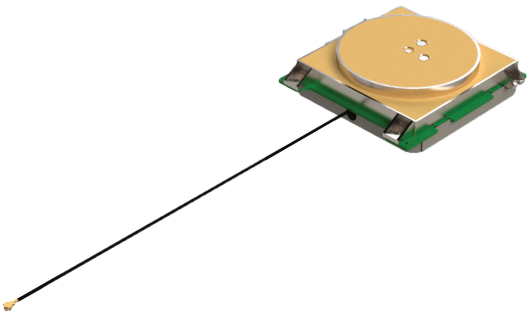
M1593CWT-UFL

Active Multi-Frequency Antenna – Embedded
L1: GPS, GLONASS, GALILEO, BEIDOU
L2: GPS L2C, GALILEO E5B, GLONASS L3OC
L5: GPS L5, GALILEO E5A
L-band

Part #: 108-00083-01



Description

The M1593CWT-UFL is an active multi-frequency, high accuracy, GNSS antenna for the L1/ L2 GPS, Galileo, Beidou GLONASS, and L- band correction services. The antenna is designed for applications requiring greater accuracy than L1 only antennas can provide. The antenna's excellent radiation pattern, exceptional out-of-band rejection, minimal group delay variation, and low noise figure ensures optimal performance of GNSS systems.The M1593CWT-UFL is ideal for applications requiring minimal integration effort or for retrofitting existing products. This antenna is built on Maxtena's proprietary Conformal Wave technology providing expectational multipath rejection and noise mitigation. The M1593CWT-UFL is manufactured using automotive grade components and is also offered for embedded applications.

Electrical Specifications

Parameter	Specification	
Frequency Range	1197-1249 MHz	1559-1606 MHz
Peak Efficiency	39%	40%
Realized Gain	2.6 dB	3.3 dB
Axial Ratio	≤ 1.5 dB @ Zenith	≤ 2.7 dB @ Zenith
VSWR	≤ 2:1	≤ 2.3:1
Beamwidth	117°	100°
Polarization	RHCP	
Conducted Gain	28 dB ± 3 dB	
Noise Figure	≤ 2 dB	
Voltage	3.0 - 5.0 V	
Current	≤ 35 mA	
Out of Band Rejection	40 dB Typ.	
Group Delay Variation	Less than 5 ns over GNSS bands	
EMI Immunity Out of Band	30 V/m	
ESD Circuit Protection	15 kV human body model air discharge	

Phase Center Variation

Parameter	Specification
In azimuth plane	Max 10 mm
As low as 40 degree elevation	Max 10 mm
Between samples	Max 5 mm
Over frequency band	Max 10 mm

Features

- Concurrent GNSS reception on L1: GPS, GLONASS, Galileo, Beidou and L2: GPS L2C, Galileo E5B, and GLONASS L3OC
- L-band Correction services
- Small form factor
- GIS, RTK and other high accuracy GNSS applications
- Low Power Consumption
- Minimal phase center variation over azimuth and elevation
- Negligible group delay variation
- Automotive grade housing

Applications

- Autonomous unmanned aerial vehicles (UAVs)
- GNSS positioning
- GNSS timing
- Sea and land container tracking
- Fleet management and asset tracking
- Marine and avionics systems
- Law enforcement
- Public safety
- Rail and Automotive

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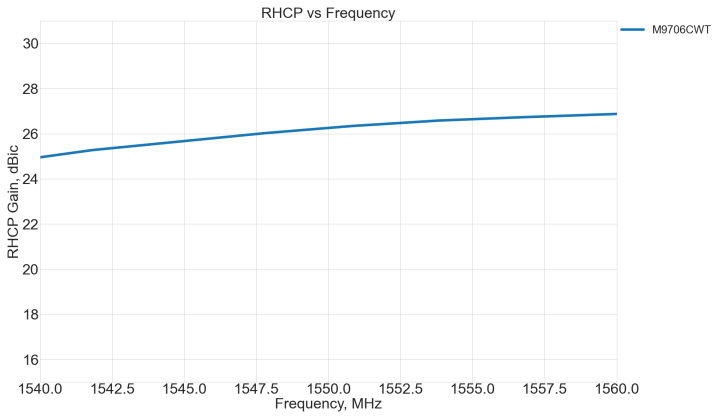
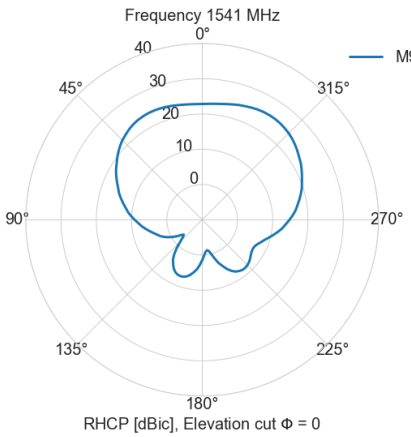
L-band corrections services:

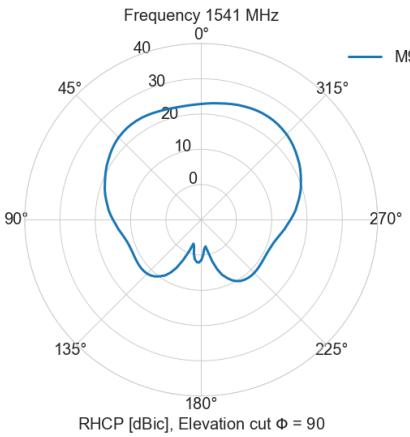
Parameter	Specification
Frequency	1539 - 1559 MHz
Gain	1.5 dB
Axial Ratio	≤ 0.5

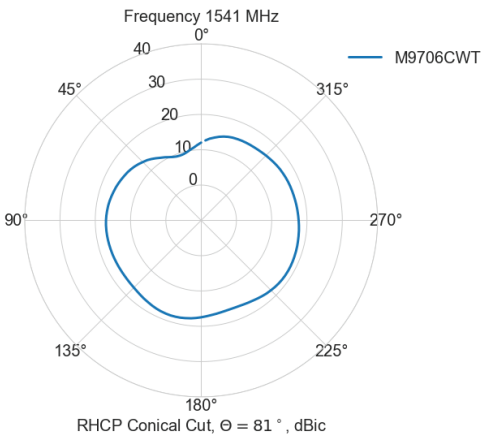
Mechanical Specification

Parameter	Specification
Antenna Dimensions	65 x 65 x 17 mm
Operating Temperature	-40˚C to 105˚C
Cable	150 mm u.fl
Mounting Type	Embedded
Weight	80 g









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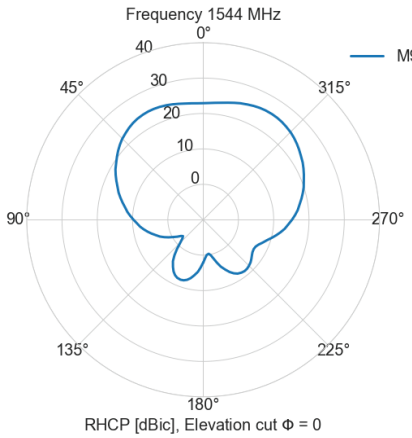
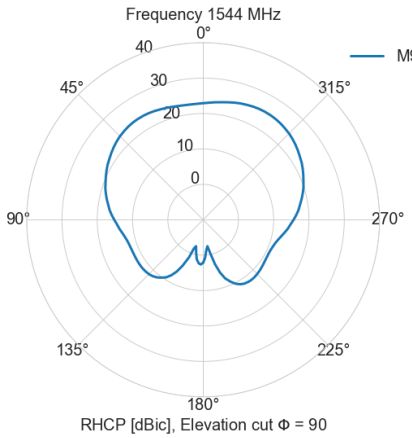
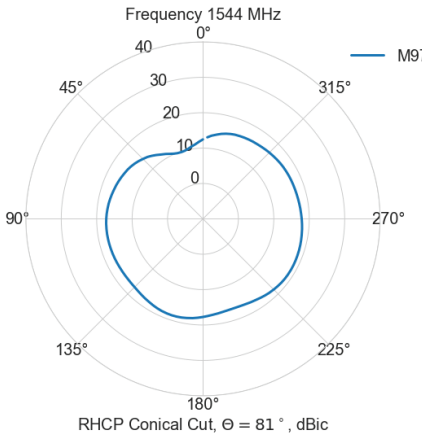


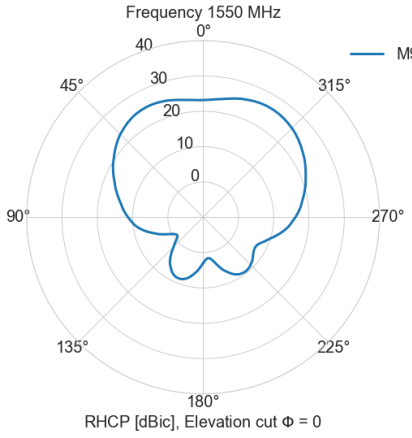
RHCP [dBic], Elevation cut Φ = 0



RHCP [dBic], Elevation cut Φ = 90



RHCP Conical Cut, Θ = 81 ° , dBic



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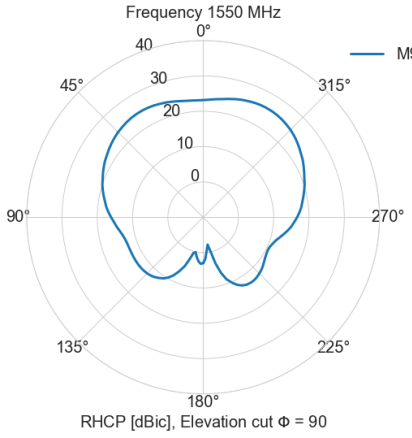

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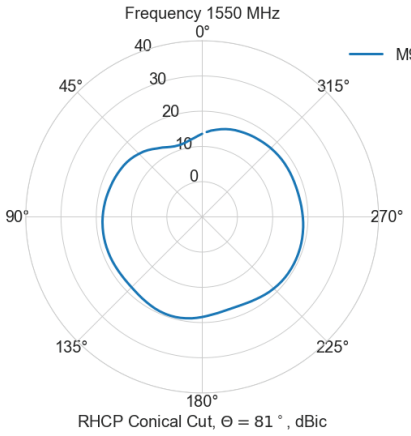

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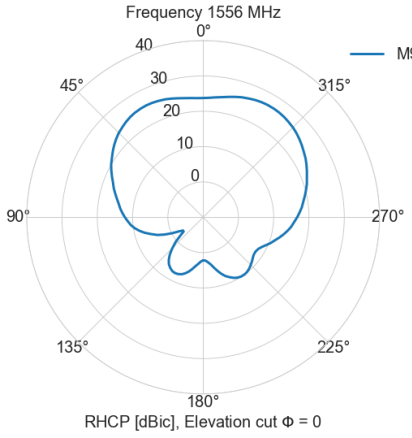

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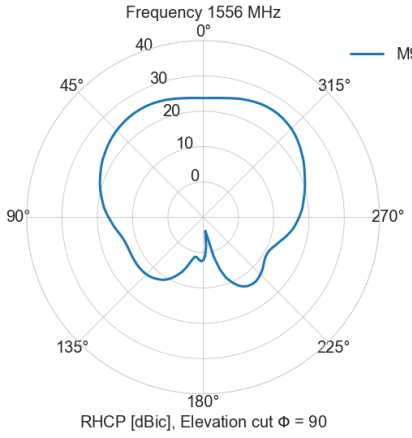

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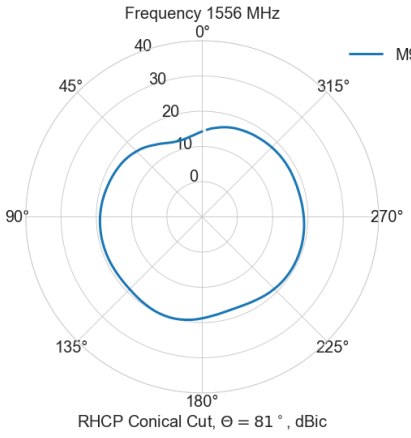

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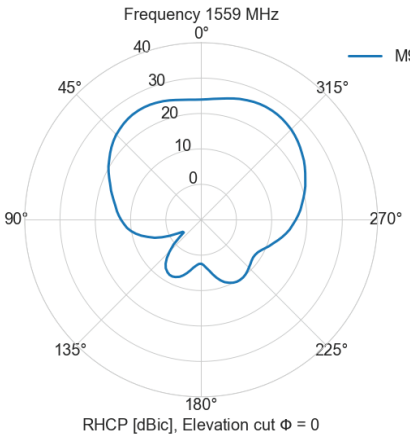

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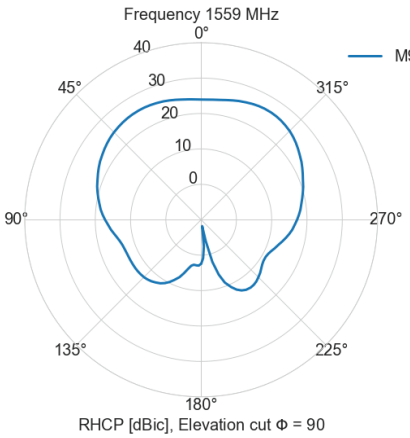

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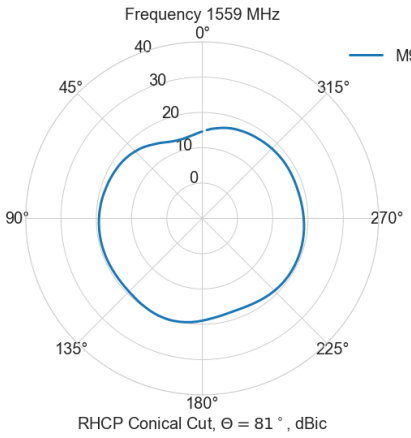

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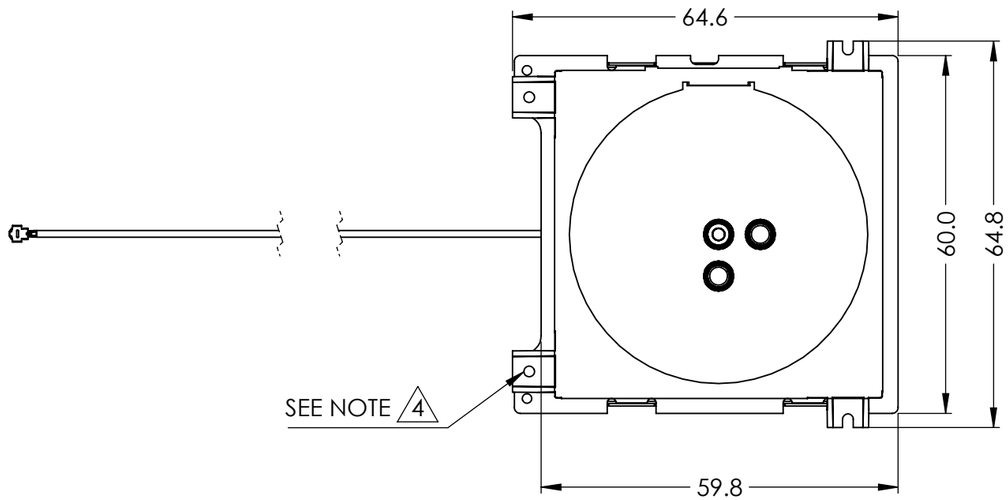
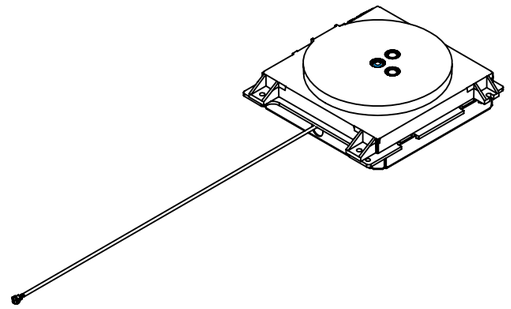
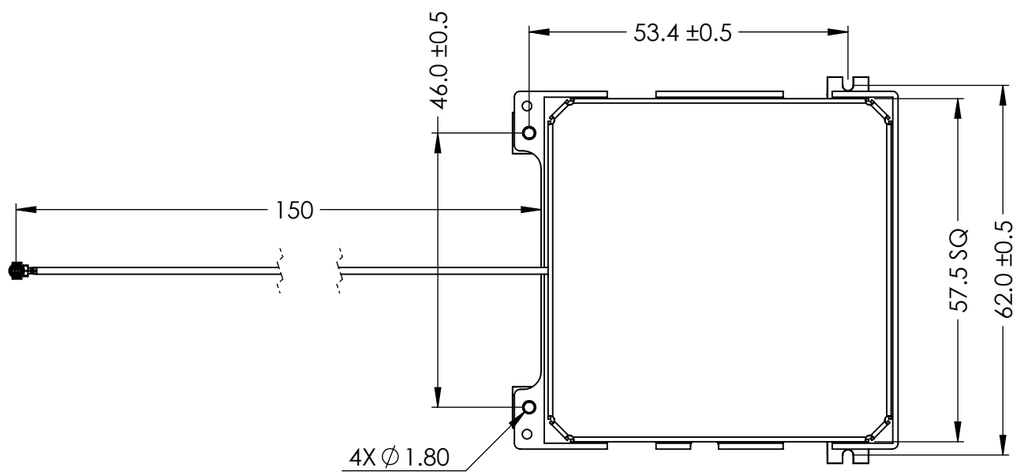
DRAWING REVISION HISTORY			
REV	DESCRIPTION	DATE	BY
A	INITIAL RELEASE	2021-12-15	SZ







NOTES:

1. FREQUENCY: 1197-1249 MHz, 1559-1606 MHz, 1539-1559 MHz
2. MOUNTING TYPE: EMBEDDED
3. OPERATING TEMPERATURE: -40°C ~ +105°C
4. FOUR M1.6 SCREW MOUNTING HOLES ARE AVAILABLE

ITEM 108-00083-01 REVISION HISTORY			
REV	DESCRIPTION	DATE	BY
1	INITIAL RELEASE	2021-12-15	SZ

UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN MM TOLERANCES: FRACTIONAL ± ANGULAR: MACH ± .5° BEND ± ONE PLACE DECIMAL ± 1.0 TWO PLACE DECIMAL ± .50	DRAWN	SZ	2021-12-15
	CHECKED	ZX	2021-12-15
	ENG APPR.	NPC	2021-12-15
	MFG APPR.		
	Q.A.		
INTERPRET GEOMETRIC TOLERANCING PER:	CAD MAINTAINED. CHANGES SHALL BE INCORPORATED BY THE DESIGN ACTIVITY.		
THIRD ANGLE PROJECTION			
DO NOT SCALE DRAWING			

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TITLE:

108-00083-01
M1593CWT-UFL

SIZE	DWG. NO.	REV
B	117-00550-01	A
CAGE CODE: 5KQH7	SCALE: NONE	SHEET 1 OF 1

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