RF TEST REPORT

For

Shenzhen Mirasso Innovation intelligent Technology Co., LTD

Product Name: Smart watch

Test Model(s): H99

Report Reference No.	:	**DACE250103004RL004**
FCC ID	:	**2BOCU-H99**
Applicant's Name	:	Shenzhen Mirasso Innovation intelligent Technology Co., LTD
Address	:	601, Building 3, 1970 Science Park, Minzhi Community, Minzhi Street, Longhua District, Shenzhen
Testing Laboratory	:	Shenzhen DACE Testing Technology Co., Ltd.
Address	:	102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China
Test Specification Standard	:	**47 CFR Part 24E/47 CFR Part 22H/47 CFR Part 27**
Date of Receipt	:	January 3, 2025
Date of Test	:	January 3, 2025 to March 19, 2025
Data of Issue	:	March 19, 2025
Result	:	**Pass**

Apply for company information

Applicant's Name	:	Shenzhen Mirasso Innovation intelligent Technology Co., LTD
Address	:	601, Building 3, 1970 Science Park, Minzhi Community, Minzhi Street, Longhua District, Shenzhen
Product Name	:	Smart watch
Test Model(s)	:	H99
Series Model(s)	:	H10, H11, H16, H18, H19, H20, H80, H90, H100
Test Specification Standard(s)	:	47 CFR Part 24E/ 47 CFR Part 22H / 47 CFR Part 27

NOTE1:

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

Compiled by:	Supervised by:	Approved by:
Keren Huang	Ben Tang	Machael Mo
Keren Huang / Test Engineer	Ben Tang / Project Engineer	Machael Mo / Manager
March 19, 2025	March 19, 2025	March 19, 2025

Revision History Of Report

Version	Description	REPORT No.	Issue Date
V1.0	Original	DACE250103004RL004	March 19, 2025

CONTENTS

1 TEST SUMMARY

1.1 Test Standards

The tests were performed according to following standards:

47 CFR Part 24E: Personal Communications Services - Broadband PCS
47 CFR Part 22H: Public Mobile Services - Cellular Radiotelephone Service
47 CFR Part 27: Miscellaneous Wireless Communications Services

1.2 Summary of Test Result

Item	Standard	Method	Requirement	Result
Effective (Isotropic) Radiated Power Output	47 CFR Part 24E 47 CFR Part 22H 47 CFR Part 27	ANSI C63.26-2015, Section 5.2.4.2	47 CFR Part 2.1046, Part 24.232 47 CFR Part 2.1046, Part 22.913 47 CFR Part 2.1046, Part 27.50(h)(2)	Pass
Peak To Average Ratio	47 CFR Part 24E 47 CFR Part 22H 47 CFR Part 27	ANSI C63.26-2015, Section 5.2.3.4	47 CFR Part 2.1046, Part 24.232(d) 47 CFR Part 2.1046, Part 22.913 (d) 47 CFR Part 2.1046, Part 27.50	Pass
Bandwidth	47 CFR Part 22H 47 CFR Part 24E 47 CFR Part 27	ANSI C63.26-2015, Section 5.4	47 CFR Part 2.1049(h)	Pass
Out of Band Emission	47 CFR Part 24E 47 CFR Part 22H 47 CFR Part 27	47 CFR Part 24.238(b) ANSI C63.26-2015, Section 5.7.3	47 CFR Part 2.1051, Part 24.238(a) 47 CFR Part 2.1051, Part 22.917(a) 47 CFR Part 2.1051, Part 27.53(m)(4)	Pass
Spurious Unwanted Emission	47 CFR Part 24E 47 CFR Part 22H 47 CFR Part 27	47 CFR Part 24.238(b) ANSI C63.26-2015, Section 5.7.3	47 CFR Part 2.1051, Part 24.238(a) 47 CFR Part 2.1051, Part 22.917(a) 47 CFR Part 2.1051, Part 27.53(m)(4)	Pass
Field Strength of Radiated Emission	47 CFR Part 24E 47 CFR Part 22H 47 CFR Part 27	ANSI C63.26-2015, Section 5.5.3	47 CFR Part 2.1053, Part 24.238(a) 47 CFR Part 2.1053, Part 22.917(a) 47 CFR Part 2.1051, Part 27.53(m)(4)	Pass
Frequency Stability	47 CFR Part 24E 47 CFR Part 22H 47 CFR Part 27	ANSI C63.26-2015, Section 5.6	47 CFR Part 2.1055, Part 24.235 47 CFR Part 2.1055, Part 27.54	Pass

2 GENERAL INFORMATION

2.1 Client Information

Applicant's Name	:	Shenzhen Mirasso Innovation intelligent Technology Co., LTD
Address	:	601, Building 3, 1970 Science Park, Minzhi Community, Minzhi Street, Longhua District, Shenzhen
Manufacturer	:	Shenzhen Mirasso Innovation intelligent Technology Co., LTD
Address	:	601, Building 3, 1970 Science Park, Minzhi Community, Minzhi Street, Longhua District, Shenzhen

2.2 Description of Device (EUT)

Product Name:	Smart watch
Model/Type reference:	H99
Series Model:	H10, H11, H16, H18, H19, H20, H80, H90, H100
Model Difference:	There are multiple models of the product, with differences in the color of the appearance and customer requirements for different models in the market, resulting in multiple models. However, the internal circuit boards, PCBs, BOMs, and other electrical structures of these models are the same, and these differences will not affect RF&EMC performance. Therefore, the selected test model is:H99 .
Trade Mark:	N/A
Power Supply:	DC3.7V from battery; Chaging by DC5.0V
Operation Frequency:	LTE BAND2: Uplink: 1850 to 1910 MHz, Downlink: 1930 to 1990 MHz LTE BAND5: Uplink: 824 to 849 MHz, Downlink: 869 to 894 MHz LTE BAND7: Uplink: 2500 to 2570 MHz; Downlink: 2620 to 2690 MHz LTE BAND38: Uplink: 2570-2620MHz; Downlink: 2570-2620MHz LTE BAND41: Uplink: 2555 to 2655 MHz; Downlink: 2555 to 2655 MHz
Power Class	Class 3
Supported Channel Bandwidth	LTE BAND2: ☒ 1.4MHz ☒ 3MHz ☒ 5MHz LTE BAND5: ☒ 1.4MHz ☒ 3MHz ☒ 5MHz LTE BAND7: ☒ 5MHz LTE BAND38:☒ 5MHz☒ 10MHz☒ 15 MHz☒ 20 MHz LTE BAND41: ☒ 5MHz☒ 10MHz☒ 15 MHz☒ 20 MHz
Modilation Type	QPSK,16QAM
Antenna Type:	PIFA ANT
Antenna Gain:	B2: 0.36dBi; B5:0.94dBi; B7:0.33dBi; B38:0.34dBi; B41:0.37dBi
Hardware Version:	V1.0
Software Version:	V1.0

2.3 Description of Test Modes

No	Title	Description
TM1	FDD-LTE Band 2	Low, Middle, High Channels
TM2	FDD-LTE Band 5	Low, Middle, High Channels
TM3	FDD-LTE Band 7	Low, Middle, High Channels

TM4	FDD-LTE Band 38	Low, Middle, High Channels
TM5	FDD-LTE Band 41	Low, Middle, High Channels

2.4 Description of Support Units

Title	Manufacturer	Model No.	Serial No.
AC-DC adapter	HUAWEI TECHNOLOGY	HW100400C01	/

2.5 Equipments Used During The Test

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RF Test Software	Tachoy Information Technology(shenzhen) Co.,Ltd.	RTS-01	V1.0.0	/	/
Power divider	MIDEWEST	PWD-2533	SMA-79	2023-05-11	2026-05-10
RF Sensor Unit	Tachoy Information Technology(shenzhen) Co.,Ltd.	TR1029-2	000001	/	/
Wideband radio communication tester	R&S	CMW500	113410	2024-06-12	2025-06-11
Vector Signal Generator	Keysight	N5181A	MY50143455	2024-12-06	2025-12-05
Signal Generator	Keysight	N5182A	MY48180415	2024-12-06	2025-12-05
Spectrum Analyzer	Keysight	N9020A	MY53420323	2024-12-06	2025-12-05

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Cable(HF)2	SCHWARZ BECK	50Ω	/	2024-05-20	2025-05-19
Cable(HF)1	SCHWARZ BECK	50Ω	/	2024-05-20	2025-05-19
Cable(LF)2	SCHWARZ BECK	50Ω	/	2024-05-20	2025-05-19
Cable(LF)1	SCHWARZ BECK	50Ω	/	2024-05-20	2025-05-19
control	MF	MF-7802	MF780208362	2024-12-09	2025-12-08
Test Receiver	Rohde & Schwarz	ESPI TEST RECEIVER	ID:1164.6607K03-102109-MH	2024-06-12	2025-06-11
EMI Test software	Farad	EZ -EMC	V1.1.42	/	/
Positioning Controller	MF	MF-7802	/	/	/
Amplifier(18-40G)	COM-POWER	AH-1840	10100008-1	2023-05-19	2025-05-18
Horn antenna	COM-POWER	AH-1840 (18-40G)	10100008	2023-05-19	2025-05-18
Loop antenna	ZHINAN	ZN30900C	ZN30900C	2024-06-14	2026-06-13
Power amplifier(LF)	Schwarzbeck	BBV9743	9743-151	2024-06-12	2025-06-11
Power amplifier(HF)	Schwarzbeck	BBV9718	9718-282	2024-06-12	2025-06-11

Test Receiver	R&S	ESCI 3	1166.5950K03-101431-Jq	2024-06-13	2025-06-12
Horn Antenna	Sunol Sciences	DRH-118	A091114	2023-05-13	2025-05-12
Broadband Antenna	Sunol Sciences	JB6 Antenna	A090414	2024-09-28	2026-09-27

2.6 Statement Of The Measurement Uncertainty

Test Item	Measurement Uncertainty
RF conducted power	±0.733dB
Occupied Bandwidth	±3.63%
RF power density	±0.234%
Radiated Emission (Above 1GHz)	±5.46dB
Radiated Emission (Below 1GHz)	±5.79dB
Note: (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

2.7 Authorizations

Company Name:	Shenzhen DACE Testing Technology Co., Ltd.
Address:	101-102 Building H5 & 1/F., Building H, Hongfa Science & Technology Park, Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong, China
Phone Number:	+86-13267178997
Fax Number:	86-755-29113252

Identification of the Responsible Testing Location

Company Name:	Shenzhen DACE Testing Technology Co., Ltd.
Address:	101-102 Building H5 & 1/F., Building H, Hongfa Science & Technology Park, Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong, China
Phone Number:	+86-13267178997
Fax Number:	86-755-29113252
Designation Number:	CN1342
Test Firm Registration No.:	778666
A2LA Certificate Number:	6270.01

2.8 Announcement

(1) The test report reference to the report template version v0.

(2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.

(3) The test report is invalid if there is any evidence and/or falsification.

(4) This document may not be altered or revised in any way unless done so by DACE and all revisions are duly noted in the revisions section.

(5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.

(6) We hereby declare that the laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant. the laboratory is not responsible for the accuracy of the information provided by the client(item 2.2). When the information provided by the customer may affect the effectiveness of the results, the responsibility lies with the customer, and the laboratory does not assume any responsibility.

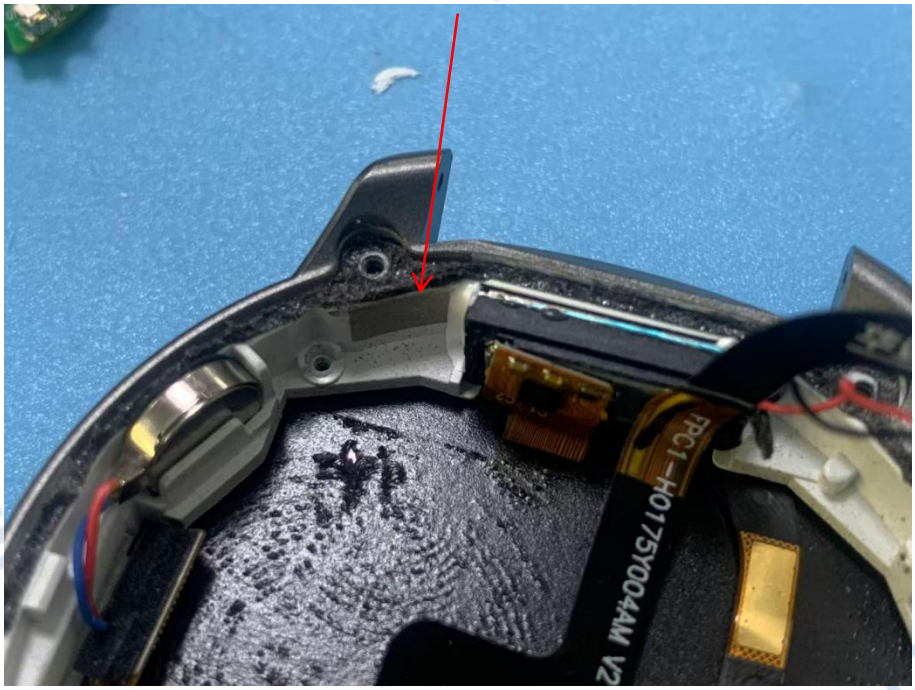
3 Evaluation Results (Evaluation)

3.1 Antenna requirement

Test Requirement:	Refer to 47 CFR Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

3.1.1 Conclusion:

2G/3G/4G-ANT



4 Radio Spectrum Matter Test Results (RF)

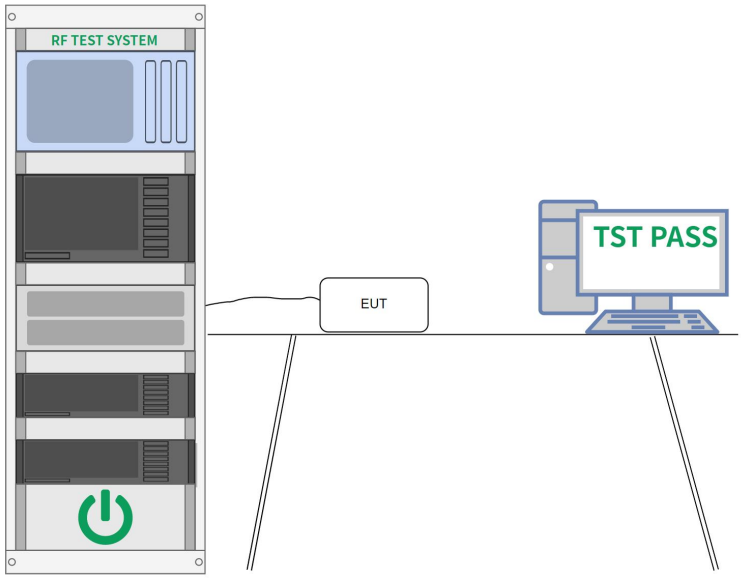
4.1 Effective (Isotropic) Radiated Power Output

Test Requirement:	47 CFR Part 2.1046, Part 24.232 47 CFR Part 2.1046, Part 22.913 47 CFR Part 2.1046, Part 27.50(h)(2)
Test Limit:	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.
Test Method:	ANSI C63.26-2015, Section 5.2.4.2
Procedure:	If the EUT cannot be configured to transmit continuously (i.e., burst duty cycle < 98%), then the following options can be implemented to facilitate measurement of the average power with an average power meter: a) A gated average power meter can be used to perform the measurement if the gating parameters can be adjusted such that the power is measured only during active transmission bursts at maximum output power levels. b) A conventional average power meter with no signal gating capability can also be used if the measured burst duty cycle is constant (i.e., duty cycle variations are less than or equal to ±2%) by performing the measurement over the on/off burst cycles and then correcting (increasing) the measured level by a factor equal to [10 log (1/duty cycle)]. See 5.2.4.3.4 for guidance with respect to measuring the transmitter duty cycle.

4.1.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.7 °C	Humidity:	49 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2, TM3, TM4, TM5				
Final test mode:	TM1, TM2, TM3, TM4, TM5				

4.1.2 Test Setup Diagram:



4.1.3 Test Data:

Please Refer to Appendix for Conducted Power.

Radiated Power Output

LTE Band 2						
Bandwidth	Modulation	Channel	ERP (dBm)		Limit (dBm)	Result
			Vertical	Horizontal		
1.4MHz	QPSK	Low	22.59	22.65	38.45	PASS
		Mid	21.85	21.21		
		High	21.45	21.77		
	16QAM	Low	21.85	22.08		PASS
		Mid	21.42	22.09		
		High	21.95	21.47		
3MHz	QPSK	Low	21.22	22.05	38.45	PASS
		Mid	21.77	21.88		
		High	21.73	21.45		
	16QAM	Low	21.35	21.30		PASS
		Mid	21.99	21.41		
		High	22.11	21.43		
5MHz	QPSK	Low	21.49	21.95	38.45	PASS
		Mid	21.42	22.16		
		High	21.49	21.51		
	16QAM	Low	21.37	21.86		PASS
		Mid	21.44	21.77		
		High	21.27	21.92		

LTE Band 5						
Bandwidth	Modulation	Channel	ERP (dBm)		Limit (dBm)	Result
			Vertical	Horizontal		
1.4MHz	QPSK	Low	22.96	22.90	38.45	PASS
		Mid	21.43	21.40		
		High	21.56	21.34		
	16QAM	Low	21.96	21.49		PASS
		Mid	22.18	22.06		
		High	22.17	21.58		
3MHz	QPSK	Low	21.68	21.66	38.45	PASS
		Mid	21.26	21.62		
		High	21.70	22.02		
	16QAM	Low	22.06	21.76		PASS
		Mid	21.62	21.32		
		High	21.38	22.08		

5MHz	QPSK	Low	22.11	21.33	38.45	PASS
		Mid	22.16	21.44		
		High	21.50	21.36		
	16QAM	Low	21.35	21.23		PASS
		Mid	21.51	22.17		
		High	21.47	21.41		

LTE Band 7						
Bandwidth	Modulation	Channel	EIRP (dBm)		Limit (dBm)	Result
			Vertical	Horizontal		
5MHz	QPSK	Low	22.66	23.09	33.00	PASS
		Mid	22.14	22.04		
		High	21.72	21.44		
	16QAM	Low	21.97	21.79		
		Mid	21.39	22.00		
		High	21.23	21.83		

LTE Band 38						
Bandwidth	Modulation	Channel	EIRP (dBm)		Limit (dBm)	Result
			Vertical	Horizontal		
5MHz	QPSK	Low	23.24	22.32	33.00	PASS
		Mid	21.43	21.51		
		High	21.94	22.08		
	16QAM	Low	21.56	21.60		PASS
		Mid	22.18	21.53		
		High	21.47	21.97		
10MHz	QPSK	Low	21.63	21.98	33.00	PASS
		Mid	21.61	21.45		
		High	21.38	22.14		
	16QAM	Low	21.77	21.49		PASS
		Mid	22.16	22.07		
		High	22.16	21.48		
15MHz	QPSK	Low	21.84	22.05	33.00	PASS
		Mid	21.54	22.13		
		High	21.87	21.55		
	16QAM	Low	22.10	22.14		PASS
		Mid	21.86	21.80		
		High	21.39	21.47		

20MHz	QPSK	Low	21.62	21.69	33.00	PASS
		Mid	21.83	21.70		
		High	21.76	21.71		
	16QAM	Low	22.01	21.45		PASS
		Mid	21.34	21.23		
		High	22.18	22.01		

LTE Band 41						
Bandwidth	Modulation	Channel	EIRP (dBm)		Limit (dBm)	Result
			Vertical	Horizontal		
5MHz	QPSK	Low	23.11	23.16	33.00	PASS
		Mid	21.30	21.96		
		High	21.53	22.16		
	16QAM	Low	21.63	22.00		PASS
		Mid	21.88	21.23		
		High	21.76	21.42		
10MHz	QPSK	Low	21.28	21.90	33.00	PASS
		Mid	22.10	22.16		
		High	21.54	22.05		
	16QAM	Low	21.27	21.89		PASS
		Mid	21.36	21.51		
		High	21.22	21.45		
15MHz	QPSK	Low	22.11	22.01	33.00	PASS
		Mid	22.11	22.11		
		High	22.11	22.16		
	16QAM	Low	22.09	21.80		PASS
		Mid	22.02	21.41		
		High	21.78	21.86		
20MHz	QPSK	Low	21.52	21.36	33.00	PASS
		Mid	21.51	21.84		
		High	21.68	21.76		
	16QAM	Low	21.27	21.45		PASS
		Mid	21.76	22.20		
		High	22.09	22.02		

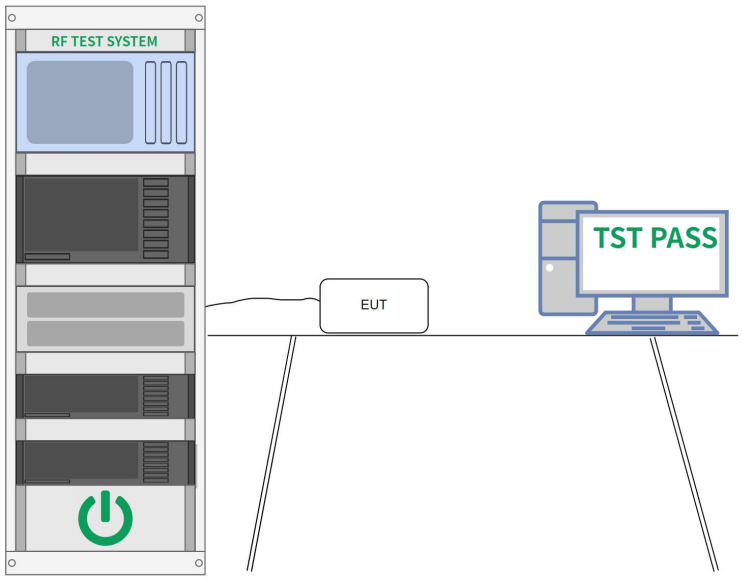
4.2 Peak To Average Ratio

Test Requirement:	47 CFR Part 2.1046, Part 24.232(d) 47 CFR Part 2.1046, Part 22.913 (d) 47 CFR Part 2.1046, Part 27.50
Test Limit:	The peak-to-average ratio (PAR) of the transmission must not exceed 13 dB.
Test Method:	ANSI C63.26-2015, Section 5.2.3.4
Procedure:	a) Set resolution/measurement bandwidth ≥ OBW or specified reference bandwidth. b) Set the number of counts to a value that stabilizes the measured CCDF curve. c) Set the measurement interval as follows: 1) For continuous transmissions, set to the greater of [10 × (number of points in sweep) ×(transmission symbol period)] or 1 ms. 2) For burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize. Set the measurement interval to a time that is less than or equal to the burst duration. 3) If there are several carriers in a single antenna port, the peak power shall be determined for each individual carrier (by disabling the other carriers while measuring the required carrier) and the total peak power calculated from the sum of the individual carrier peak powers. d) Record the maximum PAPR level associated with a probability of 0.1%. e) The peak power level is calculated form the sum of the PAPR value from step d) to the measured average power.

4.2.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.7 °C	Humidity:	49 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2, TM3, TM4, TM5				
Final test mode:	TM1, TM2, TM3, TM4, TM5				

4.2.2 Test Setup Diagram:



4.2.3 Test Data:

Please Refer to Appendix for Details.

4.3 Bandwidth

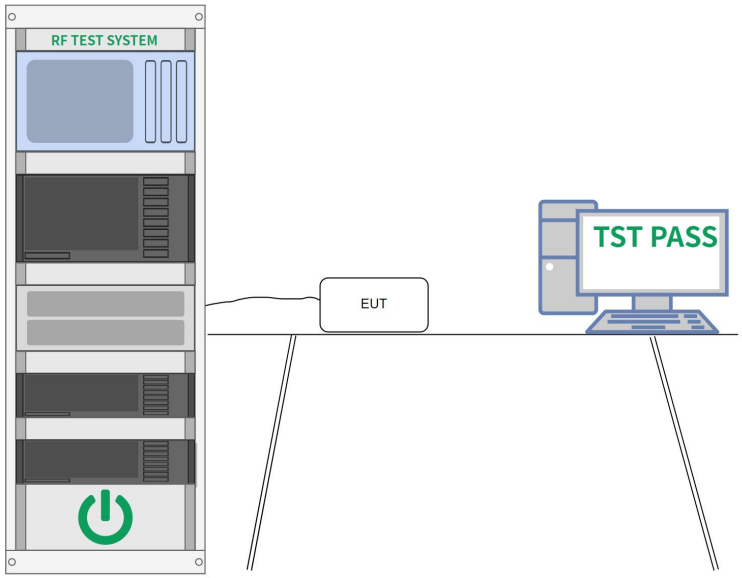
Test Requirement:	47 CFR Part 2.1049(h)
Test Limit:	OBW: No limit, only for report use. EBW: No limit, only for report use.
Test Method:	ANSI C63.26-2015, Section 5.4
Procedure:	OBW: a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts (typically a span of 1.5 × OBW is sufficient). b) The nominal IF filter 3 dB bandwidth (RBW) shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set ≥ 3 × RBW. c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation. See guidance provided in 4.2.3. NOTE—Step a), step b), and step c) may require iteration to adjust within the specified tolerances. d) Set the detection mode to peak, and the trace mode to max-hold. e) If the instrument does not have a 99% OBW function, recover the trace data points and sum directly in linear power terms. Place the recovered amplitude data points, beginning at the lowest frequency, in a running sum until 0.5% of the total is reached. Record that frequency as the lower OBW frequency. Repeat the process until 99.5% of the total is reached and record that frequency as the upper OBW frequency. The 99% power OBW can be determined by computing the difference these two frequencies. f) The OBW shall be reported and plot(s) of the measuring instrument display shall be provided with the test report. The frequency and amplitude axis and scale shall be clearly labeled. Tabular data can be reported in addition to the plot(s). EBW: a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be wide enough to see sufficient roll off of the signal to make the measurement. b) The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set ≥ 3 × RBW. c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation. See guidance provided in 4.2.3. NOTE—Step a), step b), and step c) may require iteration to adjust within the specified tolerances. d) The dynamic range of the spectrum analyzer at the selected RBW shall be more than 10 dB below the target “-X dB” requirement, i.e., if the requirement calls for measuring the -26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be at least 36 dB below the reference level. e) Set spectrum analyzer detection mode to peak, and the trace mode to max hold. f) Determine the reference value by either of the following: 1) Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value). 2) Set the EUT to transmit an unmodulated carrier. Set the spectrum analyzer marker to the levelof the carrier. g) Determine the “-X dB amplitude” as equal to (Reference Value - X). Alternatively, this calculation can be performed on the spectrum analyzer using the delta-marker measurement function. h) If the reference value was determined using an unmodulated carrier, turn the EUT modulation on,then either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise the trace from step f) shall be used for step i).

	i) Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “-X dB amplitude” determined in step f). If a marker is below this “-X dB amplitude” value it should be as close as possible to this value. The OBW is the positive frequency difference between the two markers. The spectral envelope can cross the “-X dB amplitude” at multiple points. The lowest or highest frequency shall be selected as the frequencies that are the farthest away from the center frequency at which the spectral envelope crosses the “-X dB amplitude.” j) The OBW shall be reported by providing plot(s) of the measuring instrument display, to include markers depicting the relevant frequency and amplitude information (e.g., marker table). The frequency and amplitude axis and scale shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

4.3.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.7 °C	Humidity:	49 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2, TM3, TM4, TM5				
Final test mode:	TM1, TM2, TM3, TM4, TM5				

4.3.2 Test Setup Diagram:



4.3.3 Test Data:

Please Refer to Appendix for Details.

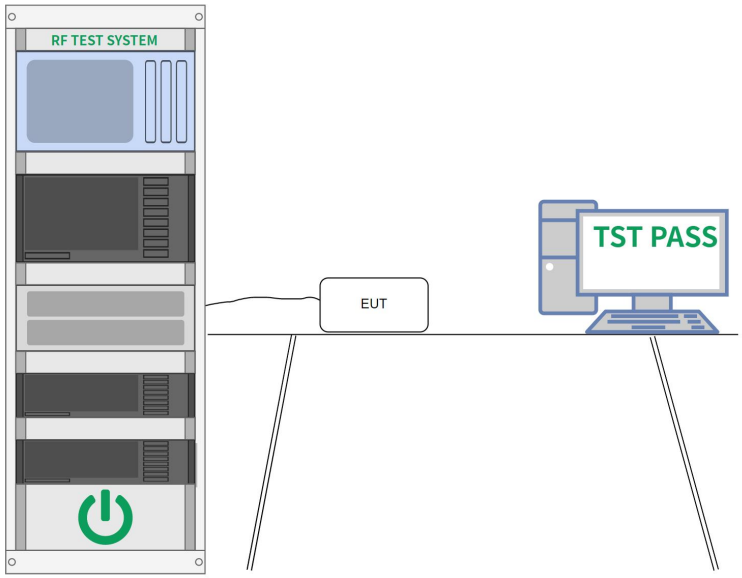
4.4 Out of Band Emission

Test Requirement:	47 CFR Part 2.1051, Part 24.238(a) 47 CFR Part 2.1051, Part 22.917(a) 47 CFR Part 2.1051, Part 27.53(m)(4)
Test Limit:	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 Method:	47 CFR Part 24.238(b) ANSI C63.26-2015, Section 5.7.3
Procedure:	Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (a) Set the spectrum analyzer center frequency to the block, band, or channel edge frequency. b) Set the span wide enough to capture the fundamental emission closest to the authorized block or band edge, and to include all modulation products that spill into the immediately adjacent frequency band. In some cases, it may be possible to set the center frequency and span so as to encompass the fundamental emission and the unwanted out-of-band (band-edge) emissions on either side of the authorized block, band, or channel. This can be accomplished with a single (slow) sweep, if adequate overload protection and sufficient dynamic range can be maintained. c) Set the number of points in sweep ≥ 2 × span / RBW. d) Sweep time should be auto for peak detection. For rms detection the sweep time should be set as follows: 1) If the device can be configured to transmit continuously (duty cycle ≥ 98%), set the (sweep time) > (number of points in sweep) × (symbol period) (e.g., by a factor of 10 × symbol period × number of points). Increasing the sweep time (i.e., slowing the sweep speed) will allow for averaging over multiple symbols 2) If the device cannot transmit continuously (duty cycle < 98%), a gated sweep shall be used when possible (i.e., gate triggered such that the analyzer only sweeps when the device is transmitting at full power), set the sweep time > (number of points in sweep) × (symbol period) but the sweep time shall always be maintained at a value that is less than or equal to the minimum transmission time. 3) If the device cannot be configured to transmit continuously (duty cycle < 98%) and a freerunning sweep must be used, set the sweep time so that the averaging is performed over multiple on/off cycles by setting the sweep time > (number of points in sweep) × (transmitter period) (i.e., the transmit on-time + the off-time). The spectrum analyzer readings shall subsequently be corrected by [10 log (1/duty cycle)]. This assumes that the transmission period and duty cycle is relatively constant (duty cycle variation ≤ ±2%). 4) If the device cannot be configured to transmit continuously and a free-running sweep must be used, and if the transmissions exhibit a non-constant duty cycle (duty cycle variations > ±2%), set the sweep time so that the averaging is performed over the on-period by setting the sweep time > (symbol period) × (number of points), while also maintaining the sweep time <(transmitter on-time). The trace mode shall be set to max hold, since not every display point will be averaged only over just the on-time. Thus, multiple sweeps (e.g., 100) in maximum hold are necessary to ensure that the maximum power is measured. e) The test report shall include the plots of the measuring instrument display and the measured data. f) See Annex I for example emission mask plots.

4.4.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.7 °C	Humidity:	49 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2, TM3, TM4, TM5				
Final test mode:	TM1, TM2, TM3, TM4, TM5				

4.4.2 Test Setup Diagram:



4.4.3 Test Data:

Please Refer to Appendix for Details.

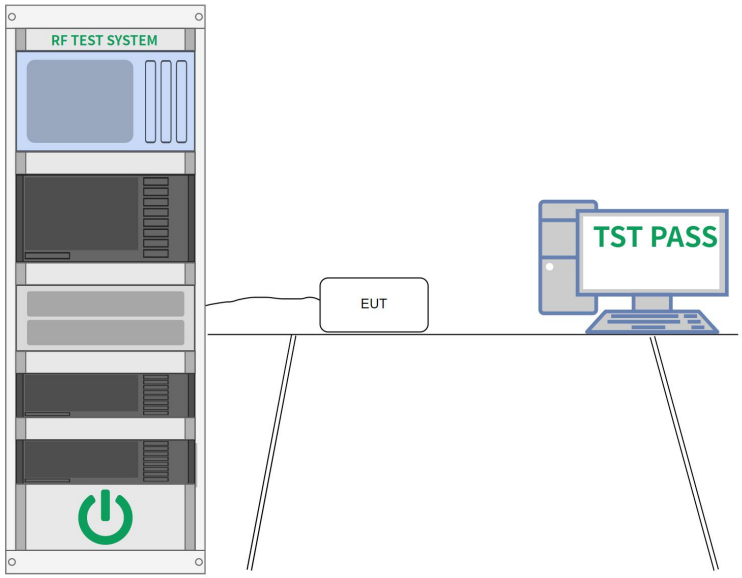
4.5 Spurious Unwanted Emission

Test Requirement:	47 CFR Part 2.1051, Part 24.238(a) 47 CFR Part 2.1051, Part 22.917(a) 47 CFR Part 2.1051, Part 27.53(m)(4)
Test Limit:	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 Method:	47 CFR Part 24.238(b) ANSI C63.26-2015, Section 5.7.3
Procedure:	Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (a) Set the spectrum analyzer center frequency to the block, band, or channel edge frequency. b) Set the span wide enough to capture the fundamental emission closest to the authorized block or band edge, and to include all modulation products that spill into the immediately adjacent frequency band. In some cases, it may be possible to set the center frequency and span so as to encompass the fundamental emission and the unwanted out-of-band (band-edge) emissions on either side of the authorized block, band, or channel. This can be accomplished with a single (slow) sweep, if adequate overload protection and sufficient dynamic range can be maintained. c) Set the number of points in sweep ≥ 2 × span / RBW. d) Sweep time should be auto for peak detection. For rms detection the sweep time should be set as follows: 1) If the device can be configured to transmit continuously (duty cycle ≥ 98%), set the (sweep time) > (number of points in sweep) × (symbol period) (e.g., by a factor of 10 × symbol period × number of points). Increasing the sweep time (i.e., slowing the sweep speed) will allow for averaging over multiple symbols 2) If the device cannot transmit continuously (duty cycle < 98%), a gated sweep shall be used when possible (i.e., gate triggered such that the analyzer only sweeps when the device is transmitting at full power), set the sweep time > (number of points in sweep) × (symbol period) but the sweep time shall always be maintained at a value that is less than or equal to the minimum transmission time. 3) If the device cannot be configured to transmit continuously (duty cycle < 98%) and a freerunning sweep must be used, set the sweep time so that the averaging is performed over multiple on/off cycles by setting the sweep time > (number of points in sweep) × (transmitter period) (i.e., the transmit on-time + the off-time). The spectrum analyzer readings shall subsequently be corrected by [10 log (1/duty cycle)]. This assumes that the transmission period and duty cycle is relatively constant (duty cycle variation ≤ ±2%). 4) If the device cannot be configured to transmit continuously and a free-running sweep must be used, and if the transmissions exhibit a non-constant duty cycle (duty cycle variations > ±2%), set the sweep time so that the averaging is performed over the on-period by setting the sweep time > (symbol period) × (number of points), while also maintaining the sweep time <(transmitter on-time). The trace mode shall be set to max hold, since not every display point will be averaged only over just the on-time. Thus, multiple sweeps (e.g., 100) in maximum hold are necessary to ensure that the maximum power is measured. e) The test report shall include the plots of the measuring instrument display and the measured data. f) See Annex I for example emission mask plots.

4.5.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.7 °C	Humidity:	49 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2, TM3, TM4, TM5				
Final test mode:	TM1, TM2, TM3, TM4, TM5				

4.5.2 Test Setup Diagram:



4.5.3 Test Data:

Please Refer to Appendix for Details.

4.6 Field Strength of Radiated Emission

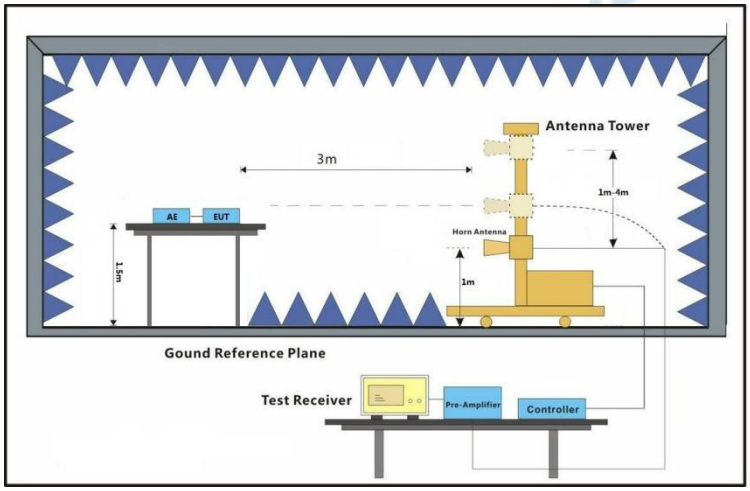
Test Requirement:	47 CFR Part 2.1053, Part 24.238(a) 47 CFR Part 2.1053, Part 22.917(a) 47 CFR Part 2.1051, Part 27.53(m)(4)
Test Limit:	The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.
Test Method:	ANSI C63.26-2015, Section 5.5.3
Procedure:	a) Place the EUT in the center of the turntable. The EUT shall be configured to transmit into the standard non-radiating load (for measuring radiated spurious emissions), connected with cables of minimal length unless specified otherwise. If the EUT uses an adjustable antenna, the antenna shall be positioned to the length that produces the worst case emission at the fundamental operating frequency. b) Each emission under consideration shall be evaluated: 1) Raise and lower the measurement antenna in accordance 5.5.2, as necessary to enable detection of the maximum emission amplitude relative to measurement antenna height. 2) Rotate the EUT through 360° to determine the maximum emission level relative to the axial position. 3) Return the turntable to the azimuth where the highest emission amplitude level was observed. 4) Vary the measurement antenna height again through 1 m to 4 m again to find the height associated with the maximum emission amplitude. 5) Record the measured emission amplitude level and frequency using the appropriate RBW. c) Repeat step b) for each emission frequency with the measurement antenna oriented in both the horizontal and vertical polarizations to determine the orientation that gives the maximum emissions amplitude. d) Set-up the substitution measurement with the reference point of the substitution antenna located as near as possible to where the center of the EUT radiating element was located during the initial EUT measurement. e) Maintain the previous measurement instrument settings and test set-up, with the exception that the EUT is removed and replaced by the substitution antenna. f) Connect a signal generator to the substitution antenna; locate the signal generator so as to minimize any potential influences on the measurement results. Set the signal generator to the frequency where emissions are detected, and set an output power level such that the radiated signal can be detected by the measurement instrument, with sufficient dynamic range relative to the noise floor. g) For each emission that was detected and measured in the initial test [i.e., in step b) and step c)]: 1) Vary the measurement antenna height between 1 m to 4 m to maximize the received (measured) signal amplitude. 2) Adjust the signal generator output power level until the amplitude detected by the measurement instrument equals the amplitude level of the emission previously measured directly in step b) and step c). 3) Record the output power level of the signal generator when equivalence is achieved in step 2). h) Repeat step e) through step g) with the measurement antenna oriented in the opposite polarization. i) Calculate the emission power in dBm referenced to a half-wave dipole using the following equation: Pe = Ps(dBm) - cable loss (dB) + antenna gain (dBd) where Pe = equivalent emission power in dBm

	Ps = source (signal generator) power in dBm NOTE—dBd refers to the measured antenna gain in decibels relative to a half-wave dipole. j) Correct the antenna gain of the substitution antenna if necessary to reference the emission power to a half-wave dipole. When using measurement antennas with the gain specified in dBi, the equivalent dipole-referenced gain can be determined from: gain (dBd) = gain (dBi) - 2.15 dB. If necessary, the antenna gain can be calculated from calibrated antenna factor information k) Provide the complete measurement results as a part of the test report.

4.6.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.7 °C	Humidity:	49 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2, TM3, TM4, TM5				
Final test mode:	TM1, TM2, TM3, TM4, TM5				

4.6.2 Test Setup Diagram:



4.6.3 Test Data:

LTE Band 2								
Bandwidth	Channel	Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
			Polarization	Reading (dBm)	Factor (dB)	Level (dBm)		
1.4MHz	Low	251.63	Vertical	-38.12	-6.68	-44.80	-13.00	PASS
		2145.37	V	-49.77	-3.42	-53.19		
		3069.63	V	-52.57	-1.42	-53.99		
		294.94	Horizontal	-37.65	-6.68	-44.33	-13.00	PASS
		1729.46	H	-49.33	-3.42	-52.75		
		3541.78	H	-51.03	-1.42	-52.45		
	Mid	286.46	Vertical	-39.62	-6.68	-46.30	-13.00	PASS
		1977.65	V	-49.99	-3.42	-53.41		
		3438.92	V	-50.65	-1.42	-52.07		
		274.43	Horizontal	-39.34	-6.68	-46.02	-13.00	PASS
		1966.84	H	-48.26	-3.42	-51.68		
		3702.15	H	-50.63	-1.42	-52.05		
	High	271.16	Vertical	-38.28	-6.68	-44.96	-13.00	PASS
		2041.62	V	-48.81	-3.42	-52.23		
		3091.38	V	-51.65	-1.42	-53.07		
		290.58	Horizontal	-37.73	-6.68	-44.41	-13.00	PASS
		1766.65	H	-47.87	-3.42	-51.29		
		3931.40	H	-51.21	-1.42	-52.63		
3MHz	Low	283.01	Vertical	-38.96	-6.68	-45.64	-13.00	PASS
		2160.66	V	-50.46	-3.42	-53.88		
		3527.72	V	-52.36	-1.42	-53.78		
		223.60	Horizontal	-39.86	-6.68	-46.54	-13.00	PASS
		2441.07	H	-50.08	-3.42	-53.50		
		3267.28	H	-50.87	-1.42	-52.29		
	Mid	252.99	Vertical	-40.32	-6.68	-47.00	-13.00	PASS
		2469.35	V	-50.04	-3.42	-53.46		
		3883.99	V	-51.82	-1.42	-53.24		
		296.20	Horizontal	-38.38	-6.68	-45.06	-13.00	PASS
		1946.57	H	-49.61	-3.42	-53.03		
		3276.15	H	-53.52	-1.42	-54.94		
	High	285.52	Vertical	-37.64	-6.68	-44.32	-13.00	PASS
		2306.69	V	-49.94	-3.42	-53.36		
		3785.06	V	-51.71	-1.42	-53.13		

		291.68	Horizontal	-38.85	-6.68	-45.53	-13.00	PASS
		1507.95	H	-48.98	-3.42	-52.40		
		3270.64	H	-53.08	-1.42	-54.50		
5MHz	Low	237.47	Vertical	-39.79	-6.68	-46.47	-13.00	PASS
		1918.07	V	-50.01	-3.42	-53.43		
		3766.79	V	-50.92	-1.42	-52.34		
		214.88	Horizontal	-38.19	-6.68	-44.87	-13.00	PASS
		2399.51	H	-48.51	-3.42	-51.93		
		3709.30	H	-51.40	-1.42	-52.82		
	Mid	215.36	Vertical	-37.56	-6.68	-44.24	-13.00	PASS
		1631.00	V	-48.10	-3.42	-51.52		
		3939.98	V	-53.44	-1.42	-54.86		
		267.52	Horizontal	-40.32	-6.68	-47.00	-13.00	PASS
		1612.95	H	-50.09	-3.42	-53.51		
		3221.94	H	-52.54	-1.42	-53.96		
	High	216.19	Vertical	-39.98	-6.68	-46.66	-13.00	PASS
		1681.12	V	-49.61	-3.42	-53.03		
		3024.29	V	-53.09	-1.42	-54.51		
		218.08	Horizontal	-37.91	-6.68	-44.59	-13.00	PASS
		1717.48	H	-49.75	-3.42	-53.17		
		3358.65	H	-51.73	-1.42	-53.15		

LTE Band 5

Bandwidth	Channel	Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
			Polarization	Reading (dBm)	Factor (dB)	Level (dBm)		
1.4MHz	Low	258.33	Vertical	-38.52	-6.68	-45.20	-13.00	PASS
		2088.66	V	-47.78	-3.42	-51.20		
		3639.36	V	-52.90	-1.42	-54.32		
		298.94	Horizontal	-38.85	-6.68	-45.53	-13.00	PASS
		1709.75	H	-50.37	-3.42	-53.79		
		3076.94	H	-50.67	-1.42	-52.09		
	Mid	266.46	Vertical	-38.00	-6.68	-44.68	-13.00	PASS
		2475.07	V	-48.44	-3.42	-51.86		
		3274.41	V	-51.08	-1.42	-52.50		
		285.47	Horizontal	-40.47	-6.68	-47.15	-13.00	PASS
		2047.56	H	-48.84	-3.42	-52.26		
		3385.16	H	-50.87	-1.42	-52.29		

	High	230.07	Vertical	-37.78	-6.68	-44.46	-13.00	PASS
		2032.64	V	-49.51	-3.42	-52.93		
		3751.15	V	-51.47	-1.42	-52.89		
		205.70	Horizontal	-40.23	-6.68	-46.91	-13.00	PASS
		2291.55	H	-49.64	-3.42	-53.06		
		3684.38	H	-53.13	-1.42	-54.55		
3MHz	Low	284.49	Vertical	-38.00	-6.68	-44.68	-13.00	PASS
		2451.58	V	-49.39	-3.42	-52.81		
		3560.86	V	-51.80	-1.42	-53.22		
		296.38	Horizontal	-39.66	-6.68	-46.34	-13.00	PASS
		2270.92	H	-48.56	-3.42	-51.98		
		3247.28	H	-51.48	-1.42	-52.90		
	Mid	242.93	Vertical	-37.95	-6.68	-44.63	-13.00	PASS
		1750.84	V	-50.21	-3.42	-53.63		
		3946.09	V	-52.16	-1.42	-53.58		
		243.35	Horizontal	-39.11	-6.68	-45.79	-13.00	PASS
		1519.96	H	-47.75	-3.42	-51.17		
		3481.10	H	-51.56	-1.42	-52.98		
	High	266.82	Vertical	-40.44	-6.68	-47.12	-13.00	PASS
		2408.53	V	-50.34	-3.42	-53.76		
		3216.51	V	-50.84	-1.42	-52.26		
		295.86	Horizontal	-38.74	-6.68	-45.42	-13.00	PASS
		1601.74	H	-49.56	-3.42	-52.98		
		3356.84	H	-52.64	-1.42	-54.06		
5MHz	Low	218.42	Vertical	-39.47	-6.68	-46.15	-13.00	PASS
		2339.90	V	-48.47	-3.42	-51.89		
		3872.12	V	-51.10	-1.42	-52.52		
		250.84	Horizontal	-38.22	-6.68	-44.90	-13.00	PASS
		2458.98	H	-50.26	-3.42	-53.68		
		3007.40	H	-51.52	-1.42	-52.94		
	Mid	229.65	Vertical	-37.89	-6.68	-44.57	-13.00	PASS
		1803.94	V	-49.93	-3.42	-53.35		
		3137.75	V	-50.87	-1.42	-52.29		
		281.65	Horizontal	-39.83	-6.68	-46.51	-13.00	PASS
		1569.76	H	-49.40	-3.42	-52.82		
		3731.10	H	-51.27	-1.42	-52.69		
		247.44	Vertical	-39.86	-6.68	-46.54		
		1982.10	V	-50.16	-3.42	-53.58		

	High	3910.26	V	-50.99	-1.42	-52.41	-13.00	PASS
		262.89	Horizontal	-39.12	-6.68	-45.80	-13.00	PASS
		2322.75	H	-49.72	-3.42	-53.14		
		3871.63	H	-52.43	-1.42	-53.85		

LTE Band 7

Bandwidth	Channel	Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
			Polarization	Reading (dBm)	Factor (dB)	Level (dBm)		
5MHz	Low	251.09	Vertical	-39.04	-6.68	-45.72	-25.00	PASS
		1596.98	V	-50.03	-3.42	-53.45		
		3223.96	V	-52.09	-1.42	-53.51		
		243.53	Horizontal	-37.76	-6.68	-44.44	-25.00	PASS
		1730.59	H	-49.32	-3.42	-52.74		
		3818.21	H	-51.93	-1.42	-53.35		
	Mid	278.05	Vertical	-40.55	-6.68	-47.23	-25.00	PASS
		2273.49	V	-48.88	-3.42	-52.30		
		3106.56	V	-52.76	-1.42	-54.18		
		219.03	Horizontal	-37.73	-6.68	-44.41	-25.00	PASS
		2106.51	H	-48.25	-3.42	-51.67		
		3610.35	H	-52.56	-1.42	-53.98		
	High	290.97	Vertical	-38.11	-6.68	-44.79	-25.00	PASS
		2322.28	V	-49.36	-3.42	-52.78		
		3808.24	V	-51.62	-1.42	-53.04		
		253.49	Horizontal	-39.62	-6.68	-46.30	-25.00	PASS
		1701.77	H	-49.82	-3.42	-53.24		
		3137.74	H	-51.81	-1.42	-53.23		

LTE Band 38

Bandwidth	Channel	Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
			Polarization	Reading (dBm)	Factor (dB)	Level (dBm)		
	Low	267.02	Vertical	-39.07	-6.68	-45.75	-25.00	PASS
		2186.79	V	-48.73	-3.42	-52.15		
		3224.78	V	-53.18	-1.42	-54.60		
		230.31	Horizontal	-38.64	-6.68	-45.32	-25.00	PASS
		2257.90	H	-48.71	-3.42	-52.13		
		3833.79	H	-52.48	-1.42	-53.90		

5MHz	Mid	252.47	Vertical	-38.83	-6.68	-45.51	-25.00	PASS
		1536.65	V	-48.64	-3.42	-52.06		
		3657.74	V	-52.62	-1.42	-54.04		
		279.49	Horizontal	-38.07	-6.68	-44.75	-25.00	PASS
		1578.85	H	-47.67	-3.42	-51.09		
		3048.15	H	-52.67	-1.42	-54.09		
	High	211.62	Vertical	-39.29	-6.68	-45.97	-25.00	PASS
		1971.36	V	-49.91	-3.42	-53.33		
		3456.58	V	-52.45	-1.42	-53.87		
		265.88	Horizontal	-39.75	-6.68	-46.43	-25.00	PASS
		1521.38	H	-50.16	-3.42	-53.58		
		3852.44	H	-52.72	-1.42	-54.14		
10MHz	Low	265.39	Vertical	-39.49	-6.68	-46.17	-25.00	PASS
		2450.90	V	-50.50	-3.42	-53.92		
		3955.02	V	-51.03	-1.42	-52.45		
		223.11	Horizontal	-39.72	-6.68	-46.40	-25.00	PASS
		2303.12	H	-48.54	-3.42	-51.96		
		3949.90	H	-51.83	-1.42	-53.25		
	Mid	292.23	Vertical	-40.06	-6.68	-46.74	-25.00	PASS
		2228.62	V	-50.51	-3.42	-53.93		
		3089.03	V	-51.69	-1.42	-53.11		
		258.60	Horizontal	-37.61	-6.68	-44.29	-25.00	PASS
		2277.90	H	-50.28	-3.42	-53.70		
		3413.09	H	-53.33	-1.42	-54.75		
	High	200.77	Vertical	-38.61	-6.68	-45.29	-25.00	PASS
		2033.48	V	-49.29	-3.42	-52.71		
		3293.48	V	-51.96	-1.42	-53.38		
		248.55	Horizontal	-40.44	-6.68	-47.12	-25.00	PASS
		1685.42	H	-48.41	-3.42	-51.83		
		3462.41	H	-53.09	-1.42	-54.51		
	Low	254.84	Vertical	-39.95	-6.68	-46.63	-25.00	PASS
		1679.25	V	-48.35	-3.42	-51.77		
		3962.83	V	-51.27	-1.42	-52.69		
		263.65	Horizontal	-39.30	-6.68	-45.98	-25.00	PASS
		2466.40	H	-48.58	-3.42	-52.00		
		3172.11	H	-53.49	-1.42	-54.91		
		245.65	Vertical	-39.94	-6.68	-46.62		

15MHz	Mid	2276.98	V	-47.73	-3.42	-51.15	-25.00	PASS
		3809.34	V	-50.92	-1.42	-52.34		
		270.38	Horizontal	-40.25	-6.68	-46.93		
		1979.17	H	-47.90	-3.42	-51.32	-25.00	PASS
		3293.50	H	-51.83	-1.42	-53.25		
	High	214.31	Vertical	-38.03	-6.68	-44.71		
		2067.47	V	-50.26	-3.42	-53.68	-25.00	PASS
		3962.78	V	-50.72	-1.42	-52.14		
		296.07	Horizontal	-40.12	-6.68	-46.80		
		2105.12	H	-49.49	-3.42	-52.91	-25.00	PASS
		3850.41	H	-50.74	-1.42	-52.16		
20MHz	Low	297.38	Vertical	-40.53	-6.68	-47.21		
		2069.66	V	-49.70	-3.42	-53.12	-25.00	PASS
		3566.47	V	-51.86	-1.42	-53.28		
		231.09	Horizontal	-37.64	-6.68	-44.32	-25.00	PASS
		1831.65	H	-48.60	-3.42	-52.02		
		3665.15	H	-50.70	-1.42	-52.12		
	Mid	207.51	Vertical	-40.13	-6.68	-46.81		
		1918.46	V	-50.37	-3.42	-53.79	-25.00	PASS
		3219.38	V	-51.90	-1.42	-53.32		
		207.79	Horizontal	-39.59	-6.68	-46.27		
		2453.19	H	-49.88	-3.42	-53.30	-25.00	PASS
		3088.10	H	-50.74	-1.42	-52.16		
	High	263.30	Vertical	-38.16	-6.68	-44.84		
		2241.11	V	-49.60	-3.42	-53.02	-25.00	PASS
		3019.00	V	-52.89	-1.42	-54.31		
		239.07	Horizontal	-38.80	-6.68	-45.48		
		1704.21	H	-50.55	-3.42	-53.97	-25.00	PASS
		3006.43	H	-52.71	-1.42	-54.13		

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Bandwidth	Channel	Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
			Polarization	Reading (dBm)	Factor (dB)	Level (dBm)		
	Low	233.51	Vertical	-39.25	-6.68	-45.93		
		2465.07	V	-48.35	-3.42	-51.77	-25.00	PASS
		3755.39	V	-52.35	-1.42	-53.77		
		284.22	Horizontal	-37.80	-6.68	-44.48		

		1996.12	H	-49.77	-3.42	-53.19	-25.00	PASS
		3162.90	H	-52.25	-1.42	-53.67		
	Mid	297.73	Vertical	-38.75	-6.68	-45.43	-25.00	PASS
		1687.15	V	-49.91	-3.42	-53.33		
		3976.89	V	-51.88	-1.42	-53.30		
5MHz		215.33	Horizontal	-38.23	-6.68	-44.91	-25.00	PASS
		2417.51	H	-49.84	-3.42	-53.26		
		3167.79	H	-52.99	-1.42	-54.41		
	High	263.90	Vertical	-40.20	-6.68	-46.88	-25.00	PASS
		2116.33	V	-47.95	-3.42	-51.37		
		3403.07	V	-51.15	-1.42	-52.57		
		218.69	Horizontal	-39.88	-6.68	-46.56	-25.00	PASS
		1713.95	H	-49.76	-3.42	-53.18		
		3185.41	H	-50.76	-1.42	-52.18		
10MHz	Low	204.41	Vertical	-39.05	-6.68	-45.73	-25.00	PASS
		2349.76	V	-49.47	-3.42	-52.89		
		3617.46	V	-52.74	-1.42	-54.16		
		299.33	Horizontal	-40.16	-6.68	-46.84	-25.00	PASS
		1893.99	H	-48.50	-3.42	-51.92		
		3682.72	H	-52.65	-1.42	-54.07		
	Mid	200.59	Vertical	-38.96	-6.68	-45.64	-25.00	PASS
		2392.20	V	-50.06	-3.42	-53.48		
		3982.23	V	-51.79	-1.42	-53.21		
		240.40	Horizontal	-40.12	-6.68	-46.80	-25.00	PASS
		2035.95	H	-49.26	-3.42	-52.68		
		3803.33	H	-52.88	-1.42	-54.30		
	High	295.25	Vertical	-38.28	-6.68	-44.96	-25.00	PASS
		1750.97	V	-48.90	-3.42	-52.32		
		3033.67	V	-52.84	-1.42	-54.26		
		206.19	Horizontal	-38.02	-6.68	-44.70	-25.00	PASS
		1847.86	H	-49.68	-3.42	-53.10		
		3603.41	H	-52.79	-1.42	-54.21		
	Low	238.25	Vertical	-38.11	-6.68	-44.79	-25.00	PASS
		2164.57	V	-48.50	-3.42	-51.92		
		3984.30	V	-52.19	-1.42	-53.61		
		236.74	Horizontal	-39.78	-6.68	-46.46		
		1723.25	H	-48.86	-3.42	-52.28		

		3374.24	H	-50.80	-1.42	-52.22	-25.00	PASS
15MHz	Mid	221.68	Vertical	-38.10	-6.68	-44.78	-25.00	PASS
		1794.91	V	-47.71	-3.42	-51.13		
		3991.15	V	-51.16	-1.42	-52.58		
		257.52	Horizontal	-39.20	-6.68	-45.88	-25.00	PASS
		2452.98	H	-48.24	-3.42	-51.66		
		3052.48	H	-51.27	-1.42	-52.69		
	High	252.16	Vertical	-37.71	-6.68	-44.39	-25.00	PASS
		2133.19	V	-47.69	-3.42	-51.11		
		3976.38	V	-52.14	-1.42	-53.56		
		232.67	Horizontal	-39.32	-6.68	-46.00	-25.00	PASS
		2129.73	H	-50.23	-3.42	-53.65		
		3628.51	H	-51.12	-1.42	-52.54		
20MHz	Low	219.80	Vertical	-37.67	-6.68	-44.35	-25.00	PASS
		1993.96	V	-48.91	-3.42	-52.33		
		3253.08	V	-52.00	-1.42	-53.42		
		243.87	Horizontal	-39.78	-6.68	-46.46	-25.00	PASS
		2157.64	H	-48.52	-3.42	-51.94		
		3489.60	H	-50.63	-1.42	-52.05		
	Mid	246.16	Vertical	-39.41	-6.68	-46.09	-25.00	PASS
		2472.38	V	-49.56	-3.42	-52.98		
		3576.80	V	-52.78	-1.42	-54.20		
		293.40	Horizontal	-37.88	-6.68	-44.56	-25.00	PASS
		1553.10	H	-49.49	-3.42	-52.91		
		3324.98	H	-51.72	-1.42	-53.14		
	High	281.52	Vertical	-38.22	-6.68	-44.90	-25.00	PASS
		1965.82	V	-49.80	-3.42	-53.22		
		3095.67	V	-52.84	-1.42	-54.26		
		298.40	Horizontal	-38.38	-6.68	-45.06	-25.00	PASS
		1999.73	H	-50.41	-3.42	-53.83		
		3656.93	H	-53.29	-1.42	-54.71		

4.7 Frequency Stability

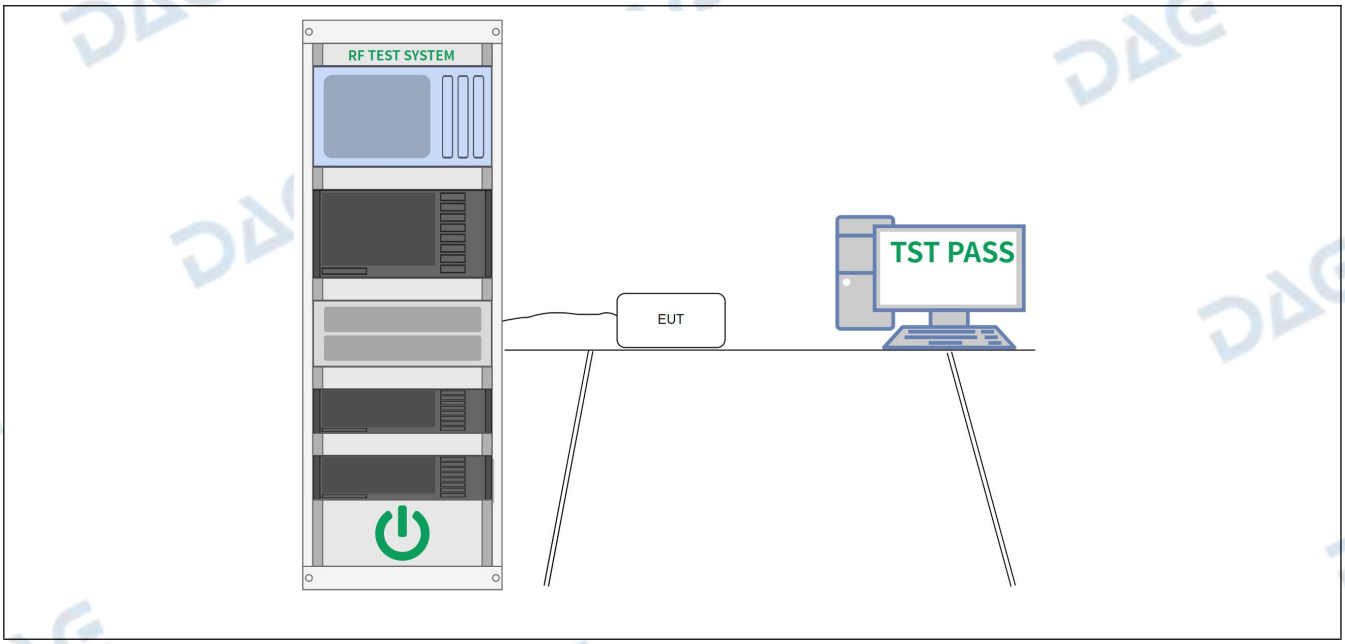
Test Requirement:	47 CFR Part 2.1055, Part 24.235 47 CFR Part 2.1055, Part 27.54
Test Limit:	The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.
Test Method:	ANSI C63.26-2015, Section 5.6
Procedure:	Frequency stability over variations in temperature: a) Supply the EUT with a nominal 60 Hz ac voltage, dc voltage, or install a new or fully charged battery in the EUT. b) If possible a dummy load should be connected to the EUT because an antenna near the metallic walls of an environmental test chamber could affect the output frequency of the EUT. If the EUT is equipped with a permanently attached, adjustable-length antenna, the EUT should be placed in the center of the chamber with the antenna adjusted to the shortest length possible. c) Turn on the EUT, and tune it to the center frequency of the operating band. d) Couple the transmitter output to the measuring instrument through a suitable attenuator and coaxial cable. If connection to the EUT output is not possible, make the measurement by connecting an antenna to the measuring instrument with a suitable length of coaxial cable and placing the measuring antenna near the EUT (e.g., 15 cm away). NOTE—An instrument that has an adequate level of accuracy as specified by the procuring or regulatory authority is the recommended measuring instrument. e) Adjust the location of the measurement antenna and the controls on the measurement instrument to obtain a suitable signal level (i.e., a level that will not overload the measurement instrument, but is strong enough to allow measurement of the operating or fundamental frequency of the EUT). Adjust the detector bandwidth and span settings to achieve a resolution capable of accurate frequency measurements over the applicable frequency stability limits. f) Turn the EUT off, and place it inside the environmental temperature chamber. For devices that have oscillator heaters, energize only the heater circuit. g) Set the temperature control on the chamber to the highest temperature specified in the regulatory requirements for the type of device, and allow the oscillator heater and the chamber temperature to stabilize. Unless otherwise instructed by the regulatory authority, this temperature should be 50 °C. h) While maintaining a constant temperature inside the environmental chamber, turn on the EUT and allow sufficient time for the EUT temperature to stabilize. i) Measure the frequency. j) Switch off the EUT, but do not switch off the oscillator heater. k) Lower the chamber temperature to the next level that is required by the standard and allow the temperature inside the chamber to stabilize. Unless otherwise instructed by the regulators, this temperature step should be 10 °C. l) Repeat step h) through step k) down to the lowest specified temperature. Unless otherwise instructed by the regulators, this temperature should be -30 °C. When the frequency stability limit is stated as being sufficient such that the fundamental emissions stay within the authorized bands of operation, a reference point shall be established at the applicable unwanted emissions limit using a RBW equal to the RBW required by the unwanted emissions specification of the applicable regulatory standard. These reference points measured using the lowest and highest channel of operation shall be identified as fL and fH respectively. The worst-case frequency offset determined in the above methods shall be added or subtracted from the values of fL and fH and the resulting frequencies must remain within the band. m) The following additional information is required for equipment incorporating heater type crystal oscillators to be used in mobile stations except for battery powered, hand carried, and portable equipment having mean output power lower than the threshold specified. 1) Measurement data showing variation in transmitter output frequency from a cold

	start and the elapsed time necessary for the frequency to stabilize within the applicable tolerance. Tests shall be made after temperature stabilization at each of the ambient temperature levels required by the standard. 2) Beginning at each temperature level specified, the frequency shall be measured within 60 s after application of primary power to the transmitter and at intervals of no more than 60 s thereafter until 10 min have elapsed or until sufficient measurements are obtained to indicate clearly that the frequency has stabilized within the applicable tolerance, whichever time period is greater. 3) The elapsed time necessary for the frequency to stabilize within the applicable tolerance from each beginning temperature level as determined from the tests specified in this paragraph shall be specified in the instruction book for the transmitter furnished to the user. 4) When it is impracticable to subject the complete transmitter to this test because of its physical dimensions or power rating, only its frequency determining and stabilizing portions need be tested. Frequency stability when varying supply voltage: a) Couple the transmitter output to the measuring instrument through a suitable attenuator and coaxial cable. If connection to the EUT output is not possible make the measurement by connecting an antenna to the measuring instrument with a suitable length of coaxial cable and placing the measuring antenna near the EUT (e.g., 15 cm away) b) Supply the EUT with nominal ac or dc voltage. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided. Effects on frequency of transmitter keying (except for broadcast transmitters) and any heating element cycling at the nominal supply voltage and at each extreme also shall be shown. c) Turn on the EUT, and couple its output to a frequency counter or other frequency-measuring instrument. d) Tune the EUT to the center frequency of the operating band. Adjust the location of the measurement antenna and the controls on the measurement instrument to obtain a suitable signal level (i.e., a level that will not overload the measurement instrument, but is strong enough to allow measurement of the operating or fundamental frequency of the EUT). Adjust the detector bandwidth and span settings to achieve a resolution capable of accurate frequency measurements over the applicable frequency stability limits. NOTE—An instrument that has an adequate level of accuracy as specified by the procuring or regulatory authority is the recommended measuring instrument. e) Measure the frequency. f) Unless otherwise specified, vary primary supply voltage from 85% to 115% of the nominal value for other than hand carried battery equipment. g) For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the battery operating end point, which shall be specified by the manufacturer. h) Repeat the frequency measurement. NOTE—For band-edge compliance, it can be required to make these measurements at the low and high channel of the operating band.

4.7.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.7 °C	Humidity:	49 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2, TM3, TM4, TM5				
Final test mode:	TM1, TM2, TM3, TM4, TM5				

4.7.2 Test Setup Diagram:



4.7.3 Test Data:

Please Refer to Appendix for Details.

5 TEST SETUP PHOTOS

Refer to Appendix - EUT Photos for DACE250103004RL001

6 PHOTOS OF THE EUT

Refer to Appendix - EUT Photos for DACE250103004RL001

********** **End of Report** **********