

Digital Ground Certification WG

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MILCOM Status Update
Oct 12th, 2026

Agenda



- Over-arching Goal: Update MIL-STD-188-164, MIL-STD-188-165
- Development Work, 2025-2026
- DIFI Mission Delta 8 (MD8) TIM (Kratos, Colo Springs, CO)
- MIL STD Industry Week (Point Loma, CA)
- DIFI Plugfest (Santa Clara, CA)
- Way Forward – Where do we go from here



Current Over-arching Goal



- Advise PdM WESS and WB-CSSE on revisions to MIL-STD-188-164 and MIL-STD-188-165
- Goal breakdown:
 - Coalesce input from various Digital Ground Cert WG authors into single comprehensive guidance document (100%)
 - Completed as of DIFI MD8 TIM, July 2026
 - Brief government on guidance (100%)
 - Completed at MIL STD Industry Week, August 2026
 - Continue to advise WB-CSSE Tiger Teams on revisions to MIL STDs as necessary (ongoing)
 - Continuous, but may dwindle through 2027 as STDs are finalized

WGS Cert Goals are to complete the revisions to each doc by 2027

FDMA DM (165): 2027 January

Digital IF Terminals (164): 2027 April

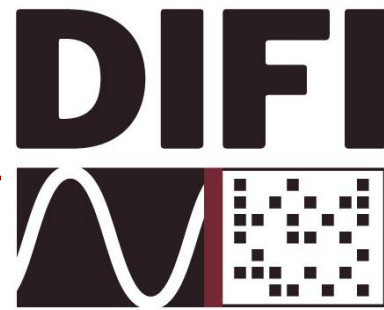
AJ: "We now have a fuse" – the certification of the EDIM prior to the release of its RFQ

Development Work, 2025-2026



Our remit	What we did
Articulate how DIFI-based SATCOM Terminals/Modems will meet the intent of requirements levied in MIL-STD-188-164/165 to ensure that: a) Large Fixed Ground terminals (e.g. Gateway terminals), modems, associated components, and WGS satellites are interoperable end-to-end among WGS customers; b) DIFI elements are “good neighbors” of shared power, bandwidth, and orbital position perspective; c) DIFI elements are “efficient users” of shared power and bandwidth resources; d) Performance benefits and impairments are understood and can be modeled; and e) that DIFI elements are interoperable with EBEM modems	• Conceptualized and then mapped proposed DIFI tests to extant MIL-STD-188-164/-165 requirements; proposed which tests are no longer needed; and provided an integrated set of guidance to USSF MD8 following TIM #3 • Began work on DIFI Equipment Chain Profiles to describe the various settings and configurations of equipment chains to be used for WGS
Leverage and extend the work done by the Certification Subcommittee and others wherever possible	• Participated frequently in other subcommittee WGs when possible • Welcomed other WG members to attend our meetings • Reviewed documents produced by other WGs
Provide innovative ideas and best-practice methods that will assist the U.S. DoD to adapt its current WGS certification processes to include DIFI-based and ESA-based SATCOM elements	• Conceptualized and then mapped proposed DIFI tests to extant MIL-STD-188-164/-165 requirements; proposed which tests are no longer needed; and provided an integrated set of guidance to USSF MD8 following TIM #3 • Recommended at TIM#2 that USSF MD8 standup Tiger Teams to meet PdM WESS certification need dates
Frequently engage with WGS Terminal/Modem Certification Government representatives for vector checks and advice	• Dr. Hannan participated in DIFI Government Block monthly meetings to synchronize efforts • Conducted two informal meetings and two Technical Interchange Meetings with USSF MD8 representatives to educate and receive feedback on guidance development efforts
Coordinate DIFI briefing to NATO SATCOM Capability Assessment Team; and determine how the Consortium could further assist the USG in implementing DIFI	• Briefing scheduled for later in September 2026 • Mr. Paul Van Slett, DoD CIO SATCOM Chief, interested and supportive of DIFI Consortium efforts; Enterprise SATCOM – Management and Control (ESC-MC) Implementation Plan, DoDI 8420.02 Satellite Communications, and required reports to Congress on ESC-MC implementation by the Services is sufficient

DIFI-USSF Mission Delta 8 TIM



- 15-16 July 2026
- Kratos, main office
 - Colorado Springs, CO
- Summary of Authors Group Meeting
 - **(Jim Rosenberg and AJ Vigil)**
- PdM WESS Request to USSF MD8 Regarding Memo and Schedule
 - **(Dave Khalil, Eric Bell)**
- USSF MD8 Approach for WGS Modem and Terminal Performance Certification Updates
- **(Shane Hilstead)**
- **Demonstrations:**
 - Bryan Yocom (Kratos) – Overview & EBEM and vEBEM Interop
 - Jinno Magno (Welkin) – DIVA Capabilities and DIFI Interop
 - Mark Lombardi (Keysight) – Measurements and EVM
 - Colton Shovlin (Evertz) – IFC and Combiner/Divider Capabilities



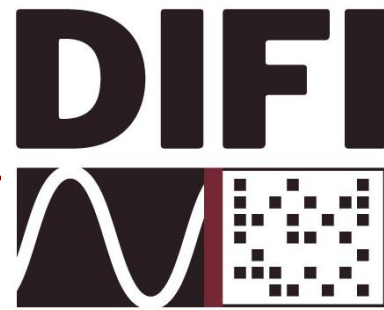
DIFI MD8 TIM



- **Key Captures:**
 - EDIM TRR September; EDIM FAT potentially November-December
 - Tiger Teams evaluating 164 and 165 reqs & test procedures
 - **Over-arching Goal is to have MIL STD revs draft-complete prior to EDIM testing**
 - Sample Profiles to be generated based on EBEM waveform, including packet & stream rates
- **Discussions:**
 - Impact of packet erasure
 - “How far can you look up the pipe to fix packet erasure?”
 - Certifications, requirements and rules go out the door in disaster/crisis/war scenarios



MIL STD Industry Week

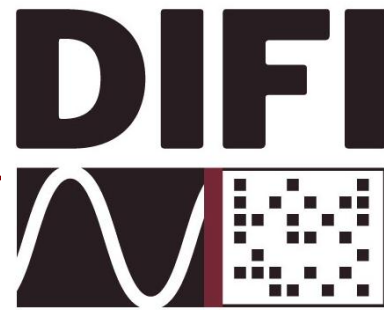


- 10-14 August
- NIWC Pacific
 - Point Loma, CA
- Attendees:
 - DIFI Consortium
 - USSF 53 SOPS
 - DISA MD8 Team
 - WB-CSSE
 - PdM WESS
 - Industry
 - L3Harris
 - Kratos
 - Viasat/Inmarsat Government
 - Boeing
 - Auria



- Gilat Wavestream
- Syspek
- ST Technologies (iDirect)
- Evertz/Quintech

MIL STD Industry Week



- **Day 1:**
 - G/T measurement revisions
 - Viasat/Inmarsat: MIL-Ka beams and WGS approval process
- **Day 2:**
 - Comprehensive brief: Proposed updates to legacy modem (LM) and digital modem (DM) certification guidance in MIL-STD-188-165 (AJ Vigil)
 - Discussions on flow control, impact of timing and DIFI 1.2.1/1.3
- **Day 3:**
 - Industry briefs: MIL STD RFI responses – Viasat, Kratos, Gilat, L3H
 - Kratos provided unique brief on GaNs
- **Day 4:**
 - Revised BER testing approach (PER vs. QEF)
 - X-band interference from cell towers on X-band OTA for SATCOM purposes
 - EVM – heart of wireless – Keysight brief
- **Day 5:**
 - Closing comments & discussion



DIFI Plugfest (Santa Clara, CA)

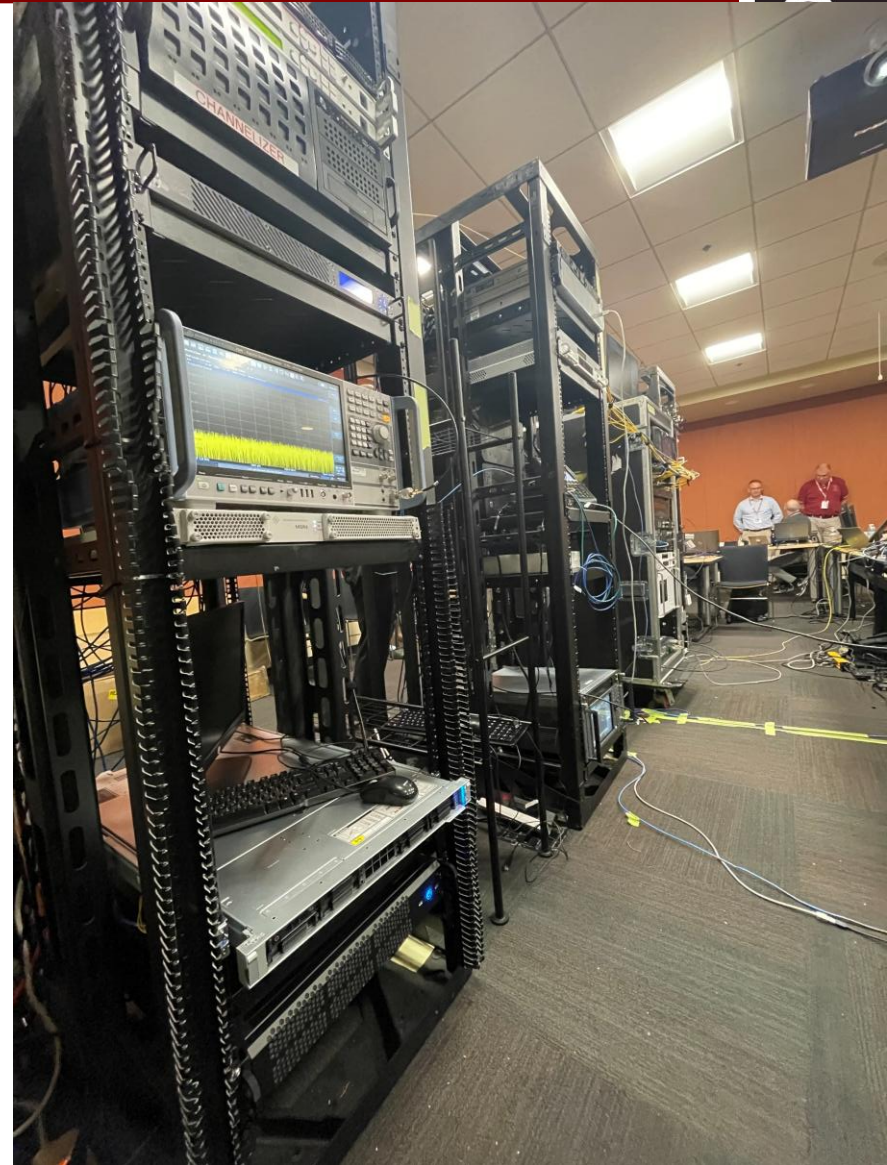
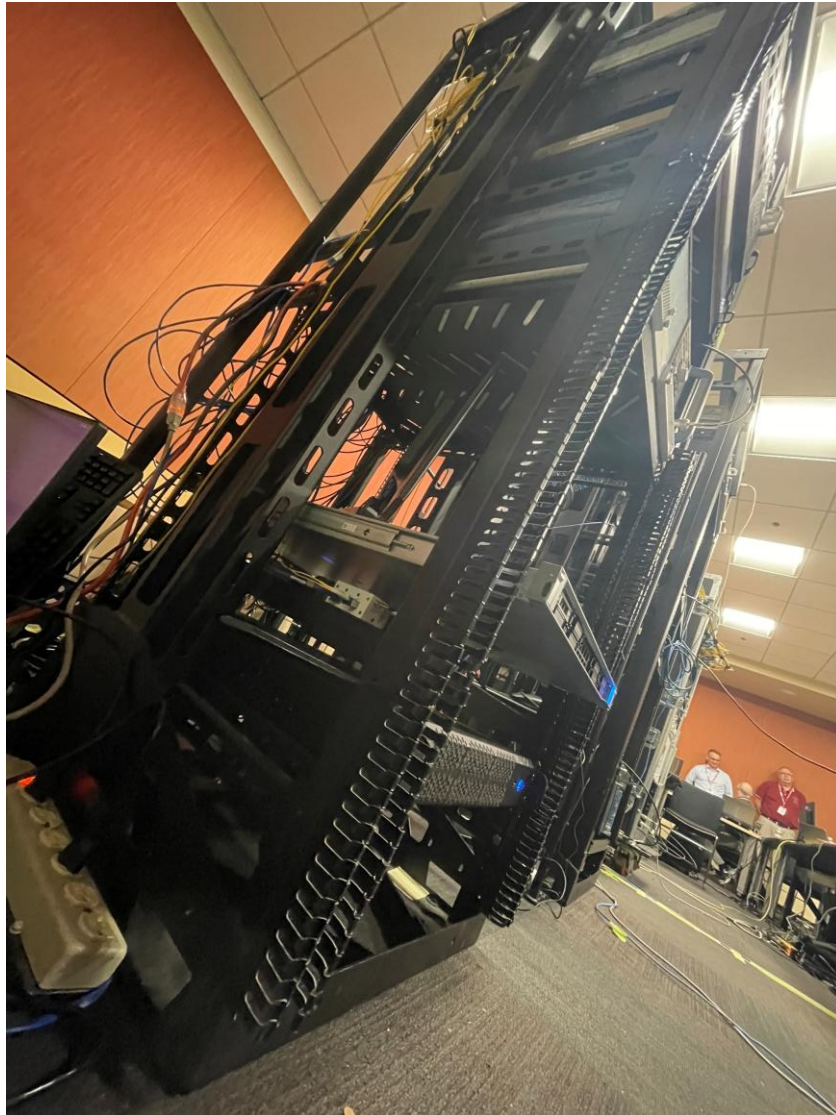


- **Week 1 (Sept 30th-Oct 2nd)**
 - Initial setup and interconnects
 - Evertz rack was the central point for all interconnects, using NATX, Magnum and Vue for M&C
 - Certification Dry-Runs performed by several vendors, with DIFI Consortium POC as neutral observer
- **Week 2, profile tests (Oct 5th-7th)**
 - CORE: (8 bits/sample, 20Msamp): 28 vendors, 28 tests performed; ~90% successful interoperability
 - DIFI600: (8 bits/sample, 600Msamp): 18 vendors, 13 tests performed; ~90% successful interoperability
 - Flow Control: 37 tests, 23 successful pairings; ~60% compatability observed across all vendors
- **Week 2, presentations (Oct 8th)**
 - DIFI Plugfest Interoperability Results presented
 - Updates from PdM WESS incl. summary of MIL STD 188 164 / 165 advisory work for MD8
 - Keysight: SATCOM Network Cyber risks and Mitigations
 - Keysight: Running DIFI end-to-end on a “live” network
 - Panel Discussion: Satcom Interoperability Deployment Challenges & Opportunities
 - DIFI 3rd party interoperability certifications

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Digital Ground Cert WG



- **WHAT'S LEFT?**
 - Conclude any guidance for WB-CSSE re: MIL-STD-188-164
 - Attend Tiger Teams as necessary/if invited
 - Assist WB-CSSE as necessary as 164 and 165 revisions go from draft to final
- **WHERE DO WE GO FROM HERE?**
 - Digital Ground Cert WG team needs DIFI board to provide next mission/over-arching Goal
 - Potential Paths to look at – i.e., “we know these orgs use digital IF...do they want our SME?”
 - SES (multiple ground stations supporting digital IF backbones between N. and S. America)
 - Viasat (Viasat-3 ground infrastructure)
 - 5G ground data management
 - This one might be fun because we can engage with T-Mobile, Verizon, etc.