



# FCC PART 15.247 TEST REPORT

For

# HONG KONG IPRO TECHNOLOGY CO., LIMITED

12/F, 3 LOCKHART ROAD, WANCHAI, HK

# FCC ID: PQ4IPROS401A

<b>Report Type:</b>		Product Type:	
Original Report		Mobile Phone	
Report Number:	RSZ201224550-0	00A	
<b>Report Date:</b>	2021-04-19		
	Jacob Kong	Jacob	Gong
<b>Reviewed By:</b>	RF Engineer		$\checkmark$
Prepared By:	5F(B-West), 6F,	320018 320008	Li Industrial

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# **GENERAL INFORMATION**

Product	Mobile Phone
Tested Model	S401A
Frequency Range	Bluetooth: 2402~2480MHz
Maximum conducted Peak output power	Bluetooth: 7.52dBm
Modulation Technique	Bluetooth: GFSK, π/4-DQPSK, 8DPSK
Antenna Specification*	Integral Antenna: 0.15dBi(It is provided by the applicant)
Voltage Range	DC 3.7V from battery or DC5.0V from adapter
Date of Test	2021-01-07 to 2021-04-19
Sample number	RSZ201224550-RF-S1(Assigned by BACL, Shenzhen)
Received date	2020-12-24
Sample/EUT Status	Good condition
Adapter information	Model: NTR-S02 Input: AC 100-240V, 50/60Hz, 150mA Output: DC 5.0V, 700mA

# **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 Commissions 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.

For Radiated Emissions testing, please refer to DA 00-705 Released March 30, 2000, Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems.

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

# **Measurement Uncertainty**

Parameter		Uncertainty
Occupied Channel Bandwidth		±5%
RF Output Power	with Power meter	±0.73dB
RF conducted test with spectrum		±1.6dB
AC Power Lines Conducted Emissions		±1.95dB
Emissions,	Below 1GHz	±4.75dB
Radiated Above 1GHz		$\pm 4.88 dB$
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 Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 5F(B-West), 6F, 7F, the 3rd Phase of Wan Li Industrial Building D, Shihua Rd, FuTian Free Trade Zone, Shenzhen, 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.: 342867, the FCC Designation No.: CN1221.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062B.

# SYSTEM TEST CONFIGURATION

# **Description of Test Configuration**

The system was configured for testing in an engineering mode.

# **EUT Exercise Software**

EUT tested in engineering mode and power level is 4.\* The power level was provided by the applicant.

# **Special Accessories**

No special accessory.

# **Equipment Modifications**

No modification was made to the EUT tested.

# **Support Equipment List and Details**

Manufacturer	Description	Model	Serial Number
Unknown	Earphone	Unknown	Earphone

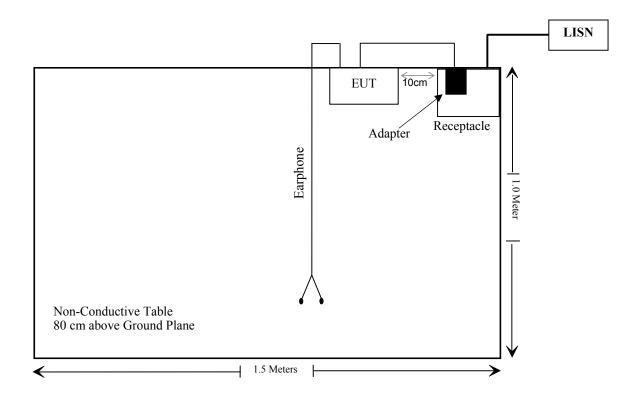
# External I/O Cable

Cable Description	Length (m)	From Port	То
Un-shielded detachable USB cable	1.0	Adapter	EUT

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# **Block Diagram of Test Setup**

For conducted emission:



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# SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i), §1.1307 (b) (1)& §2.1093	RF Exposure	Compliance
§15.203	Antenna Requirement	Compliance
§15.207(a)	AC Line Conducted Emissions	Compliance
§15.205, §15.209 & §15.247(d)	Radiated Emissions	Compliance
§15.247(a)(1)	20 dB Emission Bandwidth	Compliance
§15.247(a)(1)	Channel Separation Test	Compliance
§15.247(a)(1)(iii)	Time of Occupancy (Dwell Time)	Compliance
§15.247(a)(1)(iii)	Quantity of hopping channel Test	Compliance
§15.247(b)(1)	Peak Output Power Measurement	Compliance
§15.247(d)	Band edges Compliance	

# **TEST EQUIPMENT LIST**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
	Condu	cted Emissions	Test		
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2020/08/04	2021/08/03
Rohde & Schwarz	LISN	ENV216	101613	2020/08/04	2021/08/03
Rohde & Schwarz	Transient Limitor	ESH3Z2	DE25985	2020/11/29	2021/11/28
Unknown	CE Cable	CE Cable	UF A210B-1- 0720-504504	2020/11/29	2021/11/28
Rohde & Schwarz	CE Test software	EMC 32	V8.53.0	NCR	NCR
	Radia	ated Emission T	est		
R&S	EMI Test Receiver	ESR3	102455	2020/08/04	2021/08/03
Sonoma instrument	Pre-amplifier	310 N	186238	2020/08/04	2021/08/03
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2020/12/22	2023/12/21
Unknown	Cable 2	RF Cable 2	F-03-EM197	2020/11/29	2021/11/28
Unknown	Cable	Chamber Cable 1	F-03-EM236	2020/11/29	2021/11/28
Rohde & Schwarz	Auto test software	EMC 32	V9.10	NCR	NCR
Rohde & Schwarz	Spectrum Analyzer	FSV40-N	102259	2020/08/04	2021/08/03
COM-POWER	Pre-amplifier	PA-122	181919	2020/11/29	2021/11/28
Quinstar	Amplifier	QLW- 18405536-J0	15964001002	2020/11/29	2021/11/28
Sunol Sciences	Horn Antenna	3115	9107-3694	2021/01/15	2024/01/14
Insulted Wire Inc.	RF Cable	SPS-2503- 3150	02222010	2020/11/29	2021/11/28
Unknown	RF Cable	W1101-EQ1 OUT	F-19-EM005	2020/11/29	2021/11/28
SNSD	Band Reject filter	BSF2402- 2480MN- 0898-001	2.4G filter	2020/04/20	2021/04/20
Ducommun Technolagies	Horn antenna	ARH-4223- 02	1007726-02 1304	2020/12/06	2023/12/05
RF Conducted Test					
Tonscend Corporation	RF control Unit	JS0806-2	19D8060154	2020/08/04	2021/08/03
Rohde & Schwarz	Signal and Spectrum Analyzer	FSV40	101473	2020/08/04	2021/08/03
Unknown	RF Cable	Unknown	2301 276	2020/11/29	2021/11/28

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

# FCC§15.247 (i), §1.1307 (b) (1) &§2.1093 – RF EXPOSURE

# **Applicable Standard**

According to FCC §2.1093 and §1.1307(b) (1), 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 D01 General RF Exposure Guidance

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq$  50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] ·

 $[\sqrt{f}(GHz)] \le 3.0$  for 1-g SAR and  $\le 7.5$  for 10-g extremity SAR, where

1. f(GHz) is the RF channel transmit frequency in GHz.

2. Power and distance are rounded to the nearest mW and mm before calculation.

3. The result is rounded to one decimal place for comparison.

4. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test Exclusion.

### For worst case:

Frequency	Maximum Tune-up power		Calculated Distance	Calculated	Threshold	SAR Test
(MHz)	(dBm)	(mW)	(mm)	Value	(1-g SAR)	Exclusion
2480	7.7	5.89	5	1.9	3.0	Yes

Result: No Standalone SAR test is required

# 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 antenna arrangement, which was permanently attached and the antenna gain is 0.15 dBi, fulfill the requirement of this section. Please refer to the EUT photos.

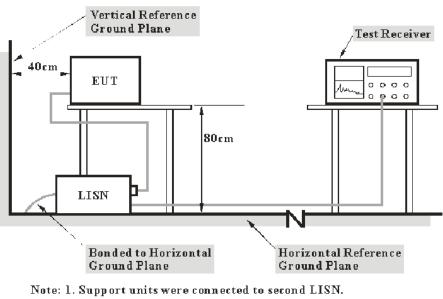
Result: Compliance.

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

# **Applicable Standard**

FCC §15.207(a)

# **EUT Setup**



Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

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.

# **Corrected Factor & Margin Calculation**

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

Correction Factor = LISN VDF + Cable Loss + Transient Limiter Attenuation

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

Margin = Limit – Corrected Amplitude

# **Test Data**

### **Environmental Conditions**

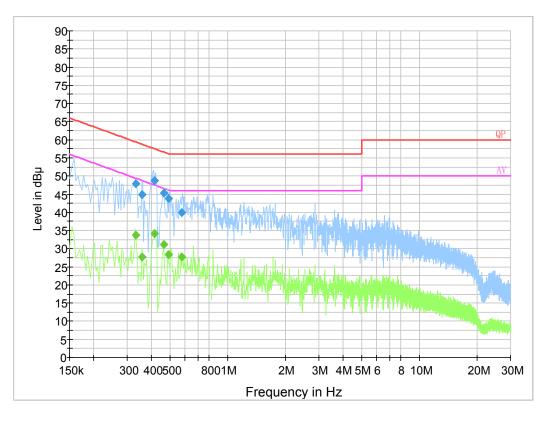
Temperature:	25 °C
<b>Relative Humidity:</b>	65 %
ATM Pressure:	101.0 kPa

The testing was performed by Haiguo Li on 2021-01-07.

EUT operation mode: BT&Wi-Fi Transmitting

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# AC 120V/60 Hz, Line



# **Final Result 1**

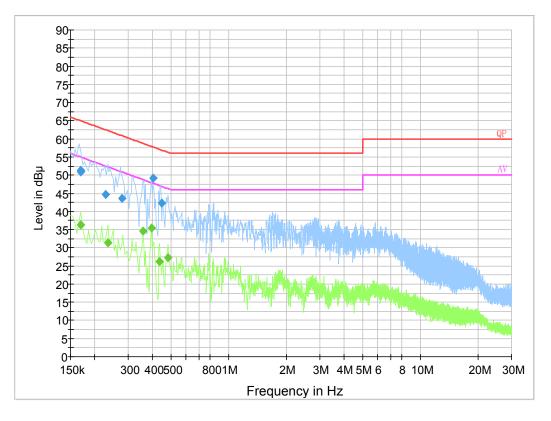
Frequency (MHz)	QuasiPeak (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.333050	47.9	9.000	L1	19.8	11.5	59.4
0.356630	45.0	9.000	L1	19.9	13.8	58.8
0.415790	48.8	9.000	L1	19.9	8.7	57.5
0.467010	45.3	9.000	L1	19.8	11.3	56.6
0.490650	43.8	9.000	L1	19.8	12.4	56.2
0.577270	39.9	9.000	L1	19.8	16.1	56.0

# **Final Result 2**

Frequency (MHz)	Average (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.333050	33.6	9.000	L1	19.8	15.8	49.4
0.356630	27.6	9.000	L1	19.9	21.2	48.8
0.415790	34.1	9.000	L1	19.9	13.4	47.5
0.467010	31.2	9.000	L1	19.8	15.3	46.6
0.490650	28.3	9.000	L1	19.8	17.9	46.2
0.577270	27.8	9.000	L1	19.8	18.2	46.0

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# AC 120V/60 Hz, Neutral



# **Final Result 1**

Frequency (MHz)	QuasiPeak (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.169500	51.4	9.000	Ν	19.8	13.6	65.0
0.169500	50.8	9.000	Ν	19.8	14.2	65.0
0.229500	44.8	9.000	Ν	19.8	17.7	62.5
0.277500	43.6	9.000	N	19.7	17.3	60.9
0.403970	49.2	9.000	Ν	19.8	8.6	57.8
0.447370	42.4	9.000	Ν	19.8	14.5	56.9

# **Final Result 2**

Frequency (MHz)	Average (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.170000	36.2	9.000	Ν	19.9	18.8	55.0
0.234000	31.4	9.000	Ν	19.8	20.9	52.3
0.358000	34.6	9.000	Ν	19.9	14.2	48.8
0.398000	35.3	9.000	Ν	19.8	12.6	47.9
0.438000	26.2	9.000	Ν	19.8	20.9	47.1
0.482000	27.3	9.000	Ν	19.8	19.0	46.3

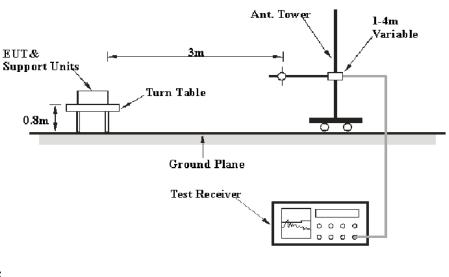
# FCC §15.205, §15.209 & §15.247(d) – RADIATED EMISSIONS

# **Applicable Standard**

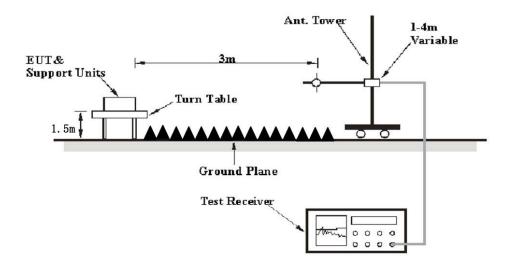
FCC §15.205; §15.209; §15.247(d)

# **EUT Setup**

Below 1 GHz:



# Above 1GHz:



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

# EMI Test Receiver & Spectrum Analyzer Setup

During the radiated emission test, according to the DA 00-705 Released March 30, 2000, 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
Above I GHZ	1 MHz	10 Hz	/	Average

### **Test Procedure**

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

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

# **Corrected Amplitude & Margin Calculation**

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

Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain

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

Margin = Limit – Corrected Amplitude

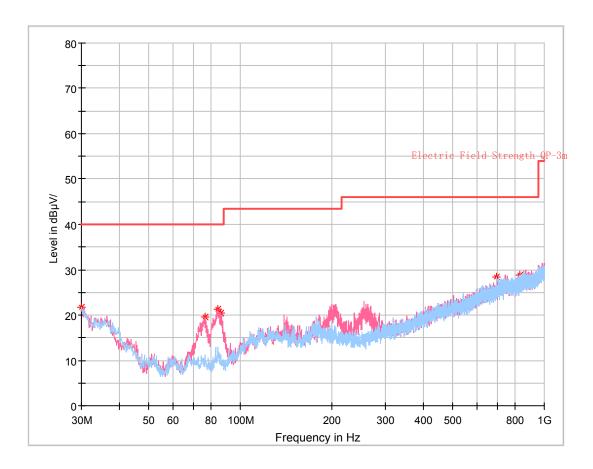
### **Test Data**

**Environmental Conditions** 

Temperature:	25~25.8°C
<b>Relative Humidity:</b>	51~52 %
ATM Pressure:	101.0~101.2 kPa

*The testing was performed by Kilroy Deng on 2021-04-06 for below 1GHz and Alan He on 2021-04-02 and 2021-04-03 for above 1GHz.* 

EUT operation mode: Transmitting



# 30 MHz~1 GHz: (BT&Wi-Fi Transmitting)

# Critical\_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.000000	21.79	40.00	18.21	400.0	Н	359.0	-3.5
76.560000	19.55	40.00	20.45	100.0	V	189.0	-16.6
84.320000	21.21	40.00	18.79	100.0	V	256.0	-16.6
86.017500	20.38	40.00	19.62	100.0	V	256.0	-16.6
697.845000	28.47	46.00	17.53	200.0	Н	276.0	-1.5
829.522500	28.89	46.00	17.11	400.0	V	277.0	-0.1

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<b>F</b>	Re	ceiver	T4-1-1-	Rx An	tenna	Corrected	Corrected	T ::4	Manain
Frequency (MHz)	Reading (dBµV)	PK/QP/Ave.	Turntable Degree	Height (m)		Factor (dB/m)	Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
			Low Ch	annel (2	402 MI	Hz)			
2389.13	29.62	PK	290	1.5	Н	31.87	61.49	74	12.51
2389.13	14.54	Ave.	290	1.5	Н	31.87	46.41	54	7.59
2496.09	29.15	РК	215	1.1	Н	32.13	61.28	74	12.72
2496.09	14.6	Ave.	215	1.1	Н	32.13	46.73	54	7.27
4804.00	44.16	РК	240	1.4	Н	6.28	50.44	74	23.56
4804.00	29.19	Ave.	240	1.4	Н	6.28	35.47	54	18.53
		_	Middle C	hannel	(2441 M	fHz)		_	
4882.00	44.68	PK	245	1.2	Н	6.76	51.44	74	22.56
4882.00	29.48	Ave.	245	1.2	Н	6.76	36.24	54	17.76
			High Ch	annel (2	2480 MI	Hz)			
2325.11	29.33	PK	193	1.4	Н	31.64	60.97	74	13.03
2325.11	14.55	Ave.	193	1.4	Н	31.64	46.19	54	7.81
2496.09	29.87	РК	313	2.3	Н	32.13	62.00	74	12.00
2496.09	16.45	Ave.	313	2.3	Н	32.13	48.58	54	5.42
4960.00	44.07	РК	283	2.1	Н	6.80	50.87	74	23.13
4960.00	29.55	Ave.	283	2.1	Н	6.80	36.35	54	17.65

**1 GHz - 25 GHz:** (Scan with GFSK,  $\pi/4$ -DQPSK, 8DPSK mode, the worst case is 8DPSK Mode)

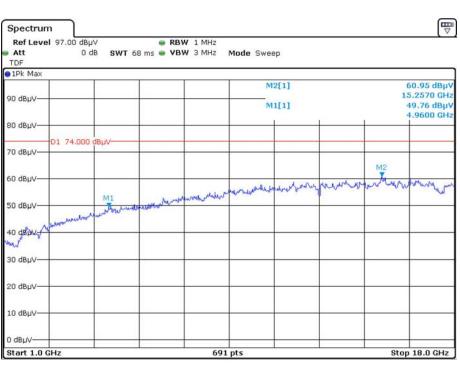
Note:

Corrected Factor = Antenna factor (RX) + Cable Loss - Amplifier Factor

Corrected Amplitude = Corrected Factor + Reading

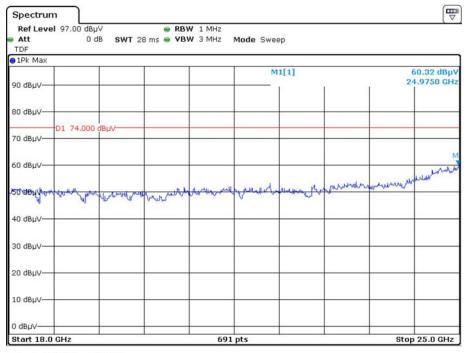
Margin = Limit - Corrected. Amplitude

The other spurious emission which is 20dB to the limit was not recorded.



### Pre-scan with high channel Peak Horizontal

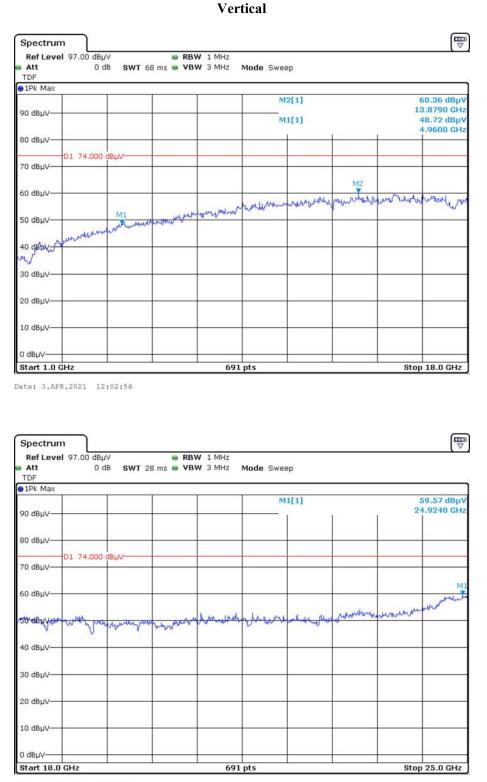
Date: 3.APR.2021 12:10:24



Date: 3.APR.2021 12:50:36

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Date: 3.APR.2021 12:59:44

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# Average Horizontal

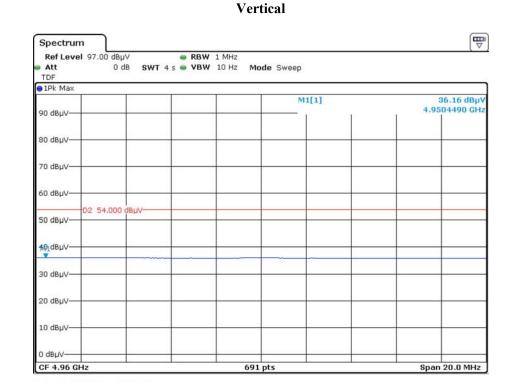
RefLeve	n 1 97.00 dBµ	V	🖷 RBW	1 MHz				
Att	0 c		4 s e VBW		de Sweep			
1Pk Max								
					M1[1]			35 dBµV
90 dBµV—			-		1	ар — 1	4.9506	510 GHz
80 dBµV—								
70 dBµV								
/0 ubpv								
60 dBµV—								
	D2 54.000	dBuilden						
50 dBµV	102 54.000	ивру						
40/dBµV-								
•								
30 dBµV—			77 a.			-		
2								
20 dBµV—								
10 dBµV—								
0 dBµV								
CF 4.96 G	Hz		_	691	nts		Span 20	
	R.2021 12	:16:01			10		·	_
Spectrur	n ]		- 2014					_
Spectrur		v	● RBW 4 s ● VBW	1 MHz				_
Spectrur Ref Leve Att TDF	n	v		1 MHz	de Sweep			_
Spectrur Ref Leve	n	v		1 MHz	<b>de</b> Sweep			<b>(</b> ⊞
Spectrur Ref Leve Att TDF 1Pk Max	n	v		1 MHz				(₩ ⊽
Spectrur Ref Leve Att TDF 1Pk Max	n	v		1 MHz	<b>de</b> Sweep		46.	(₩ ⊽
Spectrum Ref Leve Att TDF 1Pk Max 90 dBµV—	n	v		1 MHz	<b>de</b> Sweep		46.	(₩ ⊽
Spectrur Ref Leve Att TDF 91Pk Max 90 dBµV	n	v		1 MHz	<b>de</b> Sweep		46.	(₩ ⊽
Spectrur Ref Leve Att TDF	n	v		1 MHz	<b>de</b> Sweep		46.	(₩ ⊽
Spectrur Ref Leve Att TDF 91Pk Max 90 dBµV	n	v		1 MHz	<b>de</b> Sweep		46.	(₩ ⊽
Spectrur           Ref Leve           Att           TDF           1Pk Max           90 dBμV           80 dBμV           70 dBμV           60 dBμV	n el 97.00 dBµ 0 c	V B SWT		1 MHz	<b>de</b> Sweep		46.	(₩ ⊽
Spectrur Ref Leve Att TDF 91Pk Max 90 dBµV	n	V B SWT		1 MHz 10 Hz <b>Mo</b>	<b>de</b> Sweep		46.	(₩ ⊽
Spectrur Ref Leve Att TDF 91Pk Max 90 dBµV	n el 97.00 dBµ 0 c	V B SWT		1 MHz	<b>de</b> Sweep		46.	(₩ ⊽
Spectrur Ref Leve Att TDF 91Pk Max 90 dBµV	n el 97.00 dBµ 0 c	V B SWT		1 MHz 10 Hz <b>Mo</b>	<b>de</b> Sweep		46.	(₩ ⊽
Spectrur           Ref Leve           Att           TDF           1Pk Max           90 dBμV           80 dBμV           70 dBμV           60 dBμV	n el 97.00 dBµ 0 c	V B SWT		1 MHz 10 Hz <b>Mo</b>	<b>de</b> Sweep		46.	(₩ ⊽
Spectrur           Ref Leve           Att           TDF           1Pk Max           90 dBµV           80 dBµV           70 dBµV           50 dBµV           50 dBµV           40 dBµV	n el 97.00 dBµ 0 c	V B SWT		1 MHz 10 Hz <b>Mo</b>	<b>de</b> Sweep		46.	(₩ ⊽
Spectrur Ref Leve Att TDF 91Pk Max 90 dBµV	n el 97.00 dBµ 0 c	V B SWT		1 MHz 10 Hz <b>Mo</b>	<b>de</b> Sweep		46.	(₩ ⊽
Spectrur           Ref Leve           Att           TDF           91Pk Max           90 dBµV—           80 dBµV—           70 dBµV—           60 dBµV—           50 dBµV—           40 dBµV—           30 dBµV—	n el 97.00 dBµ 0 c	V B SWT		1 MHz 10 Hz <b>Mo</b>	<b>de</b> Sweep		46.	(₩ ⊽
Spectrur           Ref Leve           Att           TDF           91Pk Max           90 dBµV—           80 dBµV—           70 dBµV—           60 dBµV—           50 dBµV—           40 dBµV—           30 dBµV—           20 dBµV—	n el 97.00 dBµ 0 c	V B SWT		1 MHz 10 Hz <b>Mo</b>	<b>de</b> Sweep		46.	(₩ ⊽
Spectrur           Ref Leve           Att           TDF           91Pk Max           90 dBµV—           80 dBµV—           70 dBµV—           60 dBµV—           50 dBµV—           40 dBµV—           30 dBµV—           20 dBµV—	n el 97.00 dBµ 0 c	V B SWT		1 MHz 10 Hz <b>Mo</b>	<b>de</b> Sweep		46.	(₩ ⊽
Spectrur           Ref Leve           Att           TDF           1Pk Max           90 dBµV           80 dBµV           70 dBµV           50 dBµV           50 dBµV           40 dBµV	n el 97.00 dBµ 0 c	V B SWT		1 MHz 10 Hz <b>Mo</b>	<b>de</b> Sweep		46.	(₩ ⊽

Date: 3.APR.2021 12:55:04

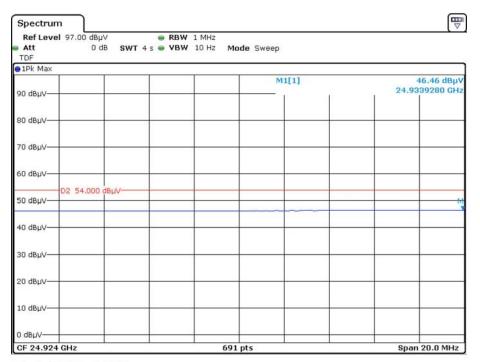
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Date: 3.APR.2021 01:03:20

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

# **Applicable Standard**

Frequency hopping systems shall have hoping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater provided the systems operate with an output power no greater than 125 mW. 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:	27 °C
<b>Relative Humidity:</b>	57 %
ATM Pressure:	101.0 kPa

The testing was performed by Bravos Zhao on 2021-04-02.

EUT operation mode: Transmitting

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

# **Applicable Standard**

Alternatively, frequency hopping systems operating in the 2400–2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

# **Test Procedure**

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

# Test Data

### **Environmental Conditions**

Temperature:	27 °C
<b>Relative Humidity:</b>	57 %
ATM Pressure:	101.0 kPa

The testing was performed by Bravos Zhao on 2021-04-02.

EUT operation mode: Transmitting

# 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:	27 °C
<b>Relative Humidity:</b>	57 %
ATM Pressure:	101.0 kPa

The testing was performed by Bravos Zhao on 2021-04-02.

EUT operation mode: Transmitting

# 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  $\geq 3 \times RBW$ .
- 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

# **Test Data**

# **Environmental Conditions**

Temperature:	27 °C	
<b>Relative Humidity:</b>	57 %	
ATM Pressure:	101.0 kPa	

The testing was performed by Bravos Zhao on 2021-04-02 and 2021-04-19.

EUT operation mode: Transmitting

# 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:	27 °C	
<b>Relative Humidity:</b>	57 %	
ATM Pressure:	101.0 kPa	

The testing was performed by Bravos Zhao on 2021-04-02.

EUT operation mode: Transmitting

# 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:	27 °C	
<b>Relative Humidity:</b>	57 %	
ATM Pressure:	101.0 kPa	

The testing was performed by Bravos Zhao on 2021-04-02.

EUT operation mode: Transmitting

# APPENDIX

# Appendix A: 20dB Emission Bandwidth Test Result

TestMode	Antenna	Channel	20db EBW[MHz]	Limit[MHz]	Verdict
DH1	Ant1	2402	0.891		PASS
		2441	0.891		PASS
		2480	0.891		PASS
2DH1	Ant1	2402	1.269		PASS
		2441	1.272		PASS
		2480	1.269		PASS
3DH1	Ant1	2402	1.257		PASS
		2441	1.257		PASS
		2480	1.260		PASS

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# **Test Graphs**









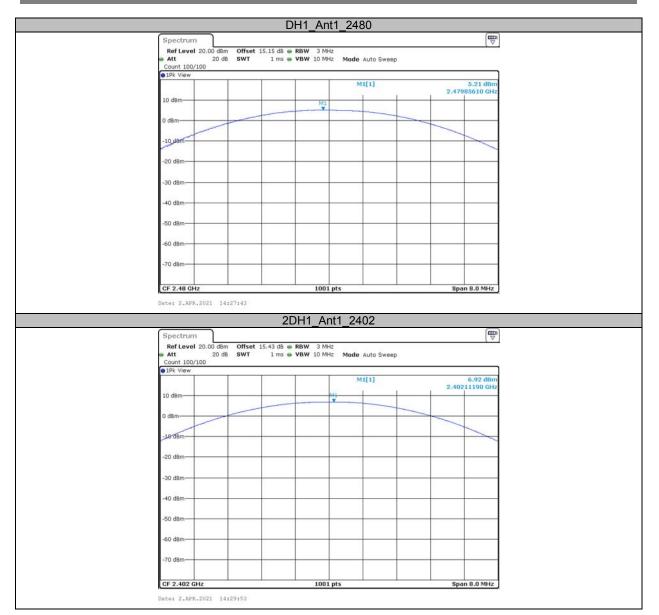


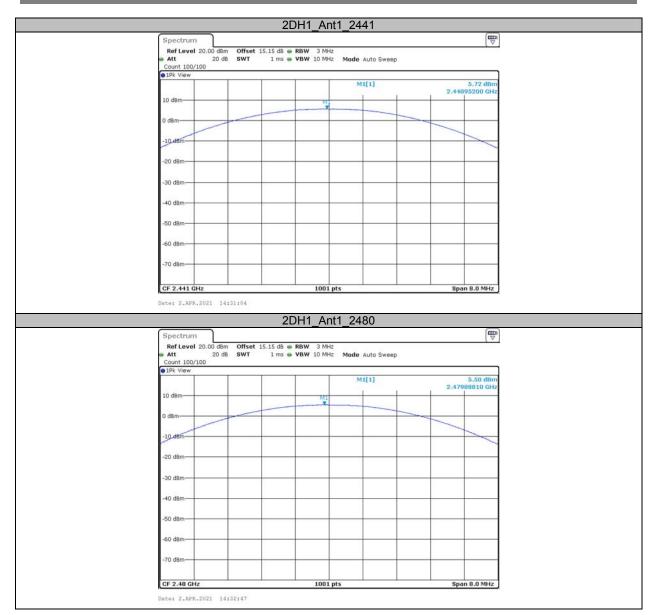
# Appendix B: Maximum conducted Peak output power Test Result

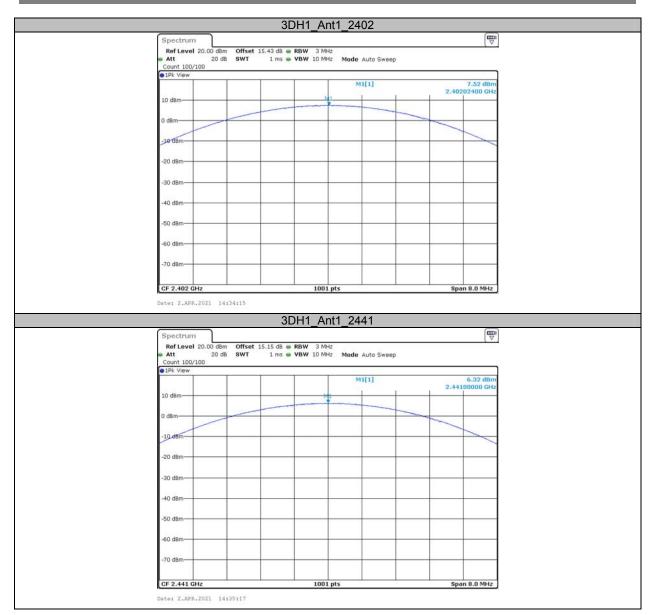
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH1	Ant1	2402	6.64	<=20.97	PASS
		2441	5.43	<=20.97	PASS
		2480	5.21	<=20.97	PASS
2DH1	Ant1	2402	6.92	<=20.97	PASS
		2441	5.72	<=20.97	PASS
		2480	5.50	<=20.97	PASS
3DH1	Ant1	2402	7.52	<=20.97	PASS
		2441	6.32	<=20.97	PASS
		2480	6.10	<=20.97	PASS

# Test Graphs

or or upric			D	H1_Ant1	1_2402			
	Spectrum							
	Ref Level 20.00 Att 2	dBm Offset 1 10 dB SWT	15,43 dB 🖷 1 ms 🖷	RBW 3 MHz VBW 10 MHz	Mode Auto Swe	зер		
	Count 100/100 Pk View							
	THE VIEW				M1[1]			6.64 dBm
	10 dBm-			MI		-	2.401	79220 GHz
				M1 ¥		_		
	0 dBm						-	
	-10 dBm							1
	- Contraction							
	-20 dBm				-	_	-	
	-30 dBm							
	-50 0601							
	-40 dBm						-	
	-50 dBm							
	-50 0011							
	-60 dBm					-	-	
	-70 dBm							
	-yo dam							
	05.0.100.011-			1001 pt	ts		Spa	n 8.0 MHz
	CF 2.402 GHz	14:22:26	D	H1_Ant1	1_2441			
	Date: 2.APR.2021	14:22:26	D	H1_Ant1	1_2441			E □
	Date: 2.APR.2021 Spectrum Ref Level 20.00	dBm Offset 1	15.15 dB 🖷	RBW 3 MHz	- Norman State and			
	Date: 2.APR.2021 Spectrum Ref Level 20.00 Att 2 Count 100/100		15.15 dB 🖷	RBW 3 MHz	1_2441 Mode Auto Swe	зер	_	
	Date: 2.APR.2021 Spectrum Ref Level 20.00 Att 2	dBm Offset 1	15.15 dB 🖷	RBW 3 MHz	Mode Auto Swe	ep:		
	Spectrum Ref Level 20.00 Att Count 100/100 1Pk View	dBm Offset 1	15.15 dB 🖷	RBW 3 MHz	- Norman State and	bep	2,440	5.43 dBm 85610 GHz
	Date: 2.APR.2021 Spectrum Ref Level 20.00 Att 2 Count 100/100	dBm Offset 1	15.15 dB 🖷	RBW 3 MHz	Mode Auto Swe	eep	2.440	5.43 dBm
	Spectrum Ref Level 20.00 Att Count 100/100 1Pk View	dBm Offset 1	15.15 dB 🖷	RBW 3 MHz VBW 10 MHz	Mode Auto Swe	rep	2.440	5.43 dBm
	Date: 2.APR.2021  Spectrum Ref Level 20.00 Att 22 Count 100/100 P1Pk View 10 dBm 0 dBm	dBm Offset 1	15.15 dB 🖷	RBW 3 MHz VBW 10 MHz	Mode Auto Swe	ep	2.440	5.43 dBm
	Spectrum Ref Level 20.00 Att 22 Count 100/100 IPk View 10 dBm	dBm Offset 1	15.15 dB 🖷	RBW 3 MHz VBW 10 MHz	Mode Auto Swe		2,440	5.43 dBm
	Date: 2.APR.2021  Spectrum Ref Level 20.00 Att 22 Count 100/100 P1Pk View 10 dBm 0 dBm	dBm Offset 1	15.15 dB 🖷	RBW 3 MHz VBW 10 MHz	Mode Auto Swe	heb	2,440	5.43 dBm
	Date: 2.APR.2021  Spectrum Ref Level 20.00 Att Count 100/100  IPk View  10 dBm  -10 dBm  -20 dBm	dBm Offset 1	15.15 dB 🖷	RBW 3 MHz VBW 10 MHz	Mode Auto Swe	heb	2.440	5.43 dBm
	Date: 2.APR.2021 Spectrum Ref Level 20.00 Att 22 Count 100/100 FIPk View 10 dBm 0 dBm -10, dBm -10, dBm	dBm Offset 1	15.15 dB 🖷	RBW 3 MHz VBW 10 MHz	Mode Auto Swe	heb	2,440	5.43 dBm
	Date: 2.APR.2021  Spectrum Ref Level 20.00 Att Count 100/100  IPk View  10 dBm  -10 dBm  -20 dBm	dBm Offset 1	15.15 dB 🖷	RBW 3 MHz VBW 10 MHz	Mode Auto Swe		2,440	5.43 dBm
	Date: 2.APP.2021  Spectrum Ref Level 20.00 Att Count 100/100 IPk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm	dBm Offset 1	15.15 dB 🖷	RBW 3 MHz VBW 10 MHz	Mode Auto Swe		2,440	5.43 dBm
	Date: 2.APF.2021 Spectrum Ref Level 20.00 Att Count 100/100 IPk View 10 dBm 0 dBm -10,dBm -20 dBm -30 dBm	dBm Offset 1	15.15 dB 🖷	RBW 3 MHz VBW 10 MHz	Mode Auto Swe		2,440	5.43 dBm
	Date: 2.APP.2021  Spectrum Ref Level 20.00 Att Count 100/100 IPk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm	dBm Offset 1	15.15 dB 🖷	RBW 3 MHz VBW 10 MHz	Mode Auto Swe		2,440	5.43 dBm
	Date: 2.APP.2021  Spectrum Ref Level 20.00 Att Count 100/100 IPk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -50	dBm Offset 1	15.15 dB 🖷	RBW 3 MHz VBW 10 MHz	Mode Auto Swe		2,440	5.43 dBm
	Date: 2.APR.2021 Spectrum Ref Level 20.00 Att 20.00 Att 20.00 PiPk View 10 dBm 0 dBm -10,dBm -20 dBm -30 dBm -40 dBm -50 dBm -	dBm Offset 1	15.15 dB 🖷	RBW 3 MHz VBW 10 MHz	Mode Auto Swe		2,440	5.43 dBm
	Date: 2.APP.2021  Spectrum Ref Level 20.00 Att Count 100/100 IPk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -50	dBm Offset 1	15.15 dB 🖷	RBW 3 MHz VBW 10 MHz	Mode Auto Swe			5.43 dBm







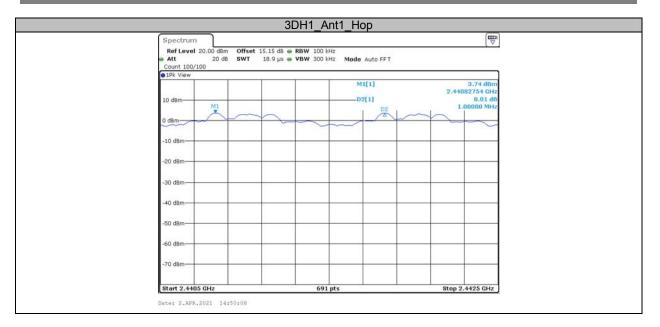
Spect	rum				
		dB 🖷 RBW 3 MHz		(*)	
- Att		ms - VBW 10 MHz Mode Au	to Sweep		
	100/100				
• 1Pk V	ew				
		M1[:	1]	6.10 dBm	
10 dBm		1	2.47	991210 GHz	
10 000		Mi			
- in-					
0 dBm-					
200.000					
-10.687					
-20 dBr					
-30 dBr					
-40 dBr					
-50 dBr					
-50 001					
an in					
-60 dBr	1				
-70 dBr					
CF 2.4	8 GHz	1001 pts	Sn	an 8.0 MHz	
CF 2.4	8 GH2	1001 pts	sp	an 8.0 MH2	

## Appendix C: Carrier frequency separation Test Result

TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH1	Ant1	Нор	1	>=0.594	PASS
2DH1	Ant1	Нор	1	>=0.848	PASS
3DH1	Ant1	Нор	1	>=0.838	PASS

## **Test Graphs**





## Appendix D: Time of occupancy Test Result

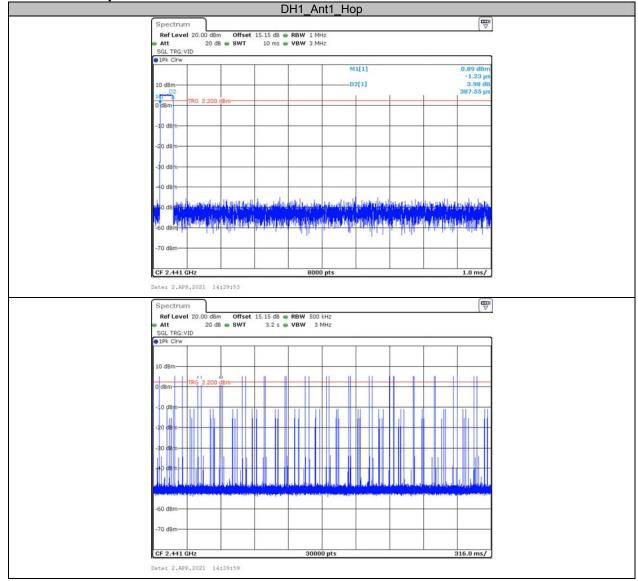
TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Нор	0.39	320	0.124	<=0.4	PASS
DH3	Ant1	Нор	1.64	170	0.278	<=0.4	PASS
DH5	Ant1	Нор	2.88	130	0.374	<=0.4	PASS
2DH1	Ant1	Нор	0.38	330	0.126	<=0.4	PASS
2DH3	Ant1	Нор	1.62	140	0.227	<=0.4	PASS
2DH5	Ant1	Нор	2.86	90	0.258	<=0.4	PASS
3DH1	Ant1	Нор	0.38	320	0.121	<=0.4	PASS
3DH3	Ant1	Нор	1.62	160	0.259	<=0.4	PASS
3DH5	Ant1	Нор	2.86	130	0.372	<=0.4	PASS

Note 1: A period time=0.4\*79=31.6(S), Result=BurstWidth\*Totalhops

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

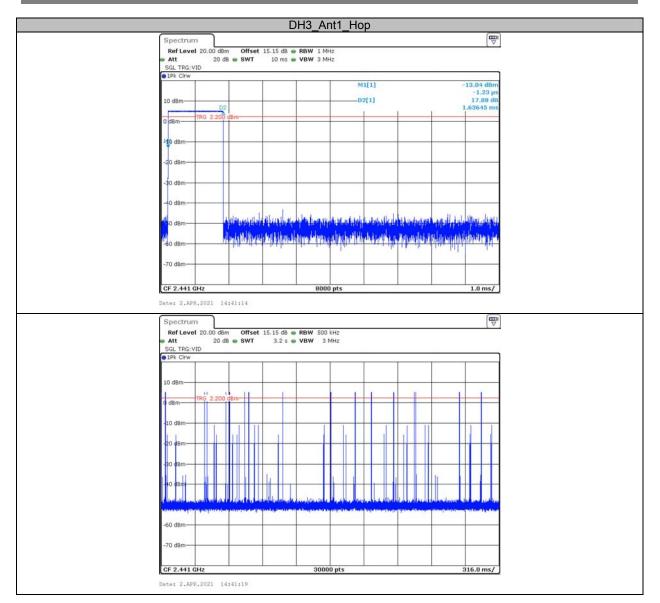
Note 3: Hopping Number in 3.16s=Total of highest signals in 3.16s(Second high signals were other channel)

## **Test Graphs**

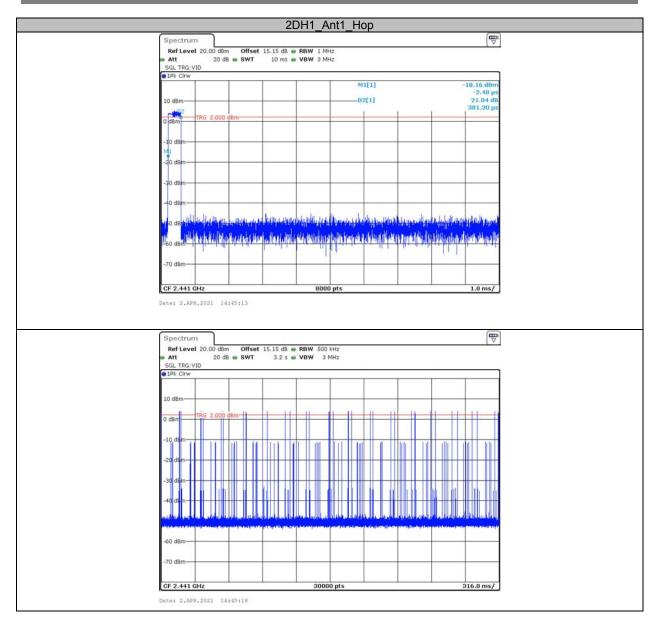


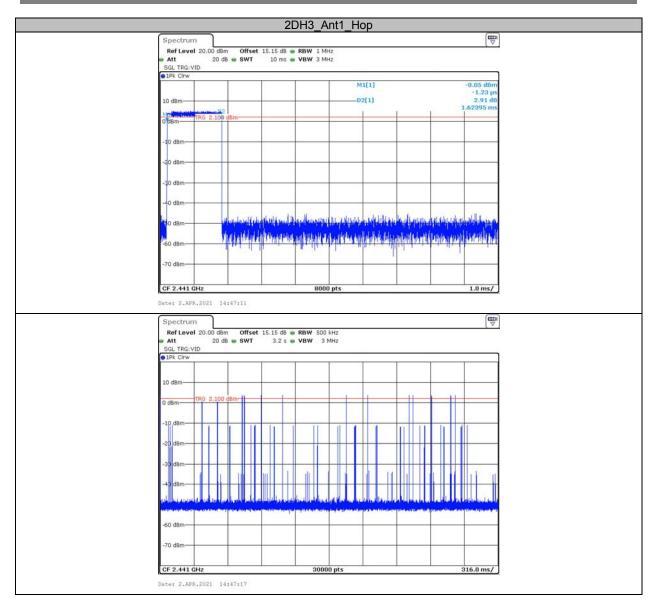
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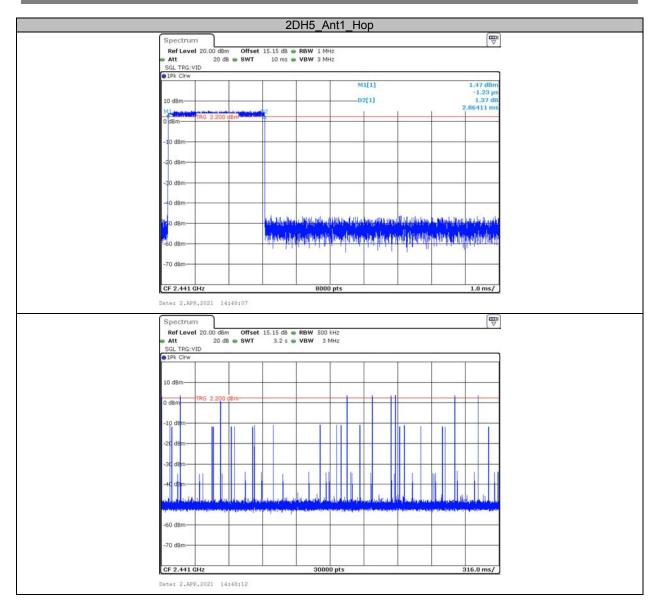
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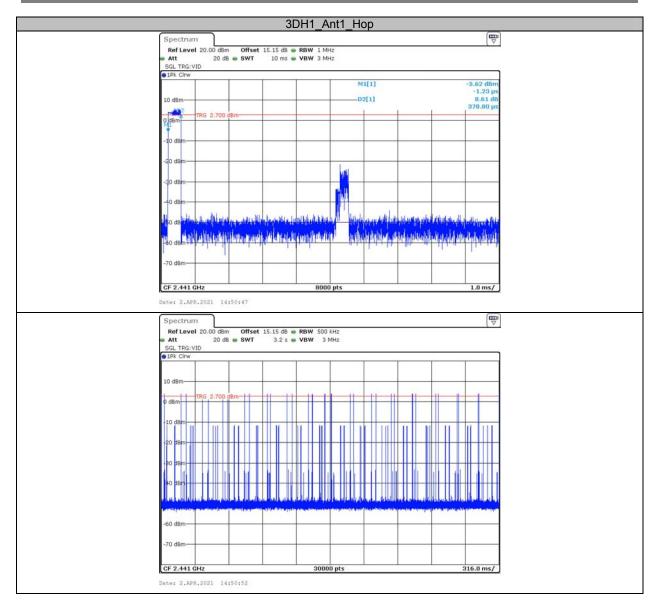


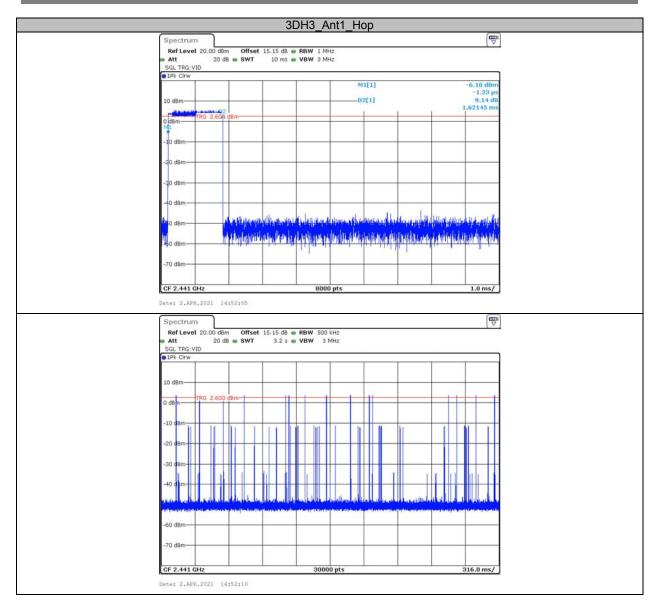
DH5_Ant1_Hop	
 Spectrum 🛱	
Ref Level         20.00 dBm         Offset         15.15 dB         RBW         1 MHz           Att         20 dB         SWT         10 ms         VBW         3 MHz	
SGL TRG:VID	
M1[1] -16.59 dBm -1.23 µs	
10 dBm D2[1] 21.29 dB 2.87661 ms	
0 dBm- TRG 2.100 dBm-	
-10 dem	
-20 d8m	
-30 d8m	
-40 dBm	
lino dBm	
so dem vigita ci la resitativit e delata e para la calla delata e para dela delata de altra dela delata de altr	
-70 dBm-	
CF 2.441 GHz 8000 pts 1.0 ms/	
Date: 19.AFR.2021 18:04:36	
Dater 19.APR.2021 18:04:36 Spectrum Ref Level 20.00 dBm Offset 15:15 dB  RBW 500 kHz	
 Dater 19.APR.2021 18:04:36  Spectrum Ref Level 20.00 dBm Offset 15:15 dB RBW 500 kHz Att 20 dB SWT 3.2 s VBW 3 MHz SGL TRG:VID	
 Date: 19.AFR.2021 18:04:36  Spectrum Ref Level 20.00 dBm Offset 15.15 dB RBW 500 kHz Att 20 dB SWT 3.2 5 VBW 3 MHz	
Date: 19.AFR.2021 18:04:36   Spectrum  Ref Level 20:00 dBm Offset 15:15 dB RBW 500 kHz  Att 20 dB SWT 3:2 s VBW 3 MHz  SGL TRG:VID  ID dBm I0	
Date: 19.APR.2021 18:04:36  Spectrum Ref Level 20.00 dBm Offset 15:15 dB RBW 500 kHz SGL TRG:VID  10 dBm 10 dBm	
Date: 19.APR.2021 18:04:36  Spectrum RefLevel 20.00 dBm Offset 15:15 dB @ RBW 500 kHz Att 20 dB @ SWT 3:2 s @ VBW 3 MHz SGL TRG:VID  FJPk Clrw	
Date: 19.APR.2021 18:04:36  Spectrum Ref Level 20.00 dBm Offset 15:15 dB RBW 500 kHz SGL TRG:VID  10 dBm 10 dBm	
Date: 19.AFR.2021 18:04:36  Spectrum  Ref Level 20.00 dBm Offset 15:15 dB  RBW 500 HE Att 20 dB SWT 3.2 s VBW 3 MHz SGL TRG:VID  TRG 2:100 dBm OdBm OdBm OdBm OdBm OdBm OdBm OdBm O	
Date: 19.APR.2021 18:04:36  Spectrum  Ref Level 20.00 dBm Offset 15.15 dB RBW 500 kHz SLTG;VD  10 dBm 10 dBm 10 dBm -10 dBm -1	
Dater 19.APR.2021 18:04:36  Spectrum  Ref Level 20.00 dBm Offset 15:15 dB  RBW 500 kHz Att 20 dB  SWT 3:2 s  VBW 3 MHz SGL TRG: VD  10 dBm 0 dBm 10 dBm -10 dB	
Date: 19.APR.2021 18:04:36  Spectrum  Ref Level 20.00 dBm Offset 15.15 dB RBW 500 kHz SLTG;VD  10 dBm 10 dBm 10 dBm -10 dBm -1	
Date: 19.APR.2021 18:04:36  Spectrum  Ref Level 20.00 dBm Offset 15.15 dB RBW 500 kHz SLTG;VD  10 dBm 10 dBm 10 dBm -10 dBm -1	
Date: 19.APR.2021 18:04:36  Spectrum Ref Level 20.00 dbm Offset 15.15 db  RBW 500 kHz SGL TRG:VID  10 dbm 0 dbm 10	
Date: 19.APR.2021 18:04:36  Spectrum  Ref Level 20.00 dBm Offset 15.15 dB RBW 500 kHz SLTG;VD  10 dBm 10 dBm 10 dBm -10 dBm -1	
Date: 19.APR.2021 18:04:36  Spectrum Ref Level 20.00 dbm Offset 15.15 db  RBW 500 kHz SGL TRG:VID  10 dbm 0 dbm 10	
Date: 19.APR.2021 18:04:36	

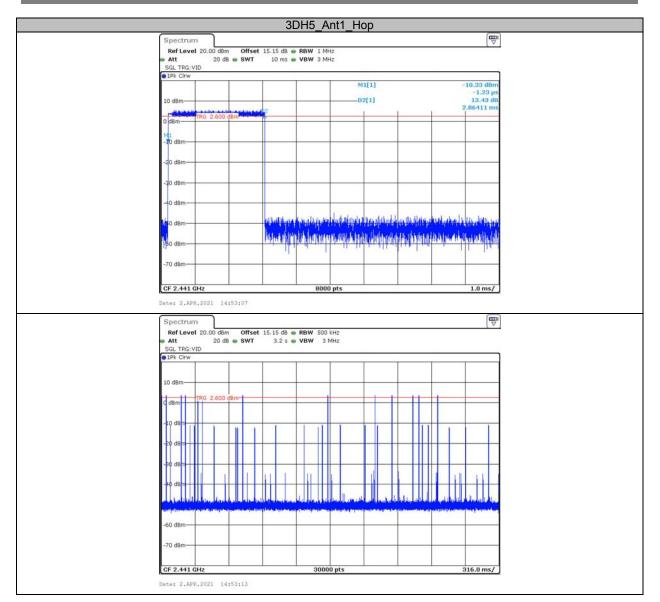












## Appendix E: Number of hopping channels Test Result

TestMode	Antenna	Channel	Result[Num]	Limit[Num]	Verdict
DH1	Ant1	Нор	79	>=15	PASS
2DH1	Ant1	Нор	79	>=15	PASS
3DH1	Ant1	Нор	79	>=15	PASS

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## **Test Graphs**

			D	H1 Ar	nt1_Ho	р			
Spectrum									
Ref Level	20.00 dBm 20 dB		1 ms	RBW 100 k	Hz Hz Mode	Auto Swoo			
e1Pk View	20 00		1 112		na mode	Auto Sweet	P		
10 dBm			-				Second Ve	And and	a a la
			11011010	OALBAAD	huuuuu	ADDERDAL	nnnnnn	THRATH	INTIN
		10000	WWW	WRWYYD	NI WANT	AWUNK	WALLAR.	HUHW	
-10 dBm			1	011001	00 00 00 00	distant		-ditterl.	
-20 dBm									
-30 dBm									
-40 dBm					-				
-50 dBm									
-60 dBm							-		
-									
-70 dBm									
Start 2.4 GH	-lz			691	pts			Stop 2.	4835 GHz
Date: 2.APR.		:39:42							
			2[	)H1 A	nt1_Ho	n			
Spectrum						<u>۲</u>			<b>₩</b>
	20.00 dBm	Offset 1	.5,43 dB 🖷	RBW 100 k	Hz	20 e			[*
Hui Lovai			1 ms 📟	<b>VBW</b> 300 k					
Att     IPk View	20 d8	SWI	91. U	-	na mode	Auto Sweep	p	2 2	
Att	20 dB	SWI			ne mode	Auto Sweep	P		
Att In dBm									
Att In dBm								NNAMAA	INNAHI
<ul> <li>Att</li> <li>1Pk View</li> </ul>								MAMAA	koulai
Att In dBm								Andrina	MM
Att  IPk View  O								MAMA	<u>bovini</u>
Att  IPk View  Odem  -10 dBm -10 dBm								fantinnu	
Att  IPk View  Odem  -10 dBm -10 dBm								YANA MAA	WWW
Att     IPk View     I0 dBm     O     OBm     -10 dBm     -20 dBm								ana	MMM -
Att     IPk View     I0 dBm     -10 dBm     -20 dBm     -30 dBm     -40 dBm								MANANA	
Att     IPk View     I0 dBm     Odem     Odem     -10 dBm     -20 dBm     -30 dBm								Annan	MMM -
Att     IPk View     I0 dBm     -10 dBm     -20 dBm     -30 dBm     -40 dBm								ANAMAN ANAMAN	ANAN L
Att     IPk View     I0 dBm     -10 dBm     -20 dBm     -30 dBm     -40 dBm     -50 dBm     -60 dBm								<u>YANAAAAA</u>	
Att     IPk View     I0 dBm     Odem     Odem     Codem     C								ANAANAI	INDAA A
Att     IPk View     I0 dBm     -10 dBm     -20 dBm     -30 dBm     -40 dBm     -50 dBm     -60 dBm	WWWWW								4835 GHz
Att     IPk View     I0 dBm     O	42			AAAAAAA					

Spectrum 🕎
Ref Level         20.00 dBm         Offset         15.43 dB         RBW         100 kHz           Att         20 dB         SWT         1 ms         VBW         300 kHz         Mode         Auto Sweep
Plk View
10 dBm
- parantananananananananananananananananana
-10 dBm
-20 dBm
/30 dBm
SO GUIT
40 dBm
-50 dBm
-60 dBm-
-70 dBm
Start 2.4 GHz 691 pts Stop 2.4835 GHz

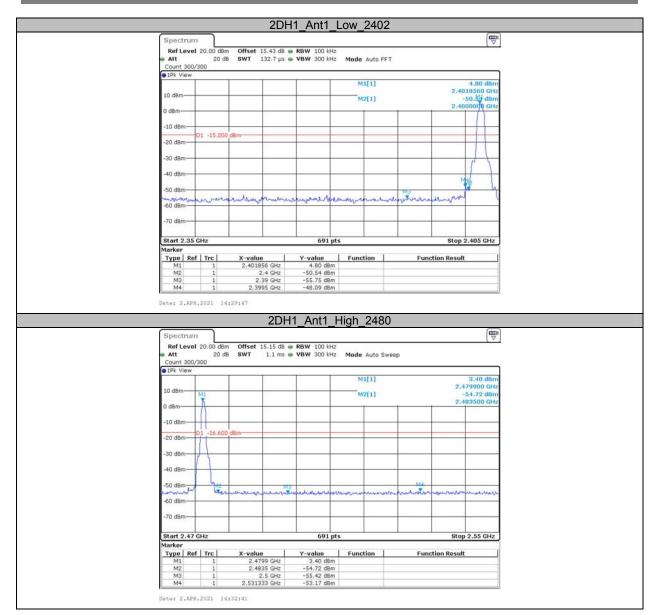
## Appendix F:Band edge measurements Test Graphs

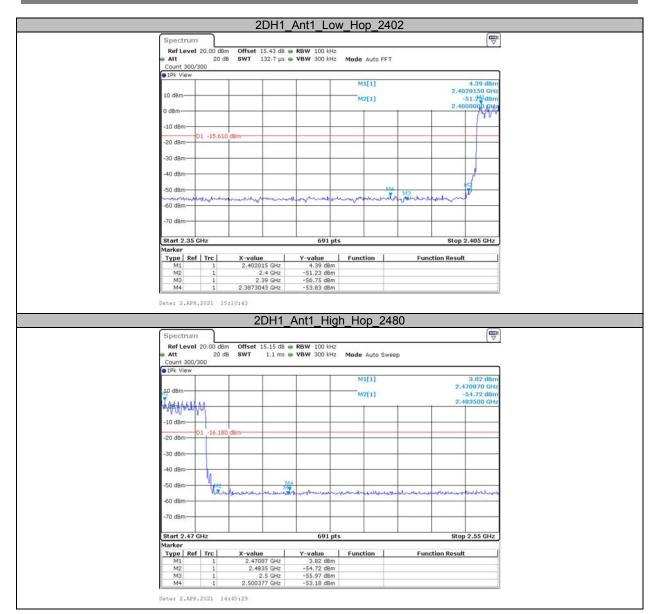
			DH	1_Ant1_L	Low_2	402			
Spectru	n								
Ref Leve	20.00 dBm	Offset 15.	.43 dB 🖷	RBW 100 kHz	2	Co Cessia			[*]
👄 Att	20 d8	3 SWT 132	2.7 µs 🖷	<b>VBW</b> 300 kHz	Z Mode #	Auto FFT			
Count 300 1Pk View									
					M1	[1]			6.33 dBm
10 dBm	<u> </u>	<b>├</b>		+	M2			2.401	18560 GHz
					m2,	1.41		2.400	53.76 dBm 00000 GHz
0 dBm									1
-10 dBm	01.000	100							1
-20 dBm-	01 -13.670	dBm							
-30 dBm-	1			+			+ +	<u> </u>	( )
-40 dBm-				+					$\downarrow$
0.03330.02004								I I	1 1
-50 dBm-							Man		7 t
-60 dBm-	mohoun	wohand	menter	monum	nontrol	marin	meren	mestion	74
15025231200									
-70 dBm-									
Start 2.3	GHz			691 pt	ts			Stop 2	.405 GHz
Marker				394 P					
Type R M1	af Trc	X-value 2.401856	GHA	Y-value 6.33 dBm	Function	on	Func	tion Result	
M2	1	2.4	GHz	-53.75 dBm	1				
M3 M4	1	2.39	GHz	-55.85 dBm -53.12 dBm	1				
		2-3330300	- mer 76	00.12 GBM					
Date: 2.AF	R.2021 14			Ant1_H		480			
Date: 2.AP		:22:20	DH1	Ant1_H	High_2	.480			(
Date: 2.AF	m 1 20.00 dBm 20 dB	122120 n <b>Offset</b> 15.	DH1		High_2	10.12	p		
Date: 2.AF	m 1 20.00 dBm 20 dB	122120 n <b>Offset</b> 15.	DH1	RBW 100 kHz	High_2	10.12	ip		
Date: 2.AF Spectrum RefLevi Att Count 300	m 1 20.00 dBm 20 dB	122120 n <b>Offset</b> 15.	DH1	RBW 100 kHz	High_2	Auto Sweep	1p.		4.90 dBm
Date: 2.AF Spectrum RefLevi Att Count 300	m 1 20.00 dBm 20 dB	122120 n <b>Offset</b> 15.	DH1	RBW 100 kHz	High_2 <sup>z</sup> Mode A M1	Auto Sweep	ıp.	-5	4.90 dBm 79900 GHz 55.26 dBm
Date: 2.AF Spectrum Ref Levi Att Count 300 91Pk View 10 dBm-	m 1 20.00 dBm 20 dB	122120 n <b>Offset</b> 15.	DH1	RBW 100 kHz	High_2 z z Mode A	Auto Sweep	ıp	-5	4.90 dBm 79900 GHz
Date: 2.AF Spectrum Ref Leve Att Count 300 1Pk View 10 dBm	m 1 20.00 dBm 20 dB	122120 n <b>Offset</b> 15.	DH1	RBW 100 kHz	High_2 <sup>z</sup> Mode A M1	Auto Sweep	ıp	-5	4.90 dBm 79900 GHz 55.26 dBm
Date: 2.AF Spectrum Ref Levi Att Count 300 91Pk View 10 dBm-	n 20.00 dBm 20 dB	:22:20	DH1	RBW 100 kHz	High_2 <sup>z</sup> Mode A M1	Auto Sweep	p	-5	4.90 dBm 79900 GHz 55.26 dBm
Date: 2.AF Spectrum Ref Leve Att Count 300 1Pk View 10 dBm	m 20.00 dBm 20 dB	:22:20	DH1	RBW 100 kHz	High_2 <sup>z</sup> Mode A M1	Auto Sweep	P	-5	4.90 dBm 79900 GHz 55.26 dBm
Spectrum Ref Levy Att Count 300 1Pk View 10 dBm -10 dBm -20 dBm	n 20.00 dBm 20 dB	:22:20	DH1	RBW 100 kHz	High_2 <sup>z</sup> Mode A M1	Auto Sweep	p	-5	4.90 dBm 79900 GHz 55.26 dBm
Spectrum Ref Levy Att Count 300 10 dBm- -10 dBm-	n 20.00 dBm 20 dB	:22:20	DH1	RBW 100 kHz	High_2 <sup>z</sup> Mode A M1	Auto Sweep	P	-5	4.90 dBm 79900 GHz 55.26 dBm
Spectrum Ref Levy Att Count 300 1Pk View 10 dBm -10 dBm -20 dBm	n 20.00 dBm 20 dB	:22:20	DH1	RBW 100 kHz	High_2 <sup>z</sup> Mode A M1	Auto Sweep	P	-5	4.90 dBm 79900 GHz 55.26 dBm
Date: 2.Al Spectrum RefLevy Att Count 300 PIPk View 10 dBm 0 dBm -20 dBm -30 dBm -40 dBm	m 20 dB 20 dB //300	:22:20	DH1	RBW 100 kHz	High_2 <sup>z</sup> Mode A M1	Auto Sweep	p	-5	4.90 dBm 79900 GHz 55.26 dBm
Date: 2.Al Spectru Ref Lev Att Count 300 PIPk View 10 dBm	71 12 20.00 dBm 2/300	:22:20	DH1	RBW 100 kHz VBW 300 kHz	High_2	Auto Sweep [1] [1]	1p	-5	4.90 dBm 79900 GHz 55.26 dBm
Date: 2.AF Spectrum Ref Levy Att Count 300 PPk View 10 dBm	m 20 dB 20 dB //300	:22:20	DH1	RBW 100 kHz VBW 300 kHz	High_2	Auto Sweep [1] [1]		-5	4,90 dBm 79900 GHz 55.26 dBm 33500 GHz
Date: 2.Al Spectru Ref Lev Att Count 300 PIPk View 10 dBm	m 20 dB 20 dB //300	:22:20	DH1	RBW 100 kHz VBW 300 kHz	High_2	Auto Sweep [1] [1]		-5	4,90 dBm 79900 GHz 55.26 dBm 33500 GHz
Date: 2.Al Spectru: Ref Levi Att Count 300 PIPk View 10 dBm	m 20 dB 20 dB //300	:22:20	DH1	RBW 100 kHz VBW 300 kHz	High_2	Auto Sweep [1] [1]		-5	4.90 dBm 79900 GHz 55.26 dBm 33500 GHz
Date: 2.Al Ref Levi Att Count 300 PIPk View 10 dBm	m 20.00 dBm 20 dB /200	:22:20	DH1	RBW 100 kHz VBW 300 kHz	High_2	Auto Sweep [1] [1]		-5 2.48	4.90 dBm 79900 GHz 55.26 dBm 33500 GHz
Date: 2.Al Spectrum Ref Levy Att Count 300 PIPk View 10 dBm	m 20.00 dBm 20 dB //200	:22:20	DH1	RBW 100 kHz     VBW 300 kHz     VBW 300 kHz	High_2	Auto Sweep [1] [1]			4.90 dBm 79900 GHz 55.26 dBm 33500 GHz
Date: 2.Al Ref Levi Att Count 300 PIPk View 10 dBm	m 20.00 dBm 20.00 dBm 20 dB //300	:22:20	DH1 .15 dB • .1.1 ms •	RBW 100 kHz	High_2	Auto Sweep [1] [1]		-5 2.48	4.90 dBm 79900 GHz 55.26 dBm 33500 GHz
Spectrum           Ref Levy           Att           Count 300           10 dBm           0 dBm           -10 dBm           -20 dBm           -30 dBm           -50 dBm           -60 dBm           -70 dBm           Start 2.4           Marker           Type R           M1           M2	m 1 20.00 dBm 20 dB 20 dB	:22:20	DH1 .15 dB • .11 ms •	RBW 100 kHz           VBW 300 kHz           00 kHz           4.90 dBm           -55.26 dBm	High_2	Auto Sweep [1] [1]			4.90 dBm 79900 GHz 55.26 dBm 33500 GHz
Date: 2.Al           Spectrum           Ref Levy           Att           Count 300           10 dBm           0 dBm           -10 dBm           -20 dBm           -30 dBm           -50 dBm           -50 dBm           -50 dBm           -50 dBm           -50 dBm           -70 dBm           Start 2.47           Marker           Type 1 R           M1	m 20.00 dBm 20 dE //300	:22:20	DH1 .15 dB 	RBW 100 kHz     VBW 300 kHz     VBW 300 kHz     O	High_2 Z Mode A M11 M2	Auto Sweep [1] [1]			4.90 dBm 79900 GHz 55.26 dBm 33500 GHz

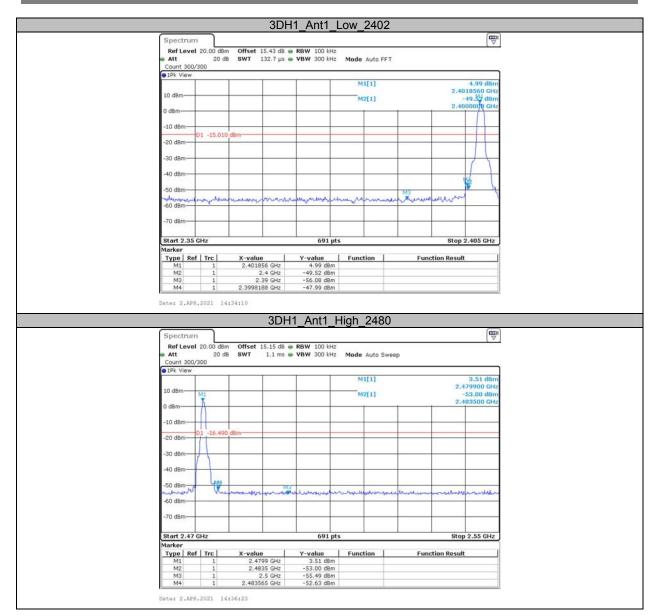
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## \*\*\*\*\* END OF REPORT \*\*\*\*\*

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