SUNNYWAY

SWB005-3

PN: SW20031EB56-3



Sunnyway Technology

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1. Electrical Specifications

Cable 1 Parameters

Tested with 20cm cable length - RG174 with C20N

Standards	**4G &3G&2G**	
Frequency range (MHz)	690~960MHz	1710~2690MHz
Peak Gain (dBi)	-1.3~1.6dBi	0.5~2.6dBi
Average Gain (dB)	-3.7~-2.1dB	-3.4~-2dB
VSWR	<3.7	<2.0
Return Loss	<-4.0	<-9.0
Efficiency (%)	42.8~61.2%	46.2~63.5%
Polarization mode	Linear	Linear
Radiation pattern	Omni-Directional	Omni-Directional
Output impedance (Ω)	50	50
Max. Input Power(W)	25	25

Cable 2 Parameters

Tested with 20cm cable length - RG174 with C20N

Standards	**2.4G&5G WIFI**	
Frequency range (MHz)	2400MHz~2500MHz	5100~5900MHz
Peak Gain (dBi)	3.1~4.4dBi	2.7~5.2dBi
Average Gain (dB)	-2.8~-2.3dB	-3.8~-1.3dB
VSWR	<2.3	<2.5

Return Loss	<-7.0	<-7.0
Efficiency (%)	52.5~58.7%	42.1~74.6%
Polarization mode	Linear	Linear
Radiation pattern	Omni-Directional	Omni-Directional
Output impedance (Ω)	50	50
Max. Input Power(W)	25	25

Cable 3 Parameters

Tested with 20cm cable length - RG174 with C20N

Standards	**GPS&GLONASS&GALILEO&BEIDOU**		
Band (MHz)	1559MHz	1575.42MHz	1602MHz
Peak Gain (dBi)	3.24dBi	1.92dBi	2.65dBi
Average Gain (dB)	-1.88dB	-2.71dB	-2.36dB
VSWR	2.40	1.77	1.34
Return Loss	-7.69	-11.08	-16.61
Efficiency (%)	64.8%	53.6%	58.1%
Impedance(Ω)	50	50	50
Polarization	RHCP	RHCP	RHCP
Radiation Pattern	Hemispherical	Hemispherical	Hemispherical
Saw Filter	Pre-Filter	Pre-Filter	Pre-Filter
Active Gain (dB)	28dB	28dB	28dB
Noise-Figure(dB)	1dB(+25°C±10°C)	1dB(+25°C±10°C)	1dB(+25°C±10°C)

Supply Current(mA)	15mA	15mA	15mA
Supply Voltage(V)	1.5V-5.5V	1.5V-5.5V	1.5V-5.5V

2. Mechanical and Environmental Specification

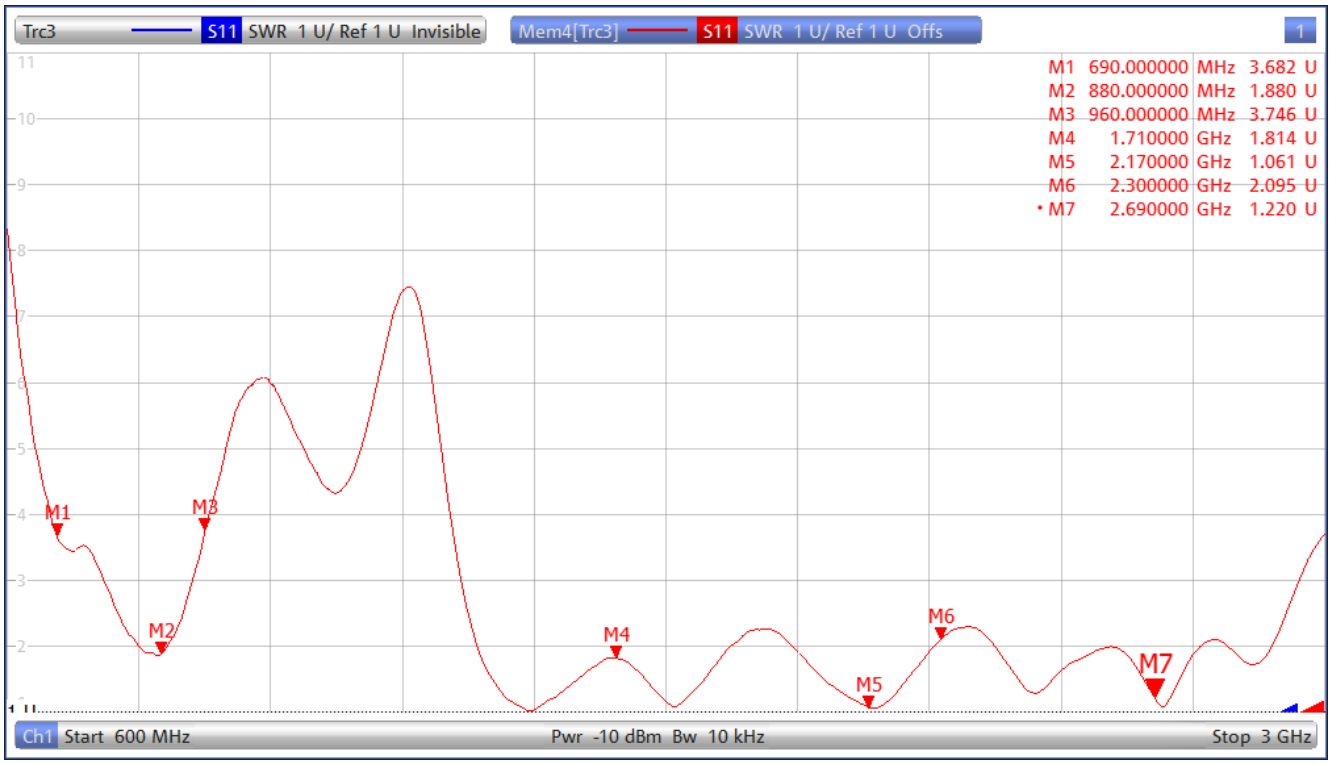
Mounting Type	**Screw lock**
Connector Type	RG174+SMA (M)
Antenna size(mm)	99.96 (φ) x 105.8 (H) x 250.00 (Line length)
Material	External
Cable length(mm)	250.00 (can be customized)
Operating Temperature (˚C)	- 40 ˚C ~ + 85 ˚C
Storage Temperature(˚C)	- 40 ˚C ~ + 85 ˚C

3. Antenna parameters

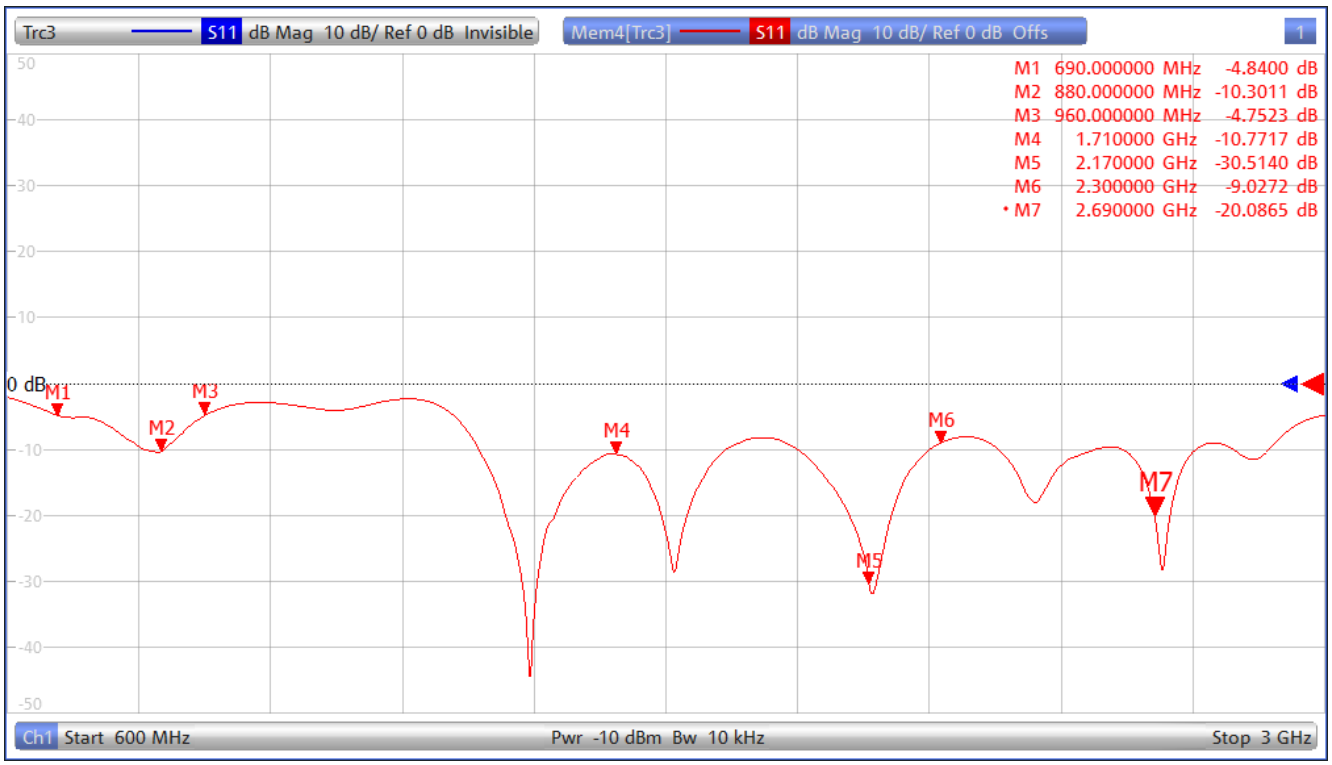
3.1 Cable 1: CELLULAR/LTE

FRE（MHz）	690	880	960	1710	2170	2300	2690
VSWR	3.68	1.88	3.74	1.81	1.06	2.09	1.22
Return Loss	-4.84	-10.30	-4.75	-10.77	-30.51	-9.02	-20.08
Eff (%)	42.84	50.21	54	54.22	47.58	51.66	54.79
Average Gain (dB)	-3.68	-2.99	-2.68	-2.66	-3.23	-2.87	-2.61

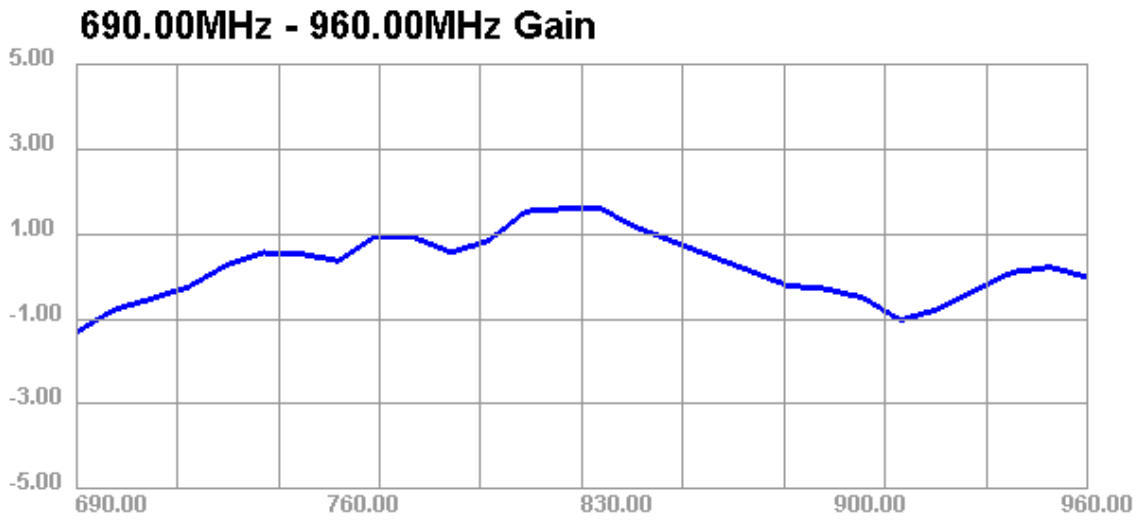
3.1.1 VSWR

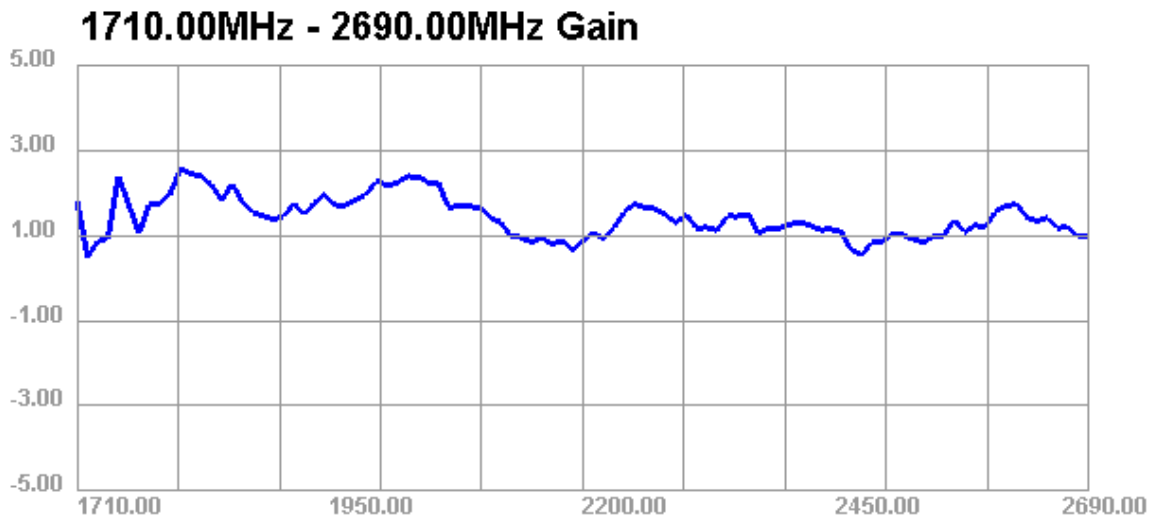


3.1.2 Return Loss

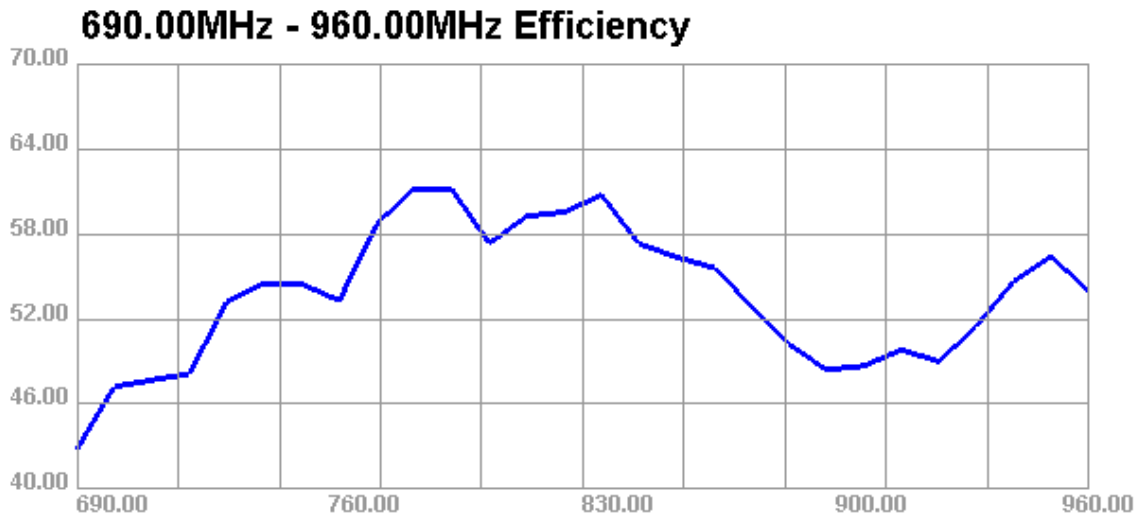


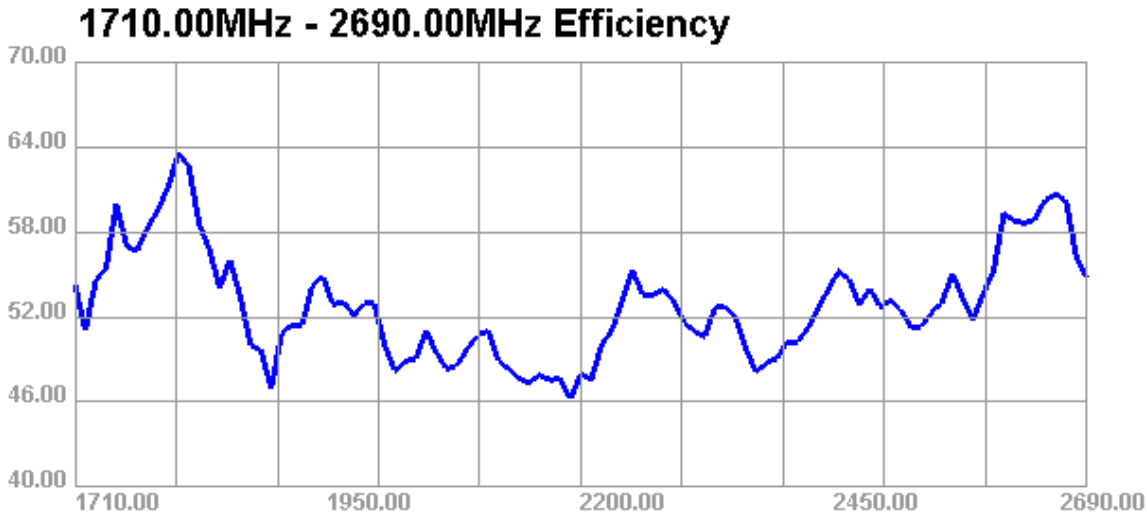
3.1.3 Gain



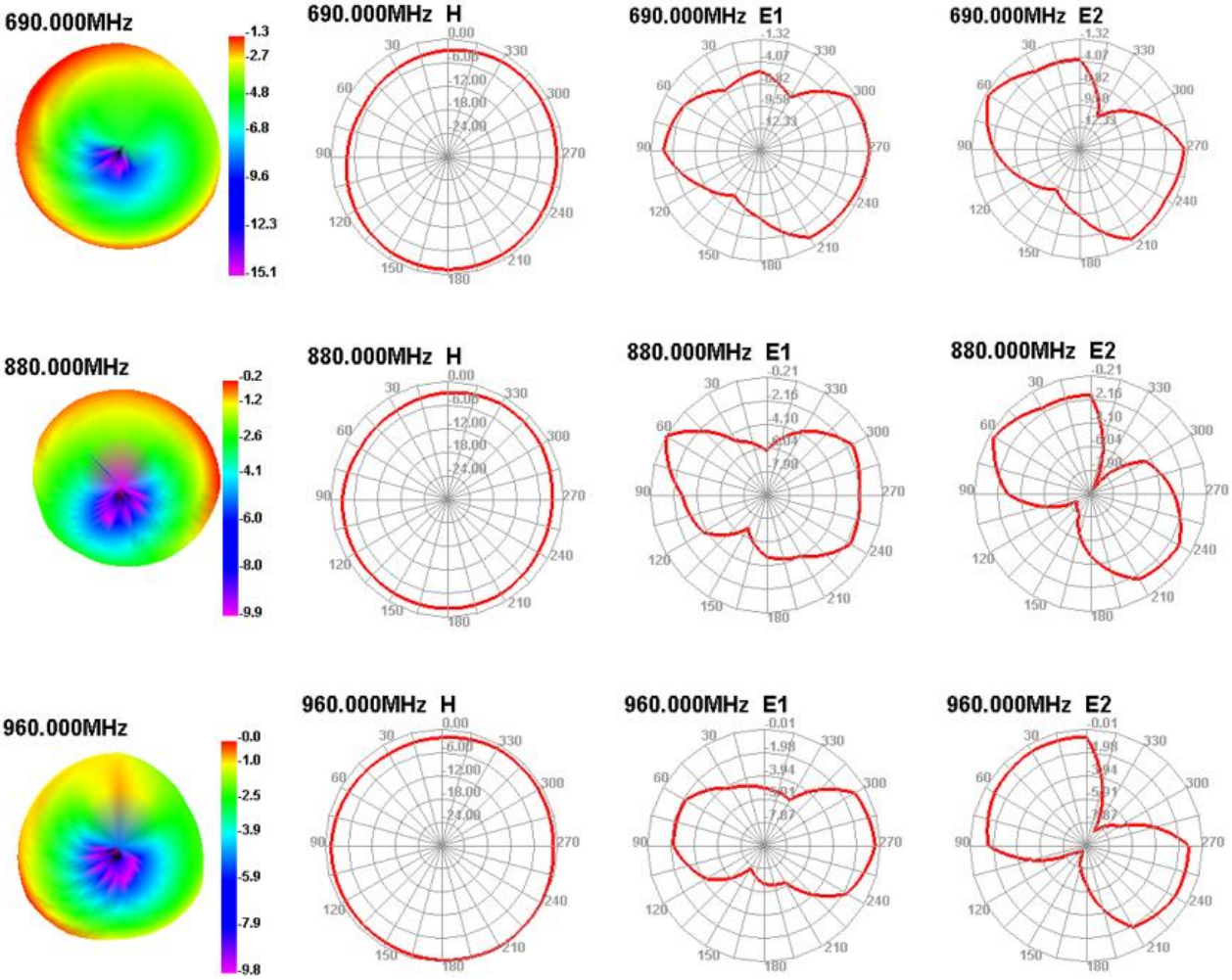


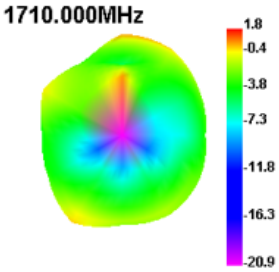
3.1.4 Efficiency

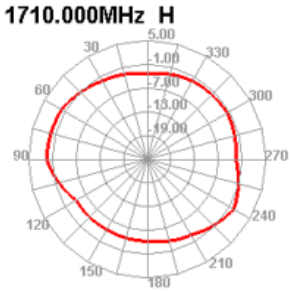


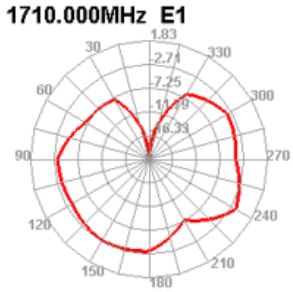


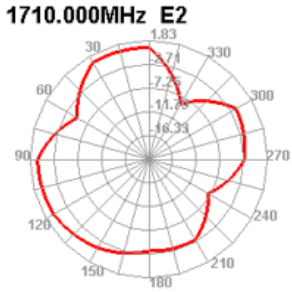
3.1.5 Directional pattern

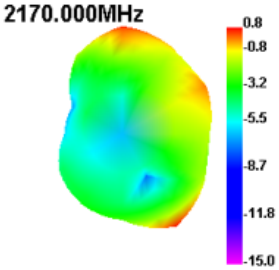


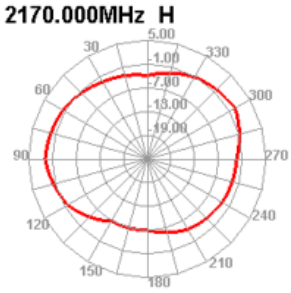

1710.000MHz
1.8
-0.4
-3.8
-7.3
-11.8
-16.3
-20.9

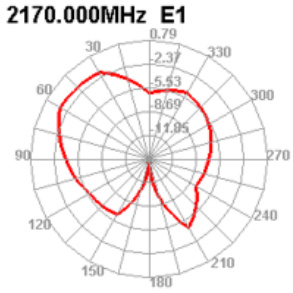

1710.000MHz H
5.00
1.00
-7.00
-13.00
-19.00

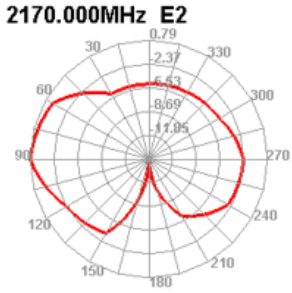

1710.000MHz E1
1.83
-2.74
-7.25
-11.79
-16.33

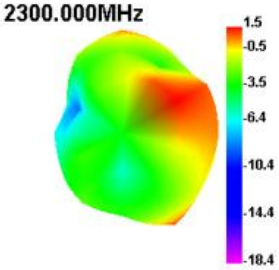

1710.000MHz E2
1.83
-2.74
-7.25
-11.79
-16.33

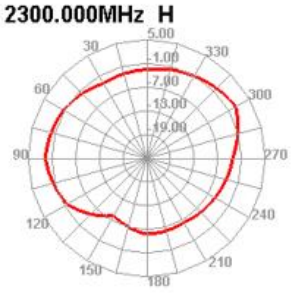

2170.000MHz
0.8
-0.8
-3.2
-5.5
-8.7
-11.8
-15.0

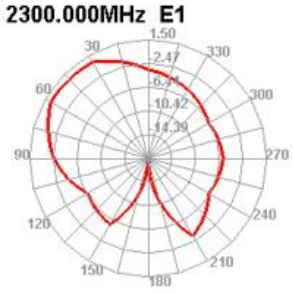

2170.000MHz H
5.00
1.00
-7.00
-13.00
-19.00

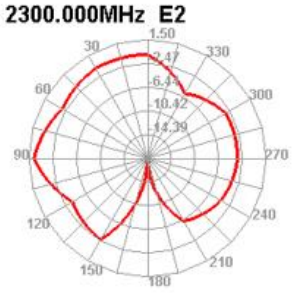

2170.000MHz E1
0.79
-2.37
-5.53
-8.69
-11.95

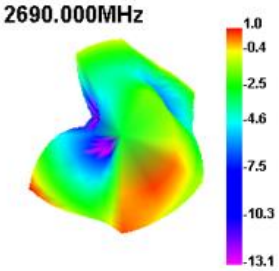

2170.000MHz E2
0.79
-2.37
-5.53
-8.69
-11.95

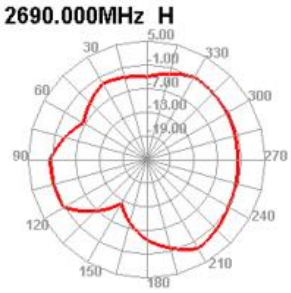

2300.000MHz
1.5
-0.5
-3.5
-6.4
-10.4
-14.4
-18.4

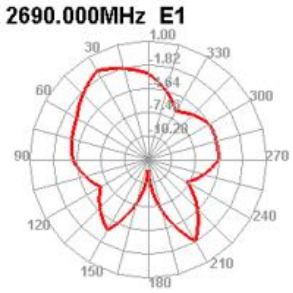

2300.000MHz H
5.00
1.00
-7.00
-13.00
-19.00

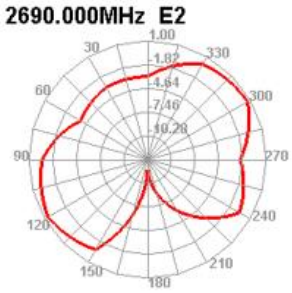

2300.000MHz E1
1.50
-2.47
-6.47
-10.42
-14.39


2300.000MHz E2
1.50
-2.47
-6.47
-10.42
-14.39


2690.000MHz
1.0
-0.4
-2.5
-4.6
-7.5
-10.3
-13.1


2690.000MHz H
5.00
1.00
-7.00
-13.00
-19.00

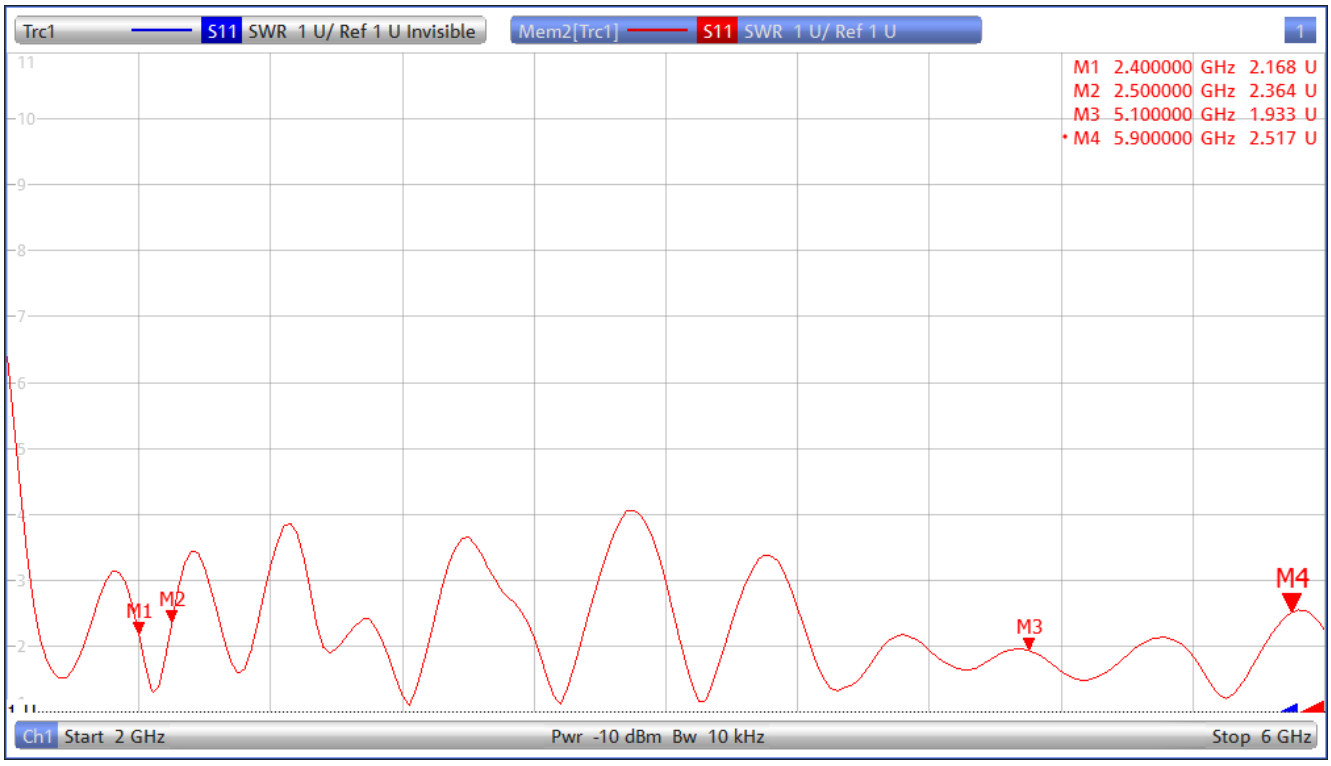

2690.000MHz E1
1.00
-1.82
-4.64
-7.46
-10.28


2690.000MHz E2
1.00
-1.82
-4.64
-7.46
-10.28

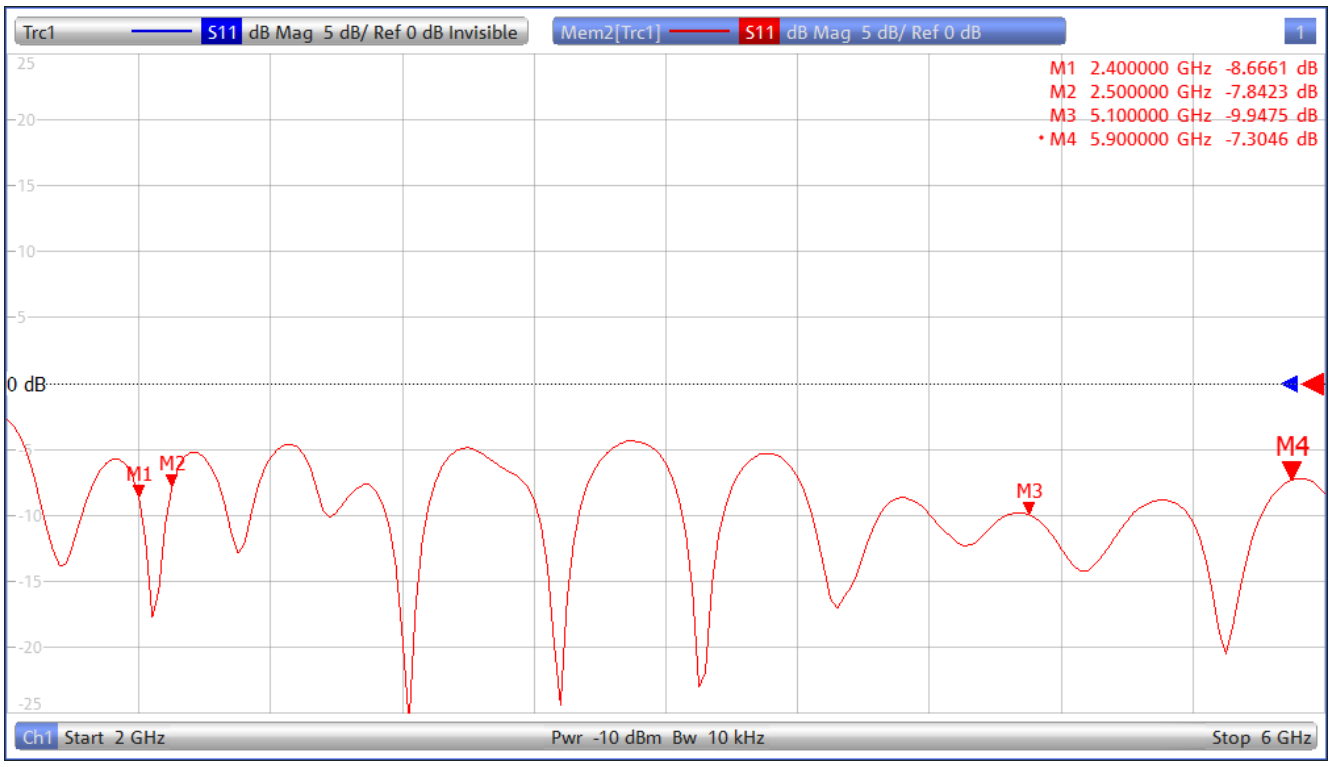
3.2 Cable 2: WiFi

FRE（MHz）	2400	2500	5100	5900
VSWR	2.16	2.36	1.93	2.51
Return Loss	-8.66	-7.84	-9.94	-7.30
Eff (%)	57.2	52.6	64.7	57.3
Average Gain(dB)	-2.43	-2.79	-1.89	-2.42

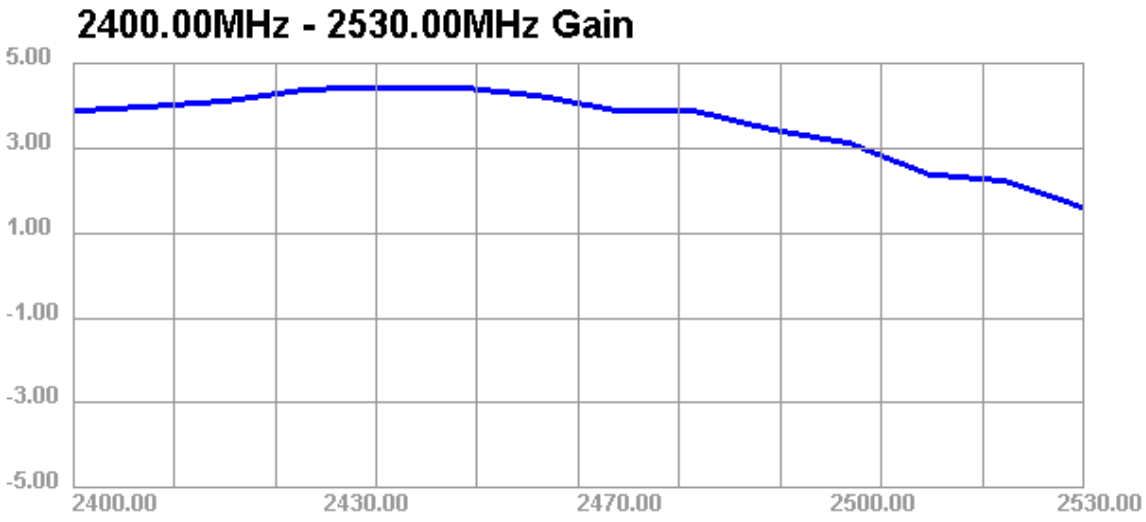
3.2.1 VSWR

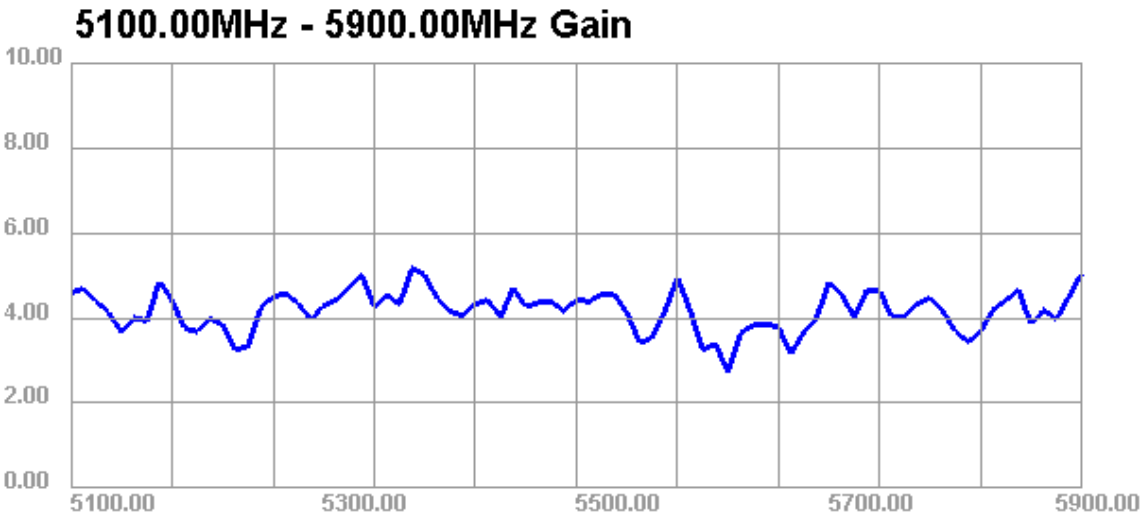


3.2.2 Return Loss

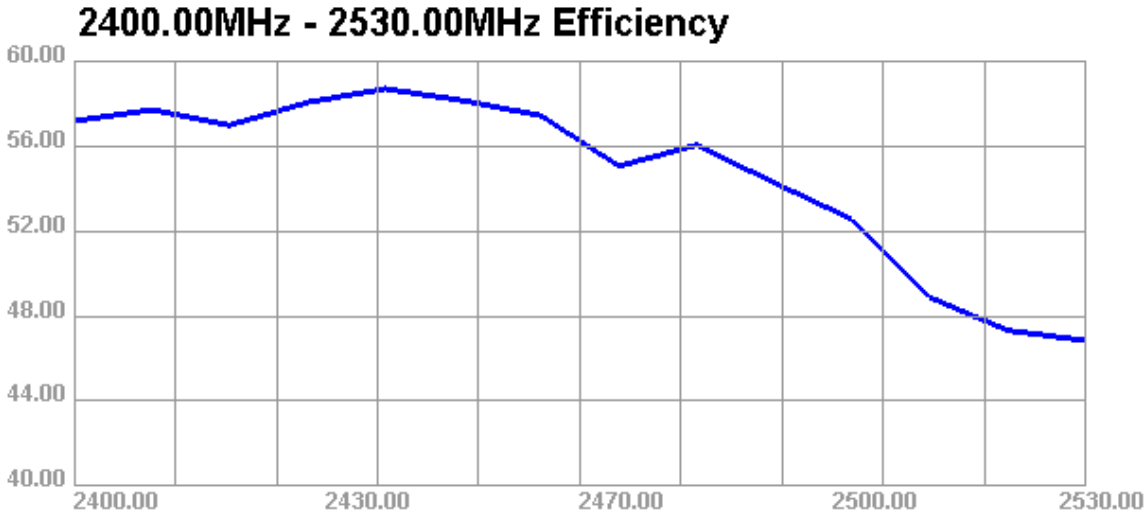


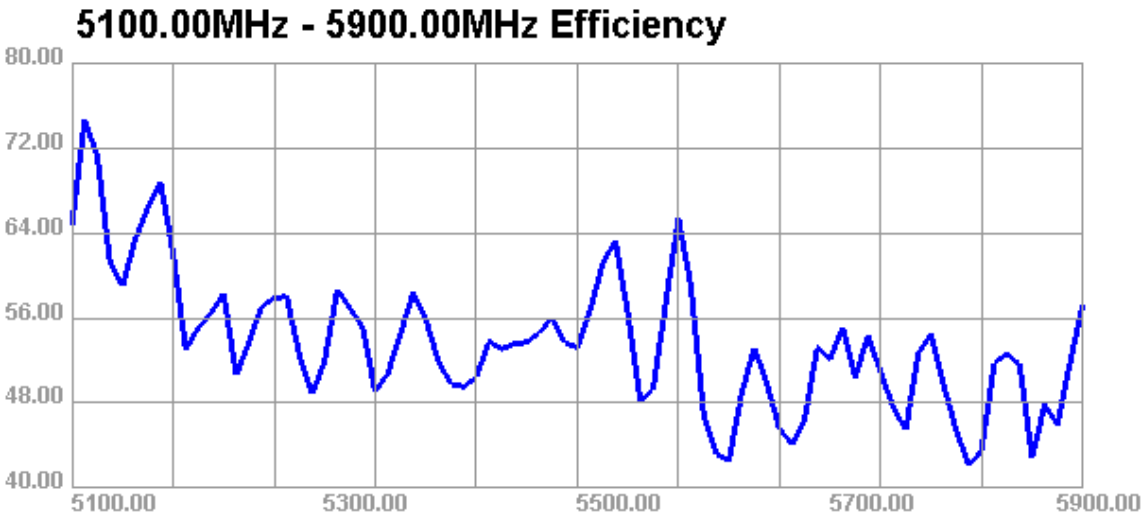
3.2.3 Gain



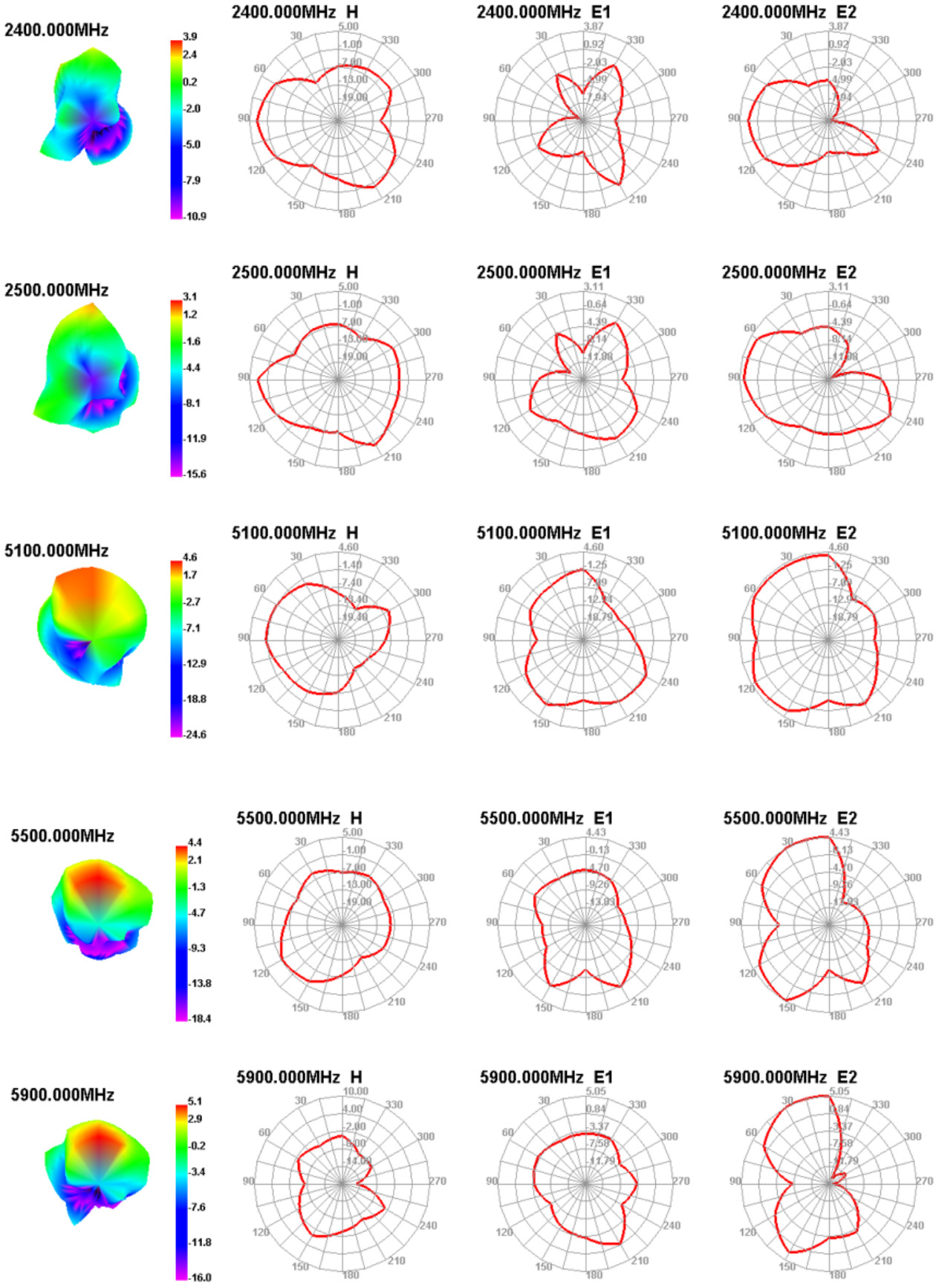


3.2.4 Efficiency

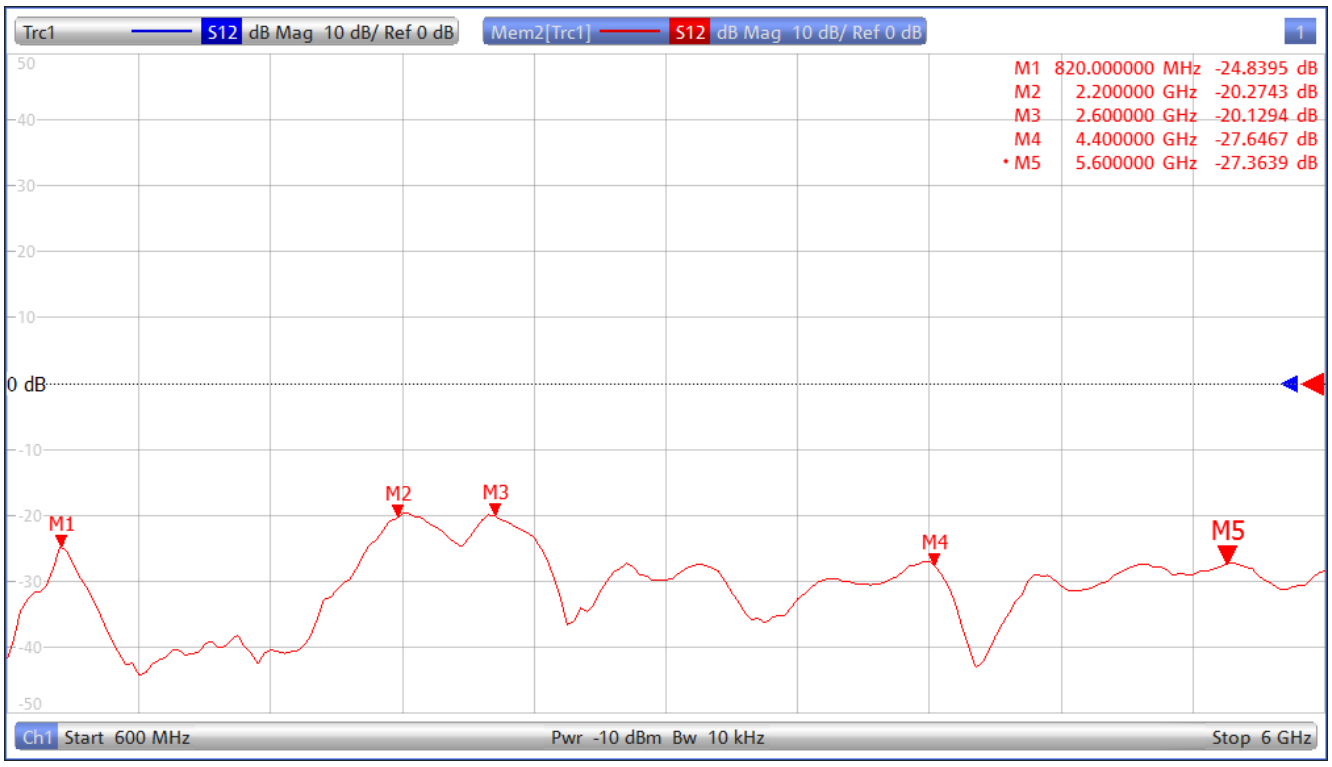




3.2.5 Directional pattern



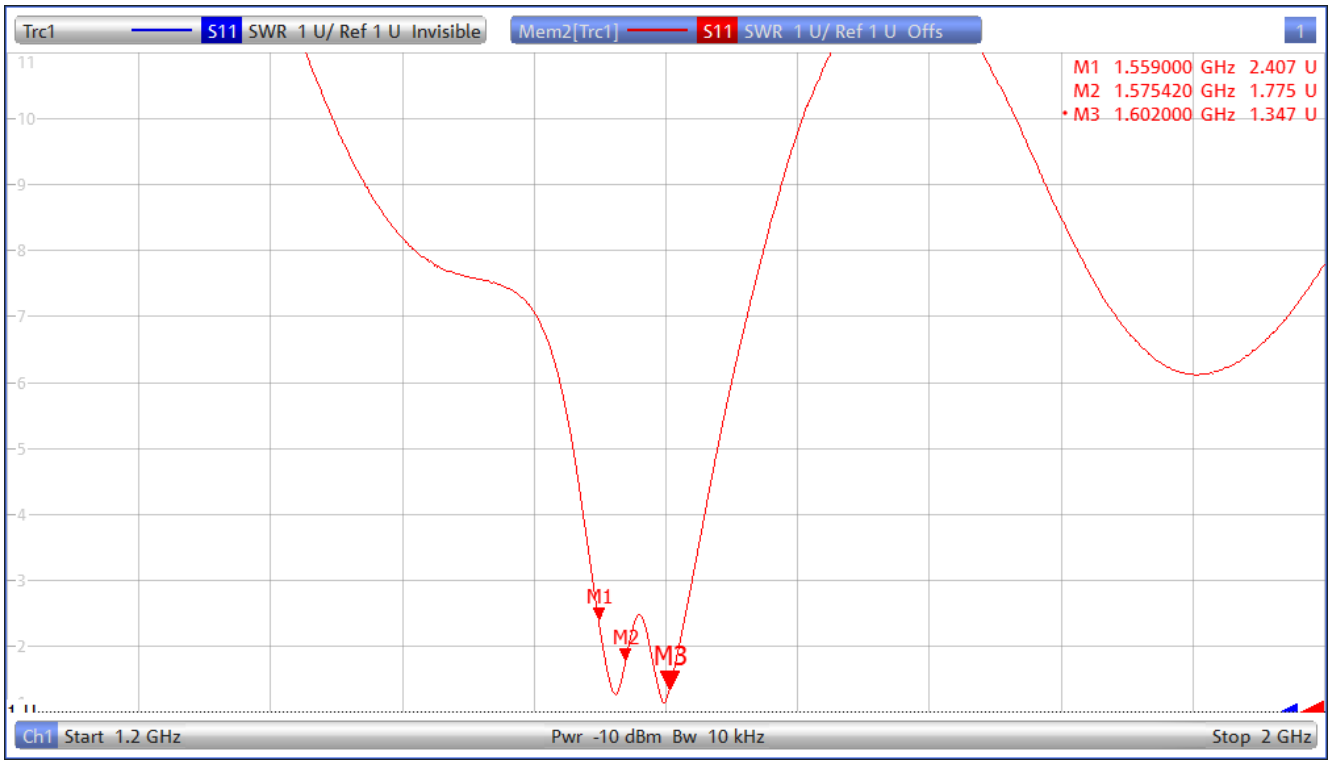
3.2.6 ISOLATION FOR CABLES 1 AND 2



3.3 Cable 3: GNSS

FRE（MHz）	1559	1575.42	1602
VSWR	2.40	1.77	1.34
Return Loss	-7.69	-11.08	-16.61
Eff (%)	64.8	53.6	58.1
Average Gain(dB)	-1.88	-2.71	-2.36

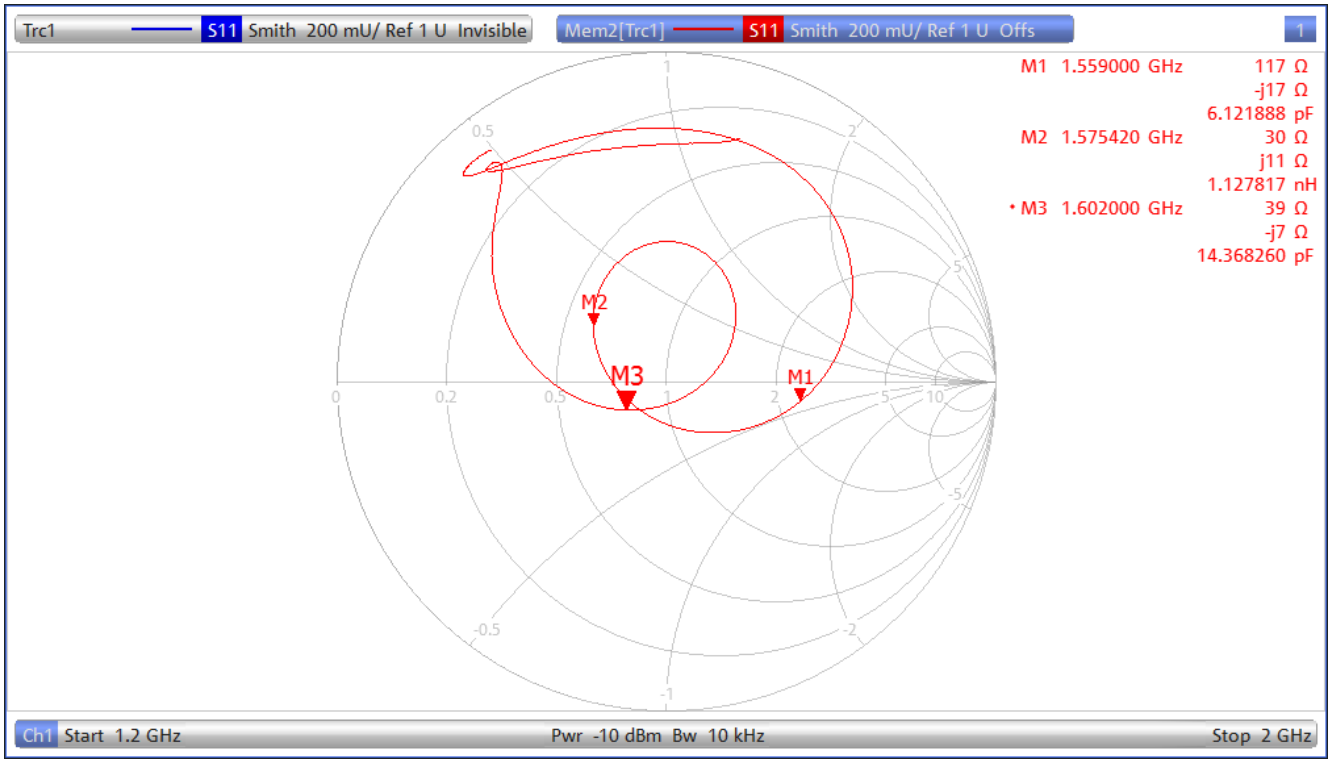
3.3.1 VSWR



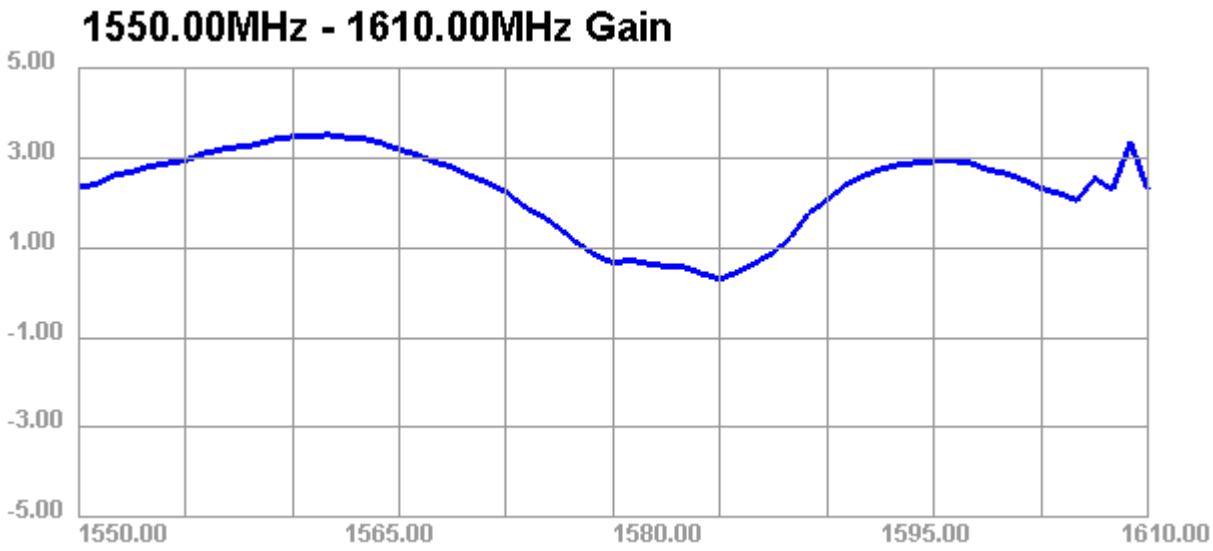
3.3.2 Return Loss



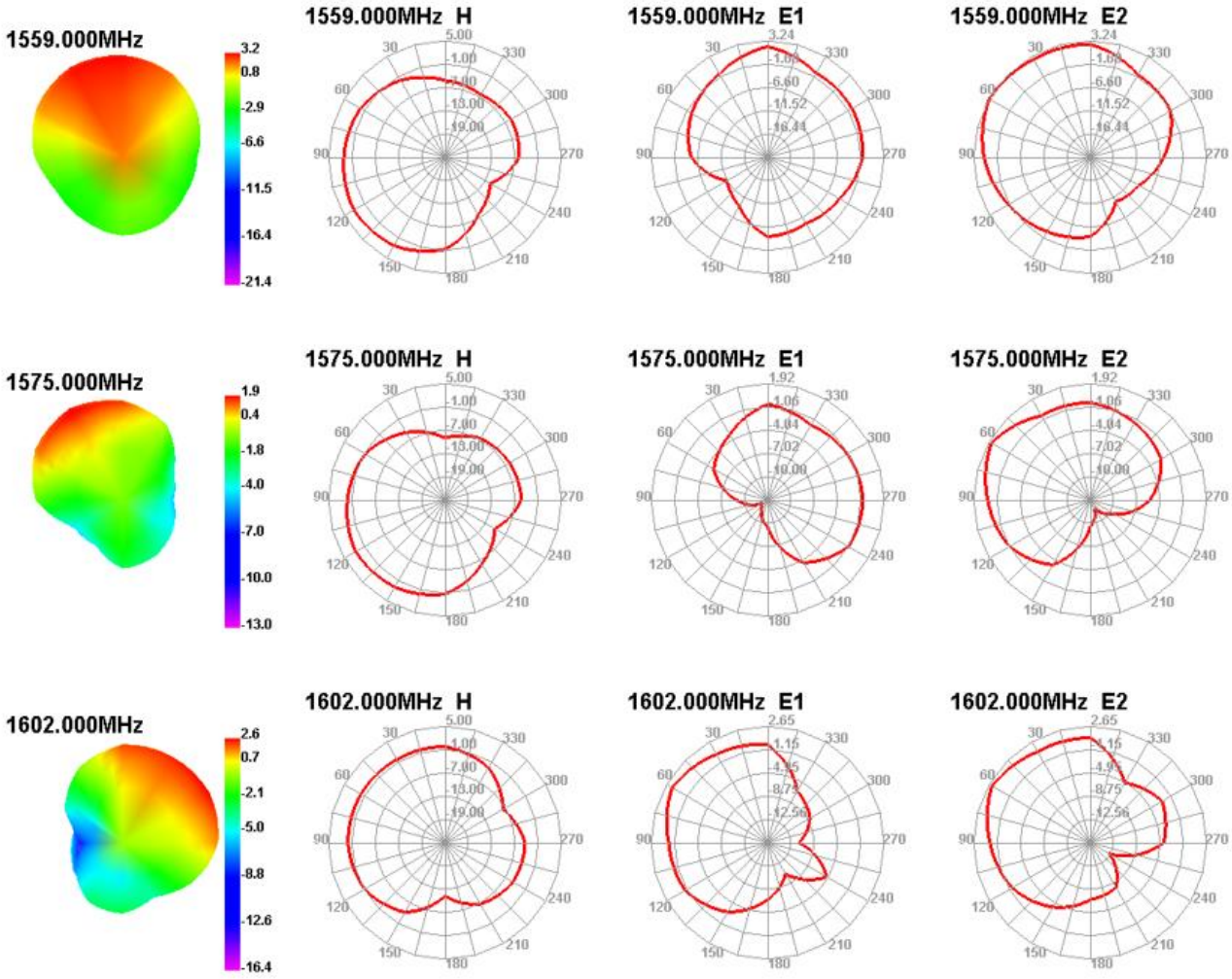
3.3.3 Smith



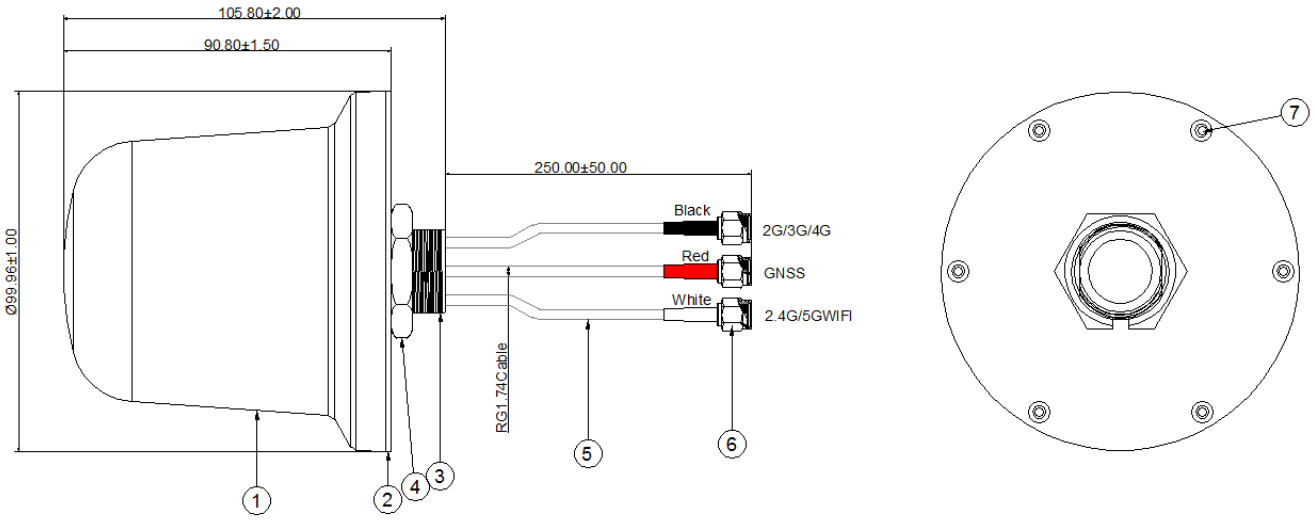
3.3.4 Gain



3.3.5 Directional Pattern



4. Antenna Drawing



Series	Component name	Material	Color	Quantity
1	Upper Shell	SABIC PC 1414	black	1
2	Lower Shell	SABIC PC 1414	black	1
3	Screw	brass	gilding	1
4	Nuts	brass	gilding	1
5	Cable	RG174	black	3
6	SMA	brass	gold	3
7	Screw	M3x5	black	6