

USER MANUAL

S-Band Patch Antenna Type II

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This user manual details the applications, features and operation of EnduroSat's S-Band Patch Antenna Type II.

Please read carefully the manual before unpacking the antenna in order to ensure safe and proper use.

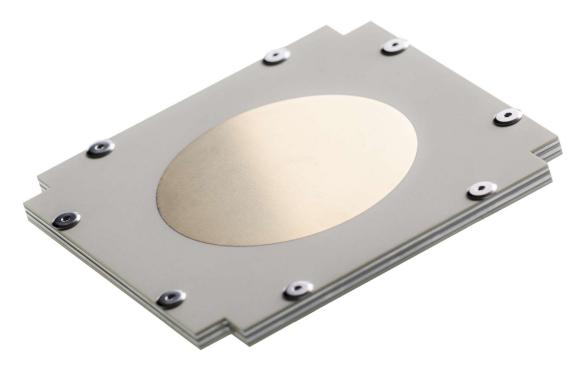


Figure 1: Endurosat's S-Band Patch Antenna Type II

1 CHANGE LOG

Date	Version	Note	
05/12/2018	Rev 1	Initial iteration	

2 ACRONYMS LIST

RF Radio Frequency

RHCP Right Hand Circular Polarization

LHCP Left-Hand Circular Polarization

SMA Sub-Miniature version A

3 OVERVIEW

EnduroSat's S-Band Patch Antenna Type II is designed to operate in the 2025-2110 MHz band. The antenna is designed to be mounted on the Z side of a CubeSat structure according to the CubeSat standard.

4 HIGHLIGHTED FEATURES

- Operating Frequency Bandwidth: 2025-2110 MHz
- RF Output Power: up to 4 W
- Circularly Polarized (direction hardware selectable)
- Half Power Beam Width (HPBW): 70 degrees
- Gain > 7 dBi (over operating bandwidth)

5 ANTENNA LAYOUT

The antenna is a stacked patch with two feeding points allowing configuration of either RHCP or LHCP. Figure 2 shows the dimensions of the antenna array with a mounted SMA connector.

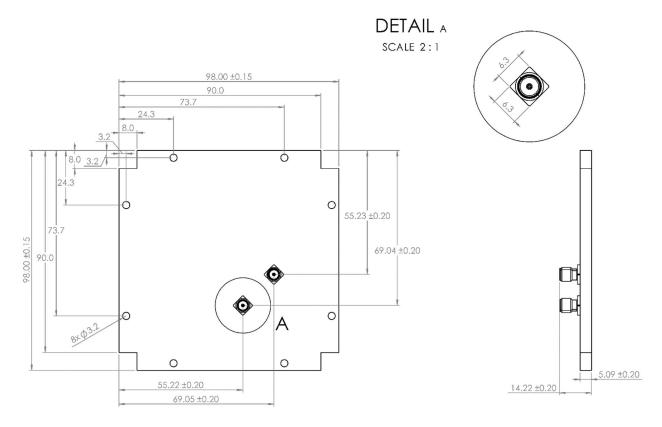


Figure 2: Antenna Dimensions (all values are in mm)

6 ANTENNA PARAMETERS

Figure 3 shows the simulated return loss of the antenna.

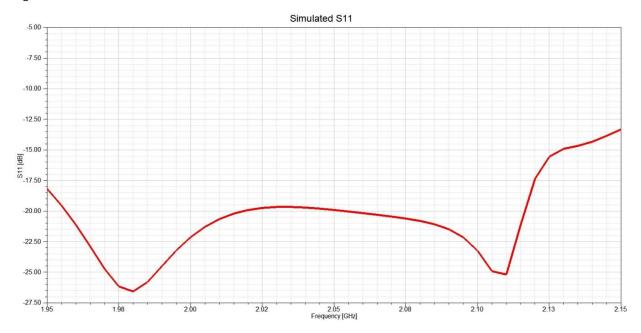


Figure 3: Simulated Return Loss of the Antenna

Figure 4 shows the simulated gain with respect to frequency.

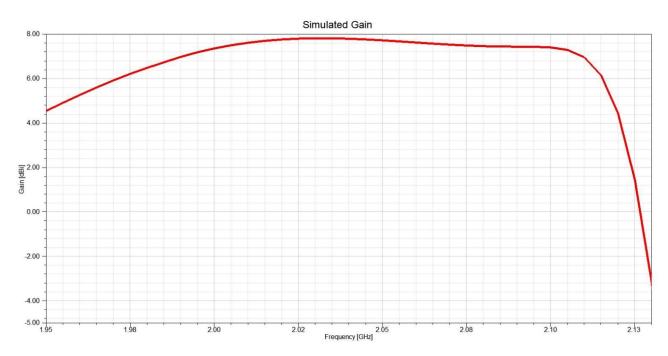


Figure 4: Simulated Gain

Figure 5 depicts the simulated radiation pattern of the antenna at 2.067 GHz for phi (azimuth) angles: 0°, 45°, 90°and 135°.

2D slices @ 2,067 GHz for 0, 45, 90 and 135 deg

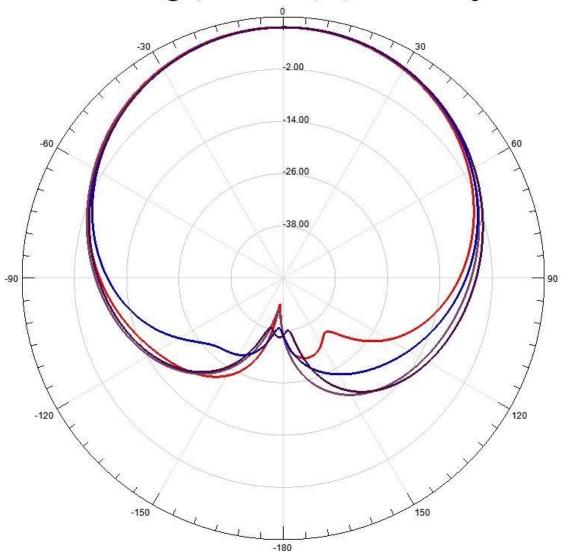


Figure 5: Simulated Radiation Pattern

7 INCLUDED IN THE SHIPMENT

EnduroSat provides additional items with the S-Band Patch Antenna:

USB stick with user manual

8 HANDLING AND STORAGE

Particular attention shall be paid to the avoidance of damage to the antenna during handling, storage and preservation. The handling of the antenna should be performed in compliance with the following instructions:

- Handle using PVC, latex, cotton (lint free) or nylon gloves.
- The environment where the antenna will be handled shall meet the requirements for a class environment 100,000, free of contaminants such as dust, oil, grease, fumes and smoke from any source.
- Store in such a manner as to preclude stress and prevent damage.
- To prevent deterioration, the antenna must be stored in a controlled environment, i.e. the temperature and humidity levels shall be maintained in the proper ranges:
 - o Ideal storage temperature range: 15°C to 27°C
 - o Ideal storage humidity range: 30% to 60% relative humidity (RH)

9 WARNINGS



This product uses very fragile components. Observe precautions for Handling.