

SPECIFICATION

IS.04 868MHz Hercules ISM Band Antenna

Part No. IS.04.B.301111

Product Name 868 MHz Hercules ISM Band Antenna

Screw-mount (Permanent mount)

Features • Low profile - Height 29mm and diameter

52mm

• Heavy duty screw mount

• UV and Vandal resistant ABS housing

• Standard cable is 3m RG174 with SMA(M)-

connector fully customizable

ROHS Compliant





1. INTRODUCTION

The 868MHz Hercules ISM antenna is a high performance steel thread-mount ISM antenna for external use on vehicles and outdoor assets worldwide. Omni-directional high gain across all bands ensures constant reception and transmission. Durable UV resistant ABS housing is resistant to vandalism and direct attack. At only 29 mm height it complies with the latest EU height restrictions directives for roof-mounted objects, with a diameter of 52 mm. Designed to not catch on tree-branches. The antenna can be mounted on metal structures.

2. SPECIFICATION

ELECTRICAL								
Standard	ISM							
Band (MHz)	868							
Frequency (MHz)	868-870							
Cable Length (m)	0.3	1.0	2.0	3.0	5.0			
Return Loss (dB)	-13.95	-14.09	-13.84	-13.07	-21.93			
Efficiency (%)	26.88	43.12	38.52	33.75	20.45			
Gain (dBi)	1.17	2.09	1.98	1.98	1.03			
Polarization	Linear							
Impedance	50 ohms							
Max Input Power			10 watts					
VSWR			<2.5:1					

^{*}Note: The return loss, efficiency and gain in the above table, were measured on 30x30 cm metal plate with RG174 cable. For a specific case performance refers to the below plots.



	MECHANICAL					
Dimensions	Height = 29 mm and Diameter = 52 mm					
Cable length	3m RG174 - Fully Customable					
Connector	SMA-Male – Fully Customable					
Casing	UV Resistant PVC					
Base and Thread	Nickel plated steel					
Thread Diameter	18 mm					
Weather proof gasket	Rubber					
Sealant	Rubber Stopper					
ENVIRONMENTAL						
Protection	IP67					
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 +85°C					
Humidity	Non-condensing 65°C 95% RH					
Shock (Drop Test)	1m drop on concrete 6 axes					
Cable Pull	8 Kgf					
Recommended Torque Setting for Mounting	70lb/foot					
Maximum Torque Setting for Mounting	100lb/foot					

*Note: Specifications may be subject to change



3. TEST SET UP

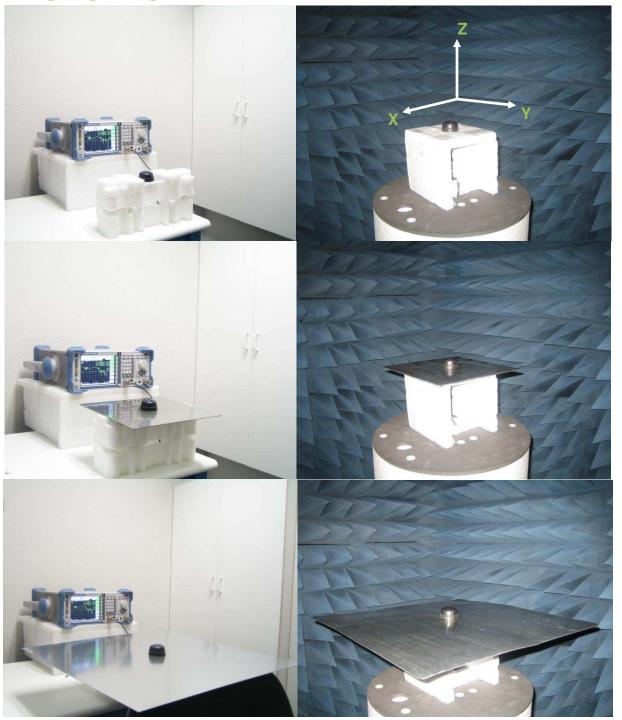


Figure 1. IS.04 Antenna test set up in free space, 30x30 cm metal plate and 60x60 cm metal plate, R&SZVL6 VNA (left) and R&S4100 CTIA 3D Chamber (Right).



4. ANTENNA PARAMETERS

4.1 Return Loss

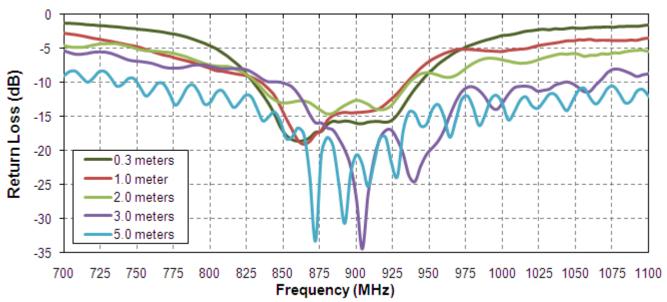


Figure 2. Return Loss of the 868MHz Hercules ISM antenna in free space

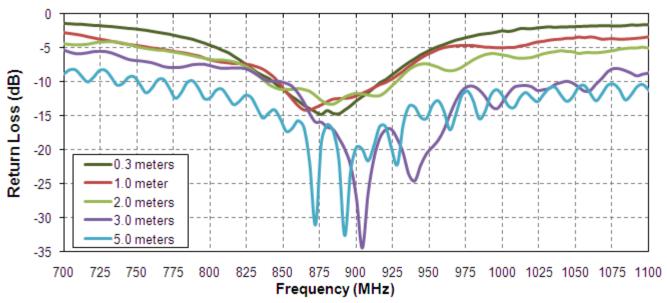


Figure 3. Return loss of the 868MHz Hercules ISM antenna on 30x30 cm metal plate.



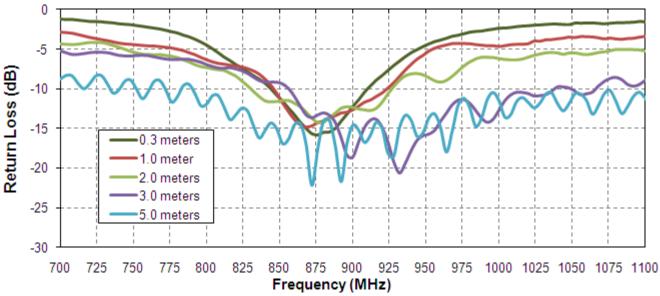


Figure 4. Return loss of the 868Mhz Hercules ISM antenna on 60x60 cm metal plate.

4.2 Efficiency

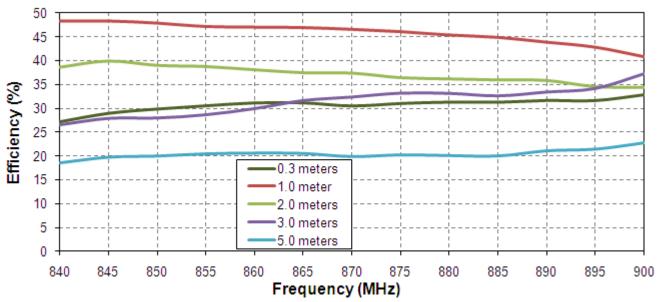


Figure 5. Efficiency of the 868MHz Hercules ISM antenna in free space.



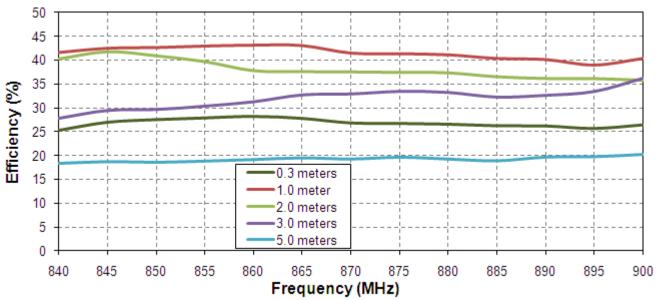


Figure 6. Efficiency of the 868MHz Hercules ISM antenna on 30x30 cm metal plate.

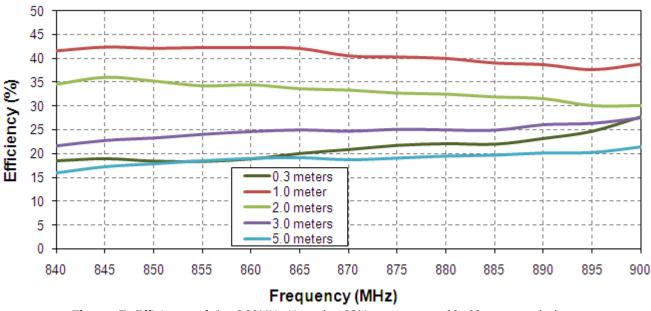


Figure 7. Efficiency of the 868MHz Hercules ISM antenna on 60x60 cm metal plate.



4.3 Gain

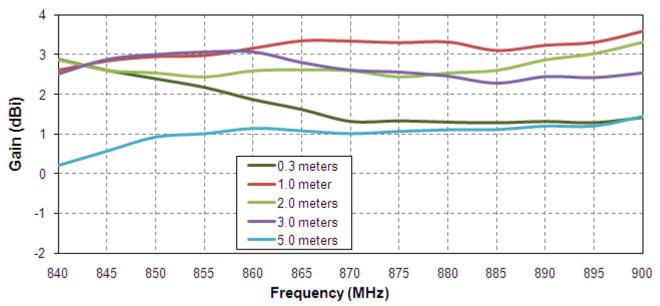


Figure 8. Gain of the 868MHz Hercules ISM antenna in free space.

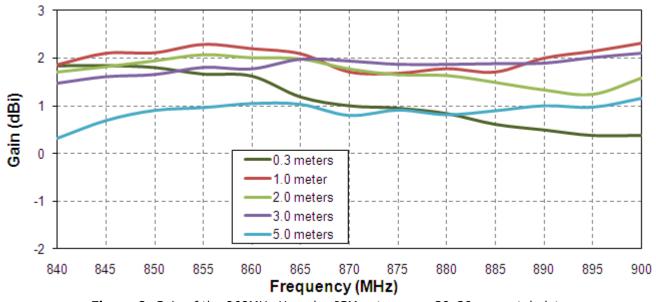


Figure 9. Gain of the 868MHz Hercules ISM antenna on 30x30 cm metal plate.



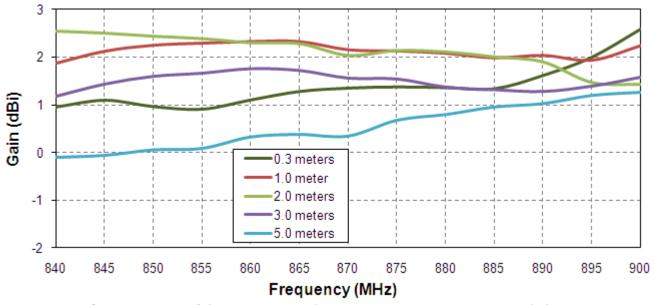


Figure 10. Gain of the 868MHz Hercules ISM antenna on 60x60 cm metal plate.

4.4. Radiation Pattern

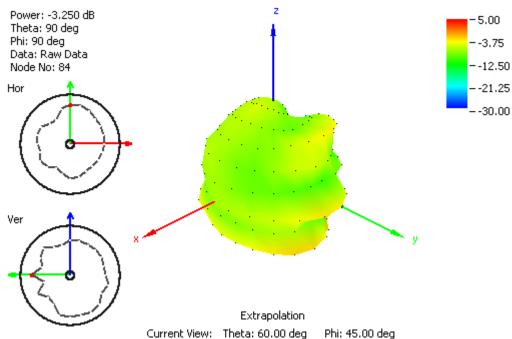


Figure 11. Radiation pattern at 865 MHz, Figure 1 as reference (dB), with 2m RG174 cable and free space.

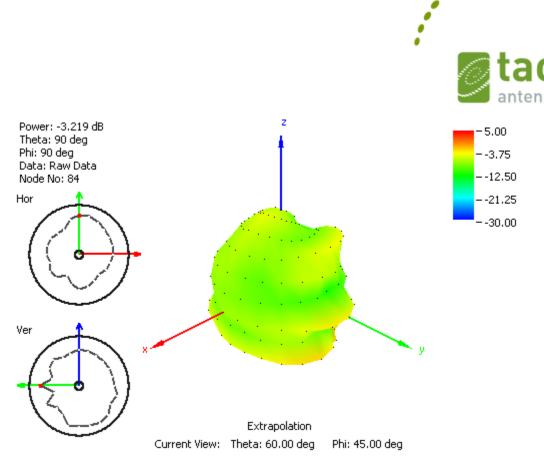


Figure 12. Radiation pattern at 868 MHz, Figure 1 as reference (dB), with 2m RG174 cable and free space.

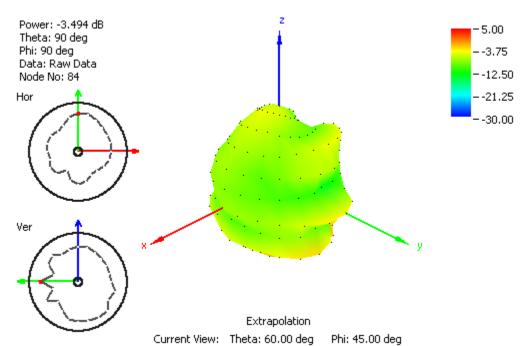


Figure 13. Radiation pattern at 870 MHz, Figure 1 as reference (dB), with 2m RG174 cable free space.



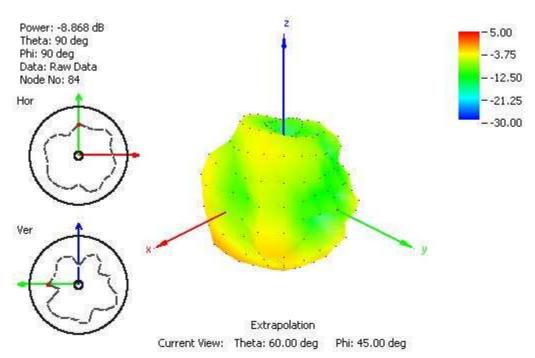


Figure 14. Radiation pattern at 865 MHz, Figure 1 as reference (dB), with 2m RG174 cable and 30x30 cm metal plate.

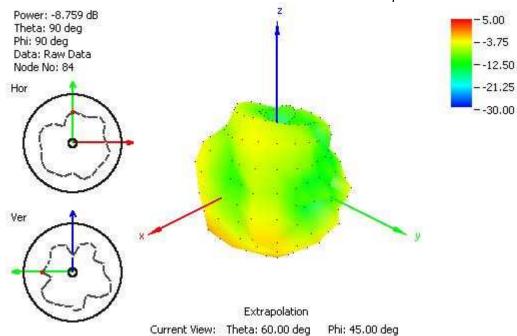


Figure 15. Radiation pattern at 868 MHz, Figure 1 as reference (dB), with 2m RG174 cable and 30x30 cm metal plate.



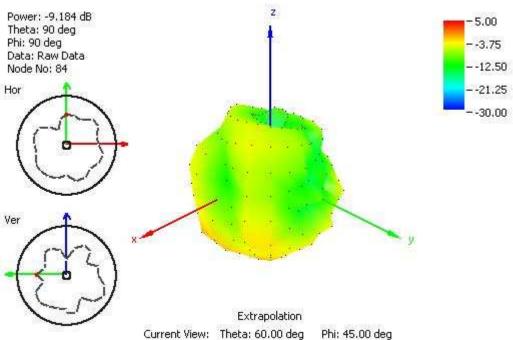


Figure 16. Radiation pattern at 870 MHz, Figure 1 as reference (dB), with 2m RG174 cable 30x30 cm metal plate.

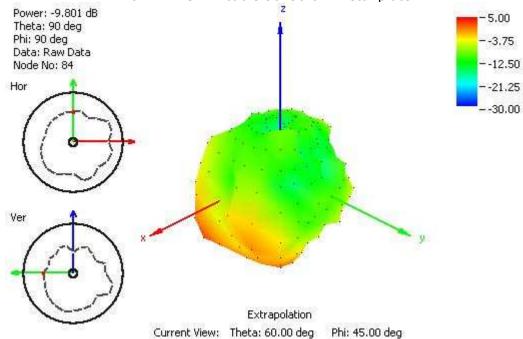


Figure 17. Radiation pattern at 865 MHz, Figure 1 as reference (dB), with 2m RG174 cable and 60x60 cm metal plate.

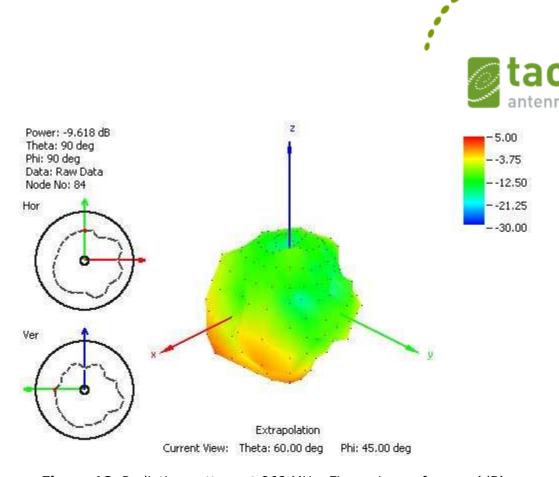


Figure 18. Radiation pattern at 868 MHz, Figure 1 as reference (dB), with 2m RG174 cable and 60x60 cm metal plate.

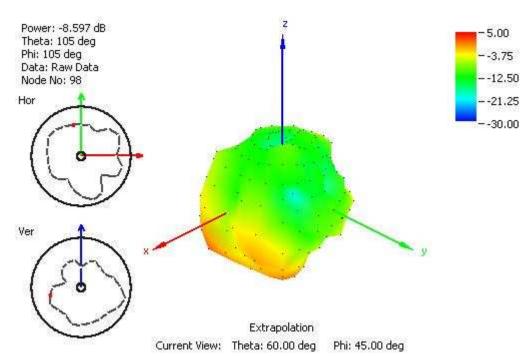
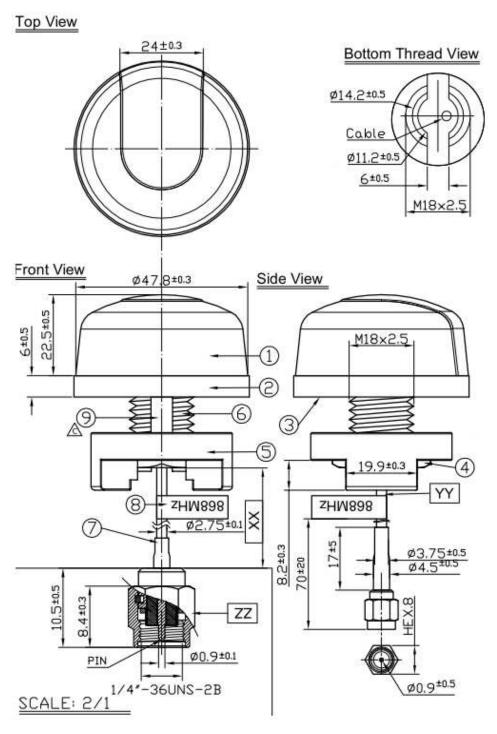


Figure 19. Radiation pattern at 870 MHz, Figure 1 as reference (dB), with 2m RG174 cable 60x60 cm metal plate.



5. MECHANICAL DRAWINGS

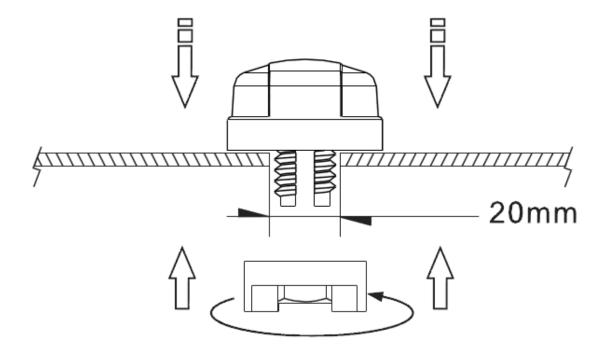




	Name	Material	Finish	QTY
1	Housing	ABS	Black	1
2	Closed Cell Foam	CR 4305	Black	1
3	3M Double Adhesive	3M 9448 WC	White Liner	1
4	M18 Inner Nut	Steel Carbon	Ni Plated	1
5	Outer Nut Cover	ABS	Black	1
6	M18x2.5 Thread 14.6L	Zinc Alloy	Ni Plated	1
7	Heat Shrink Tube	PE	Black	1
8	Rubber Stopper	Rubber	Black	1
9	868 MHz Label	Coated Paper	Green	1
XX	Cable Length	3000mm±30mm		1
ΥΥ	Cable Type	RG174	Black	1
ZZ	Connector Type	SMA(M) ST	Gold	1



6. INSTALLATION



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



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7. PACKAGING

