SAMPLE & SPECIFICATION FOR APPROVAL

Customer: T2 Mobile (Shanghai) Limited

Model NO: PM86W

CustomerP/N:PM86W_BTM_ANT_HM0169-MA (BQA39F0A17C0)

Version: V0.1

Specification Describe: PM86W_BTM_ Antenna (Carrier + LDS)

Vendor P/N: HM0169-MA

Date: 2023/03/27

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	PM86W_BTM_ ANT_HM0169-MA (BQA39F0A17C0)		
Model	PM86W		
P/N	HM0169-MA		
Description	PM86W_BTM_ ANTENNA (Carrier+LDS)		
Frequency	2G:GSM850/GSM900/GSM1800/GSM1900 3G:WB1/B2/B4/B5/B6/B8/B19; 4G:LTEB1/B2/B3/B4/B5/B7/B8/B12/B13/B17/B19/B20/B25/B26/B28/B38/B39/B40/B41/B66		
Initial Date	2023/3/27		
Revision	A		
Author	RF Engineer	ME	Confirm
	WangJinhui	SunQua	YIQIN
Tel.	18015467688	13405120400	
Approval	R&D	PM	QE

Customer Signature

Catalog

1. Summary

This is the BTM antenna approval sheet.

Working band :

Main antenna:

2G:GSM850/GSM900/GSM1800/GSM1900

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

4G:LTEB1/B2/B3/B4/B5/B7/B8/B12/B13/B17/B19/B20/B25/B26/B28/B38/B39/B40/B41/B66

WIFI MIMO antenna: 2400-2500/5150-5850MHz

2. Antenna Structure

Carrier + LDS

3. Device Conditions

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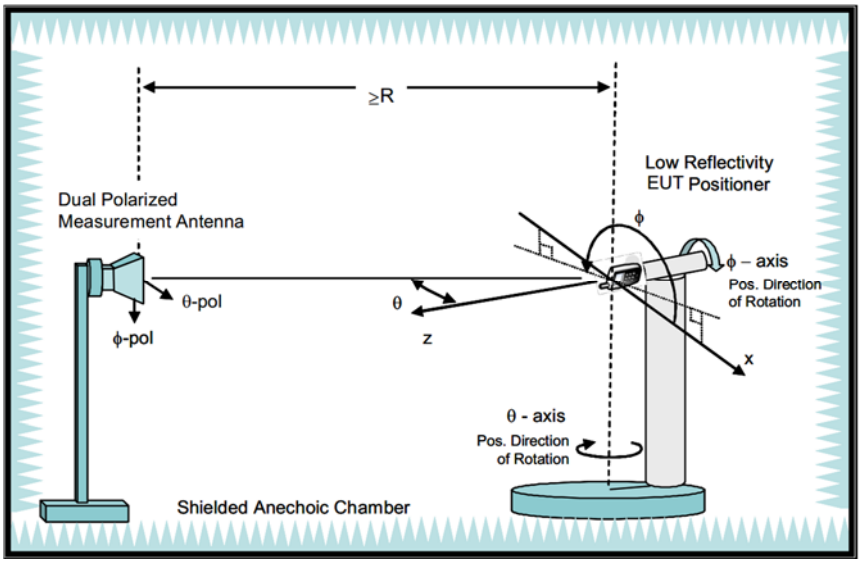
Picture1 PM86W Mobile phone photo

4. Test Environment



Picture 2 Test Environment photo

5. Antenna Test Results

5.1 Antenna Photos

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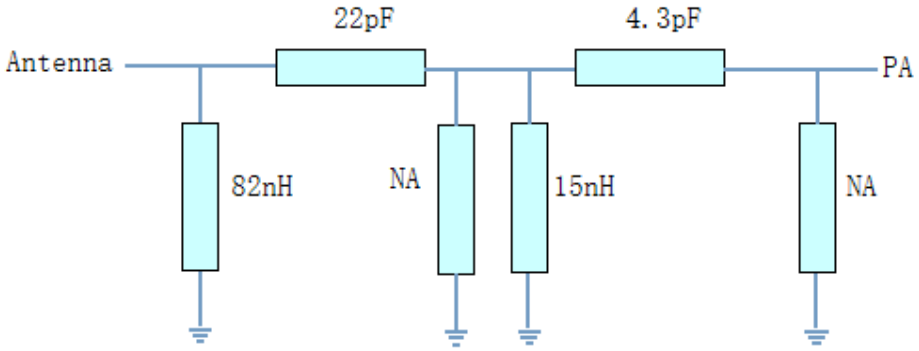
Picture 3 PM86W BTM antenna photo

5.2 Matching Network

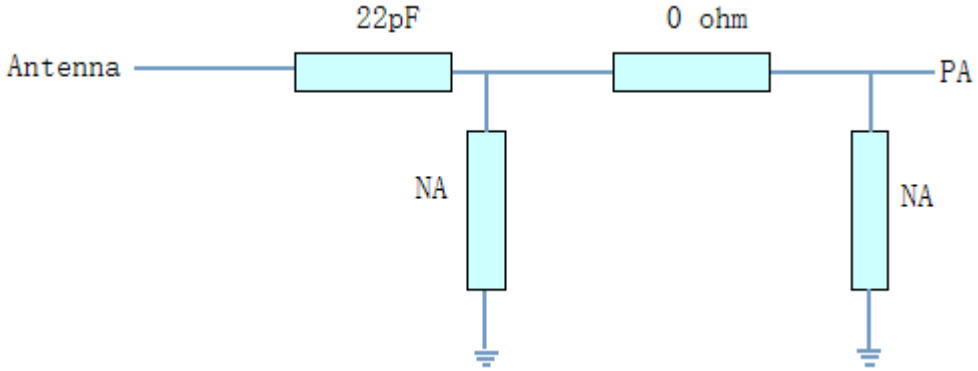
5.2.1 Matching network of Main antenna

RF1	0 ohm
RF2	2.2nH
RF3	5.6nH
RF4	9.1nH



Picture 4 Matching network of Main antenna

5.2.2 Matching network of WIFI MIMO antenna

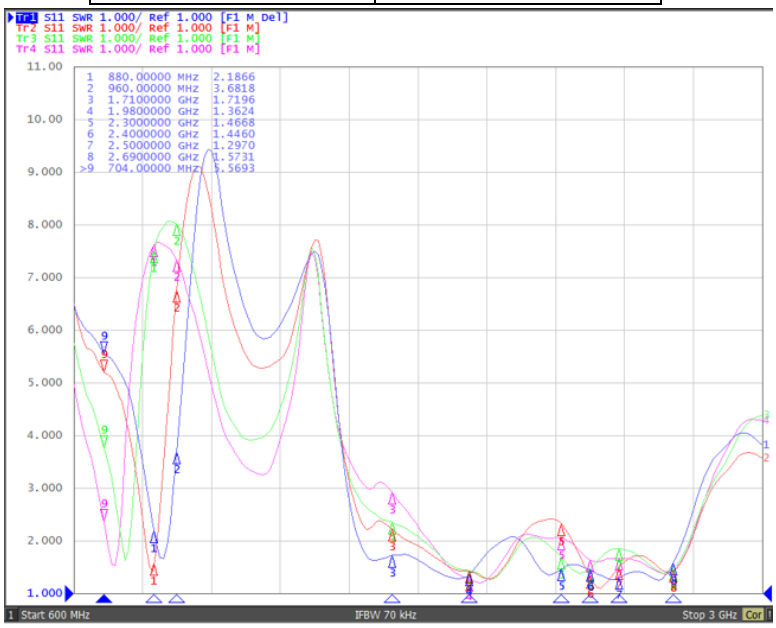


Picture 5 Matching network of WIFI MIMO antenna

5.3 VSWR (S11)

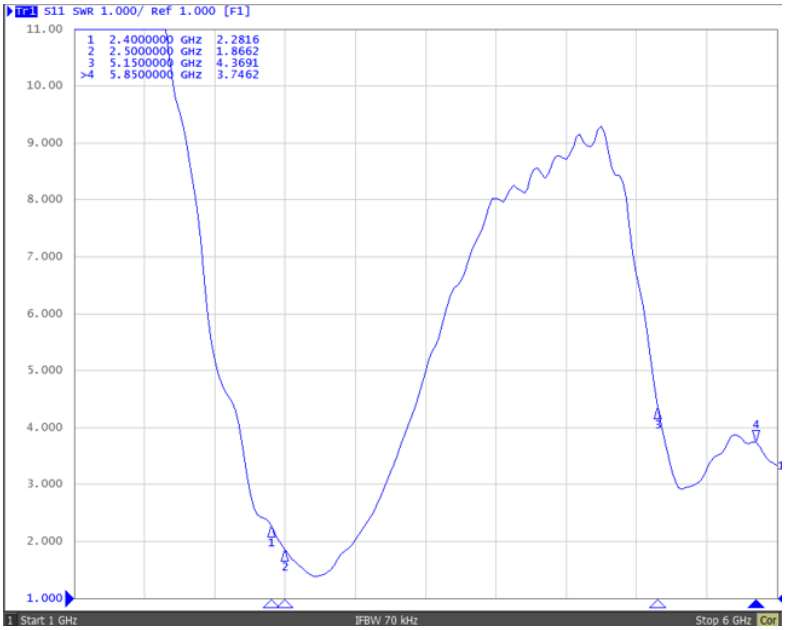
5.3.1 VSWR of Main antenna

Frequency(MHz)	VSWR
703	2.49
960	3.68
1710	1.72
2300	1.46
2690	1.57



Picture 6 VSWR of Main antenna

5.3.2 VSWR of WIFI MIMO antenna



Picture 7 VSWR of IWIFI MIMO antenna

5.4 Efficiency &Peak Gain

5.4.1 Efficiency &Peak Gain of Main antenna

RF1									RF2			RF3			RF4		
Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)
880	42.92	-0.84	1980	49.09	2.16	2340	52.46	2.67	790	32.82	-1.51	740	25.36	-5.95	700	30.23	-5.19
890	45.76	-0.39	1990	48.1	1.94	2350	50.9	2.86	800	31.15	-1.84	750	26.45	-5.77	710	29.45	-5.3
900	40.28	-0.44	2000	42.82	1.27	2360	48.18	2.92	810	33.47	-1.84	760	27.32	-5.63	720	31.25	-5.05
910	34.73	-0.73	2010	41.1	0.96	2370	47.7	3.11	820	33.9	-2.05	770	28.44	-5.46	730	30.85	-5.1
920	31.76	-1.09	2020	34.03	0.03	2380	44.78	3.09	830	33.77	-4.71	780	27.25	-5.64	740	28.75	-5.41
930	29.08	-1.54	2030	30.97	-0.49	2390	41.84	3	840	33.8	-4.71	790	25.12	-5.99	750	29.69	-5.27
940	23.64	-2.61	2040	32.02	-0.21	2400	40.95	3.13	850	33.56	-4.74				760	30.42	-5.16
950	22.82	-2.93	2050	31.07	-0.21	2410	42.1	3.36	860	39.69	-4.01				770	27.56	-5.59
960	18.93	-3.73	2060	31.15	-0.13	2420	44.29	3.68	870	39.51	-4.03				780	25.68	-5.9
1710	35.27	-0.06	2070	31.99	0.05	2430	44.96	3.77	880	37.92	-4.21				790	24.12	-6.17
1720	33.13	-0.29	2080	32.31	0.14	2440	43.39	3.6	890	40.76	-3.89				800	24.69	-6.07
1730	32.1	-0.44	2090	35.85	0.6	2450	46.35	3.91	900	35.28	-4.52				810	23.56	-6.27
1740	31.97	-0.47	2100	40.16	1.1	2460	46.99	4									
1750	32.98	-0.4	2110	38.6	0.95	2470	47.51	4.04									
1760	32.75	-0.48	2120	39.84	1.11	2480	49.89	4.16									
1770	34.44	-0.37	2130	41.66	1.32	2490	47.43	3.89									
1780	32.05	-0.86	2140	40.24	1.18	2500	48.13	3.85									
1790	30.9	-1.38	2150	42.33	1.46	2510	53.5	4.25									
1800	31.42	-1.33	2160	43.79	1.57	2520	56.71	4.37									
1810	31.14	-1.29	2170	44.83	1.74	2530	61.5	4.58									
1820	34.66	-0.83	2180	45.3	1.83	2540	60.26	4.38									
1830	38.05	-0.5	2190	43.96	1.74	2550	53.27	3.69									
1840	41.08	-0.22	2200	43.86	1.79	2560	51.34	3.31									
1850	46.96	0.68	2210	45.31	1.98	2570	50.02	3.03									
1860	38.35	0.16	2220	43.8	1.9	2580	52.78	3.08									
1870	44.54	1.11	2230	44.56	2.03	2590	61.14	3.59									
1880	49.37	1.71	2240	47.05	2.33	2600	60.27	3.43									
1890	44.53	1.38	2250	48.52	2.56	2610	58.42	3.06									
1900	44.2	1.42	2260	48.84	2.61	2620	59.49	2.88									
1910	46.25	1.65	2270	49.77	2.65	2630	57.35	2.46									
1920	53.94	2.35	2280	50.05	2.55	2640	53.34	1.79									
1930	56	2.58	2290	51.93	2.56	2650	54.81	1.52									
1940	56.48	2.7	2300	53.34	2.47	2660	53.46	1.09									
1950	56.26	2.79	2310	52.11	2.06	2670	53.2	1.25									
1960	60.21	3.15	2320	51.69	1.73	2680	53.03	1.41									
1970	54.48	2.71	2330	53.54	2.34	2690	50.3	1.24									

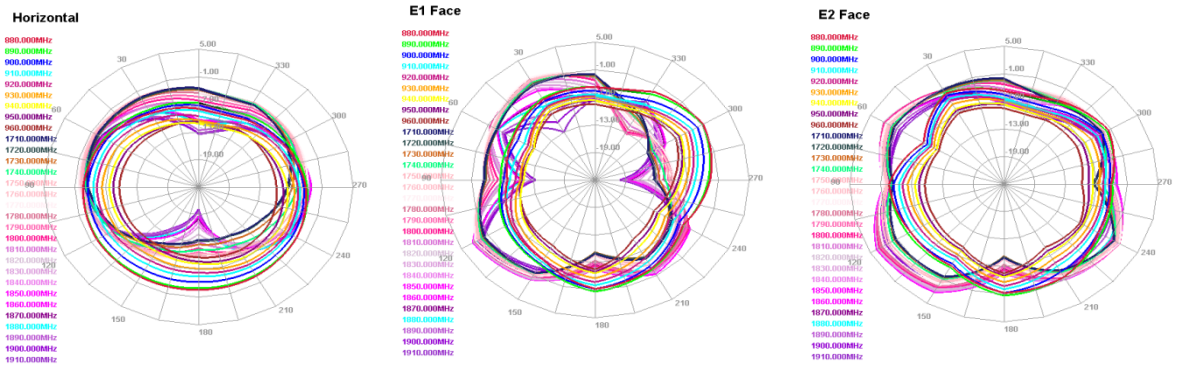
5.4.2 Efficiency &Peak Gain of WIFI MIMO antenna

Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)
2400	39.95	3.9	5100	31.48	0.11
2410	39.92	3.83	5150	33.49	-0.24
2420	40.43	3.89	5200	32.34	-0.27
2430	41.13	3.85	5250	26.83	-1.43
2440	40.48	3.68	5300	27.13	-1.76
2450	46.39	3.9	5350	29.67	-1.57
2460	43.43	3.58	5400	33.33	-1.23
2470	40.88	3.35	5450	35.63	-1.3
2480	42.98	3.52	5500	35.24	-1.68
2490	40.42	3.37	5550	34.45	-1.49
2500	40.48	3.47	5600	33.17	-1.63
			5650	38.55	-0.76
			5700	43.49	-0.07
			5750	40.43	-0.7
			5800	36.51	-1.23
			5850	39.04	-0.71

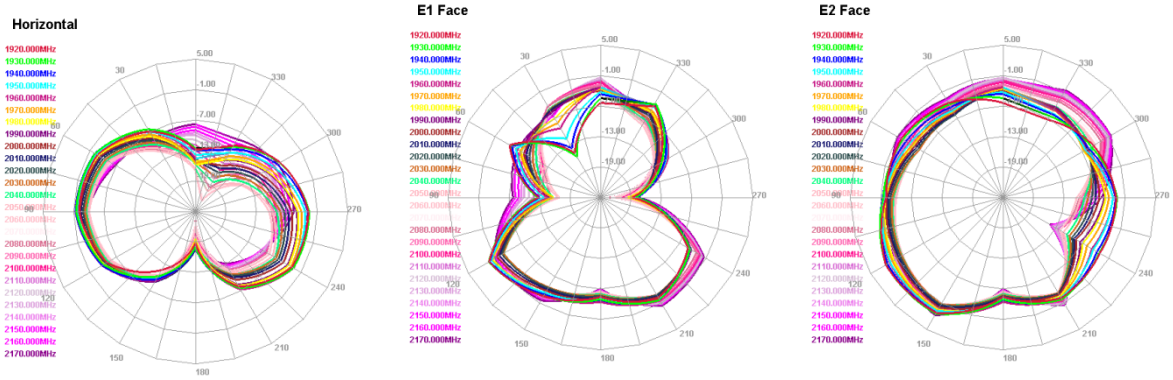
5.5 Radiation Pattern

5.5.1 Radiation Pattern of Main antenna

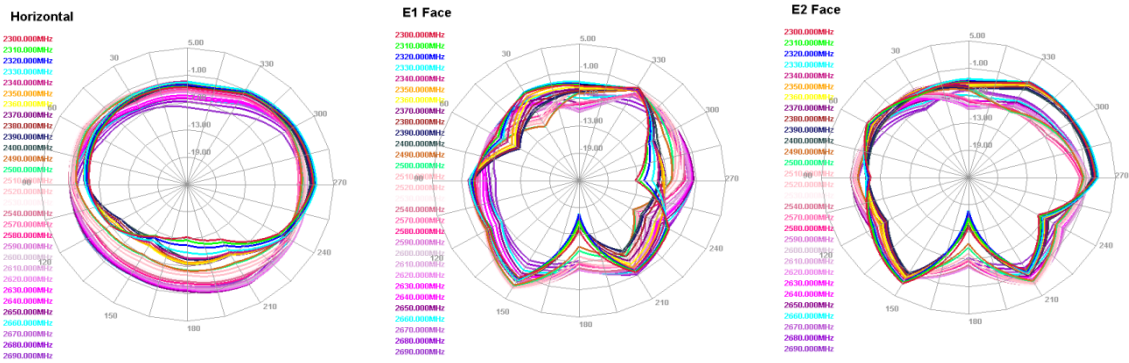
PATH-RF1 (880-960MHz，1710-1910MHz)



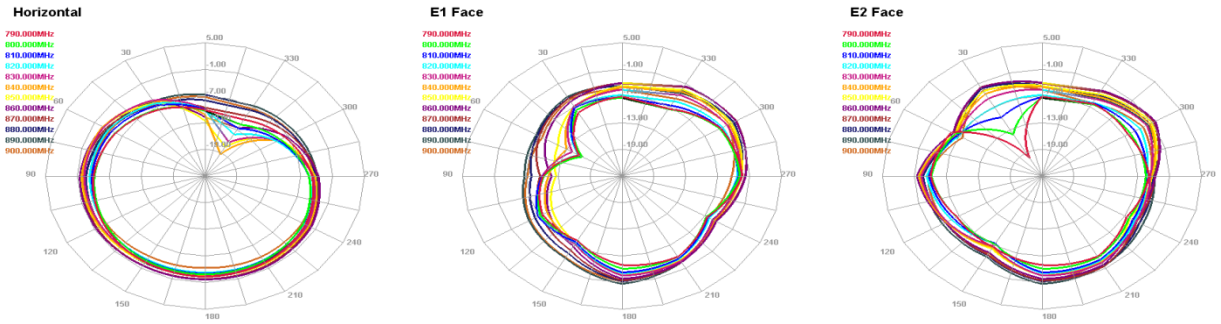
PATH-RF1 (1920-2170MHz)



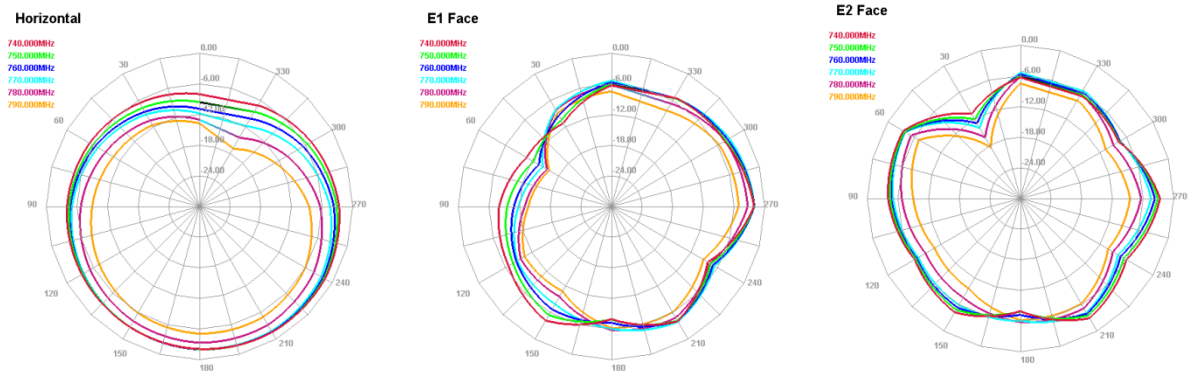
PATH-RF1 (2300-2690MHz)



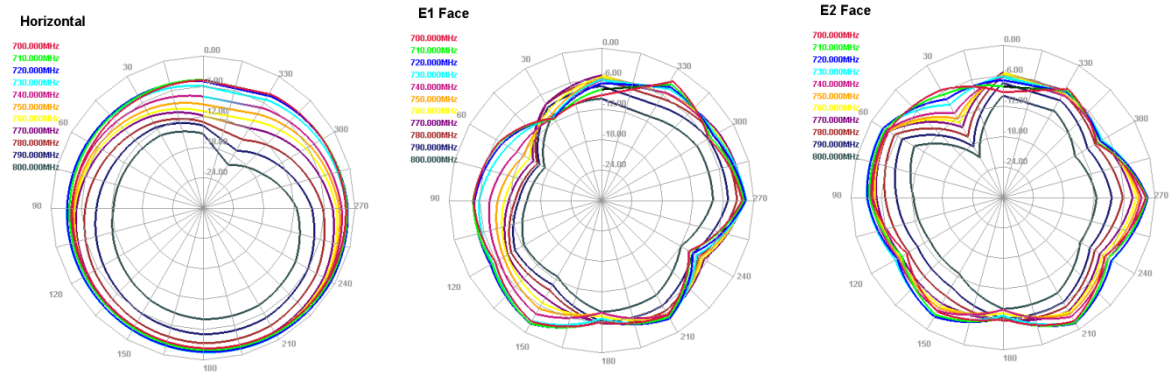
PATH-RF2(791-894MHz)



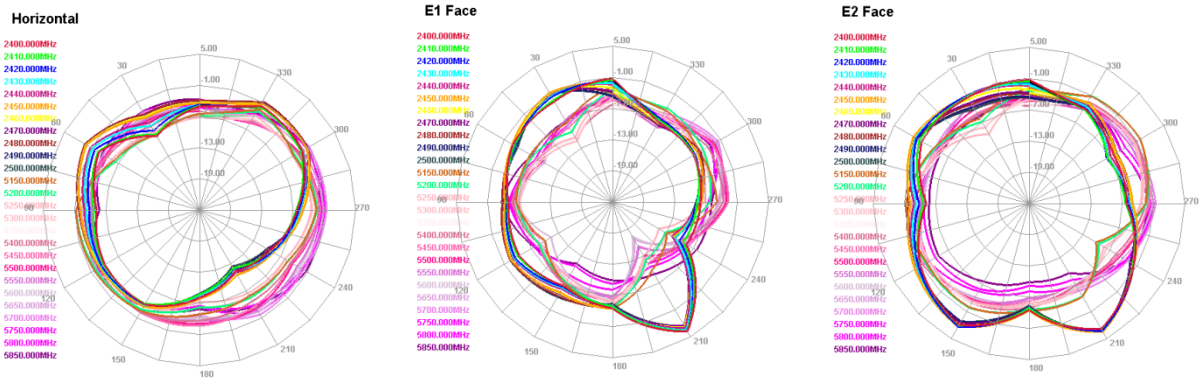
PATH-RF3(746-787MHz)



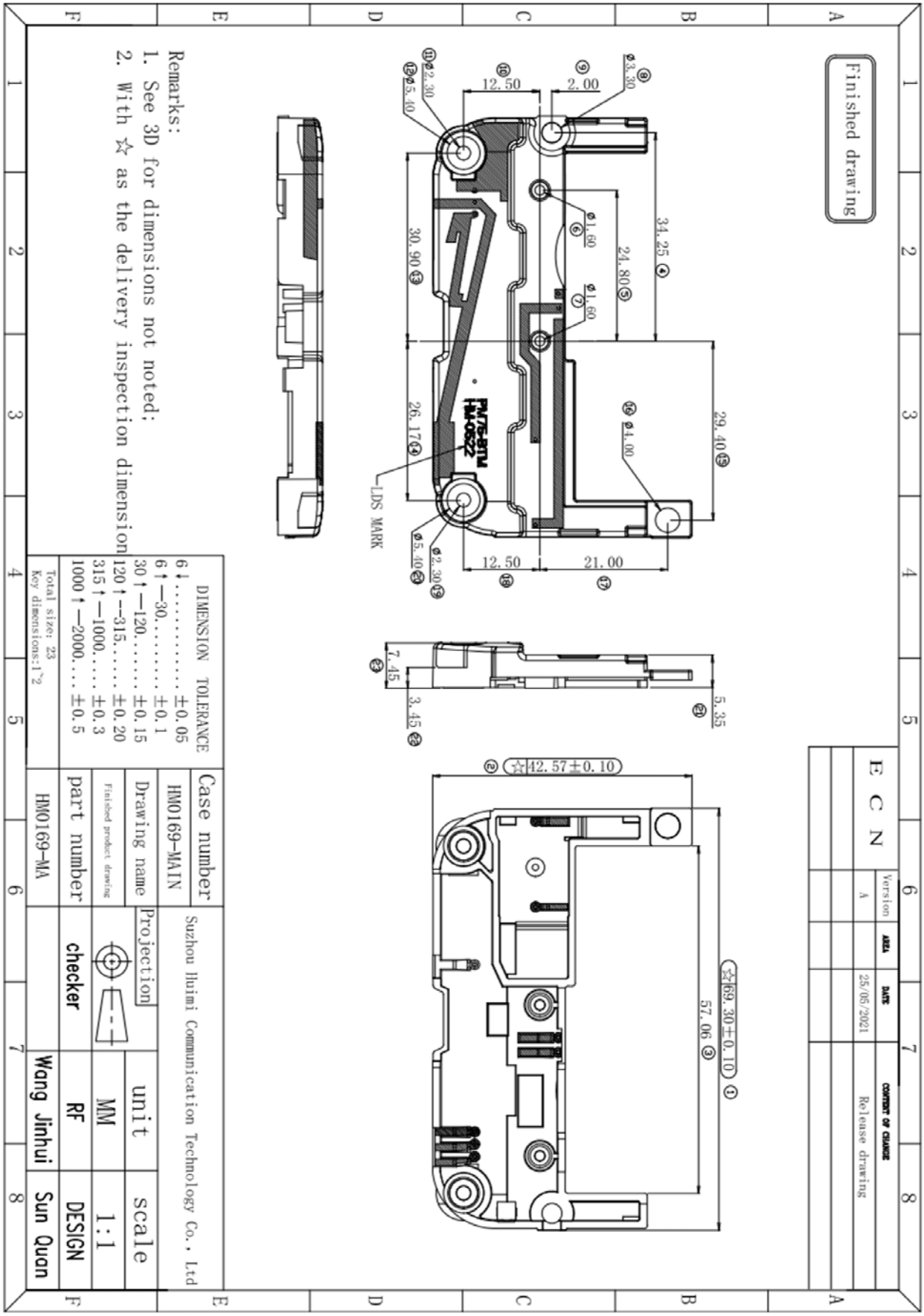
PATH-RF4(699-803MHz)



5.5.2 Radiation Pattern of WIFI MIMO antenna



6. Mechanical Drawings



7. Dimension Report

Suzhou Huimi Communication Technology Co., Ltd
Dimensional inspection report

customer			Point Mobile			project name		PM75		Drawing version		A	
Name of our project			HM0169			Antenna name		MAIN-LDS		Date of measurement		2021/5/28	
序号	尺寸性质	尺寸	公差		测量工具							OK/NG	备注
			上限	下限		1	2	3	4	5			
1	*	69.30	0.10	0.10		69.23	69.26	69.25	69.30	69.28		OK	
2	*	42.57	0.10	0.10		42.56	42.53	42.55	42.54	42.51		OK	
3		57.06	0.10	0.10		57.09	57.05	57.06	57.08	57.08		OK	
4		34.25	0.15	0.15		34.23	34.25	34.28	34.22	34.26		OK	
5		24.80	0.10	0.10		24.85	24.83	24.88	24.82	24.84		OK	
6		1.60	0.05	0.05		1.62	1.60	1.61	1.60	1.61		OK	
7		1.60	0.05	0.05		1.60	1.60	1.62	1.60	1.61		OK	
8		3.30	0.05	0.05		3.33	3.32	3.30	3.31	3.32		OK	
9		2.00	0.05	0.05		1.98	2.01	2.03	1.96	2.04		OK	
10		12.50	0.10	0.10		12.52	12.50	12.48	12.53	12.49		OK	
11		2.30	0.05	0.05		2.32	2.31	2.33	2.30	2.27		OK	
12		5.40	0.05	0.05		5.38	5.42	5.40	5.41	5.39		OK	
13		30.90	0.15	0.15		30.95	30.93	30.91	30.90	30.92		OK	
14		26.17	0.10	0.10		26.21	26.19	26.15	26.18	26.20		OK	
15		29.40	0.10	0.10		29.42	29.45	29.48	29.43	29.45		OK	
16		4.00	0.05	0.05		4.03	4.02	4.00	3.97	3.99		OK	
17		21.00	0.10	0.10		20.98	21.02	20.99	21.01	21.03		OK	
18		12.50	0.10	0.10		12.51	12.53	12.55	12.48	12.51		OK	
19		2.30	0.05	0.05		2.31	2.33	2.28	2.30	2.29		OK	
20		5.40	0.05	0.05		5.41	5.38	5.40	5.39	5.43		OK	
21		5.35	0.05	0.05		5.33	5.35	5.32	5.34	5.35		OK	
22		3.45	0.05	0.05		3.44	3.48	3.41	3.45	3.42		OK	
23		7.45	0.10	0.10		7.43	7.46	7.45	7.45	7.42		OK	