

SPECIFICATION

Part No. : **PC30.09.0100A**

Product Name : FR4 Penta-band GSM Antenna
850/900/1800/1900/2100 MHz

Feature : Low-Profile GSM Antenna on FR4 PCB
Penta-Band 850/900/1800/1900/2100 MHz
75 x 8.2 x 0.8 mm
MMCX connector
Miniature Co-axial Cable, 1.13 mm diameter
100mm cable length
RoHS compliant





1. Introduction

The PC30 is a high-performance dipole antenna with low profile and mini coaxial cable. The PC30 Penta-band antenna covers all world-wide 2G/3G bands (850/900/1800/1900/2100 MHz). Potential uses include tracking devices, metering devices, and other M2M applications. The PC30 maintains at least 30% efficiency across all bands making it an ideal antenna for devices where space for onboard SMT cellular antennas is not available. The small rectangular form factor and 100mm cable allow the antenna to be easily placed within a device enclosure without taking up additional PCB space.

With a height of only 8.2 mm, the PC30 can be implemented in very low-profile enclosures. The antenna can be mounted using plastic ribs within the device enclosure. It is recommended to keep at least 15 mm of clearance between the antenna and metal components or surfaces to maintain specified performance.

Further tuning can be done for optimized embedded solutions at specific cellular bands. Cable length and connector types are customizable. Contact your local Taoglas sales office for more information.

2. Specifications

ELECTRICAL					
Band	CLR	GSM	DCS	PCS	UMTS
Frequency (MHz)	824-894	880-960	1710-1880	1850-1990	1920-2170
Polarization	Linear				
Impedance (Ohms)	50 Ohms				
VSWR	2	2.3	2.5	2.3	2.2
Peak Gain (dBi)	0.8	-1	0	0.9	2.0
Average Efficiency (%)	35.8	33.2	33.0	38	36
Return Loss (dB)	-18	-18	-12	-16	12
Radiation Properties	Omni-directional				
Max Input Power (Watts)	10				

Note:

***The PC30 antenna performance was measured in an ABS enclosure 90 x 60 x 15 mm with a PCB 70 x 45 x .78 mm .**

***We suggest placing the antenna at least 15mm from the PCB to maintain specified performance.**

MECHANICAL	
Antenna Dimensions	75 x 8.2 x 0.8 mm
Cable	Miniature Co-axial 1.13 mm diameter, cable length 100 mm
Connector	MMCX
PCB	FR4
ENVIRONMENTAL	
Temperature Range	-40°C to +85°C
Thermal Shock	100 cycles -40°C to +85°C
Humidity	Non-condensing 65°C 95% RH

Note: Please note that cables and connectors are customizable. Customized solutions will have a MOQ.

3. Test Setup

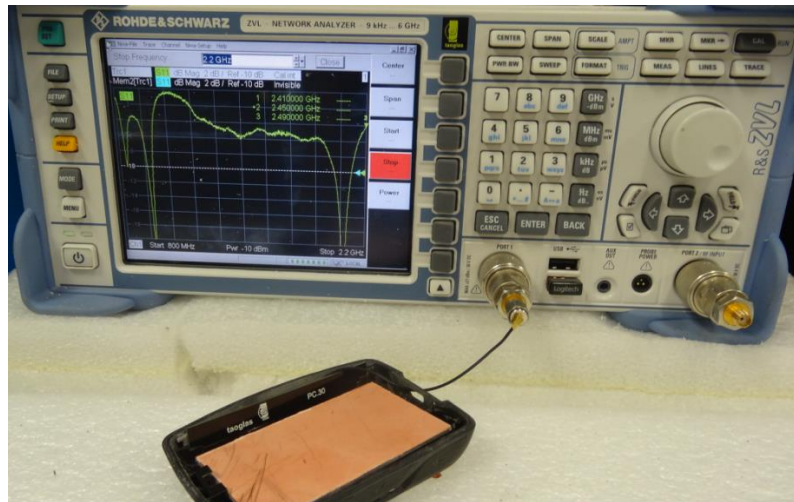


Figure 1. Impedance measurement.

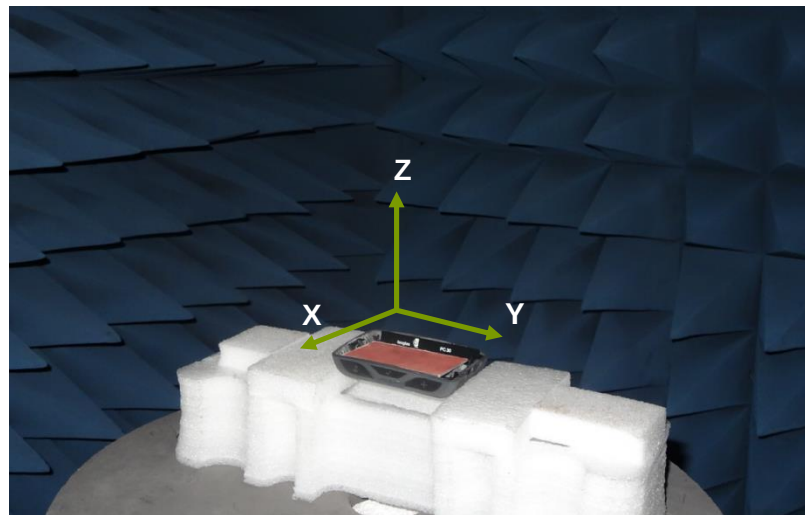


Figure 2. Peak gain, average gain, efficiency, and radiation pattern measurements.

4. Antenna Parameters

4.1. Return Loss

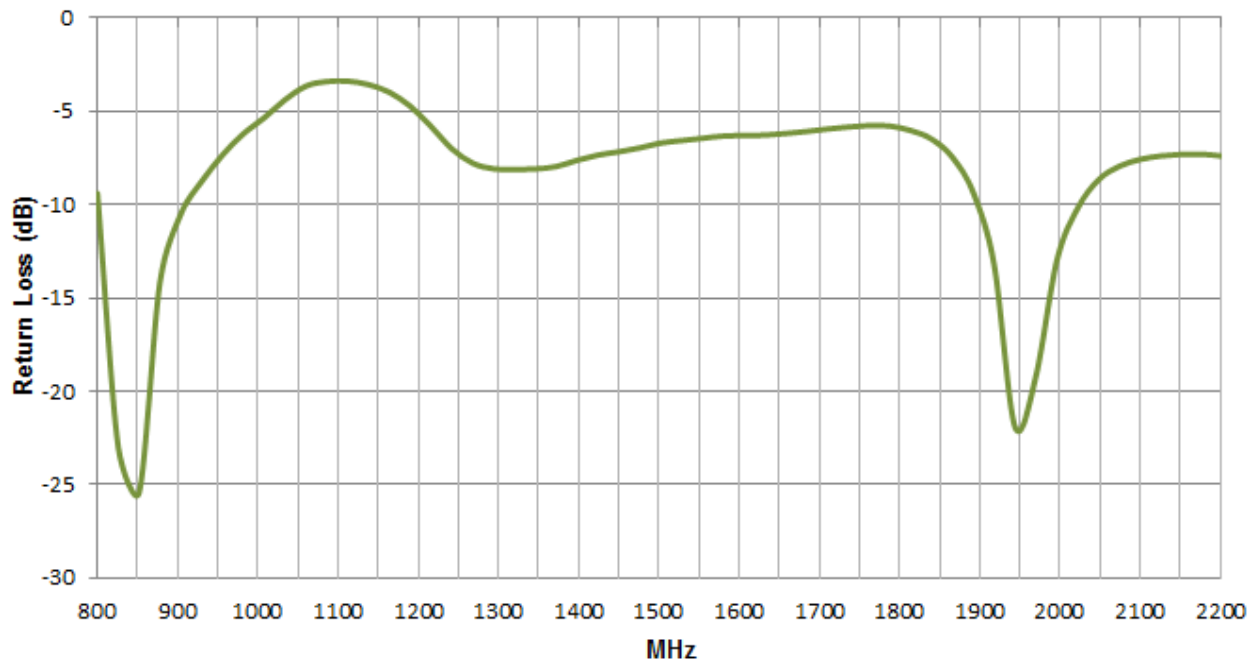


Figure 3. Return Loss of PC30 antenna in an ABS enclosure.

4.2. VSWR

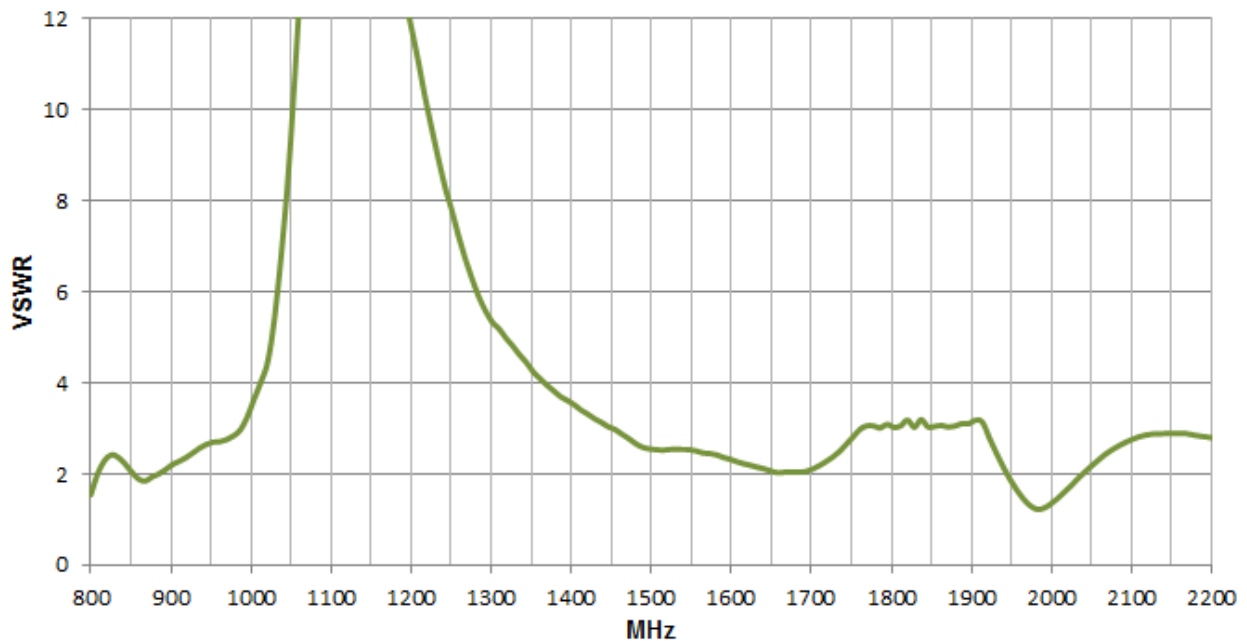


Figure 4. Efficiency of PC30 antenna in an ABS enclosure.

4.3. Efficiency

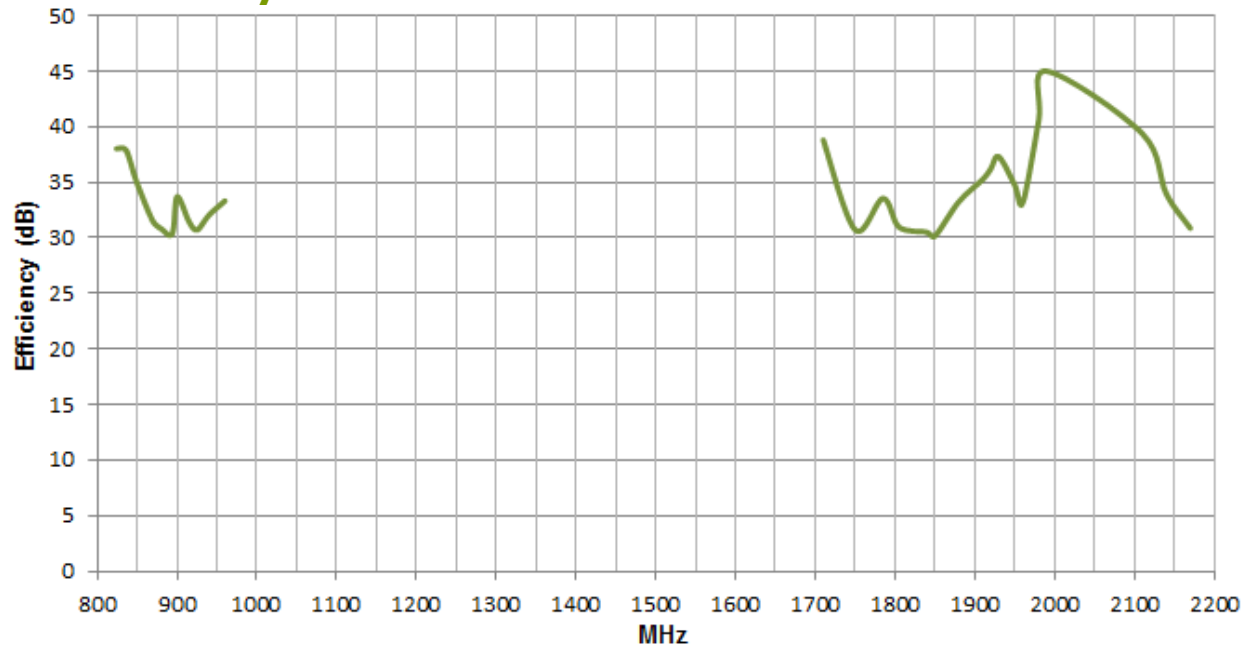


Figure 5. Efficiency of PC30 antenna in an ABS enclosure.

4.4. Peak Gain

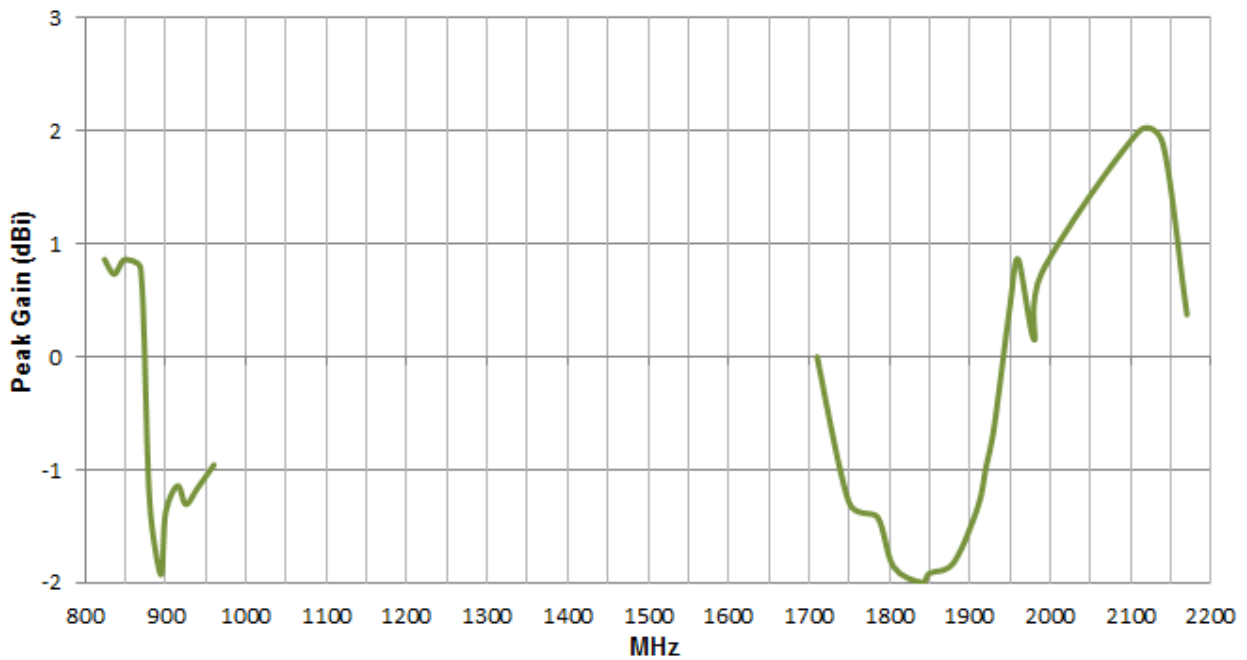


Figure 6. Peak Gain of PC30 antenna in an ABS enclosure.

4.5 Average Gain

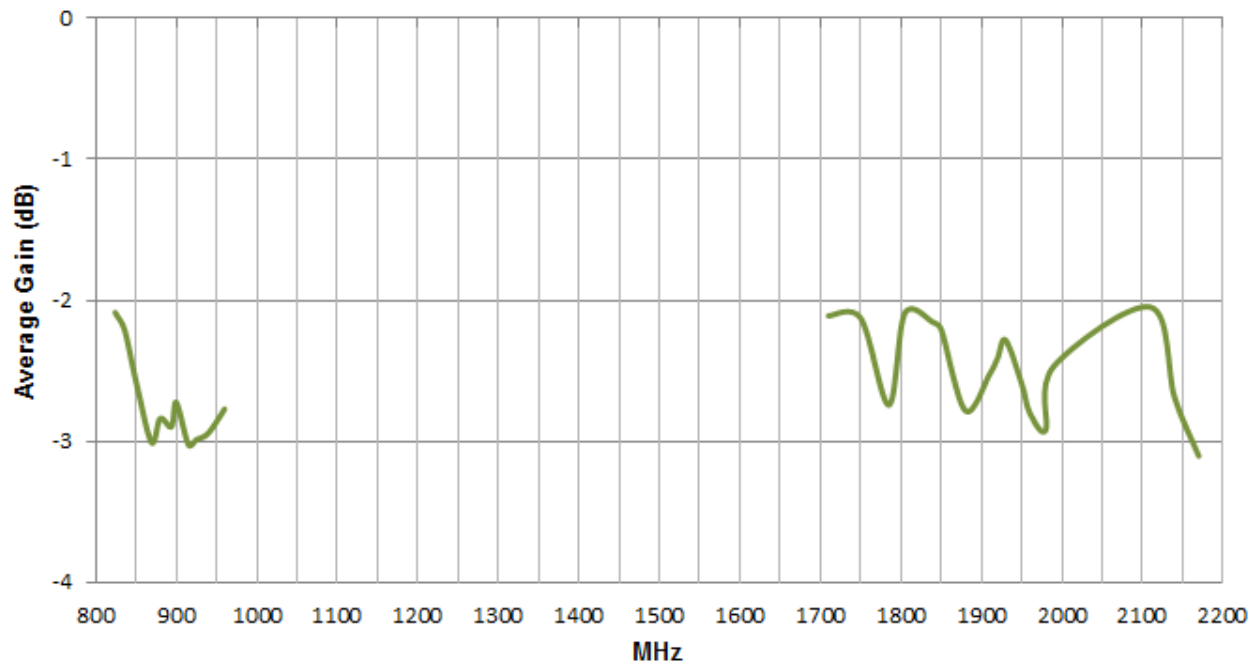


Figure 7. Average Gain of PC30 antenna in an ABS enclosure.

4.6. 3D Radiation Pattern

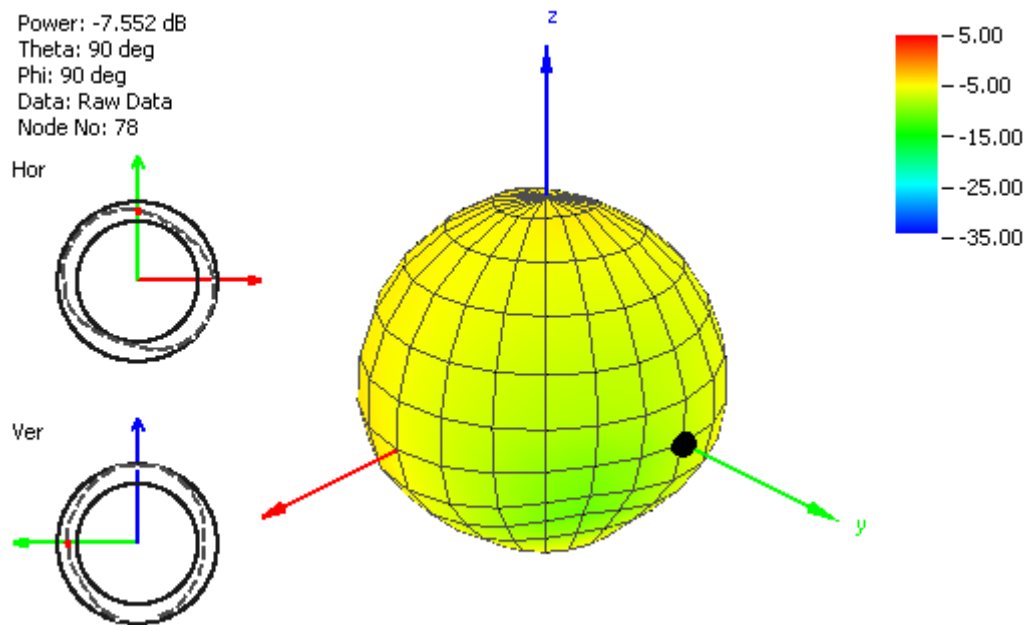


Figure 8. Radiation Pattern at 824 MHz of the PC30 antenna in the ABS enclosure.

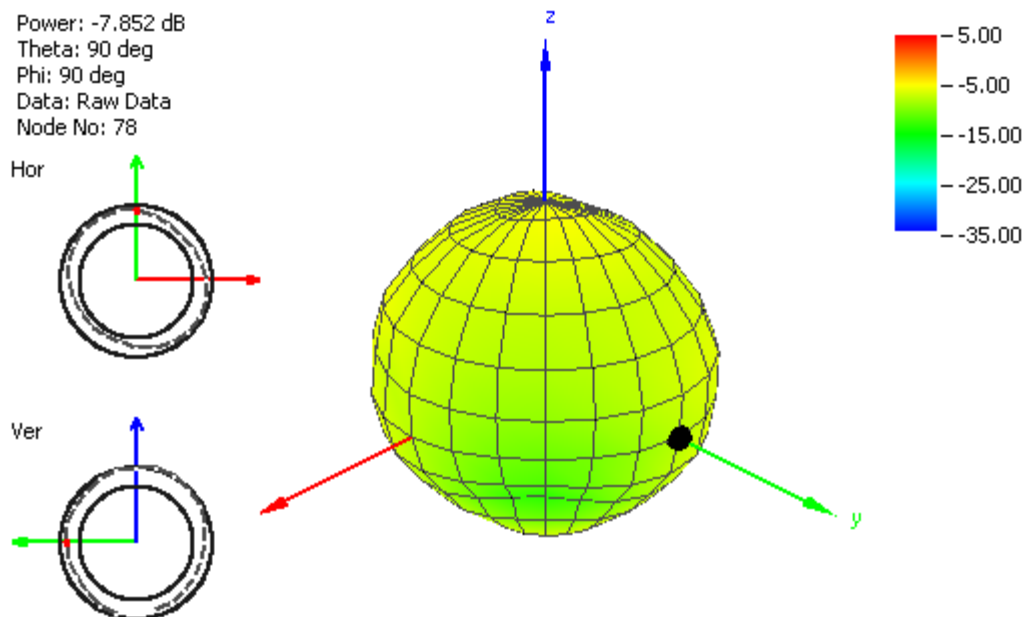


Figure 9. Radiation Pattern at 849 MHz of the PC30 antenna in the ABS enclosure.

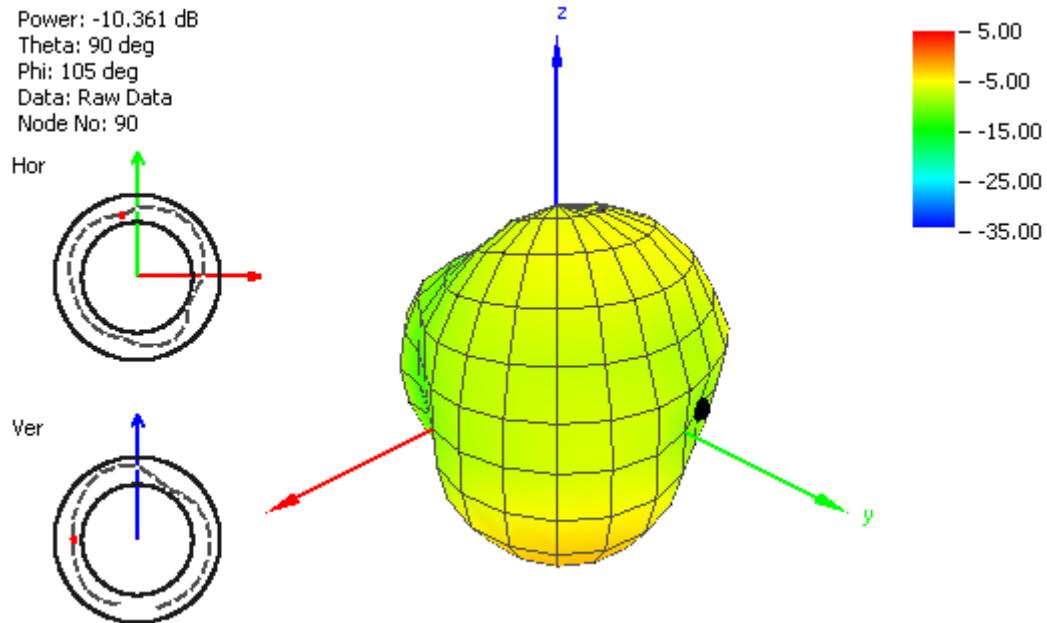


Figure 10. Radiation Pattern at 1850 MHz of the PC30 antenna in the ABS enclosure.

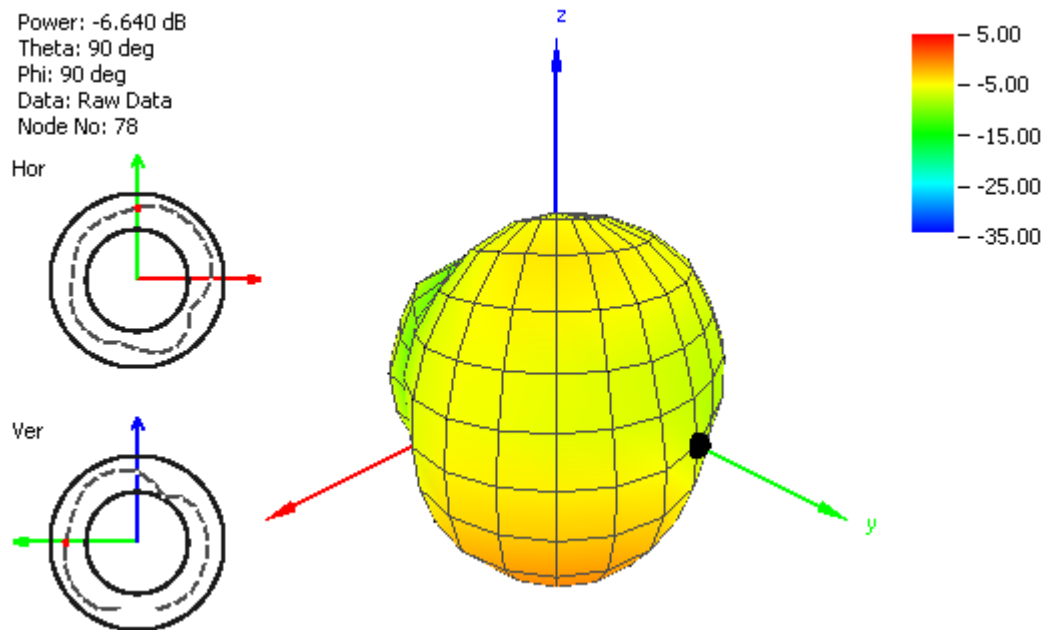


Figure 11. Radiation Pattern at 1910 MHz of the PC30 antenna in the ABS enclosure.

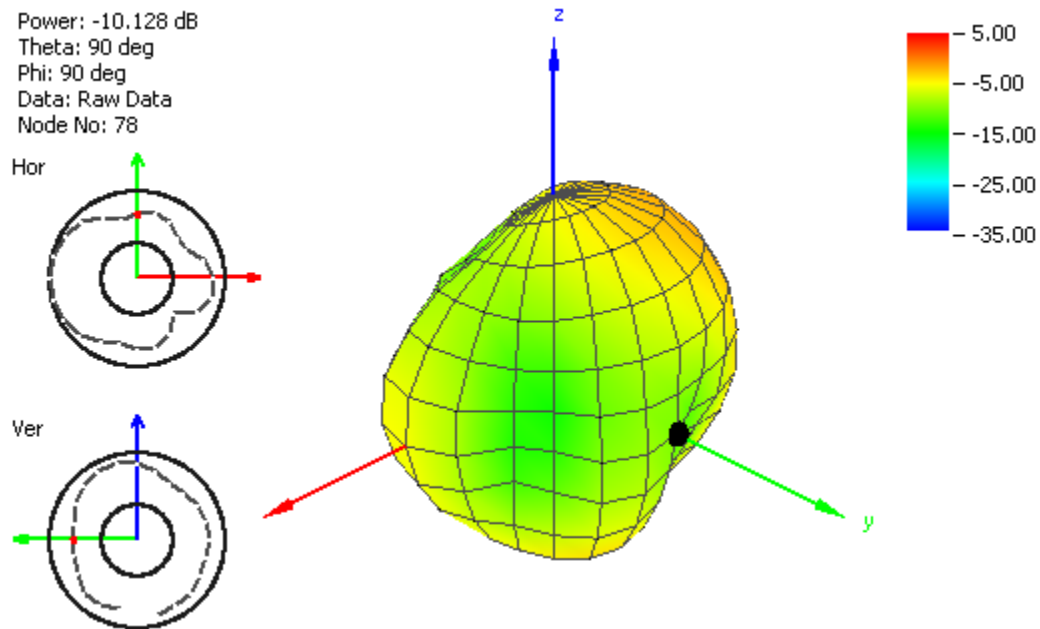


Figure 12. Radiation Pattern at 2170 MHz of the PC30 antenna in the ABS enclosure.

4.7. 2D Radiation Pattern

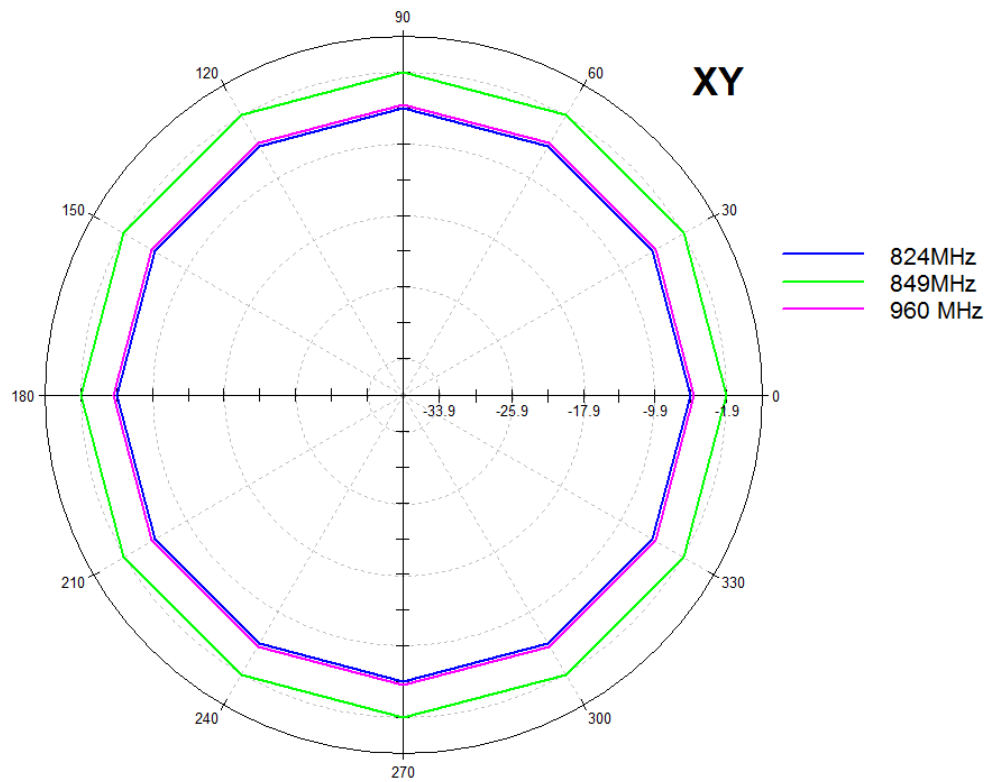


Figure 13. Radiation Pattern of the PC30 antenna in the ABS enclosure.

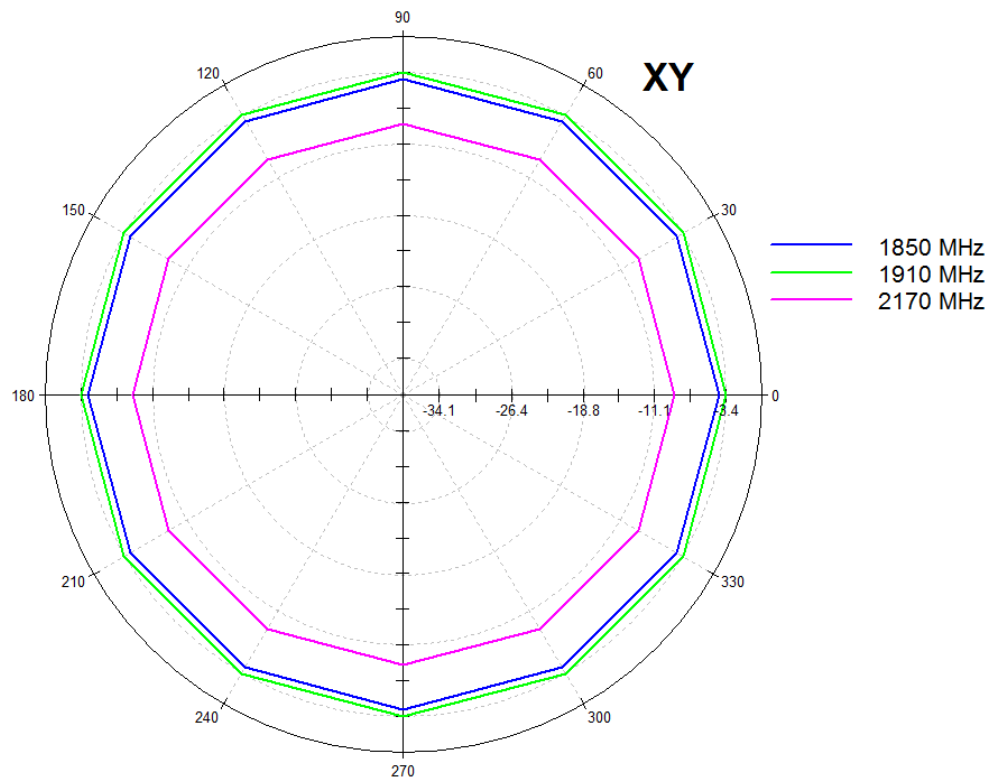


Figure 14. Radiation Pattern of the PC30 antenna in the ABS enclosure.

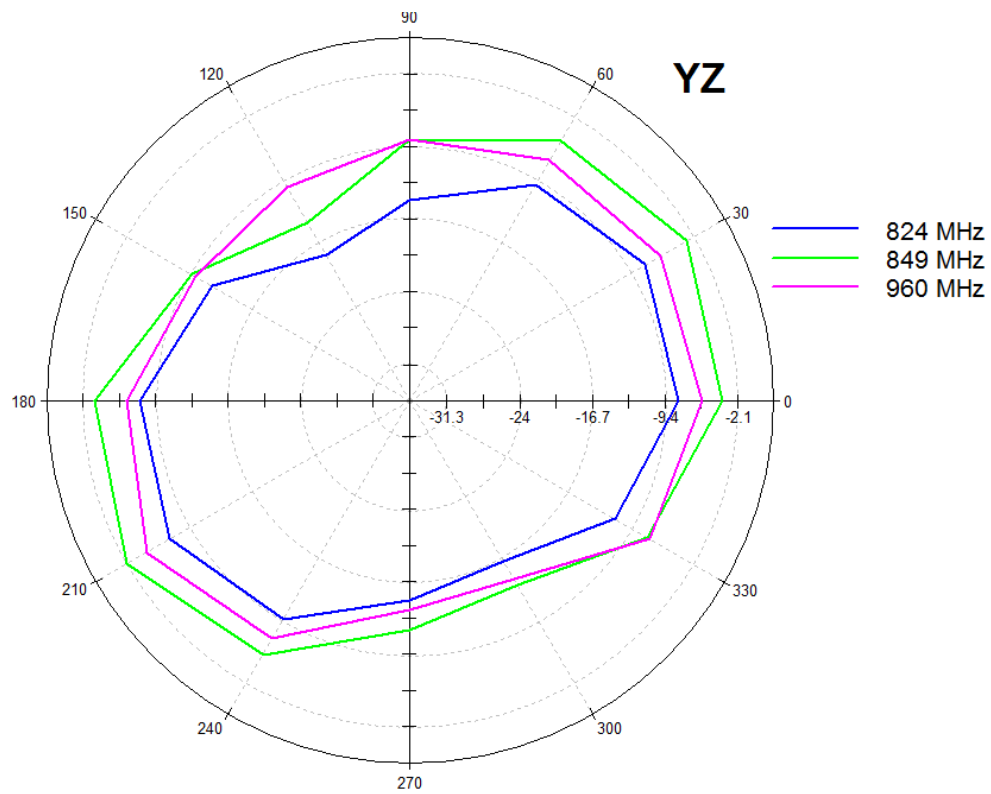


Figure 15. Radiation Pattern of the PC30 antenna in the ABS enclosure.

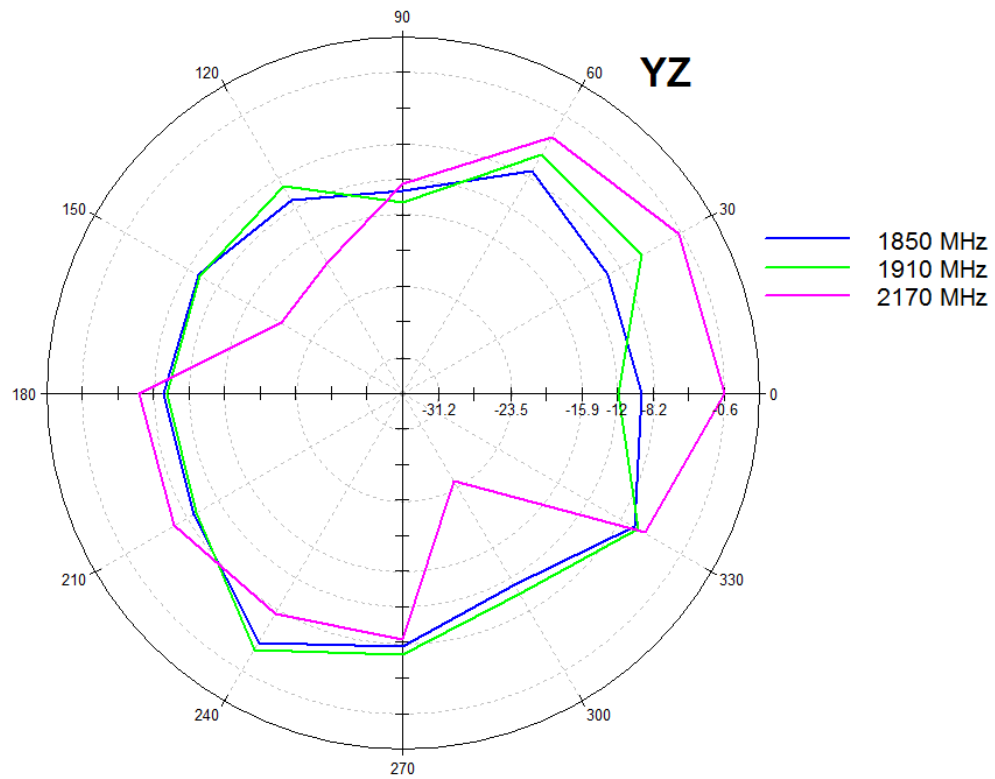
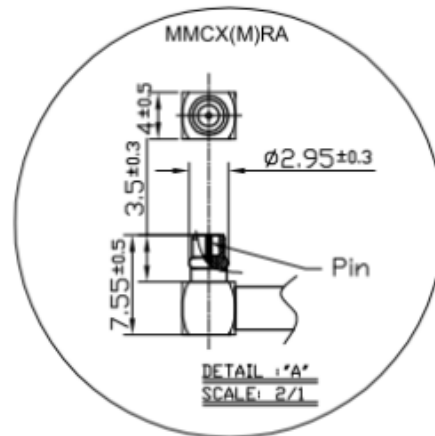
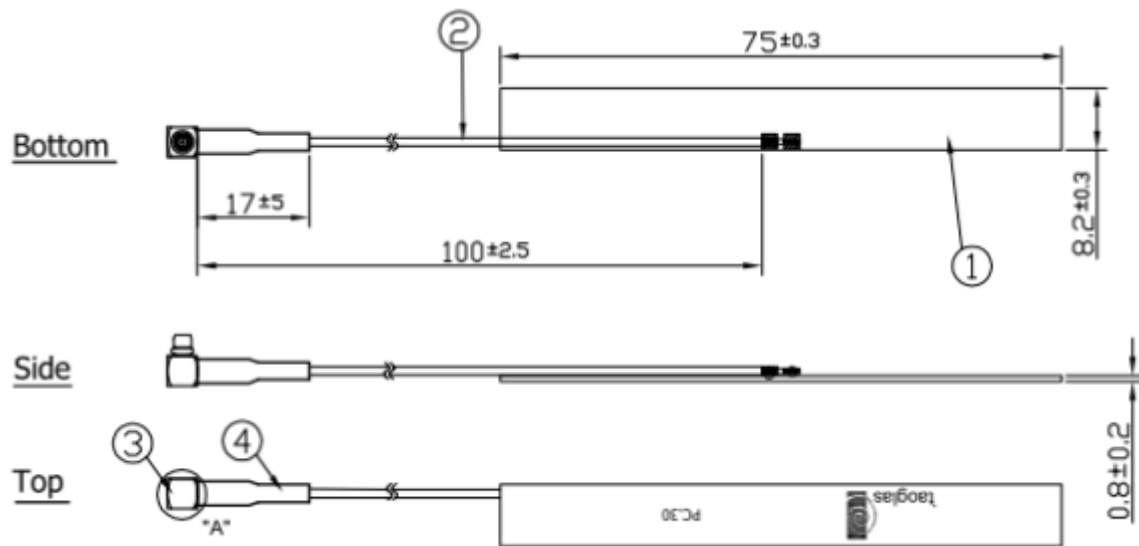


Figure 16. Radiation Pattern of the PC30 antenna in the ABS enclosure.

5. Drawings

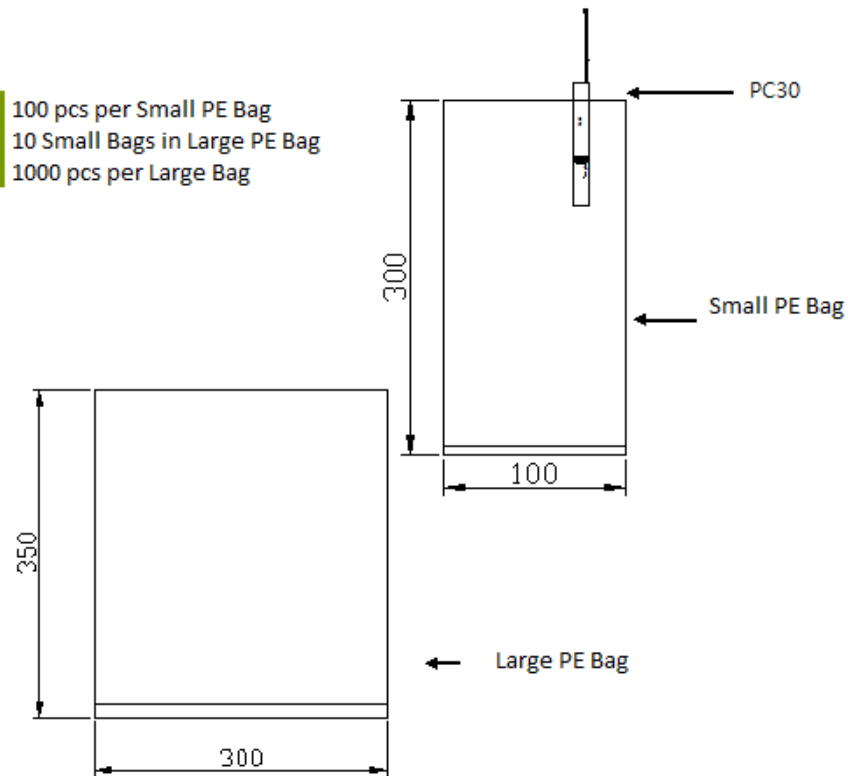


NOTES:

- 1.NO DREGS OR INSUFFICIENT SOLDERING. SOLDER THICKNESS 0.3~1.7mm
- 2.THE SOLDER MUST BE SMOOTH AND FULL TO THE EDGES OF THE PAD.
THE SOLDER MUST NOT EXTEND OUTSIDE OF THE PAD AREA.
- 3.THE CONNECTOR POSITION HAS SPECIAL ORIENTATION TO THE PCB AS PER DRAWING.
- 4.SOLDERED AREA. 

	Name	P/N	Material	Finish	QTY
1	PC.30 PCB	100211G010011A	FR4.08t	Black	1
2	1.13 Mini-Coaxial	OD.113.J	FEP	Black	1
3	MMCX(M)RA	MMCX.M.RA.DK.J	Brass	Gold	1
4	Heat Shrink Tube	001311L0000XXA	PE	Black	1

6. Packaging



Mouser Electronics

Authorized Distributor

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