TEST REPORT

Reference No.	:	WTS17S0784720-1EX1
FCC ID	:	2AB6F900
Applicant	:	ALTECZA S.A.S
Address	:	Calle 13 # 15- 61 Piso 3 oficina 10 bogota Colombia
Manufacturer	:	Shenzhen Leed Electronic Co.,LTD
Address	:	RM 509 Building A3 Navigation City Innovation Pioneer Park, Hangcheng RD Xixiang Street, Baoan District, Shenzhen China
Product Name	:	GSM Mobile Phone
Model No.	:	900
Brand	:	MC MOBILE
Standards	:	FCC CFR47 Part 15.247:2016
Date of Receipt sample	:	Jul. 13, 2017
Date of Test	:	Oct. 22, 2017
Date of Issue	:	Oct. 30, 2017
Test Result	:	**Pass**
Remark		This project only increase the measurement above 18G spurious Emissions for Antenna Terminal and Field Strength on the basis of the original report WTS17S0784720-1E.

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:
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Ford Wang / Project Engineer

Approved by:

Philo Zhong

Philo Zhong / Manager

2 Laboratories Introduction

Waltek Services Test Group Ltd is a professional third-party testing and certification organization with multi-year product testing and certification experience, established strictly in accordance with ISO/IEC 17025 requirements, and accredited by CNAS (China National Accreditation Service for Conformity Assessment) AQSIQ, CMA and IECEE for CBTL. Meanwhile, Waltek has got recognition as registration and accreditation laboratory from EMSD (Electrical and Mechanical Services Department), and American Energy star, FCC(The Federal Communications Commission), CPSC(Consumer Product Safety Commission), CEC(California energy efficiency), IC(Industry Canada) and ELI(Efficient Lighting Initiative). It's the strategic partner and data recognition laboratory of international authoritative organizations, such as UL, Intertek(ETL-SEMKO), CSA, TÜV Rheinland, TÜV SÜD, etc.

Waltek Services Test Group Ltd. is one of the largest and the most comprehensive third party testing organizations in China, our headquarter located in Shenzhen and have branches in Foshan, Dongguan, Zhongshan, Suzhou,Ningbo and Hong Kong, Our test capability covered four large fields: safety test. ElectroMagnetic Compatibility(EMC), reliablity and energy performance, Chemical test. As a professional, comprehensive, justice international test organization, we still keep the scientific and rigorous work attitude to help each client satisfy the international standards and assist their product enter into globe market smoothly.

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4 Revision History

Test report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTS17S0784720-1EX1	Jul. 13, 2017	Oct. 22, 2017	Oct. 30, 2017	original	-	Valid

Remark: This project only increase the measurement above 18G spurious Emissions for Antenna Terminal and Field Strength on the basis of the original report WTS17S0784720-1E.

5 General Information

5.1 General Description of E.U.T.

Product Name:	GSM Mobile Phone
Model No.:	900
Model Description:	N/A
GSM Band(s):	GSM 850/900/1800/1900MHz
GPRS Class:	12
WCDMA Band(s):	N/A
LTE Band(s):	N/A
Wi-Fi Specification:	N/A
Bluetooth Version:	Bluetooth v2.1+EDR
GPS:	N/A
Hardware Version:	X506_PCB_V1.2
Software Version:	V1
Highest frequency (Exclude Radio):	312MHz
Storage Location:	Internal Storage
Note:	N/A

5.2 Details of E.U.T.

Operation Frequency:	GSM/GPRS 850: 824~849MHz PCS/GPRS 1900: 1850~1910MHz Bluetooth: 2402~2480MHz
Max. RF output power:	GSM 850: 32.34dBm PCS1900: 29.53dBm Bluetooth: -0.17dBm
Type of Modulation:	GSM,GPRS: GMSK Bluetooth: GFSK, Pi/4 DQPSK, 8DPSK
Antenna installation:	GSM: internal permanent antenna Bluetooth: internal permanent antenna
Antenna Gain:	GSM 850: -1.2dBi PCS1900: -1.4dBi Bluetooth: 0.8dBi
Technical Data:	Battery DC 3.7V, 1050mAh
Adapter:	DC 5V±0.25, 1.0A, charging from adapter (Adapter Input: 100-240V~50Hz/0.15A) Manufacture: Shenzhen Huateng Electronics Co.,Ltd.

5.3 Subcontracted

Whether parts of tests for the product have been subcontracted to other labs:

☒ Yes ☐ No

If Yes, list the related test items and lab information:

Test Lab: Shenzhen BALUN Technology Co., Ltd.

Lab address: No. 17, Block B, FL1, Baisha Science and Technology Park Shahe Xi Road, Nanshan District, Shenzhen City, Guangdong Province, China, 518055

Test items: Conducted Spurious Emissions and Radiated Spurious Emissions for 18GHz-25GHz.

FCC Designation No.: CN1196

Test Firm Registration No.: 935607.

5.4 Channel List

Normal

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
0	2402	1	2403	2	2404	3	2405
4	2406	5	2407	6	2408	7	2409
8	2410	9	2411	10	2412	11	2413
12	2414	13	2415	14	2416	15	2417
16	2418	17	2419	18	2420	19	2421
20	2422	21	2423	22	2424	23	2425
24	2426	25	2427	26	2428	27	2429
28	2430	29	2431	30	2432	31	2433
32	2434	33	2435	34	2436	35	2437
36	2438	37	2439	38	2440	39	2441
40	2442	41	2443	42	2444	43	2445
44	2446	45	2447	46	2448	47	2449
48	2450	49	2451	50	2452	51	2453
52	2454	53	2455	54	2456	55	2457
56	2458	57	2459	58	2460	59	2461
60	2462	61	2463	62	2464	63	2465
64	2466	65	2467	66	2468	67	2469
68	2470	69	2471	70	2472	71	2473
72	2474	73	2475	74	2476	75	2477
76	2478	77	2479	78	2480	-	-

5.5 Test Mode

All test mode(s) and condition(s) mentioned were considered and evaluated respectively by performing full tests; the worst data were recorded and reported.

Test mode	Low channel	Middle channel	High channel
Transmitting	2402MHz	2441MHz	2480MHz

5.6 Test Facility

Waltek Services(Shenzhen) Co., Ltd.

Accreditations for Conformity Assessment			
Country/Region	**Acccreditation Body**	**Scope**	**Note**
USA	**A2LA (Certificate No.: 4243.01)**	FCC ID\DOC\VOC	1
Canada		IC\VOC	2
Japan		MIC-T\MIC-R	
Europe		EMCD\LVD\RED	
Taiwan	**CNAS (Registration No.:L3110)**	BSMI\NCC	
Hong Kong		OFCA	
Australia		RCM	
South Korea		KC	
Thailand		NTC	
Singapore		IDA	
Note: FCC Desugnation No.:CN1201. Test Firm Registration No.:523476. IC Canada Registration No.:7760A.			

6 Test Summary

Test Items	Test Requirement	Result
Radiated Spurious Emissions	15.205(a) 15.209 15.247(d)	PASS
Conducted Spurious emissions	15.247(d)	PASS

Note : Only increase the measurement above 18G spurious Emissions for Antenna Terminal and Field Strength on the basis of the original report WTS17S0784720-1E; test from Shenzhen BALUN Technology Co., Ltd.

7 Equipment Used during Test

7.1 Equipments List

3m Semi-anechoic Chamber for Radiation Emissions Test site (balun)						
1	Spectrum Analyzer	R&S	FSV-40	103118	2017-06-12	2018-06-11
2	Test Antenna-Horn(18-40GHz)	A-INFO	LB-180400KF	J211060273	2017-01-06	2018-01-05
3	Amplifier	COM-MV	ZLNA-18-40G-021	1608001	2017-02-17	2018-02-16
4	Cable	Top	18-40GHz	-	2017-02-17	2018-02-16

7.2 Measurement Uncertainty

Parameter	Uncertainty
Conducted Spurious emissions	± 2.2 dB
Radiated Spurious Emissions	± 7.5 dB
Confidence interval：95%. Confidence factor:k=2	

8 Radiated Spurious Emissions

Test Requirement: FCC CFR47 Part 15 Section 15.209 & 15.247

Test Method: ANSI C63.10: 2013

Test Result: PASS

Measurement Distance: 3m

Limit:

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
Above 960	500	3	500	$20\log^{(500)}$

8.1 EUT Operation

Operating Environment **:**

Temperature: 24.5 °C

Humidity: 51.3 % RH

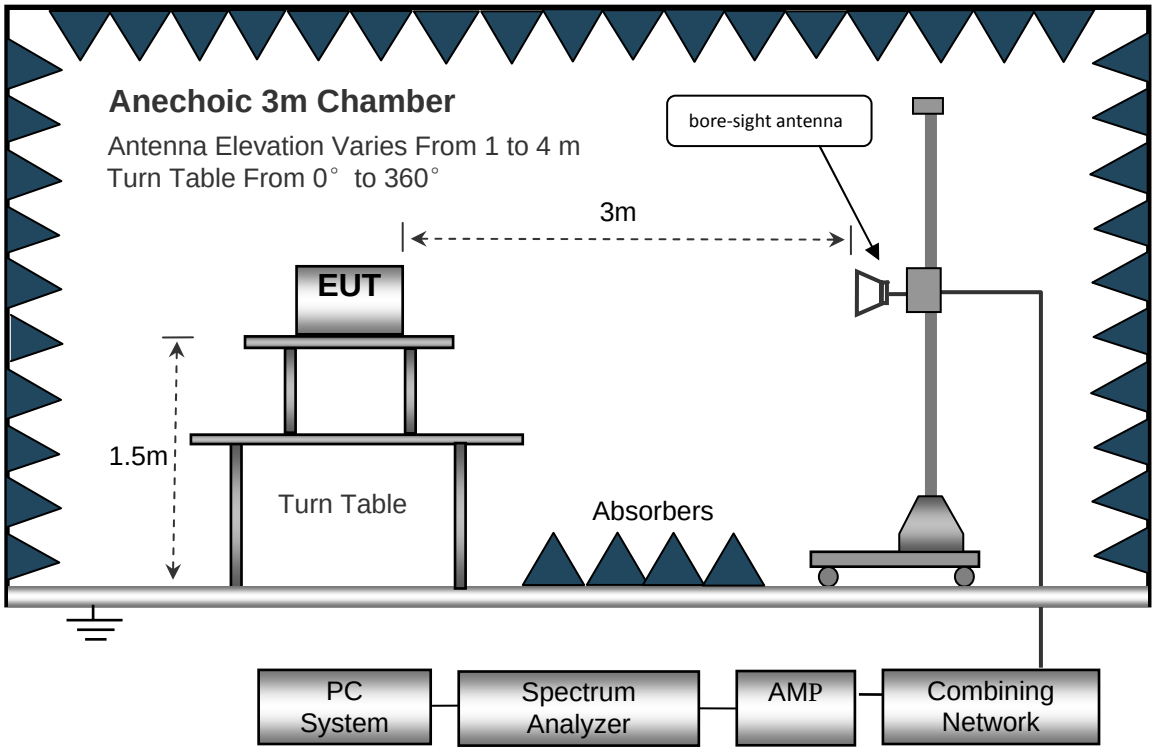
Atmospheric Pressure: 101.5kPa

EUT Operation **:**

The test was performed in TX Transmitting mode, the test data were shown in the report.

8.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.10: 2013.
The test setup for emission measurement above 18 GHz.



8.3 Spectrum Analyzer Setup

Above 1GHz

Sweep Speed ..... Auto
Detector ..... PK
Resolution Bandwidth..... 1MHz
Video Bandwidth..... 3MHz
Detector ..... Ave.
Resolution Bandwidth..... 1MHz
Video Bandwidth..... 10Hz

8.4 Test Procedure

1. The EUT is placed on a turntable, which is 1.5m above ground plane for above 1GHz.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions. The spectrum was investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the Z position. So the data shown was the Z position only.

8.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the maximum limit for Class B. The equation for margin calculation is as follows:

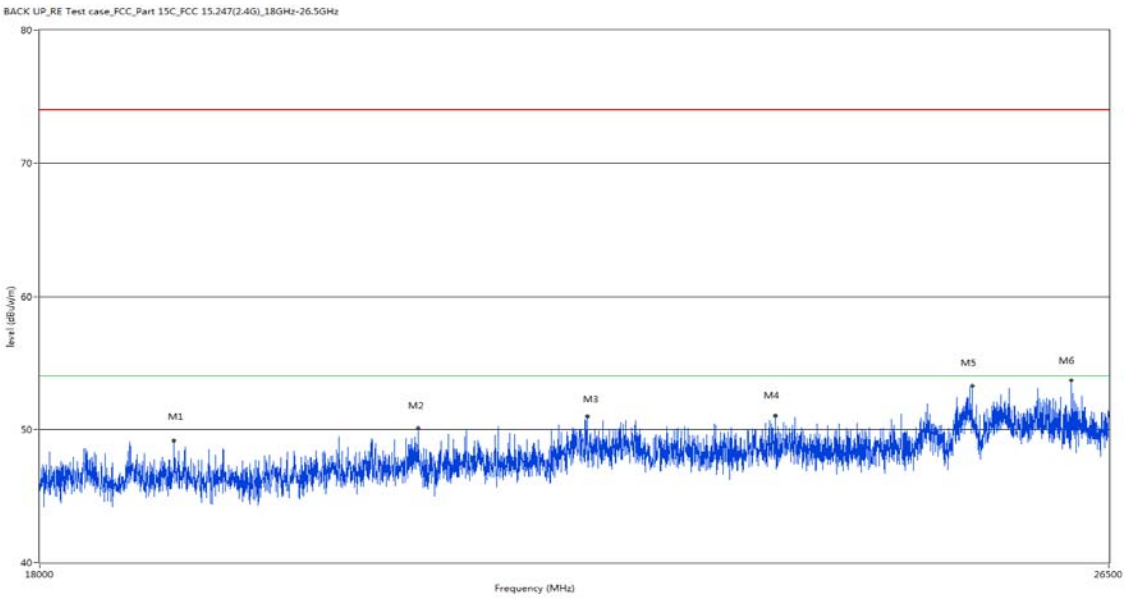
Margin = Corr. Ampl. – Limit

8.6 Summary of Test Results

Remark:All mode data were tested and only the worst case (GFSK modulation high channel mode) test graphs were showed in test report.

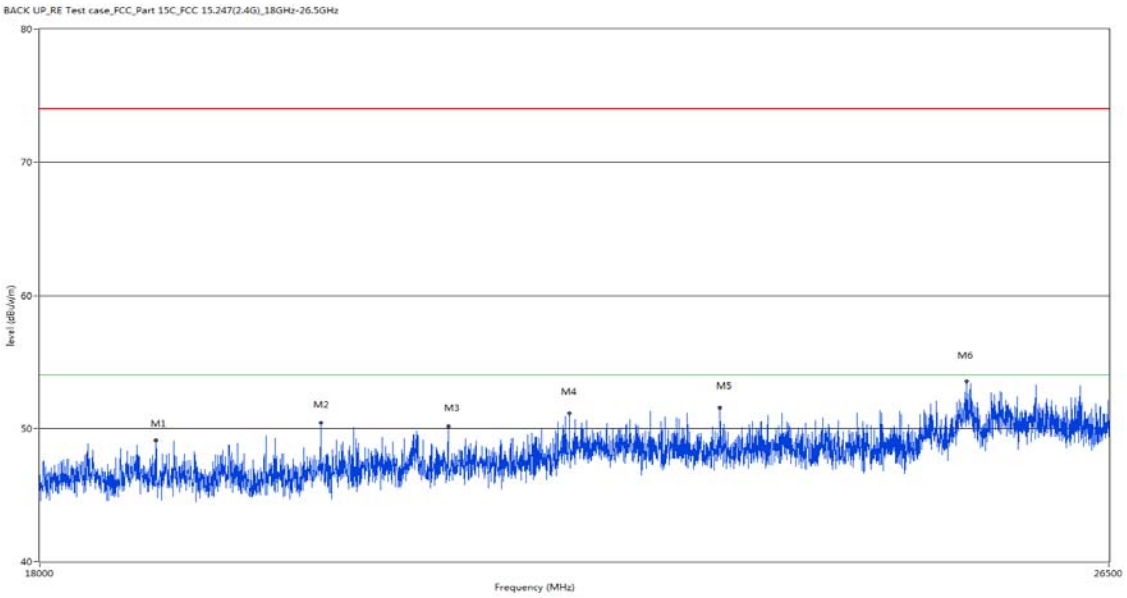
Horizontal:

Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	ANT	Verdict
18894.625	49.18	16.08	74.0	24.82	Peak	Horizontal	Pass
20639.250	50.11	16.58	74.0	23.89	Peak	Horizontal	Pass
21941.875	50.96	18.01	74.0	23.04	Peak	Horizontal	Pass
23486.751	51.02	18.53	74.0	22.98	Peak	Horizontal	Pass
25220.749	53.24	19.30	74.0	20.76	Peak	Horizontal	Pass
26143.001	53.67	19.89	74.0	20.33	Peak	Horizontal	Pass



Vertical:

Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	ANT	Verdict
18773.500	49.10	16.04	74.0	24.90	Peak	Vertical	Pass
19925.250	50.39	16.23	74.0	23.61	Peak	Vertical	Pass
20866.626	50.14	16.70	74.0	23.86	Peak	Vertical	Pass
21801.626	51.12	17.83	74.0	22.88	Peak	Vertical	Pass
23021.375	51.56	18.52	74.0	22.44	Peak	Vertical	Pass
25174.000	53.50	19.27	74.0	20.50	Peak	Vertical	Pass



9 Conducted Spurious Emissions

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: ANSI C63.10: 2013

Test Result: PASS

Limit:

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

9.1 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer:

Above 18GHz:

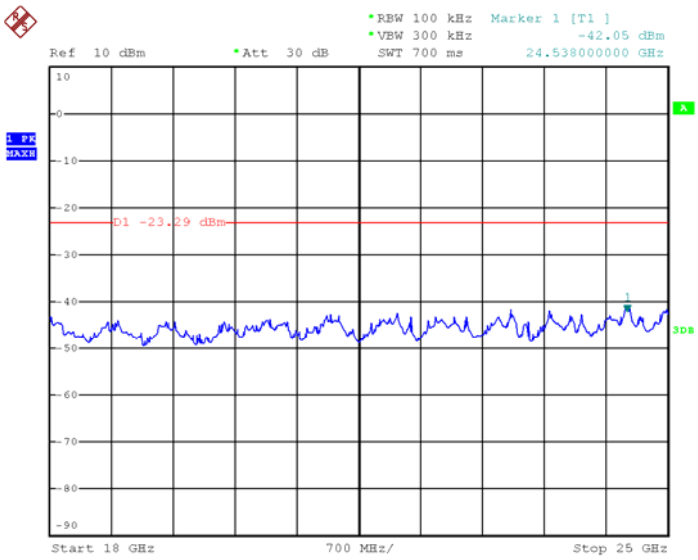
RBW = 100kHz, VBW = 300kHz, Sweep = auto

Detector function = peak, Trace = max hold

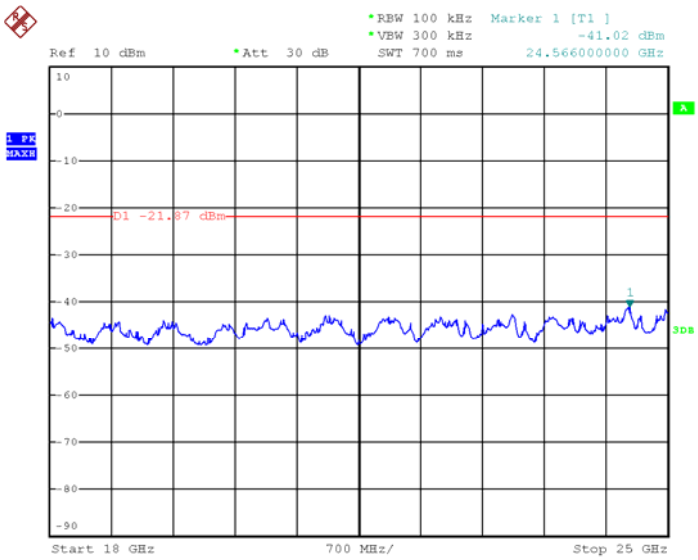
9.2 Test Result

18GHz – 25GHz

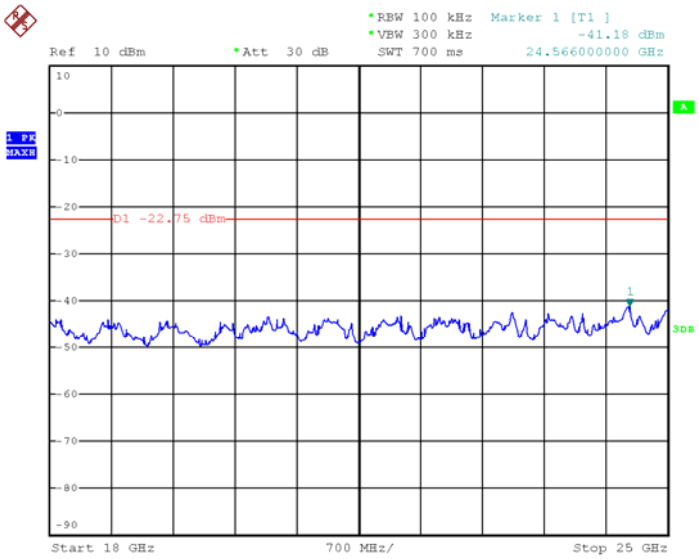
GFSK Low Channel



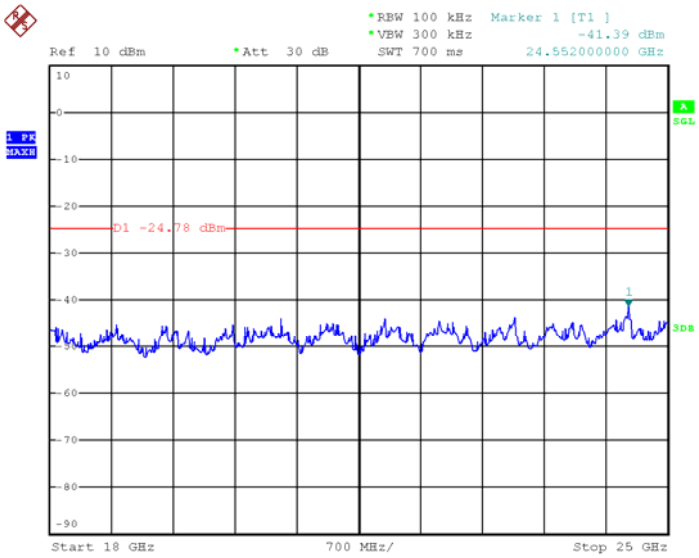
GFSK Middle Channel



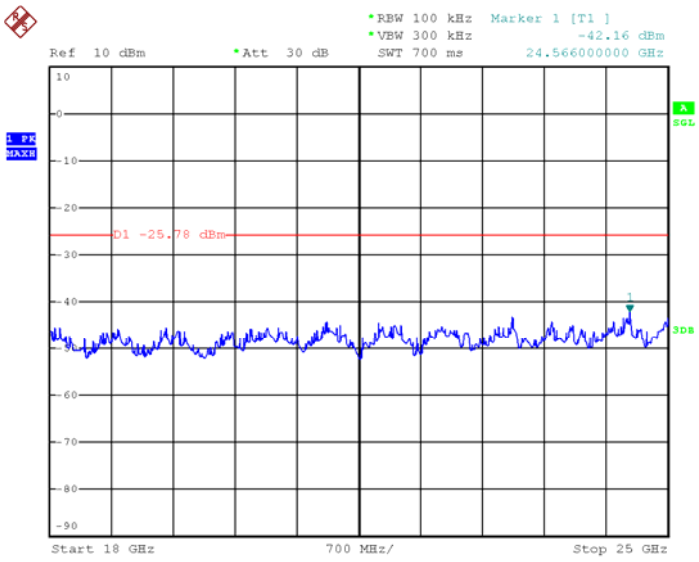
GFSK High Channel



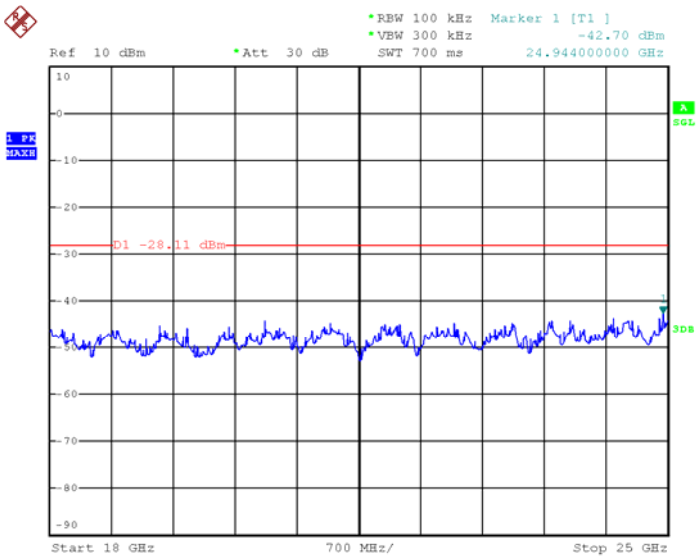
Pi/4 DQPSK Low Channel



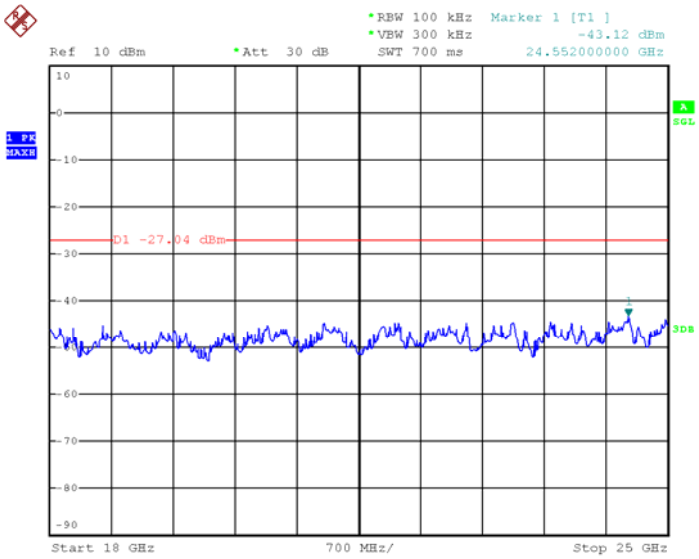
Pi/4 DQPSK Middle Channel



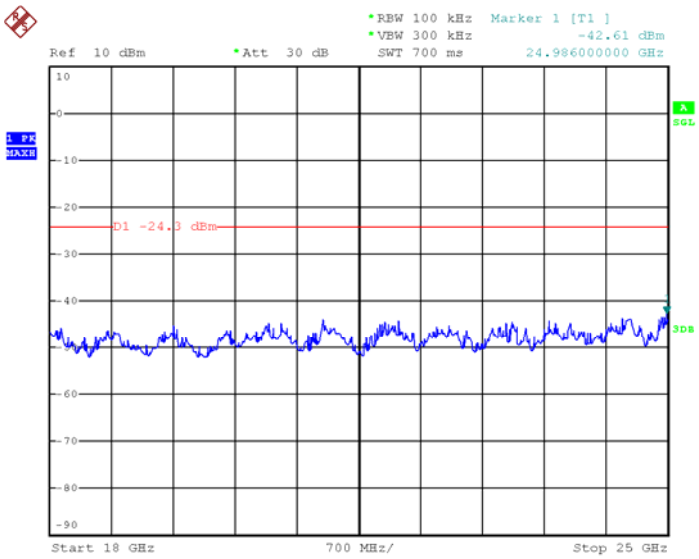
Pi/4 DQPSK High Channel



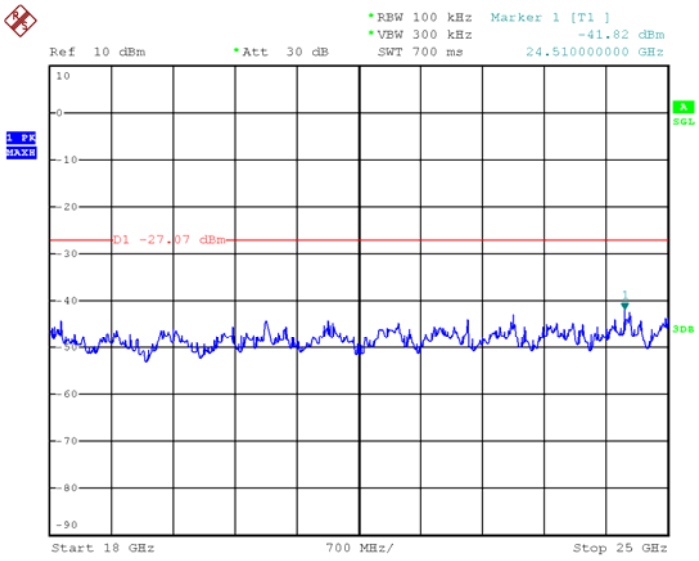
8DPSK Low Channel



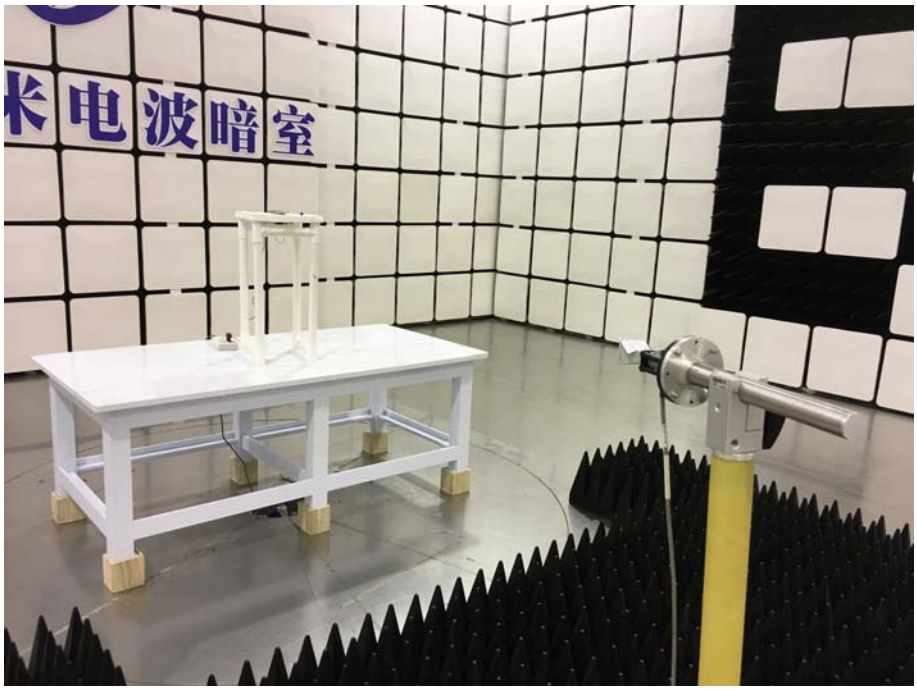
8DPSK Middle Channel

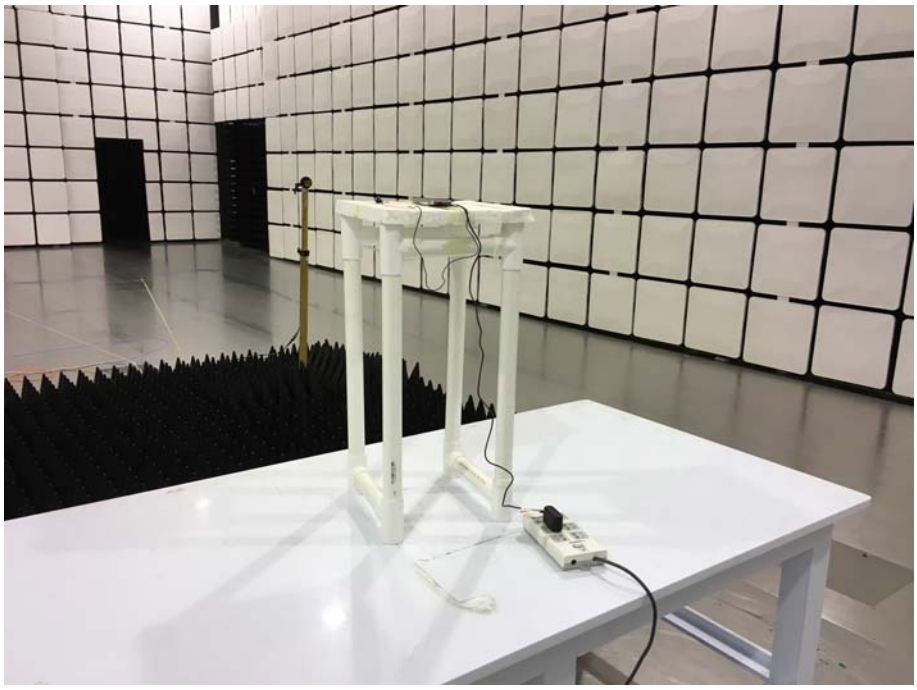


8DPSK High Channel



10 Photographs of test setup.





======End of Report======