



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:			

Test Equipment & Environment

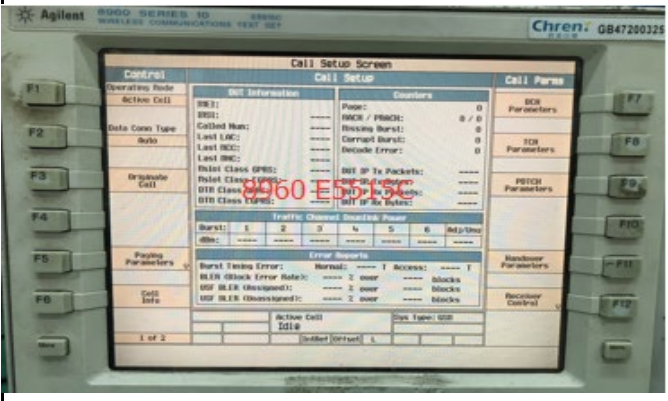
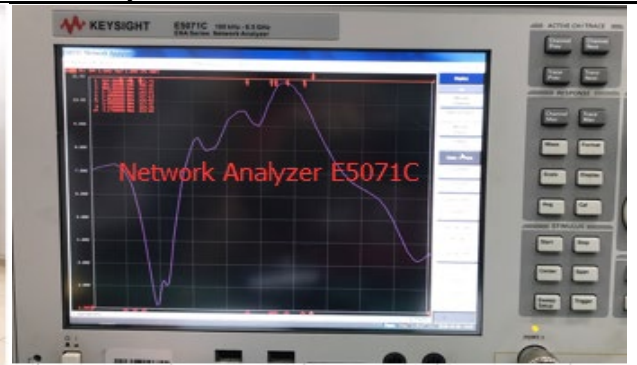
Equipment & Environment:

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

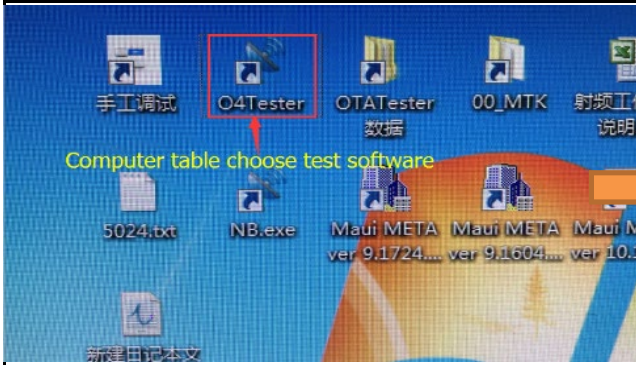
ROHDE & SCHWARZ CMW500

Agilent 8960 SERIES 10 E5515C

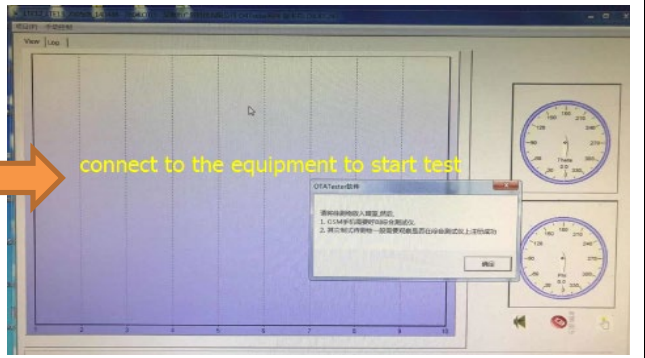
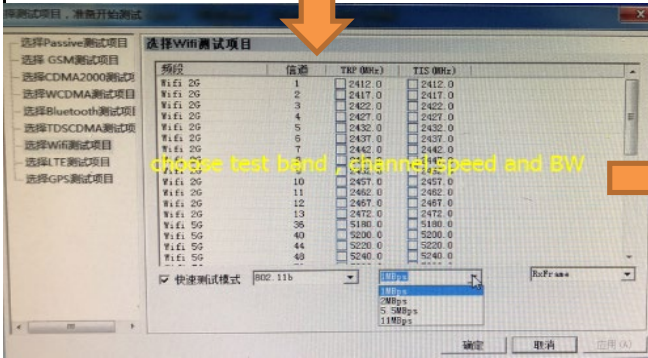
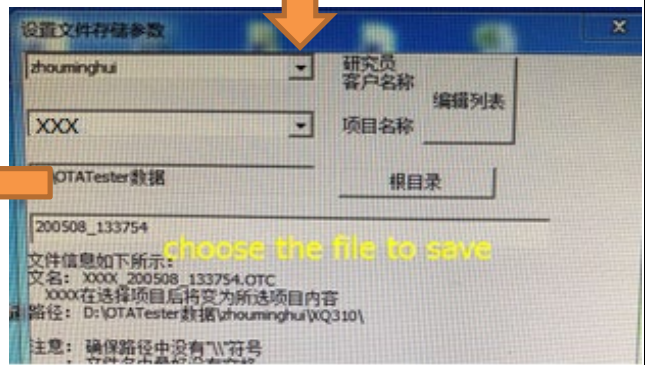
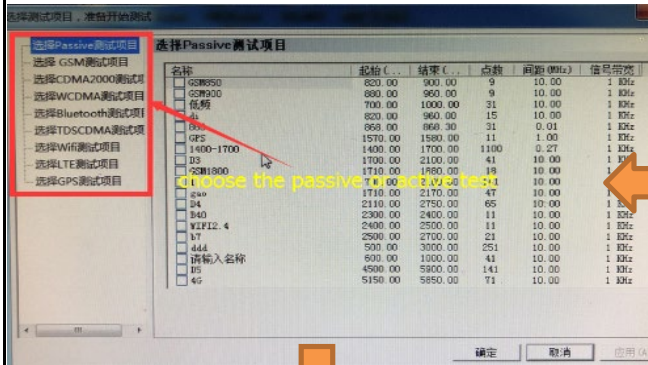
KEYSIGHT E5071C Network Analyzer

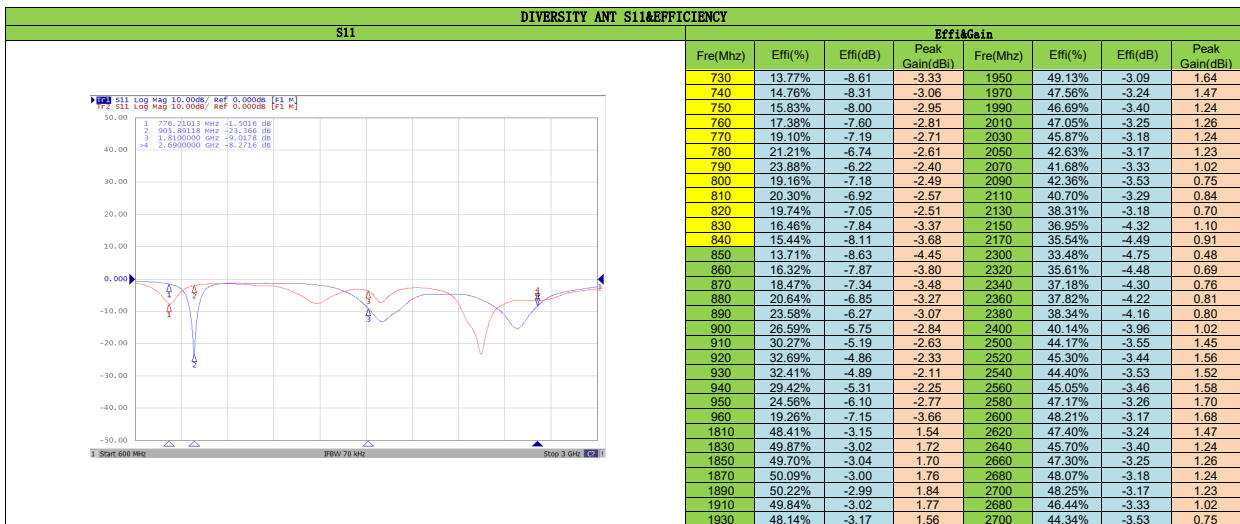
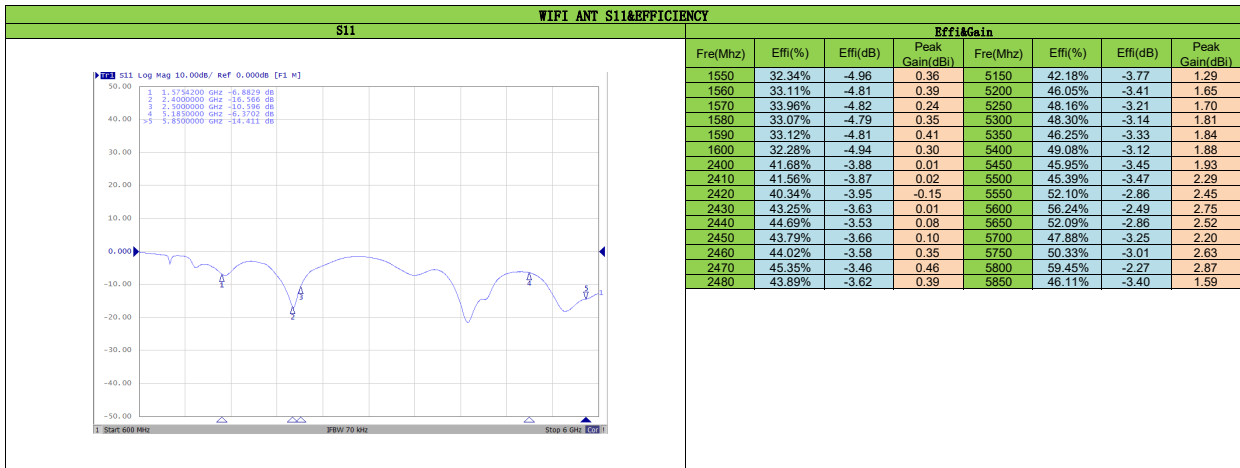
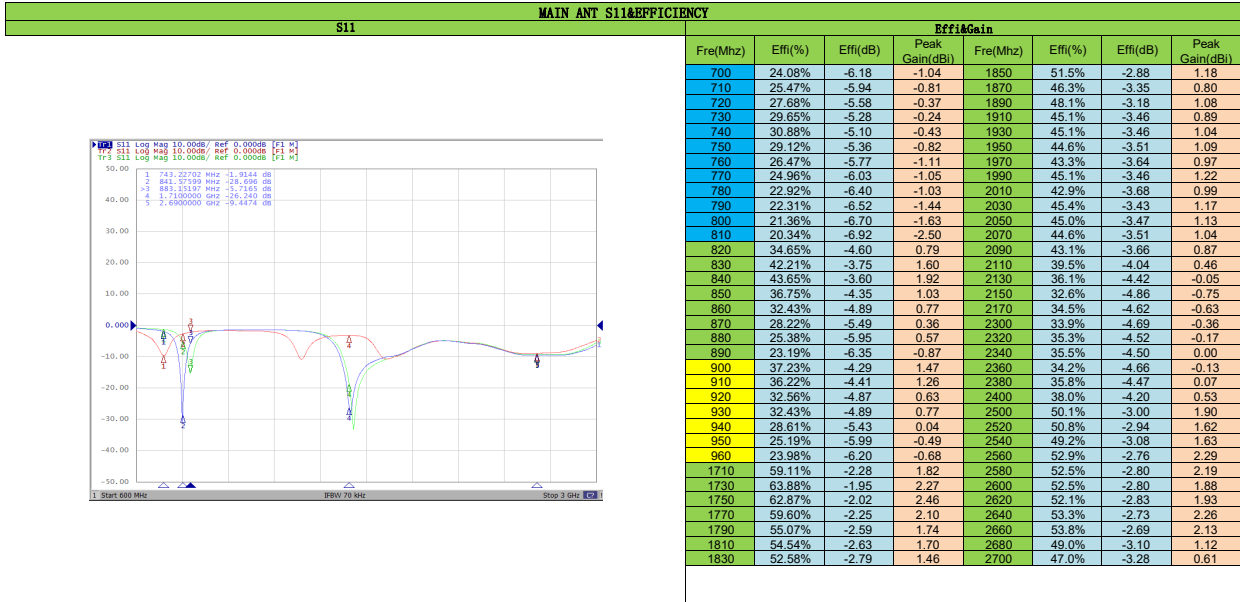
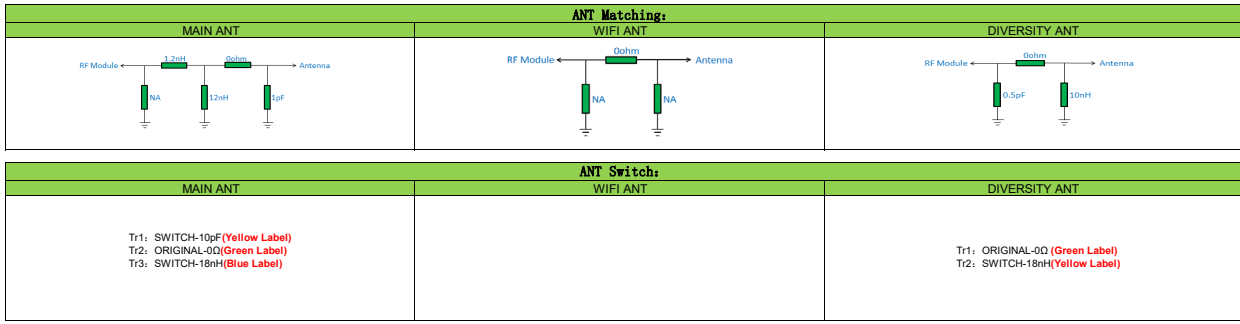


Test Step

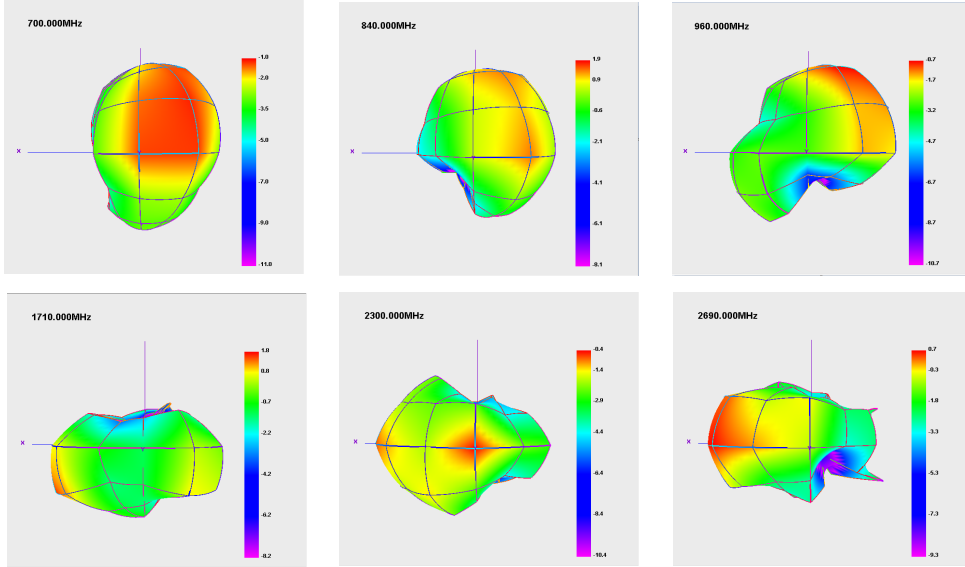


- 查看测试结果
 - 开始一个3D测试
 - 开始一个2D测试
 - 开始特定点测试
 - 平坦度测试
 - 金机/偶极子校准
 - 喇叭天线校准无源
 - 偶极子校准有源
 - 查看/更改 配置
 - 查看历史测试记录
- choose test mode (3D OR 2D)

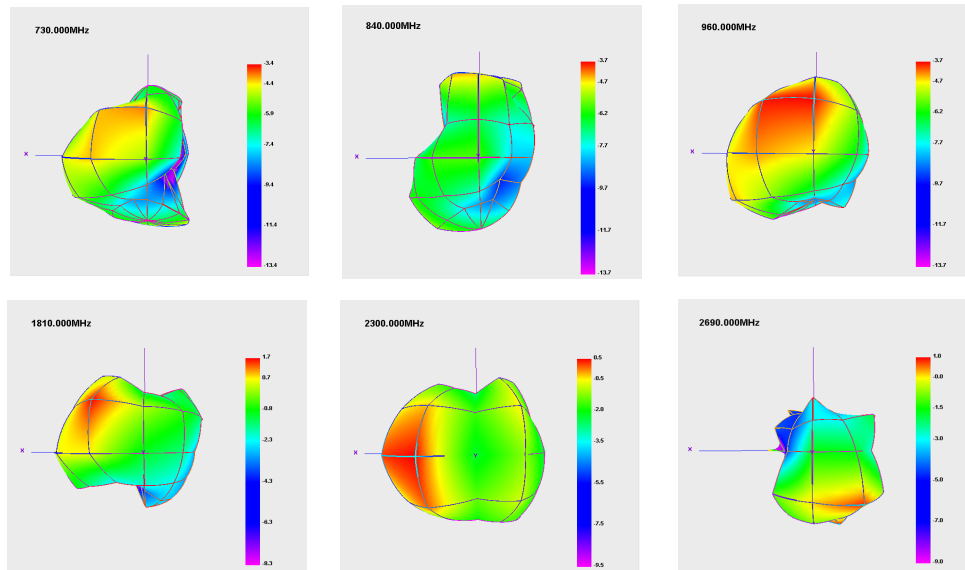




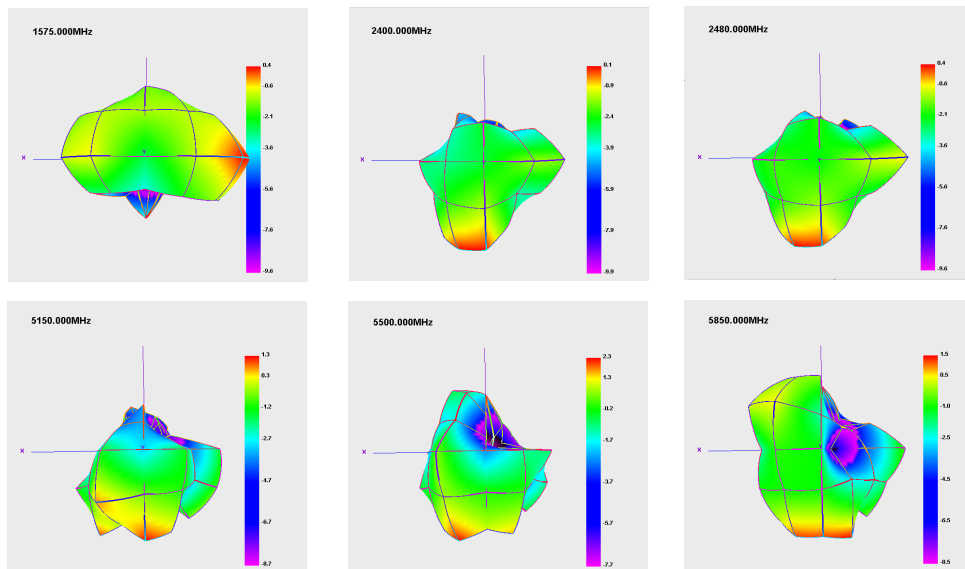
MAIN ANT 3D Pattern



DIVERSITY ANT 3D Pattern



WIFI ANT 3D Pattern



MAIN ANT TWP (dBm)							
Band	Channel	Freq (MHz)	BW (MHz)	FS	ATP	SPFC	(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	883.9	12.5	28.13			
	977	885.9	12.5	28.39	27.82	23	
	979	887.9	12.5	28.95			
DCS1800	312	1733.2	12.5	28.73			
	308	1731.2	12.5	28.97	28.79	21	
	305	1729.2	12.5	28.68			
PCS1900	312	1920.2	12.5	29.76			
	310	1918.2	12.5	27.34	27.21	25.6	24.5
	309	1916.2	12.5	27.83			
WCDMA-B1	9750	1920.2	5.0	29.70			
	9750	1920.2	5.0	29.73	20.54	15	
	9750	1920.2	5.0	29.73			
WCDMA-B2	9750	1920.2	5.0	29.87			
	9750	1920.2	5.0	29.81	20.61	19.9	18
	9750	1920.2	5.0	29.81			
WCDMA-B4	1312	1733.2	5.0	29.14			
	1312	1733.2	5.0	29.14	20.59	20.05	18
	1312	1733.2	5.0	29.14			
WCDMA-B5	4132	3433.2	5.0	19.16			
	4132	3433.2	5.0	17.69	18.39	18	17
	4132	3433.2	5.0	18.40			
WCDMA-B8	2112	3633.2	5.0	18.13			
	2092	3633.2	5.0	18.19	18.16	13	
	2092	3633.2	5.0	18.19			
FDD LTE-B2	18900	1890.0	10MHz	20.78			
	18900	1890.0	10MHz	20.97	20.78	18.9	17
	18900	1890.0	10MHz	20.97			
FDD LTE-B4	30115	1733.5	10MHz	20.09			
	30115	1733.5	10MHz	20.09	20.08	19.05	17
	30115	1733.5	10MHz	20.09			
FDD LTE-B5	30300	3433.0	10MHz	18.18			
	30300	3433.0	10MHz	18.65	19.40	17.95	17
	30300	3433.0	10MHz	18.65			
FDD LTE-B7	21100	3633.0	10MHz	20.38			
	21100	3633.0	10MHz	19.44	20.16	13.5	
	21100	3633.0	10MHz	19.44			
FDD LTE-B12	23130	710.0	10MHz	17.22			
	23130	710.0	10MHz	17.63	17.35	16.5	15
	23130	710.0	10MHz	17.63			
FDD LTE-B13	23230	782.0	10MHz	17.40			
	23230	782.0	10MHz	17.40	17.40	17	16
	23230	782.0	10MHz	17.40			
FDD LTE-B17	22780	750.0	10MHz	18.04			
	22780	750.0	10MHz	18.24	18.06	18.5	15
	22780	750.0	10MHz	17.91			
FDD LTE-B25	20900	1830.0	10MHz	18.97			
	20900	1830.0	10MHz	18.41	18.99	14	
	20900	1830.0	10MHz	19.58			
FDD LTE-B28	22740	814.0	10MHz	18.62			
	22740	814.0	10MHz	17.50	17.55	14	
	22740	814.0	10MHz	18.54			
FDD LTE-B28	22740	814.0	10MHz	18.54			
	22740	814.0	10MHz	17.66	17.97	16.5	15
	22740	814.0	10MHz	17.70			

MAIN+DIVERSITY ANT TIS (dBm)							
Band	Channel	Freq (MHz)	BW (MHz)	FS	ATP	SPFC	(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	883.9	12.5	-102.77			
	977	885.9	12.5	-101.49	-101.91	-98.5	
	979	887.9	12.5	-101.49			
DCS1800	312	1733.2	12.5	-109.25			
	308	1731.2	12.5	-107.23	-106.36	-98	
	305	1729.2	12.5	-105.80			
PCS1900	312	1920.2	12.5	-109.66			
	310	1918.2	12.5	-107.40	-107.24	-103	-101.5
	309	1916.2	12.5	-107.40			
WCDMA-B1	9750	1920.2	5.0	-110.84			
	9750	1920.2	5.0	-110.19	-110.75	-99	
	9750	1920.2	5.0	-111.22			
WCDMA-B2	9750	1920.2	5.0	-109.55			
	9750	1920.2	5.0	-109.49	-109.08	-104.4	-102
	9750	1920.2	5.0	-109.25			
WCDMA-B4	1312	1733.2	5.0	-110.05			
	1312	1733.2	5.0	-110.05	-110.38	-105.5	-103
	1312	1733.2	5.0	-110.04			
WCDMA-B5	4132	3433.2	5.0	-108.17			
	4132	3433.2	5.0	-108.28	-107.81	-104.8	-102
	4132	3433.2	5.0	-106.97			
WCDMA-B8	2112	3633.2	5.0	-107.88			
	2092	3633.2	5.0	-107.48	-107.83	-99	
	2092	3633.2	5.0	-108.20			
FDD LTE-B2	18900	1890.0	10MHz	-98.24			
	18900	1890.0	10MHz	-98.79	-98.32	-92.2	-90
	18900	1890.0	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	3433.0	10MHz	-95.96			
	30300	3433.0	10MHz	-95.96	-95.83	-92.6	-90
	30300	3433.0	10MHz	-95.18			
FDD LTE-B7	21100	3633.0	10MHz	-97.69			
	21100	3633.0	10MHz	-97.79	-97.37	-87.5	
	21100	3633.0	10MHz	-97.64			
FDD LTE-B12	23130	710.0	10MHz	-93.85			
	23130	710.0	10MHz	-93.85	-93.73	-91	-90.5
	23130	710.0	10MHz	-94.38			
FDD LTE-B13	23230	782.0	10MHz	-95.64			
	23230	782.0	10MHz	-95.64	-95.64	-91	-90
	23230	782.0	10MHz	-93.59			
FDD LTE-B17	22780	750.0	10MHz	-93.59			
	22780	750.0	10MHz	-93.59	-93.47	-91	-90.5
	22780	750.0	10MHz	-93.44			
FDD LTE-B25	20900	1830.0	10MHz	-95.37			
	20900	1830.0	10MHz	-95.37	-95.03	-87	
	20900	1830.0	10MHz	-95.61			
FDD LTE-B28	22740	814.0	10MHz	-93.96			
	22740	814.0	10MHz	-94.12	-93.54	-86	
	22740	814.0	10MHz	-92.54			
FDD LTE-B28	22740	814.0	10MHz	-94.11			
	22740	814.0	10MHz	-95.32	-94.90	-91	-90.5
	22740	814.0	10MHz	-95.28			

Performance Color Table	
Green	Optimized band
Yellow	Not optimized band

Main Antenna			
ANT Switch State	Multibeam	For US Bands	
State 1	Active	GSM850/DCS1800/PCS1900/WCDMA-B1/B2/B4/B5/B8/LTE-B2/B4/B5/B7/B8/B20	
State 2	Idle	LTE-B2/B4/B5/B7/B8	
State 3	Idle	GSM900/WCDMA-B8	

Diversity Antenna			
ANT Switch State	Multibeam	For US Bands	
State 1	Active	WCDMA-B1/B2/B4/B5/B8/LTE-B2/B4/B5/B7/B8/B20	
State 2	Idle	LTE-B2/B4/B5/B7/B8	

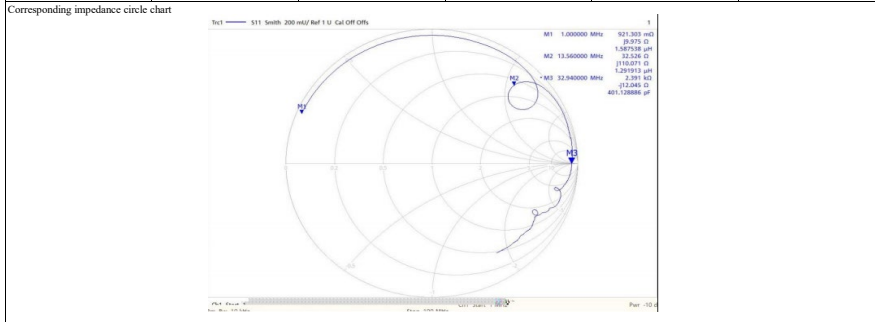
WIFI OTA TEST (LCD ON)					
Mode: 802.11b Rate: 11Mbps BW: 20M					
Band	Channel	Freq/MHz	TRP (dBm) FS	AVE	SPEC
WIFI 2.4G	1	2412	15.21	15.55	≥16
	7	2442	16.09		
	11	2462	15.34		
Mode: 802.11b Rate: 11Mbps BW: 20M					
Band	Channel	Freq/MHz	TIS (dBm) FS	AVE	SPEC
WIFI 2.4G	1	2412	-88.10	-88.27	≤-86
	7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

GPS OTA TEST	
Freq (MHz)	TIS
1575.42	-143.09

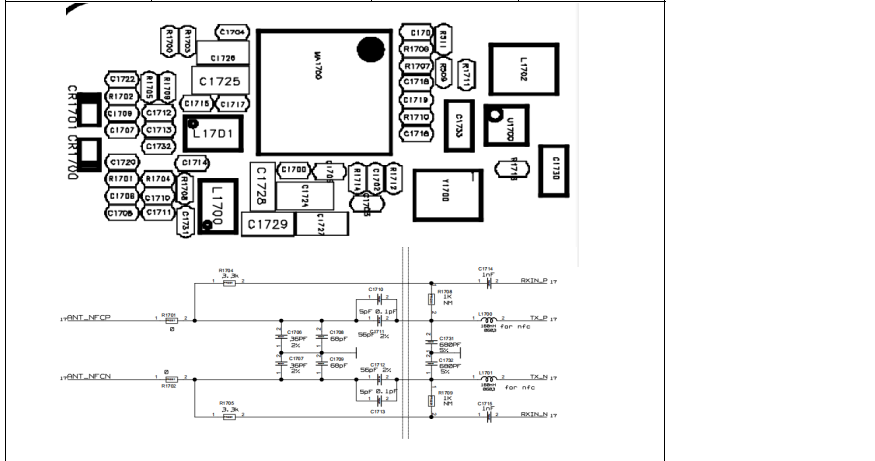
WIFI OTA TEST (LCD ON)					
Mode: 802.11a Rate: 6Mbps BW: 20M					
Band	Channel	Freq/MHz	TRP (dBm) FS	AVE	SPEC
WIFI 5G	36	5180	15.99	15.42	≥14
	100	5500	15.73		
	165	5850	14.53		
Mode: 802.11a Rate: 54Mbps BW: 20M					
Band	Channel	Freq/MHz	TIS (dBm) FS	AVE	SPEC
WIFI 5G	36	5180	-76.03	-76.23	≤-74
	100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

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.

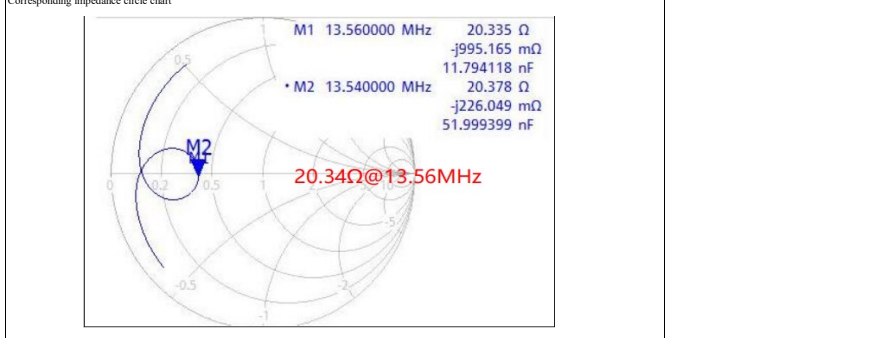
NFC Antenna Parameters Measurement					
test item	La (uH)	Rs (Ohm)	Rp (kOhm)	Fm (MHz)	Q
standard	0.3~La<3	Rs<1	Rp>1	Fra>35	Q>15
measured value	1.59	0.92	2.39	32.94	23.21



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

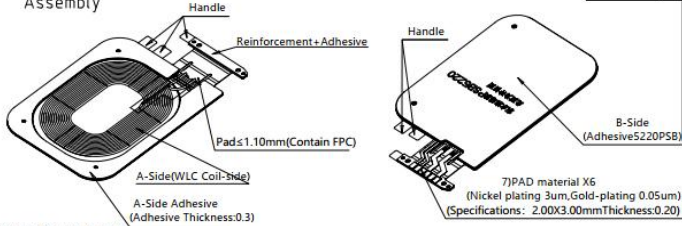
NFC Antenna Distance Test					
Status	Type1	Type2	Type3	Type4	POS Machine
standard(mm)	>30	>30	>30	>20	>50
Distance(mm)	50	62	43	39	>100

NFC ANT

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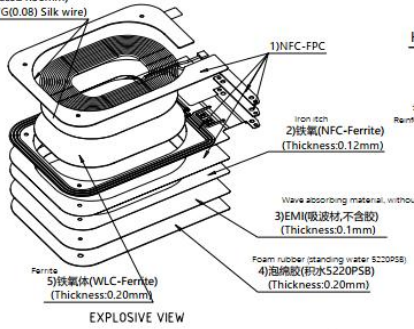
Revision	Engineering Change Description	Date	Owner
A0	初版 First edition	2022/11/01	Jaizang

Assembly

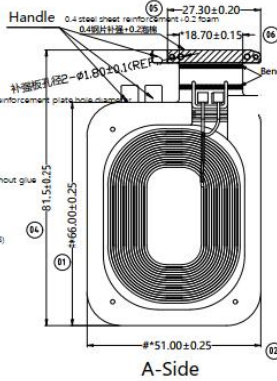


PAD material: C5191R-H/C520; contact resistance: 20 milliohms MAX over all; Ni 3um; contact area: AU 0.05um

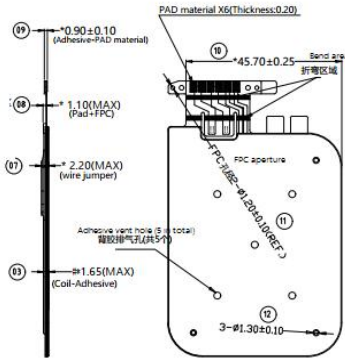
Coil (single side adhesive backing)
6)线圈(单面背胶)
(Thickness:1.50mm)
(50x40AWG(0.08) Silk wire)



EXPLOSIVE VIEW



A-Side



B-Side

SELECT	A	B	C	D
SPEC. PLASB				
< 8mm	0.05	0.1	0.1	0.2
8~20mm	0.05	0.15	0.15	0.3
20~80mm	0.12	0.2	0.25	0.4
80~200mm	0.25	0.3	0.4	0.5
ANGLE	0.5			
MATERIAL	SEE NOTE			
FINISH	SEE NOTE			

CAO GENERATED DRAWING,
DO NOT MANUALLY UPDATE

DRAWN: huiyana
DESIGNED: Steven
APPROVED: Steven

3RD ANGLE

INPAQ 禾邦电子(苏州)有限公司
INPAQ Technology Co.,Ltd.

SIZE: A4
PART No.: WPC-L-P-RX-CF-003
DWG No.:
UNIT: MM SCALE: 1:1 SHEET: 1 OF 1