



Underside View  
(this side faces the passenger)



Top View  
(this side faces the sky)

**MA203.A.AB.035**

## Specification

<b>Part No.</b>	<b>MA203.A.AB.035</b>
<b>Product Name</b>	MA.203 Stingray GPS/Cellular Adhesive Antenna
<b>Feature</b>	GPS - High gain LNA up to 32dB Penta-band Cellular – 800MHz to 2200MHz GSM/CDMA/PCS/DCS/UMTS/GPRS/EDGE/HSPA Height 10.8mm Diameter 55.1mm RoHS Compliant

## 1. Introduction

This is a combination high performance GPS and Penta-band Cellular (GSM / CDMA/PCS/DCS/ / UMTS / GPRS / EDGE / HSPA) antenna to simplify AVL or Fleet management antenna systems worldwide. Its high quality low profile covert housing can be attached onto the glass or even out of sight under the dashboard.

This combination of a high gain GPS antenna and a leading edge penta band cellular antenna is ideal for those applications that require durability, small size and covert installation, and reliable reception and transmission crossing through different mobile networks.

The standard version has 3 metres RG174 cable and SMA(M) connector on both GPS and Cellular. The cables and connectors are completely customizable according to customer request.

### 1.1 Features

#### GPS

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High LNA Gain up to 32 dB

Antenna Gain  $30 \pm 2$  dB

Miniaturized to 55.15x12mm

Low Noise 1.5 dB max

#### Cellular

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Advanced penta-band cellular antenna  
(GSM/CDMA/PCS/DCS/UMTS/GPRS/EDGE/ HSPA)

#### Other

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Water Resistant IP 65 (IP 67 MA.203w version also available)

Quality textured covert design. Low profile

UV resistant ABS housing

Comes with high grade 3M double sided tape for quick  
and easy mounting

Customizable cables and connectors

## 2. Specification

### 2.1 Performance Specifications

Parameter	GPS Antenna	Cellular Antenna
<b>Features</b>	High performance GPS ceramic patch antenna with cutting edge low noise amplifier	800MHz to 2200MHz
<b>Frequency</b>	1575.42 MHz $\pm$ 2MHz	As above
<b>Gain</b>	30 dB typ. Gain at Zenith: 2.0 dBi min Gain at 10° elevation: -4.0dBi min Axial Ratio: 2.0 dB max	As patterns
<b>Noise Figure</b>	1.5 dB max	---
<b>Polarization</b>	RHCP	---
<b>Out band Attenuation (LNA)</b>	30dB min fo $\pm$ 50MHz (fo=1575.42MHz)	---
<b>Bandwidth</b>	10 MHz min	---
<b>VSWR</b>	$\leq$ 2.0	$\leq$ 2.5
<b>Impedance</b>	50 $\Omega$	50 $\Omega$
<b>Cable / Connector</b>	Standard 1/2/3/5/10m RG-174 Cables and Connectors Fully Customizable	Standard 1/2/3/5/10m RG-174 Cables and Connectors Fully Customizable
<b>Operating Temperature</b>	-40°C ~ +85°C	-40°C ~ +85°C
<b>Storage Temperature</b>	-40°C ~ +95°C	-40°C ~ +95°C
<b>Size</b>	55mm * 10.8mm	
<b>Housing</b>	UV resistant ABS	

**\*Note:** specifications may be subject to change

### 3. High Performance LNA (saw filter)

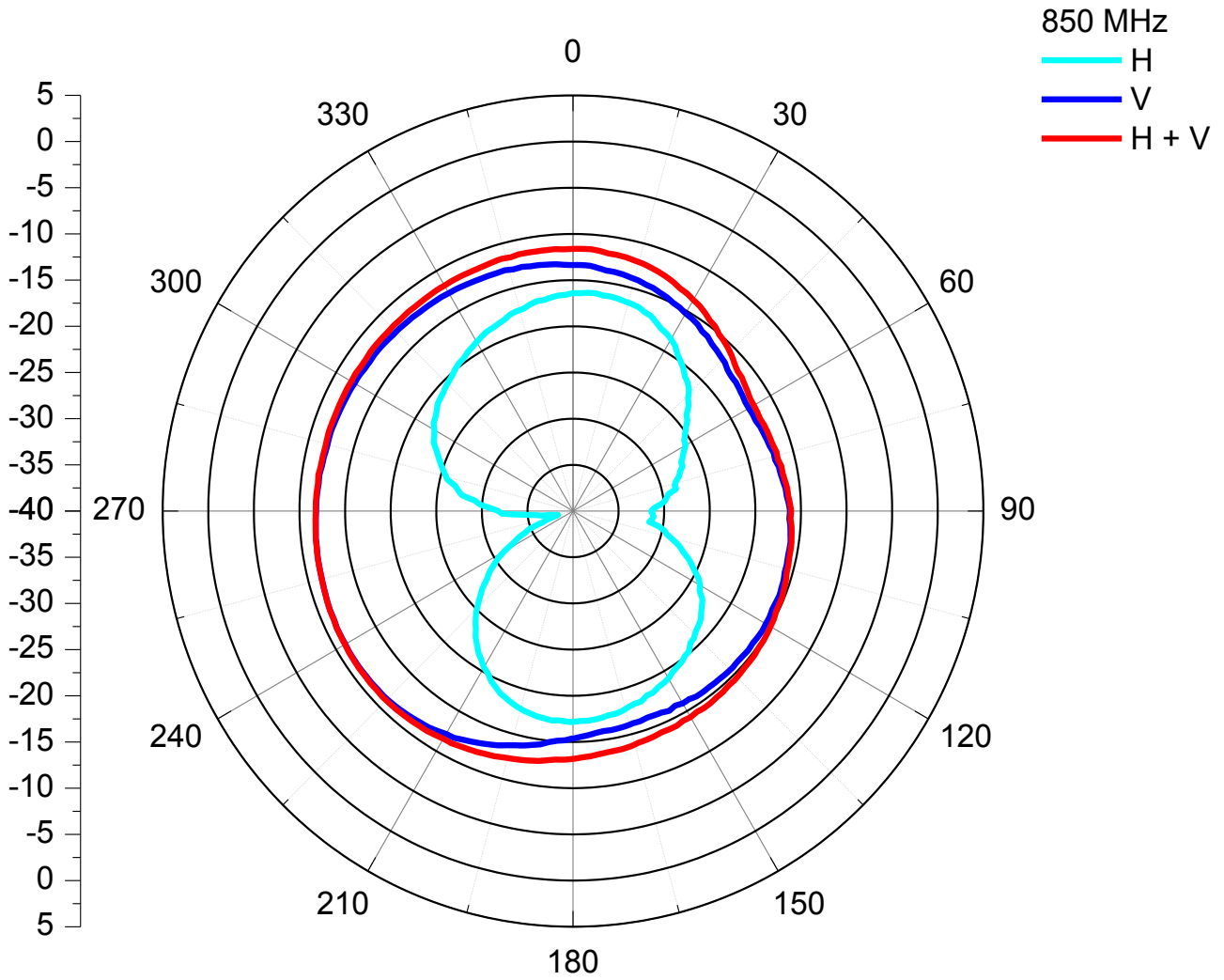
Saw Filter	2V	2.5V	3V	5V	6.5V
Power Consumption	8mA	9mA	10mA	19mA	31mA
Gain	30dB	31dB	32dB	35dB	36dB

#### 3.1 Return Loss

With Housing, Glass Mount (RG-174, length = 1M)



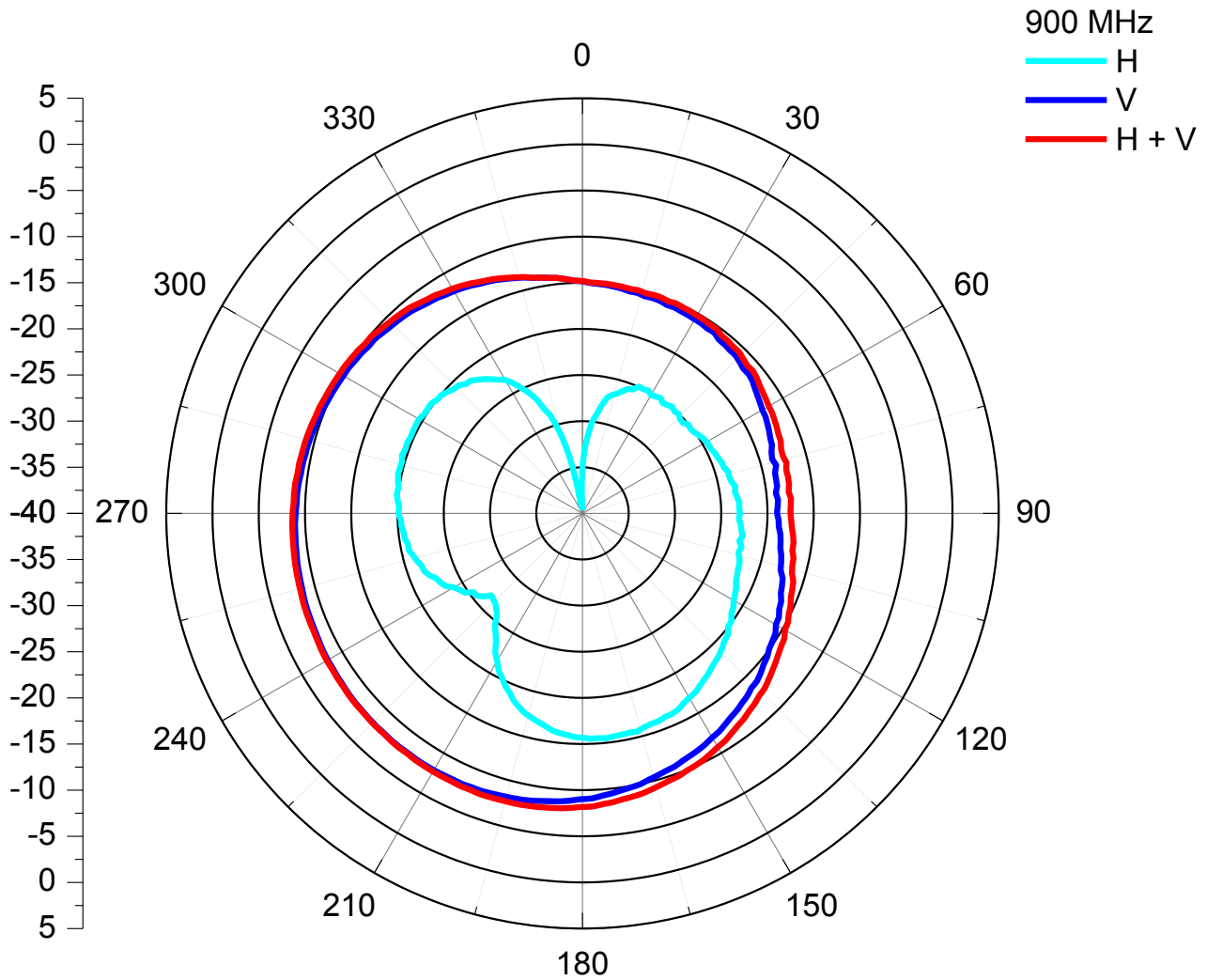
### 3.2 850 MHz



Center Frequency	850 MHz
Horizontal (dBi) peak	-16.30
Vertical (dBi) peak	-11.10
Horiz.+ Vert. (dBi) peak	-10.99

Center Frequency	850 MHz
Horizontal (dBi) average	-20.60
Vertical (dBi) average	-13.68
Horiz.+ Vert. (dBi)	-12.88

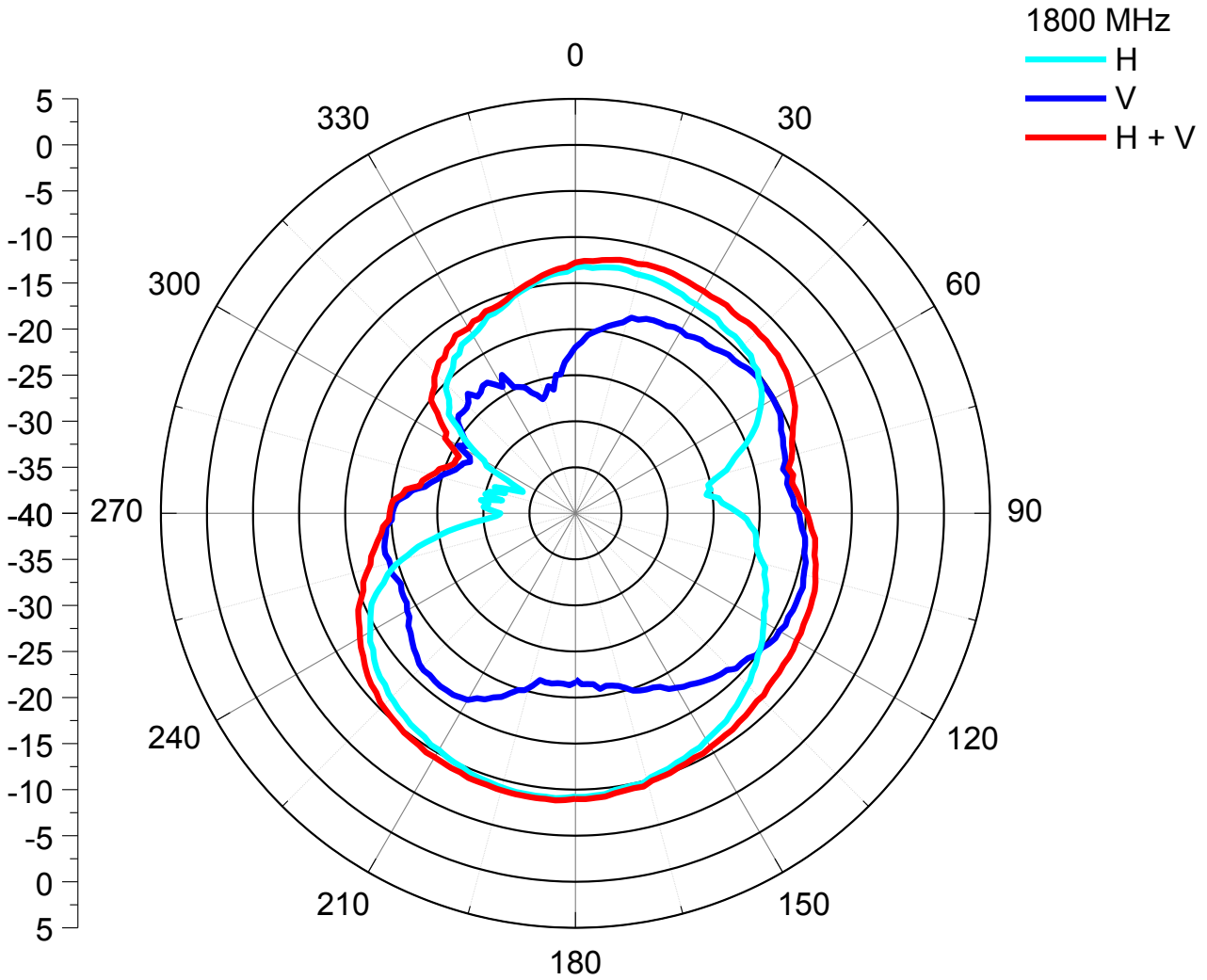
### 3.3 900 MHz



<b>Center Frequency</b>	900 MHz
<b>Horizontal (dBi) peak</b>	-15.51
<b>Vertical (dBi) peak</b>	-7.85
<b>Horiz.+ Vert. (dBi) peak</b>	-7.61

<b>Center Frequency</b>	900 MHz
<b>Horizontal (dBi) average</b>	-20.63
<b>Vertical (dBi) average</b>	-11.23
<b>Horiz.+ Vert. (dBi) average</b>	-10.75

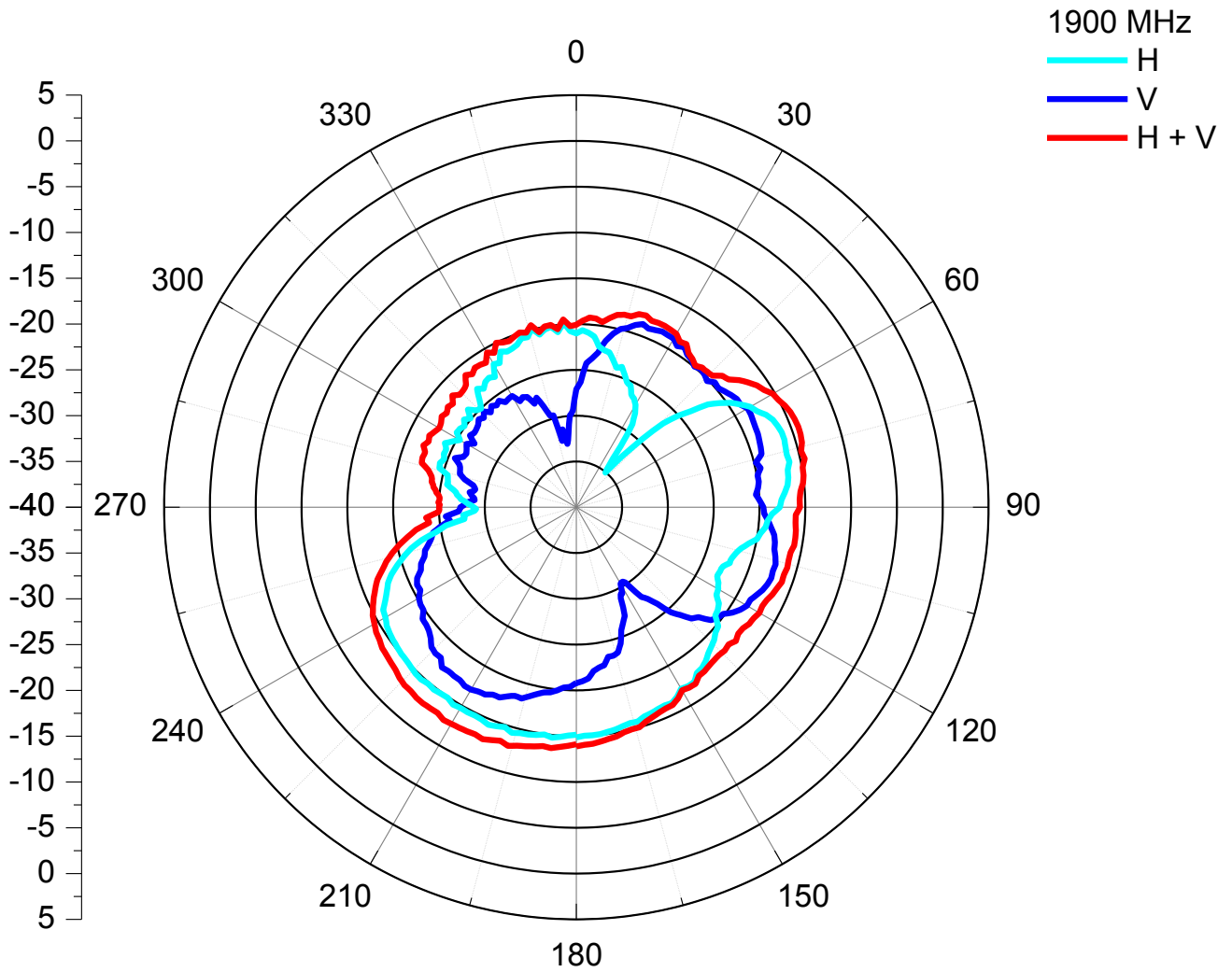
### 3.4 1800 MHz



<b>Center Frequency</b>	1800 MHz
<b>Horizontal (dBi) peak</b>	-9.00
<b>Vertical (dBi) peak</b>	-14.04
<b>Horiz.+ Vert. (dBi) peak</b>	-8.76

<b>Center Frequency</b>	1800 MHz
<b>Horizontal (dBi) average</b>	-13.95
<b>Vertical (dBi) average</b>	-18.04
<b>Horiz.+ Vert. (dBi)</b>	-12.52

### 3.5 900 MHz

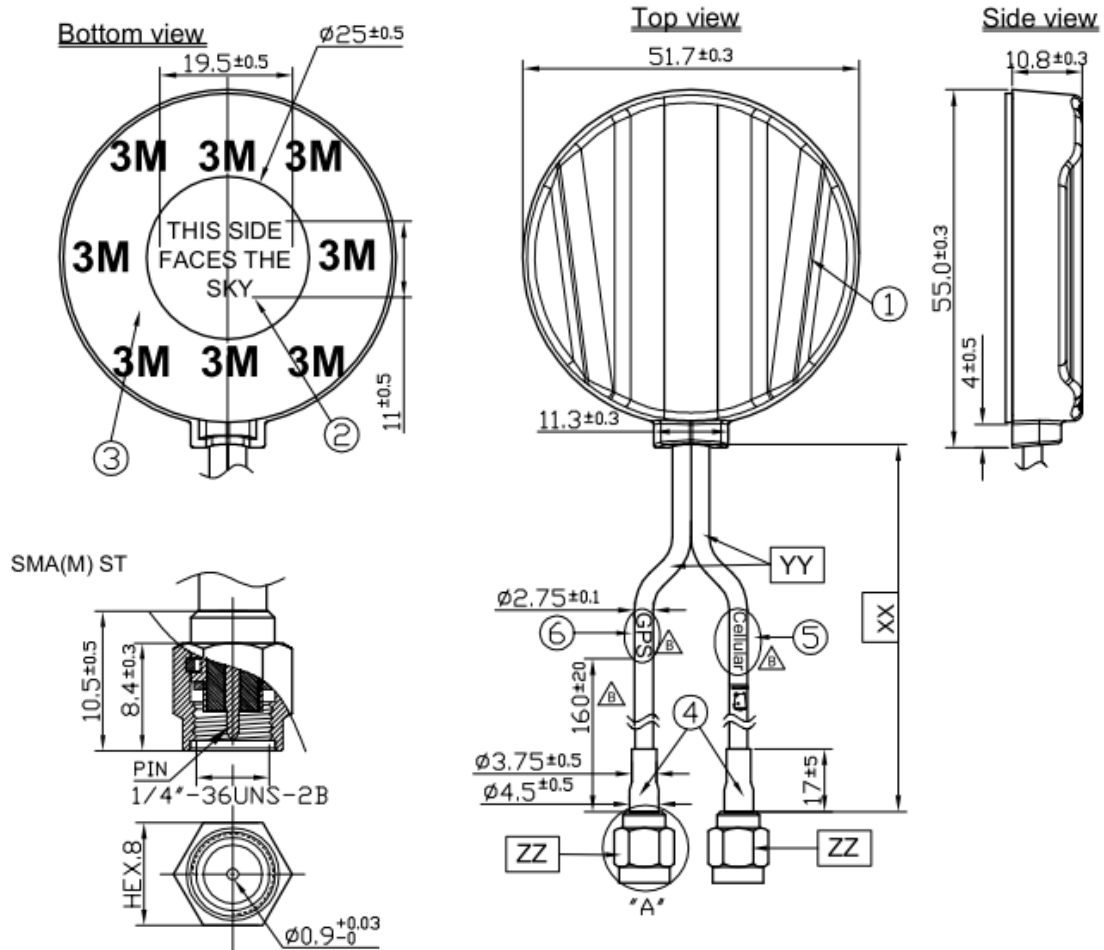


Center Frequency	1900 MHz
Horizontal (dBi) peak	-14.38
Vertical (dBi) peak	-16.99
Horiz.+ Vert. (dBi) peak	-14.38

Center Frequency	1900 MHz
Horizontal (dBi) average	-18.49
Vertical (dBi) average	-20.86
Horiz.+ Vert. (dBi) average	-16.51



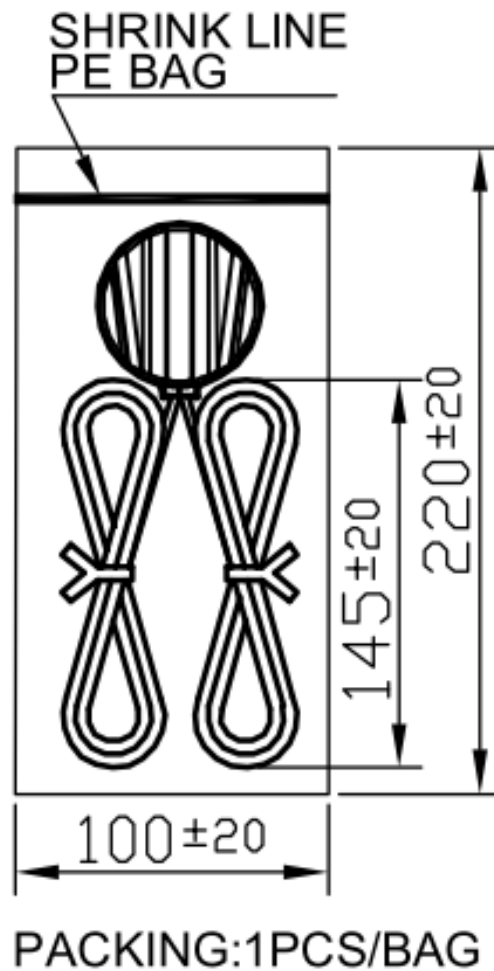
## 4. Drawings



Name	P/N	Material	Finish	QTY
1 Housing	000111I0200XXA	ABS	Black	1
2 Round Label	001011I0100XXA	Art Paper	White	1
3 Scotch Brand Acrylic Foam Tape	001011I0200XXA	3M 4612	White Liner	1
4 Heat Shrink tube	001311F0000XXA	PE	Black	2
5 Cellular Label	001011F0200XXA	Coated Paper	Blue	1
6 GPS Label	001011F0000XXA	Coated Paper	Orange	1

Name	P/N	Material	Finish	QTY
XX Cable Length		3000mm $\pm$ 30mm		1
YY Cable Type	301311F0000XXA	RG174	Black	2
ZZ Connector Type	200211L000015A	SMA(M) ST	Gold	2

## 5. Packaging



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