



**U.S. Marine Corps (Ground)
Liaison Report
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USMC ATE/TPS Overview

- AN/USM-657 - Third Echelon Test System (TETS)
- AN/USM-717 - Virtual Instrument Portable Equipment Repair/Test (VIPER/T) System
- AN/USM-718 - Ground Radio Maintenance Automatic Test System (GRMATs)
- Platforms/TPSs
- On-going and Future Test Activities

USMC ATE Systems

- AN/USM-657 - Third Echelon Test System (TETS)
 - 228 systems
 - 25 Core (Analog/Digital)
 - 165 RF
 - 38 EO
 - Upgrades in process (from VIPER/T program)
 - Instrument Controllers (replacement) – 228
 - Power Distribution Units (replacement) – 164
 - Synchro/Resolver Simulator (added capability) – 44
 - 18 GHz RF Subsystem (replacement) - 5
 - Field locations
 - Supporting Marine Infantry Divisions, Air Wings, Logistics Groups, Headquarters Groups, and Depots



USMC ATE Systems

- AN/USM-717 - Virtual Instrument Portable Equipment Repair/Test (VIPER/T) System
 - 127 VIPER/T Systems ordered and delivered
 - 45 RF
 - 44 RF/EO
 - 38 EO

Core System



EO Subsystem



USMC ATE Systems

- AN/USM-717 - VIPER/T (Cont'd)
 - Fleet fielding
 - Light Armored Reconnaissance (LAR) Elements, Afghanistan
 - Combat Logistics Regiment (Forward), Afghanistan
 - 2nd LAR Bn, Camp Lejeune, NC
 - 3d LAR Bn, 29 Palms, CA
 - Exercise Support Division, 29 Palms, CA
 - Electronics Maintenance Company, Camp Lejeune, NC
 - 1st and 4th LAR Bn, Camp Pendleton, CA
 - 1st Ordnance Maintenance Co, Camp Pendleton, CA
 - 2nd Ordnance Maintenance Co, Lejeune, NC
 - School of Infantry, Camp Pendleton, CA

USMC ATE Systems

- AN/USM-717 - VIPER/T (Cont'd)
 - Retrofit Kits for legacy TETS
 - Instrument Controllers – New laptop, docking station and Windows XP-based operating system with modified system software
 - 228 modification kits ordered and delivered
 - Power Distribution Units - New single box PDU with modified system software
 - 164 kits ordered and delivered
 - Synchro/Resolver Simulators - NAI Synchro/Resolver Simulator VXI card and cables with modified system software
 - 44 kits ordered
 - 25 kits delivered
 - RF Subsystems – Synthetic instrument-based design in VXI format to provide RF stimulus and measurement to 18 GHz as well as address obsolescence issues with legacy TETS RF instrumentation
 - 5 kits ordered and delivered

USMC ATE Systems

- AN/USM-657 TETS and AN/USM-717 VIPER/T
 - On-going efforts
 - Software Support
 - Astronics DME providing software maintenance for TETS and VIPER/T through June 2011
 - System software and supporting documentation
 - Calibration Support
 - Astronics DME providing support for out of cal VIPER/T systems
 - VIPER/T EO Upgrades
 - Low Light Mods
 - Reduce visible light levels for Image-Intensified (I2) devices
 - Support for AN/PAS-24A IWNS-I2 and similar I2 devices
 - Target Wheel Mods
 - Replace targets to allow testing and aligning of handheld and weapons-mounted optics and laser devices
 - Include removable/replaceable targets
 - Design Validation complete; modification of initial units in progress

USMC ATE Systems

- AN/USM-657 TETS and AN/USM-717 VIPER/T
 - Upcoming efforts
 - AN/USM-657 TETS
 - Contracted (2) industry studies to identify and demonstrate suitable alternatives for obsolete system instruments. A third study is pending award.
 - USMC Depot (Albany) procuring new Gigatronics RF synthesizers based on backorder demands
 - AN/USM-717 VIPER/T
 - EO collimators being modified to enhance test capabilities for Electro-Optic (EO) devices

USMC ATE Systems

- Test Program Sets and Application Program Sets
 - ID/IQ contracts for TPS Development and APS Production
 - Base Contract with 3 Option years
 - Astronics DME
 - Mantech Test Systems
 - Analysis, Integration and Design, Inc. (AIDI)
 - Seven Task Orders awarded thus far
 - AN/PSM-105 APS Production and TPS Rehost (TRC-170 UUTs)
 - AN/PSM-113 APS Production (TETS Training TPS)
 - AN/PSM-109 TPQ-46A Firefinder TPS rehost and development
 - AN/PSM-120 LAV25-A2 Instrument Panel/Annunciator Panel TPS rehost and APS Production
 - AN/PSM-123 LAV25-A2 MOOG APS Production
 - Racal 3152 proof-of-concept replacement (TETS and VIPER/T)
 - Instrument Controller proof-of-concept replacement (TETS and VIPER/T)

USMC ATE Systems

- AN/USM-718 - Ground Radio Maintenance Automatic Test System
 - USMC MARCORSYSCOM Quantico
 - Screening and diagnostic test capability for both current and future software-defined, tactical radios
 - Field-level solution for organic secrep maintenance
 - To be fielded 1-to-1 with TPS kits
 - Ground Radio Application Program Sets (GRAPS)
 - 5-Year contract with options for up to 700 units
 - GRMATS First Article Test in progress

USMC ATE Systems

- Ground Radio Application Programs Sets (GRAPS)
 - TPS kits to be used in conjunction with AN/USM-718A GRMATS for testing USMC tactical radios
 - Rehosting existing test capabilities from currently fielded test systems (GRMATS Block I) to systems coming out of production (GRMATS Block II)
 - Rehost effort will include production quantity of (100) GRAPS sets
 - Follow-on production (~460 units) to be awarded separately
 - Developing new Test Programs to be implemented on Block II GRMATS
 - Utilizing DOD engineering facilities for new Test Program Development
 - Production to be awarded after LRIP delivery

Platforms/TPSs

- Current platforms supported by Marine Corps ATE
 - AN/MRC-142B Digital Wideband Transmission System
 - AN/TPQ-46A Firefinder Radar
 - AN/TRC-170 Tropospheric Scatter Microwave Radio Terminal
 - LAV-25 Light Armored Vehicle (LAV-25A2) Turret LRUs
 - LAV-AT TOW II System and LRUs
 - AN/PAS-22 Long Range Thermal Imager
 - M-777A2 (LW155) Light Weight 155 Digital Fire Control System LRUs
 - M1A1 Abrams (CCAs)
 - Amphibious Assault Vehicle (AAV) Intercom System LRU/CCA
 - Family of Handheld/Vehicular Tactical Radio Systems

Platforms/TPSs

- Current TPS and APS Efforts in Development/Production
 - Picatinny Arsenal – New Jersey
 - Rehost M-777A2 Lightweight Howitzer Digital Fire Control System LRU Test Programs to AN/USM-717(V)2 VIPER/T
 - Astronics DME – Orlando, FL
 - TPS rehost and Production for TRC-170 Radar UUTs
 - Production for TETS Training TPS
 - TPS rehost and new development for TPQ-46A Firefinder Radar
 - TPS Production for LAV25-A2 Electric Turret LRUs
 - Mantech Test Systems
 - Rehost and production of LAV25-A2 Instrument Panel/Annunciator Panel/Heads-Up Display Assembly Test Program Sets

Platforms/TPSs

- Future/Planned TPS Efforts
 - Support Wide Area Network (SWAN-D)
 - Shoulder-Launched Multipurpose Assault Weapon (SMAW II)
 - LAV-25A2 Improved Thermal Sight System (ITSS)
 - Thermal Sight System for Amphibious Assault Vehicle
 - Squad Thermal Sight (STS)
 - AN/MRC-142C Radio Set

Ongoing Efforts

- VIPER/T and TETS Technology Insertion
 - Proof-of-concept replacement of TETS and VIPER/T Racal 3152, 3152A with Racal 3152B
 - Proof-of-concept replacement of TETS and VIPER/T Instrument Controllers with new laptop computers (two different versions)
 - Proof-of-concept replacement of TETS and VIPER/T video capture cards with new video capture cards
- Modernization of Software Development Tools, Processes, and Techniques
- Increased Testing Capability of Nonlinear Optics
 - Common EO prototype
 - Downsized Laser Tester prototype
- Increased use of IT and Networking of ATS
 - NxOMS & Marine Corps Support and Response Enterprise (MSRE)
- Inter-service Initiatives
 - Common USMC ATE Interface
 - SBIR NAVAIR-101-666 - Universal Switching Across Automatic Test Systems
 - Advance the Concept of Smart Test
 - Army Parallel Test SBIR

USMC Future Test Activities

- General Purpose Automatic Test System (GPATS)
 - Future Marine Corps Automatic Test System
 - Successor to TETS and VIPER/T
 - Reduced footprint, modular and configurable based on mission requirements
 - Analog/ Digital, RF, Optics, Lasers, Cable Testing
 - Will support Depot, Field and Organizational Maintenance
 - At-System Diagnostics
 - Off-System Component Testing
 - Joint Capabilities Integration Development System (JCIDS) action in progress
 - Initial Capabilities Document (ICD) for Automatic Test Systems in development

USMC Future Test Activities

- EO Test Requirements
 - Common EO Tester prototype developed to assist in determining feasibility for a portable, stand-alone EO Test System
 - Downsized Laser Tester (DLT)
 - Develop a portable Laser Test Capability to support fielded laser aiming devices
 - Contract awarded to Santa Barbara Infrared
 - Demonstration/Acceptance scheduled for Sept 2011
- Identifying requirements for a Portable Cable Test System
 - On-vehicle testing of cable assemblies

MCATES Roadmap

