FCC Test Report
(Part 27: CA mode (LTE Band 66C, 66B))

Report No.:	RFBFJZ-WTW-P21050403-19
FCC ID:	V65C6930
Test Model:	C6930
Received Date:	May 18, 2021
Test Date:	Aug. 04 ~ Aug. 13, 2021
Issued Date:	Sep. 01, 2021
Applicant:	Kyocera Corporation c/o Kyocera International, Inc.
Address:	8611 Balboa Avenue, San Diego, CA 92123
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan
FCC Registration / Designation Number:	788550 / TW0003

Testing Laboratory
2021

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Release Control Record

Issue No.	Description	Date Issued
RFBFJZ-WTW-P21050403-19	Original release	Sep. 01, 2021

1 Certificate of Conformity

Product:	SmartPhone
Brand:	Kyocera
Test Model:	C6930
Sample Status:	Engineering sample
Applicant:	Kyocera Corporation c/o Kyocera International, Inc.
Test Date:	Aug. 04 ~ Aug. 13, 2021
Standards:	FCC Part 27, Subpart C, L

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 , **Date:** Sep. 01, 2021

Polly Chien / Specialist

Approved by : Bruce Chen , **Date:** Sep. 01, 2021

Bruce Chen / Senior Engineer

2 Summary of Test Results

Applied Standard: FCC Part 27 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50 (d)(4)	Equivalent Isotropically Radiated Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	Pass	Refer to Note 2
27.50 (d)(5)	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1055 27.54	Frequency Stability Stay with the authorized bands of operation	Pass	Meet the requirement of limit.
2.1049	Emission Bandwidth	Pass	Meet the requirement of limit.
2.1051 27.53(h)	Band Edge Measurements	Pass	Meet the requirement of limit.
2.1051 27.53(h)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -30.73dB at 3550.00MHz.

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. LTE CA mode is similar to digital modulation in LTE single frequency band, so please refer to BV CPS report no.: RFBFJZ-WTW-P21050403-10 for the modulation characteristics data of CA mode.

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	3.04 dB
	30MHz ~ 200MHz	3.59 dB
	200MHz ~1000MHz	3.60 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 09, 2021	Apr. 08, 2022
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jun. 10, 2021	Jun. 09, 2022
Spectrum Analyzer ROHDE & SCHWARZ	FSW43	101866	Dec. 14, 2020	Dec. 13, 2021
MXG Vector signal generator Agilent	N5182B	MY53050430	Nov. 25, 2020	Nov. 24, 2021
Radio Communication Analyzer Anritsu	MT8821C	6261806803	Jan. 22, 2021	Jan. 21, 2022
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-969	Nov. 22, 2020	Nov. 21, 2021
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 EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	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
Standard Temperature And Humidity Chamber GIANT FORCE	GTH-120-40-CP-AR	MAA1306-019	Sep. 10, 2020	Sep. 09, 2021

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
True RMS Clamp Meter Fluke	325	31130711WS	Jun. 02, 2021	Jun. 01, 2022
DC power supply Keysight	U8002A	MY56330015	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	SmartPhone				
Brand	Kyocera				
Test Model	C6930				
Status of EUT	Engineering sample				
Power Supply Rating	3.87Vdc from battery 5Vdc / 9Vdc / 12Vdc from adapter				
Modulation Type	LTE: QPSK, 16QAM, 64QAM, 256QAM				
Operating Frequency	LTE Band 66B	1715.0MHz ~ 1775.0MHz			
	LTE Band 66C	1720.0MHz ~ 1770.0MHz			
Max. EIRP Power		QPSK	16QAM	64QAM	256QAM
	LTE Band 66C (20MHz+20MHz)	350.752mW (25.45dBm)	276.694mW (24.42dBm)	228.560mW (23.59dBm)	181.970mW (22.60dBm)
	LTE Band 66B (10MHz+10MHz)	352.371mW (25.47dBm)	279.898mW (24.47dBm)	232.809mW (23.67dBm)	183.654mW (22.64dBm)
Emission Designator	LTE Band 66C (20MHz+20MHz)	37M4G7D	37M4D7W	37M4D7W	37M4D7W
	LTE Band 66B (10MHz+10MHz)	18M8G7D	18M7D7W	18M8D7W	18M7D7W
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 contains following accessory devices.

Battery	
Brand	KYOCERA
Model	SCP-75LBPS
Rating	3.87 V typ / 4500 mAh/17.5 Wh typ

Adapter	
Brand	KYOCERA Corporation
Model	SCP-49ADT
Input Power	AC 100-240V, 50/60Hz 0.4A
Output Power	DC 5.0V, 1.8A / 9.0V, 1.8A / 12.0V, 1.2A

USB cable	
Brand	KYOCERA
Model	SCP-24SDC
Rating	1 meter, shielded Type A to Type C USB cable

2. The following antennas were provided to the EUT.

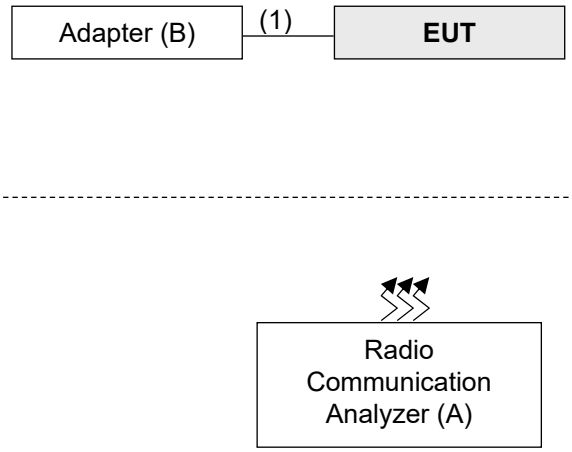
Band	Freq. Range (MHz)	Gain (dBi)
LTE Band 66	1710 ~ 1780	2.3 (Tx1), -0.5 (Tx2) (diversity)

* 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.

3. For CA mode configuration, please consult the manufacturer to declare the test mode.
4. The EUT support the following CA Configuration.

Band Configuration
5B
48C
66B
66C

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.	Adapter	KYOCERA	SCP-49ADT	NA	NA	Accessory

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.	Type A to Type C USB cable	1	1	Y	0	Accessory

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 on X-plane. Following channel(s) was (were) selected for the final test as listed below.

LTE Band 66 (CA 66C)

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	EIRP	132072 to 132374 132270 to 132572	132072(1720.0MHz)+ 132270(1739.8MHz), 132323(1745.1MHz)+ 132521(1764.9MHz), 132374(1750.2MHz)+ 132572(1770.0MHz)	20MHz + 20MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 99 RB Offset
-	Frequency Stability	132072 to 132374 132270 to 132572	132072(1720.0MHz)+ 132270(1739.8MHz)	20MHz + 20MHz	QPSK	100 RB / 0 RB Offset
-	Occupied Bandwidth	132072 to 132374 132270 to 132572	132072(1720.0MHz)+ 132270(1739.8MHz), 132323(1745.1MHz)+ 132521(1764.9MHz), 132374(1750.2MHz)+ 132572(1770.0MHz)	20MHz + 20MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 99 RB Offset
-	Band Edge	132072 to 132374 132270 to 132572	132072(1720.0MHz)+ 132270(1739.8MHz), 132374(1750.2MHz)+ 132572(1770.0MHz)	20MHz + 20MHz	QPSK	1 RB / 0 RB Offset 1 RB / 99 RB Offset 100 RB / 0 RB Offset
-	Peak to Average Ratio	132072 to 132374 132270 to 132572	132072(1720.0MHz)+ 132270(1739.8MHz), 132323(1745.1MHz)+ 132521(1764.9MHz), 132374(1750.2MHz)+ 132572(1770.0MHz)	20MHz + 20MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 99 RB Offset
-	Conducted Emission	132072 to 132374 132270 to 132572	132072(1720.0MHz)+ 132270(1739.8MHz), 132323(1745.1MHz)+ 132521(1764.9MHz), 132374(1750.2MHz)+ 132572(1770.0MHz)	20MHz + 20MHz	QPSK	1 RB / 0 RB Offset 1 RB / 99 RB Offset
-	Radiated Emission Below 1GHz	132072 to 132374 132270 to 132572	132072(1720.0MHz)+ 132270(1739.8MHz)	20MHz + 20MHz	QPSK	1 RB / 0 RB Offset 1 RB / 99 RB Offset
-	Radiated Emission Above 1GHz	132072 to 132374 132270 to 132572	132072(1720.0MHz)+ 132270(1739.8MHz), 132323(1745.1MHz)+ 132521(1764.9MHz), 132374(1750.2MHz)+ 132572(1770.0MHz)	20MHz + 20MHz	QPSK	1 RB / 0 RB Offset 1 RB / 99 RB Offset

Note:

1. This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.
2. LTE CA mode is similar to digital modulation in LTE single frequency band, so please refer to BV CPS report no.: RFBFJZ-WTW-P21050403-10 for the modulation characteristics data of CA mode.

LTE Band 66 (CA 66B)

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	EIRP	132022 to 132523 132121 to 132622	132022(1715.0MHz)+ 132121(1724.9MHz), 132373(1750.1MHz)+ 132472(1760.0MHz), 132523(1765.1MHz)+ 132622(1775.0MHz)	10MHz + 10MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 49 RB Offset
-	Frequency Stability	132022 to 132523 132121 to 132622	132523(1765.1MHz)+ 132622(1775.0MHz)	10MHz + 10MHz	QPSK	50 RB / 0 RB Offset
-	Occupied Bandwidth	132022 to 132523 132121 to 132622	132022(1715.0MHz)+ 132121(1724.9MHz), 132373(1750.1MHz)+ 132472(1760.0MHz), 132523(1765.1MHz)+ 132622(1775.0MHz)	10MHz + 10MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 49 RB Offset
-	Band Edge	132022 to 132523 132121 to 132622	132022(1715.0MHz)+ 132121(1724.9MHz), 132523(1765.1MHz)+ 132622(1775.0MHz)	10MHz + 10MHz	QPSK	1 RB / 0 RB Offset 1 RB / 49 RB Offset 50 RB / 0 RB Offset
-	Peak to Average Ratio	132022 to 132523 132121 to 132622	132022(1715.0MHz)+ 132121(1724.9MHz), 132373(1750.1MHz)+ 132472(1760.0MHz), 132523(1765.1MHz)+ 132622(1775.0MHz)	20MHz + 20MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 49 RB Offset 1 RB / 0 RB Offset
-	Conducted Emission	132022 to 132523 132121 to 132622	132022(1715.0MHz)+ 132121(1724.9MHz), 132373(1750.1MHz)+ 132472(1760.0MHz), 132523(1765.1MHz)+ 132622(1775.0MHz)	10MHz + 10MHz	QPSK	1 RB / 49 RB Offset 1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	132022 to 132523 132121 to 132622	132523(1765.1MHz)+ 132622(1775.0MHz)	10MHz + 10MHz	QPSK	1 RB / 49 RB Offset 1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	132022 to 132523 132121 to 132622	132022(1715.0MHz)+ 132121(1724.9MHz), 132373(1750.1MHz)+ 132472(1760.0MHz), 132523(1765.1MHz)+ 132622(1775.0MHz)	10MHz + 10MHz	QPSK	1 RB / 49 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. LTE CA mode is similar to digital modulation in LTE single frequency band, so please refer to BV CPS report no.: RFBFJZ-WTW-P21050403-10 for the modulation characteristics data of CA mode.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
EIRP	25deg. C, 60%RH	120Vac, 60Hz	James Yang
Frequency Stability	25deg. C, 60%RH	3.87Vdc	James Yang
Occupied Bandwidth	25deg. C, 60%RH	120Vac, 60Hz	James Yang
Band Edge	25deg. C, 60%RH	120Vac, 60Hz	James Yang
Peak To Average Ratio	25deg. C, 60%RH	120Vac, 60Hz	James Yang
Conducted Emission	25deg. C, 60%RH	120Vac, 60Hz	James Yang
Radiated Emission	22deg. C, 66%RH	120Vac, 60Hz	Greg Lin

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

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

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

LTE Band 66:
Mobile / Portable station are limited to 1 watts e.i.r.p.

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

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation as follows:
ERP or EIRP = $P_{Meas} + G_T$
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 66 (CA 66C)

Con fugure	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_66C	66	20	QPSK	1	0	132072	1720	66	20	QPSK	1	99	132270	1739.8	12.80
					1	99						1	0			23.15
		66	20	QPSK	1	0	132323	1745.1	66	20	QPSK	1	99	132521	1764.9	12.82
					1	99						1	0			23.14
		66	20	QPSK	1	0	132374	1750.2	66	20	QPSK	1	99	132572	1770	12.79
					1	99						1	0			23.10

Con fugure	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_66C	66	20	16QAM	1	0	132072	1720	66	20	16QAM	1	99	132270	1739.8	11.78
					1	99						1	0			22.12
		66	20	16QAM	1	0	132323	1745.1	66	20	16QAM	1	99	132521	1764.9	11.80
					1	99						1	0			22.12
		66	20	16QAM	1	0	132374	1750.2	66	20	16QAM	1	99	132572	1770	11.79
					1	99						1	0			22.08

Con fugure	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_66C	66	20	64QAM	1	0	132072	1720	66	20	64QAM	1	99	132270	1739.8	10.94
					1	99						1	0			21.27
		66	20	64QAM	1	0	132323	1745.1	66	20	64QAM	1	99	132521	1764.9	11.00
					1	99						1	0			21.29
		66	20	64QAM	1	0	132374	1750.2	66	20	64QAM	1	99	132572	1770	11.04
					1	99						1	0			21.27

Con fugure	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_66C	66	20	256QAM	1	0	132072	1720	66	20	256QAM	1	99	132270	1739.8	9.97
					1	99						1	0			20.23
		66	20	256QAM	1	0	132323	1745.1	66	20	256QAM	1	99	132521	1764.9	10.01
					1	99						1	0			20.30
		66	20	256QAM	1	0	132374	1750.2	66	20	256QAM	1	99	132572	1770	10.04
					1	99						1	0			20.24

LTE Band 66 (CA 66B)

Confugure	Combination	PCC							SCC							Measurement Power
		Band	BW (MHz)	Modulation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Band	BW (MHz)	Modulation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Tx Power with UL-CA Active (dBm)
																Total
Intra Band Contiguous	CA_66B	66	10	QPSK	1	0	132022	1715	66	10	QPSK	1	49	132121	1724.9	12.82
					1	49						1	0			23.10
		66	10	QPSK	1	0	132373	1750.1	66	10	QPSK	1	49	132472	1760	12.86
					1	49						1	0			23.14
		66	10	QPSK	1	0	132523	1765.1	66	10	QPSK	1	49	132622	1775	12.81
					1	49						1	0			23.17

Confugure	Combination	PCC							SCC							Measurement Power
		Band	BW (MHz)	Modulation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Band	BW (MHz)	Modulation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Tx Power with UL-CA Active (dBm)
																Total
Intra Band Contiguous	CA_66B	66	10	16QAM	1	0	132022	1715	66	10	16QAM	1	49	132121	1724.9	11.80
					1	49						1	0			22.08
		66	10	16QAM	1	0	132373	1750.1	66	10	16QAM	1	49	132472	1760	11.87
					1	49						1	0			22.16
		66	10	16QAM	1	0	132523	1765.1	66	10	16QAM	1	49	132622	1775	11.84
					1	49						1	0			22.17

Confugure	Combination	PCC							SCC							Measurement Power
		Band	BW (MHz)	Modulation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Band	BW (MHz)	Modulation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Tx Power with UL-CA Active (dBm)
																Total
Intra Band Contiguous	CA_66B	66	10	64QAM	1	0	132022	1715	66	10	64QAM	1	49	132121	1724.9	10.95
					1	49						1	0			21.16
		66	10	64QAM	1	0	132373	1750.1	66	10	64QAM	1	49	132472	1760	11.07
					1	49						1	0			21.34
		66	10	64QAM	1	0	132523	1765.1	66	10	64QAM	1	49	132622	1775	11.04
					1	49						1	0			21.37

Confugure	Combination	PCC							SCC							Measurement Power
		Band	BW (MHz)	Modulation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Band	BW (MHz)	Modulation	RB Size	RB Offset	UL Chan	UL Freq. (MHz)	Tx Power with UL-CA Active (dBm)
																Total
Intra Band Contiguous	CA_66B	66	10	256QAM	1	0	132022	1715	66	10	256QAM	1	49	132121	1724.9	9.96
					1	49						1	0			20.19
		66	10	256QAM	1	0	132373	1750.1	66	10	256QAM	1	49	132472	1760	10.08
					1	49						1	0			20.33
		66	10	256QAM	1	0	132523	1765.1	66	10	256QAM	1	49	132622	1775	10.04
					1	49						1	0			20.34

EIRP Power (dBm)

LTE Band 66 (CA 66C)

Con fugure	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)	EIRP (dBm)
																Total
Intra Band Conti-guous	CA_66C	66	20	QPSK	1	0	132072	1720	66	20	QPSK	1	99	132270	1739.8	15.10
					1	99						1	0			**25.45**
		66	20	QPSK	1	0	132323	1745.1	66	20	QPSK	1	99	132521	1764.9	15.12
					1	99						1	0			25.44
		66	20	QPSK	1	0	132374	1750.2	66	20	QPSK	1	99	132572	1770	15.09
					1	99						1	0			25.40

Con fugure	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)	EIRP (dBm)
																Total
Intra Band Conti-guous	CA_66C	66	20	16QAM	1	0	132072	1720	66	20	16QAM	1	99	132270	1739.8	14.08
					1	99						1	0			**24.42**
		66	20	16QAM	1	0	132323	1745.1	66	20	16QAM	1	99	132521	1764.9	14.10
					1	99						1	0			**24.42**
		66	20	16QAM	1	0	132374	1750.2	66	20	16QAM	1	99	132572	1770	14.09
					1	99						1	0			24.38

Con fugure	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)	EIRP (dBm)
																Total
Intra Band Conti-guous	CA_66C	66	20	64QAM	1	0	132072	1720	66	20	64QAM	1	99	132270	1739.8	13.24
					1	99						1	0			23.57
		66	20	64QAM	1	0	132323	1745.1	66	20	64QAM	1	99	132521	1764.9	13.30
					1	99						1	0			**23.59**
		66	20	64QAM	1	0	132374	1750.2	66	20	64QAM	1	99	132572	1770	13.34
					1	99						1	0			23.57

Con fugure	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)	EIRP (dBm)
																Total
Intra Band Conti-guous	CA_66C	66	20	256QAM	1	0	132072	1720	66	20	256QAM	1	99	132270	1739.8	12.27
					1	99						1	0			22.53
		66	20	256QAM	1	0	132323	1745.1	66	20	256QAM	1	99	132521	1764.9	12.31
					1	99						1	0			**22.60**
		66	20	256QAM	1	0	132374	1750.2	66	20	256QAM	1	99	132572	1770	12.34
					1	99						1	0			22.54

*EIRP = Conducted + antenna gain (2.3dBi)

LTE Band 66 (CA 66B)

Configure	Combination	PCC							SCC							Measurement Power
		Band	BW (MHz)	Modulation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Band	BW (MHz)	Modulation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	EIRP (dBm)
																Total
Intra Band Contiguous	CA_66B	66	10	QPSK	1	0	132022	1715	66	10	QPSK	1	49	132121	1724.9	15.12
					1	49						1	0			25.40
		66	10	QPSK	1	0	132373	1750.1	66	10	QPSK	1	49	132472	1760	15.16
					1	49						1	0			25.44
		66	10	QPSK	1	0	132523	1765.1	66	10	QPSK	1	49	132622	1775	15.11
					1	49						1	0			**25.47**

Configure	Combination	PCC							SCC							Measurement Power
		Band	BW (MHz)	Modulation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Band	BW (MHz)	Modulation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	EIRP (dBm)
																Total
Intra Band Contiguous	CA_66B	66	10	16QAM	1	0	132022	1715	66	10	16QAM	1	49	132121	1724.9	14.10
					1	49						1	0			24.38
		66	10	16QAM	1	0	132373	1750.1	66	10	16QAM	1	49	132472	1760	14.17
					1	49						1	0			24.46
		66	10	16QAM	1	0	132523	1765.1	66	10	16QAM	1	49	132622	1775	14.14
					1	49						1	0			**24.47**

Configure	Combination	PCC							SCC							Measurement Power
		Band	BW (MHz)	Modulation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Band	BW (MHz)	Modulation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	EIRP (dBm)
																Total
Intra Band Contiguous	CA_66B	66	10	64QAM	1	0	132022	1715	66	10	64QAM	1	49	132121	1724.9	13.25
					1	49						1	0			23.46
		66	10	64QAM	1	0	132373	1750.1	66	10	64QAM	1	49	132472	1760	13.37
					1	49						1	0			23.64
		66	10	64QAM	1	0	132523	1765.1	66	10	64QAM	1	49	132622	1775	13.34
					1	49						1	0			**23.67**

Configure	Combination	PCC							SCC							Measurement Power
		Band	BW (MHz)	Modulation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	Band	BW (MHz)	Modulation	RB Size	RB Offset	UL Chan.	UL Freq. (MHz)	EIRP (dBm)
																Total
Intra Band Contiguous	CA_66B	66	10	256QAM	1	0	132022	1715	66	10	256QAM	1	49	132121	1724.9	12.26
					1	49						1	0			22.49
		66	10	256QAM	1	0	132373	1750.1	66	10	256QAM	1	49	132472	1760	12.38
					1	49						1	0			22.63
		66	10	256QAM	1	0	132523	1765.1	66	10	256QAM	1	49	132622	1775	12.34
					1	49						1	0			**22.64**

*EIRP = Conducted + antenna gain (2.3dBi)

4.2 Occupied Bandwidth Measurement

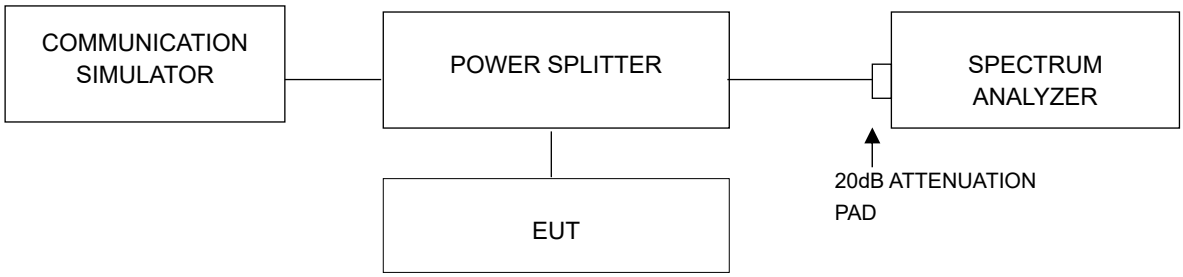
4.2.1 Limits of Occupied Bandwidth Measurement

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission

4.2.2 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with RBW = 430kHz and VBW = 1.3kHz (Channel Bandwidth: 10MHz+10MHz) and RBW = 430kHz and VBW = 1.3MHz (Channel Bandwidth: 20MHz+20MHz). The 26dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 26dB.

4.2.3 Test Setup



4.2.4 Test Result

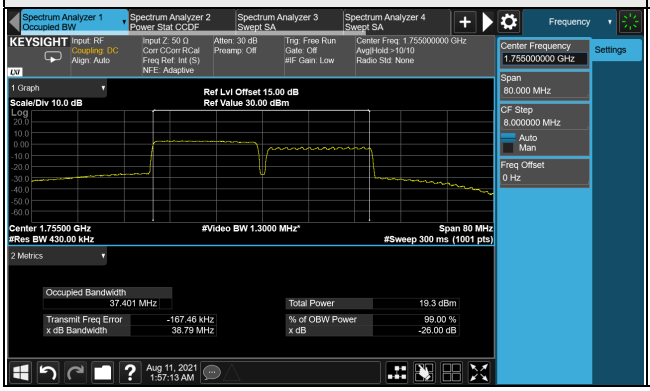
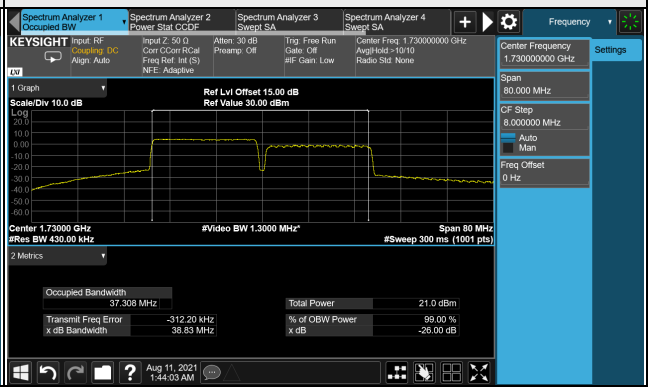
LTE Band 66 (CA 66C)

Occupied Bandwidth

LTE Band 66 (CA 66C), Channel Bandwidth 20MHz+20MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
132072+132270	1720.0+1739.8	37.36	37.31	37.36	37.32
132323+132521	1745.1+1764.9	37.30	37.36	37.39	37.40
132374+132572	1750.2+1770.0	37.27	37.34	37.31	37.27

26dB Bandwidth

LTE Band 66 (CA 66C), Channel Bandwidth 20MHz+20MHz					
Channel	Frequency (MHz)	26dB Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
132072+132270	1720.0+1739.8	38.82	38.83	38.82	38.82
132323+132521	1745.1+1764.9	38.78	38.76	38.77	38.79
132374+132572	1750.2+1770.0	38.79	38.76	38.78	38.79

99% Occupied Bandwidth	26dB Bandwidth
Spectrum Plot of Worst Value	Spectrum Plot of Worst Value
20MHz+20MHz / 256QAM	20MHz+20MHz / 16QAM
	

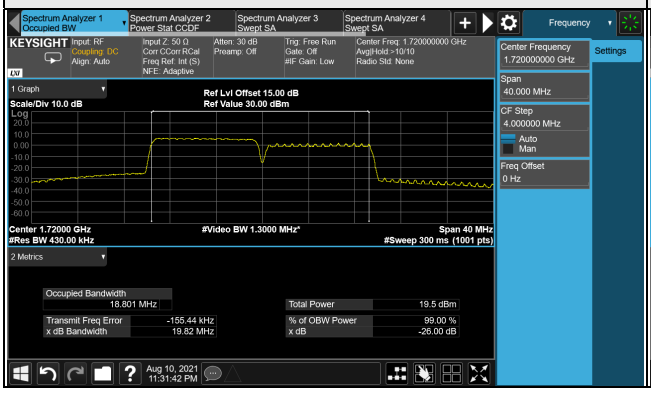
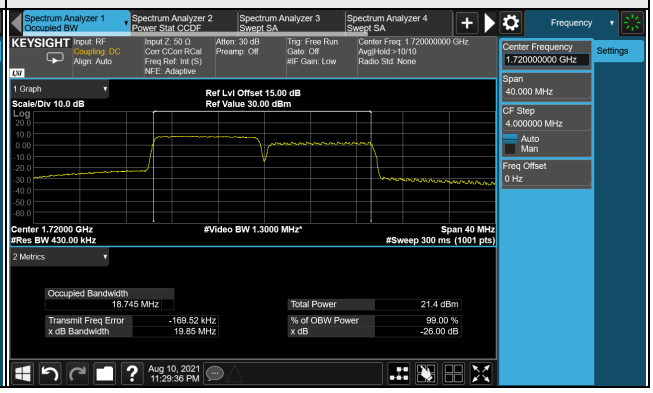
LTE Band 66 (CA 66B)

Occupied Bandwidth

LTE Band 66 (CA 66B), Channel Bandwidth 10MHz+10MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
132022+132121	1715.0+1724.9	18.75	18.72	18.80	18.73
132373+132472	1750.1+1760.0	18.76	18.72	18.77	18.70
132523+132622	1765.1+1775.0	18.74	18.71	18.69	18.71

26dB Bandwidth

LTE Band 66 (CA 66B), Channel Bandwidth 10MHz+10MHz					
Channel	Frequency (MHz)	26dB Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
132022+132121	1715.0+1724.9	19.85	19.84	19.82	19.83
132373+132472	1750.1+1760.0	19.84	19.82	19.82	19.81
132523+132622	1765.1+1775.0	19.82	19.82	19.81	19.80

99% Occupied Bandwidth	26dB Bandwidth
Spectrum Plot of Worst Value	Spectrum Plot of Worst Value
10MHz+10MHz / 64QAM	10MHz+10MHz / QPSK
	

4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stability Measurement

According to the FCC part 2.1055 shall be tested the frequency stability. The rule is defined that" The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block." The test extreme voltage is according to the 2.1055(d)(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment and the extreme temperature rule is comply with specification of EUT -30℃ ~ 50℃.

4.3.2 Test Procedure

a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.

b. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.

c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ±0.5 ℃ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

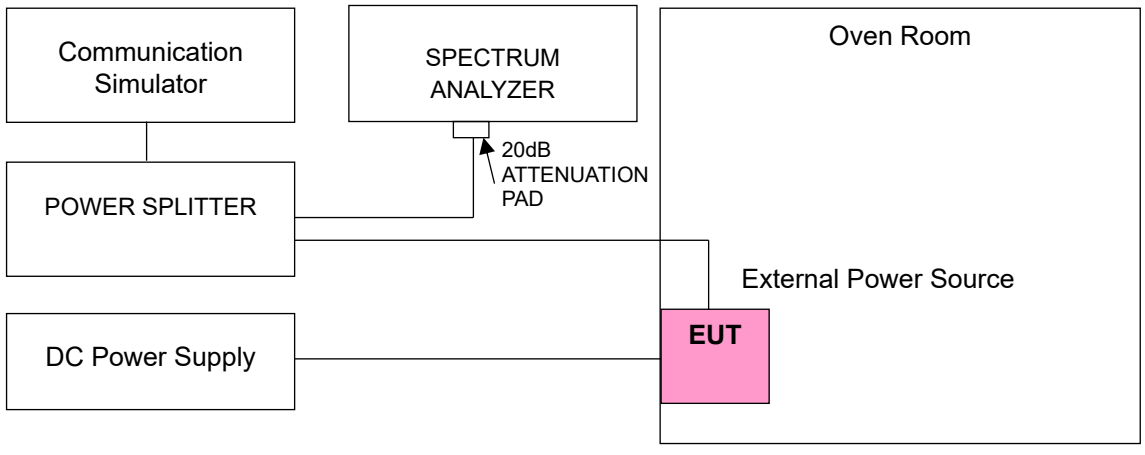
Note: The frequency error was recorded frequency error from the communication simulator.

4.3.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Radio Communication Analyzer Anritsu	MT8821C	6261806803	Jan. 22, 2021	Jan. 21, 2022
Temperature & Humidity Chamber TERCHY	HRM-120RF	931022	Dec. 24, 2020	Dec. 23, 2021
Digital Multimeter Fluke	87-III	70360755	Jul. 08, 2021	Jul. 07, 2022
DC Power Supply Topward	6306A	727263	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.

4.3.4 Test Setup



4.3.5 Test Results

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66 (CA 66C), Channel Bandwidth 20MHz+20MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.87	1720.000044	0.025	1739.800020	0.011
3.28	1720.000021	0.012	1739.800015	0.008
4.45	1720.000050	0.029	1739.800016	0.009

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.45Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 66 (CA 66C), Channel Bandwidth 20MHz+20MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1720.000019	0.011	1739.800034	0.019
-20	1720.000024	0.014	1739.800050	0.028
-10	1720.000037	0.021	1739.800021	0.012
0	1720.000034	0.020	1739.800038	0.021
10	1720.000013	0.007	1739.800042	0.024
20	1719.999960	-0.023	1739.799987	-0.007
30	1719.999973	-0.016	1739.799985	-0.008
40	1719.999979	-0.012	1739.799980	-0.011
50	1719.999979	-0.012	1739.799955	-0.025
60	1719.999972	-0.016	1739.799958	-0.024

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66 (CA 66B), Channel Bandwidth 10MHz+10MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.87	1765.100016	0.009	1775.000031	0.017
3.28	1765.100046	0.027	1775.000014	0.008
4.45	1765.100016	0.009	1775.000044	0.025

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.45Vdc.

Frequency Error vs. Temperature

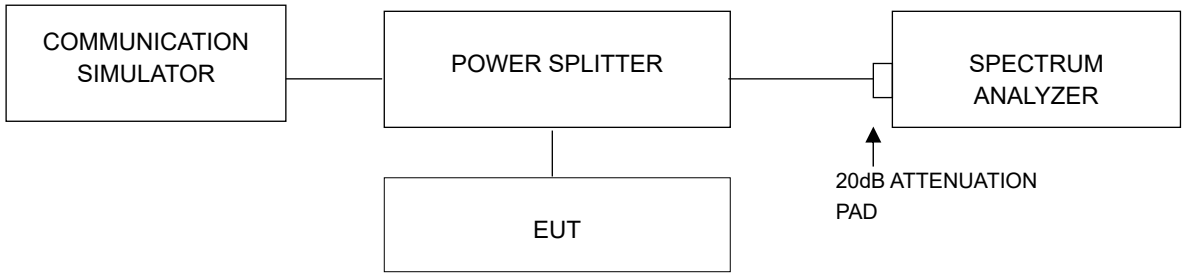
Temp. (℃)	LTE Band 66 (CA 66B), Channel Bandwidth 10MHz+10MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1765.100033	0.019	1775.000032	0.018
-20	1765.100036	0.021	1775.000042	0.024
-10	1765.100020	0.012	1775.000035	0.020
0	1765.100020	0.012	1775.000025	0.014
10	1765.100032	0.019	1775.000028	0.016
20	1765.099958	-0.024	1774.999978	-0.012
30	1765.099979	-0.012	1774.999964	-0.020
40	1765.099954	-0.027	1774.999965	-0.020
50	1765.099951	-0.028	1774.999964	-0.020
60	1765.099985	-0.009	1774.999980	-0.011

4.4 Channel Edge Measurement

4.4.1 Limits of Band Edge Measurement

According to FCC 27.53(h) for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log (P) dB.

4.4.2 Test Setup



4.4.3 Test Procedures

a. The EUT was set up for the rated peak power. The power was measured with Spectrum Analyzer. All measurements of Out-of-Band Emission were done at 2 channels: low and high operational frequency range.

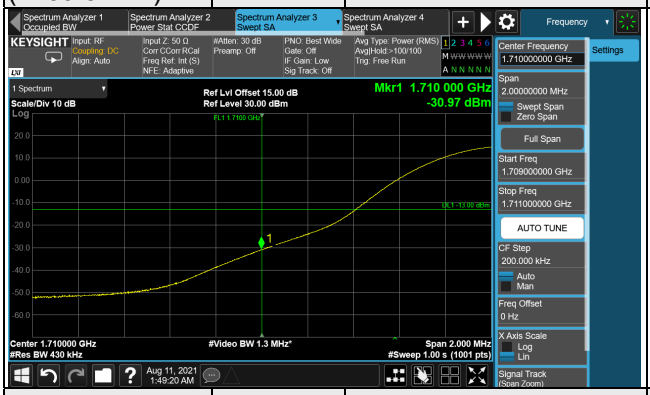
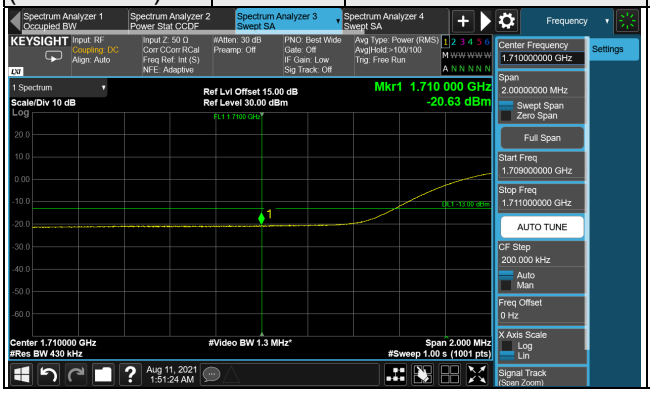
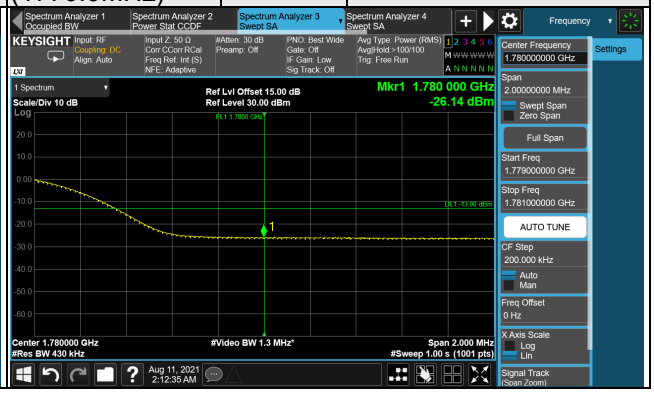
b. The center frequency of spectrum is the band edge frequency and span is 2MHz. RB of the spectrum is 200kHz and VB of the spectrum is 620kHz (LTE Channel Bandwidth 10MHz+10MHz). (only for LTE Band 66 CA mode 66B)

c. The center frequency of spectrum is the band edge frequency and span is 2MHz. RB of the spectrum is 430kHz and VB of the spectrum is 1.3MHz (LTE Channel Bandwidth 20MHz+20MHz).(only for LTE Band 66 CA mode 66C)

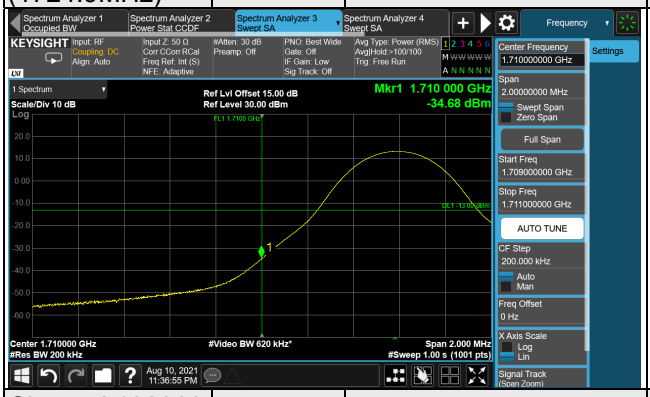
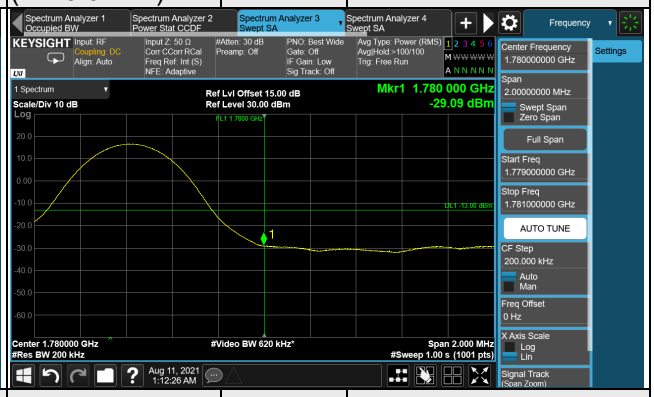
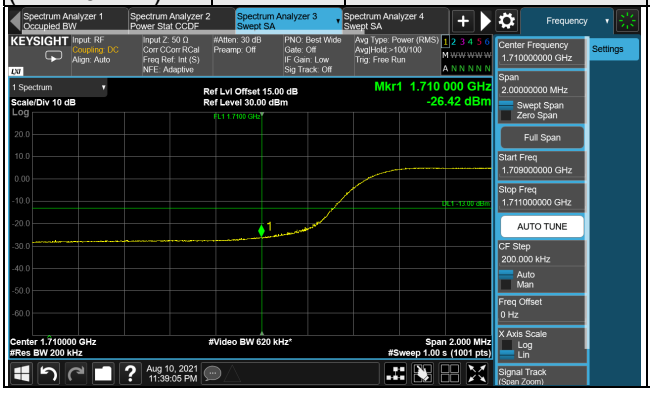
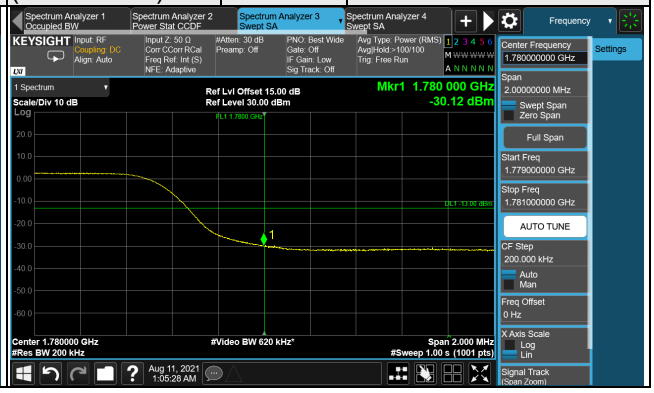
d. Record the max trace plot into the test report.

4.4.4 Test Results

LTE Band 66 (CA 66C)
Band Edge:

Channel Bandwidth: 20MHz+20MHz					
Channel 132072 (1720.0MHz)+ Channel 132270 (1739.8MHz)	QPSK	1 RB / 0 RB Offset+ 1 RB / 99 RB Offset	Channel 132374 (1750.2MHz)+ Channel 132572 (1770.0MHz)	QPSK	1 RB / 0 RB Offset+ 1 RB / 99 RB Offset
					
Channel 132072 (1720.0MHz)+ Channel 132270 (1739.8MHz)	QPSK	100 RB / 0 RB Offset	Channel 132374 (1750.2MHz)+ Channel 132572 (1770.0MHz)	QPSK	100 RB / 0 RB Offset
					

LTE Band 66 (CA 66B)
Band Edge:

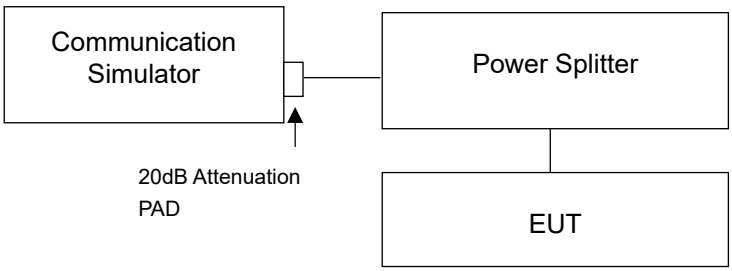
Channel Bandwidth: 10MHz+10MHz					
Channel 132022 (1715.0MHz)+ Channel 132121 (1724.9MHz)	QPSK	1 RB / 0 RB Offset+ 1 RB / 49 RB Offset	Channel 132523 (1765.1MHz)+ Channel 132622 (1775.0MHz)	QPSK	1 RB / 0 RB Offset+ 1 RB / 49 RB Offset
					
Channel 132022 (1715.0MHz)+ Channel 132121 (1724.9MHz)	QPSK	50 RB / 0 RB Offset	Channel 132523 (1765.1MHz)+ Channel 132622 (1775.0MHz)	QPSK	50 RB / 0 RB Offset
					

4.5 Peak to Average Ratio

4.5.1 Limits of Peak to Average Ratio Measurement

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

4.5.2 Test Setup



4.5.3 Test Procedures

a. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;

b. Set the number of counts to a value that stabilizes the measured CCDF curve;

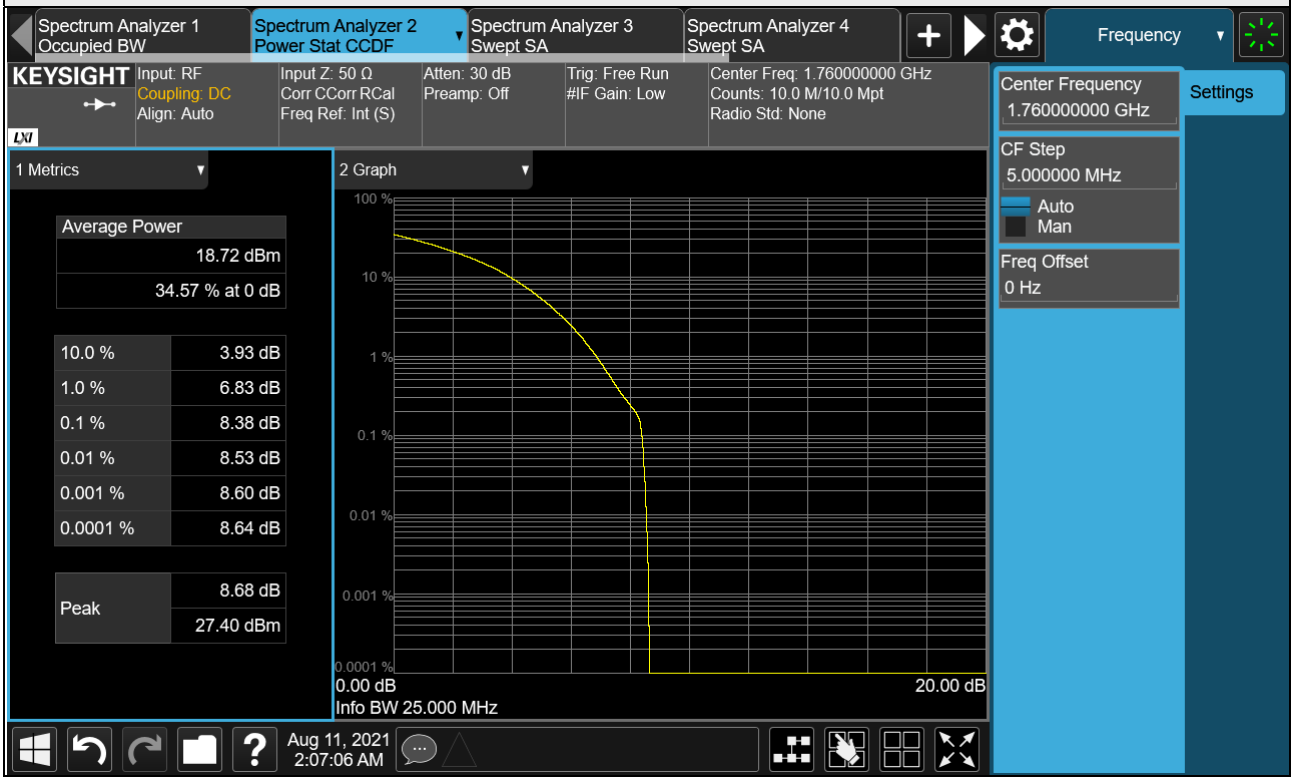
c. Record the maximum PAPR level associated with a probability of 0.1%.

4.5.4 Test Results

LTE Band 66 (CA 66C)

LTE Band 66 (CA 66C), Channel Bandwidth 20MHz+20MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
132072+132270	1720.0+1739.8	3.76	4.32	7.20	8.17
132323+132521	1745.1+1764.9	3.79	4.34	7.32	8.19
132374+132572	1750.2+1770.0	3.84	4.41	7.36	8.38

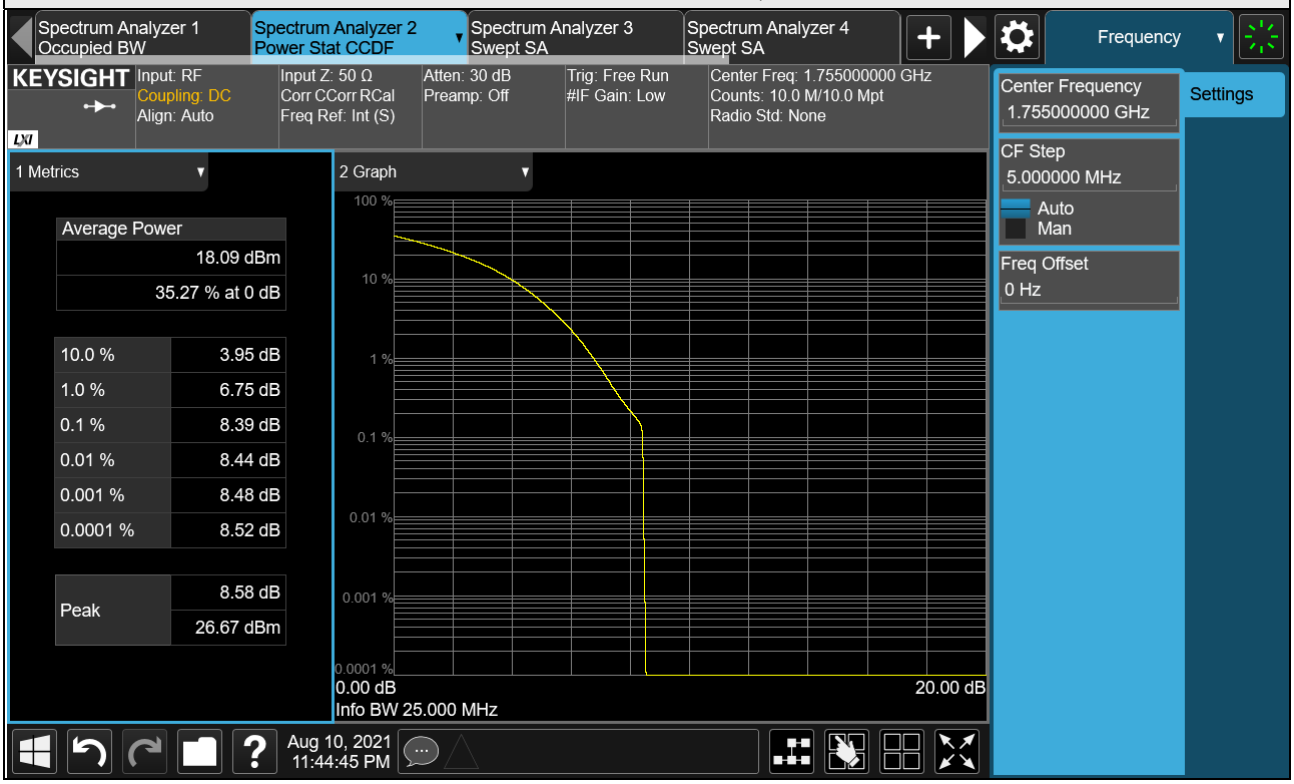
Peak To Average Ratio
Spectrum Plot of Worst Value
20MHz+20MHz / 256QAM



LTE Band 66 (CA 66B)

LTE Band 66 (CA 66B), Channel Bandwidth 10MHz+10MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
132022+132121	1715.0+1724.9	3.68	4.27	7.13	8.21
132373+132472	1750.1+1760.0	3.71	4.32	7.29	8.39
132523+132622	1765.1+1775.0	3.72	4.25	7.08	8.09

Peak To Average Ratio
Spectrum Plot of Worst Value
10MHz+10MHz / 256QAM

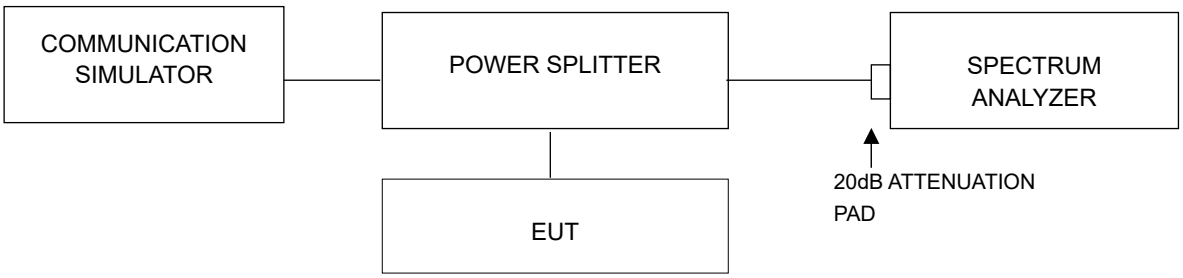


4.6 Conducted Spurious Emissions

4.6.1 Limits of Conducted Spurious Emissions Measurement

For LTE Band 66
In the FCC 27.53(h),On any frequency outside a licensee's frequency block, The power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB. The emission limit equal to –13dBm.

4.6.2 Test Setup



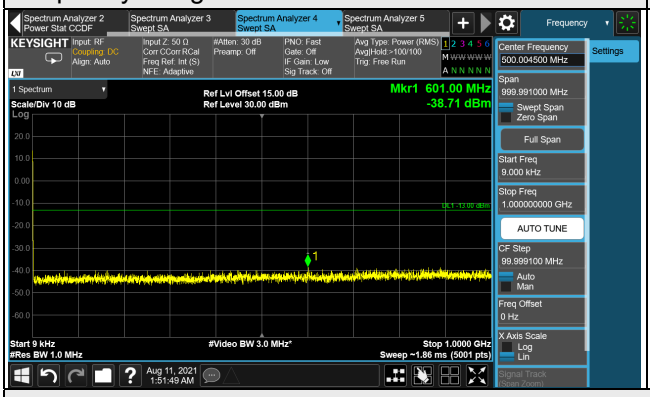
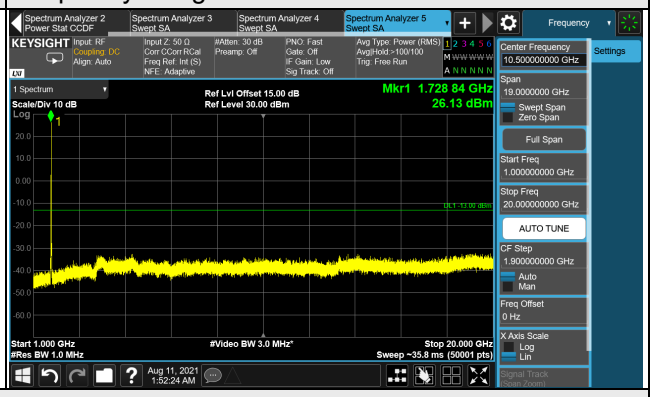
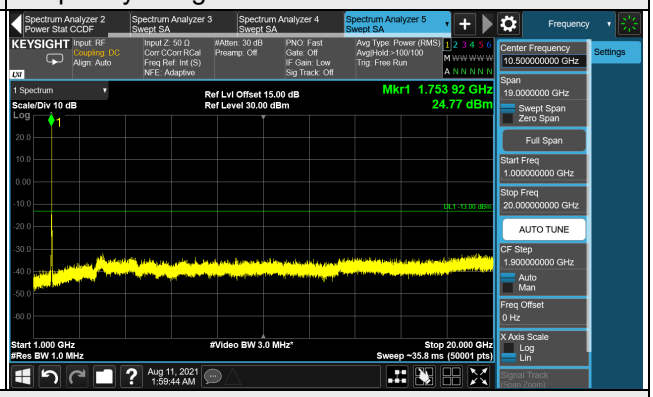
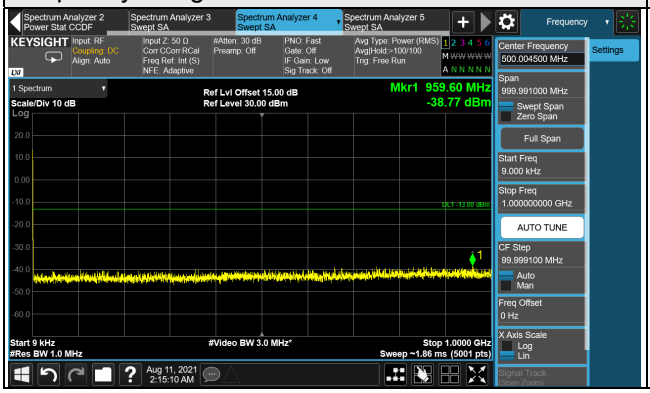
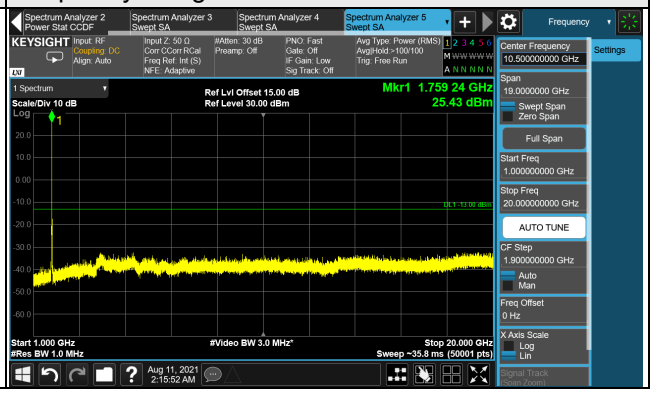
4.6.3 Test Procedure

a. All measurements were done at 3 channels: low, middle and high operational frequency range.

b. When the spectrum scanned from 9kHz to 20GHz, it shall be connected to the attenuator with the carried frequency. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

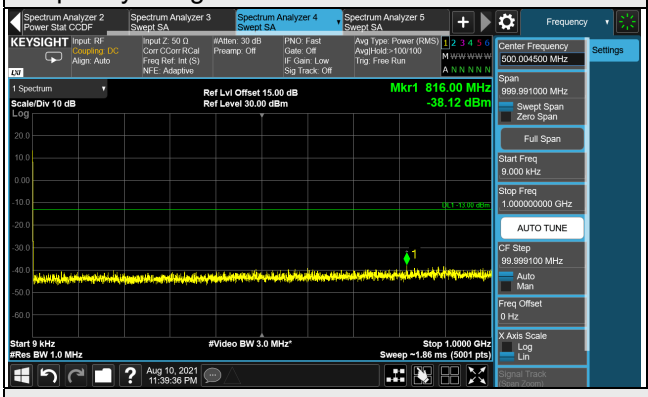
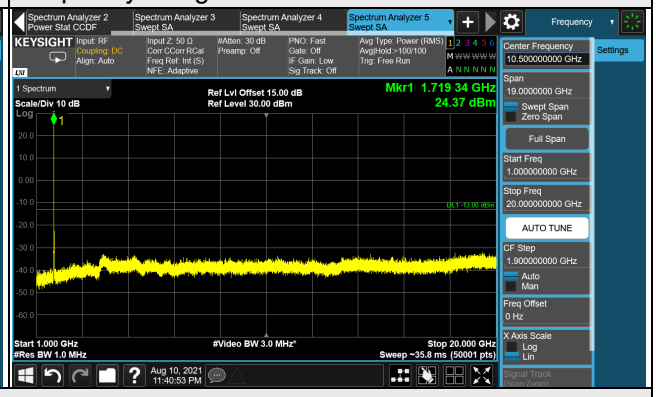
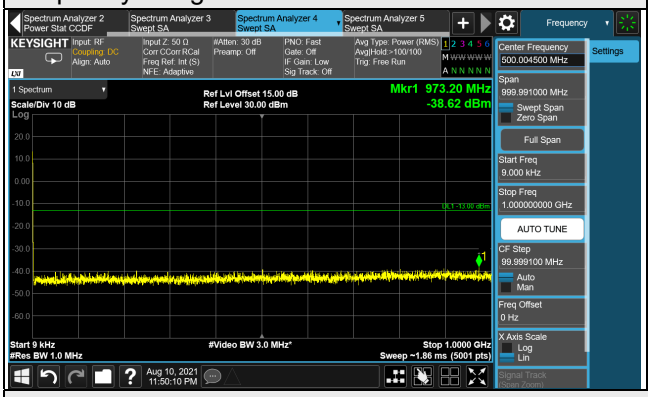
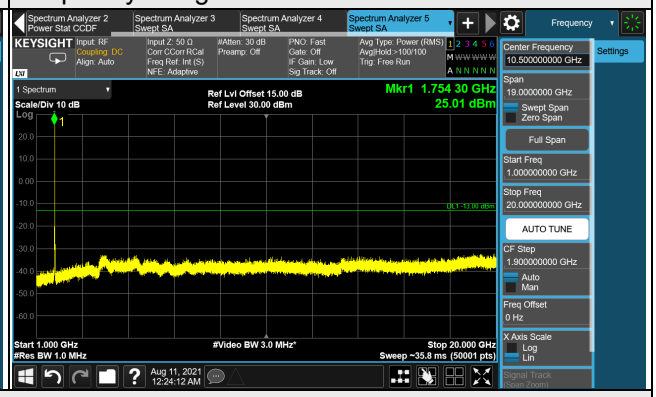
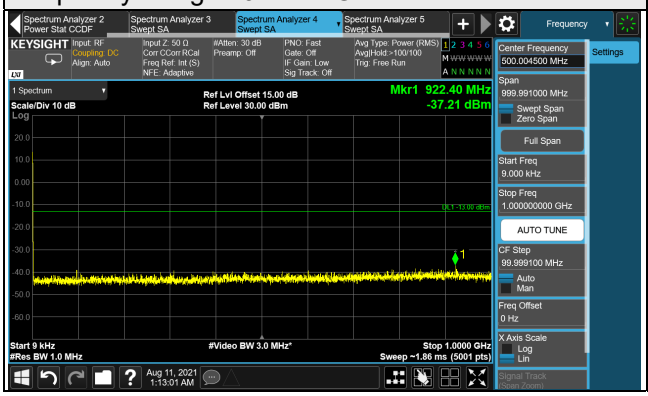
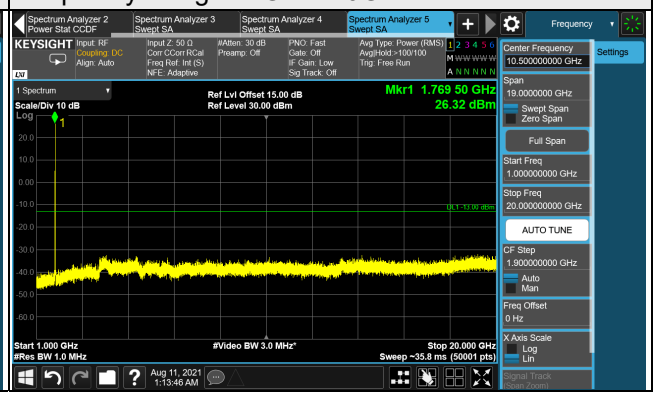
4.6.4 Test Results

LTE Band 66 (CA 66C)

Channel Band width: 20MHz+20MHz	
Channel 132072(1720.0MHz)+132270(1739.8MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~20GHz
	
Channel 132323(1745.1MHz)+132521(1764.9MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~20GHz
	
Channel 132374(1750.2MHz)+132572(1770.0MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~20GHz
	

*The 9kHz signal over the limit is from Spectrum.

LTE Band 66 (CA 66B)

Channel Band width: 10MHz+10MHz	
Channel 132022(1715.0MHz)+132121(1724.9MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~20GHz
	
Channel 132373(1750.1MHz)+132472(1760.0MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~20GHz
	
Channel 132523(1765.1MHz)+132622(1775.0MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~20GHz
	

*The 9kHz signal over the limit is from Spectrum.

4.7 Radiated Emission Measurement

4.7.1 Limits of Radiated Emission Measurement

For LTE Band 66
According to FCC 27.53(h) for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log (P) dB.

4.7.2 Test Procedure

a. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high channel of operational frequency range.)

b. In the semi-anechoic chamber, EUT placed on the 0.8m (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 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.

c. 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.

d. 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.

e. Following C63.26 section 5.5 and 5.2.7

f. EIRP (dBm) = E (dBμV/m) + 20log(D) - 104.8; where D is the measurement distance (in the far field region) in m.

g. ERP (dBm) = E (dBμV/m) + 20log(D) - 104.8 - 2.15; where D is the measurement distance (in the far field region) in m.

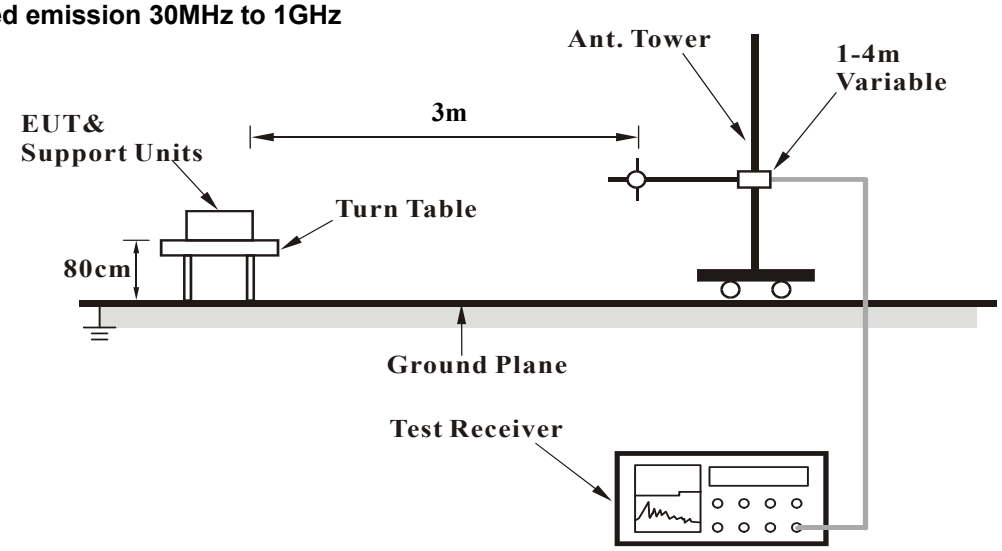
Note:
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.
2. The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:
   The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

4.7.3 Deviation from Test Standard

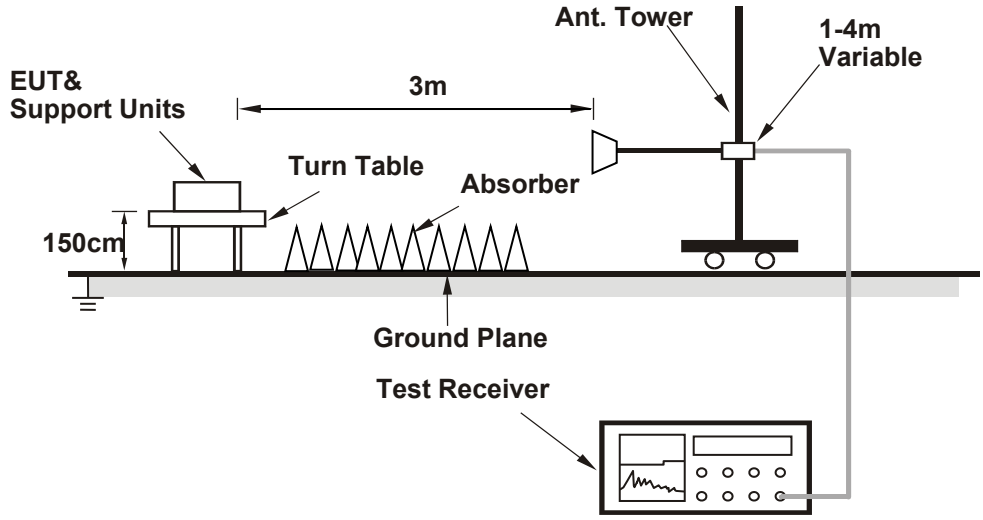
No deviation.

4.7.4 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).

4.7.5 Test Results

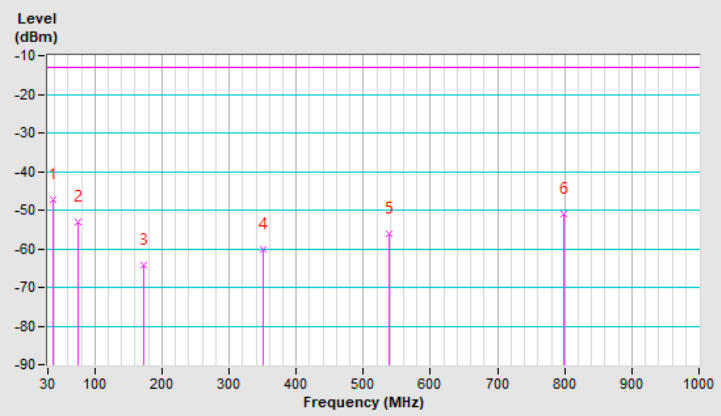
Below 1GHz
LTE Band 66 (CA 66C)

Mode	TX channel 132072 (1720.0MHz) + TX channel 132270 (1739.8MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
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	38.73	-47.21	-13.00	-34.21	1.25 H	108	57.65	-104.86
2	75.59	-53.21	-13.00	-40.21	1.50 H	136	54.36	-107.57
3	172.59	-64.13	-13.00	-51.13	1.50 H	264	40.30	-104.43
4	350.10	-60.25	-13.00	-47.25	1.25 H	318	40.81	-101.06
5	538.28	-55.94	-13.00	-42.94	1.00 H	337	40.97	-96.91
6	799.21	-51.18	-13.00	-38.18	1.25 H	284	40.55	-91.73

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.

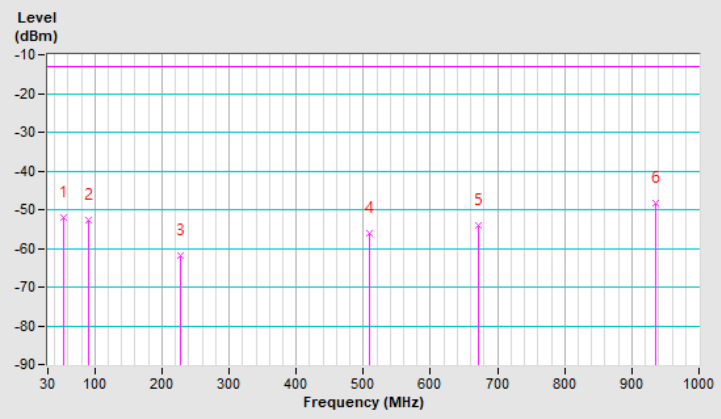


Mode	TX channel 132072 (1720.0MHz) + TX channel 132270 (1739.8MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

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	53.28	-52.13	-13.00	-39.13	1.00 V	258	52.10	-104.23
2	91.11	-52.73	-13.00	-39.73	1.25 V	336	57.08	-109.81
3	227.88	-61.87	-13.00	-48.87	1.00 V	49	44.12	-105.99
4	509.18	-56.07	-13.00	-43.07	1.50 V	341	41.21	-97.28
5	672.14	-53.98	-13.00	-40.98	1.25 V	243	40.47	-94.45
6	935.98	-48.22	-13.00	-35.22	1.00 V	136	40.69	-88.91

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.



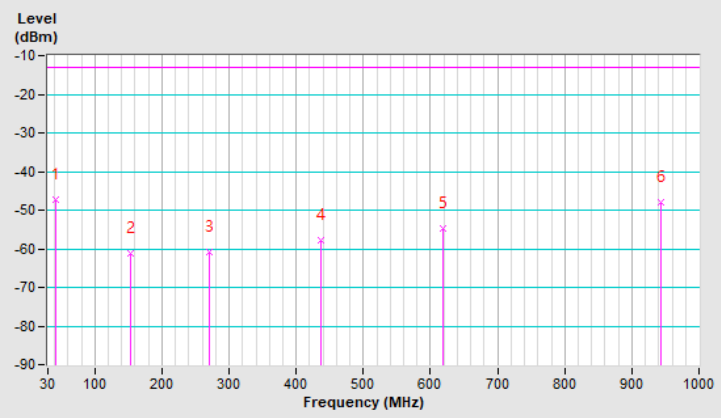
LTE Band 66 (CA 66B)

Mode	TX channel 132523 (1765.1MHz)+ TX channel 132622 (1775.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
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	42.61	-47.24	-13.00	-34.24	1.00 H	39	57.30	-104.54
2	153.19	-61.31	-13.00	-48.31	1.25 H	246	42.55	-103.86
3	270.56	-60.88	-13.00	-47.88	1.25 H	176	42.06	-102.94
4	436.43	-57.67	-13.00	-44.67	1.50 H	269	41.09	-98.76
5	617.82	-54.83	-13.00	-41.83	1.25 H	231	40.30	-95.13
6	942.77	-48.08	-13.00	-35.08	1.00 H	309	40.81	-88.89

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.

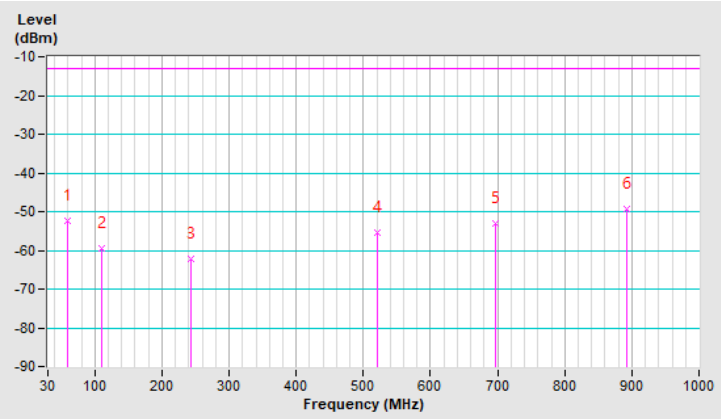


Mode	TX channel 132523 (1765.1MHz)+ TX channel 132622 (1775.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

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	59.10	-52.39	-13.00	-39.39	1.25 V	107	52.25	-104.64
2	109.54	-59.47	-13.00	-46.47	1.00 V	224	47.79	-107.26
3	243.40	-62.18	-13.00	-49.18	1.25 V	294	42.11	-104.29
4	521.79	-55.36	-13.00	-42.36	1.25 V	337	41.75	-97.11
5	696.39	-53.14	-13.00	-40.14	1.25 V	216	40.96	-94.10
6	893.30	-49.27	-13.00	-36.27	1.50 V	268	40.72	-89.99

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.



Above 1GHz
LTE Band 66 (CA 66C)

Mode	TX channel 132072 (1720.0MHz)+ TX channel 132270 (1739.8MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
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	3440.00	-44.46	-13.00	-31.46	2.37 H	206	48.62	-93.08
2	3479.60	-44.16	-13.00	-31.16	2.29 H	212	48.58	-92.74
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	3440.00	-46.21	-13.00	-33.21	2.83 V	68	46.87	-93.08
2	3479.60	-45.87	-13.00	-32.87	2.83 V	64	46.87	-92.74

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) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Mode	TX channel 132323 (1745.1MHz)+ TX channel 132521 (1764.9MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
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	3490.20	-44.55	-13.00	-31.55	2.39 H	201	48.11	-92.66
2	3529.80	-44.32	-13.00	-31.32	2.33 H	216	48.06	-92.38
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	3490.20	-46.42	-13.00	-33.42	2.87 V	72	46.24	-92.66
2	3529.80	-46.01	-13.00	-33.01	2.80 V	60	46.37	-92.38

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.

Mode	TX channel 132374 (1750.2MHz)+ TX channel 132572 (1770.0MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
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	3500.40	-44.76	-13.00	-31.76	2.43 H	211	47.81	-92.57
2	3540.00	-44.53	-13.00	-31.53	2.30 H	222	47.77	-92.30
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	3500.40	-46.64	-13.00	-33.64	2.77 V	77	45.93	-92.57
2	3540.00	-46.30	-13.00	-33.30	2.91 V	66	46.00	-92.30

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.

LTE Band 66 (CA 66B)

Mode	TX channel 132022 (1715.0MHz)+ TX channel 132121 (1724.9MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
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	3430.00	-43.99	-13.00	-30.99	2.29 H	206	49.14	-93.13
2	3449.80	-44.00	-13.00	-31.00	2.33 H	192	49.00	-93.00
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	3430.00	-45.64	-13.00	-32.64	2.67 V	86	47.49	-93.13
2	3449.80	-45.43	-13.00	-32.43	2.50 V	60	47.57	-93.00

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.

Mode	TX channel 132373 (1750.1MHz)+ TX channel 132472 (1760.0MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
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	3500.20	-44.30	-13.00	-31.30	2.33 H	211	48.27	-92.57
2	3520.00	-44.10	-13.00	-31.10	2.39 H	188	48.34	-92.44
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	3500.20	-45.76	-13.00	-32.76	2.55 V	93	46.81	-92.57
2	3520.00	-45.64	-13.00	-32.64	2.67 V	69	46.80	-92.44

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) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

Mode	TX channel 132523 (1765.1MHz)+ TX channel 132622 (1775.0MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
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	3530.20	-43.89	-13.00	-30.89	2.27 H	201	48.49	-92.38
2	**3550.00**	**-43.73**	**-13.00**	**-30.73**	**2.31 H**	**197**	**48.52**	**-92.25**
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	3530.20	-45.41	-13.00	-32.41	2.79 V	73	46.97	-92.38
2	3550.00	-45.29	-13.00	-32.29	2.57 V	66	46.96	-92.25

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.

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

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