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

Test Report

Report No. :	CQASZ20220200217E-02				
Applicant:	SPRITE Group Limited				
Address of Applicant:	4th Floor, A3 Building, Shenliang Group, No.299 Guanping Road, Guanlan				
	Street, Longhua District				
Equipment Under Test (E	UT):				
Product:	TWS Bluetooth headset				
Model No.:	E10, T63, T64				
Test Model No.:	E10				
Brand Name:	N/A				
FCC ID:	2ADTF-E10				
Standards:	47 CFR Part 15, Subpart C				
Date of Receipt:	2022-02-21				
Date of Test:	2022-02-21 to 2022-02-28				
Date of Issue:	2022-03-03				
Test Result :	PASS*				

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

lewis zhou Tested By: (Lewis Zhou) Reviewed By: (Rock Huang) Approved By: (Jack Ai)

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

PPROV



1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20220200217E-02	Rev.01	Initial report	2022-03-03



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)&TCB Exclusion List (7 July 2002)	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:	SPRITE Group Limited
	4th Floor, A3 Building, Shenliang Group, No.299 Guanping Road, Guanlan
Address of Applicant:	Street, Longhua District
Manufacturer:	Shenzhen zhikang technology co. , LTD
Address of Manufacturer:	4th Floor, A3 Building, Shenliang Group, No.299 Guanping Road, Guanlan
	Street, Longhua District
Factory:	Shenzhen zhikang technology co. , LTD
Address of Factory:	4th Floor, A3 Building, Shenliang Group, No.299 Guanping Road, Guanlan
	Street, Longhua District

4.2 General Description of EUT

Product Name:	TWS Bluetooth headset		
Model No.:	E10, T63, T64		
Test Model No.:	E10		
Trade Mark:	N/A		
Software Version:	V1.6.2		
Hardware Version:	HZX-ZK-T63J-V1.3		
Operation Frequency:	2402MHz~2480MHz		
Bluetooth Version:	V5.3		
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)		
Modulation Type:	GFSK, π/4DQPSK		
Transfer Rate:	1Mbps/2Mbps		
Number of Channel:	79		
Hopping Channel Type:	Adaptive Frequency Hopping systems		
Product Type:	□ Mobile		
Test Software of EUT:	BT_Tool (manufacturer declare)		
Antenna Type:	Ceramic antenna		
Antenna Gain:	4dBi		
Power Supply:	Charge box:Li-ion battery: DC 3.7V 320mAh, Charge by DC 5V for adapter		
	Earphone:Li-ion battery: DC 3.7V 30mAh, Charge by DC 5V for Charge box		



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

Note:

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

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



4.3 Additional Instructions

EUT Test Software Settings:							
Mode:	 Special software is used. Through engineering command into the engineering mode. engineering command: *#*#3646633#*#* 						
EUT Power level:	Class2 (Power level is built-in set para selected)	meters and cannot be changed and					
Use test software to set the low	vest frequency, the middle frequency and	I the highest frequency keep					
transmitting of the EUT.	transmitting of the EUT.						
Mode	Channel	Frequency(MHz)					
	СН0	2402					
DH1/DH3/DH5	DH1/DH3/DH5 CH39 2441						
	CH78 2480						
	CH0 2402						
2DH1/2DH3/2DH5	2DH1/2DH3/2DH5 CH39 2441						
	CH78	2480					

Run Software:

FCC Assist 1.0.1.2				-	×
帮助(日)					
串口设置 串□ COM9(USB- 波特率 115200 数据位 8 校验位 None 停止位 1	SERIAL CH340)	•	设备[COM9]打开成功		
流 控 NoFlow	关闭	•			
	EN_TX_TEST_CMD	•			
ch_index len_of_test_data Package_Payload		* *			
PHY Modulation_Index	LE 1M PHY standard	•			
Send	configuration				
			清除曰志		



4.4 Test Environment

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

4.5 Description of Support Units

The EUT has been tested with associated equipment below.

Description	Manufacturer	Model No.	Remark	FCC certification
Adapter	HUAWEI	HW-0502000C01	/	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 ⁻⁸
5	Duty cycle	0.6 %
6	Occupied Bandwidth	1.1%
7	RF conducted power	0.86dB
8	RF power density	0.74
9	Conducted Spurious emissions	0.86dB
10	Temperature test	0.8°C
11	Humidity test	2.0%
12	Supply voltages	0.5 %
13	Frequency Error	5.5 Hz

Hereafter the best measurement capability for CQA laboratory is reported:



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

			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 responsible party shall be us antenna that uses a unique so that a broken antenna ca electrical connector is prohit 15.247(b) (4) requirement: The conducted output powe antennas with directional ga section, if transmitting anten power from the intentional ra	be designed to ensure that no antenna other than that furnished by the sed with the device. The use of a permanently attached antenna or of an coupling to the intentional radiator, the manufacturer may design the unit n be replaced by the user, but the use of a standard antenna jack or bited. r limit specified in paragraph (b) of this section is based on the use of ins that do not exceed 6 dBi. Except as shown in paragraph (c) of this inas of directional gain greater than 6 dBi are used, the conducted output adiator shall be reduced below the stated values in paragraphs (b)(1), tion, as appropriate, by the amount in dB that the directional gain of the					
EUT Antenna:	antenna exceeds 6 dBi.					
The antenna is Creamic ar	ntenna. The best case gain of the antenna is 4 dBi.					





5.2 Conducted Emissions

 Conducted Emissio					
Test Requirement:	47 CFR Part 15C Section 15.207				
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 logarithm	n of the frequency.			
Test Procedure:	 The mains terminal disturbation of the EUT was connected to a second LIS reference plane in the same measured. A multiple sock power cables to a single LI exceeded. The tabletop EUT was place ground reference plane. An placed on the horizontal ground reference plane. An of the EUT shall be 0.4 m for vertical ground reference plane. The LISN unit under test and bonded mounted on top of the grout between the closest points the EUT and associated exceeded. In order to find the maximum equipment and all of the im ANSI C63.10: 2013 on com 	b AC power source thro etwork) which provides oles of all other units of SN 2, which was bonde in way as the LISN 1 for et outlet strip was used ISN provided the rating ced upon a non-metalling of for 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 ref a vertical ground ref from the vertical ground blane was bonded to the 1 was placed 0.8 m fr d to a ground reference and reference plane. The of the LISN 1 and the quipment was at least of the metals of the relative terface cables must be	bugh a LISN 1 (Line a $30\Omega/50\mu$ H + 5Ω linear f 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 ference plane. The rear d reference plane. The ne 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. we positions of		
Test Setup:	Shielding Room	AE UISN2 + AC Ma Ground Reference Plane	Test Receiver		

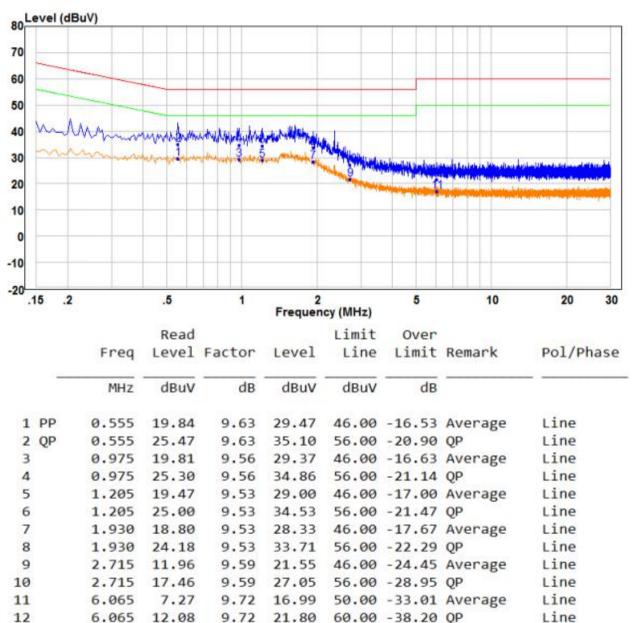


Test Mode:	Charging mode
Test Voltage:	AC 120V/60Hz
Test Results:	Pass



Measurement Data

Live line:

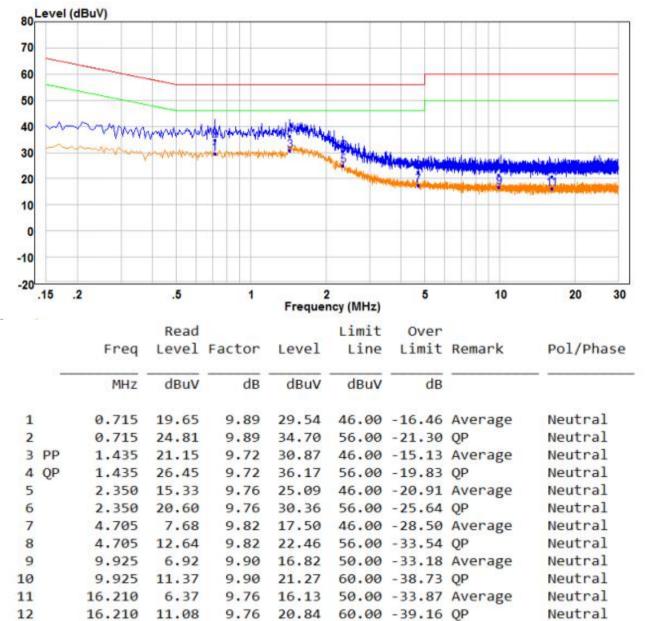


Remark:

- 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.







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:	Non-hopping transmitting with all kind of modulation and all kind of data type Through Pre-scan, find the DH5 of data type is the worst case of GFSK modulation type, 2-DH5 of data type is the worst case of π /4DQPSK modulation type Only the worst case is recorded in the report.		
Test Results:	Pass		



Measurement Data

	GFSK mode						
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result				
Lowest	-6.69	21.00	Pass				
Middle	-5.62	21.00	Pass				
Highest	-5.42	21.00	Pass				
	π/4DQPSK me	ode					
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result				
Lowest	-6.32	21.00	Pass				
Middle	-5.1	21.00	Pass				
Highest	-4.96	21.00	Pass				



Test plot as follows:

DH5_Ant1_240)2	
Spectrum		
Ref Level 30.00 dBm Offset 9.84 dB - RBW 3 MHz		
Att 40 dB SWT 1.3 μs VBW 10 MHz Mode A Count 100/100		
O 1Pk View		
M	1[1] -6.69 dBm 2.40168830 GHz	
20 dBm-	2.1010000 412	
10 dBm		
0 dBm		
-10 dBm		
-20 dBm		
-30 dBm		
-40 dBm		
TO UDIT		
-50 dBm		
-60 dBm		
CF 2.402 GHz 1001 pts	Span 8.0 MHz	
Date: 27.FEB 2022 09:27:49	41	
DH5_Ant1_244	41 (ma)	
DH5_Ant1_244		
DH5_Ant1_244		
DH5_Ant1_244 Spectrum Ref Level 30.00 dBm Offset 9.80 dB • RBW 3 MHz Att 40 dB SWT 1.3 µs • VBW 10 MHz Mode A Count 100/100 • JPK View	(TED)	
DH5_Ant1_244 Spectrum Ref Level 30.00 dBm Offset 9.80 dB • RBW 3 MHz Att 40 dB SWT 1.3 µs • VBW 10 MHz Mode A Count 100/100 • JPK View		
DH5_Ant1_244 Spectrum Ref Level 30.00 dBm Offset 9.80 dB • RBW 3 MHz Att 40 dB SWT 1.3 µs • VBW 10 MHz Mode A Count 100/100 • JPK View	uto FFT	
DH5_Ant1_244	uto FFT	
Spectrum Ref Level 30.00 dBm Offset 9.80 dB RBW 3 MHz Att 40 dB SWT 1.3 µs VBW 10 MHz Mode A Count 100/100 Image: Count 100/100 M M M M 20 dBm Image: Count 100 dBm M M M M M 10 dBm Image: Count 100 dBm M M M M M	uto FFT	
DH5_Ant1_244	uto FFT	
DH5_Ant1_244	uto FFT	
DH5_Ant1_244	uto FFT	
Spectrum Ref Level 30.00 dBm Offset 9.80 dB RBW 3 MH2 • Att 40 dB SWT 1.3 µs • VBW 10 MH2 Mode A • DIPk View	uto FFT	
Spectrum Ref Level 30.00 dBm Offset 9.80 dB RBW 3 MH2 • Att 40 dB SWT 1.3 µs • VBW 10 MH2 Mode A • DIPk View	uto FFT	
DH5_Ant1_244 Spectrum Ref Level 30.00 dBm Offset 9.80 dB RBW 3 MH2 • Att 40 dB SWT 1.3 µs • VBW 10 MH2 Mode A • DIPK View	uto FFT	
Spectrum Ref Level 30.00 dBm Offset 9.80 dB RBW 3 MH2 Att 40 dB SWT 1.3 µS VBW 10 MH2 Mode A O IPR View M M M M M 10 dBm M M M M M -20 dBm M M M M M -30 dBm -40 dBm	uto FFT	
DH5_Ant1_244 Spectrum Ref Level 30.00 dBm Offset 9.80 dB RBW 3 MH2 • Att 40 dB SWT 1.3 µs • VBW 10 MH2 Mode A • DIPK View	uto FFT	



		DH5_Ant1	2480			
Spectrum						
NEW second and second second second	m Offset 9.80 dB 🖷	RBW 3 MHz				
Att 40 dB SWT 1.3 µs VBW 10 MHz Mode Auto FFT Count 130 (190)						
Count 100/100						
-	Ĩ		M1[1]	8	-5.42 dBm	
20 dBm			1 1	2.479	54840 GHz	
20 0611						
10 dBm						
0 dBm		M1				
		M1				
-10 dBm		9 40				
_20 dBm			-		1	
-30 dBm						
-40 dBm	+					
-50 dBm						
-60 dBm						
CF 2.48 GHz		1001 pt	5	Spar	8.0 MHz	
Date: 27.FEB.2022 09:28:	20					
Spectrum		2DH5_Ant				
Ref Level 30.00 dBr	m Offset 9.84 dB 🖷	RBW 3 MHz				
Att 40 d	B SWT 1.3 µs 🕻	BW 10 MHz	Mode Auto FFT			
Count 100/100						
1Pk View						
●1Pk View			M1[1]		-6.32 dBm	
			M1[1]	2.401	-6.32 dBm 50040 GHz	
IPk View 20 dBm			M1[1]	2.401	-6.32 dBm 60040 GHz	
			M1[1]	2.401	-6.32 dBm 50040 GHz	
20 dBm			M1[1]	2.401	-6.32 dBm 50040 GHz	
20 dBm		M1.	M1[1]	2.401	-6.32 dBm 50040 GHz	
20 dBm		M1	M1[1]	2.401	-6.32 dBm 50040 GHz	
20 dBm		M1	M1[1]	2.401	-6.32 dBm 50040 GHz	
20 dBm		M1.	M1[1]	2.401	-6.32 dBm 30040 GHz	
20 dBm		M1	M1[1]	2.401	-6.32 dBm 50040 GHz	
20 dBm		M1	M1[1]	2.401	-6.32 dBm j0040 GHz	
20 dBm 10 dBm 0 dBm -10 dBm -20 dBm		M1	M1[1]	2.401	-6.32 dBm j0040 GHz	
20 dBm 10 dBm 0 dBm -10 dBm -20 dBm		M1	M1[1]	2.401	-6.32 dBm j0040 GHz	
20 dBm 10 dBm -10 dBm -20 dBm -30 dBm -40 dBm		M1	M1[1]	2.401	-6.32 dBm 50040 GHz	
20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm		MI	M1[1]	2.401	-6.32 dBm 50040 GHz	
20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm		MI	M1[1]	2.401	-6.32 dBm 50040 GHz	
20 dBm 10 dBm -10 dBm -20 dBm -30 dBm -40 dBm		M1	M1[1]	2.401	- 6.32 dBm 50040 GHz	
20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm		1001 pt		2.401	6.32 dBm 50040 GHz	
20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm		M1	M1[1]	2.401	-6.32 dBm 50040 GHz	



	2DH5_An	t1 2441		
Spectrum		··		
Ref Level 30.00 dBm Of Att 40 dB SV Count 100/100				
●1Pk View	r r	544547	r in in	
		M1[1]	-5.10 dBm 2.44060040 GHz	
20 dBm				
10 dBm				
0 dBm	M1			
-10 dBm				
-20-d8m				
-30 dBm				
-40 dBm				
-50 dBm				
-60 dBm				
CF 2.441 GHz	1001	ots	Span 8.0 MHz	
Date: 27.FEB.2022 09:28:55	1001	0.0841	j	
	2DH5 An	t1 2480		
Spectrum	2DH5_An	t1_2480		
RefLevel 30.00 dBm Of Att 40 dB SV	fset 9.80 dB 🕳 RBW 3 MHz			
Ref Level 30.00 dBm Of	fset 9.80 dB 🕳 RBW 3 MHz	Mode Auto FFT		
Ref Level 30.00 dBm Of Att 40 dB SV Count 100/100 PIPk View	fset 9.80 dB 🕳 RBW 3 MHz		-4.96 dBm 2.47960840 GHz	
Ref Level 30.00 dBm Of Att 40 dB SV Count 100/100 1Pk View 1Pk View 20 dBm 20 dBm 100	fset 9.80 dB 🕳 RBW 3 MHz	Mode Auto FFT	-4.96 dBm	
Ref Level 30.00 dBm Of Att 40 dB SV Count 100/100 91Pk View 91Pk View 20 dBm 10 dBm 10 dBm	fset 9.80 dB 🕳 RBW 3 MHz	Mode Auto FFT	-4.96 dBm	
Ref Level 30.00 dBm Of Att 40 dB SV Count 100/100 1Pk View 1Pk View 20 dBm 20 dBm 100	fset 9.80 dB 🕳 RBW 3 MHz	Mode Auto FFT	-4.96 dBm	
Ref Level 30.00 dBm Of Att 40 dB SV Count 100/100 91Pk View 91Pk View 20 dBm 10 dBm 10 dBm	fset 9.80 dB • RBW 3 MHz VT 1.3 µs • VBW 10 MHz	Mode Auto FFT	-4.96 dBm	
Ref Level 30.00 dBm Of Att 40 dB SV Count 100/100 91Pk View 91Pk View 20 dBm 10 dBm 10 dBm 0 dBm 0 dBm 10 dBm	fset 9.80 dB • RBW 3 MHz VT 1.3 µs • VBW 10 MHz	Mode Auto FFT	-4.96 dBm	
Ref Level 30.00 dBm Of Att 40 dB SV Count 10D/100 1Pk View 20 dBm 10 dBm 0 dBm 10 dBm	fset 9.80 dB • RBW 3 MHz VT 1.3 µs • VBW 10 MHz	Mode Auto FFT	-4.96 dBm	
Ref Level 30.00 dBm Of Att 40 dB SV Count 100/100 10 k view 10 dBm 10 dBm 0 dBm 10 dBm 20 dBm 20 dBm 10 dBm	fset 9.80 dB • RBW 3 MHz VT 1.3 µs • VBW 10 MHz	Mode Auto FFT	-4.96 dBm	
Ref Level 30.00 dBm Of Att 40 dB SV Count 100/100 9 1Pk View 9 20 dBm 10 dBm 10 dBm 10 dBm -10 dBm -10 dBm -30 dBm -30 dBm -30 dBm	fset 9.80 dB • RBW 3 MHz VT 1.3 µs • VBW 10 MHz	Mode Auto FFT	-4.96 dBm	
Ref Level 30.00 dBm Of Att 40 dB SV Count 100/100 10 Bm 20 dBm 0 dBm 10 dBm 0 dBm -10 dBm -0 dBm -30 dBm -30 dBm -50 dBm	fset 9.80 dB • RBW 3 MHz VT 1.3 µs • VBW 10 MHz	Mode Auto FFT	-4.96 dBm	
Ref Level 30.00 dBm Of Att 40 dB SV Count 100/100 10 Bm 20 dBm 0 dBm 10 dBm 0 dBm -10 dBm -30 dBm -40 dBm	fset 9.80 dB ● RBW 3 MH2 1.3 µs ● VBW 10 MH2 M1 M1 M1	Mode Auto FFT M1[1]	-4.96 dBm 2.47960840 GHz	
Ref Level 30.00 dBm Of Att 40 dB SV Count 100/100 10 Bm 20 dBm 0 dBm 10 dBm 0 dBm -10 dBm -0 dBm -30 dBm -30 dBm -50 dBm	fset 9.80 dB • RBW 3 MHz VT 1.3 µs • VBW 10 MHz	Mode Auto FFT M1[1]	-4.96 dBm	



5.4 20dB Occupy Bandwidth

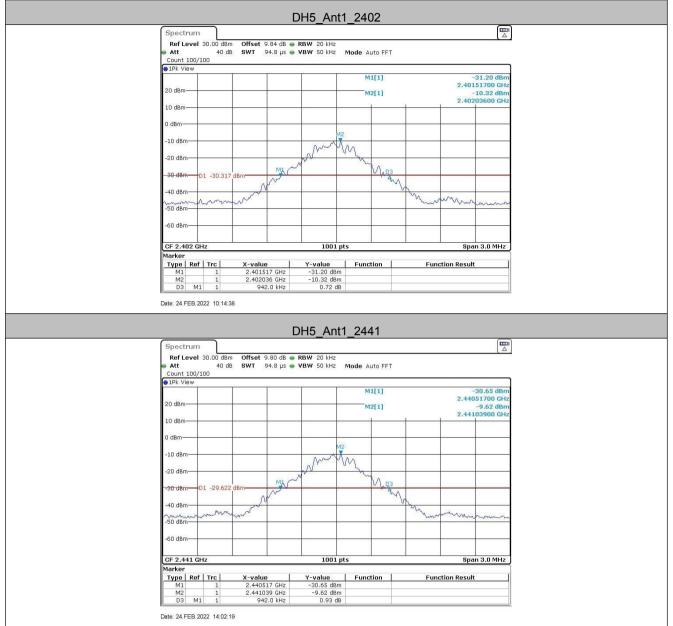
Test Requirement:	47 CFR Part 15C Section 15.247 (a)(1)		
Test Method:	ANSI C63.10:2013		
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane Remark: Offset=Cable loss+ attenuation factor.		
Limit:	NA		
Exploratory Test Mode:	Non-hopping transmitting with all kind of modulation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

Measurement Data

Test shapped	20dB Occupy Bandwidth (MHz)		
Test channel	GFSK	π/4DQPSK	
Lowest	0.942	1.314	
Middle	0.942	1.311	
Highest	0.939	1.287	



Test plot as follows:





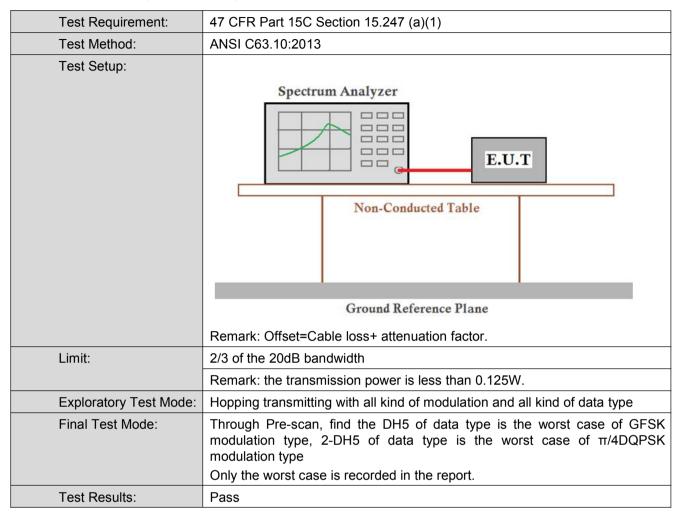








5.5 Carrier Frequencies Separation





Measurement Data

TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Нор	0.684	≥0.628	PASS
2DH5	Ant1	Нор	1.125	≥0.876	PASS

Mode	20dB bandwidth (MHz)	Limit (MHz)
INIOGE	(worse case)	(Carrier Frequencies Separation)
GFSK	0.942	0.628
π/4DQPSK	1.314	0.876



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 π /4DQPSK modulation type Only the worst case is recorded in the report.
Test Results:	Pass

Measurement Data

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



Test plot as follows:

		D	H5_Ar	nt1_Hc	р			
Spectrum Ref Level 30.00	Bm Offset	9.84 dB 🖷 R	BW 100 PH	2				
Att 40 1Pk View	dB SWT	94.8 µs 🖷 🕻	'BW 300 kH	z Mode	Auto FFT			
20 dBm			-	1 <u></u>				
10 dBm				is				
0 dBm								
- 15/hfBh i - 10.6 H - 10.		1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	41144414		10660 B B & D & D & D & D & D & D & D & D & D	inna (AAA)	RALANA	11101
		N. O.	A. W.	anna Anna			YAMA	
-30, 9600, 11, 10, 11, 11, 11, 11, 11, 11, 11,	IN THANKAL	<u>INOTERALA</u>		<u>italikaal</u>	hankulla	all and a	1.01110	Man
-30 dBm			-					
⊷40 dBm								- mm
-50 dBm								
-60 dBm		-	-					
				(m.m.)				
Start 2.4 GHz Date: 27.FEB.2022 09:	0:20		691	pts			Stop 2.	.4835 GHz
		2[DH5_A	nt1_H	ор			
Spectrum Ref Level 30.00	IBm Offset	9.84 dB 👄 R	BW 100 kH	2				
Att 40 IPk View	dB SWT	94.8 µs 🖷 ۷	'BW 300 KH	z Mode	Auto FFT	1 1		
20 dBm								
10 dBm								
0 dBm							a transve	
-1449844.004.001	MANNAM	ANNON IN	MANAA	WWW	MANAN	MANAN	MANAN	MMM
-20 dBm		19		0.000				
-B0 dBm								
-30 dBm			6					lus
'≊40 dBm			-					luve
								- luu
'≊40 dBm								
1⊻40 dBm			691	pts			Stop 2:	4835 GHz



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

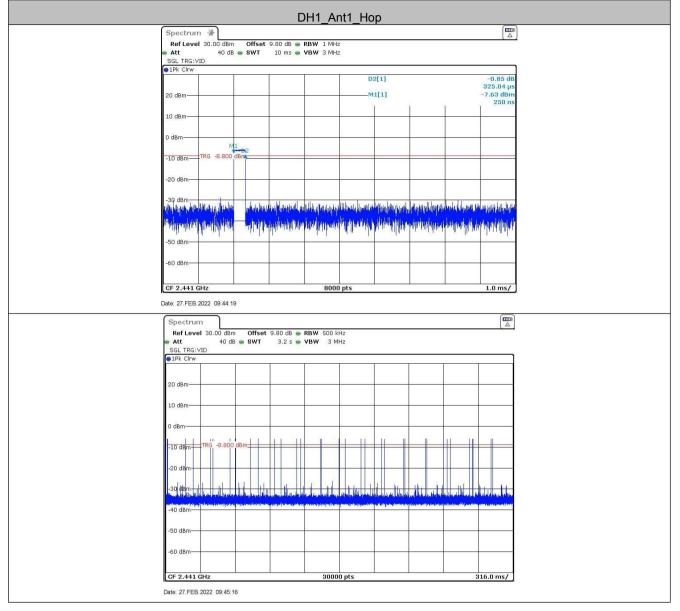
TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Нор	0.325	320	0.104	≤0.4	PASS
DH3	Ant1	Нор	0.326	320	0.104	≤0.4	PASS
DH5	Ant1	Нор	0.326	320	0.104	≤0.4	PASS
2DH1	Ant1	Нор	0.326	330	0.107	≤0.4	PASS
2DH3	Ant1	Нор	0.325	170	0.055	≤0.4	PASS
2DH5	Ant1	Нор	0.326	330	0.108	≤0.4	PASS

Remark:

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



Test plot as follows:





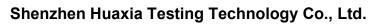


			D	H3_Ar	nt1_Ho	р			
Spectru	n al 30.00 dBm	Offeret	00 d0 💿 I	RBW 1 MHz					
👄 Att	40 dB			BW 3 MHz					
SGL TRG: Ptk Cirw	VID								
					D	[1]			14.84 dB 326.29 µs
20 dBm					M	L[1]		-	24.44 dBm -1.00 μs
10 dBm					51 5				
0 dBm									
-10 dBm	TRG -8.700	IBR <mark>2</mark>							
-20 dBm—	M								
-30 dBm	definited and a fille at a	والالعمادية	at has build	مرابع ومعالما والم	in the state of the	ht	aliea. de la colt	المرياطين المسلم والم	4 Martin Landa
ainte Million	Prol Perio Antie	Philippin	hill a share while	hing and the second second	hite pilite in the second s	en de la	Pilling	hydrathering	Manana kata
-50 dBm—			19	1 1 1		1.1			
-60 dBm					<u>(</u> 2)				
CF 2.441	GHz			8000	pts				1.0 ms/
Date: 27.FEB	.2022 09:46:13								
Spectru	m								
Ref Lev	el 30.00 dBm			RBW 500 kH					
Att SGL TRG:	VID	. SWT	3.2 s 👄	VBW 3 MH	łz				
IPk Cirw									
20 dBm									
20 0811					1 1				
10 dBm									
10 dBm			-						
0 dBm	TRG -8.700	dBm	4111-						
0 dBm	TRG -8.700	dBm							
0 dBm	=TRG -8.700	dBm							
0 dBm	=TRG -8.700								
0 dBm	TRG -8.700								
0 dBm									
0 dBm	TRG -8.700								
0 dBm									
0 dBm) pts				16.0 ms/





				C	0H5_Ar	nt1_Ho	р			
	pectrum	n I 30.00 dBm	Offeet	0.00 db	RBW 1 MHz	14				
	Att	40 dB	 SWT 		VBW 3 MHz					
	GL TRG: V 1Pk Clrw	ID								
						D	2[1]			14.84 dB 326.29 µs
20) dBm					M	1[1]		-	24.44 dBm -1.00 μs
10) dBm				-					
0	dBm									
-1	.0 dBm	TRG -8.700 (авн <mark>2</mark>		-					
-2	20 dBm	M	1	-						
-3	0 dBm-	a the at a low of the state of the	i belever tille	and A strategica	مروما المالية والمراقع	interfaced citedide	Mundelson and Minde	الماريل المارية	المرابلين المأطل وال	halustanda
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-5	50 dBm		Į	II	h fait	<u> </u>	14			
-6	i0 dBm			-		4 <u> </u>				
CI	F 2.441 G	GHz			8000	pts				1.0 ms/
Date	e: 27.FEB.2	2022 09:46:13	3							
5	Spectrur	n								
		al 30.00 dBm			RBW 500 ki					
-	Ref Leve Att SGL TRG: \	el 30.00 dBm 40 dB			RBW 500 ki VBW 3 Mi					
	Ref Leve Att	el 30.00 dBm 40 dB								
•	Ref Leve Att SGL TRG:\ 1Pk Cirw	el 30.00 dBm 40 dB								
2	Ref Leve Att SGL TRG:\ 1Pk Clrw 20 dBm	el 30.00 dBm 40 dB								
2	Ref Leve Att SGL TRG:\ 1Pk Cirw	el 30.00 dBm 40 dB								
2 1	Ref Leve Att SGL TRG:\ 1Pk Clrw 20 dBm	el 30.00 dBm 40 dB								
2 1 0	Ref Leve Att SGL TRG:\/ SGL TRG:\/ 11Pk Clrw 20 dBm .0 dBm .0 dBm	91 30.00 dBm 40 dB VID	• SWT							
2 1 0	Ref Leve Att SGL TRG:\ 1Pk Clrw	el 30.00 dBm 40 dB	• SWT							
2 1 0	Ref Leve Att SGL TRG:\/ SGL TRG:\/ 11Pk Clrw 20 dBm .0 dBm .0 dBm	91 30.00 dBm 40 dB VID	• SWT							
2 2 1 	Ref Leve Att SGL TRG:\ SGL TRG:\ 1Pk Clrw 20 dBm 0 dBm 0 dBm 10 dBm	91 30.00 dBm 40 dB VID	@ SWT							
3 () 1 0 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Ref Leve Att SGL TRG:\/ SGL TRG:\/ 1Pk Clrw 20 dBm 0 dBm 0 dBm 10 dBm 20 dBm	al 30.00 dBm 40 dB VID	@ SWT							
3 • • • • • •	Ref Leve Att SGL TRG:\ SGL TRG:\ 11Pk Clrw 20 dBm 20 dBm 0 dBm 10 dBm 20 dBm 30 dBm 30 dBm 40 dBm	al 30.00 dBm 40 dB VID	@ SWT							
3 • • • • • • •	Ref Leve Att SGL TRG:\11PK CIrw 20 dBm .0 dBm .0 dBm .0 dBm .0 dBm .0 dBm .0 dBm	al 30.00 dBm 40 dB VID	@ SWT							
5 2 1 0 7 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Ref Leve Att SGL TRG:\ SGL TRG:\ 11Pk Clrw 20 dBm 20 dBm 0 dBm 10 dBm 20 dBm 30 dBm 30 dBm 40 dBm	al 30.00 dBm 40 dB VID	@ SWT				, v , v , u , i , i , i , i , i , i , i , i , i			
2 1 0 ~ ~ ~	Ref Leve Att Att SGL TRG:\	21 30.00 dBm 40 dB VID	@ SWT							
2 1 0 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Ref Leve Att Att SGL TRG:\	21 30.00 dBm 40 dB VID	dBm							



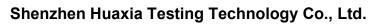


				2	DH1_A	nt1_H	р			(=
	Spectrur Ref Leve	n 🔆 ∎ 30.00 dBm	Offset	9.80 dB 👄	RBW 1 MHz					
	Att SGL TRG:	40 dB	e swt		VBW 3 MHz					
	●1Pk Clrw			1	1					10.00.10
							2[1]			16.53 dB 326.29 µs
	20 dBm					M	1[1]	1		27.01 dBm -1.00 µs
	10 dBm		-							
	0 dBm									
	-10 dBm-	TRG -8.500	dBD2							
			1 T							
	-20 dBm—	M	1							
	-30 dBm-	dia daute	Halawy	and chines in	andulation		an an half the	under helpel	hild allow	intelimite statelite
	anthion of	Malahadaki	Ulipitati	mentalities	niun ^{alta} in	Whyfally	nin han h	ide ind f	ndd Hineding	NUMAN IA AN
	-50 dBm-	0.0.0.1.		4	an is str	1 41	. I. I.	l en		
	-60 dBm									
	CF 2.441			÷.	8000	pts		2		1.0 ms/
C	ate: 27.FEB	.2022 09:53:0	9							
										\bigcap
	Spectru		Offset	0 80 dB 🚗	PBW 500 P	-12				
	Ref Lev Att	el 30.00 dBm 40 dB			RBW 500 ki VBW 3 Mi					
	Ref Lev	el 30.00 dBm 40 dB VID								
	Ref Lev Att SGL TRG: 1Pk Clrw	el 30.00 dBm 40 dB VID								
	Ref Lev Att SGL TRG:	el 30.00 dBm 40 dB VID								
	Ref Lev Att SGL TRG: 1Pk Clrw	el 30.00 dBm 40 dB VID								
	Ref Lev Att SGL TRG: 1Pk Clrw 20 dBm—	el 30.00 dBm 40 dB VID								
	Ref Lev Att SGL TRG: 1Pk Clrw 20 dBm— 10 dBm—	el 30.00 dBm 40 dB VID	3 • SWT							
	Ref Lev Att SGL TRG: IPk Cirw 20 dBm 10 dBm 0 dBm	el 30.00 dBm 40 dE VID	3 • SWT							
	Ref Lev Att SGL TRG: IPk Clrw 20 dBm— 10 dBm— 0 dBm— -10 dBm— -20 dBm—	el 30.00 dBm 40 dE VID	3 • SWT							
	Ref Lev Att SGL TRG: IPk Cirw 20 dBm 10 dBm 0 dBm	el 30.00 dBm 40 dE VID	3 • SWT							
	Ref Lev Att SGL TRG: IPk Clrw 20 dBm— 10 dBm— 0 dBm— -10 dBm— -20 dBm—	el 30.00 dBm 40 dE VID	3 • SWT							
	Ref Lev Att SGL TRG: ● 1Pk Clrw 20 dBm 10 dBm -20 dBm -20 dBm -20 dBm -20 dBm	el 30.00 dBm 40 dE VID	3 • SWT							
	Ref Lev Att SGL TRG: IPk Clrw 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm	el 30.00 dBm 40 dE VID	3 • SWT							
	Ref Lev Att SGL TRG 9 1Pk Clrw 20 dBm- 10 dBm- 0 dBm- -20 dBm- -20 dBm- -30 dBm- -50 dBm- -60 dBm-	ei 30.00 dBn 40 dE VID	3 • SWT							
	Ref Lev Att SGL TRG: 10 dBm 10 dBm -10 dBm -20 dBm -30 dBm -50 dBm -60 dBm -60 dBm	ei 30.00 dBn 40 dE VID	dBm							16.0 ms/





		2DH3 A	Ant1_Hop		
	el 30.00 dBm Offset	9.80 dB ● RBW 1 MH	z		1
Att SGL TRG: Prk Cirw		10 ms 🔵 VBW 3 MH	z		r
20 dBm			D2[1] 	-1.34 di 325.04 µ -8.60 dBn	s. n
10 dBm				-1.00 µ	- -
0 dBm					-
-10 dBm	TRG -8.400 dBh2				-
-20 dBm—					-
-30 dBm— Ung hing a	allowelliness opposite	an shark man	utroughable type pleasing to	and the part of the second	Ţ
Girtpr All -50 dBm—	lander a flead faith	lana ana ana ana ana ana ana ana ana ana		and an an all and an	
-60 dBm					-
CF 2.441	GHz	800	0 pts	1.0 ms/	
Date: 27.FEB	2022 10:20:59				
Spectru Ref Lev Att	el 30.00 dBm Offset	9.80 dB 👄 RBW 500 1 3.2 s 👄 VBW 3 N			<u>'</u>
SGL TRG: PIPK CIrw	VID		1		
20 dBm					
10 dBm					
0 dBm		17 m			
-10 dBm-	TRG -8.500 dBm				
-20 dBm-					
-30 dBm- -30 dBm- -30 dBm- -40 dBm-					
-50 dBm—					
-60 dBm-					
CF 2.441	GHz 3.2022 09:26:22	3000	00 pts	316.0 ms/	1





2DH5_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 IPk Clrw	
D2[1] 3.82 dB 326.29 µs	
20 dBm	
10 dBm	
0 dBm	
-10 dBm TRG -8.500 dBm CP	
-20 dBm	
all, kupk vie indelities 👘 alkelitieken, olea vieleke, oleandeliteise, jak ekserblikenden kulkeren etterutekkel	
-50 dBm	
-60 dBm-	
CF 2.441 GHz 8000 pts 1.0 ms/	
 Date: 27.FEB.2022 09:55:20	
Spectrum T	
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 P 1Pk Clrw	
20 dBm	
20 dBm	
10 dBm	
10 dBm	
10 dBm	
10 dBm	
10 dBm 0 dBm -10 dBm -20 dBm -20 dBm -30 BBm -30 BBm -40 dBm -50 dBm	
10 dBm	



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 π /4DQPSK modulation type Only the worst case is recorded in the report.
Test Results:	Pass



Shenzhen Huaxia Testing Technology Co., Ltd.

Report No.: CQASZ20220200217E-02

Measurement Data

TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
		Low	2402	-7.05	-41.43	≤-27.05	PASS
		High	2480	-6.01	-47.94	≤-26.01	PASS
DH5	Ant1	Low	Hop_2402	-8.19	-48.96	≤-28.19	PASS
		High	Hop_2480	-5.89	-47.13	≤-25.89	PASS
		Low	2402	-7.33	-41.45	≤-27.33	PASS
		High	2480	-5.79	-47.7	≤-25.79	PASS
2DH5	Ant1	Low	Hop_2402	-7.66	-48.12	≤-27.66	PASS
		High	Hop_2480	-8.18	-46.01	≤-28.18	PASS



Test plot as follows:

					5_Ant1_						
Spect											
Ref Le	vel 20.00				RBW 100 kH		to FFT			0.00	
	31 100/300	0 08 SV	wi 75	.o µs 👄	VBW 300 kH	< Mode A	ITO FFT				
●1Pk Vi		-	52								
						M1	[1]			-7.05 dBm	
10 dBm-		-				M2	[1]		2.40	18560 GHz 50.46 dBm	
0 dBm—									2.40	00000 GHz	
u usm-										M1	
-10 dBm										1	
-20 dBm											
-20 uBI		050 db-								1	
-30 dBm		050 dBm-									
-40 dBm									M4		
-+0 ubii								M3	N	nal h	
v-SQldBm	romotor	manymente	tonego	mann-	Amendary	matmon	and with me	million news	Marine Start	W June	
-60 dBm											
-00 UBI											
-70 dBm	-										
Start 2	35 GHz				691	pts			Stop 2	2.405 GHz	
Marker	Ref Trc	v	-value	ĩ	Y-value	Functi	on I	Euro	tion Result		
M1	1	2	2.401856	GHz	-7.05 dB	m		i anc	Con Result		
M2	1			GHz	-50.46 dB						
M3	1		2.39	GHz	-50.89 dB	m					
Date: 24.F	EB.2022 10:		2.398942		-41.43 dB		400				
Date: 24.F	EB.2022 10:		2.398942		-41.43 dB		480			Ē	
Date: 24.F	EB.2022 10:	14.59		DH5	5_Ant1_	High_2	480				
Date: 24.F	EB.2022 10: um vel 20.00 31	14:59 dBm Off	fset 9.8	DH5		High_2				(III)	
Date: 24.F	EB.2022 10: um vel 20.00 30 000/300	14:59 dBm Off	fset 9.8	DH5	5_Ant1_	High_2					
Date: 24.F	EB.2022 10: um vel 20.00 30 000/300	14:59 dBm Off	fset 9.8	DH5	5_Ant1_	High_2	uto FFT			2	
Spectre Ref Le Att Ount : IPk Vi	EB.2022 10: um vel 20.00 30 000/300	14:59 dBm Off	fset 9.8	DH5	5_Ant1_	High_2 ² Mode A	ito FFT		2.4	-6.01 dBm 79780 GHz	
Date: 24.F	EB.2022 10: um vel 20.00 30 000/300	14:59 dBm Off	fset 9.8	DH5	5_Ant1_	High_2	ito FFT		2.4	-6.01 dBm 79780 GHz 48.70 dBm	
Spectre Ref Le Att Ount : IPk Vi	EB.2022 10: um vel 20.00 30 000/300	14:59 dBm Off	fset 9.8	DH5	5_Ant1_	High_2 ² Mode A	ito FFT		2.4	-6.01 dBm 79780 GHz	
Date: 24.F RefL Att Count : 10 dBm- 0 dBm-	EB.2022 10: um vel 20.00 30 100/300 W	14:59 dBm Off	fset 9.8	DH5	5_Ant1_	High_2 ² Mode A	ito FFT		2.4	-6.01 dBm 79780 GHz 48.70 dBm	
Date: 24.F Ref LL Att Count : 10 dBm -10 dBm-	EB.2022 10: um vel 20.00 30 100/300 W	14:59 dBm Off	fset 9.8	DH5	5_Ant1_	High_2 ² Mode A	ito FFT		2.4	-6.01 dBm 79780 GHz 48.70 dBm	
Date: 24.F RefL Att Count : 10 dBm- 0 dBm-	EB.2022 10; um vel 20.00 30 00/300 W M1	dBm Of O dB SW	fset 9.8	DH5	5_Ant1_	High_2 ² Mode A	ito FFT		2.4	-6.01 dBm 79780 GHz 48.70 dBm	
Date: 24.F Spectr Ref Lt Att Count : 0 1Pk Vii 10 dBm- -10 dBm -20 dBm	EB.2022 10: um vel 20.00 3: 00/300 W	14:59 dBm Off	fset 9.8	DH5	5_Ant1_	High_2 ² Mode A	ito FFT		2.4	-6.01 dBm 79780 GHz 48.70 dBm	
Date: 24.F Ref LL Att Count : 10 dBm -10 dBm-	EB.2022 10: um vel 20.00 3: 00/300 W	dBm Of O dB SW	fset 9.8	DH5	5_Ant1_	High_2 ² Mode A	ito FFT		2.4	-6.01 dBm 79780 GHz 48.70 dBm	
Date: 24.F Spectr Ref Lt Att Count : 0 1Pk Vii 10 dBm- -10 dBm -20 dBm	EB.2022 10: vel 20.00 000/300 W M1 01 -26.	dBm Ofi 0 dB SV	fset 9.8	DH5	5_Ant1_ RBW 100 KH VBW 300 KH	High_2 ² Mode A	ito FFT		2.4	-6.01 dBm 79780 GHz 48.70 dBm	
Date: 24.F Spectr Ref La Att Count : 0 1Pk Vii 10 dBm- -10 dBm -20 dBm -30 dBm -30 dBm	EB.2022 10: um vel 20.00 300/300 W M1 01 -26. N	dBm Ofi 0 dB SW	fset 9.8	DH5	5_Ant1_ RBW 100 kH YBW 300 kH	High_2 ² Mode A	ito FFT		2.4	-6.01 dBm 79780 GHz 48.70 dBm	
Date: 24, F Spectr Ref La Att Count: I 0 dBm- I 0 dBm- I 0 dBm- I 0 dBm- -10 dBm -30 dBm -30 dBm -30 dBm	EB.2022 10: vel 20.00 300/300 W M1 01 -26.	dBm Ofi 0 dB SW	fset 9.8	DH5 30 dB • .8 µs •	5_Ant1_ RBW 100 kH YBW 300 kH	High_2 ² Mode A	ito FFT		2.4	-6.01 dBm 79780 GHz 48.70 dBm	
Date: 24.F Spectr Ref La Att Count : 0 1Pk Vii 10 dBm- -10 dBm -20 dBm -30 dBm -30 dBm	EB.2022 10: vel 20.00 300/300 W M1 01 -26.	dBm Ofi 0 dB SW	fset 9.8	DH5 30 dB • .8 µs •	5_Ant1_ RBW 100 kH YBW 300 kH	High_2 ² Mode A	ito FFT		2.4	-6.01 dBm 79780 GHz 48.70 dBm	
Date: 24.F Ref Lt Att Count : 10 dBm- 10 dBm -10 dBm -20 dBm -30 dBm -30 dBm -30 dBm -30 dBm -30 dBm -40 dBm	EB.2022 10: vel 20.00 00/300 W M1 01 -26.	dBm Ofi 0 dB SW	fset 9.8	DH5 30 dB • .8 µs •	5_Ant1_ RBW 100 kH YBW 300 kH	High_2 ² Mode A	ito FFT		2.4	-6.01 dBm 79780 GHz 48.70 dBm	
Date: 24, F Spectr Ref La Att Count: I 0 dBm- I 0 dBm- I 0 dBm- I 0 dBm- -10 dBm -30 dBm -30 dBm -30 dBm	EB.2022 10: vel 20.00 00/300 W M1 01 -26.	dBm Ofi 0 dB SW	fset 9.8	DH5 30 dB • .8 µs •	5_Ant1_ RBW 100 kH YBW 300 kH	High_2 ² Mode A	ito FFT		2.4	-6.01 dBm 79780 GHz 48.70 dBm	
Date: 24. F Spectr Ref Le Att Count : 10 dBm- 10 dBm- -10 dBm -20 dBm -30 dBm -30 dBm -30 dBm -40 dBm -40 dBm -50 dBm -50 dBm -50 dBm -50 dBm	EB.2022 10: vel 20.00 300/300 M1 01 -26	dBm Ofi 0 dB SW	fset 9.8	DH5 30 dB • .8 µs •	5_Ant1_ RBW 100 KH VBW 300 KH	High_2 2 Mode A M1 M2	ito FFT		2.4 - 2.4	-6.01 dBm 79780 GHz 48.70 dBm 83500 GHz	
Date: 24.F Ref Lt Att Count : 10 dBm- 10 dBm- -10 dBm -20 dBm -20 dBm -30 dBm -40 dBm -30 dBm -40 dBm -30 dBm -40 dBm -40 dBm -40 dBm -50 dBm	EB.2022 10: vel 20.00 00/300 W M1 01 -26.	dBm Ofi 0 dB SW	fset 9.8	DH5 30 dB • .8 µs •	5_Ant1_ RBW 100 kH YBW 300 kH	High_2 2 Mode A M1 M2	ito FFT		2.4 - 2.4	-6.01 dBm 79780 GHz 48.70 dBm	
Date: 24, F Ref Le Att Count : I 0 dBm- I 0 dBm- -10 dBm -20 dBm -20 dBm -30 dBm -30 dBm -40 dBm -40 dBm -40 dBm -50 dBm -70 dBm -70 dBm -70 dBm -70 dBm -70 dBm -70 dBm	EB.2022 10: UMT vel 20.00 300/300 W M1 01 -26 47 GHz Ref Trc	dBm Off D dB SV	fset 9.6 wt 94	DH5 30 dB • 8.8 µs • М3 М3	5_Ant1_ RBW 100 kH VBW 300 kH M4 M4 691 Y-value	High_2 2 Mode A M1 M2	10 FFT		2.4 - 2.4	-6.01 dBm 79780 GHz 48.70 dBm 83500 GHz dwt dwt 2.55 GHz	
Date: 24, F Spectr Ref La Att Count : I 0 dBm- 10 dBm- 10 dBm- -10 dBm- -10 dBm- -20 dBm -30 dBm -40 dBm -30 dBm -40 dBm -40 dBm -40 dBm -40 dBm -40 dBm -50 dBm -70 dBm	EB.2022 10: um vel 20.00 3: 0:00/300 W M1 01 -26. 47 GHz Ref Trc	dBm Off D dB SV	Tset 9.6 9.4 94	DH5 30 dB (С. 2014) 8 μs (С. 2014) 10 сна 10 сна 1	5_Ant1_ RBW 100 KH vBW 300 KH M4 691 Y-value -6.01 dB	High_2 Z Mode A M1 M2 M2	10 FFT		2.4 - 2.4 پوره میرو اوستان کرده اوستان کرده اوستان Stop	-6.01 dBm 79780 GHz 48.70 dBm 83500 GHz dwt dwt 2.55 GHz	
Date: 24, F Ref La Att Count: I 0 dBm- 10 dBm- 10 dBm- -10 dBm- -10 dBm- -20 dBm -30 dBm -3	EB.2022 10: UMI Vel 20.00 W M1 M1 D1 -26: 47 GHz Ref Trc 1 1	14:59 dBm Of 0 dB SV 010 dBm 12 010 dBm 12 X-	Fset 9.6.9 WT 94	DH5 30 db (1) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2	691 Y-value -5.1.57 de	High_2 Z Mode A M1 M2 M2 Pts	10 FFT		2.4 - 2.4 پوره میرو انهایی کرد انهایی Stop	-6.01 dBm 79780 GHz 48.70 dBm 83500 GHz dwt dwt 2.55 GHz	
Date: 24. F Spectr Ref Lc Att Count : PIPk Vin 10 dBm- 0 dBm- -10 dBm -20 dBm -30 dBm -30 dBm -30 dBm -40 dBm -40 dBm -50 dBm -60 dBm -70 d	EB.2022 10: vel 20.00 300/300 W M1 01 -26 47 GHz Ref Trc 1 1	14:59 dBm Of 0 dB SV 010 dBm 12 010 dBm 12 X-	fset 9.8 94	DH5 30 db (1) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2	5_Ant1_ RBW 100 kH VBW 300 kH M4 691 Y-value -6.01 db -49.70 db	High_2 Z Mode A M1 M2 M2 Pts Function m	10 FFT		2.4 - 2.4 پوره میرو انهایی کرد انهایی Stop	-6.01 dBm 79780 GHz 48.70 dBm 83500 GHz dwt dwt 2.55 GHz	

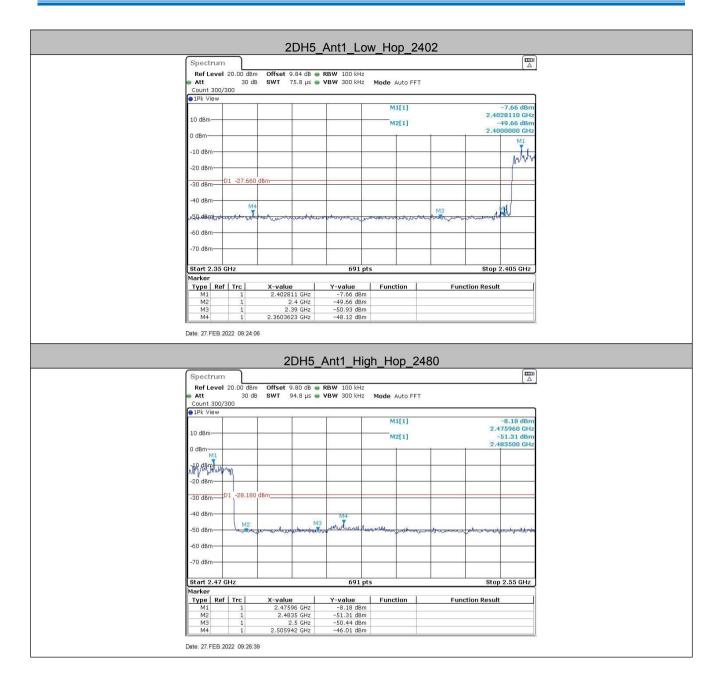


DH5 Ant1 Low Hop 24	02
Spectrum	
Ref Level 20.00 dBm Offset 9.84 dB - RBW 100 kHz	$\Lambda = I$
Count 300/300	
●1Pk View M1[1]	-8.19 dBm
10 dBm M2[1]	2.4040050 GHz -44.13 dBm
0 dBm	2.4000000 GHz
	M1
-10 dBm	
-20 dBm	
-30 dBm D1 -28.190 dBm	
-40 dBm	M2
Ma	M3 NU
ASA Bandow margane margane and a second and a	the the way of the second of t
-60 dBm	
-70 dBm	
Start 2.35 GHz 691 pts	Stop 2.405 GHz
Start 2.35 GHz 691 pts Marker	Stop 2.405 GHz
Type Ref Trc X-value Y-value Function M1 1 2.404005 GHz -8.19 dBm -8.19 dBm	Function Result
M2 1 2.4 GHz -44.13 dBm	
M3 1 2.39 GHz -51.21 dBm M4 1 2.371442 GHz -48.96 dBm	
Date: 27.FEB.2022 09:18:55	
Date: 27.1 ED:2022 00.10.00	
DH5_Ant1_High_Hop_24	90
Spectrum	
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	
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 SWT 94.8 µs VBW 300 kHz Mode Auto FFT	
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	-5.89 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 VBW 100 kHz Mode Auto FFT	-5.89 dBm 2.474110 GHz -5.0.40 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 12k WBW WILLI Multiple Multiple	-5.89 dBm 2.474110 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 Image: Count 300/300 Mil [1] Mil [1] <t< td=""><td>-5.89 dBm 2.474110 GHz -5.0.40 dBm</td></t<>	-5.89 dBm 2.474110 GHz -5.0.40 dBm
Spectrum 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 10 dBm M1[1] M2[1] M2[1] 0 dBm M2[1] M2[1] M2[1] M3[1] M3[1]	-5.89 dBm 2.474110 GHz -5.0.40 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] 10 dBm M2[1] M2[1] 0 dBm M2[1] M2[1]	-5.89 dBm 2.474110 GHz -5.0.40 dBm
Spectrum 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 10 dBm M1[1] M2[1] M2[1] 0 dBm M2[1] M2[1] M2[1] M3[1] M3[1]	-5.89 dBm 2.474110 GHz -5.0.40 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] M2[1] M2[1] 0 dBm 01 -25.890 dBm <th< td=""><td>-5.89 dBm 2.474110 GHz -5.0.40 dBm</td></th<>	-5.89 dBm 2.474110 GHz -5.0.40 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] M2[1] M2[1] M2[1] 0 dBm	-5.89 dBm 2.47+110 GHz -50.40 dBm 2.483500 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] 10 dBm M2[1] M2[1] 0 dBm M2[1] M3 M4 -30 dBm M2 M3 M4 -50 dBm M2 M3 M4 M4	-5.89 dBm 2.474110 GHz -5.0.40 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] M2[1] M2[1] M2[1] 0 dBm	-5.89 dBm 2.47+110 GHz -50.40 dBm 2.483500 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] 10 dBm M2[1] M2[1] 0 dBm M2[1] M3 M4 -30 dBm M2 M3 M4 -50 dBm M2 M3 M4 M4	-5.89 dBm 2.47+110 GHz -50.40 dBm 2.483500 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 M1[1] Mde Auto FFT Oldsm M2[1] M2[1] M2[1] M2[1] 0 dBm M2[1] M2[1] M2[1] M2[1] 0 dBm M2[1] M4 M2[1] M2[1] 0 dBm M2 M3 M4 M4 -50 dBm M2 M3 M4 M4 -60 dBm M2 M3 M4 M4 -70 dBm M3 M4 M4 M4	-5.89 dBm 2.47+110 GHz -50.40 dBm 2.483500 GHz
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] M2[1] M2[1] 10 dBm M2[1] M2[1] M2[1] M2[1] 0 dBm M2[1] M2[1] M2[1] M2[1] 0 dBm M2[1] M2[1] M2[1] M2[1] -50 dBm M2 M3 M4 M4 -60 dBm M2 M3 M4 M4 M2 -70 dBm M3 M4 M4 M4 M4 M4 M4 -70 dBm M3 M4 M4 <t< td=""><td>-5.89 dBm 2.47+110 GHz -50.40 dBm 2.483500 GHz</td></t<>	-5.89 dBm 2.47+110 GHz -50.40 dBm 2.483500 GHz
Spectrum 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 MI[1] M2[1] M3[1] M4 M2[1] M3[1] M4 M2[1] M3[1] M4 M4 </td <td>-5.89 dBm 2.47+110 GHz -50.40 dBm 2.483500 GHz</td>	-5.89 dBm 2.47+110 GHz -50.40 dBm 2.483500 GHz
Spectrum 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] M2[1] M3[1] M4[1] M2[1] M3[1] M4[1] M3[1] M4[1] M3[1] M4[1] M3[1] M4[1] M3[1] M3[1] M4[1] M3[1] M4[1] M3[1] M3[1] M3[1] M3[1] M3[1] M4[1] M3[1] M3[1] M3[1] M3[1] M3[1] M4[1] M3[1] M4[1] M3[1] M4[1] M3[1] M4[1] M4[1] M3[1] M3[1] M3[1] M4[1] M3[1] M4[1] M3[1] M4[1] M3[1] M4[1] M3[1] M4[1] M3[1] M4[1] M3[1] M3[1] M3[1] M3[1] M3[1] M3[1] M3[1] M3[1]	(m) -5.89 dBm 2.47+110 GHz -50.40 dBm 2.483500 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] Mde M1[1] 10 dBm M1[1] M2[1] M2[1] M2[1] M2[1] M2[1] 0 dBm M2[1] M4 M2[1] M4 M2[1] M4 -30 dBm M2 M3 M4	(m) -5.89 dBm 2.47+110 GHz -50.40 dBm 2.483500 GHz
Spectrum 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] M2[1] M3[1] M4[1] M2[1] M3[1] M4[1] M3[1] M4[1] M3[1] M4[1] M3[1] M4[1] M3[1] M3[1] M4[1] M3[1] M4[1] M3[1] M3[1] M3[1] M3[1] M3[1] M4[1] M3[1] M3[1] M3[1] M3[1] M3[1] M4[1] M3[1] M4[1] M3[1] M4[1] M3[1] M4[1] M4[1] M3[1] M3[1] M3[1] M4[1] M3[1] M4[1] M3[1] M4[1] M3[1] M4[1] M3[1] M4[1] M3[1] M4[1] M3[1] M3[1] M3[1] M3[1] M3[1] M3[1] M3[1] M3[1]	(m) -5.89 dBm 2.47+110 GHz -50.40 dBm 2.483500 GHz



2DH5 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] -7.33 dBm 2.4018560 GHz	
10 dBm M2[1] - 5.0.03 dBm 2.400000 GHz	
0 d8m M1	
-10 dBm	
-20 dBm	
01.27.220 dbm	
-30 dBm	
-40 dBm	
150 Bardren march march march and and a superstanding of the March and the	
-60 dBm	
-70 dBm	
Start 2.35 GHz 691 pts Stop 2.405 GHz	
Start 2.35 GHZ 691 pts Stop 2.405 GHZ	
Type Ref Trc X-value Y-value Function Function Result	
M2 1 2.4 GHz -50.03 dBm	
M3 1 2.39 GHz -50.71 dBm M4 1 2.3991812 GHz -41.45 dBm	
Date: 24.FEB.2022 14:07:18	
2DH5_Ant1_High_2480	
2DH5_Ant1_High_2480	
Spectrum [mm] Ref Level 20.00 dBm Offset 9.80 dB ● RBW 100 kHz	
Spectrum Imm Ref Level 20.00 dBm Offset 9.80 dB ● RBW 100 kHz Imm Att 30 dB SWT 94.8 µs VBW 300 kHz Count 300/300 SWT 94.8 µs VBW 300 kHz	
Spectrum Imm 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 ● ● ● ● ●	
Spectrum Image: Constraint of the second seco	
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Spectrum Image: Spectrum Ref Level 20.00 dBm Offset 9.80 dB RBW 100 kHz Mode Auto FFT Count 300/300 FIRK View 10 dBm -5.79 dBm 10 dBm M1[1] -5.79 dBm 0 dBm M1[1] -5.79 dBm -10 dBm M1 -2.499500 GHz -30 dBm M1 -3.021 dBm -30 dBm M1 -5.790 dBm -30 dBm M2 M4 -40 dBm M2 M4	
Spectrum Image: Constraint of the second secon	
Spectrum Image: Spectrum Ref Level 20.00 dBm Offset 9.80 dB RBW 100 kHz Mode Auto FFT Count 300/300 FIRK View 10 dBm -5.79 dBm 10 dBm M1[1] -5.79 dBm 0 dBm M1[1] -5.79 dBm -10 dBm M1 -2.499500 GHz -30 dBm M1 -3.021 dBm -30 dBm M1 -5.790 dBm -30 dBm M2 M4 -40 dBm M2 M4	
Spectrum Image: Constraint of the second data of	
Spectrum Image: Constraint of the second secon	
Spectrum Image: Spectrum Ref Level 20.00 dBm Offset 9.80 dB • RBW 100 kHz Att 30 dB 30 dB SWT 94.8 µs VBW 300 kHz Mate M1[1] -5.79 dBm 10 dBm M1[1] 0 dBm M2[1] -50.21 dBm 0 dBm M2[1] -20 dBm -30 dBm -30 dBm -40 dBm -30 dBm -40 dBm -57.90 dBm -57.90 dBm -30 dBm -57.90 dBm -20 dBm -57.90 dBm -30 dBm -57.90 dBm -30 dBm -57.90 dBm -30 dBm -57.90 dBm -50.21 dBm -57.90 dBm -50.21 dBm -57.90 dBm -50 dBm -57.90 dBm	
Spectrum Image: 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] -5.79 dBm -5.79 dBm 10 dBm M2[1] -50.21 dBm -50.21 dBm 0 dBm M1 2.499300 GHz -50.21 dBm -10 dBm M1 2.499300 GHz -50.21 dBm -30 dBm M1 2.499300 GHz -50.91 dBm -30 dBm M1 -5.790 dBm -50.92 dBm -30 dBm M3 M44 -90 mm ct.Mag.tbrowdow, particular, part	
Spectrum Image: 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	
Spectrum Image: 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 Image: SwT 94.8 µs VBW 300 kHz Mode Auto FFT In dBm M1[1] -5.79 dBm -5.79 dBm In dBm M2[1] -50.21 dBm In dBm M2[1] -50.21 dBm -20 dBm M1 -4033500 GHz -30 dBm M3 mmerced provide merced provid	
Spectrum Image: 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	







5.9 Spurious RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
•	
Test Method: Test Setup:	ANSI C63.10:2013 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
Test Results:	Pass



DH5 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		
IPk View		
M1[1] -7.05 dBm 2.4018560 GHz		
10 dBm M2[1] -50.46 dBm		
0 d8m 2.4000000 GHz		
-10 dBm		
-20 dBm		
-30 dBm		
-40 dBm		
Mag (Madd)		
15014282 hours to all have a second and a second and the second and the second and the second second and the second		
-60 dBm		
-70 dBm		
70 doint		
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 -7.05 dBm -7.05 dBm		
M2 1 2.4 GHz -50.46 dBm		
M3 1 2.39 GHz -50.89 dBm M4 1 2.398942 GHz -41.43 dBm		
Date: 24 FEB.2022 10:14:59 DH5_Ant1_High_2480		
DH5_Ant1_High_2480		
DH5_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		
Building		
DH5_Ant1_High_2480		
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DH5_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 Image: Count 300/300 M1[1] -6.01 dBm 2.479780 GHz 10 dBm M2[1] -48.70 dBm 2.480360 GHz -483500 GHz		
DH5_Ant1_High_2480		
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DH5_Ant1_High_2480 Colspan="2">Colspan="2"Colspan=		
DH5_Ant1_High_2480 Cont 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: SWT 94.8 µS VBW 300 kHz Mode Auto FFT Count 300/300 Image: SWT 94.8 µS VBW 300 kHz Mode Auto FFT Count 300/300 Image: SWT 94.8 µS VBW 300 kHz Mode Auto FFT Count 300/300 Image: SWT 94.8 µS VBW 300 kHz Mode Auto FFT Count 300/300 Image: SWT 94.8 µS VBW 300 kHz Mode Auto FFT Count 300/300 Image: SWT 94.8 µS VBW 300 kHz Mode Auto FFT Count 300/300 Image: SWT 94.8 µS M2[1] -48.70 dBm 0 dBm Image: SWT Image: SWT M2[1] -48.70 dBm -10 dBm Image: SWT Image: SWT Image: SWT Image: SWT -20 dBm Image: SWT Image: SWT Image: SWT Image: SWT -30 dBm		
DH5_Ant1_High_2480 Count 20:00 dBm Offset 9.80 dB @ RBW 100 kHz Att 30 dB BWT 94.8 µs VBW 300 kHz Mode Auto FFT Count 300/300 PIP View M1[1] -6.01 dBm 0 dBm M1[1] -48.70 dBm 0 dBm M1 2.479700 GHz -30 dBm M1 -48.70 dBm -30 dBm 01 - 26.010 dBm 01 - 01 - 01 - 01 - 01 - 01 - 01 - 01 -		
DH5_Ant1_High_2480 Cont 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: SWT 94.8 µS VBW 300 kHz Mode Auto FFT Count 300/300 Image: SWT 94.8 µS VBW 300 kHz Mode Auto FFT Count 300/300 Image: SWT 94.8 µS VBW 300 kHz Mode Auto FFT Count 300/300 Image: SWT 94.8 µS VBW 300 kHz Mode Auto FFT Count 300/300 Image: SWT 94.8 µS VBW 300 kHz Mode Auto FFT Count 300/300 Image: SWT 94.8 µS VBW 300 kHz Mode Auto FFT Count 300/300 Image: SWT 94.8 µS M2[1] -48.70 dBm 0 dBm Image: SWT Image: SWT M2[1] -48.70 dBm -10 dBm Image: SWT Image: SWT Image: SWT Image: SWT -20 dBm Image: SWT Image: SWT Image: SWT Image: SWT -30 dBm		
DH5_Ant1_High_2480 Spectrum Ref Level 20.00 dBm_Offset 9.80 dB @ RBW 100 kHz Att 30 dB BWT WI 94.8 µS @ VBW 300 kHz Mode Auto FFT Count 300/300 0 dBm M1[1] -6.01 dBm 0 dBm M1[1] 2.499700 GHz -46.70 dBm -20 dBm -20 dBm -20 dBm M3 M4		
DH5_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 Offset 9.80 dB @ RBW 100 kHz Mode Auto FFT Offset 9.80 dB @ RBW 100 kHz Mode Auto FFT Offset 9.80 dB @ RBW 100 kHz Mode Auto FFT Of Ph View MI[1] 0 dBm MI[1] -46.70 dBm O dBm Offset 0.00 dBm <t< td=""><td></td></t<>		
DH5_Ant1_High_2480 Colspan="2">Colspan="2"Colspan=""2"Colspan=""2"Colspan=""2"Colspa		
DH5_Ant1_High_2480 Colspan="2">Colspan="2" M1[1] Colspan="2" M1[1] Colspan="2" M1[1] Colspan="2" M1[1] Colspan="2" M1[1] Colspan="2" O dBm M1 O dBm M1 O dBm M1 O dBm O dBm O dBm <td></td>		
DH5_Ant1_High_2480 Colspan="2">Colspan="2"Colspan=""2"Colspan="2"Colspan=""2"Colspan		
DH5_Ant1_High_2480 Colspan="2">Colspan="2" M11 Colspan="2" M11 Colspan="2" Colspan="2" Colspan="2" M11 Colspan="2" M14 Colspan="2" Colspan="2" Colspan="2" Colspan="2" Colspan="2" <td col<="" td=""><td></td></td>	<td></td>	
DH5_Ant1_High_2480 Count 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 I D dBm M1[1] 2.479780 GHz 0 dBm M1[1] 2.480300 GHz 0 dBm M1 2.480300 GHz -20 dBm M1 2.480300 GHz -30 dBm M1 2.480300 GHz -30 dBm M4 M4 -90 dBm M2 691 pts Stop 2.55 GHz Stop 2.47 GHz -50 dBm -50 dBm -50 dBm -50 dBm -70 dBm -51 pts Stop 2.55 GHz		
DH5_Ant1_High_2480 Colspan="2">Colspan="2" Colspan="2" Mat Colspan="2" Mat Colspan="2" Mat Colspan="2" Colspan="2" Mat Colspan="2" Mat		



DH5_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] -8.19 dBm	
10 dBm 2.4040050 GHz 10 dBm M2[1] -44.13 dBm	
0 dBm 2.4000000 GHz	
MI	
-10 dBm-	
-20 dBm	
-30 dBm D1 -28.190 dBm	
-40 dBm M4 1 70	
Ma M	
-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 -8.19 dBm M2 1 2.4 GHz -44.13 dBm	
M3 1 2.39 GHz -51.21 dBm	
M4 1 2.371442 GHz -48.96 dBm	
Date: 27.FEB.2022 09:18:55	
DH5_Ant1_High_Hop_2480	
Spectrum 🛄	
Ref Level 20.00 dBm Offset 9.80 dB RBW 100 kHz Att 20.04 B SWT 94.8 us P YBW 200 kHz Mode Auto SET	
Att 30 dB SWT 94.8 µs WBW 300 kHz Mode Auto FFT Count 300/300	
● Att 30 dB SWT 94.8 µs ● YBW 300 kHz Mode Auto FFT Count 300/300 ● IPK View	
Att 30 dB SWT 94.8 µs ● VBW 300 kHz Mode Auto FFT Count 300/300 ● 1Pk View	
Att 30 dB SWT 94.8 µs ● VBW 300 kHz Mode Auto FFT Count 300/300 ●1Pk View	
Att 30 dB SWT 94.8 µs ♥ VBW 300 kHz Mode Auto FFT Count 300/300 IPk View M1[1] -5.89 dBm 2.474110 GHz	
Att 30 dB SWT 94.8 µs ∨ VBW 300 kHz Mode Auto FFT Count 300/300 ●1Pk View M1[1] -5.89 dBm 10 dBm M2[1] -50.40 dBm 0 dBm_2 .493500 CHz	
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT Count 300/300 IPk View IPk View I0 dBm	
Att 30 dB SWT 94.8 µs VBW Mode Auto FFT Count 300/300 Enk View 10 dBm -5.89 dBm 10 dBm M1[1] -50.40 dBm 0 dBmr 2.474110 GHz 10 dBm 2.439500 GHz 10 dBmr 2.439500 GHz 10 dBmr 2.439500 GHz	
Att 30 dB SWT 94.8 µs • VBW 300 kHz Mode Auto FFT Count 300/300 • IPk View	
Att 30 dB SWT 94.8 µs VBW Mode Auto FFT Count 300/300 Interview	
Att 30 dB SWT 94.8 µs VBW Mode Auto FFT Count 300/300 Interview	
Att 30 dB SWT 94.8 µs VBW Mode Auto FFT Count 300/300 Interview	
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT Count 300/300 Interview Interview	
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT Count 300/300 Interview <	
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT Count 300/300 Interview Interview	
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT Count 300/300 III -5.99 dBm -5.99 dBm 10 dBm M1[1] -5.99 dBm 0 dBm M2[1] -50.40 dBm -30 dBm 0 -50.40 dBm -30 dBm -52.890 dBm -50.40 dBm -50 dBm -50.40 dBm -50.40 dBm -70 dBm -70 dBm -50.40 dBm	
Att 30 dB SWT 94.8 µs VBW Mode Auto FFT Count 300/300 It -5.89 dBm -5.89 dBm 10 dBm M2[1] -50.40 dBm 0 dBm M2[1] -50.40 dBm -30 dBm M2[1] -50.40 dBm -30 dBm M2 M4 -50 dBm M2 M4 -50 dBm M2 M4 -50 dBm M3 M4 -50 dBm M3 M4 -70 dBm M4 -70 dBm <	
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT Count 300/300 Ink View Interview Interview Interview Interview ID dBm M1[1] -50.80 dBm M2[1] -50.40 dBm ID dBm M2[1] -50.40 dBm Interview Interview ID dBm M2[1] -50.40 dBm Interview Interview ID dBm D1 -25.890 dBm Interview Interview Interview Interview -30 dBm Interview M4 Interview Interview <td></td>	
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT Count 300/300 IPk View	
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT Count 300/300 IIIK View IIII - 5.89 dBm IIII - 5.99 dBm 10 dBm M1[1] -50.40 dBm 2.474110 GHz 0 dBm M2[1] -50.40 dBm 2.483500 GHz - 50 dBm - 50.40 dBm - 50.40 dBm - 50.40 dBm - 30 dBm	
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT Count 300/300 IPk View	
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT © 1Pk View 10 dBm 12.474110 GHz -50.89 dBm 2.474110 GHz 10 dBm M2[1] -50.40 dBm 2.483500 GHz -50.40 dBm 0 dBm 0 dBm 12.483500 GHz -50.40 dBm -50.40 dBm -30 dBm 01-25.890 dBm -50.40 dBm -50 dBm -50 dBm -30 dBm M2 -50.40 dBm -50 dBm -50 dBm -50 dBm M3 M4 -50 dBm -50 dBm -70 dBm -50 gPts Stop 2.55 GHz Marker -50.90 dBm -50.90 dBm -50.90 dBm 1 2.47411 GHz -5.90 dBm -5.90 dBm	



	2DH5 Ant1 Low 2402		
Spectrum			
	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]	-7.33 dBm	
10 dBm	M2[1]	2.4018560 GHz -50.03 dBm	
0 dBm	metil	2.4000000 GHz	
0 dBill		M1	
-10 dBm		<u>↓</u>	
-20 dBm			
01 27 220 dBm			
-30 dBm			
-40 dBm		M#	
. Findan		M3 May Ma	
	wanther and the second from the second	Mrd the barrelinger the hall	
-60 dBm			
-70 dBm			
Start 2.35 GHz	691 pts	Stop 2.405 GHz	
Marker		Function P 1	
Type Ref Trc X-valu M1 1 2.4018	e Y-value Function 356 GHz -7.33 dBm	Function Result	
M2 1	2.4 GHz -50.03 dBm		
M3 1 2 M4 1 2.39918	.39 GHz -50.71 dBm 312 GHz -41.45 dBm		
C A A A A A A A A A A A A A A A A A A A		2	
Date: 24.FEB.2022 14:07:18			
	2DH5_Ant1_High_2480		
Spectrum	2DH5_Ant1_High_2480		
Ref Level 20.00 dBm Offset	9.80 dB 🖷 RBW 100 kHz		
Ref Level 20.00 dBm Offset Att 30 dB SWT			
Ref Level 20.00 dBm Offset Att 30 dB SWT Count 300/300	9.80 dB 🖷 RBW 100 kHz		
Ref Level 20.00 dBm Offset Att 30 dB SWT	9.80 dB 🖷 RBW 100 kHz	-5.79 dBm	
Ref Level 20.00 dBm Offset Att 30 dB SWT Count 300/300	9.80 dB • RBW 100 kHz 94.8 µs • VBW 300 kHz Mode Auto FFT M1[1]	-5.79 dBm 2.479780 GHz	
Ref Level 20.00 dBm Offset Att 30 dB SWT Count 300/300 IPk View 10 dBm	9.80 dB RBW 100 kHz 94.8 µs VBW 300 kHz Mode Auto FFT	-5.79 dBm	
Ref Level 20.00 dBm Offset Att 30 dB SWT Count 300/300 IPk View	9.80 dB • RBW 100 kHz 94.8 µs • VBW 300 kHz Mode Auto FFT M1[1]	-5.79 dBm 2.479780 GHz -50.21 dBm	
Ref Level 20.00 dBm Offset Att 30 dB SWT Count 300/300 IPk View 10 dBm	9.80 dB • RBW 100 kHz 94.8 µs • VBW 300 kHz Mode Auto FFT M1[1]	-5.79 dBm 2.479780 GHz -50.21 dBm	
Ref Level 20.00 dBm Offset Att 30 dB SWT Count 300/300 1Pk View 10 dBm 10 dBm 10 dBm 10 dBm -10 dBm 10 dBm 10 dBm	9.80 dB • RBW 100 kHz 94.8 µs • VBW 300 kHz Mode Auto FFT M1[1]	-5.79 dBm 2.479780 GHz -50.21 dBm	
Ref Level 20.00 dBm Offset Att 30 dB SWT SWT Count 300/300 1Pk Visw 10 dBm 10 dBm	9.80 dB • RBW 100 kHz 94.8 µs • VBW 300 kHz Mode Auto FFT M1[1]	-5.79 dBm 2.479780 GHz -50.21 dBm	
Ref Level 20.00 dBm Offset Att 30 dB SWT Count 300/500 ●1Pk View 0 dBm 0 10 dBm M1 0 0 -10 dBm 10 400 10	9.80 dB • RBW 100 kHz 94.8 µs • VBW 300 kHz Mode Auto FFT M1[1]	-5.79 dBm 2.479780 GHz -50.21 dBm	
Ref Level 20.00 dBm Offset Att 30 dB SWT Count 300/300 1Pk View 10 dBm M1 -10 dBm - -20 dBm 0 -30 dBm 0	9.80 dB RBW 100 kHz 94.8 µs VBW 300 kHz Mul[1] M2[1] M2[1]	-5.79 dBm 2.479780 GHz -50.21 dBm	
Ref Level 20.00 dBm Offset Att 30 dB SWT Count 300/300 91Pk View 10 dBm 0 0 dBm M1 -10 dBm -10 dBm -30 dBm 01 -25.790 dBm -40 dBm M2	9.80 dB • RBW 100 kHz 94.8 µs • VBW 300 kHz Mode Auto FFT 	-5.79 dBm 2.479780 GHz -50.21 dBm	
Ref Level 20.00 dBm Offset Att 30 dB SWT Count 300/300 © IPk View 0 dBm 0 10 dBm 0 dBm 0 -10 dBm 0 -10 dBm -30 dBm 01 -25.790 dBm -40 dBm	9.80 dB RBW 100 kHz 94.8 µs VBW 300 kHz Mode Auto FFT M1[1] M2[1] M4	-5.79 dBm 2.479780 GHz -50.21 dBm	
Ref Level 20.00 dBm Offset Att 30 dB SWT Count 300/300 91Pk View 10 dBm 0 0 dBm M1 -10 dBm -10 dBm -30 dBm 01 -25.790 dBm -40 dBm M2	9.80 dB RBW 100 kHz 94.8 µs VBW 300 kHz Mode Auto FFT M1[1] M2[1] M4	-5.79 dBm 2.479780 GHz -50.21 dBm	
Ref Level 20.00 dBm Offset 30 dB Att 30 dB SWT Count 300/300 ●1Pk View 10 dBm 10 dBm	9.80 dB RBW 100 kHz 94.8 µs VBW 300 kHz Mode Auto FFT M1[1] M2[1] M4	-5.79 dBm 2.479780 GHz -50.21 dBm	
Ref Level 20.00 dBm Offset 30 dB Att 30 dB SWT Count 300/500 91Pk View 10 dBm 10 dBm M1 -10 dBm -10 dBm M1 -30 dBm -30 dBm 01 -25.790 dBm -30 dBm -40 dBm M2 -30 dBm	9.80 dB RBW 100 kHz 94.8 µs VBW 300 kHz Mode Auto FFT M1[1] M2[1] M4	-5.79 dBm 2.479780 GHz -50.21 dBm	
Ref Level 20.00 dBm Offset 30 dB Att 30 dB SWT Count 300/300 ●1Pk View 0 10 dBm	9.80 dB • RBW 100 kHz 94.8 µs • VBW 300 kHz Mode Auto FFT 	-5.79 dBm 2.479780 GHz -50.21 dBm	
Ref Level 20.00 dBm Offset 30 dB Att 30 dB SWT Count 300/300 IPk View ID ID dBm ID ID 0 dBm M1 ID -10 dBm ID -20 dBm -30 dBm ID -25.790 dBm -30 dBm ID ID -50 dBm ID ID -50 dBm ID ID -70 dBm ID ID Start 2.47 GHz Marker ID	9.80 dB RBW 100 kHz 94.8 µs VBW 300 kHz Mode Auto FFT M1[1] M2[1] M4	-5.79 dBm 2.479780 GHz -50.21 dBm 2.483500 GHz	
Ref Level 20.00 dBm Offset Att 30 dB SWT Count 300/300 91Pk View 90 dBm 10 dBm 10 dBm 10 dBm -10 dBm 10 dBm 91 - 25.790 dBm -30 dBm 91 - 25.790 dBm -30 dBm -60 dBm 91 - 25.790 dBm -60 dBm -70 dBm 92 - 25.790 dBm -70 dBm	9.80 dB RBW 100 kHz 94.8 µs VBW 300 kHz Mode Auto FFT M1[1] M2[1] M2[1] M4 M4	-5.79 dBm 2.479780 GHz -50.21 dBm 2.483500 GHz	
Ref Level 20.00 dBm Offset Att 30 dB SWT Count 300/300 91Pk View 10 dBm 0 0 dBm M1 -10 dBm 1 -20 dBm 01 -25.790 dBm -30 dBm -20 dBm -40 dBm -25.790 dBm -50 dBm -25.790 dBm -70 dBm -25.790 dBm -70 dBm -20 dBm -70 dBm -25.790 dBm	9.80 dB RBW 100 kHz 94.8 µs VBW 300 kHz Mode Auto FFT M1[1] M2[1] M2[1] M3 M4 M4	-5.79 dBm 2.479780 GHz -50.21 dBm 2.483500 GHz 2.483500 GHz	
Ref Level 20.00 dBm Offset Att 30 dB SWT Count 300/300 91Pk View 90 dBm 10 dBm M1 90 dBm -10 dBm M1 90 dBm -20 dBm 91 -25.790 dBm 90 dBm -30 dBm M1 90 dBm -30 dBm M2 90 dBm -30 dBm M2 90 dBm -30 dBm M2 90 dBm -40 dBm M2 90 dBm -50 dBm M2 90 dBm -70 dBm M3 1 M1 1 2.487 M3 1 1	9.80 dB RBW 100 kHz 94.8 µs VBW 300 kHz Mode Auto FFT M1[1] M2[1] M2 M4 M4 M2 M4 M2 M4 M2 M4 M2 M4 M2 M4 M2 M4 M2 M4 M2 M4 M2 M4 M2 M4 M4 M2 M4 M4 M2 M4 M4 M4 M2 M4 M4 M4 M2 M4 M4 M2 M4 M4 M2 M4 M4 M2 M4 M4 M4 M2 M4 M4 M4 M4 M4 M4 M2 M4 M	-5.79 dBm 2.479780 GHz -50.21 dBm 2.483500 GHz 2.483500 GHz	
Ref Level 20.00 dBm Offset Att 30 dB SWT Count 300/300 91Pk View 90 dBm 10 dBm M1 90 dBm -10 dBm M1 90 dBm -20 dBm 91 -25.790 dBm 90 dBm -30 dBm M1 90 dBm -30 dBm M2 90 dBm -30 dBm M2 90 dBm -30 dBm M2 90 dBm -40 dBm M2 90 dBm -50 dBm M2 90 dBm -70 dBm M3 1 M1 1 2.487 M3 1 1	9.80 dB	-5.79 dBm 2.479780 GHz -50.21 dBm 2.483500 GHz 2.483500 GHz	
Ref Level 20.00 dBm Offset Att 30 dB SWT Count 300/300 91Pk View 90 dBm 10 dBm M1 90 dBm -10 dBm M1 90 dBm -20 dBm 91 -25.790 dBm 90 dBm -30 dBm M1 90 dBm -30 dBm M2 90 dBm -30 dBm M2 90 dBm -30 dBm M2 90 dBm -40 dBm M2 90 dBm -50 dBm M2 90 dBm -70 dBm M3 1 M1 1 2.487 M3 1 1	9.80 dB RBW 100 kHz 94.8 µs VBW 300 kHz Mode Auto FFT M1[1] M2[1] M2 M4 M4 M2 M4 M2 M4 M2 M4 M2 M4 M2 M4 M2 M4 M2 M4 M2 M4 M2 M4 M2 M4 M4 M2 M4 M4 M2 M4 M4 M4 M2 M4 M4 M4 M2 M4 M4 M2 M4 M4 M2 M4 M4 M2 M4 M4 M4 M2 M4 M4 M4 M4 M4 M4 M2 M4 M	-5.79 dBm 2.479780 GHz -50.21 dBm 2.483500 GHz	





Remark:

Pre test 9kHz to 25GHz, find the highest point when testing, so only the worst data were shown in the test report. Per FCC Part 15.33 (a) and 15.31 (o) ,The amplitude of spurious emissions from intentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this part.



5.10Other requirements Frequency Hopping Spread Spectrum System

•						
Test Requirement:	47 CFR Part 15C Section 15.247 (a)(1), (h) requirement:					
rate from a Pseudorandom c on the average by each trans hopping channel bandwidths	The system shall hop to channel frequencies that are selected at the system hopping rate from a Pseudorandom ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.					
Frequency hopping spread spectrum systems are not required to employ all available hopping channels during each transmission. However, the system, consisting of both the transmitter and the receiver, must be designed to comply with all of the regulations in this section should the transmitter be presented with a continuous data (or information) stream. In addition, a system employing short transmission bursts must comply with the definition of a frequency hopping system and must distribute its transmissions over the minimum number of hopping channels specified in this section.						
the system to recognize othe independently chooses and The coordination of frequence	ence within a frequency hopping spread spectrum system that permits er users within the spectrum band so that it individually and adapts its hopsets to avoid hopping on occupied channels is permitted. cy hopping systems in any other manner for the express purpose of ccupancy of individual hopping frequencies by multiple transmitters is					
Compliance for section 15	.247(a)(1)					
stage shift register whose 5t outputs are added in a modu	alo-two addition stage. And the result is fed back to the input of the first with the first ONE of 9 consecutive ONEs; i.e. the shift register is initialized ges: 9 sequence: $2^9 - 1 = 511$ bits					
Linear Feedback S	hift Register for Generation of the PRBS sequence					
An example of Pseudorando 20 62 46 77	m Frequency Hopping Sequence as follow: 7 64 8 73 16 75 1					
According to Bluetooth Corbandwidths that match the	y on the average by each transmitter. e Specification, Bluetooth receivers are designed to have input and IF hopping channel bandwidths of any Bluetooth transmitters and shift on with the transmitted signals.					
Compliance for section 15	.247(g)					
pseudorandom hopping freq	re Specification, the Bluetooth system transmits the packet with the juency with a continuous data and the short burst transmission from the ansmitted under the frequency hopping system with the pseudorandom					



Compliance for section 15.247(h)

According to Bluetooth Core specification, the Bluetooth system incorporates with an adaptive system to detect other user within the spectrum band so that it individually and independently to avoid hopping on the occupied channels.

According to the Bluetooth Core specification, the Bluetooth system is designed not have the ability to coordinated with other FHSS System in an effort to avoid the simultaneous occupancy of individual hopping frequencies by multiple transmitter.

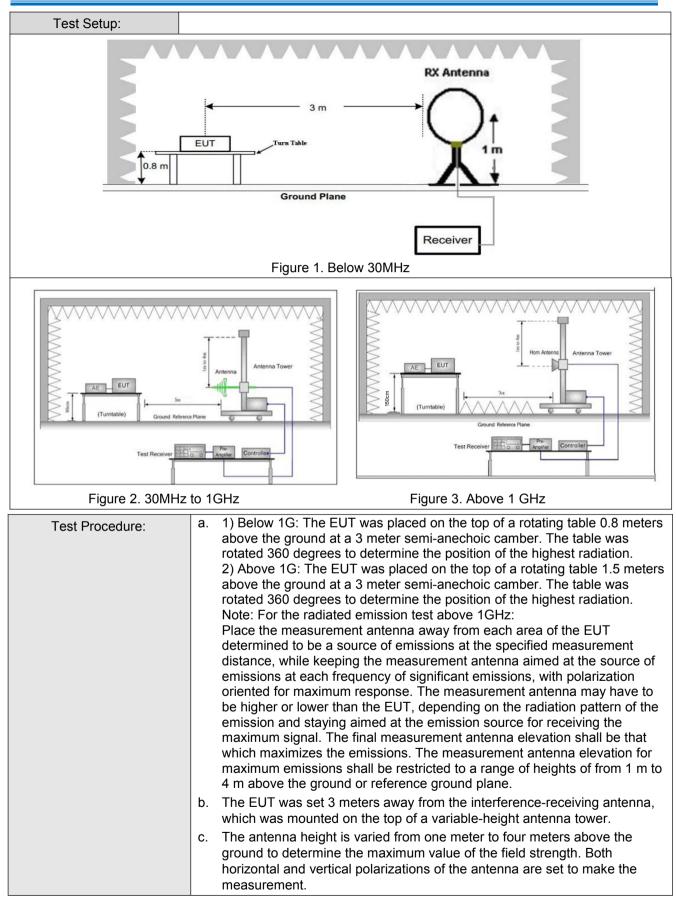


5.11 Radiated Spurious Emission & Restricted bands

Test Requirement:	47 CFR Part 15C Section	on 1	5.209 and 15.	205				
Test Method:	ANSI C63.10: 2013							
Test Site:	Measurement Distance	: 3m	n (Semi-Anech	oic Cham	ber)			
Receiver Setup:	Frequency		Detector	RBW	VBW	Remark]	
	0.009MHz-0.090MH	z	Peak	10kHz	z 30kHz	Peak]	
	0.009MHz-0.090MH	z	Average	10kHz	z 30kHz	Average		
	0.090MHz-0.110MH	0.090MHz-0.110MHz Qua		10kHz	z 30kHz	Quasi-peak		
	0.110MHz-0.490MH	z	Peak	10kHz	z 30kHz	Peak		
	0.110MHz-0.490MH	z	Average	10kHz	z 30kHz	Average		
	0.490MHz -30MHz		Quasi-peak	10kHz	z 30kHz	Quasi-peak		
	30MHz-1GHz		Peak	100 kH	lz 300kHz	Peak		
	Above 1GHz		Peak	1MHz	: 3MHz	Peak		
	Above TGHZ		Peak	1MHz	: 10Hz	Average		
Limit:	Frequency		eld strength crovolt/meter)	Limit (dBuV/m)	Remark	Measureme distance (n		
	0.009MHz-0.490MHz	2	400/F(kHz)	-	-	300		
	0.490MHz-1.705MHz	24	1000/F(kHz)	-	-	30		
	1.705MHz-30MHz		30	-	-	30		
	30MHz-88MHz		100	40.0	Quasi-peak	3		
	88MHz-216MHz		150	43.5	Quasi-peak	3		
	216MHz-960MHz		200	46.0	Quasi-peak	3		
	960MHz-1GHz		500	54.0	Quasi-peak	3		
	Above 1GHz		500	54.0	Average	3		
	Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limi applicable to the equipment under test. This peak limit applies to the tota peak emission level radiated by the device.							





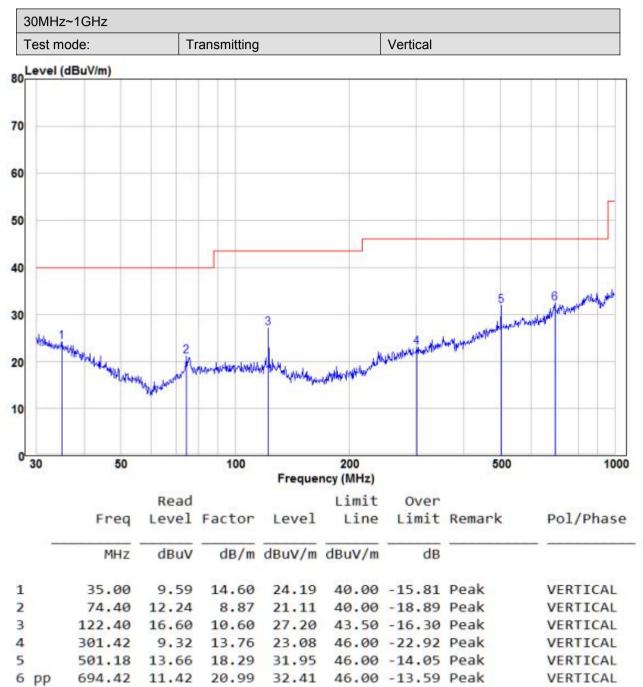




	 d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified
	Bandwidth with Maximum Hold Mode.
	 f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. g. Test the EUT in the lowest channel (2402MHz),the middle channel (2441MHz),the Highest channel (2480MHz)
	h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
	i. Repeat above procedures until all frequencies measured was complete.
Exploratory Test Mode:	Non-hopping transmitting mode with all kind of modulation and all kind of data type Transmitting mode
Final Test Mode:	Through Pre-scan, find the DH5 of data type and GFSK modulation is the worst case. For below 1GHz part, through pre-scan, the worst case is the lowest channel. Only the worst case is recorded in the report.
Test Results:	Pass



5.11.1 Radiated Emission below 1GHz



Remark:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

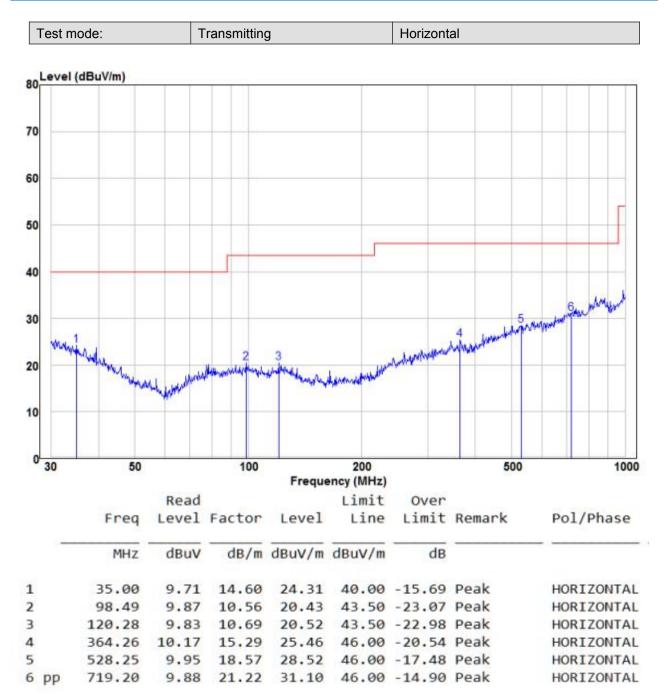
Factor= Antenna Factor + Cable Factor - Preamplifier Factor,

Level = Read Level + Factor,

Over Limit=Level-Limit Line.







Remark:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Factor= Antenna Factor + Cable Factor - Preamplifier Factor,

Level = Read Level + Factor,

Over Limit=Level-Limit Line.



5.11.2 Transmitter Emission above 1GHz

Worse case	mode:	GFSK(DH5)		Test channel:		Lowest	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)		H/V
2390	54.71	-9.2	45.51	74	-28.49	Peak	н
2400	56.98	-9.39	47.59	74	-26.41	Peak	Н
4804	52.12	-4.33	47.79	74	-26.21	Peak	Н
7206	50.18	1.01	51.19	74	-22.81	Peak	Н
2390	56.17	-9.2	46.97	74	-27.03	Peak	V
2400	56.18	-9.39	46.79	74	-27.21	Peak	V
4804	54.49	-4.33	50.16	74	-23.84	Peak	V
7206	48.95	1.01	49.96	74	-24.04	Peak	V

Worse case mode:		GFSK(DH5)		Test channel:		Middle	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)		H/V
4882	51.97	-4.11	47.86	74	-26.14	peak	Н
7323	50.77	1.51	52.28	74	-21.72	peak	Н
4882	52.69	-4.11	48.58	74	-25.42	peak	V
7323	50.06	1.51	51.57	74	-22.43	peak	V

Worse case	mode:	GFSK(DH5)		Test channel:		Highest	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)		H/V
2483.5	54.49	-9.29	45.20	74	-28.80	Peak	н
4960	52.09	-4.04	48.05	74	-25.95	Peak	Н
7440	48.33	1.57	49.90	74	-24.10	Peak	Н
2483.5	54.58	-9.29	45.29	74	-28.71	Peak	v
4960	48.40	-4.04	44.36	74	-29.64	Peak	V
7440	50.55	1.57	52.12	74	-21.88	Peak	V



Worse case	mode:	π /4DQPSK (2DH5)		Test channel:		Lowest	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)		H/V
2390	53.86	-9.2	44.66	74	-29.34	Peak	н
2400	55.86	-9.39	46.47	74	-27.53	Peak	Н
4804	53.24	-4.33	48.91	74	-25.09	Peak	Н
7206	49.54	1.01	50.55	74	-23.45	Peak	Н
2390	55.86	-9.2	46.66	74	-27.34	Peak	V
2400	54.92	-9.39	45.53	74	-28.47	Peak	V
4804	54.61	-4.33	50.28	74	-23.72	Peak	V
7206	48.38	1.01	49.39	74	-24.61	Peak	V

Worse case	mode:	π /4DQPSK (2DH5)		Test channel:		Middle	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)		H/V
4882	50.80	-4.11	46.69	74	-27.31	peak	Н
7323	50.83	1.51	52.34	74	-21.66	peak	Н
4882	54.16	-4.11	50.05	74	-23.95	peak	V
7323	50.65	1.51	52.16	74	-21.84	peak	V

Worse case	mode:	π /4DQPS	K (2DH5)	Test channel:		Highest	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)		H/V
2483.5	56.96	-9.29	47.67	74	-26.33	Peak	н
4960	51.74	-4.04	47.70	74	-26.30	Peak	Н
7440	49.66	1.57	51.23	74	-22.77	Peak	Н
2483.5	54.00	-9.29	44.71	74	-29.29	Peak	v
4960	49.03	-4.04	44.99	74	-29.01	Peak	V
7440	49.71	1.57	51.28	74	-22.72	Peak	V



Worse case	mode:	8DPSK (3DH5)		Test channel:		Lowest	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)		H/V
2390	53.58	-9.2	44.38	74	-29.62	Peak	Н
2400	54.93	-9.39	45.54	74	-28.46	Peak	Н
4804	52.50	-4.33	48.17	74	-25.83	Peak	Н
7206	49.26	1.01	50.27	74	-23.73	Peak	Н
2390	54.19	-9.2	44.99	74	-29.01	Peak	V
2400	54.45	-9.39	45.06	74	-28.94	Peak	V
4804	52.27	-4.33	47.94	74	-26.06	Peak	V
7206	48.81	1.01	49.82	74	-24.18	Peak	V

Worse case	Worse case mode:		8DPSK (3DH5)		Test channel:		Middle	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)		H/V	
4882	53.12	-4.11	49.01	74	-24.99	peak	Н	
7323	49.78	1.51	51.29	74	-22.71	peak	Н	
4882	54.00	-4.11	49.89	74	-24.11	peak	V	
7323	50.38	1.51	51.89	74	-22.11	peak	V	

Worse case	Worse case mode:		8DPSK (3DH5)		Test channel:		Highest	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)		H/V	
2483.5	56.98	-9.29	47.69	74	-26.31	Peak	Н	
4960	51.21	-4.04	47.17	74	-26.83	Peak	Н	
7440	48.56	1.57	50.13	74	-23.87	Peak	Н	
2483.5	55.07	-9.29	45.78	74	-28.22	Peak	v	
4960	49.11	-4.04	45.07	74	-28.93	Peak	V	
7440	49.80	1.57	51.37	74	-22.63	Peak	V	

Remark:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

2) Scan from 9kHz to 25GHz, the disturbance above 10GHz and below 30MHz was very low. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.



6 Photographs - EUT Test Setup

6.1 Radiated Emission



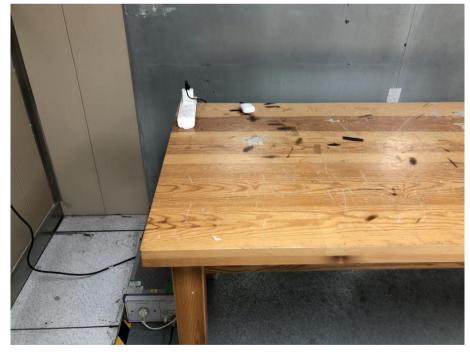
30MHz~1GHz:







6.2 Conducted Emission





7 Photographs - EUT Constructional Details

Refer to Photographs - EUT Constructional Details OF EUT for CQASZ20220200217E-01.

*** END OF REPORT ***