FCC Test Report
(Part 96 – LTE Band 48)

Report No.: RFBFJZ-WTW-P21050403-11

FCC ID: V65C6930

Test Model: C6930

Received Date: May 09, 2021

Test Date: Jun. 22 ~ Aug. 09, 2021

Issued Date: Aug. 11, 2021

Applicant: Kyocera Corporation c/o Kyocera International, Inc.

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

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FCC Registration / Designation Number: 788550 / TW0003

Testing Laboratory
2021

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Release Control Record

Issue No.	Description	Date Issued
RFBFJZ-WTW-P21050403-11	Original release	Aug. 11, 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: Jun. 22 ~ Aug. 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:** Aug. 11, 2021

Pettie Chen / Senior Specialist

Approved by : Bruce Chen , **Date:** Aug. 11, 2021

Bruce Chen / Senior 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.
96.41(g)	Peak to Average Ratio	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 -2.83dB at 7250.00MHz.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.04 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 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	SmartPhone				
Brand	Kyocera				
Test Model	C6930				
Sample Status	Engineering sample				
Power Supply Rating	3.87Vdc from battery 5Vdc / 9Vdc / 12Vdc from adapter				
Modulation Type	QPSK, 16QAM, 64QAM, 256QAM				
Operating Frequency	LTE Band 48 (Channel Bandwidth 5MHz)	3552.5MHz ~ 3697.5MHz			
	LTE Band 48 (Channel Bandwidth 10MHz)	3555.0MHz ~ 3695.0MHz			
	LTE Band 48 (Channel Bandwidth 15MHz)	3557.5MHz ~ 3692.5MHz			
	LTE Band 48 (Channel Bandwidth 20MHz)	3560.0MHz ~ 3690.0MHz			
Max. EIRP Power		QPSK	16QAM	64QAM	256QAM
	LTE Band 48 (Channel Bandwidth 5MHz)	122.462mW (20.88dBm/10MHz)	101.391mW (20.06dBm/10MHz)	83.368mW (19.21dBm/10MHz)	69.502mW (18.42dBm/10MHz)
	LTE Band 48 (Channel Bandwidth 10MHz)	131.522mW (21.19dBm/10MHz)	102.565mW (20.11dBm/10MHz)	80.910mW (19.08dBm/10MHz)	62.517mW (17.96dBm/10MHz)
	LTE Band 48 (Channel Bandwidth 15MHz)	89.125mW (19.50dBm/10MHz)	69.984mW (18.45dBm/10MHz)	62.373mW (17.95dBm/10MHz)	54.828mW (17.39dBm/10MHz)
	LTE Band 48 (Channel Bandwidth 20MHz)	97.724mW (19.90dBm/10MHz)	77.446mW (18.89dBm/10MHz)	67.453mW (18.29dBm/10MHz)	59.293mW (17.73dBm/10MHz)
Max. EIRP Power (Full power)		QPSK	16QAM	64QAM	256QAM
	LTE Band 48 (Channel Bandwidth 5MHz)	122.462mW (20.88dBm/10MHz)	101.391mW (20.06dBm/10MHz)	83.368mW (19.21dBm/10MHz)	69.502mW (18.42dBm/10MHz)
	LTE Band 48 (Channel Bandwidth 10MHz)	131.522mW (21.19dBm/10MHz)	102.565mW (20.11dBm/10MHz)	80.910mW (19.08dBm/10MHz)	62.517mW (17.96dBm/10MHz)
	LTE Band 48 (Channel Bandwidth 15MHz)	125.893mW (21.00dBm/15MHz)	102.329mW (20.10dBm/15MHz)	82.604mW (19.17dBm/15MHz)	68.234mW (18.34dBm/15MHz)
	LTE Band 48 (Channel Bandwidth 20MHz)	123.027mW (20.90dBm/20MHz)	97.275mW (19.88dBm/20MHz)	75.683mW (18.79dBm/20MHz)	61.376mW (17.88dBm/20MHz)
Emission Designator		QPSK	16QAM	64QAM	256QAM
	LTE Band 48 (Channel Bandwidth 5MHz)	4M49G7D	4M49D7W	4M50D7W	4M48D7W
	LTE Band 48 (Channel Bandwidth 10MHz)	8M97G7D	8M97D7W	8M98D7W	8M97D7W
	LTE Band 48 (Channel Bandwidth 15MHz)	13M5G7D	13M4D7W	13M4D7W	13M5D7W
	LTE Band 48 (Channel Bandwidth 20MHz)	17M9G7D	17M9D7W	17M9D7W	17M9D7W
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 Corporation
Model	SCP-24SDC
Signal Line	1m 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 48	3552.5 ~ 3697.5	-0.4 (Tx2)

* 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.

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

Band	Radiated Emission
LTE Band 48	X-plane

LTE Band 48

Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation
Maximum Output Power	55265 to 56715	55265 (3552.5MHz), 55990 (3625.0MHz), 56715 (3697.5MHz)	5MHz	QPSK / 16QAM / 64QAM / 256QAM
	55290 to 56690	55290 (3555.0MHz), 55990 (3625.0MHz), 56690 (3695.0MHz)	10MHz	QPSK / 16QAM / 64QAM / 256QAM
	55315 to 56665	55315 (3557.5MHz), 55990 (3625.0MHz), 56665 (3692.5MHz)	15MHz	QPSK / 16QAM / 64QAM / 256QAM
	55340 to 56640	55340 (3560.0MHz), 55990 (3625.0MHz), 56640 (3690.0MHz)	20MHz	QPSK / 16QAM / 64QAM / 256QAM
Modulation characteristics	55340 to 56640	55990 (3625.0MHz)	20MHz	QPSK / 16QAM / 64QAM / 256QAM
Frequency Stability	55265 to 56715	55265 (3552.5MHz), 56715 (3697.5MHz)	5MHz	QPSK
	55290 to 56690	55290 (3555.0MHz), 56690 (3695.0MHz)	10MHz	QPSK
	55315 to 56665	55315 (3557.5MHz), 56665 (3692.5MHz)	15MHz	QPSK
	55340 to 56640	55340 (3560.0MHz), 56640 (3690.0MHz)	20MHz	QPSK
Occupied Bandwidth	55265 to 56715	55265 (3552.5MHz), 55990 (3625.0MHz), 56715 (3697.5MHz)	5MHz	QPSK / 16QAM / 64QAM / 256QAM
	55290 to 56690	55290 (3555.0MHz), 55990 (3625.0MHz), 56690 (3695.0MHz)	10MHz	QPSK / 16QAM / 64QAM / 256QAM
	55315 to 56665	55315 (3557.5MHz), 55990 (3625.0MHz), 56665 (3692.5MHz)	15MHz	QPSK / 16QAM / 64QAM / 256QAM
	55340 to 56640	55340 (3560.0MHz), 55990 (3625.0MHz), 56640 (3690.0MHz)	20MHz	QPSK / 16QAM / 64QAM / 256QAM

Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation
Peak to Average Ratio	55265 to 56715	55265 (3552.5MHz), 55990 (3625.0MHz), 56715 (3697.5MHz)	5MHz	QPSK / 16QAM / 64QAM / 256QAM
	55290 to 56690	55290 (3555.0MHz), 55990 (3625.0MHz), 56690 (3695.0MHz)	10MHz	QPSK / 16QAM / 64QAM / 256QAM
	55315 to 56665	55315 (3557.5MHz), 55990 (3625.0MHz), 56665 (3692.5MHz)	15MHz	QPSK / 16QAM / 64QAM / 256QAM
	55340 to 56640	55340 (3560.0MHz), 55990 (3625.0MHz), 56640 (3690.0MHz)	20MHz	QPSK / 16QAM / 64QAM / 256QAM
Conducted Emission	55265 to 56715	55265 (3552.5MHz), 55990 (3625.0MHz), 56715 (3697.5MHz)	5MHz	QPSK
	55290 to 56690	55290 (3555.0MHz), 55990 (3625.0MHz), 56690 (3695.0MHz)	10MHz	QPSK
	55315 to 56665	55315 (3557.5MHz), 55990 (3625.0MHz), 56665 (3692.5MHz)	15MHz	QPSK
	55340 to 56640	55340 (3560.0MHz), 55990 (3625.0MHz), 56640 (3690.0MHz)	20MHz	QPSK
Radiated Emission Below 1GHz	55340 to 56640	55990 (3625.0MHz)	20MHz	QPSK
Radiated Emission Above 1GHz	55265 to 56715	55265 (3552.5MHz), 55990 (3625.0MHz), 56715 (3697.5MHz)	5MHz	QPSK
	55340 to 56640	55340 (3560.0MHz), 55990 (3625.0MHz), 56640 (3690.0MHz)	20MHz	QPSK

Note:

1. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5MHz & highest channel bandwidth for final test.
3. The measured output power for QPSK mode is higher than the measured output power for 16QAM, 64QAM and 256QAM modes. Therefore, only Modulation characteristics, occupied bandwidth and Peak to average ratio items had been tested under QPSK, 16QAM, 64QAM and 256QAM modes, the other test items were performed under QPSK mode only.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
Maximum Output Power	25deg. C, 60%RH	120Vac, 60Hz	James Yang
Modulation Characteristics	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
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	Han Wu

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.

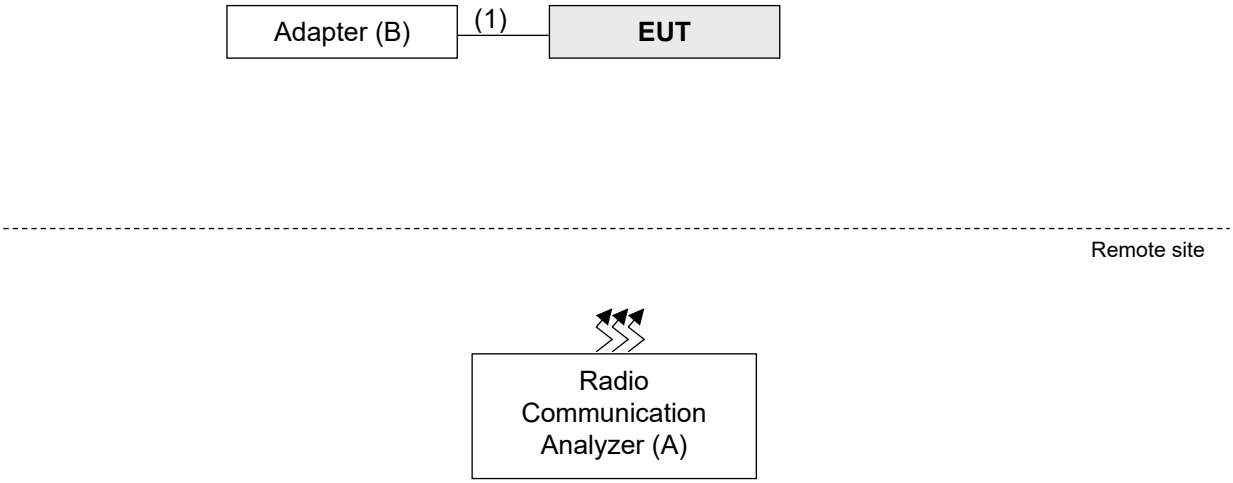
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Radio Communication Analyzer	Anritsu	MT8821C	6261806803	NA	-
B.	Adapter	KYOCERA	SCP-49ADT	NA	NA	Accessory

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

3.3.1 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 v03

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

4 Test Types and Results

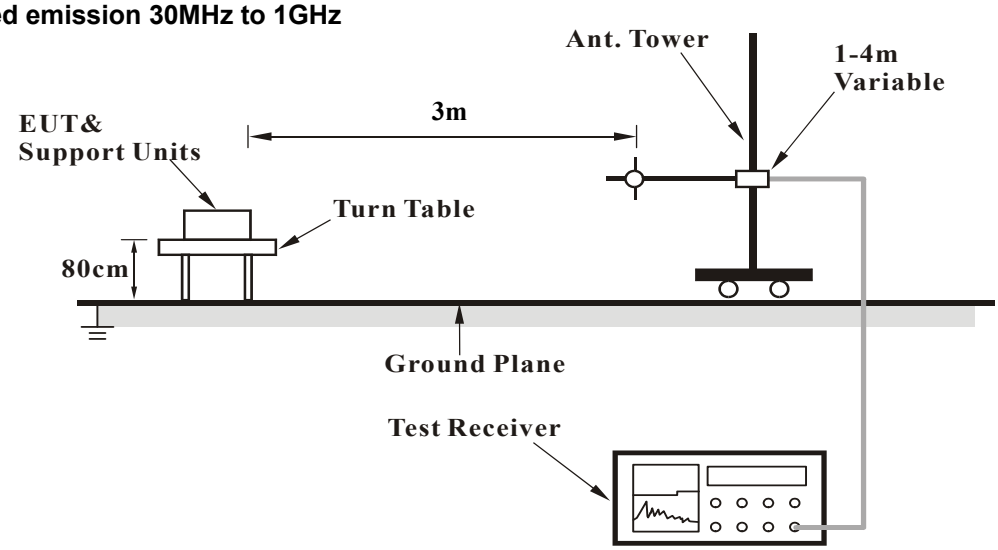
4.1 Maximum Output Power Measurement

4.1.1 Limits of Maximum Output Power Measurement

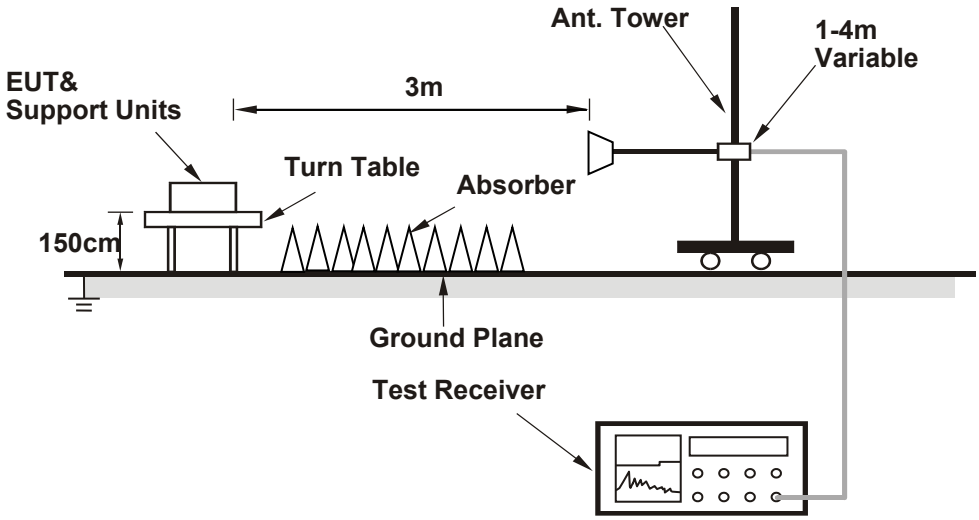
Device		Maximum EIRP (dBm/10 MHz)
☒	End User Device	23
☐	Category A CBSD	30
☐	Category B CBSD	47

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 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
Universal Radio Communication Tester R&S	CMU200	101095	Nov. 18, 2020	Nov. 17, 2021
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
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
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.

4.1.4 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.

4.1.5 Deviation from Test Standard

No deviation.

4.1.6 EUT Operating Conditions

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

4.1.7 Test Results

EIRP Power (dBm/10MHz)

Modulation Type: QPSK

LTE Band 48, Channel Bandwidth 5MHz

Mode	TX channel 55265, 55990, 56715							
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	3552.50	20.30	23.00	-2.70	1.37 H	200	78.18	-57.88
2	3625.00	20.85	23.00	-2.15	1.33 H	196	78.46	-57.61
3	3697.50	20.88	23.00	-2.12	1.38 H	203	78.24	-57.36
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	3552.50	16.84	23.00	-6.16	1.13 V	155	74.72	-57.88
2	3625.00	17.12	23.00	-5.88	1.07 V	149	74.73	-57.61
3	3697.50	17.15	23.00	-5.85	1.12 V	151	74.51	-57.36

Remarks:

1. EIRP(dBm/10MHz) = 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 10MHz

Mode	TX channel 55265, 55990, 56715							
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	3555.00	20.62	23.00	-2.38	1.37 H	198	78.49	-57.87
2	3625.00	20.73	23.00	-2.27	1.34 H	197	78.34	-57.61
3	3695.00	21.19	23.00	-1.81	1.38 H	204	78.55	-57.36
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	3555.00	16.86	23.00	-6.14	1.09 V	153	74.73	-57.87
2	3625.00	17.00	23.00	-6.00	1.09 V	157	74.61	-57.61
3	3695.00	17.26	23.00	-5.74	1.14 V	147	74.62	-57.36

Remarks:

1. EIRP(dBm/10MHz) = 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 15MHz

Mode	TX channel 55315, 55990, 56665							
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	3557.50	19.16	23.00	-3.84	1.42 H	193	77.02	-57.86
2	3625.00	19.50	23.00	-3.50	1.43 H	194	77.11	-57.61
3	3692.50	19.50	23.00	-3.50	1.39 H	201	76.88	-57.38
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	3557.50	15.06	23.00	-7.94	1.05 V	146	72.92	-57.86
2	3625.00	15.38	23.00	-7.62	1.13 V	152	72.99	-57.61
3	3692.50	16.51	23.00	-6.49	1.15 V	148	73.89	-57.38

Remarks:

1. EIRP(dBm/10MHz) = 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

Mode	TX channel 55340, 55990, 56640							
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	19.70	23.00	-3.30	1.42 H	196	77.56	-57.86
2	3625.00	19.85	23.00	-3.15	1.34 H	198	77.46	-57.61
3	3690.00	19.90	23.00	-3.10	1.42 H	207	77.28	-57.38
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	15.60	23.00	-7.40	1.08 V	143	73.46	-57.86
2	3625.00	16.01	23.00	-6.99	1.07 V	152	73.62	-57.61
3	3690.00	16.10	23.00	-6.90	1.03 V	156	73.48	-57.38

Remarks:

1. EIRP(dBm/10MHz) = 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 5MHz

Mode	TX channel 55265, 55990, 56715							
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	3552.50	19.28	23.00	-3.72	1.34 H	205	77.16	-57.88
2	3625.00	20.02	23.00	-2.98	1.39 H	199	77.63	-57.61
3	3697.50	20.06	23.00	-2.94	1.28 H	204	77.42	-57.36
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	3552.50	15.76	23.00	-7.24	1.03 V	153	73.64	-57.88
2	3625.00	16.01	23.00	-6.99	1.12 V	147	73.62	-57.61
3	3697.50	16.11	23.00	-6.89	1.14 V	148	73.47	-57.36

Remarks:

1. EIRP(dBm/10MHz) = 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 10MHz

Mode	TX channel 55290, 55990, 56690							
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	3555.00	19.74	23.00	-3.26	1.41 H	195	77.61	-57.87
2	3625.00	19.91	23.00	-3.09	1.34 H	200	77.52	-57.61
3	3695.00	20.11	23.00	-2.89	1.37 H	202	77.47	-57.36
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	3555.00	15.75	23.00	-7.25	1.14 V	152	73.62	-57.87
2	3625.00	16.18	23.00	-6.82	1.06 V	154	73.79	-57.61
3	3695.00	16.22	23.00	-6.78	1.14 V	158	73.58	-57.36

Remarks:

1. EIRP(dBm/10MHz) = 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 15MHz

Mode	TX channel 55315, 55990, 56665							
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	3557.50	18.10	23.00	-4.90	1.42 H	193	75.96	-57.86
2	3625.00	18.45	23.00	-4.55	1.43 H	194	76.06	-57.61
3	3692.50	18.35	23.00	-4.65	1.39 H	201	75.73	-57.38
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	3557.50	14.00	23.00	-9.00	1.05 V	146	71.86	-57.86
2	3625.00	14.44	23.00	-8.56	1.13 V	152	72.05	-57.61
3	3692.50	15.35	23.00	-7.65	1.15 V	148	72.73	-57.38

Remarks:

1. EIRP(dBm/10MHz) = 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

Mode	TX channel 55340, 55990, 56640							
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	18.67	23.00	-4.33	1.42 H	196	76.53	-57.86
2	3625.00	18.79	23.00	-4.21	1.34 H	198	76.40	-57.61
3	3690.00	18.89	23.00	-4.11	1.42 H	207	76.27	-57.38
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	14.56	23.00	-8.44	1.08 V	143	72.42	-57.86
2	3625.00	15.10	23.00	-7.90	1.07 V	152	72.71	-57.61
3	3690.00	15.01	23.00	-7.99	1.03 V	156	72.39	-57.38

Remarks:

1. EIRP(dBm/10MHz) = 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 5MHz

Mode	TX channel 55265, 55990, 56715							
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	3552.50	18.47	23.00	-4.53	1.39 H	195	76.35	-57.88
2	3625.00	19.21	23.00	-3.79	1.45 H	198	76.82	-57.61
3	3697.50	18.97	23.00	-4.03	1.43 H	207	76.33	-57.36
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	3552.50	14.90	23.00	-8.10	1.13 V	156	72.78	-57.88
2	3625.00	14.91	23.00	-8.09	1.05 V	154	72.52	-57.61
3	3697.50	15.01	23.00	-7.99	1.07 V	148	72.37	-57.36

Remarks:

1. EIRP(dBm/10MHz) = 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 10MHz

Mode	TX channel 55290, 55990, 56690							
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	3555.00	18.60	23.00	-4.40	1.37 H	194	76.47	-57.87
2	3625.00	18.73	23.00	-4.27	1.36 H	197	76.34	-57.61
3	3695.00	19.08	23.00	-3.92	1.31 H	203	76.44	-57.36
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	3555.00	14.75	23.00	-8.25	1.15 V	154	72.62	-57.87
2	3625.00	15.32	23.00	-7.68	1.08 V	151	72.93	-57.61
3	3695.00	15.09	23.00	-7.91	1.12 V	150	72.45	-57.36

Remarks:

1. EIRP(dBm/10MHz) = 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 15MHz

Mode	TX channel 55315, 55990, 56665							
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	3557.50	17.51	23.00	-5.49	1.42 H	193	75.37	-57.86
2	3625.00	17.95	23.00	-5.05	1.43 H	194	75.56	-57.61
3	3692.50	17.73	23.00	-5.27	1.39 H	201	75.11	-57.38
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	3557.50	13.40	23.00	-9.60	1.05 V	146	71.26	-57.86
2	3625.00	13.63	23.00	-9.37	1.13 V	152	71.24	-57.61
3	3692.50	14.73	23.00	-8.27	1.15 V	148	72.11	-57.38

Remarks:

1. EIRP(dBm/10MHz) = 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

Mode	TX channel 55340, 55990, 56640							
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	18.07	23.00	-4.93	1.42 H	196	75.93	-57.86
2	3625.00	18.18	23.00	-4.82	1.34 H	198	75.79	-57.61
3	3690.00	18.29	23.00	-4.71	1.42 H	207	75.67	-57.38
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	14.06	23.00	-8.94	1.08 V	143	71.92	-57.86
2	3625.00	14.41	23.00	-8.59	1.07 V	152	72.02	-57.61
3	3690.00	14.30	23.00	-8.70	1.03 V	156	71.68	-57.38

Remarks:

1. EIRP(dBm/10MHz) = 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 5MHz

Mode	TX channel 55265, 55990, 56715							
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	3552.50	17.37	23.00	-5.63	1.36 H	205	75.25	-57.88
2	3625.00	18.42	23.00	-4.58	1.41 H	193	76.03	-57.61
3	3697.50	17.80	23.00	-5.20	1.42 H	206	75.16	-57.36
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	3552.50	13.84	23.00	-9.16	1.12 V	154	71.72	-57.88
2	3625.00	14.08	23.00	-8.92	1.09 V	148	71.69	-57.61
3	3697.50	14.05	23.00	-8.95	1.08 V	155	71.41	-57.36

Remarks:

1. EIRP(dBm/10MHz) = 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 10MHz

Mode	TX channel 55290, 55990, 56690							
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	3555.00	17.78	23.00	-5.22	1.39 H	197	75.65	-57.87
2	3625.00	17.91	23.00	-5.09	1.39 H	201	75.52	-57.61
3	3695.00	17.96	23.00	-5.04	1.39 H	196	75.32	-57.36
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	3555.00	13.74	23.00	-9.26	1.14 V	153	71.61	-57.87
2	3625.00	14.16	23.00	-8.84	1.10 V	153	71.77	-57.61
3	3695.00	14.16	23.00	-8.84	1.07 V	154	71.52	-57.36

Remarks:

1. EIRP(dBm/10MHz) = 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 15MHz

Mode	TX channel 55315, 55990, 56665							
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	3557.50	17.05	23.00	-5.95	1.42 H	193	74.91	-57.86
2	3625.00	17.39	23.00	-5.61	1.43 H	194	75.00	-57.61
3	3692.50	17.27	23.00	-5.73	1.39 H	201	74.65	-57.38
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	3557.50	12.94	23.00	-10.06	1.05 V	146	70.80	-57.86
2	3625.00	13.06	23.00	-9.94	1.13 V	152	70.67	-57.61
3	3692.50	14.17	23.00	-8.83	1.15 V	148	71.55	-57.38

Remarks:

1. EIRP(dBm/10MHz) = 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

Mode	TX channel 55340, 55990, 56640							
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	17.51	23.00	-5.49	1.42 H	196	75.37	-57.86
2	3625.00	17.62	23.00	-5.38	1.34 H	198	75.23	-57.61
3	3690.00	17.73	23.00	-5.27	1.42 H	207	75.11	-57.38
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	13.25	23.00	-9.75	1.08 V	143	71.11	-57.86
2	3625.00	13.41	23.00	-9.59	1.07 V	152	71.02	-57.61
3	3690.00	13.30	23.00	-9.70	1.03 V	156	70.68	-57.38

Remarks:

1. EIRP(dBm/10MHz) = 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 Full Power (dBm/15MHz or dBm/20MHz)

Modulation Type: QPSK

LTE Band 48, Channel Bandwidth 5MHz and Channel Bandwidth 10MHz full power test data, please refer to Channel Bandwidth 5MHz and Channel Bandwidth 10MHz per 10MHz power.

LTE Band 48, Channel Bandwidth 15MHz

Mode	TX channel 55315, 55990, 56665							
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/15MHz)	Limit (dBm/15MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3557.50	20.63	23.00	-2.37	1.42 H	193	78.49	-57.86
2	3625.00	21.00	23.00	-2.00	1.43 H	194	78.61	-57.61
3	3692.50	20.98	23.00	-2.02	1.39 H	201	78.36	-57.38
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/15MHz)	Limit (dBm/15MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3557.50	16.57	23.00	-6.43	1.05 V	146	74.43	-57.86
2	3625.00	16.85	23.00	-6.15	1.13 V	152	74.46	-57.61
3	3692.50	17.06	23.00	-5.94	1.15 V	148	74.44	-57.38

Remarks:

1. EIRP(dBm/15MHz) = 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

Mode	TX channel 55340, 55990, 56640							
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/20MHz)	Limit (dBm/20MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3560.00	20.70	23.00	-2.30	1.42 H	196	78.56	-57.86
2	3625.00	20.85	23.00	-2.15	1.34 H	198	78.46	-57.61
3	3690.00	20.90	23.00	-2.10	1.42 H	207	78.28	-57.38
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/20MHz)	Limit (dBm/20MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3560.00	16.62	23.00	-6.38	1.08 V	143	74.48	-57.86
2	3625.00	17.02	23.00	-5.98	1.07 V	152	74.63	-57.61
3	3690.00	17.14	23.00	-5.86	1.03 V	156	74.52	-57.38

Remarks:

1. EIRP(dBm/20MHz) = 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 5MHz and Channel Bandwidth 10MHz full power test data, please refer to Channel Bandwidth 5MHz and Channel Bandwidth 10MHz per 10MHz power.

LTE Band 48, Channel Bandwidth 15MHz

Mode	TX channel 55315, 55990, 56665							
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/15MHz)	Limit (dBm/15MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3557.50	19.43	23.00	-3.57	1.44 H	197	77.29	-57.86
2	3625.00	20.10	23.00	-2.90	1.33 H	206	77.71	-57.61
3	3692.50	20.08	23.00	-2.92	1.37 H	201	77.46	-57.38
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/15MHz)	Limit (dBm/15MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3557.50	15.46	23.00	-7.54	1.05 V	153	73.32	-57.86
2	3625.00	15.71	23.00	-7.29	1.14 V	157	73.32	-57.61
3	3692.50	16.18	23.00	-6.82	1.14 V	150	73.56	-57.38

Remarks:

1. EIRP(dBm/15MHz) = 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

Mode	TX channel 55340, 55990, 56640							
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/20MHz)	Limit (dBm/20MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3560.00	19.52	23.00	-3.48	1.37 H	196	77.38	-57.86
2	3625.00	19.66	23.00	-3.34	1.36 H	198	77.27	-57.61
3	3690.00	19.88	23.00	-3.12	1.28 H	204	77.26	-57.38
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/20MHz)	Limit (dBm/20MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3560.00	15.63	23.00	-7.37	1.12 V	153	73.49	-57.86
2	3625.00	15.82	23.00	-7.18	1.07 V	146	73.43	-57.61
3	3690.00	15.96	23.00	-7.04	1.12 V	155	73.34	-57.38

Remarks:

1. EIRP(dBm/20MHz) = 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 5MHz and Channel Bandwidth 10MHz full power test data, please refer to Channel Bandwidth 5MHz and Channel Bandwidth 10MHz per 10MHz power.

LTE Band 48, Channel Bandwidth 15MHz

Mode	TX channel 55315, 55990, 56665							
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/15MHz)	Limit (dBm/15MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3557.50	18.26	23.00	-4.74	1.39 H	197	76.12	-57.86
2	3625.00	19.11	23.00	-3.89	1.35 H	192	76.72	-57.61
3	3692.50	19.17	23.00	-3.83	1.37 H	202	76.55	-57.38
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/15MHz)	Limit (dBm/15MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3557.50	14.66	23.00	-8.34	1.05 V	151	72.52	-57.86
2	3625.00	14.88	23.00	-8.12	1.06 V	151	72.49	-57.61
3	3692.50	15.24	23.00	-7.76	1.15 V	153	72.62	-57.38

Remarks:

1. EIRP(dBm/15MHz) = 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

Mode	TX channel 55340, 55990, 56640							
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/20MHz)	Limit (dBm/20MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3560.00	18.39	23.00	-4.61	1.42 H	197	76.25	-57.86
2	3625.00	18.60	23.00	-4.40	1.33 H	196	76.21	-57.61
3	3690.00	18.79	23.00	-4.21	1.39 H	196	76.17	-57.38
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/20MHz)	Limit (dBm/20MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3560.00	14.76	23.00	-8.24	1.08 V	149	72.62	-57.86
2	3625.00	14.73	23.00	-8.27	1.11 V	151	72.34	-57.61
3	3690.00	14.93	23.00	-8.07	1.06 V	147	72.31	-57.38

Remarks:

1. EIRP(dBm/20MHz) = 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 5MHz and Channel Bandwidth 10MHz full power test data, please refer to Channel Bandwidth 5MHz and Channel Bandwidth 10MHz per 10MHz power.

LTE Band 48, Channel Bandwidth 15MHz

Mode	TX channel 55315, 55990, 56665							
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/15MHz)	Limit (dBm/15MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3557.50	17.09	23.00	-5.91	1.42 H	196	74.95	-57.86
2	3625.00	17.96	23.00	-5.04	1.37 H	201	75.57	-57.61
3	3692.50	18.34	23.00	-4.66	1.38 H	201	75.72	-57.38
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/15MHz)	Limit (dBm/15MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3557.50	13.87	23.00	-9.13	1.11 V	152	71.73	-57.86
2	3625.00	13.93	23.00	-9.07	1.07 V	148	71.54	-57.61
3	3692.50	14.20	23.00	-8.80	1.11 V	149	71.58	-57.38

Remarks:

1. EIRP(dBm/15MHz) = 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

Mode	TX channel 55340, 55990, 56640							
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm/20MHz)	Limit (dBm/20MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3560.00	17.28	23.00	-5.72	1.43 H	199	75.14	-57.86
2	3625.00	17.56	23.00	-5.44	1.33 H	201	75.17	-57.61
3	3690.00	17.88	23.00	-5.12	1.35 H	198	75.26	-57.38
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm/20MHz)	Limit (dBm/20MHz)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3560.00	13.70	23.00	-9.30	1.14 V	152	71.56	-57.86
2	3625.00	13.57	23.00	-9.43	1.14 V	149	71.18	-57.61
3	3690.00	14.00	23.00	-9.00	1.08 V	148	71.38	-57.38

Remarks:

1. EIRP(dBm/20MHz) = 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 Modulation Characteristics Measurement

4.2.1 Limits of Modulation Characteristics

N/A

4.2.2 Test Setup

4.2.3 Test Instruments

Refer to section 4.4.3 to get information of above instrument.

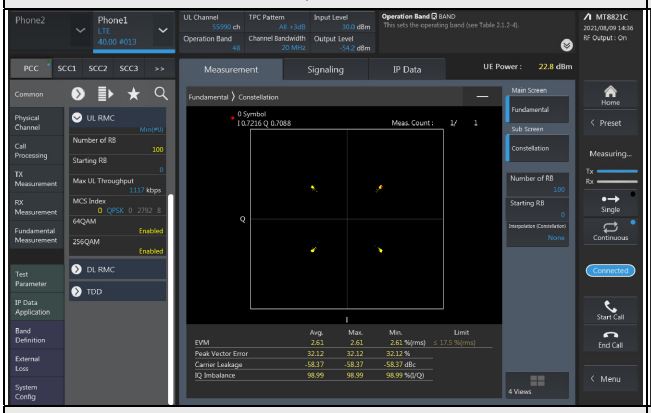
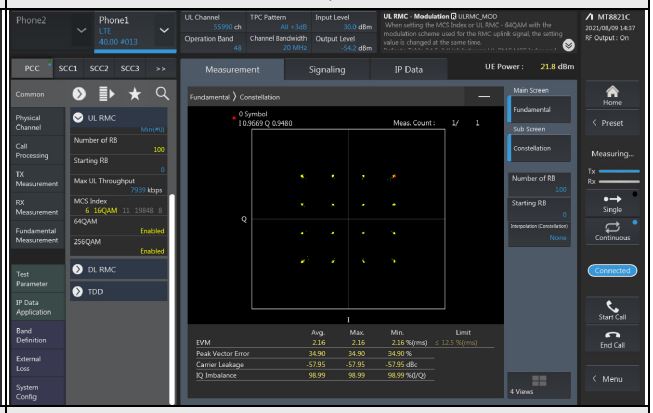
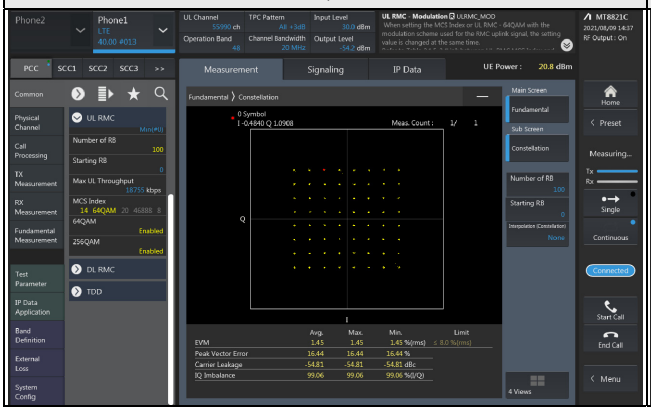
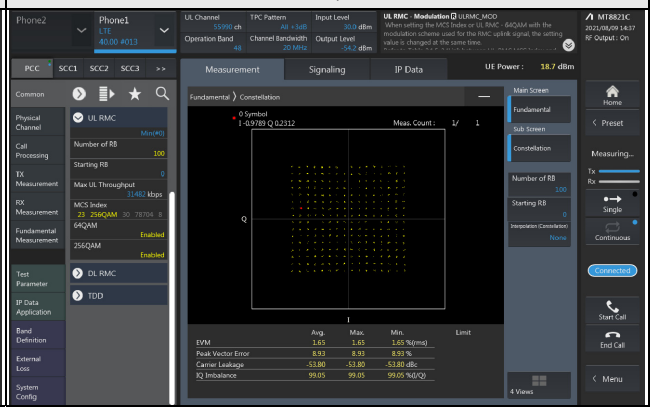
4.2.4 Deviation fromTest Standard

No deviation.

4.2.5 EUT Operating Conditions

Connect the EUT to Communication Simulator via the antenna connector, the frequency band is set as EUT supported Modulation and Channels, the EUT output is matched with 50 ohm load, the waveform quality and constellation of the EUT was tested.

4.2.6 Test Results

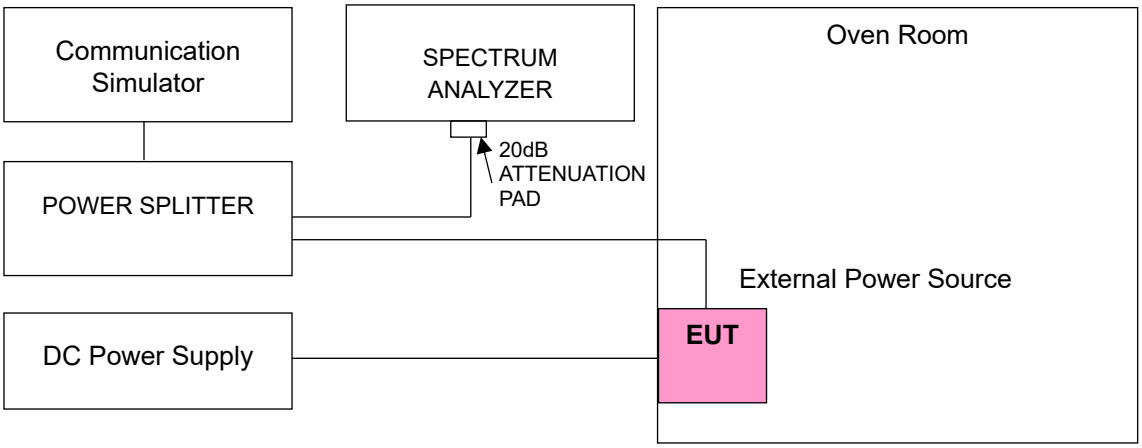
Spectrum Plot of Measurement Value	
Channel: 55990 / Frequency (MHz): 3625.0MHz	
QPSK	16QAM
	
64QAM	256QAM
	

4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stabiliity Measurement

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

4.3.2 Test Setup



4.3.3 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	70360755	Jul. 10, 2020	Jul. 09, 2021
			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 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.

4.3.5 Test Results

Frequency Error vs. Voltage

Voltage (Vdc)	LTE Band 48, Channel Bandwidth: 5MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.87	3552.500014	0.004	3697.500024	0.006
3.28	3552.500011	0.003	3697.500035	0.009
4.45	3552.500018	0.005	3697.500026	0.007

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 48, Channel Bandwidth: 5MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3552.500027	0.008	3697.500028	0.008
-20	3552.500020	0.006	3697.500034	0.009
-10	3552.500013	0.004	3697.500029	0.008
0	3552.500039	0.011	3697.500031	0.008
10	3552.500023	0.006	3697.500031	0.008
20	3552.499982	-0.005	3697.499988	-0.003
30	3552.499987	-0.004	3697.499985	-0.004
40	3552.499973	-0.008	3697.499977	-0.006
50	3552.499987	-0.004	3697.499982	-0.005
60	3552.499969	-0.009	3697.499961	-0.011

Frequency Error vs. Voltage

Voltage (Vdc)	LTE Band 48, Channel Bandwidth: 10MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.87	3555.000037	0.010	3695.000028	0.008
3.28	3555.000027	0.008	3695.000021	0.006
4.45	3555.000010	0.003	3695.000020	0.005

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 48, Channel Bandwidth: 10MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3555.000018	0.005	3695.000022	0.006
-20	3555.000021	0.006	3695.000031	0.008
-10	3555.000017	0.005	3695.000038	0.010
0	3555.000030	0.008	3695.000036	0.010
10	3555.000011	0.003	3695.000036	0.010
20	3554.999960	-0.011	3694.999976	-0.006
30	3554.999965	-0.010	3694.999961	-0.011
40	3554.999985	-0.004	3694.999990	-0.003
50	3554.999966	-0.010	3694.999964	-0.010
60	3554.999973	-0.008	3694.999989	-0.003

Frequency Error vs. Voltage

Voltage (Vdc)	LTE Band 48, Channel Bandwidth: 15MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.87	3557.500017	0.005	3692.500035	0.009
3.28	3557.500022	0.006	3692.500025	0.007
4.45	3557.500021	0.006	3692.500026	0.007

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

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 48, Channel Bandwidth: 15MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3557.500027	0.008	3692.500026	0.007
-20	3557.500029	0.008	3692.500021	0.006
-10	3557.500018	0.005	3692.500013	0.004
0	3557.500014	0.004	3692.500020	0.005
10	3557.500040	0.011	3692.500012	0.003
20	3557.499974	-0.007	3692.499988	-0.003
30	3557.499967	-0.009	3692.499967	-0.009
40	3557.499979	-0.006	3692.499978	-0.006
50	3557.499984	-0.004	3692.499979	-0.006
60	3557.499967	-0.009	3692.499963	-0.010

Frequency Error vs. Voltage

Voltage (Vdc)	LTE Band 48, Channel Bandwidth: 20MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.87	3560.000025	0.007	3690.000011	0.003
3.28	3560.000022	0.006	3690.000021	0.006
4.45	3560.000025	0.007	3690.000038	0.010

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

Frequency Error vs. Temperature

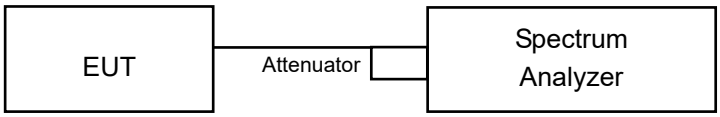
Temp. (℃)	LTE Band 48, Channel Bandwidth: 20MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3560.000029	0.008	3690.000034	0.009
-20	3560.000033	0.009	3690.000040	0.011
-10	3560.000022	0.006	3690.000012	0.003
0	3560.000026	0.007	3690.000016	0.004
10	3560.000020	0.006	3690.000034	0.009
20	3559.999977	-0.006	3689.999980	-0.005
30	3559.999983	-0.005	3689.999976	-0.007
40	3559.999976	-0.007	3689.999962	-0.010
50	3559.999990	-0.003	3689.999987	-0.004
60	3559.999988	-0.003	3689.999977	-0.006

4.4 Emission Bandwidth Measurement

4.4.1 Limits of Emission Bandwidth Measurement

Reference only

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.4.4 Test Procedure

Occupied Bandwdith & 26dBc Bandwidth

1. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be wide enough to see sufficient roll off of the signal to make the measurement.
2. The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set ≥ 3 × RBW.
3. Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation.
   NOTE—Step 1), step 2), and step 3) may require iteration to adjust within the specified tolerances.
4. The dynamic range of the spectrum analyzer at the selected RBW shall be more than 10 dB below the target "−X dB" requirement, i.e., if the requirement calls for measuring the −26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be at least 36 dB below the reference level.
5. Set spectrum analyzer detection mode to peak, and the trace mode to max hold.
6. Determine the reference value by either of the following:
   a) Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).
   b) Set the EUT to transmit an unmodulated carrier. Set the spectrum analyzer marker to the level of the carrier.
7. Determine the "−X dB amplitude" as equal to (Reference Value − X). Alternatively, this calculation can be performed on the spectrum analyzer using the delta-marker measurement function.

4.4.5 Deviation fromTest Standard

No deviation.

4.4.6 EUT Operating Conditions

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

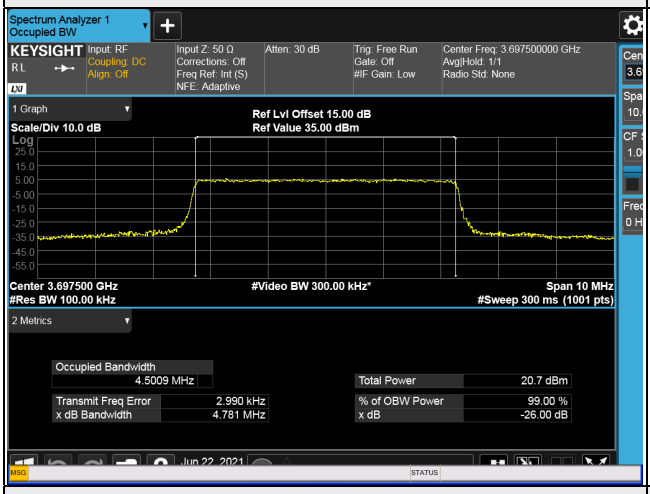
4.4.7 Test Result

Occupied Bandwidth

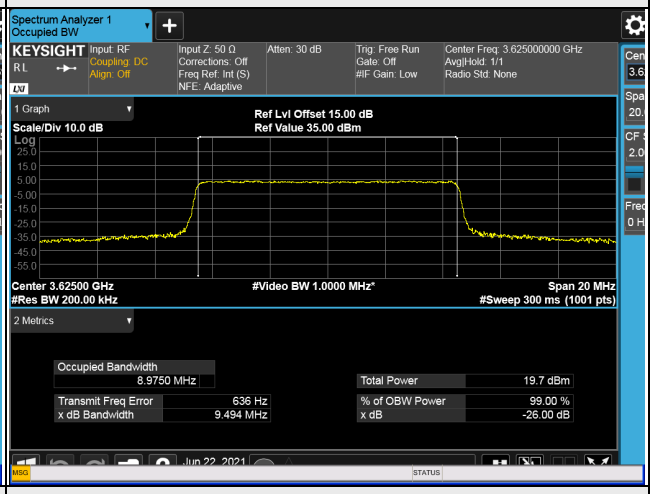
LTE Band 48, Channel Bandwidth 5MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
55265	3552.5	4.4938	4.4938	4.4994	4.4842
55990	3625.0	4.4896	4.4899	4.4993	4.4846
56715	3697.5	4.4914	4.4893	4.5009	4.4821
LTE Band 48, Channel Bandwidth 10MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
55290	3555.0	8.9584	8.9716	8.9723	8.9577
55990	3625.0	8.9674	8.9618	8.9750	8.9687
56690	3695.0	8.9649	8.9690	8.9692	8.9596
LTE Band 48, Channel Bandwidth 15MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
55315	3557.5	13.464	13.444	13.449	13.434
55990	3625.0	13.460	13.442	13.444	13.438
56665	3692.5	13.455	13.445	13.443	13.455
LTE Band 48, Channel Bandwidth 20MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
55340	3560.0	17.921	17.919	17.936	17.929
55990	3625.0	17.922	17.933	17.938	17.929
56640	3690.0	17.924	17.905	17.934	17.940

Spectrum Plot of Worst Value

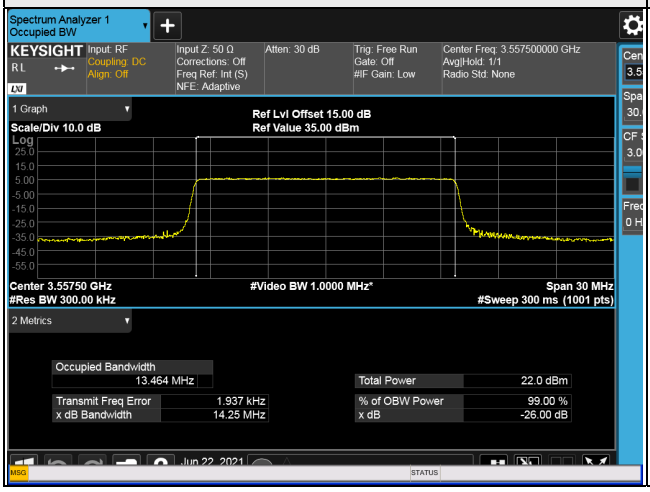
5MHz / 64QAM



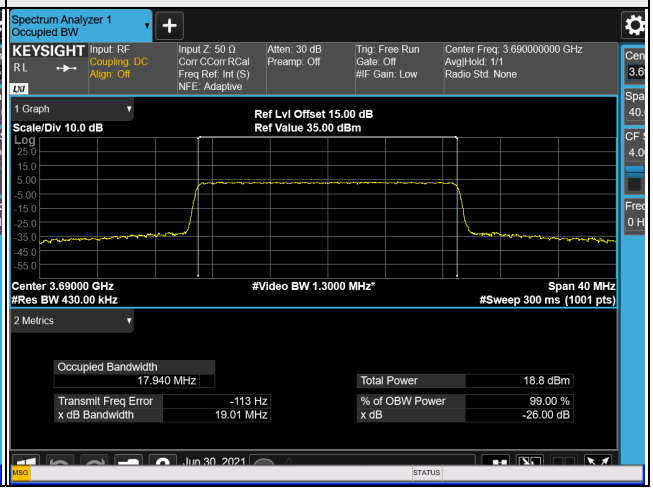
10MHz / 64QAM



15MHz / QPSK



20MHz / 256QAM

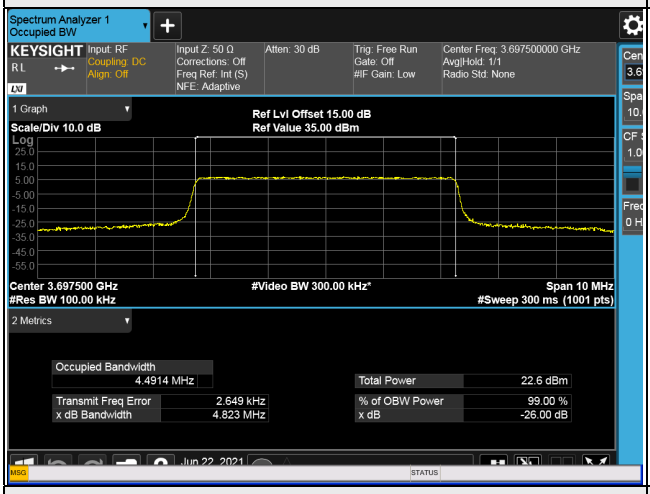


26dB Bandwidth

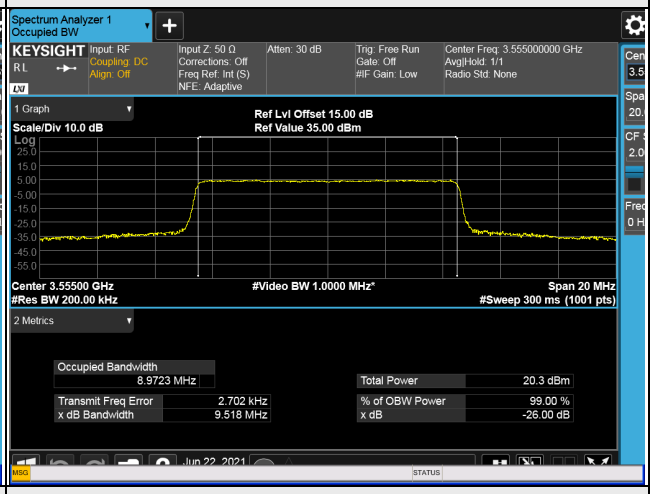
LTE Band 48, Channel Bandwidth 5MHz					
Channel	Frequency (MHz)	26dB Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
55265	3552.5	4.809	4.802	4.821	4.794
55990	3625.0	4.814	4.789	4.805	4.761
56715	3697.5	4.823	4.799	4.781	4.818
LTE Band 48, Channel Bandwidth 10MHz					
Channel	Frequency (MHz)	26dB Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
55290	3555.0	9.483	9.511	9.518	9.518
55990	3625.0	9.490	9.501	9.494	9.404
56690	3695.0	9.491	9.508	9.513	9.505
LTE Band 48, Channel Bandwidth 15MHz					
Channel	Frequency (MHz)	26dB Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
55315	3557.5	14.25	14.23	14.25	14.24
55990	3625.0	14.28	14.22	14.22	14.12
56665	3692.5	14.28	14.25	14.25	14.24
LTE Band 48, Channel Bandwidth 20MHz					
Channel	Frequency (MHz)	26dB Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
55340	3560.0	19.02	19.02	19.03	19.03
55990	3625.0	19.00	19.02	19.01	19.03
56640	3690.0	19.06	19.02	19.04	19.01

Spectrum Plot of Worst Value

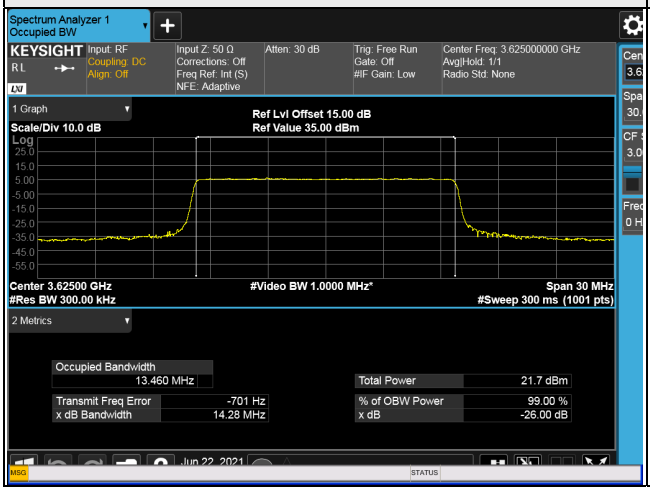
5MHz / QPSK



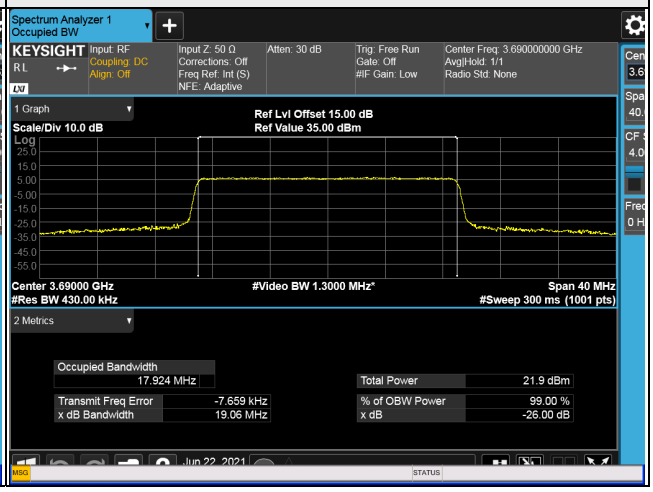
10MHz / 64QAM



15MHz / QPSK



20MHz / QPSK

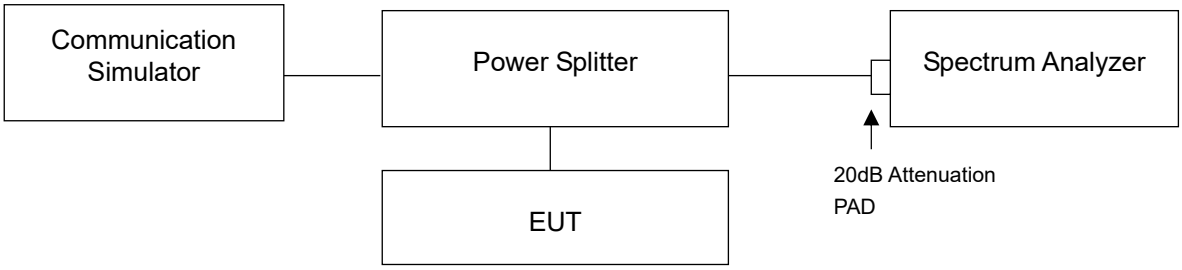


4.5 Peak to Average Ratio Measurement

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 Instruments

Refer to section 4.4.3 to get information of above instrument.

4.5.4 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%.

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

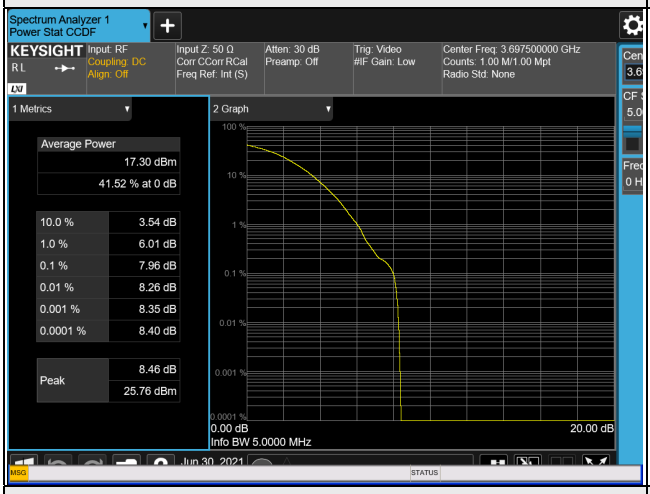
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.5.7 Test Results

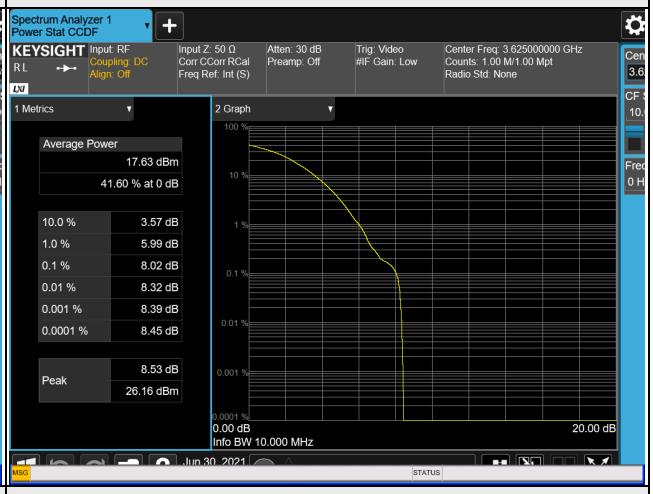
LTE Band 48, Channel Bandwidth 5MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
55265	3552.5	3.53	5.12	6.63	7.94
55990	3625.0	3.57	5.05	6.59	7.82
56715	3697.5	2.96	4.27	5.72	7.96
LTE Band 48, Channel Bandwidth 10MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
55290	3555.0	3.48	5.74	6.60	7.92
55990	3625.0	3.83	5.25	6.62	8.02
56690	3695.0	3.18	5.56	5.88	7.86
LTE Band 48, Channel Bandwidth 15MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
55315	3557.5	4.40	5.43	6.74	7.79
55990	3625.0	4.17	5.50	6.78	7.81
56665	3692.5	4.17	6.98	5.72	7.88
LTE Band 48, Channel Bandwidth 20MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
55340	3560.0	4.28	5.56	6.81	8.00
55990	3625.0	4.63	5.44	6.63	7.58
56640	3690.0	4.12	5.13	5.79	7.66

Spectrum Plot of Worst Value

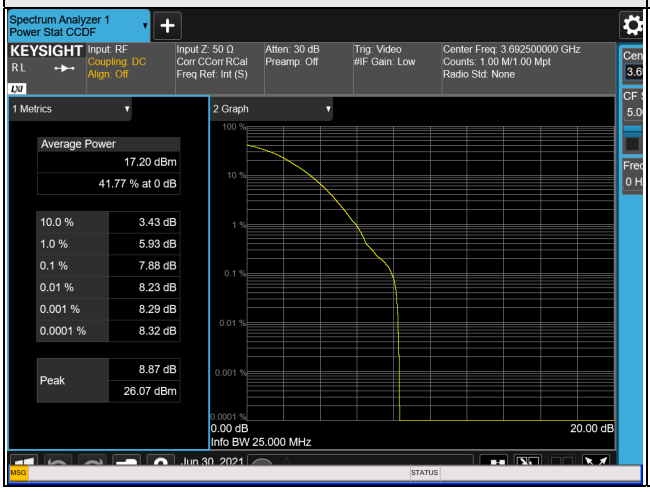
5MHz / 256QAM



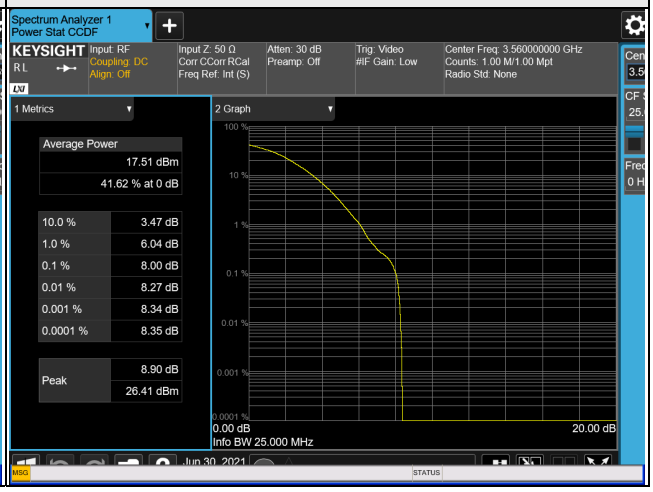
10MHz / 256QAM



15MHz / 256QAM



20MHz / 256QAM

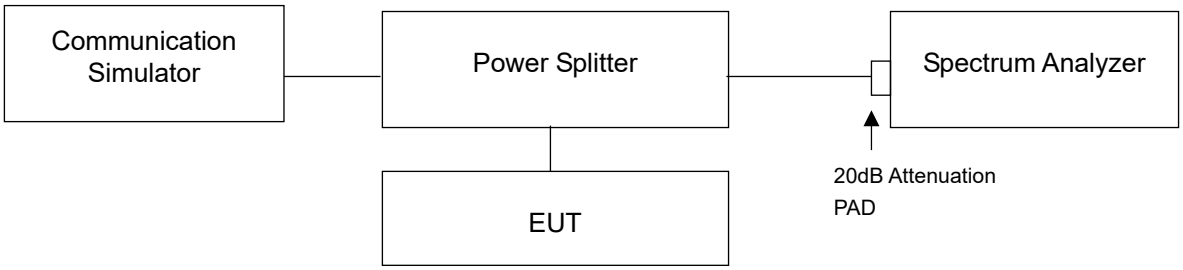


4.6 Conducted Spurious Emissions

4.6.1 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 10MHz above the Assigned Channel	-25 dBm/MHz
Greater than 10MHz below the Assigned Channel	
Power of any emission below 3530MHz	-40 dBm/MHz
Power of any emission above 3720MHz	

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.4.3 to get information of above instrument.

4.6.4 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 are from 9 kHz to 40GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

c. Measuring frequency band edge, 20dB attenuation pad is connected with spectrum. 1% of the fundamental emission bandwidth is used for conducted emission measurement.

d. For 5 MHz and 10 MHz channel BW mode, extend the 1% range from 1M to 2M above and below the channel edge and then reduce the limit further by 10 log (1000/100)=10dB (i.e. total -13 + -10=-23dB) to compensate for the integration from 100k to 1M.

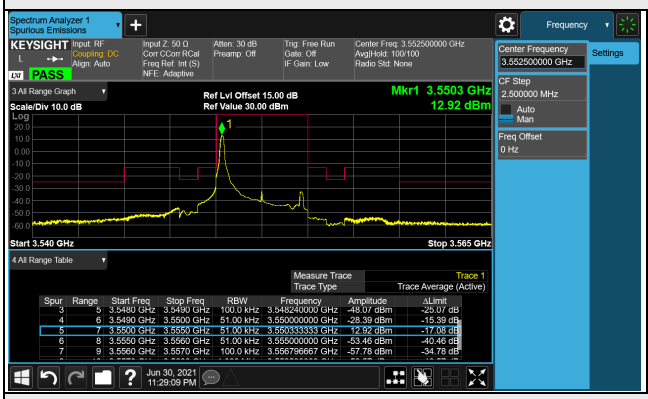
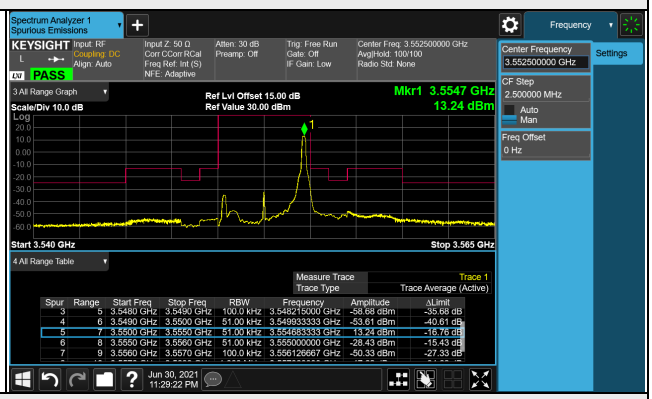
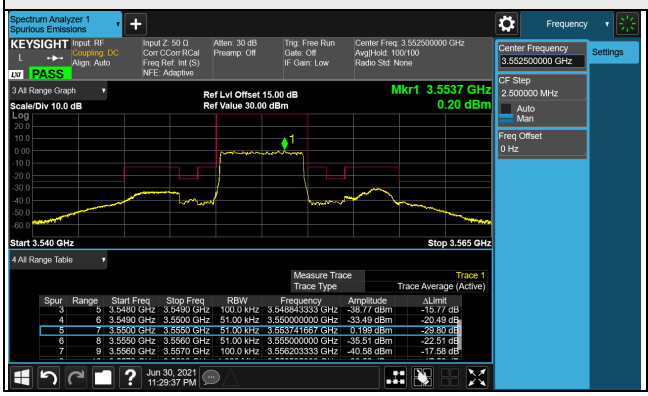
4.6.5 Deviation fromTest Standard

No deviation.

4.6.6 EUT Operating Conditions

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

4.6.7 Test Results

LTE Band 48, Channel Bandwidth 5MHz	
Channel 55265 (3552.5MHz)	
1RB	
	
Full RB	
	

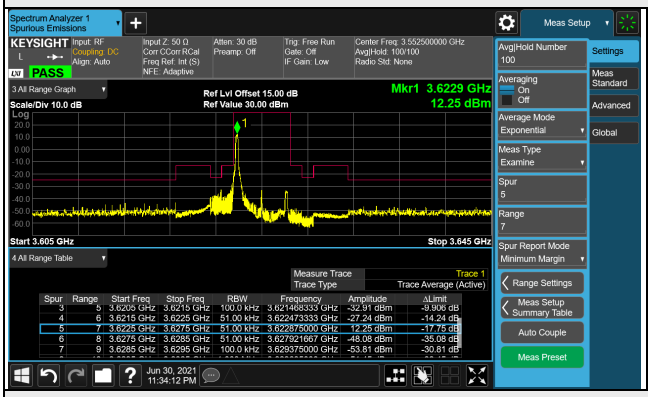
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ΔLimit
3	5	3.5480 GHz	3.5490 GHz	100.0 kHz	3.548240000 GHz	-48.07 dBm	-29.07 dB
4	6	3.5490 GHz	3.5500 GHz	51.00 kHz	3.550000000 GHz	-28.39 dBm	-15.39 dB
5	7	3.5500 GHz	3.5550 GHz	51.00 kHz	3.550333333 GHz	12.92 dBm	-17.08 dB
6	8	3.5550 GHz	3.5560 GHz	51.00 kHz	3.555000000 GHz	-53.46 dBm	-40.46 dB
7	9	3.5560 GHz	3.5570 GHz	100.0 kHz	3.556756667 GHz	-57.76 dBm	-34.76 dB

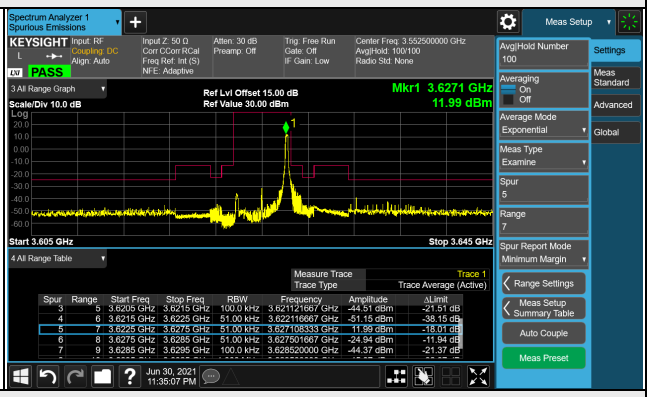
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ΔLimit
3	5	3.5480 GHz	3.5490 GHz	100.0 kHz	3.548215000 GHz	-58.68 dBm	-35.68 dB
4	6	3.5490 GHz	3.5500 GHz	51.00 kHz	3.549933333 GHz	-53.61 dBm	-40.61 dB
5	7	3.5500 GHz	3.5550 GHz	51.00 kHz	3.554683333 GHz	13.24 dBm	-16.76 dB
6	8	3.5550 GHz	3.5560 GHz	51.00 kHz	3.555000000 GHz	-28.43 dBm	-15.43 dB
7	9	3.5560 GHz	3.5570 GHz	100.0 kHz	3.556126667 GHz	-50.33 dBm	-27.33 dB

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	ΔLimit
3	5	3.5480 GHz	3.5490 GHz	100.0 kHz	3.548843333 GHz	-38.77 dBm	-15.77 dB
4	6	3.5490 GHz	3.5500 GHz	51.00 kHz	3.550000000 GHz	-33.49 dBm	-20.49 dB
5	7	3.5500 GHz	3.5550 GHz	51.00 kHz	3.553741667 GHz	0.199 dBm	-29.80 dB
6	8	3.5550 GHz	3.5560 GHz	51.00 kHz	3.555000000 GHz	-35.51 dBm	-22.51 dB
7	9	3.5560 GHz	3.5570 GHz	100.0 kHz	3.556203333 GHz	-40.58 dBm	-17.58 dB

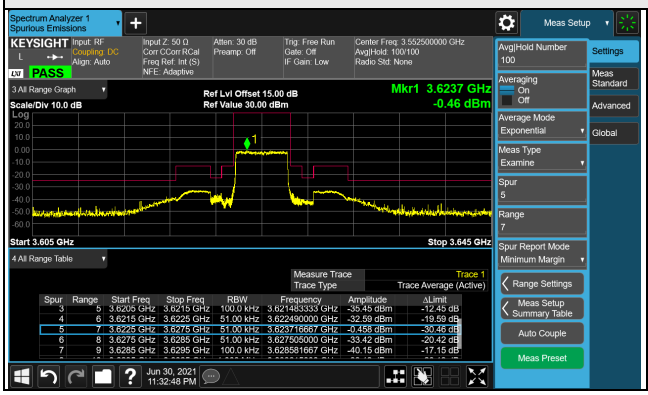
Channel 55990 (3625.0MHz)

1RB



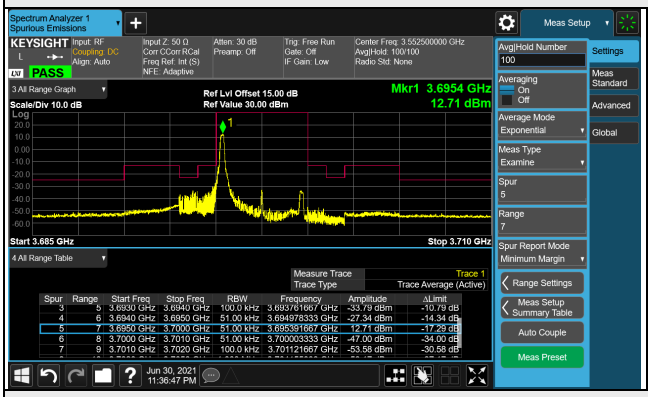


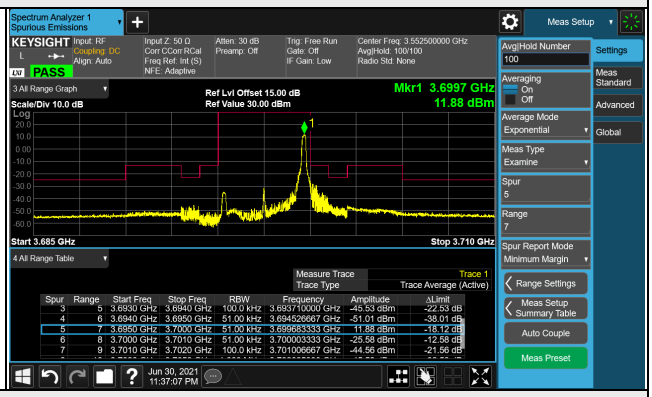
Full RB



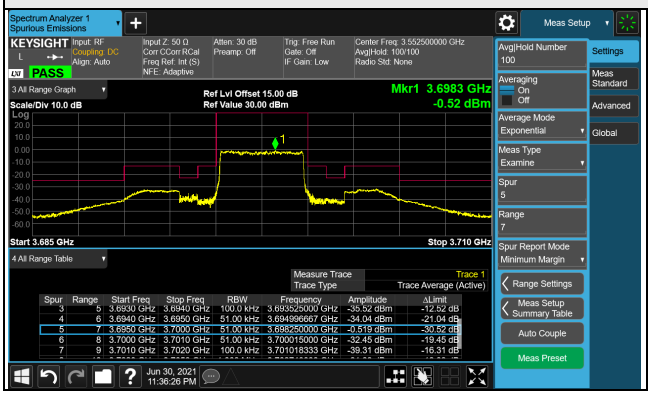
Channel 56715 (3697.5MHz)

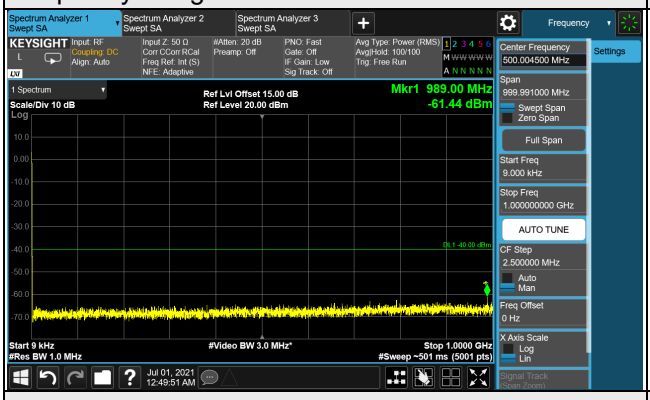
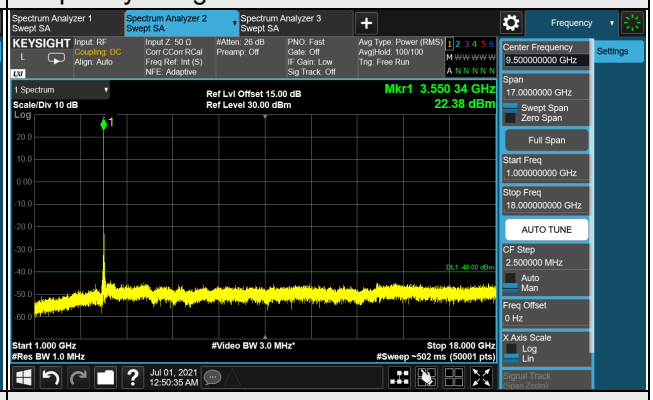
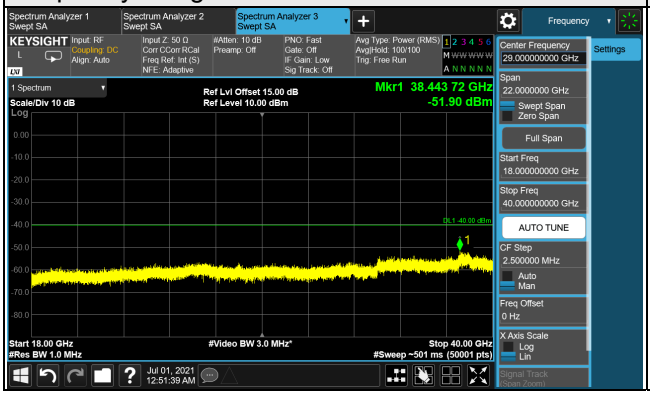
1RB



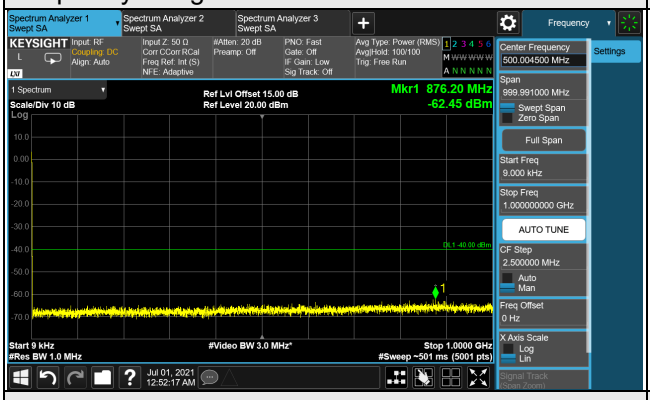
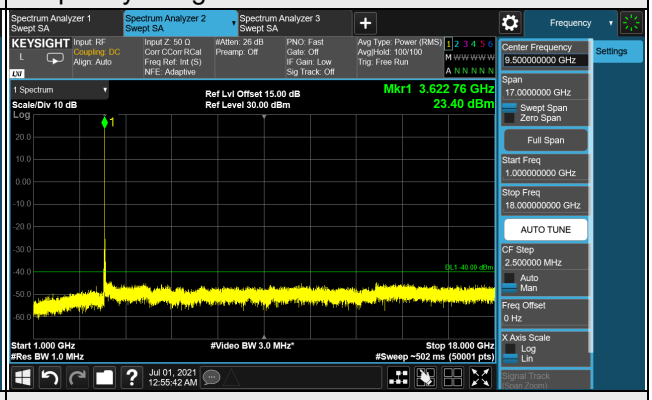
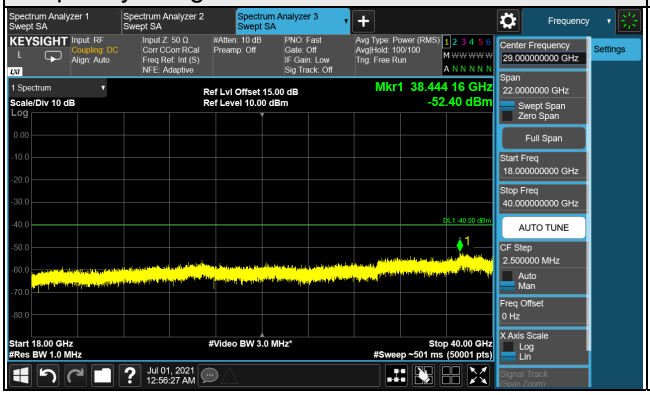


Full RB

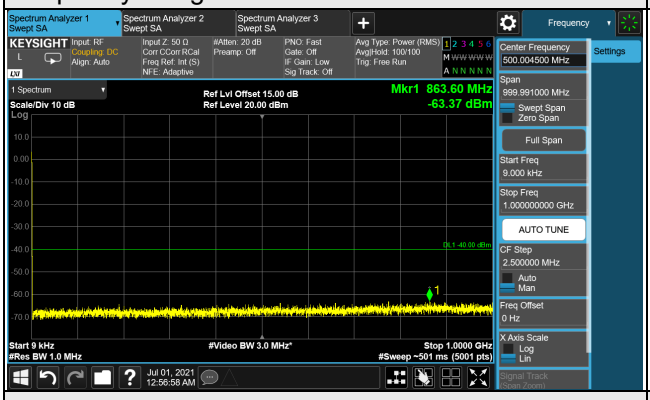
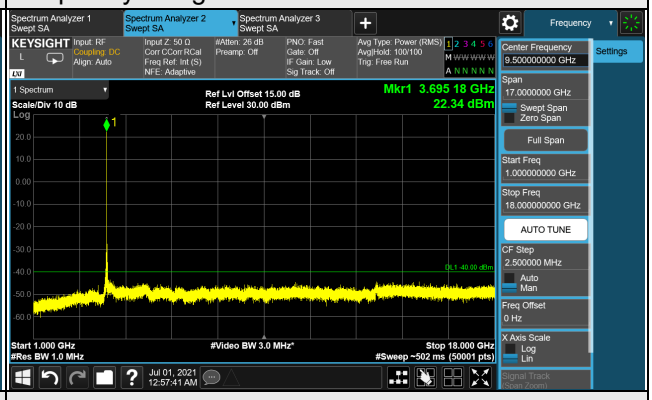
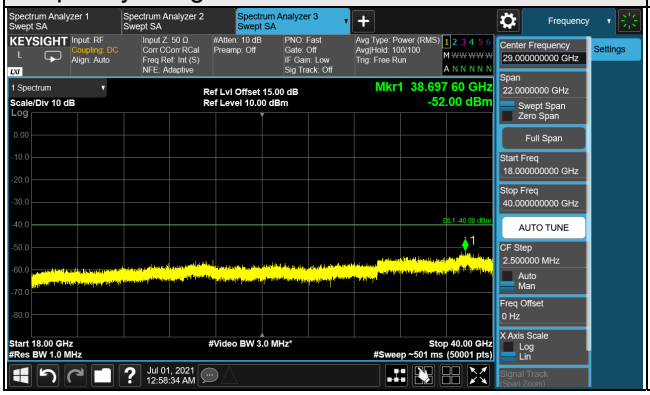


LTE Band 48, Channel Bandwidth 5MHz	
Channel 55265 (3552.5MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 18GHz
	
Frequency Range : 18GHz ~ 40GHz	
	

*The 9 kHz tone is from the spectrum analyzer.

LTE Band 48, Channel Bandwidth 5MHz	
Channel 55990 (3625.0MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 18GHz
	
Frequency Range : 18GHz ~ 40GHz	
	

*The 9 kHz tone is from the spectrum analyzer.

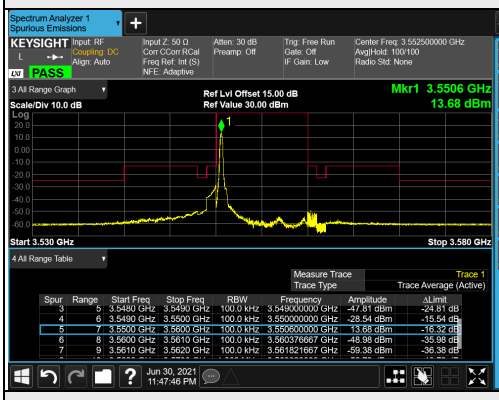
LTE Band 48, Channel Bandwidth 5MHz	
Channel 56715 (3697.50MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 18GHz
	
Frequency Range : 18GHz ~ 40GHz	
	

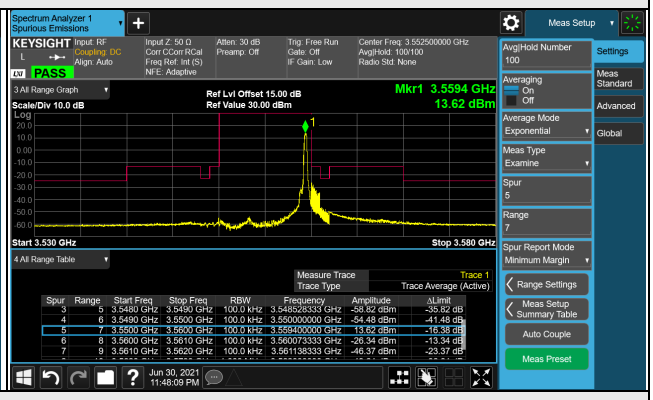
*The 9 kHz tone is from the spectrum analyzer.

LTE Band 48, Channel Bandwidth 10MHz

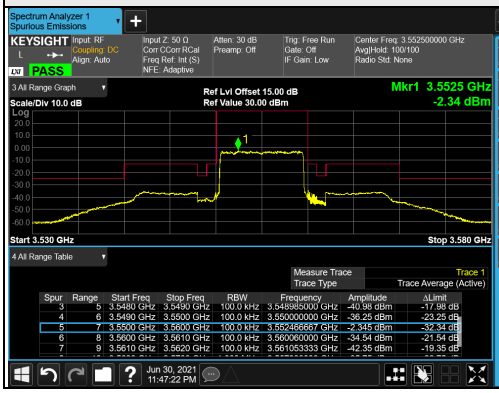
Channel 55290 (3555.0MHz)

1RB



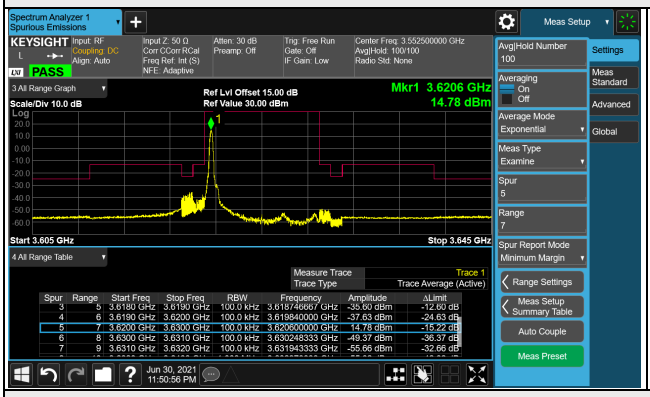


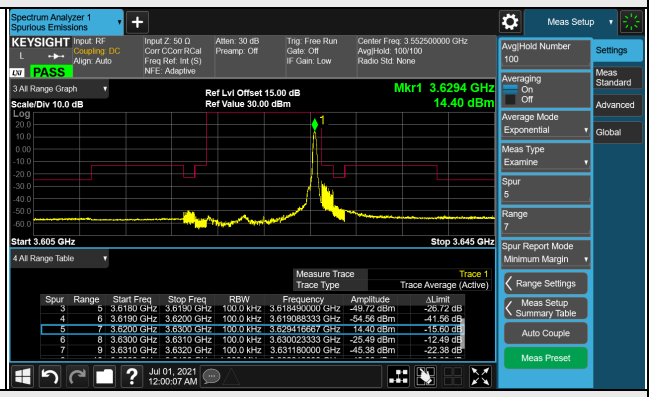
Full RB



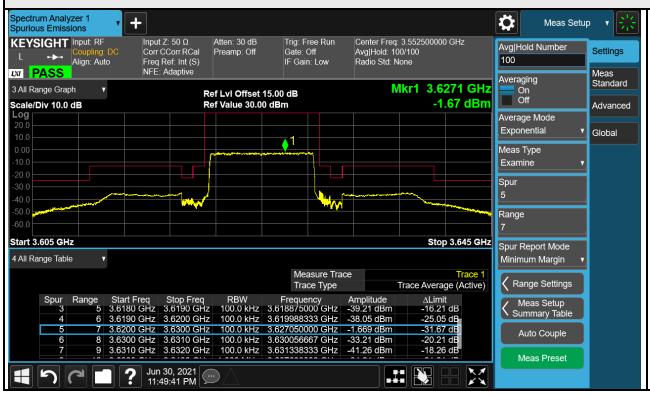
Channel 55990 (3625.00MHz)

1RB



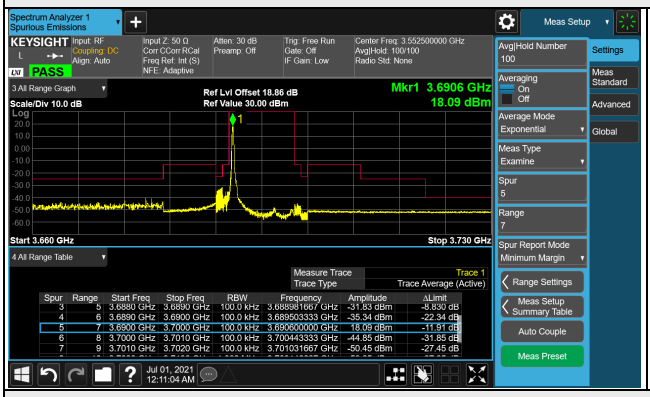


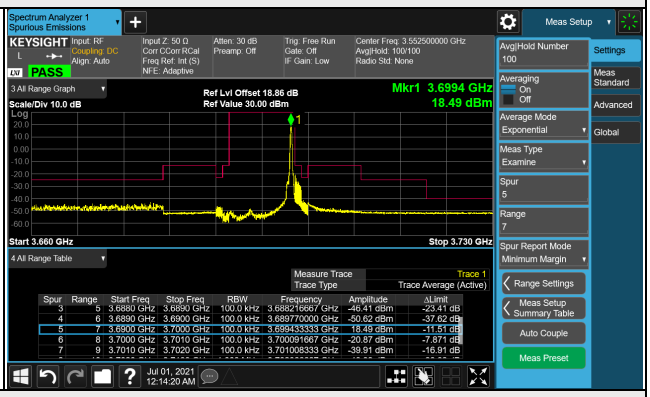
Full RB



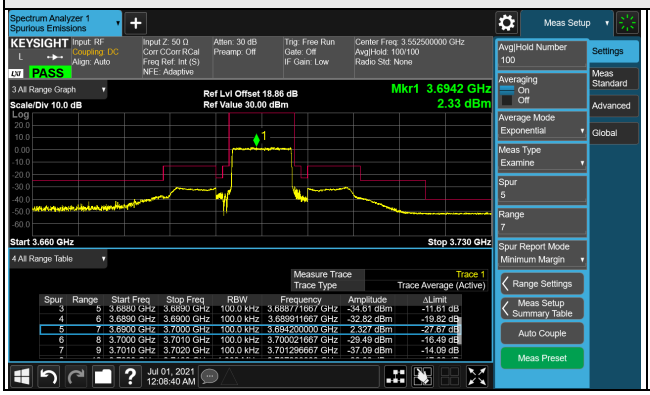
Channel 56690 (3695.0MHz)

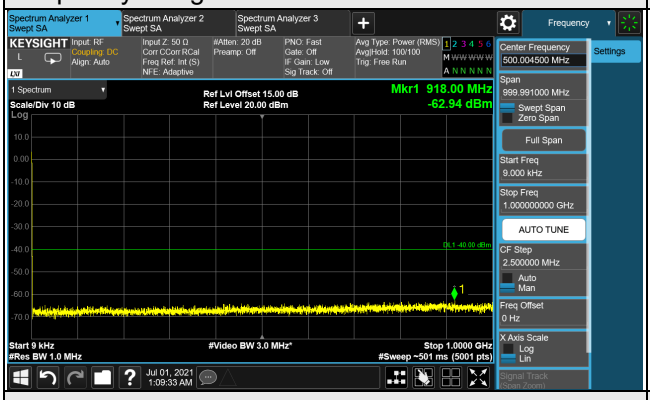
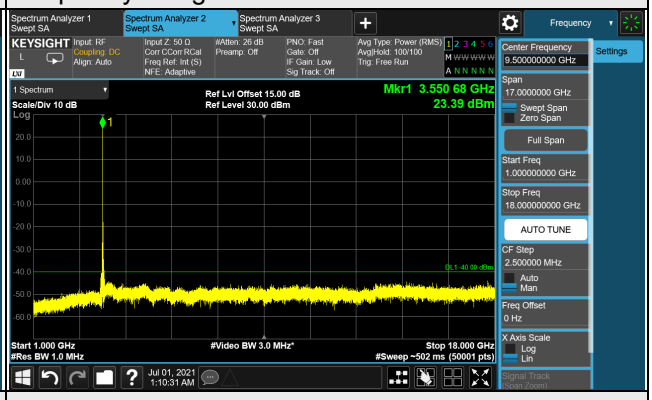
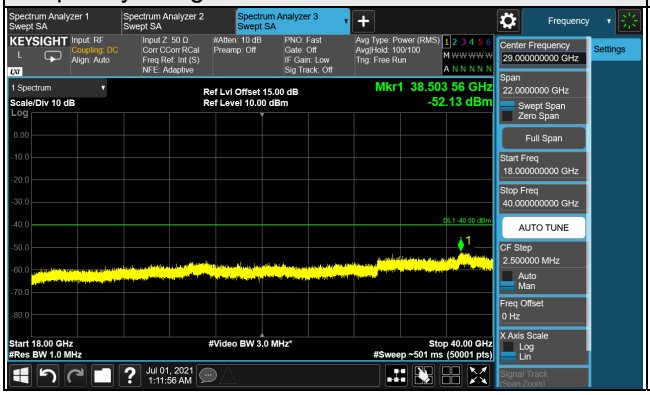
1RB



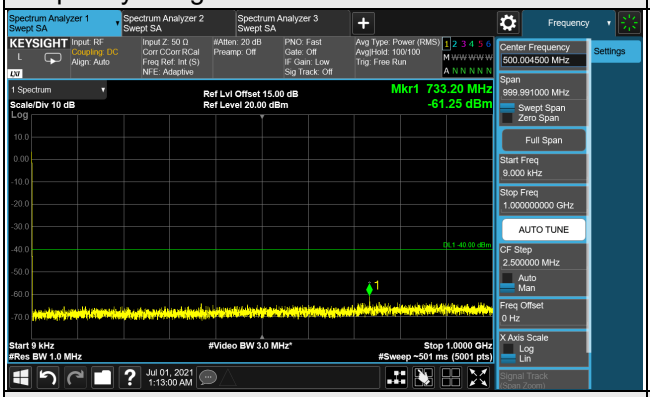
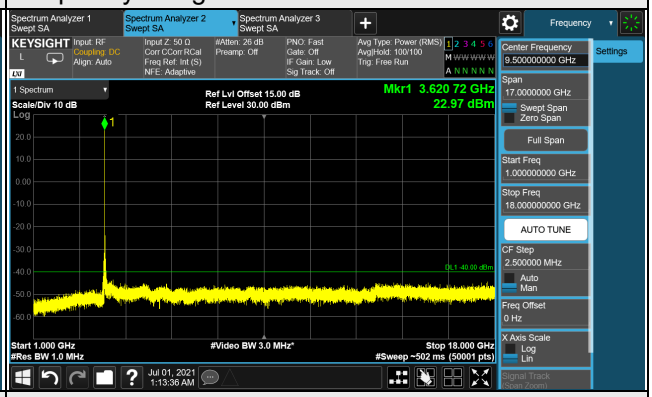
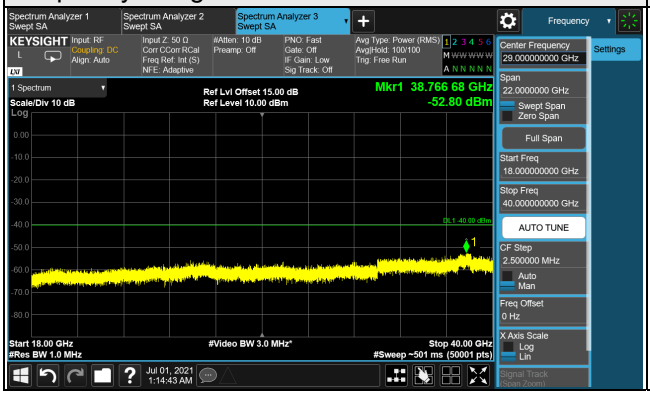


Full RB

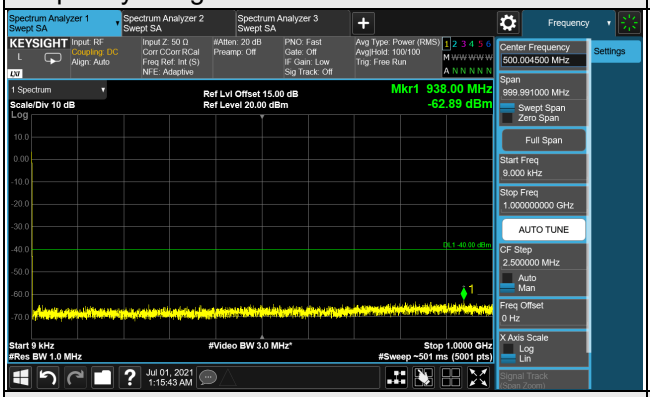
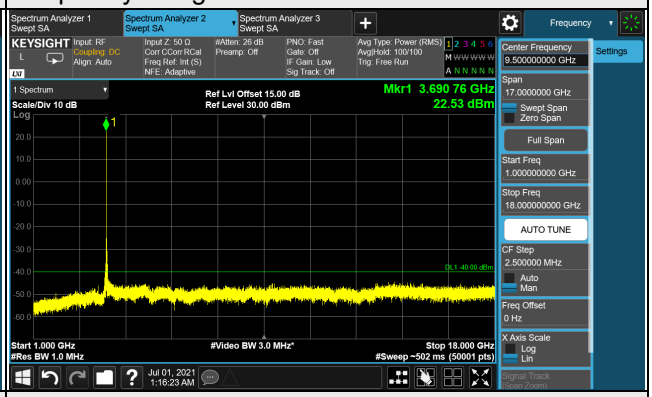
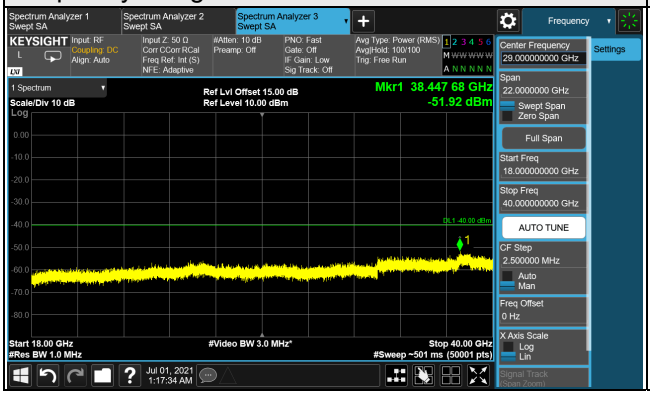


LTE Band 48, Channel Bandwidth 10MHz	
Channel 55290 (3555.0MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 18GHz
	
Frequency Range : 18GHz ~ 40GHz	
	

*The 9 kHz tone is from the spectrum analyzer.

LTE Band 48, Channel Bandwidth 10MHz	
Channel 55990 (3625.00MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 18GHz
	
Frequency Range : 18GHz ~ 40GHz	
	

*The 9 kHz tone is from the spectrum analyzer.

LTE Band 48, Channel Bandwidth 10MHz	
Channel 56690 (3695.0MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 18GHz
	
Frequency Range : 18GHz ~ 40GHz	
	

*The 9 kHz tone is from the spectrum analyzer.