

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

 Telephone:
 +86-755-26648640

 Fax:
 +86-755-26648637

 Website:
 www.cqa-cert.com

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

Test Report

Report No. :	CQASZ20211001846E-01
Applicant:	HONGKONG VIMAI TECHNOLOGY CO., LIMITED
Address of Applicant:	FLAT/RM H29, 1/F PHASE 2 KWAI SHING IND BLDG NO.42-46, TAI LIN PAI ROAD KWAI CHUNG, HONG KONG
Equipment Under Test (E	UT):
Product:	Wireless microphone
Model No.:	AP031
Test Model No.:	AP031
Brand Name:	N/A
FCC ID:	2AVLI-AP031
Standards:	47 CFR Part 15, Subpart C
Date of Receipt:	2021-10-28
Date of Test:	2021-10-28 to 2021-11-29
Date of Issue:	2021-12-03
Test Result :	PASS*

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

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

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
CQASZ20211001846E-01	Rev.01	Initial report	2021-12-03



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	15 247(b)(4)&LCB Exclusion List		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

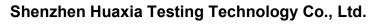
Note: When the EUT charging, BT will not work.



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4 General Information

4.1 Client Information

Applicant:	HONGKONG VIMAI TECHNOLOGY CO., LIMITED
Address of Applicant:	FLAT/RM H29, 1/F PHASE 2 KWAI SHING IND BLDG NO.42-46, TAI LIN PAI ROAD KWAI CHUNG, HONG KONG
Manufacturer:	SHEN ZHEN VIMAI TECHNOLOGY CO., LTD
Address of Manufacturer:	Floor 3, building B, no. 5 huating road, tongsheng community, dalang street, longhua district, shenzhen
Factory:	SHEN ZHEN VIMAI TECHNOLOGY CO., LTD
Address of Factory:	Floor 3, building B, no. 5 huating road, tongsheng community, dalang street, longhua district, shenzhen

4.2 General Description of EUT

Product Name:	Wireless microphone
Model No.:	AP031
Test Model No.:	AP031
Trade Mark:	N/A
Software Version:	EP033-LX-Mic-Prd
Hardware Version:	EP033-LX-Mic-V1.2
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.2
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 ☐ Portable ☐ Fix Location
Test Software of EUT:	BT_Tool (manufacturer declare)
Antenna Type:	Chip antenna
Antenna Gain:	1.8 dBi
Power Supply:	Li-ion battery: DC 3.7V 320mAh, Charge by DC 5V for adapter



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	rest frequency, the middle frequency and	the highest frequency keep					
transmitting of the EUT.	transmitting of the EUT.						
Mode	Channel	Frequency(MHz)					
	СНО	2402					
DH1/DH3/DH5	СН39	2441					
	CH78 2480						
	CH0 2402						
2DH1/2DH3/2DH5 CH39 2441							
	CH78	2480					

Run Software:

BT_Tool			-	×
OMx Baudrate				
Classic BLE				
Test Mode				
FCC Test 🖲	Remote	BT address		
CBT Test 🔾	555555	555555	Stop	
RF Control				
RF Mode	TX TEST \backsim	Packet Type	2DH5	1
Hopping	off v	TX Frequency	2480	-
TX Power	7 ~	RX Frequency	2402	
Scenario	0000 Patter	m	,	~
LOG: FCC test	: mode			^
ERR: [COM4] d	open f <mark>ail</mark>			
LOG: [COM4] d	open, 150000	0bps		
LOG: BR/EDR 1	lest			
LOG: Test end	1			
LOG: [COM4] d	close			
LOG: [COM4] d		Obps		
LOG: BR/EDR T	lest			~
COM4 is open		1500000bps		



4.4 Test Environment

Operating Environment	Operating Environment:			
Temperature:	26 °C			
Humidity:	59% 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.

Des	cription	Manufacturer	Model No.	Remark	FCC certification
	/	/	1	1	1



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	Notes
1	Radiated Emission (Below 1GHz)	±5.12dB	(1)
2	Radiated Emission (Above 1GHz)	±4.60dB	(1)
3	Conducted Disturbance (0.15~30MHz)	±3.34dB	(1)
4	Radio Frequency	3×10 ⁻⁸	(1)
5	Duty cycle	0.6 %.	(1)
6	Occupied Bandwidth	1.1%	(1)
7	RF conducted power	0.86dB	(1)
8	RF power density	0.74	(1)
9	Conducted Spurious emissions	0.86dB	(1)
10	Temperature test	0.8°C	(1)
11	Humidity test	2.0%	(1)
12	Supply voltages	0.5 %.	(1)
13	time	0.6 %.	(1)
14	Frequency Error	5.5 Hz	(1)

Hereafter the best measurement capability for CQA laboratory is reported:

(1)This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.





4.7 Test Location

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	2021/9/9
Spectrum analyzer	R&S	FSU26	CQA-038	2021/9/10	2021/9/9
		AFS4-00010300-18-10P-			
Preamplifier	MITEQ	4	CQA-035	2021/9/10	2021/9/9
		AMF-6D-02001800-29-			
Preamplifier	MITEQ	20P	CQA-036	2021/9/10	2021/9/9
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	2021/9/9
Coaxial Cable					
(Below 1GHz)	CQA	N/A	C020	2021/9/10	2021/9/9
Antenna Connector	CQA	RFC-01	CQA-080	2021/9/10	2021/9/9
RF					
cable(9KHz~40GHz)	CQA	RF-01	CQA-079	2021/9/10	2021/9/9
Power divider	MIDWEST	PWD-2533-02-SMA-79	CQA-067	2021/9/10	2021/9/9
EMI Test Receiver	R&S	ESPI3	CQA-013	2021/9/10	2021/9/9
LISN	R&S	ENV216	CQA-003	2021/9/10	2021/9/9
Coaxial cable	CQA	N/A	CQA-C009	2021/9/10	2021/9/9

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)
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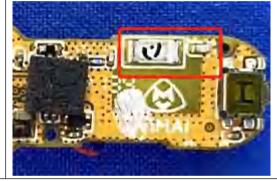
15.203 requirement:

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 Chip antenna. The best case gain of the antenna is 1.8dBi.





5.2 Conducted Emissions

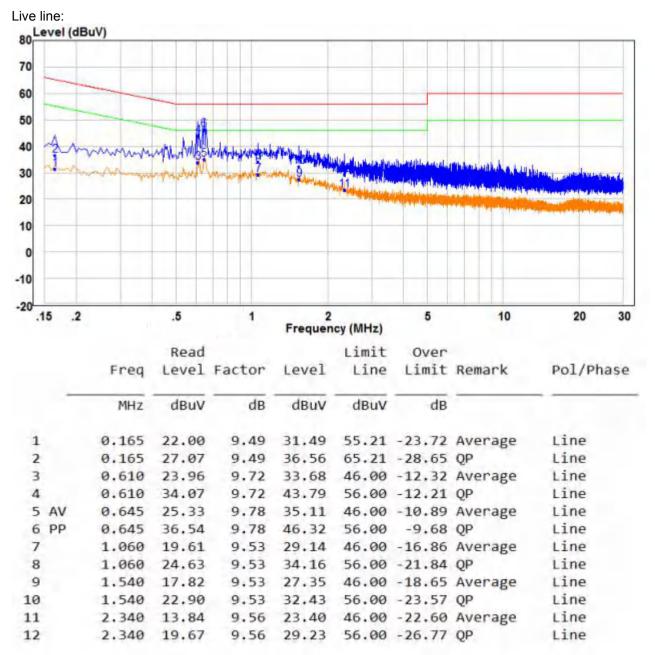
 Conducted Emissio					
Test Requirement:	47 CFR Part 15C Section 15.2	207			
Test Method:	ANSI C63.10: 2013				
Test Frequency Range:	150kHz to 30MHz				
Limit:		Limit (c	lBuV)		
	Frequency range (MHz)	Quasi-peak	Average		
	0.15-0.5	66 to 56*	56 to 46*		
	0.5-5	56	46		
	5-30	60	50		
	* Decreases with the logarithn	n of the frequency.			
Test Procedure:	 The mains terminal distur- room. The EUT was connected to Impedance Stabilization N- impedance. The power call connected to a second LIS reference plane in the sam measured. A multiple sock power cables to a single LI exceeded. The tabletop EUT was place ground reference plane. An placed on the horizontal gr The test was performed wi 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 group between the closest points the EUT and associated easing in order to find the maximum equipment and all of the in ANSI C63.10: 2013 on com 	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 et 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 plane was bonded to the 1 was placed 0.8 m from to a ground reference und reference plane. The s of the LISN 1 and the quipment was at least of the mission, the relative terface cables must be	bugh a LISN 1 (Line a $50\Omega/50\mu$ H + 5Ω line 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 ference plane. The read d reference plane. The read d reference plane. The read d reference plane. The second plane for LISNs his distance was EUT. All other units of 0.8 m from the LISN 2 we positions of	near ne was ar ne he of 2.	
Test Setup:	Shielding Room	AE IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	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

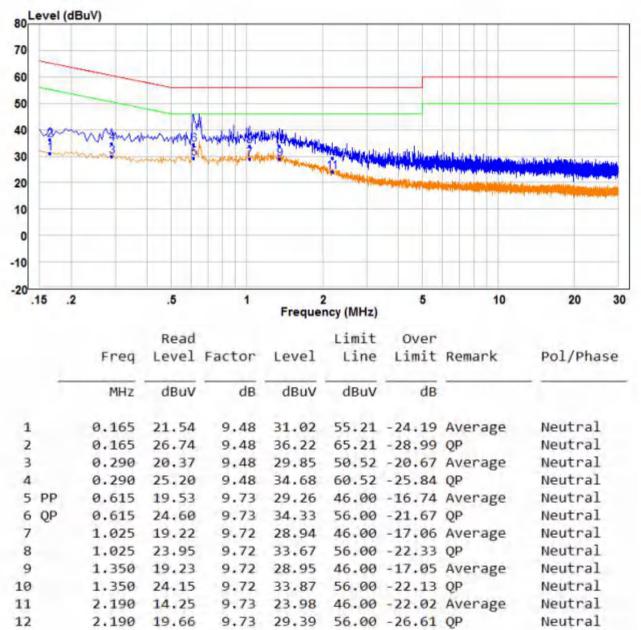


Remark:

- 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 Deguirement	47 OEB Bart 150 Section 15 347 (h)(1)
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 π /4DQPSK modulation type Only the worst case is recorded in the report.
Test Results:	Pass

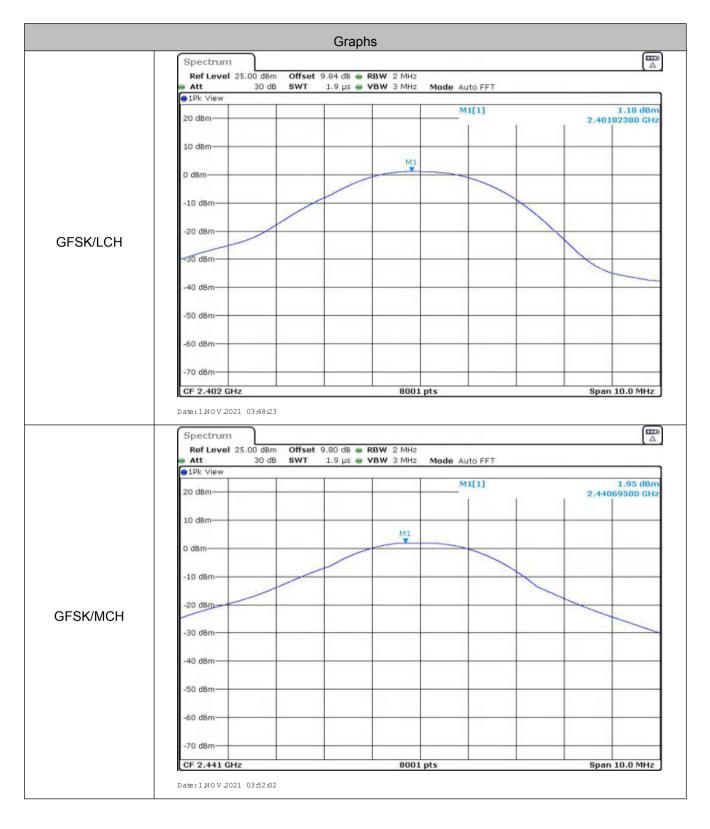


Measurement Data

	GFSK mode						
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result				
Lowest	1.180	21.00	Pass				
Middle	1.950	21.00	Pass				
Highest	1.840	21.00	Pass				
	π/4DQPSK mo	ode					
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result				
Lowest	2.790	21.00	Pass				
Middle	3.590	21.00	Pass				
Highest	3.290	21.00	Pass				



Test plot as follows:





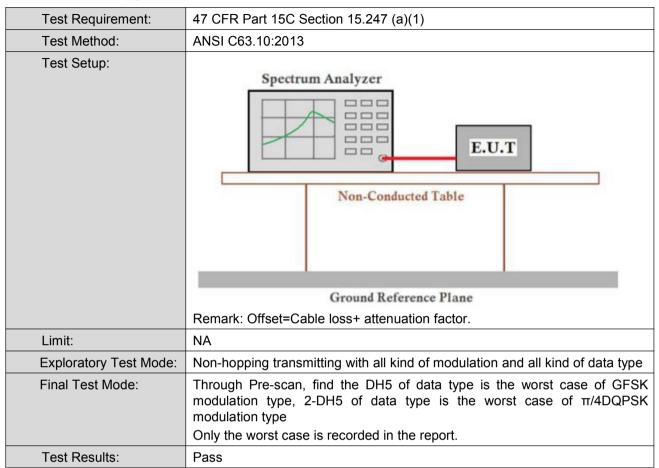
	Spectrum		
	Ref Level 25.00 dBm Offset 9.80 dB BW Att 30 dB SWT 1.9 µs VBW		
	1Pk View 20 dBm	M1[1]	1.84 dBm 2.47972000 GHz
	10 dBm		
	0 dBm	MI	
	-10 dBm		
	-20 dBm-		
GFSK/HCH	-30 dBm		
	-40 dBm		
	-50 d8m		
	-60 dBm		
	-70 dBm		
	CF 2.48 GHz Date: 1 NOV 2021 03:58:06 Spectrum Ref Level 25.00 dBm Offset 9.84 dB • RBW	8001 pts	Span 10.0 MHz
	Date: 1 NOV.2021 03:58:06	2 MHz 3 MHz Mode Auto FFT	
	Date: 1 NOV 2021 03:58:06 Spectrum Ref Level 25:00 dBm Offset 9:84 dB • RBW Att 30 dB SWT 1.9 µs • VBW	2 MHz	
	Date: 1.NOV.2021 03:58:06 Spectrum Ref Level 25.00 dBm Offset 9.84 dB • RBW Att 30 dB SWT 1.9 µs • VBW 1Pk View	2 MHz 3 MHz Mode Auto FFT M1[1]	2.79 dBm
	Date: 1.NOV.2021 03:58:06	2 MHz 3 MHz Mode Auto FFT	2.79 dBm
	Date: 1.NOV.2021 03:58:06	2 MHz 3 MHz Mode Auto FFT M1[1]	2.79 dBm
τ/4DQPSK/LCH	Date: 1.NOV.2021 03:58:06	2 MHz 3 MHz Mode Auto FFT M1[1]	2.79 dBm
π/4DQPSK/LCH	Date: 1.NOV.2021 03:58:06	2 MHz 3 MHz Mode Auto FFT M1[1]	2.79 dBm
π/4DQPSK/LCH	Date: 1.NOV.2021 03:58:06	2 MHz 3 MHz Mode Auto FFT M1[1]	2.79 dBm
π/4DQPSK/LCH	Date: 1.NOV.2021 03:58:06	2 MHz 3 MHz Mode Auto FFT M1[1]	2.79 dBm
π/4DQPSK/LCH	Date: 1.NOV.2021 03:58:06	2 MHz 3 MHz Mode Auto FFT M1[1]	2.79 dBm



	Spectrum							
		dBm Offset 0 dB SWT	9.80 dB 👄 RB 1.9 µs 👄 VB		Mode Auto F	FT		
	1Pk View 20 dBm				M1[1]	1	2.44	3.59 dBm 054260 GHz
	10 dBm							
	0 dBm			M1				
	-10 dBm	/						
	-20 dBm-							
π/4DQPSK/MCH	-30 dBm							
	-40 dBm							
	-50 dBm							
	-60 dBm							
	-70 dBm							
	-70 0011							
	CF 2.441 GHz Date: 1 NOV 2021 04:1		· · ·	8001	pts		Spa	n 10.0 MHz
	Date: 1 NOV 2021 04:1 Spectrum Ref Level 25.00 Att 3		9.80 dB 🖷 RB 1.9 µs 🖷 VB	W 2 MHz	pts Mode Auto F	FFT	Spa	
	Date: 1 NOV 2021 04:1 Spectrum Ref Level 25.00 Att 31 0 1Pk View	dBm Offset		W 2 MHz				3.29 dBm
	Date: 1 NOV.2021 04:1 Spectrum Ref Level 25.00 Att 31 1 Pk View 20 dBm	dBm Offset		W 2 MHz	Mode Auto F			
	Date: 1 NOV 2021 04:1 Spectrum Ref Level 25.00 Att 31 0 1Pk View	dBm Offset		W 2 MHz	Mode Auto F			3.29 dBm
	Date: 1 NOV.2021 04:1 Spectrum Ref Level 25.00 Att 31 1 Pk View 20 dBm	dBm Offset		W 2 MHz W 3 MHz	Mode Auto F			3.29 dBm
	Date: 1 NOV.2021 04:1 Spectrum Ref Level 25.00 Att 31 1 1 Pk View 20 dBm 10 dBm	dBm Offset		W 2 MHz W 3 MHz	Mode Auto F			3.29 dBm
π/4DQPSK/HCH	Date: 1 NOV.2021 04:1 Spectrum Ref Level 25.00 Att 31 1 Pk View 20 dBm 10 dBm -10 dBm -20 dBm	dBm Offset		W 2 MHz W 3 MHz	Mode Auto F			3.29 dBm
τ/4DQPSK/HCH	Date: 1 NOV.2021 04:1 Spectrum Ref Level 25.00 Att 31 10 dBm 10 dBm -10 dBm -10 dBm	dBm Offset		W 2 MHz W 3 MHz	Mode Auto F			3.29 dBm
τ/4DQPSK/HCH	Date: 1 NOV.2021 04:1 Spectrum Ref Level 25.00 Att 31 1 Pk View 20 dBm 10 dBm -10 dBm -20 dBm	dBm Offset		W 2 MHz W 3 MHz	Mode Auto F			3.29 dBm
π/4DQPSK/HCH	Date: 1 NOV.2021 04:1 Spectrum Ref Level 25.00 Att 31 10 dBm 10 dBm -10 dBm -20 dBm -20 dBm	dBm Offset		W 2 MHz W 3 MHz	Mode Auto F			(Ⅲ 3.29 dBm
π/4DQPSK/HCH	Date: 1 NOV 2021 04:1 Spectrum Ref Level 25.00 Att 31 10 dBm 10 dBm -10 dBm -20 dBm -40 dBm	dBm Offset		W 2 MHz W 3 MHz	Mode Auto F			3.29 dBm
т/4DQPSK/HCH	Date: 1 NOV 2021 04:1 Spectrum Ref Level 25.00 Att 31 10 dBm 10 dBm -10 dBm -20 dBm -20 dBm -20 dBm -50 dBm	dBm Offset		W 2 MHz W 3 MHz	Mode Auto F		2.47	(Ⅲ 3.29 dBm



5.4 20dB Occupy Bandwidth



Measurement Data

Test shannel	20dB Occupy Bandwidth (MHz)				
Test channel	GFSK	π/4DQPSK			
Lowest	0.932	1.286			
Middle	0.934	1.286			
Highest	0.932	1.284			



Test plot as follows:





	Ref Level 25.00 dB					
	Att 30 d			Mode Auto FFT		(4
	1Pk View		TEN 100 MIL			
	20 dBm			M1[1] M2[1]	2	-20.25 dBm .47953000 GHz 0.01 dBm
	10 dBm-		M2	_	2	.47999000 GHz
	0 dBm		m	m		
	-10 dBm-			m		
	-20 dBm 01 -19.98	7 dBm		~	VA C	
0501//1011	-30 dBm	~		_	1	-
GFSK/HCH	40 dBm					home
	-50 dBm					-
	-60 dBm					
	-70 dBm					_
	CF 2.48 GHz		1001 pts	i		Span 2.0 MHz
	Marker Type Ref Trc	X-value	Y-value	Function	Function Re	sult
	M1 1 M2 1	2.47953 GHz 2.47999 GHz	-20.25 dBm 0.01 dBm			
	D3 M1 1	932.0 kHz	0.19 dB			
	Att 30 d 1Pk View 20 dBm	iB SWT 63.3 μs 🖷	VBW 100 kHz	Mode Auto FFT		-21.11 dBm
	10 dBm-			M2[1]		.40135800 GHz -0.71 dBm .40199200 GHz
	0 dBm		M2			
	-10 dBm		NY	mon		_
	-20 dBm D1 -20.7				203	
	-30 dBm-				1	
τ/4DQPSK/LCH	-40 dam					m
	-50 dBm-					
	-60 dBm					
	00 0011					
	-70 dBm					
	-70 dBm CF 2,402 GHz		1001 pts			Span 2.0 MHz
	CF 2.402 GHz Marker	X-value		Function	Function Re	
	CF 2.402 GHz	X-value 2.401358 GHz 2.401992 GHz	1001 pts Y-value -21.11 dBm -0.71 dBm		Function Re	



	Spectrum				
	Ref Level 25.00 dBm Att 30 dB	Offset 9.80 dB = SWT 63.3 µs =		Mode Auto FFT	
	1Pk View 20 dBm			M1[1]	-20.20 dB
	10 dBm-			M2[1]	2.44035800 GH 0.16 dB 2.44099200 GH
	0 dBm		M	~	
	-10 dBm	m		hun	~
	-20 dBm D1 -19,894 d	Bm			
т/4DQPSK/MCH	-40 dBm			_	h
	-50 dBm			_	
	-60 dBm				
	CF 2.441 GHz		1001 pts	-	Span 2.0 MHz
	Marker Type Ref Trc M1 1	X-value 2.440358 GHz	Y-value -20.20 dBm	Function	Function Result
	M2 1 D3 M1 1	2.440992 GHz 1.286 MHz	0.16 dBm 0.21 dB		
	Spectrum Ref Level 25.00 dBm Att 30 dB 1Pk View	Offset 9.80 dB ● SWT 63.3 µs ●		Mode Auto FFT	
	20 dBm			M1[1] M2[1]	-20.27 dB 2.47935800 GF 0.00 dB 2.47999000 GF
	0 dBm		MR		2.47999000 Gr
	-10 dBm	m		hun	203
	-20 dBm D1 -20.004 d	Bm			The second secon
r/4DQPSK/HCH	-40 dBm				h
	-50 dBm				
	-60 dBm -70 dBm				
	CF 2.48 GHz		1001 pts	i	Span 2.0 MHz
	Marker Type Ref Trc	X-value	Y-value	Function	Function Result



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
Limit:	Remark: Offset=Cable loss+ attenuation factor. 2/3 of the 20dB bandwidth
	Remark: the transmission power is less than 0.125W.
Exploratory Test Mode:	Hopping transmitting with all kind of modulation and all kind of data type
Final Test Mode:	Through Pre-scan, find the DH5 of data type is the worst case of GFSK modulation type, 2-DH5 of data type is the worst case of π /4DQPSK modulation type Only the worst case is recorded in the report.
Test Results:	Pass



Measurement Data

GFSK mode					
Test channel	Carrier Frequencies Separation (MHz)	Limit (MHz)	Result		
Lowest	1.000	≥0.622	Pass		
Middle	1.000	≥0.622	Pass		
Highest	1.159	≥0.622	Pass		
	π/4DQPSK m	node			
Test channel	Carrier Frequencies Separation (MHz)	Limit (MHz)	Result		
Lowest	1.000	≥0.857	Pass		
Middle	1.000	≥0.857	Pass		
Highest	1.000	≥0.857	Pass		

Mode	20dB bandwidth (MHz)	Limit (MHz)
WOUE	(worse case)	(Carrier Frequencies Separation)
GFSK	0.934	0.622
π/4DQPSK	1.286	0.857



Test plot as follows:





			 RBW 100 kHz VBW 300 kHz 	Mode Auto FFT			
	1Pk View 20 dBm			M1[1] D1[1]			1.29 dBm 99039 GHz -0.01 dB 15865 MHz
	10 dBm	MI					
	D dsm	MI	γ		-01	-	
	-10 dBm			1	1		_
	-20 dBm					N	
GFSK/HCH	-20 0011						
	-30 dBm-						-
	-40 dBm					-	
	-50 dBm			_	_		
	-60 dBm						
	-00 080						
	-70 dBm				-		
						Stop 5	2.481 GHz
	Start 2.478 GHz Date: 1 NOV.2021 04:29 Spectrum Ref Level 25.00 d	Bm Offset 9.84 dB	625 pt			3(0) 7	
	Date: 1 NO V 2021 04 29	Bm Offset 9.84 dB		Mode Auto FFT		36077	
	Date: 1 NO V 2021 04 29 Spectrum Ref Level 25.00 d Att 30	Bm Offset 9.84 dB	 RBW 100 kHz 	Mode Auto FFT			0.74 dBm 83173 GH2
	Date: 1 NO V 2021 04 29 Spectrum Ref Level 25.00 d Att 30 1 Pk View 20 dBm	Bm Offset 9.84 dB	 RBW 100 kHz 	Mode Auto FFT		2.401	0.74 dBm 83173 GHz -0.05 dB
	Date: 1 NO V 2021 04 25 Spectrum Ref Level 25.00 d Att 30 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	lBm Offset 9.84 dB dB SWT 18.9 μs	 RBW 100 kHz 	Mode Auto FFT		2.401	0.74 dBm 83173 GHz -0.05 dB
	Date: 1 NO V 2021 04 29 Spectrum Ref Level 25.00 d Att 30 1 Pk View 20 dBm	Bm Offset 9.84 dB	 RBW 100 kHz 	Mode Auto FFT M1[1] D1[1]		2.401	0.74 dBm 83173 GHz -0.05 dB
	Date: 1 NO V 2021 04 25 Spectrum Ref Level 25.00 d Att 30 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	lBm Offset 9.84 dB dB SWT 18.9 μs	 RBW 100 kHz 	Mode Auto FFT M1[1] D1[1]		2.401	0.74 dBm 83173 GHz -0.05 dB
	Date: 1 NO V 2021 04 25 Spectrum Ref Level 25.00 d Att 30 1 Pk View 20 dBm 10 dBm 0 dBm	lBm Offset 9.84 dB dB SWT 18.9 μs	 RBW 100 kHz 	Mode Auto FFT M1[1] D1[1]		2.401	0.74 dBm 83173 GHz -0.05 dB
1/4DQPSK/LCH	Date: 1 NO V 2021 04 25 Spectrum Ref Level 25.00 d Att 30 1 Pk View 20 dBm 10 dBm -10 dBm -20 dBm	lBm Offset 9.84 dB dB SWT 18.9 μs	 RBW 100 kHz 	Mode Auto FFT M1[1] D1[1]		2.401	0.74 dBm 83173 GHz -0.05 dB
τ/4DQPSK/LCH	Date: 1 NO V 2021 04 29 Spectrum Ref Level 25.00 d Att 30 e 1Pk View 20 dBm 10 dBm -10 dBm -10 dBm -30 dBm	lBm Offset 9.84 dB dB SWT 18.9 μs	 RBW 100 kHz 	Mode Auto FFT M1[1] D1[1]		2.401	0.74 dBm 83173 GHz -0.05 dB
t/4DQPSK/LCH	Date: 1 NO V 2021 04 25 Spectrum Ref Level 25.00 d Att 30 1 Pk View 20 dBm 10 dBm -10 dBm -20 dBm	lBm Offset 9.84 dB dB SWT 18.9 μs	 RBW 100 kHz 	Mode Auto FFT M1[1] D1[1]		2.401	0.74 dBm 83173 GHz -0.05 dB
t/4DQPSK/LCH	Date: 1 NO V 2021 04 29 Spectrum Ref Level 25.00 d Att 30 e 1Pk View 20 dBm 10 dBm -10 dBm -10 dBm -30 dBm	lBm Offset 9.84 dB dB SWT 18.9 μs	 RBW 100 kHz 	Mode Auto FFT M1[1] D1[1]		2.401	0.74 dBm 83173 GHz
τ/4DQPSK/LCH	Date: 1 NO V 2021 04 25 Spectrum Ref Level 25.00 d Att 30 e 1Pk View 20 dBm 10 dBm -10 dBm -10 dBm -40 dBm -40 dBm	lBm Offset 9.84 dB dB SWT 18.9 μs	 RBW 100 kHz 	Mode Auto FFT M1[1] D1[1]		2.401	0.74 dBm 83173 GHz -0.05 dB
t/4DQPSK/LCH	Date: 1 NO V 2021 04 25 Spectrum Ref Level 25.00 d Att 30 e 1Pk View 20 dBm 10 dBm -10 dBm -10 dBm -20 dBm -30 dBm -30 dBm -50 dBm	lBm Offset 9.84 dB dB SWT 18.9 μs	 RBW 100 kHz 	Mode Auto FFT M1[1] D1[1]		2.401	0.74 dBm 83173 GHz -0.05 dB



	Ref Level 25.00 dBn		9.80 dB . RB		Mada	-			
	Att 30 de 1Pk View	3 SWT 1	18.9 µs 🖷 VB	W 300 kHz	Mode Au	ito FFT			
	20 dBm				M1[1]			2.440	1.52 dBm 99039 GHz 0.04 dB
	10 dBm				04	~1		1.	00000 MHz
			M1			D1			
	0 dBm	~	m	~	~	-m	2		S
	-10 dBm-								
/4DQPSK/MCH	-20 dBm								
	-30 dBm					-	_	_	
	-40 dBm								_
	-50 dBm							-	
	-60 dBm								
	-70 dBm								
	Start 2.44 GHz Date: 1 NOV 2021 06:08:54 Spectrum Ref Level 25 00 dbp		90 db - PB	625 pt	S			Stop :	2.443 GHz
	Date: 1 NOV 2021 06:08:54 Spectrum Ref Level 25.00 dBn Att 30 db	n Offset 9	9.80 dB 👄 RB 18.9 µs 👄 VB	W 100 kHz	s Mode Au	ito FFT		Stop :	
	Date: 1 NOV 2021 06:08:54 Spectrum Ref Level 25:00 dBn Att 30 db 1Pk View	n Offset 9		W 100 kHz					1.51 dBm
	Date: 1 NOV 2021 06:08:54 Spectrum Ref Level 25.00 dBm Att 30 dB 1Pk View 20 dBm	n Offset 9		W 100 kHz	Mode Au	[1]		2.478	1.51 dBm 99039 GHz 0.02 dB
	Date: 1 NOV 2021 06:08:54	n Offset 9	18.9 µs 👄 VB	W 100 kHz	Mode Au	[1]		2.478	1.51 dBm 99039 GHz 0.02 dB
	Date: 1 NO V 2021 06:08:54 Spectrum Ref Level 25.00 dBm Att 30 dB 10 dBm 0 dBm	n Offset 9		W 100 kHz	Mode Au	1]		2.478	1.51 dBm 99039 GHz 0.02 dB
	Date: 1 NOV 2021 06:08:54	n Offset 9	18.9 µs 👄 VB	W 100 kHz	Mode Au	1]		2.478	1.51 dBm 99039 GHz 0.02 dB
1/4DQPSK/HCH	Date: 1 NO V 2021 06:08:54 Spectrum Ref Level 25.00 dBm Att 30 dB 10 dBm 0 dBm	n Offset 9	18.9 µs 👄 VB	W 100 kHz	Mode Au	1]		2.478	1.51 dBm 99039 GHz 0.02 dB
1/4DQPSK/HCH	Date: 1 NOV 2021 06:08:54 Spectrum Ref Level 25.00 dBm Att 30 dB 10 dBm 10 dBm -10 dBm	n Offset 9	18.9 µs 👄 VB	W 100 kHz	Mode Au	1]		2.478	1.51 dBm 99039 GHz 0.02 dB
1/4DQPSK/HCH	Date: 1 NOV 2021 06:08:54 Spectrum Ref Level 25.00 dBm Att 30 dB 10 dBm 10 dBm -10 dBm -20 dBm -20 dBm	n Offset 9	18.9 µs 👄 VB	W 100 kHz	Mode Au	1]		2.478	1.51 dBm 99039 GHz 0.02 dB
t/4DQPSK/HCH	Date: 1 NOV 2021 06:08:54 Spectrum Ref Level 25.00 dBm Att 30 dB 10 dBm 10 dBm -10 dBm -20 dBm -30 d	n Offset 9	18.9 µs 👄 VB	W 100 kHz	Mode Au	1]		2.478	1.51 dBm 99039 GHz 0.02 dB
1/4DQPSK/HCH	Date: 1 NOV 2021 06:08:54 Spectrum Ref Level 25.00 dBm Att 30 dB 10 dBm 10 dBm -10 dBm -20 dBm -30 dBm -40 dBm	n Offset 9	18.9 µs 👄 VB	W 100 kHz	Mode Au	1]		2.478	
1/4DQPSK/HCH	Date: 1 NOV 2021 06:08:54 Spectrum Ref Level 25:00 dBm Att 30 dB 10 dBm 10 dBm -10 dBm -20 dBm -30 dBm -30 dBm -50 d	n Offset 9	18.9 µs 👄 VB	W 100 kHz	Mode Au	1]		2.478	1.51 dBm 99039 GHz 0.02 dB



5.6 Hopping Channel Number

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(1)			
· ·				
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:	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



Test plot as follows:

	G	raphs	
		IB ● RBW 100 kHz Is ● VBW 300 kHz Mode Auto FFT	
	1Pk View 20 dBm	M1[1]	-0.04 dBm 2.401952 GHz
	10 dBm	01[1]	1.15 dB 78.063 MHz
	-10 Bm		
GFSK/Hop	-80 dBm		
	f40 dBm		1
	-60 dBm		
	-70 dBm Start 2.4 GHz Date: 1 NO V 2021 04:30:46	600 pts	Stop 2.4835 GHz
	Spectrum Ref Level 25.00 dBm Offset 9.80 d	B ● RBW 100 kHz Is ● VBW 300 kHz Mode Auto FFT	
	• 1Pk View	IS VBW 300 kHz Mode Auto FFT M1[1]	0.72 dBm
			2.401812 GHz 0.72 dB
	20 dBm	01[1]	78.203 MHz
	10 dBm	erra MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM	78.203 MHz
	10 dBm		78.203 MHz
π/4DQPSK/Hop	10 dBm		78.203 MHz
π/4DQPSK/Hop	10 dBm M1 0 dBm -10 dBm -20 dBm		78.203 MHz
π/4DQPSK/Hop	10 dBm M1 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm		78.203 MHz
π/4DQPSK/Hop	10 dBm M1 0 dBm -10 dBm -20 dBm -30 dBm -30 dBm -50 dBm		78.203 MHz



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

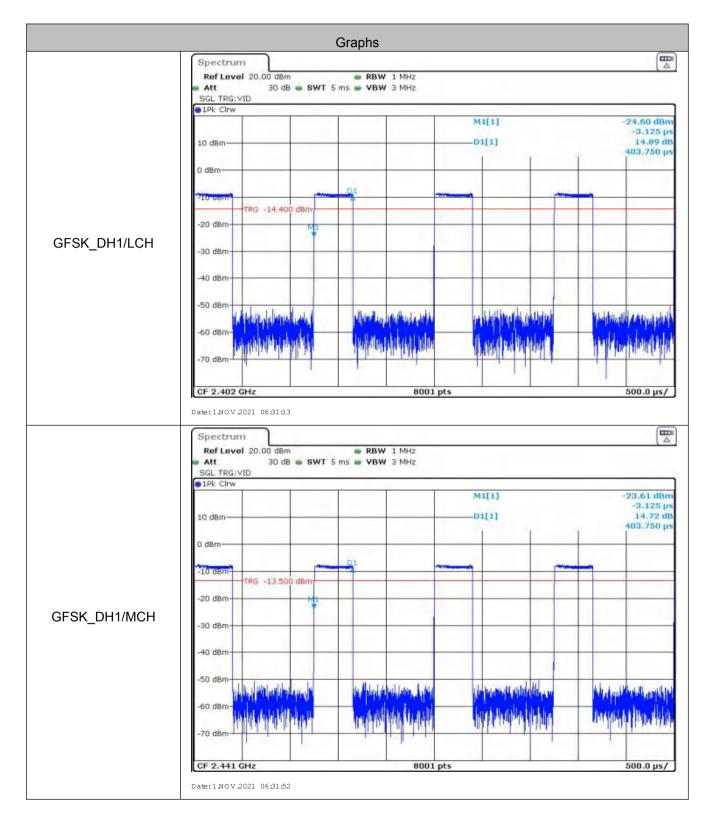
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Dwell Time[s]	Limit (second)
GFSK	DH1	LCH	0.4	0.128	≤0.4
GFSK	DH1	МСН	0.4	0.128	≤0.4
GFSK	DH1	НСН	0.4	0.128	≤0.4
π/4DQPSK	2DH1	LCH	0.41	0.131	≤0.4
π/4DQPSK	2DH1	МСН	0.41	0.131	≤0.4
π/4DQPSK	2DH1	НСН	0.41	0.131	≤0.4
GFSK	DH3	LCH	1.66	0.266	≤0.4
GFSK	DH3	МСН	1.66	0.266	≤0.4
GFSK	DH3	НСН	1.66	0.266	≤0.4
π/4DQPSK	2DH3	LCH	1.66	0.266	≤0.4
π/4DQPSK	2DH3	MCH	1.66	0.266	≤0.4
π/4DQPSK	2DH3	НСН	1.66	0.266	≤0.4
GFSK	DH5	LCH	2.9	0.309	≤0.4
GFSK	DH5	МСН	2.9	0.309	≤0.4
GFSK	DH5	НСН	2.91	0.31	≤0.4
π/4DQPSK	2DH5	LCH	2.91	0.31	≤0.4
π/4DQPSK	2DH5	МСН	2.91	0.31	≤0.4
π/4DQPSK	2DH5	НСН	2.91	0.31	≤0.4

Remark:

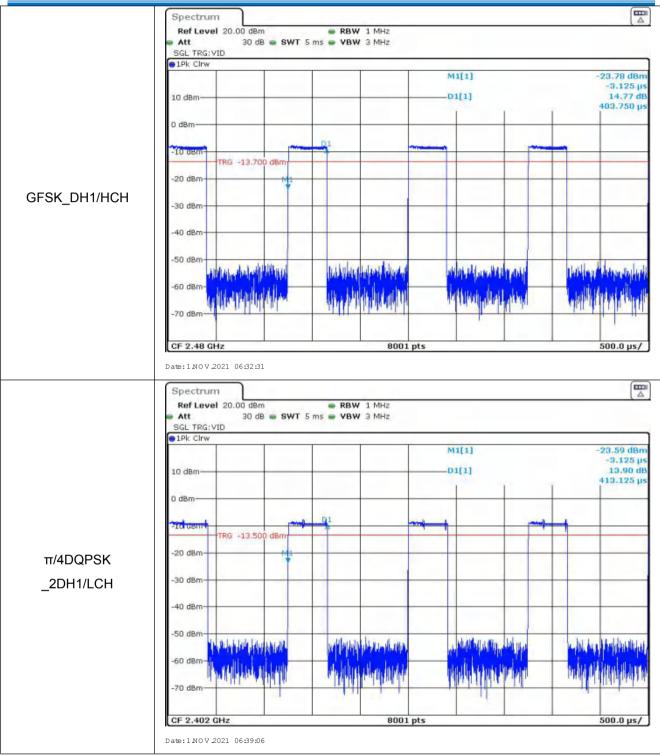
The test period: T= 0.4 Second/Channel x 79 Channel = 31.6 s DH1/2DH1 Dwell time = Burst Width(ms)*(1600/ (2*79))*31.6 DH3/2DH3/3DH3 Dwell time = Burst Width (ms)*(1600/ (4*79))*31.6 DH5/2DH5/3DH5 Dwell time = Burst Width (ms)*(1600/ (6*79))*31.6



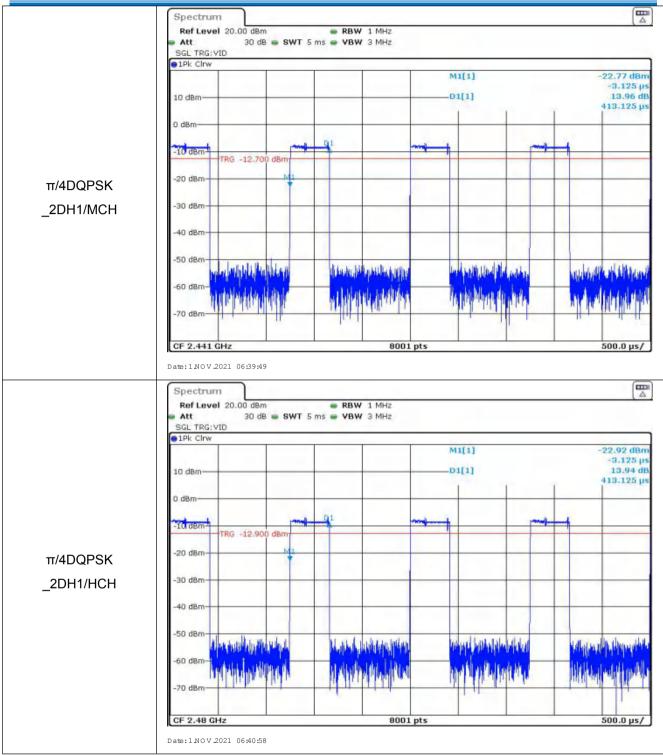
Test plot as follows:













	Spectrum				
	Ref Level 20		e RBW 1 MHz		(Δ)
	SGL TRG: VID	30 dB 🖷 SWT 10 m	s 👄 VBW 3 MHz		
	1Pk Clrw			M1[1]	-19.06 dBm
					-2.50 µs
	10 dBm-			D1[1]	9.38 dB 1.65750 ms
	0 dBm				
			D1		
	TR	5 -14.500 dBm	-		
	-20 dBm	-			
GFSK_DH3/LCH	-30 dBm				
	oo dom				
	-40 dBm-				
	-50 dBm				
		and the factor	a Maker	Helevitor	They Dar W
	-60 dBm	Just High	Philippine and a second se		1.90%
	-70 dBm				
	CF 2.402 GHz		8001 pts		1.0 ms/
	Date: 1 NOV.2021	06:33:08			
	Spectrum				
	Ref Level 20	0.00 dBm 30 dB 👄 SWT 10 m	RBW 1 MHz		
	SGL TRG: VID	and a set of the	WOW SIMIL		
	SGL TRG: VID 1Pk Clrw			M1[1]	-17.76 dBm
	• 1Pk Clrw		S VBW 3 MH2		-17.76 dBm -1.25 µs 8.81 dB
				M1[1] D1[1]	-1.25 µs
	• 1Pk Clrw				-1.25 μs 8.81 dB
	1Pk Clrw 10 dBm				-1.25 μs 8.81 dB
	1Pk Clrw 10 dBm 0 dBm -10 dBm TR(∋ -13.600 dBm/1			-1.25 μs 8.81 dB
	1Pk Cirw 10 dBm 0 dBm -10 dBm				-1.25 μs 8.81 dB
GFSK_DH3/MCH	1Pk Clrw 10 dBm 0 dBm -10 dBm TR(-1.25 μs 8.81 dB
GFSK_DH3/MCH	1Pk Clrw 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm				-1.25 μs 8.81 dB
GFSK_DH3/MCH	1Pk Clrw 10 dBm 0 dBm -10 dBm TR(-20 dBm				-1.25 μs 8.81 dB
GFSK_DH3/MCH	1Pk Clrw 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm	5 -13.600 dBm			-1.25 µs 8.81 dB 1.65750 ms
GFSK_DH3/MCH	1Pk Clrw 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm				-1.25 μs 8.81 dB
GFSK_DH3/MCH	1Pk Clrw 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm	5 -13.600 dBm			-1.25 µs 8.81 dB 1.65750 ms
GFSK_DH3/MCH	1Pk Clrw 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm	5 -13.600 dBm			-1.25 µs 8.81 dB 1.65750 ms
GFSK_DH3/MCH	1Pk Clrw 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm	5 -13.600 dBm			-1.25 µs 8.81 dB 1.65750 ms



	Spectrum)					
	Ref Level 20.0		RBW 1 MHz				(4
	SGL TRG: VID	30 dB 🖷 SWT 10 ms	VBW 3 MHz				
	 1Pk Clrw 		_	M1[1	1	-20	1.08 dBm
							-2.50 µs
	10 dBm			D1[1]			5875 ms
	0 dBm						
			D1				
	-10 dBm- TRG	-13.800 dBm					
	-20 dBm	-					
GFSK_DH3/HCH	-30 dBm						
	-40 dBm-						
	-50 dBm-	111.7	tri al di		L. L.		1
	-60 dBm	appropriate the state of the st	a tradition of		ALLER D. MALER		and all a parts
	-60 0811	ARD BULL	editerio.		MARTI		Juid An
	-70 dBm-	1					
	CF 2.48 GHz		8001	1 pts		1	1.0 ms/
	Date:1.NOV.2021 0	6:34:33					
	Spectrum						
	Ref Level 20.0	0 dBm 30 dB 👄 SWT 10 ms	 RBW 1 MHz VBW 3 MHz 				
	SGL TRG: VID						-
	UPR CITW			M1[1	1		.34 dBm
	10 dBm-			D1[1]	1		4000 ms 8.81 dB
					1	1.6	6375 ms
	0 dBm						
	-10 dBm	<u> </u>				-	
	MIL .	-13.100 dBm					
π/4DQPSK	-20 dBm						
2DH3/LCH	-30 dBm						
-	-40 dBm						
	-50 dBm	wh, their l		distant. di	. بنابلەر	(h)	
		111 April 10 L		1.1.1.1.1.1	0.1.1		
		da di sat		log hiller			
	- (milling)	tin i più		and a full	10 Miles		
	-70 dBm	din 1 pro		and the first	nel.	1	_
	-70 dBm	Men Apple	8001	L pts	1907 M		1.0 ms/



	Spectrum				
	Ref Level 20	.00 dBm	. RBW 1 MHz		(-
	Att	30 dB 🖷 SWT 10 m	ns 🖷 VBW 3 MHz		
	SGL TRG: VID 1Pk Clrw				
				M1[1]	-16.57 dB
				0101	-153.75
	10 dBm-			D1[1]	8.05 c 1.66375 r
	0 d8m				
	o dom				
	-10 dBm-	-			-
	TRG	-12.300 dBm			
π/4DQPSK	-20 dBm				-
_2DH3/MCH	-30 dBm				-
	-40 dBm				-
	-50 dBm-				
		Profession and	ALCONT ALCONT	Lag V a ball to	With and a
	-60 dBm	difficulal dis.	niti atilu		lande führ
		C. Alterity of	also dist. Here	Just allocat	a di di di
	-70 dBm-				
	CF 2.441 GHz		8001 pts		1.0 ms
	Date: 1 NO V .2021	06:42:16			G
	Spectrum				
	Ref Level 20 Att	.00 dBm 30 dB 🖷 SWT 10 m	RBW 1 MHz SMHz		
	SGL TRG: VID	00 00 0 0 0 0 0 10 1			
	1Pk Clrw				
				M1[1]	-19.29 dB -2.50
	10 dBm			D1[1]	10.47
				LITI	1.66375 n
	0 dBm				
	-		<u>9</u> 1		
	-10 dBm-TRG	-12.600 dBm			
	-20 dBm-	Mi			
π/4DQPSK					
00110/11011	-30 dBm				
2DH3/HCH					
_2DH3/HCH					
_2DH3/HCH	-40 dBm				
_2DH3/HCH					
_2DH3/HCH	-40 dBm	ing and up	Junh	a la santa a	k stalle ble
_2DH3/HCH	-50 dBm	ing back sit	with west of the	at it contribut	l sa sharka
_2DH3/HCH		inn a anti-cat Mile Mine e	inthrough the	ar in contrary	kapitete Prijetete
_2DH3/HCH	-50 dBm	inn halfet	(mathewater)) (mathewater)) (mathewater))	and finding and	landaria Internetina
_2DH3/HCH	-50 dBm		8001 pts	ond Broom	1.0 ms,

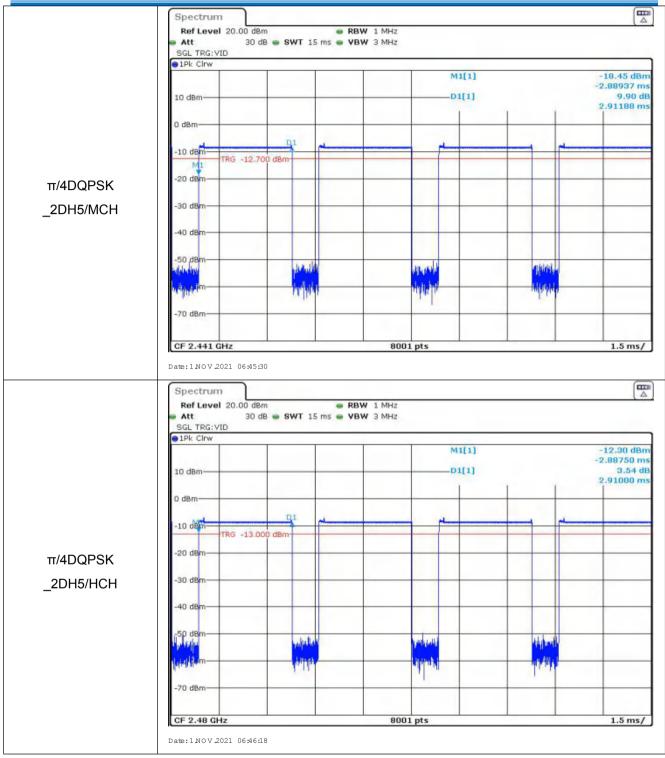


	Spectrum	1			
	Ref Level 20.	.00 dBm	RBW 1 MHz		(4
	Att	30 dB 🖷 SWT 15 ms			
	SGL TRG: VID 1Pk Clrw				
	O TAK CILM			M1[1]	-16.34 dB
				mat al	-1.88
	10 dBm			D1[1]	7.26 0
					2.90438 n
	0 dBm-				
			D1		
	-10 dBm-	N/1			
	TRG	-14.500 dBm			
	-20 dBm-				
GFSK_DH5/LCH					
	-30 dBm				
	-40 dBm				
	50.40-0				
	-50 dBm	L. marti	14.41.14	Wester 1	Lain
	-60 dBm-		in a state		
	-00 0511	The second	A Marine State	a tita	
	-70 dBm				
	-vo dom				
	CF 2.402 GHz		8001 pts		1.5 ms
	Date: 1 NOV 2021	1	- PRW 1 MH2		
	Date: 1 NOV 2021 Spectrum Ref Level 20.	1	 ● RBW 1 MHz ● VBW 3 MHz 		
	Date: 1 NOV 2021 Spectrum Ref Level 20. Att SGL TRG: VID	.00 dBm			[
	Date: 1 NOV 2021 Spectrum Ref Level 20.	.00 dBm		M1[1]	-16.97 dB
	Date: 1 NOV.2021 Spectrum Ref Level 20. Att SGL TRG: VID 1Pk Cinw	.00 dBm			-16.97 dB -1.88
	Date: 1 NOV 2021 Spectrum Ref Level 20. Att SGL TRG: VID	.00 dBm		M1[1] D1[1]	-16.97 dB -1.88 8.73 (
	Date: 1 NOV.2021 Spectrum Ref Level 20. Att SGL TRG:VID 10 dBm	.00 dBm			-16.97 dB -1.88 8.73 (
	Date: 1 NOV.2021 Spectrum Ref Level 20. Att SGL TRG: VID 1Pk Cinw	.00 dBm	• VBW 3 MHz		-16.97 dB -1.88 8.73 (
	Date: 1 NOV.2021 Spectrum Ref Level 20. Att SGL TRG:VID IPk Clrw 10 dBm 0 dBm	.00 dBm			-16.97 dB -1.88 8.73
	Date: 1 NOV 2021 Spectrum Ref Level 20. Att SGL TRG: VID 10 dBm 0 dBm -10 dBm	.00 dBm	• VBW 3 MHz		-16.97 dB -1.88 8.73 (
	Date: 1 NOV 2021 Spectrum Ref Level 20. Att SGL TRG: VID 10 dBm 0 dBm -10 dBm	.00 dBm 30 dB SWT 15 ms	• VBW 3 MHz		-16.97 dB -1.88 8.73 (
	Date: 1 NOV.2021 Spectrum Ref Level 20. Att SGL TRG:VID ID dBm 0 dBm -10 dBm TRG	.00 dBm 30 dB SWT 15 ms	• VBW 3 MHz		-16.97 dB -1.88 8.73 (
GFSK_DH5/MCH	Date: 1 NOV.2021 Spectrum Ref Level 20. Att SGL TRG:VID ID dBm 0 dBm -10 dBm TRG	.00 dBm 30 dB SWT 15 ms	• VBW 3 MHz		-16.97 dB -1.88 8.73 (
GFSK_DH5/MCH	Date: 1 NOV.2021 Spectrum Ref Level 20. Att SGL TRG:VID ID dBm 0 dBm -10 dBm TRG -20 dBm	.00 dBm 30 dB SWT 15 ms	• VBW 3 MHz		-16.97 dB -1.88 8.73 (
GFSK_DH5/MCH	Date: 1 NOV.2021 Spectrum Ref Level 20. Att SGL TRG:VID ID dBm 0 dBm -10 dBm TRG -20 dBm	.00 dBm 30 dB SWT 15 ms	• VBW 3 MHz		-16.97 dB -1.88 8.73 (
GFSK_DH5/MCH	Date: 1 NOV 2021 Spectrum Ref Level 20. Att SGL TRG: VID 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm	.00 dBm 30 dB SWT 15 ms	• VBW 3 MHz		-16.97 dB -1.88 8.73 (
GFSK_DH5/MCH	Date: 1 NOV 2021 Spectrum Ref Level 20. Att SGL TRG: VID 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm	-13.600 dBm	• VBW 3 MHz	D1[1]	-16.97 dB -1.88 8.73 d 2.90438 n
GFSK_DH5/MCH	Date: 1 NOV 2021 Spectrum Ref Level 20. Att SGL TRG: VID 10 dBm 0 dBm -10 dBm -10 dBm -20 dBm -30 dBm -40 dBm	.00 dBm 30 dB SWT 15 ms	VBW 3 MHz		-16.97 dB -1.88 8.73 d 2.90438 n
GFSK_DH5/MCH	Date: 1 NOV 2021 Spectrum Ref Level 20. Att SGL TRG: VID 10 dBm 0 dBm -10 dBm -10 dBm -20 dBm -30 dBm -40 dBm	-13.600 dBm	VBW 3 MHz		-16.97 dB -1.88 8.73 d 2.90438 n
GFSK_DH5/MCH	Date: 1 NOV 2021 Spectrum Ref Level 20. Att SGL TRG: VID 10 dBm 0 dBm -10 dBm -10 dBm -20 dBm -30 dBm -30 dBm -50 dBm -60 dBm -60 dBm	-13.600 dBm	• VBW 3 MHz	D1[1]	-16.97 dB -1.88 8.73 d 2.90438 n
GFSK_DH5/MCH	Date: 1 NOV 2021 Spectrum Ref Level 20. Att SGL TRG: VID 10 dBm 0 dBm -10 dBm -10 dBm -20 dBm -30 dBm -50 dBm	-13.600 dBm	VBW 3 MHz		-16.97 dB -1.88 8.73 c 2.90438 n
GFSK_DH5/MCH	Date: 1 NOV 2021 Spectrum Ref Level 20. Att SGL TRG: VID 10 dBm 0 dBm -10 dBm -10 dBm -20 dBm -30 dBm -30 dBm -50 dBm -60 dBm -60 dBm	-13.600 dBm	VBW 3 MHz		-16.97 dB -1.88 8.73 d 2.90438 n



GFSK_DH5/HCH Spectrum -20 dbm 0 db 9WT 15 ms VBW 3 MHz GFSK_DH5/HCH 0 db 0 db 01 01 -20 dbm 0 db 01 0 01 -20 dbm 0 db 01 0 01 -20 dbm 0 db 01 0 0 0 -20 dbm 0 dbm 0 0 0 0 0 -20 dbm -30 dbm 0 0 0 0 0 0 -30 dbm -30 dbm 0 0 0 0 0 0 0 0 -70 dbm -30 dbm 0		-19.47 dBm -1.88 µs 11.12 dB 2.90625 ms
GFSK_DH5/HCH GFSK_DH5/HCH GFSK_DH5/HCH GFSK_DH5/HCH GFSK_DH5/HCH GFSK_DH5/HCH GFSK_DH5/HCH GFSK_DH5/HCH SGFSK_DH5/HCH5/HCH		-1.88 µs 11.12 dB 2.90625 ms
GFSK_DH5/HCH		-1.88 µs 11.12 dB 2.90625 ms
GFSK_DH5/HCH		-1.88 µs 11.12 dB 2.90625 ms
GFSK_DH5/HCH GFSK_DH5/HCH 0 dBm -20 dBm -20 dBm -20 dBm -20 dBm -20 dBm -20 dBm -20 dBm -20 dBm -40 dBm -50 dBm -60 dBm -20 dBm		11.12 dB 2.90625 ms
GFSK_DH5/HCH		
GFSK_DH5/HCH -30 dBm -40 dBm -40 dBm -50 dBm		
-40 dBm		Andreastin Angelikysti
-40 dBm		defection defection defection
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-60 dBm -70 dBm		- April 1
-70 dBm -70 dBm CF 2.48 GHz 8001 pts Date: 1 NOV.2021 06;38:31 Spectrum Ref Level 20.00 dBm • RBW 1 MHz SGL TRG: VID • IPk Clrw • IPk Clrw • 0 dBm	HA .	a disalitati
CF 2.48 GHz 8001 pts Date: 1 NOV 2021 06:38:31 Date: 1 NOV 2021 06:38:31 Spectrum RBW 1 MHz Att 30 dB SWT 15 ms VBW 3 MHz SGL TRG: VID IPk Clrw ID dBm		
Date: 1 NOV.2021 06:38:31 Spectrum Ref Level 20.00 dBm • RBW 1 MHz 30 dB • SWT 15 ms SGL TRG: VID • 1Pk Clrw • 10 dBm -10 dBm -20 dBm		_
Date: 1 NO V.2021.06:38:31 Spectrum Ref Level 20.00 dBm • RBW 1 MHz • Att 30 dB • SWT 15 ms • SGL TRG: VID • IPk Clrw • IPk Clrw • M1[1] • 0 dBm • 0 dBm -10 dBm • 13.500 dBm -20 dBm • 13.500 dBm		
Date: 1 NO V.2021.06:38:31 Spectrum RBW 1 MHz Att 30 dB SWT 15 ms VBW 3 MHz SGL TRG: VID 10 dBm D1[1] D1[1] 0 dBm 0 dBm 0 dBm 0 dBm -10 dsm -13.500 dBm -10 dsm 0 dBm		1.5 ms/
Spectrum RBW 1 MHz Att 30 dB SWT 15 ms VBW 3 MHz SGL TRG: VID In the construction of the constru		
Ref Level 20:00 dBm RBW 1 MHz Att 30 dB SWT 15 ms VBW 3 MHz SGL TRG: VID 1Pk Cirw M1[1] 10 dBm D1[1] 0 dBm 10 dBm D1[1] -10 d2m TRG -13:500 dBm 1		
Att 30 dB SWT 15 ms VBW 3 MHz SGL TRG: VID 10 dBm 01[1] 0 dBm 01[1] -10 dBm 01 -20 dBm -20 dBm		
SGL TRG: VID ● 1Pk Clrw ● 10 dBm 0 dBm -10 dem -10 dem -20 dBm		
π/4DQPSK M1[1]		
10 dBmD1[1] 0 dBmD1 -10 dBm TRG -13.500 dBm -20 dBm		-13.80 dBm
0 dBm -10 dBm -10 dBm -10 dBm -20 dBm -20 dBm -20 dBm -20 dBm		-2.88750 ms
π/4DQPSK		4.44 dB 2.91000 ms
TRG -13.500 d8m -20 d8m	1	
-10 dBm TRG -13.500 dBm -20 dBm		
π/4DQPSK	-	
π/4DQPSK		
-40 dBm		-
-50 dBm		
	L. delail	
1 dis		_
-70 dBm-		
CF 2.402 GHz 8001 pts		1.5 ms/







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



Mode	Test Channel	Frequency [MHz]	Frequency Hopping	Emission Level [dBm]	Limit [dBm]	Result
			Off	-40.630	-19.4	PASS
GFSK	LCH	2400	On	-45.260	-18.17	PASS
			Off	-49.630	-18.65	PASS
GFSK	HCH	2483.5	On	-52.280	-18.68	PASS
			Off	-41.660	-19.34	PASS
π/4DQPSK	LCH	2400	On	-45.520	-18.1	PASS
			Off	-50.860	-18.69	PASS
π/4DQPSK	HCH	2483.5	On	-50.970	-18.47	PASS



Test plot as follows:

					Graph	s					
	Spectr	um	1								
		evel 25.0				RBW 100 kHz					(-
	Att 1Pk Vie	9W	30 dł	B SWT	151.7 µs 🖷	VBW 300 kHz	Mode	Auto FF	Г		
	20 dBm-		_			-	M	1[1]		-	0.60 dBm
							M	2[1]			-40.63 dBm
	10 dBm-								MI		000000 GHz
	0 dBm-						_	-	1	-	
	-10 dBm	_									
		1.4									
	-20 dBm	-01 -1	19.400	dem			-				
	-30 dBm				-		_			-	-
GFSK/LCH/No Hop	-40 d8m						_		ME		
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	of dBra	-	Sept.And	and the second second	And the states	and the standard and a state	-	any should	- Marita	Antipenting the	Minter and
	-60 dBm						_		-	-	
	-70 dBm										
			_			9001 0				Ctop	2 441 0112
	Start 2. Marker	.31 GHZ	_	_	_	8001 p	ts	_		stop	2.441 GHz
	Type	Ref Tr		X-value		Y-value	Fund	tion	Fur	nction Resul	t
	M1 M2		1		91 GHz 2.4 GHz	0.60 dBm -40.63 dBm					
	M3		1		39 GHz	-52.18 dBm	-	-			
	M4		1		31 GHz	-50.78 dBm					
	Date: 1 NO	0 ∀. 2021 0	1	2.39981		-39.55 dBm					
	M5 Date: 1 NO Spectr Ref Le Att	ov 2021 0 rum evel 25.0	1 3:48:5	2.39981 3 n Offset	69 GHz 9.84 dB			Auto FF	т		
	M5 Date:1.NO Spectr Ref Le	ov 2021 0 rum evel 25.0	1 3:48:5 00 dBn	2.39981 3 n Offset	69 GHz 9.84 dB	-39.55 dBm	Mode		т		(Δ
	M5 Date: 1 NO Spectr Ref Le Att	ov 2021 0 rum evel 25.0	1 3:48:5 00 dBn	2.39981 3 n Offset	69 GHz 9.84 dB	-39.55 dBm	Mode	Auto FF	т	2.4	1.83 dBr
	M5 Date: 1 NO Spectr Ref Le Att	ov 2021 0 rum evel 25.0	1 3:48:5 00 dBn	2.39981 3 n Offset	69 GHz 9.84 dB	-39.55 dBm	Mode		г		1.83 dBr 131070 GH -45.26 dBr
	MS Date: 1 NO Spectr Ref Le Att 10 dBm- 10 dBm-	ov 2021 0 rum evel 25.0	1 3:48:5 00 dBn	2.39981 3 n Offset	69 GHz 9.84 dB	-39.55 dBm	Mode	1[1]	т		1.83 dBr 131070 GH -45.26 dBr
	MS Date:1.NO Spectr Ref Le Att 1Pk Vie 20 dBm-	ov 2021 0 rum evel 25.0	1 3:48:5 00 dBn	2.39981 3 n Offset	69 GHz 9.84 dB	-39.55 dBm	Mode	1[1]	T		1.83 dBr 131070 GH -45.26 dBr
	MS Date: 1 NO Spectr Ref Le Att 10 dBm- 10 dBm-	v.2021 0	1 3:48:5 00 dBn	2.39981 3 n Offset	69 GHz 9.84 dB	-39.55 dBm	Mode	1[1]	T		1.83 dBr 131070 GH -45.26 dBr
	MS Date: 1 NO Spectr Ref Le Att 10 dBm- 0 dBm- -10 dBm	evel 25.0	1 3:48:5 00 dBn 30 dB	2.39981 3 n Offset	69 GHz 9.84 dB	-39.55 dBm	Mode	1[1]			1.83 dBr 131070 GH -45.26 dBr
	MS Date: 1 NO Spectr Ref Le Att 10 kVie 20 dBm- 10 dBm- 0 dBm-	vv.2021 0 vum evel 25.0	1 3:48:5 00 dBn 30 dB	2.39981 3 n Offset 8 SWT	69 GHz 9.84 dB	-39.55 dBm	Mode	1[1]			1.83 dBr 131070 GH -45.26 dBr
	MS Date: 1 NO Spectr Ref Le Att 10 dBm- 0 dBm- -10 dBm	01 -1	1 3:48:5 00 dBn 30 dB	2.39981 3 n Offset 8 SWT	69 GHz 9.84 dB	-39.55 dBm	Mode	1[1]			1.83 dBn 131070 GH -45.26 dBn
GESK/I CH/Hop	MS Date: 1 NO Spectr Ref Le Att 10 dBm- 0 dBm- 0 dBm- -10 dBm -20 dBm	0V.2021 0 rum evel 25.0	1 3:48:5 00 dBn 30 dB	2.39981 3 n Offset 8 SWT	69 GHz 9.84 dB	-39.55 dBm	Mode	1[1]			1.83 dBn 131070 GH -45.26 dBn
GFSK/LCH/Hop	MS Date: 1 NO Ref Le Att 10 dBm- 0 dBm- -10 dBm -20 dBm -30 dBm -30 dBm -40 dBm	01 -1	1 3:48:5 00 dBn 30 dB	2.39981 3 n Offset 8 SWT	69 GHz 9.84 dB	-39.55 dBm	Mode	1[1] 2[1]			1.83 dBr 131070 GH -45.26 dBr
GFSK/LCH/Hop	MS Date: 1 NO Spectr Ref Le Att 10 dBm- 10 dBm- -10 dBm -20 dBm -30 dBm	01 -1	1 3:48:5 00 dBn 30 dB	2.39981 3 n Offset 8 SWT	69 GHz 9.84 dB	-39.55 dBm	Mode	1[1]			1.83 dBn 131070 GH -45.26 dBn
GFSK/LCH/Hop	MS Date: 1 NO Ref Le Att 10 dBm- 0 dBm- -10 dBm -20 dBm -30 dBm -30 dBm -40 dBm	0V.2021 0 Pum Povel 25.0 Povel 25.0 Po	1 3:48:5 00 dBn 30 dB	2.39981 3 n Offset 8 SWT	69 GHz 9.84 dB	-39.55 dBm	Mode	1[1] 2[1]			1.83 dBn 131070 GH -45.26 dBn
GFSK/LCH/Hop	MS Date: 1 NO Ref Le Att 10 dBm- 0 dBm- -10 dBm -20 dBm -30 dBm -30 dBm -40 dBm -60 dBm	0v.2021 0 2007 2	1 3:48:5 00 dBn 30 dB	2.39981 3 n Offset 8 SWT	69 GHz 9.84 dB	-39.55 dBm	Mode	1[1] 2[1]			1.83 dBn 131070 GH -45.26 dBn
GFSK/LCH/Hop	MS Date: 1 NO Spectr Ref Le Att 10 dBm- 10 dBm- 10 dBm- -10 dBm -20 dBm -30 dBm -30 dBm -30 dBm -30 dBm -30 dBm -30 dBm	0v.2021 0 2um evel 25.0 3w 01 -1	1 3:48:5 00 dBn 30 dB	2.39981 3 n Offset 8 SWT	69 GHz 9.84 dB	-39.55 dBm	Mode M M	1[1] 2[1]			1.83 dBn I31070 GH +00000 GH
GFSK/LCH/Hop	MS Date: 1 NO Spectr Ref Le Att 10 dBm- 10 dBm- 10 dBm- -10 dBm -20 dBm -20 dBm -30 dBm -40 dBm -60 dBm -70 dBm Start 2.	0v.2021 0 2um evel 25.0 3w 01 -1	1 3:48:5 00 dBn 30 dB	2.39981 3 n Offset 8 SWT	69 GHz 9.84 dB	-39.55 dBm	Mode M M	1[1] 2[1]			1.83 dBn I31070 GH +00000 GH
GFSK/LCH/Hop	MS Date: 1 NO Ref Le Att Date: 1 NO Ref Le Att Date: 1 NO Date: 1	0v.2021 0 2um evel 25.0 3w 01 -1	1 3:48:5 00 dBm 30 db 8:170	2.39981	9.84 dB	-39.55 dBm	Mode M M	1[1] 2[1] 			1.83 dBn 131070 GH -45.26 dBn 49000 GH -77-140
GFSK/LCH/Hop	MS Date: 1 NO Spectr Ref Le Att 10 dBm- 10 dBm- 10 dBm- 10 dBm- 10 dBm -20 dBm -30 dBm -30 dBm -30 dBm -30 dBm -30 dBm -30 dBm -70 dBm Start 2. Marker Type M1	0v.2021 0 2um 2vel 25.0 3w 01 -1 	1 3:48:5 0 dBn 30 dB 8:170	2.39981 3 a Offset B SWT dBm dBm x-value 2.431	9.84 dB 151.7 μs 	-39.55 dBm	Mode M M S Func	1[1] 2[1] 		Stop	1.83 dBn 131070 GH -45.26 dBn 49000 GH -77-140
GFSK/LCH/Hop	MS Date: 1 NO Spectr Ref Le Att 10 dBm- 0 dBm- -10 dBm -20 dBm -20 dBm -30 dBm -40 dBm -40 dBm -60 dBm -70 dBm Start 2. Marker Type	0 V .2021 0 	1 3.48.5 30 dB 8.170	2.39981 3 m Offset B SWT 0 0 0 0 0 0 0 0 0 0 0 0 0	9.84 dB	-39.55 dBm	Mode M M M	1[1] 2[1] 		Stop	1.83 dBn 131070 GH2 -45.26 dBn toppoo GH2
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	Spectru	ım	1										
	Ref Lev Att	vel 25.	00 dBm 30 dB		9.80 dB 👄 75.8 µs 👄				e Auto FF	т			
	1Pk View	W	_	1	1	-		_	M1[1]				1.35 dBm
	20 dBm-								M2[1]				999040 GHz -49.63 dBm
						MI			1	1	1	2.48	350000 GHz
	0 dBm-	-				1							
	-10 dBm-	+	_		-				-	-	-		-
	-20 dBm-	D1 -	18.650	dBm:		-			-	-	-		
	-30 dBm-								_				
GFSK/HCH/No Hop	2000					1							
	-40 dBm-				N	PN .	Mart	14			M3		
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	-70 dBm-	-					_		-		_		
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	Marker	Ref Ti		X-valu	- I	Y-va	lue	1 .	unction		Fund	tion Resu	
	M1	ker m	1	2.47999	904 GHz	1	35 dBn	n	inction		Func	cion kesu	
	M2		1	2,48	335 GHz		.63 dBn .33 dBn						
	M3	-	1		2.5 GHz	-51							
	M3 M4		1		2.5 GHz \$75 GHz		12 dBr	n					
		7.2021	1	2.4844				ń					
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	M4 Date: 1 NOV Spectru Ref Lev Att 1 Pk View 20 dBm-	um vel 25.	1 03:58:33 00 dBm	2.4844	9.80 dB 🕳	-48 RBW 1 VBW 3	.12 dBn		M1[1]	T			1.32 dBm 791500 GHz -52.28 dBm
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	M4 Date: 1 NOV Ref Lev Att 1 Pk View 20 dBm- 10 dBm- -10 dBm- -20 dBm-	/m /el 25.	1 03:58:33 00 dBm 30 dE	2.4844	9.80 dB 🕳	-48 RBW 1 VBW 3	.12 dBn		M1[1]	T			1.32 dBm 791500 GHz -52.28 dBm
	M4 Date: 1 NOV Ref Lev Att 10 dBm- 10 dBm- -10 dBm-	/m /el 25.	1 03:58:33 00 dBm 30 dE	2.4844	9.80 dB 🕳	-48 RBW 1 VBW 3	.12 dBn		M1[1]	T			1.32 dBm 791500 GHz -52.28 dBm
GFSK/HCH/Hop	M4 Date: 1 NOV Ref Lev Att 1 Pk View 20 dBm- 10 dBm- -10 dBm- -20 dBm-	/m /el 25.	1 03:58:33 00 dBm 30 dE	2.4844	9.80 dB 🕳	-48 RBW 1 VBW 3	00 kHz	Mod	M1[1]	T			1.32 dBm 791500 GHz -52.28 dBm
GFSK/HCH/Hop	M4 Date: 1 NOV Ref Lev Att 10 dBm- 10 dBm- -10 dBm- -20 dBm- -30 dBm-	/m /el 25.	1 03:58:33 00 dBm 30 dE	2.4844	9.80 dB 🕳	-48 RBW 1 VBW 3	00 kHz	Mor	M1[1]	T	M3		1.32 dBm 791500 GHz -52.28 dBm
GFSK/HCH/Hop	M4 Date: 1.NOV Ref Lev Att 1Pk Viev 20 dBm— 10 dBm— 0 dBm— -10 dBm— -20 dBm— -30 dBm— -30 dBm— -50 dBm—	/m /el 25.	1 03:58:33 00 dBm 30 dE	2.4844	9.80 dB 🕳	-48 RBW 1 VBW 3	00 kHz	Mod	M1[1]	T	Ma		1.32 dBm 791500 GHz -52.28 dBm
GFSK/HCH/Hop	M4 Date: 1 NOV Ref Lev Att 1 Pk Viev 20 dBm- 10 dBm- 10 dBm- -10 dBm- -30 dBm- -30 dBm- -50 dBm- -60 dBm-	/m /el 25.	1 03:58:33 00 dBm 30 dE	2.4844	9.80 dB 🕳	-48 RBW 1 VBW 3	00 kHz	Mod	M1[1]	T	Ma		1.32 dBm 791500 GHz -52.28 dBm
GFSK/HCH/Hop	M4 Date: 1 NOV Ref Lev Att 1 Pk Viev 20 dBm- 10 dBm- 0 dBm- -10 dBm- -30 dBm- -30 dBm- -50 dBm- -50 dBm- -70 dBm-	JIM vel 25. vel 25.	1 003:58:33 000 d8m 30 d8	2.4844	9.80 dB 🕳	-48 RBW 1 VBW 3	00 kHz	Moc	M1[1]	T	M3	2.4 	1.32 dBm 791500 GHz -52.28 dBm 835000 GHz
GFSK/HCH/Hop	M4 Date: 1.NOV Ref Lev Att 1Pk Viev 20 dBm- 10 dBm- -10 dBm- -20 dBm- -30 dBm- -60 dBm- -60 dBm- -70 dBm- -60 dBm- -70 dBm-	Im vel 25. N DI - DI - 35 GHz	1 03:58:33 000 dBm 30 dB	2.4844	9.80 dB 🕳	-48	00 kHz	Mod M4 but south	_M1[1] _M2[1]	T		2.4	1.32 dBm 791500 GHz -52.28 dBm 835000 GHz
GFSK/HCH/Hop	M4 Date: 1.NOV Ref Lev Att 1Pk Viev 20 dBm- 10 dBm- 0 4Bm- -10 dBm- -20 dBm- -30 dBm- -30 dBm- -60 dBm- -70 dBm- -70 dBm- 70 dBm-	Im vel 25. N DI - DI - 35 GHz	1 03:58:33 00 dBm 30 dB 30 dB 18:680	2.4844	9.80 dB • 75.8 µs •	-48 RBW 1 VBW 3	000 kHz	Moc M4 Dts	M1[1]	T		2.4 	1.32 dBm 791500 GHz -52.28 dBm 835000 GHz
GFSK/HCH/Hop	M4 Date: 1 NOV Ref Lev Att 1Pk Viev 20 dBm- 10 dBm- -10 dBm- -20 dBm- -30 dBm- -40 dBm- -50 dBm- -60 dBm- -70 dBm-	Im vel 25. N DI - DI - 35 GHz	1 03:58:33 000 dBm 30 dB	2.4844	9.80 dB • 75.8 µs	-48	00 kHz	Mot M4 Dts	_M1[1] _M2[1]	T		2.4	1.32 dBm 791500 GHz -52.28 dBm 835000 GHz



	Spectrum									(m)
		25.00 dBr		dB 🖷 RBW 10						
	Att 1Pk View	30 di	B SWT 151.7	µs 🖷 VBW 30	0 kHz	Mode Auto	FFT			
	20 dBm	-		-		M1[1]				0.66 dBm
	20 dBm					M2[1]				18280 GHz
	10 dBm				-	mz[1]				00000 GHz
	0 dBm				_		IN .	11	-	
	-10 dBm							1		
	-10 dBm									
	-20 dBm	01 -19.340	dBm-	-	-	_	_			
	-30 dBm			_	_				-	
π/4DQPSK/LCH/No							M			
11	-40 dBm						1	1		
Нор	50 demt	NA NAME AND	Manual Manual Manual International State	Had Anna Anna	MA MAN	Minute Man	and a state	No. Nord	with the state	-
	-60 dBm-								1000	
	-00 0011									
	-70 dBm-					_	-			
	Start 2.31	GHz		80	001 pt	5			Stop	2.441 GHz
	Marker Type Ref	f Tre	X-value	Y-valu	e	Function	1	Euno	tion Result	
	M1	1	2.401828 GH	lz 0.66	dBm	T unceron		1 une	ALDIT NO SUI	
	M2 M3	1	2.4 Gł 2.39 Gł				-			
	M4 M5	1	2.31 GF	lz -49.72	dBm					
	Date: 1 NOV.2	_	8							(77)
	Spectrum			da - paw 10	0.505					
	Spectrum	_	n Offset 9.84	dB — RBW 10 µs — VBW 30		Mode Auto	FFT			
	Spectrum Ref Level	1 25.00 dBr	n Offset 9.84				FFT			(Δ
	Spectrum Ref Level	1 25.00 dBr	n Offset 9.84			Mode Auto	FFT		2.4	[△
	Spectrum Ref Level Att 1Pk View 20 dBm	1 25.00 dBr	n Offset 9.84				FFT			1.90 dBn 32810 GH: 45.52 dBn
	Spectrum Ref Level Att 1Pk View	1 25.00 dBr	n Offset 9.84			M1[1]	FFT		2.4	1.90 dBn 32810 GH 45.52 dBn 00000 GH
	Spectrum Ref Level Att 1Pk View 20 dBm	1 25.00 dBr	n Offset 9.84			M1[1]	FFT	Manululu	2.4	1.90 dBn 32810 GH 45.52 dBn 00000 GH
	Spectrum Ref Level Att 1Pk View 20 dBm 10 dBm	1 25.00 dBr	n Offset 9.84			M1[1]	FFT	Mapleta	2.4	1.90 dBn 32810 GH 45.52 dBn 60000 GH
	Spectrum Ref Level Att IPk View 20 dBm 10 dBm 0 dBm -10 dBm	1 25.00 dBr 30 d	n Offset 9.84 8 SWT 151.7			_M1[1]	FFT	Maplille	2.4	1.90 dBn 32810 GH 45.52 dBn 00000 GH
	Spectrum Ref Level Att 1Pk View 20 dBm 10 dBm 0 dBm	1 25.00 dBr	n Offset 9.84 8 SWT 151.7			_M1[1]	FFT	Mayllure	2.4	1.90 dBn 32810 GH 45.52 dBn 00000 GH
	Spectrum Ref Level Att IPk View 20 dBm 10 dBm 0 dBm -10 dBm	1 25.00 dBr 30 d	n Offset 9.84 8 SWT 151.7			_M1[1]	FFT	Magalia	2.4	1.90 dBn 32810 GH 45.52 dBn 00000 GH
	Spectrum Ref Level Att 1Pk View 20 dBm 10 dBm -10 dBm -20 dBm -30 dBm	1 25.00 dBr 30 d	n Offset 9.84 8 SWT 151.7			_M1[1]		Magdilla	2.4	1.90 dBn 32810 GH 45.52 dBn 00000 GH
r/4DQPSK/LCH/Hop	Spectrum Ref Level Att 1Pk View 20 dBm 10 dBm -10 dBm -20 dBm -30 dBm -40 dBm	1 25.00 dBr 30 d	n Offset 9.84 8 SWT 151.7			_M1[1]		Maghlith	2.4	1.90 dBn 32810 GH 45.52 dBn 00000 GH
/4DQPSK/LCH/Hop	Spectrum Ref Level Att 1Pk View 20 dBm 10 dBm -10 dBm -20 dBm -30 dBm	1 25.00 dBr 30 d	n Offset 9.84 8 SWT 151.7			M1[1] M2[1]	FFT	Maplith	2.4	1.90 dBn 32810 GH 45.52 dBn 00000 GH
r/4DQPSK/LCH/Hop	Spectrum Ref Level Att 1Pk View 20 dBm 10 dBm -10 dBm -20 dBm -30 dBm -40 dBm	1 25.00 dBr 30 d	n Offset 9.84 8 SWT 151.7			M1[1] M2[1]		Maplita	2.4	1.90 dBn 32810 GH 45.52 dBn 00000 GH
1/4DQPSK/LCH/Hop	Spectrum Ref Level Att 1Pk View 20 dBm 10 dBm -10 dBm -10 dBm -20 dBm -30 dBm -30 dBm -40 dBm -60 dBm	1 25.00 dBr 30 d	n Offset 9.84 8 SWT 151.7			M1[1] M2[1]		Maplit	2.4	1.90 dBn 32810 GH 45.52 dBn 00000 GH
r/4DQPSK/LCH/Hop	Spectrum Ref Level Att 1Pk View 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -30 dBm -40 dBm -60 dBm	01 -18,100	n Offset 9.84 8 SWT 151.7	μs • VBW 30	0 kHz	M1[1]		Majilli	2.4	1.90 dBn 32810 GH 45.52 dBn 00000 GH
r/4DQPSK/LCH/Hop	Spectrum Ref Level Att 1Pk View 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -30 dBm -60 dBm -70 dBm Start 2.31	01 -18,100	n Offset 9.84 8 SWT 151.7	μs • VBW 30		M1[1]		Magdille	2.4	1.90 dBn 32810 GH 45.52 dBn 00000 GH
/4DQPSK/LCH/Hop	Spectrum Ref Level Att 1Pk View 20 dBm 10 dBm -10 dBm -20 dBm -30 dBm -40 dBm -60 dBm -70 dBm Start 2.31 Marker	D1 -18,100	n Offset 9.84 8 SWT 151.7	μs • VBW 30	0 kH2	M1[1]			2.4	1.90 dBn 32810 GH 45.52 dBn 00000 GH dhulliulin 2.441 GHz
r/4DQPSK/LCH/Hop	Spectrum Ref Level Att 1Pk View 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -30 dBm -60 dBm -70 dBm Start 2.31 Marker Type Ref M1	25.00 dBr 30 dl 30 dl 901 -18.100 GHz f Trc 1	n Offset 9.84 8 SWT 151.7	μs VBW 30	00 kH2	M1[1]			2.4 Muhbih pha Stop	1.90 dBn 32810 GH 45.52 dBn 00000 GH dhulliulin 2.441 GHz
r/4DQPSK/LCH/Hop	Spectrum Ref Level Att 1Pk View 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -30 dBm -60 dBm -70 dBm Start 2.31 Marker Type Ref M1 M2	25.00 dBr 30 dl 901 -18,100 GHz f Trc 1 1	n Offset 9.84 8 SWT 151.7	μs VBW 30	0 kH2	M1[1]			2.4 Muhbih pha Stop	1.90 dBn 32810 GH 45.52 dBn 00000 GH dhulliulin 2.441 GHz
r/4DQPSK/LCH/Hop	Spectrum Ref Level Att 1Pk View 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -30 dBm -60 dBm -70 dBm Start 2.31 Marker Type Ref M1	25.00 dBr 30 dl 30 dl 901 -18.100 GHz f Trc 1	n Offset 9.84 8 SWT 151.7	μs • VBW 30	0 kHz 0	M1[1]			2.4 Muhbih pha Stop	1.90 dBn 32810 GH 45.52 dBn 00000 GH 00000 GH 000000 GH 000000 GH 000000 GH 000000 GH 000000 GH 000000 GH 000000 GH 000000 GH 0000000 GH 00000000 GH 00000000 GH 0000000 GH 00000000 GH 0000000000



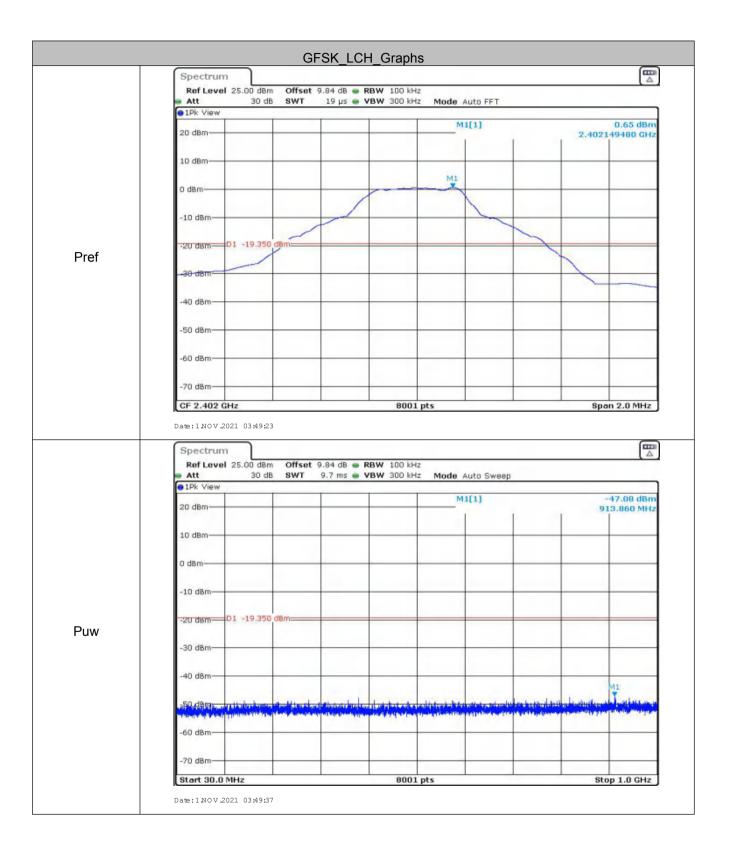
	(a.)						(=
	Spectru	el 25.00 dBr	m Offset 9.80 dB	RBW 100 kHz			2
	Att	30 d		WBW 300 kHz	Mode Auto FF	т	
	1Pk View	1	1	1	M1[1]		1.31 dB
	20 dBm-				M2[1]		2.47999040 GH -50.86 dB 2.48350000 GH
				MI	1	1	2.46330000 Gr
	0 dBm-			1			
	-10 dBm-						
	-20 dBm-	D1 -18.69	0 dBm				
π/4DQPSK/HCH/No	-30 dBm-	-				_	
	-40 dBm-			~			
Нор				M WH		M3	
	HEAL CHARGO	Vinter and Man 1965	country company with the		WWW. Construction of the Works	and the state of the second second	and an interesting the state of
	-60 dBm-						
	-70 dBm-	-				-	
	CF 2.483	5 GHz		8001 p	ts	1.	Span 60.0 MHz
	Marker Type R	ef Trc	X-value	Y-value	Function	Fund	tion Result
	M1	1	2.4799904 GHz 2.4835 GHz	1.31 dBm -50.86 dBm			
	M2						
	M3	1	2.5 GHz	-50.79 dBm			
	M3 M4 Date:1NOV	1 .2021 04:18:5	2.5 GHz 2.4843625 GHz 8	-47.76 dBm			(E
	M3 M4 Date:1NOV	1 .2021 04:18:5 m el 25.00 dBr 30 d	2.5 GHz 2.4843625 GHz 38 m Offset 9.80 dB		Mode Auto FF	T	1.53 dB/ 2.4789500 GF
	M3 M4 Date: 1 NOV Spectrue Ref Lev Att 10 dBm 10 dBm	1 2021 04:18:5 el 25.00 dBi 30 d	2.5 GHz 2.4843625 GHz 38 m Offset 9.80 dB B SWT 75.8 μs	-47.76 dBm		T	1.53 dB
	M3 M4 Date: 1 NOV Spectrue Ref Lev Att 10 dBm 10 dBm	1 2021 04:18:5 el 25.00 dBi 30 d	2.5 GHz 2.4843625 GHz 38 m Offset 9.80 dB B SWT 75.8 μs	-47.76 dBm	M1[1]	т.	1.53 dB/ 2.4789500 GF -50.97 dB/
	M3 M4 Date: 1 NOV Spectrue Ref Lev Att 10 dBm 10 dBm	1 2021 04:18:5 el 25.00 dBi 30 d	2.5 GHz 2.4843625 GHz 38 m Offset 9.80 dB	-47.76 dBm	M1[1]	T	1.53 dB/ 2.4789500 GF -50.97 dB/
	M3 M4 Date: 1 NOV Spectrum Ref Leve Att 1 Pk View 20 dBm 10 dBm PdBm	1 2021 04:18:5 el 25.00 dBi 30 d	2.5 GHz 2.4843625 GHz 88 m Offset 9.80 dB B SWT 75.8 µs	-47.76 dBm	M1[1]	T	1.53 dB/ 2.4789500 GF -50.97 dB/
	M3 M4 Date: 1 NOV Spectrue Ref Leve Att 1 Pk View 20 dBm 10 dBm -10 dBm -20 dBm	1 2021 04:18:5 m el 25.00 dBr 30 d	2.5 GHz 2.4843625 GHz 88 m Offset 9.80 dB B SWT 75.8 µs	-47.76 dBm	M1[1]	T	1.53 dB/ 2.4789500 GF -50.97 dB/
τ/4DOPSK/HCH/Hop	M3 M4 Date: 1 NO V Spectrue Ref Lev. Att 1Pk View 20 dBm 10 dBm -10 dBm -20 dBm -30 dBm	1 2021 04:18:5 m el 25.00 dBr 30 d	2.5 GHz 2.4843625 GHz 88 m Offset 9.80 dB B SWT 75.8 µs	-47.76 dBm	M1[1]	T	1.53 dB/ 2.4789500 GF -50.97 dB/
π/4DQPSK/HCH/Hop	M3 M4 Date: 1 NOV Spectrue Ref Leve Att 1 Pk View 20 dBm 10 dBm -10 dBm -20 dBm	1 2021 04:18:5 m el 25.00 dBr 30 d	2.5 GHz 2.4843625 GHz 88 m Offset 9.80 dB B SWT 75.8 µs	-47.76 dBm	M1[1]		1.53 dB/ 2.4789500 GF -50.97 dB/
т/4DQPSK/HCH/Hop	M3 M4 Date: 1 NO V Spectrue Ref Lev. Att 1Pk View 20 dBm 10 dBm -10 dBm -20 dBm -30 dBm	1 2021 04:18:5 m el 25.00 dBr 30 d	2.5 GHz 2.4843625 GHz 88 m Offset 9.80 dB B SWT 75.8 µs	-47.76 dBm	M1[1] M2[1]	T	1.53 dB/ 2.4789500 GF -50.97 dB/
π/4DQPSK/HCH/Hop	M3 M4 Date: 1 NOV Spectrue Ref Leve Att 1Pk View 20 dBm- 10 dBm- 10 dBm- -20 dBm- -30 dBm- -40 dBm-	1 2021 04:18:5 m el 25.00 dBr 30 d	2.5 GHz 2.4843625 GHz 88 m Offset 9.80 dB B SWT 75.8 µs	-47.76 dBm	M1[1] M2[1]		1.53 dB/ 2.4789500 GF -50.97 dB/
π/4DQPSK/HCH/Hop	M3 M4 Date: 1 NO V Spectrue Ref Leve Att 10 dBm 20 dBm -10 dBm -20 dBm -30 dBm -30 dBm -50 dBm	1 2021 04:18:5 m el 25.00 dBr 30 d	2.5 GHz 2.4843625 GHz 88 m Offset 9.80 dB B SWT 75.8 µs	-47.76 dBm	M1[1] M2[1]		1.53 dB/ 2.4789500 GF -50.97 dB/
π/4DQPSK/HCH/Hop	M3 M4 Date: 1 NO V Spectrue Ref Leve Att 1 Pk View 20 dBm 10 dBm -10 dBm -20 dBm -30 dBm -30 dBm -50 dBm -60 dBm	1 1 2021 04:18:5 m el 25.00 dBi 30 d	2.5 GHz 2.4843625 GHz 88 m Offset 9.80 dB B SWT 75.8 µs	-47.76 dBm	M1[1] M2[1]		1.53 dB/ 2.4789500 GF -50.97 dB/
π/4DQPSK/HCH/Hop	M3 M4 Date: 1 NOV Spectrue Ref Leve Att 1Pk View 20 dBm- 10 dBm- -20 dBm- -20 dBm- -30 dBm- -40 dBm- -50 dBm- -60 dBm- -70 dBm-	1 1 2021 04:18:5 m el 25.00 dBi 30 d , D1 -18.471	2.5 GHz 2.4843625 GHz 38 m Offset 9.80 dB B SWT 75.8 µs 0 dBm	-47.76 dBm	M1[1]	M3	1.53 dB 2.4789500 GH -50.97 dB 2.4835000 GH
π/4DQPSK/HCH/Hop	M3 M4 Date: 1 NO V Spectrue Ref Leve Att 10 dBm 20 dBm 20 dBm -10 dBm -20 dBm -20 dBm -30 dBm -30 dBm -50 dBm -70 dBm -70 dBm -70 dBm Marker Type R M1	1 1 2021 04:18:5 el 25.00 dBi 30 d 1 1 1 1 5 GHz ef Trc 1	2.5 GHz 2.4843625 GHz 38 m Offset 9.80 dB B SWT 75.8 μs 0 dBm 0 dBm 2.47895 GHz	-47.76 dBm	M1[1] M2[1]	M3	1.53 dBi 2.4789500 GH -50.97 dBi 2.4835000 GH
π/4DQPSK/HCH/Hop	M3 M4 Date: 1 NOV Spectrue Ref Leve Att 1Pk View 20 dBm 10 dBm -10 dBm -20 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm -70 dBm -70 dBm -70 dBm -70 dBm -70 dBm -70 dBm	1 1 2021 04:18:5 m el 25.00 dBi 30 d 7 D1 -18.47/ D1 -18.47/ 5 GHz ef Trc	2.5 GHz 2.4843625 GHz 8 m Offset 9.80 dB 8 SWT 75.8 µs 0 dBm 0 dBm	-47.76 dBm	M1[1]	M3	1.53 dB 2.4789500 GH -50.97 dB 2.4835000 GH



5.9 Spurious RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
•	ANSI C63.10:2013
Test Method: Test Setup:	ANSI C63.10:2013
	Remark: Offset=cable loss+ attenuation factor.
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Exploratory Test Mode:	Non-hopping transmitting with all kind of modulation and all kind of data type
Final Test Mode:	Through Pre-scan, find the DH5 of data type is the worst case of GFSK modulation type, 2-DH5 of data type is the worst case of π /4DQPSK modulation type
Test Results:	Pass







1Pk View	30 de	SWT		/BW 300 kHz	Mode Auto Sw			
20 dBm—	-				M1[1]		2.	-0.16 40160
and draw					M2[1]			35.95 80462
10 dBm-								
0 dBm	M1		-					
-10 dBm-								
-20 d8m-	D1 -19.350	dBm						
-20 UBIII-								
-30 dBm-			140					
			M2					
-40 dBm-								
-50 dBm-	1.1.10.00	due, receitio	Anglan Why A	Al and support to the last of	in the state	the state of the state	and added to be a	-
The second second	a starting a search as	And the second second	and the party of the second		The state and the state	And Annumber of the	a and free and per	dipo, etta
-60 dBm-								-
-70 dBm-						-		
Start 1.0	GHz			8001 pts			Stop	12.0 (
Spectru Ref Lev	el 25.00 dBm	Offset		88W 100 kHz				_
Spectru Ref Lev Att	m el 25.00 dBm 30 dE	Offset			Mode Auto Sv	/eep		
Spectru Ref Lev Att	m el 25.00 dBm 30 dE	Offset			Mode Auto Sw M1[1]	veep		44.86
Spectru Ref Lev Att	m el 25.00 dBm 30 dE	Offset				veep		44.86 42190
Spectru Ref Lev Att 1Pk View 20 dBm—	m el 25.00 dBm 30 dE	Offset				veep		
Spectru Ref Lev Att	m el 25.00 dBm 30 dE	Offset				/eep		
Spectru Ref Lev Att 1Pk View 20 dBm—	m el 25.00 dBm 30 dE	Offset				/eep		
Spectru Ref Lev 1Pk View 20 dBm- 10 dBm- 0 dBm-	m el 25.00 dBm 30 dE	Offset				/eep		
Spectru Ref Lev Att 1Pk View 20 dBm— 10 dBm—	m el 25.00 dBm 30 dE	Offset				veep		
Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- -10 dBm-	m el 25.00 dBn 30 dE	offset SWT				/eep		
Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- -10 dBm-	m el 25.00 dBm 30 dE	offset SWT				/eep		
Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- -10 dBm-	m el 25.00 dBn 30 dE	offset SWT				/eep		
Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- -10 dBm- -20 dBm- -30 dBm-	m el 25.00 dBn 30 dE	offset SWT				/eep		
Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- -10 dBm- -20 dBm-	m el 25.00 dBn 30 dE	offset SWT				veep		
Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- -10 dBm- -20 dBm- -30 dBm-	m el 25.00 dBn 30 dE	offset SWT	130 ms 🖝 🖣					
Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- -10 dBm- -20 dBm- -30 dBm-	m el 25.00 dBn 30 dE	offset SWT	130 ms 🖝 🖣					
Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- -10 dBm- -20 dBm- -30 dBm-	m el 25.00 dBn 30 dE	offset SWT	130 ms 🖝 🖣					
Spectru Ref Lev Att 10 dBm- 10 dBm- -10 dBm- -20 dBm- -30 dBm- -40 dBm-	m el 25.00 dBn 30 dE	offset SWT	130 ms 🖝 🖣					
Spectru Ref Lev Att 10 dBm- 10 dBm- -10 dBm- -20 dBm- -30 dBm- -40 dBm-	m el 25.00 dBn 30 dE	offset SWT	130 ms 🖝 🖣					





		GFSK	_MCH_Grapl	าร			
	Spectrum Ref Level 25.00	dBm Offset 9.80	db 🕳 RBW 100 kH	łz			
		0 dB SWT 19	us 🖷 VBW 300 kH	iz Mode Au	to FFT		
	20 dBm			M1	[1]	2.441	1.47 dBm 148980 GHz
	10 dBm						
				M1			
	0 dBm						
	-10 dBm-01 -18	.530 dBm			1		
Pref	-20 0811						
	30 dBm						
	-40 dBm						
	-50 dBm						
	-60 dBm						
	-70 dBm						
	CF 2.441 GHz		800	1 pts		Sn	an 2.0 MHz
	CF 2.441 GHz Date: 1 NOV 2021 03:	52:31	800	1 pts		Sp	an 2.0 MHz
	Date: 1 NOV 2021 03:					Sp	an 2.0 MHz
	Date: 1.NOV.2021 03: Spectrum Ref Level 25.00	dBm Offset 9.80	db 🕳 RBW 100 kH	łz	ito Sweep	Sp	
	Date: 1.NOV.2021 03: Spectrum Ref Level 25.00	dBm Offset 9.80		iz iz Mode Au			
	Date: 1.NOV.2021 03: Spectrum Ref Level 25.00 Att	dBm Offset 9.80	db 🕳 RBW 100 kH	łz			
	Date: 1.NOV.2021 03: Spectrum Ref Level 25.00 Att 3 1Pk View	dBm Offset 9.80	db 🕳 RBW 100 kH	iz iz Mode Au			-47.19 dBm
	Date: 1 NOV 2021 03: Spectrum Ref Level 25.00 Att 3 1Pk View 20 dBm	dBm Offset 9.80	db 🕳 RBW 100 kH	iz iz Mode Au			-47.19 dBm
	Date: 1 NOV 2021 03: Spectrum Ref Level 25:00 Att 3 10 dBm 10 dBm	dBm Offset 9.80	db 🕳 RBW 100 kH	iz iz Mode Au			-47.19 dBm
Puw	Date: 1 NOV.2021 03: Spectrum Ref Level 25.00 Att 3 10 dBm 10 dBm -10 dBm	dBm Offset 9.80	db 🕳 RBW 100 kH	iz iz Mode Au			-47.19 dBm
Puw	Date: 1 NOV 2021 03: Spectrum Ref Level 25:00 Att 3 1 Pk View 20 dBm 10 dBm -10 dBm	dBm Offset 9.80 a	db 🕳 RBW 100 kH	iz iz Mode Au			-47.19 dBm
Puw	Date: 1 NOV 2021 03: Spectrum Ref Level 25:00 Att 3 1 Pk View 20 dBm 10 dBm -10 dBm -20 dBm 01 -18	dBm Offset 9.80 a	db 🕳 RBW 100 kH	iz iz Mode Au			-47.19 dBm
Puw	Date: 1 NOV 2021 03: Spectrum Ref Level 25:00 Att 3 1Pk View 20 dBm 10 dBm -10 dBm -20 dBm -20 dBm -40 dBm	dBm Offset 9.80 a	db 🕳 RBW 100 kH	M1		5	-47.19 dBm
Puw	Date: 1 NOV 2021 03: Spectrum Ref Level 25:00 Att 3 1Pk View 20 dBm 10 dBm -10 dBm -20 dBm -20 dBm D1 -18 -30 dBm	dBm Offset 9.80 a	dB • RBW 100 kH	M1		5	-47.19 dBm
Puw	Date: 1 NOV 2021 03: Spectrum Ref Level 25:00 Att 3 1 Pk View 20 dBm 10 dBm -10 dBm -20 dBm -20 dBm -30 dBm -40 dBm -40 dBm	dBm Offset 9.80 a	dB • RBW 100 kH	M1		5	-47.19 dBm



1Pk View	30 d£	SWT		VBW 300 kH		Auto Sweep			
20 dBm—						1[1] 2[1]			0.55
10 dBm—							-	- 4	.88162
0.42-1	MI								
0 dBm									
-10 d8m-								_	-
-20 dBm-	D1 -18.530	dBm							
20 0011									
-30 dBm-			M2						-
-40 dBm-								_	
			ALL ALL	. Bulling a Ball	(calles				
79. d8m7		and the second se	ning being stilling in In mensional time	ANL PROPERTY		all a bal 10	And In the set	MAR NO	
-60 dBm-									
-70 dBm-								-	
Start 1.0	GHz			8001	pts		· · · · ·	Stop	12.0 G
	el 25.00 dBn	n Offset 9		RBW 100 kH					
Spectru Ref Lev Att	el 25.00 dBn 30 dB	n Offset 9		RBW 100 kH VBW 300 kH		Auto Sweep			
Spectru Ref Lev Att	el 25.00 dBn 30 dB	n Offset 9			z Mode	Auto Sweep			-43.82 0
Spectru Ref Lev Att	el 25.00 dBn 30 dB	n Offset 9			z Mode				
Spectru Ref Lev Att	el 25.00 dBn 30 dB	n Offset 9			z Mode				
Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm-	el 25.00 dBn 30 dB	n Offset 9			z Mode				
Spectru Ref Lev Att 1Pk View 20 dBm—	el 25.00 dBn 30 dB	n Offset 9			z Mode				
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Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- -10 dBm-	el 25.00 dBn 30 dB	n Offset 5 3 SWT			z Mode				-43.82 0
Spectru Ref Lev 11k View 20 dBm- 10 dBm- 0 dBm-	m 25.00 dBn 30 dB	n Offset 5 3 SWT			z Mode				
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Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- -10 dBm- -20 dBm- -30 dBm-	m 25.00 dBn 30 dB	n Offset 5 3 SWT			z Mode				
Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- -10 dBm- -20 dBm-	m 25.00 dBn 30 dB	n Offset 5 3 SWT			z Mode				
Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- -10 dBm- -20 dBm- -30 dBm-	m 25.00 dBn 30 dB	n Offset 5 3 SWT			z Mode				
Spectru Ref Lev 1Pk View 20 dBm- 10 dBm- -10 dBm- -20 dBm- -30 dBm- -40 dBm-	m 25.00 dBn 30 dB	n Offset 5 3 SWT			z Mode				
Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- -10 dBm- -20 dBm- -30 dBm-	m 25.00 dBn 30 dB	n Offset 5 3 SWT			z Mode				
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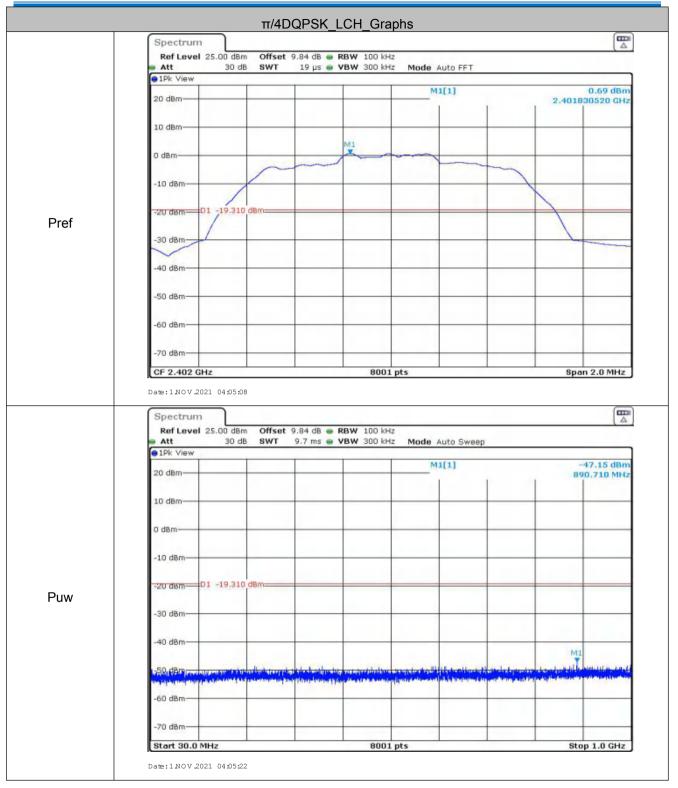


		GFSK_	HCH_Graph	s				
	Spectrum Ref Level 25.00	dBm Offset 9.80 dB	- RBW 100 kH	2				
	Att 3		🖷 VBW 300 kH		Auto FFT			
	• 1Pk View			M	1[1]			1.32 dBm
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	an dea							
	10 dBm			M1				
	0 dBm			~				
	-10 dBm				-			
	-20 dBm-01 -18	680 dBm				~		
Pref	-20 0011	/						
	-30 dBm-					-		
	-40 dBm-							
	-50 dBm-							
	-60 dBm							
	-70 dBm-							
	CF 2.48 GHz		8001	pts			Spa	n 2.0 MHz
	Date:1NOV.2021 03:	59:05						
	Spectrum Ref Level 25.00	dBm Offset 9.80 dB	 RBW 100 kH VBW 300 kH 		Auto Sweep			
	Spectrum Ref Level 25.00	dBm Offset 9.80 dB	 RBW 100 kH VBW 300 kH 	Z Mode		c		
	Spectrum Ref Level 25.00 Att 3	dBm Offset 9.80 dB		Z Mode	Auto Sweep			-47.98 dBm 80.610 MHz
	Spectrum Ref Level 25.00 Att 3 1Pk View 20 dBm	dBm Offset 9.80 dB		Z Mode				-47.98 dBm
	Spectrum Ref Level 25.00 Att 3 1Pk View	dBm Offset 9.80 dB		Z Mode				-47.98 dBm
	Spectrum Ref Level 25.00 Att 3 1Pk View 20 dBm	dBm Offset 9.80 dB		Z Mode				-47.98 dBm
	Spectrum Ref Level 25.00 Att 3 1Pk View 20 dBm 10 dBm	dBm Offset 9.80 dB		Z Mode				-47.98 dBm
	Spectrum Ref Level 25.00 Att 3 1Pk View 20 dBm 10 dBm	dBm Offset 9.80 dB		Z Mode				-47.98 dBm
	Spectrum Ref Level 25.00 Att 3 1Pk View 20 dBm 10 dBm 0 dBm	dBm Offset 9.80 dB		Z Mode				-47.98 dBm
Puw	Spectrum Ref Level 25.00 Att 3 1Pk View 20 dBm 10 dBm 0 dBm	dBm Offset 9.80 dB 0 dB SWT 9.7 ms		Z Mode				-47.98 dBm
Puw	Spectrum Ref Level 25.00 Att 3 1Pk View 20 dBm 10 dBm 0 dBm	dBm Offset 9.80 dB 0 dB SWT 9.7 ms		Z Mode				-47.98 dBm
Puw	Spectrum Ref Level 25.00 Att 3 1Pk View 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm 01 -18. -30 dBm	dBm Offset 9.80 dB 0 dB SWT 9.7 ms		Z Mode				-47.98 dBm
Puw	Spectrum Ref Level 25.00 Att 3 1Pk View 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm	dBm Offset 9.80 dB 0 dB SWT 9.7 ms		Z Mode	1[1]			-47.98 dBm
Puw	Spectrum Ref Level 25.00 Att 3 1Pk View 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm 01 -18. -30 dBm	dBm Offset 9.80 dB 0 dB SWT 9.7 ms		Z Mode M				-47.98 dBm 80.610 MHz
Puw	Spectrum Ref Level 25.00 Att 3 1Pk View 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm	dBm Offset 9.80 dB 0 dB SWT 9.7 ms	VBW 300 kH	Z Mode M	1[1]			-47.98 dBm 80.610 MHz
Puw	Spectrum Ref Level 25.00 Att 3 1Pk View 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm 01 -18. -30 dBm	dBm Offset 9.80 dB 0 dB SWT 9.7 ms	VBW 300 kH	Z Mode M				-47.98 dBm 80.610 MHz
Puw	Spectrum Ref Level 25.00 Att 3 1Pk View 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm	dBm Offset 9.80 dB 0 dB SWT 9.7 ms	VBW 300 kH	Z Mode M				-47.98 dBm 80.610 MHz
Puw	Spectrum Ref Level 25.00 Att 3 • 1Pk View 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -60 dBm	dBm Offset 9.80 dB 0 dB SWT 9.7 ms	VBW 300 kH	z Mode M				-47.98 dBm 80.610 MHz



01Pk Viev	30 di	B SWT	110 ms 🖷 🕻		Mode Auto :			
20 dBm-					M1[1]		2	0.31
					M2[1]		-	34.24
10 dBm-							. 4.	96000
	M1							
0 dBm	Y	-	-					<u> </u>
-10 dBm-								-
	D1 -18.680	dam						
-20 dBm-	01 -18.680	UBIII						
-30 dBm-								
-30 ubm-			M2					
-40 dBm-								
				the state of	11			
-50 dBm	and the second second second	ALLIN, La Martha	A Stranger	and the second had	and the second second	diament date dates	and the state	unde.
An and the second second	the state of the second state				And a state	Versilier sector styles	the second second second	index of the
-60 dBm-								-
-70 dBm-	-	-					-	-
Start 1.0	GHz			8001 p	ts		Stor	12.0 0
Spectru Ref Lev	el 25.00 dBr	n Offset f		RBW 100 kHz				
Spectru Ref Lev Att	rm el 25.00 dBr 30 dl	n Offset f		RBW 100 kHz /BW 300 kHz	Mode Auto :	Sweep		
Spectru Ref Lev Att	rm el 25.00 dBr 30 dl	n Offset f			Mode Auto	Sweep		44.86
Spectru Ref Lev Att	rm el 25.00 dBr 30 dl	n Offset f				Sweep		
Spectru Ref Lev Att 1Pk View 20 dBm—	rm el 25.00 dBr 30 dl	n Offset f				Sweep		
Spectru Ref Lev Att	rm el 25.00 dBr 30 dl	n Offset f				Sweep		
Spectru Ref Lev Att 1Pk View 20 dBm-	rm el 25.00 dBr 30 dl	n Offset f				Sweep		
Spectru Ref Lev Att 1Pk Viev 20 dBm-	rm el 25.00 dBr 30 dl	n Offset f				Sweep		
Spectru Ref Lev Att 1Pk View 20 dBm-	rm el 25.00 dBr 30 dl	n Offset f				Sweep		
Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- 0 dBm-	m el 25.00 dBr 30 dl	m Offset 9 B SWT				Sweep		
Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- 0 dBm-	rm el 25.00 dBr 30 dl	m Offset 9 B SWT				Sweep		
Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- -10 dBm- -20 dBm-	m el 25.00 dBr 30 dl	m Offset 9 B SWT				Sweep		
Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- 0 dBm- -10 dBm-	m el 25.00 dBr 30 dl	m Offset 9 B SWT				Sweep		44.86 (
Spectru Ref Lev Att 1Pk Viev 20 dBm- 10 dBm- -10 dBm- -20 dBm- -30 dBm-	m el 25.00 dBr 30 dl	m Offset 9 B SWT				Sweep		
Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- -10 dBm- -20 dBm-	m el 25.00 dBr 30 dl	n Offset s B SWT	130 ms 👜 ۷			Sweep		
Spectru Ref Lev 110 dBm- 20 dBm- 10 dBm- -10 dBm- -20 dBm- -30 dBm-	m el 25.00 dBr 30 dl	m Offset 9 B SWT	130 ms 👜 ۷					
Spectru Ref Lev Att 1Pk Viev 20 dBm- 10 dBm- -10 dBm- -20 dBm- -30 dBm-	m el 25.00 dBr 30 dl	n Offset s B SWT	130 ms 👜 ۷			Sweep		
Spectru Ref Lev Att 1Pk Viev 20 dBm- 10 dBm- -10 dBm- -20 dBm- -30 dBm-	m el 25.00 dBr 30 dl	n Offset s B SWT	130 ms 👜 ۷			Sweep		
Spectru Ref Lev Att 1Pk Viev 20 dBm- 10 dBm- -10 dBm- -20 dBm- -30 dBm- -40 dBm-	m el 25.00 dBr 30 dl	n Offset s B SWT	130 ms 👜 ۷			Sweep		
Spectru Ref Lev Att 1Pk Viev 20 dBm- 10 dBm- -10 dBm- -20 dBm- -30 dBm- -40 dBm-	m el 25.00 dBr 30 dl	n Offset s B SWT	130 ms 👜 ۷					

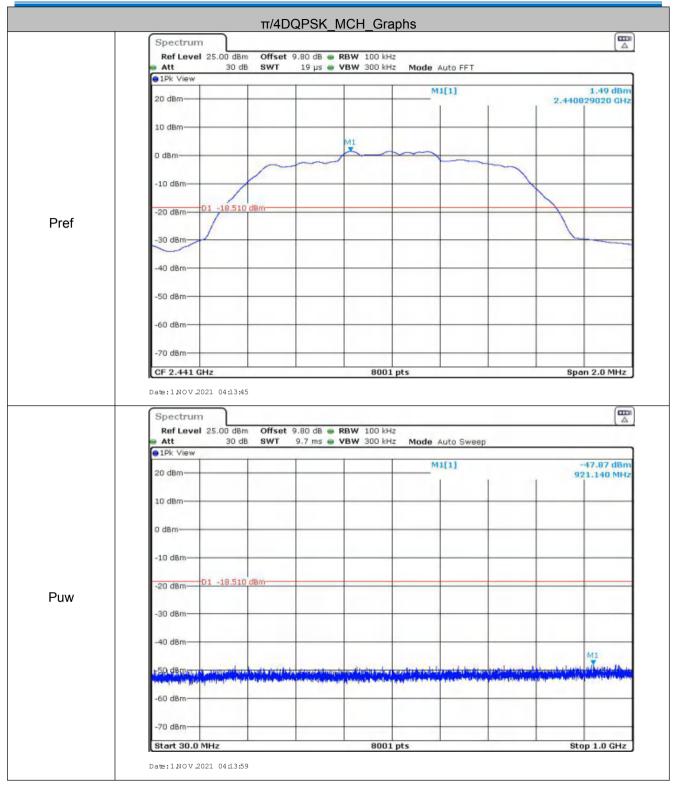






1Pk View	30 dB SWT 110 ms	VBW 300 kHz Mode	Auto Sweep	
20 dBm-			M1[1]	-3.34
20 dbill			M2[1]	2.40300
10 dBm-				4.80462
0 dBm	_			
T				
-10 dBm				
-20 dsm D1 -19	.310 dBm			
-30 dBm	M2			
-40 d8m	Ţ			
-40 08/11		and an ability have		
-59. detrational	in the second second second in the second in the	la silla se di la silla si	La adda the second strike of	in a contraction of the
Party and the low provide the	And a part of the second second back		Construction Provided in Street	
-60 dBm-				
-70 dBm-			-	
Start 1.0 GHz		8001 pts		Stop 12.0 0
Spectrum Ref Level 25.00	dBm Offset 9.84 dB	RBW 100 kHz		
Spectrum Ref Level 25.00 Att	dBm Offset 9.84 dB		Auto Sweep	
Spectrum Ref Level 25.00	dBm Offset 9.84 dB	VBW 300 kHz Mode		-44 55
Spectrum Ref Level 25.00 Att	dBm Offset 9.84 dB	VBW 300 kHz Mode	Auto Sweep M1[1]	
Spectrum Ref Level 25.00 Att 3 1Pk View	dBm Offset 9.84 dB	VBW 300 kHz Mode		
Spectrum Ref Level 25.00 Att 3 1Pk View	dBm Offset 9.84 dB	VBW 300 kHz Mode		
Spectrum Ref Level 25.00 Att 3 1Pk View 20 dBm- 10 dBm-	dBm Offset 9.84 dB	VBW 300 kHz Mode		
Spectrum Ref Level 25.00 Att 3 1Pk View 20 dBm	dBm Offset 9.84 dB	VBW 300 kHz Mode		
Spectrum Ref Level 25.00 Att 3 1 Pk View 20 dBm 10 dBm 0 dBm	dBm Offset 9.84 dB	VBW 300 kHz Mode		
Spectrum Ref Level 25.00 Att 3 1Pk View 20 dBm- 10 dBm-	dBm Offset 9.84 dB	VBW 300 kHz Mode		-44.55
Spectrum Ref Level 25.00 Att 1Pk View 20 dBm 10 dBm 0 dBm	dBm Offset 9.84 dB	VBW 300 kHz Mode		
Spectrum Ref Level 25.00 Att 1Pk View 20 dBm 10 dBm -10 dBm	dBm Offset 9.84 dB 30 dB SWT 130 ms	VBW 300 kHz Mode		
Spectrum Ref Level 25.00 Att 1Pk View 20 dBm 10 dBm 0 dBm	dBm Offset 9.84 dB 30 dB SWT 130 ms	VBW 300 kHz Mode		
Spectrum Ref Level 25.00 Att 1Pk View 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm	dBm Offset 9.84 dB 30 dB SWT 130 ms	VBW 300 kHz Mode		
Spectrum Ref Level 25.00 Att 1Pk View 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm	dBm Offset 9.84 dB 30 dB SWT 130 ms	VBW 300 kHz Mode		
Spectrum Ref Level 25.00 Att 30 1Pk View 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm	dBm Offset 9.84 dB 30 dB SWT 130 ms	VBW 300 kHz Mode	M1[1]	
Spectrum Ref Level 25.00 Att 30 1Pk View 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm	dBm Offset 9.84 dB 30 dB SWT 130 ms	VBW 300 kHz Mode	M1[1]	
Spectrum Ref Level 25.00 Att 30 1Pk View 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm	dBm Offset 9.84 dB 30 dB SWT 130 ms	VBW 300 kHz Mode	M1[1]	
Spectrum Ref Level 25.00 Att 30 1Pk View 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm	dBm Offset 9.84 dB 30 dB SWT 130 ms	VBW 300 kHz Mode	M1[1]	
Spectrum Ref Level 25.00 Att 3 • 1Pk View 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -60 dBm	dBm Offset 9.84 dB 30 dB SWT 130 ms	VBW 300 kHz Mode	M1[1]	
Spectrum Ref Level 25.00 Att 30 1Pk View 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm	dBm Offset 9.84 dB 30 dB SWT 130 ms	VBW 300 kHz Mode	M1[1]	

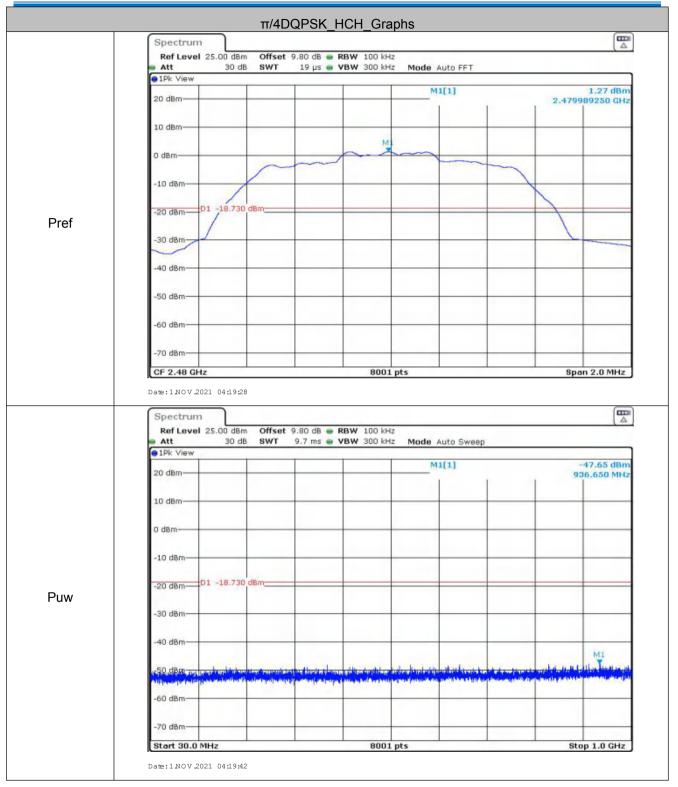






1Pk View	/		110 ms 🖷 🕻		z Mode				
	1				M	1[1]			-2.31
20 dBm-					M	2[1]			44150
10 dBm-									88300
10 000									
0 dBm-	M1.								
-10 dBm-									-
-20 dBm-	D1 -18.510	dBm							
-30 dBm-				-					-
			M2						
-40 dBm-									
EQ dout	Lund Lund	Julieling	mula maril	And Distantion	and a state of the second	and the second	the states to	and the second second	and the
THE REPORT	In this play hit	uborout to the	Contraction (1996)	141	and a	and all an and	A share with the same	-	No.
-60 dBm-									
-00 0011									
-70 dBm-	_	-							
				8001					
Start 1.0									12.0
Spectru			.80 dB 👄 F	RBW 100 kH	z				
Spectru Ref Lev Att	m el 25.00 dBm 30 dB	Offset 9		RBW 100 kH		Auto Sweep			_
Spectru Ref Lev	m el 25.00 dBm 30 dB	Offset 9			z Mode				44.68
Spectru Ref Lev Att	m el 25.00 dBm 30 dB	Offset 9			z Mode	Auto Sweep			44.68 92490
Spectru Ref Lev Att 1Pk View 20 dBm—	m el 25.00 dBm 30 dB	Offset 9			z Mode				
Spectru Ref Lev Att 1Pk View	m el 25.00 dBm 30 dB	Offset 9			z Mode				
Spectru Ref Lev Att 1Pk View 20 dBm-	m el 25.00 dBm 30 dB	Offset 9			z Mode				
Spectru Ref Lev Att 1Pk View 20 dBm—	m el 25.00 dBm 30 dB	Offset 9			z Mode				
Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- 0 dBm-	m el 25.00 dBm 30 dB	Offset 9			z Mode				
Spectru Ref Lev Att 1Pk View 20 dBm-	m el 25.00 dBm 30 dB	Offset 9			z Mode				
Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- -10 dBm-	m el 25.00 dBm 30 dB	Offset 9 SWT			z Mode				
Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- 0 dBm-	m	Offset 9 SWT			z Mode				
Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- -10 dBm- -20 dBm-	m	Offset 9 SWT			z Mode				
Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- -10 dBm-	m	Offset 9 SWT			z Mode				
Spectru Ref Lev 1Pk View 20 dBm- 10 dBm- -10 dBm- -20 dBm- -30 dBm-	m	Offset 9 SWT			z Mode				
Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- -10 dBm- -20 dBm-	m	Offset 9 SWT			z Mode				
Spectru Ref Lev 1Pk View 20 dBm- 10 dBm- -10 dBm- -20 dBm- -30 dBm-	m	Offset 9 SWT			z Mode				
Spectru Ref Lev 1Pk View 20 dBm- 10 dBm- -10 dBm- -20 dBm- -30 dBm-	m	Offset 9 SWT			z Mode				
Spectru Ref Lev 1Pk View 20 dBm- 10 dBm- -10 dBm- -20 dBm- -30 dBm-	m	Offset 9 SWT			z Mode				
Spectru Ref Lev Att 1Pk View 20 dBm- 0 dBm- -10 dBm- -20 dBm- -30 dBm- -40 dBm-	m	Offset 9 SWT			z Mode				
Spectru Ref Lev Att 1Pk View 20 dBm- 0 dBm- -10 dBm- -20 dBm- -30 dBm- -40 dBm-	m	Offset 9 SWT			z Mode				
Spectru Ref Lev Att 1Pk View 20 dBm- 10 dBm- 0 dBm- -10 dBm- -20 dBm- -30 dBm- -40 dBm- -60 dBm-	m	Offset 9 SWT			z Mode				







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• 1Pk View						
20 dBm				M1[1] M2[1]		-1. 2.480 -33.
10 dBm						4.960
0 dBm	M1		_			
-10 d8m			-			
-20 dBm	D1 -18.730 dBm				_	
-30 d8m		MZ				
10.10		Ť				
-40 dBm		1.00	1 marte di	Lille		
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Textbaland front	Advertisian a sub-	and the second second		angle and the state of the	datha pipela attend	The stress of the second stress
-60 dBm						
-70 dBm			_		_	
Start 1.0 G	247		8001	nte		Stop 12
Spectrun Ref Leve	25.00 dBm (Offset 9.80 dB	RBW 100 kH	e Mada Jula 0		
Spectrun Ref Leve Att	n I 25.00 dBm (Offset 9.80 dB SWT 130 ms (• RBW 100 kH • VBW 300 kH	2 Mode Auto S	weep	
Spectrum Ref Leve Att 1Pk View	n I 25.00 dBm (Offset 9.80 dB e BWT 130 ms e	RBW 100 kH	Mode Auto S	weep	-43.
Spectrun Ref Leve	n I 25.00 dBm (Offset 9.80 dB ∉ S₩T 130 ms ∉	RBW 100 kH VBW 300 kH	Mode Auto S	weep	-43. 15.760
Spectrum Ref Leve Att	n I 25.00 dBm (Dffset 9.80 dB (SWT 130 ms (RBW 100 kH	Mode Auto S	weep	
Spectrum Ref Leve Att 1Pk View 20 dBm	n I 25.00 dBm (Offset 9.80 dB a SWT 130 ms a	RBW 100 kH	Mode Auto S	weep	
Spectrum Ref Leve Att 1Pk View 20 dBm	n I 25.00 dBm (Dffset 9.80 dB SWT 130 ms	RBW 100 kH VBW 300 kH	Mode Auto S	weep	
Spectrum Ref Leve Att 1Pk View 20 dBm	n 25.00 dBm (Diffset 9.80 dB a	RBW 100 kH	Mode Auto S	weep	
Spectrum Ref Leve Att 1Pk View 20 dBm	n 25.00 dBm (3WT 130 ms (RBW 100 kH VBW 300 kH	Mode Auto S	weep	
Spectrum Ref Leve Att 1Pk View 20 dBm 10 dBm -10 dBm -20 dBm	n 30 dB s	3WT 130 ms (RBW 100 kH	Mode Auto S	weep	
Spectrum Ref Leve Att 1Pk View 20 dBm 10 dBm 0 dBm -10 dBm	n 30 dB s	3WT 130 ms (RBW 100 kH VBW 300 kH	Mode Auto S	weep	
Spectrum Ref Leve Att 1Pk View 20 dBm 10 dBm -10 dBm -10 dBm	n 30 dB s	3WT 130 ms (RBW 100 kH	Mode Auto S	weep	
Spectrum Ref Leve Att 1Pk View 20 dBm 10 dBm -10 dBm -20 dBm -30 dBm	n 30 dB s	3WT 130 ms (RBW 100 kH	Mode Auto S	weep	
Spectrum Ref Leve Att 1Pk View 20 dBm 10 dBm -10 dBm -20 dBm -30 dBm	n 30 dB s	3WT 130 ms (RBW 100 kH	Mode Auto S	weep	
Spectrum Ref Leve Att 1Pk View 20 dBm 10 dBm -10 dBm -20 dBm -30 dBm	n 30 dB s	3WT 130 ms (RBW 100 kH	Mode Auto S		
Spectrum Ref Leve Att 1Pk View 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -40 dBm	n 30 dB s	3WT 130 ms (RBW 100 kH	Mode Auto S	weep	

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

5.10Other requirements Fr	requency Hopping Spread Spectrum System
Test Requirement:	47 CFR Part 15C Section 15.247 (a)(1), (h) requirement:
rate from a Pseudorandom of on the average by each tran	nnel frequencies that are selected at the system hopping ordered list of hopping frequencies. Each frequency must be used equally smitter. The system receivers shall have input bandwidths that match the s of their corresponding transmitters and shall shift frequencies in nsmitted signals.
channels during each transm receiver, must be designed transmitter be presented wit employing short transmissio	spectrum systems are not required to employ all available hopping nission. However, the system, consisting of both the transmitter and the to comply with all of the regulations in this section should the h a continuous data (or information) stream. In addition, a system n bursts must comply with the definition of a frequency hopping system missions over the minimum number of hopping channels specified in
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)
•	ulo-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 ages: 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	om Frequency Hopping Sequence as follow: 7 64 8 73 16 75 1
According to Bluetooth Cor bandwidths 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 free	re Specification, the Bluetooth system transmits the packet with the quency with a continuous data and the short burst transmission from the ansmitted under the frequency hopping system with the pseudorandom
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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.

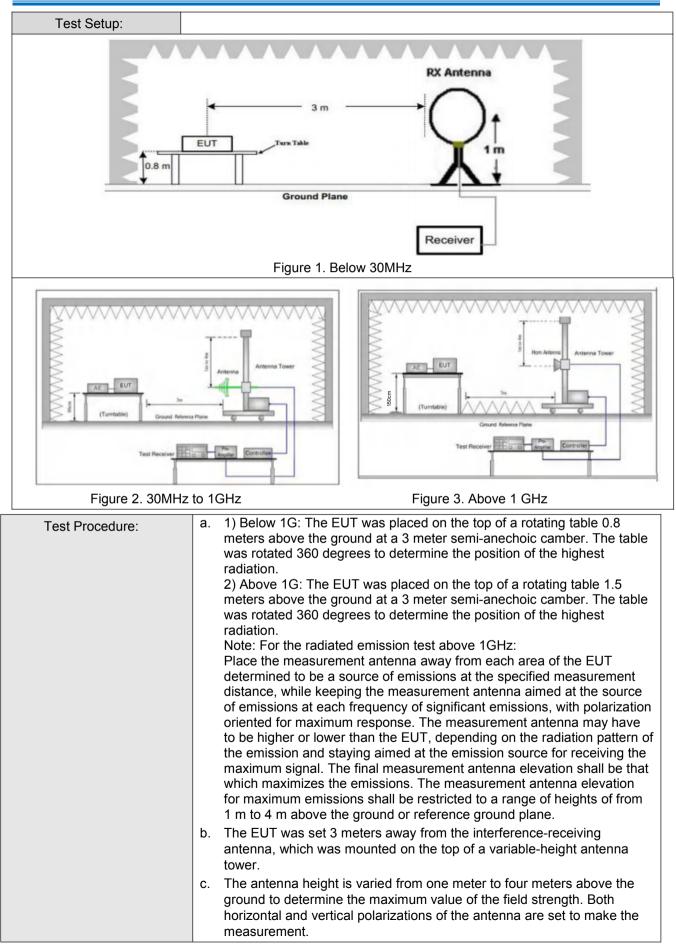


5.11 Radiated Spurious Emission & Restricted bands

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	ioic Cham	ber)					
Receiver Setup:	Frequency	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	z	Quasi-peak	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				
			Peak	1MHz	: 3MHz	Peak				
	Above 1GHz		Peak	1MHz	: 10Hz	Average				
Limit:	Frequency		eld strength crovolt/meter)	Limit (dBuV/m)	Remark	Measureme distance (m				
	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 emissions is 20dE applicable to the e peak emission lev	3 ab equi	ove the maxin pment under t	num permi est. This p	itted average	emission limit				





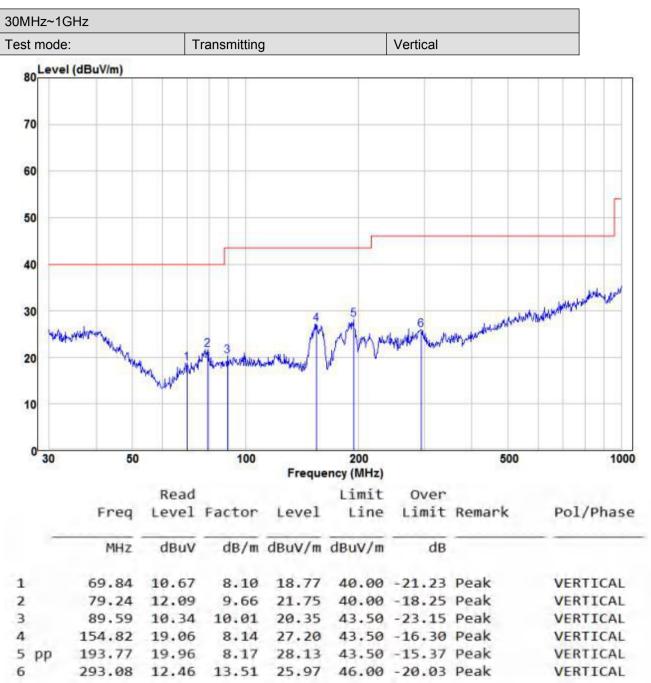




	 d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum 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. Pretest the EUT at Transmitting mode and Charge + Transmitting mode, found the Charge + Transmitting mode which it is worse 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:

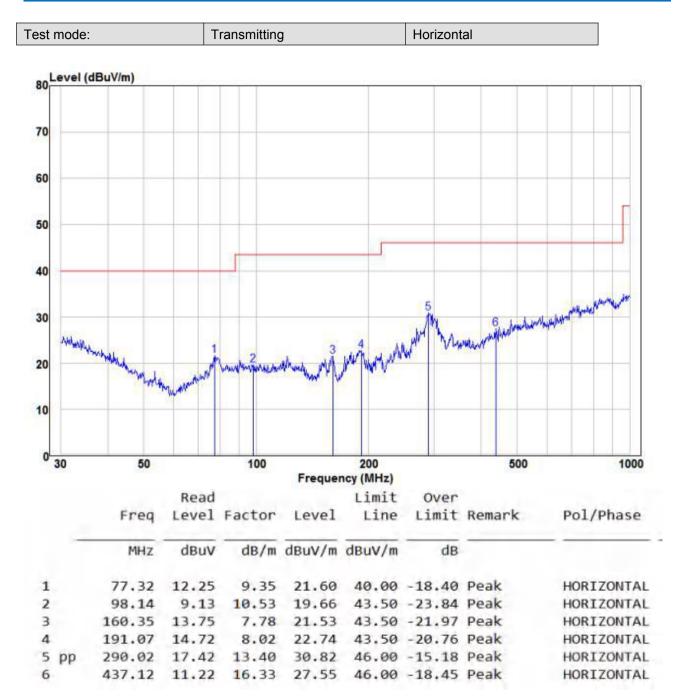
Factor= Antenna Factor + Cable Factor - Preamplifier Factor,

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 chann	el:	Lowest		
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)		H/V	
2390	54.95	-9.2	45.75	74	-28.25	Peak	н	
2400	55.65	-9.39	46.26	74	-27.74	Peak	Н	
4804	53.84	-4.33	49.51	74	-24.49	Peak	Н	
7206	50.54	1.01	51.55	74	-22.45	Peak	Н	
2390	54.64	-9.2	45.44	74	-28.56	Peak	V	
2400	55.97	-9.39	46.58	74	-27.42	Peak	V	
4804	53.01	-4.33	48.68	74	-25.32	Peak	V	
7206	50.02	1.01	51.03	74	-22.97	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	50.45	-4.11	46.34	74	-27.66	peak	Н
7323	48.60	1.51	50.11	74	-23.89	peak	Н
4882	54.17	-4.11	50.06	74	-23.94	peak	V
7323	50.62	1.51	52.13	74	-21.87	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	55.66	-9.29	46.37	74	-27.63	Peak	Н
4960	52.12	-4.04	48.08	74	-25.92	Peak	Н
7440	48.73	1.57	50.30	74	-23.70	Peak	Н
2483.5	53.40	-9.29	44.11	74	-29.89	Peak	V
4960	51.16	-4.04	47.12	74	-26.88	Peak	V
7440	49.69	1.57	51.26	74	-22.74	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	54.09	-9.2	44.89	74	-29.11	Peak	н
2400	56.99	-9.39	47.60	74	-26.40	Peak	Н
4804	52.02	-4.33	47.69	74	-26.31	Peak	Н
7206	48.63	1.01	49.64	74	-24.36	Peak	Н
2390	56.10	-9.2	46.90	74	-27.10	Peak	V
2400	56.41	-9.39	47.02	74	-26.98	Peak	V
4804	52.41	-4.33	48.08	74	-25.92	Peak	V
7206	51.19	1.01	52.20	74	-21.80	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	51.80	-4.11	47.69	74	-26.31	peak	Н
7323	49.47	1.51	50.98	74	-23.02	peak	Н
4882	52.71	-4.11	48.60	74	-25.40	peak	V
7323	49.03	1.51	50.54	74	-23.46	peak	V

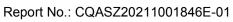
Worse case mode:		π /4DQPSK (2DH5)		Test channel:		Highest	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)		H/V
2483.5	56.78	-9.29	47.49	74	-26.51	Peak	н
4960	52.62	-4.04	48.58	74	-25.42	Peak	Н
7440	50.35	1.57	51.92	74	-22.08	Peak	Н
2483.5	54.60	-9.29	45.31	74	-28.69	Peak	v
4960	50.52	-4.04	46.48	74	-27.52	Peak	V
7440	50.96	1.57	52.53	74	-21.47	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

9KHz~30MHz:



30MHz~1GHz:





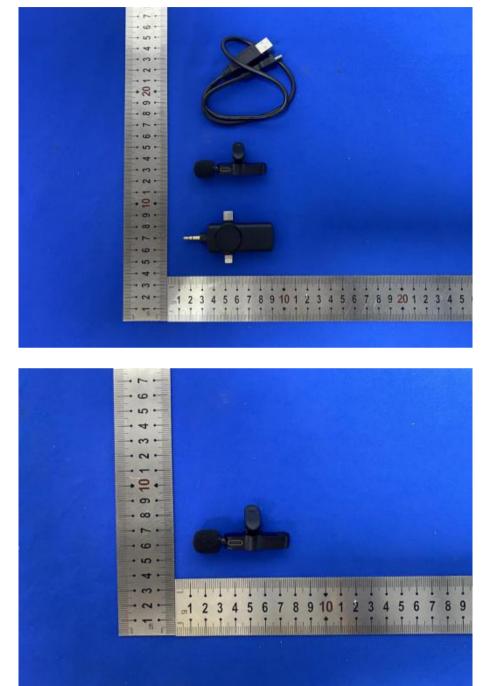


6.2 Conducted Emission



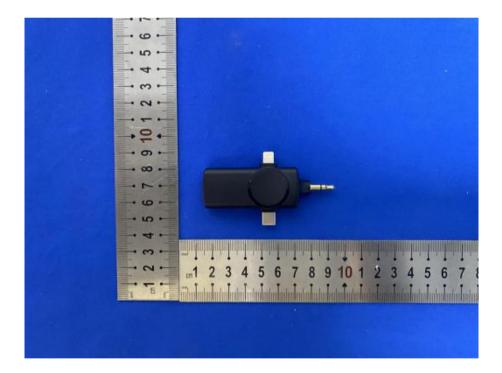


7 Photographs - EUT Constructional Details



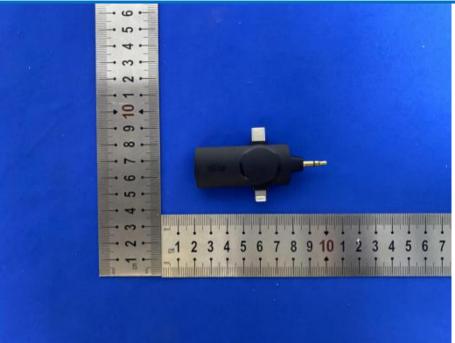


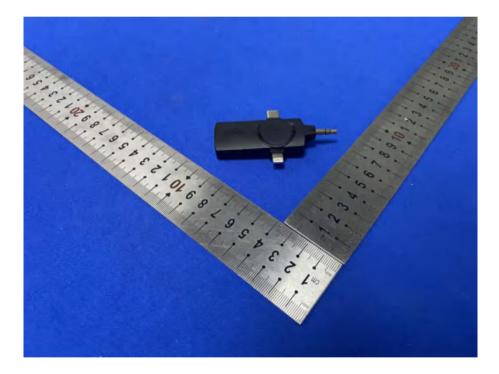




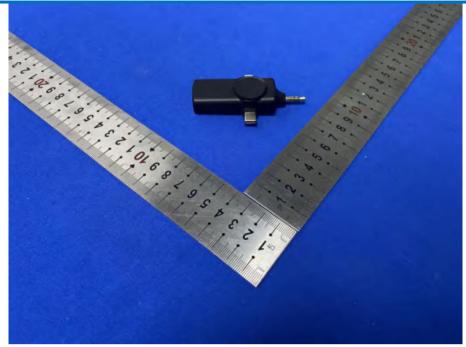


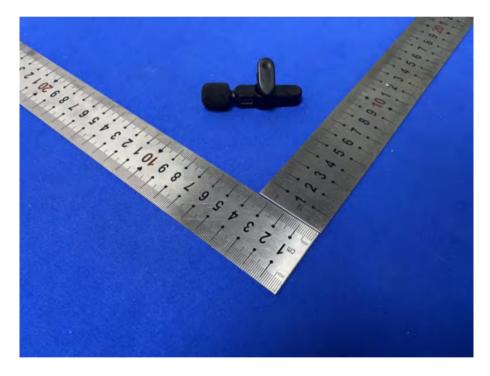




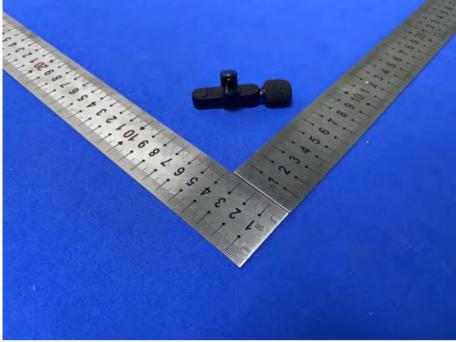


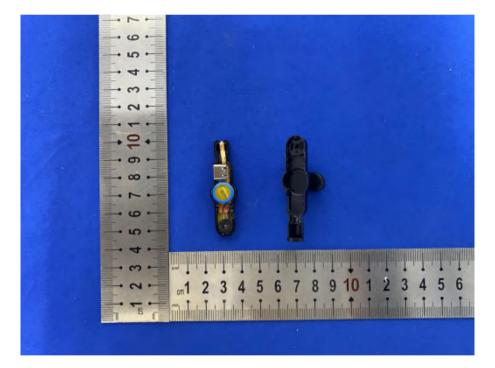




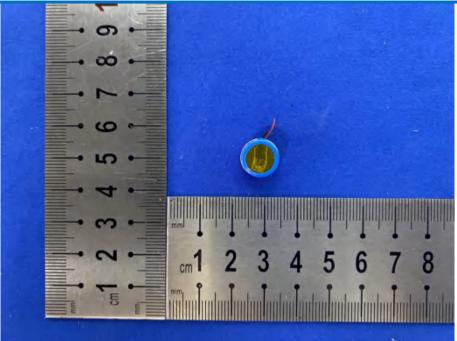








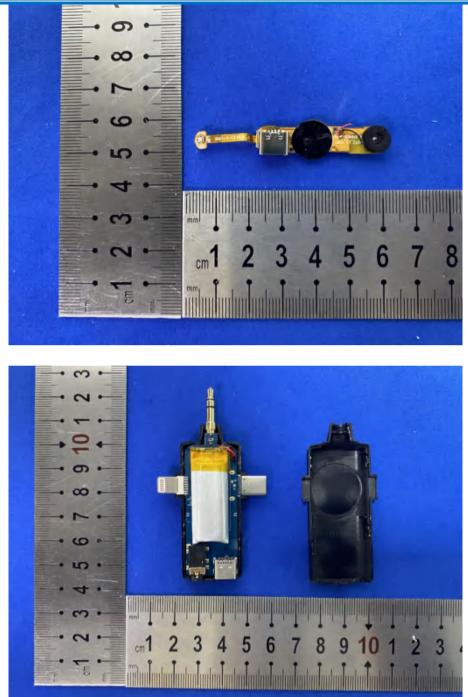






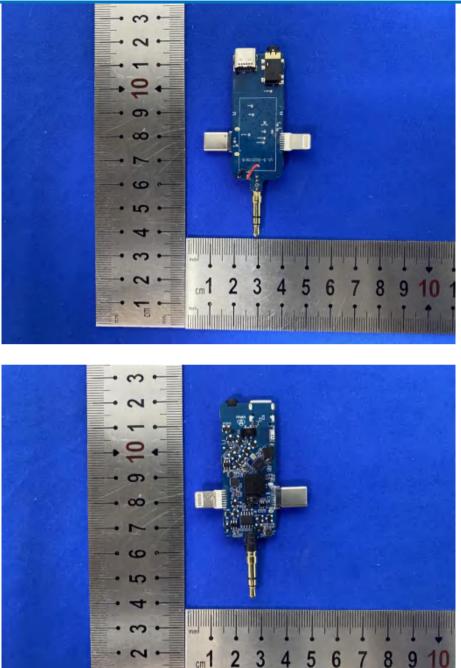








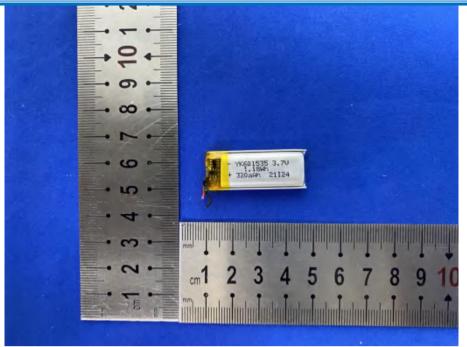
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