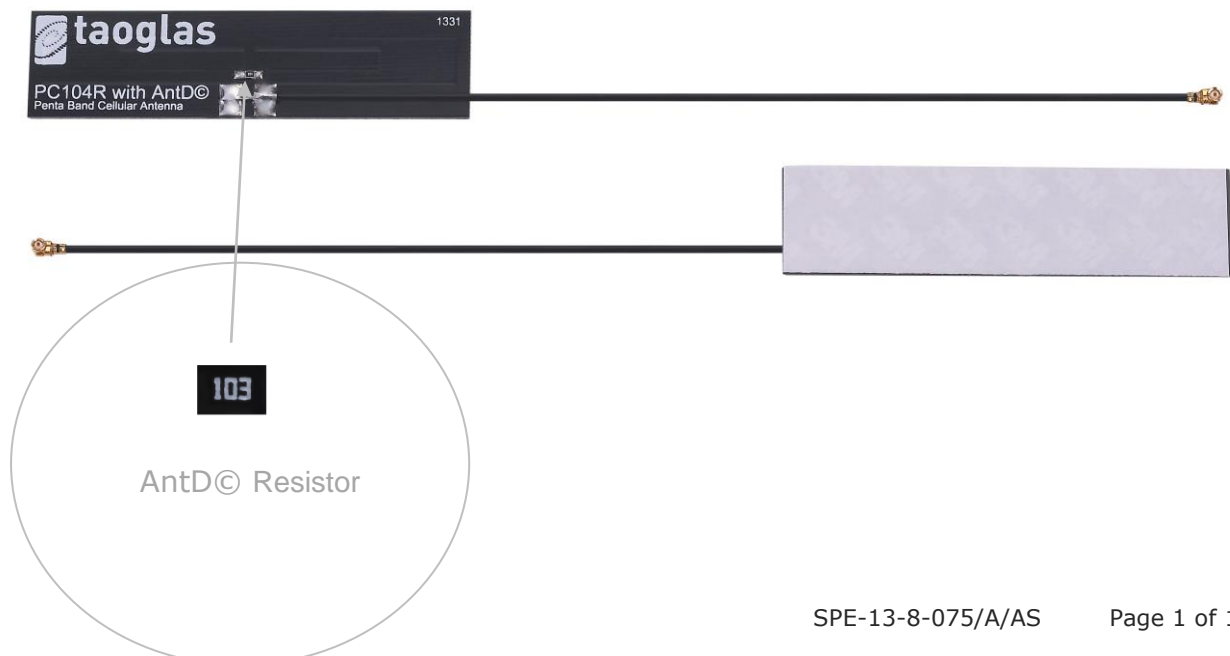


## SPECIFICATION

### Penta-band Cabled Embedded PCB Antenna Adhesive Mount with Diagnostic Resistor

- Part No. : **PC104R.A.07.0165C**
- Product Name : Penta-Band PCB Antenna with Diagnostic Resistor
- Feature : GSM/CDMA/DCS/PCS/WCDMA/UMTS/  
HSDPA/GPRS/EDGE  
850/900/1800/1900/2100 MHz bands  
High Efficiency - even at long cable lengths  
164.9mm  $\Phi$ 1.37 coaxial cable with IPEX connector  
80mm\*20.8mm\*1mm  
Low profile  
AntD© Shunt 10k Ohm Chip Resistor Inside  
With 3M adhesive  
**RoHS compliant**



## 1. Introduction

The high efficiency embedded PC104R Penta-band PCB Antenna with AntD<sup>©</sup> Resistor slim-line design allows for convenient installation inside the customer device. Omni-directional gain across all bands ensures constant reception and transmission.

With its unique dipole design, the PC104R has exceptional industry performance characteristics considering its very low profile at 2.4mm and has a compact size 80mm\*20mm. It is suitable for clients that appreciate highest performance with lower price.

This antenna has 3M adhesive on the back, and is tuned and designed to be mounted on 2mm thickness plastic (not on metal). Cable lengths and connectors are fully customizable and the antenna is suitable for long cable lengths out to 2 metres. For good efficiency performance the shortest cable length should however not be less than 100mm, for requirements with shorter cable lengths the alternative product the FXP.14 can be used.

AntD<sup>©</sup> allows connected radio products designed using the latest cellular modules from companies such as Telit and uBlox to perform diagnostics on the antenna. This includes detection that the proper antenna is connected and that the connection isn't shorted or broken. Contact Taoglas engineering for examples on how to implement AntD<sup>©</sup> antenna diagnostics in your product.

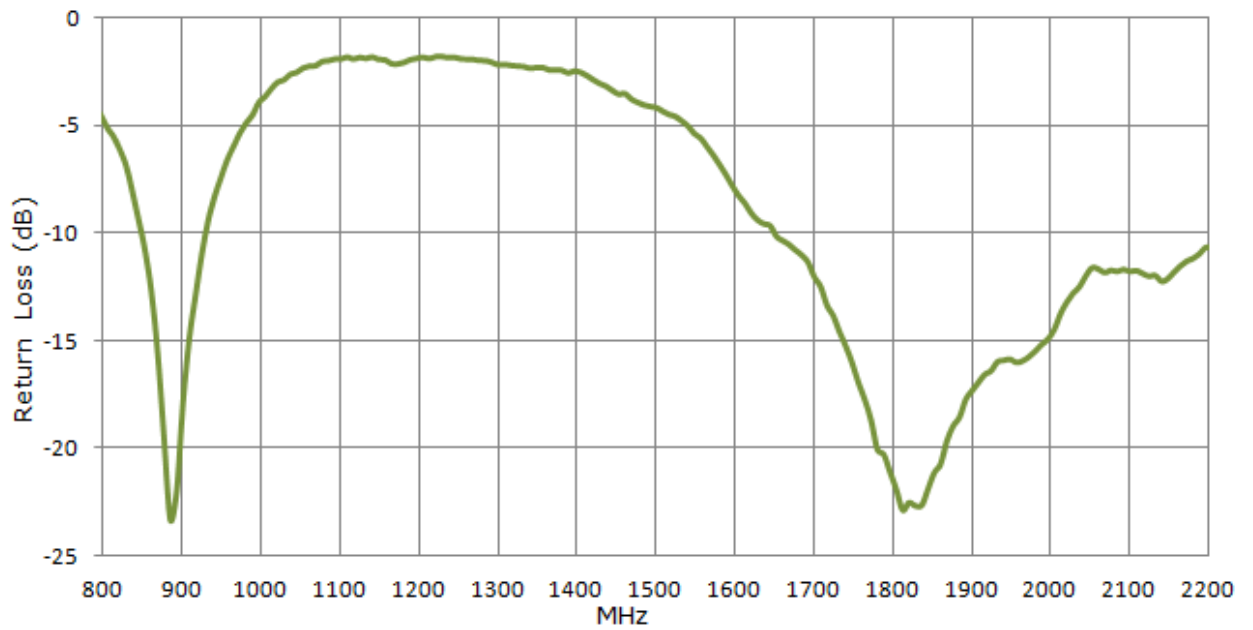
## 2. Specification

ELECTRICAL					
	GSM850	GSM900	DCS	PCS	2100
Frequency (MHz)	824~896	880~960	1710~1880	1850~1990	1920~2170
Return Loss (dB)*	<-7	<-5	<-10	<-10	<-10
Efficiency(%) *	42	42	70	75	78
Peak Gain (dBi)*	.77	.99	2.26	2.13	2.39
Impedance	50 Ω				
Integrated AntD© Resistor					
Resistor	Shunt 10K Ohm (+/- 5%) to Ground				
Polarization	Linear				
Power Handled	50 W				
MECHANICAL					
Antenna Dimensions	80*20*1mm				
Connector	IPEX				
Material	FR4				
Cable Type	Φ1.37 Coaxial cable				
Cable Length	164.9mm				
Adhesive	3M 467				
ENVIRONMENTAL					
Temperature Range	-40°C to 85°C				
Storage Temperature	-40°C to 85°C				

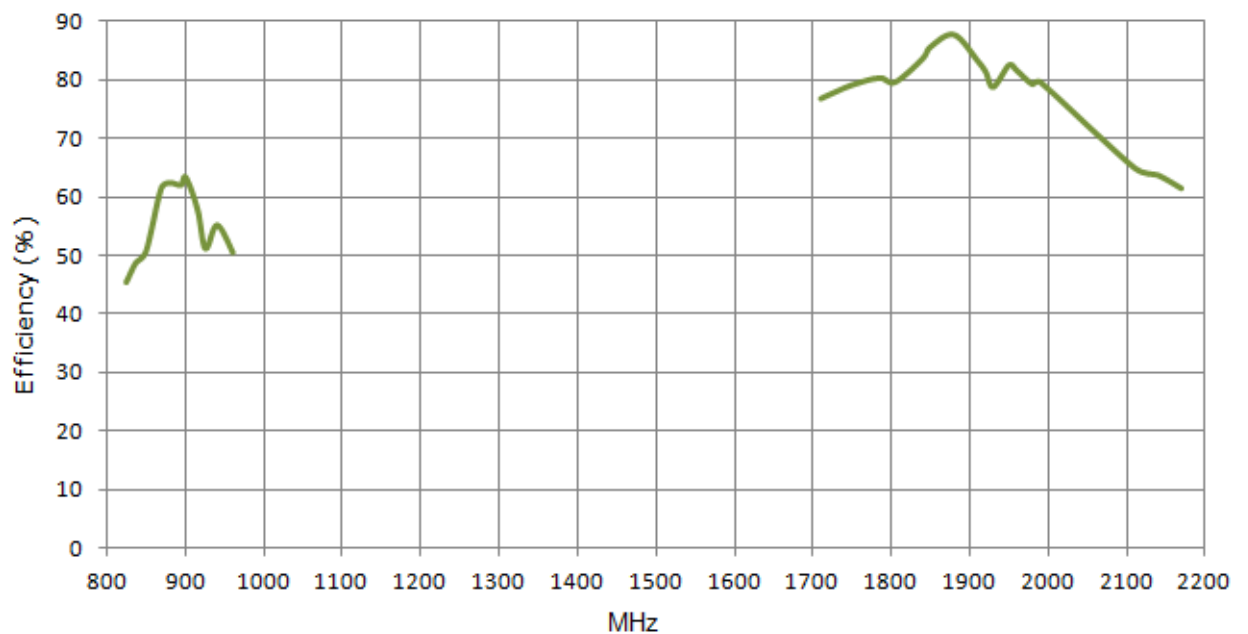
\*Antenna is tested on a 2mm thickness ABS material base substrate

## 3 . Antenna Parameters

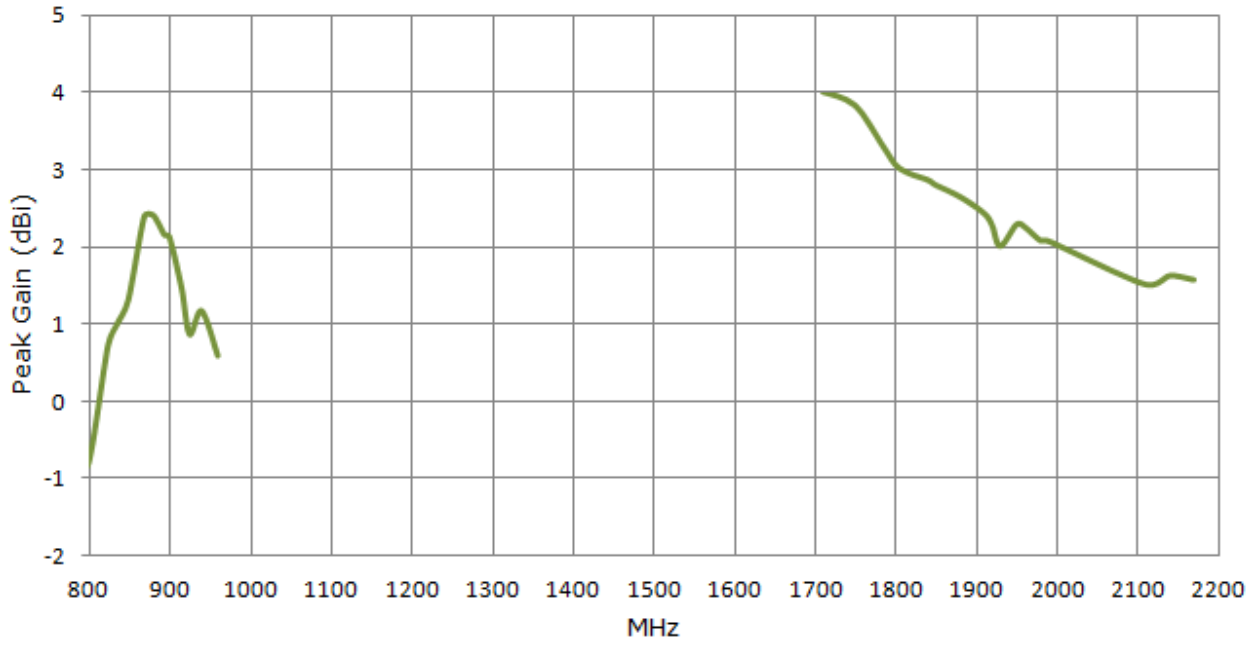
### 3.1 Return Loss



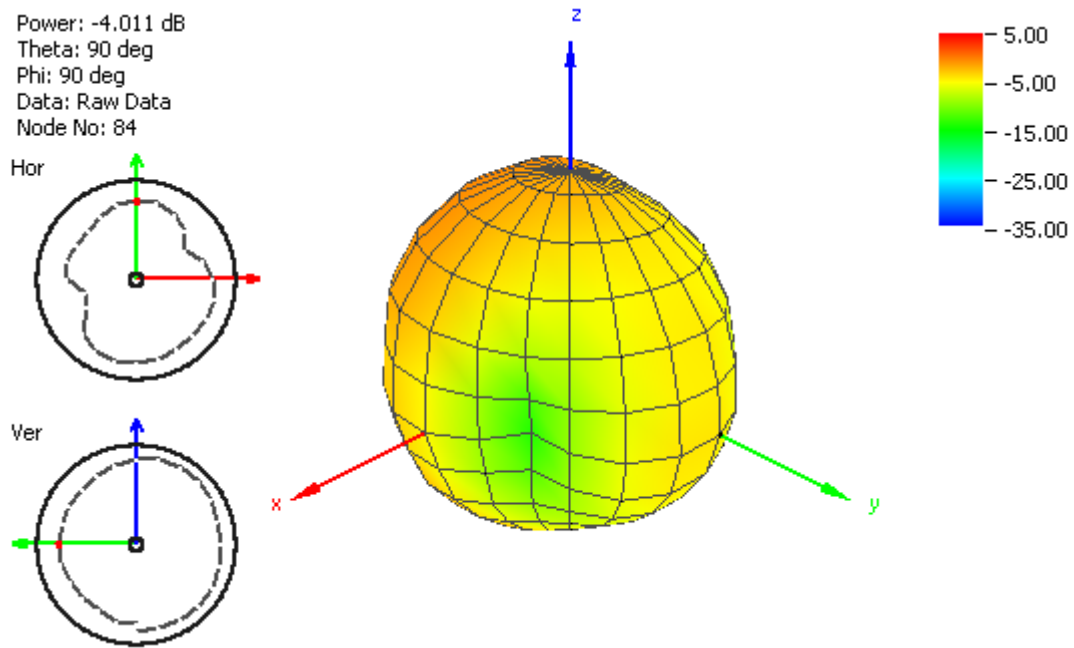
### 3.2 Antenna Efficiency



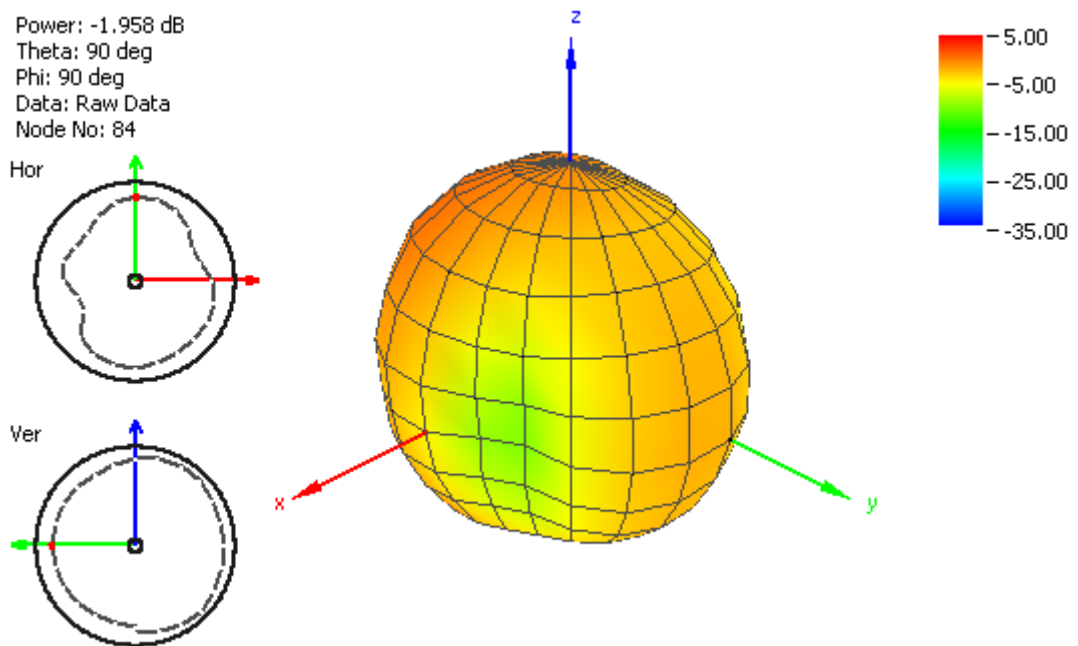
### 3.3 Peak Gain



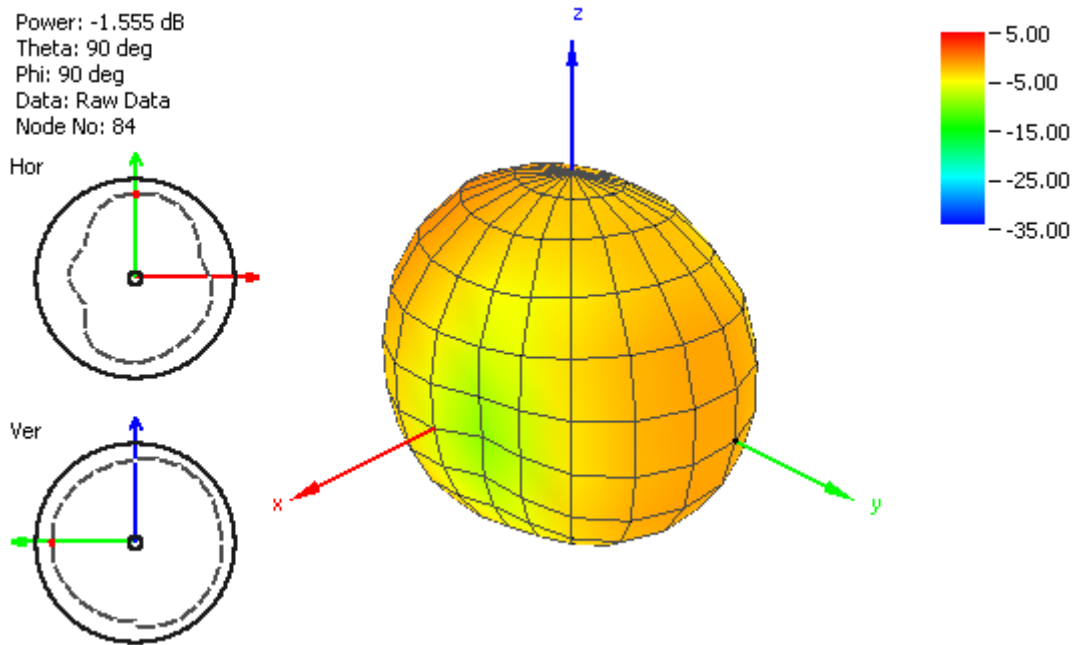
## 4 Radiation patterns



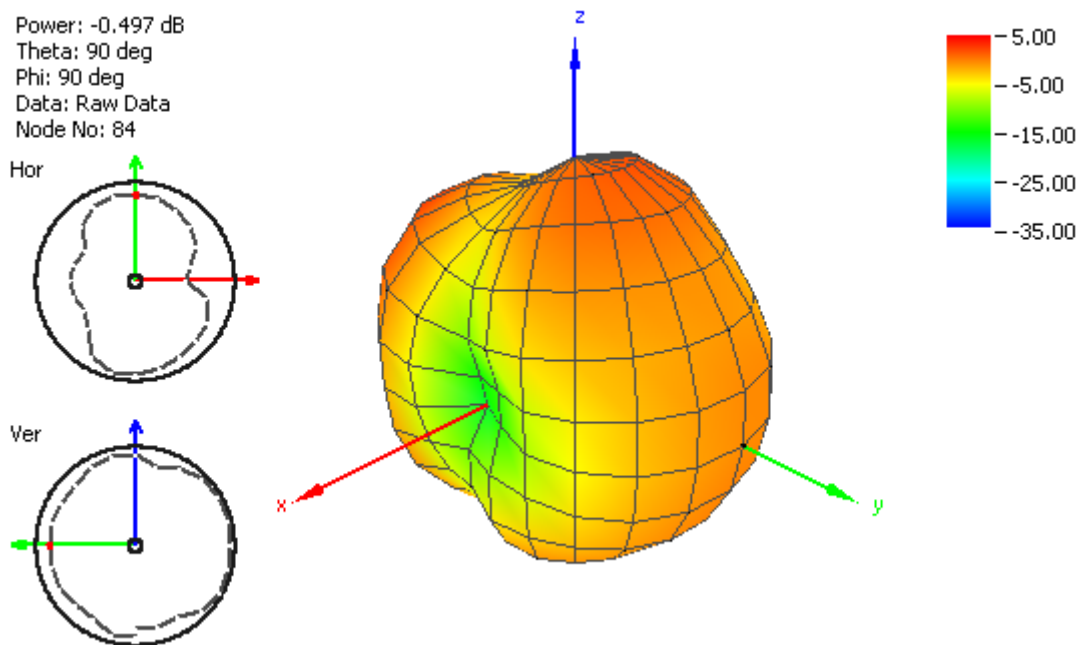
**Figure 1.** Radiation Pattern at 824 MHz.



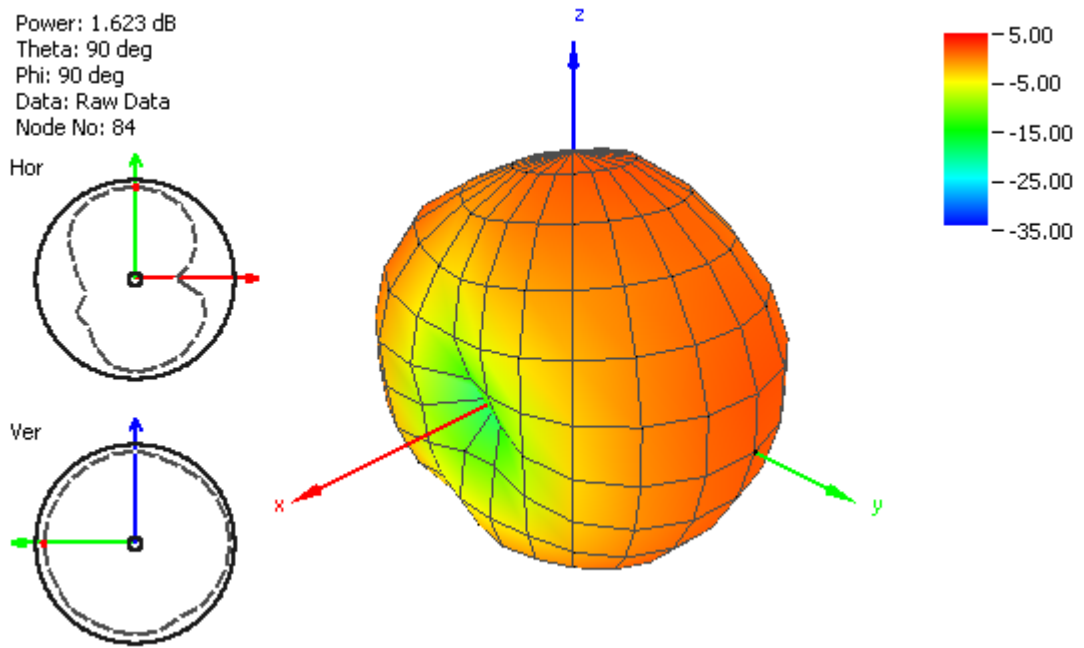
**Figure 2.** Radiation Pattern at 880 MHz.



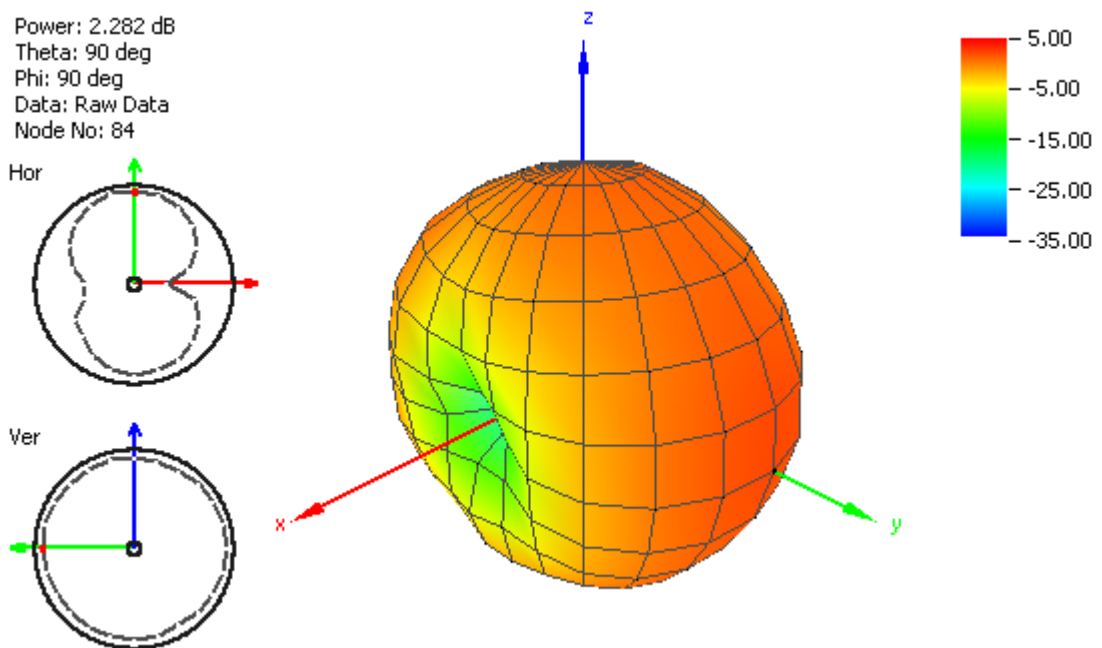
**Figure 3.** Radiation Pattern at 960 MHz.



**Figure 4.** Radiation Pattern at 1710 MHz.

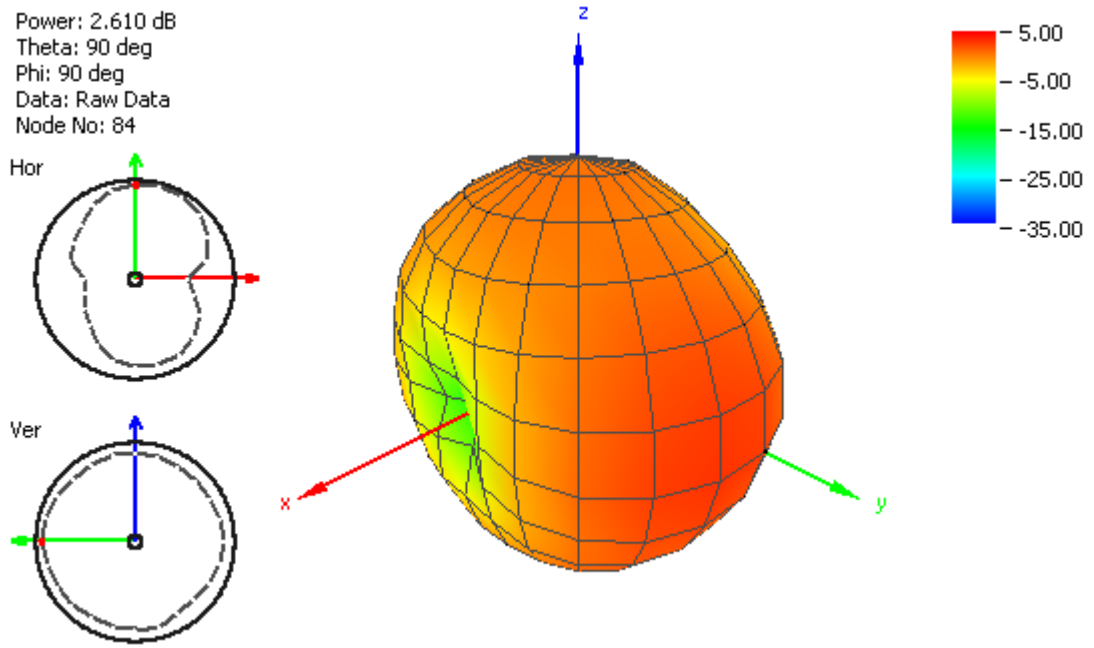


**Figure 5.** Radiation Pattern at 1880 MHz.



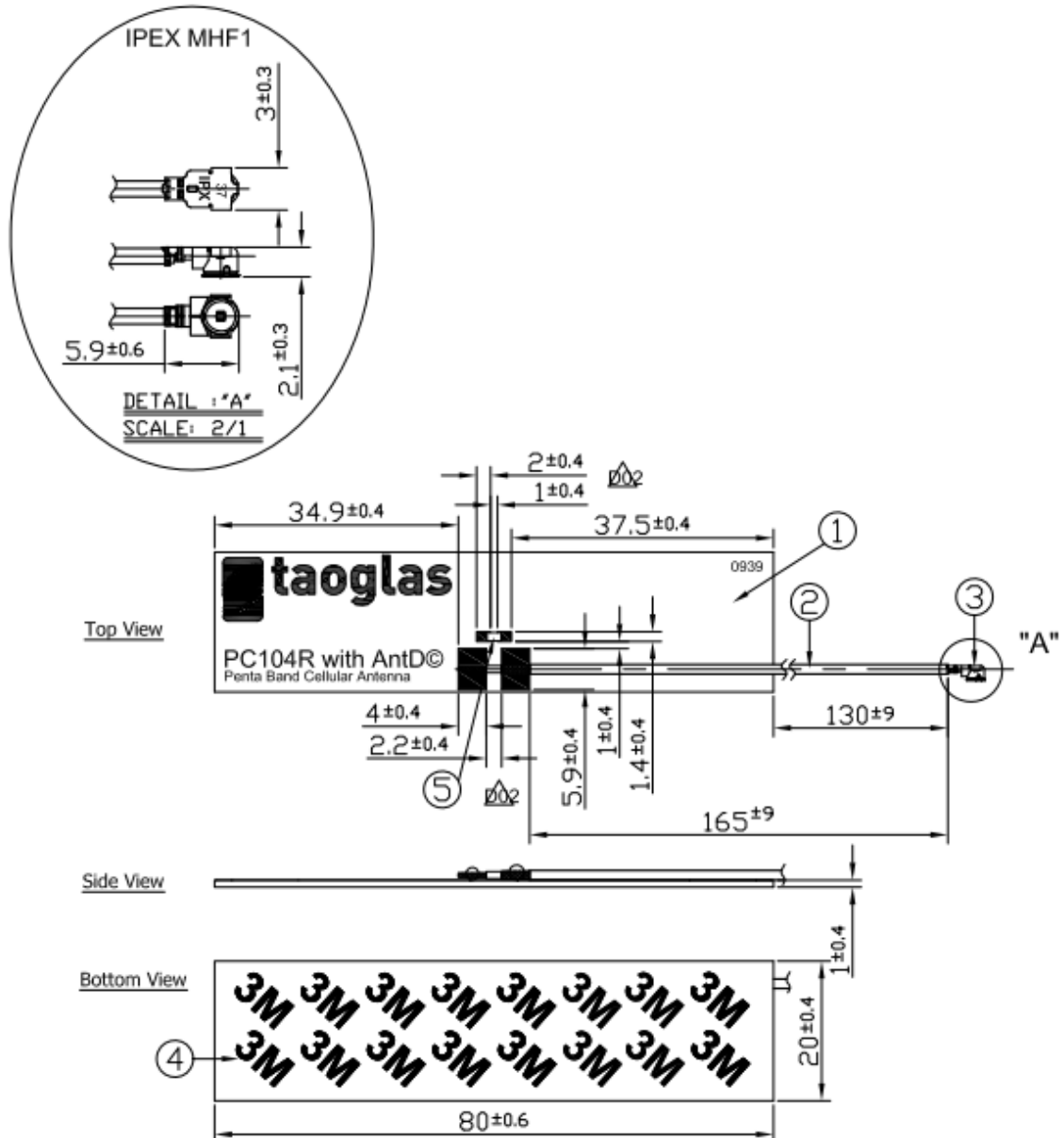
**Figure 6.** Radiation Pattern at 1990 MHz.





**Figure 7.** Radiation Pattern at 2110 MHz.

## 5 Drawing



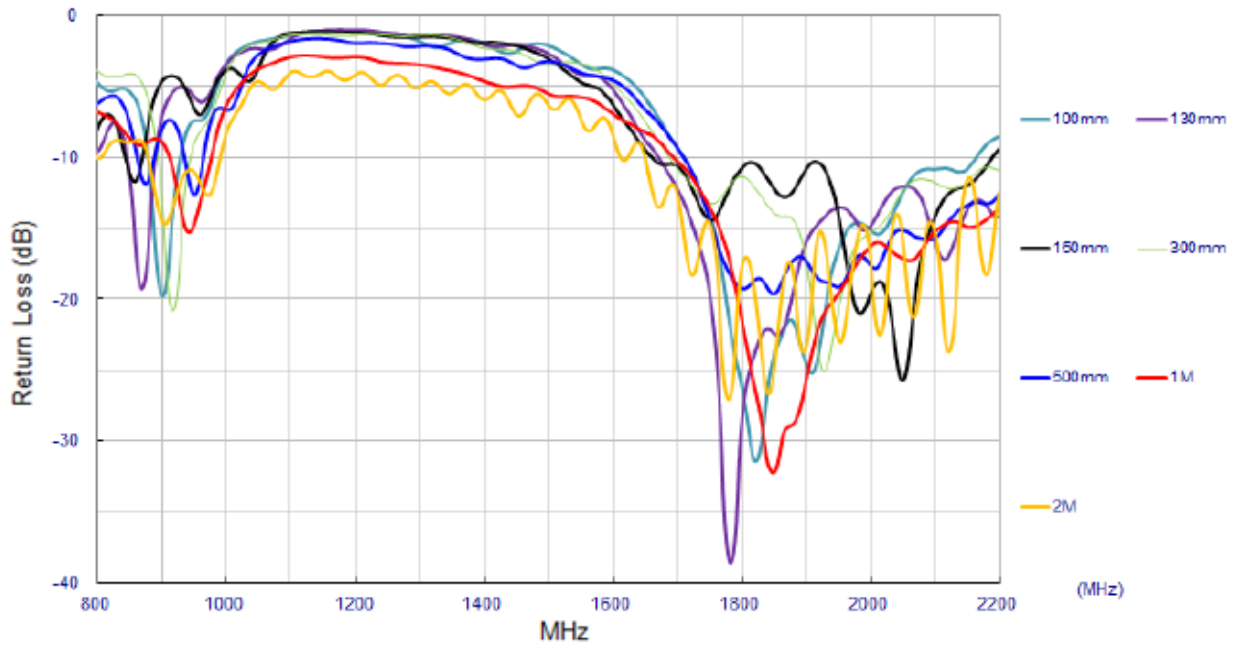
	Name	P/N	Material	Finish	QTY
1	PC104 PCB	100212K0100XXA	FR4 1t	Black	1
2	1.37 Coaxial Cable	OD.137.AD	FEP	Black	1
3	IPEX MHFI	IPEX.MHFHT.137	Brass	Gold	1
4	Heat Shrink Tube	001312E000002A	PE	Black	1
5	3M Adhesive	001012K0000XXA	3M 9448	N/A	1

**Figure 8.** Mechanical Drawing for the PC104 Antenna

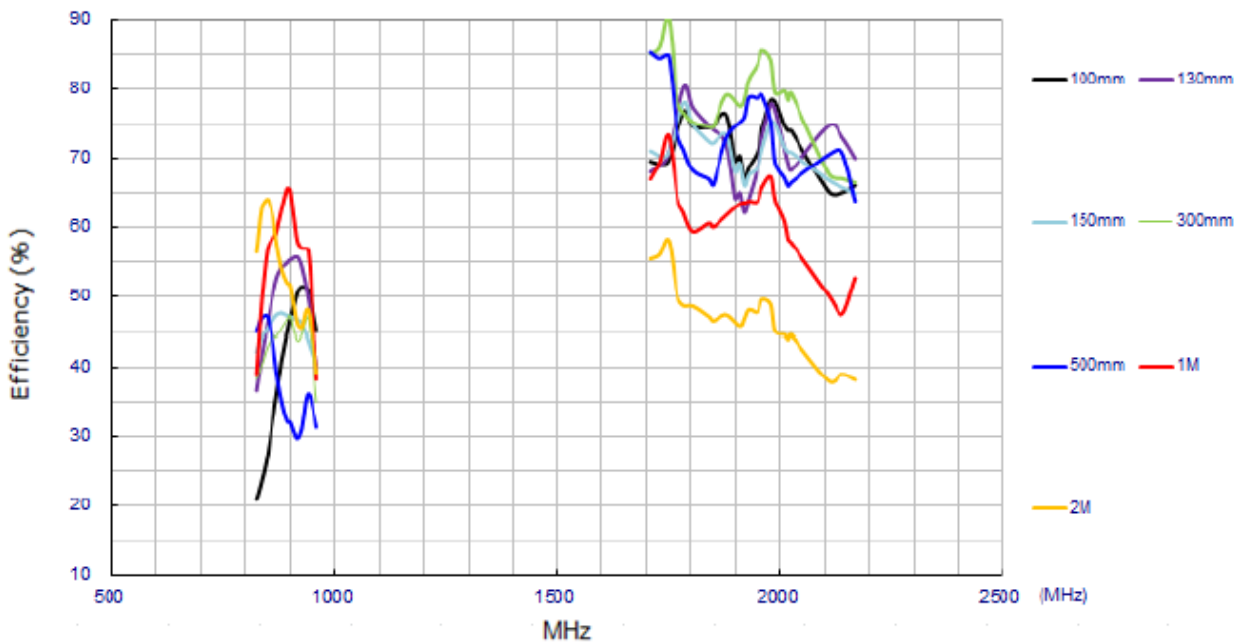
## 6.Application Note

We measured PC.104 antenna with different cable length, the results as below.

### Return Loss



### Efficiency



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