M4HCT-A-EMB

Embedded Active antenna
L1: GPS, GLONASS, GALILEO, BEIDOU

Part #: 108-00074-01

Description

The M4HCT-A-EMB is Maxtena's latest high performance active embedded antenna de- signed for L1 band. The antenna is designed for applications requiring greater accuracy than what L1 only antennas can provide. The antenna is built on proprietary Maxtena Helicore® technology. This technology provides exceptional pat- tern control, polarization purity and high efficiency in a very compact form factor. It is an embedded antenna design, featuring an SMA connector. This antenna has superior filtering performance and is rated for 50 V/m out of band interference. The M4HCT-A-EMB is ideal for UAV, UGV and high precision applications and is GNSS receiver agnostic.

Passive Antenna Performance

Parameter	Specification
Frequency	1559-1607 MHz (L1, E1, B1, B1-2, G1)
Peak Efficiency	49%
Polarization	RHCP
Realized Gain	0.5 dB
Axial Ratio	Max 0.9 dB at the Zenith
VSWR	Max 2:1
Beamwidth	125˚

RF Specifications

Parameter	Specification
Conducted Gain	30 dB ±3 dB
Noise Figure	1.5 dB typical, 2 dB max
Voltage	3.0 to 5.0 V
Current	25 mA max
Out of Band Rejection	40 dBc
Group Delay Variation	Less than 5ns over GNSS bands
EMI Immunity Out of Band	30 V/m
ESD Circuit Protection	15 kv human body model air discharge

Mechanical Specifications

Parameter	Specification
Operating Temperature Range	-40 to +105˚C
Cabling and Connector	No cable, male SMA connector

Features

- Quadrifilar helix antenna
- Concurrent GNSS reception on L1: GPS, GLONASS, Galileo, Beidout
- Small form factor
- Ground plane independent
- GIS, RTK and other high accuracy GNSS applications
- Low power consumption
- Low phase center variation over azimuth and elevation and among different samples
- Ultra-lightweight
- Automotive grade electronics

Applications:

- UAV/ Drones
- Unmanned Ground Vehicles (UGV).
- Unmanned Systems
- High Precision Navigation
- Military & Security
- Agriculture & FarmTech
- Handheld GNSS Devices

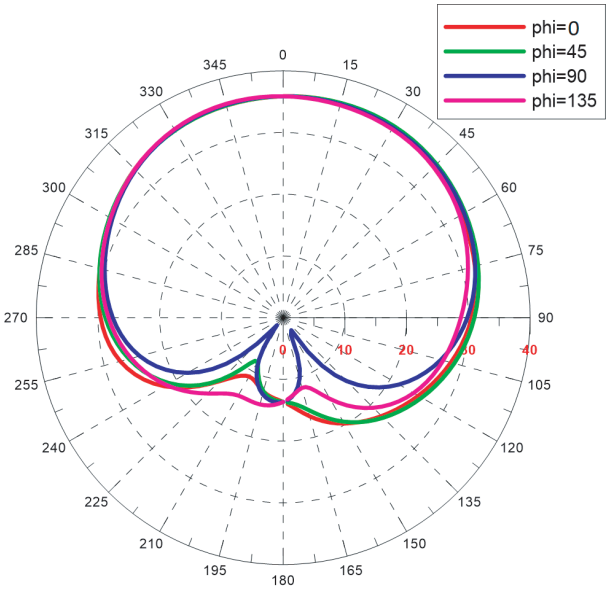
MAXTENA

Maxtena Inc.
7361 Calhoun Place, Suite 102
Rockville, MD 20855
1-877-629-8362
info@maxtena.com
www.maxtena.com

L1 band radiation patterns

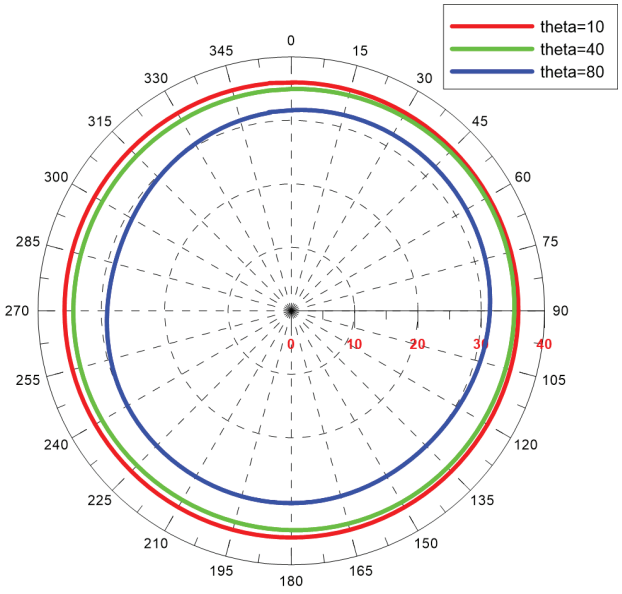
Maxtena's M4HCT-A-EMB uses patented Helicore® technology which results in minimal dependence on frequency and features a wide beamwidth, low axial ratio and radiation pattern symmetry across all desired frequencies in the L1 band.

RHCP Realized Gain [dBic] - Elevation Cuts



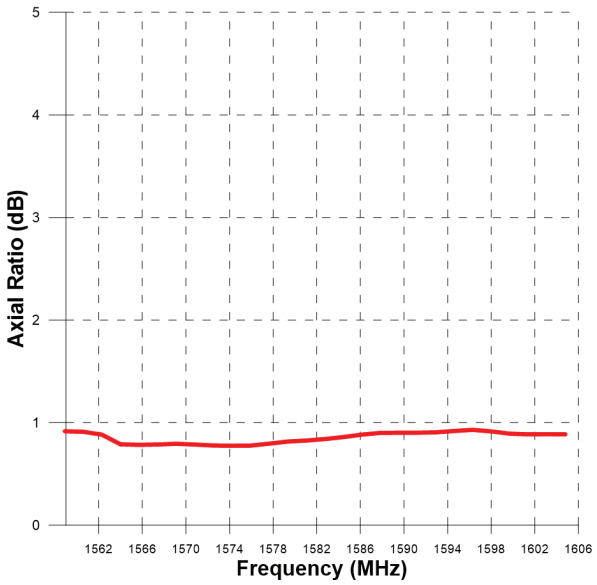
A 125 degree beamwidth ensures excellent hemispherical coverage.

RHCP Realized Gain [dBic] - Azimuth Cuts

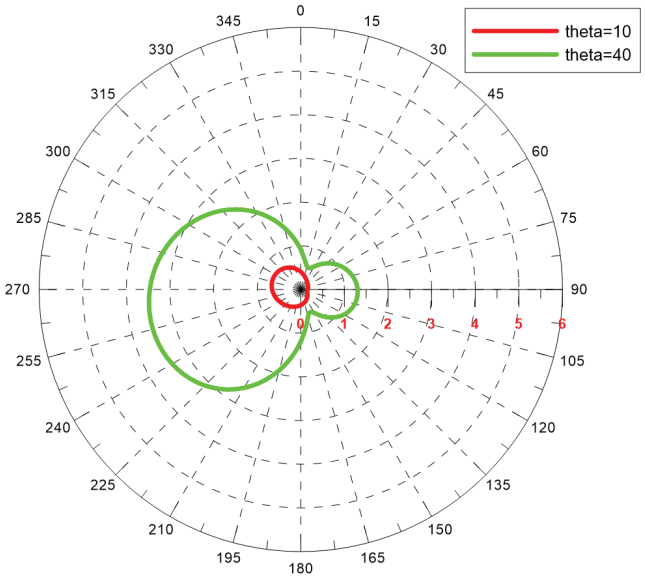


Symmetric coverage even in low elevation enhances accuracy.

Axial Ratio [dB] - Zenith



Axial Ratio [dB] - Azimuth Cuts



MAXTENA

Maxtena Inc.
7361 Calhoun Place, Suite 102
Rockville, MD 20855
1-877-629-8362
info@maxtena.com

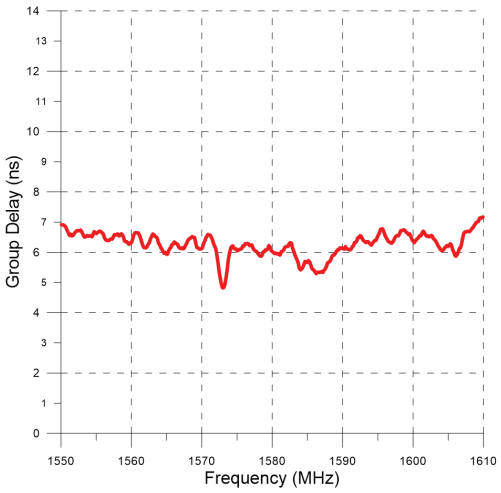
www.maxtena.com

Excellent Group Delay Variation

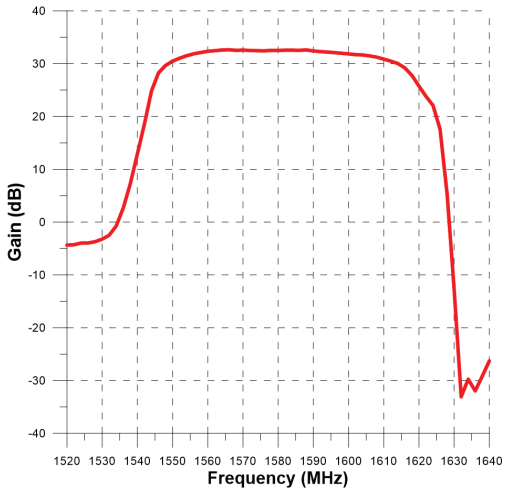
Using GPS signal carrier phase to increase accuracy in GNSS applications has been proven reliable and has made mm-level accuracy possible. However, in resolving carrier phase ambiguity, it is necessary to make sure carrier phase is received and measured accurately and that the effect of antenna and receiver on carrier phase is minimized. Maxtena's M4HCT-A-EMB has a flat response over the GNSS band that it covers and has minimal group delay variation over frequency.

Filtering and LNA Performance

Maxtena's M4HCT-A-EMB antenna has a flat response over the L1 GNSS bands, with less than 1 dB variation over the band. The superior out-of-band rejection ensures minimal interference.



< 2 ns group delay variation over L1-band.



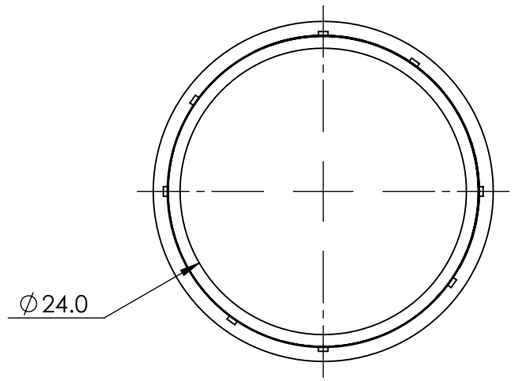
Flat conducted gain response.

MAXTENA
WIRELESS INNOVATIONS COMPANY

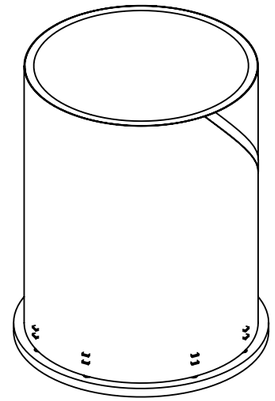
Maxtena Inc.
7361 Calhoun Place, Suite 102
Rockville, MD 20855
1-877-629-8362
info@maxtena.com

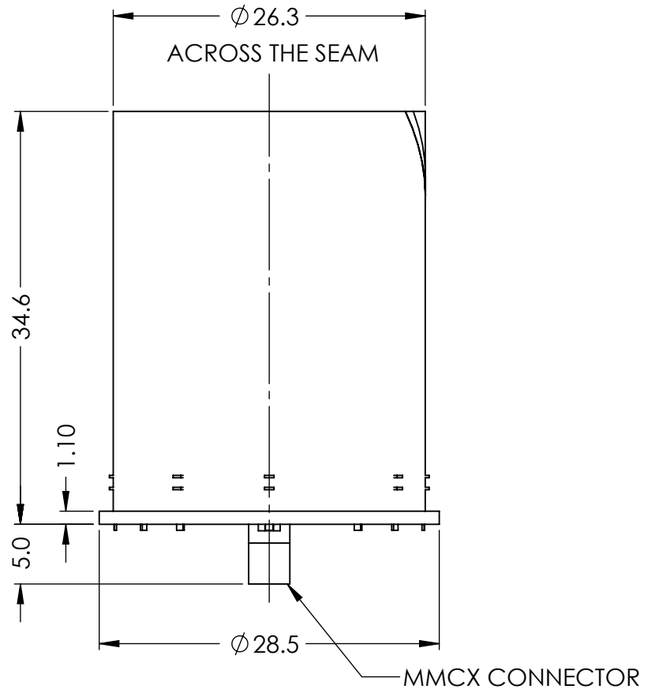
www.maxtena.com

DRAWING REVISION HISTORY			
REV	DESCRIPTION	DATE	BY
A	INITIAL RELEASE	2021-03-11	QZ

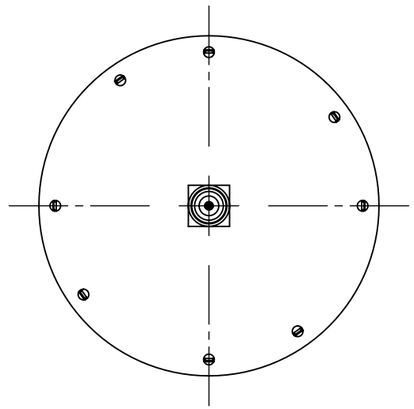


TOP





FRONT



BOTTOM

ITEM 108-00074-01 REVISION HISTORY			
REV	DESCRIPTION	DATE	BY
A	INITIAL RELEASE	2021-03-11	QZ

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN MM
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± .5° BEND ±
ONE PLACE DECIMAL ± 1.0
TWO PLACE DECIMAL ± .50

INTERPRET GEOMETRIC TOLERANCING PER:

THIRD ANGLE PROJECTION

DO NOT SCALE DRAWING

	NAME	DATE
DRAWN	QZ	2021-03-11
CHECKED	ZX	2021-03-15
ENG APPR.	NPC	2021-13-18
MFG APPR.		
Q.A.		

CAD MAINTAINED. CHANGES SHALL BE INCORPORATED BY THE DESIGN ACTIVITY.

MAXTENA, INC

TITLE: 108-00074-01
M4HCT-EMB

SIZE	DWG. NO.	REV
B	117-00410-01	A

CAGE CODE: 5KQH7 | SCALE: NONE | SHEET 1 OF 1