



<b>CONTINUATION SHEET</b>	<b>Reference No. of Document Being Continued</b> <b>PIIN/SIIN</b> DAAE07-02-C-M001 <b>MOD/AMD</b> P00019	<b>Page</b> 2 <b>of</b> 8
<b>Name of Offeror or Contractor:</b> RAYTHEON COMPANY		

SECTION A - SUPPLEMENTAL INFORMATION

1. Modification P00019 is being issued to incorporate an agreement between the parties whereby Raytheon purchases one prototype ITSS previously delivered to the government for developmental testing in an "as is" condition.
  
2. Title to the prototype ITSS will vest with Raytheon upon execution of this modification; however, the hardware will not become Raytheon's physical property until successful completion of operational testing (OT) or a later date as agreed upon by the parties. The prototype will be provided to Raytheon in an "as is" condition at the completion of OT or a later date as agreed upon by the parties. Under no circumstances will the government obligate any additional money in this prototype except for current DT to OT configuration updates or any Government directed change identified during OT.
  
3. Raytheon agrees to transfer the purchase price of \$350,000.00 from the ITSS contract, CLIN 0001AA, to Raytheon company accounts that cannot be charged directly to this contract in any form. The total value of CLIN 0001AA will not change as a result of this agreement. The \$350,000.00 will be used to cover other costs associated with the ITSS contract.
  
4. The contract is modified by page substitution as follows:
  - a. Section B, Supplies/Services, CLIN 0001AA is revised to change the quantity of deliverable prototypes from four to three.
  - b. Section I, Contract Clauses, is revised to add one prototype ITSS to the list of Capitalized Assets.
  
5. Any and all claims for adjustment beyond the terms set forth herein by reason of this contract modification are hereby waived and released.
  
6. The total amount of the contract remains unchanged at \$11,064,440.00.
  
7. All other terms and conditions remain the same and in full force and effect.

\*\*\* END OF NARRATIVE A 020 \*\*\*

CONTINUATION SHEET

Reference No. of Document Being Continued  
 PIIN/SIIN DAAE07-02-C-M001 MOD/AMD P00019

Name of Offeror or Contractor: RAYTHEON COMPANY

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT																														
0001AA	<p>SECTION B - SUPPLIES OR SERVICES AND PRICES/COSTS</p> <p><u>PRODUCTION QUANTITY</u></p> <p>CLIN CONTRACT TYPE:                      Cost-Plus-Incentive-Fee                      NOUN: ITSS PHASE I PROTOTYPES                      PRON: T122T5234K PRON AMD: 05 ACRN: AA                      CUSTOMER ORDER NO: M9545002MPR2AJ3</p> <p>(End of narrative B001)</p> <p>Part Number: 4978200-1</p> <p>(End of narrative B002)</p> <p>The Contractor shall provide prototype ITSS which meet the requirements of Section C.1 - C.16 and the Purchase Description.</p> <p>(End of narrative C001)</p> <p><u>Packaging and Marking</u></p> <p><u>Inspection and Acceptance</u>                      INSPECTION: Origin ACCEPTANCE: Origin</p> <p><u>Deliveries or Performance</u></p> <table border="0"> <tr> <td>DOC</td> <td>SUPPL</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td><u>REL CD</u></td> <td><u>MILSTRIP</u></td> <td><u>ADDR</u></td> <td><u>SIG CD</u></td> <td><u>MARK FOR</u></td> <td><u>TP CD</u></td> </tr> <tr> <td>001</td> <td>W56HZV2114H023</td> <td>Y00000</td> <td>M</td> <td></td> <td>2</td> </tr> <tr> <td><u>DEL REL CD</u></td> <td><u>QUANTITY</u></td> <td><u>DEL DATE</u></td> <td></td> <td></td> <td></td> </tr> <tr> <td>001</td> <td>3</td> <td>30-SEP-2003</td> <td></td> <td></td> <td></td> </tr> </table> <p>FOB POINT: Origin</p> <p>SHIP TO: <u>PARCEL POST ADDRESS</u>                      (Y00000) SHIPPING INSTRUCTIONS FOR CONSIGNEE                      (SHIP-TO) WILL BE FURNISHED PRIOR                      TO THE SCHEDULED DELIVERY DATE FOR                      ITEMS REQUIRED UNDER THIS                      REQUISITION.</p>	DOC	SUPPL					<u>REL CD</u>	<u>MILSTRIP</u>	<u>ADDR</u>	<u>SIG CD</u>	<u>MARK FOR</u>	<u>TP CD</u>	001	W56HZV2114H023	Y00000	M		2	<u>DEL REL CD</u>	<u>QUANTITY</u>	<u>DEL DATE</u>				001	3	30-SEP-2003				3	EA	\$ 2,221,432.666	\$ 6,664,298.00
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001	3	30-SEP-2003																																	
				TARGET COST	\$6,334,014.00																														
				TARGET FEE	\$ 287,940.00																														
				MINIMUM FEE	\$ 119,664.00																														
				MAXIMUM FEE	\$ 344,031.00																														
				COM	\$ 42,344.00																														
				TOTAL COST	\$6,664,298.00																														

CONTINUATION SHEET

Reference No. of Document Being Continued  
PIIN/SIIN DAAE07-02-C-M001 MOD/AMD P00019

Name of Offeror or Contractor: RAYTHEON COMPANY

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	<p>Two (2) each ITSS prototypes shall be shipped to the following address:</p> <p>Transportation Office Attn: Ron Rutherford (928) 328-7028 or Nick Mathios (928) 328-4053 U.S. Army Yuma Proving Groun Yuma, AZ 85365 DODAAC: W61R67</p> <p>One (1) each ITSS prototype shall be drop shipped to the following address: Raytheon Company 2501 W. University Drive McKinney, TX 75070-0801 DODAAC: CLOMPF</p> <p>(End of narrative F001)</p>				

**CONTINUATION SHEET**

**Reference No. of Document Being Continued**  
**PIIN/SIN** DAAE07-02-C-M001      **MOD/AMD** P00019

**Name of Offeror or Contractor:** RAYTHEON COMPANY

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT

Name of Offeror or Contractor: RAYTHEON COMPANY

## SECTION I - CONTRACT CLAUSES

HIRE III DIRECT INVESTMENTS OR IR&D FUNDING FOR SPECIFIC COST CONTENT ITEMS

With regard to this contract, it is understood that the contract price does not include the direct and applicable indirect costs associated with certain efforts that are described below. Therefore it is mutually agreed upon between the contractor and the contracting officer that the efforts described in paragraphs a through n, below are not allowable as a direct charge to this contract.

a. Improved Thermal Sight Electrical Non-Recurring Effort: Design and assembly of the circuit card assemblies and interconnect for the thermal sight. This includes the electrical engineering and all associated material and labor required to design or modify existing designs of circuit cards, cables, flex assemblies and integration aids as required, for the ITSS. Subtasks include:

- Re-layout of the personality circuit card assembly to implement special ITSS interfaces while maintaining Fire Enhancement Program compatibility.
- Re-design of the scan control circuit card assembly, to replace obsolete components and convert to 3.3V logic. Include field of view drive functionality.
- Design of ITSS unique motherboard.
- Design of the flex 1 assembly. Schematic capture and necessary vendor interface.
- Design of the flex 2 assembly. Schematic capture and necessary vendor interface.
- External connector selection: Select compliant connectors that meet environmental, electrical and mechanical requirements. Select backshells that mate.

- Design of the W1 Cable assembly: Signal definition, schematic capture, drawing generation and vendor interface. Also includes 1 prototype cable.
- Design of the W2 and W3 cable assemblies: Design of two cable assemblies to carry power and signals to the various line-replaceable-units of the ITSS. Schematic capture, drawing generation and design.
- Afocal wiring design: Design of this harness assembly. It must carry signals to TEC assemblies, FIV drive, focus drive, optical position sensor and temperature sensor. Design routing of this cable.
- Design and construct an engineering thermal receiver unit built so that there is full access to the boards. This plate design is used to check out the design of the interconnect and circuit card assemblies before a full-up operating thermal receiver unit (in a housing) is available.
- Vehicle simulator design: Engineering development and technician time to design and build a simulator box that simulates the external devices and line-replaceable-units of the ITSS.
- System power design and analysis: Define the On and Standby power approach. Includes engineering labor to determine details of the power and grounding scheme. These details form the basis of the power supply 1 and power supply 2 designs, the system cabling, the motherboard design and the flex design. The electromagnetic interference and electromagnetic countermeasure requirements will be addressed in this task.
- PFU design: Define the detailed requirements for the power filter unit. Vendor interface as required to define the specifications for the PFU and develop the required drawings.
- Re-design the Power Supply 1 circuit card assembly to accommodate 3.3V logic supplies and special considerations of the ITSS program.
- Re-design the Power Supply 2 circuit card assembly to accommodate 3.3V logic supplies and special considerations of the VP re-design.

b. Improved Thermal Sight Imager Non-Recurring Effort: Modification to the Horizontal Technology Integration imager to fit the desired envelope for the thermal sight. Optically design a 3 lens imager, mechanically package the optics, and provide mounting for existing scanner parts. Includes optical tolerance analysis, athermal focus, and mechanical tolerancing.

c. Improved Thermal Sight DDCA Non-Recurring Effort: Modification to the 480 x 4 Standard Advanced Dewar Assembly II receiver assembly. Design transfer tube, create documentation, and communicate to detector supplier.

d. Improved Thermal Sight Housing Non-Recurring Effort: Design of the thermal sight unit housing. Includes layout and design of main housing, motherboard mechanical outline, flex circuit mechanical outline, brackets, system thermal and structural analysis.

e. Improved Thermal Sight Software Non-Recurring Effort: The contractor shall not charge the ITSS contract with the first \$227,868 at the Product Cost Level (PCL - excludes POH, FCCM, G&A and Fee) for this effort. This effort includes the development and integration of the ITSS Mission Critical Computer Resource (MCCR) software. The Improved Thermal Sight Software non-Recurring effort includes software management, software systems engineering, software engineering, software quality engineering, and software configuration management. It also covers all phases of the software development life cycle, specifically: planning, requirements analysis, design, implementation, testing, validation and system integration support.

f. Improved Thermal Sight Integration Non-Recurring Effort: The contractor shall not charge the ITSS contract with the first \$167,902 at the Product Cost Level (PCL- excludes POH, FCCM, G&A and Fee) for this effort. This involves integration tasks associated with the thermal receiver unit include:

- Sensor unit integration: the effort to integrate the circuit card assemblies with housing, afocal, controls, displays
- System integration: the effort to integrate the sensor unit with the remaining line-replaceable-units, hand control unit, north-finding module, ELITE II
- Vehicle integration: the effort to install the system on the GFE vehicle

g. Improved Thermal Sight Afocal Non-Recurring Effort: Modification of the Fire Enhancements Program afocal to mount on the ITSS sight. Provide the related mounting provisions. Create new casting and housing drawings.

h. Eye-safe Laser Rangefinder Non-Recurring Effort: (1) Incorporation of operating instruction requirements: Develop the new coating prescription. Includes nonrecurring vendor effort to implement the processes to apply the coatings. Also include engineering effort to interface and coordinate with the vendor. (2) Optimization of ELITE II eye-safe laser rangefinder to meet ITSS specification with margin: Nonrecurring effort to revise the optical prescriptions of the laser rangefinder beam expander optics. Optimize the ELITE II Beam divergence. Engineering effort to design and implement the changes, as well as the engineering time to conduct engineering

**CONTINUATION SHEET****Reference No. of Document Being Continued**

Page 7 of 8

PIIN/SIIN DAAE07-02-C-M001

MOD/AMD P00019

**Name of Offeror or Contractor:** RAYTHEON COMPANY

qualification test of the revised optics at the laser rangefinder unit level.

i. Head Mirror Unit Non-Recurring Effort: Design of new head mirror unit to replace the existing DIM36TH. Adapt DNTSS design for ITSS requirements. Includes optical coating design, mechanical design and documentation.

j. Commanders Control Unit Non-Recurring Effort: Incorporation of the AAV commanders control unit into the HIRE III ITSS design. Nonrecurring engineering to develop the commanders control panel unit. The control panel itself is the non-developmental HIRE II panel. This effort is to package a housing around the unit with an internal flex to go from the airborne connector at the back of the panel to a 38999 type connector on the back of the housing. Subtasks include (1) Preliminary design effort to determine packaging/housing size, routing of internal flex, location of connector mounting bracket interface, and (2) Detail design of housing, detail design of flex, drawing generation for both housing and flex.

k. Software Test and Audit: The contractor shall not charge the ITSS contract with the first \$18,282 at the Product Cost Level (PCL-excludes POH, FCCM, G&A and Fee) for this effort. The effort includes software tasks to develop, integrate and test the test plan and procedures required to execute the final software testing. Included is a test procedure dry run, and the final execution of the software testing.

l. Display NRE: Redesign of AAV/BCT common display mounting to allow commonality between AAV, BCT, and ITSS.

m. System Definition: The contractor shall not charge the ITSS contract with the first \$115,743 at the Product Cost Level (PCL-excludes POH, FCCM, G&A and Fee) for this effort. The majority of the effort associated with this task is the LOE by Systems Engineering in support of; System design/test support, task management, programmatic support, Technical oversight, customer support, interface control and hazard tracking. The non-LOE tasks are performance prediction and analysis, specification development and risk management.

n. Program Management: The contractor shall not charge the ITSS contract with the first \$220,483 at the Product Cost Level (PCL-excludes POH, FCCM, G&A and Fee) for this effort. The effort includes Program Management LOE, Programs Controls/Scheduling LOE, Manufacturing Engineer, Material Procurement Manager, Required meeting support and Configuration Management.

o. Beam Divergence Reduction: In order to eliminate any risk to the ITSS program for the beam divergence reduction (0.887 mrad to 0.6 mrad), the contractor shall cover all design costs beyond those proposed in WBS element A.1.1.1.08 SUBTASK 2 for this effort. As delineated in WBS element A.1.1.1.08 SUBTASK 2, allowable program charges for design efforts totaling 993 hours of engineering are broken down as follows: (1) 496 hrs for Design optimization (456 hours Opto-mechanical Engineering and 40 hours Systems Engineering), and (2) 497 hrs for qualification of the optimized LRF (54 hours Opto-mechanical Engineering and 443 hours Systems Engineering). All non-recurring costs beyond the above stated 993 hours for this modification will be paid for by Raytheon using Internal Research and Development (IR&D) funds. This effort requires no additional hardware and there is no change in the recurring price of the ELITE II with this modification.

**HIRE III CAPITALIZED ASSETS**

With regard to this contract, it is understood that the contract price does not include the direct and applicable indirect costs associated with fabricating:

a. One (1) partial ITSS that will be part of the contractors early risk mitigation efforts. This partial system is comprised of a HIRE II 240 x 4 sensor, an afocal telescope, and a gunners display & commanders control unit.

b. One (1) complete ITSS that the contractor will use as part of its contractor vehicle integration testing. This ITSS is comprised of:

- HIRE III 480 x 4 sensor
- Detector unit
- Afocal telescope
- Detector assembly
- Display units (commanders and gunners)
- Head mirror unit
- Hand control units (commanders and gunners)
- Laser rangefinder/direct visual optic
- Commanders control unit
- North-finding module
- Crosswind sensor
- Power filter unit
- Installation kit consisting of sight interface plate, mounting brackets, and system cables

The contractor shall pay for the fabrication of the above items. In this case the term fabrication includes the cost of all material, subcontracts, inter-organization transfers, and labor, required to build the item. It is mutually agreed upon between the contractor and the contracting officer that such costs are not allowable as a direct charge to this contract.

If components for either of the above two systems are used as replacement/repair parts to support Government (Developmental or Operational) Testing, title to such replacement/repair parts shall remain with the contractor. After the testing is completed, any such replacement/repair component shall be returned to the contractor in an as is condition. Any direct and indirect costs to repair or refurbish such contractor-owned components, due to damage or failure from normal operational use that occurs during Government testing, are not allowable as a direct charge to this contract. The need to repair or refurbish any of such contractor owned components after the completion of testing shall be determined solely by the contractor.

c. One (1) complete ITSS prototype purchased from the government in an as is condition that the contractor will use for demonstration purposes. This ITSS is comprised of:

**CONTINUATION SHEET****Reference No. of Document Being Continued**

Page 8 of 8

PIIN/SIIN DAAE07-02-C-M001

MOD/AMD P00019

**Name of Offeror or Contractor:** RAYTHEON COMPANY

- HIRE III 480 x 4 sensor (to include the Gunners Control Unit)
- Detector unit
- Afocal telescope
- Detector assembly
- Display units (commanders and gunners)
- Head mirror unit
- Hand control units (commanders and gunners)
- Laser rangefinder/direct visual optic
- Commanders control unit (Control Unit)
- North-finding module
- Crosswind sensor
- Uninterruptable Power Supply (UPS)
- Power Filter Unit
- Installation kit consisting of sight interface plate, mounting brackets, and system cables

Title to the prototype ITSS will vest with Raytheon upon execution of contract modification number P00019. However, Raytheon will take physical possession of this ITSS upon successful completion of Operational Testing (OT). The government may use this ITSS prototype at no cost up to the time when Raytheon assumes physical possession. Following the successful completion of OT, the ITSS will be returned to Raytheon in an as is condition. Under no circumstances will the government be responsible for any costs associated with this prototype other than (a) the shipping costs for returning the hardware to Raytheon following OT, (b) current DT to OT configuration updates, and (c) any Government directed change identified during OT.

In addition to the three ITSS systems discussed above, under the terms of this contract, the contractor is required to fabricate and deliver three (3) prototype ITSS units under CLIN 0001AA. The contractor also plans to fabricate another ITSS to be the source of spares to support Government testing under CLIN 0003AA. The costs related to fabrication, repair and refurbishment of the three ITSS systems under CLIN 0001AA and the source of spares ITSS under CLIN 0003AA are allocable and allowable under this contract.

**HIRE III FEP-BASED EXPENDITURES**

With regard to this contract, it is understood that the contract price does not include the direct and applicable indirect costs associated with the contractors design efforts aimed at further productionization of the M1A1 Fire Enhancements Program (FEP) thermal sight, on which the ITSS system is based. These efforts include:

1. Modification and redesign of the Thermal Sensor Unit circuit card assemblies (CCAs) from four (4) CCAs to three (3) CCAs. The intent of these modifications and redesigns is to improve producibility by eliminating obsolete parts, reducing part count, improving reliability and reducing cost of the existing design.)

This aforementioned FEP-based work will not be allowable as a direct charge to this ITSS Contract.

**SPARE/REPAIR PARTS TO SUPPORT PRODUCTION VERIFICATION TESTING (PVT)**

The costs identified below shall be unallowable to CLIN 2002AA, PVT Support, They shall also be unallowable under any of the cost-reimbursement CLINs of this contract (e.g. 0001AA, 0002AA, 0003AA, 1002AA, 2003AA, 2004AA, 3002AA, 3003AA).

a. Costs to refurbish, retest, and bring to condition code A, any ITSS system that was used as a spare (or used for spare/repair parts) to support PVT. The contracting officer and contractor mutually agree that any such systems may be used as a production unit delivery (under CLIN 2001AA or CLIN 3001AA) if brought to condition code A.

b. The cost of spare/repair parts to support PVT.

\*\*\* END OF NARRATIVE I 008 \*\*\*