




FCC PART 27  
FCC PART 22H, PART 24E  
TEST REPORT

For

**Vanstone Electronic (Beijing) Co., Ltd.**

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China 100195

**FCC ID:OVLV71**

<b>Report Type:</b> Original Report	<b>Product Type:</b> Wireless POS Terminal
<b>Report Number:</b> <u>SZXX1210918-48932E-00B</u>	
<b>Report Date:</b> <u>2021-11-03</u>	
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## GENERAL INFORMATION

### Product Description for Equipment under Test (EUT)

Product	Wireless POS Terminal
Trademark	Aisino
Tested Model	V71
Frequency Range	GSM 850: 824-849MHz(TX); 869-894MHz(RX) PCS 1900: 1850-1910MHz(TX); 1930-1990MHz(RX) WCDMA Band 2: 1850-1910MHz(TX); 1930-1990MHz(RX) WCDMA Band 4: 1710-1755MHz(TX); 2110-2155MHz(RX) WCDMA Band 5: 824-849MHz(TX); 869-894MHz(RX) 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 7: 2500-2570MHz(TX); 2620-2690MHz(RX) LTE Band 38: 2570-2620MHz(TX); 2570-2620MHz(RX) LTE Band 66: 1710-1780 MHz(TX); 2110-2200 MHz(RX)
Maximum Output Power (Conducted power)	GSM 850: 32.68dBm(GMSK), 26.10 dBm(8PSK) PCS 1900: 29.46dBm(GMSK), 26.20dBm (8PSK) WCDMA Band 2: 23.83dBm; WCDMA Band 4:23.26dBm; WCDMA Band 5:24.63dBm LTE Band 2:21.98dBm; LTE Band 4:21.91dBm; LTE Band 5:24.09dBm; LTE Band 7:21.96dBm; LTE Band 38:21.99dBm LTE Band 66:22.23Bm;
Modulation Technique	2G: GMSK/8PSK 3G: BPSK, QPSK, 16QAM 4G: QPSK, 16QAM
Antenna Specification*	Internal Antenna (provided by the applicant): 2G/3G/4G: 1dBi
Voltage Range	DC3.7V by battery or DC 5V from adapter
Date of Test	2021-10-14 to 2021-10-19
Sample serial number	SZXX1210918-48932E-RF-S1 (Assigned by ATC)
Received date	2021-09-18
Sample/EUT Status	Good condition
Adapter1 Information	Model: A18A-050100U-US2 Input: 100-240V~, 50/60Hz, Max 0.2A Output: DC 5V, 1A
Adapter2 Information	Model: SW-0018 Input: 100-240V~, 50/60Hz, Max 0.2A Output: DC 5V, 1A

### Objective

This test report is in accordance with Part 2-Subpart J, Part 22-Subpart H, Part 24-Subpart E, and Subpart 27 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

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.

## Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		5%
RF output power, conducted		0.73dB
Unwanted Emission, conducted		1.6dB
RF Frequency		$0.082 \times 10^{-7}$
Emissions, Radiated	30MHz - 1GHz	4.28dB
	1GHz - 18GHz	4.98dB
	18GHz - 26.5GHz	5.06dB
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.

Listed by Innovation, Science and Economic Development Canada (ISED), 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.

The test items were performed with the EUT operating at testing mode. Test was performed with channels as below table:

Band	Channel Bandwidth	Frequency
GSM 850	0.3 MHz	824.2MHz, 836.6MHz, 848.8MHz
PCS 1900	0.3 MHz	1850.2MHz, 1880.0MHz, 1909.8MHz;
WCDMA Band 2	4.2 MHz	1852.4MHz, 1880.0MHz, 1907.6MHz;
WCDMA Band 4	4.2 MHz	1712.4MHz, 1732.6MHz, 1752.6 MHz;
WCDMA Band 5	4.2 MHz	826.4MHz, 836.6MHz, 846.6MHz
LTE Band 2	1.4 MHz	1850.7MHz, 1880.0 MHz, 1909.3 MHz;
	3.0 MHz	1851.5MHz, 1880.0 MHz, 1908.5 MHz;
	5.0 MHz	1852.5MHz, 1880.0 MHz, 1907.5 MHz;
	10.0 MHz	1855MHz, 1880.0 MHz, 1905 MHz;
	15.0 MHz	1857.5MHz, 1880.0 MHz, 1902.5 MHz;
	20.0 MHz	1860MHz, 1880.0 MHz, 1900MHz;
LTE Band 4	1.4 MHz	1710.7MHz, 1732.5MHz, 1754.3MHz;
	3.0 MHz	1711.5MHz, 1732.5MHz, 1753.5MHz
	5.0 MHz	1712.5MHz, 1732.5MHz, 1752.5MHz
	10.0 MHz	1715MHz, 1732.5MHz, 1750MHz
	15.0 MHz	1717.5MHz, 1732.5MHz, 1747.5MHz
	20.0 MHz	1720MHz, 1732.5MHz, 1745MHz
LTE Band 5	1.4 MHz	824.7MHz, 836.5MHz, 848.3MHz
	3.0 MHz	825.5MHz, 836.5MHz, 847.5MHz
	5.0 MHz	826.5MHz, 836.5MHz, 846.5MHz
	10.0 MHz	829MHz, 836.5MHz, 844MHz
LTE Band 7	5.0 MHz	2502.5MHz, 2535.0MHz, 2567.5MHz
	10.0 MHz	2505MHz, 2535.0MHz, 2565MHz
	15.0 MHz	2507.5MHz, 2535.0MHz, 2562.5MHz
	20.0 MHz	2510MHz, 2535.0MHz, 2560MHz
LTE Band 38	5.0 MHz	2572.5MHz, 2595.0MHz, 2617.5MHz
	10.0 MHz	2575MHz, 2595.0MHz, 2615MHz
	15.0 MHz	2577.5MHz, 2595.0MHz, 2612.5MHz
	20.0 MHz	2580MHz, 2595.0MHz, 2610MHz
LTE Band 66	1.4 MHz	1710.7MHz, 1745.0MHz, 1779.3MHz
	3.0 MHz	1711.5MHz, 1745.0MHz, 1778.5MHz
	5.0 MHz	1712.5MHz, 1745.0MHz, 1777.5MHz
	10.0 MHz	1715.0MHz, 1745.0MHz, 1775.0MHz
	15.0 MHz	1717.5MHz, 1745.0MHz, 1772.5MHz
	20.0 MHz	1720.0MHz, 1745.0MHz, 1770.0MHz

**Equipment Modifications**

No modification was made to the EUT.

**Support Equipment List and Details**

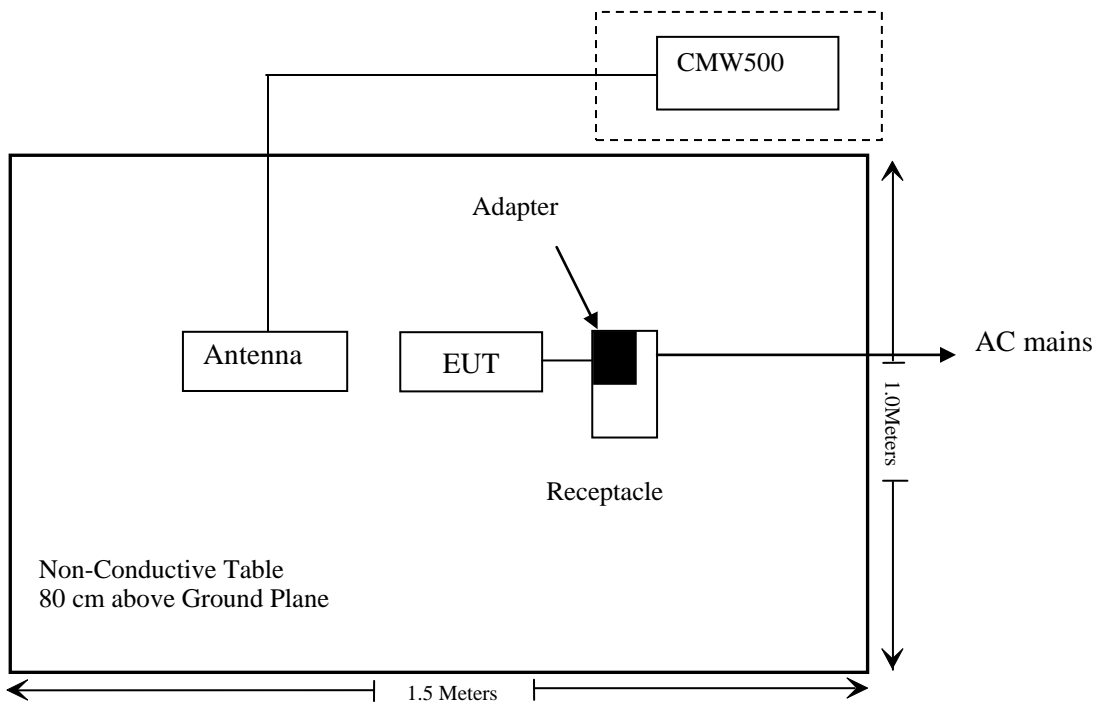
Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	154606

**Support Cable Description**

Cable Description	Length (m)	From / Port	To
Unshielded Detachable USB Cable	1.5	Adapter	EUT

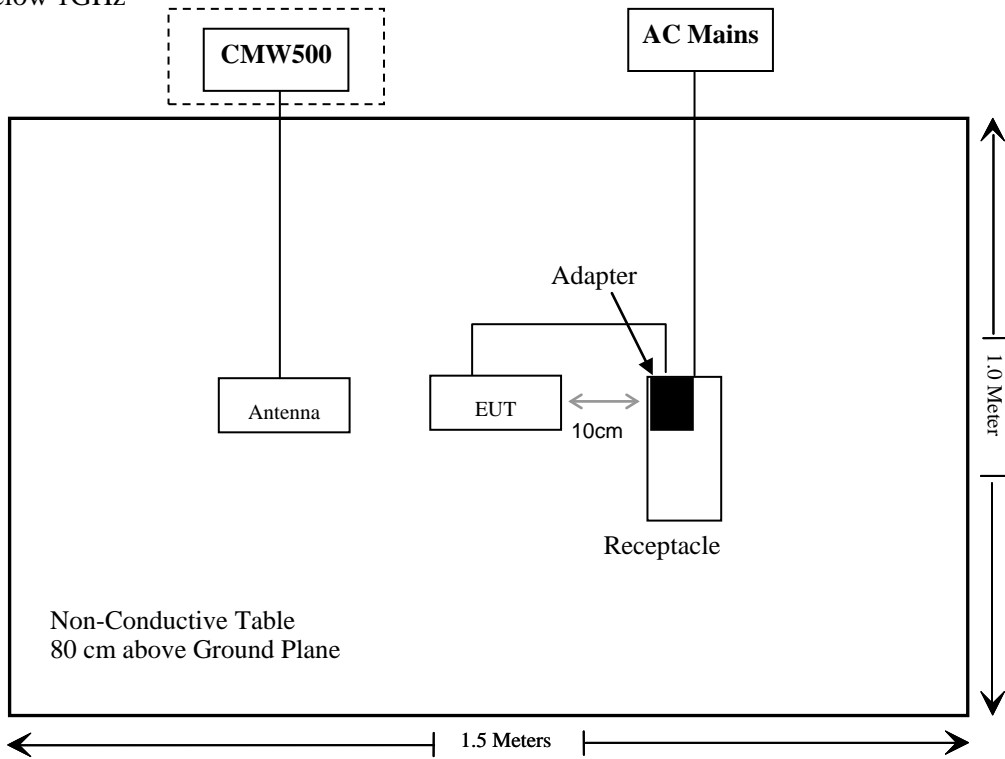
**Block Diagram of Test Setup**

For Conducted Emission:

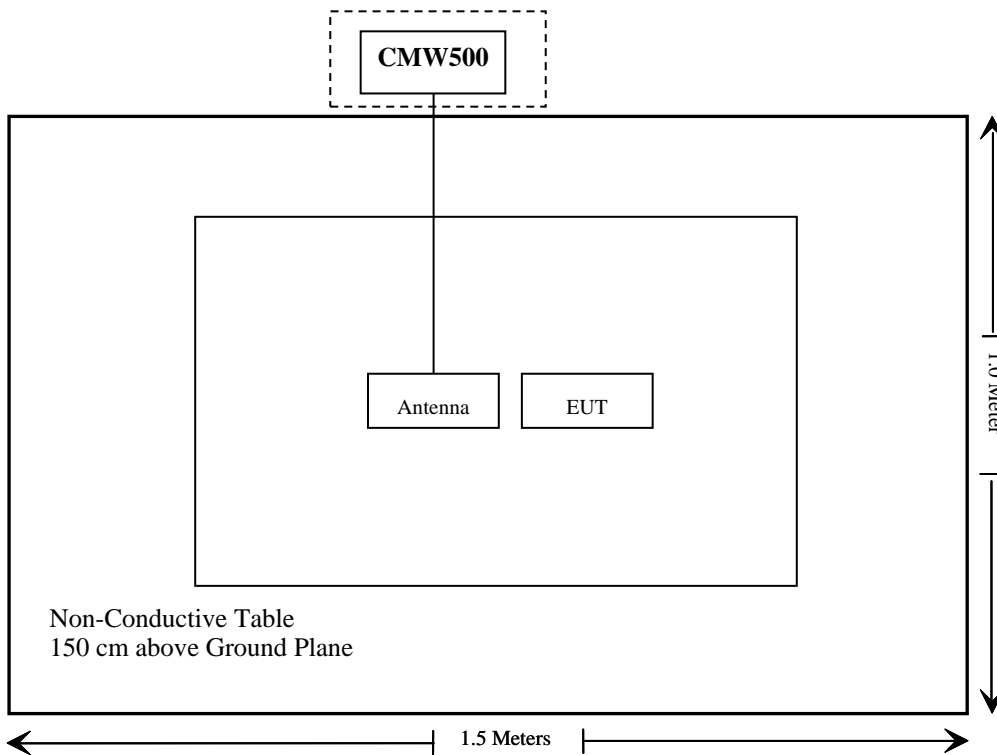


For Radiated emission:

Below 1GHz



Above 1GHz:





## SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307 , §2.1093	RF Exposure (SAR)	Compliant*
§2.1046; § 22.913 (a); § 24.232 (c); §27.50 (a) (b) (c) (d) (h);	RF Output Power	Compliant
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.905; § 22.917; § 24.238; §27.53	Occupied Bandwidth	Compliant
§ 2.1051; § 22.917 (a); § 24.238 (a); §27.53;	Spurious Emissions at Antenna Terminal	Compliant
§ 2.1053; § 22.917 (a); § 24.238 (a); §27.53	Field Strength of Spurious Radiation	Compliant
§ 22.917 (a); § 24.238 (a); §27.53 (c) (h) (m)	Band Edge	Compliant
§ 2.1055; § 22.355; § 24.235; §27.54;	Frequency stability	Compliant

Note: Compliant\*: Please refer to SAR report number: SZXX1210918-48932E-SA.

**TEST EQUIPMENT LIST**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
<b>Radiated Emission Test</b>					
Rohde & Schwarz	Spectrum Analyzer	FSV-40	101495	2020/12/24	2021/12/23
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	154606	2020/12/25	2021/12/24
V.R. of Signal Generators	Anritsu	68369B	004114	2021/7/31	2022/7/30
A.H. Systems, inc.	Preamplifier	PAM-0118P	531	2021/07/08	2022/07/07
Quinstar	Amplifier	QLW-184055 36-J0	15964001002	2020/11/28	2021/11/27
Rohde & Schwarz	Test Receiver	ESR	101817	2020/12/24	2021/12/23
SONOMA INSTRUMENT	Amplifier	310 N	186131	2020/12/25	2021/12/24
Anritsu Corp	50 Coaxial Switch	MP59B	6100237248	2020/12/25	2021/12/24
Schwarzbeck	Bilog Antenna	VULB9163	9163-194	2020/01/05	2023/01/04
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2020/01/05	2023/01/04
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	2020/01/05	2023/01/04
PASTERNAK	Horn Antenna	PE9852/2F-20	1120	2020/01/05	2023/01/04
RF Coaxial Cable	Unknown	N-5m	No.1	2020/12/25	2021/12/24
RF Coaxial Cable	Unknown	N-1m	No.6	2020/12/25	2021/12/24
RF Coaxial Cable	Unknown	N-6m	No.10	2020/12/25	2021/12/24
RF Coaxial Cable	Unknown	N-2m	No.11	2020/12/25	2021/12/24
RF Coaxial Cable	Unknown	N-8m	No.15	2020/12/25	2021/12/24
Radiated Emission Test Software: EZ_EMV V 1.1.4.2					

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
<b>Radiated Emission Test</b>					
Unknown	Band Reject Filter	MSF1850-191 OMS-1148	201706003	2020/12/25	2021/12/24
Unknown	Band Reject Filter	MSF1710-178 5MS-1150	201706003	2020/12/25	2021/12/24
Unknown	Band Reject Filter	MSF824-862 MS-1147	201706003	2020/12/25	2021/12/24
Unknown	Band Reject Filter	MSF700-800 MS-1153	201706003	2020/12/25	2021/12/24
Unknown	Band Reject Filter	MSF2495-257 OMS-1152	201706003	2020/12/25	2021/12/24
Unknown	High Pass Filter	HPM-1.2/18G -60	110	2020/12/25	2021/12/24
<b>RF Conducted Test</b>					
Rohde & Schwarz	Spectrum Analyzer	FSV-40	101495	2020/12/24	2021/12/23
Rohde & Schwarz	Test Receiver	ESR	101817	2020/12/24	2021/12/23
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	154606	2020/12/25	2021/12/24
Fluke	Desktop Multi Meter	45	7664009	2020/12/25	2021/12/24
Mini-Circuits	Power Splitter	DC-18000MHz	SF10944151S	2020/12/25	2021/12/24
UNI-T	DC Power Supply	UTP8305B	10584	NCR	NCR
Gongwen	Temp. & Humid. Chamber	HSD-500	109	2020/12/25	2021/12/24
Fluke	Desktop Multi Meter	45	7664009	2020/12/25	2021/12/24
WEINSCHL	10dB Attenuator	5324	AU 3842	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).

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## **FCC §1.1307(b) & §2.1093 - RF EXPOSURE INFORMATION**

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### **Applicable Standard**

FCC§1.1310 and §2.1093.

### **Test Result**

Compliant, please refer to the SAR report: SZXX1210918-48932E-SA.

## **FCC §2.1047 - MODULATION CHARACTERISTIC**

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

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

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**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(a), (3) Mobile and portable stations. (i) For mobile and portable stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, except that for mobile and portable stations compliant with 3GPP LTE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth. For mobile and portable stations using time division duplexing (TDD) technology, the duty cycle must not exceed 38 percent in the 2305-2315 MHz and 2350-2360 MHz bands. Mobile and portable stations using FDD technology are restricted to transmitting in the 2305-2315 MHz band. Power averaging shall not include intervals in which the transmitter is off.

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. 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.

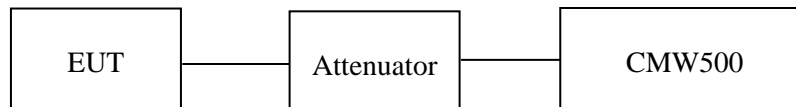
According to §27.50(d), Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

According to §27.50(h), the maximum EIRP must not exceed 2Watts (33dBm) for 2500-2570MHz.

**Test Procedure**

*Conducted method:*

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



*Radiated method:*

ANSI C63.26-2015 Section 5.5.

**Test Data****Environmental Conditions**

<b>Temperature:</b>	27.3-29 °C
<b>Relative Humidity:</b>	57-64 %
<b>ATM Pressure:</b>	101.0 kPa

*The testing was performed by Black Ding from 2021-10-14 to 2021-10-19.*

**Conducted Power****Cellular Band (Part 22H)**

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				ERP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
GPRS	128	824.2	32.38	29.42	28.33	26.81	30.23	27.27	26.18	24.66	38.45
	190	836.6	32.66	29.72	28.44	26.90	30.51	27.57	26.29	24.75	38.45
	251	848.8	32.68	29.66	28.35	27.27	<b>30.53</b>	27.51	26.20	25.12	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				ERP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
EGPRS	128	824.2	26.10	25.86	25.57	25.41	<b>23.95</b>	23.71	23.42	23.26	38.45
	190	836.6	25.71	25.40	25.26	25.11	23.56	23.25	23.11	22.96	38.45
	251	848.8	25.74	25.48	25.28	25.14	23.59	23.33	23.13	22.99	38.45

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 5)	RMC12.2k		24.52	24.63	24.40	22.37	<b>22.48</b>	22.25
	HSDPA	1	22.41	22.38	22.68	20.26	20.23	20.53
		2	22.35	22.31	22.24	20.20	20.16	20.09
		3	22.28	22.21	22.17	20.13	20.06	20.02
		4	22.26	22.17	22.14	20.11	20.02	19.99
	HSUPA	1	23.61	23.53	23.69	21.46	21.38	21.54
		2	23.54	23.48	23.30	21.39	21.33	21.15
		3	23.52	23.44	23.28	21.37	21.29	21.13
		4	23.43	23.35	23.34	21.28	21.20	21.19
		5	23.37	23.32	23.31	21.22	21.17	21.16
	HSPA+	1	23.22	23.18	23.16	21.07	21.03	21.01

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd) - Cable loss(dB)  
For GSM850 / WCDMA Band5: Antenna Gain = 1dBi = -1.15dBd (0dBd=2.15dBi)  
Cable Loss=1dB\* (provided by the applicant)  
Limit: ERP≤38.45dBm



## PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				EIRP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
GPRS	512	1850.2	29.37	27.50	27.02	26.30	29.37	27.50	27.02	26.30	33
	661	1880.0	29.33	27.35	26.64	26.16	29.33	27.35	26.64	26.16	33
	810	1909.8	29.46	27.16	26.36	25.82	<b>29.46</b>	27.16	26.36	25.82	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				EIRP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
EGPRS	512	1850.2	26.2	25.85	25.70	25.62	<b>26.2</b>	25.85	25.70	25.62	33
	661	1880.0	25.78	25.57	25.45	25.34	25.78	25.57	25.45	25.34	33
	810	1909.8	25.78	25.50	25.34	25.24	25.78	25.50	25.34	25.24	33

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 2)	RMC12.2k		23.63	23.39	23.83	23.63	23.39	<b>23.83</b>
	HSDPA	1	20.72	20.86	21.02	20.72	20.86	21.02
		2	20.66	20.81	21.01	20.66	20.81	21.01
		3	20.64	20.79	20.98	20.64	20.79	20.98
		4	20.67	20.77	20.96	20.67	20.77	20.96
	HSUPA	1	21.52	21.79	21.98	21.52	21.79	21.98
		2	21.44	21.72	21.90	21.44	21.72	21.90
		3	21.57	21.68	21.97	21.57	21.68	21.97
		4	21.59	21.73	21.88	21.59	21.73	21.88
		5	21.53	21.69	21.84	21.53	21.69	21.84
	HSPA+	1	21.33	21.25	21.27	21.33	21.25	21.27

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi) - Cable loss(dB)  
For PCS1900 / WCDMA Band2: Antenna Gain = 1dBi  
Cable Loss=1dB\*(provided by the applicant)  
Limit: EIRP≤33dBm

**AWS Band**

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 4)	RMC12.2k		23.26	22.99	23.15	<b>23.26</b>	22.99	23.15
	HSDPA	1	20.99	20.69	20.47	20.99	20.69	20.47
		2	20.92	20.65	20.43	20.92	20.65	20.43
		3	20.87	20.63	20.45	20.87	20.63	20.45
		4	20.76	20.58	20.42	20.76	20.58	20.42
	HSUPA	1	22.06	21.90	21.95	22.06	21.90	21.95
		2	22.05	21.89	21.92	22.05	21.89	21.92
		3	22.03	21.85	21.93	22.03	21.85	21.93
		4	22.01	21.82	21.88	22.01	21.82	21.88
		5	22.00	21.87	21.87	22.00	21.87	21.87
	HSPA+	1	22.01	22.03	21.99	22.01	22.03	21.99

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

For Band4: Antenna Gain = 1dBi

Cable Loss=1.0dB\*(provided by the applicant)

Limit: EIRP ≤ 30dBm

**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	21.82	21.69	21.59	21.82	21.69	21.59
		RB1#3	21.88	21.89	21.37	21.88	21.89	21.37
		RB1#5	21.65	21.76	21.63	21.65	21.76	21.63
		RB3#0	21.98	21.76	21.75	<b>21.98</b>	21.76	21.75
		RB3#3	21.98	21.65	21.60	21.98	21.65	21.60
		RB6#0	20.73	20.54	20.55	20.73	20.54	20.55
	16QAM	RB1#0	21.03	20.80	20.92	21.03	20.80	20.92
		RB1#3	21.37	20.86	20.94	<b>21.37</b>	20.86	20.94
		RB1#5	20.72	20.65	20.88	20.72	20.65	20.88
		RB3#0	20.86	20.56	20.59	20.86	20.56	20.59
		RB3#3	20.98	20.73	20.65	20.98	20.73	20.65
		RB6#0	19.42	19.63	19.66	19.42	19.63	19.66
3.0	QPSK	RB1#0	21.89	21.51	21.53	<b>21.89</b>	21.51	21.53
		RB1#8	21.75	21.38	21.34	21.75	21.38	21.34
		RB1#14	21.75	21.46	21.81	21.75	21.46	21.81
		RB6#0	20.57	20.55	20.61	20.57	20.55	20.61
		RB6#9	20.60	20.38	20.34	20.60	20.38	20.34
		RB15#0	20.66	20.55	20.54	20.66	20.55	20.54
	16QAM	RB1#0	20.86	20.83	20.50	20.86	20.83	20.50
		RB1#8	20.85	20.92	19.92	20.85	20.92	19.92
		RB1#14	20.87	21.43	20.04	20.87	<b>21.43</b>	20.04
		RB6#0	19.59	19.88	19.73	19.59	19.88	19.73
		RB6#9	19.63	19.66	19.33	19.63	19.66	19.33
		RB15#0	19.85	19.71	19.71	19.85	19.71	19.71

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	21.65	21.43	21.61	21.65	21.43	21.61
		RB1#13	21.61	21.29	21.34	21.61	21.29	21.34
		RB1#24	21.66	21.27	21.19	<b>21.66</b>	21.27	21.19
		RB15#0	20.46	20.46	20.54	20.46	20.46	20.54
		RB15#10	20.56	20.33	20.28	20.56	20.33	20.28
		RB25#0	20.61	20.43	20.36	20.61	20.43	20.36
	16QAM	RB1#0	20.25	20.90	20.30	20.25	<b>20.90</b>	20.30
		RB1#13	19.94	20.53	19.96	19.94	20.53	19.96
		RB1#24	20.23	20.66	19.35	20.23	20.66	19.35
		RB15#0	19.43	19.47	19.68	19.43	19.47	19.68
		RB15#10	19.80	19.15	19.32	19.80	19.15	19.32
		RB25#0	19.92	19.42	19.56	19.92	19.42	19.56
10.0	QPSK	RB1#0	21.76	21.48	21.67	21.76	21.48	21.67
		RB1#25	21.93	21.40	21.60	<b>21.93</b>	21.40	21.60
		RB1#49	21.71	21.27	21.32	21.71	21.27	21.32
		RB25#0	20.53	20.53	20.52	20.53	20.53	20.52
		RB25#25	20.61	20.47	20.45	20.61	20.47	20.45
		RB50#0	20.62	20.45	20.39	20.62	20.45	20.39
	16QAM	RB1#0	20.76	20.85	20.79	20.76	20.85	20.79
		RB1#25	21.05	20.86	20.93	21.05	20.86	20.93
		RB1#49	20.94	21.06	19.84	20.94	<b>21.06</b>	19.84
		RB25#0	19.61	19.68	19.70	19.61	19.68	19.70
		RB25#25	19.79	19.38	19.30	19.79	19.38	19.30
		RB50#0	19.52	19.61	19.52	19.52	19.61	19.52

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	21.74	21.63	21.52	21.74	21.63	21.52
		RB1#37	21.53	21.23	21.51	21.53	21.23	21.51
		RB1#74	21.89	21.27	21.29	<b>21.89</b>	21.27	21.29
		RB36#0	20.49	20.42	20.22	20.49	20.42	20.22
		RB36#18	20.50	20.26	20.32	20.50	20.26	20.32
		RB36#37	20.56	20.42	20.33	20.56	20.42	20.33
		RB75#0	20.86	21.16	20.37	20.86	21.16	20.37
	16QAM	RB1#0	20.70	20.71	20.49	20.70	20.71	20.49
		RB1#37	21.50	20.65	19.82	21.50	20.65	19.82
		RB1#74	19.57	19.29	19.28	19.57	19.29	19.28
		RB36#0	19.58	19.18	19.27	19.58	19.18	19.27
		RB36#18	19.63	19.48	19.32	19.63	19.48	19.32
		RB36#37	21.74	21.63	21.52	<b>21.74</b>	21.63	21.52
20.0	QPSK	RB1#0	21.65	21.78	21.17	21.65	21.78	21.17
		RB1#49	21.84	21.36	21.42	21.84	21.36	21.42
		RB1#99	21.88	21.26	21.08	<b>21.88</b>	21.26	21.08
		RB50#0	20.40	20.39	20.28	20.40	20.39	20.28
		RB50#24	20.54	20.32	20.30	20.54	20.32	20.30
		RB50#49	20.42	20.27	20.25	20.42	20.27	20.25
		RB100#0	20.79	20.58	20.89	20.79	20.58	20.89
	16QAM	RB1#0	21.17	19.73	21.22	21.17	19.73	21.22
		RB1#49	21.00	20.10	20.84	21.00	20.10	20.84
		RB1#99	19.44	19.44	19.08	19.44	19.44	19.08
		RB50#0	19.60	19.20	19.26	19.60	19.20	19.26
		RB50#24	19.40	19.25	19.31	19.40	19.25	19.31
		RB50#49	21.65	21.78	21.17	21.65	21.78	21.17
RB100#0	21.84	21.36	21.42	<b>21.84</b>	21.36	21.42		

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

For Band2: Antenna Gain = 1dBi

Cable Loss=1.0dB\*(provided by the applicant)

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	21.45	20.95	21.39	21.45	20.95	21.39
		RB1#3	21.42	21.00	21.72	21.42	21.00	<b>21.72</b>
		RB1#5	21.51	20.48	21.68	21.51	20.48	21.68
		RB3#0	21.28	20.64	21.17	21.28	20.64	21.17
		RB3#3	21.07	20.69	21.35	21.07	20.69	21.35
		RB6#0	20.04	19.67	20.15	20.04	19.67	20.15
	16QAM	RB1#0	20.35	20.05	20.37	20.35	20.05	20.37
		RB1#3	20.59	20.12	20.89	20.59	20.12	<b>20.89</b>
		RB1#5	20.12	19.95	20.33	20.12	19.95	20.33
		RB3#0	20.17	19.72	20.30	20.17	19.72	20.30
		RB3#3	20.14	19.80	20.35	20.14	19.80	20.35
		RB6#0	18.79	18.56	19.16	18.79	18.56	19.16
3.0	QPSK	RB1#0	21.03	20.99	21.27	21.03	20.99	21.27
		RB1#8	20.86	20.61	21.21	20.86	20.61	21.21
		RB1#14	21.03	20.64	21.62	21.03	20.64	<b>21.62</b>
		RB6#0	19.96	19.80	20.06	19.96	19.80	20.06
		RB6#9	19.99	19.74	20.29	19.99	19.74	20.29
		RB15#0	19.92	19.76	20.18	19.92	19.76	20.18
	16QAM	RB1#0	20.22	20.50	20.01	20.22	<b>20.50</b>	20.01
		RB1#8	20.09	20.04	19.76	20.09	20.04	19.76
		RB1#14	20.12	20.32	20.06	20.12	20.32	20.06
		RB6#0	18.93	18.68	18.87	18.93	18.68	18.87
		RB6#9	18.92	18.54	19.24	18.92	18.54	19.24
		RB15#0	18.91	18.55	19.29	18.91	18.55	19.29

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	21.07	20.90	21.19	21.07	20.90	21.19
		RB1#13	20.86	20.73	21.57	20.86	20.73	21.57
		RB1#24	20.97	20.77	21.91	20.97	20.77	<b>21.91</b>
		RB15#0	19.86	19.83	20.19	19.86	19.83	20.19
		RB15#10	20.04	19.77	20.27	20.04	19.77	20.27
		RB25#0	19.87	19.83	20.33	19.87	19.83	20.33
	16QAM	RB1#0	19.63	20.37	20.11	19.63	<b>20.37</b>	20.11
		RB1#13	19.52	19.96	19.98	19.52	19.96	19.98
		RB1#24	19.32	20.15	20.22	19.32	20.15	20.22
		RB15#0	18.64	18.58	19.17	18.64	18.58	19.17
		RB15#10	18.84	18.47	19.34	18.84	18.47	19.34
		RB25#0	18.90	18.67	19.18	18.90	18.67	19.18
10.0	QPSK	RB1#0	20.89	21.17	20.93	20.89	21.17	20.93
		RB1#25	21.19	20.67	21.15	21.19	20.67	21.15
		RB1#49	21.30	20.62	21.77	21.30	20.62	<b>21.77</b>
		RB25#0	19.89	19.86	20.17	19.89	19.86	20.17
		RB25#25	20.01	19.72	20.33	20.01	19.72	20.33
		RB50#0	19.96	19.92	20.24	19.96	19.92	20.24
	16QAM	RB1#0	20.25	20.59	20.09	20.25	<b>20.59</b>	20.09
		RB1#25	20.22	20.00	20.08	20.22	20.00	20.08
		RB1#49	20.22	20.17	20.47	20.22	20.17	20.47
		RB25#0	18.88	18.91	19.15	18.88	18.91	19.15
		RB25#25	19.03	18.63	19.46	19.03	18.63	19.46
		RB50#0	18.78	18.74	19.01	18.78	18.74	19.01

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	20.98	20.92	21.26	20.98	20.92	21.26
		RB1#38	21.33	20.53	20.99	21.33	20.53	20.99
		RB1#74	20.84	20.94	21.52	20.84	20.94	<b>21.52</b>
		RB36#0	19.85	19.91	20.17	19.85	19.91	20.17
		RB36#39	20.00	19.88	20.28	20.00	19.88	20.28
		RB75#0	19.91	19.84	20.15	19.91	19.84	20.15
	16QAM	RB1#0	20.29	20.27	20.20	20.29	20.27	20.20
		RB1#38	20.24	20.15	20.04	20.24	20.15	20.04
		RB1#74	19.85	20.39	20.38	19.85	<b>20.39</b>	20.38
		RB36#0	18.84	19.01	19.00	18.84	19.01	19.00
		RB36#39	18.85	18.65	19.14	18.85	18.65	19.14
		RB75#0	18.71	18.66	19.00	18.71	18.66	19.00
20.0	QPSK	RB1#0	21.25	20.96	21.25	21.25	20.96	21.25
		RB1#50	21.23	20.79	20.93	21.23	20.79	20.93
		RB1#99	20.74	21.15	21.60	20.74	21.15	<b>21.60</b>
		RB50#0	19.93	19.85	20.13	19.93	19.85	20.13
		RB50#50	19.85	19.73	20.29	19.85	19.73	20.29
		RB100#0	19.94	19.85	20.14	19.94	19.85	20.14
	16QAM	RB1#0	20.48	20.02	20.91	20.48	20.02	20.91
		RB1#50	20.56	19.08	20.43	20.56	19.08	20.43
		RB1#99	19.92	20.03	21.15	19.92	20.03	<b>21.15</b>
		RB50#0	18.87	18.87	19.16	18.87	18.87	19.16
		RB50#50	18.91	18.71	19.14	18.91	18.71	19.14
		RB100#0	19.06	18.66	19.13	19.06	18.66	19.13

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

For Band4: Antenna Gain = 1dBi

Cable Loss=1.0dB\*(provided by the applicant)

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	23.93	23.44	23.41	<b>21.78</b>	21.29	21.26
		RB1#3	23.93	23.50	23.66	21.78	21.35	21.51
		RB1#5	23.74	23.39	23.60	21.59	21.24	21.45
		RB3#0	23.75	23.47	23.38	21.60	21.32	21.23
		RB3#3	23.54	23.58	23.53	21.39	21.43	21.38
		RB6#0	22.56	22.37	22.33	20.41	20.22	20.18
	16QAM	RB1#0	22.85	22.98	22.49	20.70	<b>20.83</b>	20.34
		RB1#3	22.92	22.90	22.40	20.77	20.75	20.25
		RB1#5	22.66	22.71	21.98	20.51	20.56	19.83
		RB3#0	23.10	22.27	22.44	20.95	20.12	20.29
		RB3#3	22.58	22.40	22.39	20.43	20.25	20.24
		RB6#0	21.36	21.13	21.27	19.21	18.98	19.12
3.0	QPSK	RB1#0	23.81	23.46	23.61	21.66	21.31	21.46
		RB1#8	23.18	23.18	23.53	21.03	21.03	21.38
		RB1#14	23.37	23.65	23.87	21.22	21.50	<b>21.72</b>
		RB6#0	22.53	22.23	22.33	20.38	20.08	20.18
		RB6#9	22.29	22.40	22.34	20.14	20.25	20.19
		RB15#0	22.50	22.29	22.53	20.35	20.14	20.38
	16QAM	RB1#0	22.88	22.74	22.25	20.73	20.59	20.10
		RB1#8	22.29	22.60	21.89	20.14	20.45	19.74
		RB1#14	22.61	22.95	22.62	20.46	<b>20.80</b>	20.47
		RB6#0	21.72	21.16	21.35	19.57	19.01	19.20
		RB6#9	21.41	21.45	21.72	19.26	19.30	19.57
		RB15#0	21.68	21.07	21.30	19.53	18.92	19.15

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	23.80	23.37	23.54	21.65	21.22	21.39
		RB1#13	23.51	23.68	23.66	21.36	21.53	21.51
		RB1#24	23.35	23.52	23.85	21.20	21.37	<b>21.70</b>
		RB15#0	22.71	22.36	22.42	20.56	20.21	20.27
		RB15#10	22.80	22.49	22.52	20.65	20.34	20.37
		RB25#0	22.72	22.52	22.59	20.57	20.37	20.44
	16QAM	RB1#0	22.22	22.61	22.35	20.07	20.46	20.20
		RB1#13	21.89	23.00	22.14	19.74	<b>20.85</b>	19.99
		RB1#24	21.80	22.90	22.20	19.65	20.75	20.05
		RB15#0	21.56	21.12	21.39	19.41	18.97	19.24
		RB15#10	21.50	21.36	21.60	19.35	19.21	19.45
		RB25#0	21.86	21.39	21.59	19.71	19.24	19.44
10.0	QPSK	RB1#0	24.09	23.61	23.48	<b>21.94</b>	21.46	21.33
		RB1#25	23.34	23.56	23.52	21.19	21.41	21.37
		RB1#49	23.49	23.35	23.85	21.34	21.20	21.70
		RB25#0	22.74	22.23	22.44	20.59	20.08	20.29
		RB25#25	22.42	22.45	22.41	20.27	20.30	20.26
		RB50#0	22.65	22.30	22.45	20.50	20.15	20.30
	16QAM	RB1#0	23.74	22.86	22.43	<b>21.59</b>	20.71	20.28
		RB1#25	22.23	23.37	22.20	20.08	21.22	20.05
		RB1#49	22.68	22.68	22.15	20.53	20.53	20.00
		RB25#0	21.68	21.28	21.56	19.53	19.13	19.41
		RB25#25	21.49	21.60	21.43	19.34	19.45	19.28
		RB50#0	21.63	21.51	21.32	19.48	19.36	19.17

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

For Band5: Antenna Gain = 1dBi = -1.15dBd (0dBd=2.15dBi)

Cable Loss=1.0dB\* (provided by the applicant)

Limit: ERP ≤ 38.45dBm

**LTE Band 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	21.74	21.33	21.26	21.74	21.33	21.26
		RB1#13	21.92	21.13	21.49	21.92	21.13	21.49
		RB1#24	21.87	21.00	21.33	21.87	21.00	21.33
		RB15#0	21.74	21.82	21.27	21.74	21.82	21.27
		RB15#10	21.93	21.92	21.31	<b>21.93</b>	21.92	21.31
		RB25#0	21.75	21.72	21.32	21.75	21.72	21.32
	16QAM	RB1#0	21.34	21.93	21.10	21.34	21.93	21.10
		RB1#13	21.82	21.30	21.07	21.82	21.30	21.07
		RB1#24	21.94	21.05	21.08	<b>21.94</b>	21.05	21.08
		RB15#0	21.65	21.87	21.15	21.65	21.87	21.15
		RB15#10	21.10	21.87	21.35	21.10	21.87	21.35
		RB25#0	21.85	21.86	21.44	21.85	21.86	21.44
10.0	QPSK	RB1#0	21.96	21.77	21.29	<b>21.96</b>	21.77	21.29
		RB1#25	21.32	21.05	21.70	21.32	21.05	21.70
		RB1#49	21.14	21.74	21.21	21.14	21.74	21.21
		RB25#0	21.07	21.78	21.24	21.07	21.78	21.24
		RB25#25	21.03	21.91	21.41	21.03	21.91	21.41
		RB50#0	21.91	21.74	21.39	21.91	21.74	21.39
	16QAM	RB1#0	21.22	21.16	21.05	21.22	21.16	21.05
		RB1#25	21.91	21.95	21.96	21.91	21.95	<b>21.96</b>
		RB1#49	21.79	21.44	21.16	21.79	21.44	21.16
		RB25#0	21.00	21.84	21.40	21.00	21.84	21.40
		RB25#25	21.05	21.12	21.62	21.05	21.12	21.62
		RB50#0	21.96	21.79	21.30	21.96	21.79	21.30

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	21.89	21.50	21.14	21.89	21.50	21.14
		RB1#38	21.04	21.71	21.27	21.04	21.71	21.27
		RB1#74	21.80	21.82	21.21	21.80	21.82	21.21
		RB36#0	21.96	21.68	21.23	<b>21.96</b>	21.68	21.23
		RB36#39	21.91	21.77	21.29	21.91	21.77	21.29
		RB75#0	21.80	21.70	21.20	21.80	21.70	21.20
	16QAM	RB1#0	21.20	21.18	21.15	21.20	21.18	21.15
		RB1#38	21.18	21.78	21.78	21.18	21.78	21.78
		RB1#74	21.51	21.70	21.10	21.51	21.70	21.10
		RB36#0	21.96	21.59	21.19	<b>21.96</b>	21.59	21.19
		RB36#39	21.87	21.87	21.30	21.87	21.87	21.30
		RB75#0	21.04	21.77	21.32	21.04	21.77	21.32
20.0	QPSK	RB1#0	21.78	21.40	21.25	21.78	21.40	21.25
		RB1#50	21.03	21.11	21.90	21.03	21.11	21.90
		RB1#99	21.48	21.75	21.04	21.48	21.75	21.04
		RB50#0	21.95	21.62	21.28	<b>21.95</b>	21.62	21.28
		RB50#50	21.84	21.56	21.19	21.84	21.56	21.19
		RB100#0	21.85	21.57	21.23	21.85	21.57	21.23
	16QAM	RB1#0	21.27	21.44	21.95	21.27	21.44	<b>21.95</b>
		RB1#50	21.53	21.73	21.97	21.53	21.73	21.97
		RB1#99	21.05	21.39	21.85	21.05	21.39	21.85
		RB50#0	21.00	21.67	21.21	21.00	21.67	21.21
		RB50#50	21.87	21.80	21.11	21.87	21.80	21.11
		RB100#0	21.81	21.61	21.29	21.81	21.61	21.29

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

For Band7: Antenna Gain = 1dBi

Cable Loss=1.0dB\* (provided by the applicant)

Limit: EIRP ≤ 33dBm

**LTE Band 38:**

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	21.46	21.13	21.55	21.46	21.13	21.55
		RB1#13	21.67	21.61	21.57	21.67	21.61	21.57
		RB1#24	21.78	21.57	21.67	21.78	21.57	21.67
		RB15#0	21.80	21.95	21.84	21.80	<b>21.95</b>	21.84
		RB15#10	21.14	21.85	21.73	21.14	21.85	21.73
		RB25#0	21.86	21.79	21.85	21.86	21.79	21.85
	16QAM	RB1#0	21.69	21.53	21.74	21.69	21.53	21.74
		RB1#13	21.98	21.84	21.87	21.98	21.84	21.87
		RB1#24	21.60	21.87	21.75	21.60	21.87	21.75
		RB15#0	21.64	21.83	21.52	21.64	21.83	21.52
		RB15#10	21.74	21.56	21.77	21.74	21.56	21.77
		RB25#0	21.63	21.96	21.96	21.63	21.96	<b>21.96</b>
10.0	QPSK	RB1#0	21.60	21.81	21.99	21.60	21.81	<b>21.99</b>
		RB1#25	21.68	21.72	21.83	21.68	21.72	21.83
		RB1#49	21.73	21.96	21.70	21.73	21.96	21.70
		RB25#0	21.55	21.66	21.54	21.55	21.66	21.54
		RB25#25	21.76	21.90	21.92	21.76	21.90	21.92
		RB50#0	21.56	21.55	21.86	21.56	21.55	21.86
	16QAM	RB1#0	21.89	21.62	21.63	21.89	21.62	21.63
		RB1#25	21.79	21.51	21.66	21.79	21.51	21.66
		RB1#49	21.61	21.50	21.91	21.61	21.50	21.91
		RB25#0	21.66	21.85	21.22	21.66	21.85	21.22
		RB25#25	21.98	21.75	21.98	21.98	21.75	<b>21.98</b>
		RB50#0	21.73	21.86	21.94	21.73	21.86	21.94

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	21.87	21.61	21.87	21.87	21.61	21.87
		RB1#38	21.24	21.43	21.99	21.24	21.43	<b>21.99</b>
		RB1#74	21.22	21.21	21.91	21.22	21.21	21.91
		RB36#0	21.63	21.85	21.88	21.63	21.85	21.88
		RB36#39	21.96	21.77	21.51	21.96	21.77	21.51
		RB75#0	21.16	21.84	21.82	21.16	21.84	21.82
	16QAM	RB1#0	21.94	21.79	21.53	21.94	21.79	21.53
		RB1#38	21.75	21.62	21.79	21.75	21.62	21.79
		RB1#74	21.65	21.74	21.92	21.65	21.74	21.92
		RB36#0	21.98	21.62	21.61	<b>21.98</b>	21.62	21.61
		RB36#39	21.67	21.71	21.54	21.67	21.71	21.54
		RB75#0	21.84	21.78	21.70	21.84	21.78	21.70
20.0	QPSK	RB1#0	21.79	21.73	21.80	21.79	21.73	21.80
		RB1#50	21.26	21.19	21.75	21.26	21.19	21.75
		RB1#99	21.08	21.72	21.61	21.08	21.72	21.61
		RB50#0	21.37	21.58	21.61	21.37	21.58	21.61
		RB50#50	21.95	21.52	21.91	<b>21.95</b>	21.52	21.91
		RB100#0	21.66	21.61	21.53	21.66	21.61	21.53
	16QAM	RB1#0	21.92	21.43	21.70	21.92	21.43	21.70
		RB1#50	21.22	21.21	21.63	21.22	21.21	21.63
		RB1#99	21.71	21.96	21.55	21.71	21.96	21.55
		RB50#0	21.74	21.67	21.53	21.74	21.67	21.53
		RB50#50	21.78	21.96	21.67	21.78	<b>21.96</b>	21.67
		RB100#0	21.73	21.62	21.67	21.73	21.62	21.67

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

For Band38: Antenna Gain = 1dBi

Cable Loss=1.0dB\* (provided by the applicant)

Limit: EIRP ≤ 33dBm

**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	21.44	21.39	21.32	21.44	21.39	21.32
		RB1#3	21.75	21.48	21.49	<b>21.75</b>	21.48	21.49
		RB1#5	21.59	21.71	21.58	21.59	21.71	21.58
		RB3#0	21.47	21.68	21.64	21.47	21.68	21.64
		RB3#3	21.50	21.66	21.57	21.50	21.66	21.57
		RB6#0	20.37	20.54	20.50	20.37	20.54	20.50
	16QAM	RB1#0	20.56	21.14	20.63	20.56	<b>21.14</b>	20.63
		RB1#3	20.89	21.10	20.99	20.89	21.10	20.99
		RB1#5	20.56	20.97	20.87	20.56	20.97	20.87
		RB3#0	20.56	20.23	20.56	20.56	20.23	20.56
		RB3#3	20.69	20.27	20.58	20.69	20.27	20.58
		RB6#0	19.36	19.43	19.19	19.36	19.43	19.19
3.0	QPSK	RB1#0	21.50	21.90	21.68	21.50	21.90	21.68
		RB1#8	21.59	21.80	21.38	21.59	21.80	21.38
		RB1#14	21.65	21.99	21.86	21.65	<b>21.99</b>	21.86
		RB6#0	20.44	20.64	20.58	20.44	20.64	20.58
		RB6#9	20.48	20.75	20.68	20.48	20.75	20.68
		RB15#0	20.53	20.69	20.52	20.53	20.69	20.52
	16QAM	RB1#0	21.21	20.91	20.49	21.21	20.91	20.49
		RB1#8	20.61	21.25	20.28	20.61	21.25	20.28
		RB1#14	20.64	21.37	20.36	20.64	<b>21.37</b>	20.36
		RB6#0	19.38	19.69	19.53	19.38	19.69	19.53
		RB6#9	19.40	19.75	19.73	19.40	19.75	19.73
		RB15#0	19.50	19.60	19.73	19.50	19.60	19.73

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	21.51	21.48	21.59	21.51	21.48	21.59
		RB1#13	21.45	21.66	21.61	21.45	21.66	21.61
		RB1#24	21.53	21.69	21.49	21.53	<b>21.69</b>	21.49
		RB15#0	20.52	20.69	20.62	20.52	20.69	20.62
		RB15#10	20.35	20.81	20.55	20.35	20.81	20.55
		RB25#0	20.41	20.66	20.62	20.41	20.66	20.62
	16QAM	RB1#0	20.02	20.99	20.42	20.02	20.99	20.42
		RB1#13	19.61	20.89	20.18	19.61	20.89	20.18
		RB1#24	19.62	21.23	20.32	19.62	<b>21.23</b>	20.32
		RB15#0	19.47	19.71	19.55	19.47	19.71	19.55
		RB15#10	19.36	19.61	19.58	19.36	19.61	19.58
		RB25#0	19.41	19.74	19.70	19.41	19.74	19.70
10.0	QPSK	RB1#0	21.48	21.61	21.93	21.48	21.61	<b>21.93</b>
		RB1#25	21.74	22.04	21.52	21.74	22.04	21.52
		RB1#49	21.53	21.80	21.70	21.53	21.80	21.70
		RB25#0	20.51	20.64	20.68	20.51	20.64	20.68
		RB25#25	20.42	20.68	20.53	20.42	20.68	20.53
		RB50#0	20.36	20.76	20.69	20.36	20.76	20.69
	16QAM	RB1#0	20.80	21.40	20.73	20.80	21.40	20.73
		RB1#25	21.04	21.37	20.29	21.04	21.37	20.29
		RB1#49	21.31	21.84	20.66	21.31	<b>21.84</b>	20.66
		RB25#0	19.34	20.08	19.94	19.34	20.08	19.94
		RB25#25	19.34	20.07	19.53	19.34	20.07	19.53
		RB50#0	19.26	20.11	19.57	19.26	20.11	19.57



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	21.58	21.66	21.69	21.58	21.66	21.69
		RB1#38	21.49	21.79	21.46	21.49	21.79	21.46
		RB1#74	21.44	21.90	21.51	21.44	<b>21.90</b>	21.51
		RB36#0	20.50	20.90	20.84	20.50	20.90	20.84
		RB36#39	20.42	20.74	20.57	20.42	20.74	20.57
		RB75#0	20.36	20.80	20.67	20.36	20.80	20.67
	16QAM	RB1#0	21.08	21.20	20.97	21.08	21.20	20.97
		RB1#38	20.75	21.27	19.60	20.75	<b>21.27</b>	19.60
		RB1#74	20.47	22.02	19.52	20.47	22.02	19.52
		RB36#0	19.47	19.92	19.78	19.47	19.92	19.78
		RB36#39	19.35	19.68	19.41	19.35	19.68	19.41
		RB75#0	19.36	19.88	19.64	19.36	19.88	19.64
20.0	QPSK	RB1#0	21.62	21.63	22.12	21.62	21.63	22.12
		RB1#50	21.82	22.04	21.52	21.82	22.04	21.52
		RB1#99	21.08	22.23	21.60	21.08	<b>22.23</b>	21.60
		RB50#0	20.53	20.80	20.92	20.53	20.80	20.92
		RB50#50	20.39	20.77	20.52	20.39	20.77	20.52
		RB100#0	20.47	20.83	20.84	20.47	20.83	20.84
	16QAM	RB1#0	20.92	20.56	21.75	20.92	20.56	<b>21.75</b>
		RB1#50	21.27	20.72	21.36	21.27	20.72	21.36
		RB1#99	20.57	20.81	21.24	20.57	20.81	21.24
		RB50#0	19.73	19.94	19.88	19.73	19.94	19.88
		RB50#50	19.39	19.80	19.43	19.39	19.80	19.43
		RB100#0	19.57	19.78	19.76	19.57	19.78	19.76

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

For Band 66: Antenna Gain = 1dBi

Cable Loss=1.0dB\*(provided by the applicant)

Limit: EIRP ≤ 30dBm

**Peak-to-average ratio (PAR)****Cellular Band**

Mode	Channel	PAR (dB)	Limit (dB)
GPRS	Low	3.44	13
	Middle	3.46	13
	High	3.51	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	3.52	13
	Middle	3.47	13
	High	3.56	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.55	13
	Middle	3.52	13
	High	3.57	13
HSDPA (16QAM)	Low	3.59	13
	Middle	3.56	13
	High	3.54	13
HSUPA (BPSK)	Low	3.48	13
	Middle	3.47	13
	High	3.50	13
HSPA+	Low	3.51	13
	Middle	3.56	13
	High	3.55	13

**PCS Band**

Mode	Channel	PAR (dB)	Limit (dB)
GPRS	Low	3.54	13
	Middle	3.54	13
	High	3.57	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	3.52	13
	Middle	3.54	13
	High	3.52	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.53	13
	Middle	3.52	13
	High	3.51	13
HSDPA (16QAM)	Low	3.51	13
	Middle	3.52	13
	High	3.46	13
HSUPA (BPSK)	Low	3.42	13
	Middle	3.43	13
	High	3.57	13
HSPA+	Low	3.59	13
	Middle	3.57	13
	High	3.55	13

### AWS Band

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.47	13
	Middle	3.49	13
	High	3.58	13
HSDPA (16QAM)	Low	3.56	13
	Middle	3.57	13
	High	3.61	13
HSUPA (BPSK)	Low	3.61	13
	Middle	3.54	13
	High	3.62	13
HSPA+	Low	3.57	13
	Middle	3.62	13
	High	3.65	13

### LTE Band 2 20MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	3.42	3.22	3.22	13	Pass
QPSK (100RB Size)	4.26	4.26	4.00	13	Pass
16QAM (1RB Size)	4.43	3.86	4.12	13	Pass
16QAM (100RB Size)	5.16	5.13	4.96	13	Pass

**LTE Band 4 20MHz Bandwidth**

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	3.36	3.33	3.54	13	Pass
QPSK (100RB Size)	4.29	4.38	4.38	13	Pass
16QAM (1RB Size)	4.32	4.20	4.00	13	Pass
16QAM (100RB Size)	5.22	5.33	5.25	13	Pass

**LTE Band 5 10MHz Bandwidth**

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	3.45	4.58	3.36	13	Pass
QPSK (50RB Size)	4.84	4.49	4.64	13	Pass
16QAM (1RB Size)	4.14	5.68	4.35	13	Pass
16QAM (50RB Size)	5.88	5.59	5.71	13	Pass

**LTE Band 7 20MHz Bandwidth**

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	3.97	4.41	4.67	13	Pass
QPSK (100RB Size)	4.46	4.64	4.87	13	Pass
16QAM (1RB Size)	4.78	5.48	5.65	13	Pass
16QAM (100RB Size)	5.54	5.59	5.94	13	Pass

**LTE Band 38 20MHz Bandwidth**

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	3.69	4.54	4.73	13	Pass
QPSK (100RB Size)	4.32	4.59	4.72	13	Pass
16QAM (1RB Size)	4.67	5.51	5.68	13	Pass
16QAM (100RB Size)	5.32	5.52	5.91	13	Pass

**LTE Band 66 20MHz Bandwidth**

<b>Modulation</b>	<b>Low channel (dB)</b>	<b>Middle channel (dB)</b>	<b>High channel (dB)</b>	<b>PAR Limit (dB)</b>	<b>Result</b>
QPSK (1RB Size)	4.81	4.96	4.26	13	Pass
QPSK (100RB Size)	5.04	5.13	4.96	13	Pass
16QAM (1RB Size)	5.88	5.94	5.36	13	Pass
16QAM (100RB Size)	6.03	6.20	5.97	13	Pass

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

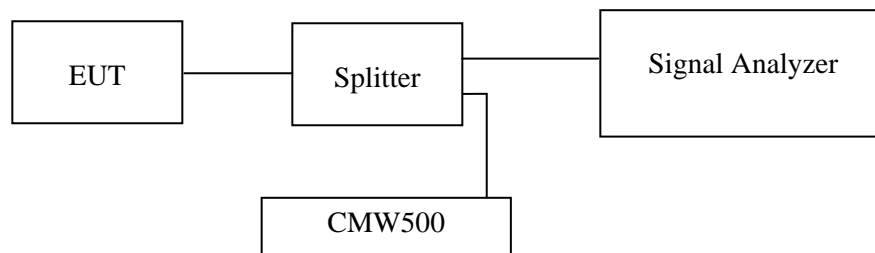
### Applicable Standard

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

### 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

<b>Temperature:</b>	25-32 °C
<b>Relative Humidity:</b>	56-64 %
<b>ATM Pressure:</b>	101.0 kPa

*The testing was performed by Black Ding from 2021-10-14 to 2021-11-03*

*EUT operation mode: Transmitting*

**Test Result: Pass**

*Test plots refer to the Appendix A.*

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

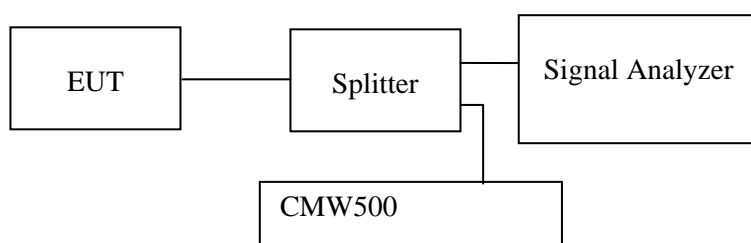
### Applicable Standard

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

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 10<sup>th</sup> harmonic.



### Test Data

#### Environmental Conditions

<b>Temperature:</b>	25-32 °C
<b>Relative Humidity:</b>	56-64 %
<b>ATM Pressure:</b>	101.0 kPa

*The testing was performed by Black Ding from 2021-10-14 to 2021-11-03.*

*EUT operation mode: Transmitting*

**Test result: Pass**

*Test plots refer to the Appendix B.*

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

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**Applicable Standard**

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

**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**

<b>Temperature:</b>	24 °C
<b>Relative Humidity:</b>	50 %
<b>ATM Pressure:</b>	101.0 kPa

*The testing was performed by Black Ding from 2021-10-14.*

*EUT operation mode: Transmitting (Worst case record in the reports)*

*The worst case is 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)				
GSM850(30MHz-9GHz)								
Low channel (824.2MHz)								
66.73	-57.69	336	1.2	H	-4.04	-61.73	-13	-48.73
31.95	-55.21	274	1.7	V	-4.33	-59.54	-13	-46.54
1648.4	-34.27	47	1.5	H	-2.73	-37.00	-13	-24.00
1648.4	-37.91	272	1.4	V	-2.79	-40.70	-13	-27.70
2472.6	-39.58	178	1.8	H	1.18	-38.40	-13	-25.40
2472.6	-38.21	95	2.5	V	1.21	-37.00	-13	-24.00
3296.8	-44.44	303	1.9	H	3.24	-41.20	-13	-28.20
3296.8	-46.17	149	2.3	V	3.27	-42.90	-13	-29.90
4121.0	-51.57	281	1.7	H	6.87	-44.70	-13	-31.70
4121.0	-49.58	69	2	V	6.68	-42.90	-13	-29.90
Middle channel (836.6 MHz)								
66.73	-57.75	295	1.3	H	-4.04	-61.79	-13	-48.79
31.95	-55.25	222	1.4	V	-4.33	-59.58	-13	-46.58
1673.2	-35.63	115	2.1	H	-2.67	-38.30	-13	-25.30
1673.2	-39.76	51	2.1	V	-2.74	-42.50	-13	-29.50
2509.8	-39.82	292	1.2	H	1.32	-38.50	-13	-25.50
2509.8	-40.66	104	1.8	V	1.36	-39.30	-13	-26.30
3346.4	-45.51	116	1.9	H	3.31	-42.20	-13	-29.20
3346.4	-45.12	212	1.5	V	3.32	-41.80	-13	-28.80
4183	-50.68	336	1.1	H	6.98	-43.70	-13	-30.70
4183	-50.92	49	2.2	V	6.92	-44.00	-13	-31.00
High channel (848.8 MHz)								
66.73	-57.78	46	1.3	H	-4.04	-61.82	-13	-48.82
31.95	-55.3	29	1.9	V	-4.33	-59.63	-13	-46.63
1697.6	-35.06	316	2.4	H	-2.64	-37.70	-13	-24.70
1697.6	-37.61	332	2.1	V	-2.69	-40.30	-13	-27.30
2546.4	-40.27	282	1.7	H	1.47	-38.80	-13	-25.80
2546.4	-40.42	221	2.2	V	1.52	-38.90	-13	-25.90
3395.2	-44.48	237	1.9	H	3.38	-41.10	-13	-28.10
3395.2	-47.47	144	2	V	3.37	-44.10	-13	-31.10
4244	-50.69	203	1.3	H	7.09	-43.60	-13	-30.60
4244	-51.66	158	2.3	V	7.16	-44.50	-13	-31.50
PCS 1900(30MHz-20GHz)								
Low channel (1850.2 MHz)								
66.73	-57.88	205	1.5	H	-4.04	-61.92	-13	-48.92
31.95	-55.26	34	1.3	V	-4.33	-59.59	-13	-46.59
3700.4	-43.76	156	1.9	H	4.96	-38.80	-13	-25.80
3700.4	-44.59	42	1.8	V	4.59	-40.00	-13	-27.00

5550.6	-45.93	186	1.3	H	10.63	-35.30	-13	-22.30
5550.6	-48.48	279	2.4	V	8.98	-39.50	-13	-26.50
Middle channel (1880 MHz)								
66.73	-57.84	287	1.2	H	-4.04	-61.88	-13	-48.88
31.95	-55.28	336	1.3	V	-4.33	-59.61	-13	-46.61
3760	-46.21	277	1.2	H	5.31	-40.90	-13	-27.90
3760	-44.33	127	1.4	V	4.93	-39.40	-13	-26.40
5640	-48.38	91	2.3	H	10.68	-37.70	-13	-24.70
5640	-47.14	37	2.1	V	9.24	-37.90	-13	-24.90
High channel (1909.80 MHz)								
66.73	-57.89	15	1.7	H	-4.04	-61.93	-13	-48.93
31.95	-55.32	317	2.0	V	-4.33	-59.65	-13	-46.65
3819.6	-47.14	279	1.8	H	5.64	-41.50	-13	-28.50
3819.6	-44.37	42	2.2	V	5.27	-39.10	-13	-26.10
5729.4	-49.33	142	2.3	H	10.73	-38.60	-13	-25.60
5729.4	-46.41	74	2.1	V	9.51	-36.90	-13	-23.90
WCDMA Band 2(30MHz-20GHz)								
LOW Channel (1852.4MHz)								
66.73	-57.91	324	1.4	H	-4.04	-61.95	-13	-48.95
31.95	-55.44	133	1.8	V	-4.33	-59.77	-13	-46.77
3704.80	-47.06	319	1.3	H	4.96	-42.10	-13	-29.10
3704.80	-42.69	228	1.3	V	4.59	-38.10	-13	-25.10
5557.20	-47.83	152	1.1	H	10.63	-37.20	-13	-24.20
5557.20	-44.58	62	1.5	V	8.98	-35.60	-13	-22.60
Middle Channel (1880MHz)								
66.73	-57.82	117	1.6	H	-4.04	-61.86	-13	-48.86
31.95	-55.39	337	1.8	V	-4.33	-59.72	-13	-46.72
3760.00	-48.31	291	1	H	5.31	-43.00	-13	-30.00
3760.00	-45.93	176	1.1	V	4.93	-41.00	-13	-28.00
5640.00	-47.38	89	1.4	H	10.68	-36.70	-13	-23.70
5640.00	-45.54	203	2.2	V	9.24	-36.30	-13	-23.30
High Channel (1907.6MHz)								
66.73	-57.88	327	1.1	H	-4.04	-61.92	-13	-48.92
31.95	-55.36	42	1.5	V	-4.33	-59.69	-13	-46.69
3815.20	-48.34	145	1.8	H	5.64	-42.70	-13	-29.70
3815.20	-46.87	227	2.5	V	5.27	-41.60	-13	-28.60
5722.80	-48.23	95	2	H	10.73	-37.50	-13	-24.50
5722.80	-43.61	272	1.8	V	9.51	-34.10	-13	-21.10
WCDMA Band 4(30MHz-18GHz)								
LOW Channel (1712.4MHz)								
66.73	-57.81	28	1.8	H	-4.04	-61.85	-13	-48.85
31.95	-55.34	309	1.5	V	-4.33	-59.67	-13	-46.67
3424.80	-42.33	156	1.9	H	3.43	-38.90	-13	-25.90
3424.80	-44.20	42	1.8	V	3.4	-40.80	-13	-27.80

5137.20	-53.42	186	1.3	H	9.72	-43.70	-13	-30.70
5137.20	-53.58	279	2.4	V	8.38	-45.20	-13	-32.20
Middle Channel (1732.6MHz)								
66.73	-57.87	196	2.0	H	-4.04	-61.91	-13	-48.91
31.95	-55.35	342	1.4	V	-4.33	-59.68	-13	-46.68
3465.20	-44.69	277	1.2	H	3.49	-41.20	-13	-28.20
3465.20	-44.45	127	1.4	V	3.45	-41.00	-13	-28.00
5197.80	-54.64	91	2.3	H	9.84	-44.80	-13	-31.80
5197.80	-52.51	37	2.1	V	8.41	-44.10	-13	-31.10
High Channel (1752.6MHz)								
66.73	-57.79	325	1.4	H	-4.04	-61.83	-13	-48.83
31.95	-55.43	139	2.0	V	-4.33	-59.76	-13	-46.76
3505.20	-44.95	279	1.8	H	3.55	-41.40	-13	-28.40
3505.20	-43.60	42	2.2	V	3.5	-40.10	-13	-27.10
5257.80	-54.36	142	2.3	H	9.96	-44.40	-13	-31.40
5257.80	-52.84	74	2.1	V	8.44	-44.40	-13	-31.40
WCDMA Band 5(30MHz-9GHz)								
LOW Channel (826.4MHz)								
66.73	-57.85	223	1.6	H	-4.04	-61.89	-13	-48.89
31.95	-55.38	295	1.1	V	-4.33	-59.71	-13	-46.71
1652.80	-48.07	340	1.4	H	-2.73	-50.80	-13	-37.80
1652.80	-46.51	258	1.2	V	-2.79	-49.30	-13	-36.30
2479.20	-51.18	7	2.0	H	1.18	-50.00	-13	-37.00
2479.20	-52.11	273	2.4	V	1.21	-50.90	-13	-37.90
3305.60	-49.14	277	2.3	H	3.24	-45.90	-13	-32.90
3305.60	-49.37	303	1.2	V	3.27	-46.10	-13	-33.10
Middle Channel (836.6MHz)								
66.73	-57.8	238	1.1	H	-4.04	-61.84	-13	-48.84
31.95	-55.33	234	1.2	V	-4.33	-59.66	-13	-46.66
1673.20	-47.73	332	1.1	H	-2.67	-50.40	-13	-37.40
1673.20	-49.26	16	2.5	V	-2.74	-52.00	-13	-39.00
2509.80	-52.72	123	2.5	H	1.32	-51.40	-13	-38.40
2509.80	-51.56	234	2.2	V	1.36	-50.20	-13	-37.20
3346.40	-49.11	310	1.3	H	3.31	-45.80	-13	-32.80
3346.40	-48.42	228	1.5	V	3.32	-45.10	-13	-32.10
High Channel (846.6MHz)								
66.73	-57.86	295	1.9	H	-4.04	-61.90	-13	-48.90
31.95	-55.39	351	2.1	V	-4.33	-59.72	-13	-46.72
1693.20	-46.06	29	1.4	H	-2.64	-48.70	-13	-35.70
1693.20	-47.41	208	2.2	V	-2.69	-50.10	-13	-37.10
2539.80	-50.97	88	2.3	H	1.47	-49.50	-13	-36.50
2539.80	-52.02	128	1.0	V	1.52	-50.50	-13	-37.50
3386.40	-49.88	148	1.6	H	3.38	-46.50	-13	-33.50
3386.40	-47.27	348	1.4	V	3.37	-43.90	-13	-30.90

LET Band 2(30MHz-20GHz)								
Low channel (1850.7 MHz)								
66.73	-57.91	359	1.6	H	-4.04	-61.95	-13	-48.95
31.95	-55.41	321	1.3	V	-4.33	-59.74	-13	-46.74
3701.40	-45.76	101	1.9	H	4.96	-40.80	-13	-27.80
3701.40	-38.79	55	1.4	V	4.59	-34.20	-13	-21.20
5552.10	-42.33	174	1.9	H	10.63	-31.70	-13	-18.70
5552.10	-44.58	301	1.9	V	8.98	-35.60	-13	-22.60
7402.80	-55.26	303	1.9	H	14.06	-41.20	-13	-28.20
7402.80	-57.59	149	2.3	V	14.69	-42.90	-13	-29.90
Middle channel (1880 MHz)								
66.73	-57.83	216	2.2	H	-4.04	-61.87	-13	-48.87
31.95	-55.37	149	1.2	V	-4.33	-59.70	-13	-46.70
3760.00	-47.51	163	1.6	H	5.31	-42.20	-13	-29.20
3760.00	-42.63	26	1.1	V	4.93	-37.70	-13	-24.70
5640.00	-44.58	161	1.3	H	10.68	-33.90	-13	-20.90
5640.00	-43.54	187	1.4	V	9.24	-34.30	-13	-21.30
7520.00	-56.58	116	1.9	H	14.38	-42.20	-13	-29.20
7520.00	-56.96	212	1.5	V	15.16	-41.80	-13	-28.80
High channel (1909.3 MHz)								
66.73	-57.81	163	1.4	H	-4.04	-61.85	-13	-48.85
31.95	-55.40	9	2.0	V	-4.33	-59.73	-13	-46.73
3818.60	-47.94	41	1.1	H	5.64	-42.30	-13	-29.30
3818.60	-41.47	218	1.6	V	5.27	-36.20	-13	-23.20
5727.90	-45.33	227	1.2	H	10.73	-34.60	-13	-21.60
5727.90	-45.71	37	1.6	V	9.51	-36.20	-13	-23.20
7637.20	-58.71	285	1.7	H	14.71	-44.00	-13	-31.00
7637.20	-60.14	260	1.7	V	15.34	-44.80	-13	-31.80
LET Band 4(30MHz-18GHz)								
Low channel (1710.7 MHz)								
66.73	-57.78	347	1.9	H	-4.04	-61.82	-13	-48.82
31.95	-55.36	114	1.8	V	-4.33	-59.69	-13	-46.69
3421.40	-42.33	225	2.2	H	3.43	-38.90	-13	-25.90
3421.40	-40.20	286	2.5	V	3.40	-36.80	-13	-23.80
5132.10	-54.12	254	2.2	H	9.72	-44.40	-13	-31.40
5132.10	-53.28	206	1.6	V	8.38	-44.90	-13	-31.90
Middle channel (1732.5 MHz)								
66.73	-57.82	26	1.4	H	-4.04	-61.86	-13	-48.86
31.95	-55.41	111	2.0	V	-4.33	-59.74	-13	-46.74
3465.00	-41.59	241	1.9	H	3.49	-38.10	-13	-25.10
3465.00	-42.65	129	2.4	V	3.45	-39.20	-13	-26.20
5197.50	-54.24	251	2.3	H	9.84	-44.40	-13	-31.40
5197.50	-52.31	57	1.1	V	8.41	-43.90	-13	-30.90
High channel (1754.3 MHz)								

66.73	-57.87	135	1.3	H	-4.04	-61.91	-13	-48.91
31.95	-55.45	175	2.2	V	-4.33	-59.78	-13	-46.78
3508.60	-42.35	174	1.3	H	3.55	-38.80	-13	-25.80
3508.60	-41.80	338	2.4	V	3.5	-38.30	-13	-25.30
5262.90	-52.16	323	1.2	H	9.96	-42.20	-13	-29.20
5262.90	-52.74	54	1.3	V	8.44	-44.30	-13	-31.30
LET Band 5(30MHz-9GHz)								
Low channel (824.7 MHz)								
66.73	-57.82	21	1.2	H	-4.04	-61.86	-13	-48.86
31.95	-55.41	54	1.5	V	-4.33	-59.74	-13	-46.74
1649.40	-44.17	326	1.5	H	-2.73	-46.90	-13	-33.90
1649.40	-46.61	180	1.7	V	-2.79	-49.40	-13	-36.40
2474.10	-48.68	26	2.1	H	1.18	-47.50	-13	-34.50
2474.10	-50.21	249	2.2	V	1.21	-49.00	-13	-36.00
3298.80	-44.14	44	2.3	H	3.24	-40.90	-13	-27.90
3298.80	-43.27	110	1.1	V	3.27	-40.00	-13	-27.00
4123.50	-51.07	25	2.3	H	6.87	-44.20	-13	-31.20
4123.50	-51.98	204	1.7	V	6.68	-45.30	-13	-32.30
Middle channel (836.5 MHz)								
66.73	-57.78	326	1.2	H	-4.04	-61.82	-13	-48.82
31.95	-55.46	202	1.8	V	-4.33	-59.79	-13	-46.79
1673.00	-44.43	202	1.3	H	-2.67	-47.10	-13	-34.10
1673.00	-46.06	55	1.2	V	-2.74	-48.80	-13	-35.80
2509.50	-49.72	49	1	H	1.32	-48.40	-13	-35.40
2509.50	-50.06	345	1.2	V	1.36	-48.70	-13	-35.70
3346.00	-45.61	71	2.1	H	3.31	-42.30	-13	-29.30
3346.00	-45.22	32	2.5	V	3.32	-41.90	-13	-28.90
4182.50	-51.18	77	1.9	H	6.98	-44.20	-13	-31.20
4182.50	-51.42	71	1.1	V	6.92	-44.50	-13	-31.50
High channel (848.3 MHz)								
66.73	-57.85	223	1.9	H	-4.04	-61.89	-13	-48.89
31.95	-55.35	319	2.1	V	-4.33	-59.68	-13	-46.68
1696.60	-45.16	220	1.2	H	-2.64	-47.80	-13	-34.80
1696.60	-44.11	97	1.5	V	-2.69	-46.80	-13	-33.80
2544.90	-47.37	48	1.5	H	1.47	-45.90	-13	-32.90
2544.90	-47.82	133	1.1	V	1.52	-46.30	-13	-33.30
3393.20	-46.28	327	2.0	H	3.38	-42.90	-13	-29.90
3393.20	-43.87	187	2.4	V	3.37	-40.50	-13	-27.50
4241.50	-52.09	311	2.4	H	7.09	-45.00	-13	-32.00
4241.50	-52.76	193	1.8	V	7.16	-45.60	-13	-32.60
LET Band 7(30MHz-26GHz)								
Low channel (2502.5 MHz)								
66.73	-57.88	83	1.5	H	-4.04	-61.92	-25	-36.92
31.95	-55.42	175	1.2	V	-4.33	-59.75	-25	-34.75

5005.00	-46.30	311	2.4	H	9.50	-36.80	-25	-11.80
5005.00	-40.52	193	1.8	V	8.32	-32.20	-25	-7.20
Middle channel (2535 MHz)								
66.73	-57.92	334	2.0	H	-4.04	-61.96	-25	-36.96
31.95	-55.45	221	1.2	V	-4.33	-59.78	-25	-34.78
5070.00	-47.96	311	2.4	H	9.56	-38.40	-25	-13.40
5070.00	-42.64	193	1.8	V	8.34	-34.30	-25	-9.30
High channel (2567.5 MHz)								
66.73	-57.87	25	2.1	H	-4.04	-61.91	-25	-36.91
31.95	-55.39	21	2.2	V	-4.33	-59.72	-25	-34.72
5135.00	-40.22	311	2.4	H	9.72	-30.50	-25	-5.50
5135.00	-37.48	193	1.8	V	8.38	-29.10	-25	-4.10
LET Band 38(30MHz-26GHz)								
Low channel (2572.5 MHz)								
66.73	-57.83	86	1.4	H	-4.04	-61.87	-25	-36.87
31.95	-55.46	311	2.1	V	-4.33	-59.79	-25	-34.79
5145.00	-46.99	71	1.0	H	9.64	-37.35	-25	-12.35
5145.00	-42.12	144	2.0	V	8.71	-33.41	-25	-8.41
Middle channel (2595 MHz)								
66.73	-57.81	277	1.2	H	-4.04	-61.85	-25	-36.85
31.95	-55.37	1	2.0	V	-4.33	-59.70	-25	-34.70
5190.00	-46.78	92	1.4	H	9.75	-37.03	-25	-12.03
5190.00	-41.59	160	2.0	V	8.73	-32.86	-25	-7.86
High channel (2617.5 MHz)								
66.73	-57.92	150	1.5	H	-4.04	-61.96	-25	-36.96
31.95	-55.34	344	2.0	V	-4.33	-59.67	-25	-34.67
5235.00	-46.46	232	2.0	H	9.83	-36.63	-25	-11.63
5235.00	-40.35	88	1.3	V	8.91	-31.44	-25	-6.44
LET Band 66(30MHz-18GHz)								
Low channel (1710.7 MHz)								
66.73	-57.87	186	1.1	H	-4.04	-61.91	-13	-48.91
31.95	-55.41	250	2.1	V	-4.33	-59.74	-13	-46.74
3421.40	-33.23	284	1.9	H	3.43	-29.80	-13	-16.80
3421.40	-34.80	23	2	V	3.40	-31.40	-13	-18.40
5132.10	-45.52	80	1.8	H	9.72	-35.80	-13	-22.80
5132.10	-45.68	343	1.2	V	8.38	-37.30	-13	-24.30
6842.80	-52.09	343	2.2	H	7.09	-45.00	-13	-32.00
6842.80	-52.76	218	2.1	V	7.16	-45.60	-13	-32.60
Middle channel (1755 MHz)								
66.73	-57.85	168	1.8	H	-4.04	-61.89	-13	-48.89
31.95	-55.43	16	1.3	V	-4.33	-59.76	-13	-46.76
3510.00	-34.95	198	2.1	H	3.55	-31.40	-13	-18.40
3510.00	-35.3	49	1.6	V	3.5	-31.80	-13	-18.80
5265.00	-47.66	96	1.6	H	9.96	-37.70	-13	-24.70

5265.00	-44.54	187	2.3	V	8.44	-36.10	-13	-23.10
7020.00	-51.09	201	2.1	H	7.09	-44.00	-13	-31.00
7020.00	-50.36	155	2	V	7.16	-43.20	-13	-30.20
High channel (1779.3 MHz)								
66.73	-57.77	68	2.2	H	-4.04	-61.81	-13	-48.81
31.95	-55.32	73	1.1	V	-4.33	-59.65	-13	-46.65
3558.60	-30.15	155	1.1	H	3.65	-26.50	-13	-13.50
3558.60	-32.73	96	2.4	V	3.63	-29.10	-13	-16.10
5337.90	-44.56	104	2.4	H	9.96	-34.60	-13	-21.60
5337.90	-40.24	200	1.7	V	8.44	-31.80	-13	-18.80
7117.20	-49.69	290	1.8	H	7.09	-42.60	-13	-29.60
7117.20	-50.76	122	2.1	V	7.16	-43.60	-13	-30.60

**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)(h)(m) - 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 (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:

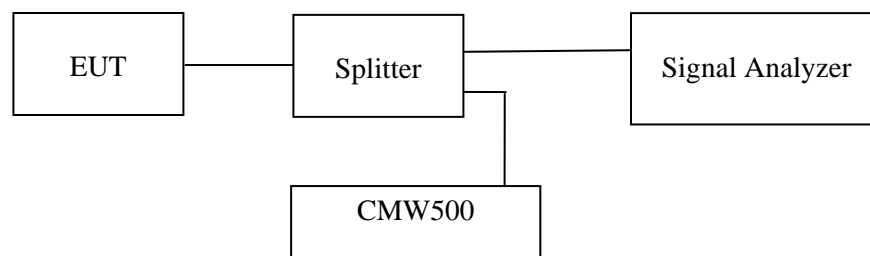
- (1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log(P)$  dB;
- (2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below 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;

According to FCC § 27.53 (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.

### 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**

<b>Temperature:</b>	25-32 °C
<b>Relative Humidity:</b>	56-64 %
<b>ATM Pressure:</b>	101.0 kPa

*The testing was performed by Black Ding from 2021-10-14 to 2021-11-03.*

*EUT operation mode: Transmitting (Worst case)*

**Test Result: Pass**

*Test plots refer to the Appendix C.*

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

### Applicable Standard

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

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

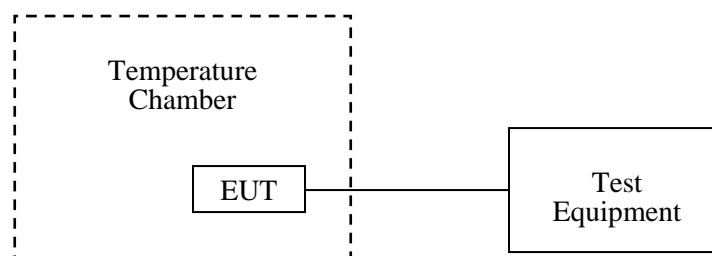
According to §24.235 & §27.54, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

### 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**

<b>Temperature:</b>	27.3-29 °C
<b>Relative Humidity:</b>	57-64 %
<b>ATM Pressure:</b>	101.0 kPa

The testing was performed by Black Ding from 2021-10-14 to 2021-10-19.

EUT operation mode: Transmitting

**Test Result: Pass**

Please refer to the following tables.

**Cellular Band (Part 22H)****GPRS Mode**

Middle Channel, $f_0 = 836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied ( $V_{DC}$ )	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.7	-3	-0.0036	2.5
-20		4	0.0048	2.5
-10		0	0.0000	2.5
0		6	0.0072	2.5
10		3	0.0036	2.5
20		17	0.0203	2.5
30		6	0.0072	2.5
40		7	0.0084	2.5
50		8	0.0096	2.5
20		3.3	2	0.0024
	4.1	-2	-0.0024	2.5

**EDGE Mode**

<b>Middle Channel, <math>f_o = 836.6\text{MHz}</math></b>				
<b>Temperature (°C)</b>	<b>Voltage Supplied (<math>V_{DC}</math>)</b>	<b>Frequency Error (Hz)</b>	<b>Frequency Error (ppm)</b>	<b>Limit (ppm)</b>
-30	3.7	-4	0.0048	2.5
-20		7	0.0084	2.5
-10		-7	-0.0084	2.5
0		8	0.0096	2.5
10		6	0.0072	2.5
20		12	0.0143	2.5
30		7	0.0084	2.5
40		-6	-0.0072	2.5
50		5	0.0060	2.5
20		3.3	4	0.0048
	4.1	6	0.0072	2.5

**WCDMA Mode**

<b>Middle Channel, <math>f_o = 836.6\text{MHz}</math></b>				
<b>Temperature (°C)</b>	<b>Voltage Supplied (<math>V_{DC}</math>)</b>	<b>Frequency Error (Hz)</b>	<b>Frequency Error (ppm)</b>	<b>Limit (ppm)</b>
-30	3.7	-0.1	-0.000120	2.5
-20		0.09	0.000108	2.5
-10		0.08	0.000096	2.5
0		-0.05	-0.000060	2.5
10		-0.03	-0.000036	2.5
20		-0.25	-0.000299	2.5
30		0.04	0.000048	2.5
40		-0.05	-0.000060	2.5
50		-0.08	-0.000096	2.5
20		3.3	0.05	0.000060
	4.1	-0.06	-0.000072	2.5

## PCS Band (Part 24E)

## GPRS Mode

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied ( $V_{DC}$ )	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.7	3	0.0016	pass
-20		8	0.0042	pass
-10		3	0.0016	pass
0		4	0.0021	pass
10		1	0.0005	pass
20		-14	-0.0074	pass
30		-3	-0.0016	pass
40		-7	-0.0037	pass
50		5	0.0027	pass
20		3.3	-3	-0.0016
	4.1	-2	-0.0011	pass

## EDGE Mode

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied ( $V_{DC}$ )	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.7	2	0.0011	pass
-20		4	0.0021	pass
-10		5	0.0027	pass
0		-7	-0.0037	pass
10		-4	-0.0021	pass
20		8	-0.0042	pass
30		-3	-0.0016	pass
40		8	0.0042	pass
50		-4	-0.0021	pass
20		3.3	3	0.0016
	4.1	6	0.0032	pass

## WCDMA Mode

Middle Channel, $f_o = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied (V <sub>DC</sub> )	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.7	-0.11	-0.000059	pass
-20		0.19	0.000101	pass
-10		0.18	0.000096	pass
0		-0.15	-0.000080	pass
10		-0.13	-0.000069	pass
20		-0.28	-0.000149	pass
30		0.14	0.000074	pass
40		-0.17	-0.000090	pass
50		-0.10	-0.000053	pass
20	3.3	0.15	0.000080	pass
	4.1	-0.12	-0.000064	pass

## AWS Band (Part 27)

Temperature (°C)	Power Supplied (V <sub>DC</sub> )	F <sub>L</sub> (MHz)	F <sub>H</sub> (MHz)	F <sub>L</sub> Limit (MHz)	F <sub>H</sub> Limit (MHz)
-30	3.7	1710.0133	1754.9715	1710	1755
-20		1710.0156	1754.9774	1710	1755
-10		1710.0128	1754.9757	1710	1755
0		1710.0133	1754.9752	1710	1755
10		1710.0114	1754.9738	1710	1755
20		1710.0116	1754.9745	1710	1755
30		1710.0115	1754.9721	1710	1755
40		1710.0122	1754.9734	1710	1755
50		1710.0123	1754.9737	1710	1755
20	3.3	1710.0136	1754.9712	1710	1755
	4.1	1710.0172	1754.9715	1710	1755

**LTE:**  
**QPSK:**  
**Band 2:**

10.0 MHz Middle Channel, $f_o = 1880\text{MHz}$				
Temperature (°C)	Voltage Supplied (V <sub>DC</sub> )	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.7	-14	-0.0074	pass
-20		-10	-0.0053	pass
-10		-6	-0.0032	pass
0		6	0.0032	pass
10		8	0.0043	pass
20		6	0.0032	pass
30		-7	-0.0037	pass
40		7	0.0037	pass
50		-10	-0.0053	pass
20	3.3	-8	-0.0043	pass
	4.1	-7	-0.0037	pass

**Band 4:**

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V <sub>DC</sub> )	F <sub>L</sub> (MHz)	F <sub>H</sub> (MHz)	F <sub>L</sub> Limit (MHz)	F <sub>H</sub> Limit (MHz)
-30	3.7	1710.1157	1754.8741	1710	1755
-20		1710.1162	1754.8732	1710	1755
-10		1710.1138	1754.8762	1710	1755
0		1710.1119	1754.8722	1710	1755
10		1710.1125	1754.8735	1710	1755
20		1710.1164	1754.8732	1710	1755
30		1710.1152	1754.8737	1710	1755
40		1710.1141	1754.8756	1710	1755
50		1710.1155	1754.8755	1710	1755
20		3.3	1710.1142	1754.8772	1710
	4.1	1710.1046	1754.8737	1710	1755

**Band 5:**

10.0 MHz Middle Channel, $f_o = 836.5\text{MHz}$				
Temperature (°C)	Voltage Supplied (V <sub>DC</sub> )	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.7	3	-0.0036	2.5
-20		-14	-0.0168	2.5
-10		-4	-0.0048	2.5
0		6	0.0072	2.5
10		-10	-0.0120	2.5
20		4	0.0048	2.5
30		-7	-0.0084	2.5
40		10	-0.0120	2.5
50		7	0.0084	2.5
20	3.3	-9	-0.0108	2.5
	4.1	-7	-0.0084	2.5

**Band 7:**

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V <sub>DC</sub> )	F <sub>L</sub> (MHz)	F <sub>H</sub> (MHz)	F <sub>L</sub> Limit (MHz)	F <sub>H</sub> Limit (MHz)
-30	3.7	2500.0775	2569.9837	2500	2570
-20		2500.0753	2569.9952	2500	2570
-10		2500.0735	2569.9844	2500	2570
0		2500.0713	2569.9728	2500	2570
10		2500.0915	2569.9867	2500	2570
20		2500.0813	2569.9431	2500	2570
30		2500.0744	2569.9322	2500	2570
40		2500.0643	2569.9918	2500	2570
50		2500.0528	2569.9921	2500	2570
20		3.3	2500.0525	2569.9825	2500
	4.1	2500.0447	2569.9744	2500	2570



**Band 38:**

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V <sub>DC</sub> )	F <sub>L</sub> (MHz)	F <sub>H</sub> (MHz)	F <sub>L</sub> Limit (MHz)	F <sub>H</sub> Limit (MHz)
-30	3.7	2570.0882	2619.9935	2570	2620
-20		2570.0862	2619.9951	2570	2620
-10		2570.0849	2619.9821	2570	2620
0		2570.0833	2619.9729	2570	2620
10		2570.0226	2619.9853	2570	2620
20		2570.0534	2619.9679	2570	2620
30		2570.0738	2619.9385	2570	2620
40		2570.0641	2619.9926	2570	2620
50		2570.0552	2619.9933	2570	2620
20	3.3	2570.0537	2619.9818	2570	2620
	4.1	2570.0446	2619.9767	2570	2620

**Band 66:**

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V <sub>DC</sub> )	F <sub>L</sub> (MHz)	F <sub>H</sub> (MHz)	F <sub>L</sub> Limit (MHz)	F <sub>H</sub> Limit (MHz)
-30	3.7	1710.0227	1779.9765	1710	1780
-20		1710.0225	1779.9742	1710	1780
-10		1710.0229	1779.9817	1710	1780
0		1710.0248	1779.9733	1710	1780
10		1710.0237	1779.9725	1710	1780
20		1710.0235	1779.9744	1710	1780
30		1710.0261	1779.9763	1710	1780
40		1710.0254	1779.9747	1710	1780
50		1710.0267	1779.9815	1710	1780
20	3.3	1710.0252	1779.9717	1710	1780
	4.1	1710.0232	1779.9768	1710	1780

**16QAM:****Band 2:**

10.0 MHz Middle Channel, $f_o = 1880\text{MHz}$				
Temperature (°C)	Voltage Supplied (V <sub>DC</sub> )	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.7	-9	-0.0048	pass
-20		-7	-0.0037	pass
-10		10	0.0053	pass
0		-8	-0.0043	pass
10		-10	-0.0053	pass
20		-10	-0.0053	pass
30		-7	-0.0037	pass
40		-9	-0.0048	pass
50		6	0.0032	pass
20	3.3	6	0.0032	pass
	4.1	8	0.0043	pass

**Band 4:**

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V <sub>DC</sub> )	F <sub>L</sub> (MHz)	F <sub>H</sub> (MHz)	F <sub>L</sub> Limit (MHz)	F <sub>H</sub> Limit (MHz)
-30	3.7	1710.2874	1754.7655	1710	1755
-20		1710.2813	1754.7534	1710	1755
-10		1710.2775	1754.7692	1710	1755
0		1710.2654	1754.7465	1710	1755
10		1710.2655	1754.7485	1710	1755
20		1710.2637	1754.7625	1710	1755
30		1710.2551	1754.7616	1710	1755
40		1710.2672	1754.7693	1710	1755
50		1710.2675	1754.7718	1710	1755
20	3.3	1710.2654	1754.7542	1710	1755
	4.1	1710.2712	1754.7575	1710	1755

**Band 5:**

10.0 MHz Middle Channel, $f_0 = 836.5\text{MHz}$				
Temperature (°C)	Voltage Supplied (V <sub>DC</sub> )	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.7	-4	-0.0048	2.5
-20		3	0.0036	2.5
-10		5	0.0060	2.5
0		9	0.0108	2.5
10		-7	-0.0084	2.5
20		8	0.0096	2.5
30		4	0.0048	2.5
40		-6	-0.0072	2.5
50		-6	-0.0072	2.5
20	3.3	3	0.0036	2.5
	4.1	7	0.0084	2.5

**Band 7:**

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V <sub>DC</sub> )	F <sub>L</sub> (MHz)	F <sub>H</sub> (MHz)	F <sub>L</sub> Limit (MHz)	F <sub>H</sub> Limit (MHz)
-30	3.7	2500.0465	2569.8432	2500	2570
-20		2500.0334	2569.8542	2500	2570
-10		2500.0334	2569.8412	2500	2570
0		2500.0235	2569.8527	2500	2570
10		2500.0354	2569.8264	2500	2570
20		2500.0225	2569.7874	2500	2570
30		2500.0354	2569.7847	2500	2570
40		2500.0324	2569.8427	2500	2570
50		2500.0325	2569.8445	2500	2570
20		3.3	2500.0227	2569.8344	2500
	4.1	2500.0445	2569.8255	2500	2570

**Band 38:**

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V <sub>DC</sub> )	F <sub>L</sub> (MHz)	F <sub>H</sub> (MHz)	F <sub>L</sub> Limit (MHz)	F <sub>H</sub> Limit (MHz)
-30	3.7	2570.0795	2619.9912	2570	2620
-20		2570.0783	2619.9906	2570	2620
-10		2570.0754	2619.9887	2570	2620
0		2570.0802	2619.9792	2570	2620
10		2570.0433	2619.9868	2570	2620
20		2570.0671	2619.9732	2570	2620
30		2570.0755	2619.9495	2570	2620
40		2570.0658	2619.9432	2570	2620
50		2570.0596	2619.9867	2570	2620
20	3.3	2570.0521	2619.9851	2570	2620
	4.1	2570.0673	2619.9683	2570	2620

**Band 66:**

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V <sub>DC</sub> )	F <sub>L</sub> (MHz)	F <sub>H</sub> (MHz)	F <sub>L</sub> Limit (MHz)	F <sub>H</sub> Limit (MHz)
-30	3.7	1710.0376	1779.8571	1710	1780
-20		1710.0252	1779.8461	1710	1780
-10		1710.0244	1779.8272	1710	1780
0		1710.0263	1779.8452	1710	1780
10		1710.0276	1779.8373	1710	1780
20		1710.0252	1779.8341	1710	1780
30		1710.0231	1779.8389	1710	1780
40		1710.0245	1779.8371	1710	1780
50		1710.0239	1779.8372	1710	1780
20	3.3	1710.0264	1779.8372	1710	1780
	4.1	1710.0241	1779.8345	1710	1780

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