



Specification

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Model No. : MA.206

Part No. : **MA.206.A.A301111.C301151**

Product Name : Stingray Adhesive Mount Combination Antenna
GPS/2.4~2.5GHz

Feature : GPS 1575MHz – 2.4~2.5GHz
Custom cables and connectors available
RoHS ✓



Version	Date	Page	Revision Description	Prepared	Approved
A	Jan 9 th 2009	All	New product	TW Product Centre	Zita Lin
B	Feb 25 th 2009	12	Technical Drawing	TW Product Centre	Zita Lin



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I Specification

I.1 GPS Ceramic Patch Antenna 25*25*4mm

Ground Size (25*25*4mm²)

Parameter	Specification
Frequency	1575.42MHz ± 2MHz
Bandwidth	10MHz
VSWR	1.92 Max
Axial Ratio @Zenith	3dB Typical
Gain @Zenith	-1 dBi Typical
Impedance	50 Ω
Polarization	RHCP

I.2 Low Noise Amplifier

Parameter	Specification
Frequency	1575.42MHz
Noise Figure	2dB Typical
VSWR	1.92 Max
Gain	28dB Typical
DC Power Input	2.7~3.3V
Impedance	50 Ω
Power Consumption	6 mA @3.3V
Operating Temperature	-30°~+80°C
Storage Temperature	-40°~+90°C

I.3 Wi-Fi Antenna

Parameter	Specification
Frequency	2.4~2.5GHz
Impedance	50 Ω
VSWR	1.92 Max

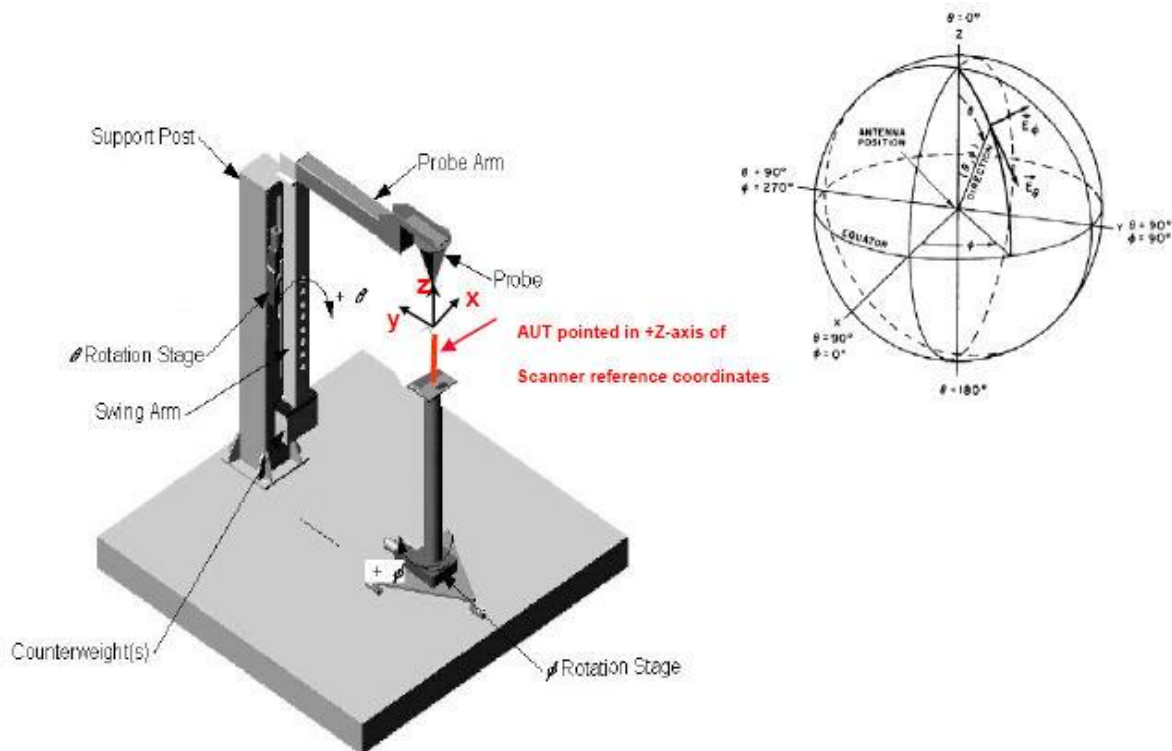


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I.4 Cable and Connector

Parameter	Specification
Dimensions	Diameter 55mm Height 10.80mm
Colour	Black
Connector	GPS: SMA(M) Wi-Fi: RP-SMA(M) Fully Customisable
Cable	RG-174 Length = 3M Fully Customisable
Cable Colour	Black

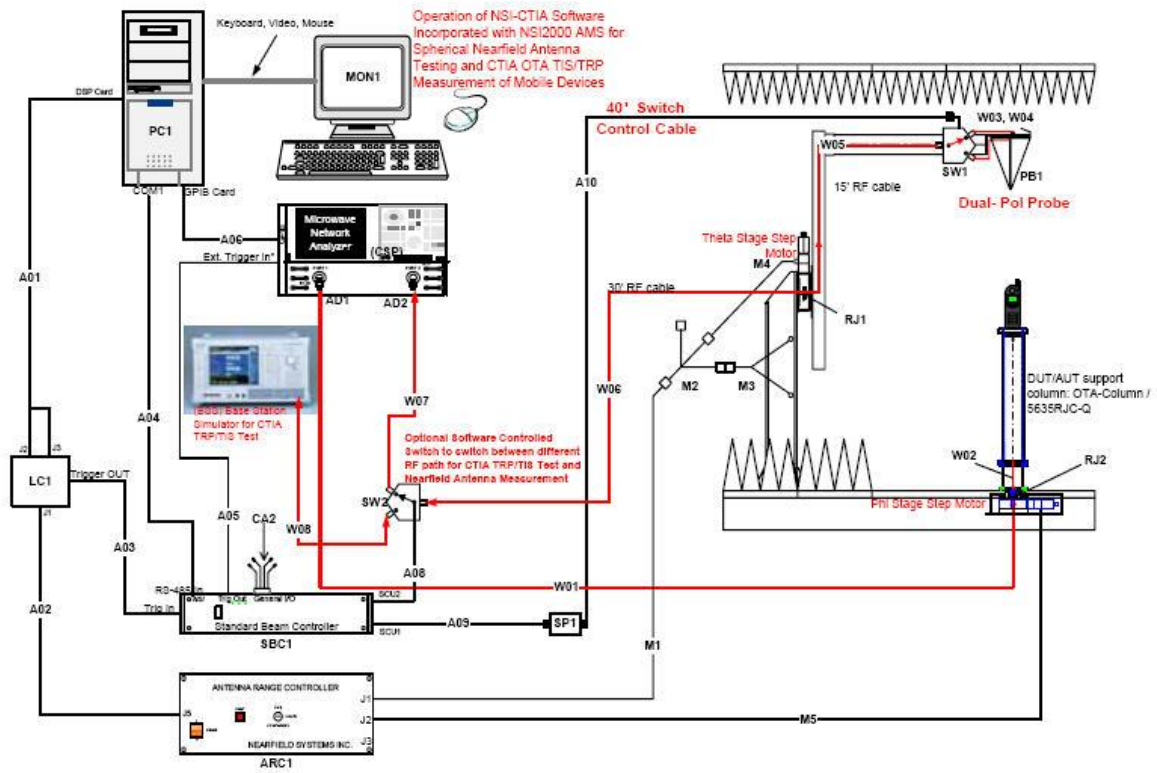
II Test Setup





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NFT-500S 3D Chamber Coordinate System Definition



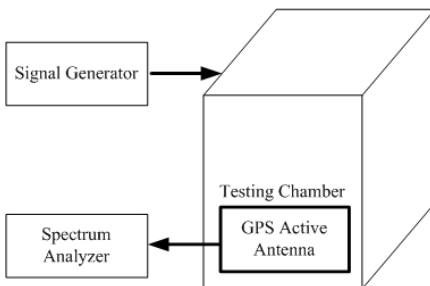
Configuration of NFT-500S 3D Chamber



Agilent E5071B Network Analyzer



Anritsu 68147C Signal Generator



Testing Chamber



Anritsu MS2721A Spectrum



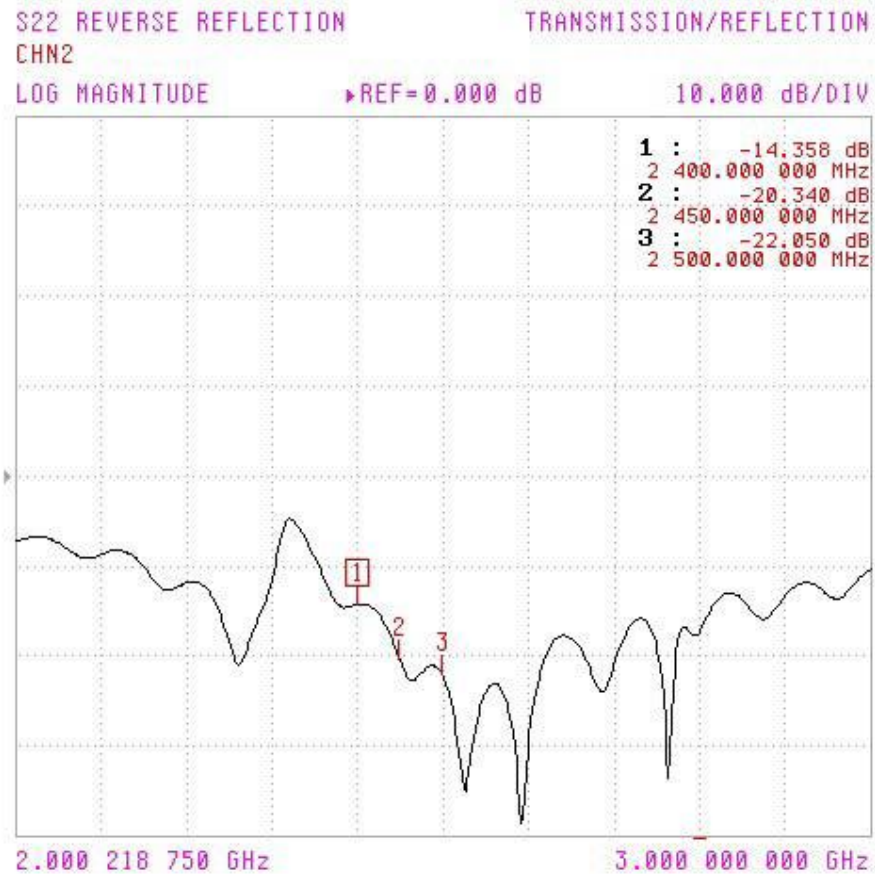
III Electrical Characteristic

Note:

1. Return Loss, radiation patterns are measured in free space condition
2. The LNA data is measured without cable loss
3. RG-174 cable attenuation (dB/100m)

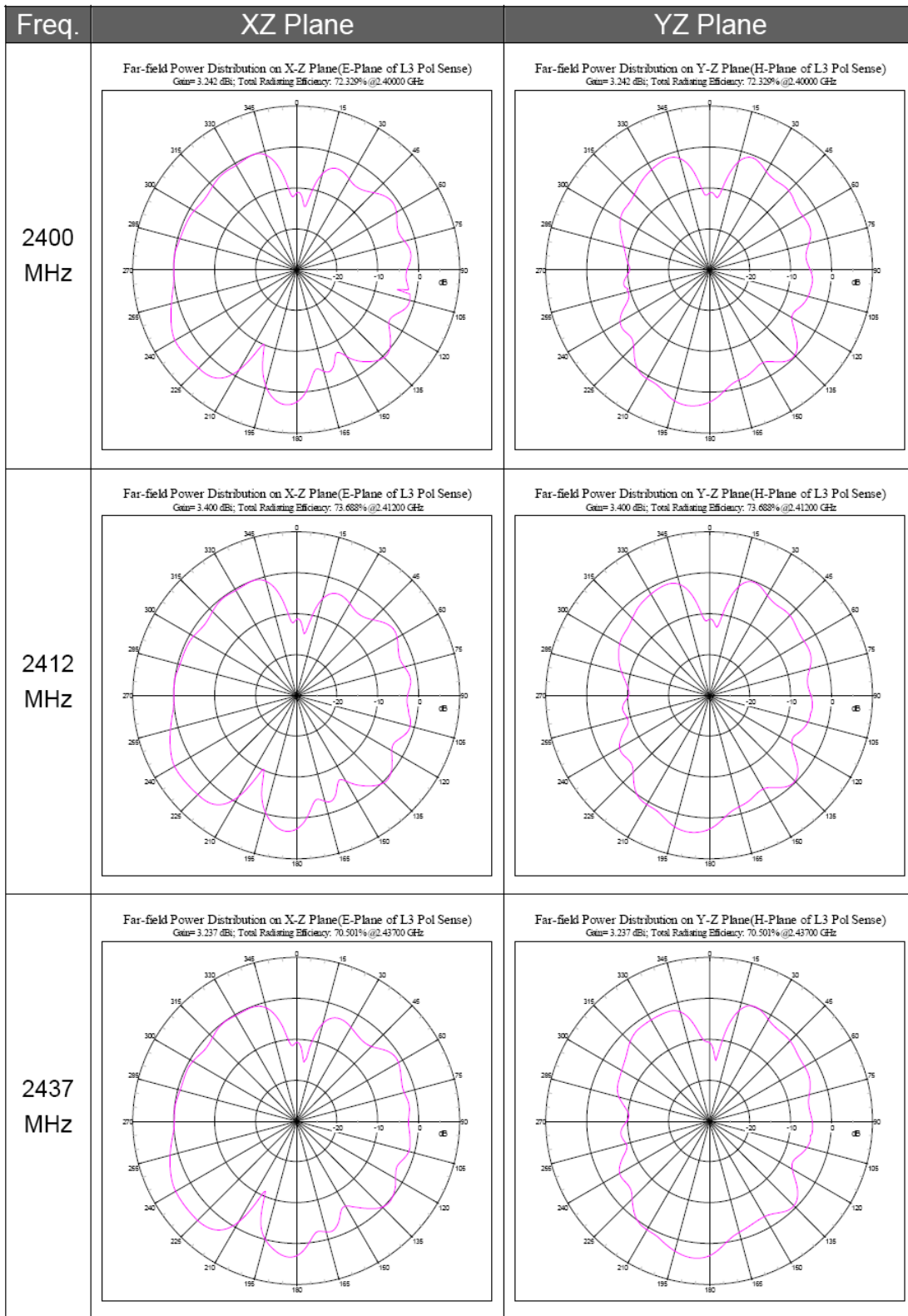
GHz	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
RG-174	47	110	127	153	168	183	207	229	252	272	291	311

III.1 Return Loss Wi-Fi Antenna





III.2 Radiation Patterns Wi-Fi Antenna



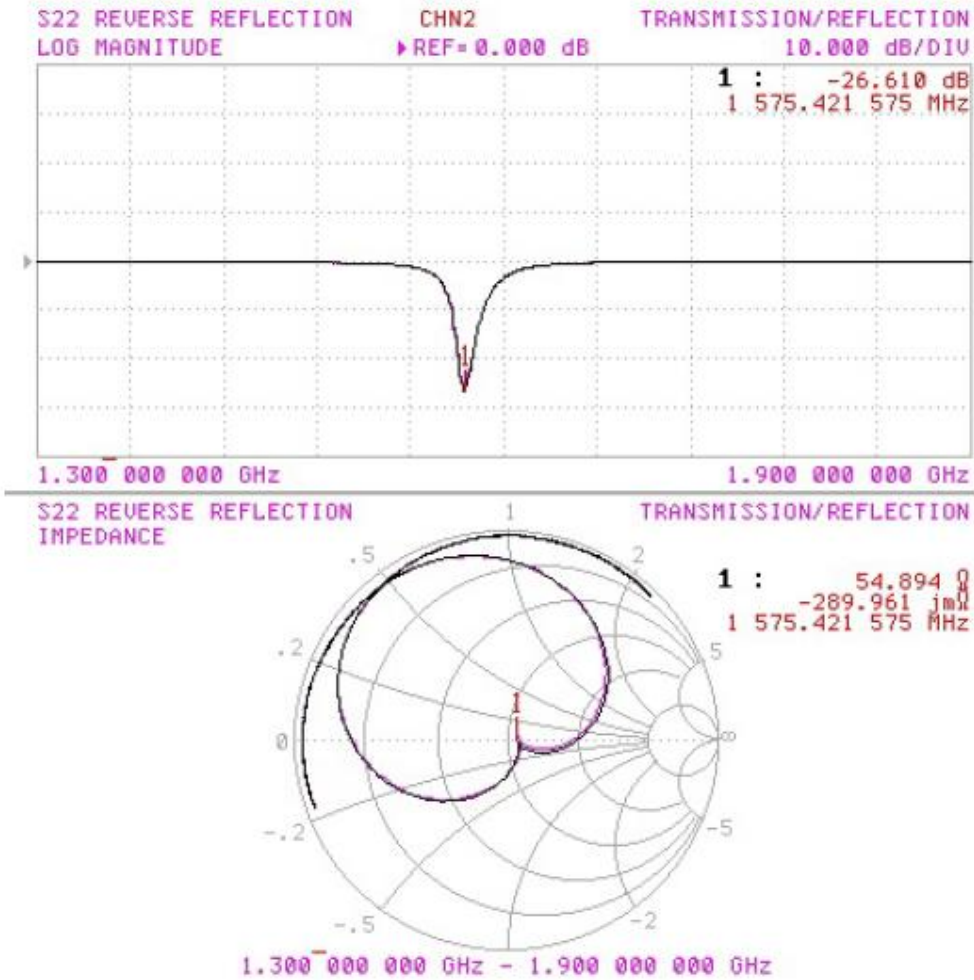


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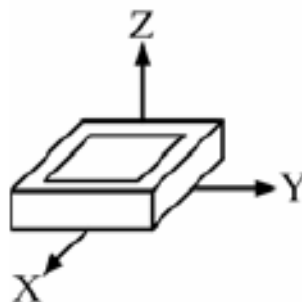
Freq.	XZ Plane	YZ Plane
2450 MHz	<p>Far-field Power Distribution on X-Z Plane(E-Plane of L3 Pol Sense) Gain= 3.171 dBi; Total Radiating Efficiency: 72.553% @2.45000 GHz</p>	<p>Far-field Power Distribution on Y-Z Plane(H-Plane of L3 Pol Sense) Gain= 3.171 dBi; Total Radiating Efficiency: 72.553% @2.45000 GHz</p>
2472 MHz	<p>Far-field Power Distribution on X-Z Plane(E-Plane of L3 Pol Sense) Gain= 3.176 dBi; Total Radiating Efficiency: 63.163% @2.47200 GHz</p>	<p>Far-field Power Distribution on Y-Z Plane(H-Plane of L3 Pol Sense) Gain= 3.176 dBi; Total Radiating Efficiency: 63.163% @2.47200 GHz</p>
2500 MHz	<p>Far-field Power Distribution on X-Z Plane(E-Plane of L3 Pol Sense) Gain= 3.328 dBi; Total Radiating Efficiency: 66.901% @2.50000 GHz</p>	<p>Far-field Power Distribution on Y-Z Plane(H-Plane of L3 Pol Sense) Gain= 3.328 dBi; Total Radiating Efficiency: 66.901% @2.50000 GHz</p>



III.3 GPS Ceramic Patch Antenna

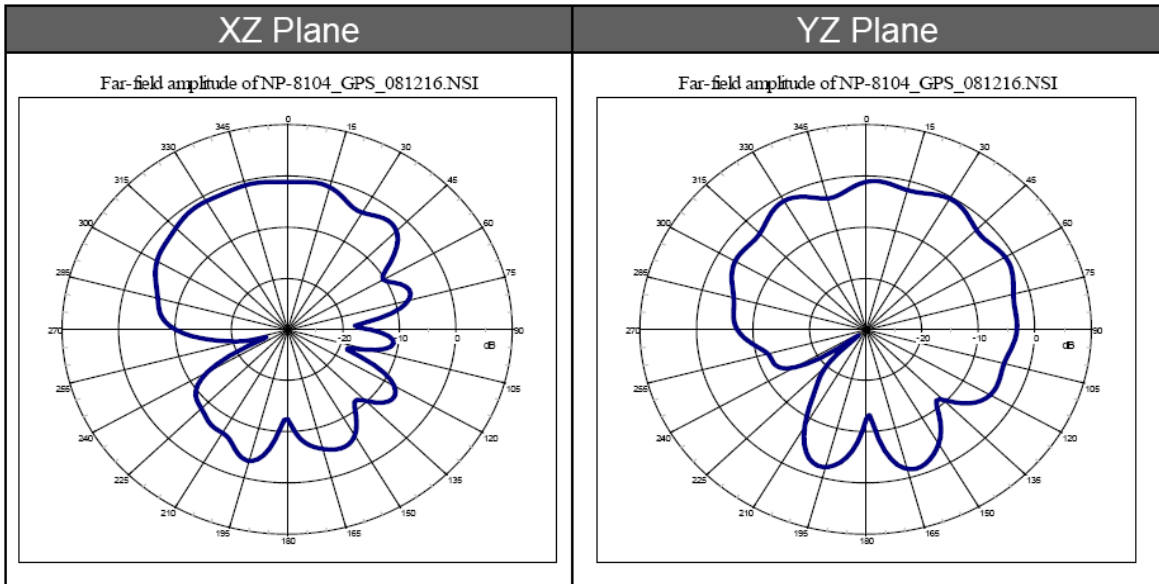


III.4 Radiation Pattern of GPS Ceramic Patch

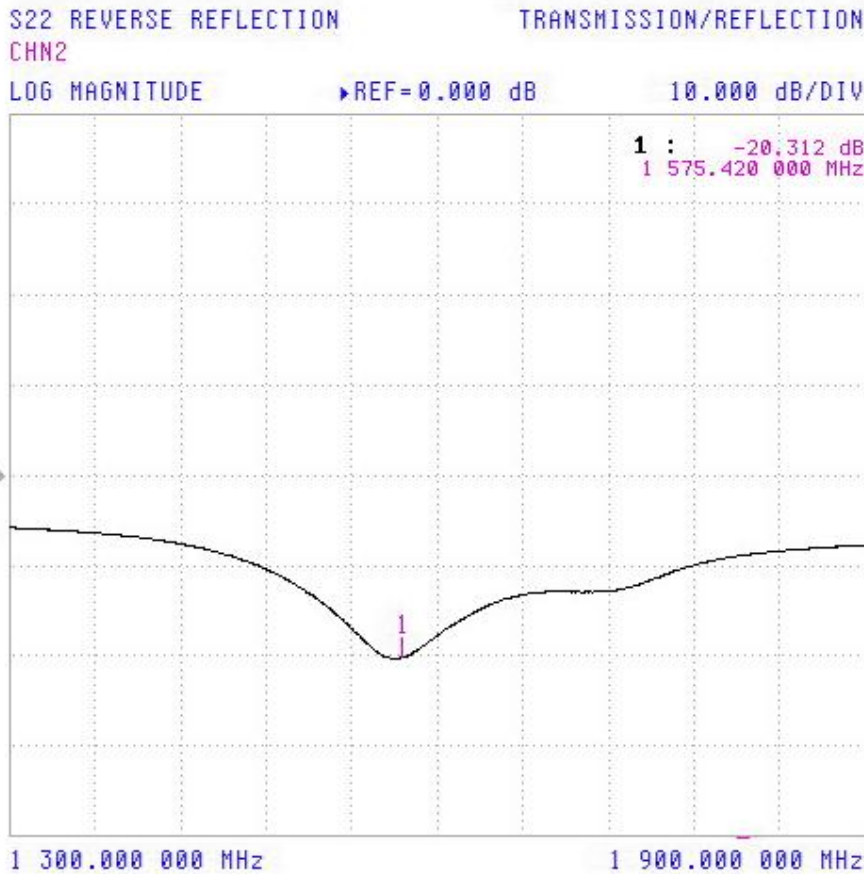




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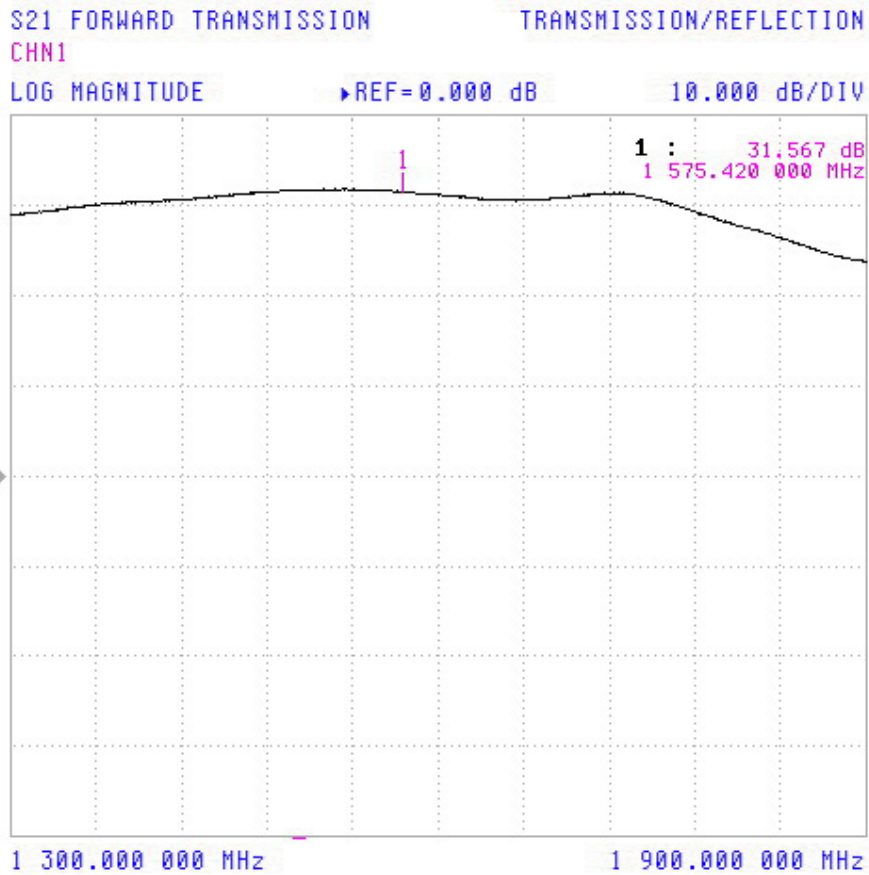
III.5 LNA – S22





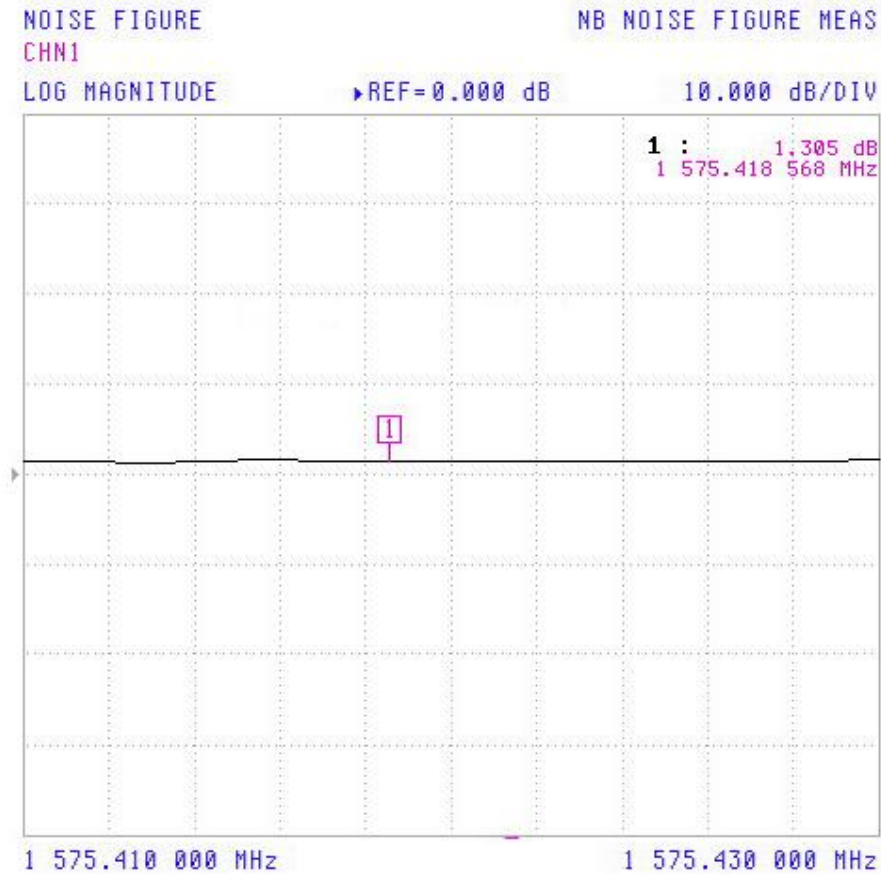
Specification

III.6 LNA-S21





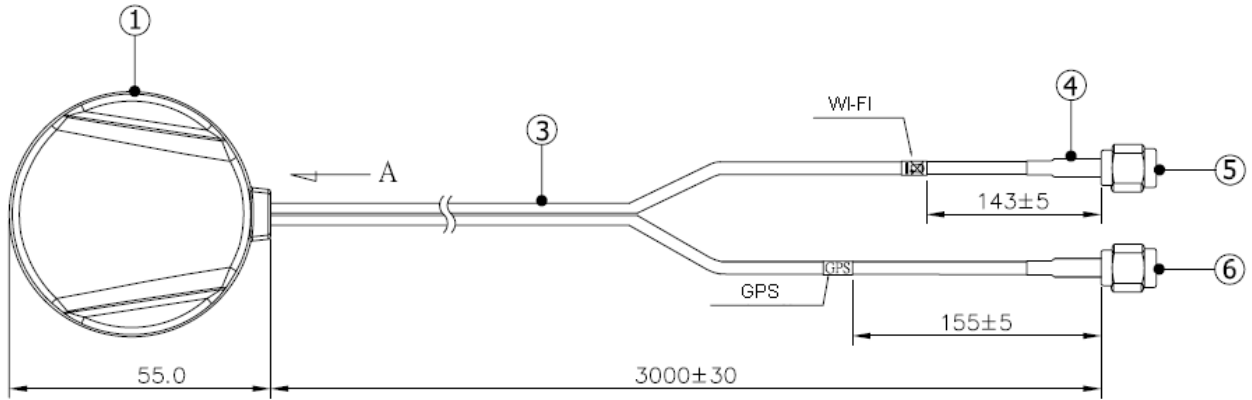
III.7 Noise Figure



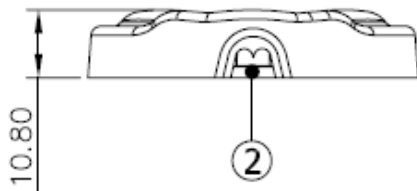


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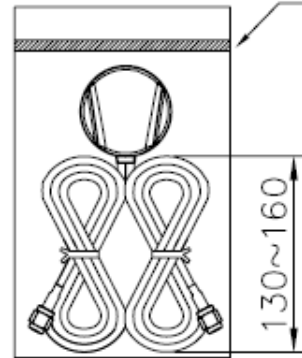
III.8 Technical Drawing



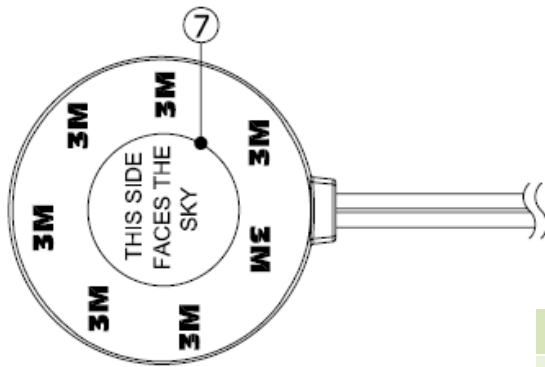
View A



Shrink line
PE Bag



Bottom View



1	Antenna Cover	ABS; Color; Black
2	Cable Holder	ABS; Color; Black
3	Cable	RG-174 Black
4	Heat Shrink	Heat Shrink Tube
5	Connector: Wi-Fi	RP-SMA(M)
6	Connector: GPS	SMA(M)
7	Label	Ø25mm