



Specification

MA.301

**GPS / Penta-band Cellular (GSM / CDMA / PCS / DCS/ WCDMA/ UMTS)
Magnet Mount Antenna**



**3D view
(This side faces the sky)**



**Underside view
(Magnet)**

The MA.301 is a combination small form factor high performance GPS and Penta-band Cellular (GSM/CDMA/PCS/DCS/ WCDMA/UMTS) antenna to simplify AVL or Fleet management antenna systems worldwide. It comes with magnet mount as standard, double-sided 3M adhesive tape is optional. An internal O-ring meets stringent IP-67 waterproof standards. With the strongest GPS and Cellular antenna design team in the industry and rigorous testing Taoglas offers guaranteed performance with your system and your environment.



Specification

Features

GPS

- High LNA Gain up to 32 dB
- Antenna Gain 28 ± 2 dB
- Miniaturized to 56.3 x 17.3 mm
- Low Noise 1.5 dB max
- Ultra-Low Power Consumption 6mA typ (at 2.7V~3.3V dc)

Cellular

- Advanced penta-band cellular antenna (GSM/CDMA/PCS/DCS/WCDMA/UMTS)

Other

- IP67 Water Resistant due to Internal O-Ring Structure
- Quality textured covert design. Low profile
- UV resistant ABS housing
- Optional - high grade 3M double sided tape for quick and easy mounting
- Optional cables and connectors
- ROHS Compliant

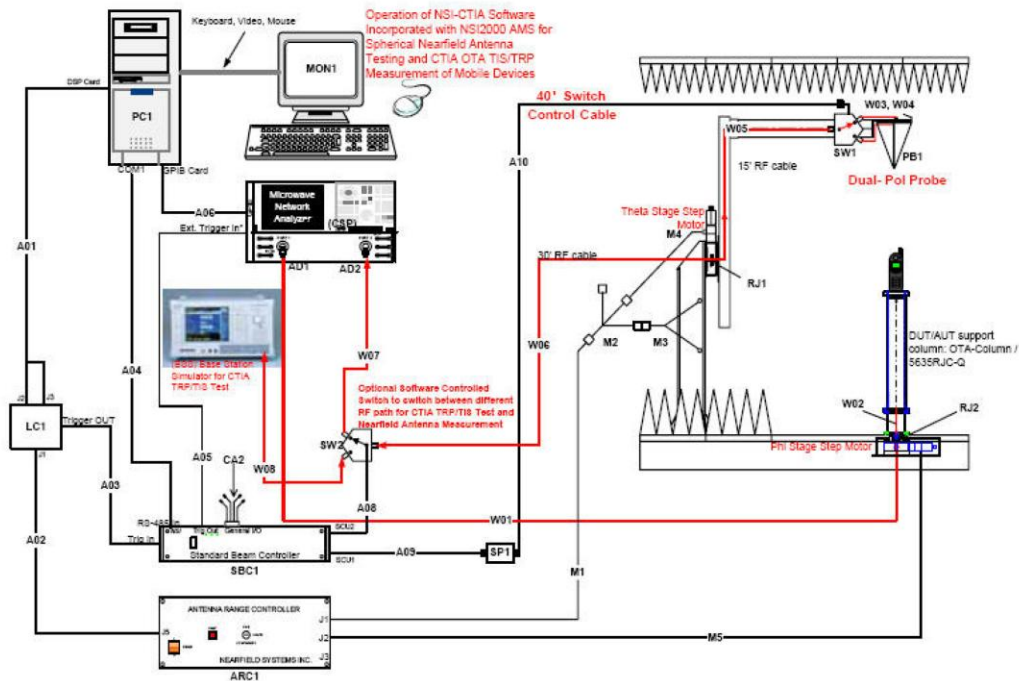
Performance Specifications		
Items	GPS Antenna	Cellular Antenna
Features	High performance GPS ceramic patch antenna with cutting edge low noise amplifier	CDMA: 824~896 MHz GSM: 880~960 MHz PCS: 1850~1990 MHz DCS: 1710~1880 MHz UMTS/WCDMA
Frequency	1575.42 MHz \pm 2MHz	As above
Gain	28 dB typ.	As patterns
	Gain at Zenith : - 3 dBi min	-
	Axial Ratio : 3.0 dB typ	
Noise Figure	1.5 dB max.	-
Polarization	RHCP	Linear
Bandwidth	10 MHz min @ -10dB	As S11
VSWR	1.92 max	≤ 2.5
Impedance	50 Ω	50 Ω
Power Consumption	6mA (at 2.7 ~ 3.3V dc)	-
Cable / Connector	Standard 2/3/5m RG-174 Cables and Connectors Fully Customisable	Standard 2/3/5m RG-174 Cables and Connectors fully Customisable
Operating Temperature	-40°C ~ +85°C	
Storage Temperature	-40°C ~ +90°C	
Size	56.3mm * 17.3 mm	
O-Ring	Embedded	
Housing	UV resistant ABS	

***note: specifications may be subject to change**



Specification

NFT-500S 3D Chamber Coordinate System Definition



Configuration of NFT-500S 3D Chamber



Specification

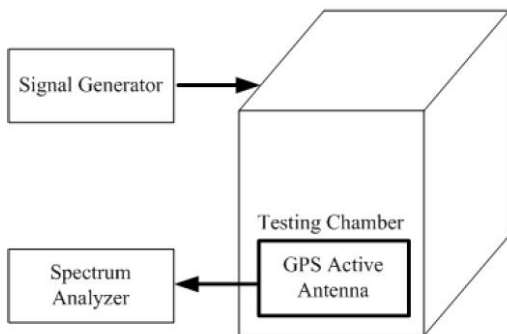
Test Setup (con.)



Agilent E5071B Network Analyzer



Anritsu 68147C Signal Generator



Testing Chamber



Anritsu MS2721A Spectrum

Note

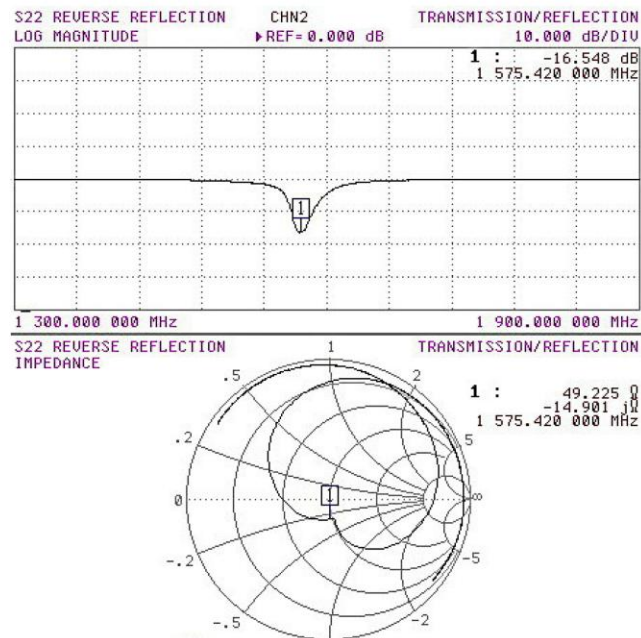
1. The antenna is measured with 39(L)×34.5(W) 2mm metal ground
2. All data are measured with RG-174 cable (length=3 M), excluding the LNA data
3. RG-174 cable attenuation (dB/100m)

GHz	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
RG-174	67	110	127	153	168	183	207	229	252	272	291	311



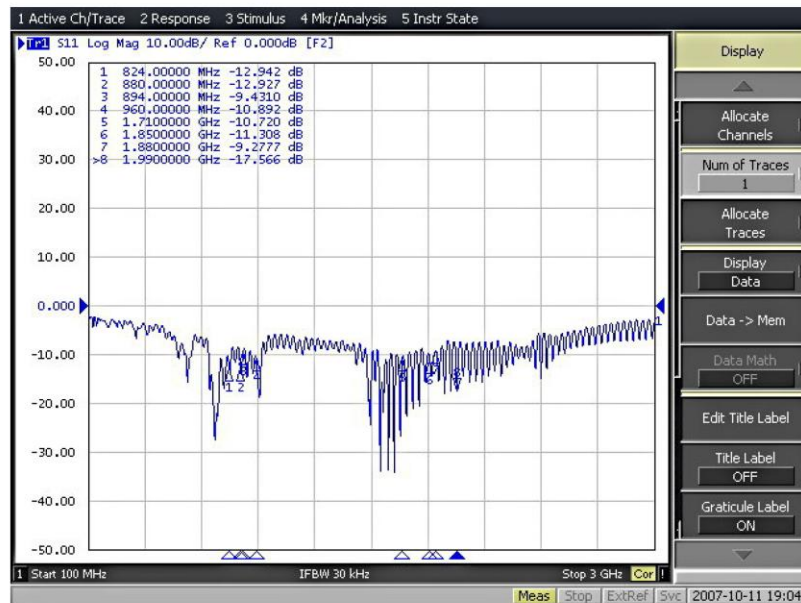
Specification

GPS Ceramic Antenna



With Housing, Metal Mount

GSM Antenna

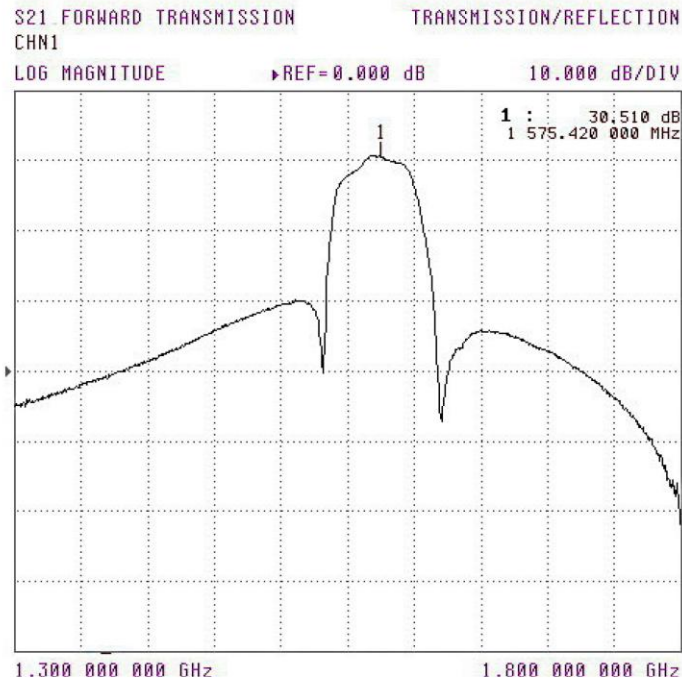


With Housing, Metal Mount

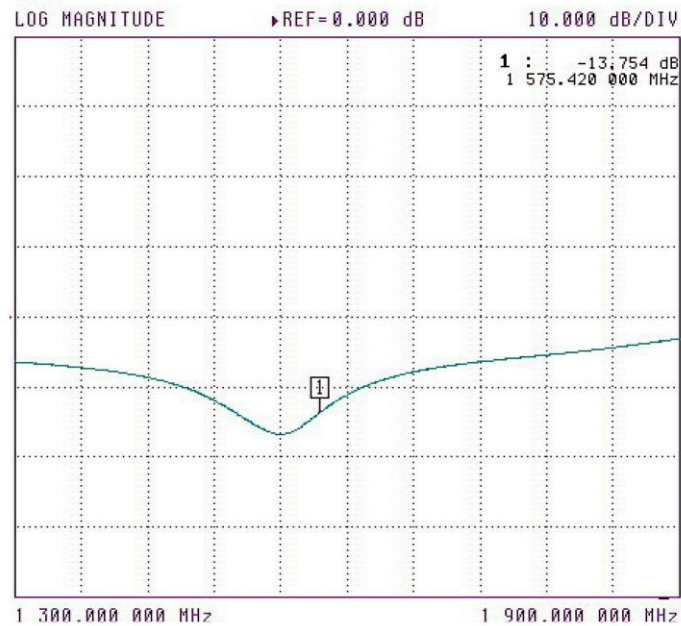


Specification

LNA Gain



LNA S22

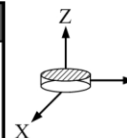




Specification

GSM Antenna Radiation Pattern

Freq.	XZ Plane	YZ Plane
824 MHz Peak Gain:1.526 dBi Efficiency: 41 %		
880 MHz Peak Gain:1.996 dBi Efficiency: 45 %		
960 MHz Peak Gain:1.133 dBi Efficiency: 50 %		
1710 MHz Peak Gain:1.946 dBi Efficiency: 62 %		
1850 MHz Peak Gain:3.0 dBi Efficiency: 64 %		

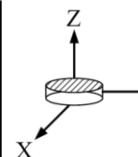




Specification

GSM Antenna Radiation Pattern

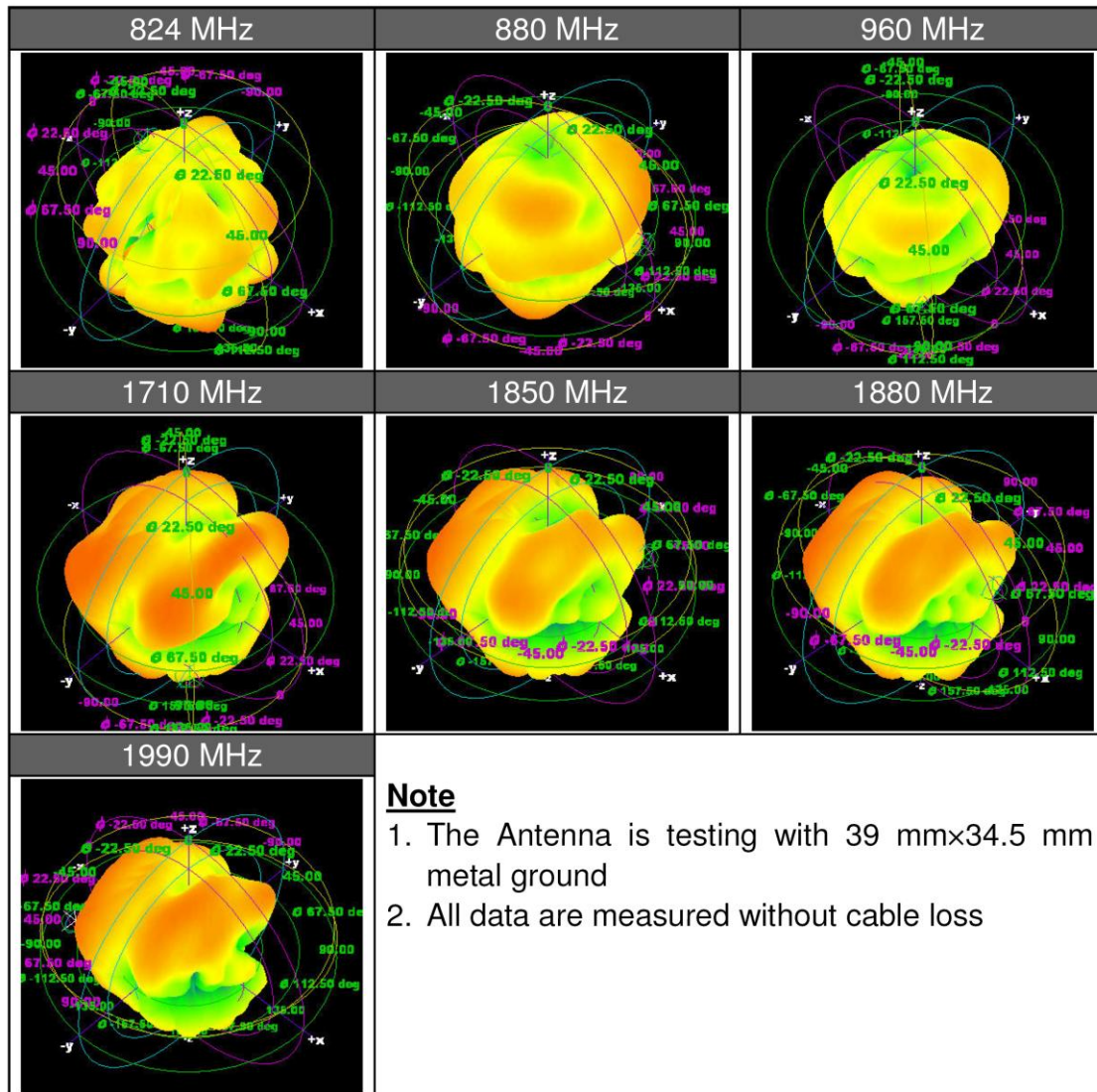
Freq.	XZ Plane	YZ Plane
1880 MHz Peak Gain:3 dBi Efficiency: 63.4 %		
1990 MHz Peak Gain:3.27 dBi Efficiency: 60.3 %		
2110 MHz Peak Gain:3.78 dBi Efficiency: 52.5 %		
2170 MHz Peak Gain:5.82 dBi Efficiency: 60.2 %		





Specification

3D Radiation Pattern



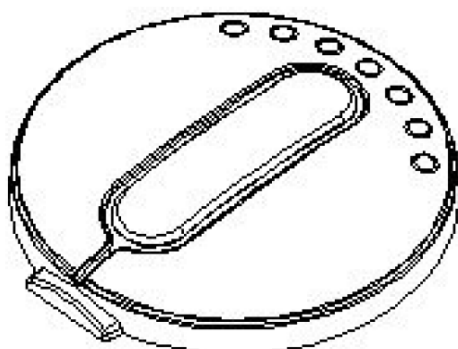
Drawing

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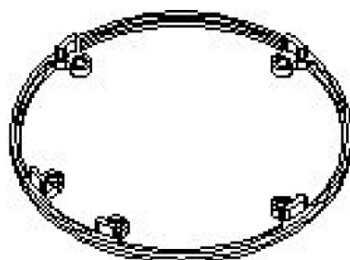
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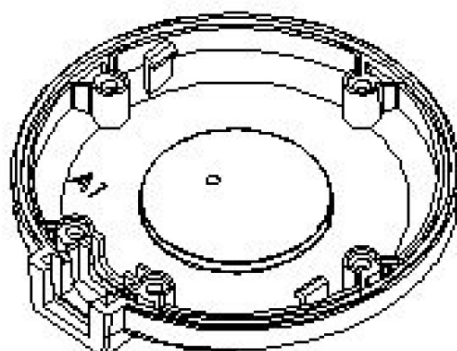
Specification



Antenna Cover



O-ring



Antenna Bottom