



Specification

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| | | |
|--------------|---|---|
| Part No. | : | A.03.1001111 |
| Product Name | : | 40dB GPS Hercules Heavy Duty Screw Mount Antenna For long cable lengths above 5M |
| Description | : | Three Stage 40dB Height 29mm Diameter 52mm |
| Applications | | Location based services M2M Telematics Remote monitoring Timing for Base Stations Large vehicle fleet tracking |





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1.0 Scope

The **A.03** Hercules is a 40dB LNA high performance thread mount GPS antenna designed for external use on vehicles and outdoor assets where long cable lengths above 5 metres (15 feet) are used. Designed for heavy duty work with one piece C&C machined nickel steel base plate and threads, there are also convenient side slots for running cables laterally. Durable UV resistant ABS housing is resistant to vandalism and direct attack. At only 29mm high it complies with the latest EU directives for height restrictions, whilst also enabling covert operation with a diameter of 52mm.

Cable lengths, types and connectors are fully customizable.

For cable lengths below 5M please use our 28dB LNA **A.01** model.

2.0 Electrical Specifications

| No. | Parameter | Specification |
|-----|-----------------------|---|
| 1 | Frequency | 1575.42MHz±2MHz |
| 2 | Dimensions | Height 29mm Diameter 52mm Thread Diameter 18mm |
| 3 | Impedance | 50 ohm |
| 4 | VSWR | 2.0 Max |
| 5 | Gain | LNA Gain 40dB typically Passive Gain at Zenith 5.0dB Gain at 10 o elevation : -1.0 dBi typ. Antenna Gain at 90 degrees 41.5 ± dBic |
| 6 | Axial ratio | 3.0 dB max |
| 7 | Polarization | RHCP |
| 8 | Noise Figure | 1.5 dB max. |
| 9 | Operating Temperature | -40°C ~ +90°C |
| 10 | Out Band Rejection | fo = 1575.42MHz fo ± 20 MHz 7dB Min. fo ± 30 MHz 12dB Min. fo ± 50 MHz 20dB Min. fo ± 100 MHz 30dB Min. |
| 11 | Storage Temperature | -40°C ~ +95°C |
| 12 | Cable/Connectors | Standard RG174 , ψ2.7 ± 0.2mm , Black Cable Loss -1.3dB per Meter Standard Cable Length 10M SMA Male Straight Connector |

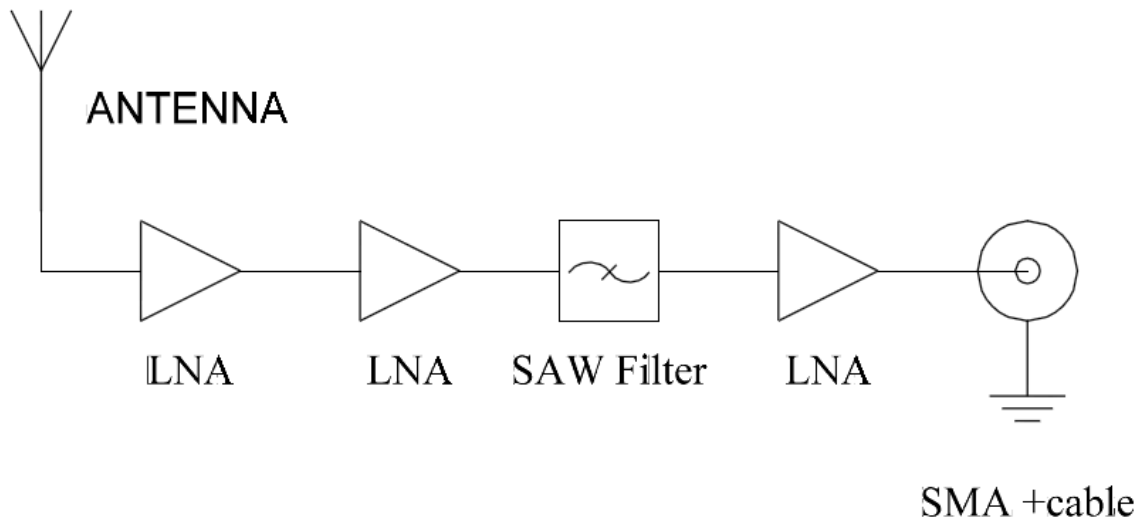


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|----|---------------|--|
| | | Cables and Connectors Fully Customizable |
| 13 | Input Voltage | At 1.8V Max 8mA |
| | | At 3.0V Max 10mA |
| | | At 5.0V Max 12mA |

3.0 LNA

LNA Functional Circuit



LNA Parameters

| No. | Parameter | Specification |
|-----|------------------------|--|
| 3.1 | Frequency Range | 1575.42 ± 10 MHz |
| 3.2 | Gain | Typ.34dB (At 1.8V) Typ.40dB Min.38dB (At 3V) Typ.40dB Min.38dB (At 5V) |
| 3.3 | Noise Figure | 1.5dB Max. (+ 25 °C ± 5°C) |
| 3.4 | Output Impedance | 50Ω |
| 3.5 | Outer Band Attenuation | F0=1575.42MHz F0±50MHz 20dB min F0±100MHz 25dB min |
| 3.6 | Output VSWR | Max 2.0 |

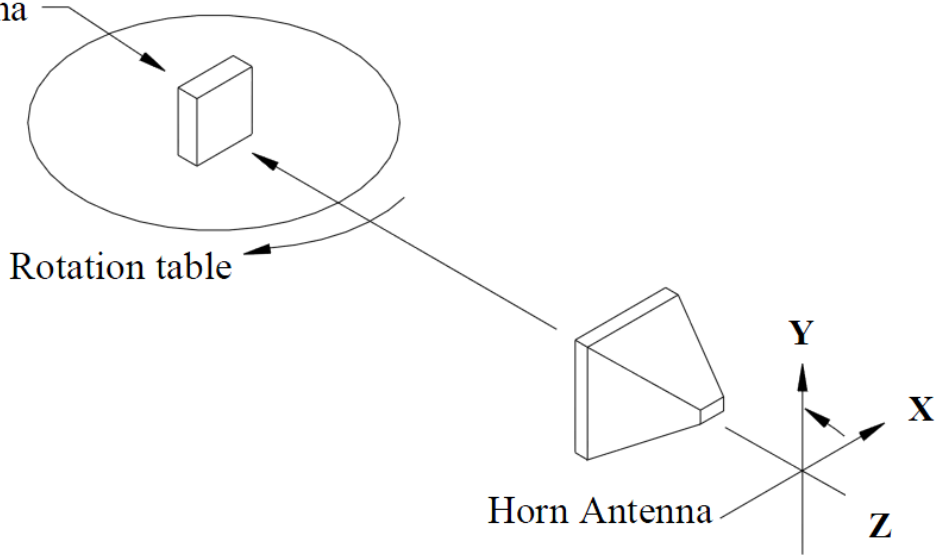


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4.0 Radiation Patterns

Test Setup

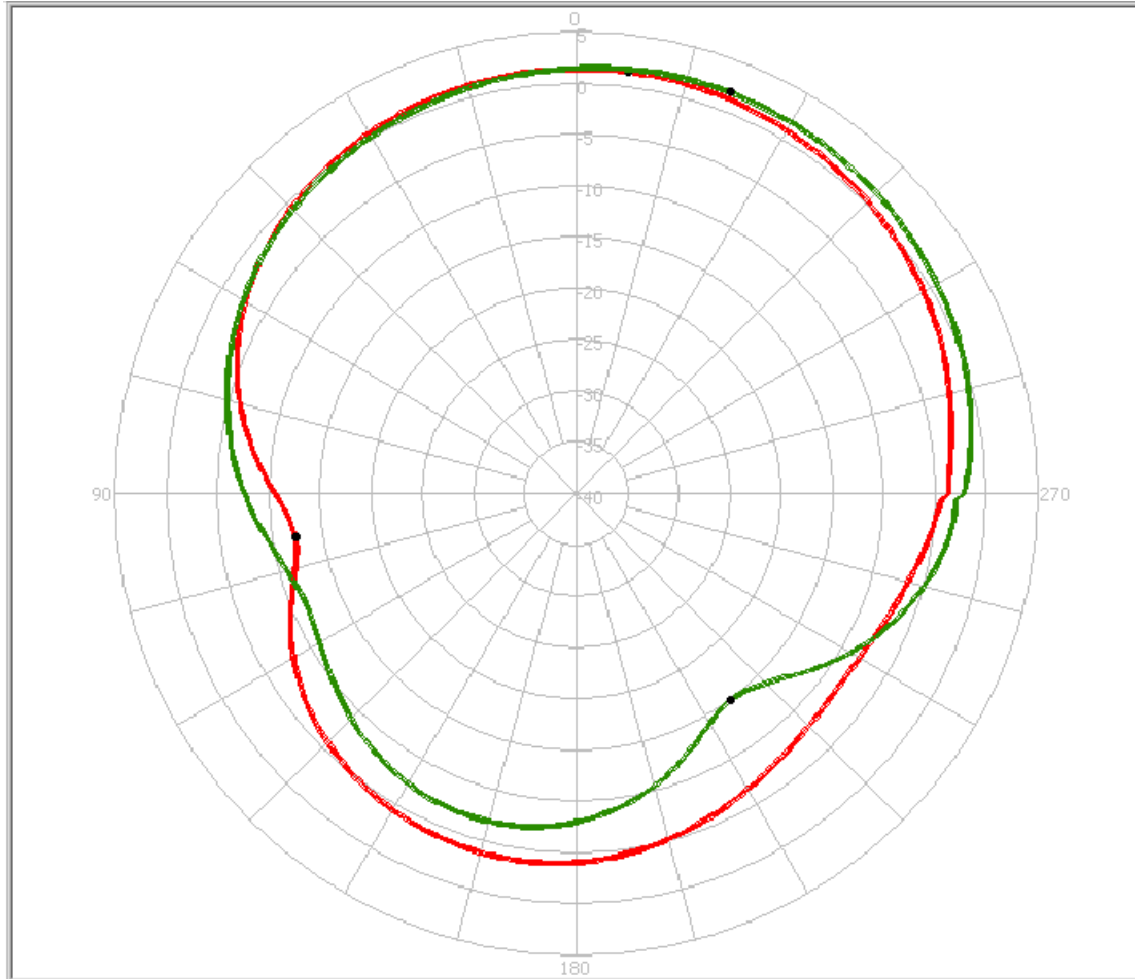
GPS Antenna



XZ and YZ Plane Cuts



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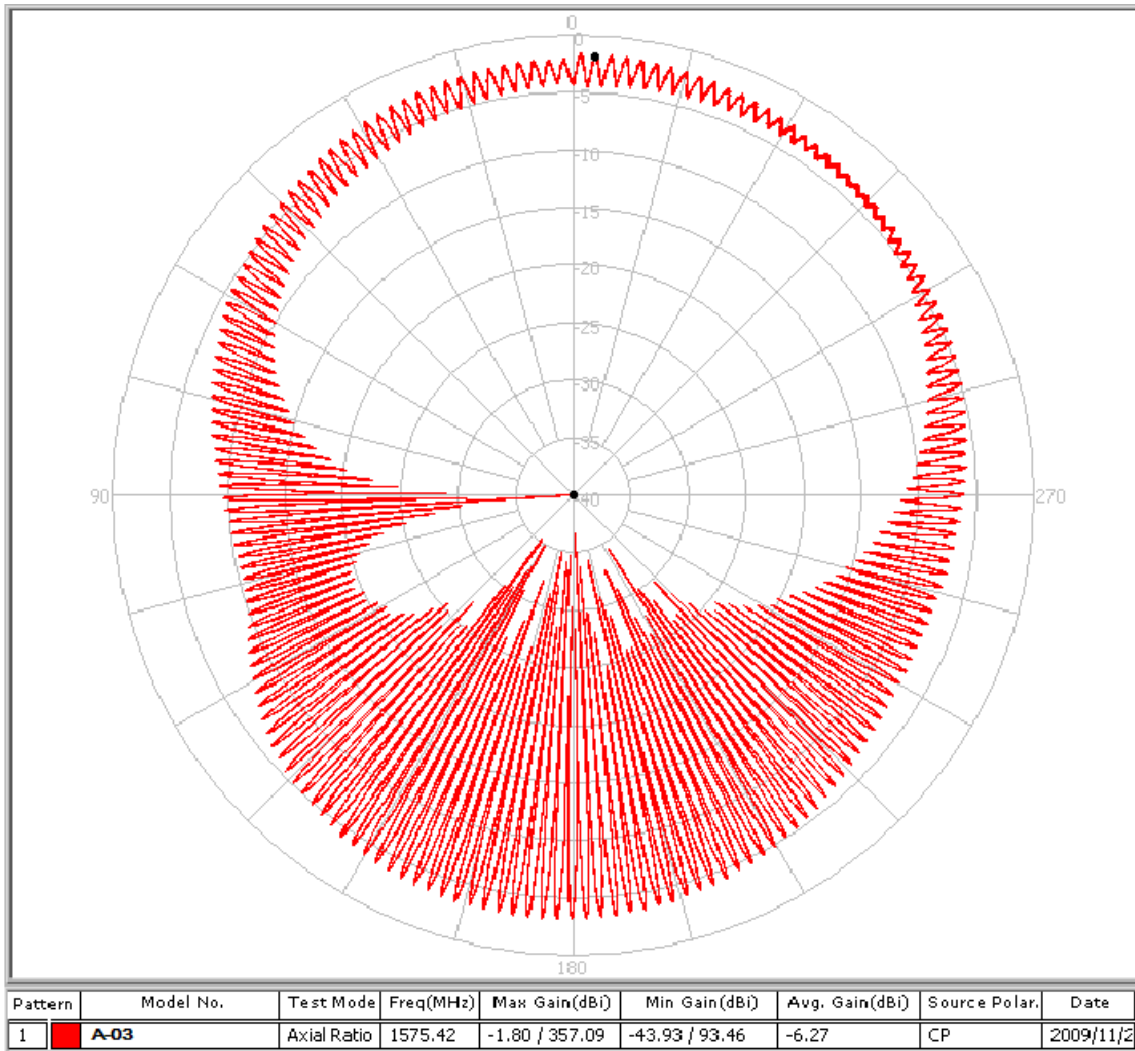


| Pattern | Model No. | Test Mode | Freq(MHz) | Max Gain(dBi) | Min Gain(dBi) | Avg. Gain(dBi) | Source Polar. | Date |
|---------|-------------|-----------|-----------|---------------|-----------------|----------------|---------------|-----------|
| 1 | A-03 | XZ | 1575.42 | 1.36 / 353.00 | -12.30 / 99.00 | -2.46 | RHCP | 2009/11/2 |
| 2 | A-03 | YZ | 1575.42 | 1.81 / 339.00 | -14.85 / 217.00 | -2.35 | RHCP | 2009/11/2 |



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Axial Ratio





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5.0 Mechanical Specifications

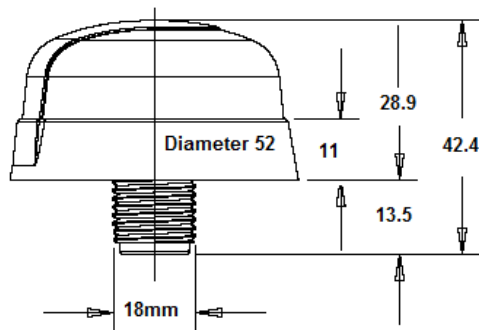
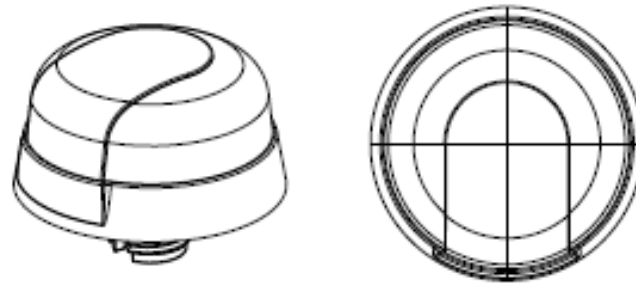
| No. | Parameter | Specification |
|-----|--|---|
| 1 | Housing | UV resistant ABS |
| 2 | Thread and Base Plate | One piece C&C'd Nickel Steel |
| 3 | Outer Protector | Rubber |
| 4 | Waterproof | IP65 IP69X High Pressure Water Jets (SGS Certified) |
| 5 | Thread Diameter | M18 |
| 6 | Recommended Torque Setting for Mounting | 70lb/foot |
| 7 | Maximum Torque Setting for Mounting | 100lb/foot |



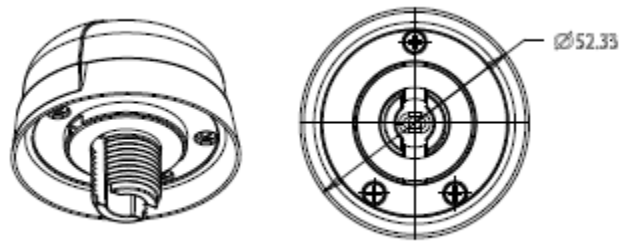
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5.0 Drawings

Antenna Dimensions



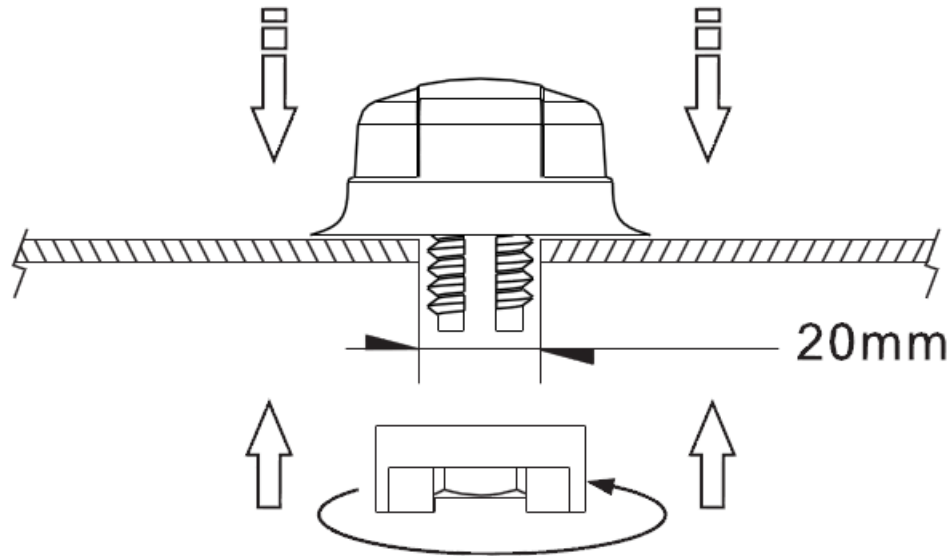
Note: unit cm unless specified





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6.0 Installation



- ⦿ Recommended torque setting for mounting is 95 Nm. or 70 ft. lbs
- ⦿ Maximum torque setting for mounting is 135.6 Nm. or 100 ft. lbs