



# **TEST REPORT**

Applicant Name : Address : Zeeva International Limited Suite 1007B, 10th Floor, Exchange Tower, 33 Wang Chiu Road, Kowloon Bay, Hong Kong SZ3220704-30047E-RF 2ADM5-SP-0509

Report Number : FCC ID:

**Test Standard (s)** FCC PART 15.247

#### **Sample Description**

Product Type:
Model No.:
Trade Mark:
Date Received:
Date of Test:
Report Date:

XL Speaker with Stand SP-0509 N/A 2022-07-04 2022-07-08 to 2022-07-11 2022-07-16

Test Result:

Pass\*

\* In the configuration tested, the EUT complied with the standards above.

# Prepared and Checked By:

Andy. YUL

Audy.Yu EMC Engineer

**Approved By:** 

Candy, Li

Candy Li EMC Engineer

Note: This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "\*.

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#### Shenzhen Accurate Technology Co., Ltd.

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Version 11: 2021-11-09

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# **GENERAL INFORMATION**

Product	XL Speaker with Stand
Tested Model	SP-0509
SKU Number	6795031
UPC Number	1922346750106
Frequency Range	2402~2480MHz
Maximum conducted Peak output power	-0.16dBm
Modulation Technique	BDR(GFSK)/EDR( n /4-DQPSK)/EDR(8DPSK)
Antenna Specification*	Internal on board Antenna: -0.68dBi(provided by the applicant)
Voltage Range	DC 5V from USB port or DC 3.7V from battery
Sample number	SZ3220704-30047E-RF-S1(RF Radiated Test) SZ3220704-30047E-RF-S2(RF Conducted Test) (Assigned by ATC, Shenzhen)
Sample/EUT Status	Good condition

#### **Product Description for Equipment under Test (EUT)**

## Objective

This test report is in accordance with Part 2-Subpart J, Part 15-Subparts A and C of the Federal Communication Commission rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, section 15.203, 15.205, 15.207, 15.209 and 15.247 rules.

# **Test Methodology**

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

All emissions measurement was performed at Shenzhen Accurate Technology Co., Ltd. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

# **Measurement Uncertainty**

Parameter		Uncertainty
Occupied Char	nnel Bandwidth	5%
RF output pov	wer, conducted	0.73dB
Unwanted Emis	ssion, conducted	1.6dB
AC Power Lines Conducted Emissions		2.72dB
<b>.</b>	30MHz - 1GHz	4.28dB
Emissions, Radiated	1GHz - 18GHz	4.98dB
Rudiated	18GHz - 26.5GHz	5.06dB
Temperature		1°C
Humidity		6%
Supply voltages		0.4%

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

# **Test Facility**

The test site used by Shenzhen Accurate Technology Co., Ltd. to collect test data is located on the 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 708358, the FCC Designation No.: CN1189.

Accredited by American Association for Laboratory Accreditation (A2LA). The Certificate Number is 4297.01

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0016. The Registration Number is 5077A.

# SYSTEM TEST CONFIGURATION

# **Description of Test Configuration**

The system was configured for testing in an engineering mode.

# **EUT Exercise Software**

Software "FCC\_assist\_1.0.2.2"\* was used during testing and the power level was 10\*.

## **Special Accessories**

N/A.

# **Equipment Modifications**

No modification was made to the EUT tested.

# **Support Equipment List and Details**

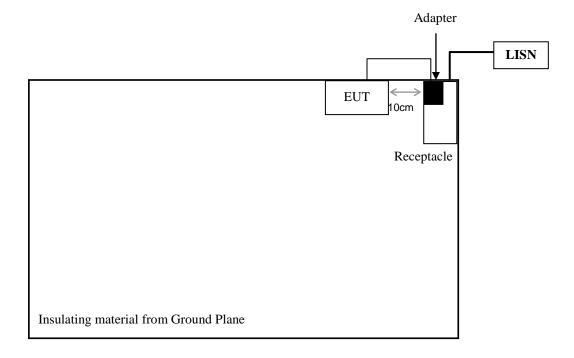
Manufacturer	Description	Model	Serial Number
TECNO	Adapter	U050TSA	AH07015321906

External I/O Cable

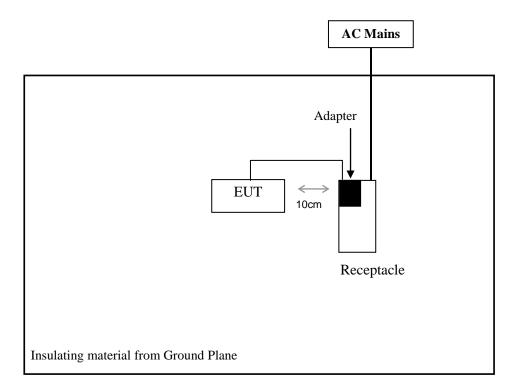
Cable Description	Length(m)	From/Port	То
Un-shielding Detachable USB Cable	0.5	EUT	Adapter
Unshielded Un-detachable AC cable	1.2	LISN	Receptacle

# **Block Diagram of Test Setup**

For conducted emission:



For radiated emission:



# SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1310, §2.1091	Maximum Permissible Exposure (MPE)	Compliant
§15.203	Antenna Requirement	Compliant
§15.207(a)	AC Line Conducted Emissions	Compliant
§15.205, §15.209 & §15.247(d)	Radiated Emissions	Compliant
§15.247(a)(1)	20 dB Emission Bandwidth & 99% Occupied 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

# TEST EQUIPMENT LIST

Manufacturer	Description	Model Serial Number		Calibration Date	Calibration Due Date		
Conducted Emissions Test							
Rohde & Schwarz	EMI Test Receiver	ESCI	100784	2021/12/13	2022/12/12		
Rohde & Schwarz	L.I.S.N.	ENV216	101314	2021/12/13	2022/12/12		
Anritsu Corp	50 Coaxial Switch	MP59B	6100237248	2021/12/13	2022/12/12		
Unknown	RF Coaxial Cable	No.17	N0350	2021/12/14	2022/12/13		
	Conducted E	mission Test Soft	ware: e3 19821b (	V9)			
		Radiated Emissi	ons Test				
Rohde & Schwarz	Test Receiver	ESR	102725	2021/12/13	2022/12/12		
Rohde & Schwarz	Spectrum Analyzer	FSV40	101949	2021/12/13	2022/12/12		
SONOMA INSTRUMENT	Amplifier	310 N	186131	2021/11/09	2022/11/08		
A.H. Systems, inc.	Preamplifier	PAM-0118P	135	2021/11/09	2022/11/08		
Quinstar	Amplifier	QLW-184055 36-J0	15964001002	2021/11/11	2022/11/10		
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2021/07/06	2024/07/05		
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-1067	2020/01/05	2023/01/04		
Schwarzbeck	HORN ANTENNA	BBHA9170	9170-359	2020/01/05	2023/01/04		
Wainwright	High Pass Filter	WHKX3.6/18 G-10SS	5	2021/12/14	2022/12/13		
Unknown	RF Coaxial Cable	No.10	N050	2021/12/14	2022/12/13		
Unknown	RF Coaxial Cable	No.11	N1000	2021/12/14	2022/12/13		
Unknown	RF Coaxial Cable	No.12	N040	2021/12/14	2022/12/13		
Unknown	RF Coaxial Cable	No.13	N300	2021/12/14	2022/12/13		
Unknown	RF Coaxial Cable	No.15	N600	2021/12/14	2022/12/13		
Unknown	RF Coaxial Cable	No.16	N650	2021/12/14	2022/12/13		
	Radiated En	nission Test Soft	ware: e3 19821b (V	79)			
		RF Conducted	d Test				
Rohde & Schwarz	Spectrum Analyzer	FSV-40	101495	2021/12/13	2022/12/12		
Rohde & Schwarz	Open Switch and Control Unit	OSP120 + OSP-B157	101244 + 100866	2021/12/13	2022/12/12		
WEINSCHEL	10dB Attenuator	5324	AU 3842	2021/12/14	2022/12/13		
Unknown	RF Coaxial Cable	No.34	RF-04	Each	time		

\* **Statement of Traceability:** Shenzhen Accurate Technology Co., Ltd. attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

# FCC §1.1310 & §2.1091 –MAXIMUM PERMISSIBLE EXPOSURE (MPE)

#### Applicable Standard

According to KDB 447498 D04 Interim General RF Exposure Guidance v01, clause 2.1.4 – MPE-Based Exemption:

An alternative to the SAR-based exemption is provided in § 1.1307(b)(3)(i)(C), for a much wider frequency range, from 300 kHz to 100 GHz, applicable for separation distances greater or equal to  $\lambda/2\pi$ , where  $\lambda$  is the free-space operating wavelength in meters. The MPE-based test exemption condition is in terms of ERP, defined as the product of the maximum antenna gain and the delivered maximum time-averaged power. For this case, a RF source is an RF exempt device if its ERP (watts) is no more than a frequency-dependent value, as detailed tabular form in Appendix B. These limits have been derived based on the basic specifications on Maximum Permissible Exposure (MPE) considered for the FCC rules in § 1.1310(e)(1).

Table to § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source frequency (MHz)	Threshold ERP (watts)
0.3-1.34	1,920 R <sup>2</sup> .
1.34-30	3,450 R <sup>2</sup> /f <sup>2</sup> .
30-300	3.83 R <sup>2</sup> .
300-1,500	0.0128 R <sup>2</sup> f.
1,500-100,000	19.2R <sup>2</sup> .

f = frequency in MHz;

R = minimum separation distance from the body of a nearby person (appropriate units, e.g., m);

## **Test Result:**

For worst case:

Mode	Frequency Range	Tune-up Pov	-	-	enna ain	EF	RP	Evaluation Distance	MPE-Based Exemption
Mode	(MHz)	(dBm)	( <b>mW</b> )	(dBi)	(dBd)	(dBm)	(mW)	(cm)	Threshold (mW)
BDR/EDR	2402-2480	0	1	-0.68	-2.83	-2.83	0.52	20	768

Note 1: The tune-up power was declared by the applicant. Note 2: 0dBd=2.15dBi.

To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

#### **Result:** Compliant.

# 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 Connector Construction

The EUT has one internal on board antenna arrangement, which was permanently attached and the antenna gain is -0.68 dBi, fulfill the requirement of this section. Please refer to the EUT photos.

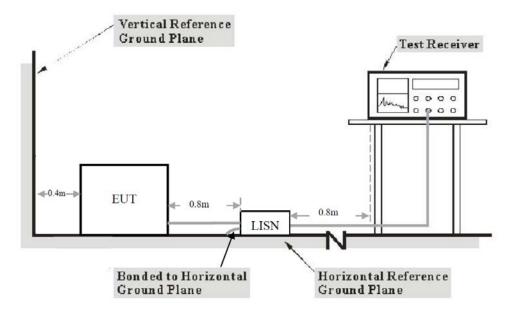
**Result:** Compliant.

# FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

# **Applicable Standard**

FCC §15.207(a)

# **EUT Setup**



The measurement procedure of EUT setup is according with ANSI C63.10-2013. The related limit was specified in FCC Part 15.207.

The spacing between the peripherals was 10 cm.

# **EMI Test Receiver Setup**

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

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

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

# **Test Procedure**

During the conducted emission test, the adapter was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

# **Factor & Margin Calculation**

The factor is calculated by adding LISN VDF (Voltage Division Factor) and Cable Loss. The basic equation is as follows:

Factor = LISN VDF + Cable Loss

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

Over Limit = Level – Limit Level = Read Level + Factor

# **Test Data**

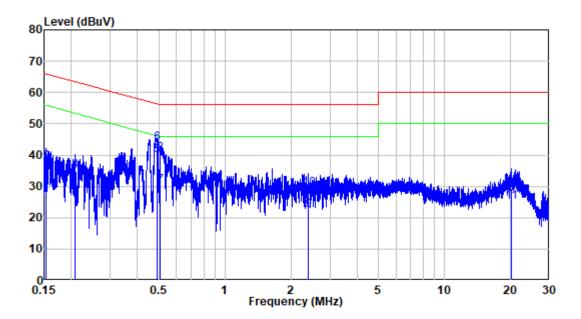
#### **Environmental Conditions**

Temperature:	24 °C
<b>Relative Humidity:</b>	53 %
ATM Pressure:	101.1 kPa

The testing was performed by Jason Liu on 2022-07-08.

*EUT operation mode: Charging + BT Transmitting* 

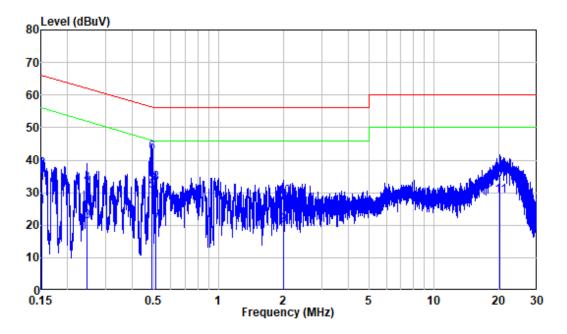
# AC 120V/60 Hz, Line



Site	:	Shielding Room					
Condition	:	Line					
Mode	:	Charging + BT Transmitting					
Model	:	SP-0509					
Power	:	AC 120V 60Hz					

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.153	9.80	19.02	28.82	55.81	-26.99	Average
2	0.153	9.80	28.02	37.82	65.81	-27.99	QP
3	0.207	9.80	17.17	26.97	53.32	-26.35	Average
4	0.207	9.80	25.33	35.13	63.32	-28.19	QP
5	0.489	9.80	30.07	39.87	46.19	-6.32	Average
6	0.489	9.80	34.04	43.84	56.19	-12.35	QP
7	0.508	9.80	20.53	30.33	46.00	-15.67	Average
8	0.508	9.80	30.74	40.54	56.00	-15.46	QP
9	2.388	9.82	12.56	22.38	46.00	-23.62	Average
10	2.388	9.82	19.50	29.32	56.00	-26.68	QP
11	20.043	10.00	14.95	24.95	50.00	-25.05	Average
12	20.043	10.00	19.32	29.32	60.00	-30.68	QP

# AC 120V/60 Hz, Neutral



Site	:	Shielding Room					
Condition	:	Neutral					
Mode	:	Charging + BT Transmitting					
Model	:	SP-0509					
Power	:	AC 120V 60Hz					

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.151	9.80	15.97	25.77	55.94	-30.17	Average
2	0.151	9.80	27.24	37.04	65.94	-28.90	QP
3	0.246	9.80	11.45	21.25	51.89	-30.64	Average
4	0.246	9.80	22.70	32.50	61.89	-29.39	QP
5	0.492	9.80	20.82	30.62	46.14	-15.52	Average
6	0.492	9.80	32.50	42.30	56.14	-13.84	QP
7	0.510	9.81	10.06	19.87	46.00	-26.13	Average
8	0.510	9.81	23.09	32.90	56.00	-23.10	QP
9	2.008	9.82	10.13	19.95	46.00	-26.05	Average
10	2.008	9.82	18.92	28.74	56.00	-27.26	QP
11	20.229	10.10	18.97	29.07	50.00	-20.93	Average
12	20.229	10.10	25.65	35.75	60.00	-24.25	QP

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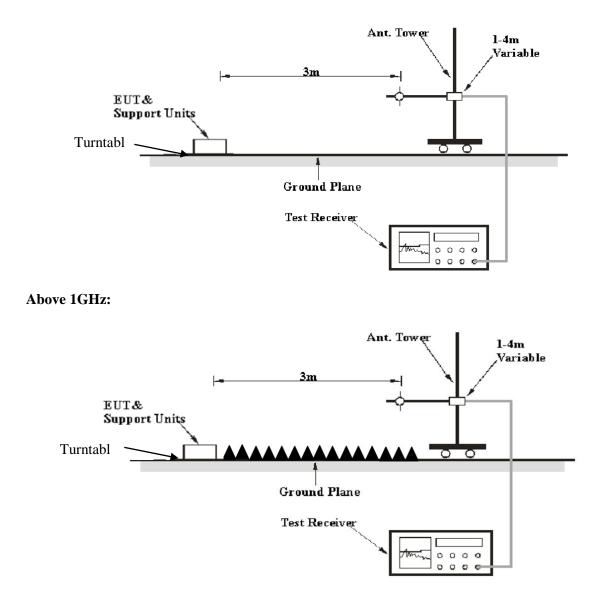
# FCC §15.205, §15.209 & §15.247(d) – RADIATED EMISSIONS

#### **Applicable Standard**

FCC §15.205; §15.209; §15.247(d)

#### **EUT Setup**

Below 1 GHz:



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

## EMI Test Receiver & Spectrum Analyzer Setup

Frequency Range	RBW Video B/W		IF B/W	Measurement
30 MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP
Above 1 CHr	1 MHz	3 MHz	/	РК
Above 1 GHz	1 MHz	10 Hz	/	Average

The EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

## **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.

If the maximized peak measured value complies with the limit, then it is unnecessary to perform an QP/Average measurement

## Factor & Margin Calculation

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

Factor = Antenna Factor + Cable Loss - Amplifier Gain

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

Over Limit/Margin = Level / Corrected Amplitude – Limit Level / Corrected Amplitude = Read Level + Factor

#### **Test Data**

#### **Environmental Conditions**

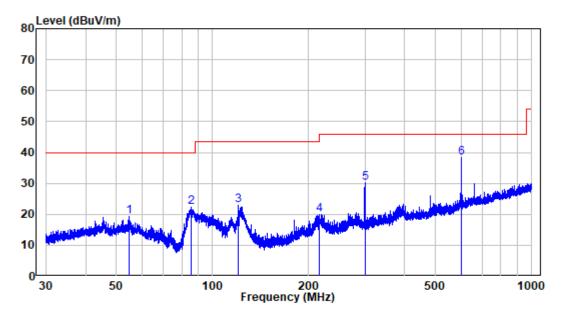
Temperature:	24 °C
<b>Relative Humidity:</b>	61 %
ATM Pressure:	108.0 kPa

The testing was performed by Level Li on 2022-07-11.

*EUT operation mode: Charging + BT Transmitting* 

(Scan with GFSK,  $\pi/4$ -DQPSK, 8DPSK mode, the worst case is 8DPSK Mode.)

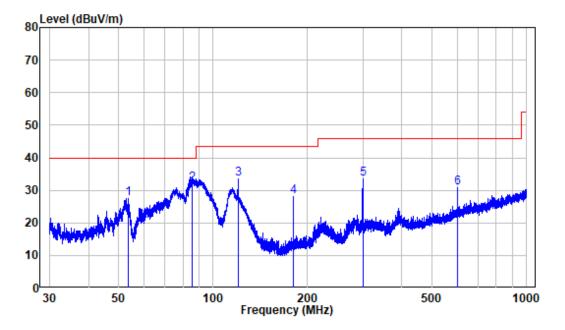
# Below 1GHz: 8DPSK High Channel was worst



#### Horizontal

Site : chamber Condition: 3m HORIZONTAL Job No. : SZ3220704-30047E-RF Test Mode: Charging+BT Transmitting

	Freq	Factor		Level			Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	54.811	-10.29	29.52	19.23	40.00	-20.77	Peak
2	85.673	-15.35	37.56	22.21	40.00	-17.79	Peak
3	120.066	-13.54	36.57	23.03	43.50	-20.47	Peak
4	215.457	-11.65	31.47	19.82	43.50	-23.68	Peak
5	299.973	-9.23	39.46	30.23	46.00	-15.77	Peak
6	600.110	-2.43	40.68	38.25	46.00	-7.75	Peak



#### Vertical

Site : chamber Condition: 3m VERTICAL Job No. : SZ3220704-30047E-RF Test Mode: Charging+BT Transmitting

	Freq	Factor			Limit Line		Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	53.458	-10.25	37.59	27.34	40.00	-12.66	Peak
2	85.598	-15.38	47.41	32.03	40.00	-7.97	QP
3	120.013	-13.53	46.98	33.45	43.50	-10.05	Peak
4	180.017	-12.77	40.85	28.08	43.50	-15.42	Peak
5	299.973	-9.23	42.64	33.41	46.00	-12.59	Peak
6	600.110	-2.43	33.32	30.89	46.00	-15.11	Peak

Frequency	Receiver		Turntable Angle	Rx Antenna		Factor	Absolute Level	Limit	Margin	
(MHz)	Reading	DIZIAN	Desmas	Height   Polar   (dB/m)   (JD)		(dBuV/m)	(dBuV/m)	( <b>dB</b> )		
	(dBuV)	PK/AV	Degree	(m)	(H/V)		(			
	Low Channel									
2310	44.12	PK	134	1.0	Н	-7.23	36.89	74	-37.11	
2310	44.21	PK	131	1.1	V	-7.23	36.98	74	-37.02	
2390	43.98	PK	326	2.1	Н	-7.21	36.77	74	-37.23	
2390	47.26	PK	111	1.3	V	-7.21	40.05	74	-33.95	
4804	44.26	PK	41	1.7	Н	-3.52	40.74	74	-33.26	
4804	44.99	PK	352	1.2	V	-3.52	41.47	74	-32.53	
				Middle C	hannel					
4882	45.69	РК	96	1.7	Н	-3.37	42.32	74	-31.68	
4882	46.12	PK	69	2.0	V	-3.37	42.75	74	-31.25	
				High Ch	annel					
2483.5	49.9	РК	61	1.9	Н	-7.2	42.7	74	-31.3	
2483.5	48.29	PK	136	1.3	V	-7.2	41.09	74	-32.91	
2500	44.26	PK	355	1.9	Н	-7.18	37.08	74	-36.92	
2500	44.82	РК	206	1.3	V	-7.18	37.64	74	-36.36	
4960	47.34	PK	210	1.7	Н	-3.01	44.33	74	-29.67	
4960	47.29	PK	315	1.6	V	-3.01	44.28	74	-29.72	

#### Above 1GHz (worst case for 8DPSK mode):

#### Note:

Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor

Absolute Level (Corrected Amplitude) = Factor + Reading

Margin = Absolute Level (Corrected Amplitude) – Limit

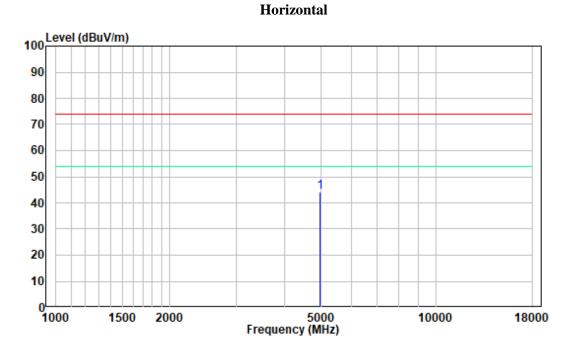
The other spurious emission which is in the noise floor level was not recorded.

For above 1GHz, the test result of peak was 20dB below to the limit of peak, which can be compliant to the average limit, so just peak value was recorded.

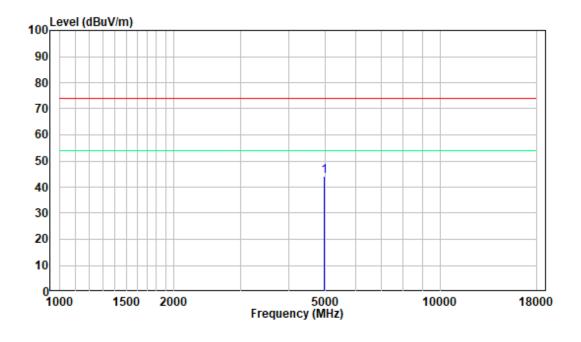
Shenzhen Accurate Technology Co., Ltd.

#### 1 GHz - 18 GHz: (Pre-Scan plots)

# Worst case for 8DPSK High Channel:



#### Vertical

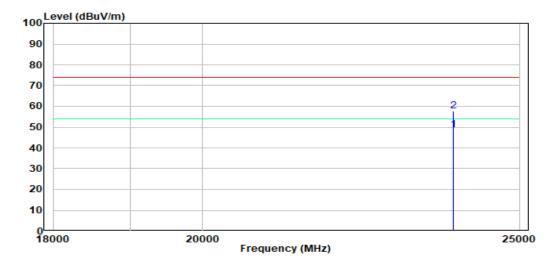


Shenzhen Accurate Technology Co., Ltd.

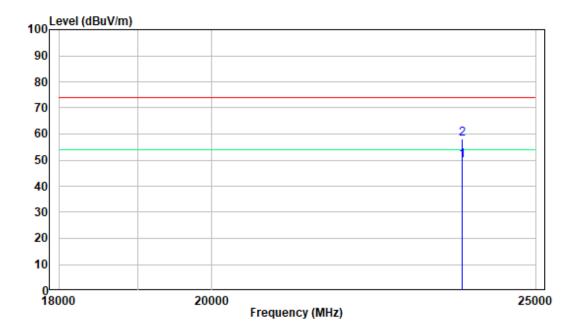
# 18-25GHz: (Pre-Scan plots)

# Worst case for 8DPSK High Channel:

Horizontal



#### Vertical



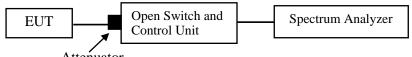
# FCC §15.247(a) (1)-CHANNEL SEPARATION TEST

#### **Applicable Standard**

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. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

#### **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:	23°C	
Relative Humidity:	51%	
ATM Pressure:	101.1kPa	

The testing was performed by Glenn Jiang on 2022-07-08.

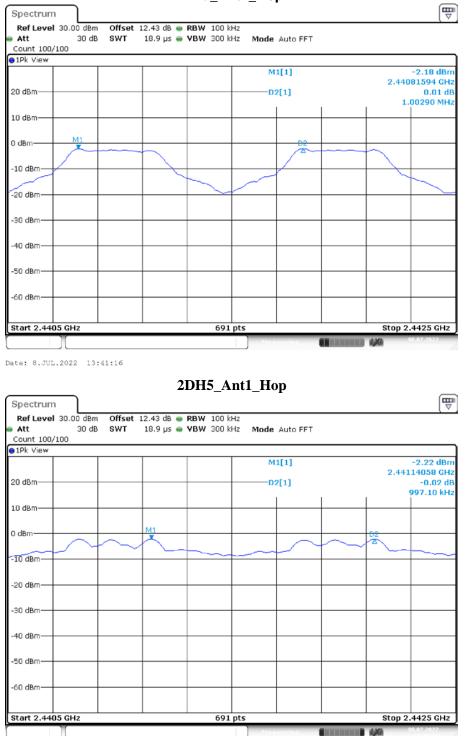
#### EUT operation mode: Transmitting

Test Result: Compliant.

TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Нор	1.003	>=0.634	PASS
2DH5	Ant1	Нор	0.997	>=0.860	PASS
3DH5	Ant1	Нор	1	>=0.862	PASS

Note: The limit = (2/3) \* 20dB bandwidth

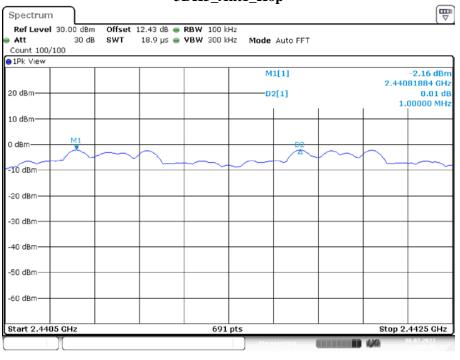
Please refer to the below plots:



#### DH5\_Ant1\_Hop

Date: 8.JUL.2022 13:49:00

#### Shenzhen Accurate Technology Co., Ltd.



3DH5\_Ant1\_Hop

Date: 8.JUL.2022 13:53:46

# FCC §15.247(a) (1) – 20 dB EMISSION BANDWIDTH & 99% OCCUPIED 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**

The following conditions shall be observed for measuring the occupied bandwidth and 20 dB bandwidth:

• The transmitter shall be operated at its maximum carrier power measured under normal test conditions.

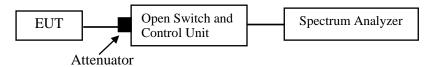
• The span of the spectrum analyzer shall be set large enough to capture all products of the modulation process, including the emission skirts, around the carrier frequency, but small enough to avoid having other emissions (e.g. on adjacent channels) within the span.

• The detector of the spectrum analyzer shall be set to "Sample". However, a peak, or peak hold, may be used in place of the sampling detector since this usually produces a wider bandwidth than the actual bandwidth (worst-case measurement). Use of a peak hold (or "Max Hold") may be necessary to determine the occupied / 20 dB bandwidth if the device is not transmitting continuously.

• The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / 20 dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value. Video averaging is not permitted.

Note: It may be necessary to repeat the measurement a few times until the RBW and VBW are in compliance with the above requirement.

For the 99% emission bandwidth, the trace data points are recovered and directly summed in linear power level terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached, and that frequency recorded. The process is repeated for the highest frequency data points (starting at the highest frequency, at the right side of the span, and going down in frequency). This frequency is then recorded. The difference between the two recorded frequencies is the occupied bandwidth (or the 99% emission bandwidth).



# **Test Data**

# **Environmental Conditions**

Temperature:	23°C	
Relative Humidity:	51 %	
ATM Pressure:	101.1kPa	

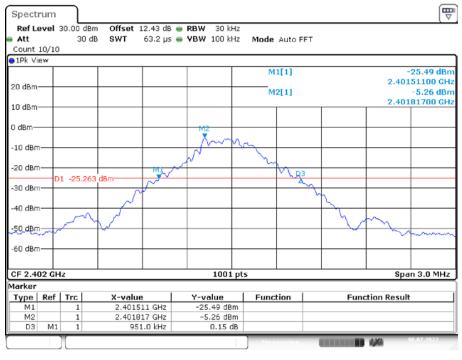
The testing was performed by Glenn Jiang on 2022-07-08.

EUT operation mode: Transmitting

Test Result: Compliant.

Test Mode	Antenna	Channel	20db EBW[MHz]	99% OCCUPIED BANDWIDTH[MHz]	Verdict
DH5	Ant1	2402	0.951	0.86	PASS
		2441	0.951	0.866	PASS
		2480	0.951	0.863	PASS
2DH5	Ant1	2402	1.290	1.169	PASS
		2441	1.290	1.175	PASS
		2480	1.290	1.172	PASS
3DH5	Ant1	2402	1.293	1.175	PASS
		2441	1.293	1.175	PASS
		2480	1.293	1.175	PASS

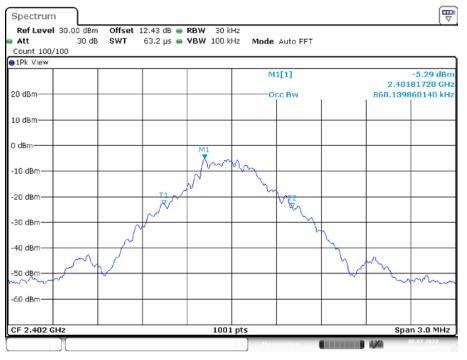
Please refer to the below plots:



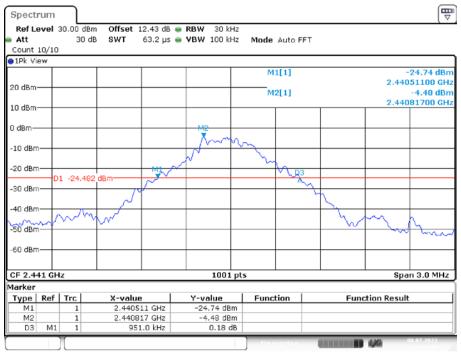
#### 20 dB EMISSION BANDWIDTH\_DH5\_Ant1\_2402

Date: 8.JUL.2022 13:22:44

#### 99% OCCUPIED BANDWIDTH\_DH5 \_Ant1\_2402



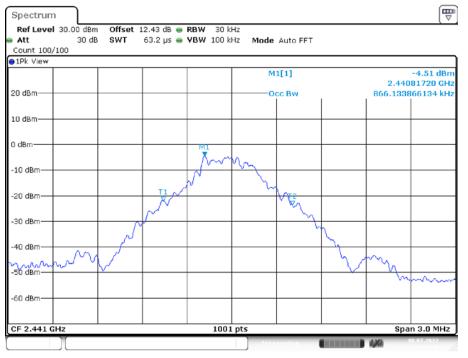
Date: 8.JUL.2022 13:23:01



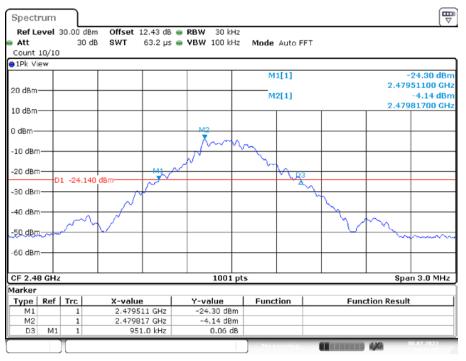
#### 20 dB EMISSION BANDWIDTH\_DH5 \_Ant1\_2441

Date: 8.JUL.2022 13:24:03





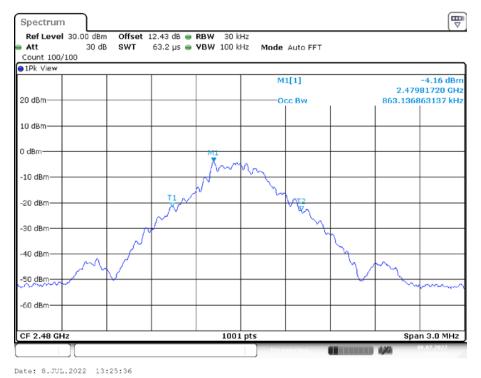
Date: 8.JUL.2022 13:24:20

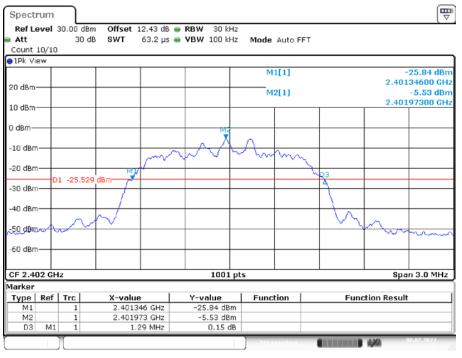


20 dB EMISSION BANDWIDTH\_DH5 \_Ant1\_2480

Date: 8.JUL.2022 13:25:19







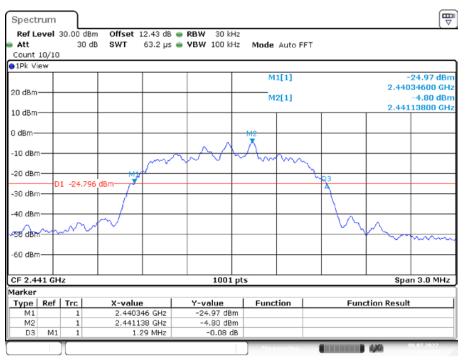
#### 20 dB EMISSION BANDWIDTH\_2DH5 \_Ant1\_2402

Date: 8.JUL.2022 13:27:57

## 99% OCCUPIED BANDWIDTH\_2DH5 \_Ant1\_2402



Date: 8.JUL.2022 13:28:14

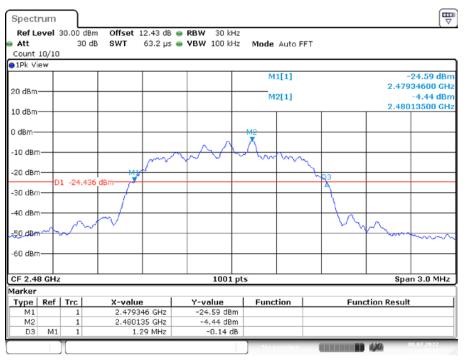


#### 20 dB EMISSION BANDWIDTH\_2DH5 \_Ant1\_2441

Date: 8.JUL.2022 13:29:19

## 99% OCCUPIED BANDWIDTH\_2DH5 \_Ant1\_2441

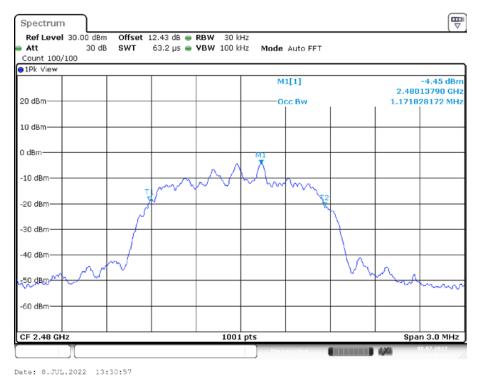


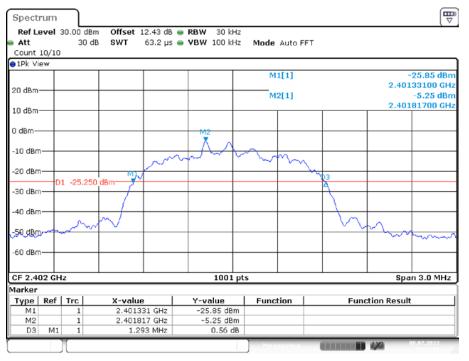


#### 20 dB EMISSION BANDWIDTH \_2DH5\_Ant1\_2480

Date: 8.JUL.2022 13:30:40

## 99% OCCUPIED BANDWIDTH \_2DH5\_Ant1\_2480

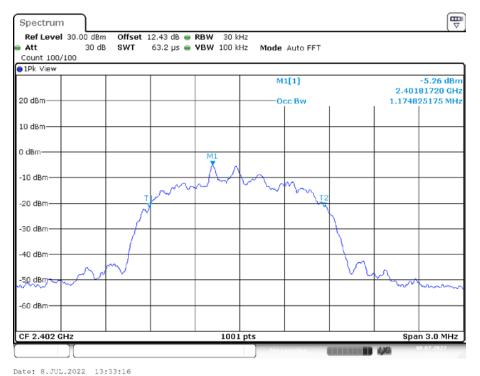


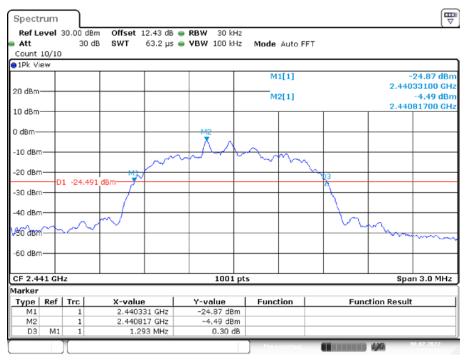


## 20 dB EMISSION BANDWIDTH\_3DH5\_Ant1\_2402

Date: 8.JUL.2022 13:32:59



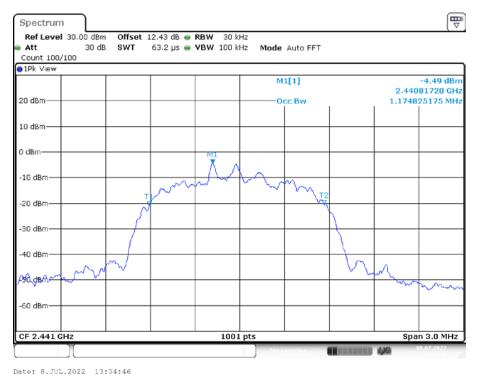


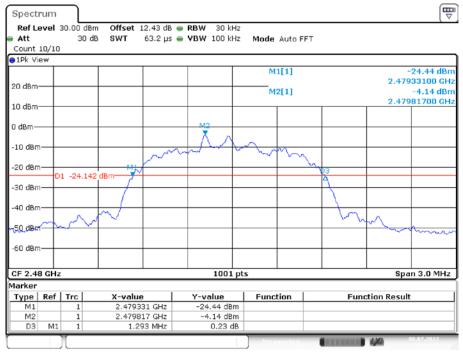


# 20 dB EMISSION BANDWIDTH\_3DH5\_Ant1\_2441

Date: 8.JUL.2022 13:34:29

#### 99% OCCUPIED BANDWIDTH\_3DH5\_Ant1\_2441

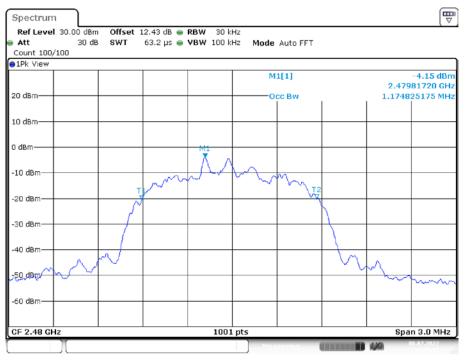




#### 20 dB EMISSION BANDWIDTH\_3DH5\_Ant1\_2480

Date: 8.JUL.2022 13:35:36





Date: 8.JUL.2022 13:35:53

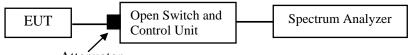
# FCC §15.247(a) (1) (iii)-QUANTITY OF HOPPING CHANNEL TEST

## **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.



Attenuator

## **Test Data**

### **Environmental Conditions**

Temperature:	23°C
Relative Humidity:	51%
ATM Pressure:	101.1kPa

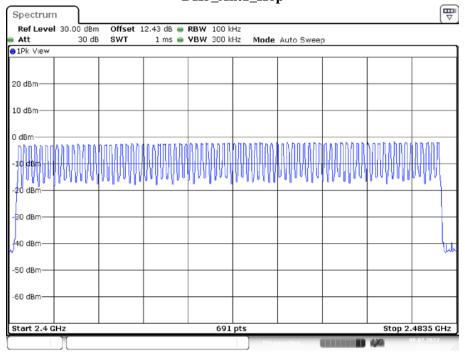
The testing was performed by Glenn Jiang on 2022-07-08.

EUT operation mode: Transmitting

Test Result: Compliant.

TestMode	Antenna	Channel	Result[Num]	Limit[Num]	Verdict
DH5	Ant1	Нор	79	>=15	PASS
2DH5	Ant1	Нор	79	>=15	PASS
3DH5	Ant1	Нор	79	>=15	PASS

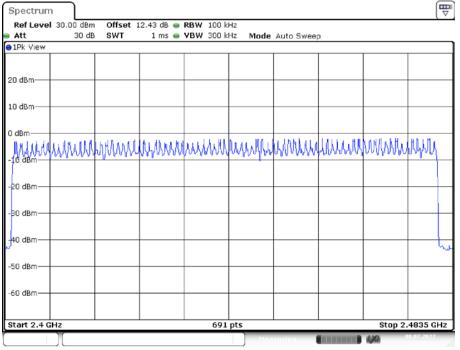
Please refer to the below plots:



DH5\_Ant1\_Hop

Date: 8.JUL.2022 13:42:26

#### 2DH5\_Ant1\_Hop



Date: 8.JUL.2022 13:49:26

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1Pk View			1										
20 dBm										_			
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-20 dBm													
-30 dBm													
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-60 dBm													
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									distance in the local	430		8.07.2022	-

# 3DH5\_Ant1\_Hop

Date: 8.JUL.2022 13:54:08

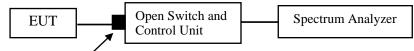
# FCC §15.247(a) (1) (iii) - TIME OF OCCUPANCY (DWELL TIME)

### **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**

- 1. The EUT was worked in channel hopping.
- 2. Set the RBW to: 1MHz.
- 3. Set the VBW  $\geq$  3×RBW.
- 4. Set the span to 0Hz.
- 5. Detector = peak.
- 6. Sweep time = auto couple.
- 7. Trace mode = max hold.
- 8. Allow trace to fully stabilize.
- 9. Recorded the time of single pulses



Attenuator

# **Test Data**

#### **Environmental Conditions**

Temperature:	23°C
Relative Humidity:	51%
ATM Pressure:	101.1kPa

The testing was performed by Glenn Jiang on 2022-07-08.

EUT operation mode: Transmitting

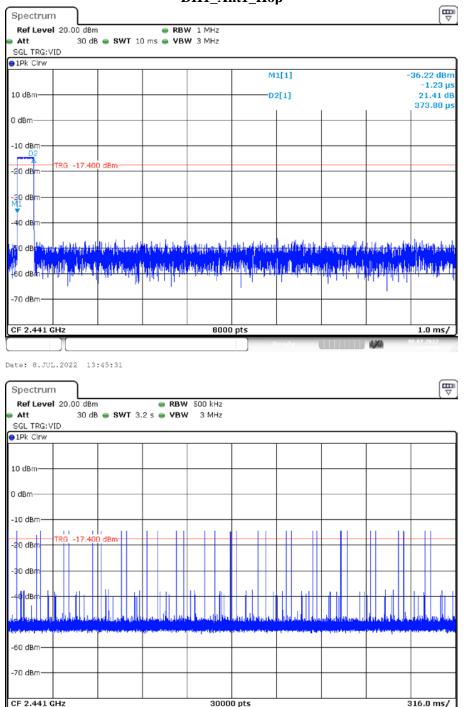
Test Result: Compliant.

TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Нор	0.37	320	0.12	<=0.4	PASS
DH3	Ant1	Нор	1.62	140	0.227	<=0.4	PASS
DH5	Ant1	Нор	2.86	130	0.372	<=0.4	PASS
2DH1	Ant1	Нор	0.38	330	0.126	<=0.4	PASS
2DH3	Ant1	Нор	1.63	160	0.26	<=0.4	PASS
2DH5	Ant1	Нор	2.87	130	0.373	<=0.4	PASS
3DH1	Ant1	Нор	0.38	330	0.126	<=0.4	PASS
3DH3	Ant1	Нор	1.63	170	0.276	<=0.4	PASS
3DH5	Ant1	Нор	2.87	120	0.344	<=0.4	PASS

Note 1: A period time=0.4\*79=31.6(s), Result=Burst Width\*Total Hops

Note 2: Total Hops =Hopping Number in 3.16s\*10

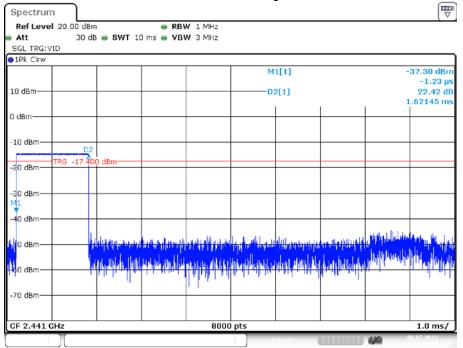
Note 3: Hoping Number in 3.16s=Total of highest signals in 3.16s (Second high signals were other channel)



DH1\_Ant1\_Hop

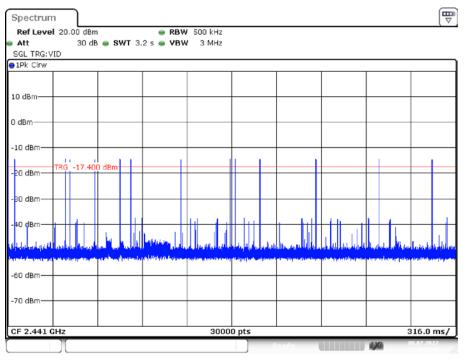
Date: 8.JUL.2022 13:45:36

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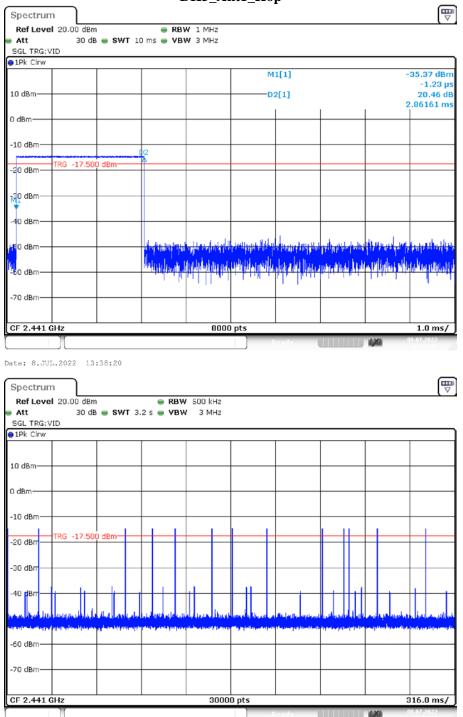


DH3\_Ant1\_Hop

Date: 8.JUL.2022 13:44:41

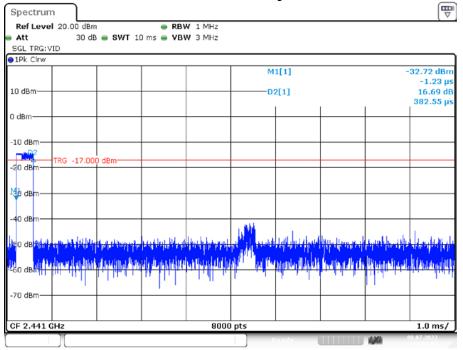


Date: 8.JUL.2022 13:44:46



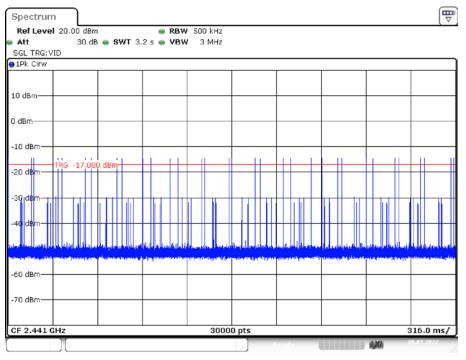
DH5\_Ant1\_Hop

Date: 8.JUL.2022 13:38:25



2DH1\_Ant1\_Hop

Date: 8.JUL.2022 13:51:08

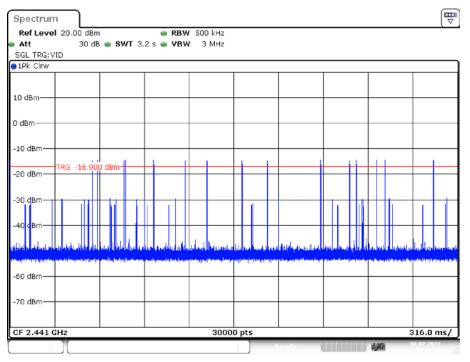


Date: 8.JUL.2022 13:51:14

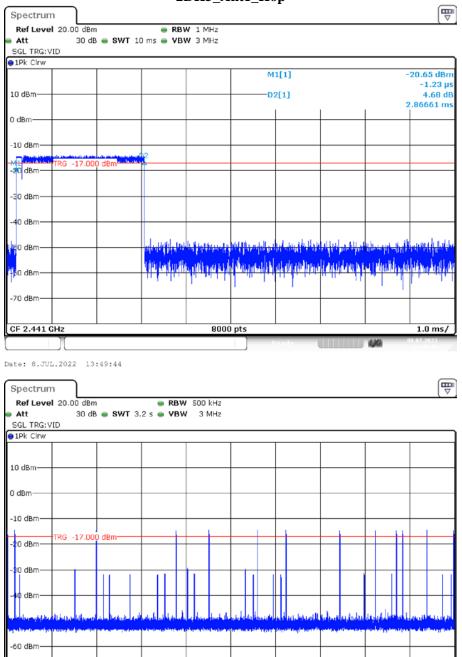
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0 dBm				D:	2[1]		1	8.20 d 62770 m
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2DH3\_Ant1\_Hop

Date: 8.JUL.2022 13:50:27



Date: 8.JUL.2022 13:50:32



2DH5\_Ant1\_Hop

Date: 8.JUL.2022 13:49:49

-70 dBm-

CF 2.441 GHz

Version 11: 2021-11-09

30000 pts

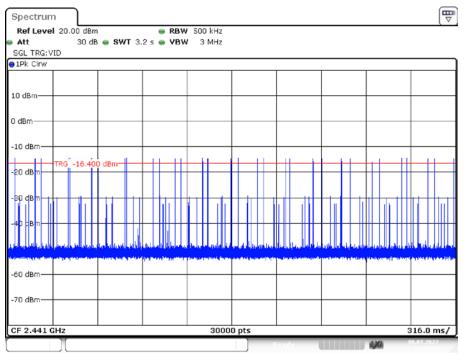
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110

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3DH1\_Ant1\_Hop

Date: 8.JUL.2022 13:58:51

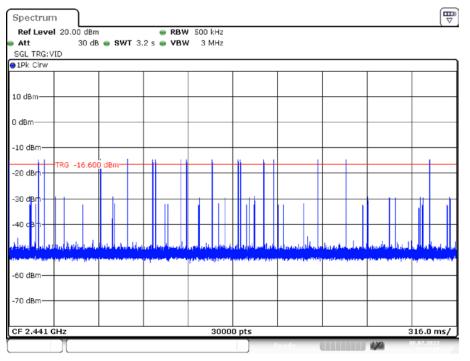


Date: 8.JUL.2022 13:58:56

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3DH3\_Ant1\_Hop

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Date: 8.JUL.2022 13:58:18

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3DH5\_Ant1\_Hop

Date: 8.JUL.2022 13:57:36

Ref Level         20.00         dBm         RBW         500         kHz           Att         30         dB         SWT         3.2 s         VBW         3 MHz           SGL         TRG:VID         Interview         Interview         Interview         Interview	
SGL TRG: VID	
D1Pk Cirw	
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0 dBm	
-10 dBm	
TRG -16.500 dBm	
-30 dBm	
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CF 2.441 GHz 30000 pts 316.	0 ms/

Date: 8.JUL.2022 13:57:43

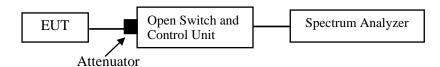
# FCC §15.247(b) (1) - PEAK OUTPUT POWER MEASUREMENT

### **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:	23°C
<b>Relative Humidity:</b>	51 %
ATM Pressure:	101.1kPa

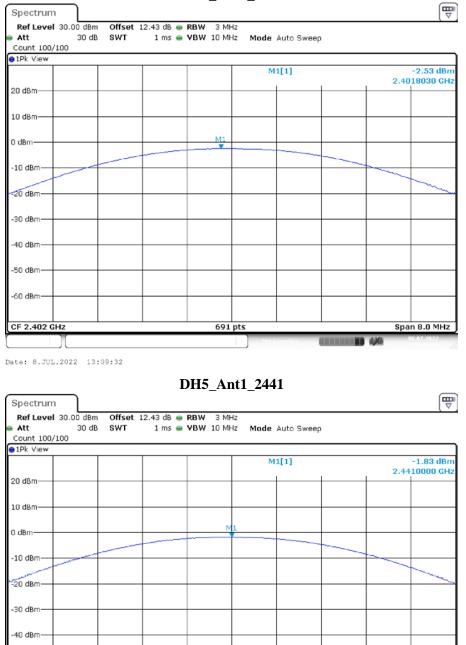
The testing was performed by Glenn Jiang on 2022-07-08.

#### EUT operation mode: Transmitting

Test Result: Compliant.

TestMode	Antenna	Channel	Conducted peak output power [dBm]	Limit[dBm]	Verdict
		2402	-2.53	<=20.97	PASS
DH5	Ant1	2441	-1.83	<=20.97	PASS
		2480	-1.51	<=20.97	PASS
		2402	-1.7	<=20.97	PASS
2DH5	Ant1	2441	-1.03	<=20.97	PASS
		2480	-0.66	<=20.97	PASS
		2402	-1.3	<=20.97	PASS
3DH5	Ant1	2441	-0.57	<=20.97	PASS
		2480	-0.16	<=20.97	PASS

Please refer to the below plots:



#### DH5\_Ant1\_2402

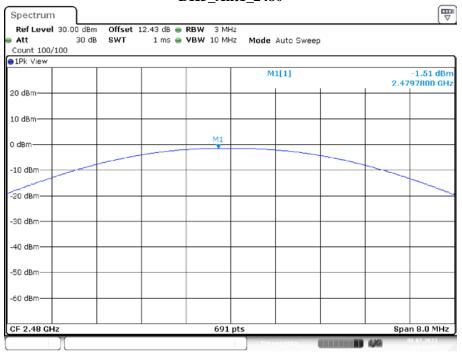
Date: 8.JUL.2022 13:13:43

-50 dBm

CF 2.441 GHz

691 pts

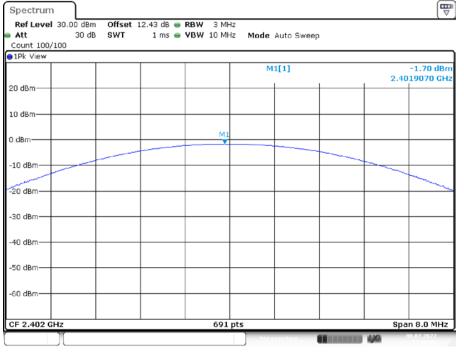
Span 8.0 MHz



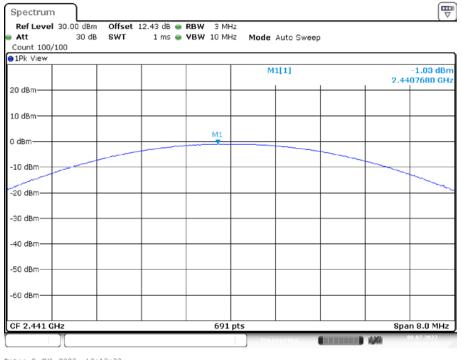
DH5\_Ant1\_2480

Date: 8.JUL.2022 13:14:59

# 2DH5\_Ant1\_2402



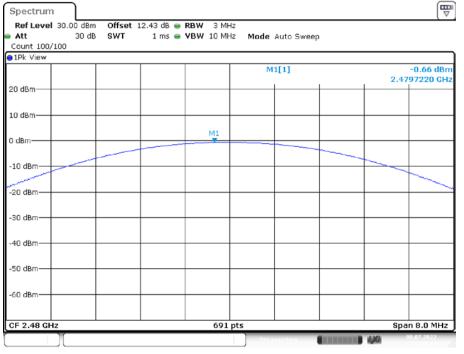
Date: 8.JUL.2022 13:18:06



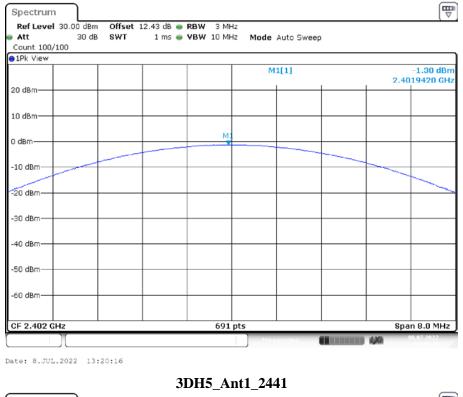
2DH5\_Ant1\_2441

Date: 8.JUL.2022 13:18:33

#### 2DH5\_Ant1\_2480



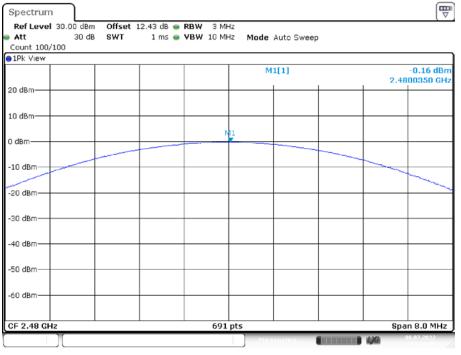
Date: 8.JUL.2022 13:19:25



3DH5\_Ant1\_2402

P Spectrum Ref Level 30.00 dBm Offset 12.43 dB 👄 RBW 3 MHz Att 30 dB SWT 1 ms 👄 VBW 10 MHz Mode Auto Sweep Count 100/100 ●1Pk View M1[1] -0.57 dBm 2.4410690 GHz 20 dBm-10 dBm-0 dBm· -10 dBm -20 dBm--30 dBm -40 dBm -50 dBm -60 dBm CF 2.441 GHz 691 pts Span 8.0 MHz 

Date: 8.JUL.2022 13:20:42



3DH5\_Ant1\_2480

Date: 8.JUL.2022 13:21:20

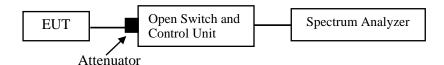
# FCC §15.247(d) - BAND EDGES TESTING

# **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:	23°C
Relative Humidity:	51%
ATM Pressure:	101.1kPa

The testing was performed by Glenn Jiang on 2022-07-08.

EUT operation mode: Transmitting

Test Result: Compliant

Please refer to the below plots:

# DH5: Band Edge-Left Side Hopping

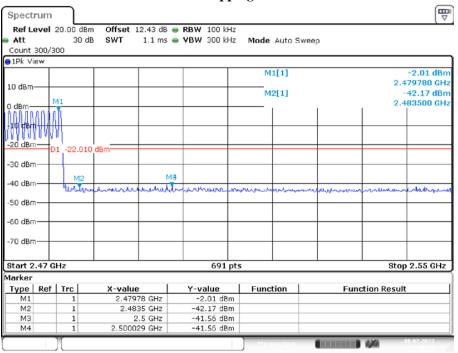
Spectrum						
Ref Level			B 🖷 RBW 100 kHz			
Att Count 300/3	30	dB SWT 246.5µ	is 👄 YBW 300 kHz	Mode Auto P	-F-T	
1Pk View	00					
JEK TIET				M1[1]		-3.55 dBr
				mart al		2.404010 GH
10 dBm				M2[1]		-48.28 dBr
						2.400000 GM
						1
-10 dBm						
-20 dBm	1 -23.5	50 d8m				
	1 -23.5	50 UBIII				
-30 dBm						
-40 dBm					M4	
.					-	M3 M2
SONGBUILT-	فمستعيلات	non florman illevitacion	have monthly	and the second second	the conflicter barlier by	her and a deliver of the second
-60 dBm						
-70 dBm						
-/o ubiii						
Start 2.3 GF	17		691 pt:			Stop 2.405 GHz
larker			051 pt.	-		
	Trc	X-value	Y-value	Function	Func	tion Result
M1	1	2.40401 GHz				
M2	1	2.4 GHz	-48.28 dBm			
MЗ	1	2.39 GHz				
M4	1	2.380043 GHz	-46.07 dBm			

Date: 8.JUL.2022 13:39:48

# Single

	evel 2	0.00 dBr								
Att		30 d	B SWT 246.5	JS 😑	VBW 300 kHz	Mode	Auto F	FT		
Count		0								
1Pk Vi	ew									
						M:	1[1]			.33 dBn
10 dBm-									2.402	040 GH
						M:	2[1]			.27 dBr
0 dBm—									2.400	000 IGH
										- T
-10 dBm										
										- <u>(</u> )
20 dBm									+	-
		-23.330	J dBm							
30 dBm										
										M4 []
-40 dBm									M3	T.
Sto asi	min	Andra make Art	marken server water	Ale	marrow	An another	o dan	an un apple of	MIS MALANA AND A MALANA	JG I
-50 UBI				4 m W						
-60 dBm										
co abii	·									
-70 dBm										
, o ub										
	0.011				601				01-01-01	05.011-
Start 2	.3 GH	2			691 pt	5			Stop 2.4	US GHZ
1arker										
Туре	Ref		X-value		Y-value	Funct	ion	Fu Fu	nction Result	
M1		1	2.40204 GH	-	-3.33 dBm					
M2		1	2.4 GH		-49.27 dBm					
M3 M4		1	2.39 GH: 2.399065 GH		-49.39 dBm					
			Z. 599005 GH	6 I	-42.44 dBm	1				

Date: 8.JUL.2022 13:23:16



#### DH5: Band Edge- Right Side Hopping

Date: 8.JUL.2022 13:46:39

Ref Lo	evel :	20.00 dBr	m Offset 12.43 d	B 🥌 RBW 100 kHa	2		
Att		30 d	B SWT 1.1 m	is 👄 <b>VBW</b> 300 kHz	Mode Auto S	Sweep	
Count	300/3	00					
▶1Pk Vi	вж						
					M1[1]		-1.81 dBn
10 dBm·							2.479780 GH
to abiii					M2[1]		-41.61 dBn
) dBm—	N	11					2.483500 GH
		1					
10 dBm	-+-	H	<u> </u>				
		11					
-20 dBrr	╘═╋╸	1 -21.810	)_dBm				
-30 dBm		1					
зо авп							
40 dBm		M2		M3		M4	
min		When	monorthe	Mattheward Menner well	emound and	reamburborbo	munimental
50 dBm	-						
-60 dBrr	+						
-70 dBm							
-70 uBii							
Start 2	.47 G	Hz		691 p	ts		Stop 2.55 GHz
1arker				1	1		
Туре	Ref		X-value	Y-value	Function	Func	tion Result
M1 M2		1	2.47978 GHz				
M2 M3		1	2.4835 GHz 2.5 GHz				
113		1	2.5 GHz 2.528087 GHz				

#### Single

Date: 8.JUL.2022 13:25:51

# 2DH5: Band Edge-Left Side Hopping

Spectrum						
Ref Level Att			B  RBW 100 kHz B  VBW 300 kHz	Mode Auto F	CT.	
Count 300/3		db <b>GW1</b> 240.5 p.	5 - 7 BW 300 KHZ	MODE AUTO P		
1Pk View						
				M1[1]		-5.23 dBn
10 dBm						2.404920 GH
				M2[1]		-49.56 dBn
0 dBm —						2.400000 GH
I						
-10 dBm						
-20 dBm						
		30 dBm				
-30 dBm	1 -25.2	30 dBm				
-40 dBm			M4			
AN		and manufactures	margene Lane	and the same		M3 M2
Stablin	And A show	and the second second	ABAR STORES	AL IN IN IN IN	- See Carlo and Carlinda	
-60 dBm						
-70 dBm						
I						
Start 2.3 GH	łz		691 pts	;		Stop 2.405 GHz
larker						
Type   Ref	Trc	X-value	Y-value	Function	Fun	ction Result
M1	1	2.40492 GHz	-5.23 dBm			
M2	1	2.4 GHz	-49.56 dBm			
M3	1	2.39 GHz	-49.23 dBm			
M4	1	2.348848 GHz	-46.29 dBm			

Date: 8.JUL.2022 13:47:33

# Single

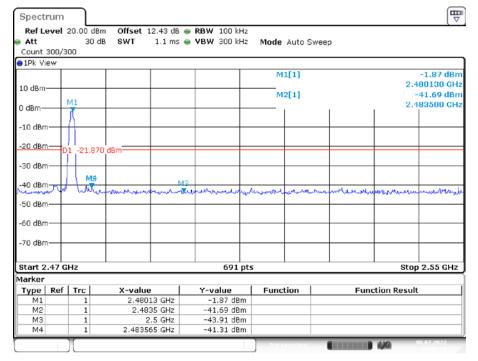
Ref L	evel 2	20.00 dB			• RBW 100 kHz					
Att		30 d	IB SWT 246.5	µs ∈	• VBW 300 kHz	Mode Au	to FF	FT		
Count		00								
∎1Pk Vi	е₩									
						M1[1	1			-2.91 dBn
10 dBm	$\rightarrow$									402190 GH
						M2[1	1			-48.46 dBn
) dBm—	+							1	2.4	100000 Kali
										1
-10 dBm										
20 dBr										
20 ubii	D:	1 -22.91	0 dBm							
30 dBm	1									
										1 11
40 dBr										M
-	har	1.1.4.0	upphones wanter has		Answer where the			and have the second	M3	1.19
SU dBr	per segue	- March	and the second	Caralita Million			فللمتحط		ar wayunsa	a avairant of
60 dBr										
00 001	·									
-70 dBm										
Start 2	.3 GH	z			691 pt	s			Stop	2.405 GHz
1arker										
Type	Ref	Trc	X-value	1	Y-value	Function	n	Fu	nction Resul	t
M1		1	2.40219 G	Iz	-2.91 dBm					
M2		1	2.4 G	lz	-48.46 dBm					
MЗ		1	2.39 Gł		-48.89 dBm					
M4		1	2.398913 G	12	-44.48 dBm					

Date: 8.JUL.2022 13:28:29

### 2DH5: Band Edge- Right Side Hopping

Spectrum						
Ref Level			B 👄 RBW 100 kHz			
Att	30	dB SWT 1.1 n	is 👄 VBW 300 kHz	Mode Auto S	weep	
Count 300/3	00					
1Pk View						
I				M1[1]		-2.20 dBn
10 dBm —				M2[1]		2.478970 GH -44.36 dBn
м	1			MZ[1]		2.483500 GH
) dBm —					1	2.403300 GH
10 dBm	WY					
-10 aBm						
20 dBm						
D	1 -22.2	00 dBm				
-30 dBm	_					
I				м	4	
40 dBm	1412	manulan	M3		and the second state	utrened Maria month but
50 db-		and the first of the same	A. Beller and a second of the	and we can an add		
-50 dBm						
-60 dBm						
co ubiii						
-70 dBm						
Start 2.47 G	Hz		691 pt	s		Stop 2.55 GHz
larker						
Type   Ref	Trc	X-value	Y-value	Function	Fun	ction Result
M1	1	2.47897 GHz				
M2	1	2.4835 GHz	-44.36 dBm			
MЗ	1	2.5 GHz				
M4	1	2.522754 GHz	-41.90 dBm			

Date: 8.JUL.2022 13:51:54



# Single

Date: 8.JUL.2022 13:31:12

# 3DH5: Band Edge-Left Side Hopping

Spectrum										E ⊽
Ref Level 2 Att Count 300/30	30			<ul> <li>RBW 100 ki</li> <li>VBW 300 ki</li> </ul>		lode Auto F	FT			
∎1Pk View										
						M1[1]				-6.35 dBn
10 dBm		_								03860 GH
						M2[1]				49.44 dBn
0 dBm							1	1	2.4	00000 GH:
-10 dBm										M
-20 dBm										
	1 06 3	50 dBm								
-30 dBm	1 -20.3	SO UBIT								
₫40 dBm									M3	
Jorasm .	بر ایم ب	-	a second	anan Maria	Nomen		Mar In In	Jump		M2
-50 dBma									0.000	
-60 dBm		_								
-70 dBm										
Start 2.3 GH	z			691	pts				Stop	2.405 GHz
larker										
Type   Ref	Trc	X-value		Y-value		Function		Functio	on Result	
M1	1	2.4038		-6.35 dB						
M2	1		4 GHz	-49.44 dB						
MЗ	1		9 GHz	-48.00 dB						
M4	1	2.30121	7 GHz	-45.76 dB	m					
						Measuring.			XI	18.07.2022

Date: 8.JUL.2022 13:52:37

# Single

	evel :	20.00 dB			RBW 100 kHz			
Att		30 d	B SWT 2-	46.5 μs (	VBW 300 kHz	Mode Auto I	FFT	
Count		00						
1Pk Vi	в₩							
						M1[1]		-2.89 dBn
10 dBm·								2.401880 GH
			1 1			M2[1]		-48.59 dBr
) dBm—	$\rightarrow$							2.400000 GH
			1 1					
10 dBm	-							
			1 1					
-20 dBm		1 -22.89	0 dBm					
		1 -22.09	0 UBIII					
30 dBr	+		1					
			1 1					
-40 dBrr					MP			M3 M2
SO dBri	لطلمهم	u u north	her mound	ما المحمد الم	our marshar and	damente uhis	und marken	and a stand and a stand of the
50 abri				,	·			
-60 dBm	-							
			1 1					
70 dBm	-		+					
			1 1					
Start 2	3.6H	7			691 pt	<u>د</u>		Stop 2.405 GHz
larker	lo di i				051 pt	5		000 21100 012
Type	Pof	Tro	X-value	1	Y-value	Function	Eur	oction Result
M1	KGI	1	2.4018	8 GHz	-2.89 dBm	Function	- Fui	iction Result
M2		1		4 GHz	-48.59 dBm			
M3		1		9 GHz	-48.42 dBm			
M4		1		2 GHz	-45.35 dBm			

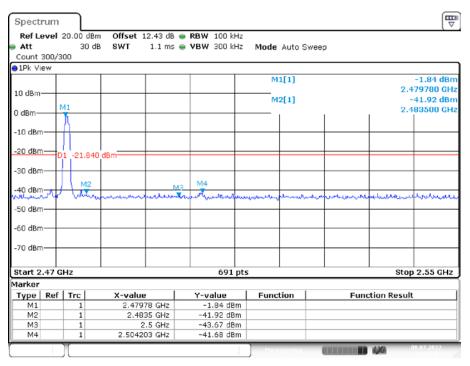
Date: 8.JUL.2022 13:33:31

#### 3DH5: Band Edge- Right Side Hopping

Spectrum				8		Ē
Ref Level Att Count 300/3	30		B 🖷 RBW 100 kHz s 🖶 VBW 300 kHz	Mode Auto S	Sweep	, , , , , , , , , , , , , , , , , , ,
●1Pk View						
				M1[1]		-1.77 dBn 2.474800 GH
10 dBm				M2[1]		-43.13 dBn
						2.483500 GH
-10 dBm	why					
-20 dBm-0	1 -21.7	70 dBm				
-30 dBm	_					
-40 dBm	M	2 une physicas and particular	M3 M4	عليسياراندل مرموم مرمود الم	العديه مريد العربي سعر ويقولنا فارتبع	
-50 dBm			•			
-60 dBm						
-70 dBm						
Start 2.47 G	Hz		691 pt:	5		Stop 2.55 GHz
larker						
	Trc	X-value	Y-value	Function	Fun	ction Result
M1 M2	1	2.4748 GHz 2.4835 GHz	-1.77 dBm -43.13 dBm			
M2 M3	1	2.4835 GHz 2.5 GHz	-43.82 dBm			
M4	1	2.502696 GHz	-42.04 dBm			
	Υ T			Measuring.		08.07.2022

Date: 8.JUL.2022 13:59:35

#### Single



Date: 8.JUL.2022 13:36:08

## \*\*\*\*\* END OF REPORT \*\*\*\*\*