SUNNYWAY

SWS004

PN: SW20022IA67



Sunnyway Technology

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1. Electrical Specifications

Standards	NB-IoT, B8
Frequency range (MHz)	880 – 960 MHz
Peak Gain (dBi)	0.8~3.5dBi
Average Gain (dB)	-2.8~-1.5dB
VSWR	< 2.0
Return Loss	< -9.8
Efficiency (%)	52--70%
Polarization mode	Linear
Radiation pattern	Omni-Directional
Output impedance (Ω)	50
Max. Input Power(W)	25

Note:

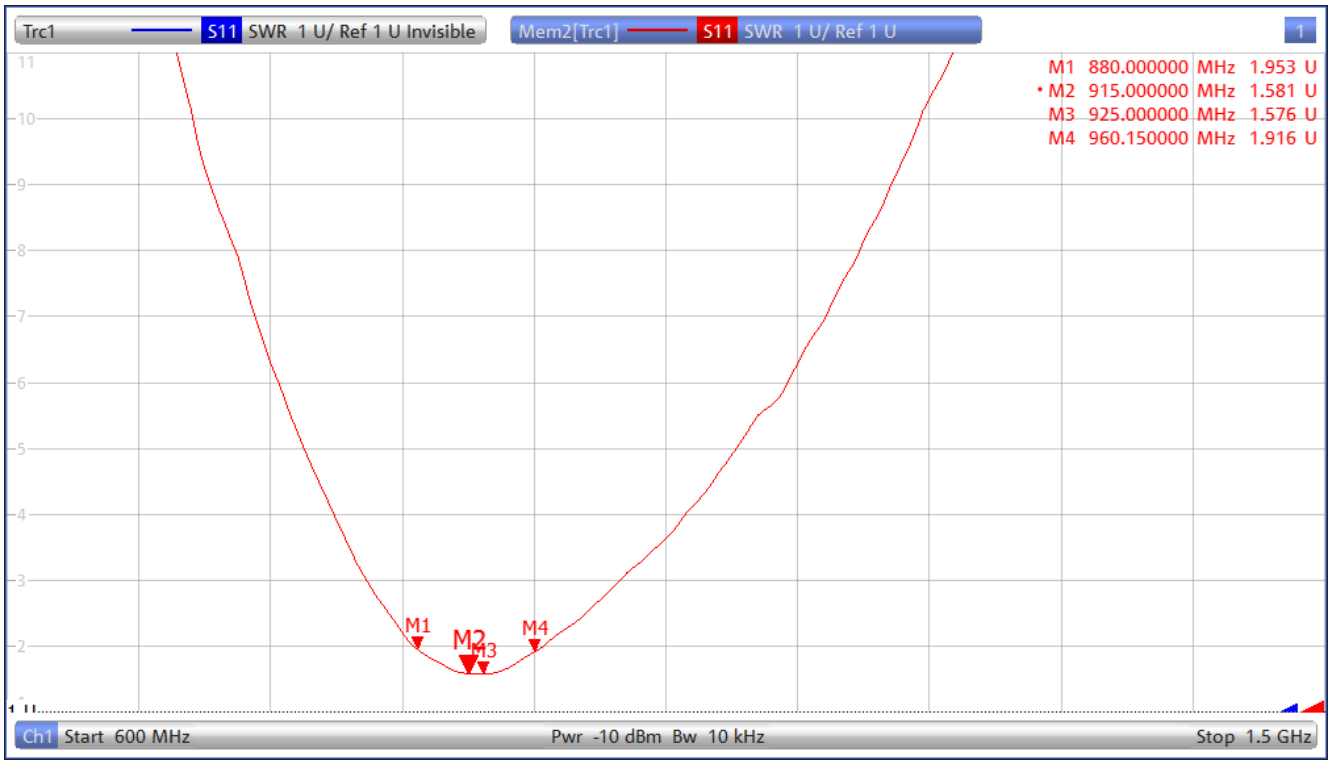
All parameters are measured with Sunnyway's EVK which size is 80*50mm

2. Mechanical and Environmental Specification

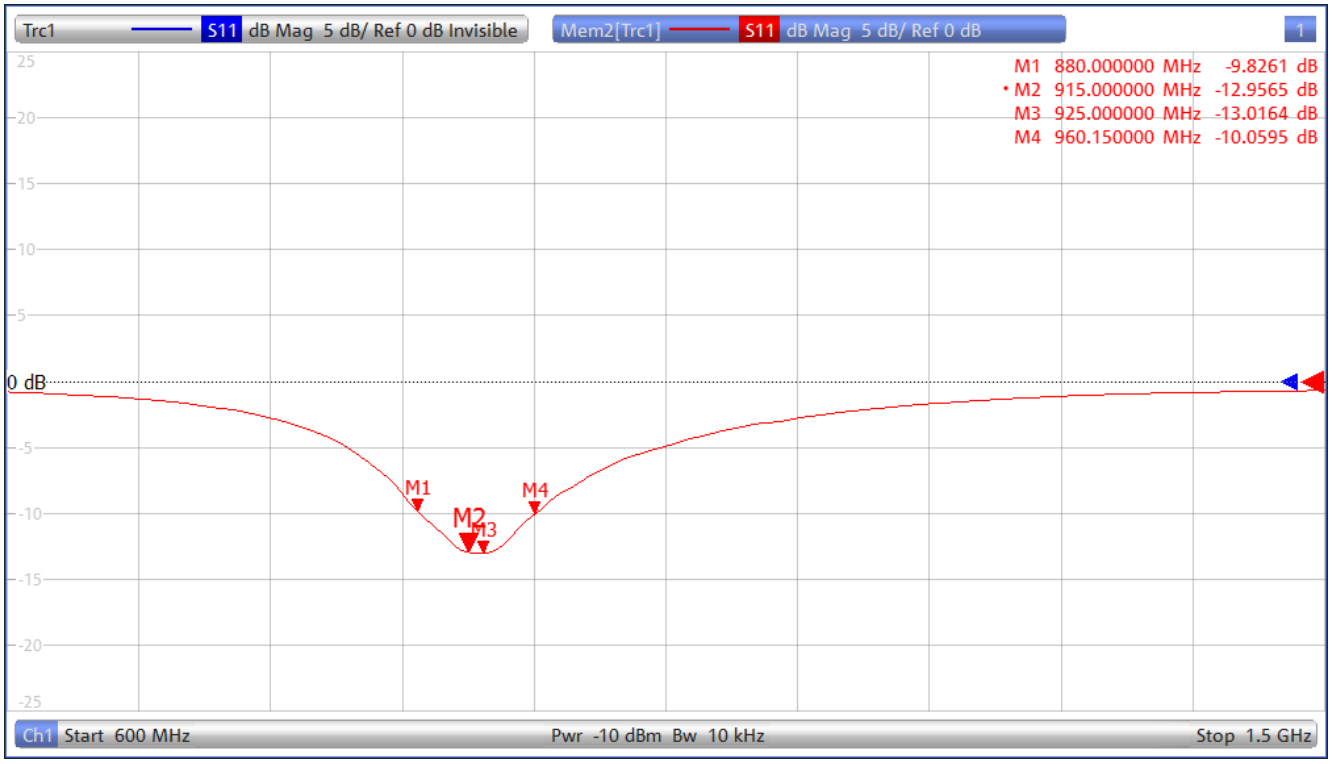
Mounting Type	Welding
Antenna size(mm)	φ5.8x 27.78 (H)
Material	Spring
Operating Temperature (˚C)	-40 ˚C ~ + 85 ˚C
Storage Temperature(˚C)	-40 ˚C ~ + 85 ˚C

3. Antenna parameters

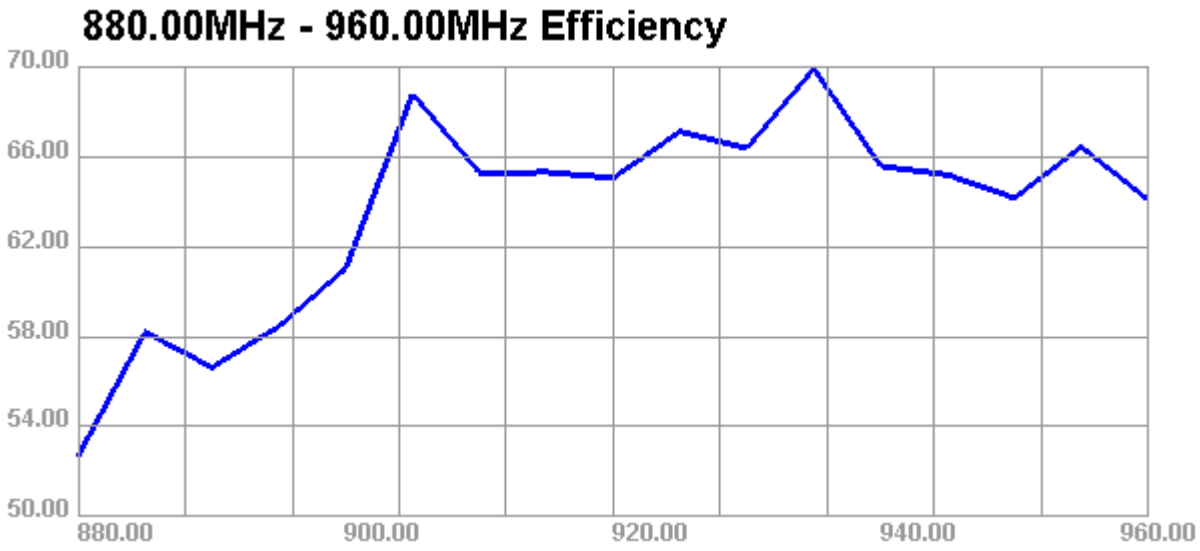
FRE (MHz)	880	915	925	960
VSWR	1.95	1.58	1.57	1.91
Return Loss	-9.82	-12.95	-13.01	-10.05
Eff (%)	52.7	65.3	67.1	64.1
Average Gain(dB)	-2.7	-1.8	-1.7	-1.9

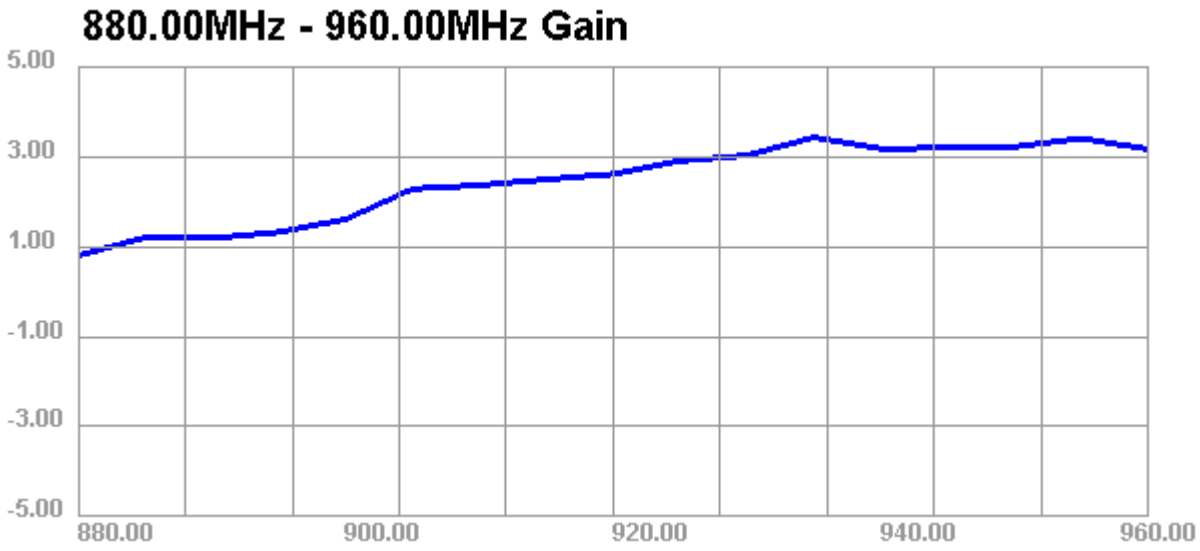


VSWR



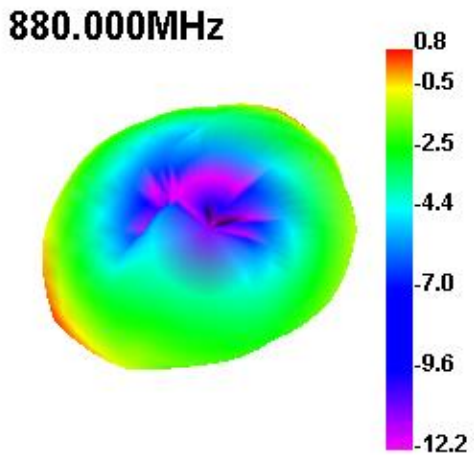
Return Loss

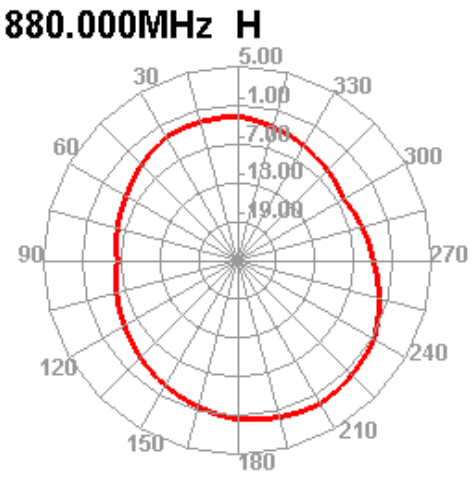

880.00MHz - 960.00MHz Efficiency
70.00
66.00
62.00
58.00
54.00
50.00
880.00
900.00
920.00
940.00
960.00

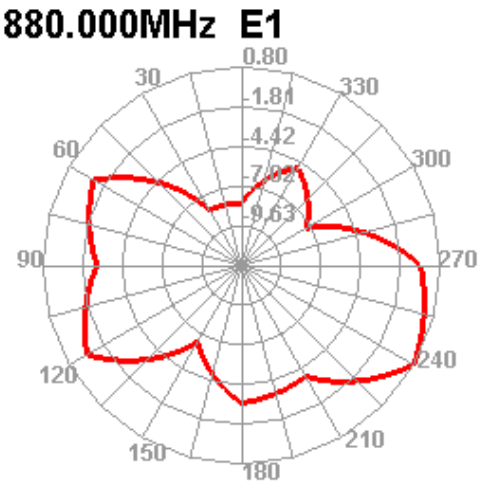

880.00MHz - 960.00MHz Gain
5.00
3.00
1.00
-1.00
-3.00
-5.00
880.00
900.00
920.00
940.00
960.00

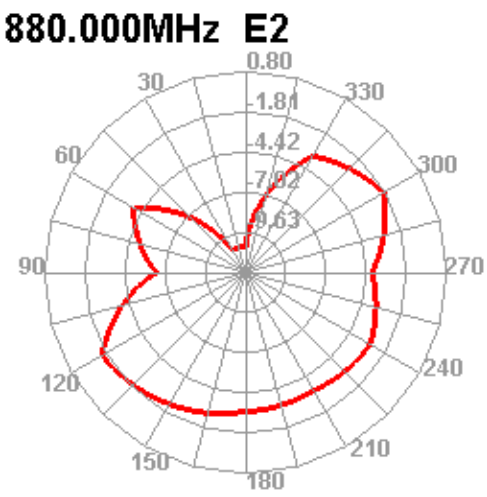
Directional pattern

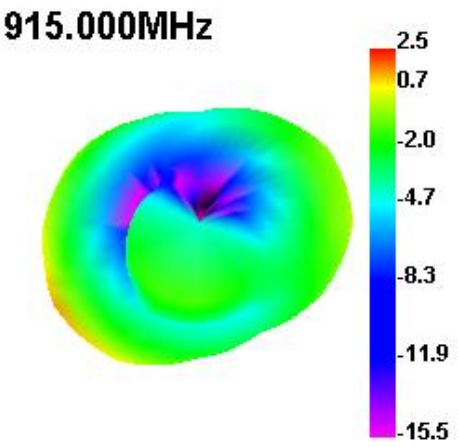
- Board length 80mm

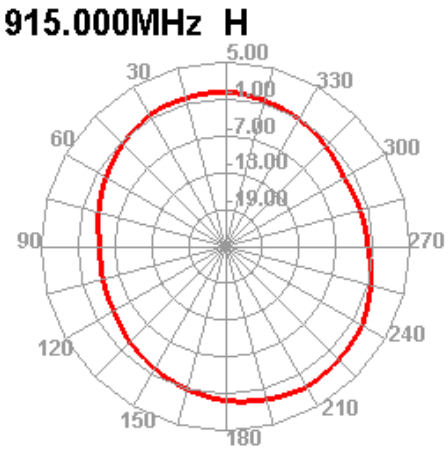




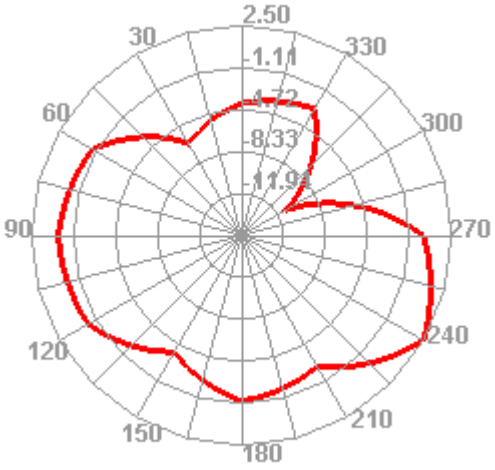




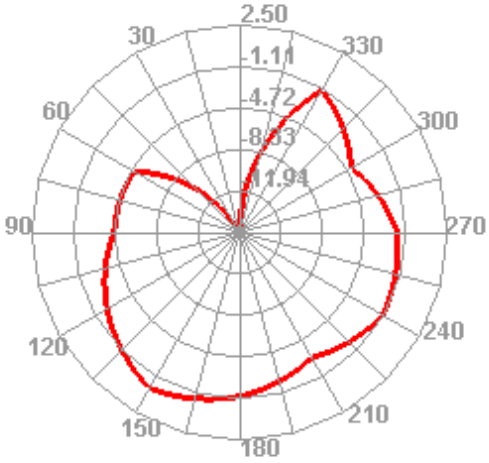




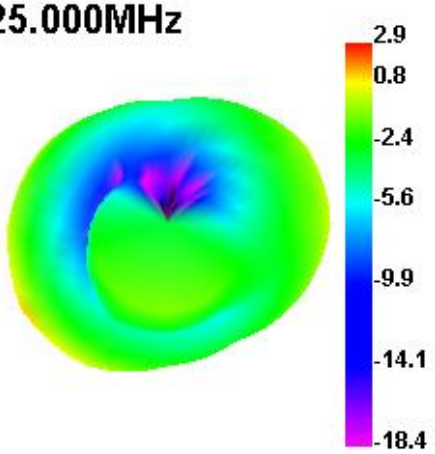
915.000MHz E1



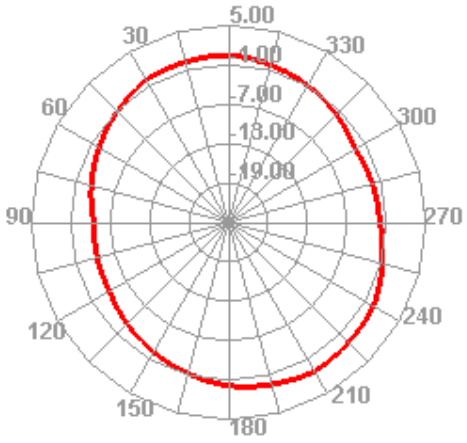
915.000MHz E2



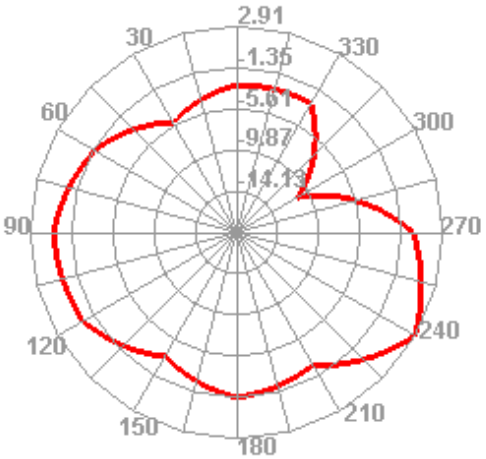
925.000MHz



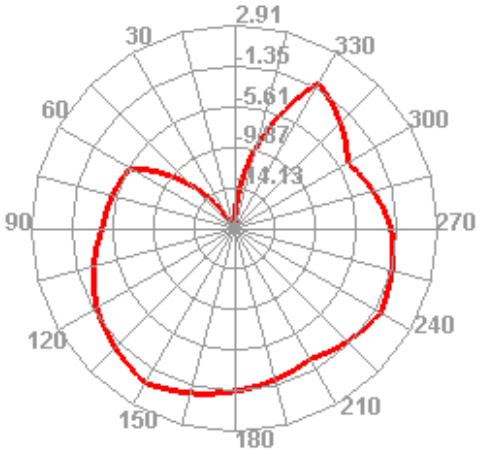
925.000MHz H



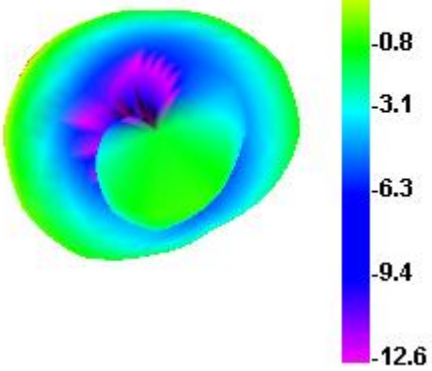
925.000MHz E1



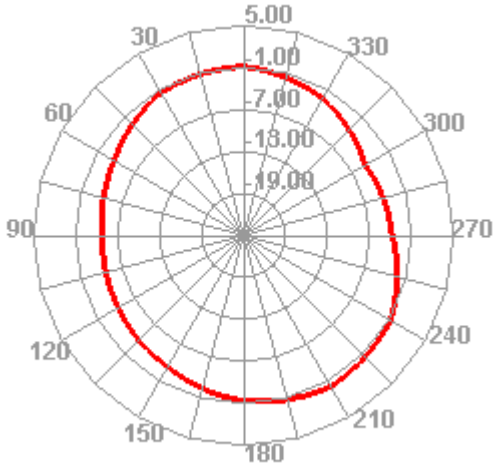
925.000MHz E2



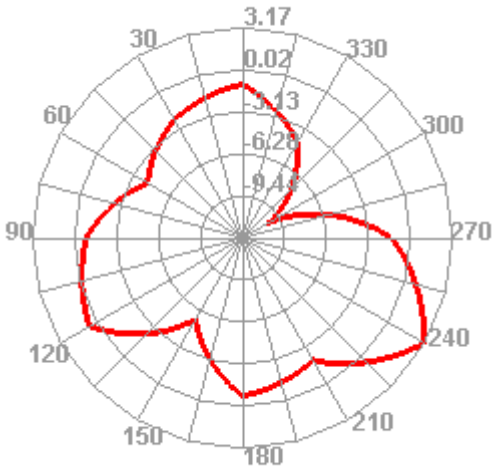
960.000MHz



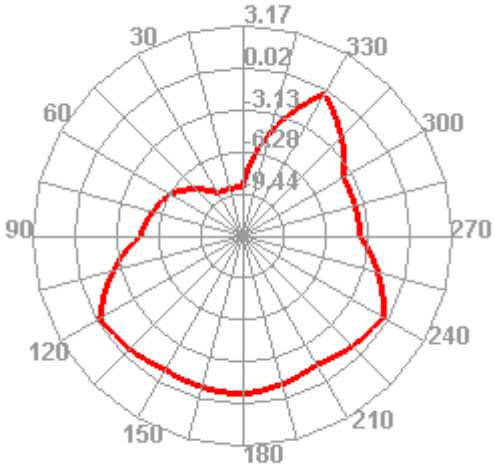
960.000MHz H



960.000MHz E1



960.000MHz E2



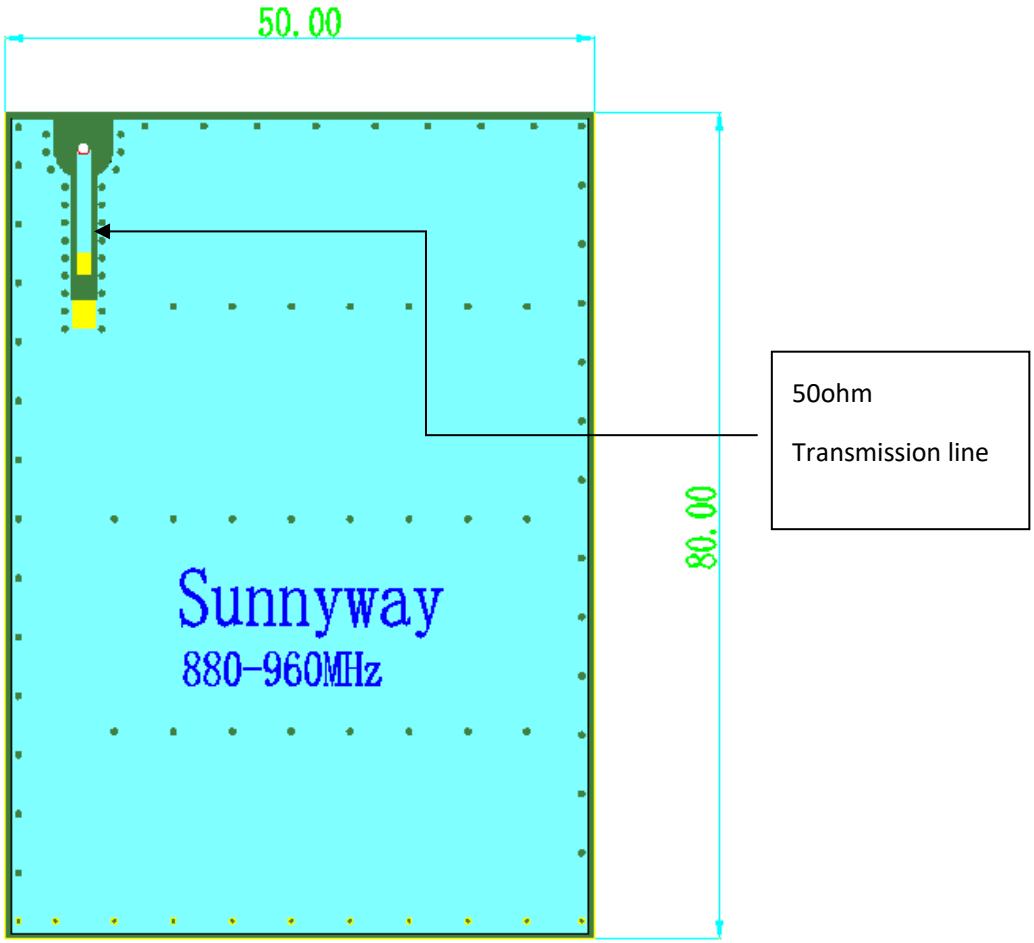
4. Design board and Transmission Line

• Development and design based on 80 * 50mm PCB board

• The characteristic impedance of all transmission lines shall be designed as 50 Ω.

• The length of the transmission lines should be kept to as short as possible

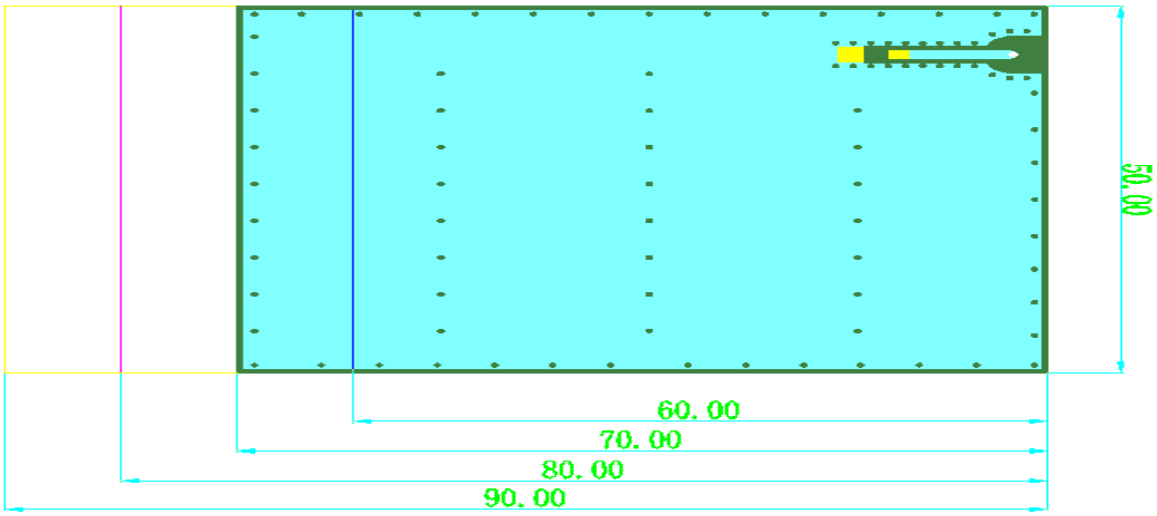
• Any other part of the RF system, such as transceiver, power amplifiers, etc., shall also be designed with an impedance of 50 Ω



5. Host PCB Size

The performance of the low frequency section depends on the length of the ground plane. Reducing GND length will directly impact on the performance of low frequency band.

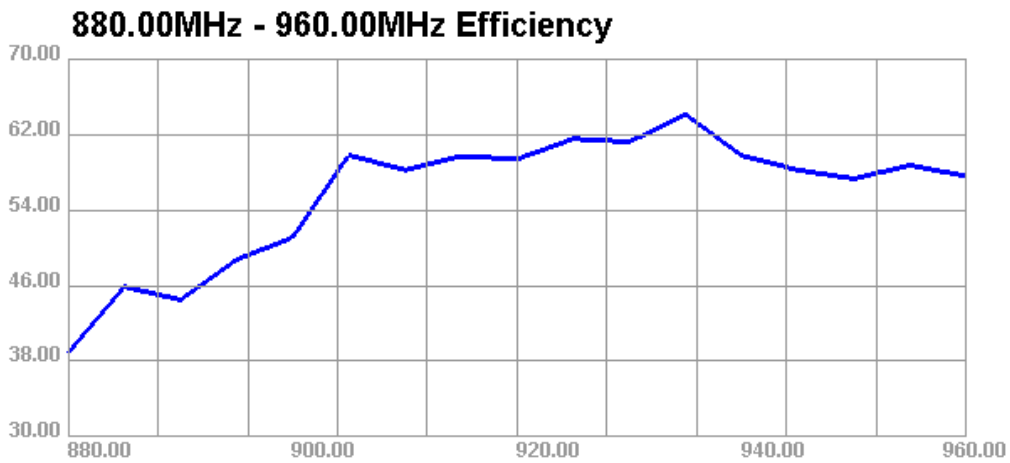
Take antenna efficiency measurement results on different GND sizes as an example



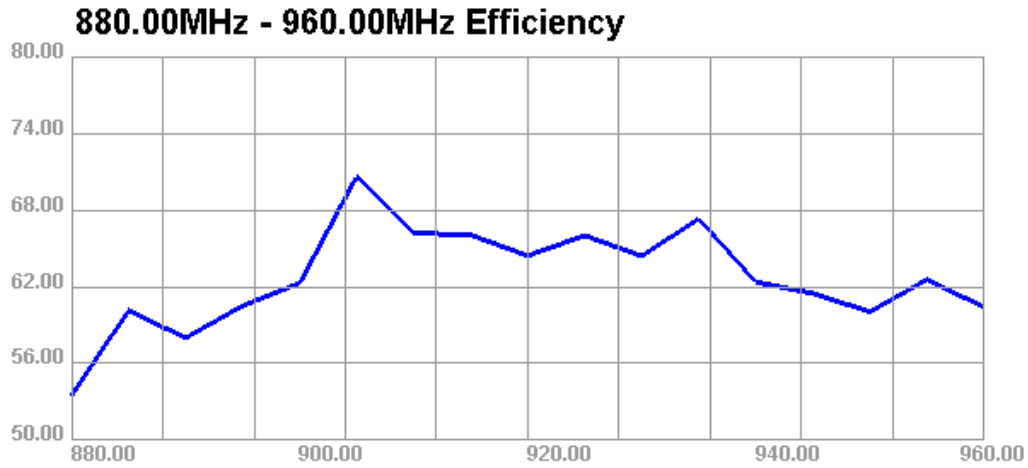
Passive Efficiency vs. PCB length

All results measured in Sunnyway's anechoic chamber

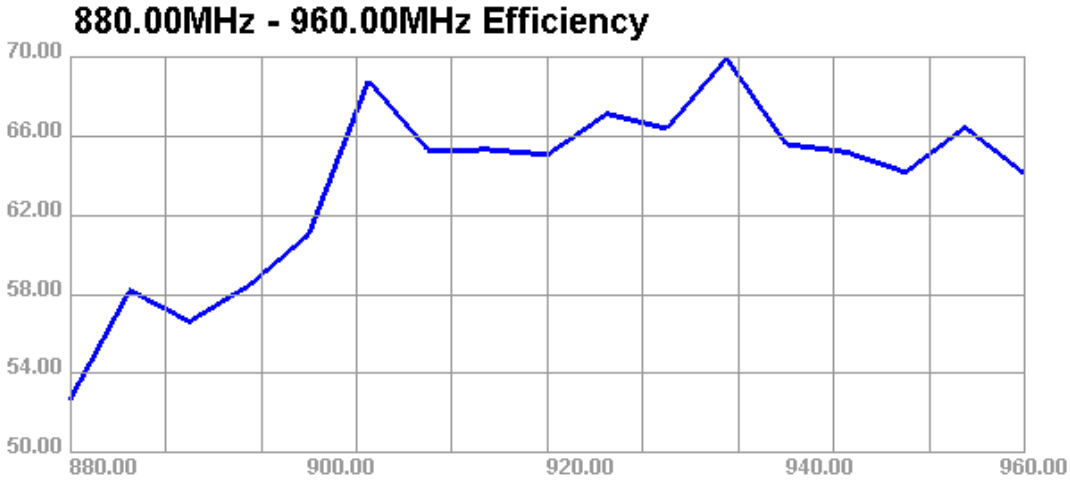
- **Board length 60mm**



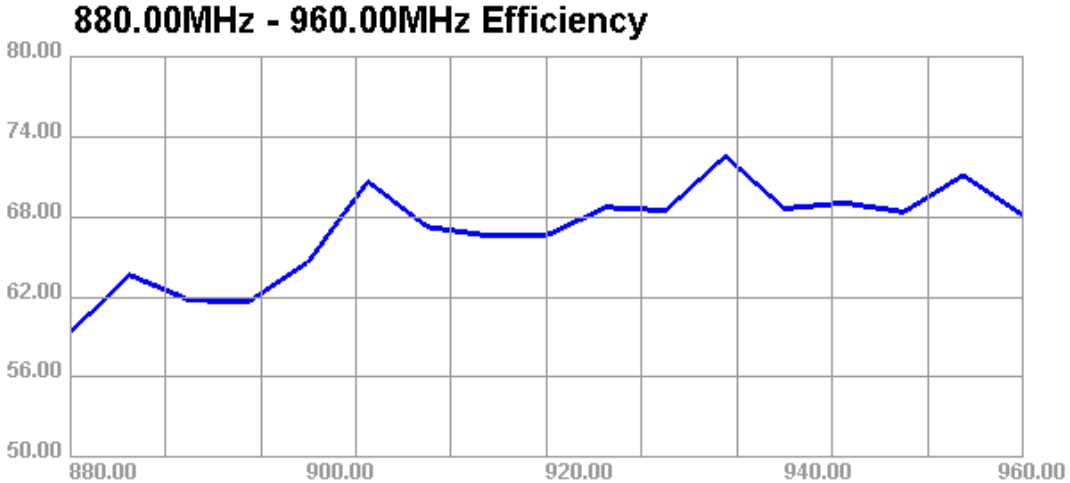
- **Board length 70mm**



- **Board length 80mm**



- **Board length 90mm**



6.Antenna Drawings

