

TEST REPORT

Product : Smart Projector
Trade mark : TOUMEI
Model/Type reference : C800S, C800, C800W, C800i, V3, V5, V5X, V6, V7, V8, V9, Q1, Q3, Q5, Q6, Q8, C1, C2, C3, C4, C5, C6, C7, C8, T5, T6, T7, T8, T9, X1, X2, X3, X4, X5, X6, X7, X8, X9, S1, S2, S3, S4, S5, S6, S7, S8, S9, K1, K2, K3, K4, K5, K6, K7, K8, K9, A3, A4, A5, A6, A7, A8, A9
Serial Number : N/A
Report Number : EED32L00007201
FCC ID : 2AJCMC800S
Date of Issue : May 15, 2019
Test Standards : 47 CFR Part 15 Subpart C
Test result : PASS

Prepared for:

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6th Floor, Building i, Jinchangda Science Park, Shanwei Village,
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May 15, 2019



Check No.: 3096339091

2 Version

Version No.	Date	Description
00	May 15, 2019	Original

3 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 (b)	ANSI C63.10-2013	PASS
Dwell Time	47 CFR Part 15 Subpart C Section 15.247 (a)(1)	ANSI C63.10-2013	PASS
Pseudorandom Frequency Hopping Sequence	47 CFR Part 15 Subpart C Section 15.247(b)(4)&TCB Exclusion List (7 July 2002)	ANSI C63.10-2013	PASS
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

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.: C800S, C800, C800W, C800i, V3, V5, V5X, V6, V7, V8, V9, Q1, Q3, Q5, Q6, Q8, C1, C2, C3, C4, C5, C6, C7, C8, T5, T6, T7, T8, T9, X1, X2, X3, X4, X5, X6, X7, X8, X9, S1, S2, S3, S4, S5, S6, S7, S8, S9, K1, K2, K3, K4, K5, K6, K7, K8, K9, A3, A4, A5, A6, A7, A8, A9

Only the model C800 was tested, Different models are the different outer case colors, but internal structure, circuit principle and all key components related to EMC performance are identical. The differences do not affect product safety and EMC performance.

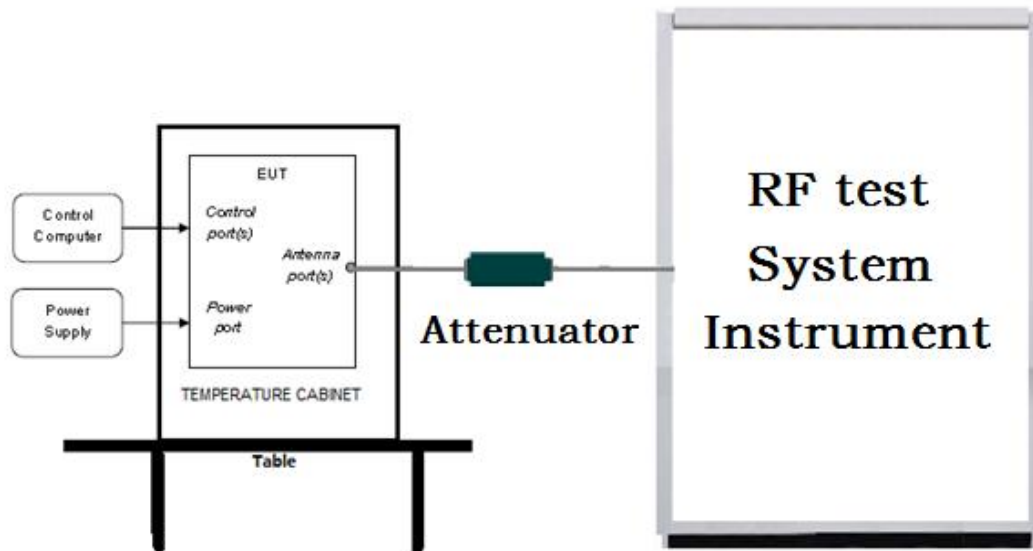
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5 Test Requirement

5.1 Test setup

5.1.1 For Conducted test setup



5.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

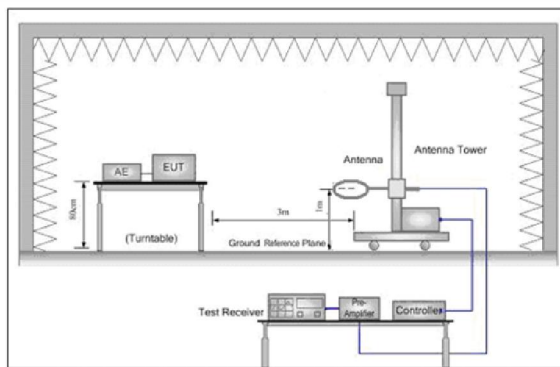


Figure 1. Below 30MHz

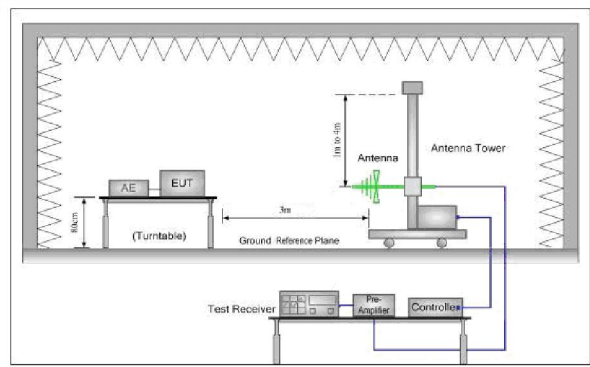


Figure 2. 30MHz to 1GHz

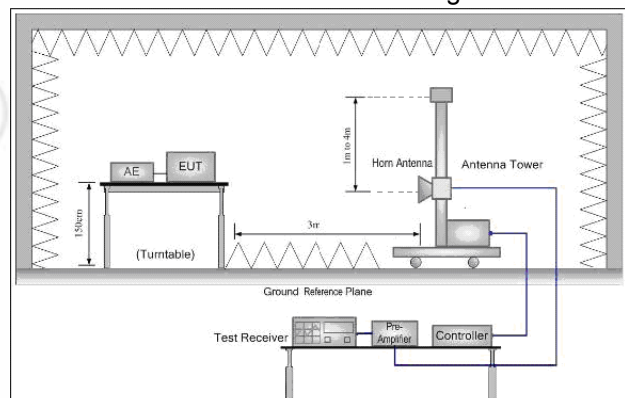
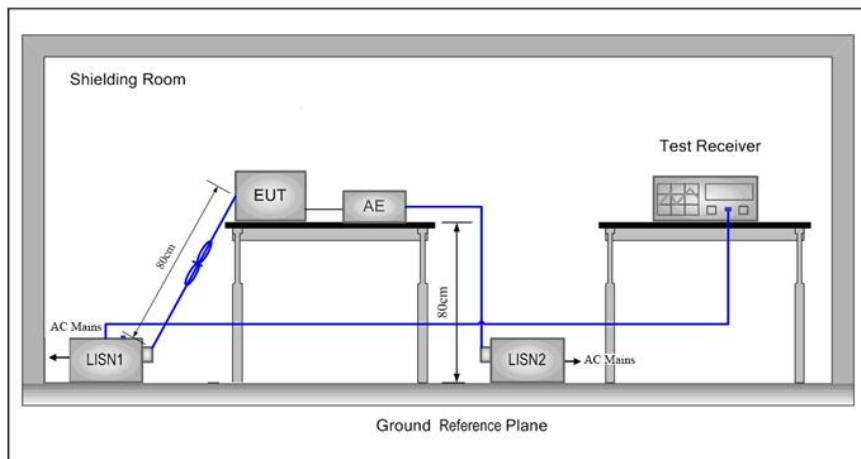


Figure 3. Above 1GHz

5.1.3 For Conducted Emissions test setup

Conducted Emissions setup



5.2 Test Environment

Operating Environment for RF Conducted test:	
Temperature:	24°C
Humidity:	54% RH
Atmospheric Pressure:	101kPa

5.3 Test Condition

Test Mode	Tx	RF Channel		
		Low(L)	Middle(M)	High(H)
GFSK/ π /4DQPSK/ 8DPSK(DH1,DH3, DH5)	2402MHz ~2480 MHz	Channel 1	Channel 40	Channel79
		2402MHz	2441MHz	2480MHz

TX mode: The EUT transmitted the continuous modulation test signal at the specific channel(s).

Test mode:

Pre-scan under all rate at Lowest channel 1

Mode	GFSK		
packets	1-DH1	1-DH3	1-DH5
Power(dBm)	5.456	5.518	5.592

Mode	π /4DQPSK		
packets	2-DH1	2-DH3	2-DH5
Power(dBm)	3.500	3.601	3.610

Mode	8DPSK		
packets	3-DH1	3-DH3	3-DH5
Power(dBm)	3.819	3.836	3.846

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

6 General Information

6.1 Client Information

Applicant:	SHENZHEN TOUMEI TECHNOLOGY CO., LTD
Address of Applicant:	6th Floor, Building i, Jinchangda Science Park, Shanwei Village, Zhangkengjing, Guanlan Street, Longhua New District, Shenzhen
Manufacturer:	SHENZHEN TOUMEI TECHNOLOGY CO., LTD
Address of Manufacturer:	6th Floor, Building i, Jinchangda Science Park, Shanwei Village, Zhangkengjing, Guanlan Street, Longhua New District, Shenzhen
Factory:	SHENZHEN TOUMEI TECHNOLOGY CO., LTD
Address of Factory:	6th Floor, Building i, Jinchangda Science Park, Shanwei Village, Zhangkengjing, Guanlan Street, Longhua New District, Shenzhen

6.2 General Description of EUT

Product Name:	Smart Projector
Model No.:	C800S, C800, C800W, C800i, V3, V5, V5X, V6, V7, V8, V9, Q1, Q3, Q5, Q6, Q8, C1, C2, C3, C4, C5, C6, C7, C8, T5, T6, T7, T8, T9, X1, X2, X3, X4, X5, X6, X7, X8, X9, S1, S2, S3, S4, S5, S6, S7, S8, S9, K1, K2, K3, K4, K5, K6, K7, K8, K9, A3, A4, A5, A6, A7, A8, A9
Test Model No.:	C800
Trade mark:	TOUMEI
EUT Supports Radios application:	BT 4.2 Dual mode, 2402-2480MHz; 2.4G WiFi, 802.11b/g/n(20MHz), 2412-2462MHz
Power Supply:	Adapter: Model:AW018WR-0500300UV Input:100-240V~50/60Hz 0.5A Output:5V 3A
Sample Received Date:	Jan. 09, 2019
Sample tested Date:	Jan. 28, 2019 to May 14, 2019

6.3 Product Specification subjective to this standard

Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	3.0
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Hardware Version:	D306_V1.1(manufacturer declare)
Firmware Version:	05(manufacturer declare)
Test Power Grade:	N/A
Test Software of EUT:	Ampak RFTTestTool,VER:5.4(manufacturer declare)
Antenna Type:	FPC antenna
Antenna Gain:	1dBi
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	7.9×10^{-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	03-02-2018 03-01-2019	03-01-2019 02-28-2020
Spectrum Analyzer	Keysight	N9010A	MY54510339	03-02-2018 03-01-2019	03-01-2019 02-28-2020
Signal Generator	Keysight	N5182B	MY53051549	03-02-2018 03-01-2019	03-01-2019 02-28-2020
High-pass filter	Sinoscite	FL3CX03WG1 8NM12-0398-002	---	01-09-2019	01-08-2020
High-pass filter	MICRO-TRONICS	SPA-F-63029-4	---	01-09-2019	01-08-2020
DC Power	Keysight	E3642A	MY54426035	03-02-2018 03-01-2019	03-01-2019 02-28-2020
PC-1	Lenovo	R4960d	---	03-02-2018 03-01-2019	03-01-2019 02-28-2020
BT&WI-FI Automatic control	R&S	OSP120	101374	03-02-2018 03-01-2019	03-01-2019 02-28-2020
RF control unit	JS Tonscend	JS0806-2	15860006	03-02-2018 03-01-2019	03-01-2019 02-28-2020
RF control unit	JS Tonscend	JS0806-1	15860004	03-02-2018 03-01-2019	03-01-2019 02-28-2020
RF control unit	JS Tonscend	JS0806-4	158060007	03-02-2018 03-01-2019	03-01-2019 02-28-2020
BT&WI-FI Automatic test software	JS Tonscend	JS1120-2	---	03-02-2018 03-01-2019	03-01-2019 02-28-2020
Temperature/ Humidity Indicator	biaozhi	HM10	1804186	10-12-2018	10-11-2019

Conducted disturbance Test					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
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	03-02-2018 03-01-2019	03-01-2019 02-28-2020
Communication test set	R&S	CMW500	102898	01-18-2019	01-17-2020
LISN	R&S	ENV216	100098	05-11-2018 05-08-2019	05-10-2019 05-06-2020
LISN	schwarzbeck	NNLK8121	8121-529	05-11-2018 05-08-2019	05-10-2019 05-06-2020
Voltage Probe	R&S	ESH2-Z3 0299.7810.56	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	01-16-2019	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	3008A02425	08-21-2018	08-20-2019
Microwave Preamplifier	Tonscend	EMC051845S E	980380	01-16-2019	01-15-2020
Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-1869	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	6041.6041	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 05-08-2019	05-10-2019 05-06-2020
Receiver	R&S	ESCI	100435	05-25-2018	05-24-2019
Receiver	R&S	ESCI7	100938-003	11-23-2018	11-22-2019
Multi device Controller	maturo	NCD/070/1071 1112	---	01-09-2019	01-08-2020
LISN	schwarzbeck	NNBM8125	81251547	05-11-2018 05-08-2019	05-10-2019 05-06-2020
LISN	schwarzbeck	NNBM8125	81251548	05-11-2018 05-08-2019	05-10-2019 05-06-2020
Signal Generator	Agilent	E4438C	MY45095744	03-02-2018 03-01-2019	03-01-2019 02-28-2020
Signal Generator	Keysight	E8257D	MY53401106	03-02-2018 03-01-2019	03-01-2019 02-28-2020
Temperature/ Humidity Indicator	Shanghai qixiang	HM10	1804298	10-12-2018	10-11-2019
Communication test set	Agilent	E5515C	GB47050534	03-02-2018 03-01-2019	03-01-2019 02-28-2020
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	FL3CX03WG1 8NM12-0398-002	---	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	02-14-2019 02-13-2020
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	EMC184055 SE	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	biaozhi	GM1360	EE1186631	05-02-2018 04-30-2019	05-01-2019 04-28-2020
Signal Generator	KEYSIGHT	E8257D	MY53401106	03-02-2018 03-01-2019	03-01-2019 02-28-2020
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)

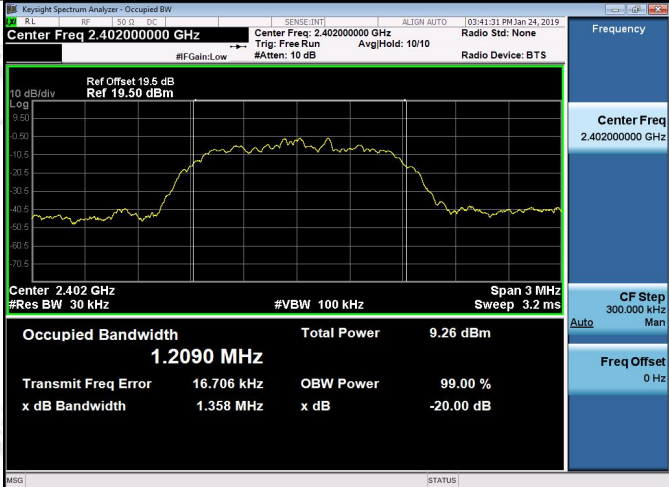
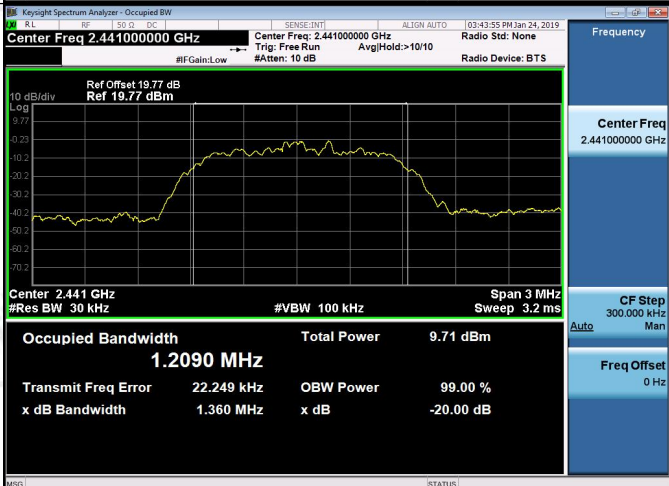
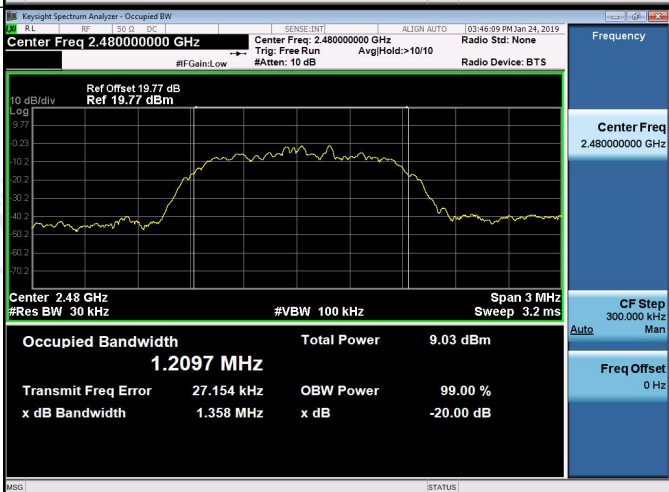
Appendix A): 20dB Occupied Bandwidth

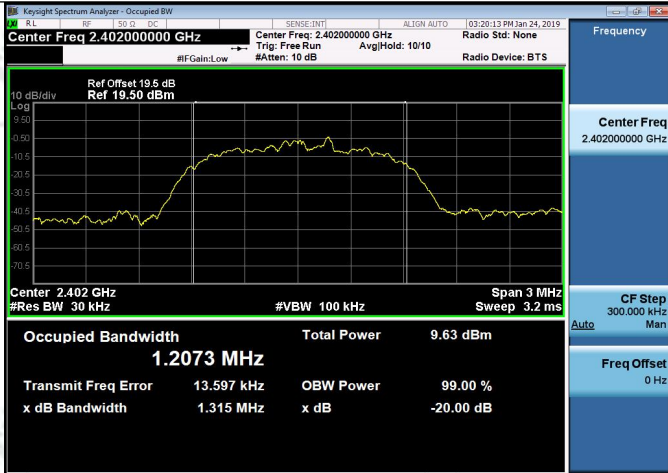
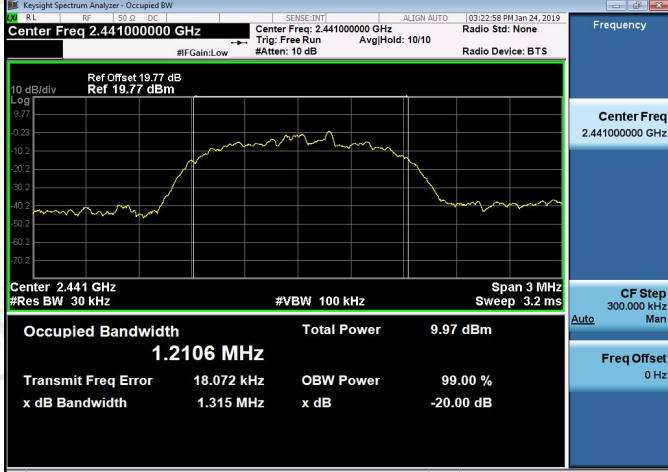
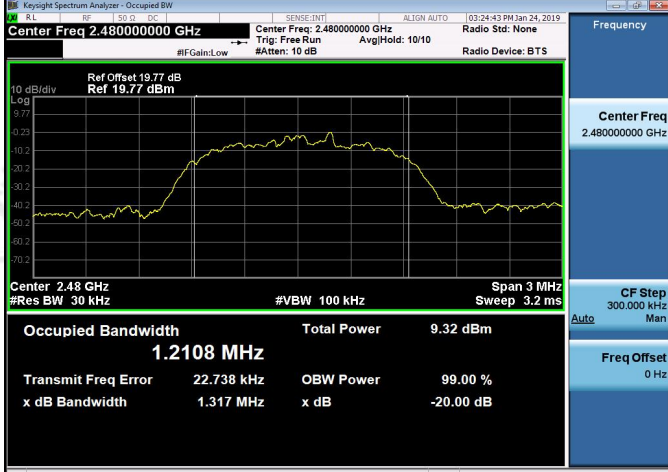
Test Result

Mode	Channel.	20dB Bandwidth [MHz]	99% OBW [MHz]	Verdict
GFSK	LCH	1.011	0.91022	PASS
GFSK	MCH	1.014	0.91027	PASS
GFSK	HCH	1.002	0.90758	PASS
$\pi/4$ DQPSK	LCH	1.358	1.2090	PASS
$\pi/4$ DQPSK	MCH	1.360	1.2090	PASS
$\pi/4$ DQPSK	HCH	1.358	1.2097	PASS
8DPSK	LCH	1.315	1.2073	PASS
8DPSK	MCH	1.315	1.2106	PASS
8DPSK	HCH	1.317	1.2108	PASS

Test Graph



$\pi/4$DQPSK/LCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.402000000 GHz Ref Offset 19.5 dB Ref 19.50 dBm Center 2.402 GHz #Res BW 30 kHz Span 3 MHz Sweep 3.2 ms Occupied Bandwidth 1.2090 MHz Total Power 9.26 dBm Transmit Freq Error 16.706 kHz OBW Power 99.00 % x dB Bandwidth 1.358 MHz x dB -20.00 dB
$\pi/4$DQPSK/MCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.441000000 GHz Ref Offset 19.77 dB Ref 19.77 dBm Center 2.441 GHz #Res BW 30 kHz Span 3 MHz Sweep 3.2 ms Occupied Bandwidth 1.2090 MHz Total Power 9.71 dBm Transmit Freq Error 22.249 kHz OBW Power 99.00 % x dB Bandwidth 1.360 MHz x dB -20.00 dB
$\pi/4$DQPSK/HCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.480000000 GHz Ref Offset 19.77 dB Ref 19.77 dBm Center 2.48 GHz #Res BW 30 kHz Span 3 MHz Sweep 3.2 ms Occupied Bandwidth 1.2097 MHz Total Power 9.03 dBm Transmit Freq Error 27.154 kHz OBW Power 99.00 % x dB Bandwidth 1.358 MHz x dB -20.00 dB

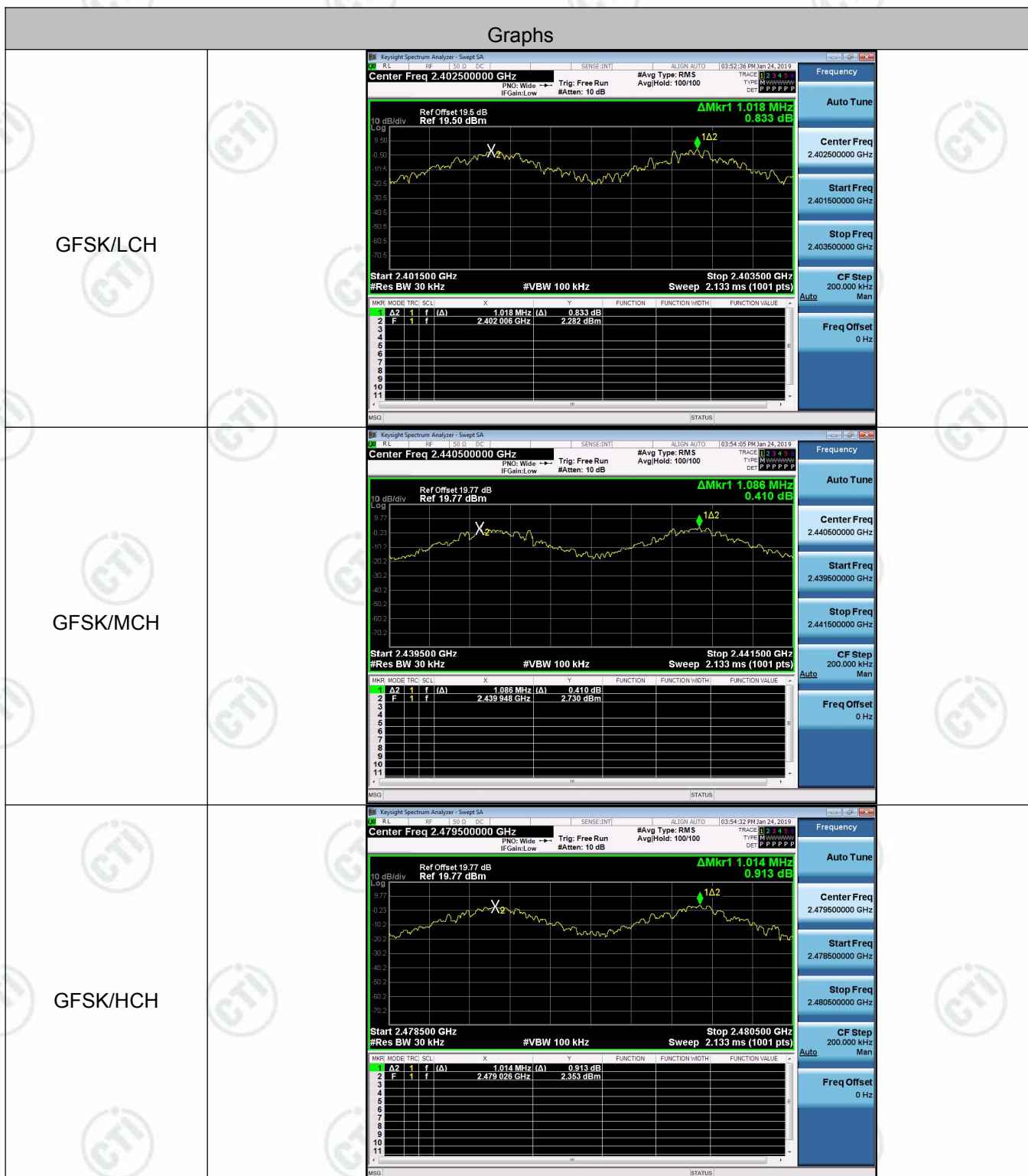
8DPSK/LCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.402000000 GHz Ref Offset 19.5 dB Ref 19.50 dBm Center 2.402 GHz #Res BW 30 kHz #VBW 100 kHz Span 3 MHz Sweep 3.2 ms Occupied Bandwidth 1.2073 MHz Total Power 9.63 dBm Transmit Freq Error 13.597 kHz OBW Power 99.00 % x dB Bandwidth 1.315 MHz x dB -20.00 dB
8DPSK/MCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.441000000 GHz Ref Offset 19.77 dB Ref 19.77 dBm Center 2.441 GHz #Res BW 30 kHz #VBW 100 kHz Span 3 MHz Sweep 3.2 ms Occupied Bandwidth 1.2106 MHz Total Power 9.97 dBm Transmit Freq Error 18.072 kHz OBW Power 99.00 % x dB Bandwidth 1.315 MHz x dB -20.00 dB
8DPSK/HCH	 Keyight Spectrum Analyzer - Occupied BW Center Freq 2.480000000 GHz Ref Offset 19.77 dB Ref 19.77 dBm Center 2.48 GHz #Res BW 30 kHz #VBW 100 kHz Span 3 MHz Sweep 3.2 ms Occupied Bandwidth 1.2108 MHz Total Power 9.32 dBm Transmit Freq Error 22.738 kHz OBW Power 99.00 % x dB Bandwidth 1.317 MHz x dB -20.00 dB

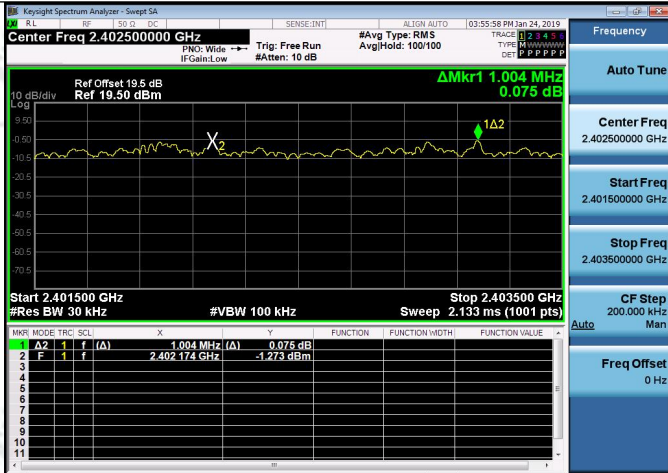
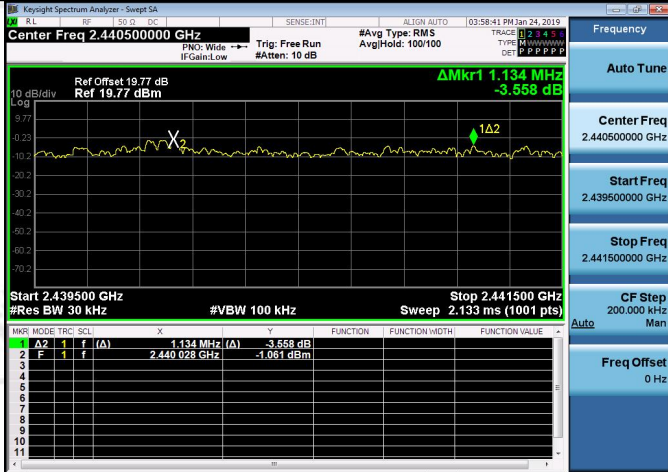
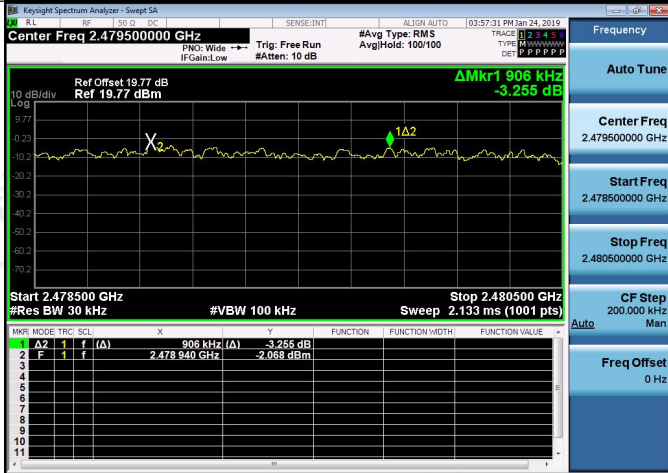
Appendix B): Carrier Frequency Separation

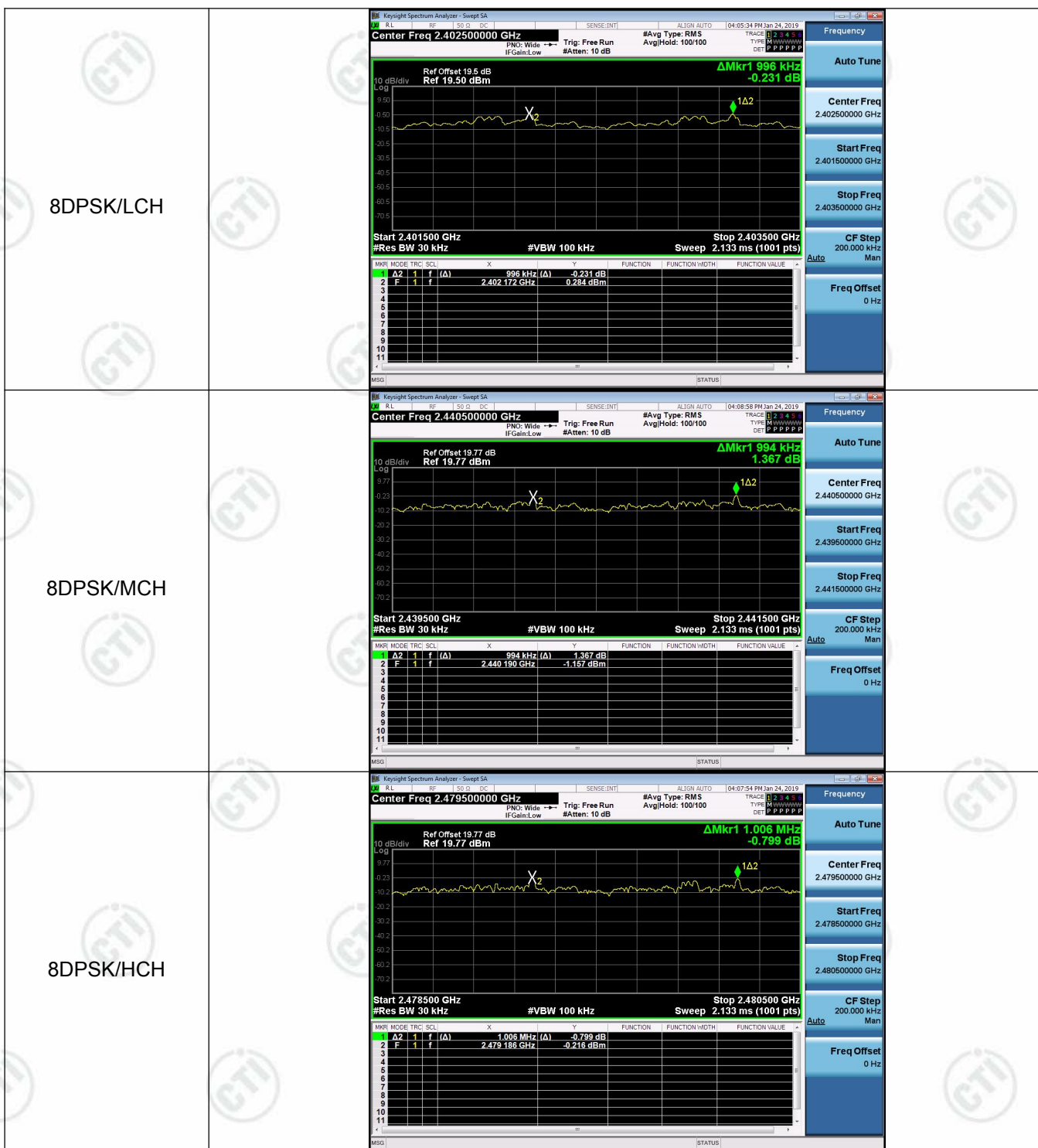
Result Table

Mode	Channel.	Carrier Frequency Separation [MHz]	Verdict
GFSK	LCH	1.018	PASS
GFSK	MCH	1.086	PASS
GFSK	HCH	1.014	PASS
$\pi/4$ DQPSK	LCH	1.004	PASS
$\pi/4$ DQPSK	MCH	1.134	PASS
$\pi/4$ DQPSK	HCH	0.906	PASS
8DPSK	LCH	0.996	PASS
8DPSK	MCH	0.994	PASS
8DPSK	HCH	1.006	PASS

Test Graph



$\pi/4$DQPSK/LCH	
$\pi/4$DQPSK/MCH	
$\pi/4$DQPSK/HCH	



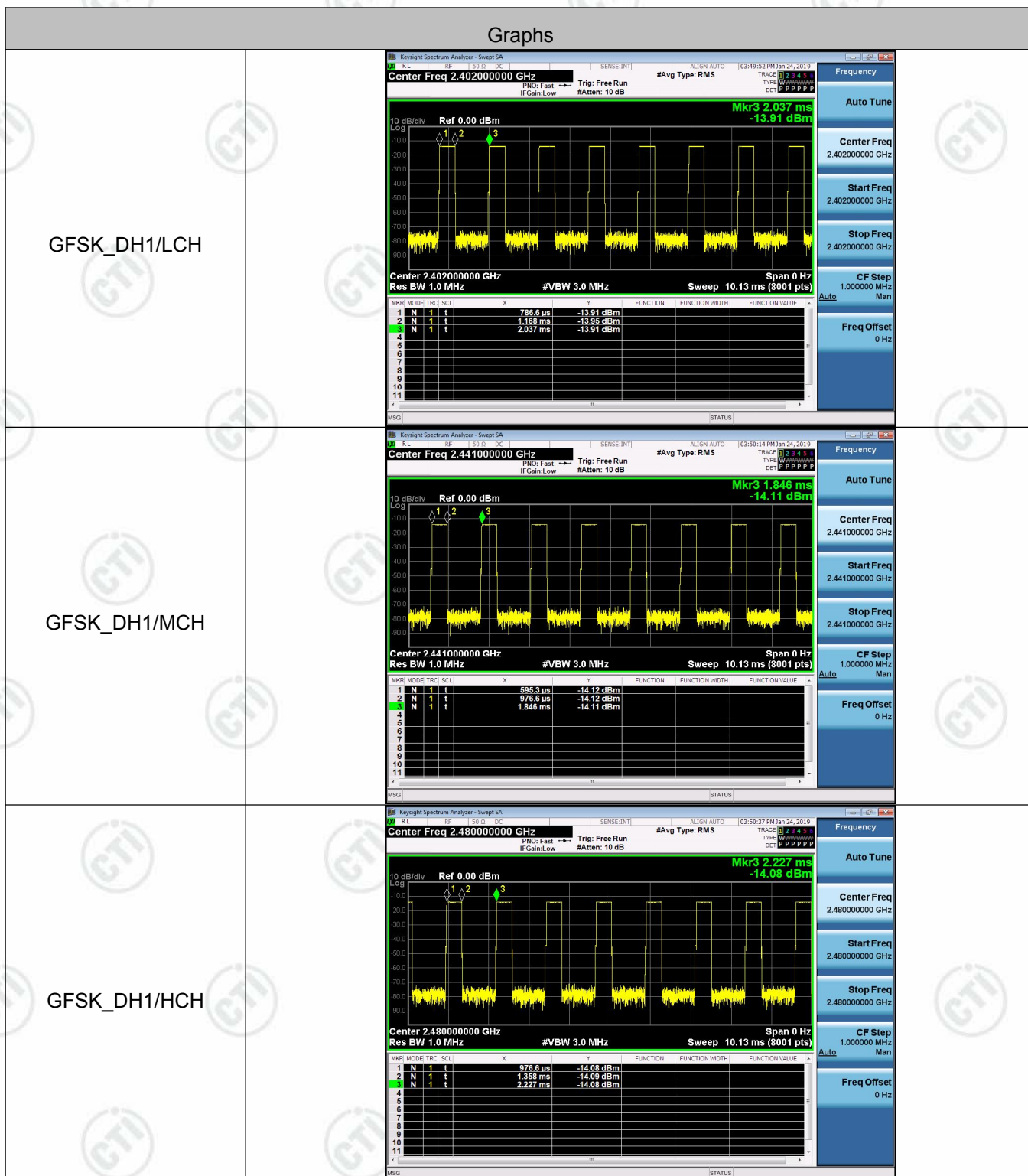
Appendix C): Dwell Time

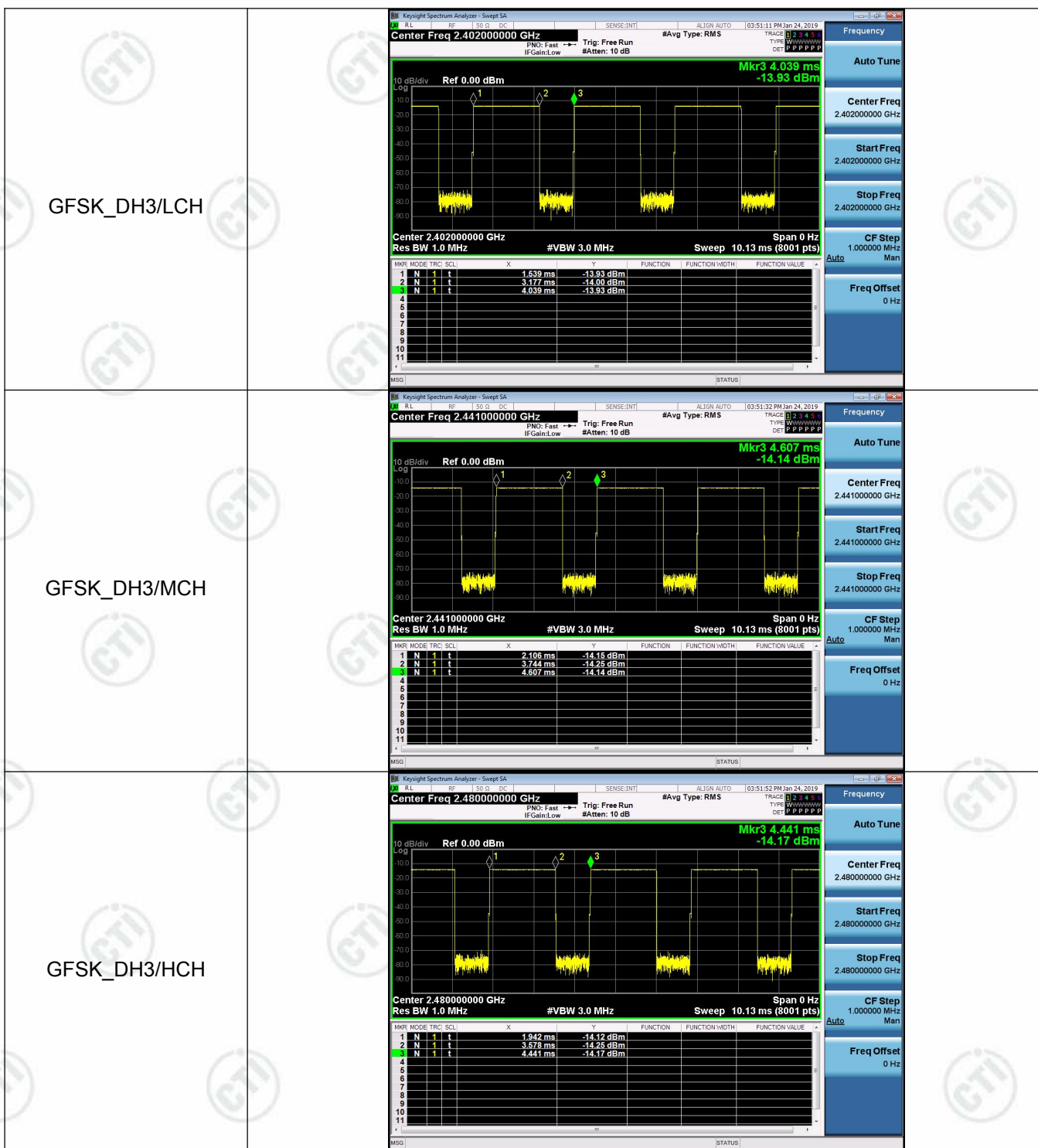
Result Table

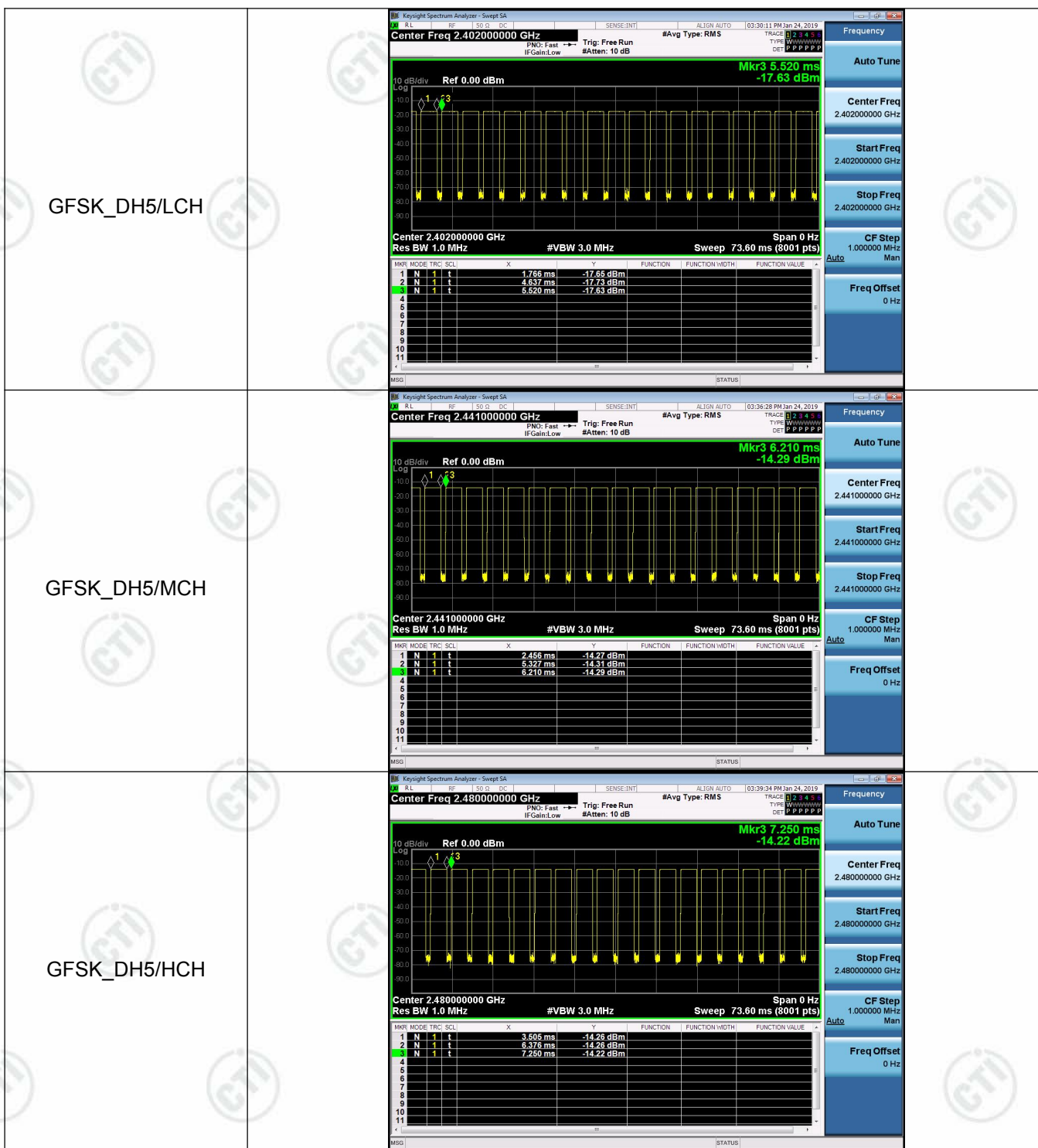
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Duty Cycle [%]	Verdict
GFSK	DH1	LCH	0.38127	320	0.122	0.30	PASS
GFSK	DH1	MCH	0.381267	320	0.122	0.30	PASS
GFSK	DH1	HCH	0.38127	320	0.122	0.30	PASS
GFSK	DH3	LCH	1.6378	160	0.262	0.66	PASS
GFSK	DH3	MCH	1.6378	160	0.262	0.66	PASS
GFSK	DH3	HCH	1.63653	160	0.262	0.65	PASS
GFSK	DH5	LCH	2.8704	106.7	0.306	0.76	PASS
GFSK	DH5	MCH	2.8704	106.7	0.306	0.76	PASS
GFSK	DH5	HCH	2.8704	106.7	0.306	0.77	PASS

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

Test Graph





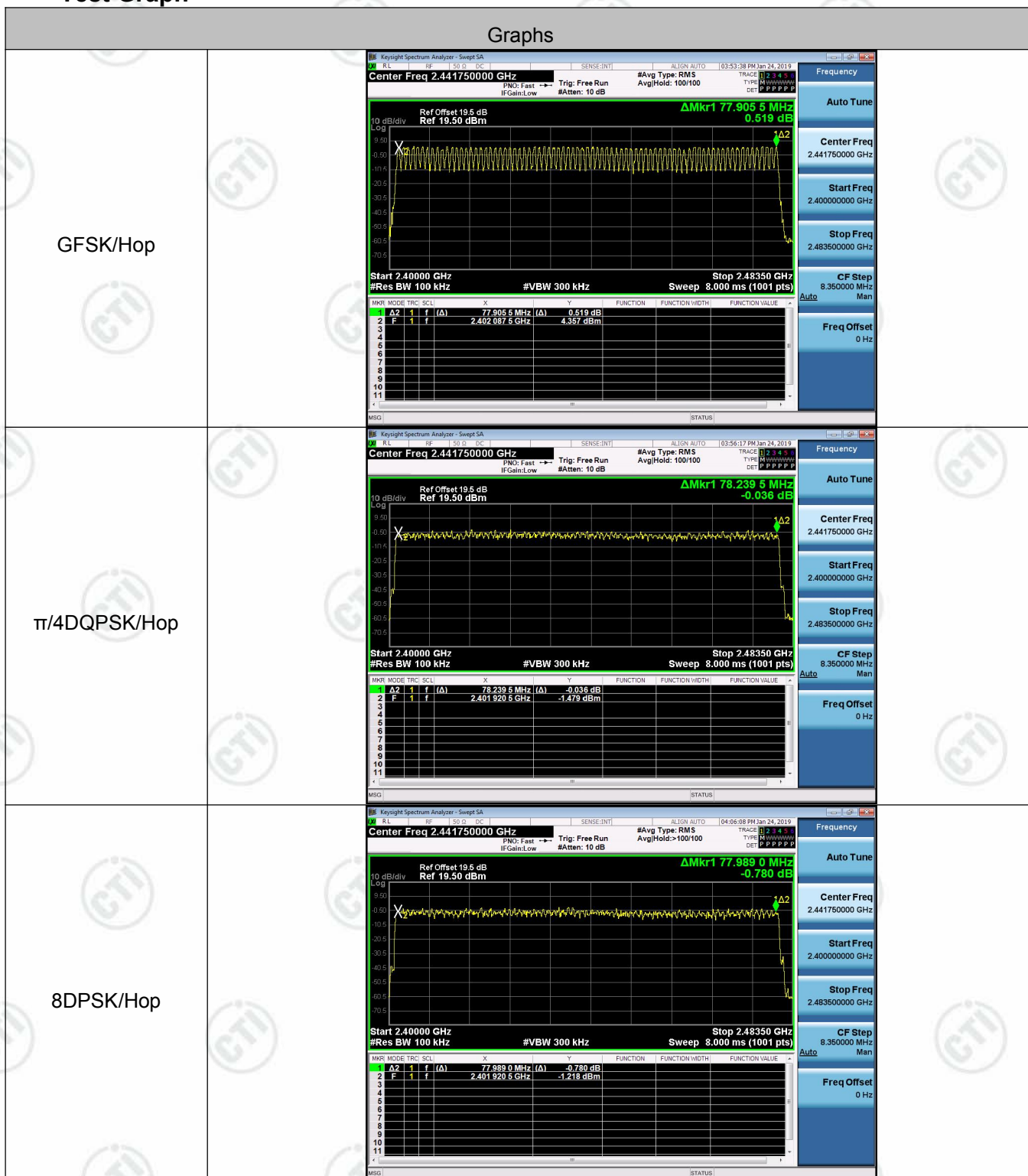


Appendix D): Hopping Channel Number

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

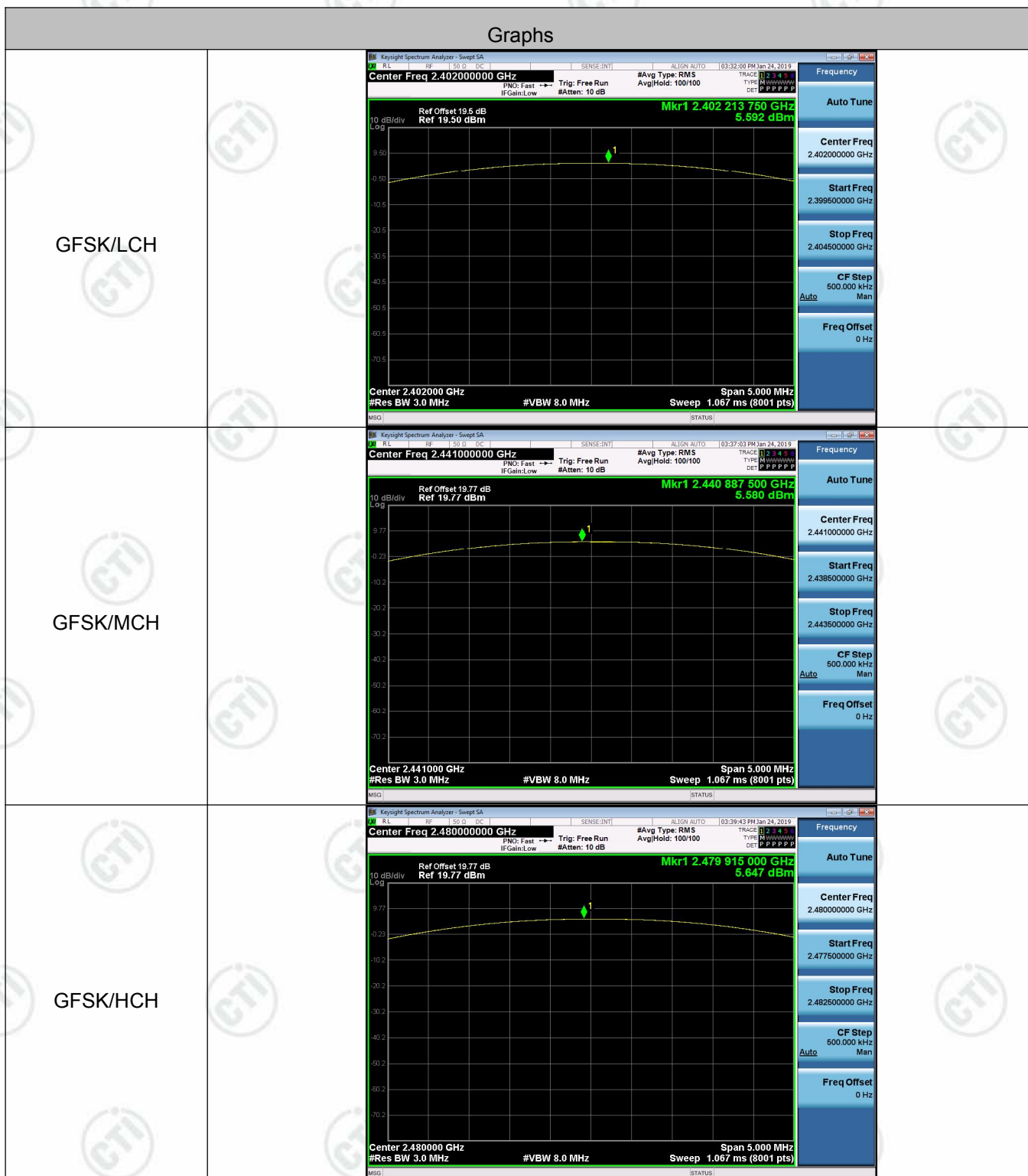


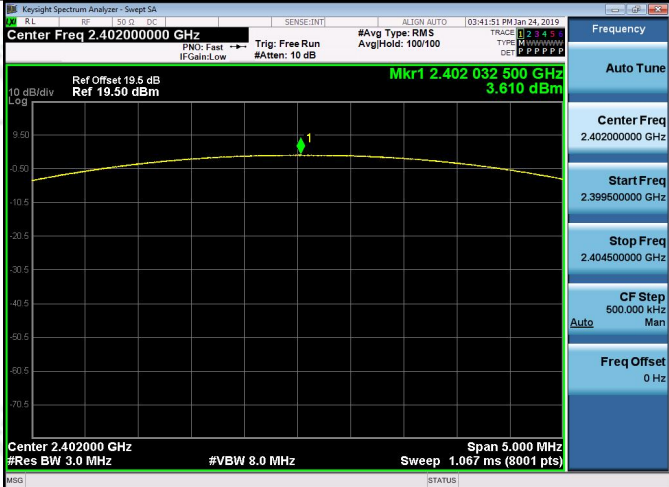
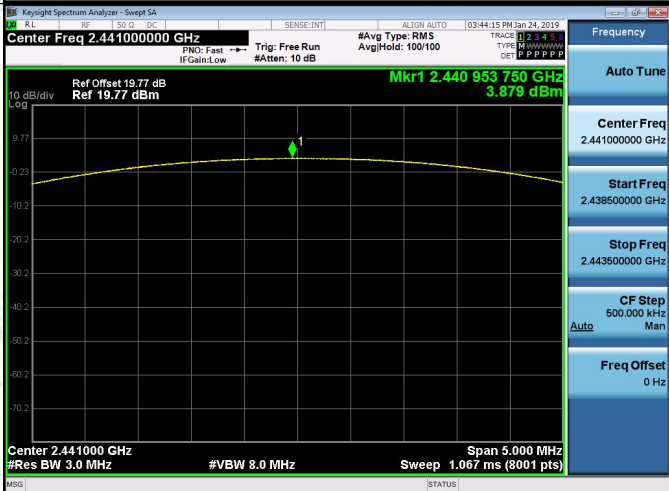
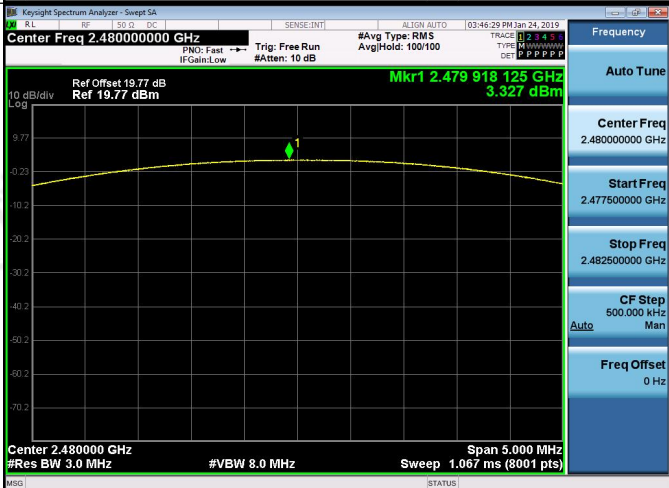
Appendix E): Conducted Peak Output Power

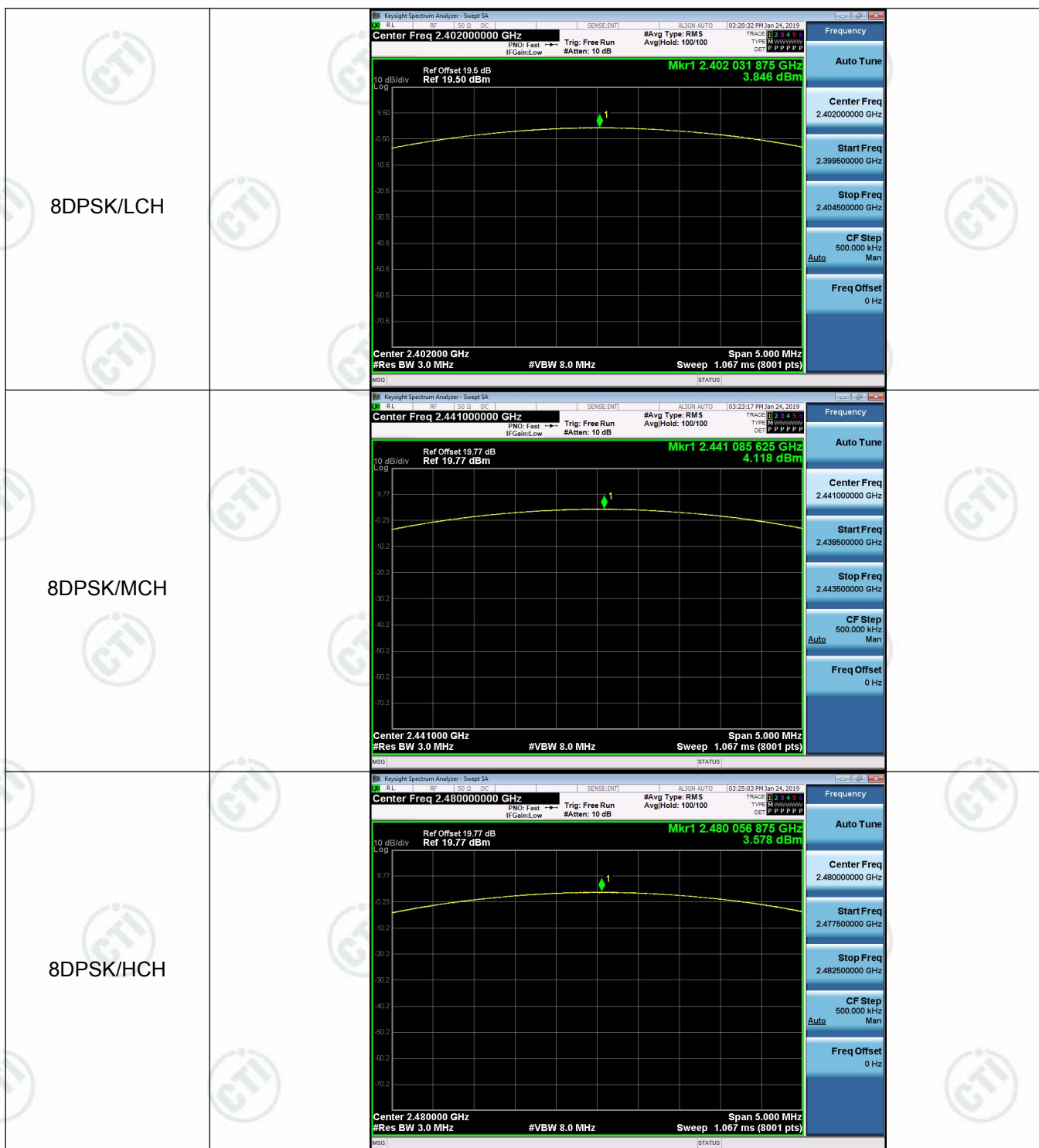
Result Table

Mode	Channel.	Maximum Peak Output Power [dBm]	Verdict
GFSK	LCH	5.592	PASS
GFSK	MCH	5.580	PASS
GFSK	HCH	5.647	PASS
$\pi/4$ DQPSK	LCH	3.610	PASS
$\pi/4$ DQPSK	MCH	3.879	PASS
$\pi/4$ DQPSK	HCH	3.327	PASS
8DPSK	LCH	3.846	PASS
8DPSK	MCH	4.118	PASS
8DPSK	HCH	3.578	PASS

Test Graph



$\pi/4$DQPSK/LCH	 Key: Keysight Spectrum Analyzer - Swept SA Center Freq 2.402032500 GHz Ref Offset 19.5 dB Ref 19.50 dBm Mkr1 2.402 032 500 GHz 3.610 dBm Span 5.000 MHz #Res BW 3.0 MHz #VBW 8.0 MHz Sweep 1.067 ms (8001 pts)
$\pi/4$DQPSK/MCH	 Key: Keysight Spectrum Analyzer - Swept SA Center Freq 2.441000000 GHz Ref Offset 19.77 dB Ref 19.77 dBm Mkr1 2.440 953 750 GHz 3.879 dBm Span 5.000 MHz #Res BW 3.0 MHz #VBW 8.0 MHz Sweep 1.067 ms (8001 pts)
$\pi/4$DQPSK/HCH	 Key: Keysight Spectrum Analyzer - Swept SA Center Freq 2.480000000 GHz Ref Offset 19.77 dB Ref 19.77 dBm Mkr1 2.479 918 125 GHz 3.327 dBm Span 5.000 MHz #Res BW 3.0 MHz #VBW 8.0 MHz Sweep 1.067 ms (8001 pts)

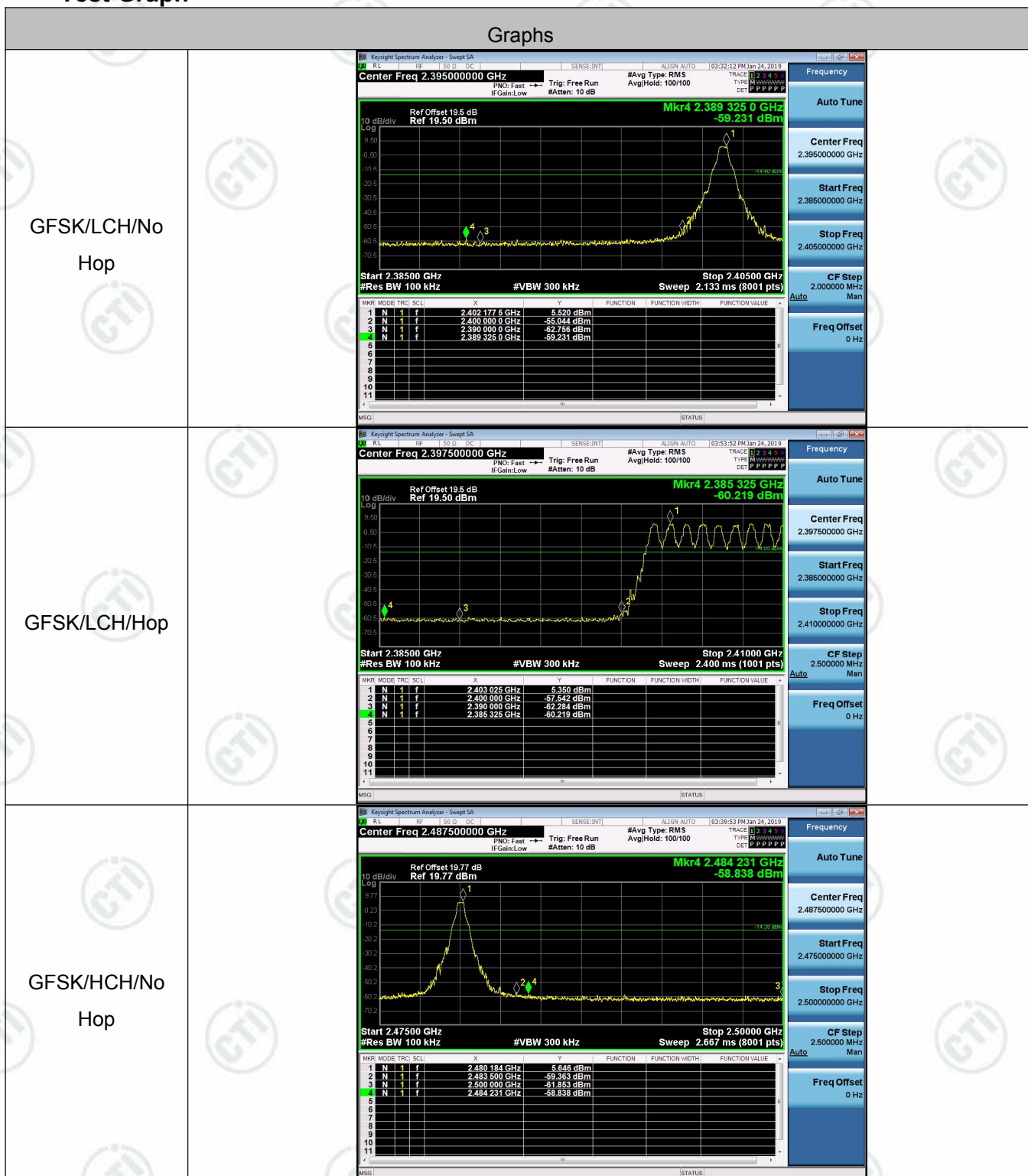


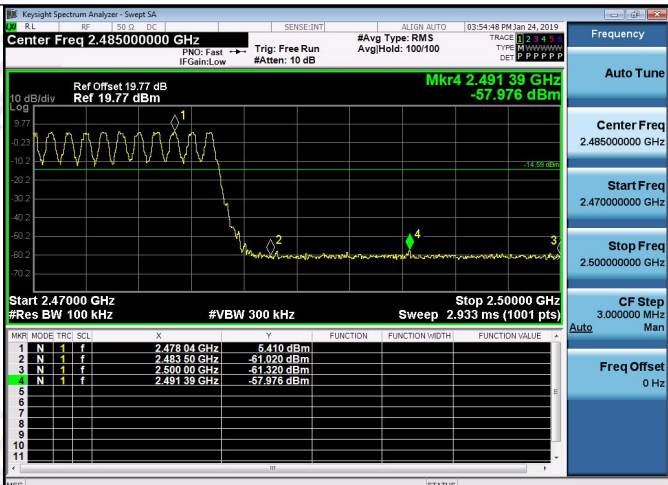
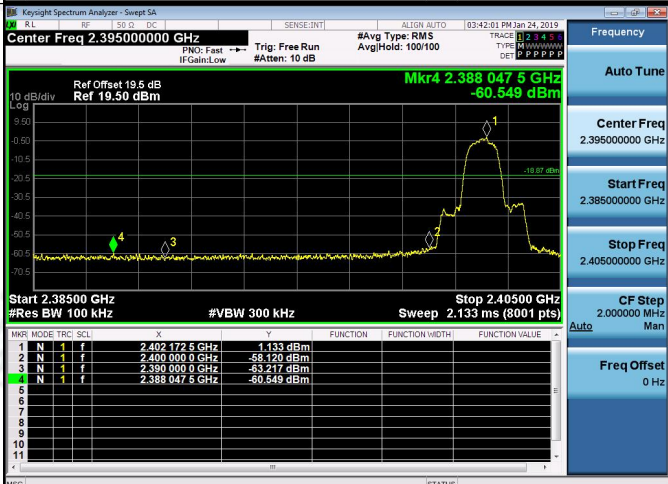
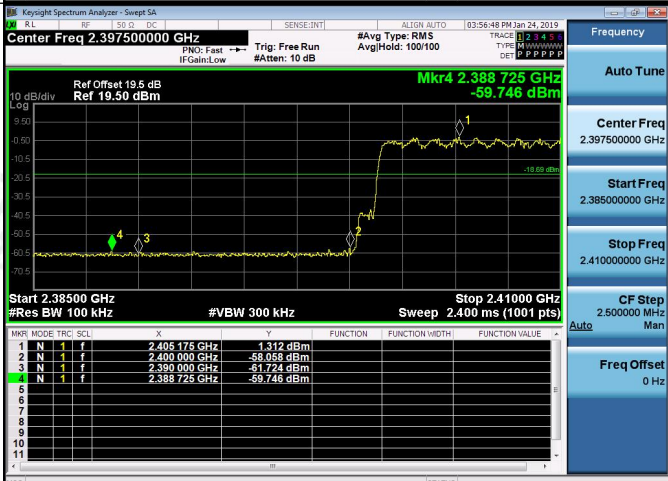
Appendix F): Band-edge for RF Conducted Emissions

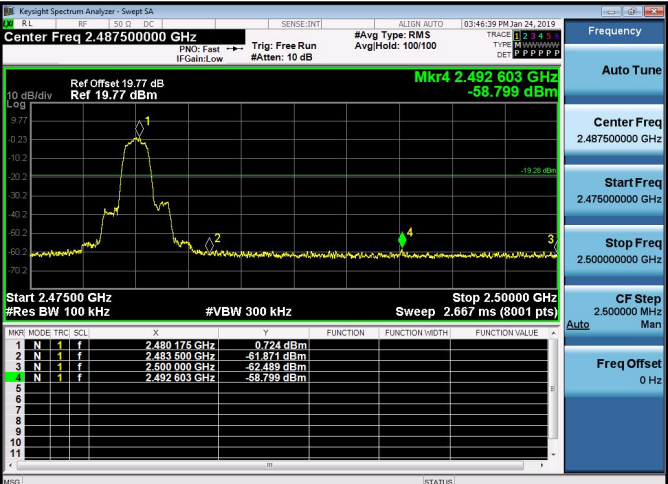
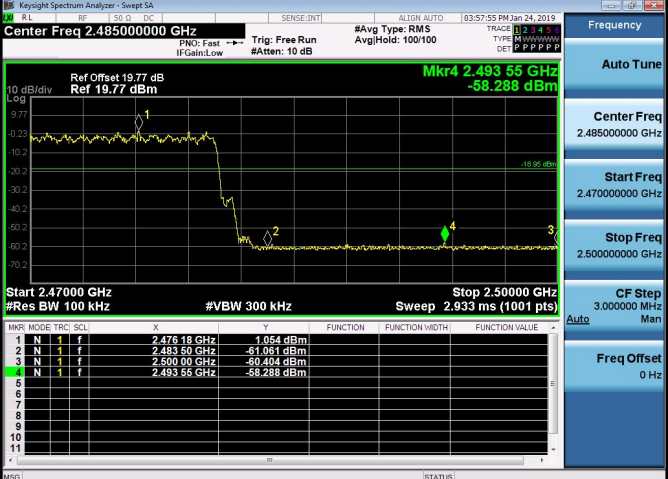
Result Table

Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	5.520	Off	-59.231	-14.48	PASS
			5.350	On	-60.219	-14.65	PASS
GFSK	HCH	2480	5.646	Off	-58.838	-14.35	PASS
			5.410	On	-57.976	-14.59	PASS
$\pi/4$ DQPSK	LCH	2402	1.133	Off	-60.549	-18.87	PASS
			1.312	On	-59.746	-18.69	PASS
$\pi/4$ DQPSK	HCH	2480	0.724	Off	-58.799	-19.28	PASS
			1.054	On	-58.288	-18.95	PASS
8DPSK	LCH	2402	1.205	Off	-59.129	-18.8	PASS
			1.347	On	-59.965	-18.65	PASS
8DPSK	HCH	2480	0.945	Off	-59.122	-19.06	PASS
			1.055	On	-58.783	-18.95	PASS

Test Graph



GFSK/HCH/Hop	 <table><tr><th>MNR</th><th>MODE</th><th>TRC</th><th>SCL</th><th>X</th><th>Y</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.478 04 GHz</td><td>5.410 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>2.483 50 GHz</td><td>-61.020 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>2.500 00 GHz</td><td>-61.320 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>2.491 39 GHz</td><td>-57.976 dBm</td><td></td><td></td><td></td></tr></table>	MNR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	2.478 04 GHz	5.410 dBm				2	N	1	f	2.483 50 GHz	-61.020 dBm				3	N	1	f	2.500 00 GHz	-61.320 dBm				4	N	1	f	2.491 39 GHz	-57.976 dBm			
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$\pi/4$DQPSK/HCH/ No Hop	
$\pi/4$DQPSK/HCH/ Hop	
8DPSK/LCH/No Hop	