

Performance Specification  
for  
Mobile After Action Review (MAAR) and Mobile Production Unit (MPU)  
End of Life Replacement  
at the Joint Readiness Training Center (JRTC)



U.S. Army Program Executive Office for  
Simulation, Training, and Instrumentation (PEO STRI)  
12350 Research Parkway  
Orlando, FL 32826-3276

Engineering BYRD.SHAUN.  
CHRISTOPHER.  
Prepared By: 1249061979

Digitally signed by  
BYRD.SHAUN.CHRISTOPHER.1249061979  
DN: c=US, o=U.S. Government, ou=DoD,  
ou=PKI, ou=USA,  
cn=BYRD.SHAUN.CHRISTOPHER.1249061979  
Date: 2016.11.04 10:29:35 -04'00'

Clifford Wienk  
Lead System Engineer, JRTC IS

Concurrence: SMITH.PAUL.  
M.1230024525

Digitally signed by  
SMITH.PAUL.M.1230024525  
DN: c=US, o=U.S. Government,  
ou=DoD, ou=PKI, ou=USA,  
cn=SMITH.PAUL.M.1230024525  
Date: 2016.11.10 16:36:44 -05'00'

Paul Smith  
Chief Engineer, PM CTIS

Acquisition Logistics

Prepared By: DOUGHERTY.FRA  
NK.SHEPHERD.10  
Frank Dougherty 69353068  
Lead Acquisition Logistician, JRTC IS

Digitally signed by  
DOUGHERTY.FRANK.SHEPHERD.1069353068  
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI,  
ou=USA,  
cn=DOUGHERTY.FRANK.SHEPHERD.1069353068  
Date: 2016.11.02 15:44:07 -05'00'

Concurrence: CAPOTE.ROBERTO.  
TO.1031558618

Digitally signed by  
CAPOTE.ROBERTO.1031558618  
DN: c=US, o=U.S. Government,  
ou=DoD, ou=PKI, ou=USA,  
cn=CAPOTE.ROBERTO.1031558618  
Date: 2016.11.15 06:29:52 -05'00'

Robert Capote  
Product Support Mgr., PM TRADE

Program Manager KAHL.RANDI  
12298184  
Submitted By: 10

Digitally signed by  
KAHL.RANDI.J.1229818410  
DN: c=US, o=U.S. Government,  
ou=DoD, ou=PKI, ou=USA,  
cn=KAHL.RANDI.J.1229818410  
Date: 2016.11.02 15:42:09  
-04'00'

Randi Kahl  
Assistance Program Manager,  
JRTC-IS

Approved By: HINDS.RUSSELL.AN  
DREW.1086441400

Digitally signed by  
HINDS.RUSSELL.ANDREW.1086441400  
DN: c=US, o=U.S. Government, ou=DoD,  
ou=PKI, ou=USA,  
cn=HINDS.RUSSELL.ANDREW.1086441400  
Date: 2016.11.15 08:35:35 -05'00'

LTC Kenneth Walters  
Product Manager,  
Combat Training Instrumentation System (CTIS)

**REVISION AND CHANGE RECORD**

<b>REVISION HISTORY</b>	<b>DATE</b>	<b>Change</b>	<b>Originators</b>
Initial	9 May 2016		C. Wienk
Revision 1	1 November 2016	<p>Paragraph 3.1.12 – Deleted “Non-Secure Internet Protocol Router Network (NIPRNet)”</p> <p>Added Paragraph 3.1.18 – “The cable interface patch panels between the MPU and MAAR shall have at least 25% additional capacity for future growth.”</p> <p>Paragraph 3.2.1 – Change “two (2) wall mounted cameras” to “three (3) wall mounted cameras”</p> <p>Paragraph 3.2.7 – Deleted “The MAAR shall have one (1) workstation which shall include two (2) computer monitors, one (1) keyboard, one (1) mouse, and one (1) computer. “</p> <p>Change Paragraph 3.2.8 to 3.2.7 to state “The MAAR shall have an equipment rack with the necessary cybersecurity locking mechanisms and necessary interfaces. This equipment rack shall contain a network switch and router. All the equipment in the equipment rack shall be easily removable and wires shall be easily accessible for connection/disconnection of equipment.”</p> <p>Change Paragraph 3.2.10 to 3.2.9 to state “The MAAR shall ensure any laptop computer or computers, to include the Command Post of the Future (CPOF) laptop, may be easily connected in the MAAR for audio and video display on either or both of the MAAR Flat Panel televisions.”</p> <p>Paragraph 3.2.12 – Deleted.</p> <p>Added Paragraph 3.3.12. – “The MPU rack system shall accommodate a minimum of 25% future growth. The rack system shall be easily movable by one person for ease of access to the rear of rack.”</p> <p>Added Paragraph 3.3.13 – “The MPU shall have a workspace counter in front of the monitors to provide space necessary to accommodate equipment (i.e. laptops, notepads) to support AARs.”</p> <p>Updated Paragraph 3.3.7</p> <p>Updated Paragraph 3.3.8</p>	C. Wienk S. Byrd R. Kahl

		<p>Updated Paragraph 3.4.5</p> <p>Updated Paragraph 3.5.2</p> <p>Added Paragraph 3.5.3</p> <p>Change Paragraph 3.5.3 to 3.5.4</p> <p>Change Paragraph 3.5.5. to 3.5.5 and updated</p> <p>Updated Paragraph 3.6.8 to state “The MPC systems shall have external interface panels which will connect the power and communications between the MPU and the MAAR. Along with powering the MPC these panels shall provide bidirectional communications links for voice, data, video and audio signals between the MPU and MAAR. Audio and video shall be provided using one cable connection rather than one cable for audio and one cable for video. The interface panels shall be designed to allow 25% greater capacity for future upgrades.”</p> <p>Added Appendix A:TAF Workstation System Requirements</p> <p>Added Appendix B: MPU Laptop Requirements</p>	

**TABLE OF CONTENTS**

1.0 SCOPE ..... 1

1.1 Entity Type Description ..... 1

2.0 APPLICABLE DOCUMENTS ..... 3

2.1 Department of Defense Standards..... 3

2.2 Other Government Documents, Drawings, Handbooks, and Publications ..... 3

2.3 Other Documents, Drawings, and Publications ..... 4

3.0 REQUIREMENTS..... 4

3.1 MPC General Requirements..... 5

3.2 Mobile After Action Review (MAAR) Theater Components..... 6

3.3 Mobile Production Unit (MPU) Components..... 7

3.4 Microwave Mast Assembly ..... 8

3.5 Live Audio/Video Capture..... 9

3.6 MAAR and MPU Shelters..... 10

3.7 MAAR Shelter..... 12

3.8 MPU Shelter..... 12

4.0 Verification ..... 13

4.1 Inspection and Demonstration..... 13

4.2 Operations Final acceptance Testing..... 13

APPENDIX A: TAF WORKSTATION SYSTEM REQUIREMENTS .....14

APPENDIX B: MPU LAPTOP REQUIREMENTS .....15

## 1.0 SCOPE

This Performance Specification defines requirements for specific components of two Mobile Production Centers (MPCs) at The Joint Readiness Training Center (JRTC), Fort Polk, Louisiana that are being replaced due to end of life. A MPC is comprised of a Mobile After Action Review (MAAR) Theater, a Mobile Production Unit (MPU) with a Retractable Power Tower with antenna, and a towed generator which powers the total MPC.

### 1.1 Entity Type Description

The MAAR provides seating for 30 personnel with presentation, communication, and recording equipment. The MPU provides an editing station with all associated audio, video, and digital control/interface equipment to support the creation, presentation, and the recording of the AAR. It also provides high side Core Instrumentation System (CIS) Training and Analysis Facilities (TAF) Workstation for situational awareness (SA). The trailer is mounted with a generator and an on-board fuel supply tank provides all electrical power required for the MPC, MAAR, and the Retractable Power Tower. The Tower Mounted Antenna provides Microwave capability to communicate with CIS. In addition, the MPU is available to connect to fiber optics nodes (FON) where available. Each system is completely self-sufficient with integral lighting, electrical power distribution, and heating, ventilation & air conditioning (HVAC).

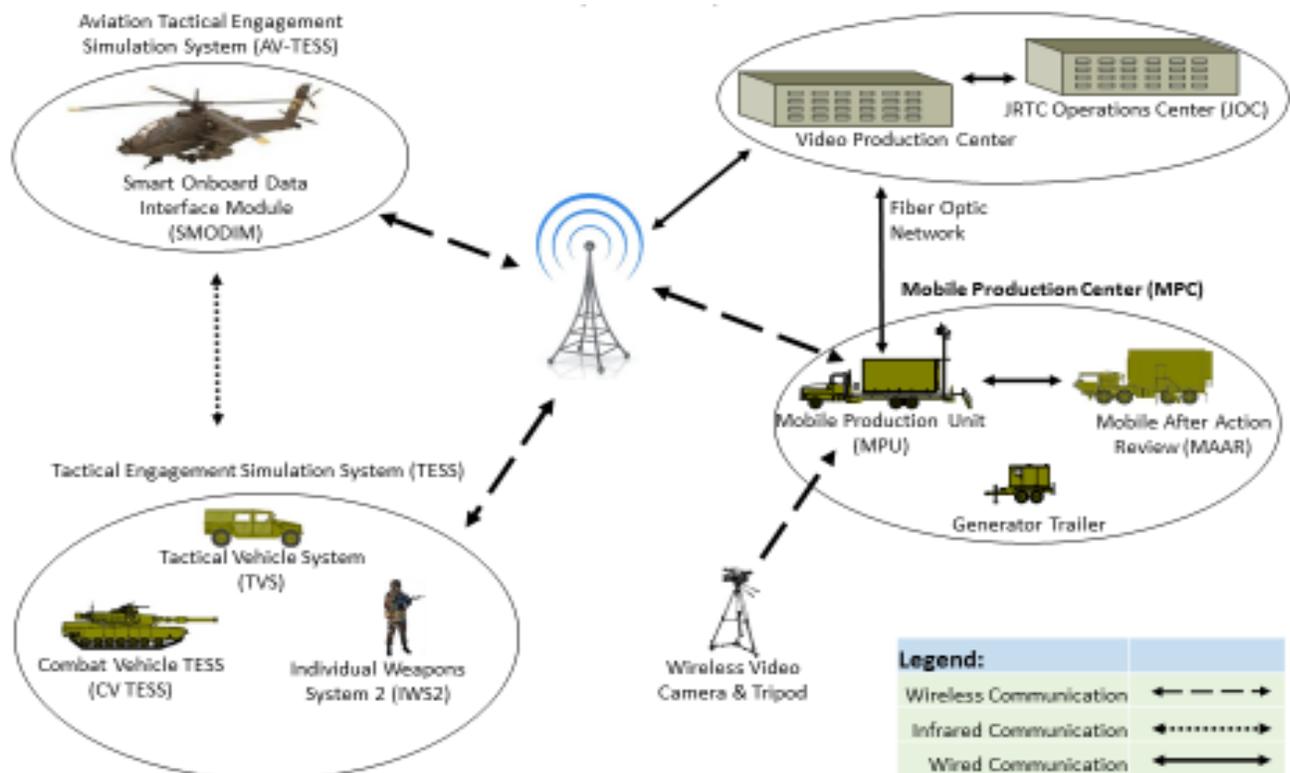


Figure 1. MPC OV-1 at the JRTC

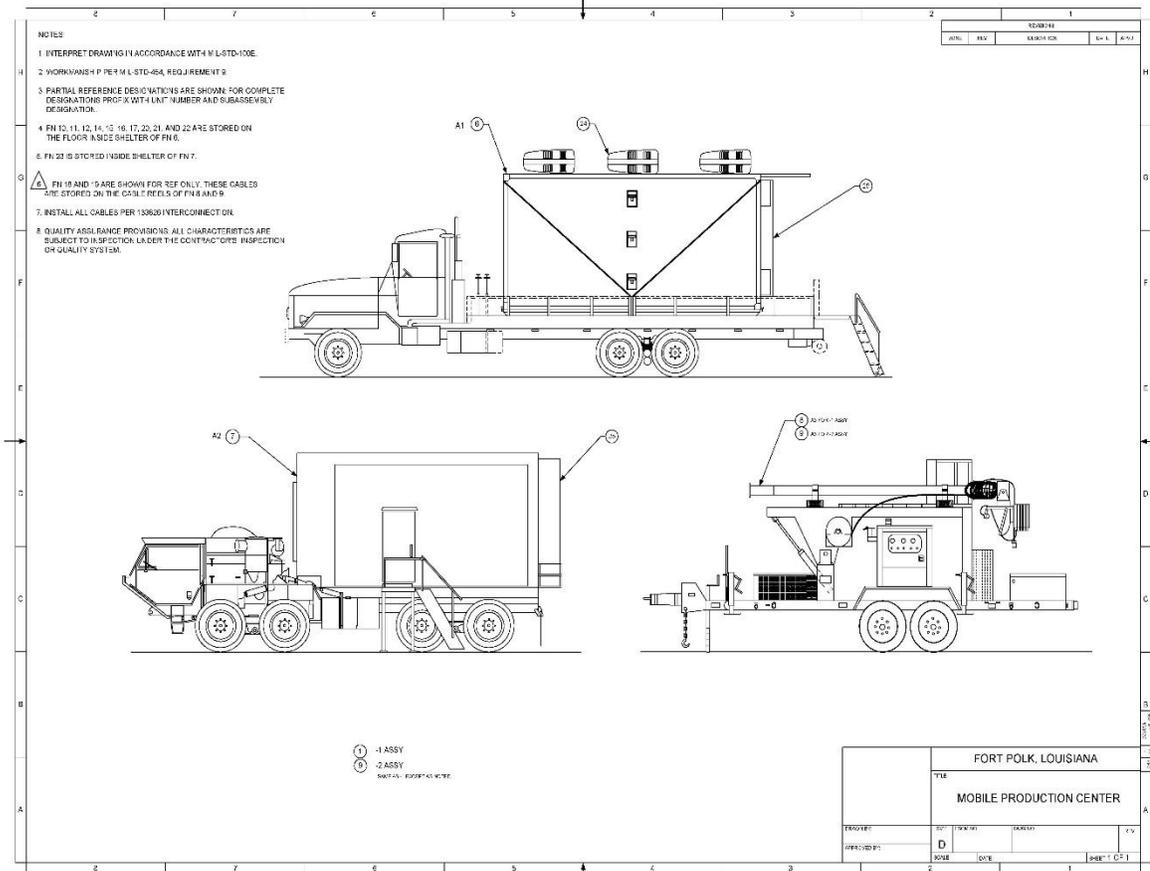


Figure 2. Current MPC Unit at the JRTC

**2.0 APPLICABLE DOCUMENTS**

The following list of documents form a part of this Performance Specification to the extent specified herein. In the event of a conflict between documents referenced and the Performance Specification, the MPC Performance Specification will be the governing requirement.

**2.1 Department of Defense Standards**

Number	Title	Link
MIL-STD-1472F	Department Of Defense Design Criteria Standard: Human Engineering	<a href="http://www.assistdocs.com/">http://www.assistdocs.com/</a>

**2.2 Other Government Documents, Drawings, Handbooks, and Publications**

Number	Name	Access/Link
AR 25-2	Information Assurance	<a href="http://www.apd.army.mil/">http://www.apd.army.mil/</a>
AR 380-5	Department of Army Information Security Program	<a href="http://www.apd.army.mil/">http://www.apd.army.mil/</a>
DODD 8500.1	Cybersecurity	<a href="http://www.dtic.mil/whs/directives/">http://www.dtic.mil/whs/directives/</a>
DODD 8570.01	Certification Requirements	<a href="http://www.dtic.mil/whs/directives/">http://www.dtic.mil/whs/directives/</a>
DODI 8582.01	Security of Unclassified DoD Information on Nod-DoD Information Systems	<a href="http://www.dtic.mil/whs/directives/">http://www.dtic.mil/whs/directives/</a>
DODI 8510.01	Risk Management Framework (RMF) for DoD Information Technology (IT)	<a href="http://www.dtic.mil/whs/directives/">http://www.dtic.mil/whs/directives/</a>
FED-STD-595	Color Standards	<a href="http://www.gsa.gov/portal/content/142623">http://www.gsa.gov/portal/content/142623</a>
PEOSTRI	Basic Accreditation Manual (BAM), Version 5	<a href="https://www.lt2portal.mil">https://www.lt2portal.mil</a>
PEOSTRI	PM TRADE Configuration Management Procedures	<a href="https://www.lt2portal.mil">https://www.lt2portal.mil</a>
CNSSI 1253	Committee on National Security Systems Instruction	<a href="http://csrc.nist.gov/publications/PubsSPs.html">http://csrc.nist.gov/publications/PubsSPs.html</a>

NIST SP 800-53	Security and Privacy Controls for Federal Information Systems and Organizations	<a href="http://csrc.nist.gov/publications/PubsSPs.html">http://csrc.nist.gov/publications/PubsSPs.html</a>

If access to the LT2 portal is required, please follow the registration link on the LT2 portal homepage and follow-on instructions and procedures.

**2.3 Other Documents, Drawings, and Publications**

Number	Name	Access/Link
29 CFR 1910.95	Occupational Noise Exposure	<a href="http://www.gpo.gov/fdsys/granule/CFR-2011-title29-vol5/CFR-2011-title29-vol5-sec1910-95/content-detail.html">http://www.gpo.gov/fdsys/granule/CFR-2011-title29-vol5/CFR-2011-title29-vol5-sec1910-95/content-detail.html</a>
29 CFR 1915.82	Lighting	<a href="http://www.gpo.gov/fdsys/granule/CFR-2012-title29-vol7/CFR-2012-title29-vol7-sec1915-82/content-detail.html">http://www.gpo.gov/fdsys/granule/CFR-2012-title29-vol7/CFR-2012-title29-vol7-sec1915-82/content-detail.html</a>
NFPA 70	National Electric Code	<a href="http://www.nfpa.org/codes-and-standards/document-information-pages?mode=code&amp;code=70">http://www.nfpa.org/codes-and-standards/document-information-pages?mode=code&amp;code=70</a>

**3.0 REQUIREMENTS**

This Performance Specification defines the requirements of the components being replaced within the Mobile Production Center (MPC) at The Joint Readiness Training Center (JRTC), Fort Polk, Louisiana. The two MPC will be identical and all components will be replaced to include the shelter containers for the MPU & MAAR, all computer, audio, video and communication equipment, all associated wires/connections to communicate between the MPU, MAAR, Microwave, and the FON and all power wires/connections required to connect to either shore or generator power. The only GFE equipment that will be supplied are the four Army vehicles, two Microwave Antenna’s and two trailer mounted generators.

### **3.1 MPC General Requirements**

1. The MPC's shall be installed with all the required software and hardware to ensure operations and communications between the MAAR and MPU components.
2. The MPC shall connect to and operate off of a separately provided 65K Generator for use when shore power is not available.
3. The MPC shall have the capability to communicate to the CIS located in Building 1560. MPC equipment shall have the capability to operate with the CIS and other infrastructures using any of the fiber-optic access sites, any Forward Operation Bases (FOB) that have fiber, and the current provided microwave capability.
4. The MPC shall provide preparation, presentation, recording and printing functions the same way as they are in the fixed AAR theaters.
5. The MPC shall provide transmission of data, audio and video information between the CIS and MPU via both fiber optic cable and microwave system.
6. The MPC shall provide full mobility to AAR sites throughout the JRTC Instrumentation System (JRTC IS) maneuver area.
7. The MPC shall provide the CTC-IS TAF workstation capability for SA.
8. The MAAR and MPU equipment shall be installed in shelters which are safely and securely mounted on Army vehicles for transportation over paved road, cross country, and over rough uneven terrain. All external equipment (i.e. antennas, air conditioners, etc.) on MPU and MAAR shall be mounted in a way to protect against damage due to driving into tree branches. These vehicles, with mounted shelters, shall be transportable over U.S highways without special permits.
9. All equipment, antennas, and shelters on the MAAR and MPU vehicle shall not exceed a height of 13 feet 6 inches from the ground when in transportation mode.
10. The MPC shall have one (1) P25 radio docking station inside the MPU that shall be capable of connecting with the P25 network.
11. The MPC shall have separate networks for classified and unclassified systems.
12. The MPC shall have a Secret Internet Protocol Router Network (SIPRNet) connection within each MPU.
13. The MPC shall have one (1) 1-Gigabyte Tactical Local Area Network Encryption (TACLANE) in each MPU shelter.

14. The MPC shall have one (1) Secure Voice Over Internet Protocol (SVOIP) conference phone in each MAAR shelter.
15. The MPC shall have a setup of three hours or less and tear down time of three (3) hours or less, with a four (4) man crew (daylight condition).
16. The MPC shall have power cords and cable bundles to connect MPU & MAAR vehicles, power tower antenna and generator trailer which will be deployed as a system within 250 feet of each other. The MPU and MAAR shall be capable of being set up as close as possible to enable the installation of a cable bridge which will be a minimum of 12 feet across between vehicles. The MPC shall have ample secured storage for all cables and ice bridge during transportation.
17. The MPC shall have an overhead cable bridge for all communication connections between the MPU and the MAAR when in operation mode. The overhead cable bridge shall provide a secure connection for all necessary cables needed between the MAAR and MPU, shall be secured at a high point on both MPU and MAAR, and span a maximum distance of 30ft.
18. The cable interface patch panels between the MPU and MAAR shall have at least 25% additional capacity for future growth.
19. The MPC shall have a two-way push button intercom system for voice communication between MAAR and MPU shelters.

### **3.2 Mobile After Action Review (MAAR) Theater Components**

1. The MAAR shelter shall have a minimum of three (3) wall mounted cameras and four (4) ceiling microphones with associated equipment. These cameras/microphones and associated equipment shall be connected to the MPU for video and audio recording control, transmission and storage. The cameras shall be capable of both High Definition (HD) and Standard Definition (SD) recording and have an integrated pan/tilt/zoom mechanism.
2. The MAAR shall have a Secure Video Teleconference Capability (SVTC) and any associated security measures that are required.
3. The MAAR shall have a microphone system(s) for the SVTC, SVOIP, and AAR that shall allow any person standing or sitting anywhere within the MAAR shelter to have clear verbal communications for the duration of a meeting/teleconference.
4. The MAAR shall have two (2) flat panel televisions that will be wall mounted. The televisions shall have a minimum 1080P resolution, be large as possible, minimum 65” and still be mounted on the theater front wall in a high position to ensure maximum

viewing in the MAAR. Each flat panel television and computer monitor shall be able to simultaneously play a different audio and video feed sent from the MPU or a MAAR connected laptop.

5. The MAAR shall have one (1) smart board that will be wall mounted. The smart board shall be mounted on a full motion bracket so it can be raised and angled during use. The smart board shall connect to the MPC system to enable both printing and video display. The smart board shall be easy to clean and not permanently stain.
6. The MAAR shall have a surround sound audio system with a minimum of four (4) ceiling/wall mounted speakers that ensure consistent volume within the shelter.
7. The MAAR shall have an equipment rack with the necessary cybersecurity locking mechanisms and necessary interfaces to the MPU. This equipment rack shall contain network switch and router. All the equipment in the equipment rack shall be easily removable and wires shall be easily accessible for connection/disconnection of equipment.
8. The MAAR shall have all computers installed with US Army approved Windows 10 AGM, Microsoft Word, Microsoft PowerPoint, Microsoft Outlook, and Microsoft Excel.
9. The MAAR shall ensure any laptop computer or computers, to include the Command Post of the Future (CPOF) laptop, may be easily connected in the MAAR for audio and video display on either or both of the MAAR Flat Panel televisions.
10. The MAAR shall provide a minimum of four (4) audio/video inputs, and four (4) audio/video output feeds from the MAAR to the MPU. All audio/video feeds shall be an individual wired connection (4 outputs/ 4 inputs), rather than one (1) wire for audio and one (1) wire for video.

### **3.3 Mobile Production Unit (MPU) Components**

1. The MPU shall have one (1) Audio/Video Control Station, also known as the Video Switcher, and one (1) audio/video recording control station. The video switcher shall control the audio/video presentation in the MAAR. The switcher shall be connected to all audio/video data feeds available in the MPU and MAAR. The switcher shall have the capability to display all audio/video feeds concurrently.
2. The switcher display(s) shall include but not be limited to: Blu-Ray Media (BM), Digital Versatile Disc (DVD), laptop computer connected in the MAAR, four (4) live video capture feeds, and laptop computer connected in the MPU, or audio/video being received via fiber or Microwave connection from the CIS AAR production center.
3. The MPU shall have separate viewing displays for the MAAR internal cameras for concurrent viewing. The audio/video recording control station in the MPU shall control the operation of MAAR internal cameras.

4. The MPU shall be equipped with a HD/SD Digital Video Recorder (DVR) and four (4) multidisc DVD/Blu-Ray disc (BD) player with recording speeds of 32x capable of recording discs from either MPU or MAAR workstation computer in each MPU. The DVD/BD player and recorder shall be mounted within the MPU equipment rack.
5. The MPU shall have one (1) TAF workstation in each MPU. The TAF workstation shall be configured with all the hardware and software needed to run TAF workstation (See Appendix A: TAF Workstation System Requirements).
6. The MPU shall have all computers installed with US Army approved Windows 10 AGM, Microsoft Word, Microsoft PowerPoint, Microsoft Outlook, and Microsoft Excel.
7. The TAF workstations shall have enough internal hard drive space for one (1) rotations worth of video, audio, and exercise data on TAF workstation computer.
8. The MPU shall have an external hard drive mounted in the MPU rack with enough hard drive space for one (1) rotations worth of video, audio, and exercise data.
9. The MPU shall also have a high speed color laser printer with an automatic document feeder. The printer in the MPU must be compatible with Windows 10 AGM. The printer shall have the capability for:
  - 1) 2-sided automatic scanning
  - 2) 2-sided automatic printing
  - 3) Minimum 600 dots per inch (dpi) scan and print
  - 4) 30 color pages per minute (ppm) or greater
  - 5) Minimum of 60,000 color pager per month maximum duty cycle
10. The MPU shall have one (1) MPU laptop workstation (See Appendix B: MPU Laptop System Requirements) with a computer monitor, keyboard, and mouse. The laptop shall have printer connectivity.
11. The MPU shall have one (1) cell phone repeater mounted in the MPU shelter with an external antenna for cell phone coverage when the container is sealed.
12. The MPU rack system shall accommodate a minimum of 25% future growth. The rack system shall be easily movable by one person for ease of access to the rear of rack.
13. The MPU shall have a workspace counter in front of the monitors to provide space necessary to accommodate equipment (i.e. laptops, notepads) to support AARs.

### **3.4 Microwave Mast Assembly**

1. The MPC shall have one telescopic pneumatic Microwave Mast Assembly and associated compressor (two systems total). This Mast Assembly shall be installed on the MPU shelter or the MPU vehicle.

2. The Mast shall be fully erected to 80 feet, minimum. When the Mast is lowered on the vehicle, the maximum height of the Mast shall be 13 feet 6 inches from the ground. The Microwave Mast Assembly shall have an automated/semi-automated means to raise and lower the tower.
3. The Microwave Mast Assembly shall be capable of operating in winds of up to 70mph (113 km/h) at full height with all equipment and antennas installed in all weather extremes with a 1.6 performance margin of safety, meaning the tower shall withstand 1.6 times additional load of equal force to the maximum load it was designed to support. The Mast shall have guy wires provided to increase the support and durability.
4. The Microwave Mast Assembly shall have redundant safety features to prevent over extending or over retracting the mast/tower. The Microwave Mast Assembly shall have the capability to lock out autonomous and remote operation while maintenance is being performed on the tower.
5. The Microwave Mast Assembly shall reuse existing microwave antennas (Model 7-71-RFB-186-MWS)(S/N 1233971 36016) and NTIA Licensed band Point To Point (PTP) digital microwave system (J/F12 #10055).

### **3.5 Live Audio/Video Capture**

1. The MPU shall be able to provide training events video/audio capture capability that are used for training feedback data in the AAR's. The MPC shall be capable of local video/audio capture, as well as, transporting the captured video via microwave communication or fiber optic network to the Core Instrumentation System (CIS). The MPC units are linked through the Range Monitoring and Communications Subsystem (RMCS) fiber optic and microwave components to the CIS for real time monitoring of battle training events.
2. The MPU shall have:
  - a) four (4) portable video/audio recording wireless cameras with transmit antennas capable of transmitting a minimum of 2 kilometers
  - b) four (4) tripods and four (4) camera shoulder straps
  - c) the ability to ingest removable media from the wireless cameras
3. The wireless camera shall have:
  - a) storage capacity of at least 4 hours of HD video with the ability to ingest the data at the MPU
  - b) a minimum 6 hour runtime capacity without a battery change
  - c) transmit and receive in the frequency range of 1.95 GHz to 2.7 GHz

d) an antenna plug which is able to use an extension antenna to be used to provide signal coverage when used inside building areas. The extension antenna with 50ft cord must be include with each portable cameras.

4. The transmitter and receiver shall be supplied with associated cable sets. The receiving antenna shall be mounted on the microwave mast for maximum transmitting distance.

5. The MPU system shall ensure that the video/audio products in transit encryption comply with Advanced Encryption Standard (AES) in accordance with U.S. Army Regulation 25-2. The contractor shall configure all encrypted products according to FIPS 142 requirements to maintain the risk posture currently on site at JRTC.

### **3.6 MAAR and MPU Shelters**

1. The MPC systems shall have the Heating Ventilation and Air Conditioning (HVAC) units for each shelter. The shelter HVAC units shall be mounted in such a way to allow a service time of one hour to remove and replace components. The HVAC air intake shall be positioned away from the diesel exhaust. The HVAC system shall be thermostatically controlled by the operators and accurate within +/-1.5° F (0.83° C).

2. The MPC HVAC systems shall be capable of establishing and maintaining internal shelter temperatures of no more than 72° F (25.5° C) in extreme heat of 120° F (49° C) with Solar Loading, operating equipment and occupants within 60 minutes after start up. Additionally, the HVAC shall be capable of establishing and maintaining internal shelter temperatures of at least 62° F (16.6° C) in extreme cold of -10° F (-23° C) with 30 mph (48.3 kph) wind speed, operating equipment, and occupants within 60 minutes after start up.

3. All internal equipment and electronics in the MAAR and MPU shelter shall be ruggedized to withstand dust and high levels of humidity present at Fort Polk, regardless of shelter doors remaining open or closed during operation.

4. The MPC systems shall have shelters that are capable of controlling the acoustical noise generation and penetration shall be in accordance with 29 CFR 1910.95. In addition, the acoustical noise level in operational areas when in full use of internal equipment, HVAC system and external generator shall not exceed 80dB at the workstations.

5. The MPC systems shall have shelters that have internal storage cabinets throughout for operator and shelter supplies. The storage compartment shall be capable of securing the internal items during transportation. Some storage items will include but not be limited to office supplies and cleaning products. Dedicated shelter storage shall be provided for the portable cameras and printers.

6. The MPC systems shall have shelters configured with non-slip, non-porous flooring that can be cleaned and maintained. The interior wall covering shall be easy to maintain, stain resistant, and provide sound absorption to prevent echoing.
7. The MPC systems shall have the following shelter doorway access and egress characteristics:
  - a. Steps: The shelter shall have non-skid retractable/removable/lockable steps with a means to limit tracking in mud, dirt and sand. The steps shall include hand railings for added safety depending upon the number of steps and height of the shelter above the ground.
  - b. Overhang: The shelter shall have a drip edge above the doorway.
  - c. Door Seals: The door and doorway (kick plate) shall have weather-stripping to prevent wind driven water, dirt and dust from entering the shelter when the door is closed.
  - d. Door Locks: The shelter shall have mechanical push button lock doors for personnel access.
  - e. Door Size: Doorway opening shall be large enough for safe ingress/egress of personnel and to allow for all internal components to be removed and replaced.
  - f. Awning: Retractable awnings shall be provided outside the door.
8. The MPC systems shall have external interface panels which will connect the power and communications between the MPU and the MAAR. Along with powering the MPC these panels shall provide bidirectional communications links for voice, data, video and audio signals between the MPU and MAAR. Audio and video shall be provided using one cable connection rather than one cable for audio and one cable for video. The interface panels shall be designed to allow 25% greater capacity for future upgrades.
9. The MPC systems shall have recessed lighting sufficient to illuminate the entire surroundings of the shelter out to a radius of 50 ft. for maintenance, setup, and operator safety in accordance with MIL-STD-1472F, Table XV, (Repair Work and General).
10. The MPC systems shall have a coating on the exterior of the shelter that will prevent corrosion. The shelters shall have a permanent paint of Field Drab 33105 IAW FED-STD-595B. Selection of color for all surfaces, excluding optics, shall be the low visibility, lusterless, non-reflective type. Commercial advertisements and logos shall not appear on the shelters or transport vehicles.
11. The MPC systems shall have suppression, power conditioning and Uninterruptable Power Supply (UPS) back up battery for up to 30 minutes of operation limited to computational systems, lighting and other critical systems needed to ensure safe and graceful shutdown of the MPU and MAAR. The power system shall be capable of being monitored from the MPU, reporting status information related to generator performance,

remaining fuel, etc. The power supply and distribution system shall conform to applicable National Fire Protection Association (NFPA) standards.

12. The MPC systems shall have four (4) standard power outlets along a shelf mounted on one of the MPU shelter walls. The MPC systems shall have twelve (12) standard power outlets along a shelf mounted on the rear wall of the MAAR shelter. The wall mounted shelf shall have enough space for placement and charging of cell phones and handheld radios. All shelter power outlets shall provide standard 115 volt dual power outlets with integrated three (3) amp dual USB charging ports. Other power outlets shall be provided at standard intervals along shelter wall. Shelter switches shall be conveniently located and logically configured to simplify access. The MPC systems shall have a securely mounted microwave and counter space for coffee pot with a 20 amp outlet for each.

13. The MPC systems shall have a minimum of two variable lighting controls enabling operators full light dimming capability. Light placement shall minimize workstation glare. Lighting mounted on the ceiling shall hang no lower than 78 inches (1.98 m) above the floor of the shelter. Emergency wall mounted/powering rechargeable handheld flashlights shall be provided near the doorway. The shelter lighting shall conform to Occupational Safety and Health Administration (OSHA) standards (29 CFR 1915.82 (lighting)).

### **3.7 MAAR Shelter**

1. The MAAR extendable shelter shall have an automated/semi-automated means to expand and retract the shelter and have a manual back-up capability. The shelter size when not extended shall not exceed the maximum size allowable for transportation on U.S. highways. When extended it shall be large enough to accommodate all equipment/devices in operating set up and 30 personnel.

2. The MAAR shelter shall be securely mounted on a GFE Heavy Expanded Mobility Tactical Truck (HEMTT) (M985A4 CARGO TRUCK)

3. The MAAR shelter shall have 30 folding chairs and 2 folding tables of the size 30"x60". Chairs and tables shall be commercial grade. Chairs and tables shall be capable of being secured in a storage configuration during transit.

### **3.8 MPU Shelter**

1. The MPU shelters shall be a mobile tactical shelter designed for transport by truck, S-280 shelter or equivalent. The MPU shelter shall be securely mounted on the existing Light Medium Tactical Vehicle (LMTV)(M1084 A1P2).

2. The MPU shelters shall have an office-type environment workstation which includes seating to accommodate three (3) operators with a floor to ceiling height of not less than

78 inches. Each operator workstation shall contain a desk-top area comprised of one (1) CIS TAF workstations and other workstations which are required for the control and operation of the MPC. The MPU shelters shall have three (3) mesh multi adjustment roll around chairs suitable for long duration seating.

3. The MPU shelters shall have an integrated network of accessible servers in the equipment rack area of the shelter. The equipment rack area shall host all equipment required for MPC operation. Individual future growth space of at least 100% or 36 inches (whichever is greater) shall be provided for the server area. The equipment rack area shall have a positive pressure filtered cooling design (based on 100% growth) and incorporate sound proofing for operator protection and comfort. Equipment shall be positioned with easy and safe access for maintenance.

#### **4.0 VERIFICATION**

The requirements of the MPC replacement system listed in section three (3) of this document shall be verified by inspection and demonstration which will be conducted in-plant at the contractor's facility and on-site in accordance with the SOW. The Operational Final Acceptance Testing shall exercise all installed components of the MPC to include the hardware and software elements for two (2) full rotations at the JRTC, Ft Polk, LA.

##### **4.1 Inspection and Demonstration**

The MPC system, including all components of the MPU and MAAR addressed in section three (3), shall be completely inspected in-plant at the contractor's facility and on-site at JRTC, Ft Polk, LA to meet all requirements. The MPC shall demonstrate full control of the system and gather information from all available data points to verify correct functionality and compatibility of both hardware and software. The MPU shall create and transfer an AAR to MAAR both in-plant and on-site to demonstrate operational functionality and systems integration.

##### **4.2 Operations Final Acceptance Testing**

The MPC shall exercise all installed components of the MPU and MAAR to include the hardware and software elements for two (2) full rotations at the JRTC, Ft Polk, LA. The Operational Final Acceptance Testing of the MPC shall follow the approved government test plan. The MPC shall demonstrate full control of the system in the field and gather information from all available data points. The MPC shall communicate and transfer AAR data to the Operational Command Centers to verify functionality between locations.

**APPENDIX A: TAF WORKSTATION SYSTEM REQUIREMENTS**  
**(Minimum Requirements)**

CPU	Quad Core 2.8 GHz or better
Memory	8GB DDR4 (min 2000 MHz) or better
Video Card	4GB GDDR5 minimum, support for 4 monitors, no dual card configurations (ex. SLI)
HDD	7200 RPM 500 GB or better
Monitors	2 - 20" or bigger
Other	Keyboard, Mouse, 2 channel speakers, office chair, printer

**APPENDIX B: MPU LAPTOP REQUIREMENTS**  
**(Minimum Requirements)**

CPU	Intel Core i7-6820HK 2.7 GHz @ 4 GHz or better
Memory	64GB Dual-Channel or better
Video Card	16 GB DDR4-RAM8192 MB, Core: 1543 MHz, Memory: 4200 MHz,
HDD	7200 RPM 1500 GB or better
Monitors	17" Full-HD display 120 HZ 16:9, 1920x1080 pixel or bigger
Weight	Under 10 lbs
Battery	75.2 Wh, 5225 mAh Lithium-Ion, 8 cells or better
Operating System	Microsoft Windows 10
Networking	Gigabit Ethernet Controller (10/100/1000MBit), Wireless-n/a/ac, Wireless Network Adapter (b/g/n/ac) or better
Connections	Connections 5 USB 3.0 / 3.1 Gen1, 1 HDMI, 2 DisplayPort, laptop locking device, Card Reader, Audio Connections: Headphones, Microphone, Line-in, line-out