



ANTENNA TEST RESULT

Project Name	Memor11	Platform	MT8768
ANT Version	V1.0	HW Version	V01
Software Version	1.00.01.20220803	ME Version	T0
Test Date	2022.08.31	Engineer	wuqingjie
Temperature	25°C	Humidity	50%
Conclusion:	可以满足认证需求		

Test Equipment & Environment

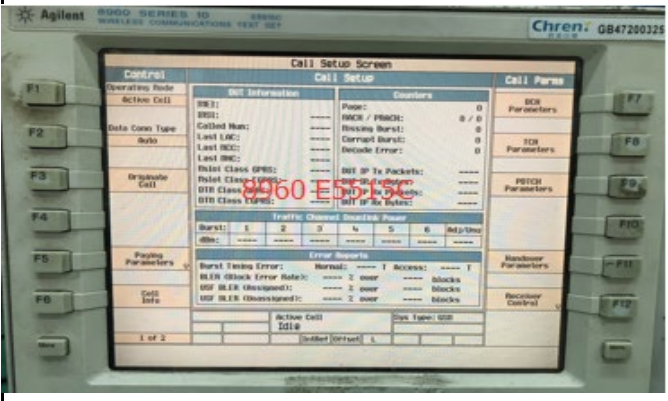
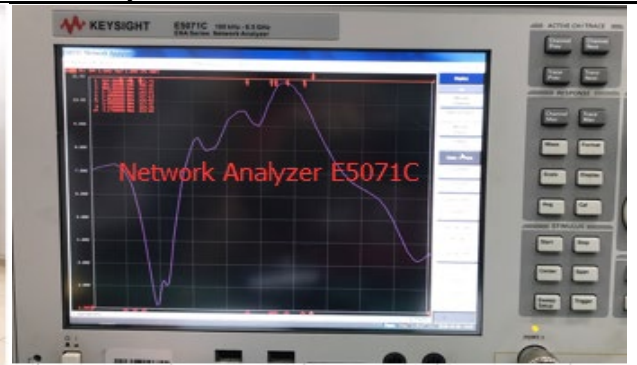
Equipment & Environment:

3D Microwave chamber (7M*4M*4M)

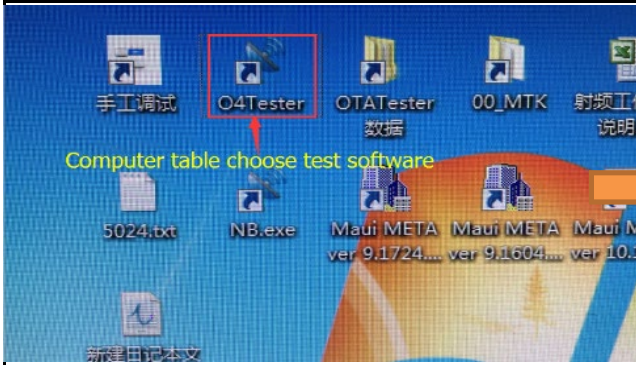
ROHDE & SCHWARZ CMW500

Agilent 8960 SERIES 10 E5515C

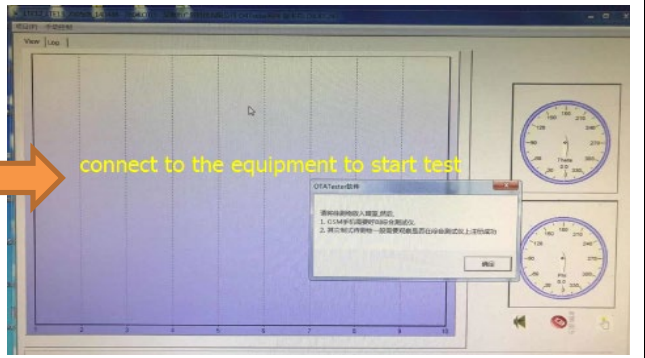
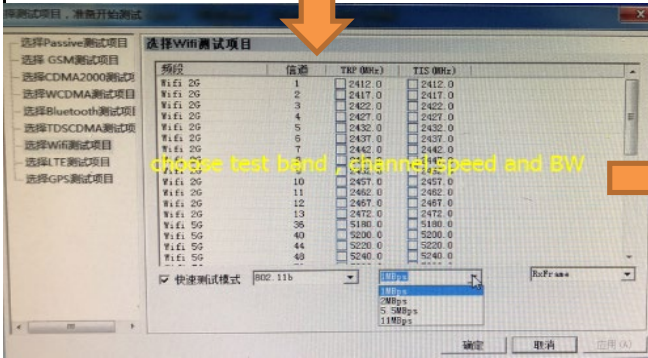
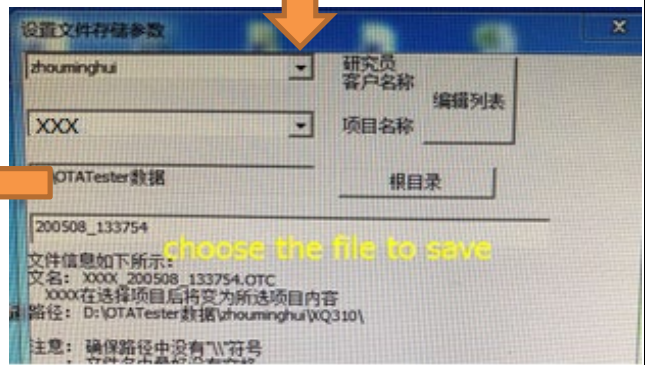
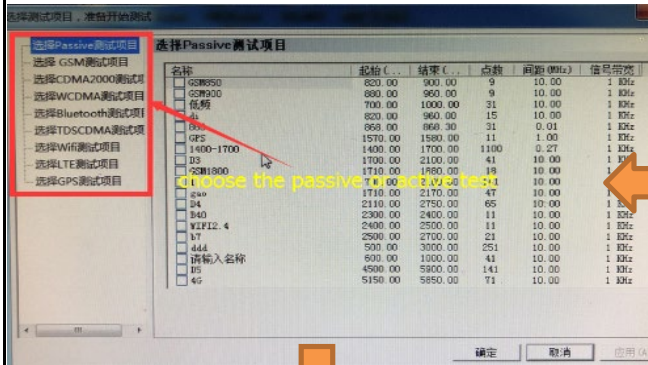
KEYSIGHT E5071C Network Analyzer

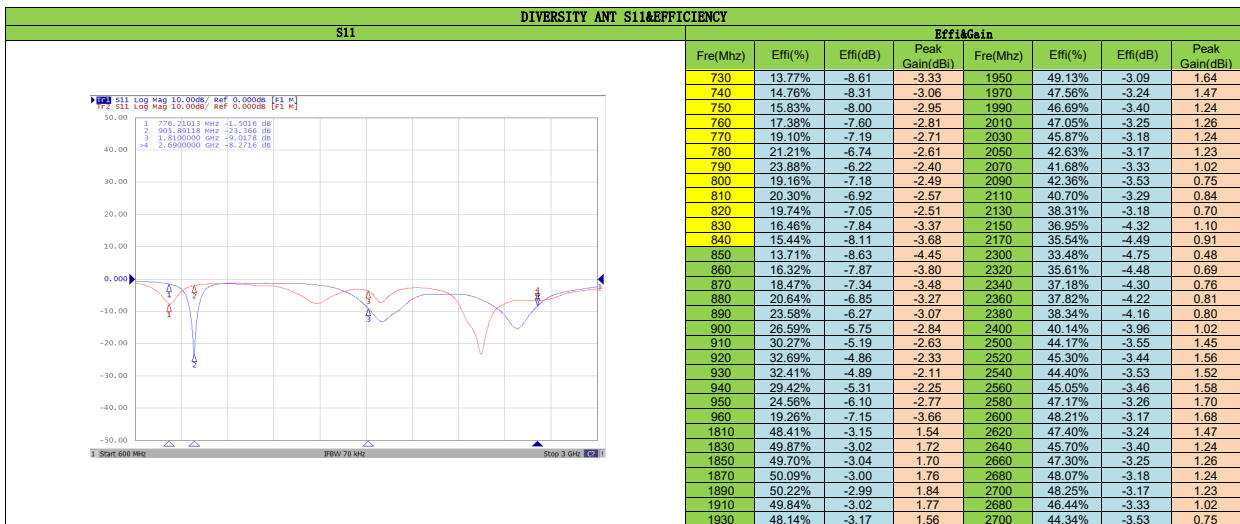
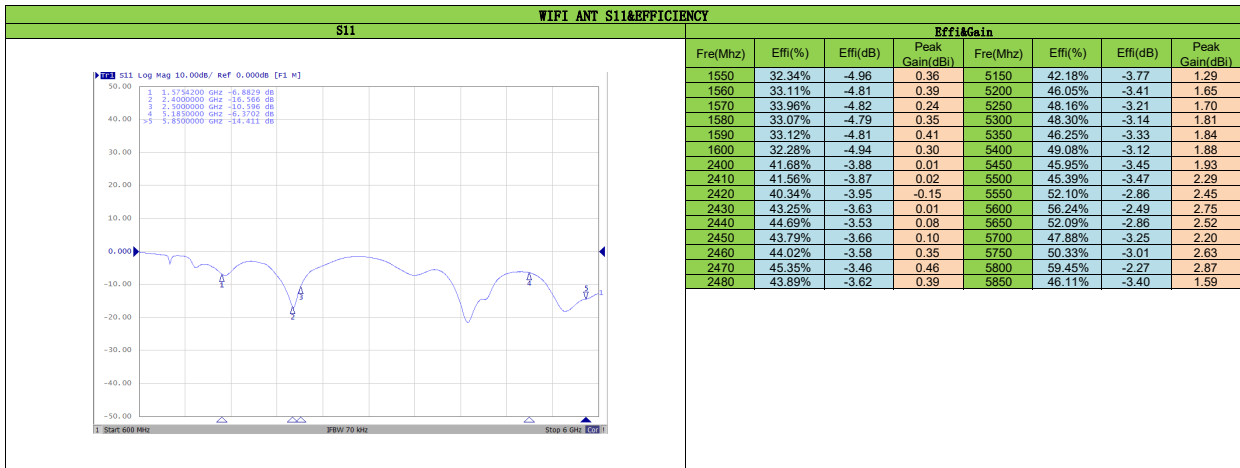
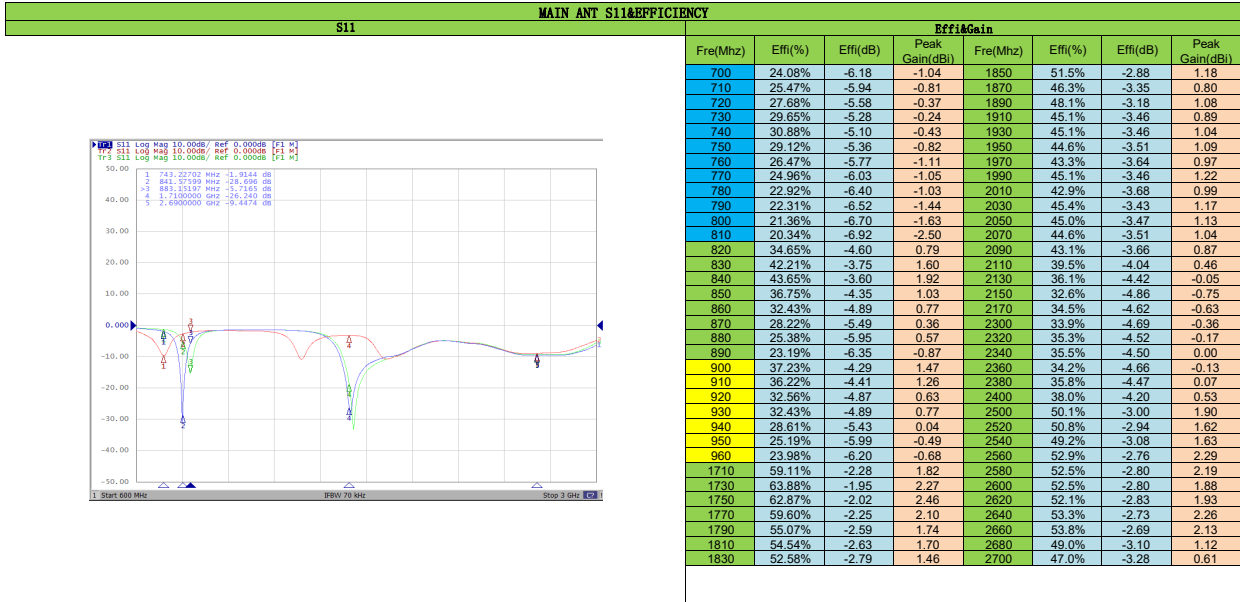
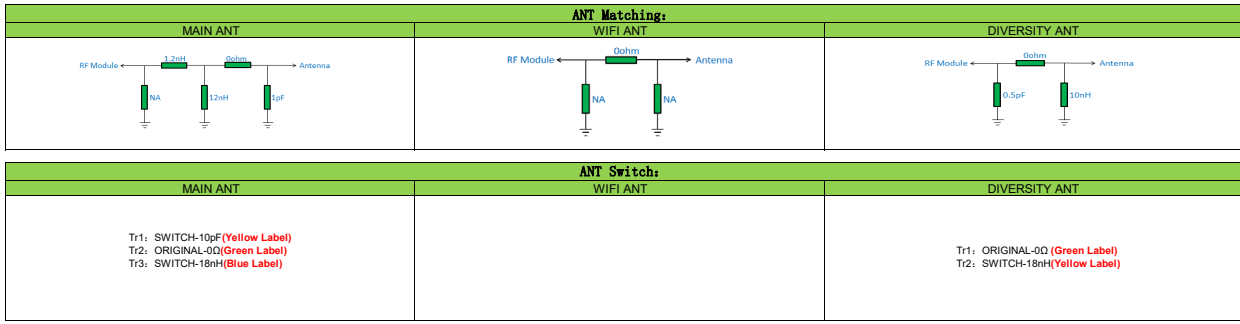


Test Step

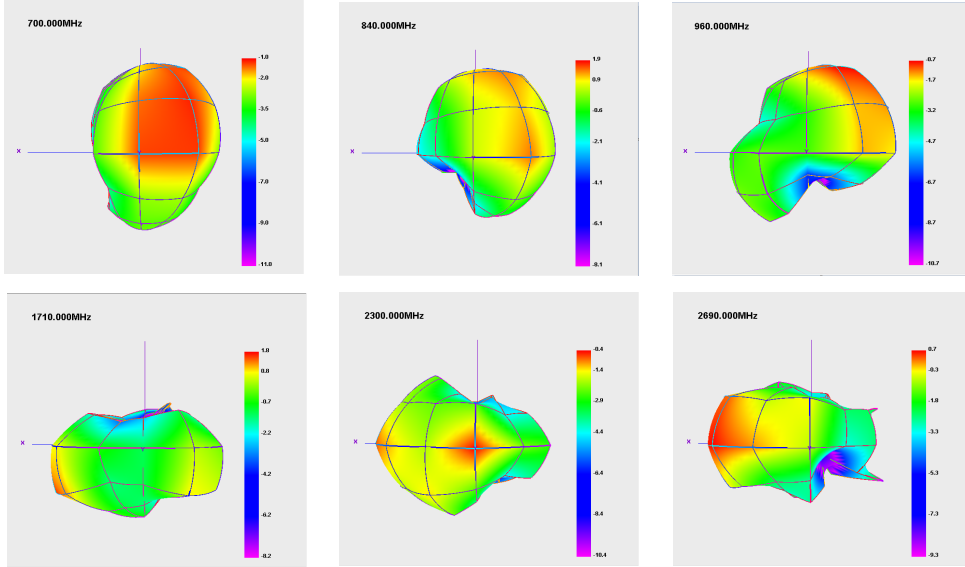


- 查看测试结果
 - 开始一个3D测试
 - 开始一个2D测试
 - 开始特定点测试
 - 平坦度测试
 - 金机/偶极子校准
 - 喇叭天线校准无源
 - 偶极子校准有源
 - 查看/更改 配置
 - 查看历史测试记录
- choose test mode (3D OR 2D)

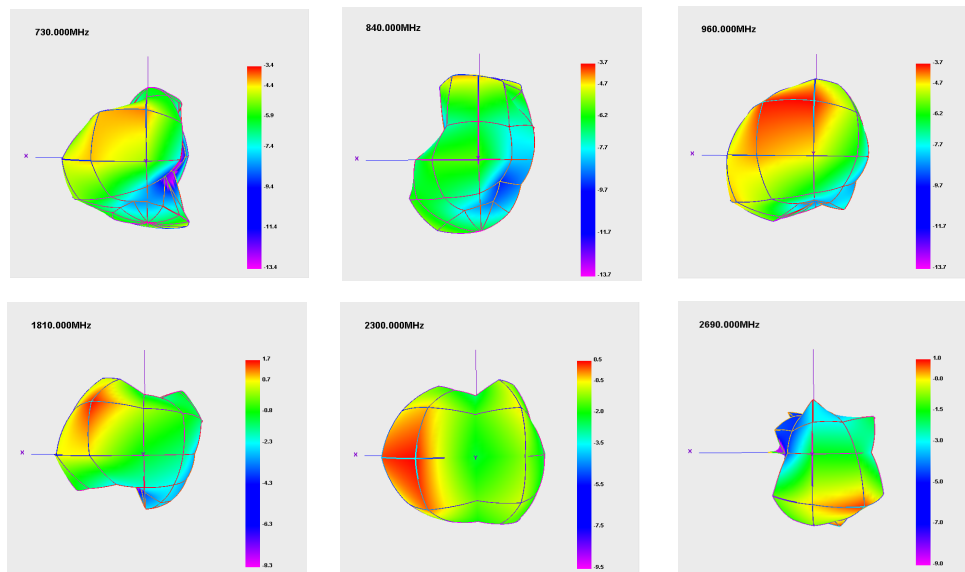




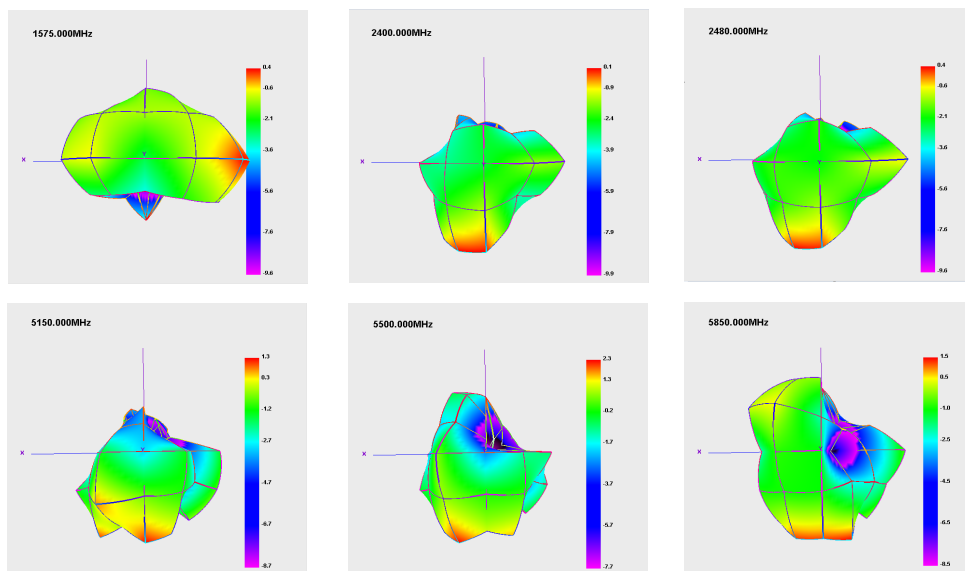
MAIN ANT 3D Pattern



DIVERSITY ANT 3D Pattern



WIFI ANT 3D Pattern



MAIN ANT TWP (dBm)							
Band	Channel	Freq (MHz)	BW (MHz)	FS	ATP	SPEC	(min) SPEC
GSM850	128	931.2	12.5	28.42			
	130	933.2	12.5	28.32	28.27	27	26
	131	935.2	12.5	28.08			
GSM900	975	935.9	12.5	28.13			
	977	937.9	12.5	28.39	27.82	23	
	979	939.9	12.5	28.95			
DCS1800	312	1733.2	12.5	28.73			
	314	1735.2	12.5	28.97	28.79	21	
	316	1737.2	12.5	28.68			
PCS1900	122	1920.2	12.5	29.76			
	124	1922.2	12.5	29.52	27.21	25.6	24.5
	126	1924.2	12.5	27.34			
WCDMA-B1	9917	1920.4	10MHz	29.18			
	9920	1924.4	10MHz	29.70	20.54	15	
	9923	1927.4	10MHz	29.73			
WCDMA-B2	9930	1930.4	10MHz	29.97			
	9933	1934.4	10MHz	29.81	20.61	19.9	18
	9936	1938.4	10MHz	29.14			
WCDMA-B4	1312	1733.4	10MHz	29.73			
	1314	1735.4	10MHz	29.91	20.59	20.05	18
	1316	1737.4	10MHz	29.73			
WCDMA-B5	4132	3531.4	10MHz	19.16			
	4134	3533.4	10MHz	17.60	18.39	18	17
	4136	3535.4	10MHz	18.40			
WCDMA-B8	2112	3531.4	10MHz	18.13			
	2114	3533.4	10MHz	18.18	18.16	13	
	2116	3535.4	10MHz	18.18			
FDD LTE-B2	18900	1890	10MHz	20.91			
	18900	1890	10MHz	20.78	20.78	18.9	17
	18900	1890	10MHz	20.87			
FDD LTE-B4	30115	1733.5	10MHz	20.89			
	30115	1733.5	10MHz	20.09	20.08	19.05	17
	30115	1733.5	10MHz	20.97			
FDD LTE-B5	30300	3531.5	10MHz	18.18			
	30300	3531.5	10MHz	18.69	19.40	17.90	17
	30300	3531.5	10MHz	19.37			
FDD LTE-B7	30900	3533.5	10MHz	20.86			
	30900	3533.5	10MHz	20.38	20.16	13.5	
	30900	3533.5	10MHz	19.44			
FDD LTE-B12	21100	3531	10MHz	17.20			
	21100	3531	10MHz	17.22	17.35	16.5	15
	21100	3531	10MHz	17.63			
FDD LTE-B13	21200	3532	10MHz	17.40			
	21200	3532	10MHz	17.40	17.40	17	16
	21200	3532	10MHz	17.40			
FDD LTE-B17	21700	3534	10MHz	18.04			
	21700	3534	10MHz	18.24	18.06	18.5	15
	21700	3534	10MHz	17.91			
FDD LTE-B25	20900	1890	10MHz	18.97			
	20900	1890	10MHz	18.41	18.99	14	
	20900	1890	10MHz	19.58			
FDD LTE-B28	21700	3534	10MHz	18.62			
	21700	3534	10MHz	17.50	17.55	14	
	21700	3534	10MHz	18.54			
FDD LTE-B28	21700	3534	10MHz	18.54			
	21700	3534	10MHz	17.66	17.97	16.5	15
	21700	3534	10MHz	17.70			

MAIN+DIVERSITY ANT TIS (dBm)							
Band	Channel	Freq (MHz)	BW (MHz)	FS	ATP	SPEC	(min) SPEC
GSM850	128	931.2	12.5	-104.70			
	130	933.2	12.5	-105.72	-104.68	-102.5	-101.5
	131	935.2	12.5	-103.62			
GSM900	975	935.9	12.5	-102.77			
	977	937.9	12.5	-101.49	-101.91	-98.5	
	979	939.9	12.5	-101.49			
DCS1800	312	1733.2	12.5	-109.25			
	314	1735.2	12.5	-107.23	-106.36	-98	
	316	1737.2	12.5	-105.80			
PCS1900	122	1920.2	12.5	-109.66			
	124	1922.2	12.5	-107.64	-107.24	-103	-101.5
	126	1924.2	12.5	-107.40			
WCDMA-B1	9917	1920.4	10MHz	-110.84			
	9920	1924.4	10MHz	-110.19	-110.75	-99	
	9923	1927.4	10MHz	-111.22			
WCDMA-B2	9930	1930.4	10MHz	-109.49			
	9933	1934.4	10MHz	-109.25	-109.08	-104.4	-102
	9936	1938.4	10MHz	-110.05			
WCDMA-B4	1312	1733.4	10MHz	-110.05			
	1314	1735.4	10MHz	-110.54	-110.38	-105.5	-103
	1316	1737.4	10MHz	-108.17			
WCDMA-B5	4132	3531.4	10MHz	-108.28			
	4134	3533.4	10MHz	-106.97	-107.81	-104.8	-102
	4136	3535.4	10MHz	-106.97			
WCDMA-B8	2112	3531.4	10MHz	-107.88			
	2114	3533.4	10MHz	-107.48	-107.83	-99	
	2116	3535.4	10MHz	-107.48			
FDD LTE-B2	18900	1890	10MHz	-98.24			
	18900	1890	10MHz	-98.79	-98.32	-92.2	-90
	18900	1890	10MHz	-97.84			
FDD LTE-B4	30115	1733.5	10MHz	-98.40			
	30115	1733.5	10MHz	-98.40	-98.41	-93.3	-91.5
	30115	1733.5	10MHz	-98.14			
FDD LTE-B5	30300	3531.5	10MHz	-95.96			
	30300	3531.5	10MHz	-95.96	-95.83	-92.6	-90
	30300	3531.5	10MHz	-95.18			
FDD LTE-B7	30900	3533.5	10MHz	-97.69			
	30900	3533.5	10MHz	-97.79	-97.37	-87.5	
	30900	3533.5	10MHz	-97.64			
FDD LTE-B12	21100	3531	10MHz	-92.85			
	21100	3531	10MHz	-93.80	-93.73	-91	-90.5
	21100	3531	10MHz	-94.38			
FDD LTE-B13	21200	3532	10MHz	-95.64			
	21200	3532	10MHz	-95.64	-95.64	-91	-90
	21200	3532	10MHz	-93.59			
FDD LTE-B17	21700	3534	10MHz	-93.47			
	21700	3534	10MHz	-93.47	-93.47	-91	-90.5
	21700	3534	10MHz	-93.44			
FDD LTE-B25	20900	1890	10MHz	-95.37			
	20900	1890	10MHz	-95.37	-95.03	-87	
	20900	1890	10MHz	-95.37			
FDD LTE-B28	21700	3534	10MHz	-93.96			
	21700	3534	10MHz	-94.12	-93.54	-86	
	21700	3534	10MHz	-92.54			
FDD LTE-B28	21700	3534	10MHz	-94.11			
	21700	3534	10MHz	-95.32	-94.90	-91	-90.5
	21700	3534	10MHz	-95.28			

Performance Color Table		
Green	Optimized band	
Yellow	Not optimized band	

Main Antenna			For US Bands		
ANT Switch State	Muting				
State 1	Active	GSM850/DCS1800/PCS1900/WCDMA-B1/B2/B4/B5/B8/B28			
State 2	Idle	LTE-B2/B4/B5/B8/B28			
State 3	Idle	GSM900/WCDMA-B8			

Diversity Antenna			For US Bands		
ANT Switch State	Muting				
State 1	Active	WCDMA-B1/B2/B4/B5/B8/B28/LTE-B2/B4/B5/B8/B28			
State 2	Idle	LTE-B2/B4/B5/B8/B28			

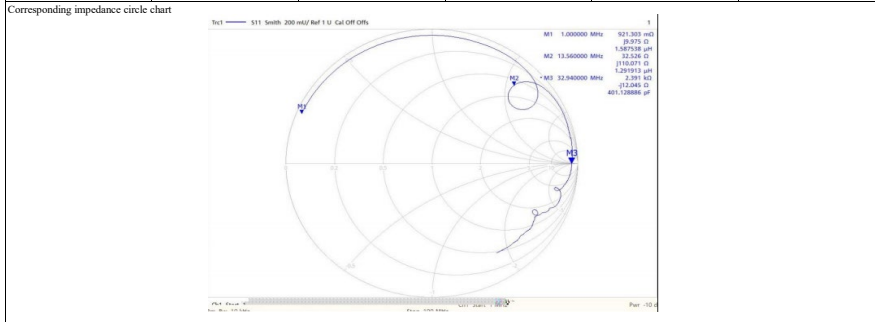
WIFI OTA TEST (LCD ON)					
Mode: 802.11b Rate: 11Mbps BW: 20M					
Band	Channel	Freq/MHz	TRP (dBm)	AVE	SPEC
			FS		
WIFI 2.4G	1	2412	15.21	15.55	≥16
	7	2442	16.09		
	11	2462	15.34		
Mode: 802.11b Rate: 11Mbps BW: 20M					
Band	Channel	Freq/MHz	TIS (dBm)	AVE	SPEC
			FS		
WIFI 2.4G	1	2412	-88.10	-88.27	≤-86
	7	2442	-88.34		
	11	2462	-88.36		

WIFI OTA TEST (LCD ON)					
Mode: 802.11a Rate: 6Mbps BW: 20M					
Band	Channel	Freq/MHz	TRP (dBm)	AVE	SPEC
			FS		
WIFI 5G	36	5180	15.99	15.42	≥14
	100	5500	15.73		
	165	5850	14.53		
Mode: 802.11a Rate: 54Mbps BW: 20M					
Band	Channel	Freq/MHz	TIS (dBm)	AVE	SPEC
			FS		
WIFI 5G	36	5180	-76.03	-76.23	≤-74
	100	5500	-77.09		
	165	5850	-75.58		

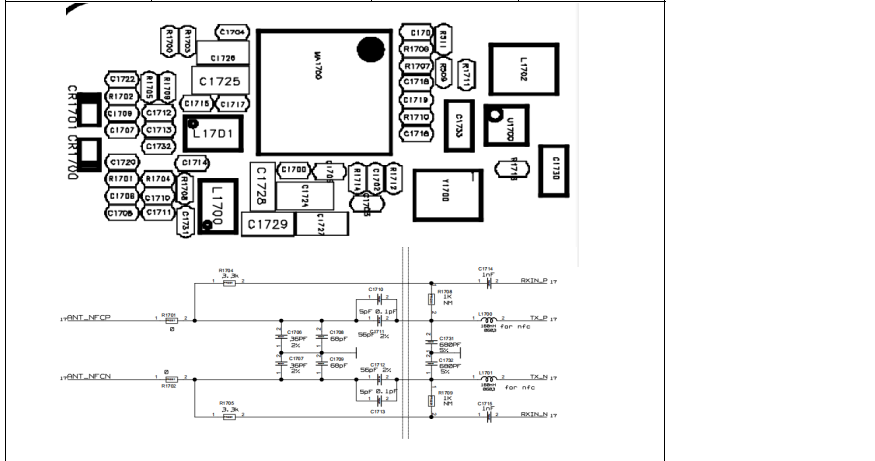
GPS OTA TEST	
Freq (MHz)	TIS
1575.42	-143.09

Test Device	Network Analyzer
Test Purpose	Test the performance of the terminal to ensure less interference when using NFC.
Test Method	1. Use the network analyzer to measure the parameters of the NFC antenna, determine the matching circuit and measure the load impedance in the card reader mode.

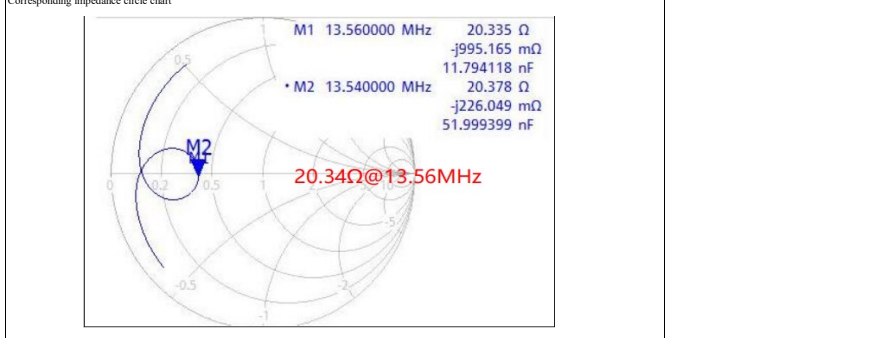
NFC Antenna Parameters Measurement					
test item	La (uH)	Rs (Ohm)	Rp (kOhm)	Fm (MHz)	Q
standard	0.3~La<3	Rs<1	Rp>1	Fra>35	Q>15
measured value	1.59	0.92	2.39	32.94	23.21



NFC Antenna Matching Circuit			
Chip	Layout position	AN1 matching	Manufacture
EMC filter	L1700&L1701	160nH	Original patch
	C1731&C1732	680pF	Murata
C1	C1710&C1713	5pF	Murata
	C1711&C1712	56pF	Murata
C2	C1706&C1707	36pF	Murata
	C1708&C1709	68pF	Murata
RX (EMC)	R1708&R1709	NC	/
RX (Antenna)	R1704&R1705	3.3kΩ	PSA



NFC Antenna Reader Mode Load Impedance	
test item	Impedance
standard	15-25(without DC-DC), 25-35(DC-DC)



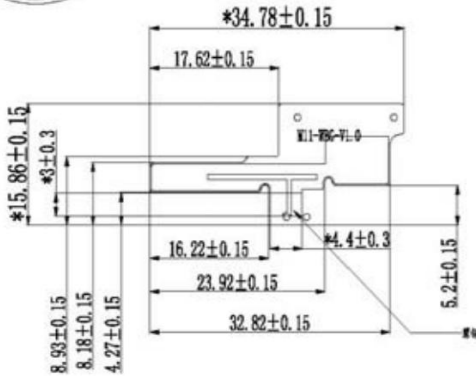
NFC Antenna Read AGC/TVDD		
test item	Read AGC	ITVDD(mA)
standard	500-800	110-170
measured value	517	118

NFC Antenna Distance Test					
Status	Type1	Type2	Type3	Type4	POS Machine
standard(mm)	>30	>30	>30	>20	>50
Distance(mm)	50	62	43	39	>100

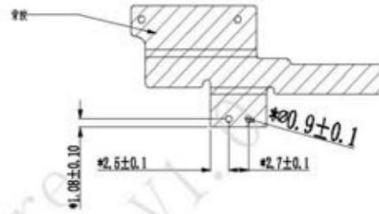
Antenna design drawing
WIF/BT ANT



丝印字符 Silk screen character
M11-WBG-V1.0



正面 (走线面)
Front (wiring surface)



Back side (adhesive back side)
反面 (背胶面)

NFCANT

