be loaded into a radio or secure infrastructure. ADP does not support Over-The-Air Rekeying (OTAR) and does not support keyset changeover. ADP also does not support centralized key management from a Key Management Facility.

4.8.3 Optional Upgrade M2 Series Master Core to M3 Series Master Core

4.8.3.1 Technical Description

The provided Master Core will be installed as an M2 Master Core. Hidalgo County has requested to have optional pricing for expanding the system to the full M3 series. By upgrading to the M3, the Master Core will be capable of higher site counts, higher console counts and greatly expanded Network Management licensing ability. A detailed equipment list will be provided during the detailed design review. An extensive ATP (Acceptance Test Plan) will be devised with the direction of Hidalgo County.

The Master Core as it was proposed as the M2 will require the following changes in order to be certified as an M3 Master Core:

- Core applications upgraded and split from two Netra T5220 to across four Netra T5220 servers.
- Core switches replaced with higher capacity switches.
- All existing server data will be migrated from their existing state to the new configuration of four core servers.

The following equipment and Licenses have also been included to upgrade the capabilities of M3.

- 24-Port T1 Relay Panel – to allow an additional 24 physical site connections.
- Affiliation User Reports – allows user to observe selected real time affiliations in the zone for sites, talk groups, or individual radio users and provides graphing capabilities.
- Dynamic Reports – provides the capability for users to generate near real-time graphical reports showing the total system utilization for talk group, private, and interconnect calls.
- Email Alarm Notifications – Forwards configured alarms in the UEM application to a specific email server in the customer enterprise network, that can then be forwarded to any device with can interpret SMTP messages (i.e. mobile device, such as a cellular phone or PDA).

Following these changes, the Master Core will be capable of supporting site, console and network management licenses well beyond that of the M2 series. Also included in this optional portion of the proposal are the recommended spares for the Master Core.

4.9 ASSUMPTIONS

Motorola has based the system design on information gathered Hidalgo County SO. All assumptions have been listed below for the Hidalgo County Sheriff's Office to review. Should Motorola's assumptions be deemed incorrect or not agreeable to the Hidalgo County Sheriff's Office, a revised proposal with the necessary changes will be required. Changes to the equipment or scope of the project after contract will require a change order. Refer to the Statement of Work for the specific list of responsibilities to be performed by the Hidalgo County Sheriff's Office and Motorola.

This section outlines the assumptions and dependencies used in developing the proposed solution.

- Hidalgo County SO will acquire a T1, as the MCC 7500 system is designed to operate over a T1 link to the Regional Master site.
- This proposal does not include any buildings, generators, grounding or other equipment or extra civil work not specifically outlined in the System Description or Statement of Work.
- The Hidalgo County Sheriff's Office is responsible for providing adequate environmental controls to meet the Heating, Ventilation and Air Conditioning (HVAC) and humidity environments as defined in the Motorola document, Standards and Guidelines for Communication Sites (R56) at the equipment room.
- The Hidalgo County Sheriff's Office is responsible for ensuring that the existing dispatch equipment rooms provides adequate space, power, electrical panels, lightning and grounding protection, and building penetrations.
- Motorola assumes that the existing electrical service has the capacity available to add the proposed equipment load.
- Prior to project completion, Motorola will perform an R56 audit; however, the Hidalgo County Sheriff's Office is responsible for performing any recommended or required R56 modifications at the locations. Where the equipment is to be installed, Hidalgo County SO must provide access to the building ground system per R56 standards. Motorola will then install and connect the new equipment per R56 standards.

Motorola will program and optimize the dispatch center.

SECTION 4B

EXHIBIT C-2: SYSTEM DRAWINGS

P25 MIGRATION CONTRACT BOOK **28 SEPTEMBER 2012**

MOTOROLA

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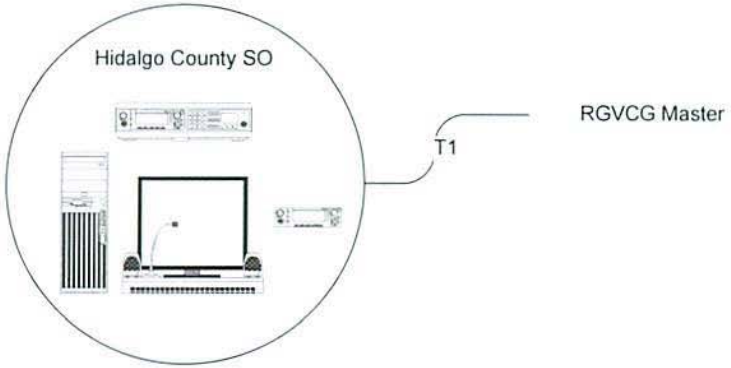
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SECTION 4B

SYSTEM DRAWINGS

System Drawings are included on the following pages.

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MOTOROLA SOLUTIONS

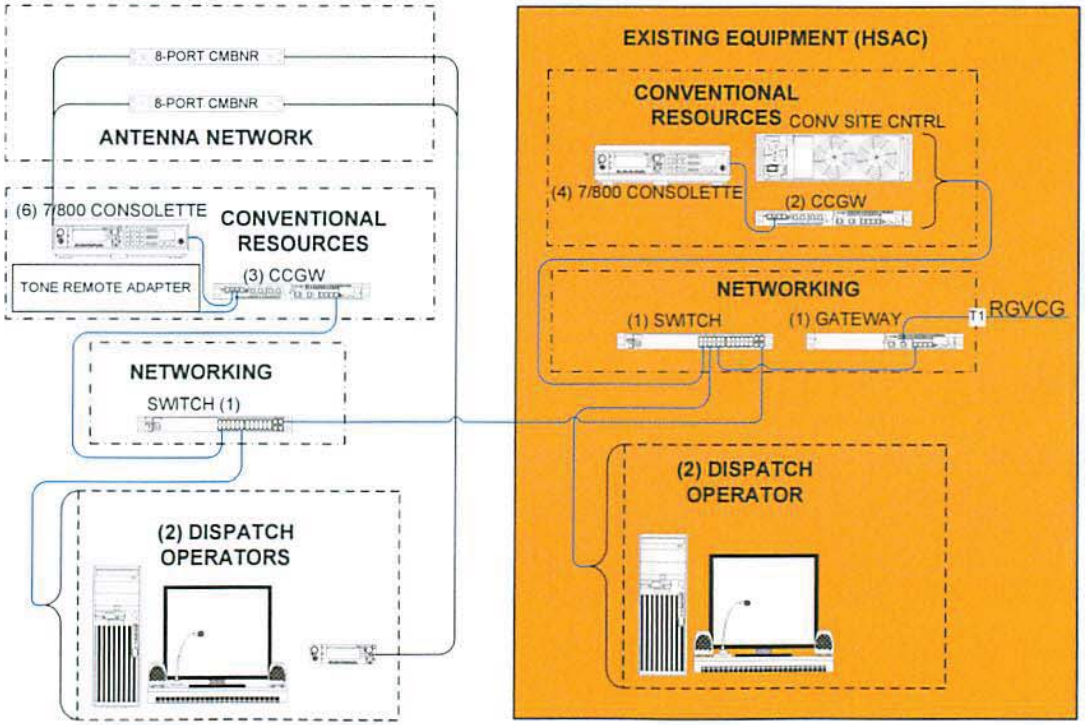
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TERRITORY 6

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HIDALGO COUNTY SO

TITLE:
DISPATCH CENTER

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MOTOROLA SOLUTIONS

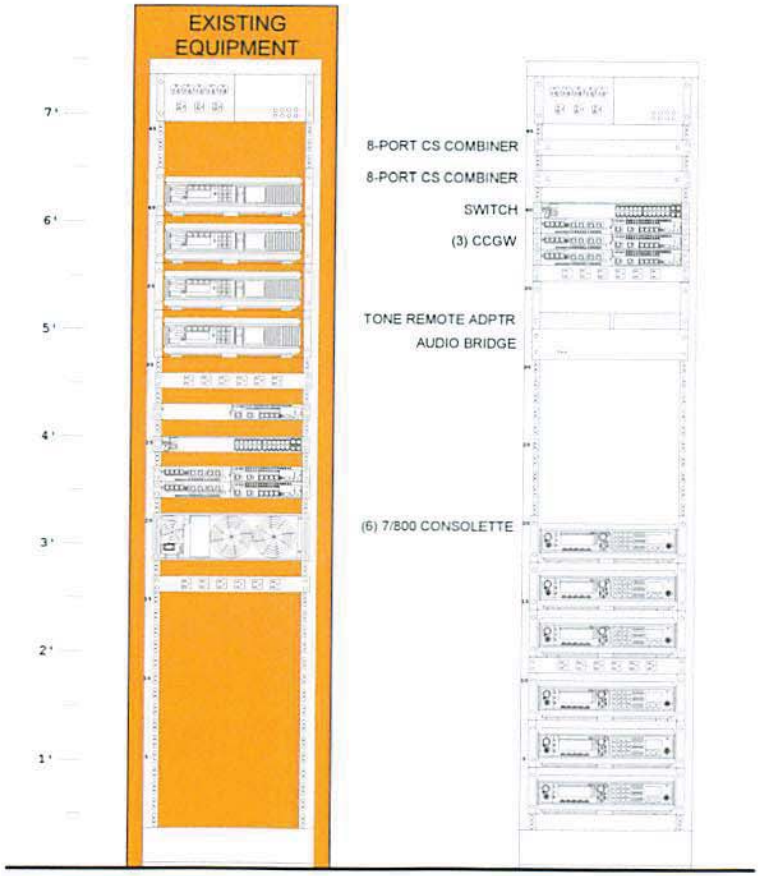
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HIDALGO COUNTY SO

TITLE:
DISPATCH CENTER

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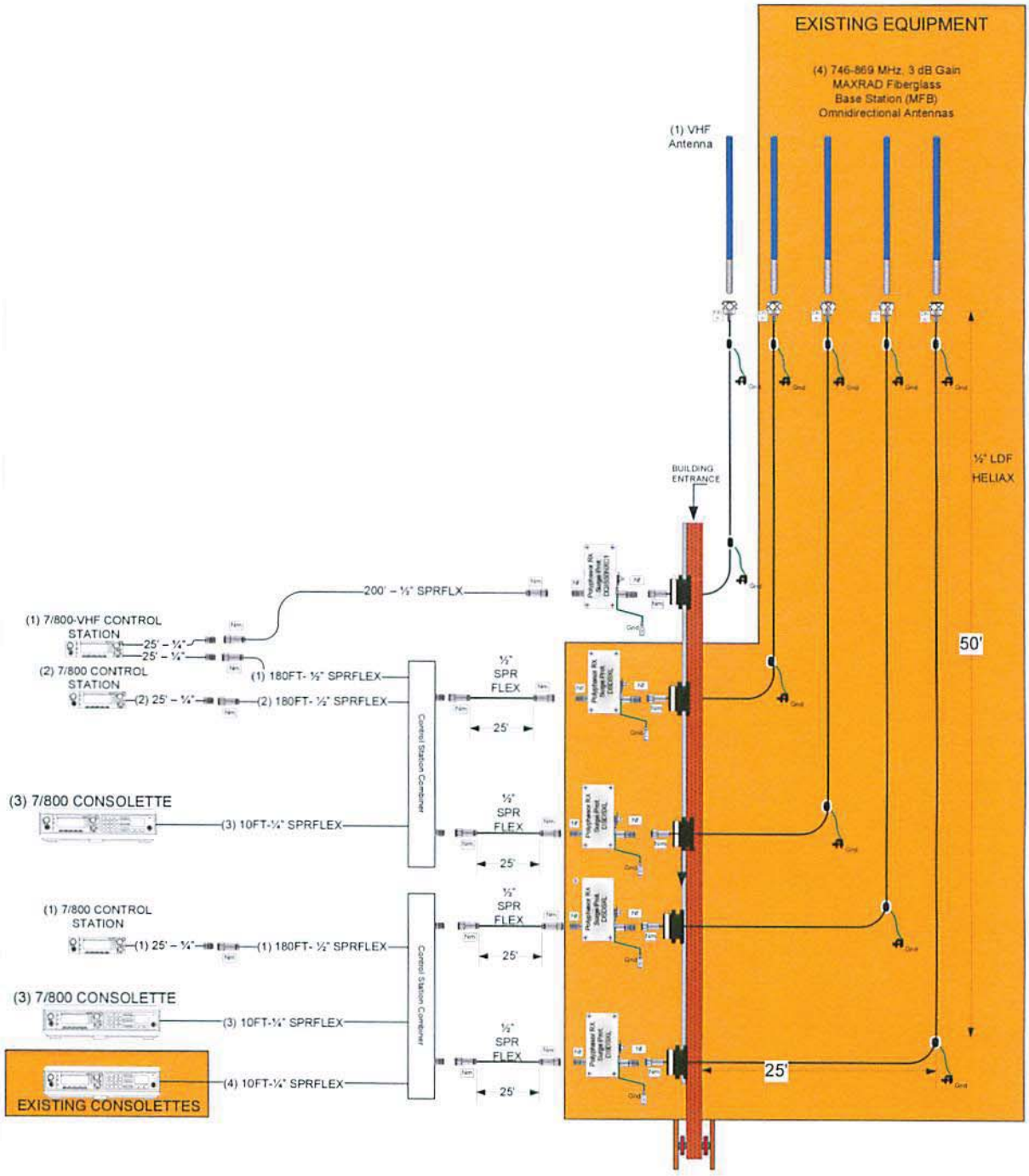


MOTOROLA SOLUTIONS

GOVERNMENT & PUBLIC SAFETY
TERRITORY 6

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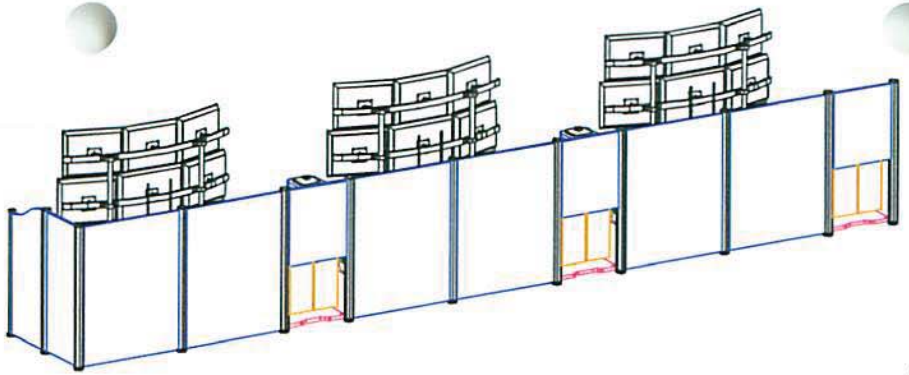
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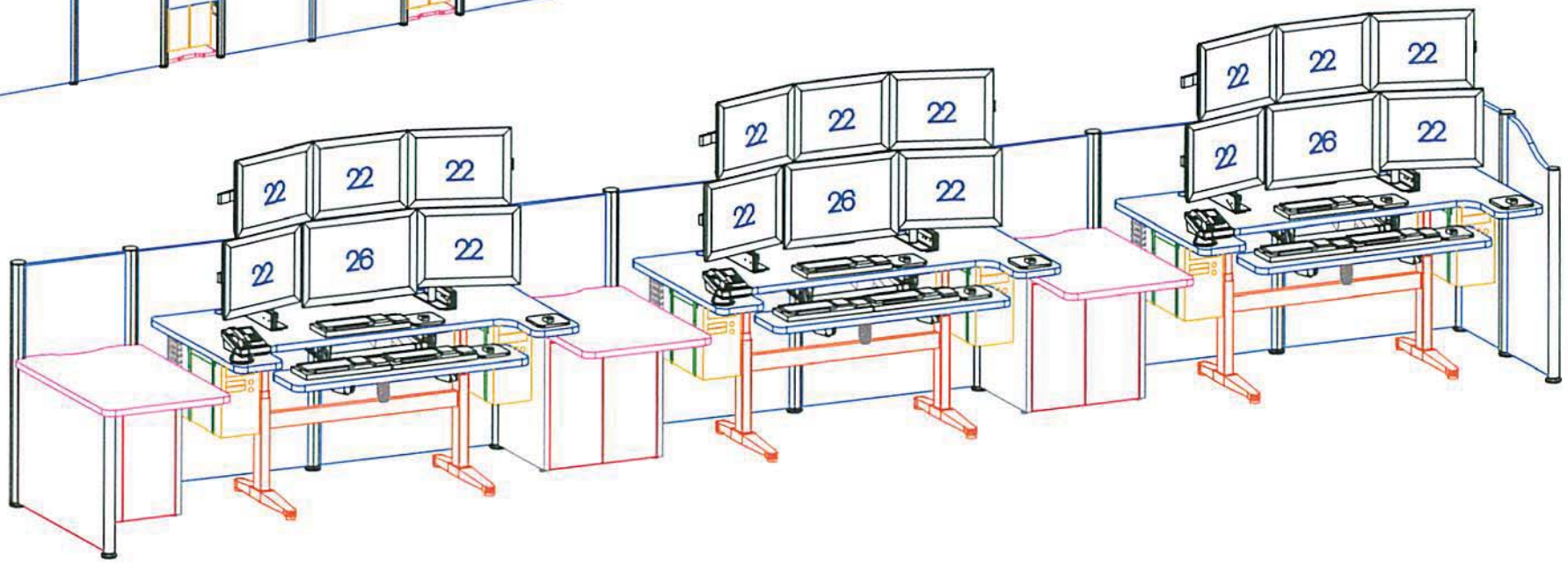
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TERRITORY 6

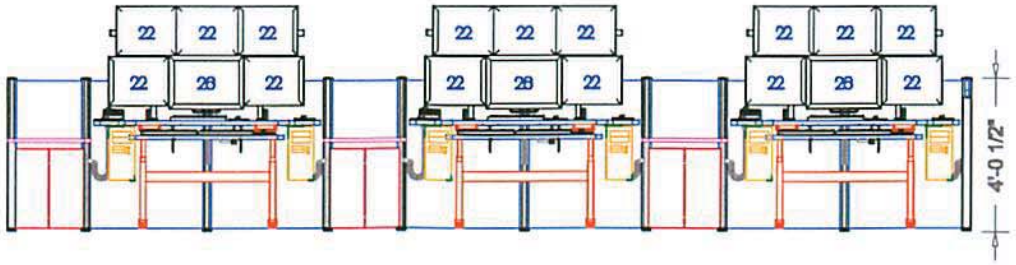
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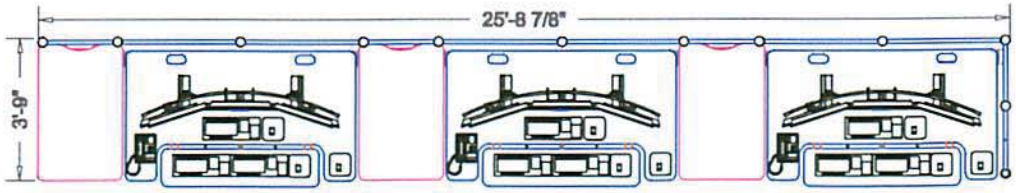
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26246 Twelve Trees Lane
Poulsbo, Washington 98370
(800) 426-1202

CONFIDENTIAL

Project: Hidalgo County Sheriff Department I

Location: Edinburgh, TX

Position:

PC: LJD Rep Firm/Rep: CG/SLS

Approved Date

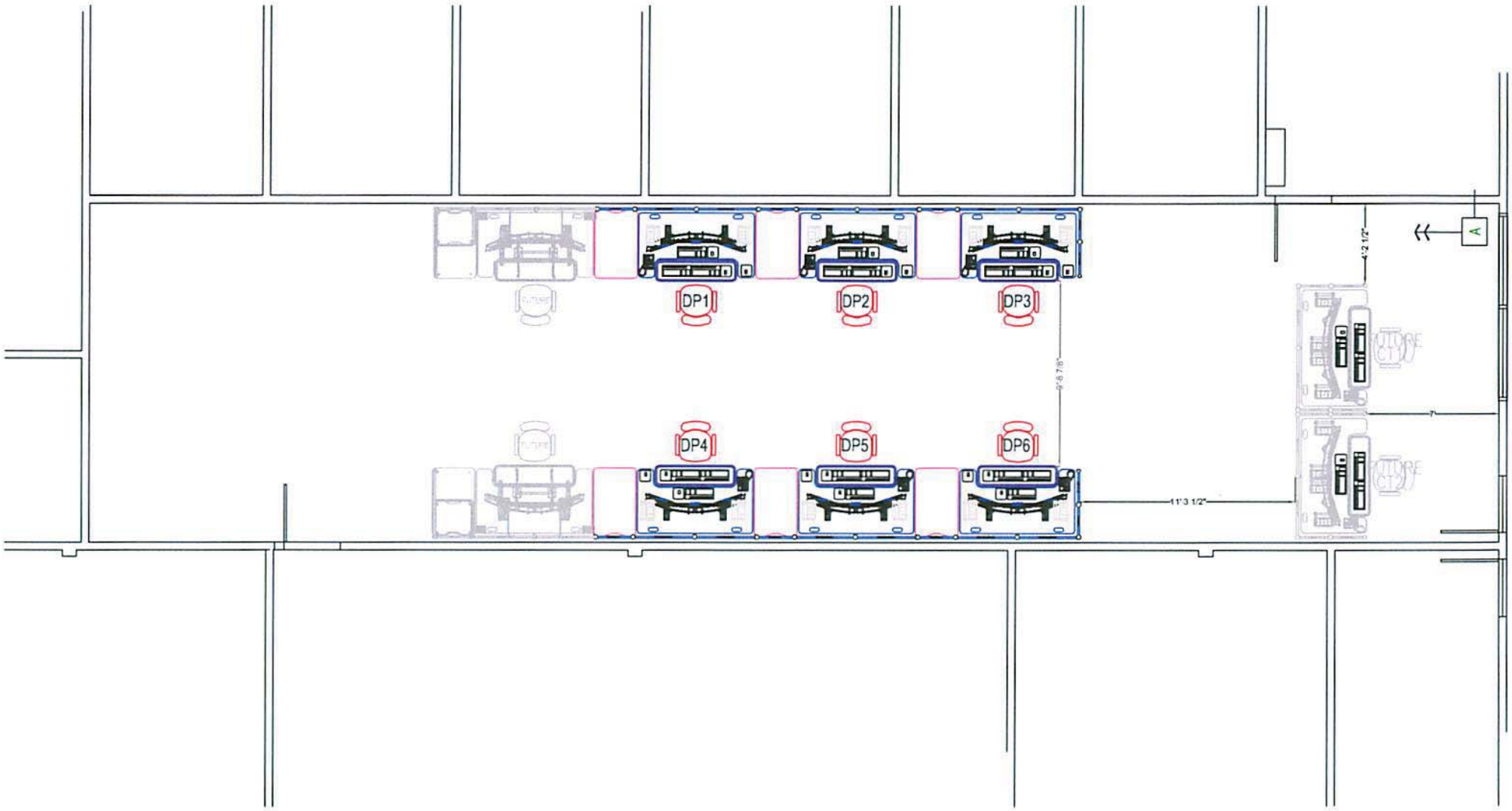
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OPTION
Synergy 1 Linear Consoles
48" Straight Panels - 4278 Primaries

Rev
JEN - 05/04/12 - rvsd dwgs per PC notes



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26246 Twelve Trees Lane
Poulsbo, Washington 98370
(800) 426-1202

CONFIDENTIAL

Project: Hidalgo County Sheriff Department I
Location: Edinburgh, TX
Position:
PC: LJD Rep Firm/Rep: CG/SLS
Approved Date

Drawn By: JCG Date: 04/24/12 Checked By: Date:
Scale: 1/8" = 1'
File: HidalgoCoSDI-A

OPTION
Synergy 1 Linear Consoles
48" Straight Panels - 4278 Primaries

Rev
JEN - 05/04/12 - rvsd dwgs per PC notes
LJD - 05/07/12 - moved CT's
JCG - 08/06/12 - made CT1 & CT2 into future positions

SECTION 4C

EXHIBIT C-3: EQUIPMENT LIST

P25 MIGRATION CONTRACT BOOK **28 SEPTEMBER 2012**

MOTOROLA

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EQUIPMENT LIST

4.1 DISPATCH EQUIPMENT

QTY	NOMENCLATURE	DESCRIPTION
		MASTER SITE LICENSE
1	SQM01SUM0200	MASTER SITE UPGRADE MODEL
1	CA00996AJ	ADD: NM/ZC LICENSE KEY 7.11
1	CA00997AJ	ADD: UCS LICENSE KEY 7.11
1	CA01225AB	ENH: MCC 7500 CONSOLE LICENSES (QTY 5)
2	CA01588AA	ADD: ANTI-VIRUS SERVICE
		DISPATCH EQUIPMENT
1	B1905	MCC 7500 ASTRO 25 SOFTWARE
2	B1933	MOTOROLA VOICE PROCESSOR MODULE
2	CA01642AA	ADD: MCC 7500 BASIC CONSOLE FUNCTIONALITY SOFTWARE LICENSE
2	CA01644AA	ADD: MCC 7500 ADV CONVL OPERATION
2	CA01643AA	ADD: MCC 7500 / MCC 7100 TRUNKING OPERATION
2	CA00147AF	ADD: MCC 7500 SECURE OPERATION
2	CA00182AB	ADD: AES ALGORITHM
2	CA00140AA	ADD: AC LINE CORD, NORTH AMERICAN
2	DS019BLK	19" LCD, BLACK, NON-TOUCH
2	TT2538	Z420 LOW TIER WITH WINDOWS 7 (64-BIT)
2	T7448	WINDOWS SUPPLEMENTAL FULL CONFIG
2	DSRMP615A	SPD, TYPE 3, 120V RACK MOUNT, 15A PLUG-IN WITH (6) 15A OUTLETS
4	B1912	MCC SERIES DESKTOP SPEAKER
2	B1914	MCC SERIES DESKTOP GOOSENECK MICROPHONE
4	B1913	MCC SERIES HEADSET JACK
4	RLN6098	HDST MODULE BASE W/PTT, 15' CBL
8	RMN5077B	SUPRAPLUS SINGLE MUFF HEADSET
2	DSTWIN6328A	PROVIDES ONE DUAL PEDAL FOOTSWITCH FOR USE WITH MOTOROLA MCC 7500 DISP
2	DDN9979	SYMANTEC ENDPOINT PROTECTION V11.0 CORP ED LIC & MEDIA SINGLE COPY
2	DDN1245	DUAL IRR SW USB HASP WITH LICENSE (VERSION 45)
2	DDN1118	PCI EXPRESS SOUND BLASTER X-FI XTREME AUDIO
2	CDN6673	CREATIVE LABS INSPIRE A60
2	DSSMART1500	UPS,1500VA SMARTPRO TOWER LINE-INTERACTIVE 120V 6 OUTLET -

QTY	NOMENCLATURE	DESCRIPTION
		CONTROL STATIONS
3	M30URS9PW1 N	APX7500 SINGLE BAND 7/800 MID POWER
3	G806	ENH: ASTRO DIGITAL CAI OP APX
3	G51	ENH: SMARTZONE OPERATION APX
3	QA01648	ADD: ADVANCED SYSTEM KEY - HARDWARE KEY
3	G361	ADD: P25 TRUNKING SOFTWARE
3	G442	ADD: APX O5 CONTROL HEAD
3	G444	ADD: CONTROL HEAD SOFTWARE
3	G66	ADD: DASH MOUNT 05
3	G89	ADD: NO RF ANTENNA NEEDED
3	W382	ADD: CONTROL STATION DESK GCAI MIC
3	G142	ADD: NO SPEAKER NEEDED
3	G91	ADD: CONTROL STATION POWER SUPPLY
3	W665	ADD: CONTROL STATION OPERATION
3	G843	ADD: AES ENCRYPTION APX
3	G996	ENH: OVER THE AIR PROVISIONING
3	W947	ADD: RS232 PACKET DATA INTERFACE
		CONTROL STATIONS DUAL BAND
1	M30TSS9PW1 N	APX7500 DUAL BAND MID POWER
1	G806	ENH: ASTRO DIGITAL CAI OP APX
1	G51	ENH: SMARTZONE OPERATION APX
1	QA01648	ADD: ADVANCED SYSTEM KEY - HARDWARE KEY
1	G361	ADD: P25 TRUNKING SOFTWARE
1	G442	ADD: APX O5 CONTROL HEAD
1	G444	ADD: CONTROL HEAD SOFTWARE
1	G66	ADD: DASH MOUNT 05
2	G89	ADD: NO RF ANTENNA NEEDED
1	W382	ADD: CONTROL STATION DESK GCAI MIC
1	G142	ADD: NO SPEAKER NEEDED
1	G91	ADD: CONTROL STATION POWER SUPPLY
1	W665	ADD: CONTROL STATION OPERATION
1	G843	ADD: AES ENCRYPTION APX
1	GA00244	ADD: 7/800MHZ PRIMARY BAND
1	GA00308	ADD: VHF MP SECONDARY BAND
1	GA00579	ADD: ENABLE DUAL BAND OPERATION
1	G996	ENH: OVER THE AIR PROVISIONING
1	W947	ADD: RS232 PACKET DATA INTERFACE

QTY	NOMENCLATURE	DESCRIPTION
		NETWORK EQUIPMENT
1	CLN1836	2610-24 ETHERNET SWITCH
		CCGW FOR CONVENTIONAL RESOURCES
3	SQM01SUM0205	GGM 8000 GATEWAY
3	CA01616AA	ADD: AC POWER
3	CA01618AA	ADD: CONV CHAN GATEWAY
		TONE REMOTE ADAPTER
2	L3276AC	TONE REMOTE ADAPTER
2	DDN6340	GENERIC RADIO CABLE WITH UNTERMINATED BARE LEADS
2	DDN7066	REMOTE ADAPTER 120/220V AC POWER SUPPLY
1	DDN6335	RACKMOUNT SHELF
		4-WIRE BRIDGE
1	DS40200A208	BRIDGE SHELF WIRED FOR UP TO EIGHT 4WAY, 6-WAY, OR 8-WAY BRIDGE MODULE
8	DSX41685	4-WAY/4-WIRE ACTIVE BRIDGE
2	DSX416904	QUAD 2-WIRE TO 4-WIRE HYBRID
		GPS INTERFACING EQ
1	DDN9590	SSG140 FIREWALL W/2YR SUPPORT
1	CLN1836	2610-24 ETHERNET SWITCH
1	SQM01SUM0205	GGM 8000 GATEWAY
1	CA01616AA	ADD: AC POWER
23	DVN1408C	ASTRO 25 MUPS LICENSE UP TO 50 SU
		7/800 CONSOLETTES
6	L30URS9PW1 N	APX7500 SINGLE BAND 7/800
6	G806	ENH: ASTRO DIGITAL CAI OP APX
6	G51	ENH: SMARTZONE OPERATION APX
6	QA01648	ADD: ADVANCED SYSTEM KEY - HARDWARE KEY
6	GA00469	ENH: EXTENDED DISPATCH APX CONSOLETTE
6	G361	ADD: P25 TRUNKING SOFTWARE
6	G843	ADD: AES ENCRYPTION APX
6	L999	ADD: FULL FP W/05/KEYPAD/CLOCK/VU
6	G90	ADD: NO MICROPHONE NEEDED
6	CA01598	ADD: AC LINE CORD US
6	G996	ENH: OVER THE AIR PROVISIONING
6	W947	ADD: RS232 PACKET DATA INTERFACE
6	HKN6233B	APX CONSOLETTE RACK MOUNT KIT

QTY	NOMENCLATURE	DESCRIPTION
		CONTROL STATION ANTENNA ASSEMBLY
		7/800 ANTENNA ASSEMBLY
4	DDN9682	1/2" TYPE N MALE PLATED CONNECTOR
100	L1702	CABLE: 1/2" SUPERFLEX POLY JKT PER FOOT
4	DDN9682	1/2" TYPE N MALE PLATED CONNECTOR
		CONTROL STATION COMBINERS
2	DSCS74860805SN	STANDARD CONTROL STATION COMBINER, 746-869 MHZ 8 CH.
		CONSOLETTE JUMPER
10	DDN9769	1/4" TYPE N MALE CONNECTOR FOR FSJ1-50A CABLE
100	L1700	CABLE: 1/4" SUPERFLEX POLY JKT PER FOOT
10	DDN9769	1/4" TYPE N MALE CONNECTOR FOR FSJ1-50A CABLE
		MOBILE JUMPER (AT OPERATOR DESK)
4	DDN9682	1/2" TYPE N MALE PLATED CONNECTOR
720	DSAFSJ4RK50B	1/2" SUPERFLEX COAXIAL CABLE, 50 OHM, RISER RATED (FT)
4	TDN8810	1/2" TYPE N FEMALE CONNECTOR
4	DDN9769	1/4" TYPE N MALE CONNECTOR FOR FSJ1-50A CABLE
100	L1700	CABLE: 1/4" SUPERFLEX POLY JKT PER FOOT
4	DSF1MU	1/4" MINI UHF MALE S FLEX CONNECTOR
		VHF ANTENNA FOR DUAL BAND CONTROL STATION
1	DSSC225MSF3SNM	COLINEAR OMNIDIRECTIONAL, 0 DBD GAIN,147-157 MHZ
		MAIN LINE
1	DDN1088	TYPE N MALE PS FOR 1/2 IN LDF4-50A CABLE
1	TDN9289	CABLE WRAP WEATHERPROOFING
75	L1705	CABLE: 1/2" LDF HELIAX POLY JKT PER FOOT
1	DSSG1206B2A	1/2" SURE GROUND GROUNDING KIT
1	DDN1088	TYPE N MALE PS FOR 1/2 IN LDF4-50A CABLE
		SURGE ARRESTOR
1	DSVHF50HN	VHF COMB COAXIAL SURGE PROT- 100 TO 512 MHZ - N CONN - DC BLOCK
		LOWER JUMPER
1	DDN9682	1/2" TYPE N MALE PLATED CONNECTOR
200	DSAFSJ4RK50B	1/2" SUPERFLEX COAXIAL CABLE, 50 OHM, RISER RATED (FT)
1	TDN8810	1/2" TYPE N FEMALE CONNECTOR
		MOBILE JUMPER
1	DDN9769	1/4" TYPE N MALE CONNECTOR FOR FSJ1-50A CABLE
25	L1700	CABLE: 1/4" SUPERFLEX POLY JKT PER FOOT
1	DSF1MU	1/4" MINI UHF MALE S FLEX CONNECTOR
		UPS
1	DS917010D4N0016	UPS, 9170 12KVA/10KW, 16 MIN RUN

QTY	NOMENCLATURE	DESCRIPTION
		RACK AND POWER
1	TRN7343	SEVEN AND A HALF FOOT RACK
3	DSRMP615A	SPD, TYPE 3, 120V RACK MOUNT, 15A PLUG-IN WITH (6) 15A OUTLETS
1	DSTSJ100BT	SPD, RJ-48 CONNECTED FOR T1/E1, 10/100BT PROTECTS/PASSES ON ALL 8 PIN
1	DSTSJADP	RACK MOUNT GROUND BAR, 19 IN FOR TSJ AND WPH SERIES DATA SPDS
1	DSOP820B	PDU, 120V HARDWIRE (8) 20A OUTLET PDU WITH TYPE 3 SAD PROTECTION
1	DSAPEXIMAX808M	240/120 1 PHASE TYPE-1 METAL ENCLOSURE
		WATSON FURNITURE
1	DQWATSONHIDALGO	6 POSITION WATSON FURNITURE OPTION A
		SPARES
1	B1912	MCC SERIES DESKTOP SPEAKER
1	B1914	MCC SERIES DESKTOP GOOSENECK MICROPHONE
1	B1913	MCC SERIES HEADSET JACK
1	TT2538	Z420 LOW TIER WITH WINDOWS 7 (64-BIT)
1	B1934	MCC 7500 VOICE PROCESSOR MODULE FRU
1	CA00147AF	ADD: MCC 7500 SECURE OPERATION
1	CA00182AB	ADD: AES ALGORITHM
1	01009513001	PWR SPLY 108W AC INP 12VDC OUT W18
1	CLN1836	2610-24 ETHERNET SWITCH
1	DSRMP615A	SPD, TYPE 3, 120V RACK MOUNT, 15A PLUG-IN WITH (6) 15A OUTLETS
1	SQM01SUM0205	GGM 8000 GATEWAY
1	CA01616AA	ADD: AC POWER
1	CA01618AA	ADD: CONV CHAN GATEWAY
1	L3276AC	TONE REMOTE ADAPTER
1	DDN6340	GENERIC RADIO CABLE WITH UNTERMINATED BARE LEADS
1	DDN7066	REMOTE ADAPTER 120/220V AC POWER SUPPLY
1	DSF1MU	1/4" MINI UHF MALE S FLEX CONNECTOR
1	DDN9769	1/4" TYPE N MALE CONNECTOR FOR FSJ1-50A CABLE
1	DDN9682	1/2" TYPE N MALE PLATED CONNECTOR
1	DDN1088	TYPE N MALE PS FOR 1/2 IN LDF4-50A CABLE

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4.2 SUBSCRIBER EQUIPMENT

QTY	NOMENCLATURE	DESCRIPTION
		APX 4000
168	H51UCF9PW6 N	APX 4000 7/800 MHZ MODEL 2 PORTABLE
168	QA02756	ENH: 3600 OR 9600 TRUNKING BAUD SIN
168	G996	ADD: PROGRAMMING OVER P25 (OTAP)
168	QA00782	ENH: INTERNAL ACTIVATION AND GPS BAENH: INTERNAL ACTIVATION AND GPS BA
168	QA01648	ADD: ADVANCED SYSTEM KEY - HARDWARE KEY
168	Q947	ADD: PACKET DATA (IV&D AND RS232)
168	QA02749	ALT: IMPRES LI-ION 2300MAH
168	H885BK	ENH: 2 YEAR REPAIR SERVICE ADVANTAGE
168	H842	ADD: SINGLE UNIT PACKAGING
168	H799	ADD: TEST RESULTS / RATED AUDIO PRI
168	PMNN4424AR	BATT IMP LI ION 2300M 2350T
168	PMMN4069A	IMPRESS RSM, 3.5MM AUDIO JACK
168	WPLN4232A	110 VAC 50/60 HZ US IMPRES SUC
168	PMLN6085A	APX2000/4000 SW LEATHER CARRY CASE2
1	WPLN4219A	IMPRES MUC W/DISPLAY - US/NA PLUG
		APX 7000
378	H97TGD9PW1 N	APX7000 DIGITAL PORTABLE RADIO
378	QA00569	ADD: 7/800MHZ PRIMARY BAND
378	QA00574	ADD: VHF SECONDARY BAND
378	QA00577	ADD: LARGE COLOR DISPLAY AND FULL KEYPAD
378	QA00579	ADD: ENABLE DUAL BAND OPERATION
378	Q806	ADD: ASTRO DIGITAL CAI OPERATION
378	H38	ADD: SMARTZONE OPERATION
378	Q361	ADD: P25 9600 BAUD TRUNKING
378	QA01648	ADD: ADVANCED SYSTEM KEY - HARDWARE KEY
378	G996	ADD: PROGRAMMING OVER P25 (OTAP)
378	Q947	ADD: RADIO PACKET DATA
378	QA00782	ADD: ENABLE INTERNAL GPS OPERATION
378	Q629	ENH: AES ENCRYPTION
378	Q58	ADD: 2 YR REPAIR SERVICE ADVANTAGE
378	H842	ADD: SINGLE UNIT PACKAGING
378	NNTN7038	BATT IMP STD IP67 LIION 2900M 3100T BLK
378	PMLN5324B	LEATHER CASE 2.75" SWL BL 2500MAH
378	NNTN7080A	APX 7000 IMPRES SINGLE UNIT CHARGER US/NA/CA/LA
378	PMMN4069A	IMPRES RSM, 3.5MM AUDIO JACK
378	RLN4941A	RECEIVE ONLY EARPIECE W/TRANSLUCENT TUBE
1	NNTN7073B	IMPRESS CG MUD MACKINAW US/NA/CA/LA

QTY	NOMENCLATURE	DESCRIPTION
		APX 4500
123	M22URS9PW1 N	APX4500 7/800
123	B18	ADD: AUXILARY SPKR 7.5 WATT
123	G174	ADD: ANT 3DB LOW-PROFILE 762-870
123	G24	ENH: 2 YEAR REPAIR SERVICE ADVANTAGE
123	GA00229	ADD: GPS ACTIVATION
123	GA00226X	ADD: GPS ANTENNA
123	G996X	ENH: OVER THE AIR PROVISIONING
123	W947X	ADD: RS232 PACKET DATA INTERFACE
123	QA01648	ADD: ADVANCED SYSTEM KEY - HARDWARE KEY
123	QA02756	ADD: 3600 OR 9600 TRUNKING BAUD SINGLE SYSTEM
123	G799	ADD: PRINTED TEST RESULTS APEX
123	G444	ADD: CONTROL HEAD SOFTWARE
123	G66	ADD: DASH MOUNT 05
123	GA00804	APX O2 CONTROL HEAD
123	W22	ADD: PALM MICROPHONE
		APX 7500
481	M30TSS9PW1 N	APX7500 DUAL BAND MID POWER
481	GA00244	ADD: 7/800MHZ PRIMARY BAND
481	GA00308	ADD: VHF MP SECONDARY BAND
481	GA00579	ADD: ENABLE DUAL BAND OPERATION
481	G806	ENH: ASTRO DIGITAL CAI OP APX
481	G51	ENH: SMARTZONE OPERATION APX
481	QA01648	ADD: ADVANCED SYSTEM KEY - HARDWARE KEY
481	G361	ADD: P25 TRUNKING SOFTWARE
481	G442	ADD: APX O5 CONTROL HEAD
481	G444	ADD: CONTROL HEAD SOFTWARE
481	G67	ADD: REMOTE MOUNT MID POWER
481	G174	ADD: ANT 3DB LOW-PROFILE 762-870
481	G629	1/4 WAVE BROADBAND ANT 146-174
481	W22	ADD: PALM MIC
481	B18	ADD: AUXILARY SPKR 7.5 WATT
481	G996	ENH: OVER THE AIR PROVISIONING
481	W947	ADD: RS232 PACKET DATA INTERFACE
481	GA00229	ADD: GPS ACTIVATION
481	GA00226	ADD: GPS ANTENNA
481	G843	ADD: AES ENCRYPTION APX
481	G78	ENH: 2 YR REPAIR SERVICE ADVANTAGE
481	G799	ADD: PRINTED TEST RESULTS APEX

QTY	NOMENCLATURE	DESCRIPTION
		APX 7500 FLASH UPGRADES
1	T7563	ANALOG SMARTZONE
12	GA00229AB	ENH: ENABLE GPS ACTIVATION APX7500
		APX 7500 CONSOLETTES FOR LAW
10	L30TSS9PW1 N	APX7500 CONSOLETTE DUAL BAND MODEL
10	GA00244	ADD: 7/800MHZ PRIMARY BAND
10	GA00308	ADD: VHF MP SECONDARY BAND
10	GA00579	ADD: ENABLE DUAL BAND OPERATION
10	G806	ENH: ASTRO DIGITAL CAI OP APX
10	G51	ENH: SMARTZONE OPERATION APX
10	QA01648	ADD: ADVANCED SYSTEM KEY - HARDWARE KEY
10	G361	ADD: P25 TRUNKING SOFTWARE
10	G996	ENH: OVER THE AIR PROVISIONING
10	W947	ADD: RS232 PACKET DATA INTERFACE
10	G843	ADD: AES ENCRYPTION APX
10	L999	ADD: FULL FP W/05/KEYPAD/CLOCK/VU
10	W382	ADD: CONTROL STATION DESK GCAI MIC
10	CA01598	ADD: AC LINE CORD US
10	G78	ENH: 2 YR REPAIR SERVICE ADVANTAGE
10	G799	ADD: PRINTED TEST RESULTS APEX
		ANTENNA FOR CONSOLETTES FOR LAW
		7/800 ANTENNA
10	DSMFBW7463	WIDEBAND FIBERGLASS OMNI ANTENNA 746-869 NFM BULKHEAD
10	DSMMK12	ANTENNA MOUNTING BRACKET
		MAIN LINE
10	DDN1088	TYPE N MALE PS FOR 1/2 IN LDF4-50A CABLE
10	TDN9289	CABLE WRAP WEATHERPROOFING
200	L1705	CABLE: 1/2" LDF HELIAX POLY JKT PER FOOT
20	DSSG1206B2A	1/2" SURE GROUND GROUNDING KIT
10	DDN1088	TYPE N MALE PS FOR 1/2 IN LDF4-50A CABLE
		SURGE ARRESTOR
10	DSDSXL	DC BLOCK, HIGH POWER 700 TO 2200MHZ, N CONN FEMALE/FEMALE
		LOWER JUMPER
10	DDN9682	1/2" TYPE N MALE PLATED CONNECTOR
1500	DSAFSJ4RK50B	1/2" SUPERFLEX COAXIAL CABLE, 50 OHM, RISER RATED (FT)
10	DDN9682	1/2" TYPE N MALE PLATED CONNECTOR
		VHF ANTENNA
10	DSSC225MSF3SNM	COLINEAR OMNIDIRECTIONAL, 0 DBD GAIN,147-157 MHZ

QTY	NOMENCLATURE	DESCRIPTION
		MAIN LINE
10	DDN1088	TYPE N MALE PS FOR 1/2 IN LDF4-50A CABLE
10	TDN9289	CABLE WRAP WEATHERPROOFING
200	L1705	CABLE: 1/2" LDF HELIAX POLY JKT PER FOOT
20	DSSG1206B2A	1/2" SURE GROUND GROUNDING KIT
10	DDN1088	TYPE N MALE PS FOR 1/2 IN LDF4-50A CABLE
		SURGE ARRESTOR
10	DSVHF50HN	VHF COMB COAXIAL SURGE PROT- 100 TO 512 MHZ - N CONN - DC BLOCK
		LOWER JUMPER
10	DDN9682	1/2" TYPE N MALE PLATED CONNECTOR
1500	DSAFSJ4RK50B	1/2" SUPERFLEX COAXIAL CABLE, 50 OHM, RISER RATED (FT)
10	TDN8810	1/2" TYPE N FEMALE CONNECTOR
		APX 4500 CONTROL STATIONS NON-LAW
14	M22URS9PW1 N	APX4500 7/800
14	G24	ENH: 2 YR REPAIR SERVICE ADVANTAGE
14	G142	ADD: NO SPEAKER NEEDED
14	G91	ADD: CONTROL STATION POWER SUPPLY
14	W665	ADD: CONTROL STATION OPERATION
14	W382	ADD: CONTROL STATION DESK GCAI MIC
14	QA01648	ADD: ADVANCED SYSTEM KEY - HARDWARE KEY
14	QA02756	ADD: 3600 OR 9600 TRUNKING BAUD SINGLE SYSTEM
14	G996X	ENH: OVER THE AIR PROVISIONING
14	W947X	ADD: RS232 PACKET DATA INTERFACE
14	G444	ADD: CONTROL HEAD SOFTWARE
14	G66	ADD: DASH MOUNT 05
14	GA00804	APX O2 CONTROL HEAD
		ANTENNA FOR CONTROL STATIONS FOR NON-LAW
		7/800 ANTENNA
14	DSMFBW7463	WIDEBAND FIBERGLASS OMNI ANTENNA 746-869 NFM BULKHEAD
14	DSMMK12	ANTENNA MOUNTING BRACKET
		MAIN LINE
14	DDN1088	TYPE N MALE PS FOR 1/2 IN LDF4-50A CABLE
14	TDN9289	CABLE WRAP WEATHERPROOFING
280	L1705	CABLE: 1/2" LDF HELIAX POLY JKT PER FOOT
28	DSSG1206B2A	1/2" SURE GROUND GROUNDING KIT
14	DDN1088	TYPE N MALE PS FOR 1/2 IN LDF4-50A CABLE
		SURGE ARRESTOR
14	DSDSXL	DC BLOCK, HIGH POWER 700 TO 2200MHZ, N CONN FEMALE/FEMALE
		LOWER JUMPER
14	DDN9682	1/2" TYPE N MALE PLATED CONNECTOR
2100	DSAFSJ4RK50B	1/2" SUPERFLEX COAXIAL CABLE, 50 OHM, RISER RATED (FT)
14	TDN8810	1/2" TYPE N FEMALE CONNECTOR
14	DDN9769	1/4" TYPE N MALE CONNECTOR FOR FSJ1-50A CABLE
210	L3579	CABLE: 1/4" FSJ, FLAME RETARD.JKT. 50-OHM
14	DSF1MU	1/4" MINI UHF MALE S FLEX CONNECTOR

4.3 M2 MASTER SITE

QTY	NOMENCLATURE	DESCRIPTION
1	SQM01SUM0199	MASTER SITE CONFIGURATION
1	CA01428AD	ADD: 7.11 ZC/NM HW 24 SITES OR LESS
1	CA01429AD	ADD: 7.11 REDUNDANT HW 24 SITE/LESS
1	CA01770AA	ADD: DUAL COMMON PLATFORM HARDWARE MAX 24 SITES
1	CA01784AA	ADD: STORAGE DEVICE
1	CA01471AA	ADD: WINDOWS SUPPLEMENTAL TRANS CONFIG
1	QA01205AA	ENH: ASTRO 25 WITH IV&D
1	CA01223AA	ADD: HIGH AVAILABILITY ZC LICENSE
1	CA01723AA	ADD: BASELINE BACK UP
1	CA01395AA	ADD: 700/800 MIXED SITE OPERATION
10	CA01209AB	ENH: ASTRO 25 IV&D SITE
1	CA01225AB	ENH: MCC 7500 CONSOLE LICENSES (QTY 5)
4	CA01208AA	ENH: 500 RADIO USER LICENSES
2	Z13AG	ENH: UNIFIED NETWORK CONFIGURATOR (UNC)
2	Z802AF	ENH: USER CONFIGURATION MANAGER (UCM)
2	CA01224AB	ENH: UNIFIED EVENT MANAGER (UEM)
1	D999AL	ENH: SECURITY PARTITIONING
2	D52AJ	ENH: ZONEWATCH
2	DA00148AG	ENH: ZONE HISTORICAL REPORTS
2	Z801AM	ENH: RADIO CONTROL MANAGER
1	CA01720AA	ADD: ANTI-VIRUS SERVICE (SERVERS)
10	CA01588AA	ADD: ANTI-VIRUS SERVICE
1	TT2311	Z400 HIGH TIER WITH WINDOWS 7 (64-BIT) NON-RETURNABLE
1	T7702	ASTRO 7.11 CLIENT APPLICATION SOFTWARE
1	DS019BLK	19" LCD, BLACK, NON-TOUCH
1	SQM01SUM0189	SRC7500 SWITCHING ROUTING CENTER (7.5 - 7.12)
1	CA01420AA	ADD: DUAL CORE LAN 1-24 SITES
1	CA01345AA	ADD: DUAL GATEWAY ROUTERS STANDARD
1	CA01425AA	ADD: RED CORE ROUTER 1-24 SITES CWR
1	CA01361AA	ADD: GGSN
1	T7472	SWITCH ROUTER TERMINAL SERVER SW
1	CLN1836	2610-24 ETHERNET SWITCH
1	SQM01SUM0197	PACKET DATA GATEWAY (RACKMOUNT SERVER)
1	CA01621AA	ADD: PDG SOFTWARE FOR INTEGRATED VOICE & DATA
1	ST6000	S6000 MNR MULTI-PROTOCOL ROUTER
2	ST6017B	S6000 4 PORT ULTRAWAN II MODULE
1	CLN1836	2610-24 ETHERNET SWITCH

QTY	NOMENCLATURE	DESCRIPTION
1	THN1013	RACK 7.5' OPEN
4	DSOP820B	PDU, 120V HARDWIRE (8) 20A OUTLET PDU WITH TYPE 3 SAD PROTECTION
1	DVN4046	MASTER SYSTEM KEY STARTER KIT
1	DDN1069	DL360 G6 SERVER, HIGH TIER, WINDOWS 2008 OS
1	DDN9979	SYMANTEC ENDPOINT PROTECTION V11.0 CORP ED LIC & MEDIA SINGLE COPY
1	T7290	ASTRO PRESENCE NOTIFIER APPLICATION
1	DDN1069	DL360 G6 SERVER, HIGH TIER, WINDOWS 2008 OS
1	DDN9979	SYMANTEC ENDPOINT PROTECTION V11.0 CORP ED LIC & MEDIA SINGLE COPY
1	DVN1408C	ASTRO 25 MUPS LICENSE UP TO 50 SU
1	DLN6673C	ASTRO25 LOCATION SYSTEM SOLUTION CD
1	DDN1069	DL360 G6 SERVER, HIGH TIER, WINDOWS 2008 OS
1	DDN9979	SYMANTEC ENDPOINT PROTECTION V11.0 CORP ED LIC & MEDIA SINGLE COPY
1	T7228	TEXT MESSAGING SERVICES SERVER APPLICATION
1	CA01514AA	ADD: TMS SERVER STANDARD EDITION
1	CA01516AA	ADD: MS SQL SERVER SOFTWARE
1	TT2312	Z400 MID TIER WITH WINDOWS 7 (64-BIT) NON-RETURNABLE
1	DDN9979	SYMANTEC ENDPOINT PROTECTION V11.0 CORP ED LIC & MEDIA SINGLE COPY
1	DS019BLK	19" LCD, BLACK, NON-TOUCH
1	RVN5224J	CPS R05.01.00 ASTRO DIG APX POR MOB
1	DDN9590	SSG140 FIREWALL W/ 2 YEARS SUPPORT
1	T7688	KEY MANAGEMENT FACILITY
1	ZA00860AA	ADD: KMF SERVER AND CLIENT SOFTWARE
1	SQM01SUM0134	KEY MANAGEMENT FACILITY ENCRYPTION
1	CA00147AB	ADD: BASIC SOFTWARE OPTION
1	CA00182AC	ADD: AES ENCRYPTION KIT
1	TT2310	KMF G6 SERVER NON-RETURNABLE
1	TT2312	Z400 MID TIER WITH WINDOWS 7 (64-BIT) NON-RETURNABLE
1	DS019BLK	19" LCD, BLACK, NON-TOUCH
2	DDN9979	SYMANTEC ENDPOINT PROTECTION V11.0 CORP ED LIC & MEDIA SINGLE COPY
5	T7537	KVL 4000 KEYLOADER
5	U239AD	ADD: ASTRO 25 MODE
5	CA01598AA	ADD: AC LINE CORD US
5	CA00182AP	ADD: AES ENCRYPTION SOFTWARE
5	C543	ADD: CABLE FOR RNC, DIU, MGEG
5	C724	CABLE, KEYLOAD

QTY	NOMENCLATURE	DESCRIPTION
5	C725AA	ADD: KEYLOAD CABLE FOR APX PORTABLE
5	C954	ADD: CABLE FOR SPECTRA/SPECTRO
5	CA01603AA	ADD: USB COMM/CHARGE CABLE W/ CUP
5	CA01803	ADD: KVL 4000 SLEEVE COVER
5	HKN6182	KEYLOADING CABLE ADAPTER (GCAI)
5	WPLN6905A	APX7000 KEYLOAD RS-232 CABLE
5	TKN8531C	MOBILE KEYLOAD CABLE (RNC DUI MGEG)
5	WPLN6904A	KEYLOAD CABLE FOR APX7000
1	T7376	JUNIPER/FIREWALL GATEWAY
1	DSFAP17BLK	17" NEC LCD, BLACK, NON-TOUCH MONITOR, W/ ADJ STAND
1	L3225A	CERTIFIED KEYBOARD FOR RSD SERVERS AND WORKSTATIONS
1	L3226A	CERTIFIED OPTICAL WHEEL MOUSE FOR RSD SERVERS AND WORKSTATIONS
1	DSF1DA108Z	PRO3 8-PORT KVM SWITCH PS2 & USB IN/OUT
4	DSF1D940106	BELKIN OMNIVIEW ENTERPRISE SERIES - KVM CABLE
4	DSF1D940006	PRO3 OR QUAD-BUS KVM SWITCH ALL-IN-ONE KVM CABLE KIT, PS/2, 6FT.
1	DSRM691	KEYBOARD MONITOR SHELF
1	DSRM385	19" SLIDING PIVOTING KEYBOARD W/MOUSE TRAY
1	TDN8533	RACK MOUNT SHELF 19 INCH
1	T7140	G-SERIES SOFTWARE UPGRADE
6	CA01116AA	ADD: SITE REPEATER BR SW UPGRADE
2	CA01135AA	ADD: SITE REPEATER SC SW UPGRADE
1	T7140	G-SERIES SOFTWARE UPGRADE
6	CA01116AA	ADD: SITE REPEATER BR SW UPGRADE
2	CA01135AA	ADD: SITE REPEATER SC SW UPGRADE
1	T7140	G-SERIES SOFTWARE UPGRADE
6	CA01116AA	ADD: SITE REPEATER BR SW UPGRADE
2	CA01135AA	ADD: SITE REPEATER SC SW UPGRADE
1	T7140	G-SERIES SOFTWARE UPGRADE
6	CA01116AA	ADD: SITE REPEATER BR SW UPGRADE
2	CA01135AA	ADD: SITE REPEATER SC SW UPGRADE
1	T7140	G-SERIES SOFTWARE UPGRADE
6	CA01116AA	ADD: SITE REPEATER BR SW UPGRADE
2	CA01135AA	ADD: SITE REPEATER SC SW UPGRADE
1	T7140	G-SERIES SOFTWARE UPGRADE
6	CA01116AA	ADD: SITE REPEATER BR SW UPGRADE
2	CA01135AA	ADD: SITE REPEATER SC SW UPGRADE
1	T7140	G-SERIES SOFTWARE UPGRADE
6	CA01116AA	ADD: SITE REPEATER BR SW UPGRADE

QTY	NOMENCLATURE	DESCRIPTION
2	CA01135AA	ADD: SITE REPEATER SC SW UPGRADE
1	T7140	G-SERIES SOFTWARE UPGRADE
6	CA01116AA	ADD: SITE REPEATER BR SW UPGRADE
2	CA01135AA	ADD: SITE REPEATER SC SW UPGRADE
1	T7140	G-SERIES SOFTWARE UPGRADE
6	CA01116AA	ADD: SITE REPEATER BR SW UPGRADE
2	CA01135AA	ADD: SITE REPEATER SC SW UPGRADE
1	SQM01SUM0200	MASTER SITE UPGRADE MODEL
1	CA00996AJ	ADD: NM/ZC LICENSE KEY 7.11
1	CA00997AJ	ADD: UCS LICENSE KEY 7.11
1	CA01238AA	ENH: EMAIL ALARM NOTIFICATIONS
1	ZA00151AG	ENH: AFFILIATION USER REPORTS
1	ZA00149AD	ENH: DYNAMIC REPORTS

4.4 M2-M3 UPGRADE

QTY	NOMENCLATURE	DESCRIPTION
2	CLN1838	FRU: 3500-48 ETHERNET SWITCH
1	CLN1837A	620 REDUNDANT/EXTERNAL POWER SUPPLY
2	DLN6699	SUN NETRA T5220 SERVER WITHOUT SOFTWARE
1	ST6202	SRC 24 PORT T1/E1EXP II
1	DLN6699	SUN NETRA T5220 SERVER WITHOUT SOFTWARE
1	SQM01SUM0205	GGM 8000 GATEWAY
1	CA01616AA	ADD: AC POWER
1	CLN1836	2610-24 ETHERNET SWITCH
1	CLN1838	FRU: 3500-48 ETHERNET SWITCH
1	CLN1836	2610-24 ETHERNET SWITCH
1	CLN1837A	620 REDUNDANT/EXTERNAL POWER SUPPLY
1	CLN8489	48 PORT TERMINAL SERVER
1	ST6018	S6000 12 PORT T1/E1 II MODULE
1	T7380	CO-OP WAN ROUTER RELAY PANEL
1	ST6011	S6000 4-PORT FLEXWAN MODULE
1	DKN6144A	ASSY,CBL,3 FT,RELAY PNL,CWR,S6000
1	DDN1073	DL360 VIRTUAL SERVER - NO OS NON-RETURNABLE
1	DLN6744	300 GB SAS HARD DISK DRIVE

SECTION 4D

EXHIBIT C-4: ACCEPTANCE TEST PLAN

P25 MIGRATION CONTRACT BOOK **28 SEPTEMBER 2012**

MOTOROLA

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EXHIBIT C-4: ACCEPTANCE TEST PLAN

4.1 MCC 7500 TRUNKED RESOURCES

Talkgroup Selection and Call

1. DESCRIPTION

The Talkgroup Call is the primary level of organization for communications on a trunked radio system. Dispatchers with Talkgroup Call capability will be able to communicate with other members of the same talkgroup. This provides the effect of an assigned channel down to the talkgroup level. When a Talkgroup Call is initiated from a subscriber unit, the call is indicated on each dispatch operator position that has a channel control resource associated with the unit's channel/talkgroup.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-2 - TALKGROUP 2
RADIO-3 - TALKGROUP 1
RADIO-4 - TALKGROUP 2
CONSOLE-1 - TALKGROUP 1
CONSOLE-2 - TALKGROUP 2

VERSION #1.120

2. TEST

Step 1. Initiate a wide area call from CONSOLE-1 on TALKGROUP 1.

Step 2. Observe that RADIO-1 and RADIO-3 will be able to monitor the call. Dekey the console and have either radio respond to the call.

Step 3. Observe that all consoles with TALKGROUP 1 can monitor both sides of the conversation.

Step 4. Initiate a wide area call from CONSOLE-2 on TALKGROUP 2.

Step 5. Observe that RADIO-2 and RADIO-4 will be able to monitor the call. Dekey the console and have either radio respond to the call.

Step 6. Observe that all consoles with TALKGROUP 2 can monitor both sides of the conversation.

Pass____ Fail____

MCC 7500 Trunked Resources

Call Alert

1. DESCRIPTION

Call Alert Page allows a subscriber/dispatcher to selectively alert another radio unit. The initiating subscriber/console will receive notification as to whether or not the call alert was received. Units receiving a Call Alert will sound an alert tone and show a visual alert indication. The display will also show the individual ID of the initiating subscriber/console unit.

SETUP

RADIO-1 - TALKGROUP 1
CONSOLE-1 - TALKGROUP 1

VERSION #1.090

2. TEST

Step 1. Using CONSOLE-1, select the call alert button in the "Private Call" resource window.

Step 2. Enter the ID of RADIO-1 and send the call alert to RADIO-1.

Step 3. Verify that RADIO-1 receives the alert and that the ID of the console is shown.

Step 4. Turn off RADIO-1.

Step 5. Using CONSOLE-1, send the call alert to RADIO-1 again.

Step 6. Verify that after trying to page RADIO-1, the console displays "Can not send call alert - target not found" in the summary/status list.

Pass____ Fail____

MCC 7500 Trunked Resources

Console Priority

1. DESCRIPTION

Console Operator Positions have ultimate control of transmitted audio on an assigned voice channel resource. The Console Position has the capability to take control of an assigned voice channel for a talkgroup call so that the operator's audio overrides any subscriber audio. Console priority is a feature that enables dispatchers to gain immediate access to an assigned voice channel so that a central point of audio control exists.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-2 - TALKGROUP 1
CONSOLE-1 - TALKGROUP 1

VERSION #1.120

2. TEST

Step 1. Initiate a Talkgroup call from RADIO-1 on TALKGROUP 1. Keep this call in progress until the test has completed.

Step 2. Observe that RADIO-2 receives the call.

Step 3. While the call is in progress, key up CONSOLE-1 on TALKGROUP 1.

Step 4. Observe that RADIO-2 is now receiving audio from CONSOLE-1 on TALKGROUP 1.

Step 5. De-key CONSOLE-1.

Step 6. Verify RADIO-2 now receives RADIO-1 audio.

Step 7. End the TALKGROUP 1 call from RADIO-1.

Pass____ Fail____

Emergency Alarm and Call Display Description

1. DESCRIPTION

Users in life threatening situations can use the emergency button on the radio to send an audible alarm and a visual alarm signal to a console operator in order to request immediate system access to a voice channel for an emergency call.

An emergency alarm begins after the radio user presses the radio's emergency button. Pressing the emergency button places the radio in "emergency mode". To begin an emergency call, the radio user must press the radio's PTT button while in "emergency mode." The assigned voice channel will be dedicated to the emergency caller's talkgroup for an extended period of time, equal to the Message Hang Time plus the Emergency Hang Time. As with other call types, emergency calls can operate across sites as well as within the same site.

SETUP

RADIO-1 - TALKGROUP 1
CONSOLE-1 - TALKGROUP 1
CONSOLE-2 - TALKGROUP 1

VERSION #1.060

2. TEST

Step 1. Initiate an Emergency Alarm from RADIO-1.

Step 2. Observe the Emergency from RADIO-1 is received at CONSOLE-1 for TALKGROUP 1.

Step 3. Acknowledge the Emergency at the operator position. Verify CONSOLE-2 receives notification that the call has been acknowledged.

Step 4. Initiate a call with RADIO-1 to initiate an Emergency call.

Step 5. Observe CONSOLE-1 and CONSOLE-2 can monitor RADIO-1

Step 6. Clear the Emergency from CONSOLE-1 on TALKGROUP 1.

Step 7. End the Emergency Alarm from RADIO-1.

Pass____ Fail____

Individual Tone Pages (Mixed Resources - Sequential)

1. DESCRIPTION

A Tone Page is an audio alert typically sent to alert the user. Tone page is also sent to a device to issue a control message. A tone page can be sent to Trunked Group or Analog Conventional resource.

The user interface allows for issuing an individual page and a group of individual pages.

The sequential mode refers to the configured paging mechanism where console sends pages sequentially on different resources. Pages on a same resource are sent as sequential pages in the order in which the pages appear in the paging queue.

A pre-configured group page representing a set of individual pages is invoked via the console user interface to issue a simultaneous tone pages.

Tone Page can be sent over both a trunking talkgroup and a conventional channel. For the purpose of testing at CCSi, testing will be done over a trunking talkgroup only since a conventional resource is not available.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-2 - TALKGROUP 2
RADIO-3 - CCH1
RADIO-4 - CCH2
CONSOLE-1 - TALKGROUP 1, CCH1
CONSOLE-2 - TALKGROUP 2, CCH2
CONSOLE-3 - TALKGROUP 1, TALKGROUP 2,TALKGROUP 3, CCH2
Note: The Console should be setup for sequential paging mode through the network management. The individual tone pages on TALKGROUP 1 with TALKGROUP 1TonePage1 alias, Quick Call I Paging Format, TALKGROUP 2 with TALKGROUP 2TonePage1 alias, Quick Call I Paging Format, TALKGROUP 1 with TALKGROUP 2TonePage2 alias, Quick Call II Paging Format.

VERSION #1.030

2. TEST

Step 1. Verify communications on TALKGROUP 1 and TALKGROUP 2 by setting up voice calls between the Radio and Console on each TG separately.

Step 2. Create a list of tone pages through the standard paging interface on CONSOLE-3 Elite interface. Keep the order of the pages to be TALKGROUP 1TonePage1, TALKGROUP 2TonePage1, TALKGROUP 2 TonePage2.

Step 3. Press "Send" and Verify that the first page on each resource in the queue is sent on TALKGROUP 1 and then the second page is sent on TALKGROUP 2.

Step 4. Verify that RADIO-1 and RADIO-2 received tone pages on TALKGROUP 1 and TALKGROUP 2 respectively.

Pass____ Fail____

Instant Recall Recorder (IRR) Operation on the MCC 7500

1. DESCRIPTION

The Instant Recall Recorder (IRR) allows for audio from a phone call or a radio call to be played back at the MCC 7500 Console position. Thirty minutes of audio is saved for radio and an additional thirty minutes for telephone. The audio is saved on the positions hard disk in the form of a .wav file.

SETUP

CONSOLE-1 - TALKGROUP 1 running IRR application.

VERSION #1.010

2. TEST

Step 1. Select a radio channel on the CONSOLE-1 application window.

Step 2. Select IRR from the CONSOLE-1 toolbar.

Step 3. Initiate radio communication between two portables.

Step 4. Verify a new entry appears in the IRR log window.

Step 5. Select the new entry from the list.

Step 6. Press play and verify conversation replay.

Pass____ Fail____

MCC 7500 Trunked Resources

Instant Transmit

1. DESCRIPTION

The instant transmit switch provides immediate operator access to a channel, independent of its select status (selected or unselected). It provides priority over other dispatcher transmit bars or optional footswitches.

SETUP

RADIO-1 - TALKGROUP 1
CONSOLE-1 – TALKGROUP 1 (Selected), TALKGROUP 2 (Unselect mode)

VERSION #1.090

2. TEST

Step 1. Using CONSOLE-1, press the Instant Transmit button on TALKGROUP 1.

Step 2. Verify that the Transmit indicator is lit.

Step 3. Verify RADIO-1 can monitor and respond to the call on TALKGROUP 1.

Step 4. On RADIO-1 change to TALKGROUP 2.

Step 5. Using CONSOLE-1, press the Instant Transmit button on the TALKGROUP 2 radio resource.

Step 6. Verify RADIO-1 can monitor and respond to the call on TALKGROUP 2.

Pass____ Fail____

MCC 7500 Console Initiated Private Call to a MCC 7500 Console

1. DESCRIPTION

Private Conversation is a selective calling feature that allows a dispatcher or radio user to carry on one-to-one conversation that is heard only by the two parties involved. Subscriber units receiving a private call will sound an alert tone. As with other call types, Private Calls operate across sites as well as within the same site. MCC 7500 Console can use the feature to communicate with another MCC 7500 Console in the same or another Console Site.

Private call between the two Consoles is supported for MCC 7500 Consoles only.

SETUP

RADIO-1 - TALKGROUP 1
CONSOLE-1 - TALKGROUP 1
CONSOLE-2 - TALKGROUP 1
CONSOLE-3 - TALKGROUP 1

VERSION #1.070

2. TEST

Step 1. Using CONSOLE01, select the "PRIVATE-CALL" tile and click the Private Call function.

Step 2. Select the numeric keypad.

Step 3. Using the displayed keypad enter the unit ID to be Private Called (CONSOLE-2) or select CONSOLE-2 from the drop down list (if listed).

Step 4. Click the Send button.

Step 5. At CONSOLE-2, answer the Private Call from CONSOLE-1 and verify CONSOLE-2 is able to hear the CONSOLE-1 audio. Also verify that the CONSOLE-1 can hear the CONSOLE-2 audio.

Step 6. Verify that RADIO-1 and CONSOLE-3 do not hear the audio for the Private Call.

Step 7. Verify that no site resources are used as this is an IP based call from Console user to Console user.

Step 8. End the Private Call.

Pass____ Fail____

MCC 7500 Trunked Resources

Multi-Select Operation

1. DESCRIPTION

Multi-Select (Msel) allows the console operator to group a number of channels/talkgroups together such that when the general transmit bar is depressed, all of the multi-selected channels/talkgroups will transmit at the same time with the same information. Multi-Select is one way communication call. If a radio user responds to a Multi-Select call the talkgroup the user is affiliated to will be the only one to hear the call. There is no super-group formed, so radio communication is still at the single talkgroup level. Multi-Select is utilized to send an APB to several channels/talkgroups. A Multi-Select has a limit of twenty (20) trunking/conventional resources

SETUP

RADIO-1 - TALKGROUP 1
RADIO-2 - TALKGROUP 2
CONSOLE-1 - TALKGROUP 1, TALKGROUP 2

VERSION #1.070

2. TEST

Step 1. From CONSOLE-1, create an Msel group with TALKGROUP 1 and TALKGROUP 2.

Step 2. Transmit on the Msel using the Msel instant transmit button.

Step 3. Verify that RADIO-1 and RADIO-2 hear the call.

Step 4. Initiate a call with RADIO-1.

Step 5. Verify the call is heard on CONSOLE-1 but not on RADIO-2.

Step 6. Initiate a call with RADIO-2.

Step 7. Verify the call is heard on CONSOLE-1 but not on RADIO-1.

Step 8. On CONSOLE-1 dissolve the Msel.

Pass____ Fail____

Multigroup Call

1. DESCRIPTION

This trunking feature allows an equipped console operator position to transmit an announcement to several different talkgroups simultaneously. As with Talkgroup Calls, multigroup calls operate across sites as well as within the same site.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-2 - TALKGROUP 2
RADIO-3 - RANDOM
CONSOLE-1 - ATG 1
Note: TALKGROUP 1 and TALKGROUP 2 are members of ATG 1. RANDOM is any talkgroup not a member of ATG 1.

VERSION #1.130

2. TEST

Step 1. Using CONSOLE-1, select the ATG 1 resource.

Step 2. Initiate the Multigroup Call from CONSOLE-1.

Step 3. Observe that RADIO-1 and RADIO-2 receive the Multigroup Call.

Step 4. Verify that RADIO-3 does not receive the Multigroup Call because it is not a member of ATG 1.

Step 5. Answer the Multigroup Call using RADIO-1 and observe CONSOLE-1 receives the response.

Step 6. Verify that if the call is answered within the repeater hang time, the console will receive the call on the ATG 1 resource tile, otherwise the console will receive the call on the TALKGROUP 1 tile.

Step 7. Verify that if the call is answered within the repeater hang time, RADIO-2 will monitor the call.

Pass____ Fail____

MCC 7500 Trunked Resources

PTT Unit ID/Alias Display

1. DESCRIPTION

Console operator positions contain various resources such as talkgroup, multigroup, Private Call which enables the dispatcher to communicate with the subscriber units. If activity occurs on one of these operator position resources, the unit ID or associated alias of the initiating radio appears at the console resource.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-2 - TALKGROUP 1
CONSOLE-1 - TALKGROUP 1
CONSOLE-2 - TALKGROUP 1

VERSION #1.030

2. TEST

Step 1. Select the resource for TALKGROUP 1 on CONSOLE-1.

Step 2. Initiate a call on TALKGROUP 1 from RADIO-2 and observe that the alias is seen at CONSOLE-1 in the resource window as well as in the Activity Log window.

Step 3. Initiate a call from RADIO-1 and observe that the alias of RADIO-1 is seen at CONSOLE-1 in the resource window as well as in the Activity Log window.

Step 4. Modify RADIO-2's alias. Make sure to give enough time for the alias change to propagate to the Zone Controller.

Step 5. Initiate a call from RADIO-2 and observe the new alias of RADIO-2 is seen at CONSOLE-1 in the list in the resource window as well as in the Activity Log window.

Step 6. Return RADIO-2's alias to its original state.

Pass____ Fail____

MCC 7500 Trunked Resources

Radio Check - Conventional

1. DESCRIPTION

Radio Check allows the console operator to determine if a subscriber is operational or within range. The subscriber sends the acknowledgment that it has received the Radio Check.

NOTE: The status/message line must be added to the Channel Control Window (CCW) of the resource in order for the "ACKNOWLEDGED" indication to be visible.

This test can be run using Digital Conventional or MDC1200 Channels.

SETUP

RADIO-1 - CONVENTIONAL CHANNEL 1
CONSOLE-1 - CONVENTIONAL CHANNEL 1

VERSION #1.060

2. TEST

Step 1. Using CONSOLE-1 select the CONVENTIONAL CHANNEL 1 Radio Resource.

Step 2. From the active Radio Resource select the Radio Check button. Enter the ID or alias of RADIO-1 in the Radio Check window.

Step 3. Click the "Send" button from the Radio Check window to initiate the Radio Check.

Step 4. Verify that "ACKNOWLEDGED" is shown on CONVENTIONAL CHANNEL 1's Channel Control Window.

Step 5. Turn off RADIO-1.

Step 6. Click the "Send" button from the Radio Check window to initiate the Radio Check on RADIO-1.

Step 7. Verify that an error message is logged: "Send Radio Check failed: Target not found."

Pass____ Fail____

Talkgroup Patch

1. DESCRIPTION

Talkgroup Patch allows a dispatcher to merge several talkgroups together on one voice channel to participate in a single conversation. This can be used for situations involving two or more talkgroups that need to communicate with each other.

Using the Patch feature, the console operator can talk and listen to all of the selected talkgroups grouped; in addition, the members of the individual talkgroups can also talk or listen to members of other talkgroups. Patched talkgroups can communicate with the console dispatcher and other members of different talkgroups because of the "supergroup" nature of the Patch feature.

NOTE : If "secure" and "clear" resources are patched together, one repeater for each mode may be assigned per site.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-2 - TALKGROUP 2
RADIO-3 - TALKGROUP 1
RADIO-4 - TALKGROUP 2
CONSOLE-1 - TALKGROUP 1 and TALKGROUP 2

Note: All 4 Radios must have the same home zone.

VERSION #1.100

2. TEST

Step 1. Using CONSOLE-1 create a patch between TALKGROUP 1 and TALKGROUP 2.

Step 2. Initiate a patch call from CONSOLE-1.

Step 3. Verify RADIO-1, RADIO-2, RADIO-3, and RADIO-4 can monitor the call.

Step 4. Initiate several calls between the radios and verify successful communication.

Step 5. Dissolve the patch created in step 1.

Pass____ Fail____

MCC 7500 Trunked Resources

Tone Generation Trunking Resource (MCC 7500 Consoles)

1. DESCRIPTION

This test will demonstrate that the dispatch console is able to transmit Alt-Tone on a trunking resource during the tone generation period.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-1 - SITE - SITE 1
SITE-1 - ZONE 1
CONSOLE-1 -TALKGROUP 1
CONSOLE-1 - SITE - CSITE 1

VERSION #1.030

2. TEST

Step 1. Send an Alert tone from CONSOLE-1

Step 2. Verify that RADIO-1 hears Alert tone from CONSOLE-1

Step 3. Key up general transmit by using Console-1's mike or foot switch

Step 4. Verify that RADIO-1 hears audio from CONSOLE-1 during the Alert Tone Talk Extend period.

Pass____ Fail____

4.2 SYSTEM RELIABILITY FEATURES

Link Failure between MCC 7500 site and Zone Controller

1. DESCRIPTION

This test verifies that the two communication paths between the MCC 7500 Console Site and Zone Controller are redundant and the system will continue uninterrupted if the main path fails. To accomplish this test one of the two NIC connections is removed at the ZC.

SETUP

RADIO-1 - TALKGROUP 1
RADIO-1 - SITE - SITE 1
RADIO-2 - TALKGROUP 1
RADIO-2 - SITE - SITE 1
RADIO-3 - TALKGROUP 2
RADIO-3 - SITE - SITE 1
RADIO-4 - TALKGROUP 2
RADIO-4 - SITE - SITE 2

CONSOLE-1 and CONSOLE-2 at the MCC 7500 Console site are affiliated to the TALKGROUP 1 and TALKGROUP 2 talkgroups.

VERSION #1.040

2. TEST

Step 1. Initiate a Talkgroup Call with RADIO-1 in TALKGROUP 1.

Step 2. Observe that only RADIO-2, CONSOLE-1 and CONSOLE-2 are able to monitor and respond to the call

Step 3. Initiate a Talkgroup call with RADIO-3 in TALKGROUP 2.

Step 4. Observe that only RADIO-4, CONSOLE-1 and CONSOLE-2 are able to monitor and respond to the call.

Step 5. Remove the ENET cable to Link 1 from the NIC on the ZC, this will simulate a Zone Controller to Console Site Link failure.

Step 6. Observe that the calls on TALKGROUP 1 and TALKGROUP 2 can continue.

Step 7. Repeat steps 1-6 for the other Zone Controller.

Step 8. Connect the ENET cables to normalize the system.

Pass____ Fail____

4.3 CONVENTIONAL TESTS

Console Site Entering Site Conventional Mode

1. DESCRIPTION

The MCC 7500 Console site will enter site conventional mode when the Zone Controller (ZC)-Console Site Control Path fails and Conventional Site Controller-Console Site Control Path is established.

The console site will re-enter wide area conventional mode when ZC-Console Site Control Path is re-established.

SETUP

RADIO-1- CONVENTIONAL CHANNEL 1
RADIO-1 - SITE - CONVSITE 1
CONSOLE-1 - CONVENTIONAL CHANNEL 1
CONSOLE-1 - SITE - CONSITE 1
CONSOLE-2 - CONVENTIONAL CHANNEL 1
CONSOLE-2 - SITE - CONSITE 1
CSC - SITE - CONVSITE 1
CCGW-1 - CONVENTIONAL CHANNEL 1
CCGW-1- SITE - CONVSITE 1
CONVSITE 1 is co-located with CONSITE 1

Note: Configure the method to detect inbound radio transmission to VOX

VERSION #1.060

2. TEST

Step 1. Initiate a call on CONVENTIONAL CHANNEL 1 at CONSOLE-1. Keep this call established for the duration of the test.

Step 2. Verify that RADIO-1 and CONSOLE-2 hear CONSOLE-1

Step 3. Disconnect the CONSITE 1 WAN link

Step 4. Verify that CONSOLE-1 and CONSOLE-2 provide an indication that CONSITE-1 has entered into site conventional mode.

Step 5. Verify that RADIO-1 and CONSOLE-2 continue to hear CONSOLE-1.

Step 6. Reconnect the CONSITE-1 WAN link.

Step 7. Verify that CONSOLE-1 no longer provides an indication that CONSITE 1 is in site conventional mode.

Step 8. Verify that RADIO-1 and CONSOLE-2 hear CONSOLE-1, then end the CONVENTIONAL CHANNEL 1 call.

Pass____ Fail____

Active Call During Transition to Wide Area Conventional Mode

1. DESCRIPTION

The Conventional Site Controller (CSC) is an optional device that is installed at a console site. The CSC provides fallback capability for the console site and conventional channels collocated with this site when the link between a console site and the zone controller is lost. Such way of operating is called Site Conventional mode.

This test demonstrates the ability for an active site conventional call to transition to wide conventional with minimal interruption. The active call will be interrupted for a short period.

Note: Configure the method to detect inbound radio transmission to VOX.

SETUP

RADIO-1 - CONVENTIONAL CHANNEL 1
RADIO-1 - SITE - CONVSITE-1
CONSOLE-1 - CONVENTIONAL CHANNEL 1
CONSOLE-1 - SITE - CONVSITE-1
CONSOLE-2 - CONVENTIONAL CHANNEL 1
CONSOLE-2 - SITE - CONSITE-1
CSC - SITE - CONVSITE-1
CCGW-1 - CONVENTIONAL CHANNEL 1
CCGW-1 - SITE - CONVSITE-1

VERSION #1.060

2. TEST

Step 1. Disconnect the CONSITE 1 link and verify that CONSOLE-1 provides an indication that the CONVSITE-1 has entered into site conventional mode.

Step 2. Initiate a conventional call on CONVENTIONAL CHANNEL 1 with RADIO-1.

Step 3. Verify that CONSOLE-1 hears RADIO-1. Continue to transmit the call through the duration of the test.

Step 4. Put CONVSITE 1 into wide area conventional mode by connecting the CONSITE 1 link.

Step 5. Verify that the RADIO-1 call continues with a brief interruption while the CONVSITE 1 transitions into wide area conventional mode. (Note: CONSOLE-1 will briefly stop hearing RADIO-1, but then the call will resume once back into wide area conventional mode).

Step 6. Verify that CONSOLE-1 continues to hear RADIO-1 after transitioning to wide area conventional mode.

Step 7. End the CONVENTIONAL CHANNEL 1 call.

Pass____ Fail____

4.4 SIGNOFF CERTIFICATE

By their signatures below, the following witnesses certify they have observed the system Acceptance Test Procedures.

Signatures

WITNESS: _____ Date: _____

Please Print Name: _____ Initials: _____

Please Print Title: _____

WITNESS: _____ Date: _____

Please Print Name: _____ Initials: _____

Please Print Title: _____

WITNESS: _____ Date: _____

Please Print Name: _____ Initials: _____

Please Print Title: _____

SECTION 4E

EXHIBIT C-5: STATEMENT OF WORK

P25 MIGRATION CONTRACT BOOK 28 SEPTEMBER 2012

MOTOROLA

The design, technical, and cost information furnished with this proposal is proprietary information of Motorola Solutions, Inc. (Motorola). Such information is submitted with the restriction that it is to be used only for the evaluation of the proposal, and is not to be disclosed publicly or in any manner to anyone other than those required to evaluate the proposal, without the express written permission of Motorola Solutions, Inc.

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STATEMENT OF WORK

4.1 INTRODUCTION

This Statement of Work (SOW) describes the deliverables to be furnished to Hidalgo County Sheriff's Office (HCSO) and the tasks to be performed by Motorola, its subcontractors, and by the County in order to implement the MCC 7500 Dispatch Console solution. Motorola's solution consists of two (2) MCC 7500 Dispatch consoles to replace their current dispatch consoles. Hidalgo County has also received two additional MCC 7500 Dispatch Consoles from a separate proposal from Homeland Security Advisory Council (HSAC). Together there will be a total of four dispatch positions. Six Watson Dispatch Furniture positions are also included in this proposal for the new dispatch room. Mobile and portable subscribers have also been included in this proposal.

In addition to the above listed system components for the HCSO, Motorola has proposed a P25 M2 Core Master Site with an included M3 Core Master Site Upgrade.

This SOW provides the most current understanding of the work required by both parties to ensure a successful project implementation.

It is understood that this SOW may be revised during contract negotiations or during the Contract Design Review (CDR), and through any other Change Orders that may occur during the execution of the project. If there are changes to the Scope of Work, those changes must be reflected in this SOW before becoming binding on either party. This SOW will be an Exhibit to the Contract negotiated between Motorola and the County. After contract execution, changes to the SOW must be made through the formal contract Change Order process as set forth in the Contract.

4.2 CONTRACT

4.2.1 Contract Award (Milestone)

- Hidalgo County and Motorola execute the contract; both parties receive all the necessary documentation.

4.2.2 Contract Administration

Motorola Responsibilities

- Assign a Project Manager, as the single point of contact with authority to make project decisions.
- Assign resources necessary for project implementation.
- Set up the project in the Motorola information system.
- Schedule the project kickoff meeting with Hidalgo County.

Hidalgo County Responsibilities

- Assign a Project Manager, as the single point of contact responsible for Hidalgo County signed approvals.
- Assign other resources necessary to ensure completion of project tasks for which Hidalgo County is responsible.

Completion Criteria

- Motorola internal processes are set up for project management.
- Both Motorola and Hidalgo County assign all required resources.
- Project kickoff meeting is scheduled.

4.2.3 Project Kickoff

Motorola Responsibilities

- Conduct a project kickoff meeting during the Contract Design Review (CDR) phase of the project.
- Ensure key project team participants attend the meeting.
- Introduce all project participants attending the meeting.
- Review the roles of the project participants to identify communication flows and decision-making authority between project participants.
- Review the overall project scope and objectives with Hidalgo County.
- Review the resource and scheduling requirements with Hidalgo County.
- Review the Project Schedule with Hidalgo County to address upcoming milestones and/or events.
- Review the teams' interactions (Motorola and Hidalgo County), meetings, reports, milestone acceptance, and Hidalgo County's participation in particular phases.

Hidalgo County Responsibilities

- Hidalgo County's key project team participants attend the meeting.
- Review Motorola and Hidalgo County Responsibilities.

Completion Criteria

- Project kickoff meeting completed.
- Meeting notes identify the next action items.

4.3 CONTRACT DESIGN REVIEW (CDR)

4.3.1 Review Contract Design

Motorola Responsibilities

- Meet with Hidalgo County project team.
- Review the operational requirements and the impact of those requirements on various equipment configurations.
- Establish a defined baseline for the system design and identify any special product requirements and their impact on system implementation.
- Review the System Design, Statement of Work, Project Schedule, and Acceptance Test Plans, and update the contract documents accordingly.
- Discuss the proposed Cutover Plan and methods to document a detailed procedure.
- Submit design documents to Hidalgo County for approval. These documents form the basis of the system, which Motorola will manufacture, assemble, stage, and install.
- Prepare equipment layout plans.
- Provide minimum acceptable performance specifications for microwave, fiber, or copper links.
- Establish demarcation point (SUPPLIED BY THE MOTOROLA SYSTEM ENGINEER) to define the connection point between the Motorola-supplied equipment and Hidalgo County-supplied link(s) and external interfaces.
- Finalize site acquisition and development plan.
- Determine each site's ability to accommodate proposed equipment based upon physical capacity.
- If applicable, test existing equipment with which Motorola equipment will interface.

Hidalgo County Responsibilities

- Hidalgo County's key project team participants attend the meeting.
- Make timely decisions, according to the Project Schedule.
- Frequency Licensing and Interference:
  - As mandated by FCC, Hidalgo County, as the licensee, has the ultimate responsibility for providing all required radio licensing or licensing modifications for the system. This responsibility includes paying for FCC licensing and frequency coordination fees.
  - Provide the FCC "call sign" station identifier for each site.

Completion Criteria

- Complete Design Documentation, which may include updated System Description, Equipment List, system drawings, or other documents applicable to the project.
- Incorporate any deviations from the proposed system into the contract documents accordingly.
- The system design is "frozen" in preparation for subsequent project phases such as Order Processing and Manufacturing.
- A Change Order is executed in accordance with all material changes resulting from the Design Review to the contract.

4.3.2 Design Approval (Milestone)

- Hidalgo County executes a Design Approval milestone document.

4.4 ORDER PROCESSING

4.4.1 Process Equipment List

Motorola Responsibilities

- Validate Equipment List by checking for valid model numbers, versions, compatible options to main equipment, and delivery data.
- Enter order into Motorola's Customer Order Fulfillment (COF) system.
- Create Ship Views, to confirm with Hidalgo County the secure storage location(s) to which the equipment will ship. Ship Views are the mailing labels that carry complete equipment shipping information, which direct the timing, method of shipment, and ship path for ultimate destination receipt.
- Create equipment orders.
- Reconcile the equipment list(s) to the Contract.
- Procure third-party equipment if applicable.

Hidalgo County Responsibilities

- Approve shipping location(s).
- Complete and provide Tax Certificate information verifying tax status of shipping location.

Completion Criteria

- Verify that the Equipment List contains the correct model numbers, version, options, and delivery data.
- Trial validation completed.
- Bridge the equipment order to the manufacturing facility.

4.5 MANUFACTURING

4.5.1 Manufacture Motorola Fixed Network Equipment

Motorola Responsibilities

- Manufacture the Fixed Network Equipment (FNE) necessary for the system based on equipment order.

Hidalgo County Responsibilities

- None.

Completion Criteria

- FNE shipped to the field or.

4.5.2 Manufacture Motorola Subscriber

Motorola Responsibilities

- Manufacture the subscribers necessary for the system, based on equipment order and project schedule.

Hidalgo County Responsibilities

- None.

Completion Criteria

- Subscribers (mobile or portable radios) shipped to the field.

4.5.3 Manufacture Non-Motorola Equipment

Motorola Responsibilities

- Manufacture (third party equipment suppliers) non-Motorola equipment necessary for the system based on equipment order.

Hidalgo County Responsibilities

- None.

Completion Criteria

- Ship non-Motorola manufactured equipment to the field.

4.5.4 Develop Fleetmap

Motorola Responsibilities

- Fleetmapping is not part of this proposal. However, Motorola will assist Hidalgo County, as necessary.
- Program the infrastructure equipment, subscribers, terminals, and any other radio system FNE, based on Hidalgo County provided fleetmap.

Hidalgo County Responsibilities

- Work with participating agency(ies) to develop and obtain approval of the fleetmap for the system.
- Configure, Manage and control the Fleetmap Database.
- Create a 'Console Dispatch and Radio Programming Policy' to decide how each Subscriber group will operate on the system and what features will be activated.

Completion Criteria

- Fleetmap requirements developed and completed by Hidalgo County.

4.5.5 Develop Templates

Motorola Responsibilities

- Motorola assists Hidalgo County in defining each radio/console template.
- Program Hidalgo County developed templates into a radio-programming template tool.

Hidalgo County Responsibilities

- Create and submit templates.

Completion Criteria

- Templates completed and submitted by Hidalgo County.

4.5.6 Ship to Field (Milestone)

- Ship all equipment to the field.

4.5.7 Ship Equipment to Field

Motorola Responsibilities

- Pack system for shipment to final destination.
- Arrange for shipment to the field.

Hidalgo County Responsibilities

- None.

Completion Criteria

- Equipment ready for shipment to the field.

4.5.8 Ship Acceptance (Milestone)

- All equipment shipped to the field.

4.6 CIVIL WORK FOR HIDALGO COUNTY-PROVIDED FACILITIES

Motorola Responsibilities

- Provide electrical requirements for each equipment rack to be installed in Hidalgo County-provided facilities.
- Provide heat load for each equipment rack to be installed in Hidalgo County-provided facilities.

Hidalgo County Responsibilities

- Secure site lease/ownership, zoning, permits, regulatory approvals, easements, power, and Telco connections.
- Provide clear and stable access to the sites for transporting electronics and other materials. Sufficient site access must be available for trucks to deliver materials under their own power and for personnel to move materials to the facility without assistance from special equipment.
- Design and construct facilities for housing communications equipment such as shelters, towers, generators, fuel tanks, fenced compounds, etc.
- Supply adequately sized electrical service, backup power (UPS, generator, batteries, etc.) including the installation of conduit, circuit breakers, outlets, etc., at each equipment location. Provide AC power (dedicated 20 Amp AC outlets - simplex with ground) for each major piece of equipment within 6 feet of the location of the Motorola-supplied equipment, including the associated electrical service and wiring (conduit, circuit breakers, etc.)
- Provide adequate HVAC, grounding, lighting, cable routing, and surge protection (also, among existing and Motorola-provided equipment) based upon Motorola's Standards and Guidelines for Communication Sites (R56). Ceiling (minimum 9 feet) and cable tray heights (minimum 8 feet) in the equipment rooms in order to accommodate 7-foot, 6-inch equipment racks.
- Provide floor space and desk space for the System equipment at Hidalgo County-provided facilities. Each rack shall be provided a minimum of 24-inch x 24-inch footprint with 36 inches clearance in the front and back.
- Relocate existing equipment, if needed, to provide required space for the installation of Motorola-supplied equipment.
- Bring grounding system up to Motorola's Standards and Guidelines for Communication Sites (R56) and supply a single point system ground, of 5 ohms or less, to be used on all FNE supplied under the Contract. Supply grounding tie point within 10 feet from the Motorola-supplied equipment.
- Provide all necessary wall or roof penetrations on existing buildings for antenna coax and microwave waveguide (if applicable) for main transmitter antennas, microwave radios, and control station Yagi antennas.
- Provide obstruction-free area for the cable run between the demarcation point and the communications equipment.
- Resolve any environmental issues including, but not limited to, asbestos, structural integrity (rooftop, water tank, tower, etc.) of the site, and any other building risks. (Resolve environmental or hazardous material issues).
- Arrange for space on the tower for installation of new antennas at the proposed heights.

- Perform structural analysis of existing tower and rooftops as required to confirm that the structure is capable of supporting proposed and future antenna loads.
- Supply all permits as contractually required.
- Supply interior building cable trays, raceways, conduits, and wire supports.
- Supply engineering and drafting as required for modifications to existing building drawings for site construction.
- Pay for usage costs of power and generator fueling, both during the construction and installation effort, and on an ongoing basis.
- Complete all Hidalgo County deliverables in accordance within the approved project schedule.

Completion Criteria

- All sites are ready for equipment installations in compliance with Motorola's Standards and Guidelines for Communication Sites (R56).

4.7 SYSTEM INSTALLATION

4.7.1 Install Fixed Network Equipment

Motorola Responsibilities

- Will provide storage location for the Motorola-provided equipment.
- Receive and inventory all equipment.
- Install system equipment as specified by the Equipment List, System Description, and system drawings.
- Interface and System Installation included to display the Real Time GPS location in CAD

  Interference

  - Motorola is not responsible for interference caused or received by the Motorola-provided equipment except for interference that is directly caused by the Motorola-provided transmitter(s) to the Motorola-provided receiver(s). Should Hidalgo County Sheriff's Office system experience interference, Motorola can be contracted to investigate the source and recommend solutions to mitigate the issue.
- Bond the supplied equipment to the site ground system in accordance with Motorola's Standards and Guidelines for Communication Sites (R56).
- Will remove and dispose existing equipment.
- The following is a high level equipment summary of the proposed design. Not all equipment is listed. The MCC 7500 Dispatch Console consists of the following elements:
- (2) Dispatch Position, consisting of:
  - (1) HP Z420 Desktop w/Windows 7
  - (1) Dual Instant Recall Recorder
  - (1) 19" LCD Monitor
  - (1) Gooseneck Microphone
  - (2) Desktop Speakers
  - (1) Dual Pedal Foot Switch

  - (1) Voice Processing Module (VPM)
  - (1) UPS Backup Tower
- (1) HP 24-port Switch
- (3) Conventional Channel Gateway (CCGW)
- (6) APX Consolettes
- (3) 7/800 APX Control Station
- (1) 7/800-VHF Dual Band Control Station
- (1) UPS
- (6) Positions of Dispatch Furniture

4.7.2 P25 M2 Master Core

Table 4-1: List of Master Core Main Components for the Proposed System.

Master Core Component	Function
GAS 01	**Zone Controller (ZC):** Responsible for processing calls, managing audio paths, controlling zone infrastructure, and providing services to subscribers and console operators. **Zone Database Server (ZDS):** Distributes configuration information to the following devices: Console, CCGW, and MGEG. **Air Traffic Router:** Collects air traffic information from the zone controller and distributes the information to the statistical servers. **Zone Statistical Server (ZSS):** Collects and stores zone-wide statistics regarding call processing traffic. **Unified Network Configurator (UNC):** Provides controlled and validated configuration management of system devices. **User Configuration Server (UCS):** Houses the database containing configuration records for home zone maps, users, radios, talk groups, and other system-level parameters. **Unified Event Manager (UEM):** Provides fault management for the system.
GAS 02	Redundant Zone Controller: Responsible for processing calls, managing audio paths, controlling zone infrastructure, and providing services to subscribers and console operators.
Virtual Management Servers	Holds the System Domain Controller, Zone Domain Controller, Backup and Restore Server, and CSMS (Core Security Management Server).
Core LAN Switch	Interfaces with network management servers, zone controllers, various Master Core routers, and other components. It determines the device for which a packet is intended and switches out the packet towards that device.
Gateway Router	Provides functional support for the zone controller, Ambassador Electronics Bank, MGEG, Packet Data Gateway, and Network Management routing.

Master Core Component	Function
Core Router	Handles network traffic between the Master Core and other sites within a zone (intrazone support only).
Network Time Protocol (NTP) Server	The NTP server provides Network Time Protocol services for the servers and the network transport equipment on the Master Core LAN. The TRAK9100 is configured as the NTP Server and uses its GPS receiver that supplies Stratum 1 frequency and time reference for equipment at the Master Core.
Terminal Server	Is the access point for all administration with the Network Management servers, zone controllers, and other IP devices in the zone.
IV&D PDG	Is a hardware and software platform designed to link a customer's data network to the trunked IV&D network. There are two applications in the Packet Data Gateway: PDR (Packet Data Router) and RNG (Radio Network Gateway).
GGSN Router	Serves as the network interface between the Motorola Radio Network and the NYSP Enterprise Network.
NM Client	Used to start and run the software applications for configuring, viewing equipment operational status, and monitoring network utilization and performance.
CNI Firewall	Provides network boundary enforcement and attack detection features. Restricts traffic to known sources, destinations, and protocols, based on the hosts and services that are specified in the firewall configuration.
DMZ Switch	Provides the external LAN for connecting CENs.
Peripheral Network Router	Connects to the DMZ Switch and provides LAN to WAN connectivity across the peripheral network.
Border Router	Gateway device between ASTRO 25 radio network infrastructure and a customer's enterprise network.

M2 to M3 Master Core Upgrade

Master Core Component	Description
Replacement Core Switches	FRU: 3500-48 Ethernet Switch
RPS for Core Switches	620 Redundant/External Power Supply
New Fire Wall	SSG140 Firewall W/ 2 Years Support
2x Servers to go from 2 to 4 in the Core	Sun Netra T5220 Server Without Software

Hidalgo County Responsibilities

- Provide access to the sites, as necessary.
- Provide T1 link to connect to the RGVDC's P25 Master Site.

Completion Criteria

- Fixed Network Equipment installation completed and ready for optimization.

4.7.3 Fixed Network Equipment Installation Complete

- All fixed network equipment installed and accepted by Hidalgo County.

4.7.4 Console Installation

Motorola Responsibilities

- Install the console in the space provided by Hidalgo County.
- Connect Hidalgo County-supplied, previously identified circuits into the console, to a demarcation point located within 25 feet of the console interface.
- Terminate the audio outputs for the logged talkgroups onto a punchblock, and then terminate these outputs into the logging recorder.
- Install a dedicated Local Area Network (LAN) at each dispatch center to connect the proposed console positions.
- Connect the appropriate equipment to Hidalgo County supplied ground system in accordance with Motorola's R56 Site Installation Standards.
- Perform the console programming, based on the console templates designed during the fleetmapping process.

Hidalgo County Responsibilities

- Provide demarcation point located within 25 feet of the console interface.

Completion Criteria

- Console installation is complete.

4.7.5 Console Installation Complete

- Console installation completed and accepted by Hidalgo County.

4.7.6 Control Station Installation

Motorola Responsibilities

- Properly connectorize and ground the cabling, which will be run to the outdoor antenna location using the least obtrusive method.
- Protect the cabling by providing and installing a bulkhead lightning surge protector.
- Survey the exact mounting locations and develop control station installation plan.
- Perform the following tasks for the local control stations installations:
  - Create installation plan.
  - Assist Hidalgo County to determine the locations of control stations and desk sets at each site.
  - Install RF local control stations identified in the equipment list.
  - Install line (not greater than 100 feet in length) and antenna system (connectors, coax grounding kit, antenna, and surge protection).

- Connect to Hidalgo County-supplied ground point.

- Program all control stations once, from the template (approved by Hidalgo County) prior to delivery.

Hidalgo County Responsibilities

- Provide cable entry into the building through wall feed-through and seal with silicone, or provide an entry plate and boot.
- Provide ground point within 6 cable feet of the control station.
- Provide necessary space for installation of the local control station. (This also requires a flat surface for placement.)
- Supply, exterior or internal, vertical spaces for installation of the control station antenna with no more than a 100-foot cable run.
- Provide an elevated antenna mounting location.
- Supply a dedicated 115 VAC grounded electrical outlet rated at 15 AMPS to power the control station and remote control device. Provide an outlet within 6 feet of the unit.
- Supply a ground point of 5 ohms or less located in the immediate vicinity (within 6 feet) of the finalized location of the antenna and control station.
- Provide antenna-mounting facilities at each of the RF control station points specified, while providing an adequate means of feed-line routing and support.

Completion Criteria

- Completion of all the control station installations, and approval by Hidalgo County.

4.7.7 Control Station Complete

- Control Station installation completed and accepted by Hidalgo County.

4.7.8 System Installation Acceptance (Milestone)

- All equipment installations are completed and accepted by Hidalgo County.

4.8 SYSTEM OPTIMIZATION

4.8.1 Optimize System FNE

Motorola Responsibilities

- Verify that all equipment is operating properly and that all electrical and signal levels are set accurately.
- Verify that all audio and data levels are at factory settings.
- Check forward and reflected power for all radio equipment, after connection to the antenna systems, to verify that power is within tolerances.
- Motorola and its subcontractors optimize each subsystem.
- Verify communication interfaces between devices for proper operation.

- Test features and functionality are in accordance with manufacturers' specifications and that they comply with the final configuration established during the CDR.
- Setup the consoles to perform the dispatching operation.

Hidalgo County Responsibilities

- Provide access/escort to the sites.
- Provide required radio ID and alias information to enable alias database setup for interface to console.
- Define the logging recorder tracks by talkgroup.
- Dispatchers to use the existing conventional system icons for dispatching until cutover.

Completion Criteria

- System FNE optimization is complete.

4.8.2 Link Verification

Motorola Responsibilities

- Perform test to verify site link performance, prior to the interconnection of the Motorola-supplied equipment to the link equipment.

Hidalgo County Responsibilities

- Make available the required links which meet the specifications supplied by Motorola at the CDR.

Completion Criteria

- Link verification successfully completed.

4.8.3 Optimization Complete

- System optimization is completed. Motorola and Hidalgo County agree that the equipment is ready for acceptance testing.

4.9 TRAINING

4.9.1 Perform Training

Motorola Responsibilities

- Finalize training schedules purchased as part of this project with Hidalgo County Project Manager.
- Conduct the training classes outlined in the Training Plan.

Hidalgo County Responsibilities

- Attend training classes.
- Comply with the pre-requisites in the Training Plan.

Completion Criteria

- All training classes completed.

4.9.2 Training Complete

- All training classes completed.

4.10 AUDIT AND ACCEPTANCE TESTING

4.10.1 Perform R56 Audit

Motorola Responsibilities

- Perform R56 site installation quality audits, verifying proper physical installation and operational configurations.
- Create site evaluation report to verify site meets or exceeds requirements, as defined in Motorola's Standards and Guidelines for Communication Sites (R56).

Hidalgo County Responsibilities

- Provide access/escort to the sites.
- Witness tests.

Completion Criteria

- All R56 audits completed successfully.

4.10.2 Perform Equipment Testing

Motorola Responsibilities

- Test individual components of the system to verify compliance to the equipment specifications.
- Repeat any failed test(s) once Motorola (or Hidalgo County) has completed the corrective action(s).
- Prepare documentation of component tests to be delivered as part of the final documentation package.

Hidalgo County Responsibilities

- Witness tests if desired.

Completion Criteria

- Successful completion of equipment testing.

4.10.3 Perform Functional Testing

Motorola Responsibilities

- Verify the operational functionality and features of the individual subsystems and the system supplied by Motorola, as contracted.
- If any major task as contractually described fails, repeat that particular task after Motorola determines that corrective action has been taken.
- Document all issues that arise during the acceptance tests.
- Document the results of the acceptance tests and present to Hidalgo County for review.
- Resolve any minor task failures before Final System Acceptance.

Hidalgo County Responsibilities

- Witness the functional testing.

Completion Criteria

- Successful completion of the functional testing.
- Hidalgo County approval of the functional testing.

4.10.4 System Acceptance Test Procedures (Milestone)

- Hidalgo County approves the completion of all the required tests.

4.11 SUBSCRIBER INSTALLATION

4.11.1 Program and Install Mobiles

Motorola Responsibilities

- Program test mobiles with each template version and activate them on the system.
- Pass all features and functionalities of the mobile template.
- Program all the mobiles, as identified in the equipment list, in accordance with Hidalgo County-provided programming templates, client software, and fleetmap.
- Work with Hidalgo County to develop and approve prototypes for each type of mobile installation.
- Install all the mobiles in the vehicles, as identified in the equipment list, and according to the installation schedule.
- The following guidelines are followed during installation:
  - A "one time only" programming charge is included in the project price.
  - If removal of additional existing radios is required, or a separate trip to remove these radios is necessary, such work will require updating the contract documents accordingly.
  - Installations utilize the standard mobile mounting hardware provided with the type of unit.
  - Obtain main power leads from a voltage source as supplied in the mobiles.

- Permanently mount the antennas on each vehicle according to the approved prototype, appropriate for the vehicle type. Install the antennas close to the same location as the existing antennas, where practical, in vehicles that already have antennas installed. Install the antennas on the roof, where practical, on the new antenna installations.
- Motorola will determine an alternative location, whenever the antennas cannot be installed on the roof.
- Plug the old antenna hole with an appropriate rubber plug, if the antenna requires a new location on the vehicle.
- Remove the existing mobiles from the vehicles at the time of installation of new radios.

- For GPS functionality, please refer to section 5.7.1

Hidalgo County Responsibilities

- Test and verify each feature selected during the CDR process.
- Approve successful testing of each feature by initialing each test shown on the test script.
- Provide adequate number of vehicles for installations, according to the project/installation schedule.
- If any installations require variations from the approved plan, Hidalgo County must approve, before proceeding with the variance.

Completion Criteria

- All mobiles are programmed and installed successfully and approved by Hidalgo County.

4.11.2 Program and Distribute Portables

Motorola Responsibilities

- Program test portables with each template version and activate them on the system.
- Program all the portables, as identified in the equipment list, based upon Hidalgo County-provided/developed programming templates, client software, and fleetmap. A "one time only" programming is included in the project pricing.
- Deliver units to authorized Hidalgo County personnel and inventory upon receipt.
- For GPS functionality, please refer to section 5.7.1
- Flash upgrade twelve (12) existing APX7500 Portables with GPS Funtionality

Hidalgo County Responsibilities

- Submit final template(s) and initiate portable programming.
- Upon receipt of portables, a Hidalgo County authorized signatory acknowledges receipt of all portables and accessories and proper operation of a sampling of portables.
- Distribute the portables to end users.

Completion Criteria

- All portables are successfully programmed and approved by Hidalgo County.

4.11.3 Subscribers Complete

- All Subscribers are programmed and/or distributed/installed successfully, and approved by Hidalgo County.

4.12 FINALIZE

4.12.1 Cutover

Motorola Responsibilities

- Motorola and Hidalgo County develop a mutually agreed upon cutover plan based upon discussions held during the CDR.
- During cutover, follow the written plan and implement the defined contingencies, as required.
- Conduct cutover meeting(s) with user group representatives to address both how to mitigate technical and communication problem impact to the users during cutover and during the general operation of the system.

Hidalgo County Responsibilities

- Attend cutover meetings and approve the cutover plan.
- Notify the user group(s) affected by the cutover (date and time).
- Conduct a roll call of all users working during the cutover, in an organized and methodical manner.
- Ensure that all Subscriber users are trained and the Subscribers have been activated on the system.
- Provide Motorola with the subscriber information for input into the system database, for activation.

Completion Criteria

- Successful migration from the old system to the new system.

4.12.2 Resolve Punchlist

Motorola Responsibilities

- Work with Hidalgo County to resolve punchlist items, documented during the Acceptance Testing phase, in order to meet all the criteria for final system acceptance.

Hidalgo County Responsibilities

- Assist Motorola with resolution of identified punchlist items by providing support, such as access to the sites, equipment and system, and approval of the resolved punchlist item(s).

Completion Criteria

- All punchlist items resolved and approved by Hidalgo County.

4.12.3 Transition to Service/Project Transition Certificate

Motorola Responsibilities

- Review the items necessary for transitioning the project to warranty support and service.
- Provide a Customer Support Plan detailing the warranty and post warranty support, if applicable, associated with the Contract equipment.

Hidalgo County Responsibilities

- Participate in the Transition Service/Project Transition Certificate (PTC) process.

Completion Criteria

- All service information has been delivered and approved by Hidalgo County.

4.12.4 Finalize Documentation

Motorola Responsibilities

- Provide an electronic as-built system manual on a Compact Disk (CD). The documentation will include the following:
  - System Level Diagram
  - Site Block Diagrams
  - Site Equipment Rack Configurations
  - Antenna Network Drawings for Dispatch Site
  - ATP Test Checklists
  - Functional Acceptance Test Plan test sheets and results
  - Equipment Inventory List
  - Console Programming Template

Drawings will be delivered in Adobe PDF format. All other system manual documents converted from native format to Adobe PDF format to be included on the System Manual CD.

- Provide an operator manual with each subscriber.
- Provide 2 console operator manuals at every dispatch center.

Hidalgo County Responsibilities

- Receive and approve all documentation provided by Motorola.

Completion Criteria

- All required documentation is provided and approved by Hidalgo County.

4.12.5 Final Acceptance (Milestone)

- All deliverables completed, as contractually required.
- Final System Acceptance received from Hidalgo County.

4.13 PROJECT ADMINISTRATION

4.13.1 Project Status Meetings

Motorola Responsibilities

- Motorola Project Manager, or designee, will attend all project status meetings with Hidalgo County, as determined during the CDR.
- Record the meeting minutes and supply the report.
- The agenda will include the following:
  - Overall project status compared to the Project Schedule.
  - Product or service related issues that may affect the Project Schedule.
  - Status of the action items and the responsibilities associated with them, in accordance with the Project Schedule.
  - Any miscellaneous concerns of either Hidalgo County or Motorola.

Hidalgo County Responsibilities

- Attend meetings.
- Respond to issues in a timely manner.

Completion Criteria

- Completion of the meetings and submission of meeting minutes.

4.13.2 Progress Milestone Submittal

Motorola Responsibilities

- Submit progress (non-payment) milestone completion certificate/documentation.

Hidalgo County Responsibilities

- Approve milestone, which will signify confirmation of completion of the work associated with the scheduled task.

Completion Criteria

- Hidalgo County approval of the Milestone Completion document(s).

4.13.3 Change Order Process

Either Party may request changes within the general scope of this Agreement. If a requested change causes an increase or decrease in the cost or time required to perform this Agreement, the Parties will agree to an equitable adjustment of the Contract Price, Performance Schedule, or both, and will reflect the adjustment in a change order. Neither Party is obligated to perform requested changes unless both Parties execute a written change order.

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SECTION 4F

EXHIBIT C-6: TRAINING PLAN

P25 MIGRATION CONTRACT BOOK 28 SEPTEMBER 2012

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TRAINING PLAN

4.1 OVERVIEW

Motorola Solutions understands that the successful implementation and use of your communications system depends on effective training. We have developed a training proposal for Hidalgo County to ensure a comprehensive understanding of the proposed ASTRO 25 system and all user equipment. We are leveraging over 75 years of training experience working with customers just like you to provide recommendations for your consideration. The training proposal detailed in the following pages incorporates customer feedback coupled with a best practices systematic approach to produce effective course delivery and content.

Our commitment to Hidalgo County is to provide unsurpassed services that ensure the system operates efficiently for the life of the system, and in doing so, directly train your personnel to acquire a level of knowledge to utilize the system at its maximum potential.

Hidalgo County personnel will gain in-depth understanding of the power of the new ASTRO 25 system through education and proficient daily use. Our high-quality training focuses attention on student needs. Training is complemented by our detailed documentation and available continuing education program.

We will collaborate with Hidalgo County to develop a final customized training plan that fits your needs and assures that System Administrators, Maintenance Technicians and End Users are skilled in using the new ASTRO 25 system.

4.2 TRAINING APPROACH

Our training solution delivers a combination of online training and field based instructor led training at Hidalgo County locations using the operational equipment and classrooms. Motorola Solutions will employ knowledgeable and experienced instructors, well-designed courseware and integrated lab activities.

Training is based upon several key criteria:

- Course design is driven by an analysis of student needs and focuses on how-to rather than theory.
- Learning objectives are based upon what students need to accomplish on the job and focus on specific applications or components.
- Hands-on lab opportunities using Hidalgo County specific job aids are incorporated into training to maximize the transfer of skills and the retention/reuse of information.

Our instructors bring invaluable experience and first-hand knowledge of public safety systems into their training approach. This experience and knowledge provides them a better understanding of and insight into the practical aspects of the role of Hidalgo County Managers, Technicians and End Users. Each has a proven ability to communicate with novice as well as expert personnel – please check our instructor resumes and client references.

4.3 COURSES PROPOSED

Motorola Solutions has identified the following course(s) that are necessary to achieve the training goals for Hidalgo County. Course description files for the recommended courses are provided in the matrix below and/or in the training appendix. Class delivery for instructor-led courses in the field will be tailored for your system and features.

Specifically, our proposed training plan addresses the following categories as identified in your request for proposal:

- Console End Users

4.3.1 End User Training

Course	Target Audience	No. of Sessions	Duration (days)	Location	Date	No. of Attendees
MCC 7500 Console Administrator and Operator (Instructor-led) 2 training consoles (1x1 Ratio)	System Administrators and Dispatch Supervisors	1 (8 hr session)	1	Edinburg, TX	Prior to Cut-over	2
Course Synopsis: This course provides participants with the knowledge and skills to manage and utilize the MCC 7500 console administrator functions. Through facilitation and hands-on activities, the participant learns how to customize the console screens. This course also includes the Operator portion below.						 MCC7500 Supervisor.DO
MCC 7500 Console Operators (Instructor-led) 2 training consoles (2x1 Ratio)	Console Operators	4 (4 hr sessions)	2	Edinburg, TX	Prior to Cut-over	12 (3-4 per)
Course Synopsis: This course provides participants with an introduction to the dispatch console, its basic operation and tailored job aids which will be available for assistance in operation. Through facilitation and hands-on activities, the user learns how to perform common tasks associated with the console operation.						 MCC7500 Operator.DOC

4.3.1.1 Course Descriptions

4.3.1.1.1 MCC 7500 Supervisor

Duration

- 4 hours Operator, plus
- 4 hours Supervisor

Delivery Method

- Instructor-led

Target Audience

- Dispatch Supervisors, System Administrators

Course Synopsis

- This course provides participants with the knowledge and skills to manage and utilize the MCC 7500 console administrator functions. Through facilitation and hands-on activities, the participant learns how to customize the console screens.

Course Objectives

- Understand the menu items and tool bar icons
- Edit folders, multiselect/patch groups, auxiliary input output groups, windows and toolbars
- Add/delete folders

Recommended Prerequisites

- None

Key Topics

- Introduction
- Configurations
- Folders and Resource Setup
- Customizing Folders
- Auto Starting the MCC 7500 Dispatch Console
- Editing Preferences
- Configuring the Toolbar
- Setting Up Aux IOs
- Resource Groups

4.3.1.1.2 MCC 7500 Operator

Duration

- 4 hours

Delivery Method

- Instructor-led

Target Audience

- Dispatch Console Operators, Supervisors, System Administrators, and Support Personnel

Course Synopsis

- This course provides participants with an introduction to the dispatch console, its basic operation and tailored job aids which will be available for assistance in operation. Through facilitation and hands-on activities, the user learns how to perform common tasks associated with the console operation.

Course Objectives

- Perform basic operational tasks of the dispatch console
- Utilize the provided job aids to perform specific tasks associated with the console
- Understand a high level view of the system configuration
- High-level overview of Hidalgo County system configuration
- General console operation
- Proper operating procedures for specific customer features

Recommended Prerequisites

- None

Key Topics

- Overview
- Communicating with Radios
- Advanced Signaling Features
- Resource Groups
- Working with Configurations
- Working with Aux IOs
- Troubleshooting

SECTION 4G

EXHIBIT C-7: WARRANTY AND MAINTENANCE PLAN

P25 MIGRATION CONTRACT BOOK **28 SEPTEMBER 2012**

MOTOROLA

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WARRANTY AND MAINTENANCE PLAN

Motorola has over 75 years of experience supporting mission critical communications for public safety and public service agencies. Motorola's technical and service professionals use a structured approach to life cycle service delivery and provide comprehensive maintenance and support throughout the life of the system. The value of support is measured by system availability, which is optimized through the use of proactive processes, such as preventive maintenance, fault monitoring and active response management. System availability is a function of having in place a support plan delivered by highly skilled support professionals, backed by proven processes, tools, and continuous training.

4.1 THE MOTOROLA SERVICE DELIVERY TEAM

4.1.1 Customer Support Manager

Your Motorola Customer Support Manager provides coordination of support resources to enhance the quality of service delivery and to ensure your satisfaction. The Customer Support Manager (CSM) is responsible to oversee the execution of the Warranty and Service Agreement and ensure that Motorola meets its response and restoration cycle time commitments. The CSM will supervise and manage the Motorola Authorized Servicer's functions.

4.1.2 Motorola System Technologists

The Motorola System Technologists (ST) are available to assist Motorola's Authorized Servicers when needed for network health and operations.

4.1.3 Motorola System Support Center

Located in Schaumburg, Illinois, the System Support Center (SSC) is a key component to the overall management and system maintenance. As detailed in this Customer Support Plan, the following services are provided by the System Support Center:

- Network Monitoring
- Dispatch Service
- Infrastructure Repair with Advanced Replacement
- Technical Support

Motorola has proven experience to deliver mission critical network support

- Extensive Experience – Motorola has over 75 years of experience supporting mission critical communications and the Public Safety community.
- Capacity to Respond – Motorola's network of local service centers, repair depots, system support center and parts support enable Motorola to provide quick and effective service delivery.
- Flexibility and Scalability – Motorola's Support Plans are customized to meet individual Customer needs.
- Skills and Process – Motorola uses a well-established, structured, and disciplined approach to provide service delivery. Motorola's team of well-trained and committed people understands the communications technology business.

4.1.4 Motorola Local Service Provider

Motorola's authorized service centers are staffed with trained and qualified technicians. They provide rapid response, repair, restoration, installations, removals, programming, and scheduled preventive maintenance tasks for site standards compliance and RF operability. Motorola's authorized service centers are assessed annually for technical and administrative competency.

Motorola places great emphasis on ensuring that communications systems, such as the one proposed for Hidalgo County, meet high standards for design, manufacture, and performance. To enhance the value of the communications system being acquired, Motorola offers customized warranty and post-warranty services as outlined in this section.

4.2 WARRANTY SERVICES

Motorola will provide warranty services per our standard warranty terms and conditions as outlined within the Communication Systems Agreement within this proposal. In addition to the Standard Commercial Warranty, the service products that comprise the Custom Warranty package are listed below along with a brief description.

4.2.1 Dispatch Service

Motorola's Dispatch Service ensures that trained and qualified technicians are dispatched to diagnose and restore your communications network. Following proven response and restoration processes, the local authorized service center in your area is contacted and a qualified technician is sent to your site. An automated escalation and case management process is followed to ensure that technician site arrival and system restoration comply with contracted response and restore times. Once the issue has been resolved, the System Support Center verifies resolution and with your approval, closes the case. Activity records are also available to provide a comprehensive history of site performance, issues, and resolution.

4.2.2 On-Site Infrastructure Response

Motorola On-Site Infrastructure Response provides local, trained and qualified technicians who arrive at your location to diagnose and restore your communications network. Following proven response and restore processes, Motorola Dispatch contacts the local authorized service center in your area and dispatches a qualified technician to your site. An automated escalation and case management process ensures that technician site arrival and system restoration comply with contracted response times. The field technician restores the system by performing first level troubleshooting on site. If the technician is unable to resolve the issue, the case is escalated to the System Support Center or product engineering teams as needed.

4.2.3 Network Preventative Maintenance

Network Preventative Maintenance provides an operational test and alignment on your infrastructure or fixed network equipment to ensure that it meets original manufacturer's specifications. Trained technicians:

- Physically inspect equipment
- Remove dust and foreign substances
- Clean filters
- Measure, record, align and adjust equipment to meet original manufacturer's specifications

This service is performed based on a schedule agreed upon between you and Motorola. Network Preventative Maintenance proactively detects issues that may result in system malfunctions and operational interruptions.

4.2.4 Infrastructure Repair

Infrastructure Repair service provides for the repair of all Motorola-manufactured equipment, as well as equipment from third-party infrastructure vendors. All repair management is handled through a central location eliminating your need to send equipment to multiple locations.

Comprehensive test labs replicate your network in order to reproduce and analyze the issue. State-of-the-art, industry-standard repair tools enable our technicians to troubleshoot, analyze, test, and repair your equipment. Our ISO9001 and TL9000-certified processes and methodologies ensure that your equipment is quickly returned maintaining the highest quality standards.

Service agreements allow you to budget your maintenance costs on an annual basis. Equipment covered under service agreements also receives higher service priority, which results in quicker repair times.

4.2.5 Infrastructure Repair with Advanced Replacement

Infrastructure Repair with our Advanced Replacement upgrade supplements your spares inventory with Motorola's centralized inventory of critical equipment. In advance of Motorola repairing the malfunctioning unit, a replacement unit is sent to you within 24 hours to ensure a spare unit is available. Upon receipt of the malfunctioning unit, Motorola repairs the unit and replace it in our centralized inventory.

4.2.6 Technical Support Service

Motorola Technical Support service provides an additional layer of support through centralized, telephone consultation for issues that require a high level of communications network expertise and troubleshooting capabilities. Technical Support is delivered by the System Support Center (SSC). The SSC is staffed with trained, skilled technologists specializing in the diagnosis and swift resolution of network performance issues. These technologists have access to a solutions database as well as in house test labs and development engineers. Technical Support cases are continuously monitored against stringent inbound call management and case management standards to ensure rapid and consistent issue resolution. Technical Support service translates into measurable, Hidalgo County-specific metrics for assured network performance and system availability.

4.2.7 Network Monitoring Service

Network Monitoring Service can help keep your network at optimum availability so it is ready to serve mission critical communications needs. By watching over the network continuously, Network Monitoring Service takes action whenever needed, and resolves network problems. We often intervene and correct the problem before you even know a problem exists. Network Monitoring Service provides improved productivity and enhanced network performance, which in turn helps to increase your technology Return-On-Investment.

Using a combination of network monitoring software, automated alerts, and remote diagnostics inquiries, our System Support technologists actively monitor your network to maximize network uptime and overall preparedness for the expected and unexpected. Upon receiving an alert, our team immediately performs a series of diagnostics to assess the problem. Often the situation can be resolved remotely, but when additional attention is required, local field technicians are dispatched immediately to your site to achieve restoration.

Motorola's Network Monitoring service is a vital component of an intelligent communication support plan that keeps your business operating smoothly, your costs down, and assures maximum preparedness at all times.

Specifically, Network Monitoring Service provides:

- Improved network availability
- Remote and timely resolution to minimize downtime
- Cost efficiencies
- Optimize time at site due to assessment and knowledge transfer before dispatch
- Minimize unnecessary trips to site
- Mitigate need for 24 x 7 operations monitoring center
- Detailed Reports

4.2.8 Repair Service Advantage (RSA)

Repair Service Advantage (RSA) gives you the support you need to help you keep your subscriber radios operating in peak condition. When repair is required, the Motorola Depot tests, repairs, and returns the radio to original factory specifications. Firmware is also upgraded to the latest version. RSA adheres to a proven process of analysis and restoration, backed by a 90-day warranty. Service agreements allow you to budget your maintenance costs on an annual basis. Equipment covered under service agreements also receives higher service priority, which results in quicker repair times.

4.3 POST WARRANTY SERVICES

As Motorola's continuing commitment to supporting your system, warranty services can be extended after the first year to provide maintenance and service support in future years. Any of the services that we identify can be customized in future years, and are available for purchase either in "System Support Services" packages or as individual service offerings. These system support services significantly benefit Hidalgo County because the system can be effectively supported after the warranty period, thereby maximizing the operational capabilities and useful life of the system and protecting your investment in the system.

A quote for post-warranty support services that mirror those to be provided during warranty have been included with this offering as an option.

4.4 SUMMARY

Whether it's a routine service call, or a disaster situation, Motorola understands its responsibility and takes pride in its commitment to deliver proven response service to the public safety community. Motorola has the capability to provide the technical, administrative, consultative, and maintenance repair services needed to support, enhance, and maintain the effectiveness of your communications network. Motorola's goal is to provide Hidalgo County with the qualified resources, to maintain and improve system operation and availability, and to deliver world class service support.

Warranty and Post Warranty Service Overview	Warranty Year	Post Warranty Years 2-7: Optional
Dispatch Service	✓	✓
On Site Infrastructure Response	✓	✓
Network Preventative Maintenance	✓	✓
Infrastructure Repair	✓	✓
Infrastructure Repair with Advanced Replacement	✓	✓
Technical Support Service	✓	✓
Network Monitoring Service	✓	✓
Repair Service Advantage (RSA)	✓	✓

SECTION 4H

EXHIBIT C-8: PRICING SUMMARY

P25 MIGRATION CONTRACT BOOK 28 SEPTEMBER 2012

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SECTION 4H

PRICING SUMMARY

Motorola has priced the sites, services, Software, and Equipment in this proposal as an integrated system. A reduction in Software or Equipment quantities, or sites or services, shall affect the overall Contract Price, including discounts if applicable.

Table 4-1: Pricing

DESCRIPTION	QTY	PRICE
		APX 4000/4500
LAW ENFORCEMENT - DISPATCH CENTER		
Equipment, including: - McAllen Master Site License - MCC 7500 Dispatch Positions (2) - GPS CAD Interface - Networking - Conventional Site Controller - GGM 8000 for Conventional Resources - Rack & Power: - APX 7500 Control Stations - 7/800 MHz - Single Band (3) - APX 7500 Control Stations - 7/800 MHz - Dual Band (1) - APX 7500 Consolettes - 7/800 MHz - Dual Band (6) - Control Station Antenna Assemblies	1	**$ 465,814.50**
LAW ENFORCEMENT - SUBSCRIBER UNITS		
APX 7500 Consolettes 700/800 MHz & VHF	10	**$ 124,500.00**
APX 7500 Mobile Radio 700/800 MHz & VHF	481	**$ 3,688,308.00**
APX 7500 Mobile Flash Upgrades	12	**$ 1,200.00**
APX 7000 Portable Radio 700/800 MHz & VHF	378	**$ 3,058,776.00**
APX 7000 Multi-Unit Charger	1	**$ 1,350.00**

Use or disclosure of this proposal is subject to the restrictions on the cover page.

DESCRIPTION	QTY	PRICE
NON-LAW ENFORCEMENT - SUBSCRIBER UNITS		
APX 4500 Control Stations 700/800 MHz	14	**$ 103,141.50**
APX 4500 Mobile Radio 700/800 MHz	123	**$ 707,619.00**
APX 4000 Portable Radio 700/800 MHz	168	**$ 704,256.00**
APX 4000 Multi-Unit Charger	1	**$ 650.00**
Equipment Subtotal		**$ 8,855,615.00**
System Integration Services, including: - Project Management - Motorola Internal Services (Engineering/System Technologist) - Outside Contracted Services - Customer Training - CCSI Staging - Dispatch Center In-Warranty & Services - 24/7		**$ 905,964.00**
Total System Price		**$ 9,761,579.00**
HGAC Contract Discount		**$ (2,126,221.32)**
System Discount (for Order by November 16, 2012)		**$(778,953.02)**
Total		**$ 6,856,404.66**

Table 4-2: Pricing

DESCRIPTION	QTY	PRICE
M2 / M3 CORE		
M2 CORE (Border Pilot) And M3 Equipment Upgrade	1	$ 1,645,879.00
Total Service / System Integration for M2 / M3 CORE Upgrade	1	$ 464,117.00
M2 / M3 CORE System Cost		$ 2,109,996.00
Discount (Border Pilot)	1	$ (730,037.00)
M2 / M3 CORE System Total		$ 1,379,959.00
*** Special System Discount (See Special Terms and Conditions below)	1	$ (244,585.00)
M2 / M3 CORE System Total	1	$ 1,135,374.00

*** Terms and Conditions for Special System Discount Consideration

1. Hidalgo County shall deliver a Purchase Order(s) to Motorola Solutions on or before November 16, 2012 for the following:

DESCRIPTION	PRICE
Table 4.1	$ 6,856,404.66
Table 4.2	$ 1,135,374.00
Purchase Total	$ 7,991,778.66

2. Hidalgo County shall provide to Motorola Solutions, as Trade-In equipment, the ARC 4000 CORE which currently is located at the McAllen Emergency Operations Center.
3. Hidalgo County shall provide to Motorola Solutions, as Trade-In equipment, a minimum of 400, in service, Motorola Mobile and Portable Radios.
4. Hidalgo County shall allow Motorola Solutions to ship ALL EQUIPMENT described in Table 8.1 and Table 8.2 prior to December 28, 2012.
5. Hidalgo County shall be responsible for all of the above consideration to be eligible for the Special System Discount.

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SECTION 4I

EXHIBIT C-9: PRODUCT LITERATURE

P25 MIGRATION CONTRACT BOOK **28 SEPTEMBER 2012**

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SECTION 4I

PRODUCT LITERATURE

Product Literature is included on the following pages.

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MCC 7500 IP DISPATCH CONSOLE FOR ASTRO® 25 RADIO SYSTEMS

STAY IN CONSTANT CONTACT WHEN IT MATTERS MOST







THE MOTOROLA MCC 7500 IP DISPATCH CONSOLE

Whether a large-scale event or a simple traffic light outage at a school crossing threatens the safety of citizens, you need to effectively communicate and coordinate a rapid response.

You need to have confidence in a dependable, always-available, complete communications system that keeps responders safe and constantly connected. You need the Motorola MCC 7500 IP Dispatch Console.

Seamlessly integrated into ASTRO® 25 radio systems, the MCC 7500 console provides interoperability, cost savings, and security advantages for today's critical communication needs. MCC 7500 consoles connect directly to the IP network without interface boxes, digital voice gateways or backroom electronics for an integrated mission critical system. Conventional channels link to the IP network and use the same audio transport as trunked audio.

ASTRO 25 SYSTEM INTEGRATION

Motorola IP systems are optimized to perform to robust customer specifications for mission critical voice and data communications. ASTRO 25 complies with Project 25 interoperability specifications while system interfaces based on standard IP bring additional value to the system.



The MCC 7500 IP Dispatch Console features:

- Prioritized emergency calls get through no matter how busy the system.
- Voice quality and intelligibility optimized to eliminate clipped or degraded audio.
- High-quality audio maintained despite increasing traffic loads.
- Call setup in a fraction of a second.
- Voice messages consistently delivered in the shortest possible time.
- Quick re-routing of call traffic in the event of an IP network path failure, minimizing lost audio and any impact on the end user.
- Enhanced dispatch performance and improved bandwidth efficiency using IP multicast technology.
- Conventional channels linked to the IP network using the same audio transport as trunked audio.
- Simplified dispatch operations and optimized operational efficiencies when integrated with PremierOne™ CAD.

MEETS YOUR DEMAND TO PROTECT, PREVENT AND RESPOND TO MISSION CRITICAL OPERATIONS.

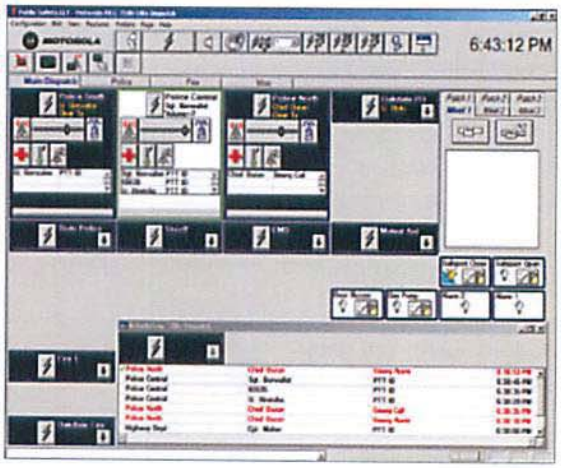
True End-to-End Encryption from the radio all the way through the console position. The MCC 7500 IP Dispatch Console goes beyond vocoded audio and uses true encryption technology, the only reliable means to keep your critical communication secure. Each MCC 7500 console supports up to six encryption algorithms simultaneously.

With Agency Partitioning, departments or agencies can share a system for cost savings and interoperability, yet manage and maintain control over their own resources, such as talkgroups, encryption keys, and configuration data.

Centralized System Configuration and Fault Management of dispatch positions allow changes to be automatically distributed throughout the system, providing vital efficiency. Access to the system manager from multiple remote locations via standard IP methods means users can still have convenient access while enjoying the benefits of centralized management.

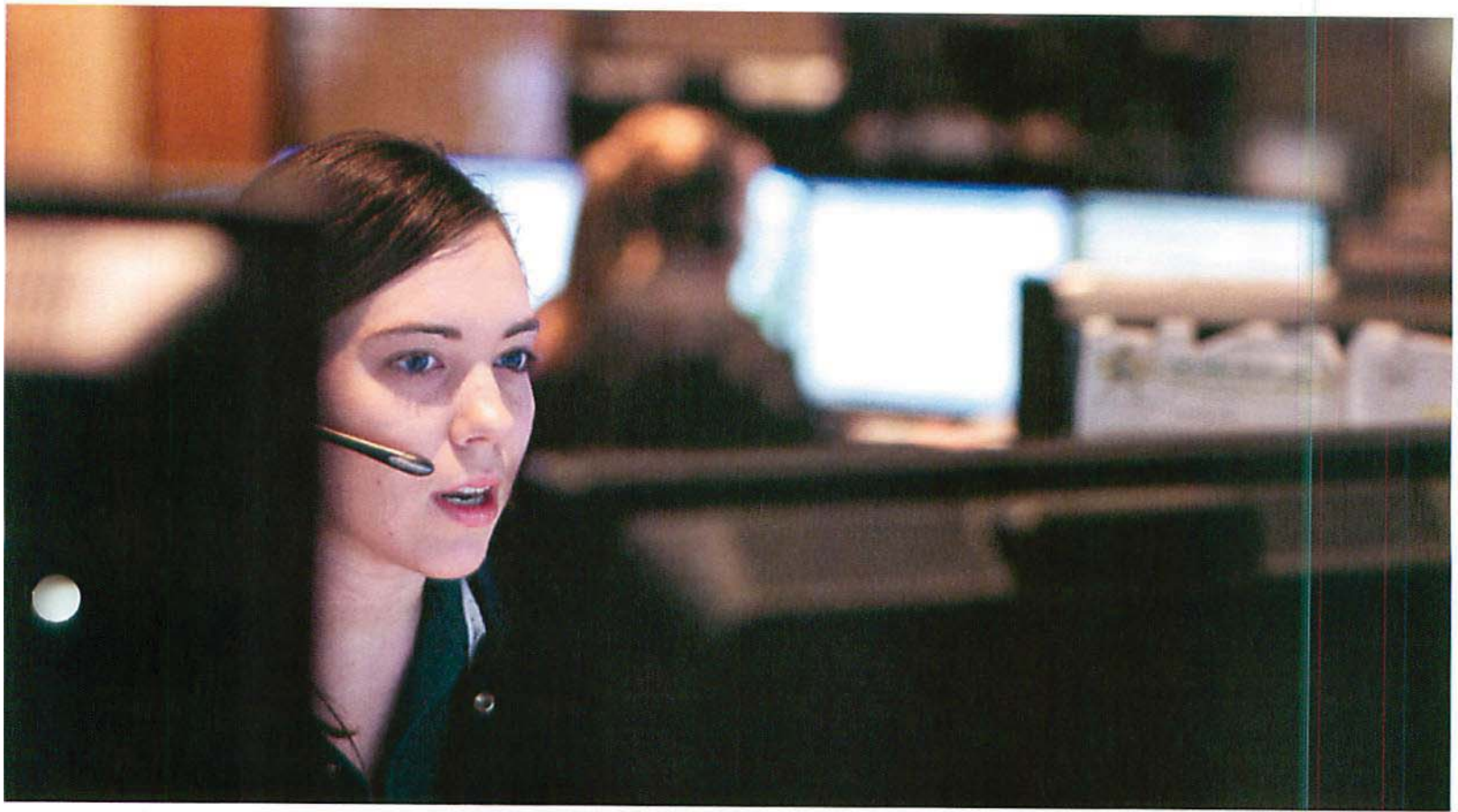
Enhanced, Integrated Logging Recorder is available for the MCC 7500 Console providing digital recorded audio at the same high-quality level as heard through the dispatch positions. Digital recorders integrated into the radio system reap the benefits of agency partitioning, centralized management and system security, meeting a wide range of ASTRO® 25 customer requirements.

PremierOne™ CAD Integration further simplifies dispatch operations, improves data accuracy and enhances operational efficiencies by combining the common, intuitive user interface of PremierOne CAD with the reliable field personnel communications capabilities of the MCC 7500. Agencies that choose to integrate the MCC 7500 Console features with the PremierOne CAD common platform will gain the ability to automate common operations and get a real-time, comprehensive view of the personnel and equipment being supported in the field.



Customer Accepted Interface

Efficient, easy to use and intuitive, having been refined and proven through years of use in public safety dispatch centers around the world.



COMMAND AND CONTROL SOLUTIONS DESIGNED AROUND YOU

The MCC 7500 IP Dispatch Console is part of Motorola's extensive portfolio of communications and information solutions designed to address mission-critical public safety and security requirements worldwide. The MCC 7500 dispatch solution meets Motorola's rigorous quality standards to bring you peace of mind.

- Compatible with existing ASTRO® 25 radio systems with forward migration to protect and leverage your investment.
- Converges with PremierOne™ CAD to further simplify dispatch operations, improve data accuracy and enhance operational efficiencies.
- Software-based upgrades ease system and feature expansion. Re-use of the Elite Graphical User Interface (GUI) helps minimize dispatcher training.
- Works together with CENTRACOM™ Elite Console for robust feature interaction.
- Installation is simplified and site costs are reduced since the console operator position functions without backroom electronics.
- Console configuration is performed at a centralized network manager client, with changes distributed automatically, saving valuable technician and administrator time.
- More robust service logs, containing real-time information, facilitate maintenance activities.
- Integration into the system's central fault standard event monitoring protocols means fewer site visits.
- Flexible bandwidth requirements minimize operating costs for all remote console locations.
- Conventional audio is transported by the same IP network, eliminating the need for channel banks or a separate circuit switch system.



For more information about how the MCC 7500 IP Dispatch Console can meet your critical communication needs, contact your Motorola representative or visit motorola.com/ASTRO25.

Motorola, Inc. 1301 E. Algonquin Road, Schaumburg, Illinois 60196 U.S.A. **motorola.com/ASTRO25**

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RC-13-2020C (1010)

MOTOROLA



CONSTANT COMMUNICATION WHEN IT MATTERS MOST

ASTRO® 25 MCC 7500 IP DISPATCH CONSOLE

Designed to ensure optimal-quality audio, reliable communication and ease of use for dispatchers, the MCC 7500 IP Dispatch Console operator positions connect directly to the ASTRO 25 system for communication with both trunked and conventional radios, and for all other dispatch activity.

Integration of the MCC 7500 positions with the ASTRO 25 system enables full participation in end-to-end voice encryption for secure communication, priority handling of emergency calls and agency partitioning. Each console is centrally configured and managed from the network manager, providing vital efficiency.

EASY TO USE, FLEXIBLE, AND CUSTOMIZABLE USER INTERFACE

Featuring the Elite Graphical User Interface (GUI), which has been refined and proven through years of use in mission critical dispatch operations, the MCC 7500 eases migration and minimizes user training requirements.

The intuitive and familiar GUI is based on Microsoft Windows® and uses easily recognized icons and aliases. The flexible and customizable GUI provides multiple screen layouts (folders) to organize resources by agency, shift or any criteria that meets the needs of the console users.

Trunked and conventional radio channels are customizable with various controls, such as patch status, frequency select, coded/clear select and individual volume control, based on user preferences. Per-channel controls can be fully or partially shown, or hidden to save space on the screen.

Busy dispatchers can respond to a missed call by simply clicking on an entry in the Activity Log. The number of calls and call information displayed in the Activity Log is customizable to suit the needs of the user(s).

The status of auxiliary inputs and outputs is conveniently interpreted from the GUI with the use of familiar graphical icons, such as a door shown open or closed.

KEY INTEROPERABILITY FEATURES

Agency Partitioning

Multiple agencies can share a system to gain interoperability and cost savings benefits, while still maintaining control of their own channels, encryption keys, console configuration and more.

Priority for Emergencies

Transmit Priority Levels provide an orderly and consistent method for ensuring higher priority transmissions are able to take over resources from lower priority transmissions.

Optimized Patch Functionality

MCC 7500 console users can patch communications between trunked and/or conventional radios that are normally unable to communicate with each other. Patched radio users see the ID or alias of the other patched radio(s), as opposed to that of the console. This minimizes confusion and the need for the dispatcher to intervene in the call. Patches are automatically re-established if interrupted so the MCC 7500 user can concentrate on continuing operations.

Enhanced Secure Operation

Encryption and decryption services within each dispatch operator position enable dispatchers to fully participate in secure communications while keeping the sensitive, vital information completely encrypted between the dispatcher and the radio users.

Dispatchers can interface with agencies that have different encryption configurations without any manual intervention or delay. Up to 60 calls using up to six different algorithms and multiple secure keys can be supported simultaneously.

To help reduce dispatcher stress and potential errors when managing encrypted audio situations, indicators and alerts are provided when the console mode does not match that of a received call, as well as when a patch or multi-select group is being set up between a mix of clear and secure channels.

MCC 7500 DISPATCH SOLUTION COMPONENTS

MCC 7500 Dispatch Console Operator Position

MCC 7500 operator positions connect directly to the radio system's IP transport network without gateways or interface boxes. Audio processing, encryption, and switching intelligence for dispatch is performed within each software-based operator position, without additional centralized electronics. Consoles function as integrated components of the total radio system, enabling full participation in system level features such as end-to-end encryption and agency partitioning.

Operator position hardware consists of a monitor, personal computer, keyboard and mouse/trackball/touchscreen, speakers, audio accessories and a Voice Processor Module (VPM). The VPM allows analog devices to be connected to the digital console. The low-profile VPM can be rack mounted, furniture mounted or placed on the desktop.

The MCC 7500 console system does not require separate configuration or performance management equipment. The console system is configured and managed by the radio system's configuration manager, fault manager and performance reporting applications to provide the customer with a single point for configuring and managing the entire radio system. Changes are automatically distributed throughout the system. This centralized approach saves valuable time and effort for system administrators and technicians.

CONVENTIONAL GATEWAY

The Conventional Channel Gateway (CCGW) enables both analog and digital channels to interface with MCC 7500 consoles with no need for a separate hardware network and channel banks. Both conventional and trunked calls are transported between the dispatch operator positions and the CCGWs on the same IP network.

A CCGW provides four-wire analog ports for analog channels, V.24 ports for older ASTRO® 25 conventional channels and IP connectivity for current architecture ASTRO 25 conventional channels. Enhanced digital control of consolettes can be achieved by using a combination of analog and V.24 ports. Up to four consolettes, analog channels and older ASTRO 25 conventional channels can be connected to a CCGW, along with up to 10 IP-based ASTRO 25 conventional channels. In total, a CCGW can support up to 14 conventional channels.

The four-wire analog ports support tone remote and ear and mouth (E&M) station control. The V.24 ports and IP connections support digital station control while a combination of analog and V.24 ports support enhanced digital control of consolettes. The CCGW also supports simple analog, MDC 1200 analog, digital-only and mixed-mode analog/digital channels.

AUXILIARY INPUT/OUTPUT SERVER

The auxiliary input/output server enables console operators to control and monitor external devices, such as doors and lights, from the console user interface. Since the MCC 7500 Dispatch Console does not rely on centralized electronics, contact closures and input buffers required to interface to these devices are housed in Remote Terminal Units (RTUs). These RTUs can be physically located close to where they are needed or at any console or radio frequency (RF) site. The dispatch consoles and RTUs communicate with each other across the radio system's IP transport network.

ARCHIVING INTERFACE SERVER (AIS)

The AIS is a digital logging interface, comprised of a personal computer and a voice processor module (VPM). Each AIS works with an IP-based logging recorder. Audio and call control information is sent across the IP network between the AIS and recorder. Highly configurable, the MCC 7500 logging solution includes:

- Recorded audio quality equivalent to audio heard at console position
- Information associated with radio calls recorded in addition to the call audio.
- Dispatcher- and radio-initiated events on radio channels (such as changing the frequency, sending an alarm) are recorded.
- Recorder capacity based on the number of radio transmissions needed to record simultaneously, not on the number of channels it may record.
- Agency partitioning, enhancing control over which resources are recorded by what agency or department.
- Security and fault management centralized at the radio system's network manager.

SPECIFICATIONS

System Compatibility	ASTRO® 25 System and PremierOne™ CAD Application	
Vocoder Algorithms supported	AMBE, IMBE, ACELP, G.728	
Encryption Algorithms supported	AES (256 bit), DES-OFB, DVI-XL, ADP (Advanced Digital Privacy), DES-XL, DVP-XL	
Monitor requirements		
With Mouse or Trackball	17" minimum, 20" recommended	
Touchscreen	20" minimum	
Voice Processor Module (VPM) connections	**Connector type**	**Device**
	RJ45	One desktop microphone, eight desktop speakers, one local logging recorder, one radio instant recall recorder, one external telephone set, one external paging encoder, one footswitch
	DB15	Two headset jacks connectors
VPM mounting options	EIA 19" rack mount, console furniture mount, Desktop – supports monitor up to 80 lbs	
VPM audio inputs and outputs	600 Ohm, balanced and transformer coupled (except for microphone which is 2000 Ohm, balanced, and does not use a transformer)	
Speaker Mounting Options	Desktop, furniture mount, or wall mount (with bracket accessory)	
Dispatch Console Cable Lengths	VPM to Speaker cable	10.1 feet (3.09 meters) standard
	VPM to Headset Jack cable	6 feet (1.8 meters) standard
	Headset Jack Extension cable	6 feet (1.8 meters) standard
	VPM to Microphone cable	10 feet (3.05 meters) standard
	VPM to Footswitch cable	10 feet (3.05 meters) standard
Supported Console Site Link types	Fractional T1/E1, Single T1/E1, Multiple T1/E1s Redundant and non-redundant versions IP site links	
MCC 7500 Dispatch Console Capacities	Up to 60 simultaneous audio sessions per operator position Up to 60 simultaneous encryption/decryption sessions per secure capable operator position Up to 3 Multi-Select groups per operator position (with up to 20 members per Multi-Select group) Up to 16 Patch groups per operator position (with up to 20 members per Patch group) Up to 160 resources per operator position	
Conventional Channel Gateway	Rack mountable, 1 rack unit high T1R1, T2R2, T4R4, T8R8, T12R12, T14R14 channels Simple analog, MDC 1200 analog, pure digital, mixed mode (analog/digital) channels, consolettes Each CCGW provides four RJ-45 connector ports for interfacing to analog conventional channels Each port contains the following inputs and outputs • 600 Ohm, balanced analog audio input - To accept radio audio from the channel. Can be configured to support AGC, DLM, or no input conditioning • 600 Ohm, balanced analog audio output - To send console transmit audio to the channel • Input buffer - To detect Carrier Operated Relay (COR) closure in the channel • 1 Amp, 24 VDC relay output - For relay keying of the channel Each CCGW provides four RJ-45 connector ports for interfacing to ASTRO 25 conventional channels • V.24 to station or comparator. No Digital Interface Unit (DIU) required. Enhanced digital control of a consolette is achieved by using one of the analog ports and one of the V.24 ports. Connect up to four conventional channels to each CCGW, including MDC 1200 analog, pure digital and/or mixed mode (analog/digital) channels. In addition, each CCGW also supports up to 10 IP-based ASTRO 25 conventional channels.	

SPECIFICATIONS

Auxiliary Input/Output Server Hardware	A simplified, user-friendly version of the MOSCAD SDM 3000 RTU is used to support most Aux I/O needs. The output relays are capable of switching 1A @ 24VDC or 1A @ 24VAC. Input buffers are capable of sensing a dry closure through 1000 feet or less (round trip) of 24 AWG wire. The RTU provides single pole Form A relay outputs. (Double pole, Form B or Form C relays must be implemented using external relays which are controlled by the RTU relays.)

Auxiliary Input/Output Capacities	Number of Output Relays	Number of Input Buffers
Single SDM 3000 RTU	16	48
Single SDM 3000 RTU with 1 expansion chassis	32	96
Single SDM 3000 RTU with 2 expansion chassis	48	144

Auxiliary Input/Output Mounting	Each SDM 3000 RTU and each SDM 3000 RTU Expansion Chassis is rack mountable in a standard 19 inch rack and is one rack unit high.

SIZE AND WEIGHT

Device	Height	Width	Depth	Weight
VPM	1.75 in 44.5 mm	16.9 in 430 mm	12.3 in 312 mm	3.6 lbs 1.6 kg
Speaker	4.9 in 124 mm	4 in 102 mm	Without bracket: 3.5 in 89 mm With bracket: 5.8 in 146 mm	0.7 lbs 0.3 kg
Headset Jack	1.6 in 41 mm	5 in 127 mm	6 in 152 mm	1.2 lbs 0.5 kg
Microphone	Gooseneck at 90°: 4.5 in 114 mm Gooseneck at 180°: 21.8 in 552 mm	4.8 in 121 mm	6.6 in 168 mm	2.4 lbs 1.1 kg

POWER AND CONSUMPTION THERMAL

Device	Power Input	Thermal Output
VPM	0.4 Amps at 120VAC 0.2 Amps at 240VAC	171 BTUs/hour
Speaker	Add 0.05 Amps per speaker to VPM power Input at 120VAC (0.025 Amps at 240VAC)	Add 15 BTUs/hour per speaker to VPM thermal output
Headset Jack & Microphone	negligible	negligible

CERTIFICATIONS

	The various hardware elements of the Motorola MCC 7500 dispatch console product line are certified to meet the requirements for CSA and CE.
Safety	CSA 60950-1-03 EN60950-1 2001
EMC Emissions & Immunity	FCC part 15 Class A ICES-003 EN55022 1998 + A1: 2001 + A2:2003 (CISPR-22 Class A) EN55024 + A1:2001 + A2:2003 EN61000-3-2 2000 EN61000-3-3 1995 + A1:2001
Energy Efficiency (PVM power supply only)	US HR6 & CEC Tier 2 (Energy Efficiency Level IV) EUP Lot 7 Tier 1 (Energy Efficiency Level IV)

Motorola Solutions, Inc. 1301 E. Algonquin Road, Schaumburg, Illinois 60196 U.S.A. **motorola.com/dispatch**

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MOTOROLA

APX™ 7000 MULTIBAND PORTABLE RADIOS

SAFETY REDEFINED











MEET THE APX™ 7000 MULTIBAND PORTABLE: THE RADIO CREATED TO KEEP YOU SAFER.

No other mission critical communications tool can keep you safer than an APX portable radio. If you're on surveillance, on the street or fighting a fire, you need a radio that keeps you connected, instantly and continuously, no matter which situation you're involved in, how much background noise, how harsh the weather or how long the hours.

You expect a reliable radio with crystal clear communication when you need it most. A radio on which every word is heard and every message is understood. At the end of a shift, you want to head home feeling safe and successful.



EXPECT OUTSTANDING PERFORMANCE AND EXCEPTIONAL AUDIO.

Our design teams worked with public safety and federal personnel around the world to develop the safest, lightest P25 portable on the market: the APX™ 7000 multiband radio. Each feature and function was engineered with their requests in mind, from easy to use design to exceptional audio. In fact, the APX 7000 offers the loudest, clearest audio of any portable radio on the market—50% louder than comparable radios in its class.*

Every APX 7000 radio is backward and forward compatible, designed to meet current P25 standards and future-ready to support new technology and data applications. That means you can achieve your interoperability objectives—whether upgrading an existing system or designing a new one—at your own pace.

GET INSTANT INTEROPERABILITY. ACROSS AGENCIES, STATE LINES AND COUNTY LINES.

Whether you're patrolling the border or directing a multi-agency response, the APX 7000 portable delivers seamless interoperability on demand, so you can efficiently manage mission critical voice and data in any environment.

These ruggedly reliable, real-world-tested portables perform across multiple digital and analog networks—from SmartNet® and SmartZone® to ASTRO® 25—to provide the highest level of interoperability possible. And when multiband operation is called for, the APX 7000 handles it seamlessly and skillfully through any two frequency bands.

BE READY FOR FUTURE TECHNOLOGY.

Not only are APX 7000 radios compatible with our ASTRO Project 25 standards-based system, they support both P25 Phase 1 and Phase 2 technologies seamlessly. Using Motorola's unique Dynamic Dual Mode (DDM) capability, the radios switch between FDMA and TDMA without having to change channels. And since TDMA will be part of P25 Phase 2 requirements, providing twice the voice capacity, you can add more users without adding new frequencies or infrastructure.

* Based on results of controlled engineering tests



GIVE US YOUR COMMUNICATION CHALLENGE.

SEE HOW APX 7000 ANSWERS THE CALL.

AGENCIES DEMAND INSTANT INTEROPERABILITY.

Whether your people are on a covert operation or responding to an emergency, they often operate on different frequency bands—requiring them to carry two radios in order to communicate.

THE APX 7000 DELIVERS.

Our premier multiband portable operates in any of two bands (700 MHz, 800 MHz, VHF and UHF R1, UHF R2) for instant, interoperable communication that streamlines coordination, speeds response and improves safety.

AGENCIES DEMAND LOUD, CLEAR AUDIO.

From the police officer on a foot chase to federal officers in a congested city, your personnel want a radio that works clearly above the clamor, so every word is heard and every message is understood.

THE APX 7000 DELIVERS.

With our dual-sided two-microphone design for exceptional noise-canceling, dual speakers for the loudest, clearest portable audio available and the latest AMBE digital voice vocoder, the APX 7000 provides best-in-class audio, everywhere your people go.

AGENCIES DEMAND FUTURE EXPANDABILITY.

Whether you're running a suburban police department or a sprawling federal agency, you want to protect your current investment in mission critical radios and ensure new radio purchases can be updated to utilize the latest advances in technology.

THE APX 7000 DELIVERS.

Backward and forward compatible, the APX 7000 works on all Motorola ASTRO 25 systems and will work as you migrate. An expansion slot enables you to add future data applications.

THE PERFECT PARTNER: COMPACT BUT TOUGH. FULL-FEATURED BUT EASY TO USE. SAFETY-FOCUSED.



Two APX 7000 Models:

- Top Display model with 8-character visible top display
- Dual Display model with large color display, top display and keypad

ERGONOMIC FORM FACTOR

A. Universal Push-to-Talk
Enlarged Push-to-Talk button with enhanced grooves is easy to access and operate. It offers optimal tactility for right or left hand use.

B. T-Grip
The T-Grip design has an enhanced slip-free grip and a wider control top area with greater spacing and differentiation between knobs, making it seamless to use even when your eyes have to be focused elsewhere.

C. Dual-Battery Latch
The dual-battery latch system is designed for increased stability and is easy to secure with its commercial "power pool" style loading.

D. Accessory Connector
New portable accessory connector uses leading-edge IMPRES™ audio technology. It is extremely durable and offers increased intelligence for enhanced accessories.



USER INTERFACE

E. Two-Sided Design
Enhanced ergonomic design has a large color display, loud audio speaker and enlarged keypad—ideal for both voice and data communications.

F. Top Display
An 8-character visible display presents 32-character zone/channel data so you can see information quickly, at a glance.

G. Large Color Display
High-contrast color display is impact and scratch resistant for enhanced legibility in all lighting conditions and durability in mission critical environments.

H. Enlarged Keypad
Keypad with increased spacing makes navigating easy, improves numeric input and gives you better visibility.

SUPERIOR AUDIO

I. Dual Speakers
Dual-sided speakers optimize communication for both voice and data. These custom loudspeakers reproduce speech dynamics for superior intelligibility in most environments.*

J. Dual Microphones
Dual microphones with directional-sensing technology locate the talker and engage sophisticated algorithms in noisy or windy environments for clear communications.

* Recent studies have shown communication systems can be affected by certain high noise sources such as alarm systems in self-contained breathing apparatus or chainsaws in fireground environments.



ADVANCED SOFTWARE FEATURES

Intelligent Lighting
Intelligent lighting uses color alerts to notify you of the radio mode, potential emergencies and specific events.

Radio Profiles
Radios can be configured to adjust audio level, lighting and tones through user-selected or automated options. Whether on surveillance or working in bright sunlight, you can customize settings as needed.

Extreme Audio Profile
Intelligent two-microphone noise reduction software and the latest AMBE vocoder dynamically adjust for changing high noise environments.

Text Messaging
Text messaging offers a free form or canned messaging solution so you can efficiently and discreetly send and receive messages to and from radios or dispatch operators.

Unified Call List
Consolidates all call lists in one unified list. You can easily access all information associated with a particular contact.

Voice Announcement
Voice Announcement allows you to navigate through channels/talkgroups and zones in the radio, while an audible, pre-recorded voice file provides a description of the selected channel or zone.

ADVANCED HARDWARE FEATURES

P25 Phase 2 Capable
Provides twice the voice capacity. You can add more users to your system without the need for additional frequencies or infrastructure.

Multiband Operation
Multiple frequency bands are supported with best-in-class transceiver specifications and performance.

Seamless Scan
Delivers seamless scanning of multiple protocols, including FDMA and TDMA systems, conventional, and multiple RF bands.

GPS Location
With its integrated GPS reciever the outdoor location of an individual or vehicle can be transmitted to map-based location software.

Mission Critical Wireless
Mission Critical Wireless is a unique Bluetooth® solution that provides an encrypted link to a rugged, high performance earpiece to support different mission critical environments.

Encryption
Is standard equipped with FIPS certified encryption hardware. Provides secure communications in a tamperproof solution.

FUTURE READY

Expansion Slot
Ability to add option cards, such as Bluetooth® and other future data applications to upgrade to the latest applications.

Memory
Equipped with 64 MB of industrial grade internal memory and a removable memory MicroSD card slot. The removable memory card allows future expandability for growing technology needs.

Programming Over Project 25 (POP25)
The POP25 solution allows subscriber radios to be programmed over the air via the ASTRO 25 systems, while remaining in the field, without interrupting voice operations.

BE READY 24/7/365 WITH THE 100% MISSION CRITICAL PORTABLE.

WHY APX 7000?

The APX portable radios deliver exceptional performance by combining advanced voice and data technology with our legendary quality.

INTEROPERABILITY ON DEMAND

APX 7000 operates in multiple bands and meets P25 public safety specifications for seamless multi-agency collaboration.

2-In-1 Radio

APX 7000 operates in any of two bands (700/800 MHz, VHF/UHF R1 or UHF R2) and acts as two radios in one. First responders can now reduce the amount of equipment they must carry and maintain.

MISSION CRITICAL FORM FACTOR

Our new, two-sided ergonomic design was developed based on extensive user input. Available in optional colored housings, APX is rugged and easy to use in extreme environments.

Superior Audio Quality

The APX 7000 is the loudest Motorola portable available on the market. Dual speakers enable extremely loud, bi-directional audio when needed.

Our radios are equipped with our Noise Reduction Software (NRS) and dual microphones that virtually eliminate ambient background noise from transmissions and improve user safety by making sure transmissions are not only heard, but are clearly intelligible.

Advanced Emergency Functionality

We offer several Advanced Emergency features to assist in keeping mission critical users safe. When an emergency call is initiated, other users in a talk group will hear an alert and see the ID in their display. The Emergency Keep Alive feature ensures your emergency call is not dropped, even if the radio power switches OFF. The Emergency with Voice to Follow feature allows communication without pressing the PTT button if needed.

FUTURE READY INVESTMENT

APX is backward and forward compatible with Motorola SmartNet®, SmartZone® and ASTRO 25 systems and offers future expandability for developing technologies.

Standards

APX 7000 supports P25 Phase 1 and is upgradeable to support P25 Phase 2 for better spectrum utilization and double the voice capacity using existing frequencies.

Data Capability

The APX 7000 is Integrated Voice and Data ready. With the ability to send and receive data through your trunking or conventional system infrastructure, APX is ideal for text messaging and can be used as an RF modem.

Programming over Project 25 (POP25) allows the radio configuration to be accessed and updated over the air. APX also comes equipped with an integrated GPS receiver for outdoor location tracking.

Advanced Encryption

APX 7000 raises the bar on two-way radio security offering FIPS 140-2 Level 3 certification. It includes the simplicity of both Infrastructure and Tactical Over the Air Rekeying (OTAR).

Customer Programming Software

Our APX radios utilize new and enhanced CPS software that is user friendly and provides increased speed and efficiency.

The built-in codeplug comparator is designed for easy diagnostics of codeplug differences. The customizable views feature lets users see only the codeplug fields that interest them. An undo/redo function makes changes easy. With Improved Help access, the CPS automatically stays in synch with the user's selections.

MOTOROLA SERVICES

We stand beside customers at every stage in the system life cycle—including repair and maintenance from over 500 service facilities in 28 countries and depot facilities.

EXTEND YOUR SAFETY WITH LEADING-EDGE APX ACCESSORIES.

Whether you're heading into a burning building or handling a hostage situation, you can feel secure knowing safety doesn't stop with your APX 7000 radio alone. Our leading-edge accessories were designed as an integral part of our mission critical radios, engineered for exceptional performance and outstanding audio clarity.

What's more, every APX accessory is carefully designed and tested to provide the same high level of performance as your radio. Our innovative IMPRES battery charging and reconditioning system streamlines and automates battery maintenance. It draws on our exclusive technology to communicate between your battery and charger to help lengthen battery life and extend talk time. Rely on APX accessories to ensure your radio will perform exactly as expected, precisely when you need it.

AUDIO ACCESSORIES

IMPRES Display Remote Speaker Microphone
This IMPRES-enabled microphone has a display that mirrors the top display of the radio to show zone and channel information at a glance. Meets rugged specifications for immersibility and includes the first rugged submersible audio jack from Motorola.

Mission Critical Wireless Earpiece
A unique wireless accessory designed specifically for first responders. Seamless, streamlined and encrypted with strong 128-bit keys. This lightweight earpiece can be worn comfortably for long shifts common in public safety and performs well in loud environments.

BATTERIES

IMPRES Batteries
IMPRES energy technology maximizes talk time and optimizes battery life. All IMPRES batteries are designed and manufactured to our Proven Tough standards. Choose from high-capacity, rugged (immersible) and intrinsically safe (FM) options.

CARRY DEVICES

Leather Carry Cases
Constructed of top-grain leather, our carry cases are designed to withstand the harsh conditions of mission critical use. Flip carry case, fixed belt loop and swivel latch models provide a secure fit in high activity environments.

Universal Carry Holder
This sturdy hard-plastic case with a belt clip is designed to support the APX 7000 Dual Display portable. The large display remains protected by facing in on the belt. One size fits all available batteries.

CHARGERS

IMPRES Dual Unit Charger
The unique, dual-pocket design lets you simultaneously charge primary and secondary batteries. It provides the convenience of a spare battery that is charged and ready to be used at all times. With its IMPRES technology, the dual-unit charger offers advanced features—including the ability to turn on/off reconditioning, reduce reconditioning time and improve energy efficiency.


IMPRES Display Remote Speaker Microphone


Mission Critical Wireless Earpiece


IMPRES Batteries


Leather Carry Cases


Universal Carry Holder


IMPRES Dual Unit Charger

APX 7000 PORTABLE RADIOS. SAFETY REDEFINED.

VISIT APX ONLINE. GET COMPLETE SPECS. SEE 360 DEGREE VIEWS.

Go online to motorola.com/apx for more information about the APX 7000 Multiband Portable Radio.

- Interactive 360-degree views
- Complete hardware specs, including performance characteristics, physical characteristics and radio features
- Complete list and photos of accessories
- Downloadable product brochures and specification sheets
- Downloadable white papers
- motorola.com/apx

TECHNOLOGY THAT'S SECOND NATURE™

At the heart of every mission is the ability to communicate in an instant to coordinate responses and protect lives. Today, Motorola is putting real-time information in the hands of mission critical users to provide better outcomes. Our powerful combination of next generation technologies are transforming public safety operations by strengthening the mission critical core with broadband connections, rich-media applications, collaborative devices and robust services.

IT'S TECHNOLOGY THAT'S SECOND NATURE.

TO FIND OUT MORE, VISIT MOTOROLA.COM/NEXTGEN.

Motorola Solutions, Inc.
1301 East Algonquin Road
Schaumburg, Illinois 60196, U.S.A.
800-367-2346
motorolasolutions.com

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MOTOROLA

RC-4-2006D



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 multiple digital and analog networks and operates in any of two bands (700/800 MHz, VHF and UHF R1, UHF R2) for instant interoperability. Now you can efficiently manage mission critical voice and data in any environment – and significantly improve your safety and response time.

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.

*Based on results of controlled engineering tests



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 / 25 kHz)

Embedded digital signaling (ASTRO & ASTRO 25)

Integrated GPS capable

Seamless wideband scan

Man Down

Intelligent Lighting

Radio Profiles

Man Down

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)

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

Public Safety Yellow and High Impact Green housing options

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

TRANSMITTER - TYPICAL PERFORMANCE SPECIFICATIONS

	700 MHz	800 MHz	VHF	UHF Range 1	UHF Range 2
Frequency Range/Bandsplits	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]	1-2.5 Watts	1-3 Watts	1-6 Watts	1-5 Watts	1-5 Watts
Frequency Stability[1] (–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[1]	+1, –3 dB	+1, –3 dB	+1, –3 dB	+1, –3 dB	+1, –3 dB
FM Hum & Noise 25 kHz 12.5 kHz	–48 dB –46 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)**	3.07" x 2.34" x 1.65"	6.53 oz	NNTN7038	2900 mAh
Li-Ion IMPRES 4200 mAh (IP67)	5.12" x 2.34" x 1.65"	11.29 oz	NNTN7034	4200 mAh
Li-Ion IMPRES 4100 FM² (IP67)	5.12" x 2.34" x 1.65"	11.29 oz	NNTN7033	4100 mAh
NiMH IMPRES 2000 mAh FM² (IP67)	5.07" x 2.34" x 1.57"	11.82 oz	NNTN7036	2000 mAh
NiMH IMPRES 2000 mAh FM² (Rugged)	5.07" x 2.34" x 1.57"	11.82 oz	NNTN7035	2000 mAh
NiMH IMPRES 2100 mAh (IP67)	5.07" x 2.34" x 1.57"	11.82 oz	NNTN7037	2100 mAh
NiMH IMPRES 2100 mAh (Rugged)	5.07" x 2.34" x 1.57"	11.82 oz	NNTN7573	2100 mAh
Li-Ion IMPRES 2150 mAh IP67	3.39" x 2.34" x 1.45"	5.0 oz	PMNN4403	2150 mAh
Li-Ion IMPRES 2300 mAh FM² Rugged	3.39" x 2.34" x 1.65"	6.53 oz	NNTN8092	2300 mAh

* Per the FCC Narrowbanding rules, new products (APX7000 UHFR1 with UHFR2 combination) submitted for FCC certification after January 1, 2011 are restricted from being granted certification at 25KHz for United States - State & Local Markets only

** Standard shipping battery

RECEIVER - TYPICAL PERFORMANCE SPECIFICATIONS

		700 MHz	800 MHz	VHF	UHF Range 1	UHF Range 2
Frequency Range/Bandsplits		763-776 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	25/12.5 kHz	25/12.5 kHz
Maximum Frequency Separation		Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit
Audio Output Power at Rated[1]		1000 mW	1000 mW	1000 mW	1000 mW	1000 mW
Frequency Stability[1] (−30°C to +60°C, +25°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
Sensitivity[1]	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	68.1 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
Audio Distortion[1]		0.9 %	0.9 %	1.20 %	0.91 %	0.91 %

RADIO MODELS

Model 1.5 Top Display

Display		Full bitmap monochromatic LCD display ■ 1 line text, 8 characters ■ 1 line of icons ■ No menu support ■ Multi-color backlight
Keypad		None
Channel Capacity		1200
FLASHport Memory		64 MB
700/800 MHz (763-870 MHz)		Primary QA00569 Secondary QA00573 Keypad QA00577
VHF (136-174 MHz)		Primary QA00570 Secondary QA00574 Keypad QA00577
UHF Range 1 (380-470 MHz)		Primary QA00571 Secondary QA00575 Keypad QA00577
UHF Range 2 (450-520 MHz)		Primary QA00572 Secondary QA00576 Keypad QA00577
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	Yes
	LED	Multi-color

Model 3.5 Dual Display

Display		Top display plus full bitmap color display ■ LCD display ■ 4 lines text, 14 characters ■ 2 lines of icons ■ 1 menu line, 3 menus
Keypad		Multi-color backlight ■ Full Keypad ■ 3 soft keys ■ 4-direction navigation key ■ 4x3 keypad ■ Home and Data buttons
Channel Capacity		2000
FLASHport Memory		64 MB
700/800 MHz (764-870 MHz)		Primary QA00569 Secondary QA00573 Keypad QA00577
VHF (136-174 MHz)		Primary QA00570 Secondary QA00574 Keypad QA00577
UHF Range 1 (380-470 MHz)		Primary QA00570 Secondary QA00574 Keypad QA00577
UHF Range 2 (450-520 MHz)		Primary QA00572 Secondary QA00576 Keypad QA00577
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	Yes
	LED	Multi-color

Transmitter Certification

VHF – 700/800 MHz	AZ489FT7036 (136-174 MHz and 764-869 MHz)
UHF R1 – 700/800 MHz	AZ489FT7040 (380-470 MHz and 764-869 MHz)
UHF R1 – VHF	AZ489FT4886 (380-470 MHz and 136-174 MHz)
UHF R2 – 700/800 MHz	AZ489FT7042 (450-520 MHz and 764-869 MHz)
UHF R2 – VHF	AZ489FT4893 (450-520 MHz and 136-174 MHz)
Bluetooth	AZ489FT6000
BT Freq Range	2402-2480 MHz

FCC Emission Designators

FCC Emission Designators	11K0F3E, 16K0F3E, 8K10F1D, 8K10F1E, 8K10F1W, 20K0F1E*

Power Supply

Power Supply	One rechargeable 2900 mAh Li-Ion Battery Standard (NNTN7038), with alternate battery options available.

* Per the FCC Narrowbanding rules, new products (APX7000 UHF R1 with UHF R2 combination) submitted for FCC certification after January 1, 2011 are restricted from being granted certification at 25KHz for United States - State & Local Markets only.

GPS SPECIFICATIONS

Channels	12
Tracking Sensitivity	–151 dBm
Accuracy[5]	<10 meters (95%)
Cold Start	<60 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	1.65	41.7
Weight of the radios without battery	12.2 oz	346 g

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./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	1 Proc	503.2	I/A1C3	503.3	I/A1C3	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	1 Proc	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	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 (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-XL
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	P25 CAI 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

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-30°C / +60°C
Storage Temperature[7]	-40°C / +85°C
Humidity	Per MIL-STD
ESD	IEC 801-2 KV
Water and Dust Intrusion	IP67 MIL-STD
Immersion (Delta-T)	MIL-STD 512.X/1

Specifications subject to change without notice. All specifications shown are typical. Radio meets applicable regulatory requirements.

1 Measured in the analog mode per TIA / EIA 603 single-tone method under nominal conditions

2 When used with an FM approved intrinsically safe radio

3 Measured conductively in analog mode per TIA / EIA 603 under nominal conditions

4 Measured conductively in digital mode per TIA / EIA IS 102.CAAA under nominal conditions

5 Accuracy specs are for long-term tracking (95th percentile values >5 satellites visible at a nominal –130 dBm signal strength)

6 For rugged models only

7 Temperatures listed are for radio specifications. Battery storage is recommended at 25° C, ±5° C to ensure best performance.

Motorola Solutions, Inc. 1301 East Algonquin Road Schaumburg, Illinois 60196, U.S.A. 800-367-2346
motorolasolutions.com

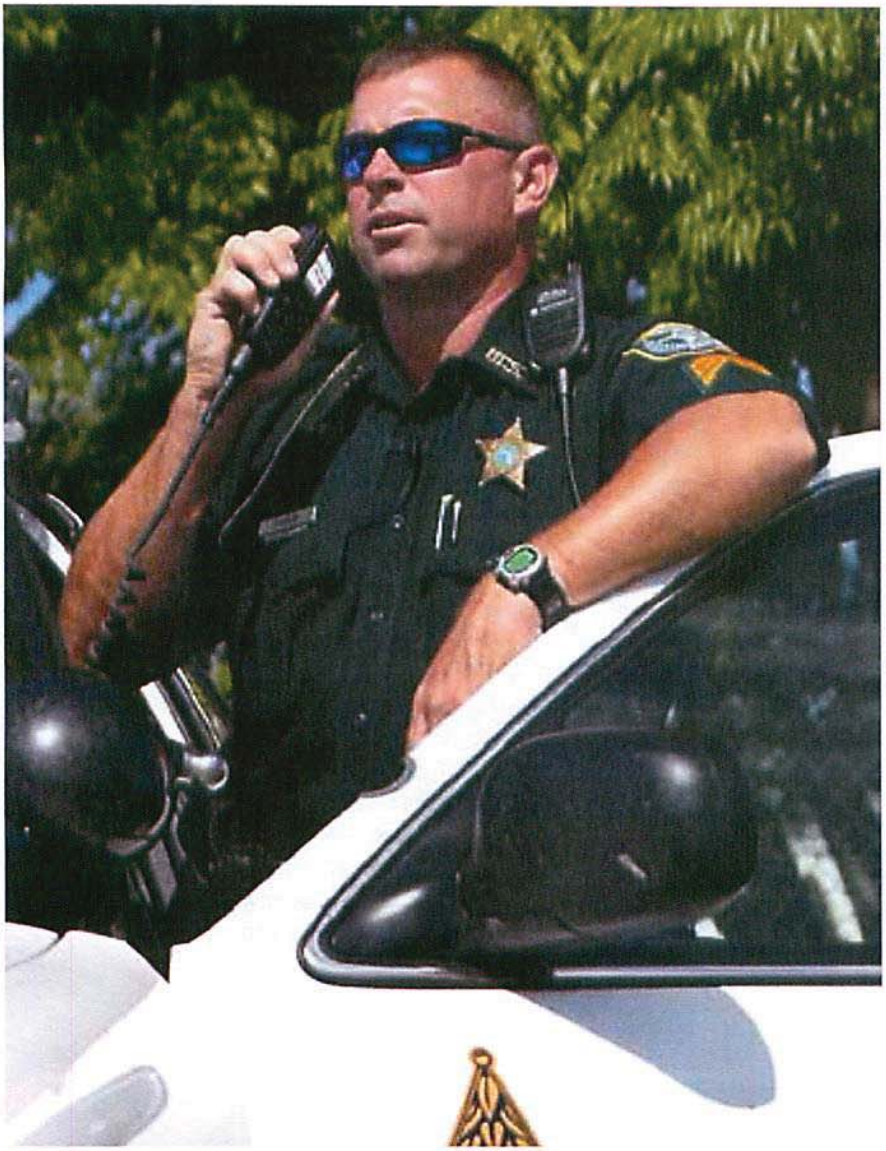
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R3-4-2021D

MOTOROLA

APX™ 7500 MULTIBAND MOBILE RADIOS

SAFETY REDEFINED











MEET THE APX™ 7500 MOBILE: SEAMLESS INTEROPERABILITY. FLAWLESS PERFORMANCE.

No other mission critical communication tool keeps you safer on the move than an APX mobile radio. During a high-speed chase or lifesaving helicopter rescue, instant and uninterrupted communication is priority one. You need to speak above the blast of sirens, the blare of engines, the howl of weather and the rush of traffic.

You expect a reliable radio with crystal clear communication wherever the mission takes you. You depend upon every word being heard and every message being understood, even in heavy noise environments. And you count on controls that are easy to locate and operate when situations get stressful.



WHEN MOMENTS COUNT, YOUR MOBILE MATTERS.

When every moment matters, your personnel must be able to communicate with one another—no matter which federal, state or local agencies are involved. As national security tightens and preparedness heightens, what is the right technology to achieve interoperability and mount a swift and effective joint response?

The APX 7500 delivers seamless multiband interoperability through any two bands (700/800, VHF, UHF R1, UHF R2). Now your agency can purchase one radio for instant multiband communication and streamline the expense of maintaining, installing and operating multiple mobile radios.

Every APX 7500 radio is backward and forward compatible, designed to meet current P25 standards and future ready to support new technology and data applications. That means you can achieve your interoperability objectives—whether upgrading an existing system or designing a new one—at your own pace.

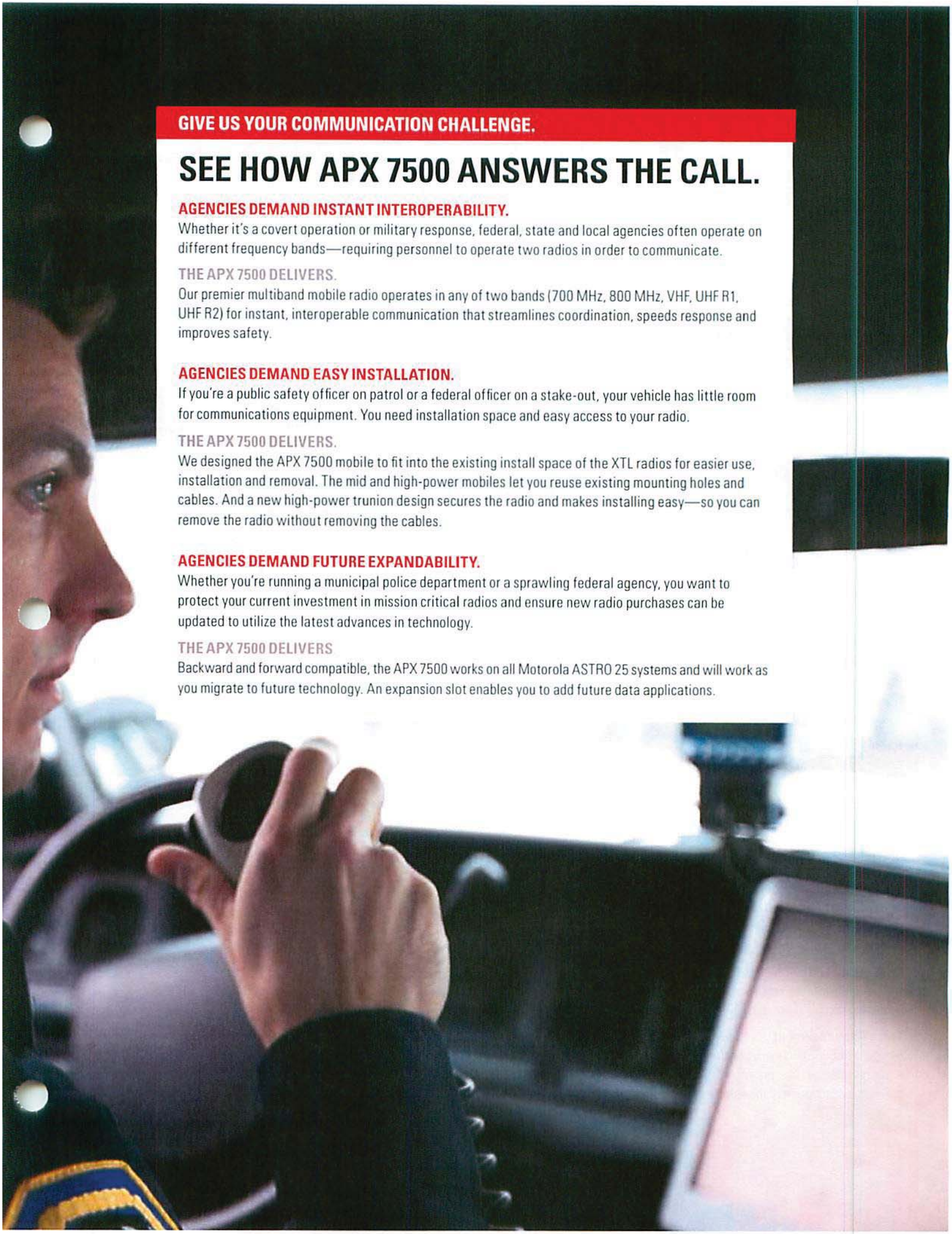
COMMUNICATE WITH AGILITY, NO MATTER THE AGENCY.

A U.S. Customs and Border agent coordinating investigations with a nearby state. The National Guard responding to a multi-agency request. A metro fire commander launching a search and rescue. All these situations require instant interoperability, seamless integration and mission critical voice and data to effectively and efficiently respond. And the APX 7500 delivers.

Our ultra-reliable mobiles perform across multiple digital and analog networks—from SmartNet® and SmartZone® to ASTRO® 25—to provide the highest level of interoperability possible. And when multiband operation is called for, the APX 7500 handles it seamlessly and skillfully through any two frequency bands.

FUTURE-READY TECHNOLOGY FOR TWICE THE CAPACITY.

Not only are APX 7500 radios compatible with our ASTRO Project 25 standards-based system, they support both P25 Phase 1 and Phase 2 technologies seamlessly. Using Motorola's unique Dynamic Dual Mode (DDM) capability, the radios switch between FDMA and TDMA without having to change channels. And since TDMA will be part of P25 Phase 2 requirements, providing twice the voice capacity, you can add more users without adding new frequencies or infrastructure.



GIVE US YOUR COMMUNICATION CHALLENGE.

SEE HOW APX 7500 ANSWERS THE CALL.

AGENCIES DEMAND INSTANT INTEROPERABILITY.

Whether it's a covert operation or military response, federal, state and local agencies often operate on different frequency bands—requiring personnel to operate two radios in order to communicate.

THE APX 7500 DELIVERS.

Our premier multiband mobile radio operates in any of two bands (700 MHz, 800 MHz, VHF, UHF R1, UHF R2) for instant, interoperable communication that streamlines coordination, speeds response and improves safety.

AGENCIES DEMAND EASY INSTALLATION.

If you're a public safety officer on patrol or a federal officer on a stake-out, your vehicle has little room for communications equipment. You need installation space and easy access to your radio.

THE APX 7500 DELIVERS.

We designed the APX 7500 mobile to fit into the existing install space of the XTL radios for easier use, installation and removal. The mid and high-power mobiles let you reuse existing mounting holes and cables. And a new high-power trunion design secures the radio and makes installing easy—so you can remove the radio without removing the cables.

AGENCIES DEMAND FUTURE EXPANDABILITY.

Whether you're running a municipal police department or a sprawling federal agency, you want to protect your current investment in mission critical radios and ensure new radio purchases can be updated to utilize the latest advances in technology.

THE APX 7500 DELIVERS

Backward and forward compatible, the APX 7500 works on all Motorola ASTRO 25 systems and will work as you migrate to future technology. An expansion slot enables you to add future data applications.

THIS PERFORMER PROVES ITSELF EACH TIME YOU TURN IT ON.



ADVANCED SOFTWARE FEATURES

Intelligent Lighting
Uses color alerts to notify you of the radio mode, potential emergencies and specific events.

Radio Profiles
Configure radios to adjust audio level, lighting and tones through user-selected or automated options. Whether on surveillance or working in bright sunlight, you can customize settings as needed.

Text Messaging
Offers a free form or canned messaging solution so you can efficiently and discreetly send and receive messages to and from subscribers or dispatch operators.

Unified Call List
Consolidates all call lists to make all information about a particular contact easily accessible.

Voice Announcement
Navigate through channels/talkgroups and zones while an audible, pre-recorded voice file provides a description of the selected channel or zone.

ADVANCED HARDWARE FEATURES

P25 Phase 2 Capable
Provides twice the voice capacity so you can add more users to your system without adding frequencies or infrastructure.

GPS Location
With its integrated GPS receiver, the outdoor location of a vehicle can be transmitted to map-based location software.

Multiband Operation
Multiple frequency bands supported with best-in-class transceiver specifications and performance.

Seamless Scan
Scan multiple protocols, including FDMA and TDMA systems and multiple RF bands.

Encryption
Equipped with FIPS certified encryption hardware for secure communications.

FUTURE READY

Expansion Slot
Add option cards and data applications to upgrade to the latest functionality.

Memory
Expandable memory slot lets you store future data applications. Increased memory is available as your technology needs grow.

Programming Over Project 25 (POP25)
POP 25 solution lets you program subscriber radios over the air via the ASTRO25 system, while in the field, without interrupting voice operations.



FLEXIBLE INNOVATIONS FOR THE WAY YOU WORK.

APX 7500 MID-POWER INSTALLATION

Mounted remotely or in dash, fits into an existing XTL footprint so you can reuse mounting holes and cables for easy installation.

APX 7500 HIGH-POWER INSTALLATION

Mounted remotely, the simplified trunion design lets you remove the radio without having to disconnect the cables.

RFID

12-character RFID asset tracking provides a fast, accurate and convenient way to obtain valuable information without having to uninstall the radio.



INTEGRATE YOUR CONTROLS INTO YOUR VEHICLE



09 INTEGRATED CONTROL HEAD

- Extra-large full color display with intelligent lighting
- 12-button keypad
- Dedicated siren controls
- Large programmable one-touch buttons
- Night/day mode button



05 CONTROL HEAD

- Tri-color display with intelligent lighting
- Four-line/14 character/one icon customizable alphanumeric display
- Five programmable soft key buttons and five scroll-through menus, with up to 24 programmable soft keys
- Multiple control head configuration, with up to four different wired locations
- Motorcycle configuration available



03 CONTROL HEAD

- Large color display with intelligent lighting
- Four-line/14 character/two icons alphanumeric display
- 3 x 6 keypad with up to 24 programmable soft keys
- Two quick-access side buttons
- Hand-held control head with intuitive user interface



COORDINATE A STRONGER RESPONSE WITH A SAFER RESPONDER.

WHY APX 7500?

Our APX mobile radios deliver exceptional performance by combining advanced voice and data technology with our legendary quality. Their innovative, rugged design and safety-focused functionality is based on extensive input from users around the world. This along with our breakthrough engineering brings you the best two-way radios in the field.

Interoperability On Demand
APX 7500 operates in multiple bands and meets P25 public safety specifications for seamless multiagency collaboration.

2-In-1 Radio
APX 7500 operates in any 2 frequency bands (700/800, VHF, UHF R1 and UHF R2) and acts as two radios in one. We've reduced the amount of equipment service shops must install and maintain.

No Compromises Design
The APX mobile radio is designed to maintain the same mounting footprints as the XTL. The high-power trunion was completely redesigned for ease of installation, providing installation guides and rails, better engagement into the tray and enhanced handle grip.

Rugged Durability
The APX 7500 mobile radio meets IP55 water-intrusion ratings for driving rain. This gives you the added confidence that your mobile will continue performing, even when exposed to water.

Future-Ready Investment
APX is backward and forward compatible with Motorola SmartNet , SmartZone and ASTRO 25 systems and offers future expandability for developing technologies.

Standards
APX 7500 supports P25 Phase 1 and is upgradable to support P25 Phase 2 to offer better spectrum utilization and double voice capacity using existing frequencies.

Data Capability
The APX 7500 is Integrated Voice and Data ready. With the ability to send and receive data through your trunking or conventional system infrastructure, APX is ideal for text messaging and can be used as a modem. Programming over Project 25 (POP25) allows the radio configuration to be accessed and updated over the air. APX also comes equipped with an integrated GPS receiver for outdoor location tracking.

FLASHport™ Software
The APX 7500 has built-in FLASHport capability to support customizing the radio with new software.

Customer Programming Software
Our APX radios utilize new and enhanced CPS software that is user friendly and increases speed and efficiency. The built-in codeplug comparator makes it easy to diagnose codeplug differences. The customizable views feature allows users to see only the codeplug fields that interest them. An undo/redo function makes changes easy.

Motorola Services
We stand beside customers at every stage in the system life cycle—including repair and maintenance from over 500 service facilities in 28 countries and depot facilities dedicated solely for federal agencies.

TURN UP SAFETY AND EASE OF USE WITH APX ACCESSORIES.

Whether you're riding your motorcycle or a military truck, speaking from a squad car or a station desk, you need to know that every word is communicated and every message is heard. Our leading-edge accessories were designed to be an integral part of our APX mission critical radios—engineered for exceptional performance and outstanding audio clarity.

Every APX accessory is carefully designed and tested to provide the same high level of performance as your radio. For example, IMPRES™ visor microphones are uniquely engineered to reduce background noise so you can communicate effectively on the road. And many accessories from our XTL radios that utilize O5 and O3 control heads can be reused—maximizing your investment while you benefit from the latest technology.

AUDIO ACCESSORIES

Keypad Microphone
Access critical features directly from the microphone. A full keypad lets users dial phone numbers and send text messages, while the navigational buttons allow users to navigate through radio menus. Also includes three programmable buttons for additional customization.

IMPRES Visor Microphone
Using leading-edge IMPRES technology, our audio accessories communicate with the radio to help suppress ambient noise, improve voice intelligibility and amplify loudness—even in noisy situations. The IMPRES visor microphone reduces common background road noise so an officer can communicate effectively in the vehicle.

Desktop Microphone and Tray
These convenient accessories allow mission critical users to convert APX mobiles into simple base stations—an ideal solution for dispatch and transportation. Desktop tray and microphone sold separately.

ANTENNA

GPS Antenna
A separate GPS antenna is required in addition to the mobile RF antenna for GPS capability. This fixed-mount antenna is a discreet standalone that has a semi-permanent mount you can easily assemble with minimal tools to the vehicle's roof or trunk.


Keypad Microphone


IMPRES Visor Microphone


Desktop Microphone and Tray


GPS Antenna



APX 7500 MOBILE RADIOS. SAFETY REDEFINED.

VISIT APX ONLINE. GET COMPLETE SPECS. SEE 360 DEGREE VIEWS.

Go online to motorola.com/apx for more information about the APX 7500 Multiband Mobile Radio.

- Interactive 360-degree views
- Complete hardware specs, including performance characteristics, physical characteristics and radio features
- Complete list and photos of accessories
- Downloadable product brochures and specification sheets
- Downloadable white papers

motorola.com/apx

TECHNOLOGY THAT'S SECOND NATURE™

At the heart of every mission is the ability to communicate in an instant to coordinate response and protect lives. Today, Motorola is putting real-time information in the hands of mission critical users to provide better outcomes. Our powerful combination of next generation technologies are transforming public safety operations by strengthening the mission critical core with broadband connections, rich-media applications, collaborative devices and robust services.

IT'S TECHNOLOGY THAT'S SECOND NATURE.

TO FIND OUT MORE, VISIT MOTOROLA.COM/NEXTGEN.

Motorola Solutions, Inc.
1301 East Algonquin Road
Schaumburg, Illinois 60196, U.S.A.
800-367-2346
motorolasolutions.com

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MOTOROLA

RC-1-2009C



WIRELESS DISPATCH EVERYWHERE

APX™ 7500 MULTIBAND CONSOLETTE

Racing to an emergency or repairing a power outage, every moment matters as you mount a response. The right control station can make all the difference in making sure communications are clear, continuous and coordinated – across multiple users, agencies and miles.

The APX™ 7500 Consolette is the ideal complement to your dispatch console. It's the low cost, mid-power RF control station for the ASTRO® 25 system when you want a wireless dispatch solution. Plus, you can use it as an emergency backup station when infrastructure is off-line or for wireless access to different system types for increased interoperability between agencies.

CONNECT WITH CONFIDENCE

Designed for the APX 7500 mid power series and O5 control head, the APX 7500 Consolette combines forward-thinking technology with time-tested functionality. Project 25 Phase 2 technology delivers twice the voice capacity so you can add more users without adding more frequencies or infrastructure. And its multiband operation assures seamless interoperability – so you can talk with confidence from a squad car or desk station, a job site across town or an incident in the next county.

MIGRATE AT YOUR OWN PACE

The APX 7500 Consolette is backwards and forwards compatible, developed to meet current P25 standards and future-ready to support new technology and data applications. Now you can achieve your interoperability objectives—whether upgrading an existing system or designing a new one—based on your dollars and deadlines.

BUILT FOR THE TOUGHEST TASKS

Innovative design and skillful engineering make the APX 7500 Consolette a tireless performer. It can be easily serviced or programmed without removing the lid and the robust metal housing assures extra durability. An integrated front panel numeric keypad on the APX 7500 Consolette gives you fast access to radio controls. And it meets stringent FCC and UL certifications for exceptional safety.

ROBUST AND MISSION-READY

When a power loss occurs, count on the automatic battery revert to connect your people 24/7. All you need is a DC source, such as a marine battery, to switch over automatically and keep communications going strong.

Rich in features, the APX 7500 Consolette gives you easy access to contact information with one unified call list and the largest number of interface connections to a wide variety of consoles and desk sets. What's more, an ACIM wireless interface provides back-up dispatch if your console's link to the ASTRO 25 trunked system is ever lost.

APX 7500 MULTIBAND CONSOLETTE

STANDARD FEATURES

Available in 700/800 MHz, VHF, UHF R1, and UHF R2 bands

Up to 1250 Channels

Optional multiband operation

Trunking Standards supported:
- Clear or digitally 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/25 kHz)

Embedded digital signaling (ASTRO and ASTRO 25)

Integrated Encryption Hardware

Seamless wideband scan

Intelligent lighting

Radio profiles

Unified Call List

Tone remote control

ACIM/CCGW interface including:
- ID decode
- Call alert encode

Interfaces supported:
- Recorder
- Wireline
- Vehicle Interface Port
- Crosspatch
- Headsets (2)*

110/220VAC operation with battery revert capability

VU Meter and Clock

Expansion Slot Standard

2 configurations available:
- Full featured front panel
- Limited front panel

Customer Programming Software:
- Utilizes Windows 7, XP and Vista
- Supports USB Communications
- Built in FLASHport™ support

OPTIONAL FEATURES:

Enhanced Encryption Software Options

Programming over Project 25 (POP25)

Text Messaging

Over the Air Re-Key (OTAR)

Extended Dispatch Operation including:
Emergency Alarm ACK Encode
Radio Inhibit/Uninhibit Encode
Radio Monitor Encode
Radio Check Encode
Status Query Encode
Status Query Response Decode
Status Update Decode
Message Update Decode





05 CONTROL HEAD FEATURES

Tri-color LCD display

- 4 lines: 2 lines text (14 characters), 1 line icons, 1 line soft menu keys
- 3 x 6 keypad microphone accessory with 3 programmable soft keys
- 5 programmable soft key buttons and 5 scroll-through menus with up to 24 programmable soft keys

AUXILIARY DISPLAY FEATURES

LCD display

3 soft menu buttons to activate or control the following Consolette features:
- Clock
- Volume Units Meter (VU)
- Crosspatch Linking
- Auxiliary Controls/VIP Activation
- Over-the-air Audible TX Alert Tones

*available on full featured models only

SIGNALLING (ASTRO MODE)

Signalling Rate	9.6 kbps
Digital ID Capacity	10,000,000 Conventional / 48,000 Trunking
Digital Network Access Codes	4,096 network site addresses
ASTRO Digital User Group Addresses	4,096 network site addresses
Project 25 – CAI Digital User Group Addresses	65,000 Conventional / 4,094 Trunking
Error Correction Techniques	Golay, BCH, Reed-Solomon codes
Data Access Control	Slotted CSMA: Utilizes infrastructure-sourced data status bits embedded in both voice and data transmissions.

APX 7500 CONSOLETTE

Dimensions	Limited Front Panel Configuration 16" x 18" x 4.2" (406 x 457 x 107mm) Full Featured Front Panel Configuration 16" x 18.75" x 4.2" (406 x 476 x 107mm)
Weight	Limited Front Panel Configuration 18.5 lbs (8.4 kg) Full Featured Front Panel Configuration 19.5 lbs (8.9 kg)

TRANSMITTER - TYPICAL PERFORMANCE SPECIFICATIONS

	700 MHz	800 MHz	VHF	UHF Range 1	UHF Range 2
Frequency Range/Bandsplits	764-776 MHz 794-806 MHz	806-824 MHz 851-870 MHz	136-174 MHz	380-470 MHz	450-520 MHz
Channel Spacing	25/12.5 kHz	25/20/12.5 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	Full Bandsplit
Rated RF Output Power Adj*	10-30 Watts	10-35 Watts	10-50 Watts	10-40 Watts	10-45 Watts (450-485 MHz) 10-40 Watts (485-512 MHz) 10-25 Watts (512-520 MHz)
Frequency Stability* (–30°C to +60°C; +25°C Ref.)	±0.00015 %	±0.00015 %	±0.0002 %	±0.0002 %	±0.0002 %
Modulation Limiting*	±5 kHz / ±2.5 kHz	±5 kHz/±4 kHz (NPSPAC) /±2.5 kHz	±5 kHz / ±2.5 kHz	±5 kHz / ±2.5 kHz	±5 kHz / ±2.5 kHz
Modulation Fidelity (C4FM) 12.5kHz Digital Channel	±2.8 kHz	±2.8 kHz	±2.8 kHz	±2.8 kHz	±2.8 kHz
Emissions*	Conducted+ –70/–85 dBc; Radiated+ –20/–40 dBm	Conducted + –70 dBc; Radiated+ –20 dBm	Conducted + –85 dBc; Radiated –20 dBm+	Conducted + –85 dBc; Radiated –20 dBm+	Conducted+ –85 dBc; Radiated –20 dBm+
Audio Response*	+1, –3 dB (EIA)	+1, –3 dB (EIA)	+1, –3 dB (EIA)	+1, –3 dB (EIA)	+1, –3 dB (EIA)
FM Hum & Noise 25 & 20 kHz 12.5 kHz	–40 dB –34 dB	–40 dB –34 dB	–50 dB –40 dB	–45 dB –40 dB	–45 dB –40 dB
Audio Distortion*	2 %	2 %	2 %	2 %	2 %

RECEIVER – TYPICAL PERFORMANCE SPECIFICATIONS

		700 MHz	800 MHz	VHF		UHF Range 1		UHF Range 2	
Frequency Range/Bandsplits		764-776 MHz	851-870 MHz	136-174 MHz		380-470 MHz		450-520 MHz	
Channel Spacing		25/12.5 kHz	25/20/12.5 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		Full Bandsplit	
Audio Output Power at 3% distortion*		2.5W++	2.5W++	2.5W++		2.5W++		2.5W++	
Frequency Stability* (–30°C to +60°C; +25°C Ref.)		±0.00015 %	±0.00015 %	±0.0002 %		±0.0002 %		±0.0002 %	
Analog Sensitivity*	12 dB SINAD	0.25 µV	0.25 µV	Pre-Amp 0.2 µV	Standard 0.3 µV	Pre-Amp 0.2 µV	Standard 0.3 µV	Pre-Amp 0.2 µV	Standard 0.3 µV
Digital Sensitivity	1% BER	0.3 µV	0.3 µV	0.25 µV	0.4 µV	0.25 µV	0.4 µV	0.25 µV	0.4 µV
	5% BER	0.25 µV	0.25 µV	0.2 µV	0.3 µV	0.2 µV	0.3 µV	0.2 µV	0.3 µV
Intermodulation		80 dB	80 dB	80 dB	85 dB	80 dB	85 dB	80 dB	85 dB
Spurious Rejection		90 dB	90 dB	90 dB		90 dB		90 dB	
Audio Distortion at rated*		3.00 %	3.00 %	3.00 %		3.00 %		3.00 %	
Selectivity*	25 kHz	80 dB	80 dB	—		82 dB		82 dB	
	12.5 kHz	65 dB	65 dB	70 dB		70 dB		70 dB	
	30 kHz	—	—	90 dB		—		—	

POWER AND BATTERY DRAIN

Model Type	136-174 MHz, 380-470 MHz, 450-520 MHz, 764-870 MHz						
Minimum RF Power Output	10-35 Watt (764-870 MHz), 10-50 Watts (136-174 MHz), 10-40 Watts (380-470 MHz), 10-45 Watts (450-485 MHz), 10-40 Watts (485-512 MHz), 10-25 Watts (512-520 MHz)						
AC Operation	110 to 220VAC 50-60Hz						
AC Surge Spec	EN6100-4-5 Level 5						
DC Operation	13.8V DC +/-20% Negative Ground						
Standby at 13.8V	0.85A (764-870 MHz), 0.85A (136-174 MHz), 0.85A (380-470 MHz), 0.85A (450-520 MHz)						
Receive Current at Rated Audio at 13.8V	1.5A (764-870 MHz), 1.5A (136-174 MHz), 1.5A (380-470 MHz), 1.5A (450-520 MHz)						
Transmit Current (A) at Rated Power	136-174 MHz (10-50 Watt) 380-470 MHz (10-40 Watt) 450-520 MHz (10-45 Watt)	13A (50W) 11A (40W) 11A (45W)	8A (15W) 8A (15W) 8A (15W)	764-870 MHz (10-35 Watt)	35A (50W)	8A (15W)	

ENCRYPTION

Supported Encryption Algorithms	ADP, AES, DES, DES-XL, DES-OFB, DVP-XL
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	P25 CAI 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

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-30°C / +60°C
Storage Temperature	-40°C / +85°C
Humidity	95% relative humidity
ESD	IEC 61000-4-2
Duty Cycle	EIA/TIA Intermittent Duty Cycle

FCC TYPE ACCEPTANCE ID

FCC ID	BAND AND POWER LEVEL
AZ492FT4895	10-50 Watts (136-174 MHz) and 10-40Watts (380-470 MHz)
AZ492FT5858	10-35 Watt (764-870 MHz)
AZ492FT7037	10-50 Watts (136-174 MHz) and 10-35 Watt (764-870 MHz)
AZ492FT7035	10-35 Watt (764-870 MHz)
AZ492FT3824	10-50 Watts (136-174 MHz)
AZ492FT4894	10-40 Watts (380-470 MHz)
AZ492FT4896	10-45 Watts (450-520 MHz)

For more information about how to interoperate without boundaries, visit motorolasolutions.com/apx

* Measured in the analog mode per TIA/EIA 603 under nominal conditions

+ Specs includes performance for the non-GNSS/GNSS bands

++ Output power into 20 Ohm internal speaker

Specifications subject to change without notice. All specifications shown are typical

Radio meets applicable regulatory requirements

Motorola Solutions, Inc.
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motorolasolutions.com

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R3-1-2037D

MOTOROLA



APX™ 6000 PROJECT 25 PORTABLE RADIO

Delivering outstanding performance in a compact form factor without sacrificing the features you need most. The APX™ 6000 is the next generation of ruggedly-reliable performers that gives you the advanced features such as Mission Critical Wireless and GPS location tracking in a small, P25 Phase 2 capable radio. Whether you're on patrol or racing to a fire, the APX 6000 puts you in greater control of your safety, response time and technology investment.

Focus on the task not the technology, with the real-world ready radio that turns mission critical into mission complete.

CUTTING-EDGE FEATURES IN A COMPACT SIZE

- Innovative T-grip design gives you a secure grip and better control
- High-contrast color display is easy to read in different lighting conditions
- Top display is quick to read while looking down, at a glance or from an angle
- Universal push-to-talk button with enhanced grooves is easy to find by "touch"

EXCELLENT AUDIO YOU CAN HEAR LOUD AND CLEAR

- Excellent audio ensures voice communications are intelligible, even in high noise environments
- Dual sided 2 microphone noise canceling technology
- Equipped with the latest AMBE digital voice vocoder

FUTURE-READY TECHNOLOGY TO RELY ON TODAY

- Small P25 Phase 2 capable radio that provides twice the voice capacity
- Backwards and forwards compatible with all Motorola mission critical radio systems
- Supports applications like Mission Critical Wireless and GPS location tracking for greater safety

- Universal Push-to-Talk
- T-Grip
- Dual Battery Latch
- Orange emergency button
- 16 position rotary switch
- 2 position concentric switch
- 3 position toggle switch
- 3 programmable side buttons
- Transmit LED indicator
- Backlit Keypad:
  - Home and Data buttons
  - 3 soft keys
  - 4 direction navigation key
  - 4 x 3 keypad
- Full Bitmap Display:
  - 2 lines of icons
  - 4 lines x 14 characters of text
  - Status icons



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

Integrated GPS capable

Man Down

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)**

Yellow and green colored housing options

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

Enhanced Encryption capability

Programming Over Project 25

Over the Air Rekey

Text Messaging

Rugged submersible housing** (2 meters, 2 hours)

*Per the FCC Narrowbanding rules, new products (APX6000 UHFR1, UHFR2) 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 (IPx7) 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 +60°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	–47 dB –45 dB
Audio Distortion[1]	700 MHz 800 MHz	0.60 % 1 %	0.50 %	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	PMNN4403	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 FM² IP67	5.07" x 2.34" x 1.65"	11.29 oz	NNTN7033	4100 mAh
NiMH IMPRES 2100 mAh IP67	5.12" x 2.34" x 1.57"	11.82 oz	NNTN7037	2100 mAh
NiMH IMPRES 2000 mAh FM² IP67	5.12" x 2.34" x 1.57"	11.82 oz	NNTN7036	2000 mAh
NiMH IMPRES 2000 mAh FM² Rugged	5.12" x 2.34" x 1.57"	11.82 oz	NNTN7035	2000 mAh
NiMH IMPRES 2100 mAh Rugged	5.12" x 2.34" x 1.57"	11.82 oz	NNTN7573	2100 mAh
Li-Ion IMPRES 2300 mAh FM² Rugged	3.39" x 2.34" x 1.65"	6.53 oz	NNTN8092	2300 mAh

***Standard shipping battery

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	64 MB	64 MB
700/800 MHz (763-870 MHz)	H98UCD9PW5AN Q360EF	H98UCF9PW6AN Q360EF	H98UCH9PW7AN Q360EF
VHF (136-174 MHz)	H98KGD9PW5AN Q360EG	H98KGF9PW6AN Q360EG	H98KGH9PW7AN Q360EG
UHF Range 1 (380-470 MHz)	H98QDD9PW5AN Q360EH	H98QDF9PW6AN Q360EH	H98QDH9PW7AN Q360EH
UHF Range 2 (450-520 MHz)	H98SDD9PW5AN Q360FC	H98SDF9PW6AN Q360FC	H98SDH9PW7AN Q360FC
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 Range2 (450-520 MHz)	AZ489FT4903		
FCC Emissions Designators			
FCC Emissions Designators	11K0F3E, 16K0F3E, 8K10F1D, 8K10F1E, 8K10F1W, 20K0F1E**		
Power Supply			
Power Supply	One rechargeable 2150 mAh Li-Ion Battery Standard (PMNN4403), with alternate battery options available.		

*Enhancement package available

**Per the FCC Narrowbanding rules, new products (APX6000 UHFR1, UHFR2) submitted for FCC certification after January 1, 2011 are restricted from being granted certification at 25kHz for United States - State & Local Markets only.

RECEIVER - TYPICAL PERFORMANCE SPECIFICATIONS

		700/800	VHF	UHF Range 1	UHF Range 2
Frequency Range/Bandsplits	700 MHz 800 MHz	763-776 MHz 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
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[3] Digital Sensitivity[4]	12 dB SINAD 1% BER (800 MHz) 5% BER	0.250 µV 0.347 µV (0.333 µV) 0.251 µV	0.216 µV 0.277 µV 0.188 µV	0.234 µV 0.307 µV 0.207 µV	0.234 µV 0.307 µV 0.207 µV
Selectivity[1]	25 kHz channel 12.5 kHz channel	75.7 dB 67.5 dB	79.3 dB 70 dB	78.3 dB 68.1 dB	78.3 dB 67.5 dB
Intermodulation		80 dB	80.5 dB	80.2 dB	80.2 dB
Spurious Rejection		76.6 dB	93.2 dB	80.3 dB	80.3 dB
FM Hum and Noise	25 kHz 12.5 kHz	-54 dB -48 dB	-53.8 dB -48 dB	-53.5 dB -47.4 dB	–53.5 dB –47.4 dB
Audio Distortion[1]		.9 %	1.20 %	0.91 %	0.91 %

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./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/A1C3	503.3	I/A1C3	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
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 (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	8
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 CAI 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[5]	<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 (Standard), Public Safety Yellow and High Impact Green

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, MIL-STD
Immersion	MIL-STD 512.X/I

[1] Measured in the analog mode per TIA / EIA 603 under nominal conditions
[2] When used with an FM approved intrinsically safe radio
[3] Measured conductively in analog mode per TIA / EIA 603 under nominal conditions.
[4] Measured conductively in digital mode per TIA / EIA IS 102.CAAA under nominal conditions.
[5] Accuracy specs are for long-term tracking (95th percentile 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.

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motorolasolutions.com

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R3-4-2035E

MOTOROLA

SPECIFICATION SHEET

APX™ 6500

PROJECT 25 MOBILE RADIO

We've put exceptional flexibility into an advanced mission critical mobile radio that's easy to operate and intuitive to use. The APX 6500 P25 mobile allows users to choose from 4 control heads, mid and high power models and multiple installation configurations in an easy to install design. Innovative safety features such as GPS location tracking, intelligent lighting and one-touch controls help to keep first responders safer than ever before.

Focus on the task not the technology, with the hardworking mission critical mobile that turns mission critical into mission complete.



FLEXIBLE PLATFORM

- Interchangeable control heads that best support your operational needs - 02, 03, 05, 07
- Two transceiver options - high-power and mid-power
- Dual control head support offered on the 02, 05 and 07 control heads

EASY TO INSTALL AND EFFORTLESS TO USE

- Mid-power model fits into any existing XTL footprint, so you can reuse mounting holes and cables
- High-power model trunnion design lets you remove the radio without removing the cables
- 12 character RF ID label helps you track information without uninstalling your radio

CUTTING-EDGE TECHNOLOGY AND ADVANCED FEATURES

- Project 25 Phase 2 technology provides twice the voice capacity
- Integrated GPS lets you locate and track an individual or vehicle
- Advanced features like intelligent lighting, radio profiles and text messaging improve communication and coordination



APX™ 6500 SPECIFICATIONS

FEATURES AND BENEFITS:

Available in 700/800 MHz, VHF, UHF R1 and UHF R2 bands

Channels: 870*

Trunking Standards supported:

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

Analog MDC-1200 and Digital APCO P25 Conventional System

Configurations

Narrow and wide bandwidth digital receiver (6.25kHz/12.5kHz/25kHz/30 kHz)

Embedded digital signaling (ASTRO and ASTRO 25)

Integrated GPS capable

Integrated Encryption Hardware

Intelligent lighting

Radio profiles

Unified Call List

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

Ships standard IP54

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

- Supports USB Communications
- Built in FLASHport™ support

Re-use of most XTL™ accessories, plus new IMPRES accessories

OPTIONAL FEATURES:

Enhanced Encryption Software Options

Programming over Project 25 (POP25)

Text Messaging

Over the Air Rekeying (OTAR)

12 character RF ID asset tracking

Tactical OTAR

*Enhancement package available

TRANSMITTER - TYPICAL PERFORMANCE SPECIFICATIONS

	700 MHz	800 MHz	VHF	UHF Range 1	UHF Range 2
Frequency Range/Bandsplits	764-776 MHz 794-806 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	25/12.5 kHz	25/12.5 kHz
Maximum Frequency Separation	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit
Rated RF Output Power Adj*	10-30 Watts	10-35 Watts	10-50 Watts or 25-100 Watts	10-40 Watts or 25-100 Watts	10-45 Watts (450-485 MHz) 10-40 Watts (485-512 MHz) 10-25 Watts (512-520 MHz)
Frequency Stability* (–30°C to +60°C; +25°C Ref.)	±0.00015 %	±0.00015 %	±0.0002 %	±0.0002 %	±0.0002 %
Modulation Limiting*	±5 kHz / ±2.5 kHz	±5 kHz/±4 kHz (NPSPAC) /±2.5 kHz	±5 kHz / ±2.5 kHz	±5 kHz / ±2.5 kHz	±5 kHz / ±2.5 kHz
Modulation Fidelity (C4FM) 12.5kHz Digital Channel	±2.8 kHz	±2.8 kHz	±2.8 kHz	±2.8 kHz	±2.8 kHz
Emissions*	Conducted+ –75/–85 dBc Radiated+ –20/–40 dBm	Conducted –75 dBc Radiated –20 dBm	Conducted –85 dBc Radiated –20 dBm	Conducted –85 dBc Radiated –20 dBm	Conducted –85 dBc Radiated –20 dBm
Audio Response*	+1, –3 dB (EIA)	+1, –3 dB (EIA)	+1, –3 dB (EIA)	+1, –3 dB (EIA)	+1, –3 dB (EIA)
FM Hum & Noise 25 kHz 12.5 kHz	–50 dB –48 dB	–50 dB –48 dB	–53 dB –52 dB	–53 dB –50 dB	–53 dB –50 dB
Audio Distortion*	2 %	2 %	2 %	2 %	2 %

DIMENSIONS

	Inches	Millimeters
Mid Power Radio Transceiver	2 x 7 x 8.6	50.8 x 177.8 x 218.4
O5 Control Head	2 x 7 x 2.5	50.8 x 180.3 x 63.5
O2 Control Head	2.7 x 8 x 2.1	68.4 x 206 x 52.83
O7 Control Head	2 x 7 x 1.5	50.8 x 178 x 40
Mid Power Radio Transceiver and O5 Control Head–Dash Mount	2 x 7 x 9.6	50.8 x 180.3 x 243.8
Mid Power Radio Transceiver and O2 Control Head - Dash Mount	2.7 x 8 x 10.5	68.4 x 206 x 268
Mid Power Radio Transceiver and O7 Control Head - Dash Mount	2 x 7 x 10.3	50.8 x 178 x 262
Mid Power Radio Transceiver and Remote Mount	2.0 x 7 x 9.6	50.8 x 180.3 x 243.8
High Power Radio Transceiver	2.9 x 11.5 x 8.8	74 x 293 x 223
High Power Radio Transceiver with Handle	3.4 x 11.5 x 8.8	87 x 293 x 223
Mid Power Radio Transceiver and O5 Control Head Weight	6.6 lbs	3.0 kg
Mid Power Radio Transceiver and O2 Control Head Weight	7.12 lbs	3.23 kg
Mid Power Radio Transceiver and O7 Control Head Weight	6.74 lbs	3.06 kg
High Power Radio Transceiver Weight With Trunnion Without Trunnion	14.2 lbs 12 lbs	6.4 kg 5.4 kg

APX 6500 CONTROL HEAD PORTFOLIO









02 RUGGED CONTROL HEAD

- Large color display with intelligent lighting
- 3 lines of text 14 characters max / 1 line of icons / 1 line of menus
- Built in 7.5 watt speaker
- Multiple control head configuration (up to 2)
- Multifunction volume/channel knob
- Night/day mode button

03 HAND HELD CONTROL HEAD

- Large color display with intelligent lighting
- 2 lines of text 14 characters max / 1 line of icons / 1 line of menus
- Integrated full size DTMF keypad
- Hand-held control head with intuitive user interface
- Two quick-access side buttons
- Display contrast selector

05 STANDARD CONTROL HEAD

- Tri-color display with intelligent lighting
- 2 lines of text 14 characters max / 1 line of icons / 1 line of menus
- Available with Keypad Microphone
- Multiple control head configuration (up to 2)
- Display contrast selector

07 ENHANCED CONTROL HEAD

- Large color display with intelligent lighting
- 3 lines of text 14 characters max / 1 line of icons / 1 line of menus
- Available with Lighting & Siren Controls or DTMF Keypad
- Multiple control head configuration (up to 2)
- Multifunction volume/channel knob
- Night/day mode button

RECEIVER – TYPICAL PERFORMANCE SPECIFICATIONS

		700 MHz	800 MHz	VHF		UHF Range 1		UHF Range 2	
Frequency Range/Bandsplits		764-776 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		25/12.5 kHz		25/12.5 kHz	
Maximum Frequency Separation		Full Bandsplit	Full Bandsplit	Full Bandsplit		Full Bandsplit		Full Bandsplit	
Audio Output Power at 3% distortion*		7.5 W or 15 W ++	7.5 W or 15 W ++	7.5 W or 15 W ++		7.5 W or 15 W ++		7.5 W or 15 W ++	
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	
Analog Sensitivity*	12 dB SINAD	-121 dBm	-121 dBm	Pre-Amp -123 dBm	Standard -119 dBm	Pre-Amp -123 dBm	Standard -119 dBm	Pre-Amp -123 dBm	Standard -119 dBm
Digital Sensitivity	5% BER	-121.5 dBm	-121.5 dBm	-123 dBm	-119 dBm	-123 dBm	-119 dBm	-123 dBm	-119 dBm
Intermodulation	25 kHz	82 dB	82 dB	84 dB	86 dB	82 dB	86 dB	82 dB	86 dB
	12.5 kHz	82 dB	82 dB	85 dB	86 dB	83 dB	85 dB	83 dB	85 dB
Spurious Rejection		91 dB	91 dB	95 dB		93 dB		93 dB	
Audio Distortion at rated*		1.20%	1.20%	1.20%		1.20%		1.20%	
FM Hum & Noise	25 kHz	59 dB	59 dB	59 dB		55 dB		57 dB	
	12.5 kHz	50 dB	50 dB	50 dB		50 dB		50 dB	
Selectivity*	25 kHz	85 dB	85 dB	85 dB		85 dB		85 dB	
	12.5 kHz	75 dB	75 dB	75 dB		75 dB		75 dB	
	30 kHz	—	—	90 dB		—		—	

SIGNALING (ASTRO MODE)

Signaling Rate	9.6 kbps
Digital ID Capacity	10,000,000 Conventional / 48,000 Trunking
Digital Network Access Codes	4,096 network site addresses
ASTRO® Digital User Group Addresses	4,096 network site addresses
Project 25 – CAI Digital User Group Addresses	65,000 Conventional / 4,094 Trunking
Error Correction Techniques	Golay, BCH, Reed-Solomon codes
Data Access Control	Slotted CSMA: Utilizes infrastructure-sourced data status bits embedded in both voice and data transmissions.

GPS SPECIFICATIONS

Channels	12
Tracking Sensitivity	–153 dBm
Accuracy**	<10 meters (95%)
Cold Start	<60 seconds (95%)
Hot Start	<10 seconds (95%)
Mode of Operation	Autonomous (Non-Assisted) GPS

POWER AND BATTERY DRAIN

Model Type	136-174 MHz, 380-470 MHz, 450-520 MHz, 764-870 MHz						
Minimum RF Power Output	10-35 Watt (764-870 MHz), 10-50 Watts or 25-100 Watts (136-174 MHz), 10-40W or 25-100 Watts (380-470 MHz), 10-45Watts (450-485 MHz), 10-40Watts (485-512 MHz), 10-25Watts (512-520 MHz)						
Operation	13.8V DC ±20% Negative Ground						
Standby at 13.8V	0.85A (764-870 MHz), 0.85A (136-174 MHz), 0.85A (380-470 MHz), 0.85A (450-520 MHz)						
Receive Current at Rated Audio at 13.8V	3.2A (764-870 MHz), 3.2A (136-174 MHz), 3.2A (380-470 MHz), 3.2A (450-520 MHz)						
Transmit Current (A) at Rated Power	136-174 MHz (10-50 Watt)	13A (50W)	8A (15W)	764-870 MHz (10-35 Watt)	12A (50W)	8A (15W)	
	380-470 MHz (10-40 Watt)	11A (40W)	8A (15W)	136-174 MHz (25-110 Watt)	20A (100W)		
	380-470 MHz (10-40 Watt)	11A (45W)	8A (15W)	380-470 MHz (25-110 Watt)	24A (100W)		

MOBILE 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./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/Hot	501.5	I-A1, II
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
Temperature Shock	503.1	1 Proc	503.2	I/A1C3	503.3	I/A1C3	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	1 Proc	509.2	1 Proc	509.3	1 Proc	509.4	1 Proc	509.5	1 Proc
Blowing Dust	510.1	I	510.2	I, II	510.3	I, II	510.4	I, II	510.5	I, II
Vibration	514.1w	VIII/F, Curve-W	514.3	I/10, II/3	514.4	I/10, II/3	514.5	I/24	514.6	I-cat.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

ENCRYPTION

Supported Encryption Algorithms	ADP, AES, DES, DES-XL, DES-OFB, DVP-XL
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)
Encryption Frame Re-sync Interval	P25 CAI 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

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-30°C / +60°C
Storage Temperature	-40°C / +85°C
Humidity	Per MIL-STD
ESD	IEC 801-2 KV
Water and Dust Intrusion	IP54, MIL-STD

FCC TYPE ACCEPTANCE ID

BAND	OUTPUT POWER	TRANSMITTER NUMBER
764-870 MHz	10-35 Watts	AZ492FT5858
136-174 MHz	25-100 Watts	AZ492FT3821
136-174 MHz	10-50 Watts	AZ492FT3824
380-470 MHz	10-40 Watts	AZ492FT4894
380-470 MHz	25-100 Watts	AZ492FT4897
450-520 MHz	10-45 Watts	AZ492FT4896

* Measured in the analog mode per TIA/EIA 603 under nominal conditions
** Accuracy specs are for long-term tracking
(95th percentile values >5 satellites visible at a nominal –130 dBm signal strength)
+ Specs includes performance for the non-GNSS/GNSS bands
++ Output power in to 8 and 3.2 Ohm external speakers respectively

Specifications subject to change without notice. All specifications shown are typical. Radio meets applicable regulatory requirements.

Motorola Solutions, Inc. 1301 E. Algonquin Road, Schaumburg, Illinois 60196 U.S.A. **www.motorolasolutions.com**

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R3-1-2047D

MOTOROLA

Exhibit D

PROPOSAL TO
HIDALGO COUNTY, TEXAS

SECTION 5

EXHIBIT D: MOTOROLA/H-GAC RADIO COMMUNICATIONS EQUIPMENT & SYSTEMS AGREEMENT

P25 MIGRATION CONTRACT BOOK **28 SEPTEMBER 2012**

MOTOROLA

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Section 5

Exhibit D: Motorola/H-GAC Radio Communications Equipment & Systems Agreement.....5-1

SECTION 5

EXHIBIT D: MOTOROLA/H-GAC RADIO COMMUNICATIONS EQUIPMENT & SYSTEMS AGREEMENT

The Exhibit D: Motorola/H-GAC Radio Communications Equipment & Systems Agreement is included on the following pages.

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Exhibit D

Motorola/H-GAC Radio Communications Equipment & Systems Agreement

Exhibit E

PROPOSAL TO
HIDALGO COUNTY, TEXAS

SECTION 6

EXHIBIT E: SERVICE TERMS AND CONDITIONS

P25 MIGRATION CONTRACT BOOK **28 SEPTEMBER 2012**

MOTOROLA

The design, technical, and cost information furnished with this proposal is proprietary information of Motorola Solutions, Inc. (Motorola). Such information is submitted with the restriction that it is to be used only for the evaluation of the proposal, and is not to be disclosed publicly or in any manner to anyone other than those required to evaluate the proposal, without the express written permission of Motorola Solutions, Inc.

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Section 6

Exhibit E: Service Terms and Conditions.....6-1

SECTION 6

EXHIBIT E: SERVICE TERMS AND CONDITIONS

Service Terms and Conditions are included on the following pages.

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Exhibit E

Service Terms and Conditions

Motorola Solutions, Inc. ("Motorola") and the customer named in this Agreement ("Customer") hereby agree as follows:

Section 1 APPLICABILITY

These Service Terms and Conditions apply to service contracts whereby Motorola will provide to Customer either (1) maintenance, support and/or other services under a Motorola Service Agreement, or (2) installation services under a Motorola Installation Agreement.

Section 2 DEFINITIONS AND INTERPRETATION

2.1 "Agreement" means these Service Terms and Conditions; the cover page for the Service Agreement or the Installation Agreement, as applicable; and any other attachments, all of which are incorporated herein by this reference. In interpreting this Agreement and resolving any ambiguities, these Service Terms and Conditions take precedence over any cover page, and the cover page takes precedence over any attachments, unless the cover page or attachment states otherwise.

2.2 "Equipment" means the equipment that is specified in the attachments or is subsequently added to this Agreement.

2.3 "Services" means those installation, maintenance, support, training, and other services described in this Agreement.

Section 3 ACCEPTANCE

Customer accepts these Service Terms and Conditions and agrees to pay the prices set forth in the Agreement. This Agreement becomes binding only when accepted in writing by Motorola. The term of this Agreement begins on the "Start Date" indicated in this Agreement.

Section 4 SCOPE OF SERVICES

4.1. Motorola will provide the Services described in this Agreement or in a more detailed statement of work or other document attached to this Agreement. At Customer's request, Motorola may also provide additional services at Motorola's then-applicable rates for the services.

4.2. If Motorola is providing Services for Equipment, Motorola parts or parts of equal quality will be used; the Equipment will be serviced at levels set forth in the manufacturer's product manuals; and routine service procedures that are prescribed by Motorola will be followed.

4.3. If Customer purchases from Motorola additional equipment that becomes part of the same system as the initial Equipment, the additional equipment may be added to this Agreement and will be billed at the applicable rates after the warranty for the additional equipment expires.

4.4. All Equipment must be in good working order on the Start Date or when additional equipment is added to the Agreement. Upon reasonable request by Motorola, Customer will provide a complete serial and model number list of the Equipment. Customer must promptly notify Motorola in writing when any Equipment is lost, damaged, stolen or taken out of service. Customer's obligation to pay Service fees for such Equipment will terminate at the end of the month in which Motorola receives the written notice.

4.5. Customer must specifically identify any Equipment that is labeled intrinsically safe for use in hazardous environments.

4.6. If Equipment cannot, in Motorola's reasonable opinion, be properly or economically serviced for any reason, Motorola may modify the scope of Services related to such Equipment; remove that Equipment from the Agreement; or increase the price to Service such Equipment.

4.7. Customer must promptly notify Motorola of any Equipment failure. Motorola will respond to Customer's notification in a manner consistent with the level of Service purchased as indicated in this Agreement.

Section 5 EXCLUDED SERVICES

5.1. Service excludes the repair or replacement of Equipment that has become defective or damaged from use in other than the normal, customary, intended, and authorized manner; use not in compliance with applicable industry standards; excessive wear and tear; or accident, liquids, power surges, neglect, acts of God or other force majeure events.

5.2. Unless specifically included in this Agreement, Service excludes items that are consumed in the normal operation of the Equipment, such as batteries or magnetic tapes.; upgrading or reprogramming Equipment; accessories, belt clips, battery chargers, custom or special products, modified units, or software; and repair or maintenance of any transmission line, antenna, microwave equipment, tower or tower lighting, duplexer, combiner, or multicoupler. Motorola has no obligations for any transmission medium, such as telephone lines, computer networks, the internet or the worldwide web, or for Equipment malfunction caused by such transmission medium.

Section 6 TIME AND PLACE OF SERVICE

Service will be provided at the location specified in this Agreement. When Motorola performs service at Customer's location, Customer will provide Motorola, at no charge, a non-hazardous work environment with adequate shelter, heat, light, and power and with full and free access to the Equipment. Waivers of liability from Motorola or its subcontractors will not be imposed as a site access requirement. Customer will provide all information pertaining to the hardware and software elements of any system with which the Equipment is interfacing so that Motorola may perform its Services. Unless otherwise stated in this Agreement, the hours of Service will be 8:30 a.m. to 4:30 p.m., local time, excluding weekends and holidays. Unless otherwise stated in this Agreement, the price for the Services exclude any charges or expenses associated with helicopter or other unusual access requirements; if these charges or expenses are reasonably incurred by Motorola in rendering the Services, Customer agrees to reimburse Motorola for those charges and expenses.

Section 7 CUSTOMER Contact

Customer will provide Motorola with designated points of contact (list of names and phone numbers) that will be available twenty-four (24) hours per day, seven (7) days per week, and an escalation procedure to enable Customer's personnel to maintain contact, as needed, with Motorola.

Section 8 PAYMENT

Unless alternative payment terms are stated in this Agreement, Motorola will invoice Customer in advance for each payment period. All other charges will be billed monthly, and Customer must pay each invoice in U.S. dollars within thirty (30) days of the invoice date. Customer will reimburse Motorola for all property taxes, sales and use taxes, excise taxes, and other taxes or assessments that are levied as a result of Services rendered under this Agreement (except income, profit, and franchise taxes of Motorola) by any governmental entity.

Section 9 WARRANTY

Motorola warrants that its Services under this Agreement will be free of defects in materials and workmanship for a period of ninety (90) days from the date the performance of the Services are completed. In the event of a breach of this warranty, Customer's sole remedy is to require Motorola to re-perform the non-conforming Service or to refund, on a pro-rata basis, the fees paid for the non-conforming Service. MOTOROLA DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Section 10 DEFAULT/TERMINATION

10.1. If either party defaults in the performance of this Agreement, the other party will give to the non-performing party a written and detailed notice of the default. The non-performing party will have thirty (30) days thereafter to provide a written plan to cure the default that is acceptable to the other party and begin implementing the cure plan immediately after plan approval. If the non-performing party fails to provide or implement the cure plan, then the injured party, in addition to any other rights available to it under law, may immediately terminate this Agreement effective upon giving a written notice of termination to the defaulting party.

10.2. Any termination of this Agreement will not relieve either party of obligations previously incurred pursuant to this Agreement, including payments which may be due and owing at the time of termination. All sums owed by Customer to Motorola will become due and payable immediately upon termination of this Agreement. Upon the effective date of termination, Motorola will have no further obligation to provide Services.

Section 11 LIMITATION OF LIABILITY

Except for personal injury or death, Motorola's total liability, whether for breach of contract, warranty, negligence, strict liability in tort, or otherwise, will be limited to the direct damages recoverable under law, but not to exceed the price of twelve (12) months of Service provided under this Agreement. ALTHOUGH THE PARTIES ACKNOWLEDGE THE POSSIBILITY OF SUCH LOSSES OR DAMAGES, THEY AGREE THAT MOTOROLA WILL NOT BE LIABLE FOR ANY COMMERCIAL LOSS; INCONVENIENCE; LOSS OF USE, TIME, DATA, GOOD WILL, REVENUES, PROFITS OR SAVINGS; OR OTHER SPECIAL, INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES IN ANY WAY RELATED TO OR ARISING FROM THIS AGREEMENT OR THE PERFORMANCE OF SERVICES BY MOTOROLA PURSUANT TO THIS AGREEMENT. No action for contract breach or otherwise relating to the transactions contemplated by this Agreement may be brought more than two (2) years after the accrual of such cause of action, except for money due upon an open account. This limitation of liability will survive the expiration or termination of this Agreement and applies notwithstanding any contrary provision.

Section 12 EXCLUSIVE TERMS AND CONDITIONS

12.1. This Agreement supersedes all prior and concurrent agreements and understandings between the parties, whether written or oral, related to the Services, and there are no agreements or representations concerning the subject matter of this Agreement except for those expressed herein. The Agreement may not be amended or modified except by a written agreement signed by authorized representatives of both parties.

12.2. Customer agrees to reference this Agreement on any purchase order issued in furtherance of this Agreement, however, an omission of the reference to this Agreement will not affect its applicability. In no event will either party be bound by any terms contained in a Customer purchase order, acknowledgement, or other writing unless: the purchase order, acknowledgement, or other writing specifically refers to this Agreement; clearly indicate the intention of both parties to override and modify this Agreement; and the purchase order, acknowledgement, or other writing is signed by authorized representatives of both parties.

Section 13 PROPRIETARY INFORMATION; CONFIDENTIALITY; INTELLECTUAL PROPERTY RIGHTS

13.1. Any information or data in the form of specifications, drawings, reprints, technical information or otherwise furnished to Customer under this Agreement will remain Motorola's property, will be deemed proprietary, will be kept confidential, and will be promptly returned at Motorola's request. Customer may not disclose, without Motorola's written permission or as required by law, any confidential information or data to any person, or use confidential information or data for any purpose other than performing its obligations under this Agreement. The obligations set forth in this Section survive the expiration or termination of this Agreement.

13.2. Unless otherwise agreed in writing, no commercial, financial or technical information disclosed in any manner or at any time by Customer to Motorola will be deemed secret or confidential. Motorola will have no obligation to provide Customer with access to its confidential and proprietary information, including cost and pricing data.

13.3. This Agreement does not grant directly or by implication, estoppel, or otherwise, any ownership right or license under any Motorola patent, copyright, trade secret, or other intellectual property including any intellectual property created as a result of or related to the Equipment sold or Services performed under this Agreement.

Section 14 FCC LICENSES AND OTHER AUTHORIZATIONS

Customer is solely responsible for obtaining licenses or other authorizations required by the Federal Communications Commission or any other federal, state, or local government agency and for complying

with all rules and regulations required by such agencies. Neither Motorola nor any of its employees is an agent or representative of Customer in any governmental matters.

Section 15 COVENANT NOT TO EMPLOY

During the term of this Agreement and continuing for a period of two (2) years thereafter, Customer will not hire, engage on contract, solicit the employment of, or recommend employment to any third party of any employee of Motorola or its subcontractors without the prior written authorization of Motorola. This provision applies only to those employees of Motorola or its subcontractors who are responsible for rendering services under this Agreement. If this provision is found to be overly broad under applicable law, it shall be modified as necessary to conform to such law.

Section 16 MATERIALS, TOOLS AND EQUIPMENT

All tools, equipment, dies, gauges, models, drawings or other materials paid for or furnished by Motorola for the purpose of this Agreement will be and remain the sole property of Motorola. Customer will safeguard all such property while it is in Customer's custody or control, be liable for any loss or damage to this property, and return it to Motorola upon request. This property will be held by Customer for Motorola's use without charge and may be removed from Customer's premises by Motorola at any time without restriction.

Section 17 GENERAL TERMS

17.1. If any court renders any portion of this Agreement unenforceable, the remaining terms will continue in full force and effect.

17.2. This Agreement and the rights and duties of the parties will be governed and interpreted in accordance with the laws of the State of Texas.

17.3. Failure to exercise any right will not operate as a waiver of that right, power, or privilege.

17.4. Neither party is liable for delays or lack of performance resulting from any causes that are beyond that party's reasonable control, such as strikes, material shortages, or acts of God.

17.5. Motorola may assign its rights and obligations, and may subcontract any portion of its performance, under this Agreement.

17.6. **If Motorola provides Services after the termination or expiration of this Agreement, the terms and conditions in effect at the time of the termination or expiration will apply to those Services and Customer agrees to pay for those services on a time and materials basis at Motorola's then effective hourly rates.**