



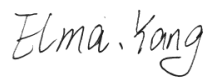
RF Test Report

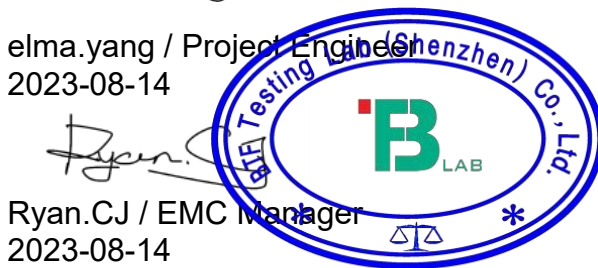
For

Applicant Name: Dongguan Lingjie Electronics & Technology Co., Ltd
Address: Building 3, No.23 Zhenxing North Road, Taiyuan Community,
Xiegang Town, Dongguan City, Guangdong Province, China
EUT Name: wireless mouse
Brand Name: MINISO,  or 
Model Number: E703
Series Model Number: Refer to section 2

Issued By

Company Name: BTF Testing Lab (Shenzhen) Co., Ltd.
Address: F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park,
Tantou Community, Songgang Street, Bao'an District, Shenzhen,
China
Report Number: BTFSZ230720Q0011
Test Standards: 47 CFR Part 15.249
FCC ID: 2ANBU-E703B
Test Conclusion: Pass
Test Date: 2023-07-17 to 2023-08-14
Date of Issue: 2023-08-14

Prepared By: 
Date: 2023-08-14
Approved By: 
Date: 2023-08-14



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Revision History		
Version	Issue Date	Revisions Content
R_V0	2023-08-14	Original
<i>Note: Once the revision has been made, then previous versions reports are invalid.</i>		

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1 Introduction

1.1 Identification of Testing Laboratory

Company Name:	BTF Testing Lab (Shenzhen) Co., Ltd.
Address:	F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China
Phone Number:	+86-0755-23146130
Fax Number:	+86-0755-23146130

1.2 Identification of the Responsible Testing Location

Company Name:	BTF Testing Lab (Shenzhen) Co., Ltd.
Address:	F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China
Phone Number:	+86-0755-23146130
Fax Number:	+86-0755-23146130
FCC Registration Number:	518915
Designation Number:	CN1330

1.3 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 BTF 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) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

2 Product Information

2.1 Application Information

Company Name:	Dongguan Lingjie Electronics & Technology Co., Ltd
Address:	Building 3, No.23 Zhenxing North Road,Taiyuan Community, Xiegang Town, Dongguan City, Guangdong Province, China

2.2 Manufacturer Information

Company Name:	Dongguan Lingjie Electronics & Technology Co., Ltd
Address:	Building 3, No.23 Zhenxing North Road,Taiyuan Community, Xiegang Town, Dongguan City, Guangdong Province, China

2.3 Factory Information

Company Name:	N/A
Address:	N/A

2.4 General Description of Equipment under Test (EUT)

EUT Name:	wireless mouse
Test Model Number:	E703
Series Model Number:	N/A
Hardware Version	V1.0
Firmware Version	V1.0

2.5 Technical Information

Power Supply:	DC 1.5V from Battery
Power Adaptor:	N/A
Operation Frequency:	2402MHz to 2480MHz
Number of Channels:	79
Modulation Type:	GFSK
Antenna Type:	PCB ANT
Antenna Gain#:	-0.61 dBi

Note:

#: The antenna gain provided by the applicant, and the laboratory will not be responsible for the accumulated calculation results which covers the information provided by the applicant.

3 Summary of Test Results

3.1 Test Standards

The tests were performed according to following standards:

47 CFR Part 15.249: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHz, and 24.0-24.25 GHz

3.2 Uncertainty of Test

Item	Measurement Uncertainty
Occupied Channel Bandwidth	69 KHz
RF output power, conducted	0.87 dB
Power Spectral Density, conducted	0.69 dB
Unwanted Emissions, conducted	0.94 dB
All emissions, radiated(<1GHz)	4.12 dB
All emissions, radiated(>1GHz)	4.16 dB
Temperature	0.82 °C
Humidity	4.1 %

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3.3 Summary of Test Result

Item	Standard	Method	Requirement	Result
Antenna requirement	47 CFR Part 15.249		Part 15.203	Pass
Occupied Bandwidth	47 CFR Part 15.249	ANSI C63.10-2013, section 6.9.2	47 CFR 15.215(c)	Pass
Field strength of fundamental	47 CFR Part 15.249	ANSI C63.10-2013 section 6.6	47 CFR 15.249(a) 47 CFR 15.249(b)(1)	Pass
Band edge emissions (Radiated)	47 CFR Part 15.249	ANSI C63.10-2013 section 6.6.4	47 CFR 15.249(d)	Pass
Emissions in restricted frequency bands (below 1GHz)	47 CFR Part 15.249	ANSI C63.10-2013 section 6.5	47 CFR 15.249(a) 47 CFR 15.249(d) 47 CFR 15.249(e)	Pass
Emissions in restricted frequency bands (above 1GHz)	47 CFR Part 15.249	ANSI C63.10-2013 section 6.6	47 CFR 15.249(a) 47 CFR 15.249(d) 47 CFR 15.249(e)	Pass

4 Test Configuration

4.1 Test Equipment List

Occupied Bandwidth					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RFTest software	/	V1.00	/	/	/
RF Control Unit	Techy	TR1029-1	/	2022-11-24	2023-11-23
RF Sensor Unit	Techy	TR1029-2	/	2022-11-24	2023-11-23
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2022-11-24	2023-11-23
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co., LTD	etm-6050c	20211026123	2022-11-24	2023-11-23
WIDEBAND RADIO COMMUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2022-11-24	2023-11-23
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2022-11-24	2023-11-23

Maximum Conducted Output Power					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RFTest software	/	V1.00	/	/	/
RF Control Unit	Techy	TR1029-1	/	2022-11-24	2023-11-23
RF Sensor Unit	Techy	TR1029-2	/	2022-11-24	2023-11-23
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2022-11-24	2023-11-23
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co., LTD	etm-6050c	20211026123	2022-11-24	2023-11-23
WIDEBAND RADIO COMMUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2022-11-24	2023-11-23
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2022-11-24	2023-11-23

Channel Separation					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RFTest software	/	V1.00	/	/	/
RF Control Unit	Techy	TR1029-1	/	2022-11-24	2023-11-23
RF Sensor Unit	Techy	TR1029-2	/	2022-11-24	2023-11-23
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2022-11-24	2023-11-23
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co.,	etm-6050c	20211026123	2022-11-24	2023-11-23

	LTD				
WIDEBAND RADIO COMMUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2022-11-24	2023-11-23
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2022-11-24	2023-11-23

Number of Hopping Frequencies					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RFTest software	/	V1.00	/	/	/
RF Control Unit	Techy	TR1029-1	/	2022-11-24	2023-11-23
RF Sensor Unit	Techy	TR1029-2	/	2022-11-24	2023-11-23
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2022-11-24	2023-11-23
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co., LTD	etm-6050c	20211026123	2022-11-24	2023-11-23
WIDEBAND RADIO COMMUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2022-11-24	2023-11-23
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2022-11-24	2023-11-23

Dwell Time					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RFTest software	/	V1.00	/	/	/
RF Control Unit	Techy	TR1029-1	/	2022-11-24	2023-11-23
RF Sensor Unit	Techy	TR1029-2	/	2022-11-24	2023-11-23
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2022-11-24	2023-11-23
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co., LTD	etm-6050c	20211026123	2022-11-24	2023-11-23
WIDEBAND RADIO COMMUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2022-11-24	2023-11-23
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2022-11-24	2023-11-23

Emissions in non-restricted frequency bands					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RFTest software	/	V1.00	/	/	/
RF Control Unit	Techy	TR1029-1	/	2022-11-24	2023-11-23
RF Sensor Unit	Techy	TR1029-2	/	2022-11-24	2023-11-23
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2022-11-24	2023-11-23
Adjustable Direct	Dongguan	etm-6050c	20211026123	2022-11-24	2023-11-23

Current Regulated Power Supply	Tongmen Electronic Technology Co., LTD				
WIDEBAND RADIO COMMUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2022-11-24	2023-11-23
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2022-11-24	2023-11-23

Band edge emissions (Radiated)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Coaxial cable Multiflex 141	Schwarzbeck	N/SMA 0.5m	517386	2023-03-24	2024-03-23
Preamplifier	SCHWARZBECK	BBV9744	00246	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF1-SMASMAM-10m	21101566	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF2-NMNM-10m	21101570	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF1-SMASMAM-1m	21101568	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF2-NMNM-1m	21101576	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF2-NMNM-2.5m	21101573	2022-11-24	2023-11-23
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Horn Antenna	SCHWARZBECK	BBHA9170	01157	2021-11-28	2023-11-27
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI7	101032	2022-11-24	2023-11-23
SIGNAL ANALYZER	ROHDE&SCHWARZ	FSQ40	100010	2022-11-24	2023-11-23
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Broadband Preamplifier	SCHWARZBECK	BBV9718D	00008	2023-03-24	2024-03-23
Horn Antenna	SCHWARZBECK	BBHA9120D	2597	2022-05-22	2024-05-21
EZ EMC	Frad	FA-03A2 RE+	/	/	/
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Log periodic antenna	SCHWARZBECK	VULB 9168	01328	2021-11-28	2023-11-27

Emissions in restricted frequency bands (below 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Coaxial cable Multiflex 141	Schwarzbeck	N/SMA 0.5m	517386	2023-03-24	2024-03-23
Preamplifier	SCHWARZBECK	BBV9744	00246	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF1-SMASMAM-10m	21101566	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF2-NMNM-10m	21101570	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF1-SMASMAM-1m	21101568	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF2-NMNM-1m	21101576	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF2-NMNM-2.5m	21101573	2022-11-24	2023-11-23
POSITIONAL	SKET	PCI-GPIB	/	/	/

CONTROLLER					
Horn Antenna	SCHWARZBECK	BBHA9170	01157	2021-11-28	2023-11-27
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI7	101032	2022-11-24	2023-11-23
SIGNAL ANALYZER	ROHDE&SCHWARZ	FSQ40	100010	2022-11-24	2023-11-23
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Broadband Preamplifier	SCHWARZBECK	BBV9718D	00008	2023-03-24	2024-03-23
Horn Antenna	SCHWARZBECK	BBHA9120D	2597	2022-05-22	2024-05-21
EZ EMC	Frad	FA-03A2 RE+	/	/	/
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Log periodic antenna	SCHWARZBECK	VULB 9168	01328	2021-11-28	2023-11-27

Emissions in restricted frequency bands (above 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Coaxial cable Multiflex 141	Schwarzbeck	N/SMA 0.5m	517386	2023-03-24	2024-03-23
Preamplifier	SCHWARZBECK	BBV9744	00246	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF1-SMAM-10m	21101566	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF2-NMNM-10m	21101570	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF1-SMAM-1m	21101568	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF2-NMNM-1m	21101576	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF2-NMNM-2.5m	21101573	2022-11-24	2023-11-23
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Horn Antenna	SCHWARZBECK	BBHA9170	01157	2021-11-28	2023-11-27
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI7	101032	2022-11-24	2023-11-23
SIGNAL ANALYZER	ROHDE&SCHWARZ	FSQ40	100010	2022-11-24	2023-11-23
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Broadband Preamplifier	SCHWARZBECK	BBV9718D	00008	2023-03-24	2024-03-23
Horn Antenna	SCHWARZBECK	BBHA9120D	2597	2022-05-22	2024-05-21
EZ EMC	Frad	FA-03A2 RE+	/	/	/
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Log periodic antenna	SCHWARZBECK	VULB 9168	01328	2021-11-28	2023-11-27

4.2 Test Auxiliary Equipment

The EUT was tested as an independent device.

4.3 Test Modes

No.	Test Modes	Description
TM1	Transmitting mode	Keep the EUT in continuously transmitting mode
Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.		

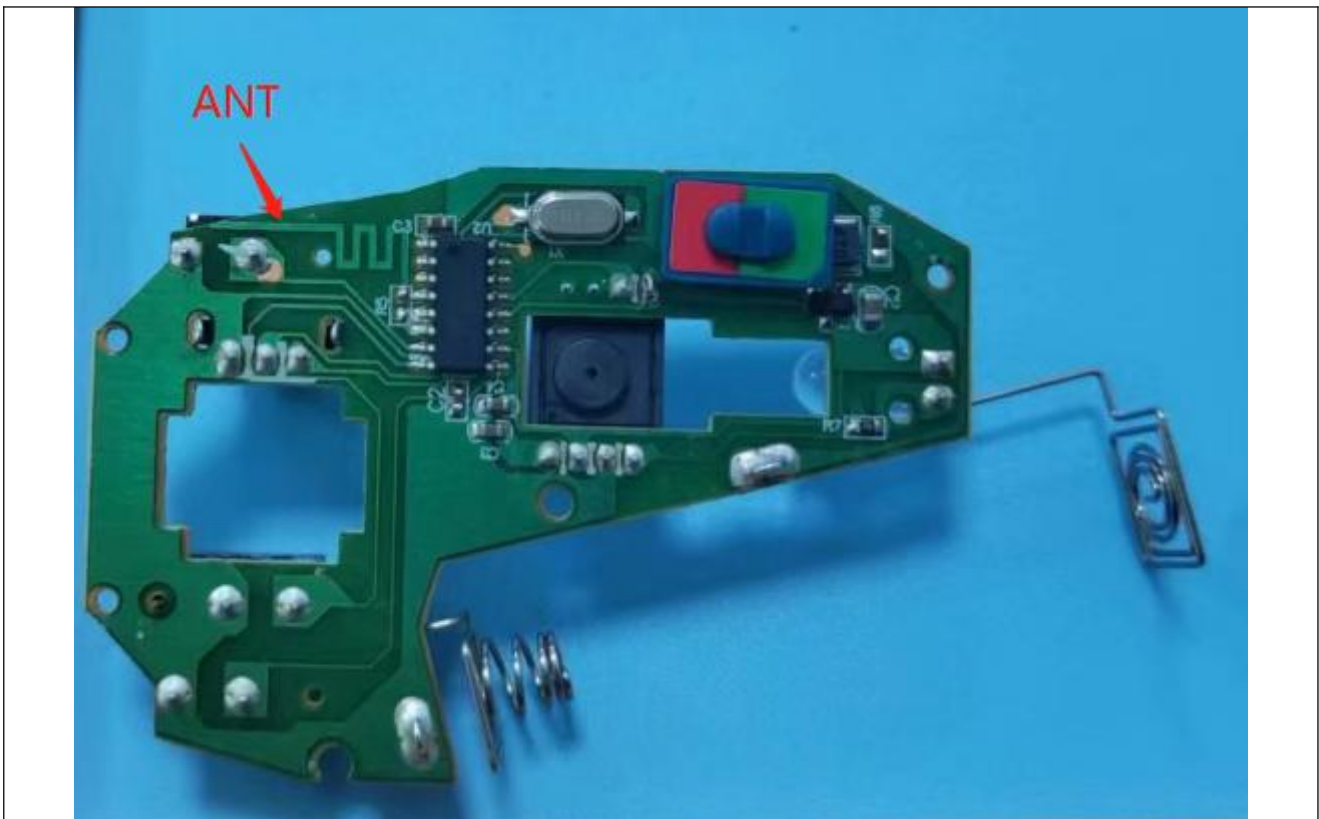
5 Evaluation Results (Evaluation)

5.1 Antenna requirement

Test Requirement:

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.

5.1.1 Conclusion:



6 Radio Spectrum Matter Test Results (RF)

6.1 Occupied Bandwidth

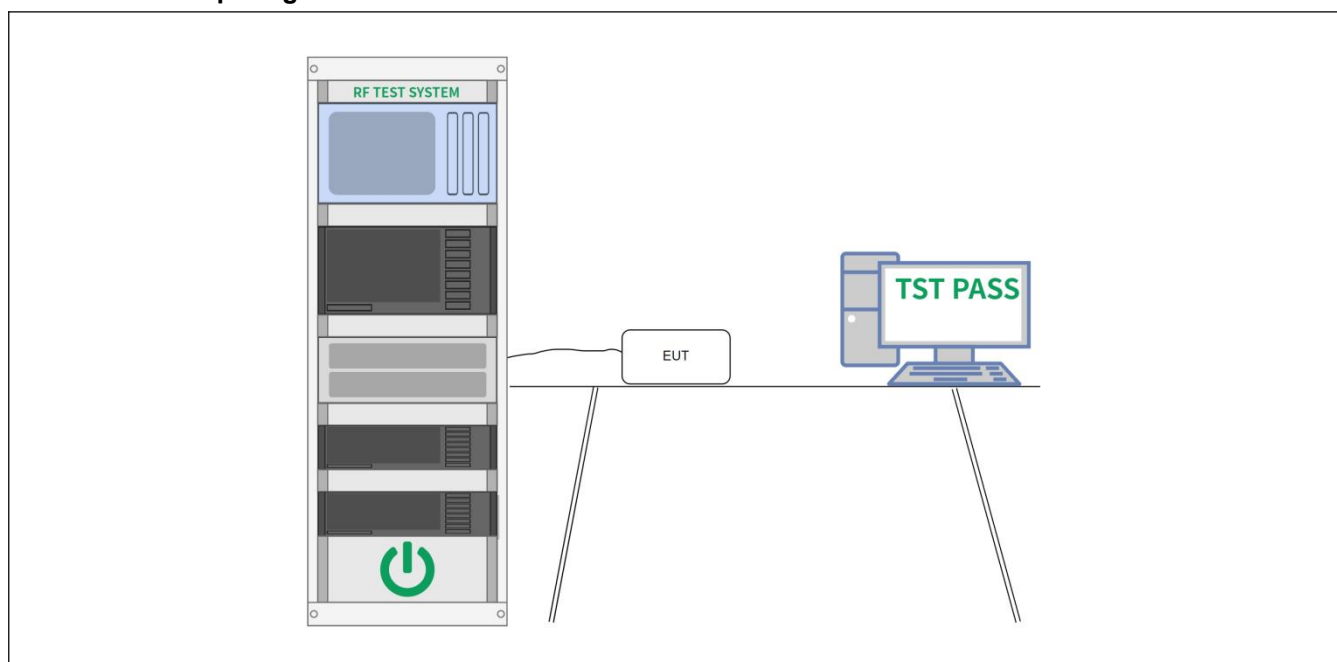
Test Requirement:	Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified 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 Limit:	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:	Occupied bandwidth—relative measurement procedure
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 $[(\text{reference value}) - \text{xx}]$. 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 stabilize. Otherwise, the trace from step g) shall be used for step j). 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. k) The occupied bandwidth shall be reported by providing plot(s) of the 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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6.1.1 E.U.T. Operation:

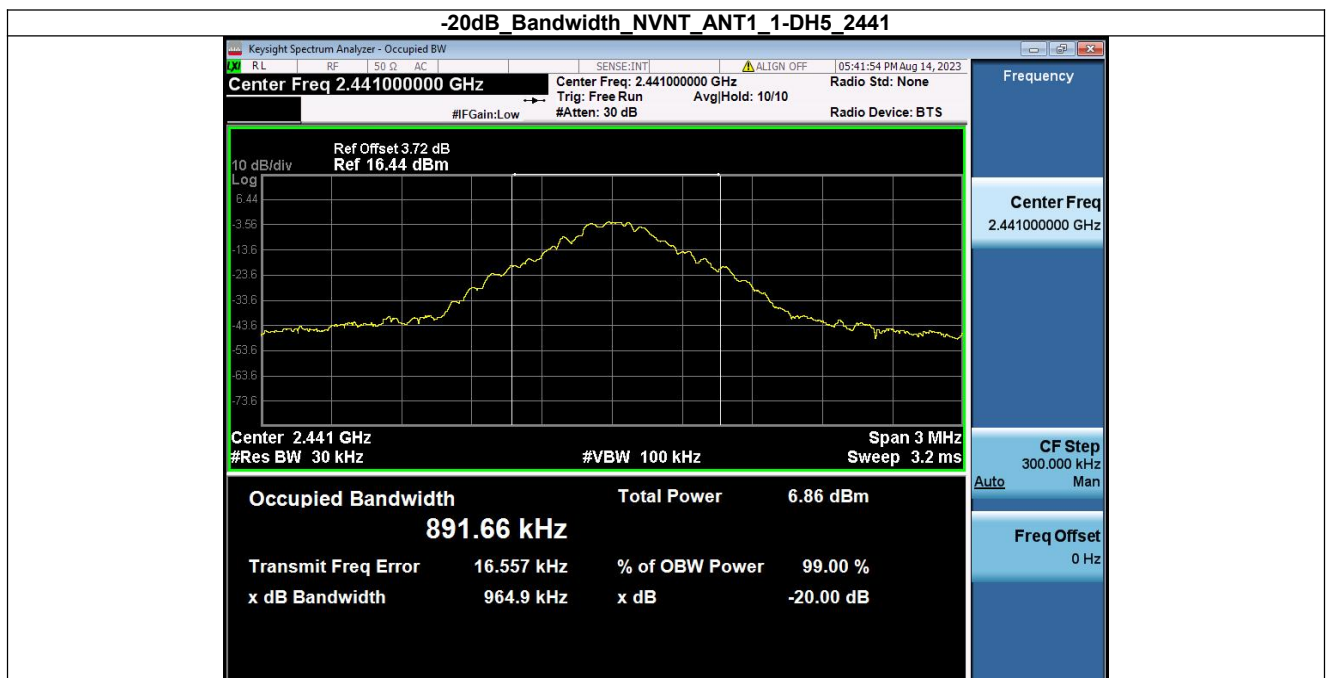
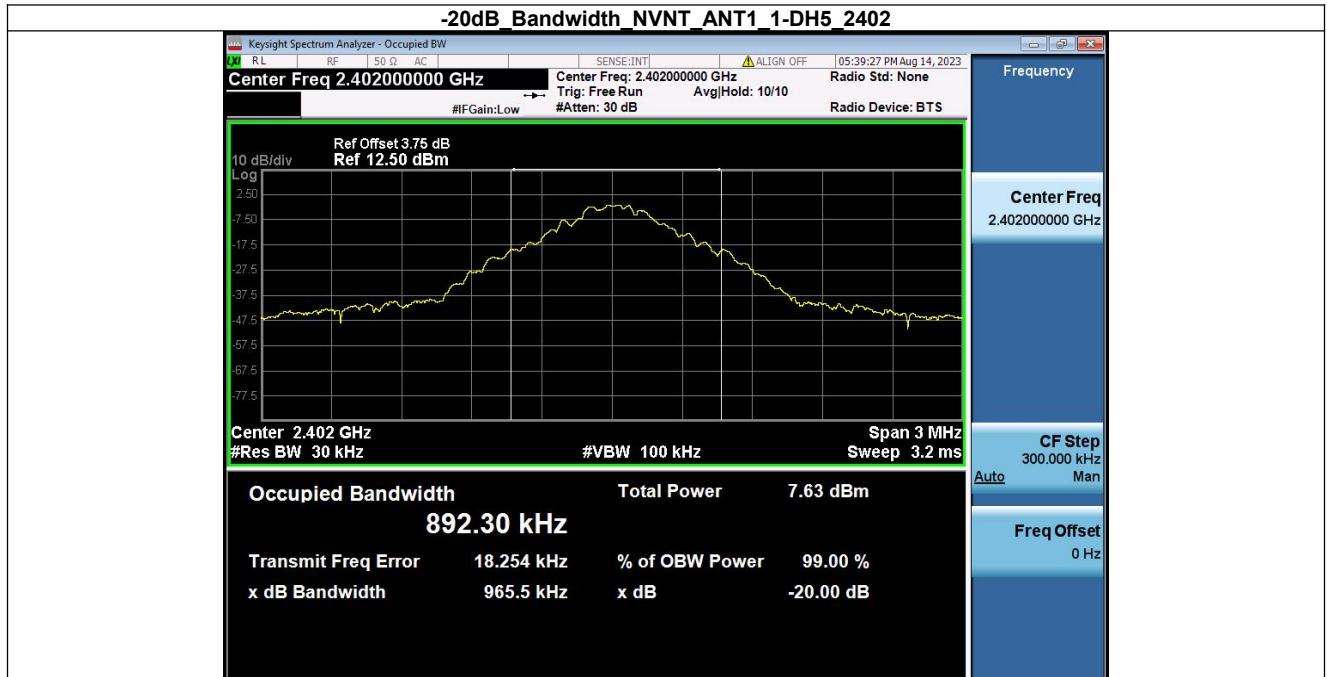
Operating Environment:					
Temperature:	22.2 °C	Humidity:	48.4 %	Atmospheric Pressure:	102 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

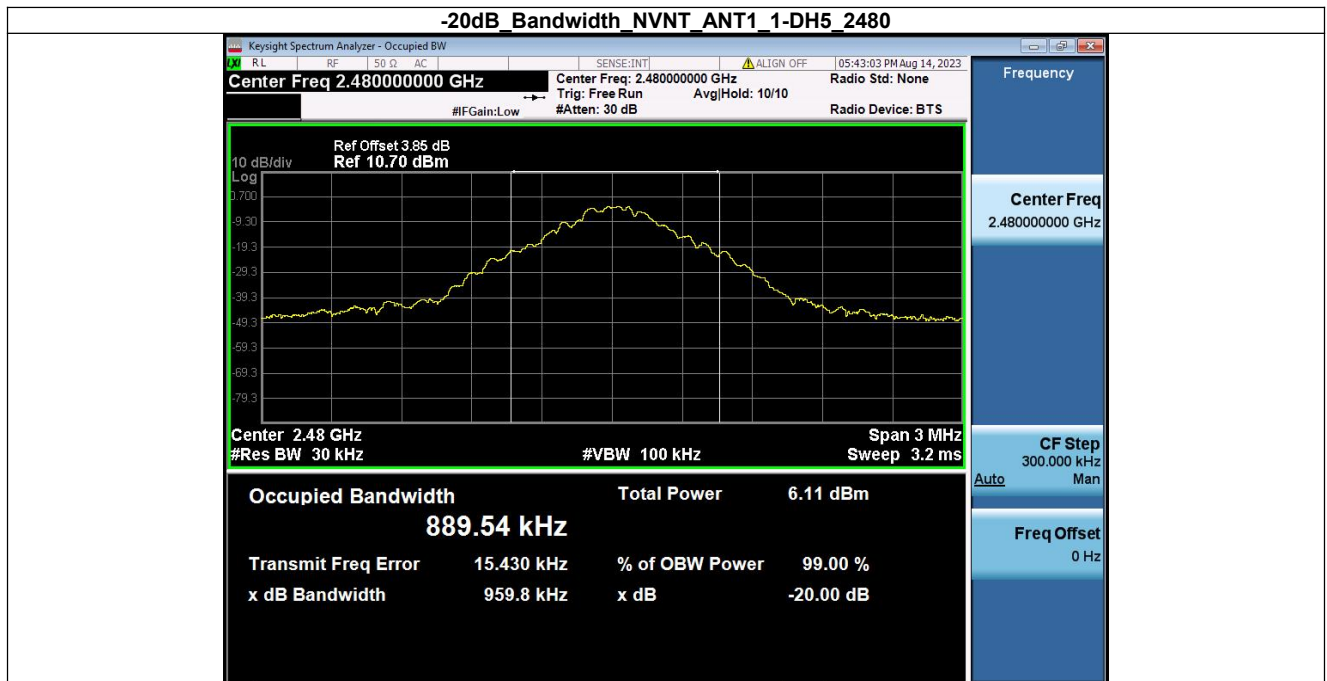
6.1.2 Test Setup Diagram:



6.1.3 Test Data:

Condition	Antenna	Modulation	Frequency (MHz)	-20dB BW(MHz)	if larger than CFS
NVNT	ANT1	1-DH5	2402	0.965	No
NVNT	ANT1	1-DH5	2441	0.965	No
NVNT	ANT1	1-DH5	2480	0.960	No





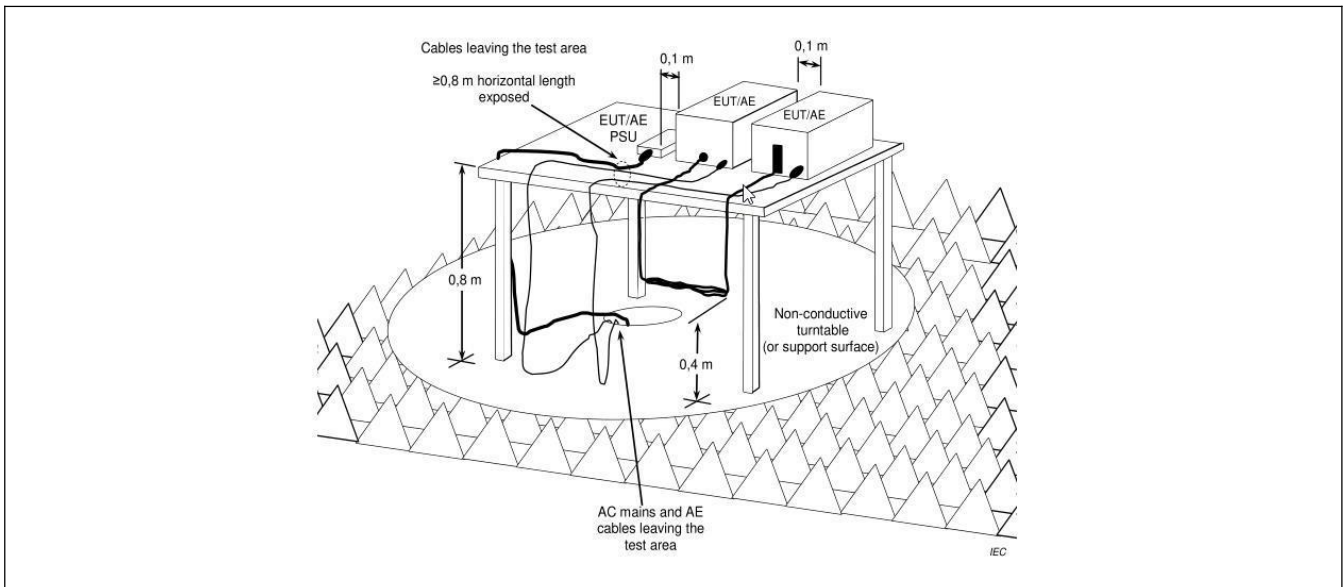
6.2 Field strength of fundamental

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:		
	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.		
Limit:	Frequency	Limit (dBµV/m @3m)	Remark
	2400MHz-2483.5MHz	94.0	Average Value
		114.0	Peak Value
Test Method:	ANSI C63.10-2013 section 6.6		
Procedure:	ANSI C63.10-2013 section 6.6		

6.2.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.2 °C	Humidity:	48.4 %	Atmospheric Pressure:	102 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

6.2.2 Test Setup Diagram:



6.2.3 Test Data:

Frequency (MHz)	Emission (dBUV/m)	PK/AV	Ant. Pol.	Limits PK/AV (dBUV/m)	Margin (dB)
2402	86.41	Peak	H	114	-27.59
2402	74.15	AV	H	94	-19.85
2402	85.64	Peak	V	114	-28.36
2402	72.56	AV	V	94	-21.44
2441	85.64	Peak	H	114	-28.36
2441	75.84	AV	H	94	-18.16
2441	86.34	Peak	V	114	-27.66
2441	73.65	AV	V	94	-20.35
2480	88.54	Peak	H	114	-25.46
2480	78.42	AV	H	94	-15.58
2480	87.45	Peak	V	114	-26.55
2480	74.56	AV	V	94	-19.44

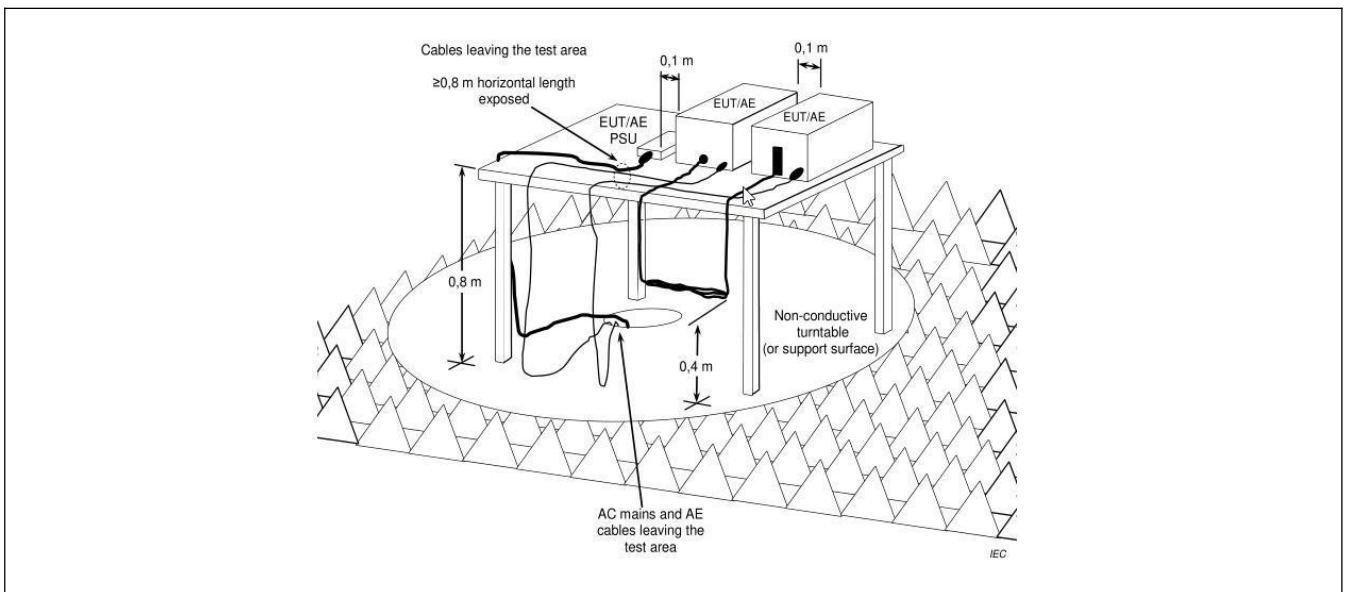
6.3 Band edge emissions (Radiated)

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)	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
	** 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.		
Test Method:	ANSI C63.10-2013 section 6.6.4		
Procedure:	ANSI C63.10-2013 section 6.6.4		

6.3.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.2 °C	Humidity:	48.4 %	Atmospheric Pressure:	102 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

6.3.2 Test Setup Diagram:



6.3.3 Test Data:

	Polar (H/V)	Frequenc y (MHz)	Meter Reading (dBuV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV /m)	Margin	Dete ctor Type	Result
FSK	Low Channel: 2402MHz										
	H	2390	53.70	30.22	4.85	23.98	52.31	74	-21.69	PK	PASS
	H	2390	35.91	30.22	4.85	23.98	34.52	54	-19.48	AV	PASS
	H	2400	54.04	30.22	4.85	23.98	52.65	74	-21.35	PK	PASS
	H	2400	39.49	30.22	4.85	23.98	38.10	54	-15.90	AV	PASS
	V	2390	52.71	30.22	4.85	23.98	51.32	74	-22.68	PK	PASS
	V	2390	40.42	30.22	4.85	23.98	39.03	54	-14.97	AV	PASS
	V	2400	53.49	30.22	4.85	23.98	52.10	74	-21.90	PK	PASS
	V	2400	38.88	30.22	4.85	23.98	37.49	54	-16.51	AV	PASS
	High Channel: 2480MHz										
	H	2483.5	48.91	30.22	4.85	23.98	47.52	74	-26.48	PK	PASS
	H	2483.5	38.50	30.22	4.85	23.98	37.11	54	-16.89	AV	PASS
	H	2500	47.99	30.22	4.85	23.98	46.60	74	-27.40	PK	PASS
	H	2500	40.14	30.22	4.85	23.98	38.75	54	-15.25	AV	PASS
	V	2483.5	52.26	30.22	4.85	23.98	50.87	74	-23.13	PK	PASS
	V	2483.5	44.09	30.22	4.85	23.98	42.70	54	-11.30	AV	PASS
	V	2500	56.89	30.22	4.85	23.98	55.50	74	-18.50	PK	PASS
	V	2500	42.42	30.22	4.85	23.98	41.03	54	-12.97	AV	PASS

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit

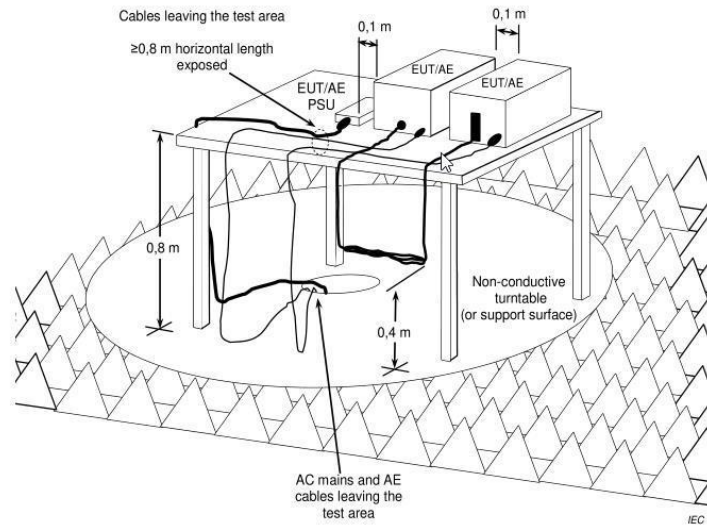
6.4 Emissions in restricted frequency bands (below 1GHz)

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><tr><th>Fundamental frequency</th><th>Field strength of fundamental (millivolts/meter)</th><th>Field strength of harmonics (microvolts/meter)</th></tr><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></table> 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. <table><tr><th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr><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></table> ** 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. 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. Spurious Emissions: For 9 kHz-30MHz Test Results: The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.			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
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																																									
Procedure:	ANSI C63.10-2013 section 6.5																																									

6.4.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.2 °C	Humidity:	48.4 %	Atmospheric Pressure:	102 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

6.4.2 Test Setup Diagram:



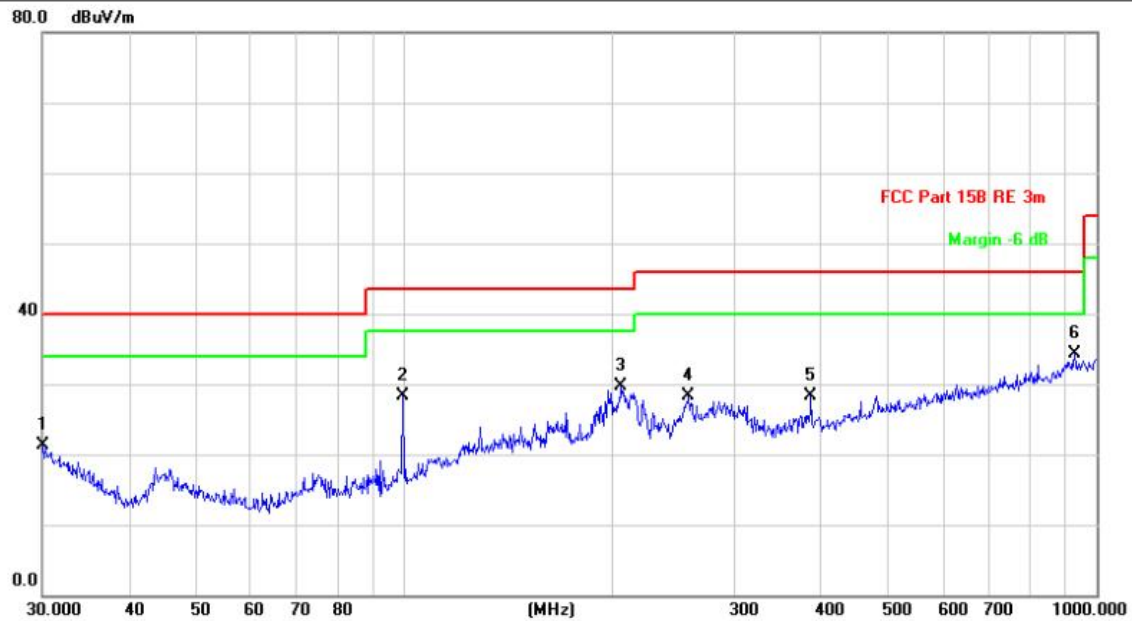
6.4.3 Test Data:

TM1 / Polarization: Horizontal / Band: 2.4G



No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Antenna Height cm	Table Degree	Comment
1	74.6569	29.30	-10.05	19.25	40.00	-20.75	QP	100	24
2	120.2766	28.81	-3.59	25.22	43.50	-18.28	QP	100	235
3	171.9946	34.17	-4.88	29.29	43.50	-14.21	QP	100	274
4	207.1226	37.32	-4.67	32.65	43.50	-10.85	QP	100	225
5	* 292.0583	37.54	-2.13	35.41	46.00	-10.59	QP	100	75
6	896.9965	26.22	8.21	34.43	46.00	-11.57	QP	100	37

TM1 / Polarization: Vertical / Band: 2.4G



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		30.1054	23.33	-2.03	21.30	40.00	-18.70	QP	100	72
2		99.5281	35.31	-7.09	28.22	43.50	-15.28	QP	100	174
3		205.6751	34.07	-4.34	29.73	43.50	-13.77	QP	100	72
4		257.4222	32.00	-3.77	28.23	46.00	-17.77	QP	100	171
5		386.6338	28.80	-0.53	28.27	46.00	-17.73	QP	100	41
6	*	929.0082	25.33	8.92	34.25	46.00	-11.75	QP	100	37

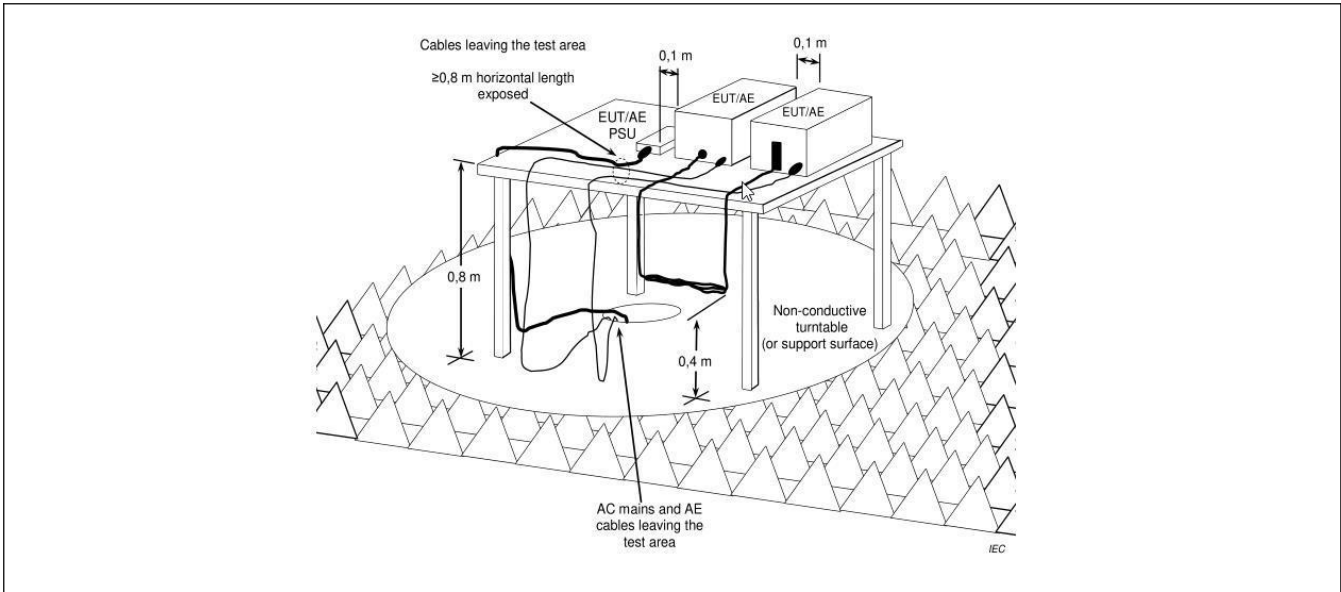
6.5 Emissions in restricted frequency bands (above 1GHz)

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><tr><th>Fundamental frequency</th><th>Field strength of fundamental (millivolts/meter)</th><th>Field strength of harmonics (microvolts/meter)</th></tr><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></table> 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. <table><tr><th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr><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></table> ** 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. 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.			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
Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)																																								
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0.009-0.490	2400/F(kHz)	300																																								
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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																																									
Procedure:	ANSI C63.10-2013 section 6.6																																									

6.5.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.2 °C	Humidity:	48.4 %	Atmospheric Pressure:	102 kPa
Pre test mode:		TM1			
Final test mode:		TM1			

6.5.2 Test Setup Diagram:



6.5.3 Test Data:

Polar (H/V)	Frequency	Meter Reading	Pre-ampli fier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel: 2402MHz									
V	4804.00	53.79	30.55	5.77	24.66	53.67	74.00	-20.33	Pk
V	4804.00	39.87	30.55	5.77	24.66	39.75	54.00	-14.25	AV
V	7206.00	53.12	30.33	6.32	24.55	53.66	74.00	-20.34	Pk
V	7206.00	39.42	30.33	6.32	24.55	39.96	54.00	-14.04	AV
V	9608.00	50.64	30.85	7.45	24.69	51.93	74.00	-22.07	Pk
V	9608.00	36.92	30.85	7.45	24.69	38.21	54.00	-15.79	AV
H	4804.00	55.59	30.55	5.77	24.66	55.47	74.00	-18.53	Pk
H	4804.00	40.94	30.55	5.77	24.66	40.82	54.00	-13.18	AV
H	7206.00	54.55	30.33	6.32	24.55	55.09	74.00	-18.91	Pk
H	7206.00	39.54	30.33	6.32	24.55	40.08	54.00	-13.92	AV
H	9608.00	51.27	30.85	7.45	24.69	52.56	74.00	-21.44	Pk
H	9608.00	37.36	30.85	7.45	24.69	38.65	54.00	-15.35	AV

Polar (H/V)	Frequency	Meter Reading	Pre-ampli fier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Middle channel: 2441MHz									
V	4882.00	54.18	30.55	5.77	24.66	54.06	74.00	-19.94	Pk
V	4882.00	40.72	30.55	5.77	24.66	40.60	54.00	-13.40	AV
V	7323.00	53.15	30.33	6.32	24.55	53.69	74.00	-20.31	Pk
V	7323.00	41.44	30.33	6.32	24.55	41.98	54.00	-12.02	AV
V	9764.00	52.12	30.85	7.45	24.69	53.41	74.00	-20.59	Pk
V	9764.00	36.28	30.85	7.45	24.69	37.57	54.00	-16.43	AV
H	4882.00	55.39	30.55	5.77	24.66	55.27	74.00	-18.73	Pk
H	4882.00	39.52	30.55	5.77	24.66	39.40	54.00	-14.60	AV
H	7323.00	53.27	30.33	6.32	24.55	53.81	74.00	-20.19	Pk
H	7323.00	38.81	30.33	6.32	24.55	39.35	54.00	-14.65	AV
H	9764.00	51.44	30.85	7.45	24.69	52.73	74.00	-21.27	Pk
H	9764.00	38.76	30.85	7.45	24.69	40.05	54.00	-13.95	AV

Polar (H/V)	Frequency	Meter Reading	Pre-ampli fier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
High Channel: 2480MHz--ANT1									
V	4960.00	55.29	30.55	5.77	24.66	55.17	74.00	-18.83	Pk
V	4960.00	40.07	30.55	5.77	24.66	39.95	54.00	-14.05	AV
V	7440.00	53.89	30.33	6.32	24.55	54.43	74.00	-19.57	Pk
V	7440.00	39.37	30.33	6.32	24.55	39.91	54.00	-14.09	AV
V	9920.00	50.18	30.85	7.45	24.69	51.47	74.00	-22.53	Pk
V	9920.00	38.94	30.85	7.45	24.69	40.23	54.00	-13.77	AV
H	4960.00	55.53	30.55	5.77	24.66	55.41	74.00	-18.59	Pk
H	4960.00	40.62	30.55	5.77	24.66	40.50	54.00	-13.50	AV
H	7440.00	54.18	30.33	6.32	24.55	54.72	74.00	-19.28	Pk
H	7440.00	39.60	30.33	6.32	24.55	40.14	54.00	-13.86	AV
H	9920.00	50.03	30.85	7.45	24.69	51.32	74.00	-22.68	Pk
H	9920.00	39.00	30.85	7.45	24.69	40.29	54.00	-13.71	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

7 Test Setup Photos

Please refer to Setup Photo file

8 EUT Constructional Details (EUT Photos)

Please refer to external photos file and internal photos file



Test Report Number: BTFSZ230720Q0011



BTF Testing Lab (Shenzhen) Co., Ltd.

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-- END OF REPORT --