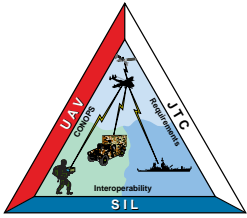
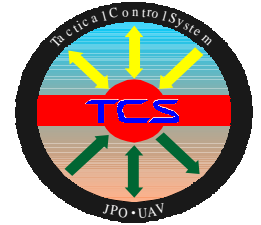


TCS Shelter Engineering Design Review

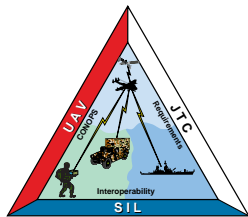
19 March 1998



Presentation Objectives



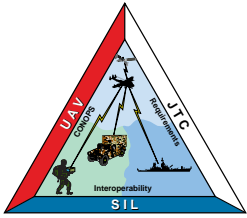
- **LRIP Concept**
- **Requirements Allocation**
- **Shelter Design Concept Overview**
- **Shelter Interfaces**
- **Operational Environmental Considerations**
- **Preliminary Shelter Design Drawings**
- **Support Shelter**
- **Schedule**
- **Design Deltas**
- **STR Considerations**



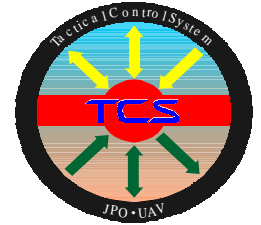
Army And Marine Corps LRIP System



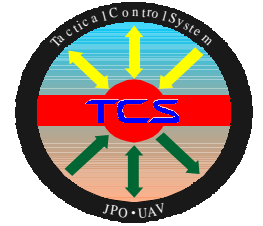
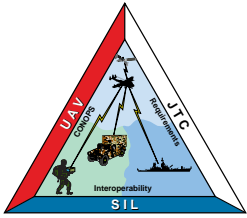
- **HMMWV Based, SICPS Shelter(*Modified 788*)**
- **Level 5 (manual L/R)**
- **Multi-Air Vehicle**
 - **2 DCMs (see options on following slide)**
- **Data Links**
 - **1 LOS**
 - **1 BLOS**
- **EO/IR, SAR**
- **C4I (AFATDS, ASAS, CCTV, JDISS, JSTARS, TEG, IAS, TS II)**
 - **Limited by availability of physical connectivity**



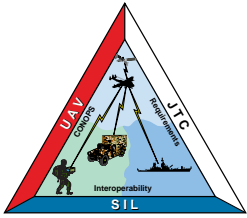
Army And Marine Corps LRIP System (Cont.)



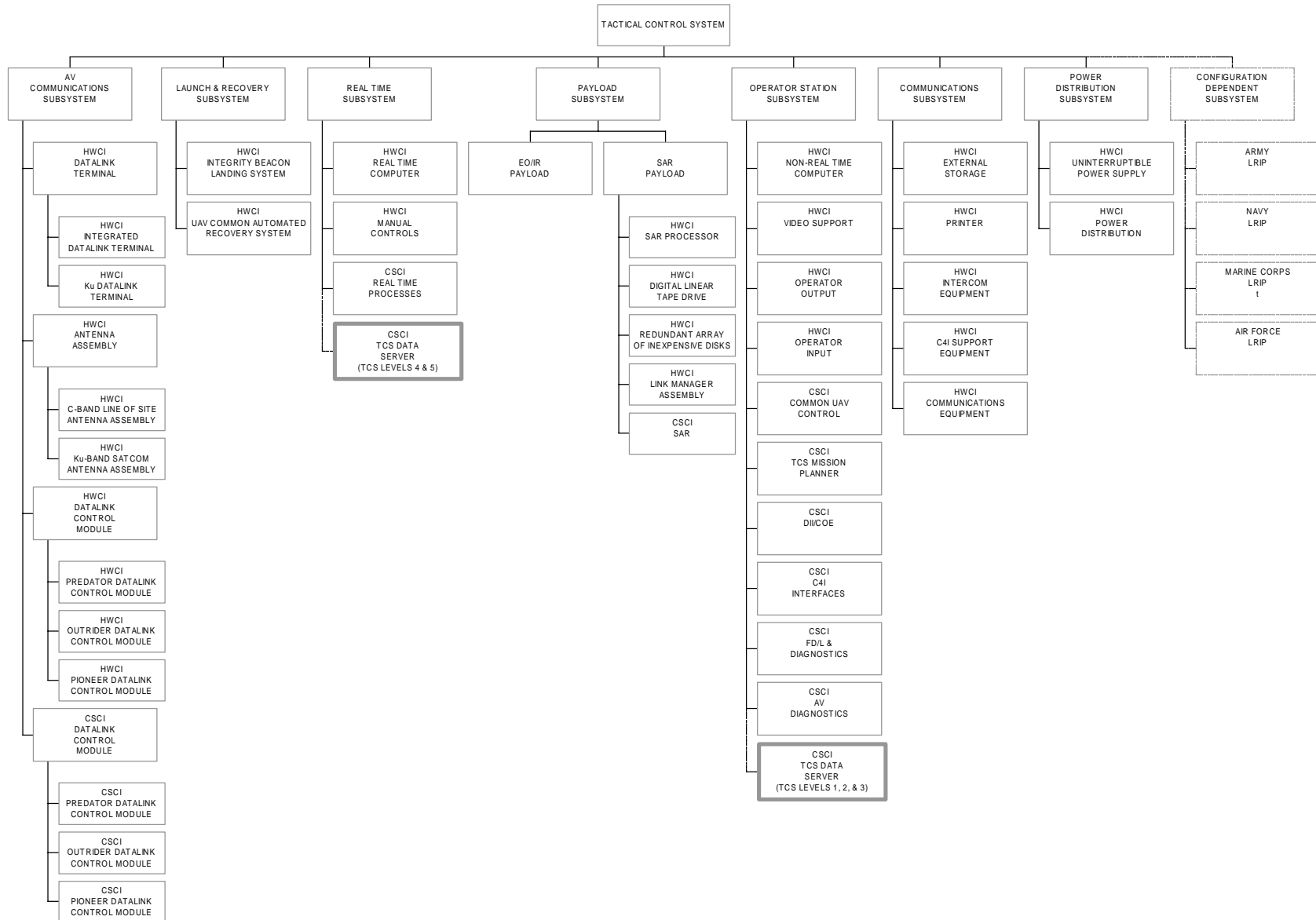
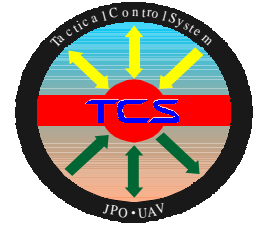
- **With 1 PDCM and 1 ODCM any one of the following options is available:**
 - 1 Predator LOS
 - 1 Predator BLOS
 - 1 Outrider LOS
 - 1 Outrider LOS & 1 Predator BLOS (Objective)
- **With 2 PDCMs any one of the following options is available:**
 - 1 Predator LOS
 - 1 Predator BLOS
 - 1 Predator LOS & 1 Predator BLOS (Objective)
 - 2 Predator BLOS
 - 1 Predator must be in autonomous mode as in relief on station

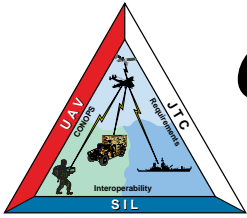


Requirements Allocation

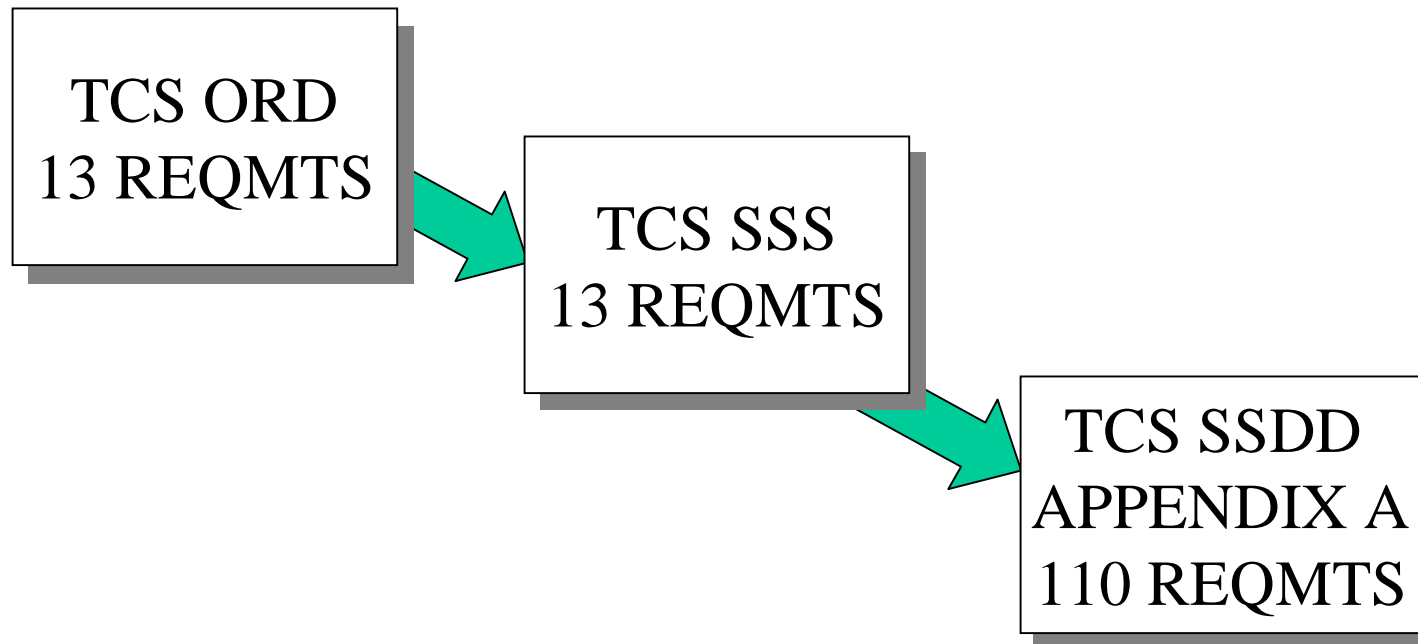
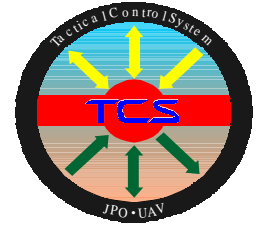


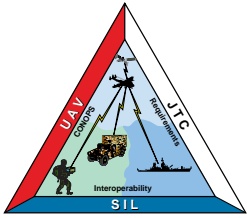
TCS Subsystems



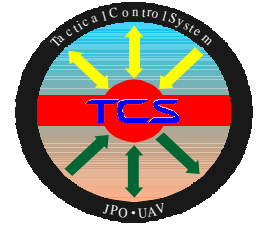


Configuration Dependent Requirements Allocated To Land-Based

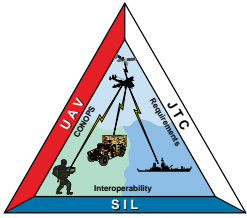




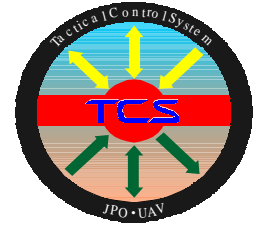
TCS-LS Shelter HWCI's Requirement To EB Allocation



- **Requirements For Engineering Builds**
 - **10 EB1**
 - **15 EB4**
 - **77 EB5**

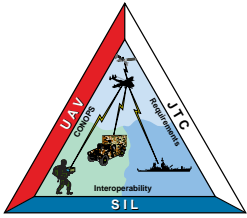


TCS-LS Non-Real Time Computer HWCI Requirement To EB Allocation

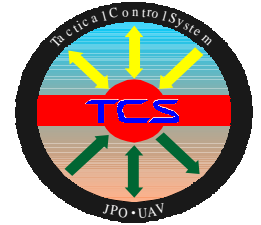


- **Requirements For Engineering Builds**

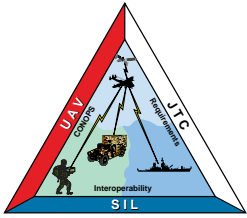
- **20 EB1**
- **3 EB2**
- **3 EB3**
- **37 EB4**
- **35 EB5**



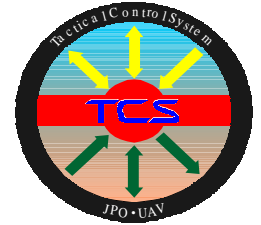
TCS-LS Power Distribution HWCI's Requirement To EB Allocation



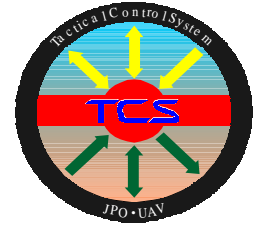
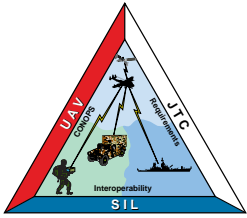
- **Requirements For Engineering Builds**
 - **18 EB4**
 - **4 EB5**



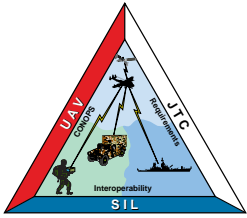
TCS-LS Communication HWCI's Requirement To EB Allocation



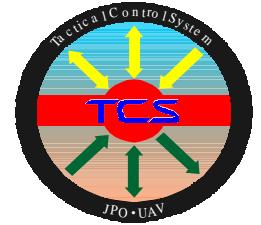
- **Requirements For Engineering Builds**
 - **53 EB4**
 - **13 EB5**



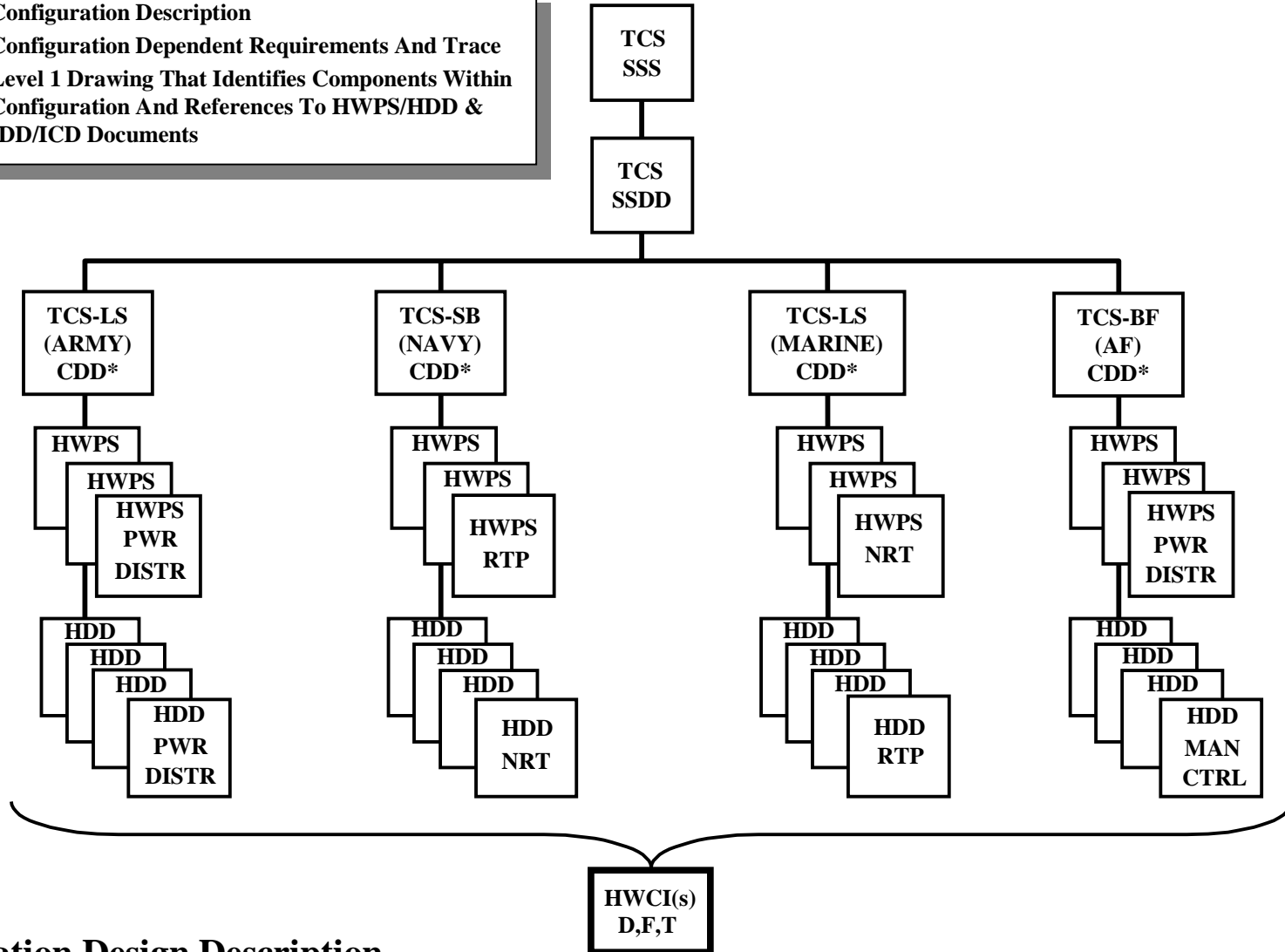
Documentation Model



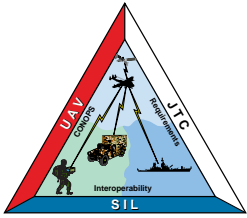
Configuration Design Description Model



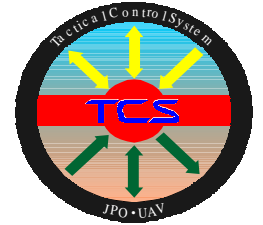
- Configuration Description
- Configuration Dependent Requirements And Trace
- Level 1 Drawing That Identifies Components Within Configuration And References To HWPS/HDD & IDD/ICD Documents



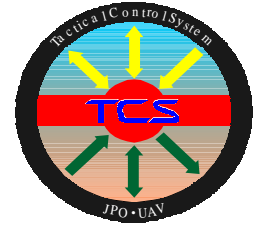
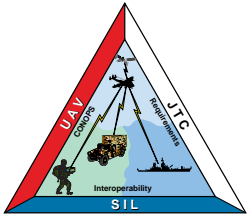
* Configuration Design Description



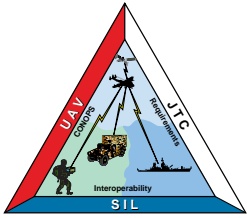
TCS Land Based Configuration



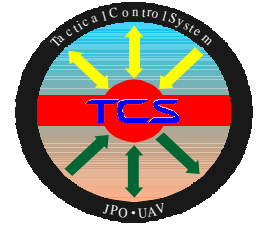
TCS-LS Overview



Operational Environmental Considerations

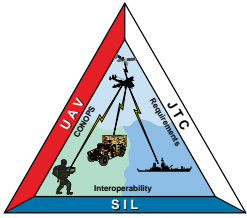


Shelter Environmental Considerations*

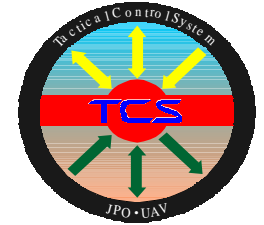


Environment	Hot and basic as defined by AR70-38
Temperature (Inside Shelter)	Operating 0 to 47 ° C Non-operating -40 to 70° C
Humidity(Inside Shelter)	Operating 10 to 80% Non-operating 5 to 95%
Rain	2 cm per hour with 20 knot wind
Snow	5 gm/cm ²
Icing	1.5 gm/cm ²
Salt Fog	MIL-STD-810 method 509.3
Wind	45 knots
Blowing Sand & Dust	MIL-STD-810 method 510.3
Vibration	Figure 514.4-1 through 514.4-3 (Common Carrier) and 514.4-1 (Tactical Composite Wheeled Vehicle of MIL-STD-810
Mechanical Shock	Method 516.4 procedures IV and VIII of MIL-STD-810

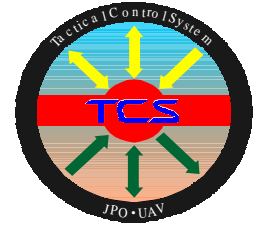
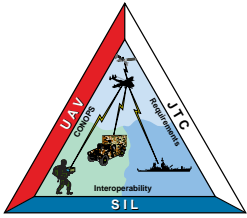
* Based on TUAUV Environmental Specifications



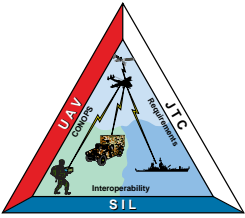
Shelter Environmental Considerations



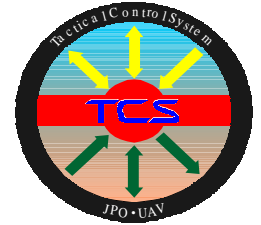
FUNGUS		
Fungi	ATCC ¹	NLABS ²
Chaetomium globsum	6205	459
Aspergillus niger	9642	386
Aspergillus Flavus	9643	380
Pencillins funiculosum	11797	474
Aspergillus versicolor	11730	432
LIGHTNING		
Magnetic Field Rate of change at 10 meters	3.2 x 10 ⁹ A/m/sec	
Electric field rate of change at 10 meters	1.3 x 10 ¹² V/m/sec	
maximum electric field	3.0 x 10 ⁶ V/m	
Notes:		
1. American Type Culture Collection (ATCC), 12301 Parklawn Drive, Rockville, Maryland 20852		
2. Pioneering Research Division, U.S. Army Natick Laboratories (NLABS), Natick, Massachusetts 01760		



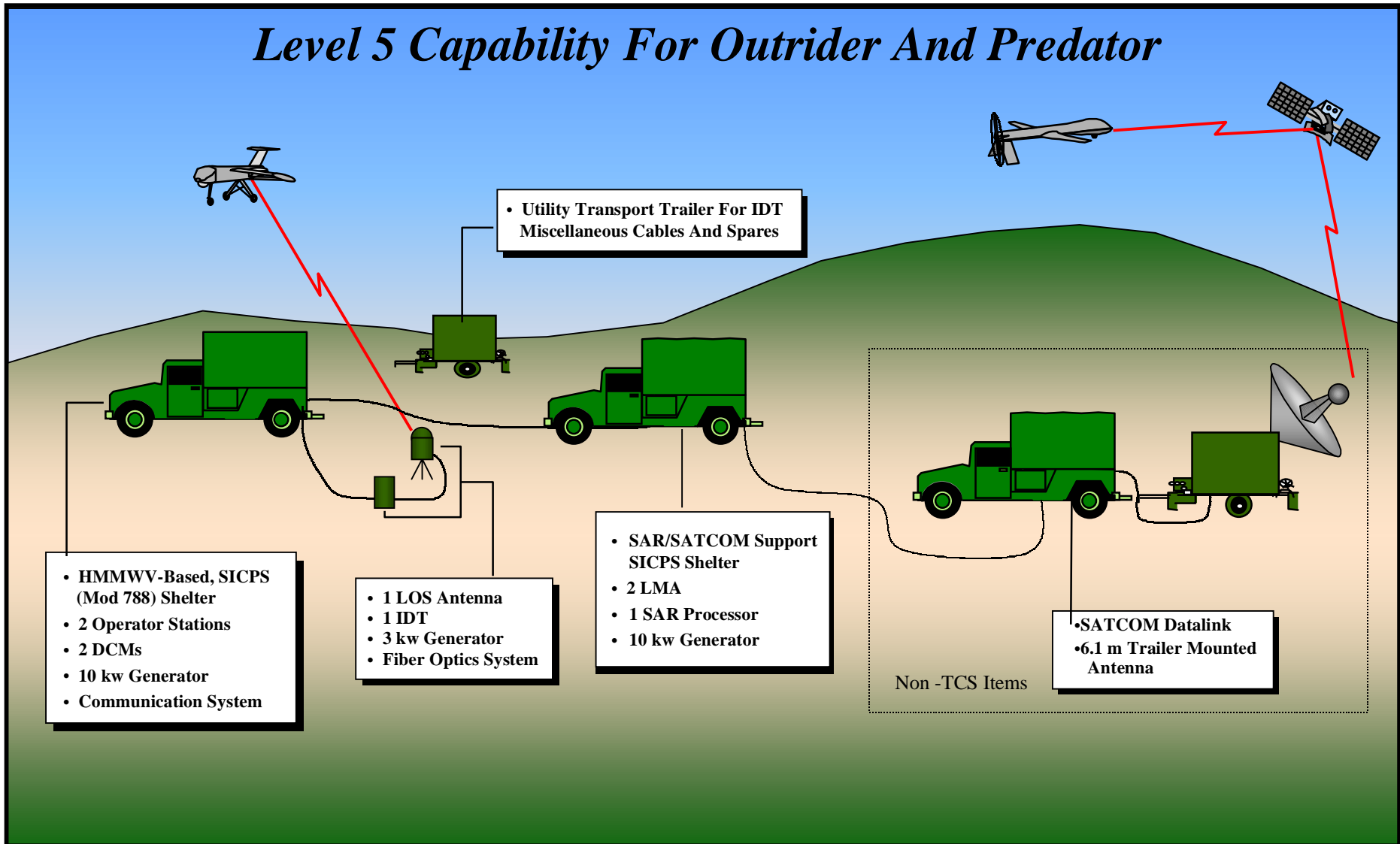
Preliminary Design Drawings

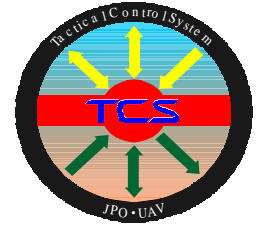
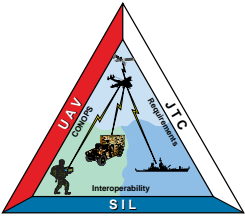


TCS Land-Based System

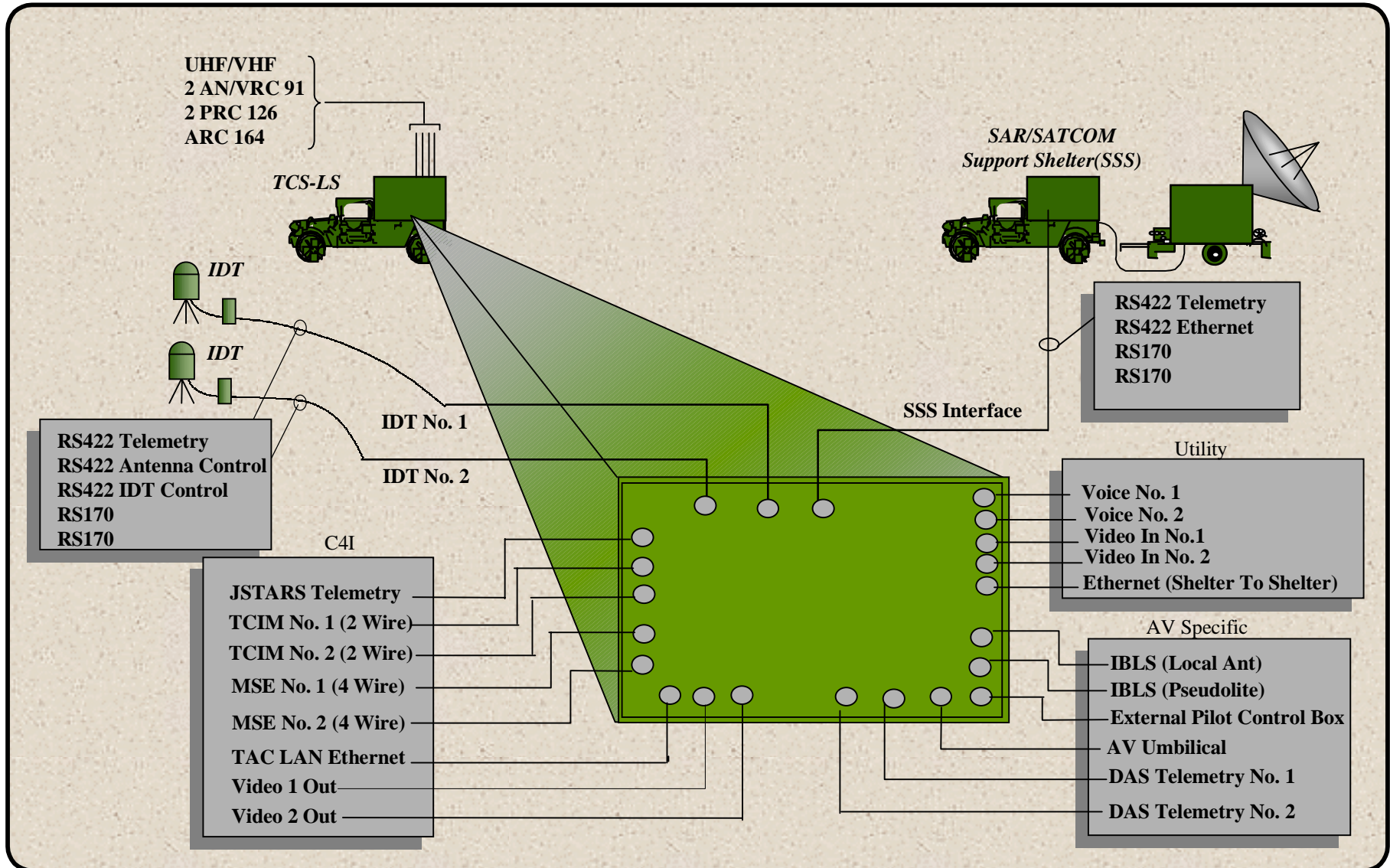


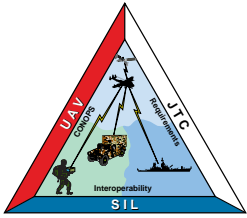
Level 5 Capability For Outrider And Predator





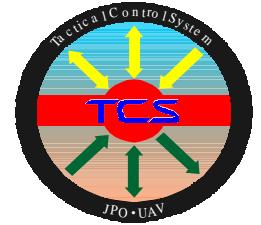
Shelter Interfaces





TCS Land Based Configuration

Army & USMC



ARC-164, PRC-126,
SINCGARS Radio,
VCR

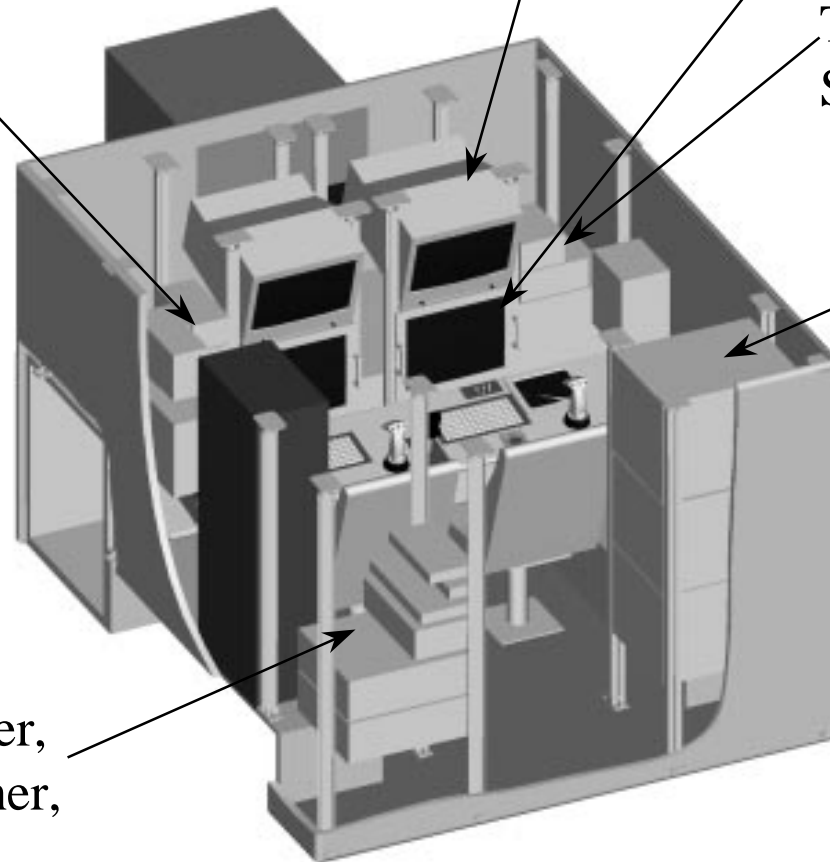
19" CRT
Monitors

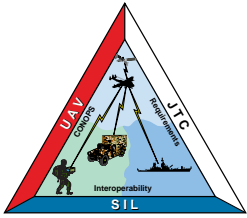
20" Flat Panel Displays

Thermal Printer, VCR,
SINCGARS Radio

VME Chassis,
2 DCMs

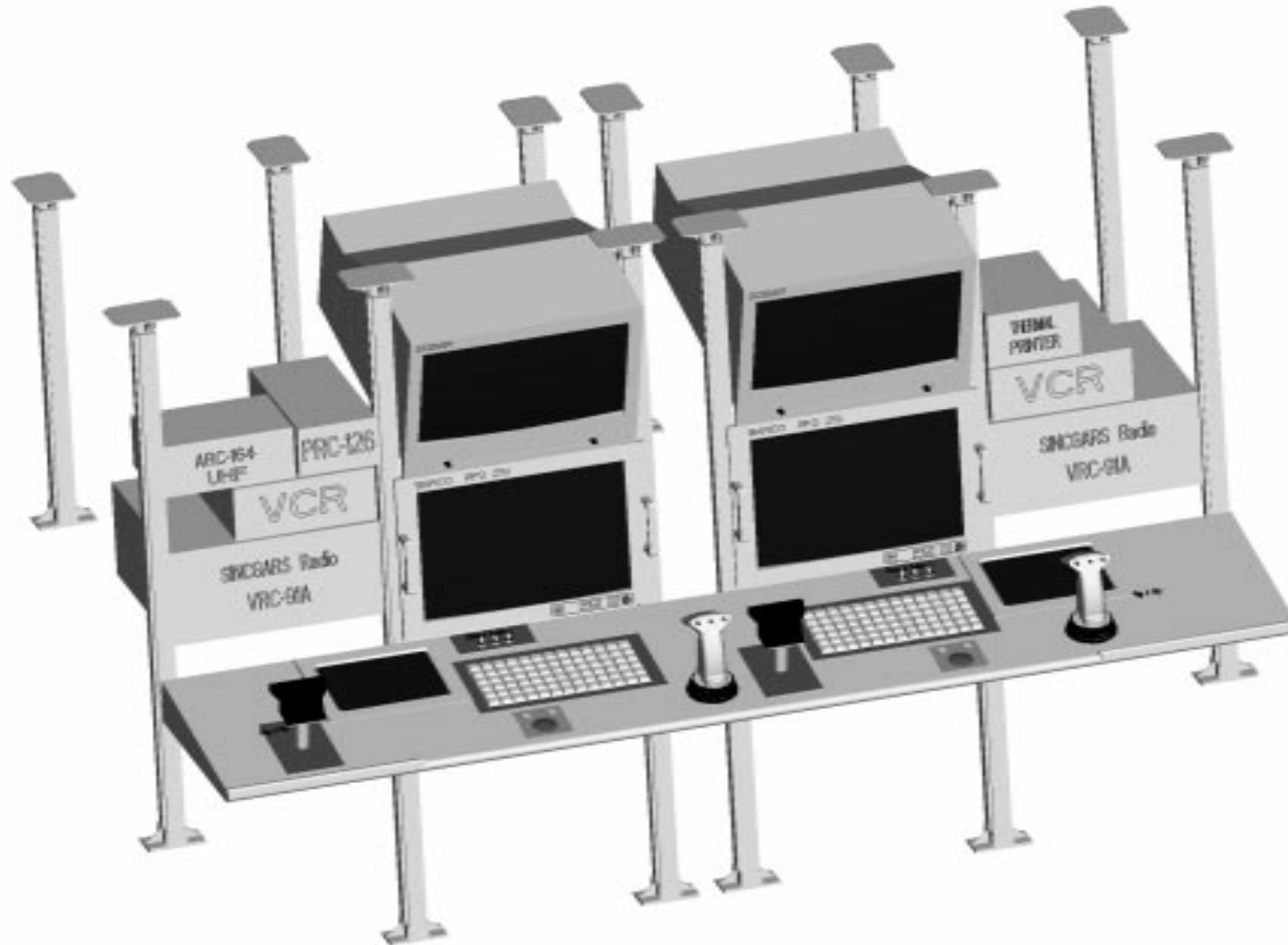
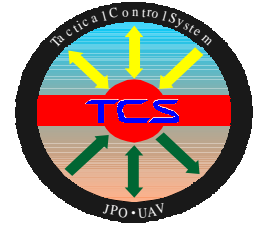
2 CPUs, Encoder,
Decoder, Switcher,
Hub

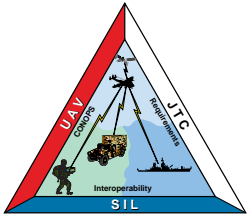




TCS Land Based Configuration

Army & USMC





TCS Land Based Configuration

Army & USMC

