TESTING LABORATORY
CERTIFICATE#4323.01

FCC PART 15.247
TEST REPORT

For

HIGH HOPE JOLLYJOY TOYS CORP.LTD.

91 BAI XIA ROAD, NANJING, China

FCC ID: 2AWGJZS804

Report Type:	**Product Type:**
Original Report	RC STUNT

Project Engineer: Chao Gao

Report Number: RSHD210406001-00A

Report Date: 2021-06-04

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant:	HIGH HOPE JOLLYJOY TOYS CORP.LTD.
Tested Model:	ZS804
Product Type:	RC STUNT
Power Supply:	DC 3V from battery
Maximum Output Power:	6.60dBm
RF Function:	SRD
Operating Band/Frequency:	2410-2473 MHz
Total Channel Number:	32
Hopping Channel Number:	16
Minimum Hopping Channel Separation:	2 MHz
Modulation Type	GFSK
Antenna Type:	Wire Antenna
*Maximum Antenna Gain:	0.0 dBi

**Note: The maximum antenna gain is provided by the applicant.*

**All measurement and test data in this report was gathered from production sample serial number:RSHD210406001-1 (Assigned by BACL, Kunshan). The EUT was received on 2021-04-06.*

Objective

This test report is prepared on behalf of *HIGH HOPE JOLLYJOY TOYS CORP.LTD.* in accordance with Part 2-Subpart J, Part 15-Subparts A and C of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, section 15.203, 15.205, 15.209 and 15.247 rules.

Related Submittal(s)/Grant(s)

No related submittal(s).

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliant Testing of Unlicensed Wireless Devices and FCC 558074 D01 15.247 Meas Guidance v05r02.

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Kunshan). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

Item		Uncertainty
AC Power Lines Conducted Emissions		3.19dB
RF conducted test with spectrum		0.9dB
RF Output Power with Power meter		0.5dB
Radiated emission	30MHz~1GHz	6.11dB
	1GHz~6GHz	4.45dB
	6GHz~18GHz	5.23dB
	18GHz~40GHz	5.65dB
Occupied Bandwidth		0.5kHz
Temperature		1.0℃
Humidity		6%

Test Facility

The test site used by Bay Area Compliance Laboratories Corp. (Kunshan) to collect test data is located on the No.248 Chenghu Road,Kunshan,Jiangsu province,China.

Bay Area Compliance Laboratories Corp. (Kunshan) Lab is accredited to ISO/IEC 17025 by A2LA (Lab code: 4323.01) and the FCC designation No. CN1185 under the FCC KDB 974614 D01 and CAB identifier CN0004 under the ISED requirement. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

Channel list:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2410	17	2441
2	2414	18	2442
3	2415	19	2444
4	2416	20	2446
5	2417	21	2450
6	2418	22	2452
7	2419	23	2454
8	2421	24	2456
9	2426	25	2458
10	2428	26	2462
11	2429	27	2464
12	2430	28	2465
13	2431	29	2466
14	2433	30	2467
15	2434	31	2469
16	2439	32	2473

For fixed channel test mode: EUT was tested with 3 channels (1, 18 and 32).

For hopping test mode: 16 random frequency hopping channels was test through the firmware burning procedure provided by the applicant. The minimum hopping channel separation is 2MHz in any case.

EUT Exercise Software

The EUT was tested in the engineering mode; EUT can be setup for fixed channel mode and hopping mode.

Special Accessories

No special accessory.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

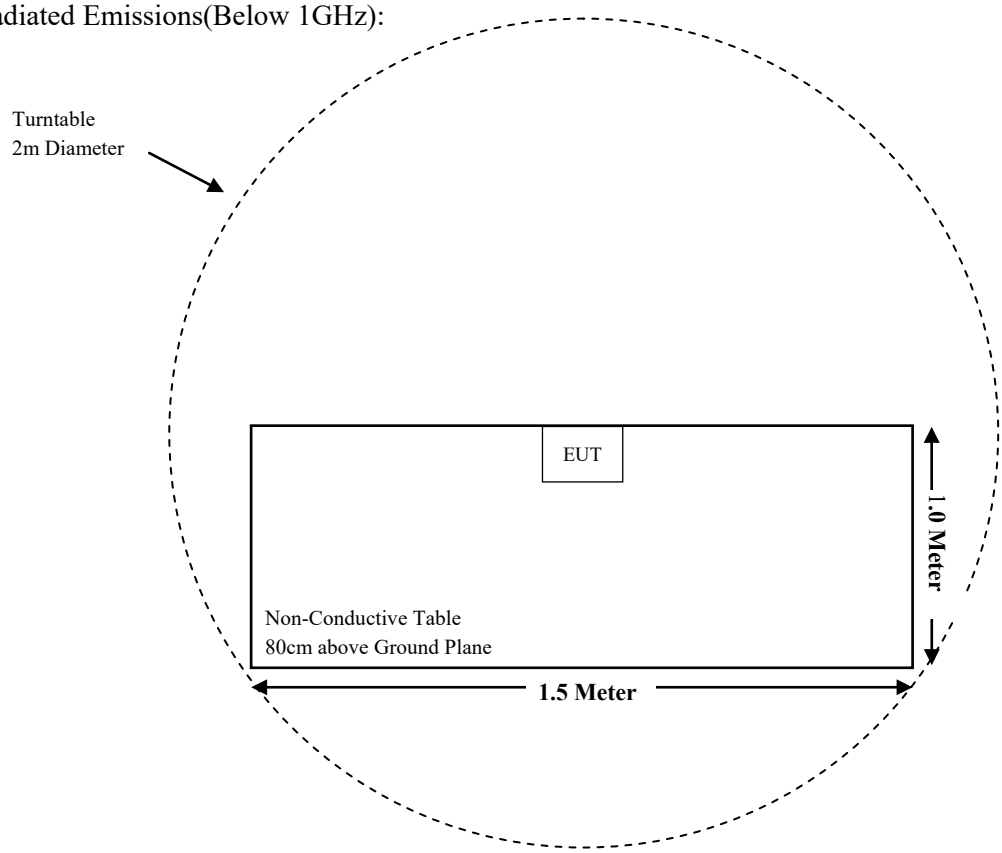
Manufacturer	Description	Model	Serial Number
/	/	/	/

External I/O Cable

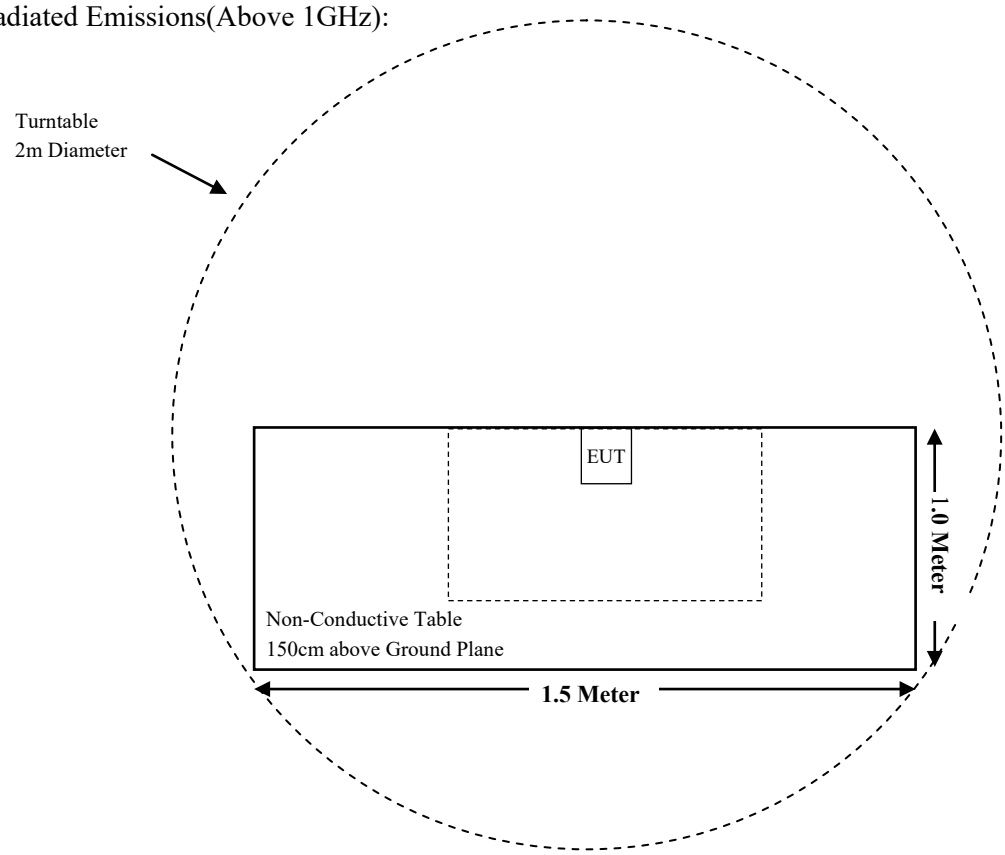
Cable Description	Length (m)	From Port	To
/	/	/	/

Block Diagram of Test Setup

For Radiated Emissions(Below 1GHz):



For Radiated Emissions(Above 1GHz):



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i)§1.1310 & §2.1093	RF Exposure	Compliant
§15.203	Antenna Requirement	Compliant
§15.207(a)	AC Line Conducted Emissions	Not Applicable (See Note)
§15.205, §15.209 & §15.247(d)	Radiated Emissions	Compliant
§15.247(a)(1)	20 dB Emission Bandwidth	Compliant
§15.247(a)(1)	Channel Separation Test	Compliant
§15.247(a)(1)(iii)	Time of Occupancy (Dwell Time)	Compliant
§15.247(a)(1)(iii)	Quantity of hopping channel Test	Compliant
§15.247(b)(1)	Peak Output Power Measurement	Compliant
§15.247(d)	Band edges	Compliant

Note: The EUT is powered by batteries.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test（Chamber 1#）					
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2020-11-27	2021-11-26
Sunol Sciences	Broadband Antenna	JB3	A090314-1	2020-08-05	2023-08-04
Sonoma Instrument	Pre-amplifier	310N	171205	2020-08-14	2021-08-13
Audix	Test Software	e3	V9	N/A	N/A
MICRO-COAX	Coaxial Cable	Cable-8	008	2020-08-15	2021-08-14
MICRO-COAX	Coaxial Cable	Cable-9	009	2020-08-15	2021-08-14
MICRO-COAX	Coaxial Cable	Cable-10	010	2020-08-15	2021-08-14
Radiated Emission Test（Chamber 2#）					
Rohde & Schwarz	EMI Test Receiver	ESU40	100207/040	2021-04-01	2022-03-31
ETS-LINDGREN	Horn Antenna	3115	9311-4159	2020-07-15	2023-07-14
ETS-LINDGREN	Horn Antenna	3116	2516	2020-01-17	2023-01-16
A.H.Systems,inc	Amplifier	PAM-0118P	512	2020-08-14	2021-08-13
EM Electronics Corporation	Amplifier	EM18G40G	060726	2021-03-22	2022-03-21
MICRO-TRONICS	Band Reject Filter	BRM50702	G024	2020-08-05	2021-08-04
Narda	Attenuator/10dB	10dB	/	2020-08-15	2021-08-14
Rohde & Schwarz	Auto test Software	EMC32	100361	/	/
MICRO-COAX	Coaxial Cable	Cable-6	006	2020-08-15	2021-08-14
MICRO-COAX	Coaxial Cable	Cable-11	011	2020-08-15	2021-08-14
MICRO-COAX	Coaxial Cable	Cable-12	012	2020-08-15	2021-08-14
MICRO-COAX	Coaxial Cable	Cable-13	013	2020-08-15	2021-08-14
RF Conducted Test					
Rohde & Schwarz	Signal Analyzer	FSV40	101116	2020-07-28	2021-07-27
Narda	Attenuator	10dB	010	2020-08-15	2021-08-14
HIGH HOPE JOLLYJOY TOYS CORP.LTD.	RF Cable	HIGH HOPE JOLLYJOY TOYS CORP.LTD.C01	C01	Each Time	N/A

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC§15.247 (i), §1.1310 &§2.1093 – RF EXPOSURE

Applicable Standard

According to§15.247(i) and §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

According to KDB447498 D01 General RF Exposure Guidance v06:

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] • [√ f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion.

Measurement Result

Mode	Frequency Range (MHz)	Max Tune-up Conducted Power		Calculated Distance (mm)	Calculated Value	Threshold (10-g extremity SAR)	SAR Test Exclusion
		(dBm)	(mW)				
SRD	2410-2473	7.0	5.01	5.0	1.6	7.5	Yes

Note: 1.The product is a handheld device
2. The Tune-up output power was declared by the Manufacturer.

So the stand-alone SAR evaluation is not necessary.

FCC §15.203 – ANTENNA REQUIREMENT

Applicable Standard

According to FCC § 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. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Antenna Information

The EUT has a wire antenna for SRD, and the antenna gain is 0.0 dBi, the Antenna is permanently attached to the unit, fulfill the requirement of this section. Please refer to the EUT photos.

Result: Compliant.

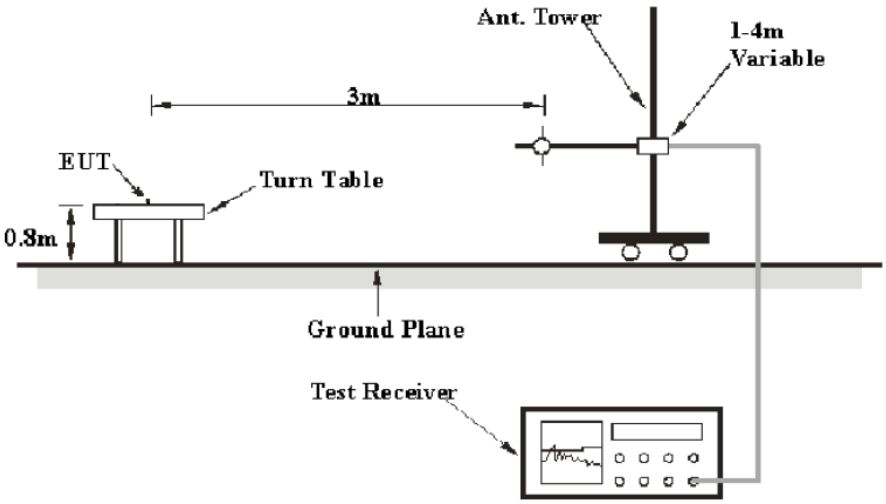
FCC §15.205, §15.209 & §15.247(d) – RADIATED EMISSIONS

Applicable Standard

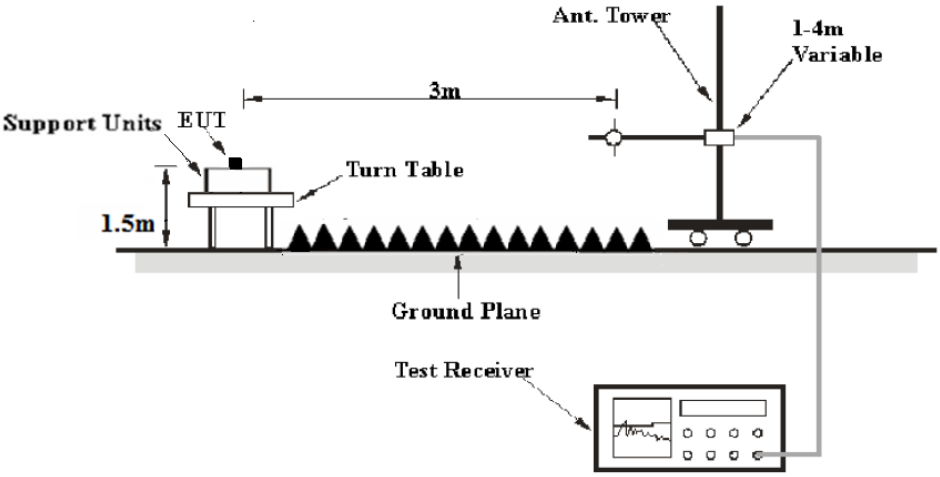
FCC §15.205; §15.209; §15.247(d)

EUT Setup

Below 1 GHz:



Above 1GHz:



The radiated emission tests were performed in the 3 meters, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209 and FCC 15.247 limits.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver setup was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1GHz	1MHz	3 MHz	/	PK
	1MHz	3 MHz	/	AVG

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All final data was recorded in Quasi-peak detection mode for frequency range of 30 MHz -1 GHz and peak and Average detection modes for frequencies above 1 GHz.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude (dBμV/m) = Meter Reading (dBμV) + Antenna Factor (dB/m) + Cable Loss (dB) - Amplifier Gain (dB)

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV/m)

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Title 47, Part 15, Subpart C, section 15.205, 15.209 and 15.247.

Test Data

Environmental Conditions

Temperature:	24.2 ℃~25℃
Relative Humidity:	50%~60%
ATM Pressure:	101.2 kPa~102 kPa

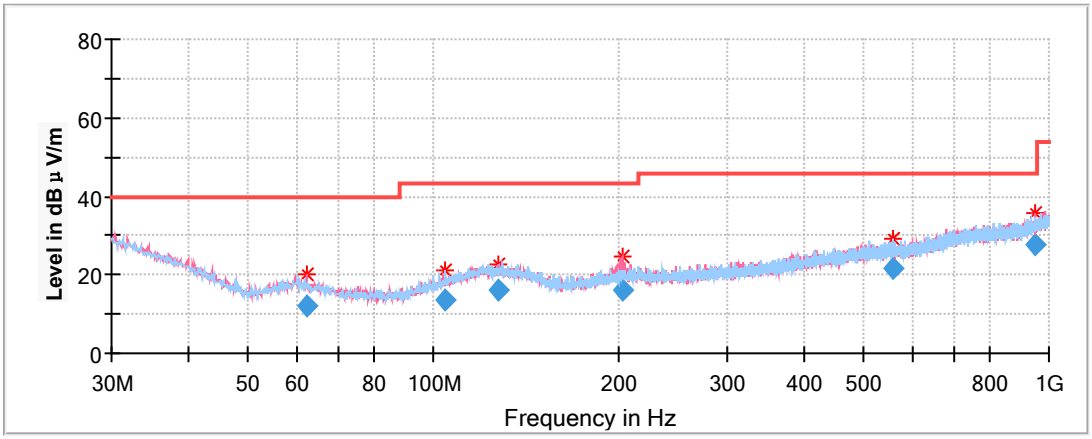
The testing was performed by Chao Gao from 2021-04-27 to 2021-05-10.

EUT operation mode: Transmitting

Spurious Emission Test:

30MHz-1GHz:

Pre-Scan with low, middle and high channels in the X,Y and Z axes of orientation, the worst case ***low channel in X-axis of orientation*** *was recorded*



Frequency (MHz)	Corrected Amplitude	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	QuasiPeak (dBµV/m)	Height (cm)	Polar (H/V)				
62.259900	12.21	200.0	V	167.0	-15.2	40.00	27.79
104.446000	13.63	200.0	H	230.0	-13.8	43.50	29.87
127.364950	16.24	100.0	V	247.0	-11.2	43.50	27.26
202.297750	16.14	100.0	V	264.0	-12.0	43.50	27.36
557.193400	21.66	200.0	H	202.0	-5.1	46.00	24.34
950.539800	27.64	100.0	V	100.0	1.5	46.00	18.36

1GHz-18GHz:

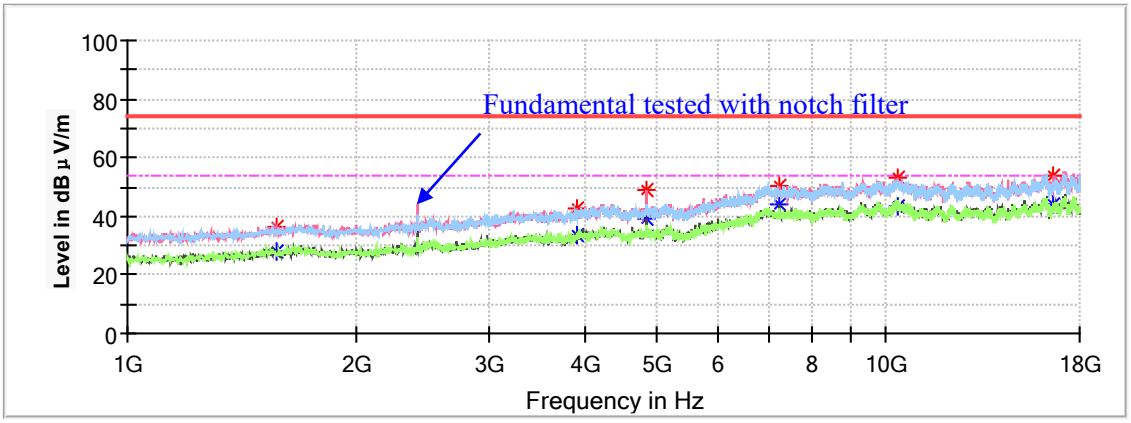
Pre-Scan in the X,Y and Z axes of orientation, the worst case ***in X-axis of orientation*** *was recorded*

Note:

1. This test was performed with the 2.4-2.5GHz notch filter.
2. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
   Corrected Amplitude = Corrected Factor + Reading
   Margin = Limit - Corrected. Amplitude

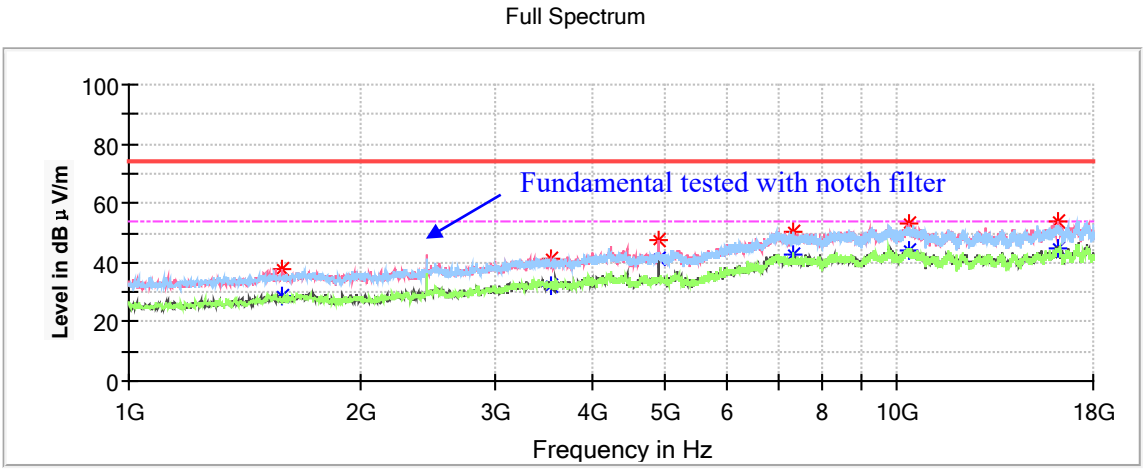
Low Channel: 2410 MHz

Full Spectrum



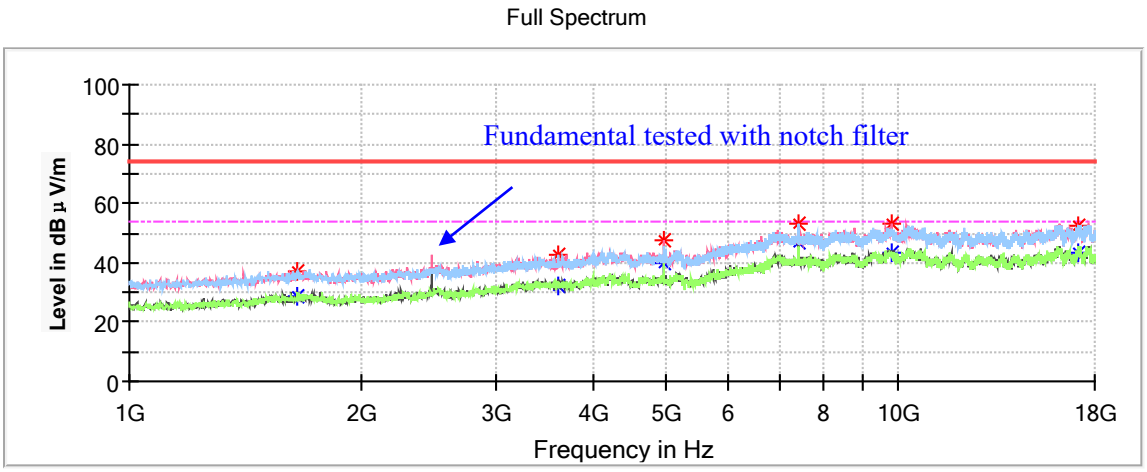
Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1569.500000	---	27.94	200.0	V	0.0	-9.2	54.00	26.06
1569.500000	36.46	---	200.0	V	0.0	-9.2	74.00	37.54
3912.100000	---	33.48	150.0	H	359.0	0.0	54.00	20.52
3912.100000	42.65	---	150.0	H	359.0	0.0	74.00	31.35
4820.000000	---	39.42	200.0	V	272.0	1.0	54.00	14.58
4820.000000	48.71	---	200.0	V	272.0	1.0	74.00	25.29
7232.200000	---	43.81	150.0	V	11.0	9.1	54.00	10.19
7232.200000	50.05	---	150.0	V	11.0	9.1	74.00	23.95
10336.400000	---	43.68	200.0	H	119.0	12.6	54.00	10.32
10336.400000	53.01	---	200.0	H	119.0	12.6	74.00	20.99
16655.300000	---	43.94	200.0	V	2.0	11.9	54.00	10.06
16655.300000	54.18	---	200.0	V	2.0	11.9	74.00	19.82

Middle Channel: 2442 MHz



Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1579.700000	---	28.64	200.0	V	145.0	-9.10	54.00	25.36
1579.700000	37.70	---	200.0	V	145.0	-9.10	74.00	36.30
3534.700000	---	32.16	150.0	H	334.0	-1.60	54.00	21.84
3534.700000	41.34	---	150.0	H	334.0	-1.60	74.00	32.66
4884.000000	47.75	---	200.0	V	18.0	1.10	74.00	26.25
4884.000000	---	40.97	200.0	V	18.0	1.10	54.00	13.03
7326.000000	---	42.47	200.0	V	208.0	9.10	54.00	11.53
7326.000000	50.53	---	200.0	V	208.0	9.10	74.00	23.47
10373.800000	---	44.09	150.0	V	298.0	12.7	54.00	9.91
10373.800000	53.07	---	150.0	V	298.0	12.7	74.00	20.93
16218.400000	---	44.99	150.0	V	358.0	12.2	54.00	9.01
16218.400000	53.71	---	150.0	V	358.0	12.2	74.00	20.29

High Channel: 2473MHz

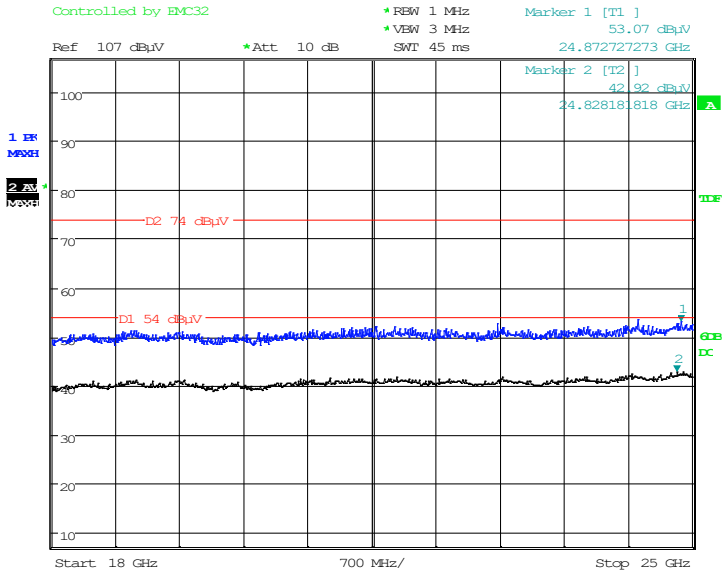


Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
1649.400000	---	28.85	200.0	V	88.0	-8.90	54.00	25.15
1649.400000	37.22	---	200.0	V	88.0	-8.90	74.00	36.78
3609.500000	42.50	---	150.0	H	220.0	-1.30	74.00	31.50
3609.500000	---	32.47	150.0	H	220.0	-1.30	54.00	21.53
4947.400000	---	40.08	150.0	H	81.0	1.10	54.00	13.92
4947.400000	47.62	---	150.0	H	81.0	1.10	74.00	26.38
7420.900000	53.11	---	200.0	H	76.0	9.20	74.00	20.89
7420.900000	---	47.15	200.0	H	76.0	9.20	54.00	6.85
9807.700000	---	43.54	150.0	V	0.0	11.9	54.00	10.46
9807.700000	53.07	---	150.0	V	0.0	11.9	74.00	20.93
17099.000000	---	43.17	200.0	H	6.0	11.8	54.00	10.83
17099.000000	52.75	---	200.0	H	6.0	11.8	74.00	21.25

18GHz-25GHz:

Pre-Scan with low, middle and high channels in the X,Y and Z axes of orientation, the worst case ***low channel in X-axis of orientation*** *was recorded*

Horizontal



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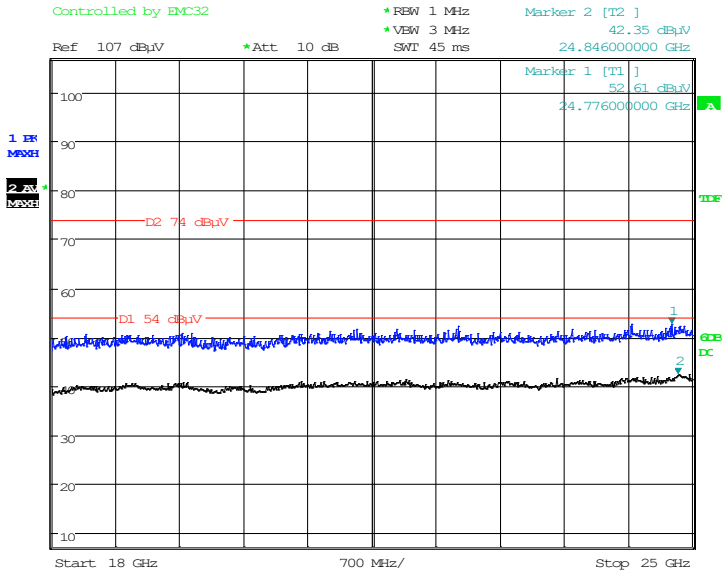
Vertical



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Restricted Bands Emissions:

Pre-Scan in the X,Y and Z axes of orientation, the worst case ***in X-axis of orientation*** *in vertical polarization was recorde*

Note:
1. Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor

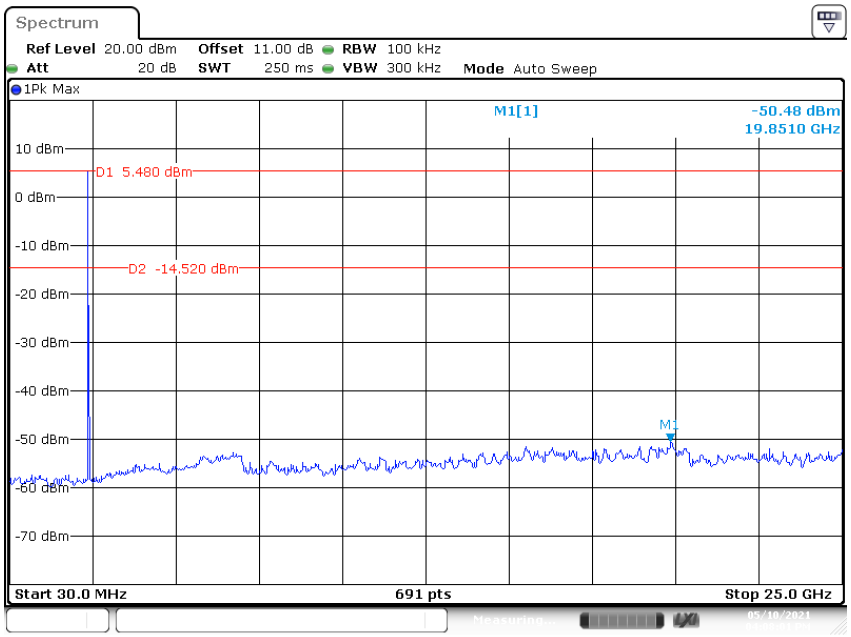
Corrected Amplitude = Corrected Factor + Reading

Margin = Limit - Corrected. Amplitude

Frequency (MHz)	Corrected Amplitude		Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
	MaxPeak (dBµV /m)	Average (dBµV /m)	Height (cm)	Polar (H/V)				
Low Channel: 2410MHz								
2390.00	51.03	---	150.0	V	350.0	3.8	74.00	22.97
2390.00	---	43.51	150.0	V	350.0	3.8	54.00	10.49
High Channel: 2473MHz								
2483.50	54.02	---	150.0	V	217.0	4.2	74.00	19.98
2483.50	---	51.75	150.0	V	217.0	4.2	54.00	2.25

Conducted Spurious Emissions at Antenna Port

Low Channel



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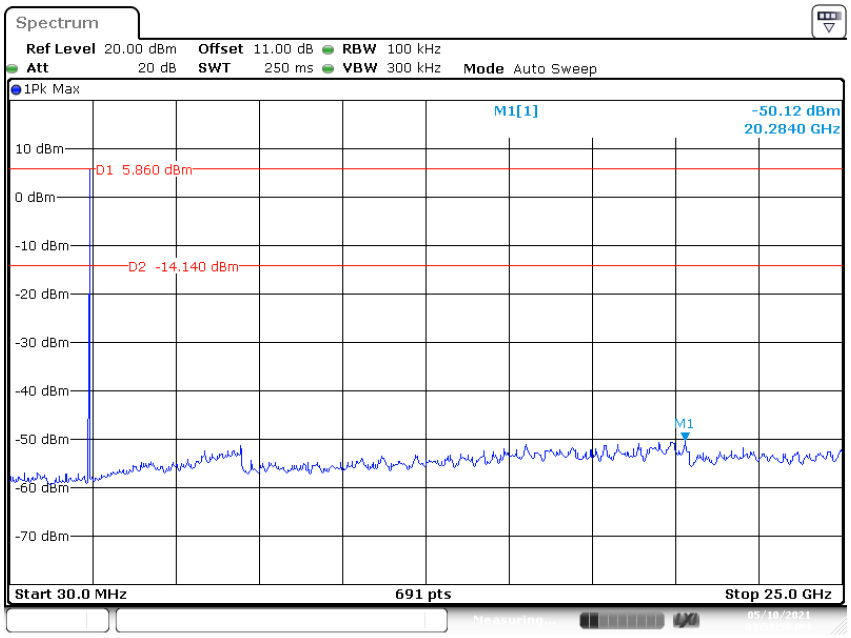
Middle Channel



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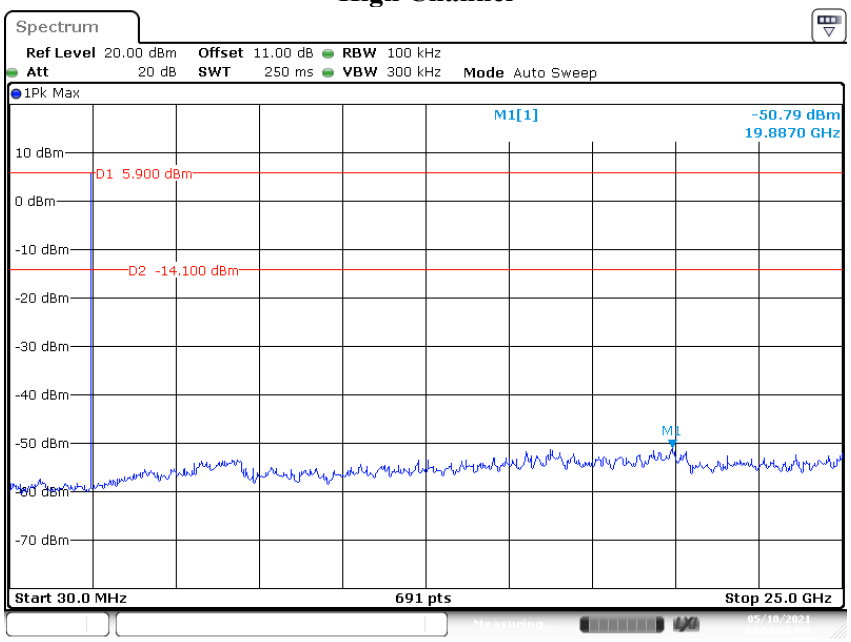
High Channel



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FCC §15.247(a) (1)-CHANNEL SEPARATION TEST

Applicable Standard

Frequency hopping systems shall have hoping 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.

Test Procedure

1、Set the EUT in transmitting mode, maxhold the channel.
2、Set the adjacent channel of the EUT and maxhold another trace.
3、Measure the channel separation.

Test Data

Environmental Conditions

Temperature:	24.2 ℃
Relative Humidity:	50%
ATM Pressure:	101.2 kPa

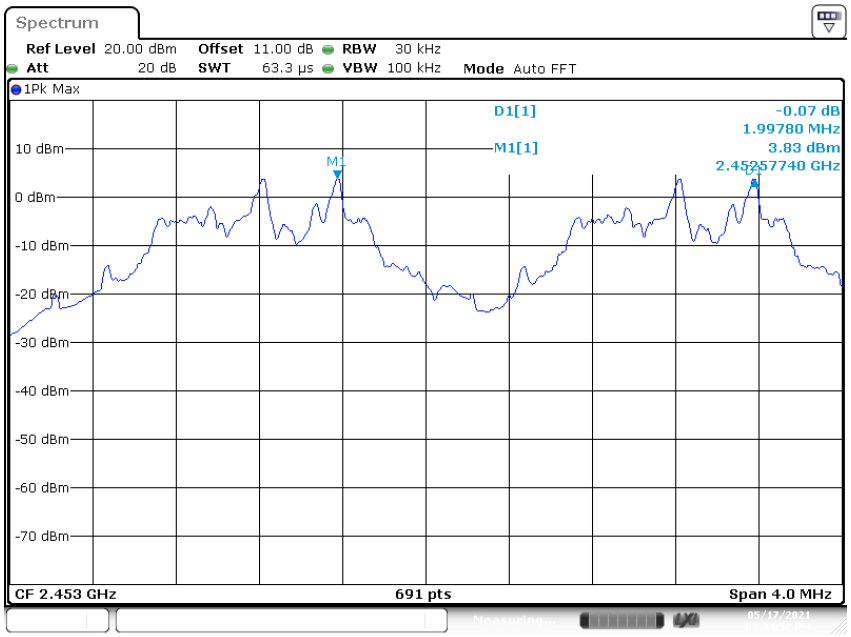
The testing was performed by Chao Gao on 2021-05-17.

EUT operation mode: Hopping

Test Result: Compliant.

Modulation	Channel	Frequency (MHz)	Channel Separation (MHz)	Limit (MHz)	Result
GFSK	Low	2452	1.9978	1.023	Pass
	Adjacent	2454			

The limit = 20dB Bandwidth*2/3



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FCC §15.247(a) (1) – 20 dB EMISSION BANDWIDTH

Applicable Standard

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.

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

Test Data

Environmental Conditions

Temperature:	24.2 ℃
Relative Humidity:	50%
ATM Pressure:	101.2 kPa

The testing was performed by Chao Gao on 2021-05-10.

EUT operation mode: Transmitting

Test Result: Compliant.

Modulation	Channel	Frequency (MHz)	20 dB Emission Bandwidth (MHz)
GFSK	Low	2410	1.5340
	Middle	2442	1.5340
	High	2473	1.5282

Low Channel

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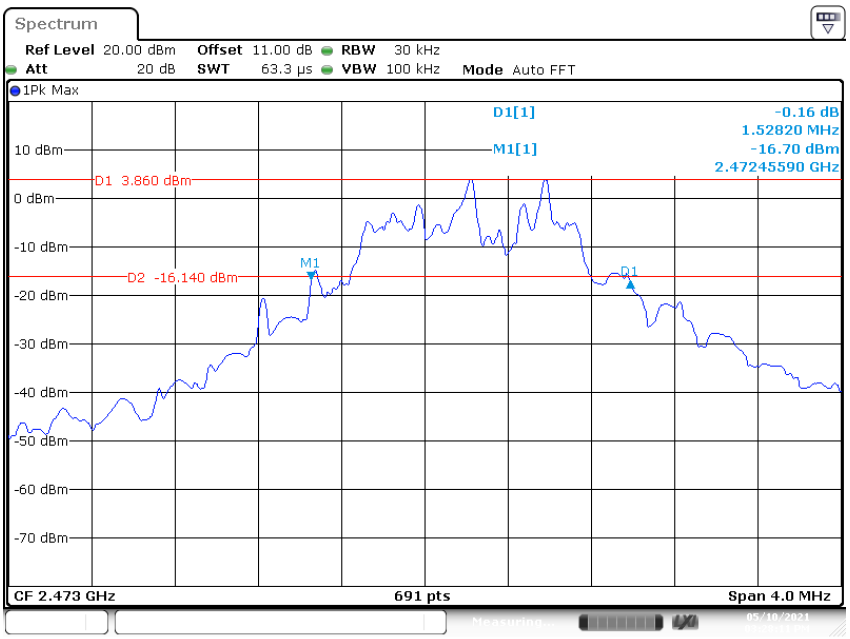
Middle Channel

Date: 10.MAY.2021 15:30:41

High Channel



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FCC §15.247(a) (1) (iii)-QUANTITY OF HOPPING CHANNEL TEST

Applicable Standard

Frequency 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.

Test Procedure

1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.

2. Set the EUT in hopping mode from first channel to last.

3. By using the max-hold function record the quantity of the channel.

Test Data

Environmental Conditions

Temperature:	24.2 ℃
Relative Humidity:	50%
ATM Pressure:	101.2 kPa

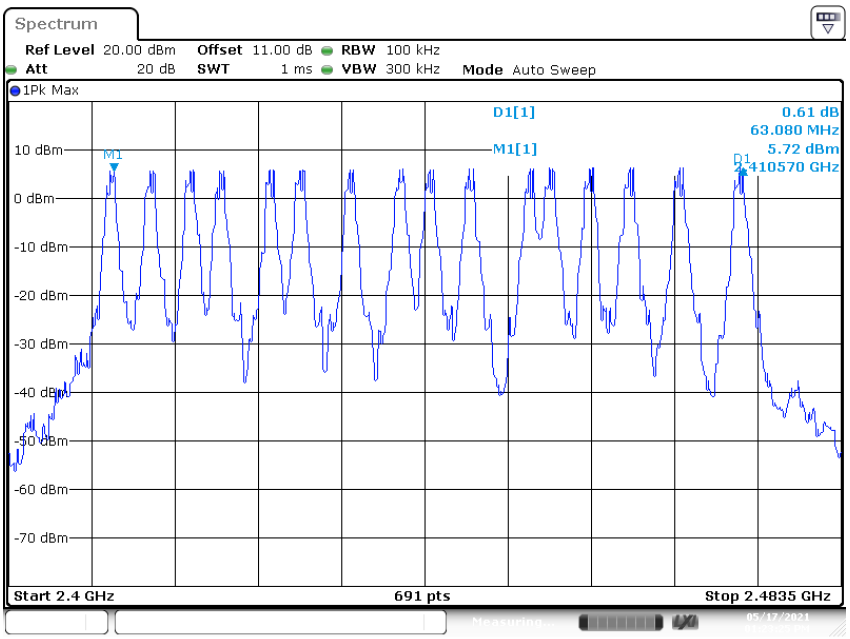
The testing was performed by Chao Gao on 2021-05-17.

EUT operation mode: Hopping

Test Result: Compliant.

Modulation	Frequency Range (MHz)	Number of Hopping Channel (CH)	Limit (CH)
GFSK	2410-2473	16	⩾15

Number of Hopping Channels



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FCC §15.247(a) (1) (iii) - TIME OF OCCUPANCY (DWELL TIME)

Applicable Standard

Frequency hopping systems in the 2400-2483.5 MHz 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.

Test 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.

Test Data

Environmental Conditions

Temperature:	24.2 ℃
Relative Humidity:	50%
ATM Pressure:	101.2 kPa

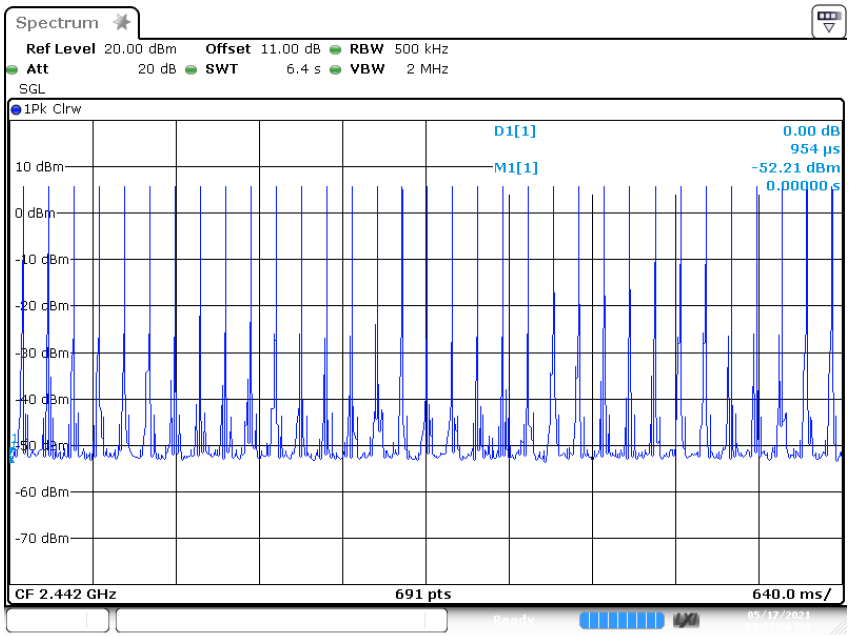
The testing was performed by Chao Gao on 2021-05-17.

EUT operation mode: Hopping

Test Result: Compliant.

Modulation	Channel	Pulse Width (ms)	Pulse Number	Dwell Time (s)	Limit (s)	Result
GFSK	Middle	0.994	33	0.033	≤0.4	Pass
	Note:Dwell time = Pulse time*N Observed time = 0.4s* hopping number= 0.4s*16=6.4s					

Number of Pulses



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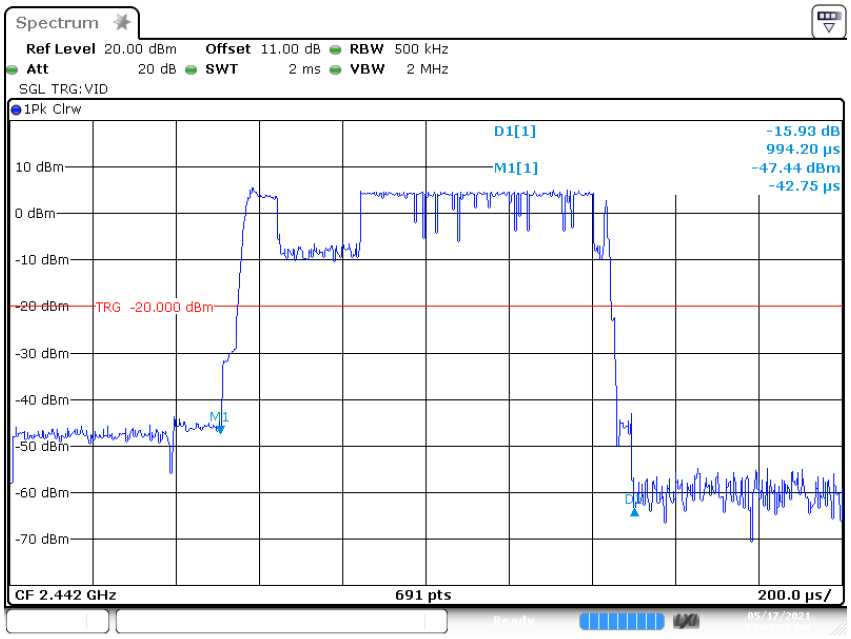
Single Pulse



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FCC §15.247(b) (1) - PEAK OUTPUT POWER MEASUREMENT

Applicable Standard

According to §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. And for all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 watts.

Test Procedure

1. Place the EUT on a bench and set in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to one test equipment.
3. Add a correction factor to the display.

Test Data

Environmental Conditions

Temperature:	24.2 ℃
Relative Humidity:	50%
ATM Pressure:	101.2 kPa

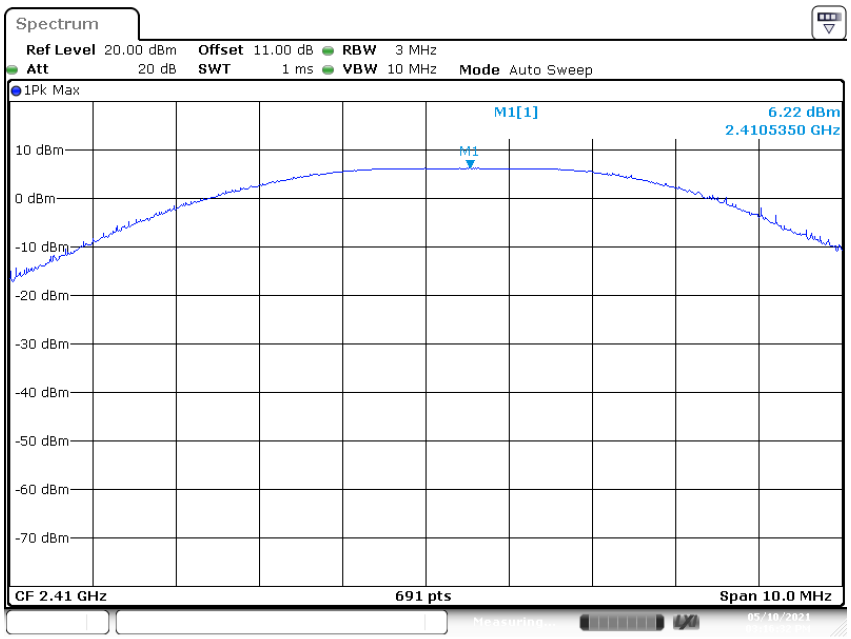
The testing was performed by Chao Gao on 2021-05-10.

EUT operation mode: Transmitting

Test Result: Compliant.

Modulation	Channel	Frequency (MHz)	Output Power		Limit (mW)
			(dBm)	(mW)	
GFSK	Low	2410	6.22	4.19	125
	Middle	2442	6.40	4.37	125
	High	2473	6.60	4.57	125

Low Channel



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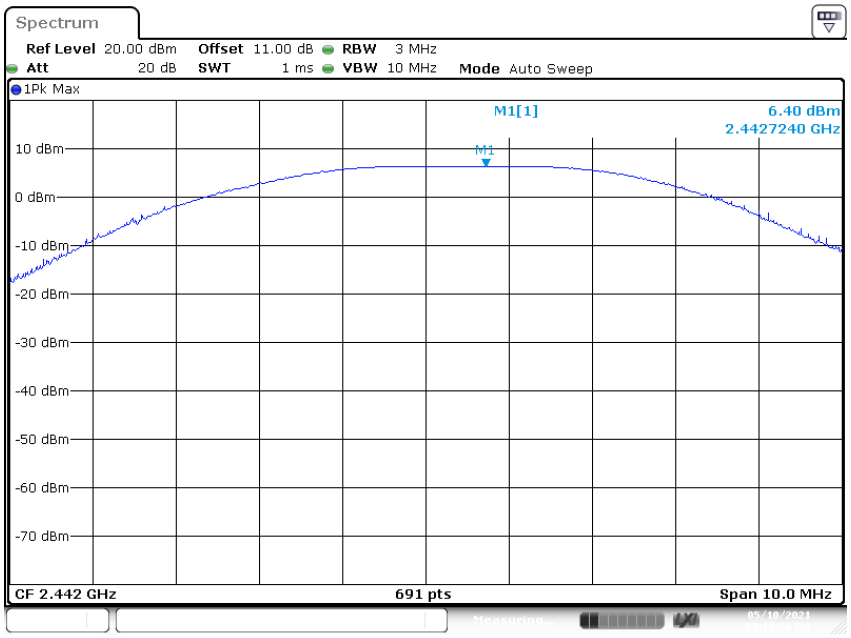
Middle Channel



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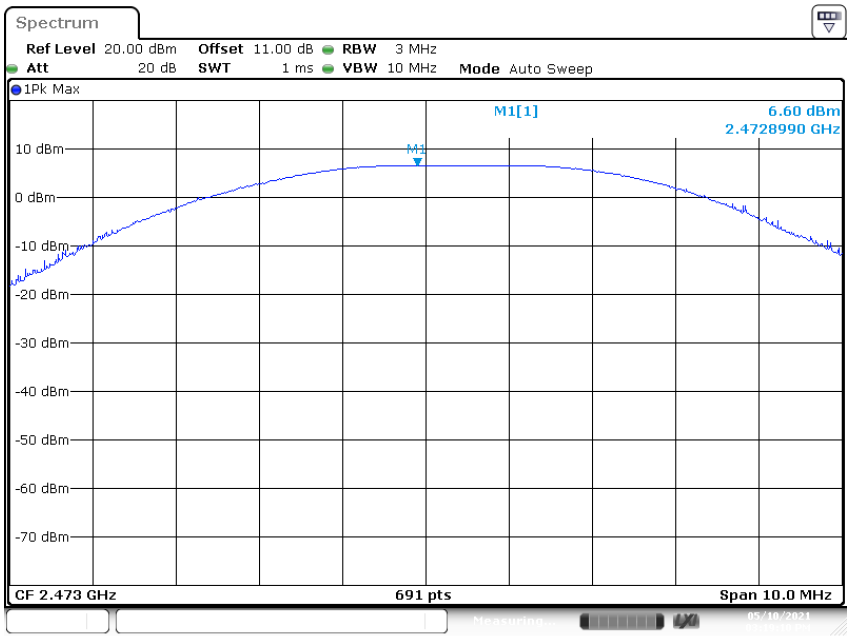
High Channel



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FCC §15.247(d) - BAND EDGES TESTING

Applicable Standard

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. 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 Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Remove the antenna from the EUT and then connect to a low loss RF cable from the antenna port to a EMI test receiver, then turn on the EUT and make it operate in transmitting mode. Then set it to Low Channel and High Channel within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

Test Data

Environmental Conditions

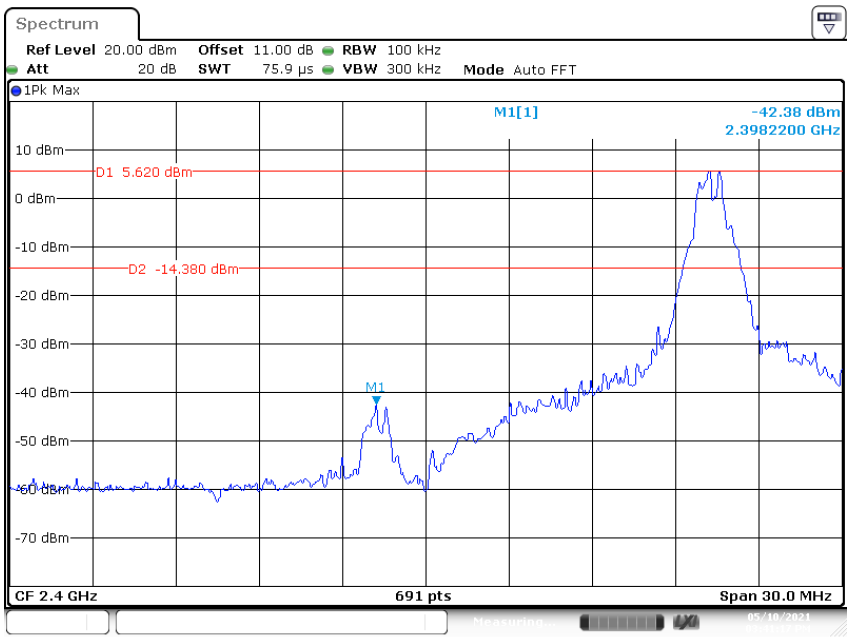
Temperature:	24.2-25.1 ℃
Relative Humidity:	46-50%
ATM Pressure:	101.2-101.6 kPa

The testing was performed by Chao Gao from 2021-05-10 to 2021-05-17.

EUT operation mode: NO Hopping&Hopping

Test Result: Compliant.

Left Side



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Right Side

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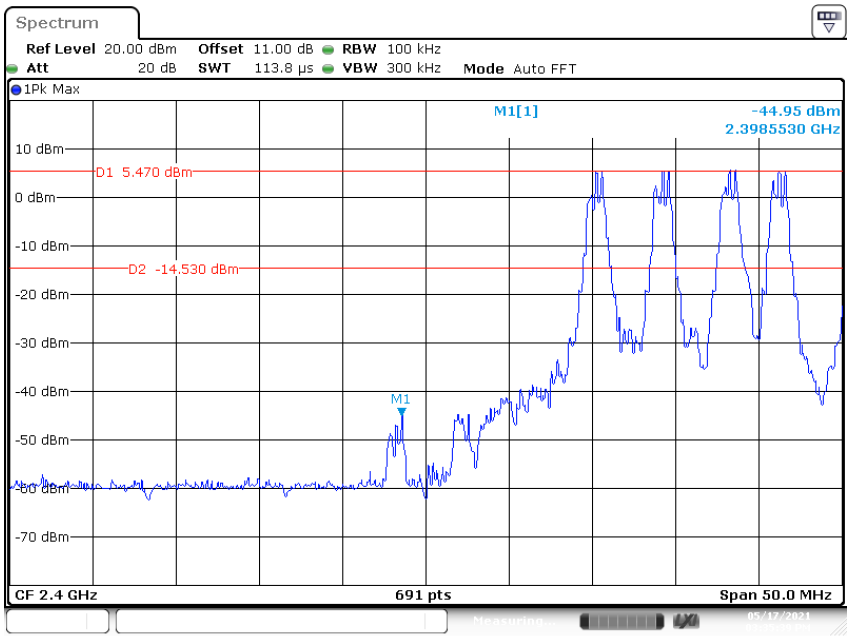
Left Side-Hopping



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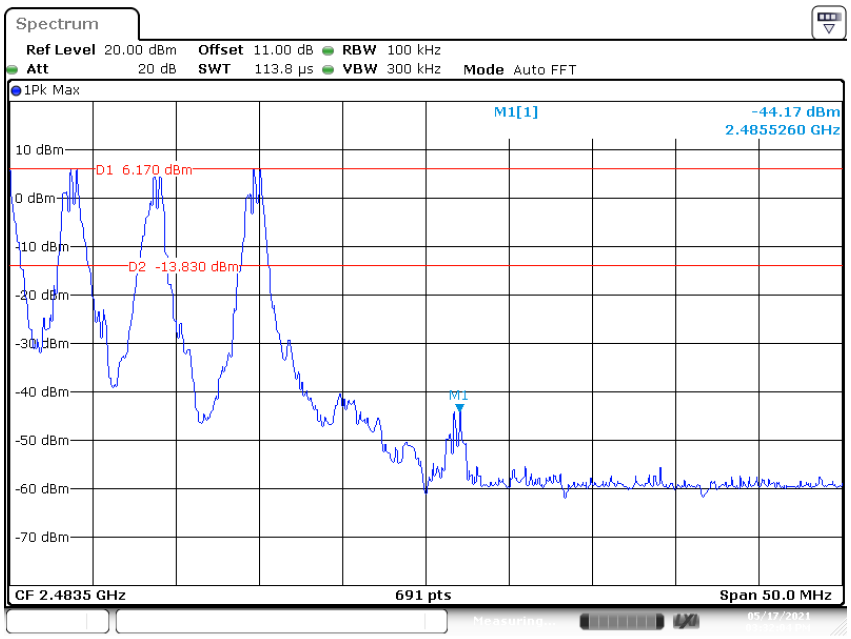
Right Side-Hopping



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Declarations

1: BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with an asterisk '*'. Customer model name, addresses, names, trademarks etc. are not considered data.

2: Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

3: Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

4: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

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