

SPECIFICATION

Model No. : IS.01

Part No. : IS.01.B.305111

Product Name : 433MHz Heavy Duty Screw Mount Antenna

Description : Hercules Screw-Mount

0dBi ISM 433MHz Band 3M CFD-200 SMA(M) 29mm*52mm (Diameter) Waterproof IP69K Rated

RoHS Compliant



Version	Date	Page	Revision Description	Prepared	Approved
Α	May 11 th 2009	All	New Product	TW Product Centre	Zita Lin
В	Aug 26 th 2010	All	Mechanical Change	TW Product Centre	Zita Lin



I. Scope

The IS.01 is a high performance 433MHz thread mount antenna for external use on mesh networks, vehicles and outdoor and indoor assets. It is designed for heavy duty work with extra thick threads. Durable UV resistant ABS housing is resistant to vandalism and direct attack. At only 29mm high it complies with the latest EU directives for vehicle height restrictions, whilst also enabling covert operation with a diameter of 49mm. Range of signal travels up to 300m (see range tests below).

II. Specifications

	ELECTRICAL					
Frequency (GHz)	400 – 460 MHz					
VSWR	<2.0:1					
Return Loss (dB)	-16dBi @1.6M					
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Impedance	50Ω					
Polarization Pottors	Linear - Horizontal					
Radiation Pattern	Omni					
	MECHANICAL					
Dimensions	Height 29mm x Diameter 49mm					
Casing	UV resistant PVC					
Base and thread	Nickel plated steel					
Thread diameter	18mm					
Weather proof gasket	CR4305 foam with 3M9448B double-side adhesive					
Cable	3M CFD200 – Fully Customable					
Connector	SMA-male – Fully Customable					
	ENVIRONMENTAL					
Waterproof	IP-69K					
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					
Recommended Mounting Torque	95Nm					
Maximum Mounting Torque	135Nm					

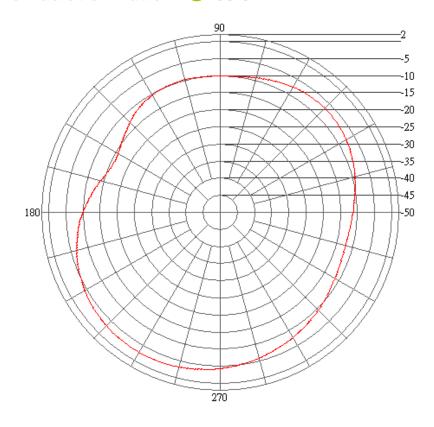
Specification



Note: more measurement results at 400, 420, 450 and 460 MHz available upon request

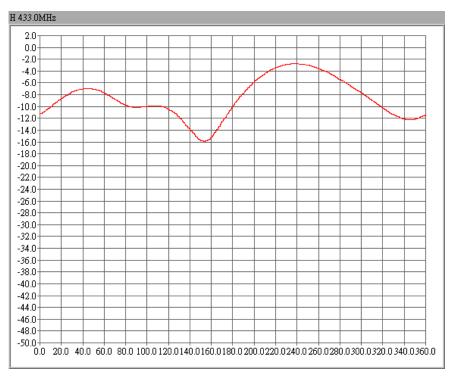
III. Antenna S11 Parameters

III.1. H-Plane Radiation Pattern @433.0MHz

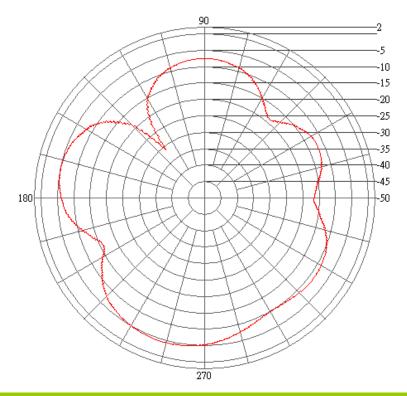


	H Plane
Max Gain (dBi)	-2.8
Max Gain@Angle (degree)	238
Min Gain (dBi)	-16
Min Gain@Angle (degree)	154
Average Gain (dBi)	-7.3
-3dB Angle L (degree)	284
-3db Angle R (degree)	200
HPB (degree)	83
FBR (dB)	4.35



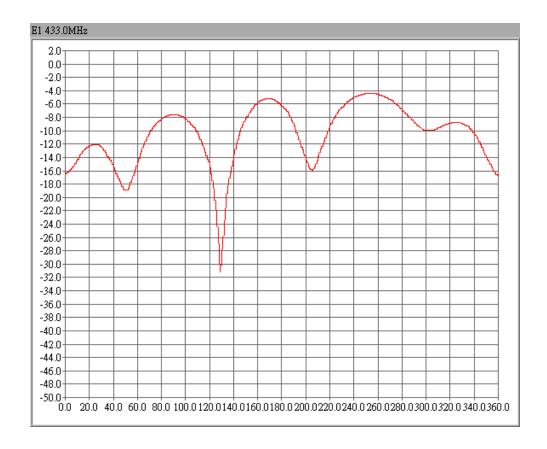


III.2. E-Plane Radiation Pattern @433.0MHz





	E1 Plane
Max Gain (dBi)	-4.4
Max Gain@Angle (degree)	251
Min Gain (dBi)	-31
Min Gain@Angle (degree)	129
Average Gain (dBi)	-8.8
-3dB Angle L (degree)	283
-3db Angle R (degree)	226
HPB (degree)	56.7
FBR (dB)	4.2





IV. Range Tests

Setup 1	Vehicle moving at 40-60km/h		Reading in A Orientation (0deg)			Reading in B Orientation (90deg)	Average reading
TX	IS01 and MA104 mounted on 570x770mm GND plane, fitted to roof centre of vehicle		Direction A	Direction B	Direction A	Direction B	
RX	IS01 mounted on 570x770mm GND plane on Distribution Box 1.5m high	Test 1	200	160	300	170	207.5
		Test 2	250	200	250	200	225

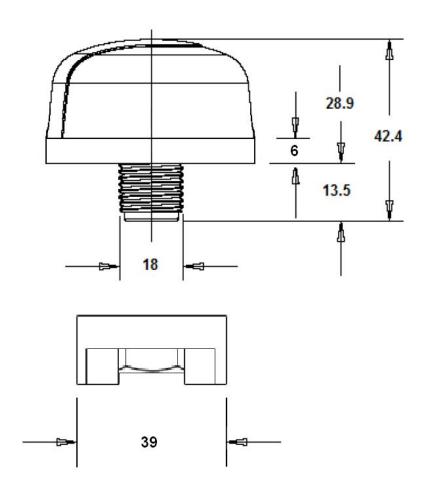
Setup 2	Vehicle moving at 40-60km/h		Reading in A Orientation (0deg)			Reading in B Orientation (90deg)	Average reading
TX	IS01 and MA104 mounted on 570x770mm GND plane, fitted to roof centre of vehicle		Direction A	Direction B	Direction A	Direction B	
RX	IS01 mounted on 570x770mm GND plane on brick Pillar 2m high	Test 1 Test 2	200	200	200	180	195

Setup 3	Vehicle moving at 40-60km/h		Reading in A Orientation (0deg)			Reading in B Orientation (90deg)	Average reading
TX	IS01 and MA104 mounted on 570x770mm GND plane, fitted to roof of vehicle, but placed off centre to the back	Test	Direction A	Direction B	Direction A	Direction B	
RX	IS01 mounted on 570x770mm GND plane on Distribution Box 1.5m high	Test 2	380	260	500	270	352.5

Setup 4	Vehicle moving at 40-60km/h		Reading in A Orientation (0deg)			Reading in B Orientation (90deg)	Average reading
TX	IS01 and MA104 mounted on 570x770mm GND plane, fitted to roof centre of vehicle		Direction A	Direction B	Direction A	Direction B	
RX	IS01 mounted on No GND plane on brick Pillar 2m high	Test 1 Test 2	250	190	300	180	230



V. Technical Drawing

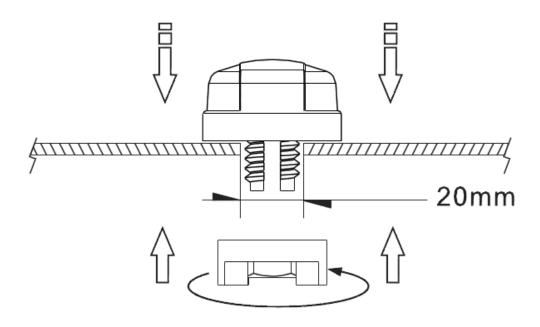


Unit: mm

Specification



VI.Installation



Recommended torque for mounting is 95Nm or 70ftlbs Maximum torque for mounting is 135.6Nm or 100ft lbs

