

## TEST REPORT

**Product** : Wireless portable speaker  
**Trade mark** : ONKYO  
**Model/Type reference** : OKAT3X/ZZ  
(“X”=A-Z or Nil, “ZZ” = 00-99)  
**Serial Number** : N/A  
**Report Number** : EED32100153601  
**FCC ID** : 2AANUOKAT3X  
**Date of Issue** : Jun. 06, 2016  
**Test Standards** : 47 CFR Part 15 Subpart C (2015)  
**Test result** : PASS

Prepared for:

**Gibson Innovations Limited**  
5/F Philips Electronics Building, 5 Science Park East Ave, HK Science  
Park, Shatin, NT, Hong Kong

Prepared by:

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Jun. 06, 2016

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Check No.: 2384369953



## 2 Version

Version No.	Date	Description
00	Jun. 06, 2016	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 sample(s) and the sample information are provided by the client.

Model No.: OKAT3X/ZZ("X"=A-Z or Nil, "ZZ" = 00-99)

Only the model OKAT3W/37 was tested, since the electrical circuit design, layout, components used and internal wiring are identical for the above models, with difference being model number and color of cabinet.

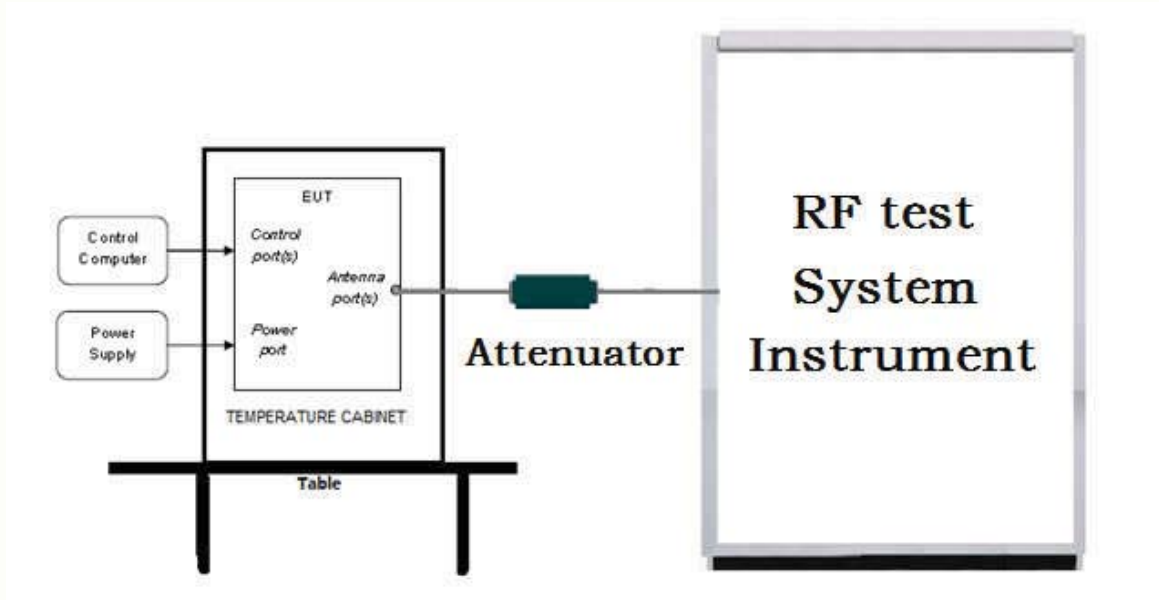
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## 5 Test Requirement

### 5.1 Test setup

#### 5.1.1 For Conducted test setup



#### 5.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

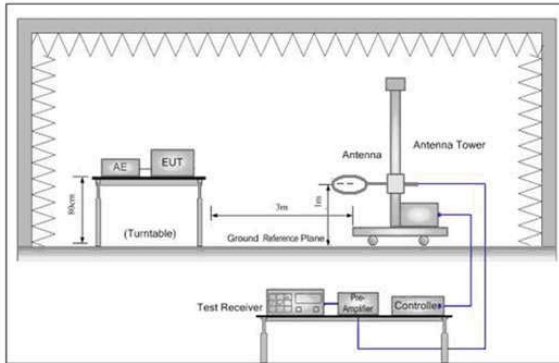


Figure 1. Below 30MHz

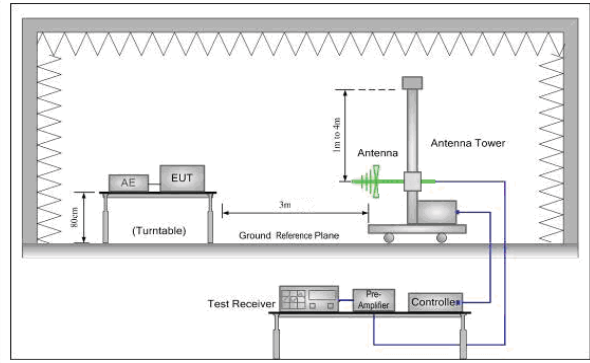


Figure 2. 30MHz to 1GHz

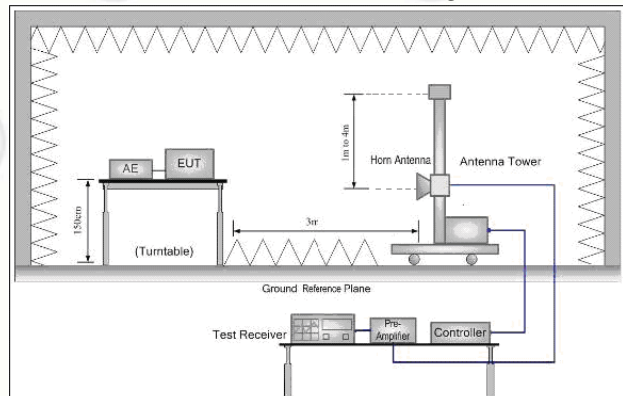
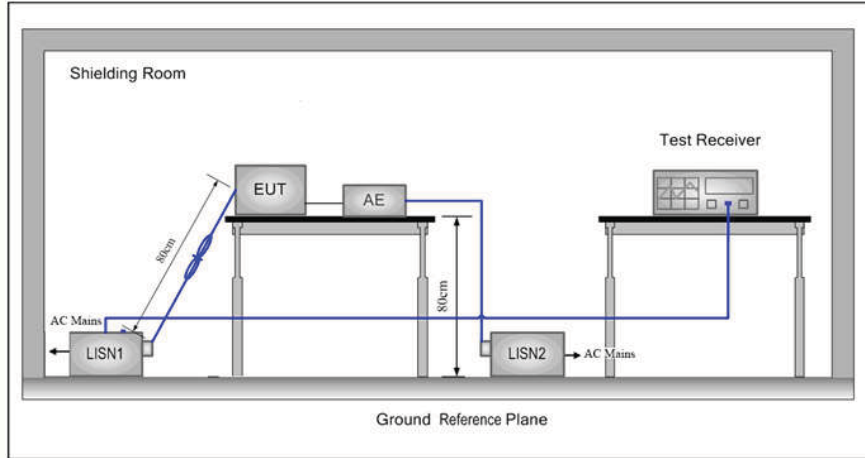


Figure 3. Above 1GHz



### 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:	1010mbar

## 5.3 Test Condition

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

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:	Gibson Innovations Limited
Address of Applicant:	5/F Philips Electronics Building, 5 Science Park East Ave, HK Science Park, Shatin, NT, Hong Kong
Manufacturer:	Gibson Innovations Limited
Address of Manufacturer:	5/F Philips Electronics Building, 5 Science Park East Ave, HK Science Park, Shatin, NT, Hong Kong
Factory:	Shenzhen 3NOD Digital Technology Co., Ltd.
Address of Factory:	Building D Park, 8# Langhui Road, Tangxiayong Village Industrial Zone, Songgang Town, Baoan, Shenzhen, Guangdong, China

### 6.2 General Description of EUT

Product Name:	Wireless portable speaker
Model No.:	OKAT3X/ZZ("X"=A-Z or Nil, "ZZ" = 00-99)
Test Mode No.:	OKAT3W/37
Trade mark:	ONKYO
EUT Supports Radios application:	Bluetooth V3.0+EDR
Power Supply:	- PL 305050*3 Li-ion 11.1V 800mAh 8.88wh + 150928 BPI
Sample Received Date:	May 19, 2016
Sample tested Date:	May 19, 2016 to Jun. 06, 2016

### 6.3 Product Specification subjective to this standard

Operation Frequency:	2402MHz~2480MHz						
Bluetooth Version:	3.0+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						
Test Power Grade:	50 (manufacturer declare )						
Test Software of EUT:	CSR (manufacturer declare )						
Antenna Type:	Internal						
Antenna Gain:	0.54dBi						
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 with associated equipment below : FCC DOC approved

Description	Manufacturer	Model No.	Supplied by
Mouse	L.Selectron	M004	CTI
laptop	lenovo	E46L	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, China518101

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 (Shenzhen) Corporation. 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 (Shenzhen) Corporation. 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 (Shenzhen) Corporation., 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 x 10 <sup>-8</sup>
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(3-18GHz)	Sinoscite	FL3CX03WG18 NM12-0398-002	---	01-12-2016	01-11-2017
High-pass filter(6-18GHz)	MICRO-TRONICS	SPA-F-63029-4	---	01-12-2016	01-11-2017
band rejection filter (GSM900)	Sinoscite	FL5CX01CA09C L12-0395-001	---	01-12-2016	01-11-2017
band rejection filter (GSM850)	Sinoscite	FL5CX01CA08C L12-0393-001	---	01-12-2016	01-11-2017
band rejection filter (GSM1800)	Sinoscite	FL5CX02CA04C L12-0396-002	---	01-12-2016	01-11-2017
band rejection filter (GSM1900)	Sinoscite	FL5CX02CA03C L12-0394-001	---	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
BT&WI-FI Automatic control	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	06-30-2015	06-28-2016
Temperature/ Humidity Indicator	Belida	TT-512	101	07-09-2015	07-07-2016
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	06-30-2015	06-28-2016
LISN	schwarzbeck	NNLK8121	8121-529	06-30-2015	06-28-2016
Voltage Probe	R&S	ESH2-Z3	100042	07-09-2014	07-08-2017
Current Probe	R&S	EZ17	100106	07-09-2014	07-08-2017
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	---	06-02-2014	06-01-2017
TRILOG Broadband Antenna	SCHWARZBECK	VULB9163	9163-484	05-25-2015	05-23-2016
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
Loop Antenna	ETS	6502	00071730	07-30-2015	07-28-2017
Spectrum Analyzer	R&S	FSP40	100416	06-30-2015	06-28-2016
Receiver	R&S	ESCI	100435	06-30-2015	06-28-2016
Multi device Controller	matur	NCD/070/10711 112	---	01-12-2016	01-11-2017
LISN	schwarzbeck	NNBM8125	81251547	06-30-2015	06-28-2016
LISN	schwarzbeck	NNBM8125	81251548	06-30-2015	06-28-2016
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	07- 08-2015	07-06-2016
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(3-18GHz)	Sinoscite	FL3CX03WG18 NM12-0398-002	---	01-12-2016	01-11-2017
High-pass filter(6-18GHz)	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	0.9443	0.87484	PASS	Peak detector
GFSK	MCH	0.9421	0.85722	PASS	
GFSK	HCH	0.9388	0.85165	PASS	
$\pi/4$ DQPSK	LCH	1.262	1.1681	PASS	
$\pi/4$ DQPSK	MCH	1.226	1.1630	PASS	
$\pi/4$ DQPSK	HCH	1.228	1.1649	PASS	
8DPSK	LCH	1.275	1.1610	PASS	
8DPSK	MCH	1.256	1.1563	PASS	
8DPSK	HCH	1.257	1.1575	PASS	

**Test Graph**



<p><math>\pi/4</math>DQPSK/LCH</p>	<p>KeySight Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.402000000 GHz</p> <p>Ref Offset: 19.08 dB Ref: 19.08 dBm</p> <p>Center 2.402 GHz #Res BW 30 kHz #VBW 100 kHz Span 3 MHz Sweep 3.2 ms</p> <p><b>Occupied Bandwidth</b> 1.1681 MHz</p> <p>Total Power 6.17 dBm</p> <p>Transmit Freq Error 5.026 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 1.262 MHz x dB -20.00 dB</p>
<p><math>\pi/4</math>DQPSK/MCH</p>	<p>KeySight Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.441000000 GHz</p> <p>Ref Offset: 19.02 dB Ref: 19.02 dBm</p> <p>Center 2.441 GHz #Res BW 30 kHz #VBW 100 kHz Span 3 MHz Sweep 3.2 ms</p> <p><b>Occupied Bandwidth</b> 1.1630 MHz</p> <p>Total Power 9.26 dBm</p> <p>Transmit Freq Error -7.299 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 1.226 MHz x dB -20.00 dB</p>
<p><math>\pi/4</math>DQPSK/HCH</p>	<p>KeySight Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.480000000 GHz</p> <p>Ref Offset: 19.05 dB Ref: 19.05 dBm</p> <p>Center 2.48 GHz #Res BW 30 kHz #VBW 100 kHz Span 3 MHz Sweep 3.2 ms</p> <p><b>Occupied Bandwidth</b> 1.1649 MHz</p> <p>Total Power 10.3 dBm</p> <p>Transmit Freq Error -7.655 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 1.228 MHz x dB -20.00 dB</p>



<p>8DPSK/LCH</p>	
<p>8DPSK/MCH</p>	
<p>8DPSK/HCH</p>	

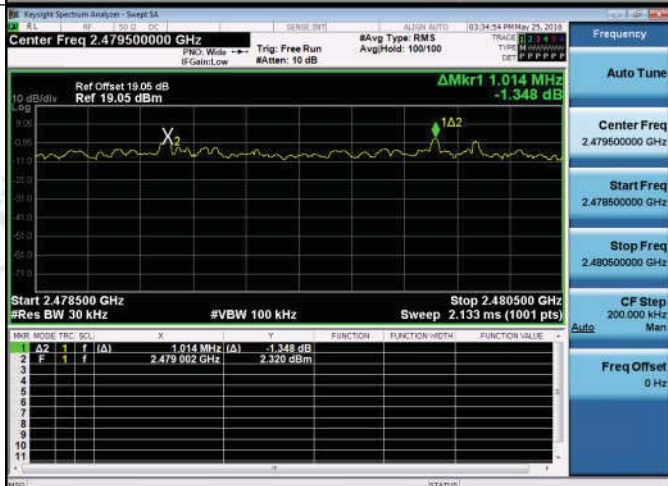
## Appendix B): Carrier Frequency Separation

### Result Table

Mode	Channel.	Carrier Frequency Separation [MHz]	Verdict
GFSK	LCH	0.994	PASS
GFSK	MCH	0.996	PASS
GFSK	HCH	0.996	PASS
$\pi/4$ DQPSK	LCH	1.002	PASS
$\pi/4$ DQPSK	MCH	0.980	PASS
$\pi/4$ DQPSK	HCH	1.014	PASS
8DPSK	LCH	1.014	PASS
8DPSK	MCH	1.140	PASS
8DPSK	HCH	1.144	PASS

**Test Graph**



<p><math>\pi/4</math>DQPSK/LCH</p>	 <table border="1" data-bbox="638 616 1197 761"> <thead> <tr> <th>MNR</th> <th>MODE</th> <th>TRIG</th> <th>SCL</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION METH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>AZ</td> <td>1</td> <td>f</td> <td>(A)</td> <td>1.002 MHz (A)</td> <td>2.117 dB</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>1</td> <td>f</td> <td></td> <td>2.401 996 GHz</td> <td>-4.764 dBm</td> <td></td> <td></td> </tr> </tbody> </table>	MNR	MODE	TRIG	SCL	X	Y	FUNCTION	FUNCTION METH	FUNCTION VALUE	1	AZ	1	f	(A)	1.002 MHz (A)	2.117 dB			2	F	1	f		2.401 996 GHz	-4.764 dBm		
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<p><math>\pi/4</math>DQPSK/MCH</p>	 <table border="1" data-bbox="638 1108 1197 1254"> <thead> <tr> <th>MNR</th> <th>MODE</th> <th>TRIG</th> <th>SCL</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION METH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>AZ</td> <td>1</td> <td>f</td> <td>(A)</td> <td>980 kHz (A)</td> <td>0.899 dB</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>1</td> <td>f</td> <td></td> <td>2.440 016 GHz</td> <td>-0.123 dBm</td> <td></td> <td></td> </tr> </tbody> </table>	MNR	MODE	TRIG	SCL	X	Y	FUNCTION	FUNCTION METH	FUNCTION VALUE	1	AZ	1	f	(A)	980 kHz (A)	0.899 dB			2	F	1	f		2.440 016 GHz	-0.123 dBm		
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<p>8DPSK/LCH</p>	
<p>8DPSK/MCH</p>	
<p>8DPSK/HCH</p>	

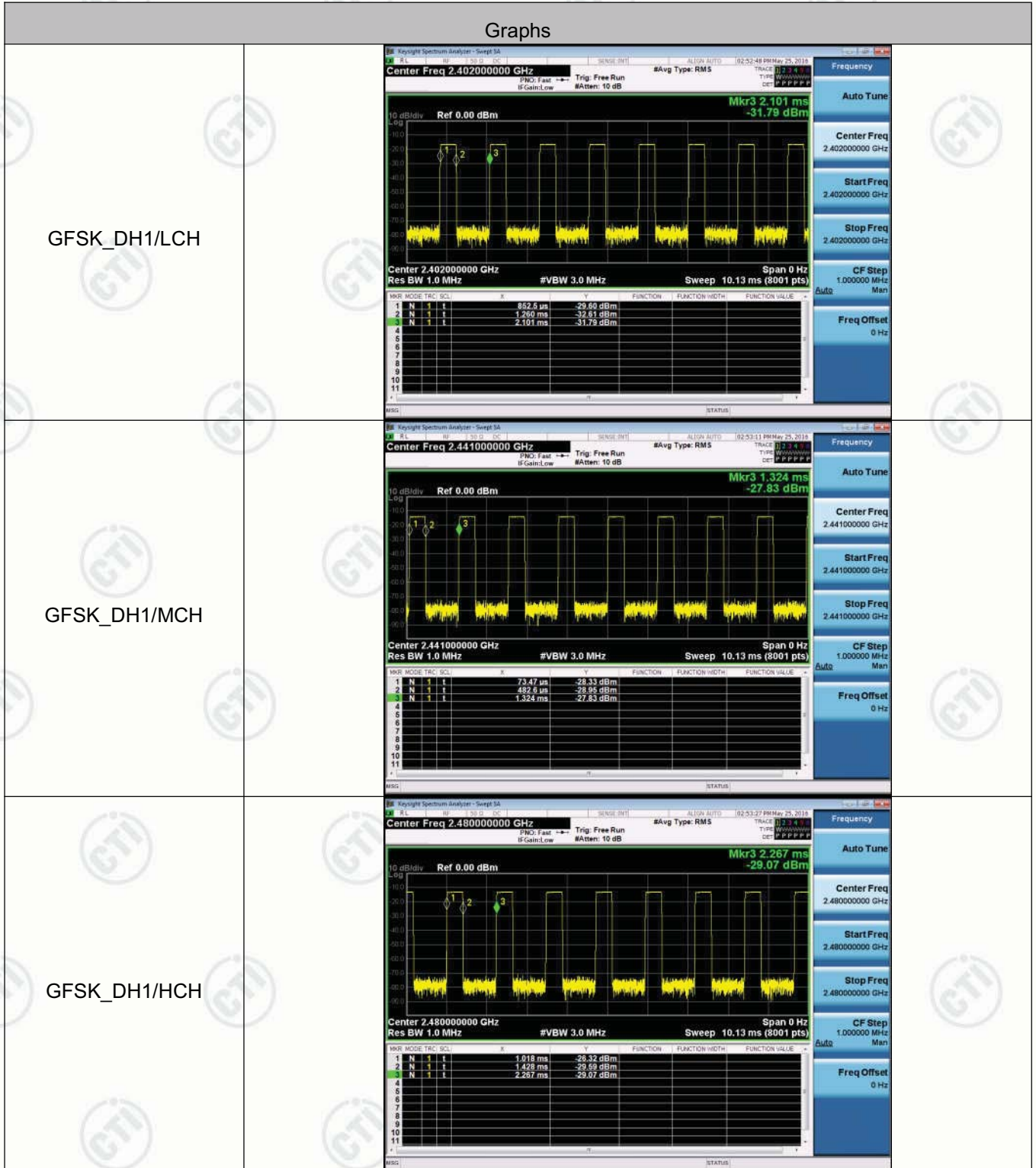
## Appendix C): Dwell Time

### Result Table

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Duty Cycle [%]	Verdict
GFSK	DH1	LCH	0.407863	320	0.131	0.33	PASS
GFSK	DH1	MCH	0.4091333	320	0.131	0.33	PASS
GFSK	DH1	HCH	0.40913	320	0.131	0.33	PASS
GFSK	DH3	LCH	0.86387	160	0.138	0.69	PASS
GFSK	DH3	MCH	0.865133	160	0.138	0.69	PASS
GFSK	DH3	HCH	0.865133	160	0.138	0.69	PASS
GFSK	DH5	LCH	2.912067	106.7	0.311	0.78	PASS
GFSK	DH5	MCH	2.91206	106.7	0.311	0.78	PASS
GFSK	DH5	HCH	2.91333	106.7	0.311	0.78	PASS

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

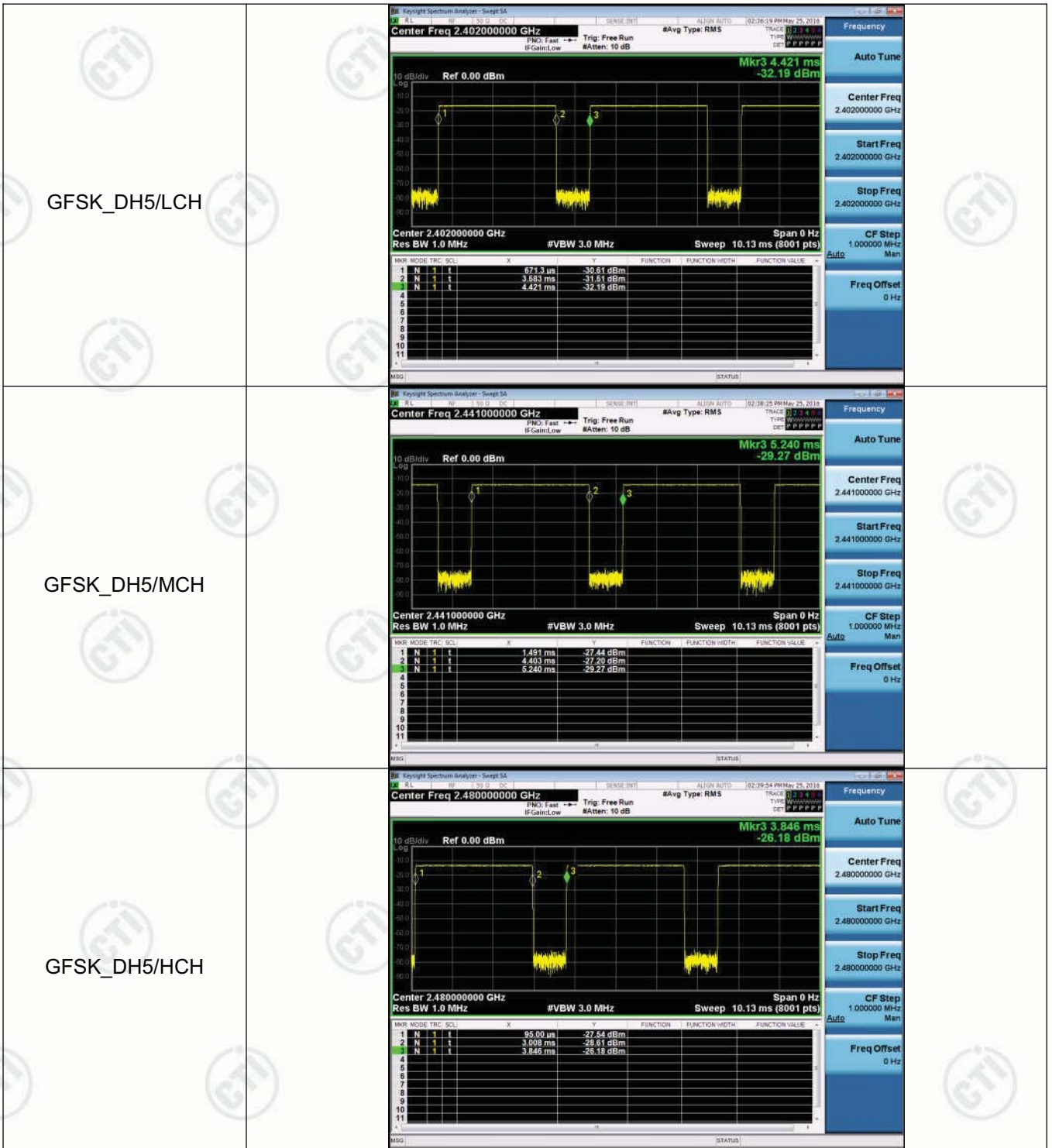
**Test Graph**









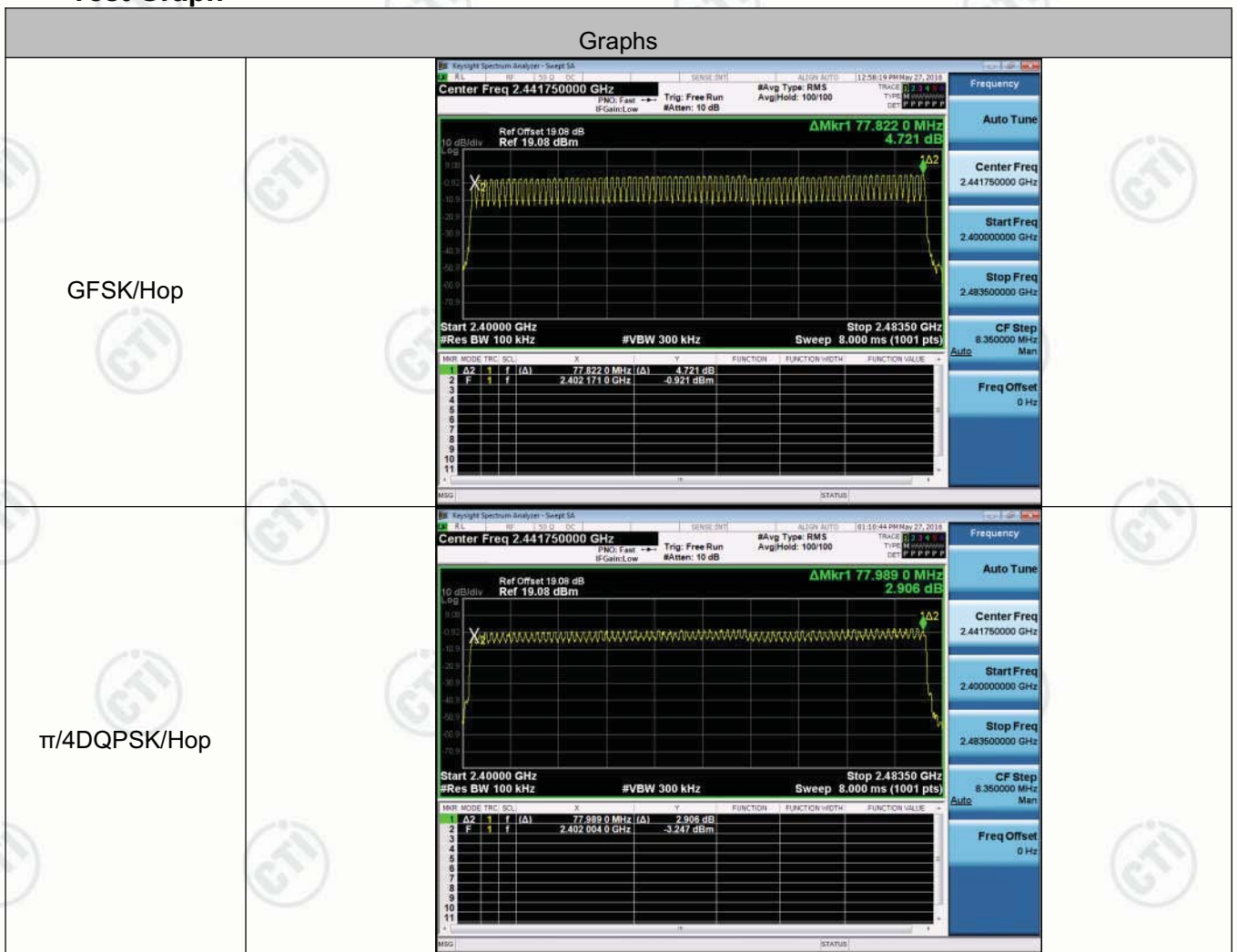


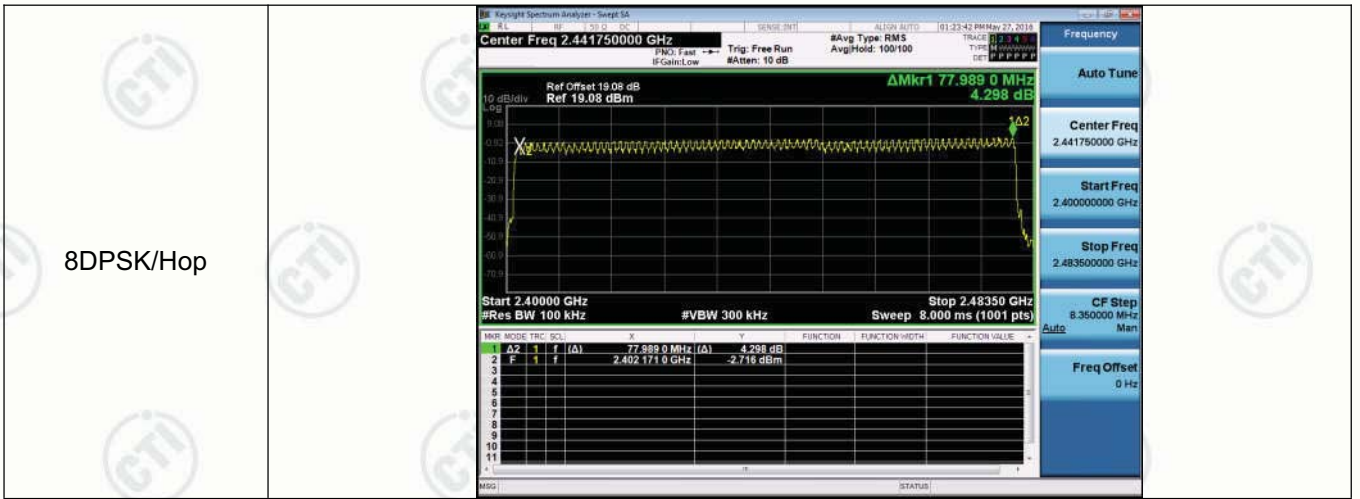
## Appendix D): Hopping Channel Number

### 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	3.167	PASS
GFSK	MCH	5.128	PASS
GFSK	HCH	5.879	PASS
$\pi/4$ DQPSK	LCH	0.445	PASS
$\pi/4$ DQPSK	MCH	3.448	PASS
$\pi/4$ DQPSK	HCH	4.438	PASS
8DPSK	LCH	0.801	PASS
8DPSK	MCH	3.735	PASS
8DPSK	HCH	4.743	PASS



**Test Graph**



<p><math>\pi/4</math>DQPSK/LCH</p>	
<p><math>\pi/4</math>DQPSK/MCH</p>	
<p><math>\pi/4</math>DQPSK/HCH</p>	

<p>8DPSK/LCH</p>	
<p>8DPSK/MCH</p>	
<p>8DPSK/HCH</p>	

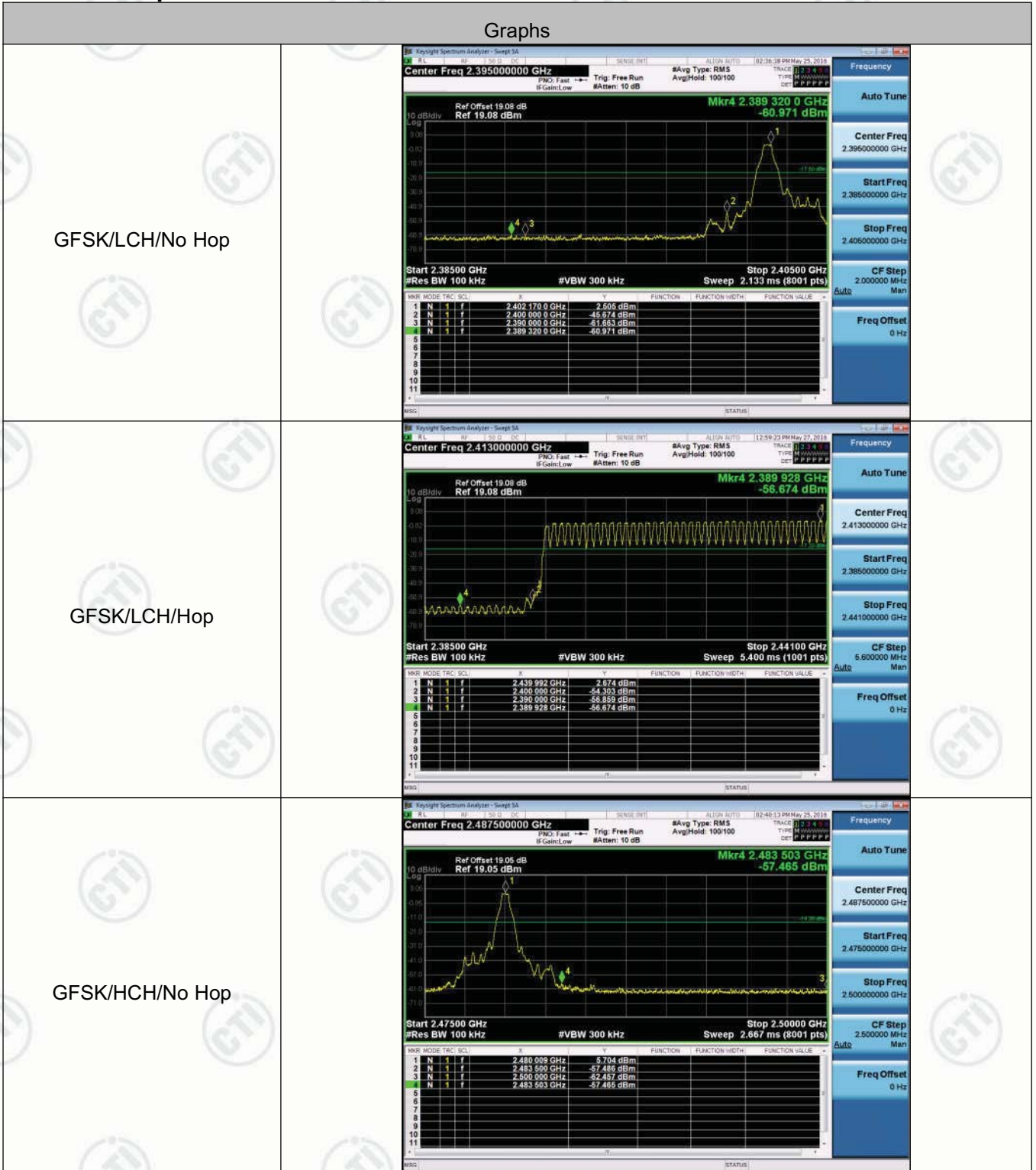
## Appendix F): Band-edge for RF Conducted Emissions

**Result Table**

Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	2.505	Off	-60.971	-17.5	PASS
			2.674	On	-56.674	-17.33	PASS
GFSK	HCH	2480	5.704	Off	-57.465	-14.3	PASS
			5.708	On	-47.858	-14.29	PASS
$\pi/4$ DQPSK	LCH	2402	-1.162	Off	-61.359	-21.16	PASS
			0.247	On	-59.355	-19.75	PASS
$\pi/4$ DQPSK	HCH	2480	2.989	Off	-57.320	-17.01	PASS
			2.733	On	-50.216	-17.27	PASS
8DPSK	LCH	2402	-1.165	Off	-61.314	-21.17	PASS
			0.710	On	-58.167	-19.29	PASS
8DPSK	HCH	2480	3.037	Off	-59.125	-16.96	PASS
			2.897	On	-49.696	-17.1	PASS



**Test Graph**













## Appendix G): RF Conducted Spurious Emissions

### Result Table

Mode	Channel	Pref [dBm]	Puw[dBm]	Verdict
GFSK	LCH	2.473	<Limit	PASS
GFSK	MCH	4.806	<Limit	PASS
GFSK	HCH	5.651	<Limit	PASS
$\pi/4$ DQPSK	LCH	-1.267	<Limit	PASS
$\pi/4$ DQPSK	MCH	1.825	<Limit	PASS
$\pi/4$ DQPSK	HCH	2.846	<Limit	PASS
8DPSK	LCH	-1.162	<Limit	PASS
8DPSK	MCH	1.908	<Limit	PASS
8DPSK	HCH	3.006	<Limit	PASS

### Test Graph



