

Shenzhen Meishifu Technology Co., LTD

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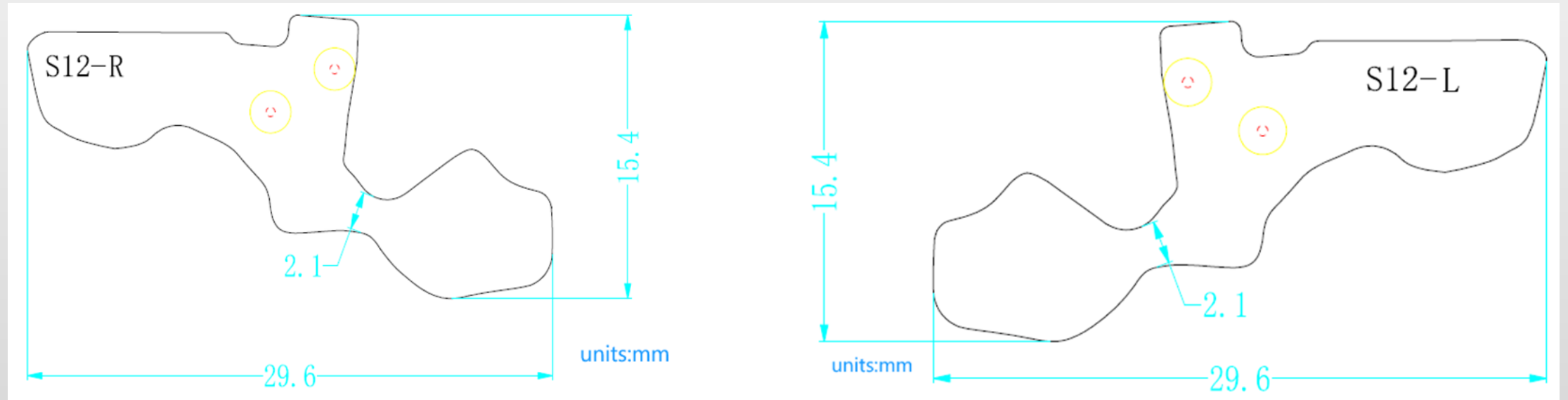
MH22234 Antenna Test Report

Antenna Test Report



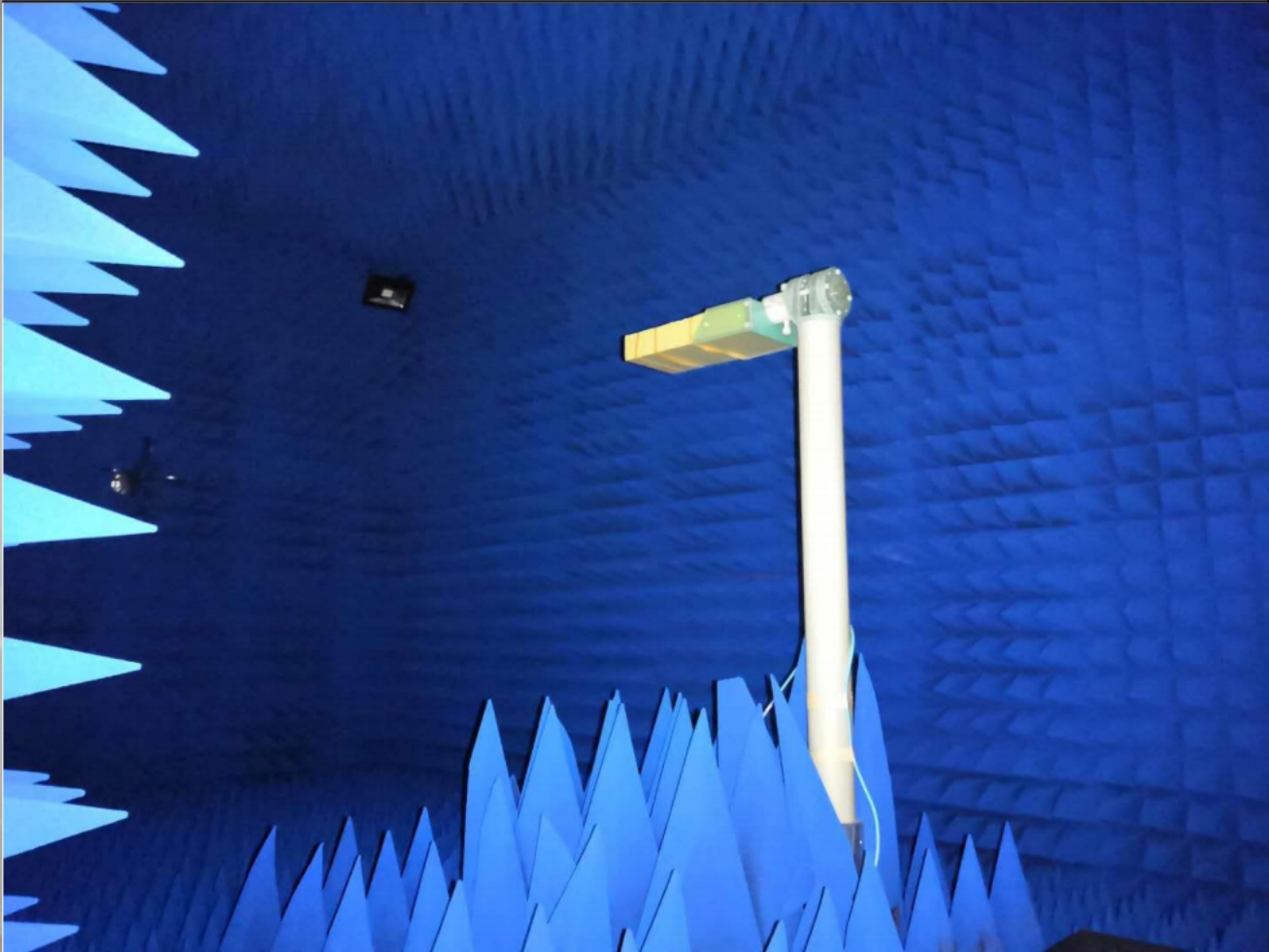
DATE 2024 11 27

FPC Antenna L/R-S12



1. test tools

Vector network analyzer & comprehensive test	Agilent Technologies E5071B & R and S C quasi W500
chamber test engineer temperature and humidity	Cong shu dan pi! Dan dan cong 3
	Kwong Chak-chung
	25°C
	65% (RH)





client

Meishifu Electronics
Co., LTD

project name

S12

frequency

2400MHZ-2500MHZ

**Antenna eng-
ineering:**

date

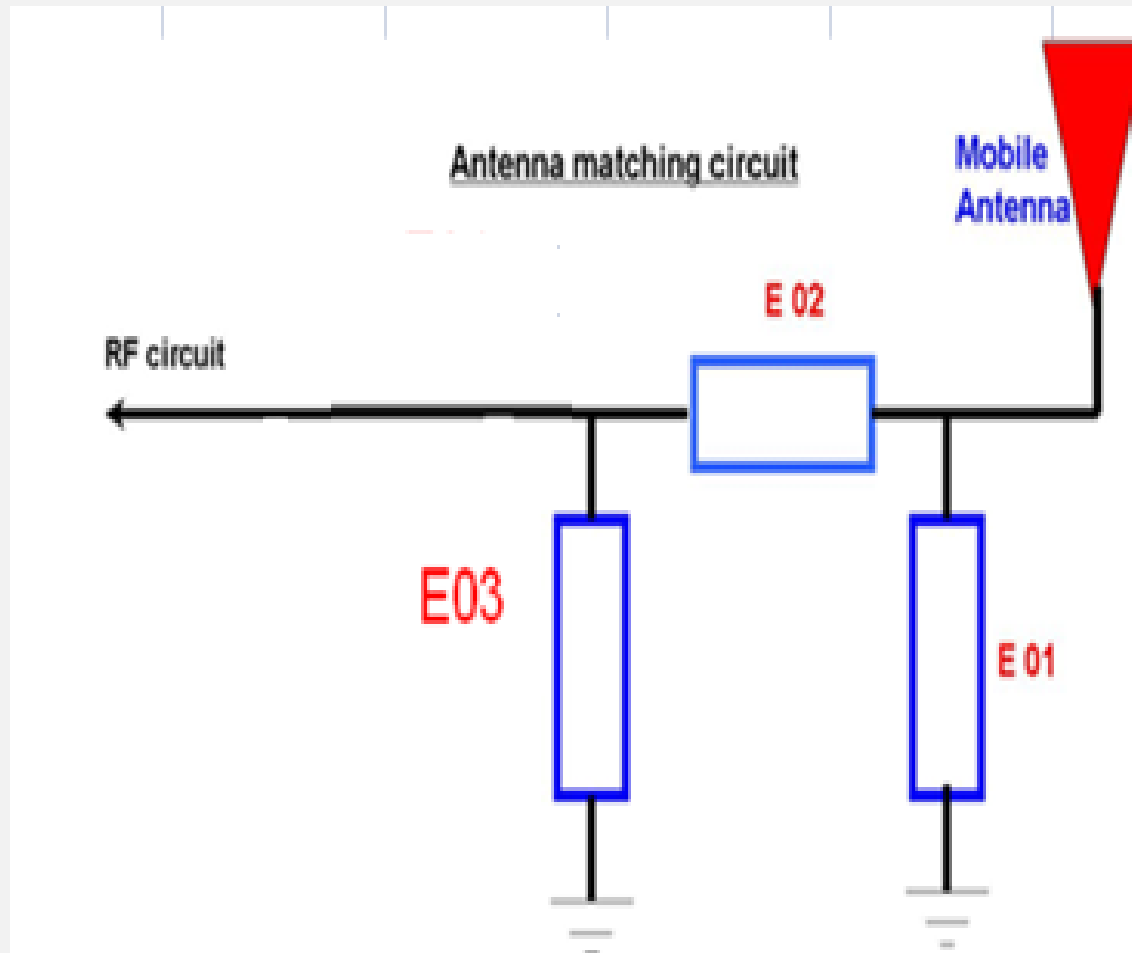
2024/11/27

**contact num-
ber :**

13590275131



L/R matching circuit diagram:



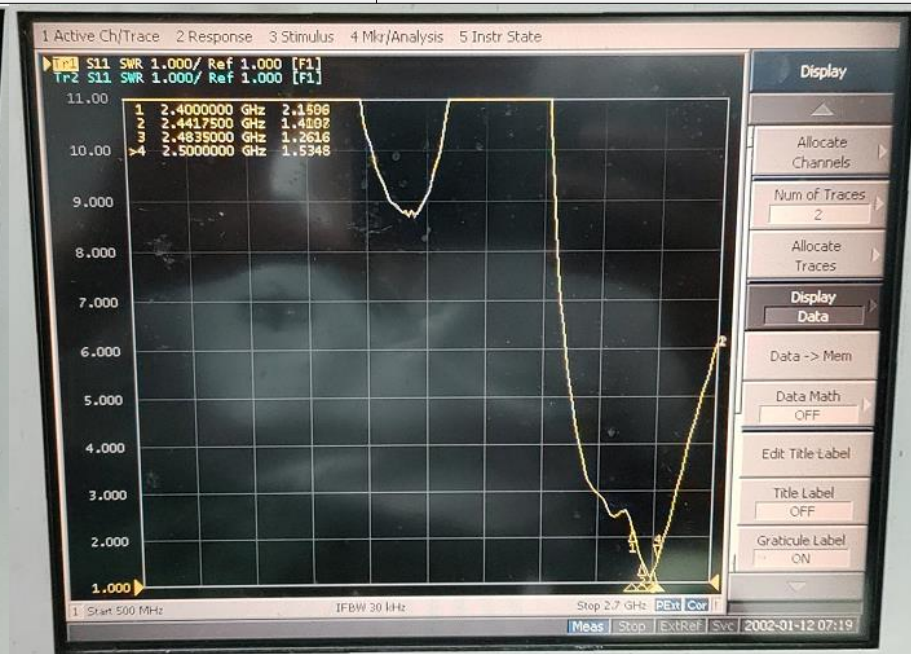
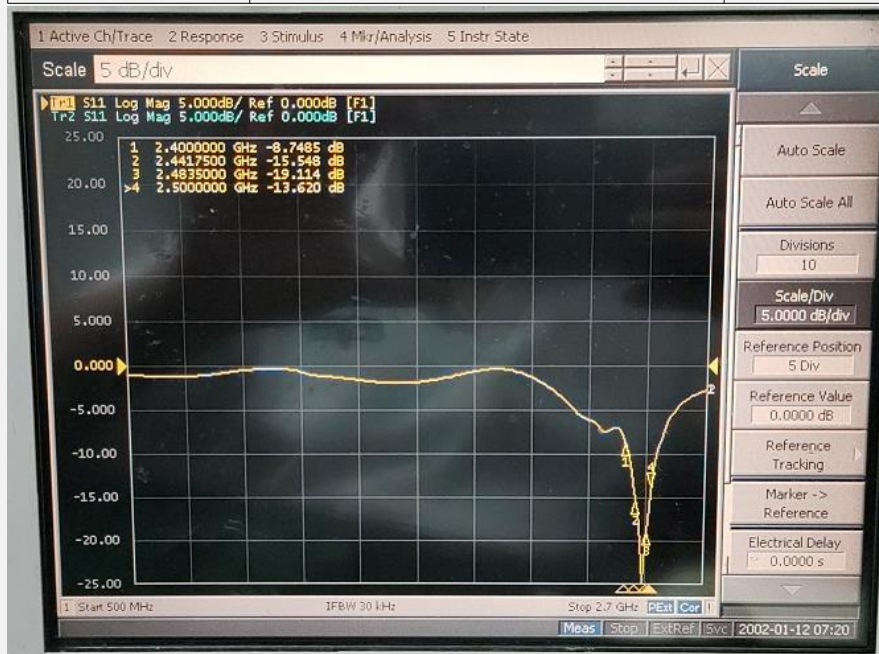
E01	1.5nh
E02	0R
E03	ESD

Single polar FPC antenna

L/ Return loss and standing wave ratio

LTC ANT S11 parameter Summary

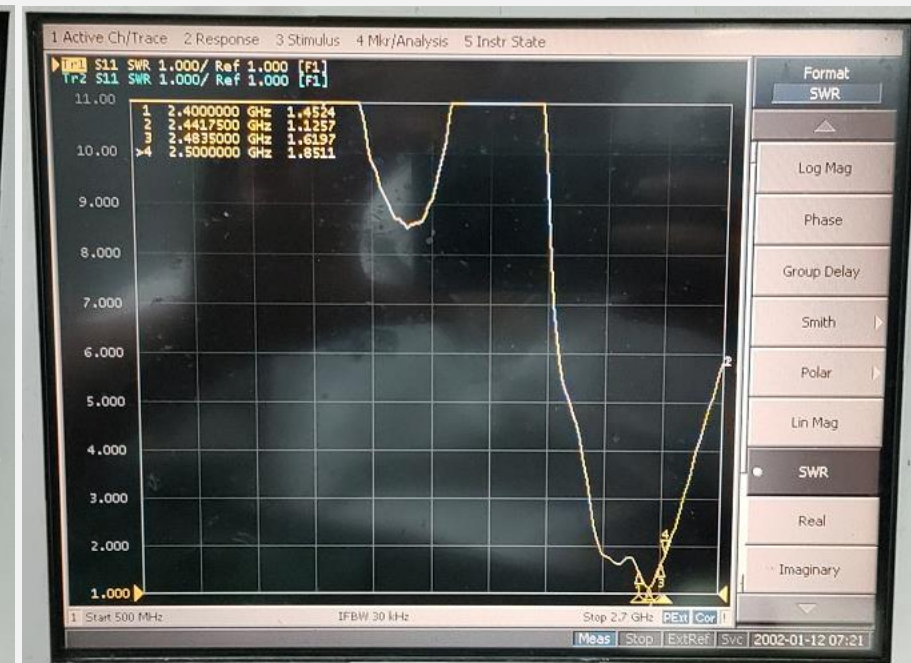
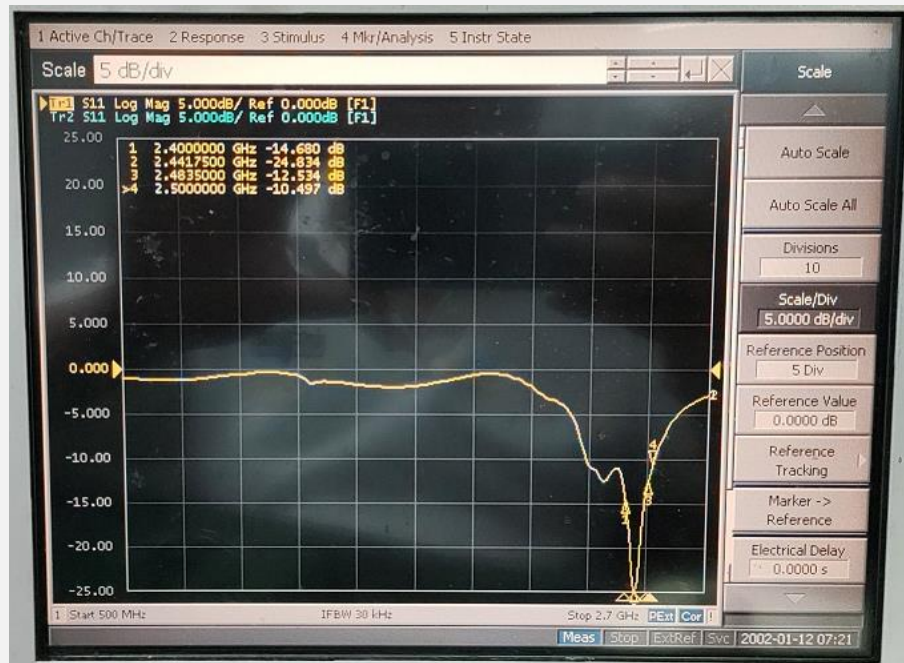
Band	2400–2500 (MHz)		
	2400	2450	2483
R. L (dB)	−8.7	−15.5	−19.1
VSWR	2.1	1.4	1.2



R/ Return loss and standing wave ratio

LTC ANT S11 parameter Summary

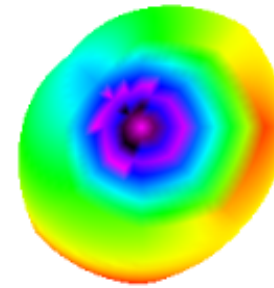
Band	2400–2500 (MHz)		
	2400	2450	2483
R. L (dB)	-14.6	-24.8	-12.5
VSWR	1.4	1.1	1.6



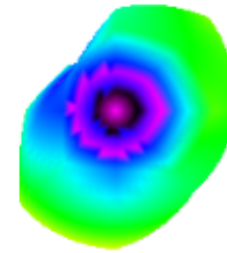
L/ Efficiency and gain

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)
2400	46.14	-3.36	-1.28	-3.43
2410	42.39	-3.73	-1.51	-3.66
2420	39.91	-3.99	-1.54	-3.69
2430	38.23	-4.18	-1.48	-3.63
2440	38.65	-4.13	-1.3	-3.45
2450	39.7	-4.01	-1.02	-3.17
2460	38.09	-4.19	-1.14	-3.29
2470	34.35	-4.64	-1.38	-3.53
2480	35.45	-4.5	-1.12	-3.27
2490	35.77	-4.46	-1.02	-3.17
2500	34.67	-4.6	-1.12	-3.27

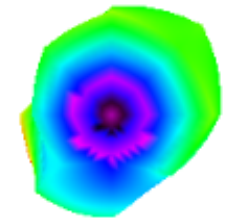
2400.000MHz



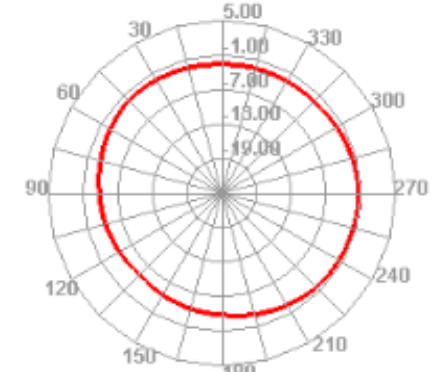
2450.000MHz



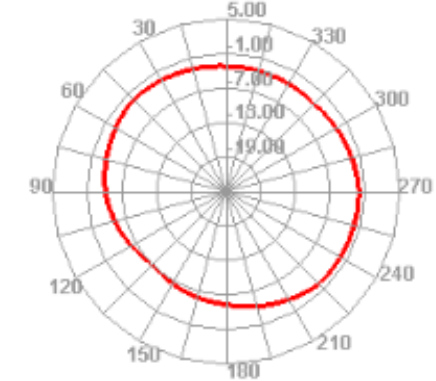
2500.000MHz



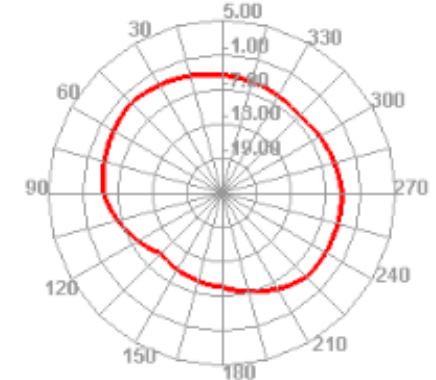
2400.000MHz H



2450.000MHz H



2500.000MHz H

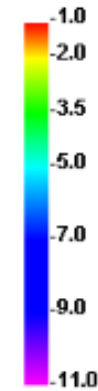
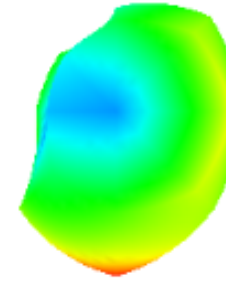




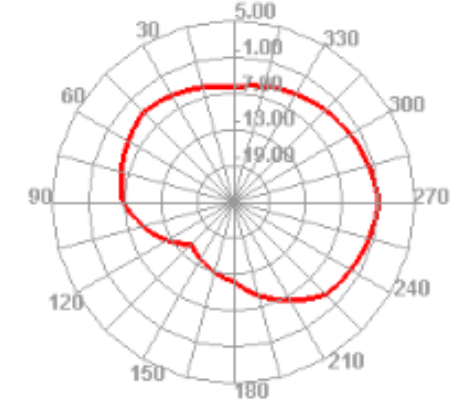
R/ Efficiency and gain

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)
2400	32.11	-4.93	-1.01	-3.16
2410	30.03	-5.22	-1.32	-3.47
2420	30.92	-5.1	-1.18	-3.33
2430	31.24	-5.05	-1.16	-3.31
2440	31.54	-5.01	-1.02	-3.17
2450	34.87	-4.58	-0.63	-2.78
2460	33.5	-4.75	-0.88	-3.03
2470	33.58	-4.74	-1.19	-3.34
2480	34.84	-4.58	-1.29	-3.44
2490	32.46	-4.89	-1.57	-3.72
2500	33.94	-4.69	-1.44	-3.59

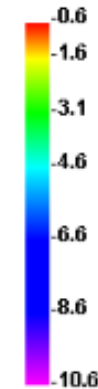
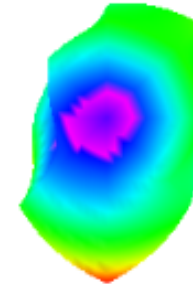
2400.000MHz



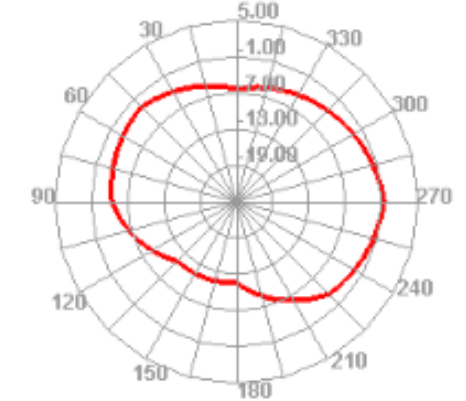
2400.000MHz H



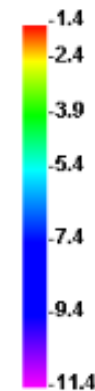
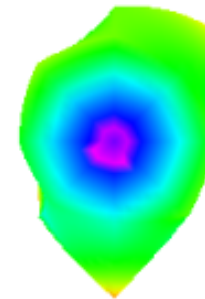
2450.000MHz



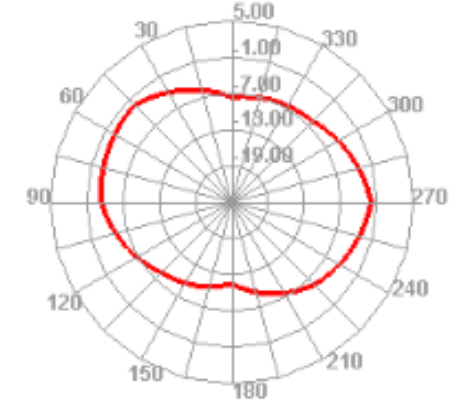
2450.000MHz H



2500.000MHz



2500.000MHz H



S12-0TA antenna free space active test data

S12-L

Test Result	Bluetooth TRP		
	0	39	78
Frequency (MHz)	2402	2441	2480
TRP (dBm)	3.11	2.39	0.88
NHPRP (dBm) 45	3.11	2.39	0.88
MAX (dBm)	5.9	5.39	4.23
EIRP peak	5.9	5.39	4.23
Min (dBm)	-9.51	-9	-6.64

Test Result	Bluetooth TIS		
	0	39	78
Frequency (MHz)	2402	2441	2480
TIS (dBm)	-86.75	-85.78	-84.3
NHPIS (dBm) 45	-86.75	-85.78	-84.3
RSSI Ave	3.97	2.07	0.95
MaxPosRSSI	5.99	3.78	2.81
MaxPosSens	-88.77	-87.49	-86.15
MAX (dBm)	6.76	5.07	4.3
EIS peak	6.76	5.07	4.3
Min (dBm)	-8.65	-9.32	-6.57

S12-R

Test Result	Bluetooth TRP		
	0	39	78
Frequency (MHz)	2402	2441	2480
TRP (dBm)	2.56	1.48	0.08
NHPRP (dBm) 45	2.56	1.48	0.08
MAX (dBm)	6.23	4.97	4.03
EIRP peak	6.23	4.97	4.03
Min (dBm)	-5.13	-11.03	-13.01

Test Result	Bluetooth TIS		
	0	39	78
Frequency (MHz)	2402	2441	2480
TIS (dBm)	-87.31	-85.38	-84.82
NHPIS (dBm) 45	-87.31	-85.38	-84.82
RSSI Ave	3.42	1.16	0.15
MaxPosRSSI	3.65	3.06	2.28
MaxPosSens	-89.53	-87.28	-86.96
MAX (dBm)	7.09	4.65	4.1
EIS peak	7.09	4.65	4.1
Min (dBm)	-4.27	-11.35	-12.94

Active test data of S12-0TA antenna head mode1

S12-L

Test Result	Bluetooth TRP		
	0	39	78
Frequency (MHz)	2402	2441	2480
TRP(dBm)	-0.96	-2.68	-3.82
NHPRP(dBm) 45	-0.96	-2.68	-3.82
MAX(dBm)	2.01	1.22	0.1
EIRP peak	2.01	1.22	0.1
Min(dBm)	-6.2	-8.65	-10.49

Test Result	Bluetooth TIS		
	0	39	78
Frequency (MHz)	2402	2441	2480
TIS(dBm)	-83.2	-80.23	-80.17
NHPIS(dBm) 45	-83.2	-80.23	-80.17
RSSIAve	-0.1	-3	-3.75
MaxPosRSSI	1.47	-0.73	-1.97
MaxPosSens	-84.77	-82.49	-81.96
MAX(dBm)	2.87	0.9	0.17
EIS peak	2.87	0.9	0.17
Min(dBm)	-5.34	-8.97	-10.42

S12-R

Test Result	Bluetooth TRP		
	0	39	78
Frequency (MHz)	2402	2441	2480
TRP(dBm)	-0.18	-1.11	-1.55
NHPRP(dBm) 45	-0.18	-1.11	-1.55
MAX(dBm)	3.13	3.18	2.26
EIRP peak	3.13	3.18	2.26
Min(dBm)	-12.79	-13.4	-15.44

Test Result	Bluetooth TIS		
	0	39	78
Frequency (MHz)	2402	2441	2480
TIS(dBm)	-84.14	-82.76	-83.79
NHPIS(dBm) 45	-84.14	-82.76	-83.79
RSSIAve	0.68	-1.43	-1.48
MaxPosRSSI	2.81	2.3	1.88
MaxPosSens	-86.27	-86.49	-87.15
MAX(dBm)	3.99	2.86	2.33
EIS peak	3.99	2.86	2.33
Min(dBm)	-11.93	-13.72	-15.37