FCC TEST REPORT

(PART 27)

Applicant:	Borqs BeiJing Ltd.
Address:	Tower A, Building B23, Universal Business Park, No. 10 Jiuxianqiao Road, Chaoyang District Beijing, 100015 China

Manufacturer or Supplier:	Borqs BeiJing Ltd.
Address:	Tower A, Building B23, Universal Business Park, No. 10 Jiuxianqiao Road, Chaoyang District Beijing, 100015 China
Product:	Ecoport AC LTE-LP
Brand Name:	SkyCentrics
Model Name:	US08Ba
Serial Model Name:	US08B
FCC ID:	2ABDK-US08B
Date of tests:	Mar. 13, 2023 ~ Apr. 03, 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: Apr. 03, 2023	Luke Lu Date: Apr. 03, 2023

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5 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB. 304

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-230313W001RF03	Original release	Apr. 03, 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**
§2.1046	Conducted Output Power	Compliance
§27.50(b)(10) §27.50(c)(10) §27.1507(a)(3)	Effective Radiated Power (Band 8) (Band 12) (Band 13) (Band 71) (Band 85)	Compliance
§27.50(d)(4)	Equivalent Isotropically Radiated Power (Band 4) (Band 66)	Compliance
§2.1055 §27.54	Frequency Stability	See Note
§2.1049	Occupied Bandwidth	See Note
§2.1051 §27.53(h) §27.53(c)(2)(4) §27.53(g) §27.1509(a)	Conducted Band Edge Measurements (Band 4) (Band 8) (Band 12) (Band 13) (Band 66) (Band 71) (Band 85)	See Note
§2.1051 §27.53(h) §27.53(c)(2)(4) §27.53(g) §27.1509(a)	Conducted Spurious Emissions (Band 4) (Band 8) (Band 12) (Band 13) (Band 66) (Band 71) (Band 85)	See Note
§2.1053 §27.53(h) §27.53(c)(2)(4) §27.53(g) §27.1509(a)	Radiated Spurious Emissions (Band 4) (Band 8) (Band 12) (Band 13) (Band 66) (Band 71) (Band 85)	Compliance
§27.50(d)(4) §27.1507(d)	Peak to average ratio	See Note

NOTE: Refer to Module report R1907A0448-R3V3/ R1907A0448-R6V2/ 2111RSU084-U1/2111RSU084-U2, FCC ID: XMR2020BG95M2.

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. 20,23	Feb. 19,24
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	Feb. 18,23	Feb. 17,24
Horn Antenna	ETS-LINDGREN	3117	00168692	Feb. 18,23	Feb. 17,24
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	1505	May. 07,22	May. 06,23
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.

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Ecoport AC LTE-LP		
BRAND NAME	SkyCentrics		
MODEL NAME	US08Ba		
SERIAL MODEL NAME	US08B		
NOMINAL VOLTAGE	120V(adapter or host equipment) 3.0Vdc (Li-ion, battery)		
MODULATION TECHNOLOGY	**LTE CAT-M1/NB-IOT**		QPSK, 16QAM, BPSK
FREQUENCY RANGE	**LTE CAT-M1**	**LTE Band 4 Channel Bandwidth: 1.4MHz**	1710.7MHz ~ 1754.3MHz
		LTE Band 4 Channel Bandwidth: 3MHz	1711.5MHz ~ 1753.5MHz
		LTE Band 4 Channel Bandwidth: 5MHz	1712.5MHz ~ 1752.5MHz
		LTE Band 4 Channel Bandwidth: 10MHz	1715MHz ~ 1750MHz
		LTE Band 4 Channel Bandwidth: 15MHz	1717.5MHz ~ 1747.5 MHz
		LTE Band 4 Channel Bandwidth: 20MHz	1720MHz ~ 1745MHz
		LTE Band 8 Channel Bandwidth: 1.4MHz	898.2MHz ~ 899.8MHz
		LTE Band 8 Channel Bandwidth: 3MHz	899MHz
		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

FREQUENCY RANGE	**LTE CAT-M1**	**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 66 Channel Bandwidth: 1.4MHz	1710.7MHz ~ 1779.3MHz
		LTE Band 66 Channel Bandwidth: 3MHz	1711.5MHz ~ 1778.5MHz
		LTE Band 66 Channel Bandwidth: 5MHz	1712.5MHz ~ 1777.5MHz
		LTE Band 66 Channel Bandwidth: 10MHz	1715MHz ~ 1775MHz
		LTE Band 66 Channel Bandwidth: 15MHz	1717.5MHz ~ 1772.5MHz
		LTE Band 66 Channel Bandwidth: 20MHz	1720MHz ~ 1770MHz
		LTE Band 85 Channel Bandwidth: 5MHz	700.5MHz ~ 713.5MHz
		LTE Band 85 Channel Bandwidth: 10MHz	703MHz ~ 711MHz

FREQUENCY RANGE	**LTE NB-IOT**	**LTE Band 4 (SUB-CARRIER SPEACING: 3.75KHz)**	1710.2MHz~1754.8MHz
		LTE Band 4 (SUB-CARRIER SPEACING: 15KHz)	1710.2MHz~1754.8MHz
		LTE Band 8 (SUB-CARRIER SPEACING: 3.75KHz)	897.7MHz ~ 900.3MHz
		LTE Band 8 (SUB-CARRIER SPEACING: 15KHz)	897.7MHz ~ 900.3MHz
		LTE Band 12 (SUB-CARRIER SPEACING: 3.75KHz)	699.2MHz ~ 715.8MHz
		LTE Band 12 (SUB-CARRIER SPEACING: 15KHz)	699.2MHz ~ 715.8MHz
		LTE Band 13 (SUB-CARRIER SPEACING: 3.75KHz)	777.2MHz ~ 786.8MHz
		LTE Band 13 (SUB-CARRIER SPEACING: 15KHz)	777.2MHz ~ 786.8MHz
		LTE Band 66 (SUB-CARRIER SPEACING: 3.75KHz)	1710.2MHz~1779.8MHz
		LTE Band 66 (SUB-CARRIER SPEACING: 15KHz)	1710.2MHz~1779.8MHz
		LTE Band 71 (SUB-CARRIER SPEACING: 3.75KHz)	663.2MHz ~ 697.8MHz
		LTE Band 71 (SUB-CARRIER SPEACING: 15KHz)	663.2MHz ~ 697.8MHz
		LTE Band 85 (SUB-CARRIER SPEACING: 3.75KHz)	698.2MHz ~ 715.8MHz
		LTE Band 85 (SUB-CARRIER SPEACING: 15KHz)	698.2MHz ~ 715.8MHz
MAX. EIRP POWER	**LTE CAT-M1**	**LTE Band 4 Channel Bandwidth: 1.4MHz**	206.06mW
		LTE Band 4 Channel Bandwidth: 3MHz	201.84mW

MAX. EIRP POWER	LTE CAT-M1	LTE Band 4 Channel Bandwidth: 5MHz	206.06mW
		LTE Band 4 Channel Bandwidth: 10MHz	204.64mW
		LTE Band 4 Channel Bandwidth: 15MHz	204.17mW
		LTE Band 4 Channel Bandwidth: 20MHz	207.01mW
		LTE Band 8 Channel Bandwidth: 1.4MHz	40.93mW
		LTE Band 8 Channel Bandwidth: 3MHz	41.11mW
		LTE Band 12 Channel Bandwidth: 1.4MHz	29.04mW
		LTE Band 12 Channel Bandwidth: 3MHz	29.04mW
		LTE Band 12 Channel Bandwidth: 5MHz	29.04mW
		LTE Band 12 Channel Bandwidth: 10MHz	29.11mW
		LTE Band 13 Channel Bandwidth: 5MHz	38.99mW
		LTE Band 13 Channel Bandwidth: 10MHz	39.17mW
		LTE Band 66 Channel Bandwidth: 1.4MHz	194.09mW
		LTE Band 66 Channel Bandwidth: 3MHz	192.75mW
		LTE Band 66 Channel Bandwidth: 5MHz	194.09mW
		LTE Band 66 Channel Bandwidth: 10MHz	195.43mW

MAX. EIRP POWER	LTE CAT-M1	LTE Band 66 Channel Bandwidth: 15MHz	192.75mW
		LTE Band 66 Channel Bandwidth: 20MHz	196.34mW
		LTE Band 85 Channel Bandwidth: 5MHz	33.57mW
		LTE Band 85 Channel Bandwidth: 10MHz	33.65mW
	LTE NB-IOT	LTE Band 4 (SUB-CARRIER SPEACING: 3.75KHz)	248.31mW
		LTE Band 4 (SUB-CARRIER SPEACING: 15KHz)	227.51mW
		LTE Band 8 (SUB-CARRIER SPEACING: 3.75KHz)	41.88mW
		LTE Band 8 (SUB-CARRIER SPEACING: 15KHz)	39.9mW
		LTE Band 12 (SUB-CARRIER SPEACING: 3.75KHz)	33.65mW
		LTE Band 12 (SUB-CARRIER SPEACING: 15KHz)	35.08mW
		LTE Band 13 (SUB-CARRIER SPEACING: 3.75KHz)	42.85mW
		LTE Band 13 (SUB-CARRIER SPEACING: 15KHz)	44.57mW
		LTE Band 66 (SUB-CARRIER SPEACING: 3.75KHz)	193.2mW
		LTE Band 66 (SUB-CARRIER SPEACING: 15KHz)	214.29mW
		LTE Band 71 (SUB-CARRIER SPEACING: 3.75KHz)	32.43mW
		LTE Band 71 (SUB-CARRIER SPEACING: 15KHz)	32.36mW
		LTE Band 85 (SUB-CARRIER SPEACING: 3.75KHz)	33.81mW

MAX. EIRP POWER	**LTE NB-IOT**	**LTE Band 85 (SUB-CARRIER SPEACING: 15KHz)**	34.28mW
EMISSION DESIGNATOR	**LTE CAT-M1**	**LTE Band 4 Channel Bandwidth: 1.4MHz**	QPSK: 1M11G7D
			16QAM: 942KW7D
			64QAM: /
		LTE Band 4 Channel Bandwidth: 3MHz	QPSK: 1M11G7D
			16QAM: 946KW7D
			64QAM: /
		LTE Band 4 Channel Bandwidth: 5MHz	QPSK: 1M11G7D
			16QAM: 952KW7D
			64QAM: /
		LTE Band 4 Channel Bandwidth: 10MHz	QPSK: 1M12G7D
			16QAM: 916KW7D
			64QAM: /
		LTE Band 4 Channel Bandwidth: 15MHz	QPSK: 1M13G7D
			16QAM: 957KW7D
			64QAM: /
		LTE Band 4 Channel Bandwidth: 20MHz	QPSK: 1M13G7D
			16QAM: 966KW7D
			64QAM: /
		LTE Band 8 Channel Bandwidth: 1.4MHz	QPSK: 1M09G7D
			16QAM: 910KW7D
			64QAM: /
		LTE Band 8 Channel Bandwidth: 3MHz	QPSK: 1M10G7D
			16QAM: 930KW7D
			64QAM: /
		LTE Band 12 Channel Bandwidth: 1.4MHz	QPSK: 1M11G7D
			16QAM: 941KW7D
			64QAM: /
		LTE Band 12 Channel Bandwidth: 3MHz	QPSK: 1M11G7D
			16QAM: 952KW7D
			64QAM: /

EMISSION DESIGNATOR	LTE CAT-M1	LTE Band 12 Channel Bandwidth: 5MHz	QPSK: 1M11G7D
			16QAM: 954KW7D
			64QAM: /
		LTE Band 12 Channel Bandwidth: 10MHz	QPSK: 1M12G7D
			16QAM: 963KW7D
			64QAM: /
		LTE Band 13 Channel Bandwidth: 5MHz	QPSK: 1M11G7D
			16QAM: 950KW7D
			64QAM: /
		LTE Band 13 Channel Bandwidth: 10MHz	QPSK: 1M12G7D
			16QAM: 961KW7D
			64QAM: /
		LTE Band 66 Channel Bandwidth: 1.4MHz	QPSK: 1M11G7D
			16QAM: 939KW7D
			64QAM: /
		LTE Band 66 Channel Bandwidth: 3MHz	QPSK: 1M11G7D
			16QAM: 949KW7D
			64QAM: /
		LTE Band 66 Channel Bandwidth: 5MHz	QPSK: 1M11G7D
			16QAM: 950KW7D
			64QAM: /
		LTE Band 66 Channel Bandwidth: 10MHz	QPSK: 1M12G7D
			16QAM: 965KW7D
			64QAM: /
		LTE Band 66 Channel Bandwidth: 15MHz	QPSK: 1M12G7D
			16QAM: 961KW7D
			64QAM: /
		LTE Band 66 Channel Bandwidth: 20MHz	QPSK: 1M13G7D
			16QAM: 963KW7D
			64QAM: /

EMISSION DESIGNATOR	**LTE CAT-M1**	**LTE Band 85 Channel Bandwidth: 5MHz**	QPSK: 1M12G7D
			16QAM: 1M12W7D
			64QAM: /
		LTE Band 85 Channel Bandwidth: 10MHz	QPSK: 1M12G7D
			16QAM: 1M13W7D
			64QAM: /
	LTE NB-IOT	**LTE Band 4 (SUB-CARRIER SPEACING: 3.75KHz)**	BPSK: 64K9G7D
			QPSK: 70K5G7D
		LTE Band 4 (SUB-CARRIER SPEACING: 15KHz)	BPSK: 133KG7D
			QPSK: 184KG7D
		LTE Band 8 (SUB-CARRIER SPEACING: 3.75KHz)	BPSK: 195KG7D
			QPSK: 195KG7D
		LTE Band 8 (SUB-CARRIER SPEACING: 15KHz)	BPSK: 195KG7D
			QPSK: 195KG7D
		LTE Band 12 (SUB-CARRIER SPEACING: 3.75KHz)	BPSK: 61K8G7D
			QPSK: 68K4G7D
		LTE Band 12 (SUB-CARRIER SPEACING: 15KHz)	BPSK: 130KG7D
			QPSK: 183KG7D
		LTE Band 13 (SUB-CARRIER SPEACING: 3.75KHz)	BPSK: 61K0G7D
			QPSK: 67K1G7D
		LTE Band 13 (SUB-CARRIER SPEACING: 15KHz)	BPSK: 130KG7D
			QPSK: 184KG7D
		LTE Band 66 (SUB-CARRIER SPEACING: 3.75KHz)	BPSK: 64K6G7D
			QPSK: 70K0G7D
		LTE Band 66 (SUB-CARRIER SPEACING: 15KHz)	BPSK: 126KG7D
			QPSK: 183KG7D
		LTE Band 71 (SUB-CARRIER SPEACING: 3.75KHz)	BPSK: 60K4G7D
			QPSK: 68K7G7D
		LTE Band 71 (SUB-CARRIER SPEACING: 15KHz)	BPSK: 130KG7D
			QPSK: 184KG7D

EMISSION DESIGNATOR	**LTE NB-IOT**	**LTE Band 85 (SUB-CARRIER SPEACING: 3.75KHz)**	BPSK: 58K3G7D
			QPSK: 66K2G7D
		LTE Band 85 (SUB-CARRIER SPEACING: 15KHz)	BPSK: 129KG7D
			QPSK: 184KG7D
ANTENNA TYPE	US08Ba: Internal Antenna with 2.53dBi gain for LTE B4 Internal Antenna with -5.1dBi gain for LTE B8 Internal Antenna with -3.1dBi gain for LTE B12 Internal Antenna with -2.19dBi gain for LTE B13 Internal Antenna with 2.53dBi gain for LTE B66 Internal Antenna with -4.93dBi gain for LTE B71 Internal Antenna with -3.1dBi gain for LTE B85 US08Ba: External Antenna with -0.55dBi gain for LTE B4 External Antenna with -3.67dBi gain for LTE B8 External Antenna with -2.81dBi gain for LTE B12 External Antenna with -2.46dBi gain for LTE B13 External Antenna with -0.55dBi gain for LTE B66 External Antenna with -3.37dBi gain for LTE B71 External Antenna with -2.81dBi gain for LTE B85 US08B: Internal Antenna with 2.53dBi gain for LTE4 Internal Antenna with -5.1dBi gain for LT8 Internal Antenna with -3.1dBi gain for LTE12 Internal Antenna with -2.19dBi gain for LTE13 Internal Antenna with 2.53dBi gain for LTE66 Internal Antenna with -4.93dBi gain for LTE71 Internal Antenna with -3.1dBi gain for LTE85		
HW VERSION	DVT		
SW VERSION	PICO_SPARROW_20230315		
I/O PORTS	Refer to user's manual		
CABLE SUPPLIED	N/A		
EXTREME TEMPERATURE	-20-50 ℃		
EXTREME VOLTAGE	110V - 240V		

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 one completed transmitter and one receiver.

MODULATION MODE	TX FUNCTION
LTE	1TX/1RX

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

4. US08Ba and US08B Difference description:

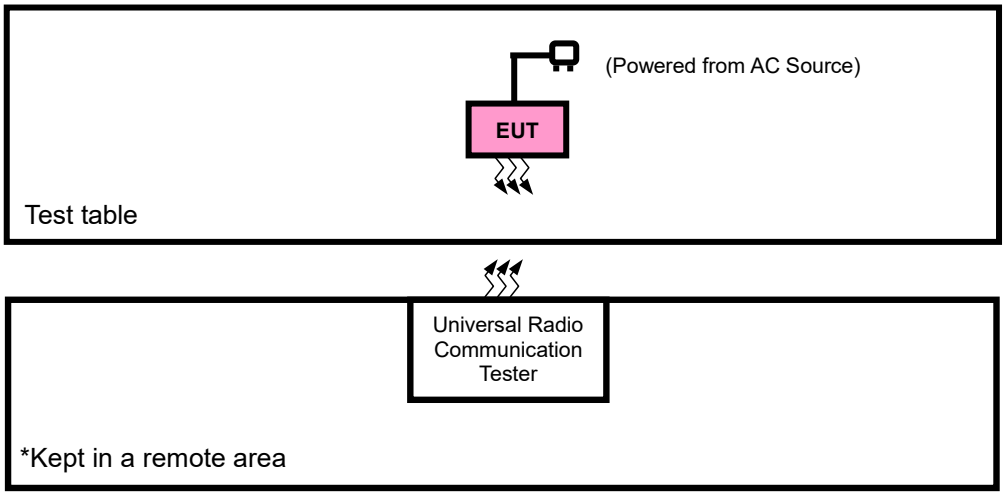
No	Model ID	Difference Description
1	US08B（Verified sample）	Only supports Internal Antenna
2	US08Ba（Mainly tested Sample）	Supports both Internal Antenna and External Antenna There is an additional Sub board which is connected with main board by RF cable for External antenna assembly.

List of Accessory:

ACCESSORIES	BRAND	MANUFACTURER	MODEL	SPECIFICATION
Battery	CHAOCHUANG	N/A	CR2032	Capacity：3.0Vdc, 210mAh

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	N/A	N/A	N/A	N/A	N/A

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

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 with LTE link

LTE CAT-M1

LTE BAND 4 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	EIRP	19957 to 20393	19957, 20175, 20393	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
		19965 to 20385	19965, 20175, 20385	3MHz	QPSK,16QAM	1 RB / 0 RB Offset
		19975 to 20375	19975, 20175, 20375	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
		20000 to 20350	20000, 20175, 20350	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
		20025 to 20325	20025, 20175, 20325	15MHz	QPSK,16QAM	1 RB / 0 RB Offset
		20050 to 20300	20050, 20175, 20300	20MHz	QPSK,16QAM	1 RB / 0 RB Offset

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

2. LTE Band 4 are covered by LTE Band 66, Because it is a subset of LTE Band 66, So the RSE test data please refer to LTE Band 66.

LTE BAND 8 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	ERP	21632 to 21648	21632, 21640 , 21648	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
		21640	21640	3MHz	QPSK,16QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	21632 to 21648	21632, 21640 , 21648	1.4MHz	QPSK	1 RB / 0 RB Offset
		21640	21640	3MHz	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

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	ERP	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 / 0 RB 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
A	RADIATED EMISSION	23017 to 23173	23017, 23095 ,23173	1.4MHz	QPSK	1 RB / 0 RB Offset
		23025 to 23165	23095	3MHz	QPSK	1 RB / 0 RB 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

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	ERP	23205 to 23255	23205, 23230, 23255	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
		23230	23230	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	23205 to 23255	23205, 23230, 23255	5MHz	QPSK	1 RB / 0 RB Offset
		23230	23230	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 66 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	EIRP	131979 to 132665	131979,132322,132665	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
		131987 to 132657	131987,132322,132657	3MHz	QPSK,16QAM	1 RB / 0 RB Offset
		131997 to 132647	131997,132322,132647	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
		132022 to 132622	132022,132322,132622	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
		132047 to 132597	132047,132322,132597	15MHz	QPSK,16QAM	1 RB / 0 RB Offset
		132072 to 132572	132072,132322,132572	20MHz	QPSK,16QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	131979 to 132665	132322	1.4MHz	QPSK	1 RB / 0 RB Offset
		131987 to 132657	132322	3MHz	QPSK	1 RB / 0 RB Offset
		131997 to 132647	132322	5MHz	QPSK	1 RB / 0 RB Offset
		132022 to 132622	132022,132322,132622	10MHz	QPSK	1 RB / 0 RB Offset
		132047 to 132597	132322	15MHz	QPSK	1 RB / 0 RB Offset
		132072 to 132572	132322	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 66 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	EIRP	134027 to 134157	134027,134092,134157	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
		134052 to 134132	134052,134092,134132	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	134027 to 134157	134027,134092,134157	5MHz	QPSK	1 RB / 0 RB Offset
		134052 to 134132	134092	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 NB-IOT

LTE BAND 4 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	SUBCARRIER SPACING	MODULATION	MODE
A	EIRP	19952 to 20398	19952, 20175, 20398	3.75KHz	BPSK,QPSK	1 RB / 0 RB Offset
		19952 to 20398	19952, 20175, 20398	15KHz	BPSK,QPSK	1 RB / 0 RB Offset

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

2. LTE Band 4 are covered by LTE Band 66, Because it is a subset of LTE Band 66, So the RSE test data please refer to LTE Band 66.

LTE BAND 12 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	SUBCARRIER SPACING	MODULATION	MODE
A	ERP	23012 to 23178	23012, 23095 , 23178	3.75KHz	BPSK,QPSK	1 RB / 0 RB Offset
		23012 to 23178	23012, 23095 , 23178	15KHz	BPSK,QPSK	1 RB / 0 RB Offset
A	RADIATED EMISSION	23012 to 23178	23012, 23095 , 23178	3.75KHz	QPSK	1 RB / 0 RB Offset
		23012 to 23178	23095	15KHz	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

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	SUBCARRIER SPACING	MODULATION	MODE
A	ERP	23182 to 23278	23182, 23230, 23278	3.75KHz	BPSK,QPSK	1 RB / 0 RB Offset
		23182 to 23278	23182, 23230, 23278	15KHz	BPSK,QPSK	1 RB / 0 RB Offset
A	RADIATED EMISSION	23182 to 23278	23182, 23230, 23278	3.75KHz	QPSK	1 RB / 0 RB Offset
		23182 to 23278	23230	15KHz	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 66 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	SUBCARRIER SPACING	MODULATION	MODE
A	ERP	131974 to 132670	131974, 132322, 132670	3.75KHz	BPSK,QPSK	1 RB / 0 RB Offset
		131974 to 132670	131974, 132322, 132670	15KHz	BPSK,QPSK	1 RB / 0 RB Offset
A	RADIATED EMISSION	131974 to 132670	131974, 132322, 132670	3.75KHz	QPSK	1 RB / 0 RB Offset
		131974 to 132670	132322	15KHz	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

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	SUBCARRIER SPACING	MODULATION	MODE
A	ERP	133124 to 133470	133124, 133297, 133470	3.75KHz	BPSK,QPSK	1 RB / 0 RB Offset
		133124 to 133470	133124, 133297, 133470	15KHz	BPSK,QPSK	1 RB / 0 RB Offset
A	RADIATED EMISSION	133124 to 133470	133124, 133297, 133470	3.75KHz	QPSK	1 RB / 0 RB Offset
		133124 to 133470	133297	15KHz	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 85 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	SUBCARRIER SPACING	MODULATION	MODE
A	ERP	134004 to 134180	134004, 134092, 134180	3.75KHz	BPSK,QPSK	1 RB / 0 RB Offset
		134004 to 134180	134004, 134092, 134180	15KHz	BPSK,QPSK	1 RB / 0 RB Offset
A	RADIATED EMISSION	134004 to 134180	134004, 134092, 134180	3.75KHz	QPSK	1 RB / 0 RB Offset
		134004 to 134180	134092	15KHz	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
ERP&EIRP	23deg. C, 70%RH	120Vac/60Hz	Jace Hu
RADIATED EMISSION	23deg. C, 70%RH	120Vac/60Hz	Jace Hu

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.”

Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP

According to the specific rule Part 27.50(b)(10) and 27.50(c)(10) Fixed, mobile, and Portable stations (hand-held devices) transmitting in the 698-746 MHz, 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP

47 CFR 27.1507(a)(3) Mobile, control and auxiliary test stations. Mobile, control and auxiliary test stations must not exceed 10 watts ERP.

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);

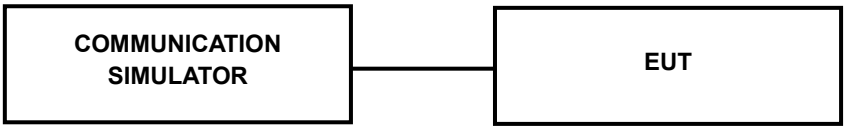
L_C = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

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)

LTE CAT-M1

LTE Band 4

Band/BW	Modulation	RB Size	RB Offset	Low CH 19957	Mid CH 20175	High CH 20393
				Frequency 1710.7 MHz	Frequency 1732.5 MHz	Frequency 1754.3 MHz
4/ 1.4	QPSK	1	0	20.39	20.31	20.56
		1	5	20.26	20.24	20.31
		3	0	20.23	20.28	20.39
		3	3	20.22	20.14	20.29
		6	0	20.28	20.29	20.41
	16QAM	1	0	20.20	20.20	20.61
		1	5	20.01	20.04	20.42
		3	0	20.28	20.16	20.51
		3	3	20.12	20.24	20.34
		6	0	20.30	20.24	20.43

Band/BW	Modulation	RB Size	RB Offset	Low CH 19965	Mid CH 20175	High CH 20385
				Frequency 1711.5 MHz	Frequency 1732.5 MHz	Frequency 1753.5 MHz
4/ 3	QPSK	1	0	20.42	20.32	20.52
		1	5	20.24	20.21	20.34
		3	0	20.30	20.27	20.36
		3	3	20.21	20.11	20.24
		6	0	20.33	20.25	20.44
	16QAM	1	0	20.22	20.23	20.56
		1	5	20.07	19.98	20.46
		3	0	20.22	20.20	20.48
		3	3	20.18	20.22	20.41
		6	0	20.28	20.22	20.44

Band/BW	Modulation	RB Size	RB Offset	Low CH 19975	Mid CH 20175	High CH 20375
				Frequency 1712.5 MHz	Frequency 1732.5 MHz	Frequency 1752.5 MHz
4/ 5	QPSK	1	0	20.38	20.32	20.52
		1	5	20.23	20.24	20.34
		3	0	20.23	20.27	20.38
		3	3	20.18	20.18	20.28
		6	0	20.30	20.26	20.38
	16QAM	1	0	20.19	20.24	20.61
		1	5	20.04	20.01	20.43
		3	0	20.28	20.16	20.52
		3	3	20.12	20.26	20.37
		6	0	20.33	20.20	20.47

Band/BW	Modulation	RB Size	RB Offset	Low CH 20000	Mid CH 20175	High CH 20350
				Frequency 1715 MHz	Frequency 1732.5 MHz	Frequency 1750 MHz
4/ 10	QPSK	1	0	20.40	20.34	20.52
		1	5	20.22	20.28	20.31
		3	0	20.27	20.24	20.43
		3	3	20.20	20.17	20.25
		6	0	20.27	20.26	20.44
	16QAM	1	0	20.19	20.23	20.58
		1	5	20.07	19.98	20.45
		3	0	20.22	20.18	20.45
		3	3	20.14	20.28	20.36
		6	0	20.31	20.18	20.48

Band/BW	Modulation	RB Size	RB Offset	Low CH 20025 Frequency 1717.5 MHz	Mid CH 20175 Frequency 1732.5 MHz	High CH 20325 Frequency 1747.5 MHz
4/ 15	QPSK	1	0	20.43	20.33	20.55
		1	5	20.27	20.23	20.34
		3	0	20.29	20.22	20.39
		3	3	20.20	20.11	20.28
		6	0	20.33	20.29	20.38
	16QAM	1	0	20.22	20.17	20.57
		1	5	20.08	20.00	20.45
		3	0	20.25	20.17	20.48
		3	3	20.18	20.22	20.40
		6	0	20.31	20.18	20.48

Band/BW	Modulation	RB Size	RB Offset	Low CH 20050 Frequency 1720 MHz	Mid CH 20175 Frequency 1732.5 MHz	High CH 20300 Frequency 1745 MHz
4/ 20	QPSK	1	0	20.44	20.39	20.57
		1	5	20.30	20.29	20.36
		3	0	20.31	20.29	20.44
		3	3	20.26	20.19	20.30
		6	0	20.34	20.31	20.46
	16QAM	1	0	20.27	20.25	**20.63**
		1	5	20.09	20.06	20.47
		3	0	20.30	20.24	20.53
		3	3	20.20	20.30	20.42
		6	0	20.36	20.26	20.49

LTE Band 8

Band/BW	Modulation	RB Size	RB Offset	Low CH 21632	Mid CH 21640	High CH 21648
				Frequency 898.2 MHz	Frequency 899 MHz	Frequency 899.8 MHz
8/ 1.4	QPSK	1	0	19.67	19.66	19.66
		1	5	19.46	19.53	19.49
		3	0	19.59	19.58	19.62
		3	3	19.58	19.62	19.59
		6	0	19.60	19.62	19.65
	16QAM	1	0	19.73	19.79	19.76
		1	5	19.37	19.31	19.37
		3	0	19.67	19.69	19.67
		3	3	19.56	19.60	19.56
		6	0	19.66	19.68	19.71

Band/BW	Modulation	RB Size	RB Offset	/	Mid CH 21640	/
				/	Frequency 899 MHz	/
8/ 3	QPSK	1	0	/	19.71	/
		1	5	/	19.54	/
		3	0	/	19.63	/
		3	3	/	19.64	/
		6	0	/	19.67	/
	16QAM	1	0	/	**19.81**	/
		1	5	/	19.39	/
		3	0	/	19.75	/
		3	3	/	19.62	/
		6	0	/	19.73	/

LTE Band 12

Band/BW	Modulation	RB Size	RB Offset	Low CH 23017 Frequency 699.7 MHz	Mid CH 23095 Frequency 707.5 MHz	High CH 23173 Frequency 715.3 MHz
12/ 1.4	QPSK	1	0	19.44	19.51	19.50
		1	5	19.36	19.43	19.49
		3	0	19.41	19.41	19.46
		3	3	19.41	19.45	19.48
		6	0	19.40	19.45	19.44
	16QAM	1	0	19.14	19.38	19.43
		1	5	19.13	19.20	19.38
		3	0	19.49	19.46	19.53
		3	3	19.48	19.28	19.55
		6	0	19.42	19.40	19.59

Band/BW	Modulation	RB Size	RB Offset	Low CH 23025 Frequency 700.5 MHz	Mid CH 23095 Frequency 707.5 MHz	High CH 23165 Frequency 714.5 MHz
12/ 3	QPSK	1	0	19.38	19.44	19.50
		1	5	19.34	19.40	19.44
		3	0	19.38	19.36	19.44
		3	3	19.34	19.40	19.43
		6	0	19.45	19.37	19.40
	16QAM	1	0	19.09	19.25	19.31
		1	5	19.10	19.17	19.38
		3	0	19.47	19.32	19.49
		3	3	19.47	19.20	19.52
		6	0	19.39	19.40	19.59

Band/BW	Modulation	RB Size	RB Offset	Low CH 23035 Frequency 701.5 MHz	Mid CH 23095 Frequency 707.5 MHz	High CH 23155 Frequency 713.5 MHz
12/ 5	QPSK	1	0	19.42	19.49	19.51
		1	5	19.40	19.42	19.49
		3	0	19.45	19.41	19.46
		3	3	19.42	19.42	19.48
		6	0	19.47	19.45	19.42
	16QAM	1	0	19.17	19.31	19.39
		1	5	19.16	19.19	19.44
		3	0	19.52	19.40	19.50
		3	3	19.51	19.25	19.57
		6	0	19.39	19.40	19.59

Band/BW	Modulation	RB Size	RB Offset	Low CH 23060 Frequency 704 MHz	Mid CH 23095 Frequency 707.5 MHz	High CH 23130 Frequency 711 MHz
12/ 10	QPSK	1	0	19.50	19.53	19.56
		1	5	19.43	19.48	19.51
		3	0	19.47	19.48	19.51
		3	3	19.48	19.50	19.50
		6	0	19.48	19.47	19.50
	16QAM	1	0	19.22	19.39	19.45
		1	5	19.17	19.25	19.46
		3	0	19.57	19.47	19.55
		3	3	19.53	19.33	19.59
		6	0	19.44	19.48	**19.60**

LTE Band 13

Band/BW	Modulation	RB Size	RB Offset	Low CH 23205 Frequency 779.5 MHz	Mid CH 23230 Frequency 782.0 MHz	High CH 23255 Frequency 784.5 MHz
13/ 5	QPSK	1	0	20.12	20.16	20.15
		1	5	20.15	20.09	20.16
		3	0	20.14	20.18	20.17
		3	3	20.24	20.21	20.25
		6	0	20.18	20.13	20.15
	16QAM	1	0	20.15	20.13	20.19
		1	5	20.02	20.01	19.95
		3	0	20.18	20.17	20.19
		3	3	20.22	20.19	20.23
		6	0	20.22	20.17	20.19

Band/BW	Modulation	RB Size	RB Offset	/ /	Mid CH 23230 Frequency 782.0 MHz	/ /
13/ 10	QPSK	1	0	/	20.20	/
		1	5	/	20.17	/
		3	0	/	20.22	/
		3	3	/	**20.27**	/
		6	0	/	20.20	/
	16QAM	1	0	/	20.21	/
		1	5	/	20.03	/
		3	0	/	20.25	/
		3	3	/	20.25	/
		6	0	/	20.24	/

LTE Band 66

Band/BW	Modulation	RB Size	RB Offset	Low CH 131979 Frequency 1710.7MHz	Mid CH 132322 Frequency 1745MHz	High CH 132665 Frequency 1779.3MHz
66/ 1.4	QPSK	1	0	20.17	20.08	20.02
		1	5	20.01	19.88	19.91
		3	0	20.18	19.95	20.10
		3	3	20.07	19.85	19.93
		6	0	20.19	20.06	20.09
	16QAM	1	0	19.99	20.35	19.94
		1	5	19.73	20.14	19.77
		3	0	20.04	20.13	20.08
		3	3	19.98	20.07	19.85
		6	0	20.14	20.12	20.03

Band/BW	Modulation	RB Size	RB Offset	Low CH 131987 Frequency 1711.5MHz	Mid CH 132322 Frequency 1745MHz	High CH 132657 Frequency 1778.5MHz
66/ 3	QPSK	1	0	20.21	20.10	19.99
		1	5	19.97	19.93	19.89
		3	0	20.21	19.96	20.06
		3	3	20.05	19.82	19.96
		6	0	20.26	20.05	20.06
	16QAM	1	0	19.96	20.32	19.89
		1	5	19.77	20.15	19.78
		3	0	20.09	20.10	20.09
		3	3	20.04	20.01	19.89
		6	0	20.14	20.19	20.01

Band/BW	Modulation	RB Size	RB Offset	Low CH 131997	Mid CH 132322	High CH 132647
				Frequency 1712.5MHz	Frequency 1745MHz	Frequency 1777.5MHz
66/ 5	QPSK	1	0	20.16	20.10	20.06
		1	5	20.02	19.94	19.88
		3	0	20.15	19.96	20.09
		3	3	20.10	19.86	19.95
		6	0	20.24	20.06	20.08
	16QAM	1	0	19.99	20.35	19.93
		1	5	19.73	20.14	19.79
		3	0	20.09	20.10	20.09
		3	3	19.98	20.05	19.85
		6	0	20.13	20.14	20.03

Band/BW	Modulation	RB Size	RB Offset	Low CH 132022	Mid CH 132322	High CH 132622
				Frequency 1715MHz	Frequency 1745MHz	Frequency 1775MHz
66/ 10	QPSK	1	0	20.18	20.10	20.02
		1	5	19.95	19.95	19.88
		3	0	20.19	19.98	20.10
		3	3	20.05	19.88	19.93
		6	0	20.20	20.02	20.12
	16QAM	1	0	19.95	20.38	19.90
		1	5	19.77	20.08	19.80
		3	0	20.03	20.12	20.02
		3	3	20.00	20.07	19.84
		6	0	20.11	20.12	20.04

Band/BW	Modulation	RB Size	RB Offset	Low CH 132047 Frequency 1717.5 MHz	Mid CH 132322 Frequency 1745MHz	High CH 132597 Frequency 1772.5 MHz
66/ 15	QPSK	1	0	20.14	20.11	20.02
		1	5	20.00	19.90	19.91
		3	0	20.21	19.96	20.06
		3	3	20.05	19.82	19.96
		6	0	20.26	20.05	20.06
	16QAM	1	0	19.98	20.32	19.89
		1	5	19.78	20.10	19.80
		3	0	20.06	20.11	20.05
		3	3	20.04	20.01	19.88
		6	0	20.11	20.12	20.04

Band/BW	Modulation	RB Size	RB Offset	Low CH 132072 Frequency 1720MHz	Mid CH 132322 Frequency 1745MHz	High CH 132572 Frequency 1770MHz
66/ 20	QPSK	1	0	20.22	20.15	20.07
		1	5	20.03	19.96	19.93
		3	0	20.23	20.03	20.11
		3	3	20.11	19.90	19.98
		6	0	20.27	20.07	20.14
	16QAM	1	0	20.03	**20.40**	19.95
		1	5	19.79	20.16	19.82
		3	0	20.11	20.18	20.10
		3	3	20.06	20.09	19.90
		6	0	20.16	20.20	20.05

LTE Band 85

Band/BW	Modulation	RB Size	RB Offset	Low CH 134027	Mid CH 134092	High CH 134157
				Frequency 700.5MHz	Frequency 707MHz	Frequency 713.5MHz
85/ 5	QPSK	1	0	19.69	19.80	19.84
		1	5	19.75	19.65	19.70
		3	0	19.68	19.70	19.86
		3	3	19.71	19.70	19.67
		6	0	19.75	19.78	19.90
	16QAM	1	0	19.61	19.88	20.22
		1	5	19.69	19.65	19.88
		3	0	19.72	19.86	20.07
		3	3	19.74	19.74	19.78
		6	0	19.77	19.82	19.91

Band/BW	Modulation	RB Size	RB Offset	Low CH 134052	Mid CH 134092	High CH 134132
				Frequency 703MHz	Frequency 707MHz	Frequency 711MHz
85/ 10	QPSK	1	0	19.74	19.87	19.89
		1	5	19.77	19.73	19.72
		3	0	19.73	19.78	19.87
		3	3	19.75	19.75	19.72
		6	0	19.83	19.79	19.95
	16QAM	1	0	19.65	19.93	20.23
		1	5	19.75	19.67	19.93
		3	0	19.79	19.91	20.09
		3	3	19.82	19.76	19.83
		6	0	19.79	19.90	19.93

LTE NB-IOT

LTE Band 4

Band/Sub-carrier Speacing (KHz)	Modulation	RB Size	RB Offset	Low CH 19952	Mid CH 20175	High CH 20398
				Frequency 1710.2 MHz	Frequency 1732.5 MHz	Frequency 1754.8 MHz
4/ 3.75	BPSK	1	0	21.39	21.07	**21.42**
		1	47	21.36	21.03	21.32
	QPSK	1	0	21.18	21.10	21.38
		1	47	21.13	21.03	21.30

Band/Sub-carrier Speacing (KHz)	Modulation	RB Size	RB Offset	Low CH 19952	Mid CH 20175	High CH 20398
				Frequency 1710.2 MHz	Frequency 1732.5 MHz	Frequency 1754.8 MHz
4/ 15	BPSK	1	0	20.85	20.78	20.91
		1	11	20.80	20.69	20.82
	QPSK	1	0	20.93	20.67	21.04
		1	11	20.86	20.59	20.88
		12	0	18.82	18.72	18.97

LTE Band 8

Band/Sub-carrier Speacing (KHz)	Modulation	RB Size	RB Offset	Low CH 21627	Mid CH 21640	High CH 21653
				Frequency 897.7 MHz	Frequency 899 MHz	Frequency 900.3 MHz
8/ 3.75	BPSK	1	0	19.80	19.75	19.80
		1	47	19.76	19.78	19.72
	QPSK	1	0	19.88	**19.89**	19.81
		1	47	19.80	19.83	19.73

Band/Sub-carrier Speacing (KHz)	Modulation	RB Size	RB Offset	Low CH 21627	Mid CH 21640	High CH 21653
				Frequency 897.7 MHz	Frequency 899 MHz	Frequency 900.3 MHz
8/ 15	BPSK	1	0	19.53	19.68	19.24
		1	11	19.45	19.60	19.25
	QPSK	1	0	19.62	19.61	19.33
		1	11	19.55	19.53	19.25
		12	0	18.73	18.87	18.54

LTE Band 12

Band/Sub-carrier Speacing (KHz)	Modulation	RB Size	RB Offset	Low CH 23012 Frequency 699.2 MHz	Mid CH 23095 Frequency 707.5 MHz	High CH 23178 Frequency 715.8 MHz
12/ 3.75	BPSK	1	0	20.10	20.13	19.97
		1	47	19.95	20.16	19.89
	QPSK	1	0	20.20	20.23	20.06
		1	47	20.12	20.15	19.98

Band/Sub-carrier Speacing (KHz)	Modulation	RB Size	RB Offset	Low CH 23012 Frequency 699.2 MHz	Mid CH 23095 Frequency 707.5 MHz	High CH 23178 Frequency 715.8 MHz
12/ 15	BPSK	1	0	20.21	20.32	20.22
		1	11	20.16	20.29	20.13
	QPSK	1	0	20.23	**20.41**	20.23
		1	11	20.18	20.34	20.16
		12	0	18.45	18.67	18.53

LTE Band 13

Band/Sub-carrier Speacing (KHz)	Modulation	RB Size	RB Offset	Low CH 23182 Frequency 777.2 MHz	Mid CH 23230 Frequency 782.0 MHz	High CH 23278 Frequency 786.8 MHz
13/ 3.75	BPSK	1	0	20.55	20.43	20.55
		1	47	20.53	20.40	20.46
	QPSK	1	0	20.66	20.53	20.60
		1	47	20.63	20.49	20.52

Band/Sub-carrier Speacing (KHz)	Modulation	RB Size	RB Offset	Low CH 23182 Frequency 777.2 MHz	Mid CH 23230 Frequency 782.0 MHz	High CH 23278 Frequency 786.8 MHz
13/ 15	BPSK	1	0	20.77	20.81	19.73
		1	11	20.70	20.71	19.65
	QPSK	1	0	20.82	**20.83**	19.77
		1	11	20.74	20.78	19.67
		12	0	18.92	18.97	18.92

LTE Band 66

Band/Sub-carrier Speacing (KHz)	Modulation	RB Size	RB Offset	Low CH 131974 Frequency 1710.2 MHz	Mid CH 132322 Frequency 1745 MHz	High CH 132670 Frequency 1779.8 MHz
66/ 3.75	BPSK	1	0	20.06	20.21	20.31
		1	47	20.11	20.19	20.24
	QPSK	1	0	20.22	20.26	20.33
		1	47	20.13	20.28	20.23

Band/Sub-carrier Speacing (KHz)	Modulation	RB Size	RB Offset	Low CH 131974 Frequency 1710.2 MHz	Mid CH 132322 Frequency 1745 MHz	High CH 132670 Frequency 1779.8 MHz
66/ 15	BPSK	1	0	20.36	20.35	**20.78**
		1	11	20.39	20.33	20.72
	QPSK	1	0	20.50	20.45	20.36
		1	11	20.45	20.37	20.54
		12	0	18.65	18.67	18.69

LTE Band 71

Band/Sub-carrier Speacing (KHz)	Modulation	RB Size	RB Offset	Low CH 133124 Frequency 663.2 MHz	Mid CH 133297 Frequency 680.5 MHz	High CH 133470 Frequency 697.8 MHz
71/ 3.75	BPSK	1	0	20.58	20.05	20.30
		1	47	20.53	20.00	20.20
	QPSK	1	0	20.60	20.13	20.38
		1	47	**20.63**	20.08	20.34

Band/Sub-carrier Speacing (KHz)	Modulation	RB Size	RB Offset	Low CH 133124 Frequency 663.2 MHz	Mid CH 133297 Frequency 680.5 MHz	High CH 133470 Frequency 697.8 MHz
71/ 15	BPSK	1	0	20.52	19.98	20.62
		1	11	20.46	19.90	20.51
	QPSK	1	0	20.54	20.07	20.38
		1	11	20.47	19.95	20.54
		12	0	18.71	18.26	18.65

LTE Band 85

Band/Sub-carrier Speacing (KHz)	Modulation	RB Size	RB Offset	Low CH 134004 Frequency 698.2 MHz	Mid CH 134092 Frequency 707 MHz	High CH 134180 Frequency 715.8 MHz
85/ 3.75	BPSK	1	0	20.03	20.25	20.01
		1	47	19.98	20.17	19.94
	QPSK	1	0	20.05	20.24	20.03
		1	47	20.00	20.20	19.98

Band/Sub-carrier Speacing (KHz)	Modulation	RB Size	RB Offset	Low CH 134004 Frequency 698.2 MHz	Mid CH 134092 Frequency 707 MHz	High CH 134180 Frequency 715.8 MHz
85/ 15	BPSK	1	0	19.92	20.18	20.12
		1	11	19.86	20.08	20.05
	QPSK	1	0	20.03	20.28	**20.31**
		1	11	19.97	20.18	20.21
		12	0	18.32	18.60	18.48

EIRP
Internal Antenna:

LTE CAT-M1

LTE BAND 4
CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19957	1710.7	20.39	2.53	22.92	195.88	1
20175	1732.5	20.31	2.53	22.84	192.31	1
20393	1754.3	20.56	2.53	23.09	203.7	1

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19957	1710.7	20.3	2.53	22.83	191.87	1
20175	1732.5	20.24	2.53	22.77	189.23	1
20393	1754.3	20.61	2.53	23.14	206.06	1

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19965	1711.5	20.42	2.53	22.95	197.24	1
20175	1732.5	20.32	2.53	22.85	192.75	1
20385	1753.5	20.52	2.53	23.05	201.84	1

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19965	1711.5	20.28	2.53	22.81	190.99	1
20175	1732.5	20.28	2.53	22.81	190.99	1
20385	1753.5	20.28	2.53	22.81	190.99	1

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19975	1712.5	20.38	2.53	22.91	195.43	1
20175	1732.5	20.32	2.53	22.85	192.75	1
20375	1752.5	20.52	2.53	23.05	201.84	1

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19975	1712.5	20.33	2.53	22.86	193.2	1
20175	1732.5	20.26	2.53	22.79	190.11	1
20375	1752.5	20.61	2.53	23.14	206.06	1

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20000	1715	20.4	2.53	22.93	196.34	1
20175	1732.5	20.34	2.53	22.87	193.64	1
20350	1750	20.52	2.53	23.05	201.84	1

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20000	1715	20.31	2.53	22.84	192.31	1
20175	1732.5	20.28	2.53	22.81	190.99	1
20350	1750	20.58	2.53	23.11	204.64	1

CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20025	1717.5	20.43	2.53	22.96	197.7	1
20175	1732.5	20.33	2.53	22.86	193.2	1
20325	1747.5	20.55	2.53	23.08	203.24	1

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20025	1717.5	20.31	2.53	22.84	192.31	1
20175	1732.5	20.22	2.53	22.75	188.36	1
20325	1747.5	20.57	2.53	23.1	204.17	1

CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20050	1720	20.44	2.53	22.97	198.15	1
20175	1732.5	20.39	2.53	22.92	195.88	1
20300	1745	20.57	2.53	23.1	204.17	1

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20050	1720	20.36	2.53	22.89	194.54	1
20175	1732.5	20.3	2.53	22.83	191.87	1
20300	1745	20.63	2.53	23.16	207.01	1

LTE BAND 8
CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
21632	898.2	19.67	-5.1	14.57	28.64	3
21640	899	19.66	-5.1	14.56	28.58	3
21648	899.8	19.66	-5.1	14.56	28.58	3

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
21632	898.2	19.73	-5.1	14.63	29.04	3
21640	899	19.79	-5.1	14.69	29.44	3
21648	899.8	19.76	-5.1	14.66	29.24	3

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
-	-	-	-	-	-	-
21640	899	19.71	-5.1	14.61	28.91	3
-	-	-	-	-	-	-

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
-	-	-	-	-	-	-
21640	899	19.81	-5.1	14.71	29.58	3
-	-	-	-	-	-	-

LTE BAND 12
CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23017	699.7	19.44	-3.1	14.19	26.24	3
23095	707.5	19.51	-3.1	14.26	26.67	3
23173	715.3	19.5	-3.1	14.25	26.61	3

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23017	699.7	19.49	-3.1	14.24	26.55	3
23095	707.5	19.46	-3.1	14.21	26.36	3
23173	715.3	19.59	-3.1	14.34	27.16	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	19.45	-3.1	14.2	26.3	3
23095	707.5	19.44	-3.1	14.19	26.24	3
23165	714.5	19.5	-3.1	14.25	26.61	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	19.47	-3.1	14.22	26.42	3
23095	707.5	19.4	-3.1	14.15	26	3
23165	714.5	19.59	-3.1	14.34	27.16	3

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23035	701.5	19.47	-3.1	14.22	26.42	3
23095	707.5	19.49	-3.1	14.24	26.55	3
23155	713.5	19.51	-3.1	14.26	26.67	3

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23035	701.5	19.52	-3.1	14.27	26.73	3
23095	707.5	19.4	-3.1	14.15	26	3
23155	713.5	19.59	-3.1	14.34	27.16	3

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23060	704	19.5	-3.1	14.25	26.61	3
23095	707.5	19.53	-3.1	14.28	26.79	3
23130	711	19.56	-3.1	14.31	26.98	3

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23060	704	19.57	-3.1	14.32	27.04	3
23095	707.5	19.48	-3.1	14.23	26.49	3
23130	711	19.6	-3.1	14.35	27.23	3

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

LTE BAND 13

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23205	779.5	20.24	-2.19	15.9	38.9	3
23230	782	20.21	-2.19	15.87	38.64	3
23255	784.5	20.25	-2.19	15.91	38.99	3

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23205	779.5	20.22	-2.19	15.88	38.73	3
23230	782	20.19	-2.19	15.85	38.46	3
23255	784.5	20.23	-2.19	15.89	38.82	3

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
-	-	-	-	-	-	-
23230	782	20.27	-2.19	15.93	39.17	3
-	-	-	-	-	-	-

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
-	-	-	-	-	-	-
23230	782	20.25	-2.19	15.91	38.99	3
-	-	-	-	-	-	-

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

LTE BAND 66

CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131979	1710.7	20.19	2.53	22.72	187.07	1
132322	1745	20.08	2.53	22.61	182.39	1
132665	1779.3	20.1	2.53	22.63	183.23	1

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131979	1710.7	20.14	2.53	22.67	184.93	1
132322	1745	20.35	2.53	22.88	194.09	1
132665	1779.3	20.08	2.53	22.61	182.39	1

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131987	1711.5	20.26	2.53	22.79	190.11	1
132322	1745	20.1	2.53	22.63	183.23	1
132657	1778.5	20.06	2.53	22.59	181.55	1

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131987	1711.5	20.14	2.53	22.67	184.93	1
132322	1745	20.32	2.53	22.85	192.75	1
132657	1778.5	20.09	2.53	22.62	182.81	1

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131997	1712.5	20.24	2.53	22.77	189.23	1
132322	1745	20.1	2.53	22.63	183.23	1
132647	1777.5	20.09	2.53	22.62	182.81	1

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131997	1712.5	20.13	2.53	22.66	184.5	1
132322	1745	20.35	2.53	22.88	194.09	1
132647	1777.5	20.09	2.53	22.62	182.81	1

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132022	1715	20.2	2.53	22.73	187.5	1
132322	1745	20.1	2.53	22.63	183.23	1
132622	1775	20.12	2.53	22.65	184.08	1

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132022	1715	20.11	2.53	22.64	183.65	1
132322	1745	20.38	2.53	22.91	195.43	1
132622	1775	20.04	2.53	22.57	180.72	1

CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132047	1717.5	20.26	2.53	22.79	190.11	1
132322	1745	20.11	2.53	22.64	183.65	1
132597	1772.5	20.06	2.53	22.59	181.55	1

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132047	1717.5	20.11	2.53	22.64	183.65	1
132322	1745	20.32	2.53	22.85	192.75	1
132597	1772.5	20.05	2.53	22.58	181.13	1

CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132072	1720	20.27	2.53	22.8	190.55	1
132322	1745	20.15	2.53	22.68	185.35	1
132572	1770	20.14	2.53	22.67	184.93	1

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132072	1720	20.16	2.53	22.69	185.78	1
132322	1745	20.4	2.53	22.93	196.34	1
132572	1770	20.1	2.53	22.63	183.23	1

LTE BAND 85

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
134027	700.5	19.75	-3.1	14.5	28.18	3
134092	707	19.8	-3.1	14.55	28.51	3
134157	713.5	19.9	-3.1	14.65	29.17	3

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
134027	700.5	19.77	-3.1	14.52	28.31	3
134092	707	19.88	-3.1	14.63	29.04	3
134157	713.5	20.22	-3.1	14.97	31.41	3

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
134052	703	19.83	-3.1	14.58	28.71	3
134092	707	19.87	-3.1	14.62	28.97	3
134132	711	19.95	-3.1	14.7	29.51	3

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
134052	703	19.82	-3.1	14.57	28.64	3
134092	707	19.93	-3.1	14.68	29.38	3
134132	711	20.23	-3.1	14.98	31.48	3

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

LTE NB-IOT

LTE BAND 4

SUBCARRIER SPACING: 3.75KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19952	1710.2	21.39	2.53	23.92	246.6	1
20175	1732.5	21.07	2.53	23.6	229.09	1
20398	1754.8	21.42	2.53	23.95	248.31	1

SUBCARRIER SPACING: 3.75KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19952	1710.2	21.18	2.53	23.71	234.96	1
20175	1732.5	21.1	2.53	23.63	230.67	1
20398	1754.8	21.38	2.53	23.91	246.04	1

SUBCARRIER SPACING: 15KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19952	1710.2	20.85	2.53	23.38	217.77	1
20175	1732.5	20.78	2.53	23.31	214.29	1
20398	1754.8	20.91	2.53	23.44	220.8	1

SUBCARRIER SPACING: 15KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19952	1710.2	20.93	2.53	23.46	221.82	1
20175	1732.5	20.67	2.53	23.2	208.93	1
20398	1754.8	21.04	2.53	23.57	227.51	1

LTE BAND 8

SUBCARRIER SPACING: 3.75KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
21627	897.7	19.8	-5.1	14.7	29.51	3
21640	899	19.78	-5.1	14.68	29.38	3
21653	900.3	19.8	-5.1	14.7	29.51	3

SUBCARRIER SPACING: 3.75KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
21627	897.7	19.88	-5.1	14.78	30.06	3
21640	899	19.89	-5.1	14.79	30.13	3
21653	900.3	19.81	-5.1	14.71	29.58	3

SUBCARRIER SPACING: 15KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
21627	897.7	19.53	-5.1	14.43	27.73	3
21640	899	19.68	-5.1	14.58	28.71	3
21653	900.3	19.25	-5.1	14.15	26	3

SUBCARRIER SPACING: 15KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
21627	897.7	19.62	-5.1	14.52	28.31	3
21640	899	19.61	-5.1	14.51	28.25	3
21653	900.3	19.33	-5.1	14.23	26.49	3

LTE BAND 12
SUBCARRIER SPACING: 3.75KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23012	699.2	20.1	-3.1	14.85	30.55	3
23095	707.5	20.16	-3.1	14.91	30.97	3
23178	715.8	19.97	-3.1	14.72	29.65	3

SUBCARRIER SPACING: 3.75KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23012	699.2	20.2	-3.1	14.95	31.26	3
23095	707.5	20.23	-3.1	14.98	31.48	3
23178	715.8	20.06	-3.1	14.81	30.27	3

SUBCARRIER SPACING: 15KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23012	699.2	20.21	-3.1	14.96	31.33	3
23095	707.5	20.32	-3.1	15.07	32.14	3
23178	715.8	20.22	-3.1	14.97	31.41	3

SUBCARRIER SPACING: 15KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23012	699.2	20.23	-3.1	14.98	31.48	3
23095	707.5	20.41	-3.1	15.16	32.81	3
23178	715.8	20.23	-3.1	14.98	31.48	3

LTE BAND 13

SUBCARRIER SPACING: 3.75KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23182	777.2	20.55	-2.19	16.21	41.78	3
23230	782.0	20.43	-2.19	16.09	40.64	3
23278	786.8	20.55	-2.19	16.21	41.78	3

SUBCARRIER SPACING: 3.75KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23182	777.2	20.66	-2.19	16.32	42.85	3
23230	782.0	20.53	-2.19	16.19	41.59	3
23278	786.8	20.6	-2.19	16.26	42.27	3

SUBCARRIER SPACING: 15KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23182	777.2	20.77	-2.19	16.43	43.95	3
23230	782.0	20.81	-2.19	16.47	44.36	3
23278	786.8	19.73	-2.19	15.39	34.59	3

SUBCARRIER SPACING: 15KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23182	777.2	20.82	-2.19	16.48	44.46	3
23230	782.0	20.83	-2.19	16.49	44.57	3
23278	786.8	19.77	-2.19	15.43	34.91	3

LTE BAND 66

SUBCARRIER SPACING: 3.75KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
131974	1710.2	20.11	2.53	22.64	183.65	1
132322	1745	20.21	2.53	22.74	187.93	1
132670	1779.8	20.31	2.53	22.84	192.31	1

SUBCARRIER SPACING: 3.75KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
131974	1710.2	20.22	2.53	22.75	188.36	1
132322	1745	20.28	2.53	22.81	190.99	1
132670	1779.8	20.33	2.53	22.86	193.2	1

SUBCARRIER SPACING: 15KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
131974	1710.2	20.39	2.53	22.92	195.88	1
132322	1745	20.35	2.53	22.88	194.09	1
132670	1779.8	20.78	2.53	23.31	214.29	1

SUBCARRIER SPACING: 15KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
131974	1710.2	20.5	2.53	23.03	200.91	1
132322	1745	20.45	2.53	22.98	198.61	1
132670	1779.8	20.54	2.53	23.07	202.77	1

LTE BAND 71

SUBCARRIER SPACING: 3.75KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133124	663.2	20.58	-4.93	13.5	22.39	3
133297	680.5	20.05	-4.93	12.97	19.82	3
133470	697.8	20.3	-4.93	13.22	20.99	3

SUBCARRIER SPACING: 3.75KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133124	663.2	20.63	-4.93	13.55	22.65	3
133297	680.5	20.13	-4.93	13.05	20.18	3
133470	697.8	20.38	-4.93	13.3	21.38	3

SUBCARRIER SPACING: 15KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133124	663.2	20.52	-4.93	13.44	22.08	3
133297	680.5	19.98	-4.93	12.9	19.5	3
133470	697.8	20.62	-4.93	13.54	22.59	3

SUBCARRIER SPACING: 15KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133124	663.2	20.54	-4.93	13.46	22.18	3
133297	680.5	20.07	-4.93	12.99	19.91	3
133470	697.8	20.54	-4.93	13.46	22.18	3

LTE BAND 85

SUBCARRIER SPACING: 3.75KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
134004	698.2	20.03	-3.1	14.78	30.06	3
134092	707	20.25	-3.1	15	31.62	3
134180	715.8	20.01	-3.1	14.76	29.92	3

SUBCARRIER SPACING: 3.75KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
134004	698.2	20.05	-3.1	14.8	30.2	3
134092	707	20.24	-3.1	14.99	31.55	3
134180	715.8	20.03	-3.1	14.78	30.06	3

SUBCARRIER SPACING: 15KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
134004	698.2	19.92	-3.1	14.67	29.31	3
134092	707	20.18	-3.1	14.93	31.12	3
134180	715.8	20.12	-3.1	14.87	30.69	3

SUBCARRIER SPACING: 15KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
134004	698.2	20.03	-3.1	14.78	30.06	3
134092	707	20.28	-3.1	15.03	31.84	3
134180	715.8	20.31	-3.1	15.06	32.06	3

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

External Antenna:
LTE CAT-M1

LTE BAND 4
CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19957	1710.7	20.39	-0.55	19.84	96.38	1
20175	1732.5	20.31	-0.55	19.76	94.62	1
20393	1754.3	20.56	-0.55	20.01	100.23	1

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19957	1710.7	20.3	-0.55	19.75	94.41	1
20175	1732.5	20.24	-0.55	19.69	93.11	1
20393	1754.3	20.61	-0.55	20.06	101.39	1

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19965	1711.5	20.42	-0.55	19.87	97.05	1
20175	1732.5	20.32	-0.55	19.77	94.84	1
20385	1753.5	20.52	-0.55	19.97	99.31	1

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19965	1711.5	20.28	-0.55	19.73	93.97	1
20175	1732.5	20.28	-0.55	19.73	93.97	1
20385	1753.5	20.28	-0.55	19.73	93.97	1

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19975	1712.5	20.38	-0.55	19.83	96.16	1
20175	1732.5	20.32	-0.55	19.77	94.84	1
20375	1752.5	20.52	-0.55	19.97	99.31	1

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19975	1712.5	20.33	-0.55	19.78	95.06	1
20175	1732.5	20.26	-0.55	19.71	93.54	1
20375	1752.5	20.61	-0.55	20.06	101.39	1

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20000	1715	20.4	-0.55	19.85	96.61	1
20175	1732.5	20.34	-0.55	19.79	95.28	1
20350	1750	20.52	-0.55	19.97	99.31	1

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20000	1715	20.31	-0.55	19.76	94.62	1
20175	1732.5	20.28	-0.55	19.73	93.97	1
20350	1750	20.58	-0.55	20.03	100.69	1

CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20025	1717.5	20.43	-0.55	19.88	97.27	1
20175	1732.5	20.33	-0.55	19.78	95.06	1
20325	1747.5	20.55	-0.55	20	100	1

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20025	1717.5	20.31	-0.55	19.76	94.62	1
20175	1732.5	20.22	-0.55	19.67	92.68	1
20325	1747.5	20.57	-0.55	20.02	100.46	1

CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20050	1720	20.44	-0.55	19.89	97.5	1
20175	1732.5	20.39	-0.55	19.84	96.38	1
20300	1745	20.57	-0.55	20.02	100.46	1

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20050	1720	20.36	-0.55	19.81	95.72	1
20175	1732.5	20.3	-0.55	19.75	94.41	1
20300	1745	20.63	-0.55	20.08	101.86	1

LTE BAND 8
CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
21632	898.2	19.67	-3.67	16	39.81	3
21640	899	19.66	-3.67	15.99	39.72	3
21648	899.8	19.66	-3.67	15.99	39.72	3

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
21632	898.2	19.73	-3.67	16.06	40.36	3
21640	899	19.79	-3.67	16.12	40.93	3
21648	899.8	19.76	-3.67	16.09	40.64	3

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
-	-	-	-	-	-	-
21640	899	19.71	-3.67	16.04	40.18	3
-	-	-	-	-	-	-

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
-	-	-	-	-	-	-
21640	899	19.81	-3.67	16.14	41.11	3
-	-	-	-	-	-	-

LTE BAND 12
CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23017	699.7	19.44	-2.81	14.48	28.05	3
23095	707.5	19.51	-2.81	14.55	28.51	3
23173	715.3	19.5	-2.81	14.54	28.44	3

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23017	699.7	19.49	-2.81	14.53	28.38	3
23095	707.5	19.46	-2.81	14.5	28.18	3
23173	715.3	19.59	-2.81	14.63	29.04	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	19.45	-2.81	14.49	28.12	3
23095	707.5	19.44	-2.81	14.48	28.05	3
23165	714.5	19.5	-2.81	14.54	28.44	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	19.47	-2.81	14.51	28.25	3
23095	707.5	19.4	-2.81	14.44	27.8	3
23165	714.5	19.59	-2.81	14.63	29.04	3

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23035	701.5	19.47	-2.81	14.51	28.25	3
23095	707.5	19.49	-2.81	14.53	28.38	3
23155	713.5	19.51	-2.81	14.55	28.51	3

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23035	701.5	19.52	-2.81	14.56	28.58	3
23095	707.5	19.4	-2.81	14.44	27.8	3
23155	713.5	19.59	-2.81	14.63	29.04	3

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23060	704	19.5	-2.81	14.54	28.44	3
23095	707.5	19.53	-2.81	14.57	28.64	3
23130	711	19.56	-2.81	14.6	28.84	3

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23060	704	19.57	-2.81	14.61	28.91	3
23095	707.5	19.48	-2.81	14.52	28.31	3
23130	711	19.6	-2.81	14.64	29.11	3

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

LTE BAND 13

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23205	779.5	20.24	-2.46	15.63	36.56	3
23230	782	20.21	-2.46	15.6	36.31	3
23255	784.5	20.25	-2.46	15.64	36.64	3

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23205	779.5	20.22	-2.46	15.61	36.39	3
23230	782	20.19	-2.46	15.58	36.14	3
23255	784.5	20.23	-2.46	15.62	36.48	3

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
-	-	-	-	-	-	-
23230	782	20.27	-2.46	15.66	36.81	3
-	-	-	-	-	-	-

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
-	-	-	-	-	-	-
23230	782	20.25	-2.46	15.64	36.64	3
-	-	-	-	-	-	-

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

LTE BAND 66

CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131979	1710.7	20.19	-0.55	19.64	92.04	1
132322	1745	20.08	-0.55	19.53	89.74	1
132665	1779.3	20.1	-0.55	19.55	90.16	1

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131979	1710.7	20.14	-0.55	19.59	90.99	1
132322	1745	20.35	-0.55	19.8	95.5	1
132665	1779.3	20.08	-0.55	19.53	89.74	1

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131987	1711.5	20.26	-0.55	19.71	93.54	1
132322	1745	20.1	-0.55	19.55	90.16	1
132657	1778.5	20.06	-0.55	19.51	89.33	1

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131987	1711.5	20.14	-0.55	19.59	90.99	1
132322	1745	20.32	-0.55	19.77	94.84	1
132657	1778.5	20.09	-0.55	19.54	89.95	1

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131997	1712.5	20.24	-0.55	19.69	93.11	1
132322	1745	20.1	-0.55	19.55	90.16	1
132647	1777.5	20.09	-0.55	19.54	89.95	1

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131997	1712.5	20.13	-0.55	19.58	90.78	1
132322	1745	20.35	-0.55	19.8	95.5	1
132647	1777.5	20.09	-0.55	19.54	89.95	1

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132022	1715	20.2	-0.55	19.65	92.26	1
132322	1745	20.1	-0.55	19.55	90.16	1
132622	1775	20.12	-0.55	19.57	90.57	1

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132022	1715	20.11	-0.55	19.56	90.36	1
132322	1745	20.38	-0.55	19.83	96.16	1
132622	1775	20.04	-0.55	19.49	88.92	1

CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132047	1717.5	20.26	-0.55	19.71	93.54	1
132322	1745	20.11	-0.55	19.56	90.36	1
132597	1772.5	20.06	-0.55	19.51	89.33	1

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132047	1717.5	20.11	-0.55	19.56	90.36	1
132322	1745	20.32	-0.55	19.77	94.84	1
132597	1772.5	20.05	-0.55	19.5	89.13	1

CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132072	1720	20.27	-0.55	19.72	93.76	1
132322	1745	20.15	-0.55	19.6	91.2	1
132572	1770	20.14	-0.55	19.59	90.99	1

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132072	1720	20.16	-0.55	19.61	91.41	1
132322	1745	20.4	-0.55	19.85	96.61	1
132572	1770	20.1	-0.55	19.55	90.16	1

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CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
134027	700.5	19.75	-2.81	14.79	30.13	3
134092	707	19.8	-2.81	14.84	30.48	3
134157	713.5	19.9	-2.81	14.94	31.19	3

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
134027	700.5	19.77	-2.81	14.81	30.27	3
134092	707	19.88	-2.81	14.92	31.05	3
134157	713.5	20.22	-2.81	15.26	33.57	3

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
134052	703	19.83	-2.81	14.87	30.69	3
134092	707	19.87	-2.81	14.91	30.97	3
134132	711	19.95	-2.81	14.99	31.55	3

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
134052	703	19.82	-2.81	14.86	30.62	3
134092	707	19.93	-2.81	14.97	31.41	3
134132	711	20.23	-2.81	15.27	33.65	3

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

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LTE BAND 4

SUBCARRIER SPACING: 3.75KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19952	1710.2	21.39	-0.55	20.84	121.34	1
20175	1732.5	21.07	-0.55	20.52	112.72	1
20398	1754.8	21.42	-0.55	20.87	122.18	1

SUBCARRIER SPACING: 3.75KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19952	1710.2	21.18	-0.55	20.63	115.61	1
20175	1732.5	21.1	-0.55	20.55	113.5	1
20398	1754.8	21.38	-0.55	20.83	121.06	1

SUBCARRIER SPACING: 15KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19952	1710.2	20.85	-0.55	20.3	107.15	1
20175	1732.5	20.78	-0.55	20.23	105.44	1
20398	1754.8	20.91	-0.55	20.36	108.64	1

SUBCARRIER SPACING: 15KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19952	1710.2	20.93	-0.55	20.38	109.14	1
20175	1732.5	20.67	-0.55	20.12	102.8	1
20398	1754.8	21.04	-0.55	20.49	111.94	1

LTE BAND 8

SUBCARRIER SPACING: 3.75KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
21627	897.7	19.8	-3.67	16.13	41.02	3
21640	899	19.78	-3.67	16.11	40.83	3
21653	900.3	19.8	-3.67	16.13	41.02	3

SUBCARRIER SPACING: 3.75KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
21627	897.7	19.88	-3.67	16.21	41.78	3
21640	899	19.89	-3.67	16.22	41.88	3
21653	900.3	19.81	-3.67	16.14	41.11	3

SUBCARRIER SPACING: 15KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
21627	897.7	19.53	-3.67	15.86	38.55	3
21640	899	19.68	-3.67	16.01	39.9	3
21653	900.3	19.25	-3.67	15.58	36.14	3

SUBCARRIER SPACING: 15KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
21627	897.7	19.62	-3.67	15.95	39.36	3
21640	899	19.61	-3.67	15.94	39.26	3
21653	900.3	19.33	-3.67	15.66	36.81	3

LTE BAND 12
SUBCARRIER SPACING: 3.75KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23012	699.2	20.1	-2.81	15.14	32.66	3
23095	707.5	20.16	-2.81	15.2	33.11	3
23178	715.8	19.97	-2.81	15.01	31.7	3

SUBCARRIER SPACING: 3.75KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23012	699.2	20.2	-2.81	15.24	33.42	3
23095	707.5	20.23	-2.81	15.27	33.65	3
23178	715.8	20.06	-2.81	15.1	32.36	3

SUBCARRIER SPACING: 15KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23012	699.2	20.21	-2.81	15.25	33.5	3
23095	707.5	20.32	-2.81	15.36	34.36	3
23178	715.8	20.22	-2.81	15.26	33.57	3

SUBCARRIER SPACING: 15KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23012	699.2	20.23	-2.81	15.27	33.65	3
23095	707.5	20.41	-2.81	15.45	35.08	3
23178	715.8	20.23	-2.81	15.27	33.65	3

LTE BAND 13

SUBCARRIER SPACING: 3.75KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23182	777.2	20.55	-2.46	15.94	39.26	3
23230	782.0	20.43	-2.46	15.82	38.19	3
23278	786.8	20.55	-2.46	15.94	39.26	3

SUBCARRIER SPACING: 3.75KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23182	777.2	20.66	-2.46	16.05	40.27	3
23230	782.0	20.53	-2.46	15.92	39.08	3
23278	786.8	20.6	-2.46	15.99	39.72	3

SUBCARRIER SPACING: 15KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23182	777.2	20.77	-2.46	16.16	41.3	3
23230	782.0	20.81	-2.46	16.2	41.69	3
23278	786.8	19.73	-2.46	15.12	32.51	3

SUBCARRIER SPACING: 15KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23182	777.2	20.82	-2.46	16.21	41.78	3
23230	782.0	20.83	-2.46	16.22	41.88	3
23278	786.8	19.77	-2.46	15.16	32.81	3

LTE BAND 66

SUBCARRIER SPACING: 3.75KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
131974	1710.2	20.11	-0.55	19.56	90.36	1
132322	1745	20.21	-0.55	19.66	92.47	1
132670	1779.8	20.31	-0.55	19.76	94.62	1

SUBCARRIER SPACING: 3.75KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
131974	1710.2	20.22	-0.55	19.67	92.68	1
132322	1745	20.28	-0.55	19.73	93.97	1
132670	1779.8	20.33	-0.55	19.78	95.06	1

SUBCARRIER SPACING: 15KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
131974	1710.2	20.39	-0.55	19.84	96.38	1
132322	1745	20.35	-0.55	19.8	95.5	1
132670	1779.8	20.78	-0.55	20.23	105.44	1

SUBCARRIER SPACING: 15KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
131974	1710.2	20.5	-0.55	19.95	98.86	1
132322	1745	20.45	-0.55	19.9	97.72	1
132670	1779.8	20.54	-0.55	19.99	99.77	1

LTE BAND 71

SUBCARRIER SPACING: 3.75KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133124	663.2	20.58	-3.37	15.06	32.06	3
133297	680.5	20.05	-3.37	14.53	28.38	3
133470	697.8	20.3	-3.37	14.78	30.06	3

SUBCARRIER SPACING: 3.75KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133124	663.2	20.63	-3.37	15.11	32.43	3
133297	680.5	20.13	-3.37	14.61	28.91	3
133470	697.8	20.38	-3.37	14.86	30.62	3

SUBCARRIER SPACING: 15KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133124	663.2	20.52	-3.37	15	31.62	3
133297	680.5	19.98	-3.37	14.46	27.93	3
133470	697.8	20.62	-3.37	15.1	32.36	3

SUBCARRIER SPACING: 15KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133124	663.2	20.54	-3.37	15.02	31.77	3
133297	680.5	20.07	-3.37	14.55	28.51	3
133470	697.8	20.54	-3.37	15.02	31.77	3

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SUBCARRIER SPACING: 3.75KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
134004	698.2	20.03	-2.81	15.07	32.14	3
134092	707	20.25	-2.81	15.29	33.81	3
134180	715.8	20.01	-2.81	15.05	31.99	3

SUBCARRIER SPACING: 3.75KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
134004	698.2	20.05	-2.81	15.09	32.28	3
134092	707	20.24	-2.81	15.28	33.73	3
134180	715.8	20.03	-2.81	15.07	32.14	3

SUBCARRIER SPACING: 15KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
134004	698.2	19.92	-2.81	14.96	31.33	3
134092	707	20.18	-2.81	15.22	33.27	3
134180	715.8	20.12	-2.81	15.16	32.81	3

SUBCARRIER SPACING: 15KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
134004	698.2	20.03	-2.81	15.07	32.14	3
134092	707	20.28	-2.81	15.32	34.04	3
134180	715.8	20.31	-2.81	15.35	34.28	3

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

3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILIITY MEASUREMENT

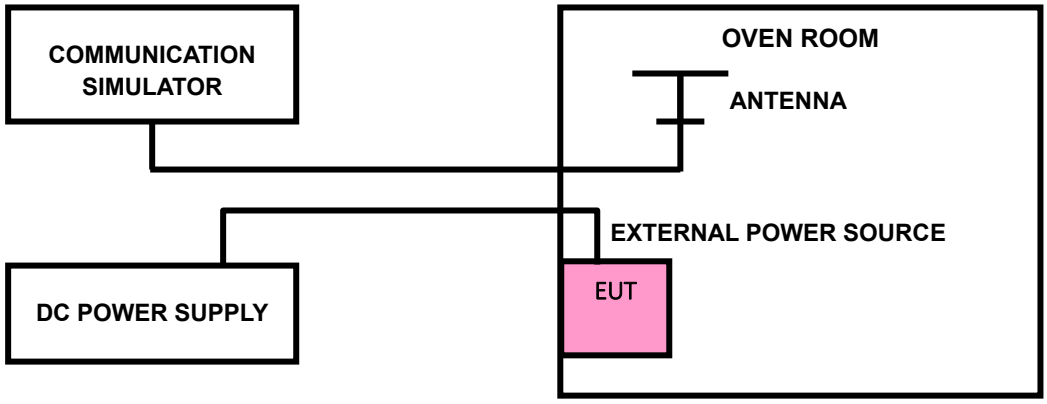
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

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

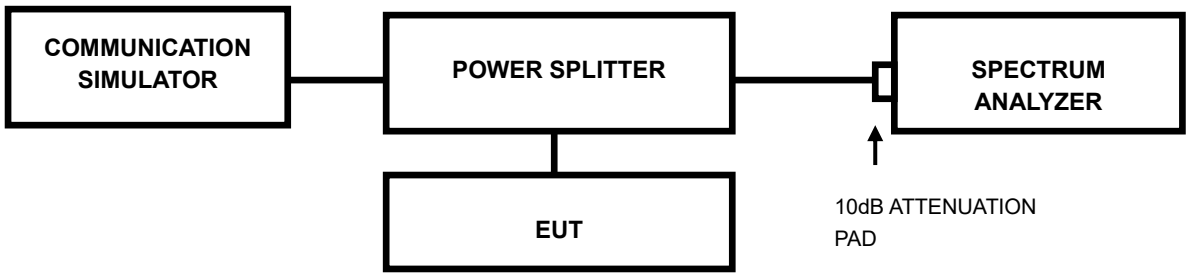
Please Refer to Module report R1907A0448-R3V3/ R1907A0448-R6V2/ 2111RSU084-U1/2111RSU084-U2.

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 Module report R1907A0448-R3V3/ R1907A0448-R6V2/ 2111RSU084-U1/2111RSU084-U2.

3.4 BAND EDGE MEASUREMENT

3.4.1 LIMITS OF BAND EDGE MEASUREMENT

According to FCC 27.53(c) specified that For operations in the 746-758 MHz band and the 776-788 MHz band , the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.In addition, the power of any unwanted emission in an 6.25kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power,P(dBW),by at least 65 +10log10p(P),dB,for mobile and portable equipment.

According to FCC 27.53(g) specified that For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

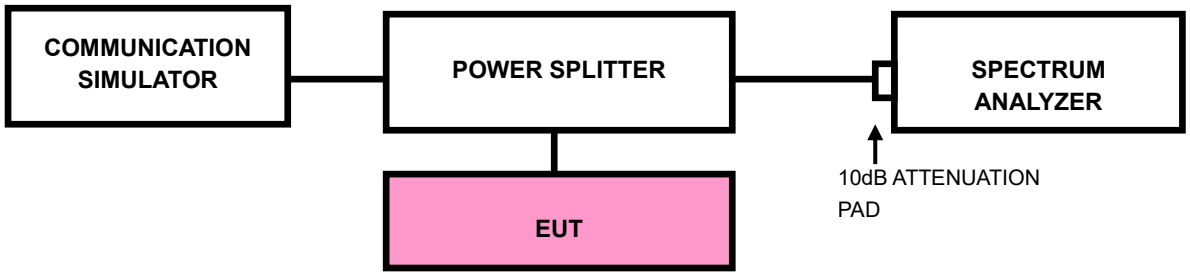
According to FCC Part 27.53(h) specified that For operations in the 1710-1755 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

According to FCC Part 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.

For 900 MHz broadband operations in 897.5~ 900.5 MHz band by at least 43 + 10log (P) dB.

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 Module report R1907A0448-R3V3/ R1907A0448-R6V2/ 2111RSU084-U1/2111RSU084-U2.

3.5 CONDUCTED SPURIOUS EMISSIONS

3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to –13dBm.

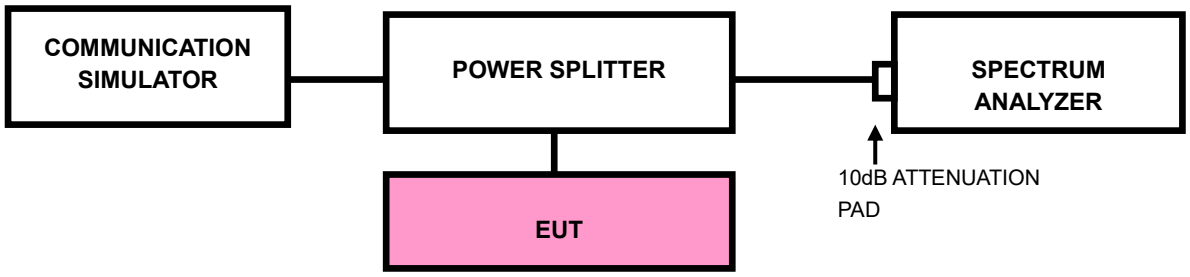
The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10thharmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-caseconfiguration. All modes of operation were investigated and the worst-caseconfiguration results are reported in this section.
For 900 MHz broadband operations in 897.5~ 900.5 MHz band by at least 43 + 10 log (P) dB.

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 Module report R1907A0448-R3V3/ R1907A0448-R6V2/ 2111RSU084-U1/2111RSU084-U2.

3.6 RADIATED EMISSION MEASUREMENT

3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to –13dBm.

47 CFR 27.1509(a) For 900 MHz broadband operations in 897.5-900.5 MHz band by at least 43 + 10 log (P) dB.

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.

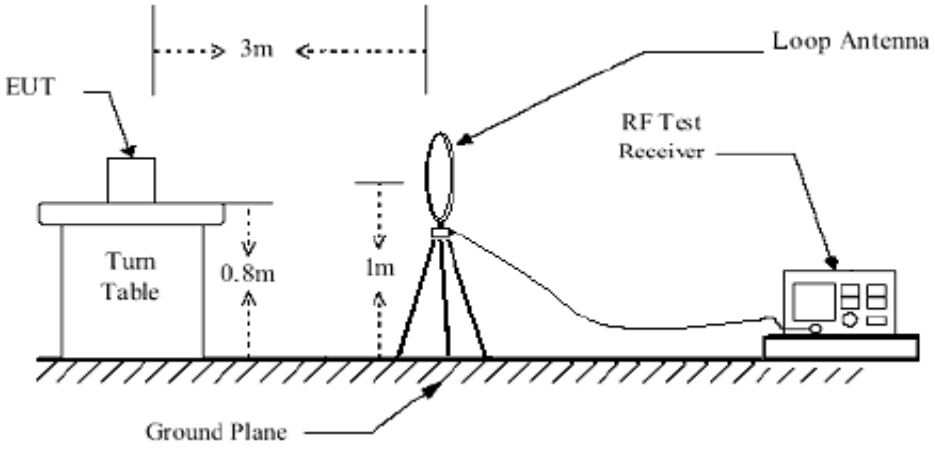
NOTE: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

3.6.3 DEVIATION FROM TEST STANDARD

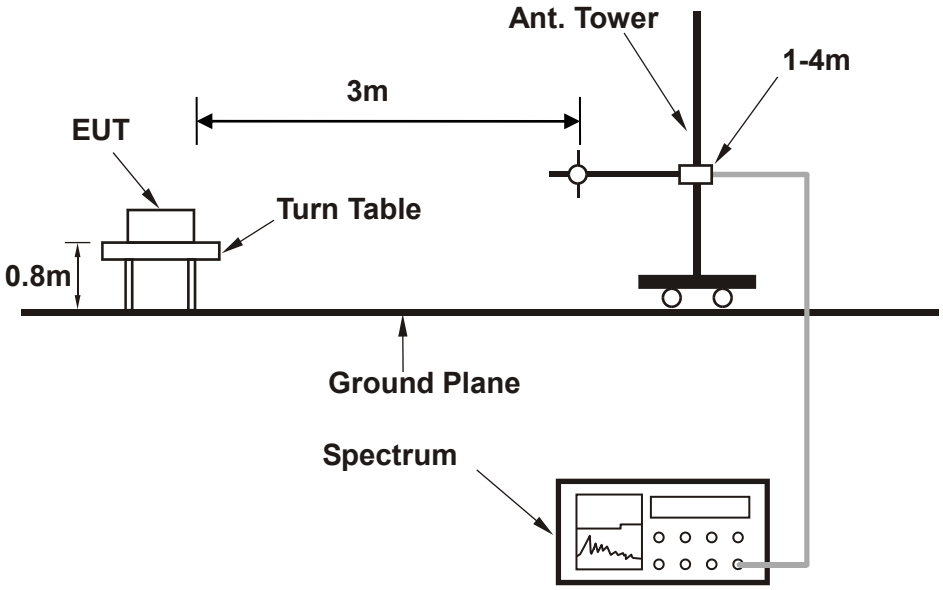
No deviation

3.6.4 TEST SETUP

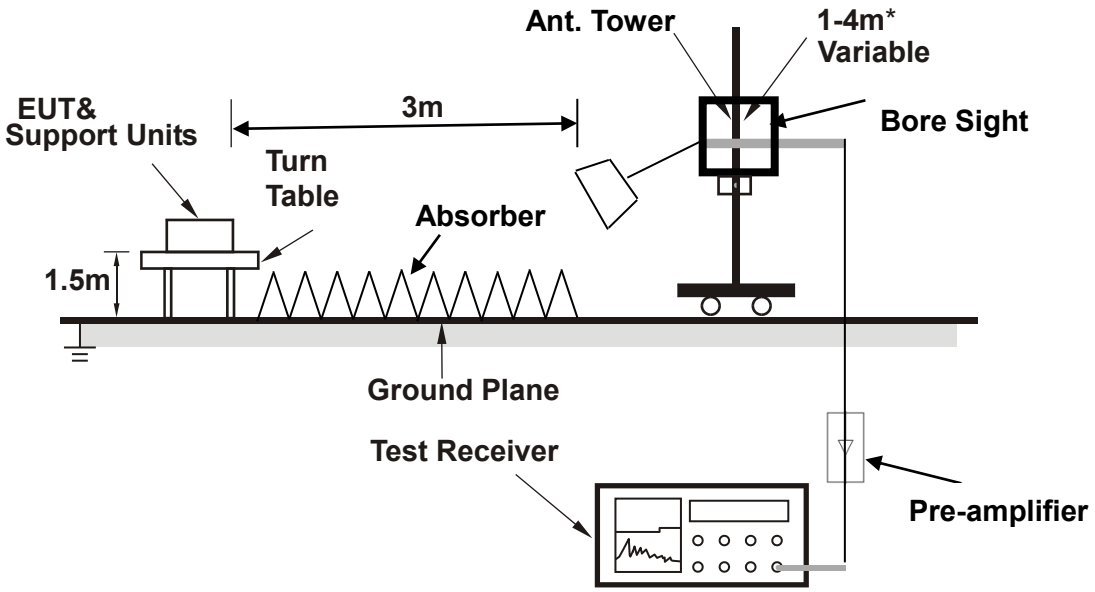
< Frequency Range below 30MHz >



< 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.

Internal Antenna:

LTE CAT-M1

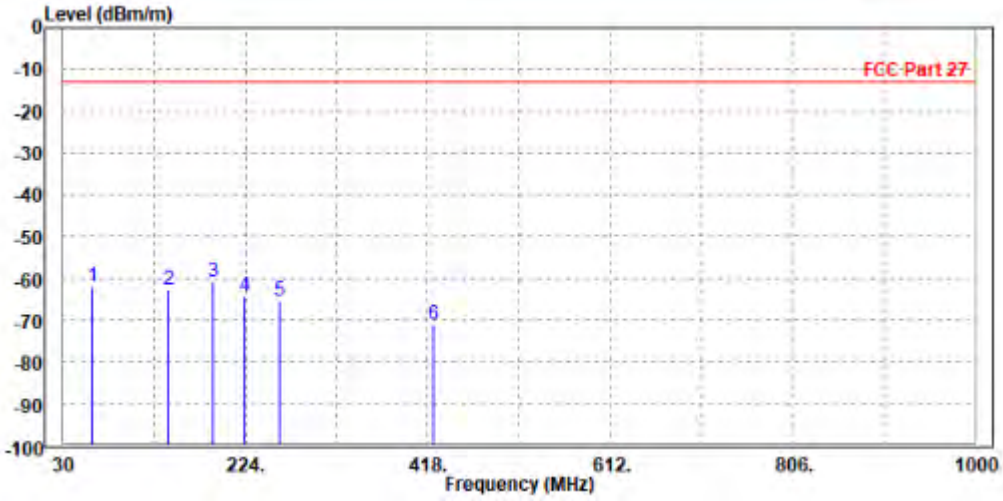
BELOW 1GHz WORST-CASE DATA

30 MHz – 1GHz data:

LTE Band 13
CHANNEL BANDWIDTH: 5MHz / QPSK

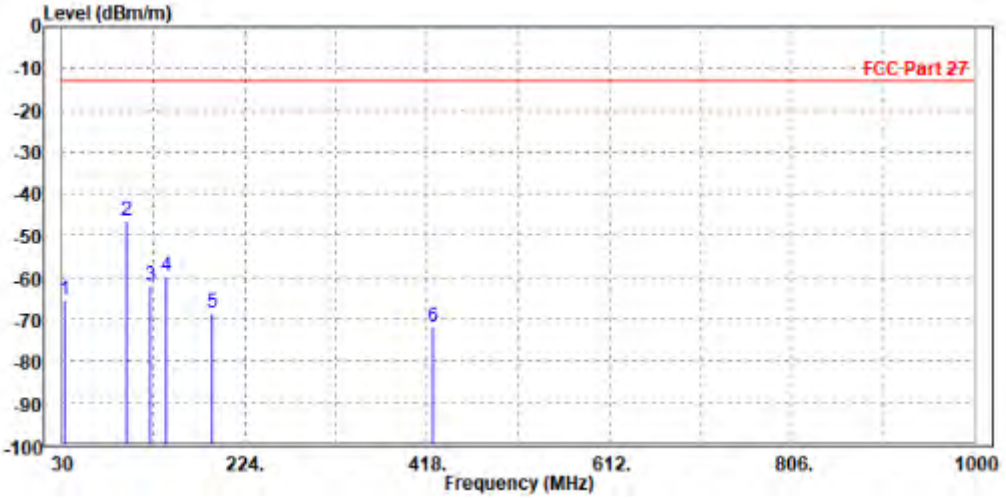
MODE	TX channel 20175	**FREQUENCY RANGE**	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	60.928	-61.81	-42.81	-13.00	-48.81	-19.00	Peak	Horizontal
2	142.464	-62.78	-43.53	-13.00	-49.78	-19.25	Peak	Horizontal
3 PP	188.855	-60.95	-42.24	-13.00	-47.95	-18.71	Peak	Horizontal
4	224.000	-64.13	-49.57	-13.00	-51.13	-14.56	Peak	Horizontal
5	260.551	-65.57	-53.90	-13.00	-52.57	-11.67	Peak	Horizontal
6	423.623	-70.92	-61.32	-13.00	-57.92	-9.60	Peak	Horizontal



MODE	TX channel 20175	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	32.812	-65.46	-46.59	-13.00	-52.46	-18.87	Peak	Vertical
2 PP	98.884	-46.44	-39.03	-13.00	-33.44	-7.41	Peak	Vertical
3	124.188	-62.02	-47.48	-13.00	-49.02	-14.54	Peak	Vertical
4	141.058	-59.52	-46.04	-13.00	-46.52	-13.48	Peak	Vertical
5	188.855	-68.37	-49.63	-13.00	-55.37	-18.74	Peak	Vertical
6	423.623	-71.97	-63.19	-13.00	-58.97	-8.78	Peak	Vertical



ABOVE 1GHz

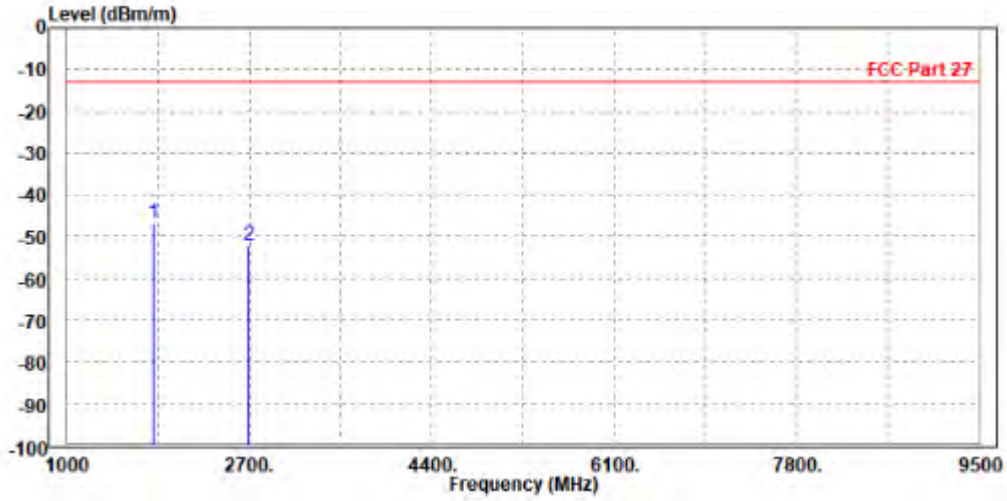
Note: For higher frequency, the emission is too low to be detected.

WORST-CASE DATA

LTE Band 8
CHANNEL BANDWIDTH: 1.4MHz / QPSK
CH21632

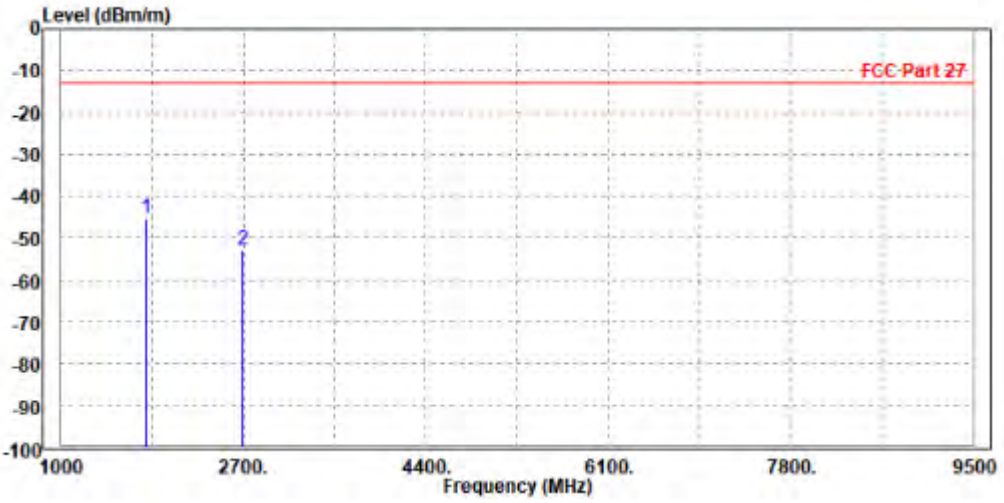
MODE	TX channel 21632	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 1799.000	-46.68	-48.67	-13.00	-33.68	1.99	Peak	Horizontal
2	2694.600	-52.26	-58.17	-13.00	-39.26	5.91	Peak	Horizontal



MODE	TX channel 21632	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			

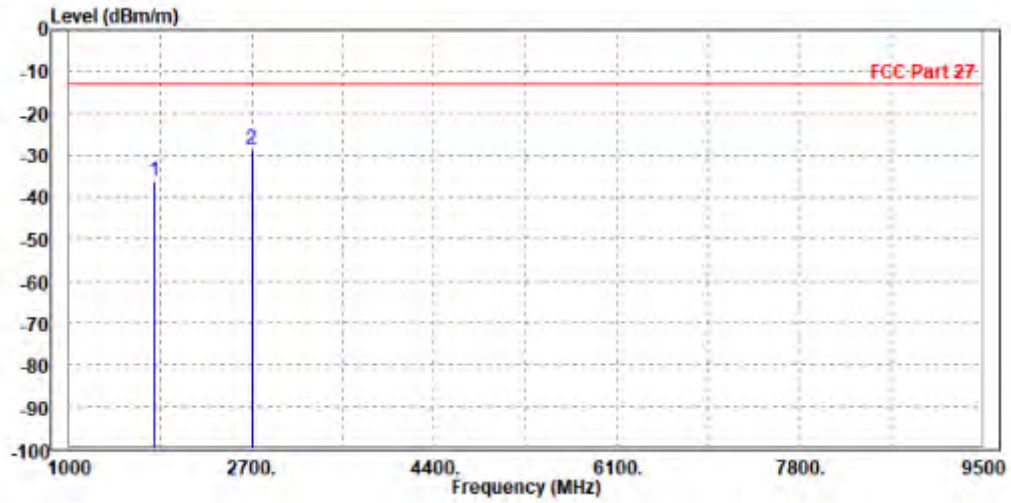
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1796.400	-45.09	-47.20	-13.00	-32.09	2.11	Peak	Vertical
2	2691.500	-52.88	-58.43	-13.00	-39.88	5.55	Peak	Vertical



CH21640

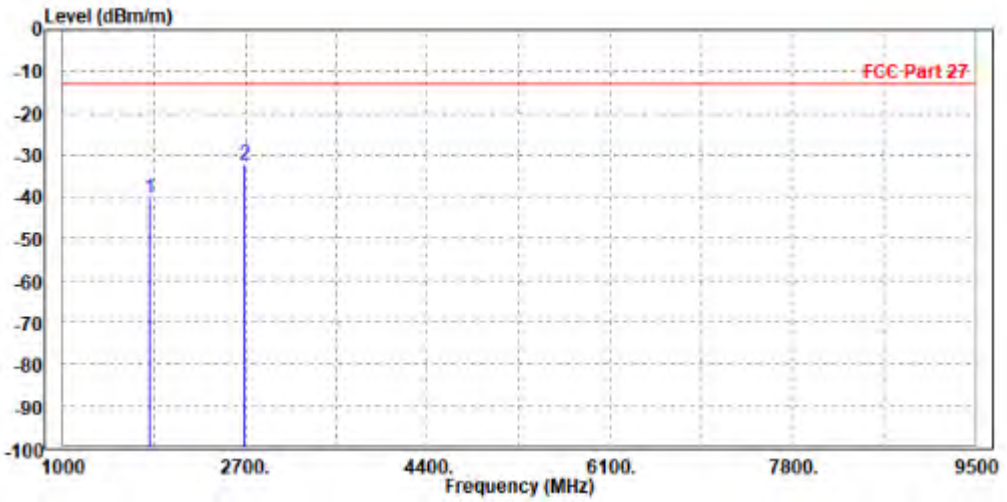
MODE	TX channel 21640	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1798.000	-36.19	-38.18	-13.00	-23.19	1.99	Peak	Horizontal
2 PP	2700.000	-28.65	-34.57	-13.00	-15.65	5.92	Peak	Horizontal



MODE	TX channel 21640	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			

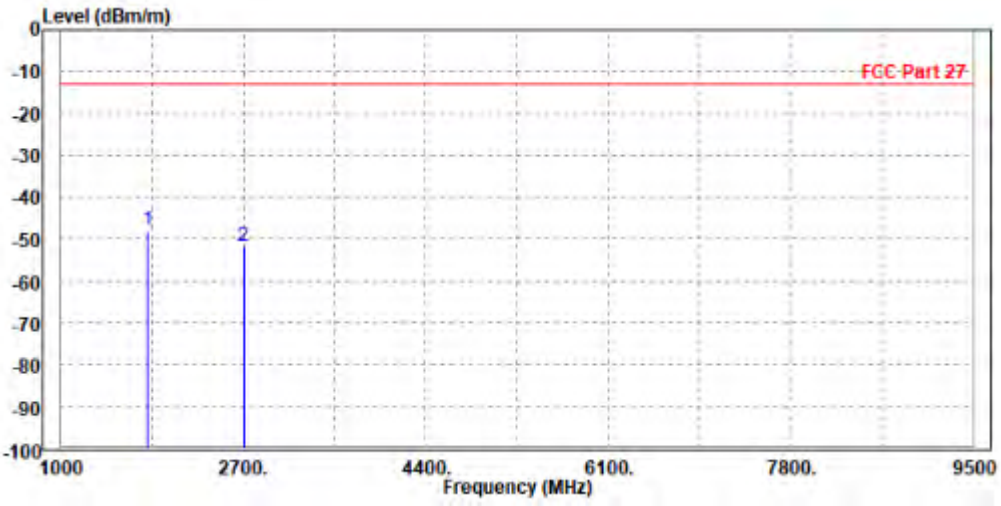
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1799.000	-40.46	-42.59	-13.00	-27.46	2.13	Peak	Vertical
2 PP	2697.000	-32.45	-38.02	-13.00	-19.45	5.57	Peak	Vertical



CH21648

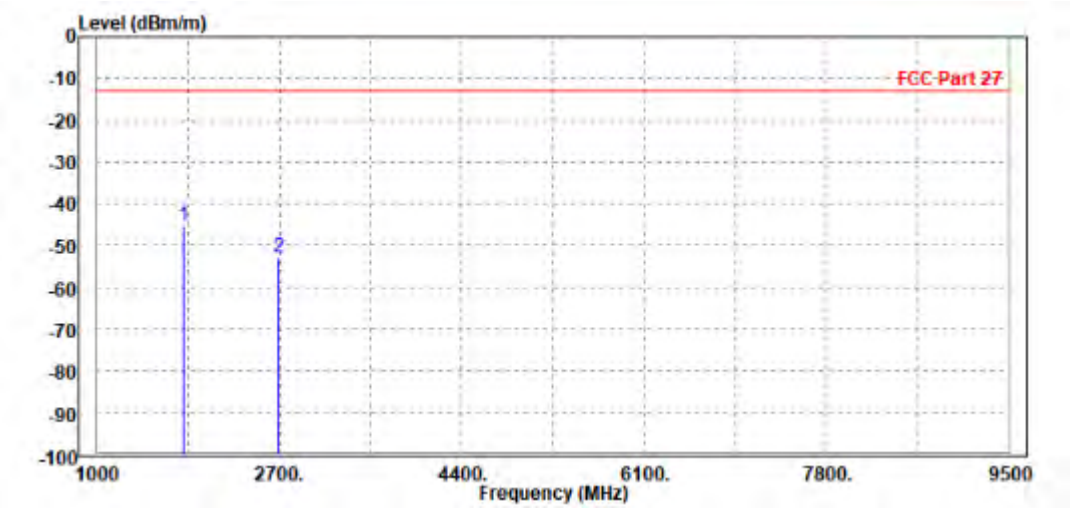
MODE	TX channel 21648	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 1799.600	-47.94	-49.94	-13.00	-34.94	2.00	Peak	Horizontal
2	2700.000	-51.89	-57.81	-13.00	-38.89	5.92	Peak	Horizontal



MODE	TX channel 21648	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			

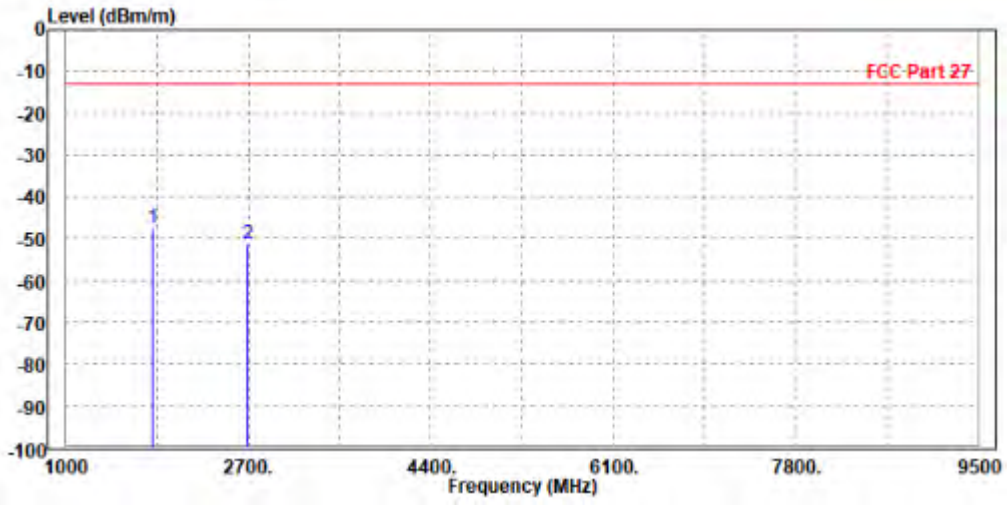
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1799.000	-45.40	-47.53	-13.00	-32.40	2.13	Peak	Vertical
2	2699.400	-52.90	-58.48	-13.00	-39.90	5.58	Peak	Vertical



CHANNEL BANDWIDTH: 3MHz / QPSK

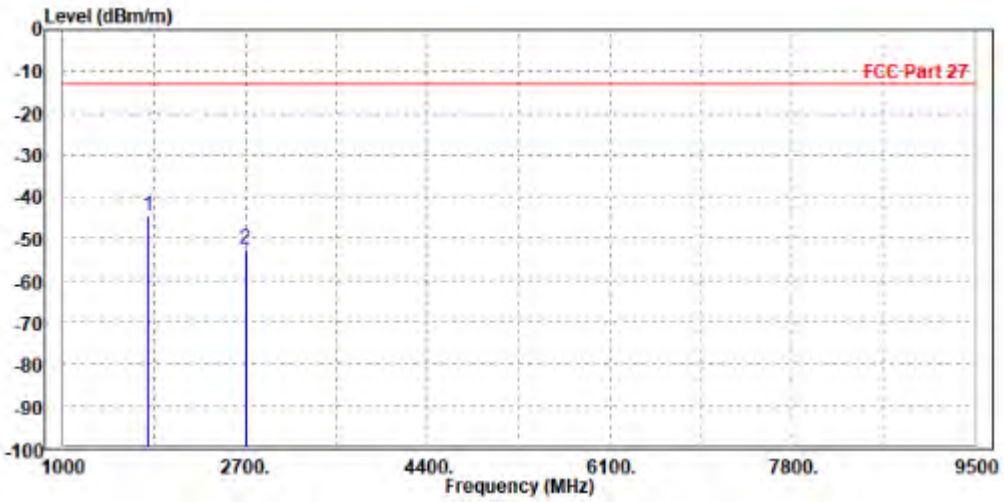
MODE	TX channel 21640	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 1799.000	-47.54	-49.53	-13.00	-34.54	1.99	Peak	Horizontal
2	2697.000	-51.46	-57.37	-13.00	-38.46	5.91	Peak	Horizontal



MODE	TX channel 21640	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			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 1798.000	-44.58	-46.70	-13.00	-31.58	2.12	Peak	Vertical
2	2700.000	-52.32	-57.90	-13.00	-39.32	5.58	Peak	Vertical



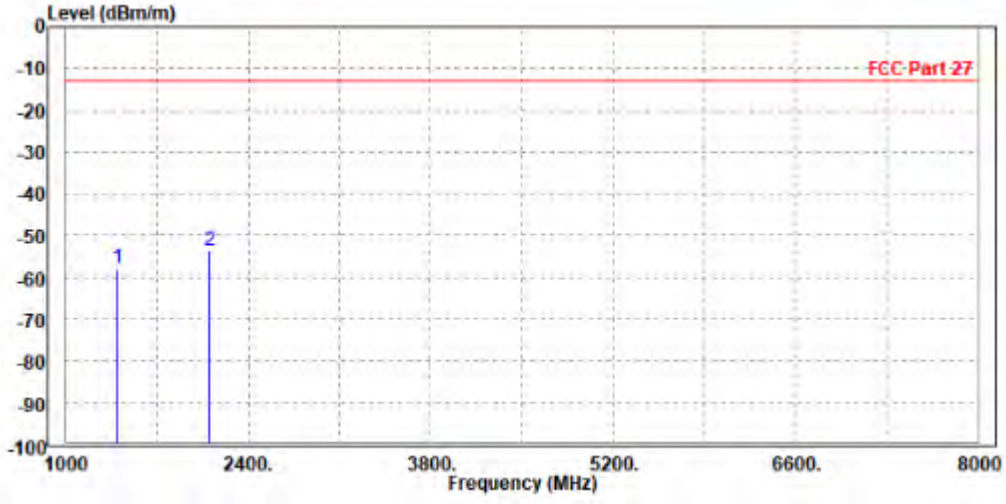
LTE BAND 12

CHANNEL BANDWIDTH: 1.4MHz / QPSK

CH23017

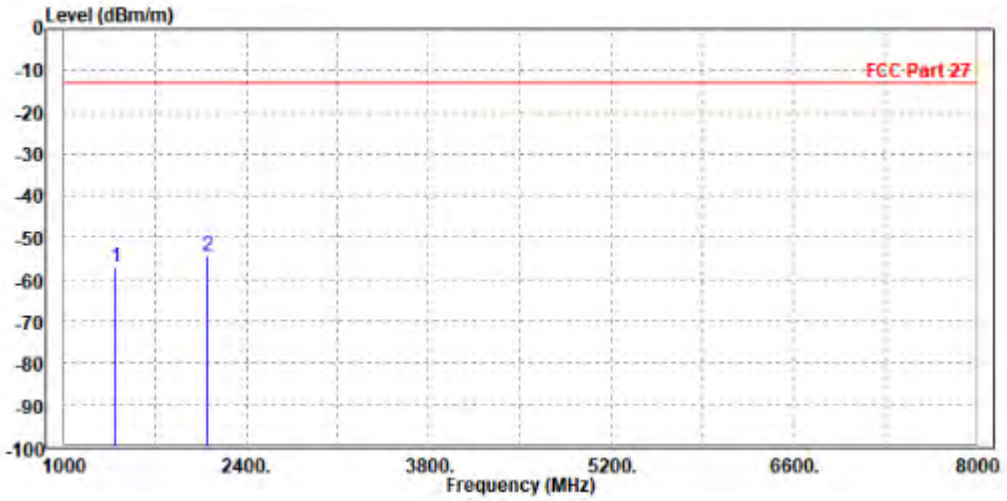
MODE	TX channel 23017	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1399.000	-57.74	-57.05	-13.00	-44.74	-0.69	Peak	Horizontal
2 PP	2099.100	-53.68	-57.66	-13.00	-40.68	3.98	Peak	Horizontal



MODE	TX channel 23017	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			

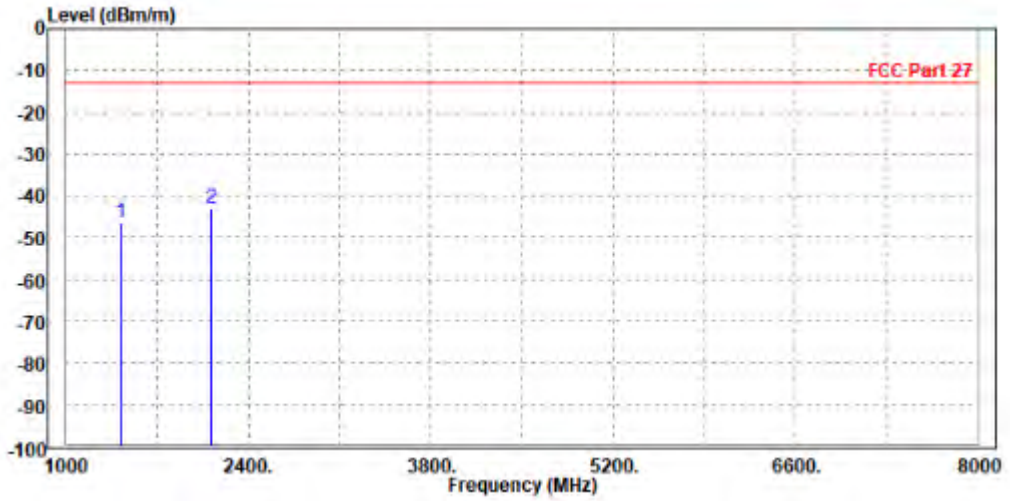
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1399.400	-56.91	-56.44	-13.00	-43.91	-0.47	Peak	Vertical
2 PP	2099.000	-54.48	-58.33	-13.00	-41.48	3.85	Peak	Vertical



CH23095

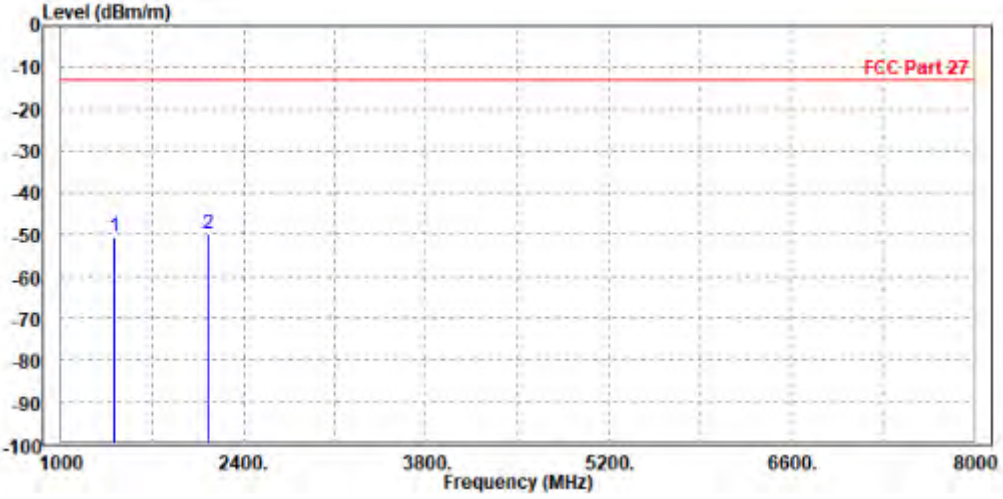
MODE	TX channel 23095	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1415.000	-46.56	-45.91	-13.00	-33.56	-0.65	Peak	Horizontal
2 PP	2120.000	-43.15	-47.21	-13.00	-30.15	4.06	Peak	Horizontal



MODE	TX channel 23095	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			

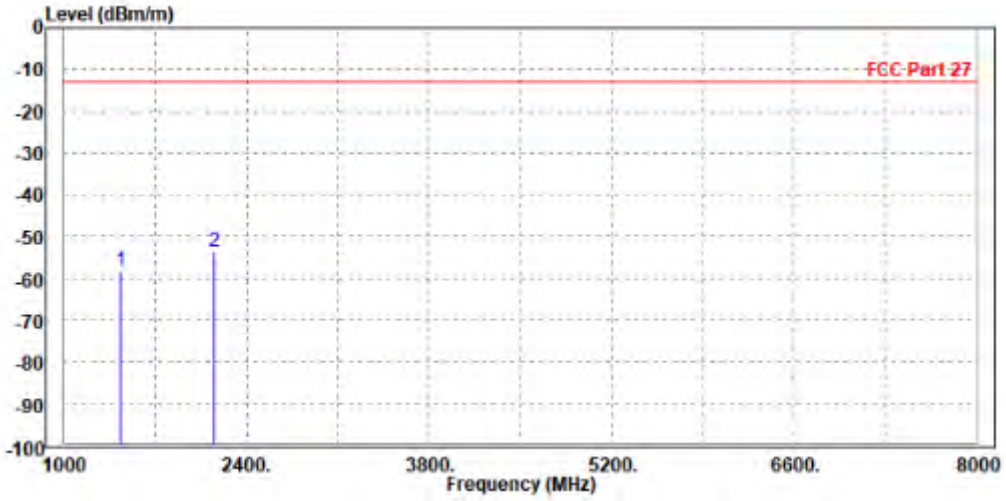
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1413.000	-50.59	-50.17	-13.00	-37.59	-0.42	Peak	Vertical
2 PP	2122.500	-49.97	-53.89	-13.00	-36.97	3.92	Peak	Vertical



CH23173

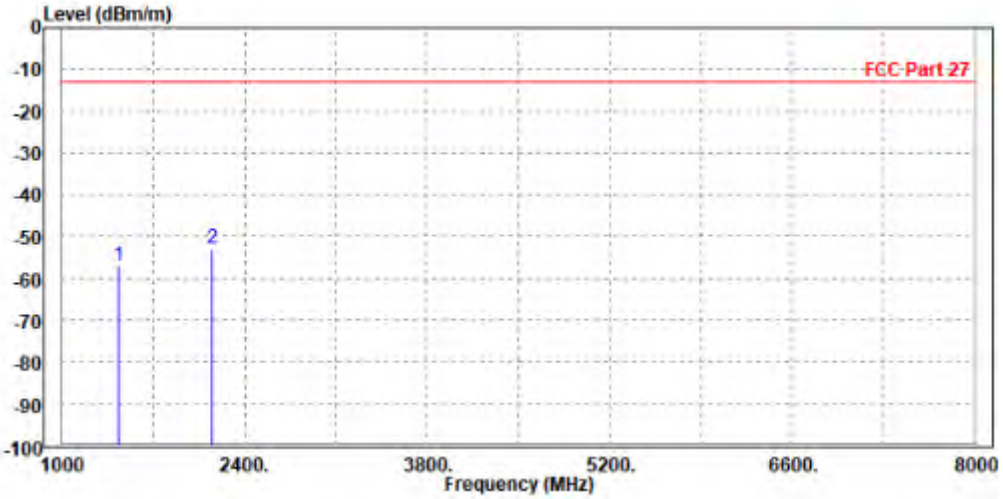
MODE	TX channel 23173	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1430.600	-58.14	-57.53	-13.00	-45.14	-0.61	Peak	Horizontal
2 PP	2148.000	-53.46	-57.62	-13.00	-40.46	4.16	Peak	Horizontal



MODE	TX channel 23173	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			

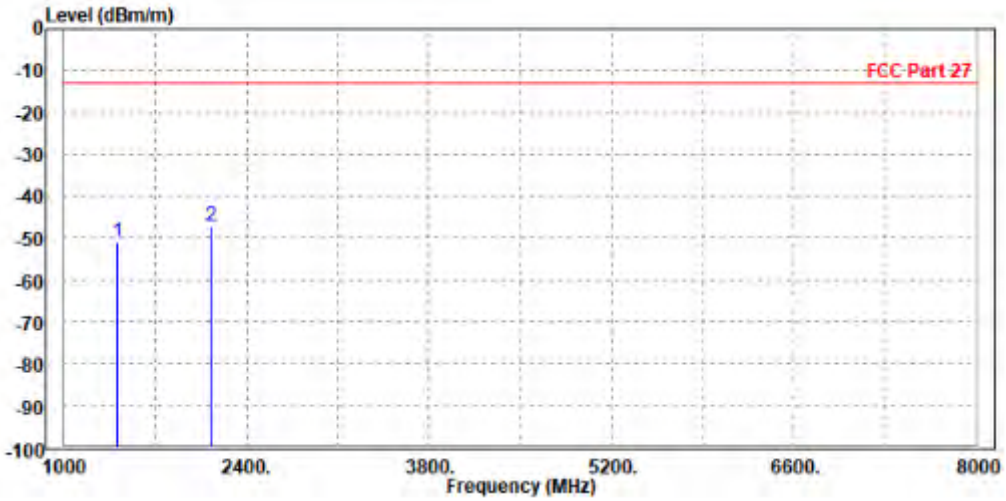
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1434.000	-57.21	-56.89	-13.00	-44.21	-0.32	Peak	Vertical
2 PP	2145.900	-52.88	-56.86	-13.00	-39.88	3.98	Peak	Vertical



CHANNEL BANDWIDTH: 3MHz / QPSK

MODE	TX channel 23095	**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			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1413.000	-50.92	-50.27	-13.00	-37.92	-0.65	Peak	Horizontal
2 PP	2122.500	-47.24	-51.30	-13.00	-34.24	4.06	Peak	Horizontal



MODE	TX channel 23095	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			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1415.000	-51.75	-51.34	-13.00	-38.75	-0.41	Peak	Vertical
2 PP	2120.000	-50.36	-54.27	-13.00	-37.36	3.91	Peak	Vertical