



TEST REPORT

Applicant Name : Address : Zeeva International Limited Suite 1007B, 10th Floor, Exchange Tower, 33 Wang Chiu Road, Kowloon Bay, Hong Kong RA221110-53018E-RF 2ADM5-EP-0678-L

Report Number : FCC ID:

Test Standard (s) FCC PART 15.247

Sample Description

Product Type:
Test Model:
Trade Mark:
Date Received:
Date of Test:
Report Date:

S23 IN EAR BEAN TWS EP-0678B N/A 2022-11-10 2022-11-17 to 2022-11-18 2022-11-22

Test Result:

Pass*

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

Prepared and Checked By:

Jeff Jiang EMC Engineer

Approved By:

Candy Li EMC Engineer

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

Shenzhen Accurate Technology Co., Ltd. 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.

This report cannot be reproduced except in full, without prior written approval of the Company. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested. This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

Shenzhen Accurate Technology Co., Ltd.

1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China Tel: +86 755-26503290 Fax: +86 755-26503396 Web: www.atc-lab.com

Version 11: 2021-11-09

Page 1 of 58

FCC-BT

TABLE OF CONTENTS

GENERAL INFORMATION	4
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	
Objective	
Test Methodology Measurement Uncertainty	
TEST FACILITY	
SYSTEM TEST CONFIGURATION	
DESCRIPTION OF TEST CONFIGURATION	6
EUT EXERCISE SOFTWARE	
Special Accessories Equipment Modifications	
EQUIPMENT MODIFICATIONS	
BLOCK DIAGRAM OF TEST SETUP	
SUMMARY OF TEST RESULTS	8
TEST EQUIPMENT LIST	9
FCC §1.1307 (b) & §2.1093 – RF EXPOSURE	10
APPLICABLE STANDARD	
TEST RESULT:	10
FCC §15.203 – ANTENNA REQUIREMENT	11
APPLICABLE STANDARD	11
ANTENNA CONNECTOR CONSTRUCTION	11
FCC §15.205, §15.209 & §15.247(d) - RADIATED EMISSIONS	
APPLICABLE STANDARD	
EUT SETUP EMI TEST RECEIVER & SPECTRUM ANALYZER SETUP	
Test Procedure	
FACTOR & MARGIN CALCULATION	
TEST DATA	13
FCC §15.247(a) (1)-CHANNEL SEPARATION TEST	19
APPLICABLE STANDARD	
TEST PROCEDURE	
TEST DATA	
FCC §15.247(a) (1) – 20 dB EMISSION BANDWIDTH & 99% OCCUPIED BANDWIDTH	
APPLICABLE STANDARD	
TEST PROCEDURE	
TEST DATA	
FCC §15.247(a) (1) (iii)-QUANTITY OF HOPPING CHANNEL TEST	
APPLICABLE STANDARD	
TEST PROCEDURE TEST DATA	
FCC §15.247(a) (1) (iii) - TIME OF OCCUPANCY (DWELL TIME)	
Applicable Standard	
Test Procedure	
TEST DATA	

Shenzhen Accurate Technology Co., Ltd.Report No.: RA221110-53018E-RFFCC §15.247(b) (1) - PEAK OUTPUT POWER MEASUREMENT46APPLICABLE STANDARD46TEST PROCEDURE46TEST DATA46FCC §15.247(d) - BAND EDGES TESTING52APPLICABLE STANDARD52TEST PROCEDURE52TEST PROCEDURE52TEST PROCEDURE52TEST PROCEDURE52TEST PROCEDURE52TEST DATA52

GENERAL INFORMATION

Product	S23 IN EAR BEAN TWS
Tested Model	EP-0678B
SKU	BLACK - 1922345200510, PINK - 1922345200527 WHITE – 7540016, BLUE - 7540017
UPC	BLACK - 1922345200510, PINK - 1922345200527 WHITE - 1922345200534, BLUE - 1922345200541
Frequency Range	2402~2480MHz
Maximum conducted Peak output power	-4.59dBm
Modulation Technique	BDR(GFSK)/EDR(1/4-DQPSK)/EDR(8DPSK)
Antenna Specification*	Internal Antenna: 0dBi(It is provided by the applicant)
Voltage Range	DC 3.7V from battery
Sample number	RA221110-53018E-RF-S1(RF Radiated Test) RA221110-53018E-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, 15.209 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 Emission, conducted		1.6dB
	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 429 7.01.

Listed by Innovation, Science and Economic Development Canada (ISEDC), 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 "BT_Tool.exe"* was used during testing and the power level was Default Power level 7*.

Special Accessories

N/A.

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	То
/	/	/	/

Block Diagram of Test Setup

	EUT	I.U Meter
Non-Conductive Table 80/150 cm above Ground Plane	1.5 Meters	

SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307 (b) & §2.1093	RF Exposure	Compliant
§15.203	Antenna Requirement	Compliant
§15.207(a)	AC Line Conducted Emissions	Not Applicable
§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

Not Applicable- The device is powered by battery when use Bluetooth.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
		Radiated Emiss	ions 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	2022/11/08	2023/11/07
A.H. Systems, inc.	Preamplifier	PAM-0118P	135	2022/11/08	2023/11/07
Quinstar	Amplifier	QLW-184055 36-J0	15964001002	2022/11/08	2023/11/07
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.14	N800	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 Emission Test Software: e3 19821b (V9)					
		RF Conducte			1
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.33	RF-03	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 §1.1307 (b) & §2.1093 – RF EXPOSURE

Applicable Standard

According to FCC §2.1093 and §1.1307(b), 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 KDB 447498 D04 Interim General RF Exposure Guidance v01, clause 2.1.2 – 1-mW test Exemption:

Per § 1.1307(b)(3)(i)(A), a single RF source is exempt RF device (from the requirement to show data demonstrating compliance to RF exposure limits, as previously mentioned) if the available maximum time-averaged power is no more than 1 mW, regardless of separation distance.

This exemption applies to all operating configurations and exposure conditions, for the frequency range 100 kHz to 100 GHz, regardless of fixed, mobile, or portable device exposure conditions. This is a standalone exemption, and it cannot be applied in conjunction with any other test exemption.

Test Result:

For worst case:

Mode	Frequency	Maximum Tune-up Conducted Power		1-mW test Exemption
	(MHz)	(dBm)	(mW)	F
BDR/EDR	2402-2480	-4	0.40	Yes

Note: The tune-up power was declared by the applicant.

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 dBi, fulfill the requirement of this section. Please refer to the EUT photos.

Result: Compliant.

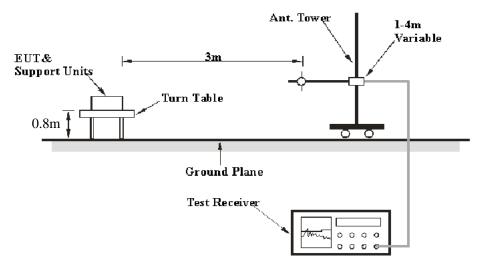
FCC §15.205, §15.209 & §15.247(d) - RADIATED EMISSIONS

Applicable Standard

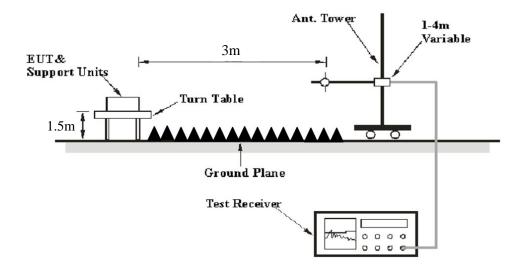
FCC §15.205; §15.209; §15.247(d)

EUT Setup

Below 1 GHz:



Above 1GHz:



The radiated emission 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

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

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

For average measurement:

Use the duty cycle factor correction factor method per 15.35(c). Duty cycle=On time/100milliseconds, On time=N1*L1+N2*L2+...Nn-1*Ln-1+Nn*Ln, Where N1 is number of type 1 pulses, L1 is length of type 1 pulse, etc. Average Emission Level=Peak Emission Level+20*log(Duty cycle)

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 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

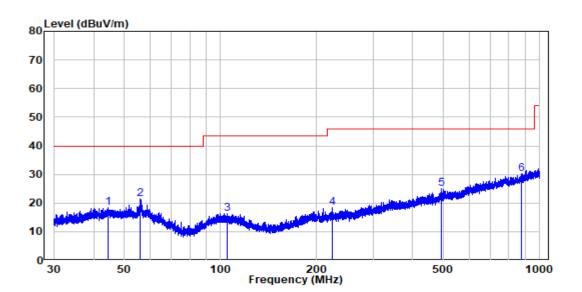
Temperature:	24 °C
Relative Humidity:	58 %
ATM Pressure:	101.0 kPa

The testing was performed by Level Li on 2022-11-18.

EUT operation mode: BT Transmitting

(Scan with GFSK, $\pi/4$ -DQPSK, 8DPSK mode at X axis, Y axis, Z axis, the worst case is 8DPSK Mode at X axis)

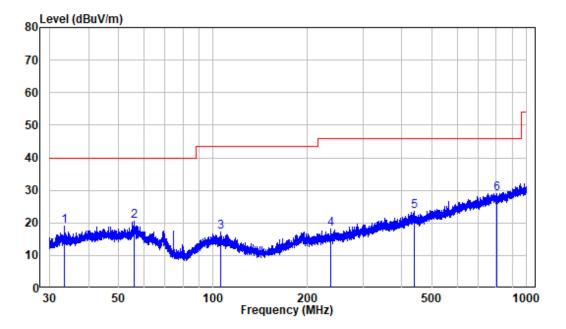
Below 1GHz: 8DPSK Low Channel



Horizontal

Site :	chamber
Condition:	3m HORIZONTAL
Job No. :	RA221110-53018E-RF
Test Mode:	BT Transmitting

	Freq	Factor			Limit Line		Remark
-	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	44.295	-9.91	28.36	18.45	40.00	-21.55	Peak
2	55.903	-10.19	31.68	21.49	40.00	-18.51	Peak
3	104.857	-11.82	28.18	16.36	43.50	-27.14	Peak
4	223.439	-11.30	29.69	18.39	46.00	-27.61	Peak
5	492.253	-4.57	29.53	24.96	46.00	-21.04	Peak
6	878.322	1.21	29.08	30.29	46.00	-15.71	Peak



Vertical

Site : chamber Condition: 3m VERTICAL Job No. : RA221110-53018E-RF Test Mode: BT Transmitting

	Freq	Factor			Limit Line		Remark
-	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	33.474	-11.94	30.84	18.90	40.00	-21.10	Peak
2	56.001	-10.18	30.58	20.40	40.00	-19.60	Peak
3	105.457	-11.88	29.20	17.32	43.50	-26.18	Peak
4	236.437	-10.95	29.04	18.09	46.00	-27.91	Peak
5	437.887	-5.67	29.32	23.65	46.00	-22.35	Peak
6	803.193	-0.40	29.49	29.09	46.00	-16.91	Peak

Above 1GHz (worst case for 8DPSK):

Frequency	Receiver		Turntable Angle	Rx Antenna		Factor	Absolute Level	Limit	Margin		
(MHz)	Reading	PK/AV	Degree	Height	Polar	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)		
	(dBuV)	ΓΛ/Αν	Degree	(m)	(H/V)		````				
	Low Channel										
2310	46.72	PK	44	1.1	Η	-7.23	39.49	74	-34.51		
2310	47.05	PK	241	1.3	V	-7.23	39.82	74	-34.18		
2390	48.49	PK	93	1.0	Н	-7.21	41.28	74	-32.72		
2390	51.88	PK	265	1.3	V	-7.21	44.67	74	-29.33		
4804	54.59	PK	22	1.4	Н	-3.52	51.07	74	-22.93		
4804	52.69	PK	200	2.1	V	-3.52	49.17	74	-24.83		
				Middle C	hannel						
4882	53.73	РК	95	1.2	Н	-3.37	50.36	74	-23.64		
4882	51.23	РК	308	1.0	V	-3.37	47.86	74	-26.14		
				High Ch	annel						
2483.5	47.5	РК	229	1.2	Н	-7.20	40.3	74	-33.70		
2483.5	48.32	РК	49	1.7	V	-7.20	41.12	74	-32.88		
2500	47.46	РК	307	2.1	Н	-7.18	40.28	74	-33.72		
2500	49.36	РК	104	1.8	V	-7.18	42.18	74	-31.82		
4960	50.05	РК	235	1.7	Н	-3.01	47.04	74	-26.96		
4960	49.83	PK	237	1.8	V	-3.01	46.82	74	-27.18		

Note:

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

Absolute Level (Corrected Amplitude) = Factor + Reading

Margin = Absolute Level – Limit

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

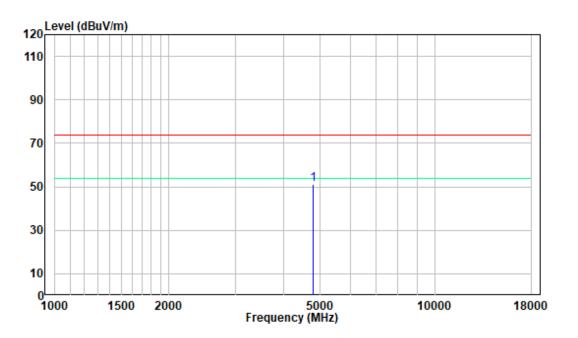
For above 1GHz, the test result of peak was 20dB below to the limit of peak, which can be compliant to the average limit, so just peak value was recorded.

Shenzhen Accurate Technology Co., Ltd.

Report No.: RA221110-53018E-RF

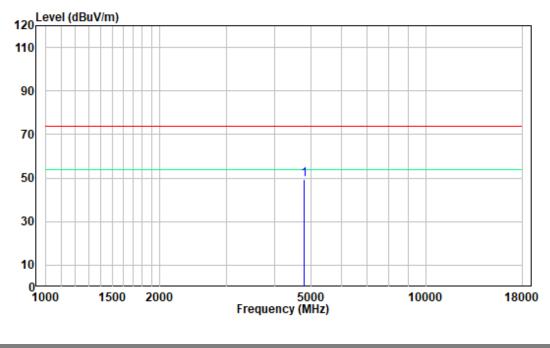
1 GHz - 18 GHz: (Pre-Scan plots)

Worst case for 8DPSK, Low Channel:



Horizontal

Vertical



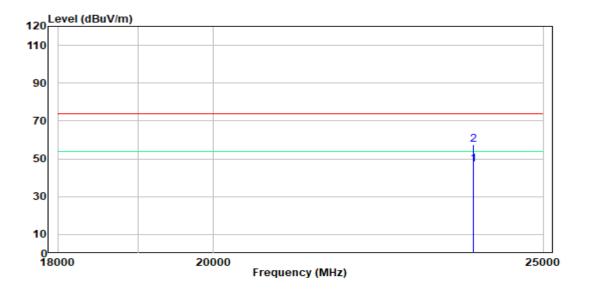
Version 11: 2021-11-09

Shenzhen Accurate Technology Co., Ltd.

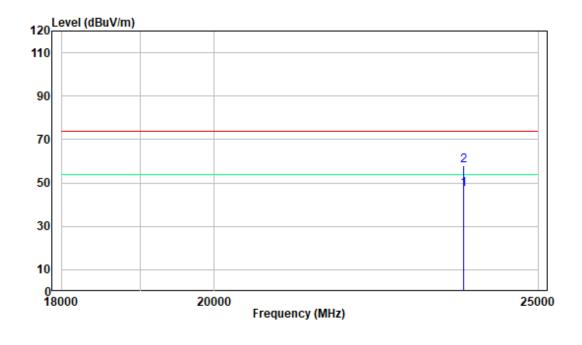
18-25GHz: (Pre-Scan plots)

Worst case for 8DPSK, Low Channel:

Horizontal



Vertical



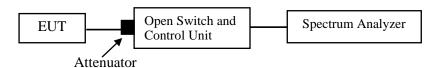
FCC §15.247(a) (1)-CHANNEL SEPARATION TEST

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:	24 °C 48 %			
Relative Humidity:				
ATM Pressure:	101.0 kPa			

The testing was performed by Glenn Jiang on 2022-11-17.

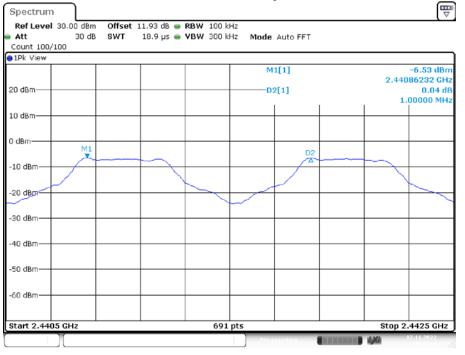
EUT operation mode: Transmitting

Test Result: Compliant.

Test Mode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Нор	1	>=0.630	PASS
2DH5	Ant1	Нор	0.997	>=0.879	PASS
3DH5	Ant1	Нор	0.997	>=0.868	PASS

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

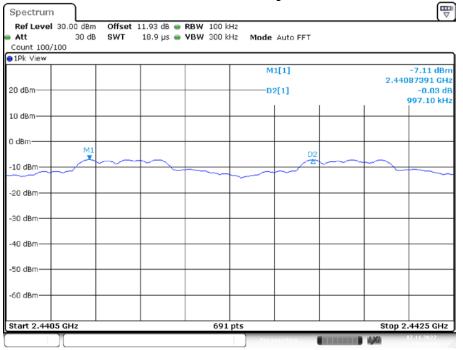
Please refer to the below plots:



DH5_Ant1_Hop

Date: 17.NOV.2022 10:00:41

2DH5_Ant1_Hop



Date: 17.NOV.2022 10:14:52

Shenzhen Accurate Technology Co., Ltd.

		_
Spectrum		₩ V
Ref Level 30.00 dB	m Offset 11.93 dB 😑 RBW 100 kHz	
Att 30 d	iB SWT 18.9 μs 👄 VBW 300 kHz Mode Auto FFT	
Count 100/100		
1Pk View		
	M1[1]	-6.61 dBn
20 dBm	D2[1]	2.44118406 GH: 0.01 dE
20 0011		997.10 kH
10 dBm		
TO GRU-		
a		
0 dBm	M1	D2
-10 dBm		
-20 dBm		
-30 dBm		
-40 dBm		
-50 dBm		
-60 dBm		
Start 2.4405 GHz	691 pts	Stop 2.4425 GHz
	Measuring	

3DH5_Ant1_Hop

Date: 17.NOV.2022 10:25:24

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.

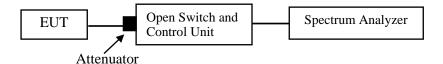
• The span of the spectrum analyzer shall be set large enough to capture all products of the modulation process, including the emission skirts, around the carrier frequency, but small enough to avoid having other emissions (e.g. on adjacent channels) within the span.

• 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:	24 °C			
Relative Humidity:	48 %			
ATM Pressure:	101.0 kPa			

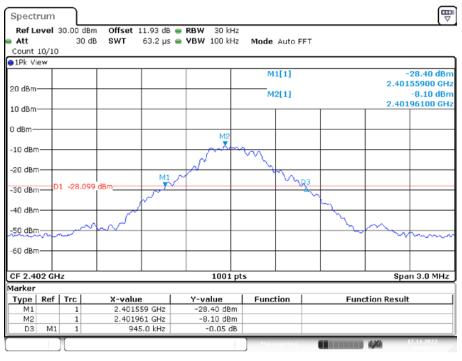
The testing was performed by Glenn Jiang on 2022-11-17.

EUT operation mode: Transmitting

Test Result: Compliant.

Test Mode	Antenna	Channel	20db EBW[MHz]	99% OCCUPIED BANDWIDTH[MHz]	Verdict		
		2402	0.945	0.845	PASS		
DH5	Ant1	2441	0.945	0.842	PASS		
		2480	0.945	0.845	PASS		
		2402	1.318	1.169	PASS		
2DH5	Ant1	Ant1	Ant1	2441	1.319	1.157	PASS
		2480	1.306	1.157	PASS		
		2402	1.302	1.172	PASS		
3DH5	Ant1	2441	1.296	1.163	PASS		
		2480	1.296	1.160	PASS		

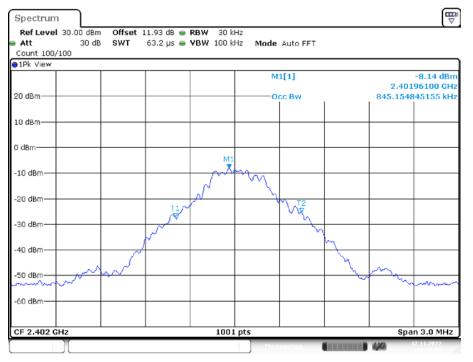
Please refer to the below plots:



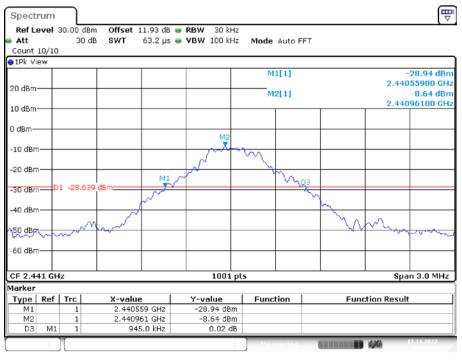
20 dB EMISSION BANDWIDTH_DH5_Ant1_2402

Date: 17.NOV.2022 09:40:51





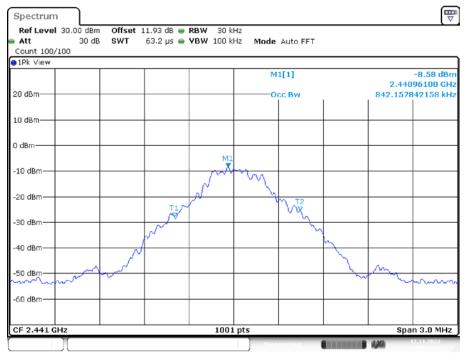
Date: 17.NOV.2022 09:41:08



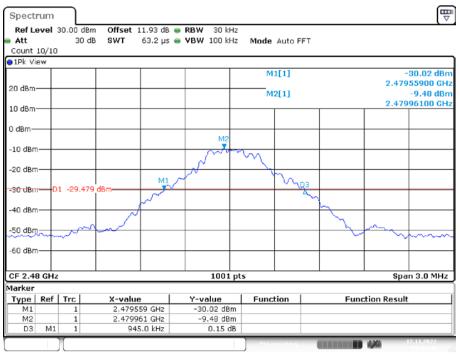
20 dB EMISSION BANDWIDTH_DH5 _Ant1_2441

Date: 17.NOV.2022 09:41:59





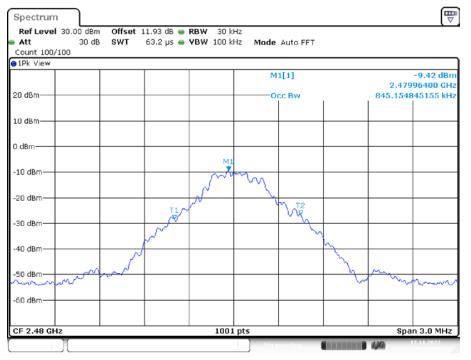
Date: 17.NOV.2022 09:42:16



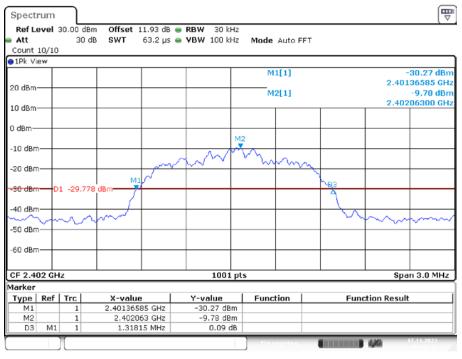
20 dB EMISSION BANDWIDTH_DH5 _Ant1_2480

Date: 17.NOV.2022 09:42:44





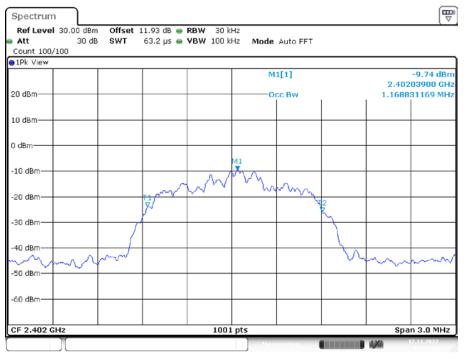
Date: 17.NOV.2022 09:43:01



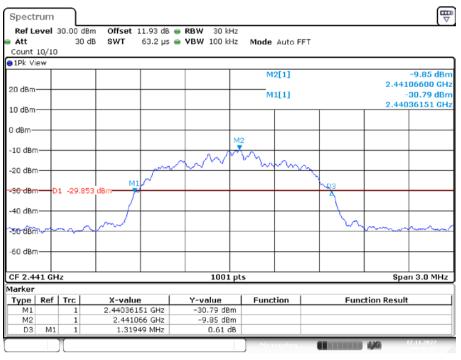
20 dB EMISSION BANDWIDTH_2DH5 _Ant1_2402

Date: 17.NOV.2022 09:47:12





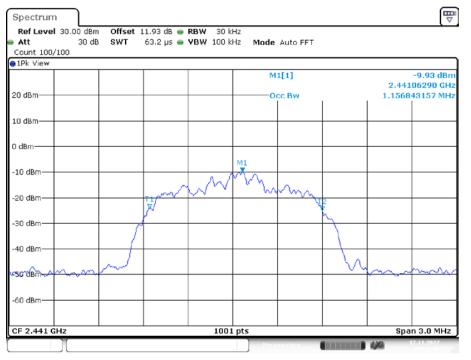
Date: 17.NOV.2022 09:47:29



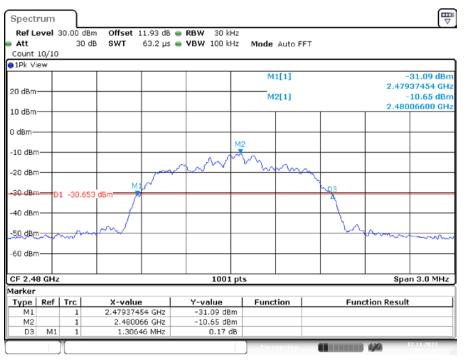
20 dB EMISSION BANDWIDTH_2DH5 _Ant1_2441

Date: 17.NOV.2022 09:49:27





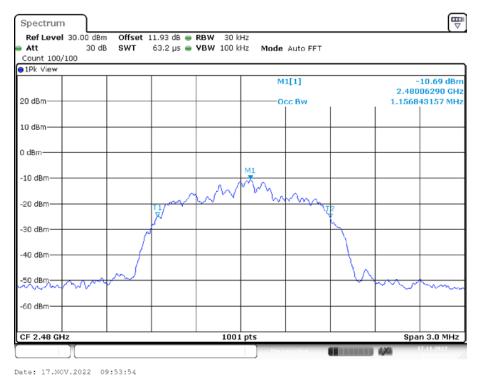
Date: 17.NOV.2022 09:49:44



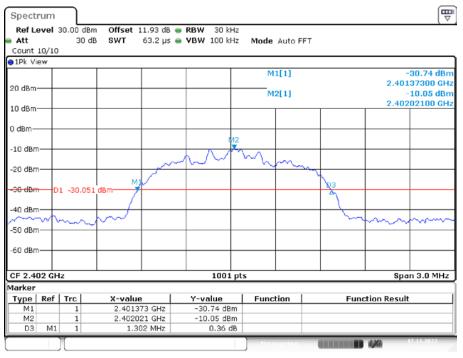
20 dB EMISSION BANDWIDTH _2DH5_Ant1_2480

Date: 17.NOV.2022 09:53:37

99% OCCUPIED BANDWIDTH _2DH5_Ant1_2480



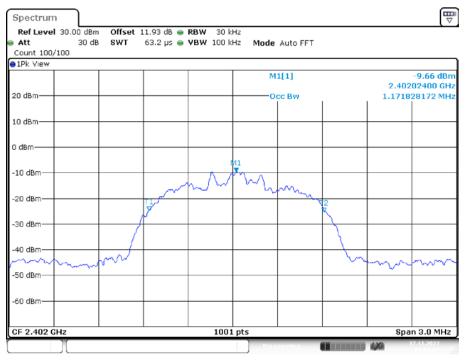
Version 11: 2021-11-09



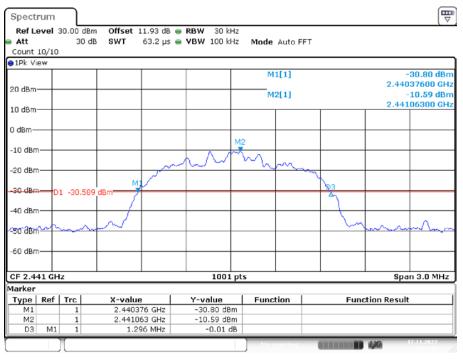
20 dB EMISSION BANDWIDTH_3DH5_Ant1_2402

Date: 17.NOV.2022 15:27:57





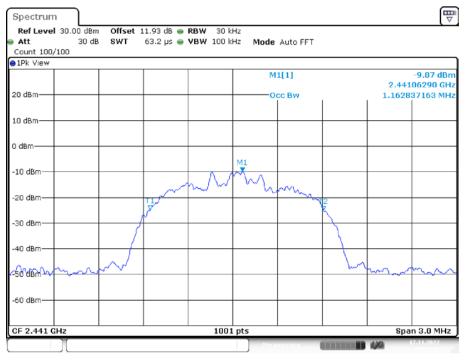
Date: 17.NOV.2022 09:57:05



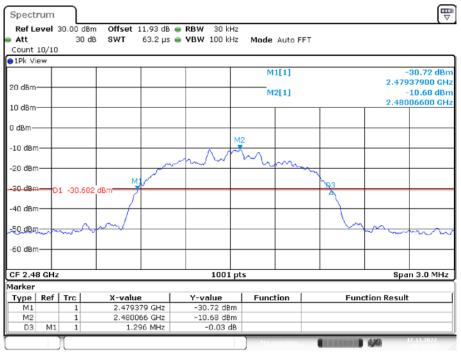
20 dB EMISSION BANDWIDTH_3DH5_Ant1_2441

Date: 17.NOV.2022 15:18:19





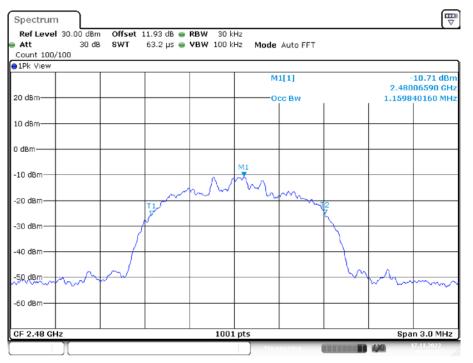
Date: 17.NOV.2022 09:58:19



20 dB EMISSION BANDWIDTH_3DH5_Ant1_2480

Date: 17.NOV.2022 09:58:59





Date: 17.NOV.2022 09:59:16

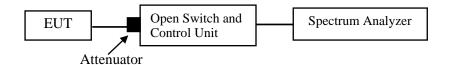
FCC §15.247(a) (1) (iii)-QUANTITY OF HOPPING CHANNEL TEST

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 °C			
Relative Humidity:	48 %			
ATM Pressure:	101.0 kPa			

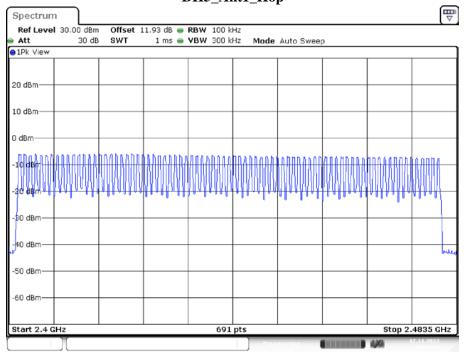
The testing was performed by Glenn Jiang on 2022-11-17.

EUT operation mode: Transmitting

Test Result: Compliant.

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

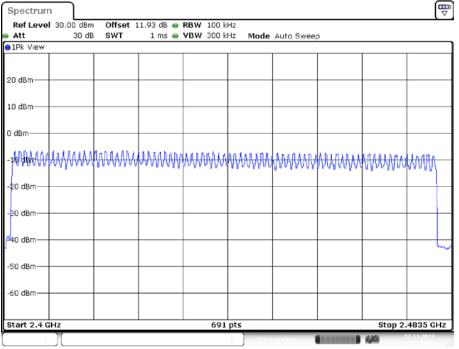
Please refer to the below plots:



DH5_Ant1_Hop

Date: 17.NOV.2022 10:01:24

2DH5_Ant1_Hop



Date: 17.NOV.2022 10:15:46

Shenzhen Accurate Technology Co., Ltd.

	_		•				· I.			<u> </u>
Spectrum										u U U U U U U U U U U U U U
Ref Level	30.00 dBm	Offset	11.93 dB 😑	RBW	100 kHz					
Att	30 dB	SWT	1 ms 👄	VBW	300 kHz	Mode	Auto Swee	р		
1Pk View										
20 dBm										
10 dBm				-						
) dBm									+	+
1 JON BA	at and a	ከኮለብለስብላ	ПЛАНИК				DAD 1144	Adda.m.	UNE REAL	ANLESS
-xo.gow <u>a n k</u>	andanana	NABAAAA	ՠՠՠՠ	annan	wan	WWR	MAANNAA!	RANNA	WANNA	NWW (
-20 dBm										
B0 dBm										
40 dBm										
-50 dBm					_					
-60 dBm									+	+
Start 2.4 G	Hz	1	1		691 pt	5	1	1	Stop 2	.4835 GHz
						Mes	curing		100	17.11.2022

3DH5_Ant1_Hop

Date: 17.NOV.2022 10:26:27

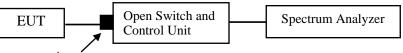
FCC §15.247(a) (1) (iii) - TIME OF OCCUPANCY (DWELL TIME)

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:	24 °C		
Relative Humidity:	48 %		
ATM Pressure:	101.0 kPa		

The testing was performed by Glenn Jiang on 2022-11-17.

EUT operation mode: Transmitting

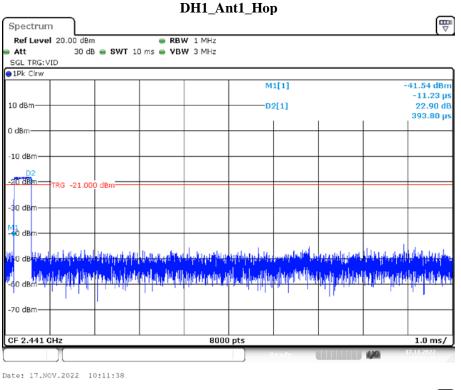
Test Result: Compliant.

Test Mode	Antenna	Channel	Burst Width [ms]	Total Hops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Нор	0.39	320	0.125	<=0.4	PASS
DH3	Ant1	Нор	1.64	180	0.295	<=0.4	PASS
DH5	Ant1	Нор	2.88	130	0.374	<=0.4	PASS
2DH1	Ant1	Нор	0.40	320	0.128	<=0.4	PASS
2DH3	Ant1	Нор	1.65	190	0.314	<=0.4	PASS
2DH5	Ant1	Нор	2.89	130	0.376	<=0.4	PASS
3DH1	Ant1	Нор	0.40	330	0.132	<=0.4	PASS
3DH3	Ant1	Нор	1.65	140	0.231	<=0.4	PASS
3DH5	Ant1	Нор	2.89	120	0.347	<=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)

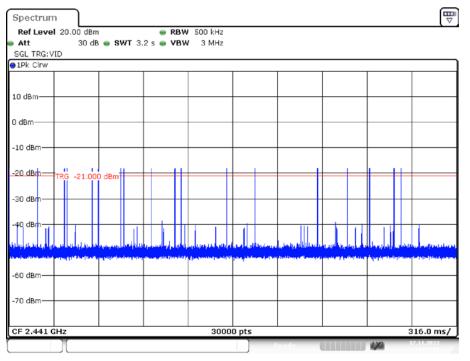


₽ Spectrum Ref Level 20.00 dBm 😑 RBW 500 kHz Att 30 dB 😑 SWT 3.2 s 👄 VBW 3 MHz SGL TRG: VID ●1Pk Clrw 10 dBm-0 dBm--10 dBm -20 dBm-TRG -21.000 dBm-BO dBr ab Ol -60 dBm--70 dBm-CF 2.441 GHz 30000 pts 316.0 ms/ Date: 17.NOV.2022 10:11:44

Can a attant una								E
Spectrum								∇
Ref Level 20.00			V 1 MHz					
	0 dB 👄 SWT 10	ms 👄 VBV	N 3 MHz					
SGL TRG:VID 1Pk Clrw								
DIPK CIFW								37.53 dBm
				M	1[1]		-	37.53 dBm -9.98 µs
10 dBm				D	2[1]			19.01 dE
							1	.64146 ms
0 dBm								
Juon								
10 40-								
-10 dBm								
	D2							
-20 dBm TRG -2	1.000 dBm							
-30 dBm								
M1								
-40 dBm								
0 dBm	in the later of the later	addel (dela	"W hailfelend	երի հուրելինի	يار الرياني (والمعالية والمالية	الم الاعتبال	و والعربية المراجع
	and dialid	Land Hills	1.1.	a de la companya de l La companya de la comp	a na pre		in the second	a sur tai
-60 dBm	A MARANA POPUL	ուն հետ հ		A REAL AND A REAL AND A	de Alleren de	dinardi akadal	Reven Liste	
	a deste el		1 . T.L.	n. f.	1.010.101	a la de la fil	r charl	1 1
70 40-5								
-70 dBm								
CF 2.441 GHz			8000	pts	1	1		1.0 ms/
								7 11 2022

DH3_Ant1_Hop

Date: 17.NOV.2022 10:08:17

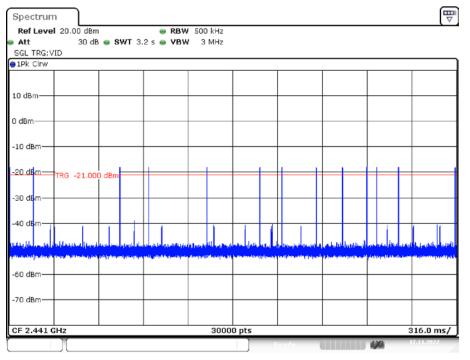


Date: 17.NOV.2022 10:08:23

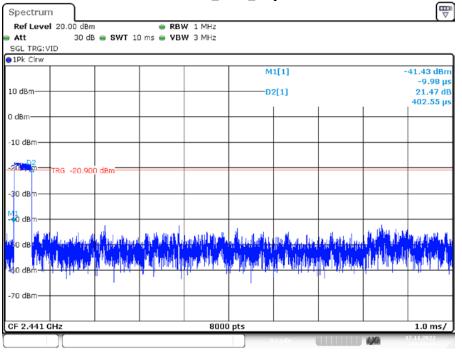
	L	<u></u>	111_110				_
Spectrum							₩
Ref Level 20.00 dBm	● RBW	1 MHz					
Att 30 dB 👄 SWT 1	0 ms 👄 VBW	/ 3 MHz					
SGL TRG: VID							
1Pk Clrw							
			м	1[1]		-	39.48 dBrr
10 dBm			D	2[1]			-9.98 μ 21.07 dE
10 dbm			U.	2[1]			21.07 ut
0 dBm							
o ubm							
-10 dBm							
-10 dBm							
-20 dBm	2						
-20 dBm TRG -21.000 dBm							
-30 dBm							
MI							
-40 dBm							
	الم من من الم	and the second second	s fill the second	un Li Jaratek	وي و الله الله الله الله الله الله الله ال	Lite about	and a strikent
40 dBm	Line of Lothin.	and beduck a	and the state of the	al all all the set of the	in the fact with		
	Mand A.	tha de taille i f	المنا والكار	and to all the ball	والمرابعة المارية	al the all of the d	i bilu alah i sh
60 dBm	 - - 	- 1 - 1 4			add india	- of the stands	<u>, 141, 141, 141, 141, 141, 141, 141, 14</u>
		· · · ·					
-70 dBm							
CF 2.441 GHz		8000) pts		1		1.0 ms/

DH5_Ant1_Hop

Date: 17.NOV.2022 10:11:08

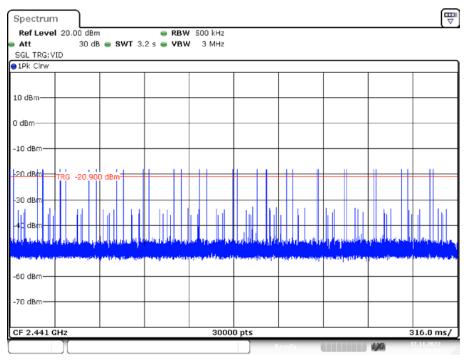


Date: 17.NOV.2022 10:11:13



2DH1_Ant1_Hop

Date: 17.NOV.2022 10:19:19

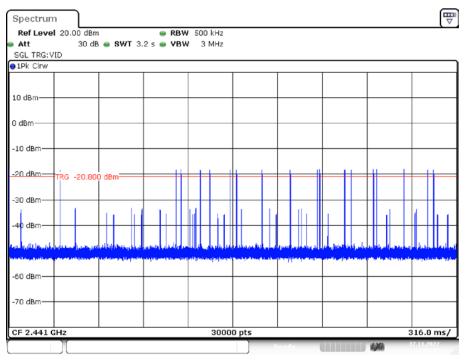


Date: 17.NOV.2022 10:19:25

1Pk Clrw									
					м	1[1]		-	40.80 dBr -11.23 µ
0 dBm					D	2[1]			20.62 d
							1	1	64771 m
dBm									
10 dBm									
TRO	-20.80	l dBm							
0 dBm									
1									
0 dBm									
		فقفتك والرال	and and that	Ablic the set	Land and the	و بالافعانية	un Milenaula	and an all all a	Ja. horistan
	(** 1	an a para t	and the track.		an other th		l come cole c	an an an an an Anna. Na tao an an Anna	e sur ar la
0 dBm					والقارب القريب القالية فالقرار	ah tanàn amin'ny faritr'i Ang	104.19104.1119		a di Jihan da ka
			HAND BRIDE	a Dad tibila D	di la antilis d				1 1 1 1 1 1 1 1
0 dBm	<u></u>	un de la contra de l	<u>tivili plilit</u>	<u>di schooliish</u>	atteoritie d	<u>, i n i i i</u>	10 11 1 0		

2DH3_Ant1_Hop

Date: 17.NOV.2022 10:18:41

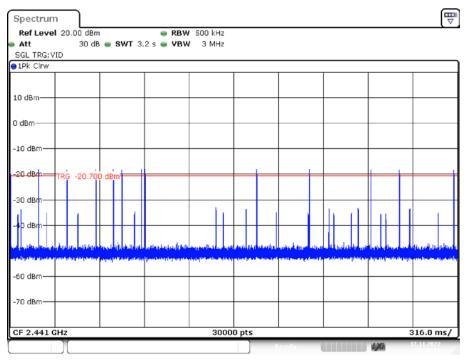


Date: 17.NOV.2022 10:18:46

			M	1[1]		-	37.49 dBr
.0 dBm							-9.98 μ 17.59 d
U UBIII			02	2[1]		2	.88786 m
) dBm							
10 dBm							
TRG -20.70	0 dBm						
30 dBm							
1							
0 dBm							
0 dBm	the Marida	Rituditi ha	ացություն	والمرقب والمراد	العداد الارار	الطر الملاطي	he adding of
	the relation	lann, if directation to	ar daha Libat Jaka	al in calida	La deste di di ad	والتابلة السادي	dalandend
60 dBm		-1-0-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	the difference	141-1-4		<u>bit of 16. bi</u>	a hailt de la compañía
					· ·		

2DH5_Ant1_Hop

Date: 17.NOV.2022 10:18:14

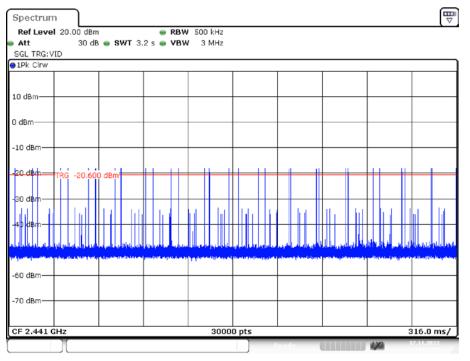


Date: 17.NOV.2022 10:18:19

SGL TRG:VID									
.0 dBm						1[1] 2[1]		-	-36.61 dBn -9.98 µ 16.86 di 403.80 µ
dBm									
10 dBm									
	RG -20.600) dBm							
0 dBm									
		الاورى بالاد	hired and the	و بنداوان الآلي	and the state of the	and the state of t	وبي المحادا إ	a data da	երվերուն
	the we had to	statedited by	1. Contraction of the second	a differential	المالالما في بدر	distant distant	la di ditata di	adian Alabia	ali wa Mhili hi
o asin <mark>ilinin</mark>		11 11	1.11.1.1		11 11	. I I.		1.1	
70 dBm									
I	z) pts				1.0 ms/

3DH1_Ant1_Hop

Date: 17.NOV.2022 10:28:28

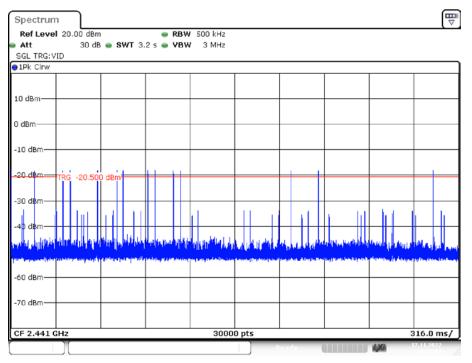


Date: 17.NOV.2022 10:28:33

				L[1]			38.25 dBr
	1 1						-11.23 µ
	++		D2	[1]			18.70 di
						1	L.64771 m
	+						
	++						
-20.\$00 dBm	+						
الشاغمين التاليلي	<u>հ. Ծան</u> րումը և	الطالعا والارموار	المارقار أتحر والارقاد	يتوافية والبقية	sil, dan dari		فالتأثيل لتر
10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ten l'élénetetetetetetetetetetetetetetetetetetet		alter a tra	1.		ate l'avail	a da anti-
14 PT-14 AT	n Di Dahan Perati	hall had di		iliai kandili	h halene tek	n di kana ji k	an Anton Million
- P - C	1 1 1 1 1 1	The rate	1	and the second sec	10 C C 1 C	ALC 10.	P. 101 J
	1						
	-20.500 dBm						at dis log and at the star of

3DH3_Ant1_Hop

Date: 17.NOV.2022 10:28:02

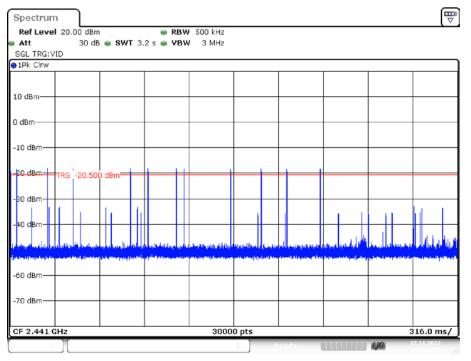


Date: 17.NOV.2022 10:28:07

	M1[1]		-38.71 dBn
			-11.23 μ
	D2[1]		18.98 d
		1 1	2.89036 m
all Hadas and 2			
(III)			
	يدر بوريانيد. بورياني و	ينا يعتر بيانان	يترا وروا والملاوي
	an marial and desire sufficient databased	in the second of the second	a na su anasitrati na f
dall additionable for a disc	lahi kawa u shadhi ahida ha batakinda dus	in that all a dealer in the all t	al Malatric Real a Dath Dath
	and the second strike of the s	and the first states to	<u> </u>
		m	

3DH5_Ant1_Hop

Date: 17.NOV.2022 10:27:31



Date: 17.NOV.2022 10:27:37

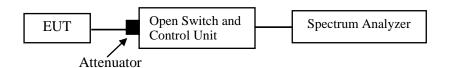
FCC §15.247(b) (1) - PEAK OUTPUT POWER MEASUREMENT

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 °C
Relative Humidity:	48 %
ATM Pressure:	101.0 kPa

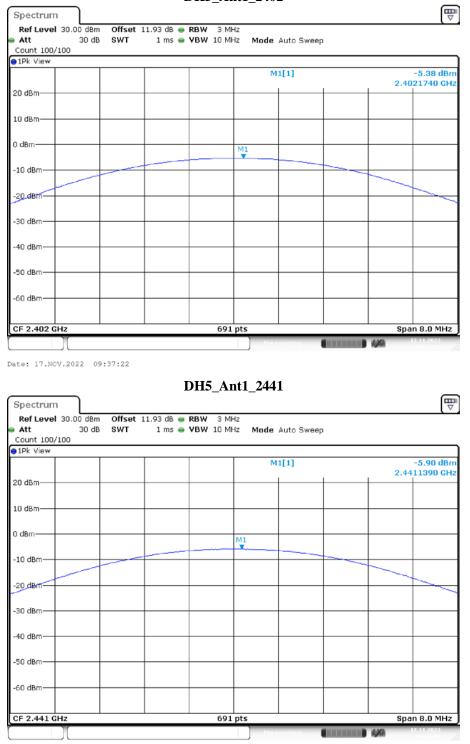
The testing was performed by Glenn Jiang on 2022-11-17.

EUT operation mode: Transmitting

Test Result: Compliant.

Test Mode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
		2402	-5.38	<=20.97	PASS
DH5	Ant1	2441	-5.90	<=20.97	PASS
		2480	-6.72	<=20.97	PASS
	Ant1	2402	-4.92	<=20.97	PASS
2DH5		2441	-5.42	<=20.97	PASS
		2480	-6.17	<=20.97	PASS
		2402	-4.59	<=20.97	PASS
3DH5	Ant1	2441	-5.05	<=20.97	PASS
		2480	-5.87	<=20.97	PASS

Please refer to the below plots:



DH5_Ant1_2402

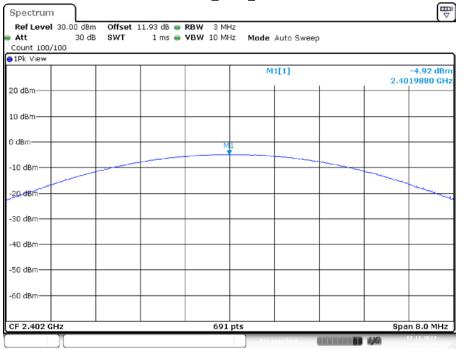
Date: 17.NOV.2022 09:37:45

Spectrum Ref Level 30.00 dBm Offse	et 11.93 dB 👄 RBW 3 MHz	
Att 30 dB SWT	1 ms 👄 VBW 10 MHz 🛛 Mode Auto Sweep	
Count 100/100		
1Pk View		
	M1[1]	-6.72 dBr 2.4800690 GH
20 dBm		
10 dBm		
D dBm		
	41	
-10 dBm		
20 dBm		
-30 dBm		
-40 dBm		
-50 dBm		
-60 dBm		
-ou ubin		
CF 2.48 GHz	691 pts	Span 8.0 MHz
JF 2.10 GH2	691 pts	

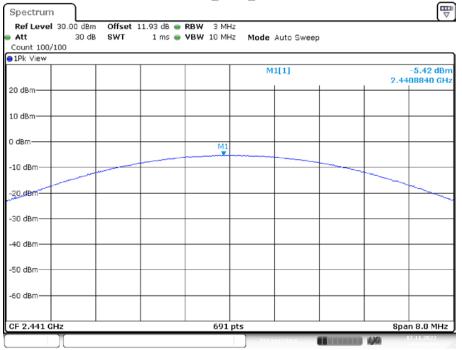
DH5_Ant1_2480

Date: 17.NOV.2022 09:38:07





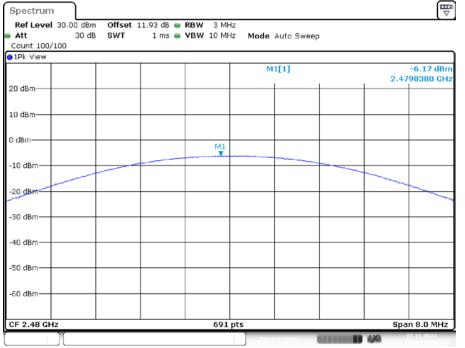
Date: 17.NOV.2022 09:38:30



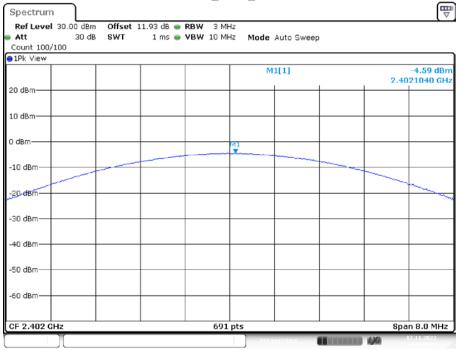
2DH5_Ant1_2441

Date: 17.NOV.2022 09:38:52





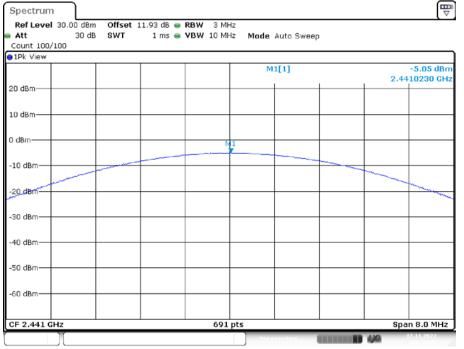
Date: 17.NOV.2022 09:39:05



3DH5_Ant1_2402

Date: 17.NOV.2022 09:39:24

3DH5_Ant1_2441



Date: 17.NOV.2022 09:39:46

Spectrum Ref Level 30.00	dim Officiat	11.93 dB 👄 RE	3W 3 MHz				
	30 dB SWT		3W 10 MHz	Mode Auto	Sweep		
Count 100/100							
1Pk View							
				M1[1]		2.47	-5.87 dBm 99070 GHz
20 dBm							
10 dBm							
0 dBm			M1				
-10 dBm			¥				
-20 dBm							
-30 dBm							
-40 dBm							
-50 dBm							
-60 dBm							
CF 2.48 GHz			691 pt	s		Spa	n 8.0 MHz
				Measuri		430	7.11.2022

3DH5_Ant1_2480

Date: 17.NOV.2022 09:40:01

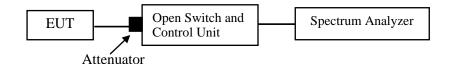
FCC §15.247(d) - BAND EDGES TESTING

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 °C
Relative Humidity:	48 %
ATM Pressure:	101.0 kPa

The testing was performed by Glenn Jiang on 2022-11-17.

EUT operation mode: Transmitting

Test Result: Compliant

Please refer to the below plots:

DH5: Band Edge-Left Side Hopping

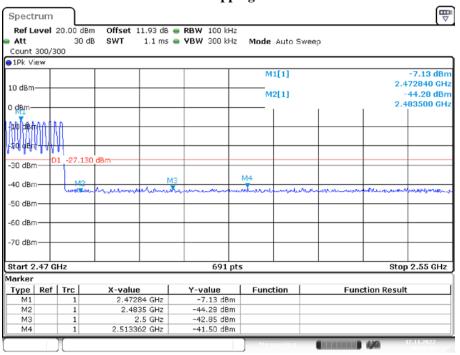
Spectrum								u U U U U U U U U U U U U U
Ref Level				RBW 100 kHz				
Att	_	dB SWT	246.5 µs	VBW 300 kHz	Mode Auto I	FFT		
Count 300/	300							
DIEK AIGM					M1[1]			.82 dBr
					WT[1]			100 GH
10 dBm —					M2[1]			.75 dBn
					112[1]			000 GH
0 dBm								M
-10 dBm								1
10 0.0								- 86
-20 dBm —								<u></u> [[]
	01 -26.	820 dBm						
-30 dBm								
-40 dBm						M4	MO	
-40 ubiii							. Internet	M2
SU alim	المريبان المريبان	كالمصرفيني والمترج ومتار والمراقع والمستحو	haman	and the second	human	mannin	manner	MW.
-60 dBm —			+				+ +	
-70 dBm								
-70 aBm								
Start 2.3 G	HZ			691 pt:	5		Stop 2.4	05 GHz
Marker	1 - 1		1					
Type Ref M1	Trc	X-valu	e	-6.82 dBm	Function	Fur	nction Result	
M1 M2	1		2.4 GHz	-46.75 dBm				
M2 M3	1		.39 GHz	-44.53 dBm				
M4	1		065 GHz	-42.90 dBm				
	1)		B 4147 17.1	1 2022

Date: 17.NOV.2022 10:02:36

Single

	evel 2	0.00 dBr			🖷 RBW 100 kHz			
Att		30 d	B SWT 2	246.5 µs	VBW 300 kHz	Mode Auto I	FFT	
Count	300/30	0						
1Pk Vi	ew							
						M1[1]		-6.17 dBr
10 dBm·								2.401880 GH
to ubili						M2[1]		-48.97 dBr
dBm—								2.400000 GH
/ dom								I M1
10 dBm								
20 dBm								
		-26.17	0 dBm					
30 dBm			1					
							M4	
40 dBm							7	
Lan an	inne	al ab	-	mble musich	munum	and a low a built from	and a litel state	M3 M2
SU aBr			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					
60 dBrr								
oo abii	' I							
70 dBm								
Start 2	2 011-				691 pt	-		Stop 2.405 GHz
larker	.3 GHz				oar hr	5		atup 2.40a GH2
	D-f I	Tun	X-value		Y-value	Function	I Euro	ction Result
Type M1	Ref	1		88 GHz	-6.17 dBm	Function	Fun	CUUT RESUL
M1 M2		1		.4 GHz	-48.97 dBm			
M3		1		39 GHz	-48.99 dBm			
M4		1	2.3760		-42.30 dBm			

Date: 17.NOV.2022 09:41:23



DH5: Band Edge- Right Side Hopping

Date: 17.NOV.2022 10:12:08

Ref L	evel :	20.00 dBn	n Offset 11.93 de	6 👄 RBW 100 kHz			
Att		30 dE	3 SWT 1.1 ms	5 👄 VBW 300 kHz	Mode Auto S	Sweep	
Count		00					
1Pk Vi	ew						
					M1[1]		-7.41 dBn
10 dBm	\rightarrow						2.479900 GH
					M2[1]		-44.05 dBn
) dBm—		41					2.483500 GH
		▼					
-10 dBr	י − +						
		J) –					
-20 dBri	די						
30 dBm		1 -27.410	dBm				
SO GDI	' T						
40 dBr		M2		Ma Ma			
Juli	كسيس	Lunes	Mohnorthaue	15 Mallin marched	Gabelin have	للمسافعة ومحمديهم المحوسان	h Marson and a start where the
50 dBr	∩ - +-						
60 dBr	די						
-70 dBm	.						
-70 ubii							
Start 2	.47 G	Hz		691 pt	5		Stop 2.55 GHz
larker							
Туре	Ref		X-value	Y-value	Function	Func	tion Result
M1		1	2.4799 GHz	-7.41 dBm			
M2		1	2.4835 GHz 2.5 GHz	-44.05 dBm -44.29 dBm			
M3		1	2.5 GHZ	-++.29 0Bm			

Single

Date: 17.NOV.2022 09:43:16

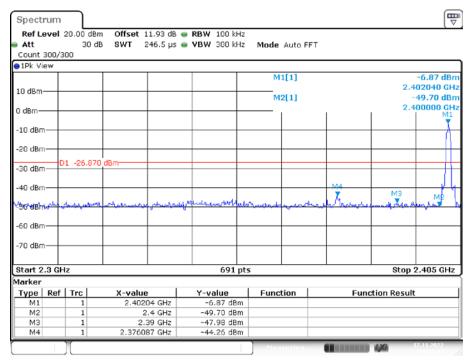
Version 11: 2021-11-09

2DH5: Band Edge-Left Side Hopping

Spectrum							
Ref Level Att				 RBW 100 kHz VBW 300 kHz 	Manda Autor		
Count 300/	-	Jab Swi	246.5 µs (• VBW 300 KHZ	Mode Auto F		
1Pk View	500						
JIFK VIEW					M1[1]		-6.56 dBr
10 40							2.402800 GH
10 dBm					M2[1]		-46.18 dBr
0 dBm							2.400000 GH
5 dbm							I I 🕎
-10 dBm							M
-20 dBm		_					
	01 -26.	560 dBm					
-30 dBm							
-40 dBm							V4
						ы Ал	МЗ МЗ
SO dBm	anhador	montelymitel	mund	malenser	manely again	- Mar and a start of the start	un month and
-60 dBm —			-				
70 10 -							
-70 dBm							
Start 2.3 G	Iz			691 pt	5		Stop 2.405 GHz
larker							
	Trc	X-valu		Y-value	Function	Fun	ction Result
M1 M2	1		028 GHz	-6.56 dBm -46.18 dBm			
M2 M3	1		2.4 GHZ	-46.18 dBm -47.80 dBm			
M4	1		152 GHz	-43.15 dBm			
	1)	48	17 11 2022

Date: 17.NOV.2022 10:13:29

Single

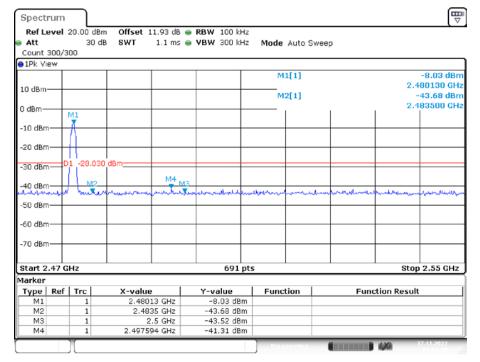


Date: 17.NOV.2022 09:47:44

2DH5: Band Edge- Right Side Hopping

Spectrum						₩ ▽
Ref Level			RBW 100 kHz			
Att Count 300/3	30 d	IB SWT 1.1 ms	VBW 300 kHz	Mode Auto S	Sweep	
1Pk View	.00					
				M1[1]		-7.76 dBn
10 dBm						2.473880 GH
				M2[1]		-42.01 dBn
) dBm						2.483500 GH
V						
物视れれ	W					
-20 dBm						
-30 dBm 0	1 -27.76	0 dBm				
	M2		13			M4
-40 dBm	lenne	mounterstand		mann	moundarde	
50 dBm						
-60 dBm						
-70 dBm						
Start 2.47 G	Hz		691 pts			Stop 2.55 GHz
larker						
	Trc	X-value	Y-value	Function	Fun	ction Result
M1	1	2.47388 GHz	-7.76 dBm			
M2 M3	1	2.4835 GHz 2.5 GHz	-42.01 dBm -43.20 dBm			
M3 M4	1	2.5 GHz 2.546754 GHz	-40.60 dBm			
	· •	210101012	10100 00111		1	

Date: 17.NOV.2022 10:20:00



Single

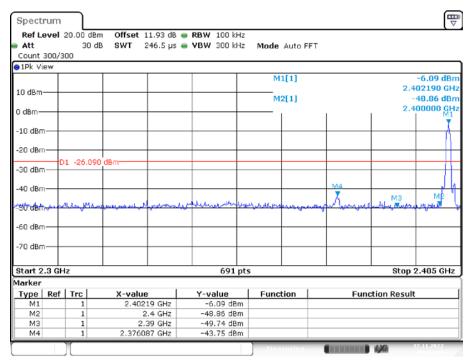
Date: 17.NOV.2022 09:54:09

3DH5: Band Edge-Left Side Hopping

Spectrum							The second secon
Ref Level Att		dBm Offset dB SWT		 RBW 100 kHz VBW 300 kHz 		FT	
Count 300/	300						
1Pk View							
					M1[1]		-6.10 dBn
10 dBm		_					2.401880 GH -47.22 dBn
					M2[1]		
0 dBm			<u> </u>			1	2.400000 GH
10 dBm							1
10 abin							
-20 dBm —		_					
	D1 -26.	100 dBm					
-30 dBm			-				
-40 dBm						M4	
			1. 1			AMB	M3 M2
SU dBm	rollinger	manul	mun	manderade	Mound	man with the property	un ton ton
-60 dBm —			+				
-70 dBm							
-70 aBm							
Start 2.3 GI							010.405.011-
start 2.3 G Iarker	HZ			691 pt	.5		Stop 2.405 GHz
	Trc	N		Y-value	Function	[ation Deput
Type Ref M1	1	2 40	188 GHz	-6.10 dBm	Function	Fun	ction Result
M2	1		2.4 GHz	-47.22 dBm			
M3	1		.39 GHz	-47.49 dBm			
M4	1	2.378	065 GHz	-41.62 dBm			
	1			1	Manualina	C ARGE C	17.11.2022

Date: 17.NOV.2022 10:20:59

Single



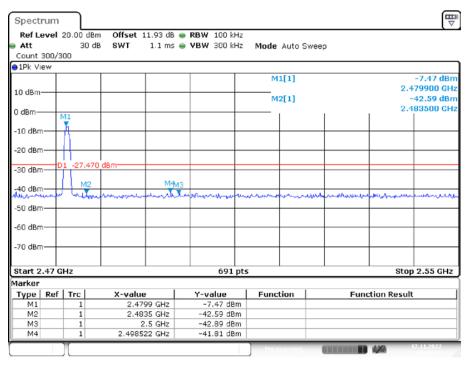
Date: 17.NOV.2022 09:57:20

3DH5: Band Edge- Right Side Hopping

			- I · I	0		
Spectrum						E ↓
Ref Level	20.00 di	Bm Offset 11.93 dB) 👄 RBW 100 kHz			•
Att	30	dB SWT 1.1 ms	; 👄 YBW 300 kHz	Mode Auto S	Sweep	
Count 300/3	800					
1Pk View						
				M1[1]		-7.17 dBn
10 dBm						2.471910 GH
				M2[1]		-42.14 dBn
						2.483500 GH
T						
ad beated	И					
	°1					
-20 dBm						
	1 -27.17	70 dBm				
-30 dBm						
-40 dBm	M2		мз			M14
-40 dBill	سلامينا	and a second and a s	In white a survey of the server t	and a star and a star and a star a	mansura	ender with might man be a service of the service of
-50 dBm						
-60 dBm —						
-70 dBm						
I						
Start 2.47 0	Hz		691 pt	5		Stop 2.55 GHz
larker						
Type Ref	Trc	X-value	Y-value	Function	Fui	nction Result
M1	1	2.47191 GHz	-7.17 dBm			
M2	1	2.4835 GHz	-42.14 dBm			
MЗ	1	2.5 GHz	-42.76 dBm			
M4	1	2.542348 GHz	-40.31 dBm			
				Measuring.		17.11.2022

Date: 17.NOV.2022 10:30:03

Single



Date: 17.NOV.2022 09:59:31

***** END OF REPORT *****

Version 11: 2021-11-09