FCC TEST REPORT

(PART 27)

Applicant:	Xiaomi Communications Co., Ltd.
Address:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

Manufacturer or Supplier:	Xiaomi Communications Co., Ltd.
Address:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085
Product:	Mobile Phone
Brand Name:	Redmi
Model Name:	23053RN02Y
FCC ID:	2AFZZRN02Y
Date of tests:	Mar. 06, 2023 ~ Mar. 29, 2023

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

☒ **FCC Part 27** ☒ **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 Simon Wang Engineer / Mobile Department	Approved by Luke Lu Manager / Mobile Department
Simon Wang Date: Mar. 29, 2023	Luke Lu Date: Mar. 29, 2023

TABLE OF CONTENTS

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P23030004RF07	Original release	Mar. 29, 2023

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**	**TEST LAB***
§2.1046	Conducted Output Power	Compliance	A
§27.50(h)(2)	Equivalent Isotropically Radiated Power (Band 7C) (Band 38C)	Compliance	A
§2.1055 §27.54	Frequency Stability	Compliance	A
§2.1049	Occupied Bandwidth	Compliance	A
§2.1051 §27.53(m)(4)(6)	Conducted Band Edge Measurements (Band 7C) (Band 38C)	Compliance	A
§2.1051 §27.53(m)(4)(6)	Conducted Spurious Emissions (Band 7C) (Band 38C)	Compliance	A
§2.1051 §27.53(m)(4)(6)	Radiated Spurious Emissions (Band 7C) (Band 38C)	Compliance	B
NA	Peak to average ratio	Compliance	A

***Test Lab Information Reference**

Lab A:

BV 7Layers Communications Technology (Shenzhen) Co., Ltd

Lab Address:

No.B102, Dazu Chuangxin Mansion, North of Beihuan Avenue, North Area, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, China

Accredited Test Lab Cert 3939.01

FCC Site Registration No. : 525120; Designation No. : CN1171;

Lab B:

Huarui 7Layers High Technology (Suzhou) Co., Ltd.

Lab Address:

Tower N, Innovation Center, 88 Zhuyi Road, High-tech District, Suzhou City, Anhui Province

Accredited Test Lab Cert 6613.01

The FCC Site Registration No. is 434559; The Designation No. is CN1325.

1.1 MEASREMENT 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	UNCERTAINTY
Frequency Stability	±76.97Hz
Radiated emissions (9KHz~30MHz)	±2.68dB
Radiated emissions & Radiated Power (30MHz~1GHz)	±4.98dB
Radiated emissions & Radiated Power (1GHz ~6GHz)	±4.70dB
Radiated emissions (6GHz ~18GHz)	±4.60dB
Radiated emissions (18GHz ~40GHz)	±4.12dB
Conducted emissions	±4.01dB
Occupied Channel Bandwidth	±43.58KHz
Conducted Output power	±2.06dB
Band Edge Measurements	±4.70dB

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

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Feb. 17,23	Feb. 16,24
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	May.14,22	May.13,23
Loop Antenna	Schwarzbeck	FMZB 1519B	00173	Sep.03,22	Sep.02,23
Bilog Antenna	ETS-LINDGREN	3143B	00161965	Mar. 05,23	Mar. 04,24
Horn Antenna	ETS-LINDGREN	3117	00168692	Mar. 05,23	Mar. 04,24
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Sep.04, 22	Sep.03, 23
Radio Communication Analyzer	ANRITSU	MT8820C	6201465426	Feb. 14,23	Feb. 13,24
Signal Pre-Amplifier	EMSI	EMC 9135	980249	May.12,22	May.11,23
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	May.12,22	May.11,23
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Feb. 17,23	Feb.16,24
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	Euroshieldpn-CT0001143-1216	May. 19,20	May. 18,23
Test Software	E3	V 9.160323	N/A	N/A	N/A
Test Software	JS1120	3.1.36	N/A	N/A	N/A
10dB Attenuator	JFW/USA	50HF-010-SMA	N/A	May. 12,22	May. 11,23
Power Meter	Anritsu	ML2495A	1506002	Feb. 14,23	Feb. 13,24
Power Sensor	Anritsu	MA2411B	1339352	Feb. 14,23	Feb. 13,24
Temperature Chamber	ESPEC	SH-242	93000855	May. 12,22	May. 11,23
MXG Analog Microvave Signal Generator	KEYSIGHT	N5183A	MY50143024	Feb. 14,23	Feb. 13,24
Base station R&S CMW500	Rohde&Schwarz	CMW500	153085	May.12,22	May.11,23
DC Source	Kikusui/JP	PMX18-5A	N/A	Aug. 12,22	Aug. 11,23

NOTE: 1. The calibration interval of the above test instruments is 12 months or 36 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 525120; The Designation No. is CN1171.

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Pre-Amplifier	R&S	SCU18F1	100815	Aug.30,22	Aug.29,24
Pre-Amplifier	R&S	SCU08F1	101028	Sep.16,22	Sep.15,24
Vector Signal Generator	R&S	SMBV100B	102176	Feb.16,22	Feb.15,24
Signal Generator	R&S	SMB100A	182185	Feb.16,22	Feb.15,24
3m Fully-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-01Chamber	Nov.25,22	Nov.24,25
3m Semi-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-02Chamber	Nov.25,22	Nov.24,25
EMI TEST Receiver	R&S	ESR26	101734	Feb.25,22	Feb.24,24
EMI TEST Receiver	R&S	ESW44	101973	Feb.25,22	Feb.24,24
Bilog Antenna	SCHWARZBECK	VULB 9163	1264	Feb.28,22	Feb.27,24
Horn Antenna	ETS-LINDGREN	3117	227836	Aug.22,22	Aug.21,24
Horn Antenna (18GHz-40GHz)	Steatite Q-par Antennas	QMS 00880	23486	Feb.23,22	Feb.22,24
Horn Antenna	Steatite Q-par Antennas	QMS 00208	23485	Aug.22,22	Aug.21,24
Loop Antenna	SCHWARZ	HFH2-Z2/Z2E	100976	Feb.23,22	Feb.22,24
WIDEBANDRADIO COMMUNICATION TESTER	R&S	CMW500	169399	Jun.27,22	Jun.26,24
Test Software	EMC32	EMC32	N/A	N/A	N/A
Test Software	ELEKTRA	ELEKTRA4.32	N/A	N/A	N/A
Open Switch and Control Unit	R&S	OSP220	101964	Oct.01,22	Sep.30,24
DC Source	HYELEC	HY3010B	551016	Aug.31,22	Aug.30,24
Hygrothermograph	DELI	20210528	SZ014	Sep.06,22	Sep.05,24
PC	LENOVO	E14	HRSW0024	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-7.00M	N/A	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-4.00M	N/A	N/A	N/A
CABLE	R&S	W13.02	N/A	Oct.31,22	Apr.29,23
CABLE	R&S	W12.14	N/A	Oct.31,22	Apr.29,23
CABLE	R&S	J12J103539-00-1	SEP-03-20-069	Oct.31,22	Apr.29,23
CABLE	R&S	J12J103539-00-1	SEP-03-20-070	Oct.31,22	Apr.29,23
Temperature Chamber	votsch	VT4002	58566078100050	May.31,22	May.30,24

NOTE: 1. The calibration interval of the above test instruments is 12 months or 36 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 434559; The Designation No. is CN1325.

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Mobile Phone	
BRAND NAME	Redmi	
MODEL NAME	23053RN02Y	
NOMINAL VOLTAGE	5V/9V/10V/12Vdc(adapter or host equipment) 3.8Vdc (Li-ion, battery)	
MODULATION TECHNOLOGY	**LTE**	QPSK, 16QAM, 64QAM
FREQUENCY RANGE	**LTE Band CA_7C Channel Bandwidth: 10MHz+20MHz**	2505.5MHz ~ 2560MHz
	LTE Band CA_7C Channel Bandwidth: 15MHz+10MHz	2507.5MHz ~ 2564.7MHz
	LTE Band CA_7C Channel Bandwidth: 15MHz+15MHz	2507.5MHz ~ 2562.5MHz
	LTE Band CA_7C Channel Bandwidth: 15MHz+20MHz	2507.8MHz ~ 2560MHz
	LTE Band CA_7C Channel Bandwidth: 20MHz+10MHz	2510MHz ~ 2564.5MHz
	LTE Band CA_7C Channel Bandwidth: 20MHz+15MHz	2510MHz ~ 2562.2MHz
	LTE Band CA_7C Channel Bandwidth: 20MHz+20MHz	2510MHz ~ 2560MHz
	LTE Band CA_38C Channel Bandwidth: 15MHz+15MHz	2577.5MHz ~ 2612.5MHz
	LTE Band CA_38C Channel Bandwidth: 20MHz+20MHz	2580.0 MHz ~ 2610MHz
MAX. EIRP or EPR POWER	**LTE Band CA_7C Channel Bandwidth: 10MHz+20MHz**	280.54mW
	LTE Band CA_7C Channel Bandwidth: 15MHz+10MHz	275.42mW
	LTE Band CA_7C Channel Bandwidth: 15MHz+15MHz	278.61mW

MAX. EIRP or EPR POWER	**LTE Band CA_7C Channel Bandwidth: 15MHz+20MHz**	274.79mW
	LTE Band CA_7C Channel Bandwidth: 20MHz+10MHz	278.61mW
	LTE Band CA_7C Channel Bandwidth: 20MHz+15MHz	274.16mW
	LTE Band CA_7C Channel Bandwidth: 20MHz+20MHz	278.61mW
	LTE Band CA_38C Channel Bandwidth: 15MHz+15MHz	424.62mW
	LTE Band CA_38C Channel Bandwidth: 20MHz+20MHz	424.62mW
EMISSION DESIGNATOR	**LTE Band CA_7C Channel Bandwidth: 10MHz+20MHz**	QPSK: 28M1G7D
		16QAM: 28M1W7D
		64QAM: 28M1W7D
	LTE Band CA_7C Channel Bandwidth: 15MHz +10MHz	QPSK: 23M6G7D
		16QAM: 23M6W7D
		64QAM: 23M6W7D
	LTE Band CA_7C Channel Bandwidth: 15MHz +15MHz	QPSK: 28M7G7D
		16QAM: 28M7W7D
		64QAM: 28M7W7D
	LTE Band CA_7C Channel Bandwidth: 15MHz +20MHz	QPSK: 33M0G7D
		16QAM: 33M0W7D
		64QAM: 33M0W7D
	LTE Band CA_7C Channel Bandwidth: 20MHz +10MHz	QPSK: 28M2G7D
		16QAM: 28M2W7D
		64QAM: 28M2W7D
	LTE Band CA_7C Channel Bandwidth: 20MHz +15MHz	QPSK: 33M0G7D
		16QAM: 33M0W7D
		64QAM: 33M0W7D
	LTE Band CA_7C Channel Bandwidth: 20MHz +20MHz	QPSK: 37M8G7D
		16QAM: 37M82W7D
		64QAM: 37M8W7D

EMISSION DESIGNATOR	**LTE Band CA_38C Channel Bandwidth: 15MHz+15MHz**	QPSK: 28M4G7D
		16QAM: 28M4W7D
		64QAM: 28M5W7D
	LTE Band CA_38C Channel Bandwidth: 20MHz+20MHz	QPSK: 37M7G7D
		16QAM: 37M7W7D
		64QAM: 37M7W7D
ANTENNA TYPE	ANT 0: IFA Antenna with 0.45dBi gain for LTE7C IFA Antenna with 0.96dBi gain for LTE38C ANT 4: IFA Antenna with 0.28dBi gain for LTE7C IFA Antenna with 2.21dBi gain for LTE38C	
HW VERSION	P1.1	
SW VERSION	MIUI14	
IMEI	867457060032244 867457060047483 867457060047491	
I/O PORTS	Refer to user's manual	
CABLE SUPPLIED	USB cable1: non-shielded cable, with w/o ferrite core, 1.0 meter USB cable2: non-shielded cable, with w/o ferrite core, 1.0 meter	
EXTREME TEMPERATURE	-10-50 ℃	
EXTREME VOLTAGE	3.6V - 4.2V	

NOTE:

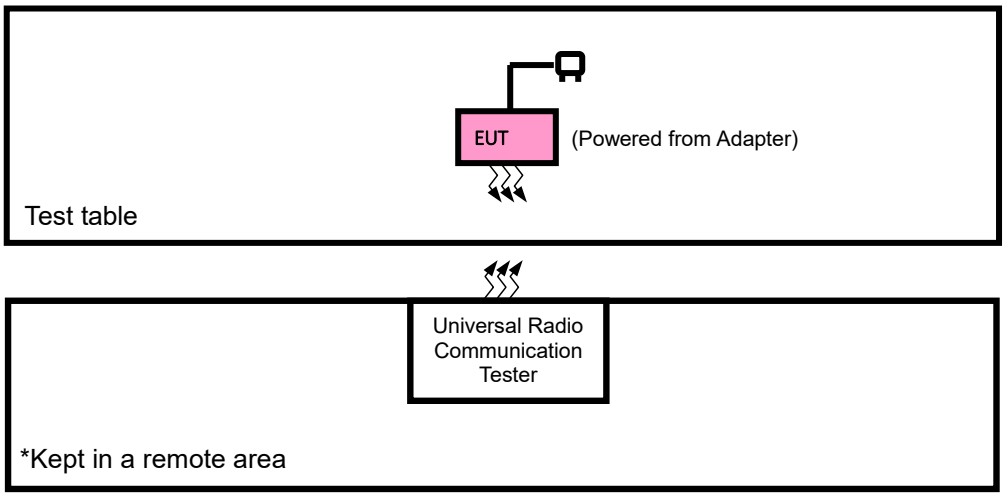
1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. The EUT incorporates a SISO function. Physically, the EUT provides two completed transmitter and two receiver.

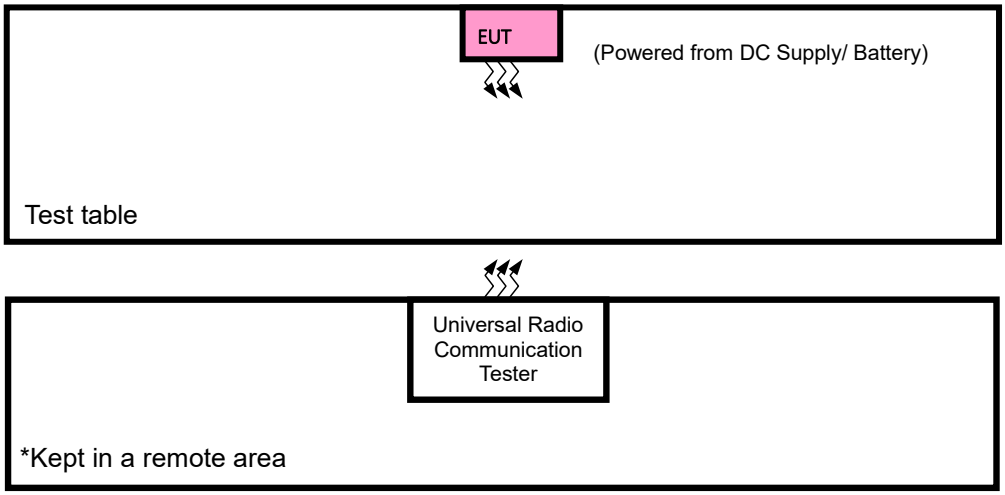
MODULATION MODE	TX FUNCTION
LTE	2TX/2RX

3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
4. For Band Edge and Emission Mask: The all BW combinations were tested.Combination pairs of the same BW are considered generally equivalent. The RB combinations were selected such that the signal is active closest to the band limit, as this is the worst case.
5. For Out of Band Emissions: The all combination was tested. The highest power RB combination was selected as worst case.

2.2 CONFIGURATION OF SYSTEM UNDER TEST

FOR RADIATION EMISSION 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	DC source	LONG WEI	PS-6403D	010934269	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	DC Line: Unshielded, Detachable 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 + DC source with LTE link

LTE BAND CA_7C MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE PCC CHANNEL	AVAILABLE SCC CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE(PCC)	MODE(SCC)
A	EIRP	20805 to 21206	20949 to 21350	Low, Middle, High	10MHz+20MHz	QPSK, 16QAM, 64QAM	1RB/ 49RB Offset	1RB/ 0RB Offset
		20825 to 21277	20945 to 21397	Low, Middle, High	15MHz+10MHz	QPSK, 16QAM, 64QAM	1RB/ 74RB Offset	1RB/ 0RB Offset
		20825 to 21225	20975 to 21375	Low, Middle, High	15MHz+15MHz	QPSK, 16QAM, 64QAM	1RB/ 74RB Offset	1RB/ 0RB Offset
		20828 to 21179	20999 to 21350	Low, Middle, High	15MHz+20MHz	QPSK, 16QAM, 64QAM	1RB/ 74RB Offset	1RB/ 0RB Offset
		20850 to 21251	20994 to 21395	Low, Middle, High	20MHz+10MHz	QPSK, 16QAM, 64QAM	1RB/ 99RB Offset	1RB/ 0RB Offset
		20850 to 21201	21201 to 21372	Low, Middle, High	20MHz+15MHz	QPSK, 16QAM, 64QAM	1RB/ 99RB Offset	1RB/ 0RB Offset
		20850 to 21152	21048 to 21350	Low, Middle, High	20MHz+20MHz	QPSK, 16QAM, 64QAM	1RB/ 99RB Offset	1RB/ 0RB Offset
A	OCCUPIED BANDWIDTH	20805 to 21206	20949 to 21350	Low, Middle, High	10MHz+20MHz	QPSK, 16QAM, 64QAM	50RB/ 0RB Offset	100RB/ 0RB Offset
		20825 to 21277	20945 to 21397	Low, Middle, High	15MHz+10MHz	QPSK, 16QAM, 64QAM	75RB/ 0RB Offset	50RB/ 0RB Offset
		20825 to 21225	20975 to 21375	Low, Middle, High	15MHz+15MHz	QPSK, 16QAM, 64QAM	75RB/ 0RB Offset	75RB/ 0RB Offset
		20828 to 21179	20999 to 21350	Low, Middle, High	15MHz+20MHz	QPSK, 16QAM, 64QAM	75RB/ 0RB Offset	100RB/ 0RB Offset
		20850 to 21251	20994 to 21395	Low, Middle, High	20MHz+10MHz	QPSK, 16QAM, 64QAM	100RB/ 0RB Offset	50RB/ 0RB Offset
		20850 to 21201	21201 to 21372	Low, Middle, High	20MHz+15MHz	QPSK, 16QAM, 64QAM	100RB/ 0RB Offset	75RB/ 0RB Offset
		20850 to 21152	21048 to 21350	Low, Middle, High	20MHz+20MHz	QPSK, 16QAM, 64QAM	100RB/ 0RB Offset	100RB/ 0RB Offset
A	BAND EDGE	20850 to 21152	21048 to 21350	Low	20MHz+20MHz	QPSK, 16QAM, 64QAM	1RB/ 0RB Offset	1RB/ 99RB Offset
							1RB/ 99RB Offset	1RB/ 0RB Offset
							100RB/ 0RB Offset	100RB/ 0RB Offset
				High	20MHz+20MHz	QPSK, 16QAM, 64QAM	1RB/ 0RB Offset	1RB/ 99RB Offset
							1RB/ 99RB Offset	1RB/ 0RB Offset
							100RB/ 0RB Offset	100RB/ 0RB Offset
A	CONDCUDETED EMISSION	20850 to 21152	21048 to 21350	Low, Middle, High	20MHz+20MHz	QPSK	1RB/ 99RB Offset	1RB/ 0RB Offset
A	RADIATED EMISSION	20805 to 21206	20949 to 21350	Middle	10MHz+20MHz	QPSK	1RB/ 49RB Offset	1RB/ 0RB Offset
		20825 to 21277	20945 to 21397	Middle	15MHz+10MHz	QPSK	1RB/ 74RB Offset	1RB/ 0RB Offset
		20825 to 21225	20975 to 21375	Middle	15MHz+15MHz	QPSK	1RB/ 74RB Offset	1RB/ 0RB Offset
		20828 to 21179	20999 to 21350	Middle	15MHz+20MHz	QPSK	1RB/ 74RB Offset	1RB/ 0RB Offset
		20850 to 21251	20994 to 21395	Middle	20MHz+10MHz	QPSK	1RB/ 99RB Offset	1RB/ 0RB Offset
		20850 to 21201	21201 to 21372	Middle	20MHz+15MHz	QPSK	1RB/ 99RB Offset	1RB/ 0RB Offset
		20850 to 21152	21048 to 21350	Low, Middle, High	20MHz+20MHz	QPSK	1RB/ 99RB Offset	1RB/ 0RB Offset

Note: 1.This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

LTE BAND CA_38C MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE PCC CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
B	EIRP	37825 to 38025	Low, Middle, High	15MHz+15MHz	QPSK, 16QAM, 64QAM	1RB/ 49RB&1RB/ 0RB Offset
		37850 to 37952	Low, Middle, High	20MHz+20MHz	QPSK, 16QAM, 64QAM	1RB/ 99RB&1RB/ 0RB Offset
B	OCCUPIED BANDWIDTH	37825 to 38025	Low, Middle, High	15MHz+15MHz	QPSK, 16QAM, 64QAM	50RB/ 0RB&100RB/ 0RB Offset
		37850 to 37952	Low, Middle, High	20MHz+20MHz	QPSK, 16QAM, 64QAM	100RB/ 0RB&100RB/ 0RB Offset
B	BAND EDGE	37850 to 37952	Low	20MHz+20MHz	QPSK, 16QAM, 64QAM	1RB/ 0RB&1RB/ 99RB Offset
						1RB/ 99RB&1RB/ 0RB Offset
						100RB/ 0RB&100RB/ 0RB Offset
			High	20MHz+20MHz	QPSK, 16QAM, 64QAM	1RB/ 0RB&1RB/ 99RB Offset
						1RB/ 99RB&1RB/ 0RB Offset
						100RB/ 0RB&100RB/ 0RB Offset
B	CONDCUDE TED EMISSION	37850 to 37952	Low, Middle, High	20MHz+20MHz	QPSK	1RB/ 99RB&1RB/ 0RB Offset
A	RADIATED EMISSION	37825 to 38025	Low, Middle, High	15MHz+15MHz	QPSK	1RB/ 49RB&1RB/ 0RB Offset
		37850 to 37952	Low, Middle, High	20MHz+20MHz	QPSK	1RB/ 99RB&1RB/ 0RB 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
ERP&EIRP	23deg. C, 70%RH	DC 5V/9V/10V/12V By Adapter	Jace Hu
FREQUENCY STABILITY	23deg. C, 70%RH	DC 3.5/3.8/4.2 By DC Source	James Fu
OCCUPIED BANDWIDTH	23deg. C, 70%RH	DC 5V/9V/10V/12V By Adapter	James Fu
BAND EDGE	23deg. C, 70%RH	DC 5V/9V/10V/12V By Adapter	James Fu
CONDCUDETED EMISSION	23deg. C, 70%RH	DC 5V/9V/10V/12V By Adapter	James Fu
RADIATED EMISSION	23deg. C, 70%RH	DC 5V/9V/10V/12V By Adapter	Jace Hu
PEAK TO AVERAGE RATIO	23deg. C, 70%RH	DC 5V/9V/10V/12V By Adapter	James Fu

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 v03r01

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:

Per KDB 971168 D01 Power Meas License Digital Systems v03r01 or subclause 5.2.5.5 of ANSI C63.26-2015, the relevant equation for determing the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

ERP or EIRP = $P_{Meas} + G_T – L_C$

Where:

ERP or EIRP = effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Meas}, typically dBW or dBm);

P_{Meas} = measured transmitter output power or PSD, in dBm or dBW;

G_T = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

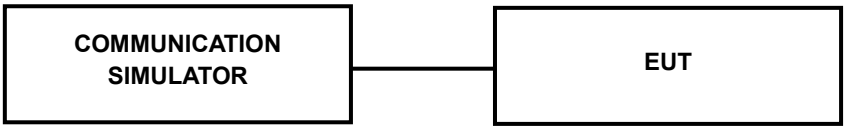
L_C = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

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

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)

Ant 0

LTE Band CA_7C

CA_7C								
Combination 20MHz+20MHz (100RB+100RB)								
PCC	SCC	Modulation	PCC		SCC		Total RB Size	Measured Power (dBm)
Channel	Channel		RB Size	RB offset	RB Size	RB offset		
20805	21048	QPSK	1	50	0	0	1	24.00
		16QAM	1	50	0	0	1	22.98
		64QAM	1	50	0	0	1	21.89
21001	21199	QPSK	1	50	0	0	1	23.82
		16QAM	1	50	0	0	1	22.98
		64QAM	1	50	0	0	1	21.87
21152	21350	QPSK	1	50	0	0	1	23.87
		16QAM	1	50	0	0	1	22.71
		64QAM	1	50	0	0	1	21.64

LTE Band CA_38C

CA_38C								
Combination 20MHz+20MHz (100RB+100RB)								
PCC	SCC	Modulation	PCC		SCC		Total RB Size	Measured Power (dBm)
Channel	Channel		RB Size	RB offset	RB Size	RB offset		
37850	38048	QPSK	1	50	0	0	1	23.93
		16QAM	1	50	0	0	1	22.87
		64QAM	1	50	0	0	1	21.95
37901	38099	QPSK	1	50	0	0	1	23.98
		16QAM	1	50	0	0	1	22.83
		64QAM	1	50	0	0	1	21.90
37952	38150	QPSK	1	50	0	0	1	24.07
		16QAM	1	50	0	0	1	23.17
		64QAM	1	50	0	0	1	22.13

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LTE Band CA_7C

CA_7C								
Combination 20MHz+20MHz (100RB+100RB)								
PCC	SCC	Modulation	PCC		SCC		Total RB Size	Measured Power (dBm)
Channel	Channel		RB Size	RB offset	RB Size	RB offset		
20805	21048	QPSK	1	50	0	0	1	23.06
		16QAM	1	50	0	0	1	23.03
		64QAM	1	50	0	0	1	21.94
21001	21199	QPSK	1	50	0	0	1	23.05
		16QAM	1	50	0	0	1	23.03
		64QAM	1	50	0	0	1	21.92
21152	21350	QPSK	1	50	0	0	1	22.92
		16QAM	1	50	0	0	1	22.76
		64QAM	1	50	0	0	1	21.69

LTE Band CA_38C

CA_38C								
Combination 20MHz+20MHz (100RB+100RB)								
PCC	SCC	Modulation	PCC		SCC		Total RB Size	Measured Power (dBm)
Channel	Channel		RB Size	RB offset	RB Size	RB offset		
37850	38048	QPSK	1	50	0	0	1	23.93
		16QAM	1	50	0	0	1	22.87
		64QAM	1	50	0	0	1	21.95
37901	38099	QPSK	1	50	0	0	1	23.98
		16QAM	1	50	0	0	1	22.83
		64QAM	1	50	0	0	1	21.90
37952	38150	QPSK	1	50	0	0	1	24.07
		16QAM	1	50	0	0	1	23.17
		64QAM	1	50	0	0	1	22.13

ERP/EIRP
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LTE BAND CA_7C
CHANNEL BANDWIDTH: 10MHz+20MHz QPSK

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20805	2505.5	20949	2519.9	24.47	0.45	24.47	279.90	2
21006	2525.6	21150	2540.0	24.48	0.45	24.48	280.54	2
21206	2545.6	21350	2560.0	24.31	0.45	24.31	269.77	2

CHANNEL BANDWIDTH: 10MHz+20MHz 16QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20805	2505.5	20949	2519.9	23.43	0.45	23.43	220.29	2
21006	2525.6	21150	2540.0	23.61	0.45	23.61	229.61	2
21206	2545.6	21350	2560.0	23.46	0.45	23.46	221.82	2

CHANNEL BANDWIDTH: 10MHz+20MHz 64QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20805	2505.5	20949	2519.9	22.44	0.45	22.44	175.39	2
21006	2525.6	21150	2540.0	22.51	0.45	22.51	178.24	2
21206	2545.6	21350	2560.0	22.43	0.45	22.43	174.98	2

CHANNEL BANDWIDTH: 15MHz+10MHz QPSK

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	20945	2519.5	23.95	0.45	24.40	275.42	2
21051	2530.1	21171	2542.1	23.93	0.45	24.38	274.16	2
21227	2552.7	21397	2564.7	23.91	0.45	24.36	272.90	2

CHANNEL BANDWIDTH: 15MHz+10MHz 16QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	20945	2519.5	22.94	0.45	23.39	218.27	2
21051	2530.1	21171	2542.1	22.91	0.45	23.36	216.77	2
21227	2552.7	21397	2564.7	22.78	0.45	23.23	210.38	2

CHANNEL BANDWIDTH: 15MHz+10MHz 64QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	20945	2519.5	21.89	0.45	22.34	171.40	2
21051	2530.1	21171	2542.1	21.8	0.45	22.25	167.88	2
21227	2552.7	21397	2564.7	21.8	0.45	22.25	167.88	2

CHANNEL BANDWIDTH: 15MHz+15MHz QPSK

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	20975	2522.5	24	0.45	24.45	278.61	2
21025	2527.5	21175	2542.5	23.91	0.45	24.36	272.90	2
21225	2547.5	21375	2562.5	23.89	0.45	24.34	271.64	2

CHANNEL BANDWIDTH: 15MHz+15MHz 16QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	20975	2522.5	23.14	0.45	23.59	228.56	2
21025	2527.5	21175	2542.5	23.16	0.45	23.61	229.61	2
21225	2547.5	21375	2562.5	22.79	0.45	23.24	210.86	2

CHANNEL BANDWIDTH: 15MHz+15MHz 64QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	20975	2522.5	22.09	0.45	22.54	179.47	2
21025	2527.5	21175	2542.5	22.03	0.45	22.48	177.01	2
21225	2547.5	21375	2562.5	21.89	0.45	22.34	171.40	2

CHANNEL BANDWIDTH: 15MHz+20MHz QPSK

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20828	2507.8	20999	2524.9	23.9	0.45	24.35	272.27	2
21003	2525.3	21174	2542.4	23.94	0.45	24.39	274.79	2
21179	2542.9	21350	2560.0	23.87	0.45	24.32	270.40	2

CHANNEL BANDWIDTH: 15MHz+20MHz 16QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20828	2507.8	20999	2524.9	22.87	0.45	23.32	214.78	2
21003	2525.3	21174	2542.4	23.08	0.45	23.53	225.42	2
21179	2542.9	21350	2560.0	22.71	0.45	23.16	207.01	2

CHANNEL BANDWIDTH: 15MHz+20MHz 64QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20828	2507.8	20999	2524.9	21.77	0.45	22.22	166.72	2
21003	2525.3	21174	2542.4	21.96	0.45	22.41	174.18	2
21179	2542.9	21350	2560.0	21.63	0.45	22.08	161.44	2

CHANNEL BANDWIDTH: 20MHz+10MHz QPSK

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	20994	2524.4	23.85	0.45	24.30	269.15	2
21051	2530.1	21195	2544.5	24	0.45	24.45	278.61	2
21251	2550.1	21395	2564.5	23.86	0.45	24.31	269.77	2

CHANNEL BANDWIDTH: 20MHz+10MHz 16QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	20994	2524.4	22.92	0.45	23.37	217.27	2
21051	2530.1	21195	2544.5	22.97	0.45	23.42	219.79	2
21251	2550.1	21395	2564.5	22.7	0.45	23.15	206.54	2

CHANNEL BANDWIDTH: 20MHz+10MHz 64QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	20994	2524.4	21.85	0.45	22.30	169.82	2
21051	2530.1	21195	2544.5	21.76	0.45	22.21	166.34	2
21251	2550.1	21395	2564.5	21.63	0.45	22.08	161.44	2

CHANNEL BANDWIDTH: 20MHz+15MHz QPSK

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	21021	2527.1	23.93	0.45	24.38	274.16	2
21026	2527.6	21197	2544.7	23.89	0.45	24.34	271.64	2
21201	2545.1	21372	2562.2	23.93	0.45	24.38	274.16	2

CHANNEL BANDWIDTH: 20MHz+15MHz 16QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	21021	2527.1	22.8	0.45	23.25	211.35	2
21026	2527.6	21197	2544.7	22.96	0.45	23.41	219.28	2
21201	2545.1	21372	2562.2	22.87	0.45	23.32	214.78	2

CHANNEL BANDWIDTH: 20MHz+15MHz 64QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	21021	2527.1	21.71	0.45	22.16	164.44	2
21026	2527.6	21197	2544.7	21.73	0.45	22.18	165.20	2
21201	2545.1	21372	2562.2	21.71	0.45	22.16	164.44	2

CHANNEL BANDWIDTH: 20MHz+20MHz QPSK

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	21048	2529.8	24	0.45	24.45	278.61	2
21001	2525.1	21199	2544.9	23.82	0.45	24.27	267.30	2
21206	2540.2	21350	2560.0	23.87	0.45	24.32	270.40	2

CHANNEL BANDWIDTH: 20MHz+20MHz 16QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	21048	2529.8	22.98	0.45	23.43	220.29	2
21001	2525.1	21199	2544.9	22.98	0.45	23.43	220.29	2
21206	2540.2	21350	2560.0	22.71	0.45	23.16	207.01	2

CHANNEL BANDWIDTH: 20MHz+20MHz 64QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	21048	2529.8	21.89	0.45	22.34	171.40	2
21001	2525.1	21199	2544.9	21.87	0.45	22.32	170.61	2
21206	2540.2	21350	2560.0	21.64	0.45	22.09	161.81	2

LTE BAND CA_38C

CHANNEL BANDWIDTH: 15MHz+15MHz QPSK

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
37825	2577.5	37975	2592.5	24.07	0.96	25.03	318.42	2
37925	2587.5	38075	2602.5	23.09	0.96	24.05	254.10	2
38025	2597.5	38175	2612.5	24.05	0.96	25.01	316.96	2

CHANNEL BANDWIDTH: 15MHz+15MHz 16QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
37825	2577.5	37975	2592.5	23.1	0.96	24.06	254.68	2
37925	2587.5	38075	2602.5	22.71	0.96	23.67	232.81	2
38025	2597.5	38175	2612.5	23.2	0.96	24.16	260.62	2

CHANNEL BANDWIDTH: 15MHz+15MHz 64QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
37825	2577.5	37975	2592.5	22.15	0.96	23.11	204.64	2
37925	2587.5	38075	2602.5	21.79	0.96	22.75	188.36	2
38025	2597.5	38175	2612.5	22.19	0.96	23.15	206.54	2

CHANNEL BANDWIDTH: 20MHz+20MHz QPSK

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
37850	2580.0	38048	2599.8	23.93	0.96	24.89	308.32	2
37901	2585.1	38099	2604.9	23.98	0.96	24.94	311.89	2
37952	2590.2	38150	2610	24.07	0.96	25.03	318.42	2

CHANNEL BANDWIDTH: 20MHz+20MHz 16QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
37850	2580.0	38048	2599.8	22.87	0.96	23.83	241.55	2
37901	2585.1	38099	2604.9	22.83	0.96	23.79	239.33	2
37952	2590.2	38150	2610	23.17	0.96	24.13	258.82	2

CHANNEL BANDWIDTH: 20MHz+20MHz 64QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
37850	2580.0	38048	2599.8	21.95	0.96	22.91	195.43	2
37901	2585.1	38099	2604.9	21.9	0.96	22.86	193.20	2
37952	2590.2	38150	2610	22.13	0.96	23.09	203.70	2

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LTE BAND CA_7C

CHANNEL BANDWIDTH: 10MHz+20MHz QPSK

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20805	2505.5	20949	2519.9	24.07	0.28	24.35	272.27	2
21006	2525.6	21150	2540.0	24.08	0.28	24.36	272.90	2
21206	2545.6	21350	2560.0	23.91	0.28	24.19	262.42	2

CHANNEL BANDWIDTH: 10MHz+20MHz 16QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20805	2505.5	20949	2519.9	23.03	0.28	23.31	214.29	2
21006	2525.6	21150	2540.0	23.21	0.28	23.49	223.36	2
21206	2545.6	21350	2560.0	23.06	0.28	23.34	215.77	2

CHANNEL BANDWIDTH: 10MHz+20MHz 64QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20805	2505.5	20949	2519.9	22.04	0.28	22.32	170.61	2
21006	2525.6	21150	2540.0	22.11	0.28	22.39	173.38	2
21206	2545.6	21350	2560.0	22.03	0.28	22.31	170.22	2

CHANNEL BANDWIDTH: 15MHz+10MHz QPSK

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	20945	2519.5	24.03	0.28	24.31	269.77	2
21051	2530.1	21171	2542.1	23.88	0.28	24.16	260.62	2
21227	2552.7	21397	2564.7	23.86	0.28	24.14	259.42	2

CHANNEL BANDWIDTH: 15MHz+10MHz 16QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	20945	2519.5	23.19	0.28	23.47	222.33	2
21051	2530.1	21171	2542.1	23.16	0.28	23.44	220.80	2
21227	2552.7	21397	2564.7	22.87	0.28	23.15	206.54	2

CHANNEL BANDWIDTH: 15MHz+10MHz 64QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	20945	2519.5	22.14	0.28	22.42	174.58	2
21051	2530.1	21171	2542.1	22.05	0.28	22.33	171.00	2
21227	2552.7	21397	2564.7	21.85	0.28	22.13	163.31	2

CHANNEL BANDWIDTH: 15MHz+15MHz QPSK

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	20975	2522.5	24.05	0.28	24.33	271.02	2
21025	2527.5	21175	2542.5	23.96	0.28	24.24	265.46	2
21225	2547.5	21375	2562.5	23.9	0.28	24.18	261.82	2

CHANNEL BANDWIDTH: 15MHz+15MHz 16QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	20975	2522.5	23.19	0.28	23.47	222.33	2
21025	2527.5	21175	2542.5	23.21	0.28	23.49	223.36	2
21225	2547.5	21375	2562.5	22.84	0.28	23.12	205.12	2

CHANNEL BANDWIDTH: 15MHz+15MHz 64QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	20975	2522.5	22.14	0.28	22.42	174.58	2
21025	2527.5	21175	2542.5	22.08	0.28	22.36	172.19	2
21225	2547.5	21375	2562.5	21.75	0.28	22.03	159.59	2

CHANNEL BANDWIDTH: 15MHz+20MHz QPSK

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20828	2507.8	20999	2524.9	23.95	0.28	24.23	264.85	2
21003	2525.3	21174	2542.4	23.89	0.28	24.17	261.22	2
21179	2542.9	21350	2560.0	23.92	0.28	24.20	263.03	2

CHANNEL BANDWIDTH: 15MHz+20MHz 16QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20828	2507.8	20999	2524.9	22.82	0.28	23.10	204.17	2
21003	2525.3	21174	2542.4	23.03	0.28	23.31	214.29	2
21179	2542.9	21350	2560.0	22.86	0.28	23.14	206.06	2

CHANNEL BANDWIDTH: 15MHz+20MHz 64QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20828	2507.8	20999	2524.9	21.92	0.28	22.20	165.96	2
21003	2525.3	21174	2542.4	22.11	0.28	22.39	173.38	2
21179	2542.9	21350	2560.0	21.78	0.28	22.06	160.69	2

CHANNEL BANDWIDTH: 20MHz+10MHz QPSK

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	20994	2524.4	23.91	0.28	24.18	261.82	2
21051	2530.1	21195	2544.5	24.05	0.28	24.33	271.02	2
21251	2550.1	21395	2564.5	23.91	0.28	24.19	262.42	2

CHANNEL BANDWIDTH: 20MHz+10MHz 16QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	20994	2524.4	22.97	0.28	23.25	211.35	2
21051	2530.1	21195	2544.5	23.02	0.28	23.30	213.80	2
21251	2550.1	21395	2564.5	22.95	0.28	23.23	210.38	2

CHANNEL BANDWIDTH: 20MHz+10MHz 64QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	20994	2524.4	21.9	0.28	22.18	165.20	2
21051	2530.1	21195	2544.5	21.81	0.28	22.09	161.81	2
21251	2550.1	21395	2564.5	21.78	0.28	22.06	160.69	2

CHANNEL BANDWIDTH: 20MHz+15MHz QPSK

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	21021	2527.1	23.98	0.28	24.26	266.69	2
21026	2527.6	21197	2544.7	23.94	0.28	24.22	264.24	2
21201	2545.1	21372	2562.2	23.88	0.28	24.16	260.62	2

CHANNEL BANDWIDTH: 20MHz+15MHz 16QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	21021	2527.1	22.85	0.28	23.13	205.59	2
21026	2527.6	21197	2544.7	23.01	0.28	23.29	213.30	2
21201	2545.1	21372	2562.2	23	0.28	23.28	212.81	2

CHANNEL BANDWIDTH: 20MHz+15MHz 64QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	21021	2527.1	21.76	0.28	22.04	159.96	2
21026	2527.6	21197	2544.7	21.78	0.28	22.06	160.69	2
21201	2545.1	21372	2562.2	21.86	0.28	22.14	163.68	2

CHANNEL BANDWIDTH: 20MHz+20MHz QPSK

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	21048	2529.8	23.06	0.28	23.34	215.77	2
21001	2525.1	21199	2544.9	23.05	0.28	23.33	215.28	2
21206	2540.2	21350	2560.0	22.92	0.28	23.20	208.93	2

CHANNEL BANDWIDTH: 20MHz+20MHz 16QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	21048	2529.8	23.03	0.28	23.31	214.29	2
21001	2525.1	21199	2544.9	23.03	0.28	23.31	214.29	2
21206	2540.2	21350	2560.0	22.76	0.28	23.04	201.37	2

CHANNEL BANDWIDTH: 20MHz+20MHz 64QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	21048	2529.8	21.94	0.28	22.22	166.72	2
21001	2525.1	21199	2544.9	21.92	0.28	22.20	165.96	2
21206	2540.2	21350	2560.0	21.69	0.28	21.97	157.40	2

LTE BAND CA_38C

CHANNEL BANDWIDTH: 15MHz+15MHz QPSK

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
37825	2577.5	37975	2592.5	24.07	2.21	26.28	424.62	2
37925	2587.5	38075	2602.5	24.05	2.21	26.26	422.67	2
38025	2597.5	38175	2612.5	24.05	2.21	26.26	422.67	2

CHANNEL BANDWIDTH: 15MHz+15MHz 16QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
37825	2577.5	37975	2592.5	23.1	2.21	25.31	339.63	2
37925	2587.5	38075	2602.5	23.01	2.21	25.22	332.66	2
38025	2597.5	38175	2612.5	23.2	2.21	25.41	347.54	2

CHANNEL BANDWIDTH: 15MHz+15MHz 64QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
37825	2577.5	37975	2592.5	22.15	2.21	24.36	272.90	2
37925	2587.5	38075	2602.5	21.99	2.21	24.20	263.03	2
38025	2597.5	38175	2612.5	22.19	2.21	24.40	275.42	2

CHANNEL BANDWIDTH: 20MHz+20MHz QPSK

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
37850	2580.0	38048	2599.8	23.93	2.21	26.14	411.15	2
37901	2585.1	38099	2604.9	23.98	2.21	26.19	415.91	2
37952	2590.2	38150	2610	24.07	2.21	26.28	424.62	2

CHANNEL BANDWIDTH: 20MHz+20MHz 16QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
37850	2580.0	38048	2599.8	22.87	2.21	25.08	322.11	2
37901	2585.1	38099	2604.9	22.83	2.21	25.04	319.15	2
37952	2590.2	38150	2610	23.17	2.21	25.38	345.14	2

CHANNEL BANDWIDTH: 20MHz+20MHz 64QAM

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
37850	2580.0	38048	2599.8	21.95	2.21	24.16	260.62	2
37901	2585.1	38099	2604.9	21.9	2.21	24.11	257.63	2
37952	2590.2	38150	2610	22.13	2.21	24.34	271.64	2

REMARKS: ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).

3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILIITY MEASUREMENT

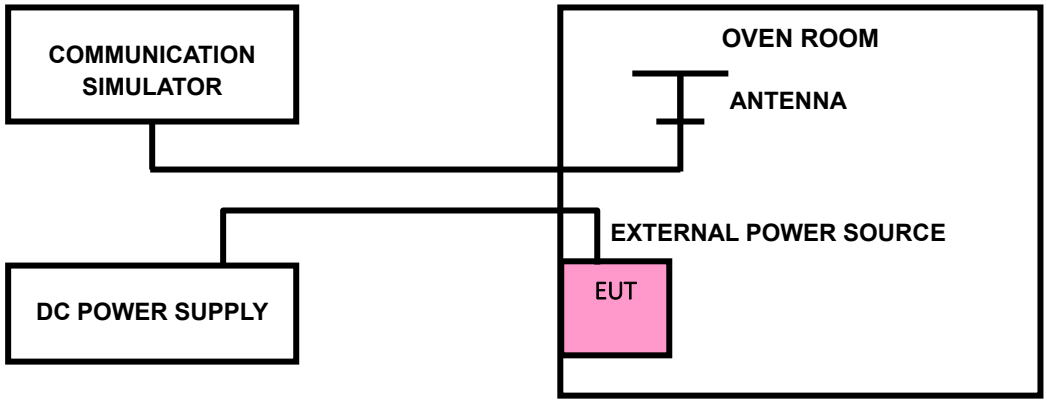
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

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 CA_7C

LTE BAND CA_7C channel and Frequency List					
BW(MHz)	**Channel/Frequcncy(MHz)**		**Lowest**	**Middle**	**Highest**
10+20	PCC	channel	20805	21006	21206
		Frequcncy	2505.5	2525.6	2545.6
	SCC	channel	20949	21150	21350
		Frequcncy	2519.9	2540	2560
15+10	PCC	channel	20825	21051	21277
		Frequcncy	2507.5	2530.1	2552.7
	SCC	channel	20945	21171	21397
		Frequcncy	2519.5	2542.1	2564.7
15+15	PCC	channel	20825	21025	21225
		Frequcncy	2507.5	2527.5	2547.5
	SCC	channel	20975	21175	21375
		Frequcncy	2522.5	2542.5	2562.5
15+20	PCC	channel	20828	21003	21179
		Frequcncy	2507.8	2525.3	2542.9
	SCC	channel	20999	21174	21350
		Frequcncy	2524.9	2542.4	2560
20+10	PCC	channel	20850	21051	21251
		Frequcncy	2510	2530.1	2550.1
	SCC	channel	20994	21195	21395
		Frequcncy	2524.4	2544.5	2564.5
20+15	PCC	channel	20850	21026	21201
		Frequcncy	2510	2527.6	2545.1
	SCC	channel	21021	21197	21372
		Frequcncy	2527.1	2544.7	2562.2
20+20	PCC	channel	20850	21001	21152
		Frequcncy	2510	2525.1	2540.2
	SCC	channel	21048	21199	21350
		Frequcncy	2529.8	2544.9	2560

LTE BAND CA_38C

LTE BAND CA_38C channel and Frequency List					
BW(MHz)	**Channel/Frequcncy(MHz)**		**Lowest**	**Middle**	**Highest**
15+15	PCC	channel	37825	37925	38025
		Frequcncy	2577.5	2587.5	2597.5
	SCC	channel	37975	38075	38175
		Frequcncy	2592.5	2602.5	2612.5
20+20	PCC	channel	37850	37901	37952
		Frequcncy	2580.0	2585.1	2590.2
	SCC	channel	38048	38099	38150
		Frequcncy	2599.8	2604.9	2610

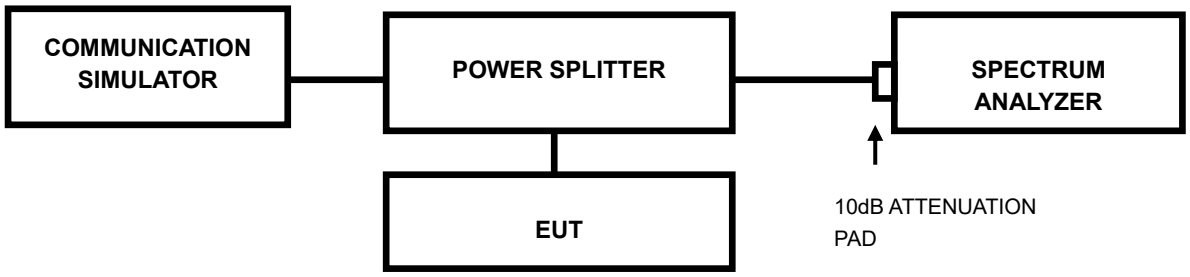
Note: VL = Low voltage(3.6V); VN/NV = Normal voltage(3.7V); VH = High voltage(4.2V);
NT = Normal temperature (25℃)

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

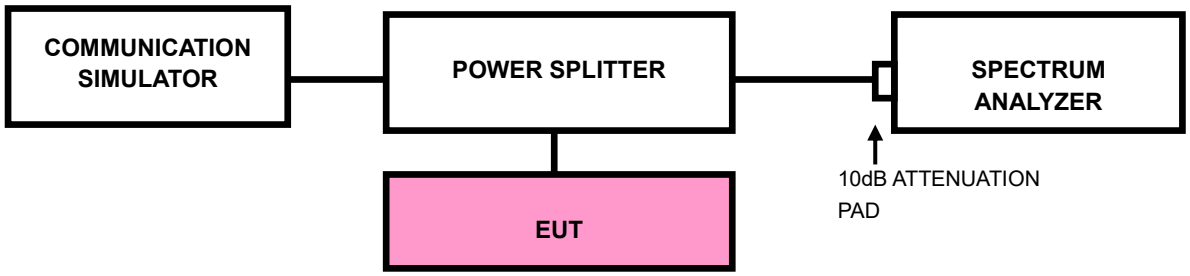
Please Refer to Appendix Of this test report.

3.4 BAND EDGE MEASUREMENT

3.4.1 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.

3.4.2 TEST SETUP



3.4.3 TEST PROCEDURES

a) Connect the transmitter to the spectrum analyzer via coaxial cable while ensuring proper impedance matching.

b) Tune the analyzer to the nominal center frequency of the emission bandwidth (EBW).

c) Set the resolution bandwidth (RBW) ≧ 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.

d) Beyond the 1MHz band from the band edge, RBW=1MHz was used.

e) Set the video bandwidth (VBW) to ≧3 x RBW.

f) Select the average power (RMS) display detector.

g) Set the number of measurement points to ≧ 1001.

h) Use auto-coupled sweep time.

i) Perform the measurement over an interval of time when the transmission is continuous and at its maximum power level.

j) The RF fundamental frequency should be excluded against the limit line in the operating frequency band and use RBW is 10KHz or 100KHz.

k) Record the max trace plot into the test report.

3.4.4 TEST RESULTS

Please Refer to Appendix Of this test report.

3.5 CONDUCTED SPURIOUS EMISSIONS

3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

For: LTE Band7C/Band38C

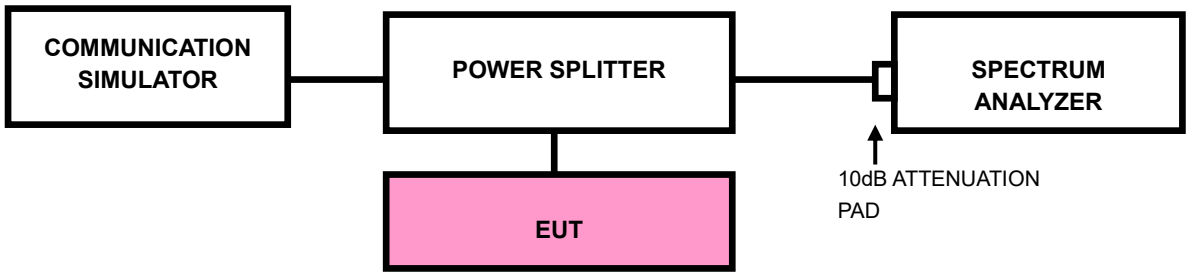
The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 55 +10 log10(P) dB. The limit of emission is equal to -25dBm.

3.5.2 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 9kHz up to a frequency including its 10th harmonic. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

3.5.3 TEST SETUP



3.5.4 TEST RESULTS

NOTE： The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

Please Refer to Appendix Of this test report.

3.6 RADIATED EMISSION MEASUREMENT

3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

For: LTE Band7C/ Band38C

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.

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3.6.2 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.

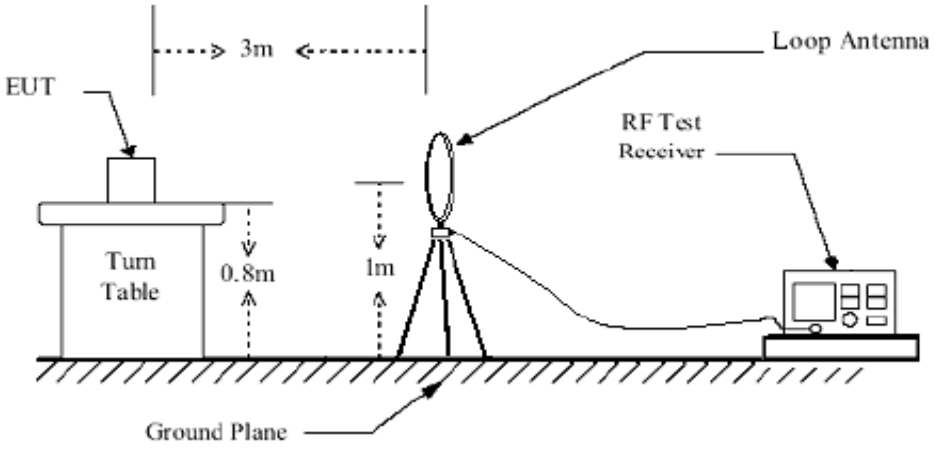
NOTE: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

3.6.3 DEVIATION FROM TEST STANDARD

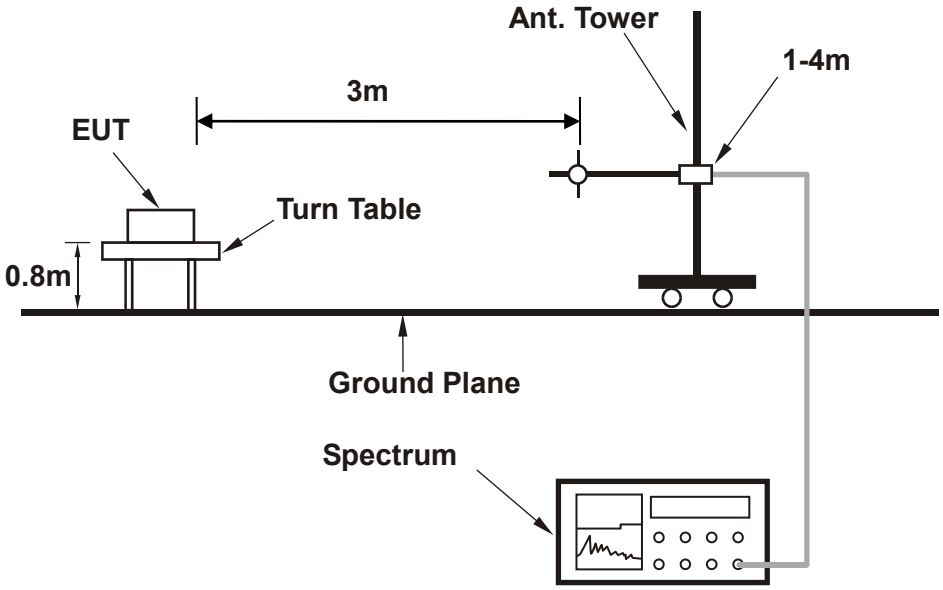
No deviation

3.6.4 TEST SETUP

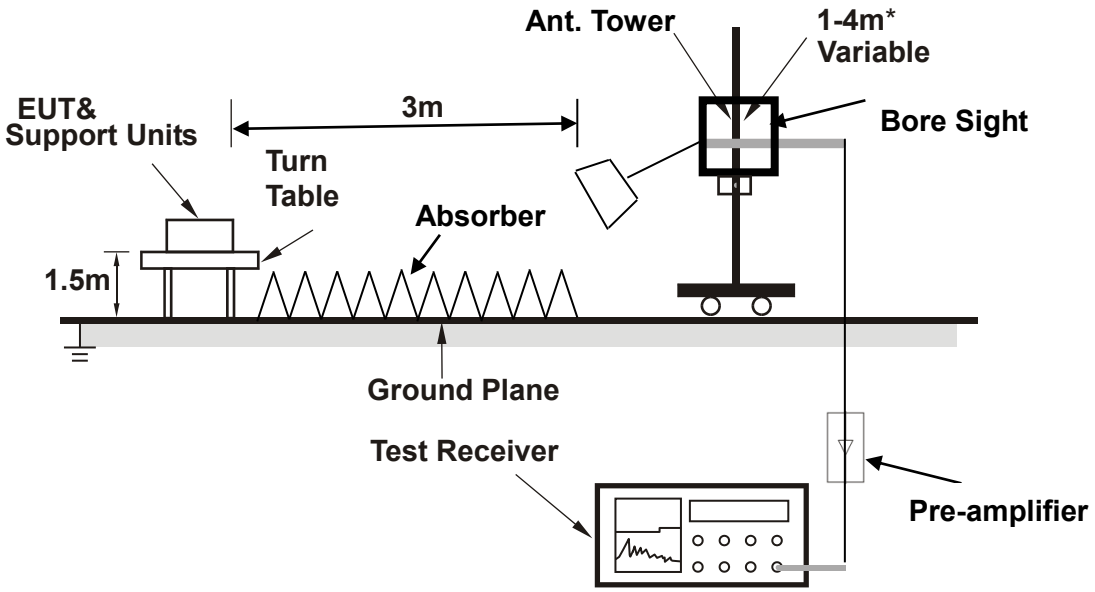
< Frequency Range below 30MHz >



< Frequency Range 30MHz~1GHz >



<Frequency Range above 1GHz>



Note: Above 1G is a directional antenna depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

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

3.6.5 TEST RESULTS

NOTE： The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

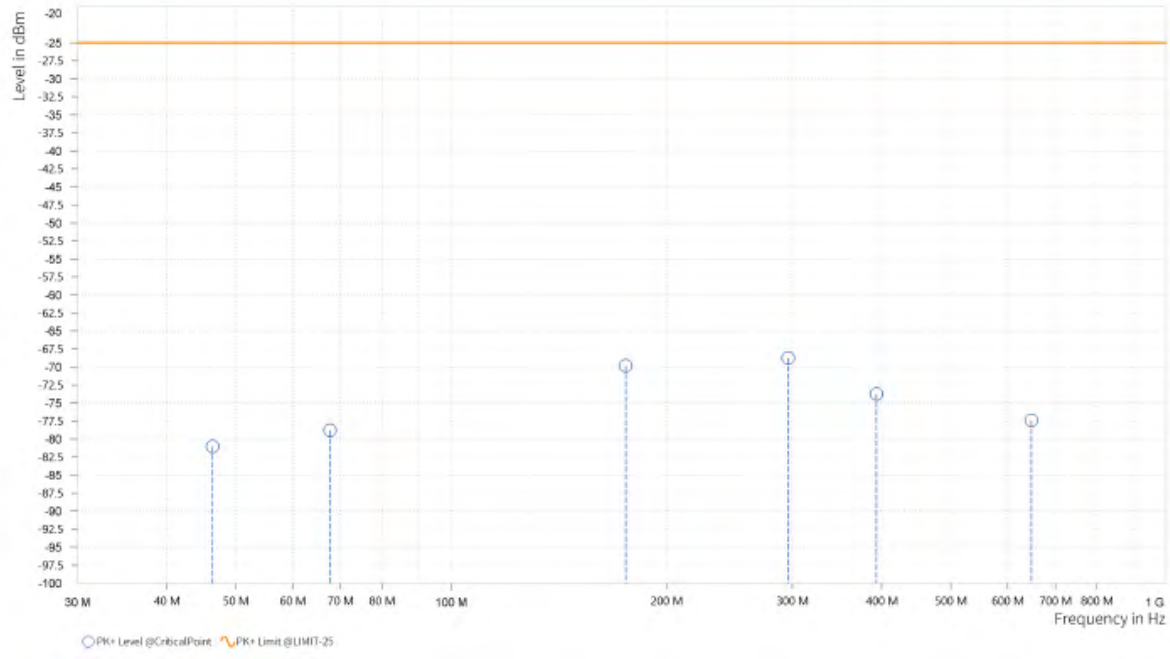
BELOW 1GHz WORST-CASE DATA

30 MHz – 1GHz data:

LTE Band CA_7C (Ant4)
CHANNEL BANDWIDTH: (20+20) MHz / QPSK

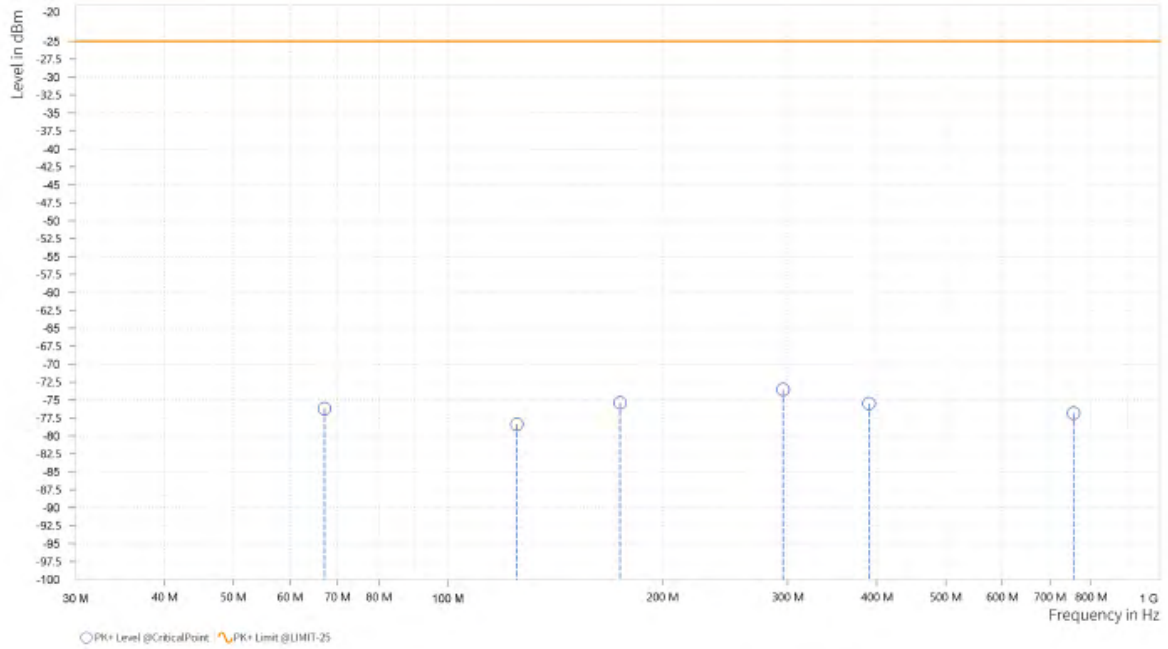
MODE	TX channel PCC 21001 TX channel SCC 21199	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	46.350	-81.03	-25.00	56.03	-5.52	H	354.9	2
1	67.700	-78.77	-25.00	53.77	-7.88	H	176.4	2
1	175.450	-69.82	-25.00	44.82	-11.16	H	176.4	2
1	295.950	-68.73	-25.00	43.73	-4.84	H	335.4	1
1	393.600	-73.75	-25.00	48.75	-2.74	H	183.6	1
2	648.092	-77.41	-25.00	52.41	0.82	H	1	2



MODE	TX channel PCC 21001 TX channel SCC 21199	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	67.100	-76.21	-25.00	51.21	-6.54	V	25.8	2
1	125.000	-78.37	-25.00	53.37	-9.65	V	355.5	2
1	174.550	-75.39	-25.00	50.39	-10.56	V	336.6	1
1	295.500	-73.55	-25.00	48.55	-6.22	V	176.4	2
1	390.000	-75.50	-25.00	50.50	-2.84	V	183.7	1
2	755.846	-76.85	-25.00	51.85	2.13	V	102.2	2



ABOVE 1GHz

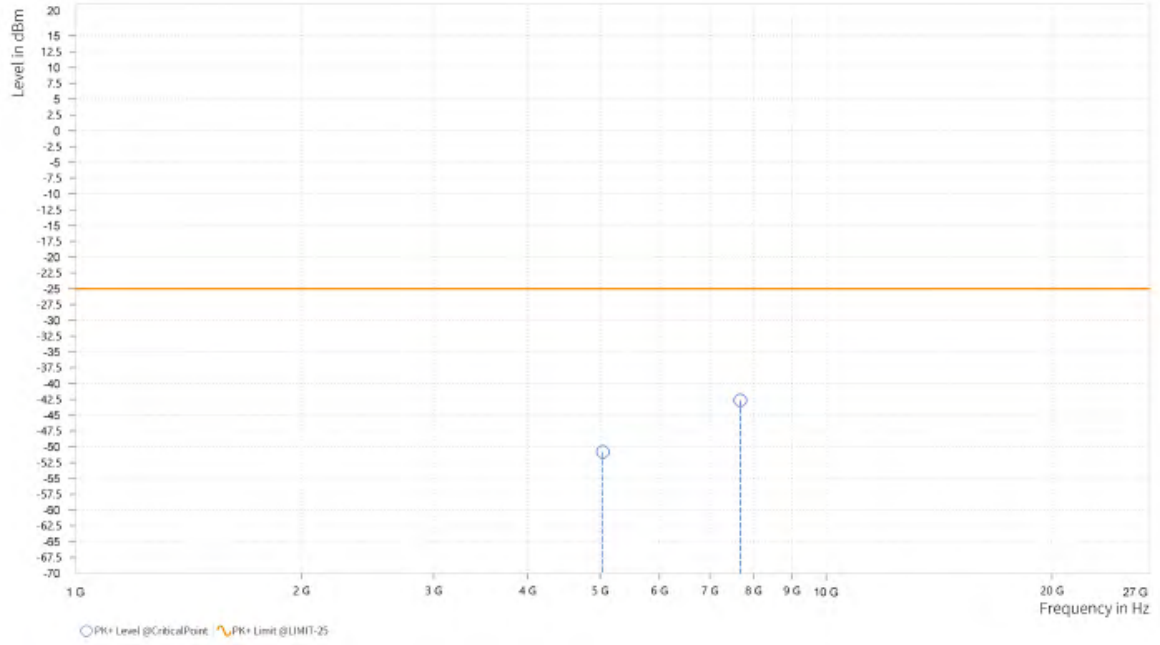
Note: For higher frequency, the emission is too low to be detected.

LTE Band CA _7C(Ant4)

CHANNEL BANDWIDTH: 20MHz + 20MHz

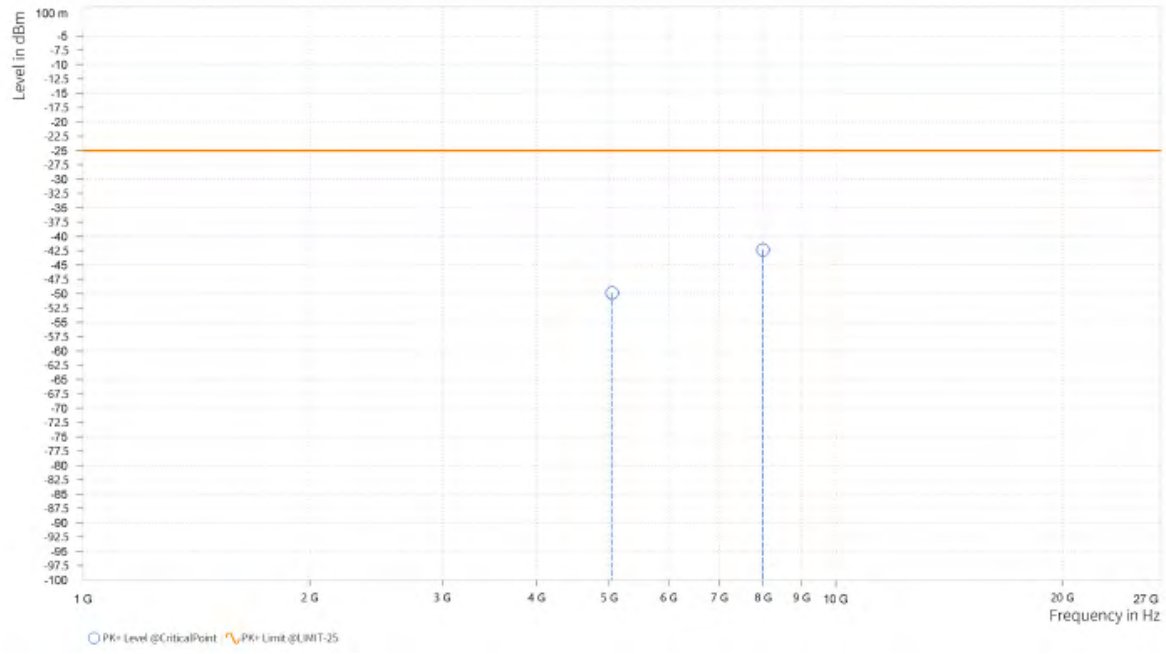
MODE	TX channel PCC 20850 TX channel SCC 21048	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,041.500	-50.82	-25.00	25.82	26.83	H	359	2
5	7,687.000	-42.66	-25.00	17.66	34.00	H	0.9	2



MODE	TX channel PCC 20850	FREQUENCY RANGE	Above 1000MHz
	TX channel SCC 21048		
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

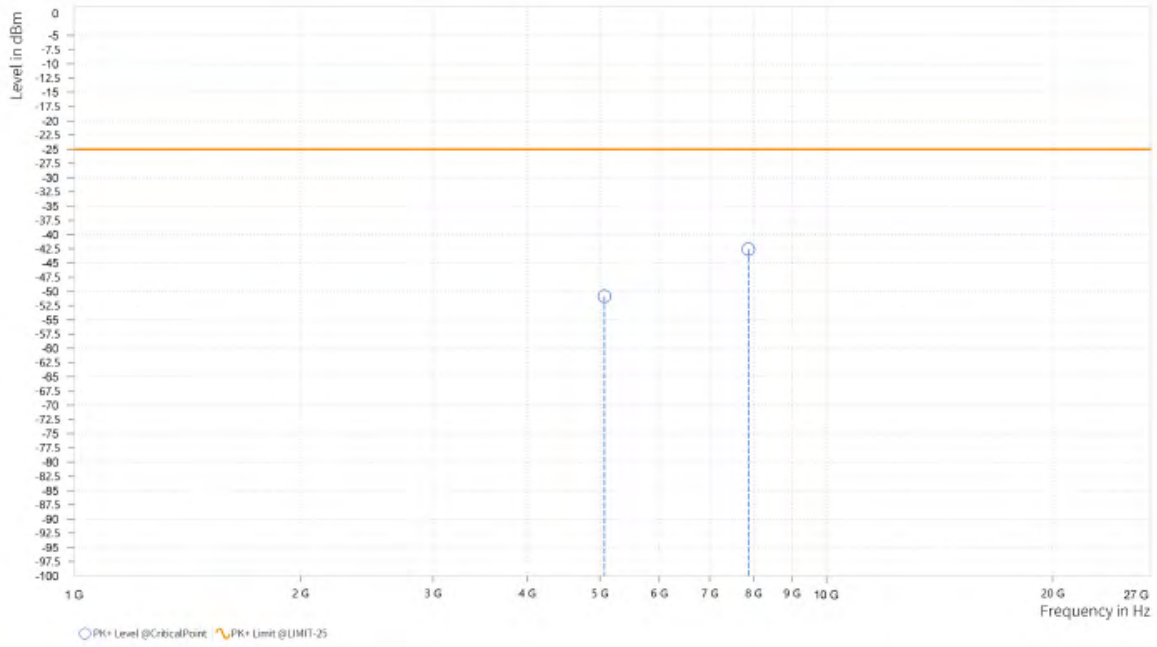
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,042.000	-49.88	-25.00	24.88	26.66	V	1	2
5	7,998.000	-42.38	-25.00	17.38	34.67	V	1	1



CHANNEL BANDWIDTH: 20MHz + 20MHz

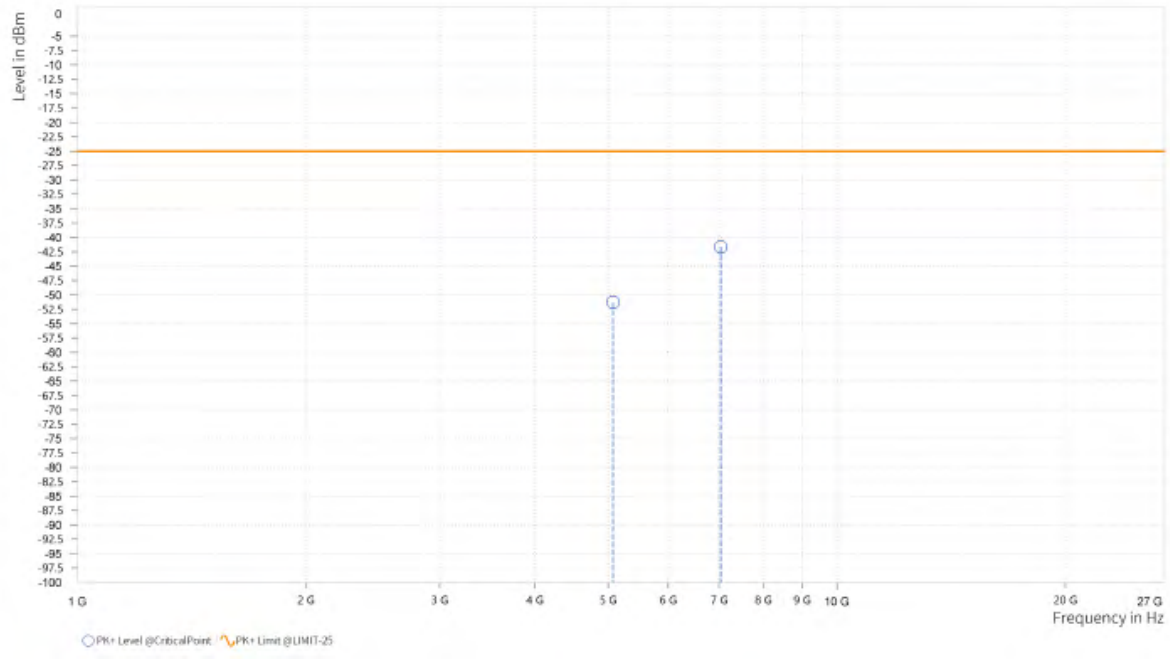
MODE	TX channel PCC 21001 TX channel SCC 21199	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,071.500	-50.88	-25.00	25.88	26.96	H	359	2
5	7,877.500	-42.61	-25.00	17.61	34.04	H	87.8	2



MODE	TX channel PCC 21001 TX channel SCC 21199	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

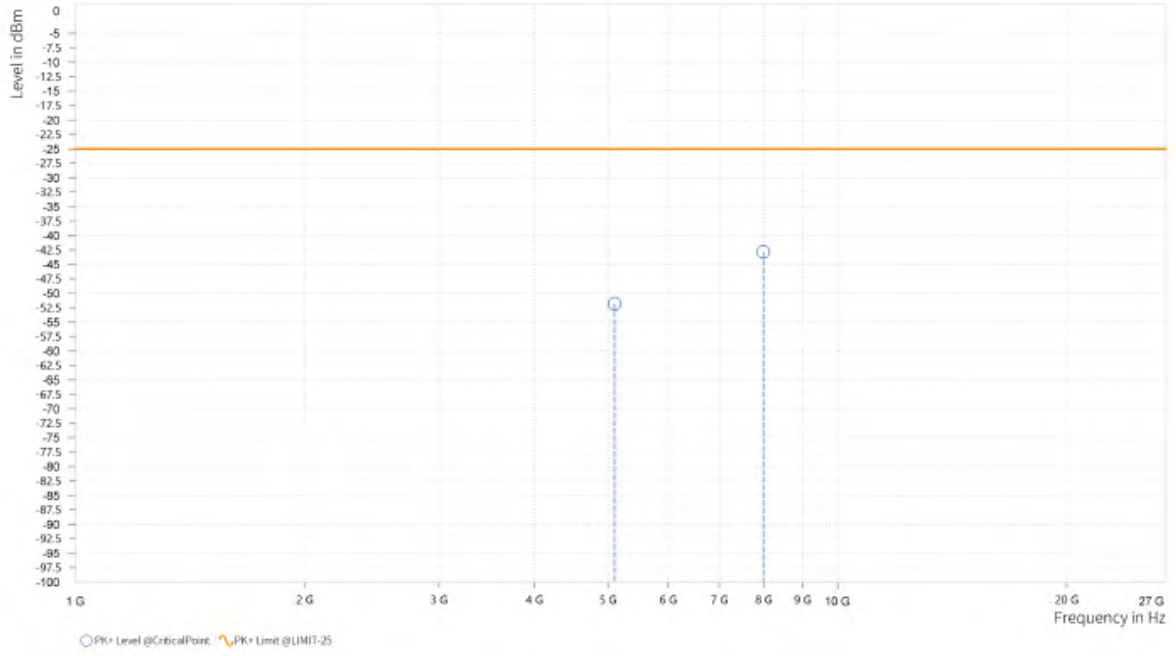
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,072.500	-51.29	-25.00	26.29	26.93	V	359	2
5	7,033.000	-41.69	-25.00	16.69	33.00	V	359	2



CHANNEL BANDWIDTH: 20MHz + 20MHz

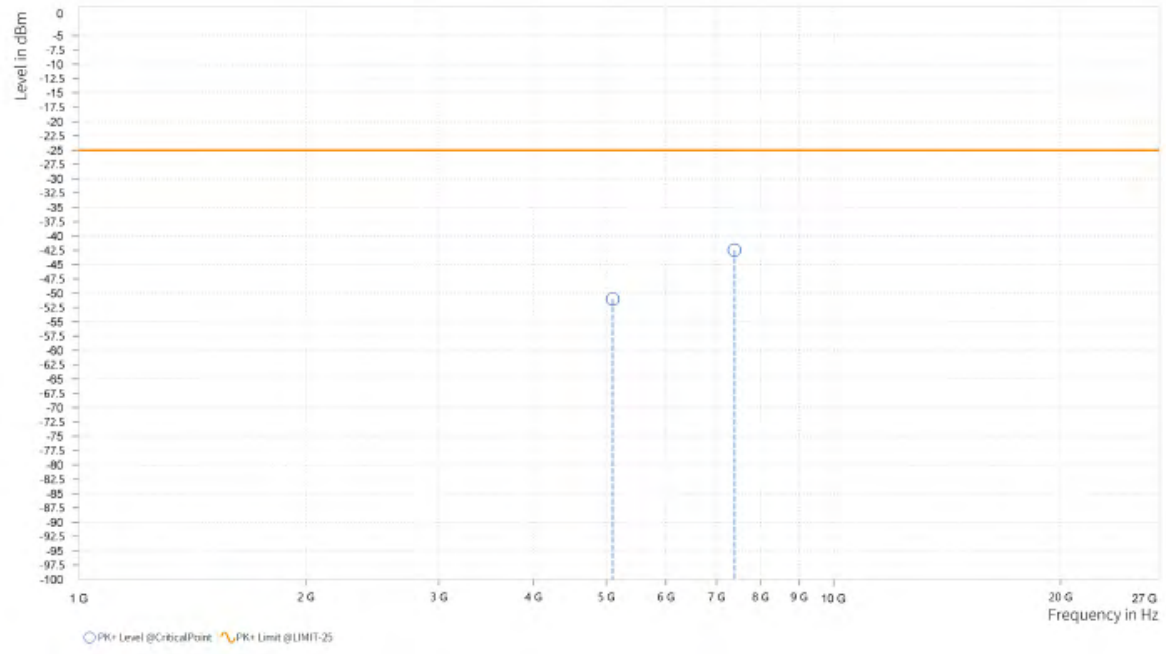
MODE	TX channel PCC 21152 TX channel SCC 21350	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,102.000	-51.84	-25.00	26.84	27.19	H	1	2
5	7,994.000	-42.82	-25.00	17.82	34.44	H	359	2



MODE	TX channel PCC 21152 TX channel SCC 21350	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,102.000	-51.03	-25.00	26.03	27.29	V	0.9	2
5	7,392.000	-42.49	-25.00	17.49	33.72	V	0.9	2

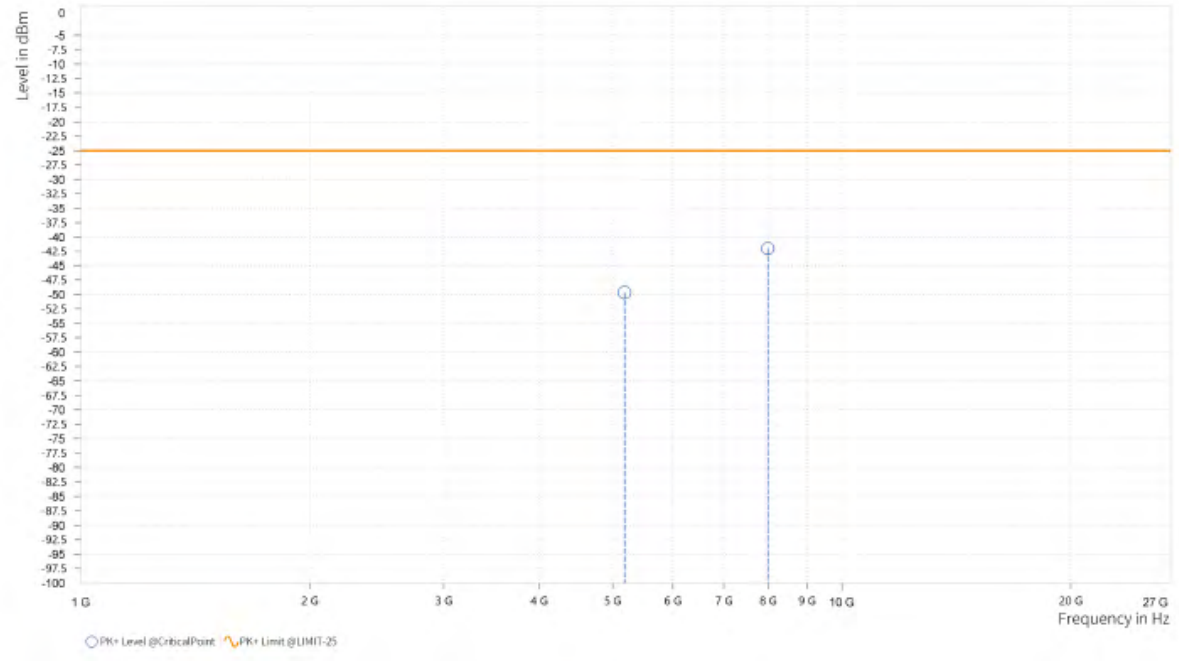


LTE CA _38C (Ant0)

CHANNEL BANDWIDTH: 20MHz + 20MHz

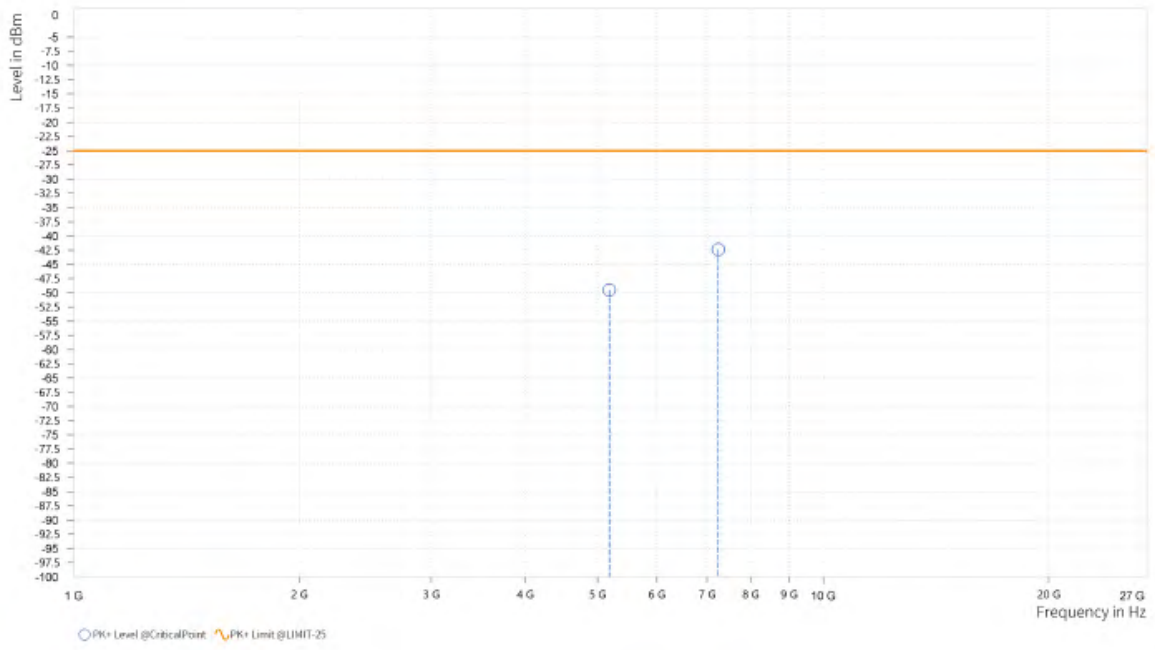
MODE	TX channel PCC 37850 TX channel SCC 38048	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,181.500	-49.70	-25.00	24.70	27.57	H	175.1	2
5	7,995.000	-42.01	-25.00	17.01	34.44	H	359	1



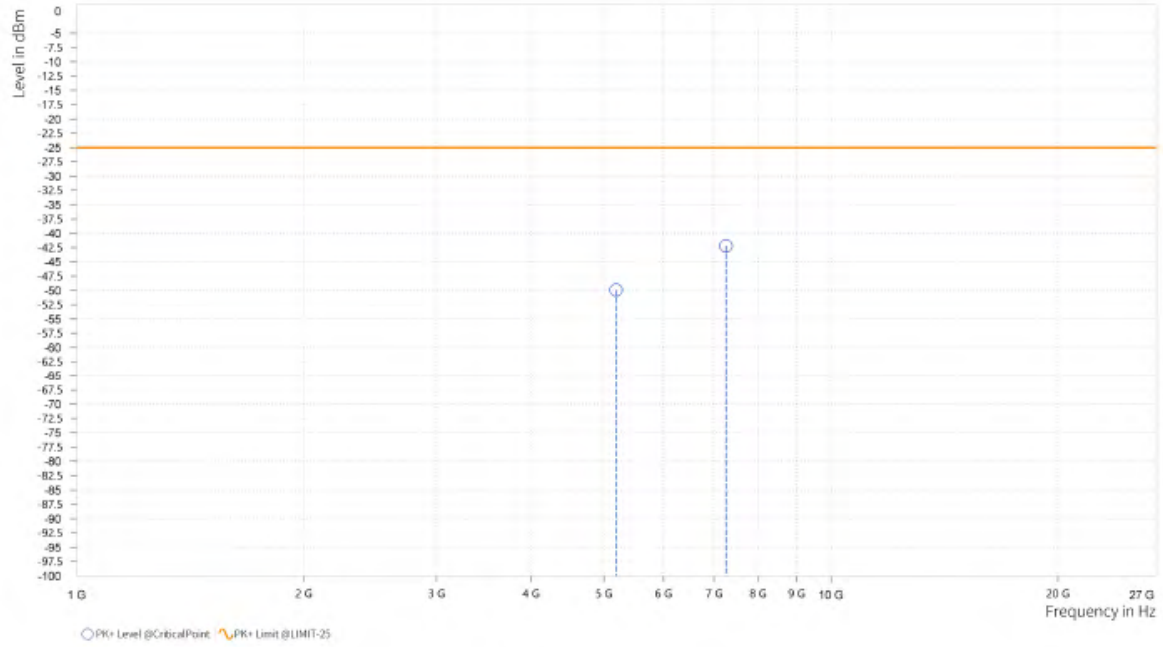
MODE	TX channel PCC 37850	FREQUENCY RANGE	Above 1000MHz
	TX channel SCC 38048		
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,182.000	-49.51	-25.00	24.51	27.37	V	359.1	1
5	7,243.000	-42.39	-25.00	17.39	34.36	V	0.9	2



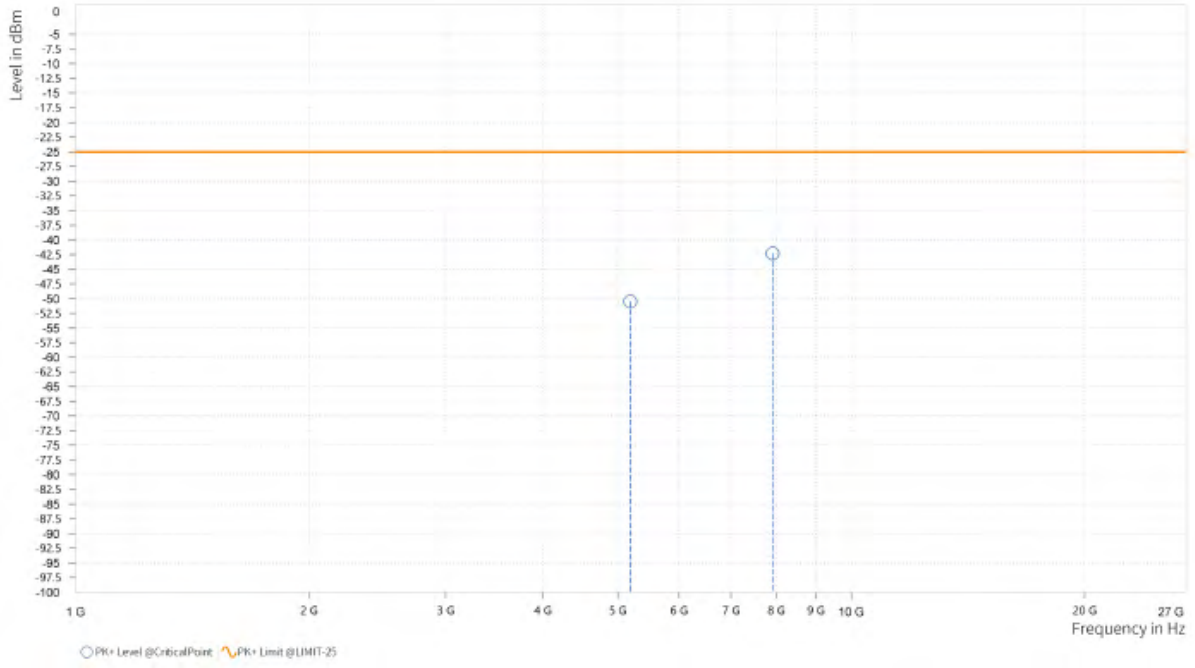
MODE	TX channel PCC 37901 TX channel SCC 38099	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,191.500	-49.94	-25.00	24.94	27.56	H	173.9	2
5	7,260.500	-42.21	-25.00	17.21	34.08	H	273.3	1



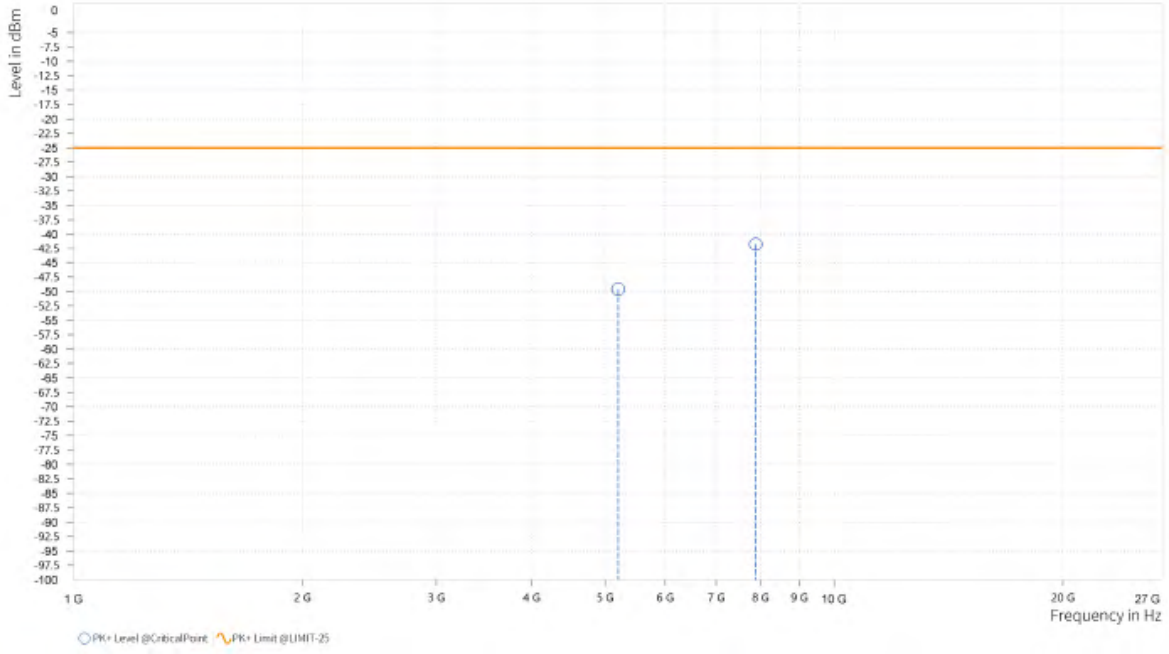
MODE	TX channel PCC 37901	FREQUENCY RANGE	Above 1000MHz
	TX channel SCC 38099		
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,191.500	-50.48	-25.00	25.48	27.31	V	173.9	2
5	7,919.500	-42.28	-25.00	17.28	34.27	V	359	2



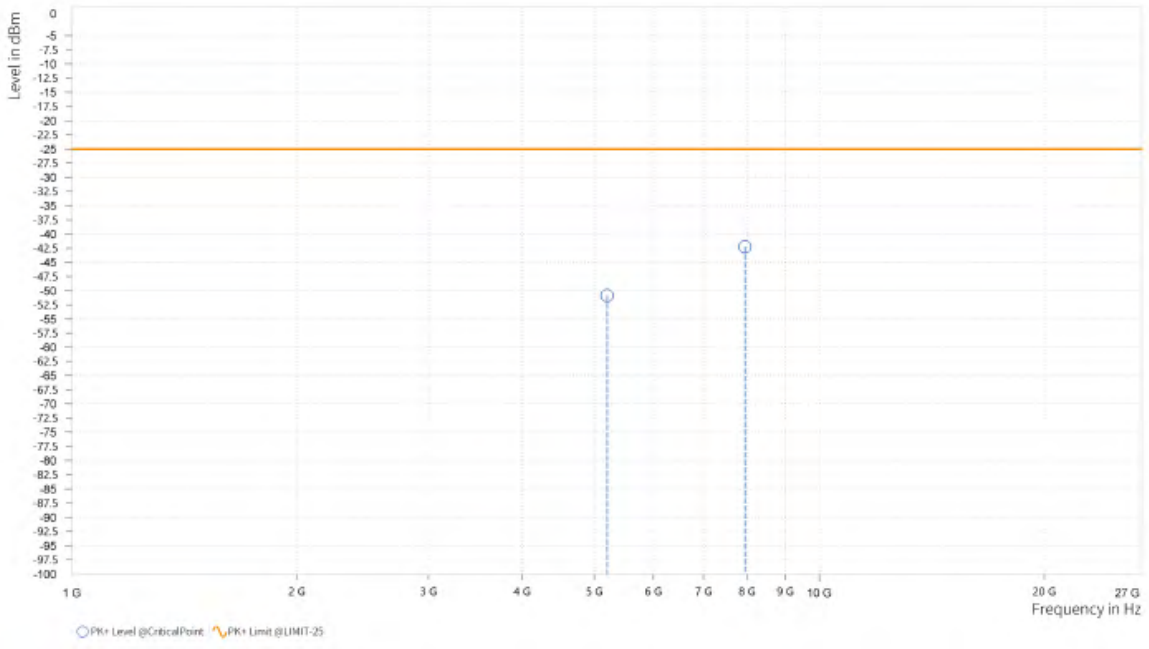
MODE	TX channel PCC 37952 TX channel SCC 38150	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,200.000	-49.60	-25.00	24.60	27.56	H	184.8	1
5	7,889.000	-41.74	-25.00	16.74	34.08	H	359.1	1



MODE	TX channel PCC 37952 TX channel SCC 38150	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,200.000	-50.88	-25.00	25.88	27.26	V	196.9	1
5	7,954.000	-42.24	-25.00	17.24	34.45	V	1	1

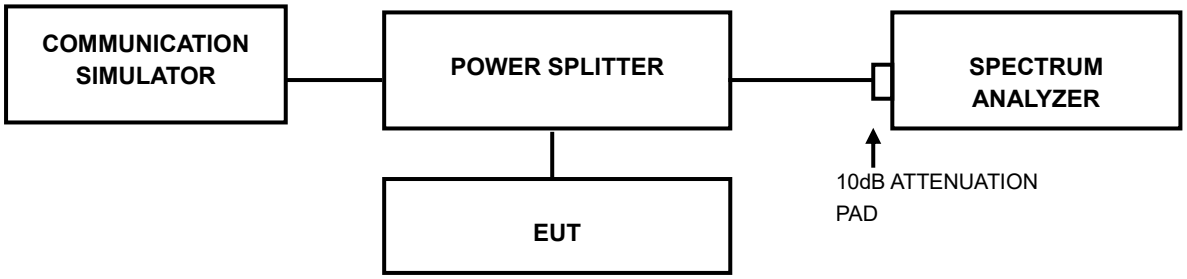


3.7 PEAK TO AVERAGE RATIO

3.7.1 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

3.7.2 TEST SETUP



3.7.3 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%.

3.7.4 TEST RESULTS

Please Refer to Appendix Of this test report.

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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Tel: +86-755-88696566
Fax: +86-755-88696577

Email: customerservice.sw@cn.bureauveritas.com
Web Site: www.adt.com.tw

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

5 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.

6 APPENDIX

LTE BAND CA _7C

26DB BANDWIDTH AND OCCUPIED BANDWIDTH

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
7-7	10MHz-20MHz	QPSK-QPSK	20805-20949	50RB#0-100RB#0	28.128	30.14	PASS
7-7	10MHz-20MHz	QPSK-QPSK	21006-21150	50RB#0-100RB#0	28.125	30.14	PASS
7-7	10MHz-20MHz	QPSK-QPSK	21206-21350	50RB#0-100RB#0	28.109	30.14	PASS
7-7	10MHz-20MHz	16QAM-16QAM	20805-20949	50RB#0-100RB#0	28.101	30.16	PASS
7-7	10MHz-20MHz	16QAM-16QAM	21006-21150	50RB#0-100RB#0	28.110	30.13	PASS
7-7	10MHz-20MHz	16QAM-16QAM	21206-21350	50RB#0-100RB#0	28.090	30.11	PASS
7-7	10MHz-20MHz	64QAM-64QAM	20805-20949	50RB#0-100RB#0	28.114	30.15	PASS
7-7	10MHz-20MHz	64QAM-64QAM	21006-21150	50RB#0-100RB#0	28.132	30.12	PASS
7-7	10MHz-20MHz	64QAM-64QAM	21206-21350	50RB#0-100RB#0	28.101	30.13	PASS
7-7	15MHz-10MHz	QPSK-QPSK	20825-20945	75RB#0-50RB#0	23.557	25.53	PASS
7-7	15MHz-10MHz	QPSK-QPSK	21051-21171	75RB#0-50RB#0	23.593	25.56	PASS
7-7	15MHz-10MHz	QPSK-QPSK	21277-21397	75RB#0-50RB#0	23.577	25.57	PASS
7-7	15MHz-10MHz	16QAM-16QAM	20825-20945	75RB#0-50RB#0	23.561	25.54	PASS
7-7	15MHz-10MHz	16QAM-16QAM	21051-21171	75RB#0-50RB#0	23.590	25.54	PASS
7-7	15MHz-10MHz	16QAM-16QAM	21277-21397	75RB#0-50RB#0	23.559	25.56	PASS
7-7	15MHz-10MHz	64QAM-64QAM	20825-20945	75RB#0-50RB#0	23.554	25.51	PASS
7-7	15MHz-10MHz	64QAM-64QAM	21051-21171	75RB#0-50RB#0	23.594	25.57	PASS
7-7	15MHz-10MHz	64QAM-64QAM	21277-21397	75RB#0-50RB#0	23.567	25.56	PASS
7-7	15MHz-15MHz	QPSK-QPSK	20825-20975	75RB#0-75RB#0	28.693	30.84	PASS
7-7	15MHz-15MHz	QPSK-QPSK	21025-21175	75RB#0-75RB#0	28.712	30.84	PASS
7-7	15MHz-15MHz	QPSK-QPSK	21225-21375	75RB#0-75RB#0	28.716	30.83	PASS
7-7	15MHz-15MHz	16QAM-16QAM	20825-20975	75RB#0-75RB#0	28.677	30.82	PASS
7-7	15MHz-15MHz	16QAM-16QAM	21025-21175	75RB#0-75RB#0	28.711	30.81	PASS
7-7	15MHz-15MHz	16QAM-16QAM	21225-21375	75RB#0-75RB#0	28.699	30.81	PASS
7-7	15MHz-15MHz	64QAM-64QAM	20825-20975	75RB#0-75RB#0	28.679	30.83	PASS
7-7	15MHz-15MHz	64QAM-64QAM	21025-21175	75RB#0-75RB#0	28.693	30.83	PASS
7-7	15MHz-15MHz	64QAM-64QAM	21225-21375	75RB#0-75RB#0	28.684	30.82	PASS
7-7	15MHz-20MHz	QPSK-QPSK	20825-20945	75RB#0-100RB#0	32.949	35.18	PASS
7-7	15MHz-20MHz	QPSK-QPSK	21051-21171	75RB#0-100RB#0	32.987	35.13	PASS
7-7	15MHz-20MHz	QPSK-QPSK	21277-21397	75RB#0-100RB#0	32.974	35.21	PASS
7-7	15MHz-20MHz	16QAM-16QAM	20825-20945	75RB#0-100RB#0	32.930	35.16	PASS
7-7	15MHz-20MHz	16QAM-16QAM	21051-21171	75RB#0-100RB#0	32.950	35.11	PASS
7-7	15MHz-20MHz	16QAM-16QAM	21277-21397	75RB#0-100RB#0	32.990	35.22	PASS
7-7	15MHz-20MHz	64QAM-64QAM	20825-20945	75RB#0-100RB#0	32.926	35.17	PASS
7-7	15MHz-20MHz	64QAM-64QAM	21051-21171	75RB#0-100RB#0	32.961	35.15	PASS
7-7	15MHz-20MHz	64QAM-64QAM	21277-21397	75RB#0-100RB#0	32.988	35.23	PASS
7-7	20MHz-10MHz	QPSK-QPSK	20850-20994	100RB#0-50RB#0	28.101	30.15	PASS
7-7	20MHz-10MHz	QPSK-QPSK	21051-21195	100RB#0-50RB#0	28.156	30.20	PASS

7-7	20MHz-10MHz	QPSK-QPSK	21251-21395	100RB#0-50RB#0	28.132	30.18	PASS
7-7	20MHz-10MHz	16QAM-16QAM	20850-20994	100RB#0-50RB#0	28.128	30.15	PASS
7-7	20MHz-10MHz	16QAM-16QAM	21051-21195	100RB#0-50RB#0	28.170	30.19	PASS
7-7	20MHz-10MHz	16QAM-16QAM	21251-21395	100RB#0-50RB#0	28.137	30.18	PASS
7-7	20MHz-10MHz	64QAM-64QAM	20850-20994	100RB#0-50RB#0	28.118	30.16	PASS
7-7	20MHz-10MHz	64QAM-64QAM	21051-21195	100RB#0-50RB#0	28.165	30.17	PASS
7-7	20MHz-10MHz	64QAM-64QAM	21251-21395	100RB#0-50RB#0	28.150	30.18	PASS
7-7	20MHz-15MHz	QPSK-QPSK	20850-21021	100RB#0-75RB#0	32.952	35.19	PASS
7-7	20MHz-15MHz	QPSK-QPSK	21026-21197	100RB#0-75RB#0	32.998	35.24	PASS
7-7	20MHz-15MHz	QPSK-QPSK	21201-21372	100RB#0-75RB#0	32.982	35.23	PASS
7-7	20MHz-15MHz	16QAM-16QAM	20850-21021	100RB#0-75RB#0	32.927	35.15	PASS
7-7	20MHz-15MHz	16QAM-16QAM	21026-21197	100RB#0-75RB#0	32.977	35.20	PASS
7-7	20MHz-15MHz	16QAM-16QAM	21201-21372	100RB#0-75RB#0	32.962	35.19	PASS
7-7	20MHz-15MHz	64QAM-64QAM	20850-21021	100RB#0-75RB#0	32.937	35.16	PASS
7-7	20MHz-15MHz	64QAM-64QAM	21026-21197	100RB#0-75RB#0	32.987	35.20	PASS
7-7	20MHz-15MHz	64QAM-64QAM	21201-21372	100RB#0-75RB#0	32.976	35.21	PASS
7-7	20MHz-20MHz	QPSK-QPSK	20850-21048	100RB#0-100RB#0	37.805	40.16	PASS
7-7	20MHz-20MHz	QPSK-QPSK	21001-21199	100RB#0-100RB#0	37.844	40.14	PASS
7-7	20MHz-20MHz	QPSK-QPSK	21152-21350	100RB#0-100RB#0	37.821	40.15	PASS
7-7	20MHz-20MHz	16QAM-16QAM	20850-21048	100RB#0-100RB#0	37.791	40.13	PASS
7-7	20MHz-20MHz	16QAM-16QAM	21001-21199	100RB#0-100RB#0	37.819	40.15	PASS
7-7	20MHz-20MHz	16QAM-16QAM	21152-21350	100RB#0-100RB#0	37.806	40.14	PASS
7-7	20MHz-20MHz	64QAM-64QAM	20850-21048	100RB#0-100RB#0	37.789	40.14	PASS
7-7	20MHz-20MHz	64QAM-64QAM	21001-21199	100RB#0-100RB#0	37.822	40.15	PASS
7-7	20MHz-20MHz	64QAM-64QAM	21152-21350	100RB#0-100RB#0	37.820	40.16	PASS

Test Graphs

7-7-10MHz-20MHz-QPSK-QPSK-20805-20949-50RB#0-100RB#0

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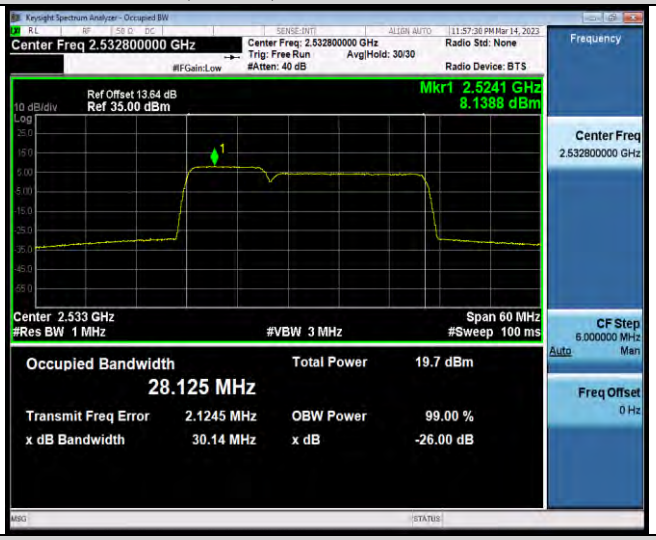
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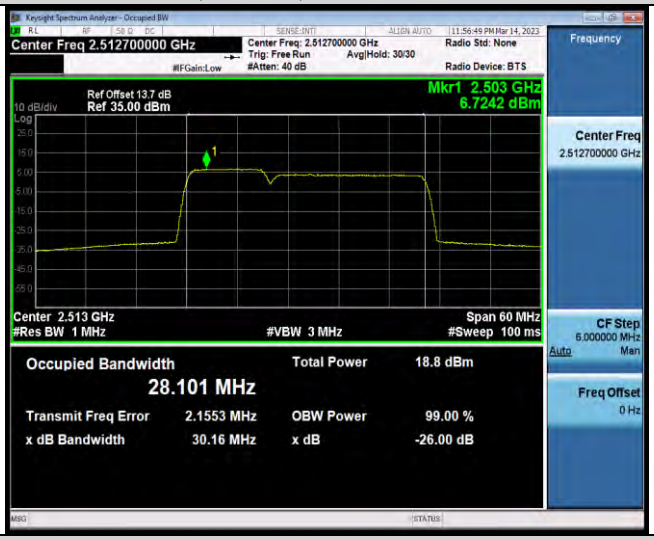

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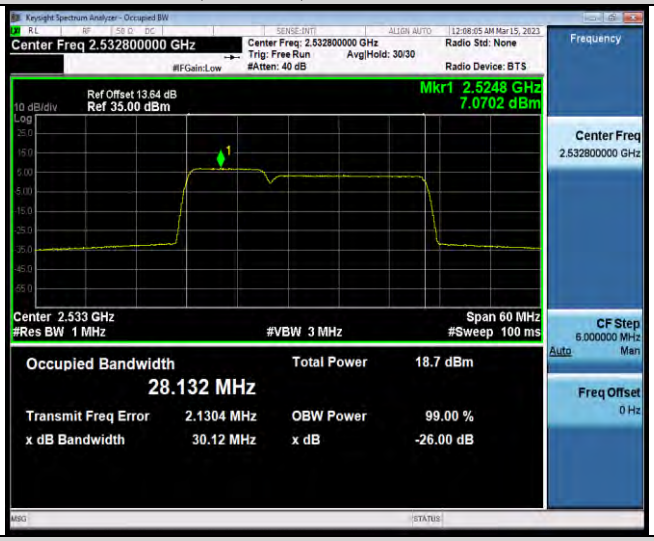
7-7-10MHz-20MHz-64QAM-64QAM-20805-20949-50RB#0-100RB#0

7-7-10MHz-20MHz-64QAM-64QAM-21006-21150-50RB#0-100RB#0



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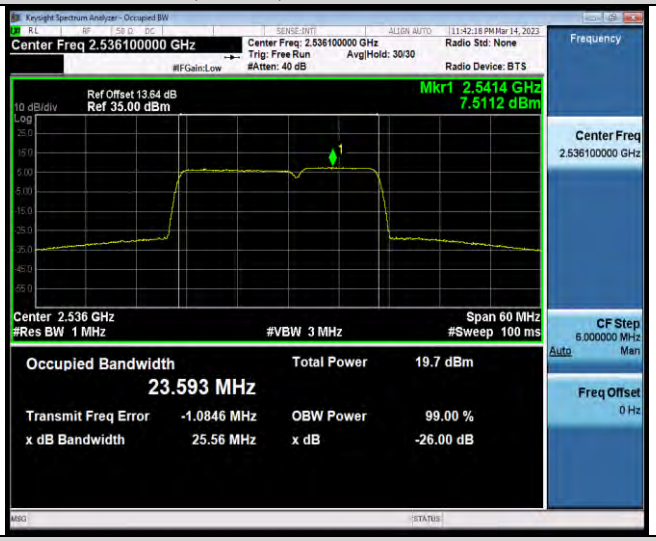

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7-7-15MHz-10MHz-16QAM-16QAM-20825-20945-75RB#0-50RB#0

7-7-15MHz-10MHz-16QAM-16QAM-21051-21171-75RB#0-50RB#0

7-7-15MHz-10MHz-16QAM-16QAM-21277-21397-75RB#0-50RB#0

7-7-15MHz-10MHz-64QAM-64QAM-20825-20945-75RB#0-50RB#0

7-7-15MHz-10MHz-64QAM-64QAM-21051-21171-75RB#0-50RB#0

7-7-15MHz-10MHz-64QAM-64QAM-21277-21397-75RB#0-50RB#0

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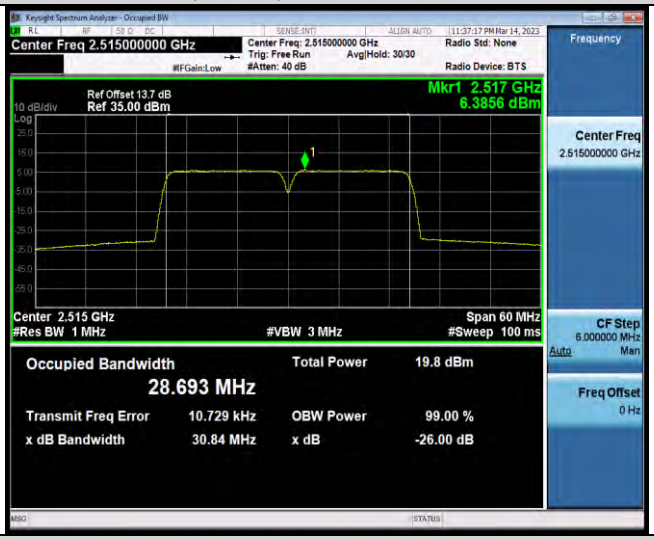

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7-7-15MHz-15MHz-QPSK-QPSK-21225-21375-75RB#0-75RB#0

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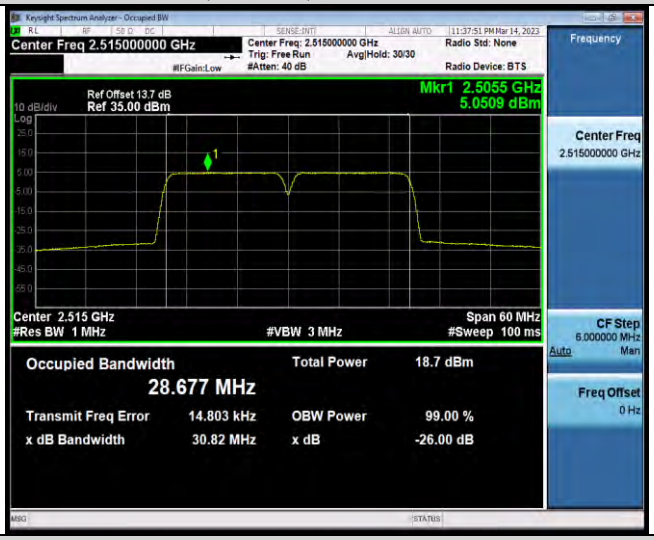

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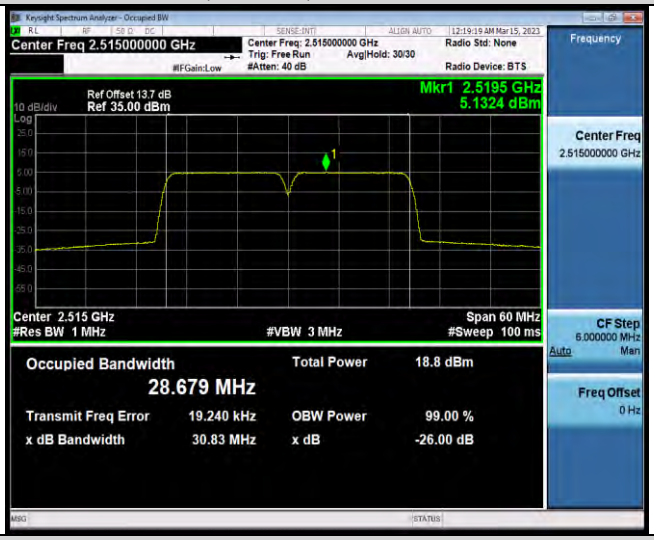

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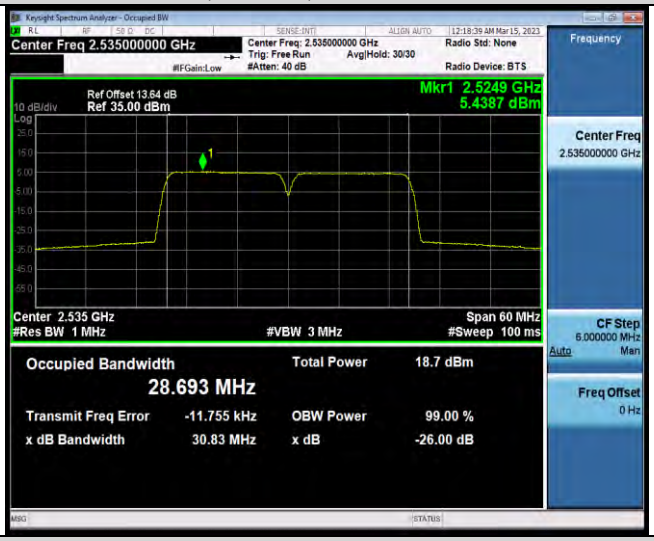

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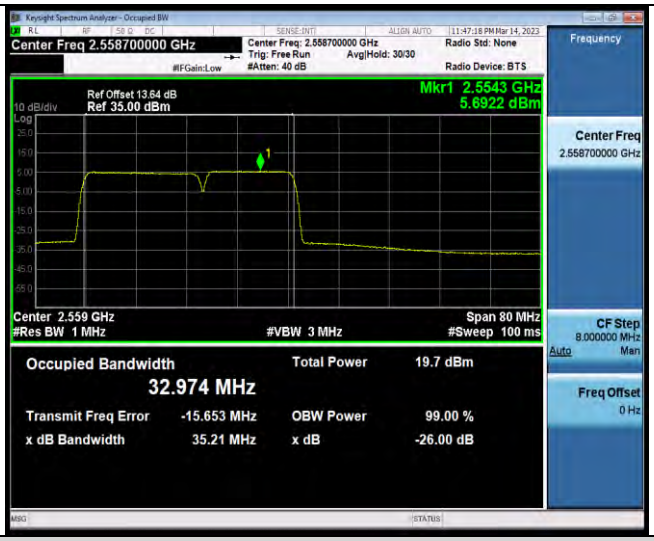
7-7-15MHz-20MHz-QPSK-QPSK-20825-20945-75RB#0-100RB#0

7-7-15MHz-20MHz-QPSK-QPSK-21051-21171-75RB#0-100RB#0

7-7-15MHz-20MHz-QPSK-QPSK-21277-21397-75RB#0-100RB#0



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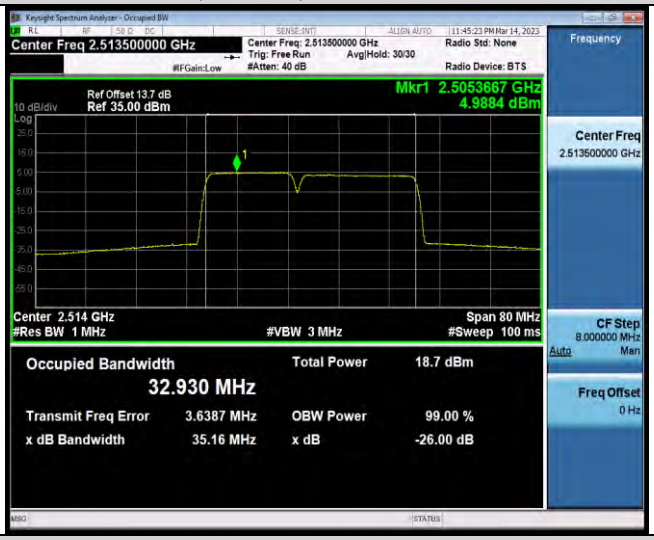

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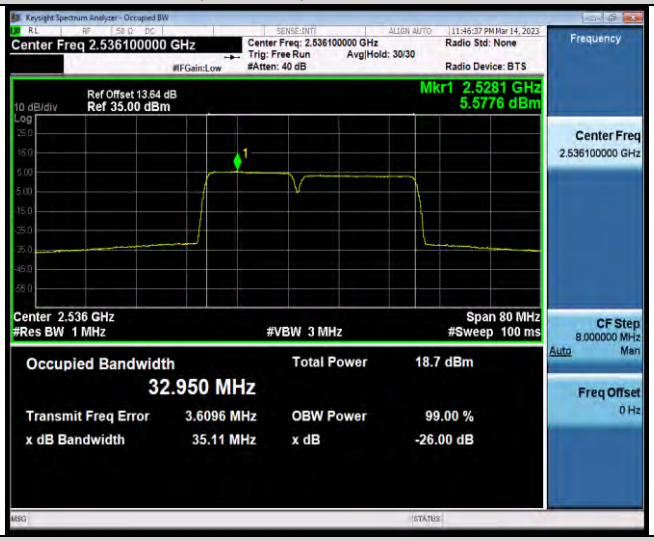

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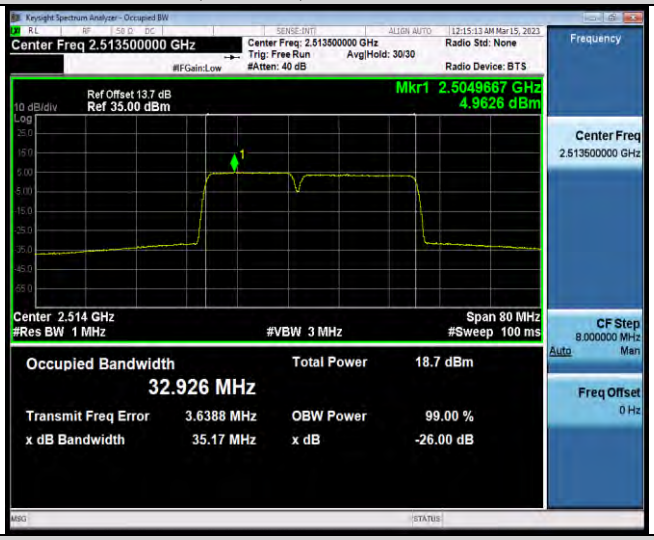

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7-7-15MHz-20MHz-64QAM-64QAM-21277-21397-75RB#0-100RB#0

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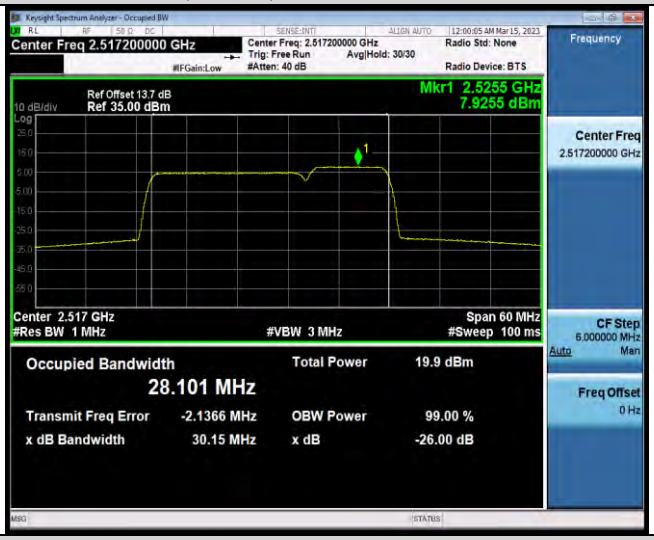

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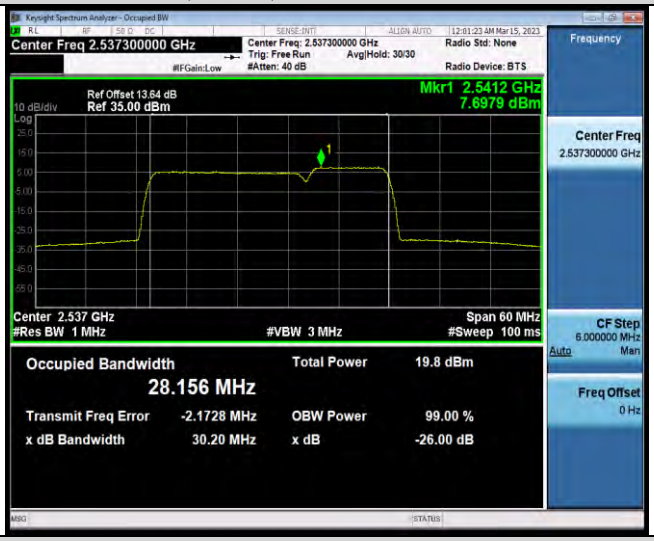

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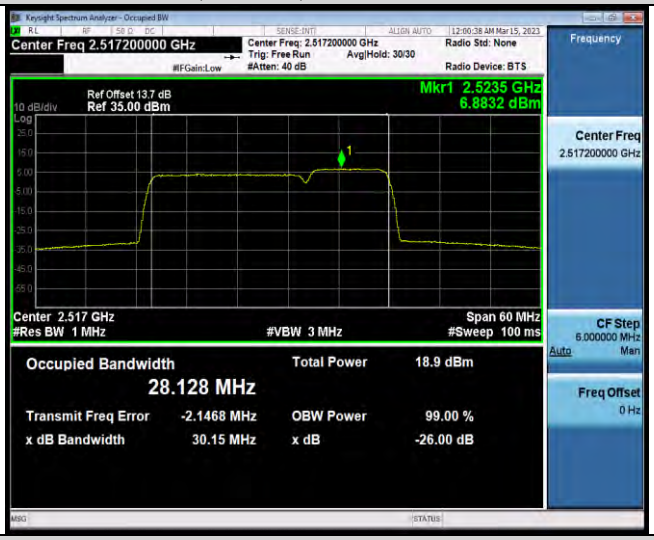

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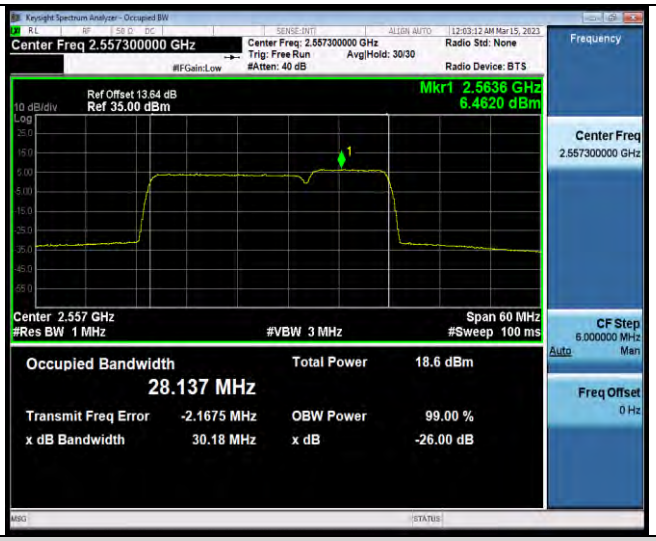

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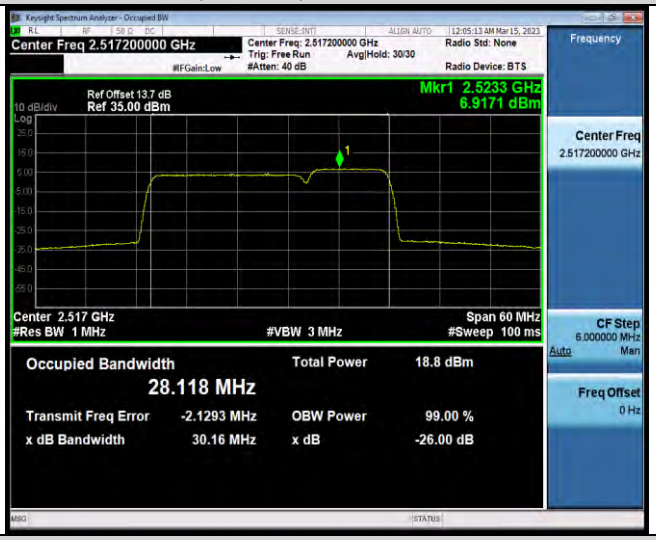

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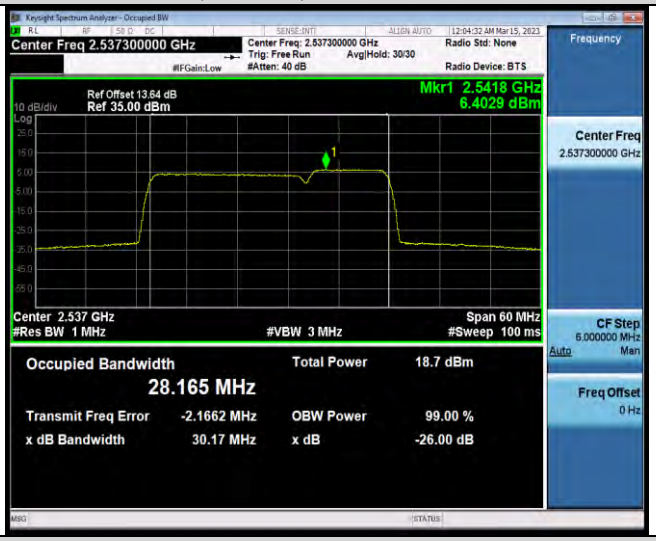

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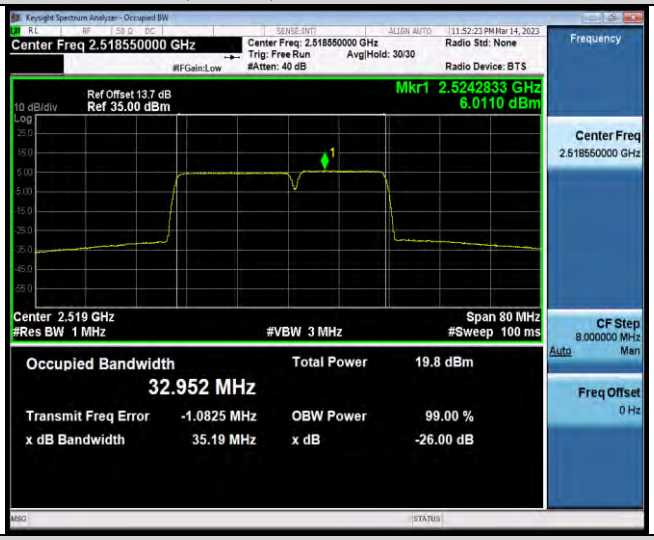
7-7-20MHz-15MHz-QPSK-QPSK-20850-21021-100RB#0-75RB#0



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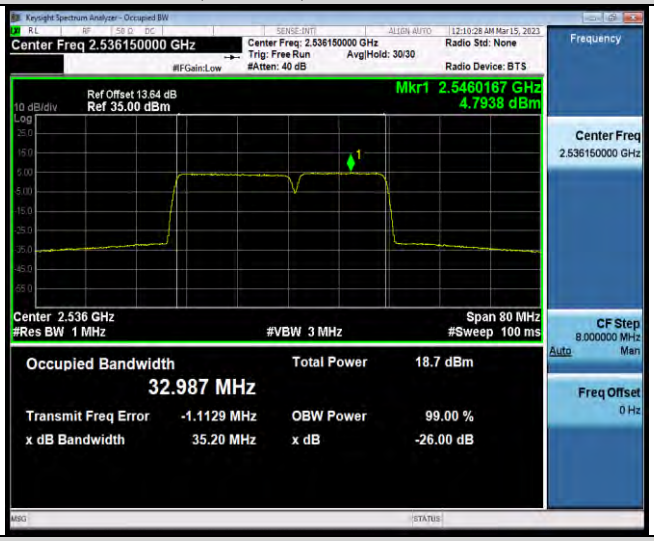

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