



U N I T E D S T A T E S M A R I N E C O R P S

# U.S. Marine Corps (Ground) Liaison Report

## 31 August 2023

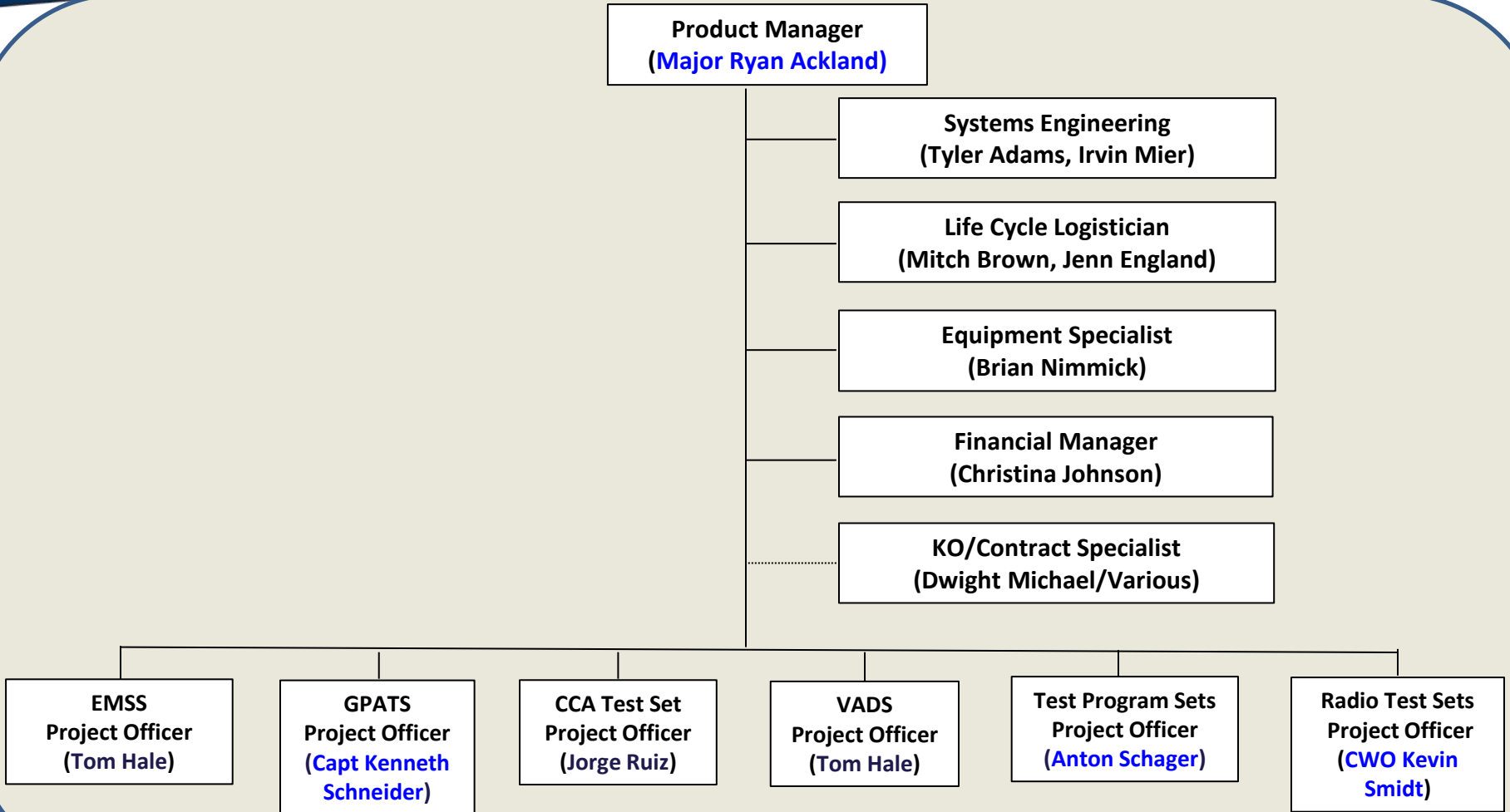
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# USMC ATE/TPS Overview

- General Purpose Automatic Test Systems (GPATS)
- Electronic Maintenance Support System (EMSS)
- Vehicle Automated Diagnostic System (VADS) & Wireless At-Platform Test Set
- Circuit Card Assembly (CCA) Test Station
- Ground Radio Maintenance Automatic Test System (GRMATS)
- Planned and Ongoing Efforts

# USMC ATS Team Organization (PMM-151.4)



# GPATS

- AN/USM-717(V)2 VIPER/T, AN/USM-657B(V)2 TETS
  - Supporting analog/digital Electronic Test Programs
- AN/USM-717(V)3 VIPER/T
  - Supports testing of:
    - Infrared (IR) and Image-Intensified (I2) night vision devices
    - Laser designators, illuminators, laser aiming devices, and laser range finders.



# GPATS Application Program Sets

- Currently Fielded GPATS Application Program Sets
  - AN/PSM-115 - AAV MSQ-115 Diagnostics
  - AN/PSM-117 - Handheld and Weapon-Mounted Optics/ Laser Devices
  - AN/PSM-118 – Light Armored Vehicle-25 Chain Gun Functional Test
  - AN/PSM-119A - LW155 LRU Diagnostics
  - AN/PSM-123 - LAV-25A2 LRU Screening/ Diagnostics
  - AN/PSM-120 - LAV Instrument Panels/ Heads-Up Display Diagnostics
  - AN/PSM-126 - Very Small Aperture Terminal Diagnostics
  - AN/PSM-129 - Saber Anti-Tank Weapon System LRU Diagnostics
  - AN/PSM-130 - LAV-25A2 CCA Diagnostics
  - AN/TSM-220 - Power Systems (Power Supplies, Conditioners, Chargers)
  - AN/TSM-223 - LAV-Anti Tank LRU Diagnostics

# GPATS Application Program Sets

- Current TPS Efforts in Progress
  - AN/PSM-129 M41 SABER weapon system LRU APS
    - TPS modification in process for:
      - Multi-sensor Target Acquisition System (MTAS) Fire Control Radar (FCS)
  - AN/PSM-123 LAV-25
    - TPS modifications in process for:
      - Slip Ring Assembly
      - High Power Distribution Module
  - AN/PSM-117 Handheld and Weapon-Mounted Optics/ Laser Devices - (Additional TPSs)
    - TPS modifications in process for:
      - Scout/Squad Sniper Laser Range Finder
      - Long Range Sniper Rifle Night Sight
      - Squad Thermal Sight

# GPATS Modernization

- GPATS Modernization Program
  - Address current and anticipated obsolescence for GPATS (TETS and VIPER/T)
  - Completed/implemented efforts
    - Common Instrument Controller (CIC) Upgrade
    - Transition to MS Windows 10
    - TPS rehost validation completed
    - Fielding in progress and completion in FY23
- System Software Hardware Abstraction Layer (HAL) update
  - Work in progress with anticipated completion FY23
- VEO-2 Infrared Collimator Set
  - Adding hardware for the Tactical Fiber Optic Range Tester
    - Increase capability for additional TPSs for use with APSS



# EMSS

## Electronic Maintenance Support System (EMSS)

Program Description: EMSS provides a rugged, lightweight, one-man portable maintenance aid designed to enhance combat service support to MAGTF forces in both deployed and garrison environments. EMSS provides the maintainer with networked tools and electronic information which enables sustained performance and readiness of weapons systems. EMSS provides diagnostic capabilities, access to technical information, and access to GCSS-MC when connected to the MCEN-N.

### CURRENT CAPABILITY:

- One-Man Portable Maintenance Aid
- External Equipment Hardware Interfaces
- Test and Diagnostics
- Displays Technical Data
- Support Maintenance Mentoring
- Network Connectivity

### FUTURE CAPABILITY:

- Expanded Platforms
- CBM+ Enabler
- Controller for WATS
- Augmented Reality
- Virtual Enhancements



### SUPPORTED OccFlds:

EMSS serves as an At-Platform maintenance aid for Ordnance, Engineer, Motor Transport, and Ground Electronics communities:



Contract awarded for Next Generation EMSS 2QFY23



# Vehicle Automated Diagnostic System (VADS)

VADS is a lightweight, portable diagnostic system of modular design that is used to perform intrusive diagnostics on diesel engines, transmissions, central tire inflation, anti-lock braking, and other vehicle data bus systems.



Vehicle Automated Diagnostic System (VADS)



Test Adapter Vehicle (TAV)



Transducer Kit



Controller

Wireless At-Platform Test Set (WATS) and Calibration Kit fielding to replace all versions of the VADS beginning in 2023. Contact awarded in FY22.

Will be fielded to units and employed in conjunction with the EMSS



WATS A75022H



Transducer Kit H70212H



CATCOM 3 H70102G



WATS ATE A78102H



EMSS Controller

# VADS

## Weapon Families/ Weapon Systems Supported

- **“E” TAMCN ORDNANCE PLATFORMS**

- LAV
- AAV
- M88 TRACKED RECOVERY VEHICLE
- HIMARS

- **“B” TAMCN ENGINEER PLATFORMS**

- ATC / MAC 50
- MCT
- TRAM
- 120M GRADER
- WTS SCRAPER
- STREET SWEEPER
- BHL
- MMV
- BUFFALO
- MTL
- HUSKY
- HYEX
- AMC
- M9 ACE
- AMMPS GENERATORS

- **“D” TAMCN MOTOR TRANSPORT PLATFORMS**

- MTVR
- LVSR
- COUGAR
- MATV
- JLTV
- P19R
- MTVR WRECKER
- LVSR WRECKER
- HMMWV



# Circuit Card Assembly (CCA) Test Station

- The Circuit Card Assembly (CCA) Test Station is a shelter mountable unit that provides the capability to capture, digitize, and store signatures of known good components for reference with the test of similar CCAs and electronic modules for out of tolerance, deteriorating, or defective components on a wide variety of weapon systems.
- The CCA Test Station consist of the Huntron Pro-Track Tester model 32, PC Controller (Win 10) compliant, and accessories ESD Kit.
- The CCA Test Station features a variable range parameters resulting in hundreds of voltage, source resistance, and frequency combinations.



**Huntron Model 32  
AN/USM-726  
Tech Refresh**

# GRMATS

## **AN/USM-718A Ground Radio Maintenance Automatic Test System (GRMATS)**

- Performance testing and diagnostic tool for software defined radio testing
- Primarily used at intermediate maintenance activities in conjunction with the Ground Radio Application Program Set (GRAPS) and Tactical Remote Sensor System (TRSS)
- No planned modification to current baseline and future requirements for increased radio testing capability will be invested in a replacement system.
- Market Research completed in 2022 for replacing legacy GRMATS systems.



AN/USM-718 (ATS2000)

AN/USM-718A (GRMATS 7200)

# GRMATS Application Program Sets

- Currently Fielded GRMATS Application Program Sets
  - AN/PSM-127 – Ground Radio Application Program Set (GRAPS) – Multiple Software-Defined Radio System Components
    - RT-1796 (PRC-117F)
    - RT-1694 (PRC-150)
    - AN/PRC-148 Urban (V2)
    - AN/PRC-148 Maritime (V1)
    - RT-1916 V1, V3 (PRC-152 V1, V3)
    - AN/VRC-111 VAA
    - AM-7588 VRC-103
    - RF-5833H
    - RF-300M 50W VRC-110
  - AN/TSM-221 – Tactical Radio Intermediate Maintenance Activity Application Program Set (TRIAPS)
    - AN/PRC-117G Radio and Vehicle Amplifier Unit (VAU)
    - Additional TPSs for AN/PRC-160, AN/PRC-158, AN/PRC-163 with amplifiers in development FY23.
  - AN/PSM-131 – Tactical Remote Sensor System (TRSS) LRU Diagnostics
    - Rehosted from AN/GRM-122

# GRMATS Application Program Sets

## Ground Radio Application Programs Sets (GRAPS)

- TPS kits used in conjunction with AN/USM-718A GRMATS for testing USMC tactical radios
- Tests PRC-152, PRC-148, PRC-117F and vehicle amplifiers



## AN/TSM-221A Tactical Radio Intermediate Maintenance Activity Application Program Set (TRIAPS)

- Used only at intermediate maintenance
- COTS solution for PRC-117G and vehicle amplifier
- Includes laptop, power supply, RF attenuators, power sensor, interface cables
- Will expand to test future NSA crypto-compliant, software radios PRC-160, PRC-158, PRC-163



# Planned and Ongoing ATS Efforts

- **Advanced Combat Vehicle (ACV)**
  - Working with the ACV Program Office to identify test requirements for vehicle electronics and electro-optical components
  - Requirements document in process
  - Planning stages for support and concept
- **Stand-Alone Controller for Electro-Optic Testing**
  - Reduced footprint EO test system utilizing existing VIPER/T EO collimator
- **Next Gen GPATS**
  - PXI/PXIe-based system
  - USMC preparing requirements document
  - RFI issued May 2023
    - Responses received and under evaluation

# Planned and Ongoing ATS Efforts

- Tactical Radio Intermediate Test Set (TRITS)
  - Increase capability and modernize intermediate radio testing and divest legacy test systems
  - Partnership opportunity with US Army TMDE TS-4549/T
- Handheld Radio Test Set (HHRTS)
  - Replacement for the 3515N Portable Radio Communication Test Set
  - Orders issued for initial production units in April 2023
  - Deliveries planned to begin December 2023





Thank You!

**Questions?**