

TEST REPORT

Applicant Name : PROMETHEUS GROUP LLC
Address : P.O. BOX 130100 BIRMINGHAM, ALABAMA 35213-0100 USA.
Report Number : SZNS1220816-37225E-RF
FCC ID: 2ALGTBTC-VP

Test Standard (s)

FCC PART 27; FCC PART 22H; FCC PART 24E; FCC PART 90

Sample Description

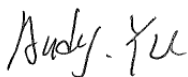
Product Type: Hunting Camera
Model No.: BTC-VP, BTC-VP-ATT, BTC-VP-VZW
Trade Mark: BROWNING
Date Received: 2022-08-16
Date of Test: 2022-09-01 to 2022-11-04
Report Date: 2022-11-04

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

Approved By:




 Audy.Yu
 EMC Engineer

 Candy Li
 EMC Engineer

Note: This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "★".

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Hunting Camera
Tested Model	BTC-VP
Multiple Model	BTC-VP-ATT, BTC-VP-VZW
Model Difference	Please refer the DOS letter
Radio	LTE Cat M1
Frequency Range	LTE Band 2: 1850-1910MHz(TX); 1930-1990MHz(RX) LTE Band 4: 1710-1755MHz(TX); 2110-2155MHz(RX) LTE Band 5: 824-849MHz(TX); 869-894MHz(RX) LTE Band 12: 699-716MHz(TX); 729-746MHz(RX) LTE Band 13: 777-787MHz(TX); 746-756MHz(RX) LTE Band 25: 1850-1915MHz(TX); 1930-1995MHz(RX) LTE Band 26(Part 22H): 824-849MHz(TX); 869-894MHz(RX) LTE Band 26(Part 90S): 814-824MHz(TX); 859-869MHz(RX) LTE Band 66: 1710-1780MHz(TX); 2110-2180MHz(RX) LTE Band 85: 698-716MHz(TX); 728-746MHz(RX)
Maximum ERP/EIRP	LTE Band 2: 21.46dBm LTE Band 4: 21.29Bm LTE Band 5: 18.15dBm LTE Band 12: 16.59dBm LTE Band 13: 18.03dBm LTE Band 25: 20.65dBm LTE Band 26(Part 22H): 17.65dBm LTE Band 26(Part 90S): 17.72dBm LTE Band 66: 21.60dBm LTE Band 85: 17.43dBm
Modulation Technique	4G: QPSK, 16QAM
Antenna Specification*	LTE Band2,25: 3.21dBi; LTE Band4,66: 3.25dBi; LTE Band5,26: 0.28dBi; LTE Band12,85: -1.35dBi; LTE Band13: 1.23dBi; (provided by the applicant)
Voltage Range	DC 12V from battery or adapter
Sample serial number	SZNS1220816-37225E-RF-S1(RF Radiated Test) SZNS1220816-37225E-RF-S2(RF Conducted Test) (Assigned by ATC, Shenzhen)
Sample/EUT Status	Good condition
Normal/Extreme Condition*	N.V.: Normal Voltage: 12 V _{DC} ; L.V.: Low Voltage: 9V _{DC} ; H.V.: High Voltage: 14V _{DC}

Note: The frequency range of 824-849 MHz(TX), 869-894MHz(RX) in LTE band 26, which covered LTE band 5.

Objective

This test report is in accordance with Part 2-Subpart J, Part 22-Subpart H, Part24-Subpart E, Part 27, and Part 90 of the Federal Communication Commission’s rules.

The objective is to determine the compliance of the EUT with FCC rules for output power, modulation characteristic, occupied bandwidth, and spurious emission at antenna terminal, spurious radiated emission, frequency stability and band edge.

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2-Subpart J as well as the following parts:

- Part 22 Subpart H - Public Mobile Services
- Part 24 Subpart E - Personal Communication Services
- Part 27 - Miscellaneous Wireless Communications Services
- Part 90 – Private Land Mobile Radio Services

ANSI C63.26-2015: American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services

All emissions measurement was performed at Shenzhen Accurate Technology Co., Ltd. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Each test item follows test standards and with no deviation.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		5%
RF Frequency		0.082*10 ⁻⁷
RF output power, conducted		0.73dB
Unwanted Emission, conducted		1.6dB
Modulation Limiting		1%
	30MHz - 1GHz	4.28dB
	1GHz - 18GHz	4.98dB
	18GHz - 26.5GHz	5.06dB
	26.5GHz - 40GHz	4.72dB
Temperature		1°C
Humidity		6%
Supply voltages		0.4%

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Test Facility

The test site used by Shenzhen Accurate Technology Co., Ltd. to collect test data is located on the 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 708358, the FCC Designation No.: CN1189.

Accredited by American Association for Laboratory Accreditation (A2LA). The Certificate Number is 4297.01

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0016. The Registration Number is 5077A.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The final qualification test was performed with the EUT operating at normal mode.

Test was performed as below table:

Frequency band	Bandwidth (MHz)	Test Frequency(MHz)		
		Low	Middle	High
LTE B2	1.4	1850.7	1880.0	1909.3
	3	1851.5	1880.0	1908.5
	5	1852.5	1880.0	1907.5
	10	1855.0	1880.0	1905.0
	15	1857.5	1880.0	1902.5
	20	1860.0	1880.0	1900.0
LTE B4	1.4	1710.7	1732.5	1754.3
	3	1711.5	1732.5	1753.5
	5	1712.5	1732.5	1752.5
	10	1715.0	1732.5	1750.0
	15	1717.5	1732.5	1747.5
	20	1720.0	1732.5	1745.0
LTE B5& LTE B26(Part 22H)	1.4	824.7	836.5	848.3
	3	825.5	836.5	847.5
	5	826.5	836.5	846.5
	10	829.0	836.5	844.0
	15(only for B26)	831.5	836.5	841.5
LTE B12	1.4	699.7	707.5	715.3
	3	700.5	707.5	714.5
	5	701.5	707.5	713.5
	10	704.0	707.5	711.0
LTE B13	5	779.5	782.0	784.5
	10	/	782.0	/

Frequency band	Bandwidth (MHz)	Test Frequency(MHz)		
		Low	Middle	High
LTE B25	1.4	1850.7	1882.5	1914.3
	3	1851.5	1882.5	1913.5
	5	1852.5	1882.5	1912.5
	10	1855.0	1882.5	1910
	15	1857.5	1882.5	1907.5
	20	1860.0	1882.5	1905.0
LTE B26(Part 90S)	1.4	814.7	819.0	823.3
	3	815.5	819.0	822.5
	5	816.5	819.0	821.5
	10	/	819.0	/
LTE B66	1.4	1710.7	1745.0	1779.3
	3	1711.5	1745.0	1778.5
	5	1712.5	1745.0	1777.5
	10	1715	1745.0	1775
	15	1717.5	1745.0	1772.5
	20	1720.0	1745.0	1770.0
LTE B85	5	700.5	707.0	713.5
	10	703.0	707.0	711.0

Equipment Modifications

No modification was made to the EUT.

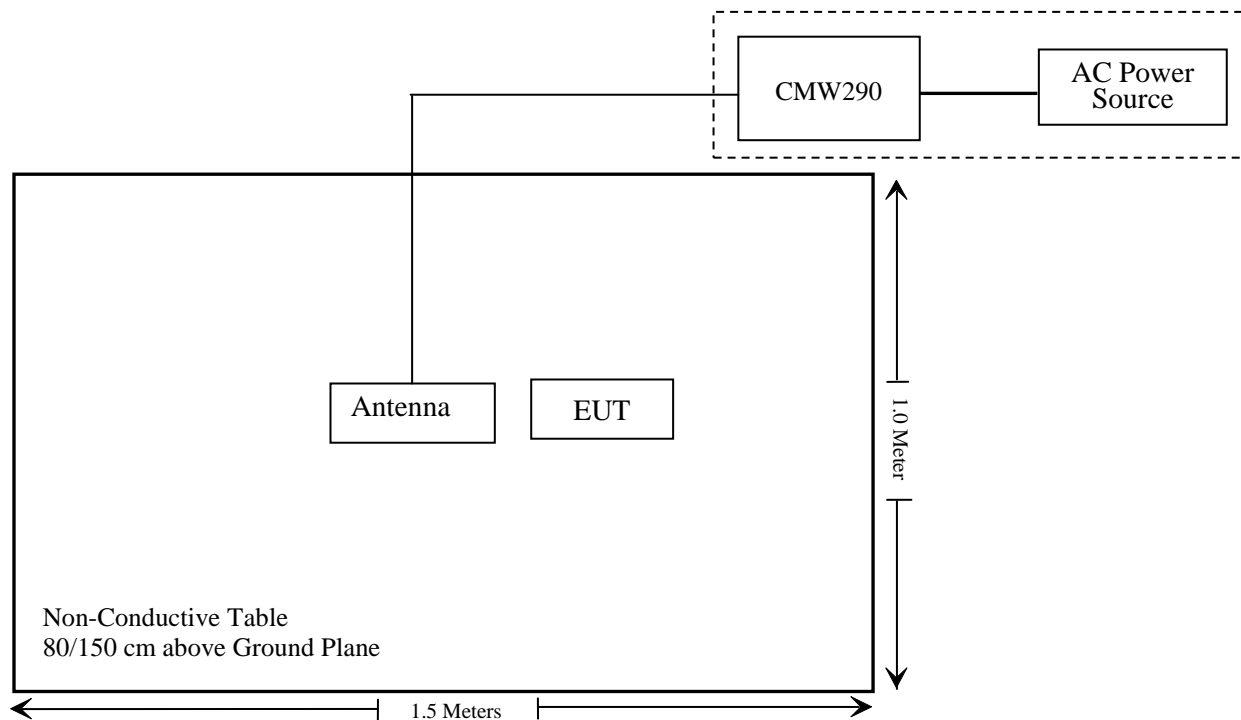
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Functional Radio Communication Tester	CMW290	154606
Un-Known	Antenna	Un-Known	Un-Known

Support Cable Description

Cable Description	Length (m)	From / Port	To
Un-shielded Un-detachable AC cable	1.2	AC Power	CMW290

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307(b)	RF Exposure	Compliant
§2.1046; § 22.913 (a); § 24.232 (c) (d); §27.50 (b) (c) (d); §90.635	RF Output Power	Compliant
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.905; § 22.917; § 24.238; §27.53 §90.209	Occupied Bandwidth	Compliant
§ 2.1051; §22.917 (a); § 24.238 (a); §27.53; §90.691	Spurious Emissions at Antenna Terminal	Compliant
§ 2.1053; § 22.917 (a); § 24.238 (a); §27.53 §90.691	Field Strength of Spurious Radiation	Compliant
§ 22.917 (a); § 24.238 (a); §27.53(c)(g)(m) §90.691	Band Edge	Compliant
§ 2.1055; § 22.355; § 24.235; §27.54; §90.213	Frequency stability	Compliant

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test					
Rohde & Schwarz	Test Receiver	ESR	102725	2021/12/13	2022/12/12
Rohde & Schwarz	Spectrum Analyzer	FSV40	101949	2021/12/13	2022/12/12
SONOMA INSTRUMENT	Amplifier	310 N	186131	2021/11/09	2022/11/08
A.H. Systems, inc.	Preamplifier	PAM-0118P	135	2021/11/09	2022/11/08
Quinstar	Amplifier	QLW-18405536-J0	15964001002	2021/11/11	2022/11/10
Schwarzbeck	Bilog Antenna	VULB9163	9163-194	2020/01/05	2023/01/04
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2021/07/06	2024/07/05
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-655	2020/01/05	2023/01/04
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-1067	2020/01/05	2023/01/04
PASTERNAK	Horn Antenna	PE9852/2F-20	1120 (ATC-BA-024-1)	2020/01/05	2023/01/04
PASTERNAK	Horn Antenna	PE9852/2F-20	1120 (ATC-BA-025-1)	2020/01/05	2023/01/04
Unknown	RF Coaxial Cable	No.10	N050	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.11	N1000	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.12	N040	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.13	N300	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.14	N800	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.15	N600	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.16	N200	2021/12/14	2022/12/13
Unknown	Band Reject Filter	MSF1850-1910 MS-1148	ATCE-142	2021/12/14	2022/12/13
Unknown	Band Reject Filter	MSF1710-1785 MS-1150	ATCE-144	2021/12/14	2022/12/13
Unknown	Band Reject Filter	MSF700-800MS -1153	ATCE-147	2021/12/14	2022/12/13
Agilent	Signal Generator	N5183A	MY51040755	2021/12/13	2022/12/12
Radiated Emission Test Software: e3 19821b (V9)					
RF Conducted Test					
Rohde & Schwarz	Functional Radio Communication Tester	CMW290	154606	2021/12/13	2022/12/12
HP	6dB Attenuator	8493B 6dB Attenuator	2708A 04769	2021/12/14	2022/12/13
WEINSCHEL	10dB Attenuator	5324	AU 3842	2021/12/14	2022/12/13
Rohde & Schwarz	Spectrum Analyzer	FSV-40	101495	2021/12/13	2022/12/12
Mini-Circuits	Power Splitter	DC-18000MHz	SF10944151S	2021/12/14	2022/12/13
UNI-T	DC Power Supply	UTP8305B	10584	NCR	NCR
Fluke	Desktop Multi Meter	45	7664009	2021/12/14	2022/12/13
REALE	Temp. & Humid. Chamber	RHP-800BT	R20170318310	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.33	RF-03	Each time	

Statement of Traceability: Shenzhen Accurate Technology Co., Ltd. attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §1.1307(b) – RF EXPOSURE

Applicable Standard

According to KDB 447498 D04 Interim General RF Exposure Guidance v01, clause 2.1.4 –MPE-Based Exemption:

An alternative to the SAR-based exemption is provided in § 1.1307(b)(3)(i)(C), for a much wider frequency range, from 300 kHz to 100 GHz, applicable for separation distances greater or equal to $\lambda/2\pi$, where λ is the free-space operating wavelength in meters. The MPE-based test exemption condition is in terms of ERP, defined as the product of the maximum antenna gain and the delivered maximum time-averaged power. For this case, a RF source is an RF exempt device if its ERP (watts) is no more than a frequency-dependent value, as detailed tabular form in Appendix B. These limits have been derived based on the basic specifications on Maximum Permissible Exposure (MPE) considered for the FCC rules in § 1.1310(e)(1).

Table to § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source frequency (MHz)	Threshold ERP (watts)
0.3-1.34	$1,920 R^2$.
1.34-30	$3,450 R^2/f^2$.
30-300	$3.83 R^2$.
300-1,500	$0.0128 R^2f$.
1,500-100,000	$19.2R^2$.

f = frequency in MHz;

R = minimum separation distance from the body of a nearby person (appropriate units, e.g., m);

Test Result

For worst case:

Mode	Frequency Range (MHz)	Tune-Up Conducted Average Output Power (dBm)	Antenna Gain		ERP		Evaluation Distance (cm)	MPE-Based Exemption (mW)
			(dBi)	(dBd)	(dBm)	(mW)		
LTE B2	1850-1910	18.5	3.21	1.06	19.56	90.36	20	768
LTE B4	1710-1755	18.5	3.25	1.1	19.60	91.20	20	768
LTE B5	824-849	20.5	0.28	-1.87	18.63	72.95	20	421.9
LTE B12	699-716	20.5	-1.35	-3.5	17.00	50.12	20	357.9
LTE B13	777-787	19.5	1.23	-0.92	18.58	72.11	20	397.8
LTE B25	1850-1915	18.0	3.21	1.06	19.06	80.54	20	768
LTE B26 (Part 90S)	814-824	20.0	0.28	-1.87	18.13	65.01	20	416.8
LTE B26 (Part 22H)	824-849	20.0	0.28	-1.87	18.13	65.01	20	421.9
LTE B66	1710-1780	19.0	3.25	1.1	20.10	102.33	20	768
LTE B85	698-716	20.5	-1.35	-3.5	17.00	50.12	20	357.4

Note1: Tune-Up power was declared by applicant.

Note2: 0dBd=2.15dBi

To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

Result: Compliant.

FCC§2.1047 - MODULATION CHARACTERISTIC

According to FCC § 2.1047(d), Part 22H&24E&27&90, there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

FCC § 2.1046, § 22.913 (a) & § 24.232(c) (d); § 27.50(b)(c)(d); § 90.635- RF OUTPUT POWER

Applicable Standard

According to FCC § 2.1046 and § 22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC § 2.1046 and § 24.232 (c) (d), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

The peak-to-average power ratio (PAR) of the transmitter output power must not exceed 13 dB.

According to § 27.50(b), Control stations and mobile stations transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands and fixed stations transmitting in the 787-788 MHz and 805-806 MHz bands are limited to 30 watts ERP.

According to § 27.50(c), Control and mobile stations in the 698-746 MHz band are limited to 30 watts ERP.

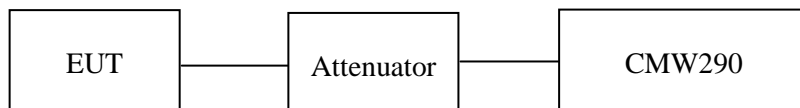
According to § 27.50(d), Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

According to § 90.635, the maximum EIRP must not exceed 1000Watts (50dBm) for 814-824MHz.

Test Procedure

Conducted method:

The RF output of the transmitter was connected to the CMW290 through sufficient attenuation.



Test Data

Environmental Conditions

Temperature:	24 °C
Relative Humidity:	56-60 %
ATM Pressure:	101.0 kPa

The testing was performed by Jesse Chen from 2022-09-01 to 2022-09-29.

LTE Band 2:

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	17.69	17.02	17.54	20.90	20.23	20.75
		RB1#3	17.48	16.97	18.01	20.69	20.18	21.22
		RB1#5	17.31	17.10	16.98	20.52	20.31	20.19
		RB3#0	16.35	16.69	16.50	19.56	19.90	19.71
		RB3#3	16.34	15.92	16.52	19.55	19.13	19.73
		RB6#0	15.32	15.92	15.14	18.53	19.13	18.35
	16QAM	RB1#0	16.56	16.51	16.70	19.77	19.72	19.91
		RB1#3	16.44	17.13	16.84	19.65	20.34	20.05
		RB1#5	16.22	16.31	17.34	19.43	19.52	20.55
		RB3#0	15.52	15.75	15.66	18.73	18.96	18.87
		RB3#3	15.28	15.30	15.80	18.49	18.51	19.01
		RB5#0	15.16	15.92	15.51	18.37	19.13	18.72
3.0	QPSK	RB1#1	17.17	17.14	17.63	20.38	20.35	20.84
		RB1#4	17.64	16.55	17.48	20.85	19.76	20.69
		RB1#6	17.58	17.22	16.43	20.79	20.43	19.64
		RB3#1	16.85	17.25	15.76	20.06	20.46	18.97
		RB3#4	15.75	15.57	16.00	18.96	18.78	19.21
		RB6#1	16.00	15.40	15.96	19.21	18.61	19.17
	16QAM	RB1#1	17.12	15.43	16.61	20.33	18.64	19.82
		RB1#4	16.88	17.19	16.21	20.09	20.40	19.42
		RB1#6	16.63	17.23	16.17	19.84	20.44	19.38
		RB3#1	16.08	15.63	16.00	19.29	18.84	19.21
		RB3#4	15.60	15.37	15.89	18.81	18.58	19.10
		RB5#1	15.44	16.35	15.40	18.65	19.56	18.61

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	17.18	17.18	17.56	20.39	20.39	20.77
		RB1#3	18.25	17.17	17.74	21.46	20.38	20.95
		RB1#5	17.45	17.39	17.20	20.66	20.60	20.41
		RB3#0	15.89	16.83	16.04	19.10	20.04	19.25
		RB3#3	15.29	15.66	16.37	18.50	18.87	19.58
		RB6#0	15.00	15.67	15.20	18.21	18.88	18.41
	16QAM	RB1#0	16.52	16.46	17.08	19.73	19.67	20.29
		RB1#3	17.06	16.19	16.41	20.27	19.40	19.62
		RB1#5	15.87	16.27	16.50	19.08	19.48	19.71
		RB3#0	15.70	15.69	15.72	18.91	18.90	18.93
		RB3#3	15.31	15.13	15.84	18.52	18.34	19.05
		RB5#0	15.18	15.69	15.74	18.39	18.90	18.95
10.0	QPSK	RB1#1	17.57	16.80	16.67	20.78	20.01	19.88
		RB1#4	17.22	16.60	17.74	20.43	19.81	20.95
		RB1#6	17.62	17.45	15.29	20.83	20.66	18.50
		RB3#1	17.50	17.45	15.36	20.71	20.66	18.57
		RB3#4	15.50	15.80	15.79	18.71	19.01	19.00
		RB6#1	15.43	16.13	15.99	18.64	19.34	19.20
	16QAM	RB1#1	16.62	15.36	17.06	19.83	18.57	20.27
		RB1#4	16.57	16.71	16.98	19.78	19.92	20.19
		RB1#6	16.94	16.99	16.16	20.15	20.20	19.37
		RB3#1	15.60	16.19	16.09	18.81	19.40	19.30
		RB3#4	15.55	15.22	15.56	18.76	18.43	18.77
		RB5#1	15.63	15.85	15.78	18.84	19.06	18.99

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#1	17.26	17.22	17.42	20.47	20.43	20.63
		RB1#4	17.67	17.81	17.10	20.88	21.02	20.31
		RB1#6	17.52	17.16	16.93	20.73	20.37	20.14
		RB3#1	15.92	16.33	16.23	19.13	19.54	19.44
		RB3#4	16.12	16.10	16.00	19.33	19.31	19.21
		RB6#1	15.90	16.03	14.95	19.11	19.24	18.16
	16QAM	RB1#1	16.74	16.52	16.31	19.95	19.73	19.52
		RB1#4	16.09	15.72	16.16	19.30	18.93	19.37
		RB1#6	15.73	15.99	16.72	18.94	19.20	19.93
		RB3#1	15.22	15.81	15.20	18.43	19.02	18.41
		RB3#4	15.31	15.96	16.57	18.52	19.17	19.78
		RB5#1	15.66	15.85	16.58	18.87	19.06	19.79
20.0	QPSK	RB1#2	16.65	17.37	16.09	19.86	20.58	19.30
		RB1#5	16.97	16.06	17.83	20.18	19.27	21.04
		RB1#7	17.25	16.81	15.89	20.46	20.02	19.10
		RB3#2	16.88	16.96	15.02	20.09	20.17	18.23
		RB3#5	15.95	15.55	15.72	19.16	18.76	18.93
		RB6#2	16.14	15.76	15.41	19.35	18.97	18.62
	16QAM	RB1#2	16.45	15.57	17.11	19.66	18.78	20.32
		RB1#5	16.71	16.54	16.98	19.92	19.75	20.19
		RB1#7	17.11	16.99	15.74	20.32	20.20	18.95
		RB3#2	15.84	15.43	15.33	19.05	18.64	18.54
		RB3#5	15.67	15.19	15.48	18.88	18.40	18.69
		RB5#2	15.73	15.80	15.94	18.94	19.01	19.15

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)

For Band2: Antenna Gain = 3.21dBi

No internal Cable Loss for antenna port.

Limit: EIRP ≤ 33dBm

LTE Band 4:

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	17.77	17.71	17.27	21.02	20.96	20.52
		RB1#3	17.73	17.67	17.14	20.98	20.92	20.39
		RB1#5	17.53	17.43	16.94	20.78	20.68	20.19
		RB3#0	16.6	16.56	16.16	19.85	19.81	19.41
		RB3#3	16.46	16.42	15.99	19.71	19.67	19.24
		RB6#0	15.67	15.56	15.02	18.92	18.81	18.27
	16QAM	RB1#0	16.77	16.69	16.24	20.02	19.94	19.49
		RB1#3	16.63	16.55	16.2	19.88	19.80	19.45
		RB1#5	16.17	16.16	15.96	19.42	19.41	19.21
		RB3#0	15.56	15.67	15.27	18.81	18.92	18.52
		RB3#3	15.78	15.67	15	19.03	18.92	18.25
		RB5#0	15.76	15.78	14.82	19.01	19.03	18.07
3.0	QPSK	RB1#1	17.82	17.73	17.14	21.07	20.98	20.39
		RB1#4	17.81	17.71	17.13	21.06	20.96	20.38
		RB1#6	17.62	17.5	16.97	20.87	20.75	20.22
		RB3#1	16.69	16.63	16.11	19.94	19.88	19.36
		RB3#4	16.56	16.58	16.06	19.81	19.83	19.31
		RB6#1	15.59	15.58	15.08	18.84	18.83	18.33
	16QAM	RB1#1	16.73	16.73	16.17	19.98	19.98	19.42
		RB1#4	16.43	16.48	15.84	19.68	19.73	19.09
		RB1#6	16.22	16.18	15.6	19.47	19.43	18.85
		RB3#1	15.46	15.51	14.83	18.71	18.76	18.08
		RB3#4	15.71	15.71	15.21	18.96	18.96	18.46
		RB5#1	15.72	15.81	15.19	18.97	19.06	18.44

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	17.91	17.82	17.2	21.16	21.07	20.45
		RB1#3	17.88	17.78	17.25	21.13	21.03	20.50
		RB1#5	17.65	17.48	17.04	20.90	20.73	20.29
		RB3#0	17.98	17.77	17.34	21.23	21.02	20.59
		RB3#3	17.72	17.69	17.17	20.97	20.94	20.42
		RB6#0	16.74	16.73	16.27	19.99	19.98	19.52
	16QAM	RB1#0	17.62	17.83	17.29	20.87	21.08	20.54
		RB1#3	17.64	17.63	17.1	20.89	20.88	20.35
		RB1#5	17.63	17.46	16.93	20.88	20.71	20.18
		RB3#0	17.9	17.89	17.63	21.15	21.14	20.88
		RB3#3	17.75	17.85	17.54	21.00	21.10	20.79
		RB5#0	16.78	16.61	16.23	20.03	19.86	19.48
10.0	QPSK	RB1#1	17.94	17.65	17.27	21.19	20.90	20.52
		RB1#4	17.93	17.58	17.26	21.18	20.83	20.51
		RB1#6	17.74	17.49	17.07	20.99	20.74	20.32
		RB3#1	18.04	17.66	17.25	21.29	20.91	20.50
		RB3#4	17.8	17.6	17.27	21.05	20.85	20.52
		RB6#1	16.82	16.66	16.41	20.07	19.91	19.66
	16QAM	RB1#1	17.66	17.69	17.62	20.91	20.94	20.87
		RB1#4	17.72	17.64	17.35	20.97	20.89	20.60
		RB1#6	17.54	17.46	17.13	20.79	20.71	20.38
		RB3#1	17.8	17.98	17.59	21.05	21.23	20.84
		RB3#4	17.73	17.86	17.66	20.98	21.11	20.91
		RB5#1	16.78	16.72	16.37	20.03	19.97	19.62

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#1	17.79	17.79	17.47	21.04	21.04	20.72
		RB1#4	17.77	17.77	17.43	21.02	21.02	20.68
		RB1#6	17.55	17.45	17.19	20.80	20.70	20.44
		RB3#1	17.74	17.74	17.5	20.99	20.99	20.75
		RB3#4	17.69	17.69	17.34	20.94	20.94	20.59
		RB6#1	17.74	17.75	17.5	20.99	21.00	20.75
	16QAM	RB1#1	17.74	17.75	17.45	20.99	21.00	20.70
		RB1#4	17.64	17.62	17.29	20.89	20.87	20.54
		RB1#6	17.47	17.1	17.11	20.72	20.35	20.36
		RB3#1	17.86	17.8	17.54	21.11	21.05	20.79
		RB3#4	17.81	17.73	17.5	21.06	20.98	20.75
		RB5#1	17.71	17.73	17.47	20.96	20.98	20.72
20.0	QPSK	RB1#2	17.66	17.69	17.58	20.91	20.94	20.83
		RB1#5	17.63	17.66	17.54	20.88	20.91	20.79
		RB1#7	17.53	17.47	17.35	20.78	20.72	20.60
		RB3#2	17.68	17.63	17.61	20.93	20.88	20.86
		RB3#5	17.63	17.57	17.45	20.88	20.82	20.70
		RB6#2	17.68	17.72	17.6	20.93	20.97	20.85
	16QAM	RB1#2	17.71	17.67	17.58	20.96	20.92	20.83
		RB1#5	17.61	17.59	17.38	20.86	20.84	20.63
		RB1#7	17.41	17.43	17.33	20.66	20.68	20.58
		RB3#2	17.9	17.85	17.76	21.15	21.10	21.01
		RB3#5	17.76	17.82	17.82	21.01	21.07	21.07
		RB5#2	17.75	17.7	17.58	21.00	20.95	20.83

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)

For Band4: Antenna Gain = 3.25dBi

No internal Cable Loss for antenna port.

Limit: EIRP ≤ 30dBm

LTE Band 5

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	19.54	19.69	19.63	17.67	17.82	17.76
		RB1#3	19.61	19.56	19.51	17.74	17.69	17.64
		RB1#5	19.41	19.36	19.3	17.54	17.49	17.43
		RB3#0	18.5	18.52	18.45	16.63	16.65	16.58
		RB3#3	18.16	18.24	18.19	16.29	16.37	16.32
		RB6#0	17.16	17.36	17.28	15.29	15.49	15.41
	16QAM	RB1#0	18.12	18.56	18.26	16.25	16.69	16.39
		RB1#3	18.15	18.37	18.27	16.28	16.50	16.40
		RB1#5	17.77	18.15	18.02	15.90	16.28	16.15
		RB3#0	17.03	17.22	17.52	15.16	15.35	15.65
		RB3#3	16.84	17.07	17.05	14.97	15.20	15.18
		RB5#0	16.93	17.36	17.19	15.06	15.49	15.32
3.0	QPSK	RB1#1	19.34	19.32	19.47	17.47	17.45	17.60
		RB1#4	19.24	19.15	19.26	17.37	17.28	17.39
		RB1#6	19.02	18.73	19.03	17.15	16.86	17.16
		RB3#1	18.13	18.1	18.16	16.26	16.23	16.29
		RB3#4	17.96	17.89	17.98	16.09	16.02	16.11
		RB6#1	16.97	17.12	17.08	15.10	15.25	15.21
	16QAM	RB1#1	18.17	18.29	18.41	16.30	16.42	16.54
		RB1#4	18.07	18.29	18.32	16.20	16.42	16.45
		RB1#6	17.86	18.17	17.98	15.99	16.30	16.11
		RB3#1	17.15	17.6	17.21	15.28	15.73	15.34
		RB3#4	17.27	17.32	17.11	15.40	15.45	15.24
		RB5#1	17.33	17.31	17.17	15.46	15.44	15.30

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	19.41	19.81	19.68	17.54	17.94	17.81
		RB1#3	19.32	19.49	19.49	17.45	17.62	17.62
		RB1#5	19.11	19.27	19.28	17.24	17.40	17.41
		RB3#0	19.34	19.74	19.62	17.47	17.87	17.75
		RB3#3	19.14	19.28	19.4	17.27	17.41	17.53
		RB6#0	18.15	18.36	18.34	16.28	16.49	16.47
	16QAM	RB1#0	19.18	19.59	19.37	17.31	17.72	17.50
		RB1#3	18.97	19.57	19.12	17.10	17.70	17.25
		RB1#5	18.8	19.5	18.93	16.93	17.63	17.06
		RB3#0	19.36	20.02	19.62	17.49	18.15	17.75
		RB3#3	19.36	19.32	19.6	17.49	17.45	17.73
		RB5#0	18.33	18.63	18.51	16.46	16.76	16.64
10.0	QPSK	RB1#1	19.44	19.46	19.44	17.57	17.59	17.57
		RB1#4	19.28	19.32	19.3	17.41	17.45	17.43
		RB1#6	19.19	19.23	19.21	17.32	17.36	17.34
		RB3#1	19.4	19.45	19.38	17.53	17.58	17.51
		RB3#4	19.22	19.16	19.16	17.35	17.29	17.29
		RB6#1	18.24	18.21	18.21	16.37	16.34	16.34
	16QAM	RB1#1	19.22	19.27	19.18	17.35	17.40	17.31
		RB1#4	19.12	19.17	19.06	17.25	17.30	17.19
		RB1#6	18.83	18.95	18.83	16.96	17.08	16.96
		RB3#1	19.4	19.54	19.44	17.53	17.67	17.57
		RB3#4	19.42	19.51	19.3	17.55	17.64	17.43
		RB5#1	18.32	18.46	18.27	16.45	16.59	16.40

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd)

For Band5: Antenna Gain = 0.28dBi = -1.87dBd (0dBd=2.15dBi)

No internal Cable Loss for antenna port.

Limit: ERP≤38.45dBm

LTE Band 12

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	19.82	19.27	19.03	16.32	15.77	15.53
		RB1#3	19.77	19.08	18.91	16.27	15.58	15.41
		RB1#5	19.59	18.99	18.73	16.09	15.49	15.23
		RB3#0	18.82	18.32	18.08	15.32	14.82	14.58
		RB3#3	18.6	18.23	18	15.10	14.73	14.50
		RB6#0	17.78	17.5	17.25	14.28	14.00	13.75
	16QAM	RB1#0	18.59	18.7	18.36	15.09	15.20	14.86
		RB1#3	18.63	18.65	18.22	15.13	15.15	14.72
		RB1#5	18.32	18.52	18.19	14.82	15.02	14.69
		RB3#0	17.9	17.88	17.74	14.40	14.38	14.24
		RB3#3	17.4	17.5	17.35	13.90	14.00	13.85
		RB5#0	17.57	17.48	17.26	14.07	13.98	13.76
3.0	QPSK	RB1#1	19.73	19.48	19.5	16.23	15.98	16.00
		RB1#4	19.49	19.42	19.41	15.99	15.92	15.91
		RB1#6	19.3	19.22	19.21	15.80	15.72	15.71
		RB3#1	18.73	18.53	18.44	15.23	15.03	14.94
		RB3#4	18.49	18.37	18.3	14.99	14.87	14.80
		RB6#1	17.73	17.57	17.41	14.23	14.07	13.91
	16QAM	RB1#1	18.7	18.56	18.24	15.20	15.06	14.74
		RB1#4	18.34	18.35	18.28	14.84	14.85	14.78
		RB1#6	18.34	18.06	17.94	14.84	14.56	14.44
		RB3#1	17.75	17.66	17.03	14.25	14.16	13.53
		RB3#4	17.79	17.49	16.86	14.29	13.99	13.36
		RB5#1	17.9	17.67	17.01	14.40	14.17	13.51

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	19.96	19.77	19.7	16.46	16.27	16.20
		RB1#3	20	19.7	19.44	16.50	16.20	15.94
		RB1#5	19.72	19.51	19.39	16.22	16.01	15.89
		RB3#0	20	19.71	19.45	16.50	16.21	15.95
		RB3#3	19.65	19.53	19.26	16.15	16.03	15.76
		RB6#0	18.78	18.59	18.39	15.28	15.09	14.89
	16QAM	RB1#0	19.84	19.67	19.52	16.34	16.17	16.02
		RB1#3	19.73	19.47	19.39	16.23	15.97	15.89
		RB1#5	19.49	19.39	19.23	15.99	15.89	15.73
		RB3#0	20.09	19.94	19.69	16.59	16.44	16.19
		RB3#3	19.94	19.76	19.6	16.44	16.26	16.10
		RB5#0	18.92	18.65	18.59	15.42	15.15	15.09
10.0	QPSK	RB1#1	19.96	19.79	19.7	16.46	16.29	16.20
		RB1#4	19.76	19.71	19.56	16.26	16.21	16.06
		RB1#6	19.67	19.53	19.48	16.17	16.03	15.98
		RB3#1	19.86	19.85	19.75	16.36	16.35	16.25
		RB3#4	19.71	19.51	19.5	16.21	16.01	16.00
		RB6#1	18.78	18.75	18.56	15.28	15.25	15.06
	16QAM	RB1#1	19.89	19.87	19.71	16.39	16.37	16.21
		RB1#4	19.75	19.78	19.53	16.25	16.28	16.03
		RB1#6	19.63	19.59	19.33	16.13	16.09	15.83
		RB3#1	20.08	19.81	19.9	16.58	16.31	16.40
		RB3#4	19.94	19.41	19.65	16.44	15.91	16.15
		RB5#1	18.86	18.63	18.66	15.36	15.13	15.16

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd)
For Band12: Antenna Gain = -1.35dBi = -3.5dBd (0dBd=2.15dBi)
No internal Cable Loss for antenna port.
Limit: ERP≤44.77dBm

LTE Band 13:

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	18.83	18.69	18.7	17.91	17.77	17.78
		RB1#3	18.64	18.63	18.63	17.72	17.71	17.71
		RB1#5	18.44	18.35	18.34	17.52	17.43	17.42
		RB3#0	18.63	18.56	18.64	17.71	17.64	17.72
		RB3#3	18.44	18.38	18.46	17.52	17.46	17.54
		RB6#0	17.55	17.49	17.47	16.63	16.57	16.55
	16QAM	RB1#0	18.46	18.42	18.43	17.54	17.50	17.51
		RB1#3	18.35	18.31	18.31	17.43	17.39	17.39
		RB1#5	18.31	18.15	18.15	17.39	17.23	17.23
		RB3#0	18.75	18.68	18.77	17.83	17.76	17.85
		RB3#3	18.59	18.6	18.59	17.67	17.68	17.67
		RB5#0	17.54	17.47	17.64	16.62	16.55	16.72
10.0	QPSK	RB1#1	/	18.64	/	/	17.72	/
		RB1#4	/	18.65	/	/	17.73	/
		RB1#6	/	18.49	/	/	17.57	/
		RB3#1	/	18.74	/	/	17.82	/
		RB3#4	/	18.5	/	/	17.58	/
		RB6#1	/	17.51	/	/	16.59	/
	16QAM	RB1#1	/	18.49	/	/	17.57	/
		RB1#4	/	18.41	/	/	17.49	/
		RB1#6	/	18.13	/	/	17.21	/
		RB3#1	/	18.95	/	/	18.03	/
		RB3#4	/	18.82	/	/	17.90	/
		RB5#1	/	17.82	/	/	16.90	/

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd)
For Band13: Antenna Gain = 1.23dBi = -0.92dBd (0dBd=2.15dBi)
No internal Cable Loss for antenna port.
Limit: ERP≤44.77dBm

LTE Band 25

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	16.96	17.07	16.74	20.17	20.28	19.95
		RB1#3	16.91	17.02	16.68	20.12	20.23	19.89
		RB1#5	16.81	16.77	16.59	20.02	19.98	19.80
		RB3#0	15.78	15.86	15.65	18.99	19.07	18.86
		RB3#3	15.63	15.75	15.58	18.84	18.96	18.79
		RB6#0	14.74	14.86	14.65	17.95	18.07	17.86
	16QAM	RB1#0	15.99	15.85	15.93	19.20	19.06	19.14
		RB1#3	15.98	15.83	15.9	19.19	19.04	19.11
		RB1#5	15.66	15.64	15.8	18.87	18.85	19.01
		RB3#0	14.81	15.15	15.06	18.02	18.36	18.27
		RB3#3	14.59	15	14.37	17.80	18.21	17.58
		RB5#0	14.53	14.96	14.42	17.74	18.17	17.63
3.0	QPSK	RB1#1	16.97	16.88	16.56	20.18	20.09	19.77
		RB1#4	16.89	16.72	16.58	20.10	19.93	19.79
		RB1#6	16.73	16.56	16.34	19.94	19.77	19.55
		RB3#1	15.79	15.73	15.61	19.00	18.94	18.82
		RB3#4	15.76	15.69	15.47	18.97	18.90	18.68
		RB6#1	14.89	14.54	14.84	18.10	17.75	18.05
	16QAM	RB1#1	16	15.83	15.88	19.21	19.04	19.09
		RB1#4	15.54	15.34	15.32	18.75	18.55	18.53
		RB1#6	15.34	15.15	15.04	18.55	18.36	18.25
		RB3#1	15.14	14.49	14.52	18.35	17.70	17.73
		RB3#4	15.31	15.25	15.09	18.52	18.46	18.30
		RB5#1	15.3	15.21	15.15	18.51	18.42	18.36

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	17.24	17.01	16.89	20.45	20.22	20.10
		RB1#3	16.99	16.98	16.85	20.20	20.19	20.06
		RB1#5	16.8	16.65	16.54	20.01	19.86	19.75
		RB3#0	16.96	16.96	16.84	20.17	20.17	20.05
		RB3#3	17.02	17.02	16.66	20.23	20.23	19.87
		RB6#0	15.88	15.89	15.73	19.09	19.10	18.94
	16QAM	RB1#0	16.7	17.2	16.79	19.91	20.41	20.00
		RB1#3	16.63	17.03	16.72	19.84	20.24	19.93
		RB1#5	16.81	16.5	16.54	20.02	19.71	19.75
		RB3#0	17.22	16.93	16.97	20.43	20.14	20.18
		RB3#3	17.17	17.23	17.3	20.38	20.44	20.51
		RB5#0	15.84	15.67	15.7	19.05	18.88	18.91
10.0	QPSK	RB1#1	17.03	16.95	16.73	20.24	20.16	19.94
		RB1#4	16.96	16.87	16.65	20.17	20.08	19.86
		RB1#6	16.67	16.69	16.56	19.88	19.90	19.77
		RB3#1	16.93	16.93	16.73	20.14	20.14	19.94
		RB3#4	17	16.9	16.77	20.21	20.11	19.98
		RB6#1	15.87	15.9	15.8	19.08	19.11	19.01
	16QAM	RB1#1	17.25	17.35	17.26	20.46	20.56	20.47
		RB1#4	16.95	16.77	16.85	20.16	19.98	20.06
		RB1#6	16.75	16.54	16.51	19.96	19.75	19.72
		RB3#1	17.28	17.33	17.44	20.49	20.54	20.65
		RB3#4	17.15	17.3	17.3	20.36	20.51	20.51
		RB5#1	15.85	15.76	15.72	19.06	18.97	18.93

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#1	17.08	17.1	16.93	20.29	20.31	20.14
		RB1#4	17.05	17.02	16.9	20.26	20.23	20.11
		RB1#6	16.78	16.69	16.56	19.99	19.90	19.77
		RB3#1	17.17	17.03	16.86	20.38	20.24	20.07
		RB3#4	17.02	16.88	16.8	20.23	20.09	20.01
		RB6#1	17.08	16.94	16.86	20.29	20.15	20.07
	16QAM	RB1#1	17.12	17.18	17.18	20.33	20.39	20.39
		RB1#4	16.96	16.73	16.79	20.17	19.94	20.00
		RB1#6	16.45	16.55	16.61	19.66	19.76	19.82
		RB3#1	17.26	17.38	17.25	20.47	20.59	20.46
		RB3#4	17.24	17.27	17.25	20.45	20.48	20.46
		RB5#1	16.8	16.79	16.76	20.01	20.00	19.97
20.0	QPSK	RB1#2	16.87	16.8	16.82	20.08	20.01	20.03
		RB1#5	16.68	16.65	16.81	19.89	19.86	20.02
		RB1#7	16.54	16.46	16.59	19.75	19.67	19.80
		RB3#2	16.8	16.74	16.85	20.01	19.95	20.06
		RB3#5	16.73	16.82	16.69	19.94	20.03	19.90
		RB6#2	16.83	16.66	16.84	20.04	19.87	20.05
	16QAM	RB1#2	16.75	16.67	16.81	19.96	19.88	20.02
		RB1#5	16.73	16.8	16.75	19.94	20.01	19.96
		RB1#7	16.59	16.27	16.58	19.80	19.48	19.79
		RB3#2	17.09	17.05	17.36	20.30	20.26	20.57
		RB3#5	17.05	16.91	17.22	20.26	20.12	20.43
		RB5#2	16.74	16.5	16.73	19.95	19.71	19.94

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)

For Band 25: Antenna Gain =3.21 dBi

No internal Cable Loss for antenna port.

Limit: EIRP≤33dBm

LTE Band 26(Part 22H)

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	19.49	19.28	19.18	17.62	17.41	17.31
		RB1#3	19.36	19.09	19.08	17.49	17.22	17.21
		RB1#5	19.16	18.87	18.86	17.29	17.00	16.99
		RB3#0	18.16	18.01	18.02	16.29	16.14	16.15
		RB3#3	18.02	17.83	17.83	16.15	15.96	15.96
		RB6#0	17.01	16.91	16.91	15.14	15.04	15.04
	16QAM	RB1#0	17.97	18.03	18.05	16.10	16.16	16.18
		RB1#3	18.00	17.92	17.91	16.13	16.05	16.04
		RB1#5	17.66	17.61	17.70	15.79	15.74	15.83
		RB3#0	16.91	17.01	17.03	15.04	15.14	15.16
		RB3#3	16.73	16.92	16.92	14.86	15.05	15.05
		RB5#0	16.79	16.98	17.00	14.92	15.11	15.13
3.0	QPSK	RB1#1	19.20	19.19	19.25	17.33	17.32	17.38
		RB1#4	19.12	19.11	19.14	17.25	17.24	17.27
		RB1#6	18.92	18.89	18.92	17.05	17.02	17.05
		RB3#1	18.02	18.03	18.02	16.15	16.16	16.15
		RB3#4	17.83	17.84	17.79	15.96	15.97	15.92
		RB6#1	16.90	16.93	16.87	15.03	15.06	15.00
	16QAM	RB1#1	18.05	18.05	18.02	16.18	16.18	16.15
		RB1#4	17.94	17.85	17.88	16.07	15.98	16.01
		RB1#6	17.73	17.63	17.67	15.86	15.76	15.80
		RB3#1	17.02	17.02	16.97	15.15	15.15	15.10
		RB3#4	16.93	16.93	16.98	15.06	15.06	15.11
		RB5#1	17.00	17.00	17.06	15.13	15.13	15.19

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	19.44	19.46	19.52	17.57	17.59	17.65
		RB1#3	19.35	19.36	19.33	17.48	17.49	17.46
		RB1#5	19.13	19.05	19.12	17.26	17.18	17.25
		RB3#0	19.35	19.28	19.36	17.48	17.41	17.49
		RB3#3	19.16	19.08	19.05	17.29	17.21	17.18
		RB6#0	18.15	18.01	18.08	16.28	16.14	16.21
	16QAM	RB1#0	19.27	19.12	19.19	17.40	17.25	17.32
		RB1#3	19.04	18.88	19.04	17.17	17.01	17.17
		RB1#5	18.77	18.61	18.77	16.90	16.74	16.90
		RB3#0	19.35	19.21	19.35	17.48	17.34	17.48
		RB3#3	19.23	19.26	19.15	17.36	17.39	17.28
		RB5#0	18.12	18.18	17.96	16.25	16.31	16.09
10.0	QPSK	RB1#1	19.37	19.25	19.25	17.50	17.38	17.38
		RB1#4	19.24	19.22	19.10	17.37	17.35	17.23
		RB1#6	19.15	19.04	19.01	17.28	17.17	17.14
		RB3#1	19.35	19.26	19.23	17.48	17.39	17.36
		RB3#4	19.17	19.07	19.04	17.30	17.20	17.17
		RB6#1	18.19	18.11	18.06	16.32	16.24	16.19
	16QAM	RB1#1	19.25	19.17	19.14	17.38	17.30	17.27
		RB1#4	19.05	18.97	18.91	17.18	17.10	17.04
		RB1#6	18.84	18.66	18.62	16.97	16.79	16.75
		RB3#1	19.43	19.26	19.28	17.56	17.39	17.41
		RB3#4	19.26	19.26	19.31	17.39	17.39	17.44
		RB5#1	18.16	18.09	18.08	16.29	16.22	16.21

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
15	QPSK	RB1#1	19.46	19.41	19.44	17.59	17.54	17.57
		RB1#4	19.28	19.32	19.15	17.41	17.45	17.28
		RB1#6	19.05	19.08	19.01	17.18	17.21	17.14
		RB3#1	19.29	19.42	19.26	17.42	17.55	17.39
		RB3#4	19.12	19.15	19.08	17.25	17.28	17.21
		RB6#1	19.20	19.15	19.16	17.33	17.28	17.29
	16QAM	RB1#1	19.20	19.15	19.26	17.33	17.28	17.39
		RB1#4	19.00	18.96	18.88	17.13	17.09	17.01
		RB1#6	18.75	18.68	18.70	16.88	16.81	16.83
		RB3#1	19.30	19.25	19.24	17.43	17.38	17.37
		RB3#4	19.41	19.28	19.30	17.54	17.41	17.43
		RB5#1	19.22	19.13	19.21	17.35	17.26	17.34

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd)

For Band 26: Antenna Gain =0.28dBi = -1.87dBd (0dBd=2.15dBi)

No internal Cable Loss for antenna port.

Limit: ERP≤38.45dBm

LTE Band 26(Part 90S):

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	19.59	19.23	18.80	17.72	17.36	16.93
		RB1#3	19.28	19.17	18.69	17.41	17.30	16.82
		RB1#5	19.27	18.96	18.50	17.40	17.09	16.63
		RB3#0	18.15	18.06	17.83	16.28	16.19	15.96
		RB3#3	17.92	17.79	17.73	16.05	15.92	15.86
		RB6#0	17.01	16.96	16.86	15.14	15.09	14.99
	16QAM	RB1#0	17.96	18.00	18.12	16.09	16.13	16.25
		RB1#3	17.92	17.90	18.06	16.05	16.03	16.19
		RB1#5	17.59	17.69	17.83	15.72	15.82	15.96
		RB3#0	16.88	16.97	17.36	15.01	15.10	15.49
		RB3#3	16.72	16.89	17.07	14.85	15.02	15.20
		RB5#0	16.77	17.06	17.05	14.90	15.19	15.18
3.0	QPSK	RB1#1	19.23	19.23	19.11	17.36	17.36	17.24
		RB1#4	19.17	19.15	19.03	17.30	17.28	17.16
		RB1#6	18.97	18.95	18.91	17.10	17.08	17.04
		RB3#1	18.06	18.05	18.03	16.19	16.18	16.16
		RB3#4	17.90	17.78	17.86	16.03	15.91	15.99
		RB6#1	16.96	16.94	16.92	15.09	15.07	15.05
	16QAM	RB1#1	18.10	18.09	18.06	16.23	16.22	16.19
		RB1#4	17.91	17.88	17.87	16.04	16.01	16.00
		RB1#6	17.70	17.69	17.66	15.83	15.82	15.79
		RB3#1	17.07	17.05	17.03	15.20	15.18	15.16
		RB3#4	17.00	16.99	17.07	15.13	15.12	15.20
		RB5#1	17.05	17.04	17.13	15.18	15.17	15.26

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	19.29	19.34	19.28	17.42	17.47	17.41
		RB1#3	19.1	19.15	19.13	17.23	17.28	17.26
		RB1#5	19.03	18.95	19.01	17.16	17.08	17.14
		RB3#0	19.24	19.17	19.35	17.37	17.30	17.48
		RB3#3	19.05	18.98	18.96	17.18	17.11	17.09
		RB6#0	17.94	18.00	17.97	16.07	16.13	16.10
	16QAM	RB1#0	19.24	19.13	19.34	17.37	17.26	17.47
		RB1#3	18.96	18.89	18.87	17.09	17.02	17.00
		RB1#5	18.79	18.64	18.69	16.92	16.77	16.82
		RB3#0	19.25	19.19	19.24	17.38	17.32	17.37
		RB3#3	19.23	19.12	19.18	17.36	17.25	17.31
		RB5#0	17.94	17.99	17.95	16.07	16.12	16.08
10.0	QPSK	RB1#1	/	19.22	/	/	17.35	/
		RB1#4	/	19.11	/	/	17.24	/
		RB1#6	/	18.93	/	/	17.06	/
		RB3#1	/	19.13	/	/	17.26	/
		RB3#4	/	18.96	/	/	17.09	/
		RB6#1	/	18.07	/	/	16.20	/
	16QAM	RB1#1	/	19.07	/	/	17.20	/
		RB1#4	/	18.97	/	/	17.10	/
		RB1#6	/	18.66	/	/	16.79	/
		RB3#1	/	19.26	/	/	17.39	/
		RB3#4	/	19.25	/	/	17.38	/
		RB5#1	/	18.06	/	/	16.19	/

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd)
For Band 26: Antenna Gain = 0.28dBi = -1.87dBd (0dBd=2.15dBi)
No internal Cable Loss for antenna port.
Limit: ERP ≤ 50dBm

LTE Band 66:

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	18.08	17.74	17.9	21.33	20.99	21.15
		RB1#3	18.07	17.71	17.64	21.32	20.96	20.89
		RB1#5	17.86	17.49	17.43	21.11	20.74	20.68
		RB3#0	17	16.72	16.55	20.25	19.97	19.80
		RB3#3	16.87	16.57	16.38	20.12	19.82	19.63
		RB6#0	15.86	15.79	15.36	19.11	19.04	18.61
	16QAM	RB1#0	16.83	16.9	16.71	20.08	20.15	19.96
		RB1#3	16.7	16.39	16.42	19.95	19.64	19.67
		RB1#5	16.33	16.18	16.21	19.58	19.43	19.46
		RB3#0	16.08	15.54	15.49	19.33	18.79	18.74
		RB3#3	15.94	15.87	15.51	19.19	19.12	18.76
		RB5#0	15.94	15.89	15.49	19.19	19.14	18.74
3.0	QPSK	RB1#1	17.92	17.73	17.71	21.17	20.98	20.96
		RB1#4	17.79	17.67	17.67	21.04	20.92	20.92
		RB1#6	17.6	17.48	17.45	20.85	20.73	20.70
		RB3#1	16.74	16.63	16.56	19.99	19.88	19.81
		RB3#4	16.61	16.46	16.42	19.86	19.71	19.67
		RB6#1	15.84	15.51	15.52	19.09	18.76	18.77
	16QAM	RB1#1	16.92	16.7	16.83	20.17	19.95	20.08
		RB1#4	16.49	16.67	16.57	19.74	19.92	19.82
		RB1#6	15.99	16.44	16.22	19.24	19.69	19.47
		RB3#1	15.37	15.74	15.81	18.62	18.99	19.06
		RB3#4	15.7	15.59	15.66	18.95	18.84	18.91
		RB5#1	15.71	15.5	15.61	18.96	18.75	18.86

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	17.94	17.64	18.09	21.19	20.89	21.34
		RB1#3	17.92	17.61	18.03	21.17	20.86	21.28
		RB1#5	17.7	17.41	17.82	20.95	20.66	21.07
		RB3#0	17.94	17.6	17.93	21.19	20.85	21.18
		RB3#3	17.8	17.54	17.74	21.05	20.79	20.99
		RB6#0	16.95	16.57	16.63	20.20	19.82	19.88
	16QAM	RB1#0	17.88	17.74	18.05	21.13	20.99	21.30
		RB1#3	17.83	17.31	17.71	21.08	20.56	20.96
		RB1#5	17.63	17.35	17.44	20.88	20.60	20.69
		RB3#0	18.05	17.77	17.86	21.30	21.02	21.11
		RB3#3	18.09	17.59	17.79	21.34	20.84	21.04
		RB5#0	16.88	16.4	16.5	20.13	19.65	19.75
10.0	QPSK	RB1#1	17.97	17.75	17.36	21.22	21.00	20.61
		RB1#4	17.99	17.65	17.26	21.24	20.90	20.51
		RB1#6	17.82	17.47	17.07	21.07	20.72	20.32
		RB3#1	18.05	17.64	17.25	21.30	20.89	20.50
		RB3#4	17.9	17.62	17.27	21.15	20.87	20.52
		RB6#1	17.05	16.71	16.32	20.30	19.96	19.57
	16QAM	RB1#1	18.04	17.88	17.46	21.29	21.13	20.71
		RB1#4	17.91	17.74	17.29	21.16	20.99	20.54
		RB1#6	17.71	17.32	17.07	20.96	20.57	20.32
		RB3#1	18.35	17.99	17.65	21.60	21.24	20.90
		RB3#4	18.22	17.92	17.5	21.47	21.17	20.75
		RB5#1	17	16.68	16.29	20.25	19.93	19.54

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#1	18.15	17.91	17.5	21.40	21.16	20.75
		RB1#4	18.1	17.79	17.43	21.35	21.04	20.68
		RB1#6	17.88	17.56	17.18	21.13	20.81	20.43
		RB3#1	18.14	17.76	17.47	21.39	21.01	20.72
		RB3#4	18	17.68	17.39	21.25	20.93	20.64
		RB6#1	18.11	17.74	17.45	21.36	20.99	20.70
	16QAM	RB1#1	18.16	17.88	17.39	21.41	21.13	20.64
		RB1#4	17.9	17.62	17.22	21.15	20.87	20.47
		RB1#6	17.74	17.37	17.01	20.99	20.62	20.26
		RB3#1	18.14	17.92	17.58	21.39	21.17	20.83
		RB3#4	18.21	17.86	17.48	21.46	21.11	20.73
		RB5#1	17.98	17.7	17.4	21.23	20.95	20.65
20.0	QPSK	RB1#2	17.99	17.94	17.5	21.24	21.19	20.75
		RB1#5	18.03	17.83	17.27	21.28	21.08	20.52
		RB1#7	17.88	17.71	17.08	21.13	20.96	20.33
		RB3#2	18.07	17.76	17.42	21.32	21.01	20.67
		RB3#5	18.01	17.81	17.34	21.26	21.06	20.59
		RB6#2	18.11	17.76	17.4	21.36	21.01	20.65
	16QAM	RB1#2	18.09	17.66	17.43	21.34	20.91	20.68
		RB1#5	17.86	17.58	17.26	21.11	20.83	20.51
		RB1#7	17.71	17.63	17.08	20.96	20.88	20.33
		RB3#2	18.25	18.06	17.61	21.50	21.31	20.86
		RB3#5	18.19	18.08	17.55	21.44	21.33	20.80
		RB5#2	17.95	17.74	17.37	21.20	20.99	20.62

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
 For Band 66: Antenna Gain =3.25 dBi
 No internal Cable Loss for antenna port.
 Limit: EIRP≤30dBm

LTE Band 85:

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	20.26	20.45	20.23	16.76	16.95	16.73
		RB1#3	20.27	20.37	20.31	16.77	16.87	16.81
		RB1#5	20.08	20.18	20.21	16.58	16.68	16.71
		RB3#0	20.53	20.44	20.42	17.03	16.94	16.92
		RB3#3	20.31	20.28	20.26	16.81	16.78	16.76
		RB6#0	19.46	19.42	19.35	15.96	15.92	15.85
	16QAM	RB1#0	20.42	20.6	20.71	16.92	17.10	17.21
		RB1#3	20.55	20.52	20.17	17.05	17.02	16.67
		RB1#5	20.39	20.36	19.95	16.89	16.86	16.45
		RB3#0	20.72	20.46	19.93	17.22	16.96	16.43
		RB3#3	20.24	20.26	20.13	16.74	16.76	16.63
		RB5#0	19.45	19.33	19.17	15.95	15.83	15.67
10.0	QPSK	RB1#1	20.75	20.47	20.42	17.25	16.97	16.92
		RB1#4	20.57	20.4	20.33	17.07	16.90	16.83
		RB1#6	20.38	20.22	20.15	16.88	16.72	16.65
		RB3#1	20.67	20.48	20.49	17.17	16.98	16.99
		RB3#4	20.42	20.34	20.25	16.92	16.84	16.75
		RB6#1	19.51	19.47	19.39	16.01	15.97	15.89
	16QAM	RB1#1	20.93	20.38	20.58	17.43	16.88	17.08
		RB1#4	20.27	20.29	20.48	16.77	16.79	16.98
		RB1#6	19.97	20.12	20.3	16.47	16.62	16.80
		RB3#1	20.16	20.33	20.4	16.66	16.83	16.90
		RB3#4	20.18	20.17	20.25	16.68	16.67	16.75
		RB5#1	19.29	19.27	19.38	15.79	15.77	15.88

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd)
For Band 85: Antenna Gain = -1.35dBi = -3.5dBd (0dBd=2.15dBi)
No internal Cable Loss for antenna port.
Limit: ERP≤44.77dBm

Peak-to-average ratio (PAR)**Part 24E_Band 2 (1850-1910 MHz) 20MHz Bandwidth**

Modulation	RB	Low channel (dB)	Middle channel (dB)	High channel (dB)	Limit (dB)
QPSK	RB1#0	9.45	9.36	9.48	13
	RB6#0	10.03	10.12	10.23	
16QAM	RB1#0	9.59	10.14	10.26	
	RB5#0	9.97	10.14	9.94	

Part 27_Band 4 (1710-1755 MHz) 20MHz Bandwidth

Modulation	RB	Low channel (dB)	Middle channel (dB)	High channel (dB)	Limit (dB)
QPSK	RB1#0	9.39	9.16	9.3	13
	RB6#0	9.94	10	10.06	
16QAM	RB1#0	9.83	10.09	10.17	
	RB5#0	9.71	9.77	9.97	

Part 22H_Band 5 (824-849 MHz) 10MHz Bandwidth

Modulation	RB	Low channel (dB)	Middle channel (dB)	High channel (dB)	Limit (dB)
QPSK	RB1#0	9.71	9.39	9.54	13
	RB6#0	10.14	10.12	9.94	
16QAM	RB1#0	10.49	10.46	10.46	
	RB5#0	10.06	9.86	9.88	

Part 27_Band 12 (699-716 MHz) 10MHz Bandwidth

Modulation	RB	Low channel (dB)	Middle channel (dB)	High channel (dB)	Limit (dB)
QPSK	RB1#0	9.33	9.22	9.33	13
	RB6#0	9.91	9.91	9.97	
16QAM	RB1#0	10.09	9.86	10.2	
	RB5#0	9.68	9.68	9.71	

Part 27_Band 13 (777-787 MHz) 10MHz Bandwidth

Modulation	RB	Low channel (dB)	Middle channel (dB)	High channel (dB)	Limit (dB)
QPSK	RB1#0	/	9.39	/	13
	RB6#0	/	10.03	/	
16QAM	RB1#0	/	10.17	/	
	RB5#0	/	9.83	/	

Part 24E_Band 25 (1850-1915 MHz) 20MHz Bandwidth

Modulation	RB	Low channel (dB)	Middle channel (dB)	High channel (dB)	Limit (dB)
QPSK	RB1#0	9.33	9.51	9.94	13
	RB6#0	9.94	10.23	10.29	
16QAM	RB1#0	10.14	10.46	10.61	
	RB5#0	10.12	9.97	10.12	

Part 22H_Band 26 (824MHz-849MHz) 15MHz Bandwidth

Modulation	RB	Low channel (dB)	Middle channel (dB)	High channel (dB)	Limit (dB)
QPSK	RB1#0	9.65	9.65	9.59	13
	RB6#0	9.97	9.97	9.94	
16QAM	RB1#0	10.49	10.46	10.41	
	RB5#0	9.74	9.71	9.74	

Part 90_Band 26 (814-824 MHz) 10MHz Bandwidth

Modulation	RB	Low channel (dB)	Middle channel (dB)	High channel (dB)	Limit (dB)
QPSK	RB1#0	/	9.42	/	13
	RB6#0	/	10.06	/	
16QAM	RB1#0	/	10.41	/	
	RB5#0	/	9.86	/	

Part 27_Band 66 (1710-1780 MHz) 20MHz Bandwidth

Modulation	RB	Low channel (dB)	Middle channel (dB)	High channel (dB)	Limit (dB)
QPSK	RB1#0	9.16	9.16	9.33	13
	RB6#0	9.8	9.71	10.12	
16QAM	RB1#0	9.45	10.06	10.2	
	RB5#0	9.77	9.97	9.94	

Part 27_Band 85 (698-716 MHz) 10MHz Bandwidth

Modulation	RB	Low channel (dB)	Middle channel (dB)	High channel (dB)	Limit (dB)
QPSK	RB1#0	9.16	9.28	9.36	13
	RB6#0	9.88	9.83	9.88	
16QAM	RB1#0	10.06	9.91	9.91	
	RB5#0	9.91	9.57	9.62	

FCC §2.1049, §22.917, §22.905 & §24.238&§27.53 &§90.209- OCCUPIED BANDWIDTH

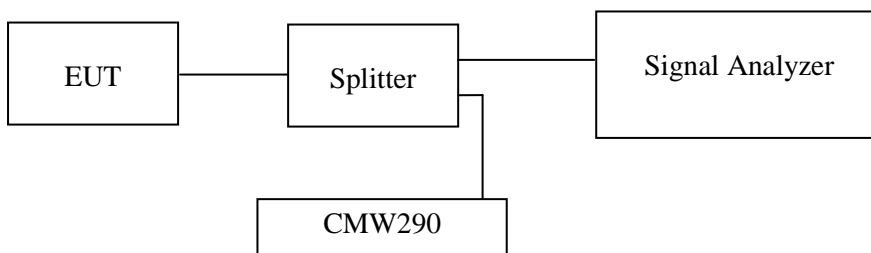
Applicable Standard

FCC 47 §2.1049, §22.917, §22.905, §24.238, §27.53 and §90.209.

Test Procedure

The RF output of the transmitter was connected to the simulator and the spectrum analyzer through sufficient attenuation.

The resolution bandwidth of the spectrum analyzer was set at 1% to 5% of the anticipated emission bandwidth and the 26 dB & 99% bandwidth was recorded.



Test Data

Environmental Conditions

Temperature:	24 °C
Relative Humidity:	56~60 %
ATM Pressure:	101.0 kPa

The testing was performed by Jesse Chen from 2022-10-26 to 2022-10-27.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables and plots.

LTE Band 2:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.096	1.284	1.108	1.284	1.090	1.330
	16QAM	0.934	1.146	0.940	1.330	0.922	1.164
3 MHz	QPSK	1.102	1.272	1.114	1.272	1.102	1.332
	16QAM	0.946	1.248	0.946	1.248	0.934	1.236
5 MHz	QPSK	1.118	1.340	1.118	1.340	1.098	1.300
	16QAM	0.938	1.100	0.938	1.160	0.938	1.140
10 MHz	QPSK	1.118	1.400	1.118	1.360	1.118	1.320
	16QAM	0.958	1.200	1.118	1.240	0.918	1.160
15 MHz	QPSK	1.138	1.440	1.138	1.380	1.138	1.320
	16QAM	0.958	1.200	0.958	1.200	0.958	1.200
20 MHz	QPSK	1.198	1.360	1.198	1.360	1.198	1.360
	16QAM	0.958	1.200	0.958	1.200	0.958	1.200

LTE Band 4:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.102	1.278	1.096	1.266	1.096	1.296
	16QAM	0.928	1.224	0.934	1.164	0.922	1.134
3 MHz	QPSK	1.102	1.284	1.102	1.272	1.114	1.284
	16QAM	0.946	1.236	0.946	1.248	0.946	1.236
5 MHz	QPSK	1.118	1.340	1.098	1.300	1.098	1.320
	16QAM	0.938	1.120	0.938	1.160	0.918	1.160
10 MHz	QPSK	1.118	1.360	1.118	1.360	1.118	1.360
	16QAM	0.958	1.200	0.958	1.160	0.958	1.160
15 MHz	QPSK	1.138	1.380	1.138	1.380	1.138	1.380
	16QAM	0.958	1.200	0.958	1.200	0.958	1.200
20 MHz	QPSK	1.198	1.360	1.198	1.360	1.198	1.360
	16QAM	1.038	1.200	0.958	1.200	0.958	1.200

LTE Band 5:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.090	1.272	1.096	1.272	1.102	1.278
	16QAM	0.934	1.242	0.928	1.236	0.934	1.254
3 MHz	QPSK	1.102	1.284	1.102	1.284	1.102	1.272
	16QAM	0.934	1.272	0.934	1.236	0.946	1.260
5 MHz	QPSK	1.118	1.340	1.118	1.320	1.098	1.320
	16QAM	0.938	1.120	0.938	1.160	0.938	1.140
10 MHz	QPSK	1.118	1.360	1.118	1.360	1.118	1.360
	16QAM	0.958	1.160	0.958	1.200	0.958	1.160

LTE Band 12:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.102	1.296	1.096	1.278	1.096	1.284
	16QAM	0.928	1.134	0.928	1.152	0.928	1.152
3 MHz	QPSK	1.102	1.296	1.102	1.296	1.102	1.284
	16QAM	0.934	1.236	0.934	1.236	0.934	1.152
5 MHz	QPSK	1.118	1.320	1.118	1.340	1.098	1.320
	16QAM	0.938	1.140	0.938	1.160	0.918	1.140
10 MHz	QPSK	1.118	1.360	1.118	1.360	1.118	1.360
	16QAM	0.958	1.160	0.958	1.200	0.918	1.160

LTE Band 13:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
5 MHz	QPSK	1.118	1.320	1.118	1.320	1.098	1.320
	16QAM	0.938	1.160	0.938	1.160	0.918	1.140
10 MHz	QPSK	/	/	1.118	1.320	/	/
	16QAM	/	/	0.958	1.160	/	/

LTE Band 25:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.096	1.278	1.096	1.278	1.096	1.278
	16QAM	1.102	1.230	0.934	1.170	1.102	1.260
3 MHz	QPSK	1.102	1.284	1.114	1.284	1.114	1.272
	16QAM	0.946	1.260	0.946	1.260	0.946	1.284
5 MHz	QPSK	1.118	1.340	1.118	1.340	1.118	1.360
	16QAM	0.938	1.120	0.938	1.160	0.938	1.180
10 MHz	QPSK	1.118	1.320	1.118	1.360	1.118	1.360
	16QAM	0.958	1.120	0.958	1.160	0.918	1.160
15 MHz	QPSK	1.138	1.380	1.138	1.440	1.138	1.380
	16QAM	0.958	1.200	0.958	1.200	0.958	1.200
20 MHz	QPSK	1.198	1.360	1.198	1.360	1.198	1.360
	16QAM	0.958	1.200	0.958	1.200	0.958	1.200

LTE Band 26 (Part 22H):

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.096	1.272	1.096	1.278	1.090	1.278
	16QAM	0.928	1.158	0.934	1.242	0.934	1.248
3 MHz	QPSK	1.102	1.284	1.102	1.284	1.102	1.296
	16QAM	0.934	1.248	0.934	1.164	0.946	1.236
5 MHz	QPSK	1.118	1.340	1.118	1.320	1.098	1.300
	16QAM	0.938	1.160	0.938	1.160	0.938	1.140
10 MHz	QPSK	1.118	1.360	1.118	1.360	1.118	1.360
	16QAM	0.958	1.160	0.958	1.200	0.958	1.160
15 MHz	QPSK	1.138	1.380	1.138	1.380	1.138	1.380
	16QAM	0.958	1.200	0.958	1.140	0.958	1.200

LTE Band 26(Part 90):

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.096	1.272	1.096	1.272	1.096	1.272
	16QAM	0.934	1.242	0.928	1.152	0.928	1.164
3 MHz	QPSK	1.102	1.284	1.102	1.284	1.102	1.284
	16QAM	0.934	1.236	0.934	1.248	0.922	1.224
5 MHz	QPSK	1.118	1.340	1.118	1.320	1.098	1.320
	16QAM	0.938	1.160	0.938	1.160	0.938	1.140
10 MHz	QPSK	/	/	1.118	1.320	/	/
	16QAM	/	/	0.958	1.160	/	/

LTE Band 66:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.102	1.302	1.096	1.266	1.096	1.272
	16QAM	0.928	1.140	0.934	1.164	0.934	1.242
3 MHz	QPSK	1.102	1.284	1.114	1.296	1.114	1.320
	16QAM	0.934	1.140	0.946	1.284	0.934	1.176
5 MHz	QPSK	1.118	1.340	1.118	1.340	1.098	1.320
	16QAM	0.938	1.160	0.938	1.160	0.918	1.160
10 MHz	QPSK	1.118	1.360	1.118	1.360	1.118	1.360
	16QAM	0.958	1.200	0.958	1.160	0.918	1.200
15 MHz	QPSK	1.138	1.380	1.138	1.380	1.138	1.380
	16QAM	0.958	1.200	0.958	1.200	0.958	1.200
20 MHz	QPSK	1.198	1.360	1.198	1.360	1.198	1.360
	16QAM	0.958	1.200	0.958	1.200	0.958	1.200

LTE Band 85:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
5 MHz	QPSK	1.098	1.316	1.098	1.317	1.118	1.337
	16QAM	0.938	1.178	0.958	1.397	0.958	1.198
10 MHz	QPSK	1.118	1.357	1.118	1.357	1.078	1.357
	16QAM	0.958	1.198	0.958	1.238	0.958	1.198

The test plots of LTE band please refer to the Appendix A.

FCC §2.1051, §22.917(a) & §24.238(a)& §27.53& §90.691 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

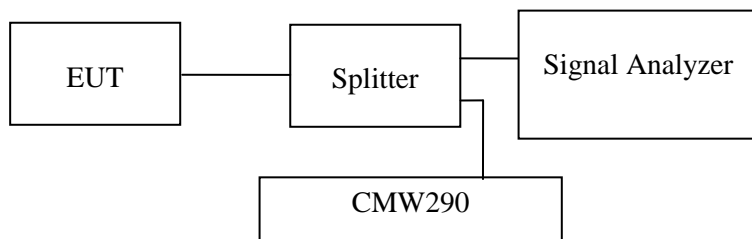
Applicable Standard

FCC §2.1051, §22.917(a) & §24.238(a), §27.53 and §90.691.

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in § 2.1051.

Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.



Note: The worst case of maximum 7dB offset was added into the Signal Analyzer.

Test Data

Environmental Conditions

Temperature:	24 °C
Relative Humidity:	56~60 %
ATM Pressure:	101.0 kPa

The testing was performed by Jesse Chen from 2022-09-01 to 2022-09-27.

EUT operation mode: Transmitting (Worst case)

Test result: Pass

Please refer to the following plots.

The test plots of LTE band please refer to the Appendix B.

FCC § 2.1053; § 22.917 (a); § 24.238 (a); §27.53; §90.691- SPURIOUS RADIATED EMISSIONS

Applicable Standard

FCC § 2.1053, §22.917(a) & § 24.238(a) & § 27.53 & §90.691.

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the receiving antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Test Data

Environmental Conditions

Temperature:	28 °C
Relative Humidity:	59 %
ATM Pressure:	101.3 kPa

The testing was performed by Level Li on 2022-09-07.

Test mode: Transmitting (Pre-scan in the X, Y and Z axes of orientation, the worst case Z-axis of orientation was recorded)

The worst case is as below:

LTE Band: (Pre-scan with all the bandwidth and modulation, and worst case as below)

Frequency (MHz)	Receiver Reading (dBm)	Turntable Angle Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
4G BAND2								
Test frequency range: 30MHz-20GHz								
QPSK, 1.4MHz bandwidth, Low Channel								
58.3	-37.38	25	1.9	H	5.03	-32.35	-13	-19.35
688.43	-36.97	198	1.0	V	8.34	-28.63	-13	-15.63
3701.4	-42.28	36	1.3	H	4.72	-37.56	-13	-24.56
3701.4	-41.64	292	1.7	V	4.61	-37.03	-13	-24.03
QPSK, 1.4MHz bandwidth, Middle Channel								
58.3	-38.35	7	1.5	H	5.03	-33.32	-13	-20.32
688.43	-39.02	273	1.4	V	8.34	-30.68	-13	-17.68
3760	-41.83	251	1.4	H	4.94	-36.89	-13	-23.89
3760	-41.30	232	1.3	V	4.85	-36.45	-13	-23.45
QPSK, 1.4MHz bandwidth, High Channel								
58.3	-36.62	72	1.4	H	5.03	-31.59	-13	-18.59
688.43	-35.57	100	1.6	V	8.34	-27.23	-13	-14.23
3818.6	-41.12	337	2.0	H	5.25	-35.87	-13	-22.87
3818.6	-39.44	38	2.1	V	5.08	-34.36	-13	-21.36
4G BAND4								
Test frequency range: 30MHz-20GHz								
QPSK, 1.4MHz bandwidth, Low Channel								
58.3	-38.07	26	2.1	H	5.03	-33.04	-13	-20.04
688.43	-38.33	113	1.7	V	8.34	-29.99	-13	-16.99
3421.4	-40.77	233	1.5	H	2.72	-38.05	-13	-25.05
3421.4	-41.39	22	1.5	V	2.59	-38.80	-13	-25.80
QPSK, 1.4MHz bandwidth, Middle Channel								
58.3	-38.60	8	1.3	H	5.03	-33.57	-13	-20.57
688.43	-36.97	360	1.7	V	8.34	-28.63	-13	-15.63
3465	-41.74	148	1.9	H	3.09	-38.65	-13	-25.65
3465	-41.96	234	1.7	V	2.97	-38.99	-13	-25.99
QPSK, 1.4MHz bandwidth, High Channel								
58.3	-36.40	162	1.3	H	5.03	-31.37	-13	-18.37
688.43	-34.85	348	1.8	V	8.34	-26.51	-13	-13.51
3508.6	-41.12	146	1.2	H	3.44	-37.68	-13	-24.68
3508.6	-40.48	253	1.3	V	3.31	-37.17	-13	-24.17

Frequency (MHz)	Receiver Reading (dBm)	Turntable Angle Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Heigh (m)	Polar (H/V)				
4G BAND5 & 4G BAND26(PART22H)								
Test frequency range: 30MHz-10GHz								
QPSK, 1.4MHz bandwidth, Low Channel								
58.3	-37.6	312	1.8	H	5.03	-32.57	-13	-19.57
688.43	-36.96	290	1.1	V	8.34	-28.62	-13	-15.62
1649.4	-45.83	14	1.6	H	3.51	-42.32	-13	-29.32
1649.4	-44.75	41	1.3	V	3.11	-41.64	-13	-28.64
QPSK, 1.4MHz bandwidth, Middle Channel								
58.3	-38.24	83	2	H	5.03	-33.21	-13	-20.21
688.43	-39.22	3	1.3	V	8.34	-30.88	-13	-17.88
1673	-44.94	333	1.3	H	3.78	-41.16	-13	-28.16
1673	-45.42	198	1.1	V	3.1	-42.32	-13	-29.32
QPSK, 1.4MHz bandwidth, High Channel								
58.3	-36.58	15	1.1	H	5.03	-31.55	-13	-18.55
688.43	-37.54	272	1	V	8.34	-29.2	-13	-16.2
1696.6	-44.87	246	2	H	4.06	-40.81	-13	-27.81
1696.6	-45.6	315	1.3	V	3.1	-42.5	-13	-29.5
4G BAND12								
Test frequency range: 30MHz-10GHz								
QPSK, 1.4MHz bandwidth, Low Channel								
58.3	-37.76	189	1.3	H	5.03	-32.73	-13	-19.73
688.43	-36.71	218	2.2	V	8.34	-28.37	-13	-15.37
1399.4	-45.62	305	1.8	H	5.91	-39.71	-13	-26.71
1399.4	-45.05	12	1.4	V	5.9	-39.15	-13	-26.15
QPSK, 1.4MHz bandwidth, Middle Channel								
58.3	-38.27	23	1.5	H	5.03	-33.24	-13	-20.24
688.43	-39.35	251	1.7	V	8.34	-31.01	-13	-18.01
1411	-45.54	62	2.0	H	5.72	-39.82	-13	-26.82
1411	-45.87	40	1.3	V	5.5	-40.37	-13	-27.37
QPSK, 1.4MHz bandwidth, High Channel								
58.3	-37.97	135	1.7	H	5.03	-32.94	-13	-19.94
688.43	-37.96	290	2.0	V	8.34	-29.62	-13	-16.62
1430.6	-44.92	356	1.2	H	5.41	-39.51	-13	-26.51
1430.6	-45.85	269	1.0	V	4.8	-41.05	-13	-28.05

Frequency (MHz)	Receiver Reading (dBm)	Turntable Angle Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
4G BAND13								
Test frequency range: 30MHz-10GHz								
QPSK, 5MHz bandwidth, Low Channel								
58.3	-36.88	318	2	H	5.03	-31.85	-13	-18.85
688.43	-35.43	310	1.6	V	8.34	-27.09	-13	-14.09
1559	-47.6	129	1.3	H	4.18	-43.42	-40	-3.42
1559	-45.76	102	1.8	V	3.28	-42.48	-40	-2.48
QPSK, 5MHz bandwidth, Middle Channel								
58.3	-38.6	293	1.9	H	5.03	-33.57	-13	-20.57
688.43	-37.77	354	1.9	V	8.34	-29.43	-13	-16.43
1564	-48.94	204	1.7	H	4.17	-44.77	-40	-4.77
1564	-47.03	243	1.3	V	3.27	-43.76	-40	-3.76
QPSK, 5MHz bandwidth, High Channel								
58.3	-39.38	358	1.7	H	5.03	-34.35	-13	-21.35
688.43	-38.02	114	1.6	V	8.34	-29.68	-13	-16.68
1569	-47.9	127	2.2	H	4.16	-43.74	-40	-3.74
1569	-48.15	28	1.6	V	3.26	-44.89	-40	-4.89
4G BAND25								
Test frequency range: 30MHz-20GHz								
QPSK, 1.4MHz bandwidth, Low Channel								
58.3	-38.34	240	1.2	H	5.03	-33.31	-13	-20.31
688.43	-37.58	216	1.0	V	8.34	-29.24	-13	-16.24
3701.4	-44.29	260	2.0	H	8.12	-36.17	-13	-23.17
3701.4	-45.99	307	2.2	V	7.61	-38.38	-13	-25.38
QPSK, 1.4MHz bandwidth, Middle Channel								
58.3	-37.55	347	1.1	H	5.03	-32.52	-13	-19.52
688.43	-37.73	312	1.3	V	8.34	-29.39	-13	-16.39
3765	-46.06	89	1.1	H	8.81	-37.25	-13	-24.25
3765	-45.33	126	2.2	V	7.94	-37.39	-13	-24.39
QPSK, 1.4MHz bandwidth, High Channel								
58.3	-38.32	279	2.2	H	5.03	-33.29	-13	-20.29
688.43	-36.51	212	1.3	V	8.34	-28.17	-13	-15.17
3828.6	-45.60	261	1.1	H	8.71	-36.89	-13	-23.89
3828.6	-45.36	239	1.1	V	8.03	-37.33	-13	-24.33
4G BAND26(PART 90S)								
Test frequency range: 30MHz-10GHz								
QPSK, 1.4MHz bandwidth, Low Channel								
58.3	-38.25	19	2.1	H	5.03	-33.22	-13	-20.22
688.43	-39.08	195	1.0	V	8.34	-30.74	-13	-17.74
1629.4	-45.12	145	1.7	H	3.75	-41.37	-13	-28.37
1629.4	-45.34	178	1.8	V	3.14	-42.20	-13	-29.20
QPSK, 1.4MHz bandwidth, Middle Channel								
58.3	-37.56	243	1.2	H	5.03	-32.53	-13	-19.53
688.43	-38.04	26	2.0	V	8.34	-29.70	-13	-16.70
1638	-46.22	18	1.9	H	3.64	-42.58	-13	-29.58
1638	-46.29	331	1.8	V	3.12	-43.17	-13	-30.17

Frequency (MHz)	Receiver Reading (dBm)	Turntable Angle Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
QPSK, 1.4MHz bandwidth, High Channel								
58.3	-37.93	47	2.1	H	5.03	-32.90	-13	-19.90
688.43	-36.85	173	1.2	V	8.34	-28.51	-13	-15.51
1646.6	-44.17	123	1.7	H	3.54	-40.63	-13	-27.63
1646.6	-45.65	335	2.0	V	3.11	-42.54	-13	-29.54
4G BAND66								
Test frequency range: 30MHz-20GHz								
QPSK, 1.4MHz bandwidth, Low Channel								
58.3	-36.89	117	1.4	H	5.03	-31.86	-13	-18.86
688.43	-38.02	14	2.1	V	8.34	-29.68	-13	-16.68
3421.4	-46.19	278	1.7	H	6.37	-39.82	-13	-26.82
3421.4	-44.03	358	2.0	V	5.7	-38.33	-13	-25.33
QPSK, 1.4MHz bandwidth, Middle Channel								
58.3	-38.41	12	1.4	H	5.03	-33.38	-13	-20.38
688.43	-38.48	39	1.1	V	8.34	-30.14	-13	-17.14
3490	-45.18	358	1.4	H	7.56	-37.62	-13	-24.62
3490	-44.43	341	2.1	V	6.42	-38.01	-13	-25.01
QPSK, 1.4MHz bandwidth, High Channel								
58.3	-38.31	121	1.1	H	5.03	-33.28	-13	-20.28
688.43	-37.69	165	2.0	V	8.34	-29.35	-13	-16.35
3558.6	-45.32	25	1.3	H	7.79	-37.53	-13	-24.53
3558.6	-44.87	2	1.5	V	6.97	-37.90	-13	-24.90
4G BAND85								
Test frequency range: 30MHz-10GHz								
QPSK, 5MHz bandwidth, Low Channel								
58.3	-36.19	123	1.4	H	5.03	-31.16	-13	-18.16
688.43	-35.72	127	1.0	V	8.34	-27.38	-13	-14.38
1401	-45.39	192	1.2	H	5.88	-39.51	-13	-26.51
1401	-44.75	209	1.1	V	5.86	-38.89	-13	-25.89
QPSK, 5MHz bandwidth, Middle Channel								
58.3	-36.38	291	1.8	H	5.03	-31.35	-13	-18.35
688.43	-37.07	309	1.4	V	8.34	-28.73	-13	-15.73
1414	-46.21	334	1.3	H	5.68	-40.53	-13	-27.53
1414	-45.95	298	1.8	V	5.4	-40.55	-13	-27.55
QPSK, 5MHz bandwidth, High Channel								
58.3	-37.48	359	2.1	H	5.03	-32.45	-13	-19.45
688.43	-36.44	69	1.0	V	8.34	-28.10	-13	-15.10
1427	-46.42	74	2.0	H	5.47	-40.95	-13	-27.95
1427	-45.96	194	2.2	V	4.93	-41.03	-13	-28.03

Note:

Absolute Level = Reading Level + Substituted Factor

Substituted Factor contains: SG Level - Cable loss+ Antenna Gain

Margin = Absolute Level - Limit

FCC§ 22.917 (a);§ 24.238 (a); §27.53(c)(g) (h)(m); §90.691 - BAND EDGES

Applicable Standard

According to § 22.917(a), the power of any emissions 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.

According to §24.238(a), the power of any emissions 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.

According to FCC §27.53 (g)(h)(m), 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.

According to § 90.691, (a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \text{Log}_{10}(f/6.1)$ decibels or $50 + 10 \text{Log}_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

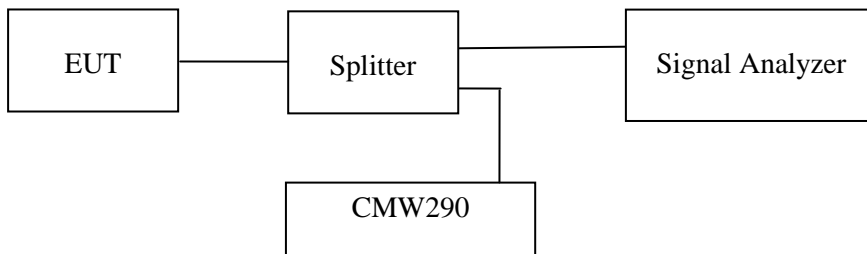
(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10\text{Log}_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

(b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section

Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The center of the spectrum analyzer was set to block edge frequency



Test Data

Environmental Conditions

Temperature:	24 °C
Relative Humidity:	56~60 %
ATM Pressure:	101.0 kPa

The testing was performed by Jesse Chen from 2022-11-03 to 2022-11-04.

EUT operation mode: Transmitting (Worst case)

Test Result: Pass

Please refer to the following plots.

The test plots of LTE bands please refer to the Appendix C.

FCC § 2.1055; § 22.355; § 24.235; §27.54; §90.213- FREQUENCY STABILITY

Applicable Standard

FCC § 2.1055, §22.355, §24.235&§27.54&§90.213.

According to FCC §2.1055, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:

Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency Range (MHz)	Base, fixed (ppm)	Mobile ≤ 3 watts (ppm)	Mobile > 3 watts (ppm)
25 to 50	20.0	20.0	50.0
50 to 450	5.0	5.0	50.0
450 to 512	2.5	5.0	5.0
821 to 896	1.5	2.5	2.5
928 to 929.	5.0	N/A	N/A
929 to 960.	1.5	N/A	N/A
2110 to 2220	10.0	N/A	N/A

According to §24.235&§27.54, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

According to §90.213, unless noted elsewhere, transmitters used in the services governed by this part must have a minimum frequency stability as specified in the following table:

TABLE 1 TO §90.213(a)—MINIMUM FREQUENCY STABILITY

[Parts per million (ppm)]

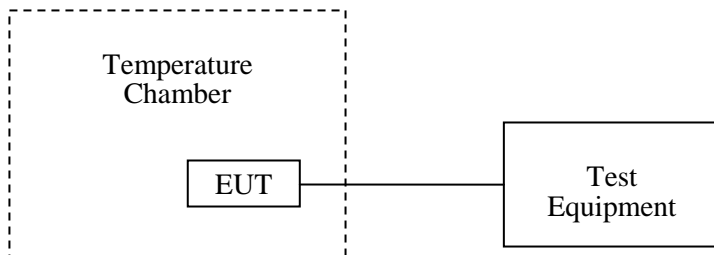
Frequency range (MHz)	Fixed and base stations	Mobile stations	
		Over 2 watts output power	2 watts or less output power
Below 25	1 2 3 100	100	200
25-50	20	20	50
72-76	5		50
150-174	5 11 5	6 5	4 6 50
216-220	1.0		1.0
220-222 ¹²	0.1	1.5	1.5
421-512	7 11 14 2.5	8 5	8 5
806-809	1 4 1.0	1.5	1.5
809-824	1 4 1.5	2.5	2.5
851-854	1.0	1.5	1.5
854-869	1.5	2.5	2.5
896-901	1 4 0.1	1.5	1.5
902-928	2.5	2.5	2.5
902-928 ¹³	2.5	2.5	2.5
929-930	1.5		
935-940	0.1	1.5	1.5
1427-1435	9 300	300	300
Above 2450 ¹⁰			

Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external AC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The AC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the communication test set.

Frequency Stability vs. Voltage: For hand carried, battery powered equipment; reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.



Test Data

Environmental Conditions

Temperature:	24°C
Relative Humidity:	56-60 %
ATM Pressure:	101.0 kPa

The testing was performed by Jesse Chen from 2022-09-05 to 2022-09-27.

EUT operation mode: Transmitting (worst case was recorded)

Test Result: Pass

Please refer to the following tables.

LTE:
QPSK:
Band 2:

1.4MHz Bandwidth, Middle Channel, $f_0 = 1880\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	N.V.	9.94	0.0053	pass
-20		-9.97	-0.0053	pass
-10		-6.13	-0.0033	pass
0		6.17	0.0033	pass
10		7.92	0.0042	pass
20		6.46	0.0034	pass
30		-6.52	-0.0035	pass
40		7.18	0.0038	pass
50		-9.70	-0.0052	pass
20		L.V.	-8.17	-0.0043
	H.V.	-7.05	-0.0038	pass

Band 4:

1.4MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	1710.0566	1754.9510	1710	1755
-20		1710.0572	1754.9532	1710	1755
-10		1710.0615	1754.9566	1710	1755
0		1710.0561	1754.9504	1710	1755
10		1710.0580	1754.9533	1710	1755
20		1710.0598	1754.9582	1710	1755
30		1710.0625	1754.9555	1710	1755
40		1710.0560	1754.9575	1710	1755
50		1710.0611	1754.9535	1710	1755
20		L.V.	1710.0623	1754.9504	1710
	H.V.	1710.0581	1754.9523	1710	1755

Band 5:

1.4MHz Bandwidth, Middle Channel, $f_0=836.5\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	6.72	0.008	2.5
-20		-6.97	-0.0083	2.5
-10		-5.50	-0.0066	2.5
0		6.06	0.0072	2.5
10		9.80	0.0117	2.5
20		5.03	0.006	2.5
30		-6.62	-0.0079	2.5
40		-8.73	-0.0104	2.5
50		-7.05	-0.0084	2.5
20	L.V.	8.99	0.0107	2.5
	H.V.	-7.17	-0.0086	2.5

Band 12:

1.4MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	699.0524	715.9511	699	716
-20		699.0549	715.9468	699	716
-10		699.0565	715.9456	699	716
0		699.0536	715.9477	699	716
10		699.0520	715.9473	699	716
20		699.0510	715.9457	699	716
30		699.0534	715.9521	699	716
40		699.0532	715.9499	699	716
50		699.0495	715.9489	699	716
20	L.V.	699.0502	715.9511	699	716
	H.V.	699.0519	715.9459	699	716

Band 13:

5MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	777.0210	786.9763	777	787
-20		777.0238	786.9701	777	787
-10		777.0231	786.9763	777	787
0		777.0237	786.9787	777	787
10		777.0200	786.9713	777	787
20		777.0221	786.9742	777	787
30		777.0233	786.9757	777	787
40		777.0199	786.9712	777	787
50		777.0175	786.97205	777	787
20	L.V.	777.0221	786.9762	777	787
	H.V.	777.0198	786.9755	777	787

Band 25:

1.4MHz Bandwidth, Middle Channel, f ₀ =1882.5MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	N.V.	5.79	0.0031	pass
-20		8.50	0.0045	pass
-10		-6.20	-0.0033	pass
0		-6.43	-0.0034	pass
10		9.90	0.0053	pass
20		9.96	0.0053	pass
30		-8.05	-0.0043	pass
40		-8.11	-0.0043	pass
50		8.63	0.0046	pass
20	L.V.	-9.03	-0.0048	pass
	H.V.	7.89	0.0042	pass

Band 26(Part 22H):

15 MHz Bandwidth, Middle Channel, $f_0 = 836.5\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	-7.55	-0.009	2.5
-20		-9.97	-0.0119	2.5
-10		-6.13	-0.0073	2.5
0		6.17	0.0074	2.5
10		7.92	0.0095	2.5
20		6.46	0.0077	2.5
30		-6.52	-0.0078	2.5
40		7.18	0.0086	2.5
50		-9.70	-0.0116	2.5
20		L.V.	-8.17	-0.0098
	H.V.	-7.05	-0.0084	2.5

Band 26(Part 90):

1.4MHz Bandwidth, Middle Channel, $f_0 = 819\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	7.61	0.0093	2.5
-20		-9.97	-0.0122	2.5
-10		-6.13	-0.0075	2.5
0		6.17	0.0075	2.5
10		7.92	0.0097	2.5
20		6.46	0.0079	2.5
30		-6.52	-0.008	2.5
40		7.18	0.0088	2.5
50		-9.70	-0.0118	2.5
20		L.V.	-8.17	-0.01
	H.V.	-7.05	-0.0086	2.5

Band 66:

1.4MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	1710.0283	1779.9576	1710	1780
-20		1710.0256	1779.9603	1710	1780
-10		1710.0279	1779.9582	1710	1780
0		1710.0257	1779.9631	1710	1780
10		1710.0250	1779.9593	1710	1780
20		1710.0282	1779.9636	1710	1780
30		1710.0236	1779.9575	1710	1780
40		1710.0248	1779.9582	1710	1780
50		1710.0226	1779.9583	1710	1780
20		L.V.	1710.0259	1779.9621	1710
	H.V.	1710.0270	1779.9590	1710	1780

Band 85:

1.4MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	698.0171	715.9744	698	716
-20		698.0216	715.9748	698	716
-10		698.0187	715.9787	698	716
0		698.0232	715.9758	698	716
10		698.0200	715.9713	698	716
20		698.0185	715.9741	698	716
30		698.0238	715.9717	698	716
40		698.0186	715.9703	698	716
50		698.0210	715.9718	698	716
20		L.V.	698.0217	715.9760	698
	H.V.	698.0201	715.9737	698	716

16QAM:
Band 2:

1.4MHz Bandwidth, Middle Channel, $f_0 = 1880\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	N.V.	11.49	0.0061	pass
-20		-6.68	-0.0036	pass
-10		9.77	0.0052	pass
0		-7.62	-0.0041	pass
10		-9.91	-0.0053	pass
20		-9.82	-0.0052	pass
30		-6.68	-0.0036	pass
40		-8.86	-0.0047	pass
50		5.67	0.003	pass
20	L.V.	6.05	0.0032	pass
	H.V.	7.52	0.004	pass

Band 4:

1.4MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	1710.0568	1754.9599	1710	1755
-20		1710.0601	1754.9595	1710	1755
-10		1710.0583	1754.9550	1710	1755
0		1710.0630	1754.9504	1710	1755
10		1710.0584	1754.9518	1710	1755
20		1710.0610	1754.9542	1710	1755
30		1710.0569	1754.9550	1710	1755
40		1710.0611	1754.9541	1710	1755
50		1710.0585	1754.9538	1710	1755
20	L.V.	1710.0607	1754.9524	1710	1755
	H.V.	1710.0594	1754.9559	1710	1755

Band 5:

1.4MHz Bandwidth, Middle Channel, $f_0=836.5\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	7.35	0.0088	2.5
-20		8.10	0.0097	2.5
-10		-8.59	-0.0103	2.5
0		9.33	0.0112	2.5
10		-6.94	-0.0083	2.5
20		7.54	0.009	2.5
30		6.43	0.0077	2.5
40		-6.17	-0.0074	2.5
50		-6.44	-0.0077	2.5
20		L.V.	6.34	0.0076
	H.V.	-6.89	-0.0082	2.5

Band 12:

1.4MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	699.0502	715.9649	699	716
-20		699.0567	715.9662	699	716
-10		699.0568	715.9602	699	716
0		699.0545	715.9648	699	716
10		699.0524	715.9622	699	716
20		699.0515	715.9619	699	716
30		699.0534	715.9617	699	716
40		699.0545	715.9634	699	716
50		699.0550	715.9609	699	716
20		L.V.	699.0563	715.9637	699
	H.V.	699.0503	715.9665	699	716

Band 13:

5MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	777.0269	786.9736	777	787
-20		777.0214	786.9725	777	787
-10		777.0243	786.9760	777	787
0		777.0262	786.9770	777	787
10		777.0226	786.9734	777	787
20		777.0213	786.9778	777	787
30		777.0205	786.9720	777	787
40		777.0242	786.9718	777	787
50		777.0201	786.9705	777	787
20	L.V.	777.0265	786.9773	777	787
	H.V.	777.0229	786.9754	777	787

Band 25:

1.4MHz Bandwidth, Middle Channel, f ₀ =1882.5MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	N.V.	3.5	0.0019	pass
-20		-5.5	-0.0029	pass
-10		5.4	0.0029	pass
0		-6.0	-0.0032	pass
10		7.1	0.0038	pass
20		6.6	0.0035	pass
30		-6.3	-0.0034	pass
40		8.1	0.0043	pass
50		-5.1	-0.0027	pass
20	L.V.	-6.2	-0.0033	pass
	H.V.	-8.4	-0.0045	pass

Band 26(Part 22H):

15MHz Bandwidth, Channel, $f_0 = 836.5\text{MHz}$				
Temperature (°C)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	-7.88	-0.0094	2.5
-20		-6.68	-0.0080	2.5
-10		9.77	0.0117	2.5
0		-7.62	-0.0091	2.5
10		-9.91	-0.0118	2.5
20		-9.82	-0.0117	2.5
30		-6.68	-0.0080	2.5
40		-8.86	-0.0106	2.5
50		5.67	0.0068	2.5
20		L.V.	6.05	0.0072
	H.V.	7.52	0.0090	2.5

Band 26(Part 90):

1.4MHz Bandwidth, Middle Channel, $f_0 = 819\text{MHz}$				
Temperature (°C)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	8.4	0.0103	2.5
-20		-6.7	-0.0082	2.5
-10		9.8	0.0119	2.5
0		-7.6	-0.0093	2.5
10		-9.9	-0.0121	2.5
20		-9.8	-0.012	2.5
30		-6.7	-0.0082	2.5
40		-8.9	-0.0108	2.5
50		5.7	0.0069	2.5
20		L.V.	6.1	0.0074
	H.V.	7.5	0.0092	2.5

Band 66:

1.4MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	1710.0216	1779.9613	1710	1780
-20		1710.0239	1779.9657	1710	1780
-10		1710.0268	1779.9629	1710	1780
0		1710.0275	1779.9669	1710	1780
10		1710.0243	1779.9635	1710	1780
20		1710.0254	1779.9636	1710	1780
30		1710.0258	1779.9655	1710	1780
40		1710.0254	1779.9660	1710	1780
50		1710.0266	1779.9660	1710	1780
20	L.V.	1710.0236	1779.9627	1710	1780
	H.V.	1710.0246	1779.9677	1710	1780

Band 85:

5MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	698.0236	715.9711	698	716
-20		698.0230	715.9713	698	716
-10		698.0210	715.9689	698	716
0		698.0237	715.9699	698	716
10		698.0225	715.9717	698	716
20		698.0220	715.9698	698	716
30		698.0274	715.9709	698	716
40		698.0251	715.9698	698	716
50		698.0201	715.9731	698	716
20	L.V.	698.0249	715.9698	698	716
	H.V.	698.0271	715.9657	698	716

***** END OF REPORT *****