



Radio Test Report

Report No.:STS2512104W05

Issued for

SWAGTEK

10205 NW 19th Street,STE 101,Miami, FL33172.USA

Product Name: 4G Smart Phone

Brand Name: LOGIC,UNONU, iSWAG

Model Name: L68M PLUS

Series Model(s): UL68M, Mega2

FCC ID: O55683725

Test Standards: 47 CFR Part 2, 22H, 24E, 27

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Shenzhen STS Test Services Co., Ltd.

**TEST REPORT****Applicant's Name**: SWAGTEK

Address: 10205 NW 19th Street, STE 101, Miami, FL33172.USA

Manufacturer's Name: SWAGTEK

Address: 10205 NW 19th Street, STE 101, Miami, FL33172.USA

Product Description

Product Name: 4G Smart Phone

Brand Name: LOGIC, UNONU, iSWAG

Model Name: L68M PLUS

Series Model(s): UL68M, Mega2

Test Standards: 47 CFR Part 2, 22H, 24E, 27

Test Procedure: KDB 971168 D01 v03r01, ANSI C63.26(2015)

This device described above has been tested by STS, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test

Date of receipt of test item: 28 May, 2025

Date (s) of performance of tests.: 29 May, to 06 Aug., 2025

Date of Issue: 07 Aug., 2025

Test Result: Pass

Testing Engineer :

(Lenon Hou)

Technical Manager :

(Skylar Li)

Authorized Signatory :

(Bovey Yang)





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**Revision History**

Rev.	Issue Date	Report No.	Effect Page	Contents
00	07 Aug., 2025	STS2512104W05	ALL	Initial Issue



1 SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

The radiated emission testing was performed according to the procedures of KDB 971168 D01 v03r01 and ANSI C63.26(2015)

Test Description	FCC Rules	Band	Test Limit	Test Result
Conducted Output Power	2.1046	/	Reporting Only	PASS
Transmitter Radiated Power	22.913	GSM850, WCDMA B5	ERP < 7 Watt	PASS
	24.232(c)	GSM1900, WCDMA B2	EIRP < 2Watt	
	27.50(c)	WCDMA B4, B12, B17	ERP < 3 Watt	
	27.50(d)	B4, B66	EIRP < 1Watt	
	27.50(h)	B7, B38	EIRP < 2Watt	
Peak-to-Average Ratio	22.913(d)	GSM850, WCDMA B5, B26	< 13 dB	PASS
	24.232(d)	GSM1900, WCDMA B2		
	27.50	WCDMA B4, B4, B7, B12, B17, B38, B66		
Occupied Bandwidth	2.1049	/	Reporting Only	PASS
Frequency Stability	2.1055	/	< 2.5 ppm	PASS
	22.355	GSM850, WCDMA B5		
	24.235	GSM1900, WCDMA B2		
	27.54	WCDMA B4, B4, B7, B12, B17,		



		B38,B66		
Spurious Emission at Antenna Terminals	2.1051	/	< 43+10log10(P[Watts])	PASS
	22.917	GSM850, WCDMA B5,		
	24.238(a)	GSM1900, WCDMA B2,		
	27.53(g)	B12, B17		
	27.53(h)	WCDMA B4, B4, B66		
	27.53(m)	B7, B38	< 55+10log10(P[Watts])	
Band Edge	2.1051	/	Please refer to standard	PASS
	22.917	GSM850, WCDMA B5,		
	24.238(a)	GSM1900, WCDMA B2,		
	27.53(g)	B12, B17		
	27.53(h)	WCDMA B4, B4, B66		
	27.53(m)	B7, B38		
Field Strength of Spurious Radiation	2.1053	/	< 43+10log10(P[Watts])	PASS
	22.917	GSM850, WCDMA B5,		
	24.238(a)	GSM1900, WCDMA B2, B2, B25		
	27.53(g)	B12, B17		
	27.53(h)	WCDMA B4, B4, B66		



	27.53(m)	B7, B38	$< 55+10\log_{10}(P[\text{Watts}])$	
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1.1 INTRODUCTION

TEST FACTORY

SHENZHEN STS TEST SERVICES CO., LTD

Add. : 101, Building B, Zhuoke Science Park, No.190 Chongqing Road, ZhanChengShequ, Fuhai Sub-District, Bao'an District, Shenzhen, Guang Dong, China

FCC test Firm Registration Number: 625569

IC test Firm Registration Number: 12108A

A2LA Certificate No.: 4338.01

MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4-2014. All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95% level of confidence. The measurement data shown herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

No.	Item	Uncertainty
1	RF output power, conducted	$\pm 0.751\text{dB}$
2	Unwanted Emissions, conducted	$\pm 2.888\text{dB}$
3	All emissions, radiated 9K-30MHz	$\pm 2.48\text{dB}$
4	All emissions, radiated 30M-1GHz	$\pm 2.52\text{dB}$
5	All emissions, radiated 1G-18GHz	$\pm 3.48\text{dB}$
6	All emissions, radiated >18GHz	$\pm 4.18\text{dB}$
7	Conducted Emission (9KHz-150KHz)	$\pm 2.48\text{dB}$
8	Conducted Emission (150KHz-30MHz)	$\pm 2.52\text{dB}$
9	Occupied Channel Bandwidth	$\pm 3.6\%$
10	Power Spectral Density, conducted	$\pm 1.214\text{dB}$
11	Duty Cycle	$\pm 3.2\%$



2 PRODUCT INFORMATION

Product Name	4G Smart Phone
Brand Name	LOGIC,UNONU, iSWAG
Model Name	L68M PLUS
Series Model(s)	UL68M, Mega2
Model Difference	L68M PLUS, UL68M, Mega2 were identical inside, the electrical circuit design, layout, components used and internal wiring, with only difference being model name and trade mark.
Tx Frequency:	GSM850: 824.2 MHz - 848.8 MHz PCS1900: 1850.2 MHz - 1909.8 MHz WCDMA band II: 1852.4 MHz - 1907.6 MHz WCDMA band IV: 1712.4 MHz - 1752.6 MHz WCDMA band V: 826.4 MHz - 846.6 MHz LTE band 2:Tx: 1850 MHz - 1910 MHz LTE band 4:Tx: 1710 MHz - 1755 MHz LTE band 5:Tx: 824 MHz - 849 MHz LTE band 7:Tx: 2500 MHz - 2570 MHz LTE band 12:Tx: 699 MHz - 716 MHz LTE band 17: Tx: 704 MHz - 716 MHz LTE band 38: Tx: 2570 MHz - 2620 MHz LTE band 66:Tx: 1710 MHz - 1780 MHz
Rx Frequency:	GSM850: 869.2MHz – 893.8 MHz PCS1900: 1850.2 MHz - 1909.8 MHz WCDMA band II: 1932.4 MHz – 1987.6MHz WCDMA band IV: 2112.4 MHz – 2152.6 MHz WCDMA band V: 871.4 MHz – 891.6 MHz LTE band 2:Rx: 1930 MHz - 1990 MHz LTE band 4:Rx: 2110 MHz - 2155 MHz LTE band 5:Rx: 869 MHz - 894 MHz LTE band 7:Rx: 2620 MHz - 2690 MHz LTE band 12:Rx: 729 MHz - 746 MHz LTE band 17:Rx: 734 MHz - 746 MHz LTE band 38: Tx: 2570 MHz - 2620 MHz LTE band 66:Rx: 2110 MHz - 2200 MHz
Max RF Output Power:	GSM850: 33.55dBm PCS1900: 29.06dBm WCDMA band II: 22.93dBm WCDMA band IV: 23.15dBm WCDMA band V: 23.84dBm



	LTE band 2: 23.86dBm LTE band 4: 24.31dBm LTE band 5: 24.46dBm LTE band 7: 22.39dBm LTE band 12: 24.61dBm LTE band 17: 24.63dBm LTE band 38: 22.43dBm LTE band 66: 24.28dBm
Modulation Characteristics:	GMSK for GSM/GPRS; GMSK and 8PSK for EDGE WCDMA: QPSK; HSDPA:QPSK/16QAM; HSUPA:BPSK LTE: QPSK /16QAM
Antenna:	Internal Antenna
Antenna gain:	GSM 850:0.51 dBi (declare by Applicant) PCS1900:1.96 dBi (declare by Applicant) WCDMA band II:1.96 dBi (declare by Applicant) WCDMA band IV:0.68 dBi (declare by Applicant) WCDMA band V:0.51 dBi (declare by Applicant) LTE band 2:1.96 dBi (declare by Applicant) LTE band 4:0.68 dBi (declare by Applicant) LTE band 5:0.51 dBi (declare by Applicant) LTE band 7:2.84 dBi (declare by Applicant) LTE band 12:-1.77 dBi (declare by Applicant) LTE band 17:-1.77 dBi (declare by Applicant) LTE band 38:2.92 dBi (declare by Applicant) LTE band 66:1.62 dBi (declare by Applicant)
GPRS/EDGE Class:	Multi-Class12
Extreme Vol. Limits:	3.50 Vdc ~4.45Vdc
Extreme Temp. Tolerance:	-30℃ ~ +50℃
Adapter	Model: HAD-010U Input: AC100-240V, 50/60Hz, 0.35A Output: DC 5.0V, 2.0A, 10.0W
Battery	Rechargeable Li-ion Polymer Battery DC3.87V, 4900mAh
Hardware version number:	/
Software version number:	/
** Note: The High Voltage 4.45Vdc and Low Voltage 3.50 Vdc was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage, the antenna information refer the manufacturer provide report, applicable only to the tested sample identified in the report.	

Test channel list					
GSM850	Frequency(MHz)	Channel	GSM1900	Frequency(MHz)	Channel
L	824.2	128	L	1850.2	512
M	836.6	190	M	1880	661
H	848.8	251	H	1909.8	810

Test channel list					
Band2	Frequency(MHz)	Channel	Band4	Frequency(MHz)	Channel
L	1852.4	9262	L	1712.6	1313
M	1880	9400	M	1740	1450
H	1907.6	9538	H	1752.4	1512
Band5	Frequency(MHz)	Channel	/	/	/
L	826.4	4132	/	/	/
M	836.6	4183	/	/	/
H	846.6	4233	/	/	/



Test channel list

Band2	1.9GHz	Frequency(MHz)	Channel	Band4	1.7GHz	Frequency(MHz)	Channel
L	1.4M	1850.7	18607	L	1.4M	1710.7	19957
	3M	1851.5	18615		3M	1711.5	19965
	5M	1852.5	18625		5M	1712.5	19975
	10M	1855	18650		10M	1715	20000
	15M	1857.5	18675		15M	1717.5	20025
	20M	1860	18700		20M	1720	20050
M	1.4/3/5/10/15/20	1880	18900	M	1.4/3/5/10/15/20M	1732.5	20175
H	1.4M	1909.3	19193	H	1.4M	1754.3	20393
	3M	1908.5	19185		3M	1753.5	20385
	5M	1907.5	19175		5M	1752.5	20375
	10M	1905	19150		10M	1750	20350
	15M	1902.5	19125		15M	1747.5	20325
	20M	1900	19100		20M	1745	20300
Band5	850MHz	Frequency(MHz)	Channel	Band7	2.6GHz	Frequency(MHz)	Channel
L	1.4M	824.7	20407	L	5M	2502.5	20775
	3M	825.5	20415		10M	2505	20800
	5M	826.5	20425		15M	2507.5	20825
	10M	829	20450		20M	2510	20850
M	1.4/3/5/10M	836.5	20525	M	5/10/15/20M	2535	21100
H	1.4M	848.3	20643	H	5M	2567.5	21425
	3M	847.5	20635		10M	2565	21400
	5M	846.5	20625		15M	2562.5	21375
	10M	844	20600		20M	2560	21350
Band12	700MHz	Frequency(MHz)	Channel	Band17	700MHz	Frequency(MHz)	Channel
L	1.4M	699.7	23017	L	5M	706.5	23755
	3M	700.5	23025		10M	709	23780
	5M	701.5	23035	M	5/10M	710	23790
	10M	704	23060	H	5M	713.5	23825
M	1.4/3/5/10M	707.5	23095		10M	711	23800
H	1.4M	715.3	23173				
	3M	714.5	23165				
	5M	713.5	23155				
	10M	711	23130				
Band66	1.7GHz	Frequency(MHz)	Channel	Band 38	2.6G	Frequency(MHz)	Channel
L	1.4M	1710.7	131979	L	5M	37775	2572.5
	3M	1711.5	131987		10M	37800	2575.0
	5M	1712.5	131997		15M	37825	2577.5
	10M	1715	132022		20M	37850	2580.0
	15M	1717.5	132047	M	5M	38000	2595.0
	20M	1720	132072		10M	38000	2595.0
M	1.4/3/5/10/15/20	1745	132322		15M	38000	2595.0
H	1.4M	1779.3	132665		20M	38000	2595.0
	3M	1778.5	132657	H	5M	38225	2617.5
	5M	1777.5	132647		10M	38200	2615.0
	10M	1775	132622		15M	38175	2612.5
	15M	1772.5	132597		20M	38150	2610.0
	20M	1770	132572				



EMISSION DESIGNATOR

Mode	Emission Designator(99%OBW)
GSM850	245KGXW
EGPRS850	246KGXW
GSM1900	248KGXW
EGPRS1900	249KGXW

Mode	Emission Designator(99%OBW)
WCDMA Band 2	4M14F9W
WCDMA Band 4	4M15F9W
WCDMA Band 5	4M15F9W

LTE B2	Emission Designator	Emission Designator
BW(MHz)	(99%OBW)QPSK	(99%OBW)16QAM
1.4	1M10G7D	1M10W7D
3	2M72G7D	2M71W7D
5	4M52G7D	4M53W7D
10	8M99G7D	9M01W7D
15	13M5G7D	13M5W7D
20	18M0G7D	18M0W7D

LTE B5	Emission Designator	Emission Designator
BW(MHz)	(99%OBW)QPSK	(99%OBW)16QAM
1.4	1M10G7D	1M11W7D
3	2M72G7D	2M71W7D
5	4M52G7D	4M53W7D
10	9M02G7D	9M00W7D

LTE B7	Emission Designator	Emission Designator
BW(MHz)	(99%OBW)QPSK	(99%OBW)16QAM
5	4M52G7D	4M53W7D
10	9M00G7D	9M01W7D
15	13M5G7D	13M5W7D
20	18M0G7D	18M0W7D

LTE B12	Emission Designator	Emission Designator
BW(MHz)	(99%OBW)QPSK	(99%OBW)16QAM
1.4	1M10G7D	1M10W7D
3	2M71G7D	2M71W7D
5	4M51G7D	4M53W7D
10	9M03G7D	9M01W7D

LTE B66 include Band 4	Emission Designator	Emission Designator
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BW(MHz)	(99%OBW)QPSK	(99%OBW)16QAM
1.4	1M10G7D	1M10W7D
3	2M71G7D	2M71W7D
5	4M52G7D	4M53W7D
10	9M00G7D	9M00W7D
15	13M5G7D	13M5W7D
20	18M0G7D	18M1W7D
LTE B38	Emission Designator	Emission Designator
BW(MHz)	(99%OBW)QPSK	(99%OBW)16QAM
5	4M51G7D	4M51W7D
10	9M00G7D	9M01W7D
15	13M6G7D	13M5W7D
20	18M0G7D	18M00W7D

3 TEST CONFIGURATION OF EQUIPMENT UNDER TEST

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 and ANSI C63.26 2015 Power Meas. License Digital Systems with maximum output power.

Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.

Radiated emissions were investigated as following frequency range:

1. 30 MHz to 10th harmonic for GSM850 and WCDMA Band V.
2. 30 MHz to 10th harmonic for WCDMA Band IV.
3. 30 MHz to 10th harmonic for GSM1900 and WCDMA Band II.

All modes and data rates and positions were investigated.

Test modes are chosen to be reported as the worst case configuration below:

BAND	TEST MODES	
	RADIATED TCS	CONDUCTED TCS
GSM 850	GSM LINK GPRS/EDGE CLASS 12 LINK	GSM LINK GPRS/EDGE CLASS 12 LINK
GSM 1900	GSM LINK GPRS/EDGE CLASS 12 LINK	GSM LINK GPRS/EDGE CLASS 12 LINK
WCDMA BAND V	RMC 12.2KBPS LINK	RMC 12.2KBPS LINK
WCDMA BAND II	RMC 12.2KBPS LINK	RMC 12.2KBPS LINK
WCDMA BAND IV	RMC 12.2KBPS LINK	RMC 12.2KBPS LINK

LTE:

BAND	TEST MODES	
	RADIATED TCS	CONDUCTED TCS
LTE B2	QPSK,16QAM	QPSK,16QAM
LTE B4	QPSK,16QAM	QPSK,16QAM
LTE B5	QPSK,16QAM	QPSK,16QAM
LTE B7	QPSK,16QAM	QPSK,16QAM
LTE B12	QPSK,16QAM	QPSK,16QAM
LTE B17	QPSK,16QAM	QPSK,16QAM
LTE B38	QPSK,16QAM	QPSK,16QAM
LTE B66	QPSK,16QAM	QPSK,16QAM



4 MEASUREMENT INSTRUMENTS

RF Radiation Test Equipment					
Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
Temperature & Humidity	SW-108	SuWei	N/A	2025.02.24	2026.02.23
Wireless Communications Test Set	R&S	CMW 500	117239	2024.09.23	2025.09.22
				2025.09.26	2026.09.25
Pre-Amplifier(0.1M-3GHz)	EM	EM330	060665	2025.02.22	2026.02.21
Pre-Amplifier (1G-18GHz)	SKET	LNPA-01018G-45	SK2018080901	2024.09.23	2025.09.22
				2025.09.25	2026.09.24
Pre-Amplifier(18G-40GHz)	SKET	LNPA_1840-50	SK2018101801	2025.02.22	2026.02.21
Positioning Controller	MF	MF-7802	MF-780208587	N/A	N/A
Signal Analyzer	R&S	FSV 40-N	101823	2024.09.23	2025.09.22
				2025.09.26	2026.09.25
Switch Control Box	N/A	N/A	N/A	N/A	N/A
Filter Box	BALUN Technology	SU319E	BL-SZ1530051	N/A	N/A
Video Controller	SKET	FCS C-3	N/A	N/A	N/A
Bilog Antenna	TESEQ	CBL6111D	34678	2024.09.30	2025.09.29
				2025.09.27	2027.09.26
Horn Antenna	SCHWARZBECK	BBHA 9120D	02014	2024.09.30	2025.09.29
				2025.09.27	2027.09.26
Horn Antenna	A-INFOMW	LB-180400-KF	J211020657	2023.10.10	2025.10.09
				2025.09.27	2027.09.26
Antenna Mast	MF	MFA-440H	N/A	N/A	N/A
Turn Table	MF	N/A	N/A	N/A	N/A
AC Power Source	APC	KDF-11010G	F214050035	N/A	N/A
DC Power Supply	Zhaoxin	RXN 605D	20R605D11010081	2025.09.22	2026.09.21
Test SW	EMC Test Software	25.5 en			
	EZ-EMC	Ver.STSLAB-03A1 RE			
RF Connected Test Equipment					
Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
Temperature & Humidity	SW-108	SuWei	N/A	2025.02.24	2026.02.23
Wireless Communications Test Set	R&S	CMW 500	131428	2025.02.22	2026.02.21
Signal Analyzer	Agilent	N9020A	MY52440124	2025.02.22	2026.02.21
RF Automatic Test System	Maiwei	MW200-SFCB	N/A	N/A	N/A
Temperature & Humidity Test Chamber	Safety test	AG80L	171200018	2025.02.22	2026.02.21
Programmable Power Supply	Agilent	E3642A	MY40002025	2024.09.23	2025.09.22
				2025.09.26	2026.09.25
POWER DIVIDER	eastsheep	PD-0.5/0.6-2S	N/A	2025.02.25	2026.02.24
Test SW	MTS 8200	2.0.0.0			

5 TEST ITEMS

5.1 CONDUCTED OUTPUT POWER&TRANSMITTER RADIATED POWER

TEST OVERVIEW

CONDUCTED OUTPUT POWER:

A system simulator was used to establish communication with the EUT. Its parameters were set to enforce EUT transmitting at the maximum power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

TRANSMITTER RADIATED POWER (EIRP/ERP)

Determining ERP and/or EIRP from conducted RF output power measurements according to ANSI C63.26 2015 Section 5.2.5.5.

In many cases, RF output power limits are specified in terms of the ERP or the EIRP. Typically, ERP is specified when the operating frequency is less than or equal to 1 GHz and EIRP is specified when the operating frequency is greater than 1 GHz. Both are defined as the product of the power supplied to the antenna and its gain (relative to a dipole antenna in the case of ERP, and relative to an isotropic antenna in the case of EIRP); however, when working in decibels (i.e., logarithmic scale), the ERP and EIRP represent the sum of the transmit antenna gain (in dBd or dBi, respectively) and the conducted RF output power (expressed in dB relative to watts or milliwatts). The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation (1) as follows:

$$(1) \text{ ERP or EIRP} = P_{\text{Meas}} + GT$$

$$\text{ERP} = \text{EIRP} - 2.15$$

where

ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Meas} , e.g., dBm or dBW)

P_{Meas} measured transmitter output power or PSD, in dBm or dBW

GT gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

For devices utilizing multiple antennas, see 6.4 for guidance with respect to determining the effective array transmit antenna gain term to be used in the above equation.

The following equations demonstrate the mathematical relationship between ERP and EIRP:

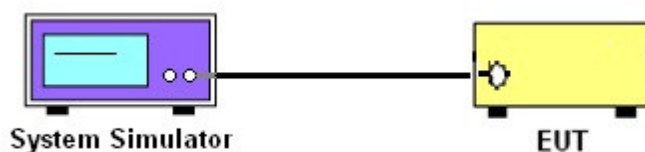
$$a) \text{ ERP} = \text{EIRP} - 2.15, \text{ where ERP and EIRP are expressed in consistent units.}$$

$$b) \text{ EIRP} = \text{ERP} + 2.15, \text{ where ERP and EIRP are expressed in consistent units.}$$

TEST PROCEDURES

1. The transmitter output port was connected to the system simulator.
2. Set eut at maximum power through the system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure and record the power level from the system simulator.

TEST SETUP



TEST RESULT

Note: The test data please reference to attachment "Appendix – GSM", "Appendix – WCDMA" and "Appendix – LTE".

5.2 PEAK TO AVERAGE RATIO

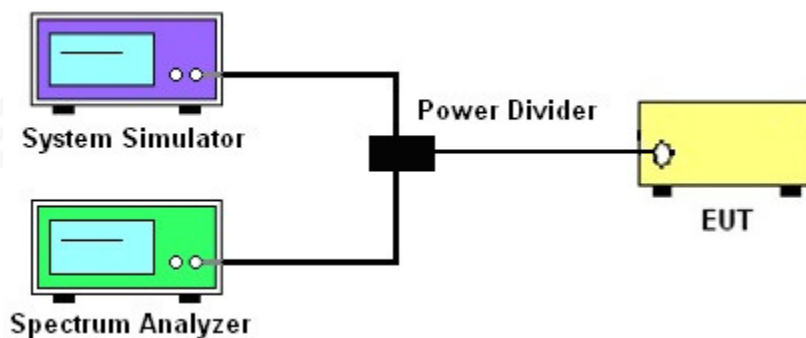
TEST OVERVIEW

According to §24.232(d), power measurements for transmissions by stations authorized under this section may be made either in accordance with a commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 db.

TEST PROCEDURES

1. The testing follows FCC KDB 971168 v03r01 section.
2. The eut was connected to the peak and av system simulator& spectrum analyzer.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Set the test probe and measure average power of the spectrum analysis,

TEST SETUP



TEST RESULT

Note: The test data please reference to attachment “Appendix – GSM” , “Appendix – WCDMA” and “Appendix – LTE”.

5.3 OCCUPIED BANDWIDTH

TEST OVERVIEW

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured.

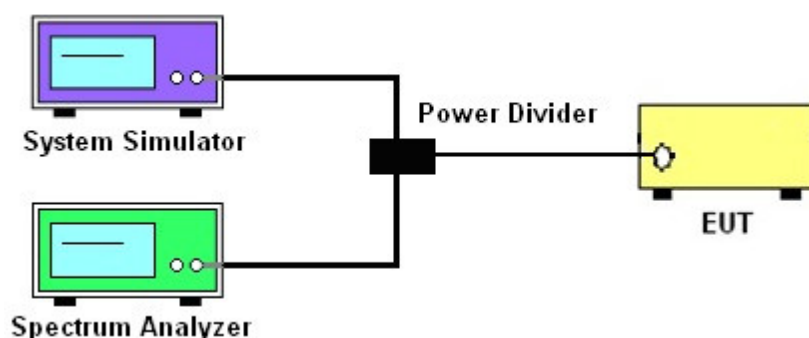
The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

All modes of operation were investigated and the worst case configuration results are reported in this section.

TEST PROCEDURE

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. $RBW = 1 - 5\%$ of the expected OBW
3. $VBW \geq 3 \times RBW$
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within 1 – 5% of the 99% occupied bandwidth observed in Step 7

TEST SETUP



TEST RESULT

Note: The test data please reference to attachment "Appendix – GSM", "Appendix – WCDMA" and "Appendix – LTE".

5.4 FREQUENCY STABILITY

TEST OVERVIEW

Frequency stability testing is performed in accordance with the guidelines of ANSI C63.26 2015.

The frequency stability of the transmitter is measured by:

- a.) Temperature: The temperature is varied from -30°C to $+50^{\circ}\text{C}$ in 10°C increments using an environmental chamber.
- b.) Primary Supply Voltage: The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

For Part 22, the frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency. For Part 24 the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

TEST PROCEDURE

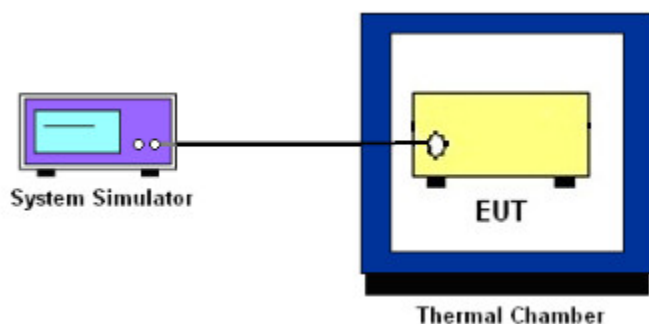
Temperature Variation

1. The testing follows FCC KDB 971168 D01 section 9.0
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
4. With power OFF, the temperature was raised in 10°C steps up to 50°C . The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

Voltage Variation

1. The testing follows FCC KDB 971168 D01 Section 9.0.
2. The EUT was placed in a temperature chamber at $25 \pm 5^{\circ}\text{C}$ and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
4. The variation in frequency was measured for the worst case.

TEST SETUP





TEST RESULT

Note: The test data please reference to attachment “Appendix – GSM” , “Appendix – WCDMA” and “Appendix – LTE”.

5.5 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

TEST OVERVIEW

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43 + 10 \log(P)$ dB.

For Band 7:

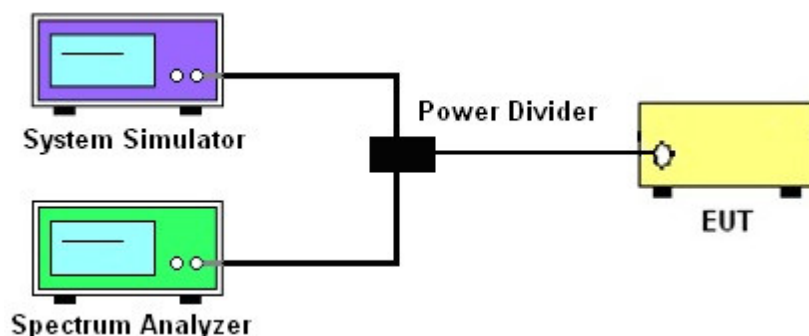
The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $55 + 10 \log(P)$ dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

TEST PROCEDURE

1. The testing FCC KDB 971168 D01 v03r01 Section 6.0. and ANSI C63.26-2015-Section 5.7.
2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
7. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
 $= P(W) - [43 + 10\log(P)]$ (dB)
 $= [30 + 10\log(P)]$ (dBm) - $[43 + 10\log(P)]$ (dB)
 $= -13\text{dBm}$.

TEST SETUP



TEST RESULT

Note: The test data please reference to attachment “Appendix – GSM” , “Appendix – WCDMA” and “Appendix – LTE”.



5.6 BAND EDGE

TEST OVERVIEW

1. §22.917(a)

For operations in the 824 – 849 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ in a 100kHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

2. §24.238 (a)

For operations in the 1850-1910 and 1930-1990 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ in a 1MHz bandwidth. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed

3. §27.53 (h)

For operations in the 1710 – 1755 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ in a 1 MHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

4. §27.53(m)(4)

For operations in the 2500 MHz ~ 2570 MHz band this section, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

5. §27.53 (g)

For operations in the 698 -746 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ in a 100 kHz bandwidth. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

TEST PROCEDURE

1. The testing FCC KDB 971168 D01 v03r01 Section 6.0 and ANSI C63.26-2015-Section 5.7
 2. Start and stop frequency were set such that the band edge would be placed in the center of the Plot.
 3. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
 4. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator.
- The path loss was compensated to the results for each measurement.
5. The band edges of low and high channels for the highest RF powers were measured.
 6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

7. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)

$$= P(W) - [43 + 10\log(P)] \text{ (dB)}$$

$$= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$$

$$= -13\text{dBm}.$$

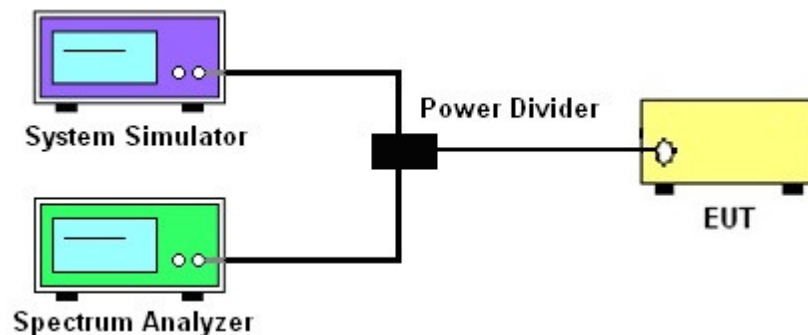
Band 7:

$$= P(W) - [55 + 10\log(P)] \text{ (dB)}$$

$$= [30 + 10\log(P)] \text{ (dBm)} - [55 + 10\log(P)] \text{ (dB)}$$

$$= -25\text{dBm}.$$

TEST SETUP



TEST RESULT

Note: The test data please reference to attachment “Appendix – GSM” , “Appendix – WCDMA” and “Appendix – LTE”.



5.7 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

TEST OVERVIEW

Radiated spurious emissions measurements are performed using the substitution method described in ANSI C63.26-2015 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using horizontally and vertically polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized horn antennas. All measurements are performed as peak measurements while the EUT is operating at maximum power and at the appropriate frequencies.

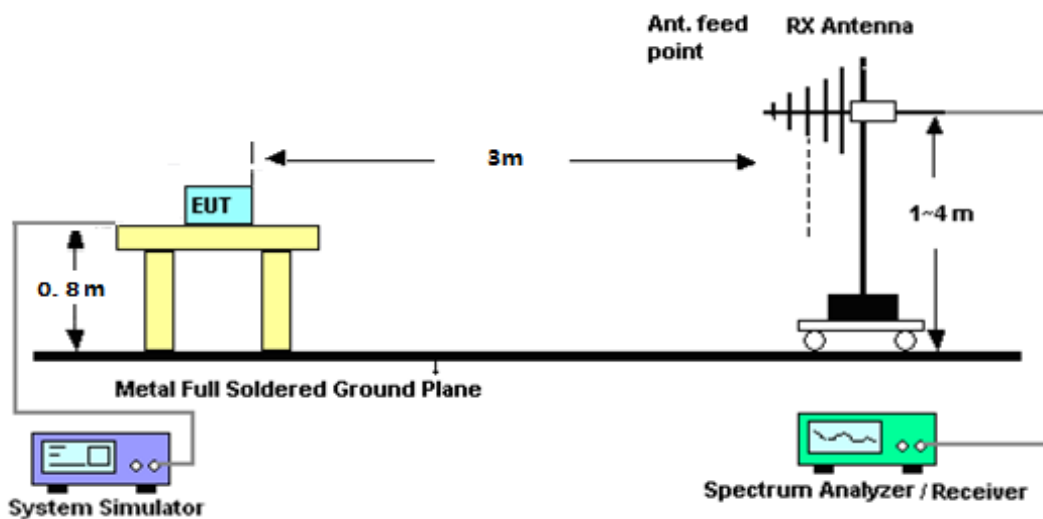
It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

TEST PROCEDURE

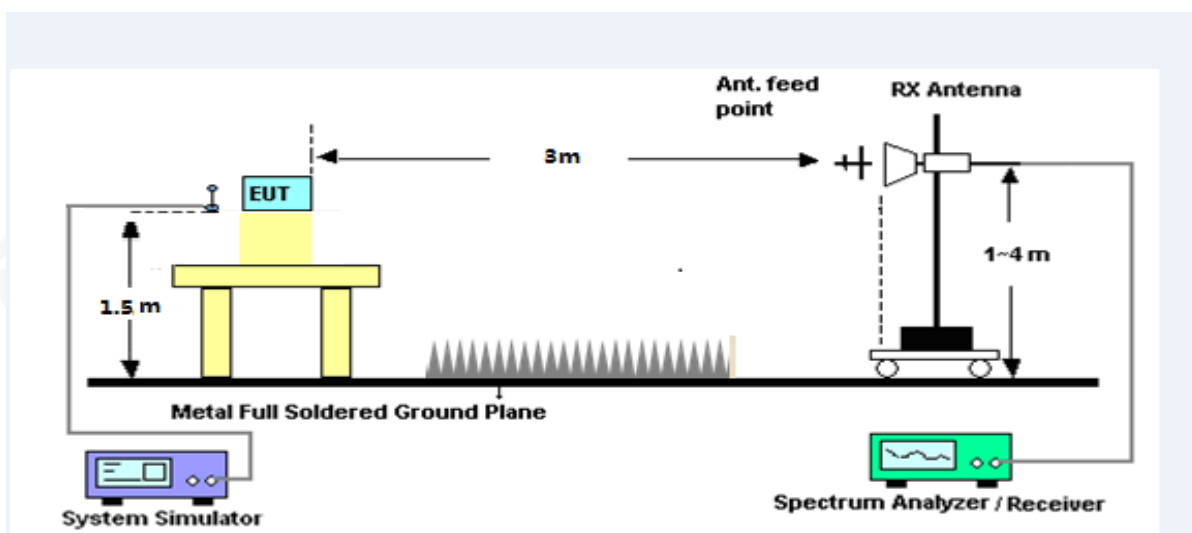
1. The testing FCC KDB 971168 D01 Section 5.8 and ANSI C63.26-2015-Section 5.5.
2. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
3. VBW $\geq 3 \times$ RBW
4. Span = 1.5 times the OBW
5. No. of sweep points $> 2 \times$ span/RBW
6. Detector = Peak
7. Trace mode = max hold
8. The trace was allowed to stabilize
9. Effective Isotropic Spurious Radiation was measured by substitution method according to TIA/EIA-603-D. The EUT was replaced by the substitution antenna at same location, and then a known power from S.G. was applied into the dipole antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna.
PMea=S.G Level+ Ant-Cable loss; Margin=PMea-Limit.

TEST SETUP

For radiated test from 30MHz to 1GHz



For radiated test from above 1GHz



TEST RESULT

GSM850						
Lowest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1648.40	-49.33	-11.55	-60.88	-13.00	47.88	Vertical
2472.60	-41.48	-8.68	-50.16	-13.00	37.16	Vertical
3296.80	-55.15	-3.87	-59.02	-13.00	46.02	Vertical
1648.40	-44.96	-10.88	-55.84	-13.00	42.84	Horizontal
2472.60	-43.91	-9.15	-53.06	-13.00	40.06	Horizontal
3296.80	-54.66	-3.93	-58.59	-13.00	45.59	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1673.20	-49.57	-10.70	-60.27	-13.00	47.27	Vertical
2509.80	-41.47	-8.66	-50.13	-13.00	37.13	Vertical
3346.40	-54.98	-3.33	-58.31	-13.00	45.31	Vertical
1673.20	-44.48	-10.28	-54.76	-13.00	41.76	Horizontal
2509.80	-44.18	-8.73	-52.91	-13.00	39.91	Horizontal
3346.40	-54.96	-3.42	-58.38	-13.00	45.38	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1697.60	-49.54	-9.90	-59.44	-13.00	46.44	Vertical
2546.40	-41.17	-8.40	-49.57	-13.00	36.57	Vertical
3395.20	-54.90	-2.55	-57.45	-13.00	44.45	Vertical
1697.60	-44.75	-9.70	-54.45	-13.00	41.45	Horizontal
2546.40	-43.88	-8.17	-52.05	-13.00	39.05	Horizontal
3395.20	-55.11	-2.62	-57.73	-13.00	44.73	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						
2. Test Frequency up to 10GHz, and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.						



PCS1900						
Lowest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3700.40	-56.51	-0.34	-56.85	-13.00	43.85	Vertical
5550.60	-64.28	4.15	-60.13	-13.00	47.13	Vertical
3700.40	-59.93	-0.16	-60.09	-13.00	47.09	Horizontal
5550.60	-64.44	4.05	-60.39	-13.00	47.39	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3760.00	-56.99	-1.01	-58.00	-13.00	45.00	Vertical
5640.00	-64.50	3.96	-60.54	-13.00	47.54	Vertical
3760.00	-59.86	-0.56	-60.42	-13.00	47.42	Horizontal
5640.00	-64.83	4.14	-60.69	-13.00	47.69	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3819.60	-56.90	-0.53	-57.43	-13.00	44.43	Vertical
5729.40	-64.52	3.44	-61.08	-13.00	48.08	Vertical
3819.60	-59.65	-0.06	-59.71	-13.00	46.71	Horizontal
5729.40	-64.84	3.82	-61.02	-13.00	48.02	Horizontal
Remark: - The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report. - Test Frequency up to 20GHz, and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.						

WCDMA band II						
Lowest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3704.80	-63.06	-0.43	-63.49	-13.00	50.49	Vertical
5557.20	-64.20	4.18	-60.02	-13.00	47.02	Vertical
3704.80	-56.66	-0.23	-56.89	-13.00	43.89	Horizontal
5557.20	-64.08	4.10	-59.98	-13.00	46.98	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3760.00	-63.55	-1.01	-64.56	-13.00	51.56	Vertical
5640.00	-64.34	3.96	-60.38	-13.00	47.38	Vertical
3760.00	-56.90	-0.56	-57.46	-13.00	44.46	Horizontal
5640.00	-64.49	4.14	-60.35	-13.00	47.35	Horizontal



Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3815.20	-63.29	-0.65	-63.94	-13.00	50.94	Vertical
5722.80	-63.89	3.42	-60.47	-13.00	47.47	Vertical
3815.20	-57.36	-0.14	-57.50	-13.00	44.50	Horizontal
5722.80	-64.43	3.81	-60.62	-13.00	47.62	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						
2. Test Frequency up to 20GHz, and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.						



WCDMA band IV						
Lowest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3424.40	-57.82	-2.17	-59.99	-13.00	46.99	Vertical
5136.60	-64.76	3.77	-60.99	-13.00	47.99	Vertical
6848.80	-62.87	5.80	-57.07	-13.00	44.07	Vertical
3424.40	-58.45	-2.23	-60.68	-13.00	47.68	Horizontal
5136.60	-64.96	3.81	-61.15	-13.00	48.15	Horizontal
6848.80	-64.54	6.01	-58.53	-13.00	45.53	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3464.80	-58.00	-2.53	-60.53	-13.00	47.53	Vertical
5197.20	-64.71	3.26	-61.45	-13.00	48.45	Vertical
6929.60	-63.29	5.19	-58.10	-13.00	45.10	Vertical
3464.80	-58.02	-2.53	-60.55	-13.00	47.55	Horizontal
5197.20	-64.81	3.18	-61.63	-13.00	48.63	Horizontal
6929.60	-64.11	5.17	-58.94	-13.00	45.94	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3505.20	-57.89	-3.15	-61.04	-13.00	48.04	Vertical
5257.80	-64.45	3.11	-61.34	-13.00	48.34	Vertical
7010.40	-63.18	5.73	-57.45	-13.00	44.45	Vertical
3505.20	-57.77	-3.00	-60.77	-13.00	47.77	Horizontal
5257.80	-65.28	3.43	-61.85	-13.00	48.85	Horizontal
7010.40	-64.06	5.77	-58.29	-13.00	45.29	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						
2. Test Frequency up to 20GHz, and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.						



WCDMA band V						
Lowest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1652.80	-55.29	-11.40	-66.69	-13.00	53.69	Vertical
2479.20	-61.38	-8.68	-70.06	-13.00	57.06	Vertical
3305.60	-63.13	-3.76	-66.89	-13.00	53.89	Vertical
1652.80	-61.15	-10.77	-71.92	-13.00	58.92	Horizontal
2479.20	-61.31	-9.07	-70.38	-13.00	57.38	Horizontal
3305.60	-63.22	-3.86	-67.08	-13.00	54.08	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1673.20	-55.22	-10.70	-65.92	-13.00	52.92	Vertical
2509.80	-61.15	-8.66	-69.81	-13.00	56.81	Vertical
3346.40	-62.98	-3.33	-66.31	-13.00	53.31	Vertical
1673.20	-61.60	-10.28	-71.88	-13.00	58.88	Horizontal
2509.80	-61.44	-8.73	-70.17	-13.00	57.17	Horizontal
3346.40	-63.25	-3.42	-66.67	-13.00	53.67	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1697.60	-54.89	-9.90	-64.79	-13.00	51.79	Vertical
2546.40	-61.64	-8.40	-70.04	-13.00	57.04	Vertical
3395.20	-63.13	-2.55	-65.68	-13.00	52.68	Vertical
1697.60	-61.54	-9.70	-71.24	-13.00	58.24	Horizontal
2546.40	-61.89	-8.17	-70.06	-13.00	57.06	Horizontal
3395.20	-63.18	-2.62	-65.80	-13.00	52.80	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						
2. Test Frequency up to 10GHz, and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.						

**LTE:**

Note: All bandwidths, modulation types and RB configurations were pretested, and it was found that minimum bandwidths, QPSK modulation and 1RB0 were the worst modes, and only the worst modes were reflected in the report.

LTE band 2 – 1.4 MHz bandwidth						
Lowest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3701.40	-41.51	-0.36	-41.87	-13.00	28.87	Vertical
5552.10	-50.41	4.16	-46.25	-13.00	33.25	Vertical
7402.00	-58.94	6.10	-52.84	-13.00	39.84	Vertical
3701.40	-38.37	-0.17	-38.54	-13.00	25.54	Horizontal
5552.10	-50.24	4.07	-46.17	-13.00	33.17	Horizontal
7402.00	-60.37	5.78	-54.59	-13.00	41.59	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3760.00	-41.02	-1.01	-42.03	-13.00	29.03	Vertical
5640.00	-49.95	3.96	-45.99	-13.00	32.99	Vertical
7520.00	-58.85	5.55	-53.30	-13.00	40.30	Vertical
3760.00	-38.54	-0.56	-39.10	-13.00	26.10	Horizontal
5640.00	-50.40	4.14	-46.26	-13.00	33.26	Horizontal
7520.00	-60.72	5.56	-55.16	-13.00	42.16	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3816.60	-40.54	-0.59	-41.13	-13.00	28.13	Vertical
5724.90	-50.05	3.42	-46.63	-13.00	33.63	Vertical
7633.20	-58.62	6.40	-52.22	-13.00	39.22	Vertical
3816.60	-38.87	-0.10	-38.97	-13.00	25.97	Horizontal
5724.90	-50.51	3.80	-46.71	-13.00	33.71	Horizontal
7633.20	-60.89	6.24	-54.65	-13.00	41.65	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						
2. Test Frequency up to 20GHz, and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.						



LTE band 5 – 1.4 MHz bandwidth						
Lowest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1649.40	-42.61	-11.51	-54.12	-13.00	41.12	Vertical
2474.10	-42	-8.67	-50.67	-13.00	37.67	Vertical
3298.80	-47.46	-3.89	-51.35	-13.00	38.35	Vertical
1649.40	-41.59	-10.85	-52.44	-13.00	39.44	Horizontal
2474.10	-51.98	-9.13	-61.11	-13.00	48.11	Horizontal
3298.80	-52.57	-3.96	-56.53	-13.00	43.53	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1673.30	-42.56	-10.70	-53.26	-13.00	40.26	Vertical
2509.50	-42.31	-8.66	-50.97	-13.00	37.97	Vertical
3346.00	-47.71	-3.33	-51.04	-13.00	38.04	Vertical
1673.30	-41.62	-10.28	-51.90	-13.00	38.90	Horizontal
2509.50	-51.82	-8.73	-60.55	-13.00	47.55	Horizontal
3346.00	-52.34	-3.42	-55.76	-13.00	42.76	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1696.60	-42.45	-9.90	-52.35	-13.00	39.35	Vertical
2544.90	-42.2	-8.45	-50.65	-13.00	37.65	Vertical
3393.20	-48.06	-2.59	-50.65	-13.00	37.65	Vertical
1696.60	-41.68	-9.70	-51.38	-13.00	38.38	Horizontal
2544.90	-51.53	-8.21	-59.74	-13.00	46.74	Horizontal
3393.20	-52.38	-2.65	-55.03	-13.00	42.03	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						
2. Test Frequency up to 10GHz, and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.						



LTE band 7 – 5 MHz bandwidth						
Lowest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5005.00	-52.63	3.69	-48.94	-25.00	23.94	Vertical
7507.50	-63.37	5.56	-57.81	-25.00	32.81	Vertical
10010.00	-66.92	10.09	-56.83	-25.00	31.83	Vertical
5005.00	-56.24	4.02	-52.22	-25.00	27.22	Horizontal
7507.50	-64.85	5.56	-59.29	-25.00	34.29	Horizontal
10010.00	-65.84	9.47	-56.37	-25.00	31.37	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5070.00	-52.80	4.23	-48.57	-25.00	23.57	Vertical
7605.00	-63.46	6.06	-57.40	-25.00	32.40	Vertical
10140.00	-66.62	10.48	-56.14	-25.00	31.14	Vertical
5070.00	-56.58	3.51	-53.07	-25.00	28.07	Horizontal
7605.00	-64.71	5.95	-58.76	-25.00	33.76	Horizontal
10140.00	-65.67	10.21	-55.46	-25.00	30.46	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5135.00	-53.24	3.78	-49.46	-25.00	24.46	Vertical
7702.50	-63.11	6.22	-56.89	-25.00	31.89	Vertical
10270.00	-66.72	11.48	-55.24	-25.00	30.24	Vertical
5135.00	-56.67	3.83	-52.84	-25.00	27.84	Horizontal
7702.50	-64.46	5.97	-58.49	-25.00	33.49	Horizontal
10270.00	-65.73	11.00	-54.73	-25.00	29.73	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						
2. Test Frequency up to 27GHz, and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.						



LTE band 12 – 1.4 MHz bandwidth						
Lowest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1399.40	-27.42	-11.68	-39.10	-13.00	26.10	Vertical
2099.10	-48.49	-9.89	-58.38	-13.00	45.38	Vertical
2798.80	-47.47	-7.09	-54.56	-13.00	41.56	Vertical
1399.40	-21.38	-11.43	-32.81	-13.00	19.81	Horizontal
2099.10	-51.82	-9.44	-61.26	-13.00	48.26	Horizontal
2798.80	-56.55	-6.71	-63.26	-13.00	50.26	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1415.00	-27.58	-11.77	-39.35	-13.00	26.35	Vertical
2122.50	-48.71	-9.58	-58.29	-13.00	45.29	Vertical
2830.00	-47.92	-6.50	-54.42	-13.00	41.42	Vertical
1415.00	-21.20	-11.45	-32.65	-13.00	19.65	Horizontal
2122.50	-51.38	-8.86	-60.24	-13.00	47.24	Horizontal
2830.00	-56.36	-5.97	-62.33	-13.00	49.33	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1430.60	-27.82	-11.92	-39.74	-13.00	26.74	Vertical
2145.90	-48.65	-9.51	-58.16	-13.00	45.16	Vertical
2861.20	-47.66	-5.55	-53.21	-13.00	40.21	Vertical
1430.60	-20.74	-11.66	-32.40	-13.00	19.40	Horizontal
2145.90	-51.56	-9.15	-60.71	-13.00	47.71	Horizontal
2861.20	-55.93	-5.44	-61.37	-13.00	48.37	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						
2. Test Frequency up to 10GHz, and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.						



LTE band 38 – 5 MHz bandwidth						
Lowest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5145.00	-52.79	3.70	-49.09	-25.00	24.09	Vertical
7717.50	-59.56	6.36	-53.20	-25.00	28.20	Vertical
10290.00	-66.16	11.95	-54.21	-25.00	29.21	Vertical
5145.00	-55.49	3.73	-51.76	-25.00	26.76	Horizontal
7717.50	-63.15	6.10	-57.05	-25.00	32.05	Horizontal
10290.00	-65.82	11.52	-54.30	-25.00	29.30	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5190.00	-53.14	3.33	-49.81	-25.00	24.81	Vertical
7785.00	-59.41	8.39	-51.02	-25.00	26.02	Vertical
10380.00	-66.22	10.75	-55.47	-25.00	30.47	Vertical
5190.00	-55.01	3.26	-51.75	-25.00	26.75	Horizontal
7785.00	-63.33	8.24	-55.09	-25.00	30.09	Horizontal
10380.00	-66.00	10.21	-55.79	-25.00	30.79	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5235.00	-52.88	3.17	-49.71	-25.00	24.71	Vertical
7852.50	-59.56	8.52	-51.04	-25.00	26.04	Vertical
10470.00	-66.04	11.86	-54.18	-25.00	29.18	Vertical
5235.00	-54.67	3.32	-51.35	-25.00	26.35	Horizontal
7852.50	-63.8	8.28	-55.52	-25.00	30.52	Horizontal
10470.00	-65.97	11.27	-54.70	-25.00	29.70	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						
2. Test Frequency up to 27GHz, and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.						



LTE band 66 – 1.4 MHz bandwidth						
Lowest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3421.40	-49.5	-2.15	-51.65	-13.00	38.65	Vertical
5132.10	-52.39	3.80	-48.59	-13.00	35.59	Vertical
6842.80	-51.48	5.86	-45.62	-13.00	32.62	Vertical
3421.40	-46.55	-2.22	-48.77	-13.00	35.77	Horizontal
5132.10	-53.95	3.86	-50.09	-13.00	37.09	Horizontal
6842.80	-54.87	6.07	-48.80	-13.00	35.80	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3490.00	-49.04	-3.02	-52.06	-13.00	39.06	Vertical
5235.00	-52.87	3.17	-49.70	-13.00	36.70	Vertical
6980.00	-51.77	5.49	-46.28	-13.00	33.28	Vertical
3490.00	-46.60	-2.92	-49.52	-13.00	36.52	Horizontal
5235.00	-53.71	3.32	-50.39	-13.00	37.39	Horizontal
6980.00	-54.52	5.46	-49.06	-13.00	36.06	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3558.60	-48.7	-2.25	-50.95	-13.00	37.95	Vertical
5337.90	-53.29	4.23	-49.06	-13.00	36.06	Vertical
7117.20	-51.79	5.53	-46.26	-13.00	33.26	Vertical
3558.60	-46.37	-2.22	-48.59	-13.00	35.59	Horizontal
5337.90	-53.52	4.19	-49.33	-13.00	36.33	Horizontal
7117.20	-54.83	5.32	-49.51	-13.00	36.51	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						
2. Test Frequency up to 20GHz, and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.						



APPENDIX-PHOTOS OF TEST SETUP

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

*****END OF THE REPORT*****