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

# **Test Report**

Report No. :	CQASZ20220701263E-01		
Applicant:	Shenzhen Inkbird Technology Co., Ltd.		
Address of Applicant:	Room 1803, Guowei Building, NO.68 Guowei Road, Xianhu Community,		
	Liantang, Luohu District,Shenzhen,China		
Equipment Under Test (E	UT):		
Product:	Smart Fan Controller		
Model No.:	IVC-001W T4, IVC-001W T6, IVC-001W T8, IVC-001W T10, IVC-002W T4,		
	IVC-002W T6, IVC-002W T8, IVC-002W T10, IVC-001W		
Test Model No.:	IVC-001W		
Brand Name:	INKBIRD		
FCC ID:	2AYZDIVC-001W		
Standards:	47 CFR Part 15, Subpart C		
Date of Receipt:	2022-07-25		
Date of Test:	2022-07-25 to 2022-08-04		
Date of Issue:	2022-10-27		
Test Result :	PASS*		

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

Tested By:	lewis zhou
	( Lewis Zhou)
Reviewed By:	Timo Loj
	( Timo Lei )
Approved By:	Jamos
	( 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.



# 1 Version

## **Revision History Of Report**

Report No.	Version	Description	Issue Date
CQASZ20220701263E-01	Rev.01	Initial report	2022-10-27



## 2 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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## 4 General Information

## 4.1 Client Information

Applicant:	Shenzhen Inkbird Technology Co., Ltd.		
	Room 1803, Guowei Building, NO.68 Guowei Road, Xianhu Community,		
Address of Applicant:	Liantang, Luohu District, Shenzhen, China		
Manufacturer:	Shenzhen Inkbird Technology Co., Ltd.		
Address of Manufacturer:	Room 1803, Guowei Building, NO.68 Guowei Road, Xianhu Community,		
	Liantang, Luohu District, Shenzhen, China		
Factory:	Shenzhen Inkbird Technology Co., Ltd.		
Address of Factory:	Room 1803, Guowei Building, NO.68 Guowei Road, Xianhu Community,		
	Liantang, Luohu District, Shenzhen, China		

## 4.2 General Description of EUT

Product Name:	Smart Fan Controller		
Model No.:	IVC-001W T4, IVC-001W T6, IVC-001W T8, IVC-001W T10, IVC-002W T4,		
	IVC-002W T6, IVC-002W T8, IVC-002W T10, IVC-001W		
Test Model No.:	IVC-001W		
Trade Mark:	INKBIRD		
Software Version:	V1.0		
Hardware Version:	REV.A		
Operation Frequency:	2402MHz~2480MHz		
Bluetooth Version:	V4.2		
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 Portable Fix Location		
Test Software of EUT:	AmebaZ2_mptool_1V3		
Antenna Type:	PCB antenna		
Antenna Gain:	2.54 dBi		
Power Supply:	DC 24V		



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



## 4.3 Additional Instructions

EUT Test Software Settings:			
Mode:	<ul> <li>Special software is used.</li> <li>Through engineering command into the engineering mode.</li> <li>engineering command: *#*#3646633#*#*</li> </ul>		
EUT Power level:	Class2 (Power level is built-in set parameters and cannot be changed and selected)		
	owest frequency, the middle frequency and	d the highest frequency keep	
transmitting of the EUT.		1	
Mode	Channel	Frequency(MHz)	
	СН0	2402	
DH1/DH3/DH5	CH39	2441	
	CH78	2480	
	СН0	2402	
2DH1/2DH3/2DH5	CH39	2441	
	CH78	2480	
	СН0	2402	
3DH1/3DH3/3DH5	CH39	2441	
	CH78	2480	

## Run Software:

	TX Setting		TX Packet Setup	Packet Counter
Select COM	RX Setting		Pattern	тх ок
Control	Ant TX	Ant RX		~
	×	~		RX OK
Initialize	Data Channel	~	Count	RX ERR
Pwridx by Rate and Limit				
	Data Rate	~	Length	Reset
TX Power Tracking Start	A	~	7	Advanced
MAC Address			Interval	TX Dest Set
	TX Power B	~	Interval	
Wlan Mode	Index C	~		
viai riouc	D	~	View Window	
*	D L			
Testing Item	Preamble	~		
~	Bandwidth	~		
	Limit CH by B	W		
Start Stop	Xtal.cap	×		



### 4.4 Test 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.

## 4.5 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



### 4.6 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 <sup>-8</sup>
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:



### 4.7 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

### 4.8 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

### 4.9 Abnormalities from Standard Conditions

None.

### 4.10 Other Information Requested by the Customer

None.



## 4.11 Equipment List

Test Fauinment	Manufactura		Instrument	Calibration	Calibration
Test Equipment	Manufacturer	Model No.	No.	Date	Due Date
EMI Test Receiver	R&S	ESR7	CQA-005	2021/9/10	2022/9/9
Spectrum analyzer	R&S	FSU26	CQA-038	2021/9/10	2022/9/9
		AFS4-00010300-18-10P-			
Preamplifier	MITEQ	4	CQA-035	2021/9/10	2022/9/9
		AMF-6D-02001800-29-			
Preamplifier	MITEQ	20P	CQA-036	2021/9/10	2022/9/9
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	2021/9/10	2022/9/9
Coaxial Cable					
(Below 1GHz)	CQA	N/A	C020	2021/9/10	2022/9/9
Antenna Connector	CQA	RFC-01	CQA-080	2021/9/10	2022/9/9
RF					
cable(9KHz~40GHz)	CQA	RF-01	CQA-079	2021/9/10	2022/9/9
Power divider	MIDWEST	PWD-2533-02-SMA-79	CQA-067	2021/9/10	2022/9/9
EMI Test Receiver	R&S	ESPI3	CQA-013	2021/9/10	2022/9/9
LISN	R&S	ENV216	CQA-003	2021/9/10	2022/9/9
Coaxial cable	CQA	N/A	CQA-C009	2021/9/10	2022/9/9

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.



## 5 Test results and Measurement Data

## 5.1 Antenna Requirement

### **Standard requirement:** 47 CFR Part 15C Section 15.203 /247(c)

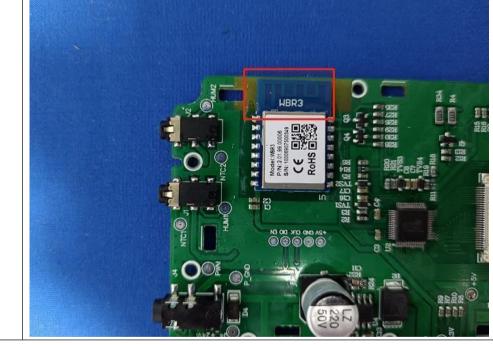
#### 15.203 requirement:

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 2.54 dBi.





## 5.2 Conducted Emissions

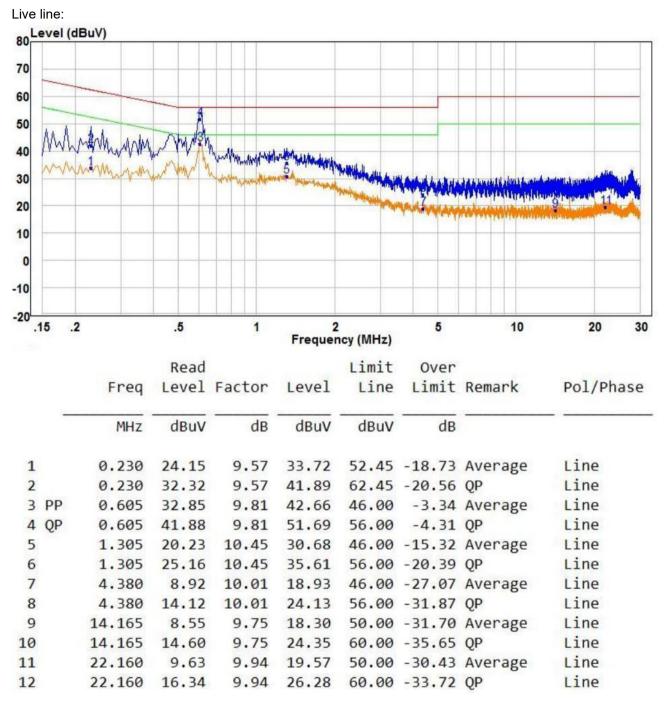
	Conducted Emissio			
	Test Requirement:	47 CFR Part 15C Section 15.2	207	
	Test Method:	ANSI C63.10: 2013		
	Test Frequency Range:	150kHz to 30MHz		
	Limit:		Limit (c	lBuV)
		Frequency range (MHz)	Quasi-peak	Average
		0.15-0.5	66 to 56*	56 to 46*
		0.5-5	56	46
		5-30	60	50
		* Decreases with the logarithn	n of the frequency.	
	Test Procedure:	<ol> <li>The mains terminal disturbution.</li> <li>The EUT was connected to Impedance Stabilization Nation impedance. The power calls connected to a second LIS reference plane in the same measured. A multiple sock power cables to a single Life exceeded.</li> <li>The tabletop EUT was place ground reference plane. An placed on the horizontal grading of the EUT shall be 0.4 mm vertical ground reference plane. The LISN unit under test and bonded mounted on top of the group between the closest points the EUT and associated equipment and all of the im ANSI C63.10: 2013 on contract on the second second contract on the second contrest on the second contract on the second contr</li></ol>	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 + $5\Omega$ 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:

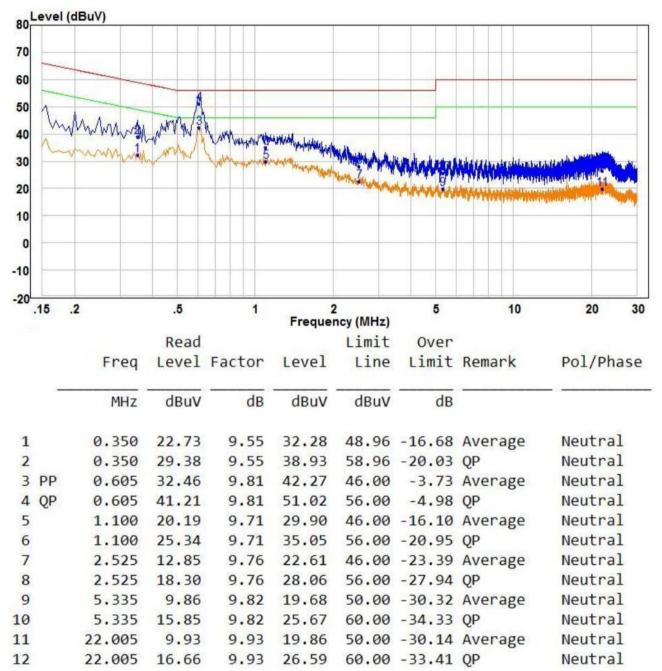
1. The following Quasi-Peak and Average measurements were performed on the EUT:

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.



## 5.3 Conducted Peak Output Power

Test Requirement:	47 CFR Part 15C Section 15.247 (b)(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:	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 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**

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
		2402	-1.08	≤30	PASS
DH5	Ant1	2441	-0.5	≤30	PASS
		2480	0.16	≤30	PASS
		2402	-0.63	≤20.97	PASS
2DH5	Ant1	2441	0.13	≤20.97	PASS
		2480	0.64	≤20.97	PASS
		2402	0.1	≤20.97	PASS
3DH5	Ant1	2441	0.53	≤20.97	PASS
		2480	1.03	≤20.97	PASS



### Test plot as follows:

			DH5_Ant				
Spectrum							
Ref Level	30.00 dBm Offs	et 9.84 dB 🖷	RBW 3 MHz				
Att Count 100/:	40 dB SW	Γ 1.3 µs 🖷	VBW 10 MHz	Mode Auto FF	1		
Ount 100/:	100						
				M1[1]		pr mark	1.08 dBm
20 dBm-						2.4016	8030 GHz
20 0011							
10 dBm-							
0 dBm-			M1				
	_						
-10 dBm			23	8			
20 dBm-		0			-		
-30 dBm					2		
-40 dBm							
-40 dBm-	28		8				
-50 dBm							
oc dont				12			
-60 dBm							
CF 2.402 G			DH5_Ant	~		Spar	8.0 MHz
201	022 09:54:16	I		~		Spar	
Date: 14.JUN.20 Spectrum Ref Level	122 09:54:16	et 9.80 dB 🖷	DH5_Ant	:1_2441		Spar	8.0 MHz
Spectrum Ref Level	122 09:54:16 30.00 dBm Offs 40 dB SW	et 9.80 dB 🖷	DH5_Ant	~	1	Spar	
Date: 14.JUN.20 Spectrum Ref Level	122 09:54:16 30.00 dBm Offs 40 dB SW	et 9.80 dB 🖷	DH5_Ant	1_2441 Mode Auto FF <sup></sup>	1		
Spectrum Ref Level Att Count 100/:	122 09:54:16 30.00 dBm Offs 40 dB SW	et 9.80 dB 🖷	DH5_Ant	:1_2441	1		
Spectrum Ref Level Att Count 100/:	122 09:54:16 30.00 dBm Offs 40 dB SW	et 9.80 dB 🖷	DH5_Ant	1_2441 Mode Auto FF <sup></sup>	,		
Date: 14.JUN 20 Spectrum Ref Level Att Count 100/: 91Pk View	122 09:54:16 30.00 dBm Offs 40 dB SW	et 9.80 dB 🖷	DH5_Ant	1_2441 Mode Auto FF <sup></sup>	1		
Date: 14.JUN 20 Spectrum Ref Level Att Count 100/: 91Pk View	122 09:54:16 30.00 dBm Offs 40 dB SW	et 9.80 dB 🖷	DH5_Ant	1_2441 Mode Auto FF <sup></sup>	1		
Date: 14 JUN 20 Spectrum Ref Level Att Count 100/: 9 1Pk View 20 dBm 10 dBm	122 09:54:16 30.00 dBm Offs 40 dB SW	et 9.80 dB 🖷	DH5_Ant	1_2441 Mode Auto FF <sup></sup>			
Spectrum Ref Level Att Count 100/: P1Pk View 20 dBm	122 09:54:16 30.00 dBm Offs 40 dB SW	et 9.80 dB 🖷	DH5_Ant	1_2441 Mode Auto FF <sup></sup>			
Date: 14 JUN 20 Spectrum Ref Level Att Count 100/: O 10k 20 dBm 10 dBm 0 dBm	122 09:54:16 30.00 dBm Offs 40 dB SW	et 9.80 dB 🖷	DH5_Ant	1_2441 Mode Auto FF <sup></sup>			
Date: 14 JUN 20 Spectrum Ref Level Att Count 100/: 9 1Pk View 20 dBm 10 dBm	122 09:54:16 30.00 dBm Offs 40 dB SW	et 9.80 dB 🖷	DH5_Ant	1_2441 Mode Auto FF <sup></sup>			
Date: 14 JUN 20 Spectrum Ref Level Att Count 100/: PIPk View 20 dBm 10 dBm -10 dBm	122 09:54:16 30.00 dBm Offs 40 dB SW	et 9.80 dB 🖷	DH5_Ant	1_2441 Mode Auto FF <sup></sup>			
Date: 14 JUN 20 Spectrum Ref Level Att Count 100/: O 10k 20 dBm 10 dBm 0 dBm	122 09:54:16 30.00 dBm Offs 40 dB SW	et 9.80 dB 🖷	DH5_Ant	1_2441 Mode Auto FF <sup></sup>			
Date: 14 JUN 20 Spectrum Ref Level Att Count 100/: ●1Pk View 20 dBm 10 dBm -10 dBm -20 dBm	122 09:54:16 30.00 dBm Offs 40 dB SW	et 9.80 dB 🖷	DH5_Ant	1_2441 Mode Auto FF <sup></sup>			
Date: 14 JUN 20 Spectrum Ref Level Att Count 100/: PIPk View 20 dBm 10 dBm -10 dBm	122 09:54:16 30.00 dBm Offs 40 dB SW	et 9.80 dB 🖷	DH5_Ant	1_2441 Mode Auto FF <sup></sup>			
Date: 14 JUN 20 Spectrum Ref Level Att Count 100/: ●1Pk View 20 dBm 10 dBm -10 dBm -20 dBm	122 09:54:16 30.00 dBm Offs 40 dB SW	et 9.80 dB 🖷	DH5_Ant	1_2441 Mode Auto FF <sup></sup>			
Date: 14 JUN 20 Spectrum Ref Level Att Count 100/: PIPk View 20 dBm 10 dBm -10 dBm -20 dBm -30 dBm	122 09:54:16 30.00 dBm Offs 40 dB SW	et 9.80 dB 🖷	DH5_Ant	1_2441 Mode Auto FF <sup></sup>			
Date: 14 JUN 20 Spectrum Ref Level Att Count 100/: PIPk View 20 dBm 10 dBm -10 dBm -20 dBm -30 dBm	122 09:54:16 30.00 dBm Offs 40 dB SW	et 9.80 dB 🖷	DH5_Ant	1_2441 Mode Auto FF <sup></sup>			
Date: 14 JUN 20 Spectrum Ref Level Att Count 100/: ●1Pk View 20 dBm 10 dBm -10 dBm -20 dBm -30 dBm -40 dBm	122 09:54:16 30.00 dBm Offs 40 dB SW	et 9.80 dB 🖷	DH5_Ant	1_2441 Mode Auto FF <sup></sup>			
Date: 14 JUN 20 Spectrum Ref Level Att Count 100/: ●1Pk View 20 dBm 10 dBm -10 dBm -20 dBm -30 dBm -40 dBm	122 09:54:16 30.00 dBm Offs 40 dB SW	et 9.80 dB 🖷	DH5_Ant	1_2441 Mode Auto FF <sup></sup>			
Date: 14 JUN 20 Spectrum Ref Level Att Count 100/: PIPk View 20 dBm 10 dBm -10 dBm -30 dBm -30 dBm -50 dBm	122 09:54:16 30.00 dBm Offs 40 dB SW	et 9.80 dB 🖷	DH5_Ant	1_2441 Mode Auto FF <sup></sup>			
Date: 14 JUN 20 Spectrum Ref Level Att Count 100/: PIPk View 20 dBm 10 dBm -10 dBm -30 dBm -30 dBm -50 dBm	222 09:54 16	et 9.80 dB 🖷	DH5_Ant	1_2441		2,4400	



			_2480		
Spectrum		<u></u> ,			
RefLevel 30.00 dBm Att 40 dB	Offset 9.80 dB SWT 1.3 µs	RBW 3 MHz VBW 10 MHz	Mode Auto FFT	[4]	1
Count 100/100				ı	ł.
TER VIEW			M1[1]	0.16 dBm	
20 dBm-				2.47967230 GHz	
20 000					
10 dBm					
		M1			
0 dBm					
-10 dBm	-				
-10 u8in					
-20 dBm					
-30 dBm					
-40 dBm		8 X			
-50 dBm					
-60 dBm					
CF 2.48 GHz	1	1001 pts		Span 8.0 MHz	
	2	2DH5_Ant1	_2402		)
Spectrum	Offcot 0.94 - 0				l
RefLevel 30.00 dBm Att 40 dB	Offset 9.84 dB SWT 1.3 µs	RBW 3 MHz VBW 10 MHz	Mode Auto FFT		l
Ref Level 30.00 dBm Att 40 dB Count 100/100	Offset 9.84 dB SWT 1.3 µs	RBW 3 MHz VBW 10 MHz	Mode Auto FFT		1
RefLevel 30.00 dBm Att 40 dB	Offset 9.84 dB SWT 1.3 µs	• RBW 3 MHz • VBW 10 MHz	Mode Auto FFT	-0.63 dBm	1
Ref Level 30.00 dBm Att 40 dB Count 100/100 91Pk View	Offset 9.84 dB SWT 1.3 µs	RBW 3 MHz VBW 10 MHz			
Ref Level 30.00 dBm Att 40 dB Count 100/100	Offset 9.84 dB SWT 1.3 µs	RBW 3 MHz VBW 10 MHz		-0.63 dBm	
Ref Level 30.00 dBm Att 40 dB Count 100/100 91Pk View	Offset 9.84 dB SWT 1.3 μs 	RBW 3 MHz VBW 10 MHz		-0.63 dBm	
Ref Level 30,00 dBm         40 dB           Count 100/100         10 kBm           20 dBm         10 dBm	Offset 9.84 dB SWT 1.3 μs 	• VBW 10 MHz )		-0.63 dBm	
Ref Level         30.00         dBm           Att         40 dB         Count: 100/100           ● 1Pk View         20 dBm         20 dBm	Offset 9.84 dB SWT 1.3 μs	RBW         3 MHz           VBW         10 MHz           M1		-0.63 dBm	Į
Ref Level 30.00 dBm           Att         40 dB           Count 100/100           1Pk View           20 dBm           10 dBm           0 dBm	Offset 9.84 dB SWT 1.3 μs	• VBW 10 MHz )		-0.63 dBm	Ţ
Ref Level 30,00 dBm         40 dB           Count 100/100         10 kBm           20 dBm         10 dBm	Offset 9.84 dB SWT 1.3 μs	• VBW 10 MHz )		-0.63 dBm	Ţ
Ref Level 30.00 dBm           Att         40 dB           Count 100/100           1Pk View           20 dBm           10 dBm           0 dBm	Offset 9.84 dB SWT 1.3 μs 	• VBW 10 MHz )		-0.63 dBm	
Ref Level 30,00 dBm           Att         40 dB           Count 100/100         11 k View           20 dBm         10 dBm           10 dBm         -10 dBm	Offset 9.84 dB swT 1.3 μs	• VBW 10 MHz )		-0.63 dBm	
Ref Level 30,00 dBm           Att         40 dB           Count 100/100         11 k View           20 dBm         10 dBm           10 dBm         -10 dBm	Offset 9.84 dB swT 1.3 μs	• VBW 10 MHz )		-0.63 dBm	
Ref Level 30,00 dBm           Att         40 dB           Count 100/100         10k           20 dBm         10 dBm           10 dBm         0 dBm           -30 dBm         -30 dBm	Offset 9.84 dB swT 1.3 μs	• VBW 10 MHz )		-0.63 dBm	
Ref Level 30,00 dBm           Att         40 dB           Count 100/100           ● 1Pk View           20 dBm           10 dBm           0 dBm           -10 dBm           -20 dBm	Offset 9.84 dB swT 1.3 μs	• VBW 10 MHz )		-0.63 dBm	
Ref Level 30,00 dBm           Att         40 dB           Count 100/100           ●1Pk View           20 dBm           10 dBm           0 dBm           -10 dBm           -20 dBm           -30 dBm           -40 dBm	Offset 9.84 dB swT 1.3 μs s	• VBW 10 MHz )		-0.63 dBm	
Ref Level 30,00 dBm           Att         40 dB           Count 100/100         10k           20 dBm         10 dBm           10 dBm         0 dBm           -30 dBm         -30 dBm	Offset 9.84 dB swT 1.3 μs s	• VBW 10 MHz )		-0.63 dBm	
Ref Level 30,00 dBm           Att         40 dB           Count 100/100           ●1Pk View           20 dBm           10 dBm           0 dBm           -10 dBm           -20 dBm           -30 dBm           -40 dBm	Offset 9.84 dB swT 1.3 µs s	• VBW 10 MHz )		-0.63 dBm	
Ref Level 30,00 dBm           Att         40 dB           Count 100/100         1Pk View           20 dBm         10 dBm           10 dBm         0 dBm           -30 dBm         -30 dBm           -30 dBm         -50 dBm	Offset 9.84 dB swT 1.3 µs s	• VBW 10 MHz )		-0.63 dBm	



	2DH5 4	nt1_2441		
Spectrum				
Att 40 dB SW Count 100/100	fset 9.80 dB — RBW 3 M /T 1.3 µs — VBW 10 M	HZ Mode Auto FFT		
1Pk View		M1[1]	0.13 dBm 2.44139960 GHz	
20 dBm-				
10 dBm-		M1		
0 dBm				
-10 dBm				
-20 dBm				
-30 dBm				
-40 dBm				
-60 dBm				
CF 2.441 GHz Date: 14.JUN.2022 09:55:44	10	01 pts	Span 8.0 MHz	
	2DH5 /	nt1 2480		
Spectrum Roft and 20.00 dBm Off		ant1_2480		
Ref Level 30.00 dBm Off Att 40 dB SW Count 100/100	2DH5_4 fset 9.80 dB • RBW 3 M ИТ 1.3 µs • VBW 10 M	Hz		
RefLevel 30.00 dBm Off Att 40 dB SW Count 100/100 PIPk View	<b>set</b> 9.80 dB 🕳 RBW 3 M	Hz	0.64 dBm 2.48035160 GHz	
Ref Level         30.00         dBm         Off           Att         40 dB         SW         Count 100/100         SW           Ount 100/100         1Pk View         20 dBm         20 dBm	<b>set</b> 9.80 dB 🕳 RBW 3 M	Hz Hz <b>Mode</b> Auto FFT	0.64 dBm	
Ref Level 30.00 dBm         Off           40 dB         5W           Count 100/100         1Pk View           20 dBm         10 dBm	<b>set</b> 9.80 dB 🕳 RBW 3 M	Hz Hz <b>Mode</b> Auto FFT	0.64 dBm	
Ref Level         30.00         dBm         Off           Att         40 dB         SW         Count 100/100         SW           Ount 100/100         1Pk View         20 dBm         20 dBm	<b>set</b> 9.80 dB 🕳 RBW 3 M	H2 H2 Mode Auto FFT M1[1]	0.64 dBm	
Ref Level 30.00 dBm         Off           Att         40 dB         SW           Count 100/100         10/100         20 dBm           20 dBm         10 dBm         0 dBm	<b>set</b> 9.80 dB 🕳 RBW 3 M	H2 H2 Mode Auto FFT M1[1]	0.64 dBm	
Ref Level 30.00 dBm         Off           Att         40 dB         SW           Count 100/100         1Pk View         20           20 dBm         10 dBm         10 dBm           10 dBm         -10 dBm         -10 dBm	<b>set</b> 9.80 dB 🕳 RBW 3 M	H2 H2 Mode Auto FFT M1[1]	0.64 dBm	
Ref Level 30.00 dBm         Off           Att         40 dB         SW           Count 100/100         10/100         10           10 dBm         0         0           10 dBm         0         0           -20 dBm         -20 dBm         -20 dBm	<b>set</b> 9.80 dB 🕳 RBW 3 M	H2 H2 Mode Auto FFT M1[1]	0.64 dBm	
Ref Level 30.00 dBm         Off           40 dB         40 dB         SW           Count 100/100         110 dBm         10 dBm           10 dBm         0 dBm         10 dBm           -10 dBm         -20 dBm         -30 dBm	<b>set</b> 9.80 dB 🕳 RBW 3 M	H2 H2 Mode Auto FFT M1[1]	0.64 dBm	
Ref Level 30.00 dBm         Off           Att         40 dB         SW           Count 100/100         91Pk View         910 dBm           20 dBm         910 dBm         910 dBm           10 dBm         910 dBm         910 dBm           -10 dBm         910 dBm         910 dBm           -20 dBm         910 dBm         910 dBm           -40 dBm         910 dBm         910 dBm	<b>set</b> 9.80 dB 🕳 RBW 3 M	H2 H2 Mode Auto FFT M1[1]	0.64 dBm	
Ref Level 30.00 dBm         Off           40 dB         40 dB         SW           Count 100/100         110 k View         10           10 dBm         10 dBm         10 dBm           10 dBm         -0 dBm         -0 dBm           -30 dBm	iset 9.80 dB         RBW         3 M           rr         1.3 µs         VBW 10 M	H2 H2 Mode Auto FFT M1[1]	0.64 dBm	



		3DH5_Ant1	1 2402			
Spectrum			2+02			
Ref Level 30.00 dt Att 40 Count 100/100		<ul> <li>RBW 3 MHz</li> <li>VBW 10 MHz</li> </ul>	Mode Auto FFT			
●1Pk View			M1[1]		0.10 dBm	
20 dBm	3			2.	40167230 GHz	
10 dBm	_					
0 dBm		M1				
-10 dBm		43 (d)				
-20 dBm-			8			
-30 dBm				<i>P</i>		
-40 dBm						
-50 dBm						
-60 dBm				-		
CF 2.402 GHz Date: 14.JUN.2022 09:57	:06	1001 pts	5	8	Span 8.0 MHz	
	1921 ID 67					
Spectrum		3DH5_Ant1	1_2441		In the second s	
Spectrum Ref Level 30.00 df	Bm <b>Offset</b> 9.80 dB	3DH5_Ant1 • RBW 3 MH2 • VBW 10 MH2				
Ref Level 30.00 di	Bm <b>Offset</b> 9.80 dB	RBW 3 MHz	Mode Auto FFT			
Ref Level 30.00 df Att 40 Count 100/100	Bm <b>Offset</b> 9.80 dB	RBW 3 MHz		2.	.53 dBm 44066430 GHz	
Ref Level 30,00 df Att 40 Count 100/100 91Pk View	Bm <b>Offset</b> 9.80 dB	RBW 3 MHz	Mode Auto FFT	2.	0.53 dBm	
Ref Level 30.00 di           Att         40           Count 100/100           1Pk View           20 dBm	Bm <b>Offset</b> 9.80 dB	RBW 3 MHz	Mode Auto FFT	2.	0.53 dBm	
Ref Level 30.00 df           Att         40           Count 100/100           D1Pk View           20 dBm           10 dBm	Bm <b>Offset</b> 9.80 dB	RBW 3 MHz     VBW 10 MHz	Mode Auto FFT	2.	0.53 dBm	
Ref Level 30.00 df           Att         40           Count 100/100           1Pk View           20 dBm           10 dBm           -10 dBm	Bm <b>Offset</b> 9.80 dB	RBW 3 MHz     VBW 10 MHz	Mode Auto FFT	2.	0.53 dBm	
Ref Level 30.00 di           Att         40           Count 100/100           9 IPk View           20 dBm           10 dBm           -10 dBm           -20 dBm	Bm <b>Offset</b> 9.80 dB	RBW 3 MHz     VBW 10 MHz	Mode Auto FFT	2.	0.53 dBm	
Ref Level 30.00 df           Att         40           Count 100/100           1Pk View           20 dBm           10 dBm           0 dBm           -10 dBm           -20 dBm	Bm <b>Offset</b> 9.80 dB	RBW 3 MHz     VBW 10 MHz	Mode Auto FFT	2.	0.53 dBm	
Ref Level 30.00 df           Att         40           Count 100/100           ●1Pk View           20 dBm           10 dBm           -10 dBm           -30 dBm           -40 dBm	Bm <b>Offset</b> 9.80 dB	RBW 3 MHz     VBW 10 MHz	Mode Auto FFT	2.	0.53 dBm	
Ref Level 30.00 df           Att         40           Count 100/100           1Pk View           20 dBm           10 dBm           0 dBm           -10 dBm           -30 dBm           -40 dBm           -50 dBm	Bm <b>Offset</b> 9.80 dB	RBW 3 MHz     VBW 10 MHz	Mode Auto FFT	2.	0.53 dBm	
Ref Level 30.00 df           Att         40           Count 100/100           ●1Pk View           20 dBm           10 dBm           -10 dBm           -30 dBm           -40 dBm	Bm <b>Offset</b> 9.80 dB	RBW 3 MHz     VBW 10 MHz	Mode Auto FFT		0.53 dBm 44066430 CHz	
Ref Level 30.00 df           Att         40           Count 100/100           1Pk View           20 dBm           10 dBm           0 dBm           -10 dBm           -30 dBm           -40 dBm           -50 dBm	am Offset 9.80 dB.	RBW 3 MHz     VBW 10 MHz	Mode Auto FFT		0.53 dBm	



3DH5_Ant1_2480
Ref Level 30.00 dBm Offset 9.80 dB  RBW 3 MHz
Att 40 dB SWT 1.3 µs SWB 10 MHz Mode Auto FFT
Count 100/100
M1[1] 1.03 dBm 2.47959240 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm-
-60 dBm
CF 2.48 GHz         1001 pts         Span 8.0 MHz



## 5.4 20dB Occupy Bandwidth

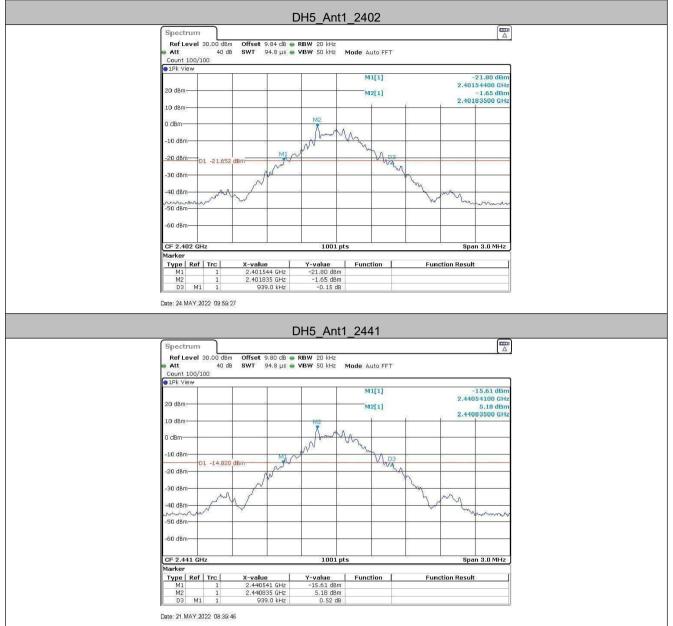
Test Requirement:	47 CFR Part 15C Section 15.247 (a)(1)
Test Method:	ANSI C63.10:2013
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane
	Remark: Offset=Cable loss+ attenuation factor.
Limit:	NA
Exploratory Test Mode:	Non-hopping transmitting with all kind of modulation and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

TestMode	Antenna	Channel	20db EBW[мнz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
		2402	0.939	2401.544	2402.483		PASS
DH5	Ant1	2441	0.939	2440.541	2441.480		PASS
		2480	0.939	2479.541	2480.480		PASS
		2402	1.254	2401.373	2402.627		PASS
2DH5	Ant1	2441	1.254	2440.373	2441.627		PASS
		2480	1.251	2479.373	2480.624		PASS
		2402	1.242	2401.373	2402.615		PASS
3DH5	Ant1	2441	1.242	2440.373	2441.615		PASS
		2480	1.242	2479.373	2480.615		PASS



### Test plot as follows:



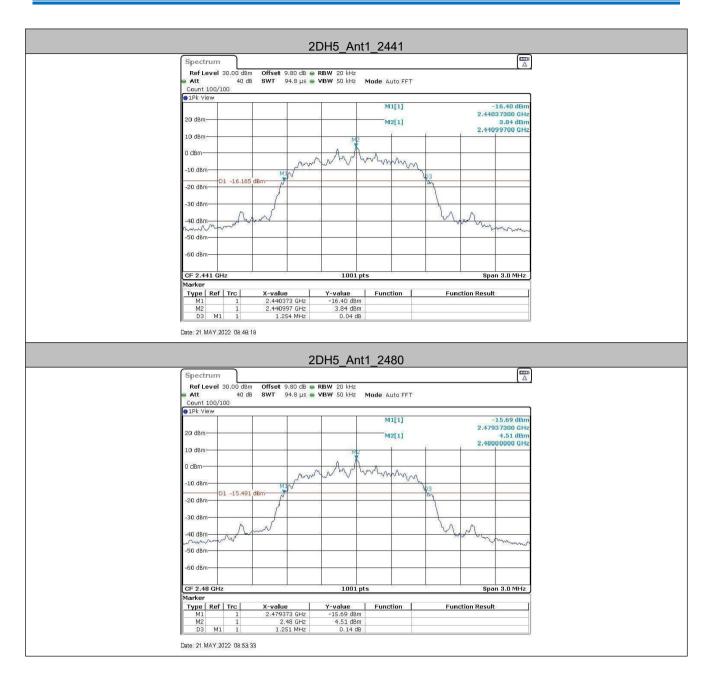






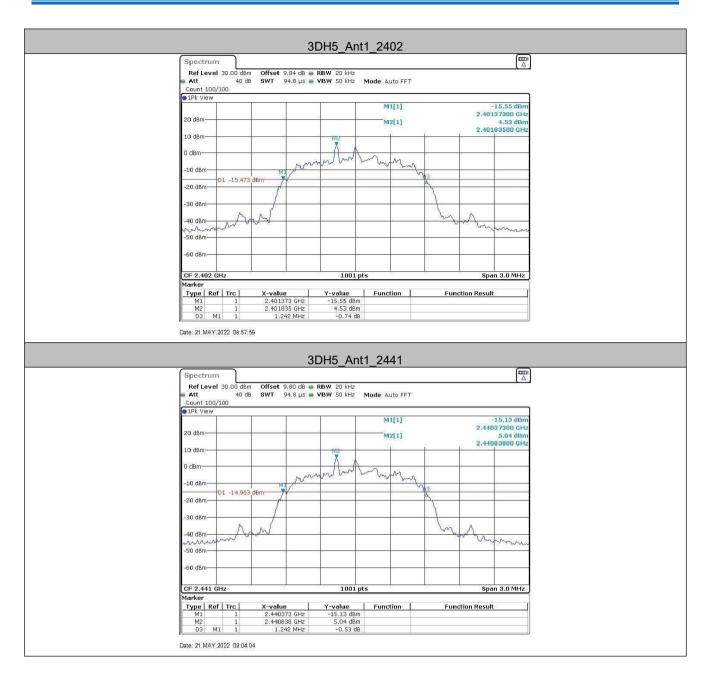






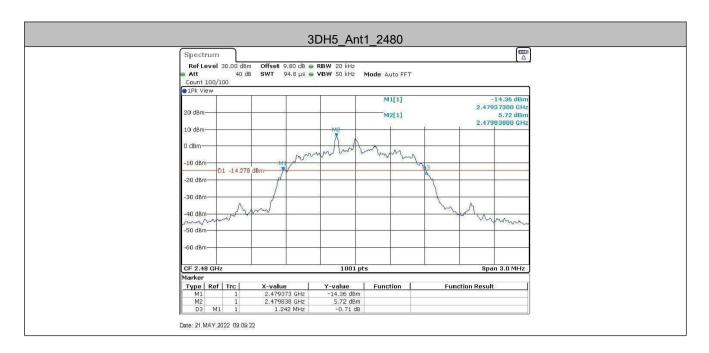














## 5.5 Carrier Frequencies Separation

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
	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 $\pi$ /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

TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Нор	1.003	≥0.617	PASS
2DH5	Ant1	Нор	1.006	≥0.836	PASS
3DH5	Ant1	Нор	1.003	≥0.828	PASS

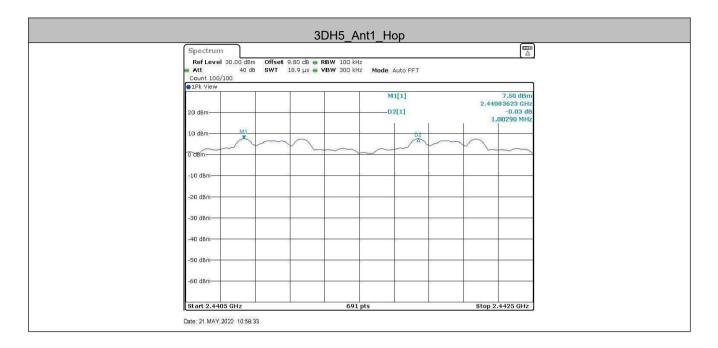
Mode	20dB bandwidth (MHz) (worse case)	Limit (MHz) (Carrier Frequencies Separation)
GFSK	0.939	0.617
π/4DQPSK	1.254	0.836
8DPSK	1.242	0.828



### Test plot as follows:









## 5.6 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

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



### Test plot as follows:

	DH5_A	nt1_Hop		
Spectrum				]
Ref Level 30.00 dBm Att 40 dB				
1Pk View	1 1		27	
20 dBm				
10 dBm		NBD BADDA INA ANDA ANDA	A GAD A NUMBER OF A DADAD	
о ф <u>ы</u> т <u>три (11) (11)</u>				-
-10 dBm	JALAnd Landana dhad Luashad	anna an ad An A	TAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	
-20 dBm	2 0			1
1 <mark>90</mark> dBm		6 6 6		-
-40 dBm			Junto	
-50 dBm				-
-60 dBm		e		
Start 2.4 GHz		pts	Stop 2.4835 GHz	J
Date: 21.MAY.2022 09:24:4	0			
	2DH5 A	nt1_Hop		
Spectrum				
Ref Level 30.00 dBm Att 40 dB		Hz Hz Mode Auto FFT		2
●1Pk View				]
20 dBm				1
10 dBm	i a h.h. arint wa		an antitut -	-
o San Marian	wall warman w	MANAJAMARA	MAMMMMM	
		0.15		
-10 dBm				1
-20 dBm		8		-
-B0 dBm		6 6 E		
₩≟40 dBm			10.5	1
-50 dBm				-
-60 dBm		5		
And Ann. (2011				
Start 2.4 GHz	691	pts	Stop 2.4835 GHz	1
Date: 21.MAY.2022 10:10:4				



				31	DH5_A	.nt1_He	р				_
S	Spectrum									(	
	Ref Level 3 Att	0.00 dBm 40 dB			BW 100 kH	z z Mode i	uto FFT			120	
	1Pk View	+0 UD	3991 :	ч.о µз 🖉 ч	BW 300 KF	iz moue		······································			
	0 dBm		3			0					
	AS MANY	he head	HUMAN	ANTHAN	Mahalup	MARIA	thrutally	Allyly	MALLAN	while	
-	10 dBm	ran Adh	1801/ 0.08	1200210							
Ĵ.	30 dBm										June
	50 dBm		8			4		~		3	
s	tart 2.4 GH	2			691	pts			Stop 2.	4835 GI	Ηz



## 5.7 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**

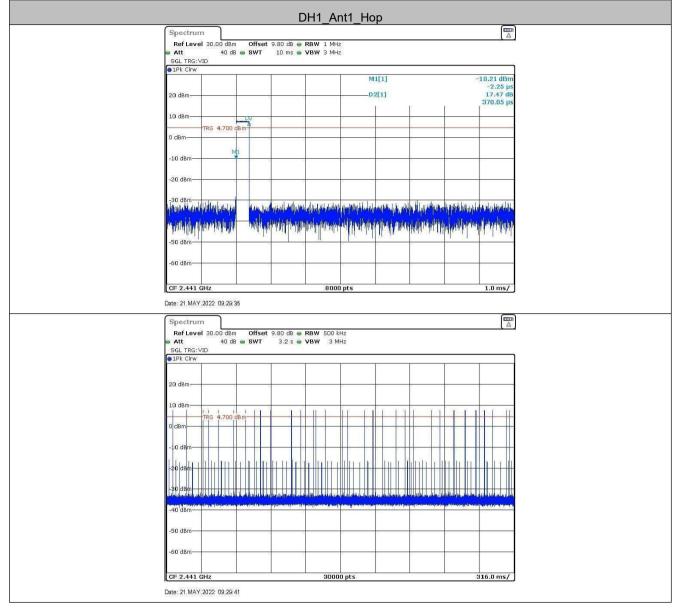
TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Нор	0.37	330	0.122	≤0.4	PASS
DH3	Ant1	Нор	1.61	160	0.258	≤0.4	PASS
DH5	Ant1	Нор	2.85	110	0.314	≤0.4	PASS
2DH1	Ant1	Нор	0.38	330	0.125	≤0.4	PASS
2DH3	Ant1	Нор	1.62	160	0.259	≤0.4	PASS
2DH5	Ant1	Нор	2.86	110	0.315	≤0.4	PASS
3DH1	Ant1	Нор	0.38	330	0.124	≤0.4	PASS
3DH3	Ant1	Нор	1.62	170	0.275	≤0.4	PASS
3DH5	Ant1	Нор	2.86	110	0.315	≤0.4	PASS

#### Remark:

The test period: T= 0.4 Second/Channel x 79 Channel = 31.6 s
DH1/2DH1/3DH1 Dwell time = Burst Width(ms)*[1600/ (2*79)]*31.6
DH3/2DH3/3DH3 Dwell time = Burst Width (ms)*[1600/ (4*79)]*31.6
DH5/2DH5/3DH5 Dwell time = Burst Width (ms)*[1600/ (6*79)]*31.6



#### Test plot as follows:

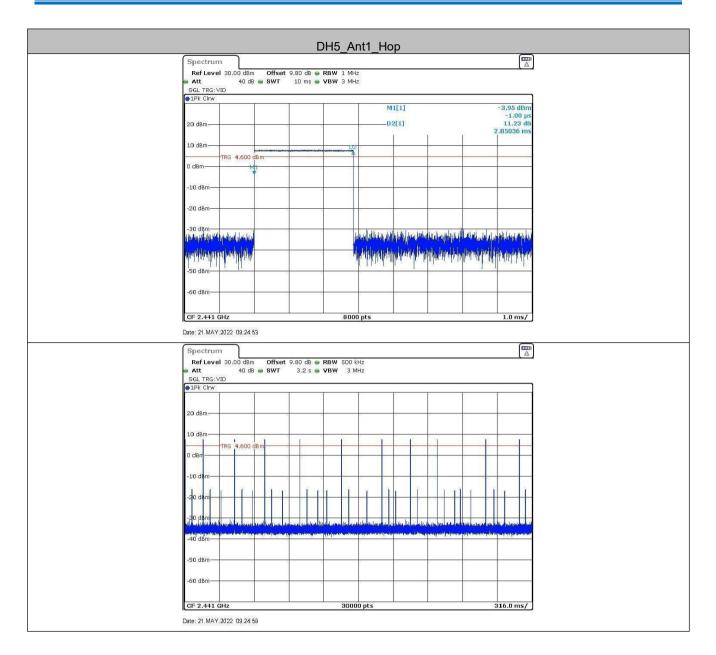




	r	DU2 Apt1 Up		
		DH3_Ant1_Ho		
Spectrum Ref Level 30.0	0 dBm Offset 9.80 dB 👄	RBW 1 MHz		
👄 Att	40 dB • SWT 10 ms •			
SGL TRG: VID				]
		M1	[1]	~10.15 dBm
20 dBm		D2	11	-2.25 μs 17.12 dB
20 0801-		02		1.61020 ms
10 dBm	02			
	4.600 dBm			
0 dBm	2 2	-		
	MI			
-10 dBm		20 5		
-20 dBm				
2.5 (0)1				
-30 dBm		L . T . TTT		and the state of t
tenting data and by the ball with the ball of the ball	No-an Mar	and and and provide the physical providence of the	a tempo da a tempo da de	il physical Hardson
hand work any the part of the company	Mind in	a minimum internetional		a da ni fali ka <sup>p</sup> rida kin
	i laŭ,	I	a transformer table table. In	
-50 dBm			8	
-60 dBm				
CF 2.441 GHz		8000 pts		1.0 ms/
	<b>0</b> 2 00 04			
Date: 21.MAY.2022 1	J9 32 24			
Spectrum	)			
Ref Level 30.0				
SGL TRG: VID	40 dB 👄 SWT 3.2 s 👄	VBW 3 MHZ		
91Pk Clrw				
20 dBm		-		
	10. 1 100. 1 100.	-		
10 dBm	1 11 1		1 1 1 1	The second se
TRG 4	1.600 dBm			
10 dBm	1.600 dBm			
0 dBm	4.600 dBm			
TRG 4	4,600 dBm			
0 dBm	4,600 dBm			
0 dBm	4.000 dBm			
0 dBm				
-10 dBm -20 dBm -20 dBm -20 dBm -20 dBm				
0 dBm				
-10 dBm -20 dBm -20 dBm -20 dBm -20 dBm				
0 dBm				
0 dBm				
-10 dBm -20 dBm -20 dBm -20 dBm -30 dBm -40 dBm -50 dBm				
-10 dBm -20 dBm -20 dBm -20 dBm -30 dBm -40 dBm -50 dBm		30000 pts		









	:	2DH1 A	nt1_Hop			
Spectrum Ref Level 30.00 dBm						
Att 40 dB SGL TRG: VID	• • SWT 10 ms					_
●1Pk Clrw			M1[1]		-6.86 d -1.00	
20 dBm		2	D2[1]		-1.00 12.66 377.55	i dB
10 dBm		2	6 D			
0 dBm	dBm <sup>2</sup>	-				_
-10 dBm		2	5		-	_
-20 dBm						_
-30 dBm						
a phalandailt ha marting			hald distrigation of the address of the			
-50 dBm	ALA A TRANSPORT	La de la	an in the property of the prop	and a start of the	an Itan and an	Page 17
		8				
-60 dBm		6		4		
CF 2.441 GHz		8000	pts		1.0 m	s/
Date: 21.MAY.2022 10:23:5	52					
Spectrum Ref Level 30.00 dBm						
SGL TRG: VID	3 <b>e SWT</b> 3.2 s	• VBW 3 Mi	12			
		2				
20 dBm	20	2			2	
10 dBm			I I I I I	111		r i
0 dBm						
-10 dBm <del> -1  -                                </del>						
-20 cBm						
-3D dBm						
-40 dBm		ana na kana sa		and the state of t	ulter an other activity from a straight of	
-50 dBm						
-60 dBm		6		2		
CF 2.441 GHz		3000	) pts		316.0 m	s/
Date: 21.MAY.2022 10:23:5	58					





2DH3_Ant1_Hop
Spectrum Ref Level 30.00 dbm Offset 9.80 db ● RBW 1 MHz
Att 40 dB SWT 10 ms VBW 3 MHz SGL TRG: VID
● 1Pk Clrw
M1[1] -9.03 dBm -2.25 μs
20 dBmD2[1] 15.02 dB 1.62145 ms
10 dBm
TRG 4.900 dBm
0 dBm-
-10 dBm
-20 dBm
-30 dBm
A sea in the first of the second s
-50 dBm
-60 dBm
CF 2.441 GHz 8000 pts 1.0 ms/
Date: 21.MAY.2022 10:33:32
Spectrum 🚨
RefLevel 30.00 dBm Offset 9.80 dB  RBW 500 kHz
Att 40 dB SWT 3.2 s VBW 3 MHz SGL TRG: VID
●1Pk Clrw
20 dBm
10 dBm
TRG 4.900 dBm
0 dBm
-20 dBm
-50 dBm
-60 dBm
-60 dBm CF 2.441 GHz 30000 pts 316.0 ms/





2DH5_Ant1_Hop	
Spectrum           Ref Level 30.00 dbm         Offset 9.80 db ● RBW 1 MHz	
Att 40 dB	
SGL TRG: VID PIPk Cirw	
M1[1]	0.28 dBm -1.00 µs
20 dBmD2[1]	6.08 dB 86161 ms
10 dBm	ourur ma
TRG 4.900 dBm terror to an to a serie to a transfer	
0 dBm-	
-10 dBm-	
-20 dBm	
-30 dam the second seco	u a dallard
an second and a second	vergendigen Indexedigen
alatu a shi ka	contrat branch
-50 dBm	
-60 d8m	
CF 2.441 GHz 8000 pts	1.0 ms/
Date: 21.MAY.2022 10:10:55	
Spectrum	
Ref Level         30.00         dBm         Offset         9.80         dB         RBW         500         kHz           Att         40         dB         SWT         3.2 s         VBW         3 MHz	
SGL TRG: VID PIPk Cirw	1
20 dBm-	
10 dBm	
	1
0 dBm	-
	1.
-20 dBm-++	
	and the state of
	uiten ta a de la constant Constant de la constant Constant de la constant
Ho ubii	
-50 dBm	
-50 dBm	
-50 dBm	16.0 ms/



			31	DH1_A	.nt1_Ho	эр				
Spectrur										
Ref Leve Att	I 30.00 dBm 40 dB		9.80 dB 👄 10 ms 👄							5
SGL TRG: V				1011 0 (44)	-28					
●1Pk Clrw	1				M	1[1]			2.70 dBm	
20 dBm					5115	2[1]			-1.00 μs 3.22 dB	
20 08m-					0.	4[1]		r i	376.30 µs	
10 dBm				-	2		-			
terre concerne	-TRG 5.400	iB me			*					
0 dBm		12				-		1		
-10 dBm										
-20 dBm		-	-		S	-	-			
-30, dBm	8									1
e unality black	alder to A put by	WAP DU	Los (Libyally ad)	In the fille of the filles	Hylanda	aller all land	ht mallin	Hildenapula	dela producta das	
din provide		1000 A LAN	uiditina dani	ulida adi indi	n de Marine	handu baradu	, internal	inkin hadib	haihme <i>i</i> thi	
-50 dBm-	a hita		il i l'i	Lot Ma	al accedit	hr dhailh	. hitle is	while the	ind out 1 die 14	]
-So ubin						83				
-60 dBm					9	10	4			
CF 2.441	GHz			8000	) pts				1.0 ms/	]
Date: 21.MAY	.2022 11:00:2	:3								
Spectrur										1
	I 30.00 dBm	Offset	9.80 dB 👄	RBW 500 k	Hz					1
👄 Att	40 dB		3.2 s 👄							
SGL TRG: V 91Pk Clrw	/ID									1
20 dBm			8		5		3	-		
10 dBm	TRG 5.400 c		11 1		1 [1		11 11	1.1	KT T T	
0 dBm	160 3.400 6									
-10 dBm +++								1 111 1		
-20 dBm										1
20000										
-30 cBm	المربطة المربطة					المراجع المراجع			والمادر أوحاركم فالملة	
-40 dBm	Angeler og statter og som	hard a state of the state of th		Assiliation and the second sec		hanna an an Israe (sa) a taonin tao is an an an an	A second fighter	La la prove d'a com	underschipteten Killer. Ander eine Die eine	4
-40 dBm					3. 				3	
-50 dBm					3		8			
-60 dBm					3	6	14			
										1
CF 2.441				3000	0 pts			3	16.0 ms/	J
Date: 21.MAY	.2022 11:00:2	9								

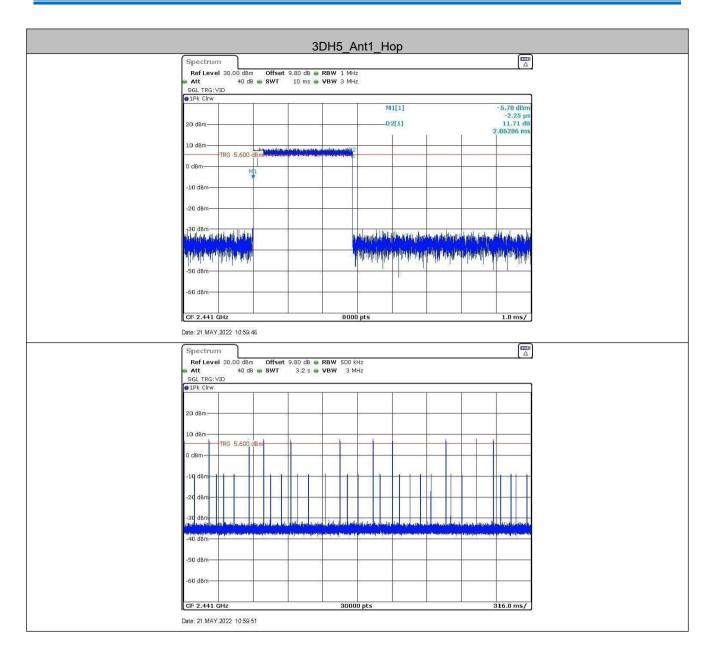




Spectrum	3DH3_Ant1_Hop
Ref Level 30.00 dBm	Offset 9.80 dB  RBW 1 MHz
Att 40 dB SGL TRG: VID	SWT 10 ms • VBW 3 MHz
●1Pk Clrw	
	M1[1] -11.74 dBm -2.25 μs
20 dBm	D2[1] 17.82 dB 1.62020 ms
10 dBm	
TRG 5.700 dBm	Muna addinu addinu add2 I) New San
0 dBm	
-10 dBmM1	
-20 dBm	
-30 dβm-,	
ster multiply in the second state and	the sector in a constant the sector provides the provides the sector in the sector of a low of a low of a sector in a
	nda na ili ka Barla da infriduzio da indenizio di Antoneo di Antoneo di Antoneo di Antoneo di Antoneo di Antone
-50 dBm	weather it is a second second second as a second
55 dbh	
-60 dBm	
CF 2.441 GHz	8000 pts 1.0 ms/
Date: 21.MAY,2022 11:02:35	
Spectrum	
	Offset 9.80 dB • RBW 500 kHz
SGL TRG: VID	■ SWT 3.2 s ● VBW 3 MHz
SGL TRG: VID ● 1Pk. Cirw	
SGL TRG: VID	
SGL TRG: VID	<b>SWT</b> 3.2 s <b>VBW</b> 3 MHz
SGL TRG: VID IPk Cirw      20 dBm      10 dBm      TRG 5.700 dBm	<b>SWT</b> 3.2 s <b>VBW</b> 3 MHz
SGL TRG: VID	<b>SWT</b> 3.2 s <b>VBW</b> 3 MHz
SGL TRG: VID IPk Cirw 20 dBm      I0 dBm      TRG 5.700 dBm	<b>SWT</b> 3.2 s <b>VBW</b> 3 MHz
SGL TRG: VID 1PK CIrw 20 dBm 10 dBm TRG 5.700 dBm 0 dBm	<b>SWT</b> 3.2 s <b>VBW</b> 3 MHz
SGL TRG: VID 1PK CIrw 20 dBm 10 dBm TRG 5.700 dBm 0 dBm	<b>SWT</b> 3.2 s <b>VBW</b> 3 MHz
SGL TRG: VID PIPK CIrw 20 dBm 10 dBm -10 dBm -10 dBm -10 dBm	<b>SWT</b> 3.2 s <b>VBW</b> 3 MHz
SGL TRG: VID 9 IPk Clrw 20 dBm 10 dBm 10 dBm -10 dBm -10 dBm -20 dBm -30 dBm -30 dBm -30 dBm	<b>SWT</b> 3.2 s <b>VBW</b> 3 MHz
SGL TRG: VID 9 IPK CITW 20 dBm 10 dBm 10 dBm -10 dBm -10 dBm -20 dBm	<b>SWT</b> 3.2 s <b>VBW</b> 3 MHz
SGL TRG: VID 9 IPK CITW 20 dBm 10 dBm 10 dBm -10 dBm -10 dBm -20 dBm -10 dBm -30 dBm -30 dBm -30 dBm	<b>SWT</b> 3.2 s <b>VBW</b> 3 MHz
SGL TR6: VID ● IPk CIrw: 20 dBm 10 dBm 10 dBm 10 dBm -10 dBm -	<b>SWT</b> 3.2 s <b>VBW</b> 3 MHz
SGL TR6: VID ● TPk CIrw 20 dBm 10 dBm 10 dBm 10 dBm -10 dBm	<b>SWT</b> 3.2 s <b>VBW</b> 3 MHz
SGL TRG: VID 9 TPk CInw 20 dBm 10 dBm 10 dBm -10 dBm -10 dBm -20 dBm -10 dBm -30 dBm -30 dBm -30 dBm -30 dBm -30 dBm -50 dBm -60 dBm	SWT       3.2 S       VBW       3 MHZ
SGL TRG: VID 9 TPk CIrw 20 dBm 10 dBm 10 dBm 10 dBm -10 dBm -10 dBm -20 dBm -30 dBm -30 dBm -30 dBm -50 dBm	<b>SWT</b> 3.2 s <b>VBW</b> 3 MHz









# **5.8** 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



## Measurement Data

TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
		Low	2402	0.75	-48.3	≤-19.25	PASS
		High	2480	8.23	-47.13	≤-11.77	PASS
DH5	Ant1	Low	Hop_2402	4.83	-48.21	≤-15.17	PASS
		High	Hop_2480	7.91	-47.65	≤-12.09	PASS
		Low	2402	6.94	-46.66	≤-13.06	PASS
		High	2480	7.90	-48.01	≤-12.1	PASS
2DH5	Ant1	Low	Hop_2402	3.12	-48.06	≤-16.88	PASS
		High	Hop_2480	-1.85	-47.5	≤-21.85	PASS
		Low	2402	7.05	-46.59	≤-12.95	PASS
		High	2480	8.20	-46.27	≤-11.8	PASS
3DH5	Ant1	Low	Hop_2402	5.27	-47.46	≤-14.73	PASS
		High	Hop_2480	8.08	-47.22	≤-11.92	PASS



## Test plot as follows:

DH5_Ant1_Low_2402		
Spectrum		
Ref Level 20.00 dBm Offset 9.84 dB 🖷 RBW 100 kHz		
e Att 30 dB SWT 75.8 μs e VBW 300 kHz Mode Auto FFT Count 300/300		
●1Pk View		
M1[1] 0.75 dBm 2.4018560 GHz		
10 dBm M2[1] -49.76 dBm		
0 dBm 2.4000000 GHz		
-10 dBm		
-20 dBm D1 -19.250 dBm		
-30 dBm		
-40 dBm		
M4 M3 M2		
NSQ. 48 the approximate the second and a second and the second and		
-60 dBm-		
-70 dBm		
Start 2.35 GHz         691 pts         Stop 2.405 GHz		
Marker Type   Ref   Trc   X-value   Y-value   Function   Function Result		
M1         1         2.401856 GHz         0.75 dBm           M2         1         2.4 GHz         -49.76 dBm		
M3 1 2.39 GHz -49.90 dBm		
M4 1 2.3848333 GHz -48.30 dBm		
Date: 24 MAY 2022 09:59:48		
DH5_Ant1_High_2480		
DH5_Ant1_High_2480           Spectrum           Ref Level 20.00 dbm Offset 9.80 db @ RBW 100 kHz           At         30 db @ WT         94.8 µs         VBW 300 kHz         Mode Auto FFT           Count 300/300         @ IPk View         M1[1]         8.23 dbm		
DH5_Ant1_High_2480		
DH5_Ant1_High_2480           Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2"Colspan="		
DH5_Ant1_High_2480		
DH5_Ant1_High_2480         Spectrum         Ref Level 20.00 dbm Offset 9.80 db @ RBW 100 kHz         Node Auto FFT         Count 300/300         @ IPk View       M1[1]       8.23 dBm         0 dbm       M1       2.479780 cHz         0 dbm       M2[1]       2.48.99 dBm         0 dbm       M2[1]       2.489300 GHz		
DH5_Ant1_High_2480         Spectrum         Ref Level 20.00 dbm Offset 9.80 db @ RBW 100 kHz         Att 30 db @ WW 90.0 kHz         Mode Auto FFT         Count 300/300         If K View         0 dbm       M1[1]       8.23 dbm         0 dbm       M1[1]       2.479780 CHz         0 dbm         -0 dbm         -10 dbm		
DH5_Ant1_High_2480         Spectrum         Ref Level 20.00 dbm Offset 9.80 db @ RBW 100 kHz         Node Auto FFT         Count 300/300         @ IPk View       M1[1]       8.23 dBm         0 dbm       M1       2.479780 cHz         0 dbm       M2[1]       2.48.93 dBm         0 dbm       M2[1]       2.489300 GHz		
DH5_Ant1_High_2480         Spectrum         Ref Level 20.00 dbm       Offset 9.80 db       RBW 100 kHz         Node SWT 94.8 µS       VBW 300 kHz       Mode Auto FFT         Colspan="2">Colspan="2"         M1[1]       8.23 dbm         M1[1]       2.479790 CHz         Colspan="2"       M1[1]       2.479790 CHz         Colspan="2"       M1[1]       2.489300 CHz       Colspan="2"         Colspan="2"       Colspan="2"       Colspan="2"         Colspan="2"         Colspan="2"         Colspan="2"         Colspan="2"		
DH5_Ant1_High_2480         Spectrum         Ref Level 20.00 dbm Offset 9.80 db * RBW 100 kHz         Att 30 db * RBW 100 kHz         Mode Auto FFT         Count 300/300         ID dbm       M1[1]       8.23 dbm         ID dbm       M1[1]       2.479780 GHz         ID dbm       M1[1]       2.479780 GHz         ID dbm       M1       12.483500 GHz         -10 dbm       I       1.1770 dbm         -20 dbm       I       I       I		
DH5_Ant1_High_2480         Spectrum         Ref Level 20.00 dbm Offset 9.80 db @ RBW 100 kH2         Node Auto FFT         Count 300/300         Offset 9.80 db @ RBW 100 kH2         Mode Auto FFT         Count 300/300         Offset 9.80 db @ RBW 100 kH2         Mode Auto FFT         Count 300/300         Offset 9.80 db @ RBW 300 kH2         Mode Auto FFT         Count 300/300         Offset 9.80 db @ RBW 300 kH2         MI[1]         0.48.49 dbm         Offset 9.80 db @ RBW         MI[1]         -48.49 dbm         -10 dbm         -20 dbm         -30 dbm		
DH5_Ant1_High_2480         Spectrum         Ref Level 20.00 dbm         Offset 9.80 db ® RBW 100 kHz         Node Auto FFT         Count 300/300         M1[1]         8.23 dbm         M1[1]         0 db SWT 94.8 µS ® VBW 300 kHz         Mode Auto FFT         Count 300/300         M1[1]         0 dbm         M1[1]         0 dbm         M1[1]         0 dbm         M1[1]         -0 dbm         -		
DH5_Ant1_High_2480		
DH5_Ant1_High_2480         Spectrum         Ref Level 20.00 dBm         Offset 9.80 dB ® RBW 100 kHz         * Att 30.48 SWT 94.8 µS * VBW 300 kHz         Offset 9.80 dB ® RBW 100 kHz         Offset 9.80 dB		
DH5_Ant1_High_2480         Spectrum         The file vel 20.00 dbm       Offset 9.80 db @ Rbw 100 kH2         Node Auto FFT         Offset 9.80 db @ Rbw 100 kH2         Mode Auto FFT         Offset 9.80 db @ Rbw 100 kH2         Mode Auto FFT         Offset 9.80 db @ Rbw 100 kH2         Mode Auto FFT         Offset 9.80 db @ Rbw 100 kH2         Mode Auto FFT         Offset 9.80 db @ Rbw 100 kH2         Offset 9.80 db @ Rbw 100 kH2         Mode Auto FFT         Offset 9.80 db @ Rbw 100 kH2         Offset 9.80 db @ Rbw 100 kH2      <		
DH5_Ant1_High_2480         Spectrum         The Level 20.00 dbm       Offset 9.80 db ® RBW 100 kHz         Node SWT       94.8 µs       WBW 300 kHz       Mode Auto FFT         Out 300/300         @1Pk View       M1[1]       8.23 dBm         0 dBm       48.49 dBm       2.479780 GHz         10 dBm       M2[1]       -48.49 dBm         2.0 dBm       49.49 dBm       2.493500 GHz         -00 dBm       -11.770 dBm       -48.49 dBm         -00 dBm       -11.770 dBm       -11.770 dBm         -00 dBm       -11.770 dBm       -11.770 dBm         -00 dBm       -11.770 dBm       -11.770 dBm         -10 dBm       -11.770 dBm       -11.770 dBm         -10 dBm       -11.770 dBm       -11.770 dBm         -10 dBm       -11.770 dBm       -11.770 dBm         -11.770 dBm       -11.770		
DH5_Ant1_High_2480         Spectrum         The Level 20.00 dbm Offset 9.80 db * RBW 100 kHz         Node Auto FFT         Count 300/300         Image: Count 300/300       M1[1]       8.23 dbm         Image: Count 300/300       M1[1]       2.497900 GHz         M1[1]       2.497900 GHz         0 dbm       M1[1]       2.493000 GHz         -0 dbm       -0 dbm <td cols<="" td=""><td></td></td>	<td></td>	
DH5_Ant1_High_2480         Spectrum         The Level 20.00 dbm       Offset 9.80 db ® RBW 100 kHz         Node SWT       94.8 µs       WBW 300 kHz       Mode Auto FFT         Out 300/300         @1Pk View       M1[1]       8.23 dBm         0 dBm       48.49 dBm       2.479780 GHz         10 dBm       M2[1]       -48.49 dBm         2.0 dBm       49.49 dBm       2.493500 GHz         -00 dBm       -11.770 dBm       -48.49 dBm         -00 dBm       -11.770 dBm       -11.770 dBm         -00 dBm       -11.770 dBm       -11.770 dBm         -00 dBm       -11.770 dBm       -11.770 dBm         -10 dBm       -11.770 dBm       -11.770 dBm         -10 dBm       -11.770 dBm       -11.770 dBm         -10 dBm       -11.770 dBm       -11.770 dBm         -11.770 dBm       -11.770		



DH5_Ant1_Low_Hop_2402	
Spectrum	
Ref Level 28.00 dBm Offset 9.84 dB  RBW 100 kHz	
Att 30 dB SWT 75.8 μs VBW 300 kHz Mode Auto FFT Count 300/300	
●1Pk View	
M1[1] 4.83 dBm	
10 dBm	
0 dBm / 494,494Bm 2,400000 GHz	
-10 dBm	
-20 dBm	
-30 d8m	
-40 d8m- M4	
HER REPORTER Way was and the second of the s	
-60 d8m	
-70 dBm	
Start 2.35 GHz 691 pts Stop 2.405 GHz Marker	
Type Ref Trc X-value Y-value Function Function Result	
M1         1         2.402015 GHz         4.83 dBm           M2         1         2.4 GHz         -49.49 dBm	
M3 1 2.39 GHz -50.49 dBm	
113 I 2135 GTE 35175 dbm	
M4 1 2.3603623 GHz -48.21 dBm Date: 21 MAY,2022 09:18/23	
M4     1     2.3603623 GHz     -48.21 dBm       Date: 21 MAY.2022 09:18:23         DH5_Ant1_High_Hop_2480       Spectrum	
M4         1         2.3603623 GHz         -48.21 dBm           Date: 21.MAY.2022 09:18:23         DH5_Ant1_High_Hop_2480         Cmm           Spectrum           Ref Level 20.00 dBm         Offset 9.80 dB         RBW 100 kHz           Att         30 dB         SWT         94.8 µs         VBW 300 kHz         Mode Auto FFT	
M4         1         2,3603623 GHz         -48.21 dBm           Date: 21.MAY,2022 09:18.23         DH5_Ant1_High_Hop_2480         Count         Count         Count         Count         Count         Count         Count         Count         Count         M4         Count         Count         M4	
M4     1     2,3603623 GHz     -48.21 dBm       Date: 21.MAY.2022 09:18:23          DH5_Ant1_High_Hop_2480         Count: 000 dBm       Offset 9:80 dB       Ref Level 20:00 dBm       Offset 9:80 dB       RBW 100 Hz       Count: 300/300       IPk View     MI[1]	
M4       1       2.3603623 GHz       -48.21 dBm         Date: 21.MAY,2022 09:18:23	
M4     1     2,3603623 GHz     -48.21 dBm       Date: 21.MAY.2022 09:18:23          DH5_Ant1_High_Hop_2480         Count: 000 dBm       Offset 9:80 dB       Ref Level 20:00 dBm       Offset 9:80 dB       RBW 100 Hz       Count: 300/300       IPk View     MI[1]	
M4     1     2.3603623 GHz     -48.21 dBm       Date: 21 MAY,2022 09:18:23         DH5_Ant1_High_Hop_2480         Court         Ref Level 20.00 dBm     Offset 9:80 dB     RBW 100 kHz       Att     30 dB     SWT     94.8 µs     VBW 300 kHz       Mode Auto FFT     Court 300/300         IPK View     M1[1]     2.91 dBm       10 dBM1     M2[1]     -50.49 dBm       4 Ham     M2[1]     -50.49 dBm	
M4       1       2.3603623 GHz       -48.21 dBm         Date: 21.MAY,2022 0918/23	
M4     1     2,3603623 GHz     -48,21 dBm       Date: 21.MAY,2022 09:18:23         DH5_Ant1_High_Hop_2480         Colspan="2">Colspan="2"Colspan="2">Colspan="2"C	
M4       1       2,3603623 GHz       -48,21 dBm         Date: 21 MAY,2022 09:18:23         DH5_Ant1_High_Hop_2480         Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2"         Spectrum         Colspan="2">Colspan="2"         Colspan="2">Colspan="2"         Colspan="2">Colspan="2"         M1[1]       7.91 dBm         Colspan="2"         M1[1]       7.91 dBm         Colspan="2"       M1[1]       7.91 dBm         0 dBm       M1[1]       7.91 dBm         0 dBm       M1[1]       7.91 dBm         0 dBm       M1[1]       7.91 dBm         1 -12.000 dBm       -10 dBm       -10 dBm         -20 dBm       -10 dBm <td< td=""><td></td></td<>	
M4     1     2,3603623 GHz     -48,21 dBm       Date: 21 MAY 2022 02:18:23     DH5_Ant1_High_Hop_2480       Cont: 00/300       Ref Level 20,00 dbm     Offset 9:80 dB     RBW 100 Hz       Att     30 dB     SWT     94.8 µs     YBW 300 kHz     Mode Auto FFT       Count: 300/300     Image: Count: 300/300     M1[1]     2.475150 GHz       Ind dbm     M2[1]     2.493500 GHz       Ind dbm     Image: Count: 300 dBm     M2[1]       -20 dBm     Image: Count: Co	
M4     1     2.3603623 GHz     -48.21 dBm       Date: 21 MAY 2022 02:18:23         DH5_Ant1_High_Hop_2480         Colspan="2">Colspan="2"	
M4     1     2,3603623 GHz     -48,21 dBm       Date: 21 MAY 2022 02:18:23     DH5_Ant1_High_Hop_2480       Cont: 00/300       Ref Level 20,00 dbm     Offset 9:80 dB © RBW 100 Hz       Att     30 dB WT     94.8 µs       9 DH5_Cont 300/300     P1k View     10       10 dbm     1     2.475150 GHz       2.475150 GHz     2.498300 GHz       10 dbm     1     2.493500 GHz       -20 dBm     -1     -10 dBm	
M4       1       2.3603623 GHz       -48.21 dBm         Date: 21 MAY 2022 0218.23       Cmark       Cmark       Cmark         DH5_Ant1_High_Hop_2480         Cmark          Cmark	
M4       1       2.3603623 GHz       -48.21 dBm         Date: 21.MAY,2022 09:18:23         DH5_Ant1_High_Hop_2480         Control         Ref Level 20.00 dBm       Offset 9:80 dB       RBW 100 kHz         Att       30 dB       SWT       94.8 µs       YBW 300 kHz       Mode Auto FFT         Out 300/300         ID       10 dBM1       M1[1]       2.475150 GHz         M2[1]       -50.49 dBm         Att 2.493500 GHz         OUT 300/300         M2[1]       2.493500 GHz         M2[1]       2.493500 GHz         Att 2.493500 GHz         Att 2.493500 GHz         M2[1]       2.493500 GHz         OBm         Att 2.493500 GHz         Att 2.	
M4       1       2.3603623 GHz       -48.21 dBm         Date: 21 MAY 2022 0218.23       Cmark       Cmark       Cmark         DH5_Ant1_High_Hop_2480         Cmark          Cmark	
M4       1       2,3603623 GHz       -48.21 dBm         Date: 21 MAY 2022 02:18:23         DH5_Ant1_High_Hop_2480         Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2"         OH5_Ant1_High_Hop_2480         Colspan="2">Colspan="2"         Colspan="2"         Colspan="2">Colspan="2"         OH5_Ant1_High_Hop_2480         Colspan="2"         Colspan="2"         Colspan="2"         OH5_ASU dB @ RBW 100 KHz         Colspan="2"         Colspan="2"         Colspan="2"         Colspan="2"         OH         M2[1]         Colspan="2"         M3	
M4       1       2.3603623 GHz       -48.21 dBm         Date: 21 MAY,2022 09:18:23         DH5_Ant1_High_Hop_2480         Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2"         OH5_Ant1_High_Hop_2480         Spectrum         Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2"         OH5_Colspan="2">N1211         OH2         M1211       2.473150 CHz         OH2       M2211       2.473150 CHz       5.0.99 dBm         OH2       M2211       2.473150 CHz       2.493300 CHz       <	
M4       1       2.3603623 GHz       -48.21 dBm         Date: 21.MAY,2022 0218.23 <b>DH5_Ant1_High_Hop_2480</b> Spectrum       Cm         Ref Level 20.00 dBm       Offset 9.80 dB       RBW 100 Htz         Att       30 dB       SWT       94.8 µs       VBW 300 KHz         Md1[1]       2.47 35.10 GHz       -50.49 dBm         Other       M2[1]       -50.49 dBm         10 dBm       01_12.000 dBm       M1[1]       2.47 35.50 GHz         -00 dBm       M2       -60.49 dBm       -50.49 dBm         -20 dBm       -10 dBm       -12.000 dBm       -60.49 dBm         -30 dBm       -10 dBm       -12.000 dBm       -60 dBm         -20 dBm       -12.000 dBm       -60 dBm       -50.49 dBm         -30 dBm       -60 dBm       -60 dBm       -60 dBm         -30 dBm       -60 dBm       -60 dBm       -60 dBm         -70 dBm       -70 dBm       -70 dBm       -70 dBm         -70 dBm       -70 dBm       -70 dBm       -70 dBm       -70 dBm	
M4       1       2.3603623 GHz       -48.21 dBm         Date: 21 MAY 2022 0218/23       DH5_Ant1_High_Hop_2480         Control         Spectrum         Ref Level 20.00 dBm       Offset 9.80 dB       RBW 100 kHz         Att       30 dB       SWT       94.8 µS       YBM 300 kHz       Mode Auto FFT         Out 300/300         IPR: View       M1[1]       2.475150 GHz       -50.49 dBm         Indem       M2[1]       2.483500 GHz         O dBm       M2[1]       2.493500 GHz         Indem       M2[1]       2.493500 GHz         O dBm       M2[1]       2.493500 GHz         O dBm       M2[1]       2.493500 GHz         Indem       M2[1]       2.493500 GHz         O dBm       M2[1]       2.493500 GHz         Indem       M3[M4]       M4       M2[1]       2.493500 GHz       <	
M4       1       2.3603623 GHz       -48.21 dBm         Date: 21 MAY.2022 02:18:23         DH5_Ant1_High_Hop_2480         Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2"         OH5_Ant1_High_Hop_2480         Spectrum         Colspan="2">Colspan="2">Colspan="2"         OH5_OND B< RBW 100 KHz	
M4       1       2.3603623 GHz       -48.21 dBm         Date: 21 MAY 2022 0218/23       DH5_Ant1_High_Hop_2480         Control Spectrum         Ref Level 20.00 dBm       Offset 9.80 dB       RBW 100 KHz         Att 30 dB       SWT       94.8 µS       YBW 300 KHz       Mode Auto FFT         Count 300/300         IFk View         M1[1]       7.91 dBm         2.475150 GHz         Att 30.00 dBm       M3         M1[1]       7.91 dBm         2.4793500 GHz         O dBm       M1         Att 30.00 dBm         Att 30.00	



			2DH	5_Ant1_	Low_2	2402			(=
Spectru	10.								
Ref Lev Att Count 30	el 20.00 dBn 30 di 0/300			RBW 100 kHz VBW 300 kHz	Mode Aut	ito FFT			
●1Pk View	1	1	r		M1[	-			6.94 dBi
10 dBm								2.40	18560 GH
10000 - Methodalar					M2[	1]		2 40	47.69 dBi 00000 GH
0 dBm-					1			2110	
-10 dBm-	D1 -13.060						-		
-20 dBm-	01 -13.000	uem							
-30 dBm-			1				8		1 h
-40 dBm—	-						2000.000	M	na 1
A50, dBm	Purto-white	alan are	monter	- water on	-montered	Kanon and the	M3	maturped	3 1
-60 dBm-	0.00	and the second s							
-60 ubm—									
-70 dBm—									
Start 2.3	GHZ			691 pt	rs.		12	Ston '	2.405 GHz
Marker									
Type R M1	ef Trc	2.4018	56 GHz	Y-value 6.94 dBm	Functio	on	Func	tion Result	
M2	1	2	2.4 GHz	-47.69 dBm					
M3 M4	1	2.2.39942	39 GHz 03 GHz	-50.09 dBm -46.66 dBm					
Date: 21.MA	/.2022 08:46:	00							
		00	2DH	5_Ant1_	High_2	2480			٣
Spectru Ref Lev	m	n Offset S	9.80 dB 👄 I	RBW 100 kHz					E d
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Spectru Ref Lev	m el 20.00 dBn 30 dl	n Offset S	9.80 dB 👄 I	RBW 100 kHz	Mode Aut	ito FFT			
Spectru Ref Lev Att Count 30 1Pk View	m el 20.00 dBn 30 dl 0/300	n Offset S	9.80 dB 👄 I	RBW 100 kHz		ito FFT		2.4	7.90 dBi
Spectru Ref Lev Att Count 30	m el 20.00 dBn 30 di 0/300	n Offset S	9.80 dB 👄 I	RBW 100 kHz	Mode Aut	ito FFT		1-	7.90 dBi 79780 GF 49.14 dBi
Spectru Ref Lev Att Count 30 1Pk View	m el 20.00 dBn 30 dl 0/300	n Offset S	9.80 dB 👄 I	RBW 100 kHz	Mode Aut M1[	ito FFT		1-	7.90 dBi 79780 GF
Spectru Ref Lev Att Count 30 PIPk View 10 dBm	m el 20.00 dBn 30 dl 3/300	n Offset 9 B SWT 9	9.80 dB 👄 I	RBW 100 kHz	Mode Aut M1[	ito FFT		1-	7.90 dBi 79780 GF 49.14 dBi
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Spectru Ref Lev Att Count 30 I dBm- 0 dBm- -10 dBm-	m el 20.00 dBn 30 dl 3/300	n Offset 9 B SWT 9	9.80 dB 👄 I	RBW 100 kHz	Mode Aut M1[	ito FFT		1-	7.90 dBi 79780 GF 49.14 dBi
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Spectru Ref Lev Att Count 30 1Pk View 10 dBm	m 20.00 dBn 30 dl	n Offset 9 B SWT 9	9,80 dB 🖷 94.8 µs 🖷	RBW 100 kHz VBW 300 kHz	Mode Aut M1[	ito FFT		1-	7.90 dBi 79780 GH 49.14 dBi 83500 GH
Spectru Ref Lev Att Count 30 1Pk View 10 dBm	m 20.00 dBn 30 dl	n Offset 9 B SWT 9	9,80 dB 🖷 94.8 µs 🖷	RBW 100 kHz VBW 300 kHz	Mode Aut M1[	to FFT 1] 1]	power the official of	2.4	7.90 dBi 79780 GH 49.14 dBi 83500 GH
Spectru Ref Lev Att Count 30 1Pk View 10 dBm- -10 dBm- -20 dBm- -30 dBm- -40 dBm-	m 20.00 dBn 30 dl	n Offset 9 B SWT 9	9,80 dB 🖷 94.8 µs 🖷	RBW 100 kHz VBW 300 kHz	Mode Aut M1[	to FFT 1] 1]	powersky color of	2.4	7.90 dBi 79780 GH 49.14 dBi 83500 GH
Spectru Ref Lev Att Count 30 1Pk View 10 dBm- -0 dBm- -20 dBm- -30 dBm- -40 dBm- -40 dBm- -50 dBm- -70 dBm-	m 20.00 dBn 30 dl	n Offset 9 B SWT 9	9,80 dB 🖷 94.8 µs 🖷	RBW 100 kHz VBW 300 kHz	Mode Aut M1[ M2[	to FFT 1] 1]		2.4 Patrickador	7.90 dBi 79780 GH 49.14 dBi 83500 GH
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Spectru Ref Lev Att Count 30 1Pk View 10 dBm- -0 dBm- -20 dBm- -30 dBm- -40 dBm- -40 dBm- -50 dBm- -70 dBm-	m a) 20.00 dBn 30 dl 2/300 M1 01 -12.100 M2 M2 M2 M2 M2 M2 M2 M2 M2 M2	n Offset : B SWT : dBm	2,80 dB ● 94.8 μs ● 94.9 μs ●	RBW 100 kHz VBW 300 kHz MBW 300 kHz MHz MHz MHz MHz MHz MHz MHz MHz MHz M	Mode Aut	to FFT		2.4 Patrickador	7.90 dB 79780 GH 49.14 dB 83500 GH 
Spectru Ref Lev Att Count 30 1Pk View 10 dBm- -10 dBm- -20 dBm- -30 dBm- -40 dBm- -40 dBm- -50 dBm- -70 dBm- -70 dBm- -70 dBm- -70 dBm- -70 dBm-	P1 20.00 dBr 30 dl 3/300 M1 	n Offset S B SWT 9 dBm- dBm- A wolute 2.479	3.80 dB ● 94.8 µs ● 94.8	RBW 100 kHz VBW 300 kHz MH MH MH MH MH MH MH MH 7.90 dBm	Mode Aut	to FFT		2.4	7.90 dB 79780 GH 49.14 dB 83500 GH 
Spectru Ref Lev Att Count 30 1Pk View 10 dBm- -0 dBm- -20 dBm- -20 dBm- -30 dBm- -40 dBm- -40 dBm- -70 dBm- -70 dBm- -70 dBm-	m 20.00 dBn 30 dl	n Offset 9 8 SWT 9 dBm- dBm- v0 yestycey 2,479 2,449	2.80 dB ● 24.8 µs ● 24.8 µs ● 24.8 µs ● 24.8 µs ● 25.8 GH2 25.6 GH2	RBW 100 kHz VBW 300 kHz MBW 300 kHz MHz MHz MHz MHz MHz MHz MHz MHz MHz M	Mode Aut M1[: M2[ M2[ M2[ M2[ M2[ M2[ M2[ M2[	to FFT		2.4	7.90 dB 79780 GH 49.14 dB 83500 GH 



Spectrum           Ref Level 20.00 dBn           Att 30 dl           Count 300/300           91Pk View           10 dBm           0 dBm           -10 dBm           -20 dBm           -30 dBm           -40 dBm           -40 dBm           -50 dBm           -60 dBm           -70 dBm           Start 2.35 GHz           Marker           Type   Ref   Trc             M1           M3           M3           1           M4           Date: 21.MAY.2022 09.48.	m Offset 9.84 dB ₿ SWT 75.8 µs 	691 pts	Iode Auto FFT M1[1] M2[1] M4	M3 Function	3.12 dBm 2.4018560 GHz -49.82 dBm 2.400000 GHz -49.82 dBm -49.82 d
Ref Level 20.00 dBn           Att         30 di           Court 300/300         1Pk View           10 dBm         0           -10 dBm         -           -20 dBm         -           -30 dBm         -           -40 dBm         -           -50 dBm         -           -60 dBm         -           -70 dBm         -           -70 dBm         -           Marker         -           Type [ Ref   Trc   M1   1           M2   1         -           M4   1         -	18 SWT 75.8 µs =	691 pts 7-value 3.12 dbm -9.87 dbm -9.87 dbm -5.0.12 dbm	M1[1] M2[1]		3.12 dBm 2.4018560 GHz -49.92 dBm 2.4000000 GHz 
Count 300/300	0 dBm 	691 pts 3.12 dbm -49.87 dbm -50.12 dbm	M1[1] M2[1]		2.4018560 GHz 49.92 dBm 2.400000 GHz 
• 1Pk View           10 dBm           0 dBm           -10 dBm           -20 dBm           -20 dBm           -30 dBm           -40 dBm           -40 dBm           -50 dBm           -60 dBm           -70 dBm <td< td=""><td>X-volue 2.401856 GHz 2.3 GHz 2.3 GHz</td><td>691 pts <u>Y-value</u> 3.12 dbm -49.87 dbm -50.12 dbm</td><td></td><td></td><td>2.4018560 GHz 49.92 dBm 2.400000 GHz </td></td<>	X-volue 2.401856 GHz 2.3 GHz 2.3 GHz	691 pts <u>Y-value</u> 3.12 dbm -49.87 dbm -50.12 dbm			2.4018560 GHz 49.92 dBm 2.400000 GHz 
0 dBm -10 dBm -20 dBm -20 dBm -30 dBm -40 dBm -40 dBm -60 dBm -70 d	X-volue 2.401856 GHz 2.3 GHz 2.3 GHz	691 pts <u>Y-value</u> 3.12 dbm -49.87 dbm -50.12 dbm			2.4018560 GHz 49.92 dBm 2.400000 GHz 
0 dBm -10 dBm -20 dBm -20 dBm -30 dBm -40 dBm -40 dBm -60 dBm -70 d	X-volue 2.401856 GHz 2.3 GHz 2.3 GHz	691 pts <u>Y-value</u> 3.12 dbm -49.87 dbm -50.12 dbm	M4 Numahan M4		-49.82 dBm 2.400000 GHz
-10 dBm -20 dBm -20 dBm -30 dBm -40 dBm -40 dBm -60 dBm -70	X-volue 2.401856 GHz 2.3 GHz 2.3 GHz	691 pts <u>Y-value</u> 3.12 dbm -49.87 dbm -50.12 dbm	Vermeyten whethe		Stop 2.405 GHz
-20 dBm         -20 dBm           -30 dBm         -30 dBm           -40 dBm         -40 dBm           -50 dBm         -60 dBm           -70 dBm         -70 dBm           -70 dBm         <	X-volue 2.401856 GHz 2.3 GHz 2.3 GHz	691 pts <u>Y-value</u> 3.12 dbm -49.87 dbm -50.12 dbm	Vermeyten whethe		Ma <sup>n</sup> Stop 2.405 GHz
-20 dBm         -20 dBm           -30 dBm         -30 dBm           -40 dBm         -40 dBm           -50 dBm         -60 dBm           -70 dBm         -70 dBm           -70 dBm         <	X-volue 2.401856 GHz 2.3 GHz 2.3 GHz	691 pts <u>Y-value</u> 3.12 dbm -49.87 dbm -50.12 dbm	Vermeyten whethe		j
-30 dBm -40 dBm -40 dBm -50 dBm -70 dB	X-value 2:401856 GHz 2:4 GHz 2:39 GHz	691 pts <u>Y-value</u> 3.12 dbm -49.87 dbm -50.12 dbm	Vermeyten whethe		j
-40 dBm -50 dBm -70 dB	X-value 2:401856 GHz 2:4 GHz 2:39 GHz	691 pts <u>Y-value</u> 3.12 dbm -49.87 dbm -50.12 dbm	Vermeyten whethe		j
450,dBm.         -60 dBm.           -70 dBm.         -70 dBm.           -70 gBm.         -70 dBm.<	X-value 2:401856 GHz 2:4 GHz 2:39 GHz	691 pts <u>Y-value</u> 3.12 dbm -49.87 dbm -50.12 dbm	Vermeyten whethe		j
-60 dBm -70 dB	X-value 2:401856 GHz 2:4 GHz 2:39 GHz	691 pts <u>Y-value</u> 3.12 dbm -49.87 dbm -50.12 dbm	Vermeyten whethe		j
-60 dBm -70 dB	X-value 2:401856 GHz 2:4 GHz 2:39 GHz	691 pts <u>Y-value</u> 3.12 dbm -49.87 dbm -50.12 dbm		Function	j
-70 dBm Start 2.35 GHz Marker Type Ref Trc M1 1 M2 1 M3 1 M4 1	2.401856 GHz 2.4 GHz 2.39 GHz	Y-value 3.12 dBm -49.87 dBm -50.12 dBm	Function	Function	j
Start 2.35 GHz           Marker           Type         Ref         Trc           M1         1           M2         1           M3         1           M4         1	2.401856 GHz 2.4 GHz 2.39 GHz	Y-value 3.12 dBm -49.87 dBm -50.12 dBm	Function	Function	j
Marker           Type         Ref         Trc           M1         1           M2         1           M3         1           M4         1	2.401856 GHz 2.4 GHz 2.39 GHz	Y-value 3.12 dBm -49.87 dBm -50.12 dBm	Function	Function	j
Marker           Type         Ref         Trc           M1         1           M2         1           M3         1           M4         1	2.401856 GHz 2.4 GHz 2.39 GHz	Y-value 3.12 dBm -49.87 dBm -50.12 dBm	Function	Function	j
M1         1           M2         1           M3         1           M4         1	2.401856 GHz 2.4 GHz 2.39 GHz	3.12 dBm -49.87 dBm -50.12 dBm	Function	Function	Result
M2         1           M3         1           M4         1	2.4 GHz 2.39 GHz	-49.87 dBm -50.12 dBm			
M4 1					
Date: 21 MAX 2022, 00:40:					
	1.00				
Att 30 di	m Offset 9.80 dB 🖷	RBW 100 kHz			
					1
			M1[1]		-1.85 dBm
10 dBm	+ +		M2[1]		2.480010 GHz -48.79 dBm
0 dBm-M1				i	2.483500 GHz
-20 dBm-D1 -21.850	0 dBm		2		
-30 dBm		-			
-40 dBm	-				
M2	M	3 M4	allow a low a		
Jam Jan	han marked and the	and the second second	- whoman	the second second second	area the second and the second
-60 dBm			8		
-70 dBm					
				-	
		691 pts			Stop 2.55 GHz
Type   Ref   Trc	X-value		Function	Function	Result
M2 1	2.4835 GHz	-48.79 dBm			
M3 1	2.5 GHz	-51.50 dBm			
	Ref Level 20,00 dB           Att         30 d           Count 300/300         1Pk View           10 dBm         10 dBm           0 dBm         10 dBm           20 dBm         01 -21.85           -30 dBm         02           -50 dBm         02           -50 dBm         02           -50 dBm         02           -70 dBm         02           -70 dBm         01           -70 dBm         01           -70 dBm         01           -70 dBm         01           -70 dBm         02           -70 dBm         03           M3         1           M4         1	Spectrum           Ref Level 20.00 dBm         Offset 9.80 dB           Att         30 dB           Count 300/300         918 yr           919k View         10 dBm           10 dBm         11           20 dBm         121,850 dBm           -20 dBm         01 -21,850 dBm           -30 dBm         -20 dBm           -20 dBm         01 -21,850 dBm           -30 dBm         -20 dBm           -70 dBm         -21,850 dBm           -50 dBm         -21,850 dBm           -70 dBm         -21,850 dBm           -70 dBm         -24,850 dBm           -70 dBm         2,4435 dHz           Marker         1           Type Ref         Trc           X-20 dB         1	Spectrum           Ref Level         20.00 dBm         Offset         9.80 dB         RBW         100 kH2           Att         30 dB         SWT         94.8 µs         VBW         300 kH2         N           Count 300/300         IPk View         Index         Index         Index         Index         N         Index         N         Index         Index         N         Index         N         Index         N         Index         N         Index         Index         Index         N         Index         Index <thindex< th="">         Index         <thindex< th=""> <th< td=""><td>Spectrum         Mathematical Start 2.47 GHz         Offset 9.80 dB         RBW 100 kHz           Att         30 dB         SWT         94.8 µs         VBW 300 kHz         Mode Auto FFT           Count 300/300         ●1Pk View         M1[1]         M1[1]         0 dBm         M1[1]           10 dBm         M1         M2[1]         M2[1]         M2[1]         0 dBm         M2[1]           0 dBm         M1         M2[1]         M4         M2[1]         M4           -20 dBm         D1         -21.850 dBm         M4         M2         M4           -30 dBm         M2         M4         M4         M4         M4           -50 dBm         M2         691 pts         M4         M</td><td>Ref Level 20.00 dBm         Offset 9.80 dB         RBW 100 kHz           Att         30 dB         SWT         94.8 µs         VBW 300 kHz         Mode Auto FFT           Count 300/300         Interview         M1[1]         Mode Auto FFT           0 dBm         M1[1]         M2[1]         M1[1]           0 dBm         M1[1]         M2[1]         M2[1]           0 dBm         M1         M2[1]         M2[1]           -20 dBm         01 -21.850 dBm         M3         M4           -30 dBm         M2         M3         M4         M4           -50 dBm         M2         M3         M4         M4         M4           -70 dBm         M2         691 pts         Function         Function           Marker         Y-volue         Y-volue         Function         Function           M3         1         2.48001 GHz         -1.85 dBm         M2         1         2.4803 GHz         -40.75 dBm           M3         1         2.50 d087 GHz         -47.50 dBm         M3         2.50 d087 GHz         -47.50 dBm</td></th<></thindex<></thindex<>	Spectrum         Mathematical Start 2.47 GHz         Offset 9.80 dB         RBW 100 kHz           Att         30 dB         SWT         94.8 µs         VBW 300 kHz         Mode Auto FFT           Count 300/300         ●1Pk View         M1[1]         M1[1]         0 dBm         M1[1]           10 dBm         M1         M2[1]         M2[1]         M2[1]         0 dBm         M2[1]           0 dBm         M1         M2[1]         M4         M2[1]         M4           -20 dBm         D1         -21.850 dBm         M4         M2         M4           -30 dBm         M2         M4         M4         M4         M4           -50 dBm         M2         691 pts         M4         M	Ref Level 20.00 dBm         Offset 9.80 dB         RBW 100 kHz           Att         30 dB         SWT         94.8 µs         VBW 300 kHz         Mode Auto FFT           Count 300/300         Interview         M1[1]         Mode Auto FFT           0 dBm         M1[1]         M2[1]         M1[1]           0 dBm         M1[1]         M2[1]         M2[1]           0 dBm         M1         M2[1]         M2[1]           -20 dBm         01 -21.850 dBm         M3         M4           -30 dBm         M2         M3         M4         M4           -50 dBm         M2         M3         M4         M4         M4           -70 dBm         M2         691 pts         Function         Function           Marker         Y-volue         Y-volue         Function         Function           M3         1         2.48001 GHz         -1.85 dBm         M2         1         2.4803 GHz         -40.75 dBm           M3         1         2.50 d087 GHz         -47.50 dBm         M3         2.50 d087 GHz         -47.50 dBm



3DH5 Ant1 Low 2402	
Spectrum	
Ref Level 20.00 dBm Offset 9.84 dB 🖷 RBW 100 kHz	
Att 30 dB SWT 75.8 µs → VBW 300 kHz Mode Auto FFT Count 300/300	
1Pk View	
10 J0 m 2.4018560 GHz	
M2[1] -47.37 dBm	
0 d8m	
-10 dBm-	
D1 -12.950 dBm	
-20 dBm	
-30 dBm	
-40 dBm	
M2 M2	
hate representation and remain a stand from a set of the set of th	
-60 dBm	
-70 dBm	
Start 2.35 GHz         691 pts         Stop 2.405 GHz           Marker	
Type   Ref   Trc   X-value   Y-value   Function   Function Result	
M1         1         2.401856 GHz         7.05 dBm           M2         1         2.4 GHz         -47.34 dBm	
M3         1         2.39 GHz         ~50.56 dBm           M4         1         2.3999783 GHz         ~46.59 dBm	
Date: 21.MAY.2022 08:58:20 3DH5_Ant1_High_2480	
3DH5_Ant1_High_2480           Spectrum           Ref Level 20.00 dBm         Offset 9.80 dB         RBW 100 kHz           Att         30 dB         SWT         VBW 300 kHz           Att         30 dB         SWT         VBW 300 kHz	
3DH5_Ant1_High_2480	
3DH5_Ant1_High_2480           Spectrum           Ref Level 20.00 dBm         Offset 9.80 dB @ RBW 100 kHz           Att         30 dB         SWT         94.8 µs         VBW 300 kHz         Mode Auto FFT           Count 300/300         @ IPk View         M1[1]         8.20 dBm	
3DH5_Ant1_High_2480           Spectrum           Ref Level 20.00 dBm         Offset 9.80 dB @ RBW 100 kHz           att         30 db         SWT         94.8 µS         VBW 300 kHz         Mode Auto FFT           Count 300/300         ●1Pk View         ●1Pk View         ●111         8.20 dBm           10 dBm         M1         M1[1]         8.20 dBm           10 dBm         M1         M2[1]         -99.76 dBm	
3DH5_Ant1_High_2480	
Spectrum         Ref Level 20.00 dBm       Offset 9.80 dB @ RBW 100 kHz         Att 30 dB SWT 94.8 µS @ VBW 300 kHz         Mode Auto FFT         Count 300/300         @ IPk View       M1[1]       8.20 dBm         0 dBm       M1       M1[1]       2.479780 GHz         0 dBm       M1       M2[1]       2.493500 GHz         0 dBm       M1       2.483500 GHz       M2[1]	
Spectrum         Ref Level 20.00 dBm. Offset 9.80 dB @ RBW 100 kHz         Att       30 dB       SWT       94.8 µS       VBW 300 kHz       Mode Auto FFT         Count 300/300         @ IPk View       M1[1]       8.20 dBm         0 dBm       M1       M1[1]       2.479780 GHz         0 dBm       M1       M2[1]       2.479780 GHz         0 dBm       M1       12.479500 GHz       M2[1]         0 dBm       01.11.800 dBm       M2[1]       2.493500 GHz	
Spectrum         Ref Level 20.00 dBm       Offset 9.80 dB @ RBW 100 kHz         Att 30 dB SWT 94.8 µS @ VBW 300 kHz         Mode Auto FFT         Count 300/300         @ IPk View       M1[1]       8.20 dBm         0 dBm       M1       M1[1]       2.479780 GHz         0 dBm       M1       M2[1]       2.493500 GHz         0 dBm       M1       2.483500 GHz       M2[1]	
Spectrum         Ref Level 20.00 dBm. Offset 9.80 dB @ RBW 100 kHz         Att       30 dB       SWT       94.8 µS       VBW 300 kHz       Mode Auto FFT         Count 300/300         @ IPk View       M1[1]       8.20 dBm         0 dBm       M1       M1[1]       2.479780 GHz         0 dBm       M1       M2[1]       2.479780 GHz         0 dBm       M1       12.479500 GHz       M2[1]         0 dBm       01.11.800 dBm       M2[1]       2.493500 GHz	
Spectrum         Ref Level 20.00 dBm Offset 9.80 dB RBW 100 kHz         Att       30 dB SWT       94.8 µS       YBW 300 kHz       Mode Auto FFT         Count 300/300         @ IPk View       M1[1]       8.20 dBm         0 dBm       M1       M1[1]       2.479780 cHz         -49.76 dBm       2.4193500 GHz       -49.76 dBm         0 dBm       01       11.800 dBm       M2[1]       -49.76 dBm         -20 dBm       01       11.800 dBm       01       11.800 dBm	
Spectrum         Ref Level 20.00 dBm Offset 9.80 dB & RBW 100 kHz         Att 30 dB SWT 94.8 µS & VBW 300 kHz         Mode Auto FFT         Count 300/300         © IPK View         0 dBm       M1[1]       8.20 dBm         0 dBm       M1[1]       2.479780 dHz         -49.76 dBm       -49.76 dBm         -20 dBm       -11.800 dBm       -11.800 dBm         -30 dBm       -11.800 dBm       -11.900 dBm	
Spectrum         Ref Level 20.00 dBm Offset 9.80 dB @ RBW 100 kHz         att       30 dB WT       94.8 µS @ VBW 300 kHz       Mode Auto FFT         Count 300/300         @ JPk View       M1[1]       8.20 dBm         0 dBm       M1       M1[1]       2.479780 GHz         0 dBm       M1       M1[1]       2.499760 GHz         0 dBm       M1       M1[1]       2.499780 GHz         -10 dBm       01       -11,800 dBm       -11,800 dBm         -30 dBm       -10 dBm       -10 dBm       -10 dBm         -10 dBm       -11,800 dBm       -10 dBm       -10 dBm         -10 dBm       -11,800 dBm       -10 dBm       -10 dBm         -10 dBm       -10 dBm       -10 dBm       -10 dBm	
Spectrum         Ref Level 20.00 dBm Offset 9.80 dB & RBW 100 kHz         Att 30 dB SWT 94.8 µS & VBW 300 kHz         Mode Auto FFT         Count 300/300         © IPK View         0 dBm       M1[1]       8.20 dBm         0 dBm       M1[1]       2.479780 dHz         -49.76 dBm       -49.76 dBm         -20 dBm       -11.800 dBm       -11.800 dBm         -30 dBm       -11.800 dBm       -11.900 dBm	
Spectrum         Ref Level 20.00 dBm Offset 9.80 dB @ RBW 100 kHz         Att 30 dB WT 94.8 µS @ VBW 300 kHz         Out 300/300         M1[1]         0.20 dBm M1         M1[1]         0.20 dBm M1         M1[1]         0.20 dBm M1         M1[1]         0.20 dBm M1         0 dBm M1         M1[1]         0.20 dBm M1         0 dBm M1	
Spectrum         Ref Level 20.00 dBm Offset 9:80 dB @ RBW 100 kHz         Mode Auto FFT         Count 300/300         @ IPK View       MI[1]       8.20 dBm         0 dBm       M1[1]       2.479780 dHz         0 dBm       M1[1]       2.479780 dHz         0 dBm       M1[1]       2.479780 dHz         0 dBm       M1[1]       2.483500 GHz         -10 dBm       M1       M1[1]       2.483500 GHz         -20 dBm       M1       M1       M1         -30 dBm       M1       M1       M1         -20 dBm       M1       M1       M1         -30 dBm       M1       M1       M1         -30 dBm       M1       M1       M1         -20 dBm       M1       M1       M1         -30 dBm       M1       M1       M1         -30 dBm       M1       M1       M1         -20 dBm       M1       M1       M1         -30 dBm       M1       M1       M1         -30 dBm       M1       M1       M1         -20 dBm       M1       M1       M1         -30 dBm       M1       <	
Spectrum         Ref Level 20.00 dBm Offset 9.80 dB * RBW 100 kHz         Att 30 dB * WT 94.8 µs * VBW 300 kHz       Mode Auto FFT         Cont 300/2         #1Pk View       M1[1]       8.20 dBm         0 dBm       M1       M1[1]       8.20 dBm         0 dBm       M1       M1[1]       2.479780 cHz         -99.56 dBm       -99.56 dBm       -99.56 dBm         -0 dBm       M1       -49.76 dBm         -0 dBm       M1       -49.76 dBm         -0 dBm       M1       -49.50 dBm         -0 dBm       M2       -49.50 dBm         -0 dBm       M2       -49.50 dBm         -0 dBm       M2       -49.50 dBm         -0 dBm       -49.50 dBm	
Spectrum         Ref Level 20.00 dBm Offset 9:80 dB @ RBW 100 kHz         Att 300 /300         M1[1]         PIP View         M1[1]         0 dBm M1[1]	
Spectrum         Ref Level 20.00 dBm       Offset 9.80 dB       RBW 100 kHz       Mode Auto FFT         Out 300/300         MI 10 dBm       MI 11 1       2.479780 cHz         Out 300/300         Out 30	
Spectrum         Ref Level 20.00 dbm Offset 9.80 db ® RBW 100 kHz         Mode Auto FFT         Ont 300/300         PIPK View         Milital 2.479780 cHz         O dbm Milital 2.479780 cHz         O dbm Milital 2.499300 cHz         O dbm Milital 2.499300 cHz         O dbm Milital 2.499300 GHz         O dbm	
Spectrum       Image: Color offset 9:80 db @ RBW 100 kHz         Ref Level 20.00 dbm Offset 9:80 db @ RBW 100 kHz       Mode Auto FFT         Count 300/300         PIP View       M1[1]       2.479780 dHz         0 dbm       M1[1]       2.479780 dHz         -20 dbm       M1[1]       2.493500 GHz         -30 dbm       M1[1]       2.493500 GHz         -20 dbm       M1[1]       2.493500 GHz         -30 dbm       M1[1]       2.493500 GHz         -20 dbm       M1[1]       2.49350 GHz         -20 dbm       M1[1]       2.49350 GHz         -20 dbm       M1[1]       2.49350 GHz         -20 dbm       M2       G1 pts         Stor 23 GHz       Stor 255 GHz         Marker       Marker       Marker         M1       1       2.49350 GHz       -9.20 dbm       -10 dbm<	



3DH5_Ant1_Low_Hop_2402		
Spectrum		
Ref Level 20.00 dBm Offset 9.84 dB  RBW 100 kHz		
Att 30 dB SWT 75.8 µs VBW 300 kHz Mode Auto FFT Count 300/300		
●1Pk View		
M1[1] 5.27 dBm 2.4040050 GHz		
10 dBm M2[1] -47,10 dBh		
0 d8m // 1/1000000 CH2		
-10 dBm		
-20 dBm		
-30 dBm		
-40 dBm M4 M2/		
₩3 ¥		
-60 dBm-		
-70 dBm		
Start 2.35 GHz 691 pts Stop 2.405 GHz Marker		
Type Ref Trc X-value Y-value Function Function Result		
M1         1         2.404005 GHz         5.27 dBm           M2         1         2.4 GHz         -47.10 dBm		
M2         1         2.4 GHz         -47.10 dBm           M3         1         2.39 GHz         -51.08 dBm           M4         1         2.378058 GHz         -47.46 dBm		
1 2,370030 GH2 T47,40 0011		
Date: 21.MAY 2022 10:50:11		
Spectrum Ref Level 20.00 dBm Offset 9.80 dB RBW 100 kHz Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT		
3DH5_Ant1_High_Hop_2480		
3DH5_Ant1_High_Hop_2480           Spectrum           Ref Level 20.00 dBm         Offset 9.80 dB         RBW 100 kHz           Att         30 dB         SWT         94.8 µs         VBW 300 kHz         Mode         Auto FFT           Count 300/300         IPk View         M1[1]         8.08 dBm		
3DH5_Ant1_High_Hop_2480           Spectrum           Ref Level 20.00 dBm Offset 9.80 dB @ RBW 100 kHz           Att 30 dB SWT 94.8 µs @ VBW 300 kHz           Count 300/300           IPk View         M1[1]         8.08 dBm           10 pm         M2[1]         -51.14 dBm		
3DH5_Ant1_High_Hop_2480           Spectrum           Ref Level 20.00 dBm Offset 9.80 dB @ RBW 100 kHz           Att 30 dB SWT 94.8 µs @ VBW 300 kHz           Mode Auto FFT           Count 300/300           @ 1Pk View         M1[1]         8.08 dBm           Man         M1[1]         8.08 dBm		
3DH5_Ant1_High_Hop_2480           Spectrum           Ref Level 20.00 dBm Offset 9.80 dB @ RBW 100 kH2           Att 30 dB SWT 94.8 µS @ VBW 300 kH2           Count 300/300           IPk View         M1[1]         8.08 dBm           10 dBm         M2[1]         2.472840 GHz           10 dBm         M2[1]         2.472840 GHz		
3DH5_Ant1_High_Hop_2480           Spectrum           Colspan="2">Colspan="2"Colspan="2">Colspan="2"Colspan=""2"Colspan="2"Colspan="2"Colspan="2"Cols		
3DH5_Ant1_High_Hop_2480           Spectrum           Ref Level 20.00 dBm Offset 9.80 dB @ RBW 100 kH2           Att 30 dB SWT 94.8 µS @ VBW 300 kH2           Count 300/300           IPk View         M1[1]         8.08 dBm           10 dBm         M2[1]         2.472840 GHz           10 dBm         M2[1]         2.472840 GHz		
3DH5_Ant1_High_Hop_2480           Spectrum           Colspan="2">Colspan="2"Colspan="2">Colspan="2"Colspan=""2"Colspan="2"Colspan="2"Colspan="2"Cols		
Spectrum           Ref Level 20.00 dBm Offset 9.80 dB • RBW 100 kHz           Att         30 dB         SWT         94.8 µs         VBW 300 kHz         Mode Auto FFT           Out 300/300           • PIPk View         M1[1]         6.08 dBm           10 dBm         01 - 11.920 dBm         M2[1]         -51.14 dBm           -20 dBm         01 - 11.920 dBm         01 - 11.920 dBm         01 - 11.920 dBm		
Spectrum         Ref Level 20.00 dBm Offset 9.80 dB @ RBW 100 kHz         Att 30 dB SWT 94.8 µs @ VBW 300 kHz       Mode Auto FFT         Count 300/300            • IPK View        M1[1]       8.08 dBm             10 dBm        01 -11.920 dBm        M1[1]       2.472840 GHz          -30.14 dBm          -30 dBm          -0 dBm		
Spectrum         Ref Level 20.00 dBm Offset 9.80 dB • RBW 100 kHz         Att 30 dB SWT 94.8 µs • VBW 300 kHz         Multi 30.000         Image: Swr 94.8 µs • VBW 300 kHz         Multi 30.000         Image: Swr 94.8 µs • VBW 300 kHz         Multi 3         Out 200/300         Image: Swr 94.8 µs • VBW 300 kHz         Multi 3       2.472840 GHz         Multi 3         10 dBm         Multi 3         -0.11 40Bm         -0.11 40Bm         -0.11 40Bm         -0.11 40Bm         -0.08m         -0.08m <td cols<="" td=""><td></td></td>	<td></td>	
Spectrum         Ref Level 20.00 dBm Offset 9.80 dB @ RBW 100 kHz         Att 30 dB SWT 94.8 µs @ VBW 300 kHz       Mode Auto FFT         Count 300/300            • IPK View        M1[1]       8.08 dBm             10 dBm        01 -11.920 dBm        M1[1]       2.472840 GHz          -30.14 dBm          -30 dBm          -0 dBm		
Spectrum         Ref Level 20.00 dBm Offset 9.80 dB • RBW 100 kHz         Att 30 dB SWT 94.8 µs • VBW 300 kHz         Multi 30.000         Image: Swr 94.8 µs • VBW 300 kHz         Multi 30.000         Image: Swr 94.8 µs • VBW 300 kHz         Multi 3         Out 200/300         Image: Swr 94.8 µs • VBW 300 kHz         Multi 3       2.472840 GHz         Multi 3         10 dBm         Multi 3         -0.11 40Bm         -0.11 40Bm         -0.11 40Bm         -0.11 40Bm         -0.08m         -0.08m <td cols<="" td=""><td></td></td>	<td></td>	
Spectrum         Ref Level 20.00 dBm Offset 9.80 dB @ RBW 100 kHz         At       30 dB @WT 94.8 µs @ VBW 300 kHz       Mode Auto FFT         Count 300/300         Image: Sector of the secto		
SDH5_Ant1_High_Hop_2480         Spectrum       Image: Colspan="2">Image: Colspan="2" Image: Colspa="2" Image: Colspa="2" Image: Colspan="2" Image: Colspan="2" Imag		
Spectrum         Ref Level 20.00 dBm Offset 9.80 dB @ RBW 100 kHz         At       30 dB & SWT 94.8 µs @ VBW 300 kHz       Mode Auto FFT         Count 300/300         Image: Subscript of the		
Spectrum       Colspan="2">Colspan="2"Colspan="2">Colspan="2"Colspa		
Spectrum       Colspan="2">Colspan="2"Colspan="2">Colspan="2"Colspa="Colspan="4"Colspa="Colspan="4"Colspan="4"Colspan="4"Colspa="Cols		
Spectrum       Image: Colspan="2">Image: Colspan="2" Image: Colspa="2" Image: Colspan="2" Image: Colspan="2" Image: Cols		



# 5.9 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 $\pi$ /4DQPSK modulation type, 3-DH5 of data type is the worst case of 8DPSK modulation type.
Test Results:	Pass



## **Measurement Data**

			FreqRange	RefLevel	Result	Limit	
TestMode	Antenna	Channel	[MHz]	[dBm]	[dBm]	[dBm]	Verdict
			Reference	0.68	0.68		PASS
		2402	30~1000	0.68	-56.63	≤-19.32	PASS
			1000~26500	0.68	-46.87	≤-19.32	PASS
			Reference	7.57	7.57		PASS
DH5	Ant1	2441	30~1000	7.57	-54.41	≤-12.43	PASS
			1000~26500	7.57	-47.86	≤-12.43	PASS
			Reference	8.18	8.18		PASS
		2480	30~1000	8.18	-54.76	≤-11.82	PASS
			1000~26500	8.18	-43.79	≤-11.82	PASS
			Reference	6.87	6.87		PASS
		2402	30~1000	6.87	-55.25	≤-13.13	PASS
			1000~26500	6.87	-49.93	≤-13.13	PASS
			Reference	7.43	7.43		PASS
2DH5	Ant1	2441	30~1000	7.43	-55.84	≤-12.57	PASS
			1000~26500	7.43	-47.91	≤-12.57	PASS
			Reference	7.98	7.98		PASS
		2480	30~1000	7.98	-55.3	≤-12.02	PASS
			1000~26500	7.98	-44.16	≤-12.02	PASS
			Reference	6.97	6.97		PASS
	3DH5 Ant1	2402	30~1000	6.97	-56.2	≤-13.03	PASS
			1000~26500	6.97	-47.76	≤-13.03	PASS
		Ant1 2441	Reference	7.56	7.56		PASS
3DH5			30~1000	7.56	-54.75	≤-12.44	PASS
			1000~26500	7.56	-46.85	≤-12.44	PASS
			Reference	8.15	8.15		PASS
		2480	30~1000	8.15	-55.45	≤-11.85	PASS
			1000~26500	8.15	-43.83	≤-11.85	PASS



## Test plot as follows:

