



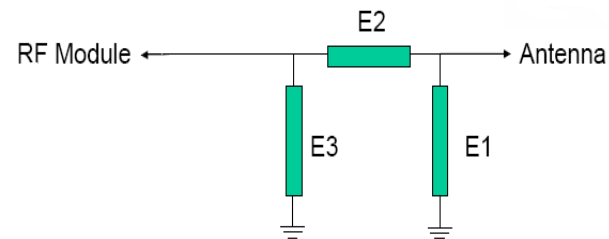
DOSKING Antenna Test Report

Customer Name	Shenzhen Pinjin Technology Co., Ltd.
Project Name	M20D1
Debugging Frequency band	GSM: 2.3.5.8; WCDMA: B1,2,4,5.8; LTE: B1,2,3,4,5,7,8,13,25,26,28,34,38,39,40,41,66;
Secondary Antenna	GWB DIV
Version Number	V1.0

1.The Equipment of Active Test

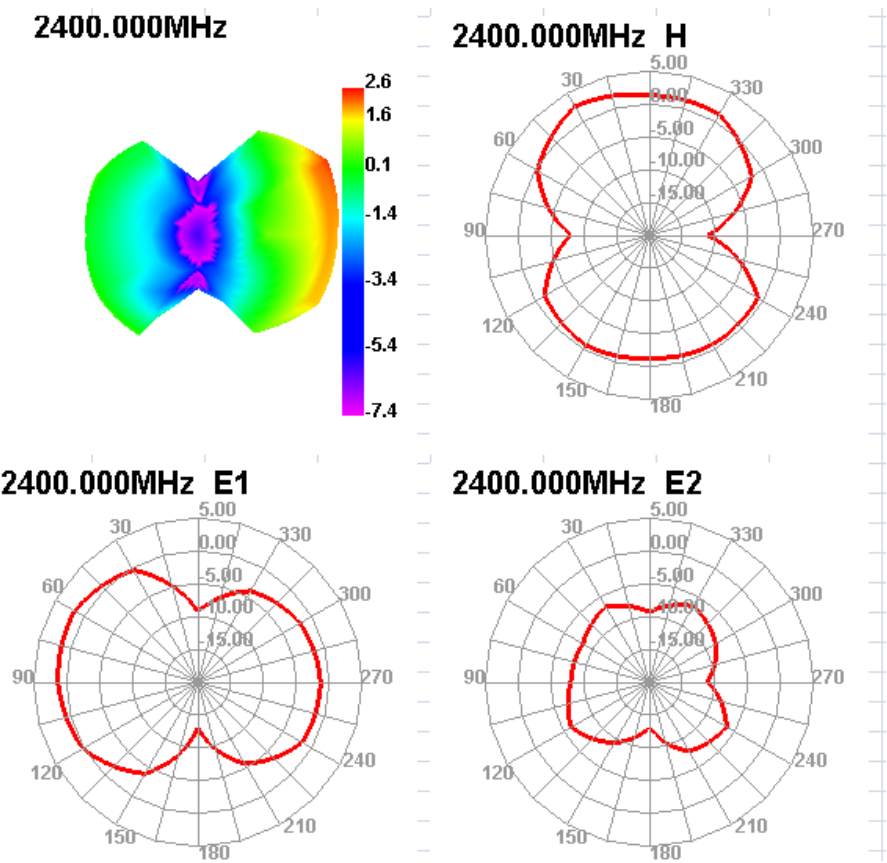
1. ETS Chamber 7×4×3(m)/3*3*3 (m) (3D Laboratory)
2. Vector network analyzer (passive tester)
3. Network analyzer-5071E/B/Comprehensive measuring instrument-8960/LTE-RS-CMW500/MT8820C support 2G、 3G、 4G/BT、 WIFI、 NB

2.Matching Circuit (Match has been changed)

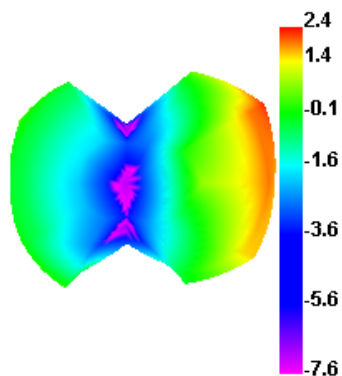


Element	Matching Value
E1	10NH
E2	0Ω
E3	0.5PF

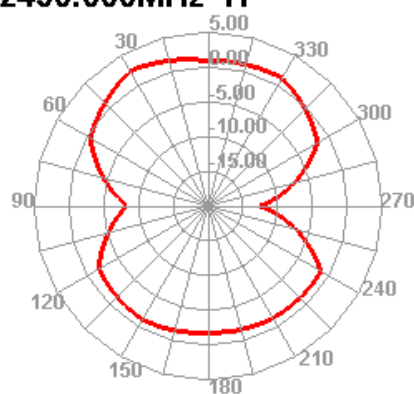
BAND	WIFI/BT					
Freq.[MHZ]	2400	2450	2500	5050	5450	5850
Eff.[%]	56.78	55.95	55.56	50.16	50.47	51.28
Gain [dBi]	2.6	2.4	2.1	0.5	0.5	0.6



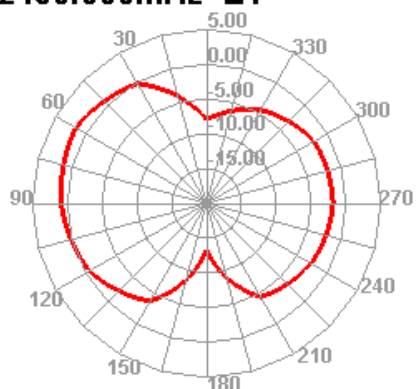
2450.000MHz



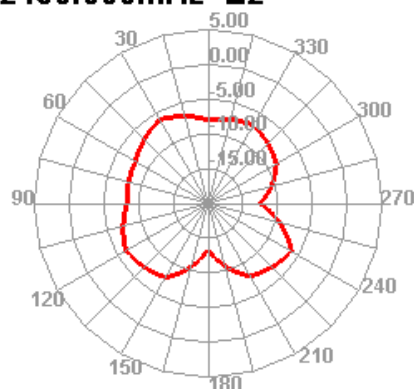
2450.000MHz H



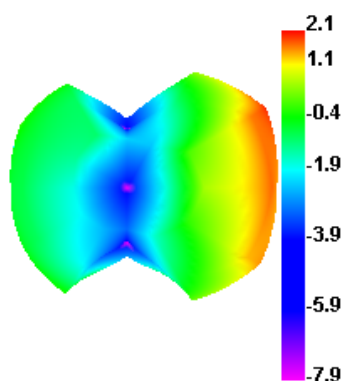
2450.000MHz E1



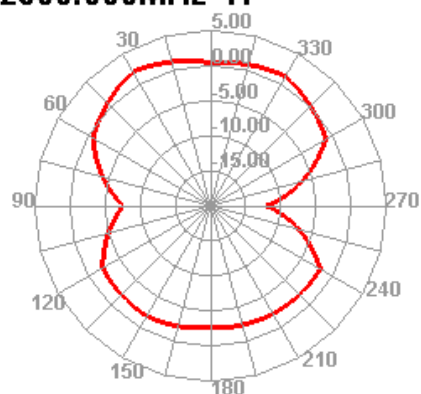
2450.000MHz E2



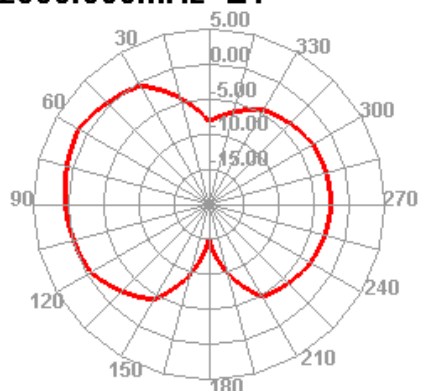
2500.000MHz



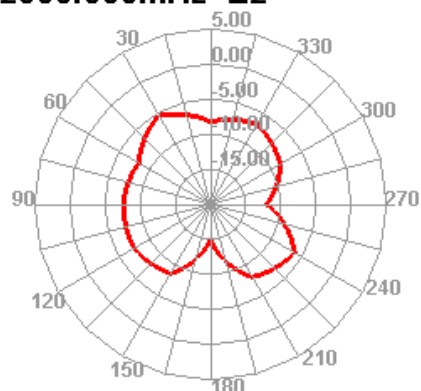
2500.000MHz H



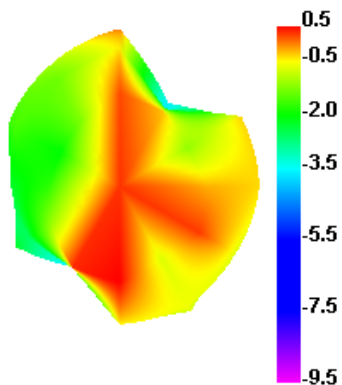
2500.000MHz E1



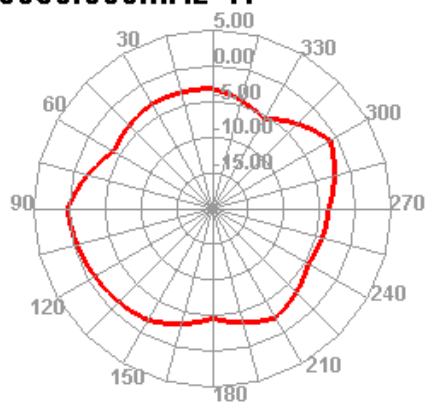
2500.000MHz E2



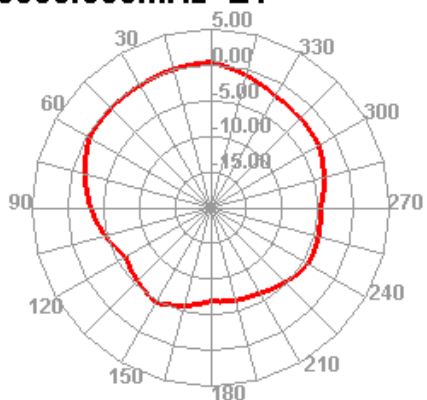
5050.000MHz



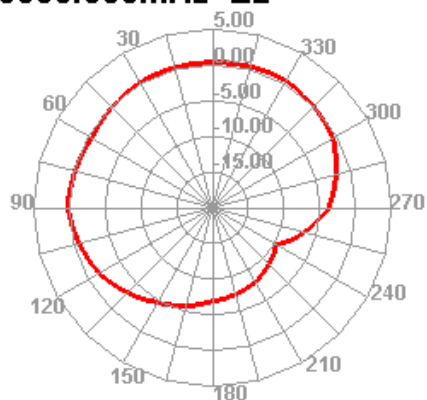
5050.000MHz H



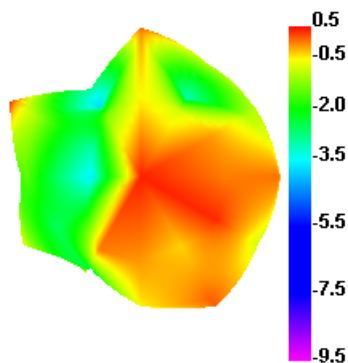
5050.000MHz E1



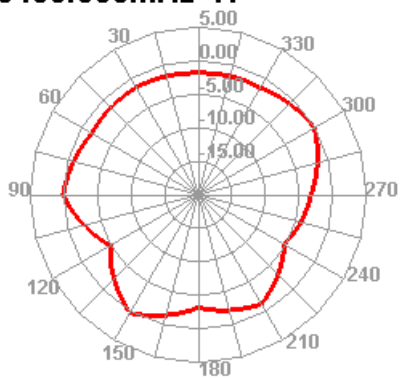
5050.000MHz E2



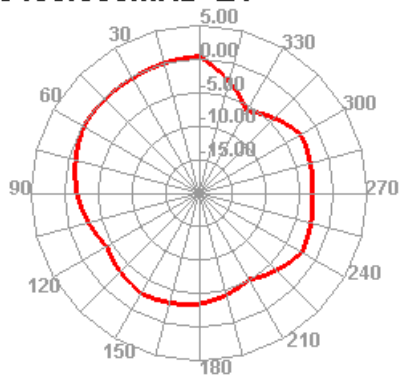
5450.000MHz



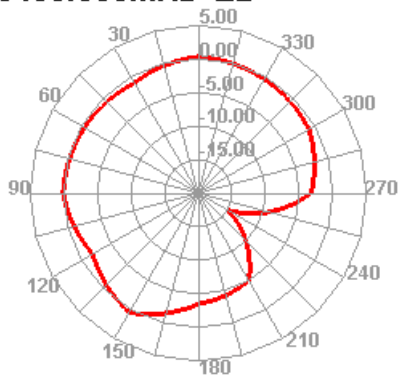
5450.000MHz H



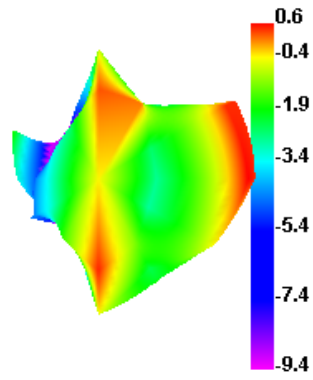
5450.000MHz E1



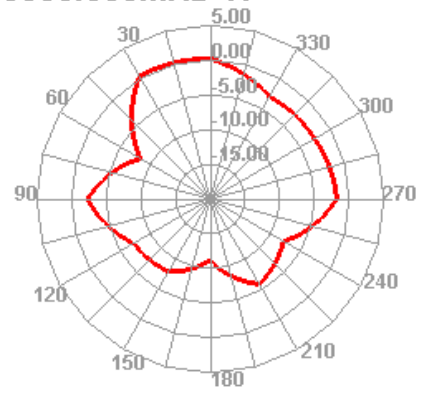
5450.000MHz E2



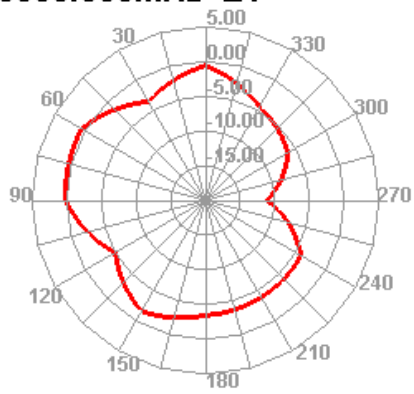
5850.000MHz



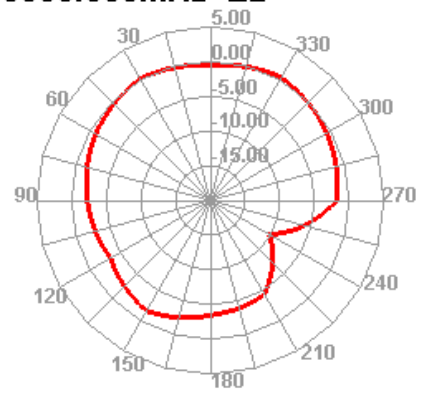
5850.000MHz H



5850.000MHz E1



5850.000MHz E2



3: Antenna Testing

OTA Test data :

Model: M20D1				Antenna method : PIFA						Unit: dBm		
Channel	GSM850			GSM900			DCS1800			PCS1900		
	CH128	CH192	CH251	CH1	CH62	CH124	CH512	CH698	CH885	CH512	CH661	CH810
TRP	23.65	24.03	24.36	24.26	24.55	24.94	24.61	24.86	24.50	24.06	24.68	24.27
TIS			-101.04			-100.31			-102.90			-102.27
Gain	-1.5dBi			-1.3dBi			+0.2dBi			+0.2dBi		
Channel	WCDMA-2100			WCDMA-1900			WCDMA-850			WCDMA-1700		
	CH10562	CH10730	CH10838	CH9663	CH9800	CH9938	CH4357	CH4408	CH4458	CH1537	CH1638	CH1738
TRP	17.62	17.48	17.44	16.93	17.36	17.26	13.76	14.48	14.43	17.65	17.88	17.57
TIS			-101.67			-102.20			-101.62			-102.79
Gain	+0.4dBi			+0.4dBi			-1.5dBi			+0.3dBi		

Channel	LTE-FDD-B1			LTE-FDD-B2			LTE-FDD-B3			LTE-FDD-B4		
	CH18050	CH18300	CH18550	CH18650	CH18900	CH19150	CH19250	CH19575	CH19900	CH20000	CH20175	CH20350
TRP	17.57	17.44	18.06	17.71	17.93	17.76	17.49	17.84	17.76	17.56	17.70	17.54
TIS			-89.46			-90.62			-91.30			-90.74
Gain	+0.4dBi			+0.4dBi			+0.3dBi			+0.3dBi		
Channel	LTE-FDD-B5			LTE-FDD-B7			LTE-FDD-B8			LTE-FDD-B12		
	CH20450	CH20525	CH20600	CH20800	CH21100	CH21400	CH21500	CH21625	CH21750		CH23230	
TRP	14.26	14.62	14.97	15.37	15.36	15.21	14.70	15.48	15.09		14.84	
TIS			-88.37			-88.28			-89.62		-85.74	
Gain	-1.4dBi			0.2dBi			-1.2dBi			-1.5dBi		
Channel	LTE-FDD-B25			LTE-FDD-B26			LTE-FDD-B28			LTE-TDD-B38		
	CH26090	CH26365	CH26640	CH26740	CH26865	CH26990	CH27260	CH27435	CH27610	CH37850	CH38000	CH38150
TRP	17.83	17.79	17.64	13.56	13.89	14.58	13.55	13.96	14.13	15.21	15.93	15.55
TIS			-92.21			-89.42			-86.49			-88.65
Gain	+0.5dBi			-1.4dBi			-1.5dBi			0.2dBi		

Channel	LTE-TDD-B39			LTE-TDD-B40			LTE-TDD-B41			LTE-FDD-B66		
	CH38350	CH38450	CH38550	CH38750	CH39150	CH39550	CH40340	CH40260	CH41140	CH132022	CH132322	CH132622
TRP	17.83	17.82	17.38	15.83	15.29	14.90	15.16	15.89	15.46	17.75	17.64	17.89
TIS			-90.06			-88.37			-87.14			-90.22
Gain	+0.4dBi			0.3dBi			0.5dBi			0.6dBi		
Channel	LTE-FDD-B34			WCDMA-900								
	CH36250	CH36275	CH36300	CH2937	CH3013	CH3083						
TRP	16.87	16.63	16.66	14.48	14.66	14.61						
TIS			-90.78			-100.76						
Gain	0.2dBi			-1.2dBi								

4.GPS/WIFI/BT

GPS/WIFI/BT Note:	GPS	Maximum signal strength	Number of satellites tracked	Average positioning time (s)	Weather conditions
		41	12	120	Sunny
	WIFI	Normal internet access distance (m)		Online browsing smooth flow distance (m)	
		12-15		10-12	
	BT	Clear call distance (m)			
		10-12			
Gain: GPS: 0.3dBi ; WiFi/BT: 0.6dBi ;					

YGPS						YGPS					
SAT EL LITES CNR	SAT EL LITES LOC	INFO R MAT ION	NMEA LOG	GPS TEST	MPE STAT US	SAT EL LITES CNR	SAT EL LITES LOC	INFO R MAT ION	NMEA LOG	GPS TEST	MPE STAT US
G:GPS R:GLN B:BD E:GAL Q:QZS L:L1S I:IRNSS S:SBAS						G:GPS R:GLN B:BD E:GAL Q:QZS L:L1S I:IRNSS S:SBAS					
Average CNR						Average CNR					
G:36.3/-/- R:38.8/-/-						G:38.8/-/- R:37.0/-/-					
B:32.5/-/- E:-/-/- Q:38.0/-/-						B:33.2/-/- E:-/-/- Q:37.5/-/-					
L:-/-/- I:-/-/- S:-/-/-						L:-/-/- I:-/-/- S:-/-/-					
SVID	Fq	CNR	Elevation	Azimuth		SVID	Fq	CNR	Elevation	Azimuth	
 5 L1	41.4	48.00	0.00			 69 L1	42.3	30.00	20.00		
 11 L1	39.3	40.00	101.00			 84 L1	26.8	0.00	0.00		
 13 L1	38.3	78.00	79.00			 85 L1	41.8	40.00	342.00		
 15 L1	33.0	57.00	234.00			 2 L1	28.3	0.00	0.00		
 24 L1	26.4	0.00	0.00			 3 L1	32.3	0.00	0.00		
 25 L1	0.0	2.00	239.00			 7 L1	37.2	44.00	200.00		
 29 L1	39.3	44.00	296.00			 8 L1	28.1	45.00	341.00		
 69 L1	35.5	30.00	20.00			 9 L1	32.3	10.00	185.00		
 85 L1	42.2	40.00	342.00			 10 L1	32.7	48.00	218.00		
 8 L1	27.1	45.00	341.00			 11 L1	29.7	24.00	323.00		
 10 L1	31.5	0.00	0.00			 12 L1	30.5	79.00	319.00		
 11 L1	35.4	24.00	323.00			 13 L1	31.4	0.00	0.00		
 12 L1	23.5	79.00	319.00			 21 L1	37.6	64.00	319.00		
 21 L1	39.4	64.00	319.00			 22 L1	42.5	32.00	32.00		
 22 L1	33.2	32.00	32.00			 34 L1	36.1	48.00	317.00		

5、Structural dimension drawing

