SYSTEM UPGRADE PURCHASE AGREEMENT

BETWEEN

THE CITY AND COUNTY
OF DENVER
(Buyer)

and

L3HARRIS TECHNOLOGIES, INC.
COMMUNICATION SYSTEMS SEGMENT
(Seller)

Contract No.
PLANE-202264092

SYSTEM UPGRADE PURCHASE AGREEMENT

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SYSTEM UPGRADE PURCHASE AGREEMENT

THIS SYSTEM UPGRADE PURCHASE AGREEMENT ("Agreement") is made and entered into on the date set forth on the signature page, below, ("Effective Date"), by and between The City and County of Denver, a home-rule City and Colorado municipal corporation, (hereinafter referred to as "Buyer" or "City") and L3Harris Technologies, Inc., a Delaware corporation, acting through its Communication Systems Segment (hereinafter referred to as "Seller") together the ("Parties").

WITNESSETH:

WHEREAS Buyer, whose address is 8500 Pena Blvd., Denver, CO 80249, requested Seller provide a proposal to Buyer for a radio communications System Upgrade.

WHEREAS Seller, whose address is 221 Jefferson Ridge Parkway, Lynchburg, VA 24501, delivered a proposal (collectively, the "Seller's Proposal") to Buyer for a radio communication System Upgrade.

WHEREAS Buyer has accepted Seller's Proposal and now desires to contract with Seller to provide Buyer with the radio communications System Upgrade set forth in the Statement of Work attached to this Agreement as an appendix.

WHEREAS Buyer and Seller desire to enter into this Agreement to set forth in writing their respective rights, duties and obligations hereunder.

NOW, THEREFORE, for and in consideration of the mutual promises contained herein and other good and valuable consideration, the sufficiency and receipt of which are hereby acknowledged, it is mutually agreed between the Buyer and Seller as follows:

SECTION 1. DEFINITIONS:

As used herein, the terms set forth below shall have meanings set forth below.

A. "Acceptance" shall mean Acceptance of the System Upgrade as set forth in the Testing and Acceptance section of this Agreement.

B. "Acceptance Date" shall mean the date the System Upgrade is accepted or deemed accepted as set forth in the Testing and Acceptance section of this Agreement.

C. "Acceptance Tests" shall mean the testing procedures attached to the Statement of Work and mutually agreed upon by Buyer and Seller to be performed to determine whether the System Upgrade has met the Acceptance criteria either set forth in the Statement of Work attached to this Agreement as an appendix or as mutually agreed upon in writing by Buyer and Seller.

D. "Certificate of Insurance" shall mean the certificate to be provided by Seller evidencing the insurance coverage of Seller.

E. "Change Order" shall mean a written modification to the Total Agreement Price, Project Schedule or other Agreement terms which is signed by both Parties.

F. "Detailed Design Documents" shall mean those documents deliverable by Seller to Buyer at the conclusion of the Detailed Design Review described in the subsection Detailed Design Review under the Project

Management Planning section of this agreement.

G. "Detailed Design Review" or "DDR" shall have the meaning given in the subsection Detailed Design Review under the Project Management Planning section of this agreement.

H. "Documentation Deliverables" shall mean the standard commercial quality manuals to be furnished by the Seller to the Buyer pursuant to the terms set forth in the Statement of Work attached to this Agreement as an appendix and this Agreement.

I. "Effective Date of the Agreement" shall be the date on which the Agreement is signed by the last of the parties to sign the Agreement. The "Effective Date" shall be the date inserted on the first page of the Agreement.

J. "Expiration Date" shall mean the date on which the Term of this Agreement shall end which shall be the end of the Warranty Period (as defined in the Warranty Section) except that some other sections of this Agreement may have a later end date for that section of the Agreement as specifically provided in those sections of this Agreement.

K. "Hardware" shall mean, collectively, the Terminal Hardware and Infrastructure Hardware, as defined below.

L. "Infrastructure Hardware" shall mean the equipment, goods, and materials to be supplied by Seller for the System Upgrade infrastructure, as further described in the Statement of Work attached to this Agreement as an appendix.

M. "Project Kick-Off Meeting" shall have the meeting given in the Project Management and Planning section of this Agreement.

N. "Project Manager" shall mean each respective Party's duly authorized representative designated to manage each Party's obligations.

O. "Project Schedule" shall mean the schedule attached to the Statement of Work or otherwise mutually agreed upon by Seller and Buyer in writing for the delivery of the Hardware and Software and the performance of the Services described in the Statement of Work attached to this Agreement as an appendix.

P. "Project Sites" shall mean those sites where any construction work is performed, or any Infrastructure Hardware is installed, under the terms of this Agreement.

Q. "Responsibility Matrix" shall mean the table included in the Statement of Work attached to this Agreement as an appendix, which depicts the roles and responsibilities of Seller and Buyer set forth this Agreement.

R. "Reserved"

S. "Services" or "Work" shall mean the services and work to be provided by Seller to Buyer included in the Statement of Work attached to this Agreement as an appendix.

T. "Software" shall mean the proprietary computer software of Seller as owned exclusively by Seller or Seller's suppliers, as appropriate, and as further defined in and licensed to Buyer pursuant to the terms of the Software License Agreement.

U. "Software License Agreement" shall mean the System Software License Agreement set forth in an exhibit attached to the original System Purchase Agreement.

V. "Statement of Work" shall mean the description of the work to be performed by Seller to deliver the Hardware, install the System Upgrade and provide the Services, all as described in an appendix attached to this Agreement.

W. "System Upgrade" shall mean the radio communications System Upgrade comprised of the Hardware and Software to be furnished by Seller to Buyer pursuant to the terms set forth in the Statement of Work attached to this Agreement as an appendix.

X. "Terminal Hardware" shall mean mobile units, portable units, control stations and related accessories to be provided by Seller as listed in the Statement of Work attached to this Agreement as an appendix.

Y. "Total Agreement Price" shall mean the price of the Hardware, the Software license and the Services to be furnished by Seller to Buyer pursuant to the terms set forth in the Statement of Work attached to this Agreement as an appendix and this Agreement and the price of Additional Equipment and Services, if any, as described in Section 2.F.

Z. "Tower Sites" if required, shall mean those sites where Infrastructure Hardware will be installed on existing or new towers as included in the Contractor's Statement of Work and to be finalized in the Detailed Design Documents or subsequent Change Orders.

SECTION 2. SCOPE OF WORK:

A. Seller shall furnish, deliver and install the Hardware and Software for the System Upgrade and provide the Documentation Deliverables and Services in accordance with the terms of the Statement of Work, attached to this Agreement as an appendix, the Project Schedule and this Agreement.

B. The Detailed Design Documents, as described in the Project Management and Planning section of this Agreement and as amended from time to time in writing by the Parties, shall be incorporated into this Agreement after the Detailed Design Documents are approved by the Buyer and thereafter shall supersede any contrary provisions in the Statement of Work attached to this Agreement as an appendix.

C. Seller shall commence, carry on and complete its obligations under this Agreement with all deliberate speed in accordance with the dates set forth in the Project Schedule and in a sound, economical and efficient manner, in accordance with this Agreement and all applicable laws. In providing services under this Agreement, Seller agrees to cooperate with the various departments, agencies, employees and officers of Buyer.

D. Seller agrees to secure at Seller's own expense all personnel necessary to carry out Seller's obligations under this Agreement. Such personnel shall not be deemed to be employees of Buyer nor shall they or any of them have or be deemed to have any direct contractual relationship with Buyer. Seller expressly understands and agrees that the Seller is and shall in all respects be considered an independent contractor.

E. Seller shall provide managed services in accordance with the terms of ***Appendix D, Managed Services Agreement***.

F. **Additional Equipment and Services.** The Seller may also provide additional equipment and perform additional services, hereinafter referred to as "Additional Equipment and Services" or "Work", which relate to the subject matter of this Agreement, but which the Buyer determines is not described in the Scope of Work or in excess of the requirements of the Scope of Work. Change orders and/or additional Statements of Work (SOWs) will be provided as needed to document work beyond that identified in ***Appendix B***. The

Seller shall be compensated for such Additional Services only if the services and the amount of fees and reimbursable expenses for the services have been authorized in writing in advance by the Buyer. The total amount of fees and reimbursable expense costs for Additional Services shall not cause this Agreement to exceed the Total Agreement Price set forth herein, and in no event shall the approval of Additional Services and the cost of performing them be deemed to constitute an agreement by the City to an increase in Total Agreement Price. Additional Services shall not be binding upon either Party unless and until evidenced by a Change Order signed by the parties hereto.

SECTION 3. PROJECT MANAGEMENT AND PLANNING:

A. **Project Managers.** Seller shall designate a Project Manager who will lead the Seller' team for the System Upgrade installation project and other Services and Work described in this Agreement (the "Project") and will serve as the Buyer's primary point-of-contact for Seller's project team and the official liaison between Seller's project team and Buyer. Buyer shall designate a Project Manager to function as the single point-of-contact and official liaison between Seller's Project Manager and the Buyer.

B. **Project Completion Dates.** The Project completion dates are described in the schedule included in the Statement of Work, entitled "Project Schedule." The Project Schedule may only be modified by mutual written approval of the Parties or as otherwise provided in this Agreement.

C. **Project Kick-off Meeting.** Promptly after the Effective Date of the Agreement, the Seller's Project Manager shall schedule a Project Kick-Off Meeting, the timing and location of which will be mutually agreed upon by Seller and Buyer. The objectives of this meeting include introduction of all project participants, review of the roles of the project participants, review of the overall project scope and objectives, review of the resource and scheduling requirements and review of current site status.

D. **Site Visits.** All existing towers, shelters and associated equipment provided by or mandated by Buyer shall be satisfactory in all manners to accommodate the System Upgrade proposed by the Seller. Following the Effective Date of the Agreement, the Buyer shall provide Seller with access to all Project Sites upon reasonable notice to allow Seller to thoroughly examine each Site and to perform the Detailed Design Review, to prepare a schedule of preparatory work required for each site and a timeline for completion of the preparatory work at each site.

E. **Construction Management Services, Site Preparatory Work.** If applicable - Seller shall perform the civil construction services set forth in the Statement of Work and the Responsibility Matrix including, but not limited to, the site improvement civil construction to be performed at the identified sites. Buyer shall identify and disclose to Seller any and all problems or conditions at all Project Sites of which Buyer is aware that may affect the Work to be performed by Seller under this Agreement.

F. **Detailed Design Review.** The Detailed Design Review ("DDR") phase will commence after the Effective Date of the Agreement and conclude at a mutually acceptable time to maintain adherence to the Project Schedule. During the DDR, Seller's Project Manager will meet with Buyer's project team on one or multiple occasions to review the System Upgrade design, technical data, and site specific information to confirm and to refine the System Upgrade. At the conclusion of the DDR, Seller will provide Buyer with the Detailed Design Documents, as mutually agreed upon, for review and approval by Buyer:

Buyer shall have fourteen (14) days to conduct its review of the documents. Approval of Detailed Design Documents by the Buyer shall not be unreasonably withheld, conditioned or delayed.

G. **Project Schedule.** The Project Schedule for the Work is included in the Statement of Work, as an attachment

entitled "Project Schedule." Updates to the start dates and durations will be made as the information evolves and will be mutually agreed upon by both parties or updated as otherwise provided herein.

H. **System Upgrade Implementation Communications.** Seller and Buyer shall jointly establish a plan that defines regular meetings, reporting structure, and other communications activities, including working sessions that may be needed throughout the term of this Agreement to plan sub-tasks, including at a minimum: (a) one or more DDR meetings to communicate the final engineering design; (b) formal monthly reports to Buyer's Project Manager concerning work in progress and accomplishments; (c) periodic status meetings at which the parties' Project Managers and other project participants will provide updates; (d) conference calls with Seller's and Buyer's project teams to discuss tasks, assign responsibility, and establish schedules; and (e) workshops or working sessions that may be needed throughout the Project to plan subtasks.

I. **Buyer Approvals**. Buyer will review and respond with reasonable promptness to all submittals or other items requiring its approval under this Agreement. For all such submittals or other items Buyer will provide the Seller with either; (i) written notification of Buyer's approval, or (ii) a written notification of conditional approval subject to Seller providing prompt correction of any noted deficiency, or (iii) in the case of a submittal that does not meet the requirements of the Agreement, a written notification of Buyer's disapproval. Buyer's disapproval notification will be provided with reasonable detail to sufficiently advise Seller of the basis on which the submittal was determined to be unacceptable. Buyer agrees that, except as otherwise provided, failure to provide approval, conditional approval or non-approval of a submittal for which its approval is required within fifteen (15) days of receipt of the submittal from the Seller shall constitute approval of the submittal. The parties agree that this section, Project Management and Planning, does not relate to the Testing and Acceptance procedures in the Testing and Acceptance section of this Agreement.

SECTION 4. OBLIGATIONS FOR SYSTEM UPGRADE IMPLEMENTATION:

The following subsections apply to the Work to be performed under the Agreement.

A. **Project Management and Implementation Plan.** Buyer and Seller each agree to perform their respective tasks and obligations pertaining to permits and licenses, Project Site surveys, general Project Site-related responsibilities, general Hardware-related responsibilities, and Project Site-specific responsibilities as set forth in the Statement of Work. The Buyer's obligations set forth in the Statement of Work shall be performed by Buyer in a timely and proper fashion in accordance with the Project Schedule, or as otherwise agreed upon by Buyer and Seller, to allow Seller to timely perform its obligations under the Agreement.

B. **Access.** Buyer shall provide access, at no cost to Seller, to all owned, leased, or licensed Project Sites at reasonable times, and with an escort (if required) at no charge, upon reasonable prior notification from Seller. Buyer shall ensure sufficient room, within reason, for construction vehicles used by Seller. Buyer shall issue temporary identification cards to Seller's personnel and its authorized subcontractors, if required, for access to any of the Project Sites.

C. **"Reserved"**

D. **"Reserved"**

E. **Frequency Federal Communications Commission (FCC) Licensing.** If applicable - The Buyer will be responsible for obtaining all FCC frequency licenses for the System Upgrade, with Seller providing technical assistance and information as set forth in the Statement of Work. Seller has no responsibility or obligation to secure licensed frequencies. In the event Buyer fails to obtain FCC licenses, and such failure has a material impact on the cost of Work performed by Seller under the Agreement and/or the schedule, the parties agree

that Seller shall be entitled to an equitable adjustment to the Project Schedule, the Total Agreement Price, or both and that a Change Order shall be agreed to by the parties.

F. **Federal Aviation Administration (FAA) Approvals.** If applicable - Buyer will be responsible for obtaining all FAA approvals for newly-constructed or modified towers.

G. **Contractor Licenses**. Seller will be responsible for obtaining all contractor licenses required for the performance of its duties and obligations.

SECTION 5. DELIVERY, TITLE AND RISK OF LOSS:

A. **Infrastructure Hardware**. Seller shall ship the Infrastructure Hardware to Buyer at Buyer's expense on or before the dates set forth in the Project Schedule. Partial deliveries shall be permitted. Upon delivery to the first carrier, title to each portion of the Hardware and all risk of loss or damage shall pass to Buyer. Infrastructure Hardware may be shipped directly to Buyer or to a mutually agreed upon staging or storage location. Buyer shall keep the Hardware fully insured for the total amount of all monies then due, or yet to become due, to Seller with respect to this Agreement.

B. **Terminal Hardware**. Seller shall ship the Terminal Hardware to Buyer at Buyer's expense on or before the dates set forth in the Project Schedule. Partial deliveries shall be permitted. Upon delivery to the first carrier, title to each portion of the Hardware and all risk of loss or damage shall pass to Buyer.

C. If Buyer fails to take delivery of any of the Hardware, Seller may place such Hardware in storage at the place of manufacture or elsewhere. In such event: (1) Seller shall notify Buyer of the placement of any Hardware in storage; (2) Seller's delivery obligations shall be deemed fulfilled and title and all risk of loss or damage shall thereupon pass to Buyer; (3) any amounts otherwise payable to Seller upon delivery shall be payable upon presentation of Seller's invoices therefore; and (4) promptly upon submission of Seller's invoices therefore Buyer shall reimburse Seller for all expenses incurred by Seller such as preparation for and placement into storage, handling, storage, demurrage, inspection, preservation and insurance.

SECTION 6. PRICE:

A. **Total Agreement Price.** The Total Agreement price is Three Million, Eight Hundred and Eight Thousand, Three Hundred and Eighty-Seven and 04/100 Dollars ($3,808,387.04). The Total Agreement Price includes the System Upgrade Agreement Price, the Managed Services Agreement Price and Additional Equipment and Services, if any, pursuant to Paragraph 2.F.

1. **System Upgrade Agreement Price.** The Total System Upgrade Agreement Price to be paid by Buyer to Seller is One Million, Two Hundred Seventy-Five Thousand, and Eight and 04/100 Dollars ($1,275,008.04 USD). The individual prices for the units of Hardware, the Software license and the Services to be performed are as set forth in the Price Schedule as an attachment to the Statement of Work.

2. **Managed Services Agreement Price.** The Managed Services Agreement Price to be paid by Buyer to Seller is Two Million, One Hundred and Eighty-Seven Thousand, One Hundred and Sixty-Two and 00/100 Dollars ($2,187,162.00 USD). The price for the Managed Services to be performed are as set forth in Exhibit D, Managed Services Agreement.

3. **Additional Equipment and Services.** The Additional Equipment and Services Price, if any, that may be paid pursuant to Paragraph 2.F is Three Hundred Forty-Six Thousand, Two Hundred Seventeen and 00/100 Dollars ($346,217.00 USD).

B. **Limited Obligation of Buyer.** The obligations of the Buyer under this Agreement shall extend only to

monies appropriated and encumbered for the purposes of this Agreement. Seller acknowledges and understands the Buyer does not by this Agreement irrevocably pledge present cash reserves for payments in future fiscal years, and this Agreement is not intended to create a multiple-fiscal year direct or indirect debt or financial obligation of the Buyer. The Buyer is not under any obligation to make any future encumbrances or appropriations for this Agreement nor is the Buyer under any obligation to amend this Agreement to increase the Total Agreement Price above.

C. **Payment Source.** For payments required under this Agreement, the Buyer shall make payments to Seller solely from funds of the Airport System Fund and from no other fund or source. The Buyer has no obligation to make payments from any other source.

SECTION 7. TAXES:

In addition to any price specified herein, Buyer shall pay the gross amount of any present or future sales, use, excise, value-added, or other similar tax applicable to the price, sale or any Hardware or Services furnished hereunder or to their use by Seller or Buyer, or Buyer shall otherwise furnish Seller with tax exemption certificates acceptable to all applicable taxing authorities.

SECTION 8. CHANGES AND ADDITIONS:

A. **Hardware Changes**. In the event of any change in the Hardware as a result of the imposition after the Effective Date of this Agreement of any requirements by any federal, state, or local government, Seller shall be entitled to an equitable adjustment, by Change Order, in the Total Agreement Price, the Project Schedule, or both. Any such adjustment in the Total Agreement Price or Project Schedule shall be mutually satisfactory to Buyer and Seller. Price increases and/or extensions of time shall not be binding upon either Party unless and until evidenced by a Change Order signed by the parties hereto.

B. **Buyer Requested Changes.** Buyer may request changes in or additions to the Work or in the time or place of performance of the Work under this Agreement. If any such change causes an increase or decrease in the cost of, or the time required for, performance of any part of the Work under this Agreement, Seller shall be entitled to an equitable adjustment, by Change Order, in the Total Agreement Price, the Project Schedule, or both. Any such adjustment in the Total Agreement Price or Project Schedule shall be mutually satisfactory to Buyer and Seller. Price increases and/or extensions of time shall not be binding upon either Party unless and until evidenced by a Change Order signed by the parties hereto.

C. **Buyer Delays In Performance.** To the extent that Buyer fails to timely perform its obligations under the Responsibility Matrix or otherwise under this Agreement, and such failure has a material impact on the cost of Work performed by Seller under the Agreement and/or the Project Schedule, the parties agree that Seller shall be entitled to an equitable adjustment to the Project Schedule, the Total Agreement Price, or both. Any such adjustment in the Total Agreement Price or Project Schedule shall be mutually satisfactory to Buyer and Seller. Price increases and/or extensions of time shall not be binding upon either Party unless and until evidenced by a Change Order signed by the Parties hereto.

D. **Concealed Conditions.** If, following Buyer's Acceptance of the Detailed Design Documents, Seller encounters a concealed condition, of which it had no reason to be aware, at one or more Project Sites, then the Parties agree to work together to determine the best course of action and agree to negotiate in good faith a Change Order and an equitable adjustment to the Project Schedule and/or Total Agreement Price. Any such adjustment in the Total Agreement Price or Project Schedule shall be mutually satisfactory to Buyer and Seller. Price increases and/or extensions of time shall not be binding upon either Party unless and until evidenced by a Change Order signed by the parties hereto.

E. **Product Discontinuance**. Subject to its obligation to fulfill its obligations set forth in the Agreement, Seller reserves the right to change or to discontinue any product covered by the Agreement provided that Seller agrees to make available to the Buyer a functionally equivalent replacement product equal to or better than the product discontinued.

F. **Frequency Support and Frequency Changes.** If applicable - Seller shall reasonably support Buyer in submitting the Buyer's frequency licensing applications to the regional authorities and the FCC for this project. In the event that, after all commercially reasonable efforts and due diligence have been expended, the Buyer cannot obtain all of the necessary United States and Canada government approvals for the frequency plan as described in this Statement of Work and this Agreement, it shall be treated as an excusable delay event pursuant to the Excusable Delays section of this agreement for which an extension to the Project Schedule shall be granted, and Seller will diligently and expeditiously prepare and provide to Buyer a System Upgrade re-design for its review and approval including all price and Project Schedule changes. Notwithstanding anything to the contrary contained in the Agreement, the Parties agree if a System Upgrade re-design has a material impact on the cost of Work performed by Seller under the Agreement and/or the schedule, the Parties agree that that Seller may be entitled to an equitable adjustment to the Total Agreement Price and/or the Project Schedule for Seller's services on any such System Upgrade re-design. Any such adjustment in the Total Agreement Price or Project Schedule shall be mutually satisfactory to Buyer and Seller. Price increases and/or extensions of time shall not be binding upon either Party unless and until evidenced by a Change Order signed by the parties hereto. In the event that Buyer and Seller cannot mutually agree on the System Upgrade re-design, either party may then terminate the Agreement on thirty (30) days written notice to the other Party.

SECTION 9. PAYMENTS:

A. The Total Agreement Price for the Hardware, the Software license and the Services shall be paid by the Buyer to Seller as follows:

A.1. Infrastructure Hardware:

1. Twenty percent (20%) of the Total Agreement Price (excluding the aggregate price of the Terminal Hardware included in the Total Agreement Price) shall be due at the time of the signing of the Agreement by the Buyer and Seller.
2. Ten percent (10%) of the Total Agreement Price (excluding the aggregate price of the Terminal Hardware included in the Total Agreement Price) shall be due at the time of the first System Upgrade design review meeting.
3. Twenty percent (20%) of the Total Agreement Price (excluding the aggregate price of the Terminal Hardware included in the Total Agreement Price) shall be due at the time of Infrastructure Hardware factory staging as described in the project schedule.
4. Thirty percent (30%) of the Total Agreement Price (excluding the aggregate price of the Terminal Hardware included in the Total Agreement Price) shall be due at the time of Infrastructure Hardware shipment and delivery to Buyer. Partial payments of the total Infrastructure Hardware amount due under this subparagraph shall be allowed and shall be calculated using the value of the Infrastructure Hardware shipped and delivered as a percentage of the total value of the Infrastructure Hardware to be shipped and delivered under the terms of this Agreement. The Buyer shall have the right to inspect and confirm that the Infrastructure Hardware included in Seller's invoice has been delivered to Buyer.
5. Fifteen percent (15%) of the Total Agreement Price (excluding the aggregate price of the Terminal Hardware included in the Total Agreement Price) shall be due upon substantial completion of the Hardware installation (exclusive of the mutually agreed upon value of any punchlist items).
6. Five percent (5%) of the Total Agreement Price (excluding the aggregate price of the Terminal Hardware included in the Total Agreement Price) plus any remaining unpaid portion of the Total Agreement Price for all Hardware,

Software and Services to be provided under the terms of this Agreement (excluding the aggregate price of the Terminal Hardware included in the Total Agreement Price) shall be due upon final Acceptance of the System Upgrade.

A.2. Terminal Hardware:

1. One Hundred Percent (100%) of the purchase price of Terminal Hardware shall be invoiced upon shipment of unit on a per unit basis.

B. Invoices and Electronic Funds Transfer

Unless otherwise agreed by the parties, Seller shall electronically submit invoices using Seller's standard invoice template. Buyer shall pay all invoices via Electronic Funds Transfer ("EFT") directly to Seller's banking institution using Seller's banking information and EFT instructions below.

L3Harris Technologies, Inc.
Bank of America, New York, NY 10038 Account No.:
4451124230
Routing/ABA (ACH ONLY): 111000012
Routing/ABA (Wire ONLY): 026009593

C. Payment Dates

The Payment(s) associated with the event(s) above shall be due thirty (30) days following the date of Seller's invoice.

D. Other Amounts

Any other amounts due Seller hereunder shall be due upon Buyer's receipt of Seller's invoice.

E. Late Payments; Prompt Payment Ordinance

All amounts past due over thirty (30) days shall accrue interest from their due date at the rate of one and one-half percent (1-1/2%) per month (or such lesser rate as may be the maximum permissible rate under applicable law). The Seller is subject to D.R.M.C. Section 20-112 wherein the Seller is to pay its subcontractors in a timely fashion. A payment is timely if it is mailed to the subcontractor no later than seven days after receipt of any payment from City. Any late payments are subject to a late payment penalty as provided for in the prompt pay ordinance (Denver Revised Municipal Code, Section 20-107 through 20-118).

SECTION 10. SUBCONTRACTING:

Seller may subcontract any portion of Work to be performed by Seller hereunder provided that Seller shall be responsible for the performance and Work of any such subcontractors. Not withstanding the foregoing, no portion of the Work shall be performed by any subcontractor debarred by the federal government of the United States, the State of Colorado, or the City and County of Denver.

SECTION 11. EXCUSABLE DELAYS:

A. Seller shall not be liable for delays in delivery or failure to perform due directly or indirectly to: (1) causes beyond Seller's reasonable control, (2) Acts of God, acts (including failure to act) of any governmental authority (de jure or de facto), wars (declared or undeclared), riots, revolutions, strikes or other labor disputes, fires, floods, sabotage, nuclear incidents, earthquakes, storms, epidemics, (3) Seller's inability to timely obtain

necessary materials, items, components or services from suppliers who are affected by the foregoing circumstances, or (4) Buyer Delays in Performance of its obligations hereunder in a timely manner. The foregoing shall apply even though any of such causes exists at the time of signature of the Agreement by Seller or occurs after delays in Seller's performance of its obligations due to other reasons.

B. In the event of any delay or failure excused by this Section Excusable Delays, Seller shall as soon as practical notify Buyer and shall at the same time, or at the earliest practical date after such notice, specify the revised delivery and performance dates. In the event of such delay, the time of delivery or of performance shall be extended for a reasonable time period to compensate for the time lost by Seller by reason of the delay.

SECTION 12. SELLER'S INSURANCE:

A. Seller shall obtain and keep in force all of the minimum insurance coverage forms and amounts set forth in ***Appendix C*** ("**Insurance Requirements**") during the entire Term of this Agreement, including any extensions of the Agreement or other extended period stipulations stated in ***Appendix C***. All certificates of insurance must be received and accepted by the City before any airport access or work commences.

B. Seller shall ensure and document that all subcontractors performing services or providing goods hereunder procure and maintain insurance coverage that is appropriate to the primary business risks for their respective scopes of performance. At minimum, such insurance must conform to all applicable requirements of DEN Rules and Regulations Part 230 and all other applicable laws and regulations.

C. The City in no way warrants or represents the minimum limits contained herein are sufficient to protect Seller from liabilities arising out of the performance of the terms and conditions of this Agreement by Seller, its agents, representatives, employees, or subcontractors. Seller shall assess its own risks and maintain higher limits and/or broader coverage as it deems appropriate and/or prudent. Seller is not relieved of any liability or other obligations assumed or undertaken pursuant to this Agreement by reason of its failure to obtain or maintain insurance in sufficient amounts, duration, or types.

D. In no event shall the City be liable for any of the following: (i) business interruption or other consequential damages sustained by Seller; (ii) damage, theft, or destruction of Seller's inventory, or property of any kind; or (iii) damage, theft, or destruction of an automobile, whether or not insured.

E. The Parties understand and agree that the City, its elected and appointed officials, employees, agents and volunteers are relying on, and do not waive or intend to waive by any provisions of this Agreement, the monetary limitations and any other rights, immunities and protections provided by the Colorado Governmental Immunity Act, C.R.S. §§ 24-10-101 to 120, or otherwise available to the City, its elected and appointed officials, employees, agents and volunteers.

F. Within ten (10) business days of execution of this Agreement, Seller shall provide Buyer with a surety bond for performance substantially in the form set forth in attachment to this Agreement, which bond shall terminate upon final System Upgrade Acceptance as set forth in subsection A above.

SECTION 13. TESTING AND ACCEPTANCE:

A. Seller shall notify Buyer that the System Upgrade is ready for Acceptance Tests at least ten (10) days before commencement of the Acceptance Tests. Buyer and Seller shall jointly commence the Acceptance Tests on the date specified in Seller's notice (or other mutually agreeable date) and a representative of Seller and a representative of Buyer shall sign off on the form provided as part of the test procedure whether each item of the test was passed or failed. If the System Upgrade does not fulfill the requirements of the Acceptance Tests, Seller shall correct the defects at no additional cost to Buyer as soon as practicable. Upon correction of the defects the Acceptance Tests for the applicable part of the System Upgrade shall be repeated in accordance with the

procedures set forth in this Section. Successful completion of the Acceptance Test is the sole criterion for technical System Upgrade Acceptance and the initiation of the Warranty Period. Final System Upgrade Acceptance shall occur when the Hardware and Software for the System Upgrade, Documentation Deliverables and Services have been furnished, delivered, installed and the Acceptance Tests have been passed.

B. Notwithstanding the Acceptance testing of the System Upgrade set forth in subsection A above, if Buyer commences use of any portion of the System Upgrade for its intended purpose, other than for the express purpose of training or testing as mutually agreed upon by Seller and Buyer in writing, prior to System Upgrade Acceptance, the applicable portion of the System Upgrade shall be deemed accepted by Buyer. The final payment for the applicable portion of the System Upgrade shall be due and payable upon such Acceptance. The Warranty Period for the applicable portion of the System Upgrade put into use together with the associated installation Services shall be deemed to have commenced concurrently with the use of the applicable portion of the System Upgrade for its intended purpose.

C. As used in the Agreement, the term "Acceptance Date" shall mean and "Acceptance" of the System Upgrade shall be deemed to occur upon the earlier of: (1) the date on which the System Upgrade is deemed accepted pursuant to subsection (A) above, or (2) the date on which the System Upgrade is deemed accepted pursuant to subsection (B) above.

D. Buyer and Seller agree that in the process of completing the Acceptance Tests, most if not all of the Acceptance Tests can be successfully completed with only a minor number of punchlist items remaining to be completed. In such event, Buyer and Seller shall mutually (and reasonably) agree upon the punchlist items to be completed, the value of those items and that "Conditional Acceptance" of the System Upgrade has occurred. For the purpose of initiating the Warranty Period, satisfying the Project Schedule requirements and the release of any retained funds (other than the value of the punchlist items) conditional Acceptance shall constitute "Acceptance" of the specific portion or phase of the System Upgrade. Conditional Acceptance shall not, however, release Seller from its obligations to complete the remaining punchlist items by the dates set forth on the punchlist schedule.

E. Terminal Hardware shall be deemed accepted upon Buyer's receipt of delivery at a Buyer-controlled facility, together with a bill of sale or other reasonably requested evidence of title.

SECTION 14. SOFTWARE LICENSE.

Subject to the terms and conditions of the Software License Agreement, Buyer is granted a license to use the Software in conjunction with the System Upgrade purchased under this Agreement. "Software" means the "Licensed Programs" as defined in the Software License Agreement.

SECTION 15. COVERAGE:

Seller's representations concerning the distance at which usable radio signals will be transmitted and received by Hardware supplied hereunder are set forth in the Statement of Work. Coverage for the System shall be measured as provided in the Testing and Acceptance section of this Agreement.

SECTION 16. WARRANTIES:

A. Hardware and Services

Seller warrants for the following periods of time from the Acceptance Date (hereinafter referred to as the "Warranty Period"), that the Hardware and installation Services furnished by Seller under this Agreement shall be free from defects in material and workmanship and shall conform to the Agreement specifications. Any Services provided during the Warranty Period are set forth in the

Statement of Work. Any and all claims for breach of this warranty are conclusively deemed waived unless made within the Warranty Period.

1. for mobile and portable radios, twenty-four (24) months.
2. for all other Hardware, one (1) year.

B. For purposes of this Warranty the batteries supplied by Seller shall be deemed defective if: (1) the battery capacity is less than 80% of rated capacity, or (2) the battery develops leakage. Replacement batteries shall be warranted only for the remaining unexpired portion of the Warranty Period. This warranty becomes void if: (1) the battery has been subjected to any kind of misuse, detrimental exposure, or has been involved in an accident, or (2) the battery is used in equipment or service other than the Hardware for which it is specified.

C. During the Warranty Period if any component of the Hardware or portion of the installation Services fails to meet the foregoing warranties, Seller's sole obligation and Buyer's exclusive remedy under this warranty shall be the correction by Seller of the failure. Seller shall, at Seller's sole option, (1) repair any defective component of the Hardware, or (2) furnish necessary repaired, refurbished, or replacement parts, or (3) correct the faulty installation. Seller will be responsible for all shipping charges incurred in returning defective parts to Seller's facility and the shipping charges to return repaired, refurbished, or replacement parts to Buyer. Any such repair or replacement of the defective component or the redoing of any installation shall not extend the Warranty Period. All warranty work must be at the Seller's place of business, for mobile or portable equipment, or at the Buyer's location for fixed location equipment. Where such failure cannot be corrected by Seller's commercially reasonable efforts, Seller will refund to Buyer the fees paid for the parts or Hardware less depreciation.

D. Any additional purchases of equipment, including radios, and installation services which may be purchased by Buyer and delivered or performed by Seller after System Upgrade Acceptance, shall be warranted on the same terms, limitations, and exclusions as are set forth herein, except that the warranty on the equipment and installation services shall be for a period of two (2) years for additional Terminal Hardware items from the date of delivery of that item of equipment, one (1) year for additional Infrastructure Hardware items from the date of delivery of that item of equipment, and one
(1) year from the date of completion of that installation service.

E. Seller's obligations shall not apply to: (1) Hardware or components thereof which are normally consumed in operation, or, or (2) defects which are the result of improper storage, use, or installation performed by other than Seller, maintenance performed by other than Seller, or repair performed by other than Seller, or (3) Hardware which has been subjected to any other kind of misuse or detrimental exposure or has been involved in an accident, or (4) Hardware or installations altered or repaired by any party other than Seller without Seller's prior written consent.

F. "Reserved"

G. <u>Software</u>

The warranty for the Software is set forth in the Software License Agreement.

H. THE WARRANTIES AND REMEDIES SET FORTH IN THIS SECTION AND IN THE SOFTWARE LICENSE AGREEMENT CONSTITUTE THE ONLY WARRANTIES WITH RESPECT TO THE HARDWARE, SOFTWARE AND SERVICES AND THE BUYER'S EXCLUSIVE REMEDIES IN THE EVENT SUCH WARRANTIES ARE BREACHED. THEY ARE IN LIEU OF ALL OTHER WARRANTIES WHETHER WRITTEN, ORAL, EXPRESS, IMPLIED, OR STATUTORY INCLUDING, WITHOUT LIMITATION, THE WARRANTY OF MERCHANTABILITY AND THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL SELLER BE LIABLE FOR SPECIAL,

CONSEQUENTIAL OR INDIRECT DAMAGES INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS OR REVENUES.

SECTION 17. INTERFERENCE:

Radio System coverage and performance are subject to degradation or disruption due to anomalous propagation and interference by natural phenomena or other radio Systems ("Outside Interference"). Seller cannot be responsible for Outside Interference over which the Seller has no reasonable control. In the event of a case of degradation or disruption due to Outside Interference by natural phenomena or an outside party, Seller will provide engineering support to Buyer at Buyer's expense to support Buyer's efforts in investigating and resolving the Outside Interference.

SECTION 18. DEFENSE AND INDEMNIFICATION:

A. Seller hereby agrees to defend, indemnify, reimburse and hold harmless the City, its appointed and elected officials, agents and employees for, from and against all liabilities, claims, judgments, suits or demands for damages to persons or property arising out of, resulting from, or relating to the work performed under this Agreement ("**Claims**"), unless such Claims have been specifically determined by the trier of fact to be the sole negligence or willful misconduct of the City. This indemnity shall be interpreted in the broadest possible manner to indemnify the City for any acts or omissions of Seller or its subcontractors either passive or active, irrespective of fault, including the City's concurrent negligence whether active or passive, except for the sole negligence or willful misconduct of the City.

B. Seller's duty to defend and indemnify the City shall arise at the time written notice of the Claim is first provided to the City regardless of whether Claimant has filed suit on the Claim. Seller's duty to defend and indemnify the City shall arise even if the City is the only party sued by claimant and/or claimant alleges that the City's negligence or willful misconduct was the sole cause of claimant's damages.

C. Seller will defend any and all Claims which may be brought or threatened against the City and will pay on behalf of the City any expenses incurred by reason of such Claims including, but not limited to, court costs and attorney fees incurred in defending and investigating such Claims or seeking to enforce this indemnity obligation, including but not limited to time expended by the City Attorney Staff, whose costs shall be computed at the rate of two hundred dollars and no cents ($200.00) per hour of City Attorney time. Such payments on behalf of the City shall be in addition to any other legal remedies available to the City and shall not be considered the City's exclusive remedy.

D. Insurance coverage requirements specified in this Agreement shall in no way lessen or limit the liability of Seller under the terms of this indemnification obligation. Seller shall obtain, at its own expense, any additional insurance that it deems necessary for the City's protection.

E. This defense and indemnification obligation shall survive the expiration or termination of this Agreement.

SECTION 19. PATENTS:

A. Seller warrants that the System Upgrade furnished hereunder shall be delivered free of any rightful claim of any third party for infringement of any United States patent or copyright. If Buyer notifies Seller promptly of the receipt of any claim that the System Upgrade infringes a United States patent or copyright and gives Seller information, assistance and exclusive authority to settle and defend such claim, Seller at its own expense shall defend, or may settle, any suit or proceeding against Buyer so far as based on a claimed infringement which

breaches this warranty. If, in any such suit arising from such claim, the continued use of the System Upgrade for the purpose intended is enjoined by any court of competent jurisdiction, Seller shall, at its expense and option, either: (1) procure for Buyer the right to continue using the System Upgrade, or (2) modify the System Upgrade so that it becomes non- infringing, or (3) replace the System Upgrade or portions thereof so that it becomes non-infringing, or
(4) remove the System Upgrade and refund the purchase price (less reasonable depreciation for use). The foregoing states the entire liability of Seller for patent or copyright infringement by the System Upgrade and is subject to any limitation of total liability set forth in this Agreement.

B. The preceding subsection (A) shall not apply to: (1) any portion of the System Upgrade which is manufactured to Buyer's design, or (2) the use of the System Upgrade in conjunction with any other apparatus or material not supplied by Seller to the extent that such conjoined use causes the alleged infringement. As to any portion of the System Upgrade or use described in the preceding sentence, Seller assumes no liability whatsoever for patent infringement.

C. THE PATENT AND COPYRIGHT WARRANTY AND INDEMNITY OBLIGATIONS RECITED ABOVE ARE IN LIEU OF ALL OTHER PATENT AND COPYRIGHT WARRANTIES AND INDEMNITIES WHATSOEVER, WHETHER ORAL, WRITTEN, EXPRESS, IMPLIED OR STATUTORY.

SECTION 20. LIMITATION OF LIABILITY:

A. Except for Seller's liability to third parties for its willful misconduct or negligent acts or omissions as more particularly described in the Indemnification Section of this Agreement, the total liability of Seller, including its subcontractors or suppliers, for all claims of any kind for any loss or damage, whether in contract, warranty, tort (including negligence or infringement), strict liability or otherwise, arising out of, connected with, or resulting from the performance or non-performance of this Agreement or from the manufacture, sale, delivery, installation, technical direction of installation, resale, repair, replacement, licensing or use of any Hardware, Software or the furnishing of any Service, shall not exceed an amount equal to three times (3x) the Total Agreement Price.

B. IN NO EVENT, WHETHER AS A RESULT OF BREACH OF AGREEMENT, WARRANTY, TORT (INCLUDING NEGLIGENCE OR INFRINGEMENT), STRICT LIABILITY OR OTHERWISE, SHALL SELLER, OR ITS SUBCONTRACTORS OR SUPPLIERS, BE LIABLE FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, INDIRECT OR EXEMPLARY DAMAGES INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS OR REVENUES, LOSS OF USE OF THE HARDWARE OR ANY OTHER EQUIPMENT, COST OF CAPITAL, COST OF SUBSTITUTE GOODS, FACILITIES, SERVICES OR DOWNTIME COSTS.

C. Any action for any claim of any kind for any loss or damages arising out of, connected with, or resulting from the performance, non-performance or breach of the Agreement, or from the manufacture, sale, delivery, installation, technical direction of installation, resale, repair, replacement, licensing or use of any Hardware, Software or the furnishing of any Services, shall be commenced within one (1) year after the cause of action accrued or it shall be deemed waived or barred.

D. The provisions of this Section, LIMITATION OF LIABILITY, shall apply notwithstanding any other provisions of this Agreement or any other agreement.

E. The provisions of this Section, LIMITATION OF LIABILITY, shall survive the expiration or termination of this Agreement.

SECTION 21. REMEDIES:

A. In the event of a material breach of this Agreement by Seller which shall continue for ninety (90) or more days after written notice of such breach (including a reasonably detailed statement of the nature of such breach) shall have been given to Seller by Buyer, Buyer shall be entitled to avail itself cumulatively of any and all remedies available at law or in equity (provided such remedies are not otherwise limited under the terms of this Agreement) and either: (1) suspend performance of its payment obligations under the Agreement for as long as the breach continues uncorrected; or (2) terminate this Agreement by written notice to Seller if the breach remains uncorrected. The following shall constitute material breaches of this Agreement:

1. violation by Seller of any State, Federal or local law, or failure by Seller to comply with any applicable States and Federal service standards, as expressed by applicable statutes, rules and regulations.
2. failure by Seller to carry applicable licenses or certifications as required by law.
3. failure of Seller to comply with reporting requirements contained herein.
4. inability of Seller to perform the Work provided for herein.

B. In the event of: (1) any failure by Buyer for thirty (30) or more days to make any payment when due, or (2) any other material breach of this Agreement by Buyer which shall continue for one hundred twenty (120) or more days after written notice of such breach (including a reasonably detailed statement of the nature of such breach) shall have been given to Buyer by Seller, Seller shall be entitled to avail itself cumulatively of any and all remedies available at law or in equity (provided such remedies are not otherwise limited under the terms of this Agreement) and either: (1) suspend performance of its obligations under this Agreement for as long as the breach remains uncorrected; or
(2) terminate this Agreement by written notice to Buyer if the breach remains uncorrected.

C. In the event of a termination under this Agreement as provided herein, all Services performed and finished and unfinished Hardware and Documentation Deliverables produced or made by Seller for Buyer, up to and including the date of termination, shall become the property of Buyer and Seller shall be entitled to receive full price accrued up to the point of termination, for any such Services performed and finished and unfinished Hardware and Documentation Deliverables. Notwithstanding the above, Seller shall not be relieved of liability to Buyer for damages sustained by Buyer by virtue of any breach of this Agreement by Seller described in subsection A above and, after providing Seller with written notice of breach as set forth in subsection A, Buyer may withhold any payments to Seller for the purpose of set-off of any damages, as agreed upon or finally adjudicated, against such payment.

SECTION 22. CONFIDENTIALITY:

A. During the term of this Agreement, it is anticipated that one party (hereafter the "Disclosing Party") may disclose to the other party (hereafter the "Receiving Party") information which the Disclosing Party considers proprietary and confidential. Accordingly, with respect to any specification, drawings, sketches, models, samples, tools, technical information, confidential business information or data, in written or other tangible form which: (1) has been designated in writing by the Disclosing Party as confidential or proprietary, or (2) is of the type that the Receiving Party customarily treats as confidential or proprietary, and which is furnished by the Disclosing Party to the Receiving party in contemplation of or under this Agreement (hereinafter "Information"), the Receiving Party shall treat such Information, for a period of five (5) years after the Effective Date of this Agreement, as confidential information with the same degree of care as the Receiving Party affords to confidential information of its own of a similar nature and shall not reproduce any such Information, in whole or in part, except as specifically authorized in writing by the Disclosing Party.

B. The provisions of the preceding subsection shall not apply to any Information which:

1. is or shall become publicly available without breach of this Section Confidentiality, on the part of the Receiving Party;

2. is already known by the Receiving Party prior to receipt from the Disclosing Party;
3. is independently developed by the Receiving Party;
4. is rightfully obtained by the Receiving Party from third parties without restriction; or
5. is required to be disclosed by appropriate governmental or judicial order provided that Receiving Party gives Disclosing Party prior written notice of such order and assists Disclosing Party in taking reasonable actions to restrict such order.
6. is subject to disclosure pursuant to the Colorado Open Records Act ("CORA"), C.R.S. Section 24-72-201, *et. seq.*

C. The provisions of this Section, Confidentiality, shall survive the expiration or termination of this Agreement.

D. The confidentiality obligations of this Section, Confidentiality, shall not apply to Software, the confidentiality and other rights and obligations with respect to which are set forth in the Software License Agreement.

E. Except as required to fulfill its obligations under this Agreement, Seller will have no obligation to provide Buyer with access to its Confidential Information and/or proprietary information. Under no circumstances will Seller be required to provide any data related to cost and pricing.

SECTION 23. COMPLIANCE:

Seller agrees to comply with all federal, state and local laws, ordinances, codes, rules and regulations in effect as of the Effective Date of this Agreement that may in any way affect the Work by Seller hereunder. Any Hardware or Software furnished by Seller under this Agreement shall comply in all material respects with federal, state and local laws and regulations applicable to the manufacture, packing, sale and shipment of such Hardware or Software as of the Effective Date of this Agreement and shall comply with any amendments thereto which may have come into effect prior to the time such Hardware or Software are delivered provided that the price and, if necessary, delivery of such Hardware or Software shall be equitably adjusted to compensate Seller for the effect of compliance with any such amendments.

SECTION 24. NOTICES:

Notices and other communications between the parties shall be transmitted in writing by certified mail or nationally recognized overnight courier service to the parties at the addresses set forth below and shall be deemed effective upon receipt by the receiving party. Either party may change its address by giving notice in writing thereof to the other party.

IF TO BUYER:
Chief Executive Officer
Denver International Airport
8500 Pena Blvd.
Denver, CO 80249

WITH A COPY TO:
DEN Legal
Denver International Airport
8500 Pena Blvd.
Denver, CO 80249

BUYER INVOICE CONTACT:
Denver International Airport
Accounts Payable
8500 Pena Blvd.
Denver, CO 80249
ContractAdminInvoices@flydenver.com

IF TO SELLER:
L3Harris Technologies, Inc. 221 Jefferson Ridge Parkway Lynchburg, Virginia 24501 Attn: AJ Alhabbal

WITH A COPY TO:
L3Harris Technologies, Inc. 221 Jefferson Ridge Parkway
Lynchburg, Virginia 24501
Attn: Christine Weaver

SELLER INVOICE CONTACT:
L3Harris Technologies, Inc. 221 Jefferson Ridge Parkway Lynchburg, Virginia 24501 Attn: Finance Katelyn Franklin
434-455-6733 / katelyn.franklin@l3harris.com

[Remainder of page intentionally blank]

SECTION 25. ORDER OF PRECEDENCE:

The Statement of Work and the following Appendices are expressly incorporated herein by reference and, together with this Agreement, constitute the Agreement Documents. In the event of a conflict among or between the Agreement Documents, the documents shall control in the order of precedence set forth below:

1. **Appendix A** – Federal Aviation Administration Required Contract Provisions
2. Amendments to this Agreement
3. This Agreement (not including the Appendices and documents listed below)
4. Detailed Design Documents
5. **Appendix B** - Statement of Work, with Attachments
6. **Appendix C** – Certificate of Insurance
7. **Appendix D** – Managed Services Agreement, with Attachments

SECTION 26. TERM:

The term of this Agreement shall commence upon the Effective Date of this Agreement and terminate five (5) years thereafter (the "Expiration Date"). The term of this Agreement may be extended for one addition period of TWO (2) years, on the same terms and conditions, by written notice from the CEO to Contractor. However, no extension of the term shall increase the contract amount without a fully executed agreement amendment by the City.

The term of the Software license is set forth in the Software License Agreement.

SECTION 27. ENTIRE AGREEMENT:

The entire agreement of the parties is contained herein, and this Agreement supersedes any and all oral agreements and negotiations between the parties relating to the subject matter hereof.

SECTION 28. AMENDMENT:

The parties expressly agree that this Agreement shall not be amended in any fashion except in a writing(s) executed by authorized representatives of both parties.

SECTION 29. SEVERABILITY:

The invalidity, in whole or in part, of any Section or part of any Section of this Agreement shall not affect the validity of the remainder of such Section or the Agreement.

SECTION 30. WAIVER:

No term of this Agreement may be waived except in a writing signed by the party waiving enforcement. No term of this Agreement shall be deemed to be waived by reason of any failure to previously enforce such term. In no event shall the making of any payment required by this Agreement constitute or be construed as a waiver by Buyer of any breach of the covenants of this Agreement or a waiver of any default of Seller and the making of any such payment by Buyer while any such default or breach shall exist shall in no way impair or prejudice the right of Buyer with respect to recovery of damages or other remedy as a result of such breach or default.

SECTION 31. HEADINGS:

Section headings are inserted for convenience only and shall not be used in any way to construe the meaning of terms used in this Agreement.

SECTION 32. GOVERNING LAW:

It is expressly understood and agreed to by the parties hereto that in the event of any disagreement or controversy between the parties, law shall be controlling. Venue for any legal proceedings shall be in any state or federal court in the State of Colorado.

SECTION 33. ASSIGNMENT; SUCCESSORS AND ASSIGNS:

This Agreement shall not be assigned nor any interest or obligation in this Agreement transferred by either Party without the written consent of the other Party, which shall not be unreasonably withheld or delayed. Notwithstanding the above, Seller may assign this Agreement, without consent, (a) in whole or in part, to an affiliate, subsidiary, or authorized reseller or (b) in the event of a change of controlling ownership interest (either directly or indirectly) in Seller or in the event of merger, recapitalization, consolidation, other business combination or sale of all or substantially all of the assets of Seller. In addition, Seller may also assign or transfer, without consent, claims for money due or to become due Seller from Buyer under this Agreement to a bank, trust company or other financial institution if and only if the instrument of assignment contains a provision substantially to the effect that it is agreed that the right of the assignee in and to any moneys due or to become due to Seller shall be subject to prior claims of all persons, firms and corporations for services rendered or materials supplied for the performance of the Work called for in this Agreement. Seller shall promptly provide to Buyer notice of any such permitted assignment or transfer without consent.

SECTION 34. CITY AND COUNTY OF DENVER REQUIRED PROVISIONS:

A. STATUS OF SELLER: It is agreed and understood by and between the parties hereto that the status of the Seller shall be that of an independent contractor retained on a contractual basis to perform professional or technical services for limited periods of time as described in Section 9.1.1(E)(x) of the Charter of the City and County of Denver, and it is not intended, nor shall it be construed, that the Seller or its personnel are employees or officers of the City under Chapter 18 of the Revised Municipal Code for any purpose whatsoever.

B. NO AUTHORITY TO BIND CITY TO CONTRACTS: The Seller has no authority to bind the City on any contractual matters. Final approval of all contractual matters which obligate the City must be by the City as required by Charter and Ordinance.

C. CITY MINIMUM WAGE: To the extent required by law, Contractor shall comply with and agrees to be bound by all requirements, conditions, and the City determinations regarding the City's Minimum Wage Ordinance, D.R.M.C. §§ 20-82 through 20-84, including, but not limited to, the requirement that every covered worker shall be paid no less than the City Minimum Wage in accordance with the City's Minimum Wage Ordinance. By executing this Agreement, Contractor expressly acknowledges that Contractor is aware of the requirements of the City's Minimum Wage Ordinance and that any failure by Contractor, or any other individual or entity acting subject to this Agreement, to strictly comply with the foregoing D.R.M.C. Sections shall result in the penalties and other remedies authorized therein.

D. NO DISCRIMINATION IN EMPLOYMENT; DIVERSITY AND INCLUSIVENESS: In connection with the performance of work under this Agreement, the Seller agrees not to fail or refuse to hire, discharge, promote or demote, or to discriminate in matters of compensation, terms, conditions or privileges

of employment against any person otherwise qualified, solely because of race, color, religion, national origin, gender, age, military status, sexual orientation, marital status, or physical or mental disability; and the Seller further agrees to insert the foregoing provision in all subcontracts hereunder. The City encourages the use of qualified small businesses doing business within the metropolitan area that are owned and controlled by economically or socially disadvantaged individuals. Contractor is encouraged, with respect to the goods or services to be provided under this Agreement, to use a process that includes small businesses when considering and selecting any subcontractors or suppliers.

E. DSBO GOALS: The Division of Small Business Opportunity ("DSBO") for the City and County of Denver has reviewed this project for a business utilization determination. Based on the evaluation of the scope of work for this project and the existing availability of certified firms, DSBO has determined that no DSBO program will apply.

F. PREVAILING WAGES: Employees of the Seller or its subcontractors may be subject to the payment of prevailing wages pursuant to D.R.M.C. 20-76, depending upon the nature of the Work. By executing this Agreement, the Seller covenants that it is familiar with this Code Section and is prepared to pay or cause to be paid prevailing wages, if any, applicable to the work conducted by the Seller's or its subcontractor's employees. The schedule of prevailing wage is periodically updated and Seller is responsible for payment of then current prevailing wage. The Seller may obtain a current schedule of prevailing wage rates at any time from the City Auditor's Office.

G. COLORADO GOVERNMENTAL IMMUNITY ACT: The parties hereto understand and agree that the City and County of Denver, its officers, officials and employees, are relying on, and do not waive or intend to waive by any provisions of this Agreement, the monetary limitations or any other rights, immunities and protections provided by the Colorado Governmental Immunity Act, §§ 24-10-101 to 120, C.R.S., or otherwise available to the City and County of Denver, its officers, officials and employees.

H. COLORADO OPEN RECORDS ACT:

The Seller acknowledges that the City is subject to the provisions of the Colorado Open Records Act, Colorado Revised Statutes §24-72-201 et seq., and the Seller agrees that it will fully cooperate with the City in the event of a request or lawsuit arising under such act for the disclosure of any materials or information which the Seller asserts is confidential and exempt from disclosure. Any other provision of this Agreement notwithstanding, including appendices, attachments and other documents incorporated into this Agreement by reference, all materials, records and information provided by the Seller to the City shall be considered confidential by the City only to the extent provided in the Open Records Act, and the Seller agrees that any disclosure of information by the City consistent with the provisions of the Open Records Act shall result in no liability of the City.

I. EXAMINATION OF RECORDS AND AUDITS:

1. Any authorized agent of the City, including the City Auditor or his or her representative, has the right to access, and the right to examine, copy and retain copies, at City's election in paper or electronic form, any pertinent books, documents, papers and records related to Contractor's performance pursuant to this Agreement, provision of any goods or services to the City, and any other transactions related to this Agreement. Contractor shall cooperate with City representatives and City representatives shall be granted access to the foregoing documents and information during reasonable business hours and until the latter of three (3) years after the final payment under the Agreement or expiration of the applicable statute of limitations. When conducting an audit of this Agreement, the City Auditor shall be subject to government auditing standards issued by the United States Government Accountability Office by the Comptroller General of the United States, including with respect to disclosure of information acquired during the course of an audit. No examination of records and audits pursuant to this paragraph shall require Contractor to make disclosures in violation of state or federal privacy laws. Contractor shall at all times comply with D.R.M.C. §20-276.

2. Additionally, Contractor agrees until the expiration of three (3) years after the final payment under the Agreement, any duly authorized representative of the City, including the CEO , shall have the right to

examine any pertinent books, documents, papers and records of Contractor related to Contractor's performance of this Agreement, including communications or correspondence related to Contractor's performance, without regard to whether the work was paid for in whole or in part with federal funds or was otherwise related to a federal grant program.

3. In the event the City receives federal funds to be used toward the services performed under this Agreement, the Federal Aviation Administration ("**FAA**"), the Comptroller General of the United States and any other duly authorized representatives shall have access to any books, documents, papers and records of Contractor which are directly pertinent to a specific grant program for the purpose of making audit, examination, excerpts and transcriptions. Contractor further agrees that such records will contain information concerning the hours and specific services performed along with the applicable federal project number.

J. CONFLICT OF INTEREST: The Seller agrees that it and its subsidiaries, affiliates, subcontractors, principals, or employees will not engage in any transaction, activity or conduct which would result in a conflict of interest. The Seller represents that it has disclosed any and all current or potential conflicts of interest. A conflict of interest shall include transactions, activities, or conduct that would affect the judgment, actions or work of the Seller by placing the Seller's own interests, or the interest of any party with whom the Seller has a contractual arrangement, in conflict with those of the City. The City, in its sole discretion, shall determine the existence of a conflict of interest and may terminate this Agreement if such a conflict exists, after it has given the Seller written notice which describes such conflict. The Seller shall have thirty days after the notice is received in which to eliminate or cure the conflict of interest in a manner which is acceptable to the City.

K. GOVERNING LAW; BOND ORDINANCES; VENUE; DISPUTES:

1. This Agreement is made under and shall be governed by the laws of Colorado. Each and every term, provision or condition herein is subject to the provisions of Colorado law, the Charter of the City and County of Denver, and the ordinances and regulations enacted pursuant thereto. Venue for any action arising hereunder shall be in the City and County of Denver, Colorado.

2. This Agreement is in all respects subject and subordinate to any and all City bond ordinances applicable to the Denver Municipal Airport System and to any other bond ordinances which amend, supplement, or replace such bond ordinances.

3. All disputes between the City and Seller regarding this Agreement shall be resolved by administrative hearing pursuant to the procedure established by D.R.M.C. § 5-17.

L. FEDERAL PROVISIONS: This Agreement is subject and subordinate to the terms, reservations, restrictions and conditions of any existing or future agreements between the City and the United States, the execution of which has been or may be required as a condition precedent to the transfer of federal rights or property to the City for airport purposes and the expenditure of federal funds for the extension, expansion or development of the Denver Municipal Airport System, including Denver International Airport. The provisions of the attached Appendix A – Federal Aviation Administration Required Contract Provisions are incorporated herein by reference.

M. SENSITIVE SECURITY INFORMATION: Contractor acknowledges that, in the course of performing its work under this Agreement, Contractor may be given access to Sensitive Security Information ("**SSI**"), as material is described in the Code of Federal Regulations, 49 C.F.R. Part 1520. Contractor specifically agrees to comply with all requirements of the applicable federal regulations, including but not limited to, 49 C.F.R. Parts 15 and 1520. Contractor understands any questions it may have regarding its obligations with respect to SSI must be referred to DEN's Security Office.

N. AIRPORT SECURITY:

1. It is a material requirement of this Contract that the Seller shall comply with all rules, regulations, written policies and authorized directives from the City and/or the Transportation Security Administration with respect to Airport security. The Seller shall conduct all of its activities at the Airport in compliance with the Airport security program, which is administered by the Security Section of the Airport

Operations Division, Department of Aviation. Violation by the Seller or any of its employees, subcontractors or vendors of any rule, regulation or authorized directive from the City or the Transportation Security Administration with respect to Airport Security shall be grounds for immediate termination by the City of this Contract for cause.

2. The Seller shall promptly upon notice of award of this Contract, meet with the Airport's Assistant Security Manager to establish badging and vehicle permit requirements for the Seller's operations under this Contract. The Seller shall obtain the proper access authorizations for all of its employees, subcontractors and vendors who will enter the Airport to perform work or make deliveries, and shall be responsible for each such person's compliance with all Airport rules and regulations, including without limitation those pertaining to security. Any person who violates such rules may be subject to revocation of his/her access authorization. The failure of the Seller or any subcontractor to complete any required services hereunder shall not be excused on account of the revocation for good cause of access authorization of any person.

3. The security status of the Airport is subject to change without notice. If the security status of the Airport changes at any time during the term of this Contract, the Seller shall take immediate steps to comply with security modifications which occur as a result of the changed status. The Seller may at any time obtain current information from the Airport Security Office regarding the Airport's security status in relation to the Seller's operations at the Airport.

4. The Seller shall return to the City at the expiration or termination of this Contract, or upon demand by the City, all access keys or access badges issued to it or any subcontractor for any area of the Airport, whether or not restricted. If the Seller fails to do so, the Seller shall be liable to reimburse the City for all the City's costs for work required to prevent compromise of the Airport security system. The City may withhold funds in the amount of such costs from any amounts due and payable to the Seller under this Contract.

O. USE, POSSESSION OR SALE OF ALCOHOL OR DRUGS: The Seller and Seller's agents shall cooperate and comply with the provisions of the City and County of Denver Executive Order No. 94 and Attachment A thereto concerning the use, possession or sale of alcohol or drugs. Violation of these provisions or refusal to cooperate with implementation of the policy can result in the City's barring the Seller and Seller's agents from City facilities or participating in City operations.

P. CITY SMOKING POLICY: Seller acknowledges that smoking is not permitted in Airport buildings and facilities except for designated Airport Smoking Concessions, and so agrees that it will prohibit smoking by its employees and the public in indoor areas and within 15 feet of entryways of the Airport Premises, except as may otherwise be permitted by the Colorado Clean Indoor Air Act, C.R.S. §§ 25-14-201 to 209. Seller and its officers, agents, and employees shall cooperate and comply with the provisions of the Denver Revised Municipal Code, §§ 24-301 to 317 et. seq., the Colorado Clean Indoor Air Act, C.R.S. §§ 25-14-201 to 209, City's Executive Order No. 99 dated December 1, 1993, and Executive Order No. 13 dated July 31, 2002.

Q. ELECTRONIC SIGNATURES AND ELECTRONIC RECORDS: Seller consents to the use of electronic signatures by the City. The Agreement, and any other documents requiring a signature hereunder, may be signed electronically the City in the manner specified by the City. The Parties agree not to deny the legal effect or enforceability of the Agreement solely because it is in electronic form or because an electronic record was used in its formation. The Parties agree not to object to the admissibility of the Agreement in the form of an electronic record, or a paper copy of an electronic document, or a paper copy of a document bearing an electronic signature, on the ground that it is an electronic record or electronic signature or that it is not in its original form or is not an original.

R. CITY EXECUTION OF AGREEMENT: This Agreement is expressly subject to and shall not be or become effective or binding on the City until it has been approved by City Council, if so required by law, and fully executed by all signatories of the City and County of Denver.

[SIGNATURE PAGE FOLLOWS]

Contract Control Number: PLANE-202264092-00
Contractor Name: L3Harris Technologies, Inc.

IN WITNESS WHEREOF, the parties have set their hands and affixed their seals at Denver, Colorado as of:

SEAL

CITY AND COUNTY OF DENVER:

ATTEST:

By: _____

_____

APPROVED AS TO FORM:

Attorney for the City and County of Denver

By: _____

REGISTERED AND COUNTERSIGNED:

By: _____

By: _____

Contract Control Number: PLANE-202264092-00
Contractor Name: L3Harris Technologies, Inc.

By: DocuSigned by: Lori Rodriquez D346D29262F94A8...

Name: Lori Rodriquez
(please print)

Title: Director, Contracts
(please print)

ATTEST: [if required]

By: _____

Name: _____
(please print)

Title: _____
(please print)

LIST OF APPENDICES

A. Appendix A: FEDERAL AVIATION ADMINISTRATION REQUIRED CONTRACT PROVISIONS
B. Appendix B: STATEMENT OF WORK (with attachments)
C. Appendix C: CERTIFICATE OF INSURANCE
D. Appendix D: MANAGED SERVICES AGREEMENT (with attachments)

APPENDIX A

FEDERAL AVIATION ADMINISTRATION
REQUIRED CONTRACT PROVISIONS

APPENDIX
Federal Aviation Administration Required Contract Provisions
ALL CONTRACTS – NON-AIP FUNDED

Federal laws and regulations require that recipients of federal assistance (Sponsors) include specific contract provisions in certain contracts, requests for proposals, or invitations to bid.

Certain provisions must be included in all sponsor contracts, **regardless of whether or not the contracts are federally funded**. This requirement was established when a sponsor accepted the Airport Improvement Program (AIP) grant assurances.

As used in these Contract Provisions, "Sponsor" means The City and County of Denver, Department of Aviation, and "Contractor" or "Consultant" means the Party of the Second Part as set forth in Contract / Lease / Agreement to which this Appendix is attached.

Source: Contract Provision Guidelines for Obligated Sponsors and Airport Improvement Program Projects, Issued on June 19, 2018

GENERAL CIVIL RIGHTS PROVISIONS

Clause that is used for Contracts:

The contractor agrees to comply with pertinent statutes, Executive Orders and such rules as are promulgated to ensure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance.

This provision binds the contractor and subtier contractors from the bid solicitation period through the completion of the contract. This provision is in addition to that required of Title VI of the Civil Rights Act of 1964.

Source: Contract Provision Guidelines for Obligated Sponsors and Airport Improvement Program Projects, Appendix A – Contracts Provisions, Contract Clause A5.3.1, Issued on June 19, 2018

Clause that is used for Lease Agreements or Transfer Agreements:

The (tenant/concessionaire/lessee) agrees to comply with pertinent statutes, Executive Orders and such rules as are promulgated to ensure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance. If the (tenant/concessionaire/lessee) transfers its obligation to another, the transferee is obligated in the same manner as the (tenant/concessionaire/lessor).

This provision obligates the (tenant/concessionaire/lessee) for the period during which the property is owned, used or possessed by the (tenant/concessionaire/lessee) and the airport remains obligated to the Federal Aviation Administration. This provision is in addition to that required by Title VI of the Civil Rights Act of 1964.

Source: Contract Provision Guidelines for Obligated Sponsors and Airport Improvement Program Projects, Appendix A – Contracts Provisions, Contract Clause A5.3.2, Issued on June 19, 2018

CIVIL RIGHTS – TITLE VI ASSURANCE

Compliance with Nondiscrimination Requirements:

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Title VI List of Pertinent Nondiscrimination Acts and Authorities, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. **Non-discrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or

indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.

3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Nondiscrimination Acts And Authorities on the grounds of race, color, or national origin.

4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Nondiscrimination Acts and Authorities and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.

5. **Sanctions for Noncompliance:** In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:

    a. Withholding payments to the contractor under the contract until the contractor complies; and/or

    b. Cancelling, terminating, or suspending a contract, in whole or in part.

6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the sponsor to enter into any litigation to protect the interests of the sponsor. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

Source: Contract Provision Guidelines for Obligated Sponsors and Airport Improvement Program Projects, Appendix A – Contracts Provisions, Contract Clause A6.4.1, Issued on June 19, 2018

Clauses for Transfer of Real Property Acquired or Improved Under the Activity, Facility, or Program:

The following clauses will be included in deeds, licenses, leases, permits, or similar instruments entered into by the Sponsor pursuant to the provisions of the Airport Improvement Program grant assurances.

A. The (grantee, lessee, permittee, etc. as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree [in the case of deeds and leases add "as a covenant running with the land"] that:

1. In the event facilities are constructed, maintained, or otherwise operated on the property described in this (deed, license, lease, permit, etc.) for a purpose for which a Federal Aviation Administration activity, facility, or program is extended or for another purpose involving the provision of similar services or benefits, the (grantee, licensee, lessee, permittee, etc.) will maintain and operate such facilities and services in compliance with all requirements imposed by the Nondiscrimination Acts and Regulations listed in the Pertinent List of Nondiscrimination Authorities (as may be

amended) such that no person on the grounds of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities.

B. With respect to licenses, leases, permits, etc., in the event of breach of any of the above Nondiscrimination covenants, Sponsor will have the right to terminate the (lease, license, permit, etc.) and to enter, re-enter, and repossess said lands and facilities thereon, and hold the same as if the (lease, license, permit, etc.) had never been made or issued.*

C. With respect to a deed, in the event of breach of any of the above Nondiscrimination covenants, the Sponsor will have the right to enter or re-enter the lands and facilities thereon, and the above described lands and facilities will there upon revert to and vest in and become the absolute property of Sponsor and its assigns.*

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

Source: Contract Provision Guidelines for Obligated Sponsors and Airport Improvement Program Projects, Appendix A – Contracts Provisions, Contract Clause A6.4.3, Issued on June 19, 2018

Title VI Clauses for Construction/Use/Access to Real Property Acquired Under the Activity, Facility or Program:

The following clauses will be included in deeds, licenses, permits, or similar instruments/agreements entered into by Sponsor pursuant to the provisions of the Airport Improvement Program grant assurances.

A. The (grantee, licensee, permittee, etc., as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree (in the case of deeds and leases add, "as a covenant running with the land") that (1) no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities, (2) that in the construction of any improvements on, over, or under such land, and the furnishing of services thereon, no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or otherwise be subjected to discrimination, (3) that the (grantee, licensee, lessee, permittee, etc.) will use the premises in compliance with all other requirements imposed by or pursuant to the List of discrimination Acts And Authorities.

B. With respect to (licenses, leases, permits, etc.), in the event of breach of any of the above nondiscrimination covenants, Sponsor will have the right to terminate the (license, permit, etc., as appropriate) and to enter or re-enter and repossess said land and the facilities thereon, and hold the same as if said (license, permit, etc., as appropriate) had never been made or issued.*

C. With respect to deeds, in the event of breach of any of the above nondiscrimination covenants, Sponsor will there upon revert to and vest in and become the absolute property of Sponsor and its assigns.*

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

Source: Contract Provision Guidelines for Obligated Sponsors and Airport Improvement Program Projects, Appendix A – Contracts Provisions, Contract Clause A6.4.4, Issued on June 19, 2018

Title VI List of Pertinent Nondiscrimination Acts and Authorities:

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq*., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin);
- 49 CFR part 21 (Non-discrimination in Federally-Assisted Programs of The Department of Transportation—Effectuation of Title VI of The Civil Rights Act of 1964);

- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq*.), as amended, (prohibits discrimination on the basis of disability); and 49 CFR part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq*.), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act of 1990, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 – 12189) as implemented by Department of Transportation regulations at 49 CFR parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).

Source: Contract Provision Guidelines for Obligated Sponsors and Airport Improvement Program Projects, Appendix A – Contracts Provisions, Contract Clause A6.4.5, Issued on June 19, 2018

FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 CFR part 201, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part time workers.

The [*contractor* | *consultant*] has full responsibility to monitor compliance to the referenced statute or regulation. The [*contractor* | *consultant*] must address any claims or disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

Source: Contract Provision Guidelines for Obligated Sponsors and Airport Improvement Program Projects, Appendix A – Contracts Provisions, Contract Clause A17.3, Issued on June 19, 2018

APPENDIX
Federal Aviation Administration Required Contract Provisions
ALL CONTRACTS – NON-AIP FUNDED

OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. Contractor must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The Contractor retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (20 CFR Part 1910). Contractor must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

Source: Contract Provision Guidelines for Obligated Sponsors and Airport Improvement Program Projects, Appendix A – Contracts Provisions, Contract Clause A20.3, Issued on June 19, 2018

For additional information, please refer to:
https://www.faa.gov/airports/aip/procurement/federal_contract_provisions/

APPENDIX B

STATEMENT OF WORK

Attachment to Appendix B

See attached Proposal- Core Upgrade to SR10A.7 dated February 2023 for applicable Table of Contents

DENVER INTERNATIONAL AIRPORT (DIA)

CORE UPGRADE TO SR10A.7

L3HARRIS™

FEBRUARY 2023

Contract No. PLANE-202264092

CONFIDENTIAL INFORMATION

L3Harris Technologies, Inc., through its Communication Systems Segment, complies with all federal, state and local laws, ordinances, rules, and regulations regarding disclosure. However, L3Harris must still protect its trade secrets, intellectual property, and other confidential and competition sensitive business information. The enclosed proposal includes pricing, system design, trade secret and other confidential and competition sensitive information which is labeled as such in the proposal. Disclosure of any portion of this proposal shall be permitted only after the express written consent of L3Harris is provided. After award notification and upon official written request, L3Harris will disclose any proposal information that is no longer considered confidential or competition sensitive.

There are only a few companies in the United States that offer for sale land mobile radio system products and services. There are also just a relatively few number of opportunities each year to sell these products and services. L3Harris' trade secret information and confidential commercial information have economic value by not being generally known to or readily ascertainable by its competitors and other third parties. L3Harris diligently works to maintain and protect the secrecy of this information. Divulging this information will injure L3Harris in future sales opportunities and provide L3Harris' competitors with an unfair economic and competitive advantage in the marketplace. This confidential, trade secret information includes, but is not limited to, pricing information; new and existing product information; coverage prediction information and related methodologies; subcontractor information; customer information; system design information and related methodologies; functional, coverage and other testing information and related methodologies; system implementation information and related methodologies; information related to L3Harris' cutover and migration plan and related methodologies; and information related to warranties, maintenance, and support, including information concerning the life-cycle of L3Harris products.

L3HARRIS TECHNOLOGIES, INC.

Communication Systems
221 Jefferson Ridge Parkway
Lynchburg, VA USA 24501-6952
Phone 1-800-368-3277

L3Harris.com

February 6th 2023

Kader Khalif
Aviation Maintenance Center
Denver International Airport
27500 E 80th Ave
Denver, CO 80249

Subject: DEN Airport SR10A.7 CORE Upgrade and Firewall Reconfiguration Proposal

Dear Mr. Khalif:

Attached you will find our refreshed proposal for the SR10A.7 Core Upgrade and Firewall Reconfiguration proposal with firm fixed pricing. The proposal and pricing combine the core upgrade and firewall reconfiguration services originally presented to DEN Airport in April 2020, refreshed in May 2021 and again in October, 2022. The proposal includes the same scope of work originally quoted in 2020 as well as the upgrade for DEN Airport to the most current VIDA system release (i.e. SR10A.7) quoted in the May 2021 refresh.

The refreshed quote submitted to DEN Airport in October, 2022 contained a pricing expiration date of January, 20th 2023, which will be honored considering contract negiotiations launched prior to that expiration date of January, 20th 2023.

L3Harris performed both an audit with DIA and worked directly with DIA associates on their system and added scope to the original proposal including the following:

- Additional backup server
- Two replacement logging recorders
- Upgrade DCP sites
- Two additional sites 99 & 97 (equipment)

L3Harris Pricing Highlights:

> Network Equipment:	$719,359.91
> Professional Services:	$555,648.13
> **Total pricing for SR10A.7 Core Upgrade and Firewall Reconfiguration:**	**$1,275,008.04**

On behalf of L3Harris, we'd like to thank you for the opportunity to participate in the procurement process for your SR10A.7 Core Upgrade and firewall reconfiguration request. We are looking forward to continuing our partnership with DEN Airport on this important project. If you have any questions, or require additional information, please do not hesitate to contact me at (775) 200-8513.

Respectfully,

J. John Gallegos
Account Manager, Transportation
L3Harris Technologies, Inc.
(775) 200-8513, John.Gallegos@L3Harris.com

TABLE OF CONTENTS

PROPOSAL OVERVIEW

L3Harris excels in the multifaceted implementation of mission critical radio systems to fulfill the specific needs of our customers and support their critical public safety operations. As a long-time communications partner to DIA, L3Harris is pleased to provide DIA with a radio-system upgrade solution that advances DIA existing SR10A.1 system to the latest SR10A.7 system release.

DIA has invested in L3Harris VIDA technology for its system to better evolve communications and adopt new technologies. DIA current system consists of 3-sites Simulcast cell.

L3Harris carefully evaluated DIA existing system configuration and found DIA current cores, the network equipment, and Windows Operating Systems (OS) on Symphony consoles and Network Sentry monitors to be End of Life (EOL) or near EOL. L3Harris believes that the most cost-effective and resource optimizing solution for DIA is to replace the existing NSCs and network equipment while reusing the existing site & Symphony dispatch equipment. L3Harris software licenses on the existing NSC will transfer to the new NSCs to avoid replication of license charges.

This proposal includes the equipment and services required to upgrade the following:

- Primary and secondary Network Switching Center (NSC) replacement at Concourse A and Airport Office Building (AOB) respectively that includes Internet Access Router (IAR) and Regional Access Router (RAR) replacements.
- Redundant network equipment replacement at RF sites and dispatch centers - Routers (Qty 12) and Switches (Qty 15)
- Replacement of WAN Aggregate Switches (WAS) by C9300 (Qty 2)
- Site software upgrade (Total Qty 3)
  - Two (2) Transmit and Receive Simulcast Sites
  - One (1) Receive Only Simulcast Site
- RF Site networking hardware upgrade
  - Two (2) Transmit and Receive Simulcast Sites
  - One (1) Receive Only Simulcast Site
- Site 97 @ Tower 1 Building A networking hardware upgrade
  - Two (2) Routers and Two (2) Switches and one (1) Interoperability Gateway (9th and Josephine, 3 UAC cards, 12-talkpaths)
- Site 99 @ EOC networking hardware upgrade
  - One (1) Router and One (1) Switch, one (1) Console
- NetworkSentry – Replace with the new VIDA Virtual Site (Qty 3) for longer-term support
- Network First Gateways - software upgrade to SR10A.7 (Qty 1 – 12 Talkpaths)
- Dispatch Symphony consoles - OS upgrade to Windows 10 followed by software upgrade via SSD replacement (Qty 43).
- Exacom Logging Recorders

- Hardware and software upgrade (2)
- Integration to SR10A.7 Core (2)

This proposal is based on the configuration from the last system upgrade to SR10A.1. Two sites S97 and S99 were added to the scope of the proposal due to the findings from the remote site audit. An onsite system audit can be performed after the customer kick-off meeting to validate this configuration should L3Harris find it necessary. If the on-site system audit reveals any changes needed to the proposed design, then these changes will be discussed during the Detailed Design Review (DDR) and shall be handled via a Change Order process.

SCOPE OF WORK

L3Harris will provide the following scope of services to upgrade DIA system currently running SR10A.1 to SR10A.7:

- System Engineering
- Project Management
- Installation Services
- Staging & Shipping

Upon order, L3Harris will build and configure the new NSC to the standard L3Harris configuration. After successful staging and testing, L3Harris will ship the equipment to the customer site for installation by a third-party vendor into the designated equipment rooms.

The L3Harris team will power up the new equipment and perform a system health audit to verify proper installation and function of the new equipment. The L3Harris Team will then configure the new VIDA cores and prepare the system for cutover and acceptance testing.

BACKHAUL UPGRADE

The scope of this proposal does not include backhaul upgrade, however, the existing 3850 WAN Aggregation Switches will be replaced with C9300 units. These WAS units bridge the VIDA network to the DIA fiber-network. It is the responsibility of DIA to provide backhaul connectivity capable of supporting the full scope of the requested upgrade.

NETWORK UPGRADE

- L3Harris will conduct a health check of the existing system configurations, including, but not limited to network configurations, WAN configurations, IP Plan and existing NSC drawings.
- L3Harris will document the recommended changes from SR10A.1 to SR10A.7 based on results from the system audit. If the audit reveals necessary deviations or additional scope from that proposed within this proposal, L3Harris and DIA will address those changes via the Change Order process.
- All the network equipment at the RF sites, dispatch locations and NetworkFirst Gateway site are EOL or near EOL. L3Harris will replace and configure all network equipment (Including the Cisco 3850 WAN Aggregation Switches).

- Replace WAR with C4331 (2)
- Replace RAR with C9200L (2)
- Replace WAS with C9300 (2)
- Add C921 Home Agent Router (2)
- Replace the site routers with C4321/C4221 routers
- Replace all sites (Dispatch and RF) switches with C1000
- Replace dispatch routers with C1111
- Total:
  - Routers – 20 Qty
  - Switches – 16 Qty

> L3Harris will develop factory network equipment configurations for the new core and validate these configurations during staging including implementing the existing WAN side of the WARs.

> L3Harris will provide standard VIDA NSC network equipment and configure new NSC, WAS, WAR Routers to provide backward compatibility with existing site network equipment.

System Block Diagram

The site equipment, interoperability equipment, the VIDA Premier core, and the Symphony Dispatch console together form the DIA system per the block diagram in Figure 1.

Figure 1. System Block Diagram for DIA

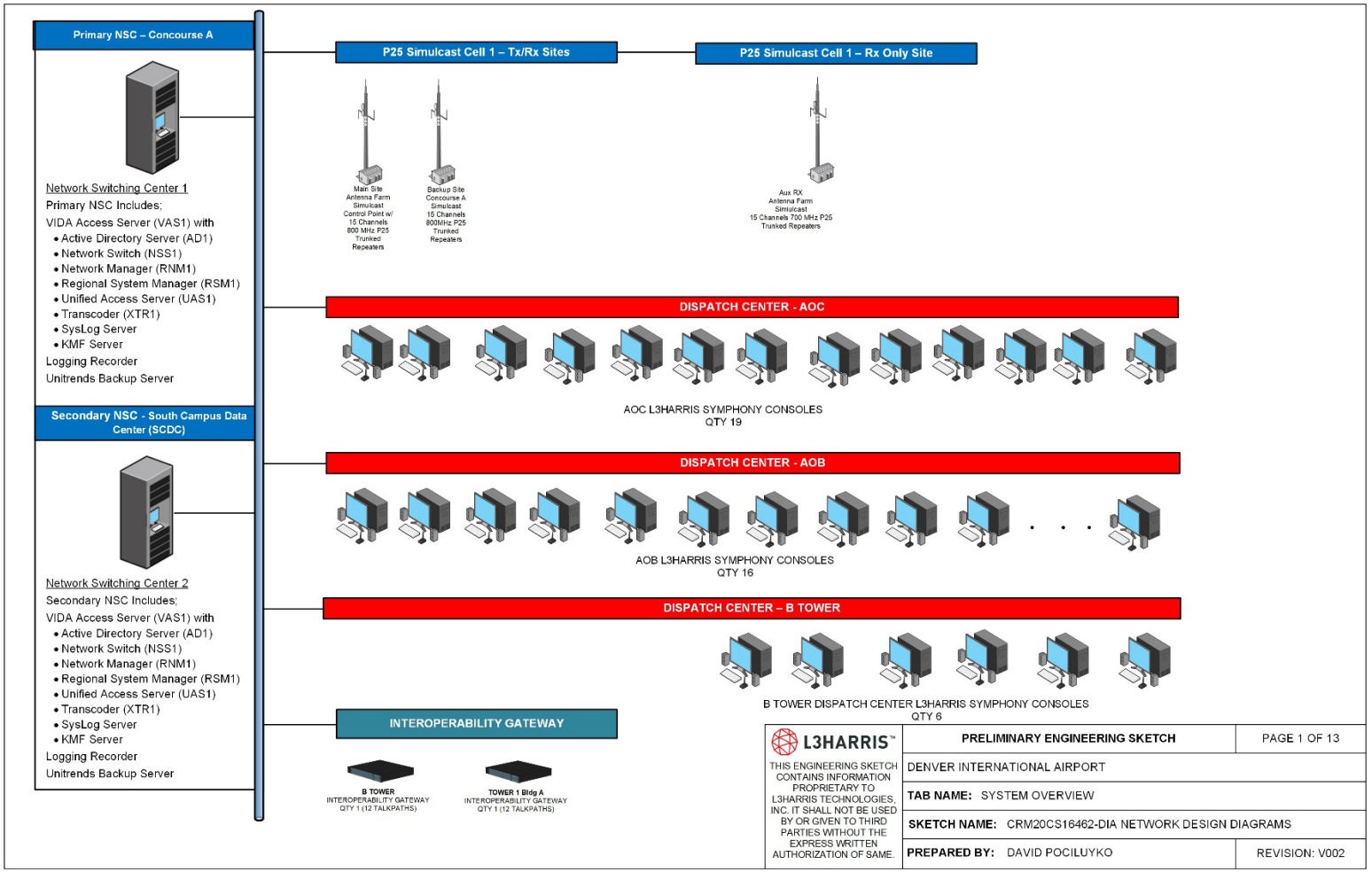
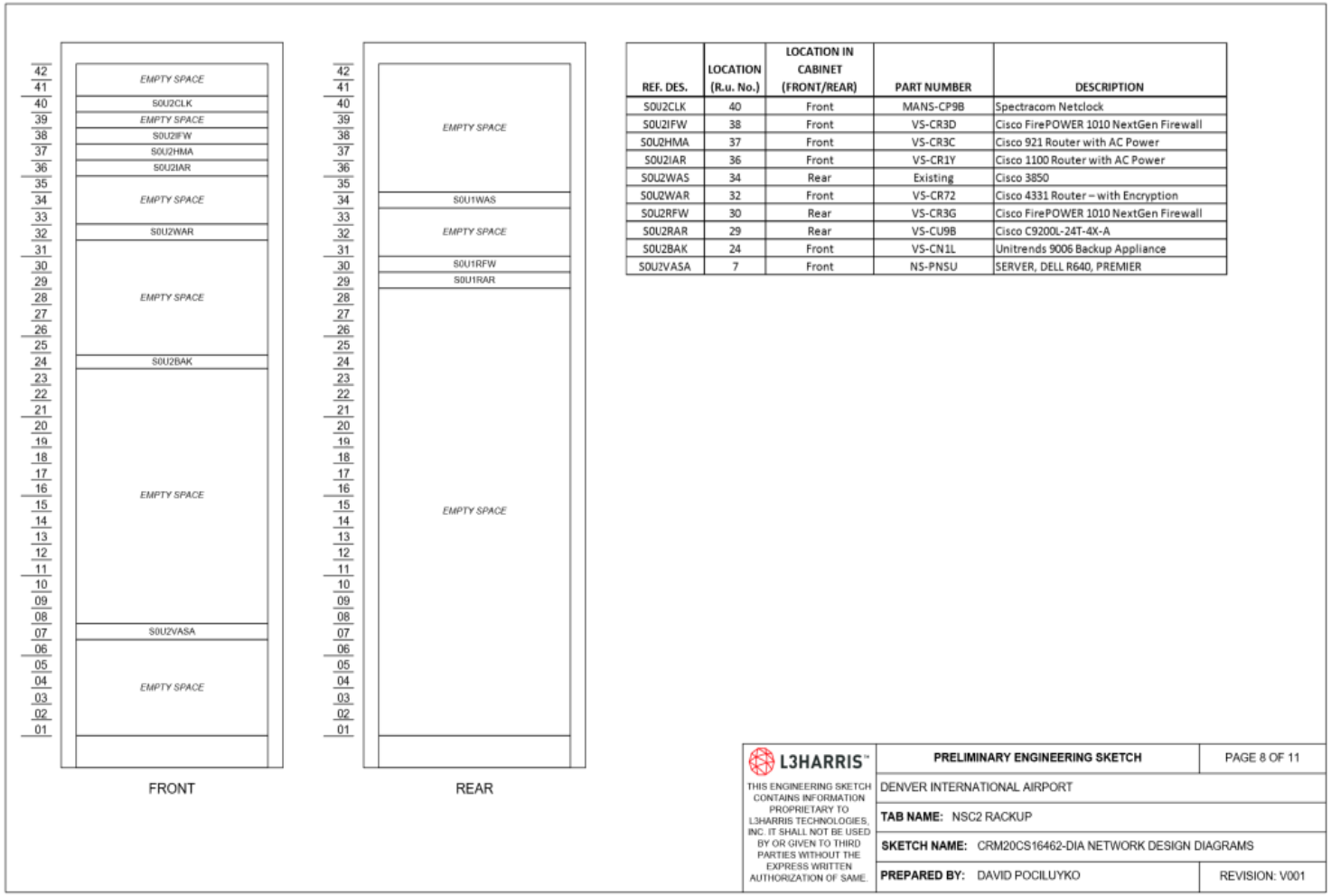


Figure 2 depicts the equipment room rack-up of the new, P25 system equipment, including the P25 site, interoperability equipment, and the VIDA Premier Core. Primary and secondary Network Switching Center (NSC) replacement at Concourse A and Airport Office Building (AOB) respectively that includes Internet Access Router (IAR) and Regional Access Router (RAR) replacements.

Figure 2. NSC Rack up Diagram



REF. DES.	LOCATION (R.u. No.)	LOCATION IN CABINET (FRONT/REAR)	PART NUMBER	DESCRIPTION
S0U2CLK	40	Front	MANS-CP9B	Spectracom Netclock
S0U2IFW	38	Front	VS-CR3D	Cisco FirePOWER 1010 NextGen Firewall
S0U2HMA	37	Front	VS-CR3C	Cisco 921 Router with AC Power
S0U2IAR	36	Front	VS-CR1Y	Cisco 1100 Router with AC Power
S0U2WAS	34	Rear	Existing	Cisco 3850
S0U2WAR	32	Front	VS-CR72	Cisco 4331 Router – with Encryption
S0U2RFW	30	Rear	VS-CR3G	Cisco FirePOWER 1010 NextGen Firewall
S0U2RAR	29	Rear	VS-CU9B	Cisco C9200L-24T-4X-A
S0U2BAK	24	Front	VS-CN1L	Unitrends 9006 Backup Appliance
S0U2VASA	7	Front	NS-PNSU	SERVER, DELL R640, PREMIER

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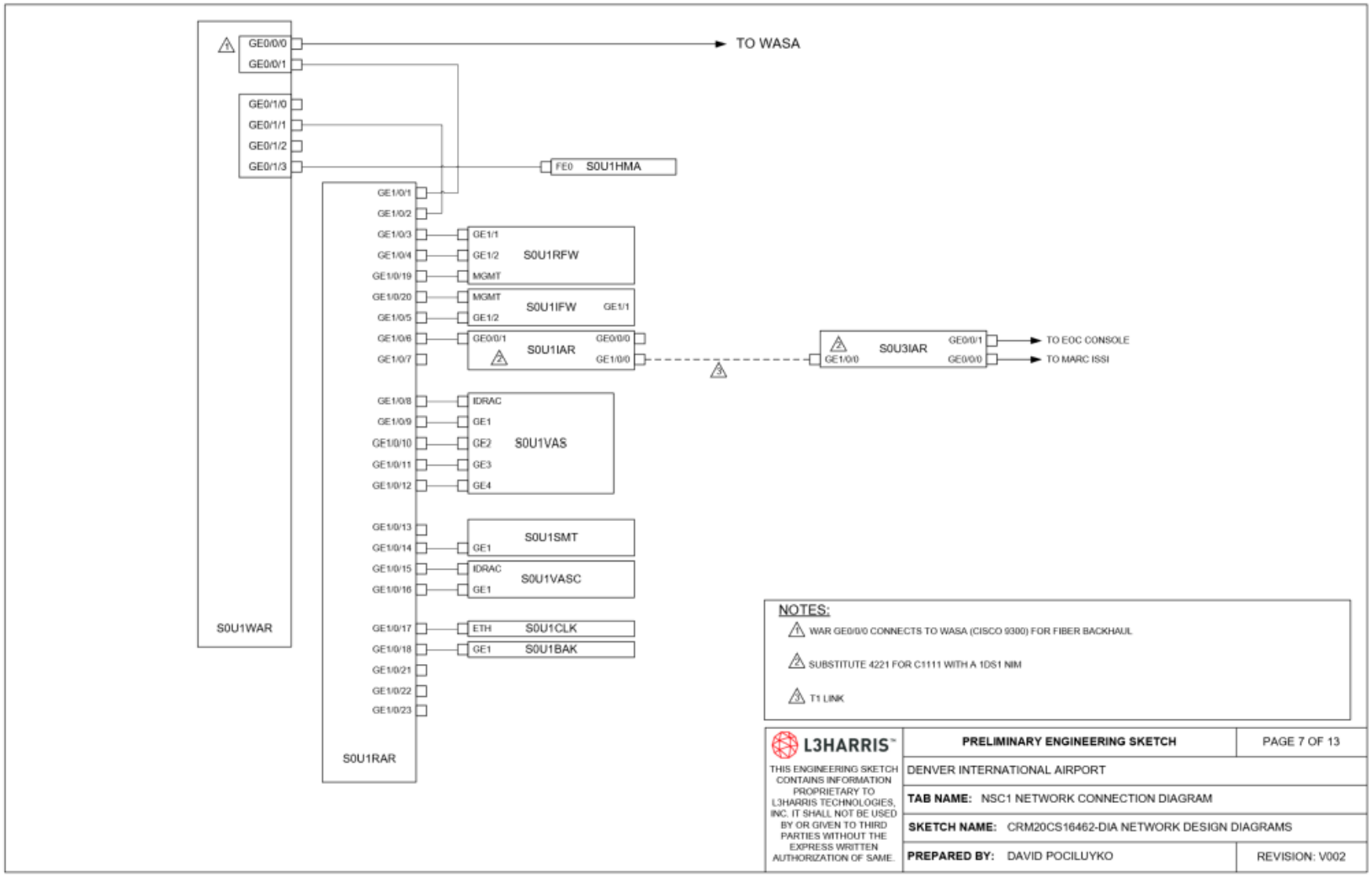
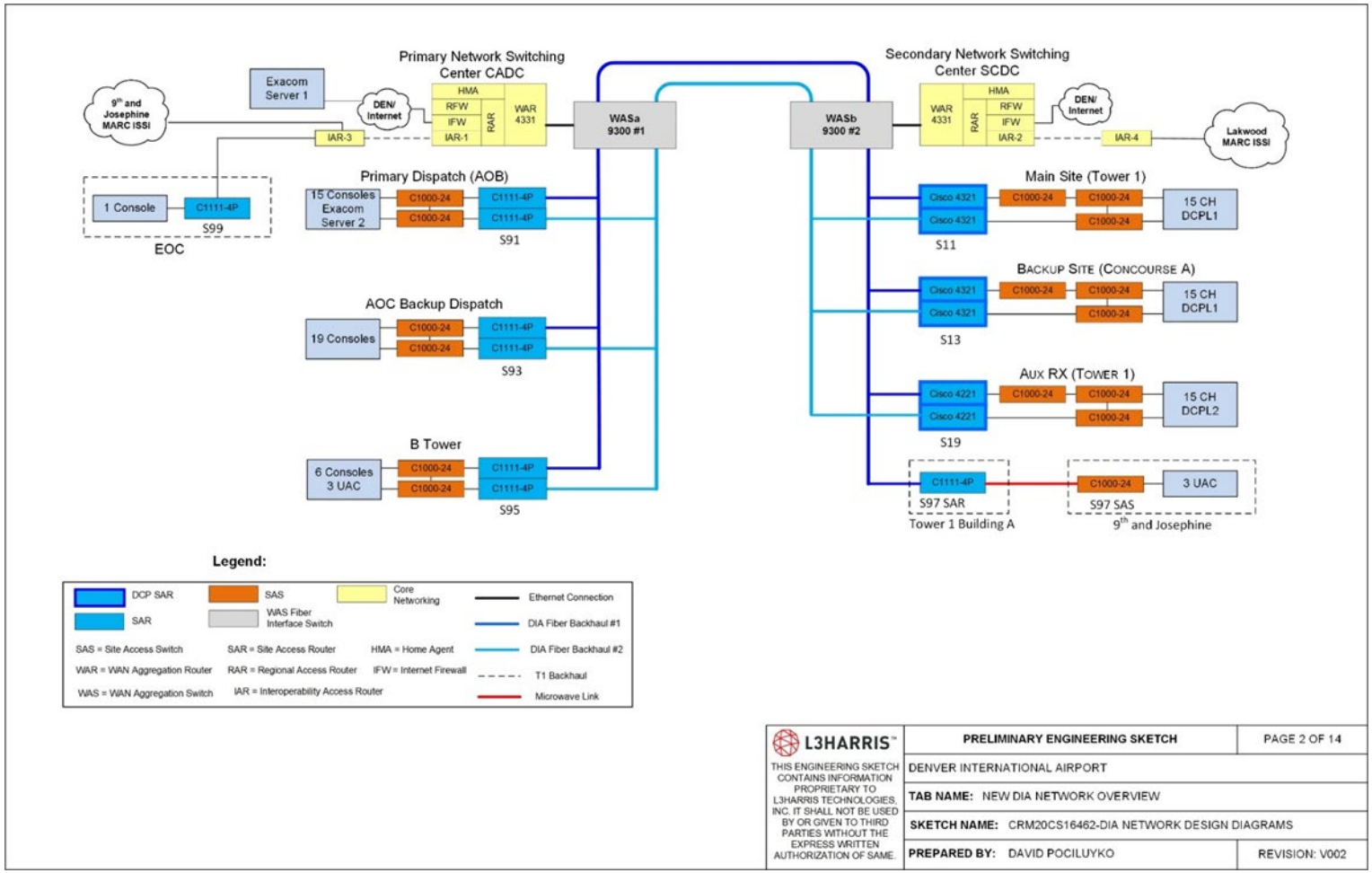
PRELIMINARY ENGINEERING SKETCH	PAGE 8 OF 11
DENVER INTERNATIONAL AIRPORT	
TAB NAME: NSC2 RACKUP	
SKETCH NAME: CRM20CS16462-DIA NETWORK DESIGN DIAGRAMS	
PREPARED BY: DAVID POCILUYKO	REVISION: V001

Figure 3. DIA NSC Connectivity



L3Harris will not include coverage, frequencies and interferences because the primary focus is a system upgrade from SR10A.1 to SR10A.7. Figure 4 shows overall network system

Figure 4. DIA Overall Network Design



CORE UPGRADE

SR10A.7 NSCs are built on an array of discs installed within Dell R640 servers. Prior to SR10A.4, NSCs were based on CISCO UCS servers, which are now End-of-Life (EOL). Therefore, for SR10A.7, L3Harris proposes replacement of cores with new servers.

The SR10A.7 NSCs will include new routers, switches and firewalls to provide network interface to the system backhaul. L3Harris will replace existing NSC cores with new SR10A.7 primary and secondary NSC cores, respectively. These are VIDA Premier NSC cores with location High Availability (HA) configuration. The NSC will be comprised of multiple Virtual Servers running in a VM-Ware environment on a single VAS Server. L3Harris will leverage the existing site RF equipment and reuse valid L3Harris licenses across the system.

Engineering services are included on-site for Installation by a third-party vendor, Power-Up, Final Configuration, Equipment Transition, and Functional Test (FATP) of new SR10A.7 HA-NSC by L3Harris.

This SR10A.7 NSC procurement will include Virtual Servers and applications that replicate the same level of functionality as the current legacy system.

Real-Time Applications and Services:

- Voice Network Interface Controller (VNIC)
- Transcoding (XCDR)
- Inter System Integration (ISSI)
- Exacom Logging Recorder
- BeOn Premier (BeOn)

Administration and Management Applications, Services, and Appliances:

- Unified Administration System (UAS)
- Regional Network Manager (RNM)
- Enterprise Network Manager (ENM) Base (Monitors Core Functionality)
- Regional System Manager (RSMPro)
- Unitrends Backup Appliance 9006 (2) – replaces the Unitrends 8006 appliance

Baseline Cybersecurity Services:

- Active Directory (AD)
- McAfee® ePolicy Orchestrator (ePO)
- Security Update Management Service (SUMS)

Baseline VIDA Cybersecurity

The upgraded system will include security services natively incorporated in the new SR10A.7 system, plus upgraded versions of services found in the legacy system. These include:

- Active Directory (AD)
- Certificate Authority
- McAfee® Endpoint Security and ePolicy Orchestrator (ePO)
- Security Update Management Service (SUMS)
- Firewalls – FPR1010 (replaces the existing 550x series firewalls)

ACTIVE DIRECTORY

Microsoft Active Directory (AD) controls access to the network, authenticating users and devices to restrict unauthorized network access. AD authentication is extended to UNIX servers with the integration of One Identity Authentication Services Unix agents, and to networking devices (i.e. Cisco) through the remote authentication dial-in user service (RADIUS). Active Directory is hosted on redundant virtual servers on the VIDA Application Server (VAS) in the VIDA Core to ensure service availability. Active Directory Group Policy Objects (GPOs) implement security policies, allowing centralized management of baseline security controls in accordance with generally accepted industry standards. The GPOs incorporated in the SR10A.7 release improve the security posture of the system over that of the legacy system.

CERTIFICATE AUTHORITY

The Windows Certificate Authority (CA) is used to provide mutual authentication for web services, and Kerberos authentications for users and systems. The CA is integrated with the AD server to leverage capability, reduce costs, and reduce maintenance of hardware and software

ANTI-MALWARE AND HOST INTRUSION DETECTION

The network will be protected from viruses, malware and zero-day threats by McAfee Endpoint Security. It replaces the VirusScan Enterprise solution used in the legacy system. McAfee Endpoint Security provides both anti-virus and host intrusion detection system (HIDS) functionality and will be installed on all workstation and server operating systems used in the network.

McAfee Endpoint Security monitoring and distribution functions are centrally managed and automated using McAfee's ePolicy Orchestrator (ePO). The ePO server is a virtual machine running on the VIDA Application Server in each Core. The ePO secure web-based console is accessible by any authenticated administrator from any System Management Terminal.

PATCH MANAGEMENT – SOFTWARE UPDATE MANAGEMENT SERVICE (SUMS)

The Software Update Management Service (SUMS) is L3Harris' solution for managing and implementing system software changes to remediate vulnerabilities. SUMS is a component of the legacy system and will continue to be provided with the system upgrade. Since many malware attacks and exploits target known software defects (bugs), it will be important to regularly patch the network to prevent

exploitation of those vulnerabilities. Patching, however, can negatively affect the operational performance of critical communications LMR systems. To reduce this risk, L3Harris tests patches in a controlled verification and validation laboratory environment prior to production rollout. SUMS is the subscription-based program that provides for automated network distribution of the updates.

FIREWALLS

New Cisco FPR1010 Regional Firewalls (RFWs) will secure internal enclave boundaries encompassing the Primary and Secondary NSC. They will restrict unauthorized network access, detect, prevent, and respond to network attacks, enforce policies, and integrate high-performance security features such as state awareness and application filtering. To secure RF sites and dispatch centers, the routers at these locations incorporate Zone-Based Firewall (ZBFW) support to provide a comprehensive end-point firewall.

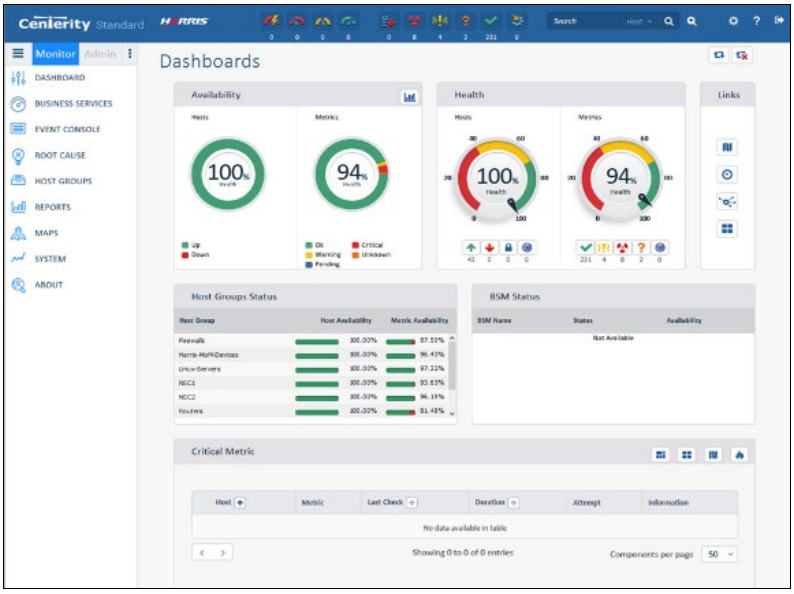
Cisco FPR1010 firewalls also provide boundary firewall services (IFW) and VPN access between the LMR network and external networks. The Internet Firewalls (IFW) will connect to the DIA Firewall for internet connectivity. DIA is responsible for coordinating ports access and routing information with the L3Harris project team to ensure proper functionality of VPN services and BeOn services (internet connection) to the VIDA Network.

Enterprise Network Manager (ENM)

The L3Harris Enterprise Network Manager (ENM) is an all-in-one network management monitoring platform suited for the entire enterprise; including servers, operating systems, network appliances, database applications and more. It informs and alerts users regarding the state of the network, applications, and hardware through a single web browser interface. The ENM configures for redundancy, operating on both VIDA Cores. DIA will receive the ENM Base configuration for monitoring VIDA Core checks. DIA may choose to upgrade to the VIDA ENM Enhanced option to monitor RF site status and dispatch center status if desired.

ENM uses the Centerity Monitor Standard software application developed by Centerity Systems. The software installs as a Virtual Machine (VM) on the L3Harris VIDA Application Server (VAS), located at the VIDA Premier Core. The ENM provides extensive server management tools and redundancy for managing the VIDA network. The ENM provides direct management of third-party devices and interfaces directly with the L3Harris Regional Network Manager (RNM) for a unified management system.

Figure 5. ENM Dashboard



Checks over 250 require enhanced offering. The following Figure 6 describes the different ENM offerings available to choose from

Figure 6. L3Harris Standard ENM offerings

# OF END POINT CHECKS	LEVEL	MODEL NUMBER	TIER
250	Base	VS-SH6J	Base
350 to 700	Enhanced	VS-SH6K	Small
750 to 1000	Enhanced	VS-SH6L	Medium
1250 to 3000+	Enhanced	VS-SH6M	Large

Additional NSC Servers, Services, and Functionality

NETWORK KEY MANAGEMENT FACILITY (KMF)

The KMF is a network-based application that manages large fleets of crypto nets. The KMF provides complete management of voice encryption keys for all network devices, including subscriber devices. This application generates keys and distributes them via Over-The-Air Rekeying (OTAR) messages to compatible field devices and over network-to-network devices, such as logging recorders and dispatch consoles.

A secure HTML web browser on the UAS provides the user interface to the KMF. From the UAS, crypto officers provide keying information to any of their agency radios anywhere across the network. The UAS has a partitioned database with multiple levels of access so multiple agencies can share a single KMF. This partitioned database also allows agencies to restrict OTAR or other sensitive information to limited personnel. The KMF is tightly coupled into the UAS, seamlessly binding key sets to users and talkgroups.

ISSI

L3Harris will leverage the existing licensing for ISSI software with one (1) external connection and thirty-two (32) talkpaths.

Necessary services for configuring DIA's side of ISSI is included in the pricing. However, the equipment and services required for new external entities is not part of this proposal.

The Demarcation point for the ISSI is the Interoperability Access Router (IAR) interface ports. There are four IAR routers consisting of Cisco 4221 and each router having a T1 NIM card. Connectivity and configuration with external entities will be based on current ISSI configurations with MARC.

SIMULCAST CELL UPGRADE

- L3Harris will transfer the licenses for 3 sites and one control point.
- Station code on all the three (3) sites –one simulcast cell with three sites will be upgraded to SR10A.7.
- NetworkSentry Hardware will be replaced with VIDA Virtual Sites using VIDA Edge hardware. The NetworkSentry software will run on the VIDA Edge computer as a Virtual Machine (Data sheet included)

DISPATCH UPGRADE

All the forty-three (43) Symphony consoles will be reimaged to Windows 10 and upgraded to SR10A.7 software via SSD (Symphony Dispatch Platform 2.0) swaps.

NETWORK FIRST GATEWAY UPGRADE

L3Harris will transfer and reuse the licenses for one (1) existing network first gateways and twelve (12) talk paths. The necessary software upgrade on the gateway will be applied at the following location:

- B Tower
- Tower 1 Building A (S97 SAR)

LOGGING RECORDER UPGRADE

Unless DIA has already arranged coverage or the purchase of the logging recorder with Exacom, L3Harris will provide a hardware/software refresh on the current two Exacom logging recorders serial numbers 2027 and 2166. Due to their age, this will be an upgrade by replacement that includes replacement of channel cards. L3Harris will transfer internal licensing on the core for the two logging recorders. **In addition, 6 Client licenses will be provided**.

SYSTEM INSTALLATION SUPPORT

L3Harris service quote includes engineering support for:

- Engineering services in L3Harris Factory for NSC Staging, Configuration, and Functional Test.
- Engineering support in NSC Facility for providing oversight and instruction for new NSC equipment installation.

A third-party vendor's personnel will provide physical installation of the new VIDA core equipment cabinets beside the existing VIDA core equipment cabinets. L3Harris engineering will power up and test the new VIDA core equipment before completely disconnecting the existing VIDA core and commissioning the new VIDA core. An SR10A.1 VIDA core cannot be on the same system as an SR10A.7 VIDA core at the same time. A hard cutover must be performed during the upgrade. L3Harris will work closely with DIA to coordinate when cutover is performed to minimize user impact.

Site preparation of power and grounding for the new cabinets is outside the scope of this proposal. L3Harris can expect that there is enough power, grounding, and floor space for the new NSC equipment cabinets.

ACCEPTANCE TESTING

L3Harris will perform system acceptance testing per the attached functional acceptance test procedures (FATP). The L3Harris Upgrade Team notifies DIA when installation and upgrade are complete, and the system is ready for acceptance testing.

SYSTEM DOCUMENTATION

L3Harris will provide typical as-built documentation for system upgrades which include:

- Rack configuration drawings
- Revised network schematics
- S/W Audit
- Configuration Files
- Technical Manuals and Users Guides for the new components

L3HARRIS™

TEST PLAN FOR SYSTEM ACCEPTANCE

Customer:

Denver International Airport Core Upgrade

Prepared by:

Stephen Chang and Beatrice Opee

Contract No. PLANE-202264092

Table of Contents

TEST PLAN

INTRODUCTION

L3Harris designed this System Test Plan to validate the installation and functionality of our P25 Phase 2 Trunking system at the SR10A.7 release. It defines the plan for conducting tests and analyzing test results, to confirm that the system satisfies design objectives.

The Test Team shall perform these tests in the order they appear in the plan and test procedures, or as required by the L3Harris systems engineer. The team will record test results in the appropriate test procedure referenced by this document. The prescribed test procedures have been developed and rigorously vetted by L3Harris engineering to provide extensive functional verification of the system features under test.

ROLES AND RESPONSIBILITIES

A Test Team consisting of at least one L3Harris system engineer and one Denver International Airport Core Upgrade representative to act as a witness to the testing is required to execute the test plan. It may be necessary for a secondary team, consisting of an additional L3Harris employee and a Denver International Airport Core Upgrade witness, to be present at another location to test certain features, such as multisite calls or for the secondary team to initiate site alarms so that the primary team can observe them from a system management terminal (SMT).

An L3Harris employee will execute the test steps outlined in the test procedure using the required equipment and with optional assistance from the DIA Core Upgrade representatives. Additional personnel may attend as desired, or as required, to provide access or escort others to certain locations, such as RF shelters or other restricted access areas. Denver International Airport Core Upgrade shall provide access for the entire team to its facilities, including, the Network Switching Center (NSC) locations, RF site shelters, and dispatch locations. For secure facilities, appropriate access permissions must be granted prior to the testing events.

ACCEPTANCE TESTING CLARIFICATION

Final acceptance testing can occur in two separate phases. The first phase of testing begins with functional testing performed in the L3Harris staging facility immediately after initial factory configuration is complete. During this first phase, the DIA Core Upgrade representatives may be on-site to witness the testing. The second phase occurs after final installation at customer facilities.

Staging tests, as detailed in the identified test procedures, verify equipment functionality that we can reasonably perform in a factory environment. We will perform all identified functional testing in the field after final install and commissioning of the system.

Factory staging tests will be virtually conducted via a remote video conferencing session. The virtual testing allows for a greater number of participants than typically allowed for during an on-site visit.

Once acceptance testing begins, we will lock system configurations, hardware platforms, and software versions, except to correct software defects affecting system performance. Prior to conducting the

factory tests, we perform a system audit to verify installation of the appropriate software system release version on each platform.

ELECTRICAL SPECIFICATIONS

If requested, L3Harris will provide raw test data and site alignment measurements from the factory Automated Manufacturing Test Station (AMTS) for the L3Harris provided transceiver equipment.

BASELINE CONFIGURATION

L3Harris systems include a baseline configuration with a predefined test agency and group structure to support the defined test procedures. L3Harris system engineering will determine the hardware and software revisions during program planning and check the system conforms to that baseline prior to the start of testing.

A complete set of as-built system schematics will be available during testing and includes:

- System block diagrams
- Network schematics
- Connection diagrams
- Wiring and cabling schematics
- Rack up drawings
- Alarm punch down drawings
- Grounding and power schematics

TESTING PREREQUISITES

Following installation and commissioning of the applicable hardware and software, L3Harris will verify the system readiness for test. If the testing includes RF sites, L3Harris will complete site alignment and optimization by setting site configurations, aligning stations, and optimizing system timing parameters. As part of the standard installation practices, we measure equipment settings and record levels. L3Harris will provide these site measurements as part of the final documentation package. These parameters include:

- Transmit frequency and deviation
- Output and reflected power
- Receiver sensitivity
- Receiver multicoupler gain (if applicable)
- Receiver preamplifier gain (if applicable)
- Time domain reflectometry of transmission line
- Combiner loss (if applicable)
- Audio line out
- Audio line in

Prior to conducting installation testing, L3Harris performs a system audit to verify installation of the appropriate system release version of software on each platform.

Finally, prior to conducting the testing procedures detailed in this document, L3Harris and Denver International Airport Core Upgrade representatives will agree upon the dates and times of the test.

SYSTEMS AND SITES TO BE TESTED

L3Harris will test the P25 Phase 2 Trunking system installed at each of Denver International Airport Core Upgrade's locations. Functional testing is expected to take up to two to three days per site but may be completed sooner.

Final system acceptance testing will take place at each of the RF site locations. A site will be chosen to initiate the testing, and all test procedures appropriate to the site will be executed and recorded. Once a site has completed the test cycle, the team will move on to the next site. This approach will be repeated until all sites have been tested.

Equipment is located at various locations across the facilities and is identified as the following:

SYSTEM/SITE LOCATION	ADDRESS OR BUILDING NUMBER	SYSTEM/EQUIPMENT DESCRIPTION
Denver International Airport	Denver International Airport	P25 System Core Upgrade

PASS/FAIL CRITERIA

Criteria for Pass / Fail is determined by execution of the test procedures in the Acceptance Test Plan. If a feature test is successfully executed, that feature is deemed to be compliant and results in a PASS. If a failure occurs, the failed test may be repeated to address missed steps or configuration requirements overlooked during execution.

If a certain piece of equipment is deemed to be malfunctioning and duplicate spare equipment is available to replace it, the test may be executed using the spare equipment. If the feature test is successfully executed on the spare equipment, the feature will be deemed compliant and result in a PASS. At such time as the original piece of equipment is repaired or replaced and is able to function as designed, the original equipment will be returned to service and tested to ensure functionality.

If a feature is found to be non-compliant, L3Harris will address the non-compliance and retest. Until a successful retest, the feature is deemed to be non-compliant and results in a FAIL.

If it is necessary to defer a test for any reason, it may be marked as Not Yet Evaluated (NYE). The test may be executed, with appropriate witnessing, at any time afterward to change the result to a PASS.

TROUBLE REPORTING

Any issues found during testing will first be recorded on the comment page at the end of the feature set, and then they will be reported directly to the L3Harris program manager to be logged in the project issues log for corrective action.

Failures must be appropriately addressed. For hardware failures occurring during test events, failed hardware will be removed from the system being tested and turned over to L3Harris' quality organization for repair or replacement.

Test Procedures

FEATURES TO BE TESTED

The following list of acceptance procedures will be used to validate system performance:

- Network Switching Center
- Symphony Dispatch Consoles
- Subscriber Units

TOOLS / TEST EQUIPMENT

Unless otherwise specified, L3Harris will supply all special tools necessary to test the product.

Equipment list TBD during program planning.

EQUIPMENT MODEL NUMBER	DESCRIPTION	SERIAL NUMBER
TBD	TBD	TBD

RADIO MODEL NUMBER	DESCRIPTION	SERIAL NUMBER
TBD	TBD	TBD

Safety

L3Harris will take reasonable safety precautions to ensure personnel against harm while operating within and traversing the installations.

General safety guidelines for portable radios:

- Do not hold onto the antenna when the radio is powered on.
- To ensure you do not exceed FCC RF exposure compliance requirements, always keep the antenna at least 0.43 inches (1.1 cm) away from the body and 0.98 inches (2.5 cm) from the face when transmitting.
- Do not use the portable radio with a damaged or missing antenna. A minor burn may result if skin comes into contact with a damaged antenna. Replace a damaged antenna immediately. Operating a portable radio with the antenna missing could cause personal injury, damage the radio, and may violate FCC regulations.
- Use only manufacturer-approved antennas. Use of unauthorized antennas, modifications, or attachments could cause damage to the radio unit and may violate FCC regulations.
- RF energy from portable radios may affect some electronic equipment. Most modern electronic equipment in cars, hospitals, homes, etc., is shielded from RF energy. However, in areas in which you are instructed to turn off two-way radio equipment, always observe the rules. If in doubt, turn it off!

L3Harris engineering will identify environmental detriments prior to testing, if deemed applicable. L3Harris will make adjustments to the extent required to address any such deficiencies deemed to

present a danger to either system performance or personnel safety; examples include excessive temperature variations, contaminants, hazardous materials, or obstructions to LMR equipment.

TEST PROCEDURES

SYSTEM FEATURE SET

P25 TDMA Phase 2 Functionality (Single-site / Simulcast Single Site)

Purpose: Demonstrate P25 TDMA Phase 2 implementation provides the additional traffic channel capacity and features of P25 TDMA Phase 2 while allowing backwards compatibility with FDMA Phase 1 radios and talkgroups.

Expected Results: Verify that a P25 FDMA call will work on a TDMA system.

Setup: In the following tests, Radios 1 and 2 will be set up as FDMA only. Radios 3 and 4 will be set up as TDMA and FDMA capable, depending upon TG.

FDMA refers to Phase 1 and TDMA refers to Phase 2.

Log into RNM, Realtime Tab, start RSM Site Activity or VNIC site calls to monitor system channel assignment and call type during active calls.

DESCRIPTION	RADIO LID	TG DESCRIPTION	TG ID	SYSTEM
Radio 1	9980001	TG 64051 P25	64051	Phase 1
Radio 2	9980002	TG 64051 P25	64051	Phase 1
Radio 3	9980003	TG 64051 P25	64051	Phase 2
Radio 4	9980004	TG 64051 P25	64051	Phase 2

MIXED MODE SITE TO MIXED MODE SITE CALL — FDMA TO FDMA

Purpose: Demonstrates that an FDMA call will work on a FDMA system.

Expected Results: Verify that a P25 FDMA call will work on the system.

Setup: Turn off Radios 3 and 4.

Execution:

1. PTT Radio 1 and talk. The transmit (TX) indicators should turn on at Radio 1.
   > Verify that the call is assigned as an FDMA by viewing the real time viewer site activity on the RNM.
   > Verify Radio 2 can hear Radio 1.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

MIXED MODE SITE TO MIXED MODE SITE CALL — FDMA AND TDMA

Purpose: Demonstrates that a mixed mode call can function on a TDMA system.

Expected Results: Verify that a TDMA radio will hear a call from a FDMA radio.

Setup: Turn on Radios 1, 2, 3, and 4.

Execution:

1. PTT Radio 1 and talk. The transmit (TX) indicators should turn on at Radio 1.
   - > Verify that the call is assigned as an FDMA by viewing the real time viewer site activity on the RNM.
   - > Verify Radios 2, 3, and 4 can hear Radio 1.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

MIXED MODE SITE TO MIXED MODE SITE CALL — FDMA

Purpose: Demonstrates that a mixed mode call can function on a TDMA system.

Expected Results: Verify that an FDMA radio will hear a call from a TDMA radio.

Setup: Turn on Radios 1, 2, 3, and 4.

Execution:

1. PTT Radio 3 and talk. The transmit (TX) indicators should turn on at Radio 3.
   > Verify that the call is assigned as an FDMA by viewing the real time viewer site activity on the RNM.
   > Verify Radios 1, 2, and 4 can hear Radio 3.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

TDMA SITE CALL

Purpose: Demonstrates that a TDMA call will work on a TDMA system.

Expected Results: Verify that a P25 TDMA call will work on a TDMA system.

Setup: Turn off Radios 1 and 2.

Execution:

1. PTT Radio 3 and talk. The transmit (TX) indicators should turn on at Radio 3.
   - > Verify that the call is assigned as an TDMA by viewing the real time viewer site activity on the RNM.
   - > Verify Radio 4 can hear Radio 3.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

TRANSMISSION TRUNKING

Purpose: Test will demonstrate that the system is working as a transmission trunking system.

Expected Results: Verify the control channel will assign a working channel to the radio and that the radio and site will work as a trunking set by dropping radio transmission upon PTT release.

Setup: Radios 1, 2, and 3 should be the only radios on the system.

Use RNM real time viewers to monitor system channel assignment.

DESCRIPTION	RADIO LID	TG DESCRIPTION	TG ID	SITE
Radio 1	9980001	TG 64001 P25	64001	1
Radio 2	9980002	TG 64001 P25	64001	1
Radio 3	9980003	TG 64001 P25	64001	1

Execution:

1. Log into RNM, Realtime Tab, start RSM Site Activity, to monitor system channel assignment. Observe all channels on Site 1.
2. PTT Radio 1 and talk.
   - > The transmit (TX) indicators should turn on at Radio 1.
   - > Verify the number of the channel assigned.
   - > Un-PTT Radio 1.
3. PTT Radio 2 and talk.
   - > The transmit (TX) indicators should turn on at Radio 2.
   - > Verify the next channel is assigned.
   - > Un-PTT Radio 2.
4. PTT Radio 3 and talk.
   - > The transmit (TX) indicators should turn on at Radio 3.
   - > Verify the next channel is assigned.
   - > Un-PTT Radio 3.
   - > Verify the channel immediately drops, or as configured by station hang timers.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

P25 Simulcast Bypass Operation

Program the MASTR V modules (both Control Points and Transmit Sites) to the Final Configuration. Refer to the installation manual for the guide to setting TX Traffic Controllers / CP Traffic Controllers personality parameters.

Verify the BYPASS plan has been reviewed and approved by customer representative. This procedure makes assumptions on bypass sites before implementation and test of the System. After WMS/Panther signal strength data collection, final decision will be made on the actual bypass “ON” and “OFF” sites.

Prepare a minimum of two terminal radios programmed to operate on the active BYPASS site and the main simulcast system.

SITE OFF - FINAL CONFIGURATION

Purpose: Confirm sites configured to be in the “OFF” condition during BYPASS are in the expected BYPASS mode.

Expected Results: The “OFF” site traffic controllers have no control channel.

Setup: Sites intended to be “OFF” in event of BYPASS must have all channels set to disabled (unchecked in Device Manager, TC personality).

Execution:

1. At one of the sites designated as an “off” site, create a condition to force BYPASS by disconnecting the router to MPLS connection. All other sites will have the HPAs disabled locally.
   > Verify transmit site is in BYPASS mode.
   > The Traffic Controller module display indicates “TC” instead of “TR”. Note: TC= Working Traffic Channel, standalone mode, TR=Working Channel, simulcast mode, and Control Channel, simulcast mode is indicated by the transmit LED indicator.
2. Observe the repeater (station) Traffic Controller modules.
   > Verify there is no active control channel.
   > Verify no stations are keyed or producing RF power.
3. Restore the site to normal by returning the site to simulcast mode by reconnecting the router to MPLS connection.
   > Verify transmit site is in normal simulcast mode. The Traffic Controller modules will indicate “TR(n)”, where n is the channel number.
4. Repeat Steps 1-3 for the remaining “OFF” bypass sites in the simulcast system under test.

TEST RESULTS			
Tester:			
Date:			
Result:	☐ Pass	☐ Fail	

SITE ON (TRUNKING) - FINAL CONFIGURATION

Purpose: Confirm sites configured to be in the “ON” condition during BYPASS are in the expected BYPASS mode.

Expected Results: The “ON” site traffic controllers have a control channel.

Setup: Site is configured to be ON during BYPASS.

Execution:

1. Create a condition to force BYPASS by disconnecting the router to MPLS connection.
   - > Verify transmit site is in BYPASS mode. BYPS LED on Baseband module and the Traffic Controller module display indicates either “TC” or “CC” instead of “TR.
   - > Observe the stations/repeater Traffic Controller modules. Verify there is an active control channel on one of the Traffic Controller modules. The remaining repeater/stations Traffic Controller modules will indicate “TC”.
   - > Verify the station appearing as control channel is keyed, producing RF power and modulated with control channel data.
   - > Verify a terminal radio set to the system programmed for the site in BYPASS with the correct site ID recognizes the site’s control channel data.
2. Key the terminal radio on a group call.
   - > Verify a working channel assignment is made within the channel group allowed in the personality.
   - > Verify the call is heard on a second terminal radio set to the active BYPASS system.
3. Restore the site to simulcast mode by reconnecting the router to MPLS connection.
   - > Verify transmit site is in normal simulcast mode. Traffic Controller modules indicate “TR(n).
4. Repeat Steps 1-3 for remaining “ON” bypass sites in the simulcast system under test.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

CONTROL POINT TRUNKING RESET CONTROL

Purpose: A properly set up Simulcast BYPASS system will disable CP Traffic Controller modules associated with active channels at a TX site operating in BYPASS. This keeps the remaining sites operating in Simulcast mode from being assigned to channels expected to be active at the site in BYPASS. Sites programmed to be OFF in BYPASS will not require any Traffic Controller modules to be held OFF.

Expected Results: This test will verify that the Control Point Traffic Controller modules will be held OFF corresponding to the active channels at a site, due to the TX site being in BYPASS.

Setup: N/A

Execution:

1. Force a TX site that will become active into BYPASS by disconnecting the router to MPLS connection.
   - > Verify TX site is in BYPASS mode.
   - > Verify transmit site is in BYPASS mode. Traffic Controller module display indicates either “TC” or “CC” instead of “TR”.
   - > Verify the CP Traffic Controller modules on the channels intended to be OFF are held OFF.
2. Observe the RNM screen for the simulcast system.
   - > Verify the channels intended to be OFF at the Control Point are reported as OFF (RED).
3. Restore the site to simulcast mode by reconnecting the router to MPLS connection.
   - > Verify the TX site Traffic Controller modules revert to normal Simulcast.
   - > Verify the CP Traffic Controller modules associated with the site in BYPASS are returned to normal.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

BYPASS – SITE MINIMUM CHANNELS

Purpose: Confirm a site enters bypass when active channels fall below site minimum channels setting.

Expected Results: The site enters bypass mode.

Setup: Sites are configured with cluster minimum channels set to 6 and site minimum channels to 7. Bypass Plan: TR Site 1 Ch 3,4,5; TR Site 2 Ch 6,7,8; TR Site 3 Ch 9,10,11 TR Sites 4 and 5 dark.

Note: Settings and bypass plan can be customer final settings; execution will have to adjust to accommodate those settings.

Execution:

1. At TR Site 1 disable Channels 8 - 11 using the TX disable switch on the PA (only Channels 1-7 are still functioning).
   - > Verify system and site still functioning in simulcast; the disabled Channels 8-11 are in alarm state at the control point site.
   - > At TR Site 1 the Traffic Controller modules displays still indicates “TR” not “TC” or “CC”. Note: TC= Working Traffic Channel, standalone mode, TR=Working Channel, simulcast mode, and Control Channel, simulcast mode is indicated by the transmit LED indicator.
2. At the same site, disable Channel 7 using the TX disable switch on the PA.
   - > Verify system is still functioning in simulcast. Control Point ch 3,4, and 5 in alarm state.
   - > Verify TR Site 1 is in bypass. The Traffic Controller module display indicates “TC” instead of “TR”. All channels status indicates alarm. Note: TC= Working Traffic Channel, standalone mode, TR=Working Channel, simulcast mode, and Control Channel, simulcast mode is indicated by the transmit LED indicator always on.
3. At the same site restore all channels back to service (enable the PA using the TX disable switch on the PA).
   - > Verify transmit Site 1 is in normal simulcast mode. The Traffic Controller modules will indicate “TR(n)”, where n is the channel number.
   - > Verify all channels are in service at the control point.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

BYPASS – CLUSTER MINIMUM CHANNELS – TR SITE FAILURES

Purpose: Confirm all sites enter bypass when available channels fall below the cluster minimum channels setting. Depending upon the system size, bypass plan, and which channels have been failed a subset of sites may subsequently come out of bypass and operate as a cluster before any channels are restored to service.

Expected Results: All site in the system enter bypass mode.

Setup: Sites are configured with cluster minimum channels set to 6 and site minimum channels set to 7 (these settings are normally lower; they are set high to simplify testing).

Execution:

1. At TR Site 1 disable Channels 9, 10 and 11 using the TX disable switch on the PA (8 channels are still functioning).
   > Verify system and site still functioning in simulcast.
   > The Traffic Controller module displays still indicates “TR” not “TC” or “CC”. Note: TC= Working Traffic Channel, standalone mode, TR=Working Channel, simulcast mode, and Control Channel, simulcast mode is indicated by the transmit LED indicator.
2. At TR Site 3 disable Channels 6, 7 and 8 using the TX disable switch on the PA (5 channels are still functioning).
   > Verify All sites have entered bypass (the TCs display “TC” and “CC”, not “TR” and every channel status indicates failed at every site.
3. Enable the PAs at the sites using the TX disable switches.
   > Verify the system recovers to simulcast mode with all transmit sites in normal simulcast mode. The Traffic Controller modules will indicate “TR(n)”, where n is the channel number.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

SITE ON (TRUNKING) - ENHANCED BYPASS FINAL CONFIGURATION

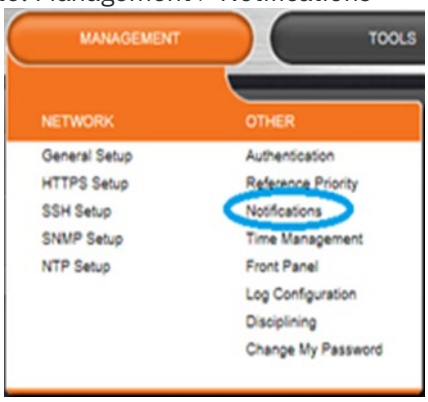
Purpose: Confirm sites configured to be in the “ON” condition during BYPASS are in the expected BYPASS mode and can connect to VNIC.

Expected Results: The “ON” site traffic controllers have a control channel and calls between terminal radios and dispatch can be made.

Setup: N/A

Execution:

1. Create a condition to force BYPASS that does not disrupt network connectivity by logging into both GPS receivers and configuring their notifications to set the major alarm threshold to minimum satellites 12 and duration below threshold 5 seconds. This will cause the GPS receivers to set a major alarm after 5 seconds.
2. Configure Notifications from Spectracom GPS Receivers
   > Navigate to: Management > Notifications



3. In the **Events** window pane, click the **GPS** tab.
4. Set the Major Alarm Threshold as follows:
   > Minimum Satellites: **12**
   > Duration Below Threshold: **5**
5. Click: Submit

6. Verify transmit site is in BYPASS mode. The Traffic Controller module display indicates either “TC” or “CC” instead of “TR”.
   - > Observe the stations/repeater Traffic Controller modules. Verify there is an active control channel on one of the Traffic Controller modules. The remaining repeater/stations Traffic Controller modules will indicate “TC”.
   - > Verify the station appearing as control channel is keyed, producing RF power and modulated with control channel data.
   - > Verify a terminal radio set to the system programmed for the site in BYPASS with the correct site ID recognizes the site’s control channel data.
7. Key the terminal radio on a group call.
   - > Verify a working channel assignment is made within the channel group allowed in the personality.
8. Restore the site to simulcast mode by restoring the GPS major alarm notification threshold to minimum satellites = 1 and duration = 345600 for both GPS receivers.
   - > Verify transmit site is in normal simulcast mode. Traffic Controller modules indicate “TR(n).

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

Control Point Movement

DCP FORCED CONTROL POINT MOVEMENT

Purpose: This test will demonstrate the DCP system can move the control point in response to user command.

Expected Results: This test will verify that the Control Point can be moved from the active site to an alternate Control Point Site. After the control point is switched to the alternate Control Point the system should operate normally.

Setup: The DCP system is operating with an active control point and at least two sites are enabled to be the control point.

Execution:

1. Log into the RNM.
2. In Network view identify the site which is the active control point.
3. Right click on the control point site icon and select “Change Control Point to Best Site Available”.
4. Verify system is still functioning (i.e. voice calls can be made – between radios and a radio and console and optionally data calls can be made (e.g. radios can be ‘pinged’).
5. Verify that the RNM indicates a different site as control point and the previous control point is now a TX site. (Note – a CP only site displays “zzzz” when it is not the active control point.)
6. On the RNM right click on the previous control point site and select “Change to be the Control Point”.
7. Verify system is still functioning (i.e. calls can be made – between radios and a radio and console and optionally data calls can be made (e.g. radios can be ‘pinged’).
8. Verify that the RNM indicates the control point has moved to the site selected in Step 6 and the previous control point is now a TX site. (Note – a CP only site displays “zzzz” when it is not the active control point.)

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

DCP CONTROL POINT MOVEMENT IN RESPONSE TO FAULTS AT THE ACTIVE CONTROL POINT

Purpose: This test will demonstrate that the Control Point will move in response to failures at the active Control Point.

Expected Results: This test will verify that the DCP system will move the active Control Point to an alternate control point site when the active control point experiences failures. After the Control Point moves the old control point should drop into bypass and the rest of the system should operate normally as a Simulcast cluster.

Setup: The DCP system is operating with an active control point and is properly configured with at least two sites enabled to be the control point.

Execution:

1. Verify system is functioning (i.e. calls can be made – between radios and a radio and console and optionally data calls can be made (e.g. radios can be 'pinged').
2. At the control point site disconnect the 1pps cable from GPS B.
3. Verify the system is still functioning (i.e. calls can be made – between radios and a radio and console and optionally data calls can be made (e.g. radios can be 'pinged') and control point has not moved. The traffic controllers at the control point display 'CC xx' and 'TC xx' when idle; at a satellite site the traffic controllers display "TR xx' where xx is the channel number.
4. At the control point site disconnect the 1pps cable from GPS A.
5. Verify that the control point moved to next ranked site and the old control point is now in bypass. The traffic controllers at the control point display 'CC xx' and 'TC xx' when idle: Any channels that are configured to be active at the old control point site when it is in bypass will have all their status LED red. In bypass all the traffic controllers display 'CC xx' and 'TC xx' when idle and the status LED will be red.
6. Verify the RNM indicates the new control point and shows the old control point site is now in bypass.
7. Verify the simulcast system is still functioning (i.e. calls can be made – between radios and a radio and console and optionally data calls can be made (e.g. radios can be 'pinged').
8. If the old control point has channels active in bypass, verify radios switched to this bypass site acquire the control channel and can communicate.
9. Restore the connections to the GPS receivers at the site in bypass (the old control point site).
10. Verify that the site exits bypass and joins the simulcast cluster.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

System Test Notes / Issues

System Functional Test Acceptance

This Functional Test Acceptance Procedure has been fully and successfully completed with all action items resolved.

Denver International Airport Core Upgrade Representative	L3Harris Technologies Representative
Signature	Signature
Printed Name and Title	Printed Name and Title
Date	Date

NETWORK SWITCHING CENTER FEATURE SET

VIDA Unified Administration System (UAS)

ACTIVE DIRECTORY CONTROL OF UAS USER ACCOUNTS (SR10A.4 OR LATER)

Purpose: Transition from managing UAS-user accounts in the UAS application to AD instead. New systems will be shipped w/ AD control instead of UAS application user control. Existing systems may choose to switch to AD control or continue to use the existing accounts in UAS.

Expected Results: Demonstrate for SR10A.4 or later UAS Login; the UAS uses Active Directory-configured user login with AD username and password.

Setup: All users configured in Active Directory prior to UAS Login. UAS Users are added to AD 'Active Directory Users and Computers' > within vida.local area > VIDA Users > VIDA Administrators > "each User defined here". For "User X", within "Properties" > "Member of" Tab; User X needs appropriate "VIDA UAS access group".

Execution:

1. Login into UAS with AD user login. Use AD username and password.
   With SR10A.4 or later, UAS web login interface will pass username and password to Active Directory for authentication.
   > Verify user has logged into the UAS.

TEST RESULTS				
Tester:				
Date:				
Result:	☐	Pass	☐	Fail

CREATE A RESTRICTED USER ACCOUNT IN THE UAS

Purpose: Show that a user can be created in the UAS that has restricted access.

Expected Results: New user will only have access to the agencies tab and 998 agency.

Setup: User will need system level access to a UAS to define a new administration class that has limited access privileges and create a new user with that class.

Execution:

1. Log into AD and create a new test user with UAS login rights.
2. Attempt to login with new account. (should receive message that user has now scope)
3. Login to the UAS with an AD account that has admin rights.
4. Grant the new test user rights to only agency 998
5. Log out and log back in as the test user.
   Verify the new user only has access to the 'Agencies' tab and agency 998.
6. Return to AD and delete test user to remove from system.

TEST RESULTS				
Tester:				
Date:				
Result:	☐	Pass	☐	Fail

PROVISION AGENCY WITH TALKGROUPS AND SUBSCRIBER UNITS IN THE UAS

Purpose: Demonstrate the capability to add talkgroups and users to the agency accounts in the UAS.

Expected Results: Test will show that a user can add a new TG and users to the system.

Setup: System/region/agency level access to the UAS or a UAS client.

Execution:

1. Log into the UAS with one of the default accounts.
2. Select Agency 998, select 'R/W Talkgroup', to create a talkgroup.
3. Click 'Add' and then on the 'Talkgroup Detail' screen input the talkgroup ID from the table below. For any setting not listed, use the auto setting. Click OK and download.
   > Verify the talkgroup has been added to the list of talkgroups.

TG ID	NAME	DESCRIPTION	SPNI	PROPERTY ID	PRIORITY ID	COVERAGE	VALID COVERAGE
64454	64454ANA	Half Rate Low Priority	1	3	5	P25Sites_PSAPs	P25Sites_PSAPs

4. Using telnet, log into a traffic controller at a control point for simulcast or site for multisite and issue the command 'show gdb'.
   > Verify that Group 64454 exists in the traffic controller user data base.
5. Once the group has been verified, delete it from the UAS.
6. In the UAS, select Voice End (VEU) User tab and add a VEU.
7. Select the Subscriber Unit tab and add a Subscriber Unit for the Voice End User.
8. Using Telnet, log into a traffic controller at a control point for simulcast or site for multisite and issue the command 'show udb'.
   > Verify the added user exists in the traffic controller user data base.
9. Once the user has been verified, delete it from the UAS.

TEST RESULTS				
Tester:				
Date:				
Result:	☐	Pass	☐	Fail

DYNAMIC REGROUP FROM THE UAS

Purpose: Demonstrate ability to dynamically regroup subscriber units from the UAS.

Expected Results: Test will combine selected talkgroups into a single interop group.

Setup: Radios must have "Allow P25T Unsolicited Dynamic Regroup" checked in the radio personality under general options. Ensure radio IDs and talkgroup IDs are uploaded to the site.

DESCRIPTION	TG DESCRIPTION	TG ID	SITE
Radio A	TG 64001 P25	64001	1
Radio B	TG 64002 P25	64002	1
Radio C	TG 64003 P25	64003	1

Execution:

1. At the UAS, select 'Regroup' tab and 'Regroup Profile'.
2. Click 'Add' to add profile detail; name Group 'Regroup1', and Description 'Regroup1 Test'.
   - > Define regroup profile; select Agency 998 and 'TG64003'.
   - > Select 'OK' and save changes to the UAS.
3. Click 'End User Group' and click 'Add'. Name Group 'Regroup1' and Description 'Regroup1 test'.
   - > Select Agency 998 from 'Select a Scope' drop down box.
   - > Add 'Radio A' and 'Radio B' to the 'Selected' windows.
   - > Select 'OK' to close 'End User Group Detail'.
   - > Click 'Save' button to download the new regroup.
4. Click 'Define Regroup' and click 'Add' to name the regroup 'Regroup1' and description 'Regroup1 test'.
   - > Change 'Profile Name' to 'Regroup1' and change 'End User Group Id' to 'Regroup1'.
   - > Click 'OK' and save to click 'Save' the changes to the UAS.
5. Click 'Manage Regroup' check the box for 'Regroup1' and select the button for 'Regroup'.
   - > Click 'Save' to start regroup.
   - > Verify that Radio A and Radio B are forced to 'Talkgroup 64003'.
6. At 'Radio A' and 'Radio B', attempt to change talkgroups away from 'Talkgroup 64003'
   - > Verify that both radios are forced to remain on 'Talkgroup 64003'.
7. PTT 'Radio A' on 'Talkgroup 64003'.
   - > Verify that 'Radio C' hears audio on 'Talkgroup 64003' and can respond.
8. Clear the dynamic regroup from the UAS client.
   - > Verify 'Radio A' and 'Radio B' are no longer forced to 'Talkgroup 64003' (i.e., they can select other predefined talkgroups).

TEST RESULTS				
Tester:				
Date:				
Result:	☐	Pass	☐	Fail

UNIT DEREGISTRATION

Purpose: Demonstrate that a radio will automatically deregister when the radio is turned off.

Expected Results: Test will show that the radio is off and will not create traffic load demand.

Setup: Radio A is the only radio on 'TG A' for this test. All other radios should be on different talkgroups. UAS>System Properties>Protocol Timer>Radio Re-Registration Timer for P25 trunked sites must be lowered to a minimum value to test this feature. It is typically setup for 360 minutes. Set the timer for two minutes and note the "calculated" value of "VNIC Remove Demand Timer". The VNIC Remove Demand Timer value is the "wait time" to see the radio be "deregistered" by the system after losing connectivity. Restart the VNIC following the change. Be sure to set the timer back to 360 minutes following the test.

Execution:

1. Browse to https://s0u1rnm.vida.local/nmc and log in with an Active Directory account. Choose 'System Map' and select 'Launch Application' button. Open 'Realtime' tab and click 'Mobiles.'
   > Verify Radio A LID is shown registered on the site.
2. PTT console and verify it communicates on the system to Radio A.
   > Return call from Radio A to the console.
3. Turn off Radio A and wait for expiration of the radio timeout period.
4. Refresh RNM mobiles screen periodically and verify Radio A is deregistered after VNIC *Remove Demand Timer* has passed.
5. PTT console, after the expiration of the timeout.
   > Verify no channel is assigned to site, since no demand exists at the sites.

TEST RESULTS				
Tester:				
Date:				
Result:	☐	Pass	☐	Fail

UAS SITE ADJACENCY CONFIGURATION (FIELD TEST)

Purpose: Demonstrate the capability to configure site adjacencies in the UAS.

Expected Results: Site adjacencies will be successfully configured and modified.

Setup: UAS is installed and functioning on system network.

Execution:

1. In the UAS go to System > System Properties > Site adjacency.
2. Select a site on the left-hand side to configure for adjacency information.
3. Use the left-hand side to add adjacencies for the site.
   > Confirm the adjacent sites are removed from the non-adjacent site list and display correctly on the right side.
4. Use the right-hand side to remove a site adjacency.
   > Confirm the removed adjacency disappears on the right side and is displayed as a non-adjacent site on the left side.

TEST RESULTS				
Tester:				
Date:				
Result:	☐	Pass	☐	Fail

UNIT ENABLE/DISABLE FROM THE UAS

Purpose: Demonstrate the ability to disable a lost/stolen radio from the UAS.

Expected Results: Test will disable and re-enable a designated radio.

Setup: Ensure radios can communicate together on same trunk group. Verify all sites are connected to the NSC and are online.

Note: If a radio is encrypted, unit disable will automatically delete the encryption key from the radio, as it is disabled. To restore unit functionality for an encrypted radio, the radio must have the encryption key re-installed.

DESCRIPTION	TG DESCRIPTION
Radio A	TG A
Radio B	TG A
Radio C	TG A

Execution:

1. PTT on Radio C and verify call is heard on other Radios.
2. From the UAS:
   - > Click Radio C Enable/Disable.
   - > Under the Unit Enable/Disable tab, enter the ID of Radio C to be modified.
   - > Select the disable button and check the status.
   - > Attempt to PTT Radio C and verify that it will not communicate with the other radios.
   - > PTT Radio A and verify that Radio C cannot receive the call.
3. Enable the ID of Radio C.
   - > Verify that the Enable/Disable screen indicates that the current state of the radio is enabled.
   - > Confirm that the radios can communicate by placing call.

TEST RESULTS				
Tester:				
Date:				
Result:	☐	Pass	☐	Fail

UAS SITE ACCESS CONTROL FOR INVALID USER ID

Purpose: Demonstrate access control for subscriber units with invalid radio IDs and high availability of the Regional System Manager (RSM).

Expected Results: Radio will be denied access to the system with an invalid subscriber ID. Once the radio is added to the system in the UAS database, the primary RSM will download the database that includes it to the sites and allow the radio access. When the primary RSM is turned off and the radio is deleted from the UAS database, the secondary RSM will download the database that deletes the radio from the system. Once the radio is deleted from the system, the radio will again be denied access.

Required Materials: Three radios, a programming cable, and computer with RPM2 installed.

Setup: Use the table below to set up the new radio in the UAS.

VOICE END USER	INPUT	SUBSCRIBER UNIT	INPUT
User ID	010:998:9150	Description	Radio9150
Name	Rad9150	Electronic Serial No.	0109989150
Description	Radio9150	RSI	0000000109989150
Personality	Pers1	Protocol Mask	P25
User Privilege	998_10_default	Status	Enabled Unit
Message Trunked Icall	TRUE	Sub Type	Harris XL-200P
Enable P25 AES OTAR	TRUE	Assigned End User	010:998:9150
Manually Keyed	FALSE	Algorithm Support	AES
Preferred Vocoder	P25 Half Rate		
Transc Allowed Flag	TRUE		

Execution:

1. Log into a site traffic controller, issue a “show udb 9989150.”
   > Verify radio is not present in the traffic controller database.
2. Program Radio A with an ID 9989150.
3. Attempt to PTT Radio 9150.
   > Verify access to the site is denied and audio is not heard.
4. Use the supplied table to enter Radio 0109989150 into the UAS database.
   > Select Agency/”agency name”/Voice End User. Click ‘Add Entry’ and then on the ‘End User’ Detail screen input the user ID, password (“p25user”), name, description, etc. of the user.
   > Select agency/”agency name”/subscriber unit and enter appropriate user ID, IP address, and ESN for the user.
5. Log into a site traffic controller, issue a “show udb 0109989150.”
   > Verify the radio is now present in the traffic controller database.
6. Key Radio A (9150).
   > Verify access to the site is permitted and audio is heard on radio.

7. Delete 0109989150 from the UAS database.
8. Key Radio A (9150)
   > Verify access to the site is not permitted and audio is not heard.

TEST RESULTS				
Tester:				
Date:				
Result:	☐	Pass	☐	Fail

Network Management

REAL-TIME SITE MONITORING (RNM)

Purpose: Demonstrate the capability to monitor real-time call activity from the RNM.

Expected Results: This test will show active call traffic on specific talkgroups and caller IDs.

Setup: Administrator access to the RNM.

Radio A and Radio B operating on a site and NSC under test, both programmed with Group A.

Execution:

1. On a client computer, open the Windows Internet Explorer and browse to https://s0u1rnm.vida.local/nmc and log into the RNM.
   - > Choose the 'System Map' and select the 'Launch Application' button.
   - > Open the 'Real-time' tab and click 'Site Activity'.
   - > Select the site and expand.
2. Check the box next to the channels and select it to add the channels to the target list. Select the 'OK' button to launch the application.
3. Place a group call from Radio A to Radio B on the site.
   - > Verify the event viewer displays the talkgroup ID and caller ID.
   - > Verify the state changes from free to talk.
   - > Verify the trunk group alias displays the group number.
4. Place an emergency call from Radio A to Radio B on the site.
   - > Verify the event viewer displays the emergency indication.
   - > Verify the event viewer displays the talkgroup ID and caller ID.
5. Place an individual call from Radio A to Radio B on the site.
   - > Verify the event viewer displays an individual call on the channel.
6. For P25 Phase 2: Verify the P25 Phase 2 RF traffic channels are sub-divided into two bearers (2-slot TDMA) when all Radios on the TG are Phase 2 capable.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

REGIONAL NETWORK MANGER (RNM) MONITOR SYSTEM STATUS

Purpose: Demonstrate the capability to monitor system status from the RNM.

Expected Results: This test will show system level equipment icons.

Setup: Administrator access to the RNM.

Execution:

1. On a client computer, open the Windows Internet Explorer and browse to https://s0u1rnm.vida.local/nmc and log into the RNM.
2. Choose the system map and select the 'Launch Application' button. Select the 'Network' tab and expand the tree in the left-hand panel until you can see a site in the right-hand panel.
   > Verify the infrastructure is presented.
   > Select an object and right click to select properties to view information related to the object.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

RF SYSTEM ALARMS INDICATIONS ARE REPORTED (RNM)

Purpose: Demonstrate the capability to monitor system faults and alarms at the RNM.

Expected Results: Site equipment will send alarms to the RNM.

Setup: Need access to the site under test and the regional RNM. The alarm will need to be generated by equipment being physically powered-down or reset. Note the time of the alarm condition for later tests. On the 'RNM Domain' screen, verify all map icons are either green or blue. On the fault browser screen, delete any prior alarms.

Execution:

1. On a client computer, open the Windows Internet Explorer and browse to https://s0u1rnm.vida.local/nmc and log in with an Active Directory account.
   - > Choose the system map and select the 'Launch Application' button.
   - > Select the 'Network' tab and expand the tree in the left-hand panel until a site is in the right-hand panel.
2. Generate an alarm on a device (see chart) by powering down or otherwise disabling the device.
   - > Verify that the RNM Network Viewer indicates a site alarm for the affected device.
   - > Review alarm details by doing a right mouse click on an 'Alarm Object'. Select the desired menu option.
   - > Verify alarm is listed in the 'Fault Browser'.
3. Turn the device back ON.
   - > Verify that the device alarm clears and displays green.
4. Repeat Steps 2 - 3 for all equipment listed in the below chart.
5. Substitute https://s0u2rnm.vida.local/nmc and repeat test Steps 1 - 4 for the second RNM.
6. Record the results below for each site.

Note: This form can be modified to reflect actual as-built alarms

SITE #		SITE NAME	
ALARM #	NAME	RESULTS (PASS/FAIL)	REMARKS
1	Traffic Controller		Press the reset button on the TC and watch for the alarm
2	Router		Remove cable from Gi0/0 (interface to SAS)
3	Switch		Remove a cable from a PLAN port
4	PA		Disable one of the site PAs

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

NETWORK SENTRY SITE ALARM INDICATIONS ARE REPORTED (RNM)

FIELD TEST ONLY

Purpose: Demonstrate the capability to monitor site faults and alarms at the RNM.

Expected Results: Site level equipment will indicate faults and alarms at the RNM. During factory testing the alarm will be simulated by changing the active state polarity. During field acceptance testing the jumper alarm contacts will be opened or closed to simulate an alarm. An actual alarm could be monitored if the contacts have been connected.

Setup: This test verifies that the site and shelter alarms are connected to the new system and alarm names are programmed to show the alarm types and locations. Site specific digital alarm inputs connected to the alarm management system (Network Sentry) alarm unit.

Execution:

1. On a client computer, open the Windows Internet Explorer and browse to https://s0u1rnm.vida.local/nmc and log in with the Active Directory account.
2. Choose the system map and select the 'Launch Application' button.
3. Select the 'Network' tab and expand the tree in the left-hand panel until you can see a site in the right-hand panel.
4. Select a physical site to test alarm inputs.
5. Create a condition that will either simulate an alarm (jumper alarm contacts) or the actual event to trigger each alarm
   > Verify that the alarm is detected and displayed in the RNM Network Viewer and is listed in the 'Fault Browser.'
6. Clear the alarm condition.
   > Observe that the alarm indication has cleared in both the 'Network Viewer' and the 'Fault Browser.'
7. Repeat for each alarm and for each site in the system.
8. Record the results below for each site.

Note: This form can be modified to reflect actual as-built alarms.

SITE #		SITE NAME	
ALARM #	NAME	RESULTS (PASS/FAIL)	REMARKS
1			
2			
3			
4			

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

ENTERPRISE NETWORK MANAGEMENT DISPLAY VERIFICATION (ENM)

Purpose: Demonstrate ENM monitoring capabilities.

Expected Results: Monitor various components of the LMR system.

Setup: The ENM product must be configured in Active Directory, in the "VIDA ENM Administrators" group. The user must log into the ENM with an administrator account.

Execution:

1. Open Internet Explorer and browse to https://s0u0enm.vida.local.
2. On the left side of the screen select the "Maps" heading and the "Maps Dashboard" sub-heading. From here, you can select the type of map you would like to view.
3. Verify that geographical maps display system and NSC information as configured.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

ENTERPRISE NETWORK MANAGER ALARM AND ALERT TEST (ENM)

Purpose: Demonstrate the capability to monitor system faults and alarms at the ENM.

Expected Results: ENM will detect in system status by displaying the appropriate alarm.

Setup: Need access to the system under test and the ENM. The alarm will need to be generated by equipment being powered-down or reset. The ENM product must be configured in Active Directory in the "VIDA ENM Administrators" group. The user must log into ENM with an administrator account.

Execution:

1. On a client computer, open Windows Internet Explorer and browse to https://s0u0enm.vida.local. Log in with the Active Directory account.
2. On the left side of the screen select "Maps" heading and "Maps Dashboard" sub-heading. Then select "System" map. At the "System" map, select the icon for the NSC that you will be working on.
3. Generate an alarm on a device (see chart below) by powering down or otherwise disabling the device.
4. The machine will take a few minutes to shut down.
   > Verify after a few minutes that the host will be highlighted red, and the icon in the "Status" column will turn red.
5. Turn the device back on.
   > Verify after a few minutes the icon in the "Status" column will turn green. (It may take some time for the red highlight to clear).
6. Repeat Steps 1 - 5 for all equipment listed in the below chart.

   Note: This form can be modified to reflect actual as-built alarms.

Alarm #	Name	Description	Results (Pass/Fail)	Remarks
		NSC1		
1	NSS	Network Switching Service		
2	ISSI	Inter Sub-System Interface		
3	ADSA	Active Directory Server (A, B, C)		
4	RCA/SCA	Root Certificate Authority/ Subordinate Certificate Authority		
5	VCC (vCenter)	VCenter Computer		
7	UAS	Unified Administration System		
8	RSM/PRO	Regional Site Manager		
9	LAP (BeOn)	LMR Access Point		
10	RNM	Regional Network Manager		
11	VPS	VIDA Presence Server		
12	TXT	TextLink Server		
13	EDTA	eData Server		

Alarm #	Name	Description	Results (Pass/Fail)	Remarks
14	KMF	Key Management Facility		
15	EPO	ePolicy Orchestrator		
16	SUMS	Security Update Management Service		
17	BAK	Backup Server (Unitrends)		
18	DFC	Defense Center Server		
19	NIDS	Network Intrusion Detection		
20	SMT	System Management Terminal		
21	Console- Dispatch (CON)	Console		
22	VMT	Virtual Management Terminal		
23	XCD	Transcoder		
		NSC2		
1	NSS	Network Switching Service		
2	ISSI	Inter Sub-System Interface		
3	ADSA	Active Directory Server (A, B, C)		
4	SCA	Subordinate Certificate Authority		
5	PRO	Regional Site Manager		
6	LAP (BeOn)	LMR Access Point		
7	RNM	Regional Network Manager		
8	VPS	VIDA Presence Server		
9	EDTA	eData Server		
10	BAK	Backup Server (Unitrends)		
11	DFC	Defense Center Server		
12	NIDS	Network Intrusion Detection		
13	VMT	Virtual Management Terminal		
14	XCD	Transcoder		

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

Cybersecurity Testing

ACTIVE DIRECTORY

Purpose: The purpose of this test is to view the GPO structure on an Active Directory server.

Expected Results: The GPO structure is valid.

Setup: None

Execution:

1. Remote desktop into an active directory server on the system.
2. Open Active Directory ‘Users and Computers’
   - > Validate that the computer accounts are in the appropriate containers. No computers should appear in the “Computers” container.
   - > Verify VIDA administrator group and VIDA Dispatch group exist.
   - > Verify VIDA administrators template exists for creation of new accounts.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

SUMS

Purpose: Demonstrate the SUMS server is communicating with the remote client.

Expected Results: Test will verify the SUMS server is communicating with the remote clients and that the remote clients are updated.

Setup: N/A

Execution:

1. Remote Desktop into the SUMS server.
2. Launch the 'IBM Endpoint Manager Console' and log into the console with the SUMS administrative user.
3. Expand 'Sites' 'Custom Sites' 'VIDA' and select 'Subscribed Computers'
   - > Verify that each computer is listed, in the "Subscribed Computers" window
   - > Check to make sure that each computer has reported to the SUMS server within the last 30 minutes by checking the 'Last Report Time' column.
   - > To check to make sure all the subscriber computers are updated by selecting the 'Baseline' in the left-hand window.
   - > Make sure the 'Baseline' window is empty or all computers in the window are gray.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

UNITRENDS SYSTEM BACKUP

Purpose: This test verifies the Unitrends server has a schedule for performing backups of network computers and that it can display the backup status of those computers.

Expected Results: The test will verify the backup configuration.

Setup: N/A

Execution:

1. Use Internet Explorer on a client PC to navigate to the Unitrends backup servers:
   > s0u1bak.vida.local located at "**https://10.128.0.145**".
   > s0u2bak.vida.local located at "**https://10.128.0.177**".
2. Log in using root.
3. On the left panel click protect.
4. On the left look at file level and VMware backups.
   > Verify that devices are visible and configured for backups.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

EPOLICY ORCHESTRATOR

Purpose: This test verifies that ePolicy Orchestrator is communicating with its end devices and it will report actions taken by McAfee Antivirus on a remote computer.

Expected Results: ePolicy Orchestrator is accessible and displays valid reporting.

Setup: N/A

Execution:

1. Use Internet Explorer on a client PC to navigate to the McAfee E-Policy Orchestrator server located at “https:/s0u1epo.vida.local:8443”.
2. Log in using proper credentials
   > Use local account user “xAdministrator”.
3. Go to ‘System Tree.’
4. Expand VIDA groups.
   > Verify all servers and computers are present within EPO and are communicating.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

Activity Warehouse

SITE ACTIVITY USING THE ACTIVITY WAREHOUSE

Purpose: Demonstrate the capability to create various agency level system usage reports.

Expected Results: Test will create an agency level user report.

Setup: Ensure radio traffic has occurred across the network recently. If necessary or desired, place some calls with a known radio ID on multisite talkgroups prior to running the test for reference during the test.

Execution:

1. Open a web browser and browse to 'https://s0u1pro.vida.local/reports' and log in with active directory credentials.
2. Select 'Activity Reports' → Call Activity
3. Enter the time period for the report (Example: 2-hour window before this test).
4. Enter additional report information required.
5. Click on "View Report"
   > Check to make sure that there is call activity.

   NOTE: These reports can be up to two hours behind.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

Transcoder Test

TRANSCODER TEST

Purpose: Test will demonstrate the transcoder ability to transcode calls made with different vocoders.

Expected Results: This test will verify that the transcoder is needed to transcode a call, and each transcoder will transcode calls.

Setup: Radio A Personality: Systems > P25 Trunked > Select the “System Name” > “TDMA Capable” needs to be unchecked (for FDMA / Phase 1).

Radio B Personality: Systems > P25 Trunked > Select the “System Name” > “TDMA Capable” needs to be Checked (for TDMA / Phase 2).

UAS > Agencies > Voice End User >

- Radio A > P25 Full Rate
- Radio B > P25 Half Rate

DESCRIPTION	TYPE	TG DESCRIPTION	SITE
Radio A	Phase 1 Radio	Half rate TG	1
Radio B	Phase 2 Radio	Half rate TG	2
Console		Half rate TG	

Execution:

1. Shutdown s0u1xcda.vida.local, s0u2xcda.vida.local and s0u1xcdb.vida.local.

TRANSCODER	STATE
s0u1xcda.vida.local	Off
s0u2xcda.vida.local	Off

2. From the console place a call on Talkgroup, a P25 TDMA Phase 2 call.
   - Verify call is not heard on P25 FDMA Radio A on Talkgroup, this call failed, since there is no working transcoder.
   - Verify call is heard on P25 TDMA Radio B on Talkgroup.
3. From FDMA Radio A place a call on Talkgroup.
   - Verify call is not heard on TDMA Radio B on Talkgroup, since there is no working transcoder.
4. Restart s0u1xcda.vida.local.

TRANSCODER	STATE
s0u1xcda.vida.local	On
s0u2xcda.vida.local	Off

5. From the console place a call on Talkgroup, a P25 TDMA call.
   - Verify call is heard on P25 FDMA Radio A, call is using s0u1xcda.vida.local.
   - Verify call is heard on P25 TDMA Radio B.
6. From FDMA Radio A place a call on Talkgroup.
   - Verify call is heard on TDMA Radio B on Talkgroup, call is using s0u1xcda.vida.local.

7. Restart s0u2xcda.vida.local wait for 15 minutes for services to start
8. Shutdown s0u1xcda.vida.local.

TRANSCODER	STATE
s0u1xcda.vida.local	Off
s0u2xcda.vida.local	On

9. From the console place a call on Talkgroup, a P25 TDMA call.
   > Verify call is heard on P25 FDMA Radio A, call is using s0u2xcda.vida.local.
   > Verify call is heard on P25 TDMA Radio B.
10. From FDMA Radio A place a call on Talkgroup.
   > Verify call is heard on TDMA Radio B on Talkgroup, call is using s0u2xcda.vida.local.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

BeOn Features

Purpose: Demonstrate the BeOn features.

Expected Results: Following tests will demonstrate that BeOn works as designed.

Setup: Tests will show that the BeOn system allows a smartphone to communicate with the radio system.

TRANSMIT GRANT TONE

Purpose: Demonstrate the grant tone on BeOn.

Expected Results: When the smartphone PTTs on the BeOn app, it will play a grant tone.

Setup: Grant tone (Ready to Talk tone) enabled in smartphone radio personality.

DESCRIPTION	TG DESCRIPTION
BeOn Phone 1	TG A
BeOn Phone 2	TG A
BeOn Phone 3	TG A

Execution:

1. Press PTT button on smartphone with valid group selected.
   > Verify grant tone is heard at smartphone when working channel access is granted.
   Note: If the call is queued, the grant tone will be delayed until the call is assigned a working channel.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

GROUP CALL

Purpose: Confirms BeOn can make group calls.

Expected Results: Selected talkgroup call audio is heard.

Setup: Set Smartphones 1, 2, and 3 to (Group A) per test group structure. Make sure Scan is turned OFF.

DESCRIPTION	TG DESCRIPTION
BeOn Phone 1	TG A
BeOn Phone 2	TG A
BeOn Phone 3	TG A

Execution:

1. PTT on BeOn Phone 1 and talk.
   - > The transmit (TX) indicators should turn on at BeOn Phone 1.
   - > Audio should be heard in BeOn Phone 2 and BeOn Phone 3.
   - > The ID of BeOn Phone 1 should be seen at BeOn Phone 2 and BeOn Phone 3.
2. Set BeOn Phone 3 to TG B. PTT on BeOn Phone 1 and talk.
   - > The transmit (TX) indicators should turn on at BeOn Phone 1.
   - > Audio should be heard in BeOn Phone 2 only.
   - > The ID of BeOn Phone 1 should be seen at BeOn Phone 2 only.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

INDIVIDUAL (PRIVATE) CALL

Purpose: Confirms individual calls can be initiated using BeOn enabled smartphones.

Expected Results: Individual calls are confirmed.

Setup:

DESCRIPTION	TG DESCRIPTION
BeOn Phone 1	TG A
BeOn Phone 2	TG A
BeOn Phone 3	TG A

Execution:

1. Using the BeOn Phone 1, select the pre-stored ID of BeOn Phone 2 or enter the BeOn Phone 2 ID directly from the keypad, and PTT Smartphone 1.
   > Verify that BeOn Phone 2 receives the call and displays the ID of Smartphone 1.
   > Verify that BeOn Phone 3 remains idle.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

GROUP SCAN

Purpose: Confirms the scan function which allows a smartphone to hear audio on selected talkgroups other than the current talkgroup.

Expected Results: Selected talkgroup call audio is heard.

Setup: BeOn Phone 1 set up with Talkgroup A P25 and B P25 in the scan list, Talkgroup A P25 selected, and group scan initially disabled.

DESCRIPTION	TG DESCRIPTION
BeOn Phone 1	TG B
BeOn Phone 2	TG A

Execution:

1. Place a call from BeOn Phone 2 on Talkgroup A P25.
   > Verify the call is not received by BeOn Phone 1.
2. Enable group scan on BeOn Phone 1.
3. Place another call from BeOn Phone 2 on Talkgroup A P25.
   > Verify that the call is now received, and audio is heard on BeOn Phone 1.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

EMERGENCY GROUP CALL

Purpose: Confirms an emergency can be declared, recognized, and cleared by a smartphone.

Expected Results: The emergency is declared, recognized, and cleared.

Setup:

DESCRIPTION	TG DESCRIPTION
BeOn Phone 1	TG A
BeOn Phone 2	TG B
BeOn Phone 3	Talkgroup C

Execution:

1. Press the emergency call button on BeOn Phone 3 and then PTT BeOn Phone 3.
   - > Verify that BeOn Phone 3 indicates the “TX EMER” declaration and that it reverts to the home group.
   - > Verify that BeOn Phone 1 and BeOn Phone 2 indicate a “RX EMER” and hear audio on the emergency home group.
2. Clear the emergency with supervisor phone or console.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

P25 ISSI Gateway (Field Test Only)

ISSI GROUP CALLS

Purpose: Confirm a group call can occur from a home radio to a foreign ISSI radio.

Expected Results: Demonstrate ISSI group call goes from a home radio to a foreign radio.

Setup: Home System A is connected to Foreign System B using P25 ISSI wireline interface.

NOTE: Radios 2 and 4 are used to verify receive audio on originating system/call.

DESCRIPTION	TG DESCRIPTION	SYSTEM
P25T Home Radio A	TG A	A
P25T Home Radio B	TG A	A
P25T Foreign Radio C	TG A	B
P25T Foreign Radio D	TG A	B

Execution:

1. PTT Home Radio A, on System A, and verify it communicates with Home Radio B on Home System A and Foreign Radios C and D, on System B. Verify that audio is received on Home Radio B and Foreign Radios C and D. Verify that the caller ID of Radio A is displayed on Radios B, C, and D.
2. PTT Foreign Radio C and verify it communicates with Home Radios A and B, on Home System A, and Foreign Radio D, on Foreign System B. Verify that audio is received on Radios A, B, and D. Verify that the caller ID of Radio C is displayed on Radios.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

ISSI SYSTEM ROAMING

Purpose: Confirm roaming ISSI radios can communicate with group calls across the ISSI.

Expected Results: Demonstrate roaming ISSI radios communicate with group calls to the home and foreign radios over the ISSI.

Setup: Home System A is connected to Foreign System B using P25 ISSI wireline interface.

DESCRIPTION	TG DESCRIPTION	SYSTEM
P25T Home Radio A	TG A	A
P25T Home Radio B	TG A	A
P25T Foreign Radio C	TG A	B
P25T Foreign Radio D	TG A	B

Execution:

1. Log Home Radio A into Foreign System B.
2. Log Foreign Radio C into Home System A.
3. PTT Home Radio A and verify it communicates with Foreign Radio C on Home System A, and Foreign Radio D on Foreign System B. Verify that audio is received on Radios. Verify that the caller ID of Radio A is displayed on Radios.
4. PTT Foreign Radio C and verify it communicates with Home Radio 1 on Foreign System B and Home Radio B on Home System A. Verify that audio is received. Verify that the caller ID of Radio C is displayed on Radios.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

ISSI ENCRYPTED CALLS

Purpose: Confirm ISSI encrypted group calls work.

Expected Results: Demonstrate ISSI Encrypted group calls work between the home system and the foreign system.

Setup: Home System A is connected to Foreign System B using P25 ISSI wireline interface. Talkgroup is an ISSI encrypted talkgroup. Make sure Radios A and C have been set up for encryption and Radio B has not.

DESCRIPTION	TG DESCRIPTION	SYSTEM
P25T Home Radio A	Encrypted ISSI TG	A
P25T Home Radio B	Encrypted ISSI TG	A
P25T Foreign Radio C	Encrypted ISSI TG	B

Execution:

1. PTT Home Radio A on Home System A and verify it communicates with Foreign Radio C on Foreign System B. Verify Home Radio B cannot hear the call.
2. PTT Foreign Radio C and verify it communicates with Home Radio A on Home System A and Home Radio B could not hear the call.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

ISSI EMERGENCY CALL

Purpose: Confirm ISSI group emergency declared on Home System A is received and heard on Foreign System B

Expected Results: Demonstrate Foreign Radio C on Foreign System B receives and hears ISSI group emergency call from Home Radio A on Home System A.

Setup: Home System A is connected to Foreign System B using P25 ISSI wireline interface. On all three Radio personalities the 'Emer Alarm' is not enabled.

DESCRIPTION	TG DESCRIPTION	SYSTEM
P25T Home Radio A	TG A	A
P25T Home Radio B	TG A	A
P25T Foreign Radio C	TG A	B

Execution:

1. Declare an Emergency on Home Radio A on Home System A.
   - > Verify Home Radio B on Home System A receives the emergency.
   - > Verify Foreign Radio C on Foreign System B receives the emergency.
   - > Verify Home Radio B and Foreign Radio C hear the emergency group call audio.
   - > Verify the Caller ID of Home Radio A is displayed on Home Radio B and Foreign Radio C.
2. PTT Foreign Radio C and verify it communicates with Home Radios A and B on Home System A.
   - > Verify ISSI emergency group call audio is received on Home Radios.
   - > Verify the caller ID of Foreign Radio C is displayed on Home Radios.
3. Clear the emergency on Home Radio A.
   - > Verify emergency is cleared on Home Radio B on Home System A and Foreign Radio C on Foreign System B.
4. Repeat the previous steps with Foreign Radio C on Foreign System B declaring the emergency.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

ISSI FAULT MONITORING

Purpose: Confirm an alarm indicates when the ISSI machine loses power.

Expected Results: Demonstrate an alarm is given when the ISSI loses power.

Setup: System A is connected to System B using the P25 ISSI wireline interface.

Execution:

1. On a client computer, open the windows Internet Explorer and browse to https://s0u1rnm.vida.local/nmc and log in with an Active Directory account.
2. Choose the system map and select the 'Launch Application' button.
3. Select the 'Network' tab and expand the tree in the left panel until you can see a site in the right panel.
4. Power down the ISSI virtual machine.
   > Verify that the RNM indicates an alarm for the affected device.
5. Turn the ISSI virtual machine back ON.
   > Verify that the device alarm clears and displays green.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

ISSI REAL TIME MONITORING

Purpose: Confirm ISSI group calls are shown on the RNM real-time viewer.

Expected Results: Demonstrate ISSI group calls on the RNM real-time viewer.

Setup: System A is connected to System B using the P25 ISSI wireline interface. Requires administrator access to the RNM

DESCRIPTION	SYSTEM
P25T Home Radio A	A
P25T Foreign Radio B	B

Execution:

1. On a client computer, open the Windows Internet Explorer and browse to https://s0u1rnm.vida.local/nmc and log in with an Active Directory account.
2. Choose system map and select 'Launch Application' button.
3. Open 'Realtime' tab and click 'Site Calls.'
4. Select the site and expand.
5. Check the box next to the channels and select to add the channels to the target list. Select the 'ok' button to launch the application.
6. Place a group call from Home Radio A to Foreign Radio C on an ISSI talkgroup.
7. Verify the event viewer displays talkgroup ID and calling party ID.
8. Verify state changes from free to talk.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

ISSI GROUP EMERGENCY AND UNIT ALERT WITH SYMPHONY

Purpose: Confirm ISSI foreign radio receives group emergency and emergency alarm (Unit Alert) declared by an ISSI home radio. Confirm home Symphony Console can reset and clear emergency unit alert and cancel group emergency.

Expected Results: Demonstrate group emergency and unit alert operate across ISSI interface.

Setup: Home System A is connected to Foreign System B via ISSI. Talkgroup 64051 P25 is an ISSI Interop talkgroup Radios 1 and 2 have emergency alarm enabled in personality. Console: Symphony.

DESCRIPTION	TG DESCRIPTION	SYSTEM
P25T Home Radio A	ISSI TDMA TG A	A
P25T Foreign Radio B	ISSI TDMA TG A	B

Execution:

1. Select TDMA Talkgroup on Home Symphony Console. On Home Radio A, declare an ISSI emergency on Talkgroup. PTT Radio A to talk to dispatcher.
   - > Verify Foreign Radio B on Foreign System B receives emergency and hears emergency group call.
2. On Home Symphony's Talkgroup module:
   - > Verify Talkgroup module has a striped red background.
   - > Verify talkgroup 'Smart Button' flashes an "emergency icon", which alternates with talkgroup icon.
   - > Verify declarer ID is shown in red on talkgroup module.
   - > Verify emergency alarm tone and radio emergency group call audio is heard on the console.
3. On Home Symphony's sidebar panel, go to 'Emergency Panel:'
   - > Verify emergency listed shows Talkgroup, in a mini module, with a red background.
   - > Verify declarer ID is listed, with an "ACK" button and a number '1', for number of group emergencies declared [listed below talkgroup mini module].
   - > Verify below declarer ID, single unit icon and declarer ID is listed, with an "ACK" button and a number '1', for number of unit alerts declared.
4. To clear ISSI group emergency alarm tone on Symphony 'Emergency Sidebar Panel', select top "ACK" button next to declarer ID.
   - > Verify group emergency alarm tone is silenced on the console.
   - > Verify ISSI group emergency is still displayed on talkgroup module and emergency sidebar panel.
   - > Verify Unit Alert "ACK" is still displayed below group emergency.
5. On the console, select and transmit on Talkgroup.
   - > Verify Radios A and B both receive ISSI Emergency call.
6. Clear ISSI group emergency on Home Radio A.
   - > Verify Home Console talkgroup module no longer indicates an ISSI group emergency.
   - > Verify group emergency is no longer seen on Home Radio A and Foreign Radio B.

7. PTT on Home Radio A, to perform a group call:
   > Verify an emergency group call goes to Symphony on Talkgroup Module, and to Radio B.
   > Verify emergency is also seen in ‘Emergency Sidebar Panel’.
   > (This occurs because emergency unit alert is still active on Talkgroup.)
8. On Symphony ‘Emergency Sidebar Panel’, clear unit alert tone by selecting second “ACK” button next to unit icon and declarer ID. Also, clear group emergency Alarm tone on Talkgroup 64051, by selecting first “ACK” button next to Declarer ID.
   > Verify all emergency tones have been silenced.
9. On ‘Emergency Sidebar Panel’, “Clear” group emergency by selecting first “Clear” button next to declarer ID. Also, clear unit alert by selecting second “Clear” button next to unit icon and declarer ID.
   > Verify ISSI emergency on Talkgroup has been cleared from Home Symphony Console, Home Radio A, and Foreign Radio B.
10. PTT on Home Radio A on Talkgroup, to perform a group call.
    > Verify a group call without an emergency is seen and heard at the console and Foreign Radio B.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

P25 ISSI FEATURE – SITE ADJACENCIES (SR10A.3 OR LATER)

Purpose: Demonstrate capability to configure ISSI site adjacencies in UAS. ISSI adjacencies show the relationship between ISSI foreign sites and P25 home sites.

Expected Results: ISSI site adjacencies will be successfully viewed and configured.

Setup: UAS: foreign ISSI gateway defined. MASTR V site personalities: Enable “Inter RF Subsystem Interface (ISSI) Interoperability.

- Home System A: Home Sites 1 and 2
- Foreign System B: Foreign Sites 3 and 4

Execution:

1. In UAS, ‘System Tab’, System Properties, Site Adjacency; to view a site adjacency, select single row from foreign site table and click “Show Adjacency” button on “System” tab, or click “Show Adjacency” button and select desired P25 or foreign site.
   - Verify that P25 site adjacency or foreign site adjacency can be viewed. Selected site will be displayed in “center” of site adjacency diagram with all of its adjacencies, if any, hanging off the center node in a hub-and-spoke fashion.
2. When in adjacency UI, the drop-down site list can be used to select what site has its agencies displayed.
3. To configure ISSI site adjacencies, a unique foreign RFSS should be defined in Home System A, for each foreign site from Foreign System B, before it can be added as adjacent sites to the home local sites.
   - Create a new RFSS for Foreign Site 3 in Home System A. In UAS, system tab, ISSI Gateway, foreign ISSI Gateway screen, click “Add”. Provide name, description, foreign system WACN, system ID (Region ID of foreign system), P25 RFSS ID (Site ID of foreign site that needs to be added as an adjacent site), Ext IP address (foreign system ISSI’s external IP address), and ISSI type.
4. A foreign site should be defined. In UAS, go to Foreign Site 3 (System Tab, ISSI Gateway, Foreign Site, click “Add”. Enter the ID (P25 Site ID), name, description, and foreign ISSI Gateway ID (choose RFSS created in Step 3).
   - Foreign site is successfully configured in UAS and can now be added as an adjacent site to any of the Home System A’s Local Sites 1 or 2.
5. With foreign RFSS and foreign site defined, Foreign Site 3 can be added as an adjacent site to either Home Site 1 or 2.
   - In UAS, ‘System Tab’, ‘System Properties’, ‘Site Adjacency’, and select Local Site 1, to which the foreign site created in Step 4, will be added as an adjacent site.
   - Scroll thru list of available sites, Foreign Site 3 created in Step 4, should be available at the bottom list. Select Foreign Site 3 and click “Add Adjacency”.
   - New foreign adjacency is shown.
6. To confirm adjacent table is properly provisioned to the site after adding the foreign site adjacency, run “show at” command at the site CC.
   - Resulting table should match the UAS configuration

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

Trunked Logging Recorder

GROUP CALL

Purpose: Confirms group call audio is captured, recorded, and accessible on the logging recorder

Expected Results: Calls are captured, recorded, and accessible.

Setup:

DESCRIPTION	TG DESCRIPTION
Radio A	TG A
Radio B	TG A

Execution:

1. PTT Radio A and talk.
   > Audio should be heard on Radio B. Note the start time of the call and the approximate duration.
2. Retrieve the call from the logging recorder.
   > Verify the caller, callee, start time, and duration.
   > The caller should be the LID for Radio A and the callee should be the GID for TG A. Verification should include the user ID (LID), group ID (GID), and its alias as defined by the UAS.
   > Verify that the call is identified as a group call.
3. Playback the audio.
   > Confirm that the playback audio is all recorded and intelligible.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

EMERGENCY GROUP CALL

Purpose: Confirms emergency group call audio is captured, recorded, and accessible on the logging recorder

Expected Results: Emergency calls are captured, recorded, and accessible.

Setup:

RADIO DESCRIPTION	TG DESCRIPTION
Radio A	TG A
Radio B	TG A
Radio C	TG A

Execution:

1. Press the emergency call button on Radio B. Talk during the hot mic transmit time.
2. Clear the emergency with the Radio A.
3. Retrieve the call from the logging recorder.
   - > Verify the caller.
   - > Verify the callee.
   - > Verify the start time.
   - > Verify the duration.
   - > The caller should be the LID for Radio B, and the callee should be the GID for the home group.
   - > Verification should include the user ID (LID), group ID (GID), and its alias as defined by the UAS.
   - > Verify that the call is identified as an emergency.
   - > Playback the audio and confirm that it is all recorded and intelligible.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

BeOn Server High Availability (Field Test Only)

BEON SERVER HIGH AVAILABILITY

Purpose: Demonstrate BeOn LAP servers operate as high availability.

Expected Results: Verify BeOn LAP servers provide high availability BeOn operational status.

Setup: Two BeOn LAP servers are up and operational. Test can include BeOn Windows client, BeOn iOS client, BeOn Android client if available for testing.

> Use RNM > “Network” tab > BeOn Sites > LAP1 and LAP2 to view Server Active Status.

DESCRIPTION	TG DESCRIPTION
BeOn Windows Client	TG A
BeOn iOS Client	TG A
BeOn Android Client	TG A
Radio A	TG A

Execution:

1. All BeOn clients and BeOn-capable radios are on same Talkgroup.
   > Verify all BeOn clients and radios can transmit and receive on Talkgroup.
2. On RNM > “Network” tab > BeOn Sites > LAP1 and LAP2 > “Properties”:
   > Verify both LAP1 and LAP2 are “Online” and “Reachable” and “Up”.
3. Shutdown LAP1 server.
4. Monitor at RNM, the status of LAP1 server, to indicate when LAP1 server is down. RNM > “Network” tab > BeOn Sites > LAP1 > “Properties”.
   > Verify “Monitor” is “Offline”.
   > Verify “Connectivity” is “Unreachable”.
   > Verify “Operation” is “Down”.
5. Ensure at RNM, status of LAP2 server remains “Online”, “Reachable”, and “Up”.
   > Verify “Monitor” is “Online”.
   > Verify “Connectivity” is “Reachable”.
   > Verify “Operation” is “Up”.
6. PTT Radio A on Talkgroup and talk. Transmit (TX) indicator should turn on at Radio A.
   > Verify BeOn Windows client, BeOn iOS client, BeOn Android client and BeOn-capable Radio B all receive the call audio.
7. Restart LAP1 server.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

High Availability NSS Switchover

HIGH AVAILABILITY WIDE AREA ROUTER FAILURE

Purpose: Demonstrate capabilities of the system to work after a WAR failure.

Expected Results: System components that are set-up with high availability will continue to work after a WAR failure.

Setup: These tests are setup to be run twice, once on each router. After completing Step 4 restart the WAR router if not already running. Wait 20 minutes and rerun the tests for the second router. These tests will simulate a WAR failure by disconnecting it from the Wide Area Network (WAN), so the WAR to WAN connection will need to be known.

DESCRIPTION	TG DESCRIPTION	SITE
Radio A	TG A	1
Radio B	TG A	1
Radio C	TG A	1
Radio D	TG A	2

Execution:

1. Use Radio A to initiate a call
   > Verify that the call is heard on the Radio B. Keep the call active during fail-over.
2. Use Radio C to initiate a call
   > Verify that the call is heard on Radio D. Keep the call active during fail-over.
3. Log in to s0u1nss and s0u2nss; change your user to the Root User and enter the password.
4. Type ‘HArunning’ into both NSSs, one will report that it is the ‘Stand By’ and one will report that it is the ‘Primary’. Note the name of the primary NSS and the primary WAR.

DESCRIPTION	TEST RUN 1	TEST RUN 2
Primary NSS Name		
Primary RNM Name		
Primary RNM Name		
Primary RSM Name		
Time of Server Reboot		

5. Log into the WAR that is associated with the ‘Primary’ NSS. “Reload” the WAR router.
   > The call from Radio C to Radio D will be dropped.
   > The call from Radio A to Radio B will continue and the console will lose connectivity to the VNIC.
   > Verify that after a short delay, the backup server NSS2 automatically takes over as the primary server.
6. Wait 20 minutes for the two NSS servers to synchronize and replicate their databases.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

VIDA Inter-Operability Gateway Test

LOCAL INTEROPERABILITY

Purpose: The purpose of this test is to verify correct functionality of the Interoperability Gateway.

Expected Results: Verify that the Interoperability Gateway connects via four-wire audio connections in its Universal Access Cards (UAC) cards to interoperability radio units (mobile or desktop). The gateway also connects to a router and the Network Switching Center (NSC) to provide call functionality across the network.

Setup: N/A

Execution:

1. Select 'Inter-op Group 1' on the radio.
2. Initiate a call from the radio to Group 1
   > Verify that audio is heard on inter-op Group 1 radio.
3. Initiate a call from the inter-op Group 1 radio to Group 1
   > Verify that audio is heard on the radio.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

NSC Test Notes / Issues

NSC Test Acceptance

This Functional Test Acceptance Procedure has been fully and successfully completed with all action items resolved.

Denver International Airport Core Upgrade Representative	L3Harris Technologies Representative
Signature	Signature
Printed Name and Title	Printed Name and Title
Date	Date

SYMPHONY CONSOLE FEATURE SET

TRANSMITTING WITH A MICROPHONE

Purpose: Demonstrate Symphony operator can initiate communication with a radio using Symphony select functions and foot pedal.

Expected Results: Confirms Symphony communication with radio

Setup: Radio set to same TG as console

Execution:

1. Press INSTANT TX function (right mouse button) on module with test group.
   - > Verify call is heard on radio.
   - > Verify a ripple effect on 'TX' indicator is displayed.
   - > Verify a channel access tone is heard.
   - > Release the Instant TX key.
2. Click the 'Select' button on the module to make the TG the selected talkgroup.
   - > Verify module for TG is highlighted, indicating it is selected talkgroup.
3. Make a call on TG by pressing PTT foot pedal.
   - > Verify a channel access tone is heard.
   - > Verify halo around the 'TX' indicator is displayed.
   - > Verify call is heard on radio.
   - > Verify audio is heard at radio on talkgroup.
   - > Release foot pedal to end call.
4. Make a call on TG by pressing headset button.
   - > Verify a channel access tone is heard.
   - > Verify halo around 'TX' indicator is displayed.
   - > Verify call is heard on radio.
   - > Verify audio is heard at radio on talkgroup.
   - > Release headset button to end call.
5. Make a call on TG by selecting it with a mouse.
   - > Verify a channel access tone is heard.
   - > Verify halo around 'TX' indicator is displayed.
   - > Verify call is heard on radio.
   - > Verify audio is heard at radio on talkgroup.
   - > Release mouse button to end call.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

RECEIVING CALLS (UNIT ID DISPLAY, TALKGROUP ID DISPLAY, ALIASING)

Purpose: Confirm Symphony operator can receive communications from a radio, using both TG A and individual calling.

Expected Results: Communications are initiated and received on appropriate speaker (select or unselect) and radio's ID is displayed.

Setup: Symphony has talkgroups A, B, and C configured with TG B selected.

Talkgroup Call

Execution:

1. Key radio and verify
   - > That call is heard at unselect speaker.
   - > Calling radio ID is displayed on module for TG.
   - > A green light ID displayed indicating an incoming call on module TG A.
2. Switch radios talkgroup to TG B and key radio.
   - > Verify call is heard at select speaker.
   - > Verify calling radio ID is displayed on TG B module.
   - > Verify a green light ID displayed indicating an incoming call on module for TG B.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

Individual Call (Unit – Unit)

Execution:

1. Right click on ‘Harris’ box on top left-hand side of screen.
2. Select ‘Open Directory’ this will open a pop-up window for ‘Directory’.
3. Select ‘Users’ tab.
4. Select ‘Radio A’ under “ALIAS’ column.
5. Press ‘Radio A’ button right side to screen to place an individual call to ‘Radio A’.
   - > Verify ripple effect on ‘TX’ indicator is displayed.
   - > Verify a ringing tone will be heard at console and radio.
   - > Verify radio displays ‘INDV’ and consoles ‘ID”.
6. Respond to console by PTTing radio.
   - > Verify call is heard on Symphony and calling radio’s ID and call indicator are displayed.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

EMERGENCY CALL AND EMERGENCY ALARM

Purpose: Confirms Symphony indicates an emergency declared by a radio and can reset and clear emergency.

Expected Results: Symphony indicates and can clear emergency.

Setup: Test requires a test radio capable of generating and clearing an emergency (i.e. supervisor radio).

DESCRIPTION	TG DESCRIPTION
Radio A	TG A

Execution:

1. Using test radio, declare an emergency on TG A.
   - > Verify TG A module turns red,
   - > Verify ID/name of test radio is displayed
   - > Verify emergency alert tone is heard on Symphony.
2. Select triangle with a '!' to access emergency menu.
   - > Verify acknowledge 'Ack' button is red and check box is red.
3. Using radio, transmit on talkgroup
   - > Verify call is received by Symphony.
4. With Symphony, transmit on group with emergency.
   - > Verify test radio receives call and is still in emergency mode.
5. Acknowledge emergency by selecting 'Ack' button
   - > Verify button changes from 'Ack' to clear.
   - > Verify radio and Symphony are still in emergency mode.
6. Clear the emergency by selecting 'Clear X' button
   - > Verify Symphony clears emergency.
   - > Verify radio clears emergency.
7. Transmit on radio.
   - > Verify emergency is cleared and normal group calls have resumed.
8. Select TG A group selected on Symphony, declare an emergency on test group by pressing 'Emer Declare'.
   - > Verify Symphony and radio have same indications as Steps 2 to 4.
9. Acknowledge by hitting 'Ack' in Step 5.
10. Clear emergency with Symphony.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

SYSTEM WIDE CALL

Purpose: Confirm Symphony can initiate system wide calls.

Expected Results: Symphony can initiate system wide all call.

Setup: Program console modules with 'TG64000 P25' talkgroup

DESCRIPTION	TG DESCRIPTION
Radio A	TDMA Group A
Radio B	TDMA Group B
Radio C	FDMA Group A
Radio D	FDMA Group B

Execution:

1. Press INSTANT TX on 'TG64000' module.
   - > Verify channel access tone is heard,
   - > Verify ripple effect on 'TX' indicator is displayed
   - > Verify call is heard at all radios
   - > Release Instant TX key.
2. Press INSTANT TX on TDMA Group A module.
   - > Verify channel access tone is heard,
   - > Verify ripple effect is displayed
   - > Verify call is heard at Radio A.
   - > Verify Radios B, C, and D do not hear audio.
   - > Release Instant TX key.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

ALERT TONES

Purpose: Confirm Symphony can initiate alert tones which can be heard at radio.

Expected Results: Tones can be initiated and heard.

Setup: Symphony programmed with TG A.

DESCRIPTION	TG DESCRIPTION
Radio A	TG A

Execution:

1. Make TG A P25 selected talkgroup.
2. Select tones tab on talkgroup module.
3. Select one of three ALERT TONE keys by selecting drop-down list next to orange button.
4. Radio A will receive tone.
5. Test all three alert tones to ensure all alert tones can be heard on radio.
   > Verify ALERT TONE is received by Radio A and is also heard on Symphony.
6. When ALERT TONE key is released.
   > Verify tone on Radio A drops.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

CONSOLE PRE-EMPT

Purpose: Confirm Symphony can pre-empt an ongoing call between radios.

Expected Results: Call started by the radio will be interrupted by the console.

Setup: Symphony programmed with TG: TG64001 P25

DESCRIPTION	TG DESCRIPTION
Radio A	TG A
Radio B	TG A

Execution:

1. Key Radio A on TG A and hold call up. Verify that audio is heard at Radio B and Symphony.
2. Key Symphony on TG A and hold, while continuing to hold call up on Radio A
   - > Verify console pre-empts.
   - > Verify transmit indicator is displayed along with pre-empted caller LID and CALL indicator.
   - > Verify second radio begins to hear Symphony audio and not first radio call.
   - > Verify pre-empted radio audio is still heard on pre-empting console.
3. Un-key first radio.
   - > Verify pre-empted caller LID and CALL indicators are removed, and pre-empted radio audio is no longer heard on pre-empting Symphony.
4. Un-key Symphony.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

SIMULSELECT

Purpose: Confirms operation of Symphony simulselect feature, which allows multiple talkgroups to be selected for communication simultaneously.

Expected Results: Symphony can select multiple talkgroups and communication is allowed.

Setup: Symphony programmed with TGs A, B, C, and D.

DESCRIPTION	TG DESCRIPTION
Radio A	TG A
Radio B	TG B
Radio C	TG C
Radio D	TG D

Execution:

1. Create simulselect group on 4 test group modules.
2. Place a call from Symphony on simulselect group.
   > Verify call is heard at all four radios.
3. Place a call from each radio.
   > Verify only Symphony hears calls.
   > Verify only radios on the same talkgroup hear each other.
4. Deactivate simulselect group.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

PATCH

Purpose: Confirms Symphony patch feature creates shared communication between multiple selected talkgroups.

Expected Results: Patched talkgroups can communicate.

DESCRIPTION	TG DESCRIPTION
Radio A	TG A
Radio B	TG B
Radio C	TG C
Radio D	TG D

Execution:

1. Create patch on PATCH 1 with all four groups above.
2. Place a call from newly created patch.
   > Verify call is heard on all radios.
3. Place a call from each radio.
   > Verify call is heard on Symphony and each radio.
4. Deactivate patch.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

CALL HISTORY

Purpose: Confirms a history of calls processed at the Symphony.

Expected Results: History is accessible and valid.

Setup: Test compares programmed module call activity to history scroll lists. Utility page, dispatch menu will be selected. Select either “Select History” or “Unselect History”.

Execution:

1. Press ‘scroll up’ and ‘scroll down’ buttons to scroll through Unselect Call History list.
   > Compare these calls with known activity.
2. Press ‘scroll up’ and ‘scroll down’ buttons to scroll through Selected Call History list.
   > Compare these calls with known activity.
3. Press ‘Esc’ button to exit history scroll mode.
4. To monitor call history on a single group, use ‘module history’ button on ‘module modify’ menu.
5. Use ‘scroll up’ and ‘scroll down’ buttons to scroll through calls for picked module.
   > Compare these calls with known activity.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

GROUP EMERGENCY AND UNIT ALERT WITH SYMPHONY

Purpose: Confirm Symphony receives a group emergency and an emergency unit alert declared by a radio. Confirm console can acknowledge and clear emergency alarm (unit alert) and acknowledge and clear group emergency.

Expected Results: Symphony Console can indicate emergency alarm (unit alert) and group emergency. Symphony can also clear unit alert & cancel group emergency.

Setup: Radios A & B have “Emergency Alarm” enabled in personalities.

DESCRIPTION	TG DESCRIPTION	TG ID
Radio A	TDMA TG A	64152
Radio B	TDMA TG B	64152

Execution:

1. Select TDMA TG A on the console. On Radio A, declare an emergency on TG B. PTT Radio A to talk to the dispatcher.
   - > Verify Radio B on site 2 receives emergency and hears emergency group call.
2. On Symphony’s TG B Module:
   - > Verify TG B Module has a striped red background.
   - > Verify TG Smart Button flashes an “emergency icon”, which alternates with TG icon.
   - > Verify Declarer ID is shown in Red on TG Module.
   - > Verify emergency alarm tone and radio emergency group call audio is heard on Symphony.
3. On Symphony’s Sidebar Panel, go to the Emergency Panel:
   - > Verify emergency listed shows TG B, in a mini module, with a red background.
   - > Verify declarer ID is listed, with an “ACK” button and a number ‘1’, for number of group emergencies declared, [listed below TG Mini Module].
   - > Verify below declarer ID, single unit icon and declarer ID is listed, with an “ACK” button.
4. To clear group emergency alarm tone on Symphony emergency sidebar panel, select top “ACK” button next to declarer ID.
   - > Verify group emergency alarm tone is silenced on the console.
   - > Verify group emergency is still displayed on talkgroup module and emergency sidebar panel.
   - > Verify unit alert “ACK” is still displayed below group emergency.
5. On Symphony, select and transmit on TG B.
   - > Verify Radio A and B both receive emergency call.
6. Clear group emergency on Radio A.
   - > Verify console TG module no longer indicates a group emergency.
   - > Verify the group emergency is no longer seen on Radio A and Radio B.
7. PTT on Radio A, to do a group call:
   - > Verify an emergency group call goes to the Symphony on TG B module, and to Radio B.
   - > Verify emergency is also seen in emergency sidebar panel.
   - > (This occurs, since emergency unit alert is still active on TG B.)

8. On Symphony emergency sidebar panel, clear unit alert tone by selecting second “ACK” button next to unit icon and declarer ID. Also, clear group emergency alarm tone on TG B, by selecting first “ACK” button next to declarer ID.
   > Verify all emergency tones have been silenced.
9. On emergency sidebar panel, clear group emergency by selecting first “Clear” button next to declarer ID. Also, clear unit alert by selecting second “Clear” button next to Unit Icon and declarer ID.
   > Verify emergency on TG B has been cleared from Symphony, Radio A, and Radio B.
10. PTT on Radio A on TG B, to do a group call.
    > Verify a group call without an emergency is seen and heard at Symphony and Radio B.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

CONSOLE TO CONSOLE CROSS-MUTE

Purpose: Confirm creation of a cross-mute of another console to quiet the muted consoles audio on the local console.

Expected Results: Cross-muted console's audio cannot be heard on local console.

Setup: Establish two Symphony consoles (A and B) to test cross mute function. Both Symphony consoles must be on same NSC. Program and select a test group on both consoles.

Execution:

1. Place a call on Console A on test group.
   > Verify Console B can hear Console A.
2. Open Symphony configuration utility for Console B, add ID for Console A to 'cross mute' list.
3. Select 'Apply' to save changes.
4. Place a call on Console A on test group.
   > Verify call can't be heard at Console B.
5. Restore desired cross mute setup.

TEST RESULTS		
Tester:		
Date:		
Result:	☐ Pass	☐ Fail

Symphony Console Test Notes / Issues

Symphony Console Test Acceptance

This Functional Test Acceptance Procedure has been fully and successfully completed with all action items resolved.

Denver International Airport Core Upgrade Representative	L3Harris Technologies Representative
Signature	Signature
Printed Name and Title	Printed Name and Title
Date	Date

Subscriber Unit Test Notes / Issues

Subscriber Unit Test Acceptance

This Functional Test Acceptance Procedure has been fully and successfully completed with all action items resolved.

Denver International Airport Core Upgrade Representative	L3Harris Technologies Representative
Signature	Signature
Printed Name and Title	Printed Name and Title
Date	Date

APPENDIX A – ACRONYMS AND DEFINITIONS

ACRONYM	DEFINITION
AD	Active Directory
AES	Advanced Encryption Standard
ATP	Acceptance Test Procedure
CAI	Common Air Interface (usually in reference to P25)
CME	Cisco Mobility Exchange (Telco Interconnect)
CNM	Central Network Manager, a L3Harris product
Confirmed Call	A confirmed call is a special type of call where the call is queued until all sites have resources available, or until the confirmed call timer expires (configurable, typically one or two seconds)
COTS	Commercial-off-the-Shelf
CPC	Channel Performance Criterion
DAQ	Delivered Audio Quality
DES	Digital Encryption Standard
LMR	Enterprise Land Mobile Radio
ESN	Electronic Serial Number (64 bits)
FDMA	Frequency Division Multiple Access
GID	Group ID (16 bit). This corresponds to a talkgroup. The group ID is unique within a VNIC and can be reused on other VNICs within the same WACN. Some of the older P25 documents refer to the GID as a talkgroup ID (TGID)
HA	High Availability
Individual Call	An individual call is a private call between one user and another. It can be between two radios, or between one radio and a dispatch console
KEK	Key Encryption Key
KID	16-bit encryption key ID
KMF	Key Management Facility
KMM	Key Management Message
LAN	Local Area Network
MASTR V	An L3Harris base station product
MES	Mobile End System, a subscriber radio
MME	Miniature mobility exchange, which consists of L3Harris software running on a SitePro card at the base site. The MME runs the SNDCP layer of the data protocol and is the equivalent of the P25 RFG (RF Gateway)
N(S)	A 3-bit sequence number for the packet data unit

ACRONYM	DEFINITION
NSC	Network Switching Center
NSS	Network Switching Server
NWS	Network Sentry
OTAP	Over-the-air-programming
OTAR	Over-the-air-rekeying
P25	Project 25, a suite of standards for digital radio communications, developed by the Association of Public Safety Communications Officials (APCO) under the TIA TR-8 engineering committee, and published as the TIA-102 set of documents
Priority Talkgroup	The priority talkgroup selected on the subscriber device. Usually this is the talkgroup that the radio will transmit on when the user presses PTT
ProFile	An L3Harris product used for configuring radios over the P25 radio channel
ProScan	An L3Harris software algorithm used for radio roaming
PTT	Push-to-Talk
RAR	Regional Access Router
RF	Radio Frequency
RNM	Regional Network Manager
RSM	Regional Site Manager, a server that runs the RSM, Activity Warehouse and Device Manager applications
RSSI	Received Signal Strength Indicator
RVM	Regional VIDA Manager, a server that runs the UAS and RNM applications
SAN	Storage area network
SMT	System management terminal.
SU	Subscriber unit. In the P25 world, an SU is a mobile or portable radio
SUT	System Under Test
SUMS	Security Update Management Service (an L3Harris product)
SUMSplus	Version of SUMS
TAC	Technical Assistance Center, an L3Harris service
TDMA	Time Division Multiple Access
TEK	Traffic Encryption Key
TGID	Talkgroup ID (16 bit, equivalent to GID). The P25 documents usually use GID but some of the older documents use TGID
Traffic Controller	Software entity that resides in a base station at the site and generates the P25 control channel
Tx	Transmit
UAC	Unified Audio Card
UAS	Unified Administration System
UKEK	User Key Encryption Key

ACRONYM	DEFINITION
UPS	Uninterrupted Power Supply
VAS	VIDA Application Server
VIDA	Voice, Interoperability, Data, Access (an L3Harris system product)
VLAN	Virtual Local Area Network
VM	Virtual Machine
VNIC	Voice Network Interface Controller, the L3Harris voice switch
VPN	Virtual Private Network
VTI	VIDA Telephone Interconnect
WACN	Wide area communication network (20 bit network ID, part of SUID). This is a customer network that can include many VNICs
WAR	Wide Area Router
Zeroize	A P25 control channel command which causes the mobile radio to erase its encryption keys (but then requires manual loading to restore encryption keys)

PROJECT MANAGEMENT / IMPLEMENTATION PLAN

THE L3HARRIS TEAM

The details below describe the L3Harris team assigned to the project. It also reflects the various support and management functions that will provide critical program and technical assistance throughout the course of the project. Following is a brief description of the key team members and the roles that they will perform.

PROJECT MANAGER

The project manager's primary responsibility is the successful implementation, integration, optimization, and acceptance of the project. The project manager will manage all phases of the project from kickoff through final acceptance. He or she is responsible for ensuring the progress and quality of work, managing overall project cost, and processing any contract changes. All official communications regarding the project will be held between the project manager and DIA.

After the contract is signed, the project manager will work closely with the system engineer to finalize the system upgrade requirements. Through the support of L3Harris' procurement, manufacturing, and order logistics functions, the project manager will ensure the ordering and shipping of materials and equipment. In addition, he or she will ensure that services are coordinated in support of the project schedule.

The project manager's responsibilities include but are not limited to the following:

- Managing all aspects of the project
- Setting up and managing the project team
- Conducting project activities according to the contract and within scope, quality, time, and cost constraints
- Developing a formal project schedule and updating it as necessary
- Reviewing, approving, and distributing all plan changes
- Managing risks
- Ensuring efficient project communications, team progress meetings, and issue resolution

SYSTEM ENGINEER

The system engineer will have full responsibility for the technical aspects of the system upgrade. He or she will be responsible for integrating L3Harris products with vendor products as required. The system engineer will also participate in all technical review meetings and provide technical support to the project manager.

The system engineer will oversee the system acceptance test, aka the Functional Acceptance Test Procedures (FATP). In addition, the system engineer will coordinate the development of as-built drawings and all technical documentation deliverables.

The system engineer's responsibilities include but are not limited to the following:

- Create an upgrade & transition plan
- Order, stage, configure and test new equipment
- Provide instruction for proposed upgrades
- Oversee installation and power up of replacement equipment
- Perform network and NSC upgrades, and transition new equipment into service
- Execute Functional Acceptance Test Procedures

PROJECT EXECUTION

PLANNING AND PREPARATION

Kick-off Meeting

The project manager will initiate the project implementation with a project kick-off meeting. The L3Harris Team, and Denver International Airport (DIA), will mutually agree on the timing of these activities. The objectives of the project kick-off meeting include:

- Introduction of all project participants
- Review the roles of the project participants
- Review the overall project scope and objectives
- Review the current system status
- Review the project schedule
- Review the migration strategy and functional test plans
- Review planned post-upgrade system configuration

Detailed Design Review (DDR)

The L3Harris Team uses the information obtained during the Kick-off meeting along with regulatory and engineering documentation, to deliver the final system design at the DDR. The design drawings and documentation are presented during the DDR with DIA.

Figure 1. Kick-off Meeting & Detailed Design Review Responsibility Matrix

TASKS	L3HARRIS	DIA	COMMENTS
KICK-OFF MEETING AND DESIGN ACTIVITIES			
Review System Upgrade Contract Requirements	X	X	
Conduct / participate in kick-off meeting	X	X	
Provide site plans and applicable electrical and layout plans		X	
DETAILED DESIGN REVIEW (DDR)			
Prepare an SR10A.7 Core, Network & RF Sites Design Document detailing the hardware, OS software, and applications	X		
Provide location to conduct DDR		X	
Assemble team to participate in DDR		X	
Travel to DIA and present DDR material	X		

TASKS	L3HARRIS	DIA	COMMENTS
Approve the design following DDR meeting (within 5 business days)		X	
DETAILED DESIGN REVIEW DELIVERABLES			
System block diagrams	X		
List of deliverable equipment for each site	X		
Network connection plan and backhaul requirements	X		L3Harris will provide backhaul requirement; DIA will be responsible for providing backhaul connection that meets L3Harris' requirements.
Combiner plans	N/A		
Rack elevation drawings	X		
AC power and BTU requirements	X		
Preliminary Upgrade plan	X		
FATP	X		
Project schedule	X		

Manufacturing and Staging

Following DIA's approval of Detailed Design Review, the project team will procure material and schedule manufacturing using its Enterprise Resource Planning (ERP) system and processes. The L3Harris factory will receive orders to manufacture the equipment, as will our key suppliers/ vendors. Factory specifications will define the test for each individual rack of equipment.

After manufacturing and test, factory technicians and system engineers will assemble the equipment in the factory staging area. The system engineers will work with staging technicians to make all intra-rack connections for each NSC's equipment. Technicians will set the IP addresses and verify operation of the network.

Figure 2. Manufacturing and Staging Responsibility Matrix

TASKS	L3HARRIS	DIA	COMMENTS
Insert equipment delivery dates into the material planning system	X		
Place orders with the factory and key suppliers/vendors	X		
Manufacture all infrastructure equipment	X		
Stage equipment (assemble, configure, and test) in L3Harris' Lynchburg factory	X		

Shipping, Warehousing and Inventory

When manufacturing and staging are complete, the equipment will be prepared for delivery to DIA. Each rack will be crated to protect the equipment in transit. L3Harris arranges to ship equipment and materials to a customer-provided storage area near the point of installation. At the storage area, the equipment and materials are inventoried, and arranged by installation site.

Figure 3. Shipping, Warehouse & Inventory Responsibility Matrix

TASKS	L3HARRIS	DIA	COMMENTS
Provide temporary storage prior to installation on site at DIA		X	
Break down equipment and materials, pack, and ship to DIA's storage area	X		
Inventory equipment and materials	X		
Validate L3Harris equipment inventory		X	
Arrange all equipment on a per site basis, ready for the installation teams.	X		

New Core Installation, Upgrade, and Transition

With the replacement equipment in market, the L3Harris installation team(s) will install the new equipment and upgrade software at the site locations, as noted in the Detailed Design Review (DDR).

Systems for hardware replacement and installation include:

- Core Network Switching Center upgrade/replacement
- Network Equipment upgrade
- Replacement of all routers and switches
- Network Sentry upgrade to VIDA Virtual Site (VVS)

Systems requiring software only upgrade include:

- P25 radio system/sites upgrade
- Dispatch consoles upgrade to Windows 10
- Network traffic reconfiguration

Installation plans will be developed during the detailed planning phase of the project, and will coordinate all activities of the project team, minimizing conflicts and ensuring that system implementation proceeds efficiently. Where existing operational communications equipment co-exists with the installation of new equipment, the project team will take great care to ensure minimal if any service is disrupted.

Figure 4. Core Upgrade Tasks

TASKS	L3HARRIS	DIA	COMMENTS
Provide backhaul connectivity that meets L3Harris' requirements		X	
Provide floor space and power for new equipment racks		X	
Backup all the UAS, KMF, & RNM Databases	X		
Backup all the NSS (VNIC & HA), RSMPro (SMS, DM Repository, AW), & ISSI Personality/Configuration files	X		
Archive AW data	X		
Verify that all database backups are completed	X		
Deliver equipment to NSC locations	X		
Install new Servers in Racks/Cabinets	X		
Install new NSCs and Connect to Network	X		
Migrate databases from Old NSC to New NSC	X		
Confirm call processing with new primary NSCs	X		
Restart the UAS VM and ensure provisioning is working between devices within the primary NSC	X		
Configure logging recorder into the new NSCs	X		
Complete post upgrade Tests and Burn-in for minimum 24 hours	X		
Conduct post Primary NSC upgrade meeting – proceed decision point	X		
Upgrade secondary NSC & Test	X		
Remove old NSC from Network and Power off	X		

Sites and Dispatch Installation, Upgrade, and System Optimization

Following the Network Core upgrade and transition, the system engineer will work with the on-site installation team to upgrade the sites and dispatch locations. System optimization will be performed to verify the overall function of the new system.

Figure 5. Sites & Dispatch Upgrade Tasks

TASKS	L3HARRIS	DIA	COMMENTS
P25 RADIO SITES			
Install New Routers and Switches	X		
Replace existing Network Sentry with VVS'	X		
Perform Site High Level Functional Test	X		
DISPATCH LOCATIONS			
Install New Routers and Switches	X		
Upgrade (43) Symphony Consoles to WIN 10/SR10A.7	X		Replace SSDs
Verify proper Symphony Console operation	X		

Figure 6. System Optimization Responsibility Matrix

TASKS	L3HARRIS	DIA	COMMENTS
Verify P25 system levels and parameters are set	X		
Verify system database is installed and operating correctly	X	X	
Verify proper dispatch operation	X	X	
Verify proper P25 system functional operation	X	X	
Verify proper network switching operation	X	X	

Acceptance Testing

Systems functional acceptance testing will be performed according to the agreed upon FATP and system contract. The project team will notify DIA when installation and initial testing are complete, and the system is ready for acceptance testing.

The system engineer will provide DIA with a copy of the FATP, which contains a short description, test methodology, and record form for logging results and acceptance signatures for each test. A punch list will be available to document any issues found, which the team will work to quickly resolve. Upon satisfactory completion of the FATP and punch list, the project manager will present the system acceptance documentation to DIA.

Figure 7. Acceptance Testing Responsibility Matrix

TASKS	L3HARRIS	DIA	COMMENTS
Execute Functional Acceptance Test Procedures	X		
Resolve any Functional Acceptance Test punchlist items	X		
Verify Functional Acceptance Test Results		X	

Final Acceptance

Upon the completion of equipment cutover, FATP, and submission of the final drawing package, the project manager submits the final system acceptance letter for DIA to sign.

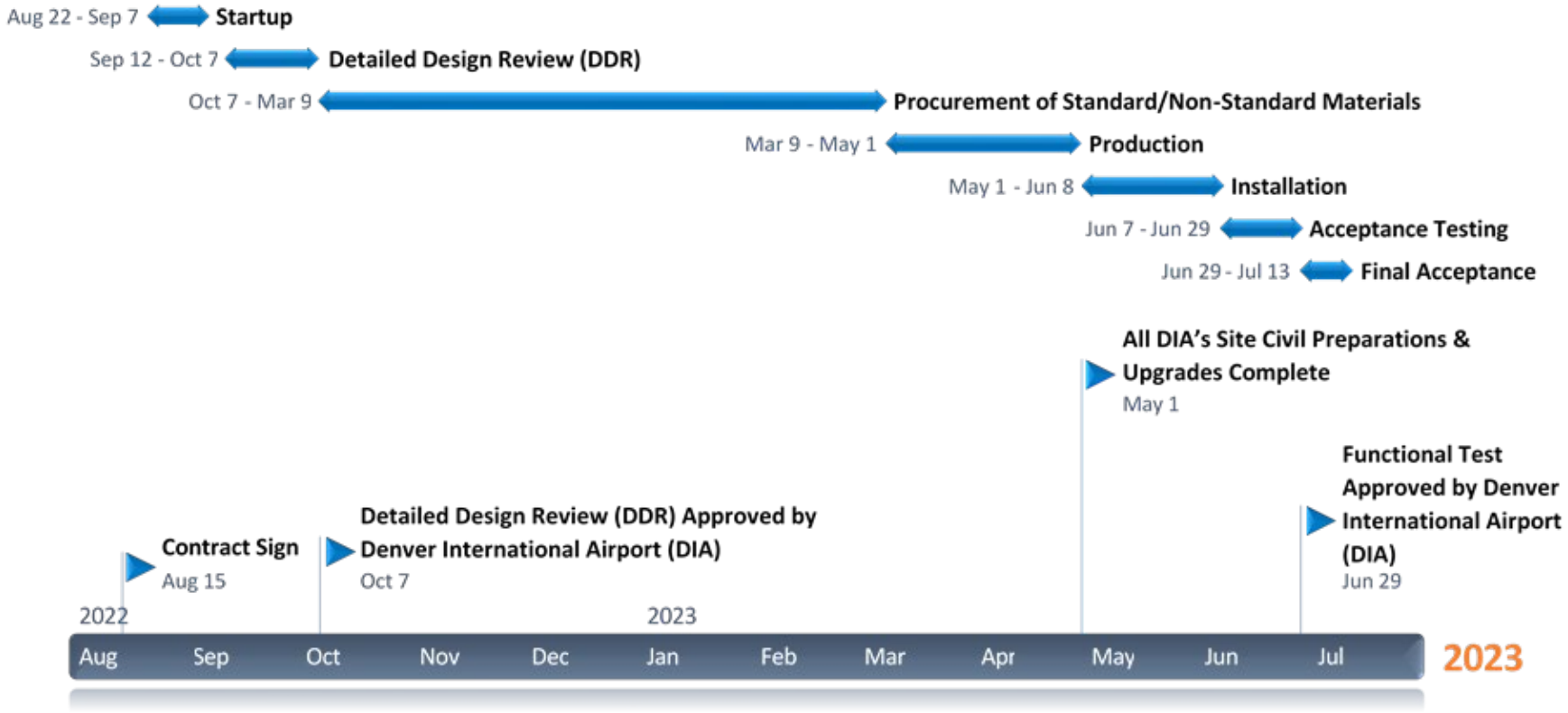
Figure 8. Final Acceptance Responsibility Matrix

TASKS	L3HARRIS	DIA	COMMENTS
Collect & archive system configurations	X		
Remove decommissioned legacy network, console, or site infrastructure equipment	X		
Submit final drawing package	X		
Submit letter of final system acceptance	X		
Provide warranty and contact information	X		
Meet with L3Harris to review warranty, contact procedures, and system support		X	
Accept final drawing package		X	
Sign letter of final system acceptance		X	

PRELIMINARY PROJECT SCHEDULE

A detailed project schedule will be prepared during the design phase and presented as part of the Detailed Design Review (DDR). The Figure below represents a high-level project schedule following a contract award. L3Harris is committed to working with DIA throughout the project to identify potential schedule efficiencies in order to reduce the overall project duration.

Figure 9. Preliminary Project Schedule



WARRANTY AND MAINTENANCE

Warranty Support

L3Harris offers a standard one-year warranty on all proposed infrastructure equipment as outlined in the Standard Conditions of Sale. We offer several tiers of subscriber radios. Our subscriber radios come with a standard two-year warranty.

EQUIPMENT

Warranty provides that the hardware and installation services furnished by L3Harris shall be free from defects in material and workmanship.

During the Warranty if any Hardware component or portion of the installation Services fails to meet the warranty, L3Harris will remedy by: (1) repairing any defective component of the Hardware, or (2) by furnishing any necessary repaired, refurbished, or replacement parts, or (3) by correcting the faulty installation.

L3Harris will perform, at its discretion, all warranty labor at a L3Harris location. Where L3Harris has determined it is not feasible to ship fixed equipment for repair, L3Harris will repair on premise. Standard warranty response times are standard business days, 8:00 a.m. to 5:00 p.m. Eastern. For additional levels of support, premium services are available.

SOFTWARE

During the Warranty, if the L3Harris licensed software does not successfully operate, the error or defect will be corrected free of charge or make available a substitute program.

Warranty provides corrections to software defects and known errors reported to L3Harris' Technical Assistance Center (TAC) during the warranty period at no additional cost to the Customer. Installation of corrections to software defects reported to TAC during the warranty period is not included in the Warranty.

THIRD-PARTY WARRANTIES

L3Harris will ensure that warranty on any third-party Original Equipment Manufacturer (OEM) equipment and services sold by L3Harris meets the same warranty requirements and we will act on behalf of the Customer to coordinate and settle all warranty issues with any integrated third-party equipment or software companies throughout the warranty period.

L3Harris will transfer third-party warranties provided directly from equipment manufacturers to the Customer as part of the final acceptance.

Maintenance

The existing DIA/L3Harris Master Services Agreement (Maintenance Agreement) will be revised to reflect changes in equipment based on the Core Upgrade.

PRICING

L3Harris is pleased to provide Denver International Airport (DIA) with the following firm fixed price proposal. Pricing is valid for through February 28, 2023. Upon expiration of the pricing validity, L3Harris reserves the right to provide an updated pricing proposal.

DIA SR10a.7 Core Upgrade

NETWORK EQUIPMENT	PRICE (USD $)
Primary Core Upgrade Hardware	$61,867.09
Primary Core Upgrade Software & Licenses	$75,190.87
Primary Core Networking Equipment	$19,516.68
Primary Core Firewall Equipment	$17,682.75
Secondary Core Upgrade Hardware	$61,866.20
Secondary Core Upgrade Software & Licenses	$8,181.48
Secondary Core Networking Equipment	$16,645.08
Secondary Core Firewall Equipment	$17,400.00
VASC Server w/Data Center License	$33,916.95
AOB Consoles Networking Equipment	$31,252.08
B Tower Consoles Networking Equipment	$16,505.58
AOC Console Networking Equipment	$38,625.33
Tower 1 Simulcast Site 1 Network Equipment (New Routers and Switches)	$35,896.14
Tower 1 Aux RX Site 1 Network Equipment (New Routers and Switches)	$33,406.20
Simulcast Site 2 Network Equipment (New Routers and Switches)	$44,678.79
Site 97 Networking Equipment (New Routers and Switches)	$7,379.28
Site 99 Networking Equipment and IARs	$18,872.04
Logging Recorder Upgrade	$104,335.00
Spare Equipment	$28,292.37
WAN Aggregation Switches	$47,850.00
NETWORK EQUIPMENT SUBTOTAL	**$719,359.91**

PROFESSIONAL SERVICES	PRICE (USD $)
Project Management & Implementation Services	$164,490.00
Engineering, Firewall and Network Services	$266,650.25
Installation	$72,622.88
Staging/Freight	$51,885.00
PROFESSIONAL SERVICES SUBTOTAL	**$555,648.13**
PROJECT TOTAL	**$1,275,008.04**

**State and Local taxes not included*

APPENDIX C

CERTIFICATE OF INSURANCE

APPENDIX C

CITY AND COUNTY OF DENVER
INSURANCE REQUIREMENTS FOR DEPARTMENT OF AVIATION
GOODS AND SERVICES AGREEMENT

A. Certificate Holder and Submission Instructions

Contractor must provide a Certificate of Insurance as follows:

Certificate Holder: CITY AND COUNTY OF DENVER
Denver International Airport
8500 Peña Boulevard
Denver CO 80249

- ACORD Form (or equivalent) certificate is required.
- Contractor must be evidenced as a Named Insured party.
- Electronic submission only, hard copy documents will not be accepted.
- Reference on the certificate must include the City-assigned Contract Number, if applicable.

The City may at any time modify submission requirements, including the use of third-party software and/or services, which may include an additional fee to the Contractor.

B. Defined Terms

1. "Agreement" as used in this exhibit refers to the contractual agreement to which this exhibit is attached, irrespective of any other title or name it may otherwise have.
2. "Contractor" as used in this exhibit refers to the party contracting with the City and County of Denver pursuant to the attached Agreement.

C. Coverages and Limits

1. Commercial General Liability
   Contractor shall maintain insurance coverage including bodily injury, property damage, personal injury, advertising injury, independent contractors, and products and completed operations in minimum limits of $10,000,000 each occurrence, $10,000,000 products and completed operations aggregate; if policy contains a general aggregate, a minimum limit of $10,000,000 annual policy aggregate must be maintained.

   a. Coverage shall include Contractual Liability covering liability assumed under this Agreement (including defense costs assumed under contract) within the scope of coverages provided.
   b. Coverage shall include Mobile Equipment Liability, if used to perform services under this Agreement.
   c. If a "per location" policy aggregate is required, "location" shall mean the entire airport premises.

2. Business Automobile Liability
   Contractor shall maintain a minimum limit of $1,000,000 combined single limit each occurrence for bodily injury and property damage for all owned, leased, hired and/or non-owned vehicles used in performing services under this Agreement.

   a. If operating vehicles unescorted airside at DEN, a $10,000,000 combined single limit each occurrence for bodily injury and property damage is required.
   b. If Contractor does not have blanket coverage on all owned and operated vehicles and will require unescorted airside driving privileges, then a schedule of insured vehicles (including year, make, model and VIN number) must be submitted with the Certificate of Insurance.

c. If transporting waste, hazardous material, or regulated substances, Contractor shall carry a Broadened Pollution Endorsement and an MCS 90 endorsement on its policy.
d. If Contractor does not own any fleet vehicles and Contractor's owners, officers, directors, and/or employees use their personal vehicles to perform services under this Agreement, Contractor shall ensure that Personal Automobile Liability including a Business Use Endorsement is maintained by the vehicle owner, and if appropriate, Non-Owned Auto Liability by the Contractor. This provision does not apply to persons solely commuting to and from the airport.
e. If Contractor will be completing all services to DEN under this Agreement remotely and not be driving to locations under direction of the City to perform services this requirement is waived.

3. Workers' Compensation and Employer's Liability Insurance
Contractor shall maintain the coverage as required by statute for each work location and shall maintain Employer's Liability insurance with limits no less than $100,000 per occurrence for each bodily injury claim, $100,000 per occurrence for each bodily injury caused by disease claim, and $500,000 aggregate for all bodily injuries caused by disease claims.

a. Colorado Workers' Compensation Act allows for certain, limited exemptions from Worker's Compensation insurance coverage requirements. It is the sole responsibility of the Contractor to determine their eligibility for providing this coverage, executing all required documentation with the State of Colorado, and obtaining all necessary approvals. Verification document(s) evidencing exemption status must be submitted with the Certificate of Insurance.

4. Property Insurance
Contractor is solely responsible for any loss or damage to its real or business personal property located on DEN premises including, but not limited to, materials, tools, equipment, vehicles, furnishings, structures and personal property of its employees and subcontractors unless caused by the sole, gross negligence of the City. If Contractor carries property insurance on its property located on DEN premises, a waiver of subrogation as outlined in Section F will be required from its insurer.

5. Installation Floater:
Contractor shall provide replacement cost coverage with a limit equal to the full insurable value of materials and equipment and be written on a Special Covered Cause of Loss Form including theft, faulty workmanship, mechanical or electrical damage during testing and labor costs to repair damaged work, and soft costs. The policy shall cover property while located at the project site, at temporary locations, or in transit; and name the City as the loss payee on the policy, as its interests may appear. Coverage shall remain in force until acceptance of the work by the City.

6. Professional Liability (Errors and Omissions) Insurance
Contractor shall maintain a minimum limit of $10,000,000 each claim and annual policy aggregate, providing coverage for all applicable professional services outlined in this Agreement.

7. Technology Errors and Omissions
Contractor shall maintain a minimum limit of $10,000,000 per occurrence and $10,000,000 annual policy aggregate including cyber liability, network security, privacy liability and product failure coverage.

a. Coverage shall include, but not be limited to, liability arising from theft, dissemination and/or use of personal, private, confidential, information subject to a non-disclosure agreement, including information stored or transmitted, privacy or cyber laws, damage to or destruction of information, intentional and/or unintentional release of private information, alteration of information, extortion and network security, introduction of a computer virus into, or otherwise causing damage to, a customer's or third person's computer, computer system, network or similar computer related property and the data, software, and programs thereon, advertising injury, personal injury (including invasion of privacy) and intellectual property offenses related to internet.

8. Excess/Umbrella Liability
   Combination of primary and excess coverage may be used to achieve minimum required coverage limits. Excess/Umbrella policy(ies) must follow form of the primary policies with which they are related to provide the minimum limits and be verified as such on any submitted Certificate of Insurance.

D. Reference to Project and/or Contract

The City Project Name, Title of Agreement and/or Contract Number and description shall be noted on the Certificate of Insurance, if applicable.

E. Additional Insured

For all coverages required under this Agreement (excluding Workers' Compensation, Employer's Liability and Professional Liability, if required), Contractor's insurer(s) shall include the City and County of Denver, its elected and appointed officials, successors, agents, employees, and volunteers as Additional Insureds by policy endorsement.

F. Waiver of Subrogation

For all coverages required under this Agreement (excluding Professional Liability, if required), Contractor's insurer(s) shall waive subrogation rights against the City and County of Denver, its elected and appointed officials, successors, agents, employees, and volunteers by policy endorsement.

If Contractor will be completing all services to the City under this Agreement remotely and not be traveling to locations under direction of the City to perform services, this requirement is waived specific to Workers' Compensation coverage.

G. Notice of Material Change, Cancellation or Nonrenewal

Each certificate and related policy shall contain a valid provision requiring notification to the Certificate Holder in the event any of the required policies be canceled or non-renewed or reduction in required coverage before the expiration date thereof.

1. Such notice shall reference the DEN assigned contract number related to this Agreement.
2. Such notice shall be sent thirty (30) calendar days prior to such cancellation or non-renewal or reduction in required coverage unless due to non-payment of premiums for which notice shall be sent ten (10) calendar days prior.
3. If such written notice is unavailable from the insurer or afforded as outlined above, Contractor shall provide written notice of cancellation, non-renewal and any reduction in required coverage to the Certificate Holder within three (3) business days of receiving such notice by its insurer(s) and include documentation of the formal notice received from its insurer(s) as verification. Contractor shall replace cancelled or nonrenewed policies with no lapse in coverage and provide an updated Certificate of Insurance to DEN.
4. In the event any general aggregate or other aggregate limits are reduced below the required minimum per occurrence limits, Contractor will procure, at its own expense, coverage at the requirement minimum per occurrence limits. If Contractor cannot replenish coverage within ten (10) calendar days, it must notify the City immediately.

H. Cooperation

Contractor agrees to fully cooperate in connection with any investigation or inquiry and accept any formally tendered claim related to this Agreement, whether received from the City or its representative. Contractor's failure to fully cooperate may, as determined in the City's sole discretion, provide cause for default under the Agreement. The City understands acceptance of a tendered claim does not constitute acceptance of liability.

I. Additional Provisions

1. Deductibles or any type of retention are the sole responsibility of the Contractor.
2. Defense costs shall be in addition to the limits of liability. If this provision is unavailable that limitation must be evidenced on the Certificate of Insurance.
3. Coverage required may not contain an exclusion related to operations on airport premises.

4. A severability of interests or separation of insureds provision (no insured vs. insured exclusion) is included under all policies where Additional Insured status is required.
5. A provision that coverage is primary and non-contributory with other coverage or self-insurance maintained by the City under all policies where Additional Insured status is required.
6. If the Contractor procures or maintains insurance policies with coverages or limits beyond those stated herein, such greater policies will apply to their full effect and not be reduced or limited by the minimum requirements stated herein.
7. All policies shall be written on an occurrence form. If an occurrence form is unavailable or not industry norm for a given policy type, claims-made coverage will be accepted by the City provided the retroactive date is on or before the Agreement Effective Date or the first date when any goods or services were provided to the City, whichever is earlier, and continuous coverage will be maintained or an extended reporting period placed for three years (eight years for construction-related agreements) beginning at the time work under this Agreement is completed or the Agreement is terminated, whichever is later.
8. Certificates of Insurance must specify the issuing companies, policy numbers and policy periods for each required form of coverage. The certificates for each insurance policy are to be signed by an authorized representative and must be submitted to the City at the time Contractor signed this Agreement.
9. The insurance shall be underwritten by an insurer licensed or authorized to do business in the State of Colorado and rated by A.M. Best Company as A- VIII or better.
10. Certificate of Insurance and Related Endorsements: The City's acceptance of a certificate of insurance or other proof of insurance that does not comply with all insurance requirements shall not act as a waiver of Contractor's breach of this Agreement or of any of the City's rights or remedies under this Agreement. All coverage requirements shall be enforced unless waived or otherwise modified in writing by DEN Risk Management. Contractor is solely responsible for ensuring all formal policy endorsements are issued by their insurers to support the requirements.
11. The City shall have the right to verify, at any time, all coverage, information, or representations, and the insured and its insurance representatives shall promptly and fully cooperate in any such audit the City may elect to undertake including provision of copies of insurance policies upon request. In the case of such audit, the City may be subject to a non-disclosure agreement and/or redactions of policy information unrelated to verification of required coverage.
12. No material changes, modifications, or interlineations to required insurance coverage shall be allowed without the review and written approval of DEN Risk Management.
13. Contractor shall be responsible for ensuring the City is provided updated Certificate(s) of Insurance prior to each policy renewal.
14. Contractor's failure to maintain required insurance shall be the basis for immediate suspension and cause for termination of this Agreement, at the City's sole discretion and without penalty to the City.

J. Part 230 and the DEN Airport Rules and Regulations

If the minimum insurance requirements set forth herein differ from the equivalent types of insurance requirements in Part 230 of the DEN Airport Rules and Regulations, the greater and broader insurance requirements shall supersede those lesser requirements, unless expressly excepted in writing by DEN Risk Management. Part 230 applies to Contractor and its subcontractors of any tier.

APPENDIX D

MANAGED SERVICES AGREEMENT

L3HARRIS™

APPENDIX D

MANAGED SERVICES AGREEMENT

THIS MANAGED SERVICES AGREEMENT ("Agreement") is made and entered into this _____ day of _____, by and between **CITY AND COUNTY OF DENVER**, (hereinafter referred to as "Buyer") located at 8500 Pena Blvd., Denver, CO 80249 and **L3HARRIS TECHNOLOGIES, INC.** (hereinafter referred to as "Seller"), a Delaware corporation, acting through its Communication Systems Segment located at 221 Jefferson Ridge Parkway, Lynchburg, VA 24501 (collectively referred to as the "Parties"). The ("Term") of this Agreement shall begin upon the expiration of the Warranty Period (the "Commencement Date") and shall continue until the end of the five (5) year period ("Expiration Date").

This Agreement, along with its sections and attachments listed below, describes the terms and conditions for purchase of Services by Buyer as described in this Agreement or other document(s) attached to and made part of this Agreement. In the event of any inconsistencies or conflicts within this Agreement, precedence shall be given to the documents in the order in which they are listed:

SECTION I	SCOPE
SECTION II	SERVICES
SECTION III	GENERAL TERMS AND CONDITIONS
SECTION IV	DEFINITIONS
ATTACHMENT A	EQUIPMENT LIST
ATTACHMENT B	SERVICE DESCRIPTIONS
ATTACHMENT C	THIRD-PARTY LICENSE RENEWALS
ATTACHMENT D	POINT OF CONTACT AND NOTICE

I. SCOPE

a. This Agreement contains the terms and conditions for Buyer's purchase and Seller's delivery of the Services. Seller shall provide the Services described in this Agreement, including its attachments. Seller's obligations under this Agreement may be performed by Seller, its agents, representatives, subcontractors, or any combination thereof, at Seller's discretion. In addition to the General Terms and Conditions, the Service Descriptions included in Attachment B may contain terms and conditions specific to that particular Service.

b. At Buyer's request and upon Seller's approval, Seller may also provide Demand Services for additional support beyond the Services.

c. The Services are defined within this Agreement and are limited to only those Services in Section II. ("Services") and further described in Attachment B ("Service Descriptions"). All Services provided under this Agreement are only applicable to the Equipment identified in Attachment A ("Equipment List"). Any Equipment not identified in the Equipment List is excluded from the Services.

II. SERVICES

Below sets forth the mutually agreed Services purchased by Buyer.

Seller Infrastructure Managed Services Packages	Service Managed
Premium Technical Support (TAC) and 3rd Party Renewals	Infrastructure
Standard Repair Service	Infrastructure
Annual Preventive Maintenance, Standard	Infrastructure

Annual Preventive Maintenance, Enhanced	Infrastructure
Rapid Response Service Level Agreement	Infrastructure
Security Update Management Services (SUMS+)	Infrastructure
SUMS+ Installation	Infrastructure
Software Managed Services (SMS)	Infrastructure
SMS Installation	Infrastructure
NOC Monitoring, L3 Harris Equipment	Infrastructure
Cybersecurity Assessments	Infrastructure
VIDA Secure Sentry	Infrastructure
VIDA Secure Sentry Installation	Infrastructure

TERM (Period of Performance)	**ANNUAL SUPPORT FEES**
Year 1	$326,973.00
Year 2	$420,965.00
Year 3	$550,385.00
Year 4	$439,605.00
Year 5	$449,233.00
TOTAL ANNUAL SUPPORT FEES (YEARS 1-5)	$2,187,162.00

III. GENERAL TERMS AND CONDITIONS

1. SUPPORT.

a. Subject to the terms and conditions of this Agreement, Seller agrees to perform Services during the Term for the Support Fees, as may be amended from time to time in accordance with this Agreement. Services shall be provided for the Equipment at the Buyer site(s) described in Attachment A ("Equipment List") and, unless agreed otherwise in writing, Seller shall not be obligated to provide Services for any products, equipment, hardware, software, site(s), or systems not identified in Attachment A ("Equipment List").

b. Seller may supply new, used, reconditioned or substitute parts for the performance of Services. Seller shall provide Services at levels set forth in the manufacturer's product manuals and follow routine service procedures prescribed by Seller.

c. If Buyer purchases additional equipment from Seller, then that equipment must be added to the Equipment List by a mutually agreed upon Amendment to this Agreement for Seller to provide Services for that new equipment. The Amendment must also amend Section II. ("Services") to account for the cost of providing Services for the additional equipment.

d. If Equipment cannot, in Seller's reasonable opinion, be properly or economically serviced for any reason, the Parties may mutually agree to an Amendment to i) remove that Equipment from this Agreement or ii) modify the scope of Services related to that Equipment or iii) increase the price of providing Services for that Equipment.

2. DEMAND SERVICES.

a. **Demand Services Fees.** At Buyer's request and upon Seller's approval, Seller may provide Demand Services for an additional fee. Seller shall provide a written quote for such Demand Services based upon the circumstances known at the time of the request and Seller

shall perform such Demand Services only once the Parties have mutually agreed upon the scope and fees for such Demand Services.

b. **Documentation Required.** Any Demand Services that Seller agrees to perform shall be clearly defined in a properly executed Amendment to this Agreement, purchase order, or separate agreement between the Parties.

c. **Emergency on Demand.** Seller may provide Demand Services in a manner not consistent with the requirements in this Section in an emergency, on a case-by-case basis, and at Seller's sole discretion. If Demand Services are provided by Seller in an emergency, charges or expenses reasonably incurred by Seller in rendering said Service, shall be reimbursed by Buyer.

d. **Excluded Services.** If Buyer requests Seller to provide any Excluded Services listed in this Agreement, such Excluded Services will be considered Demand Services and will only be provided in accordance with this Section.

3. CONDITIONS OF SERVICE.

Seller's obligations to perform the Services are conditioned upon the below conditions being met by Buyer. Buyer shall:

a. ensure Equipment is in good working order as of the Commencement Date and continues as such during the Term. Buyer shall ensure Equipment is maintained per the recommended manuals. In addition to the Support Fees, Buyer shall pay for Demand Services for any inspections performed by Seller to ensure Equipment is in good working order prior to Services being performed.

b. work together with Seller to establish and maintain an Equipment List which will include serial numbers, if applicable, of all Equipment under this Agreement.

c. notify Seller, promptly, of any Equipment failure or when any Equipment is lost, damaged, stolen, or taken out of service.

d. obtain and maintain all necessary permits required by Federal, state, tribal, or local governmental authority related to the Equipment and Services of this Agreement and remain in compliance with all such laws, rules, and regulations.

e. purchase any necessary Hardware or upgrades, at Buyer's expense, that may be necessary for the Services to be performed by Seller.

f. not modify, enhance or otherwise alter any Software Update unless specifically authorized in the user documentation provided by Seller or unless the prior written consent of Seller is obtained.

g. not create or permit the creation of any derivative work from any Software Update or the reverse engineering or replication of any Software Update.

h. meet all General Buyer Obligations and satisfy all Buyer's requirements under this Agreement.

4. SITE ACCESS, RESPONSE TIMES.

a. If applicable, Response Times described in this Agreement assume that the Equipment is accessible by normal transportation methods and vehicles. On-site Response Time requirements exclude site locations that may require extensive drive time due to traffic conditions or site locations where specialized vehicles are required.

b. Waivers of liability from Seller, its agents, representatives or its subcontractors shall not be imposed as a site access requirement by Buyer.

c. Unless otherwise stated in this Agreement, the Support Fees exclude any charges or expenses associated with helicopter, snow vehicle, ATV, boat, or other atypical access requirements; if these charges or expenses are reasonably incurred by Seller in rendering the Services, Buyer agrees to reimburse Seller for those charges and expenses.

d. Buyer will be billed separately, as Demand Services, for time lost or changes in the Services due to any delay caused by Buyer's action or inaction.

5. EXCLUDED SERVICES.

Only the Services in Section II. ("Services"), as further described in Attachment B ("Service Descriptions"), shall be provided. The Services shall not include exclusions defined in other parts of this Agreement. Unless purchased by Buyer and listed as Services under Section II. Services of this Agreement, Excluded Services are the following services excluded from the Services of this Agreement:

a. receiving Services for items not set out in Attachment A ("Equipment List") of this Agreement; or Equipment that has reached End of Life ("EOL") or End of Support ("EOS") or Equipment for which parts are not available.

b. receiving Services at a location other than the site(s) or location(s) listed in Attachment A ("Equipment List") of this Agreement.

c. correction of faults due to Buyer's failure to meets its obligations outlined throughout this Agreement.

d. correction of faults, defects, or damage caused by any of the following: i) Buyer's modification, neglect, or misuse of the Equipment; ii) use other than in the normal, customary, intended, and authorized manner, or use not in compliance with applicable industry standards or OEM specifications ; iii) excessive wear and tear, abuse, vandalism, theft or other criminal activity, accident, disaster, fire, flood, water, weather or environmental conditions, liquids, power surges, acts of God; iv) acts or omissions or delays by Buyer or Third-Party; v) work performed on Equipment by Buyer or Third-Parties who are not authorized by Seller to perform such work; or vi) force majeure event not otherwise described within this Section.

e. correction of faults in any equipment (whether or not supplied by Seller) not covered by this Agreement.

f. cleaning, painting, refinishing, or other cosmetic improvement of the Equipment.

g. relocation or transportation of Equipment, or the rectification of any faults caused by such relocation or transportation, unless where such relocation or transportation of Equipment was performed by Seller as a Service under this Agreement or other properly executed agreement between the Parties.

h. receiving any software unless expressly provided for as a Service under this Agreement.

i. implementation of changes to the Equipment or configurations which were not a requirement of the specifications for the Equipment listed in this Agreement or otherwise committed to by Seller in a properly executed agreement between the Parties.

j. correction of any fault which would be remedied by a software or routine maintenance or repair which is required by the specifications for the Equipment.

k. service for accessory items or items that are consumed in the normal operation of the Equipment such as: batteries, uninterruptable power supplies ("UPS"), belt attached objects such as clips and holsters, battery chargers, personal audio interfaces such as footswitches or ear pieces, headsets, keypads, fuses, knobs, lanyards, or labels.

l. services for custom or special products; modified Equipment or software; upgrading or programming Equipment.

m. repair or maintenance of any transmission path or transmission medium for voice or data radios including antennas, dishes, masts, tower top amplifiers, transmission lines, tower or tower lighting.

n. tower climbs or services for i) any Equipment mounted on towers or telephone lines, ii) computer networks, iii) the internet, or iv) Equipment malfunction caused by a transmission medium.

o. installation of software, Software Updates, or Security Updates unless such installation is Seller's responsibility and falls within the defined Services of this Agreement. See SUMS+ Installation and/or SMS Installation, if applicable.

p. receiving system configuration documents or system audit.

q. training.

r. hardware upgrades unless such hardware upgrades are Seller's responsibility and falls within the defined Services of this Agreement. See Planned Network Upgrades and/or Obsolescence Protection, if applicable.

s. additional services such as data backup, line sweeps, or taking readings or performing services beyond those listed in the Preventive Maintenance Seller Table, if applicable, or this Agreement.

t. repairs at the Buyer location. See On-Site Corrective Maintenance, if applicable.

u. initial installation or configuration of any software, or installation of multiple revisions of software to catch up to a more recent software release, or to roll back to a previous software release, or any configuration changes. Note, this installation or configuration is neither included in SUMS+, SMS, nor VIDA Secure Sentry Installation Services.

v. software installation on Equipment unless targeted by the Seller Software Update or Seller Operating System Patch and as per the SUMS+ Installation, SMS Installation, and/or VIDA Secure Installation Service Descriptions, as applicable.

6. GENERAL BUYER OBLIGATIONS.

Buyer acknowledges that receipt of the Services and the amount of the Support Fee described in this Agreement are dependent on the prompt and proper performance of the Buyer fulfilling the requirements under Conditions of Service and its obligations under this Agreement. Obligations require that Buyer shall:

a. ensure that all necessary clearances, escorts, ID cards, network access requirements including custom software or security credentials, or other requirements, have been provided to Seller, in advance of a Seller's technician(s)' visit, to allow prompt access to any Equipment requiring Services that may be located in a secured or limited access area under Buyer's or Third-Party's control. Buyer shall not restrict Seller access to the site(s) or prevent Seller from performing the Services under this Agreement on the basis that Buyer does not have a Seller Certificate of Insurance ("COI") on file or in Buyer's possession.

b. provide Seller, at no charge, full and free access to the Equipment and an appropriate non-hazardous work environment located in the Equipment's physical location which should include, at a minimum, unlimited access, adequate shelter, heat, light, ventilation, electric current and outlets, and local wireless and telephone access for Seller's use in the Equipment's physical location.

c. when requested, promptly provide all information or services (including, but not limited to inventory/audits) under Buyer's control relevant or pertaining to Seller's Services and/or pertaining to the Hardware and software elements of any system with which the Equipment is interfacing so that Seller may perform its Services.

d. replace defective Equipment with a Critical Spare where required and promptly ship the defective Equipment to Seller in accordance with Seller's directions.

e. ensure that the personnel responsible for carrying out the General Buyer Obligations outlined in this Section are suitably qualified, authorized, trained and/or experienced.

f. maintain a suitable environment for the operation and maintenance of the Equipment (including without limitation power supply, temperature and humidity control) in accordance with normal industry practices, and as set out in the published data sheets, manuals, or other written instructions for the Equipment.

g. provide Seller with all cooperation to facilitate the efficient discharge of Seller's Services under this Agreement including, without limitation: i) providing the necessary physical and virtual access to the site(s) and the Equipment; ii) ensuring the site(s) comply with all relevant health and safety codes; and iii) providing, on request, a suitably qualified or informed representative, agent, or employee to accompany Seller personnel and to advise Seller on access or on any other matter within the Buyer's knowledge or control which will assist Seller in performing the Services under this Agreement.

h. ensure system(s) backups (including all programs and data) and Equipment configuration records are kept up to date.

i. install the Operating System Patches, as applicable under SUMS+, in the order of receipt and release from Seller. If Buyer purchased SUMS+ Installation as part of the Services of this Agreement, Seller will install the Operating System Patches in accordance with the SUMS+ Installation Services of this Agreement.

j. install the Software Update, as applicable, in accordance with the Seller provided Software Update installation instructions found within the Software Release Notes from Seller. If Buyer purchased SMS Installation as part of the Services of this Agreement, Seller will install the Seller Software Updates in accordance with the SMS Installation Services of this Agreement.

k. complete the Operating System Patches process on the target devices (e.g. rebooting the target devices) by following the instructions accompanying each Operating System Patches, as applicable under SUMS+.

l. provide primary power source, PABX and PSTN connections or lines, radio frequency coverage performance after coverage verification test acceptance, suitable inter-site and inter node links.

m. provide secure and adequate facilities adjacent to or in reasonable proximity to the Equipment for the storage by Seller of tools and other items necessary to perform the Services. Buyer shall permit Seller to have access to such storage facilities at all times.

n. maintain confidentiality of any logon(s) and password(s) required to access Equipment or

Services, as access to Tech-Link is only permitted for current Buyer employees or contractors. Buyer must manage and remove access rights for departing employees (for example by changing passwords) and Seller shall not be liable for any loss or damage incurred by Buyer due to Buyer's failure to comply with this clause.

o. cooperate with Seller and perform all efforts that are necessary to enable Seller to provide the Services to Buyer.

p. waive Services, without reimbursement, when Seller does not have access to provide the Services or when Seller is unable to provide Services due to Buyer's or Third-Party's action or inaction.

q. provide Seller with at least two (2) Points of Contact, as described in Point of Contact Section of this Agreement.

r. require at least one Point of Contact be available twenty-four (24) hours per day, seven (7) days per week with an escalation procedure to enable Buyer's personnel to maintain contact, as needed, with Seller.

s. perform and upon request provide proof of performance of all routine and Preventive Maintenance and updates to software and Hardware as recommended in Equipment manuals unless such Preventive Maintenance is Seller's responsibility and falls within the defined Services of this Agreement.

t. provide Seller a response to Summary Reports within thirty (30) days of receipt.

u. reproduce any copyright notice and/or proprietary notice appearing on and/or in such Software Update, if Buyer makes backup copies of any Software Update, and label all copies with all information, including part numbers and revision levels, provided on the original set of media provided by Seller.

v. not to modify, enhance or otherwise alter any Software Update unless specifically authorized in the user documentation provided by Seller, or unless the prior written consent of Seller is obtained.

w. not, under any circumstances, create or permit the creation of any derivative work from any Software Update or the reverse engineering or replication of any Software Update.

x. decide whether to install or not install Software Updates, Operating System Patches, and/or VIDA Secure Sentry, as applicable, based on the risks and benefits involved and waive all Seller liability for such decision.

y. provide Seller or Seller subcontractor the Software Updates and/or Operating System Patches for installation, if applicable.

z. comply with the Seller schedule for the performance of Services.

aa. keep Equipment current and compliant with all regulatory agencies' and manufacturers': agreements, manuals, and licenses.

7. SERVICE REQUEST PROCEDURE.

Buyer shall:

a. require their users report issues to a designated Buyer's Point of Contact. Buyer's Point of Contact shall then provide Notice to Seller when there is any activity or inactivity that impacts the system, Equipment, or Services including system configuration changes.

b. provide the software and interface cables or allow Seller the time needed to acquire such items, as needed to perform the Services on the Equipment.

c. compile Equipment into a central location before Services are provided, as directed by Seller.

d. submit a Service Request as set out in this Section of this Agreement with additional descriptions in Attachment B ("Service Descriptions").

e. immediately after making a Service Request for Seller support, provide Seller, when possible, with an example of the relevant defect or error.

f. keep Seller fully informed with up to date Equipment, site(s), and configuration details for the Equipment, including without limitation Equipment serial numbers, locations, contact information, and site personnel qualified to submit a Service Request.

g. have personnel with sufficient Equipment related training to be able to i) carry out basic operating system housekeeping, ii) work through complex procedures with remote guidance provided by Seller, and iii) carry out procedures as outlined by Seller within a reasonable time after such procedures have been received from Seller.

h. provide a mutually agreed form of communications link for remote diagnostics and promptly grant access rights to Seller and its subcontractors when required.

i. maintain and make available the required type and number of Buyer owned and managed Critical Spares in accordance with this Agreement.

j. approve or disapprove of additional charges for Seller to perform repairs or replace Equipment Seller within five (5) business days from the date of the charge estimate being presented to Buyer. If Buyer disapproves the additional charges, Buyer shall pay a Diagnostic Fee.

k. pay additional costs for Demand Services for additional efforts which may include but are not limited to Equipment aggregation management, delays in work, software or cable interface acquisition for non-Seller equipment, configuration or software changes, or repairs.

8. FEES AND PAYMENT TERMS.

a. Buyer shall pay the Support Fees for Services and the Demand Services Fees for Demand Services as detailed in this Agreement.

b. Except as expressly provided in this Agreement, Seller may revise its Support Fees at any time by giving Buyer notice not less than ninety (90) days before the rate change, provided that the revised rates are mutually agreed upon in writing. If the revised rates are not mutually agreed upon by the Parties within the ninety (90) day Notice period, Seller may terminate this Agreement in accordance with Section III.9. ("Term and Termination"). Seller reserves the right to increase the Support Fees as Equipment is added or if Buyer requests an increased level of service, or if there is any other variation requested by Buyer to this Agreement.

c. Payment terms shall be net thirty (30) days from the date of invoice. Support Fees will be billed in advance and in accordance with Section II. ("Services").

d. All fees payable under this Agreement are exclusive of sales, use, value added, goods and services taxes, or any customs, import or export duties, and should any such fees arise, these shall be payable by Buyer. Where appropriate, such taxes will be added to the invoice, billed as a separate item, to the extent possible, and paid by Buyer unless Buyer provides Seller with evidence of payment or certificate of exemption.

e. To the fullest extent permissible by law, Buyer waives its right of set-off. No payment is considered received until Seller has received cleared funds.

f. Without prejudice to any other right or remedy available to Seller, if Buyer is overdue with any payment; i) Buyer shall be liable to pay interest on the overdue amount at the rate of one and one-half percent (1.5%) per complete month until Seller has received payment of the overdue amount together with interest that has accrued; and ii) Seller may suspend contractual performance and/or exercise a lien over Equipment and any items returned for repair or replacement until Buyer has made such overdue payment in full.

9. TERM AND TERMINATION.

a. The Term of this Agreement shall begin on the Commencement Date and shall continue through the Expiration Date as indicated in this Agreement.

b. In the event of: i) Buyer's material breach because of Buyer's failure to make any payment within thirty (30) days of the date of invoice, or ii) any other material breach of this Agreement by Buyer which shall continue for thirty (30) or more days after Notice of such breach is given to Buyer, Seller shall be entitled to avail itself cumulatively of any and all remedies available at law or in equity; and either: i) suspend performance of its obligations under this Agreement for as long as the breach remains uncorrected; or ii) terminate this Agreement by written Notice to Buyer if the breach remains uncorrected.

c. In the event of a material breach of this Agreement by Seller, Buyer shall provide Seller with a reasonably detailed Notice of the breach. Seller shall have thirty (30) days to provide a written plan to cure the default and begin implementing the cure plan immediately after the plan is approved by Buyer. Buyer shall not unreasonably disapprove of such cure plan. If Seller does not satisfy the requirements of this clause, Buyer may terminate this Agreement effective upon giving a thirty (30) days' written Notice of termination.

d. If Seller, in its sole discretion, provides Services after the termination or Expiration Date of this Agreement, the terms and conditions in effect at the time of the termination or Expiration Date will apply to those Services and Buyer agrees to pay for such as Demand Services.

e. Any termination of this Agreement will not relieve either Party of obligations previously incurred pursuant to this Agreement, including payments which may be due and owing at the time of termination. All sums owed by Buyer to Seller will become due and payable immediately upon termination of this Agreement. Upon the effective date of termination, Seller will have no further obligation to provide Services.

f. If Seller terminates as defined in this Section, or if Buyer terminates due to Seller default in accordance with this Section, Seller shall refund to Buyer a pro rata share of monies already paid by Buyer for Services not yet rendered by Seller.

10. CRITICAL SPARES.

a. Seller may require Buyer to purchase and store at the site (or other location agreed in writing between the Parties) Critical Spares. From time to time Seller will require Buyer to purchase and store at the site additional Critical Spares, as Seller considers necessary for effective delivery of the Services.

b. Seller will not be liable for any failure or delay in providing the Services where such failure or delay is the direct or indirect result of the failure of Buyer to comply with the previous clause regarding the purchase and storage of Critical Spares.

11. SPARE PARTS, SUBSTITUTION, END OF PRODUCTION.

a. If Spare Parts are required to obtain Services, Buyer shall be responsible for the purchase of Spare Parts in addition to the Buyer's Critical Spares. Seller may, at Buyer's request and in Seller's sole discretion, assist Buyer in determining an inventory of suggested Spare Parts.

b. Seller will generally support provisioning of its Equipment for a period of five (5) years after final production. Seller will endeavor to provide six (6) months advance notification of the final production date. Advance notification may be provided by Seller through any manner Seller deems appropriate. This may include notification through a(n): end-of-life notice, Buyer mailing, Tech-Link notice, letter, memo, or Amendment. Seller will utilize commercially reasonable efforts to assure its Equipment availability and shall not be liable to Buyer for Equipment obsolescence or Equipment unavailability under this Agreement beyond Seller's commercially reasonable efforts. Seller may replace or repair Equipment with new or substitute products or parts, at its sole discretion, based on Seller's business needs.

c. Third-Party Equipment and Third-Party Support Agreements (relative to the Third-Party Hardware) will be supported in accordance with the individual manufacturer's provisioning policy. Seller will utilize commercially reasonable efforts to assure Third-Party Spare Parts, Third-Party Equipment, and/or Third-Party Support Agreements are available for sale to Buyer (at Buyer's expense) to support its Services under this Agreement. Seller shall not be liable to Buyer for Third-Party Spare Parts and Third-Party Equipment obsolescence or Third-Party Spare Parts and Third-Party Equipment and/or Third-Party Support Agreements unavailability under this Agreement beyond Seller's commercially reasonable efforts.

d. At Buyer's request, Seller shall provide to Buyer an estimate of all charges for any required Third-Party Support Agreements; replacement parts or replacement equipment of any Spare Part or Equipment that has become obsolete or unavailable during this Agreement.

12. "Reserved"

13. HEALTH, SAFETY, AND OTHER LAWS/REGULATIONS.

a. Each Party shall comply with all relevant Health and Safety laws and regulations in all respects in relation to its obligations under this Agreement (including without limitation a safe working environment and methods of working), and each Party shall indemnify the other Party in respect of all costs, liabilities, damages or expenses incurred as a result of any failure to do so. In the event a work site or Equipment location is determined by Seller to pose a safety or health threat, Seller may cancel or suspend the Services without penalty and until the threat no longer exists.

b. Seller will comply with applicable Federal, State, and local laws and regulations as of the date of this Agreement which relate to equal employment opportunity (including applicable provisions of Executive Order 11246, as amended), workmen's compensation, Services provided, and the manufacture in Seller's facilities of the Equipment delivered hereunder (including applicable provisions of the Fair Labor Standards Act of 1938, as amended). The price and, if necessary, delivery of any Equipment and Services will be equitably

adjusted to compensate Seller for the cost of compliance with laws or regulations related to this Agreement.

14. EXCLUSIVITY.

a. Buyer shall only permit maintenance, repairs, additions, adjustments, or alterations to Equipment be performed by a Third-Party, with the prior written consent of Seller.

b. In the event Buyer effects maintenance, repairs, additions, adjustments, or alterations to the Equipment, Buyer represents, warrants and agrees to use only Seller approved parts and procedures as directed by Seller for the operation of the Equipment. Note that the Buyer makes such maintenance, repairs, additions, adjustments, or alternations at its own risk and such actions may cause Services to such Equipment to be excluded under this Agreement.

15. SOFTWARE AND INTELLECTUAL PROPERTY RIGHTS.

a. All patents, trademarks, service marks, or business names, registered designs, copyrights, design rights, utility models, topography rights, applications to register any of the aforementioned rights, trade secrets, specifications, drawings, technical information, know-how and rights of confidence and any other intellectual or industrial property rights of any nature whatsoever in any part of the world ("IPR") arising under this Agreement, except to the extent that they comprise or incorporate IPR supplied by Buyer, shall, as between the Parties, vest in and be owned by Seller absolutely and Buyer shall acquire no right, title, or interest therein.

b. Any computer program, firmware, or other software forming part of the Equipment or supplied by Seller to Buyer pursuant to this Agreement shall remain the exclusive property of Seller (or its licensee) and such software shall, unless otherwise agreed in writing, be licensed to Buyer under the license terms applicable to the Equipment, software, or systems to which they relate.

c. Unless otherwise indicated, information provided to Buyer via Tech-Link is copyrighted by and proprietary to Seller and may not be copied, reproduced, transmitted, displayed, performed, distributed, sublicensed, altered, stored for subsequent use, or otherwise used in whole or in part in any manner without Seller's prior written consent.

d. NOTHING IN THIS AGREEMENT OR OTHERWISE REQUIRES SELLER EITHER TO DESIGN SOFTWARE UPDATES THAT REMAIN COMPATIBLE WITH DESIGNATED SYSTEMS OR TO PROVIDE ADDITIONAL PLATFORM COMPONENTS, UPGRADES AND UPDATES FOR THE OPERATION OF SOFTWARE UPDATES, AND BUYER WAIVES ANY SUCH DUTY OR OBLIGATION BY SELLER. SELLER SHALL HAVE THE RIGHT TO DISCONTINUE PROVIDING, AT ANY TIME IN SELLER'S DISCRETION, SERVICES IN SUPPORT OF ANY SOFTWARE, OR SOFTWARE UPDATES. NOTWITHSTANDING ANY OTHER PROVISION OF THIS AGREEMENT

e. All applicable Software Updates and Security Updates shall be made available to Buyer Point of Contact. In addition, each Software Update shall contain at least one (1) set of Software Release Notes. In the event any software media incurs damage while being made available from Seller to Buyer Point of Contact, then Seller shall provide replacement(s) to Buyer at no additional charge.

f. Buyer agrees that if it makes any backup copies of any Software Update supplied by Seller, Buyer will reproduce any copyright notice and/or proprietary notice appearing on and/or in such Software Update and will label all copies with all information, including part

numbers and revision levels, provided on the original set of media provided by Seller. Nothing herein grants Buyer any right to sublicense any software included in a Designated System or to distribute copies to any other person or entity, and such sublicensing and distribution is expressly prohibited.

g. Buyer agrees not to modify, enhance or otherwise alter any Software Update unless specifically authorized in the user documentation provided by Seller with such Software Update or unless the prior written consent of Seller is obtained. Under no circumstance shall Buyer create or permit the creation of any derivative work from any Software Update or the reverse engineering or replication of any Software Update.

h. Third-Party Software and Third-Party Support Agreements (relative to the Third-Party Software) will be supported in accordance with the individual manufacturer's provisioning policy. Seller will utilize commercially reasonable efforts to assure Third-Party Software and Third-Party Support Agreements are available for sale to Buyer (at Buyer's expense) to support its Services under this Agreement. Seller shall not be liable to Buyer for Third-Party Software obsolescence or Third-Party Support Agreements unavailability under this Agreement beyond Seller's commercially reasonable efforts. At Buyer's request, Seller shall provide to Buyer an estimate of all charges for any required (and if available) Third-Party Support Agreements or Software of any Software that has become obsolete or unavailable.

i. Nothing herein grants Buyer any right to sublicense any software included as part of the Equipment or to distribute copies to any other person or entity, and such sublicensing and distribution is expressly prohibited.

16. FORCE MAJEURE.

Seller shall not be responsible for delays or failures in performance under this Agreement that are due to causes beyond its reasonable control including, but not limited to a Force Majeure Event as defined in this Agreement. In the event such delays or failures interrupt Seller's Services to Buyer, Seller shall promptly notify Buyer of the circumstances and the anticipated delay. Subject to Seller promptly notifying Buyer in writing of the reason for and, when known, likely duration of the delay, the performance of Seller's obligations, to the extent affected by the delay, shall be suspended during the period that the cause persists provided that Seller shall use all reasonable efforts to avoid the effect of that cause provided that if performance is not resumed within ninety (90) days of that Notice the Buyer may at any time thereafter, but in any event before resumption of obligations by Seller, terminate the affected portion of this Agreement.

17. INDEPENDENT CONTRACTOR.

Nothing herein contained shall be construed to constitute the Parties hereto as partners or joint ventures or the agent of the other Party in any sense of these terms whatsoever, and no Party may act for or bind another Party in any dealings with a Third-Party.

18. "Reserved"

19. "Reserved"

20. WAIVER OF JURY.

By entering into this Agreement, Seller and Buyer hereby expressly waive any rights either Party may have to a trial by jury of any civil litigation related to or arising out of this Agreement.

21. POINT OF CONTACT.

a. Buyer shall appoint two or more individuals to each be a Point of Contact who will interface between the Buyer and its employees and Seller.

b. Buyer shall ensure each Point of Contact is an individual with sufficient technical expertise to be able to interact knowledgeably with Seller's technical support personnel.

c. Names; contact information; and areas of specialty, if applicable, for each Point of Contact will be provided by Buyer and attached as Attachment D ("Point of Contact and Notice"), to this Agreement.

d. Buyer shall provide Notice to Seller of any changes to Point of Contact information and shall submit a new Attachment D ("Point of Contact and Notice") within ten (10) business days of any significant modifications.

22. "Reserved"

23. WARRANTY.

a. Any warranty provided outside this Agreement will take precedence for Equipment covered by such a warranty.

b. SERVICE WARRANTY. ALL SERVICES PROVIDED THROUGH THIS AGREEMENT SHALL BE PERFORMED IN A WORKMANLIKE MANNER. EXCEPT AS SPECIFIED IN THIS SECTION, SELLER HEREBY DISCLAIMS AND BUYER WAIVES ALL REPRESENTATIONS, CONDITIONS, AND WARRANTIES (WHETHER EXPRESS, IMPLIED, OR STATUTORY), INCLUDING WITHOUT LIMITATION, ANY WARRANTY OR CONDITION (A) OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NONINFRINGEMENT, TITLE, SATISFACTORY QUALITY, QUIET ENJOYMENT OR ACCURACY, (B) ARISING FROM ANY COURSE OF DEALING, COURSE OF PERFORMANCE, OR USAGE IN THE INDUSTRY. TO THE EXTENT AN IMPLIED WARRANTY CANNOT BE DISCLAIMED, SUCH WARRANTY IS LIMITED TO NINETY (90) DAYS.

c. BUYER REMEDY. BUYER'S SOLE AND EXCLUSIVE REMEDIES FOR BREACH OF WARRANTY UNDER THIS AGREEMENT SHALL BE, AT SELLER'S OPTION, RE-PERFORMANCE OF THE SERVICES, REMOVAL OF THE AFFECTED EQUIPMENT FROM THE EQUIPMENT LIST, REPLACEMENT OF THE EQUIPMENT AT ISSUE, AS APPLICABLE, MODIFICATION OF THE APPLICABLE SERVICES AND RETURN OF THE PORTION OF THE SUPPORT FEES PAID TO SELLER BY BUYER FOR SUCH NON-CONFORMING SERVICES.

d. REPAIR WARRANTY. ANY REPAIRED OR REPLACEMENT EQUIPMENT FURNISHED THROUGH SERVICES OF THIS AGREEMENT SHALL BE WARRANTED FOR THE REMAINING AND UNEXPIRED PORTION OF THE ORIGINAL WARRANTY PERIOD FOR THAT PART OR EQUIPMENT, OR NINETY (90) DAYS, WHICHEVER IS GREATER. ANY ORIGINAL WARRANTY PERIOD SHALL NOT BE EXTENDED. WHERE A FAILURE CANNOT BE CORRECTED BY SELLER THROUGH COMMERCIALLY REASONABLE EFFORTS, SELLER WILL REFUND TO BUYER THE FEES PAID FOR THE REPAIRED OR REPLACED EQUIPMENT LESS DEPRECIATION.

e. SELLER MAY REPLACE OR REPAIR EQUIPMENT WITH NEW OR SUBSTITUTE PRODUCTS OR PARTS, AT ITS SOLE DISCRETION, BASED ON SELLER' BUSINESS NEEDS.

24. "Reserved"

25. COVERAGE, INTERFERENCE, AND THIRD-PARTY FACILITIES.

Representations concerning the distance at which usable radio signals will be transmitted and received by the Equipment supplied hereunder shall not be binding upon Seller unless reduced to a writing signed by an authorized representative of Seller and made a part of this Agreement. Radio systems are subject to degradation of service from natural phenomena and other causes beyond the reasonable control of Seller such as motor ignition and other electrical noises, and interference from other users assigned to the same or adjacent frequencies. Seller cannot be responsible for interference or disruption of Services caused by operation of other radio systems or by natural phenomena or by motor ignition or other interference over which there is no reasonable control. Such interference and noise can be minimized by addition (at Buyer's expense) of corrective devices adapted for locations and installations. Seller may, at Buyer's request and at Demand Services, investigate interference reported by Buyer, and make recommendations as to the use of such devices; however, total freedom from noise and interference cannot be guaranteed. In the event Buyer utilizes facilities or services supplied by others such as common carrier services or shared services, Seller shall have no responsibility for the availability or adequacy of any such facilities or services.

26. "Reserved"

27. SUBCONTRACTORS.

a. Seller may subcontract Services in whole or in part. Should any subcontractor fail to perform, or their work otherwise proves unsatisfactory by Seller, Seller will arrange for continuing Services or Demand Services by qualified technicians for the duration of this Agreement.

b. L3Harris shall not be liable for any work performed by a subcontractor, unless such subcontractor is performing work under L3Harris' direction and pursuant to a mutually executed agreement between L3Harris and the Customer.

c. During the Term of this Agreement and continuing for a period of two (2) years after, Buyer will not hire, engage on contract, solicit the employment of, or recommend employment to any Third-Party, any employee of Seller, or its subcontractors without the prior written authorization of Seller. This condition applies only to those employees of Seller or its subcontractors who are responsible for rendering Services under this Agreement. Buyer shall not, however, be prohibited from employing any such person who contacts Buyer on his or her own initiative and without any direct solicitation.

28. "Reserved"

29. MERGER/ENTIRE AGREEMENT.

This Agreement is the complete agreement between the Parties concerning the subject matter of this Agreement and replaces any prior implied, oral, or written communications between the Parties. There are no conditions, understandings, agreements, representations or warranties expressed or implied, that are not specified herein.

IV. DEFINITIONS

1. **AMENDMENT.** Means a written order, signed by both Parties, that amends, modifies, or waives any terms and conditions and/or Services of this Agreement.
2. **BUSINESS HOURS**. Means the hours of 8:00 a.m. to 5:00 p.m. local time, Monday through Friday excluding, national, state, and local holidays. Local time and local holidays are based on where the Buyer's site(s) are located.
3. **COMMENCEMENT DATE**. Means the date on which the Term of this Agreement begins as outlined in this Agreement.
4. **CONFIDENTIAL INFORMATION.** Means all pricing, software, technical, and IPR, commercial, financial, proprietary, trade secret, or other information and materials concerning the business and affairs of Seller.
5. **CRITICAL SPARES**. Means the Spare Parts a Buyer is required to have on site at all times.
6. **DEMAND SERVICES**. Means service requests beyond the scope of this Agreement. Demand Services may be performed for an additional cost, as determined by Seller. The installation, maintenance, repair, removal, reinstallation, and/or replacement of equipment not associated with the Services as defined in this Agreement shall be considered Demand Services. Seller has the right to reasonably refuse to provide Demand Services. Work performed outside of Business Hours may be considered Demand Services. Time lost or changes in the Services due to any delay caused by Buyer's action or inaction may be considered Demand Services.
7. **DESIGNATED SYSTEM(S).** Means the Seller system(s) purchased by Buyer and identified in Equipment List. The Designated System does not include excluded products or other systems to which the Designated System may be linked.
8. **DIAGNOSTIC FEE**. Means the fee that is charged if Buyer disapproves charges to repair and/or replace Equipment upon Seller's determination for repair or replacement of Equipment, as per applicable service in Attachment B ("Service Description"). Seller will charge Buyer a Diagnostic Fee based on the repair facility used and return the unrepaired Equipment to Buyer.
9. **EMERGENCY CALLS**. Means calls received by Seller from Buyer for Priority Technical Support (PTS) or Preferred Technical Support, as applicable, because of the Designated System being partially or completely off the air.
10. **EQUIPMENT.** Means the Hardware, Platform, software, and Designated System(s), for which Services are to be provided under this Agreement as identified exclusively and expressly outlined in the Equipment List attached to this Agreement as Attachment A ("Equipment List").
11. **EXCLUDED SERVICES.** Means the services specifically excluded in this Agreement as outlined within the Excluded Services of this Agreement, or other exclusions defined additionally in other parts of this Agreement.
12. **FORCE MAJEURE EVENT.** Means any event or circumstance or combination of events or circumstances that: i) is beyond the reasonable control of the affected Party; ii) could not have been mitigated, avoided, or prevented through the exercise of reasonable care and precautions; and

iii) materially and adversely affects the performance by such Party of all or a part of its obligations under or pursuant to this Agreement. Force Majeure Events include but are not limited to acts of God, acts of government, war (declared or undeclared), insurrection, acts of terrorism, fires, severe weather, floods, earthquakes, epidemics, pandemics (including but not limited to COVID-19), quarantines, strikes, labor disputes, blackouts, embargoes, natural disaster, emergency conditions incompatible with safety or good quality workmanship, invasion, armed conflict or act of foreign enemy, blockade, revolution, rebellion, riot, civil commotion, sabotage; radioactive contamination or ionizing radiation; labor or material shortages that could not have been reasonably foreseen; any changes in law, including changes in tax laws; any lightning, hurricane, drought, tsunami, monsoon, tempest, storm, cyclone, volcano, mudslide, typhoon, tornado, or other unusually severe weather or act of nature; explosion or chemical contamination; any blight, famine, plague; any transportation accidents; suspension of flight operations due to inclement weather; delays of suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both Seller and its supplier, or any similar unforeseen event that renders performance commercially implausible.

13. **HARDWARE**. For purposes of this Appendix D, Hardware shall mean, collectively, the Terminals and Infrastructure Hardware.
14. **INFORMATION ASSURANCE VULNERABILITY MANAGEMENT (IAVM) ASSESSMENT**. Means an assessment made by an Seller security technician on the Equipment to determine if applicable IAVMs have been applied.
15. **INFRASTRUCTURE.** Means the i) Radio Frequency (RF) site (consisting of only a duplexer, combiner, multicoupler, channels, Internet Protocol (IP) channel routers with interface cards, Network Sentry, Unified Audio Card (UAC), and Mini-Mobility Exchange (MME); ii) the dispatch site (consisting of only IP consoles, IP console switches, IP console routers, IP console internal interface cards, and IP console power supplies; or iii) VIDA Core equipment (consisting of only the VIDA Core IP server, storage array, IP router, backup device, firewall, fault management data collection device, and network management pc interface). Infrastructure and respective quantities are specifically itemized in the Equipment List.
16. **INFRASTRUCTURE HARDWARE.** For purposes of this Appendix D, Infrastructure Hardware shall mean the equipment, goods, and materials for the Infrastructure.
17. **SELLER LICENSED PROGRAMS**. Means all Seller software programs and associated documentation nonexclusively licensed to Buyer by Seller for use solely with the Designated System(s).
18. **NON-SELLER INFRASTRUCTURE.** Non Seller Infrastructure may comprise of the following: microwave or data transport system components (such as microwave, fiber, multiplexors, and routers), logging recorders, timing receiving or generation systems, towers, tower top amplifiers, shelters, fences, landscaping, dehydrators, fuel tanks, alternating or direct current power systems (uninterruptible power supply (UPS), bi-directional amplifiers (BDAs), monitors, inverters, converters, generators, or feeds), heating ventilation air conditioning (HVAC), fire suppression, and/or other environmental monitoring or affecting systems. Non-Seller Infrastructure and respective quantities for which Services will be provided are specifically itemized in the Equipment List.
19. **ON-SITE CORRECTIVE MAINTENANCE**. Means investigation of a Buyer-reported problem at Buyer's location after remote diagnostics are made and repair or replacement of Equipment, if necessary, using Buyer purchased Spare Parts.
20. **OPERATING SYSTEM PATCHES**. Means modifications made by vendors of Third-Party Software Products to address issues or provide Security Updates.

21. **OPERATING SYSTEM PATCH DISTRIBUTION**. Means providing Operating System Patches to which the Buyer is entitled under this Agreement for the Security Update Management Service (SUMS+), if applicable.
22. **PLATFORM.** Means the Infrastructure Hardware in combination with the operating system.
23. **POINT OF CONTACT**. Means the person(s) identified in this Agreement., as designated by the Buyer. The Point of Contact will be the primary interface between Buyer's employees and Seller.
24. **PREVENTIVE MAINTENANCE**. Means tests, checks, and alignment on Buyer's Equipment to ensure that the Equipment meets the specifications of each Equipment's manual.
25. **RESPONSE TIMES**. Means the expected timeframe for Seller to respond to an unscheduled system problem or outage event as described in the applicable Attachment B ("Service Descriptions").
26. **SECURITY TECHNICAL IMPLEMENTATION GUIDE (STIG).** Means a methodology for standardized secure installation and maintenance of computer software and hardware.
27. **SECURITY UPDATES**. Means updates to software meant to mitigate, address and/or resolve product security vulnerabilities in system components offered by Seller. These updates include Vendor Patches and/or Vendor Work-Arounds. Third-Party Software Product remediations and security policy updates provided by VIDA Secure Sentry, as applicable.
28. **SECURITY UPDATE DISTRIBUTION.** Means providing Security Updates to which the Buyer is entitled under this Agreement and the VIDA Secure Sentry Installation, as applicable.
29. **SERVICE(S).** For purposes of this Appendix D, Service(s) shall mean Services to be provided by Seller, as identified and limited in the Section I. ("Scope"), Section II. ("Services"), and more specifically described in Attachment B ("Service Descriptions"), to be performed on Equipment identified on the Equipment List, as applicable.
30. **SOFTWARE RELEASE NOTES.** Means a set of notes provided by Seller detailing the contents of the Software Update or Operating System Patches, as applicable, and providing installation instructions, as applicable.
31. **SOFTWARE UPDATES**. Means Seller provided Software Updates for Seller Licensed Programs available for corrections, modifications, or minor enhancements to software for Equipment under this Agreement, including enhancements and/or corrections to existing features for the Equipment.
32. **SPARE PART(S).** Means additional parts required to complete repairs of the Equipment.
33. **SUMMARY REPORT.** Means communication to indicate action taken in a report to be provided to Buyer within the frequency and intervals, and as exemplified under the applicable Attachment B ("Service Descriptions") for Services, or in another format as determined by Seller.
34. **SUPPORT FEES.** Means the amounts listed in Section II. ("Services") in USD.
35. **SYSTEM ADMINISTRATION.** Means maintaining the Unified Administration System (UAS) database of radio terminals authorized to operate on Buyer's system by adding, deleting, and/or modifying radio terminals from UAS and initiate radio terminal Disable/Enable commands as necessary, and as requested by Buyer.
36. **SYSTEM RELEASE.** Means a specific combination of Platform, software, and operating system.
37. **TAC**. Means the Seller Technical Assistance Center.
38. **TECH-LINK.** Means the technical information section of Seller's web site. Access is restricted to authorized subscribers via a user ID and password login.

39. **TERMINALS**. Means mobile radios, portable radios, control stations, vehicle repeaters, or back up dispatch radios that consist of mobile or portable radios as their prime radio transmitter. Terminals and respective quantities are specifically itemized in the Equipment List.
40. **THIRD-PARTY(IES).** Means any entity other than Seller that provides products or services to Buyer, whether managed by or processed through Seller.
41. **THIRD-PARTY SOFTWARE PRODUCTS**. Means software owned by a party other than Seller excluding Original Equipment Manufacturer software licensed by Seller to Buyer as part of the software.
42. **THIRD-PARTY SUPPORT AGREEMENT(S)**. Means Third-Party agreements provided by Third-Party to provide technical support for their Third-Party products whether hardware or software. These Third-Party Support Agreements allow for installation of Operating System Patches within the Designated System and are required in order for Buyer to receive SUMS+, SMS, and VIDA Secure Sentry services, as applicable.
43. **VENDOR PATCHES**. Means software patches provided by Third-Party software vendors that mitigate, address and/or resolve issues with their provided software.
44. **VENDOR WORK-AROUNDS.** Means configuration and/or procedural changes provided by Third-Party software vendors that mitigate, address and/or resolve issues with their provided software.

ATTACHMENT A
EQUIPMENT LIST

The Services will apply for the following Equipment:

INFRASTRUCTURE

QTY	DESCRIPTION
3	Simulcast Sites, 15 channels each
1	VIDA Premier Core
41	Consoles in three (3) locations
41	Backup Radios at Consoles
2	Pathway+ Plus Interop Gateways

Where applicable, the Designated System will be defined as the following Seller Infrastructure:

DESIGNATED SYSTEM

SYSTEM NAME	SYSTEM CLASSIFICATION
VIDA	P25 Trunking System

SITE LOCATIONS

QTY	DESCRIPTION
1	Region 1
2	Region 2
3	Region 3

Seller Managed Services Packages

PREMIUM TECHNICAL SUPPORT (PTS) (Infrastructure Only)

1. Service Description. Provides technical assistance to answer questions and help resolve issues. Provides support renewals for Third-Party software licenses as needed to provide the Services, and support renewals for server and networking equipment used in the Designated System.
2. Service Request. Buyer's Point of Contact shall follow Section III.7 ("Service Request Procedure"), and specifically call Seller's Technical Assistance Center (TAC) at 1-800-528-7711 or email PSPC_TAC@Seller.com.
3. Levels of Technical Assistance Support:
   a. Level 1 First Line Support. Means telephone helpdesk or answer center receiving Buyer's inbound Service Requests via phone, web forms, or email. Seller service representatives log, categorize, prioritize, and route incidents reported by Buyers and can implement basic, documented break-fix tasks.
   b. Level 2 Second Line Support. Means troubleshooting of Service Requests via Seller documented processes and workflows and maintaining a Run-Book which is used to record Service Requests, resolutions, and assists in collaborating with any other support or dependency groups in case the incident has linkage to other support personnel or outside vendors.
   c. Level 3 Third Line Support. Means detailed troubleshooting of Service Requests by Seller technical experts who resolve issues that are typically difficult or subtle; participate in management, prioritization, minor enhancements, break fix activities, problem management, stability analysis; subject matter experts in technology platforms. If a fix involves a major enhancement or a development, the problem is transferred to Seller engineering. Seller engineers may require root or administrator access to the Designated System.
   d. Level 4 Product and Vendor Support. Means direct support by Seller or vendor product architects, engineers, software developers, or hardware designers. The Service Request escalation process may involve product bugs, detailed configuration requirements, or other expert level guidance. Level 4 support is subject to the limitations of Third-Party Support Agreements and as indicated under the General Terms and Conditions section of this Agreement.
4. Seller Responsibilities:
   a. Provide Buyer with 24x7x365 Level 1 First Line Support through Level 4 Product and Vendor Support for resolving issues with the Equipment.
   b. Respond to non-Emergency Calls within two (2) hours from the time of Service Request
   c. Respond to Emergency Calls within one (1) hour from the time of Service Request.
   d. Provide Buyer with access to Tech-Link.
   e. Manage Third-Party Equipment and software subscription services and licenses to ensure Buyer can receive, as applicable, Security Updates, Operating System Patches, Level 3 Third Line Support, and Level 4 Product and Vendor Support for Third-Party Equipment and its software as included in the Equipment List. Subject to the limitations of Third-Party Support Agreements and as indicated under the General Terms and Conditions section of this Agreement, this includes the purchase of Third-Party software subscription renewals and software licenses when necessary to provide the Services. Additionally, this includes the purchase of support renewals for server and networking equipment used in the Designated System.

f. Provides new versions of Third-Party software applications as part of Premium Technical Support (PTS) when installation of Software Updates requires a new version of Third-Party software application.
g. Coordination with On-site support services, as necessary. On-site support services are not included in Premium Technical Support but may be purchased by the Buyer as Demand Services.

STANDARD REPAIR SERVICES (Terminals and Infrastructure, as applicable)

1. Service Description. Provides factory/depot repair services for the Equipment. Standard repair completion is in approximately ten (10) business days.

2. Service Request.
   a. Buyer's Point of Contact shall initiate a Return Material Authorization ("RMA") request for repair services through the online portal at Seller.com or by calling Seller at 1-800-368-3277.
   b. A Return Material Authorization ("RMA") will be provided to Buyer within two (2) business days from the date of receipt of Buyer's RMA request.
   c. Buyer shall follow the instructions listed on the RMA. Buyer shall ship, at Buyer expense, the Equipment to the address specified in the RMA. Buyer shall include a copy of the RMA form inside the box, and clearly display the RMA number on the outside of the box containing the Equipment.
   d. Buyer shall pack Equipment adequately to prevent damages during transit and bear the risk of damage during transit. Equipment damaged during transit will be returned to Buyer un-repaired and may incur a Diagnostic Fee. If Buyer wants multiple items listed on a single RMA to be returned together, Buyer must specifically request a complete shipment from Seller.
3. Schedule for Standard Repairs.
   a. Standard repairs will be completed in approximately ten (10)* business days for Seller Equipment, and approximately thirty (30) business days for Third-Party Equipment from the date of receipt of the Equipment.
   b. If Buyer wants the Equipment repaired sooner than the estimated dates within this Section, the Buyer must contact Seller for additional options which may result in additional charges.
4. Seller Responsibilities:
   a. Notify Buyer if any Equipment, received from Buyer, appears damaged during shipment or is missing.
   b. Verify the Equipment received against Buyer submitted RMA.
   c. Perform a visual inspection and operational check on Equipment to determine nature of the problem and repairs required.
   d. Make the required repairs and test the functionality of the repaired Equipment or manage the repair through the Third-Party manufacturer, if applicable.
   e. Package, ship, and return the repaired Equipment to Buyer, at Seller's expense, as the Equipment is repaired.
   f. Provide a Summary Report similar to the example below, or another format as determined by Seller:

WO No.	Date	Problem	Resolution	Resolution Date
123456	7/4/2021	No card communication.	Corrupt software. Reloaded. Passed communication tests.	7/4/2021

   g. Ship multiple Equipment listed on a single RMA together only if Buyer specifically requests complete shipment.
   h. Pack outbound shipments properly and bear the responsibility for damage that occurs prior to delivery to Buyer.

5. Buyer Verification. At Buyer's expense, Buyer shall reinstall and validate operation of repaired Equipment.
6. Non-Standard Repair.
   a. Seller may determine, in its sole discretion that the repair of Equipment is not within the scope of Services of this Agreement. This may be due to the unavailability of parts, equipment or part obsolescence; or because the services needed are Excluded Services, as described in Section III. 5 ("Excluded Services");
   b. If Seller determines, for the reasons set forth above, that Equipment is not within the scope of this Agreement, Seller shall determine and provide to Buyer an estimate of additional time required and either i) all additional charges required to perform repairs or ii) the cost to replace the Equipment.
   c. If Buyer approves the additional charges, the repaired or replacement Equipment shall be shipped to Buyer. If Buyer disapproves the additional charges, Seller will charge a Diagnostic Fee and return the unrepaired Equipment to Buyer.

ANNUAL PREVENTIVE MAINTENANCE, STANDARD (Infrastructure, as applicable)

1. Service Description. Includes regularly scheduled tests, checks, and routine alignments of the Infrastructure Equipment. Inspect, clean, and tune-up Seller portable and mobile Terminals to FCC specifications.
2. Service Request. To initiate this Service, Buyer's Point of Contact shall follow Section III.7
3. ("Service Request Procedure"), and specifically call their Regional Service Manager listed in Attachment D ("Point of Contact and Notice").
4. Seller Responsibilities:
   a. Provide Buyer with a Preventive Maintenance Business Hours schedule and approximate Equipment outage times (if any).
   b. Perform Preventive Maintenance on the Equipment based on Seller's best practices and in accordance with the Preventive Maintenance Table(s).
   c. Provide Buyer with a Summary Report in the format shown in the Table(s) below, or another format as determined by Seller.

INFRASTRUCTURE PREVENTIVE MAINTENANCE TABLE

Technician _____ Date _____

	PREVENTIVE MAINTENANCE (IF APPLICABLE & AS NECESSARY)	PERIOD	PASS FAIL	
GENERAL	Check RF, data and audio cable condition	Annual		
	Check general alarm status, troubleshoot and investigate any found alarm conditions	Annual		
	Check condition of punch blocks	Annual		
	Perform a general talkgroup test	Annual		
	Perform a multisite test	Annual		
	Perform an individual call test	Annual		
MASTR V BASE STATION (Manual MM-017079-001)	Check simulcast timing, adjust	Annual		

	PREVENTIVE MAINTENANCE (IF APPLICABLE & AS NECESSARY)	PERIOD	PASS FAIL	
	Check transmitter RF power output doesn't exceed station authorization	Annual		
	Check transmitter frequency stability is within correct ppm of specification	Annual		
	Check modulation deviation is within correct kHz of specification	Annual		
	Check Receiver BER	Annual		
	Verify alarm functionality	Annual		
	Check call processing, each channel	Annual		
	Clean physical filters	Annual		
	Inspect RF lines	Annual		
	Inspect audio and data cables for snug connection	Annual		
	Verify control channel operation and rolling	Annual		
	Perform power supply voltage checks	Annual		
GPS RECEIVERS	Verify GPS sync	Annual		
	Verify alarm functionality	Annual		
	Verify battery functionality	Annual		
	Check power supply voltage	Annual		
NETWORK	Check and verify RNM alarms	Annual		
	Inspect Ethernet cables	Annual		
	Check MPLS router voltage	Annual		
	Check MPLS router cables	Annual		
	Check MPLS router alarms	Annual		
	Check dual CPU operation	Annual		
	Check servers for dust	Annual		
CONSOLES	Check console link to VNIC	Annual		
	Check RF, data and audio cable condition	Annual		
	Verify operation of touch screen monitor	Annual		
	Check and clean keyboard	Annual		
	Verify CD drive functional	Annual		
	Verify console basic call functionality	Annual		
	Check select and unselect speaker audio output for clarity	Annual		
CONSOLE ACCESSORIES	Check microphone, headset jacks, foot switches for condition and functionality	Annual		
PAGING UNIT	Check functionality	Annual		

	PREVENTIVE MAINTENANCE (IF APPLICABLE & AS NECESSARY)	PERIOD	PASS FAIL	
CALL DIRECTOR	Check functionality	Annual		
ISSI	Check functionality	Annual		
	Check for alarms	Annual		
NSS	Verify high availability (HA) functionality	Annual		
	Check for alarms	Annual		
	Check servers for dust	Annual		
	Check servers are operating on most current software revision	Annual		
	Check BeOn functionality	Annual		
FIBER RING	Verify fiber ring switching functionality	Annual		
	Check condition of fiber cables	Annual		
	Check fiber connection unit for alarms	Annual		
VIP CONSOLES	Check for system connectivity	Annual		
	Verify cd drive functional	Annual		
	Verify console basic call functionality	Annual		
	Check select and unselect speaker audio output for clarity	Annual		
	Check microphone, headset jacks, foot switches for condition and functionality	Annual		
	Perform Symphony console hardware inspection and disk clean-up	Anual		

ANNUAL PREVENTIVE MAINTENANCE, ENHANCED (Infrastructure Only)

1. Service Description. Provide the below additional Preventive Maintenance included and made part of the Preventive Maintenance Table listed under the Preventive Maintenance section of this Agreement.
   a. Validate system redundancy by switching cores while in operation
   b. Perform simulcast Distributed Control Point failover testing
   c. Tune and align analog and paging system base stations
   d. Archive Activity Warehouse data to Customer provided off-line storage
   e. Archive logging recorder call records to Customer provided off-line storage
   f. Perform Symphony console hardware inspection and disk clean-up

RAPID RESPONSE SERVICE LEVEL AGREEMENT (SLA) (Infrastructure Only)

1. Service Description. Provides enhanced on-site response 24x7x365 to On-Site Corrective Maintenance as defined within this Agreement.

2. Service Request.
   a. System Notification: Equipment may directly, or through an alarm monitoring system, determine there is an active alarm that requires immediate attention and notifies a Seller technician. Seller technician will self-dispatch or will notify the on-call technician of the issue. Seller technician will notify Buyer's Point of Contact of the issue and will advise time of call initiation and estimated next steps.
   b. Self-Notification: Seller technician aware of an issue through use or other activities related to the Equipment will self-dispatch or will notify the on-call technician of the issue. Seller technician will notify Buyer's Point of Contact of the issue and will advise time of call initiation and estimated next steps.
   c. Buyer Notification: Buyer's Point of Contact will contact Seller to initiate a Service Request per the Escalation Plan and Response Matrix.
   d. Buyer shall provide the following information when initiating a Service Request:
      i. Severity Level as per the Response Matrix.
      ii. Problem description and site location.
      iii. Information regarding Group ID, Unit ID and functionality impacted.
      iv. Provide contact information and location of user reporting issue, and time experienced.
      v. Other pertinent information requested by Seller.
3. Seller Responsibilities:
   a. Provide 24x7x365 on-call system technicians that are trained, experienced and qualified and who will respond based on the Response Matrix shown below.
   b. On-call technician will receive notification of system issues by one of the following: System Notification, Self-Notification, or Buyer Notification.
4. Escalation Plan:
   a. Step 1
      i. Technician: Buyer's Point of Contact will notify Seller on-call technician by placing a call to the Designated Personnel, identified in Attachment D ("Point of Contact and Notice").
      ii. If after the Response Time listed in the Response Matrix the Seller on-call technician has not responded to the Buyer's call, Buyer will re-initiate the call to the Step 1 number again.
      iii. If after five (5) more minutes the Seller on-call technician has not responded to the Buyer's call, Buyer will proceed to Step 2.
   b. Step 2
      i. Supervisor: Buyer will call the Supervisor, identified in Attachment D ("Point of Contact and Notice").
      ii. If after fifteen (15) minutes the Supervisor has not responded to the Buyer's call, Buyer will proceed to Step 3.
   c. Step 3
      i. Regional Service Manager: Buyer will call their Regional Service Manager, identified in Attachment D ("Point of Contact and Notice").
      ii. If after fifteen (15) minutes the Regional Service Manager has not responded to Buyer's call, Buyer will proceed to Step 4.
   d. Step 4
      i. Director of Field Services: Buyer will call the Director of Field Services, identified in Attachment D ("Point of Contact and Notice").

5. 24x7x365 Response Matrix:

SEVERITY LEVEL	TYPE OF EQUIPMENT	RESPONSE TIME
Severity Level 1 (Major Failures)	➢ Any site inoperable. ➢ 25% of system switches inoperable. ➢ 25% of site channels inoperable. ➢ 25% of dispatching capability is inoperable. ➢ Any major alarm that is leading to an inoperable state of 25%.	Within one (1) hour 24x7x365 to remotely respond to the problem. Arrive on site, if necessary, within eight (8) hours.
Severity Level 2 (Moderate Failures)	➢ Significant System Impairment greater than 5% of system down and not to exceed 25% of system down. ➢ System problems presently being monitored. ➢ This level is meant to represent a moderate issue that limits by greater than 5% a Buyer's normal use of the system, sub-system, product, or major non-critical features.	Within two (2) hours of the next business day remotely respond to the problem. Travel on site if necessary.
Severity Level 3 (Non-Emergency)	➢ Minor alarms that do not prevent or prohibit use of Equipment. ➢ Operational, parts, and configuration questions. ➢ Site environmental alarms. ➢ Intermittent problems being reviewed or monitored that are not resulting in a Severity Level 1 or Level 2 issue. ➢ Scheduled or routine maintenance. ➢ Administrative issues. ➢ Preventive maintenance protocol or questions.	Next Business Day Within the next business day, begin to remotely interrogate the problem and arrive on site, if necessary.

6. Technician efforts to repair, maintain, replace, or modify Buyer equipment or functionality are part of and defined in On-Site Corrective Maintenance.

SECURITY UPDATE MANAGEMENT SERVICES (SUMS+) (Infrastructure Only)

1. Service Description. Provides periodic Operating System Patches, as available, and as described below to mitigate identified software vulnerabilities.
2. Service Request. No Service Request is needed. Seller shall notify Buyer when Operating System Patches are available. For additional SUMS+ related Services, Buyer's Point of Contact may contact TAC by calling 1-800-528-7711.
3. Seller Responsibilities:
   a. Provide periodic Operating System Patches, as available, and as described below to mitigate identified software vulnerabilities. Operating System Patches will contain at least one (1) set of Software Release Notes. Operating System Patches will include patches for the Third-Party operating systems used in the Infrastructure.
      i. Operating System Patches Upon Enrollment. As determined by a system configuration baseline and documentation audit performed by Seller, Seller shall provide to Buyer the Operating System Patches required, if any, to bring the Seller Operating System

Patches within the Designated System(s) up to Seller current levels. This excludes updates to new versions of Third-Party Software Products. New versions of Third-Party Software Products are included as part of PTS Service Description. Buyer will be required to have current license, services, and/or support agreement(s) with Third-Party vendor(s) which allow for installation of Operating System Patches within the Designated System. Seller shall assist Buyer in obtaining necessary Third-Party Support Agreements through PTS. Any additional cost to secure these Third-Party Support Agreements is the sole responsibility of the Buyer.

ii. Subsequent Operating System Patches. During the Term, Seller shall provide Operating System Patches to Buyer for Third-Party operating system software included in the Designated System.

b. Monitoring. Seller uses reasonable efforts to monitor pertinent governmental, vendor, independent sources, and open source information databases to identify vulnerabilities and subsequent resolutions applicable to Third-Party operating systems used by the Designated System(s). Seller shall identify and document latest known system vulnerabilities and compliance issues discovered and provide a status and recommendations report via Tech-Link.

c. Operating System Patches Pretest. Operating System Patches are tested on dedicated security verification test systems to ensure proper system operation prior to general release.

d. Delivery. Operating System Patches shall be provided to the Buyer Point of Contact.

i. Operating System Patches are electronically distributed to target devices via a client-server application running within the Designated System(s). This application provides the full scheduling capabilities should an application restart or server reboot be necessary to complete the update process.

ii. Telephone support is available through TAC, with respect to the installation of Operating System Patches.

iii. On-site support for installation is not included in SUMS+ but may be purchased by the Buyer. See SUMS+ Installation.

4. Limitations. Operating System Patches provided by Seller are limited to Seller's current and current minus one System Release levels, therefore, Buyer may be required to purchase and install, at Buyer's expense, additional or upgraded Hardware or software in order to take full advantage of Operating System Patches. NOTHING IN THIS AGREEMENT OR OTHERWISE REQUIRES SELLER TO PROVIDE OPERATING SYSTEM PATCHES THAT REMAIN COMPATIBLE WITH DESIGNATED SYSTEM HARDWARE OR TO PROVIDE ADDITIONAL HARDWARE UNDER THIS AGREEMENT.
5. Buyer Delegation. Buyer hereby delegates, grants, and assigns to Seller, acting as the Buyer's agent, all approval rights relating to the selection of Operating System Patches. All approvals given to Third-Party vendors by Seller shall be deemed as being granted by the Buyer.

SUMS+ INSTALLATION (Infrastructure Only)

1. Service Description. Manages the installation of SUMS+ Operating System Patches on a periodic basis.
2. Service Request. To initiate this Service, Buyer's Point of Contact shall follow Section III.7. ("Service Request Procedure"), and specifically call their Regional Service Manager listed in Attachment D ("Point of Contact and Notice").
3. Seller Responsibilities:
   a. Install the Operating System Patches.
   b. Provide Buyer with a Business Hours installation schedule and approximate Equipment out of service periods (if any).
   c. Provide labor (during Business Hours) to install SUMS+ Operating System Patches.

d. Provide Buyer with a Summary Report in the format shown below, or another format as determined by Seller:

WO No.	Date	Task	Description	Completion Date
123456	7/4/2021	Operating System Patches received.	Loaded new Operating System Patches per release notes.	7/4/2021

4. Exclusions:
   a. This SUMS+ Installation Service does not include upgrade or update efforts requiring network engineering, design engineering, configuration engineering, system engineering, program management, or full software installation or software implementation or major system upgrades requiring component or hardware updates or upgrade. Not included in Operating System Patches are system updates from any previously released Operating System Patches. Upon request for these updates, software installation services, or any services requiring network engineering, design engineering, configuration engineering, system engineering, or program management services, Seller will provide a detailed quote for Buyer to purchase separately.

SOFTWARE MANAGED SERVICES (SMS) (Terminals and Infrastructure, as applicable)

1. Service Description. Provides periodic Software Updates to Seller Licensed Programs.
2. Service Request. No Service Request is needed. Seller shall notify Buyer when SMS are available. For additional SMS related Services, Buyer's Point of Contact may contact TAC by calling 1-800-528-7711.
3. Seller Responsibilities:
   a. Deliver Software Updates electronically to Buyer's Point of Contact and make available for download by Buyer unless Buyer requests and it is mutually agreed to provide the Software Update in another format. Hardware purchases or upgrades, at Buyer's expense, may be necessary for Buyer to fully implement the Software Updates.
   b. Provide at least one (1) set of Software Release Notes.
   c. Provide replacements to Buyer at no additional charge, for any software media that incurs damage during shipment.
   d. Make available system level release documentation, prior to the general release of a major System Release by Seller for Seller Licensed Programs, announcing the impending release, and detailing its contents and impact, if any, on any other Seller Hardware or software components.
4. Compatibility with Hardware. Buyer acknowledges that Software Updates may not operate on older hardware. NOTHING IN THIS AGREEMENT OR OTHERWISE REQUIRES SELLER EITHER TO DESIGN UPDATES THAT REMAIN COMPATIBLE WITH DESIGNATED SYSTEM HARDWARE OR TO PROVIDE ADDITIONAL HARDWARE UNDER THIS AGREEMENT.
5. System Configuration Baseline and Documentation Update. As part of the initial enrollment process, Seller may deem it necessary to conduct a system audit of the Designated System(s) to be covered under this Agreement. If said audit is required, audit will be conducted and used to verify Buyer's first-year SMS fee and to determine the System Release levels for L3 Harris Licensed Programs contained within the Designated System at the time of enrollment, together with any Hardware updates necessary to accommodate Software Updates. Buyer may incur additional costs for modifications or updates required to initiate the SMS.
6. Installation Phone Support. Buyer may use TAC telephone support with respect to the installation of Software Updates.

7. Tech-Link. Buyer, through the Buyer Point of Contact, will have access to Tech-Link via a user ID and password authorization to access release documentation and downloadable distribution media.
8. Services Not Included. Unless Obsolescence Protection and/or Planned Network Upgrade, as applicable, are purchased by Buyer (See Section II. Services, of this Agreement), Hardware upgrades, are not included within the scope of this Agreement.
   a. If a Software Update requires a corresponding Hardware change, Buyer will be required to separately purchase the compatible Hardware to fully install and utilize the Software Update. Seller will endeavor to notify Buyer in advance of any Hardware changes needed to implement a Software Update, via the system-level release documentation or other reasonable method of communication from Seller.
   b. The installation of Software Updates may require a new version of one or more Third-Party software applications which new versions of Third-Party software applications are not included as part of SMS.

SMS INSTALLATION (Terminals and Infrastructure, as applicable)

1. Service Description. Manages the installation of SMS Software Updates on a biennial basis.
2. Service Request. To initiate this Service, Buyer's Point of Contact shall follow Section III.7. ("Service Request Procedure"), and specifically call their Regional Service Manager, identified in Attachment D ("Point of Contact and Notice").
3. Seller Responsibilities:
   a. Install the Seller Software Updates once every twenty-four (24) months during the Term of this Agreement.
   b. Provide Buyer with a Business Hours installation schedule and approximate Equipment out of service periods (if any).
   c. Provide labor (during Business Hours) for SMS installation per Seller Licensed Software Update installation process.
   d. Provide Buyer with a Summary Report as part of the installation of SMS Software Updates as exemplified below, or another format as determined by Seller:

WO No.	Date	Task	Description of Software Package	Completion Date
123456	7/4/2021	Software Update received.	Loaded new software per release notes.	7/4/2021

4. Exclusions:
   a. This SMS Installation Service does not include upgrade or update efforts requiring network engineering, design engineering, configuration engineering, system engineering, program management, or full software installation or software implementation or major system upgrades requiring component or hardware updates or upgrade. Not included in Software Updates are system updates from any previously released software update. Upon request for these updates, software installation services, or any services requiring network engineering, design engineering, configuration engineering, system engineering, or program management services, Seller will provide a detailed quote for Buyer to purchase separately.

NETWORK OPERATIONS CENTER (NOC) MONITORING (Infrastructure Only)

1. Service Description. Provides real-time 24x7x365 observation of the Equipment. NOC provides quick identification of network issue and services to work with Customer to create a corrective action plan.
2. Service Request. No Service Request is needed. L3Harris will notify Customer's Point of Contact to coordinate and specifically contact the NOC as listed in Attachment D ("Point of Contact and Notice").
3. L3Harris Responsibilities:

a. Monitor L3Harris Equipment alarms connected to the Regional Network Manager ("RNM") on a 24x7x365 basis as follows:
   i. L3Harris LMR Components
   ii. RF, Multisite, Simulcast, Dispatch Equipment
   iii. Consoles, Gateways, NSS Equipment Servers
   iv. Network Infrastructure provided with the Designated System(s), all as listed on the Equipment List.
b. Support up to sixteen (16) Business Hours for initial setup up of a network interface from the Customer System to the NOC via a secure connection.
c. Initiate a work order number, upon detection of a system alarm condition per the NOC Response Matrix, and notify Customer's Point of Contact to coordinate initiation of dispatch of a local technician who will provide alarm status and escalation per the mutually approved notification, dispatch, and escalation plan, and document RNM alarm activity, date/time of alarm, actions taken, and results of those actions using Advanced Management Maintenance System incident logging that provides:
   i. Accurately documented data pertaining to the current issue
   ii. Comparison of current incident against past occurrences to assist with troubleshooting
   iii. Real time email notifications to appropriate personnel customized to specific equipment
   iv. Real time web access to view work order status
d. Provide Customer with a Summary Report as part of the reporting cycle in a format determined by L3Harris.

4. Customer Responsibilities:
   a. Provide IT support and meet technical specifications for Generic Routing Encapsulation Tunnel termination at Routers and Firewalls, as required.
   b. Provide a virtual private network or alternative network interface connections meeting L3Harris requirements of speed, throughput, latency, and reliability of connection for all systems.
   c. Provide all necessary licensing and software for Equipment to connect to the RNM and be monitored by the L3Harris NOC.
   d. Provide L3Harris with Customer information before commencing NOC Services, which includes but are not limited to: i) issue notification preferences and procedure; ii) repair process and procedure; iii) L3Harris approved notification process and procedure documentation; iv) L3Harris approved RNM and ENM alarm mapping and reporting requirement information for entire system.

CYBERSECURITY ASSESSMENTS (Infrastructure Only)

1. Service Description. Provides an annual on-site assessment/evaluation of the Buyer's system by a member of the Seller cybersecurity team to check for vulnerabilities and compliance with Seller security best practices. A Cybersecurity Report will be delivered to the Buyer, which can be used to guide system security enhancements.
2. Service Request. Service request is not necessary because this is an annual service.
3. Seller Responsibilities:
   a. Audit software and related Hardware within the Equipment.
   b. Perform Resultant Set of Policy audits on Microsoft Windows devices.
   c. Perform system-wide cybersecurity vulnerability scan and SCAP Compliance Checker
   d. automated audits using current STIG baselines.
4. Buyer Responsibilities:
   a. Provide Seller cybersecurity team members unrestricted access to all system components for the duration of the Cybersecurity Assessment.
   b. Ensure that Seller is familiar with the facility and safety and health related requirements.

c. Receive Cybersecurity Report as acknowledgement of Seller's findings and recommendations within the report, constituting Seller's completion of task.

5. Cybersecurity Report.
   a. Provide a written Cybersecurity Report on findings which may contain:
      i. Identification of System hardware and software versions
      ii. Resultant Set of Policy audit results
      iii. System-wide vulnerability scan results and recommended remediations
      iv. SCAP Compliance Checker audit results and recommended remediations
      v. An architecture review and recommendations for bringing the current LMR system up to currently supported hardware and software versions
   b. Deliver Cybersecurity Report within thirty (30) days from the completion of Cybersecurity Assessment. The exact delivery schedule shall be coordinated with Seller and the Buyer.

VIDA SECURE SENTRY (Infrastructure Only)

1. Service Description. Provides quarterly network cybersecurity technical guidelines (publicly available STIGs), policy, and software updates for those Third-Party Software Products previously provided by Seller to Buyer and included in the Equipment in Buyer's
2. Designated System, as identified in the Equipment List.
3. Service Request. Service Request is not necessary because this is a quarterly service.
4. Seller Responsibilities:
   a. Obtain Vulnerability Management Program Alerts and Bulletins issued by the Department of Defense Computer Emergency Response Center (DoD-CERT).
   b. Use the information in the DoD-CERT Vulnerability Management Program Alerts and Bulletins to determine applicable remediation efforts to be included in the quarterly release.
   c. Maintain a Plan of Action and Milestones (POA&M) for any outstanding Information Assurance Vulnerability Management (IAVM) Alerts, Bulletins and corresponding updates not yet included in the release.
   d. Schedule IAVM Assessments, as determined by Seller and coordinated with Buyer.
   e. Obtain relevant Third-Party Software Product Security Updates when made available from Third-Party Software Product vendors. Seller does not control when these updates release, but current release schedules are listed below for reference purposes only. These may include:
      i. McAfee Antivirus definitions – Every 60 days (SUMS+)
      ii. Workstation and Server OS patches – Every 60 days (SUMS+)
      iii. DoD Public Use Security Technical Information Guides (STIGs) – Quarterly (VIDA Secure Sentry)
      iv. DoD Certificate Store – Quarterly (VIDA Secure Sentry)
      v. VMware hypervisor patches – Every 60 days (SUMS+)
      vi. CISCO patches – Quarterly (VIDA Secure Sentry)
      vii. Other Third-Party Software Products – Quarterly (VIDA Secure Sentry)
   f. Test security updates to determine whether they degrade or compromise system functionality on a dedicated VIDA test system within standard supported configurations.
   g. Address issues identified during testing to support functionality under the procedures specified above by working with Seller selected commercial suppliers and/or Seller product development teams.
   h. Test STIG-recommended security policy updates, when applicable.
   i. Release tested updates to Tech-Link.
   j. Include documentation for installation, recommended configuration changes, identified issues, and remediation for each update release.
   k. Notify Buyer of update on Tech-Link.

5. Buyer Responsibilities:
   a. Complete an Seller Service package review and ensure pre-requisites for VIDA Secure Sentry are in place (reference pre-requisites below).
   b. Provide means for accessing Tech-link.
   c. Make the Designated System available during Business Hours. If this is not possible, exceptions will need to be agreed upon by both parties.
   d. Implement recommended VIDA Secure Sentry remediation(s) on Buyer Designated System as determined necessary by Buyer. Lapses in VIDA Secure Sentry implementation may limit the ongoing ability to update the Buyer Designated System.
   e. Upgrade Designated System to a supported hardware and Software Update revision as necessary for VIDA Secure Sentry.
   f. Adhere to the pre-requisites for VIDA Secure Sentry. This includes the following services that must be maintained by Buyer via an agreement with Seller:
      i. Premium Technical Support (PTS). This allows Third-Party Support Agreements to stay current.
      ii. Security Update Management Services (SUMS+). Seller will specify the tested and supported SUMS release with each VIDA Secure Sentry release.
      iii. Software Maintenance Service. This allows for Software Updates such that VIDA Secure Sentry updates can be installed on the Designated System.
      iv. Seller Managed Services Agreement which includes Planned Network Upgrades to keep the Designated System compatible with the VIDA Secure Sentry.
      v. Upgrade Designated System with new products (software and hardware) necessary for the VIDA Secure Sentry.
6. Exclusions and Disclaimer:
   a. VIDA Secure Sentry does not include new products for the Designated System (software and/or hardware). In cases where new policy implementation or threat remediation requires new products, software, and/or hardware, Buyer is responsible for purchasing, at Buyer's expense, the system upgrade with new products and any other software and/or hardware required.
   b. **DISCLAIMER:** Seller disclaims any and all warranties with respect to pre-tested antivirus definitions, database security updates, hypervisor patches, operating system software patches, intrusion detection sensor signature files, or other third party product files, express or implied, including the implied warranties of merchantability, fitness for a particular purpose, and non-infringement. Further, Seller disclaims any warranty concerning the Third-Party Software Products and does not guarantee that Buyer's system will be error-free or immune to security breaches as a result of the VIDA Secure Sentry services. this disclaimer applies to both VIDA Secure Sentry service and VIDA Secure Sentry installation.

VIDA SECURE SENTRY INSTALLATION (Infrastructure Only)

1. Service Description. Provides installation services for VIDA Secure Sentry.
2. Service Request. To initiate this Service on a one time or ongoing basis, Buyer's Point of Contact shall follow Section III.7 ("Service Request Procedure"), and specifically call their Regional Service Manager listed in Attachment D ("Point of Contact and Notice") for a quote including planned hours for performing the recurring VIDA Secure Sentry installation. Note Exclusions below and the separate quote needed for the Excluded Services.
3. Seller Responsibilities:
   a. Install the VIDA Secure Sentry updates.
   b. Conduct a vulnerability scan after the VIDA Secure Sentry release is installed by Seller to verify VIDA Secure Sentry implementation.

c. Provide Buyer with a Business Hours installation schedule and approximate Designated System or Equipment out of service periods (if any).
d. Provide agreed upon hours of labor per quarter (during Business Hours) to install VIDA Secure Sentry updates.
e. Provide Buyer with a Summary Report in the format shown below, or another format as determined by Seller:

Severity	Date	Action	Resolution	Resolution Date
123456	7/4/2021	SUMS Defender updates received	Loaded new SUMS Defender updates per release notes.	7/4/2021

4. Buyer Responsibilities:
   a. Coordinate with Seller or a designated Seller subcontractor the Buyer support needed for the Seller VIDA Secure Sentry Installation.
5. Exclusions and Disclaimer:
   a. Except as specifically enumerated and set forth in this Agreement, the VIDA Secure Sentry Installation do not include services for Designated System upgrades or updates requiring network engineering, design engineering, configuration engineering, system engineering, program management, or full software installation or software implementation or major system upgrades requiring component or hardware updates or upgrades.
   b. Not included in the VIDA Secure Sentry Installation is work required to install or complete the installation of any previously released VIDA Secure Sentry.
   c. Upon request by Buyer for any work set forth in this Section that has not been covered by a quote previously provided by Seller to Buyer, Seller will provide a detailed Demand Services quote to Buyer.
   d. **DISCLAIMER:** See the applicable Disclaimer in VIDA Secure Sentry set forth above.

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ATTACHMENT C
THIRD-PARTY LICENSE RENEWALS

Third-Party License Renewals Included in Premium Technical Support (PTS), Renewals

Part #	Description	Qty
CM-027501-100102	License,Quest Authentication,Server	1
NS-DF3H	PC,SYSTEM MANAGEMENT TERMINAL	1
NS-PNSU	SERVER, DELL R640, PREMIER	1
NS-PNSY	SERVER,VASC	1
NS-SH8B	LIC,SYSLOG,ENT SUBSC 3YR	1
NS-SH8J	LICENSE,WINDOWS SERVER 2016, DATACENTER	1
NS-SN2E	LICENSE,VMWARE,VCENTER,FOUNDATION	1
NS-SN2F	LICENSE,VMWARE,VCENTER,FOUNDATION,3YR	1
NS-SN5K	SERVICE,SYBASE LICENSE	1
SAMD8E	SITE MANAGER, VIDA EDGE	1
VS-CN1L	SERVER, UNITRENDS 9006 BACKUP APPLIANCE	1
VS-CR1G	ROUTER,ISR4221-SEC/K9	1
VS-CR1Y	ROUTER,ISR,C1111-4P,SEC	1
VS-CR3C	ROUTER,APP,C921-4P	1
VS-CR3D	FIREWALL,FPR1010, WITH ANYCONNECT	1
VS-CR3F	VM, FMC 10 DEVICE	1
VS-CR3G	FIREWALL, FPR1010	1
VS-CR72	ROUTER,ISR4331 AX APP &SEC LIC	1
VS-CR90	ROUTER,ISR4321 WSEC BDL LIC	1
VS-CU7Z	MODULE,NIM 4PORT LAYER2 GE	1
VS-CU9A	SWITCH,SMARTNET,C1000FE-24T-4G-L	1
VS-CU9B	SWITCH,SMARTNET,C9200L-24T-4X-A	1
VS-CU9P	SWITCH,SMARTNET,C9300-24S-E	1
VS-DF3D	SW,QUEST DEFENDER,TWO FACTOR	1
VSEPOVM	Software, Epolicy Orch VM	1
VSSD03	LICENSE,SUMS,ENDPOINT	1
VSSD04	LICENSE,SUMS,CORE	1
VS-SG3U	LICENSE,HOST SECURITY,AV,EPO,QTY 51-100	1
VS-SH6J	LICENSE, ENM P-RTU, + 3 YR SUPP, BASE	1
VS-SH6R	LICENSE,ENM P-RTU,+3YR SUPP,GEO-HA	1

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ATTACHMENT D
POINT OF CONTACT AND NOTICE

NOTICE TO SELLER:

Name _____
Title _____
_____
Address _____
Address _____

NOTICE TO BUYER:

Name _____
Title _____
_____
Address _____
Address _____

SELLER POINT OF CONTACT:

Name **Rodney Philgren**
Title **Regional Service Manager**
Phone **630-270-2368**
Expertise **Field Services**

Name _____
Title _____
Phone _____
Expertise _____

BUYER POINT OF CONTACT:

Name _____
Title _____
Phone _____
Expertise _____

Name _____
Title _____
Phone _____
Expertise _____

ESCALATION PLAN NUMBERS FOR SELLER CONTACTS PER STEPS 1-4 (as applicable if Buyer purchased Rapid Response Service Level Agreement):

Step 1- Designated Personnel: _____
Step 2- Supervisor: _____
Step 3- Regional Service Manager: **Rodney Philgren**
331-234-0696
Step 4- Director of Field Services: **Lance Hays**
438-851-9245

NETWORK OPERATING CENTER (NOC) CONTACT:

Name _____
Title _____

Phone _____

Expertise _____