



规格承认书

Approval Sheet

客户名称 麦孚瑞

(Customer Name)

产品名称 ME61-GSM Antenna

(Specification)

客户料号

(Customer P/N)

产品料号

(O/I)

送样日期 2023-08-30

(Date)

Frequency band	GSM-B2,3,5,8/WCDMA-B1,2,4,5,8 LTE-B1,2,3,4,5,7,8,12,13,17,19,20,25,26,28,34,38,39,40,41,66		
Version	A		
RF	彭巍	Confirm	
Structural Engineer	杨学忠		
Customer confirmation			
Date			

Catalogue

1. Project image

2. Test fixture

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4. S11 Test electrical performance

4.1 S11 Test Method Description Specification Standards

4.2 S11 Parameter

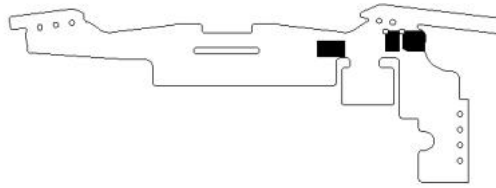
4.3 S11 Parameter image

5. Power and sensitivity testing

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1. Project image (for reference only)

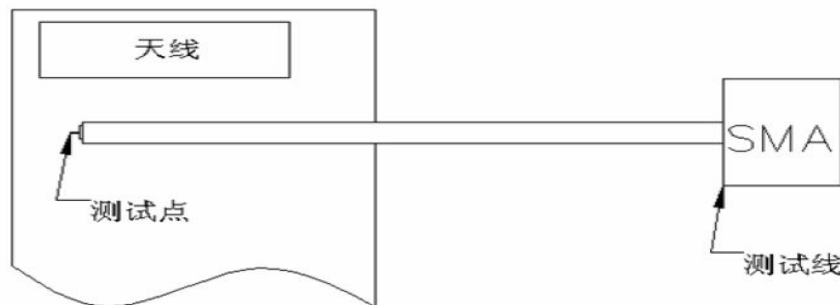


GSM Antenna

2. Passive Test

Purpose: To test the passive parameters of the antenna as accurately as possible.

Method: This fixture uses a 50 ohm coaxial cable, with one end connected to the test point at the back end of the matching circuit (RF test hole front section) of the mobile phone motherboard, and the other end connected to the SMA connector. As shown in the following figure:



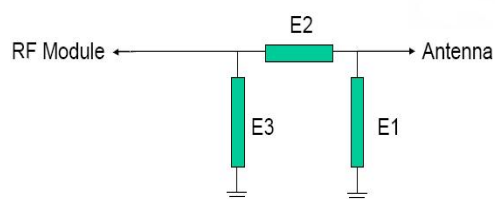
The following table shows the performance test indicators for ME61 mass-produced antennas:

ME61 GPS Antenna				
	Frequency (MHz)	VSWR	Frequency (MHz)	VSWR
Frequency band	Transmitting end		Receiving end	
GSM850	824-849	≤ 3.5	869-894	≤ 3.0
GSM900	880-915	≤ 3.5	925-960	≤ 3.5
DCS1800	1710-1785	≤ 3.0	1805-1880	≤ 2.5

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PCS1900	1850-1910	≤ 2.8	1930-1990	≤ 3.2
WCDMA-850	824-849	≤ 3.5	869-894	≤ 3.5
WCDMA-1700	1710-1755	≤ 3.5	2110-2155	≤ 3.5
WCDMA-1900	1850-1910	≤ 2.8	1930-1990	≤ 3.2
WCDMA-2100	1710-1755	≤ 3.5	2110-2155	≤ 3.5
WCDMA-900	880-915	≤ 3.5	925-960	≤ 3.5
LTE-FDD-B1	1920-1980	≤ 2.0	2110-2170	≤ 2.0
LTE-FDD-B2	1850-1910	≤ 2.8	1930-1990	≤ 3.2
LTE-TDD-B3	1710-1785	≤ 2.5	1805-1880	≤ 2.5
LTE-TDD-B5	824-849	≤ 3.5	869-894	≤ 3.0
LTE-TDD-B7	2505-2565	≤ 2.0	2625-2685	≤ 2.0
LTE-FDD-B8	880-913	≤ 2.0	930-955	≤ 2.0
LTE-FDD-B12	703-710	≤ 2.5	733-740	≤ 3.5
LTE-FDD-B13	782	≤ 3.5	751	≤ 3.5
LTE-FDD-B17	709-711	≤ 3.0	739-741	≤ 3.0
LTE-FDD-B19	835-840	≤ 2.5	880-885	≤ 3.5
LTE-FDD-B20	837-857	≤ 3.5	796-816	≤ 3.0
LTE-FDD-B25	1855-1910	≤ 3.5	1935-1990	≤ 3.0
LTE-FDD-B26	819-844	≤ 3.5	864-889	≤ 3.0
LTE-FDD-B28	708-743	≤ 2.0	763-798	≤ 2.0
LTE-TDD-B34	2015-2020	≤ 2.0	2015-2020	≤ 2.0
LTE-TDD-B38	2570-2620	≤ 2.0	2570-2620	≤ 2.0
LTE-TDD-B39	1880-1920	≤ 2.5	1880-1920	≤ 2.5
LTE-TDD-B40	2310-2390	≤ 2.0	2310-2390	≤ 2.0
LTE-TDD-B41	2550-2660	≤ 2.0	2550-2660	≤ 2.0
LTE-FDD-B66	1715-1775	≤ 3.5	2115-2175	≤ 3.0

3. Matching circuit



Element	Matching Value
E1	
E2	
E3	

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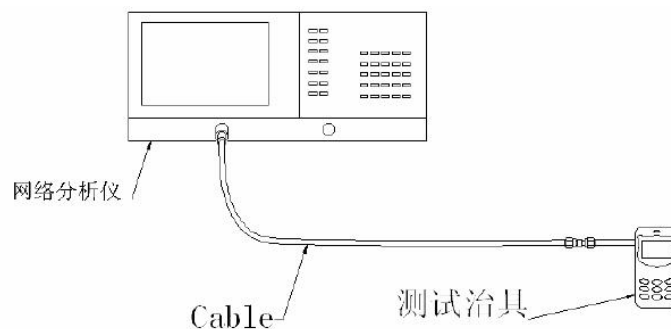
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4. S11Test

4.1 S11Test Method Description Specification Standards

VSWR The testing devices are sequentially connected as follows :
E5071B Network analyzer → 50Ω Coaxial line → 120mm Copper tube → Test fixture。

Treatment of testing 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 a copper pipe with a choke ring, and then connect other devices in sequence.



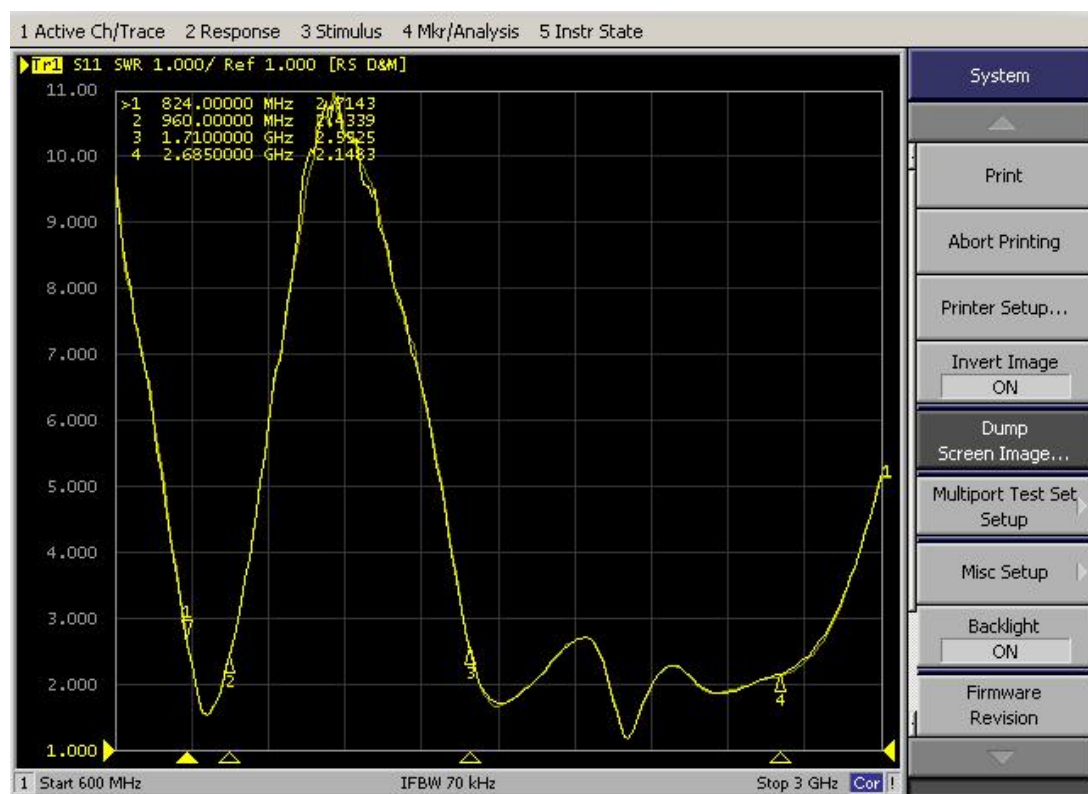
Test diagram

4.2 S11Parameter

The following table shows the standing wave ratio values at the edge frequency points of the ME61 antenna operating frequency band. The waveform diagrams of Return Loss and VSWR obtained from the test are shown in the attachment.

	ME61 Antenna				
Frequency(MHz)	700	900	1710	1990	2680
Free space	4.1	2.2	6.0	5.7	3.6

4.3 S11



5. Power and sensitivity testing

5.1 Test data

Channel	GSM850			GSM900		
	CH128	CH192	CH251	CH1	CH62	CH124
TRP	25.62	26.41	26.76	27.47	27.15	26.67
TIS			-102.24			-101.67
Gain	-0.5dBi			-0.3dBi		
Channel	DCS1800			PCS1900		
	CH512	CH698	CH885	CH512	CH661	CH810
TRP	24.92	25.17	24.67	24.44	24.38	24.67
TIS			-102.42			-104.28
Gain	+0.8dBi			+0.8dBi		
Channel	WCDMA-2100			WCDMA-1900		
	CH10562	CH10700	CH10838	CH9663	CH9800	CH9938
TRP	17.89	18.12	17.74	18.00	18.09	18.17
TIS			-102.06			-104.31
Gain	+0.8dBi			+1.0dBi		

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Channel	WCDMA-850			WCDMA-900		
	CH4357	CH4408	CH4458	CH2937	CH3013	CH3083
TRP	17.11	17.52	17.38	17.31	17.05	16.78
TIS			-102.64			-102.05
Gain	-0.5dBi			-0.3dBi		
Channel	LTE-FDD-B1			LTE-FDD-B2		
	CH18050	CH18300	CH18550	CH18650	CH18900	CH19150
TRP	18.01	18.29	18.27	17.79	17.64	17.78
TIS			-90.04			-91.75
Gain	+1.0dBi			+0.8dBi		
Channel	LTE-FDD-B3			LTE-FDD-B4		
	CH19250	CH19575	CH19900	CH20000	CH20175	CH20350
TRP	17.04	17.32	17.34	18.05	18.11	18.25
TIS			-91.39			-90.09
Gain	+0.8dBi			+1.0dBi		

Channel	LTE-FDD-B5			LTE-FDD-B7		
	CH20450	CH20525	CH20600	CH20800	CH21100	CH21400
TRP	16.80	17.15	17.22	18.52	18.61	18.14
TIS			-91.81			-91.26
Gain	-0.5dBi			+1.1dBi		
Channel	LTE-FDD-B8			LTE-FDD-B12		
	CH21500	CH21625	CH21750	CH23060	CH23095	CH23130
TRP	17.75	17.08	17.00	17.27	16.79	16.81
TIS			-90.61			-90.46
Gain	-0.3dBi			-0.6dBi		
Channel	LTE-FDD-B17			LTE-FDD-B20		
	CH23780	CH23790	CH23800	CH24200	CH24300	CH24400
TRP	16.81	16.73	16.61	17.82	18.03	17.31
TIS			-90.13			-91.45
Gain	-0.6dBi			-0.5dBi		
Channel	LTE-FDD-B28			WCDMA-1700		
	CH27260	CH27435	CH27610	CH1537	CH1638	CH1738
TRP	16.49	16.04	16.14	17.21	17.84	17.92
TIS			-89.34			-102.25
Gain	-0.6dBi			+0.8dBi		

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Channel	LTE-FDD-B25			LTE-FDD-B26		
	CH26090	CH26365	CH26640	CH38350	CH38450	CH38550
TRP	17.25	17.51	17.95	16.72	16.79	16.84
TIS			-92.57			-91.79
Gain	+0.8dBi			-0.5dBi		
Channel	LTE-FDD-B34			LTE-FDD-B66		
	CH36250	CH36275	CH36300	CH132022	CH132322	CH132622
TRP	17.91	17.74	17.73	16.63	17.33	16.91
TIS			-92.50			-90.09
Gain	+0.8dBi			+0.8dBi		
Channel	LTE-FDD-B13			LTE-FDD-B19		
		CH23230		CH24050	CH24075	CH24100
TRP		16.68		17.45	17.13	17.08
TIS		-90.13				-92.23
Gain	-0.6dBi			-0.5dBi		

Channel	LTE-TDD-B38			LTE-TDD-B39		
	CH37850	CH38000	CH38150	CH38350	CH38450	CH38550
TRP	18.12	18.55	18.58	17.05	17.16	17.21
TIS			-92.38			-90.37
Gain	+1.1dBi			+0.8dBi		
Channel	LTE-TDD-B40			LTE-TDD-B41		
	CH38750	CH39150	CH39550	CH40340	CH40620	CH41140
TRP	17.13	17.82	16.87	18.29	18.28	18.17
TIS			-90.63			-91.82
Gain	+0.7dBi			+1.1dBi		

Software logic matching:

RF1=C1028=0Ω, TEST: 2G:B2,3,8/3G:B1,2,4,8 /4G:B1,2,3,4,7,8,25,34,38,39,40,41,66;

RF2=C1029=3.9NH, TEST: 2G:B5 / 3G:B5 / 4G:B5,19,20,26;

RF3=C1023=15NH, TEST: 4G:B12,17;

RF4=C1031=10NH, TEST: 4G: B13,28;

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6.Structural drawings

