

GNSS Active Patch Antenna

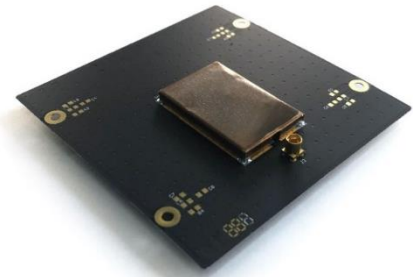
DATASHEET

ISIS-GAPA-DSH-0001, version 2.1

CubeSat standard active GNSS patch antenna

Applications

The ISIS GNSS patch antenna is a compact, low-mass active antenna, designed for GPS-L1 / GALILEO-E1. This active antenna is suitable for providing CubeSat platforms with precise positioning and is compatible with the ISIS structures.



General description

The ISIS GNSS antenna is part of a new generation of antennas designed for CubeSats and nanosatellites. It is an off-the-shelf compact active antenna used for receiving GPS L1 and GALILEO E1 signals.

Compatibility

- Compatible with ISIS CubeSat structures.

Flight heritage and quality assurance

- Qualification Thermal Testing, -30 to +70 °C.
- Qualification tested for quasi-static acceleration up to 15g in three axes. Flight units thermally acceptance tested for workmanship.
- IPC-A-610 Class 3 PCB and assembly.

Product Features

- Frequency range: 1572 - 1578 MHz (GPS-L1 / GALILEO-E1)
- Lightweight solution <20g
- Supplied with CubeSat compatible mounting plate
- Antenna peak gain of 5.5 dBi
- Signal gain up to 34.5 dB
- SAW filters used in the active frontend
- Single straight MMCX connector for both power and RF lines
- Right Hand Circular Polarization
- Power supply between 3 - 5VDC
- Powered consumption < 10 mA @ 5VDC

Ordering information

Please contact sales@isispace.nl for ordering information

Specification

Table 1 GAPA Specification

Parameter	Typical Value	Units
Environmental Characteristics		
Operational temperature	-30 to +70	°C
RF Characteristics		
Frequency Range:	1572 - 1578(GPS L1 / GALILEO E1)	MHz
Signal gain (active circuitry)	34.5	dB
Antenna peak gain	5.2 (1575 MHz)	dBi
Axial ratio	< 3	dB
Return Loss	> 15	dB
Bandwidth	6	MHz
Polarization	RHCP	-
Physical Characteristics		
Mass	18	g
Dimensions (H x W x T)	70 x 70 x 15	mm
Connector type	MMCX (for both RF and power line-female)	-
Antenna material	Ceramic	-
Electrical Characteristics		
Supply voltage	3 - 5	VDC
Current consumption	< 10 mA	mA

RF Description

Radiation Pattern

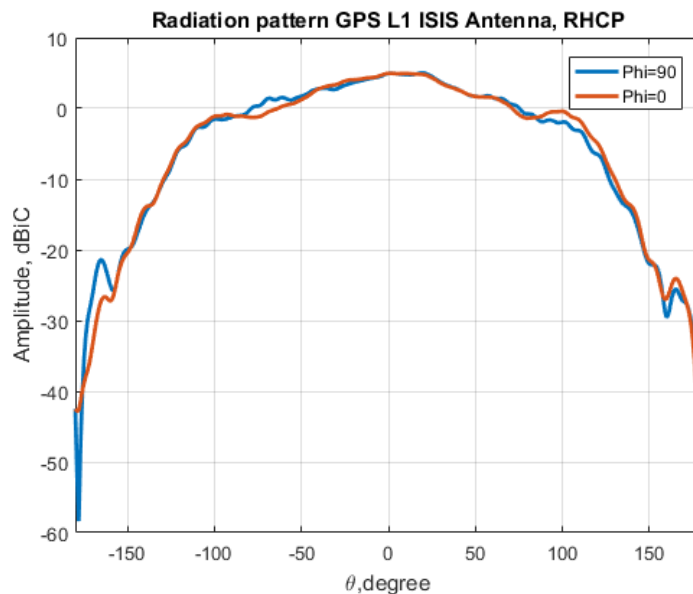


Figure 1 Typical co-polar radiation pattern at 1575 MHz

Mechanical Description

Mechanical Outline

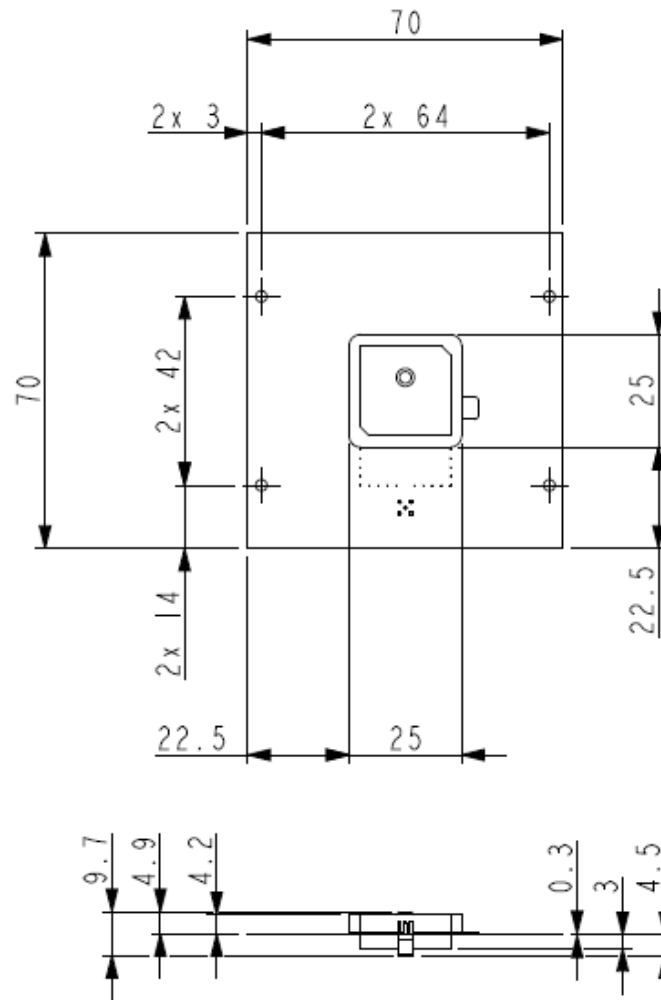


Figure 1 Mechanical outline

Detailed interface information and CAD models of the entire GAPA may be delivered on request.

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