



## SPECIFICATION

### IS.05 915MHz Hercules ISM Band Antenna

- Part No. : **IS.05.B.301111**
- Product Name : 915 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
  - IP69K – No ingress of dust and no water ingress permitted from powerful pressure jets in all directions and no performance degradation
  - Standard cable is 3m RG174 with SMA(M)-connector fully customizable
  - ROHS Compliant



VERSION	DATE	PAGE	DESCRIPTION	CENTRE	APPROVED
A	09/20/2010	All	Antenna Specification	Taiwan	Eleazar Zuniga

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I. INTRODUCTION

The 915MHz 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.

II. SPECIFICATION

ELECTRICAL					
Standard	ISM				
Band (MHz)	915				
Frequency (MHz)	902-928				
Cable Length (m)	0.3	1.0	2.0	3.0	5.0
Return Loss (dB)	-13.68	-13.86	-15.16	-14.61	-17.54
Efficiency (%)	27.49	44.13	38.36	27.09	21.10
Gain (dBi)	1.15	2.75	3.14	1.85	0.25
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.



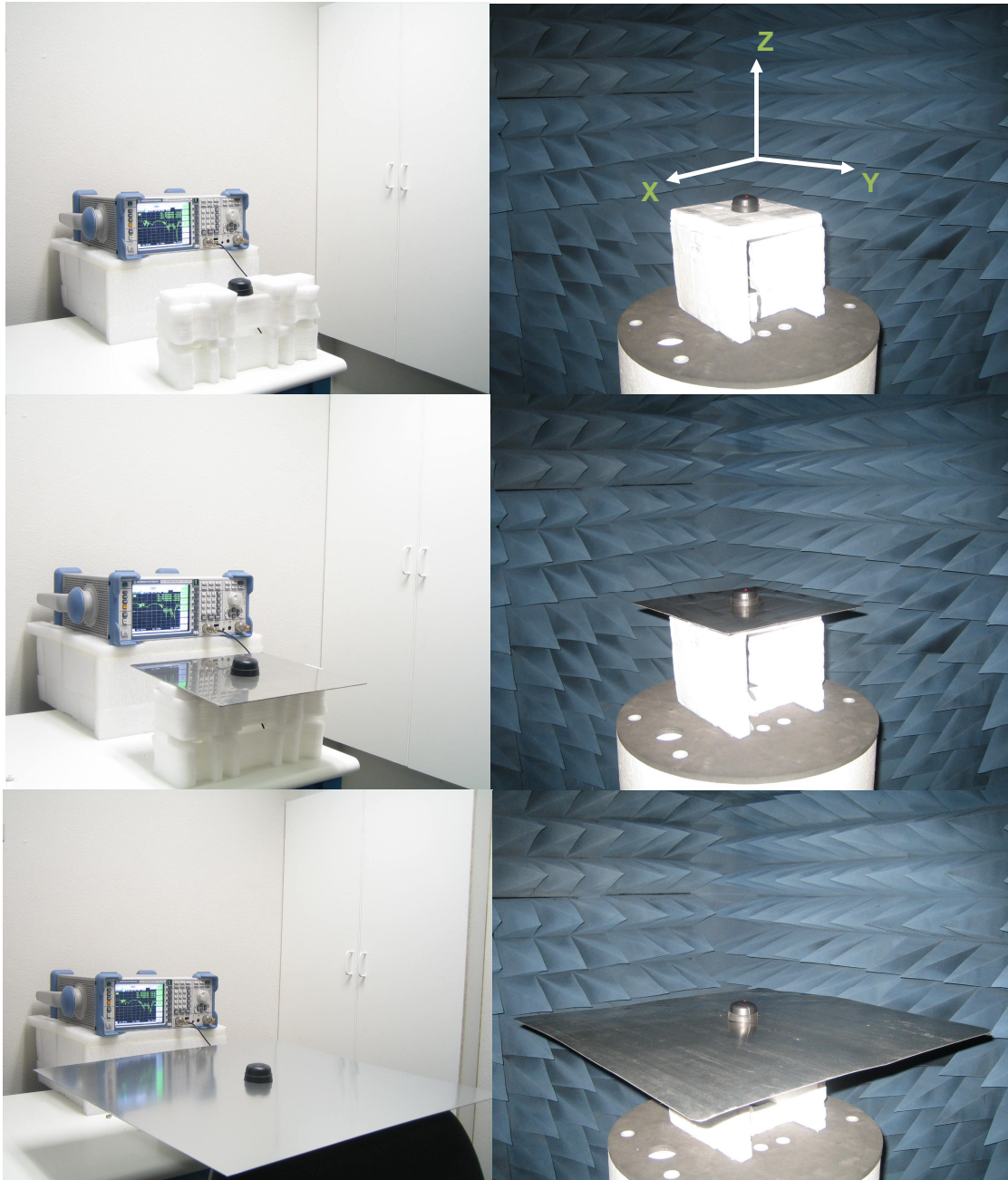
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MECHANICAL	
<b>Dimensions</b>	Height = 29 mm and Diameter = 52 mm
<b>Cable length</b>	3m RG174 – Fully Customable
<b>Connector</b>	SMA-Male – Fully Customable
<b>Casing</b>	UV Resistant PVC
<b>Base and Thread</b>	Nickel plated steel
<b>Thread Diameter</b>	18 mm
<b>Weather Proof Gasket</b>	CR4305 foam with 3M9448B double-side adhesive
<b>Thread Seal</b>	Rubber Stopper
ENVIRONMENTAL	
<b>Protection</b>	IP69K – No ingress of dust and no water ingress permitted from powerful pressure jets in all directions and no performance degradation
<b>Corrosion</b>	5% NaCl for 96hrs - Nickel plated steel base and thread
<b>Temperature Range</b>	-40°C to +85°C
<b>Thermal Shock</b>	100 cycles -40°C to +85°C
<b>Humidity</b>	Non-condensing 65°C 95% RH
<b>Shock (Drop Test)</b>	1m drop on concrete 6 axes
<b>Cable Pull</b>	8 Kgf
<b>Recommended Torque Setting for Mounting</b>	70lb/foot
<b>Maximum Torque Setting for Mounting</b>	100lb/foot

\*Note: Specifications may be subject to change



### III. TEST SET UP



**Figure 1.** IS.05 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).

### IV. ANTENNA PARAMETERS

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### IV.1 Return Loss

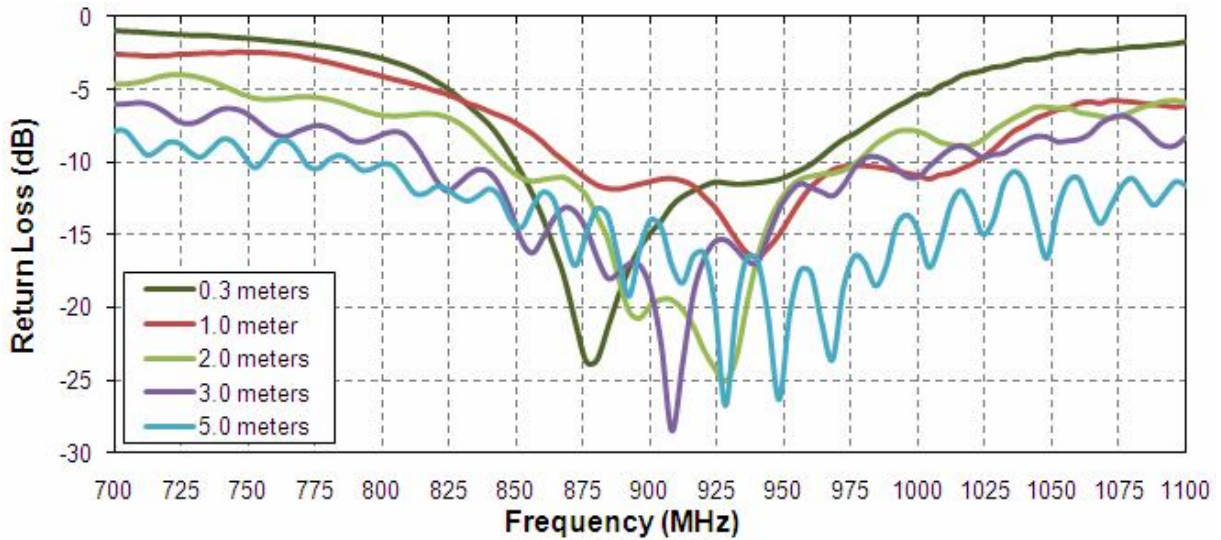


Figure 2. Return Loss of the 915MHz Hercules ISM antenna in free space

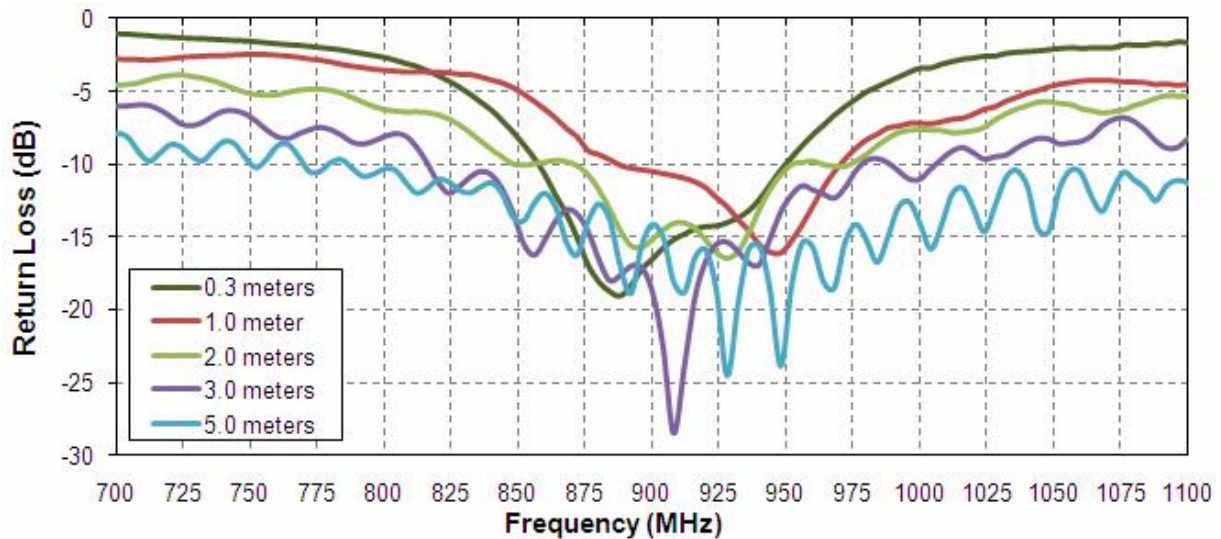


Figure 3. Return loss of the 915MHz Hercules ISM antenna on 30x30 cm metal plate.

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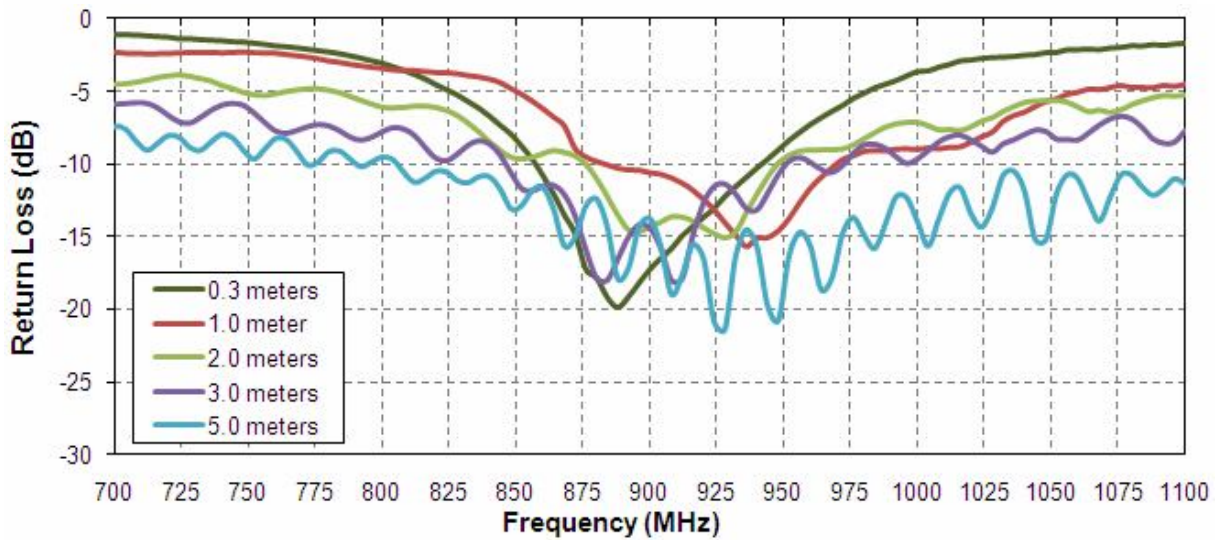


Figure 4. Return loss of the 915MHz Hercules ISM antenna on 60x60 cm metal plate.

IV.2 Efficiency

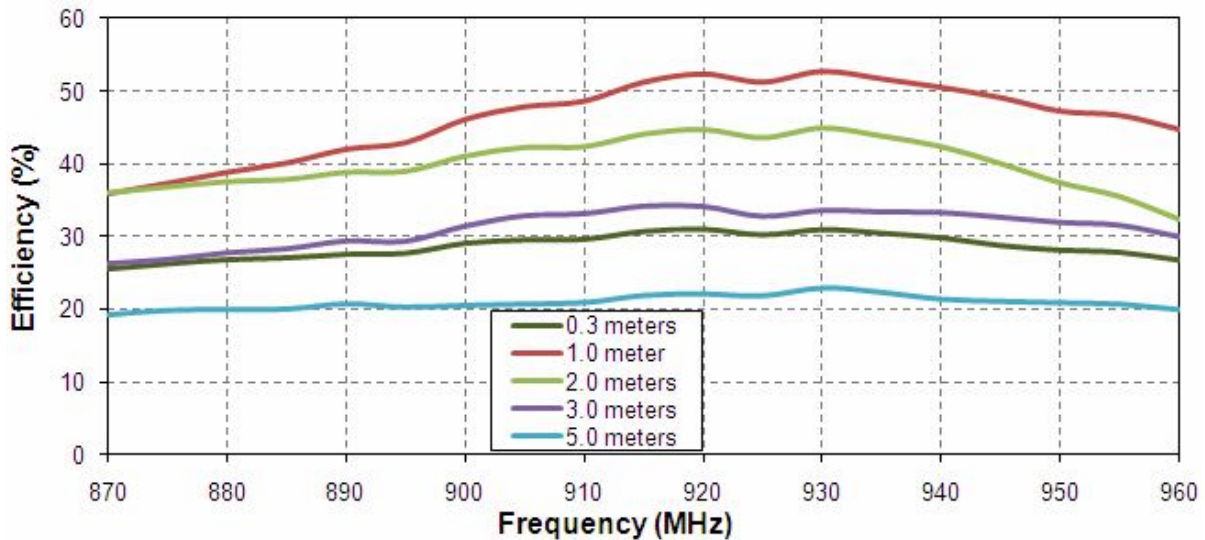


Figure 5. Efficiency of the 915MHz Hercules ISM antenna in free space.



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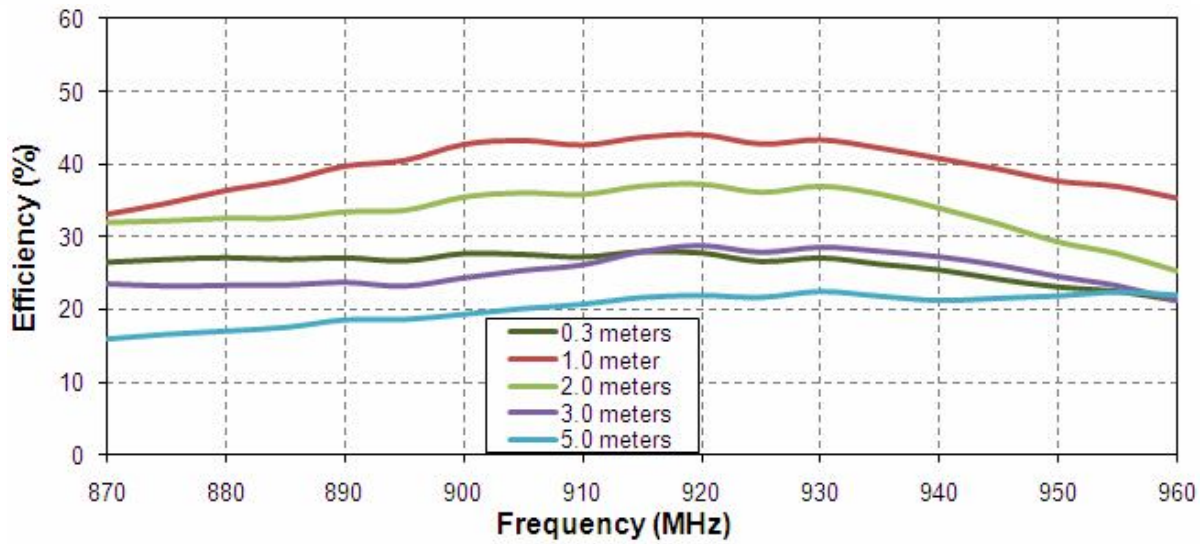


Figure 6. Efficiency of the 915MHz Hercules ISM antenna on 30x30 cm metal plate.

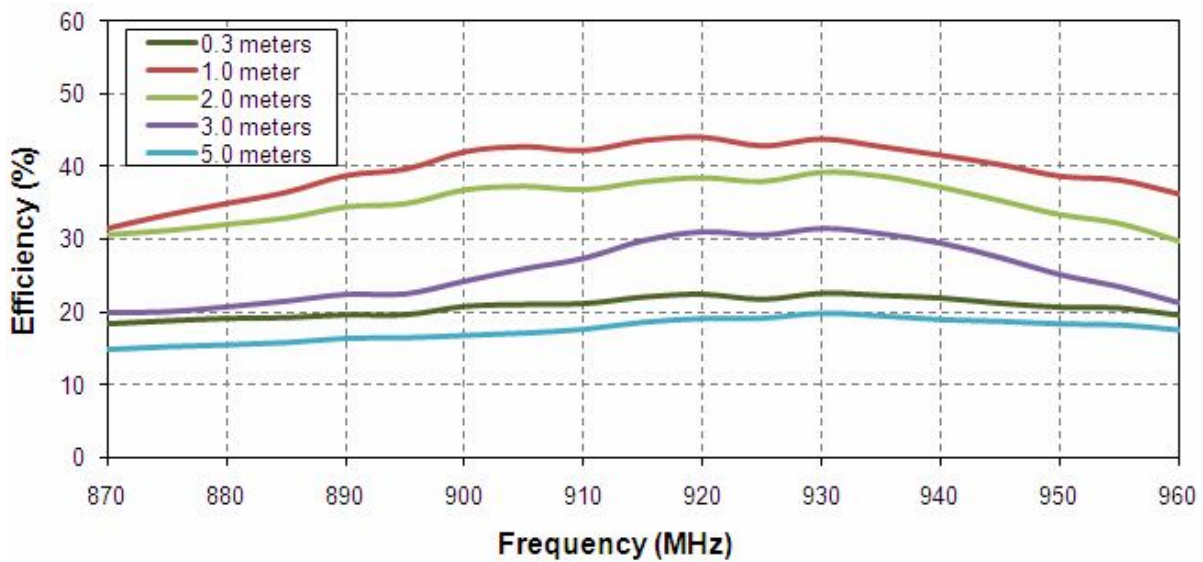


Figure 7. Efficiency of the 915MHz Hercules ISM antenna on 60x60 cm metal plate.





### IV.3 Gain

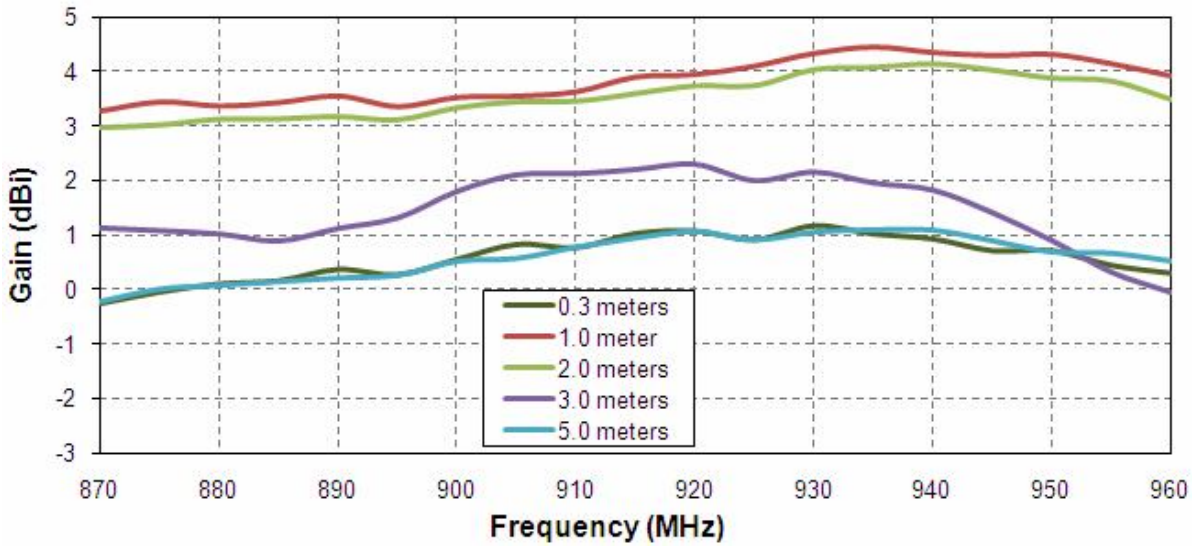


Figure 8. Gain of the 915MHz Hercules ISM antenna in free space.

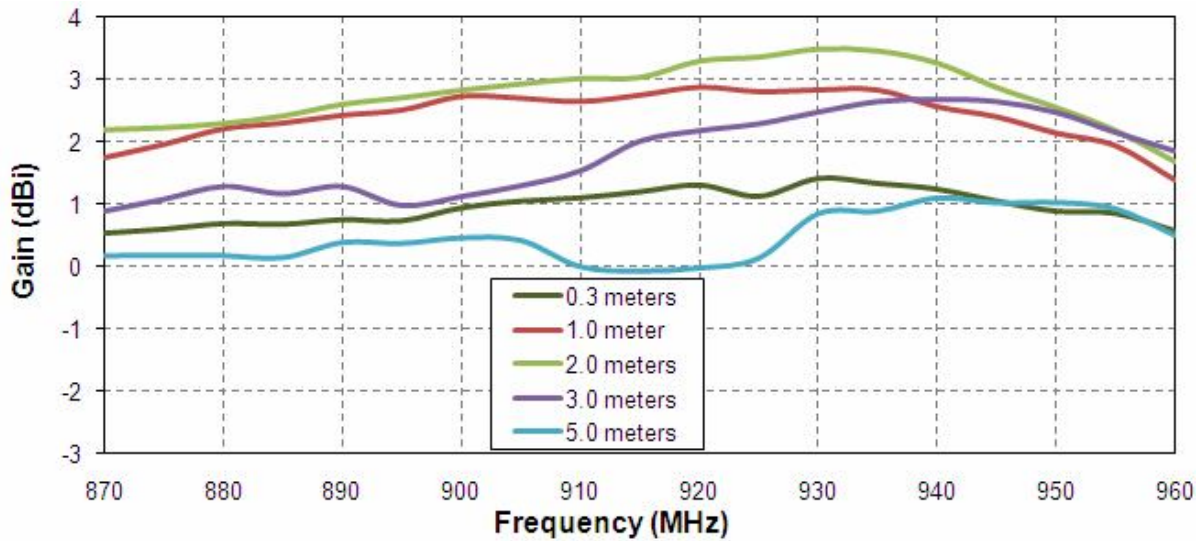


Figure 9. Gain of the 915MHz Hercules ISM antenna on 30 cm metal plate.

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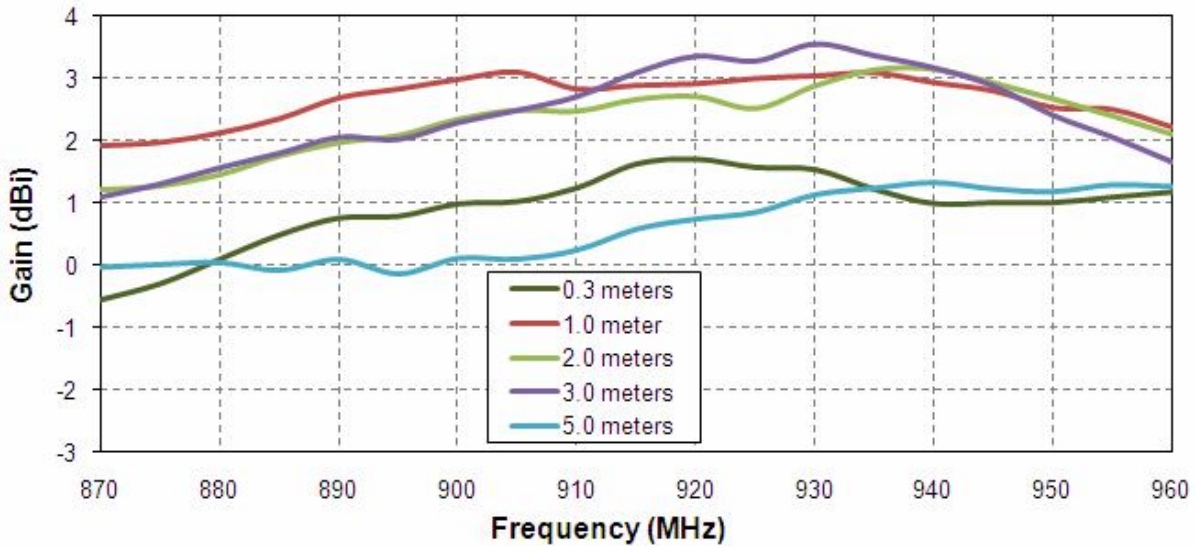


Figure 10. Gain of the 915MHz Hercules ISM antenna on 60 cm metal plate.

IV.4. Radiation Pattern

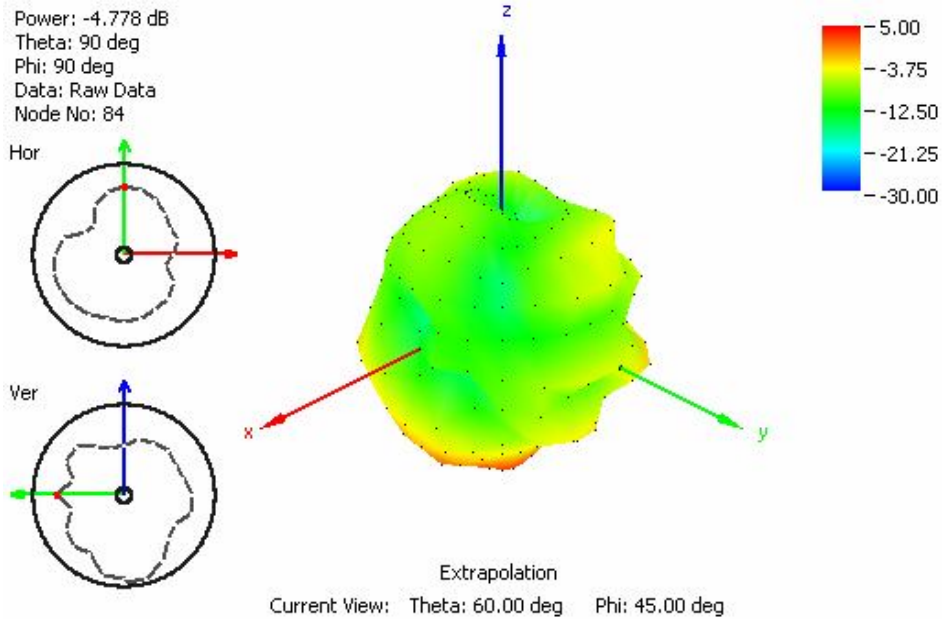


Figure 11. Radiation pattern at 900 MHz, Figure 1 as reference (dB), with 2m RG174 cable and free space.



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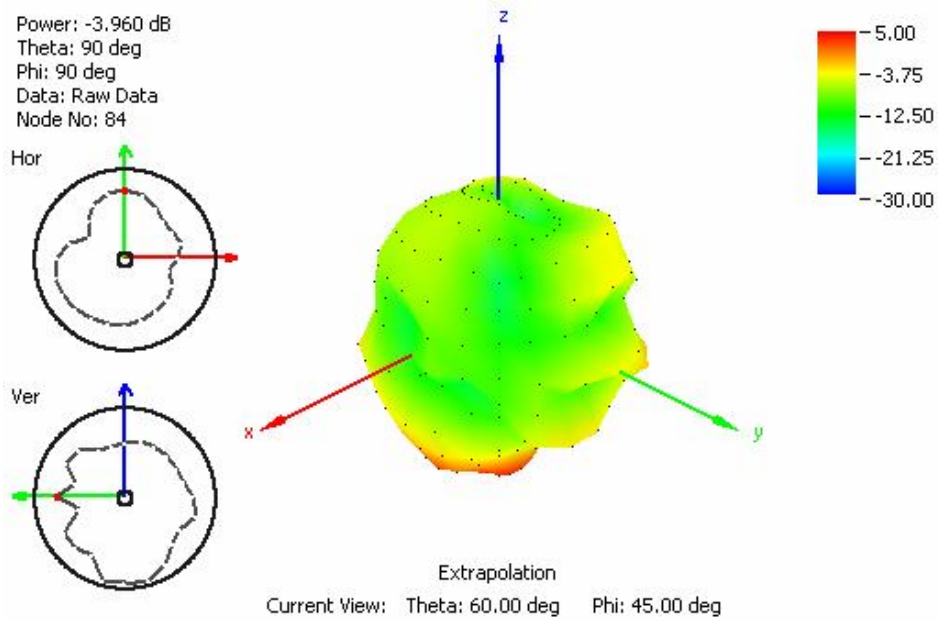


Figure 12. Radiation pattern at 915 MHz, Figure 1 as reference (dB), with 2m RG174 cable and free space.

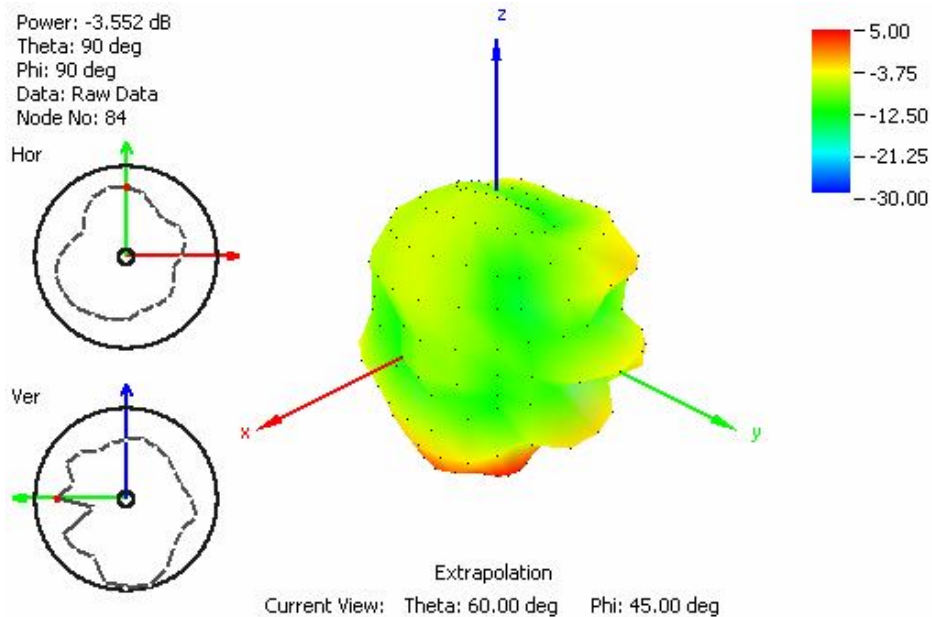
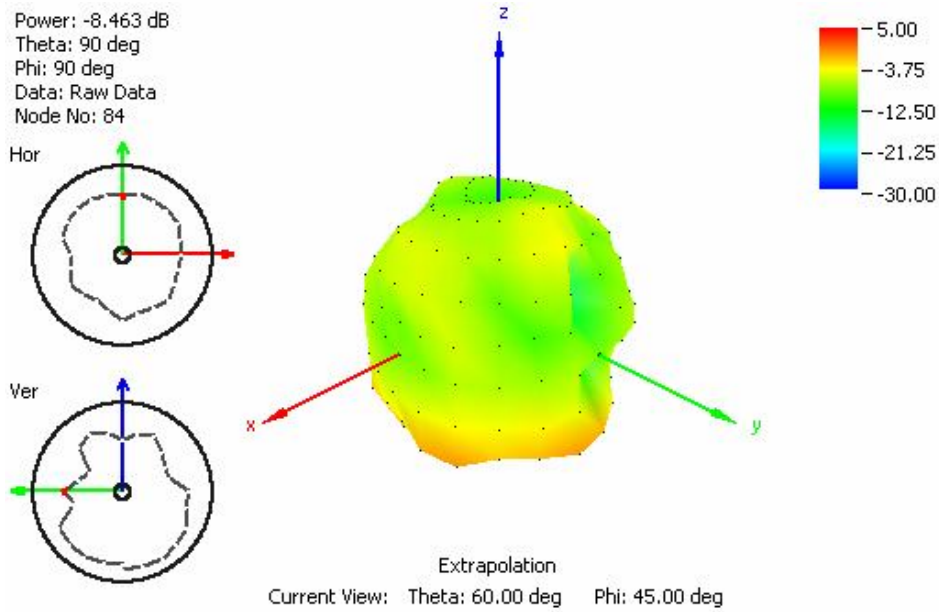


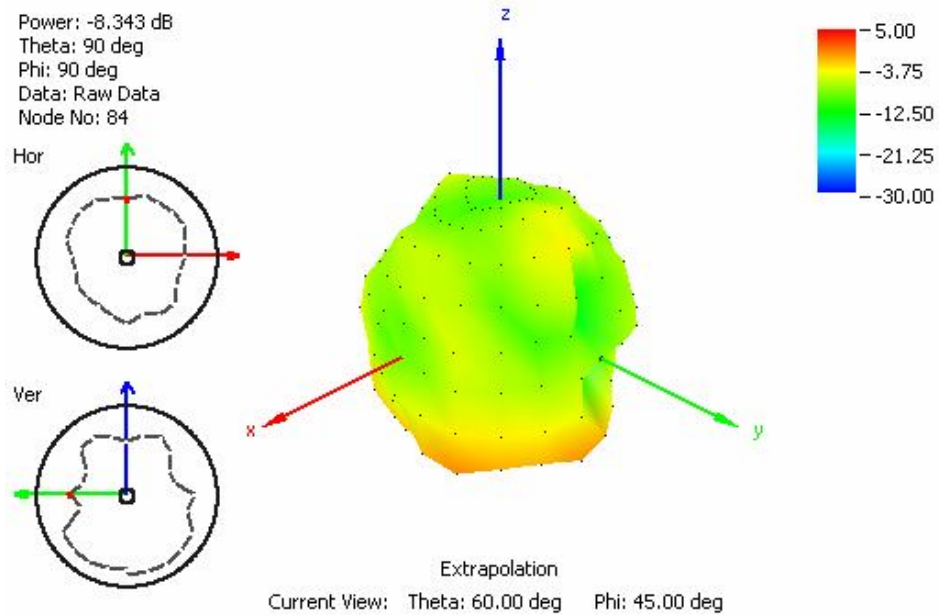
Figure 13. Radiation pattern at 930 MHz, Figure 1 as reference (dB), with 2m RG174 cable free space.



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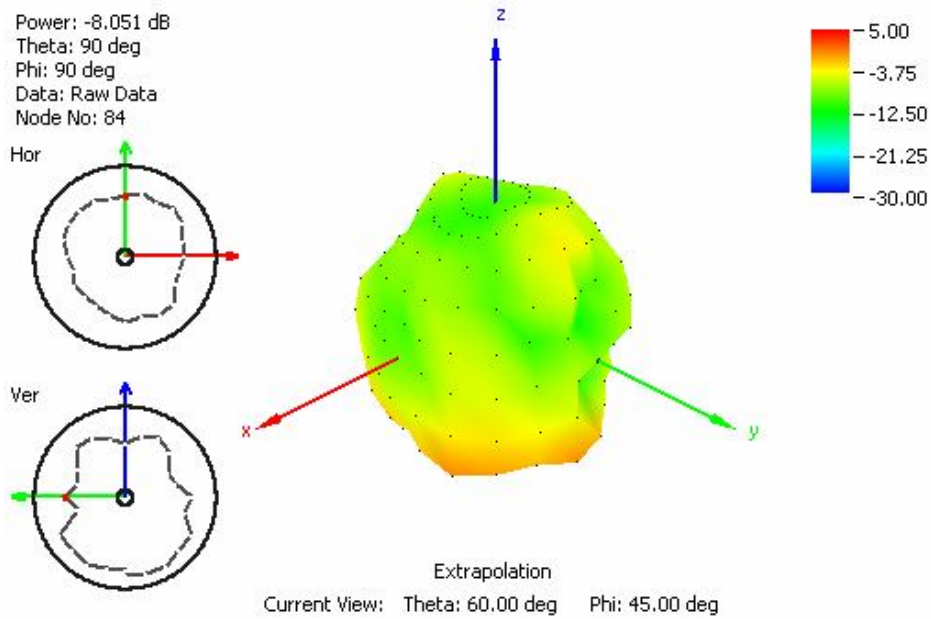
**Figure 14.** Radiation pattern at 900 MHz, Figure 1 as reference (dB), with 2m RG174 cable and 30x30 cm metal plate.



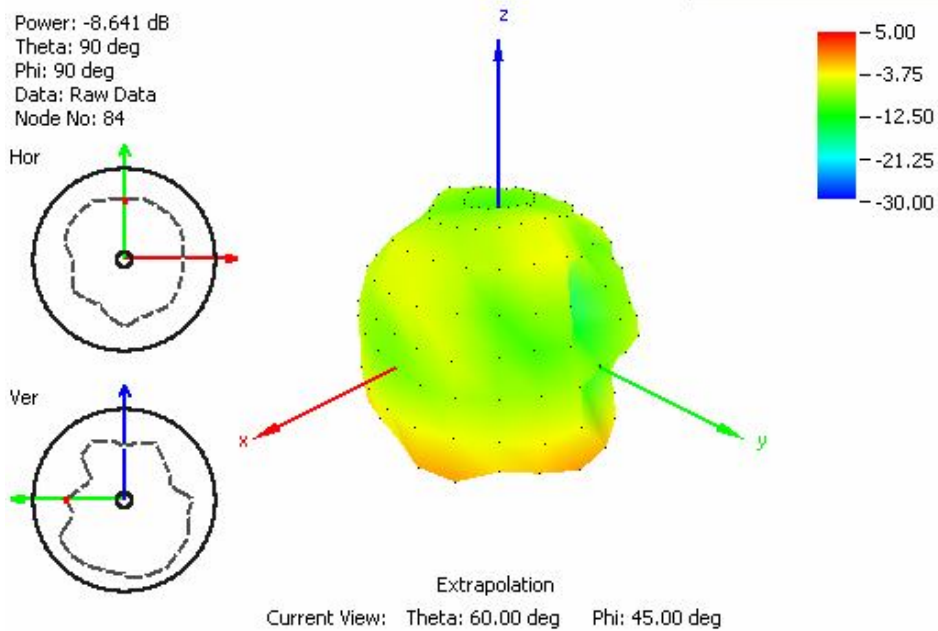
**Figure 15.** Radiation pattern at 915 MHz, Figure 1 as reference (dB), with 2m RG174 cable and 30x30 cm metal plate.



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**Figure 16.** Radiation pattern at 930 MHz, Figure 1 as reference (dB), with 2m RG174 cable 30x30 cm metal plate.

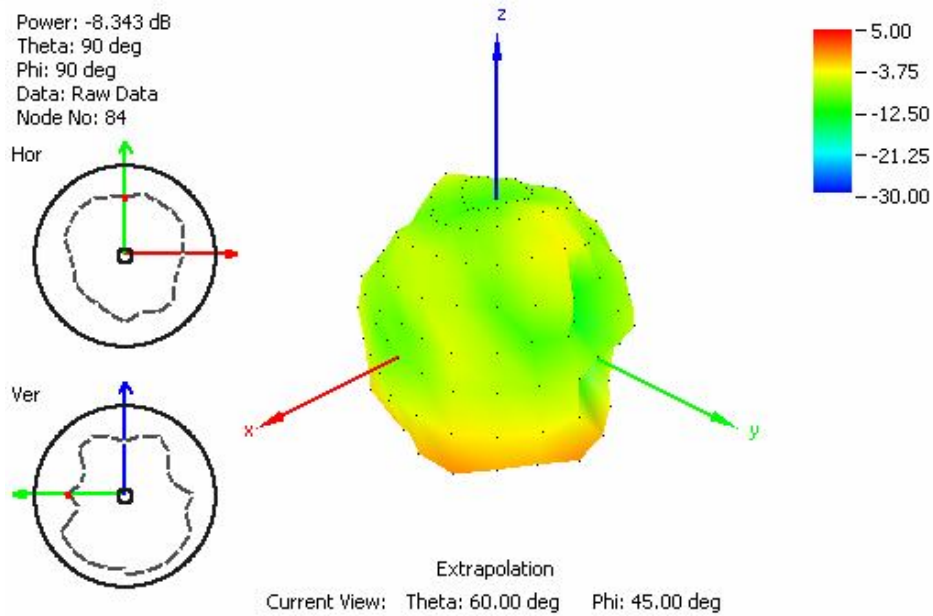


**Figure 17.** Radiation pattern at 900 MHz, Figure 1 as reference (dB), with 2m RG174 cable and 60x60 cm metal plate.

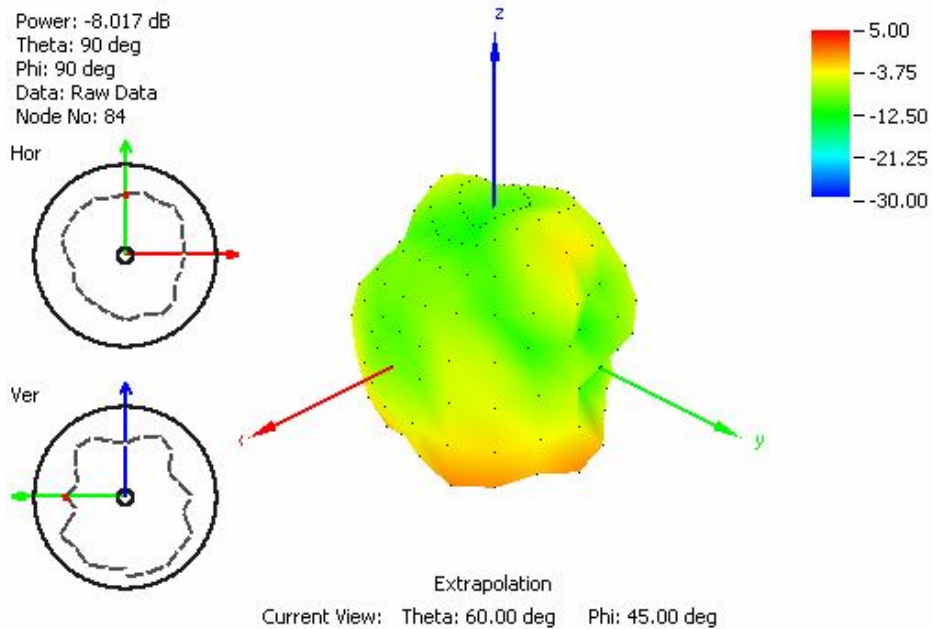




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**Figure 18.** Radiation pattern at 915 MHz, Figure 1 as reference (dB), with 2m RG174 cable and 60x60 cm metal plate.

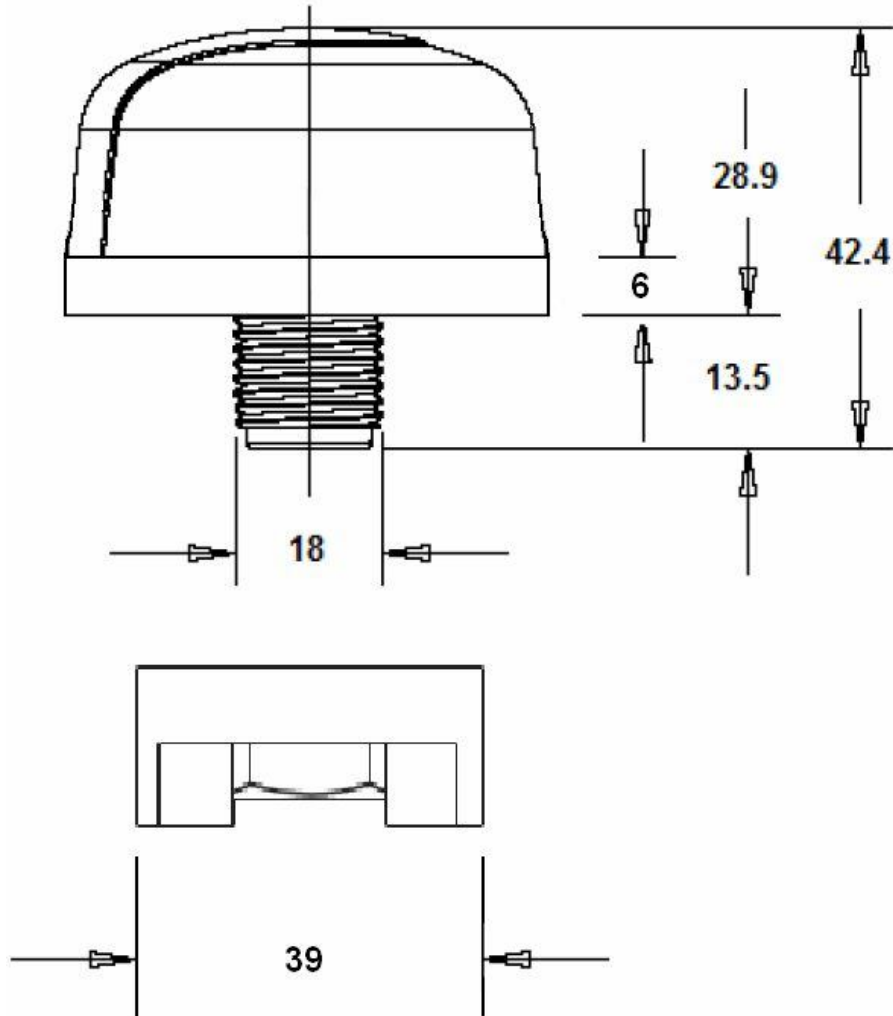


**Figure 19.** Radiation pattern at 930 MHz, Figure 1 as reference (dB), with 2m RG174 cable 60x60 cm metal plate.



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Drawings

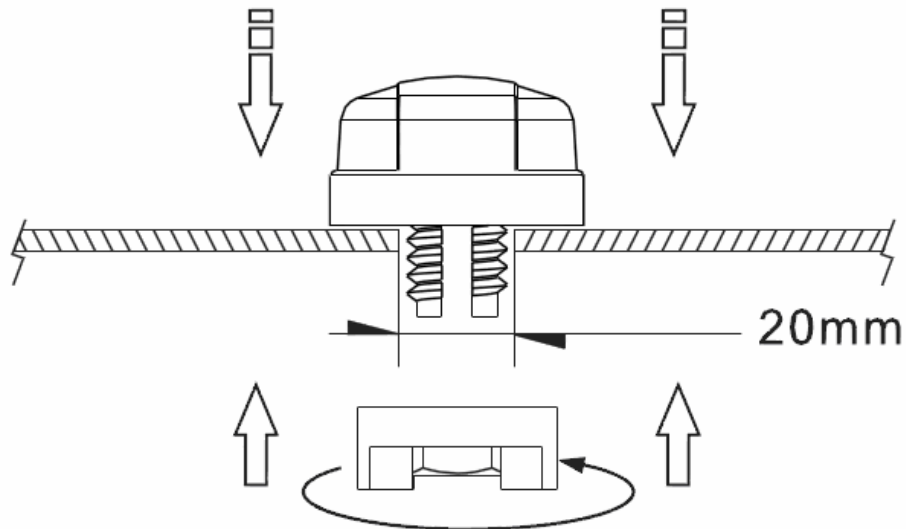


Unit : mm



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## Installation



Recommended torque for mounting is 95Nm or 70ftlbs

Maximum torque for mounting is 135.6Nm or 100ft lbs



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