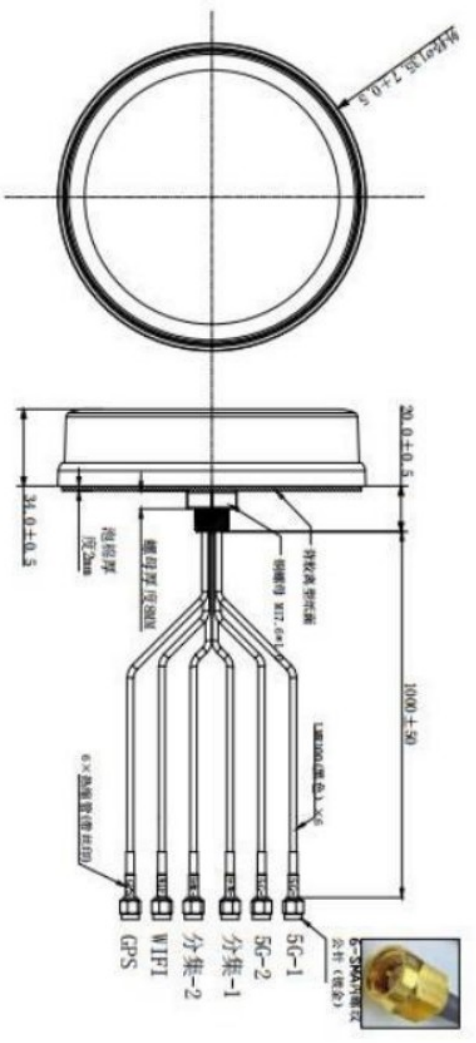
MULTIBAND COMBINATION ANTENNA

GL9Z049C GPS+BD, 5G and WiFi Combination Antenna

MODEL GL9Z049C

Six-lead multiband combination antenna integrating GPS+BD, 5G and WiFi elements. The supplied report includes a product drawing and measured RF test data.



KEY PERFORMANCE

GPS+BD / 5G / WiFi
INTEGRATED SYSTEMS

6
ANTENNA LEADS

1000 +/- 50 mm
CABLE LENGTH

6
MEASURED TEST GROUPS

TECHNICAL SPECIFICATIONS

PRODUCT CONFIGURATION	
Model	GL9Z049C
Integrated systems	GPS+BD, 5G and WiFi
Antenna leads	6
Cable length	1000 +/- 50 mm
SUPPLIED TEST REPORT	
5G test groups	5G-main 1; 5G-main 2; 5G-part1; 5G-part2
WiFi test group	WiFi
Navigation test group	GPS+BD
Recorded measurements	Smith chart, VSWR, efficiency, gain and radiation pattern

NOTES

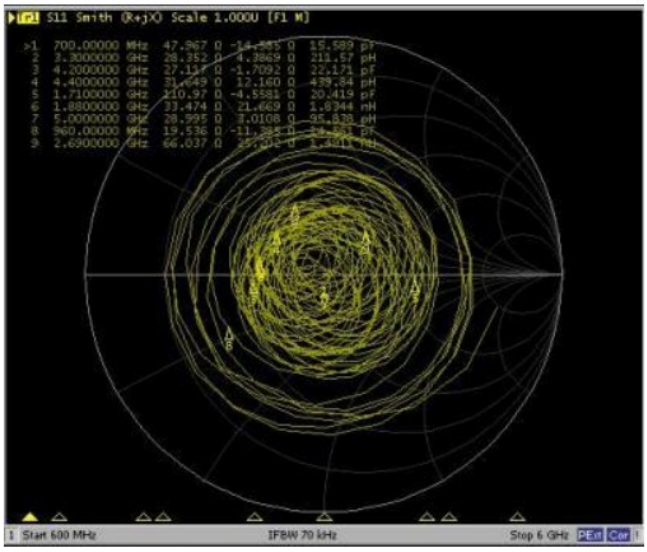
The source provides nominal GPS+BD component data. The 5G and WiFi pages contain measured test data only and are not presented as nominal specifications.

GPS+BD COMPONENT SPECIFICATIONS

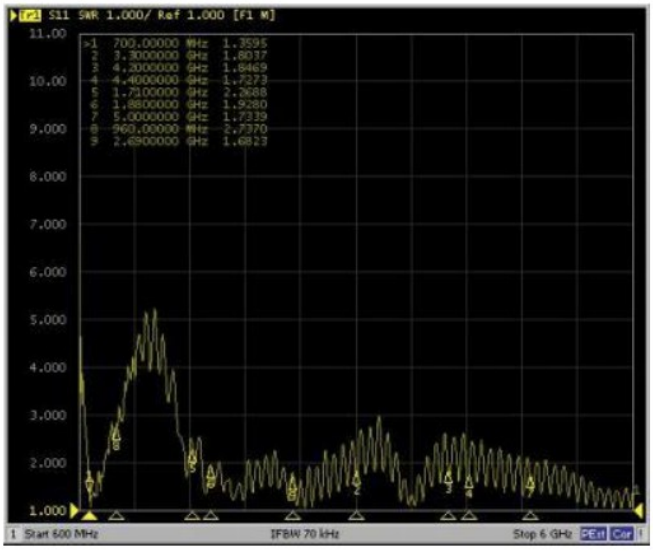
ANTENNA	
Center frequency	L1: 1575.42 MHz; B2: 1561.098 MHz
Bandwidth	CF +/- 3 MHz
Polarization	RHCP
Gain	3 dBic
VSWR	< 1.5
Impedance	50 ohm
Dimensions	25 x 25 x 4 mm
LNA	
Gain	28 +/- 2 dB
Noise figure	< 1.5
Filter insertion loss	< 3 dB
Supply voltage	3-5 V DC
Current consumption	10-20 mA
VSWR	< 2.0
ENVIRONMENTAL	
Operating temperature	-40 to +85 degC
Relative humidity	Up to 95%
Vibration	10-55 Hz with 1.5 mm amplitude for 2 hours
Environmentally friendly	RoHS compliant

5G-main 1

2 Smith



3 VSWR

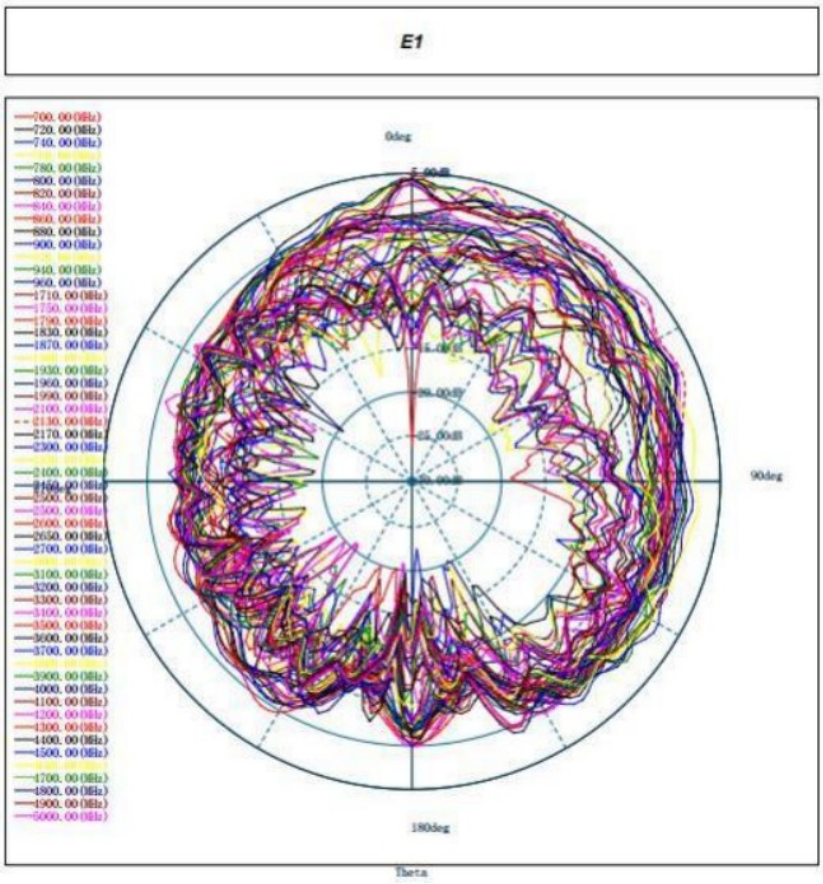


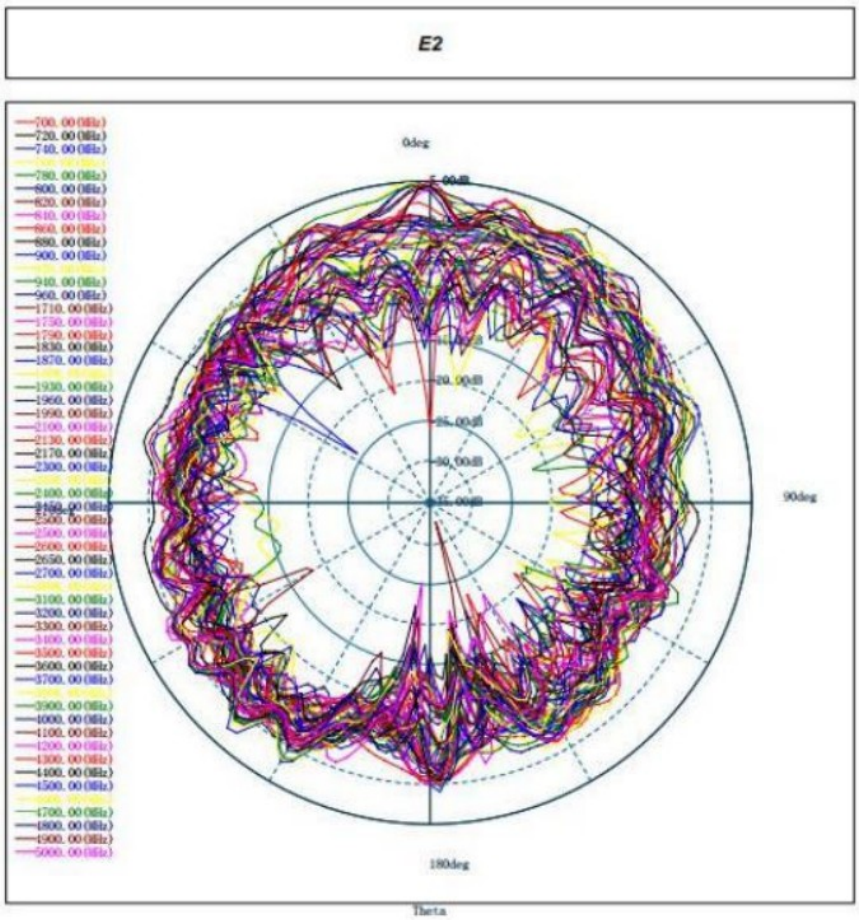
Efficiency:

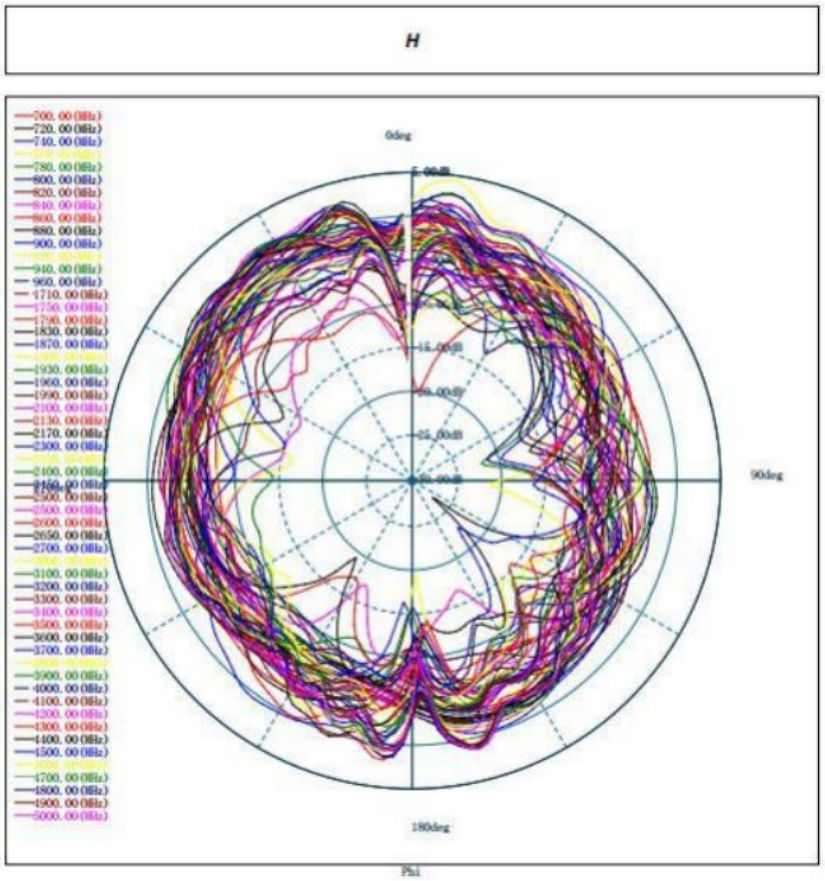
Band(MHz)	Efficient	Gain
700000000	47%	1.156015748
720000000	42%	0.208587041
740000000	51%	0.575117021
760000000	48%	0.858838678
780000000	44%	1.065716307
800000000	53%	1.746959193
820000000	57%	2.000415527
840000000	50%	1.029358892
860000000	49%	1.163041132
880000000	47%	0.877290758
900000000	47%	0.295031634
920000000	41%	0.009320591
940000000	44%	1.136125779
960000000	44%	0.700770031
1710000000	41%	1.223358779
1750000000	41%	0.904567633
1790000000	42%	3.356444434
1830000000	57%	4.516525049
1870000000	57%	4.830694762
1900000000	60%	4.864683
1930000000	60%	4.498216154
1960000000	55%	4.949430883
1990000000	60%	5.257993417
2100000000	58%	5.802392067
2130000000	61%	5.769842037
2170000000	57%	5.061655792
2300000000	52%	4.633885024
2350000000	46%	3.925218269
2400000000	48%	3.885627903
2450000000	48%	4.109935577
2500000000	43%	3.344333733
2500000000	43%	3.129605514
2600000000	43%	3.143701309

2650000000	49%	4.033029861
2700000000	53%	3.872307707
3000000000	45%	4.952690866
3100000000	44%	4.572765225
3200000000	44%	4.295886509
3300000000	41%	4.065034819
3400000000	35%	3.347884692
3500000000	30%	2.671345042
3600000000	30%	2.447960338
3700000000	37%	4.517385132
3800000000	47%	6.515463042
3900000000	45%	6.538028436
4000000000	37%	4.897662749
4100000000	36%	3.700390966
4200000000	36%	4.159375614
4300000000	39%	5.067970696
4400000000	41%	5.357002069
4500000000	39%	4.795954884
4600000000	36%	3.645787387
4700000000	38%	3.916916332
4800000000	38%	3.979733307
4900000000	39%	3.626320111
5000000000	42%	4.361587479

Radiation Pattern:

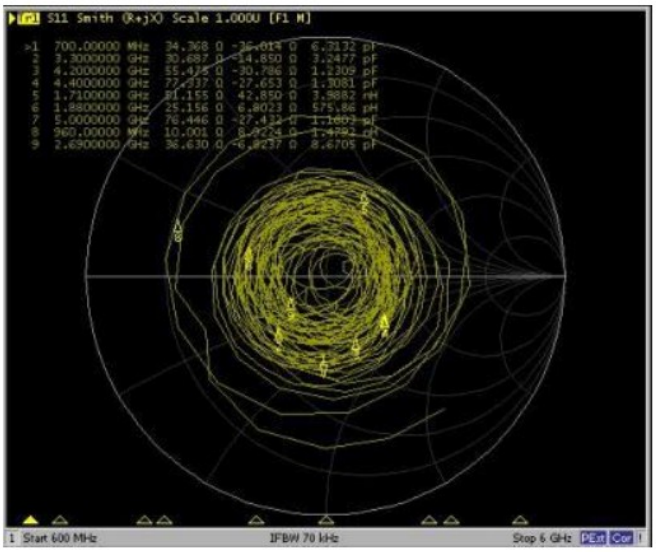



E2
0deg
90deg
180deg
Theta

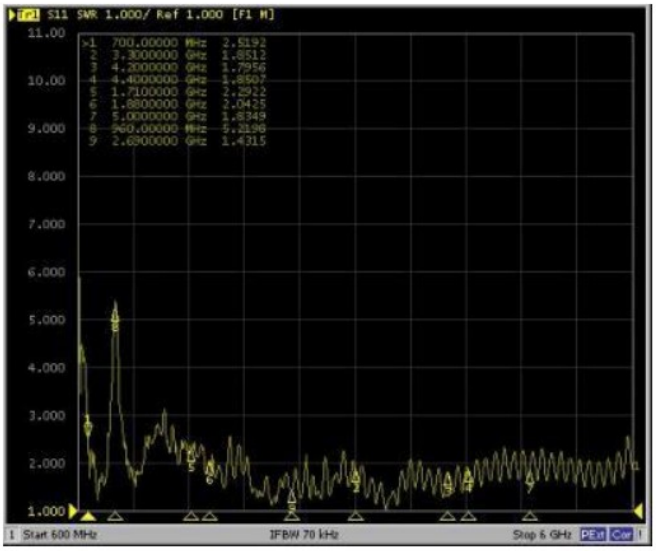

H
0deg
90deg
180deg
Phi

5G- main 2

2 Smith



3 VSWR

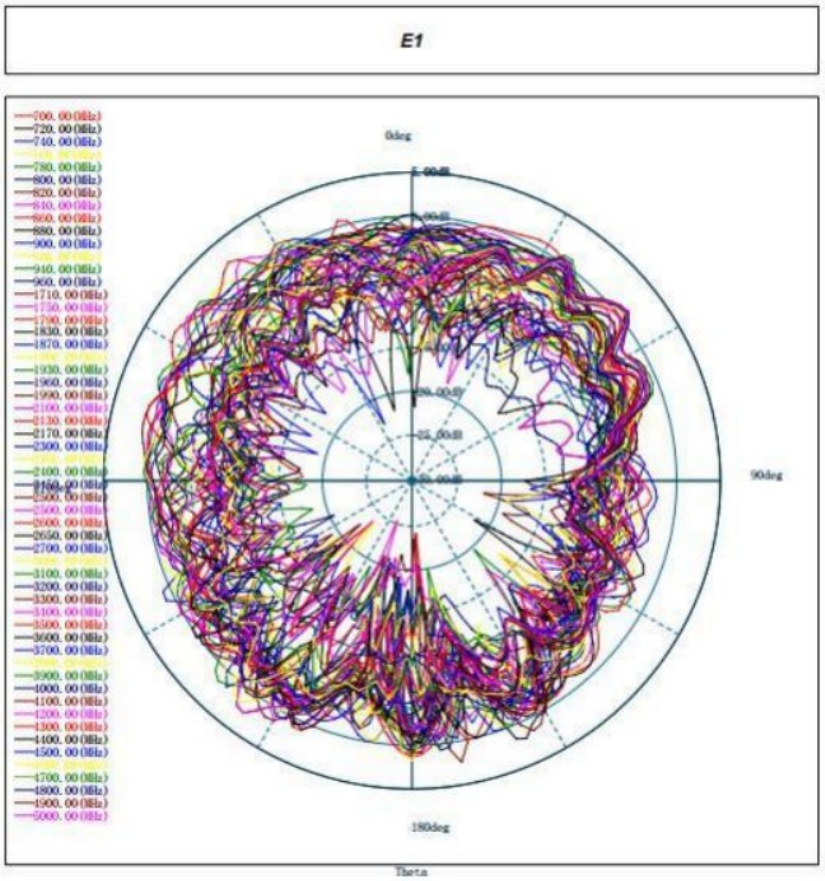


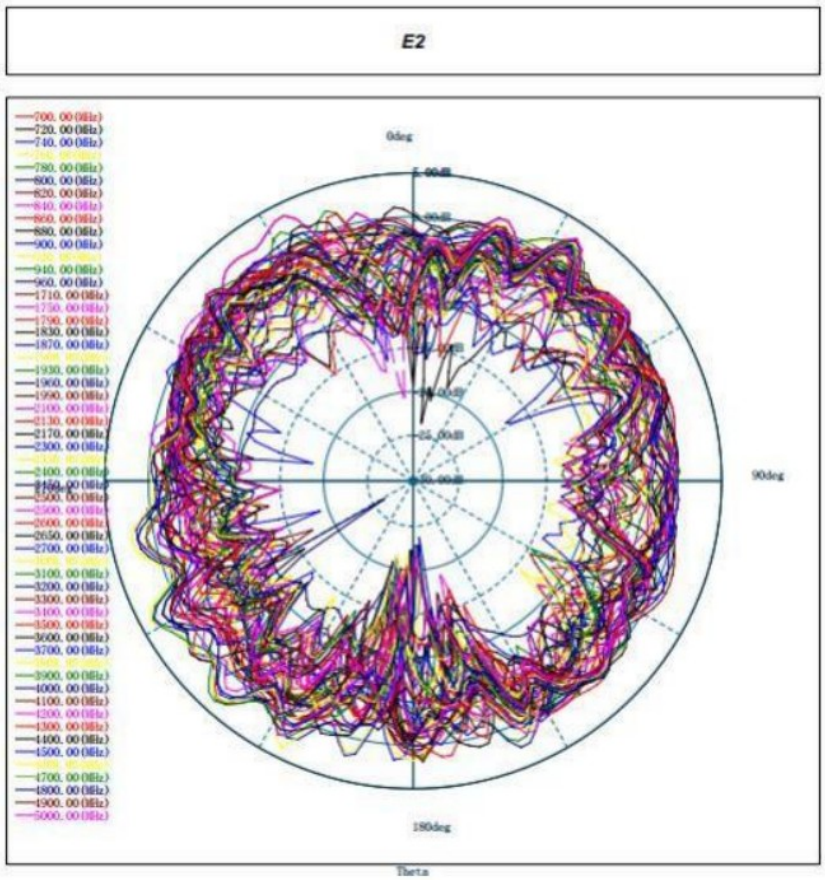
Efficiency：

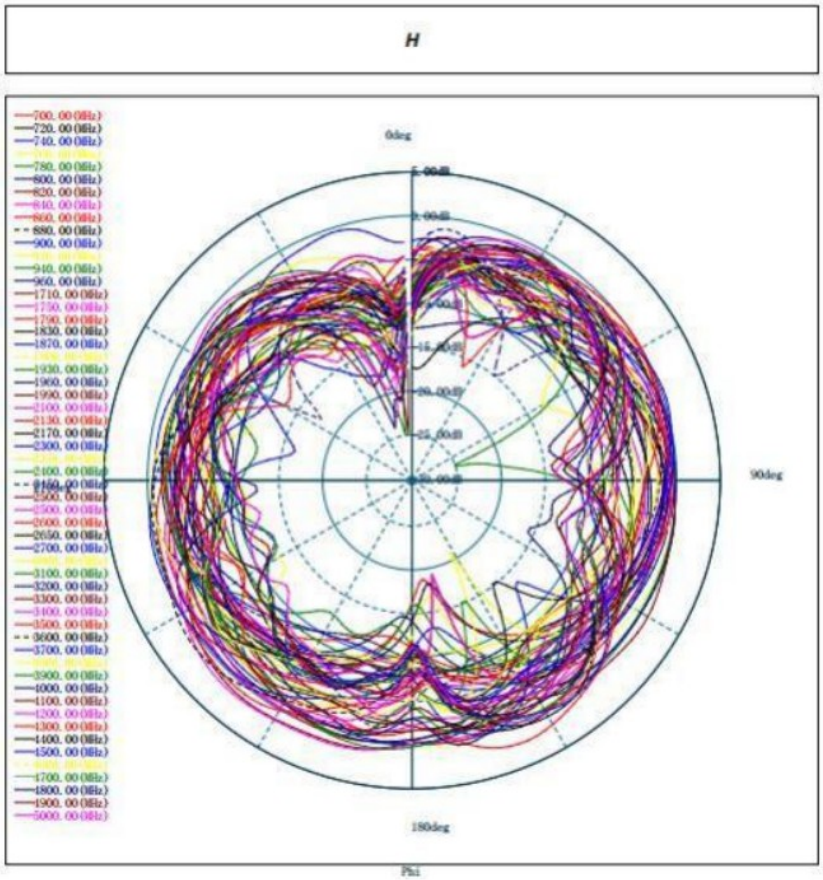
Band(MHz)	Efficient	Gain
700000000	37%	-0.262881008
720000000	33%	-0.458550006
740000000	41%	0.765162244
760000000	43%	1.236098872
780000000	51%	0.347776631
800000000	62%	0.986542803
820000000	61%	1.412807382
840000000	55%	1.377994005
860000000	62%	1.571648042
880000000	59%	0.917342276
900000000	44%	-0.224399261
920000000	35%	0.144676926
940000000	24%	-2.583716268
960000000	12%	-6.112935544
1710000000	44%	3.822053558
1750000000	50%	2.635244035
1790000000	46%	2.233883145
1830000000	43%	1.172376481
1870000000	52%	1.80445079
1900000000	49%	1.862921225
1930000000	53%	2.204080296
1960000000	50%	1.873541285
1990000000	45%	2.548817911
2100000000	47%	2.843487418
2130000000	54%	3.23089815
2170000000	45%	2.420651613
2300000000	48%	3.343339855
2350000000	45%	4.215833536
2400000000	49%	3.772119858
2450000000	41%	3.154098973
2500000000	45%	3.725178701
2500000000	45%	3.586245492
2600000000	38%	1.811056722

2650000000	39%	3.803709698
2700000000	43%	1.919772565
3000000000	36%	3.320726582
3100000000	39%	3.053983701
3200000000	42%	2.98229449
3300000000	45%	3.86176819
3400000000	47%	4.530510872
3500000000	48%	4.316618006
3600000000	48%	3.865825293
3700000000	44%	4.689889399
3800000000	40%	4.213517803
3900000000	42%	3.660699556
4000000000	45%	3.169421572
4100000000	48%	3.527054011
4200000000	48%	3.892279381
4300000000	45%	4.519271502
4400000000	45%	4.163096285
4500000000	43%	4.066413882
4600000000	43%	4.457188606
4700000000	44%	4.19289967
4800000000	43%	4.214115
4900000000	39%	3.724893079
5000000000	38%	4.230018581

Radiation Pattern:

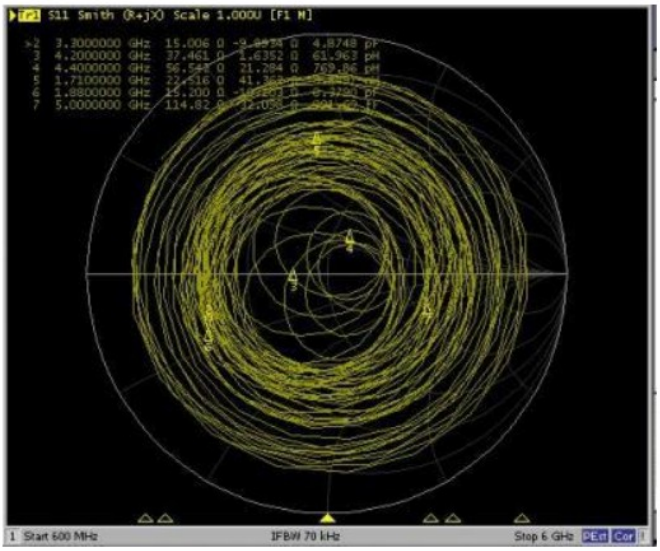



E2
0deg
90deg
180deg
Theta
700. 00 (MHz)
720. 00 (MHz)
740. 00 (MHz)
780. 00 (MHz)
800. 00 (MHz)
820. 00 (MHz)
880. 00 (MHz)
900. 00 (MHz)
940. 00 (MHz)
960. 00 (MHz)
1710. 00 (MHz)
1830. 00 (MHz)
1870. 00 (MHz)
1930. 00 (MHz)
1960. 00 (MHz)
1990. 00 (MHz)
2170. 00 (MHz)
2300. 00 (MHz)
2650. 00 (MHz)
2700. 00 (MHz)
3100. 00 (MHz)
3200. 00 (MHz)
3300. 00 (MHz)
3600. 00 (MHz)
3700. 00 (MHz)
3900. 00 (MHz)
4000. 00 (MHz)
4100. 00 (MHz)
4400. 00 (MHz)
4500. 00 (MHz)
4700. 00 (MHz)
4800. 00 (MHz)
4900. 00 (MHz)
5000. 00 (MHz)

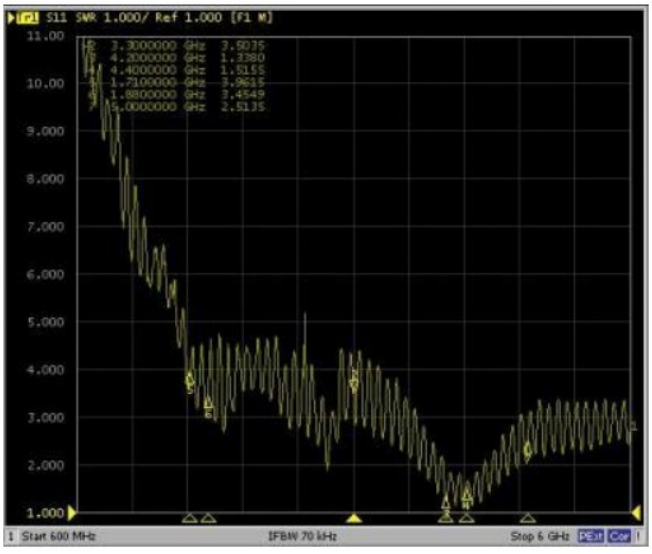

H
0deg
90deg
180deg
Phi

5G-part1

2 Smith



3 VSWR

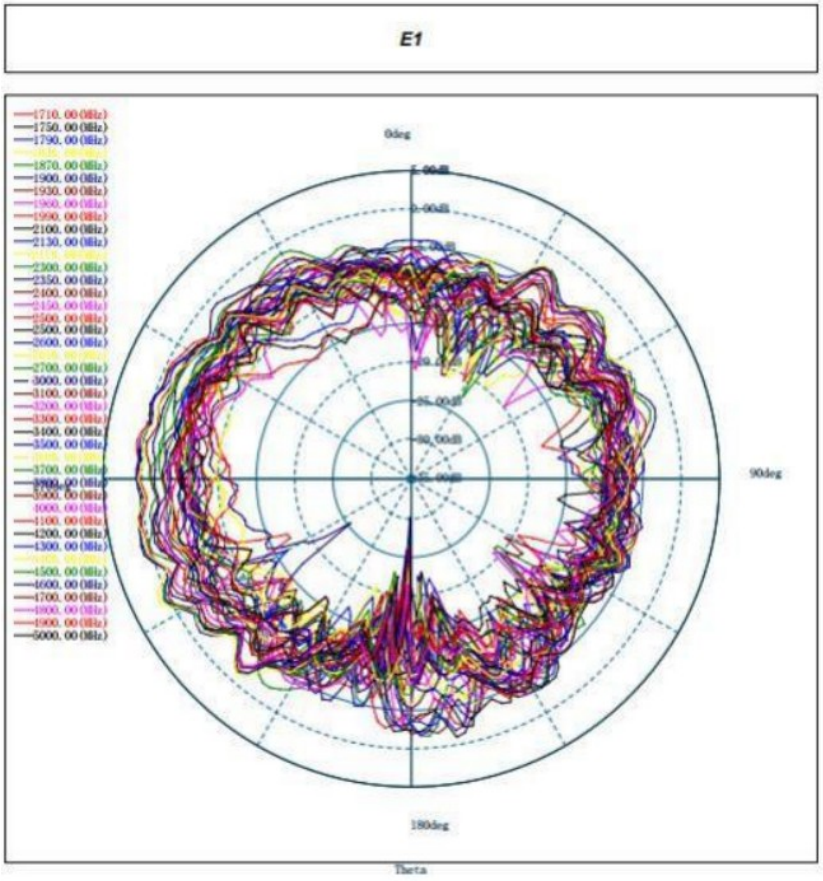


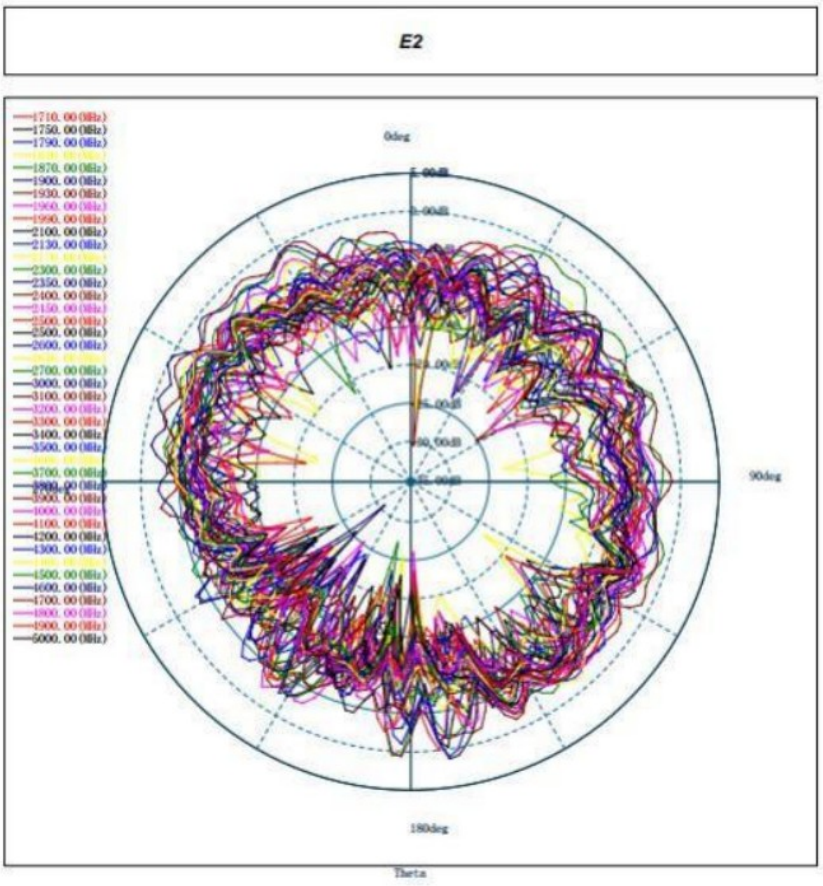
Efficiency:

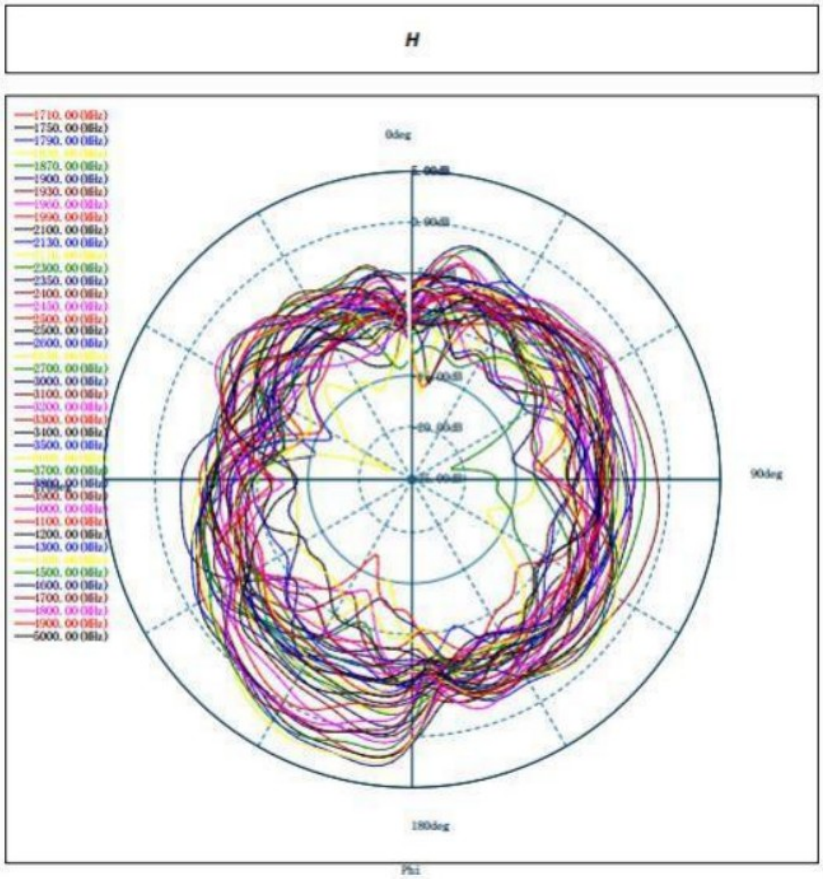
Band(MHz)	Efficient	Gain
1710000000	18%	0.610391192
1750000000	17%	0.138143288
1790000000	22%	-0.712153232
1830000000	16%	-1.60410785
1870000000	31%	0.777602441
1900000000	20%	-1.556553419
1930000000	30%	0.877643792
1960000000	23%	-0.066291078
1990000000	16%	-1.682755756
2100000000	24%	2.521667577
2130000000	25%	1.456043549
2170000000	12%	-3.212904256
2300000000	19%	-1.804530191
2350000000	17%	-2.235449578
2400000000	17%	-1.772263322
2450000000	17%	-2.253467435
2500000000	16%	-1.756714602
2500000000	17%	-1.503720648
2600000000	17%	-1.648387355
2650000000	17%	-1.011374123
2700000000	21%	0.216480605
3000000000	29%	1.230146646
3100000000	29%	0.093783133
3200000000	19%	-2.231076377
3300000000	18%	-2.380007944
3400000000	17%	-2.163408058
3500000000	18%	-1.653976873
3600000000	18%	-2.000194965
3700000000	18%	-0.712864327
3800000000	19%	0.34499661
3900000000	21%	1.116199544
4000000000	24%	1.390051814
4100000000	31%	2.828872529
4200000000	35%	2.830021714

4300000000	38%	3.243485824
4400000000	38%	3.36400346
4500000000	34%	3.222609747
4600000000	30%	1.933206909
4700000000	32%	2.167926687
4800000000	30%	1.794418507
4900000000	25%	0.527821568
5000000000	20%	-0.461047851

Radiation Pattern:

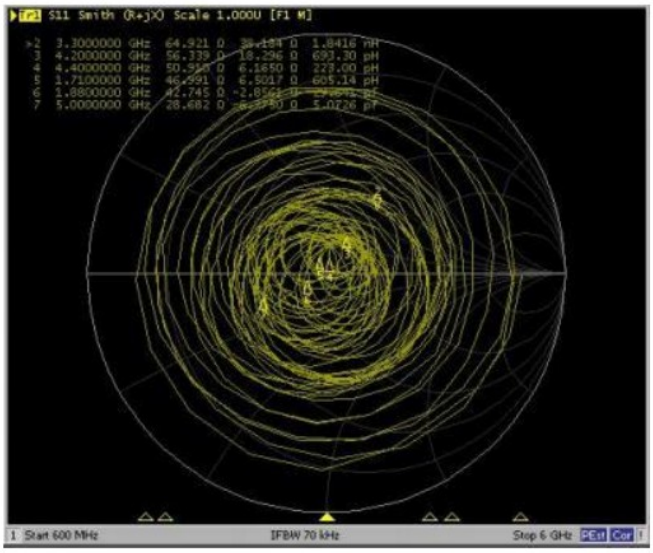



E2
0deg
90deg
180deg
Theta

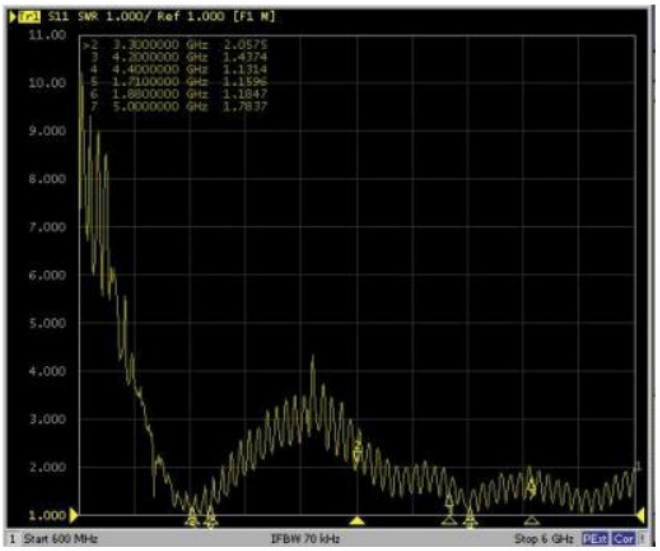

H
0deg
90deg
180deg
Phi

5G-part2

2 Smith



3 VSWR

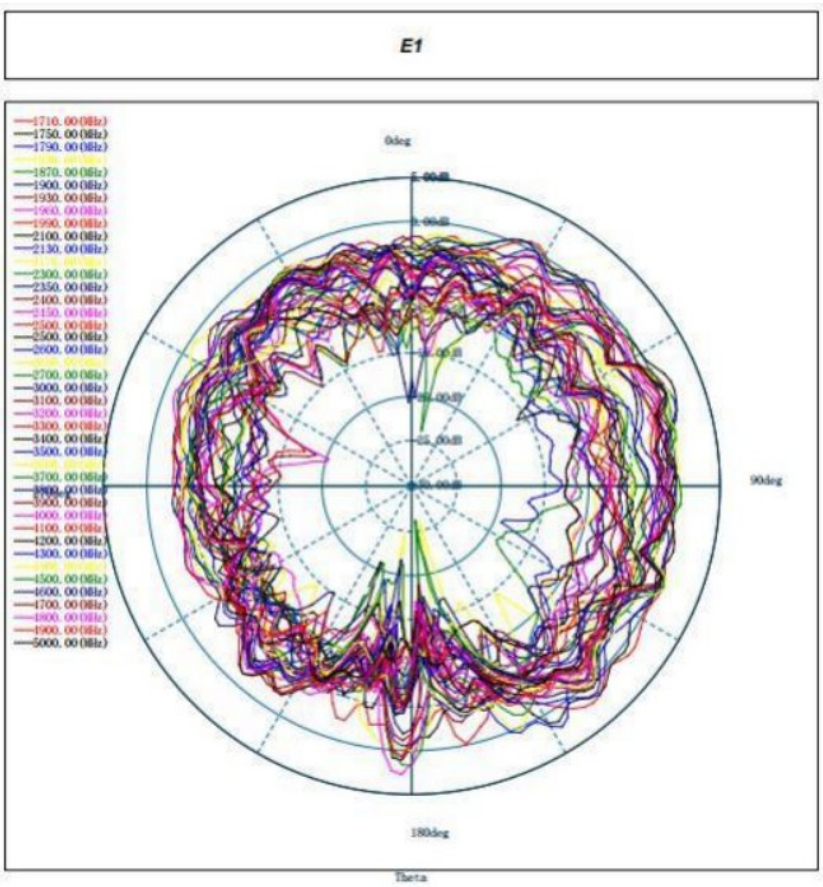


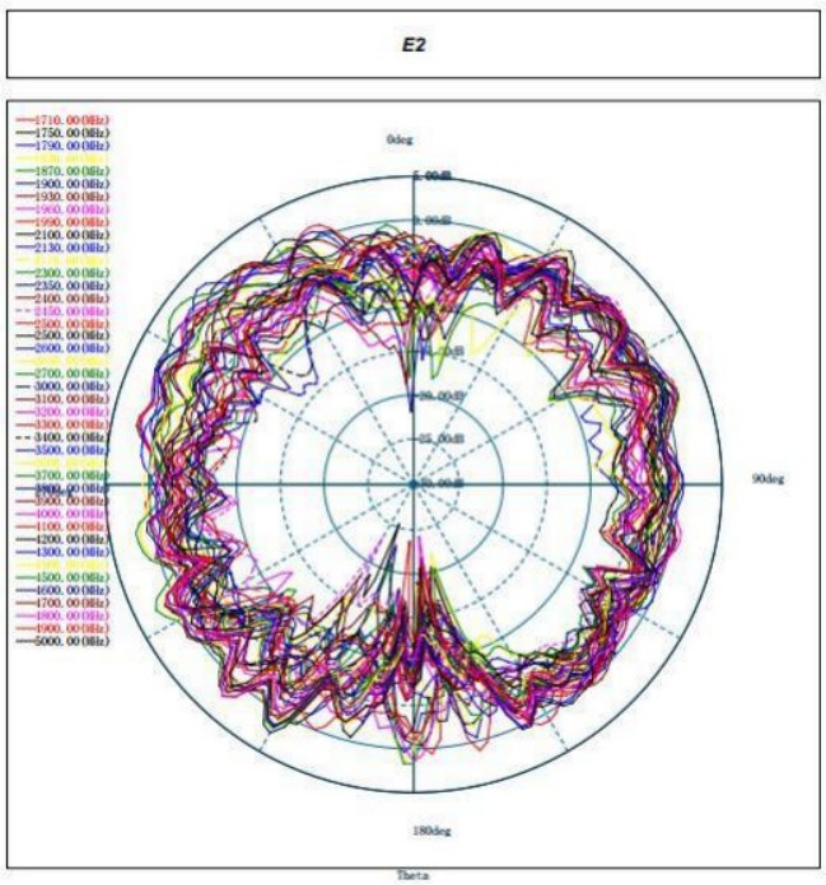
Efficiency:

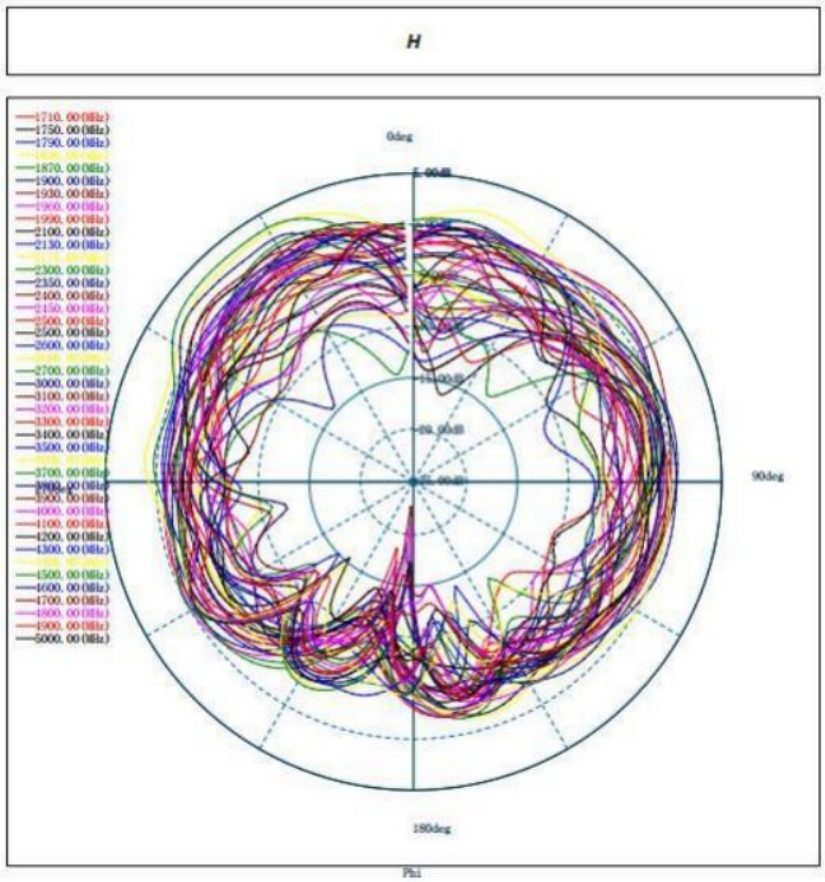
Band(MHz)	Efficient	Gain
1710000000	63%	3.016826856
1750000000	64%	3.317234896
1790000000	65%	3.738827586
1830000000	52%	2.446530892
1870000000	68%	3.753156489
1900000000	61%	2.608624909
1930000000	62%	2.088445659
1960000000	63%	2.745753313
1990000000	57%	2.09589294
2100000000	48%	1.908099852
2130000000	58%	2.19151347
2170000000	44%	2.27285157
2300000000	49%	1.520221382
2350000000	36%	1.219373008
2400000000	41%	1.303442236
2450000000	37%	1.784816872
2500000000	33%	0.373971653
2500000000	33%	0.528907531
2600000000	28%	-0.26634477
2650000000	33%	-0.398414852
2700000000	27%	-0.319797748
3000000000	31%	-0.453181913
3100000000	34%	0.721123394
3200000000	36%	0.763293224
3300000000	39%	1.17815318
3400000000	43%	1.168839147
3500000000	42%	1.957664988
3600000000	44%	2.033838951
3700000000	45%	2.612520196
3800000000	46%	2.976216153
3900000000	46%	3.255674452
4000000000	46%	3.424338958
4100000000	52%	3.890583943

4200000000	52%	3.830327445
4300000000	49%	4.276336269
4400000000	56%	4.625187606
4500000000	56%	4.939588362
4600000000	48%	4.049276355
4700000000	45%	3.535025602
4800000000	41%	3.310373052
4900000000	39%	2.310709117
5000000000	41%	2.521538767

Radiation Pattern:

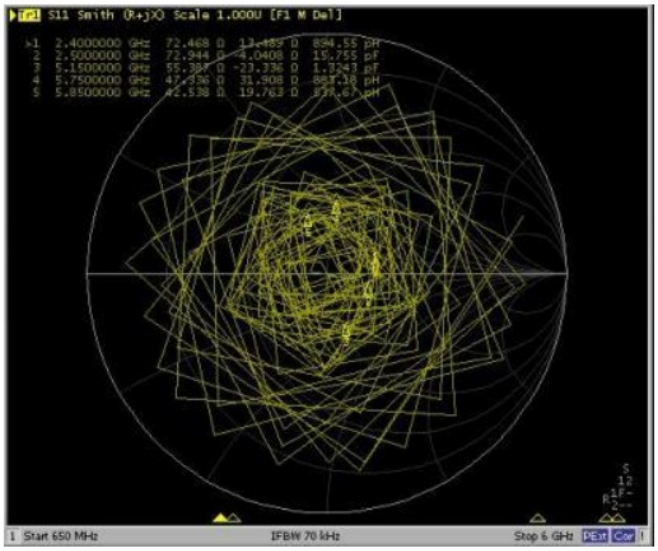



E2
0deg
90deg
180deg
Theta

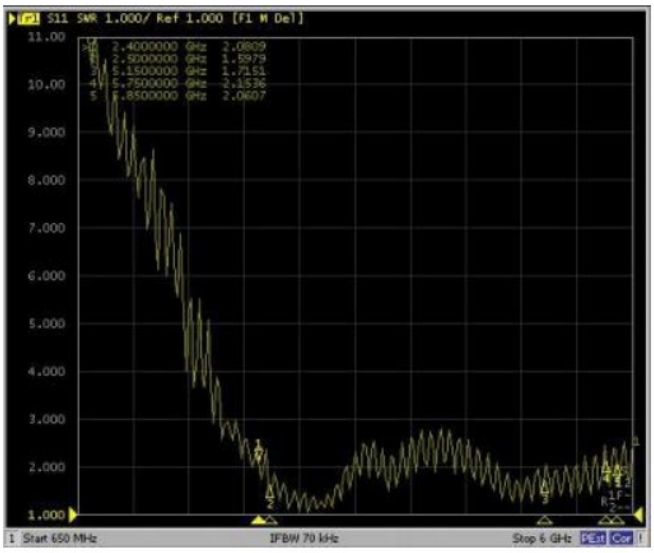

H
1710.00(MHz)
1750.00(MHz)
1790.00(MHz)
1870.00(MHz)
1900.00(MHz)
1930.00(MHz)
1960.00(MHz)
1990.00(MHz)
2100.00(MHz)
2130.00(MHz)
2300.00(MHz)
2350.00(MHz)
2400.00(MHz)
2450.00(MHz)
2500.00(MHz)
2500.00(MHz)
2600.00(MHz)
2700.00(MHz)
3000.00(MHz)
3100.00(MHz)
3200.00(MHz)
3300.00(MHz)
3400.00(MHz)
3500.00(MHz)
3700.00(MHz)
3800.00(MHz)
3900.00(MHz)
4000.00(MHz)
4100.00(MHz)
4200.00(MHz)
4300.00(MHz)
4500.00(MHz)
4600.00(MHz)
4700.00(MHz)
4800.00(MHz)
4900.00(MHz)
5000.00(MHz)
0deg
90deg
180deg
Phi

WIFI

2 Smith



3 VSWR

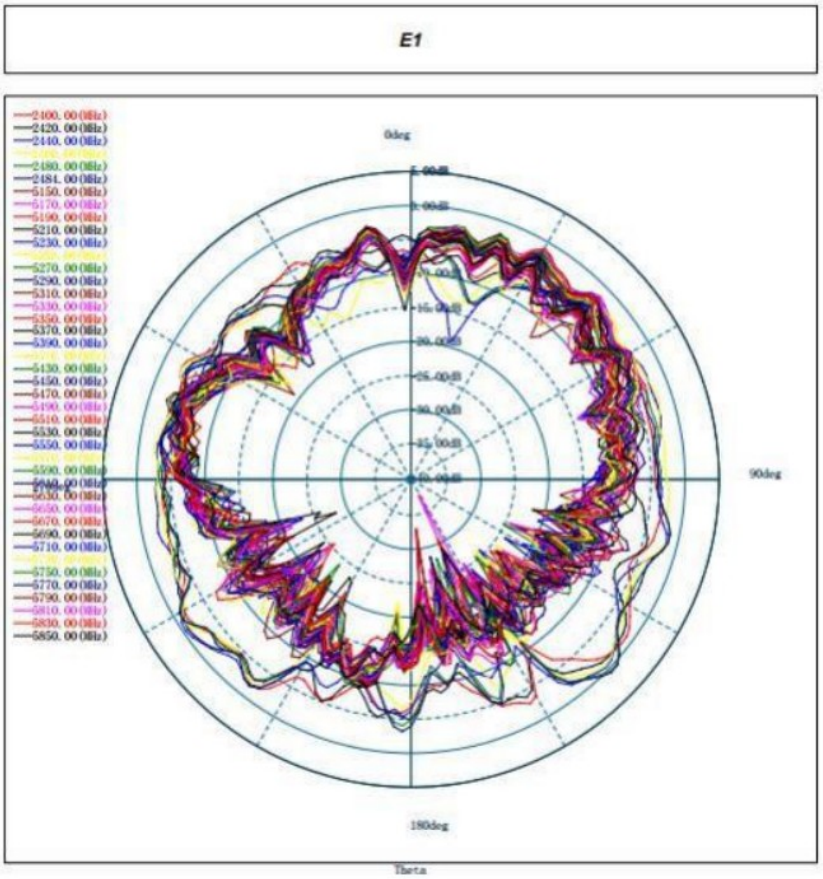


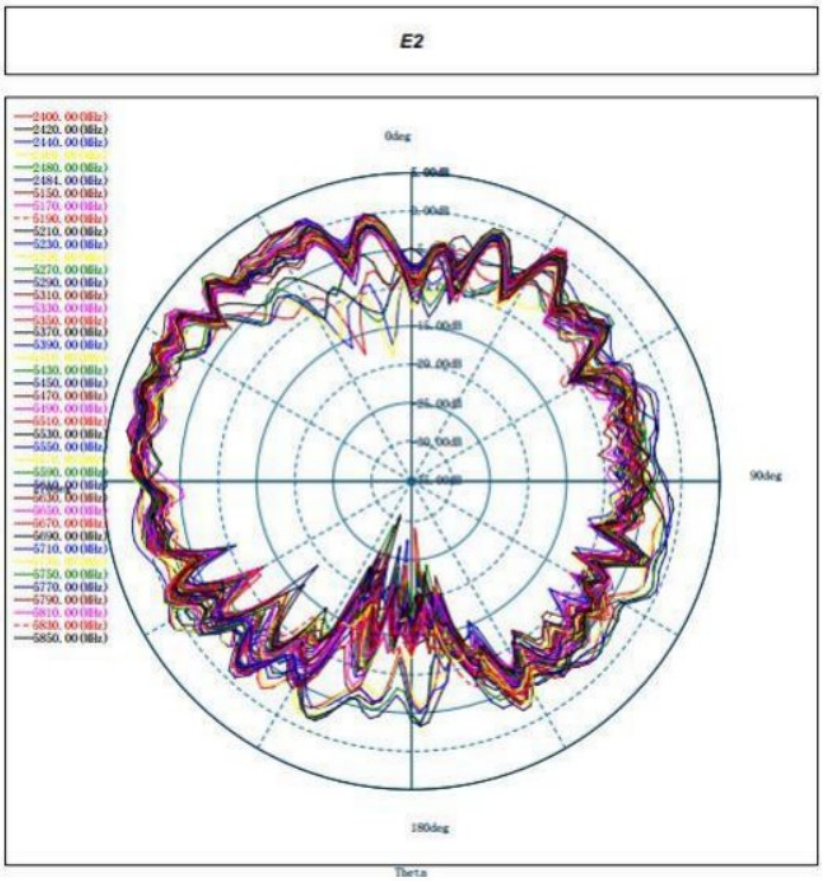
Efficiency:

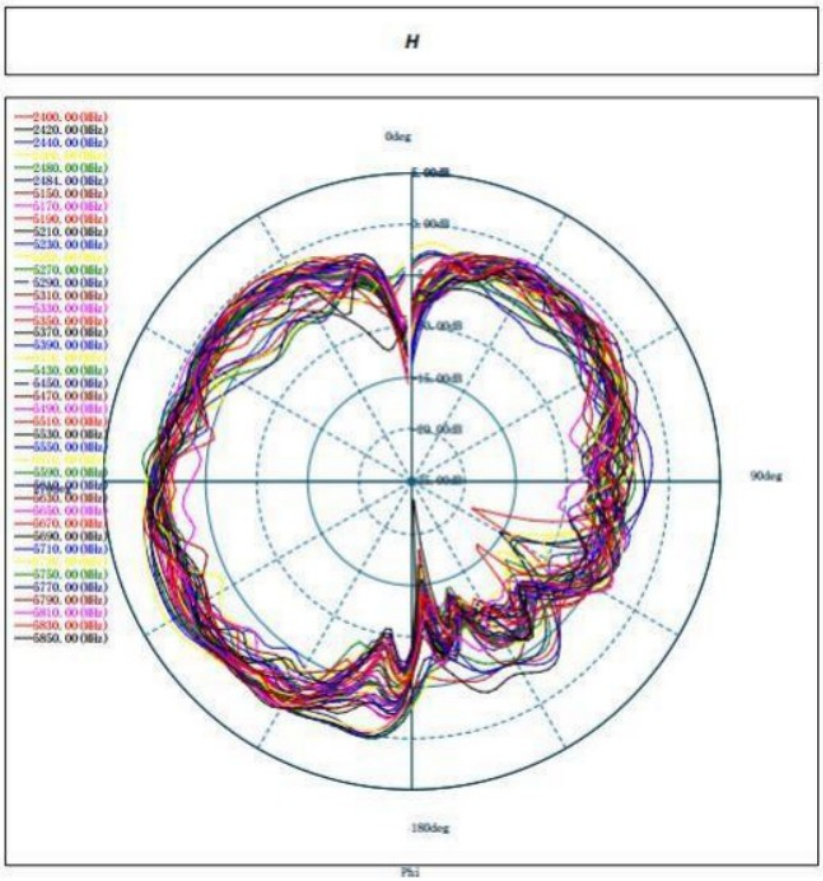
Band(MHz)	Efficient	Gain
2400000000	47%	2.352685049
2420000000	47%	2.260205748
2440000000	47%	2.49659502
2460000000	44%	2.356500929
2480000000	45%	2.608679745
2484000000	46%	2.701739648
5150000000	43%	2.274814034
5170000000	42%	2.235076924
5190000000	42%	2.102738796
5210000000	47%	2.542238319
5230000000	44%	2.057343488
5250000000	41%	1.290851107
5270000000	41%	1.925460698
5290000000	46%	2.209116303
5310000000	47%	2.659212851
5330000000	43%	1.990204108
5350000000	40%	2.337113301
5370000000	42%	2.361399513
5390000000	45%	3.028371781
5410000000	44%	2.621584552
5430000000	41%	2.317812956
5450000000	39%	2.794068529
5470000000	44%	3.597392929
5490000000	45%	3.29293384
5510000000	42%	2.692888792
5530000000	36%	2.722815852
5550000000	38%	2.715968461
5570000000	43%	3.047010567
5590000000	42%	3.024978553
5610000000	37%	3.506138567
5630000000	35%	3.274864499
5650000000	39%	3.294090095
5670000000	41%	3.084785642

5690000000	38%	2.568864696
5710000000	35%	3.621183236
5730000000	34%	2.838454499
5750000000	39%	3.256960594
5770000000	41%	3.206767491
5790000000	34%	3.318888248
5810000000	32%	3.16495614
5830000000	35%	2.825546277
5850000000	38%	3.473789246

Radiation Pattern:




E2
0deg
90deg
180deg
Theta


H
2400.00 (MHz)
2420.00 (MHz)
2440.00 (MHz)
2460.00 (MHz)
2484.00 (MHz)
5150.00 (MHz)
5170.00 (MHz)
5190.00 (MHz)
5210.00 (MHz)
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5770.00 (MHz)
5790.00 (MHz)
5810.00 (MHz)
5830.00 (MHz)
5850.00 (MHz)
0deg
90deg
180deg
Phi

GPS+BD:

Item		Specifications
Antenna	Center Frequency	L1: 1575.42MHz B2: 1561.098MHZ
	Band Width	CF±3MHz
	Polarization	RHCP
	Gain	3dBic
	V.S.W.R	<1.5
	Impendance	50Ω
	Dimension	25*25*4mm
LNA	Gain	28±2dB
	Noise Figure	<1.5
	Filter Insertion Loss	<3dB
	Ex-band Attenuation	35dB@CF±50MHz/50dB@CF±100MHz
	Supply Voltage	3~5V DC
	Current Consumption	10~20mA
	V.S.W.R	<2.0

Environmental	Operating Temperature	-40℃~+85℃
	Relative Humidity	Up to 95%
	Vibration	10 to 55Hz with 1.5mm amplitude 2hours
	Environmentally Friendly	ROHS Compliant

GPS/BD Antenna