FCC Test Report
(Part 24)

Report No.:	RF200513C20
FCC ID:	H8NSFE3056
Test Model:	SS2FII Femtocell Multi-band SOHO
Received Date:	May 13, 2020
Test Date:	Jun. 02 ~ Jun. 08, 2020
Issued Date:	Jul. 06, 2020
Applicant:	ASKEY COMPUTER CORP.
Address:	10F, No. 119, Jiankang Rd., Zhonghe Dist., New Taipei City 23585, 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

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Release Control Record

Issue No.	Description	Date Issued
RF200513C20	Original release	Jul. 06, 2020

1 Certificate of Conformity

Product:	Femtocell
Brand:	Nokia
Test Model:	SS2FII Femtocell Multi-band SOHO
Sample Status:	Engineering sample
Applicant:	ASKEY COMPUTER CORP.
Test Date:	Jun. 02 ~ Jun. 08, 2020
Standards:	FCC Part 24, Subpart E FCC Part 2

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:** Jul. 06, 2020

Pettie Chen / Senior Specialist

Approved by : Bruce Chen , **Date:** Jul. 06, 2020

Bruce Chen / Senior Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 24 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 24.232	Output power	Pass	Meet the requirement of limit.
2.1046 24.232(d)	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1047	Modulation characteristics	Pass	Meet the requirement
2.1055 24.235	Frequency Stability	Pass	Meet the requirement of limit.
2.1049 24.238(b)	Occupied Bandwidth	Pass	Meet the requirement of limit.
24.238(b)	Band Edge Measurements	Pass	Meet the requirement of limit.
2.1051 24.238	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 24.238	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -35.1dB at 111.48MHz.

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	3.86 dB
	200MHz ~1000MHz	3.87 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 16, 2020	Apr. 15, 2021
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 23, 2019	Sep. 22, 2020
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Nov. 07, 2019	Nov. 06, 2020
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Nov. 24, 2019	Nov. 23, 2020
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 24, 2019	Nov. 23, 2020
Loop Antenna TESEQ	HLA 6121	45745	Jul. 01, 2019	Jun. 30, 2020
Preamplifier Agilent (Below 1GHz)	8447D	2944A10638	Jul. 11, 2019	Jul. 10, 2020
Preamplifier Agilent (Above 1GHz)	8449B	3008A02367	Feb. 18, 2020	Feb. 17, 2021
RF signal cable HUBER+SUHNER&EMCI	SUCOFLEX 104 & EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	Jan. 18, 2020	Jan. 17, 2021
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	Jul. 11, 2019	Jul. 10, 2020
RF signal cable Woken	8D-FB	Cable-CH9-01	Jul. 30, 2019	Jul. 29, 2020
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
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 01, 2020	May 31, 2021
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
Digital Multimeter Fluke	87-III	70360742	Jun. 27, 2019	Jun. 26, 2020
Radio Communication Analyzer	MT8821C	6261786083	Jan. 18, 2020	Jan. 17, 2021

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 9.

3 General Information

3.1 General Description of EUT

Product	Femtocell			
Brand	Nokia			
Test Model	SS2FII Femtocell Multi-band SOHO			
Sample Status	Engineering sample			
Power Supply Rating	12Vdc (Adapter)			
Modulation Type	WCDMA: BPSK, QPSK LTE: QPSK, 16QAM, 64QAM			
Operating Frequency	WCDMA: 1932.4MHz ~ 1987.6MHz LTE Band 2 (Channel Bandwidth 5MHz): 1932.5MHz ~ 1987.5MHz LTE Band 2 (Channel Bandwidth 10MHz): 1935.0MHz ~ 1985.0MHz LTE Band 2 (Channel Bandwidth 15MHz): 1937.5MHz ~ 1982.5MHz LTE Band 2 (Channel Bandwidth 20MHz): 1940.0MHz ~ 1980.0MHz			
Max. EIRP Power	WCDMA	295.121mW (24.7dBm)		
		QPSK	16QAM	64QAM
	LTE Band 2 (Channel Bandwidth 5MHz)	346.737mW (25.4dBm)	288.403mW (24.6dBm)	263.027mW (24.2dBm)
	LTE Band 2 (Channel Bandwidth 10MHz)	316.228mW (25.0dBm)	257.040mW (24.1dBm)	229.087mW (23.6dBm)
	LTE Band 2 (Channel Bandwidth 15MHz)	346.737mW (25.4dBm	301.995mW (24.8dBm)	257.040mW (24.1dBm)
	LTE Band 2 (Channel Bandwidth 20MHz)	363.078mW (25.6dBm)	288.403mW (24.6dBm)	223.872mW (23.5dBm)
Emission Designator	WCDMA	4M15F9W		
		QPSK	16QAM	64QAM
	LTE Band 2 (Channel Bandwidth 5MHz)	4M44G7D	4M44W7D	4M44W7D
	LTE Band 2 (Channel Bandwidth 10MHz)	8M93G7D	8M91W7D	8M93W7D
	LTE Band 2 (Channel Bandwidth 15MHz)	13M3G7D	13M3W7D	13M3W7D
	LTE Band 2 (Channel Bandwidth 20MHz)	17M9G7D	17M9W7D	17M8W7D
Antenna Type	WCDMA: Antenna 1: PIFA antenna with 2.6dBi gain LTE Band 2: Antenna 2: PIFA antenna with 2.9dBi gain Antenna 4: PIFA antenna with 3.7dBi gain			
Antenna Connector	NA			
Accessory Device	Adapter, GPS antenna (Brand: INPAQ, model: GPSGLONASS15D-S6-0341-A, cable: 4.55m non-shielded cable w/o core)			
Data Cable Supplied	2.95m non-shielded RJ45 cable w/o core			

Note:

1. The EUT uses following adapters.

Adapter 1	
Brand	Asian Power Devices Inc.
Model	WB-24J12FU
Input Power	100-240Vac~50-60Hz 0.7A Max.
Output Power	12Vdc / 2A
Power Line	1.5m DC cable without core attached on adapter

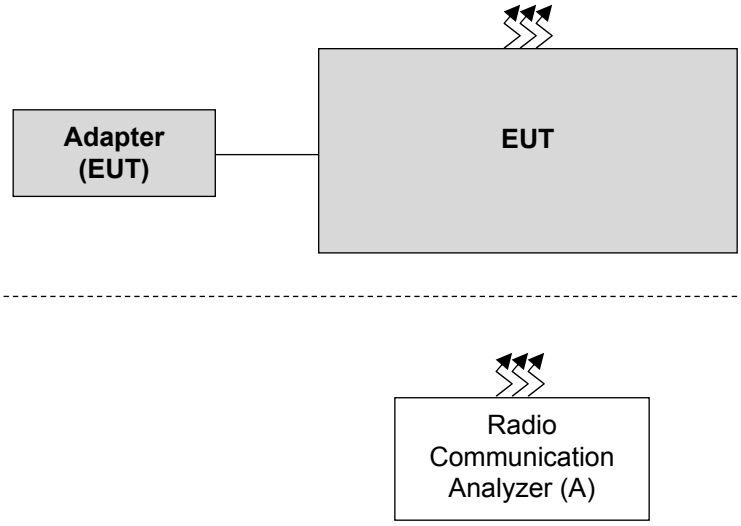
Adapter 2	
Brand	AOEM
Model	ADS0248T-W120200(H)
Input Power	100-240Vac~50-60Hz 0.6A
Output Power	12Vdc / 2.0A
Power Line	1.5m DC cable without core attached on adapter

Adapter 3	
Brand	ChenZhou Frecom electronics Co., Ltd.
Model	F24L9-120200SPAU
Input Power	100-240Vac~50/60Hz 0.6A
Output Power	12Vdc / 2A
Power Line	1.5m DC cable without core attached on adapter

*After pre-testing, adapter 1 was the worst case for the final tests.

2. 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. Carrier Aggregation technology supported for this device, the operation behavior is WCDMA Band 2 + LTE Band 4 and LTE Band 2 + LTE Band 4, for more details information please refer to “CA Mode” of test report.

3.2 Configuration of System under Test



3.2.1 Description of Support Units

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

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Radio Communication Analyzer	Anritsu	MT8821C	6261786083	NA	-

Note: All power cords of the above support units are non-shielded (1.8m).

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports. The worst case was found when positioned on X-plane. Following channel(s) was (were) selected for the final test as listed below:

WCDMA Mode

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	EIRP	9662 to 9938	9662(1932.4MHz), 9800(1960.0MHz), 9938(1987.6MHz)	WCDMA (BPSK)
-	Modulation characteristics	9662 to 9938	9800(1960.0MHz)	WCDMA (BPSK)
-	Frequency Stability	9662 to 9938	9662(1932.4MHz), 9938(1987.6MHz)	WCDMA (BPSK)
-	Emission Bandwidth	9662 to 9938	9662(1932.4MHz), 9800(1960.0MHz), 9938(1987.6MHz)	WCDMA (BPSK)
-	Band Edge	9662 to 9938	9662(1932.4MHz), 9938(1987.6MHz)	WCDMA (BPSK)
-	Peak To Average Ratio	9662 to 9938	9662(1932.4MHz), 9800(1960.0MHz), 9938(1987.6MHz)	WCDMA (BPSK)
-	Conducted Emission	9662 to 9938	9662(1932.4MHz), 9800(1960.0MHz), 9938(1987.6MHz)	WCDMA (BPSK)
-	Radiated Emission Below 1GHz	9662 to 9938	9800(1960.0MHz)	WCDMA (BPSK)
-	Radiated Emission Above 1GHz	9662 to 9938	9662(1932.4MHz), 9800(1960.0MHz), 9938(1987.6MHz)	WCDMA (BPSK)

LTE Band 2

Test item	Available channel	Tested channel	Channel Bandwidth	Modulation
Output Power	625 to 1175	625(1932.5MHz), 900(1960.0MHz), 1175(1987.5MHz)	5MHz	QPSK / 16QAM / 64QAM
	650 to 1150	650(1935.0MHz), 900(1960.0MHz), 1150(1985.0MHz)	10MHz	QPSK / 16QAM / 64QAM
	675 to 1125	675(1937.5MHz), 900(1960.0MHz), 1125(1982.5MHz)	15MHz	QPSK / 16QAM / 64QAM
	700 to 1100	700(1940.0MHz), 900(1960.0MHz), 1100(1980.0MHz)	20MHz	QPSK / 16QAM / 64QAM
Modulation characteristics	625 to 1175	900(1960.0MHz)	5MHz	QPSK / 16QAM / 64QAM
Frequency Stability	625 to 1175	625(1932.5MHz), 1175(1987.5MHz)	5MHz	QPSK
	650 to 1150	650(1935.0MHz), 1150(1985.0MHz)	10MHz	QPSK
	675 to 1125	675(1937.5MHz), 1125(1982.5MHz)	15MHz	QPSK
	700 to 1100	700(1940.0MHz), 1100(1980.0MHz)	20MHz	QPSK
Emission Bandwidth	625 to 1175	625(1932.5MHz), 900(1960.0MHz), 1175(1987.5MHz)	5MHz	QPSK / 16QAM / 64QAM
	650 to 1150	650(1935.0MHz), 900(1960.0MHz), 1150(1985.0MHz)	10MHz	QPSK / 16QAM / 64QAM
	675 to 1125	675(1937.5MHz), 900(1960.0MHz), 1125(1982.5MHz)	15MHz	QPSK / 16QAM / 64QAM
	700 to 1100	700(1940.0MHz), 900(1960.0MHz), 1100(1980.0MHz)	20MHz	QPSK / 16QAM / 64QAM
Band Edge	625 to 1175	625(1932.5MHz), 1175(1987.5MHz)	5MHz	QPSK
	650 to 1150	650(1935.0MHz), 1150(1985.0MHz)	10MHz	QPSK
	675 to 1125	675(1937.5MHz), 1125(1982.5MHz)	15MHz	QPSK
	700 to 1100	700(1940.0MHz), 1100(1980.0MHz)	20MHz	QPSK
Peak to Average Ratio	625 to 1175	625(1932.5MHz), 900(1960.0MHz), 1175(1987.5MHz)	5MHz	QPSK / 16QAM / 64QAM
	650 to 1150	650(1935.0MHz), 900(1960.0MHz), 1150(1985.0MHz)	10MHz	QPSK / 16QAM / 64QAM
	675 to 1125	675(1937.5MHz), 900(1960.0MHz), 1125(1982.5MHz)	15MHz	QPSK / 16QAM / 64QAM
	700 to 1100	700(1940.0MHz), 900(1960.0MHz), 1100(1980.0MHz)	20MHz	QPSK / 16QAM / 64QAM
Condcudeted Emission	625 to 1175	625(1932.5MHz), 900(1960.0MHz), 1175(1987.5MHz)	5MHz	QPSK
	650 to 1150	650(1935.0MHz), 900(1960.0MHz), 1150(1985.0MHz)	10MHz	QPSK
	675 to 1125	675(1937.5MHz), 900(1960.0MHz), 1125(1982.5MHz)	15MHz	QPSK
	700 to 1100	700(1940.0MHz), 900(1960.0MHz), 1100(1980.0MHz)	20MHz	QPSK
Radiated Emission Below 1GHz	625 to 1175	900(1960.0MHz)	5MHz	QPSK
	700 to 1100	900(1960.0MHz)	20MHz	QPSK

Test item	Available channel	Tested channel	Channel Bandwidth	Modulation
Radiated Emission Above 1GHz	625 to 1175	625(1932.5MHz), 900(1960.0MHz), 1175(1987.5MHz)	5MHz	QPSK
	700 to 1100	700(1940.0MHz), 900(1960.0MHz), 1100(1980.0MHz)	20MHz	QPSK

Note:

1. The conducted output power for QPSK, 16QAM and 64QAM, measured value of QPSK is higher than 16QAM and 64QAM mode. Therefore, Frequency Stability, Channel edge, Conducted Emission, Radiated Emission were presented under QPSK mode only.

Test Condition:

Test Item	Environmental Conditions	Input Power (System)	Tested By
EIRP	22deg. C, 66%RH	120Vac, 60Hz	Han Wu
Modulation characteristics	24deg. C, 64%RH	120Vac, 60Hz	James Yang
Frequency Stability	24deg. C, 64%RH	120Vac, 60Hz	James Yang
Emission Bandwidth	24deg. C, 64%RH	120Vac, 60Hz	James Yang
Band Edge	24deg. C, 64%RH	120Vac, 60Hz	James Yang
Peak To Average Ratio	24deg. C, 64%RH	120Vac, 60Hz	James Yang
Conducted Emission	24deg. C, 64%RH	120Vac, 60Hz	James Yang
Radiated Emission	22deg. C, 66%RH	120Vac, 60Hz	Han Wu

3.4 EUT Operating Conditions

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

3.5 General Description of Applied Standards and References

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

Test Standard:

FCC 47 CFR Part 2

FCC 47 CFR Part 24

ANSI 63.26-2015

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

References Test Guidance:

KDB 971168 D01 Power Meas License Digital Systems v03r01

KDB 412172 D01 Determining ERP and EIRP v01r01

KDB 662911 D01 multiple transmitter output v02r01

ANSI/TIA/EIA-603-E 2016

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

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

Base stations with an emission bandwidth greater than 1MHz are limited to 1640 watts/MHz EIRP with an antenna height up to 300 meters HAAT.

4.1.2 Test Procedures

EIRP / ERP Measurement:

a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 1MHz and 3MHz for WCDMA 5MHz, 3MHz and 10MHz for LTE 20MHz.
b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value“ of step b. Record the power level of S.G
d. 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 - 2.15dB.

Where:

$ERP/EIRP = P_{Meas} + G_T - L_C$

P_{Meas} : Measure transmitter output power.
G_T : Gain of the transmitting antenna.
L_C : signal attenuation in the connecting cable between the transmitter and antenna.

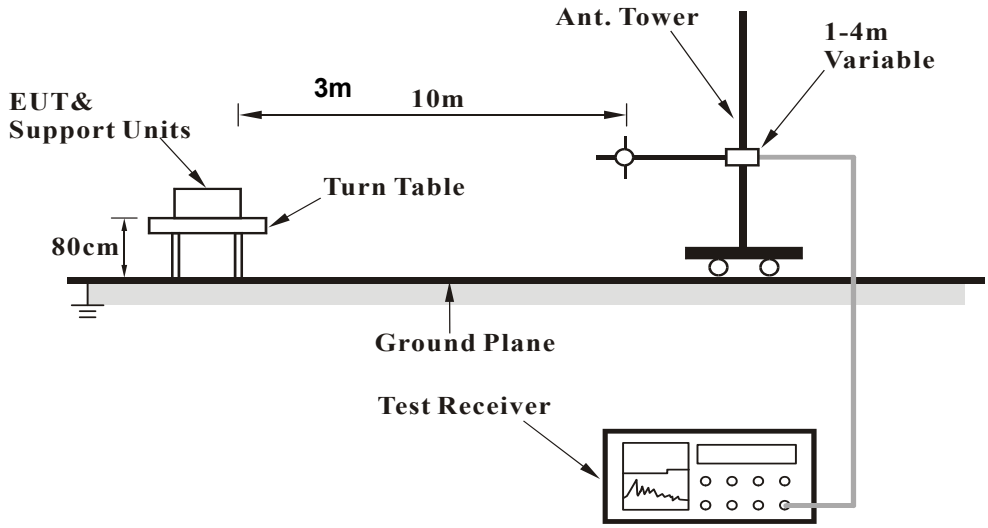
Conducted Power Measurement:

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

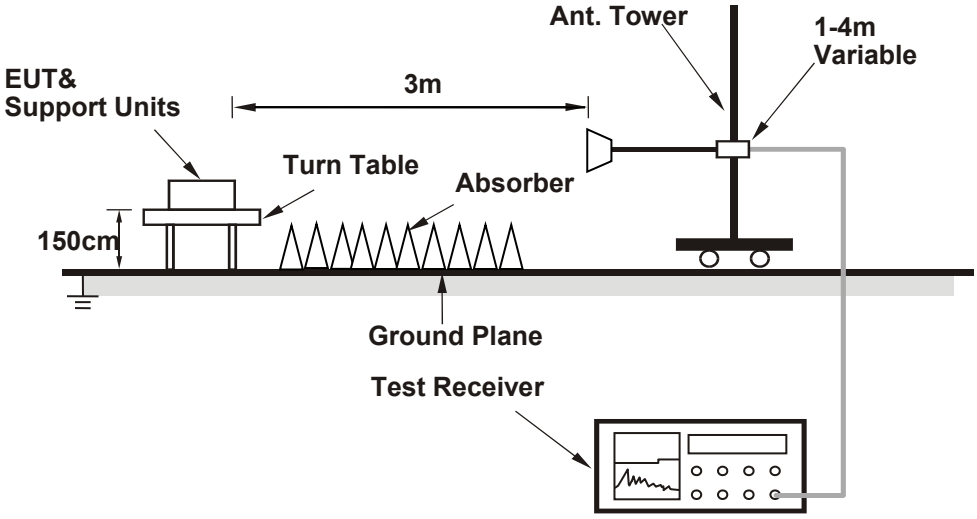
4.1.3 Test Setup

EIRP / ERP Measurement:

For Radiated Emission below or equal 1GHz

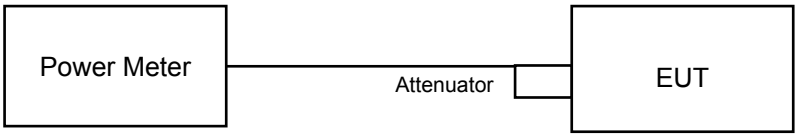


For Radiated Emission above 1GHz



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

CONDUCTED POWER MEASUREMENT:



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

4.1.4 Test Results

Conducted Output Power (dBm)

Band	WCDMA II		
Channel	9662	9800	9938
Frequency	1932.4	1960	1987.6
RMC 12.2K	20.03	20.81	20.74

LTE Band 2

Band	BW	Chain	QPSK			16QAM			64QAM		
			Low CH 625	Mid CH 900	High CH 1175	Low CH 625	Mid CH 900	High CH 1175	Low CH 625	Mid CH 900	High CH 1175
			1932.5 MHz	1960 MHz	1987.5 MHz	1932.5 MHz	1960 MHz	1987.5 MHz	1932.5 MHz	1960 MHz	1987.5 MHz
LTE Band 2	5M	0	19.86	20.16	20.03	18.92	19.62	19.47	18.85	19.17	19.07
		1	19.25	20.57	20.48	18.75	20.17	20.11	18.41	19.35	19.75
		Total	22.58	23.38	23.27	21.85	22.91	22.81	21.65	22.27	22.43

Band	BW	Chain	QPSK			16QAM			64QAM		
			Low CH 650	Mid CH 900	High CH 1150	Low CH 650	Mid CH 900	High CH 1150	Low CH 650	Mid CH 900	High CH 1150
			1935 MHz	1960 MHz	1985 MHz	1935 MHz	1960 MHz	1985 MHz	1935 MHz	1960 MHz	1985 MHz
LTE Band 2	10M	0	19.85	20.29	20.85	18.92	20.16	20.11	18.97	19.88	19.68
		1	19.22	20.48	20.77	19.07	20.07	20.44	18.75	19.72	19.81
		Total	22.56	23.40	23.82	22.01	23.13	23.29	21.87	22.81	22.76

Band	BW	Chain	QPSK			16QAM			64QAM		
			Low CH 675	Mid CH 900	High CH 1125	Low CH 675	Mid CH 900	High CH 1125	Low CH 675	Mid CH 900	High CH 1125
			1937.5 MHz	1960 MHz	1982.5 MHz	1937.5 MHz	1960 MHz	1982.5 MHz	1937.5 MHz	1960 MHz	1982.5 MHz
LTE Band 2	15M	0	20.78	21.72	21.88	20.07	21.27	21.55	19.98	20.46	21.03
		1	20.89	21.64	21.97	20.38	21.05	21.41	19.85	20.69	21.00
		Total	23.85	24.69	24.94	23.24	24.17	24.49	22.93	23.59	24.03

Band	BW	Chain	QPSK			16QAM			64QAM		
			Low CH 700	Mid CH 900	High CH 1100	Low CH 700	Mid CH 900	High CH 1100	Low CH 700	Mid CH 900	High CH 1100
			1940 MHz	1960 MHz	1980 MHz	1940 MHz	1960 MHz	1980 MHz	1940 MHz	1960 MHz	1980 MHz
LTE Band 2	20M	0	19.85	20.22	20.94	19.50	19.88	20.23	18.88	19.27	19.87
		1	19.76	20.37	20.86	19.41	19.83	20.45	19.04	19.55	19.93
		Total	22.82	23.31	23.91	22.47	22.87	23.35	21.97	22.42	22.91

EIRP Power (dBm)
WCDMA Mode

MODE	TX channel 9662, 9800, 9938						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1932.40	-18.8	21.8	-0.2	21.6	62.1	-40.5
2	1960.00	-18.2	22.3	-0.3	22.0	62.1	-40.1
3	1987.60	-18.2	22.2	-0.4	21.8	62.1	-40.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1932.40	-16.4	24.6	-0.2	24.4	62.1	-37.7
2	**1960.00**	**-16.2**	**25.0**	**-0.3**	**24.7**	**62.1**	**-37.4**
3	1987.60	-16.5	24.9	-0.4	24.5	62.1	-37.6

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 2

Modulation Type: QPSK

Channel Bandwidth: 5MHz

MODE		TX channel 625, 900, 1175					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1932.5	-19.2	21.4	-0.2	21.2	62.1	-40.9
2	1960.0	-18.9	21.6	-0.3	21.3	62.1	-40.8
3	1987.5	-19.4	21.0	-0.4	20.6	62.1	-41.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1932.5	-16.2	24.8	-0.2	24.6	62.1	-37.5
2	1960.0	-15.5	25.7	-0.3	25.4	62.1	-36.7
3	1987.5	-15.7	25.7	-0.4	25.3	62.1	-36.8

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 10MHz

MODE		TX channel 650, 900, 1150					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1935.0	-19.5	21.1	-0.2	20.9	62.1	-41.2
2	1960.0	-19.2	21.3	-0.3	21.0	62.1	-41.1
3	1985.0	-19.4	21.0	-0.4	20.6	62.1	-41.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1935.0	-15.9	25.1	-0.2	24.9	62.1	-37.2
2	1960.0	-16.0	25.2	-0.3	24.9	62.1	-37.2
3	1985.0	-16.0	25.4	-0.4	25.0	62.1	-37.1

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 15MHz

MODE		TX channel 675, 900, 1125					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1937.5	-19.6	21.1	-0.3	20.8	62.1	-41.3
2	1960.0	-18.9	21.6	-0.3	21.3	62.1	-40.8
3	1982.5	-19.2	21.3	-0.4	20.9	62.1	-41.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1937.5	-16.0	25.1	-0.3	24.8	62.1	-37.3
2	1960.0	-16.1	25.1	-0.3	24.8	62.1	-37.3
3	1982.5	-15.6	25.8	-0.4	25.4	62.1	-36.7

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 20MHz

MODE		TX channel 700, 900, 1100					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1940.0	-19.4	21.2	-0.3	20.9	62.1	-41.2
2	1960.0	-18.7	21.8	-0.3	21.5	62.1	-40.6
3	1980.0	-19.9	20.6	-0.4	20.2	62.1	-41.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1940.0	-17.8	23.3	-0.3	23.0	62.1	-39.1
2	1960.0	-15.3	25.9	-0.3	25.6	62.1	-36.5
3	1980.0	-17.0	24.4	-0.4	24.0	62.1	-38.1

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Modulation Type: 16QAM

Channel Bandwidth: 5MHz

MODE		TX channel 625, 900, 1175					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1932.5	-20.4	20.2	-0.2	20.0	62.1	-42.1
2	1960.0	-20.1	20.4	-0.3	20.1	62.1	-42.0
3	1987.5	-20.3	20.1	-0.4	19.7	62.1	-42.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1932.5	-17.4	23.6	-0.2	23.4	62.1	-38.7
2	1960.0	-16.3	24.9	-0.3	24.6	62.1	-37.5
3	1987.5	-16.6	24.8	-0.4	24.4	62.1	-37.7

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 10MHz

MODE		TX channel 650, 900, 1150					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1935.0	-20.7	19.9	-0.2	19.7	62.1	-42.4
2	1960.0	-20.0	20.5	-0.3	20.2	62.1	-41.9
3	1985.0	-20.4	20.0	-0.4	19.6	62.1	-42.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1935.0	-16.8	24.2	-0.2	24.0	62.1	-38.1
2	1960.0	-17.0	24.2	-0.3	23.9	62.1	-38.2
3	1985.0	-16.9	24.5	-0.4	24.1	62.1	-38.0

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 15MHz

MODE		TX channel 675, 900, 1125					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1937.5	-20.4	20.3	-0.3	20.0	62.1	-42.1
2	1960.0	-19.7	20.8	-0.3	20.5	62.1	-41.6
3	1982.5	-20.0	20.5	-0.4	20.1	62.1	-42.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1937.5	-16.9	24.2	-0.3	23.9	62.1	-38.2
2	1960.0	-16.9	24.3	-0.3	24.0	62.1	-38.1
3	1982.5	-16.2	25.2	-0.4	24.8	62.1	-37.3

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 20MHz

MODE		TX channel 700, 900, 1100					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1940.0	-20.1	20.5	-0.3	20.2	62.1	-41.9
2	1960.0	-20.3	20.2	-0.3	19.9	62.1	-42.2
3	1980.0	-20.5	20.0	-0.4	19.6	62.1	-42.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1940.0	-18.2	22.9	-0.3	22.6	62.1	-39.5
2	1960.0	-16.3	24.9	-0.3	24.6	62.1	-37.5
3	1980.0	-17.4	24.0	-0.4	23.6	62.1	-38.5

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Modulation Type: 64QAM

Channel Bandwidth: 5MHz

MODE		TX channel 625, 900, 1175					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1932.5	-21.0	19.6	-0.2	19.4	62.1	-42.7
2	1960.0	-20.7	19.8	-0.3	19.5	62.1	-42.6
3	1987.5	-20.7	19.7	-0.4	19.3	62.1	-42.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1932.5	-17.8	23.2	-0.2	23.0	62.1	-39.1
2	1960.0	-16.7	24.5	-0.3	24.2	62.1	-37.9
3	1987.5	-17.0	24.4	-0.4	24.0	62.1	-38.1

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 10MHz

MODE		TX channel 650, 900, 1150					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1935.0	-21.1	19.5	-0.2	19.3	62.1	-42.8
2	1960.0	-20.4	20.1	-0.3	19.8	62.1	-42.3
3	1985.0	-21.0	19.4	-0.4	19.0	62.1	-43.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1935.0	-17.2	23.8	-0.2	23.6	62.1	-38.5
2	1960.0	-17.4	23.8	-0.3	23.5	62.1	-38.6
3	1985.0	-17.4	24.0	-0.4	23.6	62.1	-38.5

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 15MHz

MODE		TX channel 675, 900, 1125					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1937.5	-21.0	19.7	-0.3	19.4	62.1	-42.7
2	1960.0	-20.3	20.2	-0.3	19.9	62.1	-42.2
3	1982.5	-20.6	19.9	-0.4	19.5	62.1	-42.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1937.5	-17.5	23.6	-0.3	23.3	62.1	-38.8
2	1960.0	-17.2	24.0	-0.3	23.7	62.1	-38.4
3	1982.5	-16.9	24.5	-0.4	24.1	62.1	-38.0

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 20MHz

MODE		TX channel 700, 900, 1100					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1940.0	-20.7	19.9	-0.3	19.6	62.1	-42.5
2	1960.0	-20.8	19.7	-0.3	19.4	62.1	-42.7
3	1980.0	-20.9	19.6	-0.4	19.2	62.1	-42.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1940.0	-18.8	22.3	-0.3	22.0	62.1	-40.1
2	1960.0	-17.4	23.8	-0.3	23.5	62.1	-38.6
3	1980.0	-17.9	23.5	-0.4	23.1	62.1	-39.0

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

4.2 Modulation Characteristics Measurement

4.2.1 Limits of Modulation Characteristics

N/A

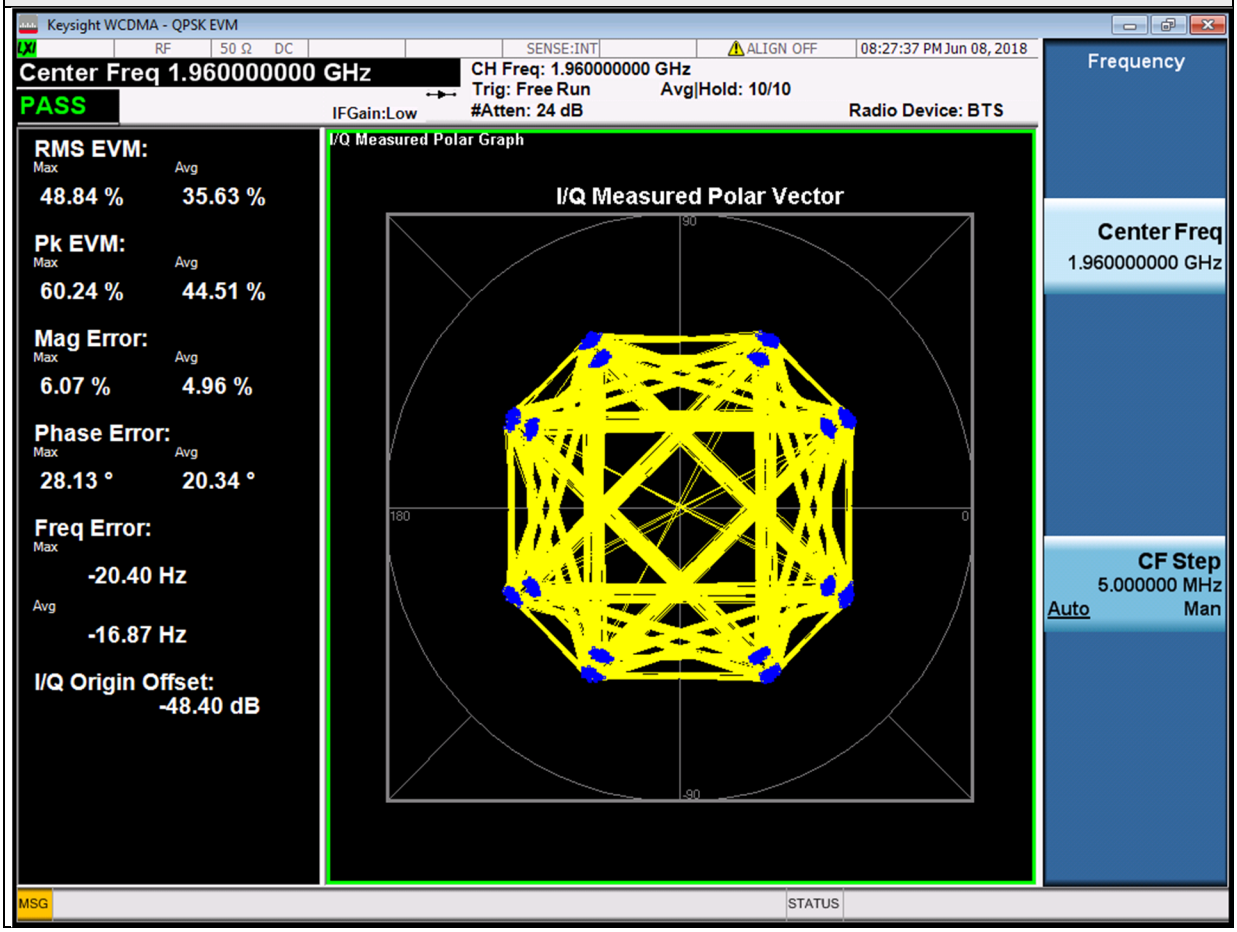
4.2.2 Test Procedure

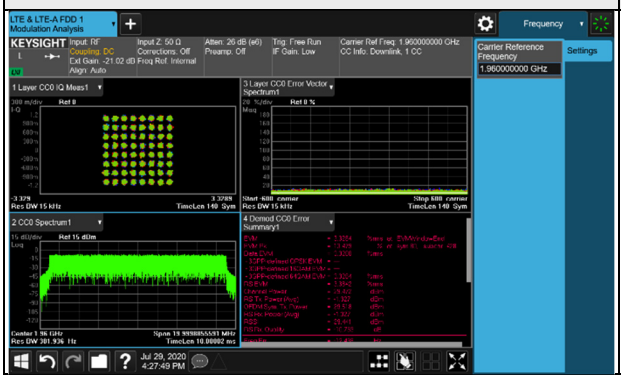
Connect the EUT to Communication Simulator via the antenna connector, The frequency band is set as EUT supported Modulation and Channels, the EUT output is matched with 50 ohm load, the waveform quality and constellation of the EUT was tested.

4.2.3 Test Setup

4.2.4 Test Results

Spectrum Plot of Measurement Value
Channel: 9800 / Frequency (MHz): 1960.0MHz
WCDMA



LTE Band 2	
Spectrum Plot of Measurement Value	
Channel: 900 / Frequency (MHz): 1960.0MHz	
QPSK	16QAM
	
64QAM	
	

4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stability Measurement

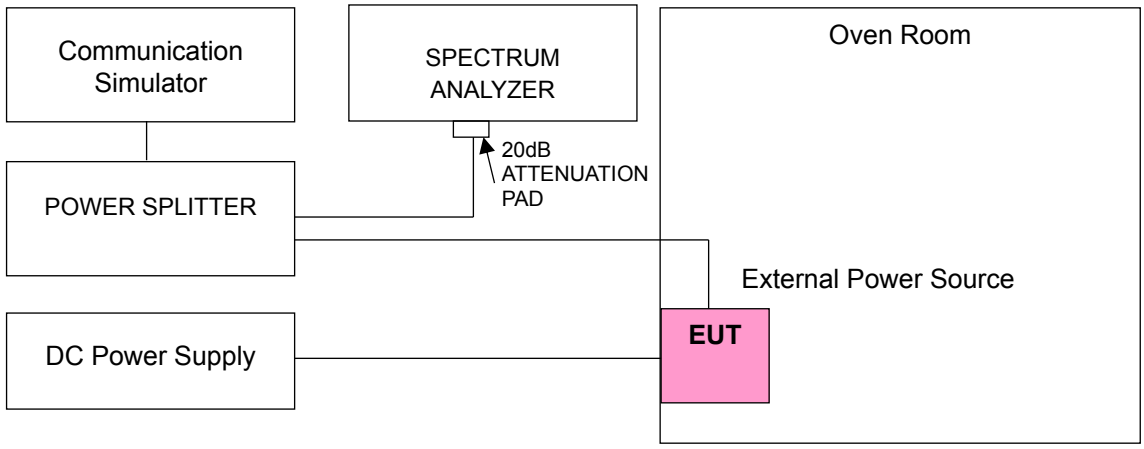
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

4.3.2 Test Procedure

a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
b. EUT is connected the external power supply to control the AC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ±0.5 ℃ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

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

4.3.3 Test Setup



4.3.4 Test Results

Frequency Error vs. Voltage

Voltage (Volts)	WCDMA Band 2			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
120	1932.400002	0.001	1987.600001	0.001
102	1932.400003	0.002	1987.600004	0.002
138	1932.400003	0.001	1987.600003	0.001

Note: The applicant defined the normal working voltage is from 102Vac to 138Vac.

Frequency Error vs. Temperature

Temp. (℃)	WCDMA Band 2			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1932.400002	0.001	1987.600002	0.001
-20	1932.400002	0.001	1987.600001	0.001
-10	1932.400001	0.001	1987.600003	0.001
0	1932.400002	0.001	1987.600003	0.001
10	1932.400003	0.002	1987.600001	0.001
20	1932.399998	-0.001	1987.599999	-0.001
30	1932.399997	-0.002	1987.599996	-0.002
40	1932.399997	-0.001	1987.599999	-0.001
50	1932.399999	-0.001	1987.599997	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 2			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
120	1932.500003	0.001	1987.500002	0.001
102	1932.500001	0.001	1987.500001	0.001
138	1932.500001	0.001	1987.500003	0.002

Note: The applicant defined the normal working voltage is from 102Vac to 138Vac.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 2			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1932.500004	0.002	1987.500004	0.002
-20	1932.500003	0.001	1987.500003	0.001
-10	1932.500004	0.002	1987.500004	0.002
0	1932.500002	0.001	1987.500001	0.001
10	1932.500002	0.001	1987.500004	0.002
20	1932.499997	-0.001	1987.499998	-0.001
30	1932.499997	-0.002	1987.499998	-0.001
40	1932.499999	-0.001	1987.499999	-0.001
50	1932.499996	-0.002	1987.499996	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 2			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
120	1935.000001	0.001	1985.000002	0.001
102	1935.000001	0.001	1985.000002	0.001
138	1935.000004	0.002	1985.000001	0.001

Note: The applicant defined the normal working voltage is from 102Vac to 138Vac.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 2			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1935.000003	0.001	1985.000004	0.002
-20	1935.000004	0.002	1985.000003	0.001
-10	1935.000002	0.001	1985.000002	0.001
0	1935.000004	0.002	1985.000002	0.001
10	1935.000003	0.002	1985.000003	0.002
20	1934.999998	-0.001	1984.999999	-0.001
30	1934.999998	-0.001	1984.999998	-0.001
40	1934.999998	-0.001	1984.999999	-0.001
50	1934.999998	-0.001	1984.999997	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 2			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
120	1937.500001	0.001	1982.500002	0.001
102	1937.500004	0.002	1982.500003	0.002
138	1937.500002	0.001	1982.500002	0.001

Note: The applicant defined the normal working voltage is from 102Vac to 138Vac.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 2			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1937.500002	0.001	1982.500002	0.001
-20	1937.500003	0.001	1982.500003	0.002
-10	1937.500001	0.001	1982.500003	0.002
0	1937.500001	0.001	1982.500002	0.001
10	1937.500001	0.001	1982.500004	0.002
20	1937.499997	-0.001	1982.499997	-0.002
30	1937.499998	-0.001	1982.499997	-0.002
40	1937.499997	-0.002	1982.499999	-0.001
50	1937.499997	-0.002	1982.499999	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 2			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
120	1940.000003	0.001	1980.000002	0.001
102	1940.000003	0.001	1980.000001	0.001
138	1940.000003	0.002	1980.000002	0.001

Note: The applicant defined the normal working voltage is from 102Vac to 138Vac.

Frequency Error vs. Temperature

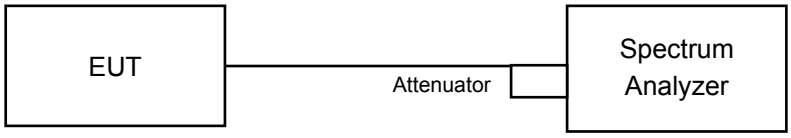
Temp. (℃)	LTE Band 2			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1940.000003	0.002	1980.000003	0.001
-20	1940.000002	0.001	1980.000002	0.001
-10	1940.000004	0.002	1980.000001	0.001
0	1940.000003	0.001	1980.000003	0.001
10	1940.000002	0.001	1980.000003	0.002
20	1939.999997	-0.001	1979.999997	-0.001
30	1939.999998	-0.001	1979.999998	-0.001
40	1939.999998	-0.001	1979.999997	-0.001
50	1939.999996	-0.002	1979.999997	-0.002

4.4 Emission Bandwidth Measurement

4.4.1 Test Procedure

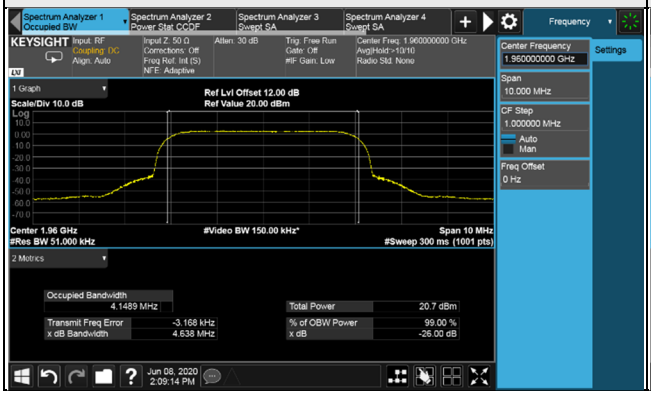
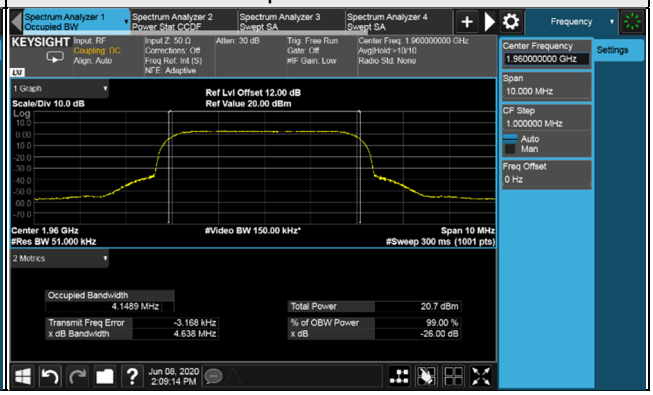
The EUT connected with Spectrum Analyzer. All measurements were done at low, middle and high operational frequency range. The control system connected a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

4.4.2 Test Setup



4.4.3 Test Result

Channel	Frequency (MHz)	WCDMA	
		26dBc Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
9662	1932.4	4.63	4.14
9800	1960.0	4.64	4.15
9938	1987.6	4.63	4.14

Spectrum Plot of Worst Value	
WCDMA	
26dBc Bandwidth	Occupied Bandwidth
	

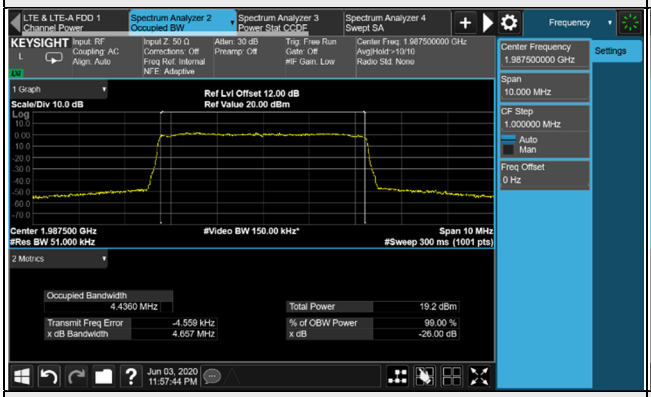
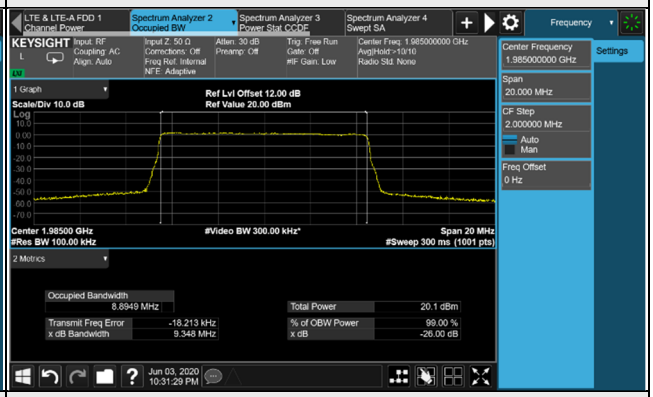
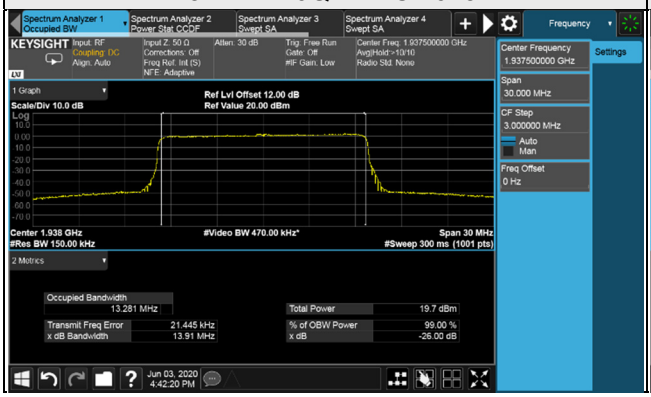
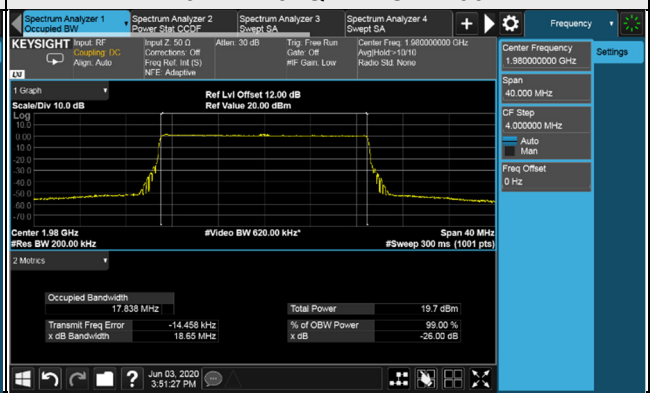
LTE Band 2 / Chain 0

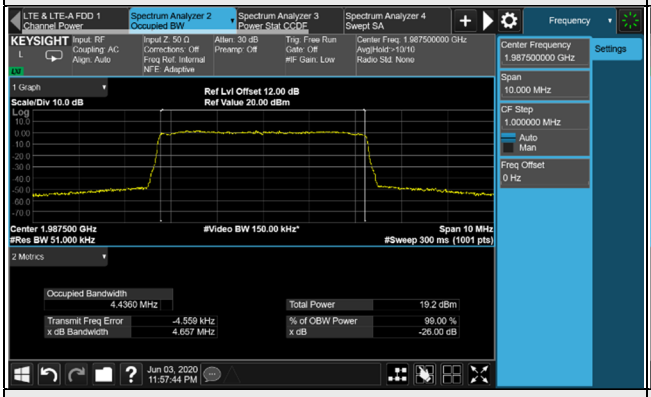
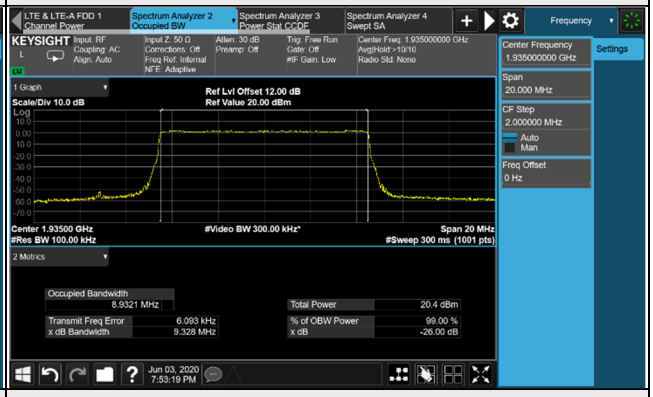
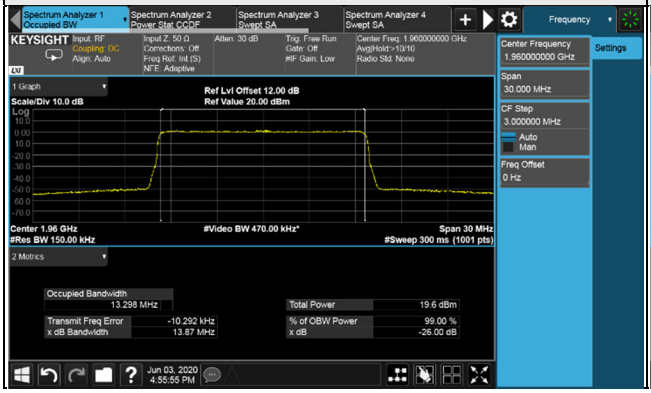
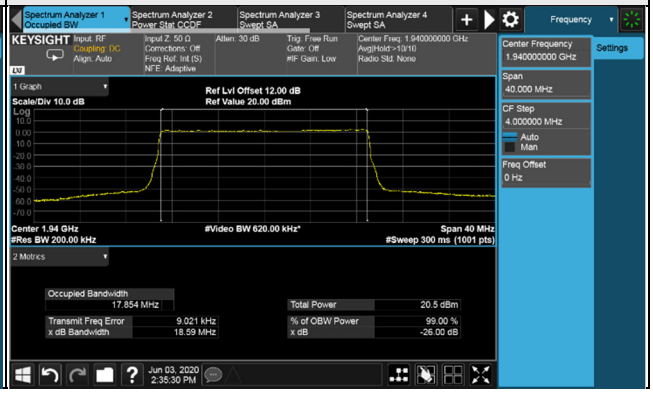
Channel Bandwidth 5MHz							
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
625	1932.5	4.64	4.64	4.64	4.43	4.42	4.43
900	1960.0	4.64	4.64	4.63	4.43	4.43	4.43
1175	1987.5	4.64	4.65	4.65	4.43	4.44	4.43

Channel Bandwidth 10MHz							
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
650	1935.0	9.30	9.30	9.32	8.91	8.90	8.93
900	1960.0	9.32	9.29	9.30	8.91	8.91	8.91
1150	1985.0	9.34	9.33	9.35	8.89	8.89	8.89

Channel Bandwidth 15MHz							
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
675	1937.5	13.87	13.91	13.90	13.28	13.28	13.29
900	1960.0	13.89	13.88	13.87	13.30	13.30	13.30
1125	1982.5	13.87	13.87	13.88	13.27	13.27	13.27

Channel Bandwidth 20MHz							
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
700	1940.0	18.59	18.59	18.53	17.85	17.85	17.84
900	1960.0	18.54	18.54	18.55	17.83	17.83	17.83
1100	1980.0	18.59	18.63	18.65	17.83	17.83	17.83

Spectrum Plot of Worst Value	
26dBc Bandwidth	
5MHz / 16QAM / Ch 1175	10MHz / 64QAM / Ch 1150
	
15MHz / 16QAM / Ch 675	20MHz / 64QAM / Ch 1100
	

Spectrum Plot of Worst Value	
Occupied Bandwidth	
5MHz / 16QAM / Ch 1175	10MHz / 64QAM / Ch 650
	
15MHz / 64QAM / Ch 900	20MHz / QPSK / Ch 700
	

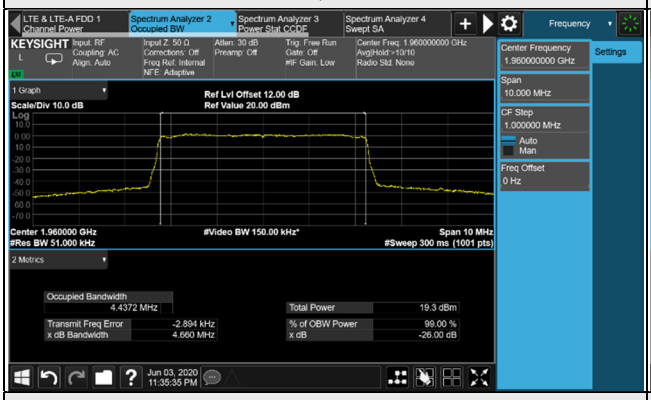
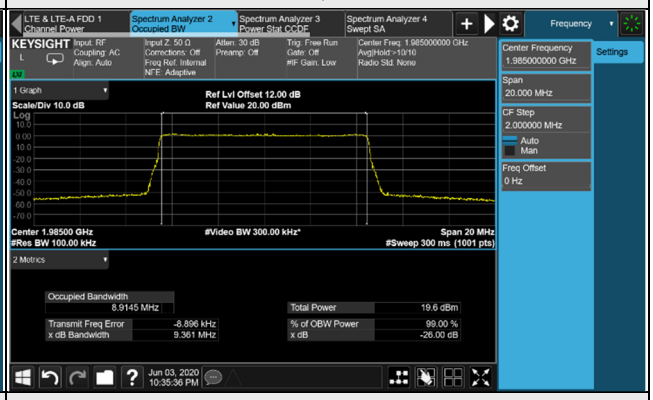
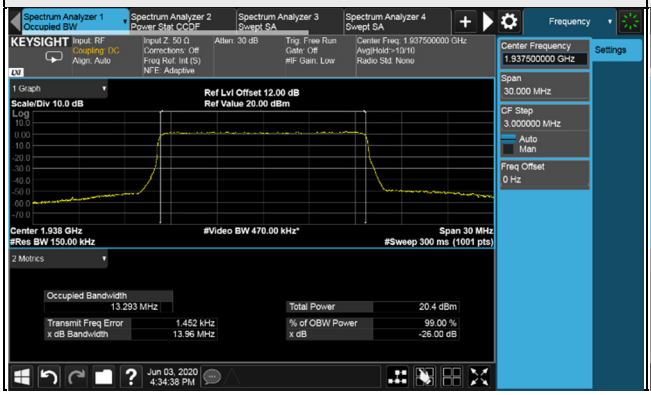
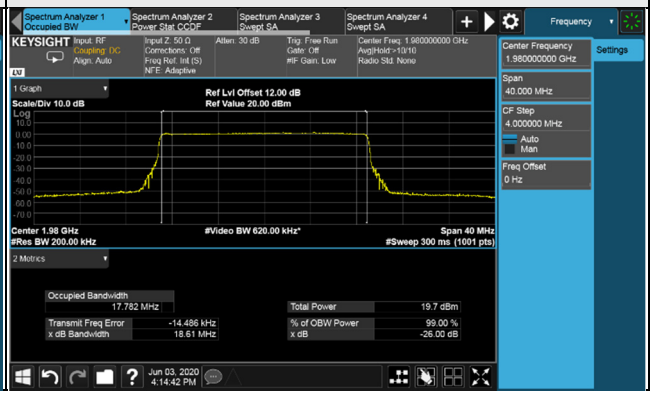
LTE Band 2 / Chain 1

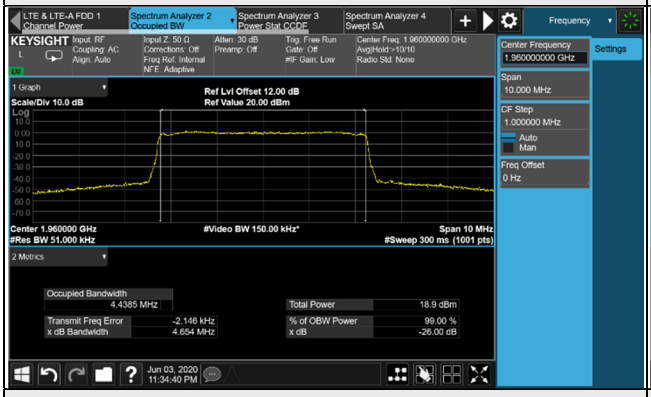
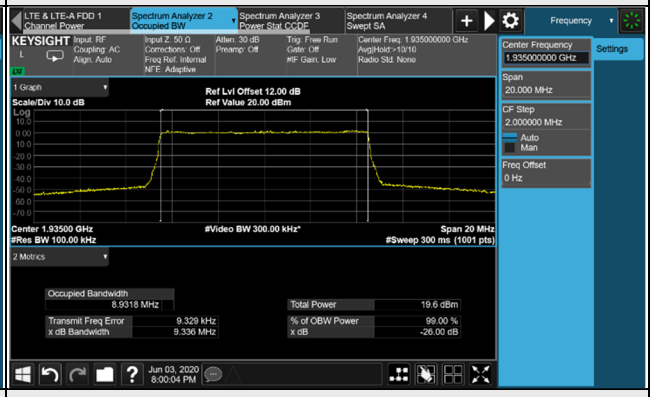
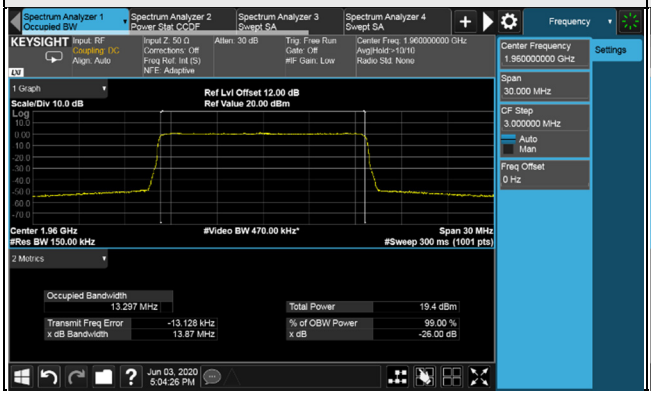
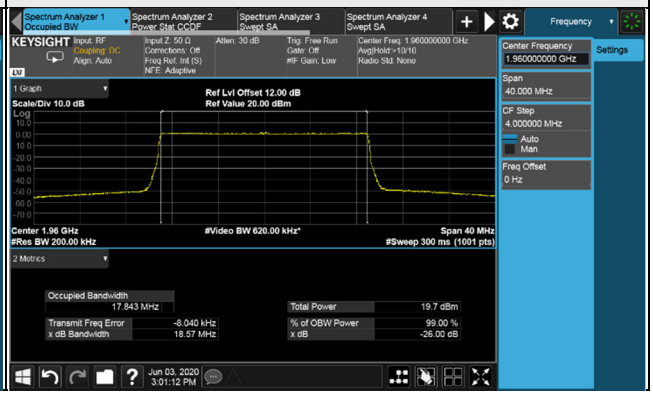
Channel Bandwidth 5MHz							
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
625	1932.5	4.65	4.65	4.65	4.43	4.43	4.43
900	1960.0	4.65	4.66	4.64	4.44	4.44	4.44
1175	1987.5	4.64	4.64	4.63	4.43	4.43	4.43

Channel Bandwidth 10MHz							
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
650	1935.0	9.33	9.32	9.31	8.93	8.91	8.91
900	1960.0	9.32	9.31	9.31	8.91	8.91	8.91
1150	1985.0	9.31	9.36	9.33	8.91	8.91	8.91

Channel Bandwidth 15MHz							
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
675	1937.5	13.96	13.94	13.96	13.29	13.29	13.29
900	1960.0	13.88	13.88	13.87	13.30	13.30	13.30
1125	1982.5	13.87	13.88	13.88	13.29	13.29	13.29

Channel Bandwidth 20MHz							
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
700	1940.0	18.53	18.52	18.53	17.79	17.80	17.80
900	1960.0	18.57	18.56	18.56	17.84	17.84	17.84
1100	1980.0	18.61	18.59	18.61	17.78	17.78	17.78

Spectrum Plot of Worst Value	
26dBc Bandwidth	
5MHz / 16QAM / Ch 900	10MHz / 16QAM / Ch 1150
	
15MHz / QPSK / Ch 675	20MHz / 64QAM / Ch 1100
	

Spectrum Plot of Worst Value	
Occupied Bandwidth	
5MHz / QPSK / Ch 900	10MHz / QPSK / Ch 650
	
15MHz / 64QAM / Ch 900	20MHz / QPSK / Ch 900
	

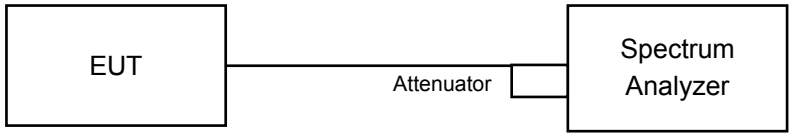
4.5 Band Edge Measurement

4.5.1 Limits of Band Edge Measurement

Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

This device can be impelement MIMO function, so the limit of spurious emissions needs to be reduced by 10log($Numbers_{Ant}$) according to FCC KDB 662911 D01 guidance.

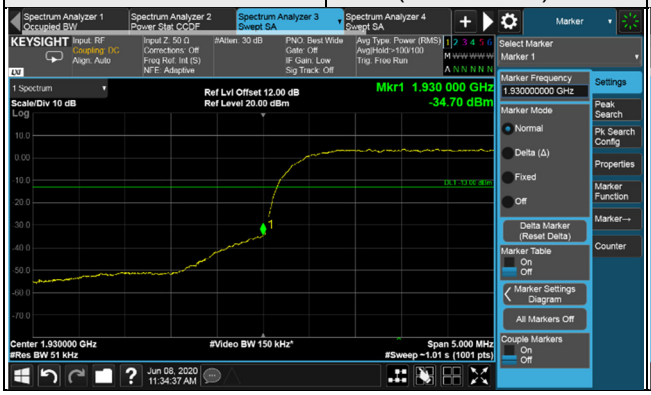
4.5.2 Test Setup

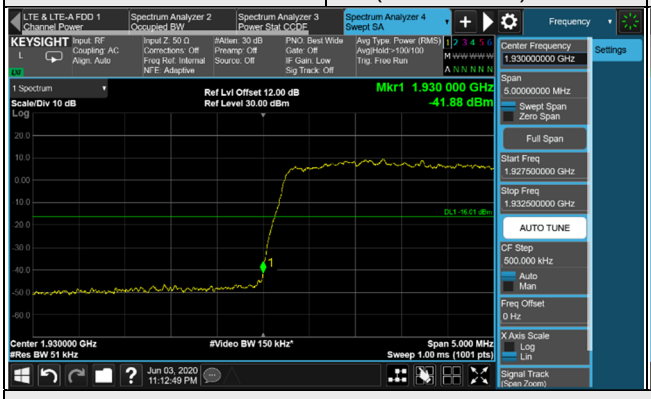
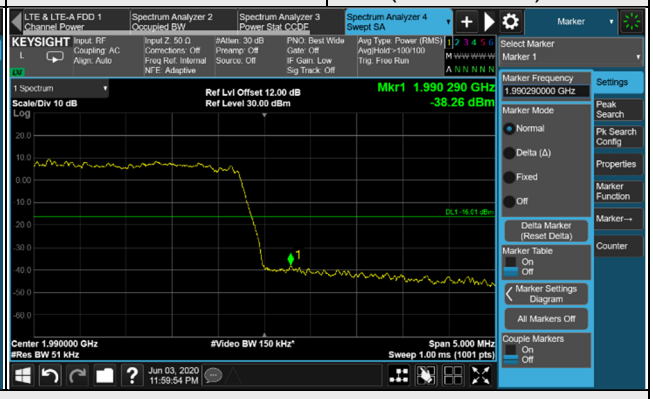


4.5.3 Test Procedures

a. All measurements were done at low and high operational frequency range.
b. The center frequency of spectrum is the band edge frequency and span is 5MHz. RB of the spectrum is 51kHz and VB of the spectrum is 150kHz (WCDMA).
c. The center frequency of spectrum is the band edge frequency and span is 5MHz. RB of the spectrum is 51kHz and VB of the spectrum is 150kHz (LTE Channel Bandwidth 5MHz).
d. The center frequency of spectrum is the band edge frequency and span is 5MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (LTE Channel Bandwidth 10MHz).
e. The center frequency of spectrum is the band edge frequency and span is 5MHz. RB of the spectrum is 150kHz and VB of the spectrum is 470kHz (LTE Channel Bandwidth 15MHz).
f. The center frequency of spectrum is the band edge frequency and span is 5MHz. RB of the spectrum is 200kHz and VB of the spectrum is 620kHz (LTE Channel Bandwidth 20MHz).
g. Record the max trace plot into the test report.

4.5.4 Test Results

WCDMA			
Channel	9262 (1852.4MHz)	Channel	9938 (1987.6MHz)
			

LTE Band 2 / Chain 0			
Channel Bandwidth 5MHz			
Channel	625(1932.5MHz)	Channel	1175(1987.5MHz)
			
Channel Bandwidth 10MHz			
Channel	650(1935.0MHz)	Channel	1150(1985.0MHz)