FCC Test Report
(Part 96: CA mode (LTE Band 48C))

Report No.:	RFBFLF-WTW-P21010278-20
FCC ID:	MSQI007D
Test Model:	ASUS_I007D
Received Date:	Jan. 04, 2021
Test Date:	Mar. 11 ~ Apr. 09, 2021
Issued Date:	Apr. 12, 2021
Applicant:	ASUSTeK COMPUTER INC.
Address:	1F., No. 15, Lide Rd., Beitou Dist., Taipei City 112, Taiwan
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
RFBFLF-WTW-P21010278-20	Original release	Apr. 12, 2021

1 Certificate of Conformity

Product:	EXP21 Smartphone
Brand:	ASUS
Test Model:	ASUS_I007D
Sample Status:	Engineering sample
Applicant:	ASUSTeK COMPUTER INC.
Test Date:	Mar. 11 ~ Apr. 09, 2021
Standards:	47 CFR FCC Part 96

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 : Pettie Chen , **Date:** Apr. 12, 2021

Pettie Chen / Senior Specialist

Approved by : Bruce Chen , **Date:** Apr. 12, 2021

Bruce Chen / Senior Project Engineer

2 Summary of Test Results

47 CFR FCC Part 96			
FCC Clause	Test Item	Result	Remarks
2.1046 96.41(b)	Maximum Peak Output Power	Pass	Meet the requirement of limit.
2.1047 96.41(a)	Modulation Characteristics	Pass	Refer to Note 2
96.41(g)	Peak to Average Ration	Pass	Meet the requirement of limit.
2.1049	Emission Bandwidth	Pass	Meet the requirement of limit.
2.1055	Frequency Stability	Pass	Meet the requirement of limit.
2.1051 96.41(e)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 96.41(e)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -2.63dB at 7380.00MHz.

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.: RFBFLF-WTW-P21010278-13 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	9 kHz ~ 30MHz	3.04 dB
	30 MHz ~ 200 MHz	3.59 dB
	200 MHz ~ 1000 MHz	3.60 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.29 dB
	18 GHz ~ 40 GHz	2.29 dB

2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Dec. 31, 2020	Dec. 30, 2021
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 16, 2020	Sep. 15, 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
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. 08, 2020	Jun. 07, 2021
Preamplifier KEYSIGHT (Above 1GHz)	8449B	3008A02367	Feb. 17, 2021	Feb. 16, 2022
RF Coaxial Cable WOKEN With 5dB PAD	8D-FB	Cable-CH9-01	Jun. 08, 2020	Jun. 07, 2021
RF Coaxial Cable EMCI	EMC102-KM-KM-3000	150929	Aug. 16, 2020	Aug. 15, 2021
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	Aug. 16, 2020	Aug. 15, 2021
RF signal cable HUBER+SUHNER	SUCOFLEX 104	MY 13380+295012/04	Jun. 08, 2020	Jun. 07, 2021
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03 (250724)	Jun. 08, 2020	Jun. 07, 2021
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021703	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100	SC93021703	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. 09, 2020	Sep. 08, 2021
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
True RMS Clamp Meter Fluke	325	31130711WS	Jun. 06, 2020	Jun. 05, 2021
DC power supply	U8002A	MY56330015	NA	NA
Radio Communication Analyzer Anritsu	MT8821C	6201462755	Feb. 07, 2021	Feb. 06, 2022

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.

2.3 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	EXP21 Smartphone				
Brand	ASUS				
Test Model	ASUS_I007D				
Status of EUT	Engineering sample				
Power Supply Rating	7.74 Vdc (Battery) 5 Vdc / 9 Vdc / 12 Vdc / 15Vdc / 20Vdc (Adapter)				
Modulation Type	QPSK, 16QAM, 64QAM, 256QAM				
Operating Frequency	LTE Band 48C	3560 ~ 3690 MHz			
Max. EIRP Power		QPSK	16QAM	64QAM	256QAM
	LTE Band 48C (Full Power) (20MHz+20MHz)	72.778mW (18.62 dBm/10MHz)	55.590mW (17.45 dBm/10MHz)	46.132mW (16.64 dBm/10MHz)	36.644mW (15.64 dBm/10MHz)
	LTE Band 48C (Per 10M Power) (20MHz+20MHz)	57.016mW (17.56 dBm/10MHz)	45.290mW (16.56 dBm/10MHz)	40.365mW (16.06 dBm/10MHz)	32.063mW (15.06 dBm/10MHz)
Emission Designator	LTE Band 48C (20MHz+20MHz)	37M4G7D	37M4D7W	37M4D7W	37M4D7W
Antenna Type	Refer to Note as below				
Accessory Device	Refer to Note as below				
Data Cable Supplied	Refer to Note as below				

Note:

1. The EUT contains following accessory devices.

Product	Brand	Model	Description
Battery	SCUD	C21P2002	Rating: 7.74 Vdc, 15.2 Wh
Adapter	AOHAI	A320Q-200325C-US	I/P: 100-240Vac, 50/60Hz,1.5A O/P: 5 Vdc, 3 A; 9 Vdc, 3 A; 12 Vdc, 3A; 15 Vdc, 3 A; 20 Vdc, 3.25 A
Type A to Type C USB Cable	Luxshare	LA9U2026-CS-R	0.5m
Type C to Type C Cable	Luxshare	LA9UC006-CS-R	1.2m
Bluetooth Earphone	Bang & Olufsen	EQ Earbud R	FCC ID: TTUBEOPLAYEQR IC: 3775B-BEOPLAYEQR
		EQ Earbud L	FCC ID: TTUBEOPLAYEQL IC: 3775B-BEOPLAYEQL
Bluetooth Earphone Charging Case	Bang & Olufsen	EQ Charging case	I/P: 5Vdc/500mA O/P: 5Vdc/ R170mA; L170mA

2. The following antennas were provided to the EUT.

Ant. No.	Brand	Model	Ant. Type	Connecter	Frequency Range
Ant 0	ASUS	ZS675KW	PIFA	LCP+Ipex	610-960MHz, 1710-2690MHz
Ant 1	ASUS	ZS675KW	PIFA	LCP+Ipex	1427-1510MHz, 1710-2690MHz
Ant 2	ASUS	ZS675KW	PIFA	LCP+Ipex	610-960MHz, 1427-1510MHz, 1710-2690MHz
Ant 3	INPAQ	ZS675KW	PIFA	Ipex	1575-1610MHz, 2400-2500MHz, 5150-5850MHz, 5925-7125MHz
Ant 4	INPAQ	ZS675KW	PIFA	Ipex	1176±10MHz, 2400-2500MHz, 5150-5850MHz, 5925-7125MHz
Ant 5	INPAQ	ZS675KW	PIFA	LCP+Ipex	3300-4000MHz, 4400-5000MHz
Ant 6	INPAQ	ZS675KW	PIFA	Ipex	1427-1510MHz, 2400-2500MHz, 5150-5850MHz, 5925-7125MHz
Ant 7	INPAQ	ZS675KW	PIFA	LCP+Ipex	3300-4000MHz, 4400-5000MHz
Ant 8	ASUS	ZS675KW	PIFA	LCP+Ipex	1427-1510MHz, 1710-2690MHz
Ant 9	ASUS	ZS675KW	PIFA	LCP+Ipex	1710-2690MHz
Ant 10	INPAQ	ZS675KW	PIFA	Ipex	3300-4000MHz, 4400-5000MHz
Ant 11	INPAQ	ZS675KW	PIFA	Ipex	3300-4000MHz, 4400-5000MHz

2G / 3G Band													
Band	Freq. Range (MHz)	Gain (dBi)											
		Ant. 0	Ant. 1	Ant. 2	Ant. 3	Ant. 4	Ant. 5	Ant. 6	Ant. 7	Ant. 8	Ant. 9	Ant. 10	Ant. 11
GSM-850	824 ~ 849	-1.891		-4.526									
GSM-1900	1850 ~ 1910		-1.887	-1.394						-2.89579			
WCDMA B2	1850 ~ 1910		-1.887	-1.394						-2.89579			
WCDMA B4	1710 ~ 1755		-2.884	-3.228						-3.13552			
WCDMA B5	824 ~ 849	-1.891		-4.526									
CDMA BC0	815 ~ 849	-1.891		-4.526									
CDMA BC1	1850 ~ 1910		-1.887	-1.394						-2.89579			
CDMA BC10	806 ~ 901	-1.891		-4.526									
LTE B2	1850 ~ 1910		-1.887	-1.394						-2.89579	-1.804		
LTE B4	1710 ~ 1755		-2.884	-3.228						-3.13552	-1.706		
LTE B5	824 ~ 849	-1.891		-4.526									
LTE B7	2500 ~ 2570		0.185	-0.657						-0.50837	-1.117		
LTE B12	698 ~ 716	-2.135		-4.343									
LTE B13	777 ~ 787	-4.37		-8.13									
LTE B14	788 ~ 798	-4.37		-7.931									
LTE B17	704 ~ 716	-2.135		-4.343									
LTE B25	1850 ~ 1915		-1.887	-1.394						-2.89579			
LTE B26	814 ~ 849	-1.891		-4.526									
LTE B30	2305 ~ 2315		-1.326	-2.669						-1.28433			
LTE B66	1710 ~ 1780		-2.884	-2.478						-3.0668	-1.685		
LTE B71	663 ~ 698	-5.741		-7.388									
T-LTE B38	2570 ~ 2620		0.724	-0.912						-0.59557			
T-LTE B40	2300 ~ 2400		-1.326	-2.669						-1.28433			
T-LTE B41	2496 ~ 2690		1.143	-0.657						-0.59557			
T-LTE B42	3400 ~ 3600						0.313		0.5277			-2.493	-0.35195
T-LTE B43	3600 ~ 3800						-0.434		0.5277			-0.477	-0.161
T-LTE B48	3550 ~ 3700						-0.434		0.5277			-0.477	-0.161

5G FR1 Band												
Band	Freq. Range (MHz)	Gain (dBi)										
		Ant. 0	Ant. 1	Ant. 2	Ant. 3	Ant. 4	Ant. 5	Ant. 6	Ant. 7	Ant. 8	Ant. 9	Ant. 10	Ant. 11
n2	1850 ~ 1910		-1.887	-1.394						-2.89579	-1.804		
n5	824 ~ 849	-1.891		-4.526									
n7	2500 ~ 2570		0.185	-0.657						-0.50837	-1.117		
n12	699 ~ 716	-2.135		-4.343									
n13	777 ~ 787	-4.37		-8.13									
n14	788 ~ 798	-4.37		-7.931									
n25	1850 ~ 1915		-1.887	-1.394						-2.89579	-1.627		
n26	814 ~ 849	-1.891		-4.526									
n30	2305 ~ 2315		-1.326	-2.669						-1.28433			
n38	2570 ~ 2620		0.724	-0.912						-0.59557	-1.3		
n41	2496 ~ 2690		1.143	-0.657						-0.59557	-0.076		
n66	1710 ~ 1780		-2.884	-2.478						-3.0668	-1.685		
n71	663 ~ 698	-5.741		-7.388									
n77	3300 ~ 4200						0.313		0.5277			2.017	0.19902
n78	3300 ~ 3800						0.313		0.5277			2.017	-0.161

* 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. 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.
4. For CA mode configuration, please consult the manufacturer to declare the test mode.
5. E-UTRA CA configuration / Bandwidth combination set.

E-UTRA CA configuration / Bandwidth combination set					
E-UTRA CA configuration	Uplink CA configurations	Component carriers in order of increasing carrier frequency		Maximum aggregated bandwidth [MHz]	Bandwidth combination set
		Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]		
CA_48C	CA_48C	5, 10, 15, 20	20	40	0
		20	5, 10, 15		

*48C is continuous CA and maximum combination is 20M+20M.

3.2 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 Y-plane. Following channel(s) was (were) selected for the final test as listed below:

LTE Band 48 (CA 48C)

Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation
Maximum Output Power	55340 to 56442 55538 to 56640	55340 (3560.0MHz)+ 55538 (3579.8MHz), 55891 (3615.1MHz)+ 56089 (3634.9MHz), 56642 (3670.2MHz)+ 56640 (3690.0MHz)	20MHz+20MHz	QPSK / 16QAM / 64QAM / 256QAM
Frequency Stability	55340 to 56442 55538 to 56640	55891 (3615.1MHz)+ 56089 (3634.9MHz)	20MHz+20MHz	QPSK
Occupied Bandwidth	55340 to 56442 55538 to 56640	55340 (3560.0MHz)+ 55538 (3579.8MHz), 55891 (3615.1MHz)+ 56089 (3634.9MHz), 56642 (3670.2MHz)+ 56640 (3690.0MHz)	20MHz+20MHz	QPSK / 16QAM / 64QAM / 256QAM
Peak to Average Ratio	55340 to 56442 55538 to 56640	55340 (3560.0MHz)+ 55538 (3579.8MHz), 55891 (3615.1MHz)+ 56089 (3634.9MHz), 56642 (3670.2MHz)+ 56640 (3690.0MHz)	20MHz+20MHz	QPSK / 16QAM / 64QAM / 256QAM
Conducted Emission	55340 to 56442 55538 to 56640	55340 (3560.0MHz)+ 55538 (3579.8MHz), 55891 (3615.1MHz)+ 56089 (3634.9MHz), 56642 (3670.2MHz)+ 56640 (3690.0MHz)	20MHz+20MHz	QPSK
Radiated Emission Below 1GHz	55340 to 56442 55538 to 56640	56642 (3670.2MHz)+ 56640 (3690.0MHz)	20MHz+20MHz	QPSK
Radiated Emission Above 1GHz	55340 to 56442 55538 to 56640	55340 (3560.0MHz)+ 55538 (3579.8MHz), 55891 (3615.1MHz)+ 56089 (3634.9MHz), 56642 (3670.2MHz)+ 56640 (3690.0MHz)	20MHz+20MHz	QPSK

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 1 GHz, choose the maximum EIRP power worst mode for final test.
3. LTE CA mode is similar to digital modulation in LTE single frequency band, so please refer to BV CPS report no.: RFBFLF-WTW-P21010278-13 for the modulation characteristics data of CA mode.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
Maximum Output Power	25deg. C, 60%RH	120Vac, 60Hz	Willy Cheng
Frequency Stability	25deg. C, 60%RH	7.74Vdc	Willy Cheng
Occupied Bandwidth	25deg. C, 60%RH	120Vac, 60Hz	Willy Cheng
Peak to Average Ratio	25deg. C, 60%RH	120Vac, 60Hz	Willy Cheng
Condcudeted Emission	25deg. C, 60%RH	120Vac, 60Hz	Willy Cheng
Radiated Emission	22deg. C, 66%RH	120Vac, 60Hz	Rex Wang

3.3 Description of Support Units

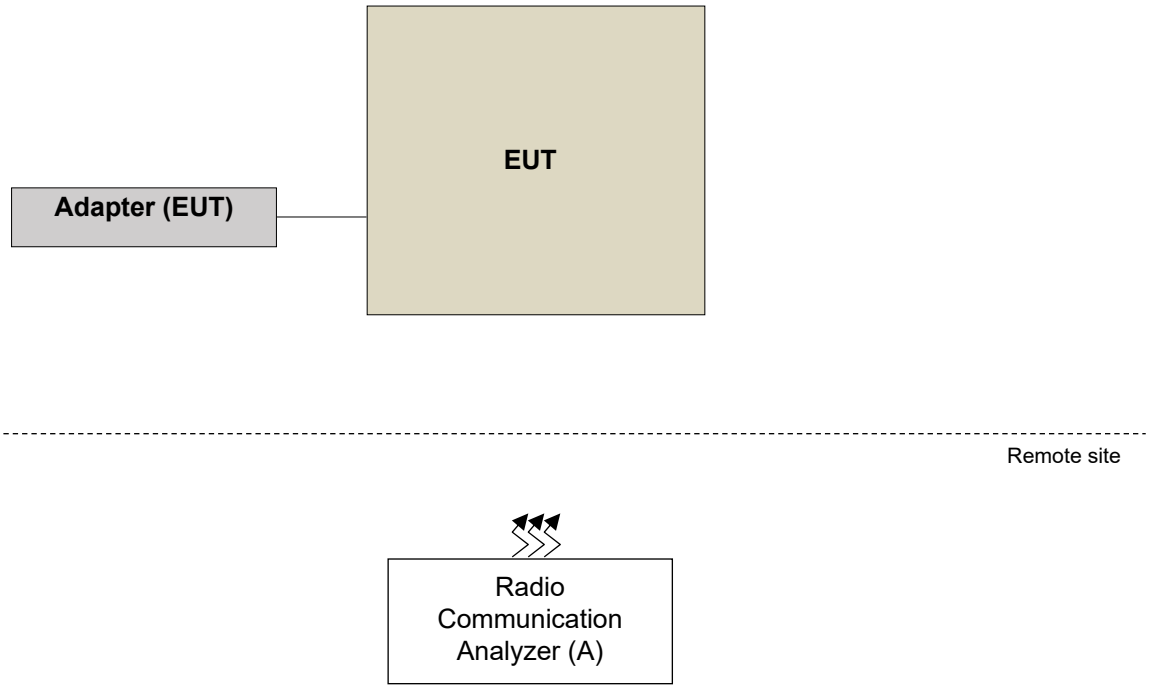
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Radio Communication Analyzer	Anritsu	MT8821C	6261806803	NA	-

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.

3.3.1 Configuration of System under Test



3.4 General Description of Applied Standards and References

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

Test Standard:

FCC 47 CFR Part 2

FCC 47 CFR Part 96

ANSI/TIA/EIA-603-D-2010

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

KDB 940660 D01 Part 96 CBRS Eqpt v02

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

4 Test Types and Results

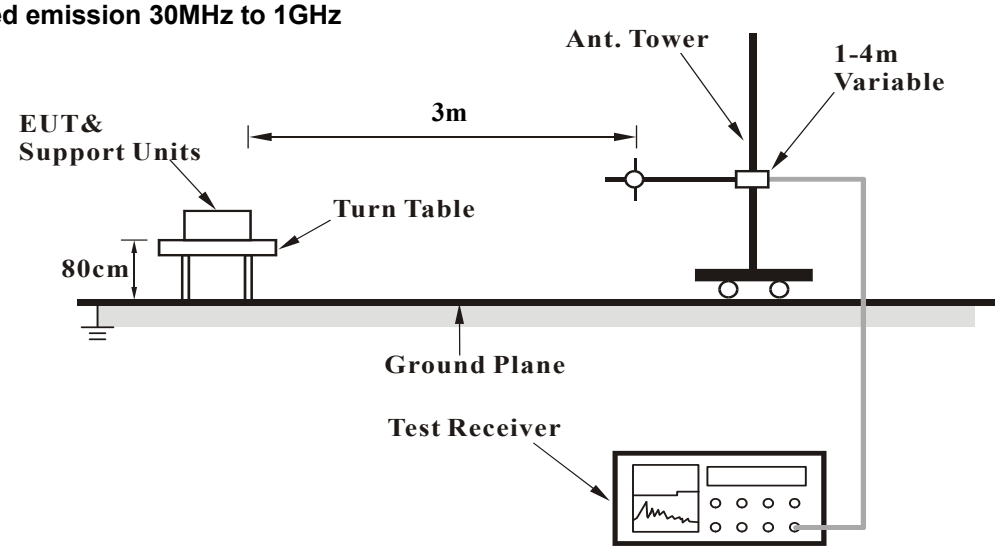
4.1 Maximum Output Power Measurement

4.1.1 Limits of Maximum Output Power Measurement

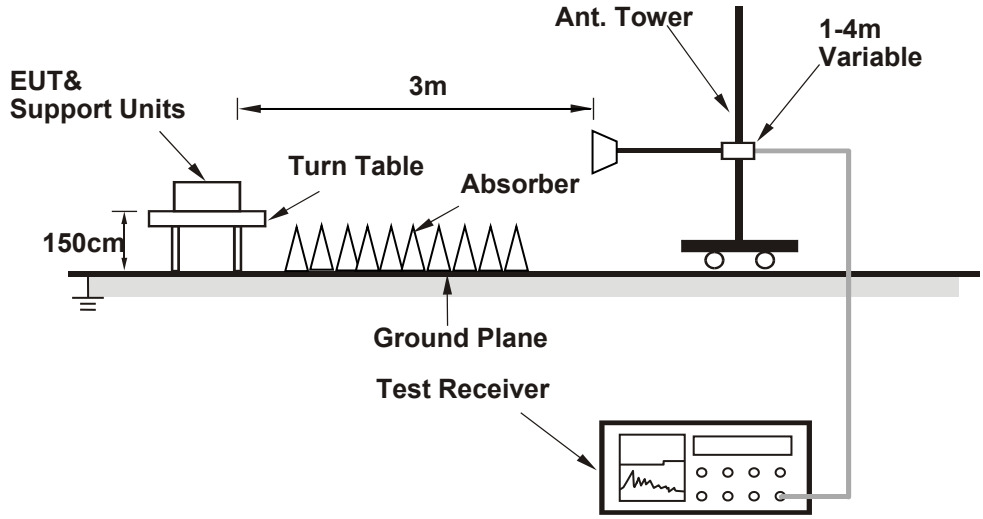
Device		Maximum Output Power (dBm/10 MHz)
☒	End User Device	23
☐	Category A CBSD	30
☐	Category B CBSD	47

4.1.2 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).

4.1.3 Test Procedures

a. Set span to at least 1.5 times the OBW.
b. Set RBW = 1-5% of the OBW, not to exceed 1 MHz.
c. Set VBW ≥ 3 × RBW.
d. Set number of points in sweep ≥ 2 × span / RBW.
e. Sweep time = auto-couple.
f. Detector = RMS (power averaging).
g. If the EUT can be configured to transmit continuously (i.e., burst duty cycle ≥ 98%), then set the trigger to free run.
h. If the EUT cannot be configured to transmit continuously (i.e., burst duty cycle < 98 %), then use a sweep trigger with the level set to enable triggering only on full power bursts and configure the EUT to transmit at full power for the entire duration of each sweep. Ensure that the sweep time is less than or equal to the transmission burst duration.
i. Trace average at least 100 traces in power averaging (i.e., RMS) mode.
j. Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band or channel power measurement function, with the band/channel limits set equal to the OBW band edges. If the instrument does not have a band or channel power function, then sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.
k. For per 10MHz method, channel power integrating bandwidth 10MHz is used for bandwidth 5M, 10M, 15M and 20M. For full power method, channel power integrating bandwidth 10MHz is used for bandwidth 5M, 10M, integrating bandwidth 15MHz is used for bandwidth 15M, integrating bandwidth 20MHz is used for bandwidth 20M.
l. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
m. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15 dB. Correction Factor (includes EIRP and ERP unit conversion factor) = Antenna gain of substitution horn. – Tx cable loss.
n. Measurement method refers to ANSI C63.26 section 5.2.7 & 5.2.4.

4.1.4 Deviation from Test Standard

No deviation.

4.1.5 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.1.6 Test Results

EIRP Full Power (dBm/10MHz)

Modulation Type: QPSK

LTE Band 48, Channel Bandwidth 20MHz+20MHz

Mode		Channel 55340 (3560.0MHz) + Channel 55538 (3579.8MHz)						
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3560.00	18.62	23.00	-4.38	1.62 H	217	80.59	-61.97
2	3579.80	18.45	23.00	-4.55	1.70 H	222	80.36	-61.91
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3560.00	17.26	23.00	-5.74	2.32 V	117	79.23	-61.97
2	3579.80	17.14	23.00	-5.86	2.20 V	102	79.05	-61.91

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 48, Channel Bandwidth 20MHz+20MHz

Mode		Channel 55891 (3615.1MHz) + Channel 56089 (3634.9MHz)						
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3615.10	18.12	23.00	-4.88	1.44 H	220	79.94	-61.82
2	3634.90	18.11	23.00	-4.89	1.49 H	212	79.89	-61.78
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3615.10	17.12	23.00	-5.88	2.44 V	120	78.94	-61.82
2	3634.90	17.00	23.00	-6.00	2.19 V	112	78.78	-61.78

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 48, Channel Bandwidth 20MHz+20MHz

Mode	Channel 56642 (3670.2MHz) + Channel 56640 (3690.0MHz)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3670.20	18.01	23.00	-4.99	1.42 H	232	79.72	-61.71
2	3690.00	17.91	23.00	-5.09	1.49 H	236	79.60	-61.69
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3670.20	16.90	23.00	-6.10	2.52 V	152	78.61	-61.71
2	3690.00	16.79	23.00	-6.21	2.60 V	137	78.48	-61.69

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.

Modulation Type: 16QAM

LTE Band 48, Channel Bandwidth 20MHz+20MHz

Mode	Channel 55340 (3560.0MHz) + Channel 55538 (3579.8MHz)							
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3560.00	17.16	23.00	-5.84	1.62 H	217	79.13	-61.97
2	3579.80	17.45	23.00	-5.55	1.70 H	222	79.36	-61.91
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3560.00	16.26	23.00	-6.74	2.32 V	117	78.23	-61.97
2	3579.80	16.14	23.00	-6.86	2.20 V	102	78.05	-61.91

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 48, Channel Bandwidth 20MHz+20MHz

Mode	Channel 55891 (3615.1MHz) + Channel 56089 (3634.9MHz)							
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3615.10	17.12	23.00	-5.88	1.44 H	220	78.94	-61.82
2	3634.90	17.11	23.00	-5.89	1.49 H	212	78.89	-61.78
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3615.10	16.12	23.00	-6.88	2.44 V	120	77.94	-61.82
2	3634.90	16.00	23.00	-7.00	2.19 V	112	77.78	-61.78

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 48, Channel Bandwidth 20MHz+20MHz

Mode	Channel 56642 (3670.2MHz) + Channel 56640 (3690.0MHz)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3670.20	17.01	23.00	-5.99	1.42 H	232	78.72	-61.71
2	3690.00	16.90	23.00	-6.10	1.49 H	236	78.59	-61.69
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3670.20	15.90	23.00	-7.10	2.52 V	152	77.61	-61.71
2	3690.00	15.79	23.00	-7.21	2.60 V	137	77.48	-61.69

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.

Modulation Type: 64QAM

LTE Band 48, Channel Bandwidth 20MHz+20MHz

Mode	Channel 55340 (3560.0MHz) + Channel 55538 (3579.8MHz)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3560.00	16.32	23.00	-6.68	1.62 H	217	78.29	-61.97
2	3579.80	16.64	23.00	-6.36	1.70 H	222	78.55	-61.91
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3560.00	15.63	23.00	-7.37	2.32 V	117	77.60	-61.97
2	3579.80	15.61	23.00	-7.39	2.20 V	102	77.52	-61.91

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 48, Channel Bandwidth 20MHz+20MHz

Mode	Channel 55891 (3615.1MHz) + Channel 56089 (3634.9MHz)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3615.10	16.51	23.00	-6.49	1.44 H	220	78.33	-61.82
2	3634.90	16.41	23.00	-6.59	1.49 H	212	78.19	-61.78
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3615.10	15.51	23.00	-7.49	2.44 V	120	77.33	-61.82
2	3634.90	15.42	23.00	-7.58	2.19 V	112	77.20	-61.78

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 48, Channel Bandwidth 20MHz+20MHz

Mode	Channel 56642 (3670.2MHz) + Channel 56640 (3690.0MHz)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3670.20	16.50	23.00	-6.50	1.42 H	232	78.21	-61.71
2	3690.00	16.30	23.00	-6.70	1.49 H	236	77.99	-61.69
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3670.20	15.30	23.00	-7.70	2.52 V	152	77.01	-61.71
2	3690.00	15.08	23.00	-7.92	2.60 V	137	76.77	-61.69

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.

Modulation Type: 256QAM

LTE Band 48, Channel Bandwidth 20MHz+20MHz

Mode	Channel 55340 (3560.0MHz) + Channel 55538 (3579.8MHz)							
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3560.00	15.32	23.00	-7.68	1.62 H	217	77.29	-61.97
2	3579.80	15.64	23.00	-7.36	1.70 H	222	77.55	-61.91
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3560.00	14.63	23.00	-8.37	2.32 V	117	76.60	-61.97
2	3579.80	14.61	23.00	-8.39	2.20 V	102	76.52	-61.91

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 48, Channel Bandwidth 20MHz+20MHz

Mode	Channel 55891 (3615.1MHz) + Channel 56089 (3634.9MHz)							
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3615.10	15.50	23.00	-7.50	1.44 H	220	77.32	-61.82
2	3634.90	15.41	23.00	-7.59	1.49 H	212	77.19	-61.78
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3615.10	14.51	23.00	-8.49	2.44 V	120	76.33	-61.82
2	3634.90	14.42	23.00	-8.58	2.19 V	112	76.20	-61.78

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 48, Channel Bandwidth 20MHz+20MHz

Mode	Channel 56642 (3670.2MHz) + Channel 56640 (3690.0MHz)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3670.20	15.50	23.00	-7.50	1.42 H	232	77.21	-61.71
2	3690.00	15.30	23.00	-7.70	1.49 H	236	76.99	-61.69
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3670.20	14.30	23.00	-8.70	2.52 V	152	76.01	-61.71
2	3690.00	14.08	23.00	-8.92	2.60 V	137	75.77	-61.69

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.

EIRP (dBm/10MHz)

Modulation Type: QPSK

LTE Band 48, Channel Bandwidth 20MHz+20MHz

Mode		Channel 55340 (3560.0MHz) + Channel 55538 (3579.8MHz)						
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3560.00	17.56	23.00	-5.44	1.62 H	217	79.53	-61.97
2	3579.80	17.34	23.00	-5.66	1.70 H	222	79.25	-61.91
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3560.00	16.03	23.00	-6.97	2.32 V	117	78.00	-61.97
2	3579.80	16.14	23.00	-6.86	2.20 V	102	78.05	-61.91

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 48, Channel Bandwidth 20MHz+20MHz

Mode		Channel 55891 (3615.1MHz) + Channel 56089 (3634.9MHz)						
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3615.10	17.10	23.00	-5.90	1.44 H	220	78.92	-61.82
2	3634.90	17.01	23.00	-5.99	1.49 H	212	78.79	-61.78
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3615.10	16.21	23.00	-6.79	2.44 V	120	78.03	-61.82
2	3634.90	16.05	23.00	-6.95	2.19 V	112	77.83	-61.78

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 48, Channel Bandwidth 20MHz+20MHz

Mode	Channel 56642 (3670.2MHz) + Channel 56640 (3690.0MHz)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3670.20	17.01	23.00	-5.99	1.42 H	232	78.72	-61.71
2	3690.00	17.01	23.00	-5.99	1.49 H	236	78.70	-61.69
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3670.20	15.90	23.00	-7.10	2.52 V	152	77.61	-61.71
2	3690.00	15.88	23.00	-7.12	2.60 V	137	77.57	-61.69

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.

Modulation Type: 16QAM

LTE Band 48, Channel Bandwidth 20MHz+20MHz

Mode	Channel 55340 (3560.0MHz) + Channel 55538 (3579.8MHz)							
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3560.00	16.56	23.00	-6.44	1.62 H	217	78.53	-61.97
2	3579.80	16.34	23.00	-6.66	1.70 H	222	78.25	-61.91
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3560.00	15.03	23.00	-7.97	2.32 V	117	77.00	-61.97
2	3579.80	15.14	23.00	-7.86	2.20 V	102	77.05	-61.91

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 48, Channel Bandwidth 20MHz+20MHz

Mode	Channel 55891 (3615.1MHz) + Channel 56089 (3634.9MHz)							
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3615.10	16.10	23.00	-6.90	1.44 H	220	77.92	-61.82
2	3634.90	16.01	23.00	-6.99	1.49 H	212	77.79	-61.78
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3615.10	15.20	23.00	-7.80	2.44 V	120	77.02	-61.82
2	3634.90	15.05	23.00	-7.95	2.19 V	112	76.83	-61.78

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 48, Channel Bandwidth 20MHz+20MHz

Mode	Channel 56642 (3670.2MHz) + Channel 56640 (3690.0MHz)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3670.20	16.02	23.00	-6.98	1.42 H	232	77.73	-61.71
2	3690.00	15.90	23.00	-7.10	1.49 H	236	77.59	-61.69
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3670.20	14.90	23.00	-8.10	2.52 V	152	76.61	-61.71
2	3690.00	14.88	23.00	-8.12	2.60 V	137	76.57	-61.69

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.

Modulation Type: 64QAM

LTE Band 48, Channel Bandwidth 20MHz+20MHz

Mode	Channel 55340 (3560.0MHz) + Channel 55538 (3579.8MHz)							
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3560.00	16.06	23.00	-6.94	1.62 H	217	78.03	-61.97
2	3579.80	15.63	23.00	-7.37	1.70 H	222	77.54	-61.91
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3560.00	14.40	23.00	-8.60	2.32 V	117	76.37	-61.97
2	3579.80	14.50	23.00	-8.50	2.20 V	102	76.41	-61.91

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 48, Channel Bandwidth 20MHz+20MHz

Mode	Channel 55891 (3615.1MHz) + Channel 56089 (3634.9MHz)							
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3615.10	15.41	23.00	-7.59	1.44 H	220	77.23	-61.82
2	3634.90	15.30	23.00	-7.70	1.49 H	212	77.08	-61.78
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3615.10	14.62	23.00	-8.38	2.44 V	120	76.44	-61.82
2	3634.90	14.51	23.00	-8.49	2.19 V	112	76.29	-61.78

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 48, Channel Bandwidth 20MHz+20MHz

Mode	Channel 56642 (3670.2MHz) + Channel 56640 (3690.0MHz)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3670.20	15.30	23.00	-7.70	1.42 H	232	77.01	-61.71
2	3690.00	15.29	23.00	-7.71	1.49 H	236	76.98	-61.69
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3670.20	14.39	23.00	-8.61	2.52 V	152	76.10	-61.71
2	3690.00	14.29	23.00	-8.71	2.60 V	137	75.98	-61.69

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.

Modulation Type: 256QAM

LTE Band 48, Channel Bandwidth 20MHz+20MHz

Mode	Channel 55340 (3560.0MHz) + Channel 55538 (3579.8MHz)							
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3560.00	15.06	23.00	-7.94	1.62 H	217	77.03	-61.97
2	3579.80	14.63	23.00	-8.37	1.70 H	222	76.54	-61.91
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3560.00	13.40	23.00	-9.60	2.32 V	117	75.37	-61.97
2	3579.80	13.50	23.00	-9.50	2.20 V	102	75.41	-61.91

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 48, Channel Bandwidth 20MHz+20MHz

Mode	Channel 55891 (3615.1MHz) + Channel 56089 (3634.9MHz)							
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3615.10	14.41	23.00	-8.59	1.44 H	220	76.23	-61.82
2	3634.90	14.30	23.00	-8.70	1.49 H	212	76.08	-61.78
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3615.10	13.62	23.00	-9.38	2.44 V	120	75.44	-61.82
2	3634.90	13.51	23.00	-9.49	2.19 V	112	75.29	-61.78

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 48, Channel Bandwidth 20MHz+20MHz

Mode	Channel 56642 (3670.2MHz) + Channel 56640 (3690.0MHz)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3670.20	14.30	23.00	-8.70	1.42 H	232	76.01	-61.71
2	3690.00	14.29	23.00	-8.71	1.49 H	236	75.98	-61.69
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3670.20	13.39	23.00	-9.61	2.52 V	152	75.10	-61.71
2	3690.00	13.29	23.00	-9.71	2.60 V	137	74.98	-61.69

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.

4.2 Frequency Stability Measurement

4.2.1 Limits of Frequency Stabiliity Measurement

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency band.

4.2.2 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.

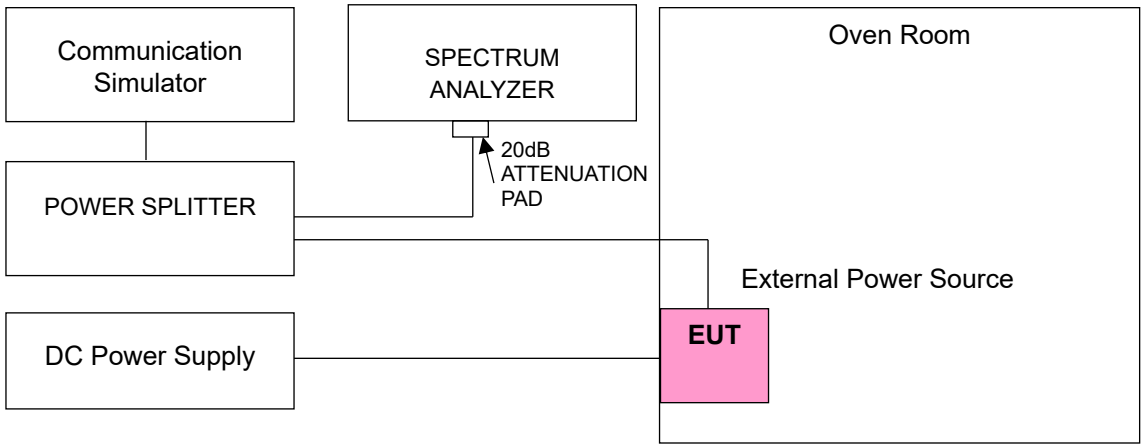
NOTE: The frequency error was recorded frequency error from the communication simulator.

4.2.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Radio Communication Analyzer Anritsu	MT8820C	6201010284	Dec. 28, 2020	Dec. 27, 2021
Temperature & Humidity Chamber TERCHY	HRM-120RF	931022	Dec. 24, 2020	Dec. 23, 2021
Digital Multimeter Fluke	87-III	70360742	Jun. 23, 2020	Jun. 22, 2021
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.

4.2.4 Test Setup



4.2.5 Test Results

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 48 (CA48C), Channel Bandwidth 20MHz+20MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
8.90	3615.100003	0.001	3634.900003	0.001
7.74	3615.100002	0.000	3634.900004	0.001
6.58	3615.100001	0.000	3634.900004	0.001

Note: The applicant defined the normal working voltage is from 6.58Vdc to 8.90Vdc.

Frequency Error vs. Temperature

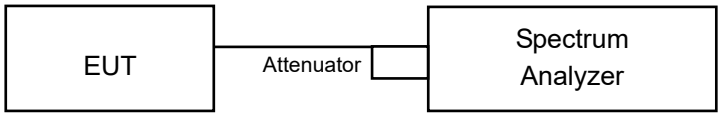
Temp. (℃)	LTE Band 48 (CA48C), Channel Bandwidth 20MHz+20MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3615.100001	0.000	3634.900003	0.001
-20	3615.100002	0.001	3634.900003	0.001
-10	3615.100004	0.001	3634.900001	0.000
0	3615.100003	0.001	3634.900003	0.001
10	3615.099998	-0.001	3634.899997	-0.001
20	3615.099997	-0.001	3634.899999	0.000
30	3615.099999	0.000	3634.899997	-0.001
40	3615.099998	-0.001	3634.899998	-0.001
50	3615.099997	-0.001	3634.899997	-0.001

4.3 Emission Bandwidth Measurement

4.3.1 Emission Bandwidth Measurement

Reference only

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.3.4 Test Procedure

Occupied Bandwdith:
All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth. For the 99% bandwidth measurement method, please refer to section 5.4.4 of ANSI C63.26.

26dBc Bandwidth:
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 = 430 kHz (20 MHz bandwidth). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. For the 26dBc bandwidth measurement method, please refer to section 5.4.3 of ANSI C63.26.

4.3.5 Deviation fromTest Standard

No deviation.

4.3.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 Test Result

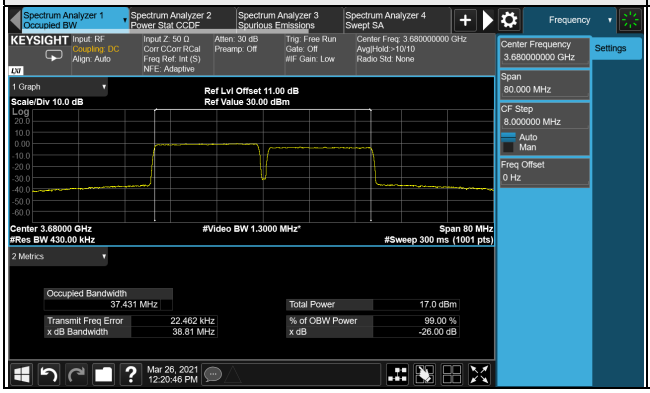
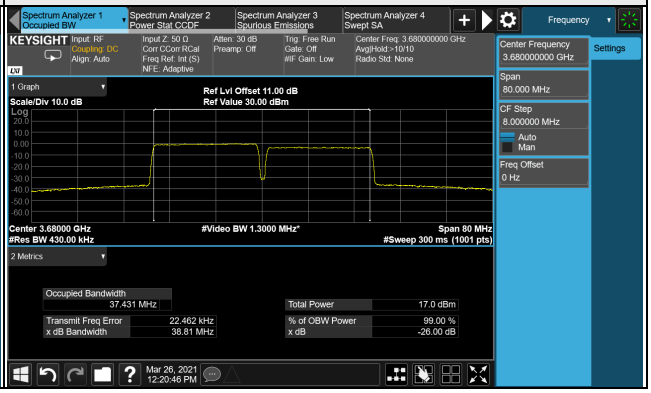
LTE Band 48 (CA 48C)

Occupied Bandwidth

LTE Band 48 (CA 48C), Channel Bandwidth 20MHz+20MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
55340+55538	3560.0+3579.8	37.421	37.404	37.426	37.428
55891+56089	3615.1+3634.9	37.410	37.416	37.426	37.414
56442+56640	3670.2+3690.0	37.403	37.420	37.431	37.429

26dB Bandwidth

LTE Band 48 (CA 48C), Channel Bandwidth 20MHz+20MHz					
Channel	Frequency (MHz)	26dB Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
55340+55538	3560.0+3579.8	38.78	38.78	38.79	38.80
55891+56089	3615.1+3634.9	38.78	38.69	38.78	38.78
56442+56640	3670.2+3690.0	38.78	38.79	38.81	38.81

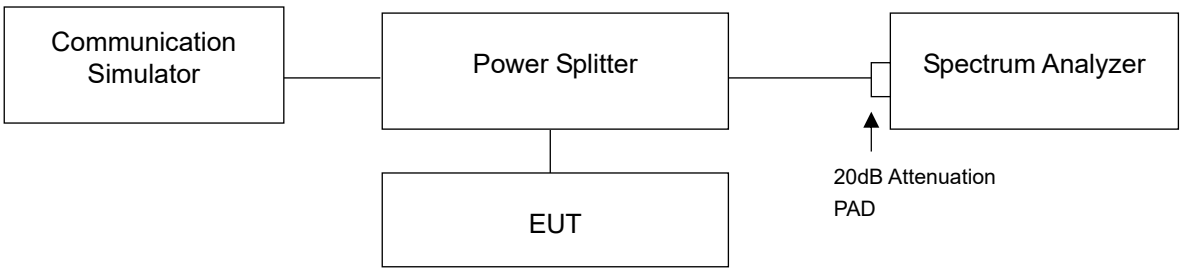
99% Occupied Bandwidth	26dB Bandwidth
Spectrum Plot of Worst Value	Spectrum Plot of Worst Value
20MHz+20MHz / 64QAM	20MHz+20MHz / 64QAM
	

4.4 Peak to Average Ratio Measurement

4.4.1 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

4.4.2 Test Setup



4.4.3 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;

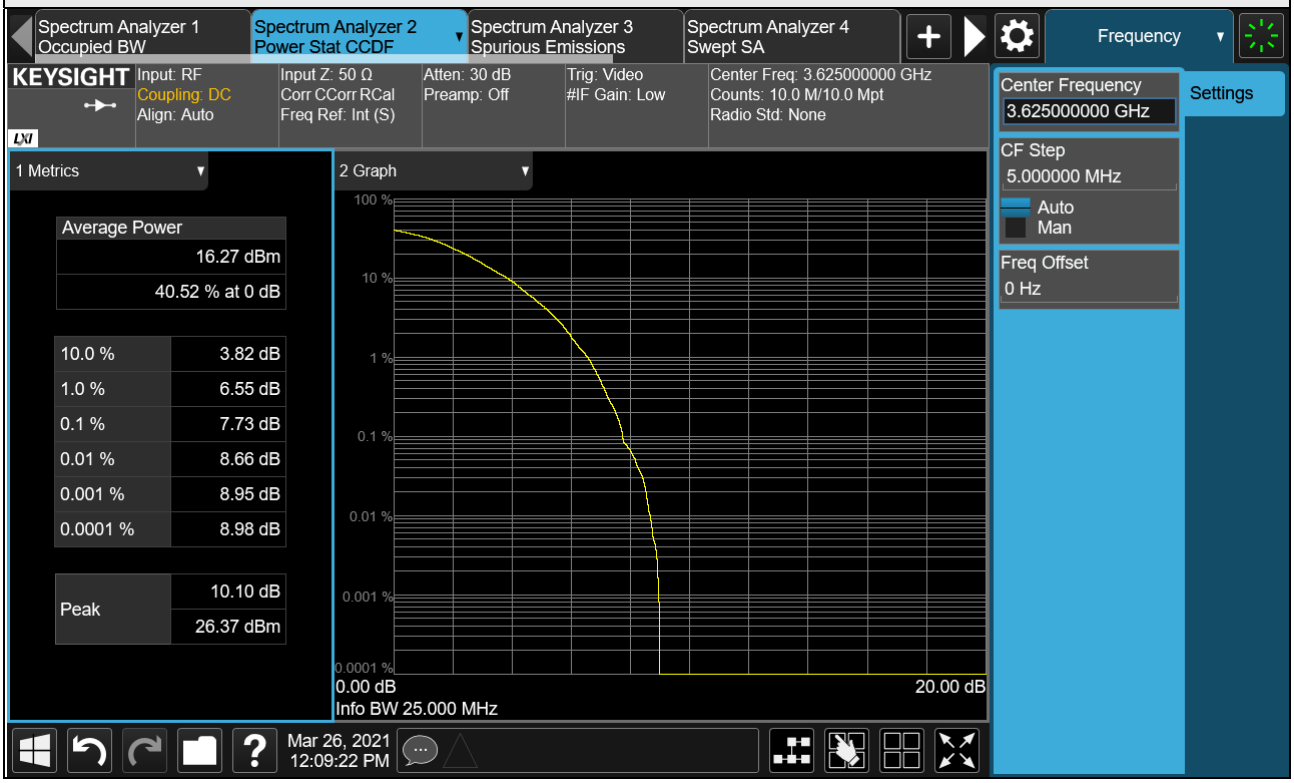
c. Record the maximum PAPR level associated with a probability of 0.1%.

4.4.4 Test Results

LTE Band 48 (CA 48C)

LTE Band 48 (CA 48C), Channel Bandwidth 20MHz+20MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
55340+55538	3560.0+3579.8	5.10	4.91	7.73	7.65
55891+56089	3615.1+3634.9	4.82	6.82	7.70	7.73
56442+56640	3670.2+3690.0	6.81	7.49	7.56	7.52

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

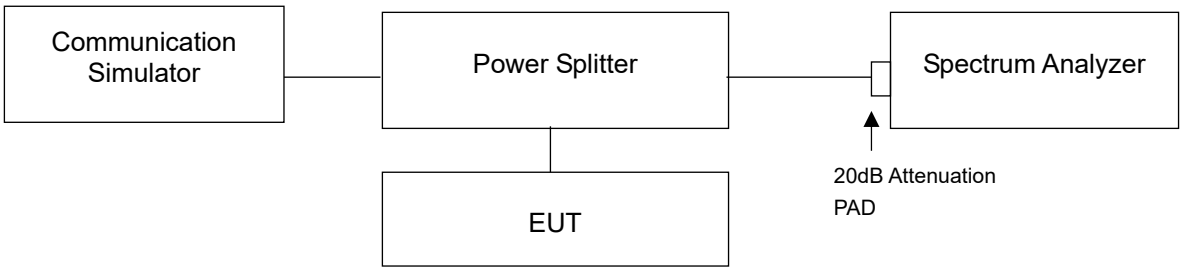


4.5 Conducted Spurious Emissions

4.5.1 Limits of Conducted Spurious Emissions Measurement

Power of any emissions outside the Fundamental	Limit
Within 0-10MHz above the Assigned Channel	-13 dBm/MHz
Within 0-10MHz below the Assigned Channel	
Greater than 0-10MHz above the Assigned Channel	-25 dBm/MHz
Greater than 0-10MHz below the Assigned Channel	
Power of any emission below 3530MHz	-40 dBm/MHz
Power of any emission above 3720MHz	

4.5.2 Test Setup



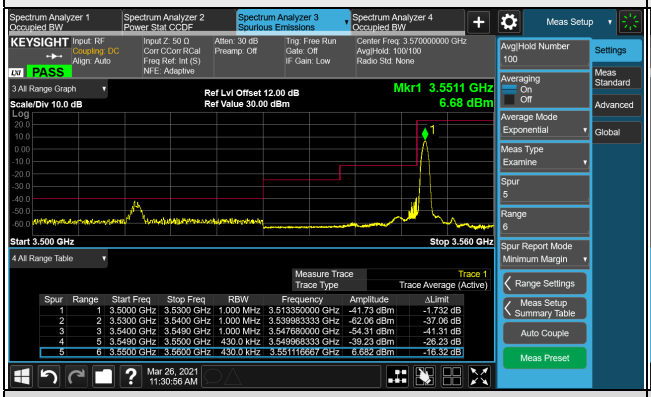
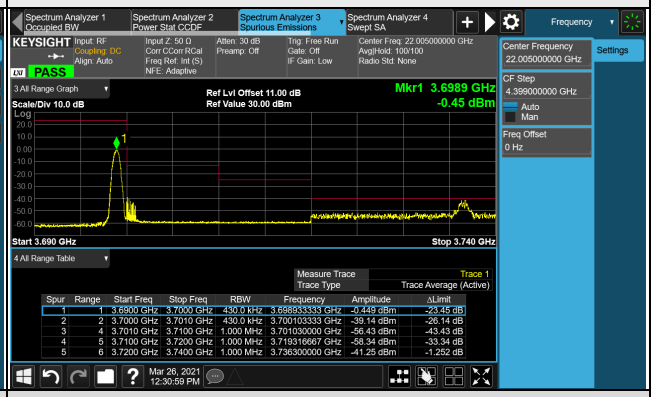
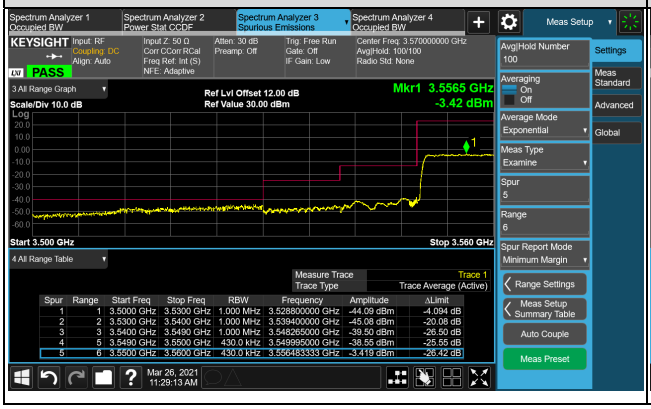
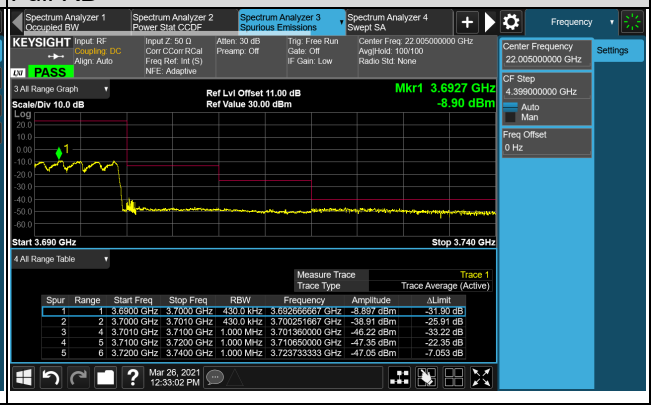
4.5.3 Test Procedure

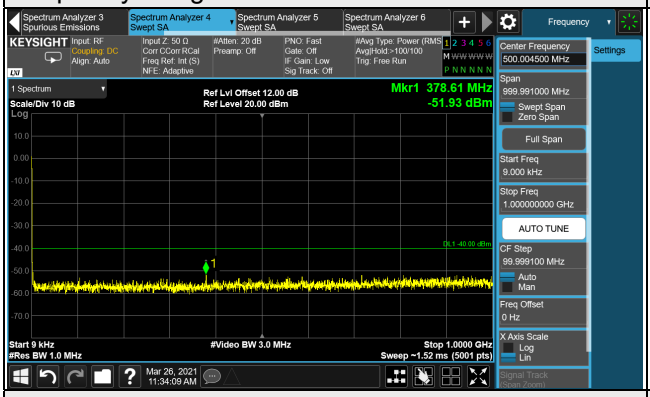
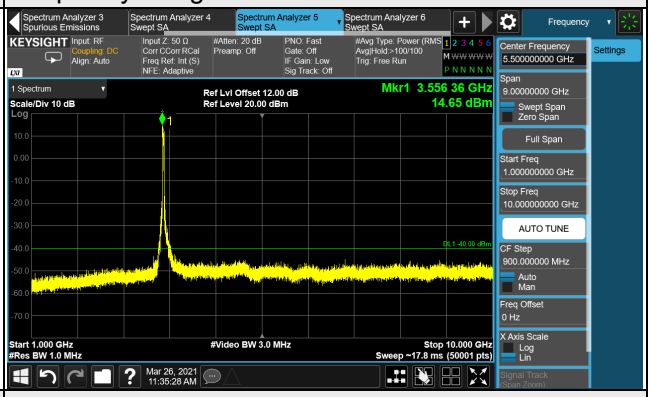
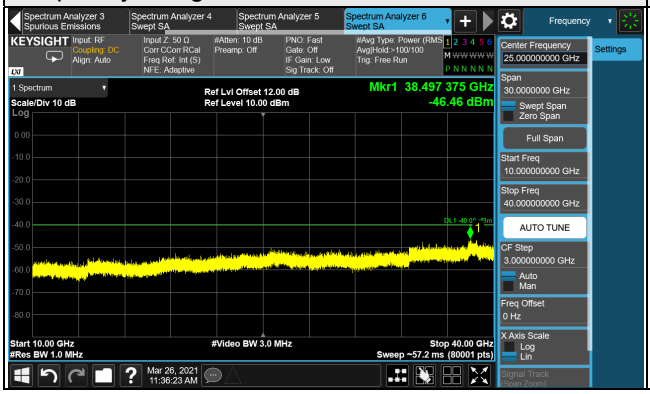
a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.

b. Measuring frequency range is from 9 kHz to 40 GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement. Measurement method refers to FCC Part96 section 96.41 (e)(3).

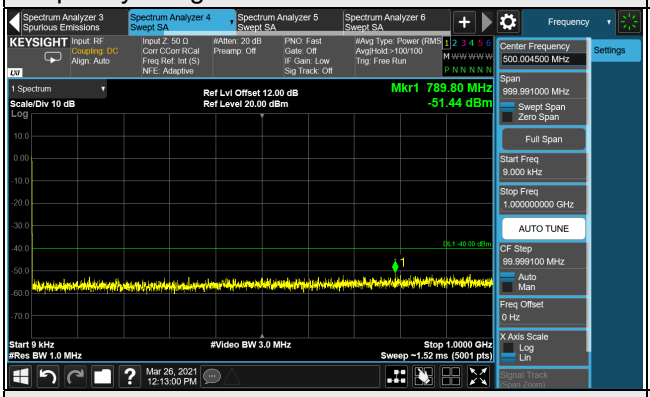
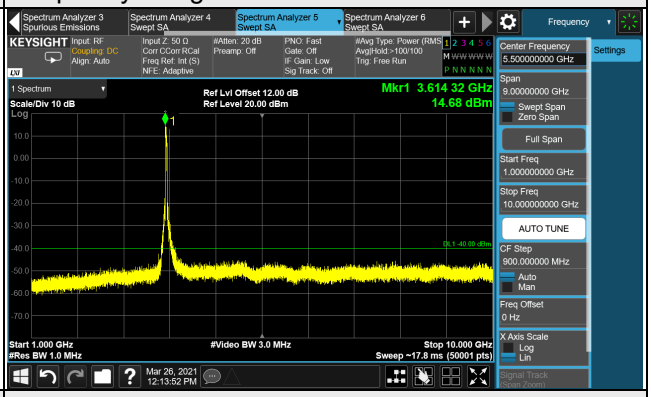
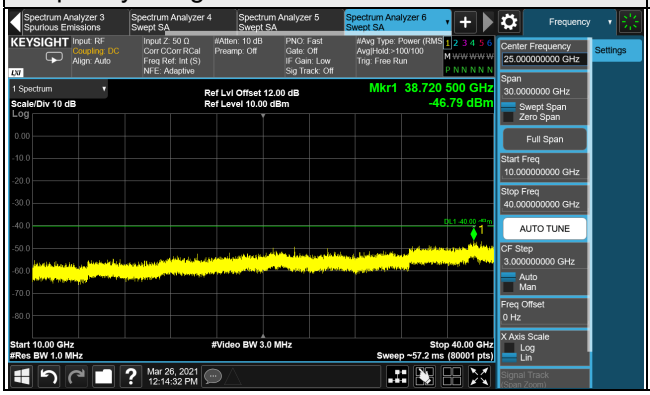
4.5.4 Test Results

LTE Band 48 (CA 48C)

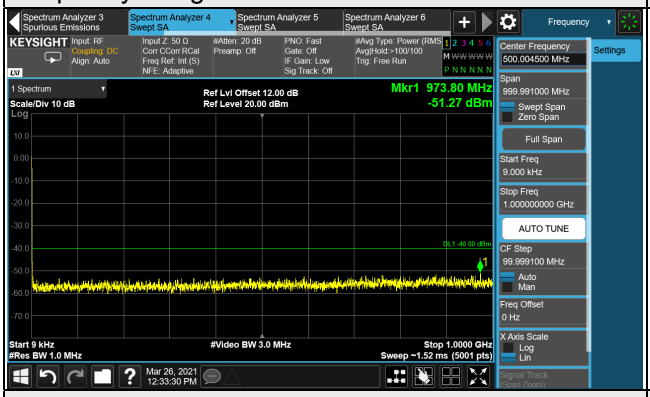
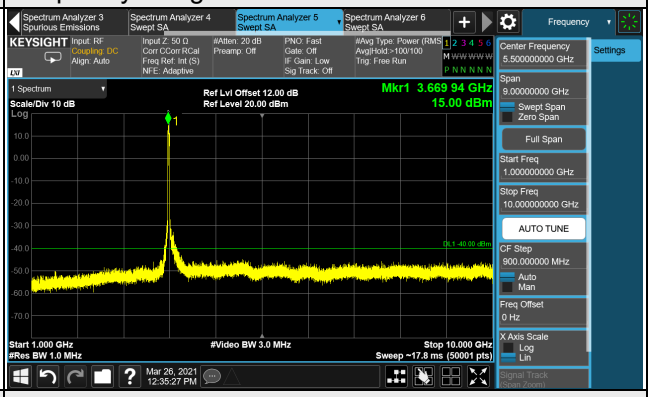
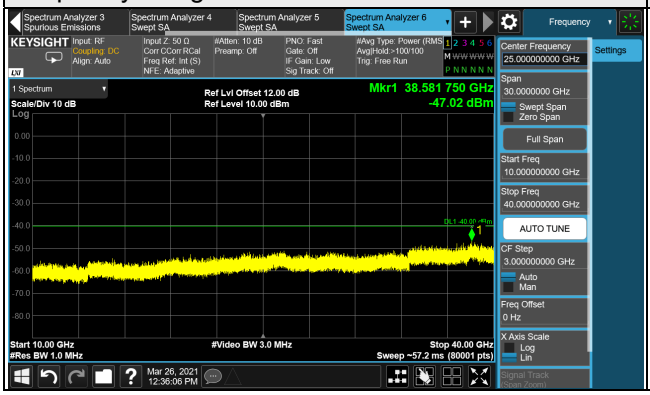
LTE Band 48, Channel Bandwidth 20MHz+20MHz	
Channel 55340 (3560.0MHz)+55538 (3579.8MHz)	Channel 56642 (3670.2MHz)+56640 (3690.0MHz)
1RB	1RB
	
Full RB	Full RB
	

Channel Band width: 20MHz+20MHz	
Channel 55340 (3560.0MHz)+55538 (3579.8MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~40GHz	
	

Note: The signal at 9 kHz is IF signal from spectrum analyzer.

Channel 55891 (3615.1MHz)+56089 (3634.9MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~40GHz	
	

Note: The signal at 9 kHz is IF signal from spectrum analyzer.

Channel 56642 (3670.2MHz)+56640 (3690.0MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~40GHz	
	

Note: The signal at 9 kHz is IF signal from spectrum analyzer.

4.6 Radiated Emission Measurement

4.6.1 Limits of Radiated Emission Measurement

The power of any emissions below 3530 MHz or above 3720 MHz shall not exceed −40dBm/MHz.

4.6.2 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.6.3 Test Procedures

a. Substitution method is used for EIRP measurement. In the semi-anechoic chamber, EUT placed on the 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.

b. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn. Correction Factor (includes EIRP and ERP unit conversion factor) = Antenna gain of substitution horn. – Tx cable loss. Measurement method refers to ANSI C63.26 section 5.5.3.2.

c. ERP power can be calculated form EIRP power by subtracting the gain of dipole, ERP power = EIRP power - 2.15dBi.

Note:

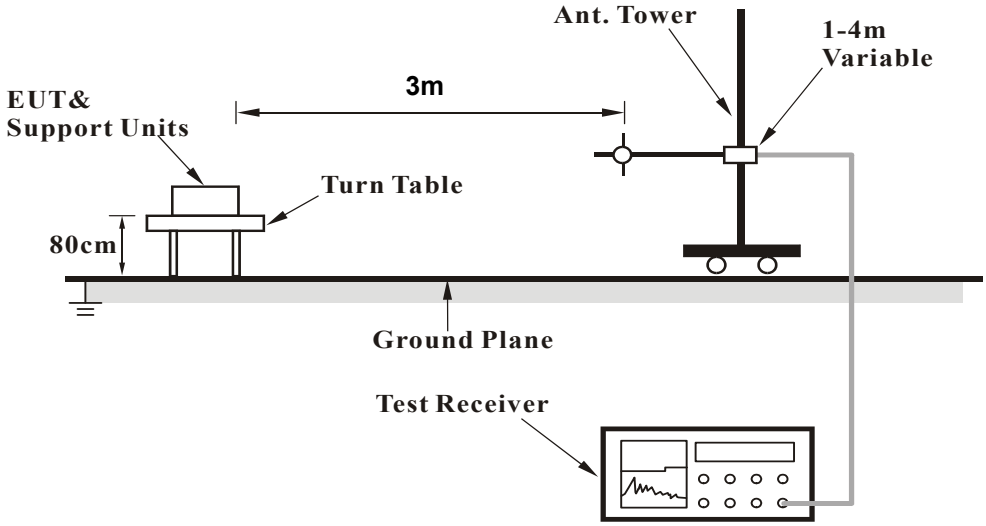
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.
2. The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:
   The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report

4.6.4 Deviation from Test Standard

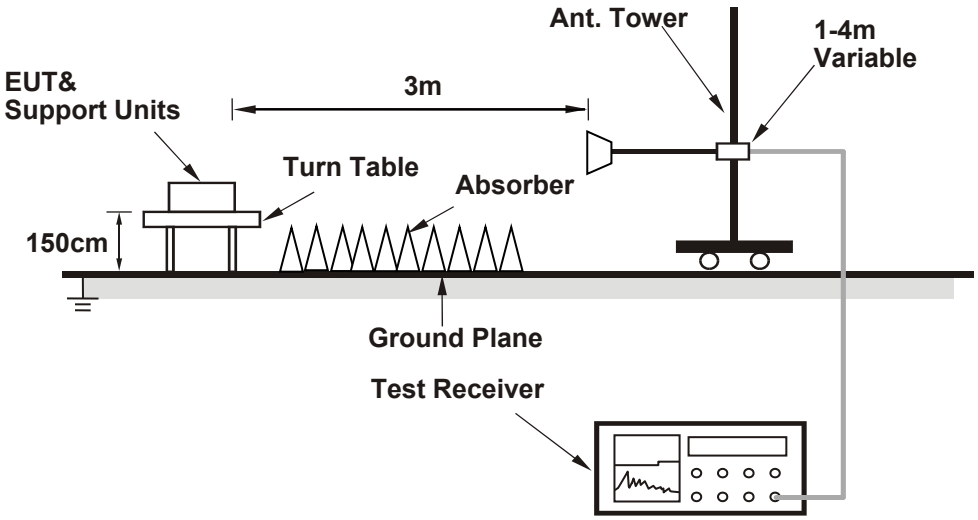
No deviation.

4.6.5 Test Set Up

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



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

4.6.6 Test Results

Below 1GHz Data：

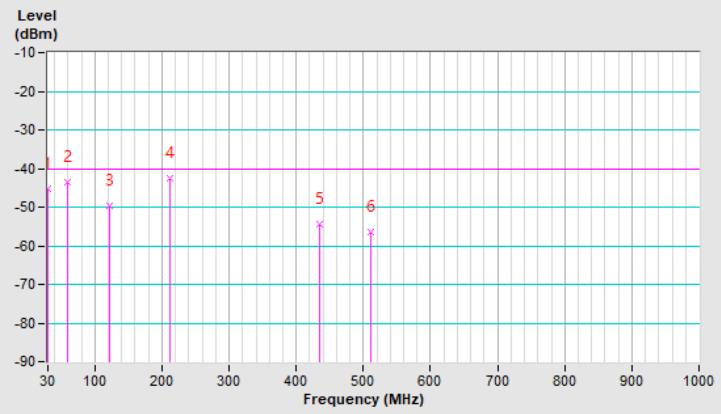
LTE Band 48 (CA 48C)

Mode	TX channel 56642 (3670.2MHz)+ TX channel 56640 (3690.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Rex Wang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.00	-45.28	-40.00	-5.28	1.50 H	147	60.30	-105.58
2	60.07	-43.65	-40.00	-3.65	1.50 H	149	60.97	-104.62
3	121.18	-49.56	-40.00	-9.56	1.50 H	147	56.28	-105.84
4	212.36	-42.67	-40.00	-2.67	1.00 H	176	63.52	-106.19
5	434.49	-54.47	-40.00	-14.47	1.50 H	147	44.60	-99.07
6	510.15	-56.39	-40.00	-16.39	1.50 H	147	41.23	-97.62

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

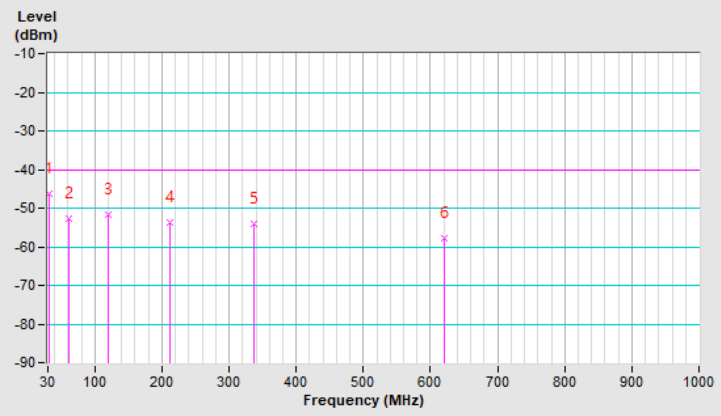


Mode	TX channel 56642 (3670.2MHz)+ TX channel 56640 (3690.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Rex Wang		

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	31.94	-46.40	-40.00	-6.40	1.00 V	319	59.19	-105.59
2	61.04	-52.83	-40.00	-12.83	1.25 V	5	52.13	-104.96
3	119.24	-51.57	-40.00	-11.57	1.25 V	114	54.49	-106.06
4	212.36	-53.63	-40.00	-13.63	1.00 V	77	52.56	-106.19
5	337.49	-54.13	-40.00	-14.13	1.00 V	177	47.04	-101.17
6	619.76	-57.75	-40.00	-17.75	1.50 V	213	37.65	-95.40

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 48 (CA 48C)

Mode	TX channel 55340 (3560.0MHz)+ TX channel 55538 (3579.8MHz)	Frequency Range	1GHz ~ 40GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Rex Wang		

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	7120.00	-43.44	-40.00	-3.44	2.20 H	323	44.34	-87.78
2	7159.60	-43.11	-40.00	-3.11	2.24 H	326	44.58	-87.69
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	7120.00	-43.98	-40.00	-3.98	3.33 V	53	43.80	-87.78
2	7159.60	-43.75	-40.00	-3.75	3.28 V	61	43.94	-87.69

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 55891 (3615.1MHz)+ TX channel 56089 (3634.9MHz)	Frequency Range	1GHz ~ 40GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Rex Wang		

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	7159.60	-42.93	-40.00	-2.93	2.21 H	326	44.76	-87.69
2	7269.80	-43.23	-40.00	-3.23	2.26 H	325	44.05	-87.28
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	7159.60	-43.75	-40.00	-3.75	3.28 V	61	43.94	-87.69
2	7269.80	-43.32	-40.00	-3.32	3.34 V	52	43.96	-87.28

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 56642 (3670.2MHz)+ TX channel 56640 (3690.0MHz)	Frequency Range	1GHz ~ 40GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Rex Wang		

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	7340.40	-42.93	-40.00	-2.93	2.27 H	328	44.39	-87.32
2	7380.00	-43.10	-40.00	-3.10	2.22 H	321	44.15	-87.25
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	7340.40	-43.06	-40.00	-3.06	3.25 V	54	44.26	-87.32
2	**7380.00**	**-42.63**	**-40.00**	**-2.63**	**3.28 V**	**62**	**44.62**	**-87.25**

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 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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