



*Common Core  
Tracking, Telemetry  
and Commanding*

*“Satellite Operations  
Commonality Requirements  
Defined”*

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## *Overview*



**Why?**

**How**

**Defining Operations**

**Commonality Requirements**

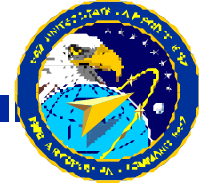
**Where AFSPC Wants to Go**

**The Challenge**

**Way Ahead**



**Why?**



- **AFSPC Spends More Than \$700M per Year on Satellite Operations**
- **Many Unique Ground Systems**
  - **Operations**
  - **Maintenance and Sustainment**
  - **Training**
  - **Lack of Interoperability**
- **GAO/Congressional findings**
  - **Overlapping Capabilities**
  - **Multiple Stovepipes, no Systems Engineering**



*How*



**Just As the Global Vision of Air Force to a Space and Air Force Is an Evolutionary and Phased Process**

**So Is Common Core Satellite Operations and Sustainment**

**It Is a Philosophical and Mind Set Change to the Operations, Acquisition, Development, and Design Communities.**

**As A Team We Need Start Planning What, Where, and When We Can Implement Common Core Requirements Given the Constraints and Assumptions.**



# *Defining Operations*



## **Aircraft**

### **Maintain Aircraft Control**

- Attitude**
- Airspeed**
- Altitude**
- Heading**
- Aircraft Status**

### **Mission Accomplishment**

- Attack**
- Defend**
- Transport**

## **Satellite**

### **Maintain Satellite Control**

- Attitude**
- Orbit/Position**
- Pointing Angles**
- Satellite Status**
- Satellite Configuration**

### **Mission Accomplishment**

- Communications**
- Surveillance**
- Navigation**



# *Defining Operations (continued)*



## **Standard Procedures**

**Normal Procedures**

**Emergency Procedures**

**Maintain Satellite Control**

**“Safe the Satellite”**

**Analyze Situation**

**Take Proper Action**

## **Satellite Specific**

**Normal Procedures**

**Mission Specific**

**Decision Making**

**General Guidance**



# Commonality Requirements



**Priority 1**

**Requirement**

**Origin/Linkage**

|   |  |
|---|--|
| <p><b>Common Procedures and Human Computer Interface for Telemetry &amp; Commanding, Orbit, Attitude, Resource Management</b></p> <p><b>Open System Standards</b></p> <p><b>TT&amp;C Interoperability Within Specified Time</b></p> <p><b>Common Procedures and Interfaces for Operations Planning, Database Management, and Simulators</b></p> | <p>Sat Control ORD, Sect. 1, 4-6</p> <p>Sat Ops CONOPS, Sect. 1, 3</p> <p>Sat Ops CRD, Sect. 4</p> <p>Employment Concept, Sect. 6</p> <p>Sat Control ORD, Sect. 5-6</p> <p>Sat Ops CONOPS, Sect. 3, 6</p> <p>Sat Control ORD, Sect. 1, 6</p> <p>Sat Ops CONOPS, Sect. 1, 3</p> <p>Employment Concept, Sect. 6</p> <p>Sat Control ORD, Sect. 1, 4-6</p> <p>Sat Ops CONOPS, Sect. 1, 3</p> <p>Sat Ops CRD, Sect. 4</p> <p>Employment Concept, Sect. 6</p>  |
| <p><b>Decision Support</b></p> <p><b>Level One Hardware Maintenance</b></p> <p><b>Hardware Compatibility</b></p> <p><b>Software Commonality</b></p> <p><b>Human Intervention by Exception Operations</b></p>  | <p>Sat Control ORD, Sect. 1, 4</p> <p>Sat Ops CRD, Sect. 4</p> <p>Employment Concept, Sect. 6</p> <p>Sat Control ORD, Sect. 1, 5-6</p> <p>Sat Ops CONOPS, Sect. 3</p> <p>Sat Control ORD, Sect. 5-6</p> <p>Sat Ops CONOPS, Sect. 1, 3</p> <p>Employment Concept, Sect. 6</p> <p>Sat Control ORD, Sect. 5-6</p> <p>Sat Ops CONOPS, Sect. 1, 3</p> <p>Employment Concept, Sect. 6</p> <p>Sat Control ORD, Sect. 1, 4</p> <p>Sat Ops CONOPS, Sect. 3</p> <p>Sat Ops CRD, Sect. 1</p> <p>Employment Concept, Sect. 6</p> |

**Priority 3**



# *Where AFSPC Wants to Go*



## **Requirements**

- Draft Integrated Satellite Operations CRD (USSPACECOM 16 JAN 97)**
- Satellite Control ORD (AFSPC/CC 4 Aug 95)**
- Satellite Operations Control Segment FRD (AFSPC/SMC Nov 96)**
- Satellite/Mission Specific ORDs**

## **Technical Orders**

- Management ( - 5 )**
- Operations ( - 1 )**
- Maintenance ( - {Complete Library} )**

## **Operations**

- CONOPS (AFSPC/DO 4 Dec 96)**
- 5OSW Employment Concept ( 14AF/CC 1 July 96)**
- Training / Standardization**



## *The Challenge*



**AFSPC/CC Guidance to Do Common Core  
Satellite Command and Control.**

**To Define Common Core Satellite Command  
and Control Requirements and Acquisition**

**AFSPC Must Define Common Core Satellite  
Operations/Sustainment in Common  
Language.**

**SMC Must Promote More Horizontal  
Engineering in Acquisition**



# *The Way Ahead*



- **Phased Approach**
- **Immediate Actions (Now)**
  - **AFSPC & SMC Speak With One Clear Voice**
    - **Common Core Operations and Acquisition Vision**
  - **Standardized Operations**
  - **Human Machine Interface (Objective Operator Screens)**
- **Long Term Actions**
  - **Define Injection Points for Each Program**
    - **Establish Program Specific Plans**
    - **Hardware and Software Compatibility**
  - **Advocate Funding and Get It**