HM400 and HM400T Modems

The Hughes HM400 provides users with the next-generation software defined modem for satellite communications (SATCOM) on-the-move. The HM400 leverages the unique Hughes Scrambled Code Multiple Access (SCMA) Waveform technology that enables bandwidth efficiency for smaller antennas using fixed or Mobile Military applications. Being software defined, the HM400 has the flexibility to host a large suite of downloadable, standardized government and commercial waveforms. The HM400 can also flexibly operate over multiple frequencies (L-, C-, Ku-, Ka-, Mil Ka-, and X-band) and multi-orbit (LEO, MEO, and GEO) constellations. The HM400 is WGS certified and has anti-jam capabilities. Finally, the HM400 provides the capability to access worldwide SATCOM services through existing VSAT and MobileSat service providers or customer-specific networks/gateways.

The HM400 was designed with flexibility in mind, leveraging an open architecture that enables use with any qualified system components that are best suited for delivering mission-specific requirements. One key enhancement in the HM400 includes increased resiliency to withstand harsh environmental conditions, such as high-altitude flight, lightning strikes, and Electromagnetic Interference (EMI). This makes the unit ideal for applications ranging from disaster response, storm tracking, military operations, and airborne geological surveys. This enhanced resiliency enables reliable Beyond-Line-of-Sight (BLoS) video and data communications, even in harsh environmental conditions.

Hughes also offers the HM400T which is an HM400 equipped with an integral TRANSEC Module that runs the STANAG 4486 / Enhanced Bandwidth Efficient Modulation (EBEM) waveform. The HM400T is WGS certified and is compatible with existing EBEM ground modems.
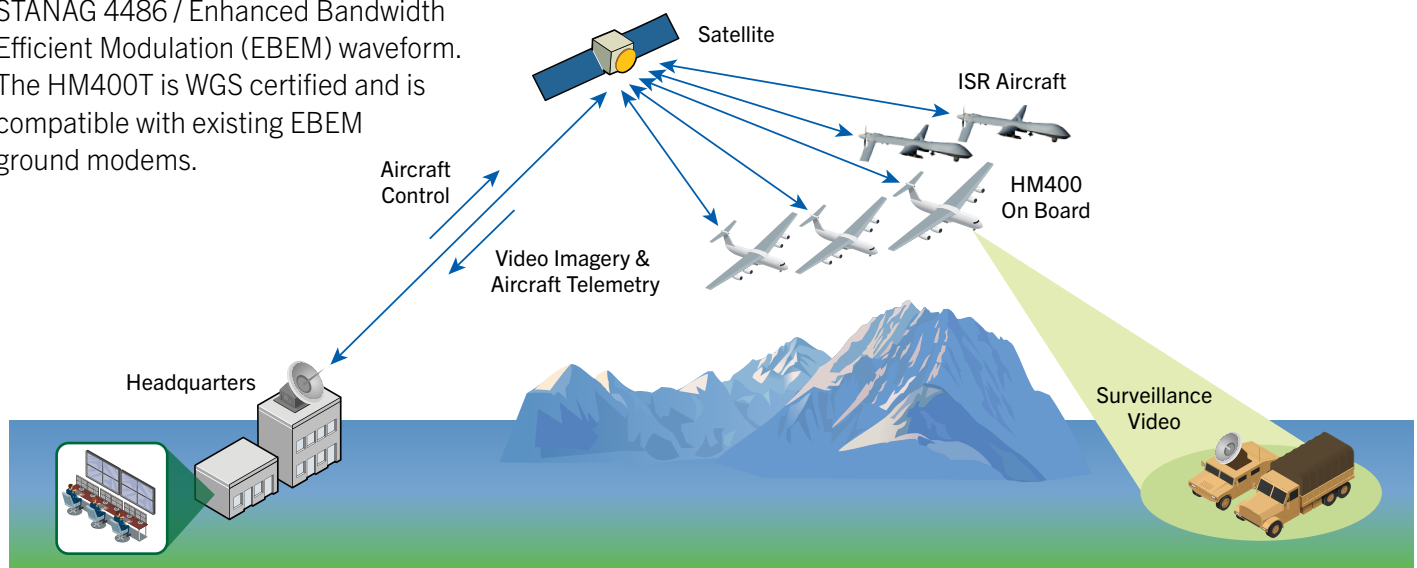
The HM400 utilizes a Hughes waveform called the Advanced Microsat Waveform (AMW)

- AMW supports highly efficient fixed and mobile communications for system with smaller antennae

The HM400T utilizes the popular Government EBEM / STANAG 4486 waveform

- EBEM provides interoperability with existing Government (DoD / Intel) ground modems

Satellite

ISR Aircraft

Aircraft Control

HM400 On Board

Video Imagery & Aircraft Telemetry

Headquarters

Surveillance Video

Benefits

- High data throughput rates for efficient video and data transmissions
- Software-defined modem
- L-band intermediate frequency for C, X, Ku, and Ka operation
- Supports OpenAMIP
- Open-architecture design for end user flexibility
- Enhanced resiliency
  - SCMA Waveform*
  - Ruggedized to support high altitude flight applications
  - Lightning/EMC/EMI protection circuitry
- Open architecture for use with various antennas
- Low Size Weight and Power (SWaP) footprint

Key Features

- Design is a ½-ATR style enclosure with heat sinks
- Designed for natural convection cooling
- Compliant with environmental standard requirements
- Wide variety of data interfaces Q Mil-Spec-compliant (vibration, temperature, and EMI/RFI)
- EBEM (MIL-STD-188-165A/B, STANAG 4486 Edition 3, Annex E) with Integrated TRANSEC

Technical Specifications

Technical specifications and features are subject to change at any time without notice.

Dimensions:
- 5" W x 13" L x 8" H

Weight:
- ≤ 14 lbs

Operational Temperature:
- -55° C to +71° C

Power:
- 65 W–75 W nominal (up to 125 W with internal heaters on)

Environmental Standards:
- MIL-STD-810, 461-, 462-, and 464-compliant

Throughput:
- Up to 45 Mbps

Altitude:
- 50,000 ft

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*About Hughes SCMA Waveform: The basis of the HM System is the Hughes SCMA technology. Continuing the Hughes tradition of innovative satellite solutions, the SCMA waveform utilizes the latest software-definable technology, enabling high-data throughput with the secure and efficient sharing of bandwidth. Hughes SCMA technology is especially well suited for operating over satellites employing extremely small antennas (micro terminals), with potential applications, such as tactical COTM, asset tracking, sensor networking, and smart grid. The waveform optionally includes Upper-Layer Protocol Enhancements (ULPEs) for high-speed transmission with zero packet loss through rotating blades on aircraft. Additionally, there is an outer code that offers protection against intentional interferences. Paired with the SCMA, the HM System is an advanced generation solution that continues the Hughes legacy by using advanced waveform capabilities to bridge the gaps in current market technology and delivers meaningful cost and size reductions where they matter most.

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