

Product Specification

AC30026-01

GNSS Antenna for OBD-II Dongle

July 2023

Rev.1.0

Revision History

Date	Rev.	Summary of Changes
July 2023	1.0	Released Product Specification

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1 AC30026-01 On-Board GNSS Antenna

1.1 Scope and purpose

This document describes the AC30026-01 GNSS L1 Antenna for OBD-II dongles and its specifications. It is intended for antenna design engineers and OEM customers who wish to integrate this product into their design.

AC30026-01 is a quasi-omni-directional antenna element operating in the GPS L1 (1.575GHz) and GLONASS G1 (1.601GHz) bands. This high-performance antenna features excellent efficiency and impedance matching characteristics, providing optimal quality of service for satellite vehicle tracking.

Figure 1 shows the visual representation of the AC30026-01 and the exploded view of typical end-user device.

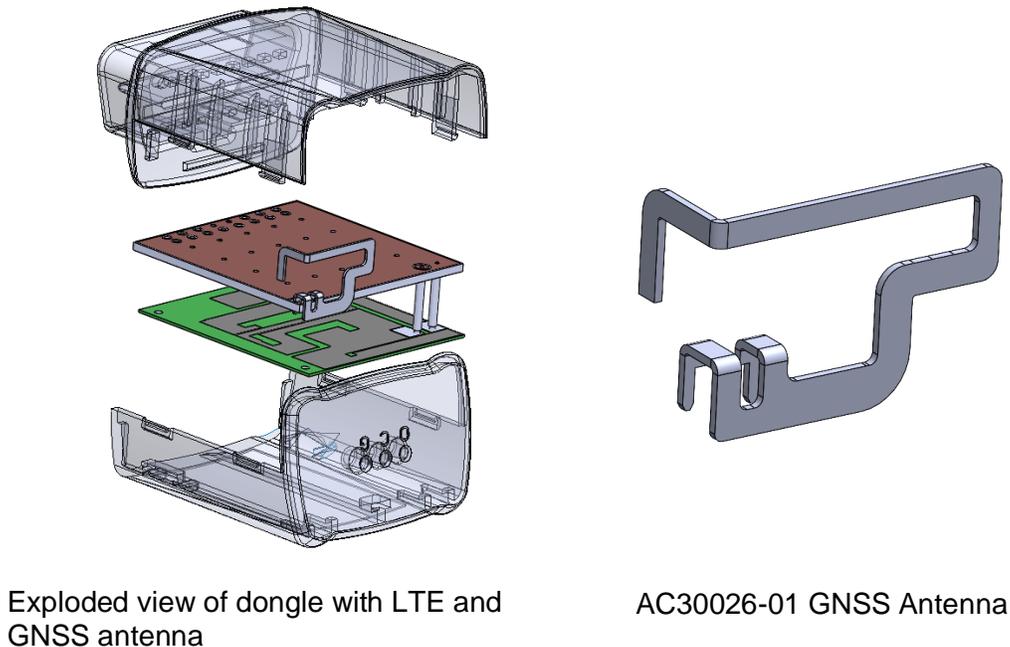


Figure 1. AC30026-01 inside OBD-II dongle

1.2 AC30026-01 GNSS Antenna Features

- GPS and GLONASS operation
- Corner mount to minimize the volume required for antenna integration
- Excellent embedded impedance matching
- Reduced coupling with other antennas that could be embedded in the end-device (e.g., a cellular antenna)

1.3 GNSS Antenna specifications

Table 1: AC30026-01 GNSS Antenna specifications

Parameter	GPS		GLONASS	
	L1 Min	L1 Max	G1 Min	G1 Max
Band	1563	1587	1593	1610
Frequency [MHz]	1563	1587	1593	1610
Typical Efficiency	> 55%	> 55%	> 55%	> 55%
Typical Average Gain [dB]	-2.6	-2.6	-2.6	-2.6
Maximum VSWR	2.0:1		2.0:1	
Peak Realized Gain [dBi]	< 5	< 5	< 5	< 5
Radiation Pattern Type	Quasi-omni			
Input Impedance	50Ω			
Polarization	Linear			
External/Internal Matching	external			

Table 2: AC30026-01 GNSS Antenna physical specifications

Parameter	Description
Dimensions (W x H x D)	18.55mm x 12.7mm x 7.0mm
Weight	0.46g +/- 0.1g
Connector	Solder to PCB
Assembly style	On-board mounting with Through Hole Technology

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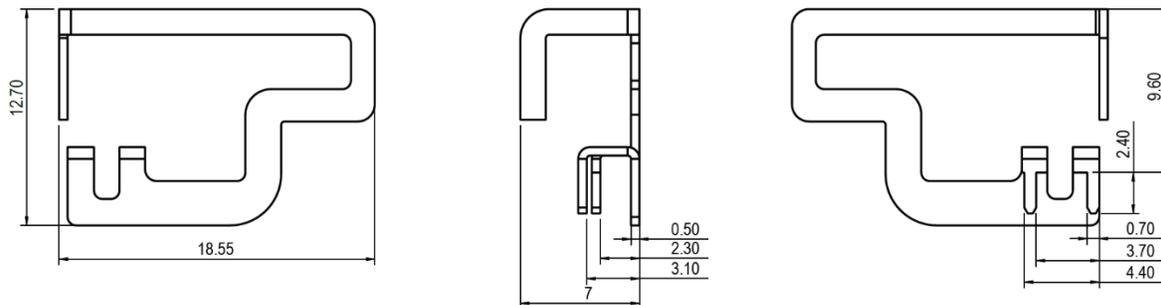


Figure 2. 3D View of the antenna with dimensions (mm)

Table 3: AC30026-01 GNSS Antenna environmental specifications

Parameter	Description
Operational temperature	-40°C to +80°C
RoHS support	Yes

1.4 Radiation pattern

Table 4 shows the embedded antenna radiation patterns at GPS L1 band [1.575GHz] and GLONASS G1 band [1.601 GHz]. Figure 3 shows the measurement set-up and orientation.

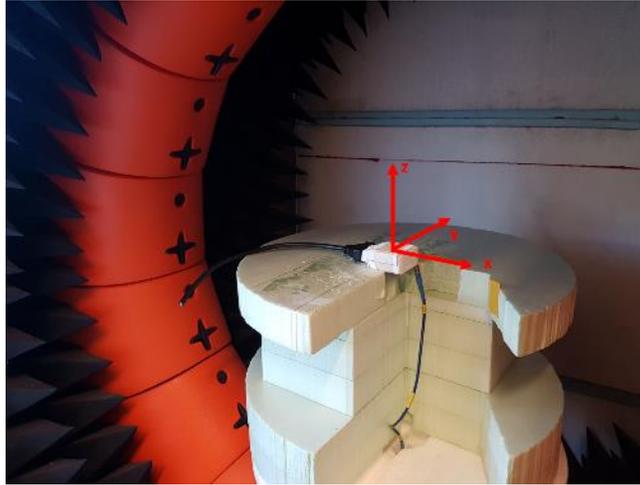
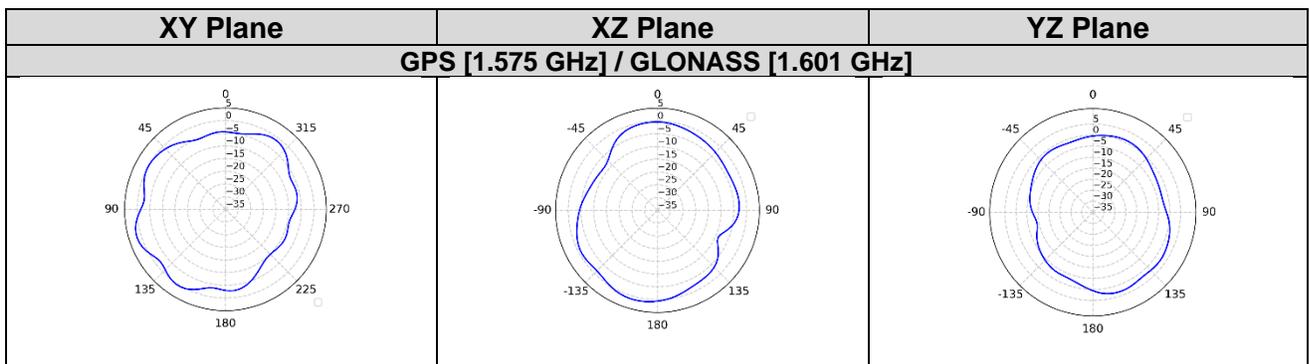


Figure 3. Radiation Pattern Measurement Set-Up

Table 4: AC30026-01 GNSS Antenna radiation patterns



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2 Product Handling & Ordering Information

2.1 Assembly Recommendation

Figure 4a shows the front view of the main PCB of the application. Figure 4b shows the position and the dimensions of the holes in the main PCB. The holes for soldering the AC30026-01 should have a diameter of 2mm. The holes should not be placed in one line next to each other. Please see figure 4b for details.

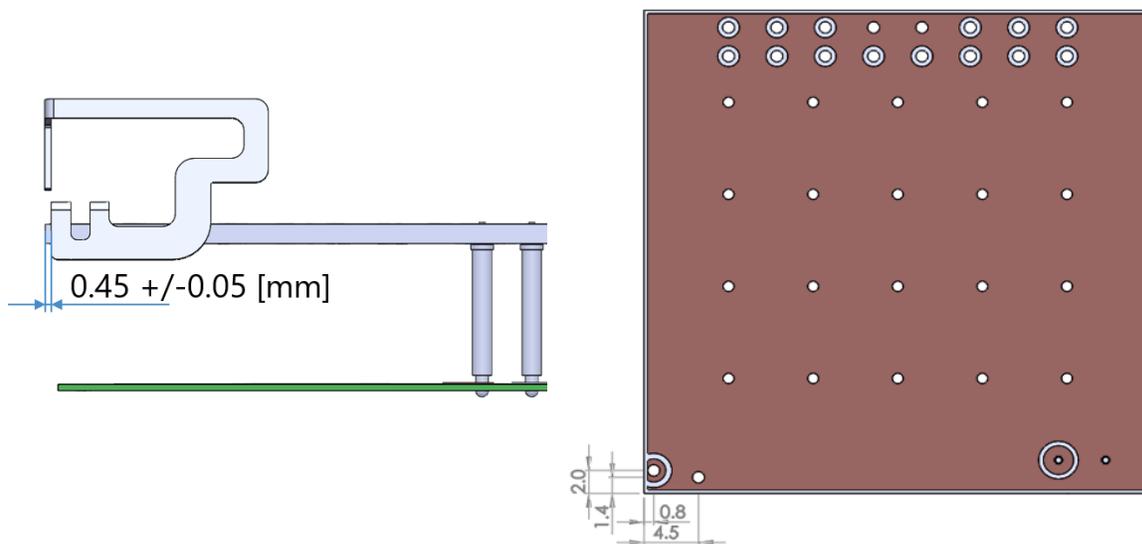


Fig 4a: front view of main PCB

Fig 4b: Top view of main PCB

Figure 4. Front view PCB with antenna and Top view of PCB with soldering holes

Figure 5 shows how to mount the antenna into the main PCB. As illustrated on the figure, the antenna inclination can be up to 7 degree.

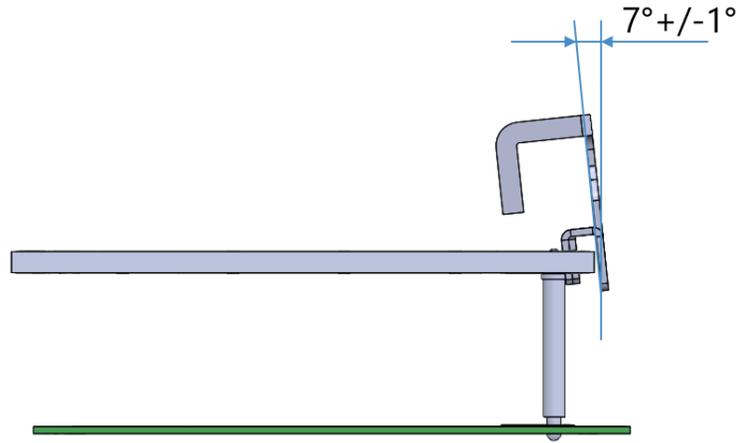


Figure 5. Antenna mounting on main PCB

Figure 6 shows the detailed side view of the antenna mounting on the main PCB. A minimum distance of 0.6 mm is required (and 2 mm recommended) between the PCB edge and the antenna.

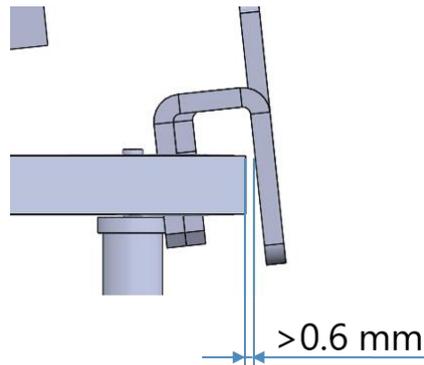


Figure 6 Antenna mounting on main PCB

2.2 Product Marking

There will be no product marking on the AC30026-01.

2.3 Packaging

The AC30026-01 will be delivered stacked in PVC trays. The packing quantity is 2,500 pcs.

2.4 Ordering Information

Orders should be placed at orders@antennacompany.com.

For purchase orders please state: part number, description, quantity, and price.

Table 5. AC30026-01, ordering information

Part number	Description	Minimum Order Quantity [pcs]	Packing Quantity / Order multiple [pcs]
AC30026-01	On-board GNSS antenna	10,000	2,500

For sample quantities, please contact sales@antennacompany.com.

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