### MUOS Summary

- Controls and monitors the MUOS satellite constellation
- 24/7 Ka in-band TT&C
- Ka protected anti-jam command uplink
- AFSCN S-band backup
- L&O and on-orbit analysis
- Carries all user traffic and signaling
- Realtime service activation
- Manages user mobility
- Manages MUOS communication services
- Circuit and packet services
- Standard interface to DISA teleport
- Government – controlled, priority – based access communication planning
- Provision users
- User access planning
- Manages the ground network
- Reports MUOS and UFO geolocation interfaces
- Geolocation – controlled by GSSC via SIPRNET

### GTS Summary

- Provides protocols, formats and physical layer characteristics for MUOS
- Provides RF link closure in stressed environments
- Provides direct connectivity for legacy users
- Transport bearer and control traffic
- Provides RF link closure in stressed environments

### NMS Summary

- Interconnects MUOS ground facilities via DISA DISN Core
- Transports bearer and control traffic
- Provides RF link closure in stressed environments
- Logical separation between bearer and control traffic
- IPv4/IPv6 dual stack compatibility
- Mesh topology

### Remote

- Compatible terminals for access to MUOS services
- 3G WCDMA Direct Sequence Spread Spectrum at UHF
- Provides protocols, formats and physical layer characteristics for MUOS compatible terminals for access to MUOS services
- Transports communications and signaling over the air at UHF
- Bandwidth: Four 5-MHz wide carriers. Chip rate: 3.84 Mcps
- 512 codes per B2U carrier
- Frequency notching (up to 20% with no performance impact)
- Error Correction: convolutional and turbo, ACK/NAK

### CSP Summary

- Functions as transponder ("bent pipe") between UHF MUOS user and Ka base station (e.g., tall cell tower)
- Provides direct connectivity for legacy users
- Power flux density not to exceed -138 dBW/kHz/m2
- Collects UHF spectrum for geolocation of interferers
- GEO: 35,786 km (22,240 miles) above Earth’s surface
- Inclination: 2.5° to 5.0°
- 13.5-year mean mission duration (MMD): 15-year design life
- Satellite dry weight: ~3,629 kg (~8,000 lb.)
- Satellite Power: 13 kW generated, EOL, summer solstice
- MUOS payload UHF power: 1,300 watts radiated at 3 dB OBO
- Satellite Power: 51.9 dBW EIRP max single beam at 620 watts radiated
- Bandwidth: Four 5-MHz carriers per beam
- 51.9 dBW EIRP max single beam at 620 watts radiated
- 43.0 dBW ERP simultaneous all beams

### MUOS WCDMA CAI Characteristics

- Transmitter Pre-Notch Spectrum
- Frequency notching (up to 20% with no performance impact)
- Error Correction: convolutional and turbo, ACK/NAK

### Mobile User Objective System (MUOS)

#### User Entry Segment

- **SCS (Space Control Segment)**
- **NMS (Network Management Segment)**
- **Remote**
- **GTS (Ground Transport Segment)**

#### SPACE TRANSPORT SEGMENT

**Satellite Summary**

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#### MUOS Compatible Terminals (e.g. JTRS)

- **GMR (Ground Mobile Radio)**
- **SOF (Special operations Forces)**
- **AMF (Airborne, Maritime and Fixed – ARC-210 and 19” rack form factors)**
- **HMS (Handheld, Manpack and Small form factor)**

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**CAI Layer**

- **5 Application**
- **4 Network**
- **3 DLC (Data Link Layer)**
- **2 MAC (Media Access Layer)**
- **1 Physical**

**Features**

- Transparent red IP address mobility
- Standard IP, voice, data interfaces and control
- Simple, peer-to-peer resource management
- Dual-stack IPv4/IPv6 for low risk transition
- Robust and flexible QoS
- Multiple, simultaneous services
- Bandwidth-on-demand channel assignment
- Signaling and traffic TRANSEC
- Provide RF link closure in stressed environments

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**MUOS WCDMA CAI Characteristics**

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