

ASPIRE 350 SYSTEM DESCRIPTION

1 Product and System Description

1.1 General

This section describes the Aspire 350 AES Satcom System and its service capabilities for the aeronautical application over the Next Gen Iridium Satellite constellation.

1.2 System Overview

This section describes the Aspire 350 AES Satcom System, services and typical operation and installation environments. The SATCOM avionics is an integral part of the complete L-Band Iridium Satellite Communication System and comprises of the following components.

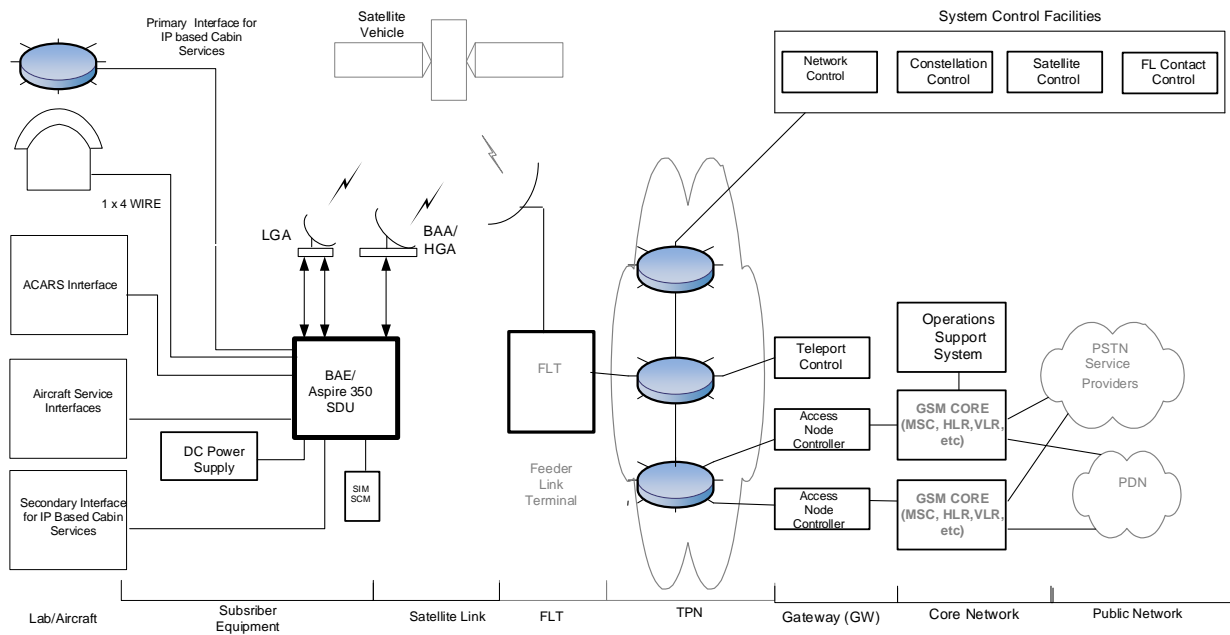


Figure 1: Aspire 350 System Overview

- Satellite Data Unit (SDU)
- SDU Configuration Module (SCM)
- LGA – Low Gain Antenna (Passive Dual Puck Antenna)
- HGA/BAA – High Gain Antenna/Broadband Active Antenna (Contains HPA and LNA)
- Associated wiring

The SDU is the central communications processing and control unit, largely determining the functionality of the complete SATCOM system. The signal in space parameters are determined by the SDU in relation to modulation/demodulation, error correction, coding, interleaving and data rates associated with the communication channels. The SDU contains circuits for conversion of digital and/or analog inputs/outputs to/from radio frequency (RF). The SDU requires antenna functions and external amplifiers to complete the SATCOM avionics suite. The SDU is capable of sending and receiving various data rates. The data rate is selected by the individual applications and by pragmatic assessment of current operating conditions.

The external SCM contains the Secure Owner Requirements Table (ORT), the User Owner Requirements Table (ORT) and two Subscriber Identity Module (SIM).

The Broadband Active Antenna (BAA) or High Gain Antenna (HGA) contains the Tx High Power amplifier (HPA), Rx Low Noise Amplifier (LNA), a band pass filter and radiating elements to transfer RF signal into electromagnetic fields for transmission to the SV and reception of RF signals from SV. The BAA antenna will be interfaced with the HCM modem for Certus Services.

The LGA antenna is a passive dual patch omni-directional antenna which is interfaced to the two LBT modems for safety services.

The Aspire 350 AES is aeronautical communications unit which operates over the Iridium L- Band of 1616 MHz to 1626 MHz. The maximum EIRP output from the HGA antenna is 15.2 dBW EIRP with maximum antenna gain of 8dBic. The HGA antenna provides cabin data services using the Iridium BCX9810A modem. The LGA antenna is used for cockpit voice and ACARS services using the Iridium LBT 9523N modem. The maximum output from the LGA antenna is 6.4dBW EIRP. The LGA is an omni directional antenna while the HGA is a directional antenna.

Honeywell is developing Aspire 350 AES for aeronautical communications services in the L-Band and part of the development phase includes conducting Over-The-Air testing in the USA, after conducting emissions testing as per FCC CFR 47, Subpart 25 and 15 and Iridium's approval of the test results. We are requesting for developmental/experimental license to conduct OTA testing for a period of 10 months to verify HW and SW functionality of the Aspire 350 for certification data submission purposes.

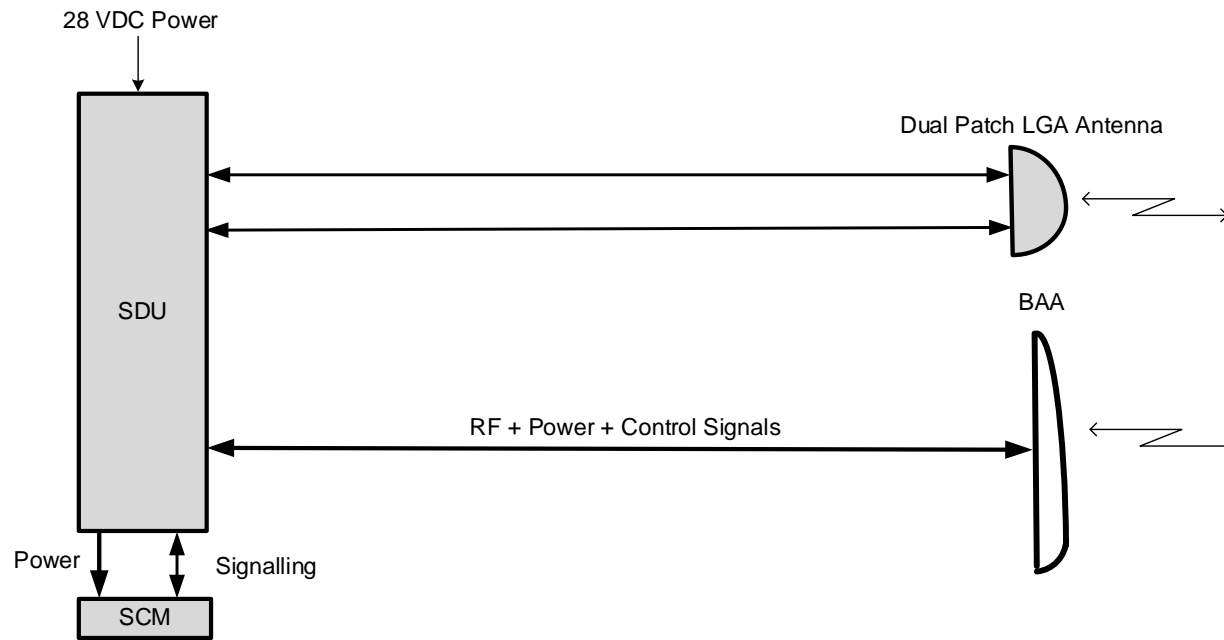


Figure 2: Aspire 350 AES System Configuration with LGA and HGA antennas

1.3 System Capabilities

The Aspire 350 AES Satcom terminal will support the following services:

Cockpit Services

ACARS
1 Safety voice channel

Interface

ARINC 429 CMU
4-Wire interface

Cabin Services

IP Background Services
IP Streaming Services
VoIP Services

Interface

Ethernet for Cabin Services
Ethernet for Cabin Services
Ethernet for Cabin Services