ACCREDITED
Certificate # 3939.01

FCC TEST REPORT

(PART 27)

Applicant:	Yulong Computer Telecommunication Scientific (Shenzhen) Co., Ltd
Address:	Building B, Boton Science Park, Chaguang Road, Xili Town, Nanshan District, Shenzhen

Manufacturer or Supplier	Yulong Computer Telecommunication Scientific (Shenzhen) Co., Ltd
Address	Building B, Boton Science Park, Chaguang Road, Xili Town, Nanshan District, Shenzhen
Product	Feature phone
Brand Name	coolpad
Model Name	Coolpad 3312A
FCC ID	R38YL3312A
Date of tests	Oct. 12, 2018 ~ Nov. 30, 2018

The tests have been carried out according to the requirements of the following standard:

☒ **FCC Part 27, Subpart C, M** ☒ **ANSI/TIA/EIA-603-D**
☒ **FCC Part 2** ☒ **ANSI/TIA/EIA-603-E** ☒ **ANSI C63.26-2015**

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Prepared by Evans He Engineer / Mobile Department	Approved by David Huang Manager / Mobile Department
Evans He	David Huang
Date: Nov. 30, 2018	Date: Nov. 30, 2018

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF181011N013-6	Original release	Nov. 30, 2018

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 27 & Part 2			
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**	**REMARK**
2.1046 27.50(h)(2)	Equivalent Isotropically Radiated Power	N/A (note)	Meet the requirement of limit.
2.1055 27.54	Frequency Stability	N/A (note)	Meet the requirement of limit.
2.1049 27.53(m)(6)	Occupied Bandwidth	N/A (note)	Meet the requirement of limit.
27.50(d)(5)	Peak to average ratio	N/A (note)	Meet the requirement of limit.
2.1051 27.53(m)(4)(6)	Band Edge Measurements	N/A (note)	Meet the requirement of limit.
2.1051 27.53(m)(4)(6)	Conducted Spurious Emissions	N/A (note)	Meet the requirement of limit.
2.1053 27.53(m)(4)(6)	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -13.75dB at 562.95MHz.

NOTE : Test Lab Information:

Lab: Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch

Test Lab Address: Zone A, Floor 1, Building 2 Wan Ye Long Technology Park South Side of Zhoushi Road, Bao'an District Shenzhen, Guangdong, 518108, People's Republic of China

1.1 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	UNCERTAINTY
Conducted emissions	9kHz~30MHz	3.11dB
Radiated emissions	9KHz ~ 30MHz	3.11dB
	30MHz ~ 1GMHz	5.12dB
	1GHz ~ 18GHz	5.34dB
	18GHz ~ 40GHz	5.02dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

1.2 TEST SITE AND INSTRUMENTS

Instrument	Model	Serial #	Cal Date	Cal Due
EMI test receiver	ESL6	100262	Jan. 05, 18	Jan. 04, 19
Active Antenna	AL-130	121031	Feb. 08, 18	Feb. 07, 19
3m Semi-anechoic Chamber	9m*6m*6m	N/A	Oct. 18, 18	Oct. 17, 19
Signal Amplifier	8447E	443008	Jan. 25, 18	Jan. 24, 19
MXA signal analyzer	N9020A	MY49100060	Jan. 05, 18	Jan. 04, 19
Horn Antenna	HAH-118	71259	Jan. 26, 18	Jan. 25, 19
Horn Antenna	HAH-118	71283	Feb. 02, 18	Feb. 01, 19
AMPLIFIER	EM01G26G	60613	Feb. 25, 18	Feb. 24, 19
AMPLIFIER	Emc012645	980077	Jan. 05, 18	Jan. 04, 19
Bilog Antenna (30MHz~6GHz)	JB6	A110712	Feb. 08, 18	Feb. 07, 19
DC Power Supply	E3640A	MY40004013	Jan. 05, 18	Jan. 04, 19
MXA Signal Analyzer	N9020A	MY49100060	Jan. 05, 18	Jan. 04, 19

MXG Vector Signal Generator	N5182A	MY50140530	Jan. 05, 18	Jan. 04, 19
Series Signal Generator	E4421B	US40051152	May. 12, 18	May. 11, 19
RF control unit	JS0806-0806-2	188060112	Apr. 25, 18	Apr. 24, 19
Wireless Connectivity Tester	CMW270	1201.0002K75-101601-PE	Apr. 25, 18	Apr. 24, 19
Universal Radio Communication Tester	CMU200	121393	Jan. 05, 18	Jan. 04, 19
Programmable Temperature &Humidity Chamber	HYL-TH-225DH	DG-180746	Jul. 15, 18	Jul. 14, 19
Test Software	EZ-EMC	ver.Icp-03A1	N/A	N/A

NOTE: 1. The calibration interval of the above test instruments is 12 months or 24 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

2. The test was performed in 3m Semi-anechoic Chamber and RF Oven Room.

3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.

4. The FCC Site Registration No. is 535293.

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Feature phone	
MODEL NAME	Coolpad 3312A	
POWER SUPPLY	5.0Vdc (adapter or host equipment) 3.7Vdc (Li-ion, ion battery)	
MODULATION TECHNOLOGY	**LTE Band 41**	QPSK, 16QAM
FREQUENCY RANGE	**LTE Band 41 Channel Bandwidth: 5MHz**	2498.5MHz ~ 2687.5MHz
	LTE Band 41 Channel Bandwidth: 10MHz	2501.0MHz ~ 2685.0MHz
	LTE Band 41 Channel Bandwidth: 15MHz	2503.5MHz ~ 2682.5MHz
	LTE Band 41 Channel Bandwidth: 20MHz	2506.0MHz ~ 2680.0MHz
EMISSION DESIGNATOR	**LTE Band 41 Channel Bandwidth: 5MHz**	QPSK: 4M48G7D
		16QAM: 4M48W7D
	LTE Band 41 Channel Bandwidth: 10MHz	QPSK: 8M94G7D
		16QAM: 8M94W7D
	LTE Band 41 Channel Bandwidth: 15MHz	QPSK: 13M4G7D
		16QAM: 13M4W7D
	LTE Band 41 Channel Bandwidth: 20MHz	QPSK: 17M8G7D
		16QAM: 17M8W7D
MAX. EIRP POWER	**LTE Band 41 Channel Bandwidth: 5MHz**	163.68mW
	LTE Band 41 Channel Bandwidth: 10MHz	164.06mW
	LTE Band 41 Channel Bandwidth: 15MHz	162.18mW
	LTE Band 41 Channel Bandwidth: 20MHz	160.69mW
ANTENNA TYPE	FPC antenna	
ANTENNA GAIN	1.3dBi gain for LTE Band 41	
HW VERSION	P1	
SW VERSION	3312A.SPRINT.181214.0D	
I/O PORTS	Refer to user's manual	
DATA CABLE	USB cable: non-shielded, detachable, 1.0m Earphone cable: non-shielded, detachable, 1.2m	

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. The EUT was powered by the following adapter:

ADAPTER	
BRAND:	N/A
MODEL:	RD0501000-USBA-18MG
INPUT:	AC 100-240V~50/60Hz, 0.25A MAX
OUTPUT:	DC 5V,1000mA

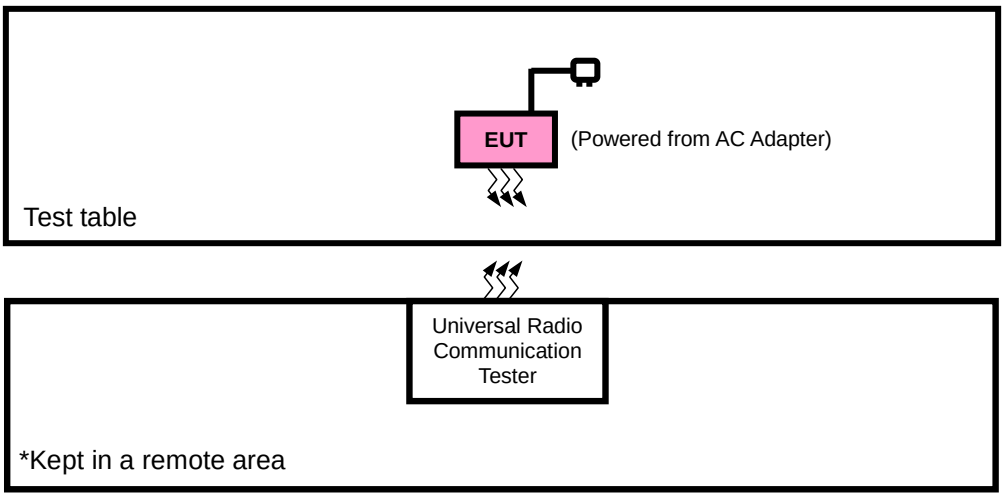
3. The EUT matched the following USB cable:

USB CABLE	
BRAND:	N/A
MODEL:	N/A
SIGNAL LINE:	1.0 METER

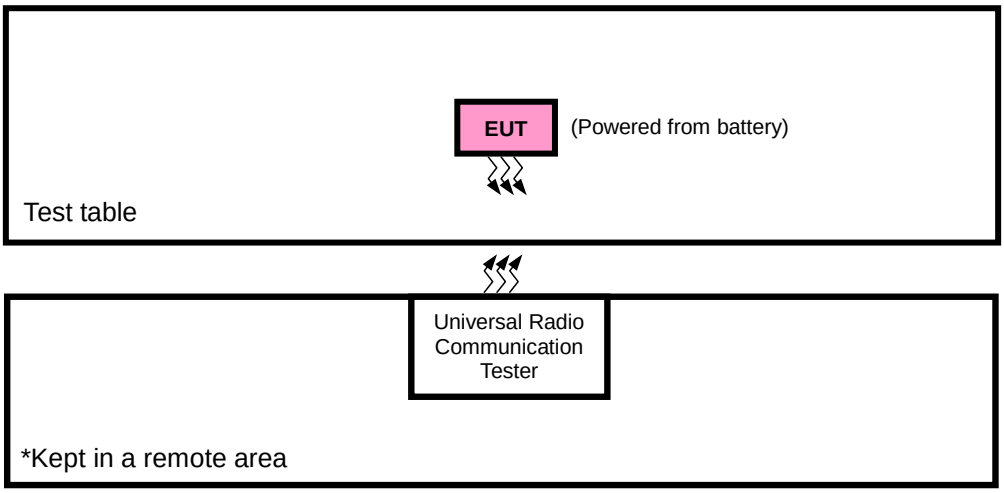
4. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

2.2 CONFIGURATION OF SYSTEM UNDER TEST

FOR RADIATION EMISSION TEST



FOR CONDUCTED & E.I.R.P TEST



2.3 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.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Laptop	Lenovo	E40	LR-1EHRX	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	DC Line: Unshielded, Detachable 2.0m
2	AC Line: Unshielded, Detachable 1.2m

NOTE: All power cords of the above support units are no shielded (1.8m).

2.4 TEST ITEM AND TEST CONFIGURATION

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

EUT CONFIGURE MODE	DESCRIPTION
A	**EUT + Adapter + USB Cable with LTE link**
B	EUT + Battery with **LTE link**

LTE BAND 41 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
B	EIRP	39675 to 41565	39675, 40620, 41565	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		39700 to 41540	39700, 40620, 41540	10MHz	QPSK, 16QAM	1 RB / 0RB Offset
		39725 to 41515	39725, 40620, 41515	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		39750 to 41490	39750, 40620, 41490	20MHz	QPSK, 16QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	39675 to 41565	39675, 41565	5MHz	QPSK	1 RB / 0 RB Offset
		39700 to 41540	39700, 41540	10MHz	QPSK	1 RB / 0RB Offset
		39725 to 41515	39725, 41515	15MHz	QPSK	1 RB / 0 RB Offset
		39750 to 41490	39750, 41490	20MHz	QPSK	1 RB / 0 RB Offset
B	OCCUPIED BANDWIDTH	39675 to 41565	39675, 40620, 41565	5MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		39700 to 41540	39700, 40620, 41540	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		39725 to 41515	39725, 40620, 41515	15MHz	QPSK, 16QAM	75 RB / 0 RB Offset
		39750 to 41490	39750, 40620, 41490	20MHz	QPSK, 16QAM	100 RB / 0 RB Offset
B	PEAK TO AVERAGE RATIO	39675 to 41565	39675, 40620, 41565	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		39700 to 41540	39700, 40620, 41540	10MHz	QPSK, 16QAM	1 RB / 0RB Offset
		39725 to 41515	39725, 40620, 41515	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		39750 to 41490	39750, 40620, 41490	20MHz	QPSK, 16QAM	1 RB / 0 RB Offset
B	BAND EDGE	39675 to 41565	39675	5MHz	QPSK	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
			41565	5MHz	QPSK	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		39700 to 41540	39700	10MHz	QPSK	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
			41540	10MHz	QPSK	1 RB / 49 RB Offset
						50 RB / 0 RB Offset
		39725 to 41515	39725	15MHz	QPSK	1 RB / 0 RB Offset
						75 RB / 0 RB Offset
			41515	15MHz	QPSK	1 RB / 74 RB Offset
						75 RB / 0 RB Offset
		39750 to 41490	39750	20MHz	QPSK	1 RB / 0 RB Offset
						100 RB / 0 RB Offset
			41490	20MHz	QPSK	1 RB / 99 RB Offset
						100 RB / 0 RB Offset
B	CONDCUDETED EMISSION	39675 to 41565	39675, 40620, 41565	5MHz	QPSK	1 RB / 0 RB Offset
		39700 to 41540	39700, 40620, 41540	10MHz	QPSK	1 RB / 0RB Offset
		39725 to 41515	39725, 40620, 41515	15MHz	QPSK	1 RB / 0 RB Offset
		39750 to 41490	39750, 40620, 41490	20MHz	QPSK	1 RB / 0 RB Offset
A	RADIATED EMISSION	39675 to 41565	40620	5MHz	QPSK	1 RB / 0 RB Offset
		39700 to 41540	39700, 40620, 41540	10MHz	QPSK	1 RB / 0RB Offset
		39725 to 41515	40620	15MHz	QPSK	1 RB / 0 RB Offset
		39750 to 41490	40620	20MHz	QPSK	1 RB / 0 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
EIRP	22deg. C,60%RH	3.7Vdc from Battery	Evans He
FREQUENCY STABILITY	23deg. C, 60%RH	DC 3.4V/3.7V/4.2V	Aaron Liang
OCCUPIED BANDWIDTH	24deg. C, 60%RH	3.7Vdc from Battery	Aaron Liang
PEAK TO AVERAGE RATIO	24deg. C, 61%RH	3.7Vdc from Battery	Aaron Liang
BAND EDGE	21deg. C, 60%RH	3.7Vdc from Battery	Aaron Liang
CONDCUDETED EMISSION	23deg. C, 60%RH	3.7Vdc from Battery	Evans He
RADIATED EMISSION	23deg. C, 61%RH	5Vdc from adapter	Evans He

2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC 47 CFR Part 2

FCC 47 CFR Part 27

KDB 971168 D01 Power Meas License Digital Systems v03

ANSI/TIA/EIA-603-D

ANSI/TIA/EIA-603-E

ANSI C63.26-2015

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

3 TEST TYPES AND RESULTS

3.1 OUTPUT POWER MEASUREMENT

3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

The radiated peak output power shall be according to the specific rule Part 27.50(h)(2) that “User stations are limited to 2 watts” and 27.50(i) specific that “Peak transmit power must be measure over any interval of continuous transmission using instrumentation calibration in terms of rms-equivalent voltage.”

3.1.2 TEST PROCEDURES

EIRP MEASUREMENT:

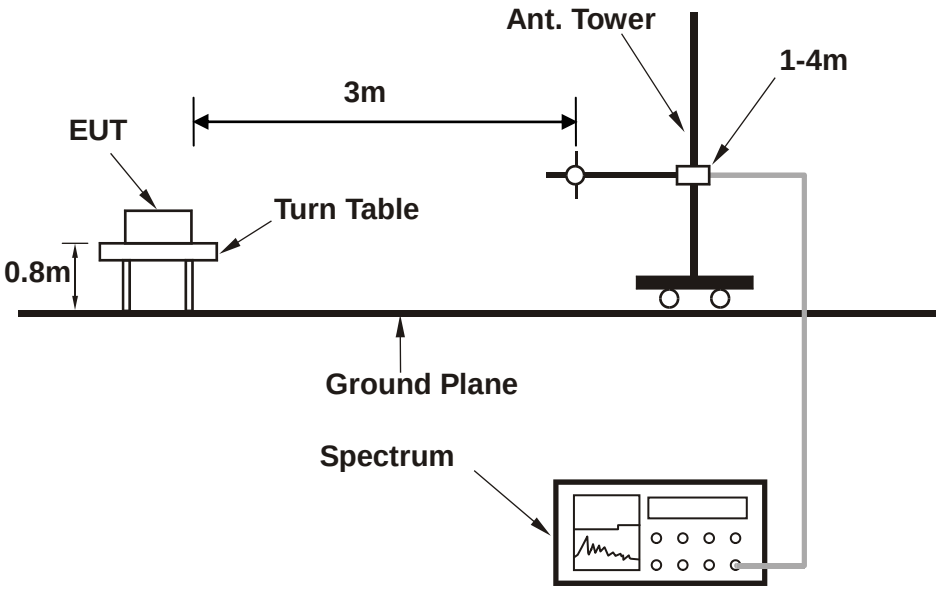
a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 10MHz for LTE mode.
b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum 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.

CONDUCTED POWER MEASUREMENT:

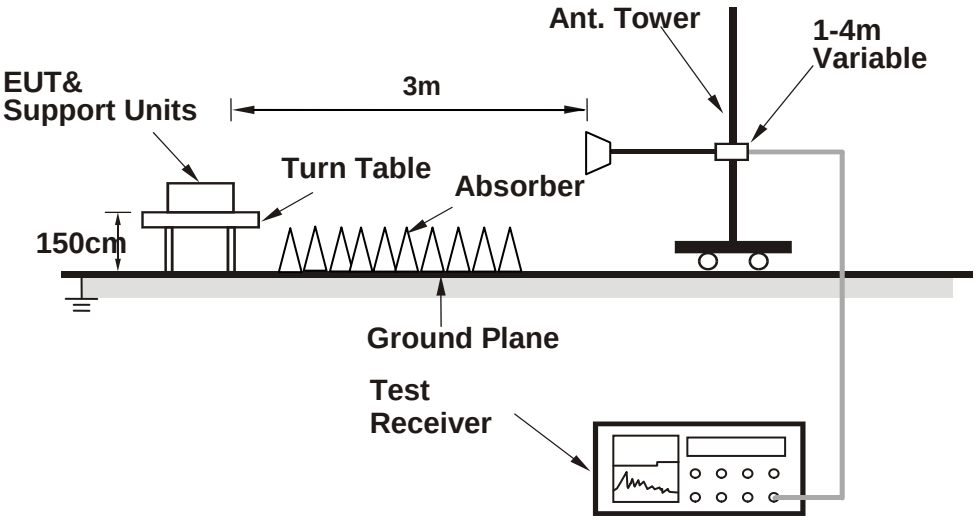
a. The EUT was set up for the maximum power with LTE link data modulation and link up with simulator.
b. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

3.1.3 TEST SETUP

ERP MEASUREMENT:

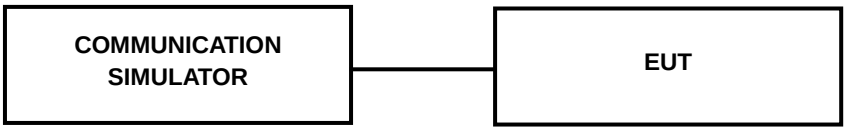


EIRP MEASUREMENT:



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).

3.1.4 TEST RESULTS

AVERAGE CONDUCTED OUTPUT POWER (dBm)

LTE Band 41									
BW	Modulation	RB Size	RB Offset	Low CH (39675) Frequency (2498.5)MHz	Low CH (40148) Frequency (2545.8)MHz	Mid CH (40620) Frequency (2593)MHz	High CH (41093) Frequency (2640.3)MHz	High CH (41565) Frequency (2687.5)MHz	3GPP MPR (dB)
5MHz	QPSK	1	0	23.83	23.73	23.82	23.79	23.76	0
		1	12	23.88	23.78	23.87	23.84	23.81	0
		1	24	23.75	23.65	23.74	23.71	23.68	0
		12	0	22.81	22.71	22.80	22.77	22.74	1
		12	6	22.95	22.85	22.94	22.91	22.88	1
		12	13	22.79	22.69	22.78	22.75	22.72	1
		25	0	22.85	22.75	22.84	22.81	22.78	1
	16QAM	1	0	22.08	21.98	22.07	22.04	22.01	1
		1	12	22.35	22.25	22.34	22.31	22.28	1
		1	24	22.03	21.93	22.02	21.99	21.96	1
		12	0	21.72	21.62	21.71	21.68	21.65	2
		12	6	21.85	21.75	21.84	21.81	21.78	2
		12	13	21.89	21.79	21.88	21.85	21.82	2
		25	0	21.99	21.89	21.98	21.95	21.92	2
BW	Modulation	RB Size	RB Offset	Low CH (39700) Frequency (2501)MHz	Low CH (40160) Frequency (2547)MHz	Mid CH (40620) Frequency (2593)MHz	High CH (41080) Frequency (2639)MHz	High CH (41540) Frequency (2685)MHz	3GPP MPR (dB)
10MHz	QPSK	1	0	23.86	23.76	23.85	23.82	23.79	0
		1	24	23.91	23.81	23.90	23.87	23.84	0
		1	49	23.78	23.68	23.77	23.74	23.71	0
		25	0	22.84	22.74	22.83	22.80	22.77	1
		25	12	22.98	22.88	22.97	22.94	22.91	1
		25	25	22.82	22.72	22.81	22.78	22.75	1
		50	0	22.88	22.78	22.87	22.84	22.81	1
	16QAM	1	0	22.11	22.01	22.10	22.07	22.04	1
		1	24	22.38	22.28	22.37	22.34	22.31	1
		1	49	22.06	21.96	22.05	22.02	21.99	1
		25	0	21.75	21.65	21.74	21.71	21.68	2
		25	12	21.88	21.78	21.87	21.84	21.81	2
		25	25	21.92	21.82	21.91	21.88	21.85	2
		50	0	22.02	21.92	22.01	21.98	21.95	2

LTE Band 41									
BW	Modulation	RB Size	RB Offset	Low CH (39725) Frequency (2503.5)MHz	Low CH (40173) Frequency (2548.3)MHz	Mid CH (40620) Frequency (2593)MHz	High CH (41068) Frequency (2637.8)MHz	High CH (41515) Frequency (2682.5)MHz	3GPP MPR (dB)
15MHz	QPSK	1	0	23.90	23.80	23.89	23.86	23.83	0
		1	37	23.95	23.85	23.94	23.91	23.88	0
		1	74	23.82	23.72	23.81	23.78	23.75	0
		36	0	22.88	22.78	22.87	22.84	22.81	1
		36	19	23.02	22.92	23.01	22.98	22.95	1
		36	39	22.86	22.76	22.85	22.82	22.79	1
		75	0	22.92	22.82	22.91	22.88	22.85	1
	16QAM	1	0	22.15	22.05	22.14	22.11	22.08	1
		1	37	22.42	22.32	22.41	22.38	22.35	1
		1	74	22.10	22.00	22.09	22.06	22.03	1
		36	0	21.79	21.69	21.78	21.75	21.72	2
		36	19	21.92	21.82	21.91	21.88	21.85	2
		36	39	21.96	21.86	21.95	21.92	21.89	2
		75	0	22.06	21.96	22.05	22.02	21.99	2
BW	Modulation	RB Size	RB Offset	Low CH (39750) Frequency (2506)MHz	Low CH (40185) Frequency (2549.5)MHz	Mid CH (40620) Frequency (2593)MHz	High CH (41055) Frequency (2636.5)MHz	High CH (41490) Frequency (2680)MHz	3GPP MPR (dB)
20MHz	QPSK	1	0	23.96	23.86	23.95	23.92	23.89	0
		1	50	**24.01**	23.91	24.00	23.97	23.94	0
		1	99	23.88	23.78	23.87	23.84	23.81	0
		50	0	22.94	22.84	22.93	22.90	22.87	1
		50	25	23.08	22.98	23.07	23.04	23.01	1
		50	50	22.92	22.82	22.91	22.88	22.85	1
		100	0	22.98	22.88	22.97	22.94	22.91	1
	16QAM	1	0	22.21	22.11	22.20	22.17	22.14	1
		1	50	22.48	22.38	22.47	22.44	22.41	1
		1	99	22.16	22.06	22.15	22.12	22.09	1
		50	0	21.85	21.75	21.84	21.81	21.78	2
		50	25	21.98	21.88	21.97	21.94	21.91	2
		50	50	22.02	21.92	22.01	21.98	21.95	2
		100	0	22.12	22.02	22.11	22.08	22.05	2

EIRP

LTE BAND 41

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)	Limit (W)
39675	2498.5	-25.43	46.64	21.21	132.13	H	2
40620	2593	-25.52	46.57	21.05	127.35	H	2
41565	2687.5	-24.43	45.58	21.15	130.32	H	2
39675	2498.5	-25.77	46.75	20.98	125.31	V	2
40620	2593	-24.07	45.82	21.75	149.62	V	2
41565	2687.5	-24.77	46.14	21.37	137.09	V	2

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)	Limit (W)
39675	2498.5	-25.37	46.64	21.27	133.97	H	2
40620	2593	-25.5	46.57	21.07	127.94	H	2
41565	2687.5	-24.25	45.58	21.33	135.83	H	2
39675	2498.5	-24.61	46.75	22.14	163.68	V	2
40620	2593	-24.67	45.82	21.15	130.32	V	2
41565	2687.5	-24.79	46.14	21.35	136.46	V	2

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)	Limit (W)
39700	2501	-24.28	45.67	21.39	137.72	H	2
40620	2593	-25.08	46.36	21.28	134.28	H	2
41540	2685	-24.37	45.43	21.06	127.64	H	2
39700	2501	-25.69	46.86	21.17	130.92	V	2
40620	2593	-24.65	46.8	22.15	164.06	V	2
41540	2685	-25.61	46.87	21.26	133.66	V	2

CHANNEL BANDWIDTH: 10Mz 16QAM

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)	Limit (W)
39700	2501	-24.4	45.67	21.27	133.97	H	2
40620	2593	-25.01	46.36	21.35	136.46	H	2
41540	2685	-24.15	45.43	21.28	134.28	H	2
39700	2501	-25.28	46.86	21.58	143.88	V	2
40620	2593	-24.74	46.8	22.06	160.69	V	2
41540	2685	-25.26	46.87	21.61	144.88	V	2

CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)	Limit (W)
39725	2503.5	-24.11	45.22	21.11	129.12	H	2
40620	2593	-24.3	45.16	20.86	121.9	H	2
41515	2682.5	-24.33	45.35	21.02	126.47	H	2
39725	2503.5	-24.84	46.81	21.97	157.4	V	2
40620	2593	-23.54	45.58	22.04	159.96	V	2
41515	2682.5	-25.11	46.84	21.73	148.94	V	2

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)	Limit (W)
39725	2503.5	-24.26	45.22	20.96	124.74	H	2
40620	2593	-24.02	45.16	21.14	130.02	H	2
41515	2682.5	-24.03	45.35	21.32	135.52	H	2
39725	2503.5	-24.71	46.81	22.1	162.18	V	2
40620	2593	-24.32	45.58	21.26	133.66	V	2
41515	2682.5	-25.64	46.84	21.2	131.83	V	2

CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)	Limit (W)
39750	2506	-25.12	46.38	21.26	133.66	H	2
40620	2593	-25.14	46.41	21.27	133.97	H	2
41490	2680	-23.6	44.94	21.34	136.14	H	2
39750	2506	-25.02	46.65	21.63	145.55	V	2
40620	2593	-24.75	46.68	21.93	155.96	V	2
41490	2680	-25.46	46.71	21.25	133.35	V	2

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)	Limit (W)
39750	2506	-25.24	46.38	21.14	130.02	H	2
40620	2593	-25.57	46.41	20.84	121.34	H	2
41490	2680	-23.54	44.94	21.4	138.04	H	2
39750	2506	-24.59	46.65	22.06	160.69	V	2
40620	2593	-25.12	46.68	21.56	143.22	V	2
41490	2680	-24.79	46.71	21.92	155.6	V	2

REMARKS: 1. EIRP Output Power (dBm) = SPA LVL (dBm) + Correction Factor (dB).
2. Correction factor (dB) = Free Space Loss + Antenna Factor + Cable Loss

3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILIITY MEASUREMENT

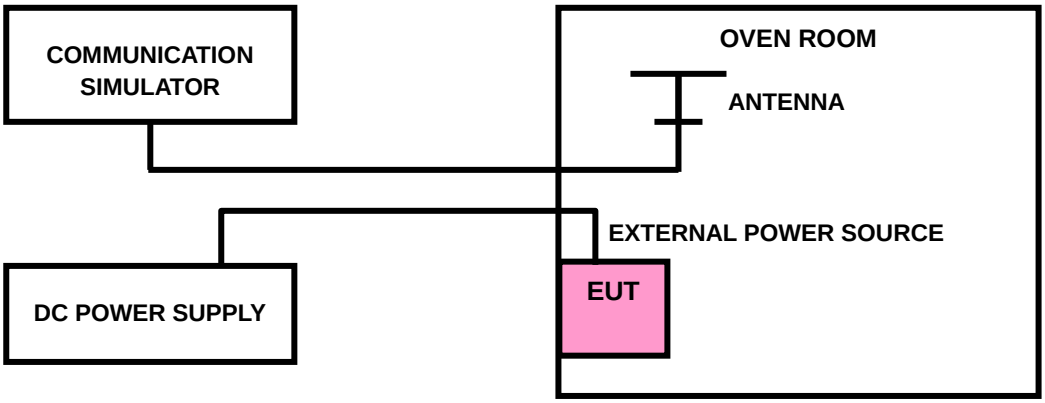
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

3.2.2 TEST PROCEDURE

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

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

3.2.3 TEST SETUP



3.2.4 TEST RESULTS

LTE BAND 41

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
3.8	0.0022	0.0019	2.5
3.4	-0.0027	-0.0025	2.5
4.2	0.0021	0.0021	2.5

NOTE: The applicant defined the normal working voltage of the battery is from 3.5Vdc to 4.2Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (℃)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0145	-0.0143	2.5
-20	-0.0132	-0.0131	2.5
-10	-0.0117	-0.0115	2.5
0	-0.0095	-0.0093	2.5
10	-0.0076	-0.0074	2.5
20	-0.0064	-0.0062	2.5
30	-0.0048	-0.0045	2.5
40	-0.0026	-0.0023	2.5
50	-0.0009	-0.0006	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	10MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
3.8	0.0025	0.0025	2.5
3.4	-0.0026	-0.0026	2.5
4.2	0.0021	0.0021	2.5

NOTE: The applicant defined the normal working voltage of the battery is from 3.5Vdc to 4.2Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (℃)	10MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0149	-0.0149	2.5
-20	-0.0125	-0.0125	2.5
-10	-0.0107	-0.0107	2.5
0	-0.0079	-0.0079	2.5
10	-0.0062	-0.0062	2.5
20	-0.0046	-0.0046	2.5
30	-0.0026	-0.0026	2.5
40	-0.0012	-0.0012	2.5
50	0.0005	0.0005	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	15MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
3.8	0.0008	0.0010	2.5
3.4	-0.0009	-0.0009	2.5
4.2	0.0007	0.0009	2.5

NOTE: The applicant defined the normal working voltage of the battery is from 3.5Vdc to 4.2Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (℃)	15MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0063	-0.0059	2.5
-20	-0.0062	-0.0058	2.5
-10	-0.0055	-0.0051	2.5
0	-0.0043	-0.0040	2.5
10	-0.0039	-0.0036	2.5
20	-0.0031	-0.0029	2.5
30	-0.0026	-0.0024	2.5
40	-0.0018	-0.0017	2.5
50	-0.0004	-0.0003	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	20MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
3.8	0.0011	0.0012	2.5
3.4	-0.0013	-0.0012	2.5
4.2	0.0010	0.0012	2.5

NOTE: The applicant defined the normal working voltage of the battery is from 3.5Vdc to 4.2Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

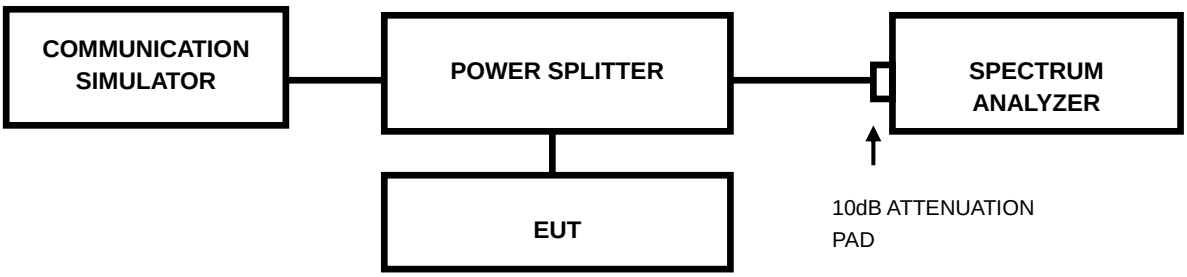
TEMP. (℃)	20MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0051	-0.0048	2.5
-20	-0.0044	-0.0041	2.5
-10	-0.0040	-0.0037	2.5
0	-0.0032	-0.0030	2.5
10	-0.0051	-0.0048	2.5
20	-0.0044	-0.0041	2.5
30	-0.0040	-0.0037	2.5
40	-0.0032	-0.0030	2.5
50	-0.0051	-0.0048	2.5

3.3 OCCUPIED BANDWIDTH MEASUREMENT

3.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.

3.3.2 TEST SETUP



3.3.3 TEST PROCEDURES

a. The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
b. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

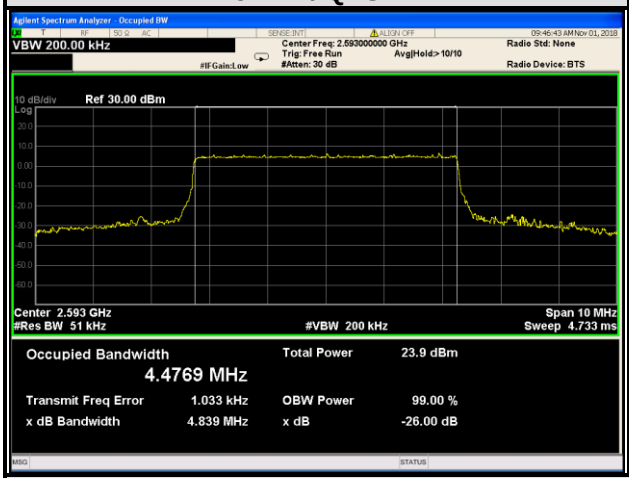
3.3.4 TEST RESULTS

LTE BAND 41

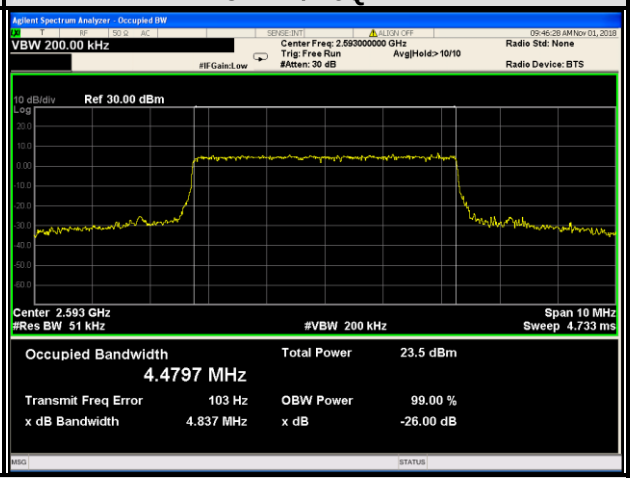
CHANNEL BANDWIDTH: 5MHz							
CHANNEL	Frequency (MHz)	99% OCCUPIED Bandwidth (kHz)		CHANNEL	Frequency (MHz)	26dB Bandwidth (kHz)	
		QPSK	16QAM			QPSK	16QAM
39675	2498.5	4.4608	4.4580	39675	2498.5	4.849	4.841
40620	2593.0	4.4769	4.4797	40620	2593.0	4.839	4.837
41565	2687.5	4.4624	4.4582	41565	2687.5	4.898	4.924

SPECTRUM PLOT OF WORST VALUE of 99% Occupied Bandwidth

5MHz / QPSK

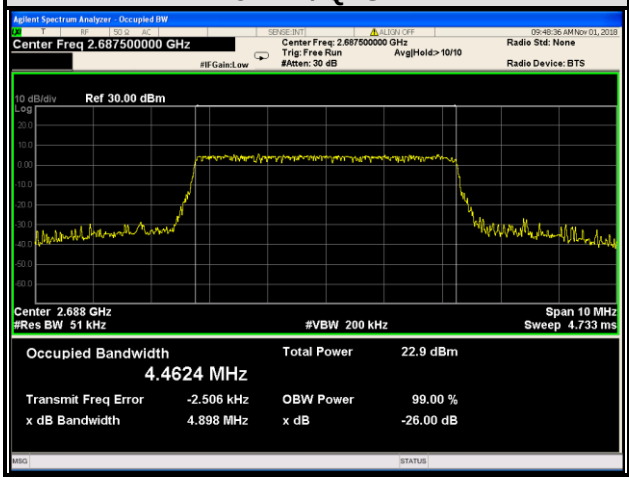


5MHz / 16QAM

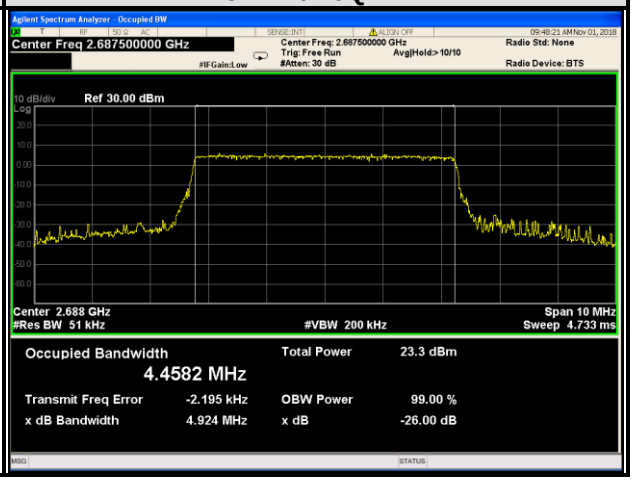


SPECTRUM PLOT OF WORST VALUE of 26dB Occupied Bandwidth

5MHz / QPSK



5MHz / 16QAM

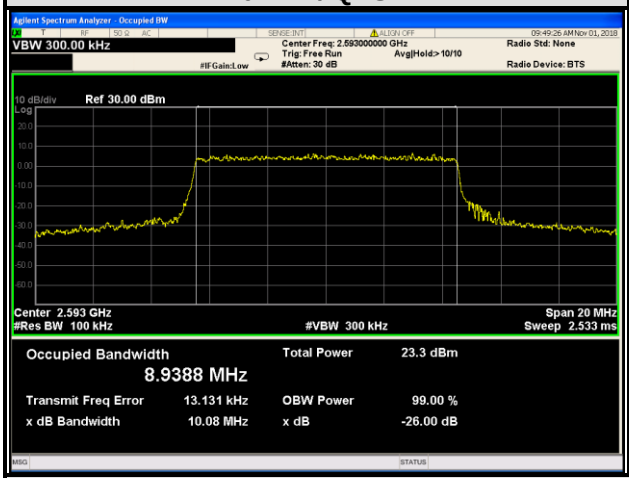


LTE BAND 41

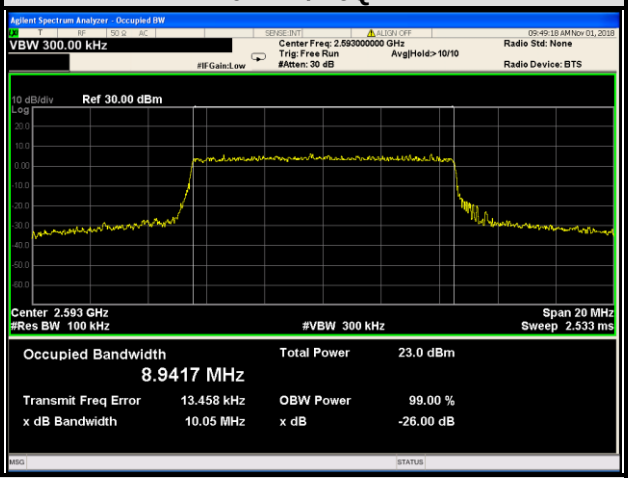
CHANNEL BANDWIDTH: 10MHz							
CHANNEL	Frequency (MHz)	99% OCCUPIED Bandwidth (kHz)		CHANNEL	Frequency (MHz)	26dB Bandwidth (kHz)	
		QPSK	16QAM			QPSK	16QAM
39700	2501.0	8.9293	8.9258	39700	2501.0	9.694	9.617
40620	2593.0	8.9388	8.9417	40620	2593.0	10.08	10.05
41540	2685.0	8.9304	8.9254	41540	2685.0	9.573	9.536

SPECTRUM PLOT OF WORST VALUE of 99% Occupied Bandwidth

10MHz / QPSK

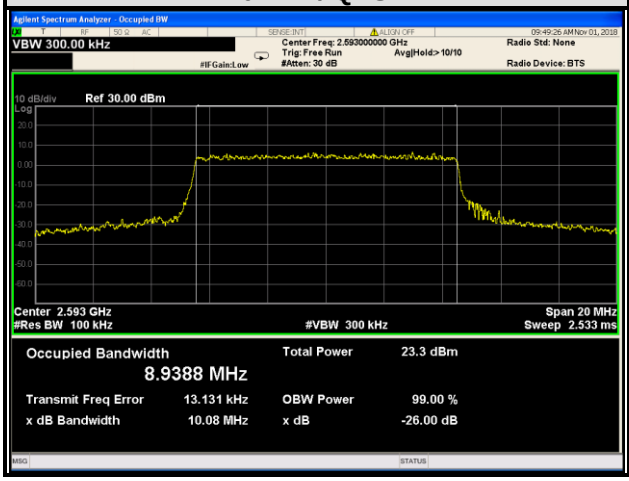


10MHz / 16QAM

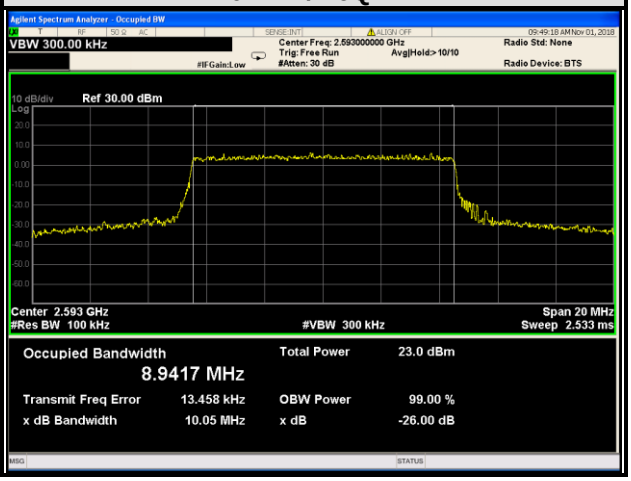


SPECTRUM PLOT OF WORST VALUE of 26dB Occupied Bandwidth

10MHz / QPSK



10MHz / 16QAM

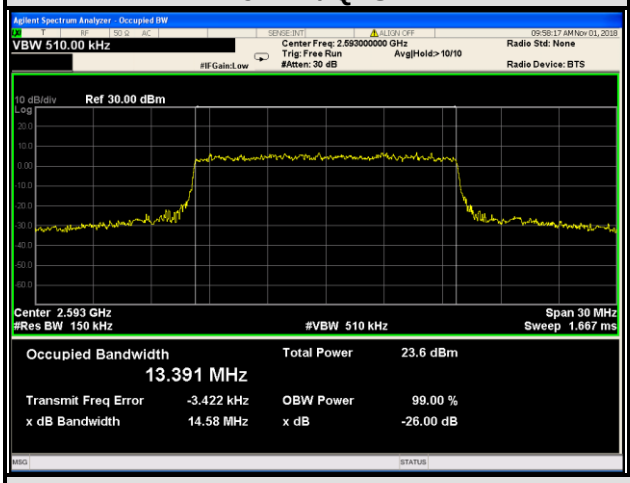


LTE BAND 41

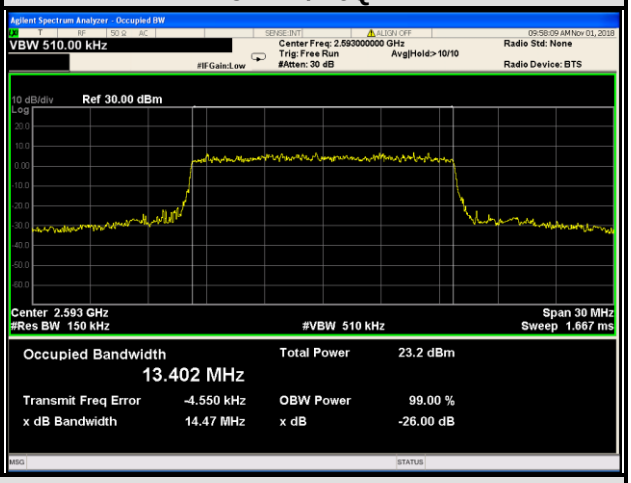
CHANNEL BANDWIDTH: 15MHz							
CHANNEL	Frequency (MHz)	99% OCCUPIED Bandwidth (kHz)		CHANNEL	Frequency (MHz)	26dB Bandwidth (kHz)	
		QPSK	16QAM			QPSK	16QAM
39725	2503.5	13.391	13.388	39725	2503.5	14.30	14.24
40620	2593.0	13.391	13.402	40620	2593.0	14.58	14.47
41515	2682.5	13.376	13.385	41515	2682.5	14.37	14.48

SPECTRUM PLOT OF WORST VALUE of 99% Occupied Bandwidth

15MHz / QPSK

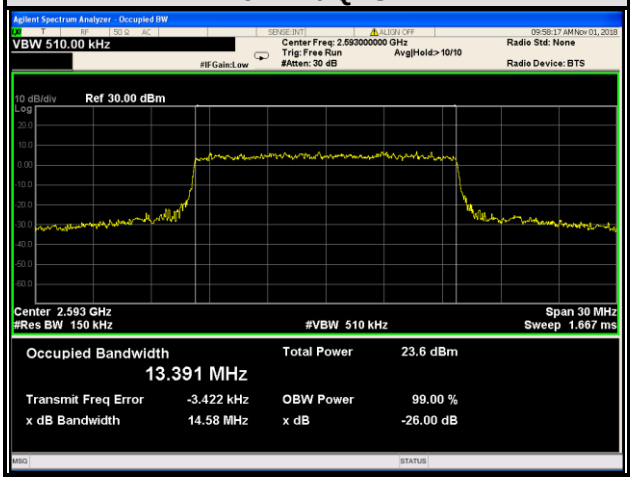


15MHz / 16QAM

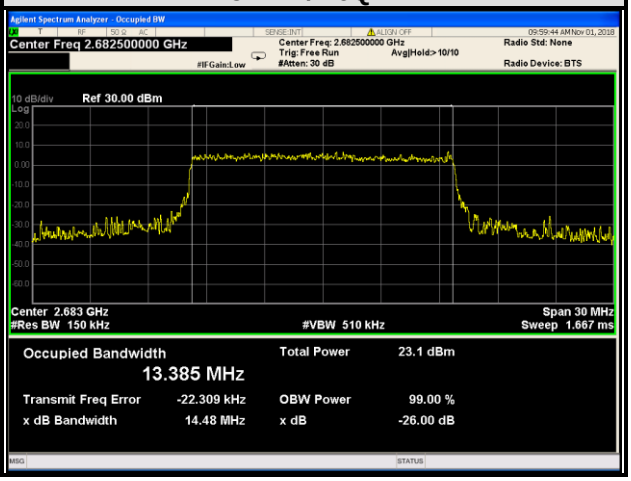


SPECTRUM PLOT OF WORST VALUE of 26dB Occupied Bandwidth

15MHz / QPSK



15MHz / 16QAM

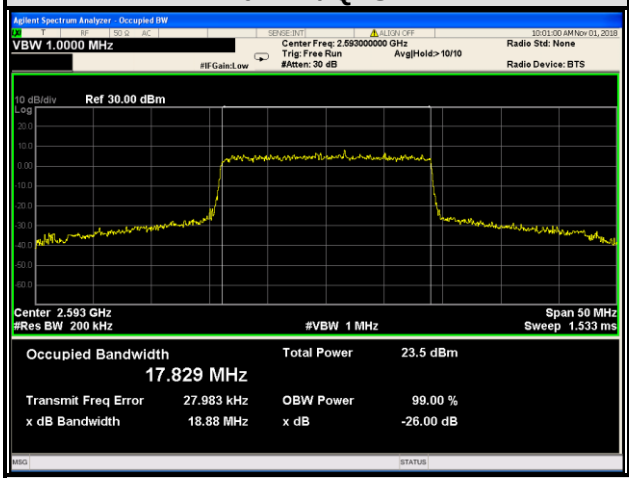


LTE BAND 41

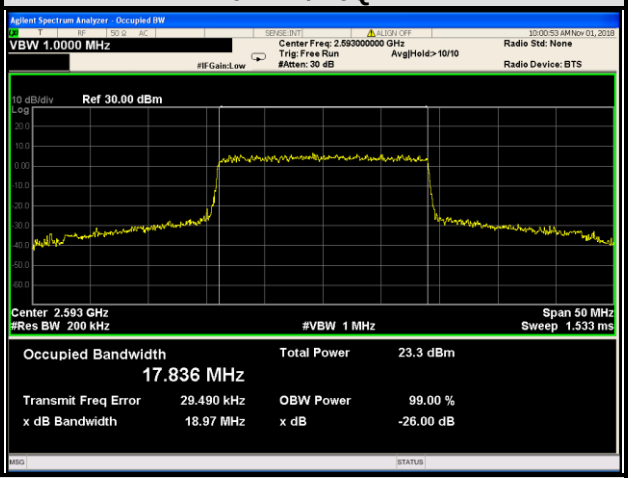
CHANNEL BANDWIDTH: 20MHz							
CHANNEL	Frequency (MHz)	99% OCCUPIED Bandwidth (kHz)		CHANNEL	Frequency (MHz)	26dB Bandwidth (kHz)	
		QPSK	16QAM			QPSK	16QAM
39750	2506.0	17.815	17.802	39750	2506.0	18.96	18.97
40620	2593.0	17.829	17.836	40620	2593.0	18.88	18.97
41490	2680.0	17.812	17.786	41490	2680.0	18.99	18.93

SPECTRUM PLOT OF WORST VALUE of 99% Occupied Bandwidth

20MHz / QPSK

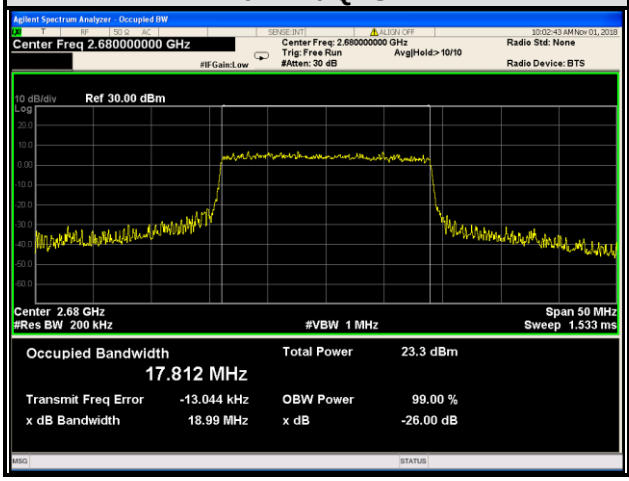


20MHz / 16QAM

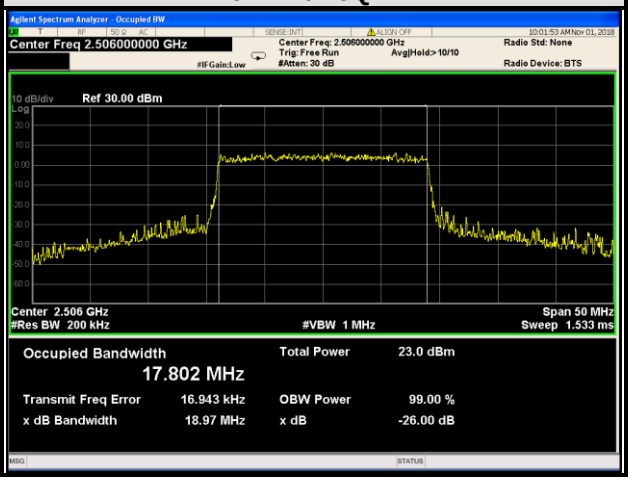


SPECTRUM PLOT OF WORST VALUE of 26dB Occupied Bandwidth

20MHz / QPSK



20MHz / 16QAM

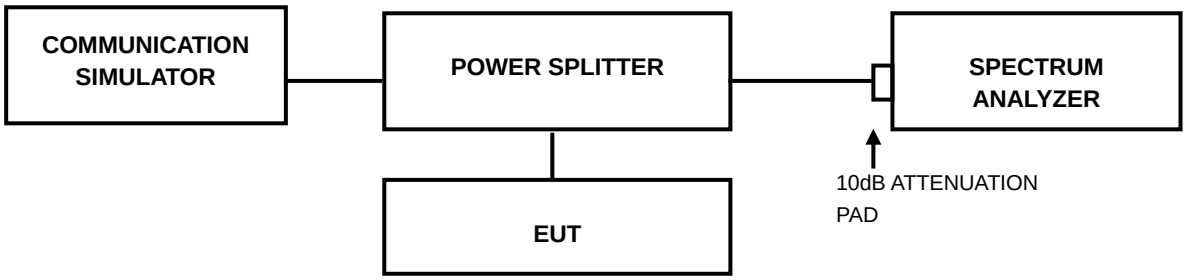


3.4 PEAK TO AVERAGE RATIO

3.4.1 LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT

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

3.4.2 TEST SETUP



3.4.3 TEST PROCEDURES

1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1%.

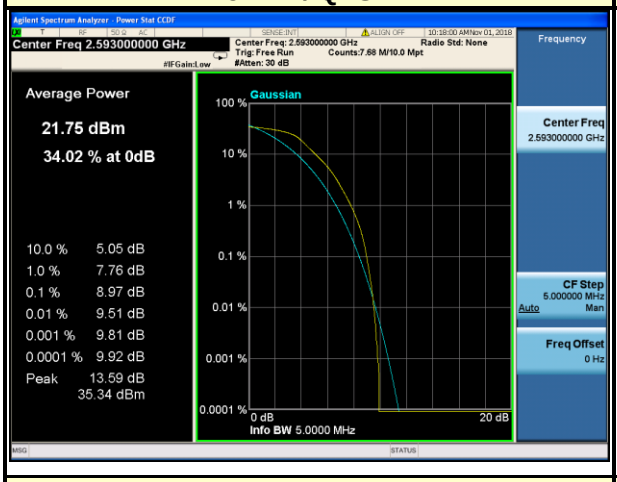
3.4.4 TEST RESULTS

LTE BAND 41

CHANNEL BANDWIDTH: 5MHz				CHANNEL BANDWIDTH: 10MHz			
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)		CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM			QPSK	16QAM
39675	2498.5	8.39	8.85	39700	2501.0	8.13	8.74
40620	2593.0	8.97	9.15	40620	2593.0	8.63	9.53
41565	2687.5	8.90	8.83	41540	2685.0	8.56	9.00

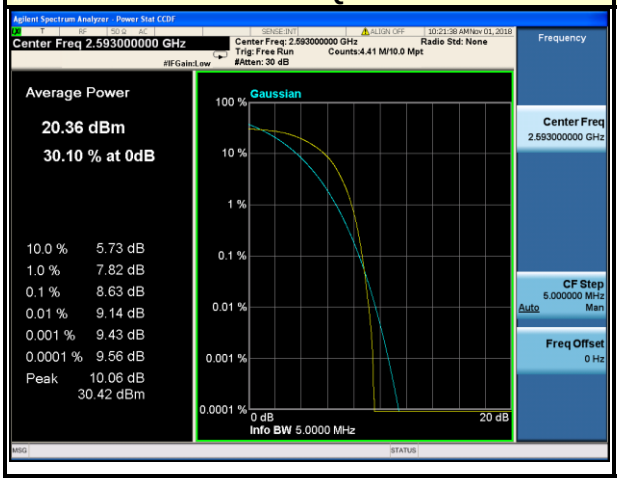
SPECTRUM PLOT OF WORST VALUE

5MHz / QPSK



5MHz / 16QAM

10MHz / QPSK

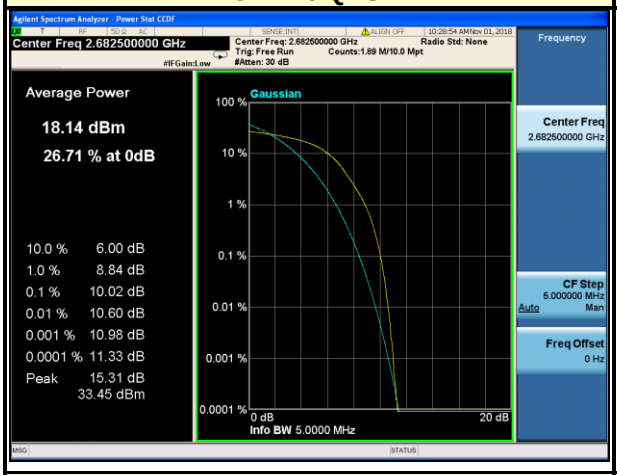


10MHz / 16QAM

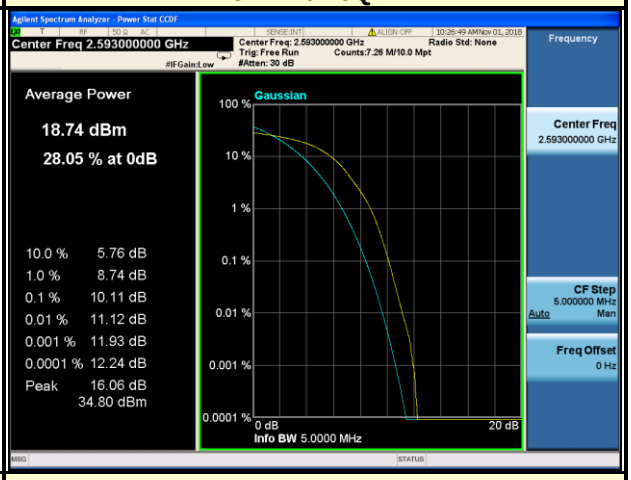
CHANNEL BANDWIDTH: 15MHz				CHANNEL BANDWIDTH: 20MHz			
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)		CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM			QPSK	16QAM
39725	2503.5	9.53	9.87	39725	2503.5	9.80	10.38
40620	2593.0	9.54	10.11	40620	2593.0	10.17	10.12
41515	2682.5	10.02	9.70	41515	2682.5	9.74	10.15

SPECTRUM PLOT OF WORST VALUE

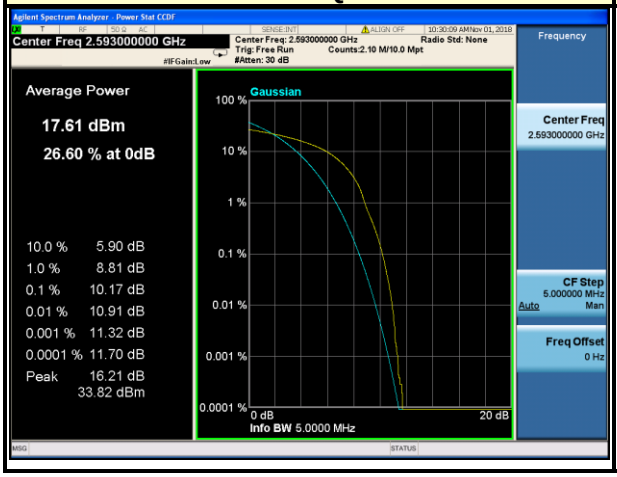
15MHz / QPSK



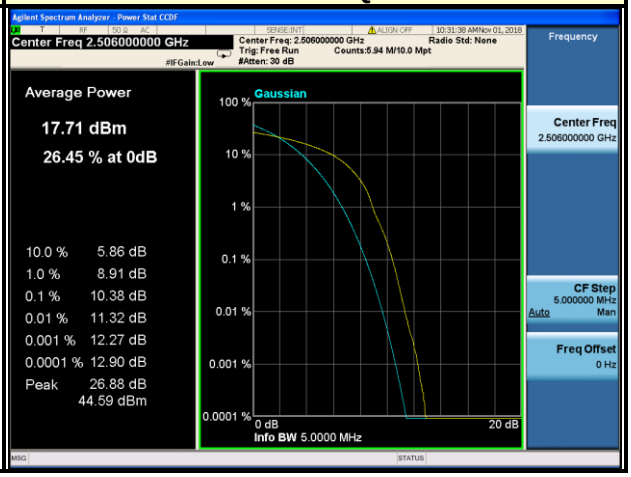
15MHz / 16QAM



20MHz / QPSK



20MHz / 16QAM

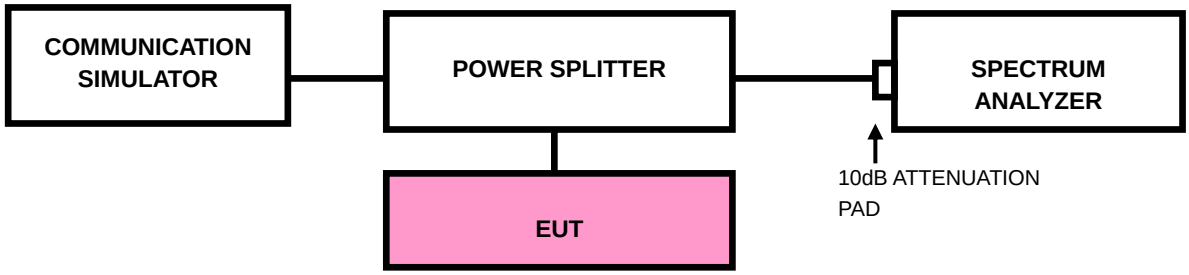


3.5 BAND EDGE MEASUREMENT

3.5.1 LIMITS OF BAND EDGE MEASUREMENT

According to FCC 27.53(m)(4) specified that For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees. For mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed.

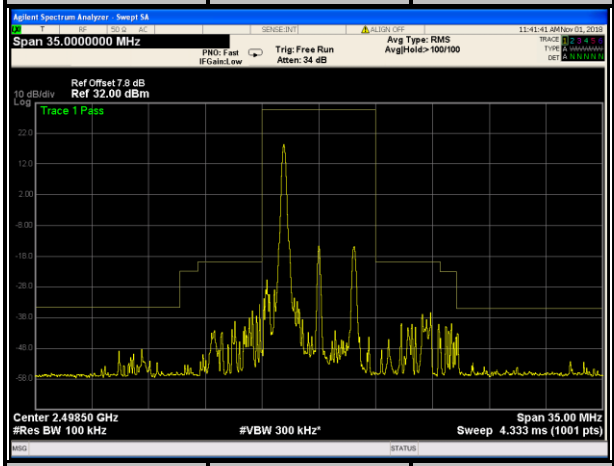
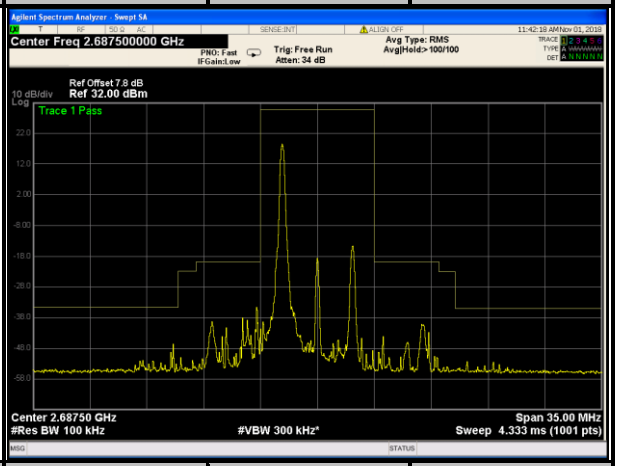
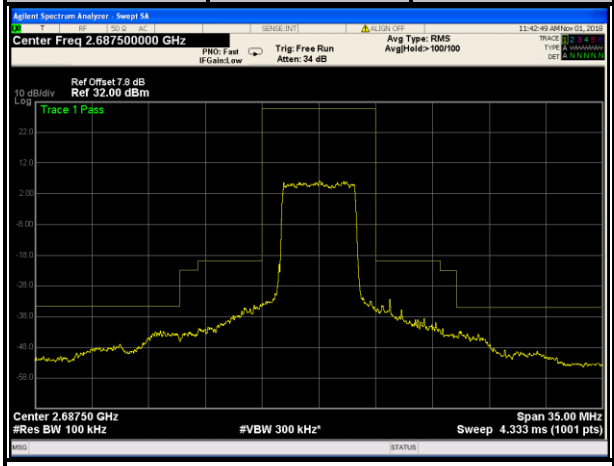
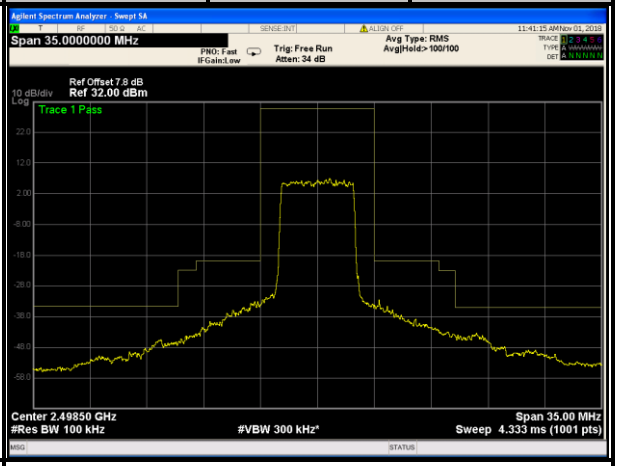
3.5.2 TEST SETUP

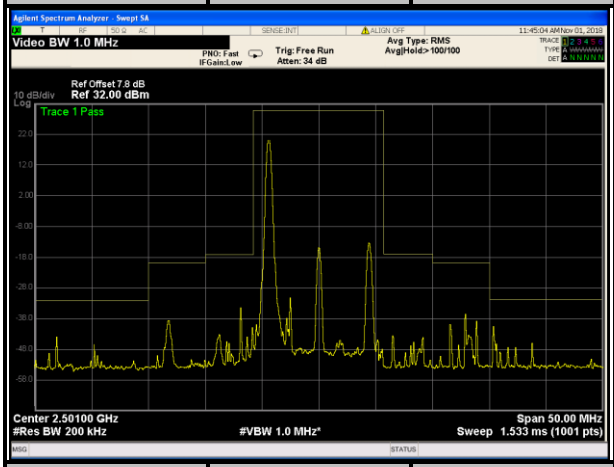
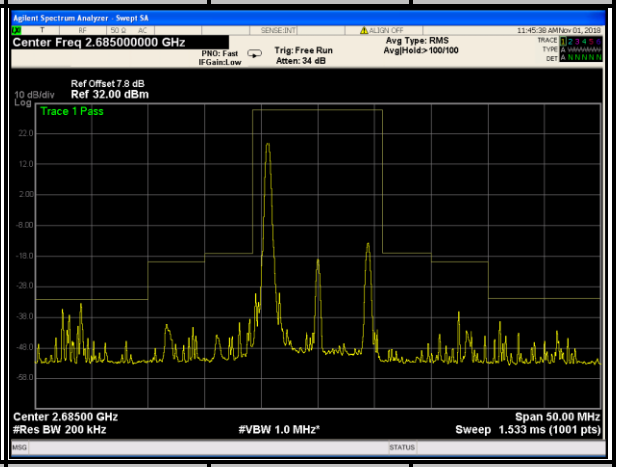
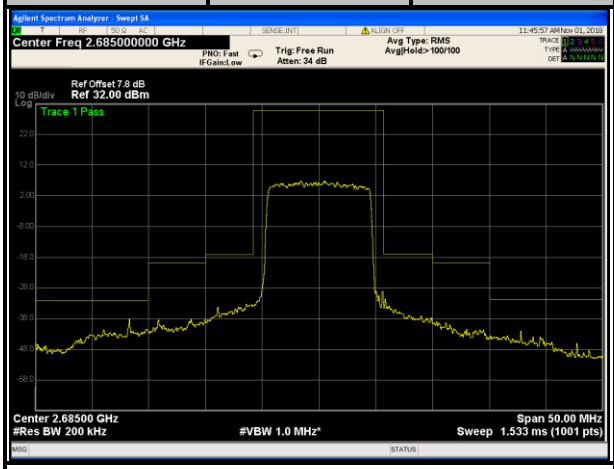
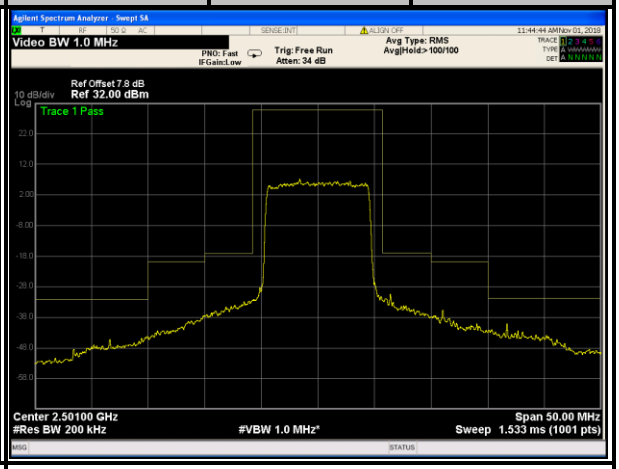


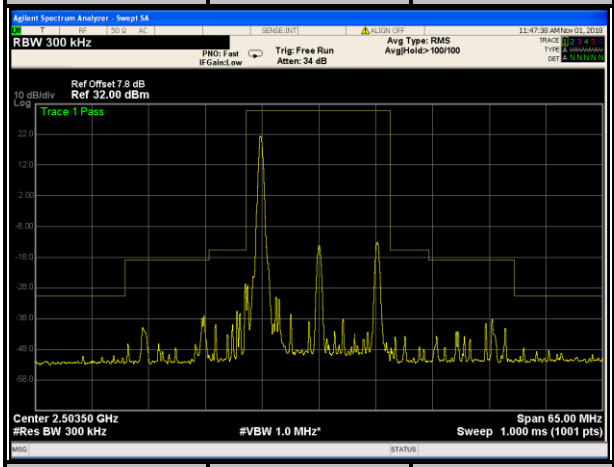
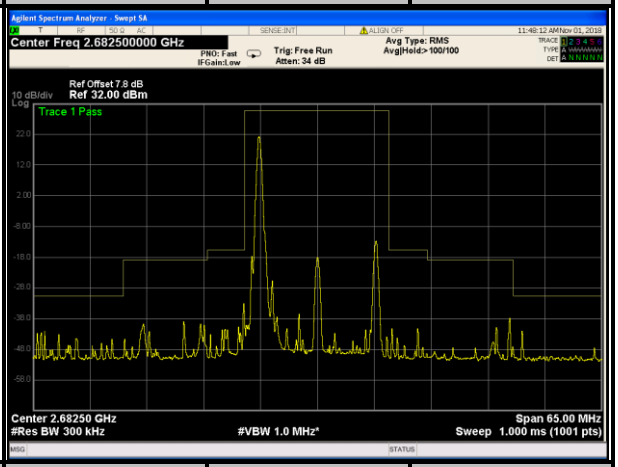
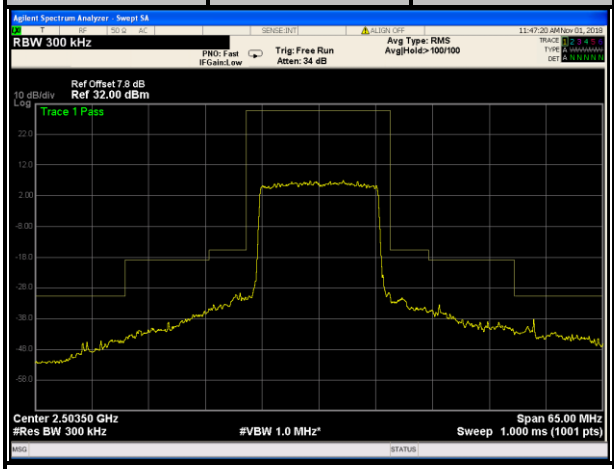
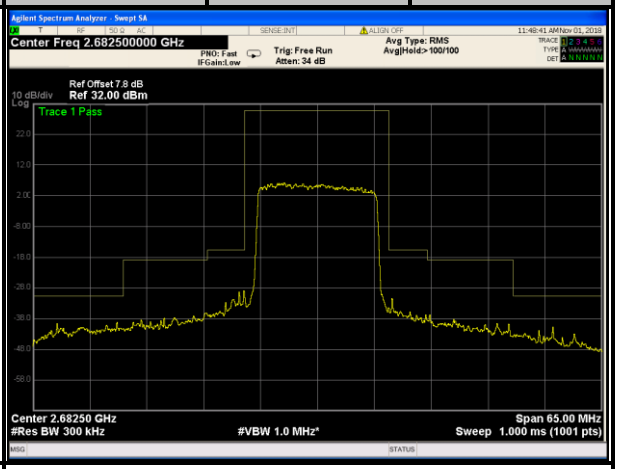
3.5.3 TEST PROCEDURES

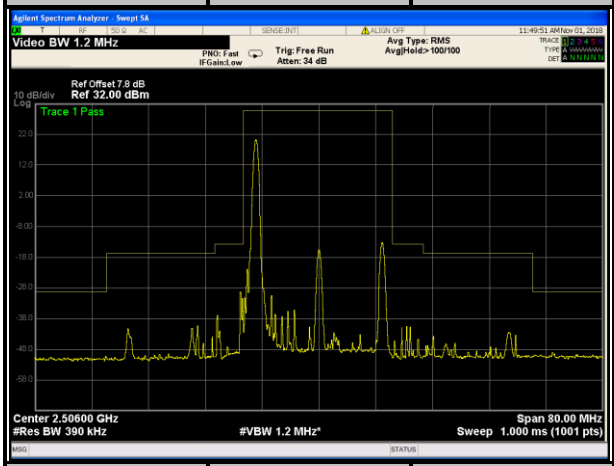
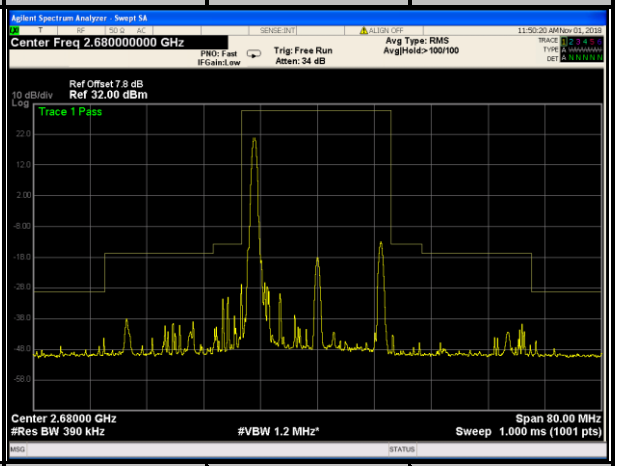
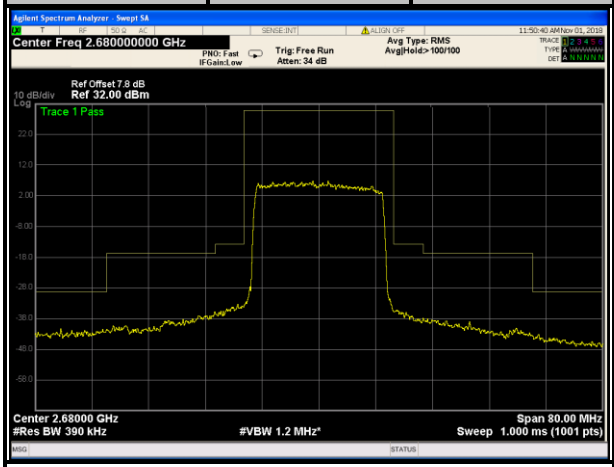
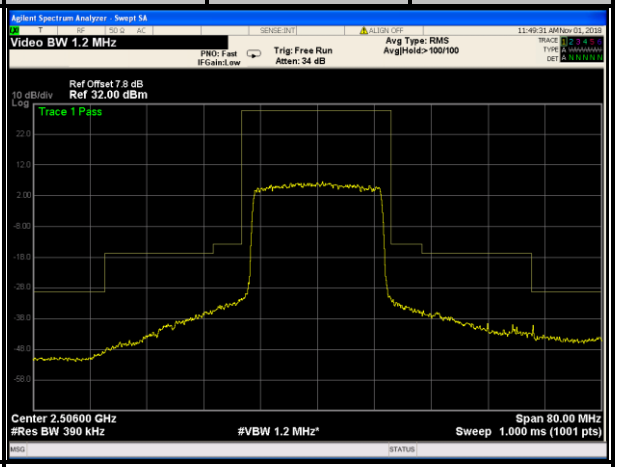
a. The EUT was set up for the maximum peak power with LTE link data modulation. The power was measured with R&S Spectrum Analyzer. All measurements were done at 2 channels (low and high operational frequency range.).
b. The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
c. The center frequency of spectrum is the band edge frequency and span is 35MHz. RBW of the spectrum is 100kHz and VBW of the spectrum is 300kHz (Channel bandwidth 5MHz).
d. The center frequency of spectrum is the band edge frequency and span is 50MHz. RBW of the spectrum is 200kHz and VBW of the spectrum is 1MHz (Channel bandwidth 10MHz).
e. The center frequency of spectrum is the band edge frequency and span is 60MHz. RBW of the spectrum is 300kHz and VBW of the spectrum is 1MHz (Channel bandwidth 15MHz).
f. The center frequency of spectrum is the band edge frequency and span is 80MHz. RBW of the spectrum is 500kHz and VBW of the spectrum is 2MHz (Channel bandwidth 20MHz).
g. Record the max trace plot into the test report.

3.5.4 TEST RESULTS

LTE BAND 41					
Channel Bandwidth: 5MHz / QPSK					
CHANNEL	39675	1 RB	CHANNEL	41565	1 RB
					
CHANNEL	39675	Full RB	CHANNEL	41565	Full RB
					
Note: Limit has been adjusted by 10*log(RBW) to reflect a 1MHz measurement bandwidth.			**Note:** Limit has been adjusted by 10*log(RBW) to reflect a 1MHz measurement bandwidth.		

LTE BAND 41					
Channel Bandwidth: 10MHz / QPSK					
CHANNEL	39700	1 RB	CHANNEL	41540	1 RB
					
CHANNEL	39700	Full RB	CHANNEL	41540	Full RB
					
Note: Limit has been adjusted by 10*log(RBW) to reflect a 1MHz measurement bandwidth.			**Note:** Limit has been adjusted by 10*log(RBW) to reflect a 1MHz measurement bandwidth.		

LTE BAND 41					
Channel Bandwidth: 15MHz / QPSK					
CHANNEL	39725	1 RB	CHANNEL	41515	1 RB
					
CHANNEL	39725	Full RB	CHANNEL	41515	Full RB
					
Note: Limit has been adjusted by 10*log(RBW) to reflect a 1MHz measurement bandwidth.			**Note:** Limit has been adjusted by 10*log(RBW) to reflect a 1MHz measurement bandwidth.		

LTE BAND 41					
Channel Bandwidth: 20MHz / QPSK					
CHANNEL	39750	1 RB	CHANNEL	41490	1 RB
					
CHANNEL	39750	Full RB	CHANNEL	41490	Full RB
					
Note: Limit has been adjusted by 10*log(RBW) to reflect a 1MHz measurement bandwidth.			**Note:** Limit has been adjusted by 10*log(RBW) to reflect a 1MHz measurement bandwidth.		

3.6 CONDUCTED SPURIOUS EMISSIONS

3.6.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

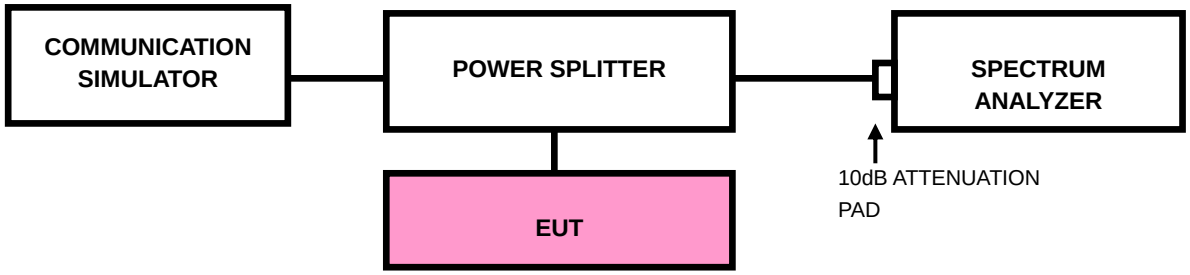
The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 55 +10 log10(P) dB. The limit of emission is equal to -25dBm.

3.6.2 TEST PROCEDURE

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

b. Measuring frequency range is from 30MHz~27GHz for LTE Band 41. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz are used for conducted emission measurement.

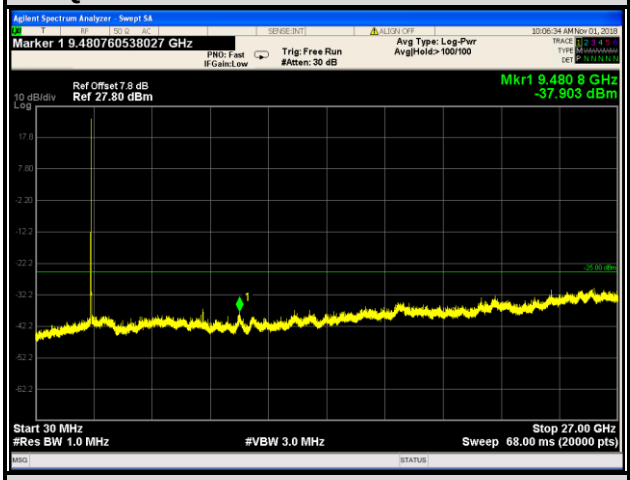
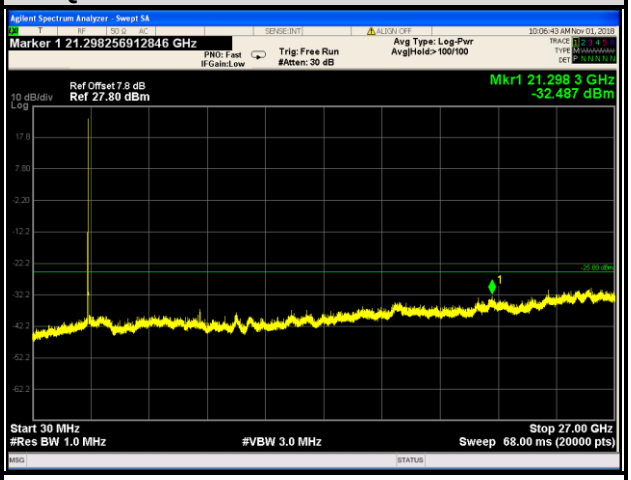
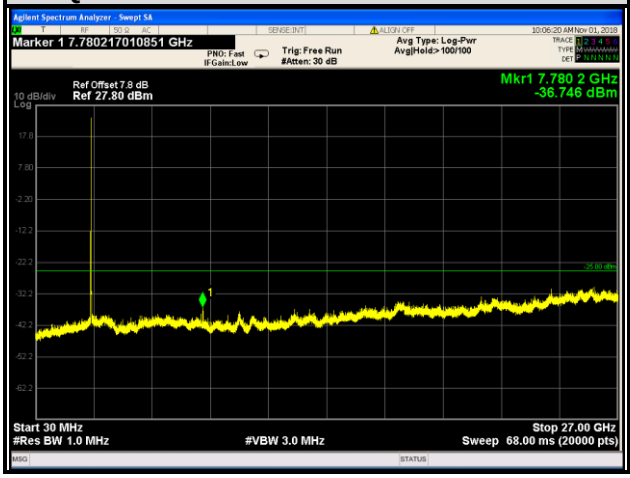
3.6.3 TEST SETUP



3.6.4 TEST RESULTS

LTE BAND 41

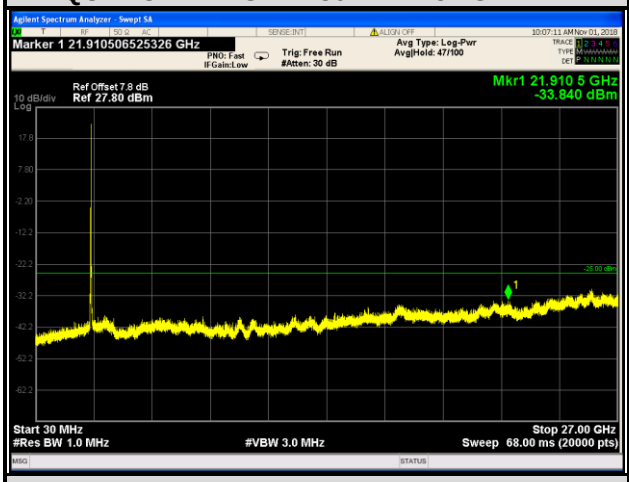
5MHz / QPSK

CHANNEL 39675	CHANNEL 40620
FREQUENCY RANG2E : 30MHz~25.7GHz	FREQUENCY RANGE : 30MHz~25.7GHz
	
CHANNEL 41565	
FREQUENCY RANGE : 30MHz~25.7GHz	
	

10MHz / QPSK

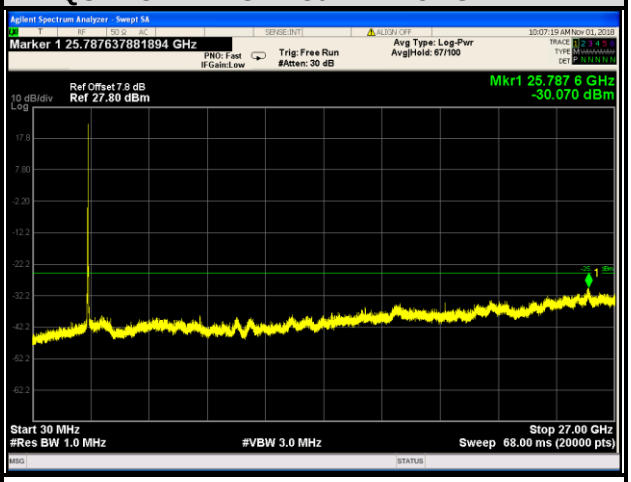
CHANNEL 39700

FREQUENCY RANG2E : 30MHz~25.7GHz



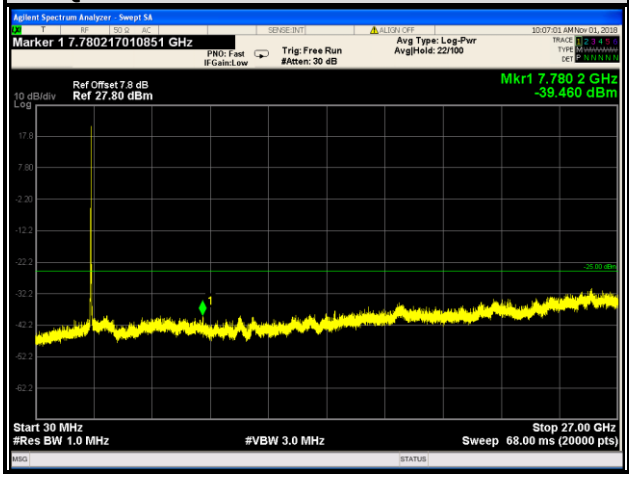
CHANNEL 40620

FREQUENCY RANGE : 30MHz~25.7GHz



CHANNEL 41540

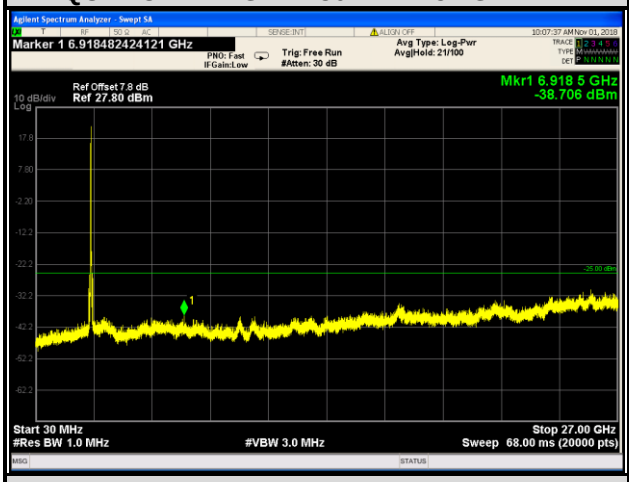
FREQUENCY RANGE : 30MHz~25.7GHz



15MHz / QPSK

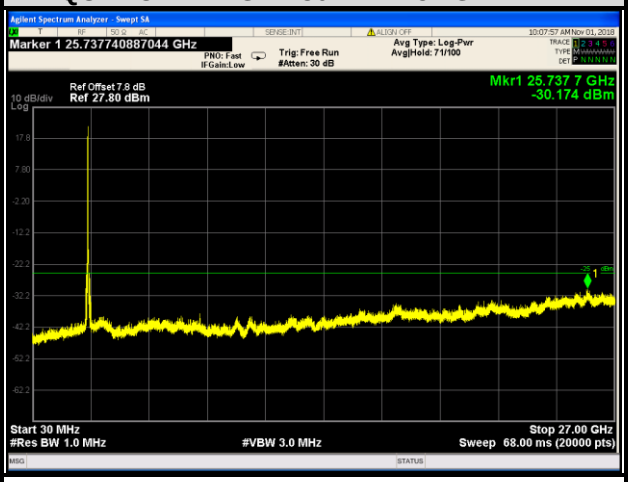
CHANNEL 39725

FREQUENCY RANG2E : 30MHz~25.7GHz



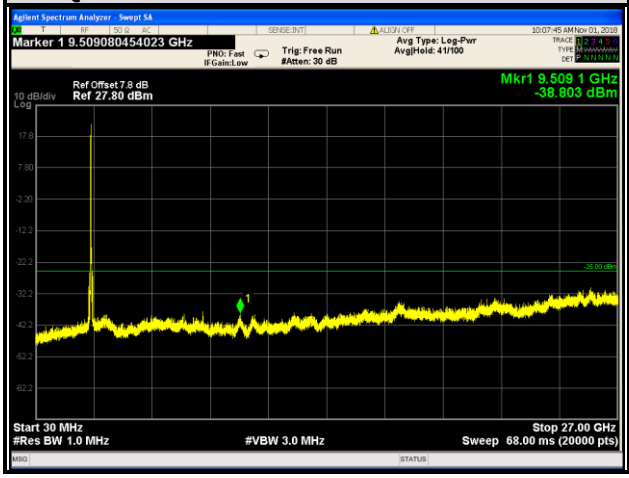
CHANNEL 40620

FREQUENCY RANGE : 30MHz~25.7GHz



CHANNEL 41515

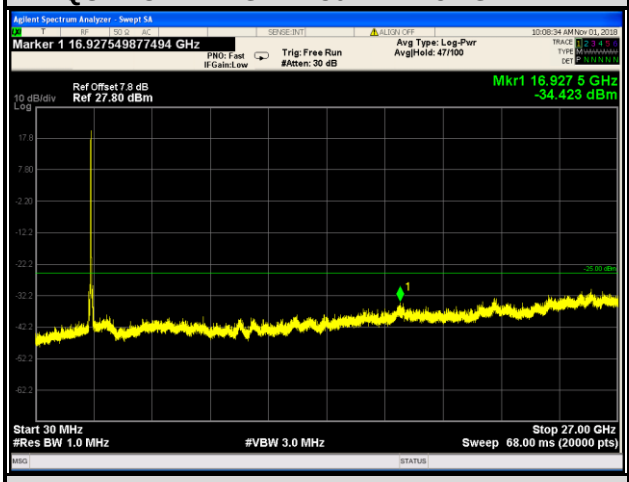
FREQUENCY RANGE : 30MHz~25.7GHz



20MHz / QPSK

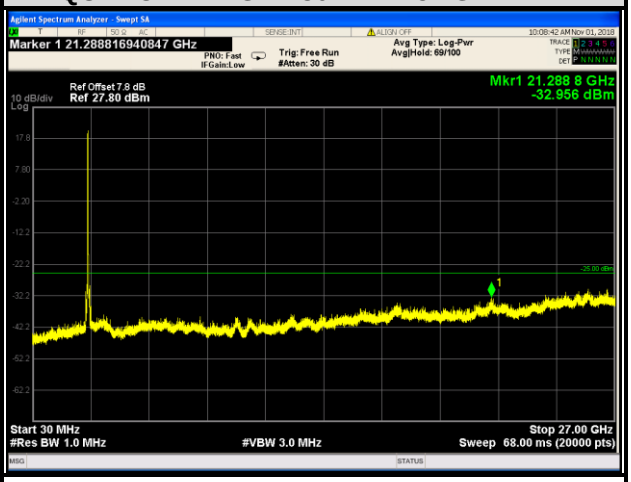
CHANNEL 39750

FREQUENCY RANG2E : 30MHz~25.7GHz



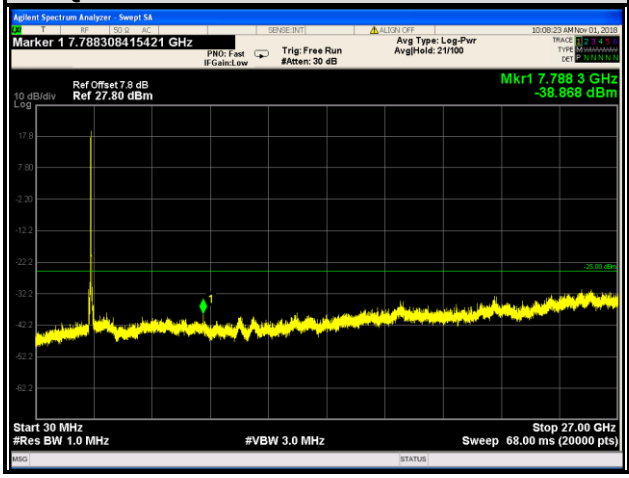
CHANNEL 40620

FREQUENCY RANGE : 30MHz~25.7GHz



CHANNEL 41490

FREQUENCY RANGE : 30MHz~25.7GHz



3.7 RADIATED EMISSION MEASUREMENT

3.7.1 LIMITS OF RADIATED EMISSION MEASUREMENT

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 55 +10 log10(P) dB. The limit of emission is equal to -25dBm.

3.7.2 TEST PROCEDURES

a. 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.
b. 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 a. Record the power level of S.G.
c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
d. 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.P.R power - 2.15dBi.

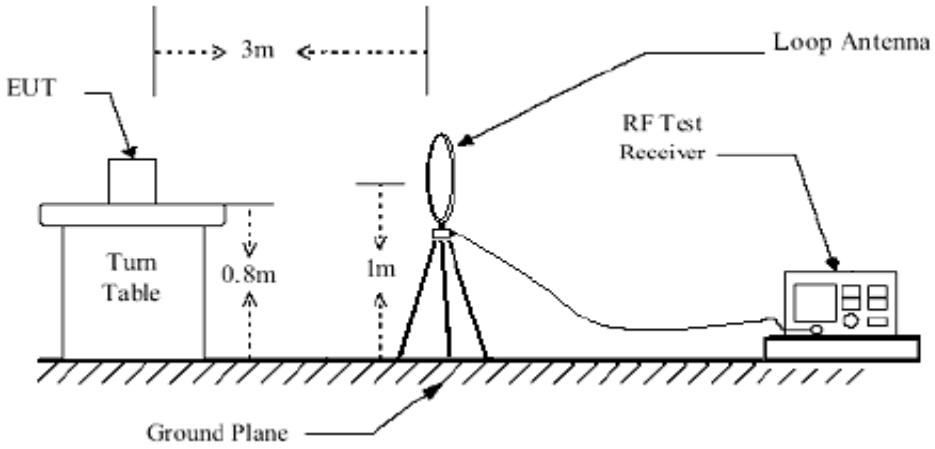
NOTE: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

3.7.3 DEVIATION FROM TEST STANDARD

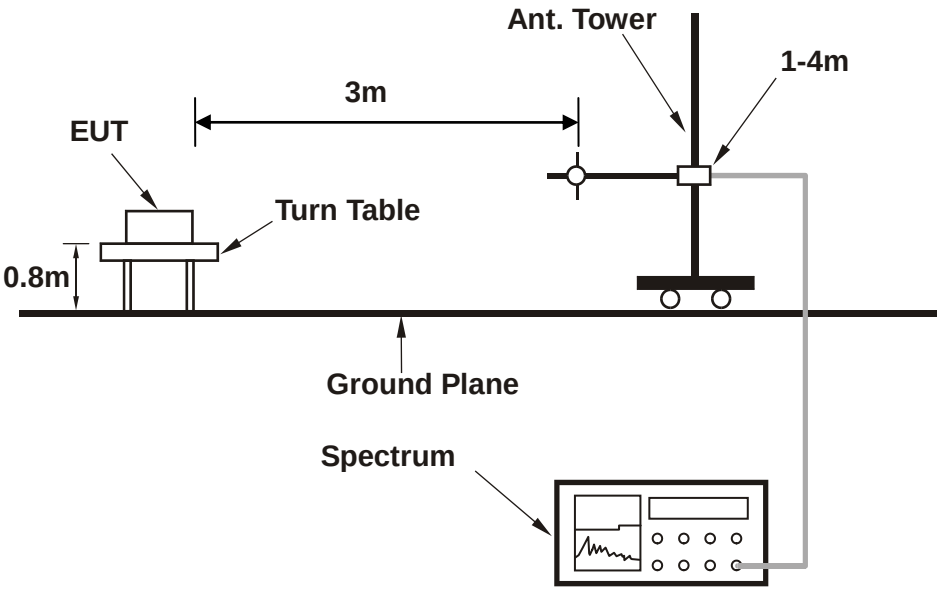
No deviation

3.7.4 TEST SETUP

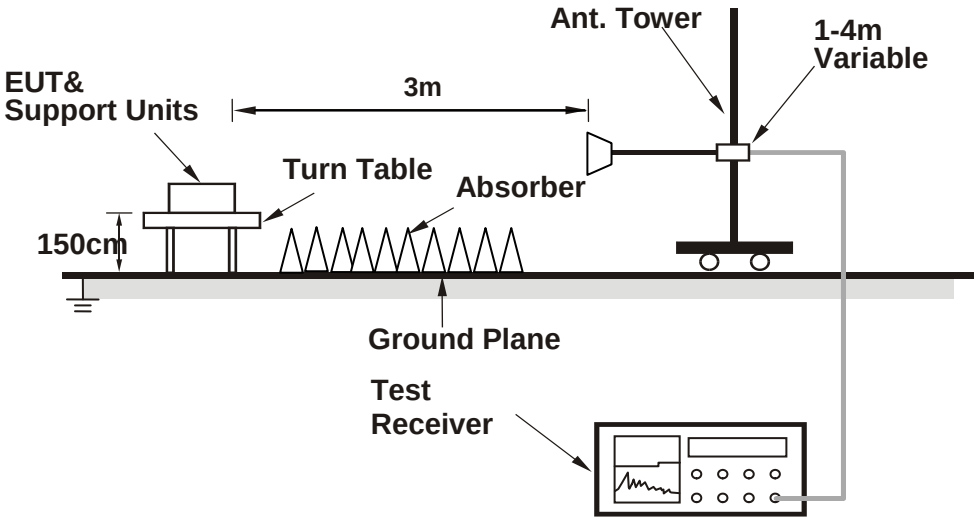
<Below 30MHz>



< Frequency Range 30MHz~1GHz >



< Frequency Range above 1GHz >



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

3.7.5 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

9 KHz – 30 KHz data: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

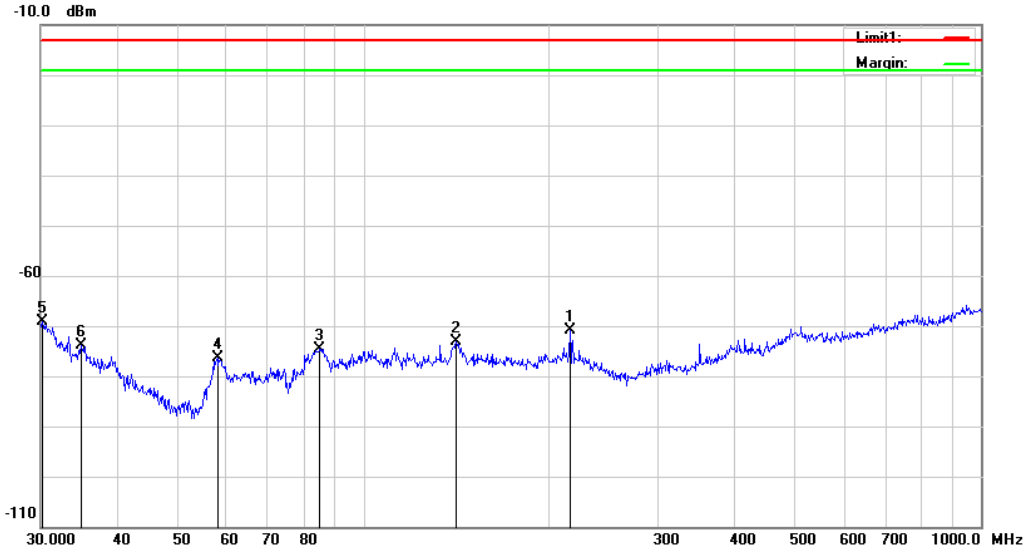
30 MHz – 1GHz data:

LTE Band 41:

MODE	TX channel 40620	**FREQUENCY RANGE**	Below 1000MHz
ENVIRONMENTAL CONDITIONS	24deg. C, 57%RH	**INPUT POWER**	DC 5V from adapter
TESTED BY	Simon Lin		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

No.	Frequency	Reading	Result	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
1	150.0108	-73.06	-72.42	-13.00	-59.42
2	86.2001	-70.79	-74.02	-13.00	-61.02
3	30.0000	-80.57	-66.45	-13.00	-53.45
4	250.3012	-67.88	-66.94	-13.00	-53.94
5	362.9845	-79.31	-76.77	-13.00	-63.77
6	37.1550	-80.75	-73.16	-13.00	-60.16

MODE	TX channel 40620	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	24deg. C, 57%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Simon Lin		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			



No.	Frequency	Reading	Result	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
1	216.0240	-73.64	-70.80	-13.00	-57.80
2	141.3298	-78.00	-73.00	-13.00	-60.00
3	84.9995	-76.22	-74.53	-13.00	-61.53
4	57.9993	-72.74	-76.33	-13.00	-63.33
5	30.2111	-75.86	-69.19	-13.00	-56.19
6	34.8823	-77.22	-73.99	-13.00	-60.99

ABOVE 1GHz DATA

Note: For higher frequency, the emission is too low to be detected.

LTE Band 41:

20M QPSK

Low channel

Frequency (MHz)	Antenna Polarization (H/V)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
5012	V	-30.75	-13	-17.75
5012	H	-29.97	-13	-16.97

Middle channel

Frequency (MHz)	Antenna Polarization (H/V)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
5186	V	-32.6	-13	-19.6
5186	H	-34.13	-13	-21.13

High channel

Frequency (MHz)	Antenna Polarization (H/V)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
5360	V	-26.75	-13	-13.75
5360	H	-34.87	-13	-21.87

Note:

*1, The testing has been conformed to 10*2687.5MHz=26,875MHz*
2, All other emissions more than 30 dB below the limit
3, X-Axis, Y-Axis and Z-Axis were investigated. The results above show only the worst case.
4, The radiated spurious test above 18GHz is subcontracted to Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch Laboratories and found 30dB below the limit at least.

4 INFORMATION ON THE TESTING LABORATORIES

We, BV 7LAYERS COMMUNICATIONS TECHNOLOGY (SHENZHEN) CO. LTD., were founded in 2015 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

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

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

5 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

---END---