SAMPLE SPECIFICATION FOR APPROVAL

样 品 承 认 书

Supplier Name	Shenzhen Keridis Technology Co., LTD
Product Model	Q17
Product Name	Antenna/LTE/FM
Specification	FPC
Project	Q17
Sample delivery time	2024-11-26
Material Code	4.Q17.3701.1,4.Q17.3702.1

公司/Name: 深圳市科瑞迪斯科技有限公司 Shenzhen Keridis Technology Co., LTD
地址/Add： 深圳市宝安区新安街道大浪社区28区宝安集团第一工业城10号厂房304 Room 304, Building 10, Bao'an Group First Industrial City, 28th Zone, Dalang Community, Xin'an Subdistrict, Bao'an District, Shenzhen, Guangdong， China

ANTENNA SPECIFICATION0

Index

ANTENNA SPECIFICATION0

1. General *Description*

This report summarizes the electrical performance results of the proposed Internal antenna to support the Q17, program. The antenna is an assembly LTE

2. *Electrical Specifications*

2-1 *Set-up*

2-1-1 Frequency Band

Frequency Band	Tx(MHz)	Rx(MHz)
GSM900	**880 ~ 915**	**925 ~ 960**
DCS1800	**1710 ~ 1785**	**1805 ~ 1880**
LTE	**700 ~ 2600**	

2-1-2 Impedance

Nominal Impedance(including matching circuit) : 50 ohms

2-1-3 Matching Requirements

The matching circuit on the PCB of the handset is according to Figure 1

Optimum matching circuit is highly dependent on the handset and thus.

Final matching circuit layout and values will be defined when handset is available.

客供

2-1-4 VSWR And GAIN

VSWR		**GAIN**	
Freq. Band	OPEN SPEC	**Band Freq.**	**OPEN SPEC**
880MHz	**≦3.0**	**880MHz**	**≧-1.0dBi**
960MHz	**≦3.0**	**960MHz**	**≧-1.0dBi**
1710MHz	**≦3.5**	**1710MHz**	**≧-1.0dBi**
1880MHz	**≦3.5**	**1880MHz**	**≧-1.0dBi**

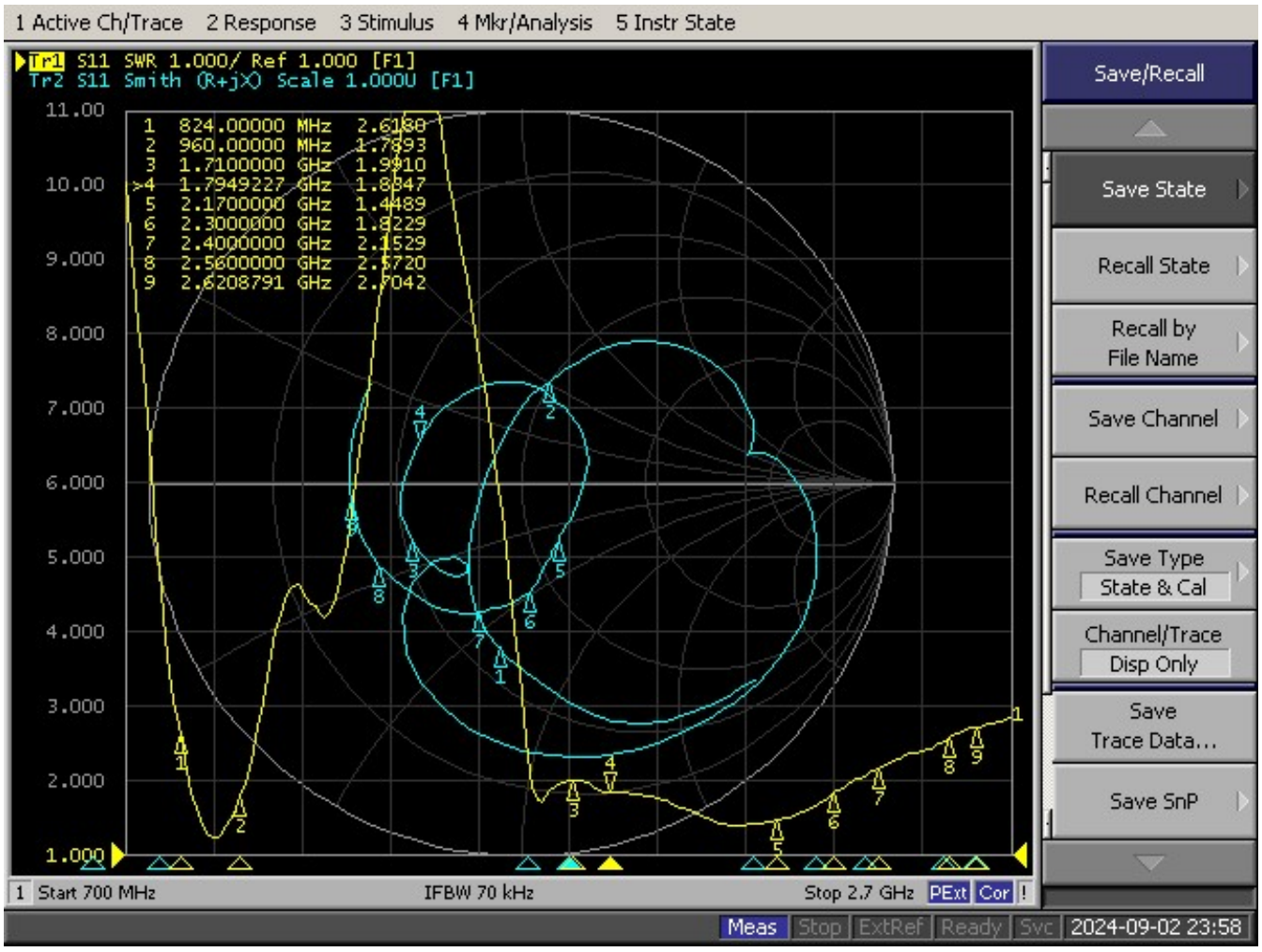
※Measuring a 50Ω test jig is connected to a network analyzer to measure the VSWR

※※All test value is done in customer approval fixture.

2-2 Test Data

2-2-1 LTE VSWR

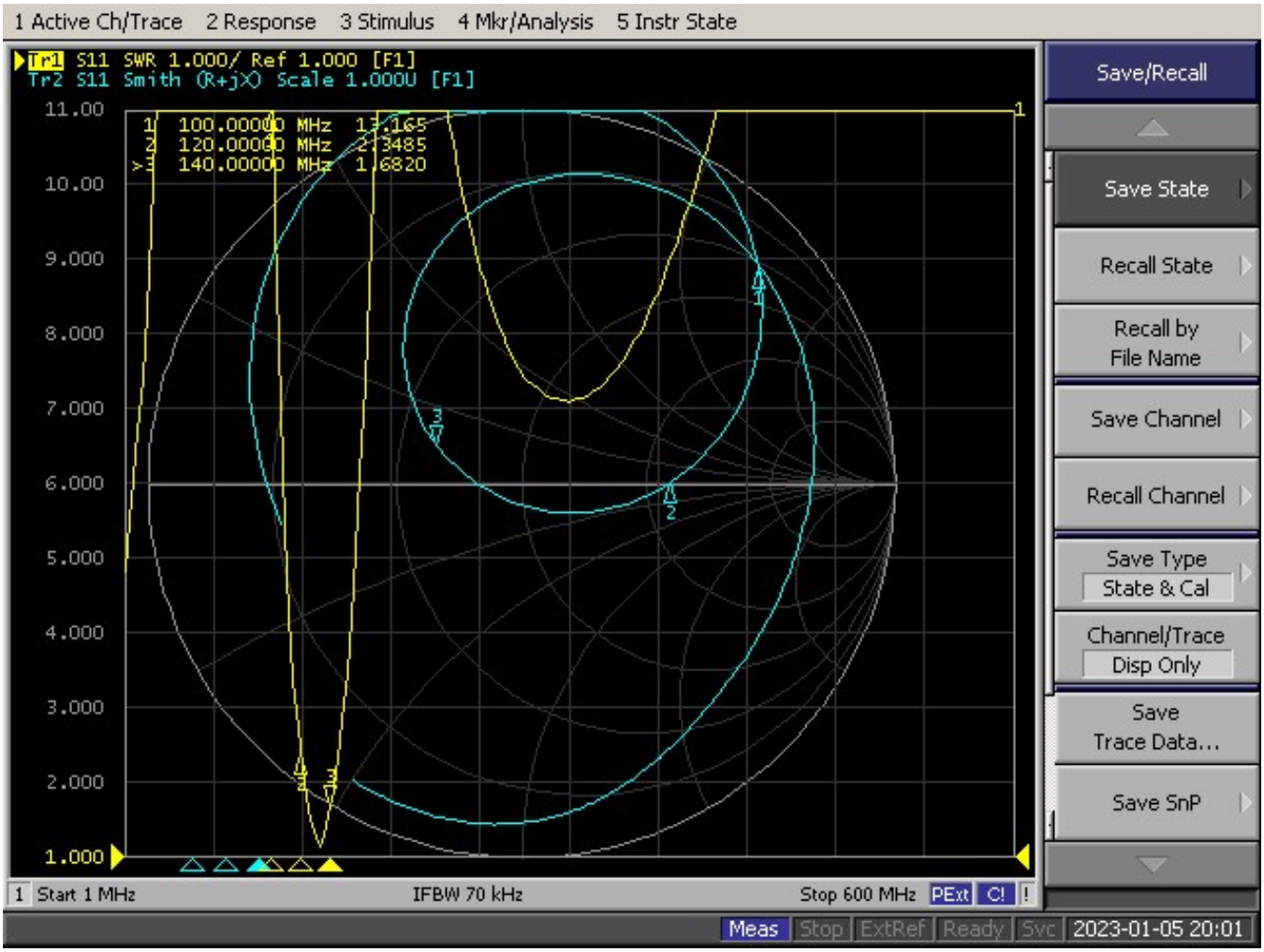
Model No:Q17	**File:**
CREDITS NO:	Note: LTE -VSWR
Sample No:	
Test Condition: Free Space	Matching:
Confirmation:	Engineer:



ANTENNA SPECIFICATION0

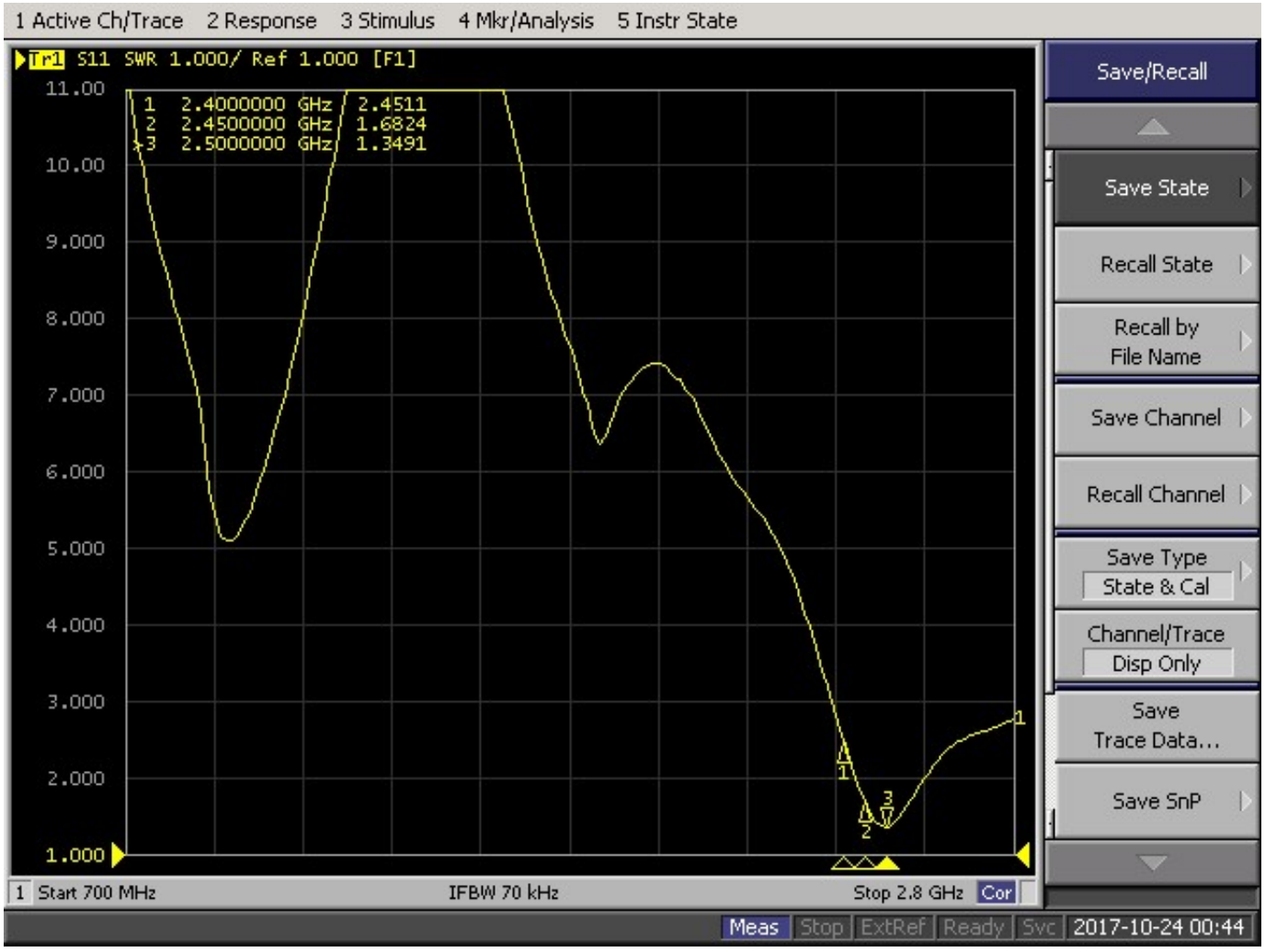
2-2-2 FM VSWR

Model No:Q17	**File:**
CREDITS NO:	Note: FM -VSWR
Sample No:	
Test Condition: Free Space	Matching:
Confirmation:	Engineer:



ANTENNA SPECIFICATION0

Model No:Q17	**File:**
CREDITS NO:	Note: BT-VSWR
Sample No:	
Test Condition: Free Space	Matching:
Confirmation:	Engineer:



ANTENNA SPECIFICATION0

2-3-1 GSM/LTE GAIN/ EFFICIENCY)

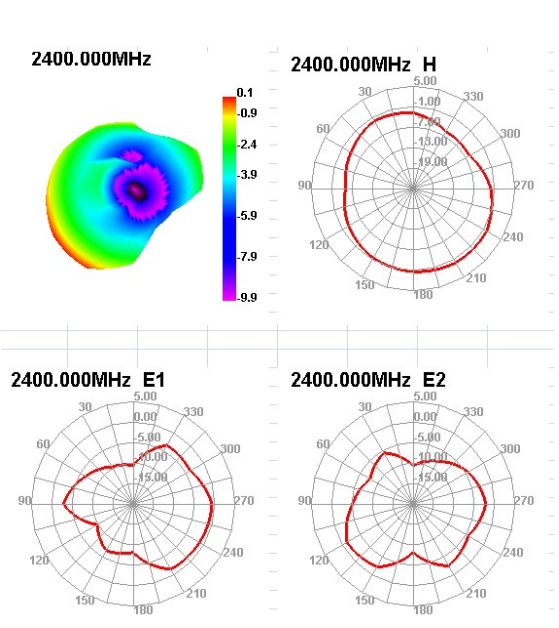
Main ant

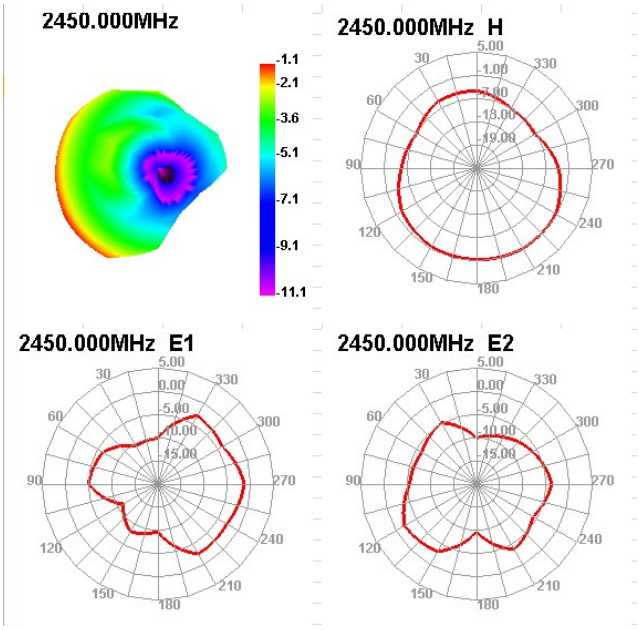
Passive Test For LTE										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHIS (%)	DHIS (%)	Max (dB)	Min (dB)	irectivit (dBi)	Beamwidth (3dB)
720	20.31	-6.92	-4.18	-6.33	10.888	9.417	-4.18	-16.25	2.74	90
740	24.3	-6.14	-3.55	-5.7	12.591	11.713	-3.55	-17.15	2.59	90
760	26.46	-5.77	-3.19	-5.34	14.051	12.409	-3.19	-17.25	2.58	90
780	30.46	-5.16	-2.81	-4.96	15.931	14.532	-2.81	-15	2.35	90
800	24.74	-6.07	-3.63	-5.78	13.251	11.484	-3.63	-15.14	2.44	90
820	34.23	-4.66	-2.01	-4.16	18.005	16.221	-2.01	-12.29	2.65	90
840	25.63	-5.91	-3.31	-5.46	13.6	12.031	-3.31	-13.01	2.6	90
860	31.68	-4.99	-2.01	-4.16	16.412	15.269	-2.01	-11.24	2.98	30
880	28.29	-5.48	-2.21	-4.36	14.123	14.166	-2.21	-11.65	3.27	30
900	26.96	-5.69	-2.06	-4.21	12.693	14.265	-2.06	-11.03	3.63	30
920	31.41	-5.03	-1.1	-3.25	13.739	17.671	-1.1	-11.29	3.93	30
940	23.27	-6.33	-2.68	-4.83	10.083	13.183	-2.68	-13.73	3.65	30
960	28.54	-5.45	-1.79	-3.94	11.516	17.025	-1.79	-15.96	3.66	30
1700	31.25	-5.05	-1.09	-3.24	16.386	14.861	-1.09	-18.42	3.96	60
1750	29.71	-5.27	-1.42	-3.57	15.684	14.03	-1.42	-18.16	3.85	60
1800	30.8	-5.11	-1.37	-3.52	16.222	14.583	-1.37	-18.48	3.74	60
1850	34.14	-4.67	-0.96	-3.11	17.806	16.332	-0.96	-18.38	3.71	60
1900	33.55	-4.74	-1.07	-3.22	17.528	16.023	-1.07	-19.01	3.67	60
1950	31.95	-4.96	-1.34	-3.49	16.662	15.283	-1.34	-19.63	3.62	60
2000	34.46	-4.63	-0.97	-3.12	17.662	16.798	-0.97	-19.29	3.66	60
2050	35.92	-4.45	-0.72	-2.87	18.161	17.757	-0.72	-19.22	3.72	30
2100	31.95	-4.96	-1.25	-3.4	16.142	15.803	-1.25	-19.42	3.71	30
2150	32.55	-4.87	-1.19	-3.34	16.266	16.284	-1.19	-19.36	3.68	30
2200	37.63	-4.24	-0.54	-2.69	18.515	19.12	-0.54	-18.8	3.7	30
2250	36.4	-4.39	-0.73	-2.88	17.924	18.476	-0.73	-18.22	3.66	30
2300	34.69	-4.6	-1.03	-3.18	17.102	17.588	-1.03	-17.51	3.57	30
2350	39.31	-4.05	-0.47	-2.62	19.073	20.24	-0.47	-16.77	3.58	30
2400	41.68	-3.8	-0.15	-2.3	19.869	21.809	-0.15	-16.36	3.65	30
2450	38.08	-4.19	-0.56	-2.71	18.072	20.006	-0.56	-15.5	3.63	30
2500	38.2	-4.18	-0.54	-2.69	17.862	20.336	-0.54	-14.68	3.64	30
2550	42.13	-3.75	-0.04	-2.19	19.263	22.864	-0.04	-14.26	3.71	90
2600	40.5	-3.93	-0.23	-2.38	18.456	22.044	-0.23	-14.24	3.69	90

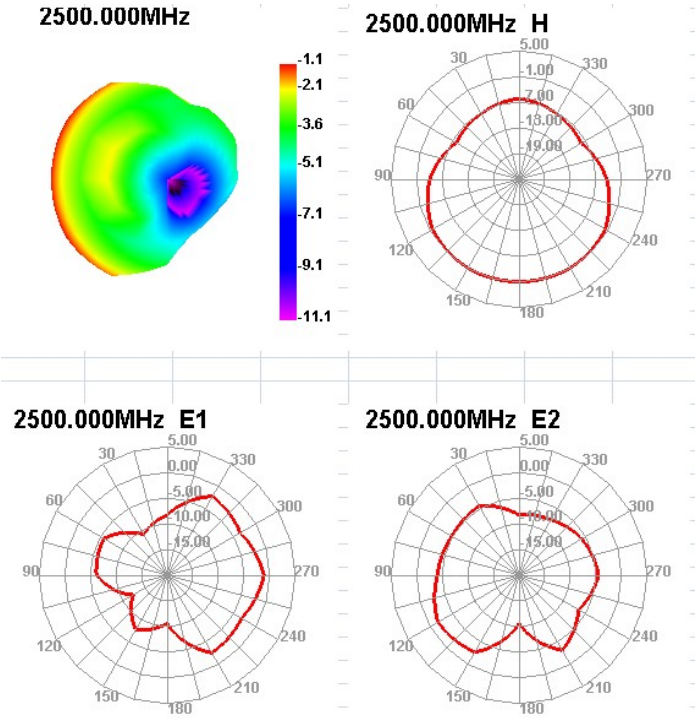
BT

Passive Test For BT										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHIS (%)	DHIS (%)	Max (dB)	Min (dB)	irectivit (dBi)	Beamwidth (3dB)
2400	29.26	-5.34	-0.97	-3.12	15.516	13.749	-0.97	-18.59	4.37	30
2410	29.01	-5.37	-0.96	-3.11	15.309	13.699	-0.96	-18.78	4.42	30
2420	30.82	-5.11	-0.73	-2.88	16.292	14.533	-0.73	-18.59	4.39	30
2430	29.22	-5.34	-0.97	-3.12	15.392	13.827	-0.97	-18.61	4.38	30
2440	28.26	-5.49	-1.14	-3.29	14.853	13.403	-1.14	-18.66	4.35	30
2450	31.22	-5.06	-0.78	-2.93	16.533	14.685	-0.78	-18.29	4.28	30
2460	30.26	-5.19	-1.01	-3.16	16.101	14.161	-1.01	-18.35	4.18	30
2470	29.09	-5.36	-1.18	-3.33	15.338	13.75	-1.18	-18.19	4.18	30
2480	30.98	-5.09	-0.92	-3.07	16.26	14.724	-0.92	-17.7	4.17	30
2490	31.33	-5.04	-0.94	-3.09	16.452	14.883	-0.94	-17.7	4.1	30
2500	31.37	-5.04	-0.97	-3.12	16.393	14.976	-0.97	-18.36	4.06	30

ANTENNA SPECIFICATION0







2.4 TRP&TIS

Dynamic Test Report

App No: **Test Date:2024-11-26** **Operating Model: LTE**

Matching Circule:

Text condition : CTIA Chamber ;

HP8960/5515C/8820C

Model : Q17-2G/3G/4G				天线实现方式：PIFA						单位：dBm		
信道	GSM850			GSM900			DCS1800			PCS1900		
	128	192	251	1	62	124	512	698	885	512	661	810
TRP	26.68	26.91	27.08	28.4	29.38	28.93	25.57	25.82	25.41	26.55	26.92	26.62
TIS		-102.58			-104.44			-104.4			-104.72	
信道	W2100			W900								
	9612	9750	9888	2712	2788	2863						
TRP	21.04	20.98	20.93	19.74	19.49	19.09						
TIS		-107			-104.93							

信道	B1(10M)			B3(10M)			B5(10M)			B7(10M)		
	18050	18300	18550	19250	19575	19900	20450	20525	20600	20800	21100	21400
TRP	19.99	20.35	20.48	18.85	18.89	19.18	20.21	20.87	20.98	19.42	19.38	19.08
TIS		-92.48			-94.34			-91.71			-92.3	
信道	B8(10M)			B13(10M)			B19(10M)			B20(10M)		
	21500	21750	21625		23230		24050	24075	24100	24200	24300	24400
TRP	19.94	20.77	19.42		18.09		20.71	18.01	21.07	20.78	19.37	20.59
TIS		-90.56			-91.63			-90.75			-91.88	
信道	B28(10M)											
	27260	27435	27610									
TRP	17.04	16.65	17.41									
TIS		-90.32										
信道	B38(20M)			B39(20M)			B40(20M)			B41(20M)		
	37850	38000	38150	38350	38450	38550	38750	39150	39550	40350	40620	41100
TRP	18.51	18.79	18.63	/	/	/	18.23	18.43	18.18	18.7	18.11	18.24
TIS		-91.48			/			-90.62			-90.94	

开关逻辑与匹配：

RF1 路：0Ω 控制 2G B8; 3G B8; 4G B8
RF2 路：3.9nH 控制 2G B1/3/5; 3G B1/2/5; 4G B1/3/5/7/13/18/19/20/40
RF3 路：68nH 控制 4G B28
RF4 路：NC

3. Mechanical Specification

3-1-1 *Mechanical Configuration*

3-2 *Measurement Data*

3-3 *Salt-Spray test*

35℃, 85%RH, 48Hours(According to MIL-STD-810E)The salt-spray is generated from a 5% salt solution., The VSWR, Gain, Radiation Pattern must be met specifications after the salt-spray test.

4. Environment Characteristic

NO.	ITEM	TEST CONDITION	SPECIFICATION
4-1	High Temperature/Humidity Storage Test(non operating)	1.Temperature: +70 ±2℃ 2.Humidity: 90~95%RH 3.Time: 48hrs	No material deformation is allowed.
4-2	Low Temperature/Humidity Storage Test(non operating)	1.Temperature: -30±2℃ 2.Humidity: 0%RH 3.Time:48hrs	The VSWR, Gain, Radiation Pattern must be met specifications after these test.

ANTENNA SPECIFICATION0