



NDIA
Automatic Test Committee
Navy/Marine Corps (Air)
Liaison Reports

March 25, 2010

Ralph Rolape for

Tony Minei

anthony.j.minei@lmco.com

407 306-4338

CASS Overview

- **RTCASS**

- Final Operational Test report received 10 June 2009
- IOC is complete for V-22, AV-8B, F/A-18, H-1 and EA-6B
 - H-1 – Completed March (Originally scheduled for December '10)
- In 2010, will award new production contract for FYs 11, 12 and 13 buys
 - About 40 more stations depending on FMS requirements
- Integrating mainframe CASS High Power rack with RTCASS – will begin fielding April 2010
- NAVAIR will be integrating CNIAS with RTCASS – Fielding late 2011

- **eCASS**

- Draft RFP released January 16 '09
- Final RFP released April 1 '09
- Proposal submittals July 1 '09
- Lockheed Martin awarded program on March 18, 2010

- **SRA Tester**

- Evaluating current SRA test and diagnostics approaches from both Government and Commercial users
- Identify opportunities
- Determine feasibility of tailoring commercial techniques for depot repair

Legacy ATE TPS Offload Status

| PHASE I | | | |
|----------------|-------------|-------------------|---|
| ATE | | AIRCRAFT | |
| APM-469 | RSTS | S-3 | Removed from I-Level |
| AN/USM-247 | VAST | S-3, F-14 E-2 | Removed from I-Level |
| AAM-60 (v)6 | EOSTS | S-3 | Removed from I-Level; P-3 using (v)2 version |
| AN/USM-614 | ESTS | EA-6B, SH-60, S-3 | Removed from I-Level; 2 left at NADEP |
| AN/USM-403 | HATS | S-3 | Removed from I-Level |
| APM-457 | TTS HPOC | S-3 | Removed from I-Level |
| AN/USM-604 | EETS | AV-8B | Removed from I-Level; 1 left at CNATTU; 2 left at NADEP |
| AN/APM-446 | RSTS | F/A-18, AV-8B | 9 Remain at I-Level |
| AN/USM-629 | EOTS | F/A-18 | 8 Remain at I-Level |
| OJ-615/ALM | TTS | EA-6B | 7 Remain at I-Level |
| AN/USM-470(V)1 | ATS | F/A-18 | Removed from I-Level |
| AN/AWM-23 | RFTS | F-14 | Removed from I-Level |
| AN/AWM-23 | LFTS | F-14 | Removed from I-Level |
| AN/AWM-23 | C&DTS | F-14 | Removed from I-Level |
| AN/AWM-23 | CTS | F-14 | Removed from I-Level |

| PHASE II | | | |
|-----------------------|------------------------|------------------|-----------------|
| ATE | | AIRCRAFT | |
| AN/USM-484 | HTS | EA-6B | F/A-18 SH-60 |
| AN/USM-467 | RADCOM | EA-6B E-2C | SH-60 |
| AN/USM-429 | CATIID | EA-6B | E-2C |
| AN/USM-470(V)2 | TMV | SH-60 | |
| AN/USM-458 | NEWTS | AV-8B, F/A-18 | |
| OJ-510/ALM | DTB | EA-6B | |
| PHASE III | | | |
| ATE | | AIRCRAFT | |
| AN/ASM-686 Lot 1 | IATS | F/A-18 | |
| AN/ASM-686 Lot 2 | IATS | F/A-18 | |
| AN/ASM-608 | IMUTS | Various | |
| A/E24T-205 | GACT/GRAD Actuators | E-2C, EA-6B, C-2 | |
| AN/ARM-146A | AN/ARA-63 | Various | |
| AN/ASM-167 & TS-2454A | AS/APC | EA-6B | |
| CAT IIID/HTS Orphans | OTPS-22 | EA-6B | |
| ARM-200 (Marine only) | IATS | Various | |

TPS development in-process

CASS TPSs being delivered

TPS effort completed

Emerging Platform CASS TPS Efforts (Direct to CASS)

| Platform | Lot | OTPS | I Level/Depot | IOC |
|----------|-----|---------|---------------|------------------------|
| V-22 | 1 | 9 OTPSs | I | Fielding |
| | 2 | 8 OTPSs | I | 5 Fielding 3 In DEV |
| | 3 | 4 OTPSs | I | In DEV |
| | 4 | 4 OTPSs | Depot | Jun 2012 |

| Platform | OTPS | I Level/Depot | IOC |
|-------------|--------------------|---------------|-----------|
| AA-1Z/UH-1Y | AWIRT/CWIRT | I | Fielding |
| | MC/HIADC | I | Dec 2013 |
| | FCC | I | July 2011 |
| MH-60R | ALFS | I | Sep 2013 |
| | MMR | I | Jul 2013 |
| | Acoustic Processor | I | Sep 2013 |
| | TCDL | I | May 2014 |
| MH-60R/S | ESM | I | Dec 2010 |
| | MTS | I | Dec 2012 |
| | MTS(TV) | I | Sep 2012 |



NDIA
Automatic Test Committee
Navy/Marine Corps (Air)
CNIAS Status Report

March 25, 2010

Rich Beers

richard.beers@baesystems.com

973-305-2373

Communications, Navigation and Interrogation Ancillary Set

CNIAS

March 25, 2010



CNIAS Status -

- Successful Dry run Demo with Gov't SMEs on 3/4/2010 and Successful Capabilities Demo set on 3/9/2010. with No Request For Actions (RFA) or action items
- The Demo provided Link 16 Mode 1 and TACAN Test Cases running on CASS with a MIDS LVT, and MIDS OTPH Prototype Mod Kit
 - Demo performed in an "mock" OSV environment
 - Loaded Traffic, AES and Joseki Keys
 - Decrypted and deployed Link 16 and TACAN waveforms
 - Multichannel deployment with Link 16 on Channel 1 & 2 and TACAN on Channel 3
 - Full CASS operation from cold start running a demo TPS
 - MIDS terminal exerciser displayed TACAN Bearing /Range and Link 16 message processing
 - Verified Link 16 RF spectrum with external RF SpecAn
 - Provided Units 2 & 3 as Open Chassis for review
- The following SPVT requirements were successfully witnessed
 - RF spectrum was displayed for Link-16, and the TACAN Transmit pulse.
 - Anti- tamper /Zeroize
 - Successfully demonstrated the mechanism for clearing the classified algorithm and keys
- RFP for the new CNI Ancillary Set (CNIAS) LRIP & production March 2010
 - (2) FAT Units
 - (48) production
 - MIDS-LVT TPS
 - CIT TPS
 - IFF Waveform Porting
 - CNIAS in final system Integration

CNIAS Overview

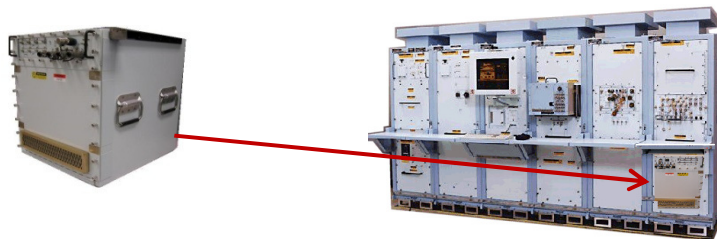
- The CNIAS is a stand-alone (ancillary) test equipment to be utilized in conjunction with the existing CASS test stations for testing communication, navigation, and identification (CNI) Radio Frequency (RF) systems.
- The CNIAS consists of the processors, controllers, cables, interface components, RF transceivers, modems, firmware, and all hardware and software required to replace the existing CNI specific asset capabilities required for testing the JTIDS, MIDS-LVT, and CIT systems on up to 4 RF channels with the future growth capability to test multi-channel communication systems (MIDS-JTRS, AMF, ARC-210, APX-111-30).
- The required system input power is 60 Hz, 115 VAC or power inverter on CASS and is suitable to utilize power from the power supply ancillary set on CASS RF test station
- CASS provides 10 MHz reference clock.
- The system communicates to CASS via an Ethernet interface.
- The system is capable of simultaneously transmitting and receiving radio signals via RF cables on up to 4 channels.
- The System has a unique channelized system architecture and test crypto design that has resulted in a NSA designation of 'unclassified at rest'. The test crypto is designed to support future applications like Link 16 Crypto Mod.
- Four DS-101/102 interface ports, one for each channel, are provided for security key loading use from an external Data Transfer Device (DTD).
- Trigger mechanism (Input lines)



CNIAS XCVR Design

Design Requirements: Link 16, TACAN, IFF, JTIDS CPSM and 24 JTRS Waveform Requirements

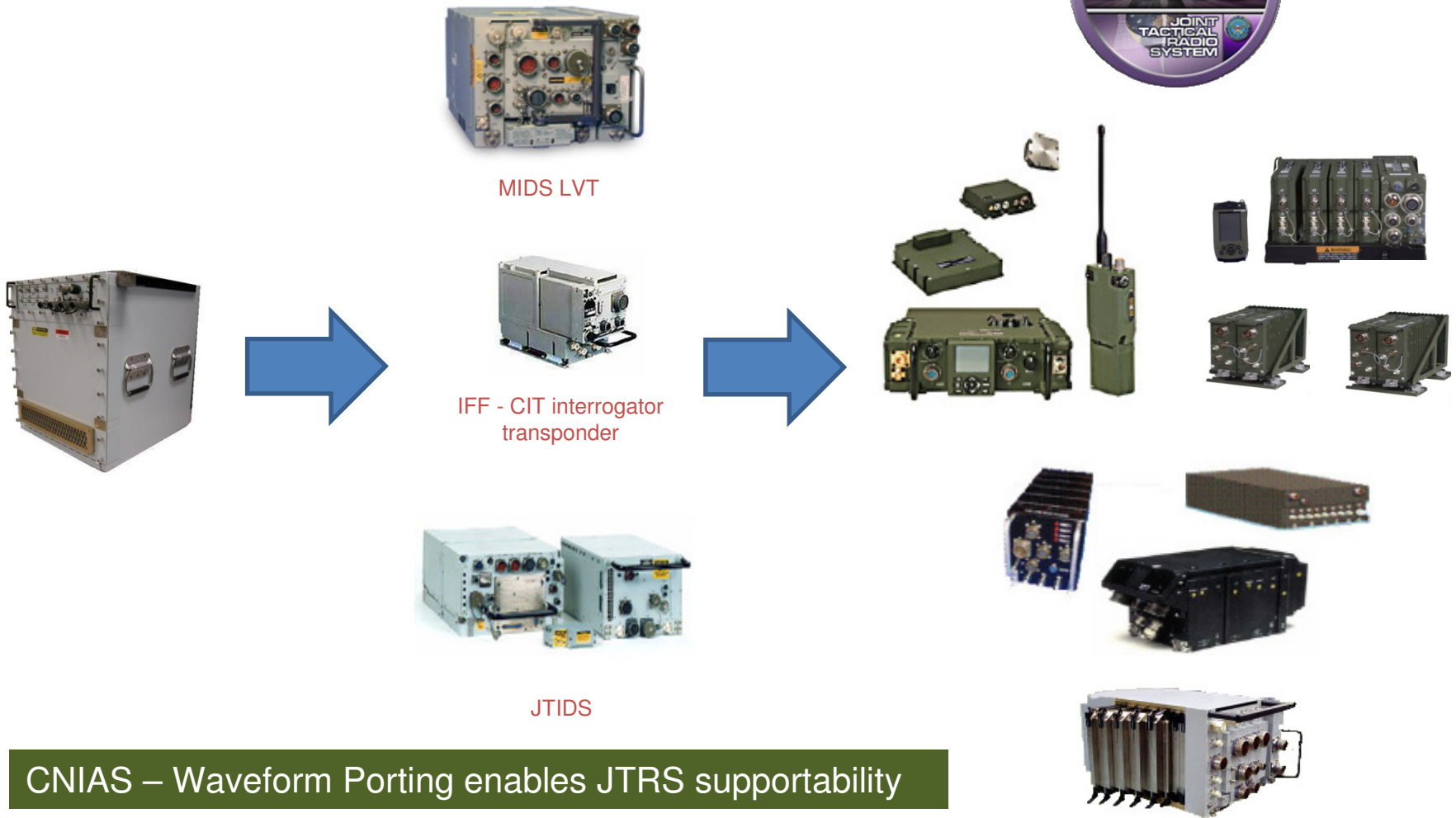
- Sampled IF
 - baseband I/Q approach
- Full duplex, dual synthesizers
 - Capability to test full duplex waveforms with a single XCVR
- 2 CCAs-Modem and RTS
- 2 FPGAs (Waveform and MHAL) and 1 Freescale GPP
 - JTRS SCA compliant design support of WF porting
- Rx and Tx ports are separate
 - Greater isolation between Rx and Tx
- Low latency modem-to-modem serial interface
- External Trigger I/O
- Capable of transmitting virtually any other signal \leq or $=$ 3GHz



| CURRENT WFMs |
|-----------------------------|
| Link 16 (TADIL J) |
| TACAN |
| IFF |
| JTIDS CPSM |
| Designed to Support : |
| STANAG 5066 |
| STANAG 4529 |
| ATC HF Data Link |
| Link 11A (TADIL A) |
| HF SSB w/ALE |
| HF ISB w/ALE |
| SINGARS ESIP |
| VHF FM |
| VHF AM |
| ATC VHF DATA |
| VHF for ATC |
| Havequick I/II |
| SATURN |
| UHF LOS AM/FM/FSK/CPM |
| UHF DAMA 182 |
| UHF SATCOM (Dedicated DASA) |
| UHF SATCOM, DAMA |
| UHF SATCOM TDMA/DAMA 183 |
| Link 11 (TADIL A) |
| Link 4A (TADIL C) |
| Link 11B (TADIL B) |
| EPLRS/ SADL |
| MUOS |
| SRW |
| WNW |

CNIAS Overview

CNIAS – Future of radio test



CNIAS – Waveform Porting enables JTRS supportability