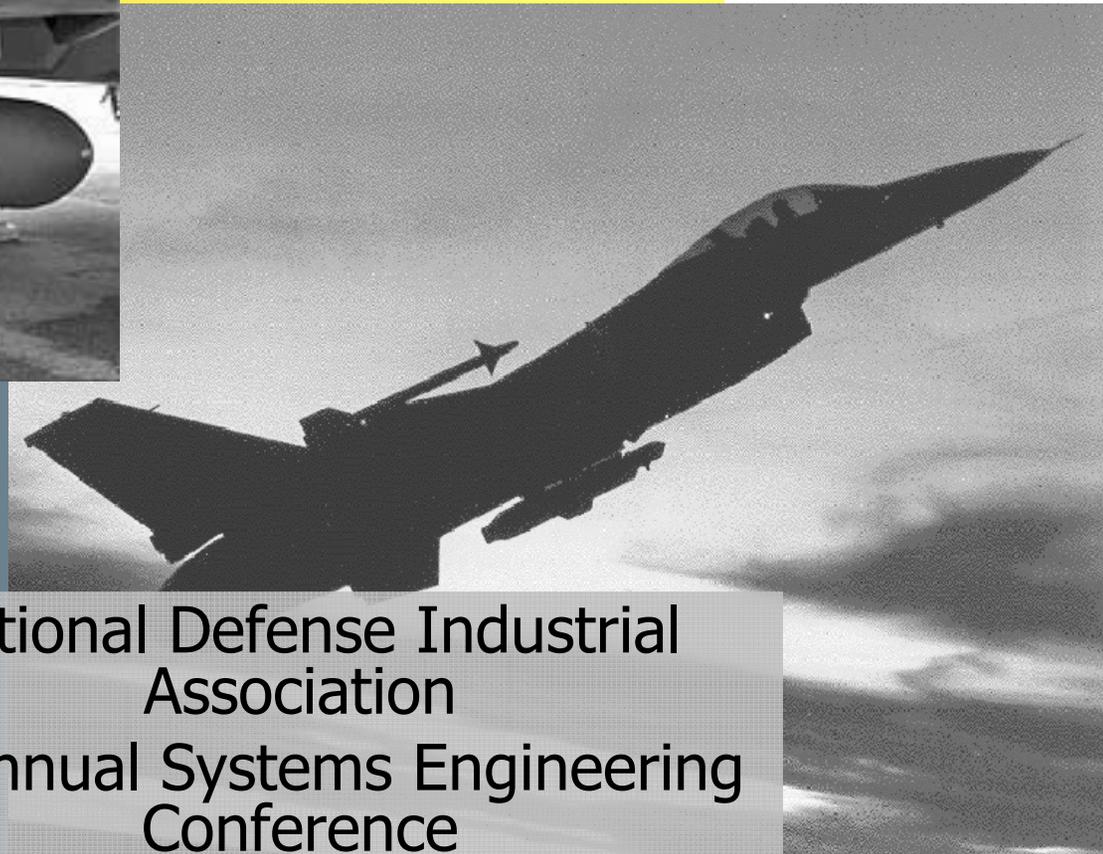


# Jammer Integration Roadmap

(Unclassified)



Adam McCorkle, GTRI  
adam.mccorkle@gtri.gatech.edu  
(404) 894-2508

National Defense Industrial  
Association  
8<sup>th</sup> Annual Systems Engineering  
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# Integrated Platforms



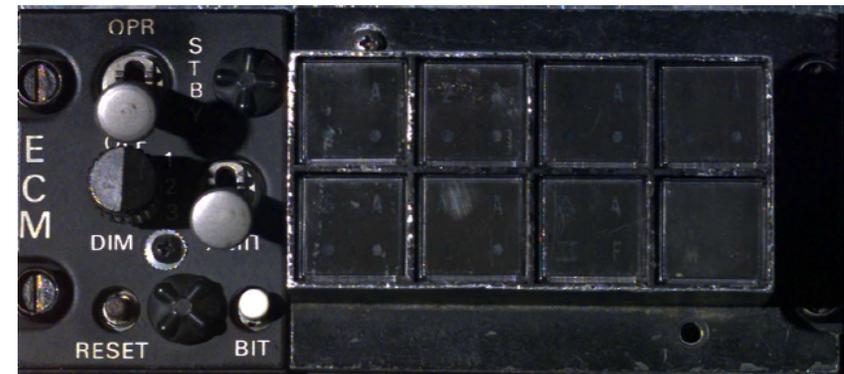
- F-16C+
  - ANG
  - AFRC
- AO/A-10
  - ANG
  - AFRC
  - ACC



# Out With The Old...



- The C-9492 is a Replacement for the C-6631 Analog Control Head
- The C-9492 Controls the ECM Pod via a 28V Discrete Power Signal, a Clock Signal, and a Pulse Position Data (PPD) line
- PPD is a Serial, Bi-Directional , Time Multiplexed Data Bus



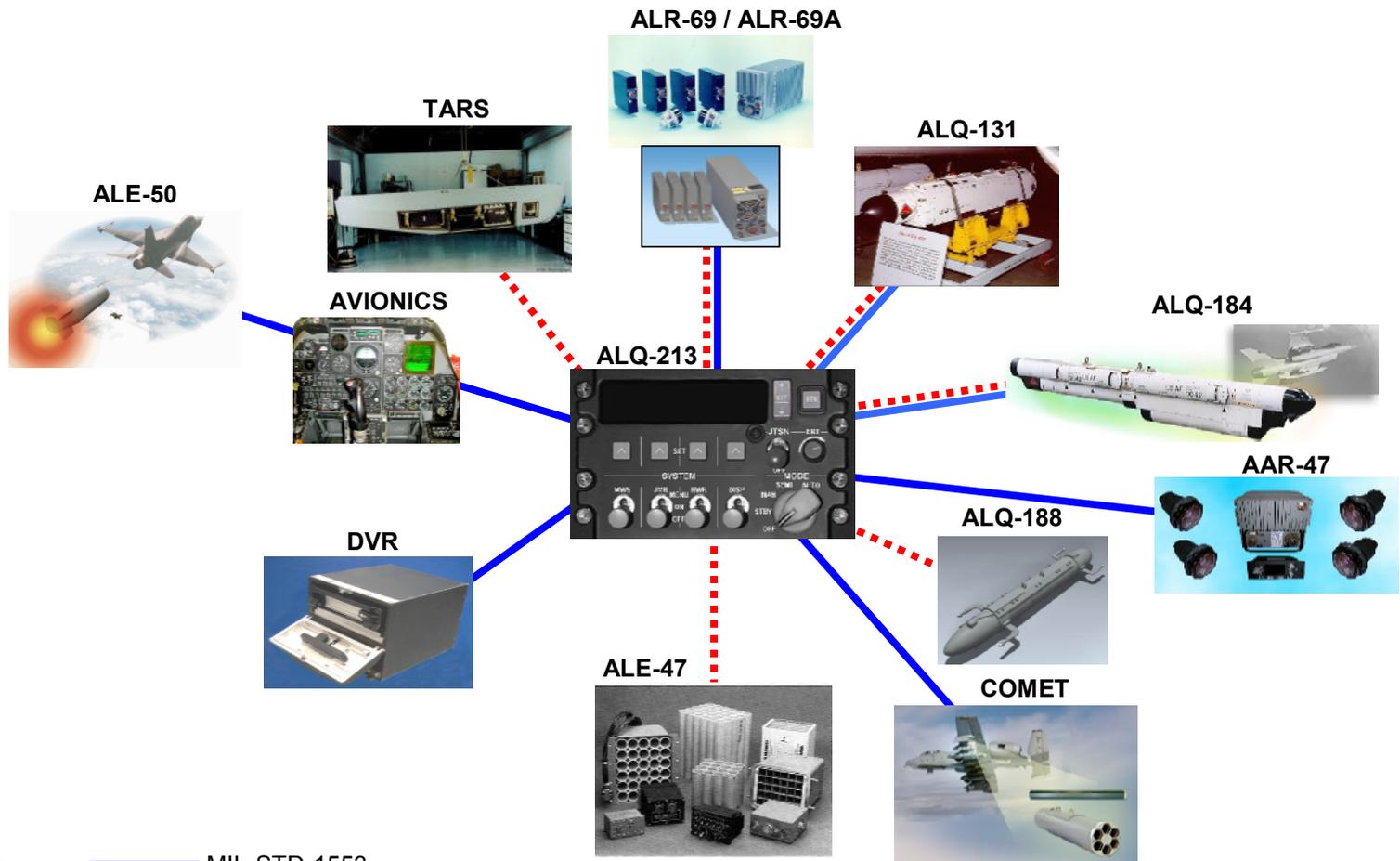
## ...In With The New



- SWV 1.0B3 was the First Fielded Version of the ALQ-213 Software (1998)
- SWV 1.0B3 Supported the PPD Interface for the ALQ-131, ALQ-184, & ALQ-184(V)9 ECM Pods
- SWV 2.0B5 is Currently in Flight Test. This is the Introduction of the Threat Response Processor (TRP)
- SWV 3.0F of the ALQ-213 Begins the 1553 Integration Between the Control Head and the ECM Pods (2004)



# ALQ-213 Subsystem Control



# ALQ-213 SWV 3.0F



- Engineering Release I (3.0F1)
  - December 2004
  - Initial Polling of ALQ-131 1553 Data
- Engineering Release II (3.0F2)
  - May 2005
  - Initial Polling of ALQ-184
  - Introduction of ALQ-131 Status Reporting with 1553 Data
- Engineering Release III (3.0F3)
  - September 2005
  - Introduction of ALQ-184 Status Reporting with 1553 Data
  - Refinements made to ALQ-131 Status Reporting
  - Introduction of ALR-69/ALQ-131 Correlation

# ALQ-213 Polling of Jammer Data



- Configuration
  - Status
  - Track Files
- Preset Jamming



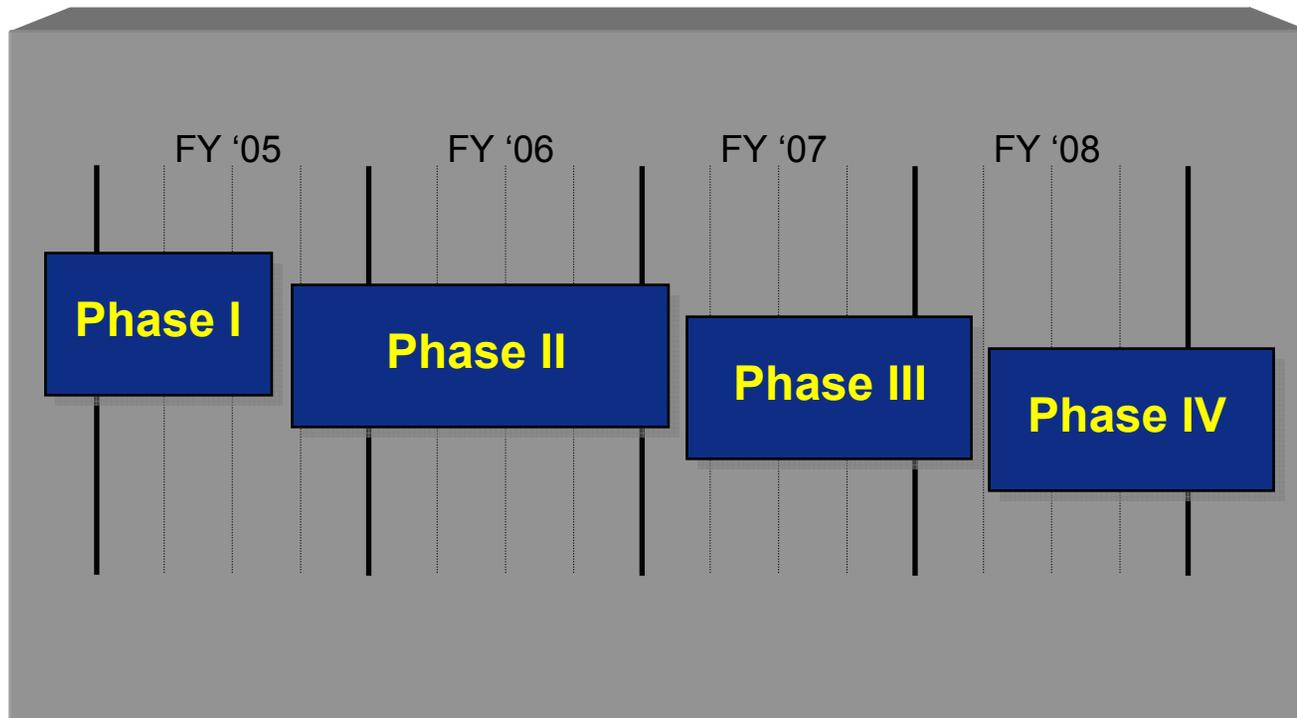
ALQ-131

- Configuration
  - Status
- Subband Freq Limits
- Pod Instrumentation
- Jamming Activity



ALQ-184

# Jammer Integration Roadmap



# Phase I:



- Development and Installation of the 1553 Hardware Kits
- Definition of Interfaces
- Formation of Integration Working Group
- ALQ-213 Polling of Jammer Data
- Compliance with Defined 1553 ICDs



ALQ-131

## Phase II:



- ALQ-213 Control of Pod Modes with 1553
- Correlate Threat Identification with ALQ-213
- Update Mission Data Tools for Correlation
- Increase Pod R&M Data for Post Mission Maintenance
- Coordinate Jamming, Dispensing, and Aircraft Maneuvers for Optimized Responses
- Incorporate Pod Reprogramming via 1553
- Provide Jamming Indication on ALR-69 Display

## Phase III:



- Incorporate Jammer Threat Identification to Resolve ALR-69 Ambiguities
- Remove Jammer Interference From RWR Display
- Optimize Jamming Response via ALQ-213 TRP
- Remove Jammer Interference From Fire Control Radar (FCR) Display
- Send Data to RWR for Direction Finding (DF)
- Incorporate Real-Time Pod Status for ALQ-213 TRP Compensation

## Phase IV:



- Incorporate Advanced Location Systems
- Optimize the Integrated EW Suite for Threat Identification and Warning
- Incorporate Advanced Chaff and Jamming Techniques
- Enable Cooperative Jamming with Multiple Jammers
- Incorporate Real Time Pod Status for Pilot Go/No-Go and Fault Analysis
- Provide Advanced ECM Techniques Directed by TRP



# Real-Time Pod Status for TRP Compensation

- 1553 Jammer Status Messages will Allow TRP to Select Jammer Techniques Based on the Specific Health of the Pod
- Current Functionality Only Allows the TRP to Base Decisions on Jammer Presets When the R/P is Non-Functional
- TRP Logic Must Consider “Age-In” and “Nuisance” Faults
- Refined Decisions can be Made by the TRP on a Band, Sub-Band, or Channel Level

# Advanced ECM Techniques



- Combining Jamming and Dispense Programs to Increase Survivability
- Critical Elements include: Timing, Order, and Resource Management by the ALQ-213
- Time Resolution of Combined Techniques is Critical When Transferring Between Jamming and Dispensing
- Examples: Illuminated Chaff, Terrain Bounce

# Questions?

