

## TEST REPORT

**Product** : uKit Robot  
**Trade mark** : UBTECH  
**Model/Type reference** : EREI101, EREwxyy  
**Serial Number** : N/A  
**Report Number** : EED32L00034601  
**FCC ID** : 2AHJX-UKITERE  
**Date of Issue** : Apr. 02, 2019  
**Test Standards** : 47 CFR Part 15 Subpart C  
**Test result** : PASS

Prepared for:

**UBTECH ROBOTICS CORP LTD**

**16th and 22nd Floor, Block C1, Nanshan I Park, No.1001 Xueyuan Road,  
Nanshan District, Shenzhen City, P.R.CHINA**

Prepared by:

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Date:

Apr. 02, 2019



Check No.: 3096316262

## 2 Version

Version No.	Date	Description
00	Apr. 02, 2019	Original

### 3 Test Summary

Test Item	Test Requirement	Test method	Result
<b>Antenna Requirement</b>	47 CFR Part 15 Subpart C Section 15.203/15.247 (c)	ANSI C63.10-2013	PASS
<b>AC Power Line Conducted Emission</b>	47 CFR Part 15 Subpart C Section 15.207	ANSI C63.10-2013	PASS
<b>Conducted Peak Output Power</b>	47 CFR Part 15 Subpart C Section 15.247 (b)(1)	ANSI C63.10-2013	PASS
<b>20dB Occupied Bandwidth</b>	47 CFR Part 15 Subpart C Section 15.247 (a)(1)	ANSI C63.10-2013	PASS
<b>Carrier Frequencies Separation</b>	47 CFR Part 15 Subpart C Section 15.247 (a)(1)	ANSI C63.10-2013	PASS
<b>Hopping Channel Number</b>	47 CFR Part 15 Subpart C Section 15.247 (b)	ANSI C63.10-2013	PASS
<b>Dwell Time</b>	47 CFR Part 15 Subpart C Section 15.247 (a)(1)	ANSI C63.10-2013	PASS
<b>Pseudorandom Frequency Hopping Sequence</b>	47 CFR Part 15 Subpart C Section 15.247(b)(4)&TCB Exclusion List (7 July 2002)	ANSI C63.10-2013	PASS
<b>RF Conducted Spurious Emissions</b>	47 CFR Part 15 Subpart C Section 15.247(d)	ANSI C63.10-2013	PASS
<b>Radiated Spurious emissions</b>	47 CFR Part 15 Subpart C Section 15.205/15.209	ANSI C63.10-2013	PASS

Remark:

Test according to ANSI C63.4-2014 & ANSI C63.10-2013.

The tested samples and the sample information are provided by the client.

Model No.: EREI101, EREwxyy

Only the model EREI101 was tested, EREwxyy ("w" can be a-z, indicating the product version; "x" can be 0-9, indicating the product category; "y" can be 0-9, indicating the product attributes.). All models are identical in interior structure, electrical circuits and components, only different from model name and color.

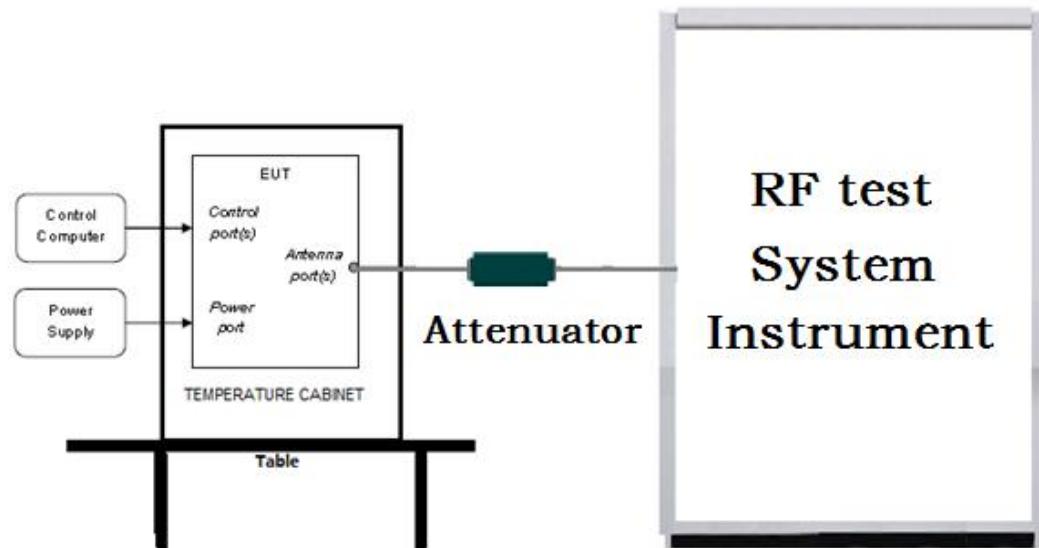
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## 5 Test Requirement

### 5.1 Test setup

#### 5.1.1 For Conducted test setup



#### 5.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

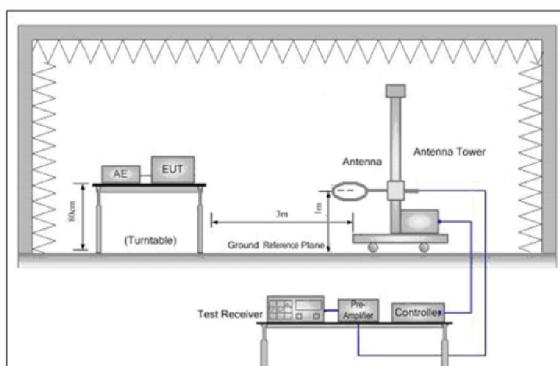


Figure 1. Below 30MHz

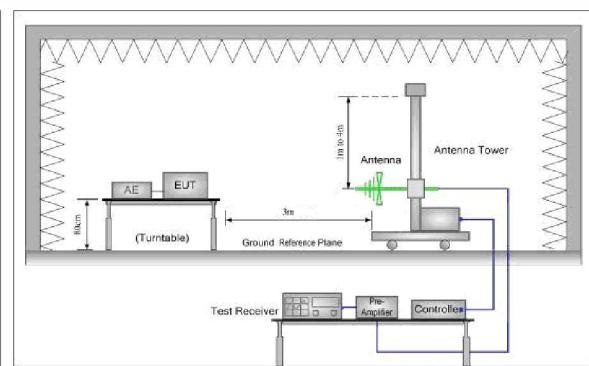


Figure 2. 30MHz to 1GHz

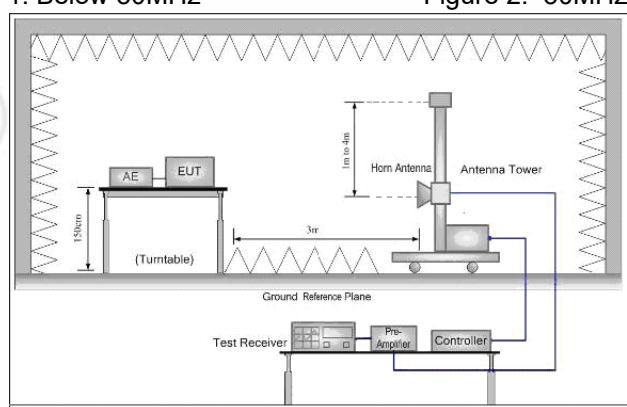
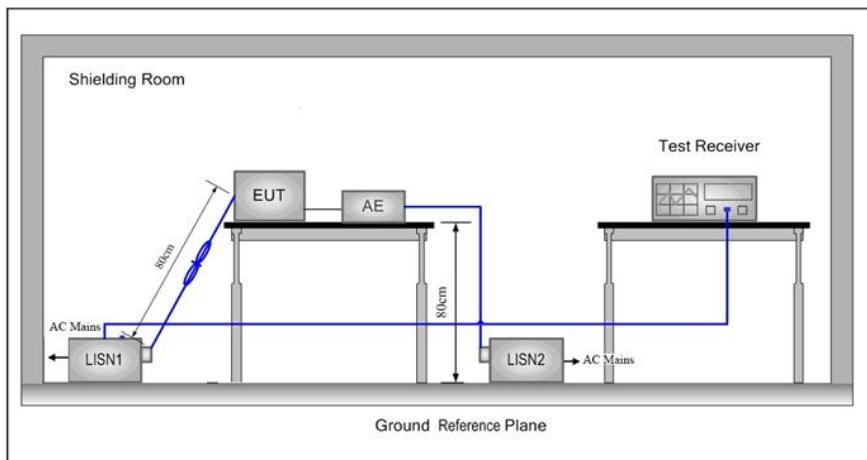


Figure 3. Above 1GHz

### 5.1.3 For Conducted Emissions test setup

#### Conducted Emissions setup



## 5.2 Test Environment

### Operating Environment for RF test:

Temperature:	26°C
Humidity:	50% RH
Atmospheric Pressure:	101kPa

## 5.3 Test Condition

Test Mode	Tx	RF Channel		
		Low(L)	Middle(M)	High(H)
GFSK/ $\pi$ /4DQPSK/ 8DPSK(DH1,DH3, DH5)	2402MHz~2480MHz	Channel 1	Channel 40	Channel 79
		2402MHz	2441MHz	2480MHz

TX mode: The EUT transmitted the continuous signal at the specific channel(s).  
Charging mode: Charging the EUT through charger.

Test mode:

### Pre-scan under all rate at Lowest channel 1

Mode	GFSK		
packets	1-DH1	1-DH3	1-DH5
Power(dBm)	1.337	1.349	1.352

Mode	$\pi$ /4DQPSK		
packets	2-DH1	2-DH3	2-DH5
Power(dBm)	3.094	3.107	3.118
Mode	8DPSK		
packets	3-DH1	3-DH3	3-DH5
Power(dBm)	3.016	3.119	3.124

Through Pre-scan, 1-DH5 packet the power is the worst case of GFSK, 2-DH5 packet the power is the worst case of  $\pi$ /4DQPSK, 3-DH5 packet the power is the worst case of 8DPSK.

## 6 General Information

### 6.1 Client Information

Applicant:	UBTECH ROBOTICS CORP LTD
Address of Applicant:	16th and 22nd Floor, Block C1, Nanshan I Park, No.1001 Xueyuan Road, Nanshan District, Shenzhen City, P.R.CHINA
Manufacturer:	UBTECH ROBOTICS CORP LTD
Address of Manufacturer:	16th and 22nd Floor, Block C1, Nanshan I Park, No.1001 Xueyuan Road, Nanshan District, Shenzhen City, P.R.CHINA
Factory:	UBTECH ROBOTICS CORP LTD BAOAN BRANCH
Address of Factory:	1-2 Floor, B Block, Huilongda Industry Park, Shilongzai, Shiyan Street, Baoan District, Shenzhen City, P.R.CHINA

### 6.2 General Description of EUT

Product Name:	uKit Robot	
Model No.:	EREI101, EREwxxy	
Test Model No.:	EREI101	
Trade mark:	UBTECH	
EUT Supports Radios application:	BT 4.2 Dual mode, 2402-2480MHz	
Power Supply:	AC Adapter	Model: PS1012-096HIB100 Input: 100-240V~ 50/60Hz, 0.4A Output: 9.6V---1.0A
	Battery	Rechargeable Lithium-ion Polymer Battery:1800mAh 7.4V
Sample Received Date:	Feb. 26, 2019	
Sample tested Date:	Mar. 11, 2019 to Mar. 28, 2019	

### 6.3 Product Specification subjective to this standard

Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	2.1+EDR
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Hardware Version:	V2.1(manufacturer declare)
Software Version:	V1.1.13(manufacturer declare)
Test Power Grade:	N/A
Test Software of EUT:	BLUETOOL_MI_1.9.2.0(manufacturer declare)
Antenna Type:	PCB printed Antenna
Antenna Gain:	0dBi
Test Voltage:	AC 120V, 60Hz

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2402MHz	21	2422MHz	41	2442MHz	61	2462MHz
2	2403MHz	22	2423MHz	42	2443MHz	62	2463MHz
3	2404MHz	23	2424MHz	43	2444MHz	63	2464MHz
4	2405MHz	24	2425MHz	44	2445MHz	64	2465MHz
5	2406MHz	25	2426MHz	45	2446MHz	65	2466MHz
6	2407MHz	26	2427MHz	46	2447MHz	66	2467MHz
7	2408MHz	27	2428MHz	47	2448MHz	67	2468MHz
8	2409MHz	28	2429MHz	48	2449MHz	68	2469MHz
9	2410MHz	29	2430MHz	49	2450MHz	69	2470MHz
10	2411MHz	30	2431MHz	50	2451MHz	70	2471MHz
11	2412MHz	31	2432MHz	51	2452MHz	71	2472MHz
12	2413MHz	32	2433MHz	52	2453MHz	72	2473MHz
13	2414MHz	33	2434MHz	53	2454MHz	73	2474MHz
14	2415MHz	34	2435MHz	54	2455MHz	74	2475MHz
15	2416MHz	35	2436MHz	55	2456MHz	75	2476MHz
16	2417MHz	36	2437MHz	56	2457MHz	76	2477MHz
17	2418MHz	37	2438MHz	57	2458MHz	77	2478MHz
18	2419MHz	38	2439MHz	58	2459MHz	78	2479MHz
19	2420MHz	39	2440MHz	59	2460MHz	79	2480MHz
20	2421MHz	40	2441MHz	60	2461MHz		

## 6.4 Description of Support Units

The EUT has been tested independently.

## 6.5 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax:+86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

## 6.6 Deviation from Standards

None.

## 6.7 Abnormalities from Standard Conditions

None.

## 6.8 Other Information Requested by the Customer

None.

**6.9 Measurement Uncertainty (95% confidence levels, k=2)**

No.	Item	Measurement Uncertainty
1	Radio Frequency	$7.9 \times 10^{-8}$
2	RF power, conducted	0.46dB (30MHz-1GHz)
		0.55dB (1GHz-18GHz)
3	Radiated Spurious emission test	4.3dB (30MHz-1GHz)
		4.5dB (1GHz-12.75GHz)
4	Conduction emission	3.5dB (9kHz to 150kHz)
		3.1dB (150kHz to 30MHz)
5	Temperature test	0.64°C
6	Humidity test	3.8%
7	DC power voltages	0.026%

## 7 Equipment List

RF test system					
Equipment	Manufacturer	Model No.	Serial Number	Cal. Date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
Signal Generator	Keysight	E8257D	MY53401106	03-01-2019	02-29-2020
Spectrum Analyzer	Keysight	N9010A	MY54510339	03-01-2019	02-29-2020
Signal Generator	Keysight	N5182B	MY53051549	03-01-2019	02-29-2020
High-pass filter	Sinoscite	FL3CX03WG1 8NM12-0398-0 02	---	01-09-2019	01-08-2020
High-pass filter	MICRO-TRO NICS	SPA-F-63029-4	---	01-09-2019	01-08-2020
DC Power	Keysight	E3642A	MY54426035	03-01-2019	02-29-2020
PC-1	Lenovo	R4960d	---	03-01-2019	02-29-2020
BT&WI-FI Automatic control	R&S	OSP120	101374	03-01-2019	02-29-2020
RF control unit	JS Tonscend	JS0806-2	15860006	03-01-2019	02-29-2020
RF control unit	JS Tonscend	JS0806-1	15860004	03-01-2019	02-29-2020
RF control unit	JS Tonscend	JS0806-4	158060007	03-01-2019	02-29-2020
BT&WI-FI Automatic test software	JS Tonscend	JS1120-2	---	03-01-2019	02-29-2020
Temperature/ Humidity Indicator	biaozhi	HM10	1804186	10-12-2018	10-11-2019

<b>Conducted disturbance Test</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Serial Number</b>	<b>Cal. date (mm-dd-yyyy)</b>	<b>Cal. Due date (mm-dd-yyyy)</b>
Receiver	R&S	ESCI	100435	05-25-2018	05-24-2019
Temperature/ Humidity Indicator	Defu	TH128	/	07-02-2018	07-01-2019
Communication test set	Agilent	E5515C	GB47050 534	03-01-2019	02-29-2020
Communication test set	R&S	CMW500	102898	01-18-2019	01-17-2020
LISN	R&S	ENV216	100098	05-10-2018	05-10-2019
LISN	schwarzbeck	NNLK8121	8121-529	05-10-2018	05-10-2019
Voltage Probe	R&S	ESH2-Z3 0299.7810.5 6	100042	06-13-2017	06-11-2020
Current Probe	R&S	EZ-17 816.2063.03	100106	05-30-2018	05-29-2019
ISN	TESEQ	ISN T800	30297	01-06-2019	01-15-2020

3M Semi/full-anechoic Chamber					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
3M Chamber & Accessory Equipment	TDK	SAC-3	---	06-04-2016	06-03-2019
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-401	12-21-2018	12-20-2019
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-618	07-30-2018	07-29-2019
Microwave Preamplifier	Agilent	8449B	3008A024 25	08-21-2018	08-20-2019
Microwave Preamplifier	Tonscend	EMC051845 SE	980380	01-16-2019	01-15-2020
Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-18 69	04-25-2018	04-23-2021
Horn Antenna	ETS-LINDGREN	3117	00057410	06-05-2018	06-03-2021
Double ridge horn antenna	A.H.SYSTEMS	SAS-574	374	06-05-2018	06-04-2021
Pre-amplifier	A.H.SYSTEMS	PAP-1840-60	6041.604 1	08-08-2018	08-07-2019
Loop Antenna	ETS	6502	00071730	06-22-2017	06-21-2019
Spectrum Analyzer	R&S	FSP40	100416	05-11-2018	05-10-2019
Receiver	R&S	ESCI	100435	05-25-2018	05-24-2019
Receiver	R&S	ESCI7	100938-0 03	11-23-2018	11-22-2019
Multi device Controller	maturo	NCD/070/107 11112	---	01-09-2019	01-08-2020
LISN	schwarzbeck	NNBM8125	81251547	05-11-2018	05-10-2019
LISN	schwarzbeck	NNBM8125	81251548	05-11-2018	05-10-2019
Signal Generator	Agilent	E4438C	MY45095 744	03-01-2019	02-29-2020
Signal Generator	Keysight	E8257D	MY53401 106	03-01-2019	02-29-2020
Temperature/ Humidity Indicator	Shanghai qixiang	HM10	1804298	10-12-2018	10-11-2019
Communication test set	Agilent	E5515C	GB47050 534	03-01-2019	02-29-2020
Cable line	Fulai(7M)	SF106	5219/6A	01-09-2019	01-08-2020
Cable line	Fulai(6M)	SF106	5220/6A	01-09-2019	01-08-2020
Cable line	Fulai(3M)	SF106	5216/6A	01-09-2019	01-08-2020
Cable line	Fulai(3M)	SF106	5217/6A	01-09-2019	01-08-2020
Communication test set	R&S	CMW500	104466	01-18-2019	01-17-2020
High-pass filter	Sinoscite	FL3CX03WG 18NM12-039 8-002	---	01-09-2019	01-08-2020
High-pass filter	MICRO-TRONICS	SPA-F-63029 -4	---	01-09-2019	01-08-2020
band rejection filter	Sinoscite	FL5CX01CA0 9CL12-0395-001	---	01-09-2019	01-08-2020
band rejection filter	Sinoscite	FL5CX01CA0 8CL12-0393-001	---	01-09-2019	01-08-2020
band rejection filter	Sinoscite	FL5CX02CA0 4CL12-0396-002	---	01-09-2019	01-08-2020
band rejection filter	Sinoscite	FL5CX02CA0 3CL12-0394-001	---	01-09-2019	01-08-2020

3M full-anechoic Chamber					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
RSE Automatic test software	JS Tonscend	JS36-RSE	10166	06-20-2018	06-19-2019
Receiver	Keysight	N9038A	MY57290136	03-28-2018 03-27-2019	03-27-2019 03-25-2020
Spectrum Analyzer	Keysight	N9020B	MY57111112	03-28-2018 03-27-2019	03-27-2019 03-25-2020
Spectrum Analyzer	Keysight	N9030B	MY57140871	03-28-2018 03-27-2019	03-27-2019 03-25-2020
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-075	04-25-2018	04-23-2021
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-076	04-25-2018	04-23-2021
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	9163-1148	04-25-2018	04-23-2021
Horn Antenna	Schwarzbeck	BBHA 9170	9170-832	04-25-2018	04-23-2021
Horn Antenna	Schwarzbeck	BBHA 9170	9170-829	04-25-2018	04-23-2021
Communication Antenna	Schwarzbeck	CLSA 0110L	1014	02-15-2018	02-14-2019
Biconical antenna	Schwarzbeck	VUBA 9117	9117-381	04-25-2018	04-23-2021
Horn Antenna	ETS-LINDGREN	3117	00057407	07-10-2018	07-08-2021
Preamplifier	EMCI	EMC184055SE	980596	06-20-2018	06-19-2019
Communication test set	R&S	CMW500	102898	01-18-2019	01-17-2020
Preamplifier	EMCI	EMC001330	980563	06-20-2018	06-19-2019
Preamplifier	Agilent	8449B	3008A02425	08-21-2018	08-20-2019
Temperature/Humidity Indicator	biaozi	GM1360	EE1186631	05-02-2018	05-01-2019
Signal Generator	KEYSIG HT	E8257D	MY53401106	03-13-2018	03-12-2019
Fully Anechoic Chamber	TDK	FAC-3	---	01-17-2018	01-15-2021
Filter bank	JS Tonscend	JS0806-F	188060094	04-10-2018	04-08-2021
Cable line	Times	SFT205-NMSM-2.50M	394812-0001	01-09-2019	01-08-2020
Cable line	Times	SFT205-NMSM-2.50M	394812-0002	01-09-2019	01-08-2020
Cable line	Times	SFT205-NMSM-2.50M	394812-0003	01-09-2019	01-08-2020
Cable line	Times	SFT205-NMSM-2.50M	393495-0001	01-09-2019	01-08-2020
Cable line	Times	EMC104-NMNM-1000	SN160710	01-09-2019	01-08-2020
Cable line	Times	SFT205-NMSM-3.00M	394813-0001	01-09-2019	01-08-2020
Cable line	Times	SFT205-NMNM-1.50M	381964-0001	01-09-2019	01-08-2020
Cable line	Times	SFT205-NMSM-7.00M	394815-0001	01-09-2019	01-08-2020
Cable line	Times	HF160-KMKM-3.00M	393493-0001	01-09-2019	01-08-2020

## 8 Radio Technical Requirements Specification

### Reference documents for testing:

No.	Identity	Document Title
1	FCC Part15C	Subpart C-Intentional Radiators
2	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices

### Test Results List:

Test requirement	Test method	Test item	Verdict	Note
Part15C Section 15.247 (a)(1)	ANSI 63.10	20dB Occupied Bandwidth	PASS	Appendix A)
Part15C Section 15.247 (a)(1)	ANSI 63.10	Carrier Frequencies Separation	PASS	Appendix B)
Part15C Section 15.247 (a)(1)	ANSI 63.10	Dwell Time	PASS	Appendix C)
Part15C Section 15.247 (b)	ANSI 63.10	Hopping Channel Number	PASS	Appendix D)
Part15C Section 15.247 (b)(1)	ANSI 63.10	Conducted Peak Output Power	PASS	Appendix E)
Part15C Section 15.247(d)	ANSI 63.10	Band-edge for RF Conducted Emissions	PASS	Appendix F)
Part15C Section 15.247(d)	ANSI 63.10	RF Conducted Spurious Emissions	PASS	Appendix G)
Part15C Section 15.247 (a)(1)	ANSI 63.10	Pseudorandom Frequency Hopping Sequence	PASS	Appendix H)
Part15C Section 15.203/15.247 (c)	ANSI 63.10	Antenna Requirement	PASS	Appendix I)
Part15C Section 15.207	ANSI 63.10	AC Power Line Conducted Emission	PASS	Appendix J)
Part15C Section 15.205/15.209	ANSI 63.10	Restricted bands around fundamental frequency (Radiated) Emission)	PASS	Appendix K)
Part15C Section 15.205/15.209	ANSI 63.10	Radiated Spurious Emissions	PASS	Appendix L)

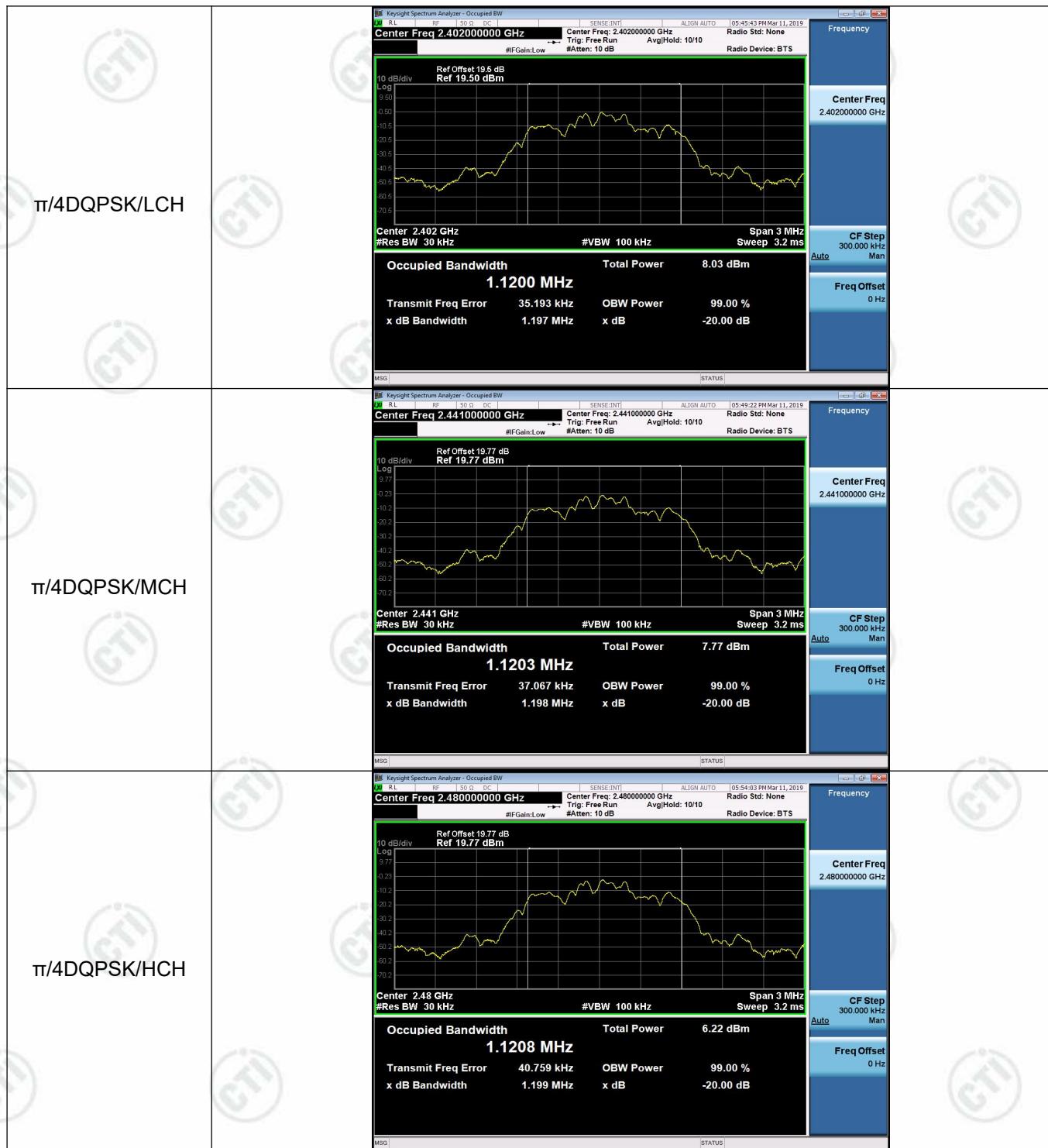
## Appendix A): 20dB Occupied Bandwidth

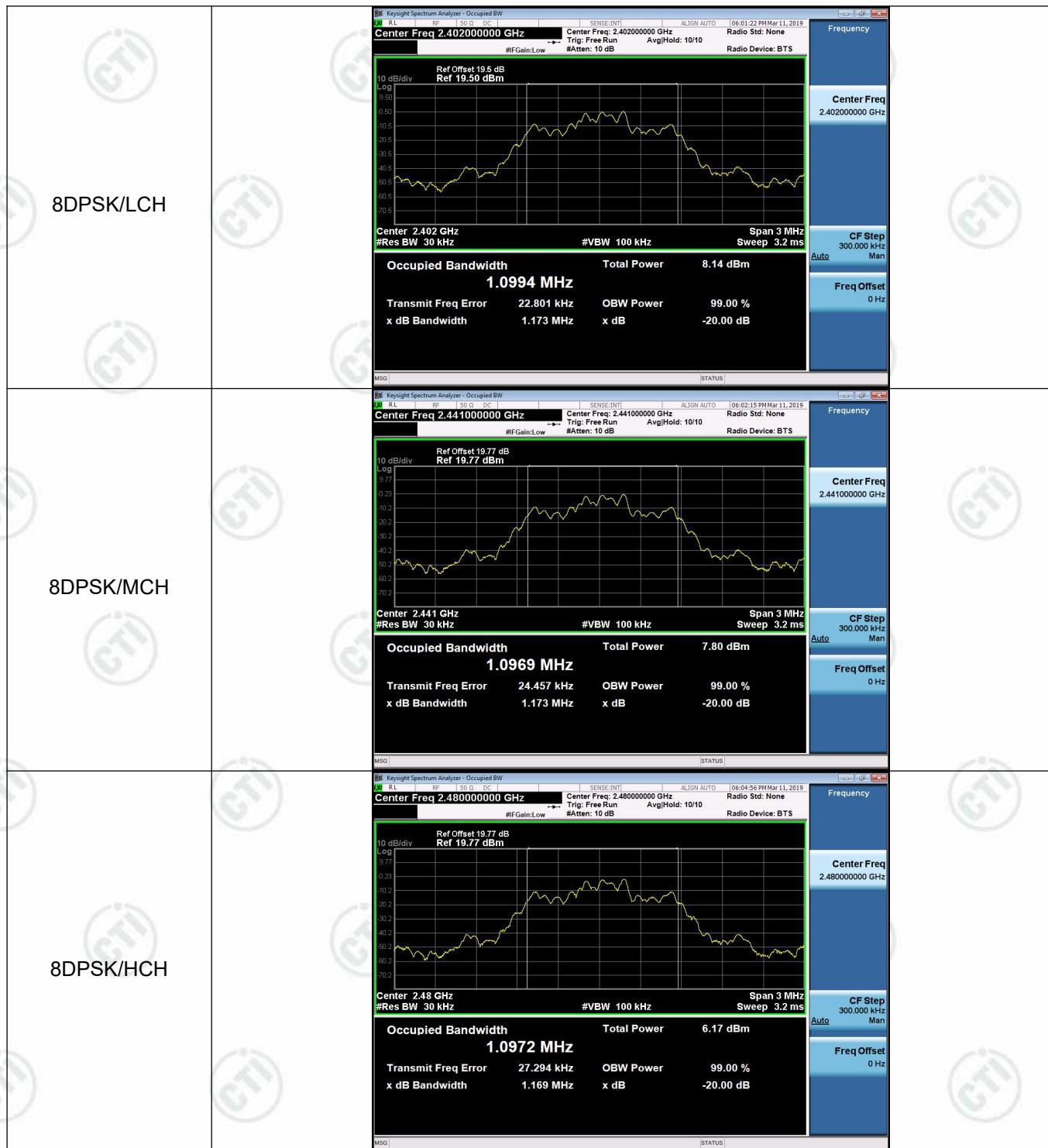
### Test Result

Mode	Channel.	20dB Bandwidth [MHz]	99% OBW [MHz]	Verdict
GFSK	LCH	0.9758	0.85068	PASS
GFSK	MCH	0.8489	0.85539	PASS
GFSK	HCH	0.8471	0.85143	PASS
$\pi/4$ DQPSK	LCH	1.197	1.1200	PASS
$\pi/4$ DQPSK	MCH	1.198	1.1203	PASS
$\pi/4$ DQPSK	HCH	1.199	1.1208	PASS
8DPSK	LCH	1.173	1.0994	PASS
8DPSK	MCH	1.173	1.0969	PASS
8DPSK	HCH	1.169	1.0972	PASS

## Test Graph





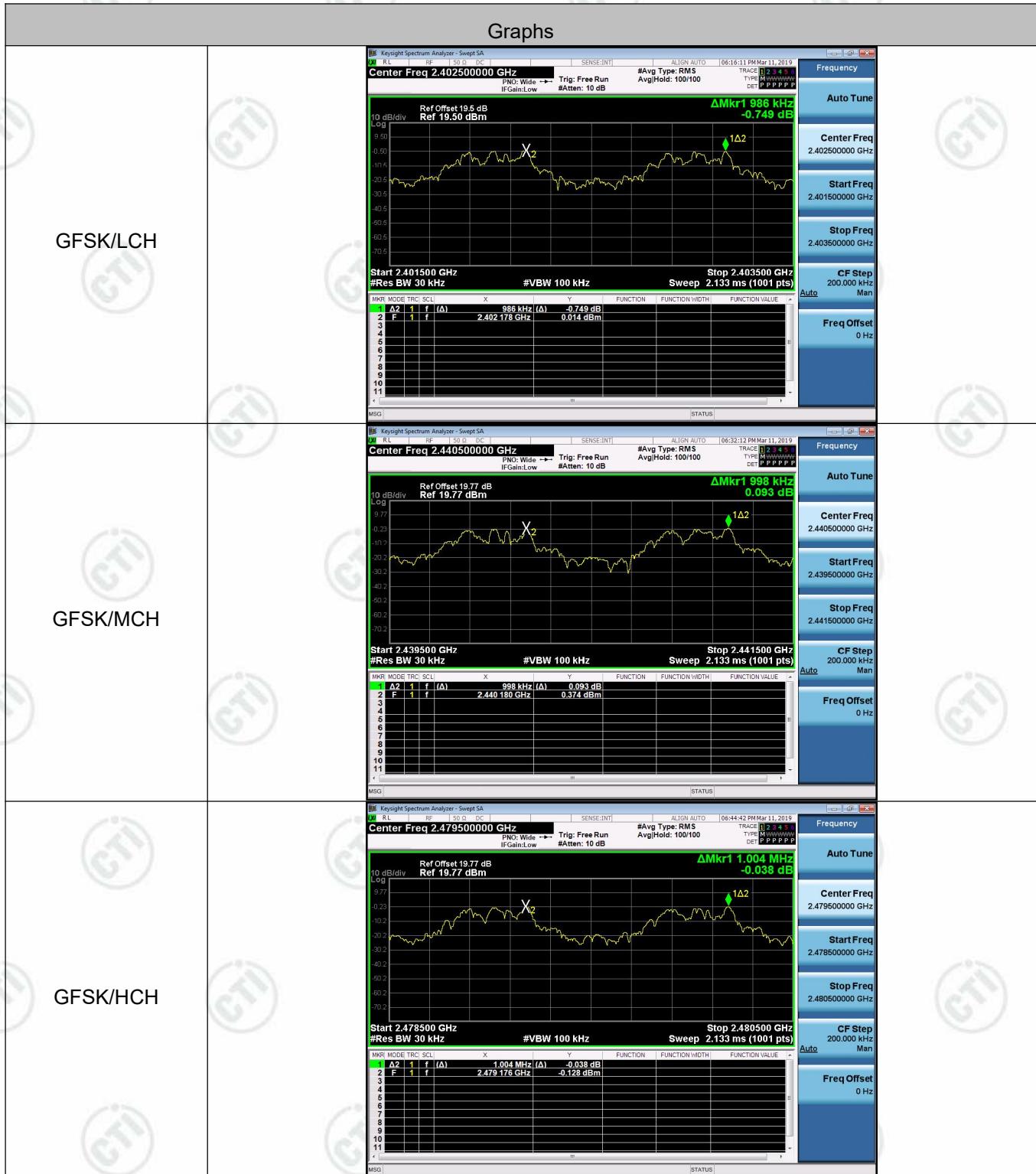


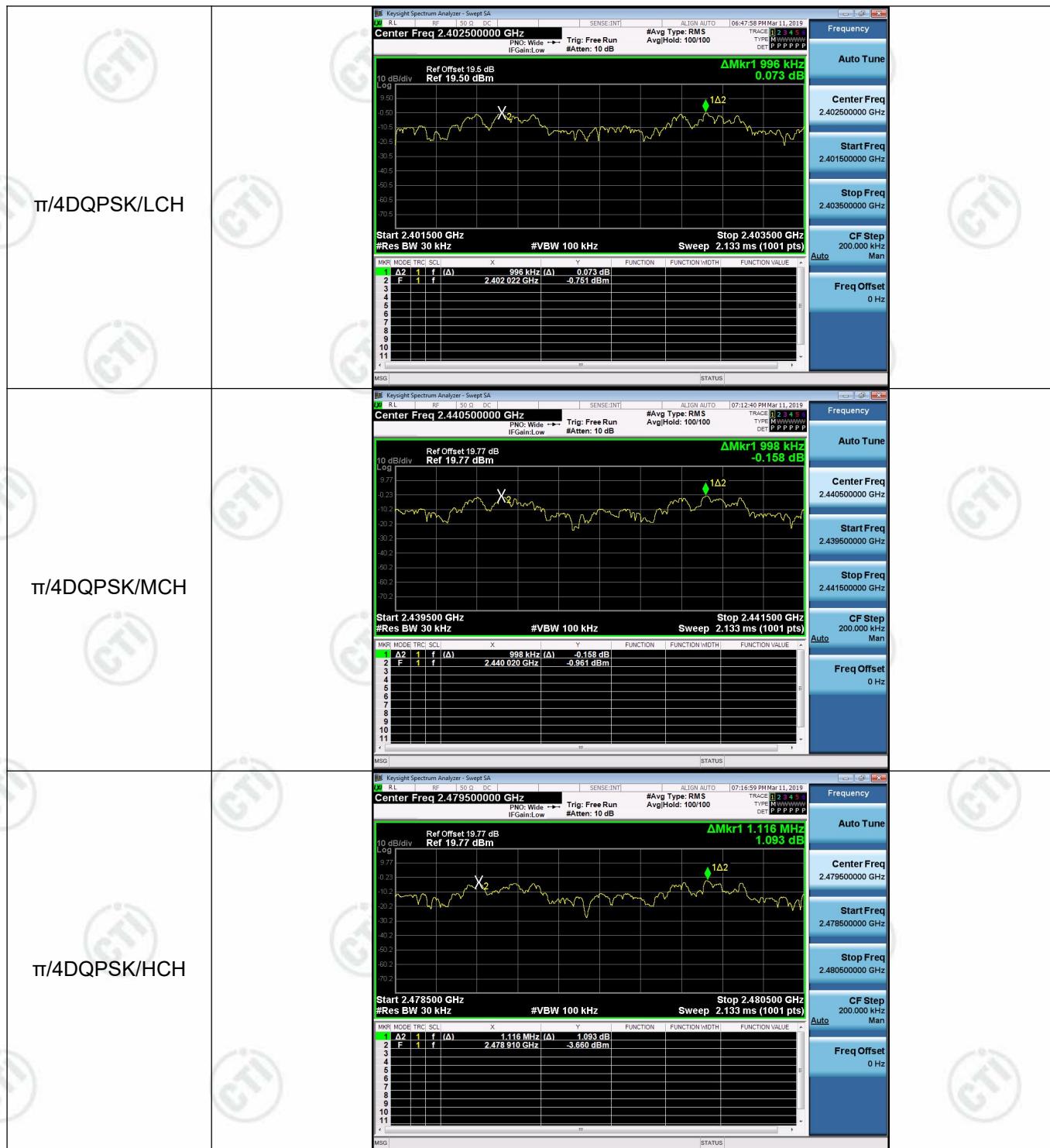
## Appendix B): Carrier Frequency Separation

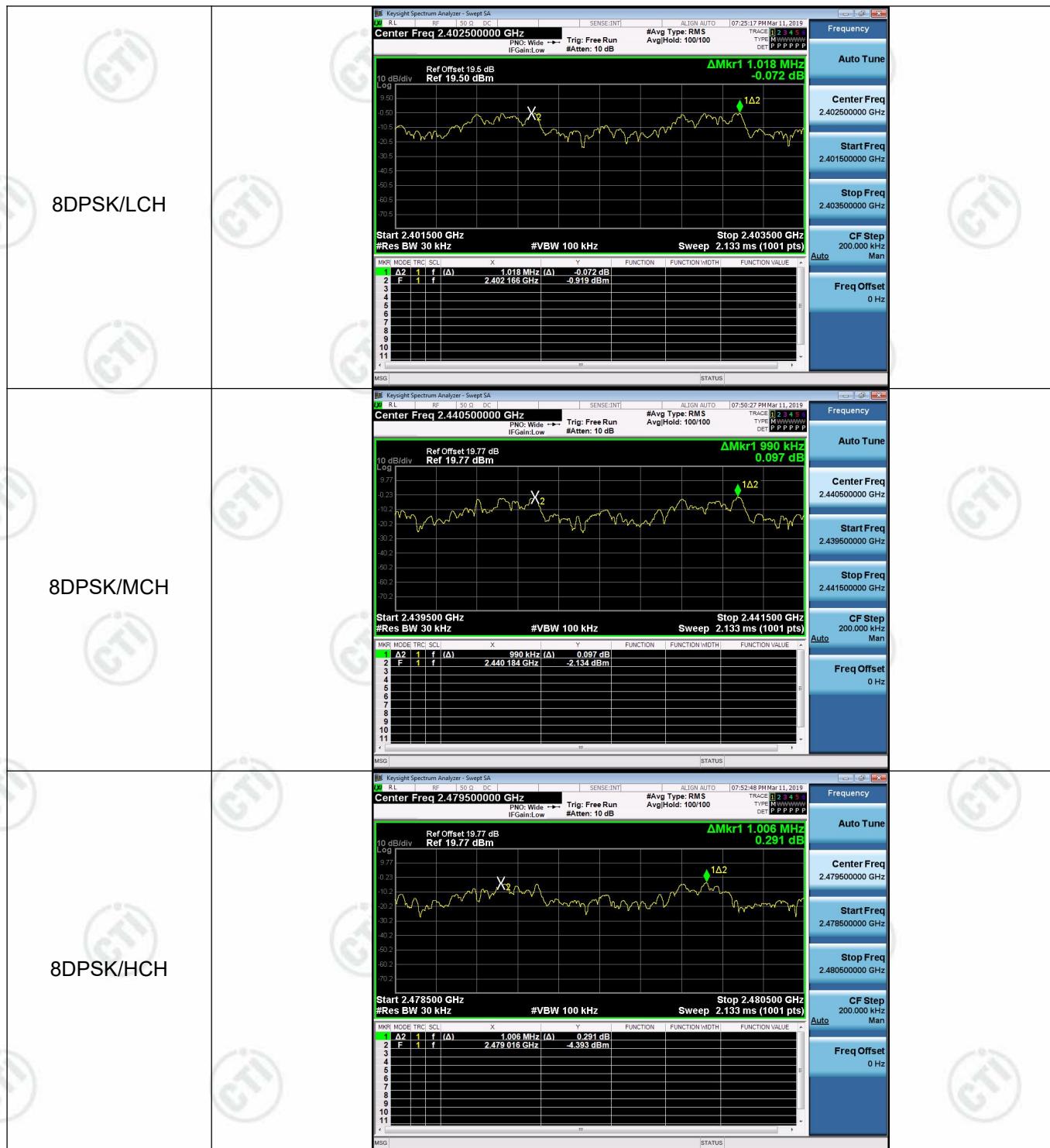
**Result Table**

Mode	Channel.	Carrier Frequency Separation [MHz]	Verdict
GFSK	LCH	0.986	PASS
GFSK	MCH	0.998	PASS
GFSK	HCH	1.004	PASS
$\pi/4$ DQPSK	LCH	0.996	PASS
$\pi/4$ DQPSK	MCH	0.998	PASS
$\pi/4$ DQPSK	HCH	1.116	PASS
8DPSK	LCH	1.018	PASS
8DPSK	MCH	0.990	PASS
8DPSK	HCH	1.006	PASS

## Test Graph







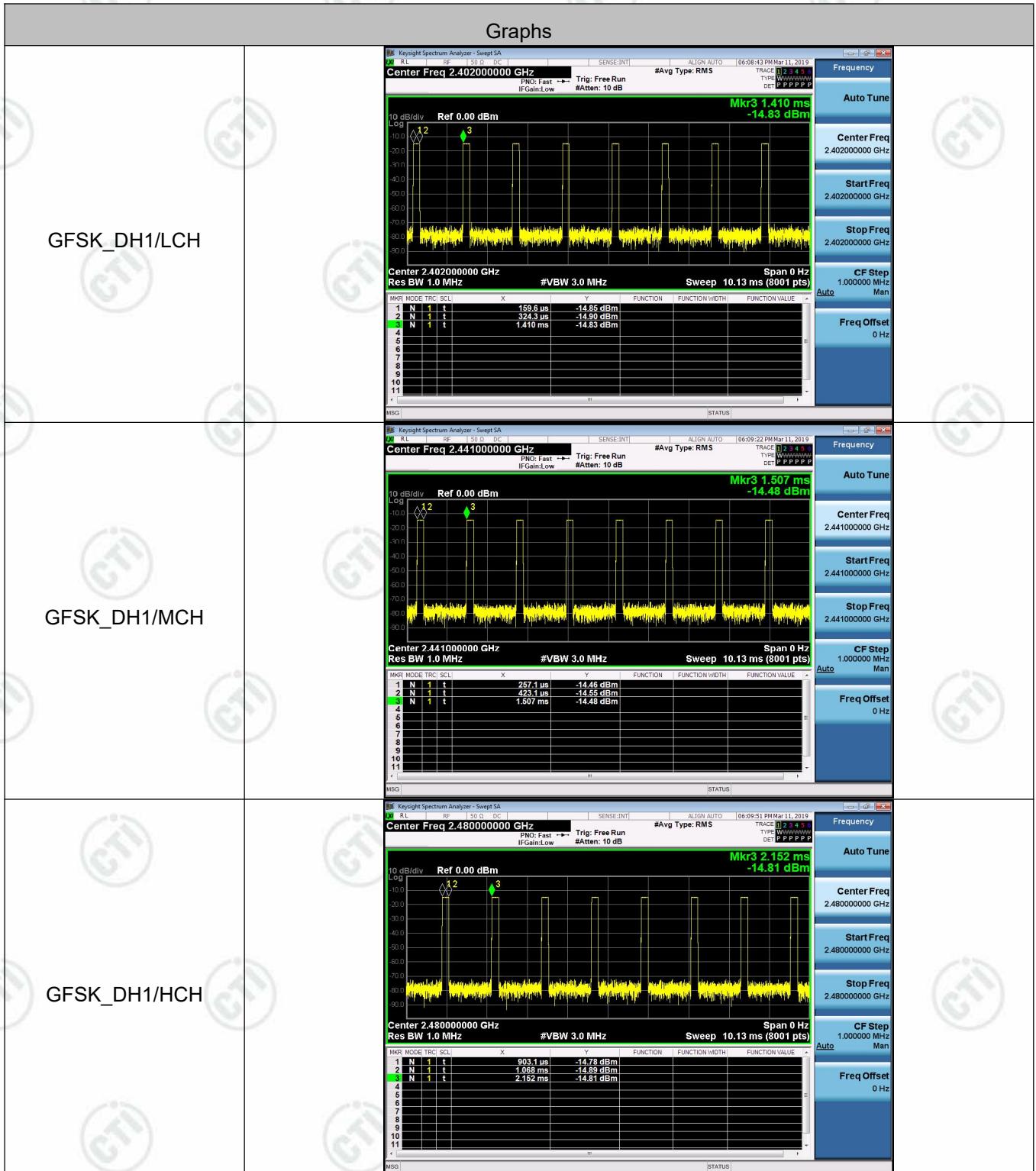
## Appendix C): Dwell Time

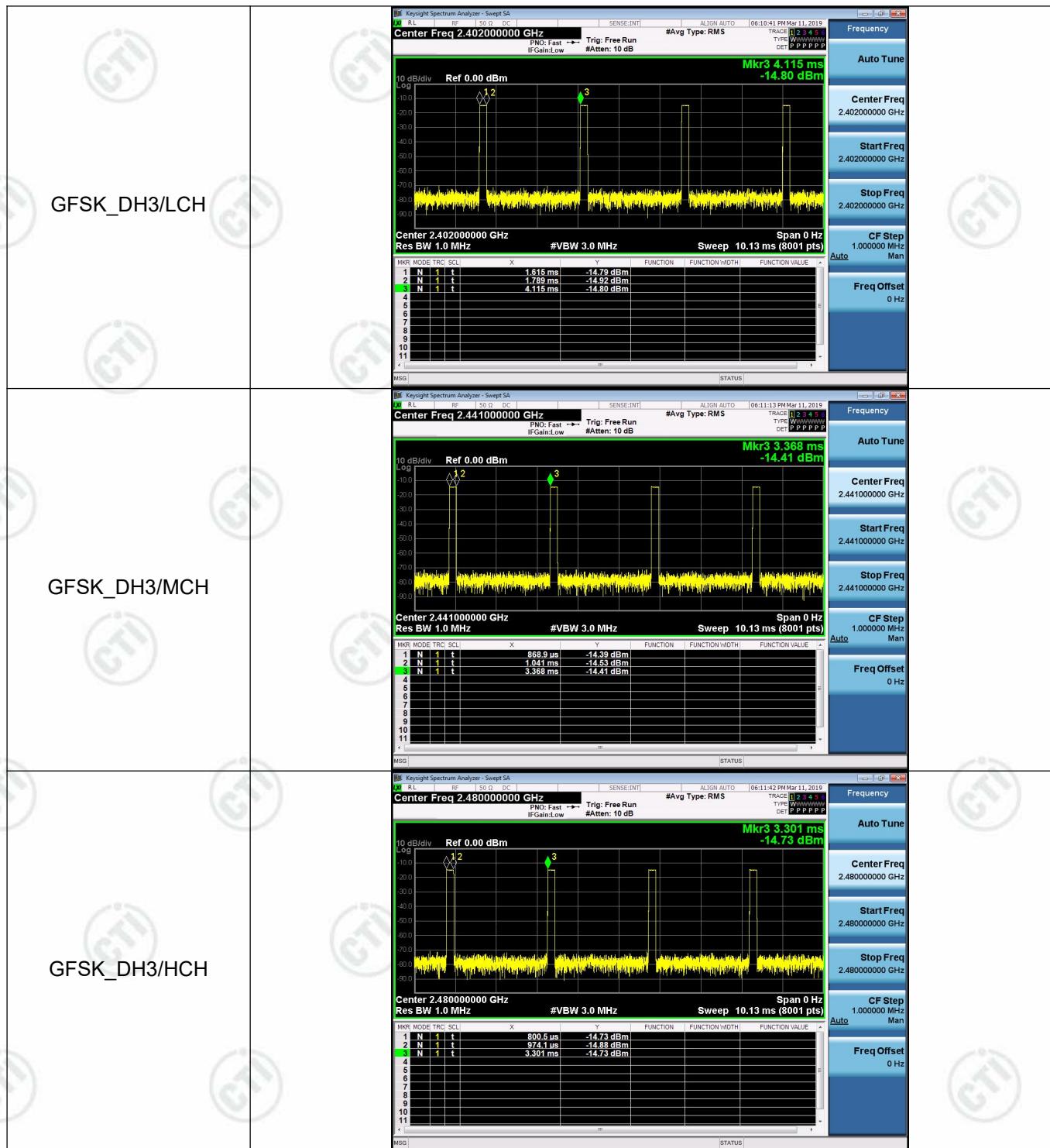
**Result Table**

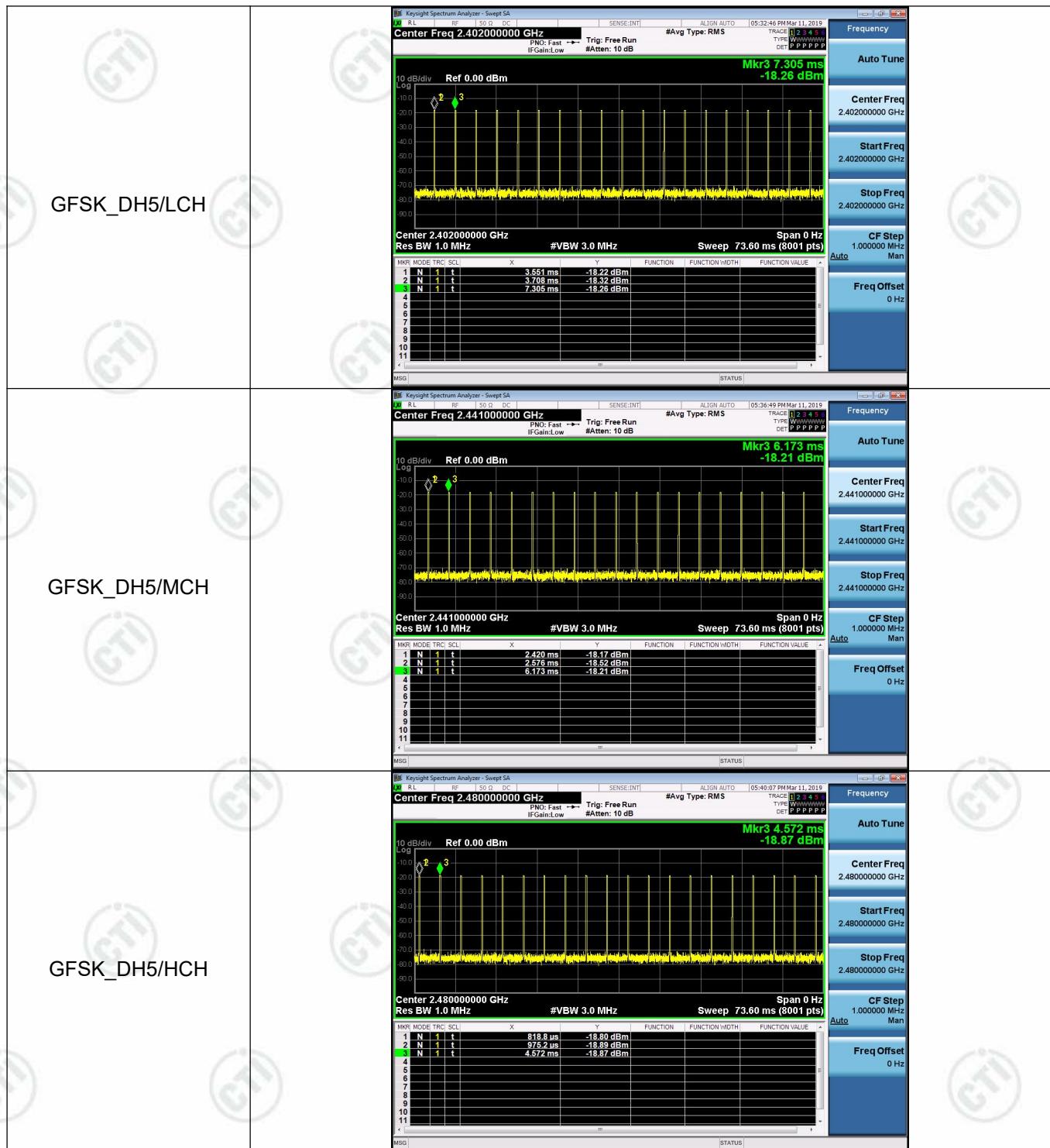
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Duty Cycle [%]	Verdict
GFSK	DH1	LCH	0.164667	320	0.053	0.13	PASS
GFSK	DH1	MCH	0.165934	320	0.053	0.13	PASS
GFSK	DH1	HCH	0.164667	320	0.053	0.13	PASS
GFSK	DH3	LCH	0.17353	160	0.028	0.07	PASS
GFSK	DH3	MCH	0.172267	160	0.028	0.07	PASS
GFSK	DH3	HCH	0.173534	160	0.028	0.07	PASS
GFSK	DH5	LCH	0.1564	106.7	0.017	0.04	PASS
GFSK	DH5	MCH	0.1564	106.7	0.017	0.04	PASS
GFSK	DH5	HCH	0.1564	106.7	0.017	0.04	PASS

Remark : All modes are tested, only the worst mode GFSK is reported.

## Test Graph



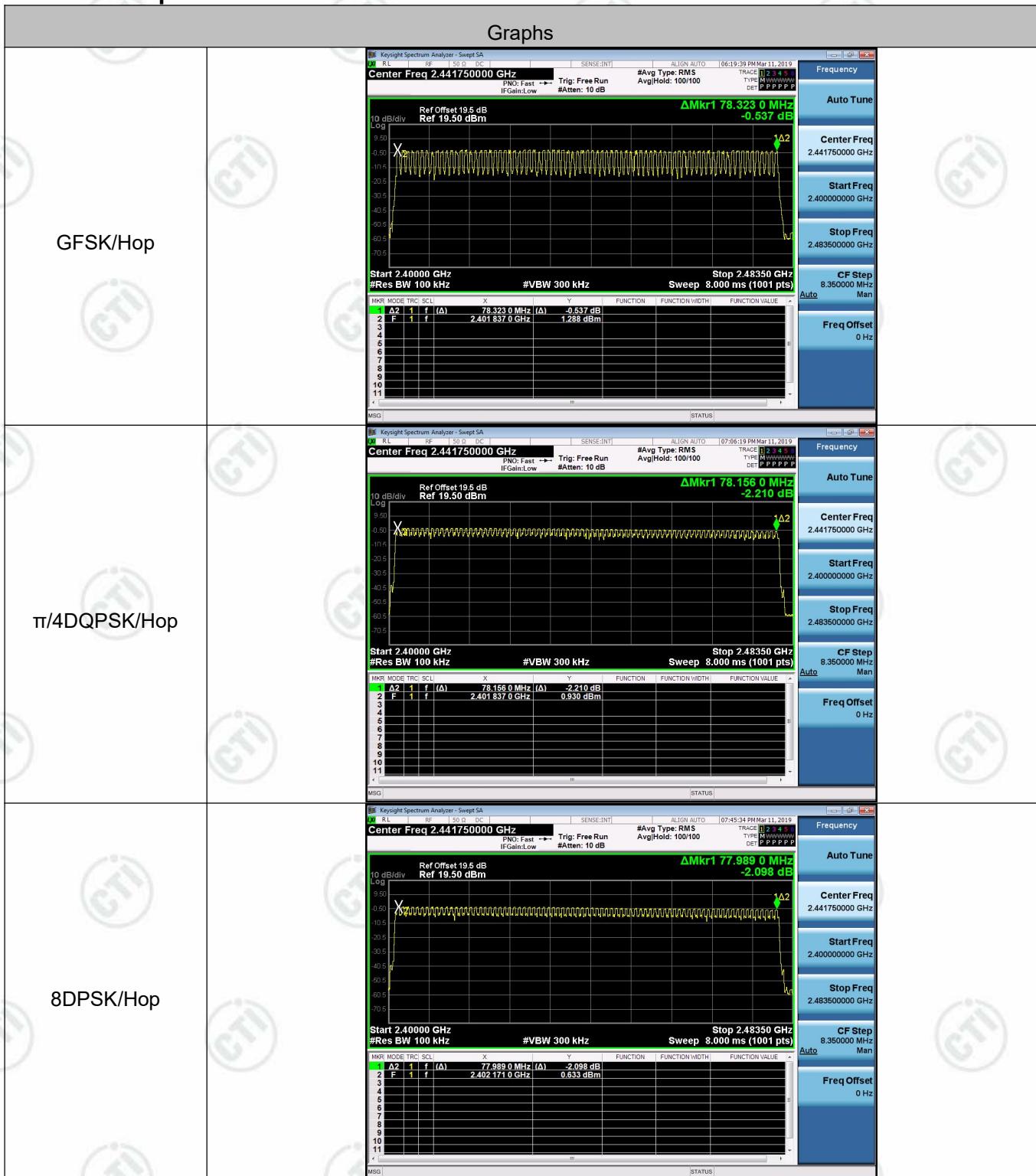




**Appendix D): Hopping Channel Number****Result Table**

Mode	Channel.	Number of Hopping Channel	Verdict
GFSK	Hop	79	PASS
$\pi/4$ DQPSK	Hop	79	PASS
8DPSK	Hop	79	PASS

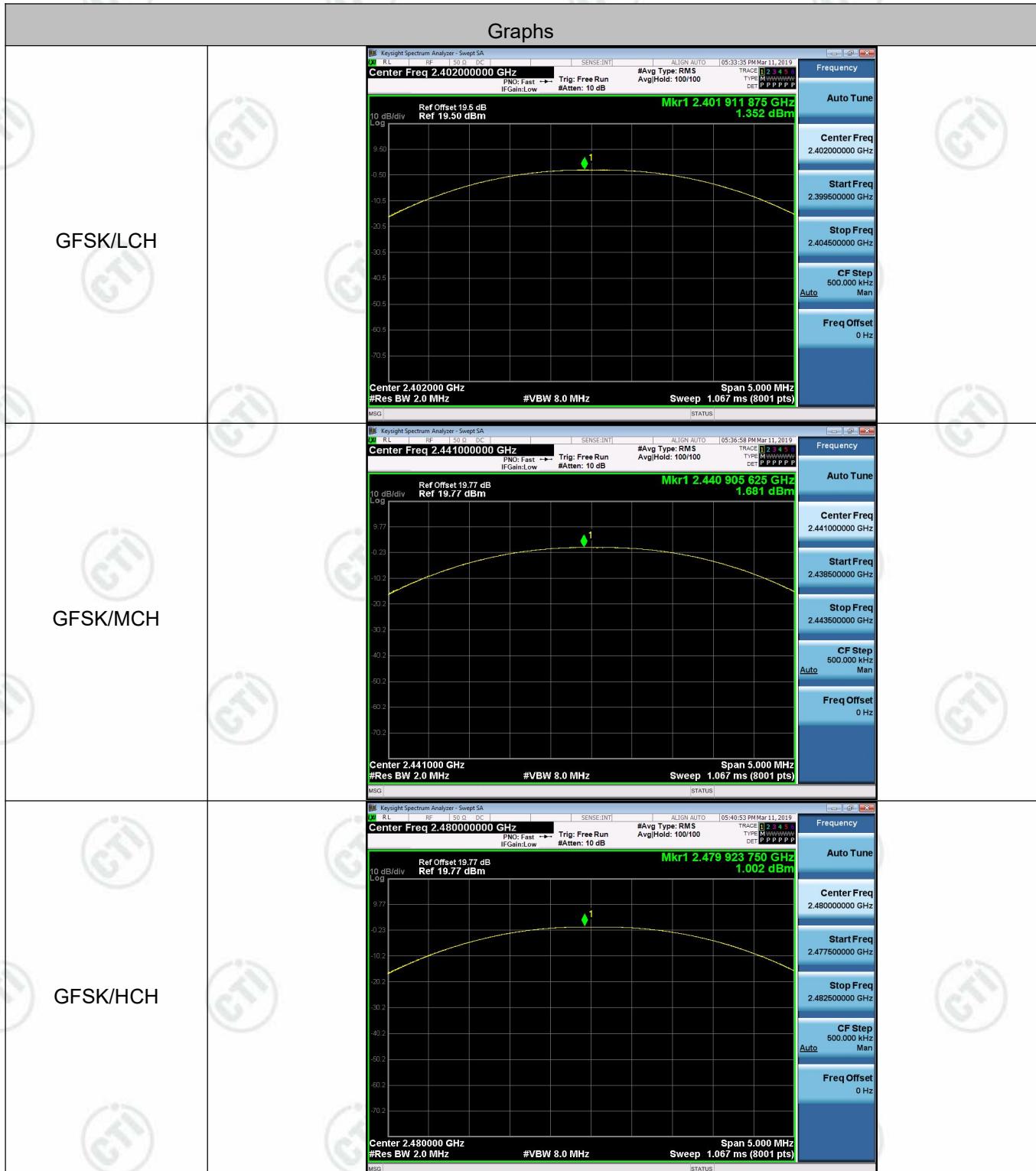
### Test Graph

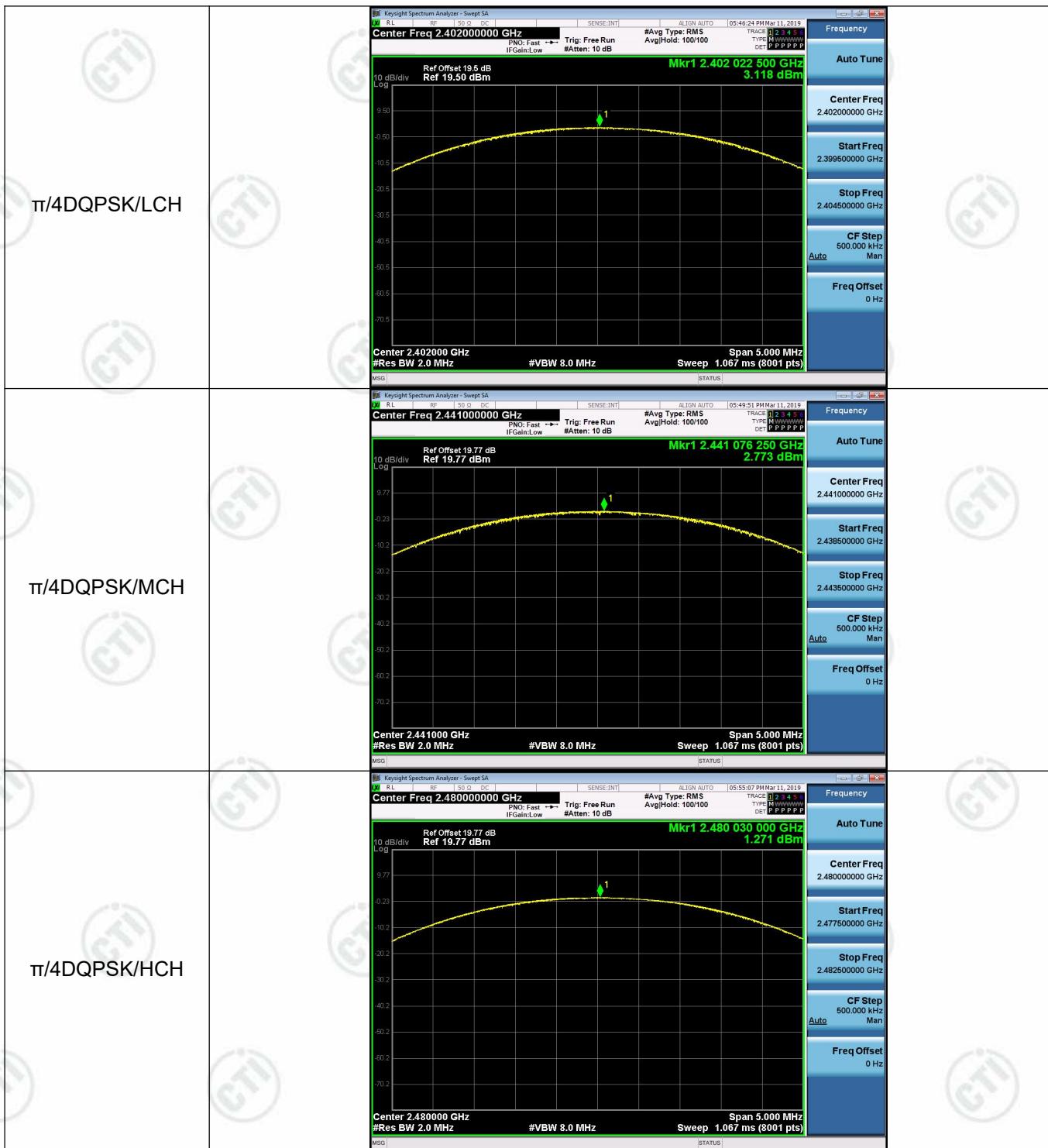


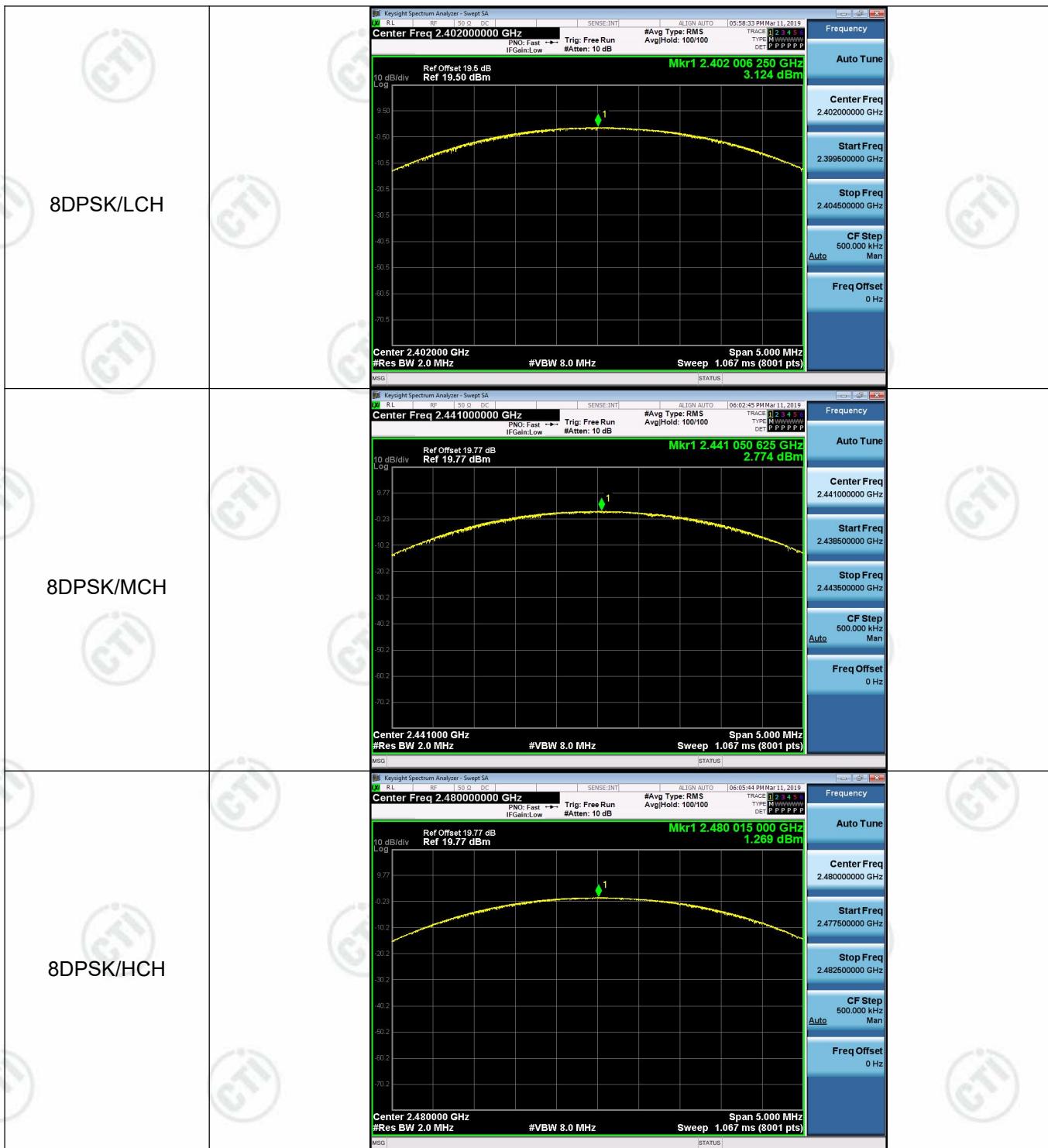
**Appendix E): Conducted Peak Output Power****Result Table**

Mode	Channel.	Maximum Peak Output Power [dBm]	Verdict
GFSK	LCH	1.352	PASS
GFSK	MCH	1.681	PASS
GFSK	HCH	1.002	PASS
$\pi/4$ DQPSK	LCH	3.118	PASS
$\pi/4$ DQPSK	MCH	2.773	PASS
$\pi/4$ DQPSK	HCH	1.271	PASS
8DPSK	LCH	3.124	PASS
8DPSK	MCH	2.774	PASS
8DPSK	HCH	1.269	PASS

## Test Graph







## Appendix F): Band-edge for RF Conducted Emissions

**Result Table**

Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	1.324	Off	-60.149	-18.68	PASS
			1.383	On	-55.754	-18.62	PASS
GFSK	HCH	2480	0.974	Off	-59.145	-19.03	PASS
			1.273	On	-54.714	-18.73	PASS
$\pi/4$ DQPSK	LCH	2402	0.819	Off	-60.853	-19.18	PASS
			0.928	On	-59.688	-19.07	PASS
$\pi/4$ DQPSK	HCH	2480	-1.028	Off	-58.558	-21.03	PASS
			-0.493	On	-58.025	-20.49	PASS
8DPSK	LCH	2402	0.942	Off	-60.177	-19.06	PASS
			-0.454	On	-56.502	-20.45	PASS
8DPSK	HCH	2480	-0.952	Off	-59.616	-20.95	PASS
			-1.519	On	-55.852	-21.52	PASS

### Test Graph

