Shenzhen Huaxia Testing Technology Co., Ltd.



1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

 Telephone:
 +86-755-26648640

 Fax:
 +86-755-26648637

 Website:
 www.cqa-cert.com

Report Template Version: V05 Report Template Revision Date: 2021-11-03

Test Report

Report No. : Applicant: Address of Applicant:	CQASZ20220901584E-01 Shenzhen I-Link Technology CO., LTD. Floor B2, Block 1, Yongqi Technopark,Yintian Industrial park, Xixiang Town, Baoan district, Shenzhen, P.R.China		
Equipment Under Test (E	UT):		
Product:	BLUETOOTH 5.0 TRANSMITTER AND RECEIVER 2 IN 1 ADAPTER		
Model No.:	DWR21, T10, T20, T30, T40, T50, T60, T70, T80, K10, K20, BT5801, BT5801A,		
	BT5801B, BT5801C, BT5801D		
Test Model No.:	DWR21		
Brand Name:	N/A		
FCC ID:	RCT-DWR21		
Standards:	47 CFR Part 15, Subpart C		
Date of Receipt:	2022-09-08		
Date of Test:	2022-09-08 to 2022-09-19		
Date of Issue:	2022-9-30		
Test Result :	PASS*		

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

Tested By:	lewis zhou	
	(Lewis Zhou)	
Reviewed By:	Timo Lei	
Annual Dur	(Timo Lei)	
Approved By:	(Jack Ai)	



The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.



Version

Revision History Of Report

Report No.	Report No. Version		Issue Date
CQASZ20220901584E-01	Rev.01	Initial report	2022-9-30



1 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15, Subpart C Section 15.203/15.247 (c)	ANSI C63.10 (2013)	PASS
AC Power Line Conducted Emission	47 CFR Part 15, Subpart C Section 15.207	ANSI C63.10 (2013)	PASS
Conducted Peak Output Power	47 CFR Part 15, Subpart C Section 15.247 (b)(1)	ANSI C63.10 (2013)	PASS
20dB Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.247 (a)(1)	ANSI C63.10 (2013)	PASS
Carrier Frequencies Separation	47 CFR Part 15, Subpart C Section 15.247 (a)(1)	ANSI C63.10 (2013)	PASS
Hopping Channel Number	47 CFR Part 15, Subpart C Section 15.247 (a)(1)	ANSI C63.10 (2013)	PASS
Dwell Time	47 CFR Part 15, Subpart C Section 15.247 (a)(1)	ANSI C63.10 (2013)	PASS
Pseudorandom Frequency Hopping Sequence	47 CFR Part 15, Subpart C Section 15.247(b)(4)	ANSI C63.10 (2013)	PASS
Band-edge for RF Conducted Emissions	47 CFR Part 15, Subpart C Section 15.247(d)	ANSI C63.10 (2013)	PASS
RF Conducted Spurious Emissions	47 CFR Part 15, Subpart C Section 15.247(d)	ANSI C63.10 (2013)	PASS
Radiated Spurious emissions	47 CFR Part 15, Subpart C Section 15.205/15.209	ANSI C63.10 (2013)	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15, Subpart C Section 15.205/15.209	ANSI C63.10 (2013)	PASS



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3 General Information

3.1 Client Information

Applicant:	Shenzhen I-Link Technology CO., LTD.		
Address of Applicant:Floor B2, Block 1, Yongqi Technopark,Yintian Industrial park, Xixiang Baoan district, Shenzhen, P.R.China			
Anufacturer: Shenzhen I-Link Technology CO., LTD.			
Address of Manufacturer:Floor B2, Block 1, Yongqi Technopark,Yintian Industrial park, Xixia Baoan district, Shenzhen, P.R.China			
Factory:	Shenzhen I-Link Technology CO., LTD.		
Address of Factory:	Floor B2, Block 1, Yongqi Technopark,Yintian Industrial park, Xixiang Town, Baoan district, Shenzhen, P.R.China		

3.2 General Description of EUT

Product Name:	BLUETOOTH 5.0 TRANSMITTER AND RECEIVER 2 IN 1 ADAPTER			
Model No.:	DWR21, T10, T20, T30, T40, T50, T60, T70, T80, K10, K20, BT5801,			
	BT5801A, BT5801B, BT5801C, BT5801D			
Test Model No.:	DWR21			
Trade Mark:	N/A			
Software Version:	BT5801B_V1.60.13			
Hardware Version:	BT5801B-V1.1			
Operation Frequency:	2402MHz~2480MHz			
Bluetooth Version:	V5.0			
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)			
Modulation Type:	GFSK, π/4DQPSK, 8DPSK			
Transfer Rate:	1Mbps/2Mbps/3Mbps			
Number of Channel:	79			
Hopping Channel Type:	Adaptive Frequency Hopping systems			
Product Type:	□ Mobile			
Test Software of EUT:	FCC_Test_Tools_V2.22			
Antenna Type:	PCB antenna			
Antenna Gain:	3.54dBi			
Power Supply:	Li-ion battery: DC 3.7V 180mAh, Charge by DC 5V for adapter			

Note:

Model No.:DWR21, T10, T20, T30, T40, T50, T60, T70, T80, K10, K20, BT5801, BT5801A, BT5801B, BT5801C, BT5801D

Their electrical circuit design, layout, components used and internal wiring are identical, only the appearance color is different.



Operation F	Operation Frequency each of channel						
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	2402MHz	20	2422MHz	40	2442MHz	60	2462MHz
1	2403MHz	21	2423MHz	41	2443MHz	61	2463MHz
2	2404MHz	22	2424MHz	42	2444MHz	62	2464MHz
3	2405MHz	23	2425MHz	43	2445MHz	63	2465MHz
4	2406MHz	24	2426MHz	44	2446MHz	64	2466MHz
5	2407MHz	25	2427MHz	45	2447MHz	65	2467MHz
6	2408MHz	26	2428MHz	46	2448MHz	66	2468MHz
7	2409MHz	27	2429MHz	47	2449MHz	67	2469MHz
8	2410MHz	28	2430MHz	48	2450MHz	68	2470MHz
9	2411MHz	29	2431MHz	49	2451MHz	69	2471MHz
10	2412MHz	30	2432MHz	50	2452MHz	70	2472MHz
11	2413MHz	31	2433MHz	51	2453MHz	71	2473MHz
12	2414MHz	32	2434MHz	52	2454MHz	72	2474MHz
13	2415MHz	33	2435MHz	53	2455MHz	73	2475MHz
14	2416MHz	34	2436MHz	54	2456MHz	74	2476MHz
15	2417MHz	35	2437MHz	55	2457MHz	75	2477MHz
16	2418MHz	36	2438MHz	56	2458MHz	76	2478MHz
17	2419MHz	37	2439MHz	57	2459MHz	77	2479MHz
18	2420MHz	38	2440MHz	58	2460MHz	78	2480MHz
19	2421MHz	39	2441MHz	59	2461MHz		

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The Lowest channel	2402MHz
The Middle channel	2441MHz
The Highest channel	2480MHz



3.3 Additional Instructions

EUT Test Software Settings:					
Mode:	 Special software is used. Through engineering command into the engineering mode. engineering command: *#*#3646633#*#* 				
EUT Power level:	Class2 (Power level is built-in set para selected)	Class2 (Power level is built-in set parameters and cannot be changed and selected)			
Use test software to set the lo	owest frequency, the middle frequency and	the highest frequency keep			
transmitting of the EUT.		1			
Mode	Channel	Frequency(MHz)			
	СН0	2402			
DH1/DH3/DH5	СН39	2441			
	CH78	2480			
	СНО	2402			
2DH1/2DH3/2DH5	СН39	2441			
	CH78	2480			
	СНО	2402			
3DH1/3DH3/3DH5	СНЗ9	2441			
	CH78	2480			

Run Software:





3.4 Test Environment

Operating Environment	Operating Environment:		
Temperature:	25 °C		
Humidity:	54% RH		
Atmospheric Pressure:	1009mbar		
Test Mode:	Use test software to set the lowest frequency, the middle frequency and the highest frequency keep transmitting of the EUT.		

3.5 Description of Support Units

The EUT has been tested with associated equipment below.

Description	Manufacturer	Model No.	Remark	FCC certification
Adapter	MI	1	1	CQA



3.6 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate.

The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities.

The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the **Shenzhen Huaxia Testing Technology Co., Ltd.** quality system acc. to DIN EN ISO/IEC 17025.

Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

No.	Item	Uncertainty
1	Radiated Emission (Below 1GHz)	5.12dB
2	Radiated Emission (Above 1GHz)	4.60dB
3	Conducted Disturbance (0.15~30MHz)	3.34dB
4	Radio Frequency	3×10 ⁻⁸
5	Duty cycle	0.6 %
6	Occupied Bandwidth	1.1%
7	RF conducted power	0.86dB
8	RF power density	0.74
9	Conducted Spurious emissions	0.86dB
10	Temperature test	0.8°C
11	Humidity test	2.0%
12	Supply voltages	0.5 %
13	Frequency Error	5.5 Hz

Hereafter the best measurement capability for CQA laboratory is reported:



3.7 Test Location

All tests were performed at:

Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

3.8 Test Facility

The test facility is recognized, certified, or accredited by the following organizations: **IC Registration No.: 22984-1**

The 3m Semi-anechoic chamber of Shenzhen Huaxia Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

The test facility is recognized, certified, or accredited by the following organizations:

• CNAS (No. CNAS L5785)

CNAS has accredited Shenzhen Huaxia Testing Technology Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• A2LA (Certificate No. 4742.01)

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.

• FCC Registration No.: 522263

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.:522263

3.9 Abnormalities from Standard Conditions

None.

3.10 Other Information Requested by the Customer

None.



3.11 Equipment List

			Instrument	Calibration	Calibration
Test Equipment	Manufacturer	Model No.	No.	Date	Due Date
EMI Test Receiver	R&S	ESR7	CQA-005	2022/9/9	2023/9/8
Spectrum analyzer	R&S	FSU26	CQA-038	2022/9/9	2023/9/8
		AFS4-00010300-18-10P-			
Preamplifier	MITEQ	4	CQA-035	2022/9/9	2023/9/8
		AMF-6D-02001800-29-			
Preamplifier	MITEQ	20P	CQA-036	2022/9/9	2023/9/8
Loop antenna	Schwarzbeck	FMZB1516	CQA-087	2021/9/16	2024/9/15
Bilog Antenna	R&S	HL562	CQA-011	2021/9/16	2024/9/15
Horn Antenna	R&S	HF906	CQA-012	2021/9/16	2024/9/15
Horn Antenna	Schwarzbeck	BBHA 9170	CQA-088	2021/9/16	2024/9/15
Coaxial Cable					
(Above 1GHz)	CQA	N/A	C019	2022/9/9	2023/9/8
Coaxial Cable					
(Below 1GHz)	CQA	N/A	C020	2022/9/9	2023/9/8
Antenna Connector	CQA	RFC-01	CQA-080	2022/9/9	2023/9/8
RF					
cable(9KHz~40GHz)	CQA	RF-01	CQA-079	2022/9/9	2023/9/8
Power divider	MIDWEST	PWD-2533-02-SMA-79	CQA-067	2022/9/9	2023/9/8
EMI Test Receiver	R&S	ESPI3	CQA-013	2022/9/9	2023/9/8
LISN	R&S	ENV216	CQA-003	2022/9/9	2023/9/8
Coaxial cable	CQA	N/A	CQA-C009	2022/9/9	2023/9/8

Note:

The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.



4 Test results and Measurement Data

4.1 Antenna Requirement

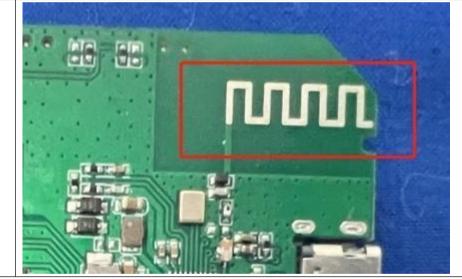
15.203 requirement:

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, 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.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:



The antenna is PCB antenna. The best case gain of the antenna is 3.54dBi.





4.2 Conducted Emissions

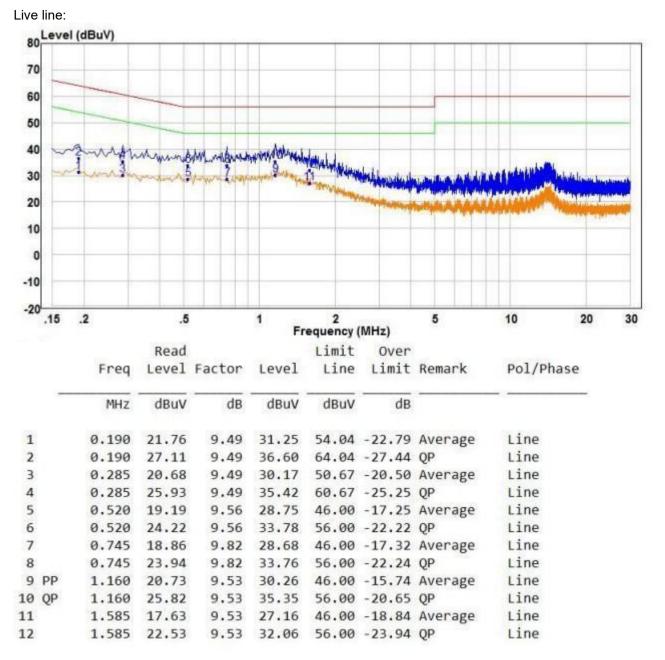
Test Requirement:	47 CFR Part 15C Section 15.207				
Test Method:	ANSI C63.10: 2013				
Test Frequency Range:	150kHz to 30MHz				
Limit:		Limit (dBuV)			
	Frequency range (MHz)	Quasi-peak	Average		
	0.15-0.5	66 to 56*	56 to 46*		
	0.5-5	56	46		
	5-30	60	50		
	* Decreases with the logarithn	n of the frequency.			
Test Procedure:	 The mains terminal disturbution. The EUT was connected to Impedance Stabilization Nuimpedance. The power call connected to a second LIS reference plane in the same measured. A multiple sock power cables to a single Liexceeded. The tabletop EUT was place ground reference plane. An placed on the horizontal ground reference plane. An of the EUT shall be 0.4 m for vertical ground reference plane. The LISN unit under test and bonded mounted on top of the grout between the closest points the EUT and associated equipment and all of the im ANSI C63.10: 2013 on component of the second second control of the second second control of the second second control of the second control of the grout between the closest points the EUT and associated equipment and all of the im ANSI C63.10: 2013 on control c	b AC power source thro etwork) which provides bles of all other units of SN 2, which was bonde he way as the LISN 1 for set outlet strip was used ISN provided the rating ced upon a non-metalling of floor-standing ar round reference plane, th a vertical ground ref from the vertical ground ref from the vertical ground ref from the vertical ground blane was bonded to the 1 was placed 0.8 m fro to a ground reference and reference plane. The s of the LISN 1 and the quipment was at least 0 im emission, the relative terface cables must be	bugh a LISN 1 (Line a $50\Omega/50\mu$ H + 5Ω linear if the EUT were d to the ground or the unit being d to connect multiple g of the LISN was not c table 0.8m above the rangement, the EUT was derence plane. The rear d reference plane. The e horizontal ground om the boundary of the e plane for LISNs his distance was EUT. All other units of 0.8 m from the LISN 2. re positions of		
Test Setup:	Shielding Room	AE USN2 + AC Ma Ground Reference Plane	Test Receiver		



Exploratory Test Mode:	Non-hopping transmitting mode with all kind of modulation and all kind of
	data type at the lowest, middle, high channel.
Final Test Mode:	Through Pre-scan, find the DH5 of data type and GFSK modulation at the lowest channel is the worst case. Only the worst case is recorded in the report.
Test Voltage:	AC 120V/60Hz
Test Results:	Pass



Measurement Data

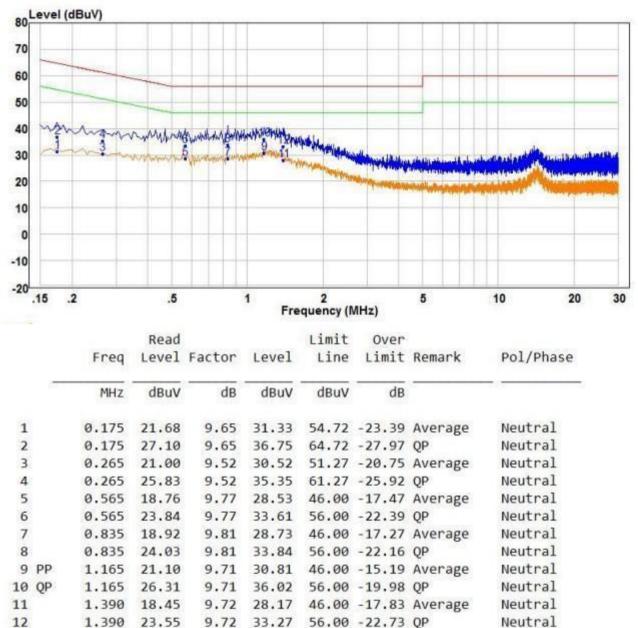


Remark:

- 1. The following Quasi-Peak and Average measurements were performed on the EUT:
- 2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
- 3. If the Peak value under Average limit, the Average value is not recorded in the report.



Neutral line:



Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:

2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

3. If the Peak value under Average limit, the Average value is not recorded in the report.



4.3 Conducted Peak Output Power

Test Requirement:	47 CFR Part 15C Section 15.247 (b)(1)			
Test Method:	ANSI C63.10:2013			
	ANSI C05. 10.2013			
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane Remark: Offset=Cable loss+ attenuation factor.			
Limit:	21dBm			
Exploratory Test Mode:	Non-hopping transmitting with all kind of modulation and all kind of data type			
Final Test Mode:	Through Pre-scan, find the DH5 of data type is the worst case of GFS modulation type, 2-DH5 of data type is the worst case of $\pi/4DQPS$ modulation type, 3-DH5 of data type is the worst case of 8DPSK modulation type. Only the worst case is recorded in the report.			
Test Results:	Pass			

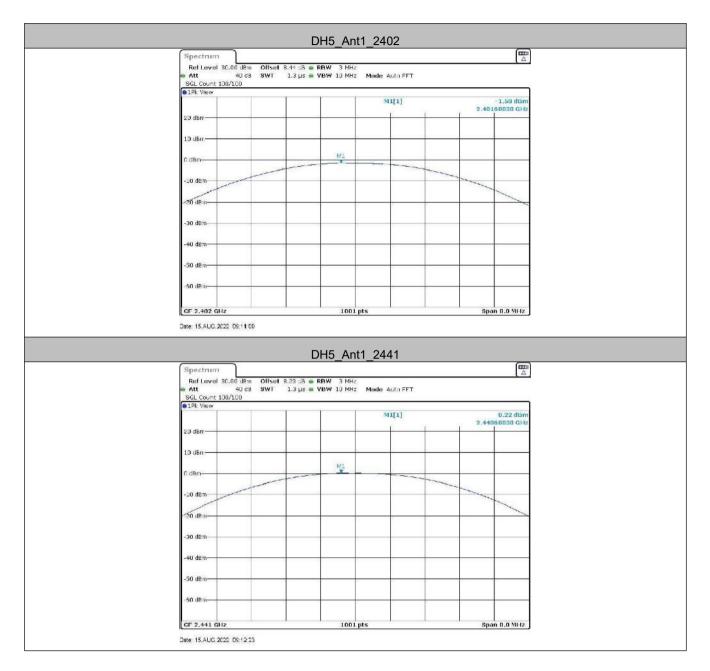


Measurement Data

GFSK mode							
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result				
Lowest	Lowest -1.5		Pass				
Middle	Middle 0.22		Pass				
Highest	0.55	21.00	Pass				
	π/4DQPSK m	ode					
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result				
Lowest	-1.03	21.00	Pass				
Middle	0.77	21.00	Pass				
Highest	1.1	21.00	Pass				
	8DPSK mode						
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result				
Lowest	-1.23	21.00	Pass				
Middle	0.39	21.00	Pass				
Highest	1.11	21.00	Pass				



Test plot as follows:





Г	DH5_Ant1_2480		
Spectrum Ref Level 30.00 dBm Offset 8.23 dB	RBW 3 MHz	(The second seco	
Att 40 d3 SWT 1.3 µs = SGL Count 100/100 1Pk View	VBW 10 MHz Mode Auto FFT	n ee drai	
20 dBm	M1[1]	0.55 dBm 2.47967230 GHz	
10 dBm	M2		
0 d8m			
20 de m-			
-30 dBm			
-40 dem			
-50 dem			
GF 2.49 GHz Date: 15.40G 2022 09:13:21	1001 pts	Span 0.0 MHz	
2	DH5_Ant1_2402		
Spectrum Ref Level 30.00 dBm Offset 8.44 dB • • Att 40 c3 SWT 1.3 µs •			
Spectrum Ref Level 30.00 dBm Offset 8.44 dB	RBW 3 MHz	-1.03 dBm 2.40239160 GHz	
Spectrum Ref Level \$0.00 dBm Offset 8.44 d8 = Att 40 c8 SWF 1.3 µs = SGL Count 100/100	RBW 3 MH2 VBW 10 MHz Mode Auto FFT	-1.03 dBm	
Spectrum Ref Level 30.00 dPm Offset 8.4% dB ● ● Att 40 dB SWT 1.3 μs ● SGL Count 100/100 ■ 1Pk View ■ 2D dbm ■ 20 dbm ■	RBW 3 MH2 VBW 10 MHz Mode Auto FFT	-1.03 dBm	
Spectrum Ref Level 30.00 dPm Offset 8.44 d8 Att 40 d3 SGL Count 100/100 IDR View 20 dBm 10 dBm 0 dam -10 dBm	RBW 3 MH2 YBW 10 MHz Mode Auto FFT	-1.03 dBm	
Spectrum Ref Level 30.00 dPm Olfset 8.44 dB Att 40 dB SGL Count 100/100 IPk View 20 dBm 10 dBm 0 dBm	RBW 3 MH2 YBW 10 MHz Mode Auto FFT	-1.03 dBm	
Spectrum Ref Level 30.00 dPm Olfset 8.14 dB Att 40 dB SGL Count 100/100 ●10k View 20 dBm 10 dBm 0 dBm 20 dBm	RBW 3 MH2 YBW 10 MHz Mode Auto FFT	-1.03 dBm	
Spectrum Rof Level 30.00 dPm Offset 8.44 d8 Att 40 d8 SGL Count 100/00 919k View 20 dbm 10 dbm 10 dbm 20 dbm 20 dbm 10 dbm 20 dbm -10 dbm -20 dbm -30 dbm -50 dbm	RBW 3 MH2 YBW 10 MHz Mode Auto FFT	-1.03 dBm	
Spectrum Ref Level 30.00 dPm Offset 8.14 dB = Att 40 dB SWI 1.3 µs SGL Count 100/100 10 lbm 10 dBm 1D dBm 10 dBm 10 dBm 1D dBm 10 dBm 10 dBm 20 dBm 10 dBm 10 dBm 10 dBm 10 dBm 10 dBm 10 dBm 10 dBm 10 dBm 10 dBm 10 dBm 10 dBm	RBW 3 MH2 YBW 10 MHz Mode Auto FFT	-1.03 dBm	



	2DH5_Ant1_2441		
Spectrum			
SGL Count 100/100	RBW 3 MHz VBW 10 MHz Mode Auto FFT		
1Pk View	M1[1]	0.77 dBm 2.44068030 GHz	
20 dBm			
10 dBm			
0 dBm	M1		
-10 dBm			
20 dBm-			
-30 dDm			
-40 dBm			
-50 dBm			
-50 dBm			
CF 2.441 GHz	1001 pts	Span 0.0 MHz	
Date: 15.ALG.2022 09:14-45			
	2DH5_Ant1_2480	(77)	
Spectrum Ref Level 30.00 dBm Offset 8.23 dB Att 40 cB SWT 1.3 ps /			
Spectrum Ref Level 30.00 dBm Offset 8.23 dB (RBW 3 MHz VBW 10 MHz Mode Auto FFT		
Spectrum Ref Level 30.00 dRm Offset 8.23 dB Att 40 dB 5WI 1.3 µs SGL Count 100/100	RBW 3 MHz	(ma) 1.10 diam 2.47993610 GHz	
Spectrum Ref Level 30.00 dPm Offset 8.23 dB Att 40 dB SWT 1.3 ps + SGL Count 100/100	RBW 3 MHz VBW 10 MHz Mode Auto FFT	1.10 dBm	
Spectrum Ref Level 30,00 dPm Offset 8.23 dB // 0 d3 Mtt 40 d3 SGL Count 100/100 IPk View 20 dbm	RBW 3 MHz VBW 10 MHz Mode Auto FFT	1.10 dBm	
Spectrum Ref Level 30.00 dBm Offset 8.23 dB + +0 dB SWF 1.3 µs + SGL Count 100/100 Image: Count 100/100 Image: Count 100/100 IPR View Image: Count 100/100 Image: Count 100/100 10 dBm Image: Count 100/100 Image: Count 100/100	RBW 3 MH2 YBW 10 MH2 Mode Auto FFT M1[1]	1.10 dBm	
Spectrum Ref Level 36,00 dRm Offset 8.23 dB + e Att 40 c3 SWT 1.3 ps + SGL Count 100/100 e1Pk View 20 dBm 10 dBm 0 dBm	RBW 3 MH2 YBW 10 MH2 Mode Auto FFT M1[1]	1.10 dBm	
Spectrum Ref Level 30.00 dBm Offset 8.23 dB of 40 dB SWF 40 dB SWF 1.3 µs if 30 dBm SGL Count 100/100 Image: SGL Count 100 dBm ID dBm Image: SGL Count 100 dBm 10 dBm Image: SGL Count 100 dBm 10 dBm Image: SGL Count 100 dBm	RBW 3 MH2 YBW 10 MH2 Mode Auto FFT M1[1]	1.10 dBm	
Spectrum Ref Level 36.00 dEm Offset 8.23 dB i Att 40 d3 SWI 1.3 ps i SGL Count 100/100 IPk View 20 dBm 10 dBm -10 dEm	RBW 3 MH2 YBW 10 MH2 Mode Auto FFT M1[1]	1.10 dBm	
Spectrum Ref Level 30.00 dBm Offset 8.23 dB Att 40 dB SGL Count 100/100 ●1Pk View 20 dBm 10 dBm 0 dBm 20 dBm 20 dBm -10 dBm -20 dBm	RBW 3 MH2 YBW 10 MH2 Mode Auto FFT M1[1]	1.10 dBm	
Spectrum Ref Level 30.00 dEm Offset 8.23 dB a Att 40 dB SWF SGL Count 100/100 IPR View 20 dBm 10 dBm -10 dEm -20 dEm -30 dEm	RBW 3 MH2 YBW 10 MH2 Mode Auto FFT M1[1]	1.10 dBm	
Spectrum Raf Level 30.00 dBm Offset 8.23 dB • Att 40 dB • SGL Count 100/100 • 1.3 µs • DIR View • 10 dBm 20 dBm • 10 dBm 10 dBm • 10 dBm -10 dBm • 10 dBm -20 dBm • 10 dBm -30 dBm • 10 dBm -50 dBm • 10 dBm	RBW 3 MH2 YBW 10 MH2 Mode Auto FFT M1[1]	1.10 dBm	







S	pectrum						
		Offset 8.23 dB 🖷 RI				1-1	
	Att 40 dB GL Count 100/100	SWT 1.3 µs 📾 VI	BW 10 MHz Mode	Auto FFT			
	Pk View	61 TY		and and a			
			N	11[1]	2,4803916	1 dBm	
20	d8m			F	2.4803910	u GHZ	
10	dBm			-			
			IMI				
0	lBm		-		-		
1	den	-	Ĭ				
10	action of the second se				1	bec	
-5	n de n				_	-	
-3) dBm						
-4) dem		0				
-5) dem						
-5) dBm						
CI	2.48 GHz	1 1	1001 pts	1	Span 0.0	MHZ	



4.4 20dB Occupy Bandwidth

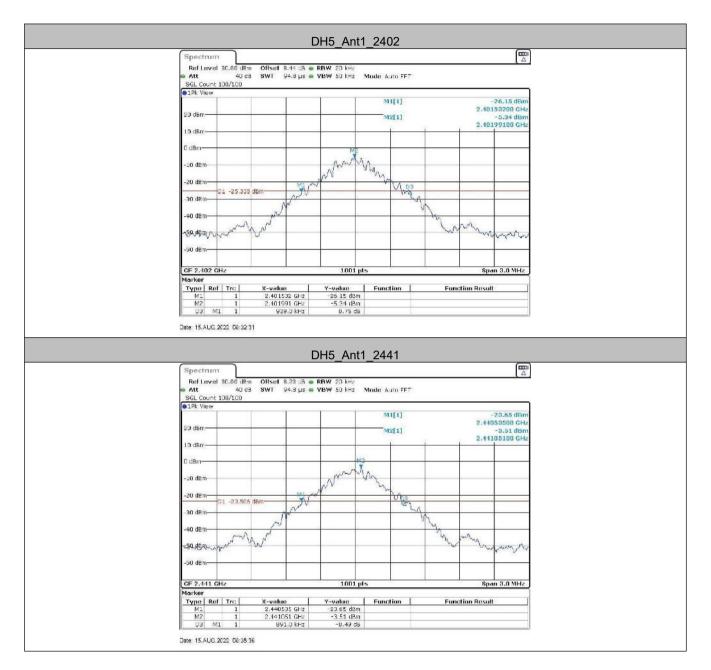
Test Requirement:	47 CFR Part 15C Section 15.247 (a)(1)		
Test Method:	ANSI C63.10:2013		
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane		
	Remark: Offset=Cable loss+ attenuation factor.		
Limit:	NA		
Exploratory Test Mode:	Non-hopping transmitting with all kind of modulation and all kind of data type		
Final Test Mode: Through Pre-scan, find the DH5 of data type is the worst case of modulation type, 2-DH5 of data type is the worst case of π/4E modulation type, 3-DH5 of data type is the worst case of 8DPSK mod type. Only the worst case is recorded in the report.			
Test Results:	Pass		

Measurement Data

Test channel	20dB Occupy Bandwidth (MHz)			
rest channel	GFSK	π/4DQPSK	8DPSK	
Lowest	0.939	1.242	1.227	
Middle	0.891	1.317	1.323	
Highest	0.936	1.257	1.266	



Test plot as follows:







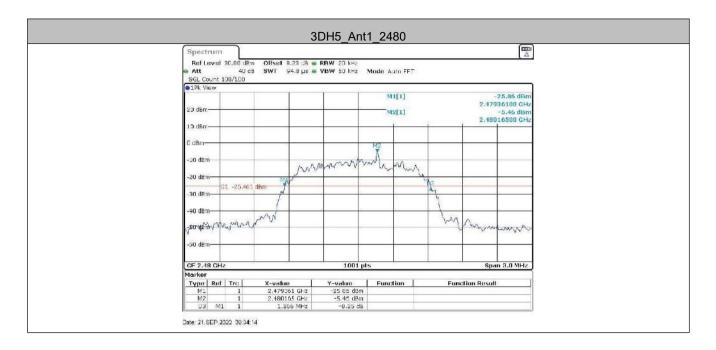














4.5 Carrier Frequencies Separation

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(1)						
Test Method:	ANSI C63.10:2013						
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane						
1 : :4.	Remark: Offset=Cable loss+ attenuation factor.						
Limit:	2/3 of the 20dB bandwidth						
	Remark: the transmission power is less than 0.125W.						
Exploratory Test Mode:	Hopping transmitting with all kind of modulation and all kind of data type						
Final Test Mode:	Through Pre-scan, find the DH5 of data type is the worst case of GFSK modulation type, 2-DH5 of data type is the worst case of π /4DQPSK modulation type, 3-DH5 of data type is the worst case of 8DPSK modulation type. Only the worst case is recorded in the report.						
Test Results:	Pass						



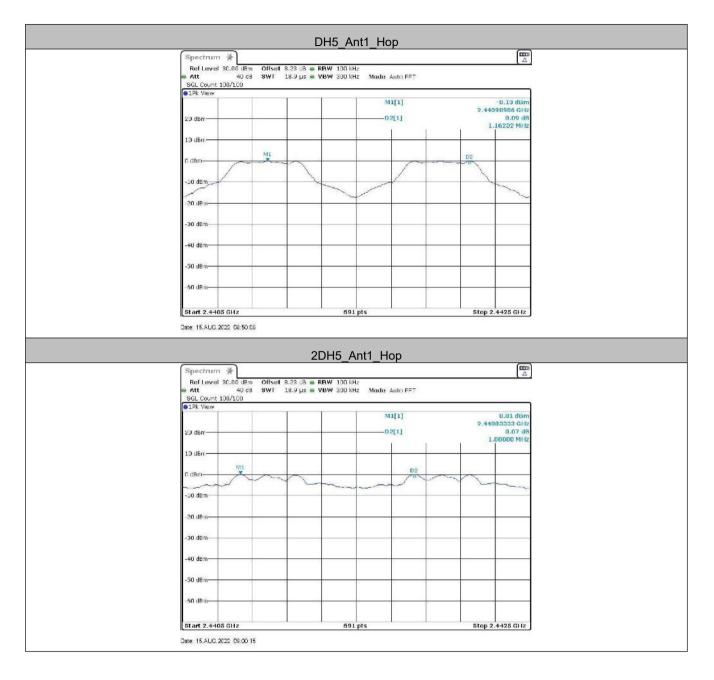
Measurement Data

TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Нор	1.162	≥0.626	PASS
2DH5	Ant1	Нор	1	≥0.878	PASS
3DH5	Ant1	Нор	1	≥0.882	PASS

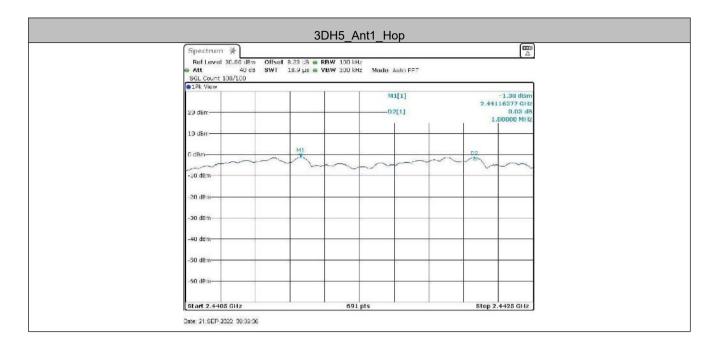
Mode	20dB bandwidth (MHz) (worse case)	Limit (MHz) (Carrier Frequencies Separation)
GFSK	0.939	0.626
π/4DQPSK	1.317	0.878
8DPSK	1.323	0.882



Test plot as follows:









4.6 Hopping Channel Number

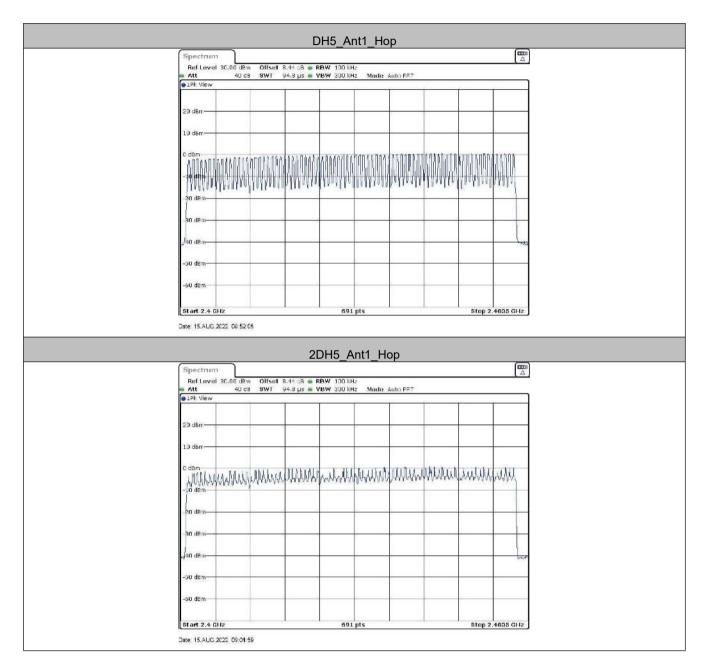
Test Requirement:	47 CFR Part 15C Section 15.247 (a)(1)
Test Method:	ANSI C63.10:2013
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane Remark: Offset=Cable loss+ attenuation factor.
Limit:	At least 15 channels
Exploratory Test Mode:	hopping transmitting with all kind of modulation and all kind of data type
Final Test Mode:	Through Pre-scan, find the DH5 of data type is the worst case of GFSK modulation type, 2-DH5 of data type is the worst case of $\pi/4DQPSK$ modulation type, 3-DH5 of data type is the worst case of 8DPSK modulation type. Only the worst case is recorded in the report.
Test Results:	Pass

Measurement Data

Mode	Hopping channel numbers	Limit
GFSK	79	≥15
π/4DQPSK	79	≥15
8DPSK	79	≥15



Test plot as follows:





Spectrum						ſ	
Ref Level 30.00 d		8 🖷 RBW 100					
Att 40 IPk View	C3 SMI 94.81	is 📾 YBW 300	kHz Mode Au	to FFT			_
				~		1	
20 dBm-							
10 dBm-		-	-			-	
C dBm							
s. S. Mertal (Adda and Able	Al And Hill AM	Altradian a	ANADALA MA	rdadiad Ma	As below	
0 dBm Mr. M.	al main falls falls and	all	of allow part fill	s. Max molt + 0.4	undhelingach fu	ann ann	_
-20 dem	-		-			-	
-30 dPm							
40 dBm							Une
111111							
-50 dBm-							
-50 dBm						_	_
Start 2.4 GHz			91 pts		Cton	2.4835 GH	



4.7 Dwell Time

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(1)			
Test Method:	ANSI C63.10:2013			
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table			
	Ground Reference Plane Remark: Offset=Cable loss+ attenuation factor.			
Test Mode:				
	Hopping transmitting with all kind of modulation and all kind of data type.			
Limit:	0.4 Second			
Test Results:	Pass			



Measurement Data

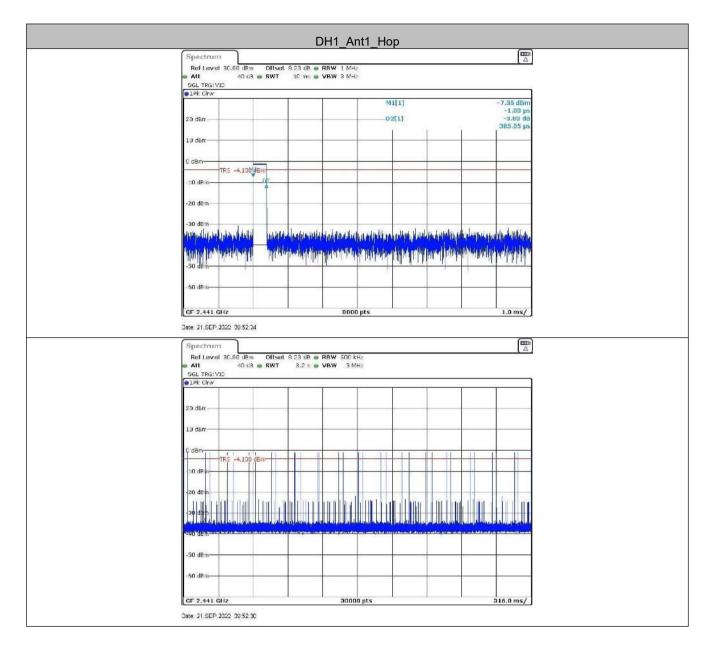
TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Нор	0.39	320	0.123	≤0.4	PASS
DH3	Ant1	Нор	1.63	170	0.278	≤0.4	PASS
DH5	Ant1	Нор	2.87	100	0.287	≤0.4	PASS
2DH1	Ant1	Нор	0.39	150	0.058	≤0.4	PASS
2DH3	Ant1	Нор	1.63	170	0.278	≤0.4	PASS
2DH5	Ant1	Нор	2.87	100	0.287	≤0.4	PASS
3DH1	Ant1	Нор	0.39	320	0.124	≤0.4	PASS
3DH3	Ant1	Нор	1.63	180	0.293	<u>0.4</u>	PASS
3DH5	Ant1	Нор	2.88	130	0.374	<u>≤</u> 0.4	PASS

Remark:

The test period: T= 0.4 Second/Channel x 79 Channel = 31.6 s



Test plot as follows:







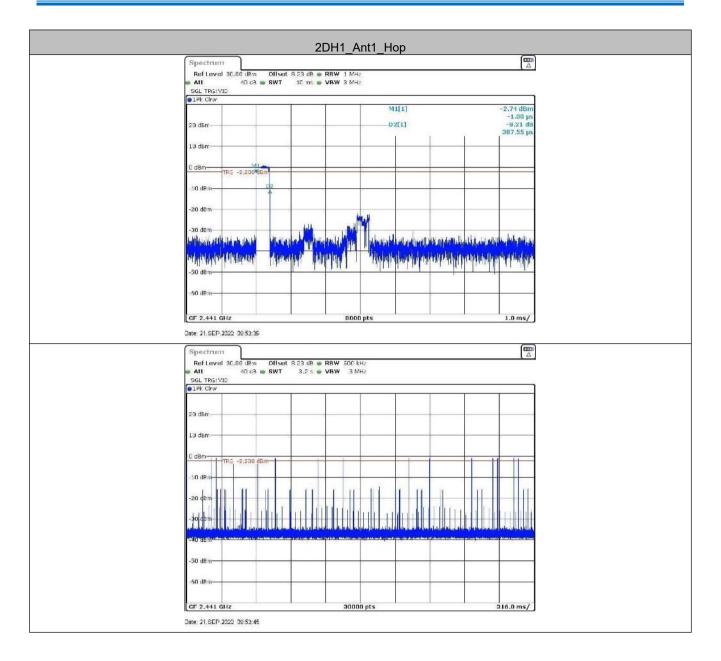
	_	DH3_Ant1_	_Нор	
Spectrur				
e Alt	el 30.00 dBm Offset 8 40 dB e SWT	23 dB 👄 RBW 1 MH2 10 ms 👄 VBW 3 MH2		
SGL TRG: \ SGL CIV	010			1
The cirk	1 1 1	1 1	M1[1]	-9.58 dBm
20 dBm			D2[1]	-1.00 µs -3.07 dB
25 651				1.63395 ms
10 dBm	-			
0 dBm	TRS -3.900 dBm			
-10 dBm	541 T	ne -		
		4		
-20 dbm				
-30 dBm				
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500 doint			1	
-60 dBm				-
CF 2.441	GHz	8000 pts		1.0 ms/
Date: 21.SEP	2022 09:52:59			
	_			Ē
Spectrur	"	23 dB 🖷 RBW 500 kHz		
Spectrur Ref Leva Att	11 el 30.00 dPm Offset 8 40 d3 e sw T	23 dB • RBW 500 kHz 3.2 s • VBW 3 MHz		
Spectrur Ref Leve	11 el 30.00 dPm Offset 8 40 d3 e sw T			
Spectrur Refleve Att SGLTPG:	11 el 30.00 dPm Offset 8 40 d3 e sw T			
Spectrur Refleve All SGL TPG:	11 el 30.00 dPm Offset 8 40 d3 e sw T			
Spectrum Ref Leva Att SGL TR5:1 PPk Chrw 20 d6m-	11 el 30.00 dPm Offset 8 40 d3 e sw T			
Spectrum Ref Leves Att SGL TRG: SGL TRG: SGL TRG:	11 el 30.00 dPm Offset 8 40 d3 e sw T			
Spectrum Ref Leva Att SGL TR5: 19k Chrw 2b dbm	11 00.00 dPm Oliset 8 40.03 • SWT			
Spectrum Ref Lava Att SGL TR5: 9 DPk Chw 20 dbm 10 dbm 0 d8m	11 el 30.00 dPm Offset 8 40 d3 e SWT			
Spectrum Ref Leve All SGL TPG: 91Pk Cirw 20 dbm- 10 dbm-	11 00.00 dPm Oliset 8 40.03 • SWT			
Spectrum Ref Leva Att SGL T95: SI T95: SI T95: 20 dBm 10 dBm -10 dBm	11 00.00 dPm Oliset 8 40.03 • SWT			
Spectrum Ref Leva SGL TPIS: 91Pk Cirw 20 dbm 0 dbm 0 dbm	11 00.00 dPm Oliset 8 40.03 • SWT			
Spectrum Ref Leve Att SGL TPG: 919k Cirw 20 dbm 10 dbm -10 dBm	11 00.00 dPm Oliset 8 40.03 • SWT			
Spectrum Ref Leva All SGL TRS: 10 dBm -10 dBm -20 dBm -20 dBm -10 dBm -10 dBm	11 00.00 dPm Oliset 8 40.03 • SWT			
Spectrum Ref Leva All SGL TPG: SGL TPG: SGL TPG: 20 dBm 10 dBm -10 dBm	11 00.00 dPm Oliset 8 40.03 • SWT			
Spectrum Ref Leva Att SGL TRS: 19k Chw 20 dbm 10 dbm -0 dbm -20 dbm -20 dbm -20 dbm -20 dbm	11 00.00 dPm Oliset 8 40.03 • SWT			
Spectrum Ref Leva Alt SGL TRA: 9 JPk Chw 20 dbm 10 dbm -0 dbm -20 dbm -20 dbm -20 dbm -30 dbm -30 dbm -30 dbm	11 00.00 dPm Oliset 8 40.03 • SWT			
Spectrum Ref Leva All SGL TBS: 10 dbm 10 dbm 10 dbm -20 dbm -20 dbm -20 dbm -20 dbm -20 dbm	11 00.00 dPm Oliset 8 40.03 • SWT			
Spectrum Ref Levo Alt SGL TPG: SID dBm 10 dBm 0 dBm -20 dBm -20 dBm -30 dBm -50 dBm	TT e) 30,00 dBm Offset 8 40 c3 • SWT 713 -TR ⁶ - 3,900 dBm			
Spectrum Ref Leva All SGL TB2: 0 19k Chw 20 dbm 10 dbm -00 dbm -20 dbm -20 dbm -50 dbm -50 dbm -50 dbm	TT e) 30,00 dBm Offset 8 40 c3 • SWT 713 -TR ⁶ - 3,900 dBm			





	DH5_Ant1_Hop	Ē
Ref Level 30.00 dBm Offset 8.23 dB e	RBW 1 MHz	
👄 Alt 40 d3 👄 SWT 10 ms 🖷	VBW 3 MHz	
SGL TRG: VID Pk Clrve	nat St	
	M1[1]	-12.87 dBm -1.00 µs
20 dBm	-02[1]	2.01 dB
		2.87411 ms
10 d6m		
0 d8m-		
TRG -4,100 dBm		
-10 dBm	 	
-20 dBm		
Part Part Part Part Part Part Part Part		
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-50 dBm		
-60 de m		
CF 2.441 GHz	8000 pts	1.0 ms/
Date: 21.SEP-2022 09:52:01		
		m
Spectrum Ref Level 30.00 dBm Offset 8.23 dB e	PRW COCILIA	
All 40 dB SWT 3.2 s	VBW 3 MH2	
SGL TRG: VID BIPK Cirw		1
- AF 6, 50 M		
20 dBm		
10 dim		
10 dbm		
C dBm		
0 dBm		
C dBm		
0 dBm		
C d8m- TRS -4,100 d6m- -10 d8m- -20 d8m -20 d8m -20 d8m		
0 dBm		
C dBm TRG -4,100 dBm -10 /Bm -20 dbm -20 dbm -20 dbm		
C dBm TRS -4,100 dBm 10 /B m -20 dbm -20 dbm -20 dbm -50 dbm -50 dbm		
0 dBm 10 dBm -20 dBm -20 dBm -20 dBm -20 dBm -20 dBm -20 dBm -20 dBm		
0 dBm- TRS -4,100 dBm- -10 dBm- -20 dBm- -20 dBm- -50 dBm- -50 dBm-		
G dBm	00000 pts	216.0 ms/









	2DH3_Ant1_Hop	
Spectrum		
	st 8.23 dB • RBW 1 MHz 10 ms • VBW 3 MHz	
SGL TRG: VID ■IPK Cirve		
20 dbm	M1[1] D2[1]	-23.89 dBm -2.25 µs 14.64 d8
10 dim		1.63270 ms
0 dBm TRG -2,100 dBm	D2	
-20 dem 511		
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2 December 1900	a na managa a na mana na hana na mina n	f half the source start alog with the
-50 dBm		
-60 dPm		
GF 2.441 GHz	0000 pts	1.0 ms/
Date: 21.SEP 2022 09:54:00		(m)
Spectrum Ref Level 30.00 dPm Offse	et 8.23 dB 🖷 RBW 500 kHz	
● AU 40 03 ● SWT SGL TRS: VID ● 2PK CITV	3.2 s 🖝 VBW 3 MH2	ī
20 dbm		
10 dbm		
C dBm - TRC -2.100 dBm		
-10 dB v		
-2d day		
-3C dB -2C dB -2C - 2C		
ant O. Of Name of a state of a st	alter pelletter Brennet, education Belance, et et elektron ber en delter. Accura elektronet en est	uto stalk w chay take and contactory
-50 dBm		
-60 dP m		
CF 2.441 GHz	30000 pts	316.0 ms/
GF 2.441 GHZ		





	2DH5_Ant1_Hop	0
Ref Level 30.00 dPm Offset 8.23 dB	= DDW 1 MU	
All 40.03 SWT 10 ms		
SIGL TRG: VID PIPK CITW		
	M1[1]	-7,57 dBm -1.00 µs
20 d6m	-D2[1]	-3.02 dB
		2.87286 ms
10 dBm		
TRG -5.200 Bm	D2	
-10 dBm	A	
-20 dBm		
- 30 dBm	and the said of the set like in the set of the set of the set	at in our line in the stability of the set
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-50 dem-		
-50 dPm-		
CF 2.441 GHz	8000 pts	1.0 ms/
Date: 21.SEP.2022 09:53:18		
Spectrum		
	RBW 500 kHz	1-1
SGL TRG: VID	WBW 3 MH2	
DIPK Cirw		
20 dbm		
10 dBm		
0 dBm		
0 dBm		
TRG -5.200 dBm		
TRG -5,200 dBm		
TRG -5.200 dBm		
10 dBm TR6 -5,200 dBm -20 dBm - -20 dBm - -20 dBm - -20 dBm -		
10 //Bm		
10 dBm TR6 -5,200 dBm -20 dBm - -20 dBm - -20 dBm - -20 dBm -		
TRG -5.00 dBm 10 dBm -20 dBm -20 dBm -20 dBm -50 dBm -50 dBm		
10 (IBm) TRG -5,200 (IBm) -20 dbm -20 dbm -20 dbm -20 dbm -20 dbm -20 dbm -20 dbm -20 dbm		
TRG -5.00 dBm 10 dBm -20 dBm -20 dBm -20 dBm -50 dBm -50 dBm	30000 pts	





3DH1_Ant1_Hop	
Spectrum	
Ref Level 30.00 dBm Offset 8 23 dB RBW 1 MHz ALL 40 dB SWT 10 ms VBW 3 MHz	
SGL TRG: VID	
PIK Cirx M1[1] -17.65 dBm	
- 139.77 µs	
20 dbm	
10 dbm	
0 dBm	
10 dP m 65	
-20 dbm	
-30 dbm	
is a diversion in the intervention of the state of the	
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-50 dBm-	
CF 2.441 GHz 0000 pts 1.0 ms/	
Date: 21,SEP 2022 19:42:52	
Spectrum 🖾	
Ref Level 30.00 dBm Offset 8.23 dB ● RBW 500 kHz	
ALL 40 dB SWT 3.2 S VBW 3 MHz	
SGL TRG: VID	
20 dbm	
10 dBm	
0 d8m	
-10/Pm	
-50 dBm	
-50 de n	



	3DH3_Ant1_Hop
Spectrum	
Ref Level 30.00 dBm Offs	set 8.23 dB 🖝 RBW 1 MHz
SGL TPS: VID	/T 10 ms • VBW 3 MHz
■ IPK Cirw	
	M1[1] -3.12 dBm -137.27 µs
20 dBm	
	1.63020 ms
10 dBm	
O dBm TRG -1.590 dBm	
-10 dPm	
-20 dBm	
-30 dBm	
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CF 2.441 GHz	0000 pts 1.0 ms/
Date: 21.SEP.2022 09:43:22	
Spectrum	
Ref Level 30.00 dBm Offs	set 8.23 dB • RBW 500 kHz
Alt 40 dB SWT SGL TRS: VID	/T 3.2.5 • VBW 3 MH2
● 1Pk. Cirw	
20 dBm	
10 dBm	
C dBm TRG -1.500 dBm	
-10 dBm	
-20 dem	
والمحتمد والاولاد والمحامد والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع	
1-40 BEN-1-10000000000000000000000000000000000	a minute for a minute balance balance balance balance and a second state and a second state and a second state of
-50 dBm	
-50 dem	
CF 2.441 GHz	30000 pts 316.0 ms/
Date: 21.SEP.2022 09:43:28	





	5_Ant1_Hop	
Ref Level 30.00 dBm Offset 8.23 dB RBW	 H RADAY 	
Alt 40.68 SWT 10 ms VBW		
SGL TRIS: VID		
	M1[1]	-26,28 dBm -1.00 ps
20 d6m	-02[1]	10.97 dB
		2.87661 ms
10 dbm		
0 dBm-		
TRG -5.300 dbm-		
-10 dBm	90	
-20 dBm		
-30 dgm		, caller
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500 de m		
-50 dBm		
CF 2.441 GHz	8000 pts	1.0 ms/
Date: 21.SEP.2022 09:43:51		
Spectrum		
RefLevel 30.00 dBm Offset 8.23 dB RBW Alt 40.03 SWT 3.2 VBW		
SGL TRG: VID PIPK Cirw		
STAK CILM		
20 dBm		
10 dbm		
.0 d8m-		
TRG -5,300 dBm		
-10 dPm-		
-20 dgm		
		The second se
SQUIDE MARKET	and and a set and a set of the se	Early of the state
50.00		
-50 dBm		
-50 dPm		+
CF 2.441 GHz	30000 pts	316.0 ms/



4.8 Band-edge for RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)		
Test Method:	ANSI C63.10:2013		
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane		
	Remark: Offset=cable loss+ attenuation factor.		
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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.		
Exploratory Test Mode:	Hopping and Non-hopping transmitting with all kind of modulation and all kind of data type		
Final Test Mode:	Through Pre-scan, find the DH5 of data type is the worst case of GFSK modulation type, 2-DH5 of data type is the worst case of $\pi/4DQPSK$ modulation type, 3-DH5 of data type is the worst case of 8DPSK modulation type. Only the worst case is recorded in the report.		
Test Results:	Pass		



Shenzhen Huaxia Testing Technology Co., Ltd.

Report No.: CQASZ20220901584E-01

Measurement Data

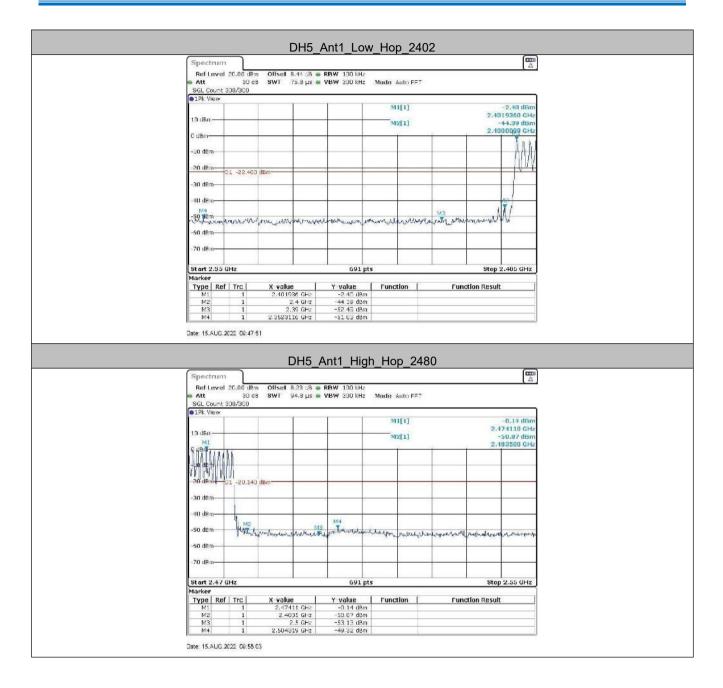
TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
		Low	2402	-2.13	-42.04	≤-22.13	PASS
		High	2480	-0.25	-47.76	≤-20.25	PASS
DH5	Ant1	Low	Hop_2402	-2.40	-51.03	≤-22.4	PASS
		High	Hop_2480	-0.14	-49.32	≤-20.14	PASS
		Low	2402	-2.12	-42.74	≤-22.12	PASS
		High	2480	-0.49	-49.44	≤-20.49	PASS
2DH5	Ant1	Low	Hop_2402	-8.99	-51.22	≤-28.99	PASS
		High	Hop_2480	-4.02	-49.76	≤-24.02	PASS
		Low	2402	-3.75	-50.1	≤-23.75	PASS
		High	2480	-2.16	-49.13	≤-22.16	PASS
3DH5	Ant1	Low	Hop_2402	-4.72	-51.15	≤-24.72	PASS
		High	Hop_2480	-2.40	-48.29	≤-22.4	PASS



Test plot as follows:

	DH5_Ant1_Low_2402		
Spectrum			
Ref Level 20.00 dBm Offset		(4)	
Att 30 dB SWT SGL Count 300/300	75.8 µs 🖷 YBW 300 kHz - Mode - Auto FFT		
91Pk View			
	M1[1]	-2.13 dBm	
10 dBm	M2[1]	2.4018560 GHz -51.95 dBm	
C dBm-		2,4000099 GHz	
		n i	
-10 dBm			
-20 dBm-01 -22.130 dBm-			
-30 dem-			
-30 080		MA	
-40 d8m			
-50 dBm	Marchalter marchanter and	The martineral 13 but	
	all a construction of the second of the seco	ensurbanderstanding of the	
-50 dBm-			
-70 dBm			
Start 2.35 GHz	691 pts	Stop 2.405 GHz	
Marker Type Ref Trc X val	lue Y-value Function	Function Result	
M1 1 2.40	1856 GH2 -2.13 dBm	T director r to sale	
M2 1 M3 1	2.4 GHz -51.95 dBm 2.39 GHz -52.95 dBm		
	1812 GHz -42.04 dBm		
Date: 15.AUG.2022 08:32:52			
5316. 15.AG5.2022 G6.52 52			
	DH5_Ant1_High_2480		
Gaustan		(III)	
Ref Level 20.00 dBm Offset	I 8.23 dB 🖷 RBW 100 kHz		
	94.8 µs • YBW 300 kHz Mode Auto FFT		
SGL Count 300/300	and and the effect and the second field of the second se		
●1Pk View	M1[1]	-0.25 dBm	
12.15	and the second se	2.479780 GHz	
10 dBm	M2[1]	-45.60 dBm 2.183500 GHz	
0 dBm		2/10/200 GH2	
-10 dBm			
1			
-20-dBm-01 -20.250 dBm-			
-30 dBm			
-40 dBm	V4		
-50 dem W marshan	where all the man and many marching	Maderleen we water manufacture	
-50 dBm-		and the state of the constant	
-70 dBm			
Start 2.47 GHz Marker	691 pts	Stop 2.55 GHz	
Type Ref Trc X val	lue Y value Function	Function Result	
	7078 GH2 -0.25 dBm		
M2 1 2. M3 1	4035 GHz -45.60 dBm 2.5 GHz -51.55 dBm		
M2 1 2. M3 1	4835 GHz -45.60 dBm		
M2 1 2. M3 1	4035 GHz -45.60 dBm 2.5 GHz -51.55 dBm		







<u> </u>	ZDH5_ANT	Low_2402	G
Spectrum Ref Level 20 00 dBm	Offset 8.44 dB 🖷 RBW 100 k	Us.	[□
👄 Att 30 dB 3	SWT 75.8 µs . YBW 300 k		
SGL Count 300/300 SGL Count 300/300			
		M1[1]	-2.12 dB
10 dBm		M2[1]	2.4018560 GF -50.49 dB
0 dBm-		Control 1	2.4000080 GH
			A I
-10 dBm			
-20 dBm-01 -22.120 dBr	0		
-30 dem			
in territory			
-40 dBm			
-50 dem	a de la de sola deserva have	Judgala ward ward ward	13 We want to show here to
-50 dBm	a Crateria real transmission of a se		2. A 2 2
-70 dBm-			
Start 2.35 GHz	60	L pts	Stop 2.405 GH:
Marker		r pro	otop 21100 uni
	X value Y value 2.401856 GH2 -2.12 c	Function	Function Result
M2 1	2.4 GHz -50.49 c	Bm	
M3 1	2.39 GHz -51.35 c	Bra	
	2 300 1815 GHz -42 74 c	Bm	
	2.3991812 GHz -42.74 c		
M4 1		_High_2480	[
M4 1 Date: 15.AUG.2022 00:40:95 Spectrum Ref.Level.20.00 Ref.Level.20.00 0Pm	2DH5_Ant1	_High_2480	[□
M4 1 Date: 15.AUG.2022 0240.25 Spectrum Ref Level 20.00 dPm Att 30.23	2DH5_Ant1	_High_2480	(^{II}
M4 1 Date: 15.AUG.2022 00:40:95 Spectrum Ref.Level.20.00 Ref.Level.20.00 0Pm	2DH5_Ant1	High_2480	
M4 1 Date: 15.AUG.2022 00:40:25 Spectnum Ref.Level Ref.Level 20:00 JPm Att 30:63 SGL Count: 300/300 1Pk View	2DH5_Ant1	_High_2480	-0.49 dB
M4 1 Date: 15.ALC.2022 00:40:25 Spectnum Ref Level Ref Level 20:00 dPm Att 30:23 SGL Count: 300/300 1Pk View 1D dBm	2DH5_Ant1	High_2480	-0.49 dB 2.480130 G -49.13 dB
M4 1 Date: 15.AUG.2022 00:40:25 Spectnum Ref.Level Ref.Level 20:00 UPm Att 30:03 SGL Count: 300/300 1Pk View	2DH5_Ant1	High 2480	-0.49 dB 2.480130 G
M4 1 Date: 15.AUG.2022_00:40:25 Spectnum Ref.tevel: 20.00.0Em Att 30:35 SGL.Count: 300/300 ●1Pk View 10.dsm 0.d8m	2DH5_Ant1	High 2480	-0.49 dB 2.480130 G -49.13 dB
M4 1 Date: 15.ALC.2022 0040.25 Spectnum Ref Lovel 20.00 dBm Att 30.25 SGL Count 300/300 10 Hz View 1D dBm 10 dBm 11 dBm 11 dBm -10 dBm 0 dBm 11 dBm 11 dBm	2DH5_Ant1	High 2480	-0.49 dB 2.480130 G -49.13 dB
M4 1 Date: 15.AUG.2022_00:40:25 Spectnum Ref.tevel: 20.00.0Em Att 30:35 SGL.Count: 300/300 ●1Pk View 10.dsm 0.d8m	2DH5_Ant1	High 2480	-0.49 dB 2.480130 G -49.13 dB
M4 1 Date: 15.ALC.2022 08.40.25 Spectnum Ref Level 20.00.0Em Att 30.03 SGL Count 300/300 ● 1Pk View 10.dBm 41.0 0.dBm M1.0 0.dBm -10.dEm 11.0 11.0	2DH5_Ant1	High 2480	-0.49 dB 2.480130 G -49.13 dB
M4 1 Date: 15.AUC.2022_00:40:25 Spectnum Ref.Level 20.00 dBm Att 30:63 SGL Count 300/300 • 1b View 1D dBm -10 dBm -20.4Bm -30 dBm	2DH5_Ant1	High 2480	-0.49 dB 2.480130 G -49.13 dB
M4 1 Date: 15.AUC.2022 0040.95 Spectrum Ref tevel 20.00 dBm Att 30.43 SGL Count 300/300 91Pk View 1D dBm 1 -10 dBm 1 -20.4800 01 -20.490 dBr -30 dBm 1	2DH5_Ant1	_High_2480	-0.49 db 2.480130 Gł -49.15 db 2.483500 Gł
M4 1 Date: 15.AUC.2022 0040.95 Spectrum Ref tevel 20.00 dBn Att 30.63 SGL Count 200/300 919k View 10 dBn 10 dBn -10 dBn 10 -20.400 dBr -30 dBn 12.0400 dBr -30 dBn 12.0400 dBr	2DH5_Ant1	_High_2480	-0.49 db 2.480130 Gł -49.15 db 2.483500 Gł
M4 1 Date: 15.AUC.2022 0040.95 Spectrum Ref tevel 20.00 dBn Att 30.63 SGL Count 200/300 919k View 10 dBn 10 dBn -10 dBn 10 -20.400 dBr -30 dBn 12.0400 dBr -30 dBn 12.0400 dBr	2DH5_Ant1	_High_2480	-0.49 dB 2.480130 G -49.13 dB
M4 1 Date: 15.AUC.2022 0040.25 Spectrum Ref Level 20.00 dBn Att 30.25 SGL Count: 300/300 91Pk View 1D dBm 10 -10 dBm 11 -20.460 01 -20.460 01 -30 dBm 11 -50 dBm 112	2DH5_Ant1	_High_2480	-0.49 db 2.480130 Gł -49.15 db 2.483500 Gł
M4 1 Date: 15.AUC.2022 0040.95 Spectrum Ref Level 20.00 dPn Att 30.35 SGL Count 200/300 10 dPn • 10 dBn 10 dBn -20.490 dBn 12.20.490 dBn -30 dBn 12.20.490 dBn -30 dBn 12.20.490 dBn -30 dBn 12.20.490 dBn	2DH5_Ant1	_High_2480	-0.49 db 2.480130 Gł -49.15 db 2.483500 Gł
M4 1 Date: 15.AUC.2022 0040.95 Spectrum Ref Level 20.00 dPn Att 30.63 SGL Court 300/300 124 Mit 0 dBn 10 dBn -20 dBn 01.20.400 dBr -30 dBn 01.20.400 dBr -50 dBn -70 dBn	2DH5_Ant1	_High_2480	-0.49 dB 2.480130 dF -49.15 dB 2.483500 GF
M4 1 Date: 15.AUC.2022_00:40:25 Spectrum Ref Level 20.00 dBn Att 30:35 SGL Count 200/300 ●19k View 10 dBn -10 dBn -20.490 dBn -30 dBn	2DH5_Ant1	_High_2480	-0.49 dB 2.490130 G -49,13 dB 2.483500 G 2.483500 G
M4 1 Date: 15.ALC.2022 08.40.25 Spectrum Ref Level 20.00 JBm Att 30.63 SGL Count 300/300 10 Hv View 10 dBm 10 dBm -20 dBm 01 - 20.490 dBr -30 dBm -10 dBm -30 dBm -30 dBm	2DH5_Ant1	_High_2480	-0.49 dB 2.480130 dF -49.15 dB 2.483500 GF
M4 1 Date: 15.ALC.2022 08.40.25 Spectrum Ref Level 20.00 JBm Att 30.63 SGL Count 300/300 10 HV View 10 dBm 11 -20 dBm 12 -30 dBm 12 -30 dBm 12 -30 dBm 12 -30 dBm 14 -30 dBm 15 -30 dBm 14 -30 dBm 15 -30 dBm 14 -30 dBm 14 -30 dBm 14	2DH5_Ant1	_High_2480	-0.49 dB 2.490130 G -49,13 dB 2.483500 G 2.483500 G
M4 1 Date: 15.4UC.2022 00.40.95 Spectrum Ref Level 20.00 dBn Att 30.45 SGL Count 200/300 91Pk View 1D dBn 1 -10 dBn 1 -20.480 01 - 20.490 dBr -30 dBm -20.490 dBr -30 dBm -20.490 dBr -30 dBm -10.490 dBr -30 dBm -20.490 dBr -30 dBm -20.490 dBr -30 dBm -20.490 dBr -30 dBm -10 dBr <	2DH5_Ant1 Offset 8.23 UB @ RBW 100 k SWT 94.8 µs @ YBW 300 k	_High_2480	-0.49 dB 2.490130 G -49,13 dB 2.483500 G 2.483500 G











		3DH5_A	nt1_Low_	Hop_240	2	
Spectru	11					
e Att	el 20.00 dBm Offs 30 dB SWT t 300/300		3W 100 kHz 3W 300 kHz Mo	de Auto FET		
●1Pk View			1			
				M1[1]		-4.72 dBm .4039250 GHz
10 dBm		-	-	M2[1]		-53.16 dBm
0 d8m				1	1 1	.4000000 GHz
-10 dBm						n.N.
-10 dBm					1	BANKA
-20 dPm-		-		-		1
-30 dBm	01 -24.720 dBm					
a ternates i			-			
-40 dBm		-		-		
-50 den		M4		1	MB MANNA MILLAN	M2 /
-50 dem-		and draw and a trap	matan altrange	and the heat of the safe	n sand have a more	an low for
-bu d8.m						
-70 dBm-		-		-		-
Start 2.3 Marker	o GHZ		691 pts		St	op 2.405 GHz
Type R M1	1 2.4	03925 GH2	-4.72 dBm	unction	Function Re	sult
M2 M3	1	2.4 GHz 2.39 GHz	-53 15 dBm -54 15 dBm			
M4		08043 GHz	-51 15 dBm			
Date: 21.SEF	1 2.37		-51 15 dBm	Hop_248	80	
Spectra Ref Lev Att	1 2.37 2022 09:37;22 11 12 00.00 dBm Offs 30 dB SWT	3DH5_Ai	nt1_High_		30	(mail)
Spectra Rof Lev Att Court 50	1 2.37 2022 09:37;22 11 12 00.00 dBm Offs 30 dB SWT	3DH5_Ai	nt1_High_		30	
Spectra Ref Lev Att	1 2.37 2022 09:37;22 11 12 00.00 dBm Offs 30 dB SWT	3DH5_Ai	nt1_High_			-2.40 dBm
Spectra Rof Lev Att Court 50	1 2.37 2022 09:37;22 11 12 00.00 dBm Offs 30 dB SWT	3DH5_Ai	nt1_High_	de Auto FF7 M1[1]		-2.40 dBm 2.473990 GHz
M4 Date: 21.SEF Ref Lev Att Count 30 11k View 10 dan	1 2.37 2022 09:37;22 11 12 00.00 dBm Offs 30 dB SWT	3DH5_Ai	nt1_High_	de Auto FFT		-2.40 dBm
M4 Date: 21.SEF Ref Lev Att Count 30 IPk View 1D dBa- C dBa-	1 2.37 2.222 09:37;22 11 22,000 dBm Offs 30 d3 StwT 2/200	3DH5_Ai	nt1_High_	de Auto FF7 M1[1]		-2.40 dBm 2.473990 GHz -53.10 dBm
M4 Date: 21.SEF Ref Lev Att Count 30 11k View 10 dan	1 2.37 2.222 09:37;22 11 22,000 dBm Offs 30 d3 StwT 2/200	3DH5_Ai	nt1_High_	de Auto FF7 M1[1]		-2.40 dBm 2.473990 GHz -53.10 dBm
M4 Date: 21.SEF Rof Lev Att Count 3D IPk View 1D diam C ddiam	1 2.37 2022 09:37;22 11 20:00 dBm Offs 30 d3 SWT 2/300	3DH5_Ai	nt1_High_	de Auto FF7 M1[1]		-2.40 dBm 2.473990 GHz -53.10 dBm
M4 Date 21.SEF Ref Lev Att Count 30 1Pk View 1D d8a 0 d84 -20 d8a- 20 d8a-	1 2.37 2.222 09:37;22 11 22,000 dBm Offs 30 d3 StwT 2/200	3DH5_Ai	nt1_High_	de Auto FF7 M1[1]		-2.40 dBm 2.473990 GHz -53.10 dBm
M4 Date: 21.SEF Rof Lev Att Count 3D IPk View 1D diam C ddiam	1 2.37 2022 09:37;22 11 20:00 dBm Offs 30 d3 SWT 2/300	3DH5_Ai	nt1_High_	de Auto FF7 M1[1]		-2.40 dBm 2.473990 GHz -53.10 dBm
M4 Date 21.SEF Ref Lev Att Count 30 1Pk View 1D d8a 0 d84 -20 d8a- 20 d8a-	1 2.37 2022 09:37;22 11 20:00 dBm Offs 30 d3 SWT 2/300	3DH5_Ai	nt1_High_ www.soo.kHz Mo	de Auto FF7 M1[1]		-2.40 dBm 2.473990 GHz -53.10 dBm
M4 Date: 21.SEF Ref Lev Att Count 30 1Pk View 1D: d5m - 0 d6m -30 dem - -10 dem	1 2.37 2.222 09:37;22 1 2.000 dBm Offs 30 c3 SWT 1/300 -01 -22,400 dBm	3DH5_Ai	nt1_High_ ww 100 kHz Mo	de Auto FFT M1[1] M2[1]		-2.40 dBm 2.473990 GHz -33.10 dBm 2.483500 GHz
M4 Date: 21.SEF Ref Lev Att Count 30 19k View 10 d8m - 0 d8m - 30 d8m - 40 d8m - 50 d8m	1 2.37 2022 09:37;22 11 20:00 dBm Offs 30 d3 SWT 2/300	3DH5_Ai	nt1_High_ ww 100 kHz Mo	de Auto FFT M1[1] M2[1]		-2.40 dBm 2.473990 GHz -33.10 dBm 2.483500 GHz
M4 Date: 21.SEF Ref Lev Att Count 30 1Pk View 1D: d5m - 0 d6m -30 dem - -10 dem	1 2.37 2.222 09:37;22 1 2.000 dBm Offs 30 c3 SWT 1/300 -01 -22,400 dBm	3DH5_Ai	nt1_High_ ww 100 kHz Mo	de Auto FFT M1[1] M2[1]		-2.40 dBm 2.473990 GHz -33.10 dBm 2.483500 GHz
M4 Date: 21.SEF Ref Lev Att Court 30 IPk View 1D dBm C dBm C dBm -20 dBm -30 dBm -10 dBm -50 dBm -50 dBm	1 2.37 2.222 09:37;22 1 2.000 dBm Offs 30 c3 SWT 1/300 -01 -22,400 dBm	3DH5_Ai	nt1_High_ ww 100 kHz Mo	de Auto FFT M1[1] M2[1]		-2.40 dBm 2.473990 GHz -33.10 dBm 2.483500 GHz
M4 Date: 21.SEF Ref Lev Att Count 30 19k View 10 d8m - 0 d8m - 30 d8m - 40 d8m - 50 d8m	1 2.37 2.222 09:37;22 1 2.000 dBm Offs 30 c3 SWT 1/300 -01 -22,400 dBm	3DH5_Ai	nt1_High_ ww 100 kHz Mo	de Auto FFT M1[1] M2[1]		-2.40 dBm 2.473990 GHz -33.10 dBm 2.483500 GHz
M4 Date: 21.SEF Ref Lev Att Court 30 IPk View 1D dBm C dBm C dBm -20 dBm -30 dBm -10 dBm -50 dBm -50 dBm	1 2.37	3DH5_Ai	nt1_High_ ww 100 kHz Mo	de Auto FFT M1[1] M2[1]	and making all in	-2.40 dBm 2.473990 GHz -33.10 dBm 2.483500 GHz
M4 Date: 21.SEF Ref Lev Att Count 20 1Pk View 1D d5m 0 d6t 	1 2.37 2.322 09:37:22 1 20:00 dPm Oils 30 d3 SWT 30 d3 SWT 1/300 1 -22:400 dBm -01 -22:400 dBm -01 -22:400 dBm	3DH5_Ai	nt1_High_ aw 300 kHz Mn	de Auto FET MI[1] M2[1]	and my faith and	-2.40 dBm 2.473990 GHz -53.10 dBm 2.183500 GHz
M4 Date: 21.SEF Rof Lev Att Cont 30 IPK View ID dam C ddam C ddam -20 dBm -30 dBm -50 dBm	1 2.37	3DH5_Ai 94.8 µs = VB	nt1_High_ aw 300 kHz Mn	de Auto FFT M1[1] M2[1]	and making all in	-2.40 dBm 2.473990 GHz -53.10 dBm 2.183500 GHz
M4 Date: 21.SEF Ref Lev Att Count: 3D IPK View 1D dian 0 dian -20 dian -30 dian -50 dian -50 dian -70 dian -70 dian Start 2.4 Marker Type I Marker Type I Marker Type I Marker Type I	1 2.37	3DH5_Ai 94.8 µs = ve	111_High_ W 100 kHz Mo W 300 kHz Mo 691 pts Y volue P -2.4 0 (Bm -2.3 12 dem	de Auto FET MI[1] M2[1]	and my faith and	-2.40 dBm 2.473990 GHz -53.10 dBm 2.183500 GHz
M4 Date: 21.SEF Rof Lev Rof Lev Att Court 30 ID dBm 0 dBm 0 dBm -20 dBm -30 dBm -50 dBm -50 dBm -70 dBm Start 2.4 Marker Type IR Mark	1 2.37	3DH5_Ai 94.3 µs ≡ VB	nt1_High_ aw 300 kHz Mo aw 300 kHz Mo	de Auto FET MI[1] M2[1]	and my faith and	-2.40 dBm 2.473990 GHz -53.10 dBm 2.183500 GHz



4.9 Spurious RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10:2013
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane
	Remark: Offset=cable loss+ attenuation factor.
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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.
Exploratory Test Mode:	Non-hopping transmitting with all kind of modulation and all kind of data type
Final Test Mode:	Through Pre-scan, find the DH5 of data type is the worst case of GFSK modulation type, 2-DH5 of data type is the worst case of π /4DQPSK modulation type, 3-DH5 of data type is the worst case of 8DPSK modulation type.
Test Results:	Pass



