

TEST REPORT

Product : WisePad 2
Trade mark : BBPOS
Model/Type reference : WisePad 2
Serial Number : N/A
Report Number : EED32100208213
FCC ID : 2AB7X-WISEPAD2PLUS
Date of Issue : Mar. 17, 2017
Test Standards : 47 CFR Part 15 Subpart C (2015)
Test result : PASS

Prepared for:

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Suite 1602, 16/F, Tower 2, Nina Tower, No. 8 Yeung Uk Road,
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Mar. 17, 2017

Check No.: 2384397829



2 Version

Version No.	Date	Description
00	Mar. 17, 2017	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
6dB 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 sample and the sample information are provided by the client.

This test report (Ref. No.: EED32I00208213) different with the original report (Ref. No.: EED32I00208203) is FCC ID.

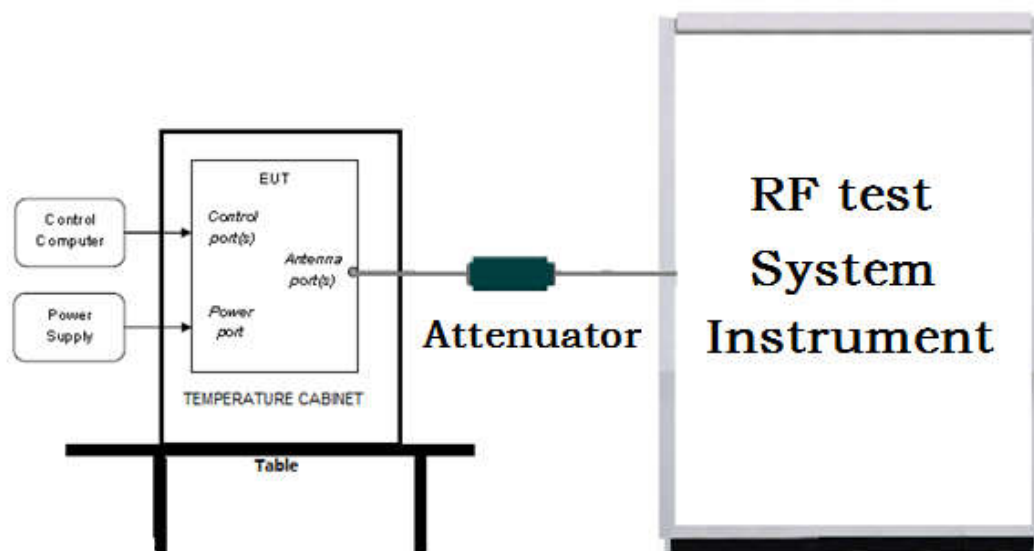
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5 Test Requirement

5.1 Test setup

5.1.1 For Conducted test setup



5.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

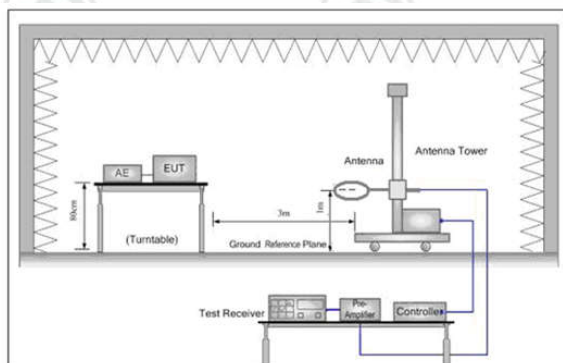


Figure 1. Below 30MHz

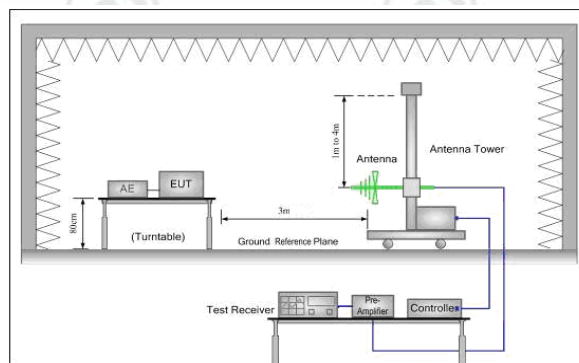


Figure 2. 30MHz to 1GHz

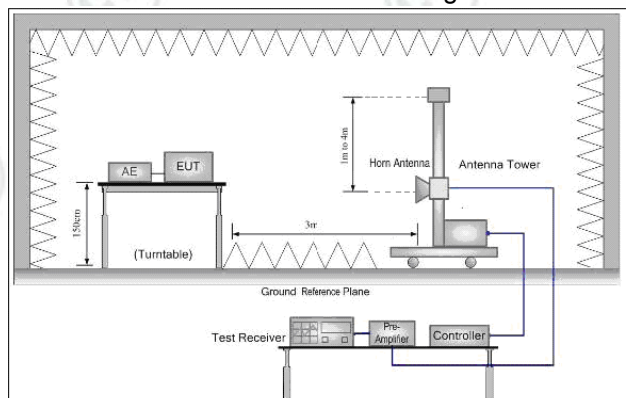
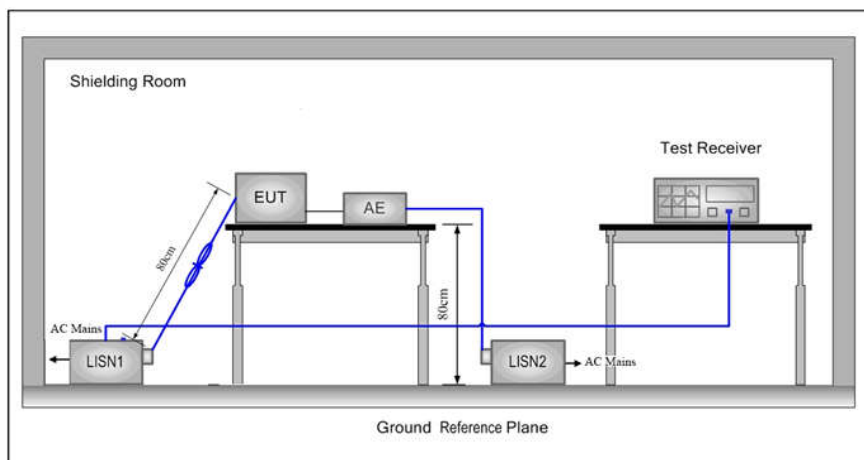


Figure 3. Above 1GHz

5.1.3 For Conducted Emissions test setup

Conducted Emissions setup



5.2 Test Environment

Operating Environment:

Temperature:	21 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar

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
Transmitting mode:	Keep the EUT in transmitting mode with all kind of modulation and all kind of data rate.			

Test mode:

Pre-scan under all rate at lowest channel 1

Mode	GFSK		
packets	1-DH1	1-DH3	1-DH5
Power(dBm)	7.388	7.550	7.552

Mode	π /4DQPSK		
packets	2-DH1	2-DH3	2-DH5
Power(dBm)	8.349	8.351	8.352
Mode	8DPSK		
packets	3-DH1	3-DH3	3-DH5
Power(dBm)	7.899	7.907	7.909

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:	BBPOS International Limited
Address of Applicant:	Suite 1602, 16/F, Tower 2, Nina Tower, No. 8 Yeung Uk Road, Tsuen Wan, N.T. HK, Hong Kong
Manufacturer:	BBPOS International Limited
Address of Manufacturer:	Suite 1602, 16/F, Tower 2, Nina Tower, No. 8 Yeung Uk Road, Tsuen Wan, N.T. HK, Hong Kong

6.2 General Description of EUT

Product Name:	WisePad 2
Mode No.(EUT):	WisePad 2
Trade Mark:	BBPOS
EUT Supports Radios application:	BT 2.1(2402MHz-2480MHz), BT 4.0(2402MHz-2480MHz), NFC(13.56MHz), WIFib/g/n(HT20)(2412MHz-2462MHz), 2G(850MHz/1900MHz)
Power Supply:	DC 3.7V by Battery DC 5V by USB port
Battery:	Li-polymer 3.7V, 750mAh
Sample Received Date:	Jul. 26. 2016
Sample tested Date:	Jul. 26. 2016 to Aug. 25, 2016

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, $\pi/4$ DQPSK, 8DPSK						
Number of Channel:	79						
Hopping Channel Type:	Adaptive Frequency Hopping systems						
Sample Type:	Portable production						
Antenna Type:	Integral						
Test Power Grade:	N/A						
Test Software of EUT:	BBPOS_Transaction						
Antenna Gain:	1dBi						
Test Voltage:	AC 120V/50Hz						
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

1) support equipment

Description	Manufacturer	Model No.	Certification	Supplied by
laptop	LENOVO	E46L	FCC DOC	CTI
Mouse	LENOVO	LXH-EMS-10ZA	FCC DOC	CTI

6.5 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd.

Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China 518101

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

No tests were sub-contracted.

6.6 Test Facility

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

CNAS-Lab Code: L1910

Centre Testing International Group Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories..

A2LA-Lab Cert. No. 3061.01

Centre Testing International Group Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 886427

Centre Testing International Group Co., Ltd. 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 886427.

IC-Registration No.: 7408A-2

The 3m Alternate Test Site of Centre Testing International Group Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 7408A-2 .

IC-Registration No.: 7408B-1

The 10m Alternate Test Site of Centre Testing International Group Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 7408B-1.

NEMKO-Aut. No.: ELA503

Centre Testing International Group Co., Ltd. has been assessed the quality assurance system, the testing facilities, qualifications and testing practices of the relevant parts of the organization. The quality assurance system of the Laboratory has been validated against ISO/IEC 17025 or equivalent. The laboratory also fulfils the conditions described in Nemko Document NLA-10.

VCCI

The Radiation 3 &10 meters site of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-4096.

Main Ports Conducted Interference Measurement of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: C-4563.

Telecommunication Ports Conducted Disturbance Measurement of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: T-2146.

The Radiation 3 meters site of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-758

6.7 Deviation from Standards

None.

6.8 Abnormalities from Standard Conditions

None.

6.9 Other Information Requested by the Customer

None.

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

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.9×10^{-8}
2	RF power, conducted	0.31dB (30MHz-1GHz)
		0.57dB (1GHz-18GHz)
3	Radiated Spurious emission test	4.5dB (30MHz-1GHz)
		4.8dB (1GHz-12.75GHz)

4	Conduction emission	3.6dB (9kHz to 150kHz)
		3.2dB (150kHz to 30MHz)
5	Temperature test	0.64°C
6	Humidity test	2.8%
7	DC power voltages	0.025%

7 Equipment List

RF test system					
Equipment	Manufacturer	Mode No.	Serial Number	Cal. Date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
Signal Generator	Keysight	E8257D	MY53401106	04-01-2016	03-31-2017
Communication test set test set	Agilent	N4010A	MY51400230	04-01-2016	03-31-2017
Spectrum Analyzer	Keysight	N9010A	MY54510339	04-01-2016	03-31-2017
Signal Generator	Keysight	N5182B	MY53051549	04-01-2016	03-31-2017
High-pass filter	Sinoscite	FL3CX03WG18 NM12-0398-002	---	01-12-2016	01-11-2017
High-pass filter	MICRO-TRONICS	SPA-F-63029-4	---	01-12-2016	01-11-2017
DC Power	Keysight	E3642A	MY54436035	04-01-2016	03-31-2017
PC-1	Lenovo	R4960d	---	04-01-2016	03-31-2017
power meter & power sensor	R&S	OSP120	101374	04-01-2016	03-31-2017
RF control unit	JS Tonscend	JS0806-2	158060006	04-01-2016	03-31-2017
BT&Wi-Fi Automatic test software	JS Tonscend	JS1120-2	---	04-01-2016	03-31-2017

Conducted disturbance Test					
Equipment	Manufacturer	Mode No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
Receiver	R&S	ESCI	100009	06-16-2016	06-15-2017
Temperature/ Humidity Indicator	TAYLOR	1451	1905	04-27-2016	04-26-2017
Communication test set	Agilent	E5515C	GB47050534	04-01-2016	03-31-2017
Communication test set	R&S	CMW500	152394	04-01-2016	03-31-2017
LISN	R&S	ENV216	100098	06-16-2016	06-15-2017
LISN	schwarzbeck	NNLK8121	8121-529	06-16-2016	06-15-2017
Voltage Probe	R&S	ESH2-Z3	--	07-09-2014	07-07-2017
Current Probe	R&S	EZ17	100106	06-16-2016	06-15-2017
ISN	TESEQ GmbH	ISN T800	30297	01-29-2015	01-27-2017

3M Semi/full-anechoic Chamber					
Equipment	Manufacturer	Mode No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
3M Chamber & Accessory Equipment	TDK	SAC-3	---	06-05-2016	06-05-2019
TRILOG Broadband Antenna	SCHWARZBECK	VULB9163	9163-484	05-23-2016	05-22-2017
Microwave Preamplifier	Agilent	8449B	3008A02425	02-04-2016	02-03-2017
Horn Antenna	ETS-LINDGREN	3117	00057410	06-30-2015	06-28-2018
Horn Antenna	A.H.SYSTEMS	SAS-574	374	06-30-2015	06-28-2018
Loop Antenna	ETS	6502	00071730	07-30-2015	07-28-2017
Spectrum Analyzer	R&S	FSP40	100416	06-16-2016	06-15-2017
Receiver	R&S	ESCI	100435	06-16-2016	06-15-2017
Multi device Controller	matturo	NCD/070/1071 1112	---	01-12-2016	01-11-2017
LISN	schwarzbeck	NNBM8125	81251547	06-16-2016	06-15-2017
LISN	schwarzbeck	NNBM8125	81251548	06-16-2016	06-15-2017
Signal Generator	Agilent	E4438C	MY45095744	04-01-2016	03-31-2017
Signal Generator	Keysight	E8257D	MY53401106	04-01-2016	03-31-2017
Temperature/ Humidity Indicator	TAYLOR	1451	1905	04-27-2016	04-26-2017
Communication test set	Agilent	E5515C	GB47050534	04-01-2016	03-31-2017
Cable line	Fulai(7M)	SF106	5219/6A	01-12-2016	01-11-2017
Cable line	Fulai(6M)	SF106	5220/6A	01-12-2016	01-11-2017
Cable line	Fulai(3M)	SF106	5216/6A	01-12-2016	01-11-2017
Cable line	Fulai(3M)	SF106	5217/6A	01-12-2016	01-11-2017
Communication test set	R&S	CMW500	152394	04-01-2016	03-31-2017
High-pass filter	Sinoscite	FL3CX03WG1 8NM12-0398- 002	---	01-12-2016	01-11-2017
High-pass filter	MICRO-TRONICS	SPA-F-63029- 4	---	01-12-2016	01-11-2017
band rejection filter	Sinoscite	FL5CX01CA09 CL12-0395- 001	---	01-12-2016	01-11-2017
band rejection filter	Sinoscite	FL5CX01CA08 CL12-0393- 001	---	01-12-2016	01-11-2017
band rejection filter	Sinoscite	FL5CX02CA04 CL12-0396- 002	---	01-12-2016	01-11-2017
band rejection filter	Sinoscite	FL5CX02CA03 CL12-0394- 001	---	01-12-2016	01-11-2017

8 Radio Technical Requirements Specification

Reference documents for testing:

No.	Identity	Document Title
1	FCC Part15C (2015)	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)

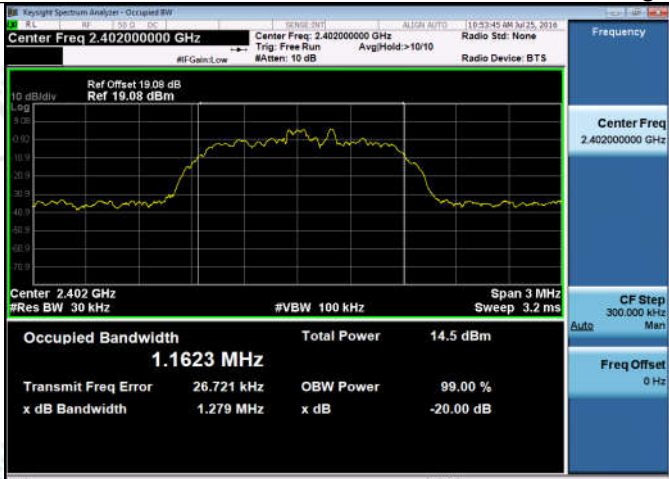
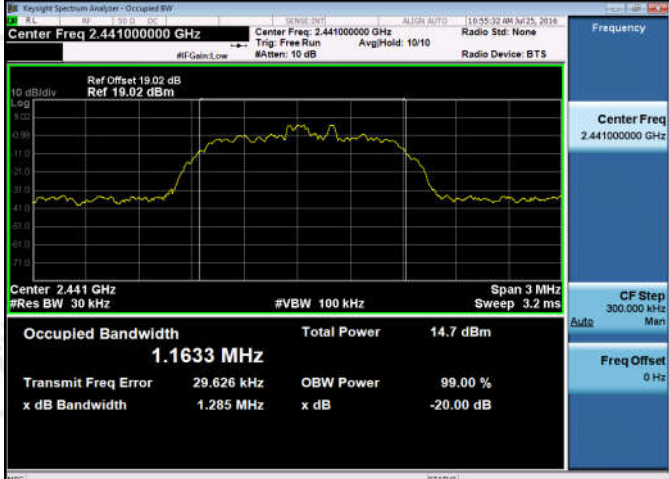
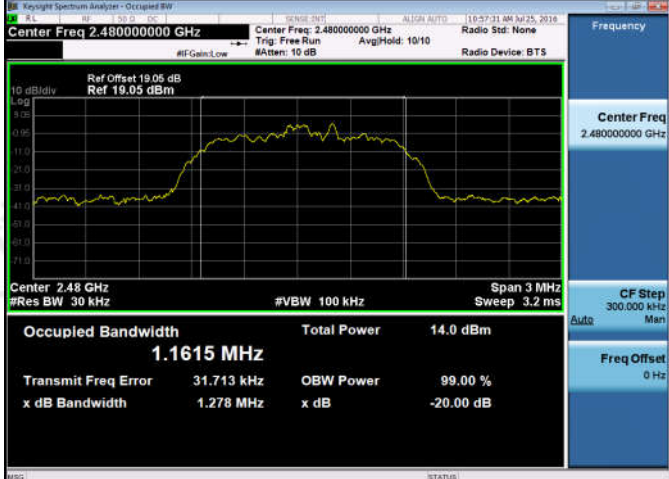
Appendix A): 20dB Occupied Bandwidth

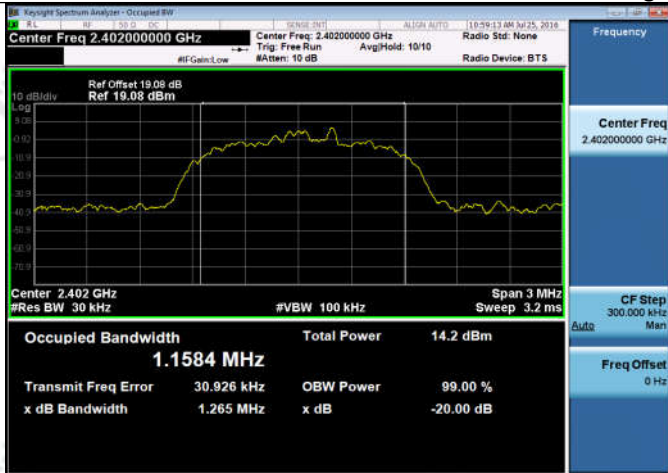
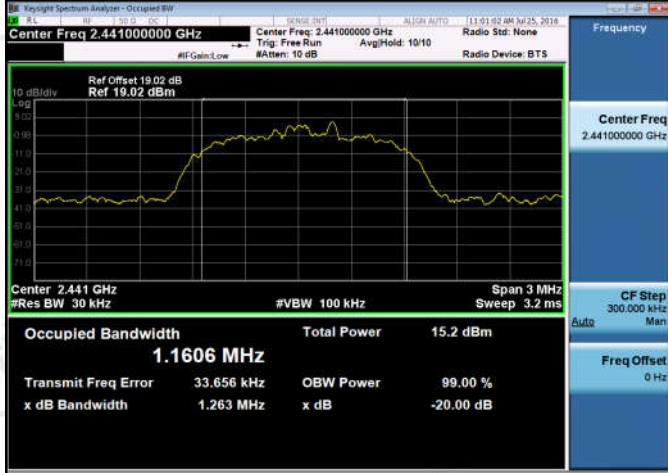
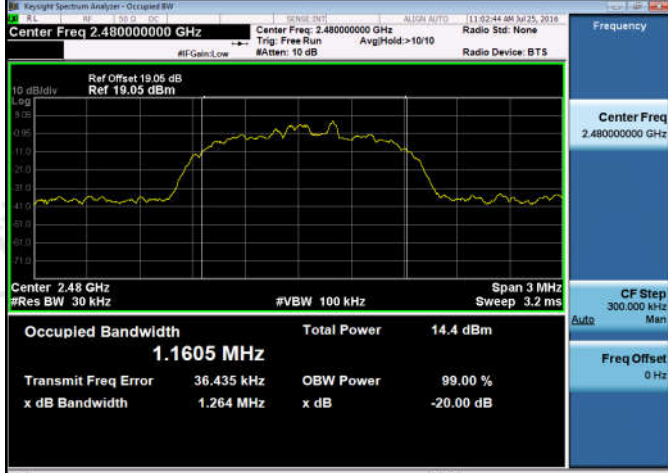
Test Result

Mode	Channel.	20dB Bandwidth [MHz]	99% OBW [MHz]	Verdict	Remark
GFSK	LCH	0.9701	0.87928	PASS	Peak detector
GFSK	MCH	0.9678	0.89363	PASS	
GFSK	HCH	0.9943	0.89468	PASS	
$\pi/4$ DQPSK	LCH	1.279	1.1623	PASS	
$\pi/4$ DQPSK	MCH	1.285	1.1633	PASS	
$\pi/4$ DQPSK	HCH	1.278	1.1615	PASS	
8DPSK	LCH	1.265	1.1584	PASS	
8DPSK	MCH	1.263	1.1606	PASS	
8DPSK	HCH	1.264	1.1605	PASS	

Test Graph



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

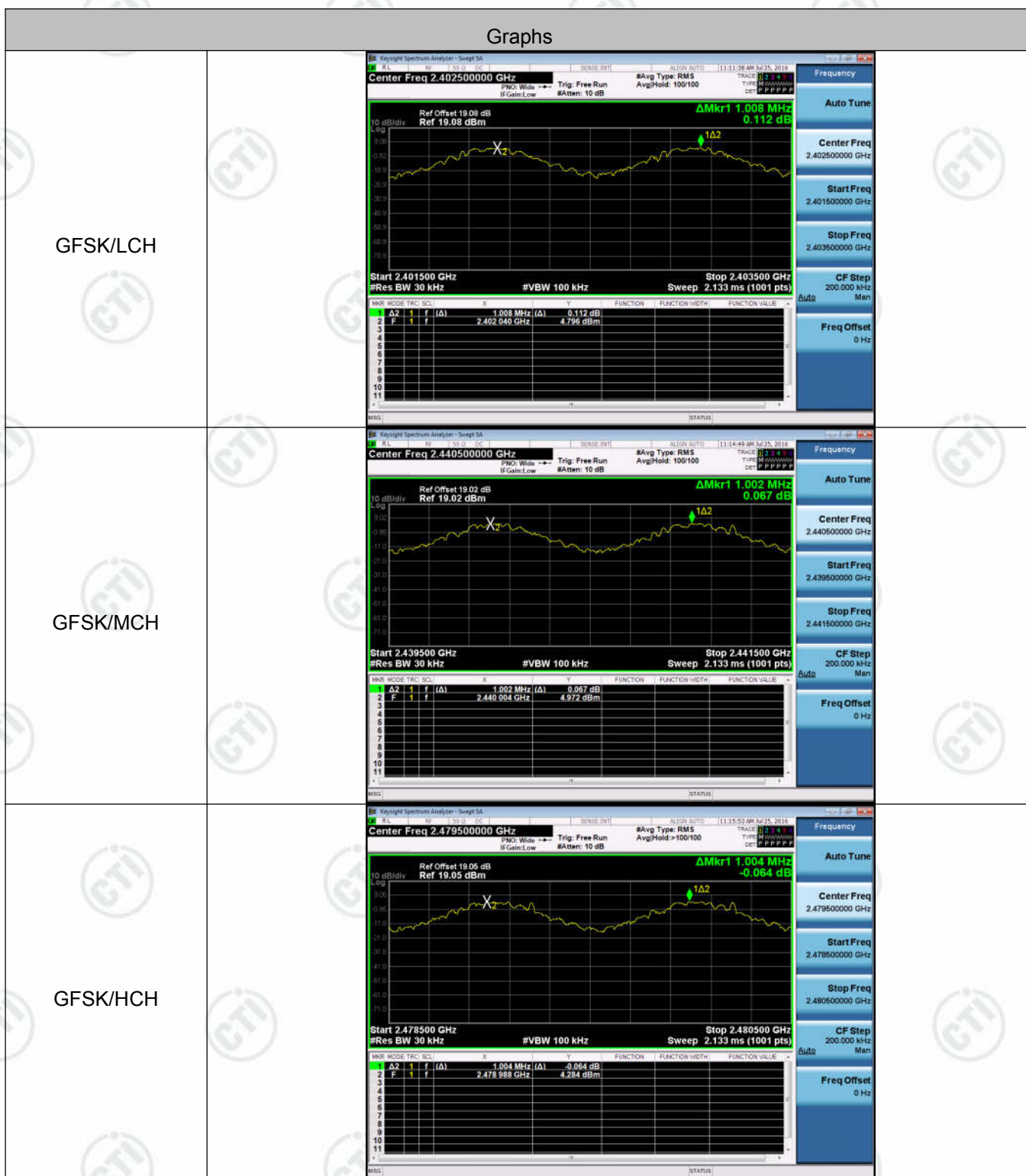
8DPSK/LCH	 Center Freq: 2.40200000 GHz Occupied Bandwidth: 1.1584 MHz Total Power: 14.2 dBm Transmit Freq Error: 30.926 kHz OBW Power: 99.00 %
8DPSK/MCH	 Center Freq: 2.44100000 GHz Occupied Bandwidth: 1.1606 MHz Total Power: 15.2 dBm Transmit Freq Error: 33.656 kHz OBW Power: 99.00 %
8DPSK/HCH	 Center Freq: 2.48000000 GHz Occupied Bandwidth: 1.1605 MHz Total Power: 14.4 dBm Transmit Freq Error: 36.435 kHz OBW Power: 99.00 %

Appendix B): Carrier Frequency Separation

Result Table

Mode	Channel.	Carrier Frequency Separation [MHz]	Verdict
GFSK	LCH	1.008	PASS
GFSK	MCH	1.002	PASS
GFSK	HCH	1.004	PASS
$\pi/4$ DQPSK	LCH	1.000	PASS
$\pi/4$ DQPSK	MCH	1.016	PASS
$\pi/4$ DQPSK	HCH	0.980	PASS
8DPSK	LCH	0.990	PASS
8DPSK	MCH	0.990	PASS
8DPSK	HCH	0.994	PASS

Test Graph



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

8DPSK/LCH	 Center Freq 2.402500000 GHz Ref Offset 19.08 dB Ref 19.08 dBm ΔMkr1 990 kHz -0.175 dB Start 2.401500 GHz #Res BW 30 kHz #VBW 100 kHz Sweep 2.133 ms (1001 pts) <table><tr><th>ROW</th><th>MODE</th><th>TRC</th><th>SCL</th><th>X</th><th>Y</th><th>FUNCTION</th><th>FUNCTION METH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>ΔZ</td><td>1</td><td>f</td><td>(Δ)</td><td>990 kHz</td><td>(Δ)</td><td>-0.175 dB</td><td></td></tr><tr><td>2</td><td>F</td><td>1</td><td>f</td><td></td><td>2.402 194 GHz</td><td></td><td>6.077 dBm</td><td></td></tr></table>	ROW	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION METH	FUNCTION VALUE	1	ΔZ	1	f	(Δ)	990 kHz	(Δ)	-0.175 dB		2	F	1	f		2.402 194 GHz		6.077 dBm	
ROW	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION METH	FUNCTION VALUE																				
1	ΔZ	1	f	(Δ)	990 kHz	(Δ)	-0.175 dB																					
2	F	1	f		2.402 194 GHz		6.077 dBm																					
8DPSK/MCH	 Center Freq 2.440500000 GHz Ref Offset 19.02 dB Ref 19.02 dBm ΔMkr1 990 kHz -0.173 dB Start 2.439500 GHz #Res BW 30 kHz #VBW 100 kHz Sweep 2.133 ms (1001 pts) <table><tr><th>ROW</th><th>MODE</th><th>TRC</th><th>SCL</th><th>X</th><th>Y</th><th>FUNCTION</th><th>FUNCTION METH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>ΔZ</td><td>1</td><td>f</td><td>(Δ)</td><td>990 kHz</td><td>(Δ)</td><td>-0.173 dB</td><td></td></tr><tr><td>2</td><td>F</td><td>1</td><td>f</td><td></td><td>2.439 978 GHz</td><td></td><td>5.978 dBm</td><td></td></tr></table>	ROW	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION METH	FUNCTION VALUE	1	ΔZ	1	f	(Δ)	990 kHz	(Δ)	-0.173 dB		2	F	1	f		2.439 978 GHz		5.978 dBm	
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8DPSK/HCH	 Center Freq 2.479500000 GHz Ref Offset 19.05 dB Ref 19.05 dBm ΔMkr1 994 kHz -0.425 dB Start 2.478500 GHz #Res BW 30 kHz #VBW 100 kHz Sweep 2.133 ms (1001 pts) <table><tr><th>ROW</th><th>MODE</th><th>TRC</th><th>SCL</th><th>X</th><th>Y</th><th>FUNCTION</th><th>FUNCTION METH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>ΔZ</td><td>1</td><td>f</td><td>(Δ)</td><td>994 kHz</td><td>(Δ)</td><td>-0.425 dB</td><td></td></tr><tr><td>2</td><td>F</td><td>1</td><td>f</td><td></td><td>2.479 194 GHz</td><td></td><td>5.694 dBm</td><td></td></tr></table>	ROW	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION METH	FUNCTION VALUE	1	ΔZ	1	f	(Δ)	994 kHz	(Δ)	-0.425 dB		2	F	1	f		2.479 194 GHz		5.694 dBm	
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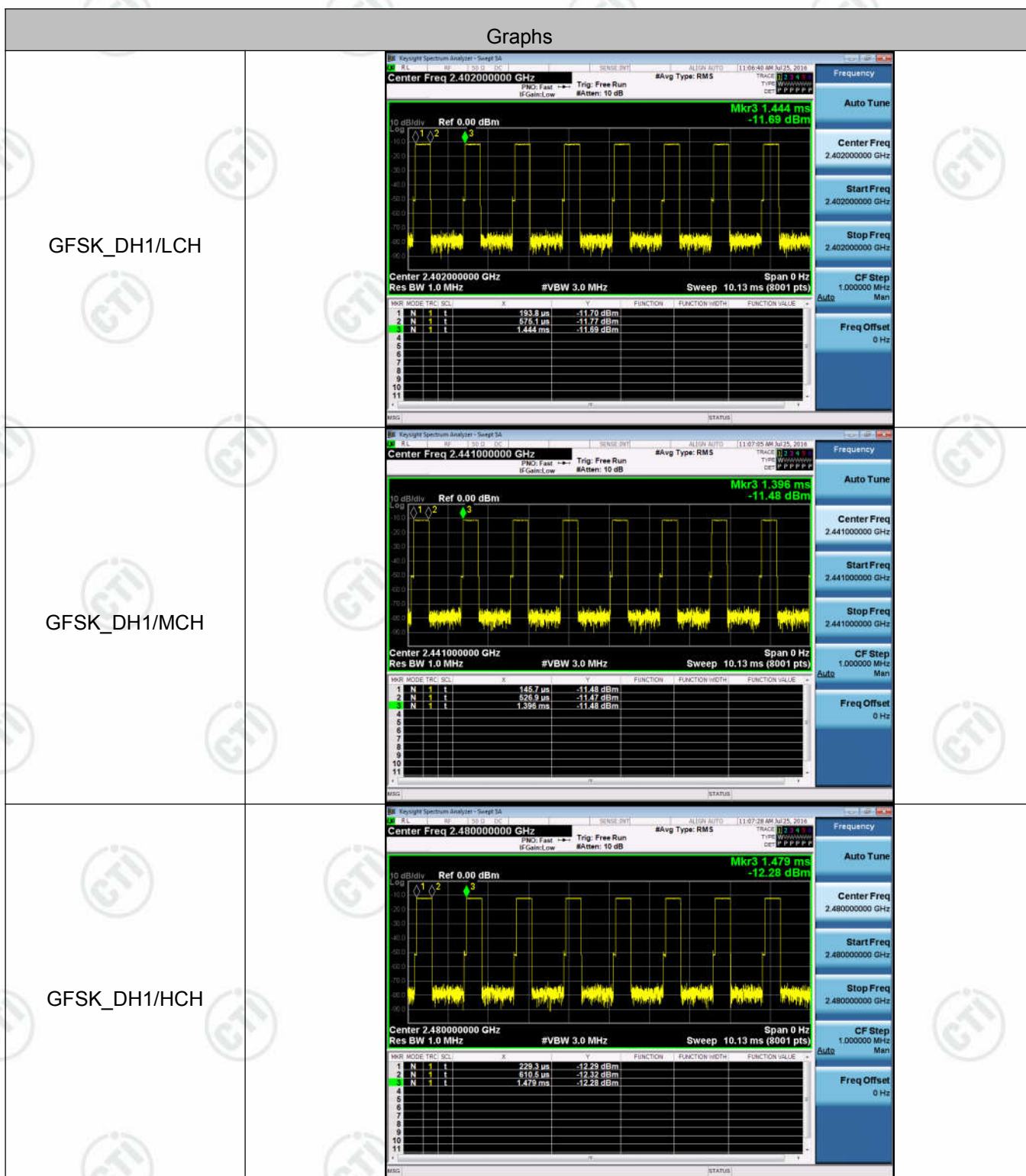
Appendix C): Dwell Time

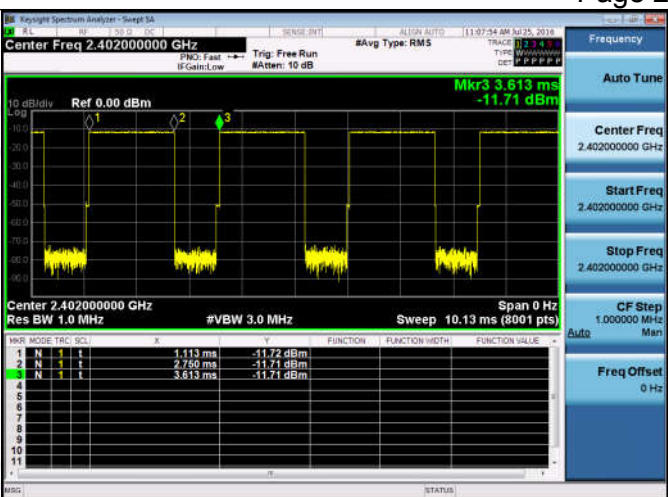
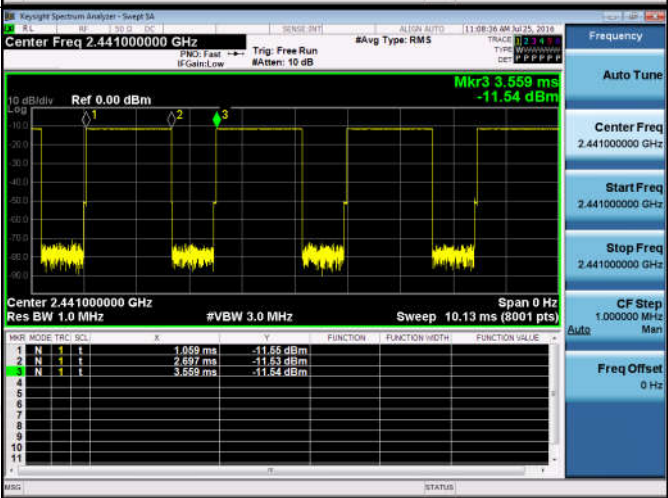
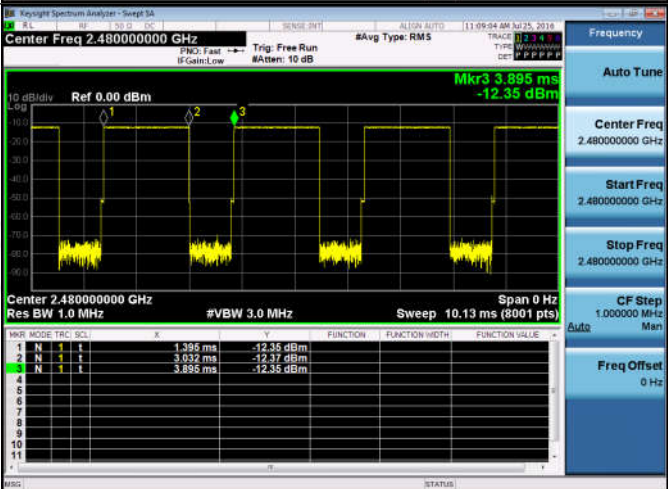
Result Table

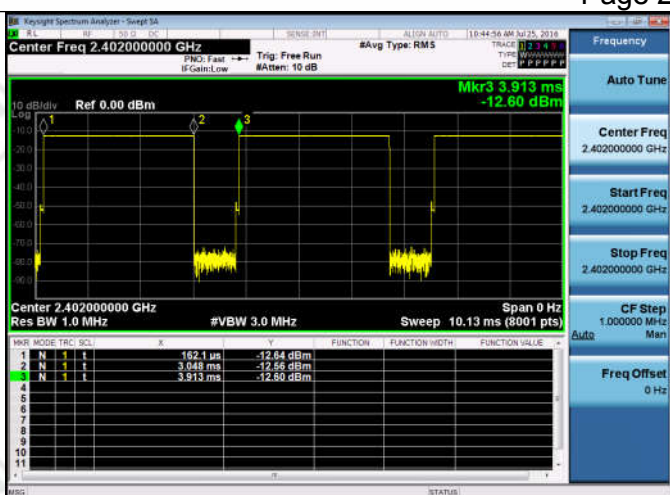
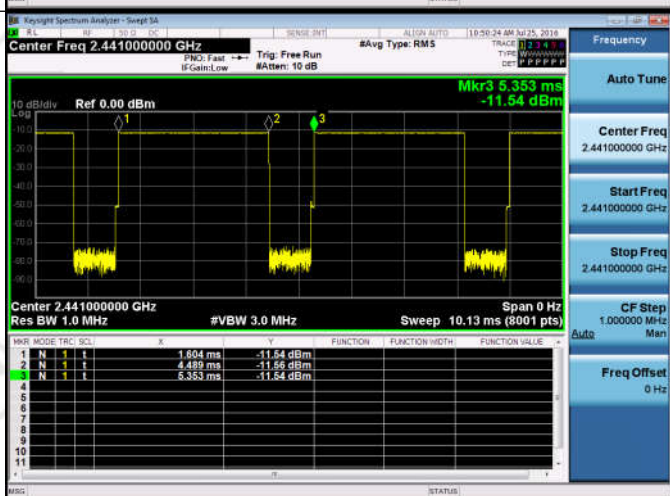
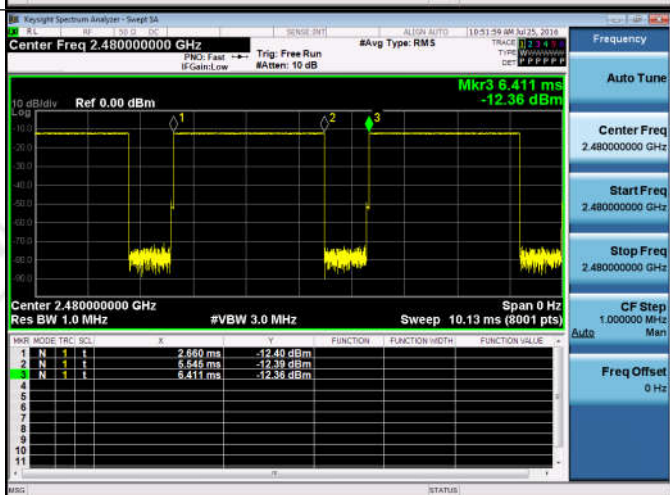
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Duty Cycle [%]	Verdict
GFSK	DH1	LCH	0.381267	320	0.122	0.30	PASS
GFSK	DH1	MCH	0.381266	320	0.122	0.30	PASS
GFSK	DH1	HCH	0.381266	320	0.122	0.30	PASS
GFSK	DH3	LCH	1.63653	160	0.262	0.65	PASS
GFSK	DH3	MCH	1.6378	160	0.262	0.66	PASS
GFSK	DH3	HCH	1.6378	160	0.262	0.66	PASS
GFSK	DH5	LCH	2.885467	106.7	0.308	0.77	PASS
GFSK	DH5	MCH	2.88547	106.7	0.308	0.77	PASS
GFSK	DH5	HCH	2.88547	106.7	0.308	0.77	PASS

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

Test Graph



GFSK_DH3/LCH	
GFSK_DH3/MCH	
GFSK_DH3/HCH	

GFSK_DH5/LCH	 Center Freq 2.402000000 GHz Ref 0.00 dBm Mkr3 3.913 ms -12.60 dBm Center 2.402000000 GHz Res BW 1.0 MHz #VBW 3.0 MHz Sweep 10.13 ms (8001 pts) <table><tr><th>MARK</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>1</td><td>162.1 us</td><td>-12.64 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>1</td><td>3.048 ms</td><td>-12.55 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>1</td><td>3.913 ms</td><td>-12.60 dBm</td><td></td><td></td><td></td></tr></table>	MARK	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	1	162.1 us	-12.64 dBm				2	N	1	1	3.048 ms	-12.55 dBm				3	N	1	1	3.913 ms	-12.60 dBm			
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GFSK_DH5/MCH	 Center Freq 2.441000000 GHz Ref 0.00 dBm Mkr3 5.353 ms -11.54 dBm Center 2.441000000 GHz Res BW 1.0 MHz #VBW 3.0 MHz Sweep 10.13 ms (8001 pts) <table><tr><th>MARK</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>1</td><td>1.604 ms</td><td>-11.54 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>1</td><td>4.459 ms</td><td>-11.55 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>1</td><td>5.353 ms</td><td>-11.54 dBm</td><td></td><td></td><td></td></tr></table>	MARK	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	1	1.604 ms	-11.54 dBm				2	N	1	1	4.459 ms	-11.55 dBm				3	N	1	1	5.353 ms	-11.54 dBm			
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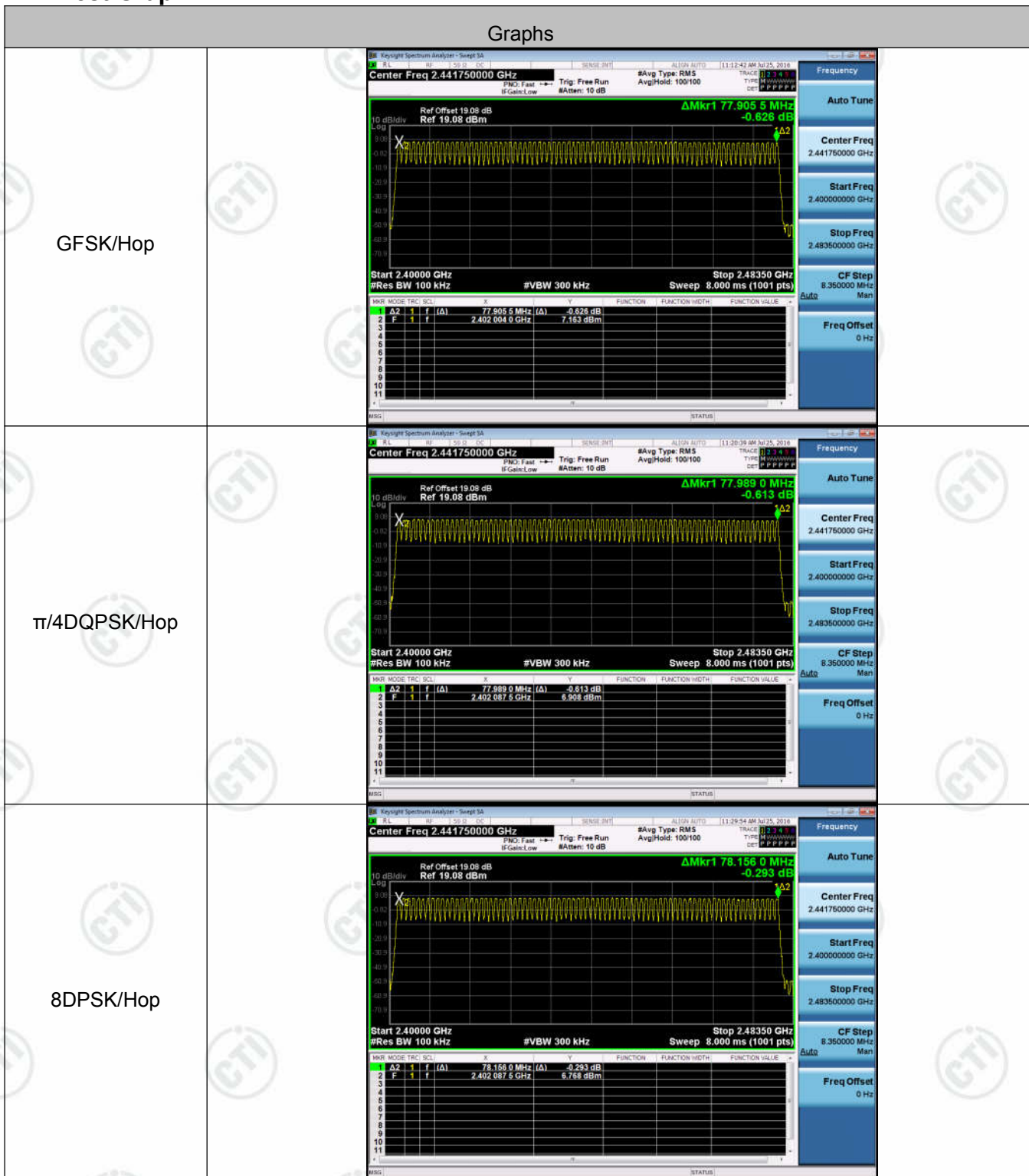
Appendix D): Hopping Channel Number

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

Graphs

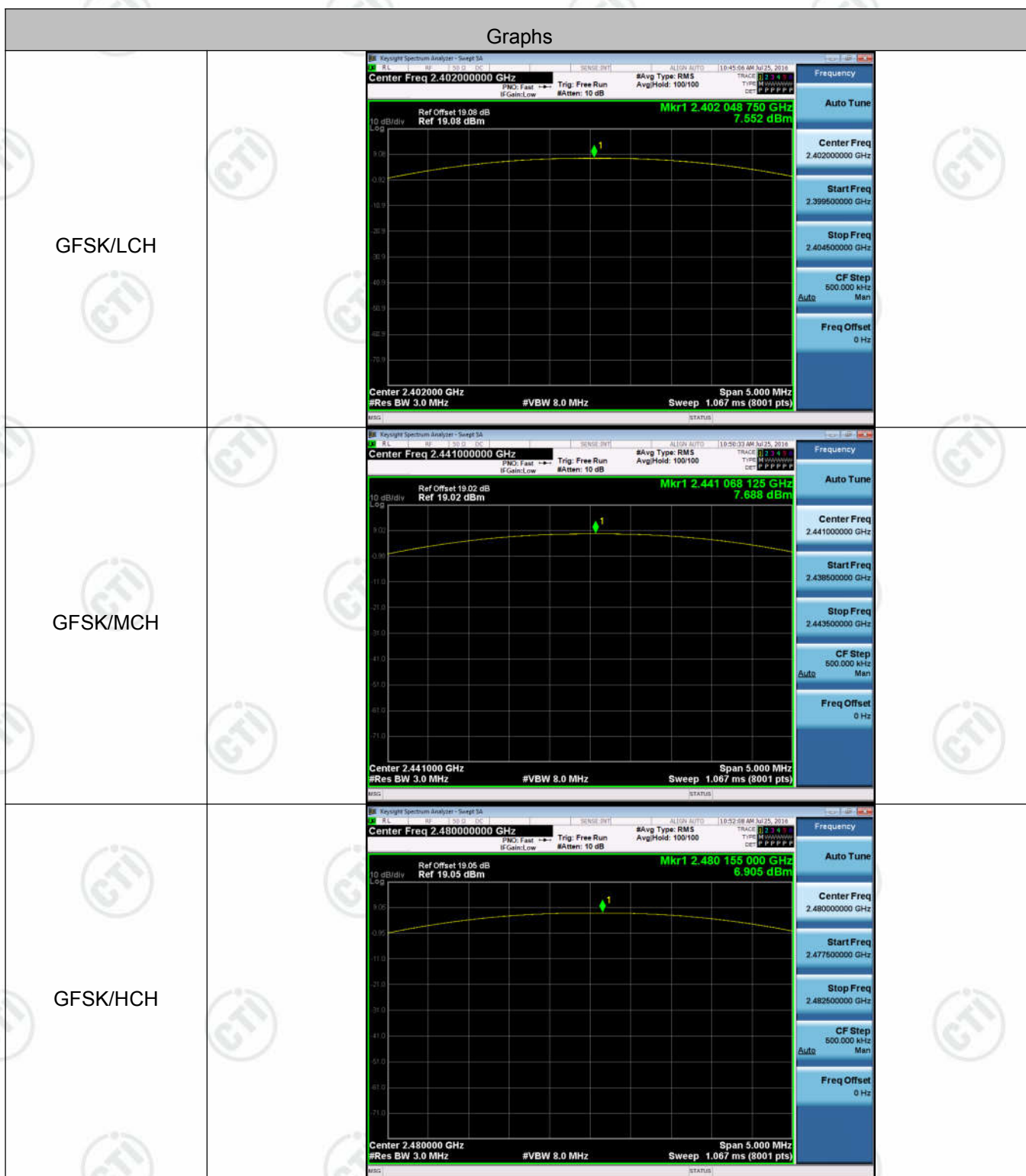


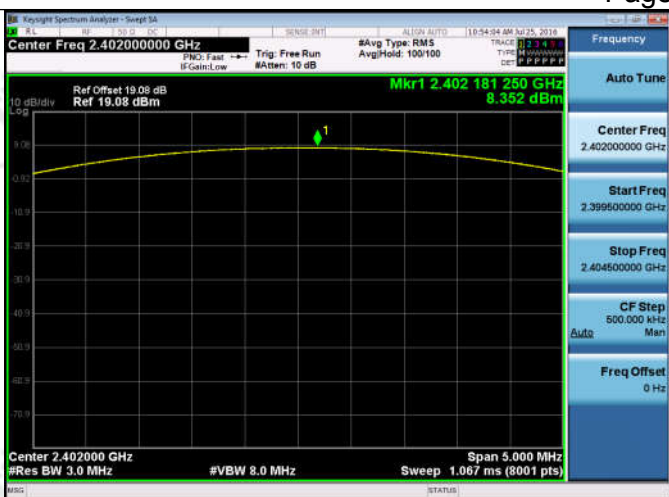
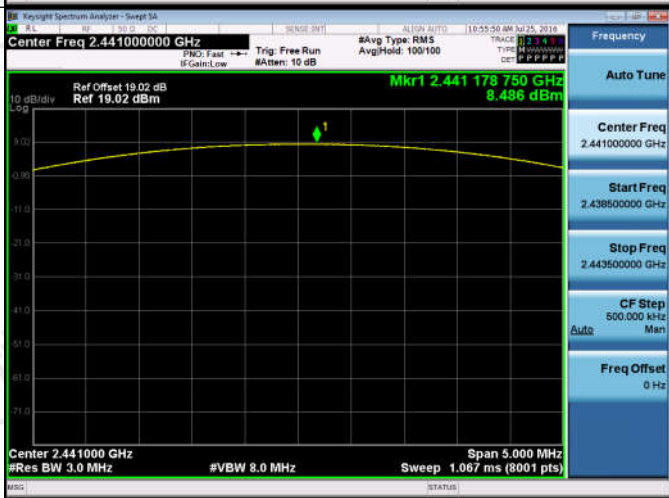
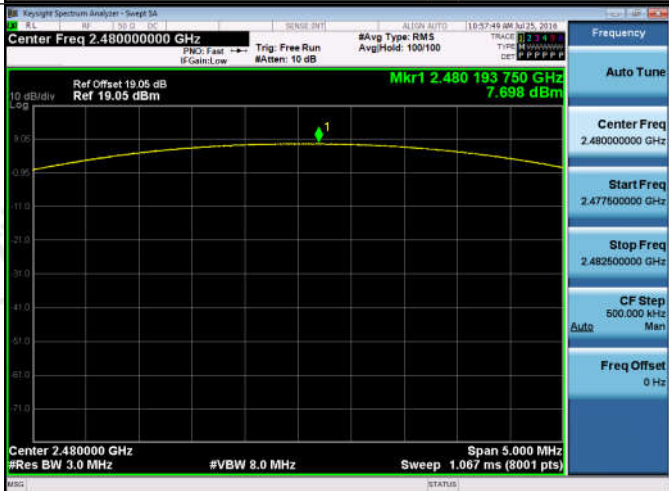
Appendix E): Conducted Peak Output Power

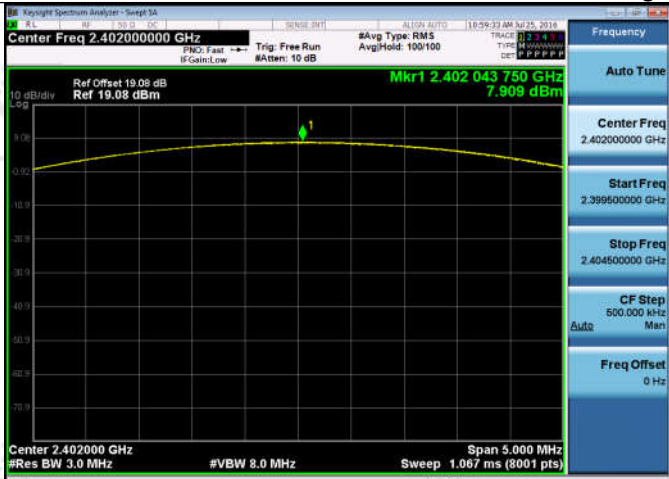
Result Table

Mode	Channel.	Maximum Peak Output Power [dBm]	Verdict
GFSK	LCH	7.552	PASS
GFSK	MCH	7.688	PASS
GFSK	HCH	6.905	PASS
$\pi/4$ DQPSK	LCH	8.352	PASS
$\pi/4$ DQPSK	MCH	8.486	PASS
$\pi/4$ DQPSK	HCH	7.698	PASS
8DPSK	LCH	7.909	PASS
8DPSK	MCH	8.817	PASS
8DPSK	HCH	8.064	PASS

Test Graph



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

8DPSK/LCH	
8DPSK/MCH	
8DPSK/HCH	

Appendix F): Band-edge for RF Conducted Emissions

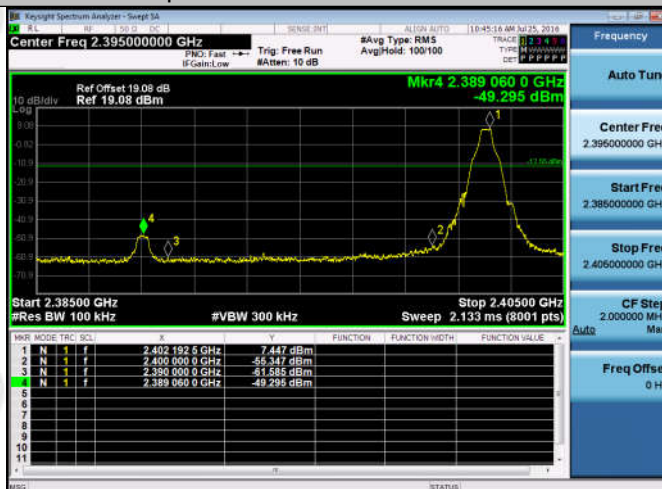
Result Table

Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	7.447	Off	-49.295	-12.55	PASS
			6.025	On	-51.121	-13.98	PASS
GFSK	HCH	2480	6.715	Off	-49.615	-13.29	PASS
			6.142	On	-50.245	-13.86	PASS
$\pi/4$ DQPSK	LCH	2402	7.357	Off	-50.222	-12.64	PASS
			7.436	On	-49.939	-12.56	PASS
$\pi/4$ DQPSK	HCH	2480	6.727	Off	-49.441	-13.27	PASS
			7.589	On	-49.522	-12.41	PASS
8DPSK	LCH	2402	7.530	Off	-49.979	-12.47	PASS
			7.497	On	-49.903	-12.5	PASS
8DPSK	HCH	2480	6.825	Off	-49.846	-13.18	PASS
			7.620	On	-49.529	-12.38	PASS

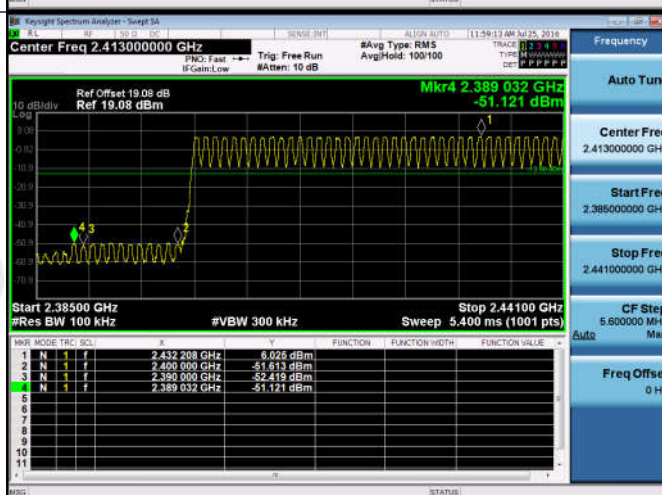
Test Graph

Graphs

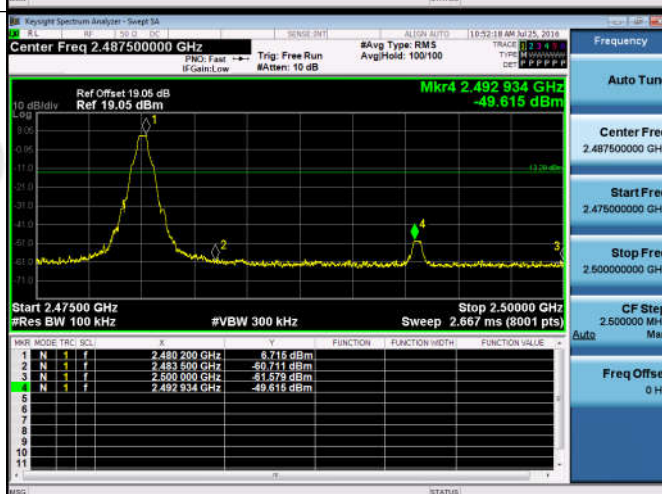
GFSK/LCH/No Hop

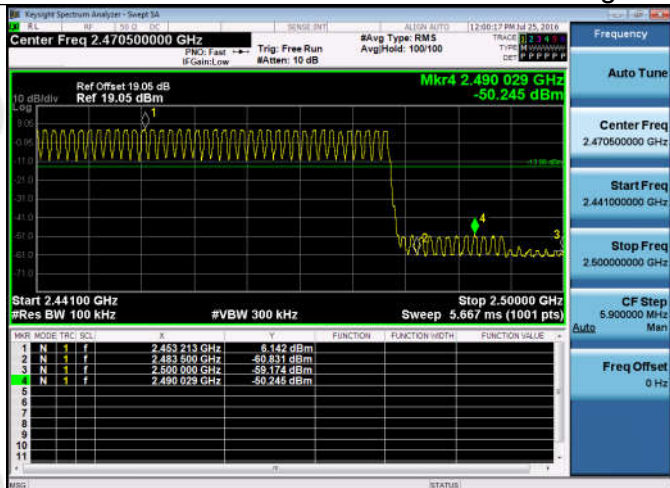
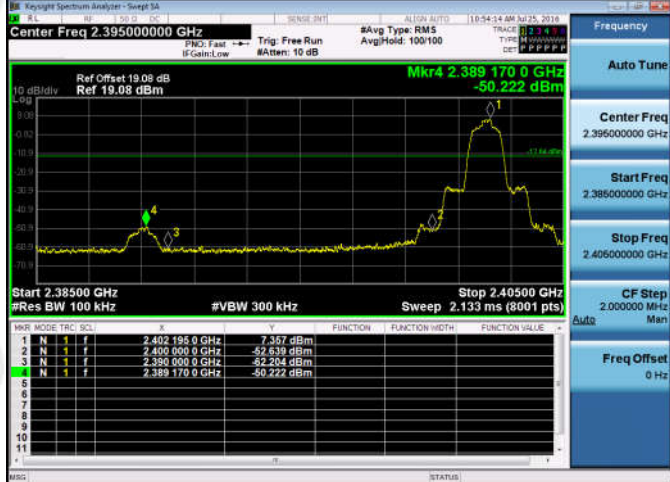
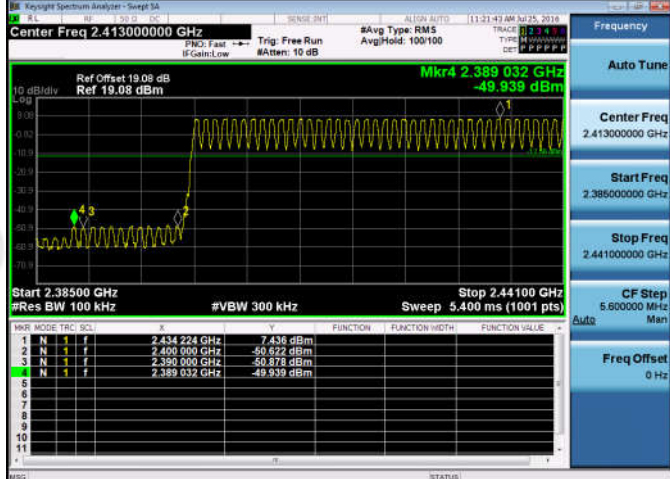


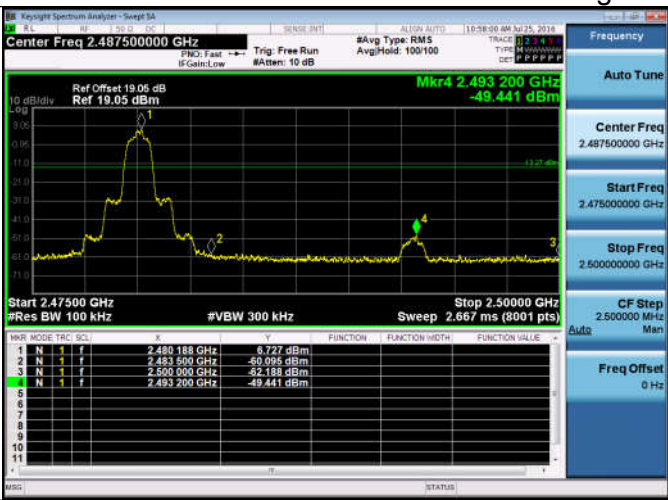
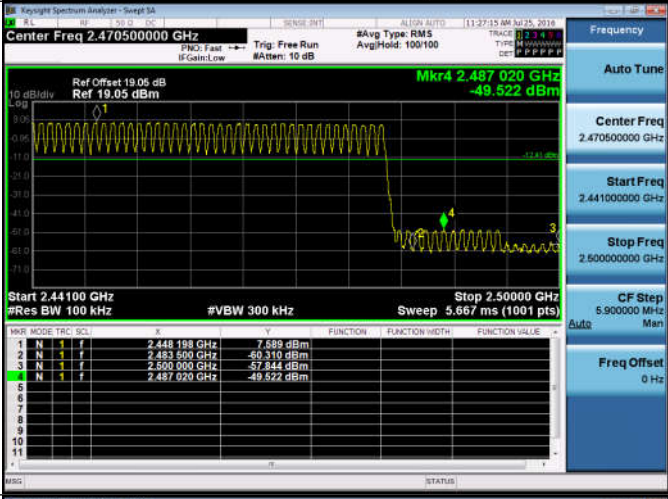
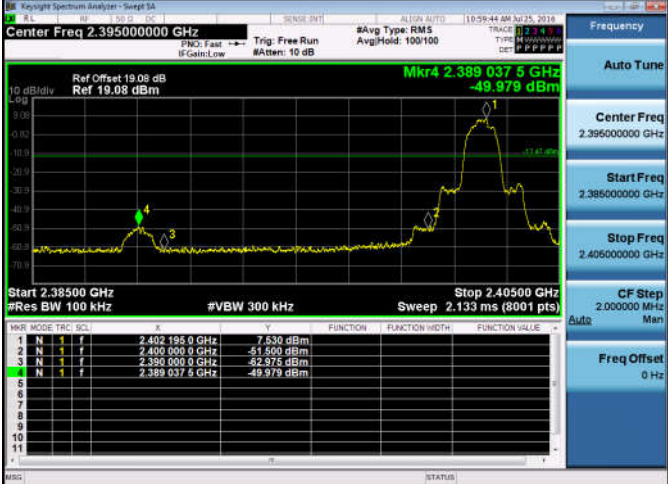
GFSK/LCH/Hop

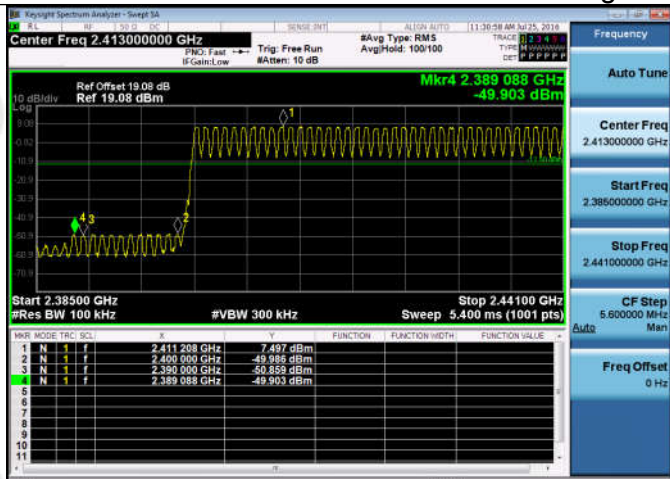
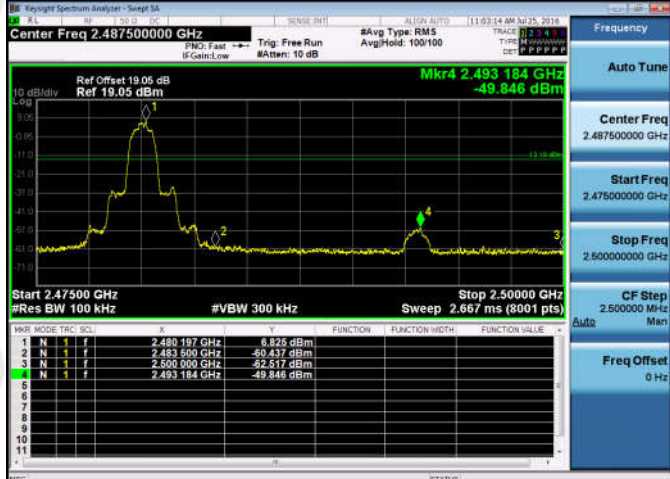
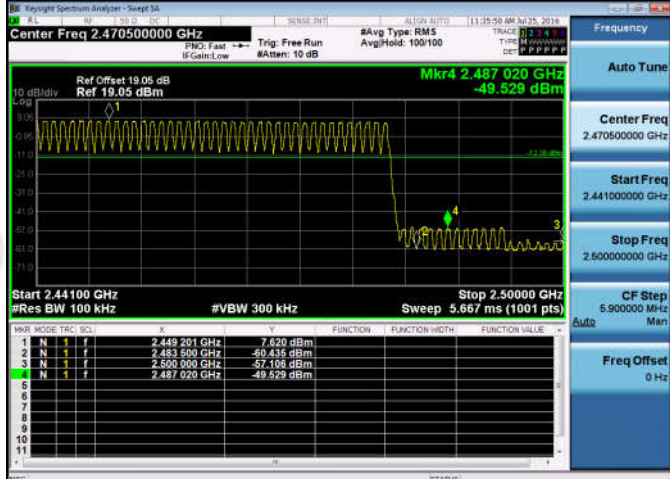


GFSK/HCH/No Hop



GFSK/HCH/Hop	 <table><tr><th>Marker</th><th>Mode</th><th>Freq (GHz)</th><th>Power (dBm)</th></tr><tr><td>1</td><td>N</td><td>2.463 213</td><td>6.142</td></tr><tr><td>2</td><td>N</td><td>2.483 500</td><td>-50.831</td></tr><tr><td>3</td><td>N</td><td>2.490 029</td><td>-50.245</td></tr></table>	Marker	Mode	Freq (GHz)	Power (dBm)	1	N	2.463 213	6.142	2	N	2.483 500	-50.831	3	N	2.490 029	-50.245				
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$\pi/4$ DQPSK/LCH/No Hop	 <table><tr><th>Marker</th><th>Mode</th><th>Freq (GHz)</th><th>Power (dBm)</th></tr><tr><td>1</td><td>N</td><td>2.402 195 0</td><td>7.357</td></tr><tr><td>2</td><td>N</td><td>2.400 000 0</td><td>-50.639</td></tr><tr><td>3</td><td>N</td><td>2.389 000 0</td><td>-50.284</td></tr><tr><td>4</td><td>N</td><td>2.389 170 0</td><td>-50.222</td></tr></table>	Marker	Mode	Freq (GHz)	Power (dBm)	1	N	2.402 195 0	7.357	2	N	2.400 000 0	-50.639	3	N	2.389 000 0	-50.284	4	N	2.389 170 0	-50.222
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$\pi/4$DQPSK/HCH/No Hop	
$\pi/4$DQPSK/HCH/Hop	
8DPSK/LCH/No Hop	

8DPSK/LCH/Hop	 <table><tr><th>NR</th><th>MODE</th><th>TRC</th><th>SOL</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>2.411208 GHz</td><td>7.497 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>2.400000 GHz</td><td>-49.986 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>2.390000 GHz</td><td>-50.859 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>2.389088 GHz</td><td>-49.903 dBm</td><td></td><td></td><td></td></tr></table>	NR	MODE	TRC	SOL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	2.411208 GHz	7.497 dBm				2	N	1	f	2.400000 GHz	-49.986 dBm				3	N	1	f	2.390000 GHz	-50.859 dBm				4	N	1	f	2.389088 GHz	-49.903 dBm			
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8DPSK/HCH/Hop	 <table><tr><th>NR</th><th>MODE</th><th>TRC</th><th>SOL</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>2.448261 GHz</td><td>7.530 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>2.483500 GHz</td><td>-50.437 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>2.500000 GHz</td><td>-52.108 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>2.487020 GHz</td><td>-49.529 dBm</td><td></td><td></td><td></td></tr></table>	NR	MODE	TRC	SOL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	2.448261 GHz	7.530 dBm				2	N	1	f	2.483500 GHz	-50.437 dBm				3	N	1	f	2.500000 GHz	-52.108 dBm				4	N	1	f	2.487020 GHz	-49.529 dBm			
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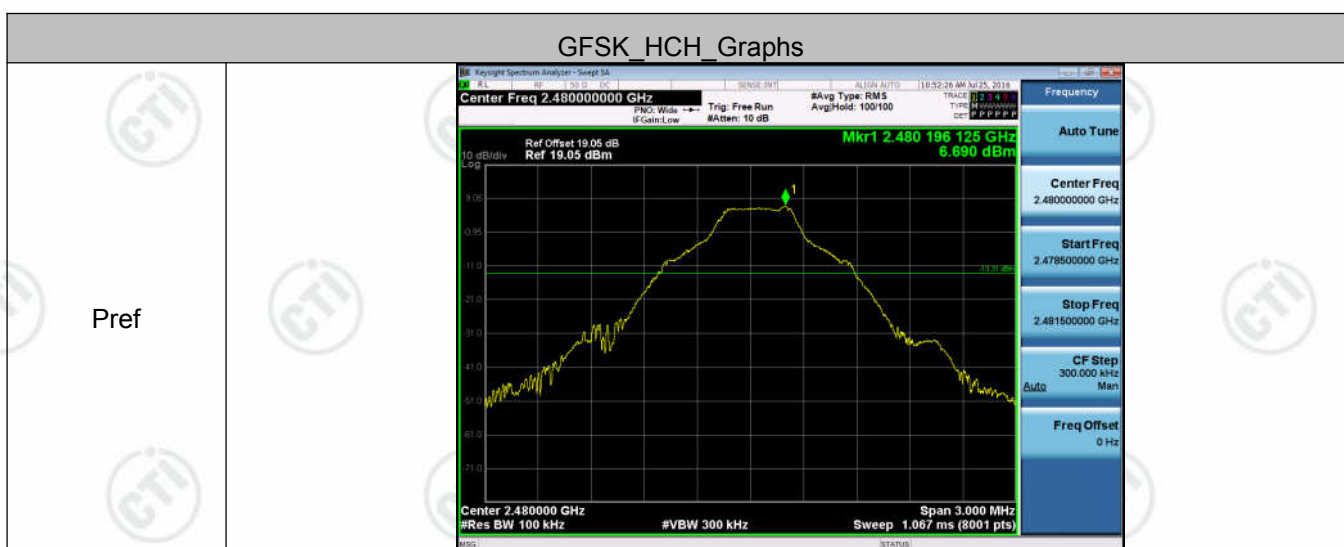
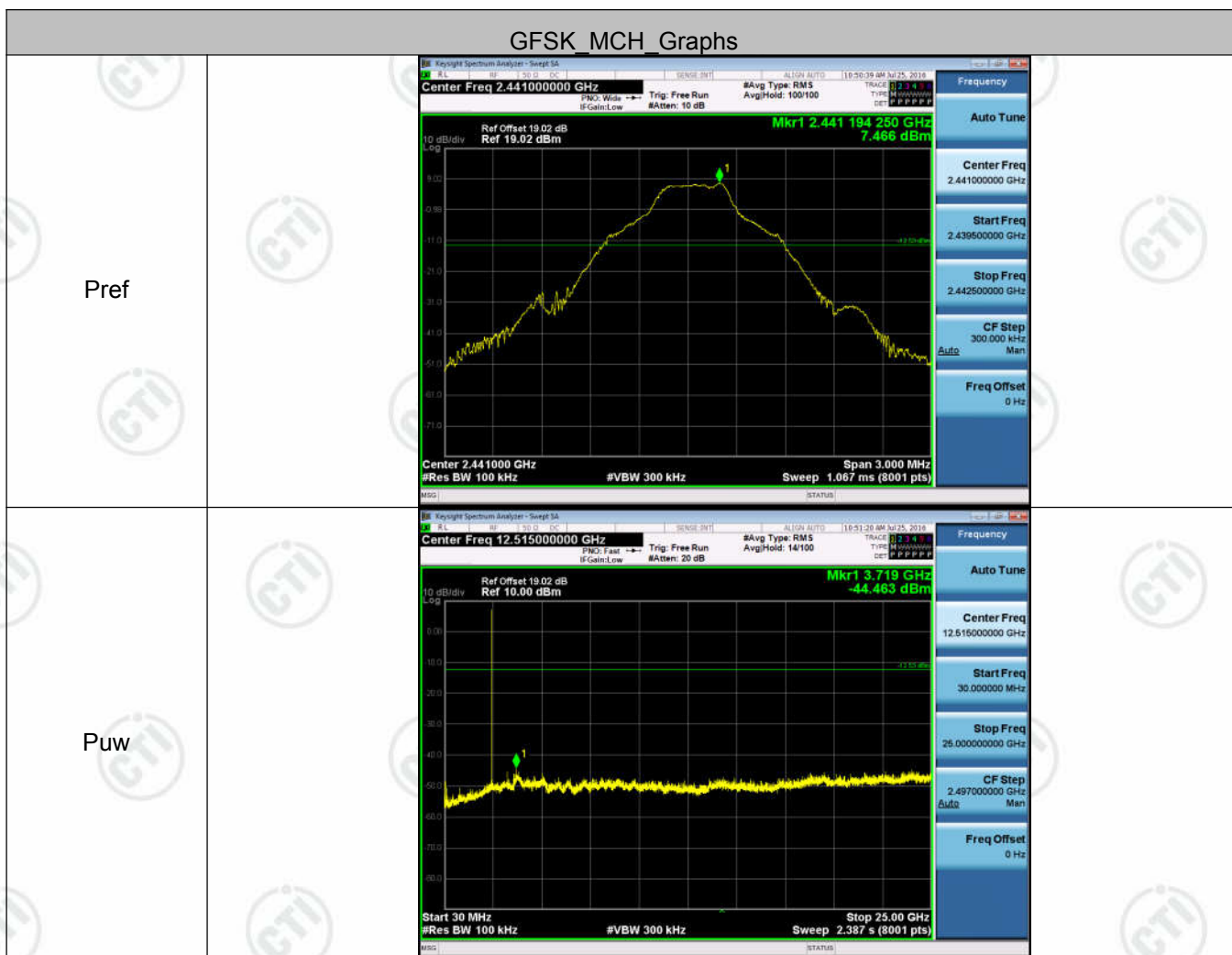
Appendix G): RF Conducted Spurious Emissions

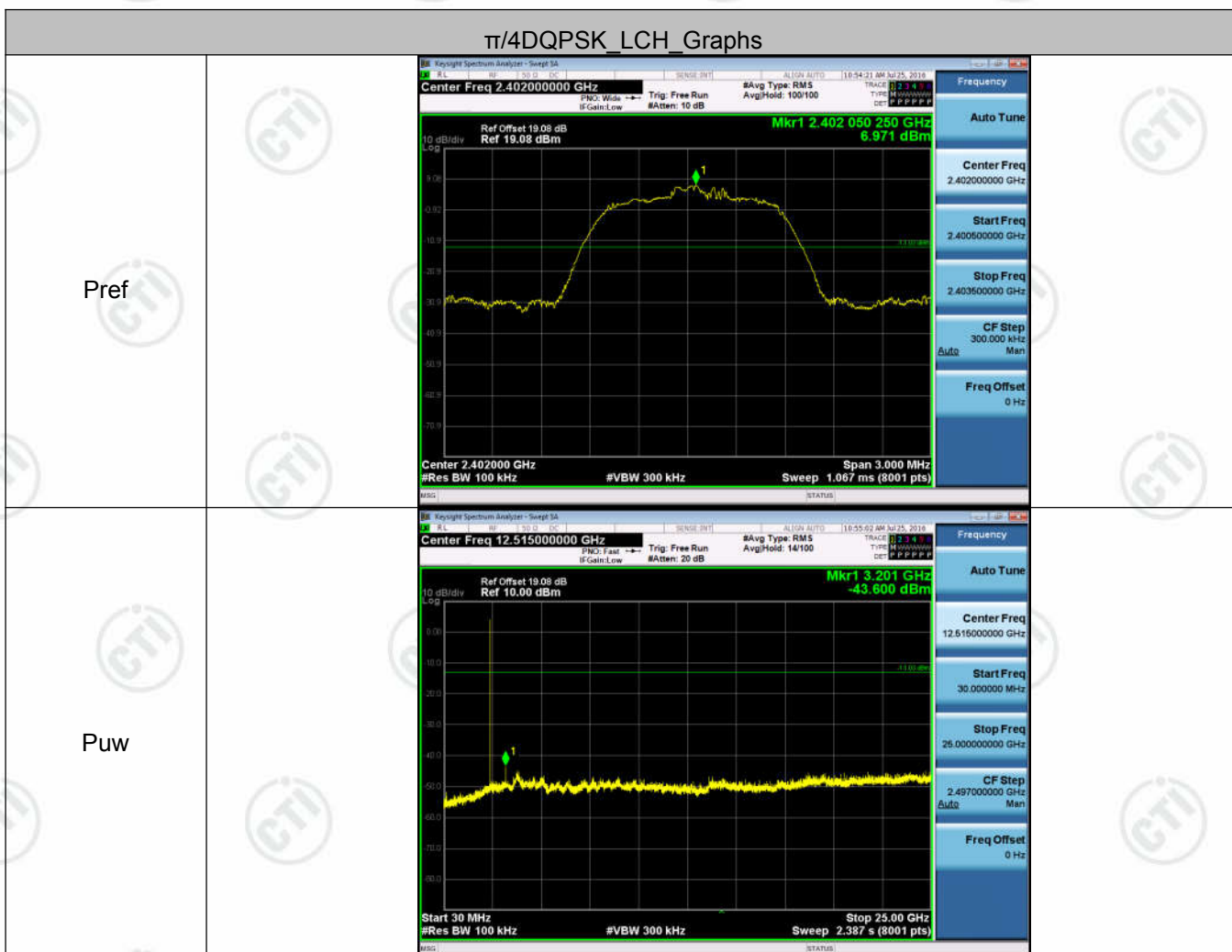
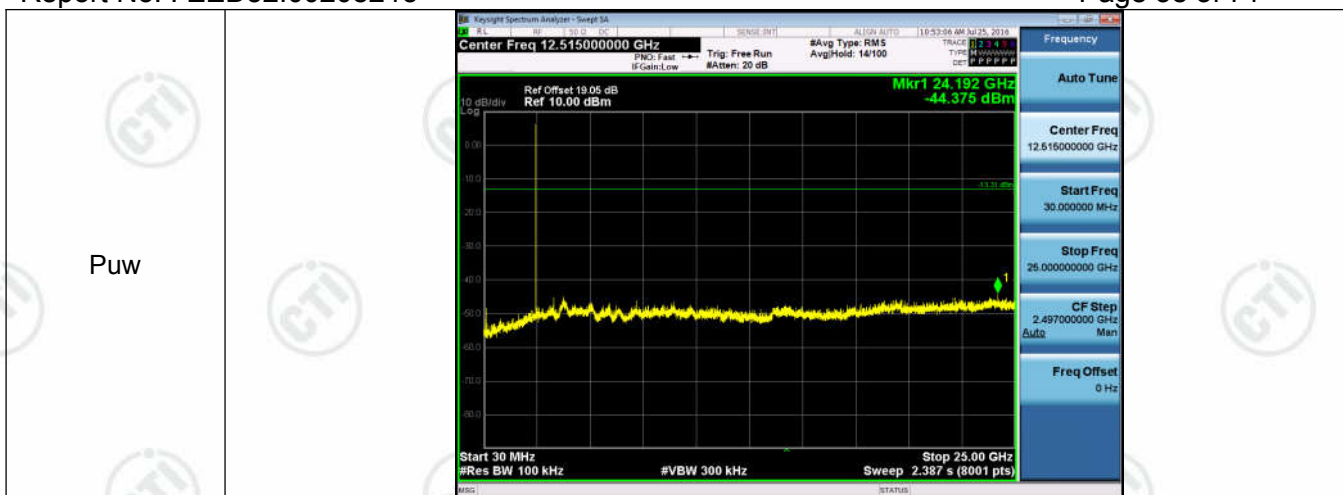
Result Table

Mode	Channel	Pref [dBm]	Puw[dBm]	Verdict
GFSK	LCH	7.371	<Limit	PASS
GFSK	MCH	7.466	<Limit	PASS
GFSK	HCH	6.69	<Limit	PASS
$\pi/4$ DQPSK	LCH	6.971	<Limit	PASS
$\pi/4$ DQPSK	MCH	7.17	<Limit	PASS
$\pi/4$ DQPSK	HCH	6.556	<Limit	PASS
8DPSK	LCH	7.47	<Limit	PASS
8DPSK	MCH	7.467	<Limit	PASS
8DPSK	HCH	6.8	<Limit	PASS

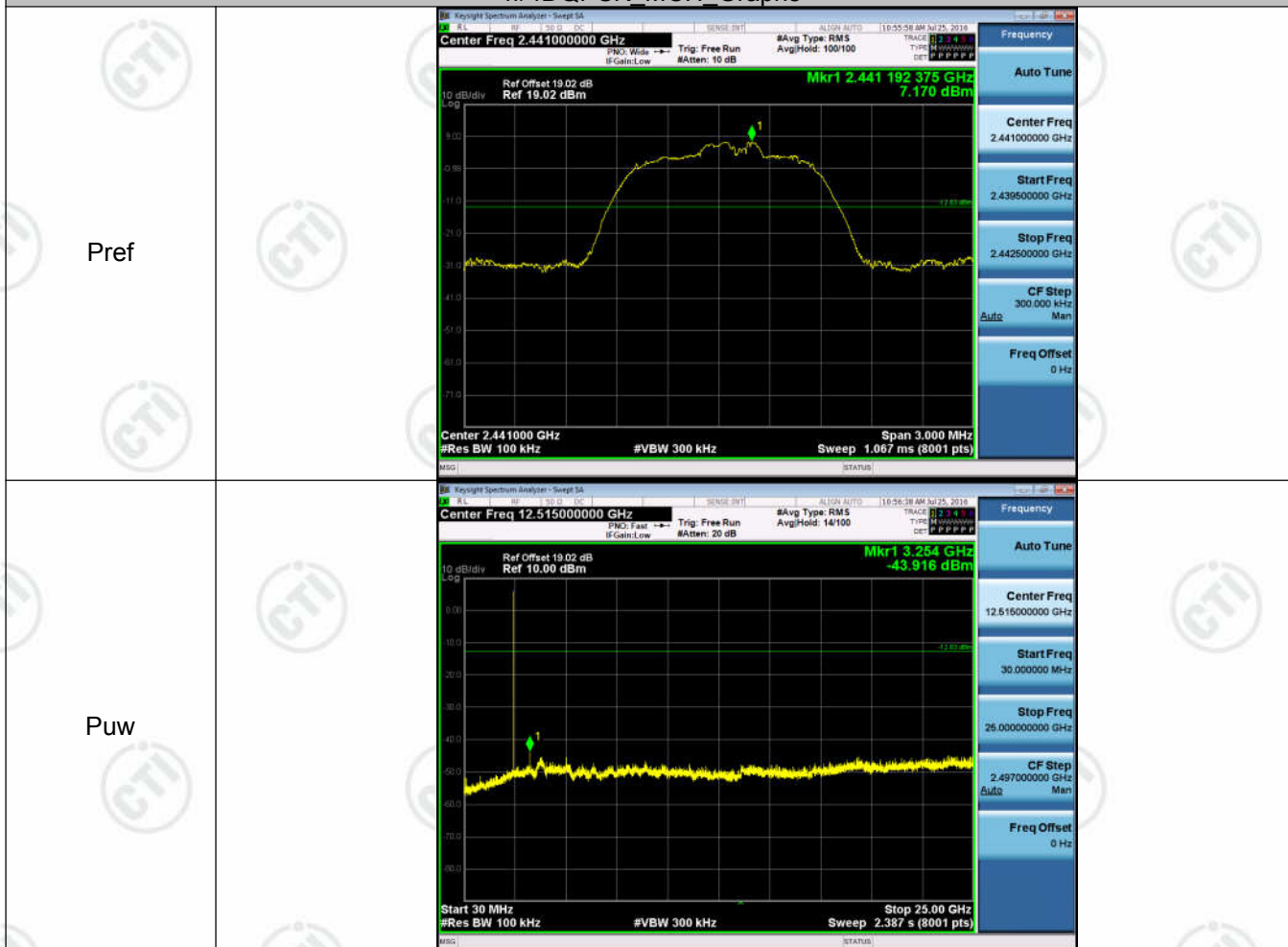
Test Graph



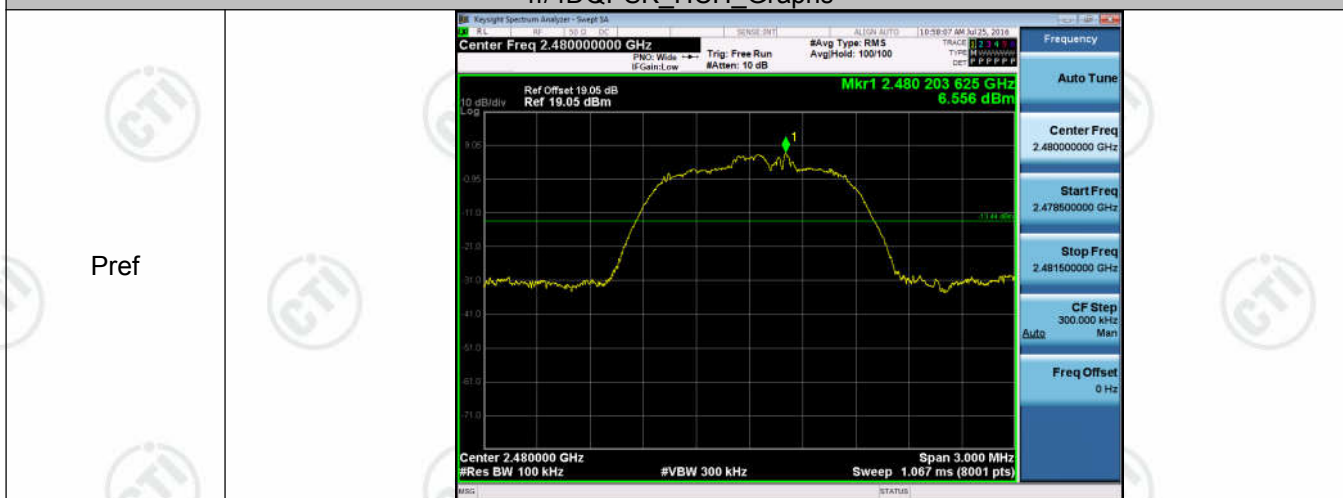


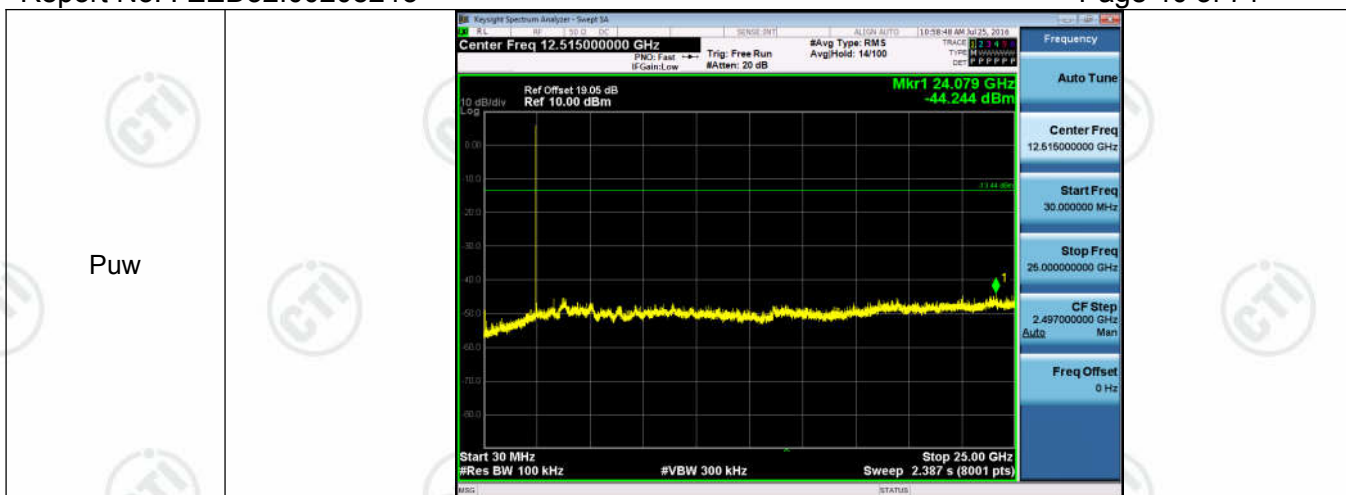


$\pi/4$ DQPSK_MCH_Graphs



$\pi/4$ DQPSK_HCH_Graphs





8DPSK_LCH_Graphs

