



FCC RF Test Report

APPLICANT : Motorola Mobility LLC
EQUIPMENT : Mobile Cellular Phone
BRAND NAME : Motorola
MODEL NAME : XT1944-6
FCC ID : IHDT56XF5
STANDARD : 47 CFR Part 2, 22(H), 27(M)
CLASSIFICATION : PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Dec. 20, 2017 and completely tested on Feb. 05, 2018. We, Sporton International (Kunshan) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI/TIA-603-E and the testing has shown the tested sample to be in compliance with the applicable technical standards. The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International (Kunshan) Inc., the test report shall not be reproduced except in full.



Approved by: James Huang / Manager

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SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
0	§2.1046	Conducted Output Power	Reporting Only	PASS	-
	§22.913(a)(2)	Effective Radiated Power (Band 26)	ERP < 7 Watt	PASS	-
	§27.50(h)(2)	Equivalent Isotropic Radiated Power (Band 38)(Band 41)	EIRP < 2Watt	PASS	-
4.4	§2.1053 §22.917(a)	Radiated Spurious Emission (Band 5)(Band 26)	< 43+10log ₁₀ (P[Watts])	PASS	Under limit 19.31 dB at 7764.00 MHz
	§2.1053 §27.53(m)(4)	Radiated Spurious Emission (Band 38)(Band 41)	< 55+10log ₁₀ (P[Watts])		



1 General Description

1.1 Applicant

Motorola Mobility LLC
222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

1.2 Manufacturer

Motorola Mobility LLC
222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT1944-6
FCC ID	IHDT56XF5
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/DC-HSDPA/ HSPA+(16QAM uplink is not supported)/LTE/ WLAN 2.4GHz 802.11b/g/n HT20/ Bluetooth v3.0 + EDR/ Bluetooth v 4.0 LE/ Bluetooth v4.1 LE/ Bluetooth v4.2 LE/
IMEI Code	Radiation: 354134090006213/354134090006221
HW Version	DVT1B
SW Version	nora_row_n-userdebug 8.0.0 OPP27.60 222 intcfg,test-keys
EUT Stage	Identical Prototype



1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	LTE Band 5 : 824.7 MHz ~ 848.3 MHz LTE Band 7 : 2502.5 MHz ~ 2567.5 MHz LTE Band 26 : 824.7MHz ~ 848.3 MHz LTE Band 38 : 2572.5MHz ~ 2617.5MHz LTE Band 41 : 2537.5 MHz ~ 2652.5 MHz
Rx Frequency	LTE Band 5 : 869.7 MHz ~ 893.3 MHz LTE Band 7 : 2622.5MHz ~ 2687.5 MHz LTE Band 26 : 869.7MHz ~ 893.3MHz LTE Band 38 : 2572.5MHz ~ 2617.5MHz LTE Band 41 : 2537.5 MHz ~ 2652.5 MHz
Bandwidth	LTE Band 5 : 1.4MHz / 3MHz / 5MHz / 10MHz LTE Band 7 : 5MHz / 10MHz / 15MHz / 20MHz LTE Band 26 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz LTE Band 38 : 5MHz / 10MHz / 15MHz / 20MHz LTE Band 41 : 5MHz / 10MHz / 15MHz / 20MHz
Maximum Output Power to Antenna	LTE Band 26 : 23.06 dBm LTE Band 38 : 22.39 dBm LTE Band 41 : 22.95 dBm
Antenna Gain	LTE Band 26 : -3.05 dBi LTE Band 38 : -1.75 dBi LTE Band 41 : -1.65 dBi
Type of Modulation	QPSK / 16QAM

1.5 Specification of Accessory

Specification of Accessory				
AC Adapter 1(US)	Brand Name	Motorola (Acbel)	Model Name	SPN5945A C-P35
	Power Rating	I/P: 100-240 Vac, 300mA, O/P: 5.2Vdc,2000mA		
AC Adapter 1(EU)	Brand Name	Motorola (Acbel)	Model Name	SPN5944A C-P36
	Power Rating	I/P: 100-240 Vac, 300mA, O/P: 5.2Vdc,2000mA		
AC Adapter 1(UK)	Brand Name	Motorola (Acbel)	Model Name	SPN5940A C-P37
	Power Rating	I/P: 100-240 Vac, 300mA, O/P: 5.2Vdc,2000mA		
AC Adapter 1(IN)	Brand Name	Motorola (Acbel)	Model Name	SA18C19493 C-P49
	Power Rating	I/P: 100-240 Vac, 300mA, O/P: 5.2Vdc,2000mA		
AC Adapter 1(AU)	Brand Name	Motorola (Acbel)	Model Name	SPN5953A C-P48
	Power Rating	I/P: 100-240 Vac, 300mA, O/P: 5.2Vdc,2000mA		
AC Adapter 1(AR)	Brand Name	Motorola (Acbel)	Model Name	SPN5942A C-P47
	Power Rating	I/P: 100-240 Vac, 500mA, O/P: 5.2Vdc,2000mA		
AC Adapter 2(US)	Brand Name	Motorola (Salom)	Model Name	SSW-2919UMTJ C-P35 SPN5945A
	Power Rating	I/P: 100-240 Vac, 300mA, O/P: 5.2Vdc,2000mA		
AC Adapter 2(EU)	Brand Name	Motorola (Salom)	Model Name	SSW-2919EU C-P36 SPN5944A
	Power Rating	I/P: 100-240 Vac, 300mA, O/P: 5.2Vdc,2000mA		
AC Adapter 2(UK)	Brand Name	Motorola (Salom)	Model Name	SSW-2919UK C-P37 SPN5940A
	Power Rating	I/P: 100-240 Vac, 300mA, O/P: 5.2Vdc,2000mA		
AC Adapter 2(AU)	Brand Name	Motorola (Salom)	Model Name	SSW-2919AU C-P48 SPN5953A
	Power Rating	I/P: 100-240 Vac, 300mA, O/P: 5.2Vdc,2000mA		
AC Adapter 2(AR)	Brand Name	Motorola (Salom)	Model Name	SSW-2919AR C-P47 SPN5955A
	Power Rating	I/P: 100-240 Vac, 500mA, O/P: 5.2Vdc,2000mA		
Battery	Brand Name	Lenovo (SCUD)	Model Name	BL270
	Power Rating	3.85/4.4Vdc,4000mAh	Type	Li-ion
Earphone	Brand Name	Motorola (NEW Leaders)	Model Name	NLD-EM300V-01SF
	Signal Line Type	1.2 meter, non-shielded cable, without ferrite core		
USB Cable	Brand Name	Motorola (Saibao)	Model Name	SLQ-A081A
	Signal Line Type	1.0 meter, shielded cable, without ferrite core		

1.6 Modification of EUT

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



1.7 Re-use of Measured Data

1.7.1 Introduction Section

This application re-uses data collected on a similar device. The subject device of this application (Model: XT1944-6, FCC ID: IHDT56XF5) is electrically identical to the reference device (Model: XT1922-1, FCC ID: IHDT56XB6 / Model: XT1944-3, XT1944-4, FCC ID: IHDT56XF4) for the portions of the circuitry corresponding to the data being re-used, as treated by KDB Publication 178919 D01.

1.7.2 Difference Section

For details concerning the similarity with respect to component placement, mechanical/electrical design etc., some difference of population/depoulation to enable support of different cellular bands, please refer to the Product Equality Declaration.

The re-used RF data includes the following bands provided in Appendix D (Sporton RF Report No. FG7D0507-01B for the reference device Model: XT1922-1, FCC ID: IHDT56XB6 / FG7D2007B for the reference device Model: XT1944-3, XT1944-4, FCC ID: IHDT56XF4):

1.7.3 Spot Check Verification Data Section

In order to confirm hardware similarity of the subject device with the reference device, spot check measurements were performed on the subject device for radiated spurious emission, Conducted Band-edge and Conducted spurious emission, the test result were consistent with FCC ID: IHDT56XB6, IHDT56XB5 and IHDT56XF4.

Assertions concerning the similarity of these devices are based on representations by the applicant. The applicant accepts full responsibility for the validity of the similarity claim, and for the determination that verification test data are sufficient to support it.

1.7.4 Reference detail Section:

Equipment Class	Reference FCC ID	Folder Test	Report Title/Section
PCE (LTE)	IHDT56XB6	Part22H.27M (FG7D0507-01B)	All conducted sections applicable for LTE Band 5/26/38/41
PCE (LTE)	IHDT56XB5	Part22H.27M (FG7D0507B)	All conducted sections applicable for LTE Band 7
PCE (LTE)	IHDT56XF4	Part22H.24E.27L.27M (FG7D2007B)	Conducted power/ERP/EIRP applicable for LTE Band 5 and LTE Band 7
PCE (LTE)	IHDT56XF4	Part22H.24E.27L.27M (FG7D2007B)	RSE applicable for LTE Band 7



1.8 Maximum ERP/EIRP Power

LTE Band 26		QPSK	16QAM
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Maximum EIRP(W)
1.4	824.7 ~ 848.3	0.0597	0.0481
3	825.5 ~ 847.5	0.0578	0.0497
5	826.5 ~ 846.5	0.0610	0.0482
10	829.0 ~ 844.0	0.0577	0.0492
15	831.5 ~ 841.5	0.0611	0.0518
CH26765	821.5	0.0590	0.0505
LTE Band 38		QPSK	16QAM
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Maximum EIRP(W)
5	2572.5 ~ 2617.5	0.1146	0.0857
10	2575.0 ~ 2615.0	0.1148	0.0875
15	2577.5 ~ 2612.5	0.1159	0.0873
20	2580.0 ~ 2610.0	0.1135	0.0881
LTE Band 41		QPSK	16QAM
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Maximum EIRP(W)
5	2537.5 ~ 2652.5	0.1330	0.1023
10	2540.0 ~ 2650.0	0.1306	0.1057
15	2542.5 ~ 2647.5	0.1349	0.1109
20	2545.0 ~ 2645.0	0.1334	0.1012



1.9 Testing Location

Sporton International (Kunshan) Inc. is accredited to ISO 17025 by National Voluntary Laboratory Accreditation Program (NVLAP code: 600155-0) and the FCC designation No. is CN5013.

Test Site	Sporton International (Kunshan) Inc.	
Test Site Location	No.3-2 Ping-Xiang Rd, Kunshan Development Zone Kunshan City Jiangsu Province 215335 China TEL : +86-512-57900158 FAX : +86-512-57900958	
Test Site No.	Sporton Site No.	FCC Test Firm Registration No.
	03CH03-KS	630927

Note: The test site complies with ANSI C63.4 2014 requirement.

1.10 Applicable Standards

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

- ♦ 47 CFR Part 2, 22(H), 27(M)
- ♦ ANSI/TIA-603-E
- ♦ FCC KDB 971168 D01 Power Meas License Digital Systems v03
- ♦ FCC KDB 412172 D01 Determining ERP and EIRP v01r01

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.



2 Test Configuration of Equipment Under Test

2.1 Test Mode

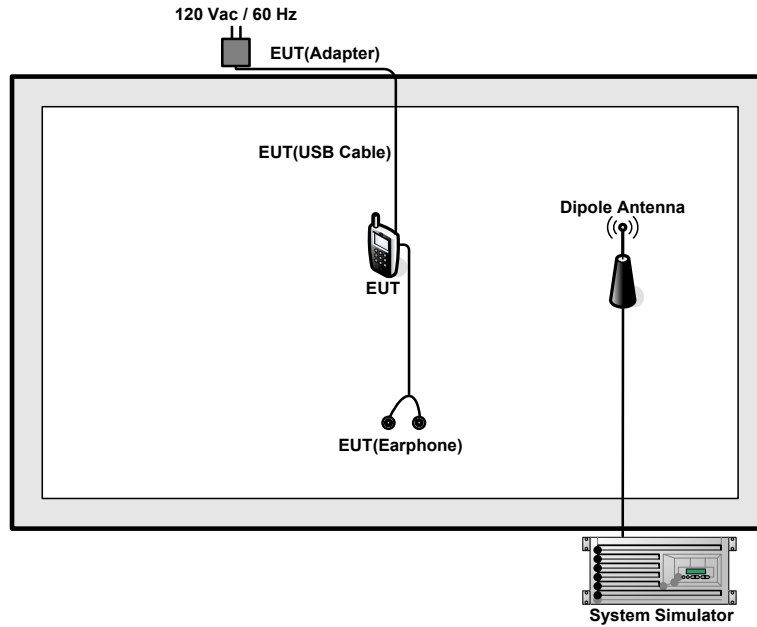
Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas License Digital Systems v03 with maximum output power.

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

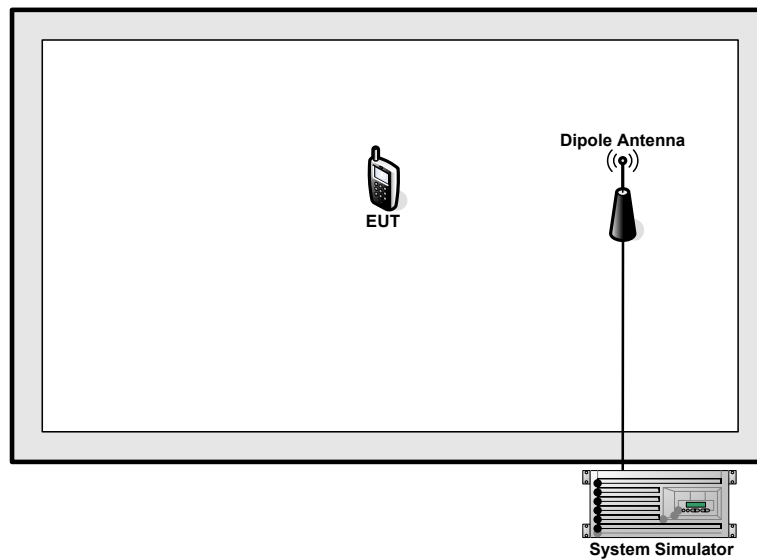
Test Items	Band	Bandwidth (MHz)						Modulation		RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full	L	M	H
Max. Output Power	26	√	√	√	√	√	-	√	√	√	√	√	√	√	√
	38	-	-	√	√	√	√	√	√	√	√	√	√	√	√
	41	-	-	√	√	√	√	√	√	√	√	√	√	√	√
E.R.P./ E.I.R.P.	26	√	√	√	√	√	-	√	√	√			√	√	√
	38	-	-	√	√	√	√	√	√	√			√	√	√
	41	-	-	√	√	√	√	√	√	√			√	√	√
Radiated Spurious Emission	5				√	-	-	√		√				√	
	26					√	-	√		√				√	
	38	-	-			√		√		√				√	
	41	-	-			√		√		√				√	
Note	<ol style="list-style-type: none"> The mark "√" means that this configuration is chosen for testing The mark "-" means that this bandwidth is not supported. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different BW/RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported. 														

2.2 Connection Diagram of Test System

LTE Band 5 / 26 / 38



LTE Band 41





2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	Power Supply	GW	GPS-3030D	N/A	N/A	Unshielded, 1.8 m
2.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m

2.4 Frequency List of Low/Middle/High Channels

LTE Band 5 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
10	Channel	20450	20525	20600
	Frequency	829	836.5	844
5	Channel	20425	20525	20625
	Frequency	826.5	836.5	846.5
3	Channel	20415	20525	20635
	Frequency	825.5	836.5	847.5
1.4	Channel	20407	20525	20643
	Frequency	824.7	836.5	848.3

LTE Band 7 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	20850	21100	21350
	Frequency	2510	2535	2560
15	Channel	20825	21100	21375
	Frequency	2507.5	2535	2562.5
10	Channel	20800	21100	21400
	Frequency	2505	2535	2565
5	Channel	20775	21100	21425
	Frequency	2502.5	2535	2567.5



LTE Band 26 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
15	Channel	26865	26915	26965
	Frequency	831.5	836.5	841.5
10	Channel	26840	26915	26990
	Frequency	829	836.5	844
5	Channel	26815	26915	27015
	Frequency	826.5	836.5	846.5
3	Channel	26805	26915	27025
	Frequency	825.5	836.5	847.5
1.4	Channel	26797	26915	27033
	Frequency	824.7	836.5	848.3

LTE Band 38 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	37850	38000	38150
	Frequency	2580	2595	2610
15	Channel	37825	38000	38175
	Frequency	2577.5	2595	2612.5
10	Channel	37800	38000	38200
	Frequency	2575	2595	2615
5	Channel	37775	38000	38225
	Frequency	2572.5	2595	2617.5

LTE Band 41 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	40140	40640	41140
	Frequency	2545	2595	2645
15	Channel	40115	40640	41165
	Frequency	2542.5	2595	2647.5
10	Channel	40090	40640	41190
	Frequency	2540	2595	2650
5	Channel	40065	40640	41215
	Frequency	2537.5	2595	2652.5

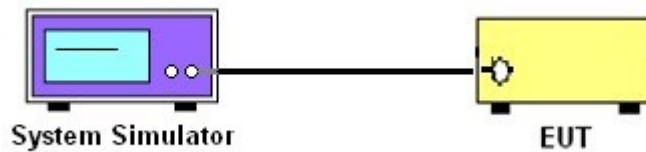
3 Conducted Test Items

3.1 Measuring Instruments

See list of measuring instruments of this test report.

3.2 Test Setup

3.2.1 Conducted Output Power



3.3 Test Result of Conducted Test

Please refer to Appendix A.



3.4 Conducted Output Power and ERP/EIRP

3.4.1 Description of the Conducted Output Power Measurement and ERP/EIRP Measurement

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

The ERP of mobile transmitters must not exceed 7 Watts for Band 26.

The EIRP of mobile transmitters must not exceed 2 Watts for LTE Band 38 and Band 41.

According to KDB 412172 D01 Power Approach,

$EIRP = P_T + G_T - L_C$, $ERP = EIRP - 2.15$, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.4.2 Test Procedures

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

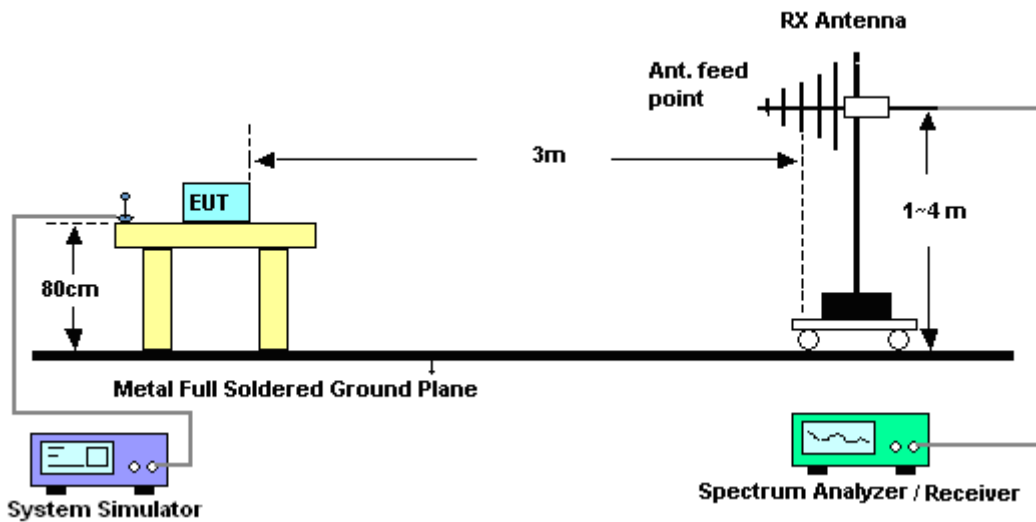
4 Radiated Test Items

4.1 Measuring Instruments

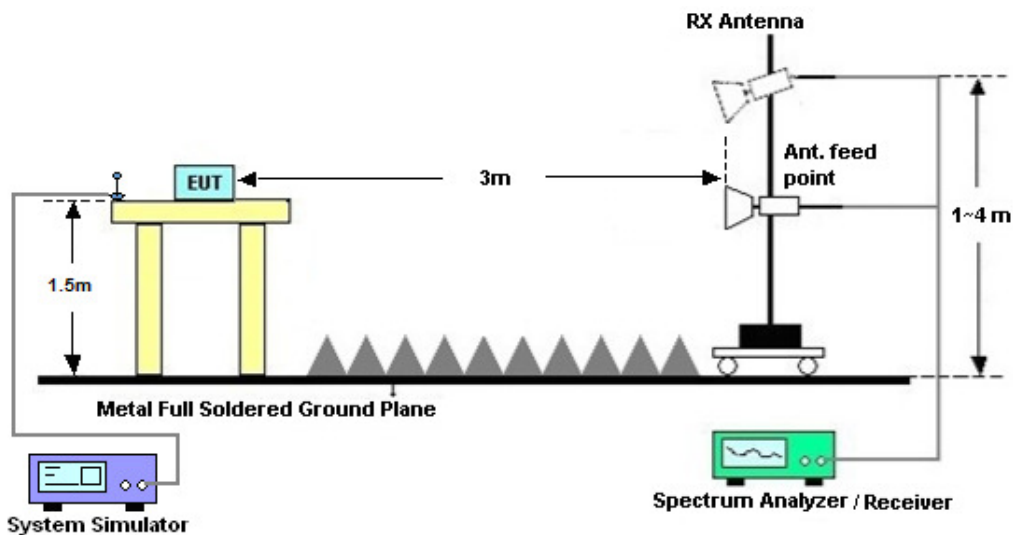
See list of measuring instruments of this test report.

4.2 Test Setup

4.2.1 For radiated test from 30MHz to 1GHz



4.2.2 For radiated test above 1GHz



4.3 Test Result of Radiated Test

Please refer to Appendix B.



4.4 Radiated Spurious Emission

4.4.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI/TIA-603-E. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB.

For Band 38, 41

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

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

4.4.2 Test Procedures

1. The testing follows FCC KDB 971168 v03 Section 5.8 and ANSI/TIA-603-E Section 2.2.12.
2. The EUT was placed on a turntable with 0.8 meter height for frequency below 1GHz and 1.5 meter height for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between 1m to 4m to search the maximum spurious emission for both horizontal and vertical polarizations.
6. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
7. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
8. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
9. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
10. $EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
11. $ERP \text{ (dBm)} = EIRP - 2.15$
12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
 $= P(W) - [43 + 10\log(P)] \text{ (dB)}$
 $= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$
 $= -13\text{dBm}.$

13. For Band 38, 41:

The limit line is derived from $55 + 10\log(P)$ dB below the transmitter power P(Watts)
 $EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
 $ERP \text{ (dBm)} = EIRP - 2.15$



5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz~44GHz	Apr. 18, 2017	Feb. 01, 2018~ Feb. 05, 2018	Apr. 17, 2018	Radiation (03CH03-KS)
Bilog Antenna	TeseQ	CBL6112D	35406	25MHz~2GHz	Apr. 22, 2017	Feb. 01, 2018~ Feb. 05, 2018	Apr. 21, 2018	Radiation (03CH03-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1356	1GHz~18GHz	Apr. 22, 2017	Feb. 01, 2018~ Feb. 05, 2018	Apr. 21, 2018	Radiation (03CH03-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Feb. 15, 2017	Feb. 01, 2018~ Feb. 05, 2018	Feb. 14, 2018	Radiation (03CH03-KS)
Amplifier	com-power	PA-103A	161069	1MHz~1000MHz / 32 dB	Apr. 18, 2017	Feb. 01, 2018~ Feb. 05, 2018	Apr. 17, 2018	Radiation (03CH03-KS)
high gain Amplifier	MITEQ	AMF-7D-00 101800-30-1	2025788	1GHz~18GHz	Apr. 18, 2017	Feb. 01, 2018~ Feb. 05, 2018	Apr. 17, 2018	Radiation (03CH03-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Oct. 12, 2017	Feb. 01, 2018~ Feb. 05, 2018	Oct. 11, 2018	Radiation (03CH03-KS)
Amplifier	MITEQ	TTA1840-35 -HG	1887435	18GHz~40GHz	Oct. 12, 2017	Feb. 01, 2018~ Feb. 05, 2018	Oct. 11, 2018	Radiation (03CH03-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Feb. 01, 2018~ Feb. 05, 2018	NCR	Radiation (03CH03-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Feb. 01, 2018~ Feb. 05, 2018	NCR	Radiation (03CH03-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Feb. 01, 2018~ Feb. 05, 2018	NCR	Radiation (03CH03-KS)

NCR: No Calibration Required



6 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.8 dB
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Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.3 dB
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Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power)

LTE Band 26 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	22.7	22.67	22.85
15	1	37		23	23.05	23.06
15	1	74		22.6	22.76	22.73
15	36	0		21.99	21.95	21.9
15	36	20		22	21.82	21.89
15	36	39		21.84	21.92	21.81
15	75	0		21.91	21.92	21.82
15	1	0	16-QAM	22	21.61	21.59
15	1	37		22.12	21.93	22.34
15	1	74		21.52	21.93	21.56
15	36	0		20.92	20.81	20.77
15	36	20		20.91	20.73	20.8
15	36	39		20.78	20.8	20.82
15	75	0		20.83	20.93	20.82
10	1	0	QPSK	22.63	22.68	22.69
10	1	25		23.03	22.6	22.75
10	1	49		22.62	22.81	22.66
10	25	0		21.97	21.91	21.86
10	25	12		21.97	21.78	21.85
10	25	25		21.85	21.87	21.83
10	50	0		21.93	21.88	21.8
10	1	0	16-QAM	21.6	21.5	21.43
10	1	25		22.12	21.87	22.04
10	1	49		21.4	21.58	21.25
10	25	0		20.87	20.93	20.88
10	25	12		20.89	20.9	20.77
10	25	25		20.78	20.76	20.7
10	50	0		20.8	20.89	20.81



LTE Band 26 Maximum Average Power [dBm]						
5	1	0	QPSK	22.65	22.45	22.7
5	1	12		23.05	22.65	23.02
5	1	24		22.65	22.5	22.46
5	12	0		21.82	21.89	21.78
5	12	7		21.89	21.77	21.78
5	12	13		21.9	21.79	21.75
5	25	0		21.87	21.75	21.78
5	1	0	16-QAM	21.51	21.81	21.65
5	1	12		21.59	22.03	21.45
5	1	24		21.55	21.24	21.36
5	12	0		20.95	20.81	20.68
5	12	7		20.72	20.83	20.81
5	12	13		20.74	20.82	20.76
5	25	0		20.8	20.66	20.69
3	1	0	QPSK	22.68	22.66	22.54
3	1	8		22.82	22.7	22.59
3	1	14		22.75	22.58	22.37
3	8	0		21.89	21.81	21.81
3	8	4		21.93	21.84	21.77
3	8	7		21.87	21.79	21.68
3	15	0		21.87	21.8	21.79
3	1	0	16-QAM	22.13	21.86	21.18
3	1	8		22.16	22.04	21.59
3	1	14		21.37	21.83	21.21
3	8	0		20.86	21.21	20.39
3	8	4		20.9	20.81	20.47
3	8	7		20.95	20.87	20.38
3	15	0		20.81	20.73	20.64



LTE Band 26 Maximum Average Power [dBm]						
1.4	1	0	QPSK	22.74	22.68	22.85
1.4	1	3		22.89	22.81	22.76
1.4	1	5		22.81	22.66	22.73
1.4	3	0		22.83	22.77	22.96
1.4	3	1		22.88	22.92	22.94
1.4	3	3		22.87	22.81	22.66
1.4	6	0		21.83	21.7	21.72
1.4	1	0	16-QAM	21.32	21.62	21.63
1.4	1	3		21.29	21.63	21.55
1.4	1	5		21.26	21.55	21.49
1.4	3	0		21.43	21.66	21.6
1.4	3	1		21.62	21.78	22.02
1.4	3	3		21.66	21.78	21.77
1.4	6	0		20.61	20.49	20.63



LTE Band 38 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
20	1	0	QPSK	22.07	22.01	22.28
20	1	49		22.27	22.29	22.16
20	1	99		22.3	22.14	22.12
20	50	0		21.28	21.3	21.18
20	50	24		21.37	21.33	21.11
20	50	50		21.26	21.28	21.26
20	100	0		21.32	21.26	21.11
20	1	0	16-QAM	21.08	21.03	21.08
20	1	49		21.2	21.04	21.1
20	1	99		21.02	21.04	21.01
20	50	0		20.22	20.23	20.12
20	50	24		20.25	20.19	20.16
20	50	50		20.33	20.34	20.21
20	100	0		20.12	20.33	20.17
15	1	0	QPSK	22.08	22.11	22.37
15	1	37		22.15	22.39	22.17
15	1	74		22.09	22.12	22.29
15	36	0		21.14	21.25	21.14
15	36	20		21.17	21.19	21.12
15	36	39		21.34	21.21	21.23
15	75	0		21.19	21.29	21.2
15	1	0	16-QAM	21.01	21.07	21.08
15	1	37		21.16	21.05	21.05
15	1	74		21.05	21.02	21.07
15	36	0		20.19	20.15	20.13
15	36	20		20.23	20.19	20.11
15	36	39		20.26	20.3	20.15
15	75	0		20.12	20.33	20.13



LTE Band 38 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
10	1	0	QPSK	22.09	22.12	22.06
10	1	25		22.07	22.29	22.33
10	1	49		22.3	22.35	22.27
10	25	0		21.19	21.33	21.31
10	25	12		21.23	21.23	21.2
10	25	25		21.31	21.23	21.35
10	50	0		21.29	21.27	21.27
10	1	0	16-QAM	21.02	21.06	21.06
10	1	25		21.16	21.09	21.13
10	1	49		21.17	21.01	21.07
10	25	0		20.11	20.22	20.17
10	25	12		20.1	20.38	20.4
10	25	25		20.37	20.4	20.4
10	50	0		20.23	20.24	20.43
5	1	0	QPSK	22.03	22.07	22.17
5	1	12		22.17	22.34	22.16
5	1	24		22.05	22.05	22.09
5	12	0		21.16	21.13	21.27
5	12	7		21.16	21.11	21.3
5	12	13		21.16	21.23	21.2
5	25	0		21.17	21.29	21.27
5	1	0	16-QAM	21.02	21.06	21.04
5	1	12		21.06	21.04	21.02
5	1	24		21.01	21.01	21.03
5	12	0		20.17	21.07	20.14
5	12	7		20.18	20.02	20.01
5	12	13		20.11	20.13	21.08
5	25	0		20.43	20.47	20.1



LTE Band 41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
20	1	0	QPSK	22.77	22.68	22.67
20	1	49		22.52	22.8	22.9
20	1	99		22.52	22.41	22.79
20	50	0		21.93	22.01	21.96
20	50	24		21.77	22.05	21.86
20	50	50		21.67	22.04	21.87
20	100	0		21.68	21.73	21.93
20	1	0	16-QAM	21.58	21.62	21.7
20	1	49		21.52	21.64	21.54
20	1	99		21.4	21.38	21.45
20	50	0		20.64	20.68	21.03
20	50	24		20.9	20.82	20.95
20	50	50		20.72	20.71	20.96
20	100	0		20.73	20.89	21.01
15	1	0	QPSK	22.81	22.64	22.69
15	1	37		22.63	22.87	22.95
15	1	74		22.62	22.76	22.81
15	36	0		21.87	21.82	21.92
15	36	20		21.84	21.82	21.82
15	36	39		21.66	21.76	21.89
15	75	0		21.71	21.79	21.85
15	1	0	16-QAM	22.1	21.65	21.53
15	1	37		21.43	21.73	21.79
15	1	74		21.32	21.67	21.67
15	36	0		20.84	20.78	20.83
15	36	20		20.69	20.73	20.85
15	36	39		20.66	20.67	20.84
15	75	0		20.75	20.83	20.84



LTE Band 41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
10	1	0	QPSK	22.77	22.61	22.77
10	1	25		22.71	22.62	22.81
10	1	49		22.57	22.71	22.81
10	25	0		21.79	21.76	21.97
10	25	12		21.77	22.18	22.02
10	25	25		21.75	21.97	21.84
10	50	0		21.8	21.63	21.92
10	1	0	16-QAM	21.6	21.63	21.89
10	1	25		21.38	21.68	21.57
10	1	49		21.35	21.69	21.45
10	25	0		20.94	20.71	20.86
10	25	12		20.81	20.71	20.84
10	25	25		21.03	20.78	20.99
10	50	0		20.73	20.82	20.81
5	1	0	QPSK	22.58	22.68	22.77
5	1	12		22.64	22.72	22.89
5	1	24		22.36	22.53	22.7
5	12	0		21.66	21.78	21.97
5	12	7		21.77	21.93	21.89
5	12	13		21.71	21.78	21.94
5	25	0		21.64	21.81	21.91
5	1	0	16-QAM	21.04	21.3	21.64
5	1	12		21.22	21.6	21.5
5	1	24		21.4	21.48	21.75
5	12	0		20.66	20.72	20.77
5	12	7		20.76	20.41	20.83
5	12	13		20.61	20.76	20.97
5	25	0		20.95	20.95	21.26



ERP/EIRP

LTE Band 26 (G _T - L _C = -3.05 dBi) QPSK									
Bandwidth	1.4M			3M			5M		
Channel	26797	26915	27033	26805	26915	27025	26815	26915	27015
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency	824.7	836.5	848.3	825.5	836.5	847.5	826.5	836.5	846.5
(MHz)									
Conducted Power (dBm)	22.83	22.77	22.96	22.82	22.70	22.59	23.05	22.65	23.02
Conducted Power (Watts)	0.1919	0.1892	0.1977	0.1914	0.1862	0.1816	0.2018	0.1841	0.2004
ERP(dBm)	17.63	17.57	17.76	17.62	17.50	17.39	17.85	17.45	17.82
ERP(Watts)	0.0579	0.0571	0.0597	0.0578	0.0562	0.0548	0.0610	0.0556	0.0605

LTE Band 26 (G _T - L _C = -3.05 dBi) QPSK							
Bandwidth	10M			15M			15M
Channel	26840	26915	26990	26865	26915	26965	26765
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)
Frequency	829	836.5	844	831.5	836.5	841.5	821.5
(MHz)							
Conducted Power (dBm)	22.62	22.81	22.66	23.00	23.05	23.06	22.91
Conducted Power (Watts)	0.1828	0.1910	0.1845	0.1995	0.2018	0.2023	0.1954
ERP(dBm)	17.42	17.61	17.46	17.80	17.85	17.86	17.71
ERP(Watts)	0.0552	0.0577	0.0557	0.0603	0.0610	0.0611	0.0590



LTE Band 26 (G _T - L _C = -3.05 dBi) 16QAM									
Bandwidth	1.4M			3M			5M		
Channel	26797	26915	27033	26805	26915	27025	26815	26915	27015
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency	824.7	836.5	848.3	825.5	836.5	847.5	826.5	836.5	846.5
(MHz)									
Conducted Power (dBm)	21.62	21.78	22.02	22.16	22.04	21.59	21.59	22.03	21.45
Conducted Power (Watts)	0.1452	0.1507	0.1592	0.1644	0.1600	0.1442	0.1442	0.1596	0.1396
ERP(dBm)	16.42	16.58	16.82	16.96	16.84	16.39	16.39	16.83	16.25
ERP(Watts)	0.0439	0.0455	0.0481	0.0497	0.0483	0.0436	0.0436	0.0482	0.0422

LTE Band 26 (G _T - L _C = -3.05 dBi) 16QAM							
Bandwidth	10M			15M			15M
Channel	26840	26915	26990	26865	26915	26965	26765
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)
Frequency	829	836.5	844	831.5	836.5	841.5	821.5
(MHz)							
Conducted Power (dBm)	22.12	21.87	22.04	22.12	21.93	22.34	22.23
Conducted Power (Watts)	0.1629	0.1538	0.1600	0.1629	0.1560	0.1714	0.1671
ERP(dBm)	16.92	16.67	16.84	16.92	16.73	17.14	17.03
ERP(Watts)	0.0492	0.0465	0.0483	0.0492	0.0471	0.0518	0.0505



LTE Band 38 (G _T - L _C = -1.75 dBi) QPSK									
Bandwidth	5M			10M			15M		
Channel	37775	38000	38225	37800	38000	38200	37825	38000	38175
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency (MHz)	2572.5	2595	2617.5	2575	2595	2615	2577.5	2595	2612.5
Conducted Power (dBm)	22.17	22.34	22.16	22.30	22.35	22.27	22.15	22.39	22.17
Conducted Power (Watts)	0.1648	0.1714	0.1644	0.1698	0.1718	0.1687	0.1641	0.1734	0.1648
EIRP(dBm)	20.42	20.59	20.41	20.55	20.60	20.52	20.40	20.64	20.42
EIRP(Watts)	0.1102	0.1146	0.1099	0.1135	0.1148	0.1127	0.1096	0.1159	0.1102

LTE Band 38 (G _T - L _C = -1.75 dBi) QPSK			
Bandwidth	20M		
Channel	37850	38000	38150
	(Low)	(Mid)	(High)
Frequency (MHz)	2580	2595	2610
Conducted Power (dBm)	22.30	22.14	22.12
Conducted Power (Watts)	0.1698	0.1637	0.1629
EIRP(dBm)	20.55	20.39	20.37
EIRP(Watts)	0.1135	0.1094	0.1089



LTE Band 38 (G _T - L _C = -1.75 dBi) 16QAM									
Bandwidth	5M			10M			15M		
Channel	37775	38000	38225	37800	38000	38200	37825	38000	38175
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency (MHz)	2572.5	2595	2617.5	2575	2595	2615	2577.5	2595	2612.5
Conducted Power (dBm)	20.11	20.13	21.08	21.17	21.01	21.07	21.16	21.05	21.05
Conducted Power (Watts)	0.1026	0.1030	0.1282	0.1309	0.1262	0.1279	0.1306	0.1274	0.1274
EIRP(dBm)	18.36	18.38	19.33	19.42	19.26	19.32	19.41	19.30	19.30
EIRP(Watts)	0.0685	0.0689	0.0857	0.0875	0.0843	0.0855	0.0873	0.0851	0.0851

LTE Band 38 (G _T - L _C = -1.75 dBi) 16QAM			
Bandwidth	20M		
Channel	37850	38000	38150
	(Low)	(Mid)	(High)
Frequency (MHz)	2580	2595	2610
Conducted Power (dBm)	21.20	21.04	21.10
Conducted Power (Watts)	0.1318	0.1271	0.1288
EIRP(dBm)	19.45	19.29	19.35
EIRP(Watts)	0.0881	0.0849	0.0861



LTE Band 41 (G _T - L _C = -1.65 dBi) QPSK									
Bandwidth	5M			10M			15M		
Channel	40065	40640	41215	40090	40640	41190	40115	40640	41165
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency (MHz)	2537.5	2595	2652.5	2540	2595	2650	2542.5	2595	2647.5
Conducted Power (dBm)	22.64	22.72	22.89	22.71	22.62	22.81	22.63	22.87	22.95
Conducted Power (Watts)	0.1837	0.1871	0.1945	0.1866	0.1828	0.1910	0.1832	0.1936	0.1972
EIRP(dBm)	20.99	21.07	21.24	21.06	20.97	21.16	20.98	21.22	21.30
EIRP(Watts)	0.1256	0.1279	0.1330	0.1276	0.1250	0.1306	0.1253	0.1324	0.1349

LTE Band 41 (G _T - L _C = -1.65 dBi) QPSK			
Bandwidth	20M		
Channel	40140	40640	41140
	(Low)	(Mid)	(High)
Frequency (MHz)	2545	2595	2645
Conducted Power (dBm)	22.52	22.80	22.90
Conducted Power (Watts)	0.1786	0.1905	0.1950
EIRP(dBm)	20.87	21.15	21.25
EIRP(Watts)	0.1222	0.1303	0.1334



LTE Band 41 (G _T - L _C = -1.65 dBi) 16QAM									
Bandwidth	5M			10M			15M		
Channel	40065	40640	41215	40090	40640	41190	40115	40640	41165
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)
Frequency (MHz)	2537.5	2595	2652.5	2540	2595	2650	2542.5	2595	2647.5
Conducted Power (dBm)	21.40	21.48	21.75	21.60	21.63	21.89	22.10	21.65	21.53
Conducted Power (Watts)	0.1380	0.1406	0.1496	0.1445	0.1455	0.1545	0.1622	0.1462	0.1422
EIRP(dBm)	19.75	19.83	20.10	19.95	19.98	20.24	20.45	20.00	19.88
EIRP(Watts)	0.0944	0.0962	0.1023	0.0989	0.0995	0.1057	0.1109	0.1000	0.0973

LTE Band 41 (G _T - L _C = -1.65 dBi) 16QAM			
Bandwidth	20M		
Channel	40140	40640	41140
	(Low)	(Mid)	(High)
Frequency (MHz)	2545	2595	2645
Conducted Power (dBm)	21.58	21.62	21.70
Conducted Power (Watts)	0.1439	0.1452	0.1479
EIRP(dBm)	19.93	19.97	20.05
EIRP(Watts)	0.0984	0.0993	0.1012



Appendix B. Test Results of Radiated Test

Radiated Spurious Emission

LTE Band 5 / 10MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	1664	-50.28	-13	-37.28	-55.63	-52.19	1.14	5.20	H
	2496	-49.90	-13	-36.90	-61.01	-52.53	1.12	5.90	H
	3330	-54.40	-13	-41.40	-64.37	-57.61	1.34	6.70	H
	1664	-50.88	-13	-37.88	-56.26	-52.79	1.14	5.20	V
	2496	-52.97	-13	-39.97	-62.63	-55.60	1.12	5.90	V
	3330	-54.16	-13	-41.16	-64.29	-57.37	1.34	6.70	V

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

LTE Band 26 / 15MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	1660	-58.15	-13	-45.15	-63.24	-60.06	1.14	5.20	H
	2490	-40.58	-13	-27.58	-52.09	-43.21	1.12	5.90	H
	3321	-56.06	-13	-43.06	-66.03	-59.27	1.34	6.70	H
	1660	-58.74	-13	-45.74	-64.07	-60.65	1.14	5.20	V
	2490	-34.23	-13	-21.23	-46.12	-36.86	1.12	5.90	V
	3318	-55.58	-13	-42.58	-65.71	-58.79	1.34	6.70	V

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



LTE Band 38 / 15MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	5178	-50.93	-25	-25.93	-37.35	-57.91	2.40	9.38	H
	7764	-48.17	-25	-23.17	-41.32	-57.72	2.97	12.51	H
	10350	-53.98	-25	-28.98	-50.31	-62.59	3.49	12.10	H
	5178	-51.55	-25	-26.55	-37.77	-58.54	2.40	9.38	V
	7764	-51.63	-25	-26.63	-44.98	-61.17	2.97	12.51	V
	10350	-55.51	-25	-30.51	-52.76	-64.12	3.49	12.10	V

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

LTE Band 41 / 15MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	5178	-45.27	-25	-20.27	-32.77	-52.25	2.40	9.38	H
	7764	-44.31	-25	-19.31	-37.81	-53.86	2.97	12.51	H
	10350	-54.89	-25	-29.89	-51.22	-63.50	3.49	12.10	H
	5178	-47.21	-25	-22.21	-33.94	-54.19	2.40	9.38	V
	7764	-46.61	-25	-21.61	-39.91	-56.16	2.97	12.51	V
	10350	-55.12	-25	-30.12	-52.37	-63.73	3.49	12.10	V

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



Appendix D. Reference Report

Please refer to Sporton report number FG7D2007B and FG7D0507-01B which are issued separately.