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

Test Report

Report No. :	CQASZ20221202180E-01
Applicant:	Shenzhen Leiwei Guoji Keji Co., Ltd.
Address of Applicant:	Rm1012, Plaza Building, No.74 Baomin Road, Bao'an District, Shenzhen China
Equipment Under Test (E	UT):
Product:	Smart sport watch
Model No.:	H30, YI, Y2, Y3, Y4, Y5, Y6, Y7, Y8, Y9, Y10, Y11, Y12, Y13, S61, S62, S63, S64, S65, S66, H31, H32, H33, H35, H36, H37, H38, H39, H40, H41, H42, H43, H45, H46, H47, H48, H50, H51, H52, H53, L1, L2, L3, L4, L5, L6, L7, L8
Test Model No.:	H30
Brand Name:	N/A
FCC ID:	2AW57-H30
Standards:	47 CFR Part 15, Subpart C
Date of Receipt:	2022-12-16
Date of Test:	2022-12-16 to 2022-12-29
Date of Issue:	2023-01-03
Test Result :	PASS*

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

Tested By:	lewis zhou
	(Lewis Zhou)
Reviewed By:	Timo Loj
_	(Timo Lei)
Approved By:	James
	(Jack Ai)



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



1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20221202180E-01	Rev.01	Initial report	2023-01-03



2 Test Summary

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



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4 General Information

4.1 Client Information

Applicant:	Shenzhen Leiwei Guoji Keji Co., Ltd.
Address of Applicant:	Rm1012, Plaza Building, No.74 Baomin Road, Bao'an District, Shenzhen China
Manufacturer:	Shenzhen Leiwei Guoji Keji Co., Ltd.
Address of Manufacturer:	Rm1012, Plaza Building, No.74 Baomin Road, Bao'an District, Shenzhen China
Factory:	Shenzhen Leiwei Guoji Keji Co., Ltd.
Address of Factory:	Rm1012, Plaza Building, No.74 Baomin Road, Bao'an District, Shenzhen China

4.2 General Description of EUT

Product Name:	Smart sport watch
Model No.:	H30, YI, Y2, Y3, Y4, Y5, Y6, Y7, Y8, Y9, Y10, Y11, Y12, Y13, S61, S62, S63, S64, S65, S66, H31, H32, H33, H35, H36, H37, H38, H39, H40, H41, H42, H43, H45, H46, H47, H48, H50, H51, H52, H53, L1, L2, L3, L4, L5, L6, L7, L8
Test Model No.:	H30
Trade Mark:	N/A
Software Version:	V1.0
Hardware Version:	V2.0
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.0
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Transfer Rate:	1Mbps/2Mbps/3Mbps
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Product Type:	□ Mobile
Test Software of EUT:	RTLBTAPP
Antenna Type:	FPC antenna
Antenna Gain:	-1.23dBi
Power Supply:	Li-ion battery: DC 3.7V 270mAh, Charge by DC 5V for adapter



Operation F	- requency 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 parameters and cannot be changed and selected)		
Use test software to set the lo	owest frequency, the middle frequency and	the highest frequency keep	
transmitting of the EUT.			
Mode	Channel Frequency(MHz)		
	СНО	2402	
DH1/DH3/DH5	СН39	2441	
	CH78	2480	
	СНО	2402	
2DH1/2DH3/2DH5	СН39	2441	
	CH78	2480	
	СНО	2402	
3DH1/3DH3/3DH5	СН39	2441	
	СН78	2480	

Run Software:

O CUM UART T Port 25	🔹 🚽 Baudrate=115200 🚽 🖌 🖉 Deen	'EK
No KeyWord 👻 Delay 10	00ms 🗸 Close	Hot Key LBT&RFMode
		HCI Reset
on Link Mode Hopping LE Test Batte	ary Resistance calibration Tx Settings	Test Mode
Channel 78 👻	Tx (for Certification) V Mode	Read BD Address
Packet Type 3DH5 V	Exec Stop Clear Report	GetChipInfo
Payload Type PRBS9 V		ShowTxPower
Tx Packet Count 0	Item Value Tx bits 547419360	Read Thermal
	Tx Pkt Count 67020	Power Tracking
		C OFF Set
		© ON Get
arameter1 Parameter2 Calibration	TX Report RX Report	
ssage		
ectAttachedPorts: (18) COM43 ectAttachedPorts: (19) COM44		^
ectAttachedPorts: (20) COM45 ectAttachedPorts: (21) COM46		截图 Shift+Alt+A
ectAttachedPorts: (22) COM47		
		✓ Patch Code
ectAttachedPorts: (23) COM48 ectAttachedPorts: (24) COM49		
ectAttachedPorts: (23) COM48 ectAttachedPorts: (24) COM49 ectAttachedPorts: (25) COM50 ectAttachedPorts: (26) COM51		C Load Script
ectAttachedPorts: [23] CDM48 ectAttachedPorts: [24] CDM49 ectAttachedPorts: [25] CDM50 ectAttachedPorts: [26] CDM51 ectAttachedPorts: [28] CDM52 ectAttachedPorts: [28] CDM53		Load Script
ectAttachedPorts: (23) COM48 ectAttachedPorts: (24) COM49 ectAttachedPorts: (25) COM50 ectAttachedPorts: (26) COM51 ectAttachedPorts: (27) COM52		C Load Script



4.4 Test Environment

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

4.5 Description of Support Units

The EUT has been tested with associated equipment below.

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



4.6 Statement of the measurement uncertainty

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

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

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

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

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

Hereafter the best measurement capability for CQA laboratory is reported:



4.7 Test Location

All tests were performed at:

Shenzhen Huaxia Testing Technology Co., Ltd.

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

4.8 Test Facility

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

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

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

CNAS (No. CNAS L5785)

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

• A2LA (Certificate No. 4742.01)

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

• FCC Registration No.: 522263

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

4.9 Abnormalities from Standard Conditions

None.

4.10 Other Information Requested by the Customer

None.



4.11 Equipment List

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

Note:

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



5 Test results and Measurement Data

5.1 Antenna Requirement

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

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

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

EUT Antenna:



The antenna is FPC antenna. The best case gain of the antenna is -1.23 dBi.





5.2 Conducted Emissions

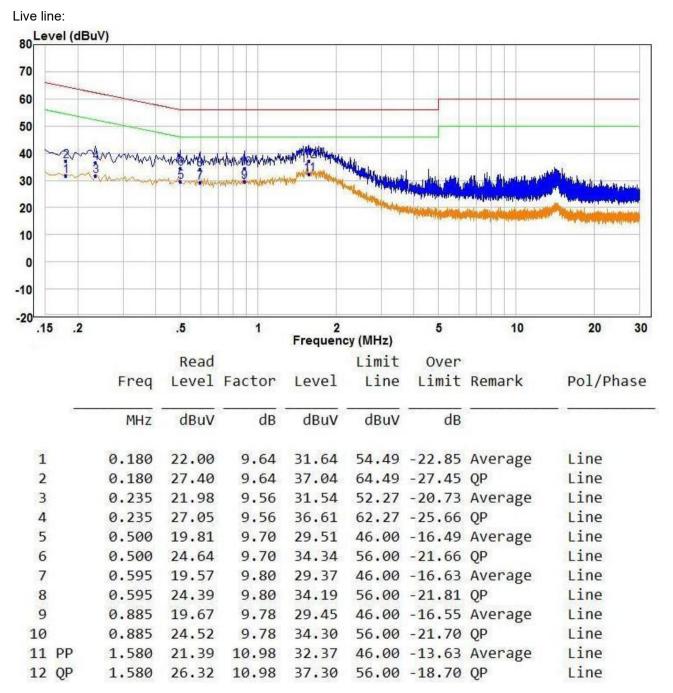
 Conducted Emissio	5115		
Test Requirement:	47 CFR Part 15C Section 15.2	207	
Test Method:	ANSI C63.10: 2013		
Test Frequency Range:	150kHz to 30MHz		
Limit:		Limit (c	lBuV)
	Frequency range (MHz)	Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
	* Decreases with the logarithn	n of the frequency.	
Test Procedure:	 The mains terminal disturbation in the EUT was connected to a second LIS reference plane in the same measured. A multiple sock power cables to a single Liexceeded. The tabletop EUT was place ground reference plane. An placed on the horizontal ground reference plane. An efference plane. The LISN unit under test and bonded mounted on top of the group between the closest points the EUT and associated equipment and all of the in ANSI C63.10: 2013 on component and statement and st	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 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 linear f the EUT were d to the ground or the unit being d to connect multiple g of the LISN was not c table 0.8m above the rangement, the EUT was erence plane. The rear d reference plane. The e horizontal ground om the boundary of the e plane for LISNs his distance was EUT. All other units of 0.8 m from the LISN 2. re positions of
Test Setup:	Shielding Room	AE UISN2 + AC Ma Ground Reference Plane	Test Receiver



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



Measurement Data

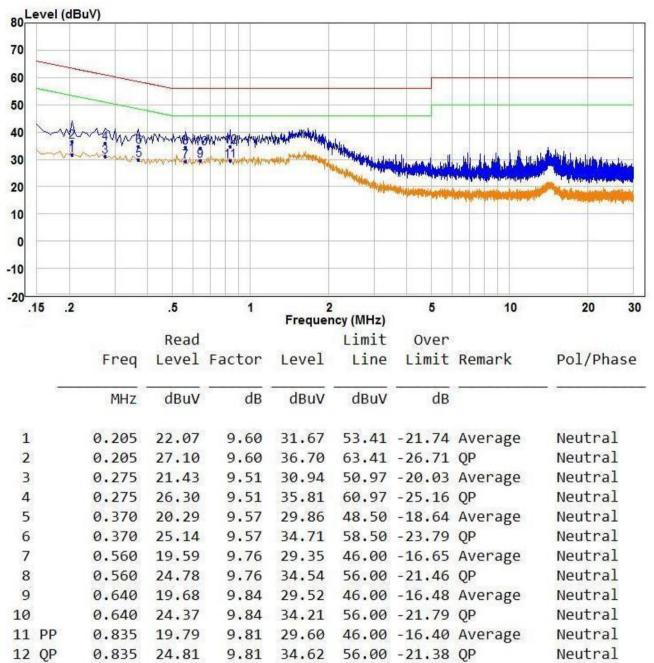


Remark:

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



Neutral line:



Remark:

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

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

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



5.3 Conducted Peak Output Power

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



Measurement Data

	GFSK mode	9	
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	-0.43	21.00	Pass
Middle	0.56	21.00	Pass
Highest	0.65	21.00	Pass
	π/4DQPSK m	ode	
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	-0.38	21.00	Pass
Middle	0.71	21.00	Pass
Highest	0.34	21.00	Pass
	8DPSK mod	le	
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	-0.51	21.00	Pass
Middle	0.57	21.00	Pass
Highest	0.48	21.00	Pass



Test plot as follows:

	DH5_Ar	it1_2402		
Spectrum				
RefLevel 30.00 dBm C	offset 8.44 dB 🖷 RBW 3 MH	2		
Att 40 dB S SGL Count 100/100	WT 1.3 μs 🖷 VBW 10 MH	2 Mode Auto FFT		
●1Pk View		I March March		
		M1[1]	-0.43 dBm 2.40168830 GHz	
20 dBm-				
10 dBm-				
0 dBm	M1			
-10 dBm		<u> </u>		
20 dBm-	8			
-30 dBm				
-40 dBm				
-50 dBm				
-50 dbm	8	16		
-60 dBm	e 8	10 I		
CF 2.402 GHz	100:	l pts	Span 8.0 MHz	
	DH5_Ar	it1 2441		
Spectrum				
Ref Level 30.00 dBm C	Offset 8.23 dB 🖷 RBW 3 MH		(*)	
Att 40 dB S SGL Count 100/100	WT 1.3 µs 🖷 VBW 10 MH	2 Mode Auto FFT		
●1Pk View				
		M1[1]	0.56 dBm 2.44127170 GHz	
20 dBm				
10 10 -				
10 dBm-				
0 dBm		MI		
-10 dBm				
-20 dBm				
-20 0011				
-30 dBm				
-40 dBm				
-50 dBm				
-60 dBm	3 ⁻ 8-	1. I. I. I.		
CF 2.441 GHz	100:	l pts	Span 8.0 MHz	



	DH5_Ant1_2480		
Spectrum Ref Level 30.00 dBm Offset 8.23 dB			
Att 40 dB SWT 1.3 μs SGL Count 100/100	VBW 10 MHz Mode Auto FFT		
01Pk View	M1[1]	0.65 dBm 2.47968830 GHz	
20 dBm-			
10 dBm-	M1		
0 dBm			
-10 dBm			
-30 dBm			
-40 dBm			
-50 dBm			
-60 dBm			
CF 2.48 GHz	1001 pts	Span 8.0 MHz	
	2DH5_Ant1_2402		
Spectrum Ref Level 30.00 dBm Offset 8.44 dB •		₩	
 Att 40 dB SWT 1.3 μs SGL Count 100/100 1Pk View 	• VBW 10 MHz Mode Auto FFT		
	M1[1]	-0.38 dBm 2.40238360 GHz	
20 dBm			
0 dBm	MI		
-10 dBm			
-20 dBm			
-30 dBm			
-40 dBm			
-50 dBm			
-60 dBm			
CF 2.402 GHz	1001 pts	Span 8.0 MHz	



20	H5_Ant1_2441		
Spectrum			
RefLevel 30.00 dBm Offset 8.23 dB ● RE ● Att 40 dB SWT 1.3 µs ● VE SGL Count 100/100	3W 3 MHz 3W 10 MHz Mode Auto FFT	(•)	
e 1Pk View	M1[1]	0.71 dBm	
20 dBm		2.44138360 GHz	
10 dBm			
0 dBm	M1		
-10 dBm			
-20 dBm			
-30 dBm			
-40 dBm			
-50 dBm			
-60 dBm			
CF 2.441 GHz	1001 pts	Span 8.0 MHz	
2D	H5_Ant1_2480		
SGL Count 100/100	3W 3 MHz 3W 10 MHz Mode Auto FFT		
● 1Pk View	M1[1]	0.34 dBm 2.48037560 GHz	
20 dBm		2.000/300/602	
10 dBm			
0 dBm	MI		
-10 dBm			
20 dBm			
-30 dBm			
-30 dBm			
-40 dBm			
-40 dBm			
-40 dBm			



	3DH5_Ant1_2402		
Spectrum	00110_Anti_2402		
Ref Level 30.00 dBm Offset (8.44 dB ● RBW 3 MHz 1.3 µs ● VBW 10 MHz Mode Auto FFT		
THK AIRM	M1[1]	-0.51 dBm	
20 dBm		2.40239160 GHz	
10 dBm	M1		
0 dBm-			
-10 dBm			
-30 dBm			
-40 dBm			
-50 dBm			
-60 dBm			
CF 2.402 GHz	1001 pts	Span 8.0 MHz	
	3DH5_Ant1_2441		
Att 40 dB SWT SGL Count 100/100	B.23 dB ● RBW 3 MHz 1.3 μs ● VBW 10 MHz Mode AutoFFT		
RefLevel 30.00 dBm Offset (Att 40 dB SWT			
Ref Level 30.00 dBm Offset (Att 40 db SWT SGL Count 100/100 PIPk View 20 dBm	1.3 μs 🖷 VBW 10 MHz Mode Auto FFT	0.57 dBm	
Ref Level 30.00 dBm Offset 0 Att 40 db SWT SGL Court 100/100 SWT SGL Court 100/100 ●1Pk View 20 dBm 10 dBm 10 dBm 10 dBm 10 dBm	1.3 μs 🖷 VBW 10 MHz Mode Auto FFT	0.57 dBm	
Ref Level 30.0 dBm Offset Att 40 dB SWT SGL Count 100/100 919k 919k 1Pk View 20 dBm 10 dBm 10 dBm 0 dBm 10 dBm	1.3 µs • VBW 10 MHz Mode Auto FFT	0.57 dBm	
Ref Level 30.00 dBm Offset 0 Att 40 db SWT SGL Court 100/100 SWT SGL Court 100/100 ●1Pk View 20 dBm 10 dBm 10 dBm 10 dBm 10 dBm	1.3 µs • VBW 10 MHz Mode Auto FFT	0.57 dBm	
Ref Level 30,00 dBm Offset 0 Att 40 db SWT SGL Court 100/100 ●1Pk View ● 20 dBm	1.3 µs • VBW 10 MHz Mode Auto FFT	0.57 dBm	
Ref Level 30.00 dBm Offset Att 40 dB SWT SGL Count 100/100 100 km 10 dBm 0 10 dBm 0 20 dBm 0 20 dBm 0	1.3 µs • VBW 10 MHz Mode Auto FFT	0.57 dBm	
Ref Level 30.00 dBm Offset 0 Att 40 db SWT SGL Court 100/100 91Pk view 91Pk view 20 dBm 0 90 dBm 10 dBm 0 0 -10 dBm -0 90 dBm -30 dBm -30 dBm -30 dBm	1.3 µs • VBW 10 MHz Mode Auto FFT	0.57 dBm	
Ref Level 30.00 dBm Offset Att 40 dB SWT SGL Count 100/100 91Pk View 20 dBm 20 dBm 10 dBm 0 dBm -10 dBm	1.3 µs • VBW 10 MHz Mode Auto FFT	0.57 dBm	



	3DH5_Ant1_2480
SGL Count 1	30.00 dBm Offset 8.23 dB ● RBW 3 MHz 40 dB SWT 1.3 µs ● VBW 10 MHz Mode Auto FFT
●1Pk View 20 dBm	M1[1] 0.49 dBm 2.48038360 GHz
10 dBm	MI
-10 dBm	
-30 dBm	
-50 dBm	
CF 2.48 GHz	iz 1001 pts Span 8.0 MHz



5.4 20dB Occupy Bandwidth

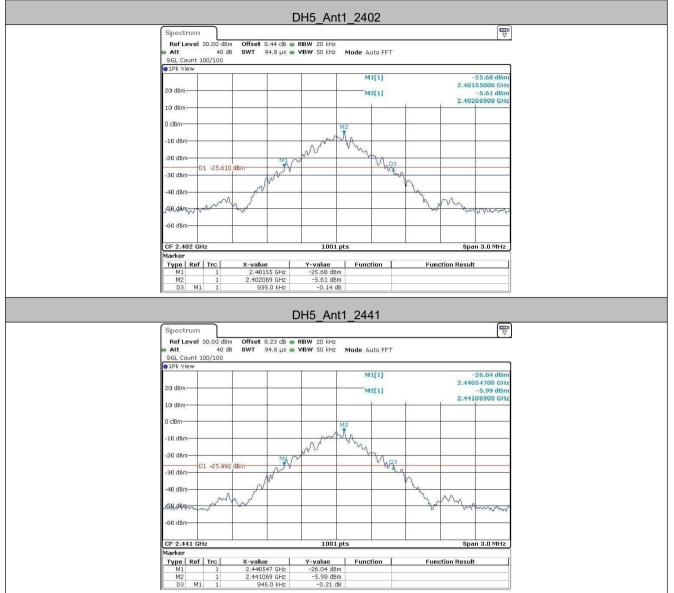
Test Requirement:	47 CFR Part 15C Section 15.247 (a)(1)		
Test Method:	ANSI C63.10:2013		
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane Remark: Offset=Cable loss+ attenuation factor.		
Limit:	NA		
Exploratory Test Mode:	Non-hopping transmitting with all kind of modulation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

Measurement Data

TestMode	Antenna	Channel	20db EBW[мнz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
		2402	0.939	2401.550	2402.489		PASS
DH5	Ant1	2441	0.945	2440.547	2441.492		PASS
		2480	0.942	2479.547	2480.489		PASS
		2402	1.353	2401.337	2402.690		PASS
2DH5	Ant1	2441	1.353	2440.334	2441.687		PASS
		2480	1.353	2479.337	2480.690		PASS
		2402	1.350	2401.331	2402.681		PASS
3DH5	Ant1	2441	1.347	2440.331	2441.678		PASS
		2480	1.245	2479.379	2480.624		PASS



Test plot as follows:











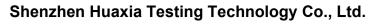


	וחכ	H5 Ant1 2441		
Spectrum	201	113_AII(1_2441	(R	₩
RefLevel 30.00 d Att 40 SGL Count 100/100	dB SWT 94.8 µs 🖷 VB	W 20 kHz W 50 kHz Mode Auto FF		<u> </u>
●1Pk View		M1[1]	-31.30 dB	Im
20 dBm		M2[1]	2.44033400 GF -9.72 dB 2.44082300 GF	Hz Im
0 dBm				
-10 dBm	m	M2 M2	~	_
-20 dBm	M		- Contraction -	_
-40 dBm			Muria	
-50°dBm				
CF 2.441 GHz		1001 pts	Span 3.0 MH:	z
Type Ref Trc M1 1 M2 1	2.440334 GHz 2.440823 GHz	Y-value Function -31.30 dBm -9.72 dBm	Function Result	
D3 M1 1	1.353 MHz	1.51 dB		
		H5_Ant1_2480		
Spectrum RefLevel 30.00 d Att 40 SGL Count 100/100	2DI Bm Offset 8.23 dB ■ RB dB SWT 94.8 µs ● VB	H5_Ant1_2480		
Spectrum Ref Level 30.00 d Att 40	2DI Bm Offset 8.23 dB ■ RB dB SWT 94.8 µs ● VB	H5_Ant1_2480	г -31.22 dB	Im
Spectrum RefLevel 30.00 d Att 40 SGL Count 100/100	2DI Bm Offset 8.23 dB ■ RB dB SWT 94.8 µs ● VB	H5_Ant1_2480	r	HT Hz Im
Spectrum Ref Level 30.00 d Att 40 SGL Count 100/100 91Pk View 20 dBm	2DI Bm Offset 8.23 dB ■ RB dB SWT 94.8 µs ● VB	H5_Ant1_2480	-31.22 dB 2.47933700 Gł -11.06 dB	HT Hz Im
Spectrum Ref Level 30.00 d Att 40 SGL Count 100/100 1Pk View 20 dBm 10 dBm	2DI	H5_Ant1_2480	-31.22 dB 2.47933700 Gł -11.06 dB 2.47982300 Gł	HT Hz Im
Spectrum Ref Level 30.00 d Att 40 SGL Count 100/100 IPk View 20 dBm 10 dBm	2DI Bm Offset 8.23 dB RB dB SWT 94.8 µs • VB	H5_Ant1_2480	-31.22 dB 2.47933700 Gł -11.06 dB 2.47982300 Gł	HT Hz Im
Spectrum Ref Level 30.00 d Att 40 SGL Count 100/100 ● IPk View 20 dBm 10 dBm -10 dBm	2DI	H5_Ant1_2480	-31.22 dB 2.47933700 Gł -11.06 dB 2.47982300 Gł	HT Hz Im
Spectrum Ref Level 30.00 d Att 40 SGL Count 100/100 ● IPk View 20 dBm 10 dBm -10 dBm -20 dBm -30 dBm -40 dBm	2DI Bm Offset 8.23 dB RB dB SWT 94.8 µs • VB	H5_Ant1_2480	-31.22 dB 2.47933700 Gł -11.06 dB 2.47982300 Gł	m Hz m Hz
Spectrum Ref Level 30.00 d Att 40 SGL Count 100/100 9 1Pk View 20 dBm 10 dBm -10 dBm -20 dBm -30 dBm -30 dBm -31 dBm -31 dBm -31 dBm	2DI Bm Offset 8.23 dB RB dB SWT 94.8 µs • VB	H5_Ant1_2480	-31.22 dB 2.479(3370) Gł -11.06 dB 2.47982300 Gł	m Hz m Hz
Spectrum Ref Level 30.00 d Att 40 SGL Count 100/100 IPk View 20 dBm 10 dBm -10 dBm -20 dBm -30 dBm -40 dBm -40 dBm	2DI Bm Offset 8.23 dB RB dB SWT 94.8 µs • VB	H5_Ant1_2480	-31.22 dB 2.47933700 Gł -11.06 dB 2.47982300 Gł	m Hz m Hz
Spectrum Ref Level 30.00 d ● Att 40 SGL Count 100/100 ● IPk View 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -50 dBm -60 dBm -60 dBm -60 dBm	2DI Bm Offset 8.23 dB RB dB SWT 94.8 µs • VB	H5_Ant1_2480	-31.22 dB 2.47933700 Gł -11.06 dB 2.47982300 Gł	
Spectrum Ref Level 30.00 d Att 40 SGL Count 100/100 @1Pk View 20 dBm 10 dBm -0 dBm -30 dBm -30 dBm -50 dBm -60 dBm	2DI	H5 Ant1_2480	-31.22 dB 2.47933700 cH -11.06 dB 2.47982300 GH	















5.5 Carrier Frequencies Separation

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



Measurement Data

TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Нор	1	≥0.945	PASS
2DH5	Ant1	Нор	1.003	≥0.902	PASS
3DH5	Ant1	Нор	1	≥0.900	PASS



Test plot as follows:







3DH5_Ant1_Hop
Spectrum Image: Construction of the second sec
10 dBm M1 D2
-10 dBm-
-20 dBm
-50 dBm
-60 dBm



5.6 Hopping Channel Number

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

Measurement Data

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



Test plot as follows:

DH5_Ant1_Hop	
Spectrum Ref Level 30.00 d8m Offset 8.44 d8 RBW 100 kHz	
Att 40 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT	
20 dBm	
	AND AND AND A
-to gew I An AA BA AN AA	<u>AhaaAhaaAhaa</u>
-20 dBm	
40 dBm	4.00
-50 dBm	
Start 2.4 GHz 691 pts	Stop 2.4835 GHz
2DH5_Ant1_Hop	
Spectrum RefLevel 30,00 dBm Offset 8.44 dB RBW 100 kHz Att 40 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT 9 1Pk View	
20 dBm-	
10 dem-	y will add by the by
-10 dBm	
-B0 dBm	
-50 dBm	- Two
-60 dBm	Stop 2.4835 GHz



3DH5_Ant1_Hop
Spectrum ♥ Ref Level 30.00 dBm Offset 8.44 dB ● RBW 100 kHz Att 40 dB SWT 94.8 µs ● VBW 300 kHz Mode Auto FFT ● 1Pk View
20 dBm
of Addrew and a stranger of the stand and a stranger of the st
-20 dBm
-50 dBm
-60 dBm



5.7 Dwell Time

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



Measurement Data

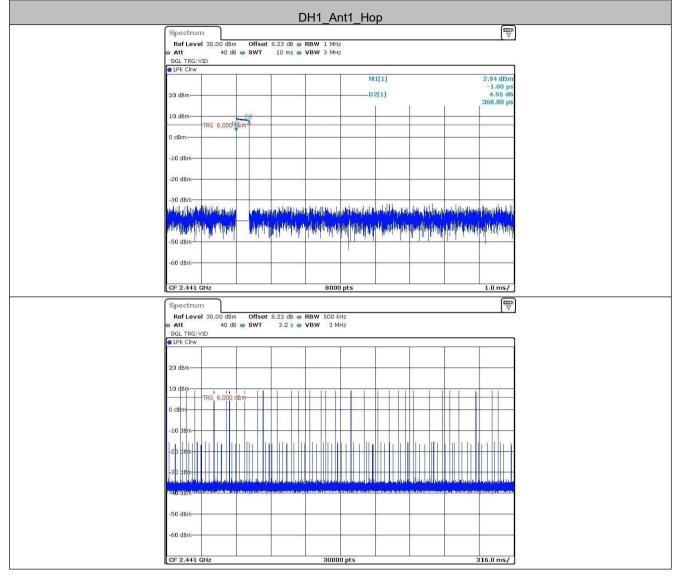
TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Нор	0.37	320	0.118	≤0.4	PASS
DH3	Ant1	Нор	1.61	160	0.257	≤0.4	PASS
DH5	Ant1	Нор	2.85	110	0.313	≤0.4	PASS
2DH1	Ant1	Нор	0.38	330	0.125	≤0.4	PASS
2DH3	Ant1	Нор	1.62	160	0.259	≤0.4	PASS
2DH5	Ant1	Нор	2.86	110	0.315	≤0.4	PASS
3DH1	Ant1	Нор	0.38	320	0.12	≤0.4	PASS
3DH3	Ant1	Нор	1.62	160	0.259	≤0.4	PASS
3DH5	Ant1	Нор	2.86	120	0.344	≤0.4	PASS

Remark:

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



Test plot as follows:





			C	0H3_A	nt1_Ho	р			
👄 Att	el 30.00 dBm 40 dB	Offset		RBW 1 MH VBW 3 MH					
SGL TRG: PIPK Cirw	VID								
20 dBm-					545	1[1] 2[1]			11.57 dBm -1.00 µs 6.89 dB
10 dBm									.60895 ms
0 dBm	TRG -6.700	dBm	D2						
-10 dBm	N	1			-				
-20 dBm					-	-			
-30 dBm			l		in the	MI	1.4.11		a to black
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-60 dBm		<i></i>			4	2	14		
CF 2.441	GHz			800) pts				1.0 ms/
Spectrur									
	el 30.00 dBm			VBW 3 M					
e Att		Swi	0.2 0 0						
SGL TRG: IPk Cirw		5 - 5WI	0.2.7		1		1	T	
SGL TRG: PIPK Cirw		s swi	5.2.5			-			
SGL TRG: IPk Clrw 20 dBm-		Swi							
SGL TRG: IPK Clrw 20 dBm		5 • SW1							
SGL TRG: 1Pk Clrw 20 dBm				T	1	I T	T	11	
SGL TRG: PIPk Cirw 20 dBm 10 dBm									
SGL TRG: PPk Cirw 20 dBm 10 dBm 0 dBm									
SGL TRG: 1Pk Clrw 20 dBm 10 dBm 0 dBm -10 dBm									
SGL TRG: IPK Clrw 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm									
SGL TRG: 1Pk Claw 20 dBm 10 dBm 0 dBm -20 dBm -20 dBm -20 dBm -20 dBm -20 dBm -20 dBm -20 dBm -20 dBm									
SGL TRG: PIPK Clrw 20 dBm									
SGL TRG: 1Pk Claw 20 dBm 10 dBm 0 dBm -20 dBm -20 dBm -20 dBm -20 dBm -20 dBm -20 dBm -20 dBm -20 dBm									





DHS_Antl_Hop Refevel 30.00 dm Offset 5.23 db = R8W 1 Mrt: Att 30 db = SWT 10 ms * V8W 3 Mrt: SGL Traivito 20 dm P2[1] 3.50 dbm 20 dm P2[1] 2.60 dbm 10 dbm P2[1] 2.60 dbm 0 dbm P2[1] P2[1] 0 dbm P2[2] P2[2] 0 dbm P2[2] <th></th> <th></th> <th></th> <th>_</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>				_						
Perfuencial 20:00 dbm Offset 6:23 db = RBW 1 MHz; Sol, TR0:VID Image: SWT Image: SWT <td><u> </u></td> <td></td> <td></td> <td></td> <td>)H5_A</td> <td>nt1_Ho</td> <td>р</td> <td></td> <td></td> <td>E</td>	<u> </u>)H5_A	nt1_Ho	р			E
20 dBm 0 M1[1] 3-3.0 dBm 10 dBm 2.8491 ns 2.8491 ns 2.8491 ns 0 dBm 0 0 0 0 -10 dBm -10 dBm -10 dBm -10 dBm -10 dBm -20 dBm -10 dBm -10 dBm -10 dBm -10 dBm -30 dBm -10 dBm -10 dBm -10 dBm -10 dBm -50 dBm -10 dBm -10 dBm -10 dBm -10 dBm -50 dBm -10 dBm -10 dBm -10 dBm -10 dBm -10 dBm -60 dBm -20 dBm -10 dBm <td< td=""><td>Ref Lev Att SGL TRG</td><td>el 30.00 dBm 40 dB VID</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	Ref Lev Att SGL TRG	el 30.00 dBm 40 dB VID								
20 dBm 02(1) 1.00 µs 10 dBm TRG 6.000 Bm 02 0 0 dBm 0 0 0 0 10 dBm TRG 6.000 Bm 0 0 0 0 -10 dBm 0 0 0 0 0 0 -10 dBm 0 0 0 0 0 0 0 -20 dBm 0 0 0 0 0 0 0 0 0 0 -30 dBm 0 <td>● 1Pk Clrw</td> <td></td> <td></td> <td></td> <td></td> <td>MI</td> <td>1[1]</td> <td></td> <td></td> <td>2 50 dBm</td>	● 1Pk Clrw					MI	1[1]			2 50 dBm
TR6 6.000 @m Image: constraint of the second of the se	20 dBm					Sildes		T	2	-1.00 µs 4.45 dB
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-20 dBm						2.				
No. No. <td></td> <td>_</td> <td></td> <td></td> <td></td> <td>~</td> <td></td> <td></td> <td></td> <td></td>		_				~				
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Spectrum T Ref Level 30.00 dbm Offset 8.23 db RBW 500 kHz Att 40 db SWT 3.2 s VBW 3 MHz SGL TRG: VID IPK CINW Image: SGL TRG: VID Image: SGL TRG: VID Image: SGL TRG: VID ID dBm Image: SGL TRG: VID ID dBm Image: SGL TRG: VID	-60 dBm-						ç.	×		
Ref Level 30.00 dbm Offset 8.23 db RBW 500 kHz Att 40 db SWT 3.2 s VBW 3 MHz SGL TRG: VID IPK CIrw IPK Cirw IPK Cirw IPK Cirw 20 dbm IPK G 6,000 dbm IPK Cirw IPK Cirw IPK Cirw IPK Cirw 10 dbm IPK G 6,000 dbm IPK Cirw IPK Cirw IPK Cirw IPK Cirw IPK Cirw 30 dbm IPK G 6,000 dbm IPK Cirw IPK Cirw<	CF 2.441	GHz			800	0 pts				1.0 ms/
Att 40 dB SWT 3.2 s VBW 3 Hz GLTRG:VID IPk Cirw IPk Cirw IPk Cirw IPk Cirw 20 dBm IPk Cirw IPk Cirw IPk Cirw IPk Cirw 10 dBm IPk Cirw IPk Cirw IPk Cirw IPk Cirw 10 dBm IPK G.000 dBm IPK G.000 dBm IPK G.000 dBm IPK G.000 dBm -10 dBm IPK G.000 dBm -30 dBm IPK G.000 dBm -50 dBm IPK G.000										
10 dBm Image: constraint of the second o	Att SGL TRG	40 dB VID								
TRG 6.000 dEm. Image: Control of the second sec										
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-30 dkm	10 dBm	TRG 6.000 c	dB m		4					
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-50 dBm	0 dBm	-+TRG 6.000 (
-60 dBm-	0 dBm	TRG 6.000 c	de m					Lange Control of State	lessonlax.ett	
CF 2.441 GHz 30000 pts 216.0 ms/	0 dBm		1 18m 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					the structure of the st		
	0 dBm									



2DH1_Ant1_Hop
Spectrum Image: Control of the state of the
Att the second
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10 dBm 377.55 µs
TRG 6.100 dBm ² 0 dBm
-10 dBm
-20 dBm
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-60 dBm
 CF 2.441 GHz 8000 pts 1.0 ms/
Spectrum Image: Constraint of the state of
20 dBm
10 dBm
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-2D d8m
-2D /d8m



	2DH3_Ant1	_Нор		
Spectrum				
Ref Level 30.00 dBm Offset 8.23 Att 40 dB SWT 10	3 dB 👄 RBW 1 MHz) ms 👄 VBW 3 MHz			
SGL TRG: VID				
		M1[1]	-1	2.36 dBm
20 dBm		D2[1]		-1.00 μs 5.15 dB
		I I	1.	62145 ms
10 dBm				
0 dBm				
-10 dBm				
-20 dBm				-
-30 dBm				
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CF 2.441 GHz	8000 pts			1.0 ms/
Spectrum	Aller.			
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	.2 s 👄 VBW 3 MHz			
SGL TRG: VID				
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Ref Level 30.00 di	m Offset 8 dB e SWT							[⊽]
UPK CIFW				M	1[1]			3.85 dBm
20 dBm	-	2		5/5	2[1]	0	r s	-1.00 µs 1.69 dB 2.86161 ms
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CF 2.441 GHz			8000) pts				1.0 ms/
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TRG 6.00 0 dBm -10 dBm -20 dBm -30 dBm -30 dBm -50 dBm								
TRG 6.00 0 dBm 10 dBm 20 dBm 20 dBm 20 dBm 10 dBm 10 dBm 10 dBm								316.0 ms/





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Ref Att SGL	Level	30.00 dBm 40 dB			RBW 1 MH: VBW 3 MH:					
● 1Pk	Clrw					M	1[1]			0.54 dBm
20 dB	m				-	D	2[1]	r i	r i	-1.00 μs 5.07 dB 376.30 μs
10 de		RG 6.100	IBM <mark>2</mark>			-	-			
0 dBn -10 d							5		2	
-20 d					2	2	-		2	
-30 d				upod sr	disconto di	un datu	a la brus	d write a	at en lara	
and the second se		kompleteret Valentee toa alle	nikolik Minosi	illi kasili ya mana dhana l	vertina efterferati Is school till, og s	na ar ann ann ann. Tall airdichead	nan nan di se Adda anna dh	alangipapat Jahlana	nt alaadaa dhad	i kana salata ku Kana salata ku
-50 d		an a	un ik (. 1	l haddy laters	, li mi a didita	nillan	and the second	alda ha filua.)	les, adhilta	a a kina akina
-60 d	3m				5.	2	2	× .	8	
CF 2	441 G	Hz			8000	ı pts				1.0 ms/
Spe	7									
						-				
Ref Att SGL	Level	30.00 dBm 40 dB	Offset SWT		RBW 500 k VBW 3 M					
Ref Att SGL	Level TRG: VI Clrw	30.00 dBm 40 dB								
Ref Att SGL IPk 20 dB	Level TRG: VI Clrw	30.00 dBm 40 dB D	• SWT							
Ref Att SGL	Level	30.00 dBm 40 dB	• SWT							
Ref Att SGL 20 dB 10 dB	Mevel m	30.00 dBm 40 dB D	• SWT							
Ref Att SGL 10 de 0 dan	Level	30.00 dBm 40 dB D	• SWT							
Ref Att SGL 20 dB 10 dB 10 dB	Level	30.00 dBm 40 dB D	• SWT							
Ref Att SGL 20 dB 10 dB 0 dBn +10 d -20 d -20 d -20 d -20 d -20 d -20 d	Level	30.00 dBm 40 dB D	• SWT							
Ref Att SGL 20 dB 10 dB 0 dBn -10 d -20 d	Level	30.00 dBm 40 dB D	• SWT							
Ref Att 5GL 50 dB 10 dB 0 dBn 10 dB 10 dB	Level	30.00 dBm 40 dB D	• SWT							



	3DH3_Ant1_Hop
Spectrum Ref Level 30,00 dBm Offset 8	3.23 db ● RBW 1 MHz
👄 Att 🛛 40 dB 👄 SWT	10 ms • VBW 3 MHz
SGL TRG; VID	
	M1[1] -10.31 dBm
20 dBm-	-2.25 µs D2[1] 15.93 dB
	1.62020 ms
TRG 6.000 dBm	ulty, 602
0 dBm	
MI	
-10 dBm	
-20 dBm	
-30 dBm	
on particular and the physical first state of the second state of the second state of the second state of the s	d and to only the conductor produced by the largest by the state of the first state control of the state of the
-50 dBm	
-60 dBm	
-00 0011	
CF 2.441 GHz	8000 pts 1.0 ms/
Spectrum	
Ref Level 30.00 dBm Offset 8	
SGL TRG: VID	3.2 s 🖷 VBW 3 MHz
● 1Pk Clrw	
20 dBm	
10 dBmTrig 6.000 dBm	
0 dBm	
-10/d8m	
-20 dBm	
-20 d8m	
-20 d8m -30 d8m	
-B0 dBm Marini Birden and Angeland and An	
-50 d6m Valutishtelas. Providence internet index de sector al 140 08m	
-B0 dBm Marini Birden and Angeland and An	
-50 dBm 14_01056 -50 dBm	
-50 dBm Valitistic activity and a sector of the sector of the 140 dBm	





3DH5_4	Ant1_Hop [₩	
Ref Level 30.00 dBm Offset 8.23 dB RBW 1 MH Att 40 dB SWT 10 ms VBW 3 MH SGL TRG: VID	Hz	2
1Pk Clrw 20 dBm-	M1[1] 1.53 dBm -1.00 µs D2[1] 4.04 dB	
10 dBm	2.86286 ms	
0 dBm		
-10 dBm		
-30 dBm	a if a time in the state of a state of the state	
entropy of the state of the sta	alle development of the second state of the second state of the second state of the second state of the second s	
-50 dBm		
CF 2.441 GHz 800	0 pts 1.0 ms/	
Spectrum Ref Level 30.00 dBm Offset 8.23 dB RBW 500	kHz]
Att 40 dB SWT 3.2 s VBW 3 f SGL TRG: VID 1Pk Clrw	MHz]
20 dBm		
10 dBm		
0 dBm		
-20 dBm		
-50 dBm		
-60 dBm		
CF 2.441 GHz 300	00 pts 316.0 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 $\pi/4DQPSK$ modulation type, 3-DH5 of data type is the worst case of 8DPSK modulation type. Only the worst case is recorded in the report.
Test Results:	Pass



Shenzhen Huaxia Testing Technology Co., Ltd.

Report No.: CQASZ20221202180E-01

Measurement Data

TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
		Low	2402	-2.86	-49.62	≤-22.86	PASS
		High	2480	-3.89	-48.61	≤-23.89	PASS
DH5	Ant1	Low	Hop_2402	6.52	-50.68	≤-13.48	PASS
		High	Hop_2480	7.50	-49.89	≤-12.5	PASS
	Ant1	Low	2402	-4.28	-50.72	≤-24.28	PASS
		High	2480	-4.62	-49.51	≤-24.62	PASS
2DH5		Low	Hop_2402	1.39	-50.24	≤-18.61	PASS
		High	Hop_2480	6.52	-49.24	≤-13.48	PASS
		Low	2402	-4.46	-50.79	≤-24.46	PASS
		High	2480	8.15	-48.1	≤-11.85	PASS
3DH5	Ant1	Low	Hop_2402	6.44	-50.09	≤-13.56	PASS
		High	Hop_2480	7.48	-49.52	≤-12.52	PASS



Test plot as follows:

		H5_Ant1_Lov	v_2402		
Spectrum	L				
Ref Level 20.0	30 dB SWT 75.8 µs		de Auto FFT		
SGL Count 300/	300				
The Alem			M1[1]		-2.86 dBm
10 dBm			M2[1]		2.4020150 GHz -52.86 dBm
0 dBm			MZ[1]		2.4000000 GHz
0 GBII		2. A			Ň
-10 dBm					
-20 dBm-01	22.860 dBm				
-30 dBm	22.000 000				
41					
-40 dBm					14
50 dBm	mannethan	with more north	Munday Manuna	M3	when the
-60 dBm					40 (60)
-70 dBm					
-/ o ubin					
Start 2.35 GHz		691 pts		5	Stop 2.405 GHz
Marker Type Ref Tr	c X-value	Y-value	unction	Function R	esult
M1	1 2.402015 GHz	-2.86 dBm	unocion	, anotion in	
M2 M3	1 2.4 GHz 1 2.39 GHz	-52.86 dBm -53.68 dBm			
M4	1 2.3567754 GHz	-49.62 dBm]
	DH	15 Ant1 Hig	h 2100		
			11_2460		
Spectrum	<u></u>		11_2400		
Ref Level 20.0	D0 dBm Offset 8.23 dB	RBW 100 kHz	_		
10751 (A)	00 dBm Offset 8.23 dB 30 dB SWT 94.8 µs (RBW 100 kHz	_		V
Ref Level 20.0	00 dBm Offset 8.23 dB 30 dB SWT 94.8 µs (RBW 100 kHz	de Auto FFT		
Ref Level 20.1 Att SGL Count 300/ @1Pk View	00 dBm Offset 8.23 dB 30 dB SWT 94.8 µs (RBW 100 kHz	de Auto FFT M1[1]		-3.89 dBm 2.480010 GHz
Ref Level 20.1 Att SGL Count 300/ SIL Count 300/ 1Pk View 10 dBm 10 dBm	00 dBm Offset 8.23 dB 30 dB SWT 94.8 µs (RBW 100 kHz	de Auto FFT		-3.89 dBm 2.480010 GHz -52.46 dBm
Ref Level 20.1 Att SGL Count 300/ IPk View	00 dBm Offset 8.23 dB 30 dB SWT 94.8 µs (RBW 100 kHz	de Auto FFT M1[1]		-3.89 dBm 2.480010 GHz
Ref Level 20.1 Att SGL Count 300/ 91Pk View 10 dBm	00 dBm Offset 8.23 dB 30 dB SWT 94.8 µs (RBW 100 kHz	de Auto FFT M1[1]		-3.89 dBm 2.480010 GHz -52.46 dBm
Ref Level 20.1 Att SGL Count 300/ 1Pk View 10 dBm 0 dBm -10 dBm	00 dBm Offset 8.23 dB 30 dB SWT 94.8 µs (RBW 100 kHz	de Auto FFT M1[1]		-3.89 dBm 2.480010 GHz -52.46 dBm
Ref Level 20.1 Att SGL Count 300/ IPk View 10 dBm 0 dBm -10 dBm -20 dBm	00 dBm Offset 8.23 dB 30 dB SWT 94.8 µs (RBW 100 kHz	de Auto FFT M1[1]		-3.89 dBm 2.480010 GHz -52.46 dBm
Ref Level 20.1 Att SGL Count 300/ SGL Count 300/ 1Pk View 10 dBm 41 -10 dBm 41 -20 dBm 41	00 dBm Offset 8.23 dB 4 30 dB SWT 94.8 µs 4 300	RBW 100 kHz	de Auto FFT M1[1]		-3.89 dBm 2.480010 GHz -52.46 dBm
Ref Level 20.1 Att SGL Count 300/ SGL Count 300/ 1Pk View 10 dBm 41 0 dBm 41 -10 dBm 41 -20 dBm 01 -	00 dBm Offset 8.23 dB 4 30 dB SWT 94.8 µs 4 300	RBW 100 kHz VBW 300 kHz Mu	de Auto FFT M1[1]		-3.89 dBm 2.480010 GHz -52.46 dBm
Ref Level 20.1 Att SGL Count 300/ SGL Count 300/ 1Pk View 10 dBm -0 dBm -40 dBm -40 dBm	00 dBm Offset 8.23 dB (30 dB SWT 94.8 µs (300	RBW 100 kHz Mc VBW 300 kHz Mc	de Auto FFT M1[1] M2[1]		-3.89 dBm 2.480010 GHz -52.46 dBm 2.483500 GHz
Ref Level 20.4 Att SGL Count 300/ IPk View 10 dBm 0 dBm -10 dBm -20 dBm -40 dBm -40 dBm	00 dBm Offset 8.23 dB (30 dB SWT 94.8 µs (300	RBW 100 kHz Mc VBW 300 kHz Mc	de Auto FFT M1[1] M2[1]		-3.89 dBm 2.480010 GHz -52.46 dBm 2.483500 GHz
Ref Level 20.1 Att SGL Count 300/ SGL Count 300/ 1Pk View 10 dBm -0 dBm -40 dBm -40 dBm	00 dBm Offset 8.23 dB (30 dB SWT 94.8 µs (300	RBW 100 kHz Mc VBW 300 kHz Mc	de Auto FFT M1[1] M2[1]	when white perfection	-3.89 dBm 2.480010 GHz -52.46 dBm 2.483500 GHz
Ref Level 20.4 Att SGL Count 300/ 1Pk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm	00 dBm Offset 8.23 dB (30 dB SWT 94.8 µs (300	RBW 100 kHz Mc VBW 300 kHz Mc	de Auto FFT M1[1] M2[1]	when white perfector	-3.89 dBm 2.480010 GHz -52.46 dBm 2.483500 GHz
Ref Level 20.1 Att SGL Count 300/ 9 IPk View 10 dBm 0 dBm -10 dBm -20 dBm -10 dBm -30 dBm -40 dBm -50 dBm -70 dBm	00 dBm Offset 8.23 dB (30 dB SWT 94.8 µs (300	RBW 100 kHz VBW 300 kHz Me	de Auto FFT M1[1] M2[1]	www.weater	-3.89 dBm 2.480010 GHz -52.46 dBm 2.483500 GHz
Ref Level 20.4 Att SGL Count 300/ IPk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -70 dBm -80 dBm -70 dBm -70 dBm -70 dBm -70 dBm -70 dBm -70 dBm	23.890 dBm M2 M2 M2 M2 M2 M2 M2 M2 M2 M2	RBW 100 kHz Mu VBW 300 kHz Mu 1 1 1	de Auto FFT M1[1] M2[1] ////////////////////////////////////		-3.89 dBm 2.480010 GHz -52.46 dBm 2.483500 GHz
Ref Level 20.4 Att SG. Count 300/ SG. Count 300/ 10 8 10 dBm 0 dBm 10 -10 dBm -10 dBm 11 -30 dBm -20 dBm 11 -30 dBm -40 dBm -50 dBm -10 -50 dBm -70 dBm -50 dBm -70 dBm -70	23.890 dBm M2 10 d m M2 23.890 dBm M2 C X-value	RBW 100 kHz VBW 300 kHz Mc	de Auto FFT M1[1] M2[1]	Muthing printing	-3.89 dBm 2.480010 GHz -52.46 dBm 2.483500 GHz
Ref Level 20.4 Att SGL Court 300/ IPk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -70 dBm	23.890 dBm M2 M2 M2 M2 M2 M2 M2 M2 M2 M2	RBW 100 kHz Mu VBW 300 kHz Mu 1 1 1	de Auto FFT M1[1] M2[1] ////////////////////////////////////		-3.89 dBm 2.480010 GHz -52.46 dBm 2.483500 GHz



DH5_Ant1_Low_Hop_2402	
Spectrum	
Ref Level 20.00 dBm Offset 8.44 dB ■ RBW 100 kHz Att 30 dB SWT 75.8 µs ■ VBW 300 kHz Mode Auto FFT	
SGL Count 300/300	
●1Pk View M1[1] 6.52 dBm	
2.4029700,GHz	
M2[1] -+9.99 4010 2.400000 km2	
-10 dBm	
-20 dBm	
-30 dBm	
-40 dBm	
-50 dBm	
-60 dBm	
-70 dBm	
-/0 upii	
Start 2.35 GHz 691 pts Stop 2.405 GHz	
Marker Type Ref Trc X-value Y-value Function Function Result	
M1 1 2.40297 GHz 6.52 dBm	
M2 1 2.4 GHz -49.99 dBm M3 1 2.39 GHz -52.79 dBm	
M4 1 2.3857101 GHz -50.68 dBm	
DH5_Ant1_High_Hop_2480	
DH5_Ant1_High_Hop_2480	
Spectrum	
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Spectrum Image: Construction of the stand o	
Spectrum Image: Control 20.00 dBm Offset 8.23 dB @ RBW 100 kHz Att 30 dB SWT 94.8 µS VBW 300 kHz Mode Auto FFT SGL Count 300/300 ● IPK View M1[1] 7.50 dBm	
Spectrum Image: Construction offset 8.23 dB @ RBW 100 kHz Mode Auto FFT SGL count 300/300 91Pk View M1[1] 7.50 dBm Industrial data M1[1] 7.50 dBm 2.472030 GHz Industrial data M2[1] -53.48 dBm 2.483500 GHz Industrial data M2[1] -53.48 dBm 2.483500 GHz Industrial data M2[1] -53.48 dBm 2.483500 GHz Industrial data M2[1] -53.48 dBm 1.483500 GHz Industrial data M2[1] -53.48 dBm 1.483500 GHz Industrial data M3 M4 -50 dBm -50 dBm -50 dBm M3 M4 -50 dBm -50 dBm -50 dBm M3 M4 -50 dBm -50 dBm -70 dBm M3 M4 -50 dBm -50 dBm -70 dBm M3 M4 -50 dBm -50 dBm -70 dBm -50 dBm -50 dBm -50 dBm -50 dBm -70 dBm -50 dBm -50 dBm -50 dBm -50 dBm	



c.	2DH5 Ant1 Low 2402	
Spectrum		
Ref Level 20.00 dBm Offset 8.44	dB ● RBW 100 kHz µs ● VBW 300 kHz Mode Auto FFT	(♡)
THK VIBW	M1[1]	-4.28 dBm
10 dBm	M2[1]	2.4020150 GHz -52.95 dBm 2.4000000 GHz
0 dBm		X
-10 dBm		
-20 dBm		
-30 dBm		
-40 dBm		
-50 dBm	with for it with which we have been been been been been been been be	M3 M4 M2
-60 dBm	man mar and a second stranger of the second s	man man and and and and an
-70 dBm		
Start 2.35 GHz Marker	691 pts	Stop 2.405 GHz
Type Ref Trc X-value M1 1 2.402015 G M2 1 2.4 G M3 1 2.39 G M4 1 2.3920072 G	Hz -52.95 dBm Hz -51.79 dBm	Function Result
2	DH5_Ant1_High_2480	
Spectrum		
Spectrum Ref Level 20,00 dBm Offset 8.23 Att 30 dB SWT 94.8	dB • RBW 100 kHz µs • VBW 300 kHz Mode Auto FFT	(m)
Spectrum Ref Level 20.00 dBm Offset 8.23	dB BRBW 100 kHz µs BVBW 300 kHz Mode Auto FFT	
Spectrum Ref Level 20.00 dBm Offset 8.23 Att 30 dB SWT 94.8 SGL Count 300/300 Image: SGL View Image: SGL View Image: SGL View	dB RBW 100 kHz µs VBW 300 kHz Mode Auto FFT M1[1]	-4.62 dBm 2.480010 GHz
Spectrum Ref Level 20.00 dBm Offset 8.23 Att 30 dB SWT 94.8 SGL Count 300/300 91Pk View 10 dBm 10 dBm	dB BRBW 100 kHz µs BVBW 300 kHz Mode Auto FFT	-4.62 dBm
Spectrum Ref Level 20.00 dBm Offset 8.23 Att 30 dB SWT 94.8 SGL Count 300/300 INK View 10 dBm 0 dBm 0 dBm	dB RBW 100 kHz µs VBW 300 kHz Mode Auto FFT M1[1]	-4.62 dBm 2.480010 GHz -52.98 dBm
Spectrum Ref Level 20.00 dBm Offset 8.23 Att 30 dB SWT 94.8 SGL Count 300/300 91Pk View 10 dBm 10 dBm	dB RBW 100 kHz µs VBW 300 kHz Mode Auto FFT M1[1]	-4.62 dBm 2.480010 GHz -52.98 dBm
Spectrum Ref Level 20.00 dBm Offset 8.23 Att 30 dB SWT 94.8 SGL Count 300/300 91Pk View 10 dBm 10 dBm -10 dBm 10 dBm	dB RBW 100 kHz µs VBW 300 kHz Mode Auto FFT M1[1]	-4.62 dBm 2.480010 GHz -52.98 dBm
Spectrum Ref Level 20.00 dBm Offset 8.23 Att 30 dB SWT 94.8 SGL Count 300/300 ID dBm 0 dBm -10 dBm -20 dBm 01 -24.620 dBm	dB RBW 100 kHz µs VBW 300 kHz Mode Auto FFT M1[1]	-4.62 dBm 2.480010 GHz -52.98 dBm
Spectrum Ref Level 20.00 dBm Offset 8.23 Att 30 dB SWT 94.8 SGL Count 300/300 91Pk View 10 dBm 10 dBm 10 dBm 0 dBm 114 10 dBm	dB RBW 100 kHz µs VBW 300 kHz Mode Auto FFT M1[1]	-4.62 dBm 2.480010 GHz -52.98 dBm
Spectrum Ref Level 20.00 dBm Offset 8.23 Att 30 dB SWT 94.8 SGL Count 300/300 1Pk View 10 dBm 0 -10 dBm 01 -24.620 dBm -30 dBm 01 -24.620 dBm	dB RBW 100 kHz µs VBW 300 kHz Mode Auto FFT M1[1] M2[1] M2[1] M2[1]	-4.62 dBm 2.480010 GHz -52.98 dBm 2.483500 GHz
Spectrum Ref Level 20.00 dBm Offset 8.23 Att 30 dB SWT 94.8 SGL Count 300/300 1Pk View 10 dBm 0 -10 dBm 01 -24.620 dBm -30 dBm 01 -24.620 dBm	dB • RBW 100 kHz µs • VBW 300 kHz Mode Auto FFT M1[1] M2[1]	-4.62 dBm 2.480010 GHz -52.98 dBm 2.483500 GHz
Spectrum Ref Level 20.00 dBm Offset 8.23 Att 30 dB SWT 94.8 SGL Count 300/300 1Pk View 10 dBm 0 -10 dBm 01 -24.620 dBm -30 dBm 01 -24.620 dBm	dB RBW 100 kHz µs VBW 300 kHz Mode Auto FFT M1[1] M2[1] M2[1] M2[1]	-4.62 dBm 2.480010 GHz -52.98 dBm 2.483500 GHz
Spectrum Ref Level 20.00 dBm Offset 8.23 Att 30 dB SGL Count 300/300 IPk View 10 dBm -10 dBm -20 dBm -30 dBm -50 dBm -50 dBm -50 dBm	dB RBW 100 kHz µs VBW 300 kHz Mode Auto FFT M1[1] M2[1] M2[1] M2[1] M2[1]	-4.62 dBm 2.480010 GHz -52.98 dBm 2.483500 GHz
Spectrum Ref Level 20.00 dBm Offset 8.23 Att 30 dB SGL Count 300/300 IRk View 10 dBm -10 dBm -20 dBm -30 dBm -30 dBm -30 dBm -30 dBm -50 dBm -70 dBm -70 dBm -70 dBm -70 dBm -70 dBm -70 dBm	dB RBW 100 kHz µs VBW 300 kHz Mode Auto FFT M1[1] M2[1] M2[1] M2[1] M2[1]	-4.62 dBm 2.480010 GHz -52.98 dBm 2.483500 GHz
Spectrum Ref Level 20.00 dBm Offset 8.23 Att 30 dB SGL Count 300/300 IPk View 10 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -30 dBm -20 dBm -30 dBm -30 dBm -40 dBm -50 dBm -50 dBm -27 dBm -70 dBm -70 dBm -70 dBm -70 dBm	dB RBW 100 kHz µs VBW 300 kHz M1[1] M2[1] M2[1] M3 M3 M4 M4 M3 M4 M4 M3 M4 M4 M4 M4 M3 M4	4.62 dBm 2.480010 GHz 52.98 dBm 2.483500 GHz
Spectrum Ref Level 20.00 dBm Offset 8.23 Att 30 dB SGL Count 300/300 ID dBm 0 dBm -10 dBm -20 dBm -30 dBm -30 dBm -20 dBm -30 dBm -40 dBm -40 dBm -50 dBm -70 dBm -70 dBm Start 2.47 GHz Marker Type Ref Trc X-value Mil 1	dB RBW 100 kHz µs VBW 300 kHz M1[1] M2[1] M2[1] M3 M4 M4 M3 M4 M4 M3 M4 M4 M4 M3 M4 M3 M4	-4.62 dBm 2.480010 GHz -52.99 dBm 2.483500 GHz
Spectrum Ref Level 20.00 dBm Offset 8.23 Att 30 dB SWT 94.8 SGL Count 300/300 Image: SGL Count 300/300 Image: SGL Count 300/300 Image: SGL Count 300/300 I dBm Image: SGL Count 300/300 Image: SGL Count 300/300 Image: SGL Count 300/300 Image: SGL Count 300/300 I dBm Image: SGL Count 300/300 Image: SGL Count 300/300 Image: SGL Count 300/300 Image: SGL Count 300/300 I dBm Image: SGL Count 300/300 Image: SGL Count 300/300	dB RBW 100 kHz µs VBW 300 kHz Mail Mode Auto FFT M1[1] M2[1] M3 M3 M4 M4 M4 M4 M4 M3 M3 M4	-4.62 dBm 2.480010 GHz -52.99 dBm 2.483500 GHz



		20	JH5 /	Ant1 Lov	v Hop	2402		
Spect	rum							
	evel 20.00 di			BW 100 kHz				
SGL C	30 Junt 300/300	dB SWT 75	.8 µs 🖷 🕻	BW 300 KHZ	Mode Auto	FFI		
● 1Pk V	ew							
					M1[1]		2.4	1.39 dBm 38460 GHz
10 dBm	8				M2[1]			48.77 dBm
0 dBm-	-	-	2		1	-	2.4	NAL
-10 dBr	1	-		·				p . 00 V
-20 dBr	D1 -18.6	10 dBm		-				
-20 08								
-30 dBr	1		6	5		6		
-40 dBr	1	-		-		~		
M4	1					M3		Ma
to be remere		munumum	17 march	mannan	manum	mentioneting	dependence of	ar .
-60 dBr	0							
-70 dBr	n					-		
Start 2	.35 GHz			691 pts	8	8	Ston	2.405 GHz
Marker	.00 012			091 pt3			000	2.400 0112
Type M1	Ref Trc	X-value 2.403846	5 CU2	Y-value 1.39 dBm	Function	1	Function Resul	t
M2	1	2.4	4 GHz	-48.77 dBm				
M3 M4	1	2.39	9 GHz 9 GHz	-52.09 dBm -50.24 dBm		-		
<u>(</u>								
						1		
		20)H5 /	Ant1 Hia	h Hon	2480		
		20	DH5_4	Ant1_Hig	h_Hop_	2480		
Spect					h_Hop_	2480		
Ref L Att	evel 20.00 di 30		23 dB 🖷 F	BW 100 kHz				
Ref L Att SGL C	evel 20.00 di 30 ount 300/300	Bm Offset 8.1	23 dB 🖷 F	BW 100 kHz				
Ref L Att	evel 20.00 di 30 ount 300/300	Bm Offset 8.1	23 dB 🖷 F	BW 100 kHz				6.52 dBm
Ref L Att SGL C	evel 20.00 di 30 ount 300/300 ew	Bm Offset 8.1	23 dB 🖷 F	BW 100 kHz	Mode Auto M1[1]			6.52 dBm 178050 GHz
Ref L Att SGL C 1Pk V 10 dBm	evel 20.00 di 30 bunt 300/300 ew	Bm Offset 8.1	23 dB 🖷 F	BW 100 kHz	Mode Auto			6.52 dBm
Ref L SGL C SGL C 10 dBm V NBm	evel 20.00 di 30 junt 300/300 ew	Bm Offset 8.1	23 dB 🖷 F	BW 100 kHz	Mode Auto M1[1]			6.52 dBm 178050 GHz -52.35 dBm
Ref L Att SGL C 10 dBm	evel 20.00 dl 30 punt 300/300 ew	Bm Offset 8.3 dB SWT 94	23 dB 🖷 F	BW 100 kHz	Mode Auto M1[1]			6.52 dBm 178050 GHz -52.35 dBm
Ref L SGL c: 10 dBm V MBm	evel 20.00 dl 30 ount 300/300 ew	Bm Offset 8.3 dB SWT 94	23 dB 🖷 F	BW 100 kHz	Mode Auto M1[1]			6.52 dBm 178050 GHz -52.35 dBm
Ref L Att SGL c: ●1Pk V 10 dBm -10 dBm -20 dBr	evel 20.00 dl 30 iunt 300/300 ew D1 -13.44	Bm Offset 8.3 dB SWT 94	23 dB 🖷 F	BW 100 kHz	Mode Auto M1[1]			6.52 dBm 178050 GHz -52.35 dBm
Ref L Att SGL C: 10 dBm -10 dBr -20 dBr -30 dBr	evel 20.00 dl 30 00000 300/300 ew 01 -13.44	Bm Offset 8.3 dB SWT 94	23 dB 🖷 F	BW 100 kHz	Mode Auto M1[1]			6.52 dBm 178050 GHz -52.35 dBm
Ref L Att SGL c: ●1Pk V 10 dBm -10 dBm -20 dBr	evel 20.00 dl 30 00000 300/300 ew 01 -13.44	Bm Offset 8.: dB SWT 94	23 dB 🖷 F	8BW 100 kHz 7BW 300 kHz	Mode Auto M1[1]			6.52 dBm 178050 GHz -52.35 dBm
Ref L Att SGL C: 10 dBm -10 dBr -20 dBr -30 dBr	evel 20.00 dl 30 punt 300/300 ew 11 01 -13.41	Am Offset 8.: dB SWT 94	23 dB ● F #.8 µs ● V	88W 100 kHz 78W 300 kHz	Mode Auto M1[1] M2[1]	FFT	2.	6.52 dBm F78050 GHz 52.35 dBm H93500 GHz
Ref L Att SGL c: 10 dBm -10 dBm -20 dBm -30 dBm -30 dBm -50 dBm	evel 20.00 di 30 munt 300/300 ew http://	Bm Offset 8.: dB SWT 94	23 dB ● F #.8 µs ● V	88W 100 kHz 78W 300 kHz	Mode Auto M1[1] M2[1]	FFT	2.	6.52 dBm F78050 GHz 52.35 dBm H93500 GHz
Ref L Scit ⊂ Scit C	evel 20.00 di 30 aurit 300/300 ew M1 01 -13.41 01 -13.41	Am Offset 8.: dB SWT 94	23 dB ● F #.8 µs ● V	88W 100 kHz 78W 300 kHz	Mode Auto M1[1] M2[1]	FFT	2.	6.52 dBm F78050 GHz 52.35 dBm H93500 GHz
Ref L Att SGL () 10 dBm -10 dBm -10 dBm -20 dBm -30 dBm -50 dBm -50 dBm	evel 20.00 di 30 aurit 300/300 ew M1 01 -13.41 01 -13.41	Am Offset 8.: dB SWT 94	23 dB ● F #.8 µs ● V	88W 100 kHz 78W 300 kHz	Mode Auto M1[1] M2[1]	FFT	2.	6.52 dBm F78050 GHz 52.35 dBm H93500 GHz
Ref L Att SGLC 91Pk V 10 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm -50 dBm -50 dBm -50 dBm	evel 20.00 di 30 90 ew M1 D1 13.4 D1 13.4 M2 M2 M1 M2 M2 M1	Am Offset 8.: dB SWT 94	23 dB ● F #.8 µs ● V	XBW 100 kHz YBW 300 kHz	Mode Auto M1[1] M2[1] M2[1]	FFT	2.	6.52 dBm 178050 GHz 52.35 dBm 83500 GHz
Ref L Att SGL C: PIPk V 10 dBm -10 dBm -20 dBm -30 dBm -50	evel 20.00 di 30 90 90 90 90 90 90 90 90 90 90 90 90 90	Bm Offset 8.; dB SWT 94	23 dB ● F #.8 µs ● V	NH4 NH4	Mode Auto M1[1] M2[1]	Iport duka	2.	6.52 dBm i78050 GHz 52.35 dBm i85500 GHz
Ref L Att SGL C: DID dam V NBm -10 dar -20 dbr -20 dbr -30 dbr -50 dbr -50 dbr -50 dbr -70 dbr Type Type	evel 20.00 di 30 90 ew M1 D1 13.4 D1 13.4 M2 M2 M1 M2 M2 M1	Bin Offset 8: dB SWT 94	23 dB F F +.8 µs F V	XBW 100 kHz XBW 300 kHz XBW 300 kHz	Mode Auto M1[1] M2[1] M2[1]	Iport duka	2.	6.52 dBm i78050 GHz 52.35 dBm i85500 GHz
Ref L Att SGL c: SGL c: 10 dBm -10 dBm -20 dBm -20 dBm -30 dBm -40 dBm -50	evel 20.00 di 30 30 with 300/300 ew M1 D1 13.41 D1 13.41 M2 M2 M4 M4 M4 M4 M4 M4 M4 M4 M4 M4 M4 M4 M4	am Offset 8. db SWT 94 30 dBm A. a.a. a. b. for the former X-value 2.47803 2.47803	23 dB F F 8 µs Y 	NH4 NH4	Mode Auto M1[1] M2[1]	Iport duka	2.	6.52 dBm i78050 GHz 52.35 dBm i85500 GHz



				3D	H5 Ant1	Low 2	2402				
Spectr	um	٦									
Contraction (240)	vel 20.1	DO dBm	Offset	8.44 dB	🖷 RBW 100 kH	z				L ^v .	Į
Att			SWT	75.8 µs	🖷 VBW 300 kH	z Mode Au	uto FFT				
SGL Cou		300									
						M1	[1]			-4.46 dBm	
10 dBm-	_					M2	[1]			20950 GHz 52.92 dBm	
0 dBm-									2.40	DOODO GHz	
					2				8	Å	
-10 dBm-				-		-					
-20 dBm-											
-30 dBm-		24.460	dBm					-			
-30 dBm-		2		8	6	19					
-40 dBm-						-				N	
-50 dBm-	_							M3 M4		12 1	
		verm	Numeralise	manhah	Mulanna	normana	muun	unding when	-hi-harawara	×	
-60 dBm-											
-70 dBm-		-				-		-			
	10								0		
Start 2. Marker	35 GHz				691	pts			Stop 2	.405 GHz	
Type	Ref Tr	c	X-valu	ie	Y-value	Functi	on 1	Fund	tion Result	1	
M1		1	2.402	095 GHz	-4.46 dB	m					
M2 M3		1	2	2.4 GHz 2.39 GHz	-52.92 dB -51.44 dB						
M4	25	1	2.3924	058 GHz	-50.79 dB	m					
		_		3DI	H5_Ant1	_High_:	2480				
Spectr	um	1									
	vel 20.				RBW 100 kH						•
Att SGL Cou	unt 300/	30 dB 300	SWI	94.8 µs	🖷 VBW 300 kH	Z MODE A	ITO FF I				
●1Pk Vie											
10	M1					MI	[1]		24	8.15 dBm 79900 GHz	
10 dBm-	T	-				M2	[1]		-	51.97 dBm	
0 dBm-					24			-	2.4	83500 GHz	
-10 dBm-			-								
-10 0000	-D1 -	11.850	dBm					-			
-20 dBm-		-				-		-			
-30 dBm-											
10 10	1	13									
-40 dBm-	N	100			M4						
-50 dBm	W	WM2 Molecia p	munul	Martinan	M3 monther Jun	monthly	have	monthemal	monutering	munditionaria	
-60 dBm-	30			-				10 50 5 10	- 100405 Add	1.00	
and the second											
-70 dBm-		-									
Start 2.	47 GH7				691	nts			Ston	2.55 GHz	
Marker				_	391	Prod.			otop	2.30 0.12	
Туре	Ref TI		X-valu		Y-value	Functi	on	Func	tion Result		
M1 M2		1	2.4	799 GHz 835 GHz	8.15 dB -51.97 dB						
M3		1		2.5 GHz 681 GHz	-52.89 dB -48.10 dB	m					
M4		1									



	3DH5_Ant1_Low_Hop_2402		
Spectrum Ref Level 20.00 dBm Offset	t 8.44 dB 🖷 RBW 100 kHz		
Att 30 dB SWT	75.8 μs • VBW 300 kHz Mode Auto FFT		
SGL Count 300/300 PIPk View]	
	M1[1]	6.44 dBm 2.4049600 GHz	
10 dBm	M2[1]	-53.25 dBm 2.4000000 GHz	
0 dBm-		MA.M	
-10 dBmD1 -13.560 dBm			
-20 dBm			
-30 dBm			
-40 dBm			
150 dBm		43 112 112	
-60 dBm	and the contraction of the second states of the sec	men margener and a second	
-70 dBm			
Start 2.35 GHz Marker	691 pts	Stop 2.405 GHz	
Type Ref Trc X-val	lue Y-value Function	Function Result	
M2 1	0496 GHz 6.44 dBm 2.4 GHz -53.25 dBm		
M3 1 M4 1 2.362	2.39 GHz -53.72 dBm 6739 GHz -50.09 dBm		
	3DH5_Ant1_High_Hop_2480		
	$3DH3_AHH_HIGH_HOP_2+00$		
Spectrum			
Spectrum Ref Level 20.00 dBm Offset	t 8.23 dB 🗑 RBW 100 kHz		
Spectrum Ref Level 20,00 dBm Offset Att 30 dB SWT SGL Count 300/300			
Spectrum Ref Level 20.00 dBm Offset Att 30 dB SWT	t 8.23 dB 🗑 RBW 100 kHz	(₩) 7.48 dBm	
Spectrum Ref Level 20,00 dBm Offset Att 30 dB SWT SGL Count 300/300	t 8.23 dB 🖷 RBW 100 kHz 94.8 µs 🖷 VBW 300 kHz Mode Auto FFT	7.48 dBm 2.475040 GHz -52.71 dBm	
Spectrum Ref Level 20.00 dBm Offset Att 30 db SWT SGL count 300/300 91Pk View 10 dbm1	t 8.23 dB • RBW 100 kHz 94.8 µs • VBW 300 kHz Mode Auto FFT M1[1]	7,48 dBm 2.475040 GHz	
Spectrum Ref Level 20.00 d6m Offset Att 30 d8 SWT SGL Count 300/300 9 1Pk View 10 d6m 10 d7 10 d7 10 d7 10 d7 10 d7 10 d7 10 d7 10 d7 10 d7 10	t 8.23 dB • RBW 100 kHz 94.8 µs • VBW 300 kHz Mode Auto FFT M1[1]	7.48 dBm 2.475040 GHz -52.71 dBm	
Spectrum Ref Level 20.00 dBm Offset Att 30 db SWT SGL Count 300/300 9 1Pk View 10 dBW1 10 dBW1 0 dBW1	t 8.23 dB • RBW 100 kHz 94.8 µs • VBW 300 kHz Mode Auto FFT M1[1]	7.48 dBm 2.475040 GHz -52.71 dBm	
Spectrum Ref level 20.00 dsm Offset Att 30.db SWT SGL Gunt Sold SWT Sold curve Image: sold Supervision	t 8.23 dB • RBW 100 kHz 94.8 µs • VBW 300 kHz Mode Auto FFT M1[1]	7.48 dBm 2.475040 GHz -52.71 dBm	
Spectrum Ref Level 20.00 dBm Offset Att 30 dB SWT SGL Count 300/300 91Pk View 10 dBM1 10 dBM1 10 dBM1 10 dBM1 -10 dBm -12.520 dBm -20 dBm -30 dBm -30 dBm -30 dBm -30 dBm	t 8.23 dB • RBW 100 kHz 94.8 µs • VBW 300 kHz Mode Auto FFT M1[1]	7.48 dBm 2.475040 GHz -52.71 dBm	
Spectrum Ref Level 20.00 dBm Offset Att 30 db SWT SGL Count 300/300 91Pk View 10 dBm 10 dBm 10 dBm -10 dBm 01 -12.520 dBm -20 dBm -30 dBm -40 dBm -40 dBm -10 dBm	8.23 dB RBW 100 kHz 94.8 µs VBW 300 kHz Mode Auto FFT M1[1] M2[1] M2[1] M4	7,48 dBm 2.475040 GHz -52.71 dBm 2.483500 GHz	
Spectrum Ref Level 20.00 dBm Offset Att 30 db SWT SGL Count 300/300 91Pk View 10 dBm 10 dBm 10 dBm -10 dBm 01 -12.520 dBm -20 dBm -30 dBm -40 dBm -40 dBm -10 dBm	t 8.23 dB • RBW 100 kHz 94.8 µs • VBW 300 kHz Mode Auto FFT M1[1]	7,48 dBm 2.475040 GHz -52.71 dBm 2.483500 GHz	
Spectrum Ref Level 20.00 dBm Offset Att 30 db SWT SGL Count 300/300 91Pk View 10 dBm 10 dBm 10 dBm -10 dBm 01 -12.520 dBm -20 dBm -30 dBm -40 dBm -40 dBm -10 dBm	8.23 dB RBW 100 kHz 94.8 µs VBW 300 kHz Mode Auto FFT M1[1] M2[1] M2[1] M4	7,48 dBm 2.475040 GHz -52.71 dBm 2.483500 GHz	
Spectrum Ref Level 20.00 dBm Offset Att 30 dB SWT SGL Count 300/300 91Pk View 10 dBm 10 dBm 01 -12.520 dBm -10 dBm -30 dBm -30 dBm -30 dBm -50 dBm M2 -50 dBm	8.23 dB RBW 100 kHz 94.8 µs VBW 300 kHz Mode Auto FFT M1[1] M2[1] M2[1] M4	7,48 dBm 2.475040 GHz -52.71 dBm 2.483500 GHz	
Spectrum Ref level 20.00 dsm Offset Att 30 ds SWT Sold SWT SUB SWT Sold SWT SUB SWT Sold SWT SUB SUB SUB Sold SWT SUB SUB </td <td>t 8.23 dB • RBW 100 kHz 94.8 µs • VBW 300 kHz Mode Auto FFT M1[1] M2[1]</td> <td>7.48 dBm 2.475040 GHz -52.71 dBm 2.483500 GHz</td> <td></td>	t 8.23 dB • RBW 100 kHz 94.8 µs • VBW 300 kHz Mode Auto FFT M1[1] M2[1]	7.48 dBm 2.475040 GHz -52.71 dBm 2.483500 GHz	
Spectrum Ref Level 20.00 dBm Offset Att 30 dB SWT SGL Count 300/300 91Pk View 10 dBm 10 dBm 11 10 dBm -10 dBm 01 -12.520 dBm -20 dBm -30 dBm -40 dBm 10 / 2.520 dBm -50 dBm 10 / 2.520 dBm -60 dBm 10 / 2.520 dBm -70 dBm 10 / 2.520 dBm	t 8.23 dB • RBW 100 kHz 94.8 µs • VBW 300 kHz Mode Auto FFT M1[1] M2[1]	7.48 dBm 2.475040 GHz -52.71 dBm 2.493500 GHz 2.493500 GHz	
Spectrum Ref Level 20.00 dbm Offset Att 30 db SWT SGL Count 300/300 9 1Pk View 10 dbm 10 dbm 10 dbm 10 dbm 10 dbm 10 dbm -10 dbm 01 -12.520 dbm -20 dbm -30 dbm -50 dbm 10 dbm 10 dbm -30 dbm -50 dbm 10 dbm 10 dbm 10 dbm -50 dbm 10 dbm 1	t 8.23 dB • RBW 100 kHz 94.8 µs • VBW 300 kHz Mode Auto FFT M1[1] M2[1]	7.48 dBm 2.475040 GHz -52.71 dBm 2.483500 GHz	
Spectrum Ref Level 20.00 dBm Offset Att 30 dB SWT SGL Count 30/300 ●1Fk View 10 dBm 10 dBm 10 dBm 01 -12.520 dBm -10 dBm 01 -12.520 dBm -20 dBm -10 dBm -30 dBm -10 dBm -50 dBm -10 dBm -50 dBm -10 dBm -70 dBm -10 dBm Start 2.47 GHz Marker Type Ref Trc Mil 1 2.4*	t 9.23 dB	7.48 dBm 2.475040 GHz -52.71 dBm 2.493500 GHz 2.493500 GHz	



5.9 Spurious RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10:2013
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane
	Remark: Offset=cable loss+ attenuation factor.
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Exploratory Test Mode:	Non-hopping transmitting with all kind of modulation and all kind of data type
Final Test Mode:	Through Pre-scan, find the DH5 of data type is the worst case of GFSK modulation type, 2-DH5 of data type is the worst case of π /4DQPSK modulation type, 3-DH5 of data type is the worst case of 8DPSK modulation type.
Test Results:	Pass



