

Test Report

Report No.	: MTi240717017-02E1
Date of issue	: 2025-01-21
Applicant	: ALOGIC Corporation Pty Ltd.
Product	: Apex Mouse
Model(s)	: AMBT7K
FCC ID	2ATCA-AMBT7K-R

Shenzhen Microtest Co., Ltd.

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Test Result Certific	Test Result Certification				
Applicant	nt ALOGIC Corporation Pty Ltd.				
Applicant Address	Level 40, 1	40 William Street, Melbourne VIC	, 3000 Australia		
Manufacturer	SHENZHE	N KEYCEO TECH CO., LIMITED			
Manufacturer Address	Room 705- Community	706, 12th Building, South Bank P ⁄, Fuhai Street, Bao'an District, Sh	laza, Exhibition Bay, Zhancheng enzhen, China		
Product descriptio	'n				
Product name	Apex Mou	se			
Trademark	ALOGIC				
Model name	AMBT7K				
Series Model(s)	N/A				
Standards	47 CFR Part 15.249				
Test Method	ANSI C63.10-2013				
Testing Informatio	n				
Date of test	2024-09-13	3 to 2025-01-21			
Test result	Pass				
Prepared by:		Letter Lan	Letter. Jan.		
Reviewed I	by:	David Lee	Dowid. Cee		
Approved by: Leon Chen					

1 General Description

1.1 Description of the EUT

Product name:	Apex Mouse
Model name:	AMBT7K
Series Model(s):	N/A
Model difference:	N/A
Electrical rating:	Input: DC 5V
Accessories:	N/A
Hardware version:	1.01
Software version:	1.02
Test sample(s) number:	MTi240717017-02S1001
RF specification	
Operating frequency range:	2405MHz to 2475MHz
Channel number:	16
Modulation type:	GFSK
Antenna(s) type:	РСВ
Antenna(s) gain:	-0.81dBi

1.2 Description of test modes

No.	Emission test modes
Mode1	TX

1.2.1 Operation channel list

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2405	12	2436
2	2463	13	2419
3	2441	14	2475
4	2426	15	2453
5	2408	16	2439
6	2466	1	1
7	2445	/	1
8	2422	1	1
9	2414	/	/
10	2471	/	1
11	2459	/	/

Test Channel List Operation Band: 2.4G

Bandwidth	Lowest Channel	Middle Channel	Highest Channel	
	(LCH)	(MCH)	(HCH)	
(IMITZ)	(MHz)	(MHz)	(MHz)	
1	2405	2445	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 – V2.1.0_en(Built On Nov 4 2020)

For power setting, refer to below table.

Mode	2405MHz	2445MHz	2475MHz
GFSK	7	7	7

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

Support equipment list					
Description Model Serial No. Manufactu					
/	/ /		1		
Support cable list					
Description	Length (m)	From	То		
/	/	/	/		

1.5 Measurement uncertainty

Measurement	Uncertainty
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.

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	Occupied Bandwidth	47 CFR Part 15.249	47 CFR 15.215(c)	Pass
3	Field strength of fundamental	47 CFR Part 15.249	47 CFR 15.249(a) 47 CFR 15.249(b)(1)	Init
4	Band edge emissions (Radiated)	47 CFR Part 15.249	47 CFR 15.249(d)	Pass
5	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
6	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

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				
	Occupied Bandwidth									
1	Wideband Radio Communication Tester	Rohde&schwarz	CMW500	149155	2024-03- 20	2025-03- 19				
2	ESG Series Analog Ssignal Generator	Agilent	E4421B	GB400512 40	2024-03- 21	2025-03- 20				
3	PXA Signal Analyzer	Agilent	N9030A	MY513502 96	2024-03- 21	2025-03- 20				
4	Synthesized Sweeper	Agilent	83752A	3610A019 57	2024-03- 21	2025-03- 20				
5	MXA Signal Analyzer	Agilent	N9020A	MY501434 83	2024-03- 21	2025-03- 20				
6	RF Control Unit	Tonscend	JS0806-1	19D80601 52	2024-03- 21	2025-03- 20				
7	Band Reject Filter Group	Tonscend	JS0806-F	19D80601 60	2024-03- 21	2025-03- 20				
8	ESG Vector Signal Generator	Agilent	N5182A	MY501437 62	2024-03- 20	2025-03- 19				
9	DC Power Supply	Agilent	E3632A	MY400276 95	2024-03- 21	2025-03- 20				
		Field strength	of fundamental							
	Er	Band edge emis nissions in frequenc	ssions (Radiated cy bands (above	l) 1GHz)						
1	EMI Test Receiver	Rohde&schwarz	ESCI7	101166	2024-03- 20	2025-03- 19				
2	Double Ridged Broadband Horn Antenna	schwarabeck	BBHA 9120 D	2278	2023-06- 17	2025-06- 16				
3	Amplifier	Agilent	8449B	3008A0112 0	2024-03- 20	2025-03- 19				
4	MXA signal analyzer	Agilent	N9020A	MY544408 59	2024-03- 21	2025-03- 20				
5	PXA Signal Analyzer	Agilent	N9030A	MY513502 96	2024-03- 21	2025-03- 20				
6	Horn antenna	Schwarzbeck	BBHA 9170	00987	2023-06- 17	2025-06- 16				
7	Pre-amplifier	Space-Dtronics	EWLAN1840 G	210405001	2024-03- 21	2025-03- 20				
	Er	nissions in frequen	cy bands (below	1GHz)						
1	EMI Test Receiver	Rohde&schwarz	ESCI7	101166	2024-03- 20	2025-03- 19				
2	TRILOG Broadband Antenna	schwarabeck	VULB 9163	9163-1338	2023-06-11	2025-06- 10				
3	Active Loop Antenna	Schwarzbeck	FMZB 1519 B	00066	2024-03- 23	2025-03- 22				
4	Amplifier	Hewlett-Packard	8447F	3113A0618 4	2024-03- 20	2025-03- 19				

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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6 Radio Spectrum Matter Test Results (RF)

6.1 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:	 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. 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. 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 (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.5.2. d) Steps a) through c) might require iteration to adjust within the specified tolerances. 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. f) Set detection mode to peak and trace mode to max hold. 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). h) Determine the "-xx dB down amplitude" using [(reference value) - xx]. Alternatively, this calculation may be made by using the marker-delta function of the instrument. 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

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6.1.1 E.U.T. Operation:

Operating Environment:							
Temperature:	Temperature: 19.2 °C Humidity: 26.6 % Atmospheric Pressure: 101 kPa						
Pre test mode: Mode1							
Final test mode: Mode1							

6.1.2 Test Setup Diagram:



6.1.3 Test Data:

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Test plots



Tel: 0755-88850135-1439Mobile: 131-4343-1439 (Wechat same number)Web: http://www.mtitest.cnE-mail: mti@51mti.comAddress: 101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong,ChinaQ/MTI-QP-12-FC028Ver./Rev.: A1Page 12 of 35



6.2 Field strength of fundamental

	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:				
	Fundamental	Field strength of	Field strength of		
	frequency	fundamental	harmonics		
Te et De muinement		(millivolts/meter)	(microvolts/meter)		
Test Requirement:	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	on 6.6			

6.2.1 E.U.T. Operation:

Operating Environment:							
Temperature: 0 °C Humidity: 0 % Atmospheric Pressure: 0 kPa							
Pre test mode:	Mode1						
Final test mode: Mode1							

6.2.2 Test Setup Diagram:



6.2.3 Test Data:

Frequency	Ant. Polarization	Emission level	Limits	Detector	Result
(MHz)	H/V	dBµV/m	dBµV/m		
2405	Н	80.21	114	PK	PASS
2405	Н	80.10	94	AV	PASS
2405	V	77.27	114	PK	PASS
2405	V	77.11	94	AV	PASS

Frequency	Ant. Polarization	Emission level	Limits	Detector	Result
(MHz)	H/V	dBµV/m	dBµV/m		
2445	Н	78.99	114	PK	PASS
2445	Н	78.87	94	AV	PASS
2445	V	65.89	114	PK	PASS
2445	V	65.30	94	AV	PASS

Frequency	Ant. Polarization	Emission level	Limits	Detector	Result
(MHz)	H/V	dBµV/m	dBµV/m		
2475	Н	76.33	114	PK	PASS
2475	Н	75.96	94	AV	PASS
2475	V	69.32	114	PK	PASS
2475	V	68.85	94	AV	PASS

6.3 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	n 6.6.4				
Procedure:	ANSI C63.10-2013 section 6.6.4					

6.3.1 E.U.T. Operation:

Operating Environment:							
Temperature:	19.2 °C		Humidity:	26.6 %	Atmospheric Pressure:	101 kPa	
Pre test mode:		Mod	e1				
Final test mode:		Mod	e1				

6.3.2 Test Setup Diagram:



Tel: 0755-88850135-1439Mobile: 131-4343-1439 (Wechat same number)Web: http://www.mtitest.cnE-mail: mti@51mti.comAddress: 101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong,China
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6.3.3 Test Data:

Mode1	Iode1 / Polarization: Horizontal / CH: L										
No	. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over				
		MHz	dBu∨	dB	dBu∀/m	dBu∨/m	dB	Detector			
1		2310.000	47.08	-4.83	42.25	74.00	-31.75	peak			
2		2310.000	37.74	-4.83	32.91	54.00	-21.09	AVG			
3		2390.000	48.99	-4.31	44.68	74.00	-29.32	peak			
4		2390.000	37.78	-4.31	33.47	54.00	-20.53	AVG			
5		2400.000	48.25	-4.25	44.00	74.00	-30.00	peak			
6		2400.000	37.99	-4.25	33.74	54.00	-20.26	AVG			

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Mod	Mode1 / Polarization: Vertical / CH: L										
	10.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
			MHz	dBu∨	dB	dBu∀/m	dBu∨/m	dB	Detector		
	1		2310.000	47.68	-4.83	42.85	74.00	-31.15	peak		
	2		2310.000	37.84	-4.83	33.01	54.00	-20.99	AVG		
	3		2390.000	47.77	-4.31	43.46	74.00	-30.54	peak		
	4		2390.000	37.83	-4.31	33.52	54.00	-20.48	AVG		
	5		2400.000	48.30	-4.25	44.05	74.00	-29.95	peak		
	6	*	2400.000	38.19	-4.25	33.94	54.00	-20.06	AVG		

Μ	Mode1 / Polarization: Horizontal / CH: H											
-	No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over					
_		MHz	dBu∨	dB	dBuV/m	dBuV/m	dB	Detector				
	3	2483.500	47.55	-4.21	43.34	74.00	-30.66	peak				
	4	2483.500	37.80	-4.21	33.59	54.00	-20.41	AVG				
	5	2500.000	47.45	-4.10	43.35	74.00	-30.65	peak				
	6 *	2500.000	38.08	-4.10	33.98	54.00	-20.02	AVG				

Mode1	Mode1 / Polarization: Vertical / CH: H										
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over				
		MHz	dBu∨	dB	dBuV/m	dBuV/m	dB	Detector			
1	24	483.500	48.56	-4.21	44.35	74.00	-29.65	peak			
2	24	483.500	38.04	-4.21	33.83	54.00	-20.17	AVG			
3	2	500.000	48.06	-4.10	43.96	74.00	-30.04	peak			
4	2	500.000	38.21	-4.10	34.11	54.00	-19.89	AVG			

6.4 Emissions in frequency bands (below 1GHz)

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: 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 2400-2483.5 MHz 50 500 24.0-24.25 GHz 250 2500 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 30 1.705-30.0 30 30 30 30-88 100 ** 3 3 88-216 150 ** 3 3 216-960 200 ** 3 3 Above 960 500 3 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,	Test Requirement:	47 CFR 15.249(a) 47 CFR 15.249(d) 47 CFR 15.249(e)			
Fundamental frequencyField strength of fundamental (millivolts/meter)Field strength of harmonics (microvolts/meter)902-928 MHz505002400-2483.5 MHz505002725-5875 MHz5050024.0-24.25 GHz2502500Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of 	Test Limit:	Except as provided in par emissions from intentiona bands shall comply with th	agraph (b)of this sectic I radiators operated wi he following:	on, the fi thin thes	eld strength of e frequency
IndicationThe astrongeneral fundamental (millivolts/meter)The astrongeneral (microvolts/meter)902-928 MHz505002400-2483.5 MHz505005725-5875 MHz5050024.0-24.25 GHz2502500Emissions 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)0.009-0.4902400/F(kHz)3000.490-1.70524000/F(kHz)3001.705-30.0303030-88100 **3216-960200 **3Above 9605003** 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, 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, operating winder this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470- 806 MHz. However, operating winder this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470- 806 MHz. However, operating winder this section shall not be located in 		Fundamental	Field strength of	Field s	trenath of
IndependencyIndependencyIndependency902-928 MHz505002400-2483.5 MHz505005725-5875 MHz5050024.0-24.25 GHz2502500Emissions 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)0.009-0.4902400/F(kHz)3000.490-1.70524000/F(kHz)301.705-30.0303030-88100 **388-216150 **3216-960200 **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.		frequency	fundamental	harmo	nics
902-928 MHz505002400-2483.5 MHz505005725-5875 MHz5050024.0-24.25 GHz2502500Emissions 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)0.009-0.4902400/F(kHz)3000.490-1.70524000/F(kHz)301.705-30.0303030-88100 **3216-960200 **3Above 9605003** 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.		linequency	(millivolts/meter)	(microv	volts/meter)
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$		902-928 MHz	50	500	
5725-5875 MHz5050024.0-24.25 GHz2502500Emissions 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)0.009-0.4902400/F(kHz)3000.490-1.70524000/F(kHz)3000.490-1.70524000/F(kHz)301.705-30.0303030-88100 **388-216150 **3216-960200 **3Above 9605003** 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.		2400-2483.5 MHz	50	500	
24.0-24.25 GHz2502500Emissions 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)0.009-0.4902400/F(kHz)3000.490-1.70524000/F(kHz)3001.705-30.0303030-88100 **388-216150 **3216-960200 **3Above 9605003** 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.		5725-5875 MHz	50	500	
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)0.009-0.4902400/F(kHz)3000.490-1.70524000/F(kHz)301.705-30.0303030-88100 **388-216150 **3216-960200 **3Above 9605003** 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.		24.0-24.25 GHz	250	2500	
Frequency (MHz)Field strength (microvolts/meter)Measuremen t distance (meters)0.009-0.4902400/F(kHz)3000.490-1.70524000/F(kHz)301.705-30.0303030-88100 **388-216150 **3216-960200 **3Above 9605003** 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.		Emissions radiated outsic for harmonics, shall be at the fundamental or to the whichever is the lesser at	le of the specified frequ tenuated by at least 50 general radiated emiss tenuation.	uency ba) dB belo sion limit	ands, except w the level of s in § 15.209,
0.009-0.4902400/F(kHz)3000.490-1.70524000/F(kHz)301.705-30.0303030-88100 **388-216150 **3216-960200 **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.		Frequency (MHz)	Field strength Me (microvolts/meter) t dis (me		Measuremen t distance (meters)
0.490-1.70524000/F(kHz)301.705-30.0303030-88100 **88-216150 **216-960200 **Above 960500** 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.		0.009-0.490	2400/F(kHz)		300
1.705-30.0303030-88100 **388-216150 **3216-960200 **3Above 9605003** 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.		0.490-1.705	24000/F(kHz)		30
30-88100 **388-216150 **3216-960200 **3Above 9605003** 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.		1.705-30.0	30		30
88-216150 **3216-960200 **3Above 9605003** 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.		30-88	100 **	*	
216-960200 **3Above 9605003** 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.		88-216	150 **		3
Above 9605003** 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.		216-960	200 **		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.		Above 960	500		3
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		intentional radiators opera the frequency bands 54-7 806 MHz. However, opera permitted under other sec In the emission table above The emission limits shown measurements employing frequency bands 9–90 kH Radiated emission limits in measurements employing As shown in § 15.35(b), for strength limits in paragrap average limits. However, not exceed the maximum more than 20 dB under an operation under paragrap shall not exceed 2500 mile	ating under this section 2 MHz, 76-88 MHz, 17 ation within these frequentions of this part, e.g., we, the tighter limit app in in the above table are g a CISPR quasi-peak of lz, 110–490 kHz and al in these three bands are g an average detector. For frequencies above 1 ohs (a)and (b)of this se the peak field strength permitted average limit hy condition of modulat h (b)of this section, the livolts/meter at 3 meter	A shall no 74-216 M lency ba §§ 15.23 lies at the based detector bove 100 re based 000 MH of any e its specific tion. For e peak fie rs along	t be located in IHz or 470- nds is 1 and 15.241. e band edges. on except for the 0 MHz. on z, the field based on mission shall fied above by point-to-point eld strength the antenna
Test Method: ANSI C63.10-2013 section 6.5	Test Method:	ANSI C63.10-2013 sectio	n 6.5		

 Procedure:
 ANSI C63.10-2013 section 6.5

 6.4.1 E.U.T. Operation:
 Image: Component in the image: Componen

6.4.2 Test Setup Diagram:



6.4.3 Test Data:





6.5 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 par emissions from intentiona bands shall comply with t	ragraph (b)of this section al radiators operated wi he following:	on, the fi ithin thes	eld strength of e frequency
	Fundamental	Field strength of Field str		trenath of
	frequency	fundamental	harmo	nics
		(millivolts/meter)	(microv	volts/meter)
	902-928 MHz	50	500	
	2400-2483.5 MHz	50	500	
	5725-5875 MHz	50	500	
	24.0-24.25 GHz	250	2500	
	Emissions radiated outsic for harmonics, shall be at the fundamental or to the whichever is the lesser at	de of the specified freque tenuated by at least 50 general radiated emise tenuation.	uency ba) dB belo sion limit	ands, except w the level of s in § 15.209,
	Frequency (MHz)	Field strength	Measuremen	
		(microvolts/meter)		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
	intentional radiators opera the frequency bands 54-7 806 MHz. However, opera permitted under other sec In the emission table abo The emission limits show measurements employing frequency bands 9–90 kH Radiated emission limits measurements employing As shown in § 15.35(b), for strength limits in paragrap average limits. However, not exceed the maximum more than 20 dB under all operation under paragrap shall not exceed 2500 mil	ating under this section 72 MHz, 76-88 MHz, 17 ation within these frequ- ctions of this part, e.g., ve, the tighter limit app n in the above table are g a CISPR quasi-peak Iz, 110–490 kHz and a in these three bands an g an average detector. or frequencies above 1 ohs (a)and (b)of this se the peak field strength permitted average lim ny condition of modula oh (b)of this section, the llivolts/meter at 3 mete	n shall nc 74-216 M Jency ba §§ 15.23 Jies at th e based detector bove 100 re based 000 MH ection are of any e its specific tion. For e peak fie rs along	at be located in IHz or 470- nds is 31 and 15.241. e band edges. on except for the 00 MHz. on z, the field e based on mission shall fied above by point-to-point eld strength the antenna
Tost Mothod:	ANSI C63 10 2013 soctio	on 6.6		
	ANO 003. 10-2013 SECIO	0.0 ווי		

Procedure:

ANSI C63.10-2013 section 6.6

6.5.1 E.U.T. Operation:

Operating Environment:							
Temperature:	19.2 °C		Humidity:	26.6 %	Atmospheric Pressure:	101 kPa	
Pre test mode:		Mod	e1				
Final test mode:		Mod	e1				

6.5.2 Test Setup Diagram:



6.5.3 Test Data:

Mode	1ode1 / 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	53.05	0.53	53.58	74.00	-20.42	peak	-	
-	2		4810.000	40.93	0.53	41.46	54.00	-12.54	AVG	_	
-	3		7216.000	55.07	7.81	62.88	74.00	-11.12	peak	_	
-	4	*	7216.000	42.56	7.81	50.37	54.00	-3.63	AVG	_	
-	5		9620.000	47.39	8.89	56.28	74.00	-17.72	peak	-	
-	6		9620.000	36.49	8.89	45.38	54.00	-8.62	AVG	-	
_										-	

Mode	Node1 / 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	44.37	0.53	44.90	74.00	-29.10	peak	
_	2		4810.000	34.04	0.53	34.57	54.00	-19.43	AVG	
_	3		7216.000	48.83	7.81	56.64	74.00	-17.36	peak	
_	4	*	7216.000	39.00	7.81	46.81	54.00	-7.19	AVG	
_	5		9620.000	45.48	8.89	54.37	74.00	-19.63	peak	
_	6		9620.000	35.39	8.89	44.28	54.00	-9.72	AVG	
_										

Mode	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		4890.000	51.93	0.59	52.52	74.00	-21.48	peak	
_	2		4890.000	39.78	0.59	40.37	54.00	-13.63	AVG	
-	3		7335.000	53.53	7.68	61.21	74.00	-12.79	peak	
-	4	*	7335.000	41.91	7.68	49.59	54.00	-4.41	AVG	
-	5		9780.000	44.93	9.32	54.25	74.00	-19.75	peak	
-	6		9780.000	33.26	9.32	42.58	54.00	-11.42	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		4890.000	45.24	0.59	45.83	74.00	-28.17	peak	-
2		4890.000	33.98	0.59	34.57	54.00	-19.43	AVG	-
3		7335.000	47.24	7.68	54.92	74.00	-19.08	peak	-
4		7335.000	35.58	7.68	43.26	54.00	-10.74	AVG	-
5		9780.000	45.29	9.32	54.61	74.00	-19.39	peak	
6	*	9780.000	34.30	9.32	43.62	54.00	-10.38	AVG	
									-
1 2 3 4 5 6	· · · · · · · · · · · · · · · · · · ·	MHz 4890.000 4890.000 7335.000 7335.000 9780.000 9780.000	dBuV 45.24 33.98 47.24 35.58 45.29 34.30	dB 0.59 0.59 7.68 7.68 9.32 9.32	dBuV/m 45.83 34.57 54.92 43.26 54.61 43.62	dBuV/m 74.00 54.00 54.00 74.00 54.00	dB -28.17 -19.43 -19.08 -10.74 -19.39 -10.38	Detector peak AVG peak AVG peak AVG	

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		4950.000	50.63	0.59	51.22	74.00	-22.78	peak	
-	2		4950.000	39.08	0.59	39.67	54.00	-14.33	AVG	_
_	3		7425.000	53.42	7.96	61.38	74.00	-12.62	peak	_
-	4	*	7425.000	41.79	7.96	49.75	54.00	-4.25	AVG	_
-	5		9900.000	44.67	9.66	54.33	74.00	-19.67	peak	_
-	6		9900.000	32.72	9.66	42.38	54.00	-11.62	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		4950.000	46.35	0.59	46.94	74.00	-27.06	peak	
-	2		4950.000	35.00	0.59	35.59	54.00	-18.41	AVG	
-	3		7425.000	44.66	7.96	52.62	74.00	-21.38	peak	
-	4		7425.000	33.28	7.96	41.24	54.00	-12.76	AVG	
-	5		9900.000	44.62	9.66	54.28	74.00	-19.72	peak	
-	6	*	9900.000	33.60	9.66	43.26	54.00	-10.74	AVG	
_										

Photographs of the test setup

Refer to Appendix - Test Setup Photos

Report No.: MTi240717017-01E2

Photographs of the EUT

Refer to Appendix - EUT Photos

Report No.: MTi240717017-01E2

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 ******