



Specification

MA-104 “Hercules” Antenna

GPS/Quad-band Cellular (GSM/CDMA/PCS/DCS)
Covert Heavy Duty Screw Mount Antenna



The Hercules (MA-104) from Taoglas Limited is a combination high performance GPS and quad-band cellular (GSM/CDMA/PCS/DCS) antenna solution for reliable asset tracking and remote monitoring. This product incorporates the industry’s most advanced GPS active ceramic patch technology (XtremeGain™) allowing for gains of up to 300% in accuracy compared to traditional antennas. Time to first fix is under 1 minute with all of the industry leading GPS receivers. XtremeGain technology means the antenna has been tuned for the Hercules environment giving you the optimum antenna solution to enable elimination of data gaps.

The GSM/GPRS PCB inside has also been tuned for this antenna, hence performance is excellent at all bands meaning the antenna works worldwide.

Designed mainly for commercial vehicle installations with extra thick threads, the cables exit through the bottom for ease of install. Durable and robust UV resistant PVC housing is resistant to vandalism and direct attack. It is designed for covert mounting as it is only 3cm high when mounted, thus complies with the latest EU directives for height restrictions.

Features

GPS

- High LNA Gain up to 32 dB \pm 2 dB
- Miniaturized – diameter 52mm
- Low Noise (1.5 dB max)
- Low Current Consumption – max 19 \pm 2mA (at 3-5V dc)
- Resides in its own chamber and is tuned for the Hercules environment to enhance performance



Specification

Cellular

- Advanced quad-band cellular antenna (GSM/CDMA/PCS/DCS) for worldwide application
- Tuned for the Hercules environment to enhance performance

Other

- Weather-proof (IP65) with Rubber Seal
- Quality textured covert and low profile design
- UV and Vandal resistant PVC housing
- Convenient integrated cable routing system
- Optional cables and connectors

Performance Specifications		
Items	GPS Antenna	Cellular Antenna
Features	High performance GPS ceramic patch antenna with cutting edge low noise amplifier	Quad band; CDMA: 824~896 MHz GSM: 880~960 MHz PCS: 1850~1990 MHz DCS: 1710~1880 MHz
Return Loss		850 = -12dB 900 = -25dB 1800 = -10dB 1900 = -12dB
Gain	30 dB typ. Gain at Zenith: 2.0 dBi min Gain at 10° elevation: -4.0 dBi min Axial Ratio: 2.0 dB max	As patterns below - -
Noise Figure	1.5 dB max.	-
Polarization	RHCP	Linear
Outband Attenuation (LNA)	30dB min fo ± 50MHz (fo=1575.42MHz)	-
Bandwidth	10 MHz min	-
VSWR	<=2.0:1	<=2.0:1
Impedance	50Ω	50Ω
Power / Consumption	MAX 19 ± 2mA (at 3~5V 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
Housing	UV resistant PVC	

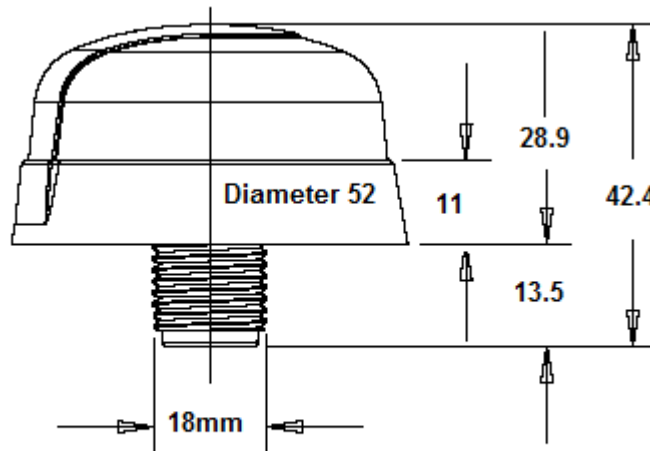
***note: specifications may be subject to change**

MECHANICAL	
Dimensions (L x W)	Height 29mm x Diameter 52mm
Casing	UV Resistant PVC
Base and Thread	Nickel plated steel
Thread Diameter	18mm
Weather proof gasket	Rubber



Specification

Sealant	Silicon Cure
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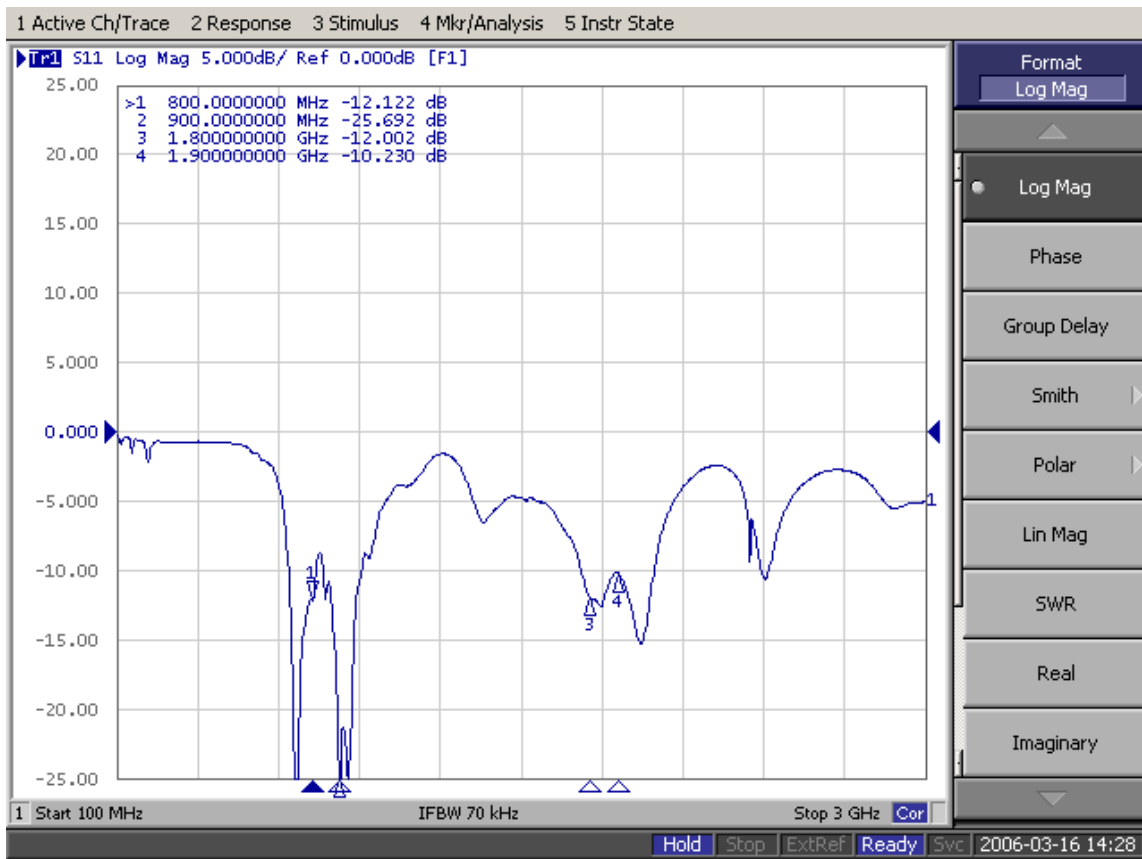
Note: unit cm unless specified

ENVIRONMENTAL	
Waterproof	IP-65 Protected against low pressure jets if water from all directions - limited ingress permitted
Corrosion	5% NaCl for 96hrs - Nickel plated steel base and thread
Temperature Range	-40°C to +85°C
Thermal Shock	100 cycles -40°C to +80°C
Humidity	Non-condensing 65°C 95% RH
Shock (Drop Test)	1m drop on concrete 6 axes
Cable Pull	8 KGf



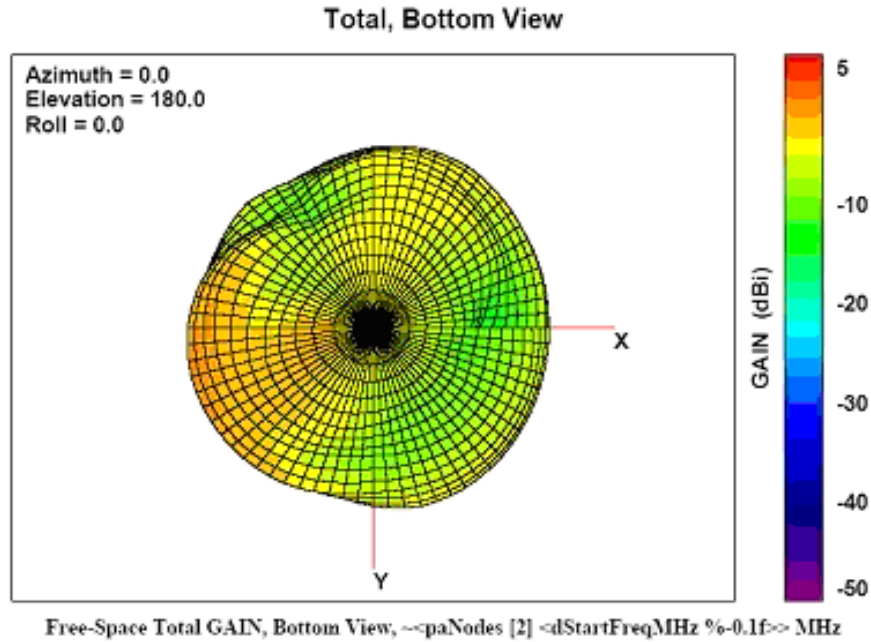
Specification

S11 Return Loss management

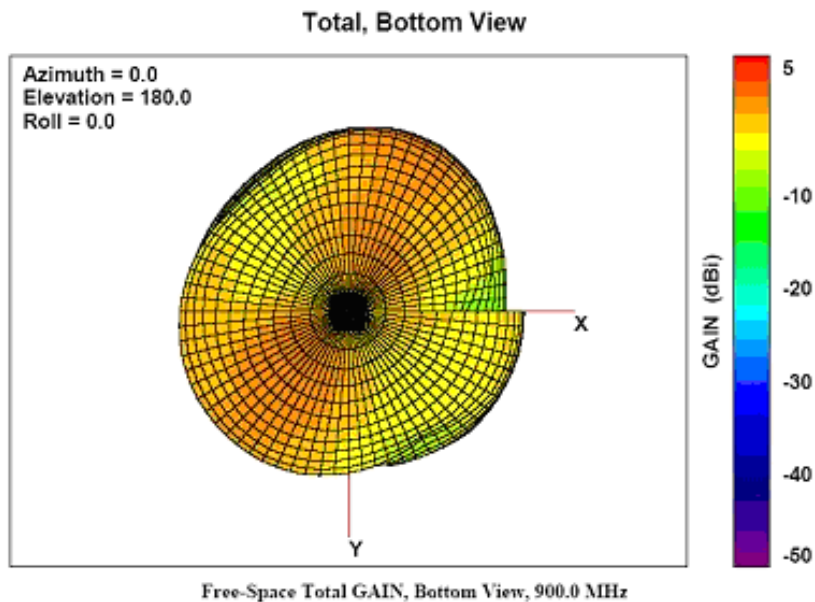




800 MHz – 3D Radiation Pattern



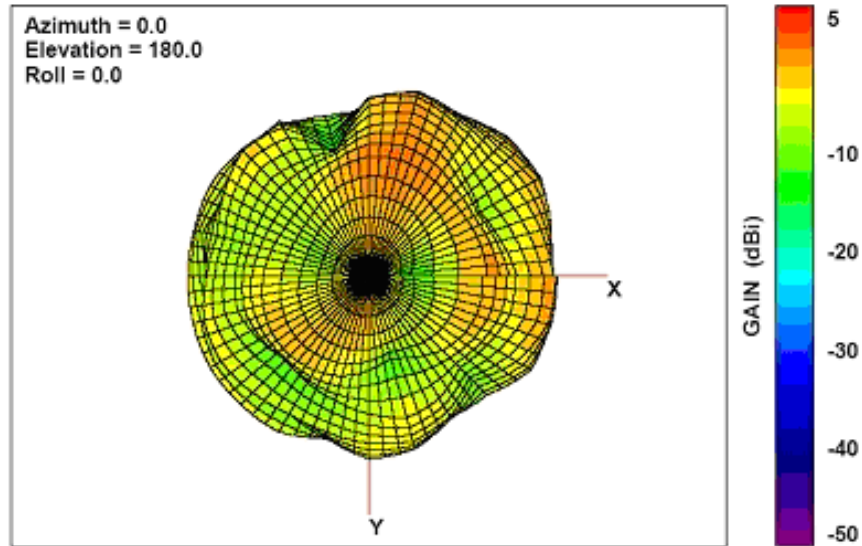
900 MHz – 3D Radiation Pattern





1800 MHz – 3D Radiation Pattern

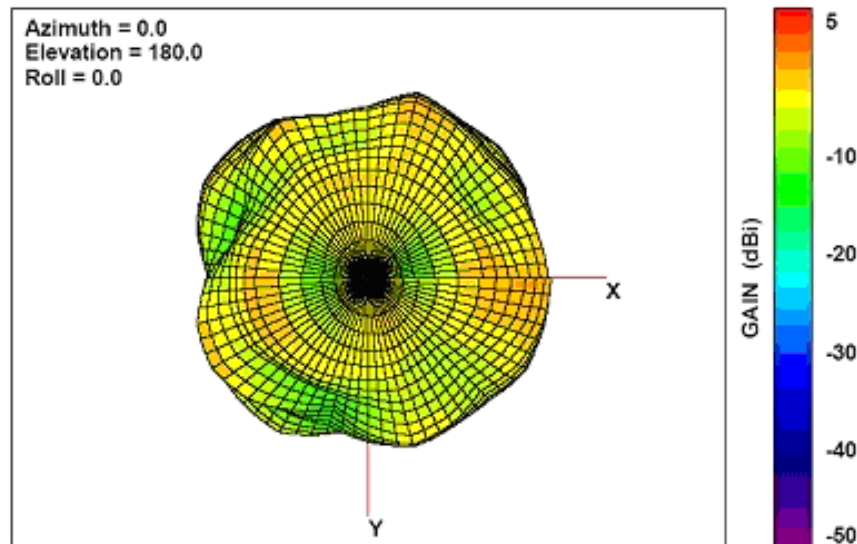
Total, Bottom View



Free-Space Total GAIN, Bottom View, 1800.0 MHz

1900 MHz – 3D Radiation Pattern

Total, Bottom View



Free-Space Total GAIN, Bottom View, 1900.0 MHz