Antenna Test Report

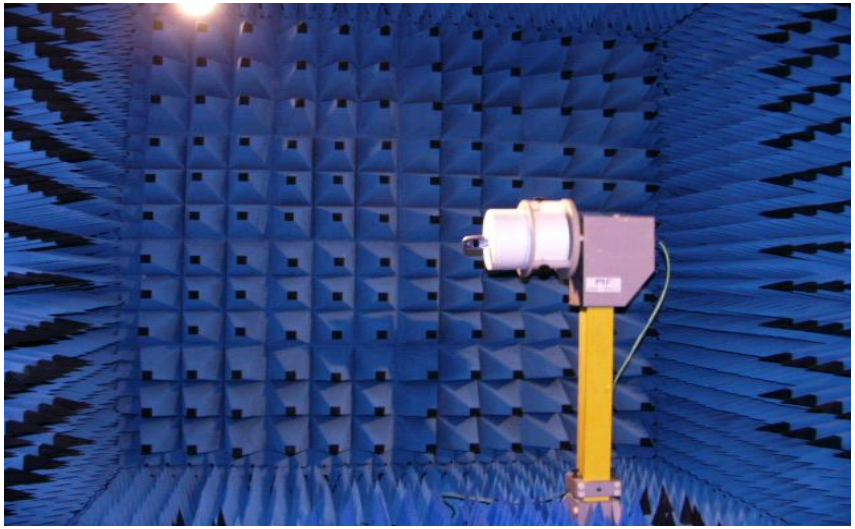
SHENZHEN KURUIJIE

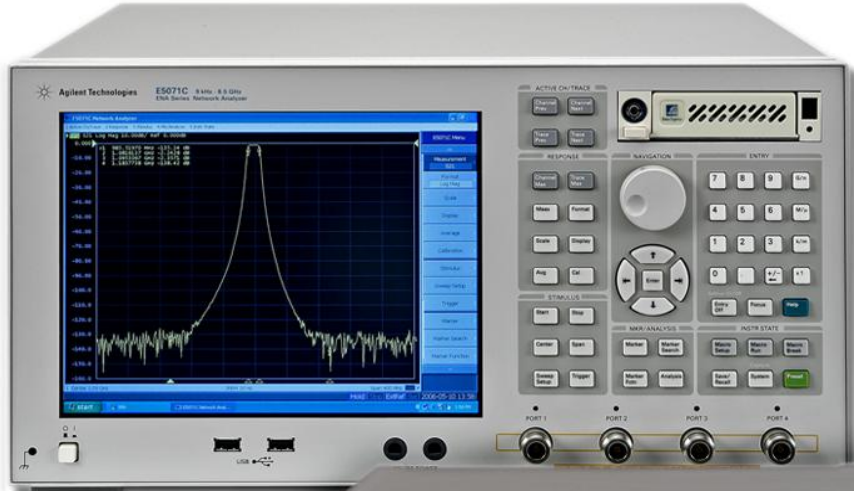
Project:K627B2

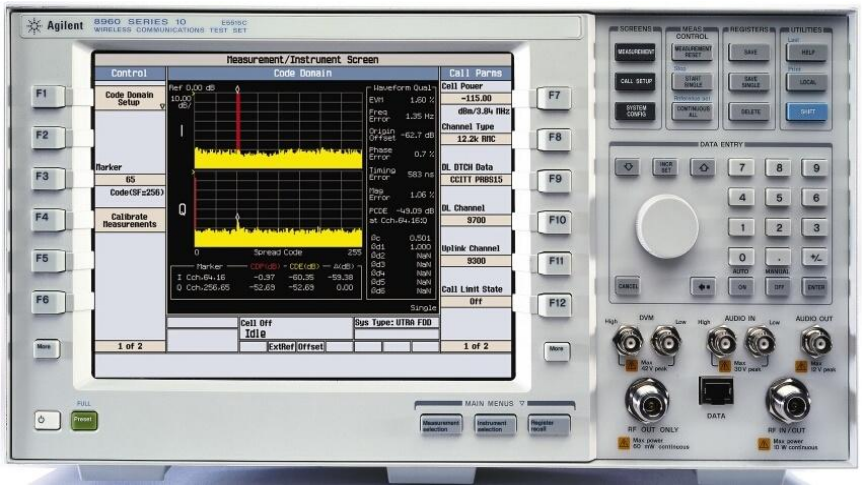
RF Engineer:zhou chao ming
Testing Date:2023.07.28

1. The Equipment of Active Test

1: Anechoic Chamber 7x4x3 m (3D)
2: Rohde & Schwarz CMW500
3: AGILENT 8960 5515C
4: Network Analyzer-AGILENT ENA5071B







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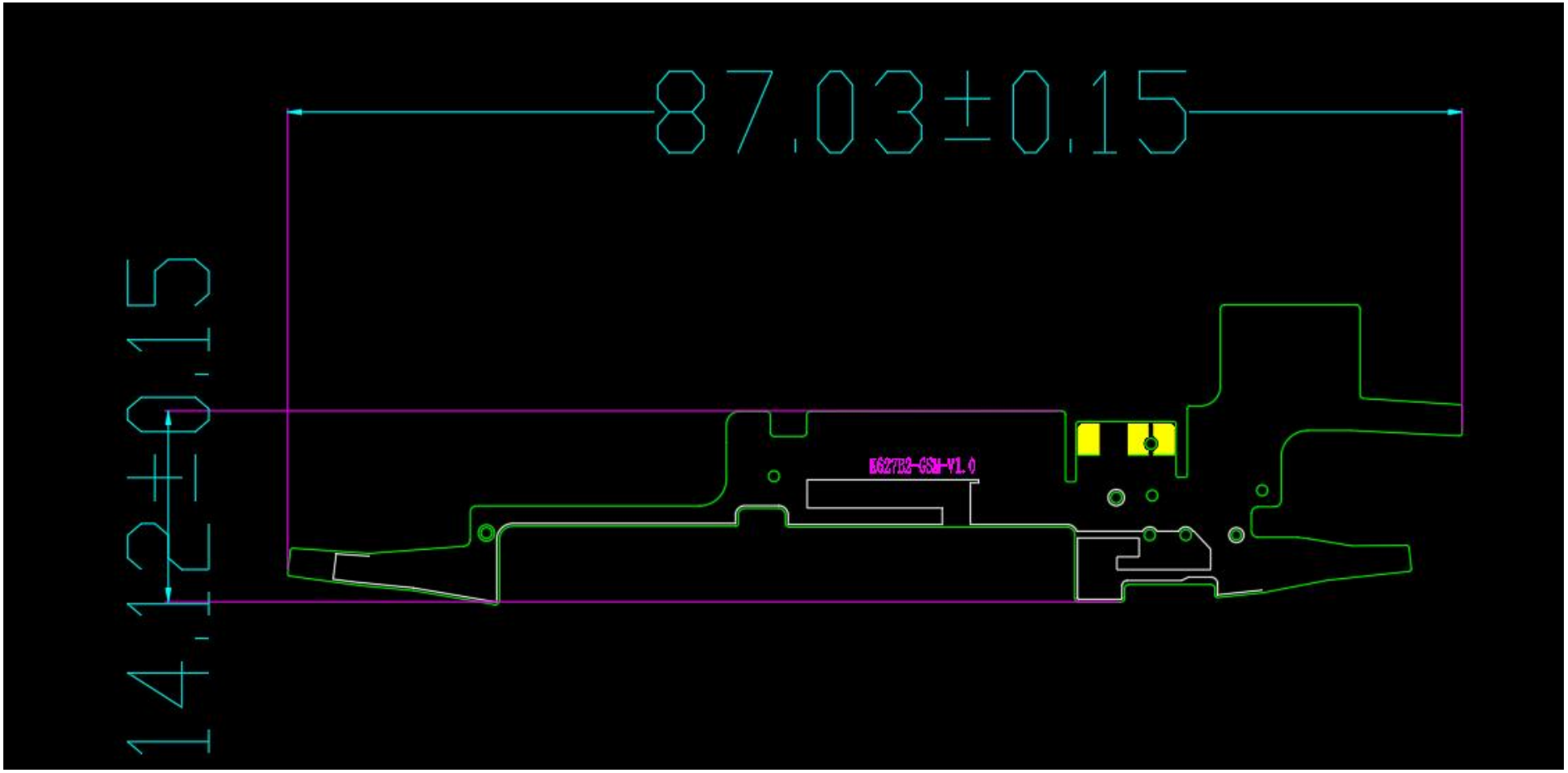
目录

一、产品规格(Product specification)
二、电器性能(Electrical performance)
1.规格标准(Specification standard)
2.天线的匹配电路(Matching circuit)
三、参数的测试(Parameter test)
1.测试的设置(Test settings)
2.测试结果(Test result)
四、有源测试的设置(Active test setup)
1.测试的场地(Test site)
2.测试结果(Test result)



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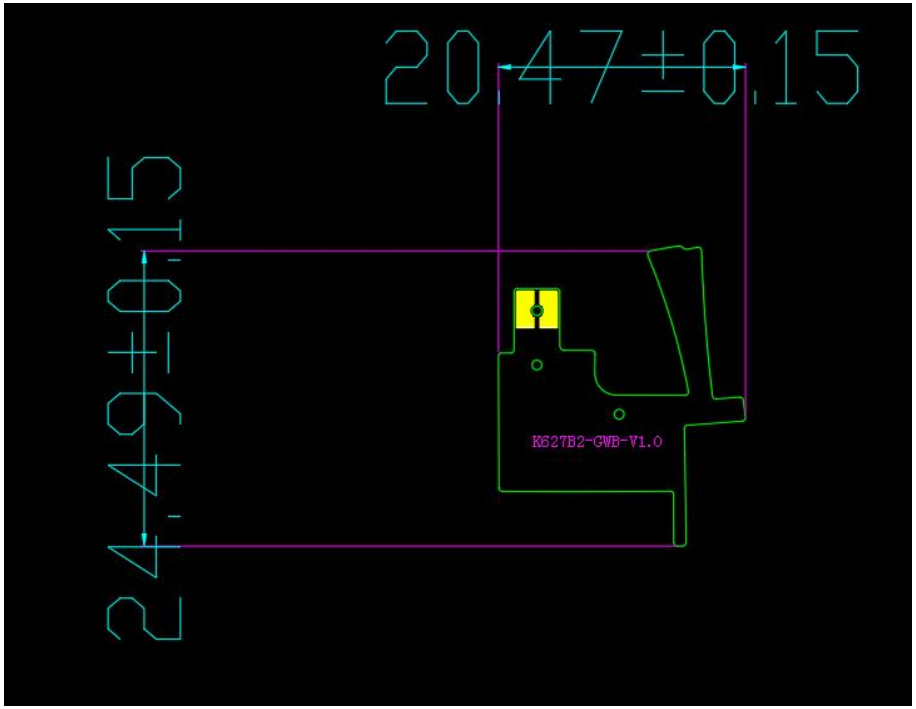

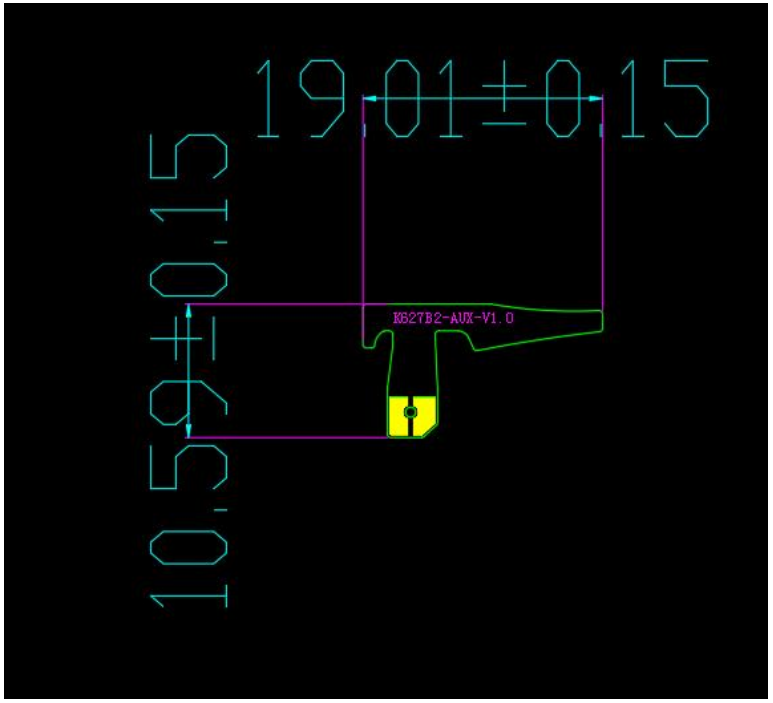

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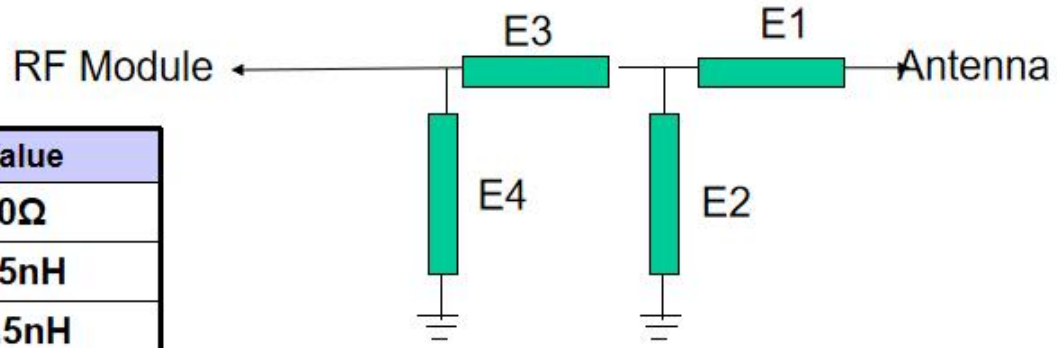
二、Electrical performance

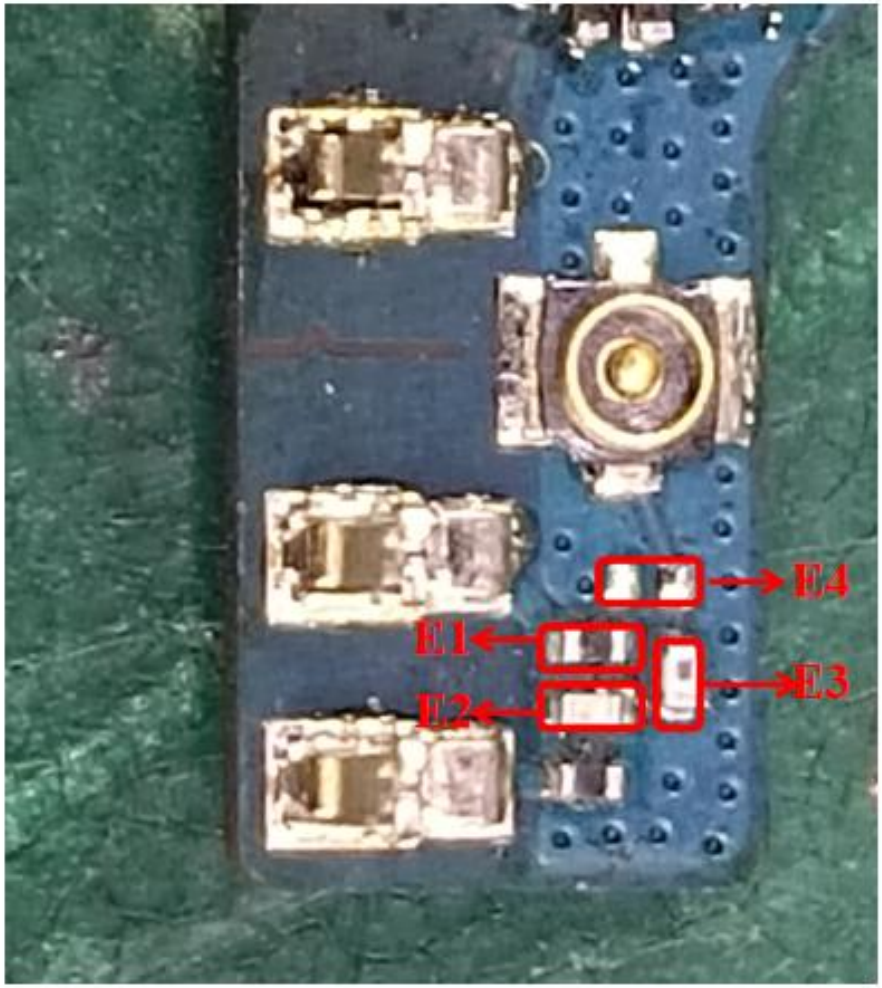
1.Specifications

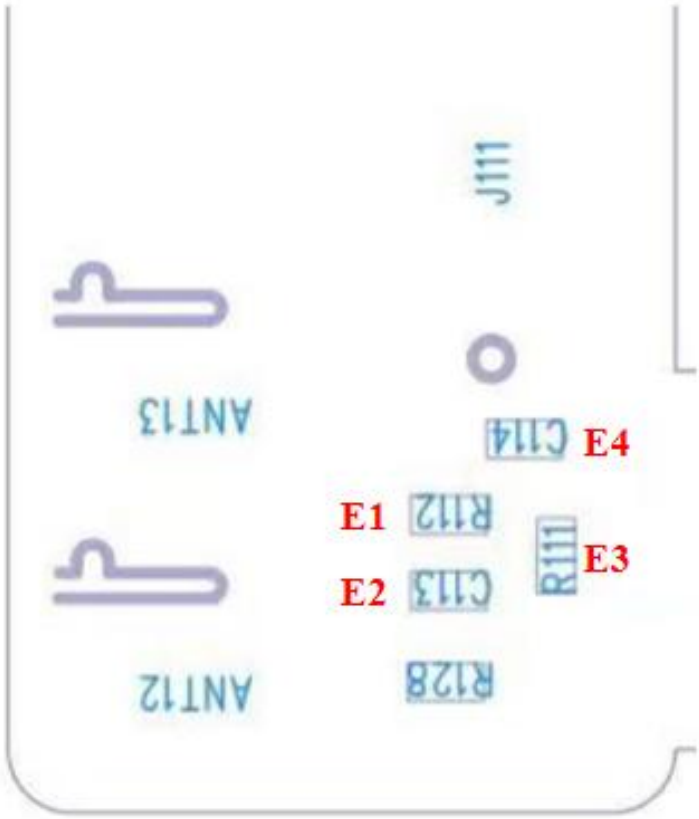
The operating frequency band of K627B2 antenna is 617~960MHZ and 1710~2700MHZ, in which resonance occurs.



Element	Value
E1	0Ω
E2	15nH
E3	1.5nH
E4	NC

开关匹配逻辑	开关路径	匹配值	2G频率	3G频率	4G频率
	RF1-R1612	0欧姆	850/900/1800/1900	B2/4/5	B2/4/5/25/26/66/41
	RF2-R1613	9.1NH			B13
	RF3-R1616	18nH			B12
	RF4-R1614	33nH			B71


E4
E1
E3
E2


J111
ANT13
C114
E4
E1
R112
R111
E3
E2
C113
ANT12
R128

所有天线弹脚未改动。

三、Test of parameters

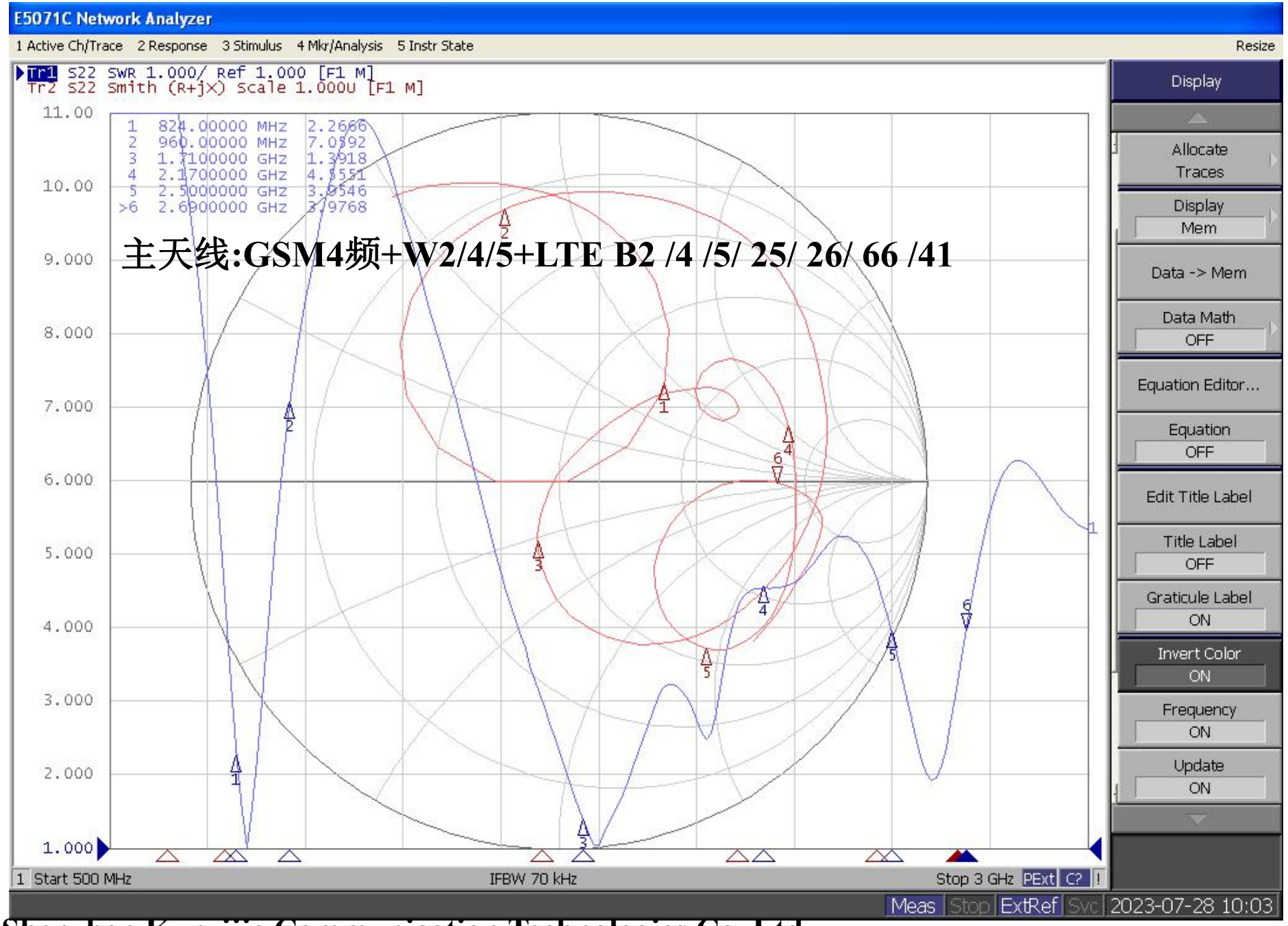
1.Test settings

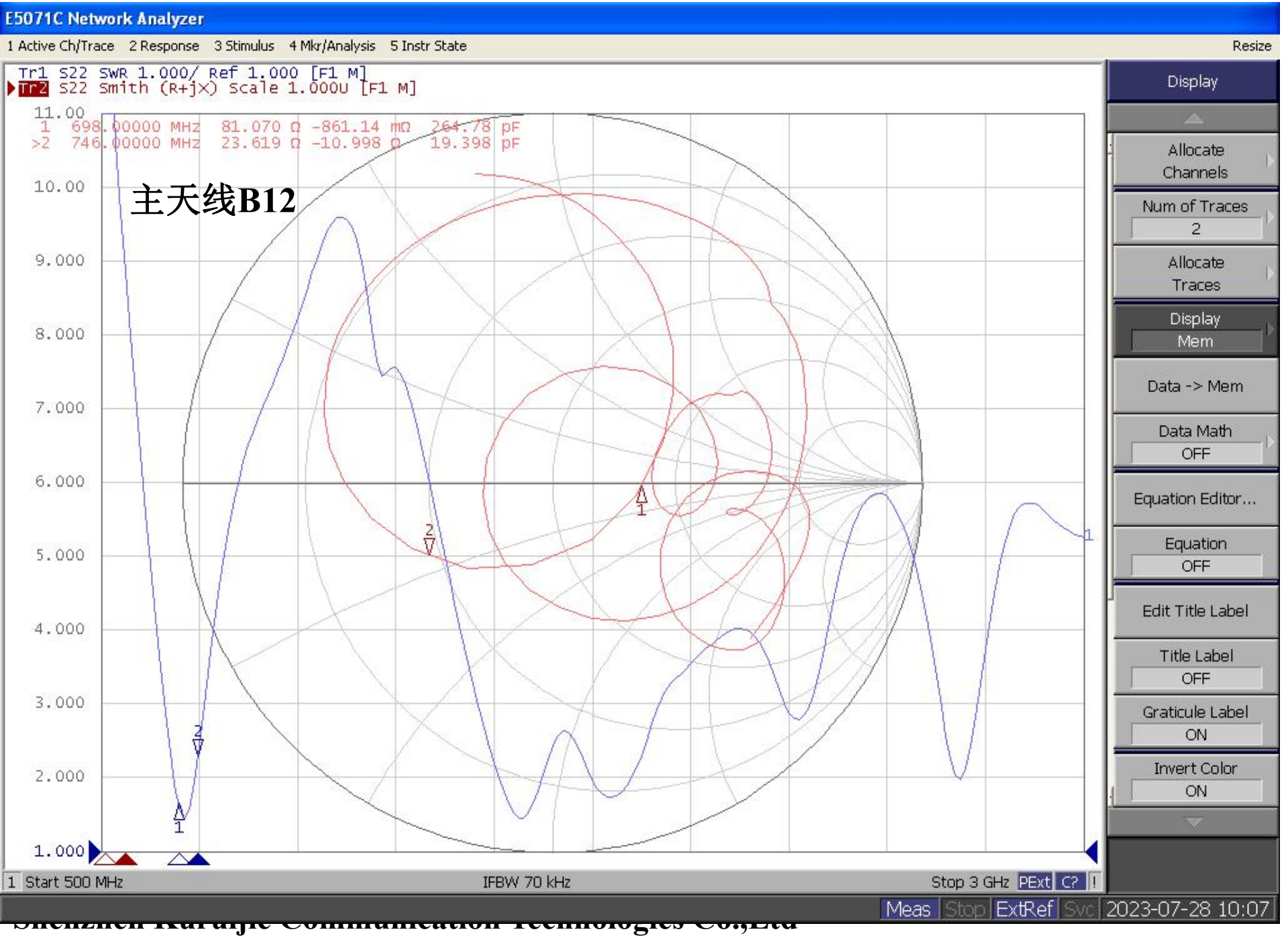
The connection of VSWR test device is：
E5071Cnetwork analyzer→50Ohmic coaxial Cable→110mmLong copper tube→Test fixture

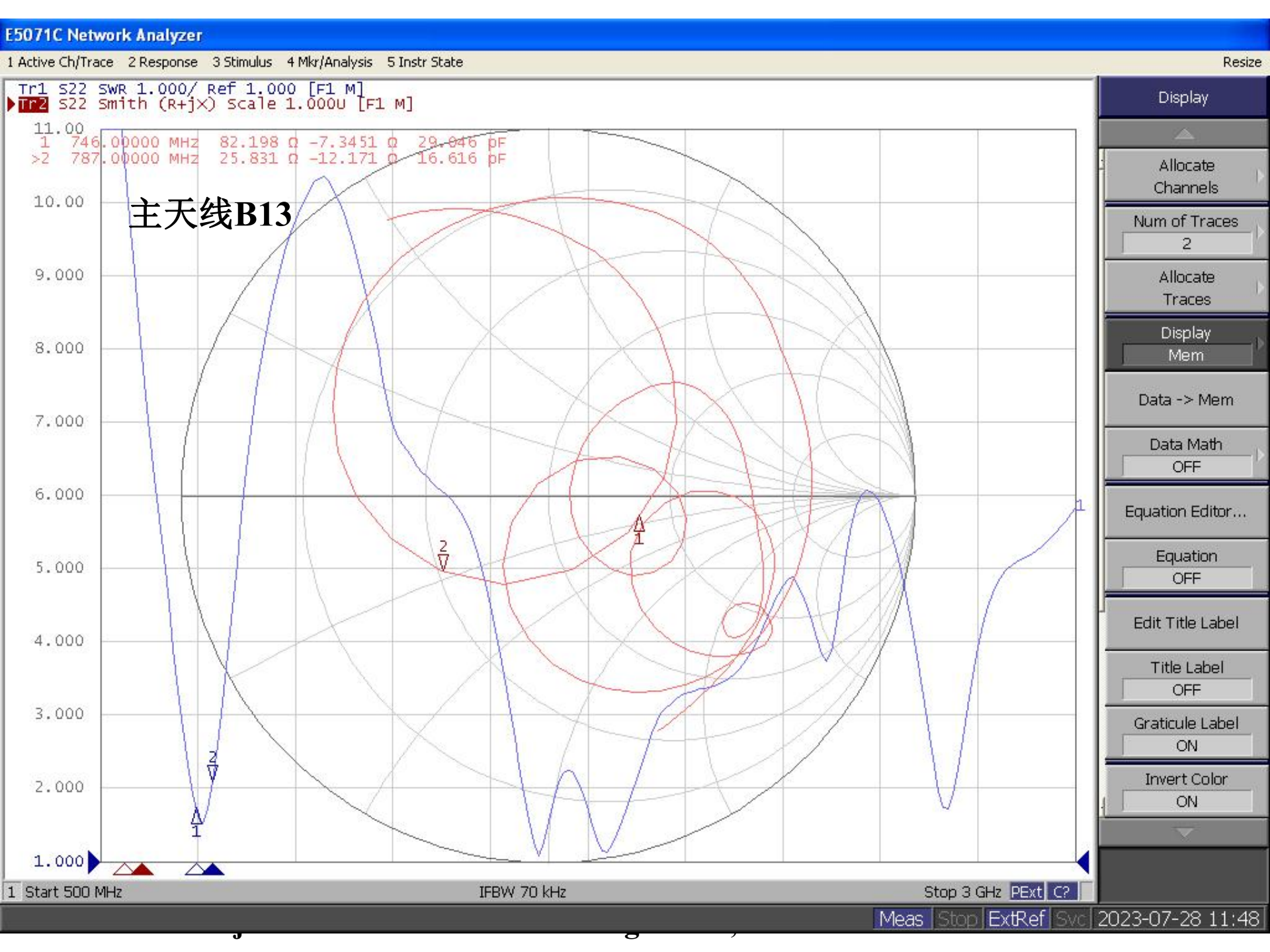
Treatment of test fixture:

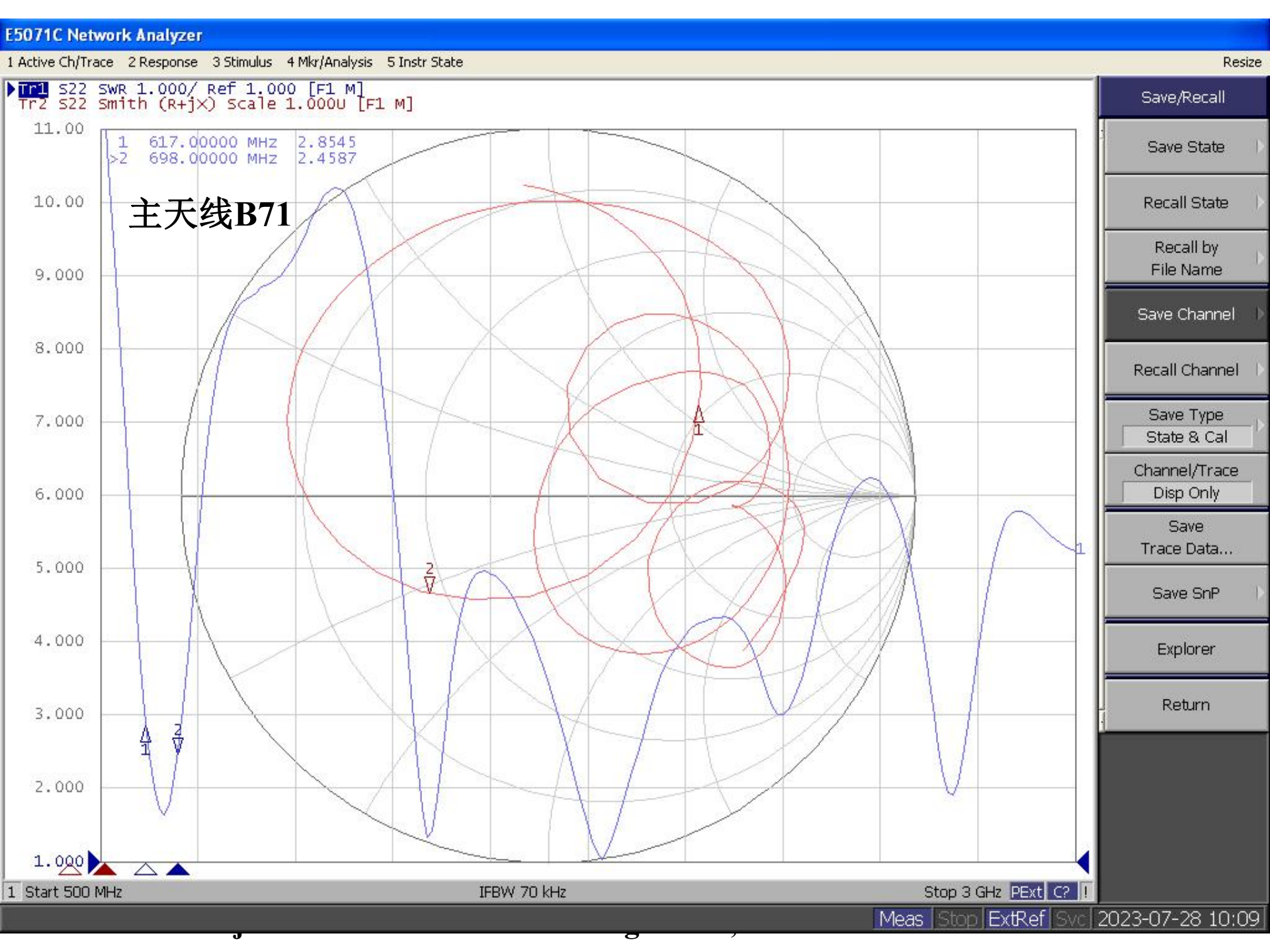
Use a hard cable to lead out the SMA-J connector from the 50 ohm test point of the antenna on the mobile phone PCB, connect it to the copper tube with a choke, and then connect other devices in turn.

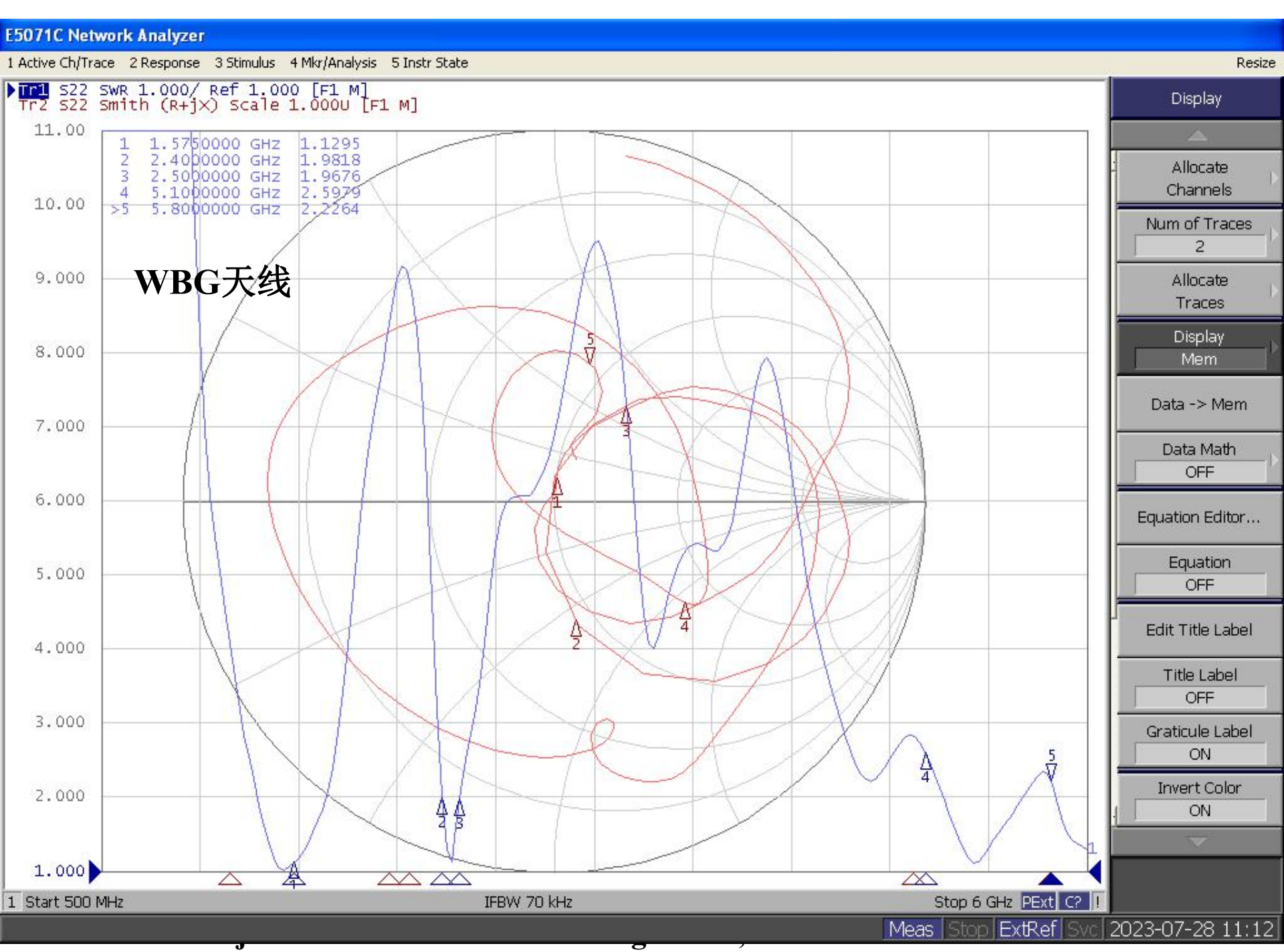
Structure of antenna： FPC


E5071C Network Analyzer
1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Resize
Tr1 S22 SWR 1.000/ Ref 1.000 [F1 M]
Tr2 S22 Smith (R+jX) Scale 1.000U [F1 M]
1 824.00000 MHz 2.2666
2 960.00000 MHz 7.0592
3 1.7100000 GHz 1.3918
4 2.1700000 GHz 4.5551
5 2.5000000 GHz 3.0546
>6 2.6900000 GHz 3.9768
主天线:GSM4频+W2/4/5+LTE B2 /4 /5/ 25/ 26/ 66 /41
11.00
10.00
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
Display
Allocate Traces
Display Mem
Data -> Mem
Data Math OFF
Equation Editor...
Equation OFF
Edit Title Label
Title Label OFF
Graticule Label ON
Invert Color ON
Frequency ON
Update ON
1 Start 500 MHz
IFBW 70 kHz
Stop 3 GHz
PExt
C?
Meas
Stop
ExtRef
Svc
2023-07-28 10:03


E5071C Network Analyzer
1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Resize
Tr1 S22 SWR 1.000/ Ref 1.000 [F1 M]
Tr2 S22 Smith (R+jX) Scale 1.000U [F1 M]
1 698.00000 MHz 81.070 Ω -861.14 mΩ 264.78 pF
>2 746.00000 MHz 23.619 Ω -10.998 Ω 19.398 pF
主天线B12
11.00
10.00
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
Display
Allocate Channels
Num of Traces
2
Allocate Traces
Display
Mem
Data -> Mem
Data Math
OFF
Equation Editor...
Equation
OFF
Edit Title Label
Title Label
OFF
Graticule Label
ON
Invert Color
ON
1 Start 500 MHz
IFBW 70 kHz
Stop 3 GHz
PExt
C?
Meas
Stop
ExtRef
Svc
2023-07-28 10:07


E5071C Network Analyzer
1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Resize
Tr1 S22 SWR 1.000/ Ref 1.000 [F1 M]
Tr2 S22 Smith (R+jX) Scale 1.000U [F1 M]
1 746.00000 MHz 82.198 Ω -7.3451 Ω 29.046 pF
>2 787.00000 MHz 25.831 Ω -12.171 Ω 16.616 pF
主天线B13
11.00
10.00
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
Display
Allocate Channels
Num of Traces
2
Allocate Traces
Display
Mem
Data -> Mem
Data Math
OFF
Equation Editor...
Equation
OFF
Edit Title Label
Title Label
OFF
Graticule Label
ON
Invert Color
ON
1 Start 500 MHz
IFBW 70 kHz
Stop 3 GHz
PExt
C?
Meas
Stop
ExtRef
Svc
2023-07-28 11:48


E5071C Network Analyzer
1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Resize
Tr1 S22 SWR 1.000/ Ref 1.000 [F1 M]
Tr2 S22 Smith (R+jX) Scale 1.000U [F1 M]
1 617.00000 MHz 2.8545
>2 698.00000 MHz 2.4587
主天线B71
11.00
10.00
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
Save/Recall
Save State
Recall State
Recall by File Name
Save Channel
Recall Channel
Save Type
State & Cal
Channel/Trace
Disp Only
Save Trace Data...
Save SnP
Explorer
Return
1 Start 500 MHz
IFBW 70 kHz
Stop 3 GHz
PExt
C?
Meas
Stop
ExtRef
Svc
2023-07-28 10:09


E5071C Network Analyzer
1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Resize
Tr1 S22 SWR 1.000/ Ref 1.000 [F1 M]
Tr2 S22 Smith (R+jX) Scale 1.000U [F1 M]
1 1.5750000 GHz 1.1295
2 2.4000000 GHz 1.9818
3 2.5000000 GHz 1.9676
4 5.1000000 GHz 2.5979
>5 5.8000000 GHz 2.2264
WBG天线
11.00
10.00
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
1 Start 500 MHz
IFBW 70 kHz
Stop 6 GHz
PExt
C?
Display
Allocate Channels
Num of Traces
2
Allocate Traces
Display Mem
Data -> Mem
Data Math
OFF
Equation Editor...
Equation
OFF
Edit Title Label
Title Label
OFF
Graticule Label
ON
Invert Color
ON
Meas
Stop
ExtRef
Svc
2023-07-28 11:12

Passive parameters of main antenna：

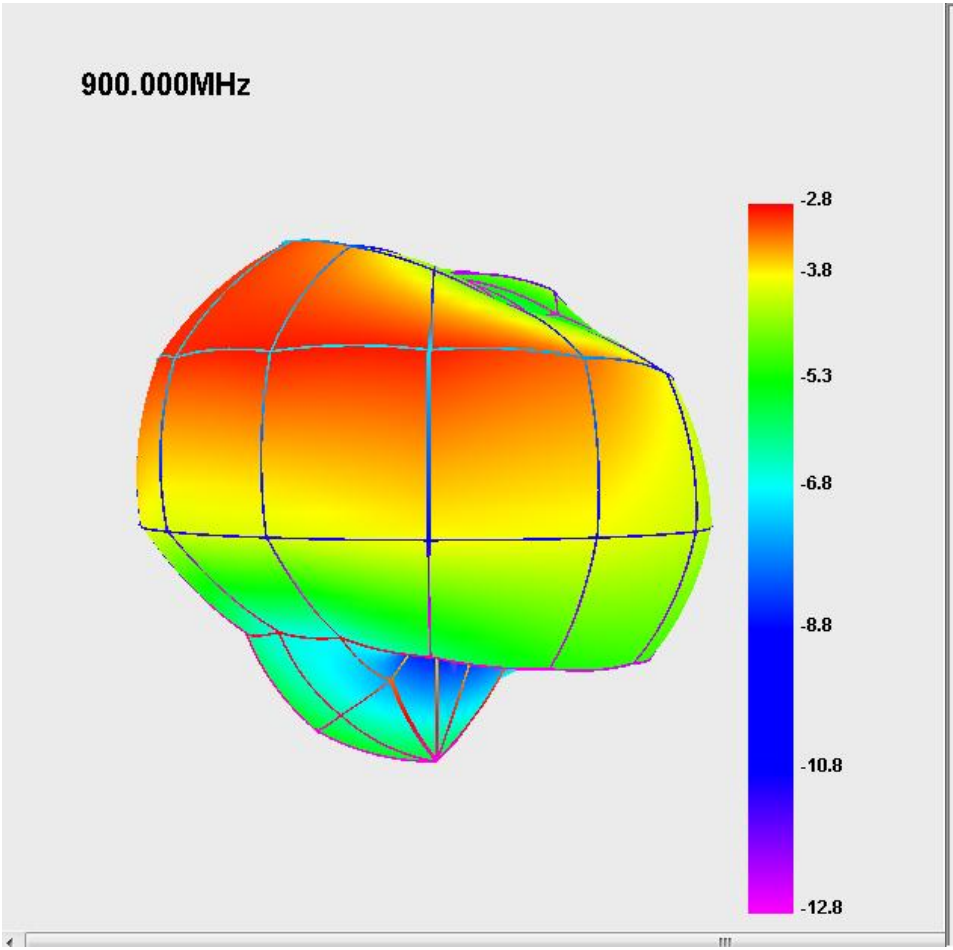
工作频段(**Working frequency band)**：617~960MHZ，1710~2700MHZ

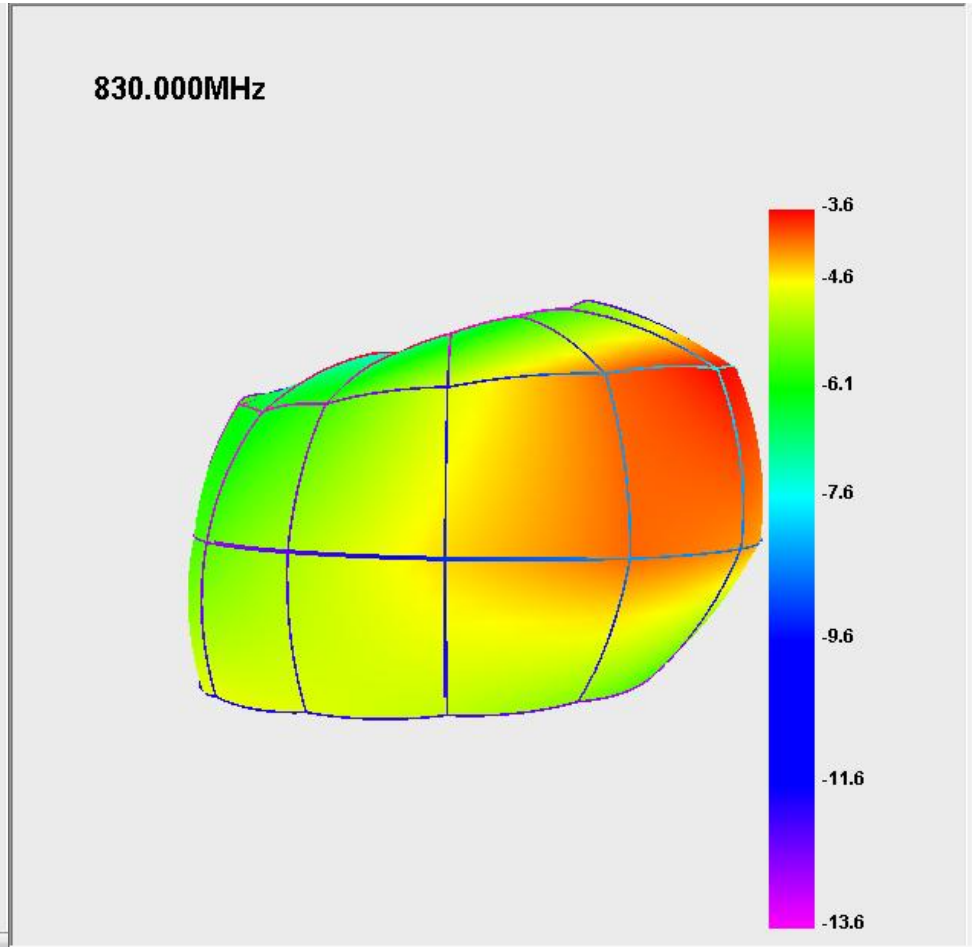
GSM850/900/1800/1900

WCDMA:B2/B4/B5

LTE:B2/B4/B5/B12/B13/25/B26/B66/B71/B41

Gain	
频段Band	gain增益(dBi)
GSM900	0.4DBI
GSM850/WCDMA B5	0.5DBI
DCS1800	2.0DBI
PCS1900,WCDMAB2 ,LTE B2 B25	2.0DBI
WCDMAB4, LTEB4 B66	2.0DBI
LTEB41	2.3DBI
LTEB12	0.3DBI
LTEB13	0.3DBI
LTEB71	0.2DBI
GPS	1.5DBI
2.4G WIFI/BT	2.5DBI
5G WIFI	2.4DBI





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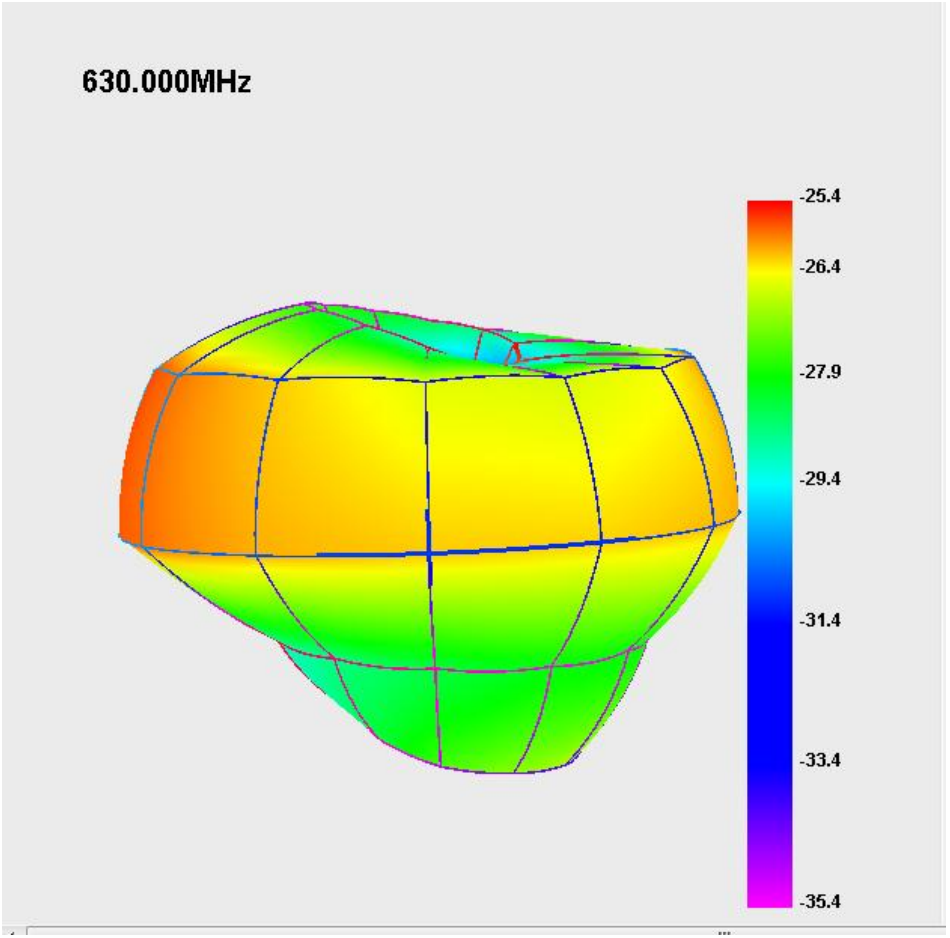
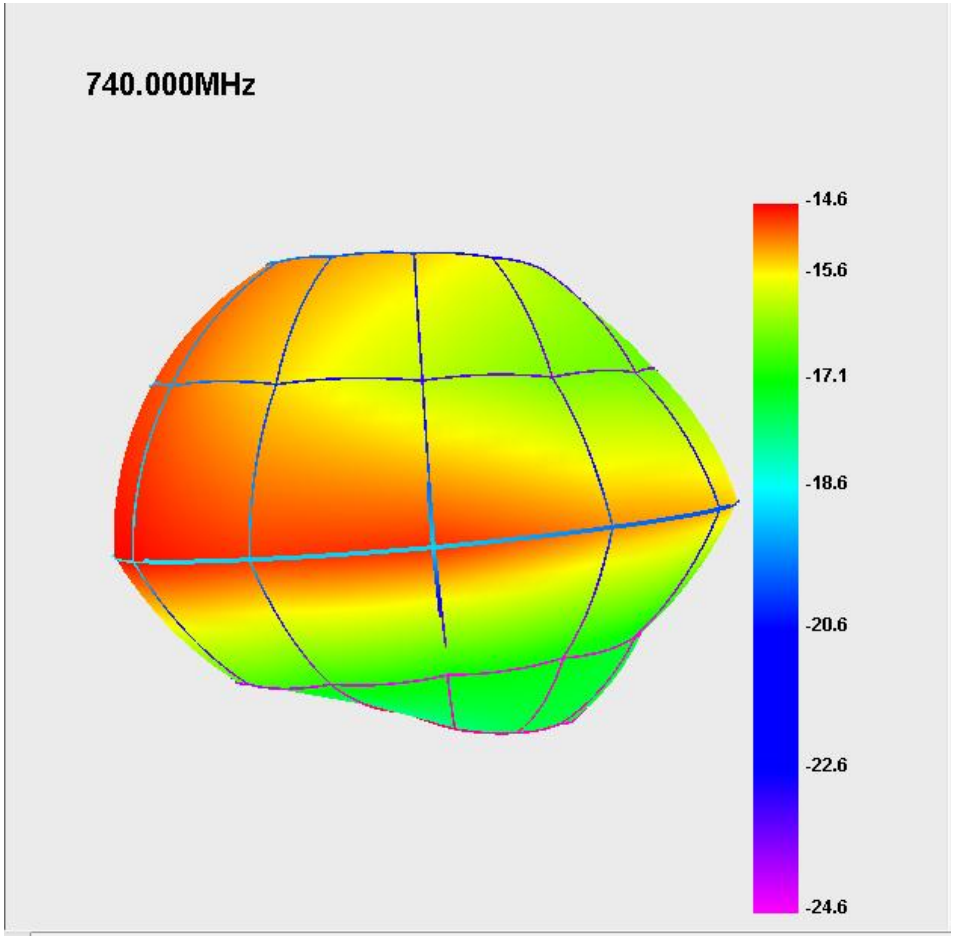
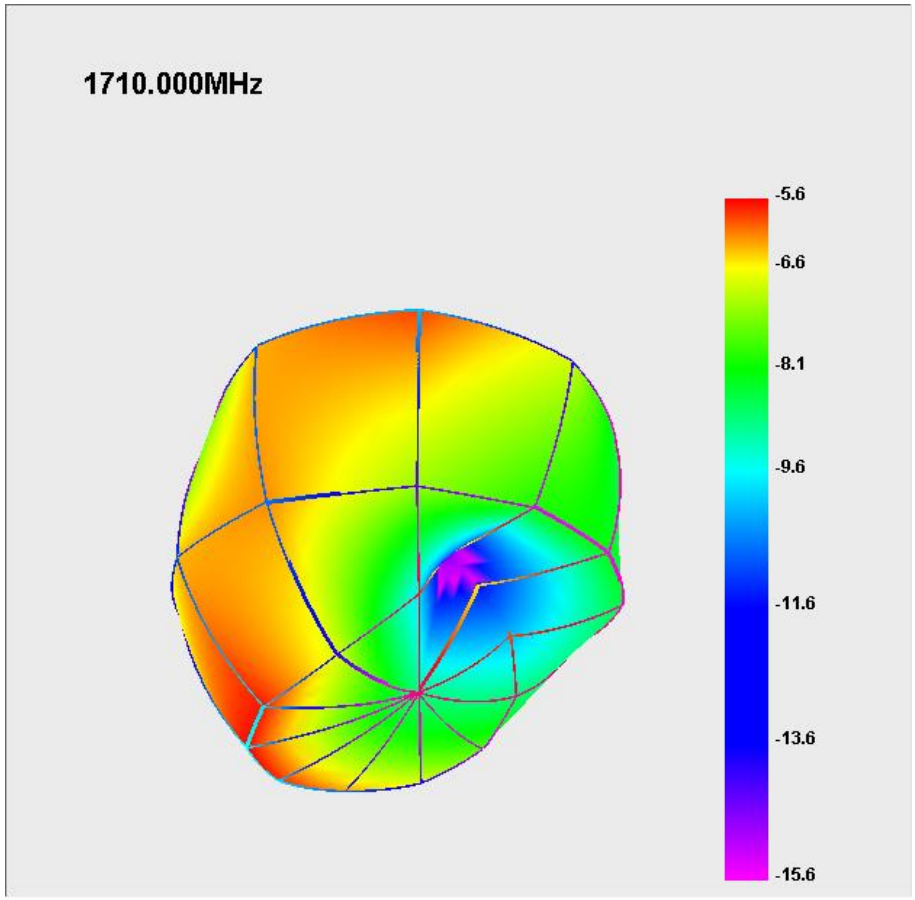
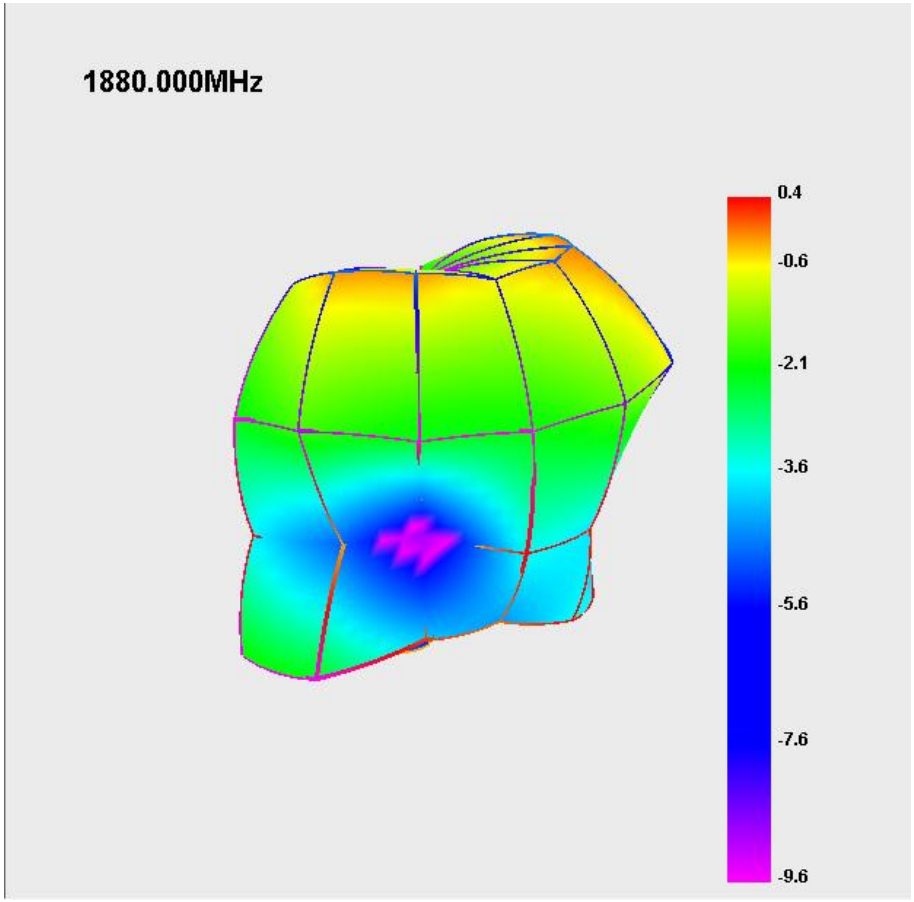
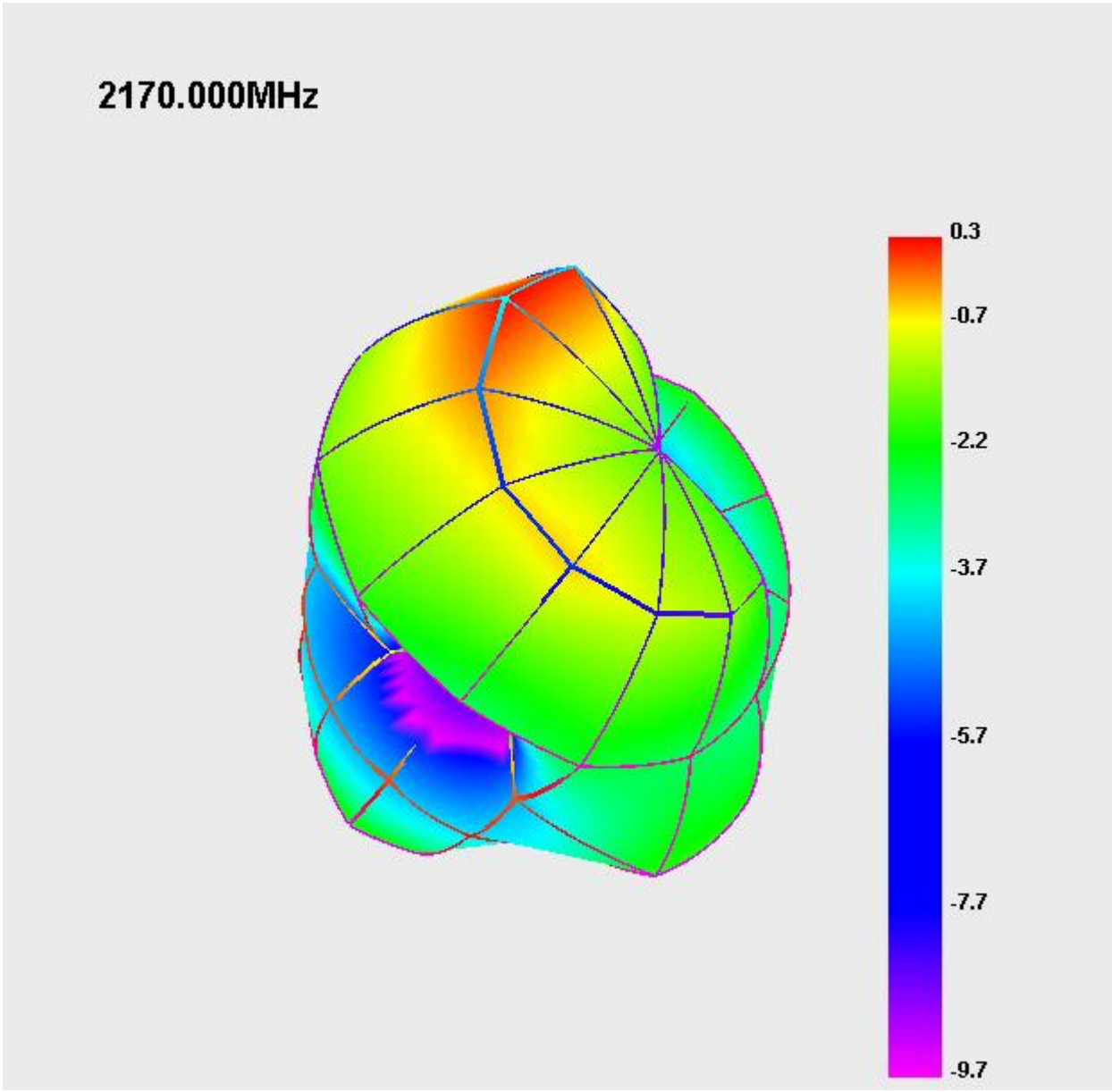

630.000MHz
-25.4
-26.4
-27.9
-29.4
-31.4
-33.4
-35.4


740.000MHz
-14.6
-15.6
-17.1
-18.6
-20.6
-22.6
-24.6


1710.000MHz
-5.6
-6.6
-8.1
-9.6
-11.6
-13.6
-15.6


1880.000MHz
0.4
-0.6
-2.1
-3.6
-5.6
-7.6
-9.6



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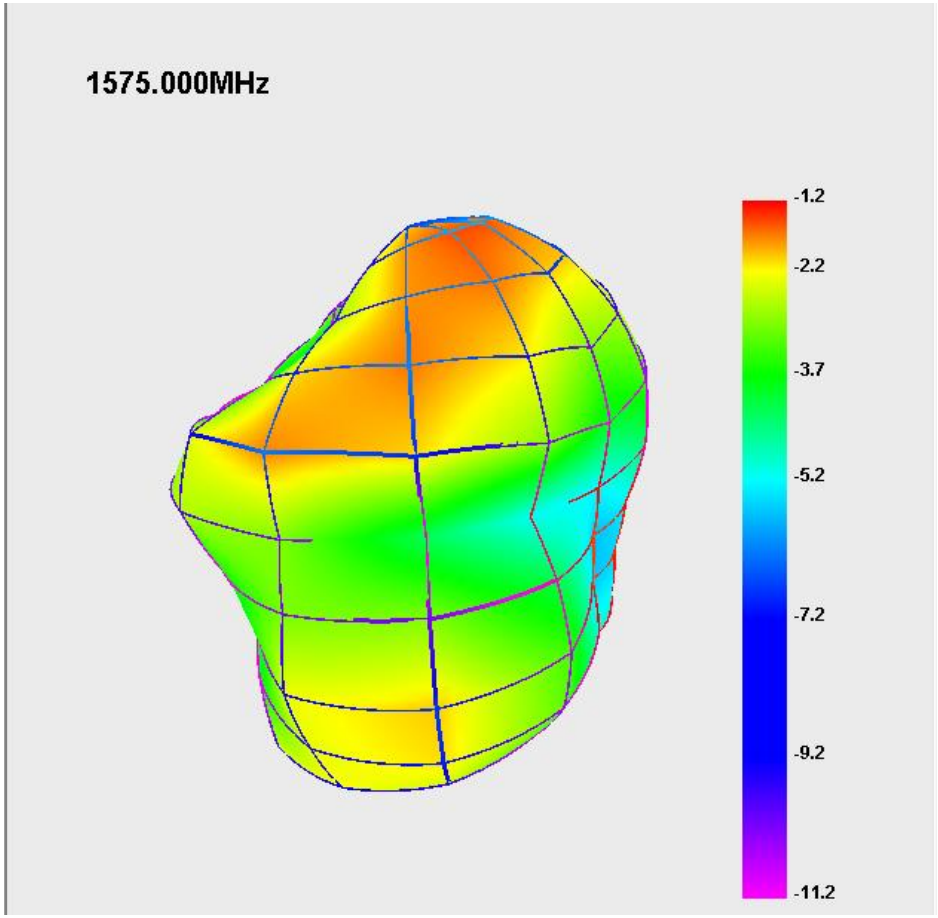

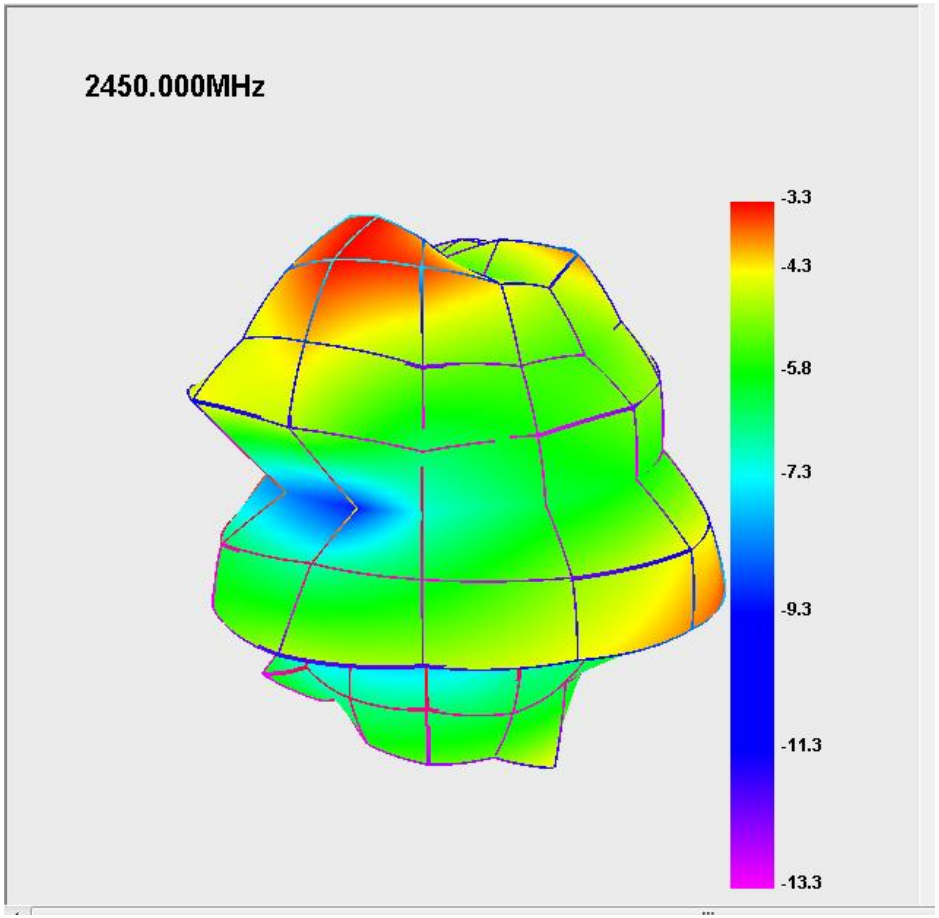

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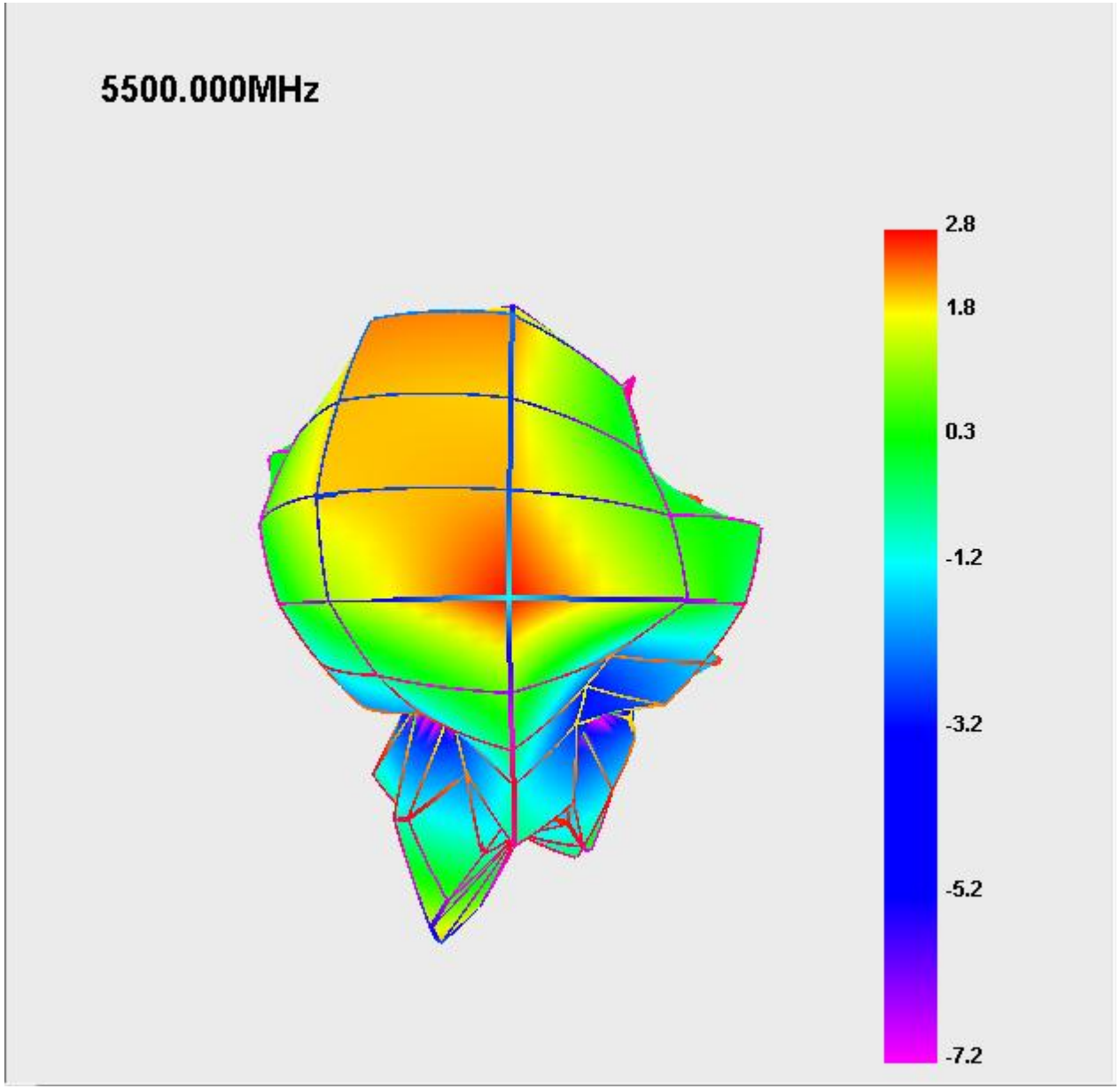

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GPS/WIFI/BTPassive parameters of antenna：

工作频段(**Working frequency band)**：1560~1580MHZ，2400~2500MHZ，5100~5800MHZ

2.test result

GPS / WIFI / BT

GPS实测报告	
位 置	测试结果
我司2楼平台	冷启动80秒定位，最大CN值40.6

WIFI实测报告	
位 置	测试结果
10M+一堵墙	三格信号,网页浏览,视频播放顺畅

BT实测报告	
位 置	测试结果
10米	范围内正向语音通话清晰

四、Active test setup

The active test devices are sequentially connected as follows：

Agilent8960→50Ohmic coaxialCable→guangping system→Mobile phone to be tested

1.Test site

AW microwave anechoic chamber: the test frequency range is 400MHz - 6GHz, the quiet zone range is 40cm circumference, and the reflectivity is less than - 90 dB.

2.test result

The maximum radiation power and maximum receiving sensitivity reflect the maximum power radiation value and the optimal receiving performance of the antenna in the entire radiation space. TRP and TIS reflect the average radiation power and average receiving sensitivity of the antenna, that is, the overall receiving performance of the antenna.

The following is the active test result of K626B2 mobile phone main antenna：

	TRP	TIS		TRP	TIS		TRP	TIS
GSM850	24.15	-101.89	LTE B2	17.07	-89.29	LTE B71	15.37	-88.07
	24.74	-101.47		16.57	-89.49		16.12	-89.17
	24.91	-101.4		16.33	-88.81		16.87	-88.66
GSM900	22.41	-99.63	LTE B4	18.08	-90.24	LTE B41	21.01	-90.45
	22.13	-97.32		17.82	-90.48		20.99	-90.39
	21.87	-95.44		17.7	-89.79		21.05	-90.1
DCS1800	22.18	-104.78	LTE B5	18.28	-88.75			
	23.56	-104.09		18.55	-88.56			
	23.94	-103.58		18.63	-88.07			
PCS1900	23.78	-103.09	LTE B12	17.16	-89.15			
	23.31	-103.68		17.29	-89.34			
	22.69	-103.83		17.32	-88.75			
WCDMA B2	16.95	-105.9	LTE B13					
	16.56	-105.68		17.52	-88.36			
	16.14	-105.33						
WCDMA B4	17.61	-104.94	LTE B25	18.7	-90.22			
	17.02	-104.32		18.34	-89.93			
	16.57	-103.16		17.76	-89.73			
WCDMA B5	16.93	-103.64	LTE B26	16.35	-88.94			
	16.73	-103.32		16.57	-88.47			
	16.26	-102.65		16.87	-88.49			
			LTE B66	16.63	-89.49			
				16.31	-88.95			
				16.06	-88.24			

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