



# FCC RF Test Report

APPLICANT : ASUSTeK COMPUTER INC.  
EQUIPMENT : ASUS Phone  
BRAND NAME : ASUS  
MODEL NAME : ASUS\_Z00XS  
MARKETING NAME : ZX551ML  
FCC ID : MSQZ00XS  
STANDARD : 47 CFR Part 2, 22(H), 24(E), 27  
CLASSIFICATION : PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Jul. 23, 2015 and completely tested on Aug. 28, 2015. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA / EIA-603-C-2004 and the testing has shown the tested sample to be in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager



Testing Laboratory  
1190

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FCC ID : MSQZ00XS

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## REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG561105-02B	Rev. 01	Initial issue of report	Sep. 30, 2015



### SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	Reporting Only	PASS	-
3.5	§24.232(d)	Peak-to-Average Ratio	<13 dB	PASS	-
3.6	§2.1049	Occupied Bandwidth	Reporting Only	PASS	-
3.7	§2.1051 §22.917(a) §24.238(a) §27.53(g) §27.53(h)	Conducted Band Edge Measurement (Band 2) (Band 4) (Band 5) (Band 17)	< 43+10log10(P[Watts])	PASS	-
	§27.53(m)(4)	Conducted Band Edge Measurement (Band 7)	§27.53(m)(4)		



Report Section	FCC Rule	Description	Limit	Result	Remark
3.8	§2.1051 §22.917(a) §24.238(a) §27.53(g) §27.53(h)	Conducted Spurious Emission (Band 2) (Band 4) (Band 5) (Band 17)	$< 43+10\log_{10}(P[\text{Watts}])$	PASS	-
	§2.1051 §27.53(m)(4)	Conducted Spurious Emission (Band 7)	$< 55+10\log_{10}(P[\text{Watts}])$		
3.9	§2.1055 §22.355	Frequency Stability Temperature & Voltage	$< 2.5 \text{ ppm for Part 22}$	PASS	-
	§2.1055 §24.235 §27.54		Within Authorized Band		
4.4	§22.913(a)(2)	Effective Radiated Power (Band 5)	ERP $< 7 \text{ Watt}$	PASS	-
	§27.50(c)(10)	Effective Radiated Power (Band 17)	ERP $< 3 \text{ Watt}$		
	§24.232(c) §27.50(h)(2)	Equivalent Isotropic Radiated Power (Band 2) (Band 7)	EIRP $< 2\text{Watt}$		
	§27.50(d)(4)	Equivalent Isotropic Radiated Power (Band 4)	EIRP $< 1\text{Watt}$		
4.5	§2.1053 §22.917(a) §24.238(a) §27.53(g) §27.53(h)	Radiated Spurious Emission (Band 2) (Band 4) (Band 5) (Band 17)	$< 43+10\log_{10}(P[\text{Watts}])$	PASS	Under limit 6.38 dB at 10008.000 MHz
	§2.1053 §27.53(m)(4)	Radiated Spurious Emission (Band 7)	$< 55+10\log_{10}(P[\text{Watts}])$		



# 1 General Description

## 1.1 Applicant

ASUSTeK COMPUTER INC.  
4F, No. 150, LI-TE RD., PEITOU, TAIPEI, TAIWAN

## 1.2 Manufacturer

ASUSTeK COMPUTER INC.  
4F, No. 150, LI-TE RD., PEITOU, TAIPEI, TAIWAN

## 1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	ASUS Phone
Brand Name	ASUS
Model Name	ASUS_Z00XS
Marketing Name	ZX551ML
FCC ID	MSQZ00XS
Sample 1	EUT in black
Sample 2	EUT in white
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA/LTE/NFC WLAN 11b/g/n HT20 WLAN 11a/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth v4.0 EDR/LE
EUT Stage	Identical Prototype



### 1.4 Product Specification subjective to this standard

Product Specification subjective to this standard	
<b>Tx Frequency</b>	LTE Band 2 : 1850.7 MHz ~ 1909.3 MHz LTE Band 4 : 1710.7 MHz ~ 1754.3 MHz LTE Band 5 : 824.7 MHz ~ 848.3 MHz LTE Band 7 : 2502.5 MHz ~ 2567.5 MHz LTE Band 17 : 706.5 MHz ~ 713.5 MHz
<b>Rx Frequency</b>	LTE Band 2 : 1930.7 MHz ~ 1989.3 MHz LTE Band 4 : 2110.7 MHz ~ 2154.3 MHz LTE Band 5 : 869.7 MHz ~ 893.3 MHz LTE Band 7 : 2622.5 MHz ~ 2687.5 MHz LTE Band 17 : 736.5 MHz ~ 743.5 MHz
<b>Bandwidth</b>	LTE Band 2 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 4 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 5 : 1.4MHz / 3MHz / 5MHz / 10MHz LTE Band 7 : 5MHz / 10MHz / 15MHz / 20MHz LTE Band 17 : 5MHz / 10MHz
<b>Maximum Output Power to Antenna</b>	LTE Band 2 : 21.85 dBm LTE Band 4 : 21.77 dBm LTE Band 5 : 21.74 dBm LTE Band 7 : 21.70 dBm LTE Band 17 : 21.74 dBm
<b>Type of Modulation</b>	QPSK / 16QAM

### 1.5 Modification of EUT

No modifications are made to the EUT during all test items.



### 1.6 Emission Designator

LTE Band 2		QPSK		16QAM		
BW(MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)
1.4	1M10G7D	-	0.1514	1M10W7D	-	0.1266
3	2M73G7D	-	0.1530	2M73W7D	-	0.1243
5	4M50G7D	-	0.1595	4M50W7D	-	0.1344
10	9M05G7D	0.0126	0.1535	9M09W7D	-	0.1270
15	13M5G7D	-	0.1702	13M6W7D	-	0.1401
20	18M5G7D	-	0.1549	18M5W7D	-	0.1275
LTE Band 4		QPSK		16QAM		
BW(MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)
1.4	1M10G7D	-	0.2610	1M10W7D	-	0.1997
3	2M72G7D	-	0.2306	2M72W7D	-	0.1994
5	4M49G7D	-	0.2563	4M50W7D	-	0.2143
10	9M05G7D	0.0109	0.2233	9M05W7D	-	0.1917
15	13M5G7D	-	0.2328	13M5W7D	-	0.1927
20	18M4G7D	-	0.1801	18M7W7D	-	0.1579
LTE Band 5		QPSK		16QAM		
BW(MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)
1.4	1M11G7D	-	0.0800	1M10W7D	-	0.0668
3	2M73G7D	-	0.0794	2M72W7D	-	0.0674
5	4M50G7D	-	0.0829	4M51W7D	-	0.0708
10	9M11G7D	0.0132	0.0829	9M03W7D	-	0.0697
LTE Band 7		QPSK		16QAM		
BW(MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)
			AVG.			AVG.
5	4M51G7D	-	0.1073	4M49W7D	-	0.0862
10	9M07G7D	0.0040	0.1037	9M07W7D	-	0.0890
15	13M5G7D	-	0.1118	13M6W7D	-	0.0901
20	18M6G7D	-	0.0991	18M5W7D	-	0.0844





LTE Band 17	QPSK			16QAM		
BW(MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)
5	4M52G7D	-	0.0518	4M49W7D	-	0.0439
10	9M17G7D	0.0040	0.0493	9M03W7D	-	0.0427

### 1.7 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1022 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

<b>Test Site</b>	SPORTON INTERNATIONAL INC.
<b>Test Site Location</b>	No. 52, Hwa Ya 1 <sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978
<b>Test Site No.</b>	<b>Sporton Site No.</b> TH05-HY

<b>Test Site</b>	SPORTON INTERNATIONAL INC.
<b>Test Site Location</b>	No.58, Aly. 75, Ln. 564, Wenhua 3rd Rd. Guishan Dist, Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
<b>Test Site No.</b>	<b>Sporton Site No.</b> 03CH10-HY



## 1.8 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR Part 2, 22(H), 24(E), 27
- ♦ ANSI / TIA / EIA-603-C-2004
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v02r02

**Remark:** All test items were verified and recorded according to the standards and without any deviation during the test.



## 2 Test Configuration of Equipment Under Test

### 2.1 Test Mode

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v02r02 with maximum output power.

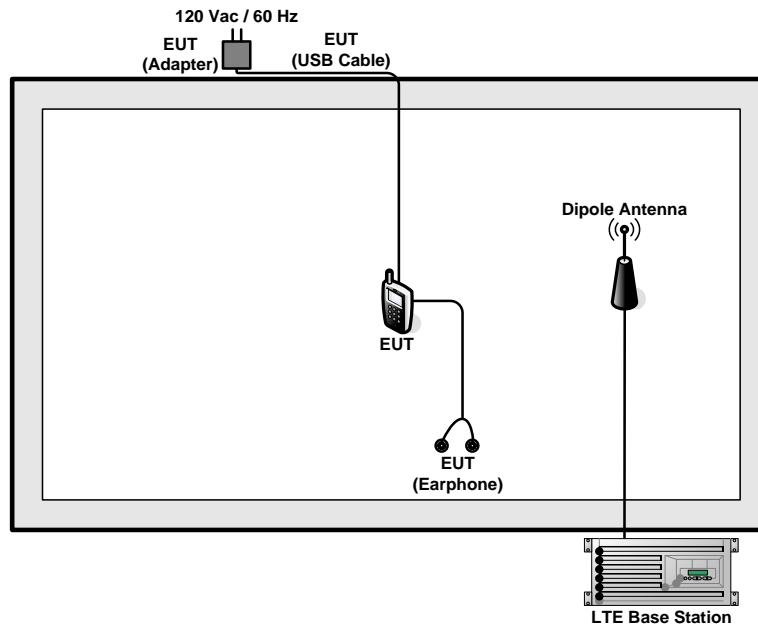
Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission.

Test Items	Band	Bandwidth (MHz)						Modulation		RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full	L	M	H
Max. Output Power	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	5	✓	✓	✓	✓	-	-	✓	✓	✓	✓	✓	✓	✓	✓
	7	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	17	-	-	✓	✓	-	-	✓	✓	✓	✓	✓	✓	✓	✓
Peak-to-Average Ratio	2						✓	✓	✓	✓		✓	✓	✓	✓
	4						✓	✓	✓	✓		✓	✓	✓	✓
	5				✓	-	-	✓	✓	✓		✓	✓	✓	✓
	7	-	-				✓	✓	✓	✓		✓	✓	✓	✓
	17	-	-		✓	-	-	✓	✓	✓		✓	✓	✓	✓
26dB and 99% Bandwidth	2	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
	4	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
	5	✓	✓	✓	✓	-	-	✓	✓			✓	✓	✓	✓
	7	-	-	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
	17	-	-	✓	✓	-	-	✓	✓			✓	✓	✓	✓
Conducted Band Edge	2	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓
	4	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓
	5	✓	✓	✓	✓	-	-	✓	✓	✓		✓	✓		✓
	7	-	-	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓
	17	-	-	✓	✓	-	-	✓	✓	✓		✓	✓		✓



Test Items	Band	Bandwidth (MHz)						Modulation		RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full	L	M	H
Conducted Spurious Emission	2	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓
	4	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓
	5	✓	✓	✓	✓	-	-	✓	✓	✓			✓	✓	✓
	7	-	-	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓
	17	-	-	✓	✓	-	-	✓	✓	✓			✓	✓	✓
Frequency Stability	2				✓			✓				✓		✓	
	4				✓			✓				✓		✓	
	5				✓	-	-	✓				✓		✓	
	7	-	-		✓			✓				✓		✓	
	17	-	-		✓	-	-	✓				✓		✓	
E.R.P/ E.I.R.P.	2	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓
	4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
	5	✓	✓	✓	✓	-	-	✓	✓	✓			✓	✓	✓
	7	-	-	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓
	17	-	-	✓	✓	-	-	✓	✓	✓			✓	✓	✓
Radiated Spurious Emission	2	✓	✓	✓	✓	✓	✓	✓		✓			✓	✓	✓
	4	✓	✓	✓	✓	✓	✓	✓		✓			✓	✓	✓
	5	✓	✓	✓	✓	-	-	✓		✓			✓	✓	✓
	7	-	-	✓	✓	✓	✓	✓		✓			✓	✓	✓
	17	-	-	✓	✓	-	-	✓		✓			✓	✓	✓
Note	<p>1. The mark "✓" means that this configuration is chosen for testing</p> <p>2. The mark "-" means that this bandwidth is not supported.</p> <p>3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.</p> <p>4. For radiated spurious emission, the tests were performed with adapter 2, USB cable 2, and sample 1.</p>														

## 2.2 Connection Diagram of Test System



## 2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m

## 2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

*Offset = RF cable loss + attenuator factor.*

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Example :

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\ &= 4.2 + 10 = 14.2 \text{ (dB)} \end{aligned}$$

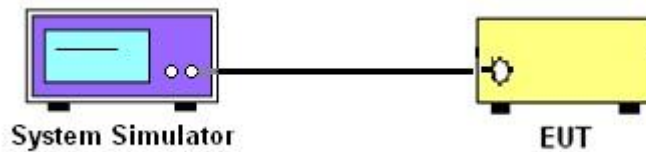
### 3 Conducted Test Items

#### 3.1 Measuring Instruments

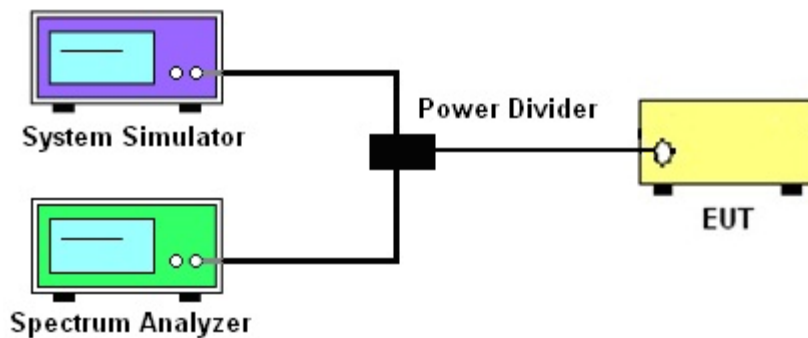
See list of measuring instruments of this test report.

#### 3.2 Test Setup

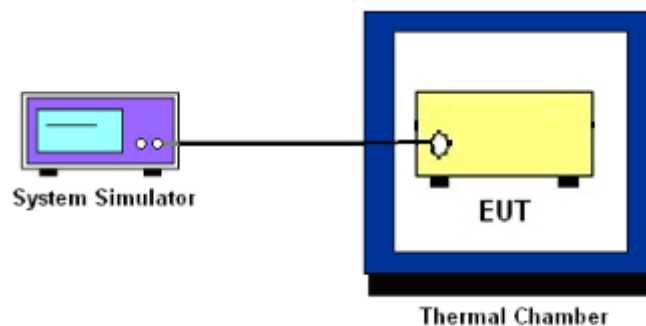
##### 3.2.1 Conducted Output Power



##### 3.2.2 Peak-to-Average Ratio, Occupied Bandwidth ,Conducted Band-Edge and Conducted Spurious Emission



##### 3.2.3 Frequency Stability



### 3.3 Test Result of Conducted Test

Please refer to Appendix A.



## 3.4 Conducted Output Power

### 3.4.1 Description of the Conducted Output Power Measurement

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

### 3.4.2 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.

## 3.5 Peak-to-Average Ratio

### 3.5.1 Description of the PAR Measurement

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. 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.

### 3.5.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 5.7.1.
2. The EUT was connected to spectrum and system simulator via a power divider.
3. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
4. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
5. Record the deviation as Peak to Average Ratio.



## 3.6 Occupied Bandwidth

### 3.6.1 Description of Occupied Bandwidth Measurement

The occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

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.

### 3.6.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 4.2.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.
4. The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
5. Set the detection mode to peak, and the trace mode to max hold.
6. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace.  
(this is the reference value)
7. Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
8. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “-X dB down amplitude” determined in step 6. If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.
9. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.





### 3.7 Conducted Band Edge

#### 3.7.1 Description of Conducted Band Edge Measurement

22.917(a) for Band 5

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(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.

24.238 (a) for Band 2

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(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.

27.53 (g) for Band 17

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(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.

27.53 (h) for Band 4

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(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.



27.53(m)(4) for FCC Band 7

For mobile digital stations, 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 that  $43 + 10 \log (P)$  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.

### 3.7.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 6.0.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured.
4. Set RBW  $\geq$  1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
5. Beyond the 1 MHz band from the band edge, RBW=1MHz was used.
6. Set spectrum analyzer with RMS detector.
7. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
8. Checked that all the results comply with the emission limit line.

Example:

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) = -13dBm.

9. For LTE Band 7, the other 40 dB and 55 dB have additionally applied same calculation above.



## 3.8 Conducted Spurious Emission

### 3.8.1 Description of Conducted Spurious Emission Measurement

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 10<sup>th</sup> harmonic.

### 3.8.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 6.0.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by 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. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz.
7. Set spectrum analyzer with RMS detector.
8. Taking the record of maximum spurious emission.
9. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
10. 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)  
= -13dBm.
11. For Band 7  
The limit line is derived from  $55 + 10\log(P)$ dB below the transmitter power P(Watts)  
=  $P(W) - [55 + 10\log(P)]$  (dB)  
=  $[30 + 10\log(P)]$  (dBm) -  $[55 + 10\log(P)]$  (dB)  
= -25dBm.



### **3.9 Frequency Stability**

#### **3.9.1 Description of Frequency Stability Measurement**

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within  $\pm 0.00025\%$  ( $\pm 2.5\text{ppm}$ ) of the center frequency.

#### **3.9.2 Test Procedures for Temperature Variation**

1. The testing follows FCC KDB 971168 v02r02 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  $-30^{\circ}\text{C}$  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  $10^{\circ}\text{C}$  step up to  $50^{\circ}\text{C}$ . 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.

#### **3.9.3 Test Procedures for Voltage Variation**

1. The testing follows FCC KDB 971168 v02r02 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.

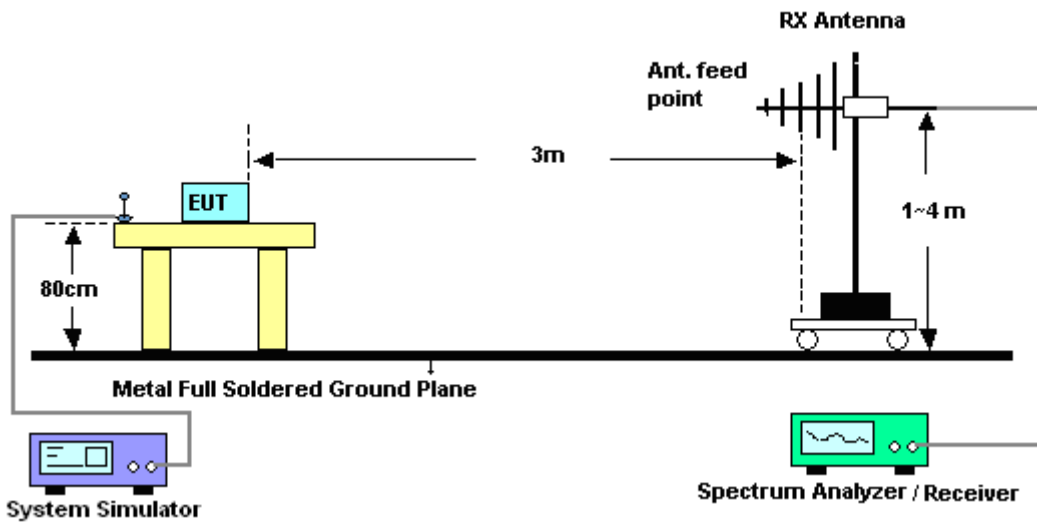
## 4 Radiated Test Items

### 4.1 Measuring Instruments

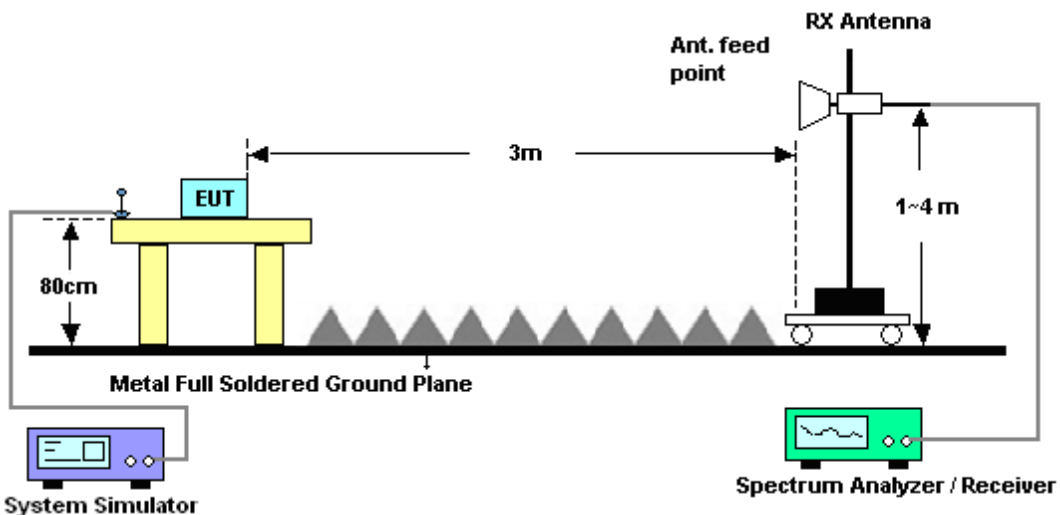
See list of measuring instruments of this test report.

### 4.2 Test Setup

#### 4.2.1 For radiated test from 30MHz to 1GHz



#### 4.2.2 For radiated test above 1GHz



### 4.3 Test Result of Radiated Test

Please refer to Appendix B.



## **4.4 Effective Radiated Power and Effective Isotropic Radiated Power**

### **4.4.1 Description of the ERP/EIRP Measurement**

Effective radiated power output measurements by substitution method according to ANSI / TIA / EIA-603-C-2004, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r02. Mobile and portable (hand-held) stations operating are limited to average ERP of 7 watts with LTE band 5 and 3 watts with LTE band 17.

Equivalent isotropic radiated power output measurements by substitution method according to ANSI / TIA / EIA-603-C-2004, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r02. Mobile and portable (hand-held) stations operating are limited to average EIRP of 2 watts with LTE band 2 / 7 and 1 watt with LTE band 4.

### **4.4.2 Test Procedures**

1. The EUT was placed on a non-conductive rotating platform 0.8 meters high in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RMS detector per section 5. of KDB 971168 D01.
2. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power. The maximum emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 meters in both horizontally and vertically polarized orientations.
3. Effective Isotropic Radiated Power (EIRP) was measured by substitution method according to TIA/EIA-603-C. 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. The correction factor (in dB) = S.G. - Tx Cable loss + Substitution antenna gain - Analyzer reading. Then the EUT's EIRP was calculated with the correction factor,  $EIRP = LVL + \text{Correction factor}$  and  $ERP = EIRP - 2.15$ . Take the record of the output power at substitution antenna.



	LTE Average					
LTE BW	1.4M	3M	5M	10M	15M	20M
Span	3MHz	6MHz	10MHz	20MHz	30MHz	40MHz
RBW	30kHz	100kHz	100kHz	300kHz	300kHz	300kHz
VBW	100kHz	300kHz	300kHz	1MHz	1MHz	1MHz
Detector	RMS	RMS	RMS	RMS	RMS	RMS
Trace	Average	Average	Average	Average	Average	Average
Average Type	Power	Power	Power	Power	Power	Power
Sweep Count	100	100	100	100	100	100

	LTE Peak					
LTE BW	1.4M	3M	5M	10M	15M	20M
Span	3MHz	6MHz	10MHz	20MHz	30MHz	40MHz
RBW	30kHz	100kHz	100kHz	300kHz	300kHz	300kHz
VBW	100kHz	300kHz	300kHz	1MHz	1MHz	1MHz
Detector	Peak	Peak	Peak	Peak	Peak	Peak
Trace	Max Hold	Max Hold	Max Hold	Max Hold	Max Hold	Max Hold
Power	Channel	Channel	Channel	Channel	Channel	Channel



## 4.5 Radiated Spurious Emission

### 4.5.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI / TIA / EIA-603-C-2004. The power of any emission outside of the authorized operating frequency ranges must be attenuated below 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 attenuated below the transmitter power (P) by a factor of at least  $55 + 10 \log (P)$  dB.

For LTE Band 17

For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to  $-70$  dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and  $-80$  dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

### 4.5.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 5.8 and ANSI / TIA-603-C-2004 Section 2.2.12.
2. The EUT was placed on a rotatable wooden table with 0.8 meter above ground.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
9. Taking the record of output power at antenna port.
10. Repeat step 7 to step 8 for another polarization.
11. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

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)  
= -13dBm.

For Band 7:

The limit line is derived from  $55 + 10\log(P)$ dB below the transmitter power P(Watts)





12.  $EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
13.  $ERP \text{ (dBm)} = EIRP - 2.15$



## 5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
LTE Base Station	Anritsu	MT8820C	620143282 1	GSM/GPRS /WCDMA/LTE	Oct. 27, 2014	Jul. 26, 2015~ Aug. 28, 2015	Oct. 26, 2015	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV30	100895	9kHz~30GHz	Apr. 27, 2015	Jul. 26, 2015~ Aug. 28, 2015	Apr. 26 2016	Conducted (TH05-HY)
Temperature Chamber	ESPEC	SH-641	92013720	-30 ~70 degree	Dec. 04, 2014	Jul. 26, 2015~ Aug. 28, 2015	Dec. 03, 2015	Conducted (TH05-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL890089	1V~20V 0.5A~5A	Jan. 14, 2015	Jul. 26, 2015~ Aug. 28, 2015	Jan. 13, 2016	Conducted (TH05-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170 251	18GHz- 40GHz	Oct. 02, 2014	Aug. 01, 2015~ Aug. 04, 2015	Oct. 01, 2015	Radiation (03CH10-HY)
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170 584	18GHz- 40GHz	Nov. 03, 2014	Aug. 01, 2015~ Aug. 04, 2015	Nov. 02, 2015	Radiation (03CH10-HY)
Amplifier	SONOMA	310N	187311	9kHz~1GHz	Nov. 24, 2014	Aug. 01, 2015~ Aug. 04, 2015	Nov. 23, 2015	Radiation (03CH10-HY)
Bilog Antenna	TESEQ	CBL 6111D	35413	30MHz~1GHz	Oct. 24, 2014	Aug. 01, 2015~ Aug. 04, 2015	Oct. 23, 2015	Radiation (03CH10-HY)
EMI Test Receiver	Keysight	N9038A	MY5413008 5	20Hz ~ 8.4GHz	Nov. 05, 2014	Aug. 01, 2015~ Aug. 04, 2015	Nov. 04, 2015	Radiation (03CH10-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-132 5	1GHz ~ 18GHz	Oct. 03, 2014	Aug. 01, 2015~ Aug. 04, 2015	Oct. 02, 2015	Radiation (03CH10-HY)
Preamplifier	Keysight	83017A	MY5327007 8	1GHz~26.5GHz	Nov. 20, 2014	Aug. 01, 2015~ Aug. 04, 2015	Nov. 19, 2015	Radiation (03CH10-HY)
Spectrum Analyzer	Keysight	N9010A	MY5420048 5	10Hz ~ 44GHZ	Oct. 14, 2014	Aug. 01, 2015~ Aug. 04, 2015	Oct. 13, 2015	Radiation (03CH10-HY)
Controller	EMEC	EM 1000	N/A	Control Turn table & Ant Mast	N/A	Aug. 01, 2015~ Aug. 04, 2015	N/A	Radiation (03CH10-HY)
Antenna Mast	EMEC	AM-BS-4500- B	N/A	1~4m	N/A	Aug. 01, 2015~ Aug. 04, 2015	N/A	Radiation (03CH10-HY)
Turn Table	EMEC	TT 2200	N/A	0-360 degree	N/A	Aug. 01, 2015~ Aug. 04, 2015	N/A	Radiation (03CH10-HY)
Bilog Antenna	TESEQ	CBL 6111D	35414	30MHz~1GHz	Oct. 24, 2014	Aug. 01, 2015~ Aug. 04, 2015	Oct. 23, 2015	Radiation (03CH10-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-132 6	1GHz ~ 18GHz	Oct. 03, 2014	Aug. 01, 2015~ Aug. 04, 2015	Oct. 02, 2015	Radiation (03CH10-HY)
Signal Generator	Rohde & Schwarz	SMF100A	101107	100kHz~40GHz	May 22, 2015	Aug. 01, 2015~ Aug. 04, 2015	May 21, 2016	Radiation (03CH10-HY)



## 6 Uncertainty of Evaluation

### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	4.90
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### Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.50
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## Appendix A. Test Results of Conducted Test

### Conducted Output Power(Average power)

LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	21.68	21.58	21.75
1.4	1	2		21.64	21.56	21.73
1.4	1	5		21.60	21.55	21.72
1.4	3	0		21.61	21.50	21.66
1.4	3	1		21.59	21.57	21.69
1.4	3	2		21.64	21.57	21.73
1.4	6	0		20.66	20.51	20.72
1.4	1	0	16-QAM	20.87	20.87	21.02
1.4	1	2		20.86	20.85	21.03
1.4	1	5		20.70	20.84	21.02
1.4	3	0		20.65	20.61	20.77
1.4	3	1		20.62	20.64	20.77
1.4	3	2		20.58	20.62	20.79
1.4	6	0		19.61	19.59	19.73
3	1	0	QPSK	21.58	21.57	21.67
3	1	7		21.53	21.54	21.59
3	1	14		21.54	21.49	21.64
3	8	0		20.61	20.58	20.68
3	8	4		20.60	20.57	20.69
3	8	7		20.58	20.53	20.68
3	15	0		20.57	20.54	20.66
3	1	0	16-QAM	20.83	20.73	20.87
3	1	7		20.80	20.85	20.97
3	1	14		20.75	20.64	20.89
3	8	0		19.60	19.54	19.68
3	8	4		19.60	19.53	19.66
3	8	7		19.62	19.55	19.68
3	15	0		19.61	19.53	19.62



LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	21.85	21.81	21.59
5	1	12		21.42	21.39	21.48
5	1	24		21.74	21.68	21.46
5	12	0		20.65	20.60	20.70
5	12	6		20.49	20.42	20.55
5	12	11		20.52	20.46	20.60
5	25	0		20.58	20.53	20.66
5	1	0	16-QAM	21.05	21.14	21.19
5	1	12		20.70	20.72	20.83
5	1	24		21.01	20.97	21.17
5	12	0		19.63	19.60	19.68
5	12	6		19.46	19.41	19.51
5	12	11		19.49	19.45	19.55
5	25	0		19.60	19.52	19.61
10	1	0	QPSK	21.82	21.65	21.72
10	1	24		21.60	21.49	21.58
10	1	49		21.64	21.37	21.71
10	25	0		20.29	20.61	20.68
10	25	12		20.50	20.51	20.64
10	25	24		20.21	20.47	20.67
10	50	0		20.21	20.55	20.69
10	1	0	16-QAM	20.88	20.97	21.06
10	1	24		20.30	20.85	20.92
10	1	49		20.25	20.68	20.98
10	25	0		19.52	19.58	19.61
10	25	12		19.56	19.48	19.57
10	25	24		19.53	19.42	19.59
10	50	0		19.56	19.50	19.63



LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	21.63	21.63	21.71
15	1	37		21.46	21.34	21.27
15	1	74		21.17	21.03	21.60
15	36	0		20.69	20.69	20.52
15	36	18		20.55	20.40	20.32
15	36	37		20.59	20.35	20.49
15	75	0		20.68	20.53	20.48
15	1	0	16-QAM	21.09	21.03	21.18
15	1	37		20.70	20.70	20.59
15	1	74		20.66	20.40	21.06
15	36	0		19.70	19.64	19.47
15	36	18		19.46	19.37	19.25
15	36	37		19.44	19.30	19.56
15	75	0		19.56	19.45	19.60
20	1	0	QPSK	21.63	21.71	21.85
20	1	49		21.50	21.40	21.35
20	1	99		21.17	21.12	21.17
20	50	0		20.72	20.69	20.51
20	50	24		20.61	20.47	20.44
20	50	49		20.62	20.41	20.41
20	100	0		20.71	20.53	20.44
20	1	0	16-QAM	21.10	21.05	20.70
20	1	49		20.80	20.70	20.65
20	1	99		20.69	20.44	20.43
20	50	0		19.77	19.65	19.44
20	50	24		19.53	19.43	19.36
20	50	49		19.53	19.34	19.34
20	100	0		19.64	19.45	19.37



LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	21.63	21.57	21.65
1.4	1	2		21.62	21.52	21.67
1.4	1	5		21.52	21.54	21.72
1.4	3	0		21.57	21.42	21.63
1.4	3	1		21.54	21.57	21.64
1.4	3	2		21.55	21.55	21.73
1.4	6	0		20.65	20.48	20.65
1.4	1	0	16-QAM	20.84	20.83	21.01
1.4	1	2		20.82	20.80	21.03
1.4	1	5		20.67	20.84	20.97
1.4	3	0		20.59	20.57	20.68
1.4	3	1		20.54	20.57	20.77
1.4	3	2		20.50	20.54	20.76
1.4	6	0		19.51	19.51	19.72
3	1	0	QPSK	21.53	21.50	21.59
3	1	7		21.52	21.47	21.58
3	1	14		21.44	21.47	21.59
3	8	0		20.60	20.49	20.65
3	8	4		20.58	20.49	20.60
3	8	7		20.57	20.50	20.62
3	15	0		20.51	20.51	20.65
3	1	0	16-QAM	20.80	20.69	20.78
3	1	7		20.70	20.79	20.97
3	1	14		20.68	20.60	20.83
3	8	0		19.53	19.51	19.62
3	8	4		19.59	19.52	19.65
3	8	7		19.54	19.53	19.64
3	15	0		19.59	19.49	19.52



LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	21.55	21.50	21.51
5	1	12		21.37	21.34	21.45
5	1	24		21.33	21.43	21.43
5	12	0		20.58	20.55	20.69
5	12	6		20.45	20.35	20.47
5	12	11		20.52	20.39	20.60
5	25	0		20.55	20.53	20.65
5	1	0	16-QAM	20.99	21.14	21.09
5	1	12		20.68	20.68	20.80
5	1	24		20.96	20.93	21.10
5	12	0		19.57	19.58	19.59
5	12	6		19.36	19.40	19.41
5	12	11		19.48	19.40	19.45
5	25	0		19.59	19.51	19.57
10	1	0	QPSK	21.64	21.63	21.63
10	1	24		21.53	21.49	21.48
10	1	49		21.55	21.33	21.67
10	25	0		20.25	20.55	20.61
10	25	12		20.44	20.50	20.55
10	25	24		20.14	20.41	20.65
10	50	0		20.21	20.55	20.66
10	1	0	16-QAM	20.79	20.93	20.98
10	1	24		20.20	20.82	20.90
10	1	49		20.18	20.63	20.98
10	25	0		19.50	19.53	19.56
10	25	12		19.47	19.38	19.55
10	25	24		19.43	19.41	19.52
10	50	0		19.55	19.46	19.59





LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	21.61	21.63	21.67
15	1	37		21.44	21.25	21.23
15	1	74		21.08	21.16	21.58
15	36	0		20.67	20.68	20.42
15	36	18		20.54	20.35	20.23
15	36	37		20.55	20.30	20.39
15	75	0		20.58	20.46	20.39
15	1	0	16-QAM	20.99	20.94	21.14
15	1	37		20.63	20.61	20.51
15	1	74		20.65	20.39	21.03
15	36	0		19.70	19.55	19.40
15	36	18		19.39	19.35	19.16
15	36	37		19.38	19.24	19.47
15	75	0		19.47	19.45	19.51
20	1	0	QPSK	21.62	21.63	21.77
20	1	49		21.41	21.39	21.32
20	1	99		21.07	21.06	21.08
20	50	0		20.69	20.61	20.46
20	50	24		20.61	20.41	20.36
20	50	49		20.59	20.35	20.35
20	100	0		20.71	20.48	20.35
20	1	0	16-QAM	21.05	21.03	20.70
20	1	49		20.71	20.60	20.62
20	1	99		20.69	20.37	20.40
20	50	0		19.77	19.64	19.34
20	50	24		19.44	19.40	19.29
20	50	49		19.45	19.29	19.32
20	100	0		19.63	19.35	19.31



LTE Band 5 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	21.61	21.48	21.61
1.4	1	2		21.48	21.36	21.48
1.4	1	5		21.54	21.37	21.54
1.4	3	0		21.52	21.34	21.52
1.4	3	1		21.57	21.53	21.57
1.4	3	2		21.54	21.51	21.54
1.4	6	0		20.60	20.30	20.60
1.4	1	0	16-QAM	20.98	20.73	20.98
1.4	1	2		20.97	20.77	20.97
1.4	1	5		20.86	20.70	20.86
1.4	3	0		20.60	20.44	20.60
1.4	3	1		20.73	20.43	20.73
1.4	3	2		20.68	20.44	20.68
1.4	6	0		19.66	19.31	19.66
3	1	0	QPSK	21.40	21.49	21.44
3	1	7		21.06	21.45	21.05
3	1	14		21.03	21.44	21.01
3	8	0		20.43	20.29	20.41
3	8	4		20.33	20.43	20.18
3	8	7		20.05	20.43	20.28
3	15	0		20.03	20.53	20.29
3	1	0	16-QAM	20.70	20.70	20.71
3	1	7		20.64	20.73	20.31
3	1	14		20.20	20.63	20.11
3	8	0		19.54	19.47	19.29
3	8	4		19.27	19.52	19.34
3	8	7		19.41	19.37	19.09
3	15	0		19.42	19.52	19.47



LTE Band 5 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	21.52	21.63	21.49
5	1	12		21.23	21.49	21.25
5	1	24		21.10	21.48	21.08
5	12	0		20.40	20.47	20.46
5	12	6		20.38	20.55	20.26
5	12	11		20.18	20.51	20.31
5	25	0		20.09	20.54	20.29
5	1	0	16-QAM	20.79	20.89	20.78
5	1	12		20.66	20.79	20.46
5	1	24		20.31	20.66	20.27
5	12	0		19.56	19.51	19.45
5	12	6		19.47	19.62	19.41
5	12	11		19.54	19.47	19.23
5	25	0		19.53	19.53	19.53
10	1	0	QPSK	21.65	21.74	21.64
10	1	24		21.33	21.68	21.45
10	1	49		21.00	21.51	21.24
10	25	0		20.08	20.63	20.51
10	25	12		20.45	20.57	20.40
10	25	24		20.20	20.54	20.33
10	50	0		20.12	20.59	20.44
10	1	0	16-QAM	20.84	20.93	20.88
10	1	24		20.83	20.88	20.66
10	1	49		20.33	20.73	20.47
10	25	0		19.60	19.69	19.58
10	25	12		19.59	19.65	19.50
10	25	24		19.63	19.61	19.43
10	50	0		19.62	19.65	19.55



LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	21.66	21.45	21.61
5	1	12		21.53	21.34	21.48
5	1	24		21.56	21.40	21.54
5	12	0		20.51	20.31	20.47
5	12	6		20.35	20.18	20.32
5	12	11		20.37	20.22	20.36
5	25	0		20.45	20.29	20.40
5	1	0	16-QAM	20.95	20.71	20.88
5	1	12		20.81	20.50	20.74
5	1	24		20.84	20.42	20.82
5	12	0		19.61	19.28	19.54
5	12	6		19.48	19.24	19.37
5	12	11		19.51	19.24	19.40
5	25	0		19.55	19.23	19.47
10	1	0	QPSK	21.46	21.25	21.43
10	1	24		21.49	21.30	21.45
10	1	49		21.22	21.12	21.23
10	25	0		20.53	20.35	20.50
10	25	12		20.48	20.32	20.46
10	25	24		20.43	20.28	20.41
10	50	0		20.47	20.36	20.47
10	1	0	16-QAM	20.81	20.47	20.67
10	1	24		20.85	20.21	20.70
10	1	49		20.60	20.11	20.52
10	25	0		19.57	19.38	19.50
10	25	12		19.50	19.32	19.46
10	25	24		19.43	19.00	19.42
10	50	0		19.47	19.10	19.50



LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	21.51	21.52	21.36
15	1	37		21.14	21.20	21.42
15	1	74		21.37	21.35	21.16
15	36	0		20.50	20.28	20.43
15	36	18		20.19	20.11	20.36
15	36	37		20.27	20.19	20.40
15	75	0		20.35	20.24	20.41
15	1	0	16-QAM	21.08	20.85	20.61
15	1	37		20.51	20.35	20.62
15	1	74		20.70	20.74	20.46
15	36	0		19.49	19.31	19.40
15	36	18		19.22	19.08	19.39
15	36	37		19.24	19.19	19.32
15	75	0		19.31	19.21	19.46
20	1	0	QPSK	21.70	21.51	21.56
20	1	49		21.08	21.00	21.17
20	1	99		21.34	21.25	21.10
20	50	0		20.46	20.28	20.50
20	50	24		20.17	20.10	20.46
20	50	49		20.27	20.11	20.38
20	100	0		20.27	20.22	20.41
20	1	0	16-QAM	21.04	20.76	20.73
20	1	49		20.41	20.29	20.70
20	1	99		20.68	20.67	20.24
20	50	0		19.44	19.23	19.45
20	50	24		19.21	19.05	19.41
20	50	49		19.22	19.15	19.34
20	100	0		19.31	19.12	19.38



LTE Band 17 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	21.65	21.64	21.66
5	1	12		21.63	21.60	21.64
5	1	24		21.60	21.58	21.64
5	12	0		20.79	20.75	20.74
5	12	6		20.70	20.70	20.76
5	12	11		20.74	20.73	20.71
5	25	0		20.76	20.78	20.75
5	1	0	16-QAM	21.01	21.04	21.00
5	1	12		20.95	21.02	21.01
5	1	24		20.85	20.83	20.89
5	12	0		19.81	19.79	19.81
5	12	6		19.75	19.78	19.80
5	12	11		19.82	19.83	19.74
5	25	0		19.81	19.83	19.83
10	1	0	QPSK	21.67	21.74	21.73
10	1	24		21.62	21.72	21.62
10	1	49		21.61	21.67	21.58
10	25	0		20.76	20.80	20.80
10	25	12		20.74	20.77	20.70
10	25	24		20.75	20.77	20.68
10	50	0		20.78	20.80	20.79
10	1	0	16-QAM	21.08	21.05	20.97
10	1	24		21.02	21.04	21.04
10	1	49		20.96	20.92	20.89
10	25	0		19.87	19.89	19.83
10	25	12		19.75	19.85	19.81
10	25	24		19.48	19.83	19.79
10	50	0		19.47	19.87	19.77



## Appendix B. Test Results of Radiated Test

### ERP/EIRP

LTE Band 2 / 1.4MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	21.80	0.1514	18.62	0.0728
Middle		1	0	21.01	0.1261	19.34	0.0859
Highest		1	0	20.98	0.1254	19.92	0.0982
Lowest	16QAM	1	2	21.03	0.1266	17.85	0.0610
Middle		1	2	20.26	0.1061	18.63	0.0729
Highest		1	2	20.21	0.1050	19.19	0.0831
Limit	EIRP < 2W			Result		PASS	

LTE Band 2 / 3MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	21.85	0.1530	18.68	0.0737
Middle		1	0	21.00	0.1260	19.41	0.0874
Highest		1	0	20.89	0.1229	19.84	0.0963
Lowest	16QAM	1	7	20.94	0.1243	17.82	0.0605
Middle		1	7	20.23	0.1053	18.62	0.0728
Highest		1	7	20.12	0.1027	19.11	0.0814
Limit	EIRP < 2W			Result		PASS	



LTE Band 2 / 5MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	22.03	0.1595	18.91	0.0778
Middle		1	0	21.27	0.1341	19.64	0.0920
Highest		1	0	21.00	0.1258	19.99	0.0997
Lowest	16QAM	1	0	21.28	0.1344	18.12	0.0648
Middle		1	0	20.54	0.1133	18.94	0.0783
Highest		1	0	20.18	0.1042	19.21	0.0834
Limit	EIRP < 2W			Result		PASS	

LTE Band 2 / 10MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	21.86	0.1535	18.66	0.0735
Middle		1	0	21.16	0.1305	19.44	0.0879
Highest		1	0	20.86	0.1219	19.98	0.0994
Lowest	16QAM	1	0	21.04	0.1270	17.90	0.0616
Middle		1	0	20.57	0.1141	18.78	0.0755
Highest		1	0	20.12	0.1029	19.25	0.0841
Limit	EIRP < 2W			Result		PASS	

LTE Band 2 / 15MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	22.31	0.1702	19.32	0.0854
Middle		1	0	21.82	0.1521	20.01	0.1003
Highest		1	0	21.23	0.1327	20.46	0.1112
Lowest	16QAM	1	0	21.46	0.1401	18.48	0.0704
Middle		1	0	21.19	0.1316	19.38	0.0867
Highest		1	0	21.40	0.1380	18.46	0.0702
Limit	EIRP < 2W			Result		PASS	





LTE Band 2 / 20MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	21.90	0.1549	18.96	0.0786
Middle		1	0	21.53	0.1422	19.61	0.0914
Highest		1	0	21.24	0.1330	19.99	0.0997
Lowest	16QAM	1	0	21.05	0.1275	18.29	0.0675
Middle		1	0	20.98	0.1253	19.14	0.0821
Highest		1	0	20.33	0.1080	19.31	0.0852
Limit	EIRP < 2W			Result		PASS	



LTE Band 4 / 1.4MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	3	2	18.22	0.0663	15.40	0.0347
Middle		3	2	22.19	0.1655	19.46	0.0883
Highest		3	2	24.17	0.2610	21.30	0.1350
Lowest	16QAM	1	2	17.32	0.0539	14.63	0.0290
Middle		1	2	21.39	0.1378	18.41	0.0693
Highest		1	2	23.00	0.1997	20.13	0.1032
Limit	EIRP < 1W			Result		PASS	

LTE Band 4 / 3MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	17.52	0.0565	15.38	0.0345
Middle		1	0	21.77	0.1501	19.06	0.0805
Highest		1	0	23.63	0.2306	21.08	0.1282
Lowest	16QAM	1	7	17.52	0.0565	14.66	0.0293
Middle		1	7	21.18	0.1312	18.59	0.0723
Highest		1	7	23.00	0.1994	20.24	0.1057
Limit	EIRP < 1W			Result		PASS	

LTE Band 4 / 5MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	18.38	0.0689	15.56	0.0360
Middle		1	0	22.13	0.1632	19.25	0.0840
Highest		1	0	24.09	0.2563	21.29	0.1345
Lowest	16QAM	1	0	17.66	0.0583	14.71	0.0296
Middle		1	0	21.27	0.1340	18.45	0.0699
Highest		1	0	23.31	0.2143	20.44	0.1106
Limit	EIRP < 1W			Result		PASS	



LTE Band 4 / 10MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	18.31	0.0678	15.50	0.0354
Middle		1	0	21.56	0.1434	18.79	0.0756
Highest		1	0	23.49	0.2233	20.70	0.1174
Lowest	16QAM	1	0	17.55	0.0568	14.68	0.0293
Middle		1	0	20.82	0.1207	18.02	0.0633
Highest		1	0	22.83	0.1917	19.98	0.0995
Limit	EIRP < 1W			Result		PASS	

LTE Band 4 / 15MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	18.76	0.0751	15.82	0.0382
Middle		1	0	21.83	0.1525	18.94	0.0783
Highest		1	0	23.67	0.2328	20.69	0.1171
Lowest	16QAM	1	0	17.96	0.0625	15.11	0.0324
Middle		1	0	21.06	0.1277	18.15	0.0654
Highest		1	0	22.85	0.1927	19.94	0.0985
Limit	EIRP < 1W			Result		PASS	

LTE Band 4 / 20MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	18.53	0.0712	15.31	0.0340
Middle		1	0	21.15	0.1305	18.03	0.0635
Highest		1	0	22.56	0.1801	19.65	0.0922
Lowest	16QAM	1	0	17.75	0.0596	14.57	0.0287
Middle		1	0	20.40	0.1096	17.36	0.0544
Highest		1	0	21.99	0.1579	19.04	0.0801
Limit	EIRP < 1W			Result		PASS	



LTE Band 5 / 1.4MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	ERP(dBm)	ERP(W)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	0	18.89	0.0775	12.46	0.0176
Middle		1	0	19.03	0.0800	13.00	0.0200
Highest		1	0	18.10	0.0645	13.40	0.0219
Lowest	16QAM	1	0	18.20	0.0660	11.70	0.0148
Middle		1	0	18.25	0.0668	12.24	0.0168
Highest		1	0	17.23	0.0529	12.63	0.0183
Limit	ERP < 7W			Result		PASS	

LTE Band 5 / 3MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	ERP(dBm)	ERP(W)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	0	18.76	0.0752	12.41	0.0174
Middle		1	0	19.00	0.0794	13.00	0.0200
Highest		1	0	18.25	0.0669	13.35	0.0216
Lowest	16QAM	1	7	18.15	0.0654	11.73	0.0149
Middle		1	7	18.29	0.0674	12.27	0.0169
Highest		1	7	17.16	0.0520	12.58	0.0181
Limit	ERP < 7W			Result		PASS	

LTE Band 5 / 5MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	ERP(dBm)	ERP(W)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	0	19.18	0.0829	12.67	0.0185
Middle		1	0	19.15	0.0823	13.20	0.0209
Highest		1	0	18.61	0.0726	13.51	0.0224
Lowest	16QAM	1	0	18.31	0.0678	11.91	0.0155
Middle		1	0	18.50	0.0708	12.40	0.0174
Highest		1	0	17.99	0.0629	12.73	0.0188
Limit	ERP < 7W			Result		PASS	



LTE Band 5 / 10MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	ERP(dBm)	ERP(W)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	0	19.02	0.0798	12.53	0.0179
Middle		1	0	19.19	0.0829	13.03	0.0201
Highest		1	0	18.91	0.0778	13.32	0.0215
Lowest	16QAM	1	0	18.19	0.0660	11.82	0.0152
Middle		1	0	18.43	0.0697	12.28	0.0169
Highest		1	0	18.33	0.0681	12.59	0.0182
Limit	ERP < 7W			Result		PASS	



LTE Band 7 / 5MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	20.30	0.1073	19.99	0.0998
Middle		1	0	19.16	0.0825	18.63	0.0730
Highest		1	0	18.85	0.0767	18.30	0.0676
Lowest	16QAM	1	0	19.36	0.0862	19.24	0.0839
Middle		1	0	18.53	0.0712	17.84	0.0608
Highest		1	0	18.11	0.0647	17.52	0.0565
Limit	EIRP < 2W			Result		PASS	

LTE Band 7 / 10MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	24	20.16	0.1037	19.64	0.0920
Middle		1	24	18.90	0.0776	18.42	0.0695
Highest		1	24	18.64	0.0731	18.18	0.0658
Lowest	16QAM	1	0	19.49	0.0890	18.90	0.0776
Middle		1	0	18.38	0.0689	17.68	0.0587
Highest		1	0	18.00	0.0630	17.38	0.0548
Limit	EIRP < 2W			Result		PASS	

LTE Band 7 / 15MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	20.48	0.1118	20.05	0.1012
Middle		1	0	19.50	0.0890	18.91	0.0777
Highest		1	0	19.48	0.0887	18.79	0.0756
Lowest	16QAM	1	0	19.55	0.0901	19.39	0.0869
Middle		1	0	18.51	0.0709	18.10	0.0646
Highest		1	0	18.61	0.0726	17.94	0.0623
Limit	EIRP < 2W			Result		PASS	



LTE Band 7 / 20MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	19.96	0.0991	19.95	0.0988
Middle		1	0	19.06	0.0805	18.79	0.0757
Highest		1	0	18.72	0.0745	18.31	0.0677
Lowest	16QAM	1	0	19.26	0.0844	19.19	0.0829
Middle		1	0	18.28	0.0673	18.01	0.0632
Highest		1	0	18.06	0.0640	17.66	0.0583
Limit	EIRP < 2W			Result		PASS	



LTE Band 17 / 5MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	ERP(dBm)	ERP(W)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	0	17.14	0.0518	5.45	0.0035
Middle		1	0	17.01	0.0503	5.33	0.0034
Highest		1	0	16.70	0.0468	5.13	0.0033
Lowest	16QAM	1	0	16.32	0.0428	4.70	0.0029
Middle		1	0	16.43	0.0439	4.56	0.0029
Highest		1	0	16.39	0.0435	4.32	0.0027
Limit	ERP < 3W			Result		PASS	

LTE Band 17 / 10MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	ERP(dBm)	ERP(W)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	0	16.93	0.0493	5.14	0.0033
Middle		1	0	16.93	0.0493	5.09	0.0032
Highest		1	0	16.89	0.0489	4.94	0.0031
Lowest	16QAM	1	0	16.10	0.0407	4.47	0.0028
Middle		1	0	16.30	0.0427	4.47	0.0028
Highest		1	0	16.28	0.0424	4.29	0.0027
Limit	ERP < 3W			Result		PASS	





### Radiated Spurious Emission

LTE Band 2 / 1.4MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3704	-47.25	-13	-34.25	-65.92	-53.83	1.67	8.24	H
	5556	-51.32	-13	-38.32	-75.03	-58.39	2.66	9.72	H
	7404	-43.35	-13	-30.35	-72.19	-52.5	2.46	11.61	H
	3704	-51.87	-13	-38.87	-70.43	-58.45	1.67	8.24	V
	5556	-48.89	-13	-35.89	-71.04	-55.96	2.66	9.72	V
	7404	-43.16	-13	-30.16	-71.21	-52.31	2.46	11.61	V
Middle	3764	-49.72	-13	-36.72	-68.91	-56.35	1.69	8.32	H
	5644	-49.33	-13	-36.33	-73.12	-56.38	2.71	9.76	H
	7524	-44.82	-13	-31.82	-73.49	-54.21	2.42	11.81	H
	3764	-49.78	-13	-36.78	-68.4	-56.41	1.69	8.32	V
	5644	-48.38	-13	-35.38	-70.69	-55.43	2.71	9.76	V
	7524	-44.31	-13	-31.31	-72.59	-53.7	2.42	11.81	V
Highest	3820	-47.82	-13	-34.82	-67.42	-52.35	1.70	8.38	H
	5732	-49.32	-13	-36.32	-73.46	-54.2	2.76	9.79	H
	7640	-43.71	-13	-30.71	-72.14	-51.06	2.38	11.88	H
	3820	-53.02	-13	-40.02	-71.77	-57.55	1.70	8.38	V
	5732	-48.49	-13	-35.49	-71.64	-53.37	2.76	9.79	V
	7640	-44.26	-13	-31.26	-72.23	-51.61	2.38	11.88	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 2 / 3MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3704	-46.72	-13	-33.72	-65.37	-53.3	1.67	8.24	H
	5556	-51.01	-13	-38.01	-74.71	-58.08	2.66	9.72	H
	7704	-44.25	-13	-31.25	-73.14	-53.81	2.36	11.92	H
	3704	-51.33	-13	-38.33	-69.91	-57.91	1.67	8.24	V
	5556	-48.65	-13	-35.65	-70.82	-55.72	2.66	9.72	V
	7404	-42.77	-13	-29.77	-70.83	-51.92	2.46	11.61	V
Middle	3760	-50.72	-13	-37.72	-69.75	-57.35	1.69	8.31	H
	5640	-48.95	-13	-35.95	-72.71	-56	2.71	9.76	H
	7520	-43.71	-13	-30.71	-72.35	-53.1	2.42	11.81	H
	11276	-43.62	-13	-30.62	-76.35	-53.32	2.68	12.39	H
	3760	-50.05	-13	-37.05	-68.68	-56.68	1.69	8.31	V
	5636	-48.21	-13	-35.21	-70.52	-55.26	2.70	9.75	V
	7520	-44.07	-13	-31.07	-72.36	-53.46	2.42	11.81	V
Highest	3820	-48.34	-13	-35.34	-67.95	-52.87	1.70	8.38	H
	5724	-49.76	-13	-36.76	-73.92	-54.65	2.75	9.79	H
	7632	-44.01	-13	-31.01	-72.43	-51.35	2.39	11.88	H
	11448	-44.03	-13	-31.03	-77.04	-51.52	2.68	12.32	H
	3820	-51.33	-13	-38.33	-70.04	-55.86	1.70	8.38	V
	5724	-49.02	-13	-36.02	-72.19	-53.91	2.75	9.79	V
	7632	-43.66	-13	-30.66	-71.62	-51	2.39	11.88	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 2 / 5MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3704	-47.06	-13	-34.06	-65.73	-53.64	1.67	8.24	H
	5556	-50.46	-13	-37.46	-74.17	-57.53	2.66	9.72	H
	7404	-42.98	-13	-29.98	-71.87	-52.13	2.46	11.61	H
	3704	-51.37	-13	-38.37	-69.93	-57.95	1.67	8.24	V
	5556	-48.09	-13	-35.09	-70.25	-55.16	2.66	9.72	V
	7404	-42.35	-13	-29.35	-70.41	-51.5	2.46	11.61	V
Middle	3760	-49.01	-13	-36.01	-68.07	-55.64	1.69	8.31	H
	5636	-49.56	-13	-36.56	-73.31	-56.61	2.70	9.75	H
	7516	-43.57	-13	-30.57	-72.29	-52.96	2.42	11.81	H
	3760	-48.76	-13	-35.76	-67.41	-55.39	1.69	8.31	V
	5636	-47.86	-13	-34.86	-70.16	-54.91	2.70	9.75	V
	7516	-42.96	-13	-29.96	-71.32	-52.35	2.42	11.81	V
Highest	3816	-47.49	-13	-34.49	-67.1	-52.02	1.70	8.38	H
	5720	-47.65	-13	-34.65	-71.77	-52.54	2.75	9.79	H
	7624	-44.21	-13	-31.21	-72.65	-51.55	2.39	11.87	H
	3816	-50.15	-13	-37.15	-68.86	-54.68	1.70	8.38	V
	5720	-46.36	-13	-33.36	-69.51	-51.25	2.75	9.79	V
	7624	-43.01	-13	-30.01	-71	-50.35	2.39	11.87	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 2 / 10MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3704	-45.73	-13	-32.73	-64.4	-52.31	1.67	8.24	H
	5556	-50.26	-13	-37.26	-73.95	-57.33	2.66	9.72	H
	7408	-43.46	-13	-30.46	-72.34	-52.62	2.46	11.62	H
	3704	-51.02	-13	-38.02	-69.58	-57.6	1.67	8.24	V
	5556	-48.12	-13	-35.12	-70.32	-55.19	2.66	9.72	V
	7408	-41.89	-13	-28.89	-69.98	-51.05	2.46	11.62	V
Middle	3756	-48.58	-13	-35.58	-67.62	-55.2	1.68	8.31	H
	5632	-47.76	-13	-34.76	-71.38	-54.81	2.70	9.75	H
	7508	-43.22	-13	-30.22	-71.94	-52.6	2.43	11.80	H
	3756	-47.10	-13	-34.10	-65.73	-53.72	1.68	8.31	V
	5632	-45.34	-13	-32.34	-67.48	-52.39	2.70	9.75	V
	7508	-42.42	-13	-29.42	-70.76	-51.8	2.43	11.80	V
Highest	3804	-47.53	-13	-34.53	-66.97	-52.05	1.70	8.36	H
	5704	-47.22	-13	-34.22	-71.29	-52.11	2.74	9.78	H
	7608	-46.33	-13	-33.33	-74.79	-53.65	2.39	11.86	H
	3804	-48.61	-13	-35.61	-67.17	-53.13	1.70	8.36	V
	5704	-45.31	-13	-32.31	-68.3	-50.2	2.74	9.78	V
	7608	-45.88	-13	-32.88	-73.85	-53.2	2.39	11.86	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 2 / 15MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3704	-46.62	-13	-33.62	-65.28	-53.2	1.67	8.24	H
	5556	-49.83	-13	-36.83	-73.51	-56.9	2.66	9.72	H
	7408	-40.05	-13	-27.05	-68.93	-49.21	2.46	11.62	H
	3704	-51.11	-13	-38.11	-69.67	-57.69	1.67	8.24	V
	5556	-47.46	-13	-34.46	-69.61	-54.53	2.66	9.72	V
	7408	-40.84	-13	-27.84	-68.9	-50	2.46	11.62	V
Middle	3752	-47.94	-13	-34.94	-66.98	-54.56	1.68	8.30	H
	5624	-46.59	-13	-33.59	-70.24	-53.64	2.70	9.75	H
	7496	-43.22	-13	-30.22	-72	-52.58	2.43	11.79	H
	3752	-47.83	-13	-34.83	-66.48	-54.45	1.68	8.30	V
	5624	-44.55	-13	-31.55	-66.65	-51.6	2.70	9.75	V
	7496	-42.27	-13	-29.27	-70.7	-51.63	2.43	11.79	V
Highest	3796	-46.91	-13	-33.91	-66.22	-51.42	1.70	8.36	H
	5692	-46.61	-13	-33.61	-70.59	-51.5	2.74	9.78	H
	7588	-46.93	-13	-33.93	-75.34	-54.23	2.40	11.85	H
	3796	-50.02	-13	-37.02	-68.65	-54.53	1.70	8.36	V
	5692	-45.66	-13	-32.66	-68.49	-50.55	2.74	9.78	V
	7588	-46.32	-13	-33.32	-74.32	-53.62	2.40	11.85	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 2 / 20MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3708	-47.85	-13	-34.85	-66.55	-54.43	1.67	8.25	H
	5556	-50.88	-13	-37.88	-74.57	-57.95	2.66	9.72	H
	7408	-42.44	-13	-29.44	-71.29	-51.6	2.46	11.62	H
	3708	-52.36	-13	-39.36	-70.92	-58.94	1.67	8.25	V
	5556	-48.37	-13	-35.37	-70.5	-55.44	2.66	9.72	V
	7408	-42.64	-13	-29.64	-70.7	-51.8	2.46	11.62	V
Middle	3748	-50.03	-13	-37.03	-69.09	-56.65	1.68	8.30	H
	5616	-48.03	-13	-35.03	-71.63	-55.08	2.69	9.75	H
	7488	-44.33	-13	-31.33	-73.12	-53.67	2.43	11.78	H
	3748	-50.01	-13	-37.01	-68.66	-56.63	1.68	8.30	V
	5616	-45.49	-13	-32.49	-67.61	-52.54	2.69	9.75	V
	7488	-43.38	-13	-30.38	-71.84	-52.72	2.43	11.78	V
Highest	3788	-49.01	-13	-36.01	-68.33	-53.51	1.69	8.35	H
	5676	-50.93	-13	-37.93	-74.84	-55.82	2.73	9.77	H
	7568	-46.79	-13	-33.79	-75.35	-54.07	2.41	11.84	H
	3788	-53.51	-13	-40.51	-72.11	-58.01	1.69	8.35	V
	5676	-50.20	-13	-37.20	-72.88	-55.09	2.73	9.77	V
	7568	-46.02	-13	-33.02	-74.17	-53.3	2.41	11.84	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 4 / 1.4MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3420	-45.61	-13	-32.61	-62.25	-51.68	1.58	7.65	H
	5128	-35.95	-13	-22.95	-58.81	-43.24	2.41	9.70	H
	6843	-37.60	-13	-24.60	-64.51	-45.57	2.64	10.61	H
	8551	-40.06	-13	-27.06	-70.61	-50.19	2.39	12.52	H
	3420	-43.75	-13	-30.75	-60	-49.82	1.58	7.65	V
	5128	-41.30	-13	-28.30	-63.31	-48.59	2.41	9.70	V
	6843	-33.53	-13	-20.53	-60.1	-41.5	2.64	10.61	V
Middle	8551	-43.64	-13	-30.64	-73.2	-53.77	2.39	12.52	V
	3462	-47.01	-13	-34.01	-63.05	-53.25	1.59	7.83	H
	5198	-32.75	-13	-19.75	-55.49	-40	2.45	9.70	H
	6927	-34.99	-13	-21.99	-62.24	-43.09	2.61	10.71	H
	8663	-37.56	-13	-24.56	-68.38	-47.71	2.41	12.57	H
	3462	-44.61	-13	-31.61	-61.53	-50.85	1.59	7.83	V
	5198	-38.19	-13	-25.19	-60.44	-45.44	2.45	9.70	V
Highest	6927	-33.20	-13	-20.20	-60.23	-41.3	2.61	10.71	V
	8663	-42.91	-13	-29.91	-72.32	-53.06	2.41	12.57	V
	3511	-46.50	-13	-33.50	-63.94	-52.91	1.61	8.01	H
	5261	-34.58	-13	-21.58	-57.42	-41.79	2.49	9.70	H
	7018	-38.51	-13	-25.51	-66.08	-46.76	2.58	10.84	H
	8768	-41.32	-13	-28.32	-72.28	-51.49	2.43	12.61	H
	3511	-44.48	-13	-31.48	-62.1	-50.89	1.61	8.01	V
5261	-39.40	-13	-26.40	-62.32	-46.61	2.49	9.70	V	
7018	-34.94	-13	-21.94	-62.61	-43.19	2.58	10.84	V	
8768	-44.42	-13	-31.42	-74.72	-54.59	2.43	12.61	V	

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 4 / 3MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3420	-45.13	-13	-32.13	-61.69	-51.2	1.58	7.65	H
	5128	-36.15	-13	-23.15	-58.96	-43.44	2.41	9.70	H
	6843	-38.53	-13	-25.53	-65.43	-46.5	2.64	10.61	H
	8551	-40.13	-13	-27.13	-70.6	-50.26	2.39	12.52	H
	3420	-44.02	-13	-31.02	-60.21	-50.09	1.58	7.65	V
	5128	-41.66	-13	-28.66	-63.59	-48.95	2.41	9.70	V
	6843	-33.10	-13	-20.10	-59.64	-41.07	2.64	10.61	V
Middle	8551	-43.55	-13	-30.55	-73.03	-53.68	2.39	12.52	V
	3462	-45.96	-13	-32.96	-63	-52.2	1.59	7.83	H
	5191	-32.06	-13	-19.06	-54.79	-39.31	2.45	9.70	H
	6927	-36.04	-13	-23.04	-63.3	-44.14	2.61	10.71	H
	8656	-37.35	-13	-24.35	-68.16	-47.5	2.41	12.56	H
	3462	-44.29	-13	-31.29	-61.21	-50.53	1.59	7.83	V
	5191	-36.93	-13	-23.93	-59.18	-44.18	2.45	9.70	V
Highest	5927	-30.93	-13	-17.93	-57.98	-37.93	2.87	9.87	V
	8656	-42.75	-13	-29.75	-72.01	-52.9	2.41	12.56	V
	3504	-47.23	-13	-34.23	-64.54	-53.63	1.61	8.00	H
	5254	-34.70	-13	-21.70	-57.37	-41.92	2.48	9.70	H
	7011	-37.15	-13	-24.15	-64.75	-45.39	2.59	10.82	H
	8761	-41.35	-13	-28.35	-72.22	-51.52	2.43	12.60	H
	3504	-44.92	-13	-31.92	-62.36	-51.32	1.61	8.00	V
5254	-38.78	-13	-25.78	-61.7	-46	2.48	9.70	V	
7011	-36.51	-13	-23.51	-64.1	-44.75	2.59	10.82	V	
8761	-43.53	-13	-30.53	-73.81	-53.7	2.43	12.60	V	

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.





LTE Band 4 / 5MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3420	-44.27	-13	-31.27	-60.84	-50.34	1.58	7.65	H
	5128	-36.72	-13	-23.72	-59.52	-44.01	2.41	9.70	H
	6843	-37.03	-13	-24.03	-63.98	-45	2.64	10.61	H
	8551	-38.97	-13	-25.97	-69.43	-49.1	2.39	12.52	H
	3420	-43.02	-13	-30.02	-59.2	-49.09	1.58	7.65	V
	5128	-41.86	-13	-28.86	-63.82	-49.15	2.41	9.70	V
	6843	-31.70	-13	-18.70	-58.24	-39.67	2.64	10.61	V
	8551	-43.97	-13	-30.97	-73.45	-54.1	2.39	12.52	V
Middle	3462	-46.26	-13	-33.26	-63.26	-52.5	1.59	7.83	H
	5191	-32.47	-13	-19.47	-55.21	-39.72	2.45	9.70	H
	6920	-36.92	-13	-23.92	-64.12	-45.01	2.62	10.70	H
	8649	-38.41	-13	-25.41	-69.24	-48.56	2.41	12.56	H
	3462	-44.67	-13	-31.67	-61.58	-50.91	1.59	7.83	V
	5191	-37.38	-13	-24.38	-59.61	-44.63	2.45	9.70	V
	6920	-31.91	-13	-18.91	-58.87	-40	2.62	10.70	V
	8649	-43.02	-13	-30.02	-72.3	-53.17	2.41	12.56	V
Highest	3504	-45.71	-13	-32.71	-63.01	-52.11	1.61	8.00	H
	5254	-34.57	-13	-21.57	-57.23	-41.79	2.48	9.70	H
	7004	-37.46	-13	-24.46	-65.02	-45.68	2.59	10.81	H
	8754	-40.96	-13	-27.96	-71.82	-51.13	2.43	12.60	H
	3504	-43.85	-13	-30.85	-61.3	-50.25	1.61	8.00	V
	5254	-37.88	-13	-24.88	-60.8	-45.1	2.48	9.70	V
	7004	-34.40	-13	-21.40	-61.86	-42.62	2.59	10.81	V
	8754	-44.85	-13	-31.85	-75	-55.02	2.43	12.60	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 4 / 10MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3420	-48.65	-13	-35.65	-65.23	-54.72	1.58	7.65	H
	5132	-38.71	-13	-25.71	-61.5	-46	2.41	9.70	H
	6844	-37.19	-13	-24.19	-64.12	-45.16	2.64	10.61	H
	8552	-43.37	-13	-30.37	-73.82	-53.5	2.39	12.52	H
	3420	-52.33	-13	-39.33	-68.45	-58.4	1.58	7.65	V
	5432	-38.72	-13	-25.72	-60.69	-45.83	2.59	9.70	V
	6844	-38.44	-13	-25.44	-64.98	-46.41	2.64	10.61	V
Middle	8552	-41.67	-13	-28.67	-71.17	-51.8	2.39	12.52	V
	3456	-48.68	-13	-35.68	-65.54	-54.9	1.59	7.81	H
	5184	-39.01	-13	-26.01	-61.77	-46.27	2.44	9.70	H
	6912	-39.52	-13	-26.52	-66.7	-47.6	2.62	10.69	H
	3456	-51.89	-13	-38.89	-68.57	-58.11	1.59	7.81	V
	5184	-38.13	-13	-25.13	-60.35	-45.39	2.44	9.70	V
	6912	-38.85	-13	-25.85	-65.78	-46.93	2.62	10.69	V
Highest	8640	-43.18	-13	-30.18	-72.31	-53.33	2.41	12.56	V
	3492	-45.46	-13	-32.46	-62.73	-51.82	1.60	7.96	H
	5236	-38.68	-13	-25.68	-61.38	-45.91	2.47	9.70	H
	6984	-35.46	-13	-22.46	-62.94	-43.65	2.60	10.78	H
	3492	-48.66	-13	-35.66	-66.11	-55.02	1.60	7.96	V
	5236	-35.64	-13	-22.64	-58.33	-42.87	2.47	9.70	V
	6984	-37.81	-13	-24.81	-65.16	-46	2.60	10.78	V
8728	-42.88	-13	-29.88	-72.88	-53.05	2.42	12.59	V	

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 4 / 15MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3420	-47.95	-13	-34.95	-64.53	-54.02	1.58	7.65	H
	5132	-39.10	-13	-26.10	-61.91	-46.39	2.41	9.70	H
	6844	-39.43	-13	-26.43	-66.33	-47.4	2.64	10.61	H
	8556	-44.10	-13	-31.10	-74.55	-54.24	2.39	12.52	H
	3420	-47.64	-13	-34.64	-63.79	-53.71	1.58	7.65	V
	5132	-41.79	-13	-28.79	-63.75	-49.08	2.41	9.70	V
	6844	-36.63	-13	-23.63	-63.22	-44.6	2.64	10.61	V
Middle	3452	-47.93	-13	-34.93	-64.72	-54.13	1.59	7.79	H
	5176	-38.39	-13	-25.39	-61.14	-45.65	2.44	9.70	H
	6904	-36.23	-13	-23.23	-63.4	-44.29	2.62	10.68	H
	8628	-44.50	-13	-31.50	-75.31	-54.65	2.40	12.55	H
	3452	-50.61	-13	-37.61	-67.26	-56.81	1.59	7.79	V
	5176	-37.67	-13	-24.67	-59.84	-44.93	2.44	9.70	V
	6904	-37.90	-13	-24.90	-64.78	-45.96	2.62	10.68	V
	8628	-43.59	-13	-30.59	-72.68	-53.74	2.40	12.55	V
Highest	3480	-46.69	-13	-33.69	-63.83	-53	1.60	7.91	H
	5224	-38.70	-13	-25.70	-61.4	-45.93	2.47	9.70	H
	6964	-37.87	-13	-24.87	-65.27	-46.02	2.60	10.76	H
	3480	-51.50	-13	-38.50	-68.69	-57.81	1.60	7.91	V
	5224	-39.04	-13	-26.04	-61.53	-46.27	2.47	9.70	V
	6964	-39.57	-13	-26.57	-66.84	-47.72	2.60	10.76	V
	8704	-43.79	-13	-30.79	-73.49	-53.95	2.42	12.58	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 4 / 20MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3424	-49.16	-13	-36.16	-65.87	-55.25	1.58	7.67	H
	5132	-40.23	-13	-27.23	-63.02	-47.52	2.41	9.70	H
	6844	-38.65	-13	-25.65	-65.59	-46.62	2.64	10.61	H
	8556	-43.66	-13	-30.66	-74.12	-53.8	2.39	12.52	H
	3424	-46.81	-13	-33.81	-63.19	-52.9	1.58	7.67	V
	5132	-42.07	-13	-29.07	-64.02	-49.36	2.41	9.70	V
	6844	-37.40	-13	-24.40	-63.94	-45.37	2.64	10.61	V
Middle	3448	-50.65	-13	-37.65	-67.53	-56.83	1.59	7.77	H
	5172	-35.49	-13	-22.49	-58.27	-42.75	2.44	9.70	H
	6896	-37.34	-13	-24.34	-64.51	-45.39	2.62	10.68	H
	8620	-41.69	-13	-28.69	-72.5	-51.84	2.40	12.55	H
	3448	-48.72	-13	-35.72	-65.39	-54.9	1.59	7.77	V
	5172	-38.17	-13	-25.17	-60.26	-45.43	2.44	9.70	V
	6896	-36.07	-13	-23.07	-62.93	-44.12	2.62	10.68	V
	8620	-46.51	-13	-33.51	-75.47	-56.66	2.40	12.55	V
Highest	3472	-50.43	-13	-37.43	-67.44	-56.71	1.60	7.88	H
	5208	-37.03	-13	-24.03	-59.77	-44.27	2.46	9.70	H
	6944	-36.21	-13	-23.21	-63.57	-44.33	2.61	10.73	H
	8680	-42.39	-13	-29.39	-73.22	-52.55	2.41	12.57	H
	3472	-46.37	-13	-33.37	-63.31	-52.65	1.60	7.88	V
	5208	-38.30	-13	-25.30	-60.76	-45.54	2.46	9.70	V
	6944	-35.01	-13	-22.01	-62.15	-43.13	2.61	10.73	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 5 / 1.4MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency ( MHz )	ERP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1651	-52.27	-13	-39.27	-61.9	-54.02	0.98	4.88	H
	2476	-46.73	-13	-33.73	-59.8	-48.62	1.28	5.33	H
	3301	-61.07	-13	-48.07	-77.64	-64.5	1.54	7.12	H
	1651	-53.88	-13	-40.88	-61.54	-55.63	0.98	4.88	V
	2476	-53.21	-13	-40.21	-68.46	-55.1	1.28	5.33	V
	3301	-62.31	-13	-49.31	-77.8	-65.74	1.54	7.12	V
Middle	1675	-50.58	-13	-37.58	-59.94	-52.25	0.99	4.81	H
	2512	-51.59	-13	-38.59	-64.92	-53.56	1.29	5.41	H
	3345	-61.06	-13	-48.06	-77.34	-64.67	1.56	7.32	H
	1675	-54.83	-13	-41.83	-62.03	-56.5	0.99	4.81	V
	2512	-48.59	-13	-35.59	-63.98	-50.56	1.29	5.41	V
	3345	-61.93	-13	-48.93	-77.2	-65.54	1.56	7.32	V
Highest	1696	-48.40	-13	-35.40	-57.89	-50	1.00	4.75	H
	2548	-54.37	-13	-41.37	-68.14	-56.35	1.31	5.44	H
	3393	-61.12	-13	-48.12	-77.6	-64.93	1.57	7.53	H
	1696	-50.25	-13	-37.25	-58.04	-51.85	1.00	4.75	V
	2548	-53.15	-13	-40.15	-68.57	-55.13	1.31	5.44	V
	3393	-61.63	-13	-48.63	-77.54	-65.44	1.57	7.53	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 5 / 3MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency ( MHz )	ERP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1651	-52.71	-13	-39.71	-62.35	-54.46	0.98	4.88	H
	2476	-48.12	-13	-35.12	-61.2	-50.01	1.28	5.33	H
	3301	-61.12	-13	-48.12	-77.7	-64.55	1.54	7.12	H
	1651	-53.42	-13	-40.42	-61.06	-55.17	0.98	4.88	V
	2476	-51.16	-13	-38.16	-66.42	-53.05	1.28	5.33	V
	3301	-62.10	-13	-49.10	-77.58	-65.53	1.54	7.12	V
Middle	1672	-52.63	-13	-39.63	-61.99	-54.31	0.99	4.82	H
	2509	-48.64	-13	-35.64	-61.94	-50.6	1.29	5.41	H
	3343	-60.80	-13	-47.80	-77.05	-64.4	1.56	7.31	H
	1672	-57.47	-13	-44.47	-64.7	-59.15	0.99	4.82	V
	2509	-48.23	-13	-35.23	-63.6	-50.19	1.29	5.41	V
	3343	-61.91	-13	-48.91	-77.18	-65.51	1.56	7.31	V
Highest	1696	-48.12	-13	-35.12	-57.63	-49.72	1.00	4.75	H
	2542	-54.07	-13	-41.07	-67.83	-56.05	1.30	5.43	H
	3391	-60.95	-13	-47.95	-77.4	-64.75	1.57	7.52	H
	1696	-53.21	-13	-40.21	-60.98	-54.81	1.00	4.75	V
	2542	-52.95	-13	-39.95	-68.36	-54.93	1.30	5.43	V
	3391	-61.64	-13	-48.64	-77.51	-65.44	1.57	7.52	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 5 / 5MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency ( MHz )	ERP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1651	-51.62	-13	-38.62	-61.26	-53.37	0.98	4.88	H
	2476	-43.11	-13	-30.11	-56.18	-45	1.28	5.33	H
	3301	-60.73	-13	-47.73	-77.33	-64.16	1.54	7.12	H
	1651	-52.96	-13	-39.96	-60.61	-54.71	0.98	4.88	V
	2476	-46.81	-13	-33.81	-62.06	-48.7	1.28	5.33	V
	3301	-62.10	-13	-49.10	-77.56	-65.53	1.54	7.12	V
Middle	1672	-48.23	-13	-35.23	-57.6	-49.91	0.99	4.82	H
	2506	-52.29	-13	-39.29	-65.61	-54.25	1.29	5.40	H
	3343	-61.03	-13	-48.03	-77.27	-64.63	1.56	7.31	H
	1672	-54.25	-13	-41.25	-61.45	-55.93	0.99	4.82	V
	2506	-47.66	-13	-34.66	-63.04	-49.62	1.29	5.40	V
	3343	-61.96	-13	-48.96	-77.22	-65.56	1.56	7.31	V
Highest	1693	-49.33	-13	-36.33	-58.83	-50.94	1.00	4.76	H
	2536	-49.69	-13	-36.69	-63.23	-51.67	1.30	5.43	H
	3382	-60.84	-13	-47.84	-77.22	-64.6	1.57	7.48	H
	1693	-52.04	-13	-39.04	-59.83	-53.65	1.00	4.76	V
	2536	-48.16	-13	-35.16	-63.56	-50.14	1.30	5.43	V
	3382	-61.51	-13	-48.51	-77.17	-65.27	1.57	7.48	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 5 / 10MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency ( MHz )	ERP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1651	-52.37	-13	-39.37	-62	-54.12	0.98	4.88	H
	2476	-53.96	-13	-40.96	-67.06	-55.85	1.28	5.33	H
	3301	-60.88	-13	-47.88	-77.44	-64.31	1.54	7.12	H
	1651	-53.35	-13	-40.35	-61	-55.1	0.98	4.88	V
	2476	-52.77	-13	-39.77	-68.03	-54.66	1.28	5.33	V
	3301	-62.07	-13	-49.07	-77.53	-65.5	1.54	7.12	V
Middle	1666	-50.23	-13	-37.23	-59.75	-51.93	0.99	4.84	H
	2500	-52.69	-13	-39.69	-65.8	-54.65	1.29	5.40	H
	3331	-60.64	-13	-47.64	-76.98	-64.2	1.55	7.26	H
	1666	-55.60	-13	-42.60	-63.01	-57.3	0.99	4.84	V
	2500	-53.23	-13	-40.23	-68.64	-55.19	1.29	5.40	V
	3331	-61.82	-13	-48.82	-77.15	-65.38	1.55	7.26	V
Highest	1681	-50.30	-13	-37.30	-59.69	-51.95	0.99	4.79	H
	2521	-51.64	-13	-38.64	-64.96	-53.61	1.30	5.42	H
	3361	-60.51	-13	-47.51	-76.85	-64.19	1.56	7.39	H
	1681	-51.92	-13	-38.92	-59.17	-53.57	0.99	4.79	V
	2521	-49.28	-13	-36.28	-64.66	-51.25	1.30	5.42	V
	3361	-61.41	-13	-48.41	-76.95	-65.09	1.56	7.39	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.





LTE Band 7 / 5MHz / 16QAM / RB Size 1 Offset 0									
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	5004	-34.48	-25	-9.48	-57.31	-41.84	2.34	9.70	H
	7500	-36.75	-25	-11.75	-65.49	-46.12	2.43	11.80	H
	10008	-35.81	-25	-10.81	-67.33	-45.32	2.70	12.20	H
	7500	-37.85	-25	-12.85	-66.28	-47.22	2.43	11.80	V
	7500	-37.85	-25	-12.85	-66.28	-47.22	2.43	11.80	V
	10008	-36.87	-25	-11.87	-66.72	-46.38	2.70	12.20	V
Middle	5064	-35.13	-25	-10.13	-57.94	-42.46	2.37	9.70	H
	7596	-37.55	-25	-12.55	-65.94	-47.01	2.40	11.86	H
	10128	-32.99	-25	-7.99	-64.54	-42.55	2.70	12.25	H
	5064	-35.88	-25	-10.88	-57.49	-43.21	2.37	9.70	V
	7596	-37.84	-25	-12.84	-65.78	-47.3	2.40	11.86	V
	10128	-34.88	-25	-9.88	-65	-44.44	2.70	12.25	V
Highest	5136	-35.35	-25	-10.35	-58.05	-42.63	2.42	9.70	H
	7692	-38.03	-25	-13.03	-66.45	-47.58	2.37	11.92	H
	10260	-32.78	-25	-7.78	-64.37	-42.39	2.69	12.30	H
	5136	-38.44	-25	-13.44	-60.43	-45.72	2.42	9.70	V
	7692	-37.33	-25	-12.33	-65.2	-46.88	2.37	11.92	V
	10260	-32.80	-25	-7.80	-63.41	-42.41	2.69	12.30	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 7 / 10MHz / 16QAM / RB Size 1 Offset 0									
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	5004	-34.25	-25	-9.25	-56.9	-41.61	2.34	9.70	H
	7500	-36.96	-25	-11.96	-65.69	-46.33	2.43	11.80	H
	10008	-31.38	-25	-6.38	-62.91	-40.89	2.70	12.20	H
	5004	-35.48	-25	-10.48	-56.88	-42.84	2.34	9.70	V
	7500	-37.54	-25	-12.54	-65.92	-46.91	2.43	11.80	V
	10008	-36.50	-25	-11.50	-66.38	-46.01	2.70	12.20	V
Middle	5064	-32.90	-25	-7.90	-55.66	-40.23	2.37	9.70	H
	7596	-37.39	-25	-12.39	-65.73	-46.85	2.40	11.86	H
	10128	-31.88	-25	-6.88	-63.42	-41.44	2.70	12.25	H
	5064	-35.70	-25	-10.70	-57.31	-43.03	2.37	9.70	V
	7596	-37.86	-25	-12.86	-65.81	-47.32	2.40	11.86	V
	10128	-35.30	-25	-10.30	-65.44	-44.86	2.70	12.25	V
Highest	5124	-33.81	-25	-8.81	-56.58	-41.1	2.41	9.70	H
	7680	-36.92	-25	-11.92	-65.25	-46.46	2.37	11.91	H
	10248	-33.65	-25	-8.65	-65.25	-43.25	2.69	12.30	H
	5124	-36.71	-25	-11.71	-58.61	-44	2.41	9.70	V
	7680	-35.13	-25	-10.13	-63.06	-44.67	2.37	11.91	V
	10248	-35.89	-25	-10.89	-66.36	-45.49	2.69	12.30	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 7 / 15MHz / 16QAM / RB Size 1 Offset 0									
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	5004	-36.51	-25	-11.51	-59.18	-43.87	2.34	9.70	H
	7500	-36.36	-25	-11.36	-65.12	-45.73	2.43	11.80	H
	10008	-32.54	-25	-7.54	-64.14	-42.05	2.70	12.20	H
	5004	-37.70	-25	-12.70	-59.1	-45.06	2.34	9.70	V
	7500	-38.04	-25	-13.04	-66.57	-47.41	2.43	11.80	V
	10008	-37.07	-25	-12.07	-66.93	-46.58	2.70	12.20	V
Middle	5052	-34.63	-25	-9.63	-57.43	-41.96	2.37	9.70	H
	7584	-38.10	-25	-13.10	-66.54	-47.55	2.40	11.85	H
	10116	-34.06	-25	-9.06	-65.7	-43.61	2.70	12.25	H
	5052	-35.06	-25	-10.06	-56.7	-42.39	2.37	9.70	V
	7584	-38.55	-25	-13.55	-66.57	-48	2.40	11.85	V
	10116	-37.07	-25	-12.07	-67.2	-46.62	2.70	12.25	V
Highest	5112	-34.56	-25	-9.56	-57.33	-41.86	2.40	9.70	H
	7668	-38.14	-25	-13.14	-66.59	-47.67	2.38	11.90	H
	10224	-34.44	-25	-9.44	-66.07	-44.03	2.69	12.29	H
	5112	-36.88	-25	-11.88	-58.73	-44.18	2.40	9.70	V
	7668	-37.05	-25	-12.05	-64.93	-46.58	2.38	11.90	V
	10224	-34.99	-25	-9.99	-65.49	-44.58	2.69	12.29	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 7 / 20MHz / 16QAM / RB Size 1 Offset 0									
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	5004	-35.72	-25	-10.72	-58.55	-43.08	2.34	9.70	H
	7500	-36.40	-25	-11.40	-65.23	-45.77	2.43	11.80	H
	10008	-35.06	-25	-10.06	-66.62	-44.57	2.70	12.20	H
	5004	-36.52	-25	-11.52	-57.86	-43.88	2.34	9.70	V
	7500	-37.32	-25	-12.32	-65.74	-46.69	2.43	11.80	V
	10008	-39.04	-25	-14.04	-68.93	-48.55	2.70	12.20	V
Middle	5052	-34.34	-25	-9.34	-57.05	-41.67	2.37	9.70	H
	7584	-37.56	-25	-12.56	-66.01	-47.01	2.40	11.85	H
	10104	-36.95	-25	-11.95	-68.46	-46.5	2.70	12.24	H
	5052	-35.38	-25	-10.38	-56.89	-42.71	2.37	9.70	V
	7584	-38.32	-25	-13.32	-66.32	-47.77	2.40	11.85	V
	10104	-39.05	-25	-14.05	-69.36	-48.6	2.70	12.24	V
Highest	5100	-39.83	-25	-14.83	-62.61	-47.14	2.39	9.70	H
	7656	-39.54	-25	-14.54	-67.98	-49.05	2.38	11.89	H
	10200	-32.24	-25	-7.24	-63.82	-41.82	2.70	12.28	H
	5100	-42.60	-25	-17.60	-64.3	-49.91	2.39	9.70	V
	7656	-40.08	-25	-15.08	-68.07	-49.59	2.38	11.89	V
	10200	-34.84	-25	-9.84	-65.13	-44.42	2.70	12.28	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 17 / 5MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency ( MHz )	ERP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1408	-44.30	-13	-31.30	-54.37	-46.01	0.87	4.73	H
	2112	-46.90	-13	-33.90	-59.47	-47.82	1.17	4.24	H
	2816	-57.61	-13	-44.61	-72.87	-59.72	1.39	5.65	H
	1408	-47.09	-13	-34.09	-56.45	-48.80	0.87	4.73	V
	2112	-49.31	-13	-36.31	-62.67	-50.23	1.17	4.24	V
	2816	-57.23	-13	-44.23	-73.94	-59.34	1.39	5.65	V
Middle	1416	-37.36	-13	-24.36	-47.44	-39.11	0.87	4.78	H
	2128	-50.86	-13	-37.86	-63.62	-51.82	1.17	4.28	H
	2832	-58.94	-13	-45.94	-74.50	-61.06	1.39	5.67	H
	1416	-42.31	-13	-29.31	-51.81	-44.06	0.87	4.78	V
	2120	-54.24	-13	-41.24	-67.92	-55.18	1.17	4.26	V
	2832	-58.85	-13	-45.85	-74.89	-60.97	1.39	5.67	V
Highest	1424	-39.51	-13	-26.51	-49.57	-41.31	0.88	4.83	H
	2136	-53.08	-13	-40.08	-66.15	-54.06	1.18	4.31	H
	2848	-57.69	-13	-44.69	-73.58	-59.82	1.40	5.68	H
	1424	-45.03	-13	-32.03	-53.90	-46.83	0.88	4.83	V
	2136	-54.81	-13	-41.81	-68.82	-55.79	1.18	4.31	V
	2848	-58.31	-13	-45.31	-74.55	-60.44	1.40	5.68	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 17 / 10MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency ( MHz )	ERP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1408	-45.30	-13	-32.30	-55.59	-47.01	0.87	4.73	H
	2112	-46.96	-13	-33.96	-59.64	-47.88	1.17	4.24	H
	2816	-57.70	-13	-44.70	-73.04	-59.81	1.39	5.65	H
	1408	-48.50	-13	-35.50	-57.96	-50.21	0.87	4.73	V
	2112	-50.95	-13	-37.95	-64.22	-51.87	1.17	4.24	V
	2816	-56.52	-13	-43.52	-72.68	-58.63	1.39	5.65	V
Middle	1408	-41.84	-13	-28.84	-52.06	-43.55	0.87	4.73	H
	2120	-47.98	-13	-34.98	-60.84	-48.92	1.17	4.26	H
	2824	-58.11	-13	-45.11	-73.50	-60.23	1.39	5.66	H
	1408	-46.32	-13	-33.32	-55.72	-48.03	0.87	4.73	V
	2120	-49.33	-13	-36.33	-63.02	-50.27	1.17	4.26	V
	2824	-57.74	-13	-44.74	-74.04	-59.86	1.39	5.66	V
Highest	1416	-39.77	-13	-26.77	-50.11	-41.52	0.87	4.78	H
	2120	-48.23	-13	-35.23	-61.09	-49.17	1.17	4.26	H
	2824	-58.13	-13	-45.13	-73.61	-60.25	1.39	5.66	H
	1416	-44.41	-13	-31.41	-53.91	-46.16	0.87	4.78	V
	2120	-52.88	-13	-39.88	-66.56	-53.82	1.17	4.26	V
	2824	-57.99	-13	-44.99	-74.36	-60.11	1.39	5.66	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.