



TESTREPORT

Applicant Name : EZTECH DIGITAL INC.
Address : 251 Little Falls Drive Wilmington Delaware 19808 United States
Report Number: RA230110-01653E-RF-00
FCC ID: 2A4AS-2211B

Test Standard (s)

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

Sample Description

Product Type: IP Camera
Model No.: Reolink TrackMix LTE
Multiple Model(s) No.: TM4G4M,DUO PTZ LTE
Trade Mark: Reolink
Date Received: 2023/01/10
Report Date: 2023/04/20

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

Prepared and Checked By:

Approved By:

Nick Fang
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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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	RA230110-01653E-RF-00	Original Report	2023/04/20

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product Type	IP Camera
Model No.	Reolink TrackMix LTE
Multiple Model(s) No.	TM4G4M,DUO PTZ LTE (model difference see product declaration letter of similarity)
Frequency Range	LTE Band 2: 1850-1910MHz(TX); 1920-1980MHz(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 14: 788-798MHz(TX); 758-768MHz(RX) LTE Band 66: 1710-1780MHz(TX); 2110-2180MHz(RX) LTE Band 71: 663-698 MHz(TX); 617-652MHz(RX)
Modulation Technique	4G: QPSK, 16QAM
Antenna Specification*	LTE Band 2: 2.2dBi, LTE Band 4/66: 2.6dBi, LTE Band 5: 1.5dBi, LTE Band 12: -0.9dBi, LTE Band 13: 0.6dBi, LTE Band 14: 1.0dBi LTE Band 71: -1.4dBi (provided by the applicant)
Voltage Range	DC 7.2V from battery
Sample serial number	24SP_1 (Assigned by ATC)
Sample/EUT Status	Good condition

Objective

This test report is in accordance with Part 2-Subpart J, Part 22-Subpart H, Part 24-Subpart E and 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
AC Power Lines Conducted Emissions		2.72dB
Emissions, Radiated	9kHz - 30MHz	2.66dB
	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 Floor 1, KuMaKe Building, Dongzhou Community, Guangming Street, Guangming District, Shenzhen, Guangdong, 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 429 7.01.

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 30241.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

Frequency band	Bandwidth (MHz)	Test Frequency(MHz)		
		Low	Middle	High
LTE B2	1.4	1850.7	1880	1909.3
	3	1851.5	1880	1908.5
	5	1852.5	1880	1907.5
	10	1855	1880	1905
	15	1857.5	1880	1902.5
	20	1860	1880	1900
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	1732.5	1750
	15	1717.5	1732.5	1747.5
	20	1720	1732.5	1745
LTE B5	1.4	824.7	836.5	848.3
	3	825.5	836.5	847.5
	5	826.5	836.5	846.5
	10	829	836.5	844
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
LTE B13	5	779.5	782	784.5
	10	/	782	/
LTE B14	5	790.5	793	795.5
	10	/	793	/
LTE B66	1.4	1710.7	1745	1779.3
	3	1711.5	1745	1778.5
	5	1712.5	1745	1777.5
	10	1715	1745	1775
	15	1717.5	1745	1772.5
	20	1720	1745	1770
LTE B71	5	665.5	680.5	695.5
	10	668	680.5	693
	15	670.5	680.5	690.5
	20	673	680.5	688

Equipment Modifications

No modification was made to the EUT.

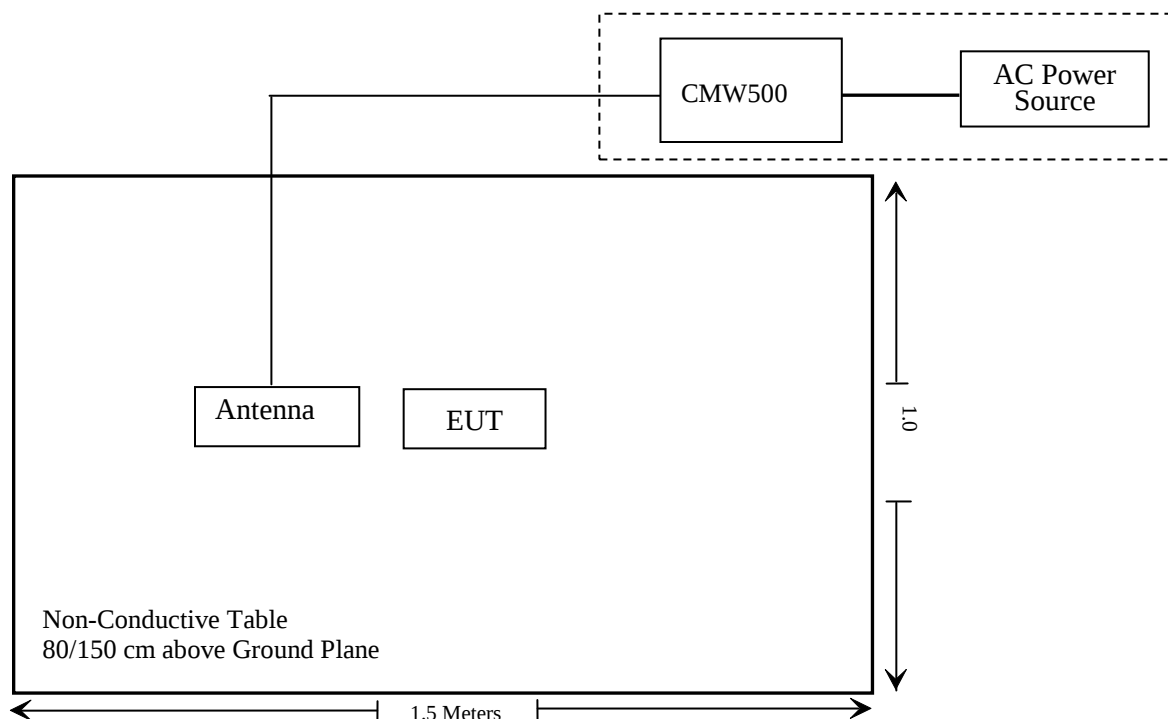
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	1201.002K50-11621 8-UY

Support Cable Description

Cable Description	Length (m)	From / Port	To
Unshielded Un-detachable AC cable	1.2	AC Power	CMW500

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§2.1091	RF Exposure	Compliant
§2.1046; § 22.913 (a) (d); § 24.232 (c) (d); §27.50; §90.542	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; §90.543	Spurious Emissions at Antenna Terminal	Compliant
§ 2.1053; § 22.917 (a); § 24.238 (a); §27.53, §90.543	Field Strength of Spurious Radiation	Compliant
§ 22.917 (a); § 24.238 (a); §27.53 (c) (g) (h); §90.543	Band Edge	Compliant
§ 2.1055; § 22.355; § 24.235; §27.54; §90.539	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	2022/11/25	2023/11/24
Rohde&Schwarz	Spectrum Analyzer	FSV40	101949	2022/11/25	2023/11/24
SONOMA INSTRUMENT	Amplifier	310 N	186131	2022/11/08	2023/11/07
A.H. Systems, inc.	Preamplifier	PAM-0118P	135	2022/11/08	2023/11/07
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2021/07/06	2024/07/05
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-1067	2022/11/30	2025/11/29
Radiated Emission Test Software: e3 19821b (V9)					
Unknown	RF Coaxial Cable	No.10	N050	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.11	N1000	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.12	N040	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.13	N300	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.14	N800	2022/11/25	2023/11/24
Schwarzbeck	Bilog Antenna	VULB9163	9163-194	2022/11/30	2025/11/29
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2021/07/06	2024/07/05
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-655	2022/12/26	2025/12/25
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-1067	2022/11/30	2025/11/29
Unknown	RF Coaxial Cable	No.16	N200	2022/11/25	2023/11/24
Agilent	Signal Generator	N5183A	MY51040755	2022/11/25	2023/11/24

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
SPECTRUM ANALYZER	Rohde & Schwarz	FSU26	200982	2022/07/04	2023/07/03
Mini-Circuits	Power Splitter	DC-18000MHz	SF10944151S	2022/11/25	2023/11/24
WEINSCHEL	10dB Attenuator	5324	AU 3842	2022/11/25	2023/11/24
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	154606	2022/11/25	2023/11/24
REALE	Temp. & Humid. Chamber	RHP-800BT	R20170318310	2022/11/23	2023/11/22
Fluke	Digital Multimeter	287	19000011	2023/02/21	2024/02/20
instek	DC Power Supply	GPS-3030DD	EM832096	NCR	NCR
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).

§2.1091- RF EXPOSURE

Applicable Standard

According to subpart 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

According to KDB 447498 D04 Interim General RF Exposure Guidance

MPE-Based Exemption:

General frequency and separation-distance dependent MPE-based effective radiated power(ERP) thresholds are in Table B.1 [Table 1 of § 1.1307(b)(1)(i)(C)] to support an exemption from further evaluation from 300 kHz through 100 GHz.

Table 1 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	$0.0128 R^2 f$.
1,500-100,000	$19.2 R^2$.

R is the minimum separation distance in meters

f = frequency in MHz

Result

Frequency (MHz)	Antenna Gain		Tune up conducted power		ERP		Evaluation Distance (m)	ERP Limit (W)
	(dBi)	(dBd)	(dBm)	(W)	(dBm)	(W)		
1850-1910	2.2	0.05	23.0	0.200	23.05	0.202	0.2	0.768
1710-1755	2.6	0.45	23.0	0.200	23.45	0.221	0.2	0.768
824-849	1.5	-0.65	24.0	0.251	23.35	0.216	0.2	0.422
699-716	-0.9	-3.05	24.0	0.251	20.95	0.124	0.2	0.358
777-787	0.6	-1.55	24.0	0.251	22.45	0.176	0.2	0.398
788-798	1.0	-1.15	24.0	0.251	22.85	0.193	0.2	0.403
1710-1780	2.6	0.45	23.0	0.200	23.45	0.221	0.2	0.768
663-698	-1.4	-3.55	24.0	0.251	20.45	0.111	0.2	0.339

Note: The tune up conducted power and antenna gain was declared by the applicant.

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

Result: Compliance

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) (d)& §24.232 (c) (d) & §27.50 & §90.542 - 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), 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 (PAPR) of the transmitter output power must not exceed 13 dB.

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

According to §27.50(c), Control and mobile stations in the 698-746 MHz band are limited to 30 watts ERP. And Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

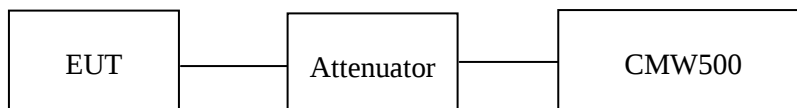
According to §27.50(d), Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band and mobile and portable stations operating in the 1695–1710 MHz and 1755–1780 MHz bands are limited to 1 watt EIRP.

According to §90.542, Portable stations (hand-held devices) transmitting in the 758-768 MHz band and the 788-798 MHz band are limited to 3 watts ERP.

Test Procedure

Conducted method:

The RF output of the transmitter was connected to the CMW500 through sufficient attenuation.



ANSI C63.26-2015 Section 5.5.

Test Data

Environmental Conditions

Temperature:	25-28 °C
Relative Humidity:	50-70 %
ATM Pressure:	101.0 kPa

The testing was performed by Roger Ling from 2023-04-08 to 2023-04-09.

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	22.45	22.51	22.36	24.65	24.71	24.56
		RB1#3	22.71	22.44	22.47	24.91	24.64	24.67
		RB1#5	22.60	22.46	22.51	24.8	24.66	24.71
		RB3#0	22.49	22.62	22.48	24.69	24.82	24.68
		RB3#3	22.3	22.57	22.45	24.5	24.77	24.65
		RB6#0	21.33	21.63	21.59	23.53	23.83	23.79
	16QAM	RB1#0	21.27	21.70	21.22	23.47	23.9	23.42
		RB1#3	21.62	21.95	21.18	23.82	24.15	23.38
		RB1#5	21.42	21.78	21.32	23.62	23.98	23.52
		RB3#0	21.42	21.56	21.64	23.62	23.76	23.84
		RB3#3	21.39	21.66	21.48	23.59	23.86	23.68
		RB6#0	20.24	20.75	20.51	22.44	22.95	22.71
3.0	QPSK	RB1#0	22.24	22.76	22.58	24.44	24.96	24.78
		RB1#8	22.26	22.45	22.33	24.46	24.65	24.53
		RB1#14	22.22	22.51	22.63	24.42	24.71	24.83
		RB6#0	21.29	21.65	21.52	23.49	23.85	23.72
		RB6#9	21.47	21.64	21.41	23.67	23.84	23.61
		RB15#0	21.41	21.69	21.56	23.61	23.89	23.76
	16QAM	RB1#0	21.01	21.82	21.97	23.21	24.02	24.17
		RB1#8	20.94	21.78	21.85	23.14	23.98	24.05
		RB1#14	20.93	21.77	21.89	23.13	23.97	24.09
		RB6#0	20.21	20.60	20.56	22.41	22.8	22.76
		RB6#9	20.30	20.60	20.84	22.5	22.8	23.04
		RB15#0	20.33	20.64	20.82	22.53	22.84	23.02

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	22.41	22.44	22.49	24.61	24.64	24.69
		RB1#13	22.35	22.50	22.40	24.55	24.7	24.6
		RB1#24	22.38	22.41	22.47	24.58	24.61	24.67
		RB15#0	21.36	21.74	21.67	23.56	23.94	23.87
		RB15#10	21.46	21.62	21.52	23.66	23.82	23.72
		RB25#0	21.51	21.69	21.53	23.71	23.89	23.73
	16QAM	RB1#0	21.49	21.14	21.74	23.69	23.34	23.94
		RB1#13	20.97	20.84	21.85	23.17	23.04	24.05
		RB1#24	21.04	20.85	21.86	23.24	23.05	24.06
		RB15#0	20.16	20.48	20.65	22.36	22.68	22.85
		RB15#10	20.43	20.57	20.53	22.63	22.77	22.73
		RB25#0	20.39	20.65	20.47	22.59	22.85	22.67
10.0	QPSK	RB1#0	22.44	22.56	22.68	24.64	24.76	24.88
		RB1#25	22.86	22.54	22.80	25.06	24.74	25
		RB1#49	22.87	22.49	22.30	25.07	24.69	24.5
		RB25#0	21.58	21.79	21.63	23.78	23.99	23.83
		RB25#25	21.58	21.59	21.43	23.78	23.79	23.63
		RB50#0	21.54	21.65	21.63	23.74	23.85	23.83
	16QAM	RB1#0	21.24	22.07	22.13	23.44	24.27	24.33
		RB1#25	22.12	22.08	22.48	24.32	24.28	24.68
		RB1#49	21.75	21.73	22.01	23.95	23.93	24.21
		RB25#0	20.61	20.83	20.82	22.81	23.03	23.02
		RB25#25	20.62	20.53	20.53	22.82	22.73	22.73
		RB50#0	20.42	20.73	20.63	22.62	22.93	22.83

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#0	22.31	22.54	22.39	24.51	24.74	24.59
		RB1#38	22.53	22.50	22.67	24.73	24.7	24.87
		RB1#74	22.51	22.52	22.43	24.71	24.72	24.63
		RB36#0	21.45	21.75	21.44	23.65	23.95	23.64
		RB36#39	21.71	21.52	21.55	23.91	23.72	23.75
		RB75#0	21.52	21.63	21.50	23.72	23.83	23.7
	16QAM	RB1#0	21.36	22.15	21.92	23.56	24.35	24.12
		RB1#38	21.69	22.03	22.01	23.89	24.23	24.21
		RB1#74	21.76	21.69	21.72	23.96	23.89	23.92
		RB36#0	20.37	20.56	20.55	22.57	22.76	22.75
		RB36#39	20.67	20.51	20.73	22.87	22.71	22.93
		RB75#0	20.38	20.64	20.66	22.58	22.84	22.86
20.0	QPSK	RB1#0	22.43	22.70	22.72	24.63	24.9	24.92
		RB1#50	22.99	22.58	22.73	25.19	24.78	24.93
		RB1#99	22.70	22.30	22.49	24.9	24.5	24.69
		RB50#0	21.68	21.84	21.59	23.88	24.04	23.79
		RB50#50	21.78	21.62	21.69	23.98	23.82	23.89
		RB100#0	21.68	21.77	21.45	23.88	23.97	23.65
	16QAM	RB1#0	22.34	22.03	21.73	24.54	24.23	23.93
		RB1#50	22.84	22.47	21.68	25.04	24.67	23.88
		RB1#99	22.77	21.16	21.44	24.97	23.36	23.64
		RB50#0	20.40	20.88	20.58	22.6	23.08	22.78
		RB50#50	20.73	20.73	20.59	22.93	22.93	22.79
		RB100#0	20.55	20.67	20.45	22.75	22.87	22.65

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi) -Cable loss(dB)

For Band 2: Antenna Gain = 2.2dBi (include the cable loss)

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	22.31	22.46	22.38	24.91	25.06	24.98
		RB1#3	22.34	22.57	22.53	24.94	25.17	25.13
		RB1#5	22.22	22.39	22.54	24.82	24.99	25.14
		RB3#0	22.48	22.37	22.28	25.08	24.97	24.88
		RB3#3	22.46	22.46	22.28	25.06	25.06	24.88
		RB6#0	21.46	21.46	21.31	24.06	24.06	23.91
	16QAM	RB1#0	21.47	21.25	21.42	24.07	23.85	24.02
		RB1#3	21.78	21.48	21.48	24.38	24.08	24.08
		RB1#5	21.63	21.30	21.40	24.23	23.9	24
		RB3#0	21.40	21.63	21.35	24	24.23	23.95
		RB3#3	21.16	21.60	20.96	23.76	24.2	23.56
		RB6#0	20.51	20.49	20.18	23.11	23.09	22.78
3.0	QPSK	RB1#0	22.42	22.48	22.30	25.02	25.08	24.9
		RB1#8	22.28	22.51	22.25	24.88	25.11	24.85
		RB1#14	22.24	22.73	22.41	24.84	25.33	25.01
		RB6#0	21.45	21.43	21.24	24.05	24.03	23.84
		RB6#9	21.32	21.61	21.29	23.92	24.21	23.89
		RB15#0	21.36	21.51	21.15	23.96	24.11	23.75
	16QAM	RB1#0	21.29	21.92	21.32	23.89	24.52	23.92
		RB1#8	20.93	21.74	21.58	23.53	24.34	24.18
		RB1#14	21.00	21.90	22.00	23.6	24.5	24.6
		RB6#0	20.43	20.57	20.54	23.03	23.17	23.14
		RB6#9	20.19	20.75	20.17	22.79	23.35	22.77
		RB15#0	20.50	20.53	20.10	23.1	23.13	22.7

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	22.55	22.39	22.23	25.15	24.99	24.83
		RB1#13	22.42	22.48	22.24	25.02	25.08	24.84
		RB1#24	22.31	22.46	22.33	24.91	25.06	24.93
		RB15#0	21.40	21.61	21.36	24	24.21	23.96
		RB15#10	21.27	21.62	21.24	23.87	24.22	23.84
		RB25#0	21.49	21.51	21.25	24.09	24.11	23.85
	16QAM	RB1#0	21.46	21.44	21.72	24.06	24.04	24.32
		RB1#13	20.95	21.64	21.24	23.55	24.24	23.84
		RB1#24	20.74	21.08	21.33	23.34	23.68	23.93
		RB15#0	20.39	20.41	20.34	22.99	23.01	22.94
		RB15#10	20.37	20.73	20.25	22.97	23.33	22.85
		RB25#0	20.33	20.65	20.35	22.93	23.25	22.95
10.0	QPSK	RB1#0	22.58	22.41	22.45	25.18	25.01	25.05
		RB1#25	22.29	22.66	22.22	24.89	25.26	24.82
		RB1#49	22.24	22.70	22.41	24.84	25.3	25.01
		RB25#0	21.51	21.59	21.25	24.11	24.19	23.85
		RB25#25	21.20	21.59	21.19	23.8	24.19	23.79
		RB50#0	21.47	21.45	21.40	24.07	24.05	24
	16QAM	RB1#0	21.65	21.75	21.86	24.25	24.35	24.46
		RB1#25	21.08	22.45	21.58	23.68	25.05	24.18
		RB1#49	20.74	22.47	21.93	23.34	25.07	24.53
		RB25#0	20.66	20.62	20.53	23.26	23.22	23.13
		RB25#25	20.33	20.53	20.18	22.93	23.13	22.78
		RB50#0	20.45	20.52	20.26	23.05	23.12	22.86

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#0	22.58	22.60	22.69	25.18	25.2	25.29
		RB1#38	22.48	22.56	22.41	25.08	25.16	25.01
		RB1#74	22.61	22.68	22.41	25.21	25.28	25.01
		RB36#0	21.57	21.61	21.41	24.17	24.21	24.01
		RB36#39	21.52	21.77	21.25	24.12	24.37	23.85
		RB75#0	21.56	21.49	21.37	24.16	24.09	23.97
	16QAM	RB1#0	21.70	21.94	21.90	24.3	24.54	24.5
		RB1#38	21.32	22.64	21.69	23.92	25.24	24.29
		RB1#74	21.42	22.61	21.90	24.02	25.21	24.5
		RB36#0	20.45	20.51	20.68	23.05	23.11	23.28
		RB36#39	20.44	20.65	20.34	23.04	23.25	22.94
		RB75#0	20.51	20.57	20.54	23.11	23.17	23.14
20.0	QPSK	RB1#0	22.36	22.62	22.79	24.96	25.22	25.39
		RB1#50	22.18	22.74	22.71	24.78	25.34	25.31
		RB1#99	22.24	22.52	22.30	24.84	25.12	24.9
		RB50#0	21.41	21.37	21.50	24.01	23.97	24.1
		RB50#50	21.46	21.67	21.23	24.06	24.27	23.83
		RB100#0	21.53	21.43	21.41	24.13	24.03	24.01
	16QAM	RB1#0	22.18	21.78	21.85	24.78	24.38	24.45
		RB1#50	22.04	22.09	21.34	24.64	24.69	23.94
		RB1#99	22.45	21.86	20.69	25.05	24.46	23.29
		RB50#0	20.35	20.42	20.64	22.95	23.02	23.24
		RB50#50	20.44	20.63	20.33	23.04	23.23	22.93
		RB100#0	20.49	20.42	20.52	23.09	23.02	23.12

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi) -Cable loss(dB)

For Band 4: Antenna Gain = 2.6dBi(include the cable loss)

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	23.06	23.27	23.34	22.41	22.62	22.69
		RB1#3	23.18	23.49	23.49	22.53	22.84	22.84
		RB1#5	23.17	23.39	23.37	22.52	22.74	22.72
		RB3#0	23.26	23.37	23.35	22.61	22.72	22.7
		RB3#3	23.25	23.37	23.35	22.6	22.72	22.7
		RB6#0	22.25	22.29	22.32	21.6	21.64	21.67
	16QAM	RB1#0	21.88	22.24	22.29	21.23	21.59	21.64
		RB1#3	21.99	22.49	22.77	21.34	21.84	22.12
		RB1#5	21.93	22.38	22.76	21.28	21.73	22.11
		RB3#0	22.17	22.40	22.56	21.52	21.75	21.91
		RB3#3	22.22	22.37	22.59	21.57	21.72	21.94
		RB6#0	21.26	21.27	21.57	20.61	20.62	20.92
3.0	QPSK	RB1#0	22.98	23.11	23.48	22.33	22.46	22.83
		RB1#8	23.06	23.01	23.53	22.41	22.36	22.88
		RB1#14	23.07	23.23	23.55	22.42	22.58	22.9
		RB6#0	22.13	22.2	22.34	21.48	21.55	21.69
		RB6#9	22.14	22.16	22.28	21.49	21.51	21.63
		RB15#0	22.29	22.27	22.33	21.64	21.62	21.68
	16QAM	RB1#0	22.07	22.52	22.93	21.42	21.87	22.28
		RB1#8	22.12	22.44	22.99	21.47	21.79	22.34
		RB1#14	22.15	22.41	22.99	21.5	21.76	22.34
		RB6#0	21.06	21.15	21.41	20.41	20.5	20.76
		RB6#9	21.08	21.10	21.47	20.43	20.45	20.82
		RB15#0	21.39	21.22	21.42	20.74	20.57	20.77

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	22.90	22.92	23.03	22.25	22.27	22.38
		RB1#13	23.26	23.00	23.38	22.61	22.35	22.73
		RB1#24	23.26	23.06	23.27	22.61	22.41	22.62
		RB15#0	22.22	22.29	22.23	21.57	21.64	21.58
		RB15#10	22.19	22.25	22.31	21.54	21.6	21.66
		RB25#0	22.20	22.27	22.20	21.55	21.62	21.55
	16QAM	RB1#0	22.24	21.55	22.43	21.59	20.9	21.78
		RB1#13	22.20	21.61	22.70	21.55	20.96	22.05
		RB1#24	22.27	21.45	22.78	21.62	20.8	22.13
		RB15#0	21.20	21.21	21.08	20.55	20.56	20.43
		RB15#10	21.16	21.26	21.06	20.51	20.61	20.41
		RB25#0	21.21	21.23	21.25	20.56	20.58	20.6
10.0	QPSK	RB1#0	23.11	23.31	23.23	22.46	22.66	22.58
		RB1#25	23.39	23.33	23.31	22.74	22.68	22.66
		RB1#49	23.21	23.18	23.38	22.56	22.53	22.73
		RB25#0	22.25	22.36	22.29	21.6	21.71	21.64
		RB25#25	22.29	22.33	22.29	21.64	21.68	21.64
		RB50#0	22.33	22.30	22.18	21.68	21.65	21.53
	16QAM	RB1#0	22.15	22.61	22.89	21.5	21.96	22.24
		RB1#25	22.43	22.85	22.96	21.78	22.2	22.31
		RB1#49	22.35	22.31	22.94	21.7	21.66	22.29
		RB25#0	21.44	21.37	21.29	20.79	20.72	20.64
		RB25#25	21.50	21.35	21.36	20.85	20.7	20.71
		RB50#0	21.19	21.26	21.17	20.54	20.61	20.52

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd) -Cable loss(dB)

For Band 5: Antenna Gain =1.5dBi = -0.65dBd (0dBd=2.15dBi) (include the cable loss)

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	22.94	22.97	23.12	19.89	19.92	20.07
		RB1#3	23.19	23.02	23.35	20.14	19.97	20.3
		RB1#5	23.06	23.01	23.34	20.01	19.96	20.29
		RB3#0	22.98	22.91	23.62	19.93	19.86	20.57
		RB3#3	23.07	22.98	23.55	20.02	19.93	20.5
		RB6#0	22.19	22.08	22.66	19.14	19.03	19.61
	16QAM	RB1#0	22.18	21.66	22.30	19.13	18.61	19.25
		RB1#3	22.48	21.74	22.40	19.43	18.69	19.35
		RB1#5	22.52	21.67	22.19	19.47	18.62	19.14
		RB3#0	22.12	22.10	22.59	19.07	19.05	19.54
		RB3#3	22.15	22.04	22.54	19.1	18.99	19.49
		RB6#0	20.96	20.76	21.72	17.91	17.71	18.67
3.0	QPSK	RB1#0	23.60	23.42	23.65	20.55	20.37	20.6
		RB1#8	23.63	23.40	23.63	20.58	20.35	20.58
		RB1#14	23.68	23.36	23.85	20.63	20.31	20.8
		RB6#0	22.61	22.52	22.58	19.56	19.47	19.53
		RB6#9	22.67	22.52	22.60	19.62	19.47	19.55
		RB15#0	22.69	22.58	22.62	19.64	19.53	19.57
	16QAM	RB1#0	22.55	23.09	22.70	19.5	20.04	19.65
		RB1#8	22.50	22.98	22.56	19.45	19.93	19.51
		RB1#14	22.58	22.62	22.68	19.53	19.57	19.63
		RB6#0	21.29	21.27	21.57	18.24	18.22	18.52
		RB6#9	21.39	21.29	21.67	18.34	18.24	18.62
		RB15#0	21.50	21.29	21.72	18.45	18.24	18.67

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	23.58	23.40	23.47	20.53	20.35	20.42
		RB1#13	23.55	23.29	23.36	20.5	20.24	20.31
		RB1#24	23.43	23.29	23.69	20.38	20.24	20.64
		RB15#0	22.48	22.53	22.54	19.43	19.48	19.49
		RB15#10	22.58	22.50	22.52	19.53	19.45	19.47
		RB25#0	22.63	22.49	22.64	19.58	19.44	19.59
	16QAM	RB1#0	22.77	22.55	22.82	19.72	19.5	19.77
		RB1#13	22.31	22.46	22.79	19.26	19.41	19.74
		RB1#24	22.22	22.47	23.01	19.17	19.42	19.96
		RB15#0	21.48	21.39	21.44	18.43	18.34	18.39
		RB15#10	21.37	21.37	21.41	18.32	18.32	18.36
		RB25#0	21.52	21.52	21.44	18.47	18.47	18.39
10.0	QPSK	RB1#0	23.49	23.32	23.61	20.44	20.27	20.56
		RB1#25	23.93	23.67	23.53	20.88	20.62	20.48
		RB1#49	23.83	23.39	23.41	20.78	20.34	20.36
		RB25#0	22.56	22.67	22.59	19.51	19.62	19.54
		RB25#25	22.55	22.65	22.53	19.5	19.6	19.48
		RB50#0	22.50	22.54	22.57	19.45	19.49	19.52
	16QAM	RB1#0	22.22	22.51	23.18	19.17	19.46	20.13
		RB1#25	22.30	22.78	23.54	19.25	19.73	20.49
		RB1#49	22.06	22.99	22.87	19.01	19.94	19.82
		RB25#0	21.50	21.41	21.51	18.45	18.36	18.46
		RB25#25	21.51	21.42	21.72	18.46	18.37	18.67
		RB50#0	21.46	21.52	21.53	18.41	18.47	18.48

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd) -Cable loss(dB)
 For Band 12: Antenna Gain = -0.9dBi =-3.05dBd (0dBd=2.15dBi) (include the cable loss)
 Limit: ERP≤34.77dBm

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	23.18	23.02	23.23	21.63	21.47	21.68
		RB1#13	23.08	23.07	23.23	21.53	21.52	21.68
		RB1#24	23.02	23.10	23.08	21.47	21.55	21.53
		RB15#0	22.15	22.26	22.27	20.6	20.71	20.72
		RB15#10	22.32	22.18	22.14	20.77	20.63	20.59
		RB25#0	22.17	22.30	22.26	20.62	20.75	20.71
	16QAM	RB1#0	21.71	22.47	22.33	20.16	20.92	20.78
		RB1#13	21.46	22.56	22.05	19.91	21.01	20.5
		RB1#24	21.43	22.59	22.03	19.88	21.04	20.48
		RB15#0	21.21	21.57	21.34	19.66	20.02	19.79
		RB15#10	21.45	21.49	21.32	19.9	19.94	19.77
		RB25#0	21.32	21.42	21.25	19.77	19.87	19.7
10.0	QPSK	RB1#0	/	23.64	/	/	22.09	/
		RB1#25	/	23.65	/	/	22.1	/
		RB1#49	/	22.98	/	/	21.43	/
		RB25#0	/	22.36	/	/	20.81	/
		RB25#25	/	22.34	/	/	20.79	/
		RB50#0	/	22.39	/	/	20.84	/
	16QAM	RB1#0	/	22.08	/	/	20.53	/
		RB1#25	/	22.17	/	/	20.62	/
		RB1#49	/	21.78	/	/	20.23	/
		RB25#0	/	21.51	/	/	19.96	/
		RB25#25	/	21.48	/	/	19.93	/
		RB50#0	/	21.40	/	/	19.85	/

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd) - Cable Loss(dB)
 For Band 13: Antenna Gain =0.6dBi --1.55dBd (0dBd=2.15dBi) (include the cable loss)
 Limit: ERP≤34.77dBm

LTE Band 14

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	23.71	23.66	23.69	22.56	22.51	22.54
		RB1#13	23.64	23.75	23.77	22.49	22.6	22.62
		RB1#24	23.71	23.72	23.54	22.56	22.57	22.39
		RB15#0	22.74	22.90	22.83	21.59	21.75	21.68
		RB15#10	22.73	22.87	22.85	21.58	21.72	21.7
		RB25#0	22.79	22.80	22.75	21.64	21.65	21.6
	16QAM	RB1#0	23.16	22.54	22.21	22.01	21.39	21.06
		RB1#13	22.96	22.27	22.17	21.81	21.12	21.02
		RB1#24	23.03	22.19	22.09	21.88	21.04	20.94
		RB15#0	21.58	21.79	21.85	20.43	20.64	20.7
		RB15#10	21.53	21.87	21.74	20.38	20.72	20.59
		RB25#0	21.65	21.82	21.87	20.5	20.67	20.72
10.0	QPSK	RB1#0	/	23.43	/	/	22.28	/
		RB1#25	/	23.68	/	/	22.53	/
		RB1#49	/	23.40	/	/	22.25	/
		RB25#0	/	22.76	/	/	21.61	/
		RB25#25	/	22.73	/	/	21.58	/
		RB50#0	/	22.79	/	/	21.64	/
	16QAM	RB1#0	/	23.00	/	/	21.85	/
		RB1#25	/	22.89	/	/	21.74	/
		RB1#49	/	22.72	/	/	21.57	/
		RB25#0	/	21.87	/	/	20.72	/
		RB25#25	/	21.86	/	/	20.71	/
		RB50#0	/	21.76	/	/	20.61	/

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd) - Cable Loss(dB)
 For Band14: Antenna Gain = 1.0dBi = -1.15dBd (0dBd=2.15dBi) (include the cable loss)
 Limit: ERP ≤ 34.77dBm

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	22.41	22.86	22.58	25.01	25.46	25.18
		RB1#3	22.58	22.95	22.63	25.18	25.55	25.23
		RB1#5	22.39	22.72	22.57	24.99	25.32	25.17
		RB3#0	22.57	22.90	22.49	25.17	25.5	25.09
		RB3#3	22.55	22.99	22.34	25.15	25.59	24.94
		RB6#0	21.65	21.75	21.43	24.25	24.35	24.03
	16QAM	RB1#0	21.58	21.81	21.51	24.18	24.41	24.11
		RB1#3	21.72	22.16	21.53	24.32	24.76	24.13
		RB1#5	21.49	21.86	21.42	24.09	24.46	24.02
		RB3#0	21.51	22.19	21.52	24.11	24.79	24.12
		RB3#3	21.51	22.14	21.47	24.11	24.74	24.07
		RB6#0	20.71	21.07	20.58	23.31	23.67	23.18
3.0	QPSK	RB1#0	22.45	22.57	22.32	25.05	25.17	24.92
		RB1#8	22.39	22.81	22.17	24.99	25.41	24.77
		RB1#14	22.60	22.72	22.26	25.2	25.32	24.86
		RB6#0	21.53	21.84	21.36	24.13	24.44	23.96
		RB6#9	21.54	21.47	21.22	24.14	24.07	23.82
		RB15#0	21.59	21.69	21.40	24.19	24.29	24
	16QAM	RB1#0	21.77	21.71	21.70	24.37	24.31	24.3
		RB1#8	21.73	21.27	21.55	24.33	23.87	24.15
		RB1#14	21.85	21.10	21.43	24.45	23.7	24.03
		RB6#0	20.87	20.70	20.52	23.47	23.3	23.12
		RB6#9	20.86	20.43	20.25	23.46	23.03	22.85
		RB15#0	20.40	20.75	20.50	23	23.35	23.1

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	22.45	22.75	22.62	25.05	25.35	25.22
		RB1#13	22.63	22.69	22.43	25.23	25.29	25.03
		RB1#24	22.57	22.68	22.36	25.17	25.28	24.96
		RB15#0	21.74	21.93	21.63	24.34	24.53	24.23
		RB15#10	21.60	21.60	21.23	24.2	24.2	23.83
		RB25#0	21.71	21.62	21.44	24.31	24.22	24.04
	16QAM	RB1#0	20.85	22.08	21.39	23.45	24.68	23.99
		RB1#13	21.00	22.14	21.04	23.6	24.74	23.64
		RB1#24	20.93	22.03	20.48	23.53	24.63	23.08
		RB15#0	20.76	20.82	20.65	23.36	23.42	23.25
		RB15#10	20.62	20.49	20.43	23.22	23.09	23.03
		RB25#0	20.79	20.66	20.50	23.39	23.26	23.1
10.0	QPSK	RB1#0	22.48	22.76	22.24	25.08	25.36	24.84
		RB1#25	22.85	23.07	22.61	25.45	25.67	25.21
		RB1#49	22.47	22.54	22.18	25.07	25.14	24.78
		RB25#0	21.85	21.93	21.51	24.45	24.53	24.11
		RB25#25	21.64	21.65	21.28	24.24	24.25	23.88
		RB50#0	21.80	21.85	21.51	24.4	24.45	24.11
	16QAM	RB1#0	21.88	22.34	21.00	24.48	24.94	23.6
		RB1#25	22.26	22.48	21.26	24.86	25.08	23.86
		RB1#49	21.44	22.05	20.75	24.04	24.65	23.35
		RB25#0	20.90	20.95	20.78	23.5	23.55	23.38
		RB25#25	20.77	20.68	20.51	23.37	23.28	23.11
		RB50#0	20.89	20.87	20.49	23.49	23.47	23.09

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#0	22.59	22.57	22.35	25.19	25.17	24.95
		RB1#38	22.53	22.55	22.58	25.13	25.15	25.18
		RB1#74	22.48	22.39	22.20	25.08	24.99	24.8
		RB36#0	21.66	21.99	21.39	24.26	24.59	23.99
		RB36#39	21.45	21.47	21.25	24.05	24.07	23.85
		RB75#0	21.60	21.72	21.35	24.2	24.32	23.95
	16QAM	RB1#0	21.98	22.02	21.78	24.58	24.62	24.38
		RB1#38	21.93	21.65	21.79	24.53	24.25	24.39
		RB1#74	21.90	20.71	21.10	24.5	23.31	23.7
		RB36#0	20.67	20.89	20.51	23.27	23.49	23.11
		RB36#39	20.35	20.45	20.40	22.95	23.05	23
		RB75#0	20.70	20.81	20.49	23.3	23.41	23.09
20.0	QPSK	RB1#0	22.57	22.71	22.26	25.17	25.31	24.86
		RB1#50	22.72	22.96	22.65	25.32	25.56	25.25
		RB1#99	22.25	22.71	22.11	24.85	25.31	24.71
		RB50#0	21.69	21.92	21.30	24.29	24.52	23.9
		RB50#50	21.45	21.46	21.37	24.05	24.06	23.97
		RB100#0	21.57	21.74	21.25	24.17	24.34	23.85
	16QAM	RB1#0	21.55	22.50	21.72	24.15	25.1	24.32
		RB1#50	21.60	22.60	21.97	24.2	25.2	24.57
		RB1#99	21.38	22.27	21.79	23.98	24.87	24.39
		RB50#0	20.77	20.91	20.41	23.37	23.51	23.01
		RB50#50	20.53	20.57	20.41	23.13	23.17	23.01
		RB100#0	20.48	20.75	20.37	23.08	23.35	22.97

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi) - Cable Loss(dB)

For Band 66: Antenna Gain =2.6 dBi (include the cable loss)

Limit: EIRP ≤ 30dBm

LTE Band 71

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
5	QPSK	RB1#0	23.04	23.13	23.00	19.49	19.58	19.45
		RB1#13	23.17	23.08	23.11	19.62	19.53	19.56
		RB1#24	23.07	23.03	23.04	19.52	19.48	19.49
		RB15#0	22.04	22.24	22.23	18.49	18.69	18.68
		RB15#10	22.18	22.11	22.23	18.63	18.56	18.68
		RB25#0	22.07	22.20	22.25	18.52	18.65	18.7
	16QAM	RB1#0	22.16	22.36	22.43	18.61	18.81	18.88
		RB1#13	22.39	22.24	22.46	18.84	18.69	18.91
		RB1#24	22.40	22.11	22.48	18.85	18.56	18.93
		RB15#0	20.77	21.06	20.94	17.22	17.51	17.39
		RB15#10	20.86	21.01	21.02	17.31	17.46	17.47
		RB25#0	21.01	21.18	21.23	17.46	17.63	17.68
10.0	QPSK	RB1#0	23.27	23.03	23.22	19.72	19.48	19.67
		RB1#25	23.62	23.24	23.08	20.07	19.69	19.53
		RB1#49	23.49	23.00	23.14	19.94	19.45	19.59
		RB25#0	22.31	22.31	22.01	18.76	18.76	18.46
		RB25#25	22.20	22.20	22.21	18.65	18.65	18.66
		RB50#0	22.20	22.29	22.13	18.65	18.74	18.58
	16QAM	RB1#0	21.69	22.18	22.74	18.14	18.63	19.19
		RB1#25	21.86	22.57	23.20	18.31	19.02	19.65
		RB1#49	21.56	21.79	22.54	18.01	18.24	18.99
		RB25#0	21.21	21.42	21.39	17.66	17.87	17.84
		RB25#25	21.04	21.32	21.26	17.49	17.77	17.71
		RB50#0	21.04	21.26	21.16	17.49	17.71	17.61

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#0	23.07	23.07	22.95	19.52	19.52	19.4
		RB1#38	23.36	23.02	22.92	19.81	19.47	19.37
		RB1#74	23.23	22.97	22.96	19.68	19.42	19.41
		RB36#0	22.21	22.13	22.12	18.66	18.58	18.57
		RB36#39	22.03	22.09	22.16	18.48	18.54	18.61
		RB75#0	22.09	22.24	21.99	18.54	18.69	18.44
	16QAM	RB1#0	22.17	22.58	21.70	18.62	19.03	18.15
		RB1#38	22.17	23.20	21.72	18.62	19.65	18.17
		RB1#74	22.10	22.77	21.64	18.55	19.22	18.09
		RB36#0	21.18	21.20	20.89	17.63	17.65	17.34
		RB36#39	21.02	20.98	21.04	17.47	17.43	17.49
		RB75#0	20.96	21.18	21.04	17.41	17.63	17.49
20.0	QPSK	RB1#0	23.01	22.75	23.17	19.46	19.2	19.62
		RB1#50	23.24	23.47	23.48	19.69	19.92	19.93
		RB1#99	23.00	22.77	23.10	19.45	19.22	19.55
		RB50#0	22.03	22.07	22.14	18.48	18.52	18.59
		RB50#50	22.20	22.07	22.17	18.65	18.52	18.62
		RB100#0	22.23	22.12	22.14	18.68	18.57	18.59
	16QAM	RB1#0	21.89	22.43	21.68	18.34	18.88	18.13
		RB1#50	22.32	22.90	21.71	18.77	19.35	18.16
		RB1#99	21.97	22.39	21.16	18.42	18.84	17.61
		RB50#0	21.08	21.14	21.00	17.53	17.59	17.45
		RB50#50	21.17	21.13	21.12	17.62	17.58	17.57
		RB100#0	21.03	21.18	21.05	17.48	17.63	17.50

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd) - Cable Loss(dB)
For Band71: Antenna Gain = -1.4dBi = -3.55dBd (0dBd=2.15dBi) (include the cable loss)
Limit: ERP ≤ 34.77dBm

Peak-to-average ratio (PAR): (pre-scan all bandwidth, the worst case as below)

LTE Band 2 20MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.81	4.78	4.41	13	Pass
QPSK (100RB Size)	4.81	4.32	4.41	13	Pass
16QAM (1RB Size)	4.78	4.20	5.30	13	Pass
16QAM (100RB Size)	4.78	4.23	5.71	13	Pass

LTE Band 4 20MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.67	4.81	5.13	13	Pass
QPSK (100RB Size)	4.70	4.32	5.25	13	Pass
16QAM (1RB Size)	5.62	5.04	5.07	13	Pass
16QAM (100RB Size)	5.65	4.81	5.01	13	Pass

LTE Band 5 10MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	3.72	4.52	3.69	13	Pass
QPSK (50RB Size)	5.26	5.22	5.22	13	Pass
16QAM (1RB Size)	4.29	5.38	4.36	13	Pass
16QAM (50RB Size)	6.19	6.19	6.09	13	Pass

LTE Band 12 10MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.36	4.46	4.36	13	Pass
QPSK (50RB Size)	5.19	5.32	5.38	13	Pass
16QAM (1RB Size)	5.19	5.42	5.48	13	Pass
16QAM (50RB Size)	6.19	6.31	6.25	13	Pass

LTE Band 13 10MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	/	4.13	/	13	Pass
QPSK (50RB Size)	/	5.1	/	13	Pass
16QAM (1RB Size)	/	4.78	/	13	Pass
16QAM (50RB Size)	/	6.06	/	13	Pass

LTE Band 14 10MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	/	4.23	/	13	Pass
QPSK (50RB Size)	/	5.13	/	13	Pass
16QAM (1RB Size)	/	4.81	/	13	Pass
16QAM (50RB Size)	/	6.06	/	13	Pass

LTE Band 66 20MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	3.25	4.32	4.00	13	Pass
QPSK (100RB Size)	3.13	4.23	4.17	13	Pass
16QAM (1RB Size)	3.19	4.20	3.94	13	Pass
16QAM (100RB Size)	3.25	4.23	4.12	13	Pass

LTE Band 71 20MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.17	4.46	4.36	13	Pass
QPSK (100RB Size)	5.00	5.16	5.35	13	Pass
16QAM (1RB Size)	5.00	5.45	5.35	13	Pass
16QAM (100RB Size)	5.93	6.09	6.22	13	Pass

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

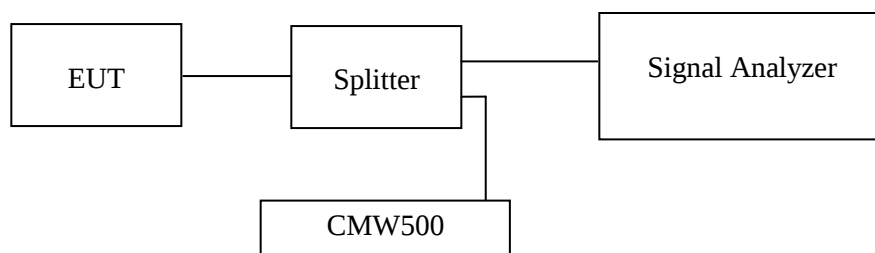
Applicable Standard

FCC 47 §2.1049, §22.917, §22.905, §24.238, §27.53& §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:	25-28 °C
Relative Humidity:	50-70 %
ATM Pressure:	101.0 kPa

The testing was performed by Roger Ling from 2023-04-08 to 2023-04-09.

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	1.104	1.308	1.110	1.338	1.116	1.290
	16QAM	1.104	1.314	1.098	1.302	1.104	1.296
3 MHz	QPSK	2.700	2.952	2.700	2.940	2.688	2.940
	16QAM	2.700	2.952	2.688	2.964	2.688	2.952
5 MHz	QPSK	4.540	5.020	4.520	5.040	4.520	4.980
	16QAM	4.520	5.040	4.520	5.020	4.540	5.020
10 MHz	QPSK	8.960	9.640	8.960	9.720	8.960	9.680
	16QAM	8.960	9.800	8.960	9.680	8.960	9.600
15 MHz	QPSK	13.500	14.940	13.500	14.880	13.440	14.820
	16QAM	13.500	14.820	13.500	14.820	13.500	14.820
20 MHz	QPSK	17.920	19.600	17.920	19.440	17.840	19.360
	16QAM	17.920	19.440	18.000	19.360	17.840	19.360

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	1.110	1.344	1.110	1.302	1.104	1.320
	16QAM	1.098	1.308	1.098	1.314	1.110	1.314
3 MHz	QPSK	2.688	2.964	2.700	2.940	2.700	2.952
	16QAM	2.688	2.952	2.700	2.964	2.688	2.964
5 MHz	QPSK	4.520	5.000	4.540	5.020	4.520	5.020
	16QAM	4.540	5.020	4.520	4.980	4.540	5.040
10 MHz	QPSK	8.960	9.720	8.960	9.800	8.960	9.760
	16QAM	8.960	9.640	8.920	9.720	8.960	9.640
15 MHz	QPSK	13.500	14.880	13.500	14.880	13.500	14.760
	16QAM	13.500	14.820	13.500	14.880	13.500	14.880
20 MHz	QPSK	17.920	19.440	17.920	19.520	17.840	19.600
	16QAM	18.000	19.520	17.920	19.440	17.920	19.360

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	1.110	1.326	1.104	1.284	1.104	1.314
	16QAM	1.110	1.302	1.098	1.314	1.110	1.302
3 MHz	QPSK	2.688	2.964	2.688	2.928	2.700	2.952
	16QAM	2.688	2.964	2.700	2.964	2.688	2.952
5 MHz	QPSK	4.500	5.020	4.540	5.040	4.520	5.000
	16QAM	4.540	5.020	4.520	5.000	4.540	5.040
10 MHz	QPSK	8.960	9.800	8.960	9.760	8.960	9.640
	16QAM	8.960	9.720	8.920	9.680	8.960	9.680

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	1.104	1.314	1.104	1.296	1.104	1.326
	16QAM	1.092	1.296	1.104	1.308	1.110	1.302
3 MHz	QPSK	2.700	2.952	2.700	2.940	2.688	2.952
	16QAM	2.688	2.964	2.700	2.978	2.688	2.952
5 MHz	QPSK	4.500	5.040	4.520	5.020	4.520	5.000
	16QAM	4.520	5.020	4.520	5.060	4.540	5.020
10 MHz	QPSK	8.960	9.720	8.960	9.840	8.960	9.640
	16QAM	8.960	9.640	8.960	9.640	8.960	9.680

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	4.500	5.000	4.520	5.020	4.520	5.060
	16QAM	4.540	5.020	4.520	5.020	4.520	5.020
10 MHz	QPSK	/	/	8.960	9.720	/	/
	16QAM	/	/	8.960	9.760	/	/

LTE Band 14:

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	4.520	5.060	4.500	5.040	4.520	5.040
	16QAM	4.520	5.060	4.520	5.040	4.520	5.000
10 MHz	QPSK	/	/	8.960	9.600	/	/
	16QAM	/	/	8.920	9.720	/	/

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	1.110	1.356	1.104	1.302	1.110	1.350
	16QAM	1.110	1.308	1.098	1.326	1.110	1.326
3 MHz	QPSK	2.700	2.952	2.700	2.952	2.688	2.976
	16QAM	2.700	2.976	2.688	2.964	2.688	2.952
5 MHz	QPSK	4.520	5.040	4.520	5.020	4.520	5.020
	16QAM	4.520	5.020	4.520	5.060	4.540	5.080
10 MHz	QPSK	8.960	9.760	8.920	9.680	8.960	9.640
	16QAM	8.920	9.680	8.920	9.720	8.960	9.680
15 MHz	QPSK	13.500	14.760	13.440	14.820	13.500	14.880
	16QAM	13.500	14.880	13.500	14.940	13.500	14.820
20 MHz	QPSK	17.920	19.440	17.920	19.360	18.000	19.360
	16QAM	17.920	19.440	17.920	19.280	17.920	19.360

LTE Band 71:

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	4.520	5.000	4.500	5.000	4.520	5.040
	16QAM	4.520	5.000	4.520	5.060	4.520	5.020
10 MHz	QPSK	8.920	9.600	8.920	9.760	8.960	9.640
	16QAM	8.960	9.680	8.960	9.600	8.920	9.680
15 MHz	QPSK	13.500	14.820	13.440	14.820	13.500	14.820
	16QAM	13.500	14.760	13.500	14.760	13.500	14.820
20 MHz	QPSK	18.000	19.520	17.840	19.280	17.920	19.520
	16QAM	17.920	19.520	17.920	19.360	18.000	19.440

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

FCC §2.1051, §22.917(a) & §24.238(a)& §27.53& §90.543 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

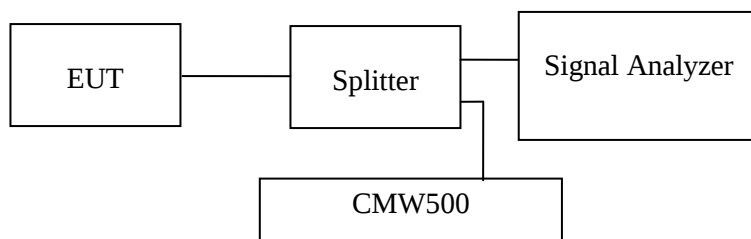
Applicable Standard

FCC §2.1051, §22.917(a) & §24.238(a)& §27.53 & §90.543

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 path loss (cable loss and splitter inset loss) among the test frequency range was added into plots.

Test Data

Environmental Conditions

Temperature:	25-28 °C
Relative Humidity:	50-70 %
ATM Pressure:	101.0 kPa

The testing was performed by Roger Ling from 2023-04-08 to 2023-04-19.

EUT operation mode: Transmitting

Test result: Pass

Please refer to the following plots.

The test plots please refer to the Appendix B.

FCC § 2.1053; § 22.917 (a); § 24.238 (a); § 27.53; § 90.543 - SPURIOUS RADIATED EMISSIONS

Applicable Standard

FCC § 2.1053, § 22.917(a) & § 24.238(a) & § 27.53 & § 90.543

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:	24.5-25.6 °C
Relative Humidity:	50-51%
ATM Pressure:	101.0 kPa

The testing was performed by Jimi Zheng from 2023-04-10 to 2023-04-11.

EUT operation mode: Transmitting (Scan with X-AXIS, Y-AXIS, Z-AXIS, the worst case Y-AXIS was recorded)

The worst case is as below:

LTE Bands: (pre-scan all bandwidth/modulation, the worst case as below)

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
LTE Band 2, Test frequency range: 30MHz-20GHz								
QPSK,1.4MHz,1850.7MHz								
3701.4	-41.00	136	2.1	H	8.1	-32.90	-13	-19.90
3701.4	-36.60	242	1.6	V	7.6	-29.00	-13	-16.00
5552.1	-49.10	167	2.4	H	9.6	-39.50	-13	-26.50
5552.1	-47.50	331	2.2	V	9.1	-38.40	-13	-25.40
QPSK,1.4MHz,1880MHz								
3760.0	-41.40	243	1.6	H	8.8	-32.60	-13	-19.60
3760.0	-35.90	71	1.5	V	8.0	-27.90	-13	-14.90
5640.0	-48.20	150	2	H	10.2	-38.00	-13	-25.00
5640.0	-46.20	146	1.8	V	9.4	-36.80	-13	-23.80
QPSK,1.4MHz,1909.3MHz								
3818.6	-43.20	50	1.2	H	8.7	-34.50	-13	-21.50
3818.6	-37.20	98	1.9	V	7.9	-29.30	-13	-16.30
5727.9	-47.70	343	1.1	H	10.6	-37.10	-13	-24.10
5727.9	-46.00	82	1.9	V	10.2	-35.80	-13	-22.80

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
LTE Band 4, Test frequency range: 30MHz-20GHz								
QPSK,1.4MHz,1710.7MHz								
3421.4	-47.80	66	1.1	H	6.4	-41.40	-13	-28.40
3421.4	-45.00	346	2.5	V	5.7	-39.30	-13	-26.30
5132.1	-53.20	334	2.4	H	11.3	-41.90	-13	-28.90
5132.1	-52.00	89	1.4	V	10.8	-41.20	-13	-28.20
QPSK,1.4MHz,1732.5Hz								
3465.0	-49.10	281	2.1	H	7.0	-42.10	-13	-29.10
3465.0	-46.60	211	1.1	V	6.2	-40.40	-13	-27.40
5197.5	-52.60	65	2.3	H	10.4	-42.20	-13	-29.20
5197.5	-51.20	205	1.5	V	9.8	-41.40	-13	-28.40
QPSK,1.4MHz,1754.3Hz								
3508.6	-49.40	283	1.1	H	7.8	-41.60	-13	-28.60
3508.6	-45.50	86	2.1	V	6.6	-38.90	-13	-25.90
5262.9	-51.70	66	2.2	H	9.5	-42.20	-13	-29.20
5262.9	-50.20	341	2.5	V	8.9	-41.30	-13	-28.30

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
LTE Band 5, Test frequency range: 30MHz-10GHz								
QPSK,1.4MHz,824.7MHz								
1649.4	-46.40	181	2.4	H	3.5	-42.90	-13	-29.90
1649.4	-44.90	275	2.5	V	3.1	-41.80	-13	-28.80
2474.1	-50.50	330	2.5	H	6.6	-43.90	-13	-30.90
2474.1	-46.00	246	1.6	V	5.8	-40.20	-13	-27.20
3298.8	-48.80	322	2.1	H	6.4	-42.40	-13	-29.40
3298.8	-47.30	25	1.8	V	5.7	-41.60	-13	-28.60
QPSK,1.4MHz,836.5Hz								
1673.0	-44.10	11	2.3	H	3.8	-40.30	-13	-27.30
1673.0	-40.10	96	1.2	V	3.1	-37.00	-13	-24.00
2509.5	-48.90	290	1.1	H	6.2	-42.70	-13	-29.70
2509.5	-44.60	340	1.1	V	5.6	-39.00	-13	-26.00
3346.0	-48.90	101	2.1	H	6.6	-42.30	-13	-29.30
3346.0	-47.20	13	1.3	V	5.4	-41.80	-13	-28.80
QPSK,1.4MHz,848.3Hz								
1696.6	-45.20	42	1.2	H	4.1	-41.10	-13	-28.10
1696.6	-39.00	176	2.2	V	3.1	-35.90	-13	-22.90
2544.9	-50.40	156	1.8	H	6.1	-44.30	-13	-31.30
2544.9	-46.10	5	1.3	V	5.8	-40.30	-13	-27.30
3393.2	-48.70	353	2.2	H	6.3	-42.40	-13	-29.40
3393.2	-47.20	320	1.5	V	5.4	-41.80	-13	-28.80

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
LTE Band 12, Test frequency range: 30MHz-10GHz								
QPSK, 1.4MHz, 699.7MHz								
1399.4	-53.60	109	1.1	H	5.9	-47.70	-13	-34.70
1399.4	-46.60	19	1.5	V	5.9	-40.70	-13	-27.70
2099.1	-50.20	39	1.4	H	6.3	-43.90	-13	-30.90
2099.1	-48.10	57	1.7	V	5.1	-43.00	-13	-30.00
2798.8	-51.30	205	2.3	H	6.7	-44.60	-13	-31.60
2798.8	-47.50	357	2.2	V	6.7	-40.80	-13	-27.80
QPSK, 1.4MHz, 707.5MHz								
1415.0	-49.90	17	1.3	H	5.7	-44.20	-13	-31.20
1415.0	-45.40	183	2.1	V	5.4	-40.00	-13	-27.00
2122.5	-49.50	322	1.3	H	6.7	-42.80	-13	-29.80
2122.5	-47.70	211	1.8	V	5.8	-41.90	-13	-28.90
2830.0	-54.20	123	1.5	H	7.1	-47.10	-13	-34.10
2830.0	-52.20	26	1.2	V	6.5	-45.70	-13	-32.70
QPSK, 1.4MHz, 715.3MHz								
1430.6	-47.50	201	1.4	H	5.4	-42.10	-13	-29.10
1430.6	-46.30	284	1.5	V	4.8	-41.50	-13	-28.50
2145.9	-50.70	337	2	H	7.0	-43.70	-13	-30.70
2145.9	-49.90	183	1.2	V	6.6	-43.30	-13	-30.30
2861.2	-52.90	165	1.2	H	7.3	-45.60	-13	-32.60
2861.2	-50.10	83	2.2	V	6.3	-43.80	-13	-30.80

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
LTE Band 13, Test frequency range: 30MHz-10GHz								
QPSK, 5MHz, 779.5MHz								
1559.0	-49.80	219	1.4	H	4.2	-45.60	-40	-5.60
1559.0	-46.70	270	2.4	V	3.3	-43.40	-40	-3.40
2338.5	-55.30	297	1.1	H	7.3	-48.00	-13	-35.00
2338.5	-52.50	84	1.2	V	6.5	-46.00	-13	-33.00
3118.0	-54.90	168	2.3	H	7.3	-47.60	-13	-34.60
3118.0	-53.10	83	1.7	V	6.5	-46.60	-13	-33.60
QPSK, 5MHz, 782MHz								
1564.0	-50.40	47	2.4	H	4.2	-46.20	-40	-6.20
1564.0	-46.90	348	1.4	V	3.3	-43.60	-40	-3.60
2346.0	-55.20	152	1.8	H	7.3	-47.90	-13	-34.90
2346.0	-52.70	316	1.3	V	6.4	-46.30	-13	-33.30
3128.0	-55.20	84	1.4	H	7.3	-47.90	-13	-34.90
3128.0	-53.40	267	1.8	V	6.6	-46.80	-13	-33.80
QPSK, 5MHz, 784.5MHz								
1569.0	-49.70	285	1.4	H	4.2	-45.50	-40	-5.50
1569.0	-46.50	197	2.4	V	3.3	-43.20	-40	-3.20
2353.5	-54.70	162	2.3	H	7.3	-47.40	-13	-34.40
2353.5	-51.00	60	1.2	V	6.4	-44.60	-13	-31.60
3138.0	-55.50	350	2.3	H	7.4	-48.10	-13	-35.10
3138.0	-53.70	236	1.6	V	6.6	-47.10	-13	-34.10
3138.0	-55.50	350	2.3	H	7.4	-48.10	-13	-35.10
3138.0	-53.70	236	1.6	V	6.6	-47.10	-13	-34.10

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
LTE Band 14, Test frequency range: 30MHz10GHz								
QPSK, 5MHz, 790.5MHz								
770.0	-65.9	88	1.3	H	11	-54.9	-46	-8.90
770.0	-64.9	54	1.3	V	11	-53.9	-46	-7.90
2371.5	-49.50	138	2.2	H	7.1	-42.40	-13	-29.40
2371.5	-46.00	162	2.2	V	6.2	-39.80	-13	-26.80
3162.0	-49.50	76	1.2	H	7.3	-42.20	-13	-29.20
3162.0	-48.50	296	1.6	V	6.7	-41.80	-13	-28.80
QPSK, 5MHz, 793MHz								
770.0	-64.9	88	1.3	H	11	-53.9	-46	-7.90
770.0	-65.9	54	1.3	V	11	-54.9	-46	-8.90
2379.0	-49.20	335	1.9	H	7.1	-42.10	-13	-29.10
2379.0	-45.50	344	1.5	V	6.1	-39.40	-13	-26.40
3172.0	-49.80	85	2.3	H	7.2	-42.60	-13	-29.60
3172.0	-48.90	41	1.2	V	6.7	-42.20	-13	-29.20
QPSK, 5MHz, 795.5MHz								
770.0	-65.7	319	1.5	H	11	-54.7	-46	-8.70
770.0	-64.6	112	1.3	V	11	-53.6	-46	-7.60
2386.5	-48.50	240	1.7	H	7.0	-41.50	-13	-28.50
2386.5	-45.30	255	2.5	V	6.0	-39.30	-13	-26.30
3182.0	-49.10	219	2.3	H	7.1	-42.00	-13	-29.00
3182.0	-48.40	266	2.1	V	6.8	-41.60	-13	-28.60

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
LTE Band 66, Test frequency range: 30MHz-20GHz								
QPSK, 1.4MHz, 1710.7MHz								
3421.4	-48.00	353	1.6	H	6.4	-41.60	-13	-28.60
3421.4	-45.50	133	1.4	V	5.7	-39.80	-13	-26.80
5132.1	-53.90	170	1.7	H	11.3	-42.60	-13	-29.60
5132.1	-52.80	257	1	V	10.8	-42.00	-13	-29.00
QPSK, 1.4MHz, 1745MHz								
3490.0	-49.30	190	2	H	7.6	-41.70	-13	-28.70
3490.0	-47.80	293	1.3	V	6.4	-41.40	-13	-28.40
5235.0	-52.30	223	1.8	H	9.7	-42.60	-13	-29.60
5235.0	-51.00	142	2.2	V	9.2	-41.80	-13	-28.80
QPSK, 1.4MHz, 1779.3MHz								
3558.6	-49.10	106	2.2	H	7.8	-41.30	-13	-28.30
3558.6	-41.30	187	2.2	V	7.0	-34.30	-13	-21.30
5337.9	-51.30	294	1.3	H	9.4	-41.90	-13	-28.90
5337.9	-49.50	258	1.6	V	8.7	-40.80	-13	-27.80

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
LTE Band 71, Test frequency range: 30MHz-10GHz								
QPSK, 5MHz, 665.5MHz								
1331.0	-54.50	46	1.7	H	6.4	-48.10	-13	-35.10
1331.0	-51.00	248	1.2	V	5.4	-45.60	-13	-32.60
1996.5	-46.20	96	1.7	H	4.3	-41.90	-13	-28.90
1996.5	-45.10	248	1.5	V	3.3	-41.80	-13	-28.80
2662.0	-52.90	124	1.2	H	6.4	-46.50	-13	-33.50
2662.0	-51.40	296	1.4	V	5.7	-45.70	-13	-32.70
QPSK, 5MHz, 680.5MHz								
1361.0	-52.60	183	1.2	H	6.3	-46.30	-13	-33.30
1361.0	-49.80	120	1.6	V	5.7	-44.10	-13	-31.10
2041.5	-46.00	129	1.7	H	4.8	-41.20	-13	-28.20
2041.5	-44.70	123	1.4	V	3.8	-40.90	-13	-27.90
2722.0	-53.00	115	1.9	H	6.6	-46.40	-13	-33.40
2722.0	-51.50	48	2.2	V	6.0	-45.50	-13	-32.50
QPSK, 5MHz, 695.5MHz								
1391.0	-52.10	223	1.4	H	6.0	-46.10	-13	-33.10
1391.0	-49.30	9	1.8	V	5.8	-43.50	-13	-30.50
2086.5	-47.40	227	1.3	H	5.9	-41.50	-13	-28.50
2086.5	-45.90	57	1.8	V	4.8	-41.10	-13	-28.10
2782.0	-53.90	229	1.4	H	6.7	-47.20	-13	-34.20
2782.0	-52.70	75	1.9	V	6.4	-46.30	-13	-33.30

Note:

Absolute Level = Reading Level + Substituted Factor

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

Margin = Absolute Level - Limit

Other emissions was more than 20dB below the limit was not recorded

FCC § 22.917 (a); § 24.238 (a); § 27.53 (c) (g) (h) § 90.543 - 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), 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 FCC § 27.53(c), For operations in the 746–758 MHz band and the 776–788 MHz band, the power of any emission outside the 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, in accordance with the following:

- (1) On any frequency outside the 746–758 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;
- (2) On any frequency outside 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;
- (3) On all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than $76 + 10 \log(P)$ dB in a 6.25 kHz band segment, for base and fixed stations;
- (4) On all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than $65 + 10 \log(P)$ dB in a 6.25 kHz band segment, for mobile and portable stations;
- (5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;
- (6) Compliance with the provisions of paragraphs (c)(3) and (c)(4) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

According to § 90.543, (e) For operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the 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, in accordance with the following:

- (1) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than $76 + 10 \log(P)$ dB in a 6.25 kHz band segment, for base and fixed stations.
- (2) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than $65 + 10 \log(P)$ dB in a 6.25 kHz band segment, for mobile and portable stations.

(3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least $43 + 10 \log(P)$ dB.

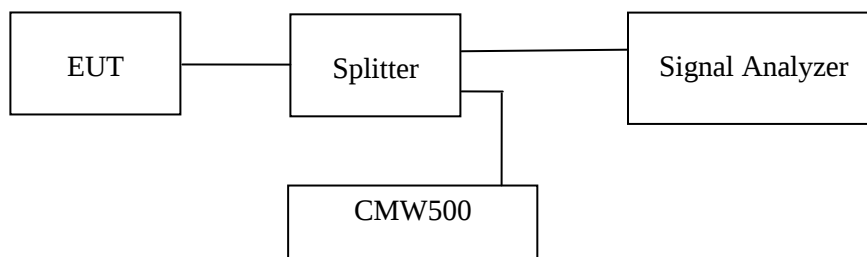
(4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

(5) Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30 kHz may be employed.

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:	25-28 °C
Relative Humidity:	50-70 %
ATM Pressure:	101.0 kPa

The testing was performed by Roger Ling from 2023-04-08 to 2023-04-09.

EUT operation mode: Transmitting (Worst case)

Test Result: Pass

Please refer to the following plots.

The test plots please refer to the Appendix C.

FCC § 2.1055; § 22.355; § 24.235; § 27.54; § 90.539 - FREQUENCY STABILITY

Applicable Standard

FCC § 2.1055, § 22.355, § 24.235& § 27.54& § 90.539.

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.

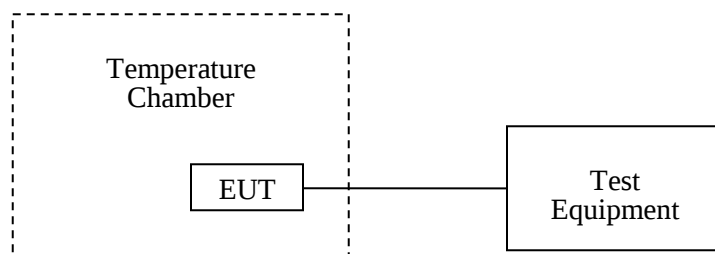
According to § 90.539, The frequency stability of mobile, portable and control transmitters operating in the wideband segment must be 1.25 parts per million or better when AFC is locked to a base station, and 5 parts per million or better when AFC is not locked.

Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external 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 power 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:	25-28 °C
Relative Humidity:	50-70 %
ATM Pressure:	101.0 kPa

The testing was performed by Roger Ling from 2023-04-08 to 2023-04-09.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables.

LTE:
QPSK:
Band 2:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	7.2	1850.1148	1909.8722	1850	1910
-20		1850.1153	1909.8732	1850	1910
-10		1850.1122	1909.8741	1850	1910
0		1850.1157	1909.8724	1850	1910
10		1850.1133	1909.8736	1850	1910
20		1850.1152	1909.8745	1850	1910
30		1850.1134	1909.8752	1850	1910
40		1850.1137	1909.8737	1850	1910
50		1850.1124	1909.8741	1850	1910
20	6.0	1850.1132	1909.8728	1850	1910
	8.4	1850.1043	1909.8747	1850	1910

Band 4:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	7.2	1710.1166	1754.8738	1710	1755
-20		1710.1158	1754.8736	1710	1755
-10		1710.1152	1754.8737	1710	1755
0		1710.1154	1754.8738	1710	1755
10		1710.1147	1754.8757	1710	1755
20		1710.1142	1754.8755	1710	1755
30		1710.1139	1754.8754	1710	1755
40		1710.1130	1754.8756	1710	1755
50		1710.1129	1754.8749	1710	1755
20	6.0	1710.1128	1754.8748	1710	1755
	8.4	1710.1024	1754.8742	1710	1755

Band 5:

10.0 MHz Middle Channel, $f_0 = 836.5\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	7.2	-1.62	-0.0019	2.5
-20		9.48	0.0113	2.5
-10		5.83	0.0070	2.5
0		-9.85	-0.0118	2.5
10		5.36	0.0064	2.5
20		-7.65	-0.0091	2.5
30		-5.56	-0.0066	2.5
40		-7.51	-0.0090	2.5
50		-9.49	-0.0113	2.5
20	6.0	-7.08	-0.0085	2.5
	8.4	-8.82	-0.0105	2.5

Band 12:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	7.2	699.1433	715.8872	699	716
-20		699.1441	715.8728	699	716
-10		699.1423	715.8458	699	716
0		699.1427	715.8632	699	716
10		699.1332	715.8417	699	716
20		699.1421	715.8284	699	716
30		699.1389	715.8323	699	716
40		699.1347	715.8314	699	716
50		699.1442	715.8454	699	716
20	6.0	699.1372	715.8672	699	716
	8.4	699.1374	715.8678	699	716

Band 13:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	7.2	777.1295	786.8437	777	787
-20		777.1237	786.8424	777	787
-10		777.1276	786.8461	777	787
0		777.1216	786.8452	777	787
10		777.1248	786.8423	777	787
20		777.1256	786.8418	777	787
30		777.1252	786.8433	777	787
40		777.1242	786.8428	777	787
50		777.1223	786.8442	777	787
20	6.0	777.1217	786.8451	777	787
	8.4	777.1232	786.8431	777	787

Band 14:

10.0 MHz Middle Channel, f ₀ = 793MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	7.2	5.36	0.0068	1.25
-20		4.89	0.0062	1.25
-10		-3.62	-0.0046	1.25
0		-5.98	-0.0075	1.25
10		3.49	0.0044	1.25
20		-8.12	-0.0102	1.25
30		-3.66	-0.0046	1.25
40		-5.48	-0.0069	1.25
50		5.47	0.0069	1.25
20	6.0	3.69	0.0047	1.25
	8.4	5.87	0.0074	1.25

Band 66:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	7.2	1710.0241	1779.9728	1710	1780
-20		1710.0238	1779.9727	1710	1780
-10		1710.0236	1779.9839	1710	1780
0		1710.0235	1779.9756	1710	1780
10		1710.0237	1779.9755	1710	1780
20		1710.0228	1779.9747	1710	1780
30		1710.0257	1779.9749	1710	1780
40		1710.0256	1779.9756	1710	1780
50		1710.0229	1779.9828	1710	1780
20	6.0	1710.0225	1779.9727	1710	1780
	8.4	1710.0226	1779.9775	1710	1780

Band 71:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	7.2	663.0241	697.9728	663	698
-20		663.0238	697.9727	663	698
-10		663.0236	697.9839	663	698
0		663.0235	697.9756	663	698
10		663.0237	697.9755	663	698
20		663.0228	697.9747	663	698
30		663.0257	697.9749	663	698
40		663.0256	697.9756	663	698
50		663.0229	697.9828	663	698
20	6.0	663.0225	697.9727	663	698
	8.4	663.0226	697.9775	663	698

16QAM:**Band 2:**

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	7.2	1850.1162	1909.8735	1850	1910
-20		1850.1154	1909.8732	1850	1910
-10		1850.1195	1909.8723	1850	1910
0		1850.1156	1909.8724	1850	1910
10		1850.1147	1909.8754	1850	1910
20		1850.1156	1909.8743	1850	1910
30		1850.1134	1909.8754	1850	1910
40		1850.1122	1909.8735	1850	1910
50		1850.1124	1909.8742	1850	1910
20	6.0	1850.1135	1909.8734	1850	1910
	8.4	1850.1043	1909.8747	1850	1910

Band 4:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	7.2	1710.2966	1754.7672	1710	1755
-20		1710.2958	1754.7562	1710	1755
-10		1710.2751	1754.7672	1710	1755
0		1710.2652	1754.7452	1710	1755
10		1710.2633	1754.7435	1710	1755
20		1710.2643	1754.7626	1710	1755
30		1710.2572	1754.7625	1710	1755
40		1710.2658	1754.7652	1710	1755
50		1710.2636	1754.7752	1710	1755
20	6.0	1710.2621	1754.7536	1710	1755
	8.4	1710.2715	1754.7524	1710	1755

Band 5:

10.0 MHz Middle Channel, $f_0 = 836.5\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	7.2	-1.59	-0.0019	2.5
-20		7.06	0.0084	2.5
-10		-6.97	-0.0083	2.5
0		-6.48	-0.0077	2.5
10		-7.13	-0.0085	2.5
20		7.28	0.0087	2.5
30		8.58	0.0103	2.5
40		6.15	0.0074	2.5
50		-9.61	-0.0115	2.5
20	6.0	8.38	0.0100	2.5
	8.4	8.43	0.0101	2.5

Band 12:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	7.2	699.1325	715.8364	699	716
-20		699.1333	715.8325	699	716
-10		699.1315	715.8354	699	716
0		699.1319	715.8324	699	716
10		699.1324	715.8309	699	716
20		699.1313	715.8376	699	716
30		699.1381	715.8315	699	716
40		699.1339	715.8306	699	716
50		699.1334	715.8346	699	716
20	6.0	699.1364	715.8364	699	716
	8.4	699.1366	715.8376	699	716

Band 13:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	7.2	777.0325	786.9233	777	787
-20		777.0344	786.9226	777	787
-10		777.0326	786.9235	777	787
0		777.0318	786.9248	777	787
10		777.0333	786.9237	777	787
20		777.0341	786.9226	777	787
30		777.0353	786.9234	777	787
40		777.0315	786.9252	777	787
50		777.0227	786.9236	777	787
20	6.0	777.0342	786.9214	777	787
	8.4	777.0341	786.9255	777	787

Band 14:

10.0 MHz Middle Channel, f ₀ = 793MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	7.2	6.91	0.0087	1.25
-20		-5.81	-0.0073	1.25
-10		-7.51	-0.0095	1.25
0		5.17	0.0065	1.25
10		7.66	0.0097	1.25
20		6.92	0.0087	1.25
30		-3.54	-0.0045	1.25
40		5.98	0.0075	1.25
50		9.84	0.0124	1.25
20	6.0	4.77	0.0060	1.25
	8.4	3.95	0.0050	1.25

Band 66:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	7.2	1710.1277	1779.8392	1710	1780
-20		1710.1249	1779.8444	1710	1780
-10		1710.1246	1779.8363	1710	1780
0		1710.1275	1779.8358	1710	1780
10		1710.1265	1779.8362	1710	1780
20		1710.1239	1779.8333	1710	1780
30		1710.1225	1779.8341	1710	1780
40		1710.1246	1779.8368	1710	1780
50		1710.1233	1779.8376	1710	1780
20	6.0	1710.1258	1779.8356	1710	1780
	8.4	1710.1252	1779.8354	1710	1780

Band 71:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	7.2	663.0325	697.9233	663	698
-20		663.0344	697.9226	663	698
-10		663.0326	697.9235	663	698
0		663.0318	697.9248	663	698
10		663.0333	697.9237	663	698
20		663.0341	697.9226	663	698
30		663.0353	697.9234	663	698
40		663.0315	697.9252	663	698
50		663.0227	697.9236	663	698
20	6.0	663.0342	697.9214	663	698
	8.4	663.0341	697.9255	663	698

Note: The extreme work voltage range provided by customer

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