

Partial FCC Test Report (Part 27 – CA mode (LTE Band 7C, 41C))

Report No.: RFCDVB-WTW-P22100074-6

FCC ID: QYLEM9190V

Test Model: EM9190

Received Date: Nov. 15, 2022

Test Date: Nov. 29, 2022 ~ Jan. 30, 2023

Issued Date: Apr. 24, 2023

Applicant: Getac Technology Corporation.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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33383, TAIWAN

**FCC Registration /
Designation Number:** 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
RFCDVB-WTW-P22100074-6	Original Release	Apr. 24, 2023

1 Certificate of Conformity

Product: Radio Module

Brand: Getac

Test Model: EM9190

Sample Status: Engineering Sample

Applicant: Getac Technology Corporation.

Test Date: Nov. 29, 2022 ~ Jan. 30, 2023

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 : Vera Huang , **Date:** Apr. 24, 2023
Vera Huang / Specialist

Approved by : Jeremy Lin , **Date:** Apr. 24, 2023
Jeremy Lin / 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 Isotropically 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	Emission Bandwidth	N/A	Refer to Note
2.1051 27.53 (m)(4)(6)	Channel Edge / Out of Band Emission Measurements	N/A	Refer to Note
--	Peak To Average Ratio	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 -3.57dB at 5360.00MHz.

Note:

1. This report is a Class II change partial report. Therefore, only test item of Radiated Spurious Emissions tests and Effective Radiated Power were performed for this report. Other testing data please refer to Sporton International (Shenzhen) Inc. report no.: FG021501D_R02 for module (Brand: Airprime, Model: EM9190).
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	3.59 dB
	30 MHz ~ 1000 MHz	3.6 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

2.3 Test Site and Instruments

Description & Manufacturer	Model no.	Serial No.	Calibrated Date	Calibrated Until
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
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 27, 2022	Apr. 26, 2023
Spectrum Analyzer R&S	FSW43	101867	Jan. 07, 2022	Jan. 06, 2023
			Dec. 30, 2022	Dec. 29, 2023
Loop Antenna TESEQ	HLA 6121	45745	Jul. 27, 2022	Jul. 26, 2023
Loop Antenna EMCI	EM-6879	269	Sep. 19, 2022	Sep. 18, 2023
Pre-amplifier EMCI	EMC001340	980201	Sep. 23, 2022	Sep. 22, 2023
RF Coaxial Cable EMCI	5D-NM-BM	140903+140902	Jan. 15, 2022	Jan. 14, 2023
			Jan. 07, 2023	Jan. 06, 2024
Preamplifier Agilent	8447D	2944A10638	May 14, 2022	May 13, 2023
Bi_Log Antenna Schwarzbeck	VULB9168	9168-160	Oct. 20, 2022	Oct. 19, 2023
RF Coaxial Cable WOKEN	8D-FB	Cable-CH9-01	May 14, 2022	May 13, 2023
Horn Antenna Schwarzbeck	9120D	9120D-1169	Nov. 13, 2022	Nov. 12, 2023
Preamplifier Agilent	8449B	3008A02367	Feb. 16, 2022	Feb. 15, 2023
RF Coaxial Cable HUBER+SUHNER&EMCI	SUCOFLEX 104& EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	Jan. 15, 2022	Jan. 14, 2023
			Jan. 07, 2023	Jan. 06, 2024
RF Coaxial Cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9- (250795/4)	Jan. 15, 2022	Jan. 14, 2023
			Jan. 07, 2023	Jan. 06, 2024
RF FLITER MICRO-TRONICS	BRM50716	060	Jan. 10, 2022	Jan. 09, 2023
			Jan. 11, 2023	Jan. 10, 2024
RF FLITER MICRO-TRONICS	BRM17690	004	Jan. 10, 2022	Jan. 09, 2023
			Jan. 11, 2023	Jan. 10, 2024
Boresight antenna tower fixture BV	BAF-02	5	NA	NA
Pre-Amplifier EMCI	EMC 184045	980116	Oct. 01, 2022	Sep. 30, 2023
Horn Antenna Schwarzbeck	BBHA 9170	9170-480	Nov. 13, 2022	Nov. 12, 2023
Horn Antenna Schwarzbeck	BBHA 9170	BBHA9170243	Nov. 13, 2022	Nov. 12, 2023
RF Coaxial Cable EMCI	EMC102-KM-KM-3000	150929	Jul. 09, 2022	Jul. 08, 2023
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	Jul. 09, 2022	Jul. 08, 2023
Boresight antenna tower fixture BV	BAF-02	5	NA	NA
Radio Communication Analyzer Anritsu	MT8821C	6201462755	Mar. 03, 2022	Mar. 02, 2023

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 HY - 966 chamber 4.

3 General Information

3.1 General Description of EUT

Product	Radio Module	
Brand	Getac	
Test Model	EM9190	
Status of EUT	Engineering Sample	
Power Supply Rating	3.3 Vdc (Host equipment)	
Modulation Type	QPSK, 16QAM, 64QAM, 256QAM	
Operating Frequency	LTE Band 7C	2510.0MHz ~ 2560.0MHz
	LTE Band 41C	2506.0MHz ~ 2680.0MHz
Max. EIRP Power	LTE Band 7C (20MHz + 20MHz)	304.789mW (24.84dBm)
	LTE Band 7C (20MHz+15MHz)	299.916mW (24.77dBm)
	LTE Band 41C (20MHz + 20MHz)	372.392mW (25.71dBm)
	LTE Band 41C (15MHz+10MHz)	358.096mW (25.54dBm)
	LTE Band 41C (20MHz+15MHz)	355.631mW (25.51dBm)
Antenna Type	Refer to Note as below	
Accessory Device	N/A	
Cable Supplied	N/A	

Note:

1. The EUT is authorized for use in specific End-product.

Product	Brand	Model	Difference
Notebook	Getac	V110	For marketing purpose
		V110G7	
		V110Y (Y= 10 characters, Y can be 0 to 9, A to Z, a to z, “/”, “\”, “-”, “_” or blank for marketing purpose)	

* The model of the V110G7 was chosen for final test.

2. The antenna information is listed as below.

Antenna Type	Antenna Gain (dBi)	
	LTE B7	LTE B41
PIFA	1.92	2.82

* Detail antenna specification please refer to antenna datasheet or an antenna gain measurement report.

3. The End-product contains following accessory devices.

Part	Brand	Model	Specification
Adapter 1	FSP	FSP065-RBBN3	I/P: 100-240Vac, 50-60Hz, 1.5A O/P: 19.0Vdc, 3.42A 1.5m DC power cable with one core attached on adapter
Adapter 2	Getac	MTA190474W4	I/P: 100-240Vac, 50-60Hz, 1.6A O/P: 19.0Vdc, 4.74A 1.55m DC power cable with two cores attached on adapter
Battery	Getac	BP3S1P2100-S	Rating: 11.1Vdc, 2040mAh, 23Wh Typical name: 2100mAh, 24Wh
Digitizer Pen	EMpen Technology Corp	DIGITIZER PEN	-

4. The End-product has three SKUs for sale, after pre-test. SKU 3 was chosen for final test and presented in the test report.

Part	Brand	Model	Specification	Configuration		
				SKU 1	SKU 2	SKU 3
CPU	Intel	Alder Lake	i5-1235U (Non Vpro)	V		V
			i7-1265U (Vpro)		V	
DDR	Kingston	---	16GB (8GB+8GB)	V		
		---	32GB (16GB+16GB)		V	
		---	64GB (32GB+32GB)			V
SSD	SSSTC	---	256GB	V		
		---	512GB		V	
		---	1TB			V
LCD Panel	AUO	G116HAN01	11.6"	V	V	V
Finger Print	Egistec	---	---	V	V	V
WLAN Module	Intel	AX211NGW	---	V	V	V
WWAN Module	Sierra	EM9190	---	V	V	V
GPS	GlobalSat	MC1010G	---	V	V	V
RFID Module	NXP	PN-7462	---		V	V
Digitizer Module	Getac	EMR116-UA00	---		V	V
Bottom Camera	FOXLINK	FN80AF-443H	---	V	V	V
	Chicony	CKAM816	---	V	V	V
Camera	FOXLINK	FN20FF-679H	---	V	V	V
IR Camera	FOXLINK	FN23FF-678H	---		V	V
Option Bay	Honeywell	N6703	Barcode	V		V
	Getac	---	SD Card reader		V	
	Getac	---	Smart Card		V	

5. 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.

6. The EUT support the following CA Configuration.

Band Configuration
7C
41C

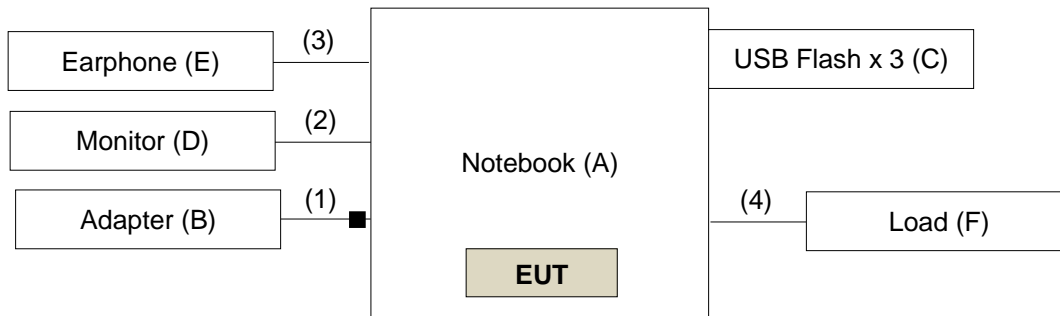
7. E-UTRA CA configuration / Bandwidth combination set.

E-UTRA CA configuration / Bandwidth combination set		
E-UTRA CA Configuration	Component carriers in order of increasing carrier frequency Channel bandwidth for PCC and SCC [MHz]	Maximum aggregated bandwidth [MHz]
CA_7C	15+10	25
	10+20 / 20+10 / 15+15	30
	15+20 / 20+15	35
	20 + 20	40
CA_41C	5+20 / 20+5 / 10+15 / 15+10	25
	10+20 / 20+10 / 15+15	30
	15+20 / 20+15	35
	20+20	40

*After pretesting, 7C is continuous CA and maximum combination is 20M+20M.

* After pretesting, 41C is continuous CA and maximum combination is 20M+20M.

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.	Notebook	Getac	V110G7	NA	NA	Provided by manufacturer
B.	Adapter	FSP	FSP065-RBBN3	NA	NA	Provided by manufacturer
C.	USB Flash x 3	SanDisk	SDDDC3-032G	NA	NA	-
D.	Monitor	ASUS	VA24EHE	LCLMTF243824	NA	-
E.	Earphone	Apple	MB77PFEB	NA	NA	-
F.	Load	NA	NA	NA	NA	-
G.	Radio Communication Analyzer	Anritsu	MT8821C	6201462755	NA	-

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC Power Cable	1	1.5	N	1	Provided by manufacturer Attached on adapter
2.	HDMI Cable	1	1.0	Y	0	-
3.	Earphone Cable	1	1.5	N	0	-
4.	RJ45 Cable	1	1.5	N	0	-

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 for tablet mode, and NB mode. 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 7C	NB mode
LTE Band 41C	NB mode

LTE Band 7C

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	EIRP	20850 to 21152 21048 to 21350	20850 (2510.0MHz) + 21048 (2529.8MHz), 21001 (2525.1MHz) + 21199 (2544.9MHz), 21152 (2540.2MHz) + 21350 (2560.0MHz)	20MHz + 20MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset + 1 RB / 99 RB Offset 1 RB / 99 RB Offset + 1 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	20850 to 21152 21048 to 21350	20850 (2510.0MHz) + 21048 (2529.8MHz)	20MHz + 20MHz	QPSK	1 RB / 99 RB Offset + 1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	20850 to 21152 21048 to 21350	20850 (2510.0MHz) + 21048 (2529.8MHz), 21001 (2525.1MHz) + 21199 (2544.9MHz), 21152 (2540.2MHz) + 21350 (2560.0MHz)	20MHz + 20MHz	QPSK	1 RB / 99 RB Offset + 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 below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.

LTE Band 41C

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	EIRP	39750 to 41292 39948 to 41490	39750 (2506.0MHz) + 39948 (2525.8MHz), 40529 (2583.9MHz) + 40712 (2602.2MHz), 41292 (2660.2MHz) + 41490 (2680.0MHz)	20MHz + 20MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset + 1 RB / 99 RB Offset 1 RB / 99 RB Offset + 1 RB / 0 RB Offset
		39725 to 41417 39845 to 41537	39725(2503.5MHz)+ 39845(2515.5MHz), 40571(2588.1MHz)+ 40691(2600.1MHz), 41417(2672.7MHz)+ 41537(2684.7MHz)	15MHz + 10MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset + 1 RB / 99 RB Offset 1 RB / 99 RB Offset + 1 RB / 0 RB Offset
		39750 to 41341 39921 to 51512	39750(2506.0MHz)+ 39921(2523.1MHz), 40529 (2583.9MHz)+ 40717(2602.7MHz), 41292 (2660.2MHz)+ 41512(2682.2MHz)	20MHz + 15MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset + 1 RB / 99 RB Offset 1 RB / 99 RB Offset + 1 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	39750 to 41292 39948 to 41490	40529 (2583.9MHz) + 40712 (2602.2MHz)	20MHz + 20MHz	QPSK	1 RB / 99 RB Offset + 1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	39750 to 41292 39948 to 41490	39750 (2506.0MHz) + 39948 (2525.8MHz), 40529 (2583.9MHz) + 40712 (2602.2MHz), 41292 (2660.2MHz) + 41490 (2680.0MHz)	20MHz + 20MHz	QPSK	1 RB / 99 RB Offset + 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 below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
EIRP	25deg. C, 60%RH	120Vac, 60Hz (System)	Willy Cheng
Radiated Emission	21deg. C, 68%RH 23deg. C, 67%RH	120Vac, 60Hz (System)	Greg Lin Adair Peng

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 and References:

Test Standard:

FCC 47 CFR Part 2

FCC 47 CFR Part 27

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 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

Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

4.1.2 Test Procedures

Conducted Power Measurement:

The EUT was set up for the maximum power with 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)

LTE Band 7C

Con- figure	Com- bination	PCC							SCC							Measurement Power	
		Band	BW (MHz)	Modu- lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Band	BW (MHz)	Modu- lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Tx Power with UL-CA Active (dBm)	
																Total	
Intra Band Conti- guous	CA_7C	7	20	QPSK	1	0	20850	2510	7	20	QPSK	1	99	21048	2529.8	16.11	
					1	99						22.92					
		7	20	QPSK	1	0	21001	2525.1	7	20	QPSK	1	99	21199	2544.9	16.01	
					1	99						22.81					
		7	20	QPSK	1	0	21152	2540.2	7	20	QPSK	1	99	21350	2560	16.06	
					1	99						22.85					
Intra Band Conti- guous	CA_7C	7	20	16QAM	1	0	20850	2510	7	20	16QAM	1	99	21048	2529.8	14.83	
					1	99						21.73					
		7	20	16QAM	1	0	21001	2525.1	7	20	16QAM	1	99	21199	2544.9	14.70	
1	99				21.45												
7	20	16QAM	1	0	21152	2540.2	7	20	16QAM	1	99	21350	2560	14.89			
			1	99						21.61							
Intra Band Conti- guous	CA_7C	7	20	64QAM	1	0	20850	2510	7	20	64QAM	1	99	21048	2529.8	14.31	
					1	99						21.36					
		7	20	64QAM	1	0	21001	2525.1	7	20	64QAM	1	99	21199	2544.9	14.28	
1	99				21.02												
7	20	64QAM	1	0	21152	2540.2	7	20	64QAM	1	99	21350	2560	14.50			
			1	99						21.08							
Intra Band Conti- guous	CA_7C	7	20	256 QAM	1	0	20850	2510	7	20	256 QAM	1	99	21048	2529.8	13.91	
					1	99						20.81					
		7	20	256 QAM	1	0	21001	2525.1	7	20	256 QAM	1	99	21199	2544.9	13.92	
1	99				20.65												
7	20	256 QAM	1	0	21152	2540.2	7	20	256 QAM	1	99	21350	2560	14.04			
			1	99						20.58							

Con-figuration	Com-bination	PCC							SCC							Measurement Power
		Band	BW (MHz)	Modu-lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Band	BW (MHz)	Modu-lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Tx Power with UL-CA Active (dBm)
																Total
Intra Band Conti-guous	CA_7C	7	20	QPSK	1	0	20850	2510	7	15	QPSK	1	99	21021	2527.1	15.96
					1	99						1	0			22.85
		7	20	QPSK	1	0	21001	2525.1	7	15	QPSK	1	99	21197	2544.7	15.88
					1	99						1	0			22.63
		7	20	QPSK	1	0	21152	2540.2	7	15	QPSK	1	99	21372	2562.2	15.91
					1	99						1	0			22.72
Con-figuration	Com-bination	PCC							SCC							Measurement Power
		Band	BW (MHz)	Modu-lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Band	BW (MHz)	Modu-lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Tx Power with UL-CA Active (dBm)
Total																
Intra Band Conti-guous	CA_7C	7	20	16QAM	1	0	20850	2510	7	15	16QAM	1	99	21021	2527.1	14.74
					1	99						1	0			21.64
		7	20	16QAM	1	0	21001	2525.1	7	15	16QAM	1	99	21197	2544.7	14.64
					1	99						1	0			21.30
		7	20	16QAM	1	0	21152	2540.2	7	15	16QAM	1	99	21372	2562.2	14.72
					1	99						1	0			21.47
Con-figuration	Com-bination	PCC							SCC							Measurement Power
		Band	BW (MHz)	Modu-lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Band	BW (MHz)	Modu-lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Tx Power with UL-CA Active (dBm)
Total																
Intra Band Conti-guous	CA_7C	7	20	64QAM	1	0	20850	2510	7	15	64QAM	1	99	21021	2527.1	14.18
					1	99						1	0			21.23
		7	20	64QAM	1	0	21001	2525.1	7	15	64QAM	1	99	21197	2544.7	14.10
					1	99						1	0			20.86
		7	20	64QAM	1	0	21152	2540.2	7	15	64QAM	1	99	21372	2562.2	14.38
					1	99						1	0			20.89
Con-figuration	Com-bination	PCC							SCC							Measurement Power
		Band	BW (MHz)	Modu-lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Band	BW (MHz)	Modu-lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Tx Power with UL-CA Active (dBm)
Total																
Intra Band Conti-guous	CA_7C	7	20	256 QAM	1	0	20850	2510	7	15	256 QAM	1	99	21021	2527.1	13.79
					1	99						1	0			20.71
		7	20	256 QAM	1	0	21001	2525.1	7	15	256 QAM	1	99	21197	2544.7	13.80
					1	99						1	0			20.50
		7	20	256 QAM	1	0	21152	2540.2	7	15	256 QAM	1	99	21372	2562.2	13.99
					1	99						1	0			20.42

LTE Band 41C

Con-figuration	Com-bination	PCC							SCC							Measurement Power		
		Band	BW (MHz)	Modu-lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Band	BW (MHz)	Modu-lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Tx Power with UL-CA Active (dBm)		
																Total		
Intra Band Conti-guous	CA_41C	41	20	QPSK	1	0	39750	2506	41	20	QPSK	1	99	39948	2525.8	15.26		
					1	99						22.81						
		41	20	QPSK	1	0	40529	2583.9	41	20	QPSK	1	99	40712	2602.2	15.37		
					1	99						22.89						
		41	20	QPSK	1	0	41292	2660.2	41	20	QPSK	1	99	41490	2680	15.37		
					1	99						22.86						
Intra Band Conti-guous	CA_41C	41	20	16QAM	1	0	39750	2506	41	20	16QAM	1	99	39948	2525.8	13.69		
					1	99						21.67						
		41	20	16QAM	1	0	40529	2583.9	41	20	16QAM	1	99	40712	2602.2	14.21		
1	99				21.60													
Intra Band Conti-guous	CA_41C	41	20	16QAM	1	0	41292	2660.2	41	20	16QAM	1	99	41490	2680	14.00		
					1	99						21.42						
Intra Band Conti-guous	CA_41C	41	20	64QAM	1	0	39750	2506	41	20	64QAM	1	99	39948	2525.8	13.34		
					1	99						21.10						
		41	20	64QAM	1	0	40529	2583.9	41	20	64QAM	1	99	40712	2602.2	13.54		
1	99				20.95													
Intra Band Conti-guous	CA_41C	41	20	64QAM	1	0	41292	2660.2	41	20	64QAM	1	99	41490	2680	13.26		
					1	99						20.97						
Intra Band Conti-guous	CA_41C	41	20	256 QAM	1	0	39750	2506	41	20	256 QAM	1	99	39948	2525.8	12.72		
					1	99						20.48						
		41	20	256 QAM	1	0	40529	2583.9	41	20	256 QAM	1	99	40712	2602.2	13.13		
					1	99						20.64						
		Intra Band Conti-guous	CA_41C	41	20	256 QAM	1	0	41292	2660.2	41	20	256 QAM	1	99	41490	2680	12.93
							1	99						20.50				

Con-figuration	Com-bination	PCC								SCC								Measurement Power	
		Band	BW (MHz)	Modu-lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Band	BW (MHz)	Modu-lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Tx Power with UL-CA Active (dBm)			
																Total			
Intra Band Conti-guous	CA_41C	41	15	QPSK	1	0	39725	2503.5	41	10	QPSK	1	99	39845	2515.5	15.04			
					1	99						22.65							
		41	15	QPSK	1	0	40571	2588.1	41	10	QPSK	1	99	40691	2600.1	15.21			
					1	99						22.72							
		41	15	QPSK	1	0	41417	2672.7	41	10	QPSK	1	99	41537	2684.7	15.18			
					1	99						22.66							
Intra Band Conti-guous	CA_41C	41	15	16QAM	1	0	39725	2503.5	41	10	16QAM	1	99	39845	2515.5	13.39			
					1	99						21.37							
		41	15	16QAM	1	0	40571	2588.1	41	10	16QAM	1	99	40691	2600.1	14.01			
1	99				21.11														
Intra Band Conti-guous	CA_41C	41	15	16QAM	1	0	41417	2672.7	41	10	16QAM	1	99	41537	2684.7	13.91			
					1	99						21.30							
Intra Band Conti-guous	CA_41C	41	15	64QAM	1	0	39725	2503.5	41	10	64QAM	1	99	39845	2515.5	12.96			
					1	99						20.84							
		41	15	64QAM	1	0	40571	2588.1	41	10	64QAM	1	99	40691	2600.1	13.09			
1	99				20.69														
Intra Band Conti-guous	CA_41C	41	15	64QAM	1	0	41417	2672.7	41	10	64QAM	1	99	41537	2684.7	13.14			
					1	99						20.59							
Intra Band Conti-guous	CA_41C	41	15	256 QAM	1	0	39725	2503.5	41	10	256 QAM	1	99	39845	2515.5	12.48			
					1	99						20.25							
		41	15	256 QAM	1	0	40571	2588.1	41	10	256 QAM	1	99	40691	2600.1	12.86			
1	99				20.34														
Intra Band Conti-guous	CA_41C	41	15	256 QAM	1	0	41417	2672.7	41	10	256 QAM	1	99	41537	2684.7	12.92			
					1	99						20.28							

Con- figure	Com- bination	PCC							SCC							Measurement Power
		Band	BW (MHz)	Modu- lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Band	BW (MHz)	Modu- lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Tx Power with UL-CA Active (dBm)
																Total
Intra Band Conti- guous	CA_ 41C	41	20	QPSK	1	0	39750	2506	41	15	QPSK	1	99	39921	2523.1	15.13
					1	99						22.68				
		41	20	QPSK	1	0	40529	2583.9	41	15	QPSK	1	99	40717	2602.7	15.26
					1	99						22.69				
		41	20	QPSK	1	0	41292	2660.2	41	15	QPSK	1	99	41512	2682.2	15.20
					1	99						22.69				
Intra Band Conti- guous	CA_ 41C	41	20	16QAM	1	0	39750	2506	41	15	16QAM	1	99	39921	2523.1	13.49
					1	99						21.55				
		41	20	16QAM	1	0	40529	2583.9	41	15	16QAM	1	99	40717	2602.7	14.02
1	99				21.44											
41	20	16QAM	1	0	41292	2660.2	41	15	16QAM	1	99	41512	2682.2	13.81		
			1	99						21.28						
Intra Band Conti- guous	CA_ 41C	41	20	64QAM	1	0	39750	2506	41	15	64QAM	1	99	39921	2523.1	13.19
					1	99						20.93				
		41	20	64QAM	1	0	40529	2583.9	41	15	64QAM	1	99	40717	2602.7	13.34
1	99				20.82											
41	20	64QAM	1	0	41292	2660.2	41	15	64QAM	1	99	41512	2682.2	13.13		
			1	99						20.89						
Intra Band Conti- guous	CA_ 41C	41	20	256 QAM	1	0	39750	2506	41	15	256 QAM	1	99	39921	2523.1	12.62
					1	99						20.36				
		41	20	256 QAM	1	0	40529	2583.9	41	15	256 QAM	1	99	40717	2602.7	13.03
1	99				20.44											
41	20	256 QAM	1	0	41292	2660.2	41	15	256 QAM	1	99	41512	2682.2	12.78		
			1	99						20.37						

EIRP Power (dBm)

LTE Band 7C

Con- figure	Com- bination	PCC							SCC							Measurement Power	
		Band	BW (MHz)	Modu- lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Band	BW (MHz)	Modu- lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Tx Power with UL-CA Active (dBm)	
																Total	
Intra Band Conti- guous	CA_7C	7	20	QPSK	1	0	20850	2510	7	20	QPSK	1	99	21048	2529.8	18.03	
					1	99						24.84					
		7	20	QPSK	1	0	21001	2525.1	7	20	QPSK	1	99	21199	2544.9	17.93	
					1	99						24.73					
		7	20	QPSK	1	0	21152	2540.2	7	20	QPSK	1	99	21350	2560	17.98	
					1	99						24.77					
Intra Band Conti- guous	CA_7C	7	20	16QAM	1	0	20850	2510	7	20	16QAM	1	99	21048	2529.8	16.75	
					1	99						23.65					
		7	20	16QAM	1	0	21001	2525.1	7	20	16QAM	1	99	21199	2544.9	16.62	
					1	99						23.37					
		7	20	16QAM	1	0	21152	2540.2	7	20	16QAM	1	99	21350	2560	16.81	
					1	99						23.53					
Intra Band Conti- guous	CA_7C	7	20	64QAM	1	0	20850	2510	7	20	64QAM	1	99	21048	2529.8	16.23	
					1	99						23.28					
		7	20	64QAM	1	0	21001	2525.1	7	20	64QAM	1	99	21199	2544.9	16.20	
					1	99						22.94					
		7	20	64QAM	1	0	21152	2540.2	7	20	64QAM	1	99	21350	2560	16.42	
					1	99						23.00					
Intra Band Conti- guous	CA_7C	7	20	256 QAM	1	0	20850	2510	7	20	256 QAM	1	99	21048	2529.8	15.83	
					1	99						22.73					
		7	20	256 QAM	1	0	21001	2525.1	7	20	256 QAM	1	99	21199	2544.9	15.84	
					1	99						22.57					
		7	20	256 QAM	1	0	21152	2540.2	7	20	256 QAM	1	99	21350	2560	15.96	
					1	99						22.50					

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

Con- figure	Com- bination	PCC							SCC							Measurement Power
		Band	BW (MHz)	Modu- lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Band	BW (MHz)	Modu- lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Tx Power with UL-CA Active (dBm)
																Total
Intra Band Conti- guous	CA_7C	7	20	QPSK	1	0	20850	2510	7	15	QPSK	1	99	21021	2527.1	17.88
					1	99						24.77				
		7	20	QPSK	1	0	21001	2525.1	7	15	QPSK	1	99	21197	2544.7	17.80
					1	99						24.55				
		7	20	QPSK	1	0	21152	2540.2	7	15	QPSK	1	99	21372	2562.2	17.83
					1	99						24.64				
Intra Band Conti- guous	CA_7C	7	20	16QAM	1	0	20850	2510	7	15	16QAM	1	99	21021	2527.1	16.66
					1	99						23.56				
		7	20	16QAM	1	0	21001	2525.1	7	15	16QAM	1	99	21197	2544.7	16.56
					1	99						23.22				
		7	20	16QAM	1	0	21152	2540.2	7	15	16QAM	1	99	21372	2562.2	16.64
					1	99						23.39				
Intra Band Conti- guous	CA_7C	7	20	64QAM	1	0	20850	2510	7	15	64QAM	1	99	21021	2527.1	16.10
					1	99						23.15				
		7	20	64QAM	1	0	21001	2525.1	7	15	64QAM	1	99	21197	2544.7	16.02
					1	99						22.78				
		7	20	64QAM	1	0	21152	2540.2	7	15	64QAM	1	99	21372	2562.2	16.30
					1	99						22.81				
Intra Band Conti- guous	CA_7C	7	20	256 QAM	1	0	20850	2510	7	15	256 QAM	1	99	21021	2527.1	15.71
					1	99						22.63				
		7	20	256 QAM	1	0	21001	2525.1	7	15	256 QAM	1	99	21197	2544.7	15.72
					1	99						22.42				
		7	20	256 QAM	1	0	21152	2540.2	7	15	256 QAM	1	99	21372	2562.2	15.91
					1	99						22.34				

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

LTE Band 41C

Con-figuration	Com-bination	PCC							SCC							Measurement Power
		Band	BW (MHz)	Modu-lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Band	BW (MHz)	Modu-lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Tx Power with UL-CA Active (dBm)
																Total
Intra Band Conti-guous	CA_41C	41	20	QPSK	1	0	39750	2506	41	20	QPSK	1	99	39948	2525.8	18.08
					1	99						25.63				
		41	20	QPSK	1	0	40529	2583.9	41	20	QPSK	1	99	40712	2602.2	18.19
					1	99						25.71				
		41	20	QPSK	1	0	41292	2660.2	41	20	QPSK	1	99	41490	2680	18.19
					1	99						25.68				
Con-figuration	Com-bination	PCC							SCC							Measurement Power
		Band	BW (MHz)	Modu-lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Band	BW (MHz)	Modu-lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Tx Power with UL-CA Active (dBm)
																Total
Intra Band Conti-guous	CA_41C	41	20	16QAM	1	0	39750	2506	41	20	16QAM	1	99	39948	2525.8	16.51
					1	99						24.49				
		41	20	16QAM	1	0	40529	2583.9	41	20	16QAM	1	99	40712	2602.2	17.03
					1	99						24.42				
		41	20	16QAM	1	0	41292	2660.2	41	20	16QAM	1	99	41490	2680	16.82
					1	99						24.24				
Con-figuration	Com-bination	PCC							SCC							Measurement Power
		Band	BW (MHz)	Modu-lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Band	BW (MHz)	Modu-lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Tx Power with UL-CA Active (dBm)
																Total
Intra Band Conti-guous	CA_41C	41	20	64QAM	1	0	39750	2506	41	20	64QAM	1	99	39948	2525.8	16.16
					1	99						23.92				
		41	20	64QAM	1	0	40529	2583.9	41	20	64QAM	1	99	40712	2602.2	16.36
					1	99						23.77				
		41	20	64QAM	1	0	41292	2660.2	41	20	64QAM	1	99	41490	2680	16.08
					1	99						23.79				
Con-figuration	Com-bination	PCC							SCC							Measurement Power
		Band	BW (MHz)	Modu-lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Band	BW (MHz)	Modu-lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Tx Power with UL-CA Active (dBm)
																Total
Intra Band Conti-guous	CA_41C	41	20	256 QAM	1	0	39750	2506	41	20	256 QAM	1	99	39948	2525.8	15.54
					1	99						23.30				
		41	20	256 QAM	1	0	40529	2583.9	41	20	256 QAM	1	99	40712	2602.2	15.95
					1	99						23.46				
		41	20	256 QAM	1	0	41292	2660.2	41	20	256 QAM	1	99	41490	2680	15.75
					1	99						23.32				

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

Con-figuration	Com-bination	PCC							SCC							Measurement Power	
		Band	BW (MHz)	Modu-lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Band	BW (MHz)	Modu-lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Tx Power with UL-CA Active (dBm)	
																Total	
Intra Band Conti-guous	CA_41C	41	15	QPSK	1	0	39725	2503.5	41	10	QPSK	1	99	39845	2515.5	17.86	
					1	99						25.47					
		41	15	QPSK	1	0	40571	2588.1	41	10	QPSK	1	99	40691	2600.1	18.03	
					1	99						25.54					
		41	15	QPSK	1	0	41417	2672.7	41	10	QPSK	1	99	41537	2684.7	18.00	
					1	99						25.48					
Intra Band Conti-guous	CA_41C	41	15	16QAM	1	0	39725	2503.5	41	10	16QAM	1	99	39845	2515.5	16.21	
					1	99						24.19					
		41	15	16QAM	1	0	40571	2588.1	41	10	16QAM	1	99	40691	2600.1	16.83	
					1	99						23.93					
		41	15	16QAM	1	0	41417	2672.7	41	10	16QAM	1	99	41537	2684.7	16.73	
					1	99						24.12					
Intra Band Conti-guous	CA_41C	41	15	64QAM	1	0	39725	2503.5	41	10	64QAM	1	99	39845	2515.5	15.78	
					1	99						23.66					
		41	15	64QAM	1	0	40571	2588.1	41	10	64QAM	1	99	40691	2600.1	15.91	
					1	99						23.51					
		41	15	64QAM	1	0	41417	2672.7	41	10	64QAM	1	99	41537	2684.7	15.96	
					1	99						23.41					
Intra Band Conti-guous	CA_41C	41	15	256 QAM	1	0	39725	2503.5	41	10	256 QAM	1	99	39845	2515.5	15.30	
					1	99						23.07					
		41	15	256 QAM	1	0	40571	2588.1	41	10	256 QAM	1	99	40691	2600.1	15.68	
					1	99						23.16					
		41	15	256 QAM	1	0	41417	2672.7	41	10	256 QAM	1	99	41537	2684.7	15.74	
					1	99						23.10					

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

Con- figure	Com- bination	PCC							SCC							Measurement Power
		Band	BW (MHz)	Modu- lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Band	BW (MHz)	Modu- lation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Tx Power with UL-CA Active (dBm)
																Total
Intra Band Conti- guous	CA_ 41C	41	20	QPSK	1	0	39750	2506	41	15	QPSK	1	99	39921	2523.1	17.95
					1	99						1	0			25.50
		41	20	QPSK	1	0	40529	2583.9	41	15	QPSK	1	99	40717	2602.7	18.08
					1	99						1	0			25.51
		41	20	QPSK	1	0	41292	2660.2	41	15	QPSK	1	99	41512	2682.2	18.02
					1	99						1	0			25.51
Intra Band Conti- guous	CA_ 41C	41	20	16QAM	1	0	39750	2506	41	15	16QAM	1	99	39921	2523.1	16.31
					1	99						1	0			24.37
		41	20	16QAM	1	0	40529	2583.9	41	15	16QAM	1	99	40717	2602.7	16.84
1	99				1	0						24.26				
41	20	16QAM	1	0	41292	2660.2	41	15	16QAM	1	99	41512	2682.2	16.63		
			1	99						1	0			24.10		
Intra Band Conti- guous	CA_ 41C	41	20	64QAM	1	0	39750	2506	41	15	64QAM	1	99	39921	2523.1	16.01
					1	99						1	0			23.75
		41	20	64QAM	1	0	40529	2583.9	41	15	64QAM	1	99	40717	2602.7	16.16
1	99				1	0						23.64				
41	20	64QAM	1	0	41292	2660.2	41	15	64QAM	1	99	41512	2682.2	15.95		
			1	99						1	0			23.71		
Intra Band Conti- guous	CA_ 41C	41	20	256 QAM	1	0	39750	2506	41	15	256 QAM	1	99	39921	2523.1	15.44
					1	99						1	0			23.18
		41	20	256 QAM	1	0	40529	2583.9	41	15	256 QAM	1	99	40717	2602.7	15.85
1	99				1	0						23.26				
41	20	256 QAM	1	0	41292	2660.2	41	15	256 QAM	1	99	41512	2682.2	15.60		
			1	99						1	0			23.19		

*EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

4.2 Radiated Emission Measurement

4.2.1 Limits of Radiated Emission Measurement

In the FCC 27.53(m) (4)(6), On any frequency outside a licensee's frequency block, The power of any emission shall be attenuated below the transmitter power (P) by at least $55 + 10 \log (P)$ dB. The emission limit equal to -25dBm .

4.2.2 Test Procedure

- a. 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. 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.
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.
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:

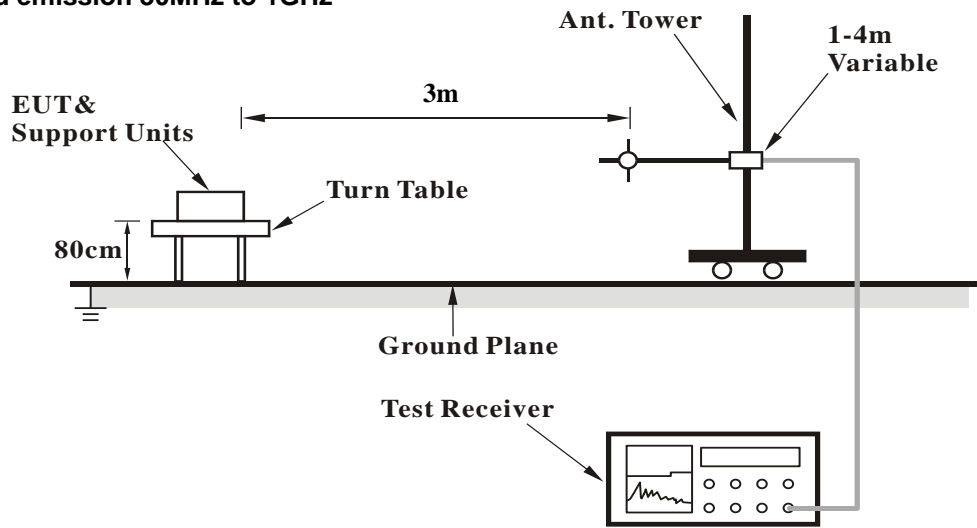
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.
2. The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

4.2.3 Deviation from Test Standard

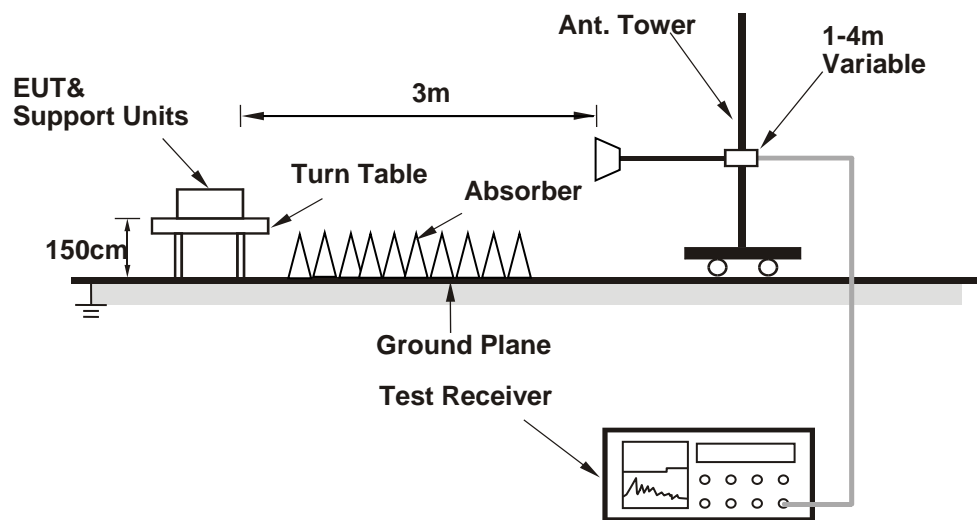
No deviation.

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

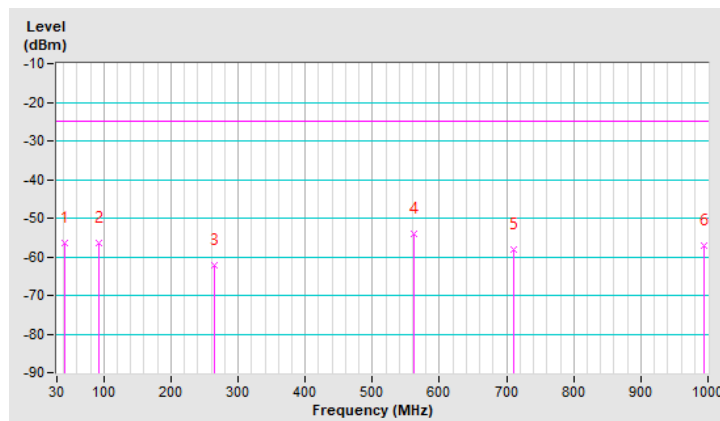
LTE Band 7C, Channel Bandwidth 20MHz + 20MHz (1 RB / 99 RB Offset + 1 RB / 0 RB Offset)

Mode	TX channel 20850 (2510.0MHz) +21048 (2529.8MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	21deg. C, 68%RH	Input Power	120Vac, 60Hz (System)
Tested By	Greg Lin		

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	41.64	-56.56	-25.00	-31.56	1.00 H	134	52.09	-108.65
2	92.08	-56.31	-25.00	-31.31	1.50 H	81	57.69	-114.00
3	264.74	-62.33	-25.00	-37.33	1.50 H	318	46.78	-109.11
4	561.56	-54.23	-25.00	-29.23	1.50 H	266	47.61	-101.84
5	710.94	-58.00	-25.00	-33.00	1.50 H	171	41.18	-99.18
6	993.21	-57.02	-25.00	-32.02	1.50 H	280	38.43	-95.45

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.

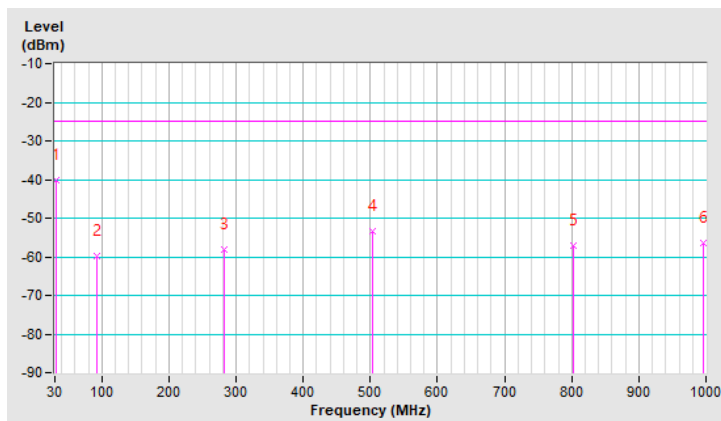


Mode	TX channel 20850 (2510.0MHz) +21048 (2529.8MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	21deg. C, 68%RH	Input Power	120Vac, 60Hz (System)
Tested By	Greg Lin		

Antenna Polarity & Test Distance : Vertical 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	32.91	-40.26	-25.00	-15.26	1.50 V	9	69.47	-109.73
2	92.08	-59.70	-25.00	-34.70	1.50 V	264	54.30	-114.00
3	282.20	-58.03	-25.00	-33.03	1.50 V	39	50.21	-108.24
4	503.36	-53.43	-25.00	-28.43	1.50 V	256	49.61	-103.04
5	802.12	-57.05	-25.00	-32.05	1.50 V	30	40.58	-97.63
6	996.12	-56.53	-25.00	-31.53	1.50 V	248	38.86	-95.39

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.



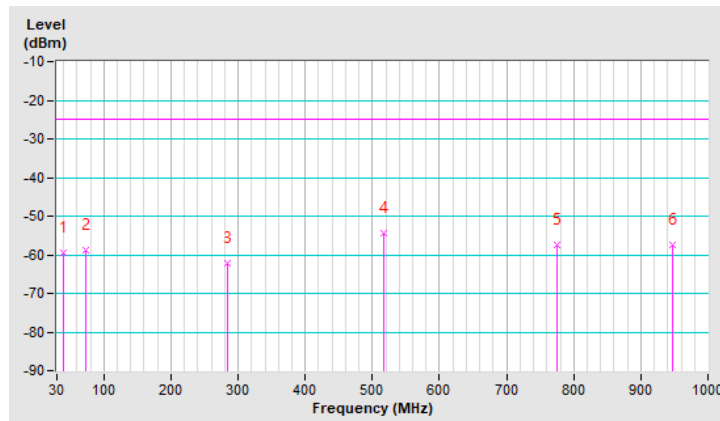
LTE Band 41C, Channel Bandwidth 20MHz + 20MHz (1 RB / 99 RB Offset + 1 RB / 0 RB Offset)

Mode	TX channel 40529 (2583.9MHz) + 40712 (2602.2MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	21deg. C, 68%RH	Input Power	120Vac, 60Hz (System)
Tested By	Greg Lin		

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	40.67	-59.55	-25.00	-34.55	1.50 H	239	49.25	-108.80
2	72.68	-58.68	-25.00	-33.68	1.50 H	17	52.98	-111.66
3	285.11	-62.32	-25.00	-37.32	1.50 H	231	45.81	-108.13
4	516.94	-54.30	-25.00	-29.30	1.50 H	283	48.41	-102.71
5	775.93	-57.56	-25.00	-32.56	1.50 H	215	40.39	-97.95
6	947.62	-57.57	-25.00	-32.57	1.50 H	99	38.11	-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.

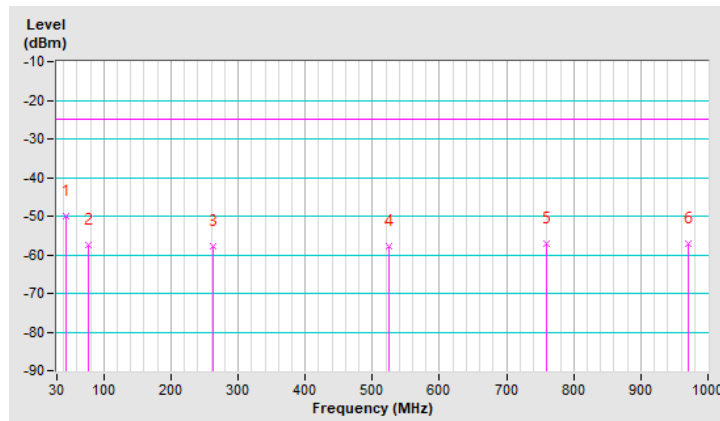


Mode	TX channel 40529 (2583.9MHz) + 40712 (2602.2MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	21deg. C, 68%RH	Input Power	120Vac, 60Hz (System)
Tested By	Greg Lin		

Antenna Polarity & Test Distance : Vertical 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	43.58	-50.09	-25.00	-25.09	1.50 V	80	58.51	-108.60
2	76.56	-57.48	-25.00	-32.48	1.50 V	2	55.15	-112.63
3	262.80	-57.65	-25.00	-32.65	1.50 V	311	51.54	-109.19
4	525.67	-57.83	-25.00	-32.83	1.50 V	96	44.72	-102.55
5	759.44	-57.00	-25.00	-32.00	1.50 V	270	41.13	-98.13
6	970.90	-57.17	-25.00	-32.17	1.50 V	299	38.27	-95.44

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

LTE Band 7C, Channel Bandwidth 20MHz + 20MHz (1 RB / 99 RB Offset + 1 RB / 0 RB Offset)

Mode	TX channel 20850 (2510.0MHz) + 21048 (2529.8MHz)	Frequency Range	1GHz ~ 27GHz
Environmental Conditions	23deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Adair Peng		

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	-43.01	-25.00	-18.01	2.50 H	55	46.85	-89.86
2	5059.60	-42.52	-25.00	-17.52	2.50 H	55	47.15	-89.67
Antenna Polarity & Test Distance : Vertical 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	-41.05	-25.00	-16.05	2.11 V	105	48.81	-89.86
2	5059.60	-41.22	-25.00	-16.22	2.15 V	91	48.45	-89.67

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.

Mode	TX channel 21001 (2525.1MHz) + 21199 (2544.9MHz)	Frequency Range	1GHz ~ 27GHz
Environmental Conditions	23deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Adair Peng		

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	5050.20	-43.69	-25.00	-18.69	2.00 H	79	46.06	-89.75
2	5089.80	-43.20	-25.00	-18.20	1.99 H	99	46.23	-89.43
Antenna Polarity & Test Distance : Vertical 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	5050.20	-41.60	-25.00	-16.60	2.07 V	82	48.15	-89.75
2	5089.80	-42.02	-25.00	-17.02	2.10 V	93	47.41	-89.43

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 21152 (2540.2MHz) + 21350 (2560.0MHz)	Frequency Range	1GHz ~ 27GHz
Environmental Conditions	23deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Adair Peng		

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	5080.40	-42.88	-25.00	-17.88	2.33 H	50	46.62	-89.50
2	5120.00	-42.66	-25.00	-17.66	2.36 H	45	46.73	-89.39
Antenna Polarity & Test Distance : Vertical 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	5080.40	-40.99	-25.00	-15.99	2.63 V	111	48.51	-89.50
2	5120.00	-41.97	-25.00	-16.97	2.66 V	105	47.42	-89.39

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 41C, Channel Bandwidth 20MHz + 20MHz (1 RB / 99 RB Offset + 1 RB / 0 RB Offset)

Mode	TX channel 39750 (2506.0MHz) + 39948 (2525.8MHz)	Frequency Range	1GHz ~ 27GHz
Environmental Conditions	23deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Adair Peng		

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	-33.44	-25.00	-8.44	1.68 H	248	56.44	-89.88
2	5051.60	-32.53	-25.00	-7.53	1.75 H	280	57.21	-89.74
Antenna Polarity & Test Distance : Vertical 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	-30.38	-25.00	-5.38	1.26 V	88	59.50	-89.88
2	5051.60	-29.54	-25.00	-4.54	1.26 V	66	60.20	-89.74

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 40529 (2583.9MHz) + 40712 (2602.2MHz)	Frequency Range	1GHz ~ 27GHz
Environmental Conditions	23deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Adair Peng		

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	5167.80	-33.40	-25.00	-8.40	1.70 H	275	56.12	-89.52
2	5204.40	-32.40	-25.00	-7.40	1.73 H	280	57.22	-89.62
Antenna Polarity & Test Distance : Vertical 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	5167.80	-29.29	-25.00	-4.29	1.30 V	77	60.23	-89.52
2	5204.40	-28.62	-25.00	-3.62	1.33 V	90	61.00	-89.62

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 41292 (2660.2MHz) + 41490 (2680.0MHz)	Frequency Range	1GHz ~ 27GHz
Environmental Conditions	23deg. C, 67%RH	Input Power	120Vac, 60Hz (System)
Tested By	Adair Peng		

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	5320.40	-34.21	-25.00	-9.21	1.79 H	292	55.55	-89.76
2	5360.00	-32.69	-25.00	-7.69	1.69 H	284	56.89	-89.58
Antenna Polarity & Test Distance : Vertical 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	5320.40	-29.51	-25.00	-4.51	1.19 V	49	60.25	-89.76
2	5360.00	-28.57	-25.00	-3.57	1.31 V	83	61.01	-89.58

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.

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

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Email: service.adt@bureauveritas.com

Web Site: <http://ee.bureauveritas.com.tw>

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

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