PURCHASE OF TWO-WAY RADIOS

CITY OF RAPID CITY
300 Sixth Street
Rapid City, South Dakota 57701

June 15, 2021

Steve Allender, Mayor

Council Members

John Roberts
Bill Evans
Ritchie Nordstrom
Greg Strommen
Pat Jones

Lance Lehmann
Darla Drew
Laura Armstrong
Jason Salamun

CONTACT PERSON

Megan Gould
Rapid Transit System
(605) 394-6631
NOTICE FOR BIDS FOR THE PURCHASE OF THIRTY-SEVEN (37) TWO-WAY RADIOS

Notice is hereby given that sealed bids will be received by the Rapid City Common Council for the City of Rapid City, South Dakota, until 2:00 P.M. on June 15, 2021, at the Rapid City Finance Office in the City Hall building, 300 Sixth Street, Rapid City, South Dakota 57701, at which time they will be publicly opened and read. The two-way radios are to be used by the City of Rapid City for the purpose of providing upgraded communication system to follow the South Dakota’s State P25 upgrade requirements.

Specifications may be obtained at the Rapid Transit System Office, 333 Sixth Street, Rapid City, South Dakota 57701 or online at https://www.publicpurchase.com/.

The award of this contract shall be subject to the concurrence of the U.S. Department of Transportation (DOT). To be eligible to execute a contract, bidders will be required to comply with Federal requirements.

The purchase of these radios is subject to a "Financial Assistance Contract" between the South Dakota Department of Transportation, City of Rapid City and the Federal Transit Administration. The City reserves the right to reject any or all bids, or to waive any informality and to accept the bid that is to the advantage of and is in the best interest of the City of Rapid City.

Pauline Sumption
City of Rapid City Finance Director
INFORMATION AND INSTRUCTIONS TO BIDDERS

2.1 BID REQUIREMENTS:

All bids must be made on the forms provided in the bound copy of the specification and contract stipulations hereto attached. All proposals must be legibly written in ink, with all prices given in words and figures, and the written words shall govern. No alterations in proposals or in the printed forms will be permitted. Each bid (in its bound form as furnished by the City) shall be enclosed in a sealed envelope, addressed to the City Finance Officer, Rapid City, South Dakota, and endorsed on the outside with the Bidder's name and with the words, "Sealed Bid for THIRTY-SEVEN (37) TWO-WAY RADIOS." It must be filed at the Rapid City Finance Office (300 6th Street, Rapid City SD 57701) prior to the hour set for opening of the bids.

Bids shall be strictly in accordance with the prescribed forms. Bids carrying riders or qualifications of the bids, as submitted, may be rejected. The bids shall be based on the Contractor furnishing all of the necessary labor, tools, materials and equipment to fully construct the work in accordance with the specifications.

Each bid must be accompanied by a ten (10) percent Bid Bond, which can be a certified check or cashier's check to be certified or issued by either a State or National Bank and payable to the City of Rapid City, South Dakota, as a guarantee of the Bidder entering into the contract, and for performing under the contract provisions for supplying THIRTY-SEVEN (37) TWO-WAY RADIOS. All certified checks or bonds of the unsuccessful bidders will be returned within 30 days after the bids have been opened.

The bid guarantee shall be made payable (without conditions) to the City of Rapid City. The check will be retained by and forfeited to said Owner if such successful bidder fails to complete the contract.

Each bid must be signed in ink by the Bidder with his full name and address. In the case of a firm, the name and residence of each member must be inserted, and in case the bid is submitted by or in behalf of a corporation, it must be signed in the name of such corporation by an official authorized to bind the Bidder. No bidder may submit more than one bid. Two or more bids under different names will not be received from one firm or association.

2.2 ADDENDA AND INTERPRETATIONS:

Every request for such interpretation should be in writing, addressed to the Rapid Transit System at 333 Sixth Street, Rapid City, South Dakota 57701, and to be given consideration, it must be received at least seven (7) days prior to the date fixed for the opening of the bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which, if issued, will be mailed by certified mail with return receipt requested or personal delivery to all prospective bidders at the respective addresses furnished for such
purposes. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the contract documents.

2.3 TIME OF COMPLETION:

The time of completion of the work is of vital importance, and the Contractor will be required to complete the work within the time stipulated in the bid. It will be necessary for the Bidder to satisfy the Owner of his ability to execute the work within the stipulated time.

2.4 MODIFICATION OF BIDS:

No modification of bids already submitted will be considered unless such modifications are received prior to the hour set for opening. Telegraphic modifications will be rejected unless they conform to SDCL 5-18-8 and are confirmed in writing over signature of the Bidder within forty-eight (48) hours of the time set.

2.5 WITHDRAWAL OF BID:

A bidder may withdraw his bid at any time prior to the expiration of the period during which bids may be submitted. Bids may be withdrawn by letter, telegraphic communication, or in person before the time specified in the advertised notice. No bidder may withdraw a bid after the date and hour set for bid opening as noted in the advertised notice.

2.6 REJECTION OF BIDS:

The Owner reserves the right to award the work as is most advantageous to the City, or reject any or all bids.

2.7 BOND REQUIREMENTS:

The contractor to whom the work is awarded will have his Bid Bond returned at the time of delivery and acceptance of the transit vehicle by the City of Rapid City. Should the Contractor fail to perform as required in the Contract and Specifications, the Bid Bond will be retained by the City of Rapid City.

2.8 BOUND COPY OF CONTRACT DOCUMENT:

None of the Notice, Instruction to Bidders, Proposal, Insurance, Bid Bond, General Conditions, Special Conditions, Detailed Specifications and Addenda shall be removed from the bound copy of the Contract Documents prior to filing same.

2.9 CONTRACT AWARD:

No contract or other contract documents shall be executed until the proposal and qualifications of bidders have been examined and the award of the contract authorized by the Owner. No such
document shall be effective until it has been approved by the Owner as to final execution.

2.10 DEVIATIONS OR VARIATIONS:

The City's intent is to obtain a reasonable bid from all interested bidders. If, for any reason, bidders are unable to meet or equal the following specifications, the City will receive for consideration minor deviations of specifications. Deviations and variations of specifications must be fully detailed and explained by the Bidder in a letter and received by the City no later than seven (7) days prior to bid opening. The City of Rapid City will respond within two (2) days, either approving or denying the deviations or variations in the same manner as Section 2.2 ("Addenda and Interpretations").

All bids must be accompanied by literature completely describing the THIRTY-SEVEN (37) TWO-WAY RADIOS to be furnished. Each bidder must be a certified dealer authorized by the manufacturer he/she represents. Each bid shall contain a dealer and/or factory warranty as a guarantee of the product to be furnished, the "Buy America" Certificate, period of time the prices are effective, delivery and completion time of installation.

The bidder's equipment offered must be of equal or better than that specified by the purchaser. The equipment offered by the bidder must also be the latest model available. All bidders shall have the necessary authorized dealers to give proper service checks and to make repairs and replacement should they be necessary.

2.11 APPROVED EQUALS:

Requests for approved equals, clarification of specifications, and protest of specifications must be received by the City in writing not less than seven (7) full days before the date of scheduled bid opening. Any request for an approved equal, or protest of the specifications must be fully supported with technical data, test results, or other pertinent information as evidence that the substitute offered is equal to or better than the specification requirement.

2.12 BID PROTESTS:

Any bid protest must be done in accordance with FTA Circular 4220.1F. (See Appendix A for details on City's written Bid Protest Procedures.)
BIDDER’S PROPOSAL FOR
THIRTY-EIGHT (38) TWO-WAY RADIOS

PLACE: Rapid City, SD
DATE: June 14, 2021

TO: Common Council
Rapid City, South Dakota

Ladies & Gentlemen:

In compliance with your invitation for bids to furnish THIRTY-SEVEN (37) TWO-WAY RADIOS installed and ready for use, as shown by the detailed plans and specifications as prepared by the Rapid Transit System and now on file in the Office of the City Finance Officer, Rapid City, South Dakota, the undersigned Bidder: Western Communications, Inc.

(1). A Corporation originated and existing under the Laws of the State of South Dakota.

(2). A Partnership consisting of ____________________________

Having examined the detailed specifications and contract with bond hereto attached and being fully advised of the materials to be furnished and the work to be done in providing THIRTY-SEVEN (37) TWO-WAY RADIOS, hereby proposes to furnish the equipment and do all the work as specified to fully complete said vehicles according to specifications at the following unit prices, to-wit:

<table>
<thead>
<tr>
<th>Description</th>
<th>Unit Price</th>
<th>Extended Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two (2) Motorola two-way handhels</td>
<td>$2,239.75</td>
<td>$4,479.50</td>
</tr>
<tr>
<td></td>
<td>Two Thousand two hundred thirty nine dollars and seventy five cents.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Four Thousand four hundred seventy nine dollars and fifty cents.</td>
<td></td>
</tr>
<tr>
<td>Two (2) Motorola Desk top single unit chargers</td>
<td>$57.00</td>
<td>$114.00</td>
</tr>
<tr>
<td></td>
<td>Fifty seven dollars</td>
<td>One hundred fourteen dollars</td>
</tr>
<tr>
<td>Thirty five (35) Motorola mobile two-way radios</td>
<td>$2,799.44</td>
<td>$97,980.40</td>
</tr>
<tr>
<td></td>
<td>Two thousand seven hundred ninety dollars and forty four cents.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ninety seven thousand nine hundred eighty dollars and forty cents.</td>
<td></td>
</tr>
</tbody>
</table>
BID SHEET
THIRTY-SEVEN (37) TWO-WAY RADIOS

<table>
<thead>
<tr>
<th></th>
<th>Unit Price</th>
<th>Extended Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>THIRTY-SEVEN (37) TWO-WAY RADIOS</td>
<td>$_______</td>
<td>$102,573.90</td>
</tr>
<tr>
<td>Less trade in of Thirty-six (36) Motorola two-way radios</td>
<td>$_______</td>
<td>$0.00</td>
</tr>
<tr>
<td>Total Net Bid for THIRTY-SEVEN (37) TWO-WAY RADIOS</td>
<td>$_______</td>
<td>$102,573.90</td>
</tr>
</tbody>
</table>

One hundred two thousand, five hundred seventy three dollars and ninety cents

Brand Name of Radio & Year  Motorola 2021

Delivery Date  September 3, 2021

Radio Warranty  Three years

Proposed Warranty/Service Facilities  Motorola Service Depot

(Letter must be attached)

The within Bidder’s Proposal is based upon the conditions and stipulations within the Contract Documents named in Section 6.2 and shall be considered a part of this contract as if written herein at length. Time is of the essence. The work to be performed under this contract shall be commenced upon award of this contract and must be completed within NINETY (90) calendar days.

The said Bidder further agrees and states that he has read the advertisement calling for bids, has studied the Contract Documents, is familiar with the terms and conditions stipulated therein, agrees to enter into the attached Contract and acknowledges receipt of the following Addenda.

Western Communications, Inc.
NAME OF COMPANY
(Party of the Second Part)
BIDDER MUST FILL IN ALL SPACES PROVIDED ABOVE
CONTRACT BETWEEN
CONTRACTOR AND
CITY OF RAPID CITY

This Agreement, made the 21st day of June, 2021, by and between Western Communications, Inc. hereinafter called the "Party of the Second Part" (Contractor), and the CITY OF RAPID CITY, SOUTH DAKOTA, hereinafter called the "Party of the First Part," WITNESSETH:

That the "Party of the Second Part" (Contractor) and the "Party of the First Part" for the consideration hereinafter named agree as follows:

ARTICLE 1: SCOPE OF WORK

The "Party of the Second Part" (Contractor) shall furnish all of the materials, labor, and perform all of the work as described in the specifications (prepared by the Rapid Transit System, Rapid City, South Dakota) for providing THIRTY-SEVEN (37) TWO-WAY RADIOS and shall be everything required by the Contract, Notice, General Conditions, Special Conditions, and Detailed Specifications, which are hereby made a part of the Contract, including the following Addenda:

ADDENDUM NO DATED


ARTICLE 2: TIME OF COMPLETION

The work to be performed under this Contract shall be commenced upon award of this contract and must be completed within ninety (90) calendar days. Requests for time extensions shall be made in writing to the Rapid Transit System as soon as possible before the project completion date. All time extensions will be issued by the Owner through the Rapid Transit System and will be granted only for good cause beyond the control of the Contractor. Failure of Contractor to secure chassis in a timely manner shall not constitute good cause.

ARTICLE 3: THE CONTRACT SUM

The "Party of the First Part" shall pay the "Party of the Second Part" (Contractor) for the performance of the Contract, subject to additions and deductions provided therein, in the current funds as follows:

One hundred two thousand five hundred (102,573.90)
Dollars
ARTICLE 4: ACCEPTANCE AND FINAL PAYMENT

Upon completion of all work under this Contract, the individual or department specified in Article 2 for making time extensions shall satisfy itself by examination that the work has been finally and fully completed in accordance with the specifications and contract and report such completion to the Owner. The Contractor must complete and return a proper City Voucher, and payment will be made on said voucher as soon as possible after approval by the Common Council.

ARTICLE 5: THE CONTRACT DOCUMENTS

The Notice for Bids, Bid Bond, General Conditions, Special Conditions, Addenda and the Specifications together with this Agreement, form the Contract and all are as fully a part of the Contract as if hereto attached or herein repeated.

The said "Party of the Second Part" further agrees and states that he has read the advertisement calling for bids and has studied the Detailed Specifications and that he is familiar with the terms and conditions stipulated therein.

IN WITNESS WHEREOF: The CITY OF RAPID CITY, SOUTH DAKOTA ("Party of the First Part"), its Common Council having duly approved this Contract, has caused this Contract to be executed in its behalf by its Mayor, thereunto duly authorized, attested thereto by its Finance Officer and has hereto attached its corporate seal this _________________ day of _________________, 2021.

ATTEST:

______________________________
Pauline Sumption
City Finance Director

______________________________
Steve Allender, Mayor
Party of the First Part

______________________________
Date: ____________________________

______________________________
NAME
OF COMPANY
Party of the Second Part

______________________________
(CORPORATE SEAL)
By: ____________________________

______________________________
Its: ____________________________
Title

______________________________
Address: _________________________

______________________________
Date: ____________________________
ARTICLE 6: GENERAL CONDITIONS

6.1 SCOPE:

That the Contractor shall, in good and first-class workmanlike manner and at his own cost and expense, furnish all of the labor, tools, materials, and equipment necessary to complete ready for use all of the work as designated and as described by the Specifications, Contract Stipulation, Notice, Instruction to Bidders, Bid on file with the Finance Officer of the City of Rapid City, Rapid City, South Dakota, all of which Contract Documents form the Contract and are as fully a part thereof as if repeated verbatim herein, all the work done to be under the direct supervision and to the entire satisfaction of the Public Works Department and the Owner, and in accordance with the Laws of the State of South Dakota.

6.2 CONTRACT DOCUMENTS:

It is to be understood and agreed that the work shall be done fully in accordance with this Contract which includes: Notice, Instructions to Bidders, Bid, Bid Bond, General Conditions, Special Conditions, Detailed Specifications and Addenda. Detailed plans and/or specifications that are furnished by the Contractor to clarify or define the Owner's Contract must be approved by the Public Works Department. Upon approval, said plans and/or specifications shall be considered a part of this Contract.

6.3 DEFINITIONS:

That whenever any word or expression defined in this Article, or pronoun used in its stead, occurs in these documents, it shall have and is mutually understood to have the meaning herein given:

a. "Contract" or "Contract Documents" shall include all of the documents and plans enumerated in Section 6.2.

b. "Owner" or the words, "Party of the First Part," shall mean the City of Rapid City, acting through its Common Council.

c. "Contractor" or the words "Party of the Second Part," shall mean the party entering into contract for the performance of the work covered by this Contract and his duly authorized agents or legal representatives.

d. "Date of Signing of the Contract" or words equivalent thereto, shall mean the date upon which this Contract, executed by the Contractor, is signed by the Owner.

e. "Day" or "Days," unless herein otherwise expressly defined, shall mean a calendar day or days of twenty-four (24) hours each.

f. "Work" shall mean the furnishing of all labor, materials, equipment and other
incidentals necessary to the successful completion for the project.

"Written Notice" shall be deemed to have been duly served if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered mail to the last business known to him who gives the "Notice."

h. All time limits stated in the Contract Documents are of the essence.

6.4 VERBAL STATEMENTS NOT BINDING:

It is understood and agreed that the written terms and provisions of this Agreement shall supersede all prior verbal statements of the Officials, Rapid Transit System, or other representatives of the City, and such statements shall not be effective or be construed as entering into, or forming a part of, or altering in any way whatsoever the written Agreement.

6.5 SUBHEADINGS AND TITLES:

The titles of subheadings used in this contract and on the specifications, are understood to be for convenience or reference only, and shall not be taken or considered as being a part thereof, or as having any bearing on the interpretation thereof.

6.6 COPIES OF CONTRACT:

Not less than two (2) copies (and as many more as may be required) of the bound volumes of the proposal, contract, and specifications shall be prepared, and each shall contain an exact copy of the Contract signed by both parties thereto. Additional copies shall be filed where and as may be required.

6.7 SCOPE, NATURE AND INTENT OF CONTRACT PLANS AND SPECIFICATIONS:

The said Specifications and Contract are intended to supplement, but not necessarily duplicate each other, and together constitute one complete set, so that any work covered in the one and not in the other shall be executed just as if it had been set forth in the Contract in order that the work shall be completed according to the specifications decided and determined by the Rapid Transit System. Should anything be omitted from the specifications, plans, and contract which are necessary to clear understanding of the work, or should it appear various instructions are in conflict, the Contractor shall secure written instructions from the Rapid Transit System before proceeding with the construction affected by such omissions or discrepancies. It is understood and agreed that the work shall be performed and completed according to the true spirit, meaning, and intent of the contract and specifications.
6.8 RESPONSIBILITY OF CONTRACTOR:

General Responsibility - The Contractor shall furnish all transportation, ways, works, machinery, and plant and all suitable appliances required for the safe, proper, and lawful construction, maintenance, and use thereof. He shall cover and protect his work from damage and all injury to the same. Before the completion and acceptance of this contract he shall be solely answerable for all damage to the Owner, or the property of the Owner, to other contractors, or other employees of the Owner, to the neighboring premises, or to any private or personal property, due to improper, illegal, or negligent conduct of himself or his subcontractors, employees or agents in and about said work, or in the execution of the work covered by this Contract or any extra work undertaken herein provided, or to any defect in, or the improper use of, any scaffolding, shoring, apparatus, ways, works, machinery or plant, he shall indemnify and save harmless the Owner and its officers and agents from all claims relating to labor and materials furnished for the work.

6.9 CONTRACTOR LIABILITY INSURANCE:

The Contractor shall maintain insurance as will protect him from claims under workmen's compensation acts and from any other claims for damages for personal injury, including death, which may arise from or by any subcontractor or anyone directly or indirectly employed by either of them.

6.10 GUARANTEES:

The Contractor guarantees to complete the project as specified and agree that loss as a result of any occurrence shall not relieve them of their obligation. If, for any reason (including but not limited to: bankruptcy, plant closure, or embargo), it becomes apparent to the City that delivery of the completed THIRTY-SEVEN (37) TWO-WAY RADIOS is not possible within thirty (30) days subsequent the NINETY (90) days after Contractor receives notice to proceed, the City reserves the right to deem the Contractor in default, terminate the contract, and forfeit the surety bond. Although the City may have the right to deem Contractor in default, it may, in its absolute discretion, waive such default.

6.11 CLAIMS AND DAMAGES:

Any claim for damage arising under this contract shall be made in writing to the party liable, within a reasonable time of the first observance of such damage, and not later than the time of final payment, except as expressly stipulated otherwise in the case of faulty work or materials, and shall be adjusted by agreement or by arbitration.

6.12 WAIVER OF RIGHTS:

Neither the inspection by the Owner or the Rapid Transit System or any of their employees, nor any order by the Owner for payment of money, nor any payment for, or acceptance of, the whole or any part of the equipment, material, or work by the Owner or the Rapid Transit System, nor any extension of time, nor any possession taken by the Owner or its
employees, shall operate as a waiver of any provision of this Contract, or of any power herein reserved to the Owner or any right to damages herein provided, nor shall any waiver or any breach in this Contract be held to be a waiver of any other or subsequent breach.
# TIMELINES FOR REQUEST FOR BIDS

## REQUEST FOR BID TIMELINES

<table>
<thead>
<tr>
<th>DATE</th>
<th>DAY</th>
<th>TIME-MDT</th>
<th>EVENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>05/29/2021</td>
<td>Saturday</td>
<td>~</td>
<td>Legal Notice/Ad</td>
</tr>
<tr>
<td>06/05/2021</td>
<td>Saturday</td>
<td>~</td>
<td>Legal Notice/Ad</td>
</tr>
<tr>
<td>06/08/2021</td>
<td>Tuesday</td>
<td>4:00 p.m.</td>
<td>Request for Approved Equals Due</td>
</tr>
<tr>
<td>06/15/2021</td>
<td>Tuesday</td>
<td>2:00 p.m.</td>
<td>Public Bid Opening</td>
</tr>
</tbody>
</table>

**PLEASE SUBMIT TWO (2) COPIES OF BID, PROPOSAL AND DOCUMENTATION.**

**EQUALS AND CLARIFICATIONS** Bidders and suppliers must submit to the City Finance office requests for approved equals and clarifications of specifications provided that such requests for approved equals and clarifications of specifications are:

1. Submitted in writing and received by City of Rapid City Finance office no later than Tuesday, June 08, 2021, 4 p.m. MDT as identified in the Timelines for TWO-WAY RADIOS request for bids and;

2. Supported by evidence such as technical data, test results, or other pertinent information that demonstrates that the substitute offered is equal to or better than the specification requirement.
City of Rapid City  
Bid Specifications  
Two-Way Radios

<table>
<thead>
<tr>
<th>Item #</th>
<th>Quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>35</td>
<td>Enhanced VHF mobile radios or approved equal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dash mounts O2,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>P25 9600 Trunking with Interoperability</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Auxiliary speaker 7.5 watt</td>
</tr>
<tr>
<td></td>
<td></td>
<td>O2 Channel</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Microphone</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Portable radios or approved equal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>P25 9600 BAUD Trunking with Interoperability</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>Charger Desktop Single Unit, US/NA or approved equal</td>
</tr>
</tbody>
</table>

Miscellaneous Information

Rapid Transit System two-way radios currently operate off of South Dakota’s State Project 25 (P25) Radio Network Operating System. South Dakota State is upgrading the P25 system, so Rapid Transit System will need to upgrade all two-way radios to meet the new requirements. The bidders are advised that the radio equipment will need to be installed and programmed to this radio system. During this time all existing radio equipment will continue to be used until the project is complete.
APPENDIX A
RAPID CITY, SOUTH DAKOTA
WRITTEN BID PROTEST PROCEDURES

PROTEST PROCEDURES

In accordance with the Federal Transit Authority (FTA), an agency of the United States Department of Transportation, the following are procedures which shall be used to protest a solicitation, contract, or procurement issued by the City of Rapid City.

Any proposer who is aggrieved in connection with any pre-award matters of a contract or procurement may protest such matters provided that ten (10) copies of a full and complete written statement specifying in detail the grounds of the protest and facts supporting the protest are received by the City Finance Director no later than seven (7) calendar days prior to the award of the contract.

The City Attorney shall have the authority to settle and resolve a protest of any aggrieved proposer concerning the solicitation or award of a contract or procurement.

The City of Rapid City may, at its discretion, submit a response or reply to any material issues raised in the protests.

If the protest is not resolved by mutual agreement, the City Finance Director or his designee with concurrence of the City Attorney shall, within fourteen (14) days of the protest, issue a decision in writing. The decision shall:

1) State the reason for the action taken; and
2) Inform the protestor of their right to administrative and judicial review.

A copy of an issued decision shall be mailed or otherwise furnished in a timely manner to the protestor and any other intervening party. The decision of the City Finance Director shall be final and conclusive unless:

1) The decision is fraudulent, or
2) The person adversely affected by the decision has submitted an administrative appeal to the Rapid City Common Council within seven (7) days of the decision of the City Finance Director.

In the event a timely protest is received under these regulations, the City of Rapid City shall not proceed further with the solicitation or with the awarding of the contract or procurement unless the City Finance Director, with concurrence of the City Attorney, makes a written determination
that:

1) The items to be procured are urgently required;
2) Delivery or performance will be unduly delayed by failure to make the award promptly; or
3) Failure to make prompt award will otherwise cause undue harm to the Rapid Transit System or the Federal Government.

On any appeal of the decision of the City Finance Director, the City of Rapid City’s Common Council shall decide within fourteen (14) days whether the solicitation or award was made in accordance with applicable law and the terms and conditions of the solicitation award.

A copy of the City of Rapid City Common Council’s decision shall be mailed or otherwise furnished in a timely manner to the protestor or any other intervening party.

The decision of the City of Rapid City Common Council shall be final and conclusive unless:

1) The decision is fraudulent; or

2) In accordance with FTA Circular 4220.1F, the proposer adversely affected by the decision has a right appeal to the United States Department of Transportation, Federal Transit Authority (FTA), after having exhausted the local written protest procedures stated above. Any protest to FTA must be filed in accordance with FTA Circular 4220.1F.
APPENDIX B
REQUIRED
FEDERAL CLAUSES
Buy America

The Contractor agrees to comply with 49 USC 5323(j) and 49 CFR Part 661, which provide that Federal funds may not be obligated unless steel, iron, and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to a general waiver. General waivers are listed in 49 CFR 661.7, and include final assembly in the United States for 15 passenger vans and 15 passenger wagons produced by Chrysler Corporation, microcomputer equipment, software, and small purchases (currently less than $150,000) made with capital, operating, or planning funds. Separate requirements for rolling stock are set out at 5323(j)(2)(C) and 49 CFR 661.11. Rolling stock not subject to a general waiver must be manufactured in the United States and have a 70 percent domestic content.

A bidder or offeror must submit to the FTA recipient the appropriate Buy America certification (below) with all bids on FTA-funded contracts, except those subject to a general waiver. Bids or offers that are not accompanied by a completed Buy America certification must be rejected as nonresponsive. This requirement does not apply to lower tier subcontractors.

Certificate of Compliance with 49 USC 5323(j)(2)(C)

The bidder or offeror hereby certifies that it will comply with the requirements of 49 USC 5323(j)(2)(C) and the regulations at 49 CFR Part 661.6.

________________________________________ Date

________________________________________ Signature

________________________________________ Company Name

________________________________________ Title

Certificate of Non-Compliance with 49 USC 5323(j)(2)(C)

The bidder or offeror hereby certifies that it cannot comply with the requirements of 49 USC 5323(j)(2)(C), but may qualify for an exception pursuant to 49 USC 5323(j)(2)(B) or (j)(2)(D) and the regulations in 49 CFR 661.7.

June 14, 2021 __________________________ Date

__________________________ Signature

Western Communications, Inc. __________________________ Company Name

Michael A. Lees, President __________________________ Title
Pre-Award and Post-Delivery Audit Requirements

The Contractor agrees to comply with 49 USC 5323(l) and FTA’s implementing regulation at 49 CFR Part 663 and to submit the following certifications:

(1) Buy America Requirements: The Contractor shall complete and submit a declaration certifying either compliance or noncompliance with Buy America. If the Bidder certifies compliance with Buy America, it shall submit documentation which lists 1) component and subcomponent parts of the radios to be purchased identified by manufacturer of the parts, their country of origin and costs; and 2) the location of final installation for the radios, including a description of the activities that will take place at the final installation and the cost of final installation.

(2) Solicitation Specification Requirements: The Contractor shall submit evidence that it will be capable of meeting the bid specifications.

Buy America Certificate of Compliance with FTA Requirements for Buses, Other Rolling Stock, or Associated Equipment.

Certificate of Compliance

The bidder hereby certifies that it will comply with the requirements of 49 USC Section 5323(j)(2)(C), Section 165(b)(3) of the Surface Transportation Assistance Act of 1982, as amended, and the regulations of 49 CFR 661.11:

______________________________ Date

______________________________ Signature

______________________________ Company Name

______________________________ Title

Certificate of Non-Compliance

The bidder hereby certifies that it cannot comply with the requirements of 49 USC Section 5323(j)(2)(C) and Section 165(b)(3) of the Surface Transportation Assistance Act of 1982, as amended, but may qualify for an exception to the requirements consistent with 49 USC Sections 5323(j)(2)(B) or (j)(2)(D), Sections 165(b)(2) or (b)(4) of the Surface Transportation Assistance Act, as amended, and regulations in 49 CFR 661.7.

June 14, 2021

______________________________ Date

______________________________ Signature

Western Communications, Inc. Company Name

Michael A. Lees, President Title
Certification Regarding Lobbying

The undersigned [Contractor] certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for making lobbying contacts to an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form—LLL, “Disclosure Form to Report Lobbying,” in accordance with its instructions [as amended by “Government wide Guidance for New Restrictions on Lobbying,” 61 Fed. Reg. 1413 (1/19/96). Note: Language in paragraph (2) herein has been modified in accordance with Section 10 of the Lobbying Disclosure Act of 1995 (P.L. 104-65, to be codified at 2 USC 1601, et seq.).]

(3) The undersigned shall require that the language of this certification be included in the award documents for all sub awards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, USC §1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

[Note: Pursuant to 31 USC §1352(c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such expenditure or failure.]

The Contractor, Western Communications, Inc., certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 USC A 3801, et seq., apply to this certification and disclosure, if any.
Signature of Contractor’s Authorized Official
Michael A. Lees, President

Name and Title of Contractor’s Authorized Official

June 14, 2021
Date

Fly America Requirements

Applicability — all contracts involving transportation of persons or property, by air between the U.S. and/or places outside the U.S. These requirements do not apply to micro-purchases ($5,000 or less, except for construction contracts over $2,000). Contractor shall comply with 49 USC 40118 (the “Fly America” Act) in accordance with General Services Administration regulations 41 CFR 301-10, stating that recipients and subrecipients of Federal funds and their contractors are required to use US Flag air carriers for US Government-financed international air travel and transportation of their personal effects or property, to the extent such service is available, unless travel by foreign air carrier is a matter of necessity, as defined by the Fly America Act. Contractor shall submit, if a foreign air carrier was used, an appropriate certification or memorandum adequately explaining why service by a US flag air carrier was not available or why it was necessary to use a foreign air carrier and shall, in any event, provide a certificate of compliance with the Fly America requirements. Contractor shall include the requirements of this section in all subcontracts that may involve international air transportation.

Cargo Preference

The Contractor agrees: a. to use privately owned United Stated-Flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to the underlying contract to the extent such vessels are available at fair and reasonable rates for United Stated-Flag commercial vessels; b. to furnish within 20 working days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, “on-board” commercial ocean bill-of-lading in English for each shipment of cargo described in the preceding paragraph to the division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590 and to the FTA recipient (through the Contractor in the case of a subcontractor’s bill-of-lading); c. to include these requirements in all subcontracts issued pursuant to this contract when the subcontract may involve the transport of equipment, material, or commodities by ocean vessel.
Contracts Involving Federal Privacy Act Requirements
When a grantee maintains files on drug and alcohol enforcement activities for FTA, and those files are organized so that information could be retrieved by personal identifier, the Privacy Act requirements apply to all contracts except micro-purchases ($5,000 or less, except for construction contracts over $2,000). The following requirements apply to the Contractor and its employees that administer any system of records on behalf of the Federal Government under any contract: (1) The Contractor agrees to comply with, and assures the compliance of its employees with, the information restrictions and other applicable requirements of the Privacy Act of 1974, 5 U.S.C. § 552a. Among other things, the Contractor agrees to obtain the express consent of the Federal Government before the Contractor or its employees operate a system of records on behalf of the Federal Government. The Contractor understands that the requirements of the Privacy Act, including the civil and criminal penalties for violation of that Act, apply to those individuals involved, and that failure to comply with the terms of the Privacy Act may result in termination of the underlying contract. (2) The Contractor also agrees to include these requirements in each subcontract to administer any system of records on behalf of the Federal Government financed in whole or in part with Federal assistance provided by FTA.

Disadvantaged Business Enterprise
Contracts over $5,000 awarded on the basis of a bid or proposal offering to use DBEs
a. This contract is subject to the requirements of Title 49, Code of Federal Regulations, Part 26, Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs. The national goal for participation of Disadvantaged Business Enterprises (DBE) is 10%. The recipient’s overall goal for DBE participation is listed elsewhere. If a separate contract goal for DBE participation has been established for this procurement, it is listed elsewhere. b. The contractor shall not discriminate on the basis of race, color, religion, national origin or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of this contract. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or any other remedy as the municipal corporation deems appropriate. Each subcontract the contractor signs with a subcontractor must include the assurance in this paragraph (see 49 CFR 26.13(b)). c. If a separate contract goal has been established, Bidders/offerees are required to document sufficient DBE participation to meet these goals or, alternatively, document adequate good faith efforts to do so, as provided for in 49 CFR 26.53.

d. If no separate contract goal has been established, the successful bidder/offeree will be required to report its DBE participation obtained through race-neutral means throughout the period of performance.

e. The contractor is required to pay its subcontractors performing work related to this contract for satisfactory performance of that work no later than 30 days after the contractor’s receipt of payment for that work from the recipient. In addition, the contractor may not hold retainage from its subcontractors or must return any retainage payments to those subcontractors within 30 days after the subcontractor’s work related to this contract is satisfactorily completed or must return any retainage payments to those subcontractors within 30 days after incremental acceptance of the subcontractor’s work by the recipient and contractor’s receipt of the partial retainage payment related to the subcontractor’s work.
f. The contractor must promptly notify the recipient whenever a DBE subcontractor performing work related to this contract is terminated or fails to complete its work, and must make good faith efforts to engage another DBE subcontractor to perform at least the same amount of work. The contractor may not terminate any DBE subcontractor and perform that work through its own forces or those of an affiliate without prior written consent of the recipient.

Prompt payment

Applicability — All contracts except micro-purchases ($5,000 or less, except for construction contracts over $2,000) The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than 30 days from the receipt of each payment the prime contract receives from the Recipient. The prime contractor agrees further to return retainage payments to each subcontractor within 30 days after the subcontractors work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the Recipient. This clause applies to both DBE and non-DBE subcontracts.

Energy Conservation

The Contractor agrees to comply with mandatory standards and policies relating to energy efficiency, which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act.

Clean Water

The Contractor agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 USC 1251 et seq. The Contractor agrees to report each violation to the purchaser and understands and agrees that the purchaser will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office. (2) The Contractor also agrees to include these requirements in each subcontract exceeding $100,000 financed in whole or in part with Federal assistance provided by FTA.

Access to Records and Reports

The following access to records requirements apply to this contract:

(1) Where the Purchaser is not a State but a local government and is the FTA Recipient or a subgrantee of the FTA Recipient in accordance with 49 CFR 18.36(l), the Contractor agrees to provide the Purchaser, the FTA Administrator, the Comptroller General of the United States or any of their authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts and transcriptions. Contractor also agrees, pursuant to 49 CFR 633.17 to provide the FTA Administrator or his authorized representatives including any PMO Contractor access to Contractor’s
records and construction sites pertaining to a major capital project, defined at 49 USC 5302(a)1, which is receiving federal financial assistance through the programs described at 49 USC 5307, 5339, 5309, or 5311.

(2) Where the Purchaser is a State and is the FTA Recipient or a subgrantee of the FTA Recipient in accordance with 49 CFR 633.17, Contractor agrees to provide the Purchaser, the FTA Administrator or his authorized representatives, including any PMO Contractor, access to the Contractor's records and construction sites pertaining to a major capital project, defined at 49 USC 5302(a)1, which is receiving federal financial assistance through the programs described at 49 USC 5307, 5339, 5309, or 5311. By definition, a major capital project excludes contracts of less than the simplified acquisition threshold currently set at $100,000.

(3) Where the Purchaser enters into a negotiated contract for other than a small purchase or under the simplified acquisition threshold and is an institution of higher education, a hospital or non-profit organization and is the FTA Recipient or a subgrantee of the FTA Recipient in accordance with 49 CFR 19.48, Contractor agrees to provide the Purchaser, FTA Administrator, the Comptroller General of the United States or any of their duly authorized representatives with access to any books, documents, papers and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts, and transcriptions.

(4) Where any Purchaser which is the FTA Recipient or a subgrantee of the FTA Recipient in accordance with 49 USC 5325(a) enters into a contract for a capital project or improvement (defined at 49 USC 5302(a)1 through other than competitive bidding, the Contractor shall make available records related to the contract to the Purchaser, the Secretary of Transportation, and the Comptroller General or any authorized officer or employee of any of them for the purposes of conducting an audit and inspection.

(5) The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

(6) The Contractor agrees to maintain all books, records, accounts, and reports required under this contract for a period of not less than three years after the date of termination or expiration of this contract, except in the event of litigation or settlement of claims arising from the performance of this contract, in which case Contractor agrees to maintain same until the Purchaser, the FTA Administrator, the comptroller General, or any of their duly authorized representatives, have disposed of all such litigation, appeals, claims, or exceptions related thereto. Reference 49 CFR 18.39(I)(11).

(7) FTA does not require the inclusion of these requirements in subcontracts.

Federal Changes

Contractor shall at all times comply with all applicable FTA regulations, policies, procedures, and directives, including without limitation those listed directly or by reference in the Agreement.
(Form FTA MA(9) dated October 1, 2002) between Purchaser and FTA, as they may be amended or
promulgated from time to time during the term of this contract. Contractor's failure to so comply
shall constitute a material breach of this contract.
Clean Air.

(1) The Contractor agrees to comply with all applicable standards, orders, or regulations issued
pursuant to the Clean Air Act, as amended, 42 USC 7401 et seq. The Contractor agrees to report
each violation to the purchaser and understands and agrees that the purchaser will, in turn, report
each violation as required to assure notification to FTA and the appropriate EPA Regional Office.
(2) The Contractor also agrees to include these requirements in each subcontract exceeding
$100,000 financed in whole or in part with Federal assistance provided by FTA.

Contract Work Hours and Safety Standards Act

(1) Overtime requirements—No Contractor or subcontractor contracting for any part of the
contract work which may require or involve the employment of laborers or mechanics
shall require or permit any such laborer or mechanic in any workweek in which he or
she is employed on such work to work in excess of forty hours in such workweek unless
such laborer or mechanic receives compensation at a rate not less than one and one-
half times the basic rate of pay for all hours worked in excess of forty hours in such
workweek.

(2) Violation; liability for unpaid wages; liquidated damages—In the event of any violation
of the clause set forth in paragraph (1) of this section the Contractor and any
subcontractor responsible therefore shall be liable for the unpaid wages. In addition,
such Contractor and subcontractor shall be liable to the United States for liquidated
damages. Such liquidated damages shall be computed with respect to each individual
laborer or mechanic, including watchmen and guards, employed in violation of the
clause set forth in paragraph (1) of this section, in the sum of $10 for each calendar day
on which such individual was required or permitted to work in excess of the standard
workweek of forty hours without payment of the overtime wages required by the
clause set forth in paragraph (1) of this section.

(3) Withholding for unpaid wages and liquidated damages—The City of Rapid City shall
upon its own action or upon written request of an authorized representative of the
Department of Labor withhold or cause to be withheld, from any moneys payable on
account of work performed by the Contractor or subcontractor under any such contract
or any other Federal contract with the same prime Contractor, or any other federally-
assisted contract subject to the Contract Work Hours and Safety Standards Act, which is
held by the same prime Contractor, such sums as may be determined to be necessary
to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and
liquidated damages as provided in the clause set forth in paragraph (2) of this section.

(4) Subcontracts—The Contractor or subcontractor shall insert in any subcontracts the
clauses set forth in this section and also a clause requiring the subcontractors to include
these clauses in any lower tier subcontracts. The prime Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in this section.

(5) Payrolls and basic records—

(i) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentice and trainee, and the ratios and wage rates prescribed in the applicable programs.

Clean Air

(1) Contractor shall comply with all applicable standards, orders or regulations pursuant to the Clean Air Act, 42 USC 7401 et seq. Contractor shall report each violation to the recipient and understands and agrees that the recipient will, in turn, report each violation as required to FTA and the appropriate EPA Regional Office.

(2) Contractor shall include these requirements in each subcontract exceeding $150,000 financed in whole or in part with FTA assistance.

No Government Obligation to Third Parties

(1) The purchaser and Contractor acknowledge and agree that, notwithstanding any concurrence by the Federal Government in or approval of the solicitation or award of the underlying contract, absent the express written consent by the Federal Government, the Federal Government is not a party to this contract and shall not be subject to any obligations or liabilities to the purchaser, Contractor, or any other party
(whether or not a party to that contract) pertaining to any matter resulting from the underlying contract.

(2) The Contractor agrees to include the above clause in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clause shall not be modified, except to identify the subcontractor who will be subject to its provisions.

Program Fraud and False or Fraudulent Statements and Related Acts

(1) The Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 USC 3801 et seq. and US DOT regulations, “Program Fraud Civil Remedies,” 49 CFR Part 31, apply to its actions pertaining to this project. Upon execution of the underlying contract, the Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the underlying contract or the FTA assisted project for which this contract work is being performed. In addition to other penalties that may be applicable, the Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Contractor to the extent the Federal Government deems appropriate.

(2) The Contractor also acknowledges that if it makes, or causes to be made, a false, fictitious or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 USC 5307, the Government reserves the right to impose the penalties of 18 USC 1001 and 49 USC 5307(n)(1) on the Contractor, to the extent that the Federal Government deems appropriate.

(3) The Contractor agrees to include the above two clauses in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clauses shall not be modified, except to identify the subcontractor who will be subject to the provisions.

Termination

a. Termination for Convenience (General Provision): The City of Rapid City may terminate this contract, in whole or in part, at any time by written notice to the Contractor when it is in the Government’s best interest. The Contractor shall be paid its costs, including contract closeout costs, and profit on work performed up to the time of termination. The Contractor shall promptly submit its termination claim to (City of Rapid City) to be paid the Contractor. If the Contractor has any property in its possession belonging to the City of Rapid City, the Contractor will account for the same, and dispose of it in the manner the City of Rapid City directs.
b. Termination for Default [Breach or Cause] (General Provision): If the Contractor does not deliver supplies in accordance with the contract delivery schedule, or, if the contract is for services, the Contractor fails to perform in the manner called for in the contract, or if the Contractor fails to comply with any other provisions of the contract, the City of Rapid City may terminate this contract for default. Termination shall be effected by serving a notice of termination on the Contractor setting forth the manner in which the Contractor is in default. The Contractor will only be paid the contract price for supplies delivered and accepted, or services performed in accordance with the manner of performance set forth in the contract. If it is later determined by the City of Rapid City that the Contractor had an excusable reason for not performing, such as a strike, fire, or flood, events which are not the fault of or are beyond the control of the Contractor, the City of Rapid City, after setting up a new delivery of performance schedule, may allow the Contractor to continue work, or treat the termination as a termination for convenience.

**Government Debarment and Suspension (Nonprocurement)**

(1) By signing and submitting this bid or proposal, the prospective lower tier participant is providing the signed certification set out below.

(2) The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, City of Rapid City may pursue available remedies, including suspension and/or debarment.

(3) The prospective lower tier participant shall provide immediate written notice to City of Rapid City if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.


(5) The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized in writing by City of Rapid City.

(6) The prospective lower tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension,
Ineligibility and Voluntary Exclusion—Lower Tier Covered Transaction,” without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

(7) A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List issued by U.S. General Service Administration.

(8) Nothing contained in the foregoing shall be construed to require establishment of system or records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

(9) Except for transactions authorized under Paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to all remedies available to the Federal Government, City of Rapid City may pursue available remedies including suspension and/or debarment.

“Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion—Lower Tier Covered Transaction”

(1) The prospective lower tier participant certifies, by submission of this bid or proposal, that neither it nor its “principals” [as defined at 49 CFR §29.105(p)] is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

(2) When the prospective lower tier participant is unable to certify to the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Civil Rights Requirements

The following requirements apply to the underlying contract:

(1) Nondiscrimination—In accordance with Title VI of the Civil Rights Act, as amended, 42 USC § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 USC § 6102, section 202 of the Americans with Disabilities Act of 1990, 42 USC § 12132, and Federal transit law at 49 USC § 5332, the Contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed,
national origin, sex, age, or disability. In addition, the Contractor agrees to comply with applicable Federal implementing regulations and other implementing requirements FTA may issue.

(2) Equal Employment Opportunity—The following equal employment opportunity requirements apply to the underlying contract:

(a) Race, Color, Creed, National Origin, Sex—In accordance with Title VII of the Civil rights Act, as amended, 42 USC § 2000e, and Federal transit laws at 49 USC § 5332, the Contractor agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulations, “Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor,” 41 CFR Parts 60 et seq., (which implement Executive Order No. 11246, “Equal Employment Opportunity,” as amended by Executive Order No. 11375, “Amending Executive Order 11246 Relating to Equal Employment Opportunity,” 42 USC § 2000e note), and with any applicable Federal statutes, executive orders, regulations, and Federal policies that may in the future affect construction activities undertaken in the course of the Project. The Contractor agrees to take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, creed, national origin, sex, or age. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff of termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

(b) Age—In accordance with section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 USC § 623 and Federal transit law at 49 USC § 5332, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

(c) Disabilities—In accordance with section 102 of the Americans with Disabilities Act, as amended, 42 USC § 12112, the Contractor agrees that it will comply with the requirements of U.S. Equal Employment Opportunity Commission, “Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act,” 29 CFR Part 1630, pertaining to employment of persons with disabilities. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

(3) The Contractor also agrees to include these requirements in each subcontract financed in whole or in part with Federal assistance provided by FTA, modified only if necessary to identify the affected parties.

Breach of Contract and Dispute Resolution
Disputes arising in the performance of this Contract which are not resolved by agreement of the parties shall be decided in writing by the authorized representative of City of Rapid City Mayor. This decision shall be final and conclusive unless within ten days from the date of receipt of its copy, the Contractor mails or otherwise furnishes a written appeal to the Mayor. In connection with any such appeal, the Contractor shall be afforded an opportunity to be heard and to offer evidence in support of its position. The decision of the Mayor shall be binding upon the Contractor and the Contractor shall abide by the decision.

Incorporation of FTA Terms

The preceding provisions include, in part, certain Standard Terms and Conditions required by DOT, whether or not expressly set forth in the preceding contract provisions. All contractual provisions required by DOT, as set forth in FTA Circular 4220.1F, dated March 13, 2013, and are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this agreement. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any City of Rapid City requests which would cause the City of Rapid City to be in violation of the FTA terms and conditions.

Other Federal Requirements
The following requirements are not federal clauses:

Full and Open Competition
In accordance with 49 U.S.C. § 5325(a) all procurement transactions shall be conducted in a manner that provides full and open competition.

Prohibition Against Exclusionary or Discriminatory Specifications
Apart from inconsistent requirements imposed by Federal statute or regulations, the contractor shall comply with the requirements of 49 USC 5323(h)(2) by refraining from using any FTA assistance to support procurements using exclusionary or discriminatory specifications.

Conformance with ITS National Architecture

Access Requirements for Persons with Disabilities
Contractor shall comply with 49 USC 5301(d), stating Federal policy that the elderly and persons with disabilities have the same rights as other persons to use mass transportation services and facilities and that special efforts shall be made in planning and designing those services and facilities to implement that policy. Contractor shall also comply with all applicable requirements of Sec. 504 of the Rehabilitation Act (1973), as amended, 29 USC 794, which prohibits discrimination
on the basis of handicaps, and the Americans with Disabilities Act of 1990 (ADA), as amended, 42 USC 12101 et seq., which requires that accessible facilities and services be made available to persons with disabilities, including any subsequent amendments thereto.

Notification of Federal Participation
To the extent required by law, in the announcement of any third party contract award for goods and services (including construction services) having an aggregate value of $500,000 or more, contractor shall specify the amount of Federal assistance to be used in financing that acquisition of goods and services and to express that amount of Federal assistance as a percentage of the total cost of the third party contract.

Interest of Members or Delegates to Congress
No members of, or delegates to, the US Congress shall be admitted to any share or part of this contract nor to any benefit arising therefrom.

Ineligible Contractors and Subcontractors
Any name appearing upon the Comptroller General’s list of ineligible contractors for federally-assisted contracts shall be ineligible to act as a subcontractor for contractor pursuant to this contract. If contractor is on the Comptroller General’s list of ineligible contractors for federally financed or assisted construction, the recipient shall cancel, terminate or suspend this contract.

Other Contract Requirements
To the extent not inconsistent with the foregoing Federal requirements, this contract shall also include those provisions attached hereto, and shall comply with the recipient’s Procurement Guidelines, available upon request from the recipient.

Compliance with Federal Regulations
Any contract entered pursuant to this solicitation shall contain the following provisions: All USDOT-required contractual provisions, as set forth in FTA Circular 4220.1F, are incorporated by reference. Anything to the contrary herein notwithstanding, FTA mandated terms shall control in the event of a conflict with other provisions contained in this Agreement. Contractor shall not perform any act, fail to perform any act, or refuse to comply with any grantee request that would cause the recipient to be in violation of FTA terms and conditions. Contractor shall comply with all applicable FTA regulations, policies, procedures and directives, including, without limitation, those listed directly or incorporated by reference in the Master Agreement between the recipient and FTA, as may be amended or promulgated from time to time during the term of this contract. Contractor’s failure to so comply shall constitute a material breach of this contract.

Real Property
Any contract entered into shall contain the following provisions: Contractor shall at all times comply with all applicable statutes and USDOT regulations, policies, procedures and directives governing the acquisition, use and disposal of real property, including, but not limited to, 49 CFR 18.31-18.34, 49 CFR 19.30-19.37, 49 CFR Part 24, 49 CFR 5326 as amended by FAST Act, 49 CFR part 18 or 19, 49 USC 5334, applicable FTA Circular 5010, and FTA Master Agreement, as they may
be amended or promulgated during the term of this contract. Contractor's failure to so comply shall constitute a material breach of this contract.

Access to Services for Persons with Limited English Proficiency

Environmental Justice

Environmental Protections
Compliance is required with any applicable Federal laws imposing environmental and resource conservation requirements for the project. Some, but not all, of the major Federal laws that may affect the project include: the National Environmental Policy Act of 1969; the Clean Air Act; the Resource Conservation and Recovery Act; the comprehensive Environmental response, Compensation and Liability Act; as well as environmental provisions with Title 23 U.S.C., and 49 U.C. chapter 53. The U.S. EPA, FHWA and other federal agencies may issue other federal regulations and directives that may affect the project. Compliance is required with any applicable Federal laws and regulations in effect now or that become effective in the future.

Geographic Information and Related Spatial Data
Any project activities involving spatial data or geographic information systems activities financed with Federal assistance are required to be consistent with the National Spatial Data Infrastructure promulgated by the Federal Geographic Data Committee, except to the extent that FTA determines otherwise in writing.

Geographic Preference
All project activities must be advertised without geographic preference, (except in A/E under certain circumstances, preference for hiring veterans on transit construction projects and geographic-based hiring preferences as proposes to be amended in 2 CFR Part 1201).

Organizational Conflicts of Interest
The Recipient agrees that it will not enter into a procurement that involves a real or apparent organizational conflict of interest described as follows: (1) When It Occurs. An organizational
conflict of interest occurs when the Project work, without appropriate restrictions on certain future activities, results in an unfair competitive advantage: (a) To that Third Party Participant or another Third Party Participant performing the Project work, and (b) That impairs that Third Party Participant’s objectivity in performing the Project work, or (2) Other. An organizational conflict of interest may involve other situations resulting in fundamentally unfair competitive conditions, (3) Disclosure Requirements. Consistent with FTA policies, the Recipient must disclose to FTA, and each of its Subrecipients must disclose to the Recipient: (a) Any instances of organizational conflict of interest, or (b) Violations of federal criminal law, involving fraud, bribery, or gratuity violations potentially affecting the federal award, and (4) Failure to Disclose. Failure to make required disclosures can result in remedies for noncompliance, including debarment or suspension.

Federal Single Audit Requirements for State Administered Federally Aid Funded Projects Only
Non Federal entities that expend $750,000 or more in a year in Federal awards from all sources are required to comply with the Federal Single Audit Act provisions contained in U.S. Office of Management and Budget (OMB) Circular No. A 133, “Audits of States, Local Governments, and Non Profit Organizations” (replaced with 2 CFR Part 200, “Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards” effective December 26, 2014 as applicable). Non Federal entities that expend Federal awards from a single source may provide a program specific audit, as defined in the Circular. Non Federal entities that expend less than the amount above in a year in Federal awards from all sources are exempt from Federal audit requirements for that year, except as noted in Sec. 215 (a) of OMB Circular A-133 Subpart B—Audits, records must be available for review or audit by appropriate officials of the cognizant Federal agency the New York State Department of Transportation, the New York State Comptroller’s Office and the U.S. Governmental Accountability Office (GAO). Non Federal entities are required to submit a copy of all audits, as described above, within 30 days of issuance of audit report, but no later than 9 months after the end of the entity’s fiscal year, to the New York State Department of Transportation, Contract Audit Bureau, 50 Wolf Road, Albany, NY 12232. Unless a time extension has been granted by the cognizant Federal Agency and has been filed with the New York State Department of Transportation’s Contract Audit Bureau, failure to comply with the requirements of OMB Circular A-133 may result in suspension or termination of Federal award payments.

Veterans Preference
Veterans Preference. As provided by 49 U.S.C. § 5325(k), to the extent practicable, the Recipient agrees and assures that each of its Subrecipients: (1) Will give a hiring preference to veterans, as defined in 5 U.S.C. § 2108, who have the skills and abilities required to perform construction work required under a third party contract in connection with a Capital Project supported with federal assistance appropriated or made available for 49 U.S.C. chapter 53, and (2) Will not require an employer to give a preference to any veteran over any equally qualified applicant who is a member of any racial or ethnic minority, female, an individual with a disability, or a former employee.

Safe Operation of Motor Vehicles
The Contractor is encouraged to adopt and promote on-the-job seat belt use policies and programs for its employees and other personnel that operate company-owned vehicles, company rented vehicles, or personally operated vehicles. The terms “company-owned” and “company-
1.1 OVERVIEW

Device Management Services - Essential ("DMS Essential") for APX™ subscriber radios provides the Customer with Subscriber Radio Technical Support and Hardware Repair services. DMS Essential is structured as a per-unit, fixed-fee multi-year service in order to mitigate the likelihood of unexpected subscriber radio repair expenses.

This Statement of Work ("SOW") is subject to the terms and conditions of the Motorola Solutions Services Agreement or other applicable agreement in effect between the parties ("Agreement"). The terms of this SOW are an integral part of an Agreement with the Customer to which this SOW is appended and is made a part thereof by this reference. In the event of a conflict between the terms and conditions of an Agreement and the terms and conditions of this SOW, this SOW will control as to the inconsistency only. The SOW applies to the Device specifically named in the Agreement.

1.2 HARDWARE REPAIR

1.2.1 Scope

Hardware Repair provides repair coverage for internal and external subscriber radio components that do not work in accordance with published specifications. Repair services are performed at a Motorola Solutions-operated or supervised facility. The subscriber radio will be repaired to bring it to compliance with its specifications, as published by Motorola Solutions at the time of delivery of the original subscriber radio.

1.2.2 Motorola Solutions Responsibilities

- Repair or replace malfunctioning device, as determined by Motorola Solutions.
- Complete repair or replacement with a turnaround time of four business days in-house, provided the device is delivered to the repair center by 9:00 a.m. (local repair center time). Turnaround time represents the time a product spends in the repair process, and does not include time in transit to and from the Customer’s site. Business days do not include US holidays or weekends.
- If applicable, apply periodically-released device updates, in accordance with an Engineering Change Notice.
- Provide two-way air shipping when a supported Motorola Solutions electronic system, such as MyView Portal, is used to initiate a repair. A shipping label will be generated via the electronic system.
1.2.3 Limitations and Exclusions

- Replacement of consumable parts or accessories, as defined by product, including batteries, cables, antennas, and carrying cases.
- In the case of mobile radios, repair of a single mobile control head that is required for normal operation of the subscriber radio is included, provided the control head was supplied at the original point of purchase of the mobile radio.
- Repair of problems caused by:
  - Internal or external damage resulting from natural or manmade disasters, including fire, theft, and floods.
  - Third-party software, accessories, or peripherals not approved in writing by Motorola Solutions for use with the device.
  - Using the device outside of the product's operational and environmental specifications, including improper handling, carelessness, or reckless use.
  - Unauthorized alterations, attempted repair, repair by a third party.
- Non-remedial work, including administration and operator procedures, reprogramming, and operator or user training.
- Problem determination and/or work performed to repair or resolve issues with non-covered products. For example, hardware or software products not specifically listed on the service order form are excluded from service.
- Cosmetic imperfections that do not affect the functionality of the device.
- Software support for unauthorized modifications or misuse of the device.
- File backup or restoration.
- Completion and test of incomplete application programming or system integration, if not performed by Motorola Solutions and covered by Motorola Solutions’ services.
- Software Release updates.
- Accidental damage, chemical or liquid damage, or other damage caused outside of normal device operating specifications.
- Motorola Solutions is not obligated to provide support for any device that has been subject to the following:
  - Repaired, tampered with, altered, or modified (including the unauthorized installation of any software) — except by Motorola Solutions authorized service personnel.
  - Subjected to unusual physical or electrical stress, abuse, or forces or exposure beyond normal use within the specified operational and environmental parameters set forth in the applicable product specification.
  - If the Customer fails to comply with the obligations contained in the product purchase agreement and/or the applicable software license agreement and/or Motorola Solutions terms and conditions of service.
- DMS Essential is quoted on a per-unit basis, is prepaid, non-cancellable and non-refundable for the purchased service term.

1.2.4 Customer Responsibilities

- For non-contiguous renewals and services purchased separately from APX subscriber radios, Customer must provide a complete list, preferably in electronic format, of all hardware serial numbers to be covered under the Agreement to Motorola Solutions.
- Initiate subscriber radio repairs, as needed.
  - When initiating a repair via a supported Motorola Solutions electronic system, label each package correctly with the shipping label and Return Material Authorization (“RMA”) number generated by the electronic system.
- When initiating a repair via paper Return Material Form ("RMF"), the RMF must be completed for each device, included in the package with the device, and shipped to the Motorola Solutions depot specified on the RMF.
- Remove any data or other information from the device that the Customer wishes to destroy or retain prior to sending the device for repair.
MISSION READY WHEN IT MATTERS MOST

APX™ 4000 PROJECT 25 PORTABLE RADIO

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

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

TRUSTED APX QUALITY

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

With its easy-to-use interface, color display, intelligent lighting and radio profiles, you get all the power of APX in a compact radio. Plus, you can extend the performance of your radio with a complete portfolio of industry-leading IMPRES™ smart energy and audio accessories.

COMPACT AND UNCOMPROMISING

A compact P25 Phase 2 capable portable, the APX 4000 gets the job done without getting in the way. With two dedicated knobs for volume and channel control, the APX 4000 provides readiness for any type of work setting. And its standard IP67 and MIL-STD certified to withstand dust, heat, shock, drops and water immersion, so you can count on it wherever you need it — at the factory line, power line or fire line.

P25 PERFORMANCE, INSIDE AND OUT

Loaded with key P25 features to increase safety, the APX 4000 features Mission Critical Wireless. This unique Bluetooth® solution provides an encrypted link to a high performance earpiece, GPS for quickly locating personnel outdoors, 256-bit AES encryption for improved security, and over-the-air programming to program radios in the field without interrupting voice operation.

IMPROVE RESPONSE AND EXPENSES

The APX 4000 is P25 Phase 2 capable for twice the voice capacity so you can add more users without adding more frequencies or infrastructure. And it’s backwards and forwards compatible with all Motorola mission critical radio systems, so you can interoperate with confidence while you improve operating expenses.

POWER UP WITH APX 4000 ACCESSORIES

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

Available in 700/800 MHz, VHF, UHF R1, UHF R2 and 900 MHz bands

- Trunking standards supported:
  - Clear or digital encrypted ASTRO®25 Trunked Operation
  - Capable of SmartZone®, SmartZone OmniLink, SmartNet®
- Analog MDC-1200 and Digital APCO P25 Conventional System Configurations
- Narrow and wide bandwidth digital receiver (6.25 kHz equivalent / 12.5 kHz / 25 kHz)\(^1\)
- Standard with 2 dedicated control knobs for volume and channel changes
- Embedded digital signaling (ASTRO & ASTRO 25)
- Man Down
- Available in 2 models
- Lightbar with Intelligent Lighting
- Radio Profiles
- Unified Call List
- Software Key
- ASTRO 25 Integrated Voice & Data
- User programmable Voice Announcement
- Meets Applicable MIL-STD-810C, D, E, F and G
- IP67 standard
- Rugged Submersible housing (2 meters for 2 hours)\(^2\)
- Superior Audio Features:
  - 0.5 W high audio speaker
  - 2-mic noise canceling technology
- GPS Outdoor Location Tracking
- Utilizes Windows XP, Vista and Windows 7 and 8 Customer Programming Software (CPS)
- Supports USB communications
- Built in FLASHpoint® support
- Full portfolio of accessories including IMPRES batteries, chargers and audio devices\(^3\)
- Mission Critical Wireless Bluetooth\(^4\)

**OPTIONAL FEATURES**

- 256-bit AES Encryption
- Programming Over Project 25
- Text Messaging
- Man Down
- Site Selectable Alert Tones
- P25 Link Layer Authentication
- Enhanced Data
- Rugged Option: Mil Std 512 X, Delta - T

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### TRANSMITTER - TYPICAL PERFORMANCE SPECIFICATIONS

<table>
<thead>
<tr>
<th>700/800 MHz</th>
<th>VHF</th>
<th>UHF Range 1</th>
<th>UHF Range 2</th>
<th>900 MHz(^8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range/ Bandsplits</td>
<td>763-776, 793-806 MHz</td>
<td>806-820, 851-870 MHz</td>
<td>136-174 MHz</td>
<td>380-470 MHz</td>
</tr>
<tr>
<td>Channel Spacing</td>
<td>25/12.5 kHz</td>
<td>30/25/12.5 kHz</td>
<td>25/12.5 kHz</td>
<td>25/12.5 kHz</td>
</tr>
<tr>
<td>Maximum Frequency Separation</td>
<td>Full Bandsplit</td>
<td>Full Bandsplit</td>
<td>Full Bandsplit</td>
<td>Full Bandsplit</td>
</tr>
<tr>
<td>Rated RF Output Power Adj(^4)</td>
<td>1-5 Watts Max</td>
<td>1-5 Watts Max</td>
<td>1-5 Watts Max</td>
<td>1-5 Watts Max</td>
</tr>
<tr>
<td>Frequency Stability(^7) (-30°C to +60°C, +25°C Ref.)</td>
<td>±0.0001%</td>
<td>±0.0001%</td>
<td>±0.0001%</td>
<td>±0.00010%</td>
</tr>
<tr>
<td>Modulation Limiting(^5)</td>
<td>±5 kHz / ±4 kHz / ±2.5 kHz</td>
<td>±5 kHz / ±4 kHz / ±2.5 kHz</td>
<td>±5 kHz / ±4 kHz / ±2.5 kHz</td>
<td>±5 kHz / ±4 kHz / ±2.5 kHz</td>
</tr>
<tr>
<td>Emissions (Conducted and Radiated)(^6)</td>
<td>-75 dB</td>
<td>-75 dB</td>
<td>-75 dB</td>
<td>-75 dB</td>
</tr>
<tr>
<td>Audio Response(^6)</td>
<td>+1.3 dB</td>
<td>+1.3 dB</td>
<td>+1.3 dB</td>
<td>+1.3 dB</td>
</tr>
<tr>
<td>FM Hum &amp; Noise</td>
<td>25 kHz</td>
<td>12.5 kHz</td>
<td>25 kHz</td>
<td>12.5 kHz</td>
</tr>
<tr>
<td>Audio Distortion(^6)</td>
<td>10.00%</td>
<td>1.00%</td>
<td>1.00%</td>
<td>1.00%</td>
</tr>
</tbody>
</table>

### BATTERIES FOR APX 4000

<table>
<thead>
<tr>
<th>Battery Capacity / Type</th>
<th>Dimensions (HxWxD)</th>
<th>Weight</th>
<th>Battery Part Number</th>
<th>Battery Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Li-Ion IMPRES 1900 mAh IP67</td>
<td>114.5 x 55.04 x 17.85 mm</td>
<td>150 grams</td>
<td>NNTN8126A</td>
<td>1900 mAh</td>
</tr>
<tr>
<td>Li-Ion IMPRES 2300 mAh IP67 Non-HazLoc</td>
<td>114.5 x 55.04 x 23.15 mm</td>
<td>190 grams</td>
<td>PMNN4424AR</td>
<td>2300 mAh</td>
</tr>
<tr>
<td>Li-Ion IMPRES 2300 mAh IP67 HazLoc(^2)</td>
<td>114.5 x 55.04 x 23.15 mm</td>
<td>210 grams</td>
<td>NNTN8550A</td>
<td>2300 mAh</td>
</tr>
<tr>
<td>Li-Ion IMPRES 2700 mAh IP54 Non-HazLoc(^2)</td>
<td>114.5 x 55.04 x 23.15 mm</td>
<td>160 grams</td>
<td>PMNN4448AR</td>
<td>2700 mAh</td>
</tr>
</tbody>
</table>

---

1. Chargers and batteries for the APX 4000 radios are not compatible with other APX radios.
2. Compatible with BT 2.1 HFP, FAN, DUN and 3PP BT Profiles.
3. When used with a hazardous location tested radio.
# PRODUCT DATA SHEET
APX™ 4000

## RADIO MODELS

<table>
<thead>
<tr>
<th>MODEL 2</th>
<th>MODEL 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Display</strong></td>
<td>Full bitmap color LCD display 3 lines of text x 14 characters 1 line of icons 1 menu line x 3 menus White backlight</td>
</tr>
<tr>
<td><strong>Keypad</strong></td>
<td>Backlight keypad 3 soft keys 4 direction Navigation key Home and Data buttons</td>
</tr>
<tr>
<td><strong>Channel Capacity</strong></td>
<td>512</td>
</tr>
<tr>
<td><strong>FLASHport Memory</strong></td>
<td>64 MB</td>
</tr>
<tr>
<td><strong>Transmitter frequencies</strong></td>
<td>700/800 MHz (763-870 MHz)</td>
</tr>
<tr>
<td></td>
<td>VHF (136-174 MHz)</td>
</tr>
<tr>
<td></td>
<td>UHF Range 1 (380-470 MHz)</td>
</tr>
<tr>
<td></td>
<td>UHF Range 2 (450-520 MHz)</td>
</tr>
<tr>
<td></td>
<td>900 MHz (890-940 MHz)</td>
</tr>
<tr>
<td><strong>Buttons &amp; Switches</strong></td>
<td>Large PTT button * Angled On/Off Volume Control * 18 position top-mounted rotary switch * Orange emergency button * 3 programmable side buttons</td>
</tr>
</tbody>
</table>

## TRANSMITTER CERTIFICATION
- 700/800 (764-888 MHz) A2489FT7494
- VHF (136-174 MHz) A2489FT828
- UHF Range 1 (380-470 MHz) A2489FT8905
- UHF Range 2 (450-520 MHz) A2489FT910
- 900 MHz (890-940 MHz) A2489FT5864

## FCC EMISSIONS DESIGNATORS
- FCC Emissions Designators 11KOF3E, 16KOF3E, 8KOF1D, 8KOF1E, 8K10F1W, 20KOF1E
- FCC Emissions Designators for 900 MHz 11KOF3E, 8KOF1D, 8KOF1E, 8K10F1W

## POWER SUPPLY

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

## RECEIVER - TYPICAL PERFORMANCE SPECIFICATIONS

<table>
<thead>
<tr>
<th>700/800</th>
<th>VHF</th>
<th>UHF Range 1</th>
<th>UHF Range 2</th>
<th>900 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency Range/Bandsplits</strong></td>
<td>700 MHz</td>
<td>763-776 MHz</td>
<td>136-174 MHz</td>
<td>360-470 MHz</td>
</tr>
<tr>
<td></td>
<td>800 MHz</td>
<td>851-870 MHz</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Channel Spacing</strong></td>
<td>25/12.5 kHz</td>
<td>30/25/12.5 kHz</td>
<td>25/12.5 kHz</td>
<td>25/12.5 kHz</td>
</tr>
<tr>
<td><strong>Maximum Frequency Separation</strong></td>
<td>Full Bandsplit</td>
<td>Full Bandsplit</td>
<td>Full Bandsplit</td>
<td>Full Bandsplit</td>
</tr>
<tr>
<td><strong>Audio Output Power at Rated</strong></td>
<td>500mW</td>
<td>500mW</td>
<td>500mW</td>
<td>500mW</td>
</tr>
<tr>
<td><strong>Frequency Stability</strong></td>
<td>±0.00010 %</td>
<td>±0.00010 %</td>
<td>±0.00010 %</td>
<td>±0.00010 %</td>
</tr>
<tr>
<td><strong>(-30°C to +60°C, +25°C Ref.)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Analog Sensitivity</strong></td>
<td>12 dB SNAD</td>
<td>0.250μV</td>
<td>0.216μV</td>
<td>0.234μV</td>
</tr>
<tr>
<td></td>
<td>1% BER (800 MHz)</td>
<td>0.400μV</td>
<td>0.277μV</td>
<td>0.307μV</td>
</tr>
<tr>
<td></td>
<td>5% BER</td>
<td>0.250μV</td>
<td>0.188μV</td>
<td>0.207μV</td>
</tr>
<tr>
<td><strong>Selectivity</strong></td>
<td>25 kHz channel</td>
<td>-76 dB</td>
<td>-76 dB</td>
<td>-76 dB</td>
</tr>
<tr>
<td></td>
<td>12.5 kHz channel</td>
<td>-76 dB</td>
<td>-76 dB</td>
<td>-76 dB</td>
</tr>
<tr>
<td><strong>Intermodulation</strong></td>
<td>-76 dB</td>
<td>-76 dB</td>
<td>-76 dB</td>
<td>-76 dB</td>
</tr>
<tr>
<td><strong>Spurious Rejection</strong></td>
<td>-75.5 dB</td>
<td>-75.5 dB</td>
<td>-75.5 dB</td>
<td>-75.5 dB</td>
</tr>
<tr>
<td></td>
<td>-80.5 dB</td>
<td>-80.5 dB</td>
<td>-80.5 dB</td>
<td>-80.5 dB</td>
</tr>
<tr>
<td><strong>FM Hum and Noise</strong></td>
<td>25 kHz</td>
<td>-57 dB</td>
<td>-51 dB</td>
<td>-50 dB</td>
</tr>
<tr>
<td></td>
<td>12.5 kHz</td>
<td>-47 dB</td>
<td>-45 dB</td>
<td>-45 dB</td>
</tr>
<tr>
<td><strong>Audio Distortion</strong></td>
<td>1.00%</td>
<td>1.00%</td>
<td>1.00%</td>
<td>1.00%</td>
</tr>
</tbody>
</table>
PORTABLE MILITARY STANDARDS 810 C, D, E, F & G

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Pressure</td>
<td>Method</td>
<td>Proc./Cat.</td>
<td>Method</td>
<td>Proc./Cat.</td>
</tr>
<tr>
<td>Low Pressure</td>
<td>500.1</td>
<td>I</td>
<td>500.2</td>
<td>II</td>
</tr>
<tr>
<td>High Temperature</td>
<td>501.1</td>
<td>I, II</td>
<td>501.2</td>
<td>I/AA1, II/AA1</td>
</tr>
<tr>
<td>Low Temperature</td>
<td>502.1</td>
<td>I</td>
<td>502.2</td>
<td>I/C3, II/C1</td>
</tr>
<tr>
<td>Temperature Shock</td>
<td>503.1</td>
<td>I</td>
<td>503.2</td>
<td>I/AA1C3</td>
</tr>
<tr>
<td>Solar Radiation</td>
<td>505.1</td>
<td>I</td>
<td>505.2</td>
<td>I</td>
</tr>
<tr>
<td>Rain</td>
<td>506.1</td>
<td>I, II</td>
<td>506.2</td>
<td>I, II</td>
</tr>
<tr>
<td>Humidity</td>
<td>507.1</td>
<td>I</td>
<td>507.2</td>
<td>II</td>
</tr>
<tr>
<td>Salt Fog</td>
<td>509.1</td>
<td>I</td>
<td>509.2</td>
<td>I</td>
</tr>
<tr>
<td>Blowing Dust</td>
<td>510.1</td>
<td>I</td>
<td>510.2</td>
<td>I</td>
</tr>
<tr>
<td>Blowing Sand</td>
<td>1 Proc</td>
<td>1 Proc</td>
<td>510.2</td>
<td>I</td>
</tr>
<tr>
<td>Vibration</td>
<td>514.2</td>
<td>VI/UF, Curve-W</td>
<td>514.3</td>
<td>I/10, I/3</td>
</tr>
<tr>
<td>Shock</td>
<td>516.2</td>
<td>I, III, V</td>
<td>516.3</td>
<td>I, V, VI</td>
</tr>
<tr>
<td>Shock (Drop)</td>
<td>516.2</td>
<td>I</td>
<td>516.2</td>
<td>IV</td>
</tr>
</tbody>
</table>

DIMENSIONS OF THE RADIOS WITHOUT BATTERY

<table>
<thead>
<tr>
<th></th>
<th>Inches</th>
<th>Millimeters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>5.42</td>
<td>137.7</td>
</tr>
<tr>
<td>Width Push-To-Talk button</td>
<td>2.42</td>
<td>61.4</td>
</tr>
<tr>
<td>Depth Push-To-Talk button</td>
<td>1.41</td>
<td>35.75</td>
</tr>
<tr>
<td>Width Top</td>
<td>2.62</td>
<td>66.55</td>
</tr>
<tr>
<td>Depth Top</td>
<td>1.84</td>
<td>46.7</td>
</tr>
<tr>
<td>Weight of the radios without battery</td>
<td>10.05 oz</td>
<td>285 g</td>
</tr>
</tbody>
</table>

GPS SPECIFICATIONS

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Channels</td>
<td>12</td>
</tr>
<tr>
<td>Tracking Sensitivity</td>
<td>-159 dBm</td>
</tr>
<tr>
<td>Accuracy</td>
<td>&lt;10 meters (95%)</td>
</tr>
<tr>
<td>Cold Start</td>
<td>&lt;60 seconds (95%)</td>
</tr>
<tr>
<td>Hot Start</td>
<td>&lt;10 seconds (95%)</td>
</tr>
<tr>
<td>Mode of Operation</td>
<td>Autonomous (Non-Assisted) GPS</td>
</tr>
</tbody>
</table>

ENCRYPTION

| Supported Encryption Algorithms | 256-bit AES, ADP |
| Encryption Algorithm Capacity | 8 |
| Encryption Keys per Radio     | Module capable of storing 1024 keys. Programmable for 48 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

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
<td>-30°C to +60°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-40°C to +85°C</td>
</tr>
<tr>
<td>Humidity</td>
<td>Per MIL-STD</td>
</tr>
<tr>
<td>ESD</td>
<td>IEC 801-2 KV</td>
</tr>
<tr>
<td>Water and Dust Intrusion</td>
<td>IP67</td>
</tr>
<tr>
<td>Submersion</td>
<td>MIL-STD 512.X</td>
</tr>
</tbody>
</table>

1. Measured in the analog mode per TIA / EIA-603 under normal conditions.
2. When used with the III, approved internally rate radio.
3. Measured productivity in analog mode per TIA / EIA - 568A under normal conditions.
4. Accuracy within 15 micrometers tracking 95th percentile at 13 micrometers, worst case variation ±100 dpn, visual strength.
5. Temperature based on reliable specifications. Battery storage is recommended at 25°C, ±5°C to ensure best performance.
6. Specifications subject to change without notice. All specifications shown are nominal. Radio must comply with applicable regulatory requirements.

Motorola Solutions, Inc. 1301 East Algonquin Road Schaumburg, Illinois 60196, U.S.A. 800-367-2346 motorolasolutions.com

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MOTOROLA SOLUTIONS
APX 4500
SINGLE-BAND P25 MOBILE RADIO

UNCOMPROMISING PERFORMANCE. EFFECTIVE RESPONSE.

You need a P25 radio to communicate and collaborate effectively with other P25 radio users. And, you need the performance and reliability of an APX™ radio. That is why we built the APX 4500 single-band mobile radio.

Everyone has something to like with the APX 4500. We’ve paired it with our rugged D2 Control Head for confident, reliable radio communication that can stand up to everyday use.

The compact form factor simplifies vehicle installation. Integrated hardware encryption protects your mission-critical communication. Impact detection automatically alerts dispatch to keep its users safer and integrated Wi-Fi helps to keep you current with fast and easy software updates.

Improve your operational efficiency with the performance and reliability of the APX 4500 mobile radio.
RESPOND WITH CONFIDENCE
When out in the field, you face all types of conditions. Your radio shouldn’t hold you back. Whether it be getting caught in a storm or undergoing extreme temperature shock, you can remain confident in the APX 4500 and know that it won’t let you down in the moments that matter.

VOICE AND DATA, ALL AT ONCE
Integrated Wi-Fi helps to keep your radio updated to date with over-the-air updates. Receive new codeplugs, firmware updates and software features at the speed of Wi-Fi—without interruptions to voice communications.

FLEXIBLE, EASY INSTALLATION
The APX 4500 is ideal for a growing ecosystem of vehicle installations. Its small and lightweight form factor simplifies installation and its IP55 rating provides ample protection from dust and water intrusion.

COLLABORATE SEAMLESSLY
Although you are out of the office, you still need to communicate with others to get the job done. As a P25 mobile radio, the APX 4500 allows you to communicate with other P25 radio users. Seamlessly collaborate within your department or with other departments and organizations using the APX 4500 P25 mobile radio.

ALL THE SUPPORT YOU NEED
Motorola Solutions offers three levels of service plans—Essential, Advanced and Premier. From simple support for technical troubleshooting to a complete transfer of optimization and maintenance services to Motorola Solutions, you choose the level of support that suits you best.
APX 4500 COMPATIBLE CONTROL HEAD

02 CONTROL HEAD

EXTREME USABILITY
The 02 control head provides rugged simplicity for efficient and confident communication. Oversized controls with an easy to read color display and a built-in 7.5 watt speaker provides clear visual and audible user experiences. Available in high impact green or black.
# FEATURES

## GENERAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Channel Capacity</th>
<th>512 standard, expandable to 1,000 channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wireless Connectivity</td>
<td>GPS/GLONASS, Wi-Fi</td>
</tr>
<tr>
<td>WLAN (Wi-Fi) Protocols</td>
<td>802.11 b/g/n (2.4GHz) / 802.11 a/n/ac (5GHz)</td>
</tr>
<tr>
<td>Encryption Algorithms</td>
<td>ADP, 256-bit AES</td>
</tr>
</tbody>
</table>

## OPERATING MODES

- Digital Trunking: 9600 Baud APCO P25 Phase 1 FDMA and Phase 2 TDMA
- Analog Trunking: 3800 Baud SmartNet®, SmartZone®, Omniradio
- Digital Conventional: APCO 25
- Analog Conventional: Analog MDC 1200, Quick Call II System Configurations

## INTEGRATED Wi-Fi AND DATA CONNECTIVITY

- Wi-Fi (2.4GHz), 802.11 a/n/ac (5GHz) with up to 20 Wi-Fi networks provisioned in the radio
- Data Modem Tethering
- ASTRO 25 Integrated Voice and Data
- Enhanced Data
- Integrated GPS/GLONASS for Outdoor Location Tracking
- Mission Critical Geofence
- Personal Accountability

## MANAGEMENT

- Customer Programming Software (CPS)
- Radio Management
- Over-the-air Programming (OTA)<sup>1</sup>

## SECURITY

- P25 Authentication<sup>1</sup>
- Software Key
- Single-key AEP Encryption<sup>1</sup>
- Multikey for 128 keys<sup>1</sup>

## GPS/GNSS SPECIFICATIONS

<table>
<thead>
<tr>
<th>Channels</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tracking Sensitivity</td>
<td>-164 dBm</td>
</tr>
<tr>
<td>Accuracy&lt;sup&gt;2&lt;/sup&gt;</td>
<td>&lt;5 meters (95%)</td>
</tr>
<tr>
<td>Cold Start&lt;sup&gt;1&lt;/sup&gt;</td>
<td>&lt;60 seconds (95%)</td>
</tr>
<tr>
<td>Hot Start&lt;sup&gt;2&lt;/sup&gt;</td>
<td>&lt;5 seconds (95%)</td>
</tr>
<tr>
<td>Mode of Operation</td>
<td>Autonomous (Non-Assisted) GNSS or SBAS</td>
</tr>
</tbody>
</table>

---

<sup>1</sup> Optional  
<sup>2</sup> Measured conductively with 4 satellites visible at a nominal -50 dBm signal strength
### Encryption

<table>
<thead>
<tr>
<th>Supported Encryption Algorithms</th>
<th>AEP, AES 256</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encryption Algorithm Capacity</td>
<td>8</td>
</tr>
<tr>
<td>Encryption Keys per Radio</td>
<td>Module capable of storing 1024 keys. Programmable for 128 Common Key Reference (DKR) or 16 Physical Identifier (PID)</td>
</tr>
<tr>
<td>Encryption Frame Re-sync Interval</td>
<td>P2S CAI 300 mSec</td>
</tr>
<tr>
<td>Encryption Keying</td>
<td>Key Loader</td>
</tr>
<tr>
<td>Synchronization</td>
<td>XL — Counter Addressing</td>
</tr>
<tr>
<td>Vector Generator</td>
<td>National Institute of Standards and Technology (NIST) approved random number generator</td>
</tr>
<tr>
<td>Encryption Type</td>
<td>Digital</td>
</tr>
<tr>
<td>Key Storage</td>
<td>Tamper protected volatile or non-volatile memory</td>
</tr>
<tr>
<td>Key Erasure</td>
<td>Keyboard command and tamper detection</td>
</tr>
<tr>
<td>Standards</td>
<td>FIPS 140-2 Level 3, FIPS 157</td>
</tr>
</tbody>
</table>

### Other Features

- Text Messaging
- Radio Profiles
- Dynamic Zone
- Intelligent Priority Scan
- Unified Call List
- Instant Recall
- Data Modem Connection (wired or Wi-Fi)*
- 12 Character RFID Asset Tracking*
- Digital Tone Signaling*

### Integrated Wi-Fi, GPS and Data Connectivity

<table>
<thead>
<tr>
<th>Frequency Range/Band splits</th>
<th>WLAN (Wi-Fi): 2412 - 2472 MHz; 5180 - 5320 MHz; 5500 - 5825 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security protocols</td>
<td>WPA-2, WPA, WEP</td>
</tr>
<tr>
<td>SSIDs</td>
<td>Up to 20 pre-provisioned</td>
</tr>
<tr>
<td>Integrated GPS/Glonass</td>
<td>For outdoor location tracking</td>
</tr>
<tr>
<td>Data Modem Tethering</td>
<td></td>
</tr>
</tbody>
</table>

* Optional
### SIGNALING (ASTRO 25 MODE)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Signalling Rate</td>
<td>9.8 kbps</td>
</tr>
<tr>
<td>Digital ID Capacity</td>
<td>10,000,000 Conventional / 48,000 Trunking</td>
</tr>
<tr>
<td>Digital Network Access Codes</td>
<td>4,095 network site addresses</td>
</tr>
<tr>
<td>ASTRO Digital User Group Addresses</td>
<td>4,096 network site addresses</td>
</tr>
<tr>
<td>Project 25 – CAV Digital User Group Addresses</td>
<td>65,000 Conventional / 4,094 Trunking</td>
</tr>
<tr>
<td>Error Correction Techniques</td>
<td>Golay, BCH, Reed-Solomon codes</td>
</tr>
<tr>
<td>Data Access Control</td>
<td>Slotted CSMA: Utilizes infrastructure-sourced data status bits embedded in both voice and data transmissions</td>
</tr>
</tbody>
</table>

### DIMENSIONS AND WEIGHT

<table>
<thead>
<tr>
<th>Device Description</th>
<th>Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid Power Radio Transceiver</td>
<td>51 x 178 x 163 mm (2.0 x 7.0 x 6.4 in)</td>
<td>2.18 kg (4.80 lbs)</td>
</tr>
<tr>
<td>Radio Transceiver and O2 Control Head - Dash Mount</td>
<td>69 x 207 x 223 mm (2.7 x 8.1 x 8.8 in)</td>
<td>2.43 kg (5.36 lbs)</td>
</tr>
<tr>
<td>Mid Power Radio Transceiver and Remote Mount</td>
<td>51 x 178 x 193 mm (2.0 x 7.0 x 7.6 in)</td>
<td>2.18 kg (4.80 lbs)</td>
</tr>
</tbody>
</table>
## PERFORMANCE AND REGULATORY

### TRANSMITTER

<table>
<thead>
<tr>
<th>Frequency Range/Bandspreads</th>
<th>136-174 MHz</th>
<th>380-470 MHz</th>
<th>764-776, 794-906 MHz</th>
<th>806-825, 891-960 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated RF Output Power (Adjustable)</td>
<td>1-50 W</td>
<td>1-40 W</td>
<td>3-30 W</td>
<td>3-35 W</td>
</tr>
<tr>
<td>Frequency Stability (-30°C to +60°C, +25°C Ref.)</td>
<td>±0.8 PPM</td>
<td>±0.8 PPM</td>
<td>±0.8 PPM</td>
<td>±0.8 PPM</td>
</tr>
</tbody>
</table>

### Emissions

<table>
<thead>
<tr>
<th>Modulation Limiting (12.5/20/25 kHz)</th>
<th>±5/±2.5 kHz</th>
<th>±5/±2.5 kHz</th>
<th>±5/±2.5 kHz</th>
<th>±5/±2.5 kHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulation Fidelity (AM/FM) 12.5 kHz Digital Channel</td>
<td>2.5%</td>
<td>1.50%</td>
<td>1.50%</td>
<td>1.50%</td>
</tr>
<tr>
<td>Audio Response</td>
<td>+1, -3 dB (EIA)</td>
<td>+1, -3 dB (EIA)</td>
<td>+1, -3 dB (EIA)</td>
<td>+1, -3 dB (EIA)</td>
</tr>
<tr>
<td>FM Hum &amp; Noise (12.5 kHz/25 kHz)</td>
<td>-52 dB / -63 dB</td>
<td>-50 dB / -63 dB</td>
<td>-48 dB / -50 dB</td>
<td>-48 dB / -50 dB</td>
</tr>
<tr>
<td>Audio Distortion (12.5 kHz/25 kHz)</td>
<td>0.50%</td>
<td>0.50%</td>
<td>0.50% / 0.50%</td>
<td>0.50% / 0.50%</td>
</tr>
</tbody>
</table>

### RECEIVER

<table>
<thead>
<tr>
<th>Frequency Range/Bandspreads</th>
<th>136-174 MHz</th>
<th>380-470 MHz</th>
<th>764-776 MHz</th>
<th>851-870 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Channel Spacing</td>
<td>12.5/25 kHz</td>
<td>12.5/25 kHz</td>
<td>12.5/25 kHz</td>
<td>12.5/25 kHz</td>
</tr>
<tr>
<td>Maximum Frequency Separation</td>
<td>Full Bandsplit</td>
<td>Full Bandsplit</td>
<td>Full Bandsplit</td>
<td>Full Bandsplit</td>
</tr>
<tr>
<td>Audio Output Power at Rated/Max.</td>
<td>7.5 / 15 W</td>
<td>7.5 / 15 W</td>
<td>7.5 / 15 W</td>
<td>7.5 / 15 W</td>
</tr>
<tr>
<td>Frequency Stability (-30 °C to +40 °C, +25 °C Ref.)</td>
<td>±0.8 ppm</td>
<td>±0.8 ppm</td>
<td>±0.8 ppm</td>
<td>±0.8 ppm</td>
</tr>
</tbody>
</table>

### Analog Sensitivity (12 dB SINAD)

<table>
<thead>
<tr>
<th>Pre-Amp</th>
<th>Standard</th>
<th>Pre-Amp</th>
<th>Standard</th>
<th>Pre-Amp</th>
<th>Standard</th>
<th>Pre-Amp</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>-123 dBm (0.158 µV)</td>
<td>-119 dBm (0.251 µV)</td>
<td>-123 dBm (0.158 µV)</td>
<td>-119 dBm (0.251 µV)</td>
<td>-121 dB (0.190 µV)</td>
<td>-121 dB (0.190 µV)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 5% BER

<table>
<thead>
<tr>
<th>Pre-Amp</th>
<th>Standard</th>
<th>Pre-Amp</th>
<th>Standard</th>
<th>Pre-Amp</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>-123 dBm (0.158 µV)</td>
<td>-119 dBm (0.251 µV)</td>
<td>-123 dBm (0.158 µV)</td>
<td>-119 dBm (0.251 µV)</td>
<td>-121.5 dB (0.188 µV)</td>
<td>-121.5 dB (0.188 µV)</td>
</tr>
</tbody>
</table>

### Selectivity (12.5 kHz / 25 kHz / 30 kHz)

<table>
<thead>
<tr>
<th>Pre-Amp</th>
<th>Standard</th>
<th>Pre-Amp</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>84 dB / 84 dB</td>
<td>86 dB / 86 dB</td>
<td>82 dB / 84 dB</td>
<td>82 dB / 86 dB</td>
</tr>
</tbody>
</table>

### Intermodulation Rejection (12.5 kHz / 25 kHz)

<table>
<thead>
<tr>
<th>Pre-Amp</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>95 dB</td>
<td>90 dB</td>
</tr>
</tbody>
</table>

### Spurious Rejection

<table>
<thead>
<tr>
<th>Pre-Amp</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>-50 dB / -52 dB</td>
<td>-50 dB / -55 dB</td>
</tr>
</tbody>
</table>

### FM Hum & Noise (12.5 kHz / 25 kHz)

<table>
<thead>
<tr>
<th>Audio Distortion (12.5 kHz / 25 kHz)</th>
<th>1.20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.50%</td>
<td>1.20%</td>
</tr>
</tbody>
</table>

### POWER AND BATTERY DRAIN

<table>
<thead>
<tr>
<th>Model Type</th>
<th>136-174 MHz</th>
<th>380-470 MHz</th>
<th>764-870 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum RF Power Output</td>
<td>1-50 W</td>
<td>1-40 W</td>
<td>3-30 W (764-776 MHz)</td>
</tr>
<tr>
<td></td>
<td>3-30 W (794-898 MHz)</td>
<td>3-30 W (805-894 MHz)</td>
<td>3-30 W (851-870 MHz)</td>
</tr>
<tr>
<td>Operation</td>
<td>13.8V DC ±20% Negative Ground</td>
<td>13.8V DC ±20% Negative Ground</td>
<td>13.8V DC ±20% Negative Ground</td>
</tr>
<tr>
<td>Standby at 13.8 V</td>
<td>0.85A</td>
<td>0.85A</td>
<td>0.85A (764-776 MHz)</td>
</tr>
<tr>
<td></td>
<td>0.85A (764-776 MHz)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receive Current at Rated Audio at 13.8 V</td>
<td>3.2A</td>
<td>3.2A</td>
<td></td>
</tr>
<tr>
<td>Transmit Current (A) at Rated Power</td>
<td>13A (50 W) 8A (15 W)</td>
<td>11A (40 W) 8A (15 W)</td>
<td>12A (35W) 8A (15 W)</td>
</tr>
</tbody>
</table>
**ENVIRONMENTAL**

<table>
<thead>
<tr>
<th>Operating Temperature</th>
<th>-30°C to +60°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Temperature</td>
<td>-40°C to +85°C</td>
</tr>
<tr>
<td>Humidity</td>
<td>Per MIL-STD</td>
</tr>
<tr>
<td>ESD</td>
<td>IEC 51000-4-2</td>
</tr>
<tr>
<td>Water and Dust Intrusion</td>
<td>IP56, MIL-STD</td>
</tr>
</tbody>
</table>

**RADIO MODEL NUMBER**

<table>
<thead>
<tr>
<th>VHF</th>
<th>M22XSS9PW18N</th>
</tr>
</thead>
<tbody>
<tr>
<td>UHF R1</td>
<td>M22GS9PW18N</td>
</tr>
<tr>
<td>700/800 MHz</td>
<td>M22URS9PW18N</td>
</tr>
</tbody>
</table>

**MOBILE MILITARY STANDARDS A10, C, D, E, F, G & H**

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Pressure</td>
<td>500.1</td>
</tr>
<tr>
<td>High Temperature</td>
<td>502.1</td>
</tr>
<tr>
<td>Low Temperature</td>
<td>502.2</td>
</tr>
<tr>
<td>Temperature</td>
<td>503.1</td>
</tr>
<tr>
<td>Solar Radiation</td>
<td>505.1</td>
</tr>
<tr>
<td>Rain</td>
<td>506.1</td>
</tr>
<tr>
<td>Humidity</td>
<td>507.1</td>
</tr>
<tr>
<td>Salt Fog</td>
<td>510.1</td>
</tr>
<tr>
<td>Blowing Dust</td>
<td>510.2</td>
</tr>
<tr>
<td>Blowing Sand</td>
<td>510.2</td>
</tr>
<tr>
<td>Vibration</td>
<td>514.2</td>
</tr>
<tr>
<td>Shock</td>
<td>518.2</td>
</tr>
</tbody>
</table>

**FCC/IC TYPE ACCEPTANCE ID**

<table>
<thead>
<tr>
<th>FCC ID</th>
<th>138-174 MHz (1-50 W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IC ID</td>
<td>A2402FF1120</td>
</tr>
<tr>
<td>IC ID</td>
<td>106U-92FFT1120</td>
</tr>
<tr>
<td>IC ID</td>
<td>106U-92FFT1124</td>
</tr>
<tr>
<td>IC ID</td>
<td>764-778 MHz (2-30 W)</td>
</tr>
<tr>
<td>IC ID</td>
<td>794-808 MHz (2-30 W)</td>
</tr>
<tr>
<td>IC ID</td>
<td>806-824 MHz (3-35 W)</td>
</tr>
<tr>
<td>IC ID</td>
<td>851-870 MHz (3-35 W)</td>
</tr>
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ACHIEVE MISSION CRITICAL PERFORMANCE
WITH MANAGED AND SUPPORT SERVICES

ESSENTIAL
Only Support When You Need It
When the unpredictable happens to your network, Essential Services provide you access to Motorola Solutions Technical Support teams and resources for troubleshooting and maintenance.

ADVANCED
Improve Response and Continuity
Motorola Solutions expert service teams help mitigate downtime and ensure network continuity. Get fast response to network issues by our qualified technicians who analyze and diagnose your network as well as deliver routine maintenance.

PREMIER
Maximize Performance and Reduce Risk
Motorola Solutions Managed Services team helps operate and optimize your mission critical system. With Premier Services, you fully transfer the risk to Motorola Solutions and ensure your system operates at maximum performance levels, allowing your team to keep focus on its primary responsibilities.

For more information, please visit

MOTOROLA SOLUTIONS

Motorola Solutions, Inc. 500 West Monroe Street, Chicago, IL 60661 U.S.A. SB-32722256
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