



Test Report

Report No. : MTi250616010-0107E2

Date of issue : 2025-07-22

Applicant : COMPUCASE ENTERPRISE CO., LTD.

Product : COUGAR Ultimus Pro Wireless Gaming
Keyboard

Model(s) : CGR-NM1MB-ULP, CGR-NM1MW-ULP, CGR-
NM1MP-ULP, CGR-NM1MG-ULP, CGR-NM1MS-
ULP, CGR-NM1MO-ULP, CGR-NM1MR-ULP,
CGR-NM1MY-ULP, CGR-NM1MPU-ULP, CGR-
NM1MGR-ULP, CGR-NM1MBL-ULP

FCC ID : 2ARWD-CGR-NM1MB-ULP

Shenzhen Microtest Co., Ltd.

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Test Result Certification	
Applicant	COMPUCASE ENTERPRISE CO., LTD.
Applicant Address	No. 225, Ln. 54, Sec. 2, Anhe Rd., Annan Dist., Tainan City 709, Taiwan
Manufacturer	Dongguan WEIJI Electronics, Technology Co., Ltd.
Manufacturer Address	No. 595 Jienan Road, Humen Town, Dongguan, Guangdong, CHINA
Factory	Dongguan WEIJI Electronics, Technology Co., Ltd.
Factory Address	No. 595 Jienan Road, Humen Town, Dongguan, Guangdong, CHINA
Product description	
Product name	COUGAR Ultimus Pro Wireless Gaming Keyboard
Trademark	COUGAR
Model name	CGR-NM1MB-ULP
Series Model(s)	CGR-NM1MW-ULP, CGR-NM1MP-ULP, CGR-NM1MG-ULP, CGR-NM1MS-ULP, CGR-NM1MO-ULP, CGR-NM1MR-ULP, CGR-NM1MY-ULP, CGR-NM1MPU-ULP, CGR-NM1MGR-ULP, CGR-NM1MBL-ULP
Standards	47 CFR Part 15.249
Test Method	ANSI C63.10-2013
Testing Information	
Date of test	2025-07-03 to 2025-07-18
Test result	Pass
Prepared by:	Yanice.Xie
Reviewed by:	David Lee
Approved by:	Lewis Lian

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1 General Description

1.1 Description of the EUT

Product name:	COUGAR Ultimus Pro Wireless Gaming Keyboard
Model name:	CGR-NM1MB-ULP
Series Model(s):	CGR-NM1MW-ULP, CGR-NM1MP-ULP, CGR-NM1MG-ULP, CGR-NM1MS-ULP, CGR-NM1MO-ULP, CGR-NM1MR-ULP, CGR-NM1MY-ULP, CGR-NM1MPU-ULP, CGR-NM1MGR-ULP, CGR-NM1MBL-ULP
Model difference:	All the models are the same circuit and module, except the model name and color.
Electrical rating:	Input: DC 5V/1A Battery: DC 3.7V 2000mAh*2
Accessories:	1. Cable:USB-A to USB-C cable*1 2. 2.4GHz wireless USB dongle*2 3. USB-C to USB-A adapter(Male to Female)*1 4. USB-C to USB-A adapter(Female to Female)*1
Hardware version:	V02
Software version:	V20.09
Test sample(s) number:	MTi250616010-01-R001

RF specification

Operating frequency range:	2405~2475MHz
Channel number:	16
Modulation type:	GFSK
Antenna(s) type:	PCB Antenna
Antenna(s) gain:	2.34 dBi

1.2 Description of test modes

No.	Emission test modes
Mode1	TX

1.2.1 Operation channel list

Channel	Frequency (MHz)						
1	2405	11	2422	21	2441	31	2463
2	2408	12	2426	22	2445	32	2466
3	2414	13	2436	23	2453	33	2471
4	2419	14	2439	24	2459	34	2475

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Test Channel List**Operation Band: 2.4G**

Lowest Channel (LCH) (MHz)	Middle Channel (MCH) (MHz)	Highest Channel (HCH) (MHz)
2405	2441	2475

Note: The test software provided by manufacturer is used to control EUT for working in engineering mode, that enables selectable channel, and capable of continuous transmitting mode.

Test Software: BK32xx RF Test-V1.9.1_en(Apr 13 2020)

For power setting, refer to below table.

Mode	2405MHz	2441MHz	2475MHz
GFSK	default	default	default

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1.3 Environmental Conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15°C ~ 35°C
Humidity:	20% RH ~ 75% RH
Atmospheric pressure:	98 kPa ~ 101 kPa

1.4 Description of support units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Support equipment list			
Description	Model	Serial No.	Manufacturer
(USB-A)5W Adapter	A1443	/	APPLE
Support cable list			
Description	Length (m)	From	To
/	/	/	/

1.5 Measurement uncertainty

Measurement	Uncertainty
Conducted emissions (AMN 150kHz~30MHz)	±3.1dB
Occupied channel bandwidth	±3 %
Radiated spurious emissions (above 1GHz)	±5.3dB
Radiated spurious emissions (9kHz~30MHz)	±4.3dB
Radiated spurious emissions (30MHz~1GHz)	±4.7dB
Temperature	±1 °C
Humidity	± 5 %

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

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2 Summary of Test Result

No.	Item	Standard	Requirement	Result
1	Antenna requirement	47 CFR Part 15.249	47 CFR Part 15.203	Pass
2	Conducted Emission at AC power line	47 CFR Part 15.249	47 CFR 15.207(a)	Pass
3	Occupied Bandwidth	47 CFR Part 15.249	47 CFR 15.215(c)	Pass
4	Field strength of fundamental	47 CFR Part 15.249	47 CFR 15.249(a) 47 CFR 15.249(b)(1)	Pass
5	Band edge emissions (Radiated)	47 CFR Part 15.249	47 CFR 15.249(d)	Pass
6	Emissions in frequency bands (below 1GHz)	47 CFR Part 15.249	47 CFR 15.249(a) 47 CFR 15.249(d) 47 CFR 15.249(e)	Pass
7	Emissions in frequency bands (above 1GHz)	47 CFR Part 15.249	47 CFR 15.249(a) 47 CFR 15.249(d) 47 CFR 15.249(e)	Pass

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3 Test Facilities and accreditations

3.1 Test laboratory

Test laboratory:	Shenzhen Microtest Co., Ltd.
Test site location:	101, No.7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Telephone:	(86-755)88850135
Fax:	(86-755)88850136
CNAS Registration No.:	CNAS L5868
FCC Registration No.:	448573
IC Registration No.:	21760
CABID:	CN0093

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4 List of test equipment

No.	Equipment	Manufacturer	Model	Serial No.	Cal. date	Cal. Due
Conducted Emission at AC power line						
1	EMI Test Receiver	Rohde&schwarz	ESCI3	101368	2025-03-14	2026-03-13
2	Artificial mains network	Schwarzbeck	NSLK 8127	183	2025-03-18	2026-03-17
3	Artificial Mains Network	Rohde & Schwarz	ESH2-Z5	100263	2025-03-18	2026-03-17
Occupied Bandwidth						
1	Wideband Radio Communication Tester	Rohde&schwarz	CMW500	149155	2025-03-18	2026-03-17
2	ESG Series Analog Signal Generator	Agilent	E4421B	GB400512	2025-03-40	2026-03-13
3	PXA Signal Analyzer	Agilent	N9030A	MY513502	2025-03-96	2026-03-13
4	Synthesized Sweeper	Agilent	83752A	3610A019	2025-03-57	2026-03-13
5	MXA Signal Analyzer	Agilent	N9020A	MY501434	2025-03-83	2026-03-13
6	RF Control Unit	Tonscend	JS0806-1	19D80601	2025-03-52	2026-03-17
7	Band Reject Filter Group	Tonscend	JS0806-F	19D80601	2025-03-60	2026-03-13
8	ESG Vector Signal Generator	Agilent	N5182A	MY501437	2025-03-62	2026-03-13
9	DC Power Supply	Agilent	E3632A	MY400276	2025-03-95	2026-03-17
Field strength of fundamental Band edge emissions (Radiated) Emissions in frequency bands (above 1GHz)						
1	EMI Test Receiver	Rohde&schwarz	ESCI7	101166	2025-03-14	2026-03-13
2	Double Ridged Broadband Horn Antenna	schwarabeck	BBHA 9120 D	2278	2025-05-27	2027-05-26
3	Amplifier	Agilent	8449B	3008A0112	2025-03-0	2026-03-17
4	MXA signal analyzer	Agilent	N9020A	MY544408	2025-03-59	2026-03-13
5	PXA Signal Analyzer	Agilent	N9030A	MY513502	2025-03-96	2026-03-13
6	Horn antenna	Schwarzbeck	BBHA 9170	00987	2025-05-27	2027-05-26
7	Pre-amplifier	Space-Dtronics	EWLAN1840 G	210405001	2025-03-19	2026-03-18
Emissions in frequency bands (below 1GHz)						
1	EMI Test Receiver	Rohde&schwarz	ESCI7	101166	2025-03-14	2026-03-13
2	TRILOG Broadband Antenna	schwarabeck	VULB 9163	9163-1338	2025-05-23	2027-05-22
3	Active Loop Antenna	Schwarzbeck	FMZB 1519 B	00066	2024-03-23	2026-03-22

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No.	Equipment	Manufacturer	Model	Serial No.	Cal. date	Cal. Due
4	Amplifier	Hewlett-Packard	8447F	3113A0618 4	2025-03-18	2026-03-17



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5 Evaluation Results (Evaluation)

5.1 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.
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5.1.1 Conclusion:

The antenna of the EUT is permanently attached.

The antenna of the EUT is permanently attached.
The EUT complies with the requirement of FCC PART 15.203.

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6 Radio Spectrum Matter Test Results (RF)

6.1 Conducted Emission at AC power line

Test Requirement:	Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN).		
Test Limit:	Frequency of emission (MHz)		Conducted limit (dB μ V)
			Quasi-peak
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50

*Decreases with the logarithm of the frequency.

Test Method: ANSI C63.10-2013 section 6.2

Procedure: Refer to ANSI C63.10-2013 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices

6.1.1 E.U.T. Operation:

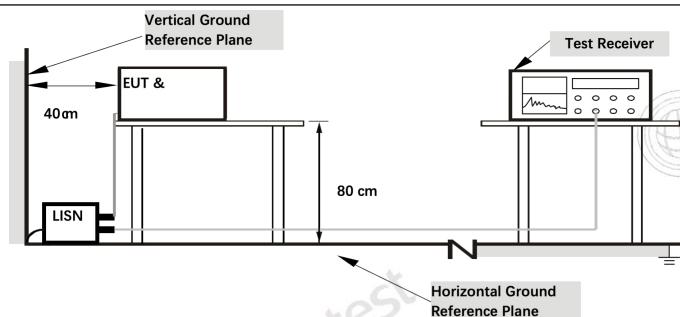
Operating Environment:

Temperature:	26 °C	Humidity:	68 %	Atmospheric Pressure:	100 kPa
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Pre test mode:	Mode1
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Final test mode:	Mode1
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6.1.2 Test Setup Diagram:

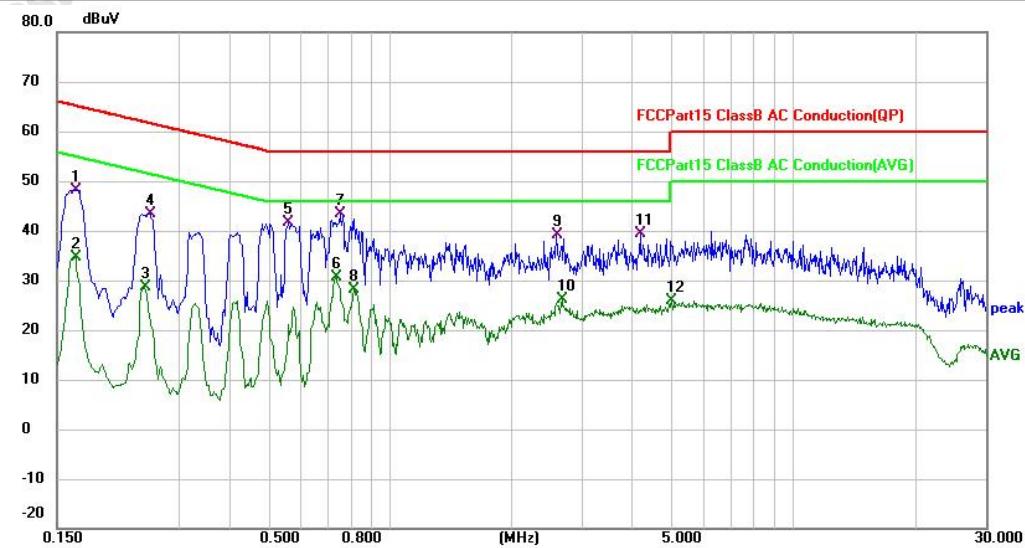


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6.1.3 Test Data:

Mode1 / Line: Line / CH: L

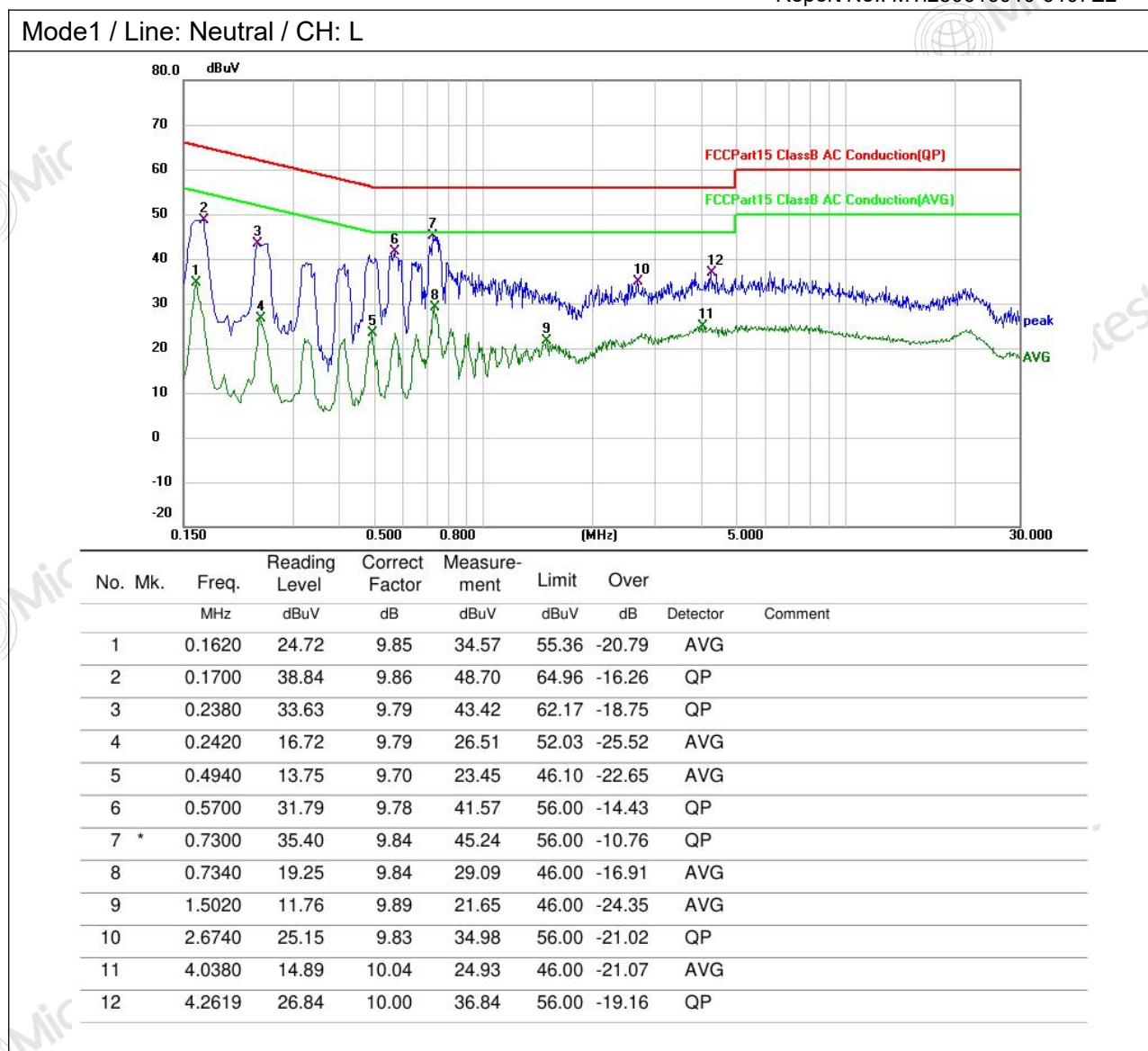


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	0.1660	38.47	9.76	48.23	65.16	-16.93		QP	
2	0.1660	24.77	9.76	34.53	55.16	-20.63		AVG	
3	0.2460	19.04	9.55	28.59	51.89	-23.30		AVG	
4	0.2540	33.75	9.53	43.28	61.63	-18.35		QP	
5	0.5620	32.24	9.46	41.70	56.00	-14.30		QP	
6	0.7340	20.78	9.80	30.58	46.00	-15.42		AVG	
7	*	0.7539	33.44	9.84	43.28	56.00	-12.72	QP	
8		0.8139	18.24	9.85	28.09	46.00	-17.91	AVG	
9		2.5980	29.22	10.01	39.23	56.00	-16.77	QP	
10		2.6820	16.24	9.98	26.22	46.00	-19.78	AVG	
11		4.1939	29.95	9.40	39.35	56.00	-16.65	QP	
12		5.0259	15.98	9.79	25.77	50.00	-24.23	AVG	

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Mode1 / Line: Neutral / CH: L



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6.2 Occupied Bandwidth

Test Requirement:	47 CFR 15.215(c)
Test Limit:	Refer to 47 CFR 15.215(c), intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.
Test Method:	ANSI C63.10-2013, section 6.9.2
Procedure:	<p>a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the EMI receiver or spectrum analyzer shall be between two times and five times the OBW.</p> <p>b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW, unless otherwise specified by the applicable requirement.</p> <p>c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than $[10 \log (\text{OBW}/\text{RBW})]$ below the reference level. Specific guidance is given in 4.1.5.2.</p> <p>d) Steps a) through c) might require iteration to adjust within the specified tolerances.</p> <p>e) The dynamic range of the instrument at the selected RBW shall be more than 10 dB below the target “-xx dB down” requirement; that is, if the requirement calls for measuring the -20 dB OBW, the instrument noise floor at the selected RBW shall be at least 30 dB below the reference value.</p> <p>f) Set detection mode to peak and trace mode to max hold.</p> <p>g) Determine the reference value: Set the EUT to transmit an unmodulated carrier or modulated signal, as applicable. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).</p> <p>h) Determine the “-xx dB down amplitude” using $[(\text{reference value}) - \text{xx}]$. Alternatively, this calculation may be made by using the marker-delta function of the instrument.</p> <p>i) If the reference value is determined by an unmodulated carrier, then turn the EUT modulation ON, and 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 g) shall be used for step j).</p> <p>j) Place two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the “-xx dB down amplitude” determined in step h). If a marker is below this “-xx dB down amplitude” value, then it shall be as close as possible to this value. The occupied bandwidth is the frequency difference between the two markers. Alternatively, set a marker at the lowest frequency of the envelope of the spectral display, such that the marker is at or slightly below the “-xx dB down amplitude” determined in step h). Reset the marker-delta function and move the marker to the other side of the emission until the delta marker amplitude is at the same level as the reference marker amplitude. The marker-delta frequency reading at this point is the specified emission bandwidth.</p> <p>k) The occupied bandwidth shall be reported by providing plot(s) of the</p>

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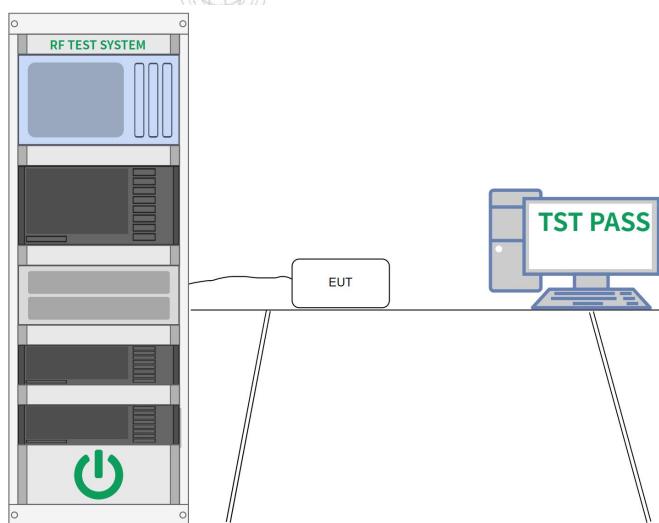
	measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).
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6.2.1 E.U.T. Operation:

Operating Environment:

Temperature:	24.8 °C	Humidity:	53 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1				
Final test mode:	Mode1				

6.2.2 Test Setup Diagram:



6.2.3 Test Data:

Test channel	Frequency (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (MHz)
LCH	2405	1.806	2.1551
MCH	2441	1.804	2.1358
HCH	2475	1.802	2.1277

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LCH



MCH



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HCH



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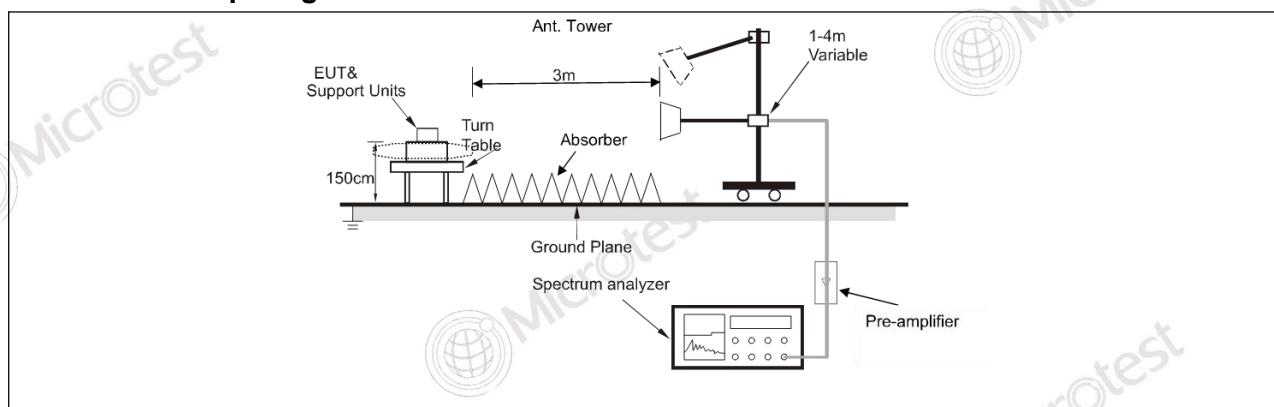
6.3 Field strength of fundamental

Test Requirement:	Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:																	
	<table border="1"> <thead> <tr> <th>Fundamental frequency</th> <th>Field strength of fundamental (millivolts/meter)</th> <th>Field strength of harmonics (microvolts/meter)</th> </tr> </thead> <tbody> <tr> <td>902-928 MHz</td> <td>50</td> <td>500</td> </tr> <tr> <td>2400-2483.5 MHz</td> <td>50</td> <td>500</td> </tr> <tr> <td>5725-5875 MHz</td> <td>50</td> <td>500</td> </tr> <tr> <td>24.0-24.25 GHz</td> <td>250</td> <td>2500</td> </tr> </tbody> </table>			Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)	902-928 MHz	50	500	2400-2483.5 MHz	50	500	5725-5875 MHz	50	500	24.0-24.25 GHz	250	2500
Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)																
902-928 MHz	50	500																
2400-2483.5 MHz	50	500																
5725-5875 MHz	50	500																
24.0-24.25 GHz	250	2500																
	The field strength of emissions in this band shall not exceed 2500 millivolts/meter.																	
Test Method:	ANSI C63.10-2013 section 6.6																	
Procedure:	ANSI C63.10-2013 section 6.6																	

6.3.1 E.U.T. Operation:

Operating Environment:				
Temperature:	25.7 °C	Humidity:	62 %	Atmospheric Pressure:
Pre test mode:	Mode1			
Final test mode:	Mode1			

6.3.2 Test Setup Diagram:



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6.3.3 Test Data:

Mode1 / Polarization: Horizontal / CH: L

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		2405.000	89.24	-4.16	85.08	114.00	-28.92	peak
2	*	2405.000	84.16	-4.16	80.00	94.00	-14.00	AVG

Mode1 / Polarization: Vertical / CH: L

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		2405.000	80.11	-4.16	75.95	114.00	-38.05	peak
2	*	2405.000	75.05	-4.16	70.89	94.00	-23.11	AVG

Mode1 / Polarization: Horizontal / CH: M

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		2441.000	86.41	-4.20	82.21	114.00	-31.79	peak
2	*	2441.000	81.33	-4.20	77.13	94.00	-16.87	AVG

Mode1 / Polarization: Vertical / CH: M

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		2441.000	82.57	-4.20	78.37	114.00	-35.63	peak
2	*	2441.000	77.47	-4.20	73.27	94.00	-20.73	AVG

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Mode1 / Polarization: Horizontal / CH: H

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		2475.000	82.48	-4.11	78.37	114.00	-35.63	peak
2	*	2475.000	77.51	-4.11	73.40	94.00	-20.60	AVG

Mode1 / Polarization: Vertical / CH: H

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		2475.000	83.76	-4.11	79.65	114.00	-34.35	peak
2	*	2475.000	78.70	-4.11	74.59	94.00	-19.41	AVG

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6.4 Band edge emissions (Radiated)

Test Requirement:	Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.		
Test Limit:	Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.		
Frequency (MHz)	Field strength (microvolts/meter)	Measuremen t distance (meters)	
0.009-0.490	2400/F(kHz)	300	
0.490-1.705	24000/F(kHz)	30	
1.705-30.0	30	30	
30-88	100 **	3	
88-216	150 **	3	
216-960	200 **	3	
Above 960	500	3	

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.

In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

Test Method: ANSI C63.10-2013 section 6.6.4

Procedure: ANSI C63.10-2013 section 6.6.4

6.4.1 E.U.T. Operation:

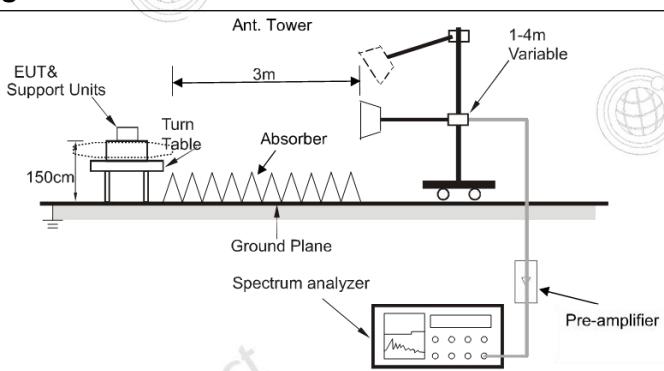
Operating Environment:

Temperature: 25.7 °C Humidity: 62 % Atmospheric Pressure: 101 kPa

Pre test mode: Mode1

Final test mode: Mode1

6.4.2 Test Setup Diagram:



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6.4.3 Test Data:

Mode1 / Polarization: Horizontal / CH: L

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector
			Level	Factor	ment			
			MHz	dBuV	dB	dBuV/m	dBuV/m	dB
1		2310.000	47.18	-4.37	42.81	74.00	-31.19	peak
2		2310.000	37.77	-4.37	33.40	54.00	-20.60	AVG
3		2390.000	47.94	-4.17	43.77	74.00	-30.23	peak
4		2390.000	37.91	-4.17	33.74	54.00	-20.26	AVG
5		2400.000	48.89	-4.15	44.74	74.00	-29.26	peak
6		2400.000	37.88	-4.15	33.73	54.00	-20.27	AVG

Mode1 / Polarization: Vertical / CH: L

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector
			Level	Factor	ment			
			MHz	dBuV	dB	dBuV/m	dBuV/m	dB
1		2310.000	47.96	-4.37	43.59	74.00	-30.41	peak
2		2310.000	37.71	-4.37	33.34	54.00	-20.66	AVG
3		2390.000	47.03	-4.17	42.86	74.00	-31.14	peak
4		2390.000	37.77	-4.17	33.60	54.00	-20.40	AVG
5		2400.000	47.86	-4.15	43.71	74.00	-30.29	peak
6	*	2400.000	37.86	-4.15	33.71	54.00	-20.29	AVG

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Mode1 / Polarization: Horizontal / CH: H

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		2483.500	49.19	-4.08	45.11	74.00	-28.89	peak
2	*	2483.500	38.05	-4.08	33.97	54.00	-20.03	AVG
3		2500.000	49.03	-4.00	45.03	74.00	-28.97	peak
4		2500.000	38.11	-4.00	34.11	54.00	-19.89	AVG

Mode1 / Polarization: Vertical / CH: H

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		2483.500	48.06	-4.08	43.98	74.00	-30.02	peak
2		2483.500	38.16	-4.08	34.08	54.00	-19.92	AVG
3		2500.000	48.30	-4.00	44.30	74.00	-29.70	peak
4		2500.000	38.20	-4.00	34.20	54.00	-19.80	AVG

TEST REPORT

Report No.: MTi250616010-0107E2

6.5 Emissions in frequency bands (below 1GHz)

Test Requirement:	47 CFR 15.249(a) 47 CFR 15.249(d) 47 CFR 15.249(e)																																										
Test Limit:	Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following: <table border="1" data-bbox="397 583 1325 831"> <thead> <tr> <th>Fundamental frequency</th> <th>Field strength of fundamental (millivolts/meter)</th> <th>Field strength of harmonics (microvolts/meter)</th> </tr> </thead> <tbody> <tr> <td>902-928 MHz</td> <td>50</td> <td>500</td> </tr> <tr> <td>2400-2483.5 MHz</td> <td>50</td> <td>500</td> </tr> <tr> <td>5725-5875 MHz</td> <td>50</td> <td>500</td> </tr> <tr> <td>24.0-24.25 GHz</td> <td>250</td> <td>2500</td> </tr> </tbody> </table> <p>Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.</p> <table border="1" data-bbox="397 1033 1325 1392"> <thead> <tr> <th>Frequency (MHz)</th> <th>Field strength (microvolts/meter)</th> <th>Measurement distance (meters)</th> </tr> </thead> <tbody> <tr> <td>0.009-0.490</td> <td>2400/F(kHz)</td> <td>300</td> </tr> <tr> <td>0.490-1.705</td> <td>24000/F(kHz)</td> <td>30</td> </tr> <tr> <td>1.705-30.0</td> <td>30</td> <td>30</td> </tr> <tr> <td>30-88</td> <td>100 **</td> <td>3</td> </tr> <tr> <td>88-216</td> <td>150 **</td> <td>3</td> </tr> <tr> <td>216-960</td> <td>200 **</td> <td>3</td> </tr> <tr> <td>Above 960</td> <td>500</td> <td>3</td> </tr> </tbody> </table> <p>** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.</p> <p>In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. As shown in § 15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.</p>	Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)	902-928 MHz	50	500	2400-2483.5 MHz	50	500	5725-5875 MHz	50	500	24.0-24.25 GHz	250	2500	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)	0.009-0.490	2400/F(kHz)	300	0.490-1.705	24000/F(kHz)	30	1.705-30.0	30	30	30-88	100 **	3	88-216	150 **	3	216-960	200 **	3	Above 960	500	3	Test Method: ANSI C63.10-2013 section 6.5		
Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)																																									
902-928 MHz	50	500																																									
2400-2483.5 MHz	50	500																																									
5725-5875 MHz	50	500																																									
24.0-24.25 GHz	250	2500																																									
Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)																																									
0.009-0.490	2400/F(kHz)	300																																									
0.490-1.705	24000/F(kHz)	30																																									
1.705-30.0	30	30																																									
30-88	100 **	3																																									
88-216	150 **	3																																									
216-960	200 **	3																																									
Above 960	500	3																																									

TEST REPORT

Report No.: MTi250616010-0107E2

Procedure:	ANSI C63.10-2013 section 6.5
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6.5.1 E.U.T. Operation:

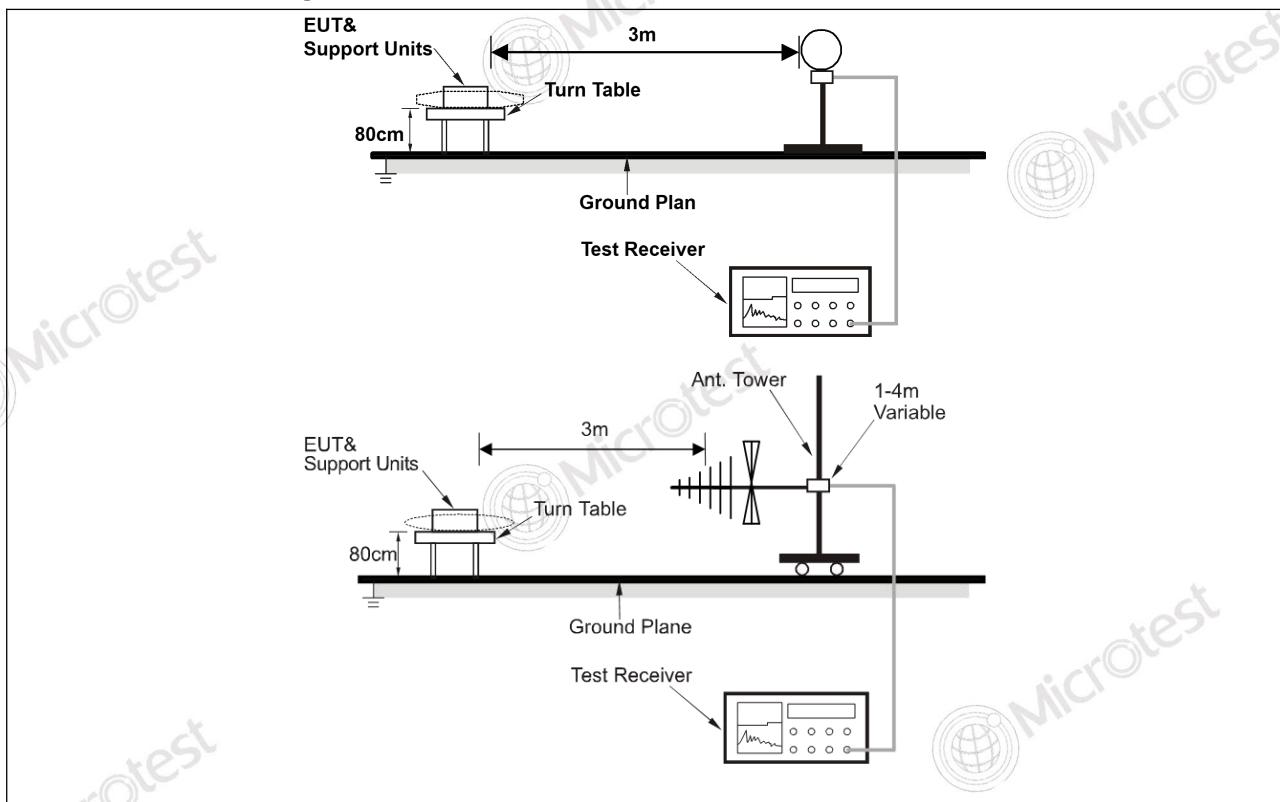
Operating Environment:

Temperature:	25.7 °C	Humidity:	62 %	Atmospheric Pressure:	101 kPa
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Pre test mode:	Mode1
----------------	-------

Final test mode:	Mode1
------------------	-------

6.5.2 Test Setup Diagram:

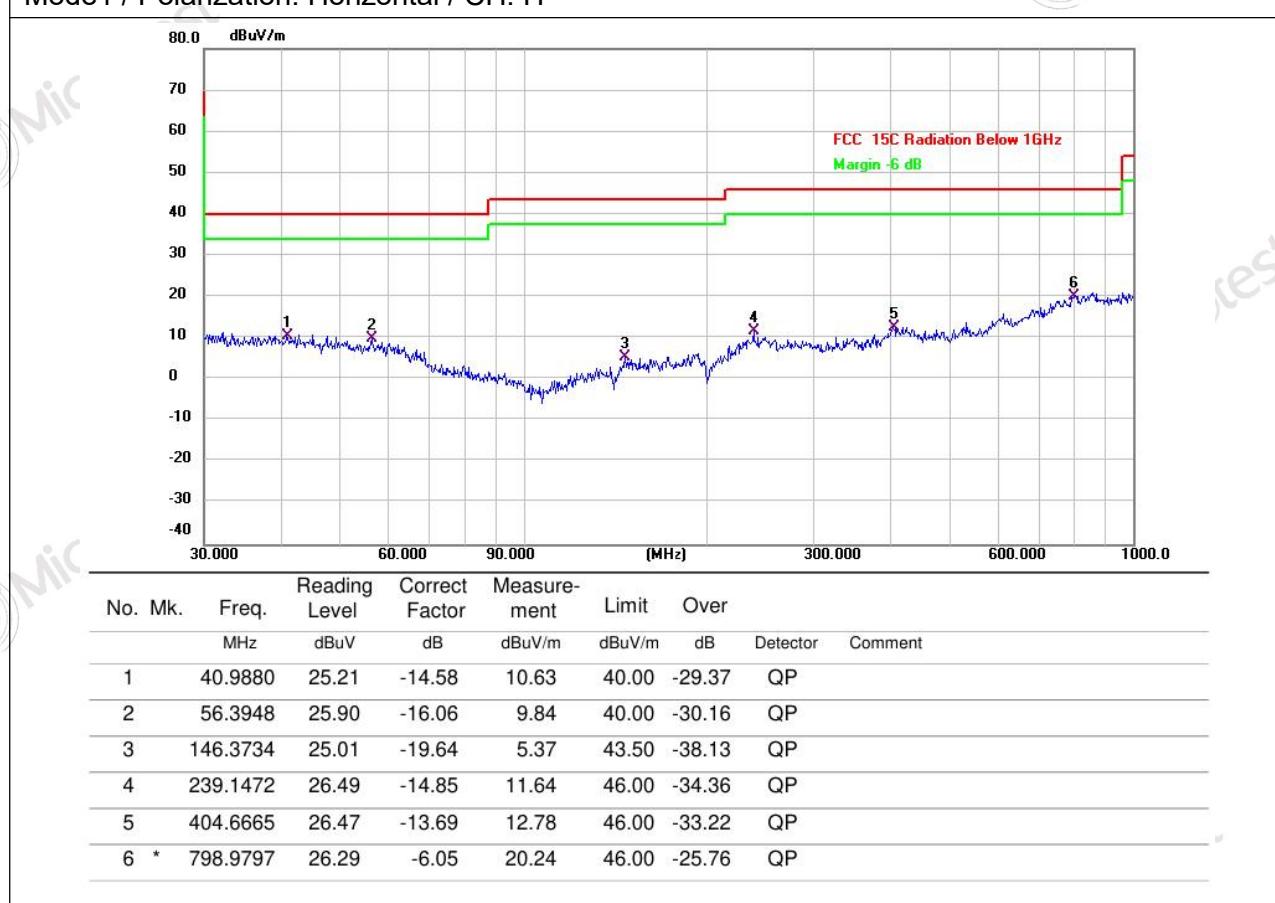


TEST REPORT

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6.5.3 Test Data:

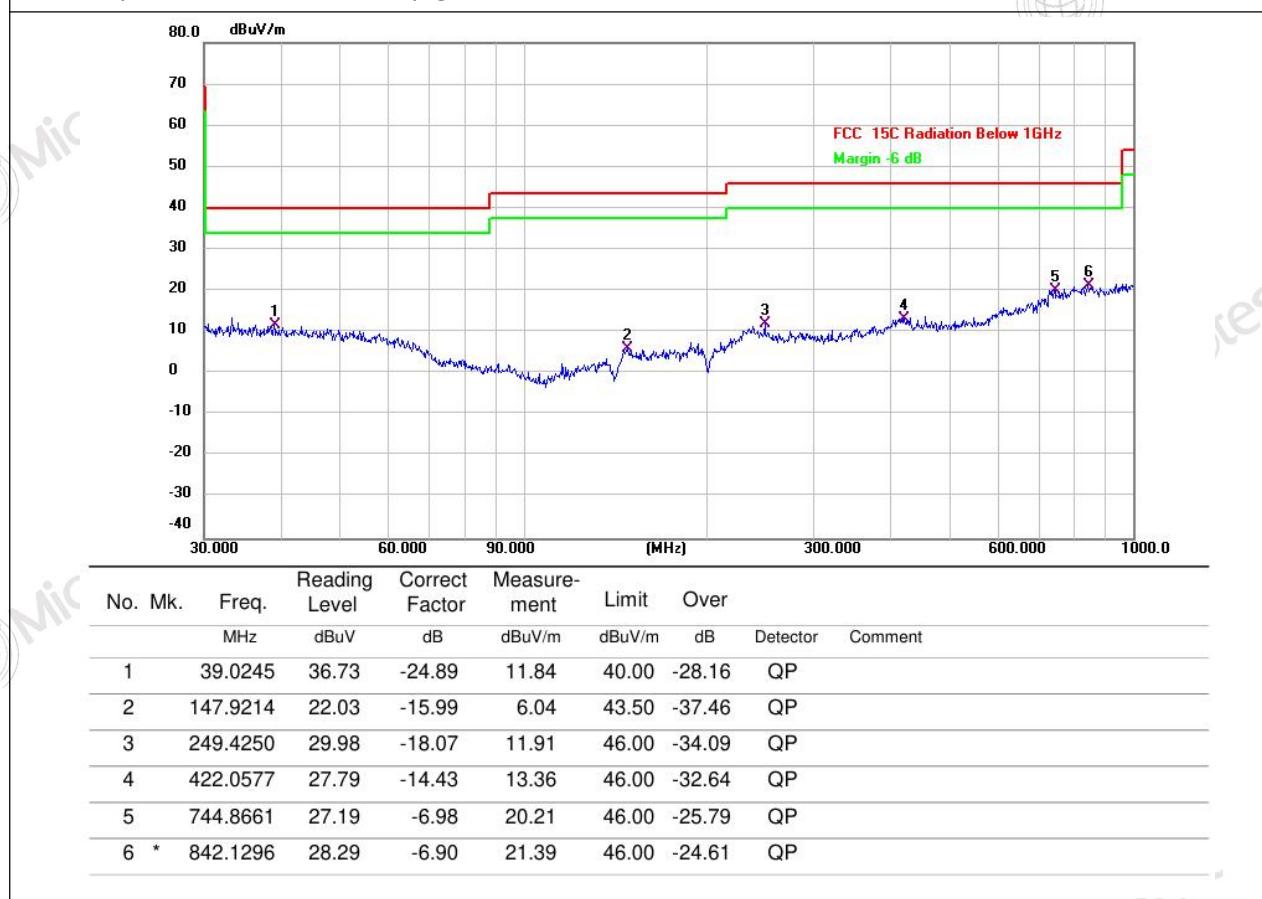
Mode1 / Polarization: Horizontal / CH: H



TEST REPORT

Report No.: MTi250616010-0107E2

Mode1 / Polarization: Vertical / CH: H



TEST REPORT

Report No.: MTi250616010-0107E2

6.6 Emissions in frequency bands (above 1GHz)

Test Requirement:	47 CFR 15.249(a) 47 CFR 15.249(d) 47 CFR 15.249(e)																																										
Test Limit:	Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following: <table border="1" data-bbox="397 583 1325 831"> <thead> <tr> <th>Fundamental frequency</th> <th>Field strength of fundamental (millivolts/meter)</th> <th>Field strength of harmonics (microvolts/meter)</th> </tr> </thead> <tbody> <tr> <td>902-928 MHz</td> <td>50</td> <td>500</td> </tr> <tr> <td>2400-2483.5 MHz</td> <td>50</td> <td>500</td> </tr> <tr> <td>5725-5875 MHz</td> <td>50</td> <td>500</td> </tr> <tr> <td>24.0-24.25 GHz</td> <td>250</td> <td>2500</td> </tr> </tbody> </table> <p>Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.</p> <table border="1" data-bbox="397 1033 1325 1392"> <thead> <tr> <th>Frequency (MHz)</th> <th>Field strength (microvolts/meter)</th> <th>Measurement distance (meters)</th> </tr> </thead> <tbody> <tr> <td>0.009-0.490</td> <td>2400/F(kHz)</td> <td>300</td> </tr> <tr> <td>0.490-1.705</td> <td>24000/F(kHz)</td> <td>30</td> </tr> <tr> <td>1.705-30.0</td> <td>30</td> <td>30</td> </tr> <tr> <td>30-88</td> <td>100 **</td> <td>3</td> </tr> <tr> <td>88-216</td> <td>150 **</td> <td>3</td> </tr> <tr> <td>216-960</td> <td>200 **</td> <td>3</td> </tr> <tr> <td>Above 960</td> <td>500</td> <td>3</td> </tr> </tbody> </table> <p>** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.</p> <p>In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. As shown in § 15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.</p>	Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)	902-928 MHz	50	500	2400-2483.5 MHz	50	500	5725-5875 MHz	50	500	24.0-24.25 GHz	250	2500	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)	0.009-0.490	2400/F(kHz)	300	0.490-1.705	24000/F(kHz)	30	1.705-30.0	30	30	30-88	100 **	3	88-216	150 **	3	216-960	200 **	3	Above 960	500	3	Test Method: ANSI C63.10-2013 section 6.6		
Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)																																									
902-928 MHz	50	500																																									
2400-2483.5 MHz	50	500																																									
5725-5875 MHz	50	500																																									
24.0-24.25 GHz	250	2500																																									
Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)																																									
0.009-0.490	2400/F(kHz)	300																																									
0.490-1.705	24000/F(kHz)	30																																									
1.705-30.0	30	30																																									
30-88	100 **	3																																									
88-216	150 **	3																																									
216-960	200 **	3																																									
Above 960	500	3																																									

TEST REPORT

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Procedure: ANSI C63.10-2013 section 6.6

6.6.1 E.U.T. Operation:

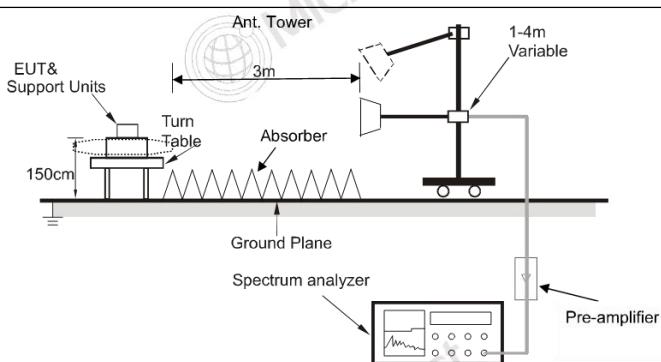
Operating Environment:

Temperature: 25.7 °C | Humidity: 62 % | Atmospheric Pressure: 101 kPa

Pre test mode: Mode1

Final test mode: Mode1

6.6.2 Test Setup Diagram:



TEST REPORT

Report No.: MTi250616010-0107E2

6.6.3 Test Data:

Mode1 / Polarization: Horizontal / CH: L

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		4810.000	43.60	0.53	44.13	74.00	-29.87	peak
2		4810.000	39.68	0.53	40.21	54.00	-13.79	AVG
3		7215.000	46.97	7.82	54.79	74.00	-19.21	peak
4	*	7215.000	42.45	7.82	50.27	54.00	-3.73	AVG
5		9620.000	43.93	8.89	52.82	74.00	-21.18	peak
6		9620.000	40.47	8.89	49.36	54.00	-4.64	AVG

Mode1 / Polarization: Vertical / CH: L

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		4810.000	42.98	0.53	43.51	74.00	-30.49	peak
2		4810.000	39.73	0.53	40.26	54.00	-13.74	AVG
3		7215.000	44.32	7.82	52.14	74.00	-21.86	peak
4		7215.000	41.41	7.82	49.23	54.00	-4.77	AVG
5		9620.000	44.39	8.89	53.28	74.00	-20.72	peak
6	*	9620.000	40.68	8.89	49.57	54.00	-4.43	AVG

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Mode1 / Polarization: Horizontal / CH: M

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		4882.000	45.52	0.57	46.09	74.00	-27.91	peak
2		4882.000	42.69	0.57	43.26	54.00	-10.74	AVG
3		7323.000	47.47	7.57	55.04	74.00	-18.96	peak
4	*	7323.000	42.71	7.57	50.28	54.00	-3.72	AVG
5		9764.000	43.74	9.33	53.07	74.00	-20.93	peak
6		9764.000	40.29	9.33	49.62	54.00	-4.38	AVG

Mode1 / Polarization: Vertical / CH: M

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		4882.000	44.25	0.57	44.82	74.00	-29.18	peak
2		4882.000	39.79	0.57	40.36	54.00	-13.64	AVG
3		7323.000	43.76	7.57	51.33	74.00	-22.67	peak
4		7323.000	40.70	7.57	48.27	54.00	-5.73	AVG
5		9764.000	44.40	9.33	53.73	74.00	-20.27	peak
6	*	9764.000	40.04	9.33	49.37	54.00	-4.63	AVG

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Mode1 / Polarization: Horizontal / CH: H

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1		4950.000	43.10	0.59	43.69	74.00	-30.31	peak
2		4950.000	38.97	0.59	39.56	54.00	-14.44	AVG
3		7425.000	45.30	7.96	53.26	74.00	-20.74	peak
4	*	7425.000	41.56	7.96	49.52	54.00	-4.48	AVG
5		9900.000	43.98	9.66	53.64	74.00	-20.36	peak
6		9900.000	38.46	9.66	48.12	54.00	-5.88	AVG

Mode1 / Polarization: Vertical / CH: H

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1		4950.000	43.36	0.59	43.95	74.00	-30.05	peak
2		4950.000	40.10	0.59	40.69	54.00	-13.31	AVG
3		7425.000	44.30	7.96	52.26	74.00	-21.74	peak
4		7425.000	40.20	7.96	48.16	54.00	-5.84	AVG
5		9900.000	44.33	9.66	53.99	74.00	-20.01	peak
6	*	9900.000	40.02	9.66	49.68	54.00	-4.32	AVG



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Photographs of the test setup

Refer to Appendix - Test Setup Photos

Microtest





TEST REPORT

Report No.: MTi250616010-0107E2

Photographs of the EUT

Refer to Appendix - EUT Photos

Microtest

Tel: 0755-88850135-1439 Mobile: 131-4343-1439 (Wechat same number)
Address: 101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Q/MTI-QP-12-FE038



Ver./Rev.: A1

Web: <http://www.mtitest.cn>

E-mail: mti@51mti.com

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Statement

1. This report is invalid without the seal and signature of the laboratory.
2. The test results of this report are only responsible for the samples submitted. Client shall be responsible for representativeness of the sample and authenticity of the material.
3. The report shall not be partially reproduced without the written consent of the Laboratory.
4. This report is invalid if transferred, altered or tampered with in any form without authorization.
5. The observations or tests with special mark fall outside the scope of accreditation, and are only used for purpose of commission, research, training, internal quality control etc.
6. Any objection to this report shall be submitted to the laboratory within 15 days from the date of receipt of the report.

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