

RF Test Report

For

Applicant Name: FOXX Development Inc

Address: 3480 Preston Ridge Road, Suite500, Alpharetta, GA 30005, USA

EUT Name: Tablet PC
Brand Name: FOXXD
Model Number: FOXXD_V8

Issued By

Company Name: BTF Testing Lab (Shenzhen) Co., Ltd.

F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park,

Address: Tantou Community, Songgang Street, Bao'an District, Shenzhen,

China

Report Number: BTF230926R00101 Test Standards: 47 CFR Part 15.247

Test Conclusion: Pass

FCC ID: 2AQRM-V8

Test Date: 2023-09-26 to 2023-10-27

Date of Issue: 2023-10-30

Prepared By:

Chris Liu / Project Enginee

Date: 2023-10-30

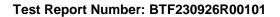
Approved By:

Ryan.CJ / EMC Manager

Date: 2023-10-30

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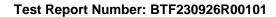


Revision History			
Version	Issue Date	Revisions Content	
R_V0	2023-10-30	Original	
Note: Once the	revision has been made, then pre	vious versions reports are invalid.	



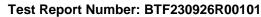
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1 Introduction

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, Tant 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:	FOXX Development Inc
Address:	3480 Preston Ridge Road, Suite500, Alpharetta, GA 30005, USA

2.2 Manufacturer Information

Company Name:	FOXX Development Inc
Address:	3480 Preston Ridge Road, Suite500, Alpharetta, GA 30005, USA

2.3 Factory Information

Company Name:	ZTECH COMMNICATION(SZ) CO LTD		
A dd = 0.00	FL 7 BLOCK D BAO'AN ZHIGU INNOVATION PARK YIN'TIAN ROAD NO.4		
Address:	XI'XIANG STR' BAO'AN DISTRICT SZ CHINA		

2.4 General Description of Equipment under Test (EUT)

EUT Name:	Tablet PC
Test Model Number:	FOXXD_V8

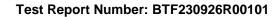
2.5 Technical Information

Power Supply:	AC 120V 60Hz
	Model: V8
Power Adaptor:	Input:100-240v, 50/60Hz 0.3A
	Output:5.0V==2.0A 10.0W
Operation Frequency:	2402MHz to 2480MHz
Number of Channels:	79
Modulation Type:	GFSK, π/4 DQPSK, 8DPSK
Antenna Type:	PIFA ANT
Antenna Gain [#] :	1.01
A.L. d	

Note:

Bluetooth Version: 5.2

^{#:} 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 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

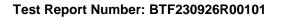
3.2 Uncertainty of Test

Item	Measurement Uncertainty
Conducted Emission (150 kHz-30 MHz)	±2.64dB
Occupied Bandwidth	±69kHz
Transmitter Power, Conducted	±0.87dB
Conducted Spurious Emissions	±0.95dB
Radiated Spurious Emissions (above 1GHz)	1-6GHz: ±3.94dB 6-18GHz: ±4.16dB
Radiated Spurious Emissions (30M - 1GHz)	±4.12dB

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	Requirement	Result
Antenna requirement	47 CFR Part 15.247	47 CFR 15.203	Pass
Conducted Emission at AC power line	47 CFR Part 15.247	47 CFR 15.207(a)	Pass
Occupied Bandwidth	47 CFR Part 15.247	47 CFR 15.215(c)	Pass
Maximum Conducted Output Power	47 CFR Part 15.247	47 CFR 15.247(b)(1)	Pass
Channel Separation	47 CFR Part 15.247	47 CFR 15.247(a)(1)	Pass
Number of Hopping Frequencies	47 CFR Part 15.247	47 CFR 15.247(a)(1)(iii)	Pass
Dwell Time	47 CFR Part 15.247	47 CFR 15.247(a)(1)(iii)	Pass
Emissions in non-restricted frequency bands	47 CFR Part 15.247	47 CFR 15.247(d), 15.209, 15.205	Pass
Band edge emissions (Radiated)	47 CFR Part 15.247	47 CFR 15.247(d), 15.209, 15.205	Pass
Emissions in frequency bands (below 1GHz)	47 CFR Part 15.247	47 CFR 15.247(d), 15.209, 15.205	Pass
Emissions in frequency bands (above 1GHz)	47 CFR Part 15.247	47 CFR 15.247(d), 15.209, 15.205	Pass





4 Test Configuration

4.1 Test Equipment List

Conducted Emission at AC power line						
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
Pulse Limiter	SCHWARZBECK	VTSD 9561-F	00953	2022-11-24	2023-11-23	
Coaxial Switcher	SCHWARZBECK	CX210	CX210	2022-11-24	2023-11-23	
V-LISN	SCHWARZBECK	NSLK 8127	01073	2022-11-24	2023-11-23	
LISN	AFJ	LS16/110VAC	16010020076	2023-02-23	2024-02-22	
EMI Receiver	ROHDE&SCHWA RZ	ESCI3	101422	2022-11-24	2023-11-23	

Occupied Bandwidth

Maximum Conducted Output Power

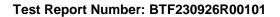
Channel Separation

Number of Hopping Frequencies

Dwell Time

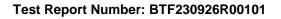
Emissions in non-restricted frequency bands

Emissions in non-restricted frequency bands								
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date			
RFTest software	1	V1.00	1	/	/			
RF Control Unit	Techy	TR1029-1	1	2022-11-24	2023-11-23			
RF Sensor Unit	Techy	TR1029-2	1	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 COMMNUNICATION 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)				
Emissions in frequence	cy bands (below 1				
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-1 0m	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-1 m	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	1	1	1
Horn Antenna	SCHWARZBECK	BBHA9170	01157	2021-11-28	2023-11-27
EMI TEST RECEIVER	ROHDE&SCHWA RZ	ESCI7	101032	2022-11-24	2023-11-23
SIGNAL ANALYZER	ROHDE&SCHWA RZ	FSQ40	100010	2022-11-24	2023-11-23
POSITIONAL CONTROLLER	SKET	PCI-GPIB	1	1	1
Broadband Preamplilifier	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+	1	1	/
POSITIONAL CONTROLLER	SKET	PCI-GPIB	1	1	1
Log periodic antenna	SCHWARZBECK	VULB 9168	01328	2021-11-28	2023-11-27



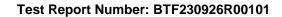


4.2 Test Auxiliary Equipment

The EUT was tested as an independent device.

4.3 Test Modes

No.	Test Modes	Description
TM1	TX-GFSK	Keep the EUT in continuously transmitting mode (non-hopping) with
I IVI I	(Non-Hopping)	GFSK modulation.
TM2	TX-Pi/4DQPSK	Keep the EUT in continuously transmitting mode (non-hopping) with
I IVIZ	(Non-Hopping)	Pi/4DQPSK modulation.
TM3	TX-8DPSK	Keep the EUT in continuously transmitting mode (non-hopping) with
TIVIS	(Non-Hopping)	8DPSK modulation.
TM4	TX-GFSK (Hopping)	Keep the EUT in continuously transmitting mode (hopping) with GFSK
1141-7	TX Of OR (Hopping)	modulation,.
TM5	TX-Pi/4DQPSK	Keep the EUT in continuously transmitting mode (hopping) with
TIVIO	(Hopping)	Pi/4DQPSK modulation.
TM6	TX-8DPSK (Hopping)	Keep the EUT in continuously transmitting mode (hopping) with 8DPSK
TIVIO	TX-ODF SIX (Hopping)	modulation.





5 Evaluation Results (Evaluation)

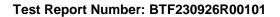
5.1 Antenna requirement

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.

5.1.1 Conclusion:







6 Radio Spectrum Matter Test Results (RF)

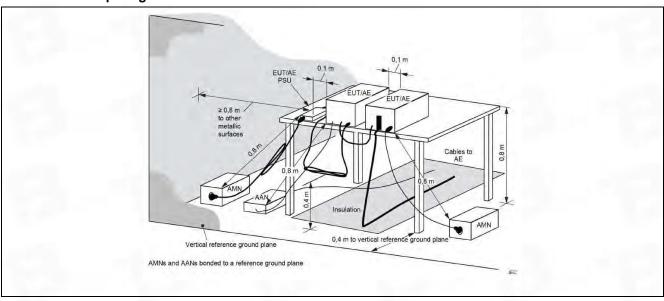
6.1 Conducted Emission at AC power line

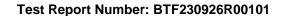
Test Requirement:	Refer to 47 CFR 15.207(a), Except as shown in paragraphs (b)and (c)of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN).					
Test Method:	ANSI C63.10-2013 section 6.2					
	Frequency of emission (MHz)	Conducted limit (dBµV)				
		Quasi-peak	Average			
Test Limit:	0.15-0.5	66 to 56*	56 to 46*			
Test Littit.	0.5-5	56	46			
	5-30	60	50			
	*Decreases with the logarithm of the frequency.					
Procedure:	Refer to ANSI C63.10-2013 section 6.2, standard test method for ac power-line					
Procedure.	conducted emissions from unlicen	sed wireless devices				

6.1.1 E.U.T. Operation:

Operating Environment:	
Temperature:	24.9 °C
Humidity:	53.6 %
Atmospheric Pressure:	1010 mbar

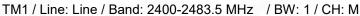
6.1.2 Test Setup Diagram:

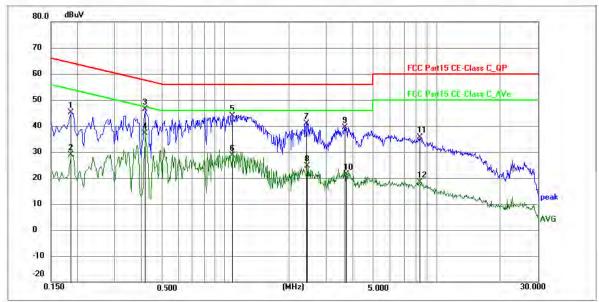




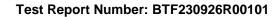


6.1.3 Test Data:

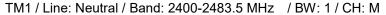


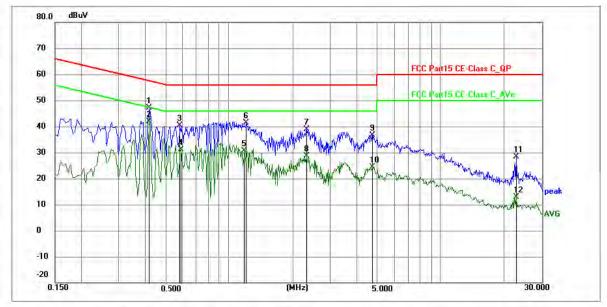


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1860	34.67	10.57	45.24	64.21	-18.97	QP	Р	
2	0.1860	18.26	10.57	28.83	54.21	-25.38	AVG	Р	
3	0.4154	35.84	10.60	46.44	57.54	-11.10	QP	Р	
4 *	0.4154	26.53	10.60	37.13	47.54	-10.41	AVG	Р	
5	1.0814	33.21	10.77	43.98	56.00	-12.02	QP	Р	
6	1.0814	17.81	10.77	28.58	46.00	-17.42	AVG	Р	
7	2.4224	30.23	10.70	40.93	56.00	-15.07	QP	P	
8	2.4360	13.85	10.70	24.55	46.00	-21.45	AVG	Р	
9	3.6780	28.78	10.72	39.50	56.00	-16.50	QP	Р	
10	3.7230	10.73	10.72	21.45	46.00	-24.55	AVG	Р	
11	8.2680	24.85	10.83	35.68	60.00	-24.32	QP	Р	
12	8.2680	7.47	10.83	18.30	50.00	-31.70	AVG	P	

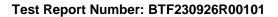








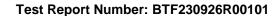
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.4155	36.56	10.60	47.16	57.54	-10.38	QP	Р	
2 *	0.4155	31.28	10.60	41.88	47.54	-5.66	AVG	Р	
3	0.5865	29.65	10.66	40.31	56.00	-15.69	QP	Р	
4	0.5910	20.56	10.67	31.23	46.00	-14.77	AVG	Р	
5	1.1805	19.81	10.76	30.57	46.00	-15.43	AVG	Р	
6	1.2075	30.67	10.76	41.43	56.00	-14.57	QP	Р	
7	2.3100	28.06	10.70	38.76	56.00	-17.24	QP	Р	
8	2.3100	17.99	10.70	28.69	46.00	-17.31	AVG	Р	
9	4.7310	25.81	10.80	36.61	56.00	-19.39	QP	Р	
10	4.7310	13.57	10.80	24.37	46.00	-21.63	AVG	Р	
11	22.7354	17,23	11.04	28.27	60.00	-31.73	QP	Р	
12	22.7354	1.72	11.04	12.76	50.00	-37.24	AVG	Р	





6.2 Occupied Bandwidth

Test Requirement:	47 CFR 15.215(c)
1 COLT TO GAIL OTHORIC.	ANSI C63.10-2013, section 7.8.7, For occupied bandwidth measurements, use the
Test Method:	procedure in 6.9.2. KDB 558074 D01 15.247 Meas Guidance v05r02
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.
	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.
Procedure:	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 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).

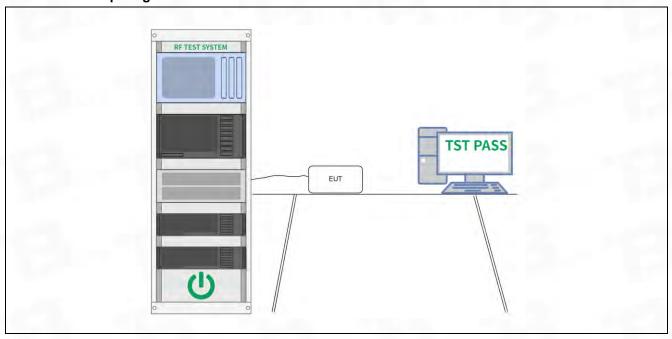




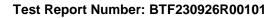
6.2.1 E.U.T. Operation:

Operating Environment:		
Temperature:	24.9 °C	
Humidity:	53.6 %	
Atmospheric Pressure:	1010 mbar	

6.2.2 Test Setup Diagram:



6.2.3 Test Data:





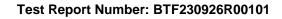
6.3 Maximum Conducted Output Power

Toot Doguiroment	47 OFD 45 247/b)/4)
Test Requirement:	47 CFR 15.247(b)(1)
Test Method:	ANSI C63.10-2013, section 7.8.5
1 dot Wiethou.	KDB 558074 D01 15.247 Meas Guidance v05r02
Test Limit:	Refer to 47 CFR 15.247(b)(1), For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.
Procedure:	This is an RF-conducted test to evaluate maximum peak output power. Use a direct connection between the antenna port of the unlicensed wireless device and the spectrum analyzer, through suitable attenuation. The hopping shall be disabled for this test: a) Use the following spectrum analyzer settings: 1) Span: Approximately five times the 20 dB bandwidth, centered on a hopping channel. 2) RBW > 20 dB bandwidth of the emission being measured. 3) VBW >= RBW. 4) Sweep: Auto. 5) Detector function: Peak. 6) Trace: Max hold. b) Allow trace to stabilize. c) Use the marker-to-peak function to set the marker to the peak of the emission. d) The indicated level is the peak output power, after any corrections for external attenuators and cables. e) A plot of the test results and setup description shall be included in the test report. NOTE—A peak responding power meter may be used, where the power meter and sensor system video bandwidth is greater than the occupied bandwidth of the unlicensed wireless device, rather than a spectrum analyzer.

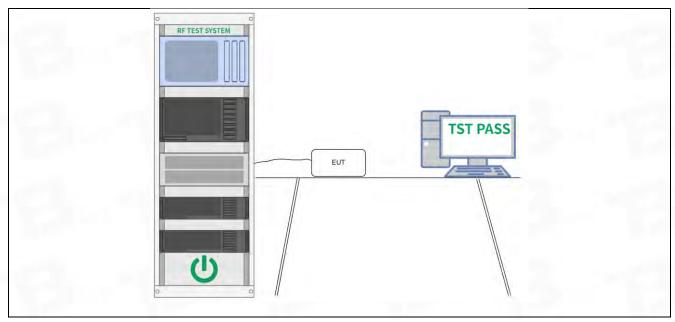
6.3.1 E.U.T. Operation:

Operating Environment:	
Temperature:	24.9 °C
Humidity:	53.6 %
Atmospheric Pressure:	1010 mbar

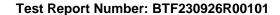
6.3.2 Test Setup Diagram:







6.3.3 Test Data:





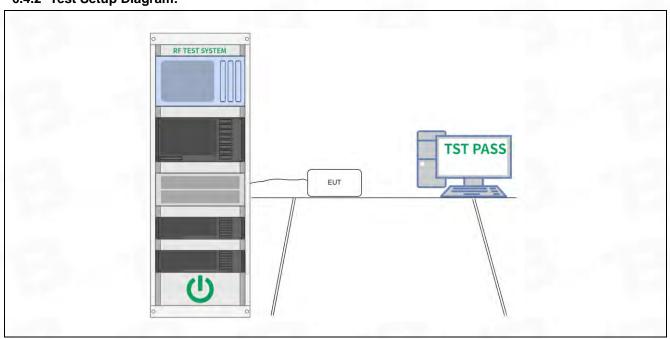
6.4 Channel Separation

Test Requirement:	47 CFR 15.247(a)(1)
Test Method:	ANSI C63.10-2013, section 7.8.2
Test Method.	KDB 558074 D01 15.247 Meas Guidance v05r02
Test Limit:	Refer to 47 CFR 15.247(a)(1), Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.
Procedure:	The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings: a) Span: Wide enough to capture the peaks of two adjacent channels. b) RBW: Start with the RBW set to approximately 30% of the channel spacing; adjust as necessary to best identify the center of each individual channel. c) Video (or average) bandwidth (VBW) ≥ RBW. d) Sweep: Auto. e) Detector function: Peak. f) Trace: Max hold. g) Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. Compliance of an EUT with the appropriate regulatory limit shall be determined. A plot of the data shall be included in the test report.

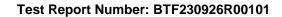
6.4.1 E.U.T. Operation:

<u> </u>	
Operating Environment:	
Temperature:	24.9 °C
Humidity:	53.6 %
Atmospheric Pressure:	1010 mbar

6.4.2 Test Setup Diagram:



6.4.3 Test Data:





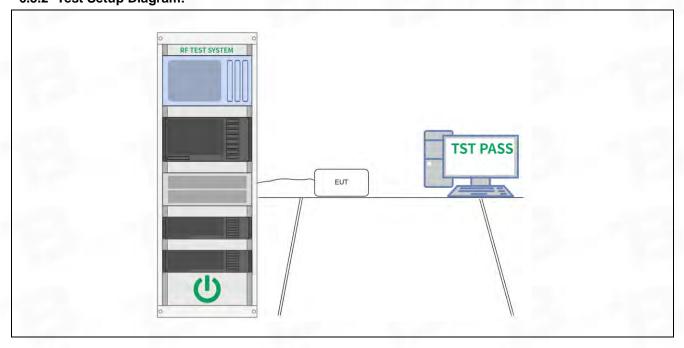
6.5 Number of Hopping Frequencies

Test Requirement:	47 CFR 15.247(a)(1)(iii)
Test Method:	ANSI C63.10-2013, section 7.8.3
Test Method.	KDB 558074 D01 15.247 Meas Guidance v05r02
Test Limit:	Refer to 47 CFR 15.247(a)(1)(iii), Fequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.
Procedure:	The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings: a) Span: The frequency band of operation. Depending on the number of channels the device supports, it may be necessary to divide the frequency range of operation across multiple spans, to allow the individual channels to be clearly seen. b) RBW: To identify clearly the individual channels, set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller. c) VBW ≥ RBW. d) Sweep: Auto. e) Detector function: Peak. f) Trace: Max hold. g) Allow the trace to stabilize. It might prove necessary to break the span up into subranges to show clearly all of the hopping frequencies. Compliance of an EUT with the appropriate regulatory limit shall be determined for the number of hopping channels. A plot of the data shall be included in the test report.

6.5.1 E.U.T. Operation:

Operating Environment:			
Temperature:	24.9 °C		
Humidity:	53.6 %		
Atmospheric Pressure:	1010 mbar		

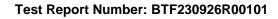
6.5.2 Test Setup Diagram:





Test Report Number: BTF230926R00101

6.5.3 Test Data:





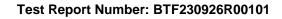
6.6 Dwell Time

Test Method: ANSI C63.10-2013, section 7.8.4 KDB 558074 D01 15.247 Meas Quidance v05r02 Refer to 47 CFR 15.247(a)(1)(iii), Fequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used. The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings: a) Span: Zero span, centered on a hopping channel. b) RBW shall be <= channel spacing and where possible RBW should be set >> 1 / T, where T is the expected dwell time per channel. c) Sweep: As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmited signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on an adjacent channel; a second plot might be needed with a longer sweep time to show two successive hops on a channel. d) Detector function: Peak. e) Trace: Max hold. Use the marker-delta function to determine the transmit time per hop. If this value varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation in transmit time. Repeat the measurement using a longer sweep time to determine the number of hops over the period specified in the requirements. The sweep time shall be equal to, or less than, the period specified in the requirements, using the following equation: (Number of hops in the period specified in the requirements, using the following equation: (Number of hops on spectrum analyzer) × (period specified in the requirements / analyzer sweep time) The average time of occupancy is calculated from the transmit time per hop	Test Method: ANSI C63.10-2013, section 7.8.4 KDB 558074 D01 15.247 Meas Guidance v05r02 Refer to 47 CFR 15.247(a)(1)(iii), Fequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used. The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings: a) Span: Zero span, centered on a hopping channel. b) RBW shall be <= channel spacing and where possible RBW should be set >> 1/ T, where T is the expected dwell time per channel. c) Sweep: As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on an adjacent channel; a second plot might be needed with a longer sweep time to show two successive hops on a channel. d) Detector function: Peak. e) Trace: Max hold. Use the marker-delta function to determine the transmit time per hop. If this value varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation in transmit time. Repeat the measurement using a longer sweep time to determine the number of hops over the period specified in the requirements. The sweep time and calculate the total number of hops in the period specified in the requirements, using the following equation: (Number of hops in the period specified in the requirements) = (number of hops in the period specified in the requirements) = (number of hops on spectrum analyzer) × (period specified in the requirements)	0.0 Dwell lille	
Test Limit: KDB 558074 D01 15.247 (Meas Guidance v05r02 Refer to 47 CFR 15.247(a)(1)(iii), Fequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used. The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings: a) Span: Zero span, centered on a hopping channel. b) RBW shall be <= channel spacing and where possible RBW should be set >> 1 / T, where T is the expected dwell time per channel. c) Sweep: As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on an adjacent channel; a second plot might be needed with a longer sweep time to show two successive hops on a channel. d) Detector function: Peak. e) Trace: Max hold. Use the marker-delta function to determine the transmit time per hop. If this value varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation in transmit time. Repeat the measurement using a longer sweep time to determine the number of hops over the period specified in the requirements. The sweep time and calculate the total number of hops in the period specified in the requirements, using the following equation: (Number of hops in the period specified in the requirements, using the following evation: (Number of hops in the period specified in the transmit time per hop	Refer to 47 CFR 15.247(a)(1)(iii), Fequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used. The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings: a) Span: Zero span, centered on a hopping channel. b) RBW shall be <= channel spacing and where possible RBW should be set >> 1 / T, where T is the expected dwell time per channel. c) Sweep: As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on an adjacent channel; a second plot might be needed with a longer sweep time to show two successive hops on a channel. d) Detector function: Peak. e) Trace: Max hold. Use the marker-delta function to determine the transmit time per hop. If this value varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation in transmit time. Repeat the measurement using a longer sweep time to determine the number of hops over the period specified in the requirements. The sweep time and calculate the total number of hops in the period specified in the requirements, using the following equation: (Number of hops in the period specified in the requirements / analyzer sweep time) The average time of occupancy is calculated from the transmit time per hop multiplied by the number of hops in the period specified in the requirements. If the number of hops in a specific time varies with different modes of operation (data rate, modulation format, nu	Test Requirement:	47 CFR 15.247(a)(1)(iii)
Refer to 47 CFR 15.247 (a)(1)(iii), Fequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used. The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings: a) Span: Zero span, centered on a hopping channel. b) RBW shall be <= channel spacing and where possible RBW should be set >> 1 / T, where T is the expected dwell time per channel. c) Sweep: As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on an adjacent channel; a second plot might be needed with a longer sweep time to show two successive hops on a channel. d) Detector function: Peak. e) Trace: Max hold. Use the marker-delta function to determine the transmit time per hop. If this value varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation in transmit time. Repeat the measurement using a longer sweep time to determine the number of hops over the period specified in the requirements. The sweep time and calculate the total number of hops in the period specified in the requirements, using the following equation: (Number of hops in the period specified in the requirements, using the following equation: (Number of hops in the period specified in the requirements / analyzer sweep time) The average time of occupancy is calculated from the transmit time per hop	Refer to 47 CFR 15.247(a)(1)(iii). Fequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used. The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings: a) Span: Zero span, centered on a hopping channel. b) RBW shall be <= channel spacing and where possible RBW should be set >> 1 / T, where T is the expected dwell time per channel. c) Sweep: As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on an adjacent channel; a second plot might be needed with a longer sweep time to show two successive hops on a channel. d) Detector function: Peak. e) Trace: Max hold. Use the marker-delta function to determine the transmit time per hop. If this value varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation in transmit time. Repeat the measurement using a longer sweep time to determine the number of hops over the period specified in the requirements. The sweep time and calculate the total number of hops in the period specified in the requirements, using the following equation: (Number of hops in the period specified in the requirements, using the following equation: (Number of hops in the period specified in the requirements.) If the number of hops in a specific time varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation. The meas	Test Method:	
Test Limit: MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency propring systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used. The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings: a) Span: Zero span, centered on a hopping channel. b) RBW shall be <= channel spacing and where possible RBW should be set >> 1 / T, where T is the expected dwell time per channel. c) Sweep: As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on an adjacent channel; a second plot might be needed with a longer sweep time to show two successive hops on a channel. d) Detector function: Peak. e) Trace: Max hold. Use the marker-delta function to determine the transmit time per hop. If this value varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation in transmit time. Repeat the measurement using a longer sweep time to determine the number of hops over the period specified in the requirements. The sweep time and calculate the total number of hops in the period specified in the requirements, using the following equation: (Number of hops in the period specified in the requirements, using the following equation: (Number of hops on spectrum analyzer) × (period specified in the requirements / analyzer sweep time) The average time of occupancy is calculated from the transmit time per hop	Test Limit: MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used. The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings: a) Span: Zero span, centered on a hopping channel. b) RBW shall be <= channel spacing and where possible RBW should be set >> 1 / T, where T is the expected dwell time per channel. c) Sweep: As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on a dajacent channel; a second plot might be needed with a longer sweep time to show two successive hops on a channel. d) Detector function: Peak. e) Trace: Max hold. Use the marker-delta function to determine the transmit time per hop. If this value varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation in transmit time. Repeat the measurement using a longer sweep time to determine the number of hops over the period specified in the requirements. The sweep time shall be equal to, or less than, the period specified in the requirements, using the following equation: (Number of hops in the period specified in the requirements, using the following equation: (Number of hops in the period specified in the requirements. If the number of hops in a specific time varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation. The measured transmit time and time between hops shall be consistent with the	rest wethou.	
analyzer settings: a) Span: Zero span, centered on a hopping channel. b) RBW shall be <= channel spacing and where possible RBW should be set >> 1 / T, where T is the expected dwell time per channel. c) Sweep: As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on an adjacent channel; a second plot might be needed with a longer sweep time to show two successive hops on a channel. d) Detector function: Peak. e) Trace: Max hold. Use the marker-delta function to determine the transmit time per hop. If this value varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation in transmit time. Repeat the measurement using a longer sweep time to determine the number of hops over the period specified in the requirements. The sweep time shall be equal to, or less than, the period specified in the requirements. The sweep time and calculate the total number of hops in the period specified in the requirements, using the following equation: (Number of hops in the period specified in the requirements) = (number of hops on spectrum analyzer) × (period specified in the requirements / analyzer sweep time) The average time of occupancy is calculated from the transmit time per hop	analyzer settings: a) Span: Zero span, centered on a hopping channel. b) RBW shall be <= channel spacing and where possible RBW should be set >> 1 / T, where T is the expected dwell time per channel. c) Sweep: As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on an adjacent channel; a second plot might be needed with a longer sweep time to show two successive hops on a channel. d) Detector function: Peak. e) Trace: Max hold. Use the marker-delta function to determine the transmit time per hop. If this value varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation in transmit time. Repeat the measurement using a longer sweep time to determine the number of hops over the period specified in the requirements. The sweep time shall be equal to, or less than, the period specified in the requirements. Determine the number of hops over the sweep time and calculate the total number of hops in the period specified in the requirements, using the following equation: (Number of hops in the period specified in the requirements) = (number of hops on spectrum analyzer) × (period specified in the requirements / analyzer sweep time) The average time of occupancy is calculated from the transmit time per hop multiplied by the number of hops in the period specified in the requirements. If the number of hops in a specific time varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation. The measured transmit time and time between hops shall be consistent with the	Test Limit:	MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.
number of hops in a specific time varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation. The measured transmit time and time between hops shall be consistent with the		Procedure:	The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings: a) Span: Zero span, centered on a hopping channel. b) RBW shall be <= channel spacing and where possible RBW should be set >> 1 / T, where T is the expected dwell time per channel. c) Sweep: As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on an adjacent channel; a second plot might be needed with a longer sweep time to show two successive hops on a channel. d) Detector function: Peak. e) Trace: Max hold. Use the marker-delta function to determine the transmit time per hop. If this value varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation in transmit time. Repeat the measurement using a longer sweep time to determine the number of hops over the period specified in the requirements. The sweep time shall be equal to, or less than, the period specified in the requirements, using the following equation: (Number of hops in the period specified in the requirements, using the following equation: (Number of hops in the period specified in the requirements) = (number of hops on spectrum analyzer) × (period specified in the requirements / analyzer sweep time) The average time of occupancy is calculated from the transmit time per hop multiplied by the number of hops in the period specified in the requirements. If the number of hops in a specific time varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation. The measured transmit time and time between hops shall be consistent with the

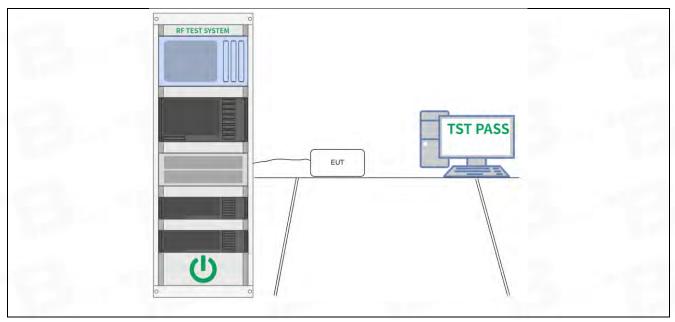
6.6.1 E.U.T. Operation:

Operating Environment:			
Temperature:	24.9 °C		
Humidity:	53.6 %		
Atmospheric Pressure:	1010 mbar		

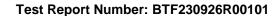
6.6.2 Test Setup Diagram:







6.6.3 Test Data:





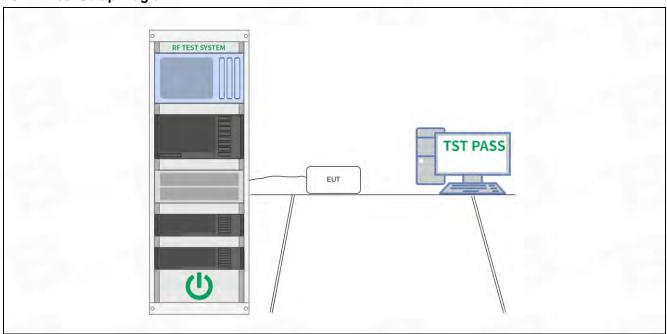
6.7 Emissions in non-restricted frequency bands

Test Requirement:	47 CFR 15.247(d), 15.209, 15.205
Test Method:	ANSI C63.10-2013 section 7.8.8
rest Method.	KDB 558074 D01 15.247 Meas Guidance v05r02
Test Limit:	Refer to 47 CFR 15.247(d), In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required.
Procedure:	Conducted spurious emissions shall be measured for the transmit frequency, per 5.5 and 5.6, and at the maximum transmit powers. Connect the primary antenna port through an attenuator to the spectrum analyzer input; in the results, account for all losses between the unlicensed wireless device output and the spectrum analyzer. The instrument shall span 30 MHz to 10 times the operating frequency in GHz, with a resolution bandwidth of 100 kHz, video bandwidth of 300 kHz, and a coupled sweep time with a peak detector. The band 30 MHz to the highest frequency may be split into smaller spans, as long as the entire spectrum is covered.

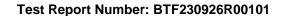
6.7.1 E.U.T. Operation:

<u> </u>	
Operating Environment:	
Temperature:	24.9 °C
Humidity:	53.6 %
Atmospheric Pressure:	1010 mbar

6.7.2 Test Setup Diagram:



6.7.3 Test Data:





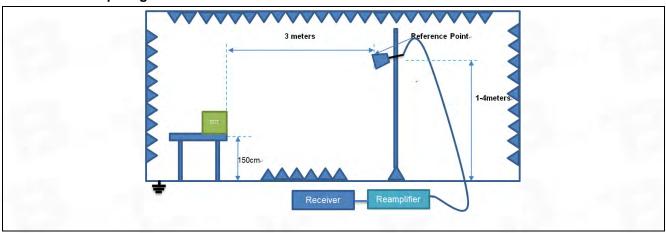
6.8 Band edge emissions (Radiated)

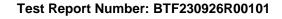
Test Requirement:	restricted bands, as defi	Refer to 47 CFR 15.247(d), In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).`					
Test Method:	ANSI C63.10-2013 secti KDB 558074 D01 15.24	ion 6.10 7 Meas Guidance v05r02					
	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)				
	0.009-0.490	2400/F(kHz)	300				
	0.490-1.705						
	1.705-30.0 30 30						
	30-88	100 **	3				
Test Limit:	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.						
Procedure:	ANSI C63.10-2013 secti	ion 6.10.5.2					

6.8.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.4 °C				
Humidity:	47.9 %				
Atmospheric Pressure:	1010 mbar				

6.8.2 Test Setup Diagram:







6.8.3 Test Data:

TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 1 / CH: L

	No.	Frequency	Reading	Factor	Level	Limit	Margin	Detector	P/F
		(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector	F/F
	1	2310.000	77.85	-31.57	46.28	74.00	-27.72	peak	Р
	2	2390.000	79.30	-31.68	47.62	74.00	-26.38	peak	Р
	3	2400.000	81.98	-31.74	50.24	74.00	-23.76	peak	Р

TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 1 / CH: L

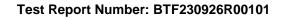
	No	Frequency	Reading	Factor	Level	Limit	Margin	Detector	P/F
No.	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector	P/F	
	1	2310.000	78.25	-31.58	46.67	74.00	-27.33	peak	Р
	2	2390.000	79.70	-31.69	48.01	74.00	-25.99	peak	Р
Ī	3	2400.000	82.38	-31.75	50.63	74.00	-23.37	peak	Р

TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 1 / CH: H

No.	Frequency	Reading	Factor	Level	Limit	Margin	Detector	P/F	
NO.	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector	F/F	
1	2310.000	78.25	-31.58	46.67	74.00	-27.33	peak	Р	
2	2390.000	79.70	-31.69	48.01	74.00	-25.99	peak	Р	
3	2400.000	82.38	-31.75	50.63	74.00	-23.37	peak	Р	

TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 1 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2483.500	83.05	-31.41	51.64	74.00	-22.36	peak	Р
2	2500.000	81.08	-31.52	49.56	74.00	-24.44	peak	Р





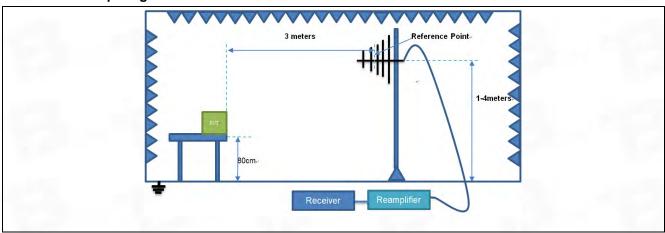
6.9 Emissions in frequency bands (below 1GHz)

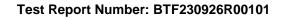
Test Requirement:	restricted bands, as defi	Refer to 47 CFR 15.247(d), In addition, radiated emissions which fall in the estricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).`							
Test Method:	ANSI C63.10-2013 secti KDB 558074 D01 15.24	ion 6.6.4 7 Meas Guidance v05r02							
	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						
Test Limit:	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.								
Procedure:	ANSI C63.10-2013 secti	on 6.6.4							

6.9.1 E.U.T. Operation:

Operating Environment:							
Temperature:	24.9 °C						
Humidity:	53.6 %						
Atmospheric Pressure:	1010 mbar						

6.9.2 Test Setup Diagram:

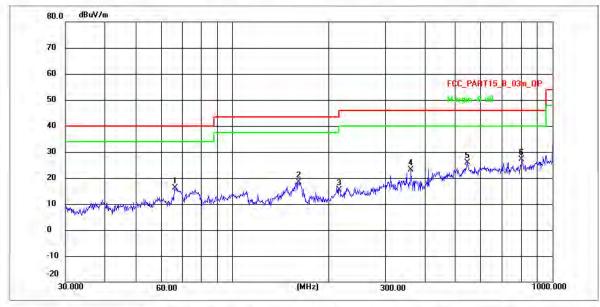




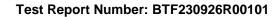


6.9.3 Test Data:

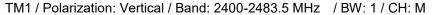
TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 1 / CH: M

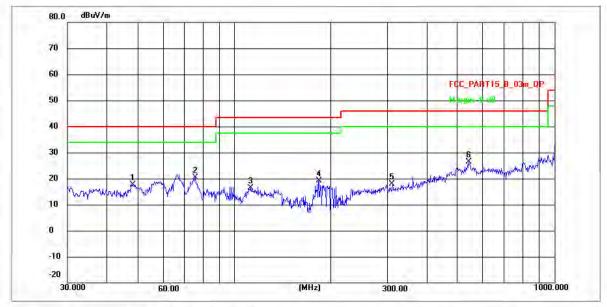


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	66.3823	34.17	-18.13	16.04	40.00	-23.96	QP	Р
2	160.9090	46.15	-27.68	18.47	43.50	-25.03	QP	Р
3	215.6453	41.94	-26.65	15.29	43.50	-28.21	QP	P
4	359.8163	48.09	-24.95	23.14	46.00	-22.86	QP	Р
5	543.2740	47.35	-21.59	25.76	46.00	-20.24	QP	Р
6 *	803.1933	50.89	-23.67	27.22	46.00	-18.78	QP	P

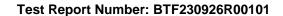








No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	47.9940	37.93	-20.37	17.56	40.00	-22.44	QP	Р
2	75.5785	40.18	-19.90	20.28	40.00	-19.72	QP	Р
3	112.7218	44.61	-28.11	16.50	43.50	-27.00	QP	P
4	183.5220	46.70	-27.48	19.22	43.50	-24.28	QP	P
5	312.1792	43.19	-25.33	17.86	46.00	-28.14	QP	Р
6 *	541.3723	47.86	-21.57	26.29	46.00	-19.71	QP	Р





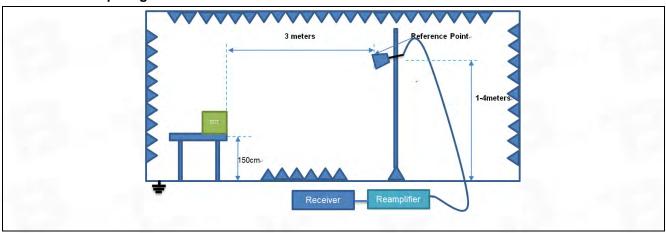
6.10 Emissions in frequency bands (above 1GHz)

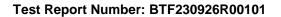
Test Requirement:		ssions which fall in the restricted mply with the radiated emission (c)).`					
Test Method:	ANSI C63.10-2013 sect KDB 558074 D01 15.24	ion 6.6.4 7 Meas Guidance v05r02					
	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)				
	0.009-0.490	2400/F(kHz)	300				
	0.490-1.705	24000/F(kHz)	30				
	1.705-30.0	30	30				
	30-88	100 **	3				
Test Limit:	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.						
Procedure:	ANSI C63.10-2013 sect	ion 6.6.4					

6.10.1 E.U.T. Operation:

Operating Environment:							
Temperature:	23.4 °C						
Humidity:	47.9 %						
Atmospheric Pressure:	1010 mbar						

6.10.2Test Setup Diagram:







6.10.3Test Data:

TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 1 / CH: L

No.	Frequency	Reading	Factor	Level	Limit	Margin	Detector	P/F
INO.	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector	
1	752.362	78.44	-29.55	48.89	74.00	-25.11	peak	Р
2	3080.362	81.81	-30.06	51.75	74.00	-22.25	peak	Р
3	6694.042	82.44	-30.28	52.16	74.00	-21.84	peak	Р
4	7674.312	80.04	-31.06	48.98	74.00	-25.02	peak	Р
5	9976.203	80.48	-31.55	48.93	74.00	-25.07	peak	Р
6	13634.814	82.10	-30.64	51.46	74.00	-22.54	peak	Р

TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 1 / CH: L

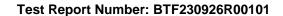
No.	Frequency	Reading	Factor	Level	Limit	Margin	Detector	P/F
INO.	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector	
1	752.362	78.94	-29.62	49.32	74.00	-24.68	peak	Р
2	3204.362	82.31	-30.13	52.18	74.00	-21.82	peak	Р
3	6818.042	82.94	-30.35	52.59	74.00	-21.41	peak	Р
4	7798.312	80.54	-31.13	49.41	74.00	-24.59	peak	Р
5	10100.203	80.98	-31.62	49.36	74.00	-24.64	peak	Р
6	13758.814	82.60	-30.71	51.89	74.00	-22.11	peak	Р

TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 1 / CH: M

No.	Frequency	Reading	Factor	Level	Limit	Margin	Detector	P/F
NO.	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector	
1	752.362	79.34	-29.62	49.72	74.00	-24.28	peak	Р
2	3530.325	82.71	-30.13	52.58	74.00	-21.42	peak	Р
3	7144.005	83.34	-30.35	52.99	74.00	-21.01	peak	Р
4	8124.275	80.94	-31.13	49.81	74.00	-24.19	peak	Р
5	10426.166	81.38	-31.62	49.76	74.00	-24.24	peak	Р
6	14084.777	83.00	-30.71	52.29	74.00	-21.71	peak	Р

TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 1 / CH: M

No.	Frequency	Reading	Factor	Level	Limit	Margin	Detector	P/F
INO.	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector	1 /1
1	752.362	79.24	-29.55	49.69	74.00	-24.31	peak	Р
2	3820.362	82.61	-30.06	52.55	74.00	-21.45	peak	Р
3	7434.042	83.24	-30.28	52.96	74.00	-21.04	peak	Р
4	8414.312	80.84	-31.06	49.78	74.00	-24.22	peak	Р
5	10716.203	81.28	-31.55	49.73	74.00	-24.27	peak	Р
6	14374.814	82.90	-30.64	52.26	74.00	-21.74	peak	Р



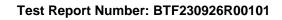


TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 1 / CH: H

No.	Frequency	Reading	Factor	Level	Limit	Margin	Detector	P/F
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)		
1	752.362	78.86	-29.72	49.14	74.00	-24.86	peak	Р
2	3530.362	82.23	-30.23	52.00	74.00	-22.00	peak	Р
3	7144.042	82.86	-30.45	52.41	74.00	-21.59	peak	Р
4	8124.312	80.46	-31.23	49.23	74.00	-24.77	peak	Р
5	10426.203	80.90	-31.72	49.18	74.00	-24.82	peak	Р
6	14084.814	82.52	-30.81	51.71	74.00	-22.29	peak	Р

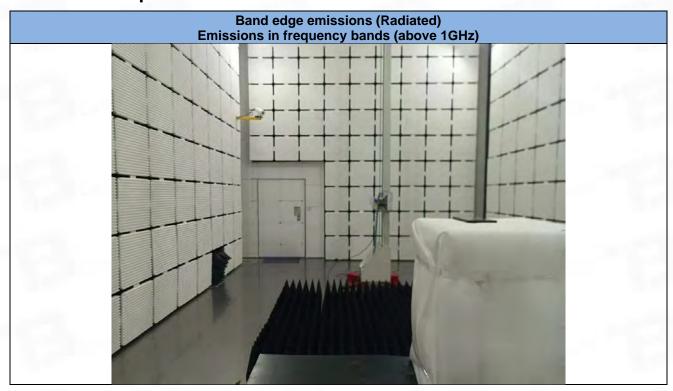
TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 1 / CH: H

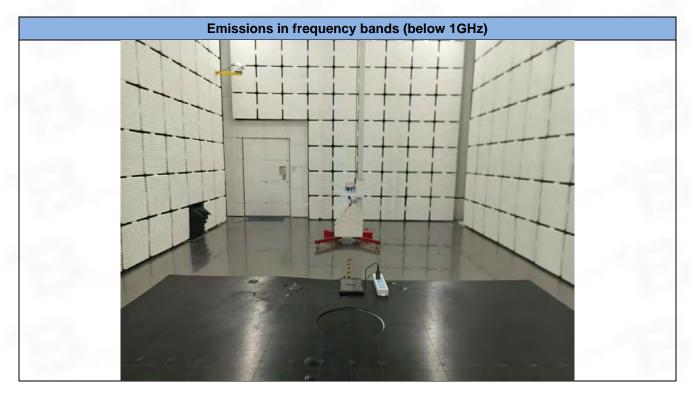
No.	Frequency	Reading	Factor	Level	Limit	Margin	Detector	P/F
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)		
1	752.362	79.34	-29.63	49.71	74.00	-24.29	peak	Р
2	3822.362	82.71	-30.14	52.57	74.00	-21.43	peak	Р
3	7436.042	83.34	-30.36	52.98	74.00	-21.02	peak	Р
4	8416.312	80.94	-31.14	49.80	74.00	-24.20	peak	Р
5	10718.203	81.38	-31.63	49.75	74.00	-24.25	peak	Р
6	14376.814	83.00	-30.72	52.28	74.00	-21.72	peak	Р

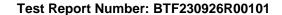




Test Setup Photos



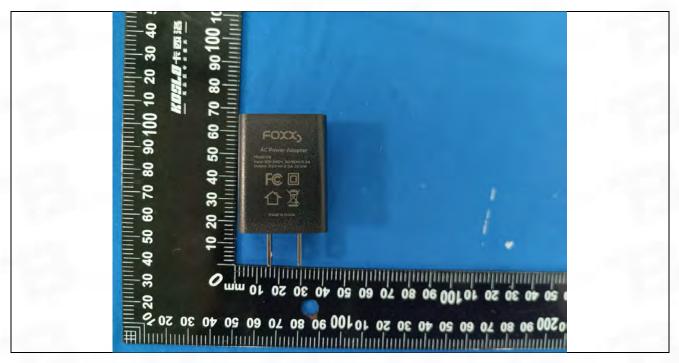


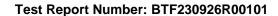




8 EUT Constructional Details (EUT Photos)



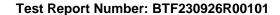








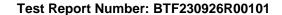








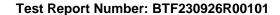




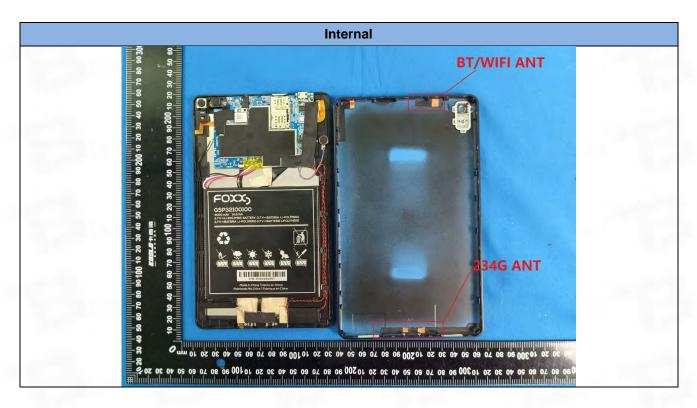




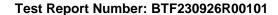








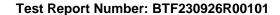




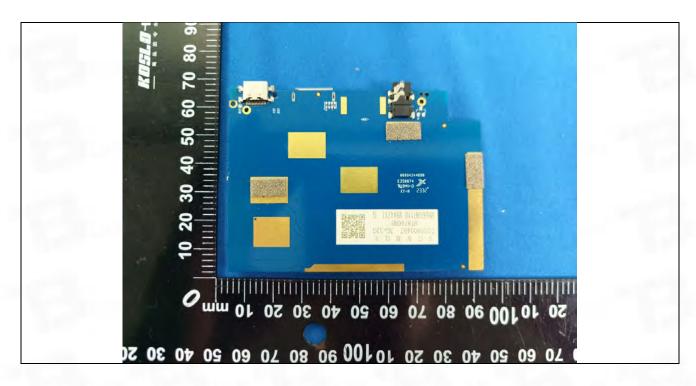


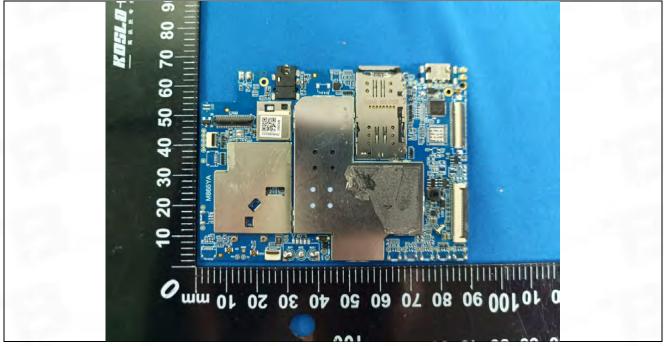


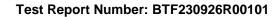




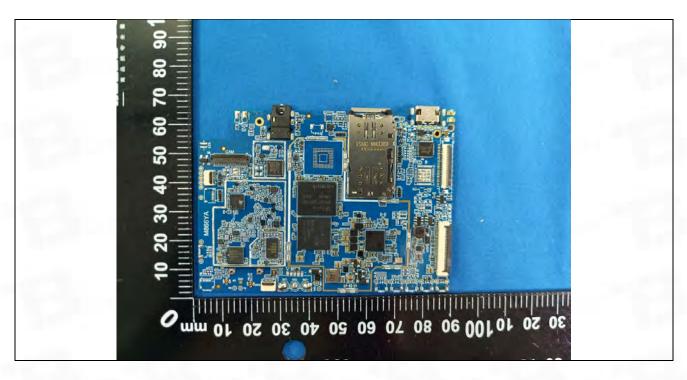


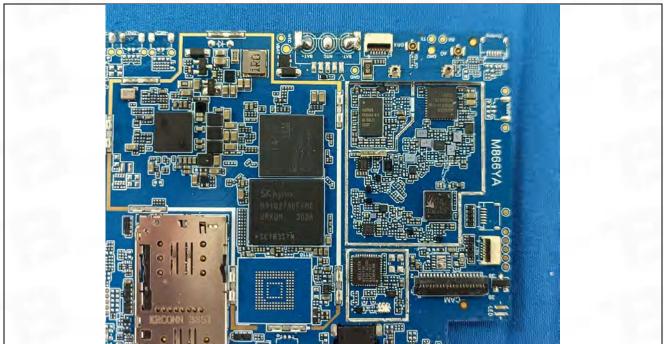


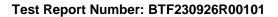






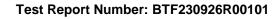








Appendix

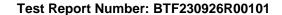




1. Bandwidth

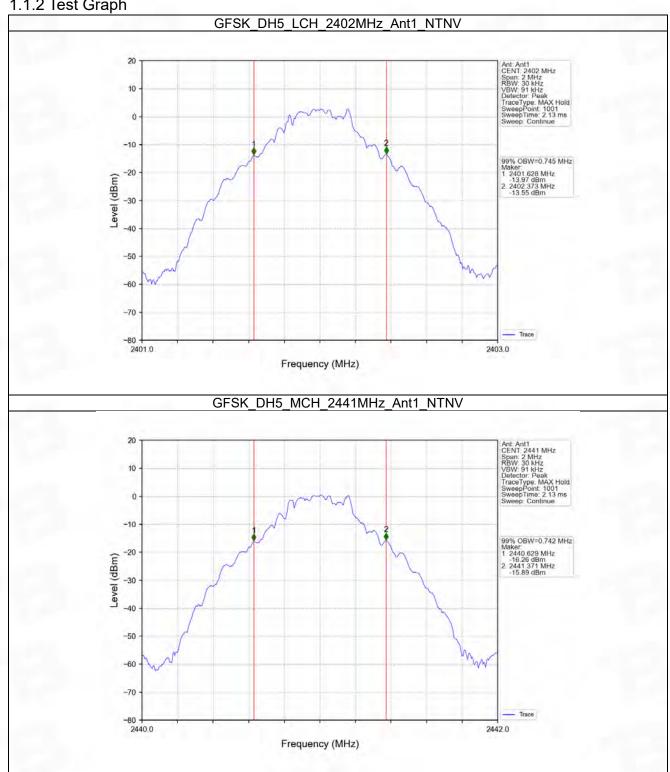
1.1 OBW

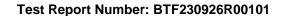
Mode	TX	Frequency	Packet	ANT	99% Occupied E	Verdict	
Mode	Type	(MHz)	Type	AINT	Result	Limit	verdict
		2402	DH5	1	0.745	1	Pass
GFSK	SISO	2441	DH5	1	0.742	1	Pass
		2480	DH5	1	0.753	1	Pass
		2402	2DH5	1	1.135	1	Pass
Pi/4DQPSK	SISO	2441	2DH5	1	1.183	1	Pass
		2480	2DH5	1	1.146	1	Pass
		2402	3DH5	1	1.149	1	Pass
8DPSK	SISO	2441	3DH5	1	1.158	1	Pass
		2480	3DH5	1	1.157	1	Pass



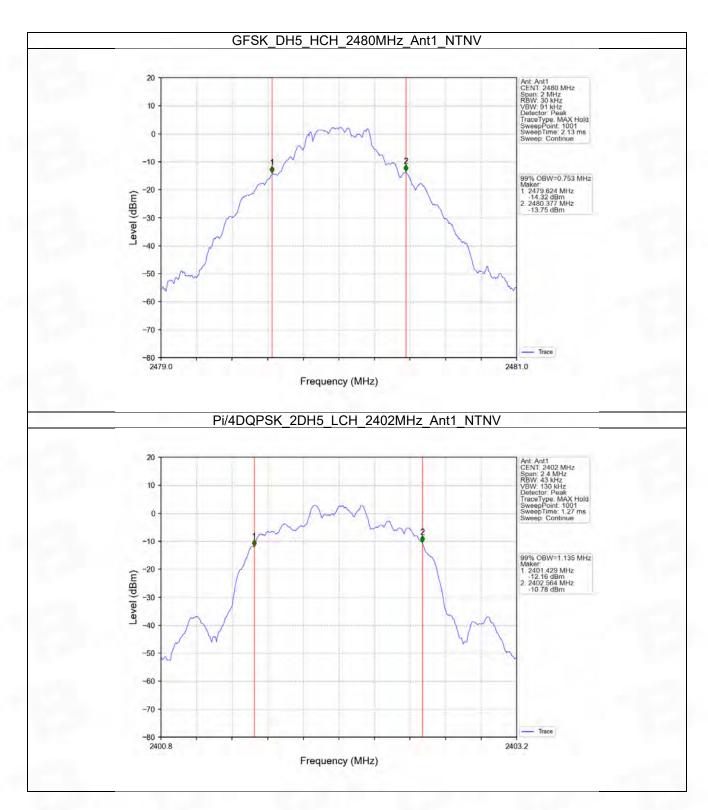


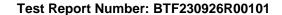
1.1.2 Test Graph



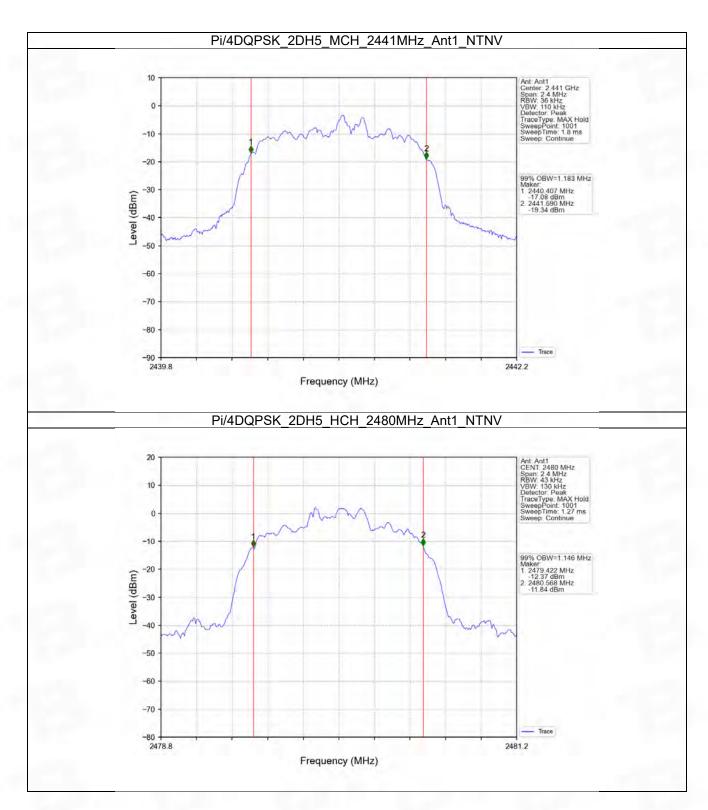


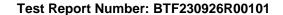




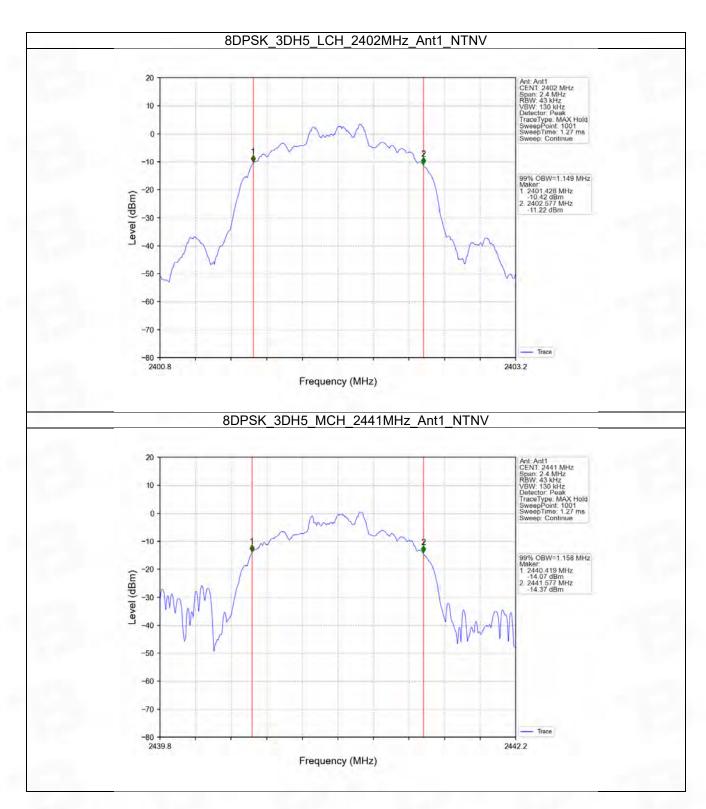


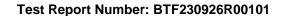




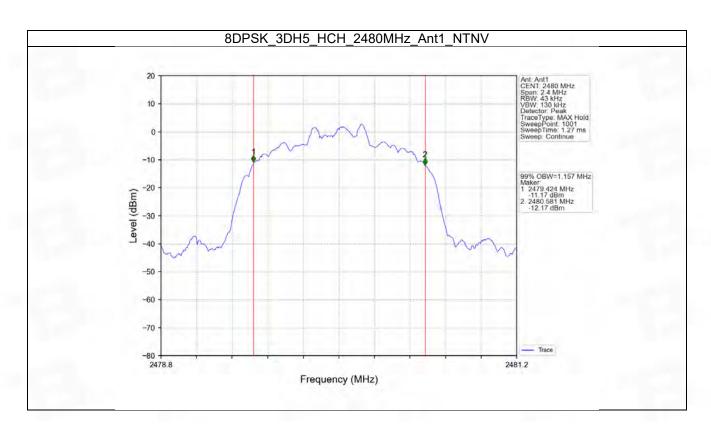


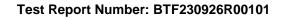








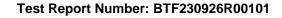






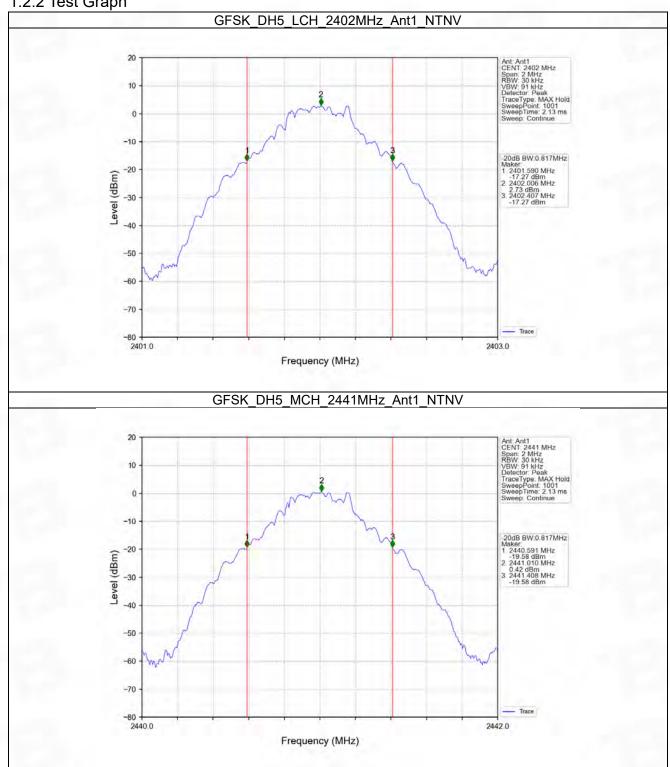
1.2 20dB BW

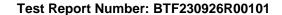
Mode	TX	Frequency	Packet	ANT	20dB Band	Verdict	
Mode	Туре	(MHz)	Type	ANI	Result	Limit	Verdict
		2402	DH5	1	0.817	/	Pass
GFSK	SISO	2441	DH5	1	0.817	/	Pass
		2480	DH5	1	0.844	/	Pass
		2402	2DH5	1	1.280	/	Pass
Pi/4DQPSK	SISO	2441	2DH5	1	1.275	/	Pass
		2480	2DH5	1	1.284	/	Pass
		2402	3DH5	1	1.285	/	Pass
8DPSK	SISO	2441	3DH5	1	1.286	/	Pass
		2480	3DH5	1	1.297	1	Pass



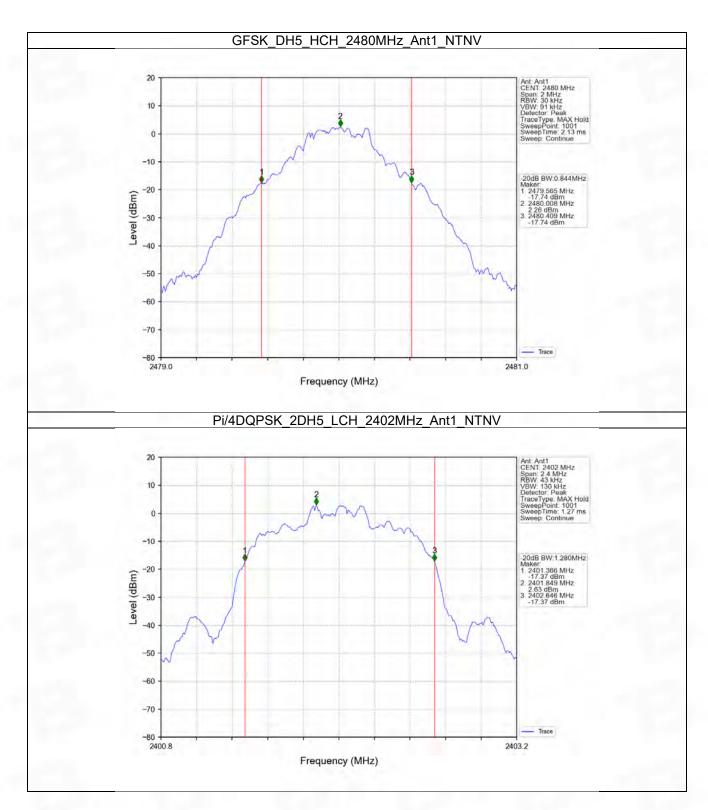


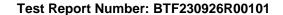
1.2.2 Test Graph



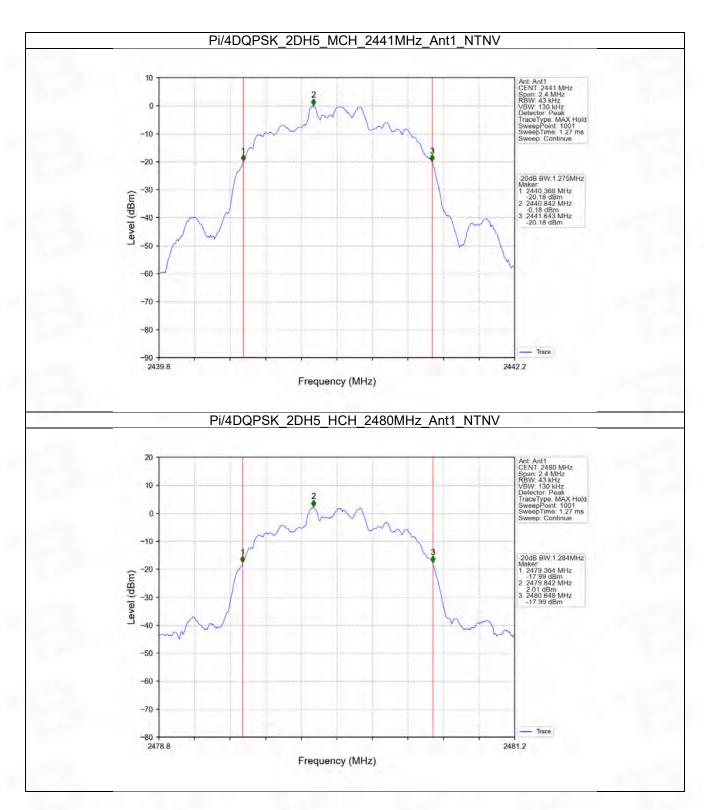


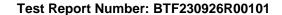




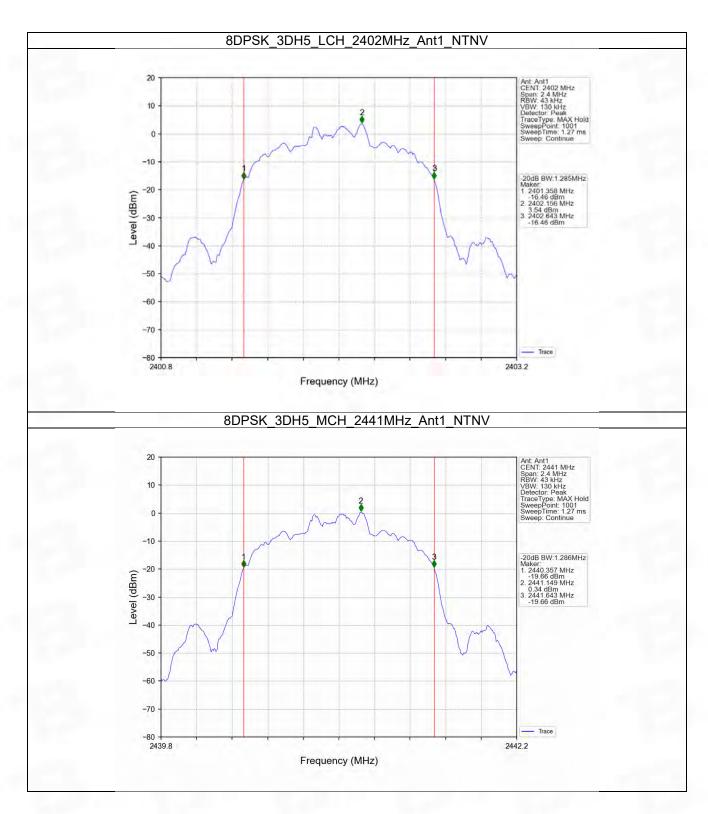


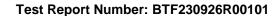




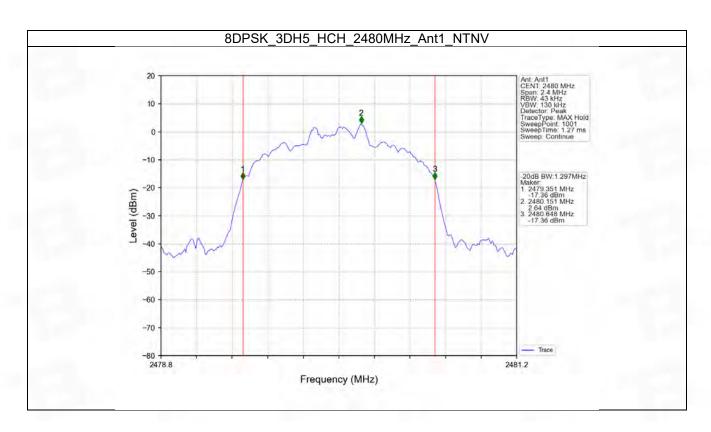


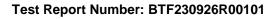










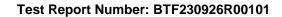




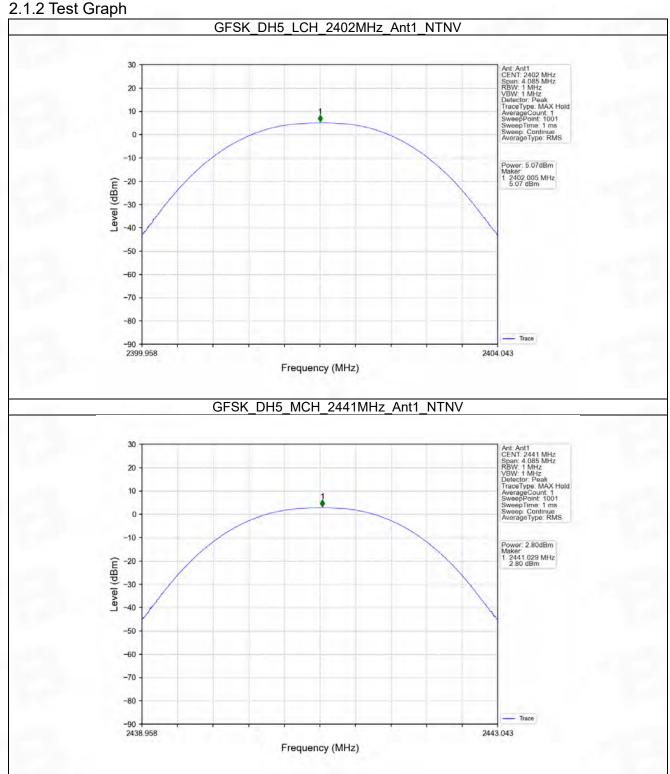
2. Maximum Conducted Output Power

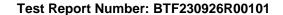
2.1 Power

Mode TX		Frequency	Packet	Maximum Peak Cond (dE	Verdict			
	Туре	(MHz)	Туре	ANT1	Limit			
		2402	DH5	5.07	<=30	Pass		
GFSK	SISO	2441	DH5	2.80	<=30	Pass		
		2480	DH5	4.76	<=30	Pass		
		2402	2DH5	5.01	<=20.97	Pass		
Pi/4DQPSK	K SISO	SISO	SISO	2441	2DH5	2.00	<=20.97	Pass
		2480	2DH5	4.23	<=20.97	Pass		
		2402	3DH5	5.03	<=20.97	Pass		
8DPSK	SISO	2441	3DH5	2.02	<=20.97	Pass		
		2480	3DH5	4.26	<=20.97	Pass		
Note1: Antenr	Note1: Antenna Gain: Ant1: 1.01dBi;							

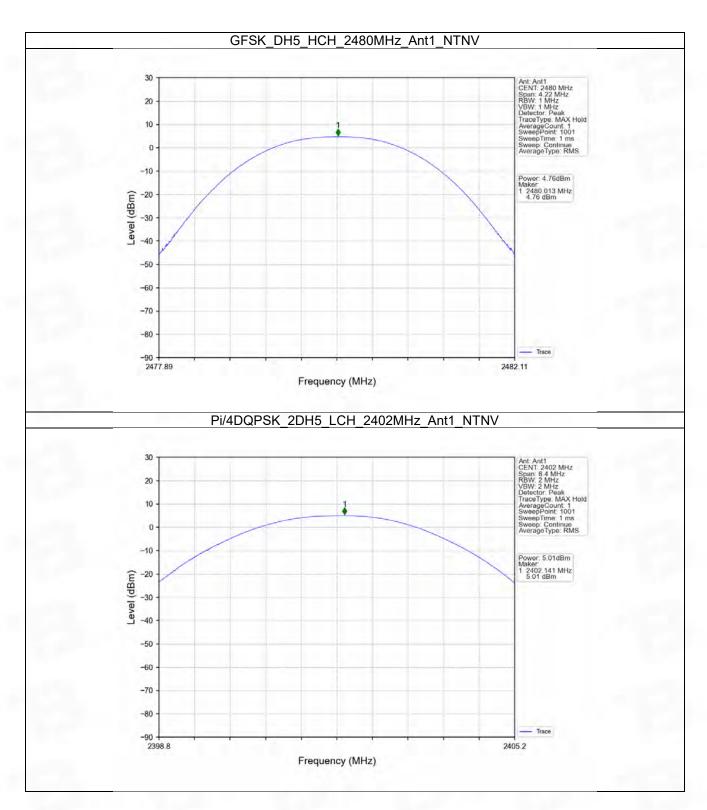


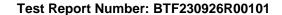




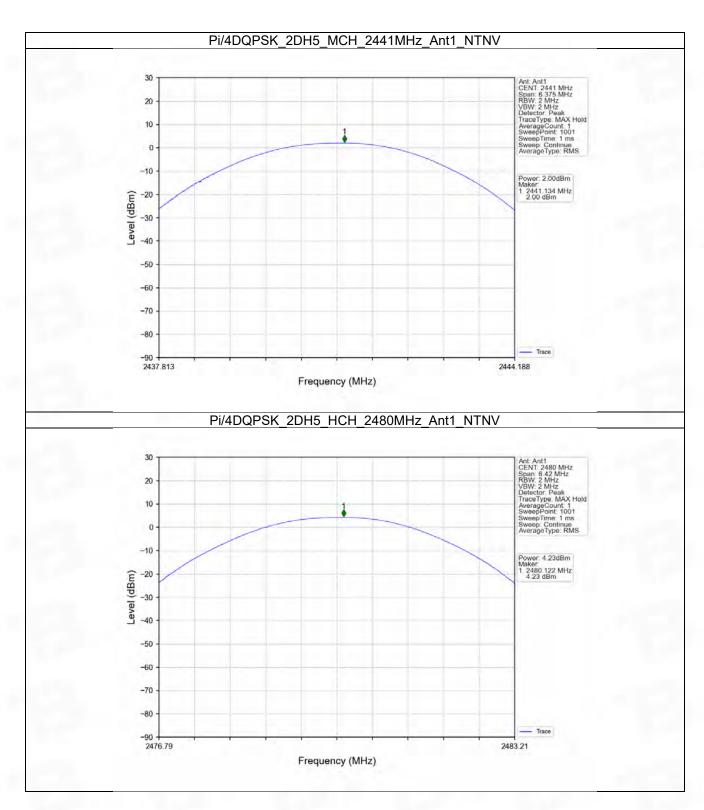


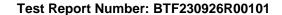




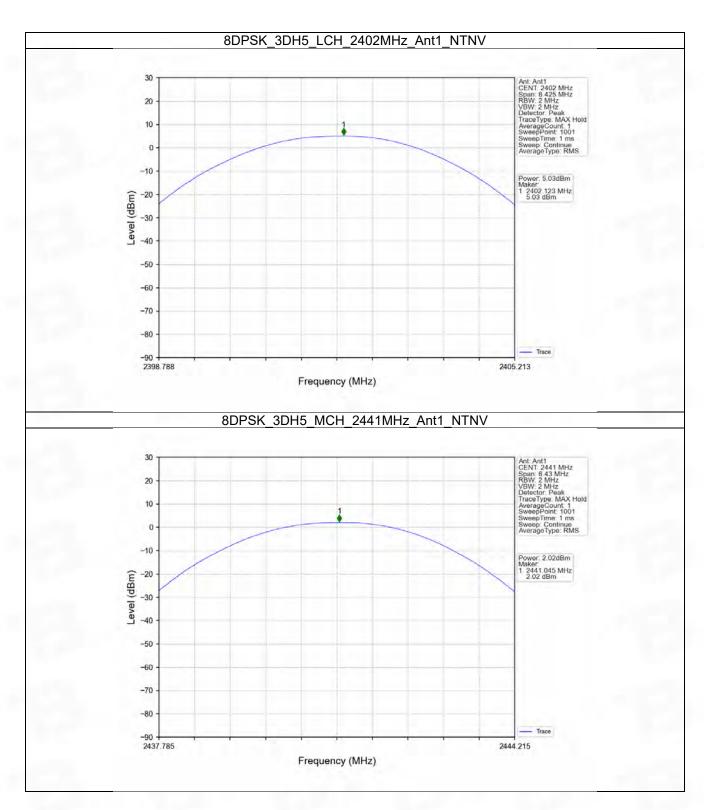


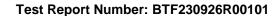




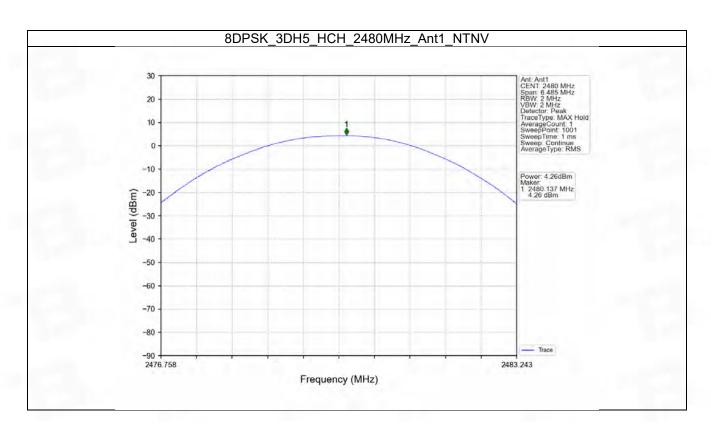


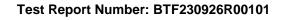










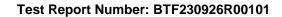




3. Carrier Frequency Separation

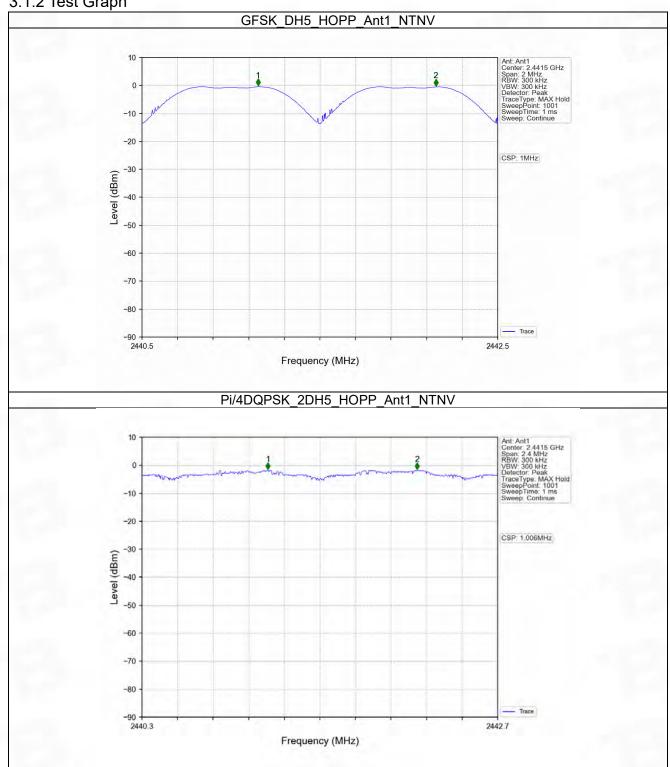
3.1 Ant1

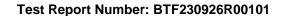
	Ant1								
Mode	TX	Frequency	Packet	Channel Separation	20dB Bandwidth	Limit	Verdict		
Mode	Туре	(MHz)	Type	(MHz)	(MHz)	(MHz)	verdict		
GFSK	SISO	HOPP	DH5	1.000	0.947	>=0.947	Pass		
Pi/4DQPSK	SISO	HOPP	2DH5	1.006	1.292	>=0.861	Pass		
8DPSK	SISO	HOPP	3DH5	1.001	1.309	>=0.873	Pass		



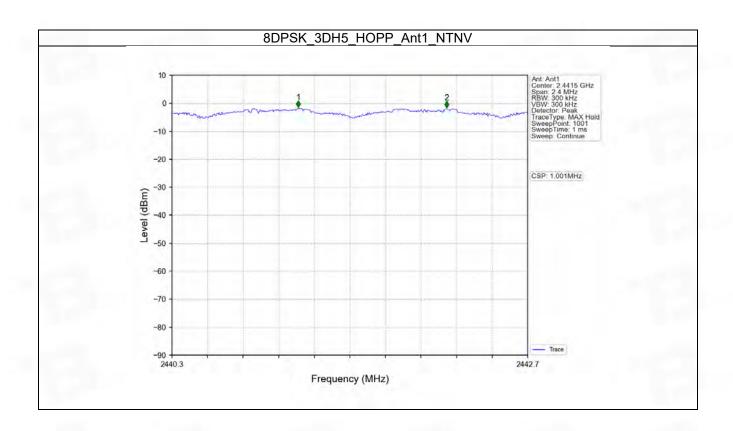


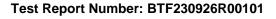
3.1.2 Test Graph













4. Number of Hopping Frequencies

4.1 HoppNum

4.1.1 Test Result

Mada	Mode TX		Packet	Num of Hoppin	Verdict	
iviode	Туре	(MHz)	Туре	ANT1	Limit	verdict
GFSK	SISO	HOPP	DH5	79	>=15	Pass
Pi/4DQPSK	SISO	HOPP	2DH5	79	>=15	Pass
8DPSK	SISO	HOPP	3DH5	79	>=15	Pass

5. Time of Occupancy (Dwell Time)

5.1 Ant1

5.1.1 Test Result

• • • • • • • • • • • • • • • • • • • •										
				,	Ant1					
Mode	TX Type	Frequency (MHz)	Packet Type	Duration of Single Pulse (ms)	Observation Period (s)	Num of Pulse in Observation Period	Dwell Time (ms)	Limit (ms)	Verdict	
			DH1	0.396	31.600	320	126.720	<=400	Pass	
GFSK	SISO	HOPP	DH3	1.664	31.600	162	269.568	<=400	Pass	
				DH5	2.912	31.600	108	314.496	<=400	Pass
			2DH1	0.388	31.600	319	123.772	<=400	Pass	
Pi/4DQPSK	SISO	HOPP	2DH3	1.640	31.600	162	265.680	<=400	Pass	
			2DH5	2.902	31.600	105	304.710	<=400	Pass	
			3DH1	0.400	31.600	320	128.000	<=400	Pass	
8DPSK	SISO	SO HOPP	3DH3	1.650	31.600	158	260.700	<=400	Pass	
			3DH5	2.902	31.600	102	296.004	<=400	Pass	

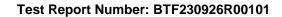
6. Unwanted Emissions In Non-restricted Frequency Bands

6.1 Ref

6.1.1 Test Result

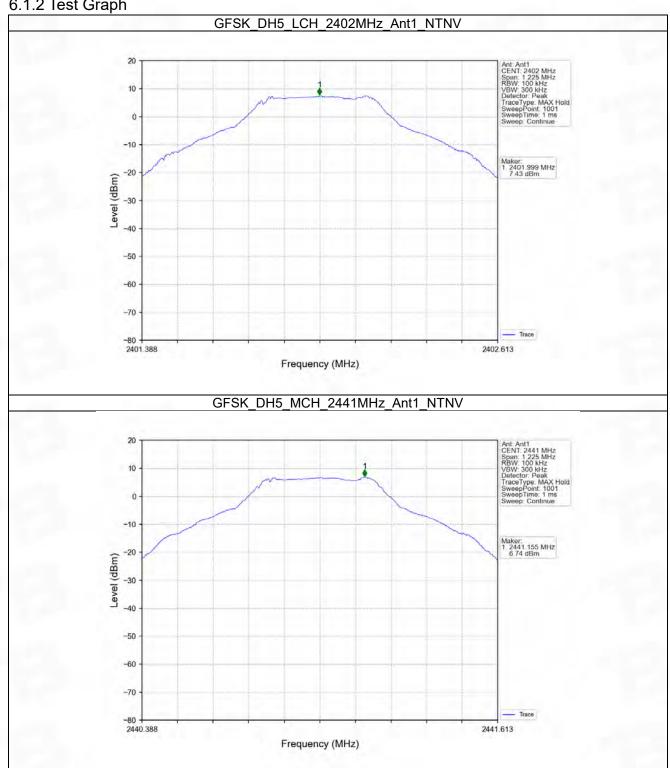
Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Level of Reference (dBm)
		2402	DH5	1	7.43
GFSK	SISO	2441	DH5	1	6.74
		2480	DH5	1	6.91
		2402	2DH5	1	6.69
Pi/4DQPSK	SISO	2441	2DH5	1	6.92
		2480	2DH5	1	6.41
		2402	3DH5	1	6.76
8DPSK	SISO	2441	3DH5	1	6.98
		2480	3DH5	1	6.48

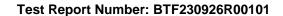
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.



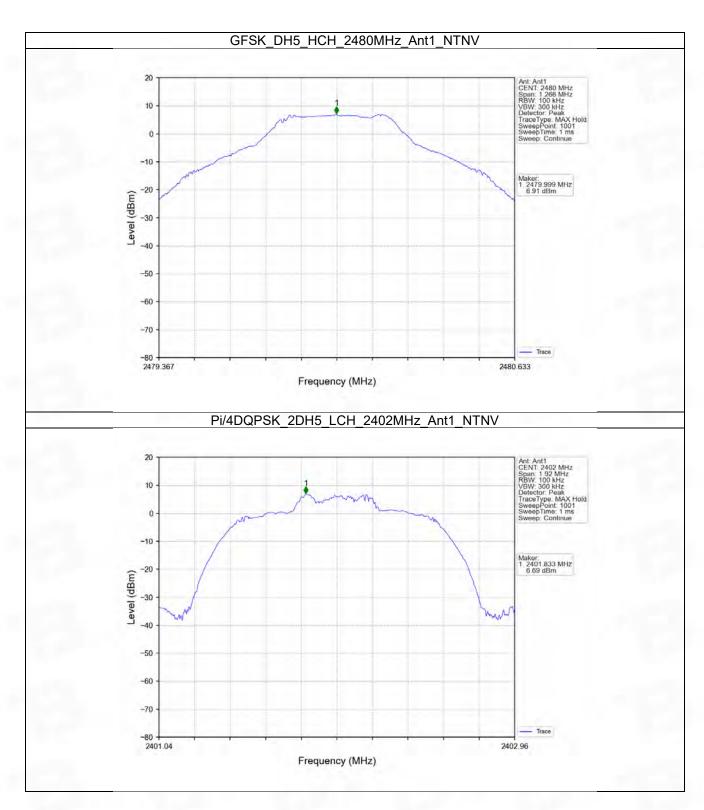


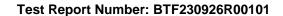
6.1.2 Test Graph



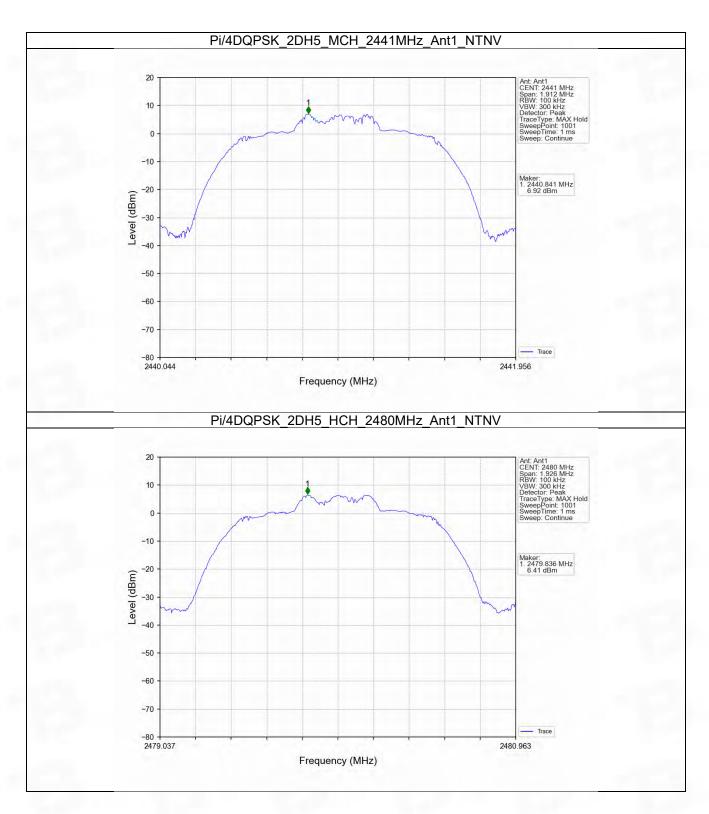


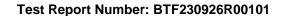




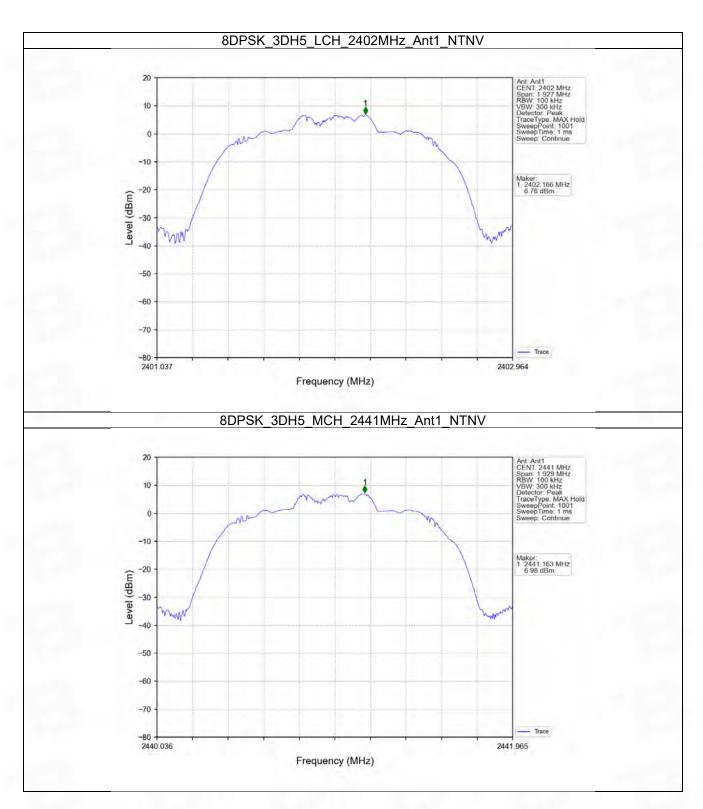


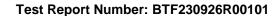




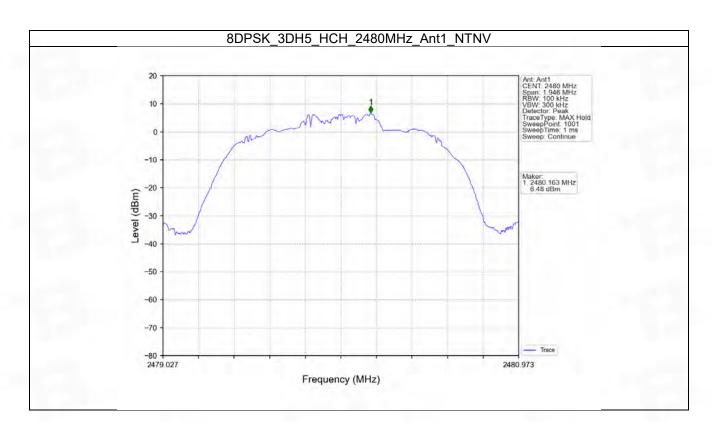


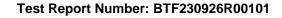












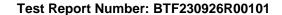


6.2 CSE

6.2.1 Test Result

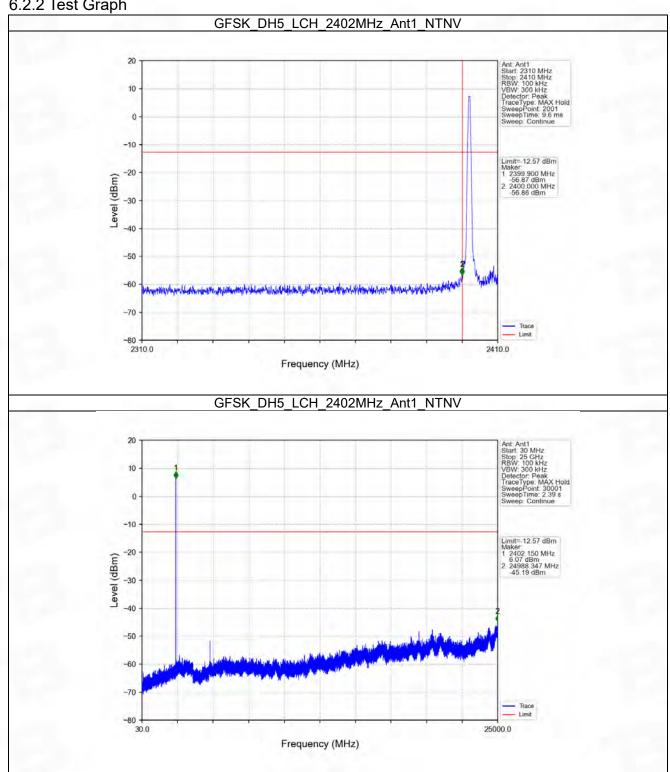
Mode	TX	Frequency	Packet	ANT	Level of Reference	Limit	Verdict
Mode	Type	(MHz)	(MHz) Type	ANI	(dBm)	(dBm)	Verdict
		2402	DH5	1	7.43	-12.57	Pass
		2441	DH5	1	7.43	-12.57	Pass
GFSK	SISO	2480	DH5	1	7.43	-12.57	Pass
		HOPP	DH5	1	7.43	-12.57	Pass
		поее	טחט	1	7.43	-12.57	Pass
		2402	2DH5	1	6.92	-13.08	Pass
		2441	2DH5	1	6.92	-13.08	Pass
Pi/4DQPSK	SISO	2480	2DH5	1	6.92	-13.08	Pass
		HOPP	2DH5	1	6.92	-13.08	Pass
		поее	2003		6.92	-13.08	Pass
		2402	3DH5	1	6.98	-13.02	Pass
		2441	3DH5	1	6.98	-13.02	Pass
8DPSK	SISO	2480	3DH5	1	6.98	-13.02	Pass
		HOPP 3DH5	20116	1	6.98	-13.02	Pass
			'	6.98	-13.02	Pass	

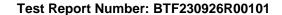
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.



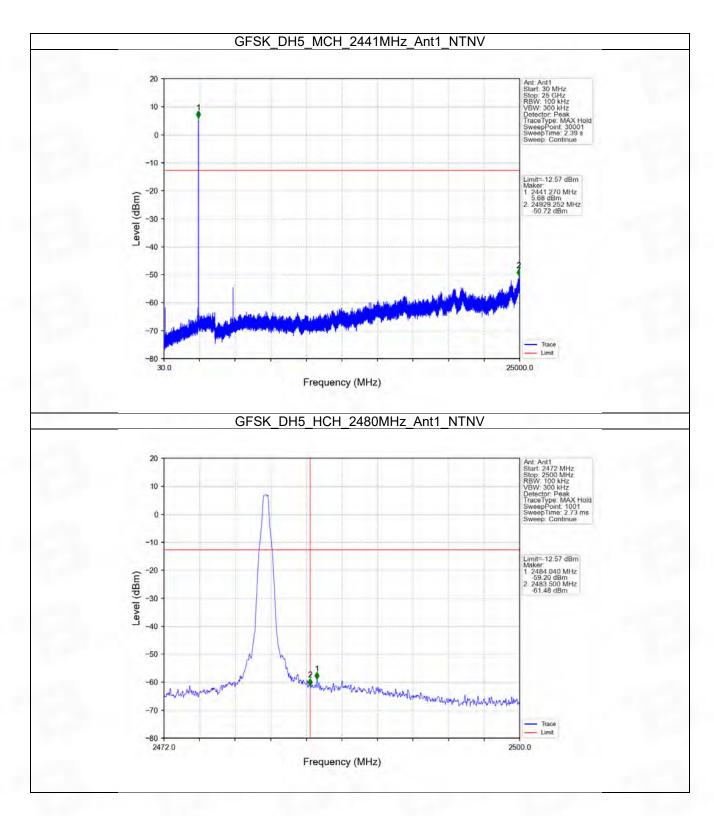


6.2.2 Test Graph

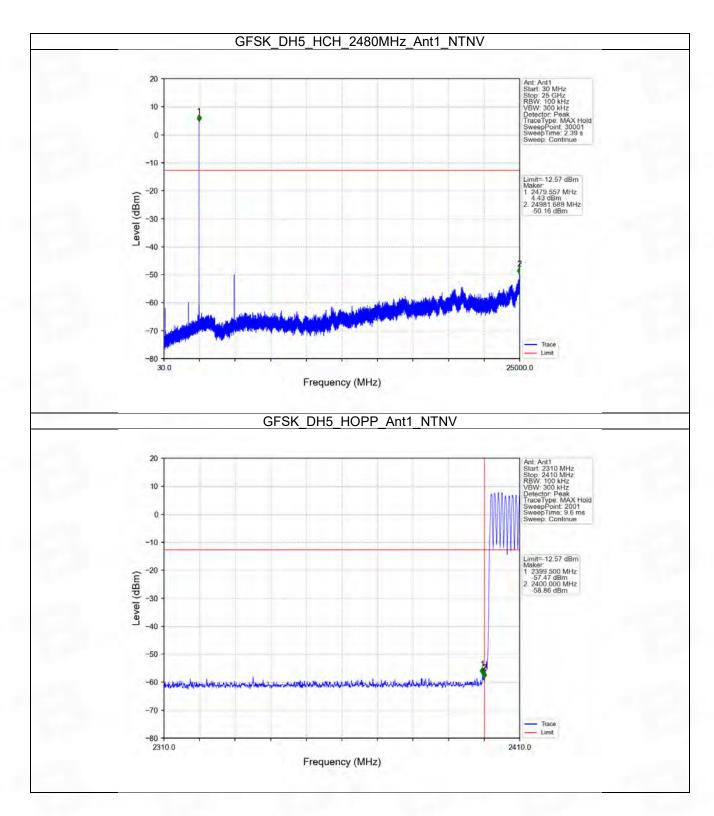


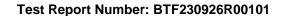




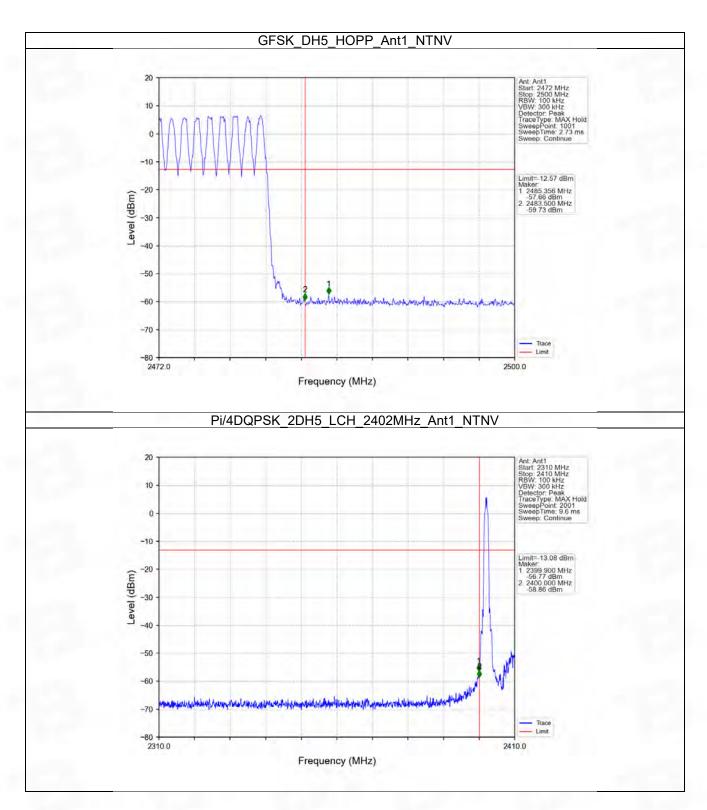


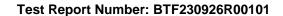




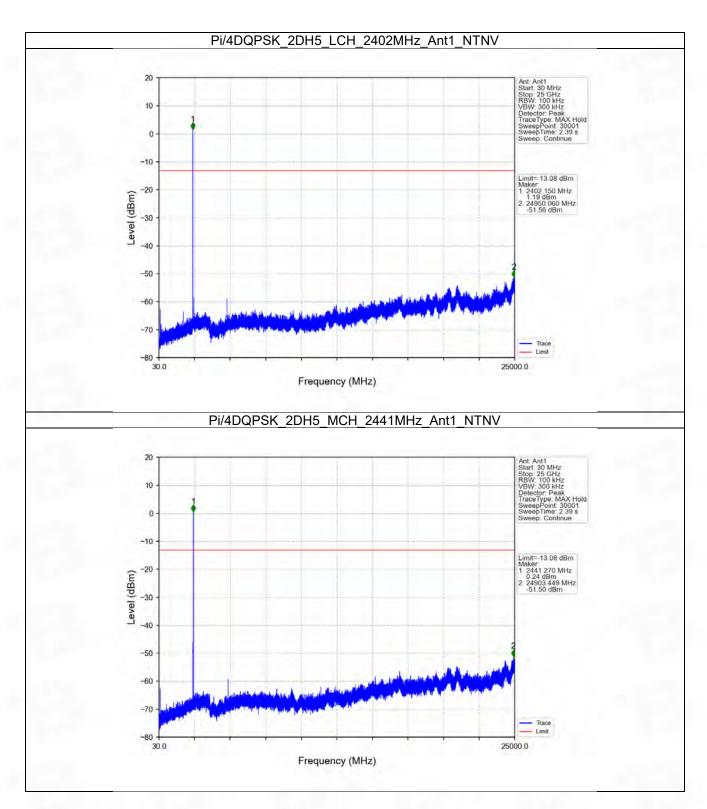


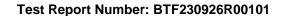




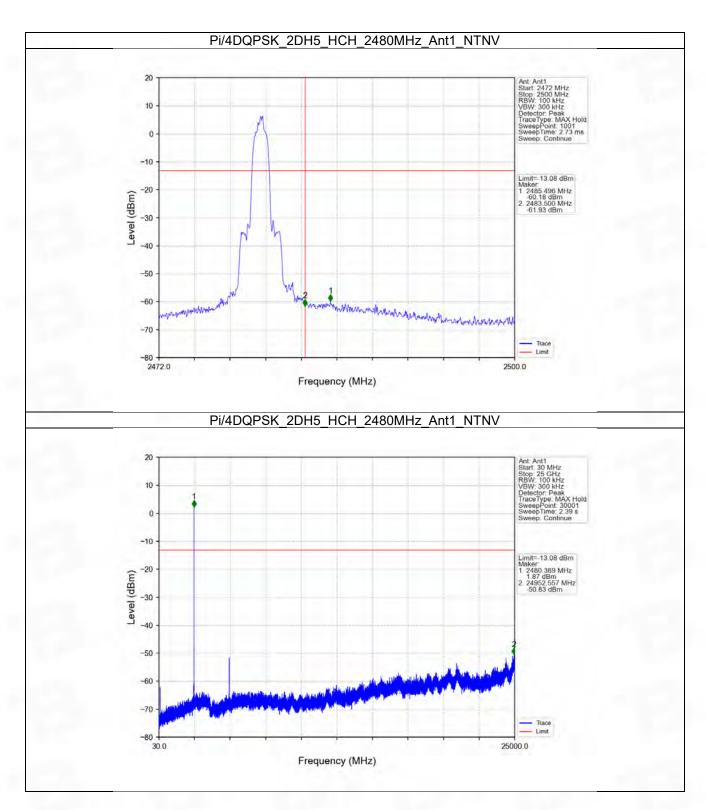


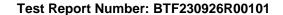




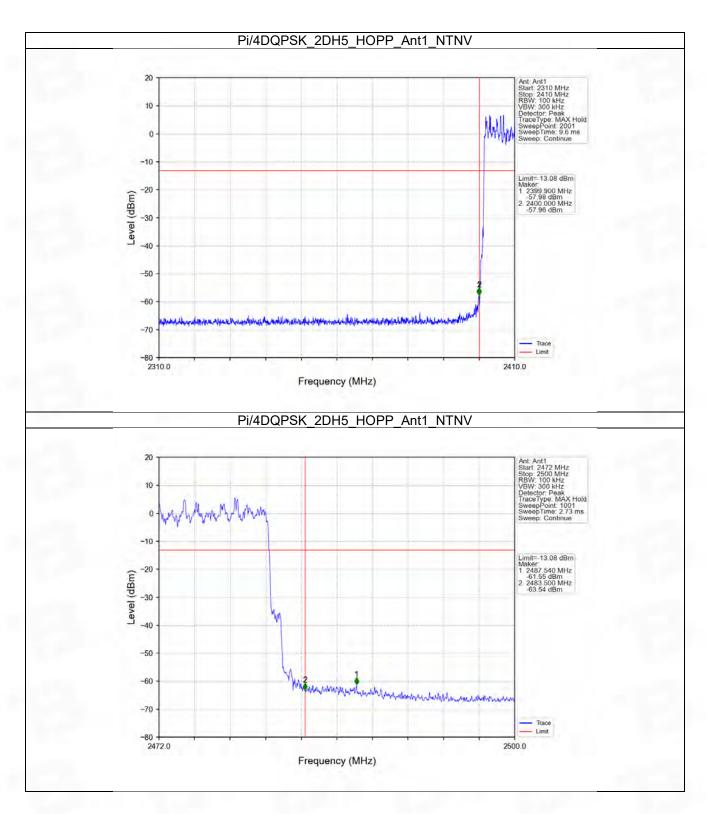


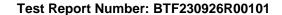




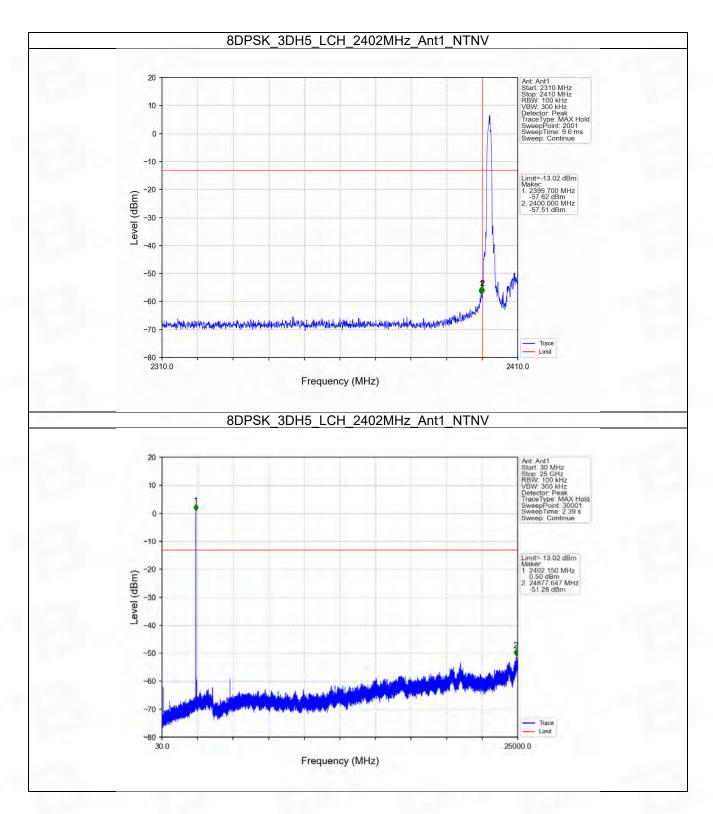


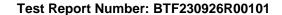




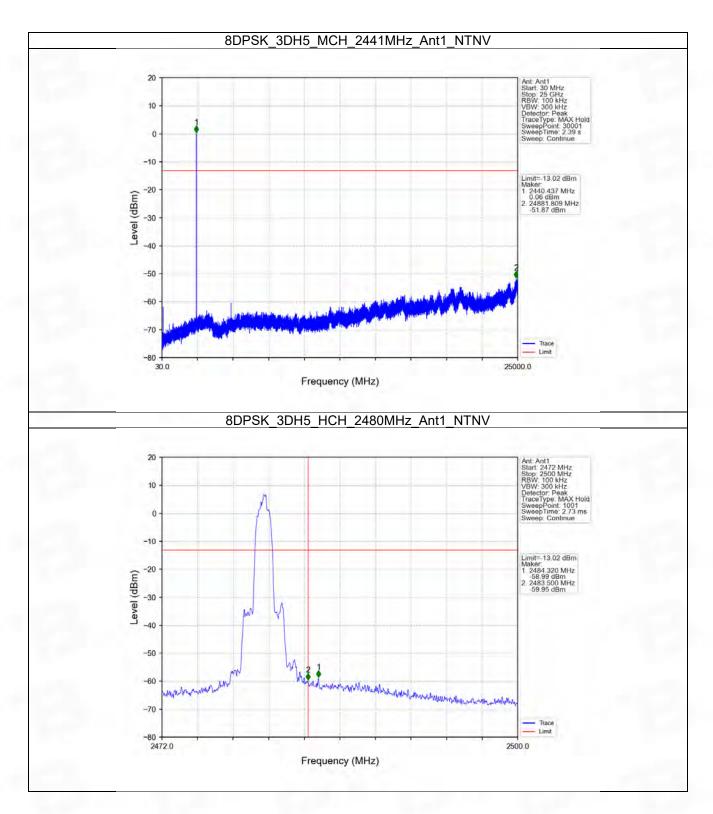


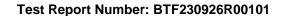




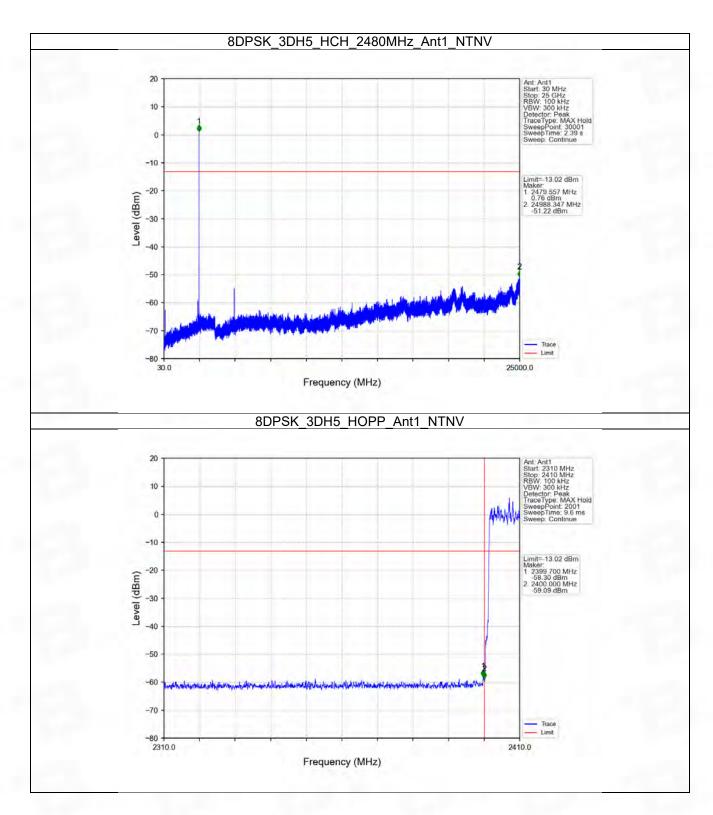


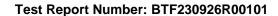




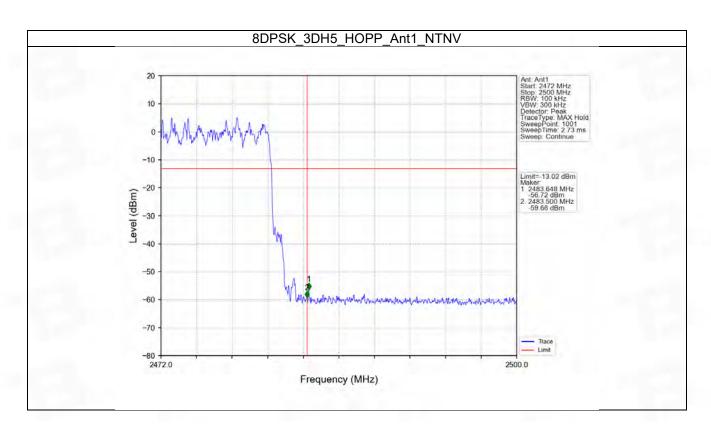


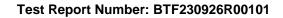










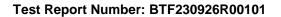




7. Form731

7.1 Form731

Lower Freq (MHz)	High Freq (MHz)	MAX Power (W)	MAX Power (dBm)
2402	2480	0.0032	5.07







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-- END OF REPORT --