

**SPECIFICATION APPROVAL SHEET**

客 户 :

CUSTOMER \_\_\_\_\_

CUS PART NO \_\_\_\_\_ REV \_\_\_\_\_ X1

2.4~2.5/5.15~5.85GHz

SPECIFICATION WIFI+BT Antenna L=90mm(Ø0.81 +MHF) weight \_\_\_\_\_

SUP PART NO SLEingB223410090

DATE 2023.04.10

SUP APPROVED

APPROVED	CHECKED	QA CHECKED	DESIGNED
<i>Jangm</i>	<i>H24</i>	<i>LSY</i>	<i>X1any</i>

CUS APPROVED

APPROVED	CHECKED	QA CHECKED	DESIGNED

**DONGGUAN SLEing INTEL-TECH CO., LTD**

Room 402, No. 6 Plant, Accelerator of Modern Enterprise, No. 24 Industry East Road Songshanlake District, Dongguan City, Guangdong Province, China.

Tel: +86-076989208968

Fax: +86-0769-89208969

[www.sleing.com](http://www.sleing.com)



RECORD SHEET

REV.	Modification date	Summary of modification content	Signature	Approval
X1	2023.04.10	First Issue	Jerry	Jongrei



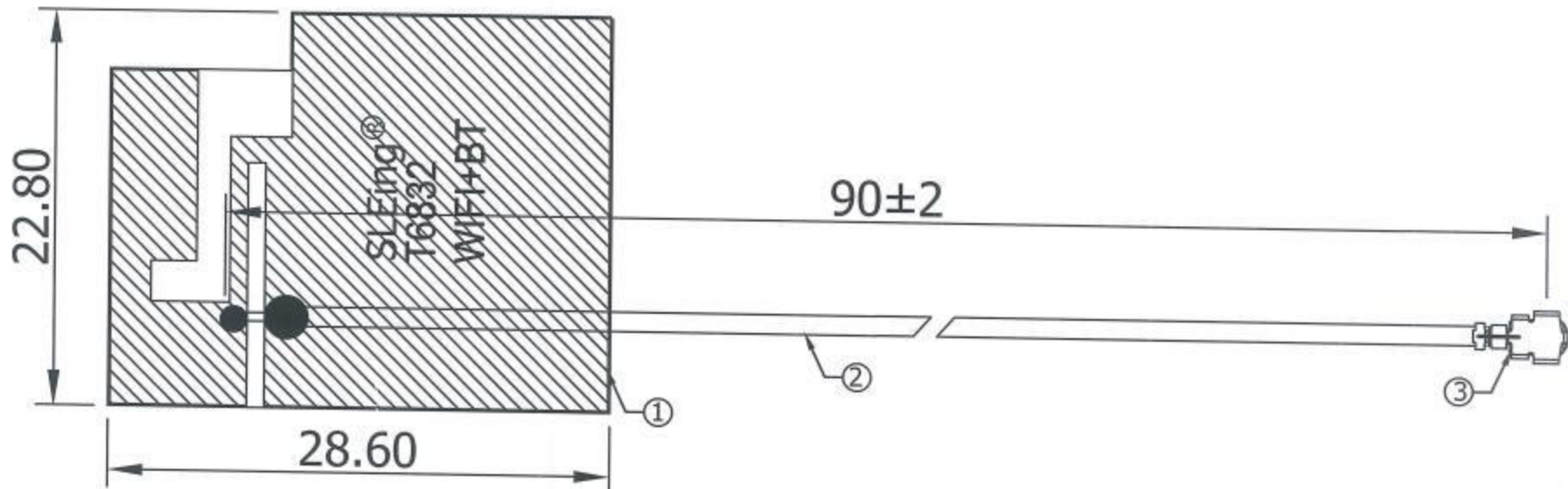
## 承认书项目表 (Spec Item )

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Give clear indication of:

1. The contents of the acknowledgement shall be arranged in order according to the items in the check sheet.
2. The number of copies of the acceptance letter shall be printed according to the customer's requirements, and the SGS report shall be stamped with the engineering seal.
3. All materials shall be confirmed by the customer. Any material/process/changes that may affect product quality and environmental quality must be re-sent to the customer for confirmation before import.
4. SGS report is valid for one year.
5. According to the contents attached to the actual acknowledgement, check the check form: "Yes" is provided, "no" is provided according to customer requirements.

REV.	CONTENT	DATE
X1	First Sample	2023.04.10

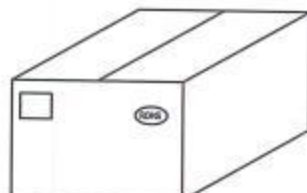


Paster: 3M 300LSE


Specification:  
Frequency Rang:2.4~2.5/5.15~5.85GHz  
Return Loss:-10dB or less  
VSWR:1.92 Max



25pcs/Bundle  
Packing:50pcs/bag



The outer box shall be labeled with the ROHS label and the material label each 1PCS

<b>SLEing®</b> DONGGUAN SLEing INTEL-TECH CO., LTD	CUSTOMER			
	PART NO			
	TITLE		WIFI+BT ANTENNA	
	S.L P/NO		SLEingB223410090	
 TOLERANCE UNLESS OTHERWISE SPECIFIED	SIZE	DRAWN	CHECKED	APPROVED
UNIT:mm SHEET: 1/1 SCALE: 1/1	A4	Jerry	HZU	Jerry
ANGLES ±0.5° 0.XX ±0.05 XXX. ±2.0				
X. ±0.3 XX. ±0.5 XXX. ±2.0				

NO	PART NAME	DESCRIPTION	REMARK	Q'TY
3	Connector	MHF Plug for Φ0.81 Cable		1
2	Cable	Φ0.81mm Coaxial Cable Black,50Ω		1
1	FPCB	FPC,L28.6*W22.8*T0.1mm ,Color:Black	300LSE Adhesive	1



## Test Reports

Electrical Properties	
Frequency	2.4~2.5/5.15~5.85GHz (带机测试)
Impedance	50 Ohm Nominal
V. S. W. R	$\leq 1.92$
Return Loss	-10 dB Max
Radiation	Omni-directional
Gain (Peak)	1.82 dBi
Polarization	Linear, Vertical
Admitted Power	2 W
Connector	MHF
Physical Properties	
Antenna Material	FPCB
Cable Type	$\Phi 0.81\text{mm}$ Black
Operating Temp	-20°C~75°C
Storage Temp.	-20°C~75°C

## Antenna assembly diagram

Device



Antenna

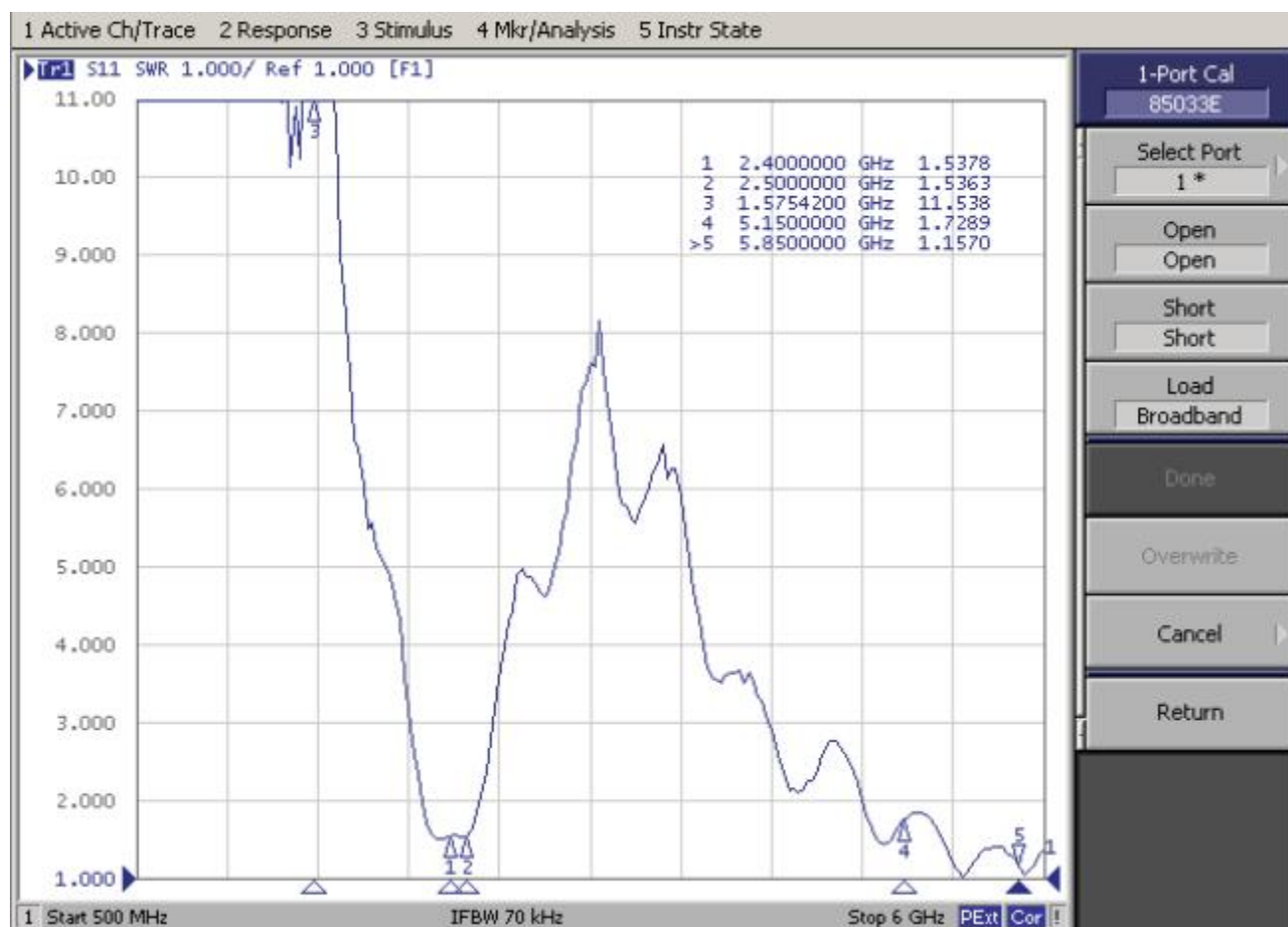


## S Parameter Test

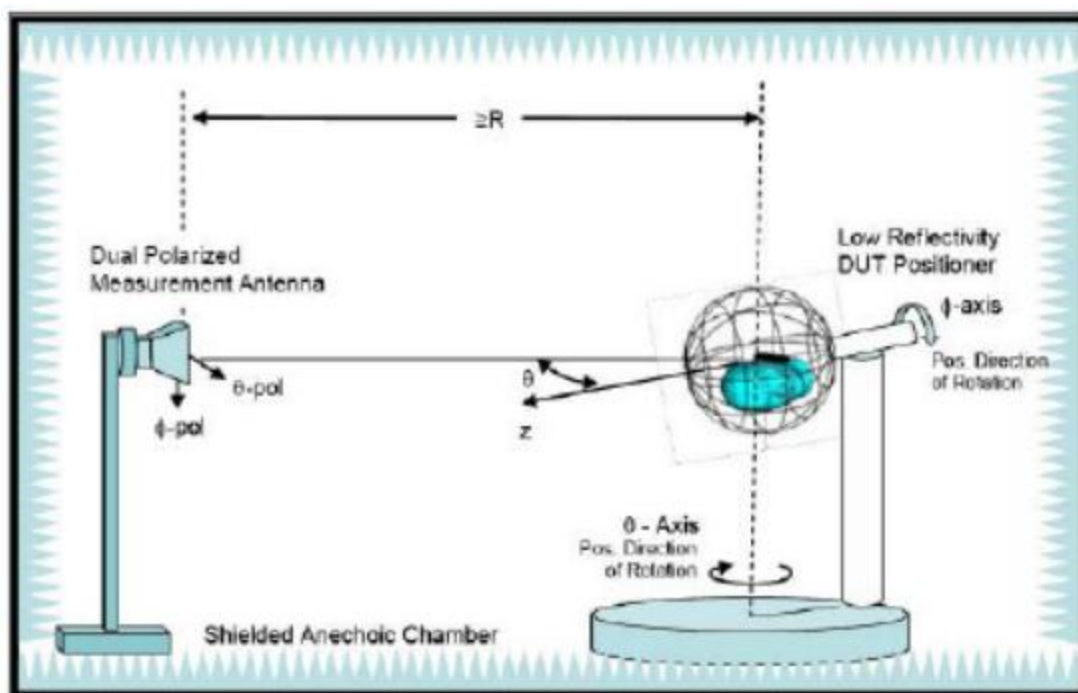
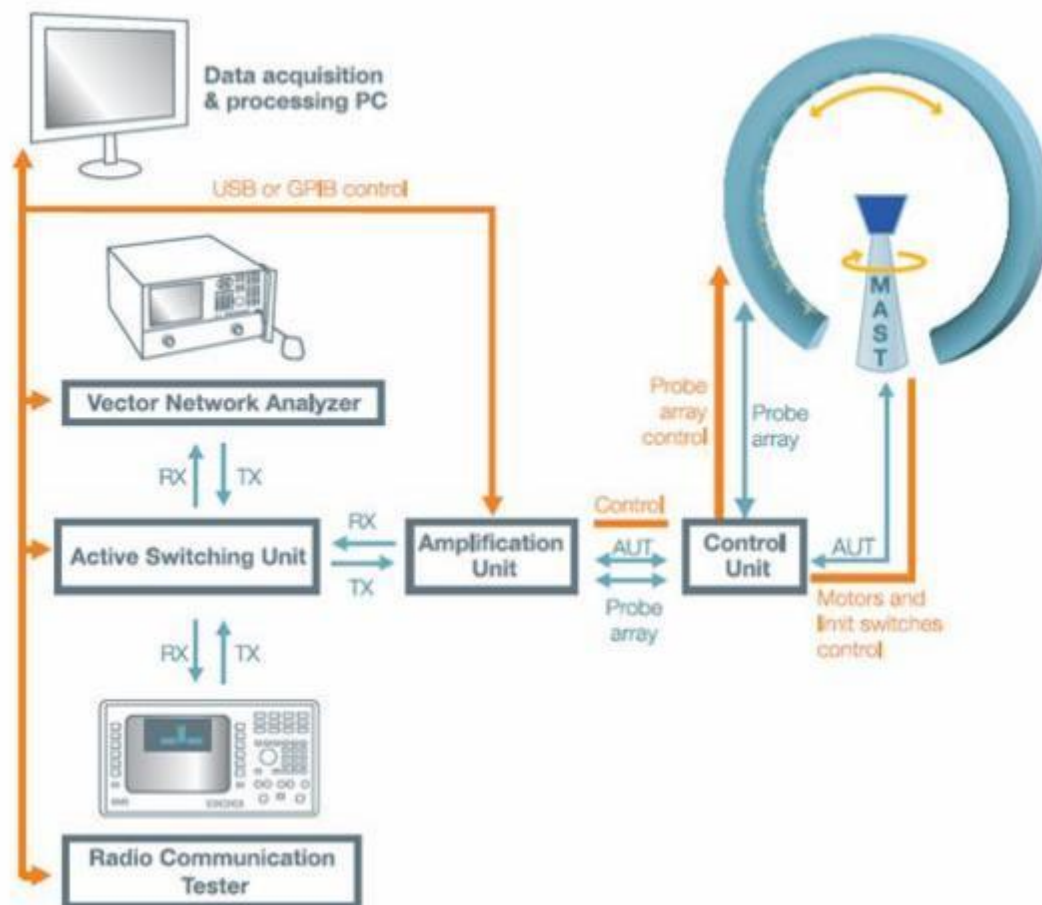
Agilent E5071C Network Analyzer



RF Antenna(Return Loss)



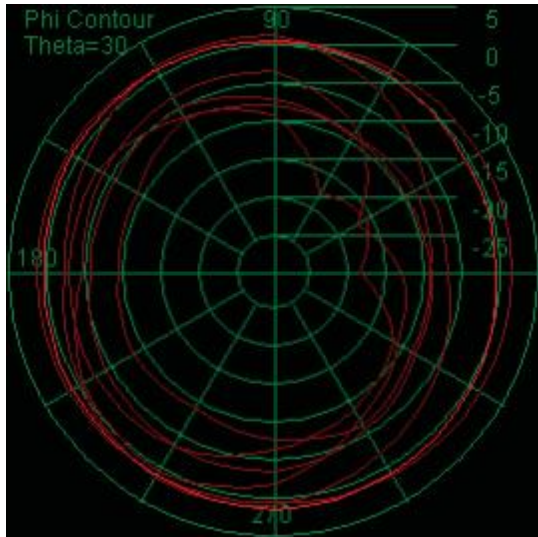
## Test Setup



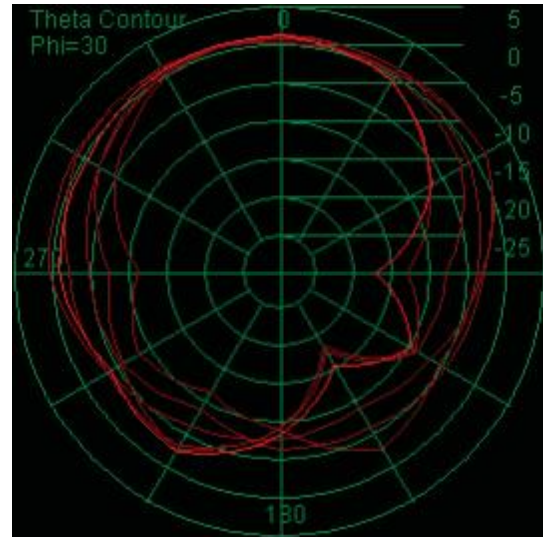
## 2. 4G Patten

### 1.3 2D Radiation patterns test results (Passive Antenna)

**XZ Plane**

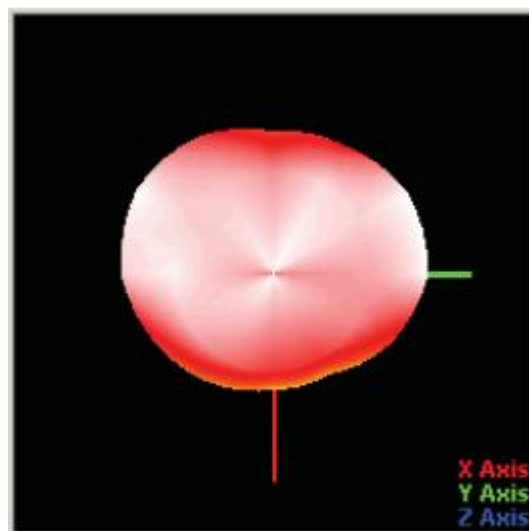


**YZ Plane**



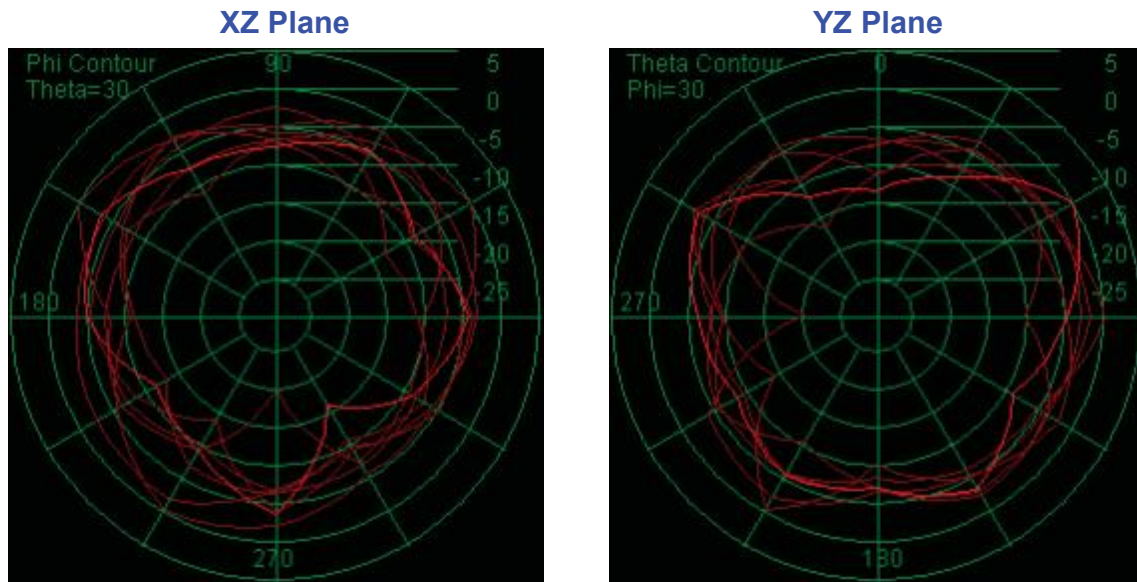
### 1.5 3D Radiation patterns test results (Passive Antenna)

**3D**



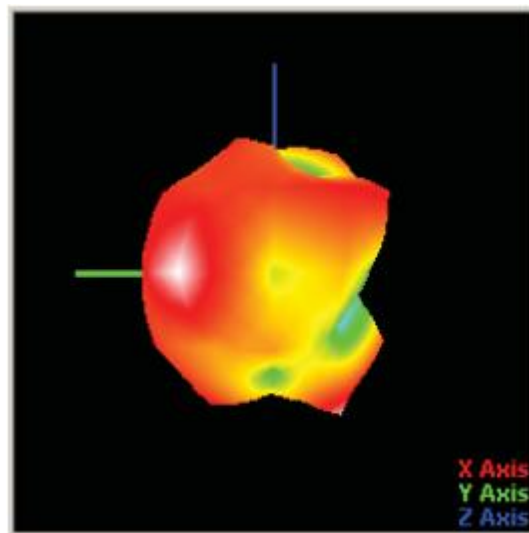
## 5. 8G Patten

### 1.3 2D Radiation patterns test results (Passive Antenna)



### 1.5 3D Radiation patterns test results (Passive Antenna)

#### 3D



## Test Efficiency

2. 4G

Test Point ID	Freq. (MHz)	TRP (dBm)	Gain (dBi)	Directivity (dBi)	Efficiency (%)	Efficiency (dB)	Max (dBm)	Theta of Max	Phi of Max	Min (dBm)	Theta of Min	Phi of Min	AVG (dBm)	Max/Min (dB)	Max/AVG (dB)	Min/AVG (dB)
1	2412.0	2412.00	1.47	3.43	53.6%	-1.97	1.47	90	210	-24.44	0	120	-3.11	25.90	4.57	-21.33
2	2417.0	2417.00	1.39	3.35	53.7%	-1.96	1.39	90	210	-21.20	0	150	-2.99	22.59	4.38	-18.21
3	2422.0	2422.00	1.47	3.81	58.4%	-2.33	1.47	90	150	-22.83	0	120	-3.36	24.30	4.84	-19.46
4	2427.0	2427.00	1.33	3.73	57.7%	-2.39	1.33	90	150	-20.51	0	90	-3.51	21.84	4.85	-16.99
5	2432.0	2432.00	1.71	3.96	59.5%	-2.25	1.71	90	150	-19.78	0	60	-3.42	21.49	5.13	-16.36
6	2437.0	2437.00	1.31	3.70	57.7%	-2.39	1.31	90	150	-22.81	0	90	-3.48	24.12	4.79	-19.33
7	2442.0	2442.00	1.06	3.55	56.4%	-2.49	1.06	90	150	-18.25	0	30	-3.60	19.32	4.66	-14.66
8	2447.0	2447.00	1.02	3.43	57.5%	-2.41	1.02	90	150	-16.70	0	120	-3.65	17.72	4.67	-13.05
9	2452.0	2452.00	0.95	3.42	56.6%	-2.47	0.95	90	210	-18.81	150	0	-3.74	19.76	4.68	-15.07
10	2457.0	2457.00	1.57	3.88	58.8%	-2.31	1.57	90	150	-20.05	0	30	-3.43	21.61	5.00	-16.62
11	2462.0	2462.00	1.82	4.17	60.7%	-2.17	1.82	90	150	-18.55	0	60	-3.23	20.56	5.23	-15.32
12	2467.0	2467.00	1.16	3.47	58.7%	-2.31	1.16	90	150	-17.56	0	90	-3.54	18.72	4.70	-14.02
13	2472.0	2472.00	1.10	3.51	57.3%	-2.42	1.10	90	330	-19.15	0	0	-3.76	20.25	4.86	-15.39
14	2484.0	2484.00	0.94	3.24	58.8%	-2.30	0.94	90	30	-18.52	0	120	-3.54	19.46	4.48	-14.98

5. 8G

Test Point ID	Freq. (MHz)	TRP (dBm)	Gain (dBi)	Directivity (dBi)	Efficiency (%)	Efficiency (dB)	Max (dBm)	Theta of Max	Phi of Max	Min (dBm)	Theta of Min	Phi of Min	AVG (dBm)	Max/Min (dB)	Max/AVG (dB)	Min/AVG (dB)
1	5120.0	5120.00	1.13	3.51	45.8%	-3.50	1.13	90	150	-20.48	90	270	-6.41	20.49	5.42	-15.07
2	5240.0	5240.00	0.85	4.44	43.9%	-3.72	0.85	90	30	-16.05	180	120	-4.97	17.57	5.70	-11.87
3	5360.0	5360.00	1.36	4.47	46.2%	-3.38	1.36	60	120	-18.88	150	180	-4.32	19.97	5.40	-14.56
4	5480.0	5480.00	1.23	4.49	48.5%	-3.29	1.23	90	120	-15.53	120	330	-3.76	16.73	4.95	-11.78
5	5560.0	5560.00	1.00	6.41	48.6%	-3.08	1.00	60	120	-12.84	0	120	-3.65	16.16	6.98	-9.18
6	5680.0	5680.00	1.57	4.31	41.3%	-3.01	1.57	90	120	-12.02	120	240	-3.71	13.32	5.02	-8.30
7	5760.0	5760.00	1.83	3.38	45.3%	-1.37	1.83	150	60	-11.98	150	180	-2.03	14.00	4.05	-9.94
8	5840.0	5840.00	0.90	3.50	48.4%	-3.40	0.90	150	330	-13.02	90	180	-4.33	13.12	4.43	-8.69
9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---