



Welcome to the NDIA Automatic Test Committee (ATC) Meeting

28 August 2022

Gaylord National Harbor

Magnolia 1



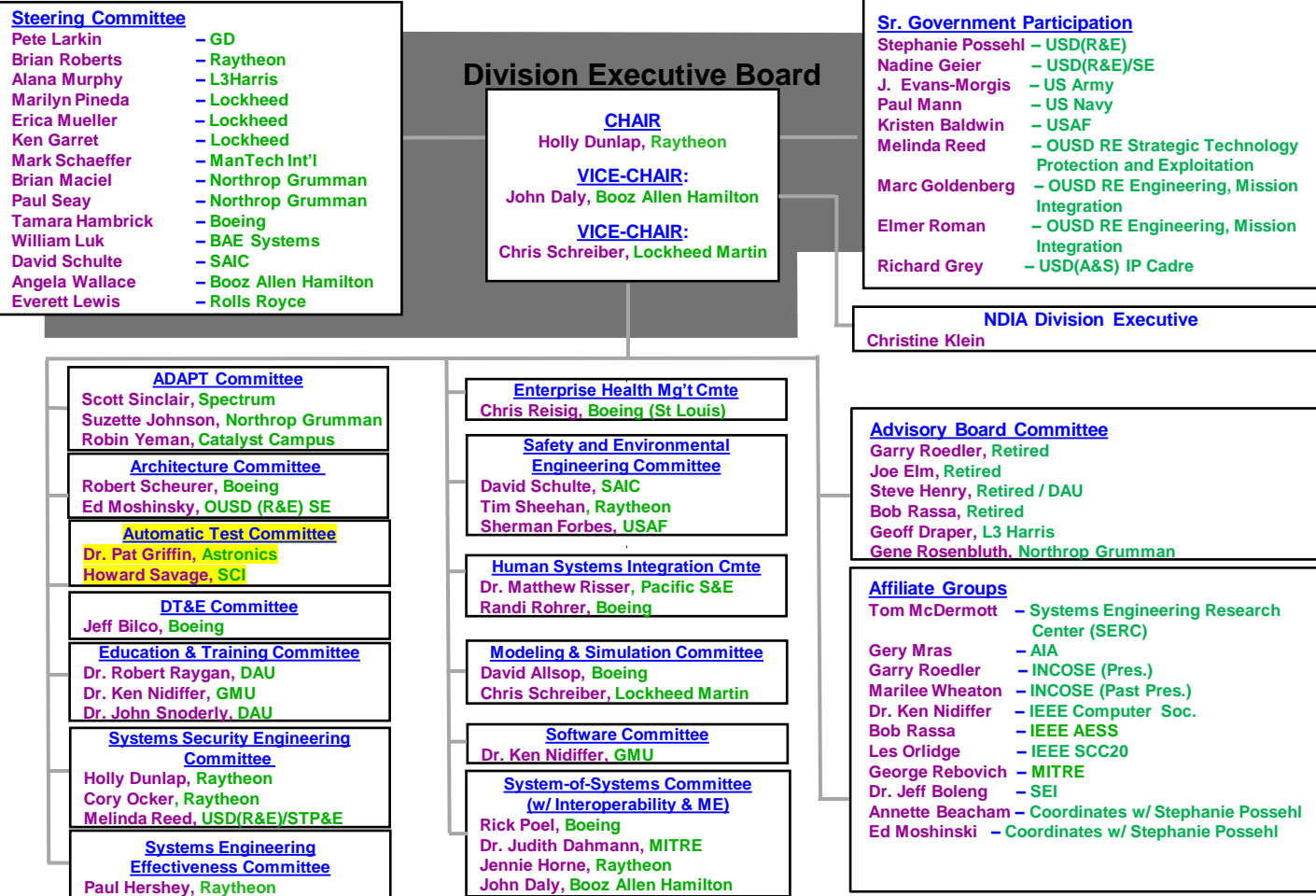
**National Defense Industrial Association
Automatic Test Committee Meeting
Sunday, August 28, 2022**

**Conférence Room Magnolia 1
Gaylord National Convention Center, National Harbor, MD**

Meeting Agenda

12:30 - 1:00 PM	On-site Registration / Sign-in	
1:00 PM	Opening Comments Introductions, Organization changes	Pat Griffin
1:15 PM	Liaison Reports DoD USAF Army Marine Corps (Ground)	Howard Savage Kevin Simpson Anthony Porter Donald Peacock Lou Salzano
3:00 PM	Break	
3:20 PM	Liaison Reports (continued) Navy/Marine Corps (Air) Commercial	Chris Giggey Christer Ljungdahl
4:00 PM	ATC Projects	Mike Dewey
4:15 PM	AUTOTESTCON 2022 Preview	Mike Seavey
4:30 PM	SCC20 Standards Activity Chairs Report	Mike Seavey
4:40 PM	Wrap-up/Thank you Next Meeting Spring 2023 NDIA HQ	Pat Griffin
5:00 PM	Adjourn	

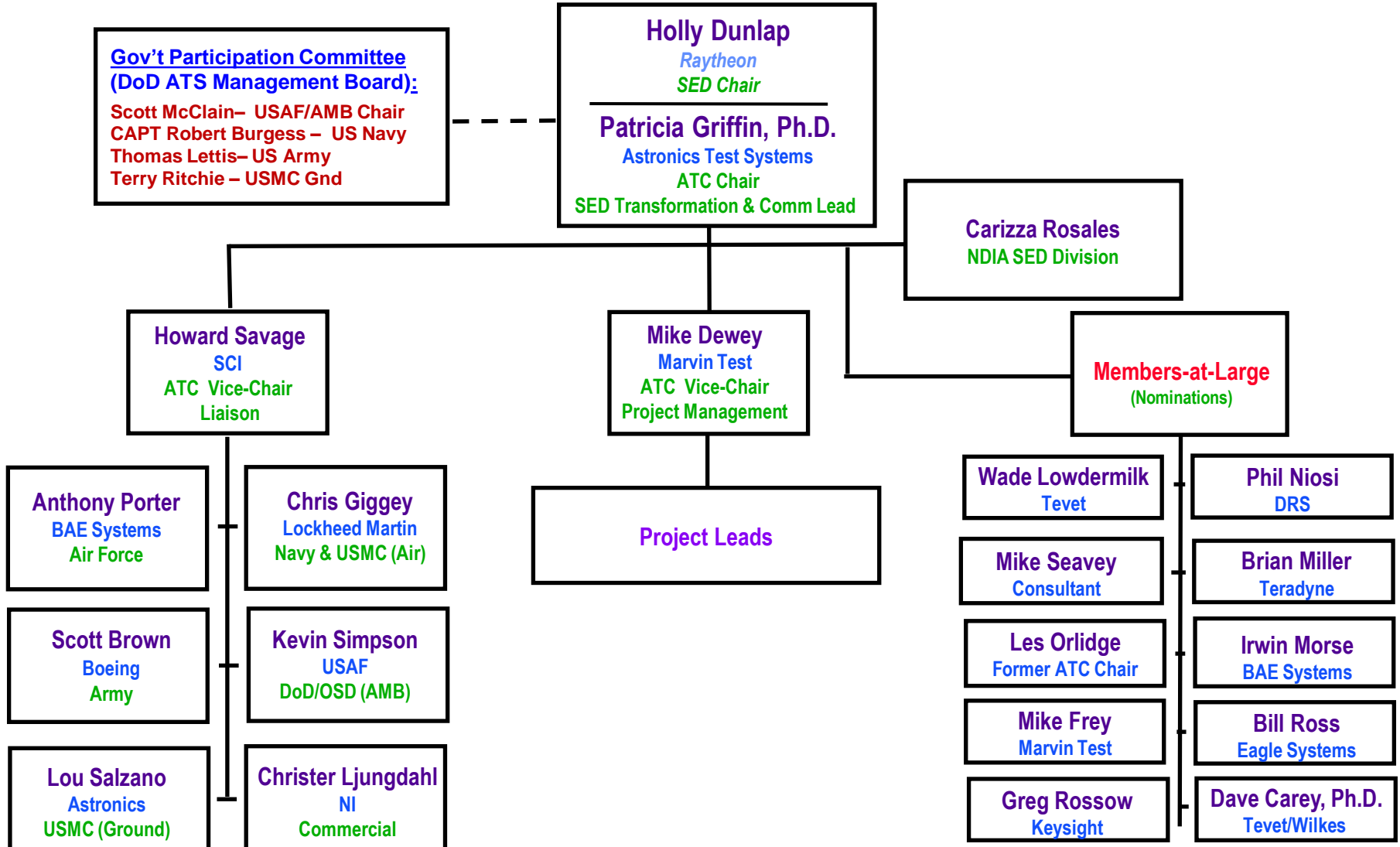
NDIA Systems Engineering Division Org Chart



National Defense Industrial Association - Systems Engineering Division

AUTOMATIC TEST COMMITTEE

2022 Steering Committee (28 August 22)





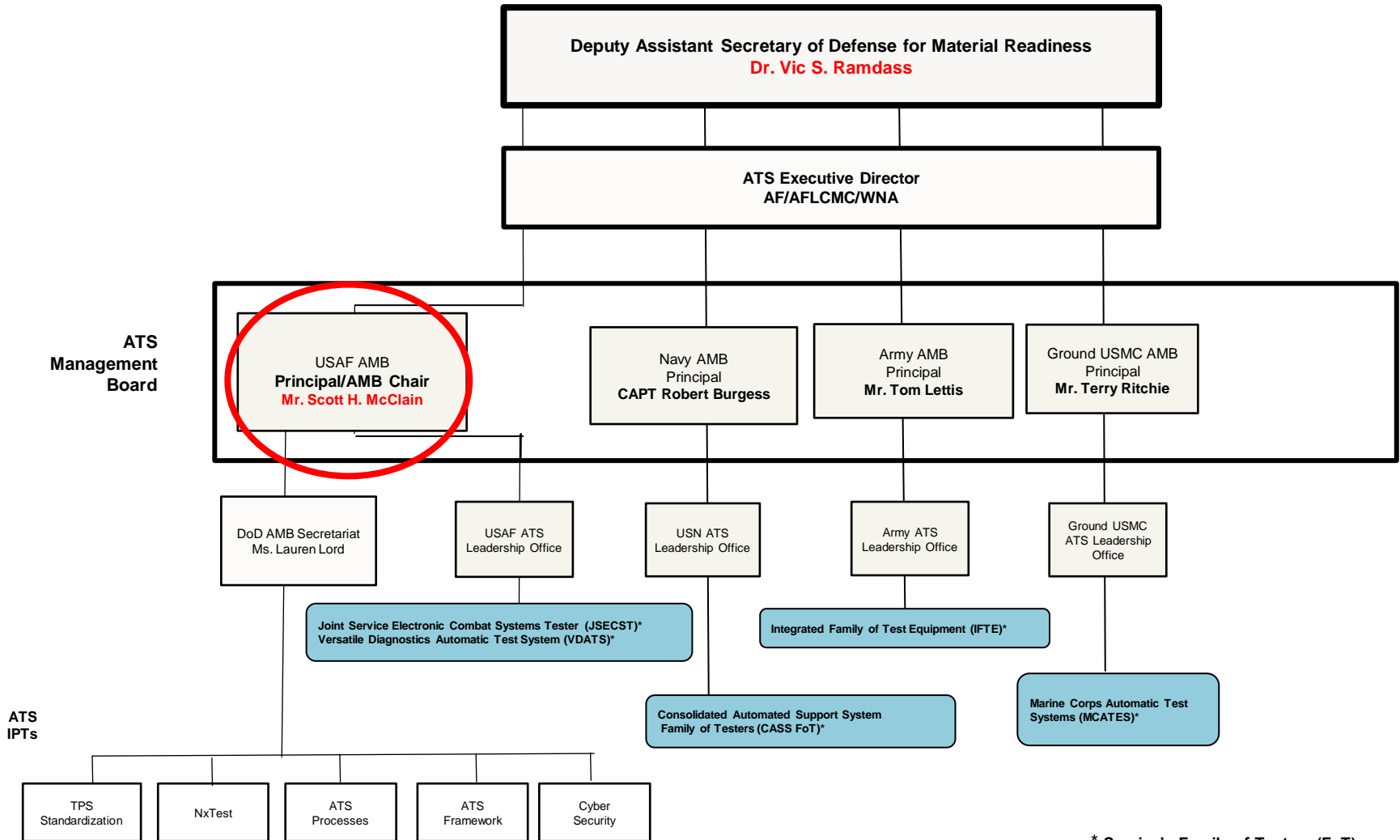
NDIA Automatic Testing Committee DoD ATS Designated Representative's Report

**DoD ATS Executive Directorate Office
28 Aug 2022**

DoD ATS Management Board (AMB)

Communication Construct

DoD ATS



* Service's Family of Testers (FoT)

DoD ATS Executive Directorate -- AMB

DoD ATS

- The DoD ATS ED and its joint services organizational structure shall serve as a forum to promote service collaboration, information exchange, and project and processes leveraging across all DoD services to help synergize, optimize and steer DoD enterprise ATS investment and implementation strategies to support the following DoD ATS goals:
 - Reducing ATS total ownership costs by minimizing the proliferation of unique test systems and standardizing on designated ATS families
 - Reducing ATS logistics footprint to enhance the warfighter's ability to rapidly deploy support along with weapon systems in modern conflict scenarios
 - Improving the quality of diagnostics and fault isolation to reduce the time required to test, repair and return to service failed systems and components
- AMB less focused on solely ATS policy but greater focus on leveraging technology investments and sharing information

Creating ATS interoperability/transportability within/across the Services
through MOSA → DoD solutions

DoD ATS Executive Directorate -- AMB

DoD ATS

- Last DoD AMB meeting was conducted virtually on 4 May 2022
 - Attended by participants including representatives from each of the DoD military services, as well as the F-35 Joint Program Office
 - Mr. Kevin D. Simpson represented the AF and AMB Chair with the departure of Mr. Will Williams as the AF ATS Division chief.
 - Each of the active Joint Service IPT Chairs summarized their Team's accomplishments and plans
- Next DoD ATS Management Board (AMB) meeting will be scheduled Spring 23
- The DoD ATS Executive Directorate public web site is:
<http://www.acq.osd.mil/log/MPP/ats.html>



Questions?

Kevin D. Simpson
kevin.simpson@us.af.mil
478-222-2103



NDIA AUTOMATIC TEST COMMITTEE

USAF Liaison Report

28 August 2022

Anthony Porter – BAE Systems



AGENDA

- Organization
- COVID-19 Impacts
- Current Program Highlight
- Opportunities
- Future Trends and Issues
- Questions



AFLCMC LEADERSHIP TEAM



SAE



Commander



Exec. Dir.



Vice
Commander



Command
Chief



Dir. of Staff



Mobilization
Asst.



ANG Asst.



88 ABW



66 ABG

EXECUTION DIRECTORATES



AFSAC



Agile Combat
Support



Armament



Bombers



Business &
Enterprise Sys



C3I &
Networks



Digital



Fighters &
Advanced Aircraft



ISR & SOF



Joint Strike
Fighter



Mobility &
Training



Presidential &
Executive Airlift



Propulsion



Rapid Sustainment
Office

ENABLING DIRECTORATES



Acq. Excellence
Program Execution



Architecture &
Integration



Contracting



Engineering



Financial
Management



History



Information
Protection



Intelligence



Inspector
General



Judge
Advocate



Logistics



Personnel



Plans &
Programs



Safety



Small
Business



AGILE COMBAT SUPPORT DIRECTORATE



CMSgt JuanCarlos Cueto
Senior Enlisted Leader



Col Carlos Quinones
Deputy PEO



Ms. Lea Kirkwood
PEO/Director



Kevin Keck
Deputy PEO



Col Joey Angeles
Sr IMA to Directorate



Mr. Scott McClain
Chief, Auto Test Sys



Mr. Carl Unholz
Chief, AFMETCAL



Colonel C. Matt Ryan
Chief, Simulators



Mr. Emilio Varcarel
Chief, Human Systems



Colonel Gregg Jerome
Chief, EW & AV



Colonel James Brenning
Chief, Spt Equip/Veh



Mr. Phil
Marcum
Chief,
Contracting
WPAFB



Mr. Marty
Ledden
Chief,
Contracting
Robins
AFB



Ms. Lynne
Leftwich
Chief,
Financial
Managemen
t



Mr. Alvin
"Clay"
Mims
Director of
Engineerin
g



Mr. William
Santiago
Chief,
Logistics



Ms. JoAnn
Freburg
Chief,
Management
Operations



Mr. Dennis
Deitner
Chief,
Portfolio
Analysis



Mr. Ron
Hannan
Chief,
Security



Mr. Michael
Duron
Chief,
FMS



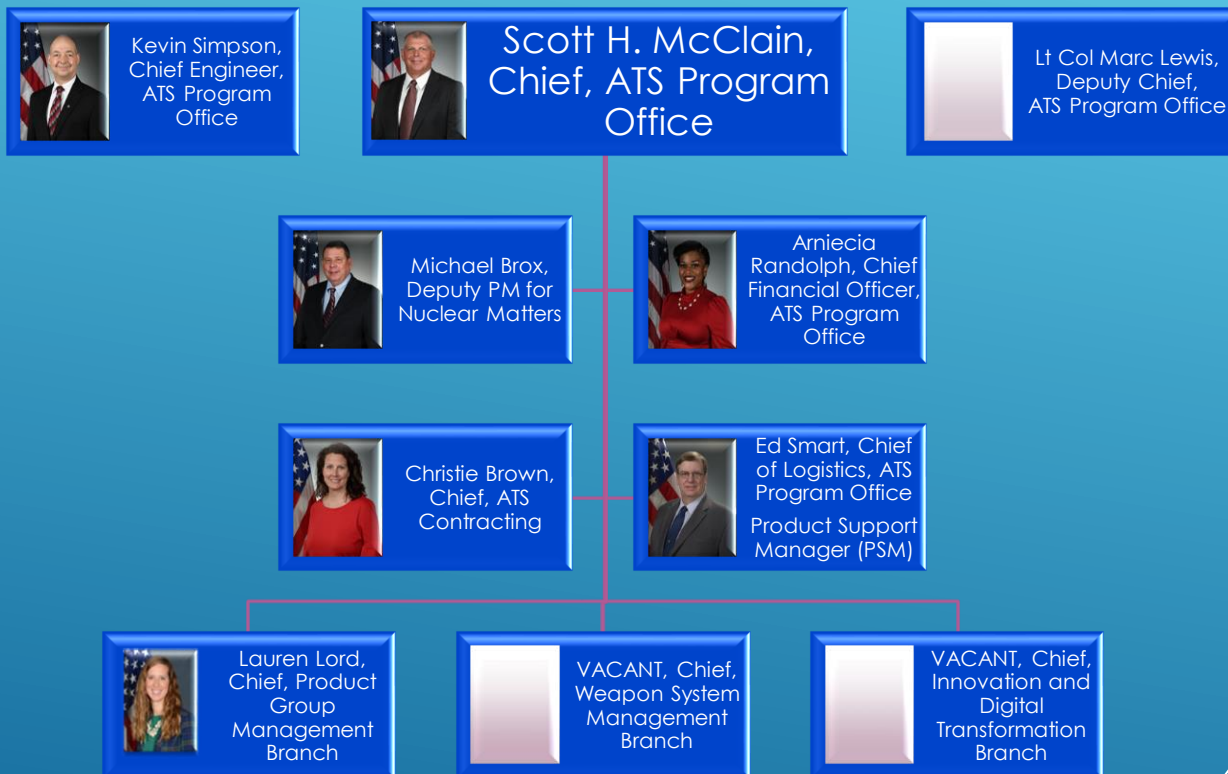
Mr. Jeffrey
Thetford
Chief,
Intelligence



Ms. Eryn
Turckes
Chief,
Test



ATS LEADERSHIP TEAM





USAF ATS – COVID-19 IMPACTS

- ALFLCM/WNA personnel are working a hybrid of WFH and being in the office
 - 78th Base Commander Health Rating being used as guidance
 - Moving to an “enduring posture” that will see more people return to the office
 - Not expecting to see occupancy at pre-COVID levels, but fewer full time remote
- Continuing to engage with contractors via “Zoom”, “Teams”, etc
- Travel authorized based on program needs
 - Evaluated on a case by case basis
- Minor impacts to some programs
- We will continue to deliver automatic test capabilities to the warfighter without interruption



USAF ATS – CURRENT PROGRAM HIGHLIGHTS AND FUTURE TRENDS

- AFLCMC/WNA Organization now includes Test, Measurement, and Diagnostic Equipment (TMDE) items as part of the WNA OSS&E/Configuration Management portfolio
 - Previously TMDE was part of the portfolio, but not truly managed like other ATS
 - TMDE Logistics Managers, Equipment Specialists and Engineers reassigned from the 404th SCMS to AFLCMC/WNA
- What changes will this drive?
 - How will TMDE be sustained/supported?
 - TMDE is Commercial off the Shelf (COTS) – should they be repaired or simply thrown away and replenishments purchased?
 - AFMETCAL utilizes an extended warranty for their COTS items, is that possible for WNA?
 - Currently TMDE items must be prioritized high enough on the Council of Colonel's list to receive funding – is this the best approach or is there a better way to meet warfighter requirements?
 - 3PL contract expired – shifting to 3PEP third party logistics construct
 - Award projected in early September 2022

WNA is getting up to speed with TMDE Enterprise and look forward to improving warfighter support moving forward



USAF ATS – OPPORTUNITIES

ATS Acquisition (ATSA-I)

- Objective: Establish Indefinite Delivery/ Indefinite Quantity Multi-Award Contract encompassing full life cycle management
- Scope: 350+ tester types, ~8K fielded systems, and TPS development; 6 ATS capabilities, 4 ACAT III programs, and FMS

Business Opportunities

ATS Enterprise Contract:

- Large and small businesses
- Improved timeline to award
- FMS and non-FMS

Schedule

- Early Strategy and Issues Session (ESIS): FY22 (March)
- RFP Release Date: 1QFY23
- Period of Performance: 5 years

Contract Information

Anticipated Contract Strategy:

- Estimated Contract Value: \$1B+
- All contract types; task order specific

POC: Daniel Segno, (478) 222-2117



USAF ATS – OPPORTUNITIES

Common Armament Tester (CAT-F)

- Objective: Provide reliable, nuclear-certified, cyber-resilient armament tester for F-15, F-16, w/potential expansion to A-10, F-22, & MQ-9 fleets
- Scope: Full digital acquisition; MTA Rapid Prototyping/Rapid Fielding for ~ 526 testers

Schedule

- Materiel Development Decision (MDD): FY22 (June)
- Program Start: FY25
- Period of Performance: TBD

Business Opportunities

ATS' first digital acquisition program

- Modular Open Systems Architecture
- Design Agent Other Transaction Authority (OTA) to build Government Reference Architecture (GRA)

Contract Information

Anticipated Contract Strategy:

- Estimated Contract Value: \$250M
- Full and Open Competition

POC: Daniel Segno, (478) 222-2117



USAF ATS – OPPORTUNITIES

Aircraft Smart Weapons Test Set (ASWTS)

- **Objective:** To procure a lightweight, hand-held, battery/aircraft powered, universal, configurable/programmable common test set capable of integrating into the Flight-Line of the future tester by streamlining current inventory and existing capability gaps with a lighter, leaner, smaller mobility footprint required by Agile Combat Employment
- **Scope:** Replace current tester Aircraft Circuits Pre-load Test Set (ACPTS) testers for A-10 (150), F-15 (83), F-16 (335), and MQ-9 platforms

Schedule

- Material Development Decision (MDD): FY22 (Sep)
- Program Start: FY25
- Period of Performance: TBD

Business Opportunities

- Modular Open Systems Architecture (MOSA)
- Design Agent Other Transaction Authority (OTA) to build Government Reference Architecture (GRA)

Contract Information

Anticipated Contract Strategy:

- Estimated Contract Value: \$100M
- Full and Open Competition

POC: Daniel Segno, (478) 222-2117



USAF – FUTURE TRENDS

- “Accelerate Change or Lose”; General Charles Q. Brown Jr (Air Force Chief of Staff)
 - Released in August 2020, but still very relevant
- 7 Operational Imperatives; Frank Kendall (Secretary of the Air Force)
 1. Defining Resilient and Effective Space Order of Battle and Architectures;
 2. Achieving Operationally Optimized Advanced Battle Management Systems (ABMS) / Air Force Joint All-Domain Command & Control (AF JADC2);
 3. Defining the Next Generation Air Dominance (NGAD) System-of-Systems;
 4. Achieving Moving Target Engagement at Scale in a Challenging Operational Environment;
 5. Defining optimized resilient basing, sustainment, and communications in a contested environment;
 6. Defining the B-21 Long Range Strike Family-of-Systems;
 7. Readiness of the Department of the Air Force to transition to a wartime posture against a peer competitor.
- B-21 moving toward first flight, F-15 EX and F-16 Block 70



USAF ATS – FUTURE TRENDS

- Digital acquisition and model-based systems engineering (MBSE)
 - Opportunity to see problems sooner
- Flight line of the future
 - What does it mean for the USAF? Industry?
 - Tech insertion to improve readiness
 - What is the role of data analytics?
- Agile development in ATS programs
 - Affordability and bringing capability to the field more quickly is paramount to ATS modernization
 - Software “sprints” are relatively easy to define
 - What does “Agile” mean in a hardware environment?



USAF ATS – TOP ISSUES

- Digital Acquisition – What does that look like for ATS?
- Collaboration on pre- Request for Proposal (RFP) requirements
 - Help AF get the correct requirement in the contract by asking questions in order to give AF what it wants/needs, and not what it is asking for
- Adaptability within the contract to provide for “agile” systems engineering
- Contract execution strategy to address the high likelihood that Government Furnished Equipment (aircraft, Line Replaceable Units) are unavailable
- Better Partnerships – No can't be the answer on a sole source contract! Help us find answers



QUESTIONS?





NDIA ATC Army Liaison Report

August 28, 2022

Agenda

- **PEO Combat Support & Combat Service Support (CS&CSS)**
- **Test Measurement & Diagnostic Equipment (TMDE) Overview**
 - **At Platform Automatic Test Systems (APATS) Overview**
 - **Next Generation Automatic Test System (NGATS) Overview**

Organization

Exec Staff

Executive Officer
MAJ Jude Coe
Executive Assistants
Jacqueline Jacobs
Ryan Arnold



Program Executive Officer
BG Samuel "Luke" Peterson



Deputy Program Executive Officer
Andrew DiMarco



Chief of Staff
Shane Fullmer



Integration
PL: Steve Roberts



Expeditionary Energy & Sustainment Sys
PM: COL Kathy Brown
DPM: Victor Hernandez



Force Sustainment Sys
LTC Daniel O'Neil



Mobile Electric Power Systems
LTC Thomas Beyerl



Large Power Systems
Mr. Bob Thoens



Force Projection
PM: Kyle Bruner
DPM: Shon Severns



Bridging
Elizabeth Miller



Engineer, Maint. & Support Equipment
LTC Denyada Barnes



Petroleum And Water Systems
LTC Teresa Childs



Robotic & Autonomous Sys
LTC Keith Toney



Test, Measurement & Diagnostic Equip
Tom Lettis



Robot Logistic Support Center (Act)
Marty Blosser



Joint Light Tactical Vehicles
PM: Michael Sprang
DPM: Chris Brouwer



Vehicle Systems
LtCol Jose Colunga



Systems Integration
Munira Tourner



Light Tactical Vehicles
Diane McCarthy



Ground Mobility Systems
John Hufstedler



Transportation Systems
PM: Wolf Petermann
DPM: Zina Kozak-Zachary



Heavy Tactical Vehicles
Ray Folden



Multi-mission Protected Vehicle Systems
LTC Benjamin Boring



Army Watercraft Systems
Regina Rogers



Common Tactical Truck
Alvin Bing

Test Measurement & Diagnostic Equipment



APATS - At-Platform Automatic Test Systems



CALSETS – Calibration Sets



TEMOD – Test Equipment Modernization

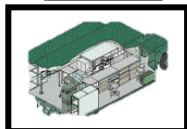


OPATS/NGATS – Off-Platform Automatic Test Systems

A single system for Field, Sustainment, and Depot Maintenance supporting current and future systems IAW DoD, ASA(ALT), and Army Policy

Replaces Legacy AT

DSESTS



• Abrams/Bradley

BSTF



• Ground Missile Systems
• Kiowa Electronics

EOTF



• Kiowa/Apache Electro-Optics

NGATS (DoD/Army Standard)



Automatic Test Equipment (ATE) Shelter



Test Program Set (TPS) Shelter

Supports Current and New Systems

Abrams



Bradley



Stryker



CROWS



LW155



TPQ-53



CH-47

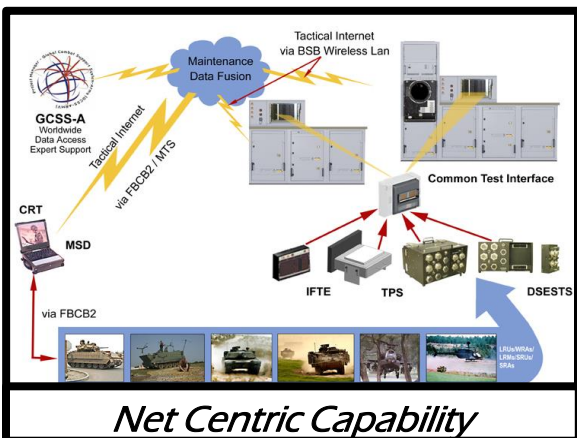


Reduces Total Logistics Burden

- Enables Information Superiority
- Reduces Obsolescence / NEOFs
- Enables Closed Loop Diagnostics
- Supports CLOE-SALE(LMP/GCSS-A)
- Consolidates ATS
- Consolidates MOS 91G to 94Y

Increases Operational Benefits

- JCIDS Validated / ATEC Tested
- NET Ready
- Decreased TPS Diagnostic Times
- C130 Transportable
- Reconfigurable
- Open Source Architecture
- Field level, Sustainment level (equipment Synergy w/ Depots)



Net Centric Capability



NDIA

Liaison Report Input

**Prepared by: Leonardo DRS
Maintenance Support Device
(MSD V4)**

March 2022



MSD V4 – Program Status



Light 7200/7210



Semi Rugged 5424



Rugged 7214



- MSD V4 - The Army's next generation At Platform Automatic Test Set for tactical vehicles and all maintenance levels – platform to Depot.
- MSD V4 Supports communications equipment, artillery, avionics and select weapons systems
- Three COTS variants adaptable to all operating environments; in a program structured to on-ramp tech refresh as new computing technologies become available

Deliveries To Date – TOTAL 22,246

MSD V4 (Model)	Quantity
RUGGED	16,585 + 150 (March 2022)
SEMI-RUGGED	511
LIGHT	5,000





U.S. Marine Corps (Ground) Liaison Report

28 August 2022

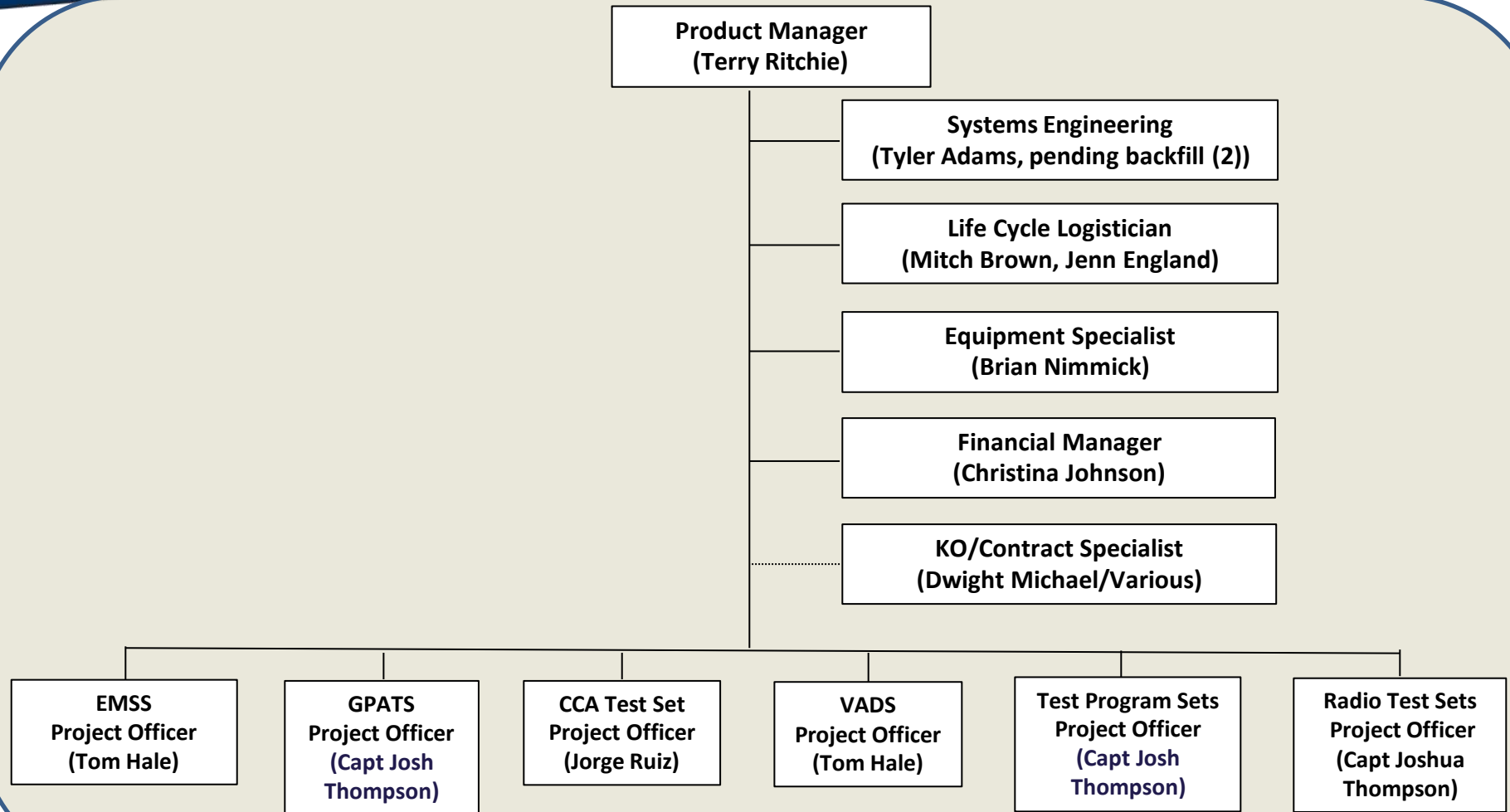
L. Salzano



USMC ATE/TPS Overview

- General Purpose Automatic Test Systems (GPATS)
- Electronic Maintenance Support System (EMSS)
- Vehicle Automated Diagnostic System (VADS)
- 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 - LAV-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-119A Lightweight 155 Howitzer Digital Fire Control System (DFCS) LRU APS
 - ✦ Addition of a comm cable for mission computer (ECP)
 - 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 Application Program Sets

- Current TPS Efforts in Progress (Cont'd)
 - AN/PSM-130 LAV CCA APS
 - ✦ Pending TPS Development for upgraded CCAs

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 in process
 - System Software Hardware Abstraction Layer (HAL) update
 - ✦ Work in progress with anticipated completion 2QFY23



GPATS Modernization

- GPATS Modernization Program (Cont'd)
 - Radio Frequency Subsystem (RFSS)
 - ✦ Initial R&D effort completed Sep 2020 to externalize the RF subsystem
 - PXI COTS solution
 - Goal to increase RF test capability up to 40GHz range
 - Eliminate Secondary Chassis
 - ✦ Initial R&D effort completed Jan 2021 for PXIe Instrumentation Insertion Kit
 - Replacement of legacy VXI instruments (DMM, Counter/Timer, DSO, Function Generator, Arbitrary Waveform Generator) with PXIe equivalents
 - PXIe instruments added to Primary Instrument chassis on carrier card
 - PDU Replacement/Modification/Upgrade
 - ✦ To be considered with next generation GPATS requirements

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
- Integrate software to replace the Vehicle Automated Diagnostic System



SUPPORTED OccFlds:

EMSS serves as an At-Platform maintenance aid for the following MOSs:

Current Supported OccFlds (legacy):

- 2141 AAV Mechanics
- 2147 LAV Mechanics
- 2146 Tank Mechanics
- 2171 Electro-Optical Maintenance Repair
- 3521 MT Mechanics

Future Supported OccFlds

- 11XX (Utilities Maintenance) in FY21 (TBD)
- 13XX (Engineer Maintenance) in FY21 (TBD)
- 28XX (Ground Electronics Maintenance) TBD
- 59XX (Electronics Maintenance) TBD

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. The vehicle communication interface is called the Test Adapter Vehicle (TAV) that is interfaced with an instrument controller with available USB port, DVD drive, Diagnostic Software and Windows based operating system. This is combined with a complete set of interconnect cables and transducers/adapters in one weather resistant transit case.



B70002B Analyzer Set, Vehicular



D70002B Analyzer Set, Vehicular



E70002B Analyzer Set, Vehicular

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 level maintenance activities in conjunction with the Ground Radio Application Program Set (GRAPS)
- Currently exploring options for replacing legacy GRMATS systems



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)
 - 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-150, PRC-148, PRC-117F and vehicle amplifiers

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

- Used only at intermediate level
- 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
- Radios added as fielded



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
 - RFI planned
- Next Gen GPATS
 - PXI/PXIe-based system
 - USMC preparing requirements document
 - RFI planned

Thank You!

Questions?



NDIA AUTOMATIC TEST COMMITTEE NAVY/MARINE CORP (AIR) LIAISON REPORTS

CHRIS W GIGGEY

CHRIS.W.GIGGEY@LMCO.COM

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AGENDA

- **NAVAIR**

- Recent PMA260 Exchanges with Industry
- eCASS
- CASS FoT PBL
- Navy Operational Test program Set (OTPS)

- **NAVSEA**

RECENT PMA260 EXCHANGES WITH INDUSTRY

NAVAIR PMA260 remains committed to managing the information flow to industry directly. They have begun a campaign to actively and directly engaging industry through industry days for each of its competitive efforts. As a result, my reports must be derived from public source information. The majority of this information sourced from SAM.GOV.

RECENT PMA260 EXCHANGES WITH INDUSTRY

- CASS FOT PBL RFIs, Industry Day & Pre-Solicitation Conference
- PMA-260 Industry Day July 2022 Replacement Aircraft Engine Test Instrumentation (ETI) System*
- Particle Counter RFI & Industry Day*
- EID Authenticate Enterprise*
- PMA-260 Common Aviation Support Equipment Virtual Industry Day 2021*
- Next Generation Flightline Electronics Warfare and Communication Navigation Identification Tester* (Otherwise known as ALERT – Believed to be OBE)

* Search is www.sam.gov for more information

ELECTRONIC CONSOLIDATED AUTOMATED SUPPORT SYSTEM

- eCASS Production Full Rate Production 2*
- Consolidated Automated Support System (CASS) Fourth Generation Electro-Optics (EO4) Subsystem*
- Automatic Test System installed ashore, afloat, and in mobile facilities. Used for I-Level and D-Level repair of Navy's avionics and electronics systems.
- Last Planned, Navy Buy for eCASS is FY23.
- Future orders for Marine Aviation (Source 2022 Aviation Plan), JSF, and FMS are possible.
- EO4 Development Continues. EO4 Production expected at the conclusion.

* Search is www.sam.gov for more information

CASS FAMILY OF TESTER (FOT) PERFORMANCE BASED LOGISTICS (PBL)

- Consolidated Automated Support System (CASS) Family of Testers (FoT)*
- ECASS, CASS & RTCASS (CASS Family of Testers) (FOT) Performance Based Logistics (PBL)*
- Reconfigurable Transportable Consolidated Automated Support System (RTCASS) Performance Based Logistics (PBL)*
- electronic Consolidated Automated Support System (eCASS) Interim Contractor Support (ICS)*
- Performance Based Logistics (PBL) support for nearly 600 CASS, RTCASS, & eCASS stations world-wide.
- DRAFT RFP Released 27 July 22.
- FINAL RFP Anticipated October 2022.
- CASS/RTCASS PBL ending FY23 replaced with CASS FoT PBL

* Search is www.sam.gov for more information

NAVY OPERATIONAL TEST PROGRAM SET (OTPS)

- Radar Beacon System (RBS) AN/APN-245 Operational Test Program Set (OTPS) – F/A-18 & E/A-18G*
- E2D Radar OTPS Phase 3&4 (1)*
- E2D Radar OTPS Phase 3&4 (2/3)*
- E-2D Advanced Hawkeye Identification Friend or Foe (IFF) Operational Test Program Sets (OTPS)*
- Next Gen Jammer Mid-Band Operational Test Program Sets*
- Avionics 3i/5i Operational Test Program Sets*
- Infrared Search and Track System Operational Test Program Set*
- AEA I-LEVEL OTPS Sustainment*
- Advanced Targeting Forward Looking Infrared (ATFLIR) Operational Test Program Set (OTPS) elements*

* Search is www.sam.gov for more information

NAVSEA

- MK41 Vertical Launch System (VLS) Test System Procurement*
- Expeditionary Electronic Warfare Systems (CREW)*

* Search is www.sam.gov for more information

QUESTIONS



NDIA ATC Meeting Commercial Liaison Report

Christer Ljungdahl

August 28th, 2022

Agenda

- Industry News/Updates
- Industry/Technology Trends



Astronics Selected by U.S. Army for Radio Test Set Program

EAST AURORA, N.Y.--(BUSINESS WIRE)-- [Astronics Corporation](#) (Nasdaq: ATRO), a leading provider of advanced technologies for global aerospace, defense, and other mission critical industries, announced today that it has been selected by the U.S. Army as the down select winner for the development of its Radio Test Set referred to as TS-4549/T. This program will replace aging GRM-122 radio test equipment for tactical radios in the U.S. Army. It will be an ID/IQ program (Indefinite Delivery/Indefinite Quantity) with anticipated deliverables over multiple years. .

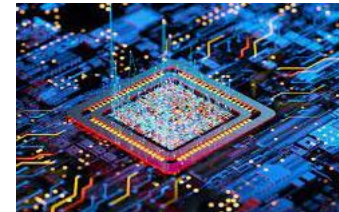
Source: [Astronics](#)

CHIPS and Science Act of 2022

The CHIPS and Science Act will boost American semiconductor research, development, and production, ensuring U.S. leadership in the technology that forms the foundation of everything from automobiles to household appliances to defense systems. America invented the semiconductor, but today produces about 10 percent of the world's supply—and none of the most advanced chips.

The CHIPS and Science Act provides **\$52.7 billion** for American semiconductor research, development, manufacturing, and workforce development. This includes **\$39 billion** in manufacturing incentives, including **\$2 billion** for the legacy chips used in automobiles and defense systems, **\$13.2 billion** in R&D and workforce development, and **\$500 million** to provide for international information communications technology security and semiconductor supply chain activities. It also provides a 25 percent investment tax credit for capital expenses for manufacturing of semiconductors and related equipment.

Spurred by the passage of the CHIPS and Science Act of 2022, this week, companies have announced nearly \$50 billion in additional investments in American semiconductor manufacturing



Source: [White House](#)

Securing Supply Chain, Accelerate Research and Innovation, Increase STEM participation



Source: [Keysight](https://www.keysight.com)

VXG signal generators address 5G, 6G research, satellite communications and radar solutions

Keysight Technologies, Inc. (NYSE: KEYS), a leading technology company that delivers advanced design and validation solutions to help accelerate innovation to connect and secure the world, today launched a new four-channel vector signal generator, with frequency up to 54 GHz that offers up to 5 GHz of radio frequency (RF) bandwidth and low phase noise in a single instrument.

[Keysight's new M9484C VXG vector signal generator, expands the company's VXG series portfolio with real-time capabilities to support demanding wireless industry applications.](#)

Rohde & Schwarz extends the R&S ZNB vector network analyzer family maximum frequency to 43.5 GHz

Rohde & Schwarz adds new models and options to the R&S ZNB vector network analyzer family, addressing applications in the mmWave range such as 5G at FR2 frequencies and applications in aerospace and defense in the Ka band. The R&S ZNB26 provides network analysis up to 26.5 GHz, and R&S ZNB43 extends the upper frequency of the midrange VNA family to 43.5 GHz.



Source: [Rhode and Schwarz](https://www.rohde-schwarz.com)

Increasing device complexity, Increasing BW, More data



Source: [NI](#)

NI to Acquire NH Research, Enters into Definitive Agreement with Heinzinger
NI (Nasdaq: NATI) today announced the acquisition of NH Research, LLC (NHR), a leader in high power test and measurement applications such as electric vehicles (EV) and batteries. The transaction closed on October 19, 2021. NI is also announcing that it recently entered into a definitive agreement to purchase the EV Systems business of Rosenheim, Germany-based Heinzinger GmbH, a European leader in high-current and high-voltage power systems and this deal is expected to close in Q1 2022.

Astronics Selected for Lilium Jet's Electrical Power Distribution System

Jon Neal, President of Astronics Advanced Electronic Systems, said, "Astronics is thrilled to announce [Lilium as a launch customer for our CorePower® high voltage products designed for the More Electric Aircraft and eVTOL platforms. This partnership demonstrates the flexibility of our products and our close collaboration with our customers.](#) Astronics is excited to join Lilium in being a part of the evolution of aviation moving towards cleaner, more sustainable, and accessible modes of transportation."

Source: [Astronics](#)



Electrification will be driving new complexities and ATS requirements

Industry/Technology Trends

DoD Digital Engineering Vision

"DoD's vision is to have an engineering enterprise that connects the digital and physical worlds across a system's lifecycle. The end-to-end digital enterprise will incorporate a model-based approach in a digitally connected environment enabled by advanced technologies to conduct full lifecycle activities from concept to disposal."

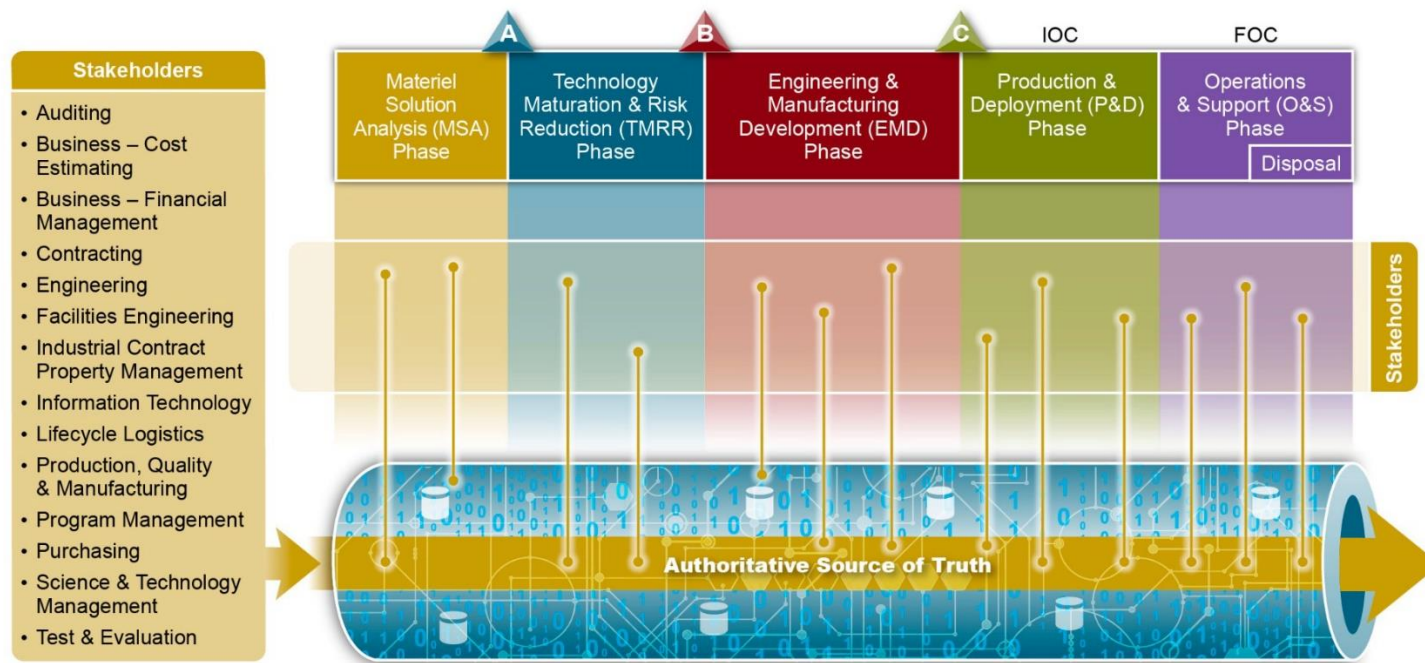




Figure 5: Authoritative Source of Truth

Industry/Technology Trends


Industry wide problem

TEST, MEASUREMENT & ANALYTICS

Finding Frameworks For End-To-End Analytics

99 Shares  17  16  65 

The chip industry will share data once it settles on formats, labeling, and who owns it.

JULY 12TH, 2022 - BY: ANNE MEIXNER 

End-to-end analytics can improve yield and ROI on tool purchases, but reaping those benefits will require common data formats, die traceability, an appropriate level of data granularity — and a determination of who owns what data.

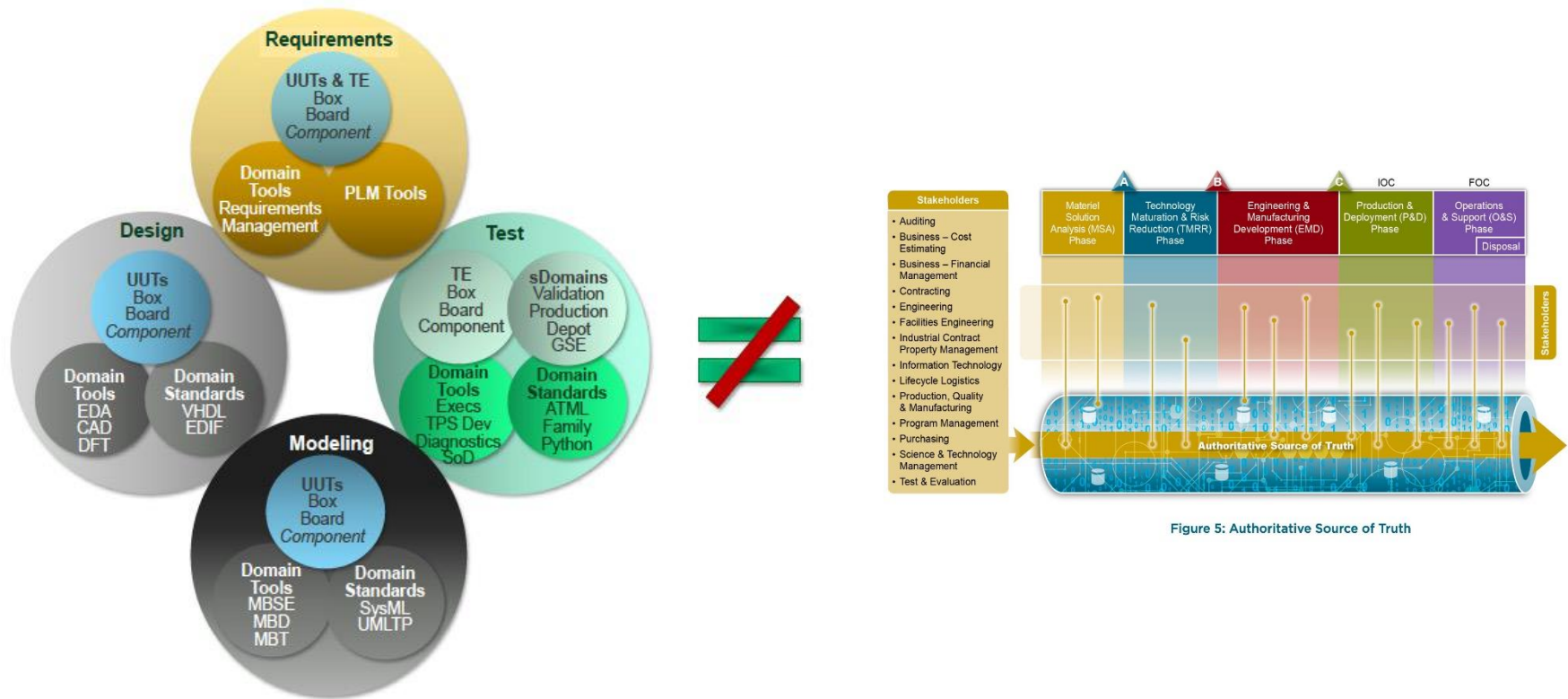
New standards, guidelines, and consortium efforts are being developed to remove these barriers to data sharing for analytics purposes. But the amount of work required to make this happen is significant, and it will take time to establish the necessary level of trust across groups that historically have had minimal or no interactions.

Source: [Semiconductor Engineering](#)

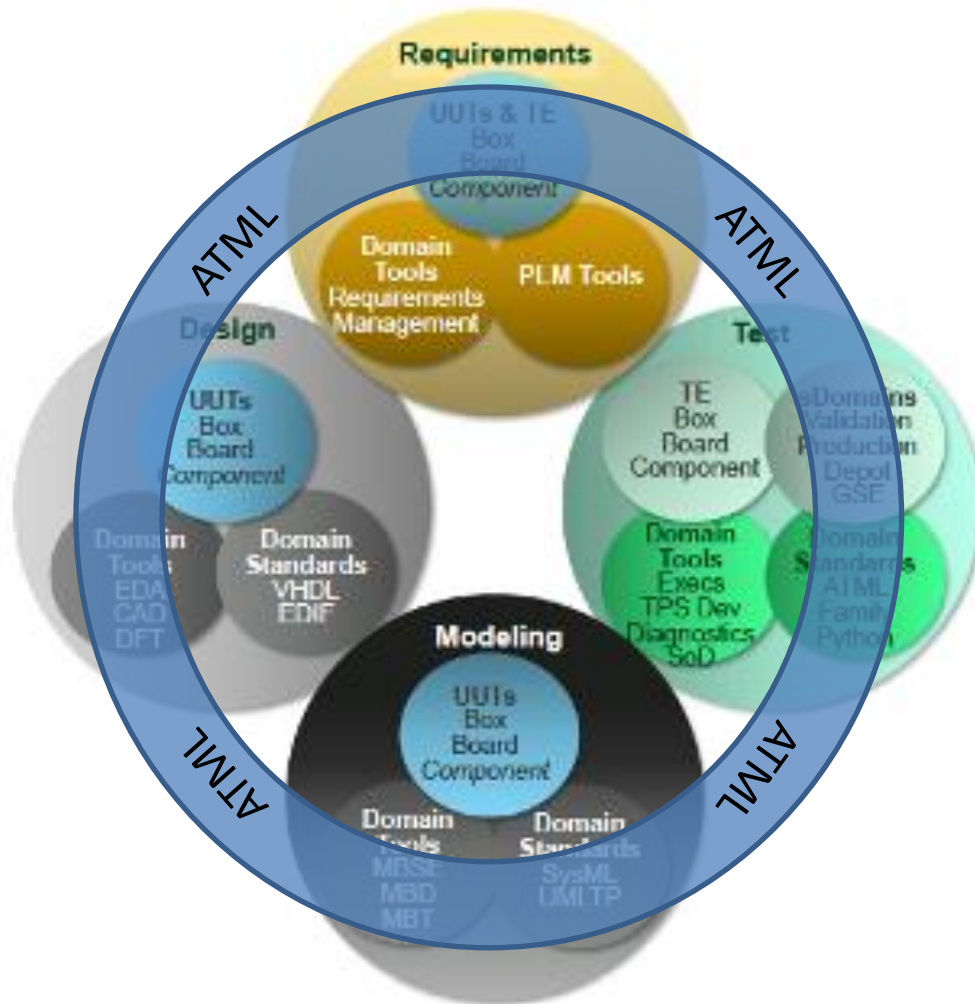
“The chip industry will share data once it settles on formats, labeling, and who owns it.”

Industry/Technology Trend

Common Workflow Practices used today



Industry/Technology Trend



MBTE

We have a start:

1. We have an established data format
2. We have established data labels
3. We have an owning committee

Systems Engineering Division - Automatic Test Committee (ATC) Spring Meeting Projects Discussion Item

Digital Engineering (DE) / Digital Transformation (DT)

- What does DoD want to accomplish with DE/DT?
- How does DE and DT impact future automatic test systems?
- Are DE and DT requirements a boon to the test industry? Or a curse?

Examining the Four Questions Submitted by USAF

- Received answers and additional questions to explore.

Digital Engineering (DE) / Digital Transformation (DT)

What does DoD want to accomplish with DE/DT?

- DoD requires ATS government groups to act on DE Strategy.
- Is more than one outcome needed?
- What are the multiple outcomes desired by ATS government groups?
- How will DE/DT fit into your workflow?

What is the impact of DE and DT *as they relate to automatic test systems*?

- Are there similar or different viewpoints for each DoD service?

Digital Engineering (DE) / Digital Transformation (DT)

Implementing DE and DT for automatic test systems

- **Is it worthwhile to use standards? Where, what and how are the standards implemented?**
 - Standards are necessary for complex ATS applications that are meant to encompass multiple stages of a systems lifecycle.
 - Standards can add cost to sustainment of simple systems.
 - Existing standards may be insufficient to support DE / DT requirements
- **Key considerations during the RFI/RFP and the awarded contract stages**
 - Scope of project and anticipated life cycle sustainment requirements must be identified prior to or as a part of the RFP.
 - The critical component for lifecycle sustainment is dependent on the quality of UUT data associated with the ATS. Without sufficient information, obsolescence or upgrade complexity make the job impossible.

Examining the Four Questions:

Understanding the current state of the industry



- 1. What is the current ability of the industry to deliver digital models (and/or for simulation) for ATS?**
- 2. What is the current ability of the industry to collaborate in a digital environment?**
- 3. Would industry be able to respond to solicitations requiring digital acquisition?**
- 4. How does industry think the USG can best make use of Digital Engineering in future acquisitions?**

Examining the Four Questions: Understanding the current state of the industry



1. What is the current ability of the industry to deliver digital models (and/or for simulation) ATS?

- Do-able, but very costly, - requires high-fidelity, **ACCURATE**, simulation models of ATE instruments, run time SW, other ATE software, and UUTs
- Signal-level simulation models may be less costly and allows for a simulated TP or simulated UUT models. Proof-of-concept has been limited to date. Can be supported by ATML standards.
- The test requirement document (TRD) of the UUT can be used to provide capability models, with signal paths and switching needed to support a range of measurements available by the ATE/ATS.
- Some ATS companies have developed models for use in their factories or for customers.

2. What is the current ability of the industry to collaborate in a digital environment?

3. Would industry be able to respond to solicitations requiring digital acquisition?

4. How does industry think the USG can best make use of Digital Engineering in future acquisitions?

Examining the Four Questions: Understanding the current state of the industry

1. What is the current ability of the industry to deliver digital models (and/or for simulation) of its items?
- 2. What is the current ability of the industry to collaborate in a digital environment?**
 - How does the industry collaborate now?
 - Protection of industry IP is always a concern / potential impediment
 - Collaboration will not be easy unless specific direction is given in the RFP
 - ATE/ATS models are meaningless (no apparent benefit to the DoD) without the UUT models.
 - Test result feedback is missing today. Without feedback, how can the model grow? Be accurate?
 - Standards allow the T&M industry to collaborate. However, implementation of a standard is often sub-optimal or modified and becomes a funding and schedule obstacle to the DoD project.
3. Would industry be able to respond to solicitations requiring digital acquisition?
4. How does industry think the USG can best make use of Digital Engineering in future acquisitions?

Examining the Four Questions:

Understanding the current state of the industry

1. What is the current ability of the industry to deliver digital models (and/or for simulation) of its items?
2. What is the current ability of the industry to collaborate in a digital environment?
3. **Would industry be able to respond to solicitations requiring digital acquisition?**
 - Yes, depending on the specificity of the digital acquisition deliverables
 - Avoiding the pitfalls of what DoD might receive requires very specific RFP language to reduce the risk of misinterpretation (receiving products that don't meet project goals)
 - In general, the industry believes the models will be extremely costly
4. How does industry think the USG can best make use of Digital Engineering in future acquisitions?

Examining the Four Questions: Understanding the current state of the industry

1. What is the current ability of the industry to deliver digital models (and/or for simulation) of its items?
2. What is the current ability of the industry to collaborate in a digital environment?
3. Would industry be able to respond to solicitations requiring digital acquisition?
4. **How does industry think the USG can best make use of Digital Engineering in future acquisitions?**
 - Be as specific as possible so each bidder provides products that have the flexibility you need
 - Economics may cause the DoD to only request models that fit a budget rather than the detailed more expensive models that appear to be mandated from DoD
 - Mandate ATML 1671.6 Test Station Descriptions from ATS/ATS vendors that flow to resource and capability libraries, down to ATML 1671.2 instrument descriptions
 - Mandate that all ATML 1671.1 Test Programs come with ATML test descriptions and Standard 1641 libraries (including signals)
 - Additional industry standards including ATML 1671.4 Test configuration, ATML 1671.3 UUT description, ATML 1671.5 test adaptor description and wirelist, and IEEE 1636.1 test results can help support future DE requirements

ATC Projects



Additional Questions / Discussion

Test and Diagnosis for Electronic Systems

Standards Committee (SCC20)

**Abbreviated
SCC20 22-2 Meeting Chairs Report
to the NDIA Automatic Test Committee (ATC)
August 29, 2022**

Mike Seavey, SCC20 Chair

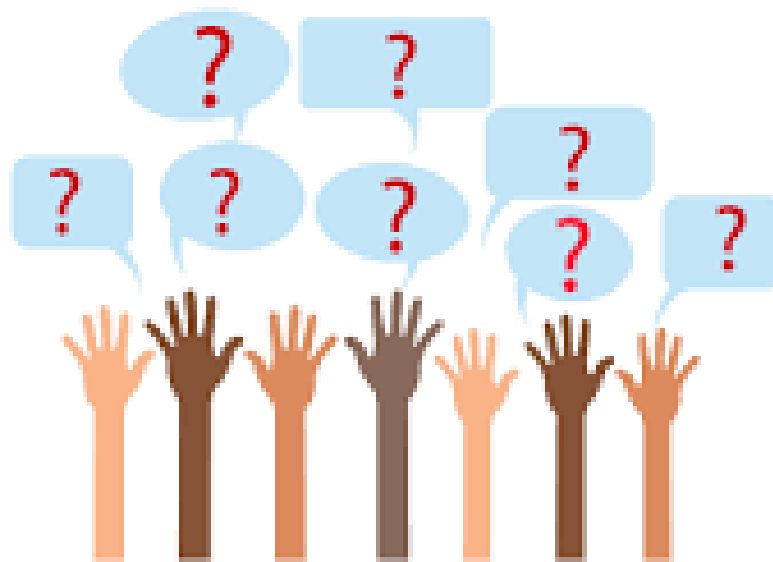
Standards Activities

- Revision of IEEE Std. 1641-2010 Signal and Test Definition
 - Expected to be approved Sept. 19 as IEEE Std 1641-2022
- Corrigenda for IEEE Std. 1636.1 SIMICA Test Results
 - The corrigenda is in work
- Corrigenda for IEEE Std. 1671.1 ATML Test Description
 - The corrigenda is in work
- P2848 Prognostics and Health Management for ATS
 - Draft Standard is in work. Working Group will be meeting this Thursday
- IEEE-488.1 & IEEE-488.2
 - The IEEE and IEC have requested these remain active

Standards Activities

- Revision of IEEE Std. 1232-2010 AI-ESTATE
 - Project Authorization will be submitted to the IEEE Standards Board
- Revision of IEEE Std. 1671-2010 ATML (base document)
 - Project Authorization will be submitted to the IEEE Standards Board
- We responded to Pat Griffin regarding the USAF Digital Engineering/Digital Transformation request in May 2022.
 - Further meeting(s) are suggested.

Questions?



Closing Comments

- **Projects: Bring your project ideas to Mike Dewey**
 - Any modular architecture changes affecting ATS?
 - Advances in mmWave? High-Speed Test? Software?
 - Cyber CMMC standards or Digital twin impact on DoD ATS programs?
- **NDIA Systems and Mission Engineering (S&ME) Annual Conference:**
 - Attending S&ME provides an opportunity to meet OUSD (R&E) OUSD (A&S), DoD and others interested in digital engineering, MBSE, MOSA, mission engineering, cyber security, and specialty engineering.
 - Orlando, FL November 1-3, 2022.
- **Next meeting: Spring Meeting March/April 2023**
 - NDIA Headquarters, Arlington, VA. And 2023 Aug meeting decision?
- **Thank you! Have a great AUTOTESTCON show!**
 - Tuesday, 30 August 1000 – 1200, DoD ATS Executive Plenary Session
 - “Services Automatic Test Systems Roadmaps and Challenges”