

# TEST REPORT

**Applicant:** Queclink Wireless Solutions Co., Ltd.  
**Address:** No.30, Lane 500, Xinlong Road, Minhang District, Shanghai, China  
**Equipment Type:** Telematics dual-lens LTE Dash Cam  
**Model Name:** CV100LG  
**Brand Name:** QUECLINK  
**FCC ID:** YQD-CV100LG  
**Test Standard:** 47 CFR Part 2 (Others refer to chapter 3.1)  
**Test Date:** Jun. 21, 2022 - Jun. 25, 2022  
**Date of Issue:** Jul. 07, 2022

**ISSUED BY:**

Shenzhen BALUN Technology Co., Ltd.

**Tested by:** Zhong Weiqiang

**Checked by:** Wu Huihui

**Approved by:** Wei Yanquan  
(Chief Engineer)

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### Revision History

Version	Issue Date	Revisions Content
<u>Rev. 01</u>	<u>Jul. 07, 2022</u>	<u>Initial Issue</u>

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# 1 GENERAL INFORMATION

## 1.1 Identification of the Testing Laboratory

Company Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe West Road, Nanshan District, ShenZhen, GuangDong Province, China
Phone Number	+86 755 6685 0100

## 1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe West Road, Nanshan District, ShenZhen, GuangDong Province, China
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196.
Description	All measurement facilities used to collect the measurement data are located at Block B, 1/F, Baisha Science and Technology Park, Shahe West Road, Nanshan District, ShenZhen, GuangDong Province, China

## 2 PRODUCT INFORMATION

### 2.1 Applicant Information

Applicant	Queclink Wireless Solutions Co., Ltd.
Address	No.30, Lane 500, Xinlong Road, Minhang District, Shanghai, China

### 2.2 Manufacturer Information

Manufacturer	Queclink Wireless Solutions Co., Ltd.
Address	No.30, Lane 500, Xinlong Road, Minhang District, Shanghai, China

### 2.3 Factory Information

Factory	N/A
Address	N/A

### 2.4 General Description for Equipment under Test (EUT)

EUT Name	Telematics dual-lens LTE Dash Cam
Model Name Under Test	CV100LG
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	N/A
Software Version	N/A
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

## 2.5 Technical Information

Note: The information provided by the applicant, except for The Max RF Output Power (EIRP/ERP).

All Network and Wireless connectivity for EUT	2G Network GSM/GPRS/EDGE 1900 MHz 3G Network WCDMA/HSDPA/HSUPA Band 2 4G Network FDD LTE Band 2/4/12/13 Bluetooth BLE 2.4G WIFI 802.11b, 802.11g, 802.11n(HT20) GPS, GLONASS
About the Product	The equipment is Telematics dual-lens LTE Dash Cam, intended for used with information technology equipment.

The requirement for the following technical information of the EUT was tested in this report:

Operating Bands	GSM/GPRS/EGPRS 1900 MHz WCDMA/HSDPA/HSUPA Band 2 FDD LTE Band 2/ 4/ 12/ 13	
Modulation Type	GSM/GPRS	GMSK
	EGPRS	8PSK
	WCDMA	QPSK
	HSDPA /HSUPA	QPSK
		16QAM
	LTE	QPSK
16QAM		
TX Frequency Range	GSM/GPRS/EGPRS 1900: 1850 MHz ~ 1910 MHz WCDMA/HSDPA/HSUPA Band 2: 1850 MHz ~ 1910 MHz FDD LTE Band 2: 1850 MHz ~ 1910 MHz FDD LTE Band 4: 1710 MHz ~ 1755 MHz FDD LTE Band 12: 699 MHz ~ 716 MHz FDD LTE Band 13: 777 MHz ~ 787 MHz	
Rx Frequency Range	GSM/GPRS/EGPRS 1900: 1930 MHz ~ 1990 MHz WCDMA/HSDPA/HSUPA Band 2: 1930 MHz ~ 1990 MHz FDD LTE Band 2: 1930 MHz ~ 1990 MHz FDD LTE Band 4: 2110 MHz ~ 2155 MHz FDD LTE Band 12: 729 MHz ~ 746 MHz FDD LTE Band 13: 746 MHz ~ 756 MHz	
Power Class	GSM/GPRS 1900: 1 EGPRS 1900: E2 WCDMA/HSDPA/HSUPA Band 2: 3 FDD LTE Band 2: 3 FDD LTE Band 4: 3 FDD LTE Band 12: 3 FDD LTE Band 13: 3	
Multislot Class	GPRS/EGPRS: 12	

Antenna Type	PIFA Antenna
Antenna Gain	GSM/GPRS/EGPRS 1900: 2.63 dBi WCDMA/HSDPA/HSUPA Band 2: 2.63 dBi FDD LTE Band 2: 2.63 dBi FDD LTE Band 4: 2.28 dBi FDD LTE Band 12: -0.82 dBi FDD LTE Band 13: 1.36 dBi
The Max RF Output Power (EIRP/ERP)	GSM/GPRS/EGPRS 1900: 32.96 dBm WCDMA/HSDPA/HSUPA Band 2: 25.07 dBi FDD LTE Band 2: 25.83 dBi FDD LTE Band 4: 25.53 dBi FDD LTE Band 12: 20.35 dBi FDD LTE Band 13: 23.10 dBi

Note 1: The EUT information are declared by manufacturer. For more detailed features description, please refer to the manufacturer's specifications or user's manual.

### 3 SUMMARY OF TEST RESULTS

#### 3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	47 CFR Part 24 Subpart E	Broadband PCS
3	47 CFR Part 27	Miscellaneous Wireless Communications Services
4	ANSI/TIA-603-E-2016	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
5	KDB 971168 D01 v03	Measurement Guidance for Certification of Licensed Digital Transmitters



### 3.2 Test Verdict

No.	Test Description	FCC Part No.	Test Result	Test Verdict
1	Conducted RF Output Power	2.1046	Reporting only (ANNEX A.1)	Pass
2	Effective (Isotropic) Radiated Power	2.1046 24.232 27.50	ANNEX A.1	Pass
3	Peak to Average Ratio	2.1046 24.232(d) 27.50(d)	ANNEX A.2	Pass
4	Occupied Bandwidth	2.1049 24.238 27.53	ANNEX A.3	Pass
5	Frequency Stability	2.1055 24.235 27.54	ANNEX A.4	Pass
6	Spurious Emission at Antenna Terminals	2.1051 24.238 27.53	ANNEX A.5	Pass
7	Band Edge	2.1051 24.238 27.53	ANNEX A.6	Pass
8	Field Strength of Spurious Radiation	2.1053 24.238 27.53	ANNEX A.7	Pass

## 4 GENERAL TEST CONFIGURATIONS

### 4.1 Test Environments

During the measurement, the environmental conditions were within the listed ranges:

Relative Humidity		20% to 75%
Atmospheric Pressure		98 kPa to 102 kPa
Test Voltage of the EUT	NV (Normal Voltage)	12 V
	LV (Low Voltage)	8 V
	HV (High Voltage)	32 V
Test Temperature of the EUT	NT (Normal Temperature)	15 °C to 35 °C
	LT (Low Temperature)	-30 °C
	HT (High Temperature)	+70 °C

### 4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Software /Firmware Version	Cal. Date	Cal. Due
<b>Conducted Test System</b>						
Test Software 1	R&S	CMUgo	N/A	V2.0.1	N/A	N/A
Test Software 2	R&S	CMWRun	N/A	V1.9.8	N/A	N/A
Test Software 3	BALUN	BL410R	N/A	V2.1.1.48 8	N/A	N/A
Universal Radio Communication Tester	R&S	CMU 200	119280	V5.13	2022.02.10	2023.02.09
Wideband Radio Communication Tester	R&S	CMW 500	127794	V3.5.137	2022.05.23	2023.05.22
Wideband Radio Communication Tester	R&S	CMW 500	120598	V3.5.137	2022.01.05	2023.01.04
Spectrum Analyzer	R&S	FSV-40	101544	2.30.SP4	2022.01.04	2023.01.03
Spectrum Analyzer	Agilent	E4440A	MY45304434	A.11.21	2021.09.08	2022.09.07
Spectrum Analyzer	Agilent	E4440A	MY46181663	A.11.21	2021.10.11	2022.10.10
Temperature Chamber	AHK	SP20	1412	N/A	2021.11.30	2022.11.29
DC Power Supply	ITECH	IT6863A	8000140207 57120008	N/A	2021.09.12	2022.09.11
Power Sensor	Agilent	E9304A H18	MY41497164	N/A	2021.09.08	2022.09.07

Description	Manufacturer	Model	Serial No.	Software /Firmware Version	Cal. Date	Cal. Due
Power Splitter	KMW	DCPD-LDC	1305003215	N/A	N/A	N/A
Attenuator (20 dB)	KMW	ZA-S1-201	110617091	N/A	N/A	N/A
Attenuator (6 dB)	KMW	ZA-S1-61	1305003189	N/A	N/A	N/A
<b>Radiated Test System</b>						
Test Software	BALUN	BL410_E	N/A	V19.918	N/A	N/A
Test Antenna-Bi-Log(30 MHz-3 GHz)	Schwarzbeck	VULB 9163	9163-624	N/A	2019.07.02	2022.07.01
Test Antenna-Horn(1-18 GHz)	Schwarzbeck	BBHA 9120D	9120D-1917	N/A	2019.07.02	2022.07.01
Test Antenna-Horn(18-40 GHz)	A-INFO	LB-180400KF	J211060273	N/A	2021.01.04	2023.01.03
Anechoic Chamber	YIHENG	9m*6m*6m	#3	N/A	2018.07.18	2022.07.17
EMI Receiver	KEYSIGHT	N9038A	MY53220118	A.14.16	2021.09.13	2022.09.12
Wideband Radio Communication Tester	R&S	CMW 500	127794	V3.2.73	2022.05.23	2023.05.22

### 4.3 Test Configurations

Test Items	Test Mode	Test Channel		
		LCH	MCH	HCH
Effective (Isotropic) Radiated Power	GSM 1900	v	v	v
	GPRS 1900	v	v	v
	EGPRS 1900	v	v	v
	WCDMA Band 2	v	v	v
	HSDPA Band 2	v	v	v
	HSUPA Band 2	v	v	v
Peak to Average Ratio	WCDMA Band 2	v	v	v
Occupied Bandwidth	GSM 1900	v	v	v
	EGPRS 1900	v	v	v
	WCDMA Band 2	v	v	v
Frequency Stability	GSM 1900	v	v	v
	GPRS 1900	v	v	v
	EGPRS 1900	v	v	v
	WCDMA Band 2	v	v	v
Spurious Emission at Antenna Terminals	GSM 1900	v	v	v
	EGPRS 1900	v	v	v
	WCDMA Band 2	v	v	v
Band Edge	GSM 1900	v	--	v
	EGPRS 1900	v	--	v
	WCDMA Band 2	v	--	v
Field Strength of Spurious Radiation	GSM 1900	v	v	v
	EGPRS 1900	v	v	v
	WCDMA Band 2	v	v	v

Note 1: The mark “v” means that this configuration is chosen for testing.

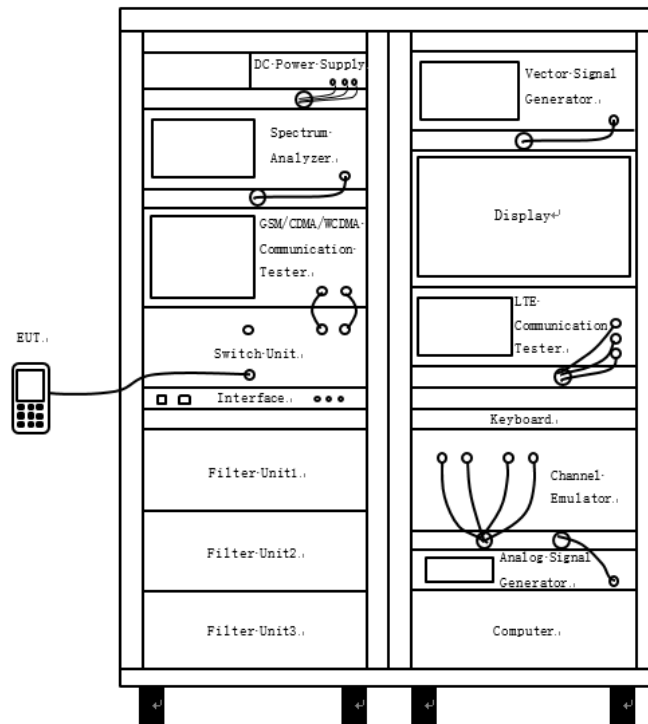
Test Mode	UL Channel	UL Channel No.	UL Frequency (MHz)
GSM/GPRS/EGPRS 1900	Low Channel	512	1850.2
	Middle Channel	661	1880.0
	High Channel	810	1909.8
WCDMA Band 2	Low Channel	9262	1852.4
	Middle Channel	9400	1880.0
	High Channel	9538	1907.6

LTE Band	Bandwidth (MHz)						Modulation Type		RB#			Test Channel		
	1.4	3	5	10	15	20	QPSK	16-QAM	1	Half	Full	LCH	MCH	HCH
<b>Effective (Isotropic) Radiated Power</b>														
2	v	v	v	v	v	v	v	v	v	v	v	v	v	v
4	v	v	v	v	v	v	v	v	v	v	v	v	v	v
12	v	v	v	v	n	n	v	v	v	v	v	v	v	v
13	n	n	v	v	n	n	v	v	v	v	v	v	v	v
<b>Peak to Average Ratio</b>														
2	--	--	--	--	--	v	v	v	v	--	v	v	v	v
4	--	--	--	--	--	v	v	v	v	--	v	v	v	v
12	--	--	--	v	n	n	v	v	v	--	v	v	v	v
13	n	n	--	v	n	n	v	v	v	--	v	v	v	v
<b>Occupied Bandwidth</b>														
2	v	v	v	v	v	v	v	v	--	--	v	v	v	v
4	v	v	v	v	v	v	v	v	--	--	v	v	v	v
12	v	v	v	v	n	n	v	v	--	--	v	v	v	v
13	n	n	v	v	n	n	v	v	--	--	v	v	v	v
<b>Frequency Stability</b>														
2	--	--	--	v	--	--	v	v	--	--	v	--	v	--
4	--	--	--	v	--	--	v	v	--	--	v	--	v	--
12	--	--	--	v	n	n	v	v	--	--	v	--	v	--
13	n	n	--	v	n	n	v	v	--	--	v	--	v	--
<b>Spurious Emission at Antenna Terminals</b>														
2	v	v	v	v	v	v	v	v	v	--	--	v	v	v
4	v	v	v	v	v	v	v	v	v	--	--	v	v	v
12	v	v	v	v	n	n	v	v	v	--	--	v	v	v
13	n	n	v	v	n	n	v	v	v	--	--	v	v	v
<b>Band Edge</b>														
2	v	v	v	v	v	v	v	v	v	--	v	v	--	v
4	v	v	v	v	v	v	v	v	v	--	v	v	--	v
12	v	v	v	v	n	n	v	v	v	--	v	v	--	v
13	n	n	v	v	n	n	v	v	v	--	v	v	--	v
<b>Field Strength of Spurious Radiation</b>														
2	v	v	v	v	v	v	v	--	v	--	--	--	v	--
4	v	v	v	v	v	v	v	--	v	--	--	--	v	--
12	v	v	v	v	n	n	v	--	v	--	--	--	v	--
13	n	n	v	v	n	n	v	--	v	--	--	--	v	--
<p>Note 1: The mark "v" means that this configuration is chosen for testing.</p> <p>Note 2: The mark "n" means that this bandwidth is not supported.</p>														

Test Mode	UL Channel	Channel Bandwidth (MHz)	UL Channel No.	UL Frequency (MHz)
LTE Band 2	Low Range	1.4	18607	1850.7
		3	18615	1851.5
		5	18625	1852.5
		10	18650	1855
		15	18675	1857.5
		20	18700	1860
	Middle Range	1.4/3/5/10/15/20	18900	1880
	High Range	1.4	19193	1909.3
		3	19185	1908.5
		5	19175	1907.5
		10	19150	1905
		15	19125	1902.5
		20	19100	1900
LTE Band 4	Low Range	1.4	19957	1710.7
		3	19965	1711.5
		5	19975	1712.5
		10	20000	1715
		15	20025	1717.5
		20	20050	1720
	Middle Range	1.4/3/5/10/15/20	20175	1732.5
	High Range	1.4	20393	1754.3
		3	20385	1753.5
		5	20375	1752.5
		10	20350	1750
		15	20325	1747.5
		20	20300	1745
LTE Band 12	Low Range	1.4	23017	699.7
		3	23025	700.5
		5	23035	701.5
		10	23060	704
	Middle Range	1.4/3/5/10	23095	707.5
	High Range	1.4	23173	715.3
		3	23165	714.5
		5	23155	713.5
		10	23130	711
	LTE Band 13	Low Range	5	23205
Middle Range		5/10	23230	782
High Range		5	23255	784.5

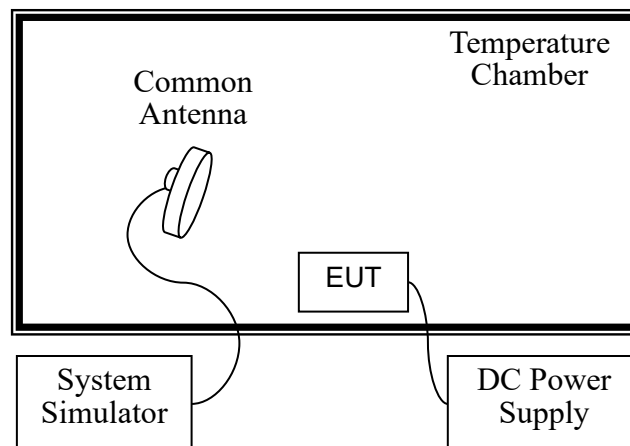
## 4.4 Test Setup

### 4.4.1 For Antenna Port Test



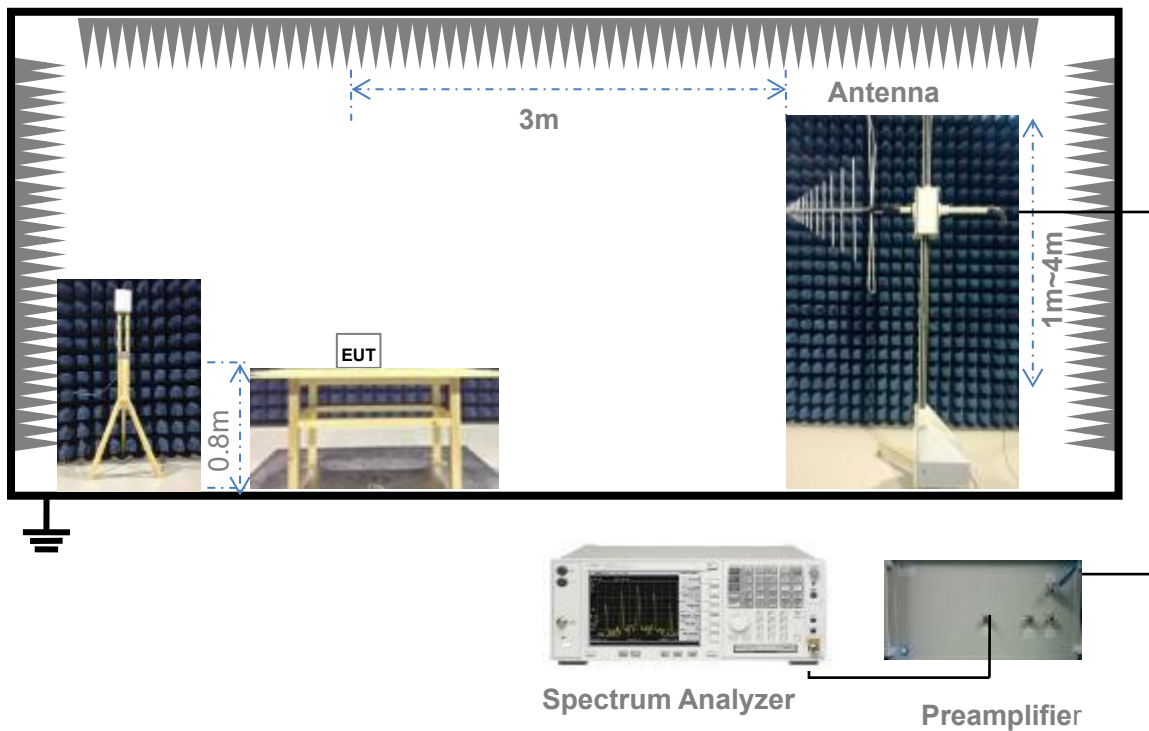
(Diagram 1)

### 4.4.2 For Frequency Stability Test



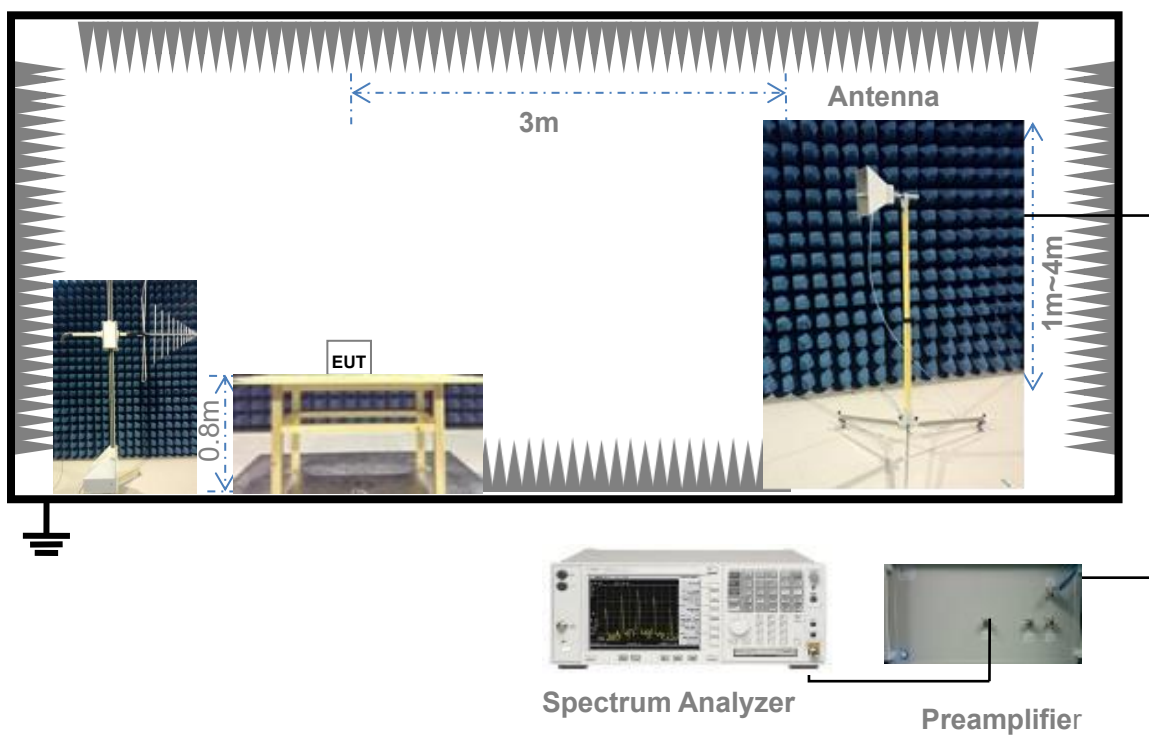
(Diagram 2)

### 4.4.3 For Radiated Test (30 MHz ~ 1 GHz)



(Diagram 3)

### 4.4.4 For Radiated Test (Above 1 GHz)



(Diagram 4)



## 5 TEST ITEMS

### 5.1 Transmitter Radiated Power (EIRP/ERP)

#### 5.1.1 Limit

FCC § 2.1046 & 24.232(c) & 27.50(a) & 27.50(b) & 27.50(c) & 27.50(d) & 27.50(h)

According to FCC section 22.913(a) (5), the Effective Radiated Power (ERP) of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC section 24.232(c), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

According to FCC section 27.50(a) (3), for mobile and portable stations transmitting in the 2305-2315MHz band or the 2350-2360MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, except that for mobile and portable stations compliant with 3GPP LTE standards.

FCC section 27.50(b) (10), portable stations (hand-held devices) transmitting in the 746-757MHz, 776-788MHz, and 805-806MHz bands are limited to 3 watts ERP.

FCC section 27.50(c) (10), portable stations (hand-held devices) in the 600MHz uplink band and the 698-746MHz band, and fixed and mobile stations in the 600MHz uplink band are limited to 3 watts ERP.

FCC section 27.50(d) (4), fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP. Fixed stations operating in the 1710-1755 MHz band are limited to a maximum antenna height of 10 meters above ground. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.

(7) Fixed, mobile, and portable (hand-held) stations operating in the 2000-2020 MHz band are limited to 2 watts EIRP.

And FCC section 27.50(h) (2), for mobile and other user stations, mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

#### 5.1.2 Test Setup

The section 4.4.1 (Diagram 1) test setup description is used for conducted test, and the section 4.4.3 and 4.4.4 (Diagram 3, 4) test setup description is used for radiated test. The photo of test setup please refer to ANNEX B.

#### 5.1.3 Test Procedure

##### **Description of the Conducted Output Power Measurement**

The EUT is coupled to the SS with attenuator through power splitter; the RF load attached to EUT antenna

terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. A system simulator is used to establish communication with the EUT, and its parameters are 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.

The relevant equation for determining the conducted measured value is:

$$\text{Conducted Output Power Value (dBm)} = \text{Measured Value (dBm)} + \text{Path Loss (dB)}$$

where:

Conducted Output Power Value = final conducted measured value in the conducted power test, in dBm;  
Measured Value = measured conducted power received by spectrum analyzer or power meter, in dBm;  
Path Loss = signal attenuation in the connecting cable between the transmitter and spectrum analyzer or power meter, including external cable loss, in dB;

During the test, the data of Path Loss (dB) is added in the spectrum analyzer or power meter, so Measured Value (dBm) is the final values which contains the data of Path Loss (dB).

For example:

In the conducted output power test, when measured value for GSM850 is 24.7 dBm, and path loss is 8.5 dB, then final conducted output power value is:

$$\text{Conducted Output Power Value (dBm)} = 24.7 \text{ dBm} + 8.5 \text{ dB} = 33.2 \text{ dBm}$$

### **Description of the Transmitter Radiated Power Measurement**

In many cases, the RF output power limits for licensed digital transmission devices is specified in terms of effective radiated power (ERP) or equivalent isotropic radiated power (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 determined by adding the transmit antenna gain to the conducted RF output power with the primary difference between the two being that when determining the ERP, the transmit antenna gain is referenced to a dipole antenna (i.e., dBd) whereas when determining the EIRP, the transmit antenna gain is referenced to an isotropic antenna (dBi).

Final measurement calculation as below:

The relevant equation for determining the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

$$\text{ERP/EIRP} = P_{\text{Meas}} + \text{GT} - \text{LC}$$

where:

ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as  $P_{\text{Meas}}$ , typically dBW or dBm);

$P_{\text{Meas}}$  = measured transmitter output power or PSD, in dBm or dBW;

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

$\text{dBd (ERP)} = \text{dBi (EIRP)} - 2.15 \text{ dB}$

LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

For devices utilizing multiple antennas, KDB 662911 provides guidance for determining the effective array transmit antenna gain term to be used in the above equation.

For example:

In the EIRP test, when  $P_{\text{Meas}}$  value for GSM1900 is 30.2 dBm, LC is 0.6 dB, and GT is -3.4 dB, then final EIRP value is:

$\text{EIRP for GSM1900} = 30.2 \text{ dBm} - 3.4 \text{ dBi} - 0.6 \text{ dB} = 26.2 \text{ dBm}$

The relevant equation for determining the ERP/EIRP from the radiated RF output power is:

$\text{ERP/EIRP (dBm)} = \text{SA Read Value (dBm)} + \text{Correction Factor (dB)}$

where:

ERP/EIRP = effective or equivalent radiated power, in dBm;

SA Read Value = measured transmitter power received by EMI receiver or spectrum analyzer, in dBm;

Correction Factor = total correction factor including cable loss, in dB;

During the test, the data of Correction Factor (dB) is added in the EMI receiver or spectrum analyzer, so SA Read Value (dBm) is the final values which contains the data of Correction Factor (dB).

For example:

In the ERP test, when SA read value for GSM850 is 21dBm, and correction factor is 8dB, then final ERP value for GSM850 is:

$\text{ERP (dBm)} = 21\text{dBm} + 8\text{dB} = 29\text{dBm}$

#### 5.1.4 Test Result

Please refer to ANNEX A.1.

## 5.2 Peak to Average Ratio

### 5.2.1 Limit

FCC § 2.1046 & 24.232(d) & 27.50(d)

In addition, when the transmitter power is measured in terms of average value, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time using a signal corresponding to the highest PAPR during periods of continuous transmission.

According to FCC section 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 24.232 (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.

FCC section 24.232(e), peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms equivalent voltage. The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity, etc., so as to obtain a true peak measurement for the emission in question over the full bandwidth of the channel.

According to FCC section 27.50(d) (5), in measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13dB.

### 5.2.2 Test Setup

The section 4.4.1 (Diagram 1) test setup description is used for this test. The photo of test setup please refer to ANNEX B.

### 5.2.3 Test Procedure

Here the lowest, middle and highest channels are selected to perform testing to verify the peak-to-average ratio.

According to KDB 971168 D01, there is CCDF procedure for PAPR:

- a) Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;
- b) Set resolution/measurement bandwidth  $\geq$  signal's occupied bandwidth;
- c) Set the number of counts to a value that stabilizes the measured CCDF curve;
- d) Set the measurement interval as follows:
  - 1) for continuous transmissions, set to 1 ms,
  - 2) for burst transmissions, employ an external trigger that is synchronized with the EUT burst timing

sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.

e) Record the maximum PAPR level associated with a probability of 0.1%.

Alternate procedure for PAPR:

Use one of the procedures presented in 4.1 to measure the total peak power and record as  $P_{PK}$ . Use one of the applicable procedures presented 4.2 to measure the total average power and record as  $P_{Avg}$ . Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm). Determine the PAPR from:

$$PAPR (dB) = P_{PK} (dBm) - P_{Avg} (dBm).$$

#### 5.2.4 Test Result

Please refer to ANNEX A.2.

## 5.3 Occupied Bandwidth

### 5.3.1 Limit

#### FCC § 2.1049

The occupied bandwidth 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.

Many of the individual rule parts specify a relative OBW in lieu of the 99% OBW. In such cases, the OBW is defined as the width of the signal between two points, one below the carrier center frequency and on above the carrier center frequency, outside of which all emissions are attenuated by at least X dB below the transmitter power, where the value of X is typically specified as 26.

### 5.3.2 Test Setup

The section 4.4.1 (Diagram 1) test setup description is used for this test. The photo of test setup please refer to ANNEX B.

### 5.3.3 Test Procedure

The following procedure shall be used for measuring power bandwidth.

- a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts (i.e., two to five times the anticipated OBW).
- b) The nominal IF filter bandwidth (3 dB 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.
- c) Set the reference level of the instrument as required to keep the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope must be at least  $10\log(\text{OBW} / \text{RBW})$  below the reference level.
- d) NOTE—Steps a) through c) may require iteration to adjust within the specified tolerances.
- e) For -26 dB OBW, the dynamic range of the spectrum analyzer at the selected RBW shall be at least 10dB below the target “-X dB down” requirement, e.g. -26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be 36dB below the reference value.
- f) Set the detection mode to peak, and the trace mode to max hold.
- g) For 99% OBW, use the 99 % power bandwidth function of the spectrum analyzer (if available) and report the measured bandwidth.

If the instrument does not have a 99 % power bandwidth function, the trace data points are to be recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is

recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99 % power bandwidth is the difference between these two frequencies.

h) For -26 dB OBW, 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).

Determine the “-X dB down amplitude” as equal to (reference value -X). Alternatively, this calculation can be performed by the analyzer by using the marker-delta function.

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 “-X dB down amplitude” determined in step g). 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.

i) The OBW shall be reported by providing plot(s) of the measuring instrument display. The frequency and amplitude axes and scale shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

j) Change variable modulations, coding, or channel bandwidth settings, then repeat above test procedures.

### 5.3.4 Test Result

Please refer to ANNEX A.3.

## 5.4 Frequency Stability

### 5.4.1 Limit

FCC § 2.1055 & 24.235 & 27.54

FCC § 2.1055

The frequency stability shall be measured with variation of ambient temperature as follows:

- (1) The temperature is varied from -30°C to +50°C.
- (2) Frequency measurements shall be made at the extremes of the specified temperature range and at intervals of not more than 10°C through the range.

The frequency stability shall be measured with variation of primary supply voltage as follows:

- (1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than carried battery equipment.
- (2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating and point which shall be specified by the manufacture.
- (3) The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

FCC § 24.235

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

FCC § 27.54

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.



## 5.4.2 Test Setup

The section 4.4.2 (Diagram 2) test setup description is used for this test. The photo of test setup please refer to ANNEX B.

## 5.4.3 Test Procedure

1. The EUT is placed in a temperature chamber.
2. The temperature is set to 25°C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured.
3. The temperature is increased by not more than 10 degrees, allowed to stabilize and soak, and then repeat the frequency error measurement.
4. Repeat procedure 3 until +50°C and -30°C is reached.
5. Change supply voltage, and repeat measurement until extreme voltage is reached.

## 5.4.4 Test Result

Please refer to ANNEX A.4.

## 5.5 Spurious Emission at Antenna Terminals

### 5.5.1 Limit

FCC § 2.1051 & 24.238(a) & 27.53(a) & 27.53(c) & 27.53(f) & 27.53(g) & 27.53(h) & 27.53(m)

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.

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

FCC § 24.238(a)

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. This is calculated to be -13 dBm.

FCC § 27.53(a) (4)

For mobile and portable stations operating in the 2305-2315MHz and 2350-2360MHz bands:

(1) By a factor of not less than:  $43 + 10 \log(P)$  dB on all frequencies between 2305 and 2320MHz and on all frequencies between 2345 and 2360MHz that are outside the licensed band(s) of operation, not less than  $55 + 10 \log(P)$  dB on all frequencies between 2320 and 2324MHz and on all frequencies between 2341 and 2345MHz, not less than  $61 + 10 \log(P)$  dB on all frequencies between 2324 and 2328MHz and on all frequencies between 2337 and 2341MHz, and not less than  $67 + 10 \log(P)$  dB on all frequencies between 2328 and 2337MHz.

(2) By a factor of not less than  $43 + 10 \log(P)$  dB on all frequencies between 2300 and 2305MHz,  $55 + 10 \log(P)$  dB on all frequencies between 2296 and 2300MHz,  $61 + 10 \log(P)$  dB on all frequencies between 2292 and 2296MHz,  $67 + 10 \log(P)$  dB on all frequencies between 2288 and 2292MHz, and  $70 + 10 \log(P)$  dB below 2288MHz.

(3) By a factor of not less than  $43 + 10 \log(P)$  dB on all frequencies between 2360 and 2365MHz, and not less than  $70 + 10 \log(P)$  dB above 2365MHz.

FCC § 27.53(c)

For operations in the 746–758 MHz band and the 776–788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(1) On any frequency outside the 746–758 MHz band, the power of any emission shall be attenuated outside the

band below the transmitter power (P) by at least  $43 + 10 \log(P)$  dB;

(2) On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the

band below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB;

(3) On all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than  $76 + 10 \log (P)$  dB in a 6.25 kHz band segment, for base and fixed stations;

(4) On all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than  $65 + 10 \log (P)$  dB in a 6.25 kHz band segment, for mobile and portable stations;

(5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater.

However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth

of at least 30 kHz may be employed;

(6) Compliance with the provisions of paragraphs (c)(3) and (c)(4) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

#### FCC § 27.53(f)

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. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

#### FCC § 27.53(g)

For operations in the 600MHz band and the 698-746MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least  $43+10*\log(P)$  dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

#### FCC § 27.53(h) (1)

Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10} (P)$  dB.

#### FCC § 27.53(m) (4)

For mobile digital stations (BRS and EBS stations), the attenuation factor shall be not less than:

- $40+10\log P$  dB (-10 dBm, 100 nW) on all frequencies between the channel edge and 5 MHz from the

channel edge.

- $43+10\log P$  dB ( $-13$  dBm,  $50$  nW) on all frequencies between  $5$  MHz and  $X$  MHz from the channel edge,
- $55+10\log P$  dB ( $-25$  dBm,  $3$  nW) on all frequencies more than  $X$  MHz from the channel edge, where  $X$  is the greater of  $6$  MHz or the actual emission bandwidth ( $26$  dB).

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.

## 5.5.2 Test Setup

The section 4.4.1 (Diagram 1) test setup description was used for this test. The photo of test setup please refer to ANNEX B.

## 5.5.3 Test Procedure

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power ( $P$ ) by at least  $43 + 10 \log(P)$  dB. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of  $1$  MHz or greater. However, in the  $1$  MHz bands immediately outside and adjacent to the frequency blocks a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least  $26$  dB below the transmitter power.

1. The EUT is coupled to the system simulator and spectrum analyzer; the RF load attached to EUT antenna terminal is  $50\Omega$ ; the path loss as the factor is calibrated to correct the reading.
2. CMW500 is used to establish communication with the EUT, and its parameters are set to force the EUT transmitting at maximum output power.
3. The RF output of the transmitter is connected to the input of the spectrum analyzer through sufficient attenuation.
4. Spurious emissions are tested with  $0.001$  MHz RBW for frequency less than  $150$  kHz,  $0.01$  MHz RBW for frequency less than  $30$  MHz,  $0.1$  MHz RBW for frequency less than  $1$  GHz, and  $1$  MHz RBW for frequency above  $1$  GHz. And sweep point number are at least  $401$ , referring to following formula.

$$\text{Sweep point number} = \text{Span/RBW}$$

$$\text{VBW} = 3 * \text{RBW}$$

Detector Mode=mean or average power

5. Record the frequencies and levels of spurious emissions.

#### 5.5.4 Test Result

Please refer to ANNEX A.5.

## 5.6 Band Edge

### 5.6.1 Limit

FCC § 2.1051 & 24.238(a) & 27.53(a) & 27.53(c) & 27.53(g) & 27.53(h) & 27.53(m)

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.

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

FCC § 24.238(a)

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. This is calculated to be -13 dBm.

FCC § 27.53(a) (4)

For mobile and portable stations operating in the 2305-2315MHz and 2350-2360MHz bands:

(1) By a factor of not less than:  $43 + 10 \log(P)$  dB on all frequencies between 2305 and 2320MHz and on all frequencies between 2345 and 2360MHz that are outside the licensed band(s) of operation, not less than  $55 + 10 \log(P)$  dB on all frequencies between 2320 and 2324MHz and on all frequencies between 2341 and 2345MHz, not less than  $61 + 10 \log(P)$  dB on all frequencies between 2324 and 2328MHz and on all frequencies between 2337 and 2341MHz, and not less than  $67 + 10 \log(P)$  dB on all frequencies between 2328 and 2337MHz.

(2) By a factor of not less than  $43 + 10 \log(P)$  dB on all frequencies between 2300 and 2305MHz,  $55 + 10 \log(P)$  dB on all frequencies between 2296 and 2300MHz,  $61 + 10 \log(P)$  dB on all frequencies between 2292 and 2296MHz,  $67 + 10 \log(P)$  dB on all frequencies between 2288 and 2292MHz, and  $70 + 10 \log(P)$  dB below 2288MHz.

(3) By a factor of not less than  $43 + 10 \log(P)$  dB on all frequencies between 2360 and 2365MHz, and not less than  $70 + 10 \log(P)$  dB above 2365MHz.

FCC § 27.53(c)

For operations in the 746–758 MHz band and the 776–788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(1) On any frequency outside the 746–758 MHz band, the power of any emission shall be attenuated outside the

band below the transmitter power (P) by at least  $43 + 10 \log(P)$  dB;

(2) On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the

band below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB;

(3) On all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than  $76 + 10 \log (P)$  dB in a 6.25 kHz band segment, for base and fixed stations;

(4) On all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than  $65 + 10 \log (P)$  dB in a 6.25 kHz band segment, for mobile and portable stations;

(5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater.

However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth

of at least 30 kHz may be employed;

(6) Compliance with the provisions of paragraphs (c)(3) and (c)(4) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

#### FCC § 27.53(g)

For operations in the 600MHz band and the 698-746MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least  $43+10*\log(P)$  dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

#### FCC § 27.53(h) (1)

Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10} (P)$  dB.

#### FCC § 27.53(m) (4)

For mobile digital stations (BRS and EBS stations), the attenuation factor shall be not less than:

- $40+10\log P$  dB (–10 dBm, 100 nW) on all frequencies between the channel edge and 5 MHz from the channel edge.
- $43+10\log P$  dB (–13 dBm, 50 nW) on all frequencies between 5 MHz and X MHz from the channel edge,
- $55+10\log P$  dB (–25 dBm, 3 nW) on all frequencies more than X MHz from the channel edge, where X is the greater of 6 MHz or the actual emission bandwidth (26 dB).

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.

### 5.6.2 Test Setup

The section 4.4.1 (Diagram 1) test setup description was used for this test. The photo of test setup please refer to ANNEX B.

### 5.6.3 Test Procedure

The EUT, which is powered by the Battery, is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50 Ohm; the path loss as the factor is calibrated to correct the reading.

1. The EUT is coupled to the system simulator and spectrum analyzer; the RF load attached to EUT antenna terminal is 50 Ohm; the path loss as the factor is calibrated to correct the reading.
2. CMW500 is used to establish communication with the EUT, and its parameters are set to force the EUT transmitting at maximum output power.
3. The RF output of the transmitter is connected to the input of the spectrum analyzer through sufficient attenuation.
4. The center of the spectrum analyzer was set to block edge frequency.
5. Band edge are tested with  $1\% \cdot \text{cBW}$  (RBW), and sweep point number referred to following formula.

$$\text{Sweep point number} = 2 \cdot \text{Span} / \text{RBW}$$

$$\text{VBW} = 3 \text{RBW}$$

6. Record the frequencies and levels of spurious emissions.

For mobile and portable stations, on all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than  $65 + 10 \log (P)$  dB in a 6.25 kHz band segment. Since it was not possible to set the resolution bandwidth to 6.25 kHz with the available equipment, a bandwidth of 10 kHz was used instead to show compliance. By using a 10 kHz bandwidth on the spectrum analyzer.

$$10 \cdot \log(10 \text{ kHz} / 6.25 \text{ kHz}) = 2.04 \text{ dB}$$

$$\text{Limit Line} = -35 \text{ dBm} + 2.04 \text{ dB} = -32.96 \text{ dBm}$$



#### 5.6.4 Test Result

Please refer to ANNEX A.6.

## 5.7 Field Strength of Spurious Radiation

### 5.7.1 Limit

FCC § 2.1053 & 24.238(a) & 27.53(a) & 27.53(c) & 27.53(f) & 27.53(g) & 27.53(h) & 27.53(m)

FCC § 24.238(a)

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. This is calculated to be -13 dBm.

FCC § 27.53(a) (4)

For mobile and portable stations operating in the 2305-2315MHz and 2350-2360MHz bands:

(1) By a factor of not less than:  $43 + 10 \log(P)$  dB on all frequencies between 2305 and 2320MHz and on all frequencies between 2345 and 2360MHz that are outside the licensed band(s) of operation, not less than  $55 + 10 \log(P)$  dB on all frequencies between 2320 and 2324MHz and on all frequencies between 2341 and 2345MHz, not less than  $61 + 10 \log(P)$  dB on all frequencies between 2324 and 2328MHz and on all frequencies between 2337 and 2341MHz, and not less than  $67 + 10 \log(P)$  dB on all frequencies between 2328 and 2337MHz.

(2) By a factor of not less than  $43 + 10 \log(P)$  dB on all frequencies between 2300 and 2305MHz,  $55 + 10 \log(P)$  dB on all frequencies between 2296 and 2300MHz,  $61 + 10 \log(P)$  dB on all frequencies between 2292 and 2296MHz,  $67 + 10 \log(P)$  dB on all frequencies between 2288 and 2292MHz, and  $70 + 10 \log(P)$  dB below 2288MHz.

(3) By a factor of not less than  $43 + 10 \log(P)$  dB on all frequencies between 2360 and 2365MHz, and not less than  $70 + 10 \log(P)$  dB above 2365MHz.

FCC § 27.53(c)

For operations in the 746–758 MHz band and the 776–788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(1) On any frequency outside the 746–758 MHz band, the power of any emission shall be attenuated outside the

band below the transmitter power (P) by at least  $43 + 10 \log(P)$  dB;

(2) On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the

band below the transmitter power (P) by at least  $43 + 10 \log(P)$  dB;

(3) On all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than  $76 + 10 \log(P)$  dB in a 6.25 kHz band segment, for base and fixed stations;

(4) On all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than  $65 + 10 \log(P)$  dB in a 6.25 kHz band segment, for mobile and portable stations;

(5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater.

However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth

of at least 30 kHz may be employed;

(6) Compliance with the provisions of paragraphs (c)(3) and (c)(4) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

FCC § 27.53(f)

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. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

FCC § 27.53(g)

For operations in the 600MHz band and the 698-746MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least  $43+10\log(P)$  dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

FCC § 27.53(h) (1)

Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10}(P)$  dB.

FCC § 27.53(m) (4)

For mobile digital stations (BRS and EBS stations), the attenuation factor shall be not less than:

- $40+10\log P$  dB (-10 dBm, 100 nW) on all frequencies between the channel edge and 5 MHz from the channel edge.
- $43+10\log P$  dB (-13 dBm, 50 nW) on all frequencies between 5 MHz and X MHz from the channel edge,
- $55+10\log P$  dB (-25 dBm, 3 nW) on all frequencies more than X MHz from the channel edge, where X is the greater of 6 MHz or the actual emission bandwidth (26 dB).

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.

### 5.7.2 Test Setup

The section 4.4.3 and 4.4.4 (Diagram 3, 4) test setup description was used for this test. The photo of test setup please refer to ANNEX B.

### 5.7.3 Test Procedure

1. On a test site, the EUT shall be placed at 80cm height on a turn table, and in the position close to normal use as declared by the applicant.
2. The test antenna shall be oriented initially for vertical polarization located 3 m from EUT to correspond to the fundamental frequency of the transmitter.
3. The output of the test antenna shall be connected to the measuring receiver and the peak detector is used for the measurement.
4. During the measurement of the EUT, the resolution bandwidth was to 1 MHz and the average bandwidth was set to 1 MHz.
5. The transmitter shall be switched on; the measuring receiver shall be tuned to the frequency of the transmitter under test.
6. The test antenna shall be raised and lowered through the specified range of height until the maximum signal level is detected by the measuring receiver.
7. The transmitter shall be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
8. The test antenna shall be raised and lowered again through the specified range of height until the maximum signal level is detected by the measuring receiver.
9. The maximum signal level detected by the measuring receiver shall be noted.
10. The EUT was replaced by half-wave dipole (824 ~ 849 MHz) or horn antenna (1 850 ~ 1 910 MHz) connected to a signal generator.
11. In necessary, the input attenuator setting on the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
12. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.

13. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, which is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
14. The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
15. The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.

Final measurement calculation as below:

The relevant equation for determining the ERP/EIRP from the radiated RF output power is:

$$\text{ERP/EIRP (dBm)} = \text{SA Read Value (dBm)} + \text{Correction Factor (dB)}$$

where:

ERP/EIRP = effective or equivalent radiated power, in dBm;

SA Read Value = measured transmitter power received by EMI receiver or spectrum analyzer, in dBm;

Correction Factor = total correction factor including cable loss, in dB;

During the test, the data of Correction Factor (dB) is added in the EMI receiver or spectrum analyzer, so SA Read Value (dBm) is the final values which contains the data of Correction Factor (dB).

For example:

In the ERP test, when SA read value for GSM850 is 21dBm, and correction factor is 8dB, then final ERP value for GSM850 is:

$$\text{ERP (dBm)} = 21\text{dBm} + 8\text{dB} = 29\text{dBm}$$

#### 5.7.4 Test Result

Please refer to ANNEX A.7.

## ANNEX A TEST RESULTS

### A.1 Transmitter Radiated Power (EIRP/ERP)

#### GSM Mode Test Data

Test Band	Test Channel	Conducted Output Peak Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)	Verdict
GSM 1900	LCH	30.33	2.63	32.96	1.977	2.00	Pass
	MCH	30.27	2.63	32.90	1.950	2.00	Pass
	HCH	30.20	2.63	32.83	1.919	2.00	Pass
GPRS 1900	LCH	30.29	2.63	32.92	1.959	2.00	Pass
	MCH	30.21	2.63	32.84	1.923	2.00	Pass
	HCH	30.13	2.63	32.76	1.888	2.00	Pass
EGPRS 1900	LCH	28.48	2.63	31.11	1.291	2.00	Pass
	MCH	28.44	2.63	31.07	1.279	2.00	Pass
	HCH	28.38	2.63	31.01	1.262	2.00	Pass

Note 1: For the GPRS and EGPRS mode, all slots were tested and just the worst data were recorded in this table.

Note 2:  $ERP/EIRP = P_{Meas} + GT - LC$

ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as  $P_{Meas}$ , typically dBW or dBm);

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

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

LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

$ERP = EIRP - 2.15$ ; where ERP and EIRP are expressed in consistent units.

Note 3: Set PCL to 5 for GSM/GPRS 850 (power class 4) and 0 for GSM/GPRS 1900 (power class 1).

Set PCL to 8 for EGPRS850 (power class E2) and 2 for EGPRS1900 (power class E2).

GPRS Conducted Output Power

Band	Channel	Conducted Output Peak Power							
		1 Slot (dBm)	1 Slot (W)	2 Slots (dBm)	2 Slots (W)	3 Slots (dBm)	3 Slots (W)	4 Slots (dBm)	4 Slots (W)
GPRS 1900	LCH	30.29	1.069	28.99	0.793	26.47	0.444	25.40	0.347
	MCH	30.21	1.050	28.96	0.786	26.42	0.439	25.33	0.341
	HCH	30.13	1.030	28.90	0.775	26.36	0.433	25.30	0.339

EGPRS Conducted Output Power

Band	Channel	Conducted Output Peak Power							
		1 Slot (dBm)	1 Slot (W)	2 Slots (dBm)	2 Slots (W)	3 Slots (dBm)	3 Slots (W)	4 Slots (dBm)	4 Slots (W)
EGPRS 1900	LCH	28.48	0.705	27.46	0.557	25.66	0.368	24.72	0.296
	MCH	28.44	0.698	27.52	0.565	25.95	0.394	24.65	0.292
	HCH	28.38	0.689	27.21	0.526	25.54	0.358	24.53	0.284

WCDMA Mode Test Data

Test Band	Test Channel	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)	Verdict
WCDMA Band 2	LCH	22.13	2.63	24.76	0.299	2.00	Pass
	MCH	22.20	2.63	24.83	0.304	2.00	Pass
	HCH	22.44	2.63	25.07	0.321	2.00	Pass
HSDPA Band 2	LCH	22.08	2.63	24.71	0.296	2.00	Pass
	MCH	22.20	2.63	24.83	0.304	2.00	Pass
	HCH	22.40	2.63	25.03	0.318	2.00	Pass
HSUPA Band 2	LCH	21.98	2.63	24.61	0.289	2.00	Pass
	MCH	22.14	2.63	24.77	0.300	2.00	Pass
	HCH	22.29	2.63	24.92	0.310	2.00	Pass



Note 1: For the HSDPA and HSUPA mode, all subtests were tested and just the worst data were recorded in this table.

Note 2:  $ERP/EIRP = P_{Meas} + GT - LC$

$ERP/EIRP$  = effective or equivalent radiated power, respectively (expressed in the same units as  $P_{Meas}$ , typically dBW or dBm);

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

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

$LC$  = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

$ERP = EIRP - 2.15$ ; where ERP and EIRP are expressed in consistent units.

#### HSDPA Conducted Output Power

Band	Channel	Conducted Output Average Power							
		Subtest1		Subtest2		Subtest3		Subtest4	
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	(dBm)	(W)
HSDPA Band 2	LCH	22.08	0.161	22.03	0.160	21.61	0.145	21.62	0.145
	MCH	22.20	0.166	22.17	0.165	21.74	0.149	21.70	0.148
	HCH	22.38	0.173	22.40	0.174	21.92	0.156	21.94	0.156

#### HSUPA Conducted Output Power

Band	Channel	Conducted Output Average Power									
		Subtest1		Subtest2		Subtest3		Subtest4		Subtest5	
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	(dBm)	(W)
HSUPA Band 2	LCH	20.05	0.101	20.13	0.103	21.09	0.129	19.54	0.090	21.98	0.158
	MCH	20.14	0.103	20.19	0.104	21.19	0.132	19.65	0.092	22.14	0.164
	HCH	20.35	0.108	20.37	0.109	21.42	0.139	19.84	0.096	22.29	0.169

LTE Mode Test Data

Test BW	Test Channel	Test Mode	Test RB (Size#Offset)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)	Verdict
<b>LTE BAND2</b>									
1.4 MHz	LCH	QPSK	RB1#0	22.8	2.63	25.43	0.349	2.00	Pass
			RB1#3	22.82	2.63	25.45	0.351	2.00	Pass
			RB1#5	22.81	2.63	25.44	0.350	2.00	Pass
			RB3#0	22.88	2.63	25.51	0.356	2.00	Pass
			RB3#2	22.88	2.63	25.51	0.356	2.00	Pass
			RB3#3	22.88	2.63	25.51	0.356	2.00	Pass
		RB6#0	21.79	2.63	24.42	0.277	2.00	Pass	
		16-QAM	RB1#0	21.88	2.63	24.51	0.282	2.00	Pass
			RB1#3	21.93	2.63	24.56	0.286	2.00	Pass
			RB1#5	21.88	2.63	24.51	0.282	2.00	Pass
			RB3#0	21.88	2.63	24.51	0.282	2.00	Pass
			RB3#2	21.9	2.63	24.53	0.284	2.00	Pass
	RB3#3		21.92	2.63	24.55	0.285	2.00	Pass	
	RB6#0	20.97	2.63	23.60	0.229	2.00	Pass		
	MCH	QPSK	RB1#0	22.78	2.63	25.41	0.348	2.00	Pass
			RB1#3	22.8	2.63	25.43	0.349	2.00	Pass
			RB1#5	22.81	2.63	25.44	0.350	2.00	Pass
			RB3#0	22.88	2.63	25.51	0.356	2.00	Pass
			RB3#2	22.9	2.63	25.53	0.357	2.00	Pass
			RB3#3	22.9	2.63	25.53	0.357	2.00	Pass
		RB6#0	21.75	2.63	24.38	0.274	2.00	Pass	
		16-QAM	RB1#0	22.19	2.63	24.82	0.303	2.00	Pass
			RB1#3	22.19	2.63	24.82	0.303	2.00	Pass
			RB1#5	22.19	2.63	24.82	0.303	2.00	Pass
			RB3#0	22.08	2.63	24.71	0.296	2.00	Pass
			RB3#2	22.04	2.63	24.67	0.293	2.00	Pass
	RB3#3		22.1	2.63	24.73	0.297	2.00	Pass	
	RB6#0	20.74	2.63	23.37	0.217	2.00	Pass		
	HCH	QPSK	RB1#0	22.92	2.63	25.55	0.359	2.00	Pass
			RB1#3	23.01	2.63	25.64	0.366	2.00	Pass
RB1#5			22.98	2.63	25.61	0.364	2.00	Pass	
RB3#0			23.02	2.63	25.65	0.367	2.00	Pass	
RB3#2			23.05	2.63	25.68	0.370	2.00	Pass	
RB3#3			23.06	2.63	25.69	0.371	2.00	Pass	
RB6#0		21.85	2.63	24.48	0.281	2.00	Pass		
16-QAM		RB1#0	21.91	2.63	24.54	0.284	2.00	Pass	
		RB1#3	21.93	2.63	24.56	0.286	2.00	Pass	

Test BW	Test Channel	Test Mode	Test RB (Size#Offset)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)	Verdict
<b>LTE BAND2</b>									
3 MHz			RB1#5	21.94	2.63	24.57	0.286	2.00	Pass
			RB3#0	22.18	2.63	24.81	0.303	2.00	Pass
			RB3#2	22.19	2.63	24.82	0.303	2.00	Pass
			RB3#3	22.17	2.63	24.80	0.302	2.00	Pass
			RB6#0	21.1	2.63	23.73	0.236	2.00	Pass
	LCH	QPSK	RB1#0	22.76	2.63	25.39	0.346	2.00	Pass
			RB1#7	22.79	2.63	25.42	0.348	2.00	Pass
			RB1#14	22.73	2.63	25.36	0.344	2.00	Pass
			RB8#0	21.83	2.63	24.46	0.279	2.00	Pass
			RB8#4	21.88	2.63	24.51	0.282	2.00	Pass
			RB8#7	21.83	2.63	24.46	0.279	2.00	Pass
			RB15#0	21.83	2.63	24.46	0.279	2.00	Pass
		16-QAM	RB1#0	21.66	2.63	24.29	0.269	2.00	Pass
			RB1#7	21.7	2.63	24.33	0.271	2.00	Pass
			RB1#14	21.63	2.63	24.26	0.267	2.00	Pass
			RB8#0	20.98	2.63	23.61	0.230	2.00	Pass
			RB8#4	20.99	2.63	23.62	0.230	2.00	Pass
			RB8#7	20.95	2.63	23.58	0.228	2.00	Pass
	MCH	QPSK	RB1#0	22.79	2.63	25.42	0.348	2.00	Pass
			RB1#7	22.81	2.63	25.44	0.350	2.00	Pass
			RB1#14	22.78	2.63	25.41	0.348	2.00	Pass
			RB8#0	21.82	2.63	24.45	0.279	2.00	Pass
			RB8#4	21.83	2.63	24.46	0.279	2.00	Pass
			RB8#7	21.82	2.63	24.45	0.279	2.00	Pass
			RB15#0	21.81	2.63	24.44	0.278	2.00	Pass
		16-QAM	RB1#0	22.2	2.63	24.83	0.304	2.00	Pass
			RB1#7	22.18	2.63	24.81	0.303	2.00	Pass
			RB1#14	22.15	2.63	24.78	0.301	2.00	Pass
RB8#0			21	2.63	23.63	0.231	2.00	Pass	
RB8#4			20.98	2.63	23.61	0.230	2.00	Pass	
RB8#7			20.97	2.63	23.60	0.229	2.00	Pass	
HCH	QPSK	RB1#0	22.91	2.63	25.54	0.358	2.00	Pass	
		RB1#7	22.97	2.63	25.60	0.363	2.00	Pass	
		RB1#14	22.96	2.63	25.59	0.362	2.00	Pass	
		RB8#0	21.98	2.63	24.61	0.289	2.00	Pass	
		RB8#4	22.02	2.63	24.65	0.292	2.00	Pass	

Test BW	Test Channel	Test Mode	Test RB (Size#Offset)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)	Verdict		
<b>LTE BAND2</b>											
		16-QAM	RB8#7	21.98	2.63	24.61	0.289	2.00	Pass		
			RB15#0	21.98	2.63	24.61	0.289	2.00	Pass		
			RB1#0	21.91	2.63	24.54	0.284	2.00	Pass		
			RB1#7	21.92	2.63	24.55	0.285	2.00	Pass		
			RB1#14	21.88	2.63	24.51	0.282	2.00	Pass		
			RB8#0	21.08	2.63	23.71	0.235	2.00	Pass		
			RB8#4	21.09	2.63	23.72	0.236	2.00	Pass		
			RB8#7	21.07	2.63	23.70	0.234	2.00	Pass		
					RB15#0	21	2.63	23.63	0.231	2.00	Pass
		5 MHz	LCH	QPSK	RB1#0	22.89	2.63	25.52	0.356	2.00	Pass
					RB1#13	22.86	2.63	25.49	0.354	2.00	Pass
					RB1#24	22.75	2.63	25.38	0.345	2.00	Pass
					RB12#0	21.86	2.63	24.49	0.281	2.00	Pass
					RB12#6	21.86	2.63	24.49	0.281	2.00	Pass
					RB12#13	21.83	2.63	24.46	0.279	2.00	Pass
					RB25#0	21.81	2.63	24.44	0.278	2.00	Pass
				16-QAM	RB1#0	22.03	2.63	24.66	0.292	2.00	Pass
					RB1#13	21.99	2.63	24.62	0.290	2.00	Pass
					RB1#24	21.93	2.63	24.56	0.286	2.00	Pass
					RB12#0	20.99	2.63	23.62	0.230	2.00	Pass
					RB12#6	20.98	2.63	23.61	0.230	2.00	Pass
			RB12#13		20.96	2.63	23.59	0.229	2.00	Pass	
				RB25#0	20.86	2.63	23.49	0.223	2.00	Pass	
	MCH		QPSK	RB1#0	22.91	2.63	25.54	0.358	2.00	Pass	
					RB1#13	22.86	2.63	25.49	0.354	2.00	Pass
					RB1#24	22.83	2.63	25.46	0.352	2.00	Pass
					RB12#0	21.88	2.63	24.51	0.282	2.00	Pass
					RB12#6	21.86	2.63	24.49	0.281	2.00	Pass
					RB12#13	21.86	2.63	24.49	0.281	2.00	Pass
					RB25#0	21.83	2.63	24.46	0.279	2.00	Pass
				16-QAM	RB1#0	22.39	2.63	25.02	0.318	2.00	Pass
					RB1#13	22.38	2.63	25.01	0.317	2.00	Pass
					RB1#24	22.31	2.63	24.94	0.312	2.00	Pass
			RB12#0		21.1	2.63	23.73	0.236	2.00	Pass	
			RB12#6		21.07	2.63	23.70	0.234	2.00	Pass	
		RB12#13	21.08		2.63	23.71	0.235	2.00	Pass		
			RB25#0	20.97	2.63	23.60	0.229	2.00	Pass		
	HCH	QPSK	RB1#0	22.98	2.63	25.61	0.364	2.00	Pass		

Test BW	Test Channel	Test Mode	Test RB (Size#Offset)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)	Verdict
<b>LTE BAND2</b>									
			RB1#13	22.98	2.63	25.61	0.364	2.00	Pass
			RB1#24	22.95	2.63	25.58	0.361	2.00	Pass
			RB12#0	21.99	2.63	24.62	0.290	2.00	Pass
			RB12#6	21.99	2.63	24.62	0.290	2.00	Pass
			RB12#13	21.94	2.63	24.57	0.286	2.00	Pass
			RB25#0	21.98	2.63	24.61	0.289	2.00	Pass
		16-QAM	RB1#0	22.27	2.63	24.90	0.309	2.00	Pass
			RB1#13	22.06	2.63	24.69	0.294	2.00	Pass
			RB1#24	21.92	2.63	24.55	0.285	2.00	Pass
			RB12#0	20.84	2.63	23.47	0.222	2.00	Pass
			RB12#6	20.84	2.63	23.47	0.222	2.00	Pass
			RB12#13	21.03	2.63	23.66	0.232	2.00	Pass
			RB25#0	20.76	2.63	23.39	0.218	2.00	Pass
			10 MHz	LCH	QPSK	RB1#0	22.88	2.63	25.51
RB1#25	22.81	2.63				25.44	0.350	2.00	Pass
RB1#49	23.02	2.63				25.65	0.367	2.00	Pass
RB25#0	22.31	2.63				24.94	0.312	2.00	Pass
RB25#13	21.9	2.63				24.53	0.284	2.00	Pass
RB25#25	22.01	2.63				24.64	0.291	2.00	Pass
16-QAM	RB50#0	22.01			2.63	24.64	0.291	2.00	Pass
	RB1#0	22.1			2.63	24.73	0.297	2.00	Pass
	RB1#25	21.99			2.63	24.62	0.290	2.00	Pass
	RB1#49	21.45			2.63	24.08	0.256	2.00	Pass
	RB25#0	20.88			2.63	23.51	0.224	2.00	Pass
	RB25#13	21.13			2.63	23.76	0.238	2.00	Pass
	RB25#25	21.03			2.63	23.66	0.232	2.00	Pass
	RB50#0	20.86			2.63	23.49	0.223	2.00	Pass
10 MHz	MCH	QPSK	RB1#0	23.17	2.63	25.80	0.380	2.00	Pass
			RB1#25	23.2	2.63	25.83	0.383	2.00	Pass
			RB1#49	22.89	2.63	25.52	0.356	2.00	Pass
			RB25#0	22.27	2.63	24.90	0.309	2.00	Pass
			RB25#13	22.31	2.63	24.94	0.312	2.00	Pass
			RB25#25	21.97	2.63	24.60	0.288	2.00	Pass
		16-QAM	RB50#0	21.75	2.63	24.38	0.274	2.00	Pass
			RB1#0	22.09	2.63	24.72	0.296	2.00	Pass
			RB1#25	22.19	2.63	24.82	0.303	2.00	Pass
			RB1#49	22.15	2.63	24.78	0.301	2.00	Pass
			RB25#0	20.95	2.63	23.58	0.228	2.00	Pass

Test BW	Test Channel	Test Mode	Test RB (Size#Offset)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)	Verdict		
<b>LTE BAND2</b>											
15 MHz	HCH	QPSK	RB25#13	20.83	2.63	23.46	0.222	2.00	Pass		
			RB25#25	20.78	2.63	23.41	0.219	2.00	Pass		
			RB50#0	21.19	2.63	23.82	0.241	2.00	Pass		
		16-QAM	QPSK	RB1#0	23	2.63	25.63	0.366	2.00	Pass	
				RB1#25	22.95	2.63	25.58	0.361	2.00	Pass	
				RB1#49	22.97	2.63	25.60	0.363	2.00	Pass	
			16-QAM	RB25#0	21.89	2.63	24.52	0.283	2.00	Pass	
				RB25#13	21.89	2.63	24.52	0.283	2.00	Pass	
				RB25#25	21.91	2.63	24.54	0.284	2.00	Pass	
				RB50#0	21.95	2.63	24.58	0.287	2.00	Pass	
				16-QAM	RB1#0	21.95	2.63	24.58	0.287	2.00	Pass
					RB1#25	21.93	2.63	24.56	0.286	2.00	Pass
	RB1#49	21.87	2.63		24.50	0.282	2.00	Pass			
	LCH	QPSK	RB25#0	21.06	2.63	23.69	0.234	2.00	Pass		
			RB25#13	21.08	2.63	23.71	0.235	2.00	Pass		
			RB25#25	21.08	2.63	23.71	0.235	2.00	Pass		
			RB50#0	21.06	2.63	23.69	0.234	2.00	Pass		
			16-QAM	RB1#0	22.9	2.63	25.53	0.357	2.00	Pass	
				RB1#38	22.77	2.63	25.40	0.347	2.00	Pass	
				RB1#74	22.75	2.63	25.38	0.345	2.00	Pass	
				RB36#0	21.86	2.63	24.49	0.281	2.00	Pass	
RB36#19				21.81	2.63	24.44	0.278	2.00	Pass		
RB36#39		21.8		2.63	24.43	0.277	2.00	Pass			
RB75#0		21.85		2.63	24.48	0.281	2.00	Pass			
16-QAM		RB1#0		21.79	2.63	24.42	0.277	2.00	Pass		
		RB1#38		21.73	2.63	24.36	0.273	2.00	Pass		
		RB1#74	21.73	2.63	24.36	0.273	2.00	Pass			
MCH		QPSK	RB36#0	20.88	2.63	23.51	0.224	2.00	Pass		
			RB36#19	20.84	2.63	23.47	0.222	2.00	Pass		
			RB36#39	20.84	2.63	23.47	0.222	2.00	Pass		
			RB75#0	20.87	2.63	23.50	0.224	2.00	Pass		
	RB1#0		22.92	2.63	25.55	0.359	2.00	Pass			
	RB1#38		22.85	2.63	25.48	0.353	2.00	Pass			
	RB1#74		22.89	2.63	25.52	0.356	2.00	Pass			
	RB36#0		21.9	2.63	24.53	0.284	2.00	Pass			
	RB36#19		21.85	2.63	24.48	0.281	2.00	Pass			
RB36#39	21.9	2.63	24.53	0.284	2.00	Pass					
RB75#0	21.9	2.63	24.53	0.284	2.00	Pass					

Test BW	Test Channel	Test Mode	Test RB (Size#Offset)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)	Verdict
<b>LTE BAND2</b>									
20 MHz	HCH	16-QAM	RB1#0	22.3	2.63	24.93	0.311	2.00	Pass
			RB1#38	22.21	2.63	24.84	0.305	2.00	Pass
			RB1#74	22.23	2.63	24.86	0.306	2.00	Pass
			RB36#0	20.97	2.63	23.60	0.229	2.00	Pass
			RB36#19	20.94	2.63	23.57	0.228	2.00	Pass
			RB36#39	20.98	2.63	23.61	0.230	2.00	Pass
			RB75#0	20.94	2.63	23.57	0.228	2.00	Pass
		QPSK	RB1#0	23.01	2.63	25.64	0.366	2.00	Pass
			RB1#38	22.94	2.63	25.57	0.361	2.00	Pass
			RB1#74	22.99	2.63	25.62	0.365	2.00	Pass
			RB36#0	22	2.63	24.63	0.290	2.00	Pass
			RB36#19	21.95	2.63	24.58	0.287	2.00	Pass
			RB36#39	21.96	2.63	24.59	0.288	2.00	Pass
			RB75#0	22.01	2.63	24.64	0.291	2.00	Pass
	16-QAM	RB1#0	22.32	2.63	24.95	0.313	2.00	Pass	
		RB1#38	22.27	2.63	24.90	0.309	2.00	Pass	
		RB1#74	22.24	2.63	24.87	0.307	2.00	Pass	
		RB36#0	20.98	2.63	23.61	0.230	2.00	Pass	
		RB36#19	20.94	2.63	23.57	0.228	2.00	Pass	
		RB36#39	20.96	2.63	23.59	0.229	2.00	Pass	
		RB75#0	21.01	2.63	23.64	0.231	2.00	Pass	
	LCH	QPSK	RB1#0	23	2.63	25.63	0.366	2.00	Pass
			RB1#50	22.84	2.63	25.47	0.352	2.00	Pass
			RB1#99	22.86	2.63	25.49	0.354	2.00	Pass
			RB50#0	21.9	2.63	24.53	0.284	2.00	Pass
			RB50#25	21.83	2.63	24.46	0.279	2.00	Pass
			RB50#50	21.86	2.63	24.49	0.281	2.00	Pass
			RB100#0	21.84	2.63	24.47	0.280	2.00	Pass
16-QAM		RB1#0	22.46	2.63	25.09	0.323	2.00	Pass	
		RB1#50	22.35	2.63	24.98	0.315	2.00	Pass	
		RB1#99	22.37	2.63	25.00	0.316	2.00	Pass	
		RB50#0	20.96	2.63	23.59	0.229	2.00	Pass	
		RB50#25	20.93	2.63	23.56	0.227	2.00	Pass	
		RB50#50	20.95	2.63	23.58	0.228	2.00	Pass	
		RB100#0	20.94	2.63	23.57	0.228	2.00	Pass	
MCH	QPSK	RB1#0	23	2.63	25.63	0.366	2.00	Pass	
		RB1#50	22.9	2.63	25.53	0.357	2.00	Pass	
		RB1#99	22.96	2.63	25.59	0.362	2.00	Pass	

Test BW	Test Channel	Test Mode	Test RB (Size#Offset)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)	Verdict	
<b>LTE BAND2</b>										
			RB50#0	21.94	2.63	24.57	0.286	2.00	Pass	
			RB50#25	21.86	2.63	24.49	0.281	2.00	Pass	
			RB50#50	21.89	2.63	24.52	0.283	2.00	Pass	
			RB100#0	21.91	2.63	24.54	0.284	2.00	Pass	
		16-QAM	RB1#0	22.42	2.63	25.05	0.320	2.00	Pass	
			RB1#50	22.31	2.63	24.94	0.312	2.00	Pass	
			RB1#99	22.28	2.63	24.91	0.310	2.00	Pass	
			RB50#0	21.02	2.63	23.65	0.232	2.00	Pass	
			RB50#25	20.95	2.63	23.58	0.228	2.00	Pass	
			RB50#50	20.96	2.63	23.59	0.229	2.00	Pass	
		RB100#0	20.99	2.63	23.62	0.230	2.00	Pass		
		HCH	QPSK	RB1#0	23.02	2.63	25.65	0.367	2.00	Pass
				RB1#50	22.94	2.63	25.57	0.361	2.00	Pass
				RB1#99	22.96	2.63	25.59	0.362	2.00	Pass
	RB50#0			21.96	2.63	24.59	0.288	2.00	Pass	
	RB50#25			21.94	2.63	24.57	0.286	2.00	Pass	
	RB50#50			21.91	2.63	24.54	0.284	2.00	Pass	
	RB100#0		21.94	2.63	24.57	0.286	2.00	Pass		
	16-QAM		RB1#0	22.35	2.63	24.98	0.315	2.00	Pass	
			RB1#50	22.25	2.63	24.88	0.308	2.00	Pass	
			RB1#99	22.28	2.63	24.91	0.310	2.00	Pass	
			RB50#0	20.98	2.63	23.61	0.230	2.00	Pass	
			RB50#25	20.97	2.63	23.60	0.229	2.00	Pass	
			RB50#50	20.98	2.63	23.61	0.230	2.00	Pass	
	RB100#0		21	2.63	23.63	0.231	2.00	Pass		



Test BW	Test Channel	Test Mode	Test RB (Size#Offset)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)	Verdict
<b>LTE BAND4</b>									
1.4 MHz	LCH	QPSK	RB1#0	22.77	2.28	25.05	0.320	1.000	Pass
			RB1#3	22.78	2.28	25.06	0.321	1.000	Pass
			RB1#5	22.78	2.28	25.06	0.321	1.000	Pass
			RB3#0	22.82	2.28	25.10	0.324	1.000	Pass
			RB3#2	22.83	2.28	25.11	0.324	1.000	Pass
			RB3#3	22.82	2.28	25.10	0.324	1.000	Pass
		RB6#0	21.78	2.28	24.06	0.255	1.000	Pass	
		16-QAM	RB1#0	21.87	2.28	24.15	0.260	1.000	Pass
			RB1#3	21.9	2.28	24.18	0.262	1.000	Pass
			RB1#5	21.87	2.28	24.15	0.260	1.000	Pass
			RB3#0	21.87	2.28	24.15	0.260	1.000	Pass
			RB3#2	21.84	2.28	24.12	0.258	1.000	Pass
	RB3#3		21.86	2.28	24.14	0.259	1.000	Pass	
	RB6#0	20.95	2.28	23.23	0.210	1.000	Pass		
	MCH	QPSK	RB1#0	22.99	2.28	25.27	0.337	1.000	Pass
			RB1#3	23.03	2.28	25.31	0.340	1.000	Pass
			RB1#5	23	2.28	25.28	0.337	1.000	Pass
			RB3#0	23.03	2.28	25.31	0.340	1.000	Pass
			RB3#2	23.05	2.28	25.33	0.341	1.000	Pass
			RB3#3	23.04	2.28	25.32	0.340	1.000	Pass
		RB6#0	21.98	2.28	24.26	0.267	1.000	Pass	
		16-QAM	RB1#0	22.32	2.28	24.60	0.288	1.000	Pass
			RB1#3	22.33	2.28	24.61	0.289	1.000	Pass
			RB1#5	22.3	2.28	24.58	0.287	1.000	Pass
			RB3#0	22.21	2.28	24.49	0.281	1.000	Pass
			RB3#2	22.18	2.28	24.46	0.279	1.000	Pass
	RB3#3		22.18	2.28	24.46	0.279	1.000	Pass	
	RB6#0	20.91	2.28	23.19	0.208	1.000	Pass		
	HCH	QPSK	RB1#0	22.87	2.28	25.15	0.327	1.000	Pass
			RB1#3	22.93	2.28	25.21	0.332	1.000	Pass
			RB1#5	22.86	2.28	25.14	0.327	1.000	Pass
			RB3#0	22.86	2.28	25.14	0.327	1.000	Pass
			RB3#2	22.85	2.28	25.13	0.326	1.000	Pass
			RB3#3	22.84	2.28	25.12	0.325	1.000	Pass
		RB6#0	21.81	2.28	24.09	0.256	1.000	Pass	
		16-QAM	RB1#0	21.73	2.28	24.01	0.252	1.000	Pass
RB1#3	21.76	2.28	24.04	0.254	1.000	Pass			

Test BW	Test Channel	Test Mode	Test RB (Size#Offset)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)	Verdict
<b>LTE BAND4</b>									
3 MHz			RB1#5	21.72	2.28	24.00	0.251	1.000	Pass
			RB3#0	21.93	2.28	24.21	0.264	1.000	Pass
			RB3#2	21.91	2.28	24.19	0.262	1.000	Pass
			RB3#3	21.91	2.28	24.19	0.262	1.000	Pass
			RB6#0	21	2.28	23.28	0.213	1.000	Pass
	LCH	QPSK	RB1#0	22.77	2.28	25.05	0.320	1.000	Pass
			RB1#7	22.78	2.28	25.06	0.321	1.000	Pass
			RB1#14	22.74	2.28	25.02	0.318	1.000	Pass
			RB8#0	21.86	2.28	24.14	0.259	1.000	Pass
			RB8#4	21.87	2.28	24.15	0.260	1.000	Pass
			RB8#7	21.87	2.28	24.15	0.260	1.000	Pass
			RB15#0	21.81	2.28	24.09	0.256	1.000	Pass
		16-QAM	RB1#0	21.68	2.28	23.96	0.249	1.000	Pass
			RB1#7	21.69	2.28	23.97	0.249	1.000	Pass
			RB1#14	21.64	2.28	23.92	0.247	1.000	Pass
			RB8#0	21.01	2.28	23.29	0.213	1.000	Pass
			RB8#4	21	2.28	23.28	0.213	1.000	Pass
			RB8#7	20.99	2.28	23.27	0.212	1.000	Pass
	MCH	QPSK	RB1#0	22.99	2.28	25.27	0.337	1.000	Pass
			RB1#7	23.01	2.28	25.29	0.338	1.000	Pass
			RB1#14	22.94	2.28	25.22	0.333	1.000	Pass
			RB8#0	22.04	2.28	24.32	0.270	1.000	Pass
			RB8#4	22.05	2.28	24.33	0.271	1.000	Pass
			RB8#7	22.04	2.28	24.32	0.270	1.000	Pass
			RB15#0	21.99	2.28	24.27	0.267	1.000	Pass
		16-QAM	RB1#0	22.29	2.28	24.57	0.286	1.000	Pass
			RB1#7	22.32	2.28	24.60	0.288	1.000	Pass
			RB1#14	22.28	2.28	24.56	0.286	1.000	Pass
RB8#0			21.14	2.28	23.42	0.220	1.000	Pass	
RB8#4			21.14	2.28	23.42	0.220	1.000	Pass	
HCH	QPSK	RB8#7	21.12	2.28	23.40	0.219	1.000	Pass	
		RB15#0	21.04	2.28	23.32	0.215	1.000	Pass	
		RB1#0	22.87	2.28	25.15	0.327	1.000	Pass	
		RB1#7	22.88	2.28	25.16	0.328	1.000	Pass	
		RB1#14	22.82	2.28	25.10	0.324	1.000	Pass	
			RB8#0	21.88	2.28	24.16	0.261	1.000	Pass
			RB8#4	21.88	2.28	24.16	0.261	1.000	Pass

Test BW	Test Channel	Test Mode	Test RB (Size#Offset)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)	Verdict		
<b>LTE BAND4</b>											
		16-QAM	RB8#7	21.85	2.28	24.13	0.259	1.000	Pass		
			RB15#0	21.82	2.28	24.10	0.257	1.000	Pass		
			RB1#0	21.77	2.28	24.05	0.254	1.000	Pass		
			RB1#7	21.72	2.28	24.00	0.251	1.000	Pass		
			RB1#14	21.64	2.28	23.92	0.247	1.000	Pass		
			RB8#0	20.93	2.28	23.21	0.209	1.000	Pass		
			RB8#4	20.9	2.28	23.18	0.208	1.000	Pass		
			RB8#7	20.88	2.28	23.16	0.207	1.000	Pass		
					RB15#0	20.79	2.28	23.07	0.203	1.000	Pass
		5 MHz	LCH	QPSK	RB1#0	22.85	2.28	25.13	0.326	1.000	Pass
					RB1#13	22.87	2.28	25.15	0.327	1.000	Pass
					RB1#24	22.8	2.28	25.08	0.322	1.000	Pass
					RB12#0	21.86	2.28	24.14	0.259	1.000	Pass
					RB12#6	21.88	2.28	24.16	0.261	1.000	Pass
					RB12#13	21.82	2.28	24.10	0.257	1.000	Pass
							RB25#0	21.82	2.28	24.10	0.257
				16-QAM	RB1#0	22	2.28	24.28	0.268	1.000	Pass
					RB1#13	22.01	2.28	24.29	0.269	1.000	Pass
					RB1#24	21.93	2.28	24.21	0.264	1.000	Pass
					RB12#0	21	2.28	23.28	0.213	1.000	Pass
					RB12#6	20.99	2.28	23.27	0.212	1.000	Pass
			RB12#13		20.95	2.28	23.23	0.210	1.000	Pass	
				RB25#0	20.9	2.28	23.18	0.208	1.000	Pass	
	MCH		QPSK	RB1#0	23.11	2.28	25.39	0.346	1.000	Pass	
					RB1#13	23.05	2.28	25.33	0.341	1.000	Pass
					RB1#24	23.01	2.28	25.29	0.338	1.000	Pass
					RB12#0	22.06	2.28	24.34	0.272	1.000	Pass
					RB12#6	22.03	2.28	24.31	0.270	1.000	Pass
					RB12#13	22.03	2.28	24.31	0.270	1.000	Pass
					RB25#0	21.99	2.28	24.27	0.267	1.000	Pass
				16-QAM	RB1#0	22.51	2.28	24.79	0.301	1.000	Pass
					RB1#13	22.51	2.28	24.79	0.301	1.000	Pass
					RB1#24	22.46	2.28	24.74	0.298	1.000	Pass
			RB12#0		21.23	2.28	23.51	0.224	1.000	Pass	
			RB12#6		21.2	2.28	23.48	0.223	1.000	Pass	
		RB12#13	21.23		2.28	23.51	0.224	1.000	Pass		
			RB25#0	21.1	2.28	23.38	0.218	1.000	Pass		
	HCH	QPSK	RB1#0	22.94	2.28	25.22	0.333	1.000	Pass		

Test BW	Test Channel	Test Mode	Test RB (Size#Offset)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)	Verdict
<b>LTE BAND4</b>									
			RB1#13	22.9	2.28	25.18	0.330	1.000	Pass
			RB1#24	22.81	2.28	25.09	0.323	1.000	Pass
			RB12#0	21.92	2.28	24.20	0.263	1.000	Pass
			RB12#6	21.89	2.28	24.17	0.261	1.000	Pass
			RB12#13	21.86	2.28	24.14	0.259	1.000	Pass
			RB25#0	21.82	2.28	24.10	0.257	1.000	Pass
		16-QAM	RB1#0	22	2.28	24.28	0.268	1.000	Pass
			RB1#13	21.9	2.28	24.18	0.262	1.000	Pass
			RB1#24	21.81	2.28	24.09	0.256	1.000	Pass
			RB12#0	21.02	2.28	23.30	0.214	1.000	Pass
			RB12#6	20.97	2.28	23.25	0.211	1.000	Pass
			RB12#13	20.92	2.28	23.20	0.209	1.000	Pass
			RB25#0	20.82	2.28	23.10	0.204	1.000	Pass
			10 MHz	LCH	QPSK	RB1#0	22.92	2.28	25.20
RB1#25	22.92	2.28				25.20	0.331	1.000	Pass
RB1#49	22.88	2.28				25.16	0.328	1.000	Pass
RB25#0	21.86	2.28				24.14	0.259	1.000	Pass
RB25#13	21.87	2.28				24.15	0.260	1.000	Pass
RB25#25	21.83	2.28				24.11	0.258	1.000	Pass
16-QAM	RB50#0	21.87			2.28	24.15	0.260	1.000	Pass
	RB1#0	21.84			2.28	24.12	0.258	1.000	Pass
	RB1#25	21.79			2.28	24.07	0.255	1.000	Pass
	RB1#49	21.7			2.28	23.98	0.250	1.000	Pass
	RB25#0	20.92			2.28	23.20	0.209	1.000	Pass
	RB25#13	20.91			2.28	23.19	0.208	1.000	Pass
	RB25#25	20.86			2.28	23.14	0.206	1.000	Pass
	RB50#0	20.88			2.28	23.16	0.207	1.000	Pass
10 MHz	MCH	QPSK	RB1#0	23.14	2.28	25.42	0.348	1.000	Pass
			RB1#25	23.04	2.28	25.32	0.340	1.000	Pass
			RB1#49	23.03	2.28	25.31	0.340	1.000	Pass
			RB25#0	22.03	2.28	24.31	0.270	1.000	Pass
			RB25#13	21.97	2.28	24.25	0.266	1.000	Pass
			RB25#25	22.01	2.28	24.29	0.269	1.000	Pass
		16-QAM	RB50#0	22	2.28	24.28	0.268	1.000	Pass
			RB1#0	22.39	2.28	24.67	0.293	1.000	Pass
			RB1#25	22.31	2.28	24.59	0.288	1.000	Pass
			RB1#49	22.37	2.28	24.65	0.292	1.000	Pass
			RB25#0	21.08	2.28	23.36	0.217	1.000	Pass

Test BW	Test Channel	Test Mode	Test RB (Size#Offset)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)	Verdict		
<b>LTE BAND4</b>											
15 MHz	HCH	QPSK	RB25#13	21.07	2.28	23.35	0.216	1.000	Pass		
			RB25#25	21.09	2.28	23.37	0.217	1.000	Pass		
			RB50#0	21.05	2.28	23.33	0.215	1.000	Pass		
		16-QAM	QPSK	RB1#0	22.97	2.28	25.25	0.335	1.000	Pass	
				RB1#25	22.9	2.28	25.18	0.330	1.000	Pass	
				RB1#49	22.84	2.28	25.12	0.325	1.000	Pass	
			16-QAM	RB25#0	21.88	2.28	24.16	0.261	1.000	Pass	
				RB25#13	21.82	2.28	24.10	0.257	1.000	Pass	
				RB25#25	21.77	2.28	24.05	0.254	1.000	Pass	
				RB50#0	21.86	2.28	24.14	0.259	1.000	Pass	
				16-QAM	RB1#0	21.97	2.28	24.25	0.266	1.000	Pass
					RB1#25	21.84	2.28	24.12	0.258	1.000	Pass
	RB1#49	21.68	2.28		23.96	0.249	1.000	Pass			
	LCH	QPSK	RB25#0	21.02	2.28	23.30	0.214	1.000	Pass		
			RB25#13	20.98	2.28	23.26	0.212	1.000	Pass		
			RB25#25	20.88	2.28	23.16	0.207	1.000	Pass		
			RB50#0	20.94	2.28	23.22	0.210	1.000	Pass		
			16-QAM	RB1#0	22.97	2.28	25.25	0.335	1.000	Pass	
				RB1#38	22.94	2.28	25.22	0.333	1.000	Pass	
				RB1#74	22.95	2.28	25.23	0.333	1.000	Pass	
		RB36#0		22	2.28	24.28	0.268	1.000	Pass		
RB36#19		21.99		2.28	24.27	0.267	1.000	Pass			
RB36#39		21.98		2.28	24.26	0.267	1.000	Pass			
RB75#0		21.99		2.28	24.27	0.267	1.000	Pass			
QPSK		RB1#0	21.88	2.28	24.16	0.261	1.000	Pass			
		RB1#38	21.76	2.28	24.04	0.254	1.000	Pass			
		RB1#74	21.77	2.28	24.05	0.254	1.000	Pass			
		RB36#0	20.98	2.28	23.26	0.212	1.000	Pass			
		RB36#19	20.96	2.28	23.24	0.211	1.000	Pass			
		RB36#39	20.93	2.28	23.21	0.209	1.000	Pass			
		RB75#0	20.96	2.28	23.24	0.211	1.000	Pass			
MCH	QPSK	RB1#0	23.2	2.28	25.48	0.353	1.000	Pass			
		RB1#38	23.04	2.28	25.32	0.340	1.000	Pass			
		RB1#74	23	2.28	25.28	0.337	1.000	Pass			
		RB36#0	22.16	2.28	24.44	0.278	1.000	Pass			
		RB36#19	22.09	2.28	24.37	0.274	1.000	Pass			
		RB36#39	22.08	2.28	24.36	0.273	1.000	Pass			
		RB75#0	22.14	2.28	24.42	0.277	1.000	Pass			

Test BW	Test Channel	Test Mode	Test RB (Size#Offset)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)	Verdict
<b>LTE BAND4</b>									
20 MHz	HCH	16-QAM	RB1#0	22.42	2.28	24.70	0.295	1.000	Pass
			RB1#38	22.34	2.28	24.62	0.290	1.000	Pass
			RB1#74	22.36	2.28	24.64	0.291	1.000	Pass
			RB36#0	21.18	2.28	23.46	0.222	1.000	Pass
			RB36#19	21.16	2.28	23.44	0.221	1.000	Pass
			RB36#39	21.15	2.28	23.43	0.220	1.000	Pass
			RB75#0	21.15	2.28	23.43	0.220	1.000	Pass
		QPSK	RB1#0	23.09	2.28	25.37	0.344	1.000	Pass
			RB1#38	22.93	2.28	25.21	0.332	1.000	Pass
			RB1#74	22.83	2.28	25.11	0.324	1.000	Pass
			RB36#0	22	2.28	24.28	0.268	1.000	Pass
			RB36#19	21.93	2.28	24.21	0.264	1.000	Pass
			RB36#39	21.89	2.28	24.17	0.261	1.000	Pass
			RB75#0	21.96	2.28	24.24	0.265	1.000	Pass
	16-QAM	RB1#0	22.47	2.28	24.75	0.299	1.000	Pass	
		RB1#38	22.27	2.28	24.55	0.285	1.000	Pass	
		RB1#74	22	2.28	24.28	0.268	1.000	Pass	
		RB36#0	21.01	2.28	23.29	0.213	1.000	Pass	
		RB36#19	20.94	2.28	23.22	0.210	1.000	Pass	
		RB36#39	20.85	2.28	23.13	0.206	1.000	Pass	
		RB75#0	20.96	2.28	23.24	0.211	1.000	Pass	
	LCH	QPSK	RB1#0	23.05	2.28	25.33	0.341	1.000	Pass
			RB1#50	23.02	2.28	25.30	0.339	1.000	Pass
			RB1#99	22.98	2.28	25.26	0.336	1.000	Pass
			RB50#0	21.97	2.28	24.25	0.266	1.000	Pass
			RB50#25	21.91	2.28	24.19	0.262	1.000	Pass
			RB50#50	21.91	2.28	24.19	0.262	1.000	Pass
			RB100#0	21.91	2.28	24.19	0.262	1.000	Pass
16-QAM		RB1#0	22.52	2.28	24.80	0.302	1.000	Pass	
		RB1#50	22.4	2.28	24.68	0.294	1.000	Pass	
		RB1#99	22.42	2.28	24.70	0.295	1.000	Pass	
		RB50#0	21	2.28	23.28	0.213	1.000	Pass	
		RB50#25	20.93	2.28	23.21	0.209	1.000	Pass	
		RB50#50	20.93	2.28	23.21	0.209	1.000	Pass	
		RB100#0	20.95	2.28	23.23	0.210	1.000	Pass	
MCH	QPSK	RB1#0	23.25	2.28	25.53	0.357	1.000	Pass	
		RB1#50	23.13	2.28	25.41	0.348	1.000	Pass	
		RB1#99	23.04	2.28	25.32	0.340	1.000	Pass	

Test BW	Test Channel	Test Mode	Test RB (Size#Offset)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)	Verdict		
<b>LTE BAND4</b>											
			RB50#0	22.11	2.28	24.39	0.275	1.000	Pass		
			RB50#25	22.03	2.28	24.31	0.270	1.000	Pass		
			RB50#50	22.06	2.28	24.34	0.272	1.000	Pass		
			RB100#0	22.08	2.28	24.36	0.273	1.000	Pass		
		16-QAM		RB1#0	22.5	2.28	24.78	0.301	1.000	Pass	
				RB1#50	22.43	2.28	24.71	0.296	1.000	Pass	
				RB1#99	22.45	2.28	24.73	0.297	1.000	Pass	
				RB50#0	21.13	2.28	23.41	0.219	1.000	Pass	
				RB50#25	21.08	2.28	23.36	0.217	1.000	Pass	
				RB50#50	21.13	2.28	23.41	0.219	1.000	Pass	
				RB100#0	21.12	2.28	23.40	0.219	1.000	Pass	
				QPSK	RB1#0	23.14	2.28	25.42	0.348	1.000	Pass
					RB1#50	22.94	2.28	25.22	0.333	1.000	Pass
					RB1#99	22.82	2.28	25.10	0.324	1.000	Pass
	RB50#0	22.06	2.28		24.34	0.272	1.000	Pass			
	RB50#25	21.97	2.28		24.25	0.266	1.000	Pass			
	RB50#50	21.85	2.28		24.13	0.259	1.000	Pass			
	RB100#0	21.93	2.28		24.21	0.264	1.000	Pass			
	16-QAM	RB1#0	22.51	2.28	24.79	0.301	1.000	Pass			
		RB1#50	22.35	2.28	24.63	0.290	1.000	Pass			
		RB1#99	22.04	2.28	24.32	0.270	1.000	Pass			
		RB50#0	21.1	2.28	23.38	0.218	1.000	Pass			
		RB50#25	20.98	2.28	23.26	0.212	1.000	Pass			
		RB50#50	20.87	2.28	23.15	0.207	1.000	Pass			
		RB100#0	20.99	2.28	23.27	0.212	1.000	Pass			

Test BW	Test Channel	Test Mode	Test RB (Size#Offset)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)	Verdict
<b>LTE BAND12</b>									
1.4 MHz	LCH	QPSK	RB1#0	22.85	-0.82	19.88	0.097	3.000	Pass
			RB1#13	22.87	-0.82	19.90	0.098	3.000	Pass
			RB1#24	22.87	-0.82	19.90	0.098	3.000	Pass
			RB12#0	22.99	-0.82	20.02	0.100	3.000	Pass
			RB12#6	22.96	-0.82	19.99	0.100	3.000	Pass
			RB12#13	22.99	-0.82	20.02	0.100	3.000	Pass
		RB25#0	21.84	-0.82	18.87	0.077	3.000	Pass	
		16-QAM	RB1#0	22.06	-0.82	19.09	0.081	3.000	Pass
			RB1#13	22.07	-0.82	19.10	0.081	3.000	Pass
			RB1#24	22.04	-0.82	19.07	0.081	3.000	Pass
			RB12#0	22.03	-0.82	19.06	0.081	3.000	Pass
			RB12#6	22	-0.82	19.03	0.080	3.000	Pass
	RB12#13		22.01	-0.82	19.04	0.080	3.000	Pass	
	RB25#0	21.01	-0.82	18.04	0.064	3.000	Pass		
	MCH	QPSK	RB1#0	22.87	-0.82	19.90	0.098	3.000	Pass
			RB1#13	22.88	-0.82	19.91	0.098	3.000	Pass
			RB1#24	22.86	-0.82	19.89	0.097	3.000	Pass
			RB12#0	23	-0.82	20.03	0.101	3.000	Pass
			RB12#6	22.99	-0.82	20.02	0.100	3.000	Pass
			RB12#13	23	-0.82	20.03	0.101	3.000	Pass
		RB25#0	21.83	-0.82	18.86	0.077	3.000	Pass	
		16-QAM	RB1#0	22.35	-0.82	19.38	0.087	3.000	Pass
			RB1#13	22.36	-0.82	19.39	0.087	3.000	Pass
			RB1#24	22.31	-0.82	19.34	0.086	3.000	Pass
			RB12#0	22.24	-0.82	19.27	0.085	3.000	Pass
			RB12#6	22.17	-0.82	19.20	0.083	3.000	Pass
	RB12#13		22.19	-0.82	19.22	0.084	3.000	Pass	
	RB25#0	20.8	-0.82	17.83	0.061	3.000	Pass		
	HCH	QPSK	RB1#0	22.9	-0.82	19.93	0.098	3.000	Pass
			RB1#13	22.97	-0.82	20.00	0.100	3.000	Pass
RB1#24			22.9	-0.82	19.93	0.098	3.000	Pass	
RB12#0			23.06	-0.82	20.09	0.102	3.000	Pass	
RB12#6			23.05	-0.82	20.08	0.102	3.000	Pass	
RB12#13			23.09	-0.82	20.12	0.103	3.000	Pass	
RB25#0		21.83	-0.82	18.86	0.077	3.000	Pass		
16-QAM		RB1#0	21.96	-0.82	18.99	0.079	3.000	Pass	
RB1#13	21.99	-0.82	19.02	0.080	3.000	Pass			



Test BW	Test Channel	Test Mode	Test RB (Size#Offset)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)	Verdict
<b>LTE BAND12</b>									
3 MHz			RB1#24	22.02	-0.82	19.05	0.080	3.000	Pass
			RB12#0	22.19	-0.82	19.22	0.084	3.000	Pass
			RB12#6	22.19	-0.82	19.22	0.084	3.000	Pass
			RB12#13	22.23	-0.82	19.26	0.084	3.000	Pass
			RB25#0	21.1	-0.82	18.13	0.065	3.000	Pass
	LCH	QPSK	RB1#0	22.8	-0.82	19.83	0.096	3.000	Pass
			RB1#25	22.84	-0.82	19.87	0.097	3.000	Pass
			RB1#49	22.79	-0.82	19.82	0.096	3.000	Pass
			RB25#0	21.9	-0.82	18.93	0.078	3.000	Pass
			RB25#13	21.81	-0.82	18.84	0.077	3.000	Pass
			RB25#25	21.81	-0.82	18.84	0.077	3.000	Pass
		RB50#0	21.84	-0.82	18.87	0.077	3.000	Pass	
		16-QAM	RB1#0	21.39	-0.82	18.42	0.070	3.000	Pass
			RB1#25	21.82	-0.82	18.85	0.077	3.000	Pass
			RB1#49	21.59	-0.82	18.62	0.073	3.000	Pass
			RB25#0	20.94	-0.82	17.97	0.063	3.000	Pass
			RB25#13	21.66	-0.82	18.69	0.074	3.000	Pass
			RB25#25	21.01	-0.82	18.04	0.064	3.000	Pass
	RB50#0	21.38	-0.82	18.41	0.069	3.000	Pass		
	MCH	QPSK	RB1#0	23	-0.82	20.03	0.101	3.000	Pass
			RB1#25	22.77	-0.82	19.80	0.095	3.000	Pass
			RB1#49	23.05	-0.82	20.08	0.102	3.000	Pass
			RB25#0	21.87	-0.82	18.90	0.078	3.000	Pass
			RB25#13	22.07	-0.82	19.10	0.081	3.000	Pass
			RB25#25	22.05	-0.82	19.08	0.081	3.000	Pass
		RB50#0	21.9	-0.82	18.93	0.078	3.000	Pass	
		16-QAM	RB1#0	22.19	-0.82	19.22	0.084	3.000	Pass
			RB1#25	22.32	-0.82	19.35	0.086	3.000	Pass
RB1#49			22.32	-0.82	19.35	0.086	3.000	Pass	
RB25#0			21.12	-0.82	18.15	0.065	3.000	Pass	
RB25#13			21.13	-0.82	18.16	0.065	3.000	Pass	
RB25#25			21.1	-0.82	18.13	0.065	3.000	Pass	
RB50#0	21.04	-0.82	18.07	0.064	3.000	Pass			
HCH	QPSK	RB1#0	23.15	-0.82	20.18	0.104	3.000	Pass	
		RB1#25	23.32	-0.82	20.35	0.108	3.000	Pass	
		RB1#49	22.97	-0.82	20.00	0.100	3.000	Pass	
		RB25#0	22.17	-0.82	19.20	0.083	3.000	Pass	
		RB25#13	22.21	-0.82	19.24	0.084	3.000	Pass	

Test BW	Test Channel	Test Mode	Test RB (Size#Offset)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)	Verdict		
<b>LTE BAND12</b>											
		16-QAM	RB25#25	21.97	-0.82	19.00	0.079	3.000	Pass		
			RB50#0	22.34	-0.82	19.37	0.086	3.000	Pass		
			RB1#0	21.96	-0.82	18.99	0.079	3.000	Pass		
			RB1#25	22.17	-0.82	19.20	0.083	3.000	Pass		
			RB1#49	21.94	-0.82	18.97	0.079	3.000	Pass		
			RB25#0	21.03	-0.82	18.06	0.064	3.000	Pass		
			RB25#13	21.06	-0.82	18.09	0.064	3.000	Pass		
			RB25#25	21.03	-0.82	18.06	0.064	3.000	Pass		
		5 MHz	LCH	QPSK	RB1#0	22.99	-0.82	20.02	0.100	3.000	Pass
					RB1#38	22.97	-0.82	20.00	0.100	3.000	Pass
					RB1#74	22.9	-0.82	19.93	0.098	3.000	Pass
					RB36#0	22.01	-0.82	19.04	0.080	3.000	Pass
					RB36#19	22.02	-0.82	19.05	0.080	3.000	Pass
					RB36#39	22.01	-0.82	19.04	0.080	3.000	Pass
					RB75#0	21.94	-0.82	18.97	0.079	3.000	Pass
				16-QAM	RB1#0	22.23	-0.82	19.26	0.084	3.000	Pass
RB1#38	22.15	-0.82			19.18	0.083	3.000	Pass			
RB1#74	22.11	-0.82			19.14	0.082	3.000	Pass			
RB36#0	21.11	-0.82			18.14	0.065	3.000	Pass			
RB36#19	21.08	-0.82			18.11	0.065	3.000	Pass			
RB36#39	21.1	-0.82			18.13	0.065	3.000	Pass			
RB75#0	20.97	-0.82			18.00	0.063	3.000	Pass			
MCH	QPSK	RB1#0		23.04	-0.82	20.07	0.102	3.000	Pass		
		RB1#38		23	-0.82	20.03	0.101	3.000	Pass		
		RB1#74	22.93	-0.82	19.96	0.099	3.000	Pass			
		RB36#0	22.03	-0.82	19.06	0.081	3.000	Pass			
		RB36#19	22.03	-0.82	19.06	0.081	3.000	Pass			
		RB36#39	21.97	-0.82	19.00	0.079	3.000	Pass			
		RB75#0	22	-0.82	19.03	0.080	3.000	Pass			
	16-QAM	RB1#0	22.6	-0.82	19.63	0.092	3.000	Pass			
		RB1#38	22.6	-0.82	19.63	0.092	3.000	Pass			
		RB1#74	22.48	-0.82	19.51	0.089	3.000	Pass			
		RB36#0	21.23	-0.82	18.26	0.067	3.000	Pass			
		RB36#19	21.22	-0.82	18.25	0.067	3.000	Pass			
		RB36#39	21.17	-0.82	18.20	0.066	3.000	Pass			
		RB75#0	21.1	-0.82	18.13	0.065	3.000	Pass			
HCH	QPSK	RB1#0	22.93	-0.82	19.96	0.099	3.000	Pass			

Test BW	Test Channel	Test Mode	Test RB (Size#Offset)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)	Verdict	
<b>LTE BAND12</b>										
			RB1#38	22.99	-0.82	20.02	0.100	3.000	Pass	
			RB1#74	22.9	-0.82	19.93	0.098	3.000	Pass	
			RB36#0	22	-0.82	19.03	0.080	3.000	Pass	
			RB36#19	21.99	-0.82	19.02	0.080	3.000	Pass	
			RB36#39	21.96	-0.82	18.99	0.079	3.000	Pass	
			RB75#0	21.95	-0.82	18.98	0.079	3.000	Pass	
		16-QAM	RB1#0	22.09	-0.82	19.12	0.082	3.000	Pass	
			RB1#38	22.06	-0.82	19.09	0.081	3.000	Pass	
			RB1#74	22.08	-0.82	19.11	0.081	3.000	Pass	
			RB36#0	21.08	-0.82	18.11	0.065	3.000	Pass	
			RB36#19	21.08	-0.82	18.11	0.065	3.000	Pass	
			RB36#39	21.09	-0.82	18.12	0.065	3.000	Pass	
			RB75#0	20.92	-0.82	17.95	0.062	3.000	Pass	
			10 MHz	LCH	QPSK	RB1#0	22.98	-0.82	20.01	0.100
RB1#50	22.93	-0.82				19.96	0.099	3.000	Pass	
RB1#99	22.87	-0.82				19.90	0.098	3.000	Pass	
RB50#0	22.02	-0.82				19.05	0.080	3.000	Pass	
RB50#25	21.96	-0.82				18.99	0.079	3.000	Pass	
RB50#50	21.96	-0.82				18.99	0.079	3.000	Pass	
16-QAM	RB100#0	21.98			-0.82	19.01	0.080	3.000	Pass	
	RB1#0	22.01			-0.82	19.04	0.080	3.000	Pass	
	RB1#50	21.92			-0.82	18.95	0.079	3.000	Pass	
	RB1#99	21.92			-0.82	18.95	0.079	3.000	Pass	
	RB50#0	21.05			-0.82	18.08	0.064	3.000	Pass	
	RB50#25	21			-0.82	18.03	0.064	3.000	Pass	
MCH	QPSK	RB50#50			21.03	-0.82	18.06	0.064	3.000	Pass
		RB100#0			21	-0.82	18.03	0.064	3.000	Pass
		RB1#0	23.03	-0.82	20.06	0.101	3.000	Pass		
		RB1#50	22.97	-0.82	20.00	0.100	3.000	Pass		
		RB1#99	22.92	-0.82	19.95	0.099	3.000	Pass		
		RB50#0	22.03	-0.82	19.06	0.081	3.000	Pass		
	16-QAM	RB50#25	21.96	-0.82	18.99	0.079	3.000	Pass		
		RB50#50	21.93	-0.82	18.96	0.079	3.000	Pass		
RB100#0		22	-0.82	19.03	0.080	3.000	Pass			
RB1#0		22.4	-0.82	19.43	0.088	3.000	Pass			
	RB1#50	22.41	-0.82	19.44	0.088	3.000	Pass			
	RB1#99	22.3	-0.82	19.33	0.086	3.000	Pass			
	RB50#0	21.09	-0.82	18.12	0.065	3.000	Pass			

Test BW	Test Channel	Test Mode	Test RB (Size#Offset)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)	Verdict			
<b>LTE BAND12</b>												
			RB50#25	21.06	-0.82	18.09	0.064	3.000	Pass			
			RB50#50	21.02	-0.82	18.05	0.064	3.000	Pass			
			RB100#0	21.04	-0.82	18.07	0.064	3.000	Pass			
		HCH	QPSK	RB1#0	23	-0.82	20.03	0.101	3.000	Pass		
				RB1#50	22.98	-0.82	20.01	0.100	3.000	Pass		
				RB1#99	22.95	-0.82	19.98	0.100	3.000	Pass		
				RB50#0	21.98	-0.82	19.01	0.080	3.000	Pass		
				RB50#25	21.95	-0.82	18.98	0.079	3.000	Pass		
				RB50#50	21.97	-0.82	19.00	0.079	3.000	Pass		
				RB100#0	21.97	-0.82	19.00	0.079	3.000	Pass		
				16-QAM	RB1#0	22.13	-0.82	19.16	0.082	3.000	Pass	
					RB1#50	22.03	-0.82	19.06	0.081	3.000	Pass	
			RB1#99		22.01	-0.82	19.04	0.080	3.000	Pass		
			RB50#0		21.14	-0.82	18.17	0.066	3.000	Pass		
			RB50#25		21.05	-0.82	18.08	0.064	3.000	Pass		
			RB50#50		21.07	-0.82	18.10	0.065	3.000	Pass		
						RB100#0	21.03	-0.82	18.06	0.064	3.000	Pass

Test BW	Test Channel	Test Mode	Test RB (Size#Offset)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)	Verdict
<b>LTE BAND13</b>									
5 MHz	LCH	QPSK	RB1#0	23.89	1.36	23.10	0.204	3.000	Pass
			RB1#13	23.85	1.36	23.06	0.202	3.000	Pass
			RB1#24	23.73	1.36	22.94	0.197	3.000	Pass
			RB12#0	22.99	1.36	22.20	0.166	3.000	Pass
			RB12#6	23.09	1.36	22.30	0.170	3.000	Pass
			RB12#13	22.91	1.36	22.12	0.163	3.000	Pass
			RB25#0	23.03	1.36	22.24	0.167	3.000	Pass
		16-QAM	RB1#0	23.47	1.36	22.68	0.185	3.000	Pass
			RB1#13	22.56	1.36	21.77	0.150	3.000	Pass
			RB1#24	23.08	1.36	22.29	0.169	3.000	Pass
			RB12#0	21.95	1.36	21.16	0.131	3.000	Pass
			RB12#6	22	1.36	21.21	0.132	3.000	Pass
			RB12#13	22.31	1.36	21.52	0.142	3.000	Pass
			RB25#0	21.82	1.36	21.03	0.127	3.000	Pass
	MCH	QPSK	RB1#0	23.59	1.36	22.80	0.191	3.000	Pass
			RB1#13	23.66	1.36	22.87	0.194	3.000	Pass
			RB1#24	23.74	1.36	22.95	0.197	3.000	Pass
			RB12#0	22.91	1.36	22.12	0.163	3.000	Pass
			RB12#6	22.8	1.36	22.01	0.159	3.000	Pass
			RB12#13	22.85	1.36	22.06	0.161	3.000	Pass
			RB25#0	22.78	1.36	21.99	0.158	3.000	Pass
		16-QAM	RB1#0	23.48	1.36	22.69	0.186	3.000	Pass
			RB1#13	23.47	1.36	22.68	0.185	3.000	Pass
			RB1#24	23.37	1.36	22.58	0.181	3.000	Pass
			RB12#0	22.19	1.36	21.40	0.138	3.000	Pass
			RB12#6	22.16	1.36	21.37	0.137	3.000	Pass
			RB12#13	22.11	1.36	21.32	0.136	3.000	Pass
			RB25#0	22.04	1.36	21.25	0.133	3.000	Pass
	HCH	QPSK	RB1#0	23.75	1.36	22.96	0.198	3.000	Pass
			RB1#13	23.74	1.36	22.95	0.197	3.000	Pass
RB1#24			23.67	1.36	22.88	0.194	3.000	Pass	
RB12#0			22.85	1.36	22.06	0.161	3.000	Pass	
RB12#6			22.87	1.36	22.08	0.161	3.000	Pass	
RB12#13			22.83	1.36	22.04	0.160	3.000	Pass	
RB25#0			22.83	1.36	22.04	0.160	3.000	Pass	
16-QAM		RB1#0	23.05	1.36	22.26	0.168	3.000	Pass	
		RB1#13	23	1.36	22.21	0.166	3.000	Pass	

Test BW	Test Channel	Test Mode	Test RB (Size#Offset)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)	Verdict	
<b>LTE BAND13</b>										
10 MHz	MCH		RB1#24	22.8	1.36	22.01	0.159	3.000	Pass	
			RB12#0	22.04	1.36	21.25	0.133	3.000	Pass	
			RB12#6	22.02	1.36	21.23	0.133	3.000	Pass	
			RB12#13	21.98	1.36	21.19	0.132	3.000	Pass	
			RB25#0	21.88	1.36	21.09	0.129	3.000	Pass	
		QPSK	RB1#0	23.85	1.36	23.06	0.202	3.000	Pass	
			RB1#25	23.71	1.36	22.92	0.196	3.000	Pass	
			RB1#49	23.68	1.36	22.89	0.195	3.000	Pass	
			RB25#0	22.92	1.36	22.13	0.163	3.000	Pass	
			RB25#13	22.85	1.36	22.06	0.161	3.000	Pass	
			RB25#25	22.86	1.36	22.07	0.161	3.000	Pass	
			RB50#0	22.92	1.36	22.13	0.163	3.000	Pass	
			16-QAM	RB1#0	22.87	1.36	22.08	0.161	3.000	Pass
				RB1#25	22.85	1.36	22.06	0.161	3.000	Pass
				RB1#49	22.64	1.36	21.85	0.153	3.000	Pass
				RB25#0	22.05	1.36	21.26	0.134	3.000	Pass
				RB25#13	22	1.36	21.21	0.132	3.000	Pass
RB25#25	21.98	1.36		21.19	0.132	3.000	Pass			
RB50#0	21.99	1.36	21.20	0.132	3.000	Pass				

## A.2 Peak to Average Ratio

Note 1: For average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB. For GSM, GPRS and EGPRS, there are peak power to demonstrate compliance, PAR measurements are not required.

Note 2: Test plots please refer to the document “Annex No.:BL-EC2240365-501 Data Part 1.pdf”.

### WCDMA Mode Test Data

Test Band	Test Channel	Peak to Average Ratio (dB)	Limit (dB)	Refer to Plot <sup>Note2</sup>	Verdict
Band 2	LCH	3	13	1.1	Pass
	MCH	3.09	13	1.2	Pass
	HCH	3.09	13	1.3	Pass

### LTE Mode Test Data

Test Band	Test Bandwidth	Test Channel	Test Mode	Test RB (Size#Offset)	Peak to Average Ratio (dB)	Limit (dB)	Refer to Plot <sup>Note2</sup>	Verdict
LTE Band 2	20 MHz	LCH	QPSK	RB1#0	3.84	13	2.1	Pass
				RB100#0	5.58	13	2.2	Pass
			16-QAM	RB1#0	4.64	13	2.3	Pass
				RB100#0	6.33	13	2.4	Pass
		MCH	QPSK	RB1#0	4.36	13	2.5	Pass
				RB100#0	5.62	13	2.6	Pass
			16-QAM	RB1#0	5.2	13	2.7	Pass
				RB100#0	6.33	13	2.8	Pass
		HCH	QPSK	RB1#0	3.89	13	2.9	Pass
				RB100#0	5.44	13	2.10	Pass
			16-QAM	RB1#0	4.87	13	2.11	Pass
				RB100#0	6.14	13	2.12	Pass
LTE Band 4	20 MHz	LCH	QPSK	RB1#0	3.94	13	3.1	Pass
				RB100#0	5.16	13	3.2	Pass
			16-QAM	RB1#0	4.73	13	3.3	Pass
				RB100#0	5.86	13	3.4	Pass
		MCH	QPSK	RB1#0	3.23	13	3.5	Pass
				RB100#0	5.48	13	3.6	Pass
			16-QAM	RB1#0	4.27	13	3.7	Pass
				RB100#0	6.09	13	3.8	Pass
		HCH	QPSK	RB1#0	4.17	13	3.9	Pass
				RB100#0	5.48	13	3.10	Pass
			16-QAM	RB1#0	5.16	13	3.11	Pass
				RB100#0	6.19	13	3.12	Pass
LTE	10 MHz	LCH	QPSK	RB1#0	4.36	13	4.1	Pass

Test Band	Test Bandwidth	Test Channel	Test Mode	Test RB (Size#Offset)	Peak to Average Ratio (dB)	Limit (dB)	Refer to Plot <sup>Note2</sup>	Verdict	
Band 12			16-QAM	RB50#0	5.81	13	4.2	Pass	
				RB1#0	5.25	13	4.3	Pass	
				RB50#0	6.52	13	4.4	Pass	
		MCH	QPSK	RB1#0	4.08	13	4.5	Pass	
				RB50#0	5.81	13	4.6	Pass	
			16-QAM	RB1#0	5.06	13	4.7	Pass	
				RB50#0	6.56	13	4.8	Pass	
			HCH	QPSK	RB1#0	4.64	13	4.9	Pass
					RB50#0	5.58	13	4.10	Pass
		16-QAM		RB1#0	5.53	13	4.11	Pass	
				RB50#0	6.42	13	4.12	Pass	
		LTE Band 13	10 MHz	MCH	QPSK	RB1#0	3.8	13	5.1
RB100#0	5.86					13	5.2	Pass	
16-QAM	RB1#0				4.64	13	5.3	Pass	
	RB100#0				6.61	13	5.4	Pass	



### A.3 Occupied Bandwidth

Note 1: All modes were tested, but only the typical data were reported in this report.

Note 2: Test plots please refer to the document “Annex No.:BL-EC2240365-501 Data Part 2.pdf”.

#### GSM and WCDMA Mode Test Data

Test Band	Test Channel	Measured 99% Occupied Bandwidth (MHz)	Measured -26 dB Occupied Bandwidth (MHz)	Refer to Plot <sup>Note2</sup>
GSM 1900	LCH	0.249	0.315	1.1
	MCH	0.247	0.309	1.2
	HCH	0.245	0.312	1.3
EGPRS 1900	LCH	0.263	0.334	2.1
	MCH	0.26	0.334	2.2
	HCH	0.257	0.325	2.3
WCDMA Band 2	LCH	4.195	4.844	3.1
	MCH	4.192	4.831	3.2
	HCH	4.198	4.838	3.3

## LTE Mode Test Data

Test Band	Test Bandwidth	Test Channel	Test Mode	Test RB (Size#Offset)	Measured 99% Occupied Bandwidth (MHz)	Measured -26 dB Occupied Bandwidth (MHz)	Refer to Plot <sup>Note2</sup>
Band 2	1.4 MHz	LCH	QPSK	RB6#0	1.086	1.261	4.1
			16-QAM	RB6#0	1.094	1.269	4.2
		MCH	QPSK	RB6#0	1.089	1.275	4.3
			16-QAM	RB6#0	1.086	1.249	4.4
		HCH	QPSK	RB6#0	1.092	1.25	4.5
			16-QAM	RB6#0	1.088	1.261	4.6
	3 MHz	LCH	QPSK	RB15#0	2.695	2.956	4.7
			16-QAM	RB15#0	2.697	2.974	4.8
		MCH	QPSK	RB15#0	2.693	2.961	4.9
			16-QAM	RB15#0	2.696	2.969	4.10
		HCH	QPSK	RB15#0	2.703	2.981	4.11
			16-QAM	RB15#0	2.696	2.959	4.12
	5 MHz	LCH	QPSK	RB25#0	4.518	5.071	4.13
			16-QAM	RB25#0	4.511	5.038	4.14
		MCH	QPSK	RB25#0	4.508	5.077	4.15
			16-QAM	RB25#0	4.516	5.072	4.16
		HCH	QPSK	RB25#0	4.512	5.056	4.17
			16-QAM	RB25#0	4.52	5.08	4.18
	10 MHz	LCH	QPSK	RB50#0	8.969	10.007	4.19
			16-QAM	RB50#0	8.97	9.901	4.20
		MCH	QPSK	RB50#0	8.979	9.906	4.21
			16-QAM	RB50#0	8.97	9.862	4.22
		HCH	QPSK	RB50#0	8.969	9.959	4.23
			16-QAM	RB50#0	8.967	9.947	4.24
	15 MHz	LCH	QPSK	RB75#0	13.486	14.924	4.25
			16-QAM	RB75#0	13.485	14.82	4.26
		MCH	QPSK	RB75#0	13.448	14.752	4.27
			16-QAM	RB75#0	13.457	14.869	4.28
		HCH	QPSK	RB75#0	13.45	14.852	4.29
			16-QAM	RB75#0	13.478	14.861	4.30
	20 MHz	LCH	QPSK	RB100#0	17.936	19.47	4.31
			16-QAM	RB100#0	17.987	19.652	4.32
		MCH	QPSK	RB100#0	17.928	19.541	4.33
			16-QAM	RB100#0	17.946	19.61	4.34
		HCH	QPSK	RB100#0	17.94	19.753	4.35
			16-QAM	RB100#0	17.914	19.63	4.36

Test Band	Test Bandwidth	Test Channel	Test Mode	Test RB (Size#Offset)	Measured 99% Occupied Bandwidth (MHz)	Measured -26 dB Occupied Bandwidth (MHz)	Refer to Plot <sup>Note2</sup>
Band 4	1.4 MHz	LCH	QPSK	RB6#0	1.085	1.255	5.1
			16-QAM	RB6#0	1.089	1.273	5.2
		MCH	QPSK	RB6#0	1.09	1.263	5.3
			16-QAM	RB6#0	1.085	1.241	5.4
		HCH	QPSK	RB6#0	1.092	1.255	5.5
			16-QAM	RB6#0	1.091	1.258	5.6
	3 MHz	LCH	QPSK	RB15#0	2.696	2.952	5.7
			16-QAM	RB15#0	2.693	2.96	5.8
		MCH	QPSK	RB15#0	2.7	2.969	5.9
			16-QAM	RB15#0	2.696	2.966	5.10
		HCH	QPSK	RB15#0	2.702	2.967	5.11
			16-QAM	RB15#0	2.694	2.978	5.12
	5 MHz	LCH	QPSK	RB25#0	4.515	5.059	5.13
			16-QAM	RB25#0	4.507	5.006	5.14
		MCH	QPSK	RB25#0	4.513	5.075	5.15
			16-QAM	RB25#0	4.522	5.018	5.16
		HCH	QPSK	RB25#0	4.505	5.053	5.17
			16-QAM	RB25#0	4.517	5.052	5.18
	10 MHz	LCH	QPSK	RB50#0	8.96	10.04	5.19
			16-QAM	RB50#0	8.962	9.844	5.20
		MCH	QPSK	RB50#0	8.958	9.835	5.21
			16-QAM	RB50#0	8.964	9.868	5.22
		HCH	QPSK	RB50#0	8.963	9.87	5.23
			16-QAM	RB50#0	8.962	9.93	5.24
	15 MHz	LCH	QPSK	RB75#0	13.435	14.819	5.25
			16-QAM	RB75#0	13.427	14.814	5.26
		MCH	QPSK	RB75#0	13.454	14.805	5.27
			16-QAM	RB75#0	13.477	14.827	5.28
		HCH	QPSK	RB75#0	13.427	14.89	5.29
			16-QAM	RB75#0	13.457	14.815	5.30
	20 MHz	LCH	QPSK	RB100#0	17.879	19.429	5.31
			16-QAM	RB100#0	17.858	19.475	5.32
		MCH	QPSK	RB100#0	17.939	19.576	5.33
			16-QAM	RB100#0	17.99	19.635	5.34
		HCH	QPSK	RB100#0	17.976	19.669	5.35
			16-QAM	RB100#0	17.937	19.504	5.36

Test Band	Test Bandwidth	Test Channel	Test Mode	Test RB (Size#Offset)	Measured 99% Occupied Bandwidth (MHz)	Measured -26 dB Occupied Bandwidth (MHz)	Refer to Plot <sup>Note2</sup>
Band 12	1.4 MHz	LCH	QPSK	RB6#0	1.086	1.257	6.1
			16-QAM	RB6#0	1.093	1.271	6.2
		MCH	QPSK	RB6#0	1.093	1.281	6.3
			16-QAM	RB6#0	1.086	1.261	6.4
		HCH	QPSK	RB6#0	1.093	1.256	6.5
			16-QAM	RB6#0	1.09	1.262	6.6
	3 MHz	LCH	QPSK	RB15#0	2.69	2.958	6.7
			16-QAM	RB15#0	2.688	2.967	6.8
		MCH	QPSK	RB15#0	2.695	2.948	6.9
			16-QAM	RB15#0	2.697	2.976	6.10
		HCH	QPSK	RB15#0	2.703	2.964	6.11
			16-QAM	RB15#0	2.691	2.968	6.12
	5 MHz	LCH	QPSK	RB25#0	4.521	5.03	6.13
			16-QAM	RB25#0	4.506	5.02	6.14
		MCH	QPSK	RB25#0	4.511	5.026	6.15
			16-QAM	RB25#0	4.521	5.07	6.16
		HCH	QPSK	RB25#0	4.494	5.009	6.17
			16-QAM	RB25#0	4.518	5.051	6.18
	10 MHz	LCH	QPSK	RB50#0	9.011	9.971	6.19
			16-QAM	RB50#0	8.98	9.898	6.20
		MCH	QPSK	RB50#0	9.017	10.018	6.21
			16-QAM	RB50#0	8.992	9.962	6.22
		HCH	QPSK	RB50#0	8.954	9.911	6.23
			16-QAM	RB50#0	8.946	9.985	6.24

Test Band	Test Bandwidth	Test Channel	Test Mode	Test RB (Size#Offset)	Measured 99% Occupied Bandwidth (MHz)	Measured -26 dB Occupied Bandwidth (MHz)	Refer to Plot <sup>Note2</sup>
Band 13	5 MHz	LCH	QPSK	RB25#0	4.529	5.074	7.1
			16-QAM	RB25#0	4.521	5.028	7.2
		MCH	QPSK	RB25#0	4.527	5.068	7.3
			16-QAM	RB25#0	4.536	5.081	7.4
		HCH	QPSK	RB25#0	4.504	5.017	7.5
			16-QAM	RB25#0	4.513	5.072	7.6
	10 MHz	MCH	QPSK	RB50#0	9.029	10.018	7.7
			16-QAM	RB50#0	9.013	9.881	7.8

## A.4 Frequency Stability

## GSM 1900

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	LCH 1850.2 MHz		MCH 1880 MHz		HCH 1909.8 MHz		
		Value (Hz)	Limits (Hz)	Value (Hz)	Limits (Hz)	Value (Hz)	Limits (Hz)	
12	-30	6.84	±4625.5	16.4	±4700.0	7.75	±4774.5	Pass
	-20	7.43		12.11		7.26		
	-10	7.23		7.81		7.75		
	0	5.55		6.65		4.68		
	10	5.59		11.59		4.52		
	20	4.29		11.43		11.66		
	25	6.49		9.69		-5.04		
	30	12.43		12.24		8.78		
	40	6.78		11.66		4.75		
	50	-4.84		13.04		13.92		
	60	7.85		7.17		5.94		
	70	6.92		11.69		6.17		
32	25	4.58	11.43	6.65				
8	25	-6.72	5.65	5.04				

## GPRS 1900

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	LCH 1850.2 MHz		MCH 1880 MHz		HCH 1909.8 MHz		
		Value (Hz)	Limits (Hz)	Value (Hz)	Limits (Hz)	Value (Hz)	Limits (Hz)	
12	-30	-8.36	±4625.5	-12.4	±4700.0	-9.98	±4774.5	Pass
	-20	-9.01		-8.2		-8.33		
	-10	-10.91		-3.91		-9.81		
	0	-10.65		-9.46		-7.75		
	10	-5.42		-9.46		-9.52		
	20	-8.1		-9.62		-5.91		
	25	-13.88		-5.59		-11.53		
	30	-10.11		-10.07		-7.49		
	40	-8.52		-12.69		-9.62		
	50	-11.2		-11.24		-8.2		
	60	-6.78		-6.01		-6.39		
70	-8.38	-6.41	-10.33					
32	25	-12.3		-11.01		-10.17		
8	25	-9.94		-7.91		-11.17		

## EGPRS 1900

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	LCH 1850.2 MHz		MCH 1880 MHz		HCH 1909.8 MHz		
		Value (Hz)	Limits (Hz)	Value (Hz)	Limits (Hz)	Value (Hz)	Limits (Hz)	
12	-30	-11.69	±4625.5	-15.3	±4700.0	-12.88	±4774.5	Pass
	-20	-11.72		-15.4		-10.75		
	-10	-16.56		-17.01		-11.82		
	0	-11.2		-9.75		-8.81		
	10	-10.98		-14.21		-12.24		
	20	-14.75		9.36		-11.62		
	25	-11.17		-11.24		-12.37		
	30	-17.18		-12.95		-9.52		
	40	-18.11		-14.11		-15.08		
	50	-11.27		-9.04		-14.27		
	60	10.46		-10.65		-14.14		
70	-11.74	-10.45	-13.92					
32	25	-16.08		-14.5		-13.98		
8	25	-15.21		9.4		-12.69		

## WCDMA Band 2

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	LCH 1852.4 MHz		MCH 1880 MHz		HCH 1907.6 MHz		
		Value (Hz)	Limits (Hz)	Value (Hz)	Limits (Hz)	Value (Hz)	Limits (Hz)	
12	-30	3.45	±4631	2.07	±4700	0.42	±4769	Pass
	-20	2.55		-0.79		1.55		
	-10	1.84		1.39		2		
	0	3.42		1.39		1.7		
	10	-0.37		0.84		4.53		
	20	2.82		1.29		6.07		
	25	4.73		1.53		0.19		
	30	3.36		0.25		2.34		
	40	1.5		-1.59		-2.69		
	50	2.87		0.3		3.53		
	60	0.67		-1.97		-0.97		
	70	2.47		1.61		2.48		
32	25	-1.7		-3.88		2.02		
8	25	0.68		4.84		3.4		

## LTE Band 2 QPSK 10 MHz

Test Conditions		Frequency Deviation		Verdict
Power (VDC)	Temperature (°C)	MCH 1880 MHz		
		Value (Hz)	Limits (Hz)	
12	-30	-4.32	±4700	Pass
	-20	0.26		
	-10	-0.67		
	0	-1.07		
	10	0.5		
	20	0.29		
	25	-0.64		
	30	-0.73		
	40	1.14		
	50	-1.06		
	60	0.84		
70	-0.33			
4.35	25	1.6		
8	25	-0.39		

## LTE Band 2 16QAM 10 MHz

Test Conditions		Frequency Deviation		Verdict
Power (VDC)	Temperature (°C)	MCH 1880 MHz		
		Value (Hz)	Limits (Hz)	
12	-30	-0.06	±4700	Pass
	-20	1.16		
	-10	-0.4		
	0	0.03		
	10	0.2		
	20	-0.63		
	25	0.64		
	30	-0.53		
	40	-0.83		
	50	1.09		
	60	-1.09		
70	-1.56			
32	25	-0.64		
8	25	-0.47		





LTE Band 4 QPSK 10 MHz

Test Conditions		Frequency Deviation		Verdict
Power (VDC)	Temperature (°C)	MCH 1732.5 MHz		
		Value (Hz)	Limits (Hz)	
12	-30	-3.2	±4331.25	Pass
	-20	-0.24		
	-10	1.4		
	0	1.1		
	10	0.84		
	20	0.06		
	25	-0.44		
	30	0.41		
	40	-1.82		
	50	-0.07		
	60	-0.5		
70	-0.24			
32	25	0.07		
8	25	-0.86		

LTE Band 4 16QAM 10 MHz

Test Conditions		Frequency Deviation		Verdict
Power (VDC)	Temperature (°C)	MCH 1732.5 MHz		
		Value (Hz)	Limits (Hz)	
12	-30	-0.41	±4331.25	Pass
	-20	0.13		
	-10	-0.73		
	0	-0.2		
	10	-0.9		
	20	-1.07		
	25	-0.84		
	30	0.54		
	40	0.76		
	50	-0.41		
	60	0.2		
70	0.28			
32	25	-1.44		
8	25	0.66		

### LTE Band 12 QPSK 10 MHz

Test Conditions		Frequency Deviation		Verdict
Power (VDC)	Temperature (°C)	MCH 707.5 MHz		
		Value (Hz)	Limits (Hz)	
12	-30	-0.17	±1768.75	Pass
	-20	-0.8		
	-10	1.07		
	0	0.72		
	10	-0.41		
	20	-0.2		
	25	0.34		
	30	-0.86		
	40	-0.43		
	50	-0.74		
	60	-0.46		
70	-0.84			
32	25	0.87		
8	25	0.21		

### LTE Band 12 16QAM10 MHz

Test Conditions		Frequency Deviation		Verdict
Power (VDC)	Temperature (°C)	MCH 707.5 MHz		
		Value (Hz)	Limits (Hz)	
12	-30	-0.57	±1768.75	Pass
	-20	0.74		
	-10	0.09		
	0	0.03		
	10	0.59		
	20	0.11		
	25	1.14		
	30	0.76		
	40	0.24		
	50	-0.73		
	60	1.13		
70	0.73			
32	25	0.09		
8	25	0.96		

LTE Band 13 QPSK 10 MHz

Test Conditions		Frequency Deviation		Verdict
Power (VDC)	Temperature (°C)	MCH 782 MHz		
		Value (Hz)	Limits (Hz)	
12	-30	0.53	±1955	Pass
	-20	1.77		
	-10	1.09		
	0	0.37		
	10	0.97		
	20	1.32		
	25	0.84		
	30	-0.39		
	40	1.09		
	50	0.4		
	60	-1.1		
70	1.36			
32	25	-0.06		
8	25	0.29		

LTE Band 17 16QAM10 MHz

Test Conditions		Frequency Deviation		Verdict
Power (VDC)	Temperature (°C)	MCH 782 MHz		
		Value (Hz)	Limits (Hz)	
12	-30	1.95	±1955	Pass
	-20	2.17		
	-10	2.17		
	0	0.2		
	10	0.99		
	20	-0.14		
	25	0.87		
	30	0.33		
	40	-0.14		
	50	1.04		
	60	0.03		
70	0.95			
32	25	0.03		
8	25	0.07		

## A.5 Spurious Emission at Antenna Terminals

Note 1: GSM and EGPRS modes have been verified, and only the worst data with different bandwidth for LTE are shown here.

Note 2: The frequencies of verdict which are marked by "N/A" should be ignored because they are UE carrier frequency.

Note 3: Test plots please refer to the document "Annex No.:BL-EC2240365-501 Data Part 3.pdf".

### GSM and WCDMA Mode Test Verdict

Test Band	Test Channel	Refer to Plot <sup>Note3</sup>	Verdict
GSM 1900	LCH	1.1	Pass
	MCH	1.2	Pass
	HCH	1.3	Pass
EGPRS 1900	LCH	2.1	Pass
	MCH	2.2	Pass
	HCH	2.3	Pass
WCDMA Band 2	LCH	3.1	Pass
	MCH	3.2	Pass
	HCH	3.3	Pass

### LTE Mode Test Verdict

Test Band	Test Bandwidth	Test Channel	Test Mode	Test RB (Size#Offset)	Refer to Plot <sup>Note3</sup>	Verdict
Band 2	1.4 MHz	LCH	QPSK	RB1#0	4.1	Pass
			16-QAM	RB1#0	4.2	Pass
		MCH	QPSK	RB1#0	4.3	Pass
			16-QAM	RB1#0	4.4	Pass
		HCH	QPSK	RB1#0	4.5	Pass
			16-QAM	RB1#0	4.6	Pass
	3 MHz	LCH	QPSK	RB1#0	4.7	Pass
			16-QAM	RB1#0	4.8	Pass
		MCH	QPSK	RB1#0	4.9	Pass
			16-QAM	RB1#0	4.10	Pass
		HCH	QPSK	RB1#0	4.11	Pass
			16-QAM	RB1#0	4.12	Pass
	5 MHz	LCH	QPSK	RB1#0	4.13	Pass
			16-QAM	RB1#0	4.14	Pass
		MCH	QPSK	RB1#0	4.15	Pass
			16-QAM	RB1#0	4.16	Pass
		HCH	QPSK	RB1#0	4.17	Pass
			16-QAM	RB1#0	4.18	Pass
	10 MHz	LCH	QPSK	RB1#0	4.19	Pass
			16-QAM	RB1#0	4.20	Pass
		MCH	QPSK	RB1#0	4.21	Pass
			16-QAM	RB1#0	4.22	Pass
		HCH	QPSK	RB1#0	4.23	Pass
			16-QAM	RB1#0	4.24	Pass
	15 MHz	LCH	QPSK	RB1#0	4.25	Pass
			16-QAM	RB1#0	4.26	Pass
		MCH	QPSK	RB1#0	4.27	Pass
			16-QAM	RB1#0	4.28	Pass
		HCH	QPSK	RB1#0	4.29	Pass
			16-QAM	RB1#0	4.30	Pass
	20 MHz	LCH	QPSK	RB1#0	4.31	Pass
			16-QAM	RB1#0	4.32	Pass
		MCH	QPSK	RB1#0	4.33	Pass
			16-QAM	RB1#0	4.34	Pass
		HCH	QPSK	RB1#0	4.35	Pass
			16-QAM	RB1#0	4.36	Pass

Test Band	Test Bandwidth	Test Channel	Test Mode	Test RB (Size#Offset)	Refer to Plot <sup>Note3</sup>	Verdict
Band 4	1.4 MHz	LCH	QPSK	RB1#0	5.1	Pass
			16-QAM	RB1#0	5.2	Pass
		MCH	QPSK	RB1#0	5.3	Pass
			16-QAM	RB1#0	5.4	Pass
		HCH	QPSK	RB1#0	5.5	Pass
			16-QAM	RB1#0	5.6	Pass
	3 MHz	LCH	QPSK	RB1#0	5.7	Pass
			16-QAM	RB1#0	5.8	Pass
		MCH	QPSK	RB1#0	5.9	Pass
			16-QAM	RB1#0	5.10	Pass
		HCH	QPSK	RB1#0	5.11	Pass
			16-QAM	RB1#0	5.12	Pass
	5 MHz	LCH	QPSK	RB1#0	5.13	Pass
			16-QAM	RB1#0	5.14	Pass
		MCH	QPSK	RB1#0	5.15	Pass
			16-QAM	RB1#0	5.16	Pass
		HCH	QPSK	RB1#0	5.17	Pass
			16-QAM	RB1#0	5.18	Pass
	10 MHz	LCH	QPSK	RB1#0	5.19	Pass
			16-QAM	RB1#0	5.20	Pass
		MCH	QPSK	RB1#0	5.21	Pass
			16-QAM	RB1#0	5.22	Pass
		HCH	QPSK	RB1#0	5.23	Pass
			16-QAM	RB1#0	5.24	Pass
	15 MHz	LCH	QPSK	RB1#0	5.25	Pass
			16-QAM	RB1#0	5.26	Pass
		MCH	QPSK	RB1#0	5.27	Pass
			16-QAM	RB1#0	5.28	Pass
		HCH	QPSK	RB1#0	5.29	Pass
			16-QAM	RB1#0	5.30	Pass
	20 MHz	LCH	QPSK	RB1#0	5.31	Pass
			16-QAM	RB1#0	5.32	Pass
		MCH	QPSK	RB1#0	5.33	Pass
			16-QAM	RB1#0	5.34	Pass
		HCH	QPSK	RB1#0	5.35	Pass
			16-QAM	RB1#0	5.36	Pass

Test Band	Test Bandwidth	Test Channel	Test Mode	Test RB (Size#Offset)	Refer to Plot <sup>Note3</sup>	Verdict
Band 12	1.4 MHz	LCH	QPSK	RB1#0	6.1	Pass
			16-QAM	RB1#0	6.2	Pass
		MCH	QPSK	RB1#0	6.3	Pass
			16-QAM	RB1#0	6.4	Pass
		HCH	QPSK	RB1#0	6.5	Pass
			16-QAM	RB1#0	6.6	Pass
	3 MHz	LCH	QPSK	RB1#0	6.7	Pass
			16-QAM	RB1#0	6.8	Pass
		MCH	QPSK	RB1#0	6.9	Pass
			16-QAM	RB1#0	6.10	Pass
		HCH	QPSK	RB1#0	6.11	Pass
			16-QAM	RB1#0	6.12	Pass
	5 MHz	LCH	QPSK	RB1#0	6.13	Pass
			16-QAM	RB1#0	6.14	Pass
		MCH	QPSK	RB1#0	6.15	Pass
			16-QAM	RB1#0	6.16	Pass
		HCH	QPSK	RB1#0	6.17	Pass
			16-QAM	RB1#0	6.18	Pass
	10 MHz	LCH	QPSK	RB1#0	6.19	Pass
			16-QAM	RB1#0	6.20	Pass
		MCH	QPSK	RB1#0	6.21	Pass
			16-QAM	RB1#0	6.22	Pass
		HCH	QPSK	RB1#0	6.23	Pass
			16-QAM	RB1#0	6.24	Pass



Test Band	Test Bandwidth	Test Channel	Test Mode	Test RB (Size#Offset)	Refer to Plot <sup>Note3</sup>	Verdict
Band 13	5 MHz	LCH	QPSK	RB1#0	7.1	Pass
			16-QAM	RB1#0	7.2	Pass
		MCH	QPSK	RB1#0	7.3	Pass
			16-QAM	RB1#0	7.4	Pass
		HCH	QPSK	RB1#0	7.5	Pass
			16-QAM	RB1#0	7.6	Pass
	10 MHz	MCH	QPSK	RB1#0	7.7	Pass
			16-QAM	RB1#0	7.8	Pass

## A.6 Band Edge

Note 1: Test plots please refer to the document “Annex No.:BL-EC2240365-501 Data Part 4.pdf”.

### GSM and WCDMA Mode Test Verdict

Test Band	Test Channel	Refer to Plot <sup>Note1</sup>	Verdict
GSM 1900	LCH	1.1	Pass
	HCH	1.2	Pass
EGPRS 1900	LCH	2.1	Pass
	HCH	2.2	Pass
WCDMA Band 2	LCH	3.1	Pass
	HCH	3.2	Pass

LTE Mode Test Verdict

Test Band	Test Bandwidth	Test Channel	Test Mode	Test RB (Size#Offset)	Refer to Plot <sup>Note1</sup>	Verdict
Band 2	1.4 MHz	LCH	QPSK	RB1#0	4.1	Pass
				RB6#0	4.2	Pass
			16-QAM	RB1#0	4.3	Pass
				RB6#0	4.4	Pass
		HCH	QPSK	RB1#5	4.5	Pass
				RB6#0	4.6	Pass
			16-QAM	RB1#5	4.7	Pass
				RB6#0	4.8	Pass
	3 MHz	LCH	QPSK	RB1#0	4.9	Pass
				RB15#0	4.10	Pass
			16-QAM	RB1#0	4.11	Pass
				RB15#0	4.12	Pass
		HCH	QPSK	RB1#14	4.13	Pass
				RB15#0	4.14	Pass
			16-QAM	RB1#14	4.15	Pass
				RB15#0	4.16	Pass
	5 MHz	LCH	QPSK	RB1#0	4.17	Pass
				RB25#0	4.18	Pass
			16-QAM	RB1#0	4.19	Pass
				RB25#0	4.20	Pass
		HCH	QPSK	RB1#24	4.21	Pass
				RB25#0	4.22	Pass
			16-QAM	RB1#24	4.23	Pass
				RB25#0	4.24	Pass
	10 MHz	LCH	QPSK	RB1#0	4.25	Pass
				RB50#0	4.26	Pass
			16-QAM	RB1#0	4.27	Pass
				RB50#0	4.28	Pass
		HCH	QPSK	RB1#49	4.29	Pass
				RB50#0	4.30	Pass
			16-QAM	RB1#49	4.31	Pass
				RB50#0	4.32	Pass
	15 MHz	LCH	QPSK	RB1#0	4.33	Pass
				RB75#0	4.34	Pass
			16-QAM	RB1#0	4.35	Pass
				RB75#0	4.36	Pass
		HCH	QPSK	RB1#74	4.37	Pass
				RB75#0	4.38	Pass
			16-QAM	RB1#74	4.39	Pass

Test Band	Test Bandwidth	Test Channel	Test Mode	Test RB (Size#Offset)	Refer to Plot <sup>Note1</sup>	Verdict
	20 MHz	LCH	QPSK	RB75#0	4.40	Pass
				RB1#0	4.41	Pass
			RB100#0	4.42	Pass	
			16-QAM	RB1#0	4.43	Pass
		HCH	QPSK	RB100#0	4.44	Pass
				RB1#99	4.45	Pass
			16-QAM	RB100#0	4.46	Pass
				RB1#99	4.47	Pass
RB100#0	4.48	Pass				

Test Band	Test Bandwidth	Test Channel	Test Mode	Test RB (Size#Offset)	Refer to Plot <sup>Note1</sup>	Verdict
Band 4	1.4 MHz	LCH	QPSK	RB1#0	5.1	Pass
				RB6#0	5.2	Pass
			16-QAM	RB1#0	5.3	Pass
				RB6#0	5.4	Pass
		HCH	QPSK	RB1#5	5.5	Pass
				RB6#0	5.6	Pass
			16-QAM	RB1#5	5.7	Pass
				RB6#0	5.8	Pass
	3 MHz	LCH	QPSK	RB1#0	5.9	Pass
				RB15#0	5.10	Pass
			16-QAM	RB1#0	5.11	Pass
				RB15#0	5.12	Pass
		HCH	QPSK	RB1#14	5.13	Pass
				RB15#0	5.14	Pass
			16-QAM	RB1#14	5.15	Pass
				RB15#0	5.16	Pass
	5 MHz	LCH	QPSK	RB1#0	5.17	Pass
				RB25#0	5.18	Pass
			16-QAM	RB1#0	5.19	Pass
				RB25#0	5.20	Pass
		HCH	QPSK	RB1#24	5.21	Pass
				RB25#0	5.22	Pass
			16-QAM	RB1#24	5.23	Pass
				RB25#0	5.24	Pass
10 MHz	LCH	QPSK	RB1#0	5.25	Pass	
			RB50#0	5.26	Pass	
		16-QAM	RB1#0	5.27	Pass	
			RB50#0	5.28	Pass	
	HCH	QPSK	RB1#49	5.29	Pass	

Test Band	Test Bandwidth	Test Channel	Test Mode	Test RB (Size#Offset)	Refer to Plot <sup>Note1</sup>	Verdict	
			16-QAM	RB50#0	5.30	Pass	
				RB1#49	5.31	Pass	
				RB50#0	5.32	Pass	
	15 MHz	LCH	QPSK	RB1#0	5.33	Pass	
				RB75#0	5.34	Pass	
			16-QAM	RB1#0	5.35	Pass	
				RB75#0	5.36	Pass	
			HCH	QPSK	RB1#74	5.37	Pass
					RB75#0	5.38	Pass
	16-QAM	RB1#74	5.39	Pass			
		RB75#0	5.40	Pass			
	20 MHz	LCH	QPSK	RB1#0	5.41	Pass	
				RB100#0	5.42	Pass	
			16-QAM	RB1#0	5.43	Pass	
				RB100#0	5.44	Pass	
HCH		QPSK	RB1#99	5.45	Pass		
			RB100#0	5.46	Pass		
16-QAM	RB1#99	5.47	Pass				
	RB100#0	5.48	Pass				

Test Band	Test Bandwidth	Test Channel	Test Mode	Test RB (Size#Offset)	Refer to Plot <sup>Note1</sup>	Verdict
Band 12	1.4 MHz	LCH	QPSK	RB1#0	6.1	Pass
				RB6#0	6.2	Pass
			16-QAM	RB1#0	6.3	Pass
		RB6#0		6.4	Pass	
		HCH	QPSK	RB1#5	6.5	Pass
				RB6#0	6.6	Pass
	16-QAM		RB1#5	6.7	Pass	
		RB6#0	6.8	Pass		
	3 MHz	LCH	QPSK	RB1#0	6.9	Pass
				RB15#0	6.10	Pass
			16-QAM	RB1#0	6.11	Pass
				RB15#0	6.12	Pass
		HCH	QPSK	RB1#14	6.13	Pass
				RB15#0	6.14	Pass
	16-QAM	RB1#14	6.15	Pass		
		RB15#0	6.16	Pass		
	5 MHz	LCH	QPSK	RB1#0	6.17	Pass
				RB25#0	6.18	Pass
16-QAM			RB1#0	6.19	Pass	

Test Band	Test Bandwidth	Test Channel	Test Mode	Test RB (Size#Offset)	Refer to Plot <sup>Note1</sup>	Verdict
		HCH	QPSK	RB25#0	6.20	Pass
				RB1#24	6.21	Pass
			16-QAM	RB25#0	6.22	Pass
				RB1#24	6.23	Pass
	10 MHz	LCH	QPSK	RB25#0	6.24	Pass
				RB1#0	6.25	Pass
			16-QAM	RB50#0	6.26	Pass
				RB1#0	6.27	Pass
		HCH	QPSK	RB50#0	6.28	Pass
				RB1#49	6.29	Pass
			16-QAM	RB50#0	6.30	Pass
				RB1#49	6.31	Pass
RB50#0	6.32	Pass				

Test Band	Test Bandwidth	Test Channel	Test Mode	Test RB (Size#Offset)	Refer to Plot <sup>Note1</sup>	Verdict
Band 13	5 MHz	LCH	QPSK	RB1#0	7.1	Pass
				RB25#0	7.2	Pass
			16-QAM	RB1#0	7.3	Pass
				RB25#0	7.4	Pass
		HCH	QPSK	RB1#0	7.5	Pass
				RB25#0	7.6	Pass
			16-QAM	RB1#0	7.7	Pass
				RB25#0	7.8	Pass
	10 MHz	LCH	QPSK	RB1#0	7.9	Pass
				RB50#0	7.10	Pass
			16-QAM	RB1#0	7.11	Pass
				RB50#0	7.12	Pass
		HCH	QPSK	RB1#0	7.13	Pass
				RB50#0	7.14	Pass
			16-QAM	RB1#0	7.15	Pass
				RB50#0	7.16	Pass

## A.7 Field Strength of Spurious Radiation

Note 1: GSM and EGPRS modes have been verified, only the worst data with different transmit bandwidth for LTE are shown here.

Note 2: The frequencies of verdict which are marked by "N/A" should be ignored because they are UE carrier frequency.

Note 3: Test plots please refer to the document "Annex No.:BL-EC2240365-501 Data Part 5.pdf".

### GSM and WCDMA Mode Test Verdict

Test Band	Test Channel	Refer to Plot <sup>Note3</sup>	Verdict
GSM 1900	LCH	1.1	Pass
	MCH	1.2	Pass
	HCH	1.3	Pass
EGPRS 1900	LCH	2.1	Pass
	MCH	2.2	Pass
	HCH	2.3	Pass
WCDMA Band 2	LCH	3.1	Pass
	MCH	3.2	Pass
	HCH	3.3	Pass

LTE Mode Test Verdict

Test Band	Test Bandwidth	Test Channel	Test Mode	Test RB (Size#Offset)	Refer to Plot <sup>Note3</sup>	Verdict
Band 2	1.4 MHz	MCH	QPSK	RB1#0	4.1	Pass
	3 MHz	MCH	QPSK	RB1#0	4.2	Pass
	5 MHz	MCH	QPSK	RB1#0	4.3	Pass
	10 MHz	MCH	QPSK	RB1#0	4.4	Pass
	15 MHz	MCH	QPSK	RB1#0	4.5	Pass
	20 MHz	MCH	QPSK	RB1#0	4.6	Pass
Band 4	1.4 MHz	MCH	QPSK	RB1#0	5.1	Pass
	3 MHz	MCH	QPSK	RB1#0	5.2	Pass
	5 MHz	MCH	QPSK	RB1#0	5.3	Pass
	10 MHz	MCH	QPSK	RB1#0	5.4	Pass
	15 MHz	MCH	QPSK	RB1#0	5.5	Pass
	20 MHz	MCH	QPSK	RB1#0	5.6	Pass
Band 12	1.4 MHz	MCH	QPSK	RB1#0	6.1	Pass
	3 MHz	MCH	QPSK	RB1#0	6.2	Pass
	5 MHz	MCH	QPSK	RB1#0	6.3	Pass
	10 MHz	MCH	QPSK	RB1#0	6.4	Pass
Band 13	5 MHz	MCH	QPSK	RB1#0	7.1	Pass
	10 MHz	MCH	QPSK	RB1#0	7.2	Pass



## **ANNEX B TEST SETUP PHOTOS**

Please refer to the document “BL-EC2240365-AR.PDF”.

## **ANNEX C EUT EXTERNAL PHOTOS**

Please refer to the document “BL-EC2240365-AW.PDF”.

## **ANNEX D EUT INTERNAL PHOTOS**

Please refer to the document “BL-EC2240365-AI.PDF”.

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--END OF REPORT--