

Partial FCC Test Report (Part 24 – WCDMA B2, LTE B2)

Report No.: RFBASM-WTW-P21071003-7

FCC ID: QYLEM7511Z

Test Model: EM7511

Received Date: Jul. 28, 2021

Test Date: Aug. 24 ~ Aug. 26, 2021

Issued Date: Nov. 19, 2021

Applicant: Getac Technology Corporation.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lin Kou Laboratories

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Test Location (2): No. 70, Wenming Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)

FCC Registration / 788550 / TW0003
Designation Number (1):

FCC Registration / 281270 / TW0032
Designation Number (2):



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Release Control Record

Issue No.	Description	Date Issued
RFBASM-WTW-P21071003-7	Original release	Nov. 19, 2021

1 Certificate of Conformity

Product: Wireless Module

Brand: Sierra Wireless, Inc.

Test Model: EM7511

Sample Status: Identical Prototype

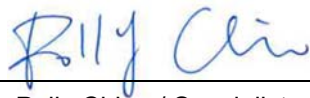
Applicant: Getac Technology Corporation.

Test Date: Aug. 24 ~ Aug. 26, 2021

Standards: FCC Part 24, Subpart E

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 :



Polly Chien / Specialist

Date:

Nov. 19, 2021

Approved by :



Jeremy Lin / Project Engineer

Date:

Nov. 19, 2021

2 Summary of Test Results

Applied Standard: FCC Part 24 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 24.232	Effective Isotropically Radiated Power	Pass	Meet the requirement of limit.
2.1046 24.232 (d)	Peak To Average Ratio	N/A	Refer to Note
2.1047	Modulation Characteristics	N/A	Refer to Note
2.1055 24.235	Frequency Stability	N/A	Refer to Note
2.1049	Occupied Bandwidth	N/A	Refer to Note
24.238	Band Edge Measurements	N/A	Refer to Note
2.1051 24.238	Conducted Spurious Emissions	N/A	Refer to Note
2.1053 24.238	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -36.28dB at 3800.00MHz.

Note:

1. This report is a partial report, only test item of Effective Isotropic Radiated Power & Radiated Emissions were performed for this report. Other testing data please refer to SPORTON INTERNATIONAL INC. report no.: FG791919B_R01 for module (Brand: Sierra Wireless, Inc., Model: EM7511).
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	9kHz ~ 30MHz	3.00 dB
	30MHz ~ 200MHz	2.91 dB
	200MHz ~ 1000MHz	2.93 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	1.76 dB
	18GHz ~ 40GHz	1.77 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver Rohde & Schwarz	N9038A	MY55420137	Apr. 09, 2021	Apr. 08, 2022
Spectrum Analyzer KEYSIGHT	N9020B	MY60110440	Dec. 18, 2020	Dec. 17, 2021
BILOG Antenna SCHWARZBECK	VULB9168	9168-1213	Nov. 04, 2020	Nov. 03, 2021
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-563	Nov. 22, 2020	Nov. 21, 2021
HORN Antenna SCHWARZBECK	BBHA 9170	995	Nov. 22, 2020	Nov. 21, 2021
Loop Antenna TESEQ	HLA 6121	45745	Jul. 21, 2021	Jul. 20, 2022
Preamplifier EMCI	EMC330N	980782	Jan. 12, 2021	Jan. 11, 2022
Preamplifier EMCI	EMC118A45SE	980808	Jan. 12, 2021	Jan. 11, 2022
Preamplifier EMCI	EMC184045SE	980788	Jan. 12, 2021	Jan. 11, 2022
RF signal cable EMCI	EMC104-SM-SM-(9000+2000+1000)	201243+ 201231+ 210102	Jan. 12, 2021	Jan. 11, 2022
RF signal cable EMCI	EMCCFD400-NM-NM-(9000+300+500)	201236+ 201235+ 201233	Jan. 12, 2021	Jan. 11, 2022
RF signal cable EMCI	EMC101G-KM-KM-(5000+3000+2000)	201260+201257+201254	Jan. 12, 2021	Jan. 11, 2022
Software BV ADT	ADT_Radiated_V7.6.15.9.5	NA	NA	NA
Antenna Tower Max-Full	MFT-151SS-0.5T	NA	NA	NA
Turn Table Max-Full	MF-7802BS	NA	NA	NA
Turn Table Controller Max-Full	MF-7802BS	MF780208674	NA	NA
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
DC Power Supply Keysight	U8002A	MY56330015	NA	NA
Radio Communication Analyzer Anritsu	MT8821C	6201462755	Feb. 07, 2021	Feb. 06, 2022
Digital Multimeter Fluke	87-III	70360742	Jun. 24, 2021	Jun. 23, 2022
MXG Vector signal generator Agilent	N5182B	MY53050430	Nov. 25, 2020	Nov. 24, 2021

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 WM Chamber 8.

3 General Information

3.1 General Description of EUT

Product	Wireless Module	
Brand	Sierra Wireless, Inc.	
Test Model	EM7511	
Sample Status	Identical Prototype	
Power Supply Rating	19Vdc (from adapter) 3.84Vdc (from battery)	
Modulation Type	WCDMA: BPSK, QPSK HSDPA: BPSK HSUPA: QPSK LTE: QPSK, 16QAM, 64QAM	
Operating Frequency	WCDMA Band 2	1852.4MHz ~ 1907.6MHz
	LTE Band 2 (Channel Bandwidth 1.4MHz)	1850.7MHz ~ 1909.3MHz
	LTE Band 2 (Channel Bandwidth 3MHz)	1851.5MHz ~ 1908.5MHz
	LTE Band 2 (Channel Bandwidth 5MHz)	1852.5MHz ~ 1907.5MHz
	LTE Band 2 (Channel Bandwidth 10MHz)	1855.0MHz ~ 1905.0MHz
	LTE Band 2 (Channel Bandwidth 15MHz)	1857.5MHz ~ 1902.5MHz
	LTE Band 2 (Channel Bandwidth 20MHz)	1860.0MHz ~ 1900.0MHz
Max. EIRP Power	WCDMA Band 2	799.834mW(29.03dBm)
	LTE Band 2 (Channel Bandwidth 1.4MHz)	781.628mW(28.93dBm)
	LTE Band 2 (Channel Bandwidth 3MHz)	769.130mW(28.86dBm)
	LTE Band 2 (Channel Bandwidth 5MHz)	755.092mW(28.78dBm)
	LTE Band 2 (Channel Bandwidth 10MHz)	753.356mW(28.77dBm)
	LTE Band 2 (Channel Bandwidth 15MHz)	774.462mW(28.89dBm)
	LTE Band 2 (Channel Bandwidth 20MHz)	792.501mW(28.99dBm)
Antenna Type	Refer to Note as below	
Antenna Connector	Refer to Note as below	
Accessory Device	Refer to Note as below	
Cable Supplied	Refer to Note as below	

Note:

1. The EUT uses the following antennas.

Antenna Type	Ant. Connector	Ant.	Antenna Gain (dBi)	
			WCDMA II	LTE B5
PIFA	IPEX	Main	5.5	5.5
		Aux	3.15	3.15

* 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.

2. The EUT is authorized for use in specific End-product. The model of the ZX10 was chosen for final test.

Product	Brand	Model	Description
Tablet	Getac	ZX10 ZX10Y (Y= 10 characters, Y can be 0-9, a-z, A-Z, “ - “, “ _ “, “ / “, “ \ “ or blank for marketing purpose and no impact safety related critical components and constructions.)	For marketing purpose

3. The End-product contains following accessory devices.

Product	Brand	Model	Description
Adapter	FSP	FSP065-RBBN3	I/P: 100-240 Vac, 50-60Hz, 1.5 A O/P: 19.0 Vdc, 3.42 A 1.47m non-shielded cable with 1 core
Battery 1	Getac	BP1S2P4990B	Rating: 3.84Vdc, 9740mAh, 37.4Wh Typical Capacity: 9980mAh, 38.32Wh
Battery 2	Getac	BP1S1P4990B	Rating: 3.84Vdc, 4870mAh, 18.7Wh Typical Capacity: 4990mAh, 19.16Wh
Power cord	I-SHENG ELECTRIC WIRE & CABLE CO., LTD.	SP-305B+IS-034	1.7M
Touch pen	Getac	N52 Magnet	N/A

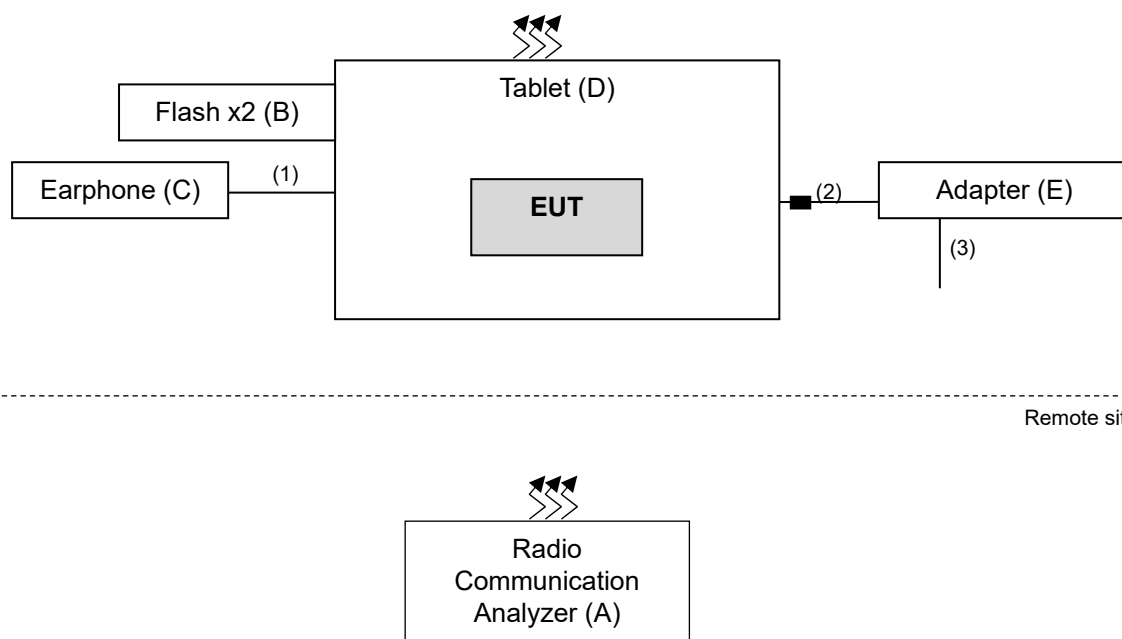
* After the pretesting battery, battery 2 mode is found to be the worst case and therefore had been chosen for final test.

4. The End-product contains following configurations.

Part	Brand	Model	Note	Configuration			
				1	2	3	4
CPU	Qualcomm	SDA 660	-	V	V	V	V
Memory	Samsung	KM3V6001CM-B705	4GB	V	V	V	V
VIDEO CONTROLLER	Qualcomm	Adreno GU 512	-	V	V	V	V
eMMC Storage	Samsung	-	64GB	V	V	V	V
DISPLAY	AUO	G101UAN2.0	-	V	V	V	V
Touch Screen	EETI	EXC80H60	-	V	V	V	V
Real Camera	Unison	MV21A6A1-TF5D	16M PLCC MIPI	V	V	V	V
Front Camera	Unison	MV2980A1-TF4R-P	8M PLCC MIPI	V	V	V	V
WWAN	Sierra	EM7511	-	V	V	V	V
WLAN/BT	Qualcomm	WCN3990	-	V	V	V	V
HF-RFID	Getac	PN7150	-	V	V	V	V
GPS	Locosys	MC-1010-V2B	-	V	V	V	V
Barcode Reader	Honeywell	N6703SR-W5-103	-	V	V	V	V
Smart Card Option Bay	Alcor	AU9560-GBS-GR	-			V	V
Normal capacity battery	Getac	BP1S1P4990B	BYD Cell, CSL595490HPlus	V		V	
High capacity battery	Getac	BP1S2P4990B	BYD Cell, CSL595490HPlus		V		V

*After the pretesting, the configuration 3 is found to be the worst case and had been chosen for final test.

3.2 Configuration of System under 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.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Radio Communication Analyzer	Anritsu	MT8821C	6261806803	NA	-
B.	Flash	SanDisk	SDDDC3-032G	NA	NA	Type-C
	Flash	HP	v250W	05	NA	Type-A
C.	Earphone	APPLE	MB770FE	NA	NA	-
D.	Tablet	Getac	ZX10	NA	NA	Provided by client
E.	Adapter	FSP	FSP065-RBBN3	NA	NA	Provided by client

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item A acted as a communication partner to transfer data.

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	Audio cable	1	1.2	N	0	-
2.	Power cable	1	1.47	N	1	Provided by client
3.	Power cable	1	1.7	-	0	Provided by client

Note: The core(s) is(are) originally attached to the cable(s).

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
WCDMA Band 2	Y-plane
LTE Band 2	Y-plane

WCDMA Band 2

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	EIRP	9262 to 9538	9262 (1852.4MHz), 9400 (1880.0MHz), 9538 (1907.6MHz)	WCDMA, HSDPA, HSUPA
-	Radiated Emission Below 1GHz	9262 to 9538	9400 (1880.0MHz)	WCDMA
-	Radiated Emission Above 1GHz	9262 to 9538	9262 (1852.4MHz), 9400 (1880.0MHz), 9538 (1907.6MHz)	WCDMA

Note: For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.

LTE Band 2

EUT Configure Mode	Test item	Available channel	Tested Channel	Channel Bandwidth	Modulation	RB #
-	EIRP	18607 to 19193	18607 (1850.7MHz), 18900 (1880.0MHz), 19193 (1909.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM	1 Half Full
		18615 to 19185	18615 (1851.5MHz), 18900 (1880.0MHz), 19185 (1908.5MHz)	3MHz	QPSK / 16QAM / 64QAM	1 Half Full
		18625 to 19175	18625 (1852.5MHz), 18900 (1880.0MHz), 19175 (1907.5MHz)	5MHz	QPSK / 16QAM / 64QAM	1 Half Full
		18650 to 19150	18650 (1855.0MHz), 18900 (1880.0MHz), 19150 (1905.0MHz)	10MHz	QPSK / 16QAM / 64QAM	1 Half Full
		18675 to 19125	18675 (1857.5MHz), 18900 (1880.0MHz), 19125 (1902.5MHz)	15MHz	QPSK / 16QAM / 64QAM	1 Half Full
		18700 to 19100	18700 (1860.0MHz), 18900 (1880.0MHz), 19100 (1900.0MHz)	20MHz	QPSK / 16QAM / 64QAM	1 Half Full
-	Radiated Emission Below 1GHz	18700 to 19100	19100 (1900.0MHz)	20MHz	QPSK	1
-	Radiated Emission Above 1GHz	18607 to 19193	18607 (1850.7MHz), 18900 (1880.0MHz), 19193 (1909.3MHz)	1.4MHz	QPSK	1
		18625 to 19175	18625 (1852.5MHz), 18900 (1880.0MHz), 19175 (1907.5MHz)	5MHz	QPSK	1
		18700 to 19100	18700 (1860.0MHz), 18900 (1880.0MHz), 19100 (1900.0MHz)	20MHz	QPSK	1

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 below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
3. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5MHz & highest channel bandwidth for final test.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
EIRP	25deg. C, 70%RH	120Vac, 60Hz	James Yang
Radiated Emission	23deg. C, 66%RH. 24deg. C, 67%RH	120Vac, 60Hz	Titan Hsu, Raymond Lee

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

3.5 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:

Test Standard:

FCC 47 CFR Part 2

FCC 47 CFR Part 24

ANSI/TIA/EIA-603-E 2016

ANSI 63.26-2015

References Test Guidance:

KDB 971168 D01 Power Meas License Digital Systems v03r01

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

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

Mobile / Portable station are limited to 2 watts e.i.r.p.

4.1.2 Test Procedures

Conducted Power Measurement:

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

Maximum EIRP / ERP

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation as follows:

$$\text{EIRP} = P_{\text{Meas}} + G_T$$

$$\text{ERP} = P_{\text{Meas}} + G_T - 2.15$$

where

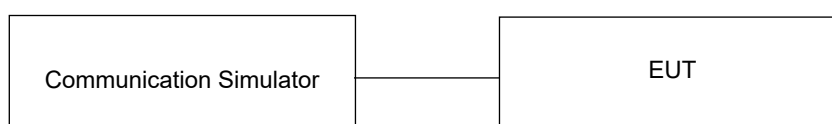
ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively
(expressed in the same units as P_{Meas} , e.g., dBm or dBW)

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

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

4.1.3 Test Setup

Conducted Power Measurement:



4.1.4 Test Results

Conducted Output Power (dBm)

Band	WCDMA II		
TX Channel	9262	9400	9538
Rx Channel	9662	9800	9938
Frequency	1852.4	1880	1907.6
RMC 12.2K	23.31	23.42	23.53
HSDPA Subtest-1	22.13	22.13	22.30
HSDPA Subtest-2	22.12	22.13	22.32
HSDPA Subtest-3	21.31	21.64	21.88
HSDPA Subtest-4	21.64	21.64	21.85
HSUPA Subtest-1	22.12	22.11	22.30
HSUPA Subtest-2	20.11	20.12	20.29
HSUPA Subtest-3	21.09	21.11	21.31
HSUPA Subtest-4	20.09	20.18	20.31
HSUPA Subtest-5	22.10	22.10	22.30

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18700	18900	19100
		Frequency (MHz)		1860	1880	1900
20M	QPSK	1	0	23.09	23.18	23.49
		1	50	22.92	23.03	23.31
		1	99	22.83	22.94	23.22
		50	0	22.07	22.18	22.46
		50	25	22.02	22.13	22.41
		50	50	22.02	22.13	22.41
		100	0	22.05	22.16	22.44
20M	16QAM	1	0	22.34	22.45	22.73
		1	50	22.31	22.42	22.70
		1	99	22.18	22.29	22.57
		50	0	21.12	21.23	21.51
		50	25	21.07	21.18	21.46
		50	50	21.03	21.14	21.42
		100	0	21.07	21.18	21.46
20M	64QAM	1	0	21.09	21.18	21.49
		1	50	20.92	21.03	21.31
		1	99	20.83	20.94	21.22
		50	0	20.07	20.18	20.46
		50	25	20.02	20.13	20.41
		50	50	20.02	20.13	20.41
		100	0	20.05	20.16	20.44

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18675	18900	19125
		Frequency (MHz)		1857.5	1880	1902.5
15M	QPSK	1	0	23.01	23.15	23.39
		1	37	22.92	22.97	23.24
		1	74	22.83	22.87	23.18
		36	0	21.98	22.18	22.45
		36	19	21.95	22.11	22.41
		36	39	21.93	22.05	22.40
		75	0	22.05	22.13	22.37
15M	16QAM	1	0	22.30	22.42	22.68
		1	37	22.29	22.33	22.63
		1	74	22.14	22.28	22.56
		36	0	21.10	21.14	21.45
		36	19	21.03	21.13	21.37
		36	39	21.03	21.11	21.35
		75	0	21.00	21.15	21.42
15M	64QAM	1	0	20.99	21.18	21.44
		1	37	20.90	21.00	21.30
		1	74	20.80	20.94	21.15
		36	0	19.97	20.10	20.41
		36	19	20.02	20.10	20.39
		36	39	19.96	20.10	20.40
		75	0	20.03	20.15	20.36

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18650	18900	19150
		Frequency (MHz)		1855	1880	1905
10M	QPSK	1	0	22.98	23.02	23.27
		1	24	22.76	22.81	23.12
		1	49	22.78	22.84	23.09
		25	0	21.87	21.96	22.41
		25	12	21.93	22.05	22.26
		25	25	21.88	21.97	22.35
		50	0	21.84	22.01	22.36
10M	16QAM	1	0	22.27	22.27	22.57
		1	24	22.16	22.30	22.54
		1	49	21.98	22.24	22.35
		25	0	21.04	21.22	21.50
		25	12	20.99	20.94	21.35
		25	25	20.88	20.89	21.24
		50	0	20.91	20.97	21.38
10M	64QAM	1	0	21.02	20.97	21.40
		1	24	20.81	20.97	21.20
		1	49	20.68	20.90	21.11
		25	0	20.01	20.12	20.34
		25	12	19.94	20.00	20.30
		25	25	19.81	19.98	20.22
		50	0	19.96	19.92	20.34

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18625	18900	19175
		Frequency (MHz)		1852.5	1880	1907.5
5M	QPSK	1	0	22.85	23.06	23.28
		1	12	22.78	22.78	23.15
		1	24	22.78	22.74	22.97
		12	0	21.94	22.01	22.24
		12	6	21.86	22.05	22.33
		12	13	21.88	21.99	22.13
		25	0	21.89	22.02	22.29
5M	16QAM	1	0	22.21	22.41	22.67
		1	12	22.29	22.25	22.64
		1	24	22.01	22.26	22.43
		12	0	21.00	21.06	21.37
		12	6	21.02	21.00	21.30
		12	13	20.87	21.13	21.30
		25	0	20.91	20.97	21.31
5M	64QAM	1	0	20.90	21.11	21.38
		1	12	20.83	20.89	21.14
		1	24	20.80	20.89	21.16
		12	0	19.94	20.03	20.34
		12	6	19.78	20.04	20.24
		12	13	19.92	19.95	20.28
		25	0	19.93	20.00	20.29

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18615	18900	19185
		Frequency (MHz)		1851.5	1880	1908.5
3M	QPSK	1	0	22.88	23.03	23.36
		1	7	22.85	22.83	23.17
		1	14	22.68	22.83	23.10
		8	0	21.95	22.09	22.33
		8	3	21.98	21.99	22.25
		8	7	21.82	21.89	22.29
		15	0	21.84	21.98	22.38
3M	16QAM	1	0	22.20	22.21	22.68
		1	7	22.24	22.29	22.49
		1	14	22.11	22.14	22.35
		8	0	21.00	21.12	21.36
		8	3	20.98	21.03	21.27
		8	7	20.94	21.09	21.39
		15	0	20.92	21.00	21.34
3M	64QAM	1	0	20.96	21.02	21.36
		1	7	20.82	20.93	21.22
		1	14	20.72	20.78	21.03
		8	0	20.05	19.97	20.42
		8	3	19.93	20.02	20.29
		8	7	19.88	20.00	20.25
		15	0	19.93	20.11	20.30

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18607	18900	19193
		Frequency (MHz)		1850.7	1880	1909.3
1.4M	QPSK	1	0	22.96	23.16	23.43
		1	2	22.77	22.95	23.29
		1	5	22.73	22.79	22.97
		3	0	22.91	22.96	23.33
		3	1	22.85	22.96	23.28
		3	3	22.88	22.97	23.22
		6	0	21.93	21.92	22.38
1.4M	16QAM	1	0	22.26	22.30	22.66
		1	2	22.26	22.36	22.59
		1	5	22.07	22.17	22.46
		3	0	22.00	22.18	22.39
		3	1	21.96	22.11	22.23
		3	3	21.87	22.02	22.35
		6	0	20.88	21.04	21.36
1.4M	64QAM	1	0	20.92	21.13	21.39
		1	2	20.77	20.85	21.13
		1	5	20.70	20.87	21.19
		3	0	20.94	21.06	21.37
		3	1	20.86	21.04	21.17
		3	3	20.93	21.02	21.19
		6	0	19.93	19.97	20.26

EIRP Power (dBm)

Band	WCDMA II		
TX Channel	9262	9400	9538
Rx Channel	9662	9800	9938
Frequency	1852.4	1880	1907.6
RMC 12.2K	28.81	28.92	29.03
HSDPA Subtest-1	27.63	27.63	27.80
HSDPA Subtest-2	27.62	27.63	27.82
HSDPA Subtest-3	26.81	27.14	27.38
HSDPA Subtest-4	27.14	27.14	27.35
HSUPA Subtest-1	27.62	27.61	27.80
HSUPA Subtest-2	25.61	25.62	25.79
HSUPA Subtest-3	26.59	26.61	26.81
HSUPA Subtest-4	25.59	25.68	25.81
HSUPA Subtest-5	27.60	27.60	27.80

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18700	18900	19100
		Frequency (MHz)		1860	1880	1900
20M	QPSK	1	0	28.59	28.68	28.99
		1	50	28.42	28.53	28.81
		1	99	28.33	28.44	28.72
		50	0	27.57	27.68	27.96
		50	25	27.52	27.63	27.91
		50	50	27.52	27.63	27.91
		100	0	27.55	27.66	27.94
20M	16QAM	1	0	27.84	27.95	28.23
		1	50	27.81	27.92	28.20
		1	99	27.68	27.79	28.07
		50	0	26.62	26.73	27.01
		50	25	26.57	26.68	26.96
		50	50	26.53	26.64	26.92
		100	0	26.57	26.68	26.96
20M	64QAM	1	0	26.59	26.68	26.99
		1	50	26.42	26.53	26.81
		1	99	26.33	26.44	26.72
		50	0	25.57	25.68	25.96
		50	25	25.52	25.63	25.91
		50	50	25.52	25.63	25.91
		100	0	25.55	25.66	25.94

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18675	18900	19125
		Frequency (MHz)		1857.5	1880	1902.5
15M	QPSK	1	0	28.51	28.65	28.89
		1	37	28.42	28.47	28.74
		1	74	28.33	28.37	28.68
		36	0	27.48	27.68	27.95
		36	19	27.45	27.61	27.91
		36	39	27.43	27.55	27.90
		75	0	27.55	27.63	27.87
15M	16QAM	1	0	27.80	27.92	28.18
		1	37	27.79	27.83	28.13
		1	74	27.64	27.78	28.06
		36	0	26.60	26.64	26.95
		36	19	26.53	26.63	26.87
		36	39	26.53	26.61	26.85
		75	0	26.50	26.65	26.92
15M	64QAM	1	0	26.49	26.68	26.94
		1	37	26.40	26.50	26.80
		1	74	26.30	26.44	26.65
		36	0	25.47	25.60	25.91
		36	19	25.52	25.60	25.89
		36	39	25.46	25.60	25.90
		75	0	25.53	25.65	25.86

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18650	18900	19150
		Frequency (MHz)		1855	1880	1905
10M	QPSK	1	0	28.48	28.52	28.77
		1	24	28.26	28.31	28.62
		1	49	28.28	28.34	28.59
		25	0	27.37	27.46	27.91
		25	12	27.43	27.55	27.76
		25	25	27.38	27.47	27.85
		50	0	27.34	27.51	27.86
10M	16QAM	1	0	27.77	27.77	28.07
		1	24	27.66	27.80	28.04
		1	49	27.48	27.74	27.85
		25	0	26.54	26.72	27.00
		25	12	26.49	26.44	26.85
		25	25	26.38	26.39	26.74
		50	0	26.41	26.47	26.88
10M	64QAM	1	0	26.52	26.47	26.90
		1	24	26.31	26.47	26.70
		1	49	26.18	26.40	26.61
		25	0	25.51	25.62	25.84
		25	12	25.44	25.50	25.80
		25	25	25.31	25.48	25.72
		50	0	25.46	25.42	25.84

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18625	18900	19175
		Frequency (MHz)		1852.5	1880	1907.5
5M	QPSK	1	0	28.35	28.56	28.78
		1	12	28.28	28.28	28.65
		1	24	28.28	28.24	28.47
		12	0	27.44	27.51	27.74
		12	6	27.36	27.55	27.83
		12	13	27.38	27.49	27.63
		25	0	27.39	27.52	27.79
5M	16QAM	1	0	27.71	27.91	28.17
		1	12	27.79	27.75	28.14
		1	24	27.51	27.76	27.93
		12	0	26.50	26.56	26.87
		12	6	26.52	26.50	26.80
		12	13	26.37	26.63	26.80
		25	0	26.41	26.47	26.81
5M	64QAM	1	0	26.40	26.61	26.88
		1	12	26.33	26.39	26.64
		1	24	26.30	26.39	26.66
		12	0	25.44	25.53	25.84
		12	6	25.28	25.54	25.74
		12	13	25.42	25.45	25.78
		25	0	25.43	25.50	25.79

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18615	18900	19185
		Frequency (MHz)		1851.5	1880	1908.5
3M	QPSK	1	0	28.38	28.53	28.86
		1	7	28.35	28.33	28.67
		1	14	28.18	28.33	28.60
		8	0	27.45	27.59	27.83
		8	3	27.48	27.49	27.75
		8	7	27.32	27.39	27.79
		15	0	27.34	27.48	27.88
3M	16QAM	1	0	27.70	27.71	28.18
		1	7	27.74	27.79	27.99
		1	14	27.61	27.64	27.85
		8	0	26.50	26.62	26.86
		8	3	26.48	26.53	26.77
		8	7	26.44	26.59	26.89
		15	0	26.42	26.50	26.84
3M	64QAM	1	0	26.46	26.52	26.86
		1	7	26.32	26.43	26.72
		1	14	26.22	26.28	26.53
		8	0	25.55	25.47	25.92
		8	3	25.43	25.52	25.79
		8	7	25.38	25.50	25.75
		15	0	25.43	25.61	25.80

LTE Band 2						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		18607	18900	19193
		Frequency (MHz)		1850.7	1880	1909.3
1.4M	QPSK	1	0	28.46	28.66	28.93
		1	2	28.27	28.45	28.79
		1	5	28.23	28.29	28.47
		3	0	28.41	28.46	28.83
		3	1	28.35	28.46	28.78
		3	3	28.38	28.47	28.72
		6	0	27.43	27.42	27.88
1.4M	16QAM	1	0	27.76	27.80	28.16
		1	2	27.76	27.86	28.09
		1	5	27.57	27.67	27.96
		3	0	27.50	27.68	27.89
		3	1	27.46	27.61	27.73
		3	3	27.37	27.52	27.85
		6	0	26.38	26.54	26.86
1.4M	64QAM	1	0	26.42	26.63	26.89
		1	2	26.27	26.35	26.63
		1	5	26.20	26.37	26.69
		3	0	26.44	26.56	26.87
		3	1	26.36	26.54	26.67
		3	3	26.43	26.52	26.69
		6	0	25.43	25.47	25.76

4.2 Radiated Emission Measurement

4.2.1 Limits of Radiated Emission Measurement

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. The emission limit equal to -13dBm .

4.2.2 Test Procedure

- a. In the semi-anechoic chamber, EUT placed on the 0.8m(below or equal 1GHz) and/or 1.5m(above 1GHz) 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 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- c. Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.
- d. Following C63.26 section 5.5 and 5.2.7
 - $\text{EIRP (dBm)} = E (\text{dB}\mu\text{V/m}) + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m.
 - $\text{ERP (dBm)} = E (\text{dB}\mu\text{V/m}) + 20\log(D) - 104.8 - 2.15$; where D is the measurement distance (in the far field region) in m.

Note:

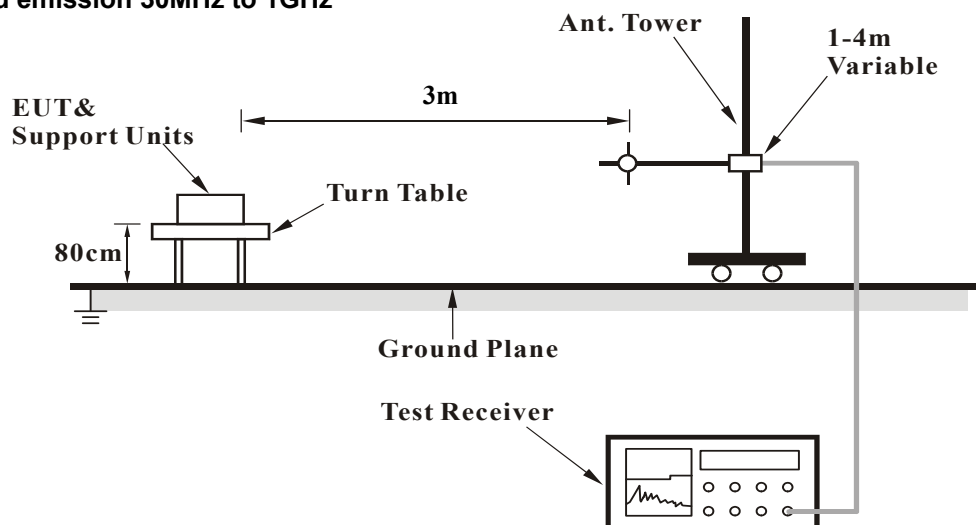
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.
2. The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

4.2.3 Deviation from Test Standard

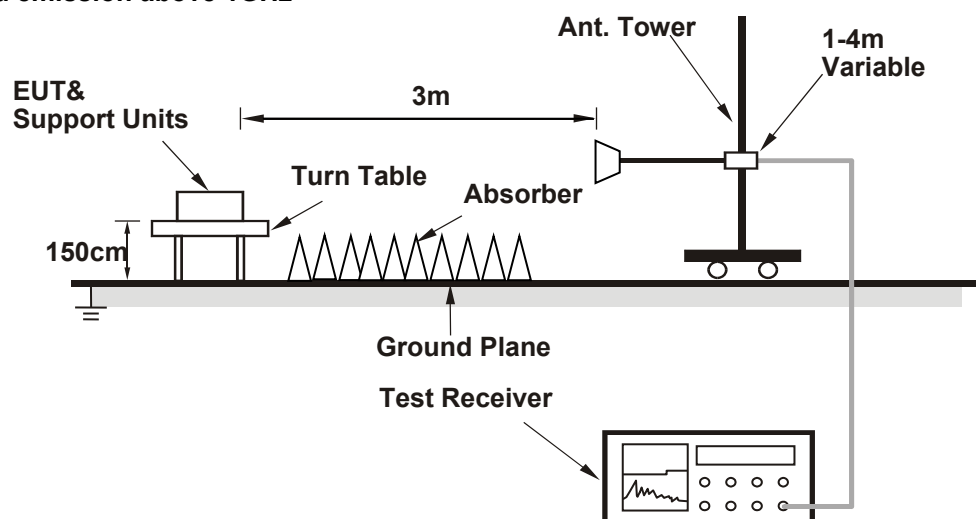
No deviation.

4.2.4 Test Setup

For radiated emission 30MHz to 1GHz



For radiated emission above 1GHz



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

4.2.5 Test Results

Below 1GHz

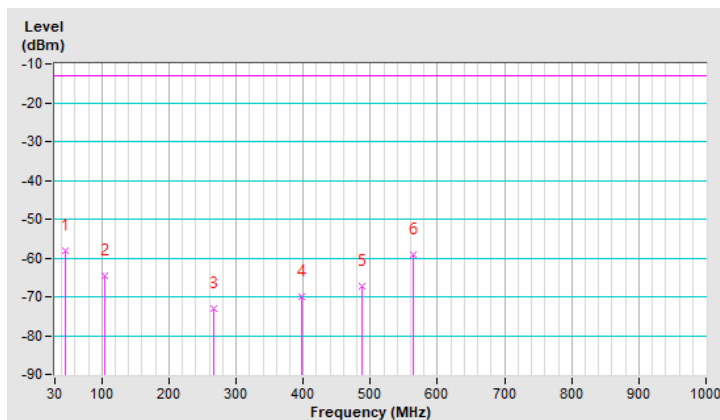
WCDMA Band 2

Mode	TX channel 9400 (1880.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Titan Hsu		

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	45.46	-58.20	-13.00	-45.20	1.50 H	2	55.70	-113.90
2	104.51	-64.60	-13.00	-51.60	1.50 H	288	53.20	-117.80
3	267.58	-73.00	-13.00	-60.00	1.50 H	33	41.20	-114.20
4	398.32	-69.90	-13.00	-56.90	1.01 H	252	40.70	-110.60
5	488.29	-67.30	-13.00	-54.30	1.50 H	2	41.10	-108.40
6	564.20	-59.20	-13.00	-46.20	1.50 H	62	47.70	-106.90

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.

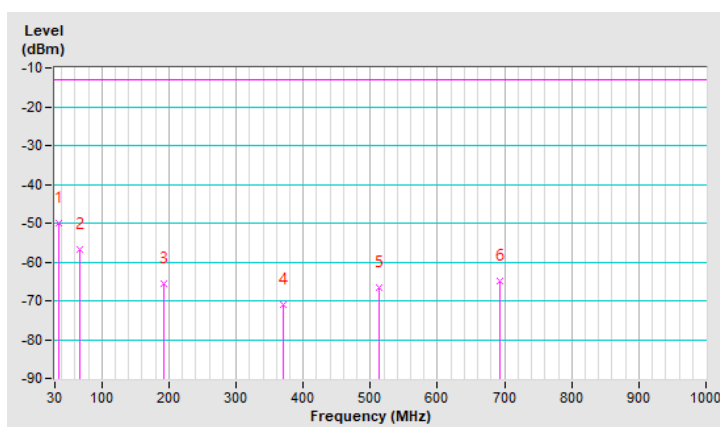


Mode	TX channel 9400 (1880.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Titan Hsu		

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	35.62	-50.00	-13.00	-37.00	1.00 V	217	64.80	-114.80
2	66.55	-56.70	-13.00	-43.70	1.00 V	70	58.80	-115.50
3	191.67	-65.50	-13.00	-52.50	1.00 V	195	51.00	-116.50
4	370.20	-71.00	-13.00	-58.00	1.00 V	124	40.10	-111.10
5	513.59	-66.50	-13.00	-53.50	1.49 V	176	41.40	-107.90
6	692.13	-64.80	-13.00	-51.80	1.00 V	2	39.90	-104.70

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.



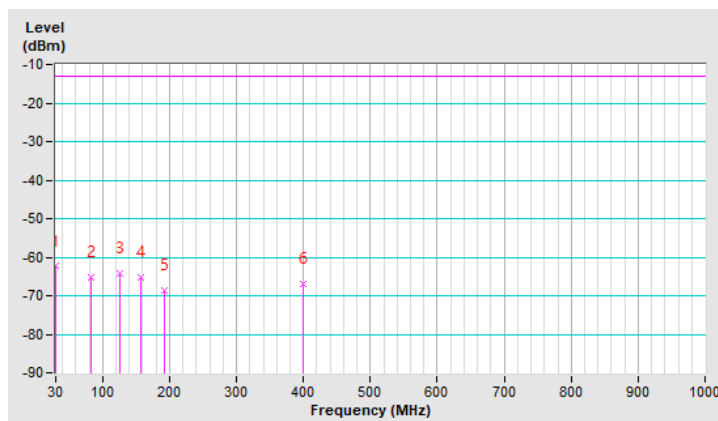
LTE Band 2, Channel Bandwidth 20MHz

Mode	TX channel 19100 (1900.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Raymond Lee		

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	-62.40	-13.00	-49.40	2.00 H	129	52.70	-115.10
2	83.42	-65.20	-13.00	-52.20	2.00 H	82	54.30	-119.50
3	125.59	-64.10	-13.00	-51.10	1.51 H	269	51.10	-115.20
4	157.93	-65.40	-13.00	-52.40	1.51 H	88	47.90	-113.30
5	193.07	-68.80	-13.00	-55.80	1.51 H	196	47.90	-116.70
6	399.72	-66.80	-13.00	-53.80	1.01 H	188	43.80	-110.60

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.

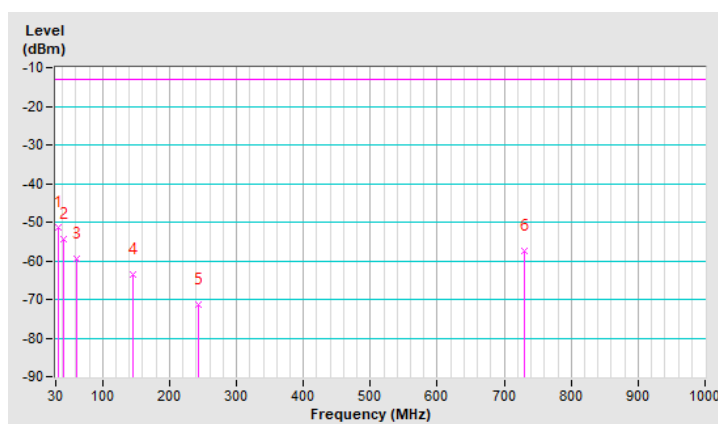


Mode	TX channel 19100 (1900.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Raymond Lee		

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	34.22	-51.40	-13.00	-38.40	1.99 V	56	63.40	-114.80
2	42.65	-54.40	-13.00	-41.40	1.49 V	2	59.60	-114.00
3	60.93	-59.40	-13.00	-46.40	1.00 V	244	55.40	-114.80
4	145.28	-63.50	-13.00	-50.50	1.00 V	120	50.00	-113.50
5	242.28	-71.30	-13.00	-58.30	1.00 V	311	43.70	-115.00
6	730.09	-57.60	-13.00	-44.60	1.99 V	232	46.10	-103.70

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
WCDMA Band 2

Mode	TX channel 9262 (1852.4MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	24deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Raymond Lee		

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	3704.80	-52.03	-13.00	-39.03	1.10 H	306	44.11	-96.14
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	3704.80	-51.89	-13.00	-38.89	2.42 V	262	44.25	-96.14

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.

Mode	TX channel 9400 (1880.0MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	24deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Raymond Lee		

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	3760.00	-51.42	-13.00	-38.42	1.13 H	308	44.45	-95.87
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	3760.00	-50.28	-13.00	-37.28	2.45 V	268	45.59	-95.87

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.

Mode	TX channel 9538 (1907.6MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	24deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Raymond Lee		

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	3815.20	-50.55	-13.00	-37.55	1.15 H	308	45.13	-95.68
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	3815.20	-50.98	-13.00	-37.98	2.46 V	269	44.70	-95.68

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.

LTE Band 2, Channel Bandwidth 1.4MHz

Mode	TX channel 18607 (1850.7MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	24deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Raymond Lee		

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	3701.40	-49.85	-13.00	-36.85	1.98 H	309	46.30	-96.15
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	3701.40	-50.09	-13.00	-37.09	3.09 V	267	46.06	-96.15

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.

Mode	TX channel 18900 (1880.0MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	24deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Raymond Lee		

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	3760.00	-49.36	-13.00	-36.36	1.99 H	312	46.51	-95.87
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	3760.00	-50.18	-13.00	-37.18	3.11 V	269	45.69	-95.87

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.

Mode	TX channel 19193 (1909.3MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	24deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Raymond Lee		

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	3818.60	-49.68	-13.00	-36.68	2.00 H	315	45.99	-95.67
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	3818.60	-49.32	-13.00	-36.32	3.14 V	269	46.35	-95.67

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.

LTE Band 2, Channel Bandwidth 5MHz

Mode	TX channel 18625 (1852.5MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	24deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Raymond Lee		

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	3705.00	-50.31	-13.00	-37.31	1.96 H	305	45.82	-96.13
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	3705.00	-50.17	-13.00	-37.17	3.14 V	266	45.96	-96.13

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.

Mode	TX channel 18900 (1880.0MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	24deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Raymond Lee		

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	3760.00	-50.20	-13.00	-37.20	2.05 H	302	45.67	-95.87
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	3760.00	-50.25	-13.00	-37.25	3.17 V	269	45.62	-95.87

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.

Mode	TX channel 19175 (1907.5MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	24deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Raymond Lee		

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	3815.00	-49.67	-13.00	-36.67	1.97 H	307	46.01	-95.68
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	3815.00	-49.58	-13.00	-36.58	3.12 V	264	46.10	-95.68

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.

LTE Band 2, Channel Bandwidth 20MHz

Mode	TX channel 18700 (1860.0MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	24deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Raymond Lee		

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	3720.00	-49.93	-13.00	-36.93	1.94 H	313	46.14	-96.07
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	3720.00	-50.00	-13.00	-37.00	3.11 V	265	46.07	-96.07

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.

Mode	TX channel 18900 (1880.0MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	24deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Raymond Lee		

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	3760.00	-49.72	-13.00	-36.72	1.91 H	307	46.15	-95.87
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	3760.00	-49.98	-13.00	-36.98	3.17 V	263	45.89	-95.87

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.

Mode	TX channel 19100 (1900.0MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	24deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Raymond Lee		

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	3800.00	-49.75	-13.00	-36.75	1.93 H	305	45.93	-95.68
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	3800.00	-49.28	-13.00	-36.28	3.10 V	270	46.40	-95.68

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 and approved according to ISO/IEC 17025.

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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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