SWB008



PN: SW20279EB56

Features:

- Antenna with 4×4 MIMO 5G+WIFI 2.4G&5G.
- The 5G band is n1, n41, n77, n78, n79.
- Maintains high performance on device.
- High gain.
- Impedance 50 Ohm.

Applications:

- Access Points
- Game Consoles
- Set-Top-Box
- Network Devices
- MIMO Systems

Sunnyway Technology

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1. Electrical Specifications

Cable 1 Parameters Tested with 200mm cable length - RG174

Standards	5G n1/n41/n77/n78/n79		
Frequency range(MHz)	1900~2700	3300~4200	4400~5000
Peak Gain (dBi)	0~5.0	2.5~5.0	2.5~6.0
Average Gain (dB)	-4.0~-1.7	-4.3~-2.3	-3.0~-1.5
VSWR	<2.5	<2.0	<2.5
Return Loss	<-7.0	<-9.0	<-7.0
Efficiency (%)	40~67	37~57	50~70
Polarization mode	Linear	Linear	Linear
Radiation pattern	Omni-Directional	Omni-Directional	Omni-Directional
Output impedance (Ω)	50	50	50
Max. Input Power(W)	25	25	25

Cable 2 Parameters Tested with 200mm cable length - RG174

Standards	5G n1/n41/n77/n78/n79		
Frequency range(MHz)	1900~2700	3300~4200	4400~5000
Peak Gain (dBi)	1.0~5.0	2.0~4.0	2.5~4.0
Average Gain (dB)	-3.7~-1.9	-3.5~-2.2	-3.3~-1.7
VSWR	<2.5	<2.0	<2.5
Return Loss	<-7.0	<-9.0	<-7.0
Efficiency (%)	43~65	45~60	47~67
Polarization mode	Linear	Linear	Linear
Radiation pattern	Omni-Directional	Omni-Directional	Omni-Directional
Output impedance (Ω)	50	50	50
Max. Input Power(W)	25	25	25

Cable 3 Parameters Tested with 200mm cable length - RG174

Standards	5G n1/n41/n77/n78/n79		
Frequency range(MHz)	1900~2700	3300~4200	4400~5000
Peak Gain (dBi)	0.5~5.0	2.0~6.0	2.5~5.0
Average Gain (dB)	-3.5~-1.7	-4.0~-2.1	-3.5~-2.2
VSWR	<2.5	<2.0	<2.0
Return Loss	<-7.0	<-10.0	<-10.0
Efficiency (%)	45~68	40~62	45~60
Polarization mode	Linear	Linear	Linear
Radiation pattern	Omni-Directional	Omni-Directional	Omni-Directional
Output impedance (Ω)	50	50	50
Max. Input Power(W)	25	25	25

Cable 4 Parameters Tested with 200mm cable length - RG174

Standards	5G n1/n41/n77/n78/n79		
Frequency range(MHz)	1900~2700	3300~4200	4400~5000
Peak Gain (dBi)	0~4.0	1.5~4.0	2.0~4.0
Average Gain (dB)	-4.1~-1.8	-4.2~-2.4	-4.0~-2.6
VSWR	<3.0	<2.0	<3.0
Return Loss	<-7.0	<-10.0	<-7.0
Efficiency (%)	39~66	38~58	40~55
Polarization mode	Linear	Linear	Linear
Radiation pattern	Omni-Directional	Omni-Directional	Omni-Directional
Output impedance (Ω)	50	50	50
Max. Input Power(W)	25	25	25

Cable 5 Parameters Tested with 200mm cable length - RG174

Standards	2.4G&5G WIFI	
Frequency range(MHz)	2400~2500	4900~5900
Peak Gain (dBi)	2.5~3.5	1.5~4.5
Average Gain (dB)	-2.1~-1.9	-4.0~-2.2
VSWR	<2.0	<2.0
Return Loss	<-10.0	<-9.0
Efficiency (%)	61~65	40~60
Polarization mode	Linear	Linear
Radiation pattern	Omni-Directional	Omni-Directional
Output impedance (Ω)	50	50
Max. Input Power(W)	25	25

2. Mechanical and Environmental Specification

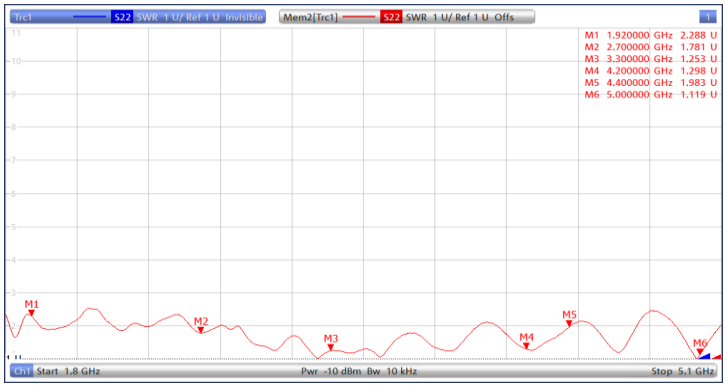
Mounting Type	**Screw lock**
Connector Type	RG174+SMA (M)
Antenna size(mm)	99.96 (φ) x 105.8 (H) x 2000 (Line length)
Material	SABIC PC 1414
Cable length(mm)	2000mm (can be customized)
Operating Temperature (˚C)	- 40 ˚C ~ + 85 ˚C
Storage Temperature(˚C)	- 40 ˚C ~ + 85 ˚C

3. Antenna parameters

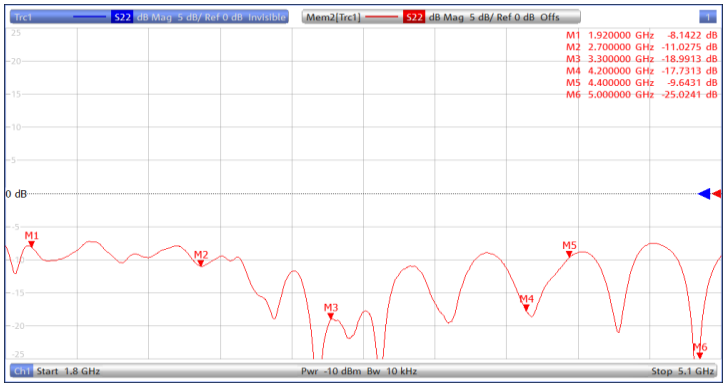
Cable 1: n1/n41/n77/n78/n79

FRE (MHz)	1920	2700	3300	4200	4400	5000
VSWR	2.2	1.7	1.2	1.2	1.9	1.1
Return Loss	-8.1	-11.0	-18.9	-17.7	-9.6	25.0
Eff (%)	45.2	50.0	48.0	42.0	66.3	50.0
Average Gain(dB)	-3.5	-3.0	-3.2	-3.8	-1.8	-3.0

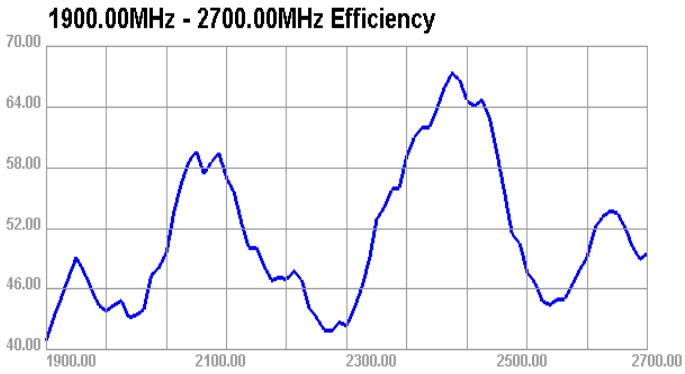
VSWR



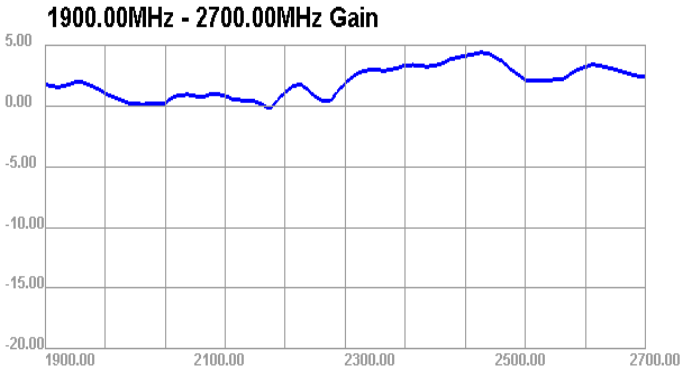
Return Loss

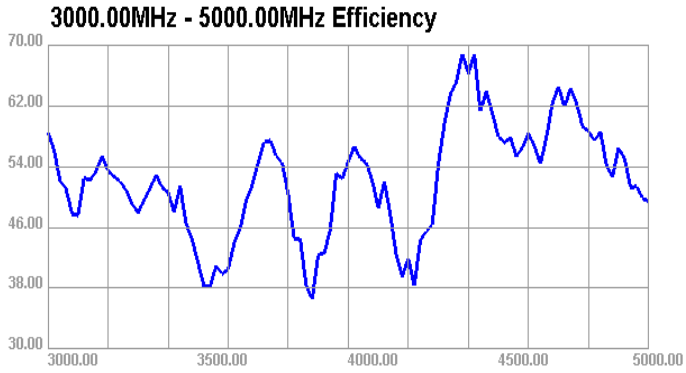


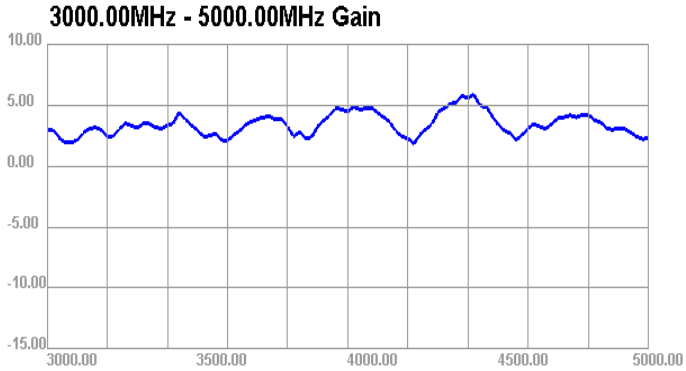
Efficiency



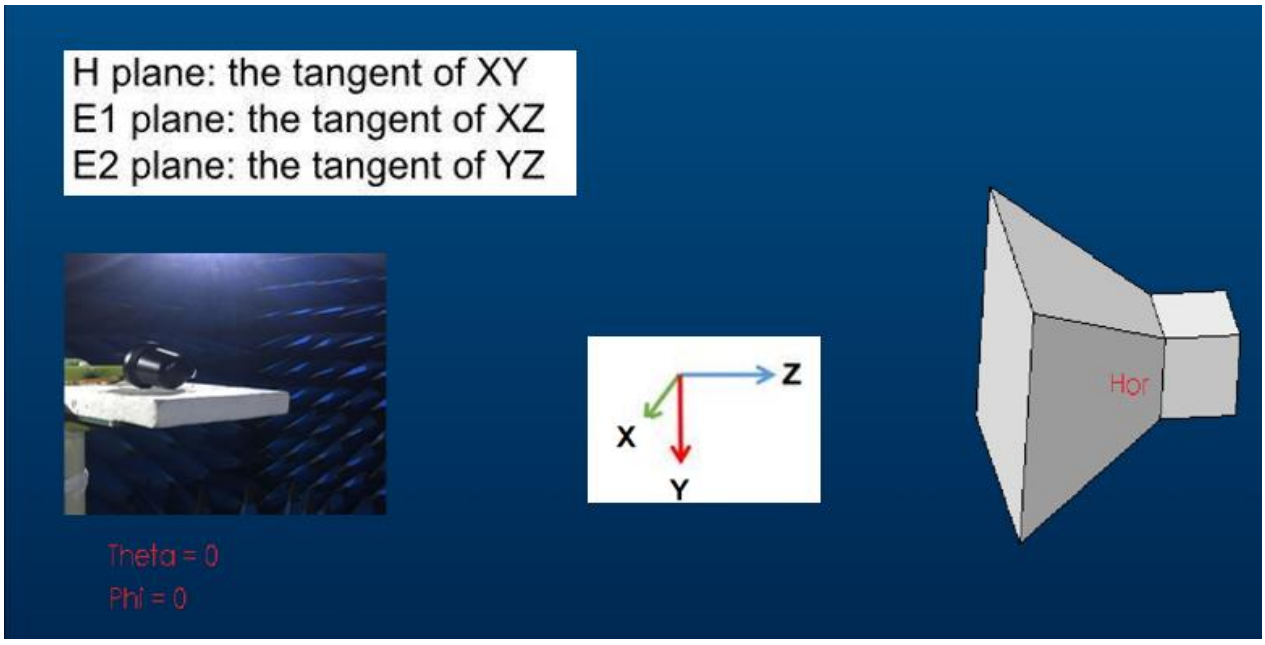
Gain

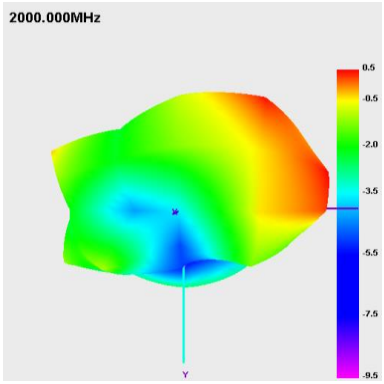


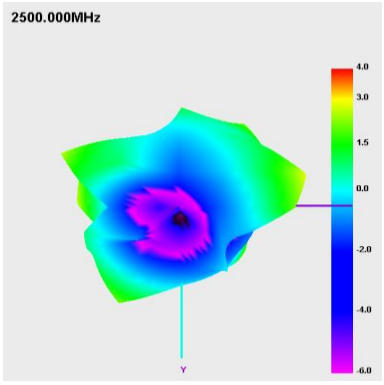


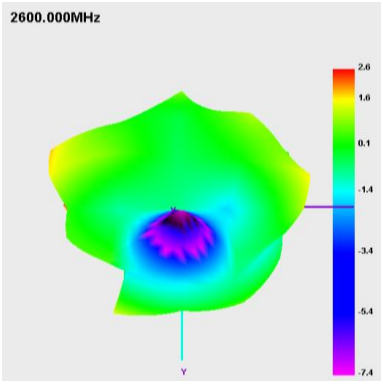


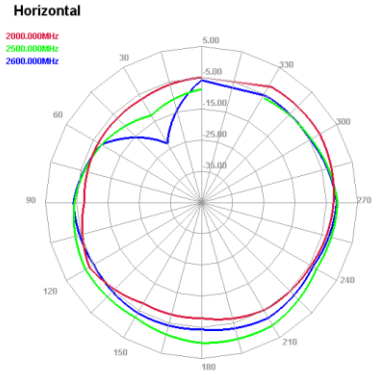
Directional pattern

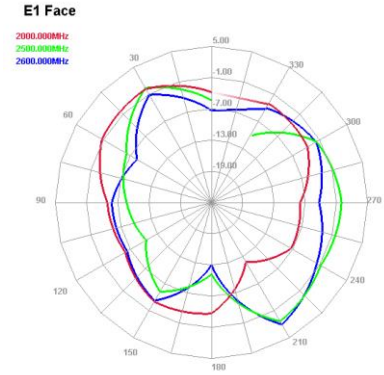


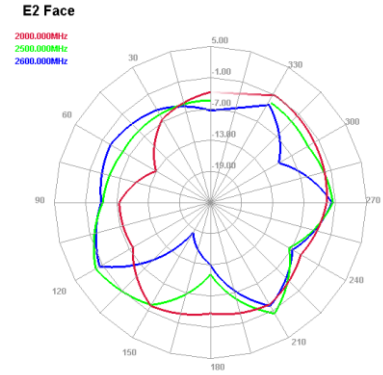

2000.000MHz
0.5
-0.5
-2.0
-3.5
-5.5
-7.5
-9.5
Y

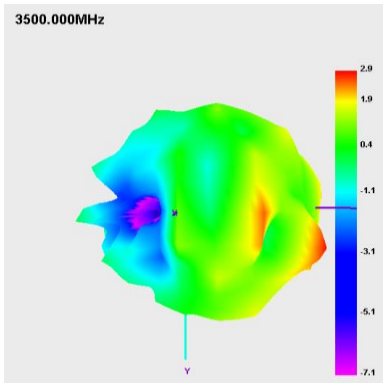

2500.000MHz
4.0
3.0
1.5
0.0
-2.0
-4.0
-6.0
Y

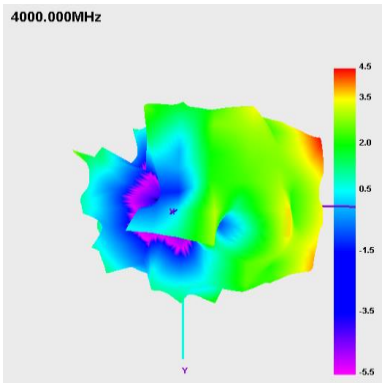

2600.000MHz
2.6
1.6
0.1
-1.4
-3.4
-5.4
-7.4
Y

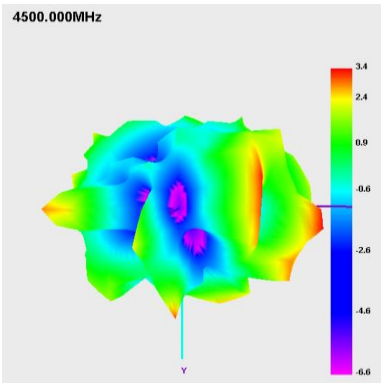

Horizontal
2000.000MHz
2500.000MHz
2600.000MHz

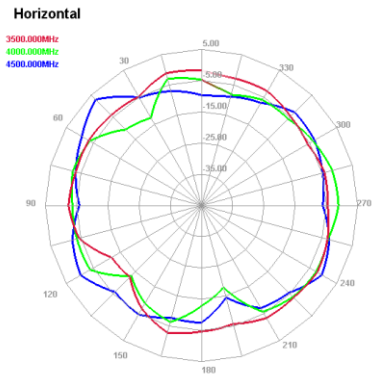

E1 Face
2000.000MHz
2500.000MHz
2600.000MHz

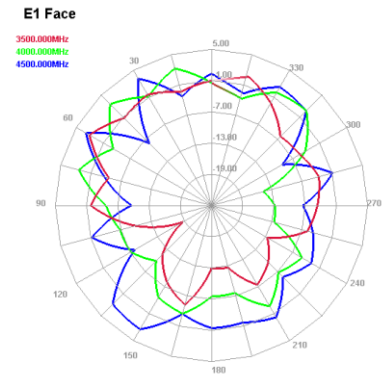

E2 Face
2000.000MHz
2500.000MHz
2600.000MHz

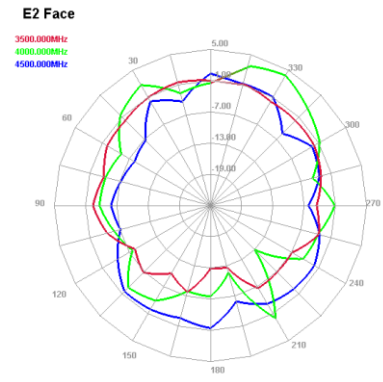

3500.000MHz
2.9
1.9
0.4
-1.1
-3.1
-5.1
-7.1
Y


4000.000MHz
4.5
3.5
2.0
0.5
-1.5
-3.5
-5.5
Y


4500.000MHz
3.4
2.4
0.9
-0.6
-2.6
-4.6
-6.6
Y


Horizontal
3500.000MHz
4000.000MHz
4500.000MHz

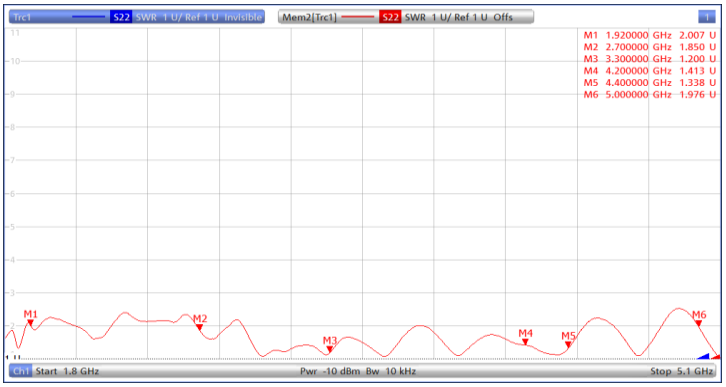

E1 Face
3500.000MHz
4000.000MHz
4500.000MHz


E2 Face
3500.000MHz
4000.000MHz
4500.000MHz

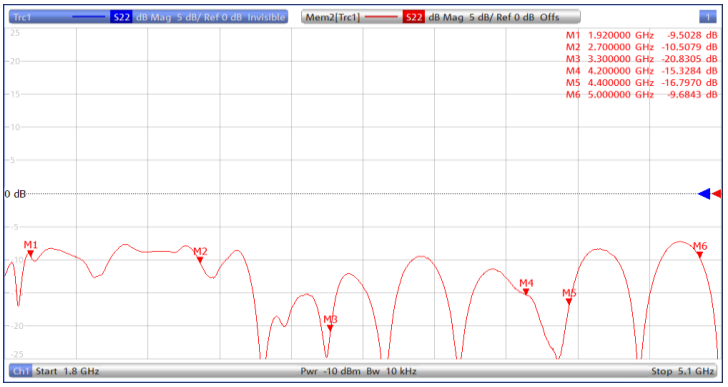
Cable 2: n1/n41/n77/n78/n79

FRE (MHz)	1920	2700	3300	4200	4400	5000
VSWR	2.0	1.8	1.2	1.4	1.3	1.9
Return Loss	-9.5	-10.5	-20.8	-15.3	-16.7	-9.6
Eff (%)	50.5	48.9	51.9	59.0	66.0	53.2
Average Gain(dB)	-3.0	-3.1	-2.9	-2.3	-1.8	-2.7

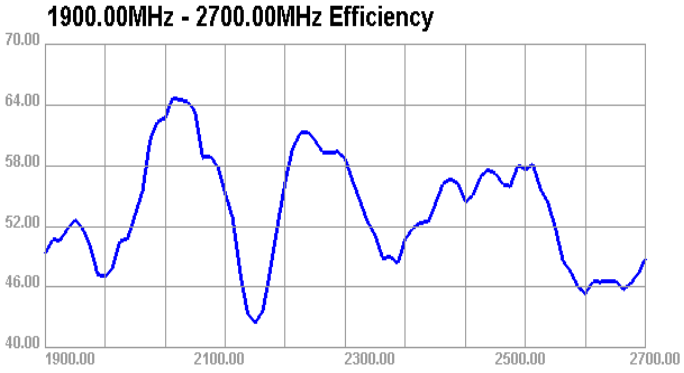
VSWR

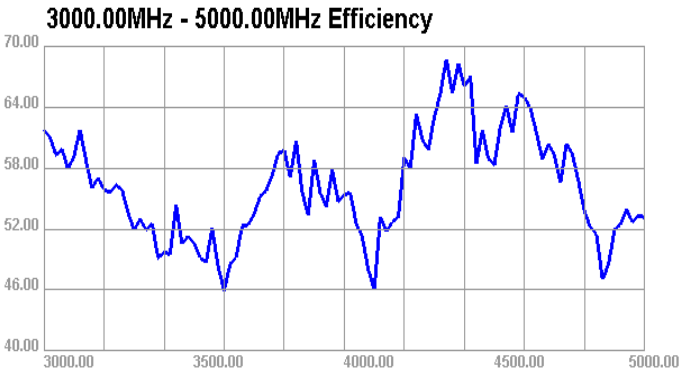


Return Loss

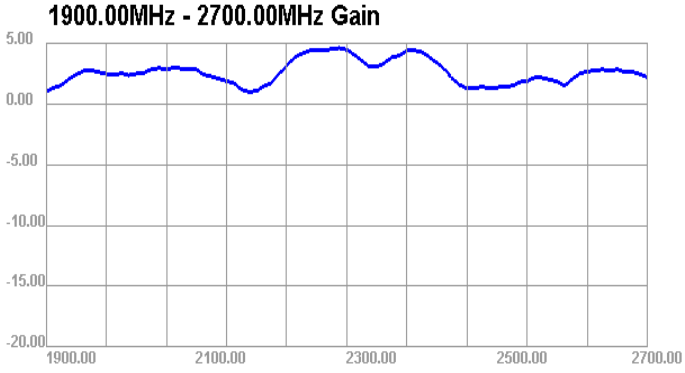


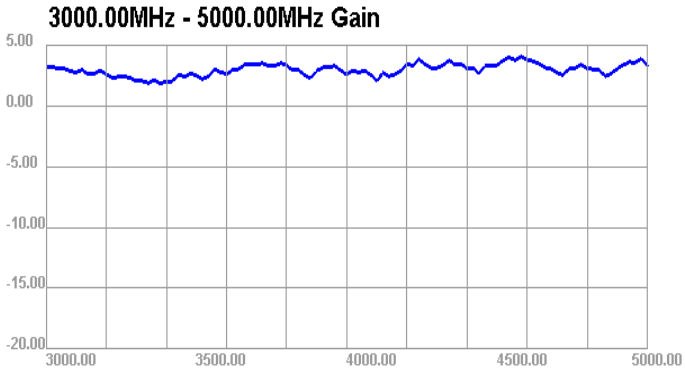
Efficiency



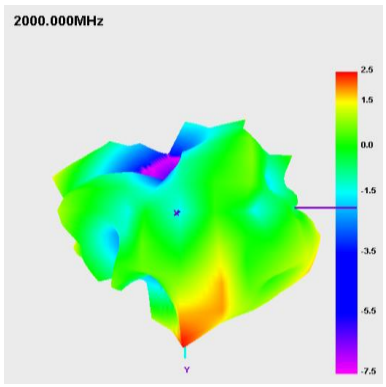


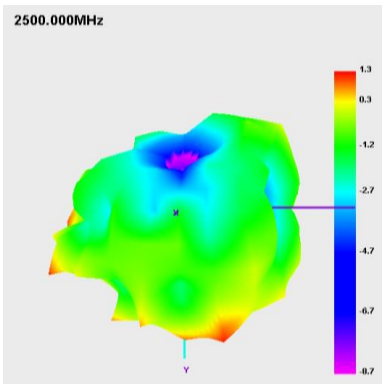
Gain

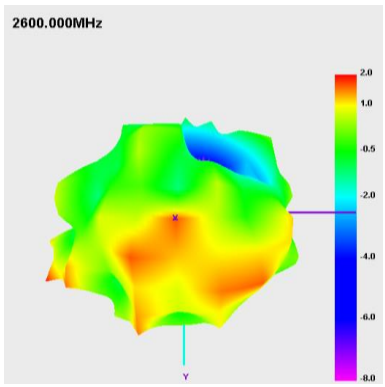


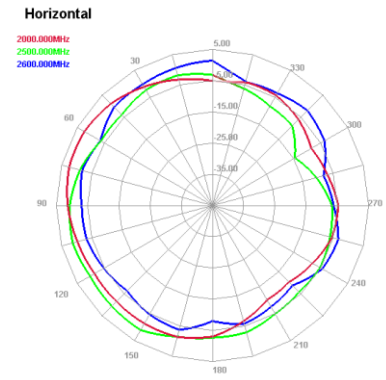


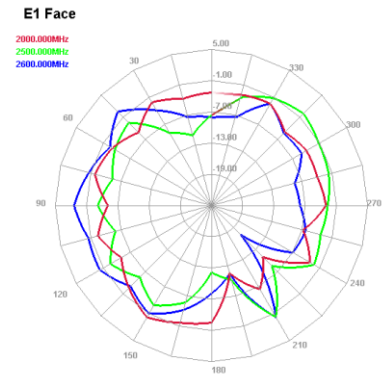
Directional pattern

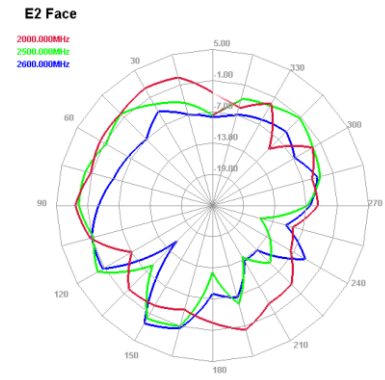


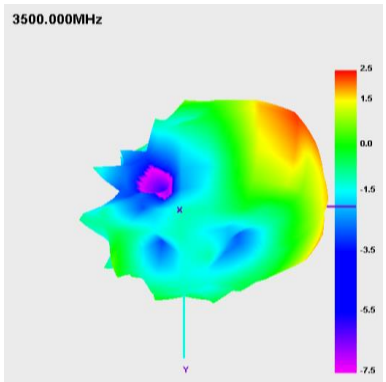


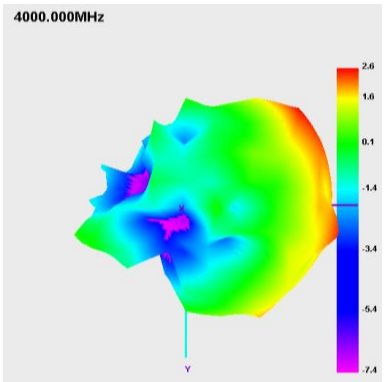


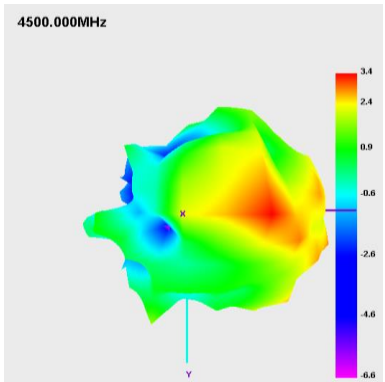


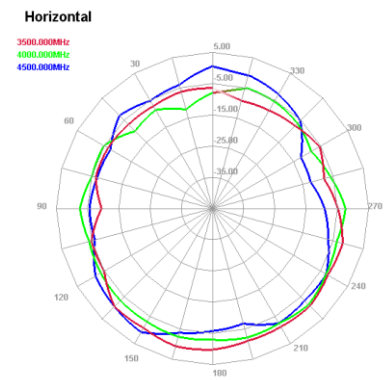


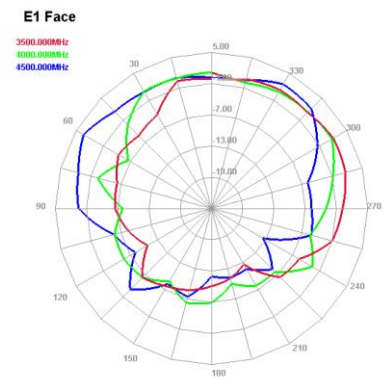


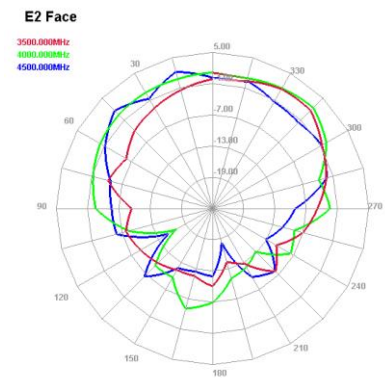








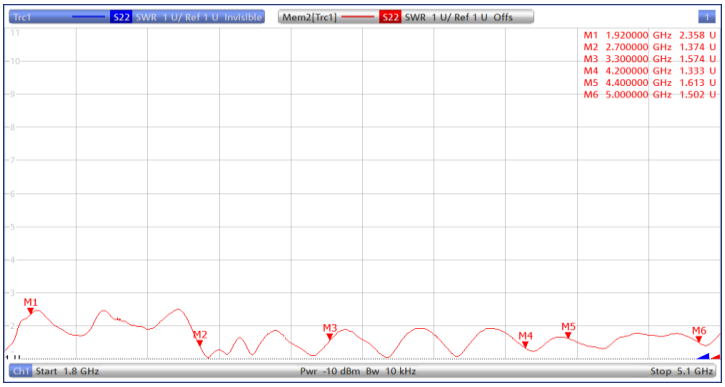




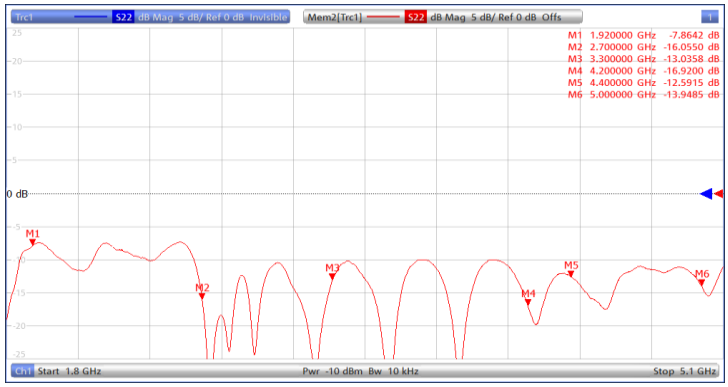
Cable 3: n1/n41/n77/n78/n79

FRE (MHz)	1920	2700	3300	4200	4400	5000
VSWR	2.3	1.3	1.5	1.3	1.6	1.5
Return Loss	-9.8	-16.0	-13.0	-16.9	-12.5	-13.9
Eff (%)	45.2	53.3	47.0	44.5	56.5	51.0
Average Gain(dB)	-3.5	-2.7	-3.3	-3.5	-2.5	-2.9

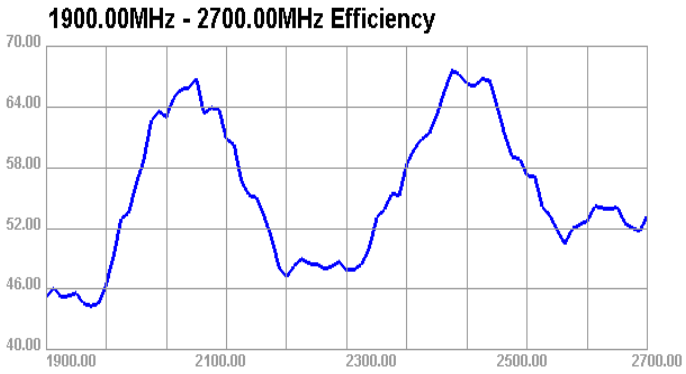
VSWR

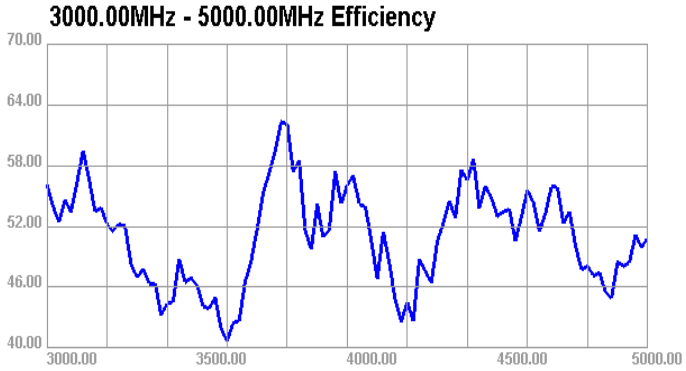


Return Loss

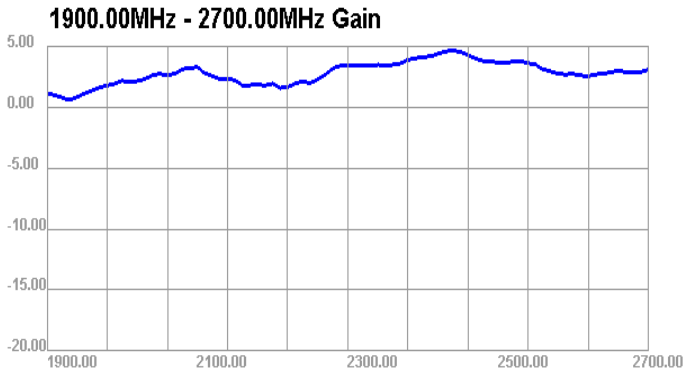


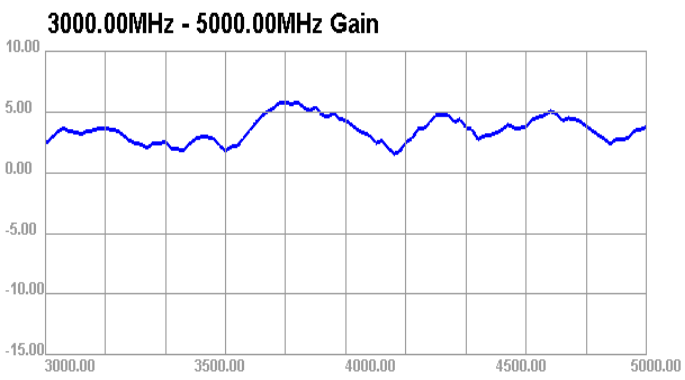
Efficiency



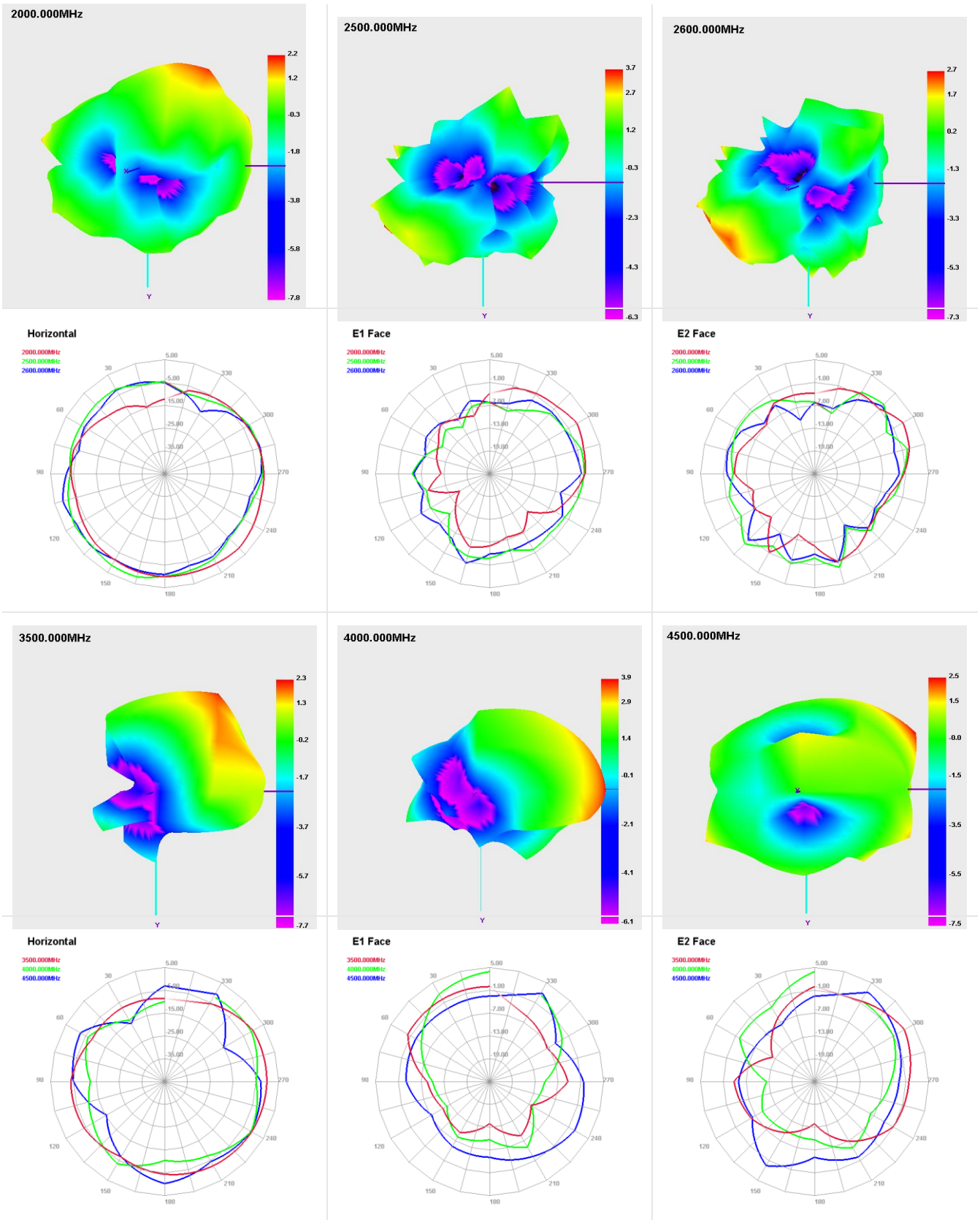


Gain





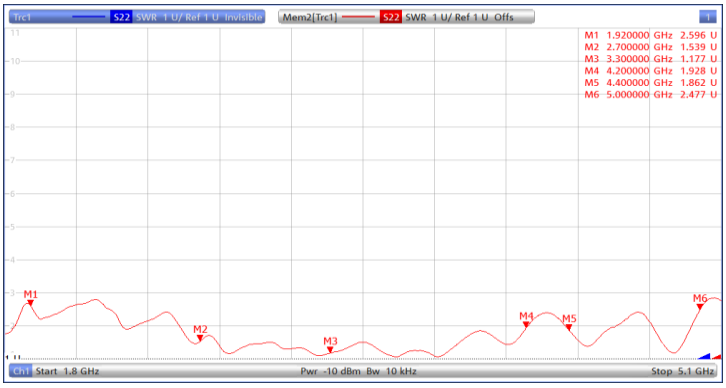
Directional pattern



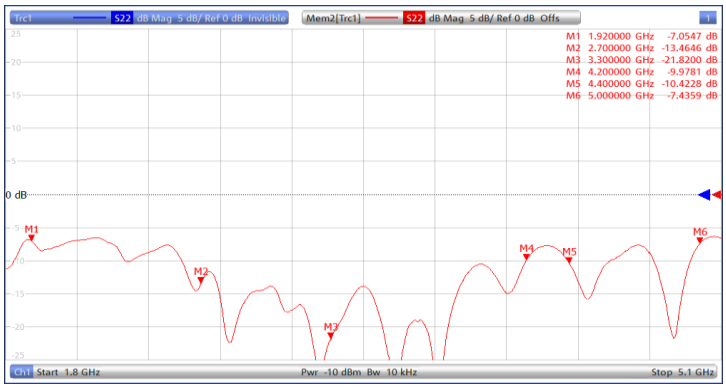
Cable 4: n1/n41/n77/n78/n79

FRE (MHz)	1920	2700	3300	4200	4400	5000
VSWR	2.5	1.5	1.1	1.9	1.8	2.4
Return Loss	-7.0	-13.4	-21.8	-9.9	-10.4	-7.4
Eff (%)	39.0	48.6	52.0	40.8	51.0	45.5
Average Gain(dB)	-4.1	-3.1	-2.8	-3.9	-2.9	-3.4

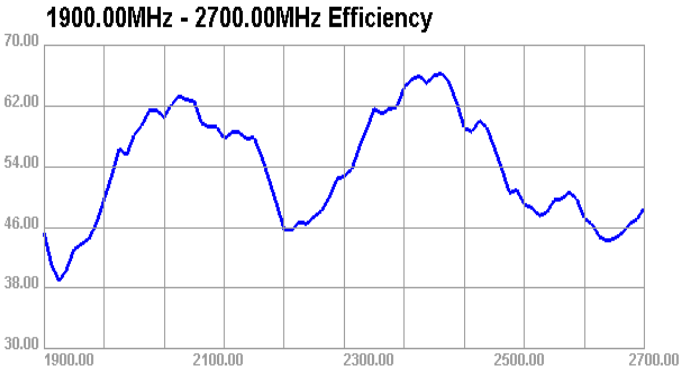
VSWR



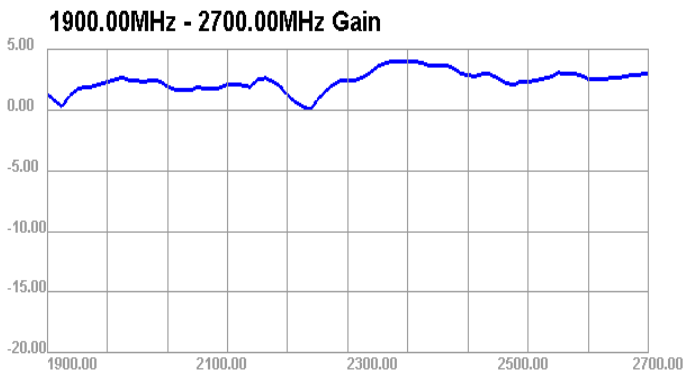
Return Loss

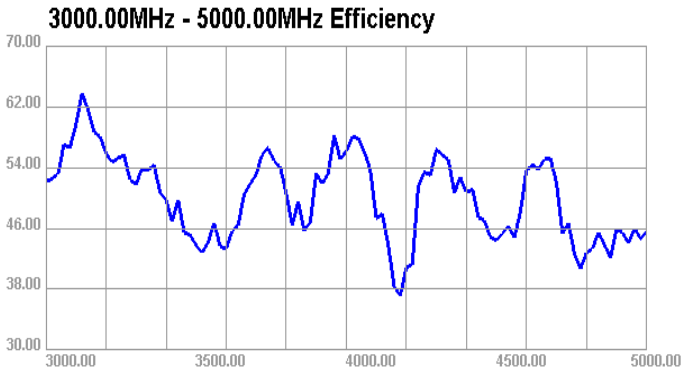


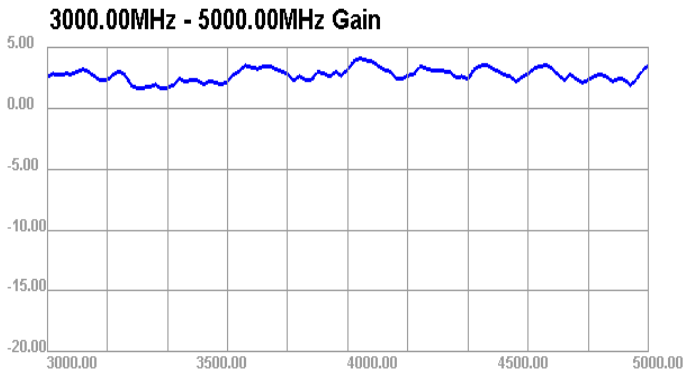
Efficiency



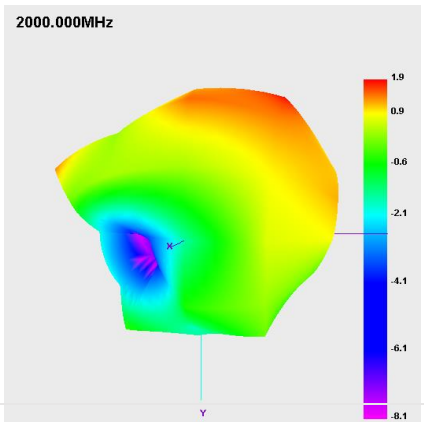
Gain

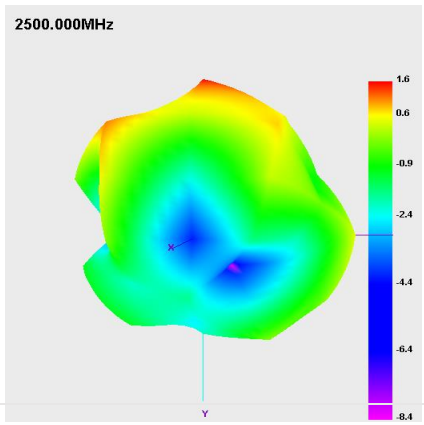


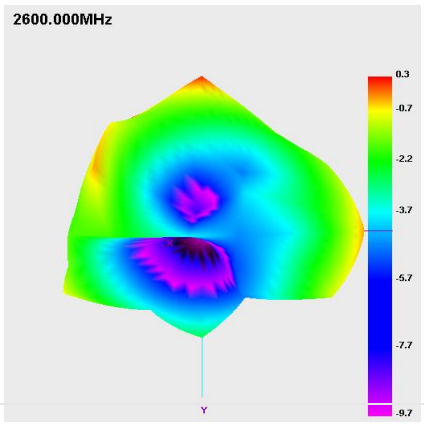


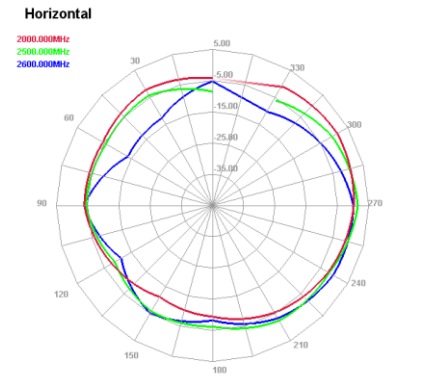


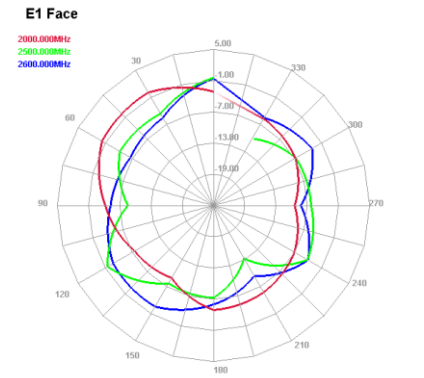
Directional pattern

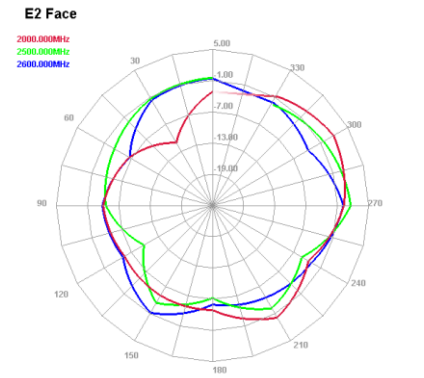


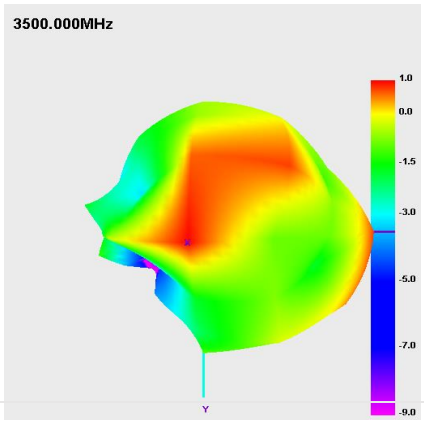


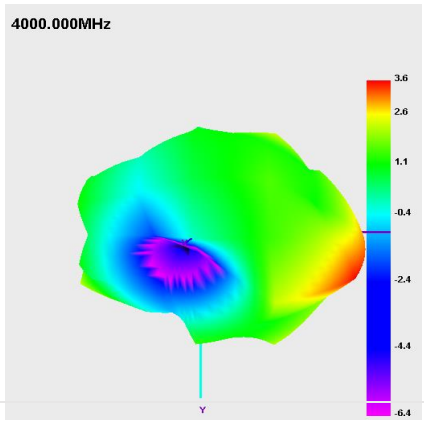


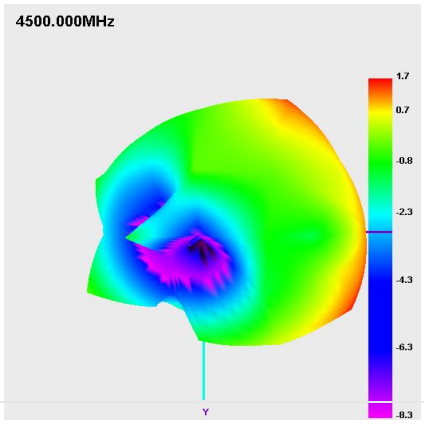


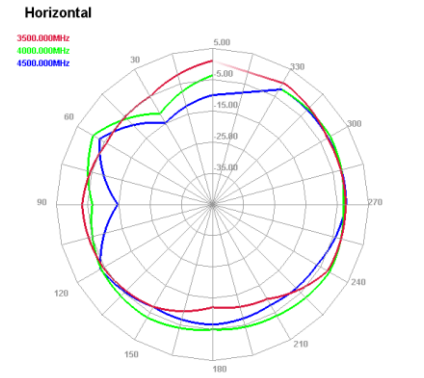


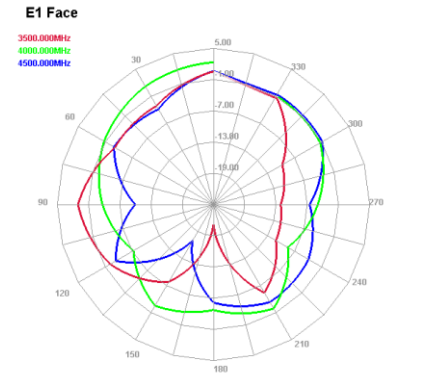


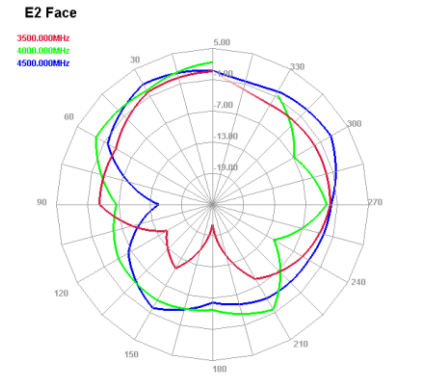








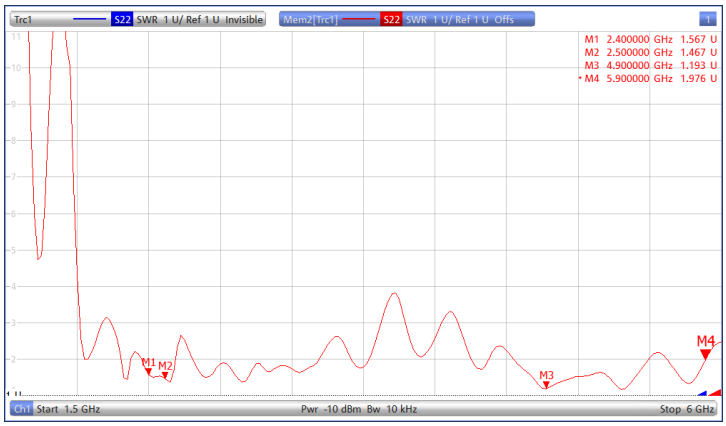




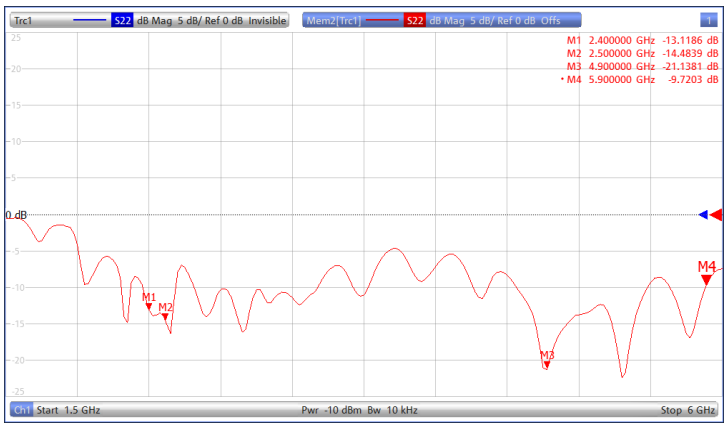
Cable 5: 2.4G&5G WIFI

FRE (MHz)	2400	2500	4900	5900
VSWR	1.5	1.4	1.1	1.9
Return Loss	-13.1	-14.4	-21.1	-9.7
Eff (%)	64.5	63.6	55.5	40.8
Average Gain(dB)	-1.9	-2.0	-2.6	-3.9

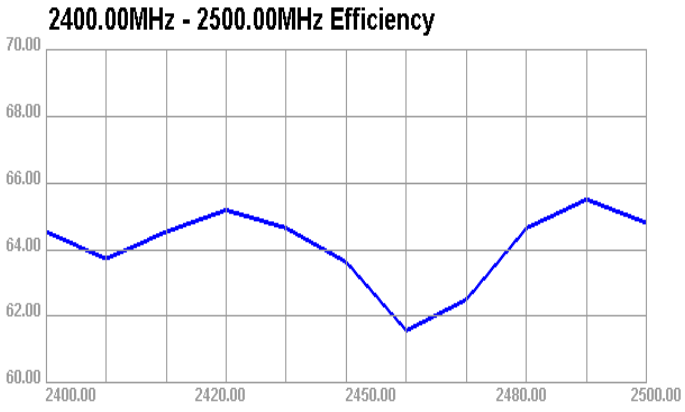
VSWR



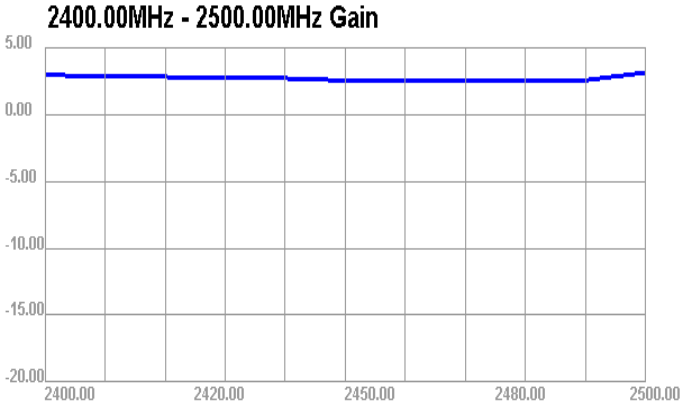
Return Loss

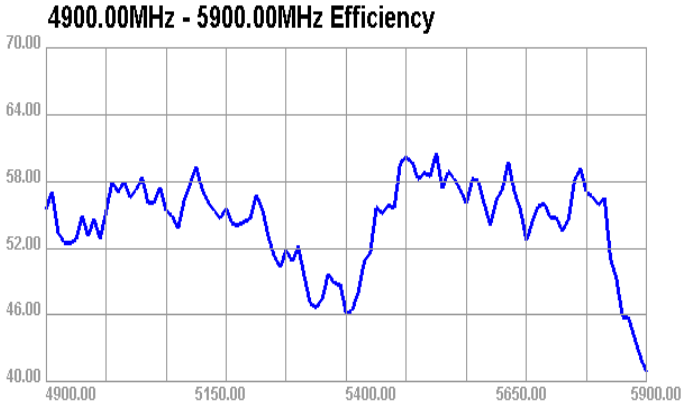


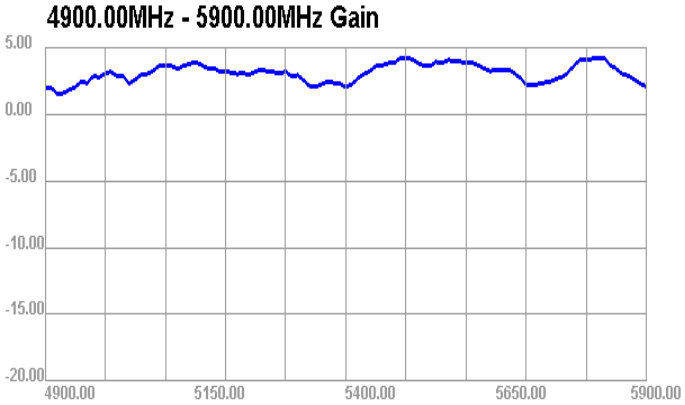
Efficiency



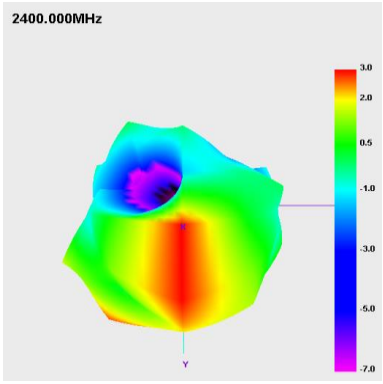
Gain

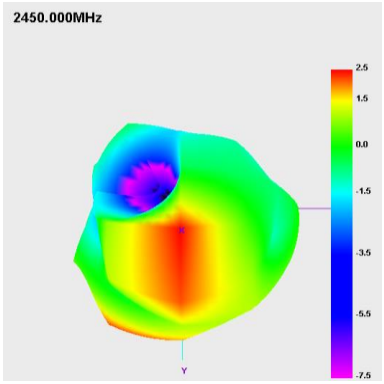


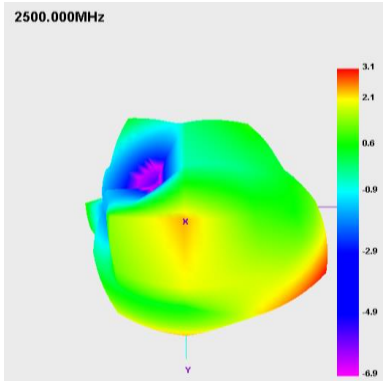


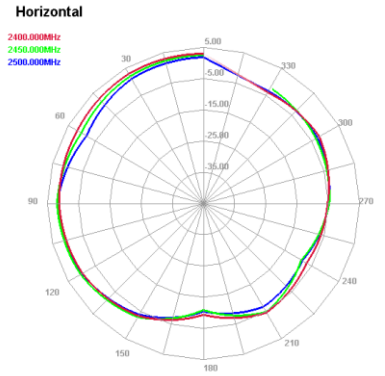


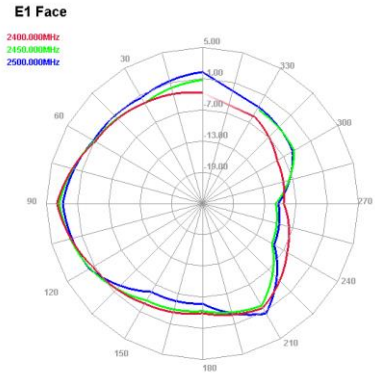
Directional pattern

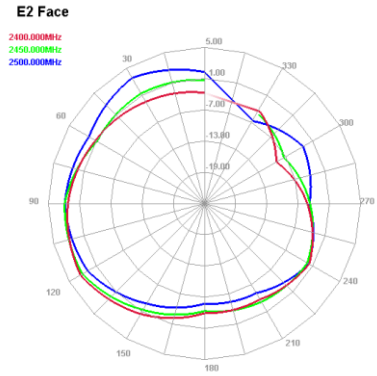


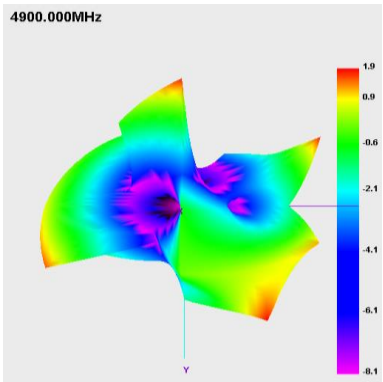


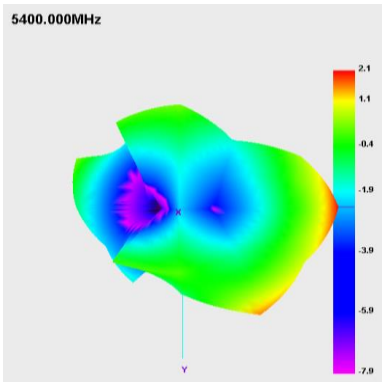


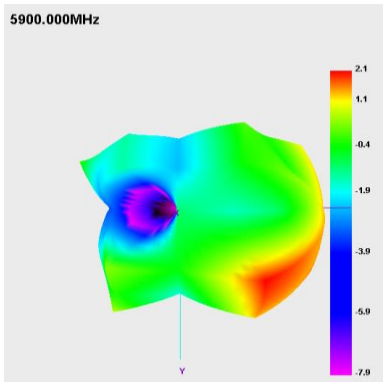


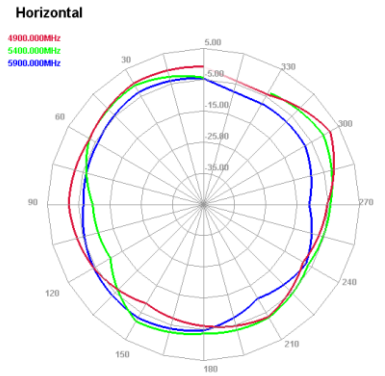


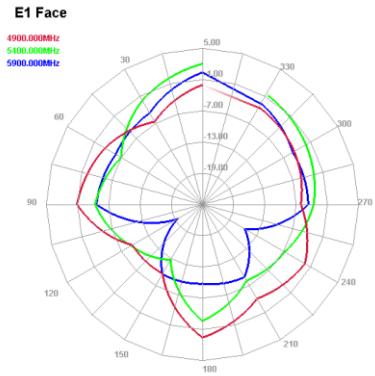


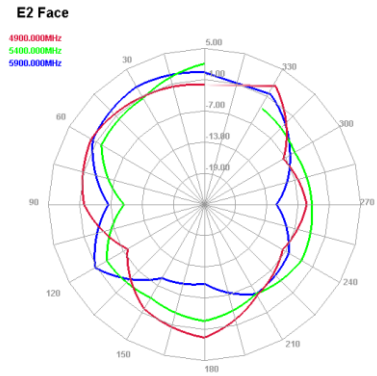






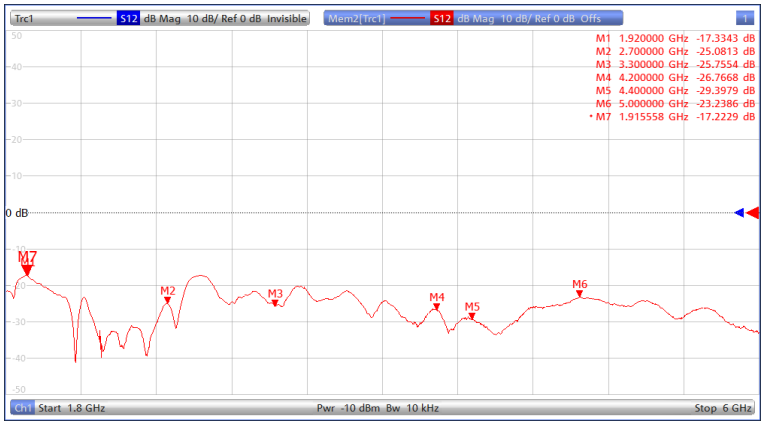




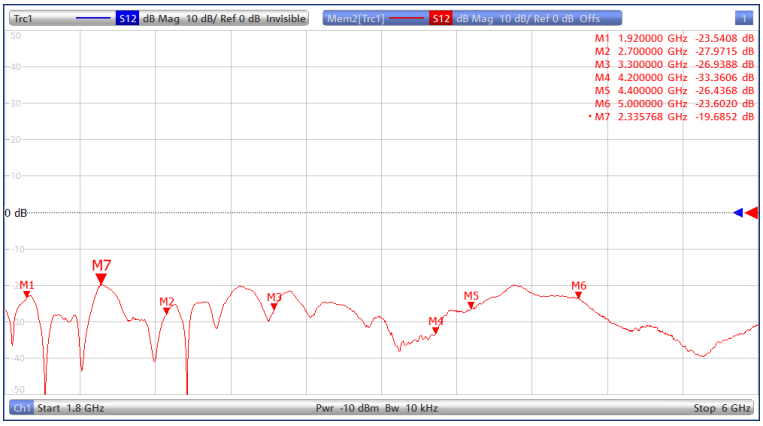


4.Isolation

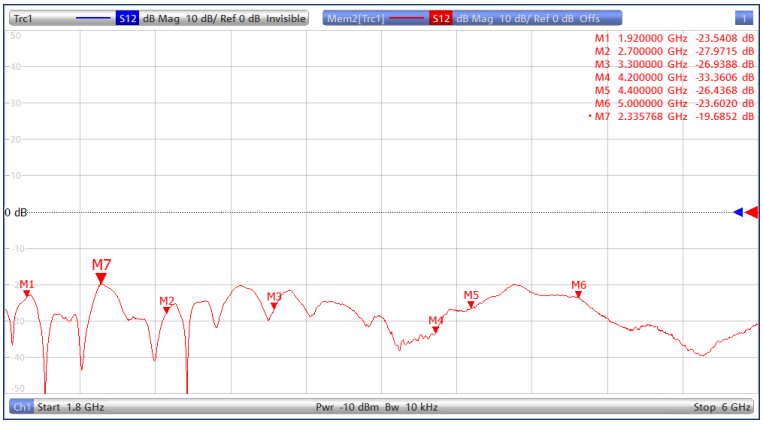
4.1 Isolation of cables 1 and 2



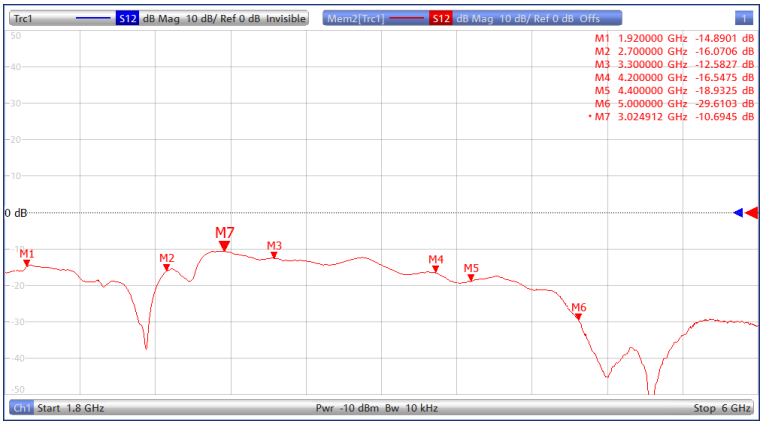
4.2 Isolation of cables 1 and 3



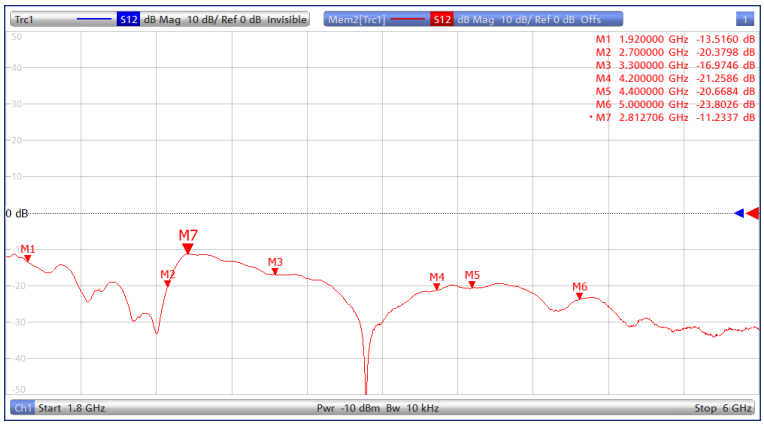
4.3 Isolation of cables 1 and 4



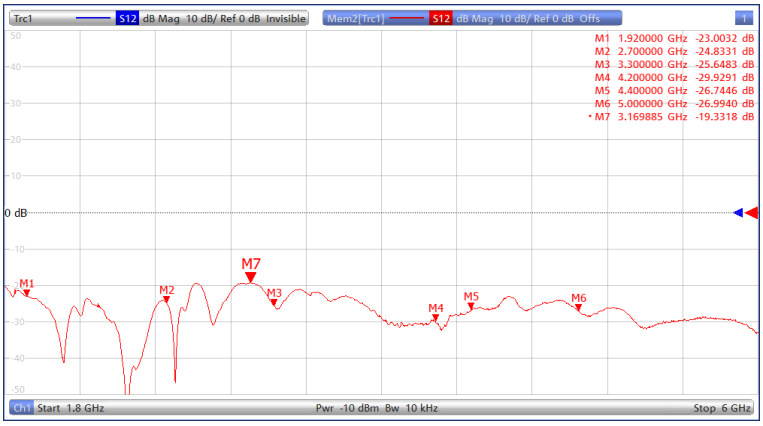
4.4 Isolation of cables 1 and 5



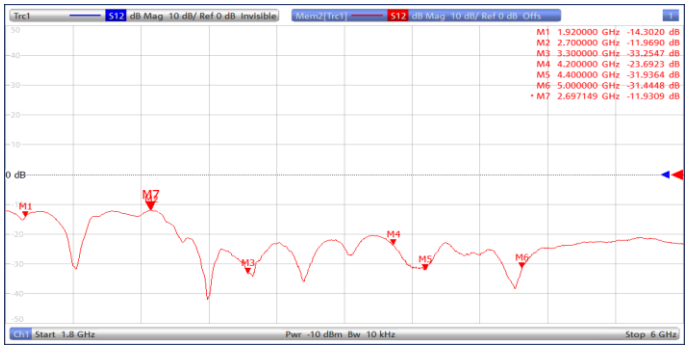
4.5 Isolation of cables 2 and 3



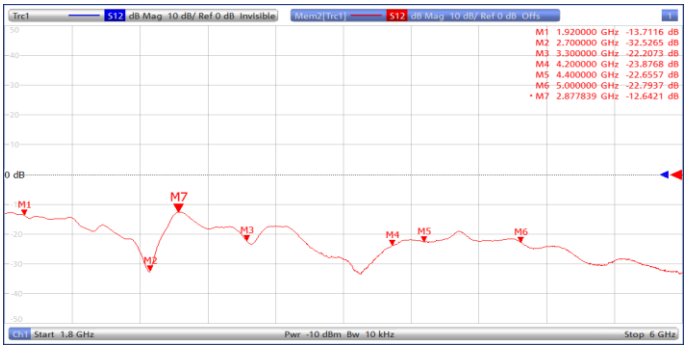
4.6 Isolation of cables 2 and 4



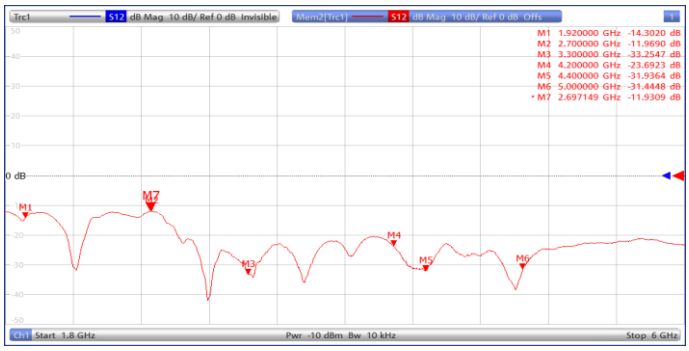
4.7 Isolation of cables 2 and 5



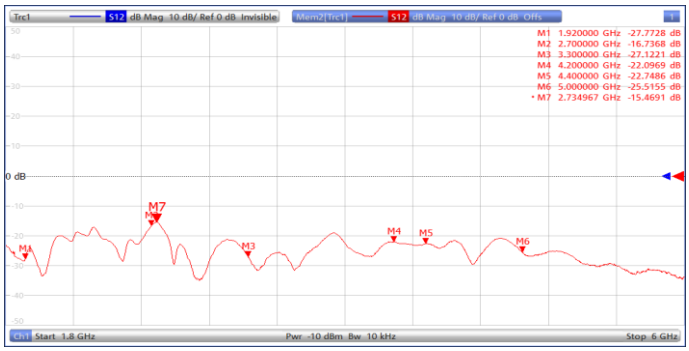
4.8 Isolation of cables 3 and 4



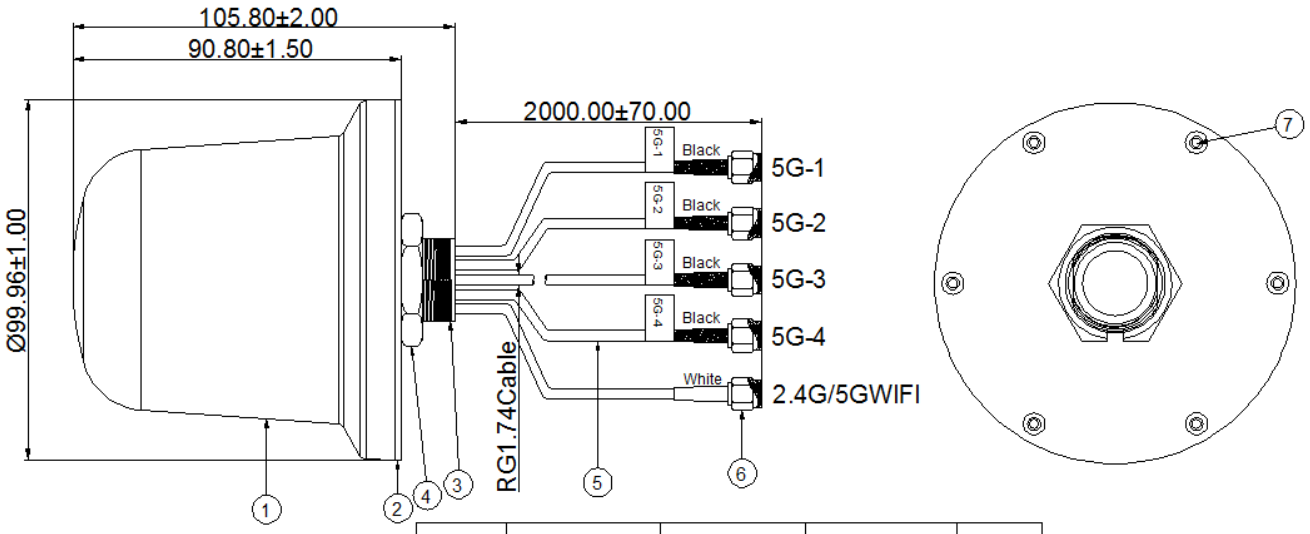
4.9 Isolation of cables 3 and 5



4.10 Isolation of cables 4 and 5



5.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	Gold	1
4	Nuts	brass	Gold	1
5	Cable	RG174	black	5
6	SMA	brass	Gold	5
7	Screw	M3x5	black	6

Note: Cable Loss

20℃时衰减（允许误差15%） Attenuation constant at 20℃ （Permissible error 15%）	200MHz	dB/100m	39
	400MHz	dB/100m	58
	900MHz	dB/100m	90
	1500MHz	dB/100m	117
	1800MHz	dB/100m	128
	2000MHz	dB/100m	139
	2500MHz	dB/100m	156