

FCC TEST REPORT

(PART 27)

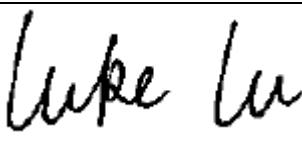
Applicant:	Quectel Wireless Solutions Co., Ltd.
Address:	Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233

Manufacturer or Supplier:	Quectel Wireless Solutions Co., Ltd.
Address:	Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233
Product:	LTE Module
Brand Name:	Quectel
Model Name:	SC66-A
FCC ID:	XMR201908SC66A
Date of tests:	Jul. 13, 2019 ~ Sept. 06, 2019

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 Alex Chen Engineer / Mobile Department	Approved by Luke Lu Manager / Mobile Department
 Date: Sept. 11, 2019	 Date: Sept. 11, 2019

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF190522W005-4	Original release	Sept. 11, 2019

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
2.1046 27.50(b)(10) (c)(10) (h)(2)	Equivalent Isotropically Radiated Power	Compliance
2.1055 27.54	Frequency Stability	Compliance
2.1049	Occupied Bandwidth	Compliance
27.50(d)(5)	Peak to average ratio	Compliance
2.1051 27.53(c)(f)(g) (m)(4)(6)	Band Edge Measurements	Compliance
2.1051 27.53(c)(f)(g) (m)(4)	Conducted Spurious Emissions	Compliance
2.1053 27.53(c)(f)(g) (m)(4)	Radiated Spurious Emissions	Compliance

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	UNCERTAINTY
Frequency Stability	$\pm 76.97\text{Hz}$
Radiated emissions & Radiated Power (30MHz~1GMHz)	$\pm 4.98\text{dB}$
Radiated emissions & Radiated Power (1GMHz ~6GMHz)	$\pm 4.70\text{dB}$
Radiated emissions (6GMHz ~18GMHz)	$\pm 4.60\text{dB}$
Radiated emissions (18GMHz ~40GMHz)	$\pm 4.12\text{dB}$
Conducted emissions	$\pm 4.01\text{dB}$
Occupied Channel Bandwidth	$\pm 43.58\text{KHz}$
Conducted Output power	$\pm 2.06\text{dB}$
Band Edge Measurements	$\pm 4.70\text{dB}$

This uncertainty represents an expanded uncertainty expressed at approximately the



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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. 26,19	Feb. 25,20
EXA Signal Analyzer	KEYSIGHT	N9010A-526	MY54510322	Feb. 26,19	Feb. 25,20
Bilog Antenna	ETS-LINDGREN	3143B	00161965	Feb. 26,19	Feb. 25,20
Horn Antenna (1GHz-18GHz)	ETS-LINDGREN	3117	00168692	Nov. 30, 18	Nov. 29, 19
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Nov. 21, 18	Nov. 20, 19
Radio Communication Analyzer	ANRITSU	MT8820C	6201465426	Feb. 26,19	Feb. 25,20
Signal Pre-Amplifier	EMSI	EMC 9135	980249	Jun. 24,19	Jun. 23,20
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	Jun. 24,19	Jun. 23,20
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Jun. 24,19	Jun. 23,20
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	Euroshieldpn-CT0001143-1216	Feb. 26,19	Feb. 25,20
Test Software	E3	V 9.160323	N/A	N/A	N/A
Test Software	ADT	ADT_Radiated V7.6.15.9.2	N/A	N/A	N/A
10dB Attenuator	JFW/USA	50HF-010-SM A	1505	Jun. 24,19	Jun. 23,20
Power Meter	Anritsu	ML2495A	1506002	Feb. 26,19	Feb. 25,20
Power Sensor	Anritsu	MA2411B	1339352	Feb. 26,19	Feb. 25,20
Humid & Temp Programmable Tester	Juyi	ITH-120-45-CP-AR	IAA1504-001	Jun. 24,19	Jun. 23,20
MXG Analog Microwave Signal Generator	KEYSIGHT	N5183A	MY50143024	Feb. 26,19	Feb. 25,20
Power Divider	MCLI/USA	PS2-15	24880	Jul. 09,19	Jul. 08,20

- 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 525120; The Designation No. is CN1171.

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	LTE Module	
BRAND NAME	Quectel	
MODEL NAME	SC66-A	
POWER SUPPLY	$V_{\min}=3.55\text{Vdc}$, $V_{\text{nor}}=4\text{Vdc}$, $V_{\max}=4.4\text{Vdc}$	
MODULATION TECHNOLOGY	LTE	QPSK, 16QAM
FREQUENCY RANGE	LTE Band 7 Channel Bandwidth: 5MHz	2502.5MHz ~ 2567.5MHz
	LTE Band 7 Channel Bandwidth: 10MHz	2505MHz ~ 2565MHz
	LTE Band 7 Channel Bandwidth: 15MHz	2507.5MHz ~ 2562.5MHz
	LTE Band 7 Channel Bandwidth: 20MHz	2510MHz ~ 2560MHz
	LTE Band 12 Channel Bandwidth: 1.4MHz	699.7MHz ~ 715.3MHz
	LTE Band 12 Channel Bandwidth: 3MHz	700.5MHz ~ 714.5MHz
	LTE Band 12 Channel Bandwidth: 5MHz	701.5MHz ~ 713.5MHz
	LTE Band 12 Channel Bandwidth: 10MHz	704MHz ~ 711MHz
	LTE Band 13 Channel Bandwidth: 5MHz	779.5MHz ~ 784.5MHz
	LTE Band 13 Channel Bandwidth: 10MHz	782MHz
	LTE Band 17 Channel Bandwidth: 5MHz	706.5MHz ~ 713.5MHz
	LTE Band 17 Channel Bandwidth: 10MHz	709MHz ~ 711MHz
	LTE Band 41 Channel Bandwidth: 5MHz	2498.5MHz ~ 2687.5MHz
	LTE Band 41 Channel Bandwidth: 10MHz	2501MHz ~ 2685MHz
	LTE Band 41 Channel Bandwidth: 15MHz	2503.5MHz ~ 2682.5MHz
	LTE Band 41 Channel Bandwidth: 20MHz	2506MHz ~ 2680MHz
	LTE Band 71 Channel Bandwidth: 5MHz	665.5MHz ~ 695.5MHz
	LTE Band 71 Channel Bandwidth: 10MHz	668MHz ~ 693MHz

	LTE Band 71 Channel Bandwidth: 15MHz	670.5MHz ~ 690.5MHz
	LTE Band 71 Channel Bandwidth: 20MHz	673MHz ~ 688MHz
EMISSION DESIGNATOR	LTE Band 7 Channel Bandwidth: 5MHz	QPSK: 4M49G7D 16QAM: 4M48W7D
	LTE Band 7 Channel Bandwidth: 10MHz	QPSK: 8M94G7D 16QAM: 8M94W7D
	LTE Band 7 Channel Bandwidth: 15MHz	QPSK: 13M4G7D 16QAM: 13M4W7D
	LTE Band 7 Channel Bandwidth: 20MHz	QPSK: 17M9G7D 16QAM: 17M9W7D
	LTE Band 12 Channel Bandwidth: 1.4MHz	QPSK: 1M08G7D 16QAM: 1M08W7D
	LTE Band 12 Channel Bandwidth: 3MHz	QPSK: 2M68G7D 16QAM: 2M68W7D
	LTE Band 12 Channel Bandwidth: 5MHz	QPSK: 4M47G7D 16QAM: 4M47W7D
	LTE Band 12 Channel Bandwidth: 10MHz	QPSK: 8M94G7D 16QAM: 8M93W7D
	LTE Band 13 Channel Bandwidth: 5MHz	QPSK: 4M48G7D 16QAM: 4M47W7D
	LTE Band 13 Channel Bandwidth: 10MHz	QPSK: 8M92G7D 16QAM: 8M91W7D
	LTE Band 17 Channel Bandwidth: 5MHz	QPSK: 4M47G7D 16QAM: 4M47W7D
	LTE Band 17 Channel Bandwidth: 10MHz	QPSK: 8M94G7D 16QAM: 8M92W7D
	LTE Band 41 Channel Bandwidth: 5MHz	QPSK: 4M48G7D 16QAM: 4M48W7D
	LTE Band 41 Channel Bandwidth: 10MHz	QPSK: 8M93G7D 16QAM: 8M92W7D
	LTE Band 41 Channel Bandwidth: 15MHz	QPSK: 13M4G7D 16QAM: 13M4W7D
	LTE Band 41 Channel Bandwidth: 20MHz	QPSK: 17M8G7D 16QAM: 17M8W7D
	LTE Band 71 Channel Bandwidth: 5MHz	QPSK: 4M49G7D 16QAM: 4M49W7D
	LTE Band 71 Channel Bandwidth: 10MHz	QPSK: 8M96G7D 16QAM: 8M96W7D
	LTE Band 71 Channel Bandwidth: 15MHz	QPSK: 13M4G7D 16QAM: 13M4W7D



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	LTE Band 71 Channel Bandwidth: 20MHz	QPSK: 17M9G7D
		16QAM: 17M9W7D
MAX. EIRP POWER	LTE Band 7 Channel Bandwidth: 5MHz	414.00 mW
	LTE Band 7 Channel Bandwidth: 10MHz	414.00 mW
	LTE Band 7 Channel Bandwidth: 15MHz	415.91 mW
	LTE Band 7 Channel Bandwidth: 20MHz	417.83 mW
	LTE Band 12 Channel Bandwidth: 1.4MHz	249.46 mW
	LTE Band 12 Channel Bandwidth: 3MHz	246.04 mW
	LTE Band 12 Channel Bandwidth: 5MHz	247.74 mW
	LTE Band 12 Channel Bandwidth: 10MHz	248.89 mW
	LTE Band 13 Channel Bandwidth: 5MHz	321.37 mW
	LTE Band 13 Channel Bandwidth: 10MHz	322.85 mW
	LTE Band 17 Channel Bandwidth: 5MHz	247.17 mW
	LTE Band 17 Channel Bandwidth: 10MHz	247.74 mW
	LTE Band 41 Channel Bandwidth: 5MHz	373.25 mW
	LTE Band 41 Channel Bandwidth: 10MHz	372.39 mW
	LTE Band 41 Channel Bandwidth: 15MHz	376.70 mW
	LTE Band 41 Channel Bandwidth: 20MHz	377.57 mW
	LTE Band 71 Channel Bandwidth: 5MHz	187.07 mW
	LTE Band 71 Channel Bandwidth: 10MHz	185.78 mW
	LTE Band 71 Channel Bandwidth: 15MHz	186.21 mW
	LTE Band 71 Channel Bandwidth: 20MHz	187.50 mW
ANTENNA TYPE	Fixed External Antenna with 2.68dBi gain for band 7 Fixed External Antenna with 3.26dBi gain for band 12 & band 17 Fixed External Antenna with 4.45dBi gain for band 13 Fixed External Antenna with 2.44dBi gain for band 41 Fixed External Antenna with 1.66dBi gain for band 71	



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HW VERSION	R1.0
SW VERSION	SC66ANAR01A06
DATA CABLE	Refer to user's manual

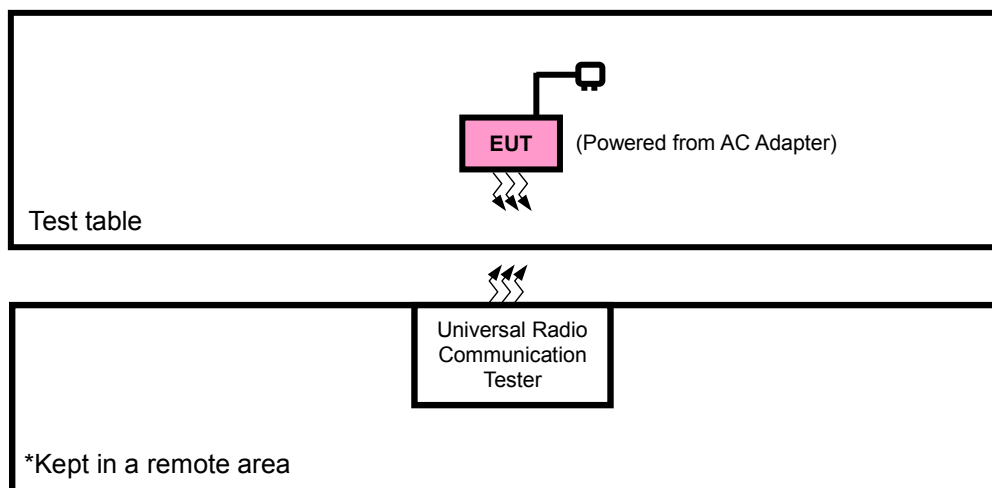
NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
3. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and one receiver.

MODULATION MODE	TX FUNCTION
LTE	1TX/1RX

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	Adapter	JINGSAI	CLS-050200	N/A	N/A
2	DC source	LONG WEI	PS-6403D	010934269	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	Unshielded, Detachable 1.8m
2	DC Line: Unshielded, Detachable 1.0m

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 7 MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
EIRP	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM	1 RB / 0RB Offset
	20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM	1 RB / 0 RB Offset
FREQUENCY STABILITY	20775 to 21425	20775, 21425	5MHz	QPSK	1 RB / 0 RB Offset
	20800 to 21400	20800, 21400	10MHz	QPSK	1 RB / 0RB Offset
	20825 to 21375	20825, 21375	15MHz	QPSK	1 RB / 0 RB Offset
	20850 to 21350	20850, 21350	20MHz	QPSK	1 RB / 0 RB Offset
OCCUPIED BANDWIDTH	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM	25 RB / 0 RB Offset
	20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
	20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM	75 RB / 0 RB Offset
	20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM	100 RB / 0 RB Offset
PEAK TO AVERAGE RATIO	20775 to 21425	20775, 21100, 21425	5MHz	QPSK	1 RB / 0 RB Offset
	20800 to 21400	20800, 21100, 21400	10MHz	QPSK	1 RB / 0RB Offset
	20825 to 21375	20825, 21100, 21375	15MHz	QPSK	1 RB / 0 RB Offset
	20850 to 21350	20850, 21100, 21350	20MHz	QPSK	1 RB / 0 RB Offset
BAND EDGE	20775 to 21425	20775	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		21425	5MHz	QPSK, 16QAM	25 RB / 0 RB Offset
					1 RB / 24 RB Offset
					25 RB / 0 RB Offset
	20800 to 21400	20800	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		21400	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
					1 RB / 49 RB Offset
					50 RB / 0 RB Offset
	20825 to 21375	20825	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		21375	15MHz	QPSK, 16QAM	75 RB / 0 RB Offset
					1 RB / 74 RB Offset
					75 RB / 0 RB Offset
	20850 to 21350	20850	20MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		21350	20MHz	QPSK, 16QAM	100 RB / 0 RB Offset
					1 RB / 99 RB Offset
					100 RB / 0 RB Offset
CONDUCTED EMISSION	20775 to 21425	20775, 21100, 21425	5MHz	QPSK	1 RB / 0 RB Offset
	20800 to 21400	20800, 21100, 21400	10MHz	QPSK	1 RB / 0RB Offset
	20825 to 21375	20825, 21100, 21375	15MHz	QPSK	1 RB / 0 RB Offset
	20850 to 21350	20850, 21100, 21350	20MHz	QPSK	1 RB / 0 RB Offset
RADIATED EMISSION	20775 to 21425	21100	5MHz	QPSK	1 RB / 0 RB Offset
	20800 to 21400	20800, 21100, 21400	10MHz	QPSK	1 RB / 0RB Offset
	20825 to 21375	21100	15MHz	QPSK	1 RB / 0 RB Offset
	20850 to 21350	21100	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.

LTE BAND 12 MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
EIRP	23017 to 23173	23017, 23095, 23173	1.4MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	23025 to 23165	23025, 23095, 23165	3MHz	QPSK, 16QAM	1 RB / 0RB Offset
	23035 to 23155	23035, 23095, 23155	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	23060 to 23130	23060, 23095, 23130	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset
FREQUENCY STABILITY	23017 to 23173	23017, 23173	1.4MHz	QPSK	1 RB / 0 RB Offset
	23025 to 23165	23025, 23165	3MHz	QPSK	1 RB / 0RB Offset
	23035 to 23155	23035, 23155	5MHz	QPSK	1 RB / 0 RB Offset
	23060 to 23130	23060, 23130	10MHz	QPSK	1 RB / 0 RB Offset
OCCUPIED BANDWIDTH	23017 to 23173	23017, 23095, 23173	1.4MHz	QPSK, 16QAM	6 RB / 0 RB Offset
	23025 to 23165	23025, 23095, 23165	3MHz	QPSK, 16QAM	15 RB / 0 RB Offset
	23035 to 23155	23035, 23095, 23155	5MHz	QPSK, 16QAM	25 RB / 0 RB Offset
	23060 to 23130	23060, 23095, 23130	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
PEAK TO AVERAGE RATIO	23017 to 23173	23017, 23095, 23173	1.4MHz	QPSK	1 RB / 0 RB Offset
	23025 to 23165	23025, 23095, 23165	3MHz	QPSK	1 RB / 0RB Offset
	23035 to 23155	23035, 23095, 23155	5MHz	QPSK	1 RB / 0 RB Offset
	23060 to 23130	23060, 23095, 23130	10MHz	QPSK	1 RB / 0 RB Offset
BAND EDGE	23017 to 23173	23017	1.4MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23173	1.4MHz	QPSK, 16QAM	6 RB / 0 RB Offset
					1 RB / 5 RB Offset
					6 RB / 0 RB Offset
	23025 to 23165	23025	3MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23165	3MHz	QPSK, 16QAM	15 RB / 0 RB Offset
					1 RB / 14 RB Offset
					15 RB / 0 RB Offset
	23035 to 23155	23035	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23155	5MHz	QPSK, 16QAM	25 RB / 0 RB Offset
					1 RB / 24 RB Offset
					25 RB / 0 RB Offset
	23060 to 23130	23060	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23130	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
					1 RB / 49 RB Offset
					50 RB / 0 RB Offset
CONDUCTED EMISSION	23017 to 23173	23017, 23095, 23173	1.4MHz	QPSK	1 RB / 0 RB Offset
	23025 to 23165	23025, 23095, 23165	3MHz	QPSK	1 RB / 0RB Offset
	23035 to 23155	23035, 23095, 23155	5MHz	QPSK	1 RB / 0 RB Offset
	23060 to 23130	23060, 23095, 23130	10MHz	QPSK	1 RB / 0 RB Offset
RADIATED	23017 to 23173	23095	1.4MHz	QPSK	1 RB / 0 RB Offset



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EMISSION	23025 to 23165	23025, 23095, 23165	3MHz	QPSK	1 RB / 0RB Offset
	23035 to 23155	23095	5MHz	QPSK	1 RB / 0 RB Offset
	23060 to 23130	23095	10MHz	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.

LTE BAND 13 MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
EIRP	23205 to 23255	23205, 23230, 23255	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	23230	23230	10MHz	QPSK, 16QAM	1 RB / 0RB Offset
FREQUENCY STABILITY	23205 to 23255	23205, 23255	5MHz	QPSK	1 RB / 0 RB Offset
	23230	23230	10MHz	QPSK	1 RB / 0RB Offset
OCCUPIED BANDWIDTH	23205 to 23255	23205, 23230, 23255	5MHz	QPSK, 16QAM	25 RB / 0 RB Offset
	23230	23230	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
PEAK TO AVERAGE RATIO	23205 to 23255	23205, 23230, 23255	5MHz	QPSK	1 RB / 0 RB Offset
	23230	23230	10MHz	QPSK	1 RB / 0RB Offset
BAND EDGE	23205 to 23255	23205	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
					25 RB / 0 RB Offset
		23255	5MHz	QPSK, 16QAM	1 RB / 24 RB Offset
					25 RB / 0 RB Offset
	23230	23230	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset
					50 RB / 0 RB Offset
		23230	10MHz	QPSK, 16QAM	1 RB / 49 RB Offset
					50 RB / 0 RB Offset
CONDCUDET ED EMISSION	23205 to 23255	23205, 23230, 23255	5MHz	QPSK	1 RB / 0 RB Offset
	23230	23230	10MHz	QPSK	1 RB / 0RB Offset
RADIATED EMISSION	23205 to 23255	23205, 23230, 23255	5MHz	QPSK	1 RB / 0 RB Offset
	23230	23230	10MHz	QPSK	1 RB / 0RB Offset

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

LTE BAND 17 MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
EIRP	23755 to 23825	23755, 23790, 23825	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	23780 to 23800	23780, 23790, 23800	10MHz	QPSK, 16QAM	1 RB / 0RB Offset
FREQUENCY STABILITY	23755 to 23825	23755, 23825	5MHz	QPSK	1 RB / 0 RB Offset
	23780 to 23800	23780, 23800	10MHz	QPSK	1 RB / 0RB Offset
OCCUPIED BANDWIDTH	23755 to 23825	23755, 23790, 23825	5MHz	QPSK, 16QAM	25 RB / 0 RB Offset
	23780 to 23800	23780, 23790, 23800	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
PEAK TO AVERAGE RATIO	23755 to 23825	23755, 23790, 23825	5MHz	QPSK	1 RB / 0 RB Offset
	23780 to 23800	23780, 23790, 23800	10MHz	QPSK	1 RB / 0RB Offset
BAND EDGE	23755 to 23825	23755	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
					25 RB / 0 RB Offset
	23755 to 23825	23825	5MHz	QPSK, 16QAM	1 RB / 24 RB Offset
					25 RB / 0 RB Offset
	23780 to 23800	23780	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset
					50 RB / 0 RB Offset
CONDUCTED EMISSION	23755 to 23825	23755, 23790, 23825	5MHz	QPSK	1 RB / 0 RB Offset
	23780 to 23800	23780, 23790, 23800	10MHz	QPSK	1 RB / 0RB Offset
RADIATED EMISSION	23755 to 23825	23790	5MHz	QPSK	1 RB / 0 RB Offset
	23780 to 23800	23780, 23790, 23800	10MHz	QPSK	1 RB / 0RB Offset

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

LTE BAND 41 MODE

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



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EMISSION	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.

LTE BAND 71 MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
EIRP	133147 to 133447	133147, 133297, 133447	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	133172 to 133422	133172, 133297, 133422	10MHz	QPSK, 16QAM	1 RB / 0RB Offset
	133197 to 133397	133197, 133297, 133397	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	133222 to 133372	133222, 133322, 133372	20MHz	QPSK, 16QAM	1 RB / 0 RB Offset
FREQUENCY STABILITY	133147 to 133447	133147, 133447	5MHz	QPSK	1 RB / 0 RB Offset
	133172 to 133422	133172, 133422	10MHz	QPSK	1 RB / 0RB Offset
	133197 to 133397	133197, 133397	15MHz	QPSK	1 RB / 0 RB Offset
	133222 to 133372	133222, 133372	20MHz	QPSK	1 RB / 0 RB Offset
OCCUPIED BANDWIDTH	133147 to 133447	133147, 133297, 133447	5MHz	QPSK, 16QAM	25 RB / 0 RB Offset
	133172 to 133422	133172, 133297, 133422	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
	133197 to 133397	133197, 133297, 133397	15MHz	QPSK, 16QAM	75 RB / 0 RB Offset
	133222 to 133372	133222, 133322, 133372	20MHz	QPSK, 16QAM	100 RB / 0 RB Offset
PEAK TO AVERAGE RATIO	133147 to 133447	133147, 133297, 133447	5MHz	QPSK	1 RB / 0 RB Offset
	133172 to 133422	133172, 133297, 133422	10MHz	QPSK	1 RB / 0RB Offset
	133197 to 133397	133197, 133297, 133397	15MHz	QPSK	1 RB / 0 RB Offset
	133222 to 133372	133222, 133322, 133372	20MHz	QPSK	1 RB / 0 RB Offset
BAND EDGE	133147 to 133447	133147	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		133447	5MHz	QPSK, 16QAM	25 RB / 0 RB Offset
	133172 to 133422	133172	10MHz	QPSK, 16QAM	1 RB / 24 RB Offset
		133422	10MHz	QPSK, 16QAM	25 RB / 0 RB Offset
	133197 to 133397	133197	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		133397	15MHz	QPSK, 16QAM	50 RB / 0 RB Offset
	133222 to 133372	133222	20MHz	QPSK, 16QAM	1 RB / 49 RB Offset
		133372	20MHz	QPSK, 16QAM	50 RB / 0 RB Offset
	133197 to 133397	133197	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		133397	15MHz	QPSK, 16QAM	75 RB / 0 RB Offset
	133222 to 133372	133222	20MHz	QPSK, 16QAM	1 RB / 74 RB Offset
		133372	20MHz	QPSK, 16QAM	75 RB / 0 RB Offset
CONDCUDED EMISSION	133147 to 133447	133147, 133297, 133447	5MHz	QPSK	1 RB / 0 RB Offset
	133172 to 133422	133172, 133297, 133422	10MHz	QPSK	1 RB / 0RB Offset
	133197 to 133397	133197, 133297, 133397	15MHz	QPSK	1 RB / 0 RB Offset
	133222 to 133372	133222, 133322, 133372	20MHz	QPSK	1 RB / 0 RB Offset



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RADIATED EMISSION	133147 to 133447	133297	5MHz	QPSK	1 RB / 0 RB Offset
	133172 to 133422	133297	10MHz	QPSK	1 RB / 0RB Offset
	133197 to 133397	133297	15MHz	QPSK	1 RB / 0 RB Offset
	133222 to 133372	133222, 133322, 133372	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	23deg. C, 70%RH	5Vdc from adapter	Star Le
FREQUENCY STABILITY	23deg. C, 70%RH	DC 3.55V/4V/4.4V	Walker Ye
OCCUPIED BANDWIDTH	23deg. C, 70%RH	5Vdc from adapter	Walker Ye
PEAK TO AVERAGE RATIO	23deg. C, 70%RH	5Vdc from adapter	Walker Ye
BAND EDGE	23deg. C, 70%RH	5Vdc from adapter	Walker Ye
CONDUCTED EMISSION	23deg. C, 70%RH	5Vdc from adapter	Walker Ye
RADIATED EMISSION	23deg. C, 70%RH	5Vdc from adapter	Star Le

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

27.50(b)(10) Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

27.50(c)(10) Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

27.50(h)(2) Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

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 determining the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

$$\text{ERP or EIRP} = P_{\text{Meas}} + G_T - L_C$$

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);

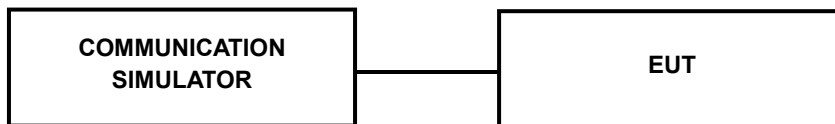
L_C = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

CONDUCTED POWER MEASUREMENT:

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

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)

LTE Band 7							
BW	Modulation	RB Size	RB Offset	Low CH 20775	Mid CH 21100	High CH 21425	3GPP MPR (dB)
				Frequency 2502.5 MHz	Frequency 2535 MHz	Frequency 2567.5 MHz	
5MHz	QPSK	1	0	23.38	23.31	23.30	0
		1	12	23.49	23.38	23.41	0
		1	24	23.48	23.40	23.44	0
		12	0	22.47	22.41	22.38	1
		12	6	22.39	22.41	22.34	1
		12	13	22.50	22.44	22.45	1
		25	0	22.43	22.42	22.36	1
	16QAM	1	0	22.59	22.56	22.56	1
		1	12	22.70	22.71	22.65	1
		1	24	22.74	22.63	22.66	1
		12	0	21.47	21.44	21.39	2
		12	6	21.50	21.49	21.42	2
		12	13	21.52	21.49	21.49	2
		25	0	21.48	21.42	21.41	2

LTE Band 7							
BW	Modulation	RB Size	RB Offset	Low CH 20800	Mid CH 21100	High CH 21400	3GPP MPR (dB)
				Frequency 2505 MHz	Frequency 2535 MHz	Frequency 2565 MHz	
10MHz	QPSK	1	0	23.35	23.34	23.30	0
		1	24	23.49	23.38	23.42	0
		1	49	23.45	23.44	23.40	0
		25	0	22.48	22.40	22.41	1
		25	12	22.45	22.35	22.34	1
		25	25	22.48	22.41	22.44	1
		50	0	22.48	22.42	22.33	1
	16QAM	1	0	22.59	22.53	22.52	1
		1	24	22.75	22.67	22.68	1
		1	49	22.74	22.64	22.63	1
		25	0	21.49	21.42	21.45	2
		25	12	21.54	21.43	21.47	2
		25	25	21.51	21.50	21.46	2
		50	0	21.52	21.41	21.45	2

LTE Band 7							
BW	Modulation	RB Size	RB Offset	Low CH 20825	Mid CH 21100	High CH 21375	3GPP MPR (dB)
				Frequency 2507.5 MHz	Frequency 2535 MHz	Frequency 2562.5 MHz	
15MHz	QPSK	1	0	23.42	23.34	23.27	0
		1	37	23.47	23.43	23.37	0
		1	74	23.51	23.47	23.41	0
		36	0	22.45	22.41	22.42	1
		36	19	22.46	22.40	22.34	1
		36	39	22.46	22.42	22.44	1
		75	0	22.48	22.40	22.38	1
	16QAM	1	0	22.63	22.60	22.52	1
		1	37	22.74	22.68	22.68	1
		1	74	22.70	22.69	22.65	1
		36	0	21.53	21.42	21.46	2
		36	19	21.48	21.47	21.43	2
		36	39	21.56	21.48	21.49	2
		75	0	21.53	21.44	21.38	2

LTE Band 7							
BW	Modulation	RB Size	RB Offset	Low CH 20850	Mid CH 21100	High CH 21350	3GPP MPR (dB)
				Frequency 2510 MHz	Frequency 2535 MHz	Frequency 2560 MHz	
20MHz	QPSK	1	0	23.43	23.38	23.35	0
		1	50	23.51	23.46	23.43	0
		1	99	23.53	23.48	23.45	0
		50	0	22.51	22.46	22.43	1
		50	25	22.47	22.42	22.39	1
		50	50	22.54	22.49	22.46	1
		100	0	22.49	22.44	22.41	1
	16QAM	1	0	22.66	22.61	22.58	1
		1	50	22.78	22.73	22.70	1
		1	99	22.76	22.71	22.68	1
		50	0	21.55	21.50	21.47	2
		50	25	21.56	21.51	21.48	2
		50	50	21.59	21.54	21.51	2
		100	0	21.54	21.49	21.46	2

LTE Band 12							
BW	Modulation	RB Size	RB Offset	Low CH 23017	Mid CH 23095	High CH 23173	3GPP MPR (dB)
				Frequency 699.7 MHz	Frequency 707.5 MHz	Frequency 715.3MHz	
1.4MHz	QPSK	1	0	22.68	22.65	22.68	0
		1	2	22.82	22.72	22.80	0
		1	5	22.73	22.61	22.67	0
		3	0	22.80	22.71	22.81	0
		3	1	22.86	22.78	22.76	0
		3	3	22.78	22.68	22.74	0
		6	0	21.87	21.75	21.83	1
	16QAM	1	0	22.08	21.99	22.05	1
		1	2	22.13	22.00	22.10	1
		1	5	21.98	21.88	21.99	1
		3	0	21.97	21.89	21.93	1
		3	1	21.90	21.90	21.90	1
		3	3	21.87	21.79	21.87	1
		6	0	20.88	20.85	20.86	2

LTE Band 12							
BW	Modulation	RB Size	RB Offset	Low CH 23025	Mid CH 23095	High CH 23165	3GPP MPR (dB)
				Frequency 700.5 MHz	Frequency 707.5 MHz	Frequency 714.5 MHz	
3MHz	QPSK	1	0	22.70	22.67	22.67	0
		1	7	22.78	22.73	22.80	0
		1	14	22.69	22.61	22.67	0
		8	0	21.79	21.74	21.81	1
		8	3	21.79	21.78	21.78	1
		8	7	21.75	21.75	21.78	1
		15	0	21.84	21.76	21.77	1
	16QAM	1	0	22.05	22.05	22.08	1
		1	7	22.10	22.03	22.08	1
		1	14	22.01	21.88	21.99	1
		8	0	20.93	20.90	20.93	2
		8	3	20.95	20.85	20.93	2
		8	7	20.89	20.77	20.83	2
		15	0	20.88	20.79	20.89	2

LTE Band 12							
BW	Modulation	RB Size	RB Offset	Low CH 23035	Mid CH 23095	High CH 23155	3GPP MPR (dB)
				Frequency 701.5 MHz	Frequency 707.5 MHz	Frequency 713.5MHz	
5MHz	QPSK	1	0	22.71	22.62	22.68	0
		1	12	22.83	22.70	22.80	0
		1	24	22.70	22.60	22.71	0
		12	0	21.82	21.74	21.78	1
		12	6	21.79	21.79	21.79	1
		12	13	21.79	21.71	21.79	1
		25	0	21.82	21.79	21.80	1
	16QAM	1	0	22.06	22.01	22.08	1
		1	12	22.07	22.06	22.07	1
		1	24	22.01	21.88	21.98	1
		12	0	20.93	20.88	20.90	2
		12	6	20.92	20.89	20.89	2
		12	13	20.84	20.79	20.86	2
		25	0	20.88	20.80	20.86	2

LTE Band 12							
BW	Modulation	RB Size	RB Offset	Low CH 23060	Mid CH 23095	High CH 23130	3GPP MPR (dB)
				Frequency 704 MHz	Frequency 707.5 MHz	Frequency 711 MHz	
10MHz	QPSK	1	0	22.76	22.69	22.73	0
		1	24	22.85	22.78	22.82	0
		1	49	22.75	22.68	22.72	0
		25	0	21.86	21.79	21.83	1
		25	12	21.87	21.80	21.84	1
		25	25	21.83	21.76	21.80	1
		50	0	21.88	21.81	21.85	1
	16QAM	1	0	22.13	22.06	22.10	1
		1	24	22.15	22.08	22.12	1
		1	49	22.03	21.96	22.00	1
		25	0	21.01	20.94	20.98	2
		25	12	20.98	20.91	20.95	2
		25	25	20.91	20.84	20.88	2
		50	0	20.94	20.87	20.91	2

LTE Band 13							
BW	Modulation	RB Size	RB Offset	Low CH 23205	Mid CH 23230	High CH 23255	3GPP MPR (dB)
				Frequency 779.5 MHz	Frequency 782.0 MHz	Frequency 784.5MHz	
5MHz	QPSK	1	0	22.62	22.60	22.62	0
		1	12	22.77	22.71	22.73	0
		1	24	22.66	22.63	22.70	0
		12	0	21.75	21.74	21.74	1
		12	6	21.74	21.81	21.77	1
		12	13	21.72	21.71	21.75	1
		25	0	21.73	21.77	21.74	1
	16QAM	1	0	21.92	21.94	21.97	1
		1	12	22.05	22.11	22.08	1
		1	24	21.99	21.93	21.94	1
		12	0	20.84	20.86	20.81	2
		12	6	20.90	20.94	20.93	2
		12	13	20.80	20.82	20.85	2
		25	0	20.86	20.85	20.87	2

LTE Band 13					
BW	Modulation	RB Size	RB Offset	Mid CH 23230	3GPP MPR (dB)
				Frequency 707.5 MHz	
10MHz	QPSK	1	0	22.67	0
		1	24	22.79	0
		1	49	22.71	0
		25	0	21.79	1
		25	12	21.82	1
		25	25	21.76	1
		50	0	21.79	1
	16QAM	1	0	21.99	1
		1	24	22.13	1
		1	49	22.01	1
		25	0	20.92	2
		25	12	20.96	2
		25	25	20.87	2
		50	0	20.92	2

LTE Band 17							
BW	Modulation	RB Size	RB Offset	Low CH 23755	Mid CH 23790	High CH 23825	3GPP MPR (dB)
				Frequency 706.5 MHz	Frequency 710 MHz	Frequency 713.5MHz	
5MHz	QPSK	1	0	22.67	22.64	22.71	0
		1	12	22.72	22.65	22.76	0
		1	24	22.74	22.70	22.82	0
		12	0	21.77	21.75	21.80	1
		12	6	21.74	21.80	21.81	1
		12	13	21.75	21.73	21.82	1
		25	0	21.72	21.75	21.77	1
	16QAM	1	0	21.94	21.95	22.03	1
		1	12	21.99	22.04	22.06	1
		1	24	22.01	21.94	22.05	1
		12	0	20.81	20.82	20.85	2
		12	6	20.88	20.91	20.92	2
		12	13	20.81	20.82	20.90	2
		25	0	20.86	20.84	20.91	2

LTE Band 17							
BW	Modulation	RB Size	RB Offset	Low CH 23780	Mid CH 23790	High CH 23800	3GPP MPR (dB)
				Frequency 709 MHz	Frequency 710 MHz	Frequency 711 MHz	
10MHz	QPSK	1	0	22.72	22.71	22.76	0
		1	24	22.74	22.73	22.78	0
		1	49	22.79	22.78	22.83	0
		25	0	21.81	21.80	21.85	1
		25	12	21.82	21.81	21.86	1
		25	25	21.79	21.78	21.83	1
		50	0	21.78	21.77	21.82	1
	16QAM	1	0	22.01	22.00	22.05	1
		1	24	22.07	22.06	22.11	1
		1	49	22.03	22.02	22.07	1
		25	0	20.89	20.88	20.93	2
		25	12	20.94	20.93	20.98	2
		25	25	20.88	20.87	20.92	2
		50	0	20.92	20.91	20.96	2

LTE Band 41							
BW	Modulation	RB Size	RB Offset	Low CH 39675	Mid CH 40620	High CH 41565	3GPP MPR (dB)
				Frequency 2498.5 MHz	Frequency 2593 MHz	Frequency 2687.5 MHz	
5MHz	QPSK	1	0	23.28	22.82	22.80	0
		1	12	23.27	22.77	22.79	0
		1	24	23.27	22.80	22.83	0
		12	0	22.24	21.79	21.75	1
		12	6	22.18	21.81	21.73	1
		12	13	22.27	21.82	21.82	1
		25	0	22.18	21.78	21.71	1
	16QAM	1	0	22.38	21.96	21.95	1
		1	12	22.30	21.92	21.85	1
		1	24	22.39	21.89	21.91	1
		12	0	21.33	20.91	20.85	2
		12	6	21.31	20.91	20.83	2
		12	13	21.31	20.89	20.88	2
		25	0	21.29	20.84	20.82	2

LTE Band 41							
BW	Modulation	RB Size	RB Offset	Low CH 39700	Mid CH 40620	High CH 41540	3GPP MPR (dB)
				Frequency 2501 MHz	Frequency 2593 MHz	Frequency 2685 MHz	
10MHz	QPSK	1	0	23.25	22.85	22.80	0
		1	24	23.27	22.77	22.80	0
		1	49	23.24	22.84	22.79	0
		25	0	22.25	21.78	21.78	1
		25	12	22.24	21.75	21.73	1
		25	25	22.25	21.79	21.81	1
		50	0	22.23	21.78	21.68	1
	16QAM	1	0	22.38	21.93	21.91	1
		1	24	22.35	21.88	21.88	1
		1	49	22.39	21.90	21.88	1
		25	0	21.35	20.89	20.91	2
		25	12	21.35	20.85	20.88	2
		25	25	21.30	20.90	20.85	2
		50	0	21.33	20.83	20.86	2

LTE Band 41							
BW	Modulation	RB Size	RB Offset	Low CH 39725	Mid CH 40620	High CH 41515	3GPP MPR (dB)
				Frequency 2503.5 MHz	Frequency 2593 MHz	Frequency 2682.5 MHz	
15MHz	QPSK	1	0	23.32	22.85	22.77	0
		1	37	23.25	22.82	22.75	0
		1	74	23.30	22.87	22.80	0
		36	0	22.22	21.79	21.79	1
		36	19	22.25	21.80	21.73	1
		36	39	22.23	21.80	21.81	1
		75	0	22.23	21.76	21.73	1
	16QAM	1	0	22.42	22.00	21.91	1
		1	37	22.34	21.89	21.88	1
		1	74	22.35	21.95	21.90	1
		36	0	21.39	20.89	20.92	2
		36	19	21.29	20.89	20.84	2
		36	39	21.35	20.88	20.88	2
		75	0	21.34	20.86	20.79	2

LTE Band 41							
BW	Modulation	RB Size	RB Offset	Low CH 39750	Mid CH 40620	High CH 41490	3GPP MPR (dB)
				Frequency 2506 MHz	Frequency 2593 MHz	Frequency 2680 MHz	
20MHz	QPSK	1	0	23.33	22.89	22.85	0
		1	50	23.29	22.85	22.81	0
		1	99	23.32	22.88	22.84	0
		50	0	22.28	21.84	21.80	1
		50	25	22.26	21.82	21.78	1
		50	50	22.31	21.87	21.83	1
		100	0	22.24	21.80	21.76	1
	16QAM	1	0	22.45	22.01	21.97	1
		1	50	22.38	21.94	21.90	1
		1	99	22.41	21.97	21.93	1
		50	0	21.41	20.97	20.93	2
		50	25	21.37	20.93	20.89	2
		50	50	21.38	20.94	20.90	2
		100	0	21.35	20.91	20.87	2

LTE Band 71							
BW	Modulation	RB Size	RB Offset	Low CH 133147	Mid CH 133297	High CH 133447	3GPP MPR (dB)
				Frequency 665.5 MHz	Frequency 680.5MHz	Frequency 695.5 MHz	
5MHz	QPSK	1	0	22.92	23.02	23.06	0
		1	12	23.03	23.09	23.17	0
		1	24	23.03	23.12	23.21	0
		12	0	21.82	21.93	21.95	1
		12	6	21.79	21.98	21.96	1
		12	13	21.85	21.96	22.02	1
		25	0	21.75	21.91	21.90	1
	16QAM	1	0	21.72	21.86	21.91	1
		1	12	21.65	21.83	21.82	1
		1	24	21.80	21.86	21.94	1
		12	0	20.83	20.97	20.97	2
		12	6	20.87	21.03	21.01	2
		12	13	20.87	21.01	21.06	2
		25	0	20.81	20.92	20.96	2

LTE Band 71							
BW	Modulation	RB Size	RB Offset	Low CH 133172	Mid CH 133297	High CH 133422	3GPP MPR (dB)
				Frequency 668 MHz	Frequency 680.5 MHz	Frequency 693 MHz	
10MHz	QPSK	1	0	22.89	23.05	23.06	0
		1	24	23.03	23.09	23.18	0
		1	49	23.00	23.16	23.17	0
		25	0	21.83	21.92	21.98	1
		25	12	21.85	21.92	21.96	1
		25	25	21.83	21.93	22.01	1
		50	0	21.80	21.91	21.87	1
	16QAM	1	0	21.72	21.83	21.87	1
		1	24	21.70	21.79	21.85	1
		1	49	21.80	21.87	21.91	1
		25	0	20.85	20.95	21.03	2
		25	12	20.91	20.97	21.06	2
		25	25	20.86	21.02	21.03	2
		50	0	20.85	20.91	21.00	2

LTE Band 71							
BW	Modulation	RB Size	RB Offset	Low CH 133197	Mid CH 133297	High CH 133397	3GPP MPR (dB)
				Frequency 670.5 MHz	Frequency 680.5 MHz	Frequency 690.5 MHz	
15MHz	QPSK	1	0	22.96	23.05	23.03	0
		1	37	23.01	23.14	23.13	0
		1	74	23.06	23.19	23.18	0
		36	0	21.80	21.93	21.99	1
		36	19	21.86	21.97	21.96	1
		36	39	21.81	21.94	22.01	1
		75	0	21.80	21.89	21.92	1
	16QAM	1	0	21.76	21.90	21.87	1
		1	37	21.69	21.80	21.85	1
		1	74	21.76	21.92	21.93	1
		36	0	20.89	20.95	21.04	2
		36	19	20.85	21.01	21.02	2
		36	39	20.91	21.00	21.06	2
		75	0	20.86	20.94	20.93	2

LTE Band 71							
BW	Modulation	RB Size	RB Offset	Low CH 133222	Mid CH 133322	High CH 133372	3GPP MPR (dB)
				Frequency 673 MHz	Frequency 683 MHz	Frequency 688 MHz	
20MHz	QPSK	1	0	22.97	23.09	23.11	0
		1	50	23.05	23.17	23.19	0
		1	99	23.08	23.20	23.22	0
		50	0	21.86	21.98	22.00	1
		50	25	21.87	21.99	22.01	1
		50	50	21.89	22.01	22.03	1
		100	0	21.81	21.93	21.95	1
	16QAM	1	0	21.79	21.91	21.93	1
		1	50	21.73	21.85	21.87	1
		1	99	21.82	21.94	21.96	1
		50	0	20.91	21.03	21.05	2
		50	25	20.93	21.05	21.07	2
		50	50	20.94	21.06	21.08	2
		100	0	20.87	20.99	21.01	2

EIRP

LTE BAND 7

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20775	2502.5	23.49	2.68	26.17	414.00	2
21100	2535.0	23.38	2.68	26.06	403.65	2
21425	2567.5	23.44	2.68	26.12	409.26	2

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20775	2502.5	22.74	2.68	25.42	348.34	2
21100	2535.0	22.71	2.68	25.39	345.94	2
21425	2567.5	22.66	2.68	25.34	341.98	2

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20800	2505.0	23.49	2.68	26.17	414.00	2
21100	2535.0	23.44	2.68	26.12	409.26	2
21400	2565.0	23.42	2.68	26.10	407.38	2

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20800	2505.0	22.75	2.68	25.43	349.14	2
21100	2535.0	22.67	2.68	25.35	342.77	2
21400	2565.0	22.68	2.68	25.36	343.56	2

CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	23.51	2.68	26.19	415.91	2
21100	2535.0	23.47	2.68	26.15	412.10	2
21375	2562.5	23.41	2.68	26.09	406.44	2

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	22.74	2.68	25.42	348.34	2
21100	2535.0	22.69	2.68	25.37	344.35	2
21375	2562.5	22.68	2.68	25.36	343.56	2

CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	23.53	2.68	26.21	417.83	2
21100	2535.0	23.48	2.68	26.16	413.05	2
21350	2560.0	23.45	2.68	26.13	410.20	2

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	22.78	2.68	25.46	351.56	2
21100	2535.0	22.73	2.68	25.41	347.54	2
21350	2560.0	22.70	2.68	25.38	345.14	2



BUREAU
VERITAS

Test Report No.: RF190522W005-4

LTE BAND 12

CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-Lc} (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23017	699.7	22.86	3.26	23.97	249.46	3
23095	707.5	22.78	3.26	23.89	244.91	3
23173	715.3	22.80	3.26	23.91	246.04	3

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-Lc} (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23017	699.7	22.13	3.26	23.24	210.86	3
23095	707.5	22.00	3.26	23.11	204.64	3
23173	715.3	22.10	3.26	23.21	209.41	3

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23025	700.5	22.78	3.26	23.89	244.91	3
23095	707.5	22.73	3.26	23.84	242.10	3
23165	714.5	22.80	3.26	23.91	246.04	3

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23025	700.5	22.10	3.26	23.21	209.41	3
23095	707.5	22.05	3.26	23.16	207.01	3
23165	714.5	22.08	3.26	23.19	208.45	3

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-Lc} (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23035	701.5	22.83	3.26	23.94	247.74	3
23095	707.5	22.73	3.26	23.84	242.10	3
23155	713.5	22.80	3.26	23.91	246.04	3

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-Lc} (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23035	701.5	22.07	3.26	23.18	207.97	3
23095	707.5	22.06	3.26	23.17	207.49	3
23155	713.5	22.08	3.26	23.19	208.45	3

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23060	704.0	22.85	3.26	23.96	248.89	3
23095	707.5	22.78	3.26	23.89	244.91	3
23130	711.0	22.82	3.26	23.93	247.17	3

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23060	704.0	22.15	3.26	23.26	211.84	3
23095	707.5	22.08	3.26	23.19	208.45	3
23130	711.0	22.12	3.26	23.23	210.38	3



BUREAU
VERITAS

Test Report No.: RF190522W005-4

LTE BAND 13

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
23205	779.5	22.77	4.45	25.07	321.37	3
23230	782.0	22.71	4.45	25.01	316.96	3
23255	784.5	22.73	4.45	25.03	318.42	3

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
23205	779.5	22.05	4.45	24.35	272.27	3
23230	782.0	22.11	4.45	24.41	276.06	3
23255	784.5	22.08	4.45	24.38	274.16	3

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
23230	782.0	22.79	4.45	25.09	322.85	3

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
23230	782.0	22.13	4.45	24.43	277.33	3

LTE BAND 17

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-Lc} (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
23755	706.5	22.74	3.26	23.85	242.66	3
23790	710.0	22.70	3.26	23.81	240.44	3
23825	713.5	22.82	3.26	23.93	247.17	3

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-Lc} (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
23755	706.5	22.01	3.26	23.12	205.12	3
23790	710.0	22.04	3.26	23.15	206.54	3
23825	713.5	22.06	3.26	23.17	207.49	3

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-Lc} (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
23780	706.5	22.79	3.26	23.90	245.47	3
23790	710.0	22.78	3.26	23.89	244.91	3
23800	713.5	22.83	3.26	23.94	247.74	3

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-Lc} (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
23780	706.5	22.07	3.26	23.18	207.97	3
23790	710.0	22.06	3.26	23.17	207.49	3
23800	713.5	22.11	3.26	23.22	209.89	3

LTE BAND 41

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
39675	2498.5	23.28	2.44	25.72	373.25	2
40620	2593.0	22.82	2.44	25.26	335.74	2
41565	2687.5	22.80	2.44	25.24	334.20	2

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
39675	2498.5	22.39	2.44	24.83	304.09	2
40620	2593.0	21.96	2.44	24.40	275.42	2
41565	2687.5	21.95	2.44	24.39	274.79	2

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
39700	2501.0	23.27	2.44	25.71	372.39	2
40620	2593.0	22.85	2.44	25.29	338.06	2
41540	2685.0	22.70	2.44	25.14	326.59	2

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
39700	2501.0	22.39	2.44	24.83	304.09	2
40620	2593.0	21.93	2.44	24.37	273.53	2
41540	2685.0	21.91	2.44	24.35	272.27	2

CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18675	2503.5	23.32	2.44	25.76	376.70	2
18900	2593.0	22.85	2.44	25.29	338.06	2
19125	2682.5	22.77	2.44	25.21	331.89	2

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
39725	2503.5	22.42	2.44	24.86	306.20	2
40620	2593.0	22.00	2.44	24.44	277.97	2
41515	2682.5	21.91	2.44	24.35	272.27	2

CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
39750	2506.0	23.33	2.44	25.77	377.57	2
40620	2593.0	22.89	2.44	25.33	341.19	2
41490	2680.0	22.85	2.44	25.29	338.06	2

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
39750	2506.0	22.45	2.44	24.89	308.32	2
40620	2593.0	22.01	2.44	24.45	278.61	2
41490	2680.0	21.93	2.44	24.37	273.53	2

LTE BAND 71

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133147	665.5	23.03	1.66	22.54	179.47	3
133297	680.5	23.12	1.66	22.63	183.23	3
133447	695.5	23.21	1.66	22.72	187.07	3

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133147	665.5	21.80	1.66	21.31	135.21	3
133297	680.5	21.86	1.66	21.37	137.09	3
133447	695.5	21.94	1.66	21.45	139.64	3

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133172	668.0	23.03	1.66	22.54	179.47	3
133297	680.5	23.09	1.66	22.60	181.97	3
133422	693.0	23.18	1.66	22.69	185.78	3

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133172	668.0	21.80	1.66	21.31	135.21	3
133297	680.5	21.87	1.66	21.38	137.40	3
133422	693.0	21.91	1.66	21.42	138.68	3

CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133197	670.5	23.06	1.66	22.57	180.72	3
133297	680.5	23.19	1.66	22.70	186.21	3
132647	690.5	23.18	1.66	22.69	185.78	3

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133197	670.5	21.76	1.66	21.27	133.97	3
133297	680.5	21.92	1.66	21.43	139.00	3
132647	690.5	21.93	1.66	21.44	139.32	3

CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133222	673.0	23.08	1.66	22.59	181.55	3
133297	680.5	23.20	1.66	22.71	186.64	3
133372	688.0	23.22	1.66	22.73	187.50	3

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133222	673.0	21.82	1.66	21.33	135.83	3
133297	680.5	21.94	1.66	21.45	139.64	3
133372	688.0	21.96	1.66	21.47	140.28	3

3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

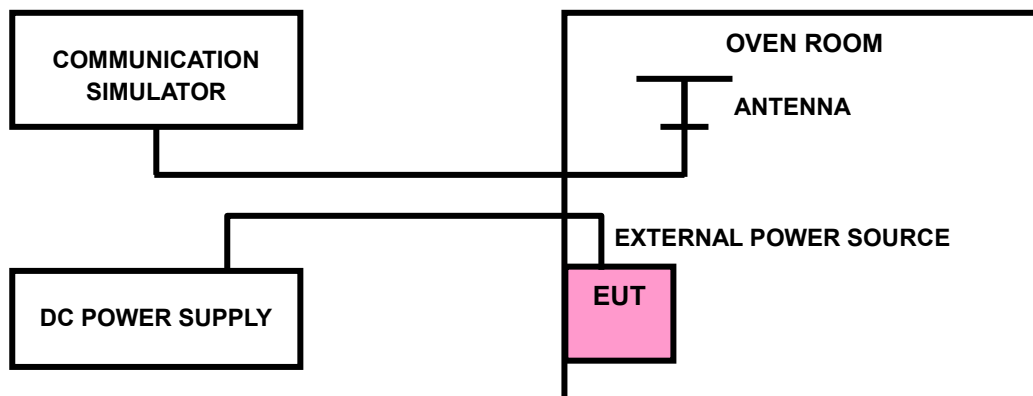
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

3.2.2 TEST PROCEDURE

- 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.
- 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.
- The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the $\pm 0.5^{\circ}\text{C}$ 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

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FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0021	0.0024	2.5
V _{min}	-0.0023	-0.0030	2.5
V _{max}	0.0021	0.0021	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0113	-0.0117	2.5
-20	-0.0104	-0.0105	2.5
-10	-0.0081	-0.0082	2.5
0	-0.0077	-0.0074	2.5
10	-0.0046	-0.0052	2.5
20	-0.0040	-0.0040	2.5
30	-0.0034	-0.0026	2.5
40	-0.0015	-0.0020	2.5
50	-0.0002	-0.0001	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	10MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0026	0.0025	2.5
V _{min}	-0.0031	-0.0030	2.5
V _{max}	0.0024	0.0026	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	10MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0115	-0.0121	2.5
-20	-0.0104	-0.0099	2.5
-10	-0.0082	-0.0082	2.5
0	-0.0077	-0.0075	2.5
10	-0.0051	-0.0052	2.5
20	-0.0039	-0.0043	2.5
30	-0.0036	-0.0034	2.5
40	-0.0023	-0.0021	2.5
50	-0.0003	-0.0004	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	15MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0024	0.0026	2.5
V _{min}	-0.0031	-0.0030	2.5
V _{max}	0.0025	0.0026	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	15MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0115	-0.0116	2.5
-20	-0.0105	-0.0103	2.5
-10	-0.0082	-0.0084	2.5
0	-0.0073	-0.0076	2.5
10	-0.0049	-0.0044	2.5
20	-0.0042	-0.0044	2.5
30	-0.0037	-0.0028	2.5
40	-0.0016	-0.0018	2.5
50	-0.0005	-0.0005	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	20MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0024	0.0026	2.5
V _{min}	-0.0031	-0.0031	2.5
V _{max}	0.0024	0.0026	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	20MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0121	-0.0119	2.5
-20	-0.0100	-0.0098	2.5
-10	-0.0082	-0.0084	2.5
0	-0.0073	-0.0073	2.5
10	-0.0051	-0.0054	2.5
20	-0.0038	-0.0040	2.5
30	-0.0030	-0.0034	2.5
40	-0.0019	-0.0020	2.5
50	-0.0004	-0.0003	2.5

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FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	1.4MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0020	0.0024	2.5
V _{min}	-0.0031	-0.0030	2.5
V _{max}	0.0021	0.0021	2.5

NOTE: The applicant defined the normal working voltage of the battery is from 3.6Vdc to 4.4Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	1.4MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0117	-0.0117	2.5
-20	-0.0106	-0.0103	2.5
-10	-0.0084	-0.0081	2.5
0	-0.0077	-0.0073	2.5
10	-0.0057	-0.0046	2.5
20	-0.0042	-0.0041	2.5
30	-0.0028	-0.0038	2.5
40	-0.0016	-0.0014	2.5
50	-0.0002	-0.0002	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	3MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0021	0.0021	2.5
V _{min}	-0.0022	-0.0025	2.5
V _{max}	0.0018	0.0017	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	3MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0114	-0.0113	2.5
-20	-0.0113	-0.0107	2.5
-10	-0.0085	-0.0083	2.5
0	-0.0076	-0.0076	2.5
10	-0.0057	-0.0055	2.5
20	-0.0042	-0.0043	2.5
30	-0.0041	-0.0034	2.5
40	-0.0016	-0.0016	2.5
50	-0.0003	-0.0005	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0021	0.0024	2.5
V _{min}	-0.0024	-0.0030	2.5
V _{max}	0.0021	0.0021	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0123	-0.0116	2.5
-20	-0.0098	-0.0096	2.5
-10	-0.0083	-0.0079	2.5
0	-0.0078	-0.0074	2.5
10	-0.0046	-0.0045	2.5
20	-0.0039	-0.0043	2.5
30	-0.0043	-0.0032	2.5
40	-0.0017	-0.0022	2.5
50	-0.0006	-0.0002	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	10MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0026	0.0023	2.5
V _{min}	-0.0031	-0.0031	2.5
V _{max}	0.0026	0.0024	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	10MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0122	-0.0116	2.5
-20	-0.0104	-0.0101	2.5
-10	-0.0084	-0.0080	2.5
0	-0.0074	-0.0075	2.5
10	-0.0045	-0.0053	2.5
20	-0.0038	-0.0037	2.5
30	-0.0030	-0.0030	2.5
40	-0.0021	-0.0020	2.5
50	-0.0002	-0.0004	2.5

LTE BAND 13

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0022	0.0025	2.5
V _{min}	-0.0023	-0.0031	2.5
V _{max}	0.0021	0.0021	2.5

NOTE: The applicant defined the normal working voltage of the battery is from 3.6Vdc to 4.4Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0115	-0.0117	2.5
-20	-0.0110	-0.0104	2.5
-10	-0.0086	-0.0083	2.5
0	-0.0073	-0.0073	2.5
10	-0.0046	-0.0053	2.5
20	-0.0044	-0.0041	2.5
30	-0.0042	-0.0029	2.5
40	-0.0016	-0.0017	2.5
50	-0.0004	-0.0002	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	10MHz	LIMIT (ppm)
	FREQUENCY ERROR (ppm)	
	Mid Channel	
V_{nor}	0.0024	2.5
V_{min}	-0.0030	2.5
V_{max}	0.0024	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	10MHz	LIMIT (ppm)
	FREQUENCY ERROR (ppm)	
	Mid Channel	
-30	-0.0116	2.5
-20	-0.0101	2.5
-10	-0.0085	2.5
0	-0.0074	2.5
10	-0.0046	2.5
20	-0.0037	2.5
30	-0.0037	2.5
40	-0.0018	2.5
50	-0.0003	2.5

LTE BAND 14

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0021	0.0024	2.5
V _{min}	-0.0024	-0.0030	2.5
V _{max}	0.0021	0.0020	2.5

NOTE: The applicant defined the normal working voltage of the battery is from 3.6Vdc to 4.4Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0114	-0.0117	2.5
-20	-0.0111	-0.0107	2.5
-10	-0.0081	-0.0082	2.5
0	-0.0076	-0.0075	2.5
10	-0.0050	-0.0054	2.5
20	-0.0042	-0.0037	2.5
30	-0.0026	-0.0041	2.5
40	-0.0017	-0.0016	2.5
50	-0.0002	-0.0002	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	10MHz	LIMIT (ppm)
	FREQUENCY ERROR (ppm)	
	Mid Channel	
V_{nor}	0.0026	2.5
V_{min}	-0.0031	2.5
V_{max}	0.0024	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	10MHz	LIMIT (ppm)
	FREQUENCY ERROR (ppm)	
	Mid Channel	
-30	-0.0113	2.5
-20	-0.0104	2.5
-10	-0.0085	2.5
0	-0.0074	2.5
10	-0.0046	2.5
20	-0.0042	2.5
30	-0.0024	2.5
40	-0.0020	2.5
50	-0.0005	2.5

LTE BAND 17

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0021	0.0024	2.5
V _{min}	-0.0024	-0.0030	2.5
V _{max}	0.0021	0.0021	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0123	-0.0116	2.5
-20	-0.0105	-0.0099	2.5
-10	-0.0082	-0.0084	2.5
0	-0.0074	-0.0074	2.5
10	-0.0046	-0.0052	2.5
20	-0.0040	-0.0037	2.5
30	-0.0031	-0.0028	2.5
40	-0.0018	-0.0019	2.5
50	-0.0003	-0.0004	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	10MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0025	0.0024	2.5
V _{min}	-0.0030	-0.0030	2.5
V _{max}	0.0026	0.0026	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	10MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0113	-0.0117	2.5
-20	-0.0099	-0.0104	2.5
-10	-0.0081	-0.0082	2.5
0	-0.0074	-0.0076	2.5
10	-0.0051	-0.0046	2.5
20	-0.0044	-0.0039	2.5
30	-0.0030	-0.0031	2.5
40	-0.0019	-0.0021	2.5
50	-0.0003	-0.0002	2.5

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FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0021	0.0025	2.5
V _{min}	-0.0024	-0.0030	2.5
V _{max}	0.0021	0.0021	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0118	-0.0114	2.5
-20	-0.0109	-0.0107	2.5
-10	-0.0085	-0.0080	2.5
0	-0.0074	-0.0072	2.5
10	-0.0046	-0.0052	2.5
20	-0.0044	-0.0037	2.5
30	-0.0038	-0.0027	2.5
40	-0.0019	-0.0015	2.5
50	-0.0004	-0.0005	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	10MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0025	0.0026	2.5
V _{min}	-0.0031	-0.0031	2.5
V _{max}	0.0025	0.0025	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	10MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0122	-0.0114	2.5
-20	-0.0110	-0.0107	2.5
-10	-0.0083	-0.0081	2.5
0	-0.0078	-0.0072	2.5
10	-0.0054	-0.0045	2.5
20	-0.0042	-0.0038	2.5
30	-0.0040	-0.0026	2.5
40	-0.0019	-0.0022	2.5
50	-0.0006	-0.0004	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	15MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0026	0.0024	2.5
V _{min}	-0.0031	-0.0030	2.5
V _{max}	0.0025	0.0025	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	15MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0119	-0.0115	2.5
-20	-0.0106	-0.0105	2.5
-10	-0.0081	-0.0082	2.5
0	-0.0075	-0.0073	2.5
10	-0.0050	-0.0047	2.5
20	-0.0044	-0.0039	2.5
30	-0.0042	-0.0033	2.5
40	-0.0019	-0.0017	2.5
50	-0.0003	-0.0004	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	20MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0024	0.0025	2.5
V _{min}	-0.0031	-0.0030	2.5
V _{max}	0.0025	0.0025	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	20MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0119	-0.0112	2.5
-20	-0.0104	-0.0097	2.5
-10	-0.0085	-0.0079	2.5
0	-0.0075	-0.0073	2.5
10	-0.0045	-0.0045	2.5
20	-0.0040	-0.0042	2.5
30	-0.0036	-0.0040	2.5
40	-0.0019	-0.0016	2.5
50	-0.0004	-0.0003	2.5

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FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0022	0.0023	2.5
V _{min}	-0.0023	-0.0030	2.5
V _{max}	0.0022	0.0021	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0122	-0.0112	2.5
-20	-0.0110	-0.0099	2.5
-10	-0.0083	-0.0079	2.5
0	-0.0078	-0.0073	2.5
10	-0.0049	-0.0052	2.5
20	-0.0041	-0.0037	2.5
30	-0.0026	-0.0036	2.5
40	-0.0023	-0.0016	2.5
50	-0.0006	-0.0004	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	10MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0024	0.0025	2.5
V _{min}	-0.0031	-0.0031	2.5
V _{max}	0.0024	0.0024	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	10MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0116	-0.0112	2.5
-20	-0.0100	-0.0098	2.5
-10	-0.0083	-0.0081	2.5
0	-0.0075	-0.0073	2.5
10	-0.0051	-0.0046	2.5
20	-0.0041	-0.0039	2.5
30	-0.0042	-0.0024	2.5
40	-0.0021	-0.0015	2.5
50	-0.0002	-0.0003	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	15MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0025	0.0024	2.5
V _{min}	-0.0031	-0.0030	2.5
V _{max}	0.0024	0.0023	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	15MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0122	-0.0112	2.5
-20	-0.0109	-0.0098	2.5
-10	-0.0082	-0.0082	2.5
0	-0.0073	-0.0075	2.5
10	-0.0045	-0.0046	2.5
20	-0.0039	-0.0042	2.5
30	-0.0037	-0.0034	2.5
40	-0.0019	-0.0015	2.5
50	-0.0005	-0.0003	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	20MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0024	0.0026	2.5
V _{min}	-0.0031	-0.0030	2.5
V _{max}	0.0025	0.0026	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

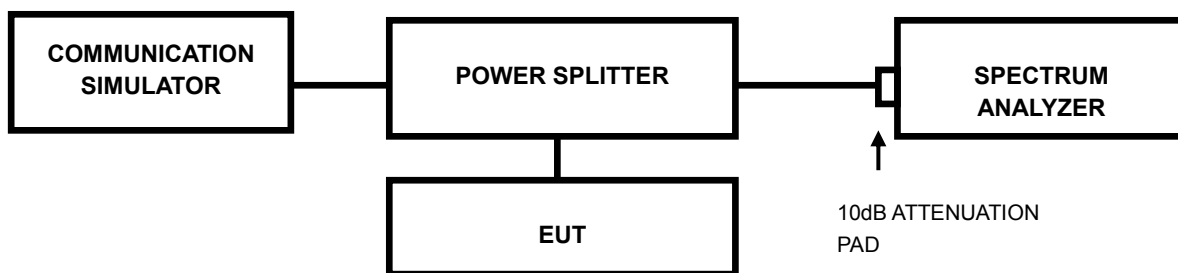
TEMP. (°C)	20MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0113	-0.0116	2.5
-20	-0.0105	-0.0104	2.5
-10	-0.0084	-0.0079	2.5
0	-0.0076	-0.0075	2.5
10	-0.0053	-0.0053	2.5
20	-0.0044	-0.0038	2.5
30	-0.0032	-0.0035	2.5
40	-0.0022	-0.0019	2.5
50	-0.0004	-0.0003	2.5

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

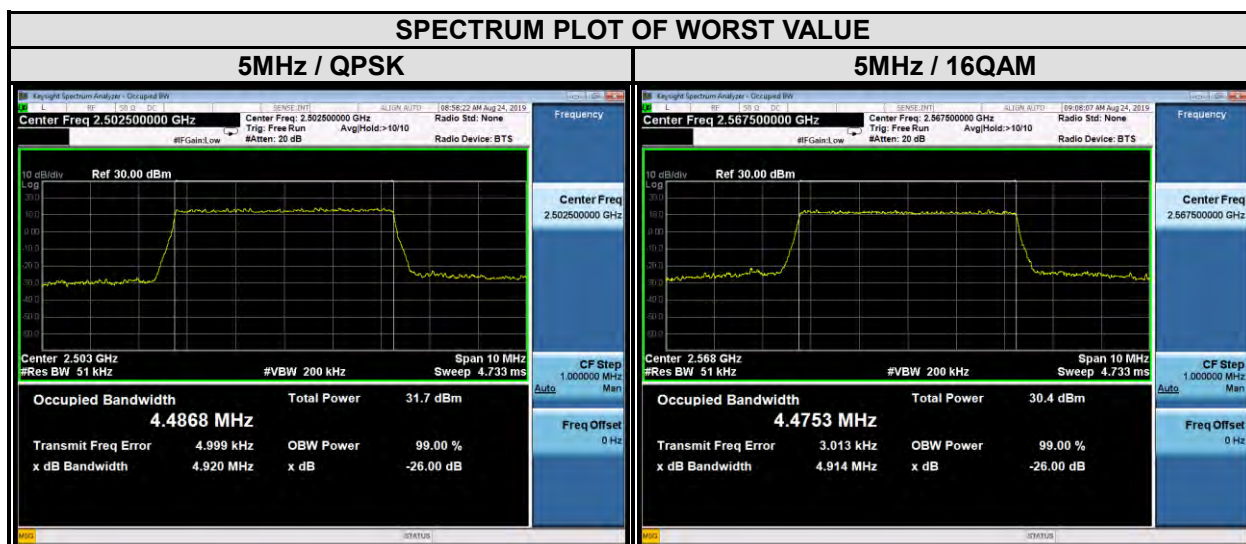


3.3.3 TEST PROCEDURES

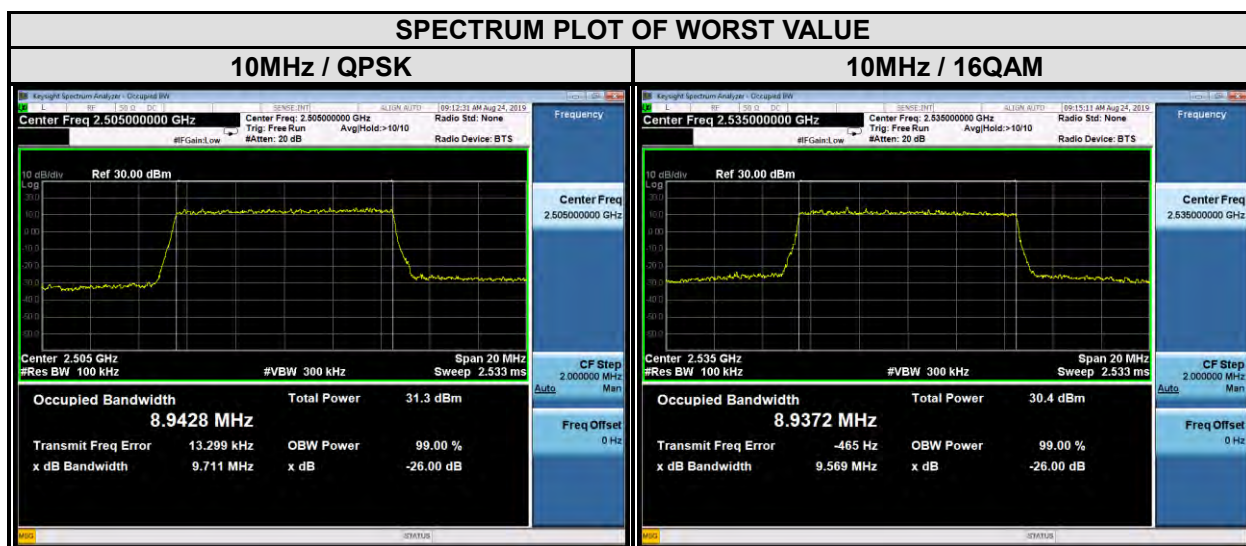
- The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
- Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

3.3.4 TEST RESULTS

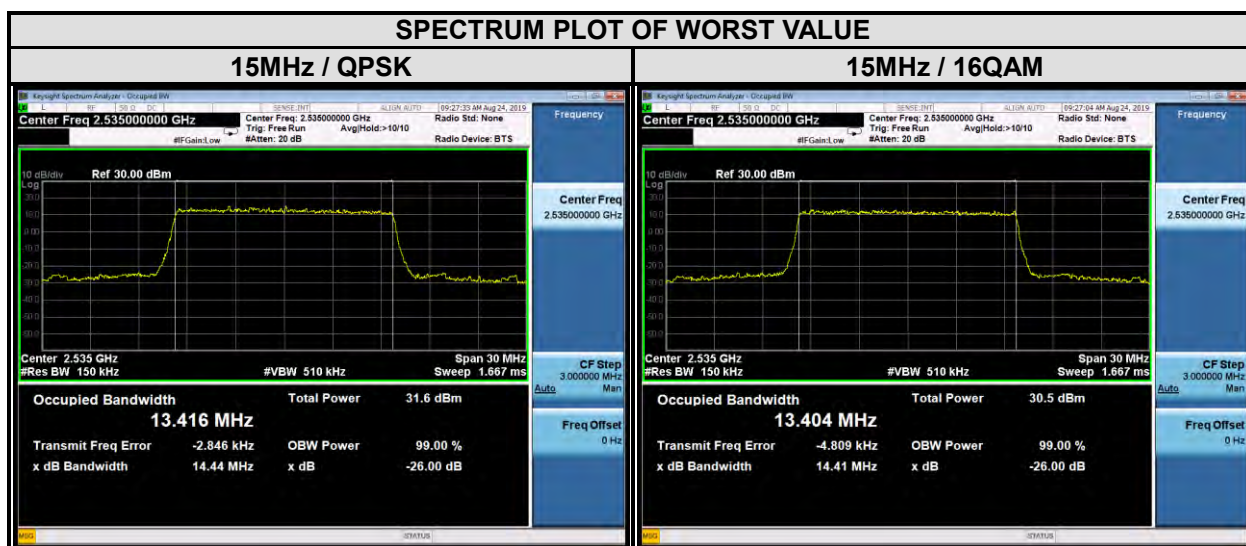
LTE band 7					
Channel Bandwidth : 5MHz					
Channel	Frequency (MHz)	99% Occupied bandwidth (MHz)		26 dB bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
20775	2502.5	4.49	4.47	4.92	4.87
21100	2535	4.48	4.47	4.92	4.90
21425	2567.5	4.47	4.48	4.92	4.91



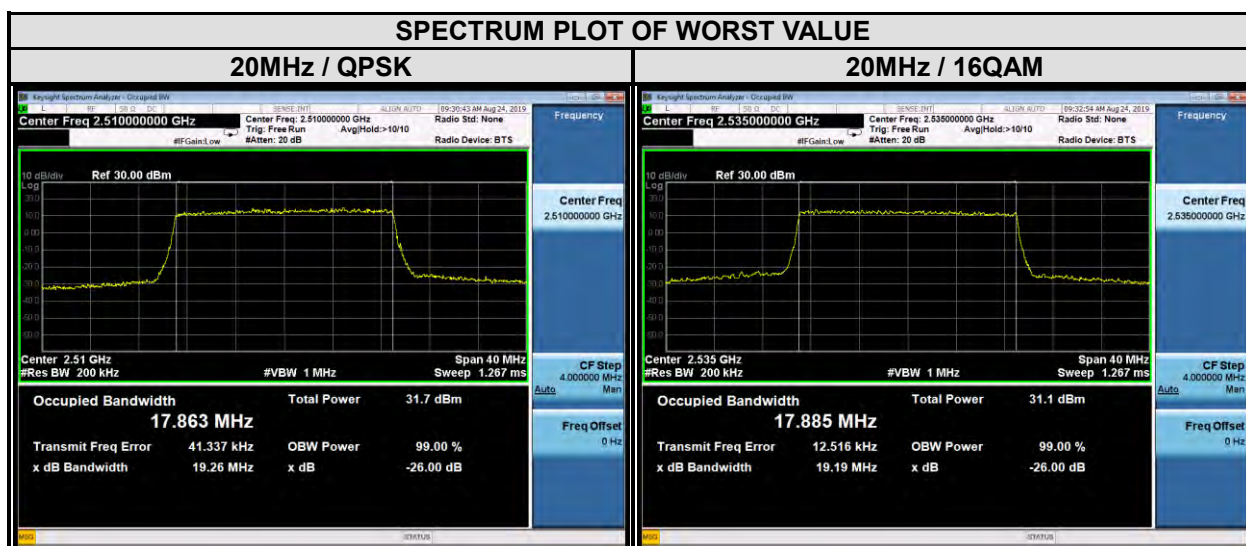
LTE band 7					
Channel Bandwidth : 10MHz					
Channel	Frequency (MHz)	99% Occupied bandwidth (MHz)		26 dB bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
20800	2505	8.94	8.93	9.71	9.55
21100	2535	8.92	8.94	9.64	9.57
21400	2565	8.94	8.94	9.61	9.56



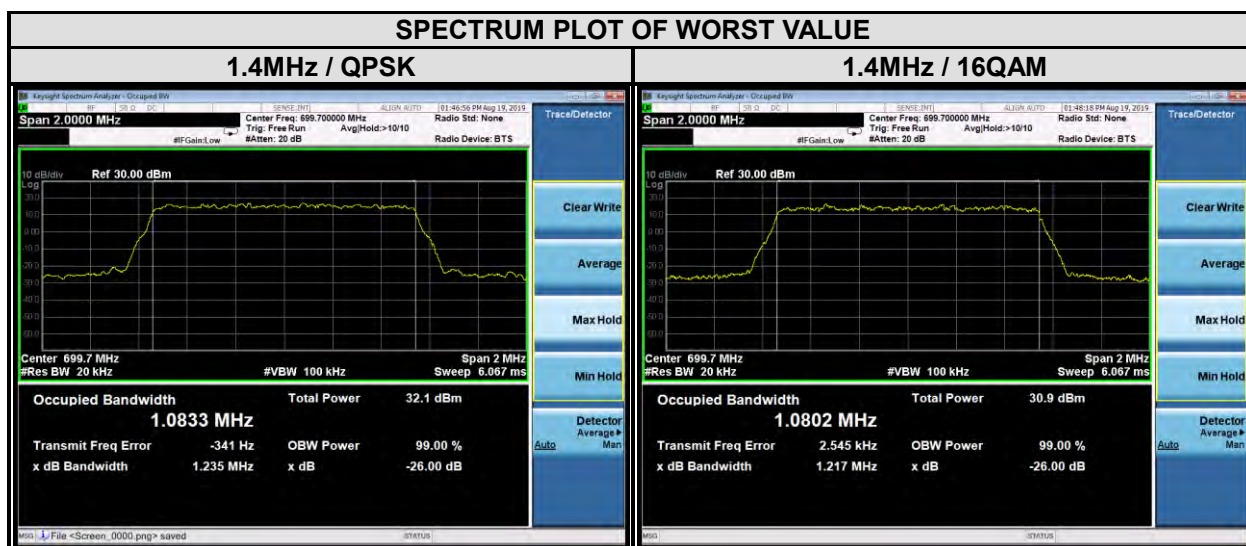
LTE band 7					
Channel Bandwidth : 15MHz					
Channel	Frequency (MHz)	99% Occupied bandwidth (MHz)		26 dB bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
20825	2507.5	13.39	13.39	14.51	14.34
21100	2535	13.42	13.40	14.44	14.41
21375	2562.5	13.39	13.40	14.45	14.38



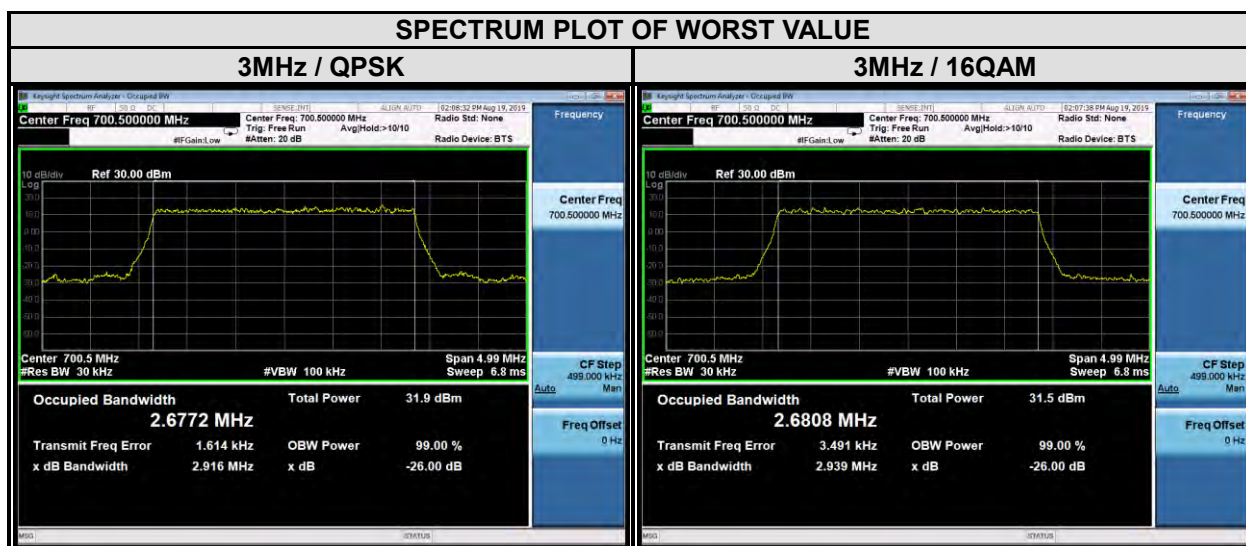
LTE band 7					
Channel Bandwidth : 20MHz					
Channel	Frequency (MHz)	99% Occupied bandwidth (MHz)		26 dB bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
20850	2510	17.86	17.82	19.26	19.16
21100	2535	17.84	17.89	19.06	19.19
21350	2560	17.82	17.85	19.19	19.16



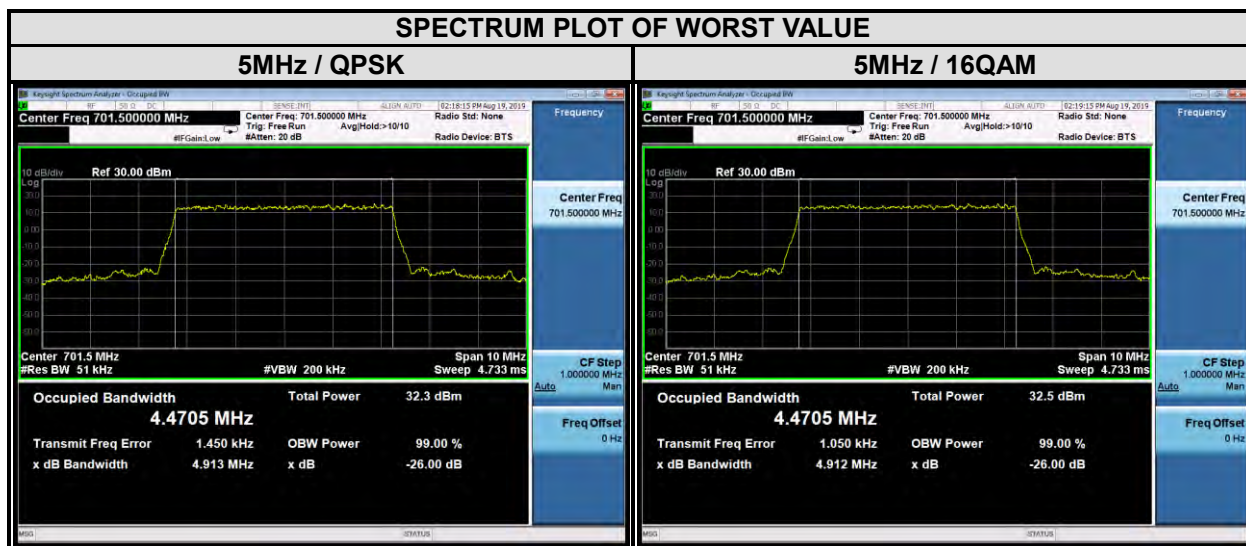
LTE band 12					
Channel Bandwidth : 1.4MHz					
Channel	Frequency (MHz)	99% Occupied bandwidth (MHz)		26 dB bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
23017	699.7	1.08	1.08	1.24	1.22
23095	707.5	1.08	1.08	1.23	1.22
23173	715.3	1.08	1.08	1.22	1.22



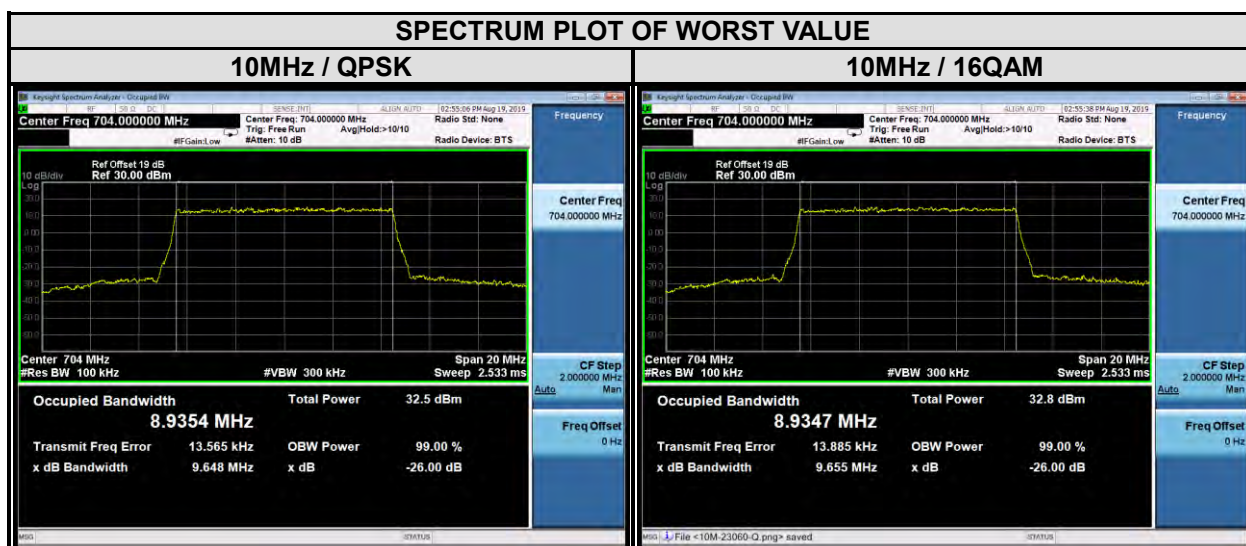
LTE band 12					
Channel Bandwidth : 3MHz					
Channel	Frequency (MHz)	99% Occupied bandwidth (MHz)		26 dB bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
23025	700.5	2.68	2.68	2.92	2.94
23095	707.5	2.68	2.68	2.93	2.94
23165	714.5	2.68	2.68	2.92	2.93



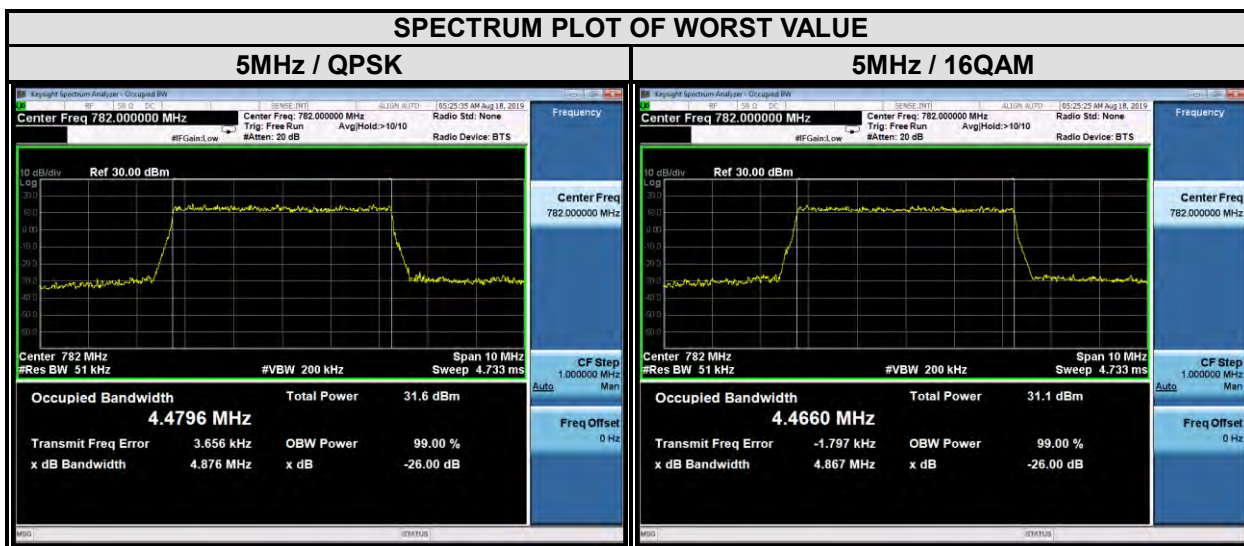
LTE band 12					
Channel Bandwidth : 5MHz					
Channel	Frequency (MHz)	99% Occupied bandwidth (MHz)		26 dB bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
23035	701.5	4.47	4.47	4.91	4.91
23095	707.5	4.47	4.47	4.91	4.89
23155	713.5	4.47	4.47	4.89	4.91



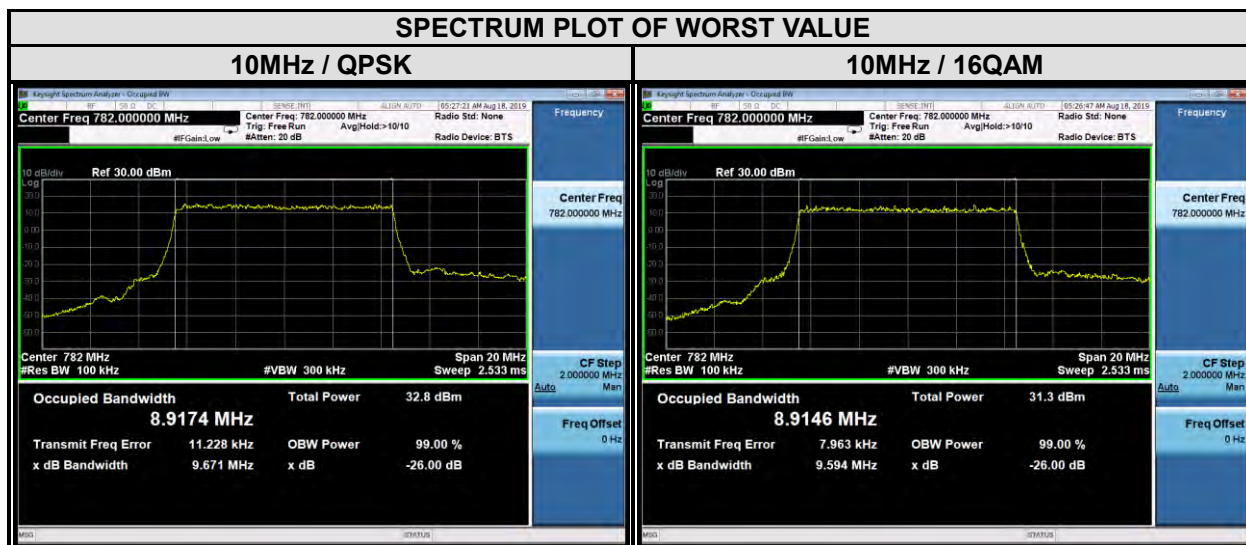
LTE band 12					
Channel Bandwidth : 10MHz					
Channel	Frequency (MHz)	99% Occupied bandwidth (MHz)		26 dB bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
23060	704	8.94	8.93	9.65	9.66
23095	707.5	8.93	8.90	9.59	9.56
23130	711	8.94	8.93	9.63	9.62



LTE band 13					
Channel Bandwidth : 5MHz					
Channel	Frequency (MHz)	99% Occupied bandwidth (MHz)		26 dB bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
23205	779.5	4.47	4.46	4.87	4.79
23230	793	4.48	4.47	4.88	4.87
23255	784.5	4.48	4.46	4.87	4.85



LTE band 13					
Channel Bandwidth : 10MHz					
Channel	Frequency (MHz)	99% Occupied bandwidth (MHz)		26 dB bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
23230	782	8.92	8.91	9.67	9.59



LTE band 17					
Channel Bandwidth : 5MHz					
Channel	Frequency (MHz)	99% Occupied bandwidth (MHz)		26 dB bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
23755	706.5	4.47	4.47	4.90	4.90
23790	710	4.47	4.47	4.91	4.91
23825	713.5	4.47	4.47	4.89	4.90

