

SAMPLE & SPECIFICATION FOR APPROVAL

Customer: T2 Mobile (Shanghai) Limited

Model NO: PM95

Customer P/N: PM95_TOP_ANT_HM0330-DA (15. PM95052001)

Version: V0.1

Specification Describe: PM95 TOP Antenna (Carrier + LDS)

Vendor P/N: HM0330-DA

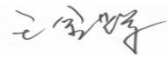
Date: 2023/12/28

Sample and datasheet must be approved for 5 PCS .

No Customer appointed Material				Assign Part
	R&D		QE	Sales
Department	MD	HW	Quality and Eng. Dep.	Sale& Marketing
Checked By	LIXU	Li ShengHua	LiWeiWei	LiMin
Approved By	LIXueQin	WangJinhui	YeLing	YiQin
Final Judgment	LiLinHua	LiLinHua	LiLinHua	LiLinHua
Remark				

Suzhou HuiMi Communication Technology Co.,Ltd

Antenna Approval Sheet

Customer	T2 Mobile (Shanghai) Limited		
Customer P/N	PM95_TOP_ANT_HM0330-DA (15.PM95052001)		
Model	PM95		
P/N	HM0330-DA		
Description	PM95-TOP ANTENNA (Carrier+LDS)		
Frequency	ANT1: 2G:GSM850/GSM900/GSM1800/GSM1900 3G:WB1/B2/B4/B5/B6/B8/B19; 4G:LTEB1/B2/B3/B4/B5/B8/B12/B13//B17/B19/B20/B25/B26/B28/B66 ANT3: N77/N78/N79 ANT8: 1575.42MHz+2400-2500MHz+5150-7125MHz ANT9: 1176MHz+2400-2500MHz+5150-7125MHz ANT11:N77/N78/N79		
Initial Date	2023/12/28		
Revision	A		
Author	RF Engineer	ME	Confirm
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Approval	R&D	PM	QE

Customer Signature

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1. Summary

This is the TOP antenna approval sheet.

Working band :

ANT1:

2G:GSM850/GSM900/GSM1800/GSM1900

3G:WB1/B2/B4/B5/B6/B8/B19;

4G:LTEB1/B2/B3/B4/B5/B8/B12/B13//B17/B19/B20/B25/B26/B28/B66

ANT3: N77/N78/N79

ANT8: 1575.42MHz+2400-2500MHz+5150-7125MHz WLAN, BT, BLE

ANT9: 1176MHz+2400-2500MHz+5150-7125MHz WLAN

ANT11:N77/N78/N79

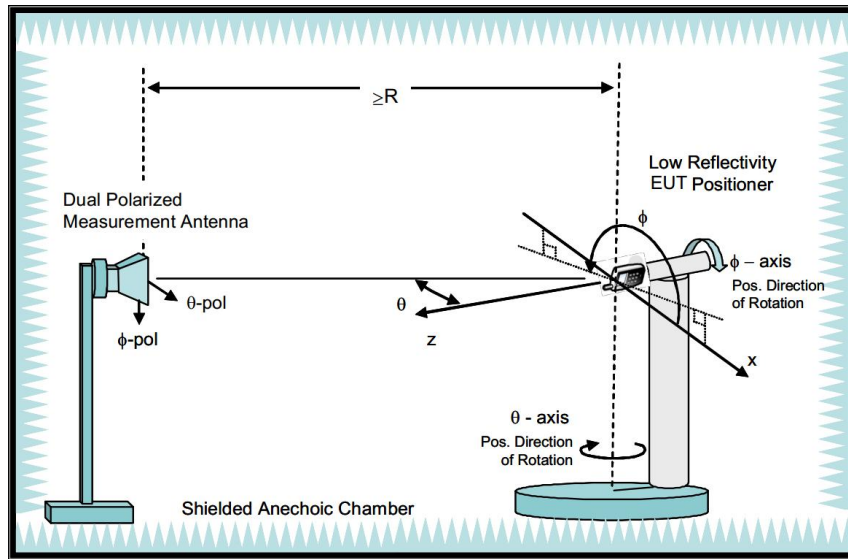
2. Antenna Structure

Carrier + LDS

3. Device Conditions

PM95 Mobile phone

4. Test Environment



Picture 2 Test Environment photo

5. Antenna Test Results

5.1 Antenna Photos

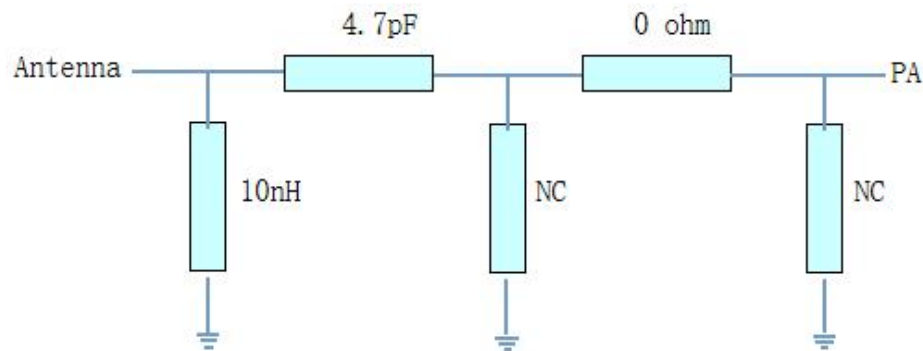
BLANK

Picture 3 PM95 TOP antenna photo

5.2 Matching Network

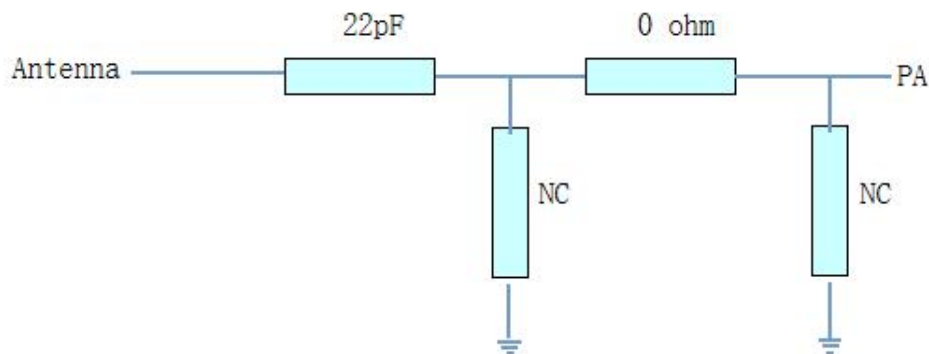
5.2.1 matching network for ANT1

RF1	0Ω
RF2	6.8nH
RF3	18nH
RF4	33nH



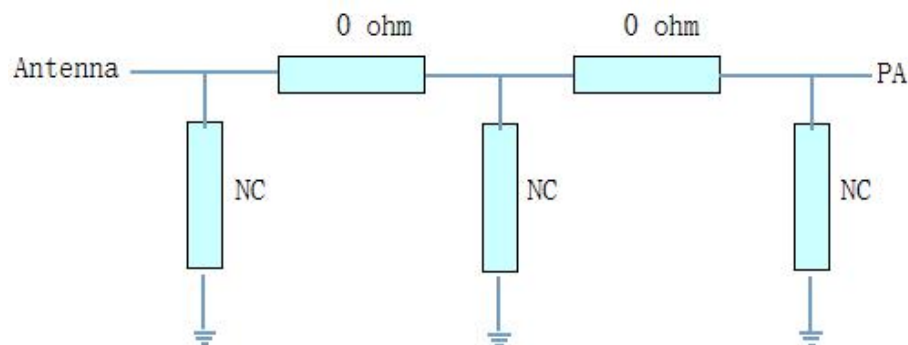
Picture 4 Matching network for ANT1

5.2.2 matching network for ANT3



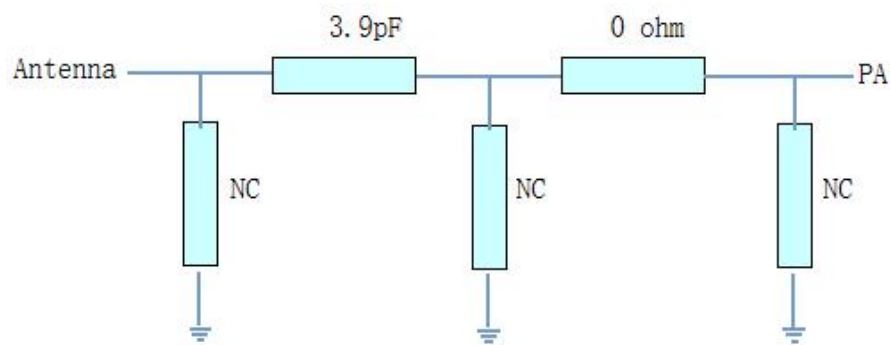
Picture 5 Matching network for ANT3

5.2.3 matching network for ANT8



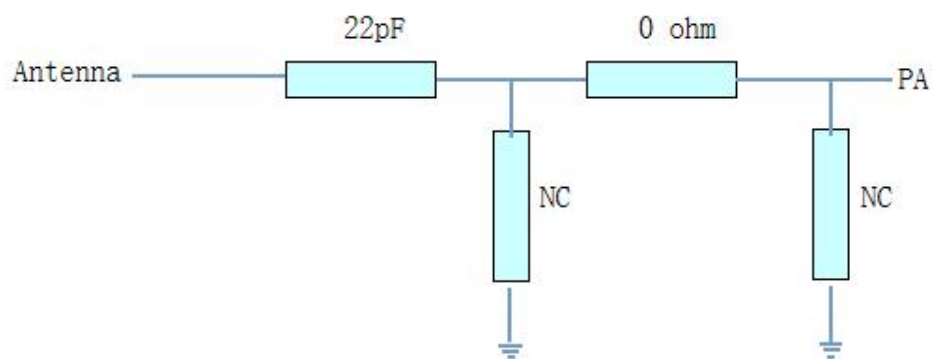
Picture 6 Matching network for ANT8

5.2.4 matching network for ANT9



Picture 7 Matching network for ANT9

5.2.5 matching network for ANT11



Picture 8 Matching network for ANT11

5.3 VSWR (S11)

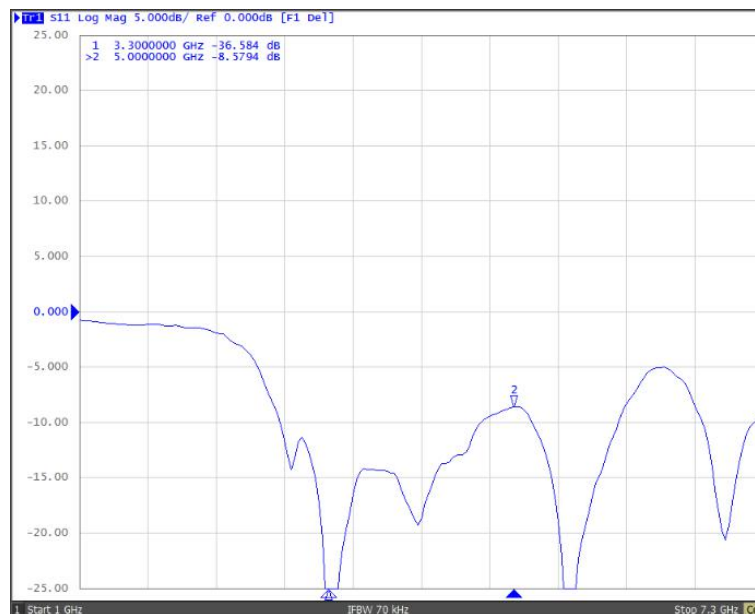
5.3.1 VSWR for ANT1

Frequency(MHz)	RL
600	-6.5
960	-8.7
1805	-9.8
2200	-11.9



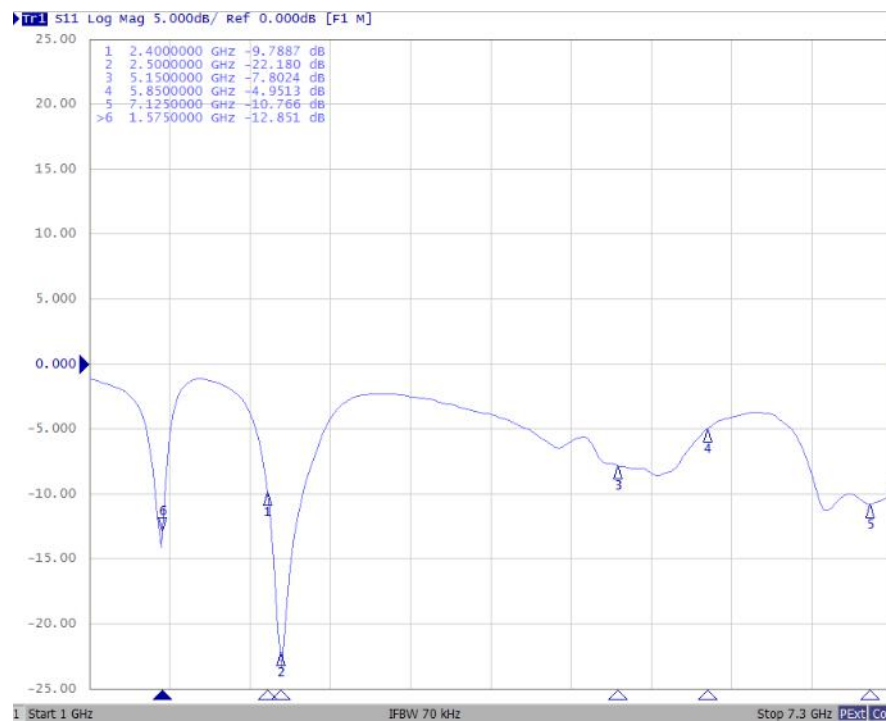
Picture 9 VSWR for ANT1

5.3.2 VSWR for ANT3



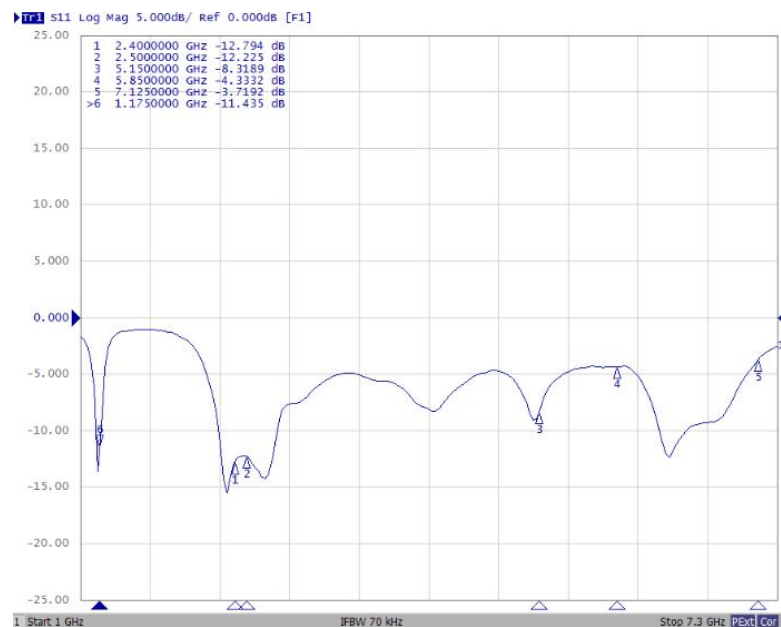
Picture 10 VSWR for ANT3

5.3.3 VSWR for ANT8



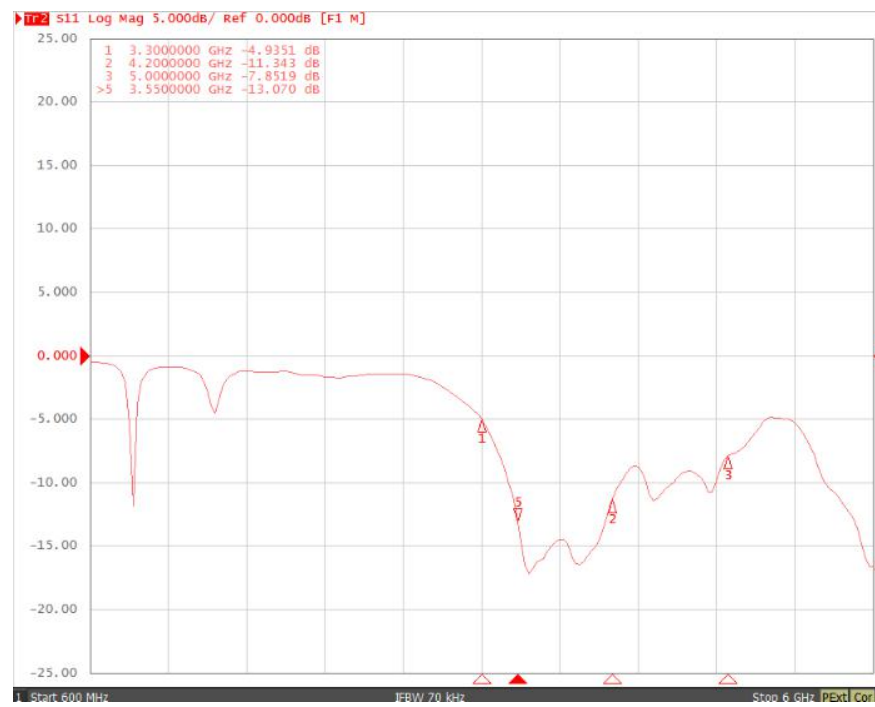
Picture 11 VSWR for ANT8

5.3.4 VSWR for ANT9



Picture 12 VSWR for ANT9

5.3.5 VSWR for ANT11



Picture 13 VSWR for ANT11

5.4 Efficiency & Peak Gain

5.4.1 Efficiency & Peak Gain for ANT1

RF1-B8+MB			RF2-B5+B20			RF3-B12/B13/B17/B28			RF4-B71		
Freq (MHz)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (dB)	Gain (dBi)
910	-6.3	-1.64	790	-7.38	-4.38	700	-7.17	-2.62	610	-8.27	-5.18
920	-5.24	-0.83	800	-7.25	-4.46	710	-7.09	-2.89	620	-8.45	-5.32
930	-4.47	-0.22	810	-7.23	-4.74	720	-6.56	-2.88	630	-7.88	-3.73
940	-4.55	-0.4	820	-7.15	-4.39	730	-6.43	-3.28	640	-7.16	-2.56
950	-4.48	-0.37	830	-6.5	-3.71	740	-6.9	-4.35	650	-6.78	-2.07
960	-5.1	-0.96	840	-6.49	-3.77	750	-6.59	-4.02	660	-7.22	-2.62
1800	-2.76	2.05	850	-6.41	-3.28	760	-6.33	-3.67			
1820	-2.61	1.78	860	-5.64	-2.29	770	-5.81	-2.98			
1840	-2.31	1.68	870	-5.24	-1.91	780	-6.09	-3.15			
1860	-3.15	0.92	880	-5.51	-1.59	790	-6.27	-3.5			
1880	-2.16	2.01	890	-5.24	-0.59	800	-7.23	-4.69			
1900	-2.82	1.13	900	-5.71	-0.83	810	-7.35	-4.87			
1920	-1.97	1.76									
1940	-2.13	2.29									
1960	-1.98	2.88									
1980	-2.77	1.88									
2000	-3.07	1.56									
2020	-3.9	0.85									
2040	-4.1	0.61									
2060	-4.13	0.44									
2080	-3.79	1.02									
2100	-3.61	1.46									
2120	-3.32	1.95									
2140	-4.01	1.43									
2160	-4.05	1.7									
2180	-4.88	0.9									
2200	-5.11	-0.46									

5.4.2 Efficiency & Peak Gain for ANT3

Freq (MHz)	Effi (dB)	Gain (dBi)
3300	-3.95	0.64
3400	-3.14	1.36
3500	-3.59	0.75
3600	-4.08	-0.52
3700	-4.49	-0.35
3800	-3.77	0.95
3900	-4.37	0.24
4000	-3.82	1.49
4100	-3.36	1.23
4200	-4.65	-0.34
4300	-3.88	1.09
4400	-4.59	-0.2
4500	-4.81	-0.52
4600	-4.47	-0.12
4700	-4.9	-0.58
4800	-5.67	-1.03
4900	-6.42	-2.35
5000	-6.58	-3.04

5.4.3 Efficiency & Peak Gain for ANT8

Freq (MHz)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (dB)	Gain (dBi)
1560	-5.25	-3.21	5100	-3.45	-0.12	5900	-3.23	1.02
1570	-5.02	-3.11	5150	-3.9	-0.71	6000	-4.11	1.56
1580	-5.12	-3.23	5200	-4.15	-1.18	6100	-3.89	1.42
1590	-5.3	-2.94	5250	-4.16	-1.51	6200	-3.45	1.2
2400	-3.75	2	5300	-4.21	-0.12	6300	-3.85	1.15
2410	-3.66	2.24	5350	-4.49	0.03	6400	-4.12	0.99
2420	-3.87	2.65	5400	-4.58	0.06	6500	-3.96	1.11
2430	-3.74	2.85	5450	-4.69	-0.38	6600	-4.25	1.23
2440	-3.81	2.81	5500	-4.27	0.01	6700	-3.78	1.35
2450	-3.45	3.24	5550	-3.87	0.09	6800	-4.75	1.14
2460	-3.47	3.31	5600	-3.91	0.34	6900	-4.46	0.85
2470	-3.47	3.34	5650	-4.03	0.05	7000	-4.52	1.22
2480	-3.31	3.51	5700	-4.12	-0.17	7100	-4.96	1.1
2490	-3.59	3.22	5750	-3.77	0.44	7200	-5.23	0.89
2500	-3.64	3.14	5800	-3.46	0.76			
			5850	-2.74	1.83			

5.4.4 Efficiency & Peak Gain for ANT9

Freq (MHz)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (dB)	Gain (dBi)
1172	-5.59	-0.76	5100	-4.28	0.99	5900	-3.65	1.11
1174	-5.5	-0.69	5150	-3.78	1.29	6000	-4.02	0.85
1176	-5.43	-0.65	5200	-3.01	2.02	6100	-4.15	1.32
1178	-5.36	-0.63	5250	-3.05	1.64	6200	-3.89	1.45
2400	-2.61	5.23	5300	-3.39	1.23	6300	-4.32	1.32
2410	-2.7	5.27	5350	-3.9	0.29	6400	-4.52	1.89
2420	-2.56	5.46	5400	-3.77	0.25	6500	-4.26	1.42
2430	-2.59	5.32	5450	-3.38	0.84	6600	-4.78	0.96
2440	-2.75	4.98	5500	-2.98	1.23	6700	-4.15	1.12
2450	-2.42	5.11	5550	-3.23	1.23	6800	-5.03	0.78
2460	-2.68	4.71	5600	-4.47	0.38	6900	-5.12	1.32
2470	-2.91	4.41	5650	-5.07	-0.58	7000	-4.89	1.12
2480	-2.87	4.5	5700	-4.7	-0.27	7100	-5.23	0.78
2490	-3.16	4.24	5750	-4	0.39	7200	-5.4	0.69
2500	-3.26	4.15	5800	-3.68	1.17			
			5850	-3.33	1.32			

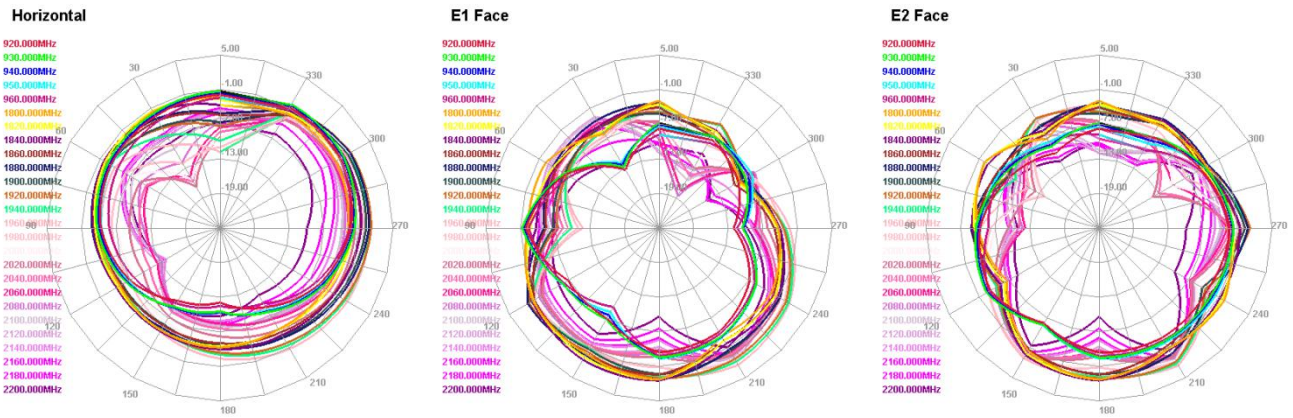
5.4.5 Efficiency & Peak Gain for ANT11

Freq (MHz)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (dB)	Gain (dBi)
3300	-4.33	-1.66	4150	-3.94	-1.56
3350	-4.08	-1.42	4200	-4.27	-1.37
3400	-4.3	-1.24	4250	-3.81	-0.14
3450	-3.87	-0.96	4300	-3.23	0.6
3500	-3.98	-1.36	4350	-3.44	0.45
3550	-3.61	-1.03	4400	-3.14	0.7
3600	-4.18	-1.7	4450	-3.36	0.68
3650	-3.97	-1.51	4500	-3.64	0.38
3700	-4.1	-1.25	4550	-3.53	0.59
3750	-4.02	-1.31	4600	-2.82	0.44
3800	-4.08	-1.78	4650	-2.94	0.52
3850	-4.37	-2.11	4700	-3.15	0.28
3900	-4.51	-2.08	4750	-3.78	0.4
3950	-4.32	-1.78	4800	-4.31	-0.6
4000	-4.12	-1.66	4850	-4.15	-0.73
4050	-4.15	-1.25	4900	-3.92	-0.16
4100	-3.66	-1.37	4950	-4.19	-0.69
			5000	-4.1	-0.06

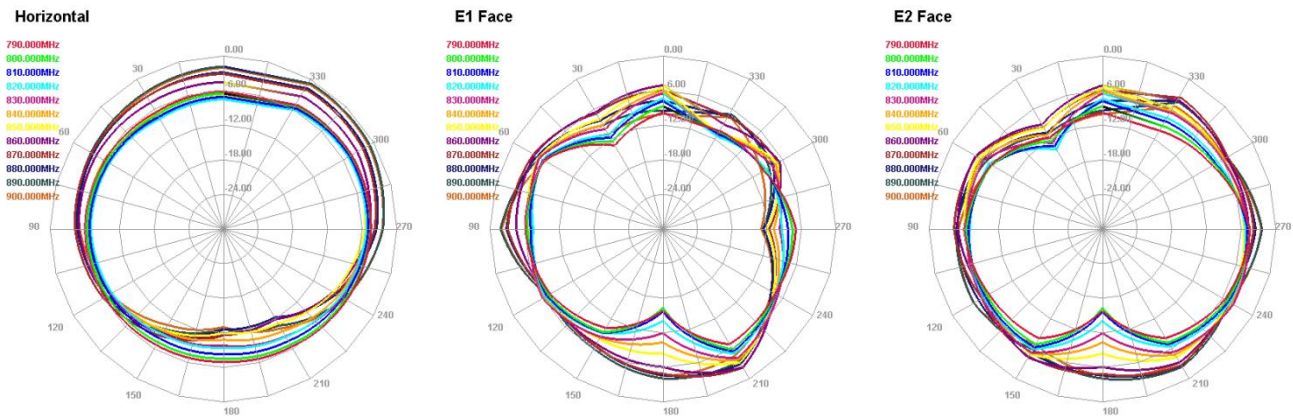
5.5 Radiation Pattern

5.5.1 Radiation Pattern for ANT1

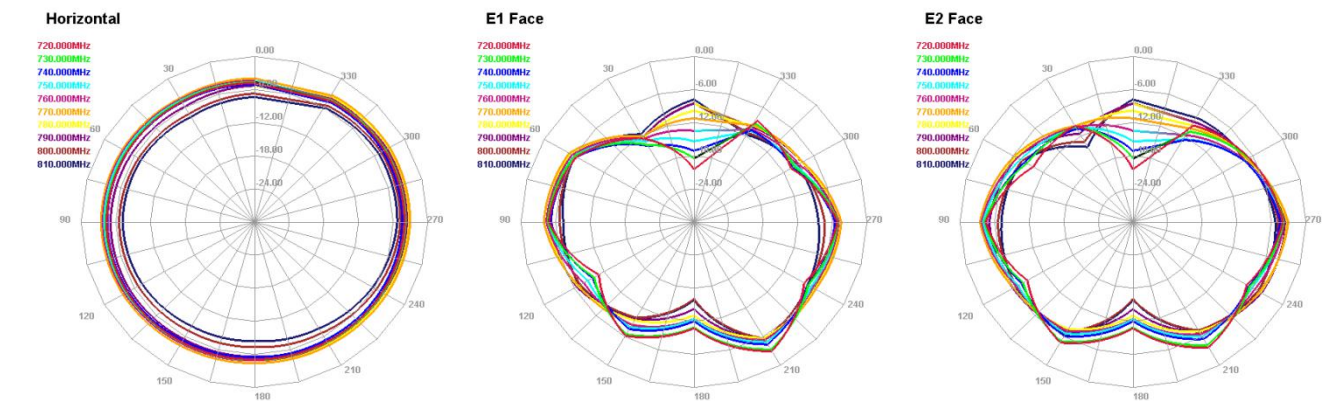
RF1 (925-960MHz, 1805-2200MHz)



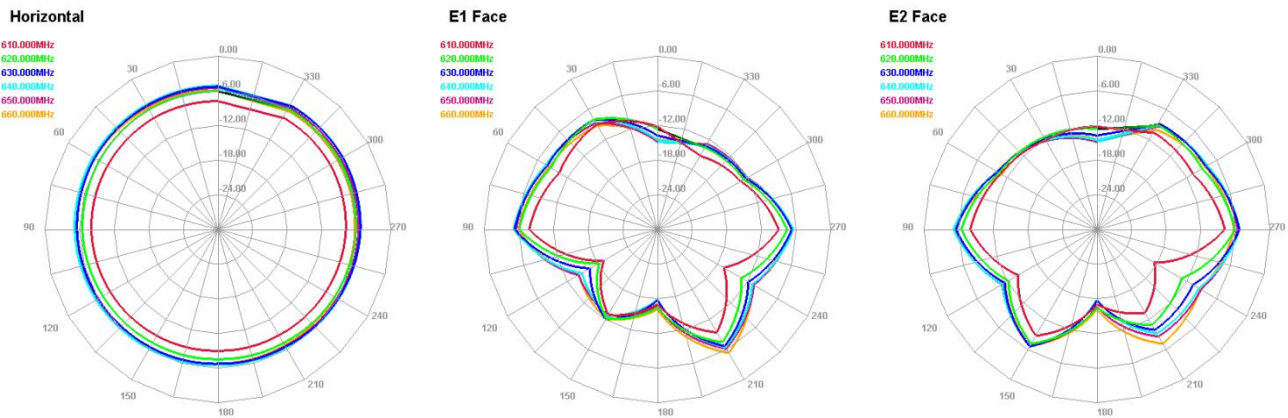
RF2 (791-894MHz)



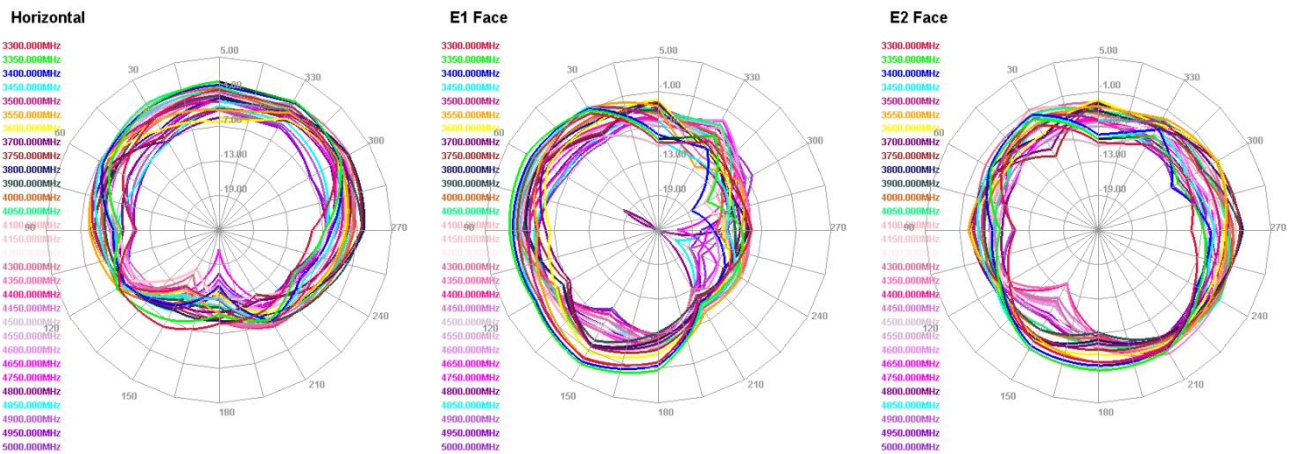
RF3 (699-803MHz)



RF4(617-652MHz)

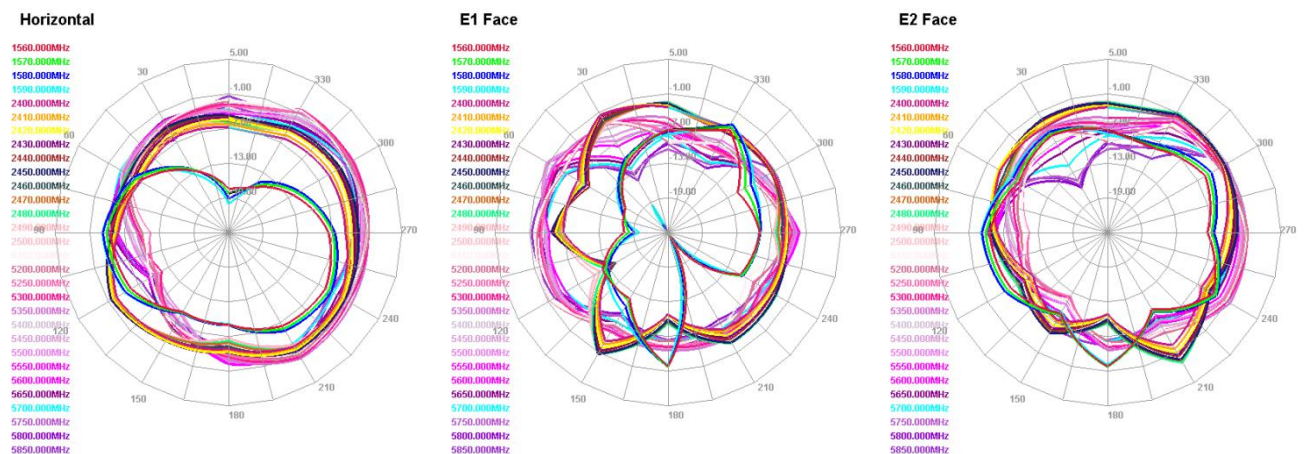


5.5.2 Radiation Pattern for ANT3



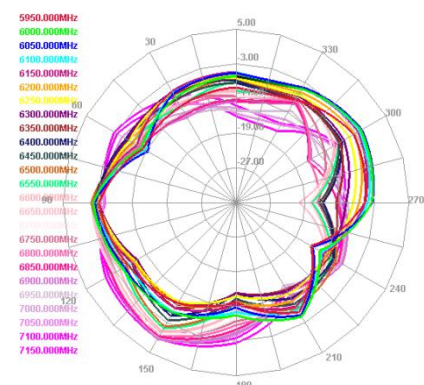
5.5.3 Radiation Pattern for ANT8

ANT8 (1575MHz+2400-2500MHz+5150+5850MHz)

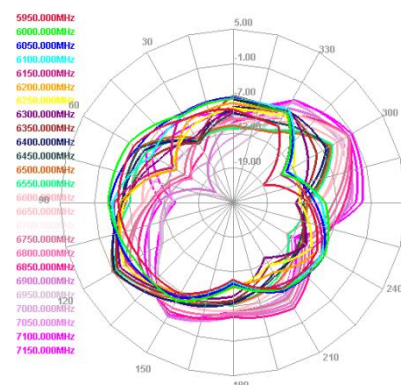


ANT8 (5950-7125MHz)

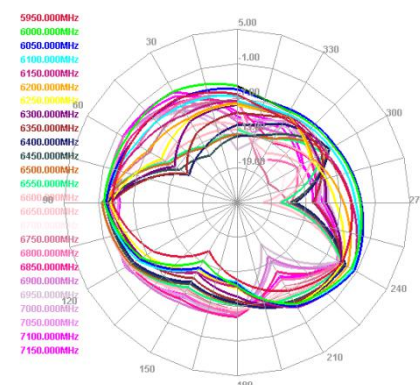
Horizontal



E1 Face



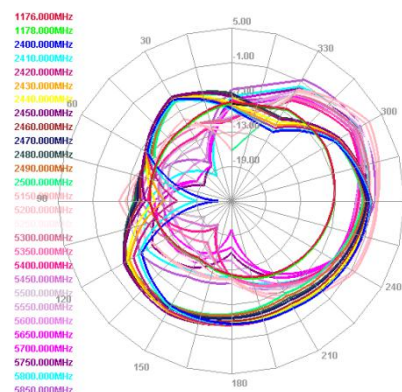
E2 Face



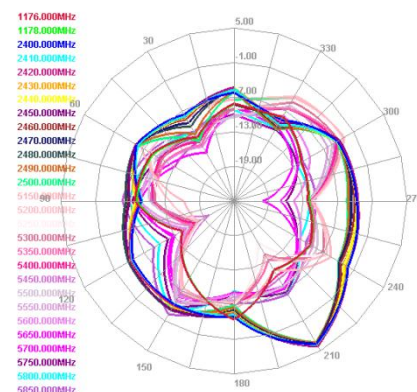
5.5.4 Radiation Pattern for ANT9

ANT9 (1176MHz+2400-2500MHz+5150+5850MHz)

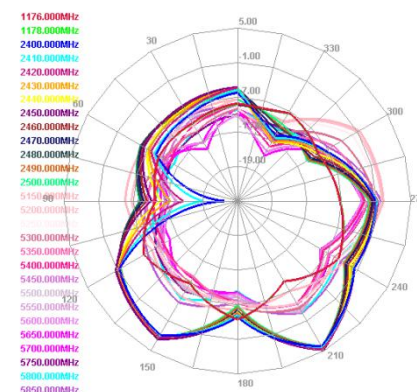
Horizontal



E1 Face

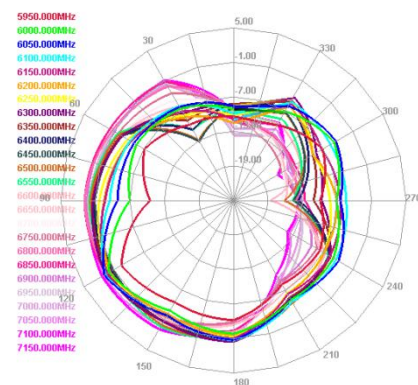


E2 Face

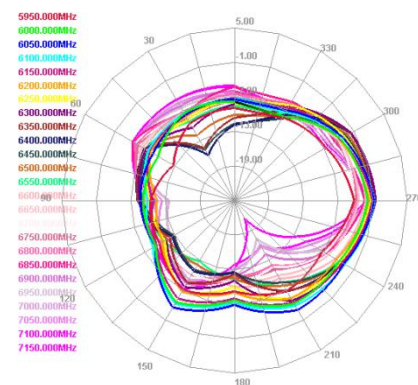


ANT9 (5950-7125MHz)

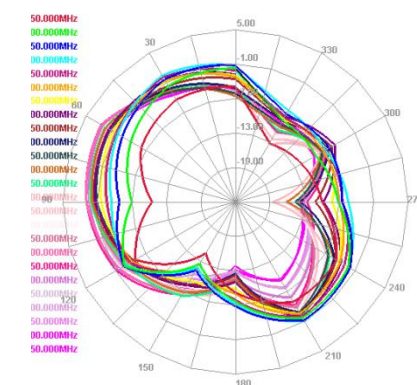
Horizontal



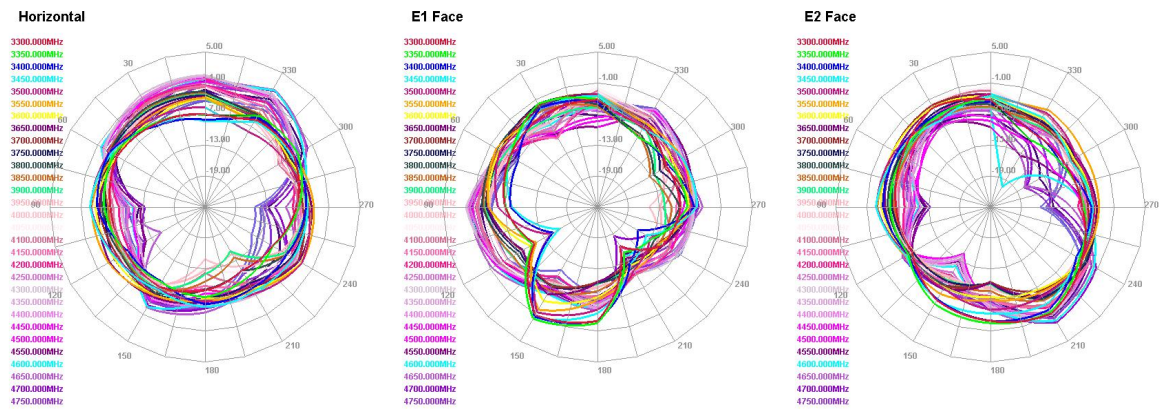
E1 Face



E2 Face



5.5.5 Radiation Pattern for ANT11



6. Mechanical Drawings

