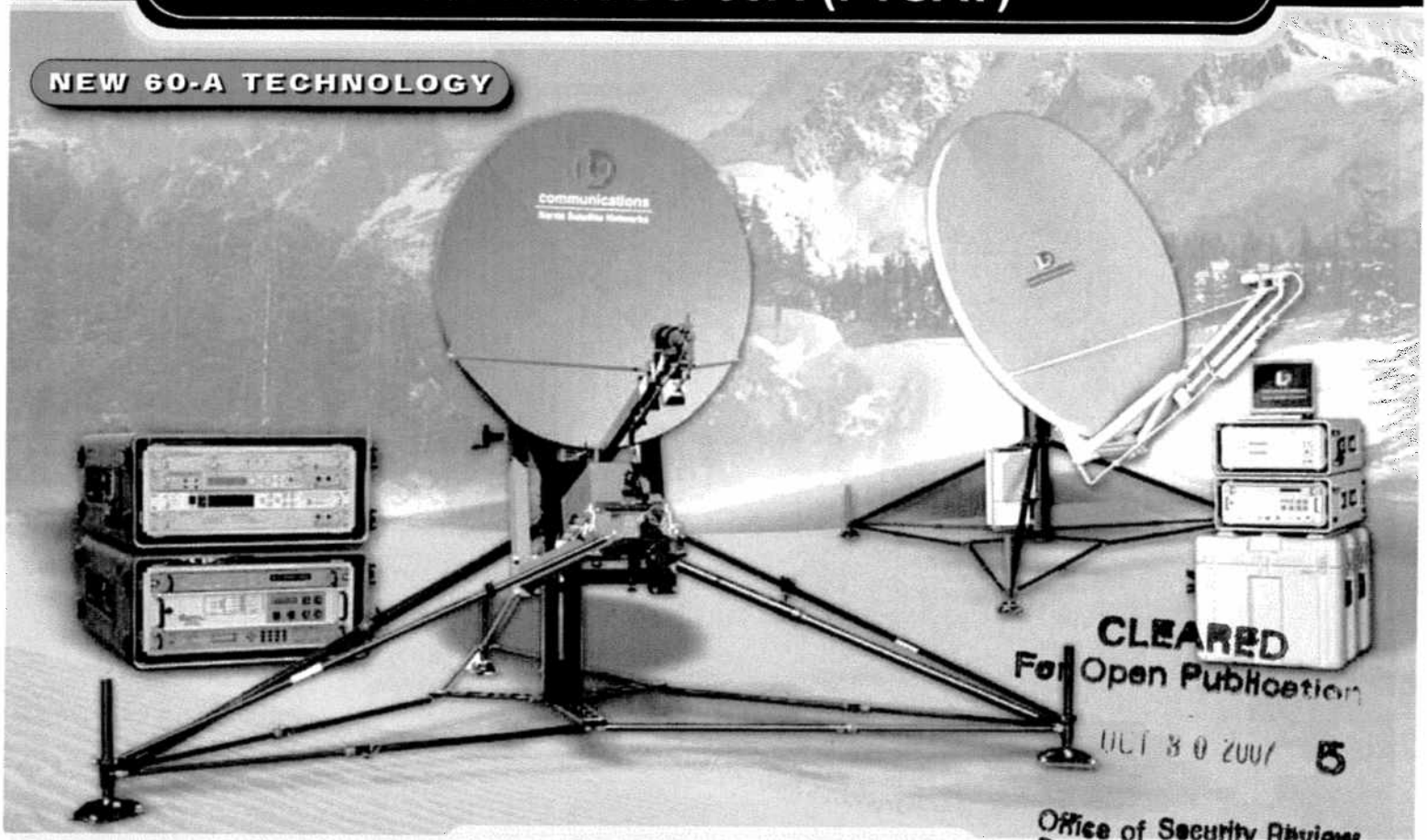
# Ka-Band Upgrade for AN/USC-60A (FTSAT)




## KEY DESIGN FEATURES

- AN/USC-60A Ka-Band capability (DoD-Bands)
- Low logistics and training costs
- In process of ARSTRAT certification
- Retained original FTSAT performance at C-, X- and Ku-Band
- Lightweight Quad-Band terminal
- 1.2 Meter — four (4) segmented Ka-Band reflector
- DMD 2050 52 Mbps modem (standard)

L-3 Communications Narda Satellite Networks (L-3 NSN), in anticipation of a successful launch of the Wideband Global SATCOM (WGS) satellite, is offering a Ka-Band Upgrade to the AN/USC-60A (FTSAT) therewith keeping the 250 plus fielded 60As updated through technology insertion. The Ka-Band Upgrade System (Model 1.2 Ka-60A) is intended primarily for the AN/USC-60A; potentially it can be integrated with other Multi-Band SHF-SATCOM systems, as well. The Ka-Band Upgrade will not effect the integrity of the FTSAT or degrade the operational performance and proven reliability. This upgrade will enhance the capabilities of the AN/USC-60A significantly.

The 1.2 Ka-60A, when integrated with the base system, (60A) will meet the latest WGS — Ka-Band Terminal Certifications Requirements (Version 2.0 dated 14 March 2006), MIL-STD-188-164A and ARSTRAT certification requirements.

The 1.2 Ka-60A consists of a 1.2-meter segmented carbon fiber reflector, adapter plate, linearized 175 Watt TWTA with built-in BUC and LNB.

The 1.2-meter reflector mounts directly to the pedestal AZ/EL head assembly using an adapter plate, and does not prevent reverting back to the 2.4-meter reflector for Tri-Band operations.

Setup and disassembly of the Ka-Band terminal is less than one hour for two trained personnel.

L3 communications
Narda Satellite Networks

08-S-0106

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## SPECIFICATIONS

**1.2M Antenna Subsystem**

| Parameter | Ka-Band | Units |
|---|---|---|
| Receive Frequencies | 20.2 to 21.2 | GHz |
| Transmit Frequencies | 30.0 to 31.0 | GHz |
| Transmit Gain | 49.4 | dBi |
| Receive Gain | 46.2 | dBi |
| G/T | 21.0 | dB/°K |
| EIRP (Linear) | 66.0 | dBW |
| EIRP (Saturated) | 67.5 | dBW |

**Physical Characteristics**

- **Configuration:** Transit cases (2)
- **Weight (total):** 299 lbs
- **Storage Space:**

  TWTA case 36″W x 36″L x 30.5″H
  1.2M reflector case 52″W x 28″L x 21″H

Setup time: 60 minutes
Take-down time: 60 minutes or less

**Certifications**

- DSCS (X-Band)
- ARSTRAT (Ka-Band)
- NATO

**Qualified:**

- INTELSAT
- EUTELSAT
- DOMSAT

**Options:**

- Single/multi-band configuration
- Other antenna sizes and various HPA power levels
- ETSSP
- IP Upgrade Kit: interoperable with iDirect, DVB and Linkway
- 52 Mbps up to 155 Mbps data rate modem
- Various other options available

**Environmental Conditions**

**Temperature:**

**Operating:** -20° C to +50° C
**Non-Operating:** -40° C to +70° C

**Humidity:**
As low as 5% at +50° C
As high as 100% at -32° C to +30° C, with condensation at all temperature lower than 30° C

**Altitude:** (feet)
Operating: up to 8,000 ft above sea level
Non-Operating: up to 50,000 ft above mean sea level

**Snow, Sand and Dust:** (for periods up to 72 hrs)
Operating / Non-Operating: (1) snow crystals 0.02 to 0.9 mm diameter driven by 40 mph winds. (2) Sand particles 0.01 to 1.0 mm diameter driven by 40 mph winds. (3) Dust particles 0.0001 to 0.01 mm diameter driven by 15 mph winds.

**Shock:** MIL-STD-810F, Method 516.5

**Vibration:**
MIL-STD-810F, Method 514.5
PROC. I, Category: 4, 7 and 8

**Wind:**
Operating: Steady-state - 25 mph (40 mph anchored); Gusting - 60 mph
Non-Operating: Steady-state - 45 mph; Gusting - 60 mph

## SUMMARY

The AN/USC-60A Ka-Band Upgrade is a very cost-effective option for Ka-Band terminals.

**Cost savings include:**

- Minimal new equipment cost — *reusing existing Tri-Band terminal equipment*
- Minimum Quad-Band terminal investment — *Tri-Band terminal already exists in inventory*
- Minimum training for Ka-Band equipment — *setup and operation based on standard Tri-Band terminal*
- Minimum logistics cost for a Quad-Band terminal — *logistics, spares and training already exist for the Tri-Band terminal portion*

The Ka-Band upgrade component will also provide the same high performance and high quality of the field-proven AN/USC-60A.

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