

Partial FCC Test Report

(PART 27)

Report No.: RFBHDI-WTW-P21060617-3

FCC ID: 2ATM8EG25G

Test Model: EG25G MINPCIE

Received Date: Jun. 21, 2021

Test Date: Jun. 28 ~ Jul. 22, 2021

Issued Date: Jul. 30, 2021

Applicant: Hawkeye Tech Co., Ltd.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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**FCC Registration /
Designation Number:** 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
RFBHDI-WTW-P21060617-3	Original Release	Jul. 30, 2021


1 Certificate of Conformity

Product: LTE Module
Brand: Quectel
Test Model: EG25G MINPCIE
Sample Status: Engineering Sample
Applicant: Hawkeye Tech Co., Ltd.
Test Date: Jun. 28 ~ Jul. 22, 2021
Standards: FCC Part 27, Subpart C, M

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by :  , Date: Jul. 30, 2021

Lena Wang / Specialist

Approved by :  , Date: Jul. 30, 2021

Dylan Chiou / Senior Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 27 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(h)(2)	Equivalent Isotropic Radiated Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	N/A	Refer to Note
2.1055 27.54	Frequency Stability	N/A	Refer to Note
2.1049 27.53(m)(6)	Occupied Bandwidth	N/A	Refer to Note
--	Peak to Average Ratio	N/A	Refer to Note
27.53(m)(4)(6)	Out-of-Band Emissions Measurements	N/A	Refer to Note
2.1051 27.53(m)(4)(6)	Conducted Spurious Emissions	N/A	Refer to Note
2.1053 27.53(m)(4)(6)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -20.7 dB at 30.00 MHz.

Note:

1. This report is a partial report. Therefore, only test item of Effective Radiated Power / Effective Isotropic Radiated Power and Radiated Spurious Emissions tests were performed for this report. Other testing data please refer to SGS report no.: HR/2019/1001601 for module (Brand: Quectel, Model: EG25G MINPCIE).
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.04 dB
	30 MHz ~ 200 MHz	2.93 dB
	200 MHz ~ 1000 MHz	2.95 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 09, 2021	Apr. 08, 2022
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jun. 10, 2021	Jun. 09, 2022
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Nov. 06, 2020	Nov. 05, 2021
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Nov. 22, 2020	Nov. 21, 2021
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 22, 2020	Nov. 21, 2021
Preamplifier Agilent (Below 1GHz)	8447D	2944A10638	Jun. 05, 2021	Jun. 04, 2022
Preamplifier Agilent (Above 1GHz)	8449B	3008A02367	Feb. 17, 2021	Feb. 16, 2022
RF signal cable HUBER+SUHNER&EMCI	SUCOFLEX 104 & EMC104-SM- SM8000	CABLE-CH9-02 (248780+171006)	Jan. 16, 2021	Jan. 15, 2022
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9- (250795/4)	Jan. 16, 2021	Jan. 15, 2022
RF signal cable Woken	8D-FB	Cable-CH9-01	Jun. 05, 2021	Jun. 04, 2022
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower & Turn BV ADT	AT100	AT93021705	NA	NA
Turn Table BV ADT	TT100	TT93021705	NA	NA
Turn Table Controller BV ADT	SC100	SC93021705	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 01, 2021	May 31, 2022
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
True RMS Clamp Meter Fluke	325	31130711WS	Jun. 02, 2021	Jun. 01, 2022
Radio Communication Analyzer Anritsu	MT8820C	6201010284	Dec. 28, 2020	Dec. 27, 2021
Temperature & Humidity Chamber	GTH-120-40-CP-AR	MAA1306-019	Sep. 09, 2020	Sep. 08, 2021
DC Power Supply Topward	33010D	807748	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Chamber 9.

3 General Information


3.1 General Description of EUT

Product	LTE Module		
Brand	Quectel		
Test Model	EG25G MINPCIE		
Status of EUT	Engineering Sample		
Power Supply Rating	48 Vdc (POE)		
Modulation Type	QPSK, 16QAM		
Frequency Range	LTE Band 7 (Channel Bandwidth: 5 MHz)	2502.5 ~ 2567.5 MHz	
	LTE Band 7 (Channel Bandwidth: 10 MHz)	2505 ~ 2565 MHz	
	LTE Band 7 (Channel Bandwidth: 15 MHz)	2507.5 ~ 2562.5 MHz	
	LTE Band 7 (Channel Bandwidth: 20 MHz)	2510 ~ 2560 MHz	
	LTE Band 38 (Channel Bandwidth: 5 MHz)	2572.5 ~ 2617.5 MHz	
	LTE Band 38 (Channel Bandwidth: 10 MHz)	2575.0 ~ 2615.0 MHz	
	LTE Band 38 (Channel Bandwidth: 15 MHz)	2577.5 ~ 2612.5 MHz	
	LTE Band 38 (Channel Bandwidth: 20 MHz)	2580.0 ~ 2610.0 MHz	
	LTE Band 41 (Channel Bandwidth: 5 MHz)	2498.5 ~ 2687.5 MHz	
	LTE Band 41 (Channel Bandwidth: 10 MHz)	2501.0 ~ 2685.0 MHz	
	LTE Band 41 (Channel Bandwidth: 15 MHz)	2503.5 ~ 2682.5 MHz	
	LTE Band 41 (Channel Bandwidth: 20 MHz)	2506.0 ~ 2680.0 MHz	
	Max. EIRP Power		QPSK
LTE Band 7 (Channel Bandwidth: 5 MHz)		425.598 mW (26.29dBm)	331.894 mW (25.21dBm)
LTE Band 7 (Channel Bandwidth: 10 MHz)		434.510 mW (26.38dBm)	330.370 mW (25.19dBm)
LTE Band 7 (Channel Bandwidth: 15 MHz)		435.512 mW (26.39dBm)	323.594 mW (25.10dBm)
LTE Band 7 (Channel Bandwidth: 20 MHz)		437.522 mW (26.41dBm)	317.687 mW (25.02dBm)
LTE Band 38 (Channel Bandwidth: 5 MHz)		470.977 mW (26.73dBm)	358.096 mW (25.54dBm)
LTE Band 38 (Channel Bandwidth: 10 MHz)		470.977 mW (26.73dBm)	363.915 mW (25.61dBm)
LTE Band 38 (Channel Bandwidth: 15 MHz)		460.257 mW (26.63dBm)	351.560 mW (25.46dBm)
LTE Band 38 (Channel Bandwidth: 20 MHz)		458.142 mW (26.61dBm)	353.997 mW (25.49dBm)
LTE Band 41 (Channel Bandwidth: 5 MHz)		448.745 mW (26.52dBm)	334.195 mW (25.24dBm)

	LTE Band 41 (Channel Bandwidth: 10 MHz)	456.037 mW (26.59dBm)	344.350 mW (25.37dBm)
	LTE Band 41 (Channel Bandwidth: 15 MHz)	464.515 mW (26.67dBm)	328.852 mW (25.17dBm)
	LTE Band 41 (Channel Bandwidth: 20 MHz)	449.780 mW (26.53dBm)	331.131 mW (25.20dBm)
Antenna Type	Dipole Antenna with 2.9 dBi gain		
Accessory Device	N/A		
Data Cable Supplied	N/A		

Note:

1. The EUT was installed in a specific End-product.

Product	Brand	Model	FCC ID
veeaHub		VHE10XXXXX (X=A-Z, 0-9, blank or "-")	2ARXKVHE10

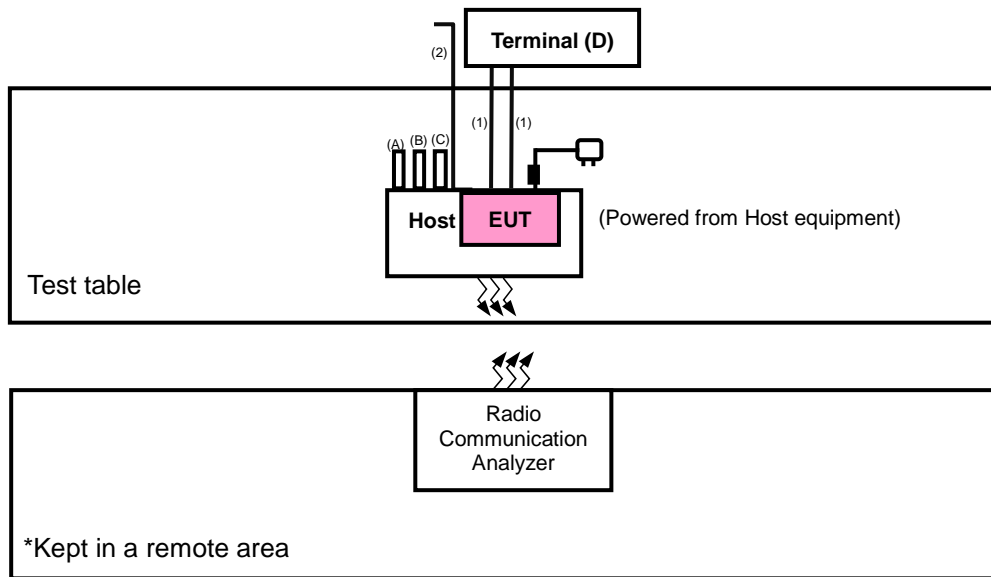
2. The End-product contains following accessory devices.

Product	Brand	Model	Description
AC Adapter	EDACPOWER ELEC.	EA1062SGR-480	I/P: 100-240 Vac, 50/60 Hz, 2.5 A O/P: 48 Vdc, 1.35 A 1.2m DC cable with 1 core

3. The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.
4. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

3.2 Configuration of System under Test

<Radiated Emission Test> & <E.I.R.P. Test>



3.2.1 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Product	Brand	Model No.	Serial No.	FCC ID
A	FLASH	HP	v250W	09	N/A
B	FLASH	HP	v250W	05	N/A
C	FLASH	HP	v250W	03	N/A
D	Terminal	N/A	N/A	N/A	N/A

No.	Signal Cable Description Of The Above Support Units
1.	LAN Cable: 1.5m
2.	RS232 to A Cable: 1.6m

Note:

1. All power cords of the above support units are non-shielded (1.8m).

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis, and antenna ports.

The worst case was found when positioned as the table below. Following channel(s) was (were) selected for the final test as listed below:

Band	Radiated Emission
LTE Band 7	X-plane
LTE Band 38	X-plane
LTE Band 41	X-plane

LTE Band 7

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	20775 to 21425	20775, 21100, 21425	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20825 to 21375	20825, 21100, 21375	15 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20850 to 21350	20850, 21110, 21350	20 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Radiated Emission	20775 to 21425	20775, 21100, 21425	5 MHz	QPSK	1 RB / 0 RB Offset
		20850 to 21350	20850, 21100, 21350	20 MHz	QPSK	1 RB / 0 RB Offset

Note:

1. This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.
2. For radiated emission above 1 GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5 MHz & highest channel bandwidth for final test.
3. For radiated emissions below 1 GHz, select the worst radiated emission channel for final testing

LTE Band 38

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	37775 to 38225	37775, 38000, 38225	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		37800 to 38200	37800, 38000, 38200	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		37825 to 38175	37825, 38000, 38175	15 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		37850 to 38150	37850, 38000, 38150	20 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Radiated Emission	37775 to 38225	37775, 38000, 38225	5 MHz	QPSK	1 RB / 0 RB Offset
		37850 to 38150	37850, 38000, 38150	20 MHz	QPSK	1 RB / 0 RB Offset

Note:

1. This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.
2. For radiated emission above 1 GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5 MHz & highest channel bandwidth for final test.
3. For radiated emissions below 1 GHz, select the worst radiated emission channel for final testing

LTE Band 41

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	39675 to 41565	39675, 40620, 41565	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		39700 to 41540	39700, 40620, 41540	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		39725 to 41515	39725, 40620, 41515	15 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		39750 to 41490	39750, 40620, 41490	20 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Radiated Emission	39675 to 41565	39675, 40620, 41565	5 MHz	QPSK	1 RB / 0 RB Offset
		39750 to 41490	39750, 40620, 41490	20 MHz	QPSK	1 RB / 0 RB Offset

Note:

1. This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.
2. For radiated emission above 1 GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5 MHz & highest channel bandwidth for final test.
3. For radiated emissions below 1 GHz, select the worst radiated emission channel for final testing

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
EIRP	25 deg. C, 65 % RH	120 Vac, 60 Hz	Rex Wang
Radiated Emission	25 deg. C, 65 % RH	120 Vac, 60 Hz	Rex Wang

3.4 EUT Operating Conditions

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

3.1 General Description of Applied Standards and references

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards and references:

Test Standard:

FCC 47 CFR Part 2

FCC 47 CFR Part 27

ANSI 63.26-2015

Note: All test items have been performed and recorded as per the above standards.

References Test Guidance:

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI/TIA/EIA-603-E 2016

Note: All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

The radiated peak output power shall be according to the specific rule Part 27.50(h)(2) that “Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2 watts transmitter output power” and 27.50(i) specific that “Peak transmit power must be measure over any interval of continuous transmission using instrumentation calibration in terms of rms-equivalent voltage.”

4.1.2 Test Procedures

EIRP Measurement:

- a. All measurements were done at low, middle and high operational frequency range. RBW is 1.4 MHz ∙ 5 MHz ∙ 10 MH for LTE mode, and VBW $\geq 3 \times$ RBW.
- b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
- c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.

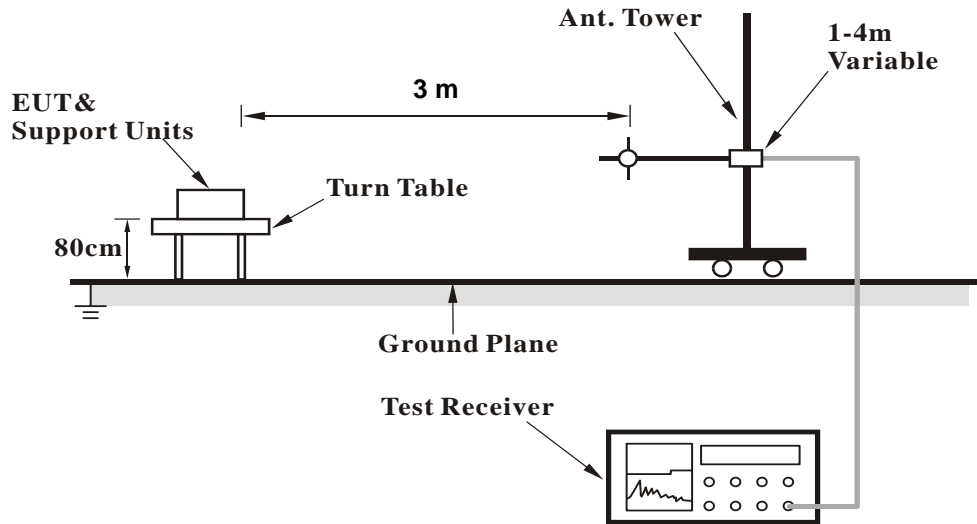
Conducted Power Measurement:

- a. The EUT was set up for the maximum power with LTE link data modulation and link up with simulator.
- b. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

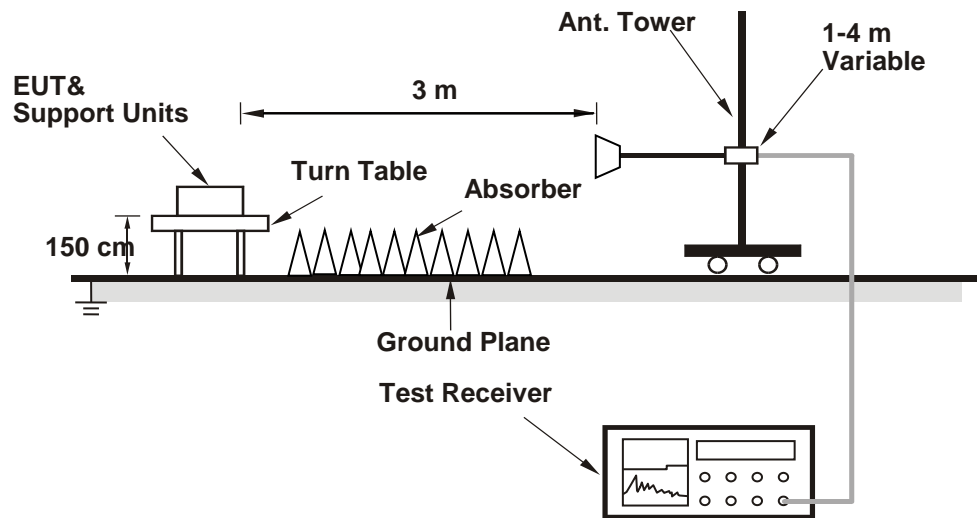
4.1.3 Test Setup

EIRP / ERP Measurement:

<Radiated Emission below or equal 1 GHz>



<Radiated Emission above 1 GHz>



For the actual test configuration, please refer to the attached file (Test Setup Photo).

Conducted Power Measurement:



4.1.4 Test Results

Conducted Output Power (dBm)

LTE Band 7						
BW	MCS Index	Channel		20775	21100	21425
		Frequency (MHz)		2502.5	2535	2567.5
5M	QPSK	1	0	23.08	23.19	23.27
		1	12	23.39	23.27	23.37
		1	24	23.26	22.97	22.74
		12	0	22.08	22.18	21.82
		12	6	22.09	22.14	21.84
		12	13	22.25	22.22	22.02
		25	0	21.95	22.02	21.85
	16QAM	1	0	21.93	21.64	21.61
		1	12	22.00	22.31	22.07
		1	24	21.99	21.97	21.37
		12	0	21.07	21.59	21.35
		12	6	20.94	21.63	20.91
		12	13	20.93	21.03	20.97
		25	0	21.24	21.18	21.00
BW	MCS Index	Channel		20800	21100	21400
		Frequency (MHz)		2505	2535	2565
10M	QPSK	1	0	22.96	23.15	22.99
		1	24	23.01	23.46	23.48
		1	49	23.16	23.22	22.74
		25	0	22.21	22.15	22.11
		25	12	22.10	22.19	21.94
		25	25	21.92	21.95	21.71
		50	0	22.17	22.22	22.02
	16QAM	1	0	21.73	21.41	21.68
		1	24	21.89	22.29	22.04
		1	49	22.07	21.65	21.35
		25	0	21.28	21.46	20.96
		25	12	20.96	21.28	21.14
		25	25	20.90	21.30	20.94
		50	0	21.17	21.42	20.99

LTE Band 7						
BW	MCS Index	Channel		20825	21100	21375
		Frequency (MHz)		2507.5	2535	2562.5
15M	QPSK	1	0	23.01	23.24	22.89
		1	37	23.28	23.49	23.32
		1	74	23.01	22.87	22.88
		36	0	21.95	22.24	22.13
		36	19	22.10	22.24	22.13
		36	39	22.03	22.06	21.72
		75	0	22.20	22.36	22.00
	16QAM	1	0	21.86	21.69	21.65
		1	37	22.19	22.03	22.20
		1	74	21.76	21.89	21.43
		36	0	21.31	21.51	21.15
		36	19	21.19	21.63	20.90
		36	39	21.26	21.03	20.67
		75	0	21.24	21.54	20.95
BW	MCS Index	Channel		20850	21100	21350
		Frequency (MHz)		2510	2535	2560
20M	QPSK	1	0	23.00	23.15	23.09
		1	50	23.20	23.33	23.51
		1	99	23.09	23.05	22.80
		50	0	22.01	22.15	22.00
		50	25	22.20	22.28	21.99
		50	50	22.10	22.12	21.84
		100	0	22.11	22.19	21.88
	16QAM	1	0	21.92	21.52	21.70
		1	50	22.01	22.12	22.03
		1	99	21.95	21.78	21.55
		50	0	21.14	21.42	21.15
		50	25	21.05	21.45	20.96
		50	50	21.10	21.22	20.87
		100	0	21.16	21.38	21.06

LTE Band 38						
BW	MCS Index	Channel		37775	38000	38225
		Frequency (MHz)		2572.5	2595	2617.5
5M	QPSK	1	0	23.44	23.62	23.70
		1	12	23.48	23.83	23.77
		1	24	23.40	23.49	23.12
		12	0	22.33	22.72	22.43
		12	6	22.38	22.48	22.55
		12	13	22.55	22.73	22.46
		25	0	22.42	22.72	22.60
	16QAM	1	0	21.84	21.97	22.20
		1	12	22.35	22.23	22.64
		1	24	21.82	22.00	22.03
		12	0	21.19	21.32	21.24
		12	6	21.39	21.71	21.42
		12	13	21.27	21.51	21.14
		25	0	21.40	21.60	21.64
BW	MCS Index	Channel		37800	38000	38200
		Frequency (MHz)		2575	2595	2615
10M	QPSK	1	0	23.36	23.41	23.43
		1	24	23.66	23.58	23.83
		1	49	23.21	23.35	23.20
		25	0	22.56	22.72	22.47
		25	12	22.65	22.59	22.64
		25	25	22.43	22.71	22.47
		50	0	22.27	22.71	22.65
	16QAM	1	0	21.92	22.07	22.05
		1	24	22.31	22.62	22.71
		1	49	22.08	21.97	22.17
		25	0	21.21	21.27	21.44
		25	12	21.45	21.63	21.28
		25	25	21.47	21.60	21.44
		50	0	21.17	21.26	21.40

LTE Band 38						
BW	MCS Index	Channel		37825	38000	38175
		Frequency (MHz)		2577.5	2595	2612.5
15M	QPSK	1	0	23.33	23.49	23.55
		1	37	23.43	23.52	23.73
		1	74	23.46	23.17	23.32
		36	0	22.36	22.55	22.39
		36	19	22.66	22.45	22.79
		36	39	22.44	22.63	22.31
		75	0	22.54	22.68	22.30
	16QAM	1	0	22.11	22.07	22.34
		1	37	22.56	22.40	22.46
		1	74	21.95	22.16	22.02
		36	0	21.43	21.32	21.58
		36	19	21.33	21.59	21.19
		36	39	21.36	21.47	21.40
		75	0	21.37	21.27	21.57
BW	MCS Index	Channel		37850	38000	38150
		Frequency (MHz)		2580	2595	2610
20M	QPSK	1	0	23.39	23.48	23.56
		1	50	23.54	23.69	23.71
		1	99	23.39	23.33	23.26
		50	0	22.41	22.52	22.59
		50	25	22.50	22.61	22.60
		50	50	22.45	22.53	22.50
		100	0	22.45	22.53	22.46
	16QAM	1	0	21.93	22.15	22.22
		1	50	22.38	22.43	22.59
		1	99	22.00	22.01	22.04
		50	0	21.30	21.44	21.39
		50	25	21.32	21.62	21.34
		50	50	21.27	21.64	21.29
		100	0	21.33	21.43	21.45

LTE Band 41						
BW	MCS Index	Channel		39675	40620	41565
		Frequency (MHz)		2498.5	2593	2687.5
5M	QPSK	1	0	22.95	23.62	23.38
		1	12	23.38	23.52	23.53
		1	24	23.13	23.15	23.58
		12	0	22.46	22.56	22.51
		12	6	22.41	22.33	22.63
		12	13	22.39	22.37	22.42
		25	0	22.17	22.66	22.42
	16QAM	1	0	22.04	21.93	22.20
		1	12	22.34	22.33	22.10
		1	24	22.05	22.03	22.12
		12	0	21.06	21.23	21.71
		12	6	21.34	21.48	21.60
		12	13	21.09	21.34	21.70
		25	0	21.16	21.49	21.54
BW	MCS Index	Channel		39700	40620	41540
		Frequency (MHz)		2501	2593	2685
10M	QPSK	1	0	23.18	23.51	23.47
		1	24	23.53	23.63	23.69
		1	49	23.16	23.43	23.53
		25	0	22.28	22.40	22.67
		25	12	22.60	22.35	22.75
		25	25	22.45	22.31	22.34
		50	0	22.34	22.38	22.63
	16QAM	1	0	21.75	22.03	22.17
		1	24	22.05	22.43	22.47
		1	49	21.79	21.84	22.04
		25	0	20.97	21.46	21.69
		25	12	21.53	21.46	21.88
		25	25	21.13	21.23	21.80
		50	0	21.40	21.24	21.45

LTE Band 41						
BW	MCS Index	Channel		39725	40620	41515
		Frequency (MHz)		2503.5	2593	2682.5
15M	QPSK	1	0	23.27	23.47	23.58
		1	37	23.34	23.37	23.77
		1	74	23.23	23.44	23.52
		36	0	22.34	22.26	22.41
		36	19	22.57	22.29	22.62
		36	39	22.43	22.51	22.31
		75	0	22.13	22.39	22.52
	16QAM	1	0	21.93	22.27	22.12
		1	37	22.08	22.14	22.11
		1	74	21.74	21.80	22.23
		36	0	20.99	21.25	21.50
		36	19	21.23	21.22	21.70
		36	39	21.44	21.33	21.58
		75	0	21.19	21.45	21.45
BW	MCS Index	Channel		39750	40620	41490
		Frequency (MHz)		2506	2593	2680
20M	QPSK	1	0	23.11	23.56	23.58
		1	50	23.38	23.52	23.63
		1	99	23.25	23.33	23.56
		50	0	22.29	22.44	22.57
		50	25	22.45	22.45	22.57
		50	50	22.29	22.39	22.43
		100	0	22.29	22.47	22.50
	16QAM	1	0	21.87	22.08	22.11
		1	50	22.17	22.26	22.30
		1	99	21.91	21.87	22.06
		50	0	21.13	21.29	21.58
		50	25	21.33	21.41	21.70
		50	50	21.24	21.35	21.67
		100	0	21.33	21.42	21.61

EIRP Power (dBm)

LTE Band 7						
BW	MCS Index	Channel		20775	21100	21425
		Frequency (MHz)		2502.5	2535	2567.5
5M	QPSK	1	0	25.98	26.09	26.17
		1	12	26.29	26.17	26.27
		1	24	26.16	25.87	25.64
		12	0	24.98	25.08	24.72
		12	6	24.99	25.04	24.74
		12	13	25.15	25.12	24.92
		25	0	24.85	24.92	24.75
	16QAM	1	0	24.83	24.54	24.51
		1	12	24.90	25.21	24.97
		1	24	24.89	24.87	24.27
		12	0	23.97	24.49	24.25
		12	6	23.84	24.53	23.81
		12	13	23.83	23.93	23.87
		25	0	24.14	24.08	23.90
BW	MCS Index	Channel		20800	21100	21400
		Frequency (MHz)		2505	2535	2565
10M	QPSK	1	0	25.86	26.05	25.89
		1	24	25.91	26.36	26.38
		1	49	26.06	26.12	25.64
		25	0	25.11	25.05	25.01
		25	12	25.00	25.09	24.84
		25	25	24.82	24.85	24.61
		50	0	25.07	25.12	24.92
	16QAM	1	0	24.63	24.31	24.58
		1	24	24.79	25.19	24.94
		1	49	24.97	24.55	24.25
		25	0	24.18	24.36	23.86
		25	12	23.86	24.18	24.04
		25	25	23.80	24.20	23.84
		50	0	24.07	24.32	23.89

*EIRP = Conducted + antenna gain (2.9dBi)

LTE Band 7						
BW	MCS Index	Channel		20825	21100	21375
		Frequency (MHz)		2507.5	2535	2562.5
15M	QPSK	1	0	25.91	26.14	25.79
		1	37	26.18	26.39	26.22
		1	74	25.91	25.77	25.78
		36	0	24.85	25.14	25.03
		36	19	25.00	25.14	25.03
		36	39	24.93	24.96	24.62
		75	0	25.10	25.26	24.90
	16QAM	1	0	24.76	24.59	24.55
		1	37	25.09	24.93	25.10
		1	74	24.66	24.79	24.33
		36	0	24.21	24.41	24.05
		36	19	24.09	24.53	23.80
		36	39	24.16	23.93	23.57
		75	0	24.14	24.44	23.85
BW	MCS Index	Channel		20850	21100	21350
		Frequency (MHz)		2510	2535	2560
20M	QPSK	1	0	25.90	26.05	25.99
		1	50	26.10	26.23	26.41
		1	99	25.99	25.95	25.70
		50	0	24.91	25.05	24.90
		50	25	25.10	25.18	24.89
		50	50	25.00	25.02	24.74
		100	0	25.01	25.09	24.78
	16QAM	1	0	24.82	24.42	24.60
		1	50	24.91	25.02	24.93
		1	99	24.85	24.68	24.45
		50	0	24.04	24.32	24.05
		50	25	23.95	24.35	23.86
		50	50	24.00	24.12	23.77
		100	0	24.06	24.28	23.96

*EIRP = Conducted + antenna gain (2.9dBi)

LTE Band 38						
BW	MCS Index	Channel		37775	38000	38225
		Frequency (MHz)		2572.5	2595	2617.5
5M	QPSK	1	0	26.34	26.52	26.60
		1	12	26.38	26.73	26.67
		1	24	26.30	26.39	26.02
		12	0	25.23	25.62	25.33
		12	6	25.28	25.38	25.45
		12	13	25.45	25.63	25.36
		25	0	25.32	25.62	25.50
	16QAM	1	0	24.74	24.87	25.10
		1	12	25.25	25.13	25.54
		1	24	24.72	24.90	24.93
		12	0	24.09	24.22	24.14
		12	6	24.29	24.61	24.32
		12	13	24.17	24.41	24.04
		25	0	24.30	24.50	24.54
BW	MCS Index	Channel		37800	38000	38200
		Frequency (MHz)		2575	2595	2615
10M	QPSK	1	0	26.26	26.31	26.33
		1	24	26.56	26.48	26.73
		1	49	26.11	26.25	26.10
		25	0	25.46	25.62	25.37
		25	12	25.55	25.49	25.54
		25	25	25.33	25.61	25.37
		50	0	25.17	25.61	25.55
	16QAM	1	0	24.82	24.97	24.95
		1	24	25.21	25.52	25.61
		1	49	24.98	24.87	25.07
		25	0	24.11	24.17	24.34
		25	12	24.35	24.53	24.18
		25	25	24.37	24.50	24.34
		50	0	24.07	24.16	24.30

*EIRP = Conducted + antenna gain (2.9dBi)

LTE Band 38						
BW	MCS Index	Channel		37825	38000	38175
		Frequency (MHz)		2577.5	2595	2612.5
15M	QPSK	1	0	26.23	26.39	26.45
		1	37	26.33	26.42	26.63
		1	74	26.36	26.07	26.22
		36	0	25.26	25.45	25.29
		36	19	25.56	25.35	25.69
		36	39	25.34	25.53	25.21
		75	0	25.44	25.58	25.20
	16QAM	1	0	25.01	24.97	25.24
		1	37	25.46	25.30	25.36
		1	74	24.85	25.06	24.92
		36	0	24.33	24.22	24.48
		36	19	24.23	24.49	24.09
		36	39	24.26	24.37	24.30
		75	0	24.27	24.17	24.47
BW	MCS Index	Channel		37850	38000	38150
		Frequency (MHz)		2580	2595	2610
20M	QPSK	1	0	26.29	26.38	26.46
		1	50	26.44	26.59	26.61
		1	99	26.29	26.23	26.16
		50	0	25.31	25.42	25.49
		50	25	25.40	25.51	25.50
		50	50	25.35	25.43	25.40
		100	0	25.35	25.43	25.36
	16QAM	1	0	24.83	25.05	25.12
		1	50	25.28	25.33	25.49
		1	99	24.90	24.91	24.94
		50	0	24.20	24.34	24.29
		50	25	24.22	24.52	24.24
		50	50	24.17	24.54	24.19
		100	0	24.23	24.33	24.35

*EIRP = Conducted + antenna gain (2.9dBi)

LTE Band 41						
BW	MCS Index	Channel		39675	40620	41565
		Frequency (MHz)		2498.5	2593	2687.5
5M	QPSK	1	0	25.85	26.52	26.28
		1	12	26.28	26.42	26.43
		1	24	26.03	26.05	26.48
		12	0	25.36	25.46	25.41
		12	6	25.31	25.23	25.53
		12	13	25.29	25.27	25.32
		25	0	25.07	25.56	25.32
	16QAM	1	0	24.94	24.83	25.10
		1	12	25.24	25.23	25.00
		1	24	24.95	24.93	25.02
		12	0	23.96	24.13	24.61
		12	6	24.24	24.38	24.50
		12	13	23.99	24.24	24.60
		25	0	24.06	24.39	24.44
BW	MCS Index	Channel		39700	40620	41540
		Frequency (MHz)		2501	2593	2685
10M	QPSK	1	0	26.08	26.41	26.37
		1	24	26.43	26.53	26.59
		1	49	26.06	26.33	26.43
		25	0	25.18	25.30	25.57
		25	12	25.50	25.25	25.65
		25	25	25.35	25.21	25.24
		50	0	25.24	25.28	25.53
	16QAM	1	0	24.65	24.93	25.07
		1	24	24.95	25.33	25.37
		1	49	24.69	24.74	24.94
		25	0	23.87	24.36	24.59
		25	12	24.43	24.36	24.78
		25	25	24.03	24.13	24.70
		50	0	24.30	24.14	24.35

*EIRP = Conducted + antenna gain (2.9dBi)

LTE Band 41						
BW	MCS Index	Channel		39725	40620	41515
		Frequency (MHz)		2503.5	2593	2682.5
15M	QPSK	1	0	26.17	26.37	26.48
		1	37	26.24	26.27	26.67
		1	74	26.13	26.34	26.42
		36	0	25.24	25.16	25.31
		36	19	25.47	25.19	25.52
		36	39	25.33	25.41	25.21
		75	0	25.03	25.29	25.42
	16QAM	1	0	24.83	25.17	25.02
		1	37	24.98	25.04	25.01
		1	74	24.64	24.70	25.13
		36	0	23.89	24.15	24.40
		36	19	24.13	24.12	24.60
		36	39	24.34	24.23	24.48
		75	0	24.09	24.35	24.35
BW	MCS Index	Channel		39750	40620	41490
		Frequency (MHz)		2506	2593	2680
20M	QPSK	1	0	26.01	26.46	26.48
		1	50	26.28	26.42	26.53
		1	99	26.15	26.23	26.46
		50	0	25.19	25.34	25.47
		50	25	25.35	25.35	25.47
		50	50	25.19	25.29	25.33
		100	0	25.19	25.37	25.40
	16QAM	1	0	24.77	24.98	25.01
		1	50	25.07	25.16	25.20
		1	99	24.81	24.77	24.96
		50	0	24.03	24.19	24.48
		50	25	24.23	24.31	24.60
		50	50	24.14	24.25	24.57
		100	0	24.23	24.32	24.51

*EIRP = Conducted + antenna gain (2.9dBi)

4.2 Radiated Emission Measurement

4.2.1 Limits of Radiated Emission Measurement

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $55 + 10 \log (P)$ dB. The limit of emission is equal to -25 dBm.

4.2.2 Test Procedure

- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
- c. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15 dB.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz.
2. The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:

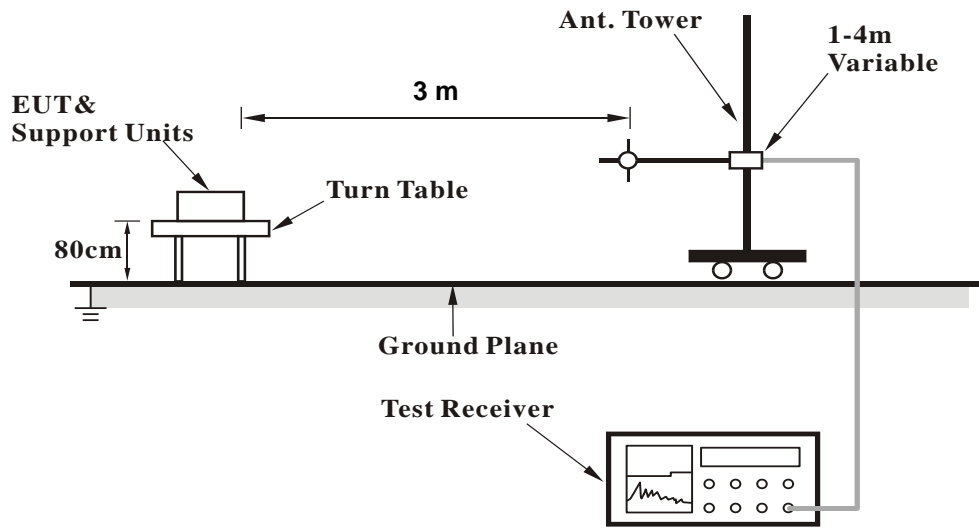
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

4.2.3 Deviation from Test Standard

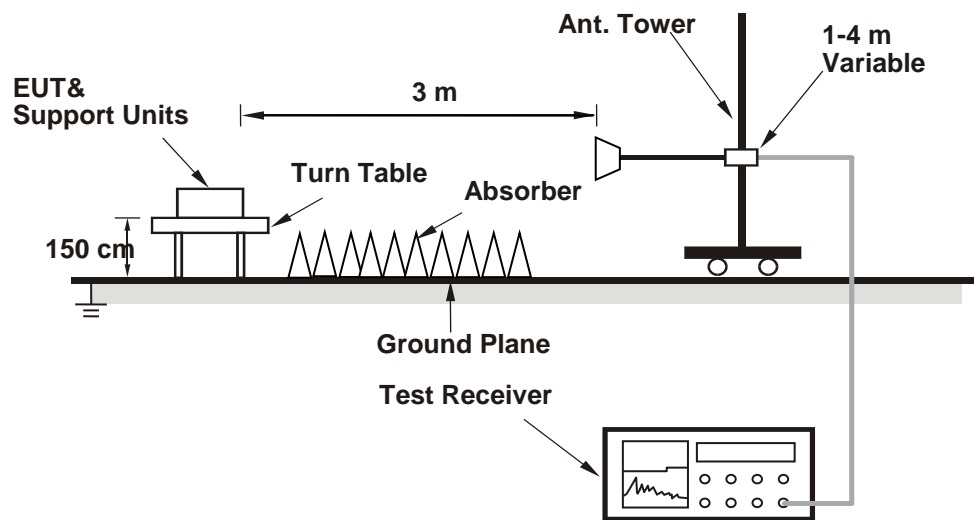
No deviation.

4.2.4 Test Setup

<Radiated Emission below or equal 1 GHz>



<Radiated Emission above 1 GHz>



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.5 Test Results

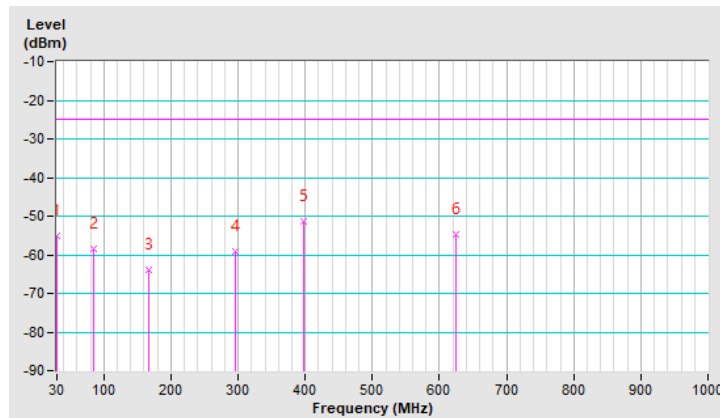
Below 1GHz

RF Mode	TX LTE Band VII-5MHz	Channel	CH 21100 : 2535 MHz
Frequency Range	30MHz ~ 1GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.00	-54.9	-25.0	-29.9	1.25 H	88	60.3	-115.2
2	85.29	-58.4	-25.0	-33.4	1.00 H	38	60.8	-119.2
3	167.74	-63.8	-25.0	-38.8	1.50 H	281	50.1	-113.9
4	295.78	-59.1	-25.0	-34.1	1.50 H	271	54.2	-113.3
5	398.60	-51.3	-25.0	-26.3	1.00 H	284	59.4	-110.7
6	624.61	-54.9	-25.0	-29.9	2.00 H	0	50.8	-105.6

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

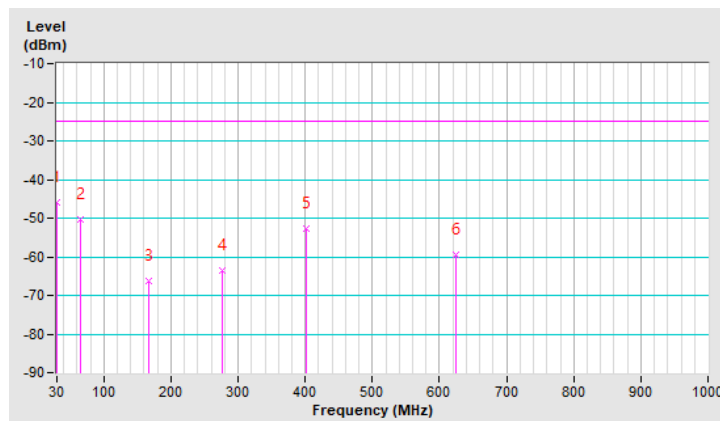


RF Mode	TX LTE Band VII-5MHz	Channel	CH 21100 : 2535 MHz
Frequency Range	30MHz ~ 1GHz		

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.00	-46.1	-25.0	-21.1	2.00 V	91	69.2	-115.2
2	65.89	-50.3	-25.0	-25.3	1.00 V	172	65.3	-115.6
3	166.77	-66.4	-25.0	-41.4	1.00 V	86	47.4	-113.8
4	277.35	-63.6	-25.0	-38.6	1.00 V	187	50.1	-113.7
5	402.48	-52.8	-25.0	-27.8	1.50 V	348	57.8	-110.6
6	624.61	-59.4	-25.0	-34.4	1.00 V	262	46.2	-105.6

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

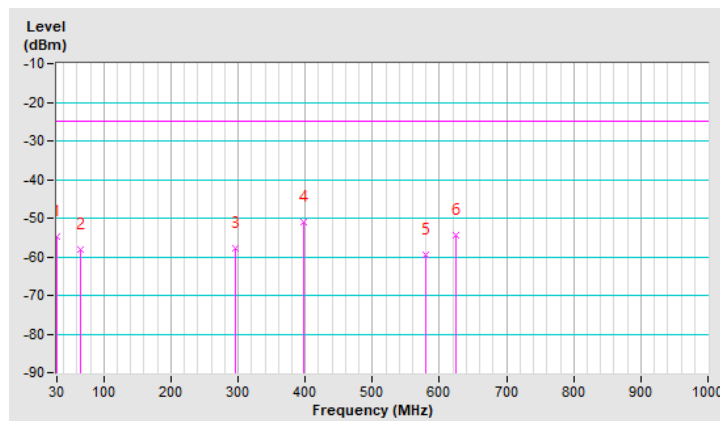


RF Mode	TX LTE Band XXXVIII-20MHz	Channel	CH 37850 : 2580 MHz
Frequency Range	30MHz ~ 1GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.00	-54.8	-25.0	-29.8	1.50 H	62	60.5	-115.2
2	65.89	-58.1	-25.0	-33.1	1.50 H	57	57.5	-115.6
3	295.78	-57.7	-25.0	-32.7	1.00 H	281	55.6	-113.3
4	397.63	-51.1	-25.0	-26.1	2.00 H	279	59.6	-110.7
5	579.99	-59.4	-25.0	-34.4	1.00 H	62	47.2	-106.5
6	624.61	-54.3	-25.0	-29.3	1.00 H	5	51.3	-105.6

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

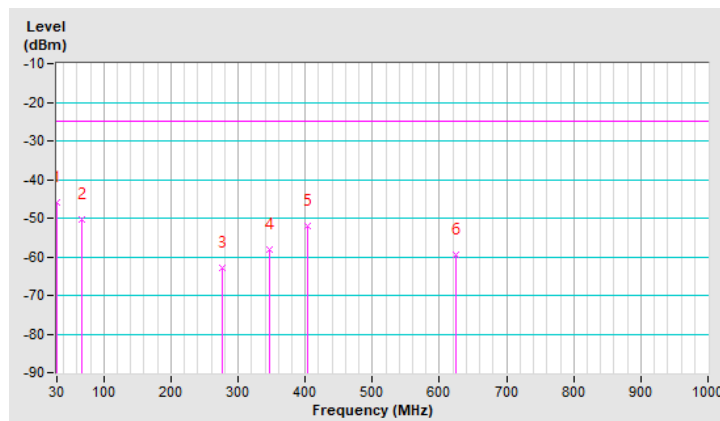


RF Mode	TX LTE Band XXXVIII-20MHz	Channel	CH 37850 : 2580 MHz
Frequency Range	30MHz ~ 1GHz		

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.00	-46.0	-25.0	-21.0	1.50 V	89	69.3	-115.2
2	66.86	-50.2	-25.0	-25.2	1.00 V	178	65.4	-115.6
3	277.35	-62.9	-25.0	-37.9	1.25 V	196	50.8	-113.7
4	347.19	-58.2	-25.0	-33.2	1.25 V	331	53.8	-112.0
5	404.42	-52.2	-25.0	-27.2	1.00 V	352	58.4	-110.6
6	624.61	-59.5	-25.0	-34.5	1.00 V	255	46.1	-105.6

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

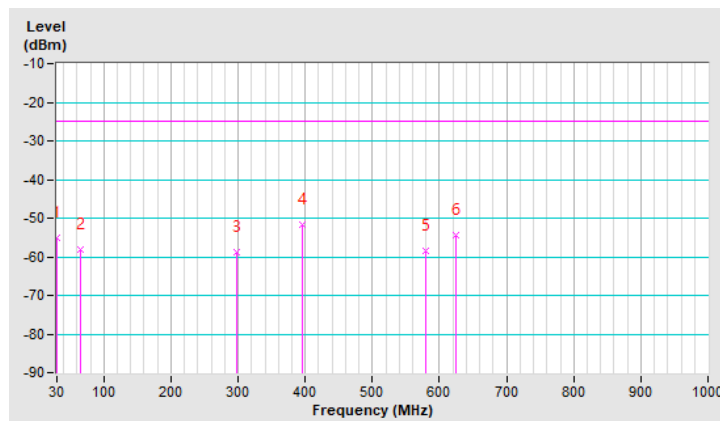


RF Mode	TX LTE Band XLI-5MHz	Channel	CH 40620 : 2593 MHz
Frequency Range	30MHz ~ 1GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.00	-55.1	-25.0	-30.1	1.50 H	46	60.1	-115.2
2	65.89	-58.2	-25.0	-33.2	1.50 H	48	57.3	-115.6
3	297.72	-58.7	-25.0	-33.7	1.25 H	263	54.5	-113.2
4	396.66	-51.6	-25.0	-26.6	1.25 H	260	59.1	-110.7
5	579.99	-58.5	-25.0	-33.5	2.00 H	49	48.0	-106.5
6	624.61	-54.3	-25.0	-29.3	1.00 H	188	51.3	-105.6

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

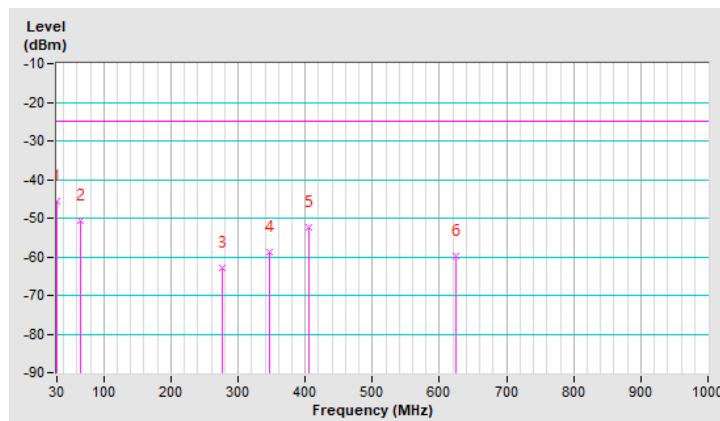


RF Mode	TX LTE Band XLI-5MHz	Channel	CH 40620 : 2593 MHz
Frequency Range	30MHz ~ 1GHz		

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.00	-45.7	-25.0	-20.7	1.00 V	5	69.5	-115.2
2	65.89	-50.5	-25.0	-25.5	1.50 V	146	65.0	-115.6
3	276.38	-62.9	-25.0	-37.9	1.25 V	204	50.9	-113.8
4	347.19	-58.9	-25.0	-33.9	1.00 V	325	53.1	-112.0
5	406.36	-52.2	-25.0	-27.2	1.00 V	0	58.3	-110.5
6	624.61	-59.7	-25.0	-34.7	1.25 V	151	45.9	-105.6

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.



Above 1GHz

RF Mode	TX LTE Band VII-5MHz	Channel	CH 20775 : 2502.5 MHz
Frequency Range	1GMHz ~ 27GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5005.00	-48.4	-25.0	-23.4	1.92 H	166	45.7	-94.1
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5005.00	-51.5	-25.0	-26.5	2.81 V	161	42.5	-94.1

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

RF Mode	TX LTE Band VII-5MHz	Channel	CH 21100 : 2535 MHz
Frequency Range	1GMHz ~ 27GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5070.00	-48.2	-25.0	-23.2	1.88 H	164	45.4	-93.7
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5070.00	-51.2	-25.0	-26.2	2.88 V	159	42.4	-93.7

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

RF Mode	TX LTE Band VII-5MHz	Channel	CH 21425 : 2567.5 MHz
Frequency Range	1GMHz ~ 27GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5135.00	-49.2	-25.0	-24.2	1.96 H	155	44.3	-93.6
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5135.00	-51.9	-25.0	-26.9	2.85 V	165	41.7	-93.6

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

RF Mode	TX LTE Band VII-20MHz	Channel	CH 20850 : 2510 MHz
Frequency Range	1GMHz ~ 27GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5020.00	-49.2	-25.0	-24.2	1.96 H	163	44.8	-94.0
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5020.00	-51.6	-25.0	-26.6	2.84 V	167	42.4	-94.0

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

RF Mode	TX LTE Band VII-20MHz	Channel	CH 21100 : 2535 MHz
Frequency Range	1GMHz ~ 27GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5070.00	-48.6	-25.0	-23.6	1.86 H	169	45.1	-93.7
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5070.00	-51.5	-25.0	-26.5	2.77 V	157	42.2	-93.7

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

RF Mode	TX LTE Band VII-20MHz	Channel	CH 21350 : 2560 MHz
Frequency Range	1GMHz ~ 27GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5120.00	-48.9	-25.0	-23.9	1.98 H	166	44.7	-93.6
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5120.00	-51.1	-25.0	-26.1	2.84 V	162	42.5	-93.6

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

RF Mode	TX LTE Band XXXVIII - 5MHz	Channel	CH 37775 : 2572.5 MHz
Frequency Range	1GMHz ~ 27GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5145.00	-47.8	-25.0	-22.8	2.09 H	328	45.8	-93.6
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5145.00	-48.0	-25.0	-23.0	2.99 V	344	45.6	-93.6

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

RF Mode	TX LTE Band XXXVIII - 5MHz	Channel	CH 38000 : 2595 MHz
Frequency Range	1GMHz ~ 27GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5190.00	-47.2	-25.0	-22.2	2.13 H	331	46.4	-93.6
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5190.00	-47.7	-25.0	-22.7	2.96 V	347	45.9	-93.6

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

RF Mode	TX LTE Band XXXVIII - 5MHz	Channel	CH 38225 : 2617.5 MHz
Frequency Range	1GMHz ~ 27GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5235.00	-47.4	-25.0	-22.4	2.11 H	330	46.4	-93.8
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5235.00	-47.6	-25.0	-22.6	2.96 V	346	46.3	-93.8

Remarks:

1. EIRP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

RF Mode	TX LTE Band XXXVIII - 20MHz	Channel	CH 37850 : 2580 MHz
Frequency Range	1GMHz ~ 27GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5160.00	-47.0	-25.0	-22.0	2.10 H	334	46.5	-93.6
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5160.00	-47.1	-25.0	-22.1	2.95 V	342	46.5	-93.6

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

RF Mode	TX LTE Band XXXVIII - 20MHz	Channel	CH 38000 : 2595MHz
Frequency Range	1GMHz ~ 27GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5190.00	-47.1	-25.0	-22.1	2.15 H	329	46.5	-93.6
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5190.00	-47.3	-25.0	-22.3	2.97 V	350	46.3	-93.6

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

RF Mode	TX LTE Band XXXVIII - 20MHz	Channel	CH 38150 : 2610 MHz
Frequency Range	1GMHz ~ 27GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5220.00	-47.4	-25.0	-22.4	2.17 H	335	46.4	-93.7
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5220.00	-47.3	-25.0	-22.3	2.95 V	347	46.5	-93.7

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

RF Mode	TX LTE Band XLI-5MHz	Channel	CH 39675 : 2498.5 MHz
Frequency Range	1GMHz ~ 27GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4997.00	-47.8	-25.0	-22.8	3.55 H	336	46.3	-94.1
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	4997.00	-48.4	-25.0	-23.4	1.05 V	6	45.7	-94.1

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

RF Mode	TX LTE Band XLI-5MHz	Channel	CH 40620 : 2593 MHz
Frequency Range	1GMHz ~ 27GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5186.00	-47.2	-25.0	-22.2	3.52 H	341	46.4	-93.6
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5186.00	-47.2	-25.0	-22.2	1.00 V	14	46.4	-93.6

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

RF Mode	TX LTE Band XLI-5MHz	Channel	CH 41565 : 2687.5 MHz
Frequency Range	1GMHz ~ 27GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5375.00	-48.1	-25.0	-23.1	3.53 H	346	46.0	-94.0
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5375.00	-47.6	-25.0	-22.6	1.06 V	18	46.5	-94.0

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

RF Mode	TX LTE Band XLI- 20MHz	Channel	CH 39750 : 2506 MHz
Frequency Range	1GMHz ~ 27GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5012.00	-48.2	-25.0	-23.2	3.48 H	339	45.9	-94.0
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5012.00	-47.7	-25.0	-22.7	1.06 V	21	46.3	-94.0

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

RF Mode	TX LTE Band XLI-20MHz	Channel	CH 40620 : 2593 MHz
Frequency Range	1GMHz ~ 27GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5186.00	-47.3	-25.0	-22.3	3.54 H	340	46.3	-93.6
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5186.00	-47.4	-25.0	-22.4	1.05 V	13	46.2	-93.6

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

RF Mode	TX LTE Band XLI-20MHz	Channel	CH 41490 : 2680 MHz
Frequency Range	1GMHz ~ 27GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5360.00	-47.5	-25.0	-22.5	3.51 H	344	46.5	-94.0
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5360.00	-48.1	-25.0	-23.1	1.03 V	15	46.0	-94.0

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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The address and road map of all our labs can be found in our web site also.

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