APPLICATION FOR CERTIFICATION

On Behalf of

Sony Corporation

Digital Media Player

Models No.: NW-ZX2

FCC ID: AK8NWZX2

IC: 409B-NWZX2

Brand: SONY

Prepared for : Sony Corporation
1-7-1 Konan Minato-ku, Tokyo,
Japan 108-0075

Prepared By : AUDIX Technology Corporation
EMC Department
No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan, R.O.C.

Tel : (02) 2609-9301, 2609-2133
Fax: (02) 2609-9303

File Number	:	C1M1410080
Report Number	:	EM-F140660
Date of Test	:	2014. 10. 14~ 31
Date of Report	:	2014. 10. 31

TABLE OF CONTENTS

Description Page

TEST REPORT CERTIFICATION 4
1. DESCRIPTION OF REVISION HISTORY 5
2. GENERAL INFORMATION 6
2.1. Description of Device (EUT) 6
2.2. Antenna Information 8
2.3. Tested Supporting System Details 8
2.4. Description of Test Facility 8
2.5. Measurement Uncertainty 9
3. POWERLINE CONDUCTED EMISSION MEASUREMENT 10
3.1. Test Equipment 10
3.2. Block Diagram of Test Setup 10
3.3. Powerline Conducted Emission Limit (§15.207, RSS-Gen §7.2.2/Table 2) 10
3.4. Operating Condition of EUT 11
3.5. Test Procedure 11
3.6. Powerline Conducted Emission Measurement Results 11
4. RADIATED EMISSION MEASUREMENT 14
4.1. Test Equipment 14
4.2. Block Diagram of Test Setup 14
4.3. Radiated Emission Limits (§15.209, RSS-210 §2.7/Table 2) 16
4.4. Operating Condition of EUT 16
4.5. Test Procedure 17
4.6. Radiated Emission Measurement Results 18
5. 20dB BANDWIDTH MEASUREMENT 30
5.1. Test Equipment 30
5.2. Block Diagram of Test Setup 30
5.3. Specification Limits [§15.247(a)(1), RSS-210 §A8.2 (a)] 30
5.4. Operating Condition of EUT 30
5.5. Test Procedure 30
5.6. Test Results 31
6. CARRIER FREQUENCY SEPARATION MEASUREMENT 35
6.1. Test Equipment 35
6.2. Block Diagram of Test Setup 35
6.3. Specification Limits [§15.247(a)(1), RSS-210 §A8.2 (b)] 35
6.4. Operating Condition of EUT 35
6.5. Test Procedure 35
6.6. Test Results 36
7. TIME OF OCCUPANCY MEASUREMENT 41
7.1. Test Equipment 41
7.2. Block Diagram of Test Setup 41
7.3. Specification Limits [§15.247(a)(1)(iii), RSS-210 §A8.2 (d)] 41
7.4. Operating Condition of EUT 41
7.5. Test Procedure 41
7.6. Test Results 42
8. NUMBER OF HOPPING CHANNELS MEASUREMENT 66
8.1. Test Equipment 66
8.2. Block Diagram of Test Setup 66
8.3. Specification Limits [§15.247(a)(1)(iii), RSS-210 §A8.2 (d)] 66

8.4. Operating Condition of EUT 66
8.5. Test Procedure 66
8.6. Test Results 67
9. MAXIMUM PEAK OUTPUT POWER MEASUREMENT 69
9.1. Test Equipment 69
9.2. Block Diagram of Test Setup 69
9.3. Specification Limits [§15.247(b)-(1), RSS-210 §A8.4 (2)] 69
9.4. Operating Condition of EUT 69
9.5. Test Procedure 69
9.6. Test Results 70
10. EMISSION LIMITATIONS MEASUREMENT 74
10.1. Test Equipment 74
10.2. Block Diagram of Test Setup 74
10.3. Specification Limits [§15.247(c), RSS-210 §A8.5] 74
10.4. Operating Condition of EUT 74
10.5. Test Procedure 74
10.6. Test Results 74
11. BAND EDGES MEASUREMENT 87
11.1. Test Equipment 87
11.2. Block Diagram of Test Setup 87
11.3. Specification Limits [§15.247(c), RSS-210 §A8.5] 87
11.4. Operating Condition of EUT 87
11.5. Test Procedure 87
11.6. Test Results 88
12. DEVIATION TO TEST SPECIFICATIONS 90
13. PHOTOGRAPHS 91
13.1. Photos of Conducted Disturbance Measurement 91
13.2. Photos of Radiated Emission Measurement at Semi-Anechoic Chamber 92
13.3. Photo of Section RF Conducted Measurement 95

TEST REPORT CERTIFICATION

Applicant	:	Sony Corporation	
EUT Description	:	Digital Media Player	
FCC ID	**:**	**AK8NWZX2**	
IC	**:**	**409B-NWZX2**	
		(A) Model No.	: NW-ZX2
		(B) Serial No.	: N/A
		(C) Brand	: SONY
		(D) Power Supply	: DC 3.7V (Battery)
		(E) Test Voltage	: (1)AC 120/60Hz (Via Notebook PC) (2)DC 3.7V (Via Battery)

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C, Oct 2013
(FCC CFR 47 Part 15C, §15.205, §15.207, §15.209 and §15.247)
ANSI C63.4/2003
FCC Public Notice DA 00-705, Mar. 2000

Industry Canada Rules and Regulations RSS-Gen (Issue 3), December 2010 and RSS-210 (Issue 8), December 2010

The device described above was tested by AUDIX Technology Corporation to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15 Subpart C and Canada RSS-Gen, RSS-210 limits.

The measurement results are contained in this test report and AUDIX Technology Corporation is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the FCC Part 15 and Industry Canada RSS-Gen, RSS-210 standards.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX Technology Corporation.

Date of Test : 2014. 10. 14~ 31 Date of Report : 2014. 10. 31

Producer : Annie Yu
(Annie Yu/Administrator)

Signatory : Ben Cheng
(Ben Cheng/Manager)

1. DESCRIPTION OF REVISION HISTORY

Edition No.	Date of Revision	Revision Summary	Report Number
0	2014. 10. 31	Original Report.	EM-F140660

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Product	Digital Media Player
Model Number	NW-ZX2
Serial Number	N/A
Brand Name	SONY
Applicant	Sony Corporation 1-7-1 Konan Minato-ku, Tokyo, Japan 108-0075
Country of Mass-production	Malaysia
FCC ID	AK8NWZX2
IC	409B-NWZX2
Fundamental Range	802.11b/g/n-HT20: 2412MHz ~ 2462MHz 802.11a: 5180MHz ~ 5240MHz (UNII Band I) and 5260MHz ~ 5320MHz (UNII Band II-2A) and 5500MHz ~ 5700MHz (UNII Band II-2C) and 5745MHz ~ 5825MHz (UNII Band III) UNII Band II (DFS Function, Slave/no In service monitor, no Ad-Hoc mode) 802.11n-HT20: 5180MHz ~ 5240MHz (UNII Band I) and 5260MHz ~ 5320MHz (UNII Band II-2A) and 5500MHz ~ 5700MHz (UNII Band II-2C) and 5745MHz ~ 5825MHz (UNII Band III) UNII Band II (DFS Function, Slave/no In service monitor, no Ad-Hoc mode) 802.11n-HT40: 5190MHz ~ 5230MHz (UNII Band I) and 5270MHz ~ 5310MHz (UNII Band II-2A) and 5510MHz ~ 5670MHz (UNII Band II-2C) and 5755MHz ~ 5795MHz (UNII Band III) UNII Band II (DFS Function, Slave/no In service monitor, no Ad-Hoc mode) Bluetooth: 2402MHz ~ 2480MHz NFC: 13.56MHz GPS: 1575.42MHz

Frequency Channel	802.11b/g/n-HT20: 11 channels 802.11a: UNII Band I: 4 channels UNII Band II-2A: 4 channels UNII Band II-2C: 8 channels UNII Band III: 5 channels 802.11n-HT20: UNI Band I: 4channels UNII Band II-2A: 4 channels UNII Band II-2C: 8 channels UNII Band III: 5 channels 802.11n-HT40: UNII Band I: 2 channels UNII Band II-2A: 2 channels UNII Band II-2C: 3 channels UNII Band III: 2 channels Bluetooth: 79 channels NFC: 1 Channel
Radio Technology	802.11b: DSSS Modulation (DBPSK/DQPSK/CCK) 802.11g: OFDM Modulation (BPSK/QPSK/16QAM/64QAM) 802.11a: OFDM Modulation (BPSK/QPSK/16QAM/64QAM) 802.11n: OFDM Modulation (BPSK/QPSK/16QAM/64QAM) Bluetooth: FHSS (GFSK,π/4DQPSK, 8-DPSK) NFC: ASK
Data Transfer Rate	802.11b: 1/2/5.5/11Mbps 802.11a/g: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 150Mbps BT: 1/2/3Mbps
USB Cable	Shielded, Detachable, 1.0m
Date of Receipt of Sample	2014. 10. 09
Date of Test	2014. 10. 14 ~ 31

2.2. Antenna Information

Manufacture	Antenna Type	Usage	Frequency	Peak Gain
Shanghai Amphenol Airwave Communication Electronics Co., Ltd.	Inverted F (LDS)	BT/WLAN	2.4GHz	1dBi
		WLAN	5GHz	-1dBi
		GPS	1.5GHz	-1dBi
	Loop (pattern)	NFC	13.56MHz	---

2.3. Tested Supporting System Details

2.3.1. Support Peripheral Unit

No.	Product	Brand	Model No.	Serial No.	FCC ID
1.	PC System	ASUS	U5F	6CN0AG047651	By DoC

2.3.2. Cable Lists

No.	Signal Cable Description Of The Above Support Units
1.	Adapter: DELTA, M/N SADP-65KB B, Cord: Non-Shielded, Detachable, 1.8m Power Cord: Non-Shielded, Undetachable, 1.8m

2.4. Description of Test Facility

Name of Firm : **AUDIX Technology Corporation**
EMC Department
No. 53-11, Dingfu, Linkou Dist.,
New Taipei City 244, Taiwan, R.O.C.

Test Location & Facility (C7/Semi-AC) : **No. 7 Shielded Room**
No. 53-11, Dingfu, Linkou Dist.,
New Taipei City 244, Taiwan, R.O.C.

Semi-Anechoic Chamber
No. 53-11, Dingfu, Linkou Dist.,
New Taipei City 244, Taiwan, R.O.C.
May 11, 2012 Renewal on
Federal Communication Commission
Registration Number: 90993

NVLAP Lab. Code : 200077-0

TAF Accreditation No : 1724

2.5. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty
Conduction Test	150kHz~30MHz	±3.43dB
Radiation Test (Distance: 3m)	30MHz~300MHz	±2.91dB
	300MHz~1000MHz	±2.94dB
	Above 1GHz	± 5.02dB

Remark **:** Uncertainty = $ku_c(y)$

Test Item	Uncertainty
20dB Bandwidth	± 0.2kHz
Carrier Frequency Separation	± 0.2kHz
Time Of Occupancy	± 0.03sec
Maximum peak Output power	± 0.52dBm
Emission Limitations	± 0.13dB
Band Edges	± 0.13dB

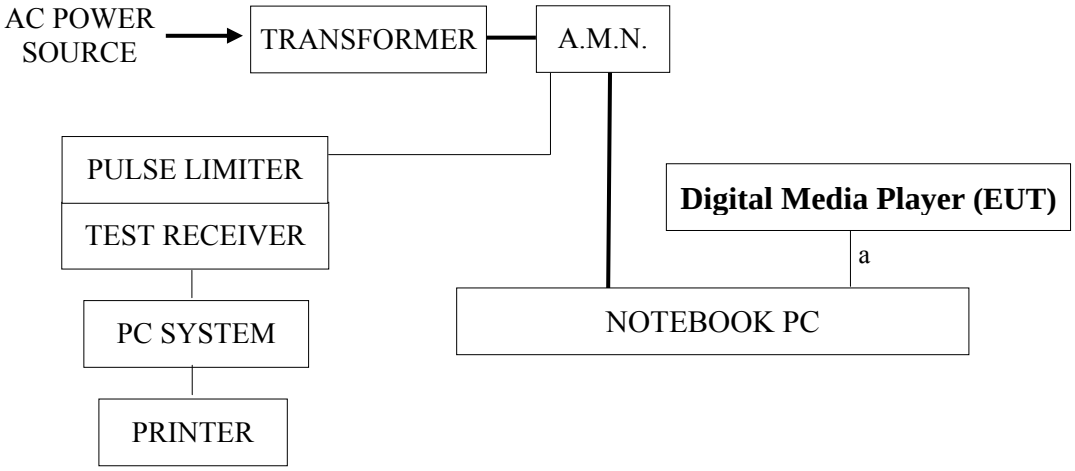
3. POWERLINE CONDUCTED EMISSION MEASUREMENT

3.1. Test Equipment

The following test equipment was used during the power line conducted emission measurement: (No. 7 Shielded Room)

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Test Receiver	R&S	ESCI	101276	2014. 06. 18	1 Year
2	A.M.N.	R&S	ENV4200	100169	2014. 05. 30	1 Year
3	L.I.S.N.	Kyoritsu	KNW-407	8-881-13	2014. 01. 15	1 Year
4	Pulse Limiter	R&S	ESH3-Z2	101495	2014. 01. 18	1 Year

3.2. Block Diagram of Test Setup



— : POWER LINE

—— : SIGNAL LINE

a: USB Cable

3.3. Power line Conducted Emission Limit (§15.207, RSS-Gen §7.2.2/Table 2)

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level	Average Level
150kHz ~ 500kHz	66 ~ 56 dBμV	56 ~ 46 dBμV
500kHz ~ 5MHz	56 dBμV	46 dBμV
5MHz ~ 30MHz	60 dBμV	50 dBμV

Remark1.: If the average limit is met when using a Quasi-Peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary.

2.: The lower limit applies at the band edges.

3.4. Operating Condition of EUT

3.4.1. Setup the EUT as shown on 3.2.

3.4.2. During testing, the EUT was linked to notebook PC and charging through USB cable.

3.5. Test Procedure

The EUT link to docking power adapter through docking was placed on the table which was above the ground by 80cm and adapter's power cord connected to the AC mains through an Artificial Mains Network (A.M.N.). This provided a 50 ohm coupling impedance for the measuring equipment. (Please refer to the block diagram of the test setup and photographs.)
Both sides of A.C. line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions simulators of the interface cables should be manipulated according to FCC ANSI C63.4-2003 , RSS-Gen and RSS-210 during conducted measurement.

The bandwidth of the R & S Test Receiver ESCI was set at 9 kHz.

The frequency range from 150 KHz to 30MHz was checked.

All the final readings from Test Receiver were measured with the Quasi-Peak detector and Average detector. (Remark: If the Average limit is met when using a Quasi-Peak detector, the Average detector is unnecessary)

3.6. Power line Conducted Emission Measurement Results

PASSED. All emissions not reported below are too low against the prescribed limits.

EUT was performed during this section testing and all the test results are attached in next pages.

EUT：Digital Media Player M/N：NW-ZX2

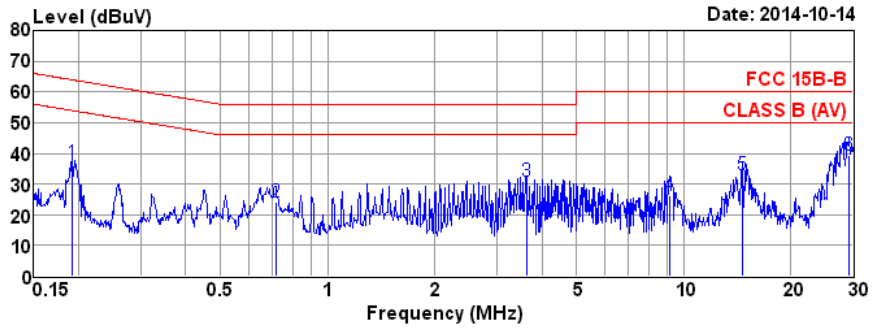
Test Date：2014. 10. 14 Temperature：25℃ Humidity：54%

The details are as follows：

Mode	Reference Test Data	
	Neutral	Line
1.	# 2	# 1

AUDIX TECHNOLOGY Corp. EMC Department
No.53-11, Dingfu, Linkou Dist.,New Taipei City
244, Taiwan R.O.C.
Tel:+886-2-26092133 Fax:+886-2-26099303
Email:emc@audixtech.com

Data: 2 File: D:\test data\REPORT\2014\C1M1410XXX\C1M1410080-C-D(rf).EM6 (2)



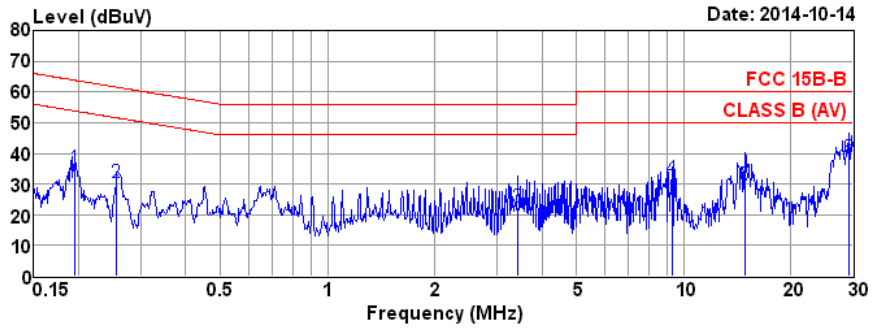
Site no. : No.7 Shielded Room Data no. : 2
Condition : ENV4200 100169 Phase : NEUTRAL
Limit : FCC 15B-B
Env. / Ins. : 25*C / 54% ESCI (1276) Engineer : Hank
EUT : NW-ZX2
Power Rating : 120Vac/60Hz
Test Mode : CHARGE

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBµV)	Emission Level (dBµV)	Limits (dBµV)	Margin (dB)	Remark
1	0.192	10.60	0.03	9.85	16.17	36.65	63.93	27.28	QP
2	0.716	10.46	0.04	9.84	3.69	24.03	56.00	31.97	QP
3	3.623	10.58	0.08	9.86	10.61	31.13	56.00	24.87	QP
4	9.156	11.18	0.13	9.89	5.11	26.31	60.00	33.69	QP
5	14.672	12.39	0.17	9.92	10.47	32.95	60.00	27.05	QP
6	29.216	15.84	0.26	10.01	13.46	39.57	60.00	20.43	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
2. If the average limit is met when useing a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

AUDIX TECHNOLOGY Corp. EMC Department
No.53-11, Dingfu, Linkou Dist.,New Taipei City
244, Taiwan R.O.C.
Tel:+886-2-26092133 Fax:+886-2-26099303
Email:emc@audixtech.com

Data: 1 File: D:\test data\REPORT\2014\C1M1410XXX\C1M1410080-C-D(rf).EM6 (2)



Site no. : No.7 Shielded Room
Condition : ENV4200 100169
Limit : FCC 15B-B
Env. / Ins. : 25*C / 54% ESCI (1276)
EUT : NW-ZX2
Power Rating : 120Vac/60Hz
Test Mode : CHARGE

Data no. : 1
Phase : LINE
Engineer : Hank

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBµV)	Emission Level (dBµV)	Limits (dBµV)	Margin (dB)	Remark
1	0.195	10.60	0.03	9.85	14.72	35.20	63.80	28.60	QP
2	0.256	10.56	0.03	9.86	9.91	30.36	61.56	31.20	QP
3	3.436	10.58	0.08	9.86	1.88	22.40	56.00	33.60	QP
4	9.302	11.16	0.13	9.89	10.75	31.93	60.00	28.07	QP
5	14.828	12.34	0.17	9.92	7.41	29.84	60.00	30.16	QP
6	29.216	15.72	0.26	10.01	12.53	38.52	60.00	21.48	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
2. If the average limit is met when useing a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

4. RADIATED EMISSION MEASUREMENT

4.1. Test Equipment

The following test equipment was used during the radiated emission measurement:

4.1.1. For Frequency Range 30MHz~1000MHz (at Semi-Anechoic Chamber)

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Spectrum Analyzer	Agilent	N9010A-503	MY52220119	2014. 06. 25	1 Year
2	Test Receiver	R & S	ESCS30	100338	2014. 06. 24	1 Year
3	Amplifier	HP	8447D	2944A06305	2014. 02. 19	1 Year
4	Bilog Antenna	TESEQ	CBL6112D	33821	2014. 08. 02	1 Year

4.1.2. For Frequency Above 1GHz (at Semi-Anechoic Chamber)

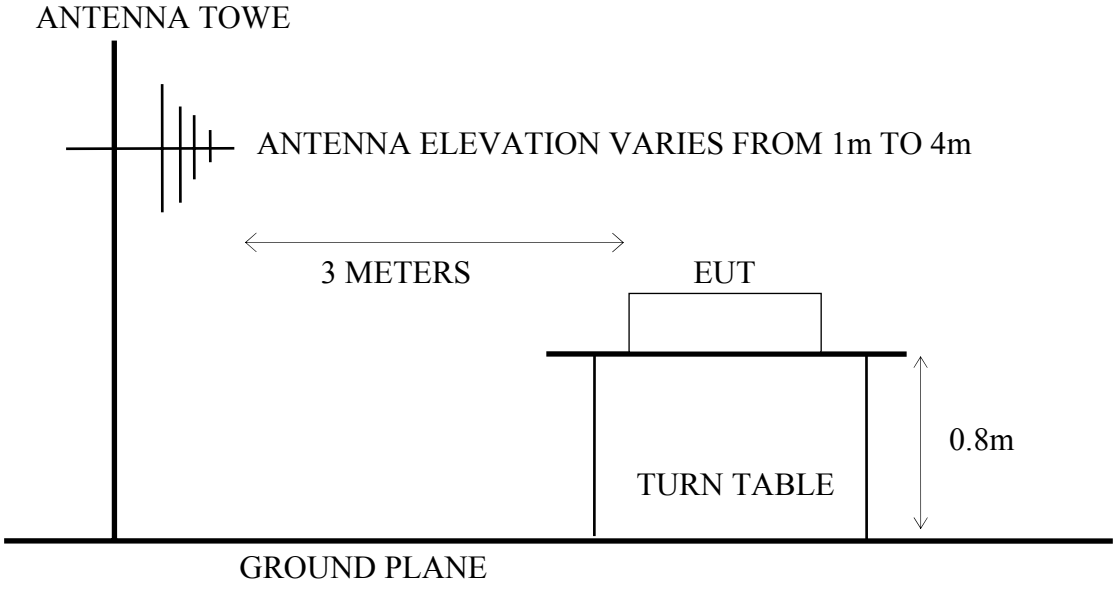
Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Spectrum Analyzer	Agilent	N9030A-544	US51350140	2014. 06. 25	1 Year
2	Test Receiver	R & S	ESCS30	100338	2014. 06. 24	1 Year
3	Amplifier	Agilent	8449B	3008A02676	2014. 02. 21	1 Year
4	2.4GHz Notch Filter	K&L	7NSL10-2441 .5E130.5-00	1	2014. 06. 12	1 Year
5	3G High Pass Filter	Microware Circuits	H3G018G1	484796	2014. 06. 12	1 Year
6	Horn Antenna	EMCO	3115	9609-4927	2014. 06. 17	1 Year
7	Horn Antenna	EMCO	3116	2653	2014. 10. 10	1 Year

4.2. Block Diagram of Test Setup

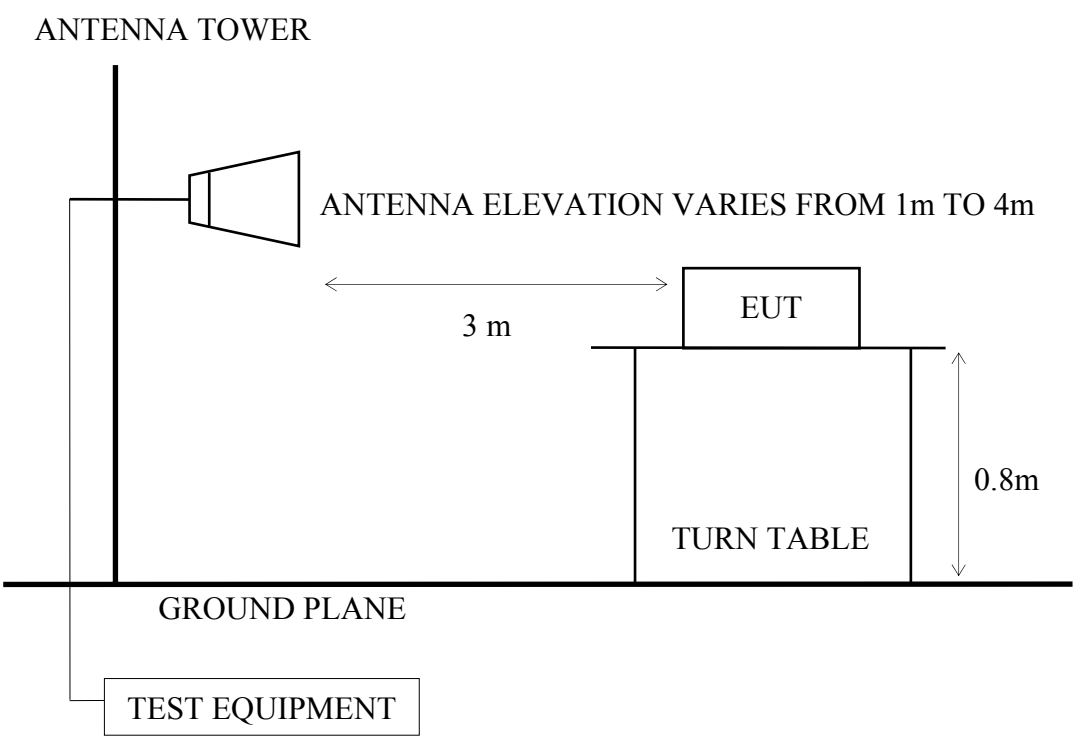
4.2.1. Block Diagram of connection between EUT and simulators

DIGITAL MEDIA PLAYER (EUT)

4.2.2. Semi-Anechoic Chamber (3m) Setup Diagram for 30-1000MHz



4.2.3. Semi-Anechoic Chamber (3m) Setup Diagram for above 1GHz



4.3. Radiated Emission Limits (§15.209, RSS-210 §2.7/Table 2)

Frequency MHz	Distance Meters	Field Strengths Limits	
		μV/m	dBμV/m
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0
Above 1000	3	74.0 dBμV/m (Peak) 54.0 dBμV/m (Average)	

Remark： (1) Emission level (dBμV/m) = 20 log Emission level (μV/m)
(2) The tighter limit applies at the edge between two frequency bands.
(3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
(4) The limits in this table are based on CFR 47 Part 15.205(a)(b) and Part 15.209 (a).
(5) The over 1GHz limit, FCC limit is used based on CFR 47 Part 15.35 (b) and Part 15.205(b) & Part 15.209(e) and Part 15.207(c).

4.4. Operating Condition of EUT

4.4.1. Set up the EUT as shown on 4.2.1.

4.4.2. The EUT was running test program “Diag Test Mode” for BT test.

4.4.3. The EUT set to continuously transmit signals at 2402MHz, 2441MHz and 2480MHz during all test time.

4.5. Test Procedure

The EUT and its simulators were placed on a turn table which was 0.8 meter above the ground. The turn table rotated 360 degrees to determine the position of the maximum emission level. EUT was set 3 meters away from the receiving antenna which was mounted on an antenna tower. The antenna moved up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna such as calibrated bi-conical and log-periodical antenna or horn antenna were used as a receiving antenna. Both horizontal and vertical polarization of the antenna were set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to FCC ANSI C63.4-2003, RSS-Gen and RSS-210 regulation, and the measurement guideline was according to FCC Public Notice DA 00-705.

The bandwidth of the R&S Test Receiver was set at 120 KHz. (For 30MHz to 1000MHz)

The resolution bandwidth and video bandwidth of test spectrum analyzer is 1MHz for peak detection (PK) at frequency above 1GHz.

The resolution bandwidth of test spectrum analyzer is 1MHz and the video bandwidth is 10Hz for average detection (AV) at frequency above 1GHz.

The frequency range from 30MHz to 25GHz (Up to 10^{th} harmonics from fundamental frequency) was checked. 30MHz to 1000MHz was measured with Quasi-Peak detector. Pursuant to ANSI 63.4: 4.2, peak detector is an alternate option for frequency from 30MHz to 1000MHz.

Above 1GHz was measured with peak and average detector. For frequency from 1GHz to 40GHz, we checked it in 1 meter distance and with a shorter cable 2 meter instead of original's. There is no signal exist.

Pursuant to ANSI C63.4 8.3.1.2, when peak value complies with the average limit, we didn't perform measurement in average detector.

4.6. Radiated Emission Measurement Results

PASSED. (All the emissions not reported below are too low against the prescribed limits.)

EUT：Digital Media Player M/N：NW-ZX2

Test Date：2014. 10. 31 Temperature：22℃ Humidity：52%

For Frequency Range 30MHz-1000MHz:

[Note: We performed testing of the worst mode.]

The EUT emitted the fundamental frequency with data code at the stand, side and lying conditions.

The EUT select **worst position "lying"** and with following test modes was performed during this section testing and all the test results are listed in section 4.6.1.

No.	Test Mode and Frequency		Reference Test Data No.	
			Horizontal	Vertical
1.	Transmitting	2402MHz (CH0)	# 2	# 1
2.		2441MHz (CH39)	# 4	# 3
3.		2480MHz (CH78)	# 6	# 5

Type of modulation: GFSK
All above final readings were measured with Quasi-Peak detector.

For Frequency Range above 1GHz:

The emissions (up to 25GHz) not reported are too low to be measured.

For Restricted Bands:

[Note: We performed testing of the highest and lowest data rate.]

The EUT select **worst position "lying"** and with following test modes was performed during this section testing and all the test results are listed in section 4.6.2. (The restricted bands defined in part 15.205(a))

No.	Type of modulation	Test Mode and Frequency		Reference Test Data No.	
				Horizontal	Vertical
1.	8-DPSK	Transmitting	2402MHz (CH0)	# 15, # 16	# 13, # 14
2.			2480MHz (CH78)	# 11, # 12	# 9, # 10
3.	GFSK	Transmitting	2402MHz (CH0)	# 3, # 4	# 1, # 2
4.			2480MHz (CH78)	# 7, # 8	# 5, # 6

4.6.1. Frequency Range 30MHz-1000MHz Measurement Result

Transmit, Frequency: 2402MHz (GFSK)

Site no. : Audix NO.1 Chamber
Dis. / Ant. : 3m CBL6112D 33821
Limit : 30M-1G
Env. / Ins. : 22*C / 52% N9010A
EUT : NW-ZX2
Power Rating : DC 3.7V
Test Mode : Tx 2402MHz(GFSK)

Data no. : 2
Ant. pol. : HORIZONTAL
Engineer : Johnny_Hsueh

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	93.05	9.67	3.17	8.05	20.89	43.50	22.61	Peak
2	101.78	11.03	3.23	10.79	25.05	43.50	18.45	Peak
3	415.09	15.78	5.78	4.11	25.67	46.00	20.33	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

Site no. : Audix NO.1 Chamber
Dis. / Ant. : 3m CBL6112D 33821
Limit : 30M-1G
Env. / Ins. : 22*C / 52% N9010A
EUT : NW-ZX2
Power Rating : DC 3.7V
Test Mode : Tx 2402MHz(GFSK)

Data no. : 1
Ant. pol. : VERTICAL
Engineer : Johnny_Hsueh

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	93.05	9.67	3.17	6.27	19.11	43.50	24.39	Peak
2	105.66	11.33	3.27	9.16	23.76	43.50	19.74	Peak
3	277.35	12.81	4.51	7.91	25.23	46.00	20.77	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

Transmit, Frequency: 2441MHz (GFSK)

Site no. : Audix NO.1 Chamber Data no. : 4
Dis. / Ant. : 3m CBL6112D 33821 Ant. pol. : HORIZONTAL
Limit : 30M-1G
Env. / Ins. : 22*C / 52% N9010A Engineer : Johnny_Hsueh
EUT : NW-ZX2
Power Rating : DC 3.7V
Test Mode : Tx 2441MHz(GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	93.05	9.67	3.17	7.98	20.82	43.50	22.68	Peak
2	101.78	11.03	3.23	10.46	24.72	43.50	18.78	Peak
3	415.09	15.78	5.78	4.54	26.10	46.00	19.90	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

Site no. : Audix NO.1 Chamber Data no. : 3
Dis. / Ant. : 3m CBL6112D 33821 Ant. pol. : VERTICAL
Limit : 30M-1G
Env. / Ins. : 22*C / 52% N9010A Engineer : Johnny_Hsueh
EUT : NW-ZX2
Power Rating : DC 3.7V
Test Mode : Tx 2441MHz(GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	126.03	11.97	3.42	4.20	19.59	43.50	23.91	Peak
2	335.55	14.08	5.05	3.16	22.29	46.00	23.71	Peak
3	415.09	15.78	5.78	3.79	25.35	46.00	20.65	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

Transmit, Frequency: 2480MHz (GFSK)

Site no. : Audix NO.1 Chamber Data no. : 6
Dis. / Ant. : 3m CBL6112D 33821 Ant. pol. : HORIZONTAL
Limit : 30M-1G
Env. / Ins. : 22*C / 52% N9010A Engineer : Johnny_Hsueh
EUT : NW-ZX2
Power Rating : DC 3.7V
Test Mode : Tx 2480MHz(GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	92.08	9.49	3.17	7.67	20.33	43.50	23.17	Peak
2	101.78	11.03	3.23	10.46	24.72	43.50	18.78	Peak
3	415.09	15.78	5.78	3.62	25.18	46.00	20.82	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

Site no. : Audix NO.1 Chamber Data no. : 5
Dis. / Ant. : 3m CBL6112D 33821 Ant. pol. : VERTICAL
Limit : 30M-1G
Env. / Ins. : 22*C / 52% N9010A Engineer : Johnny_Hsueh
EUT : NW-ZX2
Power Rating : DC 3.7V
Test Mode : Tx 2480MHz(GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	93.05	9.67	3.17	5.14	17.98	43.50	25.52	Peak
2	415.09	15.78	5.78	3.93	25.49	46.00	20.51	Peak
3	690.57	18.69	6.70	2.31	27.70	46.00	18.30	Peak

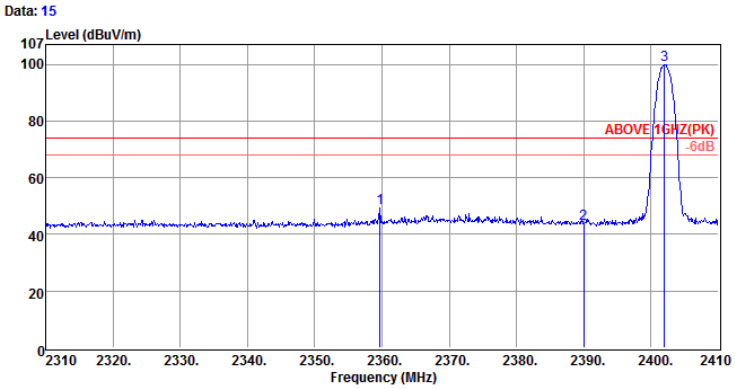
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

4.6.2. Restricted Bands Measurement Results

Date of Test： 2014. 10. 31 Temperature： 22℃

EUT： Digital Media Player Humidity： 52%

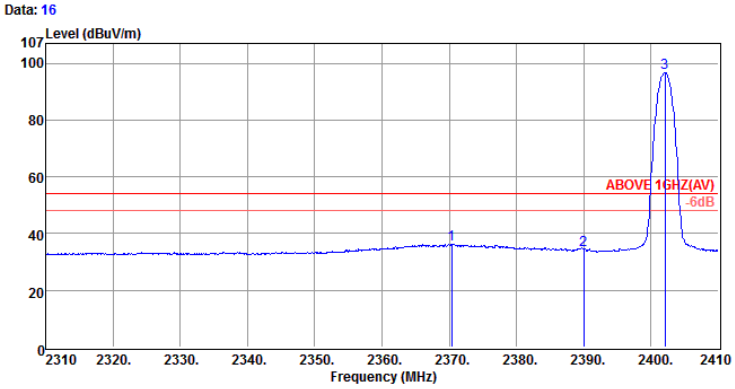
Test Mode： Transmit, Channel: 0, Frequency: 2402MHz, 8-DPSK



Site no. : Audix NO.1 Chamber Data no. : 15
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : ABOVE 1GHZ(PK)
Env. / Ins. : 22*C / 52% N9010A Engineer : Johnny_Hsueh
EUT : NW-ZX2
Power Rating : DC 3.7V
Test Mode : Tx 2402MHz(8DFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2359.70	28.17	5.20	16.02	49.39	74.00	24.61	Peak
2	2390.00	28.20	5.24	10.21	43.65	74.00	30.35	Peak
3	2402.00	28.21	5.26	66.38	99.85	74.00	-25.85	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 16
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : ABOVE 1GHZ(AV)
Env. / Ins. : 22*C / 52% N9010A Engineer : Johnny_Hsueh
EUT : NW-ZX2
Power Rating : DC 3.7V
Test Mode : Tx 2402MHz(8DFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2370.40	28.18	5.21	2.95	36.34	54.00	17.66	Average
2	2390.00	28.20	5.24	0.93	34.37	54.00	19.63	Average
3	2402.10	28.21	5.26	63.29	96.76	54.00	-42.76	Average

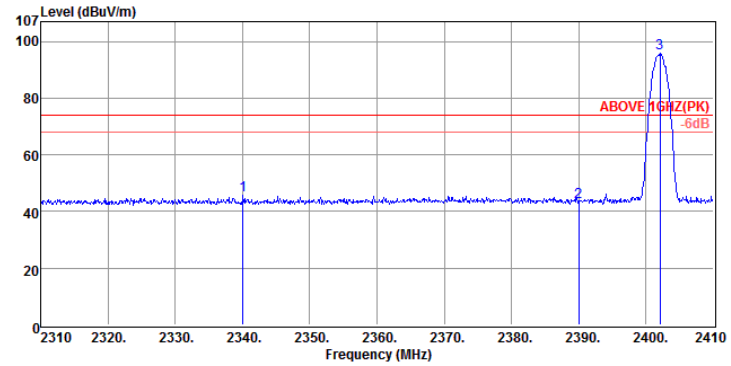
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test： 2014. 10. 31 Temperature： 22℃

EUT： Digital Media Player Humidity： 52%

Test Mode： Transmit, Channel: 0, Frequency: 2402MHz, 8-DPSK

Data: 13

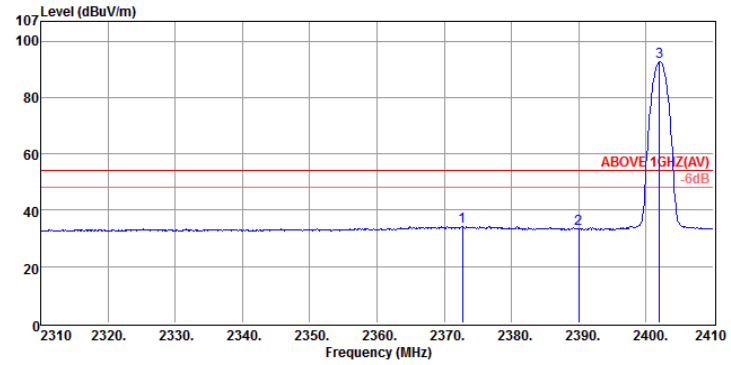


Site no. : Audix NO.1 Chamber Data no. : 13
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : ABOVE 1GHZ(PK)
Env. / Ins. : 22*C / 52% N9010A Engineer : Johnny_Hsueh
EUT : NW-ZX2
Power Rating : DC 3.7V
Test Mode : Tx 2402MHz(8DFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2340.10	28.15	5.17	12.31	45.63	74.00	28.37	Peak
2	2390.00	28.20	5.24	9.80	43.24	74.00	30.76	Peak
3	2402.10	28.21	5.26	62.41	95.88	74.00	-21.88	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

Data: 14



Site no. : Audix NO.1 Chamber Data no. : 14
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : ABOVE 1GHZ(AV)
Env. / Ins. : 22*C / 52% N9010A Engineer : Johnny_Hsueh
EUT : NW-ZX2
Power Rating : DC 3.7V
Test Mode : Tx 2402MHz(8DFSK)

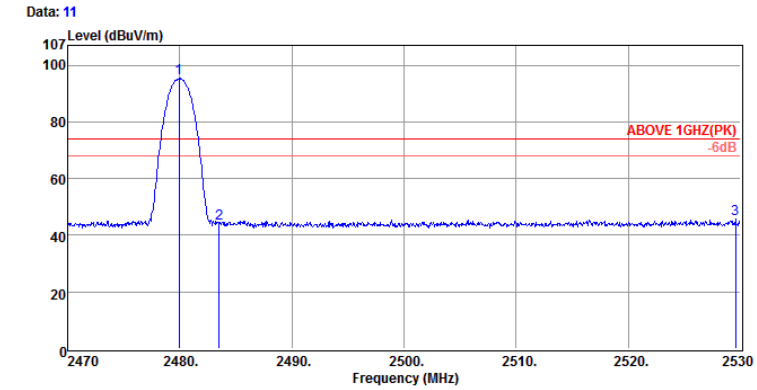
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2372.70	28.18	5.21	0.86	34.25	54.00	19.75	Average
2	2390.00	28.20	5.24	-0.16	33.28	54.00	20.72	Average
3	2402.00	28.21	5.26	59.18	92.65	54.00	-38.65	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test： 2014. 10. 31 Temperature： 22℃

EUT： Digital Media Player Humidity： 52%

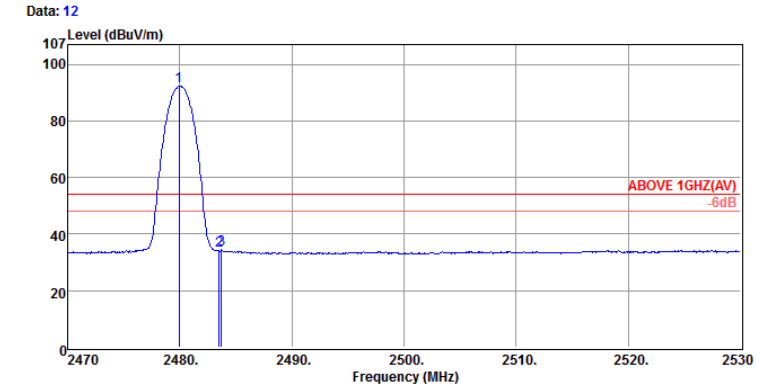
Test Mode： Transmit, Channel: 78, Frequency: 2480MHz, 8-DPSK



Site no. : Audix NO.1 Chamber Data no. : 11
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : ABOVE 1GHZ(PK)
Env. / Ins. : 22*C / 52% N9010A Engineer : Johnny_Hsueh
EUT : NW-ZX2
Power Rating : DC 3.7V
Test Mode : Tx 2480MHz(8DFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2479.96	28.28	5.36	61.87	95.51	74.00	-21.51	Peak
2	2483.50	28.29	5.37	10.33	43.99	74.00	30.01	Peak
3	2529.58	28.40	5.45	11.95	45.80	74.00	28.20	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 12
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : ABOVE 1GHZ(AV)
Env. / Ins. : 22*C / 52% N9010A Engineer : Johnny_Hsueh
EUT : NW-ZX2
Power Rating : DC 3.7V
Test Mode : Tx 2480MHz(8DFSK)

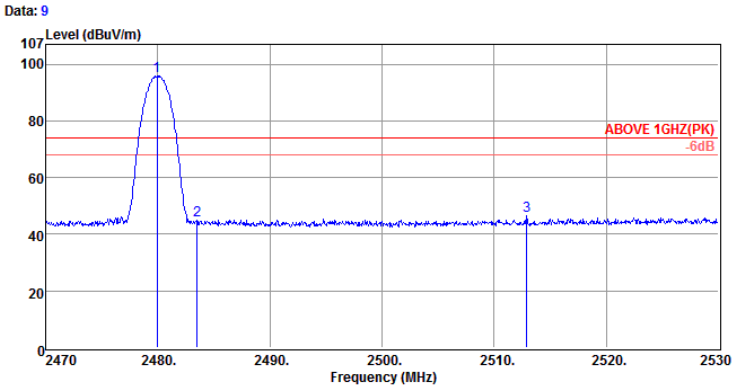
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2479.96	28.28	5.36	58.67	92.31	54.00	-38.31	Average
2	2483.50	28.29	5.37	0.36	34.02	54.00	19.98	Average
3	2483.74	28.29	5.37	0.80	34.46	54.00	19.54	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test： 2014. 10. 31 Temperature： 22℃

EUT： Digital Media Player Humidity： 52%

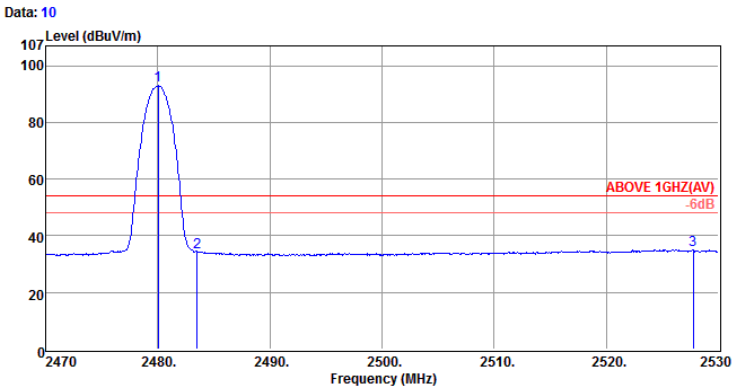
Test Mode： Transmit, Channel: 78, Frequency: 2480MHz, 8-DPSK



Site no. : Audix NO.1 Chamber Data no. : 9
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : ABOVE 1GHZ(PK)
Env. / Ins. : 22*C / 52% N9010A Engineer : Johnny_Hsueh
EUT : NW-ZX2
Power Rating : DC 3.7V
Test Mode : Tx 2480MHz(8DFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2479.96	28.28	5.36	62.12	95.76	74.00	-21.76	Peak
2	2483.50	28.29	5.37	11.12	44.78	74.00	29.22	Peak
3	2512.90	28.35	5.42	12.72	46.49	74.00	27.51	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 10
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : ABOVE 1GHZ(AV)
Env. / Ins. : 22*C / 52% N9010A Engineer : Johnny_Hsueh
EUT : NW-ZX2
Power Rating : DC 3.7V
Test Mode : Tx 2480MHz(8DFSK)

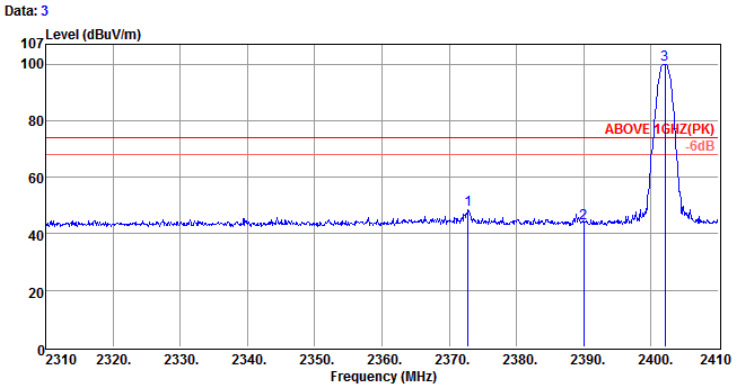
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2480.02	28.28	5.36	59.29	92.93	54.00	-38.93	Average
2	2483.50	28.29	5.37	0.40	34.06	54.00	19.94	Average
3	2527.78	28.40	5.45	1.33	35.18	54.00	18.82	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test： 2014. 10. 31 Temperature： 22℃

EUT： Digital Media Player Humidity： 52%

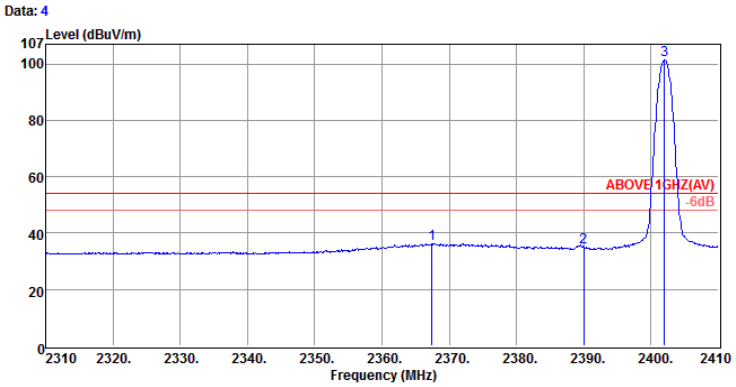
Test Mode： Transmit, Channel: 0, Frequency: 2402MHz, GFSK



Site no. : Audix NO.1 Chamber Data no. : 3
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : ABOVE 1GHZ(PK)
Env. / Ins. : 22*C / 52% N9010A Engineer : Johnny_Hsueh
EUT : NW-ZX2
Power Rating : DC 3.7V
Test Mode : Tx 2402MHz(GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2372.80	28.18	5.21	15.32	48.71	74.00	25.29	Peak
2	2390.00	28.20	5.24	10.49	43.93	74.00	30.07	Peak
3	2402.10	28.21	5.26	66.50	99.97	74.00	-25.97	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 4
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : ABOVE 1GHZ(AV)
Env. / Ins. : 22*C / 52% N9010A Engineer : Johnny_Hsueh
EUT : NW-ZX2
Power Rating : DC 3.7V
Test Mode : Tx 2402MHz(GFSK)

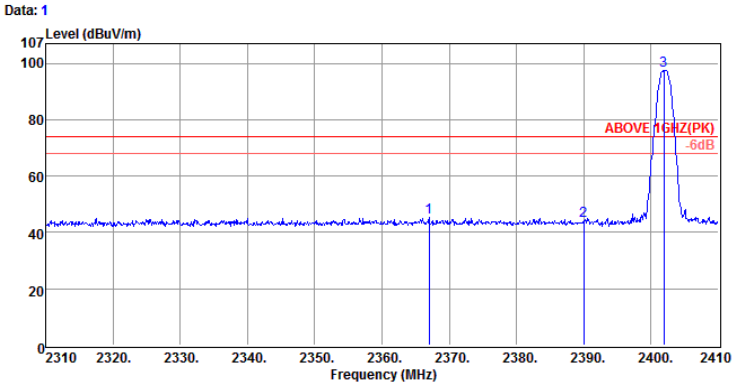
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2367.40	28.18	5.21	2.74	36.13	54.00	17.87	Average
2	2390.00	28.20	5.24	1.74	35.18	54.00	18.82	Average
3	2402.00	28.21	5.26	67.88	101.35	54.00	-47.35	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test： 2014. 10. 31 Temperature： 22℃

EUT： Digital Media Player Humidity： 52%

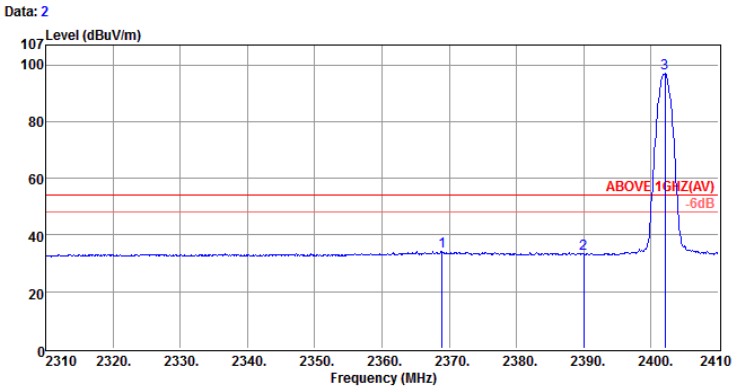
Test Mode： Transmit, Channel: 0, Frequency: 2402MHz, GFSK



Site no. : Audix NO.1 Chamber Data no. : 1
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : ABOVE 1GHZ(PK)
Env. / Ins. : 22*C / 52% N9010A Engineer : Johnny_Hsueh
EUT : NW-ZX2
Power Rating : DC 3.7V
Test Mode : Tx 2402MHz(GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2367.00	28.18	5.21	11.90	45.29	74.00	28.71	Peak
2	2390.00	28.20	5.24	10.78	44.22	74.00	29.78	Peak
3	2401.90	28.21	5.26	63.98	97.45	74.00	-23.45	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 2
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : ABOVE 1GHZ(AV)
Env. / Ins. : 22*C / 52% N9010A Engineer : Johnny_Hsueh
EUT : NW-ZX2
Power Rating : DC 3.7V
Test Mode : Tx 2402MHz(GFSK)

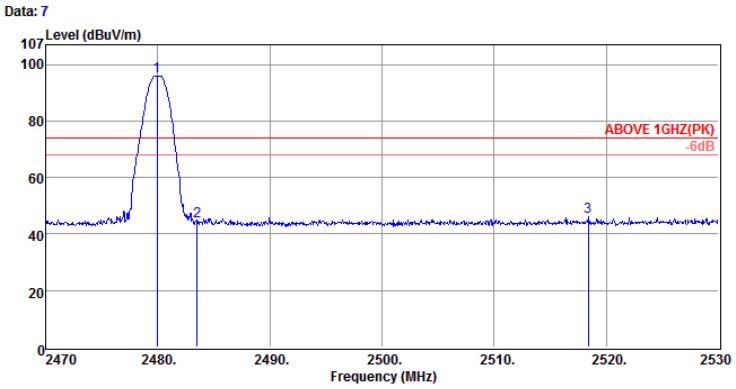
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2368.90	28.18	5.21	0.85	34.24	54.00	19.76	Average
2	2390.00	28.20	5.24	-0.03	33.41	54.00	20.59	Average
3	2402.10	28.21	5.26	63.40	96.87	54.00	-42.87	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test： 2014. 10. 31 Temperature： 22℃

EUT： Digital Media Player Humidity： 52%

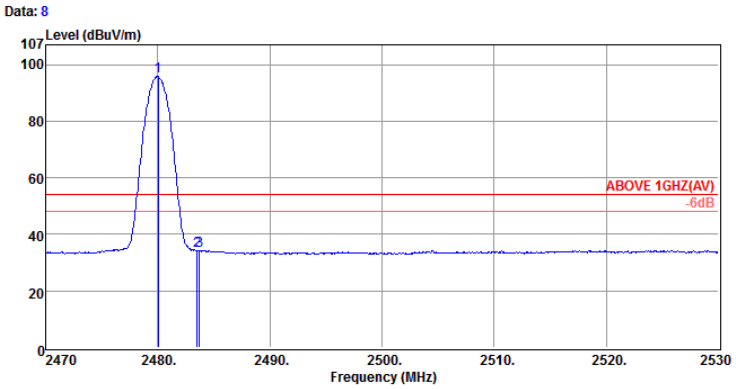
Test Mode： Transmit, Channel: 78, Frequency: 2480MHz, GFSK



Site no. : Audix NO.1 Chamber Data no. : 7
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : ABOVE 1GHZ(PK)
Env. / Ins. : 22*C / 52% N9010A Engineer : Johnny_Hsueh
EUT : NW-ZX2
Power Rating : DC 3.7V
Test Mode : Tx 2480MHz(GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2479.96	28.28	5.36	62.41	96.05	74.00	-22.05	Peak
2	2483.50	28.29	5.37	10.88	44.54	74.00	29.46	Peak
3	2518.42	28.38	5.42	12.24	46.04	74.00	27.96	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 8
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : ABOVE 1GHZ(AV)
Env. / Ins. : 22*C / 52% N9010A Engineer : Johnny_Hsueh
EUT : NW-ZX2
Power Rating : DC 3.7V
Test Mode : Tx 2480MHz(GFSK)

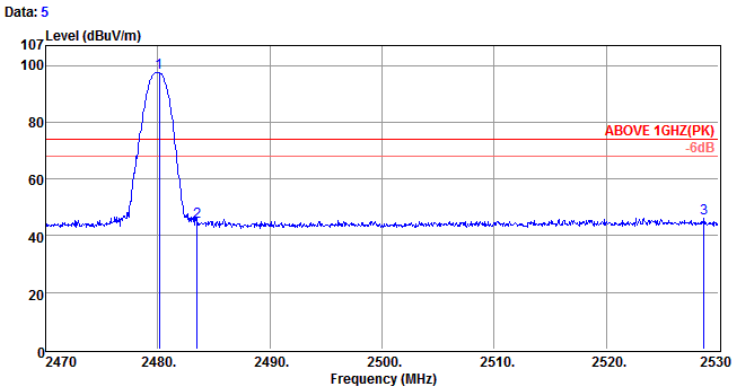
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2480.02	28.28	5.36	62.16	95.80	54.00	-41.80	Average
2	2483.50	28.29	5.37	0.69	34.35	54.00	19.65	Average
3	2483.74	28.29	5.37	0.69	34.35	54.00	19.65	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test： 2014. 10. 31 Temperature： 22℃

EUT： Digital Media Player Humidity： 52%

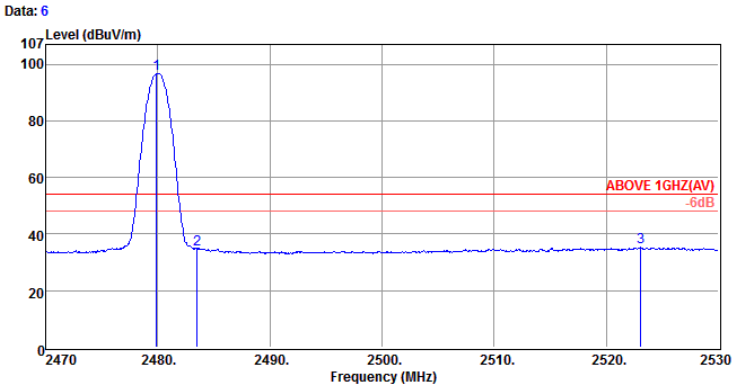
Test Mode： Transmit, Channel: 78, Frequency: 2480MHz, GFSK



Site no. : Audix NO.1 Chamber Data no. : 5
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : ABOVE 1GHZ(PK)
Env. / Ins. : 22*C / 52% N9010A Engineer : Johnny_Hsueh
EUT : NW-ZX2
Power Rating : DC 3.7V
Test Mode : Tx 2480MHz(GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2480.14	28.28	5.36	63.74	97.38	74.00	-23.38	Peak
2	2483.50	28.29	5.37	11.35	45.01	74.00	28.99	Peak
3	2528.74	28.40	5.45	12.42	46.27	74.00	27.73	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 6
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : ABOVE 1GHZ(AV)
Env. / Ins. : 22*C / 52% N9010A Engineer : Johnny_Hsueh
EUT : NW-ZX2
Power Rating : DC 3.7V
Test Mode : Tx 2480MHz(GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss ´`B)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2479.90	28.28	5.36	63.17	96.81	54.00	-42.81	Average
2	2483.50	28.29	5.37	1.01	34.67	54.00	19.33	Average
3	2523.10	28.38	5.44	1.41	35.23	54.00	18.77	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

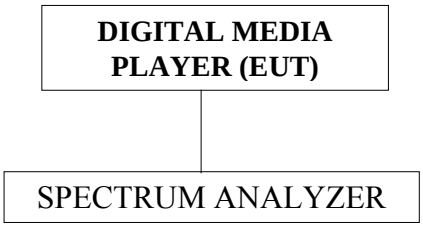
5. 20dB BANDWIDTH MEASUREMENT

5.1. Test Equipment

The following test equipment was used during the 20dB bandwidth measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Spectrum Analyzer	Agilent	N9030A-526	MY53310269	2014. 09. 19	1 Year

5.2. Block Diagram of Test Setup



5.3. Specification Limits [§15.247(a)(1), RSS-210 §A8.2 (a)]

Alternatively, frequency hopping systems operating in the 2400-2483.5MHz band may have hopping channel carrier frequencies that are separated by 25kHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater.

5.4. Operating Condition of EUT

The EUT was running test program "Diag Test Mode" for BT test.

5.5. Test Procedure

The transmitter output was connected to the spectrum analyzer. The RBW of the fundamental frequency was measure by spectrum analyzer 1% of the 20dB bandwidth and the setting equal to RBW and VBW is equal to RBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.
The measurement guideline was according to FCC Public Notice DA 00-705.

5.6. Test Results

PASSED. All the test results are attached in next pages.

[Note: We performed testing of the highest and lowest data rate.]

EUT: Digital Media Player M/N: NW-ZX2

Test Date: 2014. 10. 15 Temperature: 25℃ Humidity: 50%

5.6.1. Type of Modulation: 8-DPSK

No.	Channel	Test Frequency	**20dB Bandwidth**	**2/3 (20dB Bandwidth)**
1.	0	2402MHz	**1.332MHz**	**0.888MHz**
2.	39	2441MHz	**1.348MHz**	**0.899MHz**
3.	78	2480MHz	**1.348MHz**	**0.899MHz**

The maximum two-thirds of the 20dB bandwidth shall be at maximum 0.899MHz.

5.6.2. Type of Modulation: GFSK

No.	Channel	Test Frequency	**20dB Bandwidth**	**2/3 (20dB Bandwidth)**
1.	0	2402MHz	**924kHz**	**616kHz**
2.	39	2441MHz	**928kHz**	**619kHz**
3.	78	2480MHz	**928kHz**	**619kHz**

The maximum two-thirds of the 20dB bandwidth shall be at maximum 619kHz.

8-DPSK, Channel 0, Frequency: 2402MHz

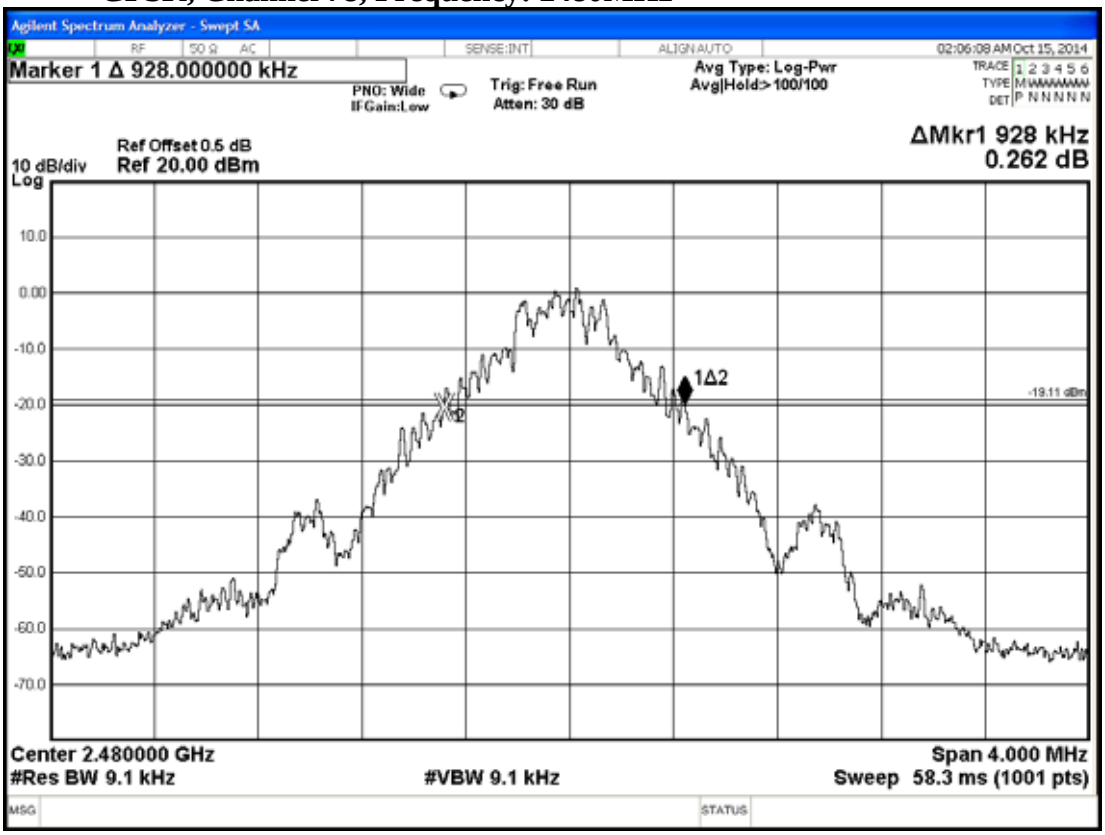
8-DPSK, Channel 39, Frequency: 2441MHz

8-DPSK, Channel 78, Frequency: 2480MHz

GFSK, Channel 0, Frequency: 2402MHz

GFSK, Channel 39, Frequency: 2441MHz

GFSK, Channel 78, Frequency: 2480MHz



6. CARRIER FREQUENCY SEPARATION MEASUREMENT

6.1. Test Equipment

The following test equipment was used during the carrier frequency separation measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Spectrum Analyzer	Agilent	N9030A-526	MY53310269	2014. 09. 19	1 Year

6.2. Block Diagram of Test Setup

The same as section 5.2.

6.3. Specification Limits [§15.247(a)(1), RSS-210 §A8.2 (b)]

Alternatively, frequency hopping systems operating in the 2400-2483.5MHz band may have hopping channel carrier frequencies that are separated by 25kHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output no greater than 125mW.

6.4. Operating Condition of EUT

Same as carrier frequency separation measurement which was listed in section 5.4.

6.5. Test Procedure

The transmitter output was connected to the spectrum analyzer. The channel separation was measure by spectrum analyzer with RBW equal to 1% of the span. The video bandwidth not to be smaller than resolution bandwidth, the peak was mark on adjacent bandwidth, the between of peak is carrier frequency separation.
The measurement guideline was according to FCC Public Notice DA 00-705.

6.6. Test Results

PASSED. All the test results are attached in next pages.

[Note: We performed testing of the highest and lowest data rate.]

EUT: Digital Media Player M/N: NW-ZX2

Test Date: 2014. 10. 15 Temperature: 25℃ Humidity: 50%

6.6.1. Type of Modulation: 8-DPSK

1. 2402MHz adjacent channel of carrier frequency separation: 1.000MHz。
2. 2441MHz adjacent channel of right carrier frequency separation: 1.000MHz。
3. 2441MHz adjacent channel of left carrier frequency separation: 1.000MHz。
4. 2480MHz adjacent channel of carrier frequency separation: 1.000MHz。

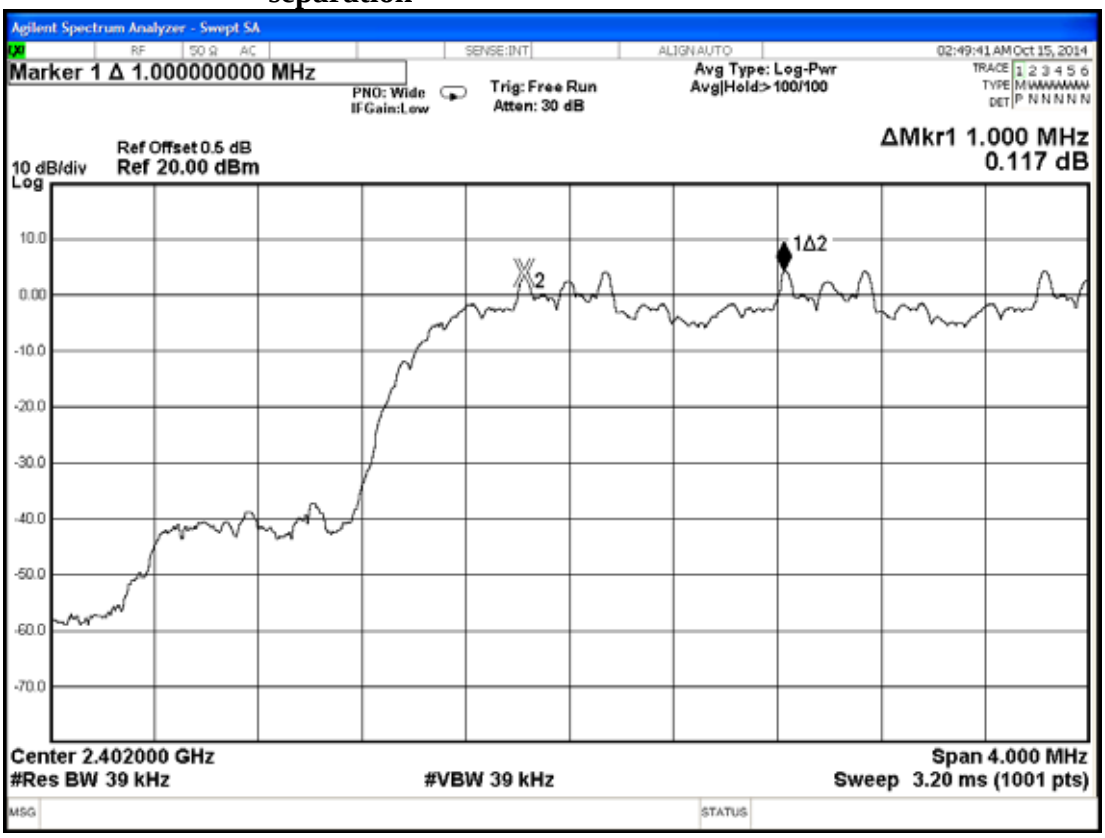
[Above values have met the requirement as specified in section 4.3: frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.]

6.6.2. Type of Modulation: GFSK

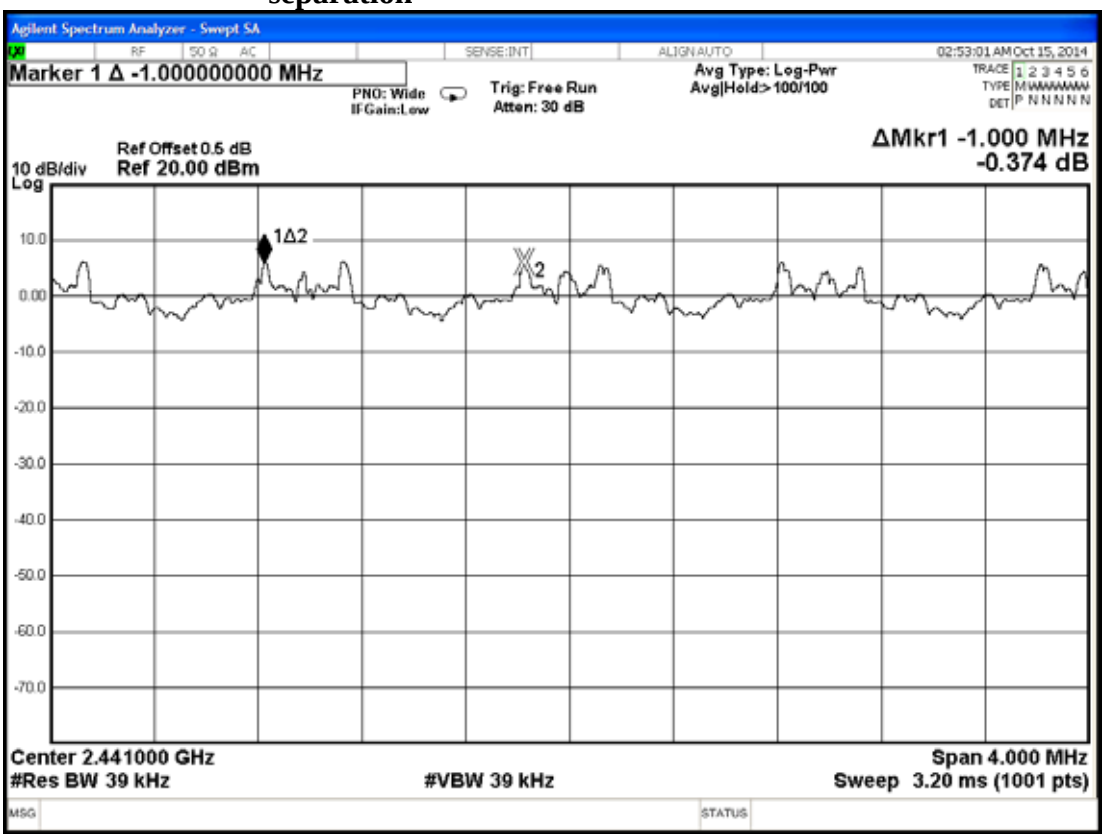
1. 2402MHz adjacent channel of carrier frequency separation: 1.000MHz。
2. 2441MHz adjacent channel of right carrier frequency separation: 100MHz。
3. 2441MHz adjacent channel of left carrier frequency separation: 1.000MHz。
4. 2480MHz adjacent channel of carrier frequency separation: 1.000MHz。

[Above values have met the requirement as specified in section 4.3: frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.]

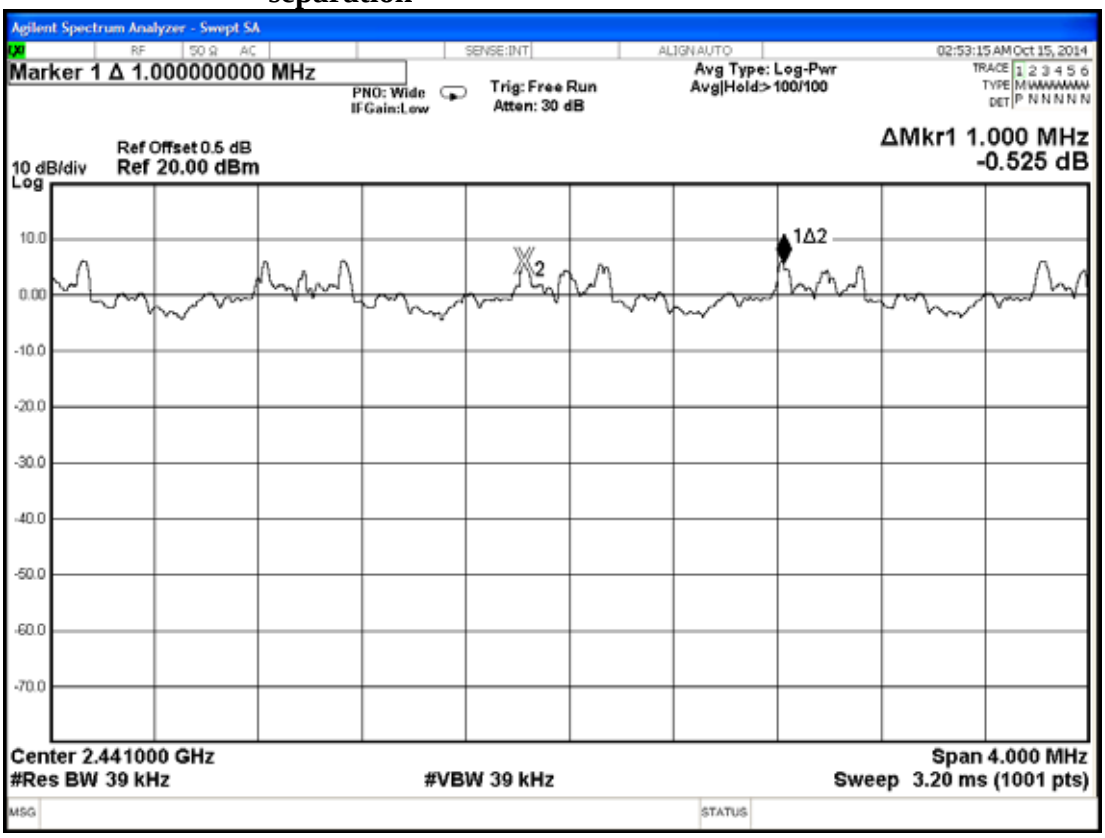
Test Mode: 8-DPSK, 2402MHz adjacent channel of carrier frequency separation



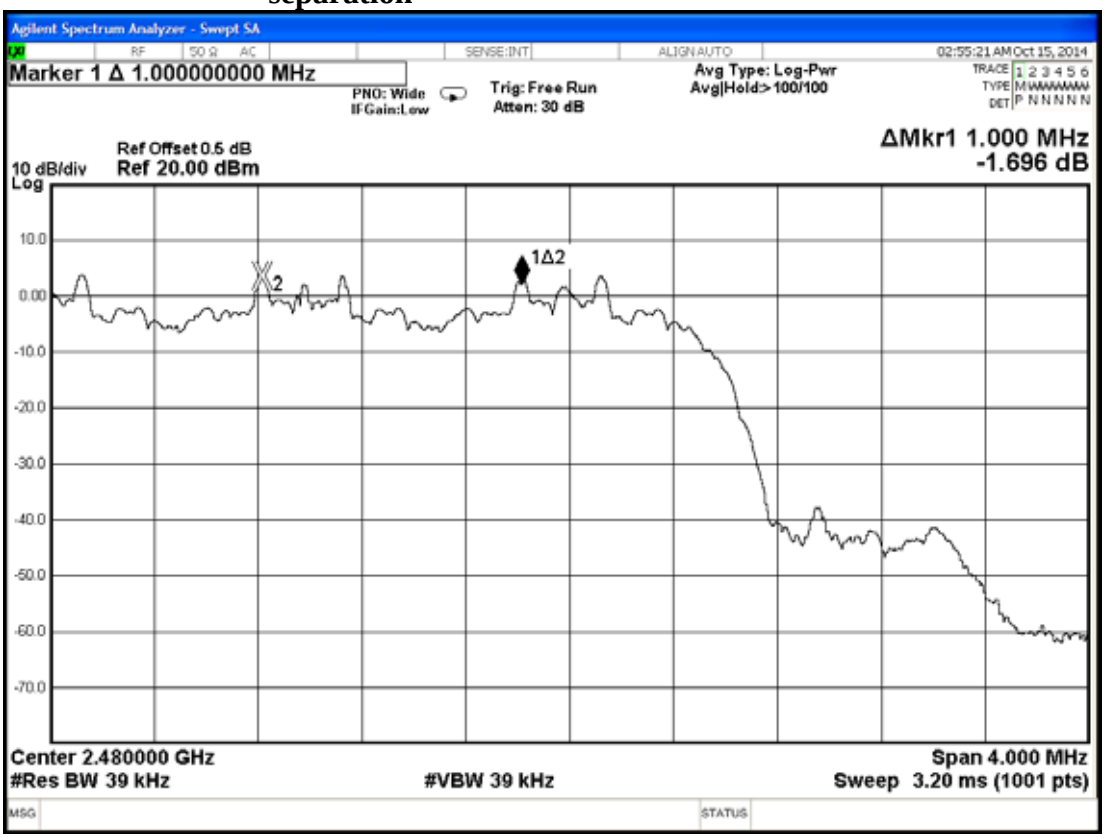
Test Mode: 8-DPSK, 2441MHz adjacent channel of right carrier frequency separation



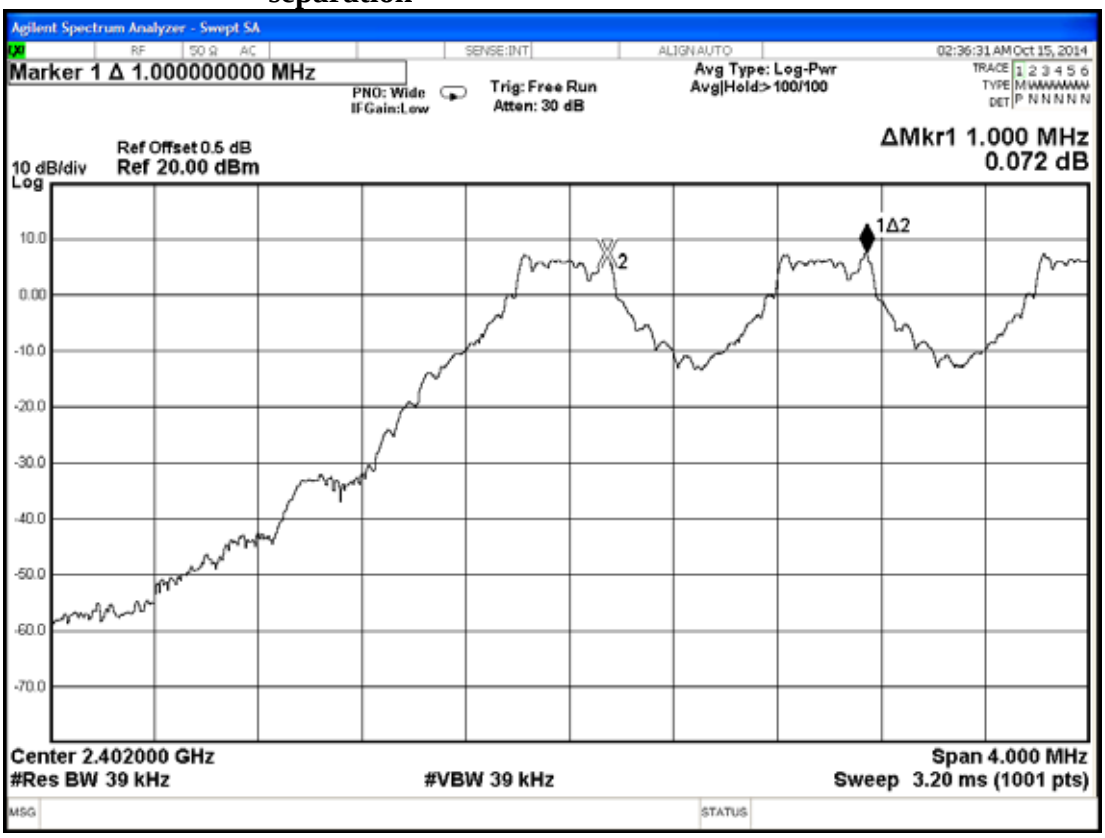
Test Mode: 8-DPSK, 2441MHz adjacent channel of left carrier frequency separation



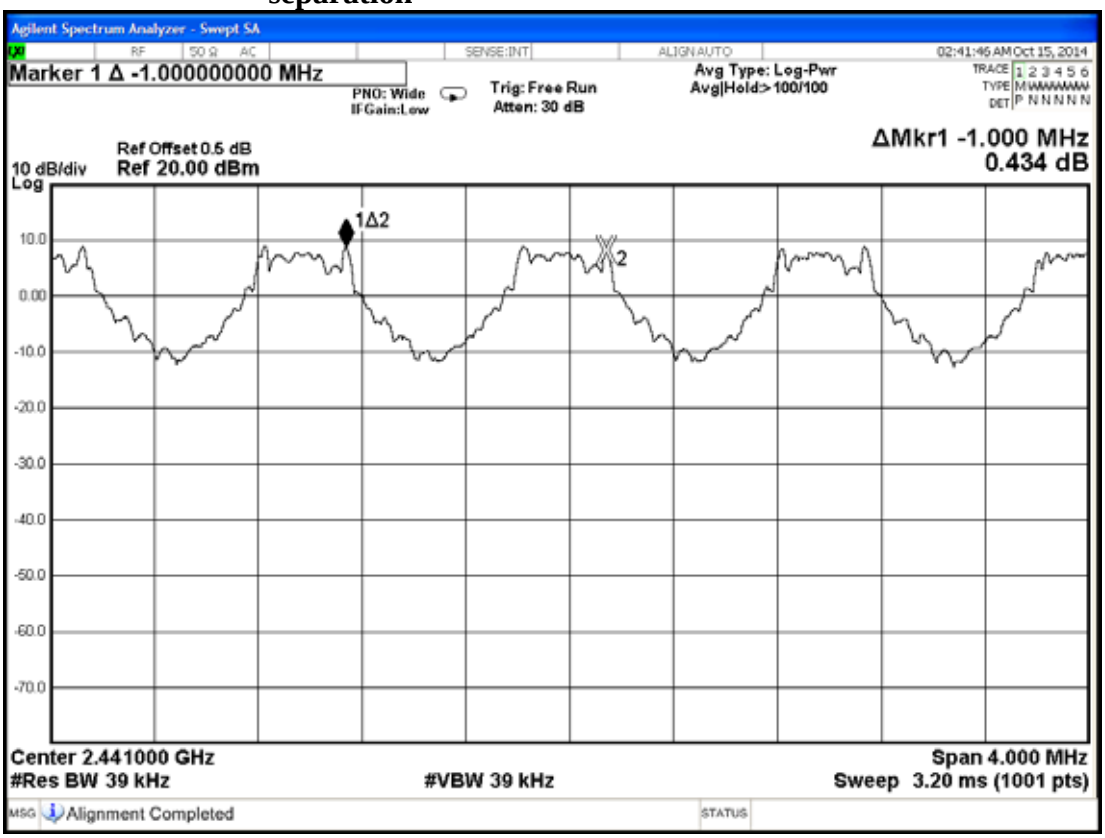
Test Mode: 8-DPSK, 2480MHz adjacent channel of carrier frequency separation



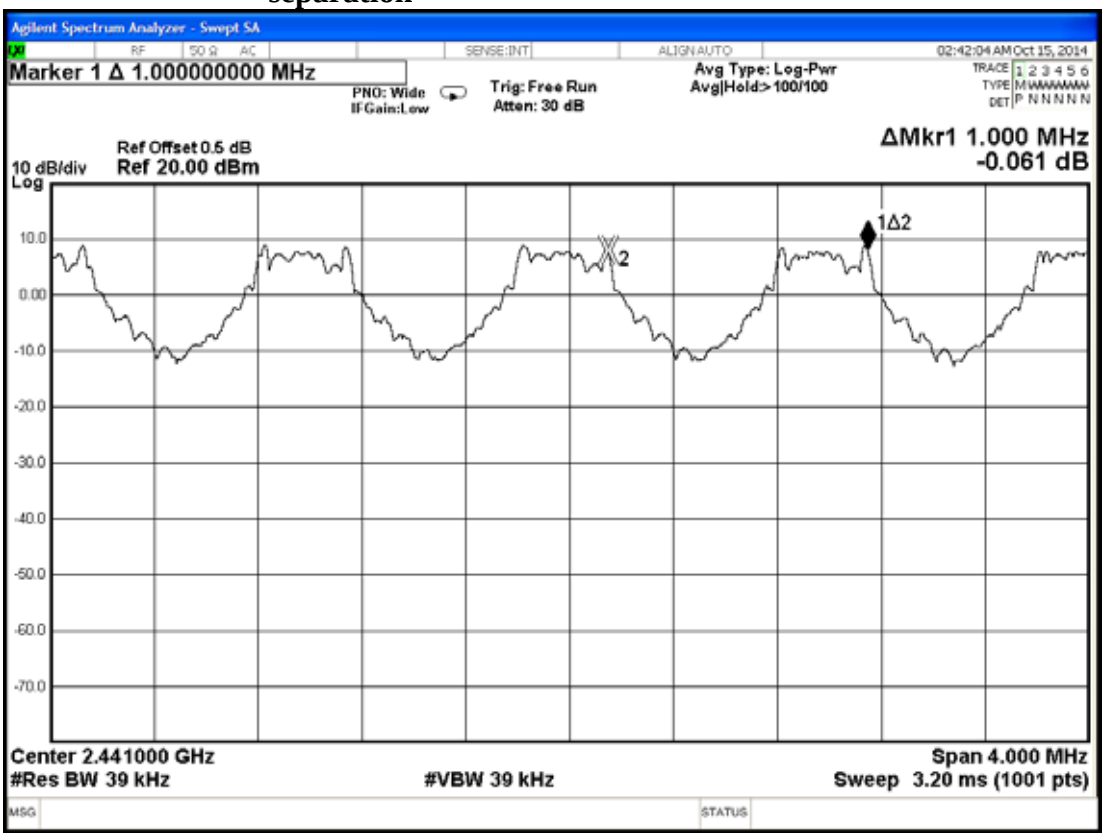
Test Mode: GFSK, 2402MHz adjacent channel of carrier frequency separation



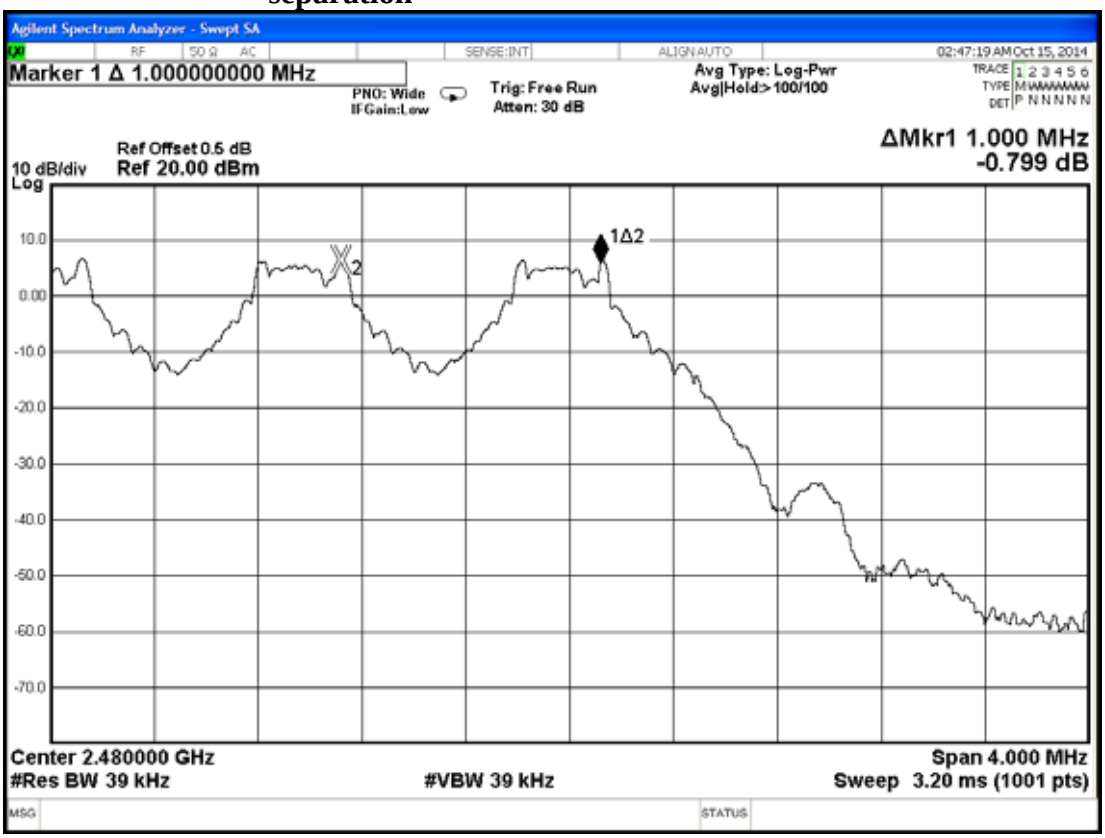
Test Mode: GFSK, 2441MHz adjacent channel of right carrier frequency separation



Test Mode: GFSK, 2441MHz adjacent channel of left carrier frequency separation



Test Mode: GFSK, 2480MHz adjacent channel of carrier frequency separation



7. TIME OF OCCUPANCY MEASUREMENT

7.1. Test Equipment

The following test equipment was used during the time of occupancy measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Spectrum Analyzer	Agilent	N9030A-526	MY53310269	2014. 09. 19	1 Year

7.2. Block Diagram of Test Setup

The same as section 5.2.

7.3. Specification Limits [§15.247(a)(1)(iii), RSS-210 §A8.2 (d)]

Frequency hopping systems in the 2400-2483.5MHz shall use at least 15 non-overlapping channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by number of hopping channels employed.

7.4. Operating Condition of EUT

Same as carrier frequency separation measurement which was listed in section 5.4.

7.5. Test Procedure

The EUT was connected to the notebook. The bandwidth of the fundamental frequency was measure by spectrum analyzer with 1MHz RBW and 1MHz VBW. VBW≥RBW ; Span=zero span.
Centred on a hopping channel sweep=as necessary to capture the entire dwell time per hopping channel ; Detector function=peak ; Trace=Max hold
The measurement guideline was according to FCC Public Notice DA 00-705.

7.6. Test Results

PASSED. All the test results are attached in next pages.

[Note: We performed testing of the highest and lowest data rate.]

EUT: Digital Media Player M/N: NW-ZX2

Test Date: 2014. 10. 15 Temperature: 25℃ Humidity: 50%
Test Date: 2014. 10. 31 Temperature: 25℃ Humidity: 55%

7.6.1. Type of Modulation：8-DPSK, Test Frequency：2402MHz

Observation Period: 79channels*0.4 seconds = 31.6 seconds

3DH1 : For each 5 seconds of 50 channels appearance, the longest time of occupancy for each of 31.6 seconds is:

50 channels*31.6 seconds/5s* 0.385ms = 121.6600ms (<400ms)

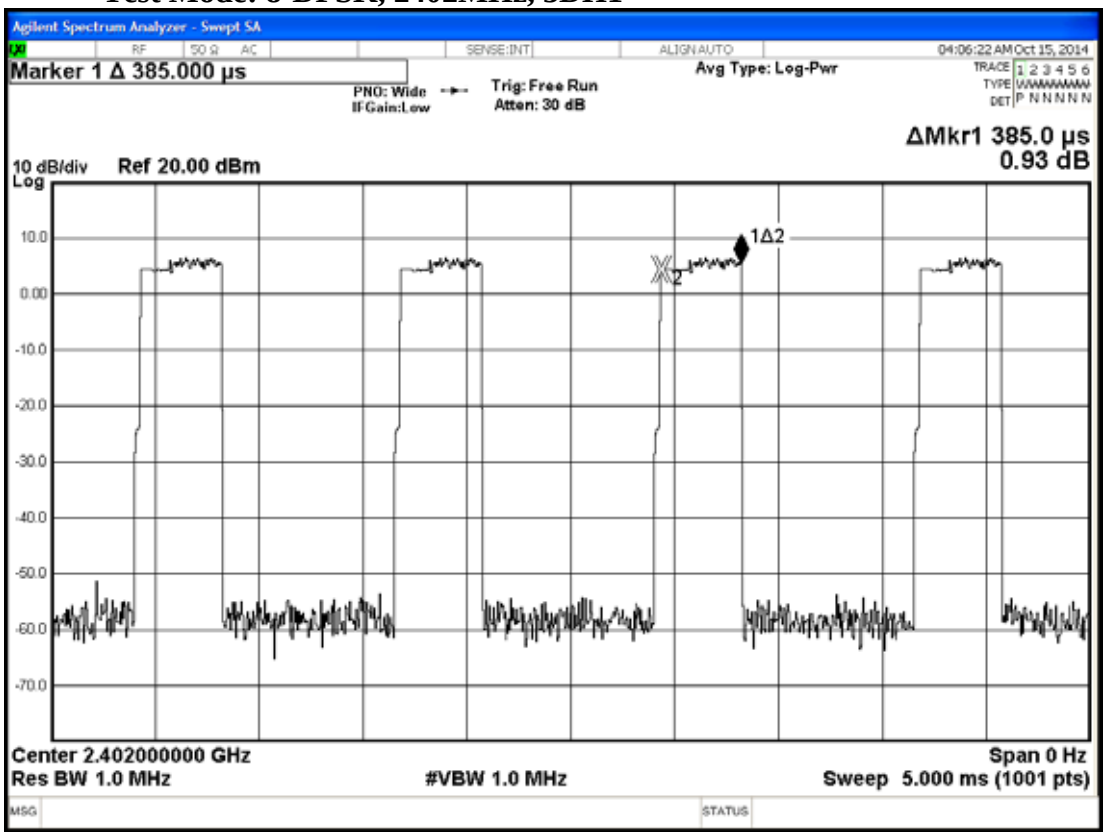
3DH3 : For each 5 seconds of 22 channels appearance, the longest time of occupancy for each of 31.6 seconds is:

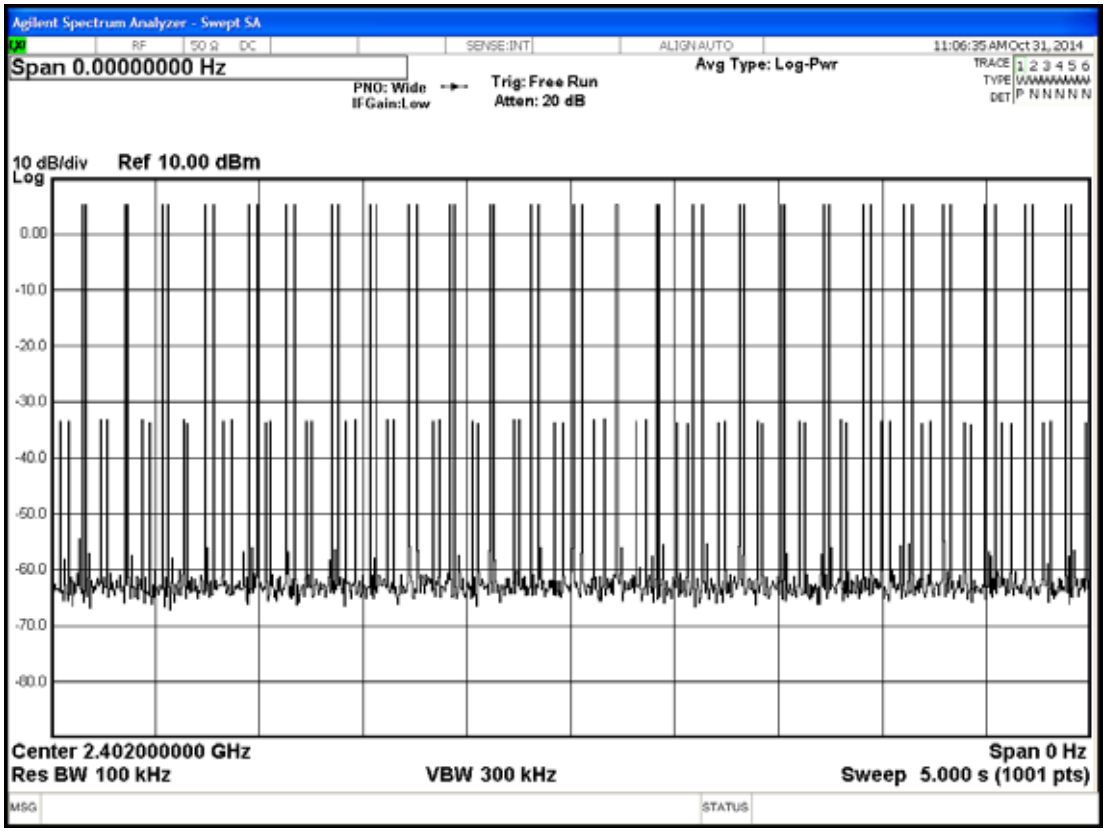
22 channels*31.6 seconds/5s* 1.635ms = 227.3304ms (<400ms)

3DH5 : For each 5 seconds of 15 channels appearance, the longest time of occupancy for each of 31.6 seconds is:

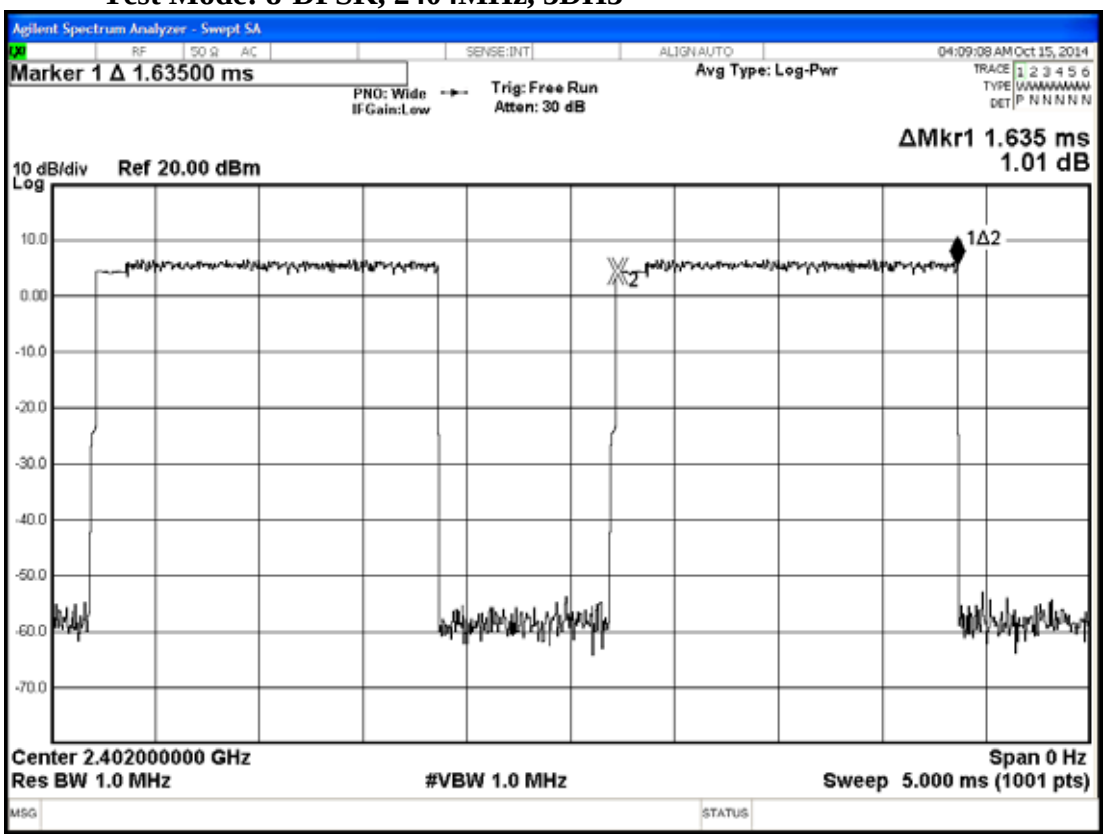
15 channels*31.6 seconds/5s*2.89ms = 273.9720ms (<400ms)

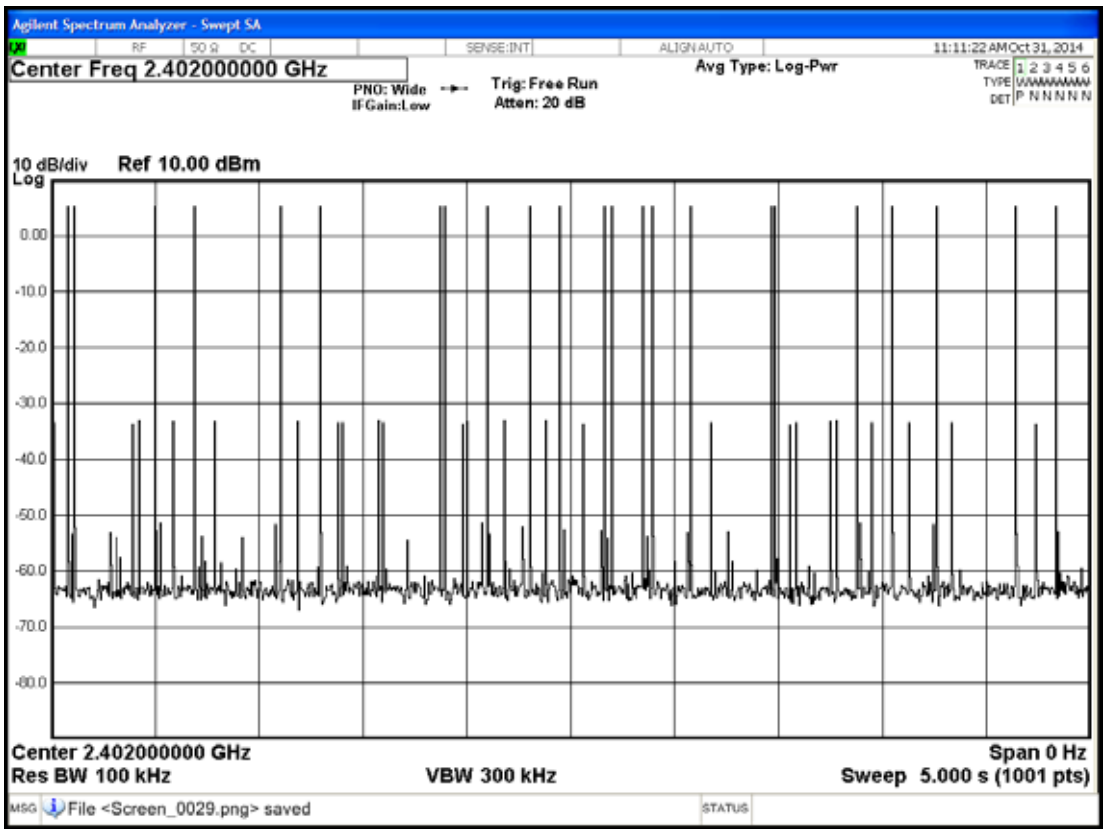
Test Mode: 8-DPSK, 2402MHz, 3DH1



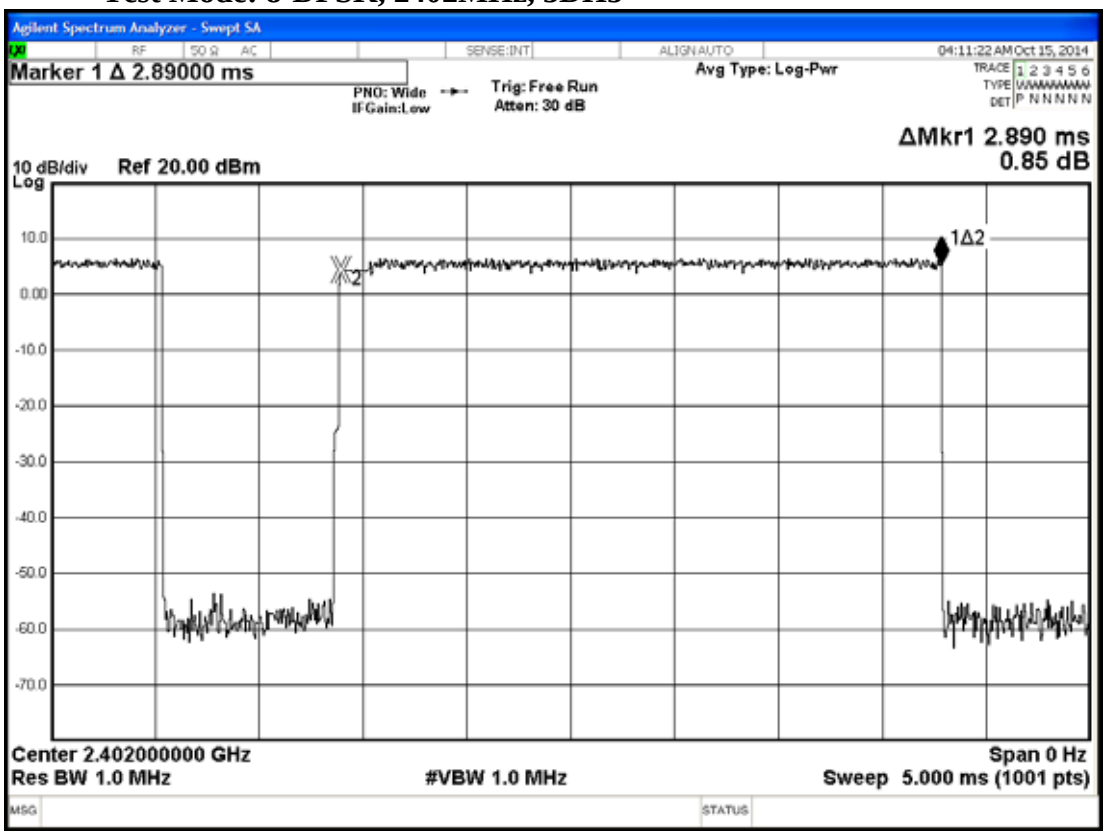


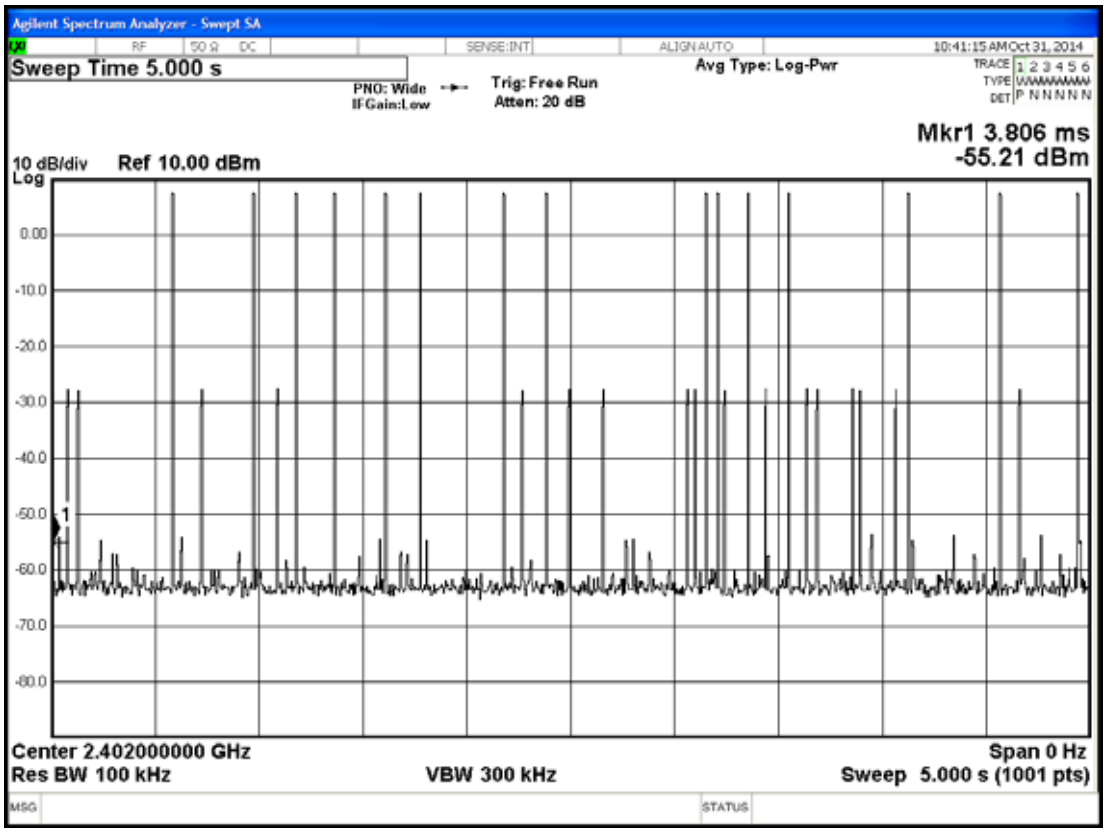
Test Mode: 8-DPSK, 2404MHz, 3DH3





Test Mode: 8-DPSK, 2402MHz, 3DH5





7.6.2. Type of Modulation：8-DPSK, Test Frequency：2441MHz

Observation Period:: 79channels*0.4 seconds = 31.6 seconds

3DH1 : For each 5 seconds of 50 channels appearance, the longest time of occupancy for each of 31.6 seconds is:

50 channels*31.6 seconds/5s* 0.390ms = 123.2400ms (<400ms)

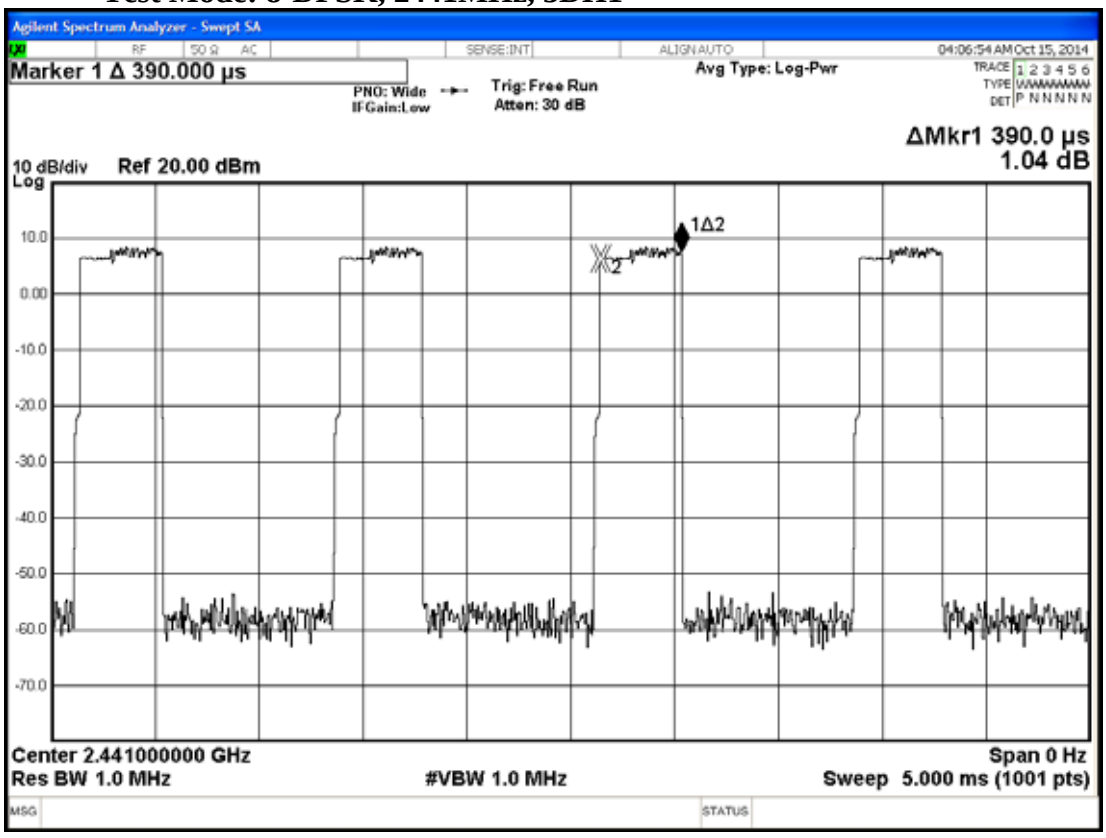
3DH3 : For each 5 seconds of 25 channels appearance, the longest time of occupancy for each of 31.6 seconds is:

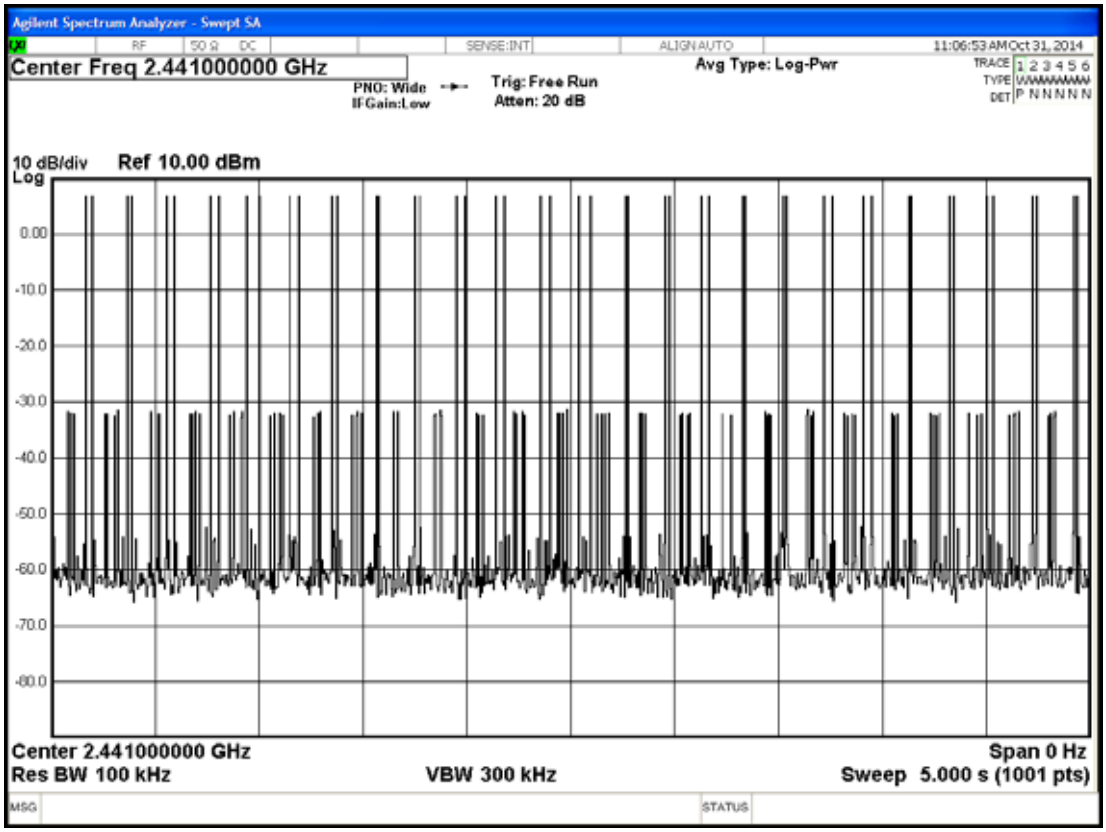
25 channels*31.6 seconds/5s* 1.635ms = 258.3300ms (<400ms)

3DH5 : For each 5 seconds of 15 channels appearance, the longest time of occupancy for each of 31.6 seconds is:

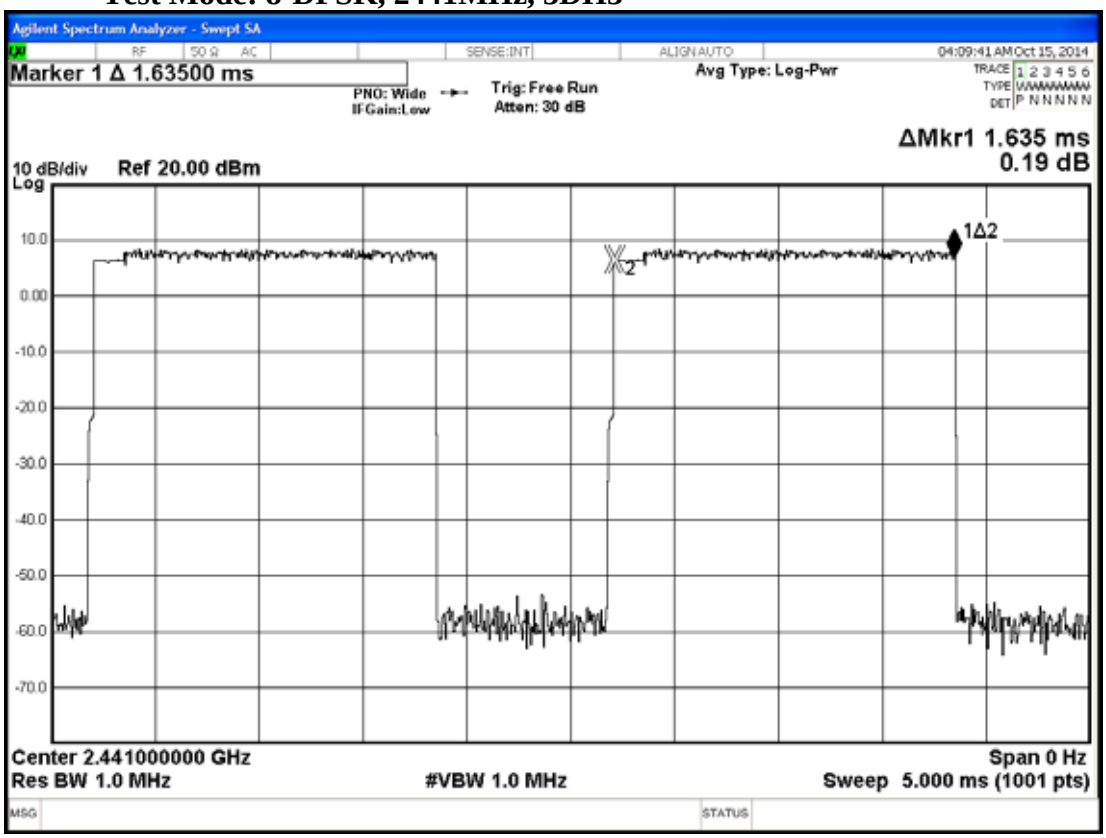
15 channels*31.6 seconds/5s*2.88ms = 273.0240ms (<400ms)

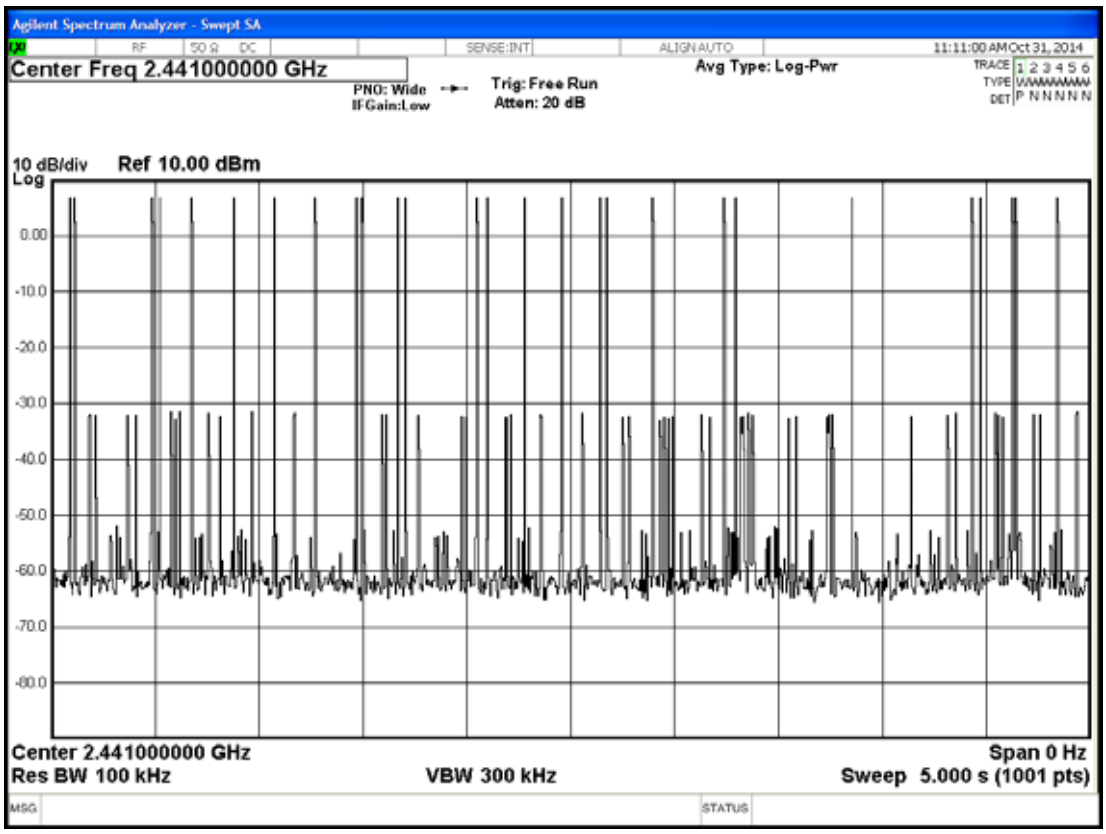
Test Mode: 8-DPSK, 2441MHz, 3DH1



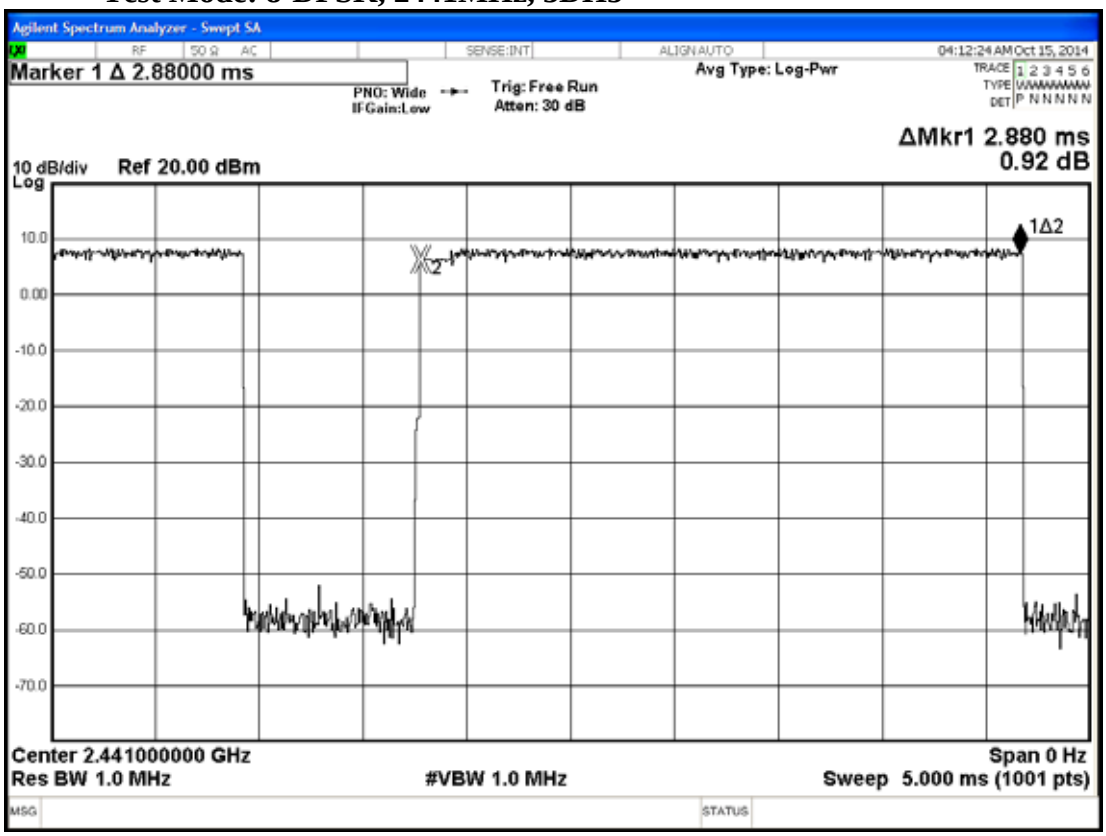


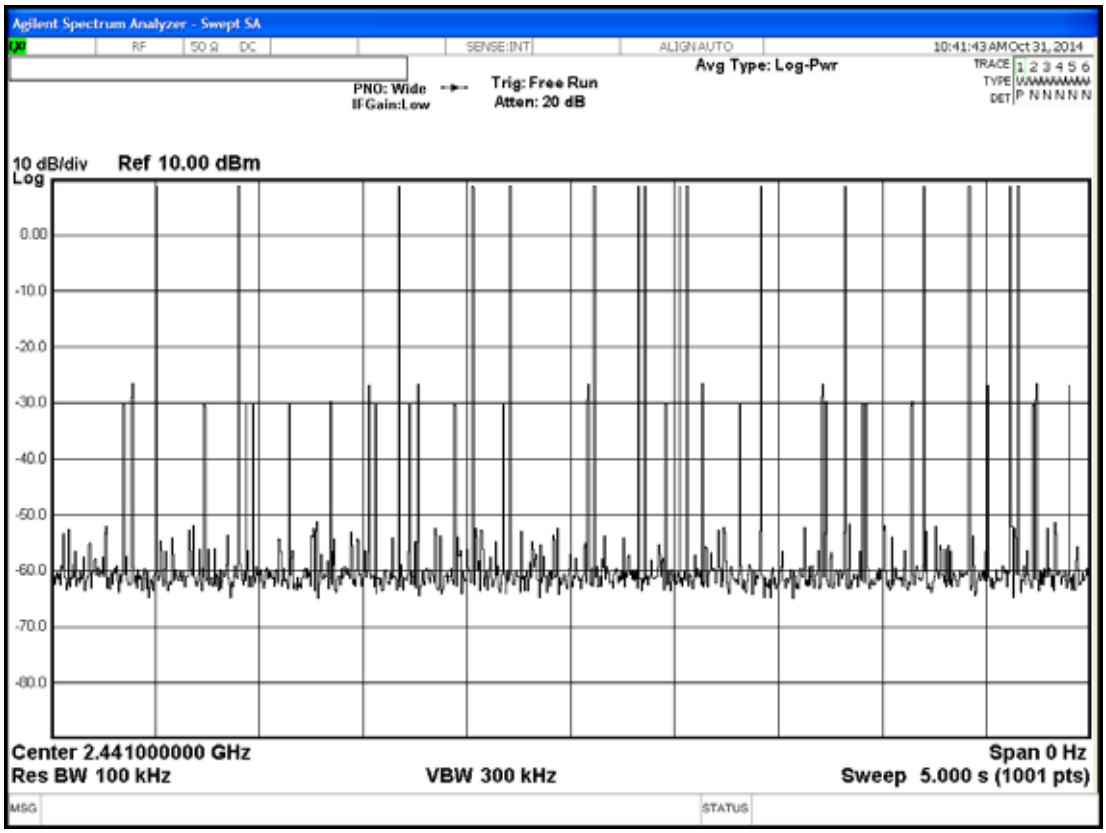
Test Mode: 8-DPSK, 2441MHz, 3DH3





Test Mode: 8-DPSK, 2441MHz, 3DH5





7.6.3. Type of Modulation：8-DPSK, Test Frequency：2480MHz

Observation Period:: 79channels*0.4 seconds = 31.6 seconds

3DH1 : For each 5 seconds of 50 channels appearance, the longest time of occupancy for each of 31.6 seconds is:

50 channels*31.6 seconds/5s* 0.390ms = 123.2400ms (<400ms)

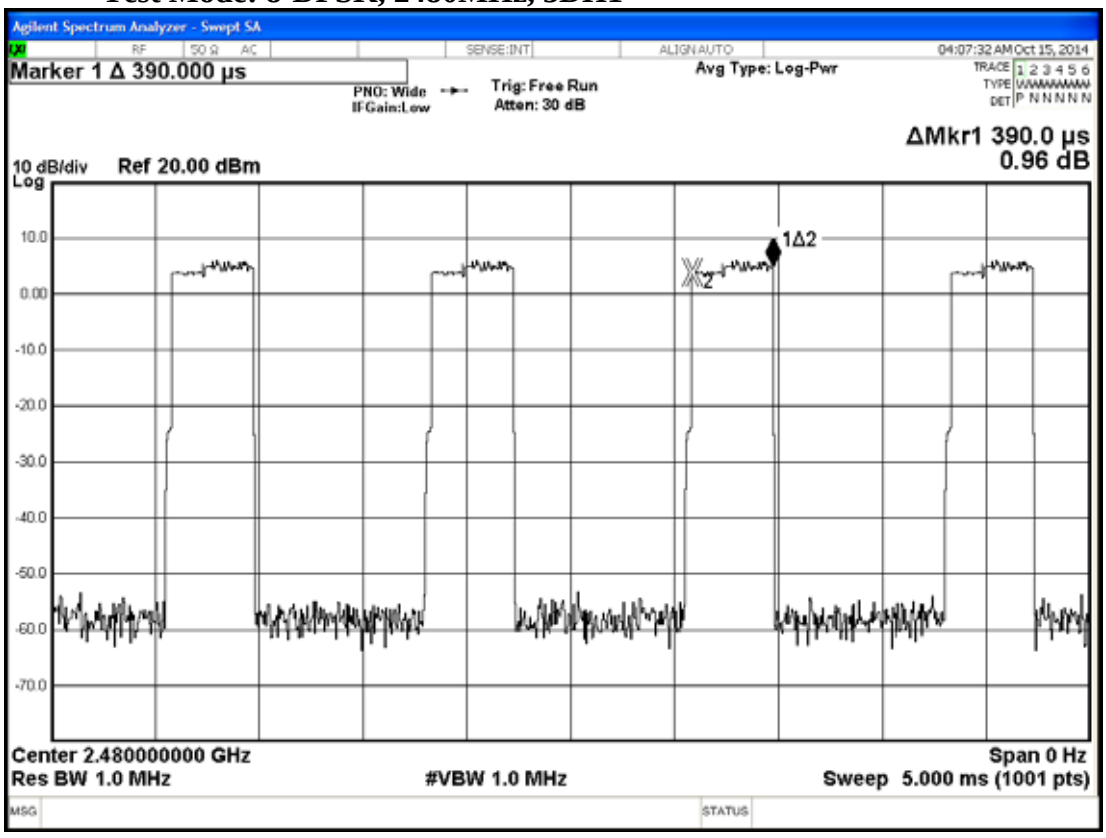
3DH3 : For each 5 seconds of 21 channels appearance, the longest time of occupancy for each of 31.6 seconds is:

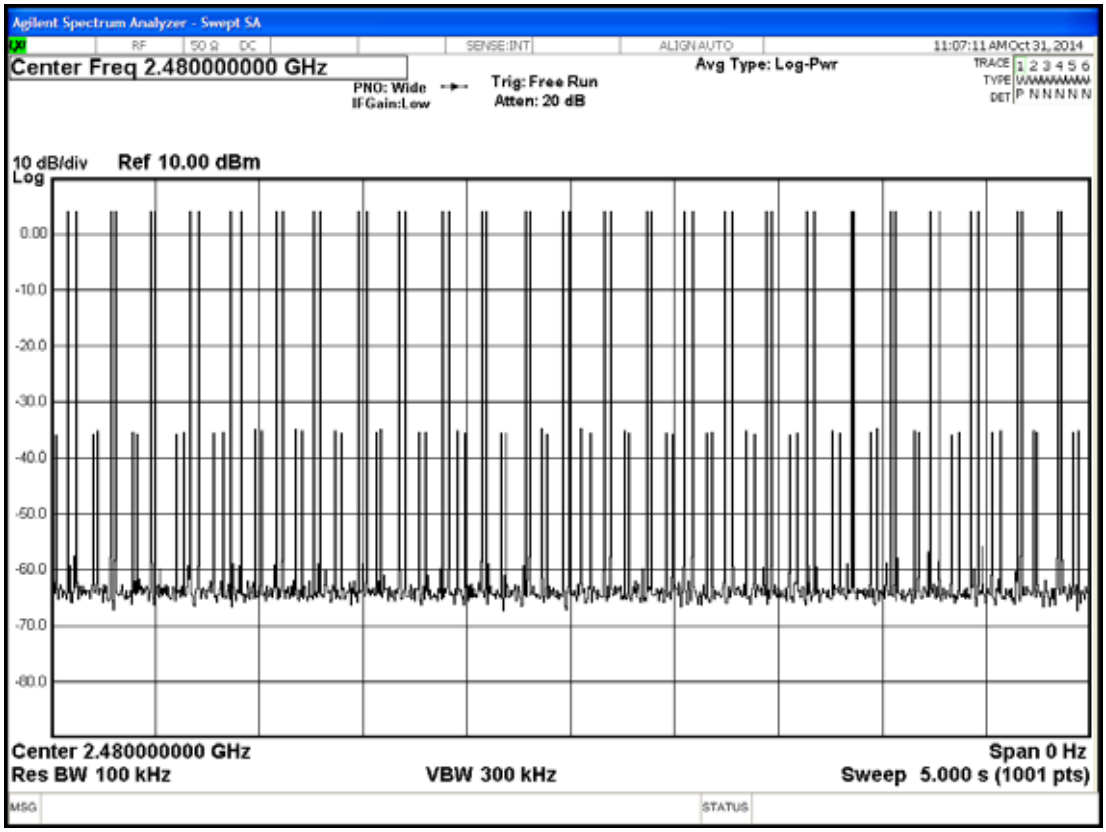
21 channels*31.6 seconds/5s* 1.640ms = 217.6608ms (<400ms)

3DH5 : For each 5 seconds of 18 channels appearance, the longest time of occupancy for each of 31.6 seconds is:

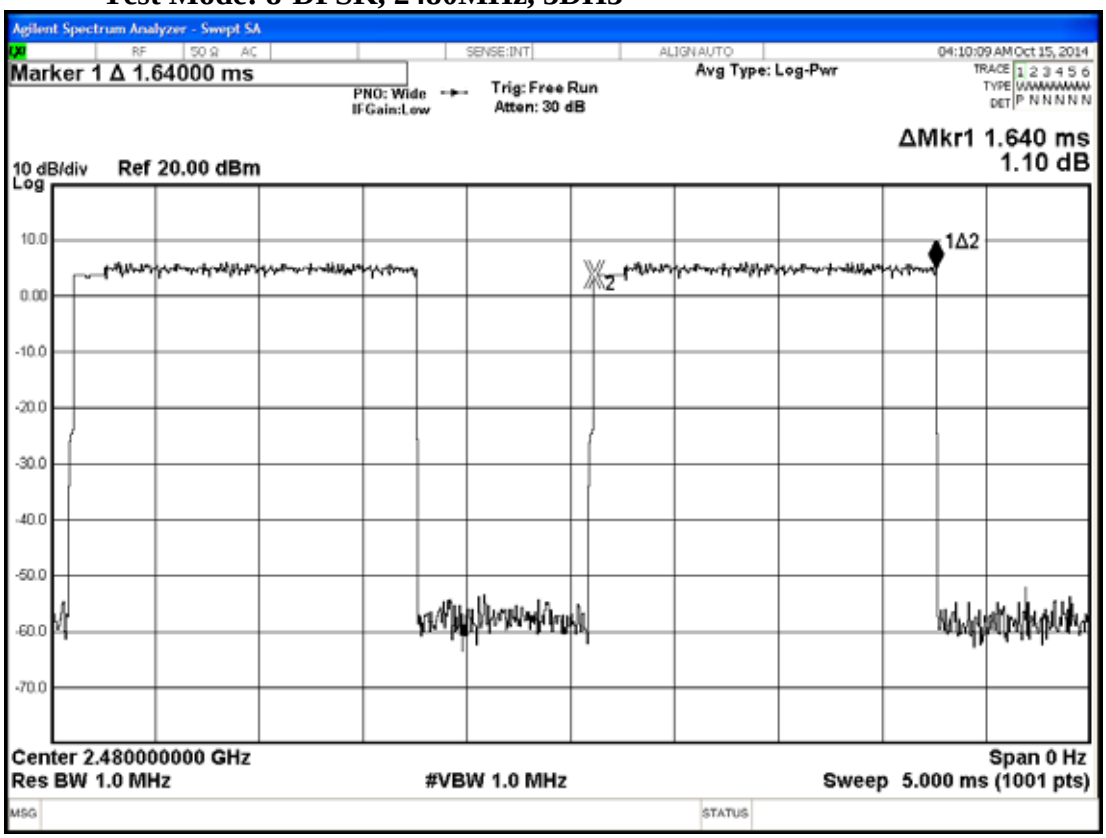
18 channels*31.6 seconds/5s*2.885ms = 328.1976ms (<400ms)

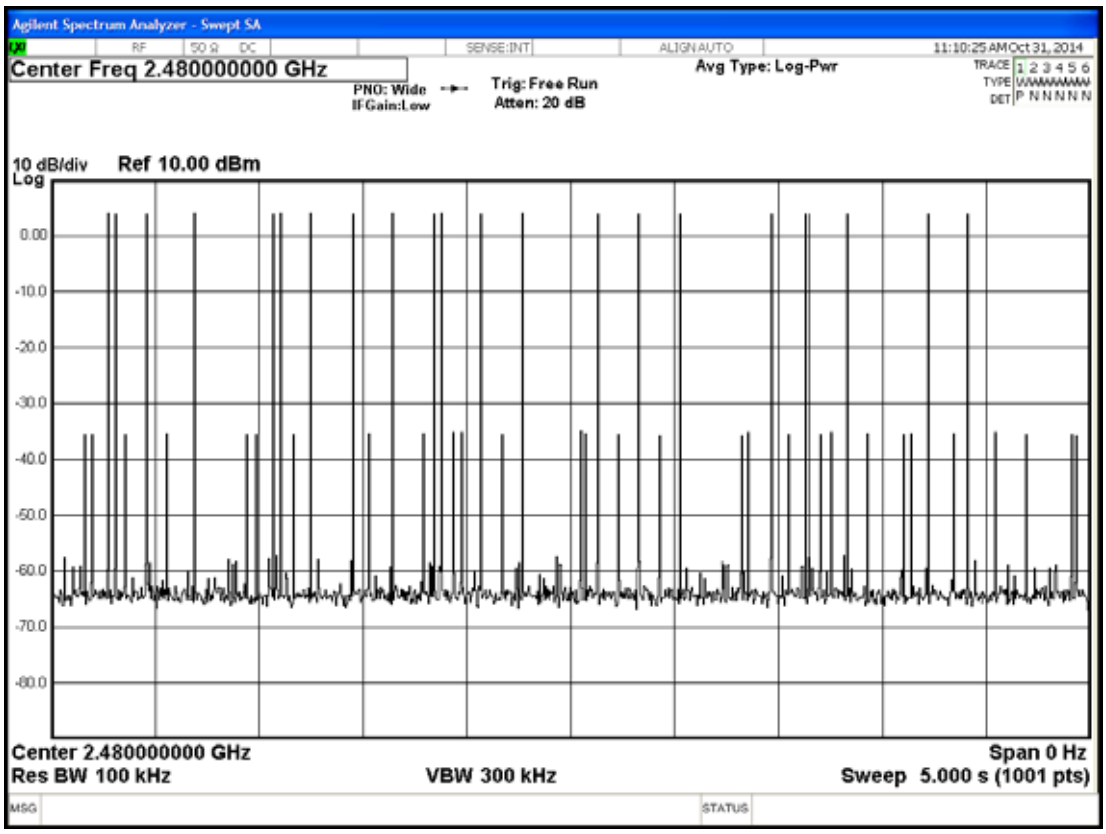
Test Mode: 8-DPSK, 2480MHz, 3DH1



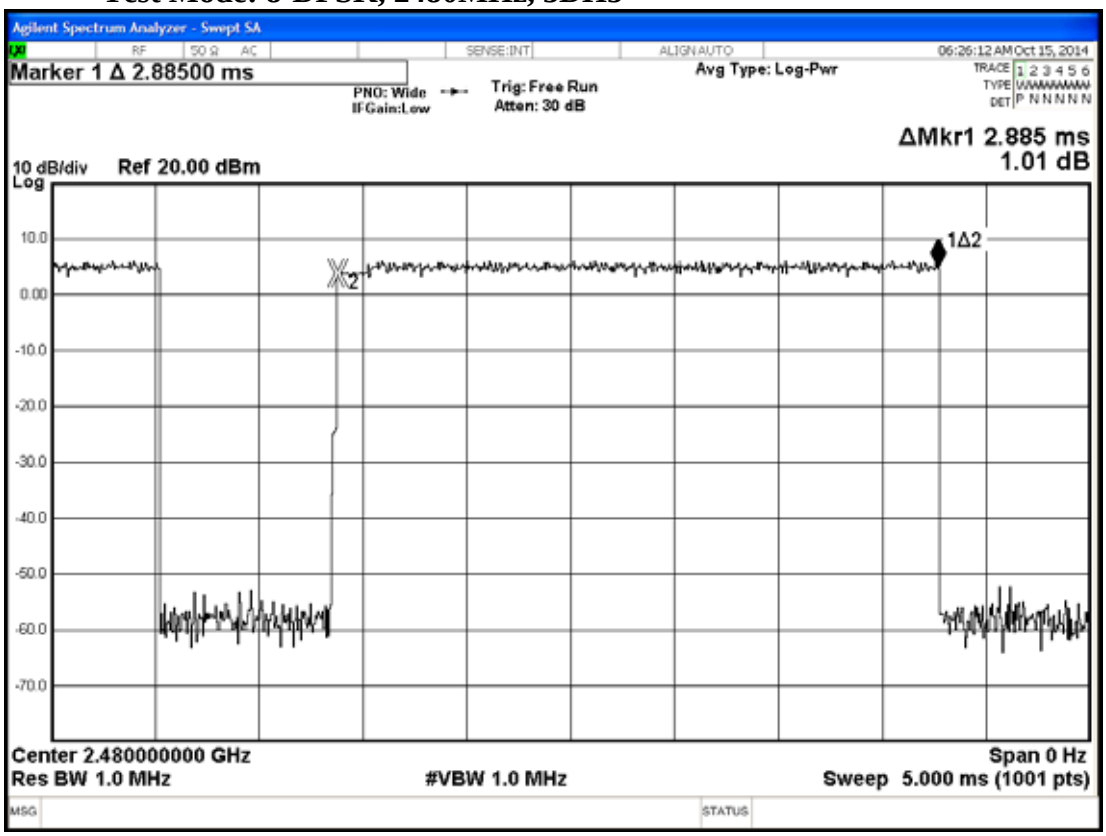


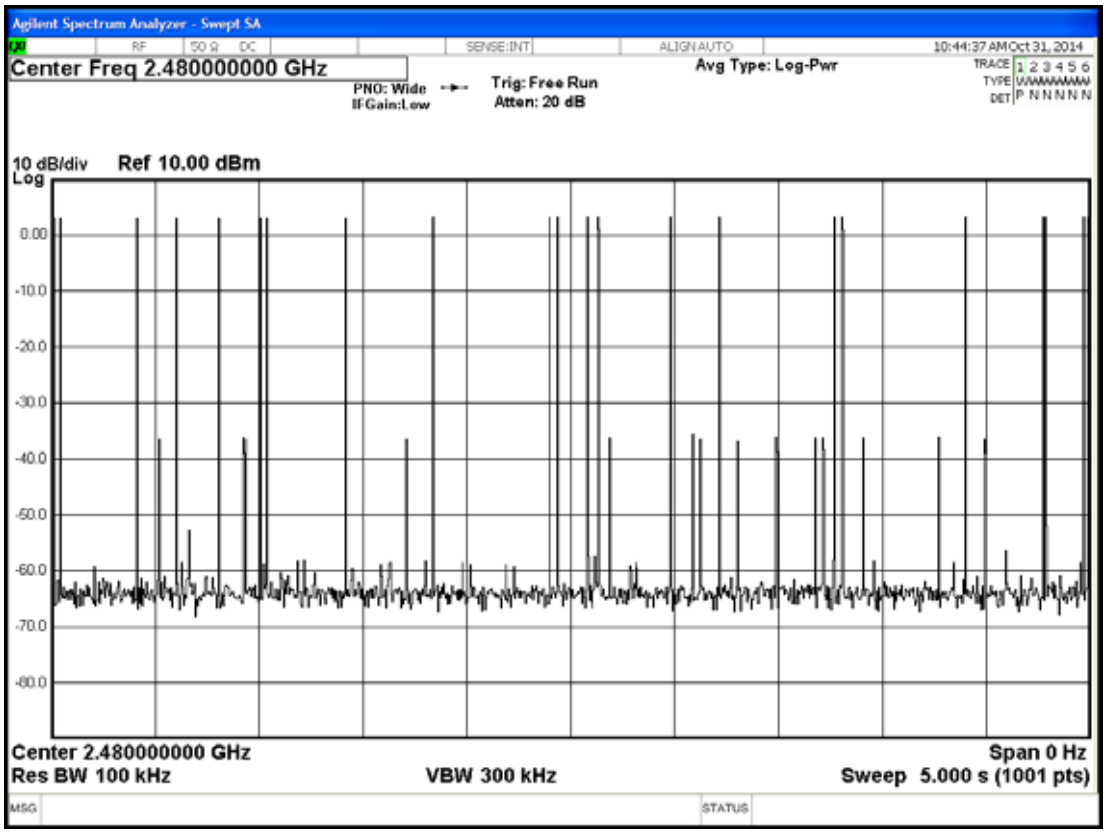
Test Mode: 8-DPSK, 2480MHz, 3DH3





Test Mode: 8-DPSK, 2480MHz, 3DH5





7.6.4. Type of Modulation：GFSK, Test Frequency：2402MHz

Observation Period: 79channels*0.4 seconds = 31.6 seconds

DH1 : For each 5 seconds of 50 channels appearance, the longest time of occupancy for each of 31.6 seconds is:

50 channels*31.6 seconds/5s* 0.375ms = 118.5000ms (<400ms)

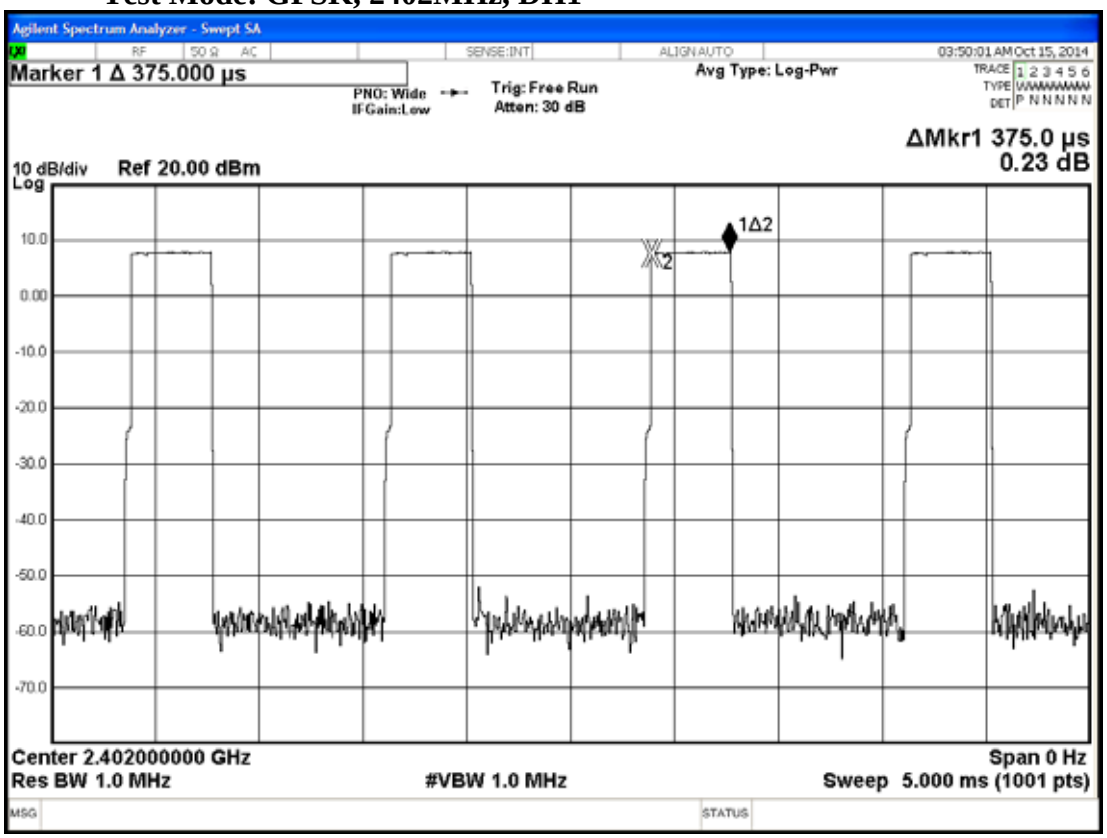
DH3 : For each 5 seconds of 29 channels appearance, the longest time of occupancy for each of 31.6 seconds is:

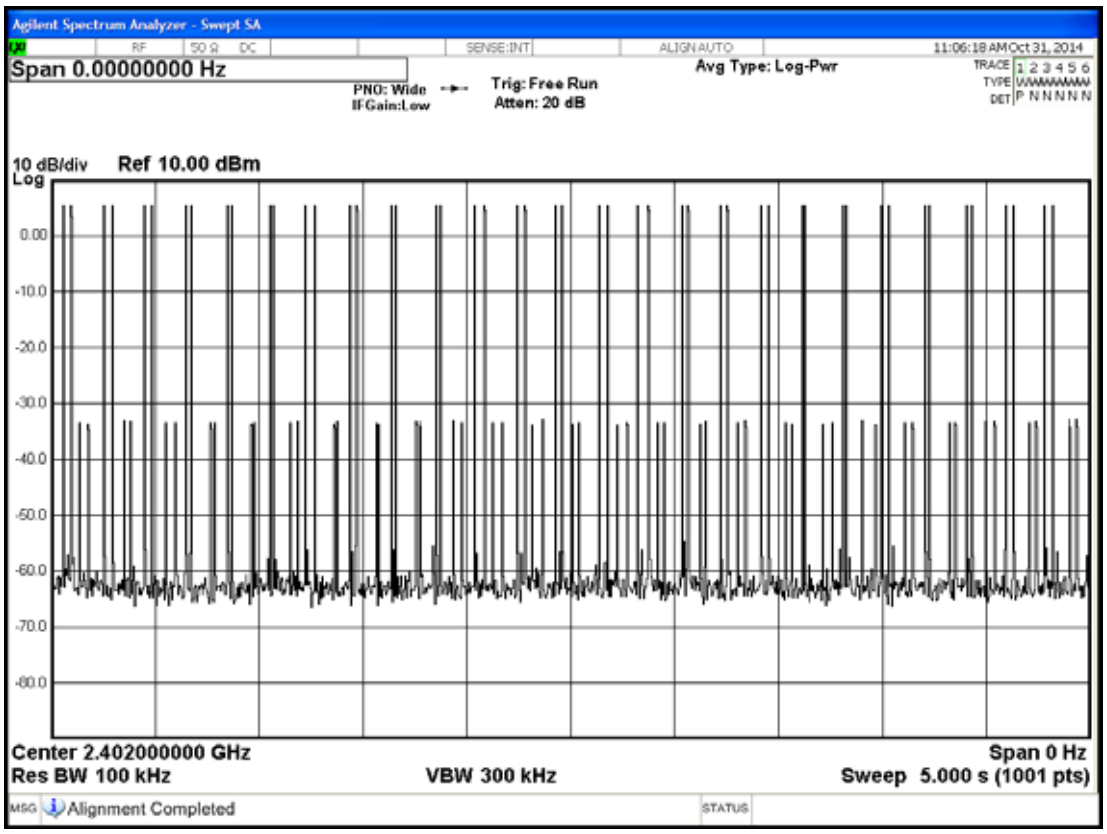
29 channels*31.6 seconds/5s* 1.640ms = 300.5792ms (<400ms)

DH5 : For each 5 seconds of 17 channels appearance, the longest time of occupancy for each of 31.6 seconds is:

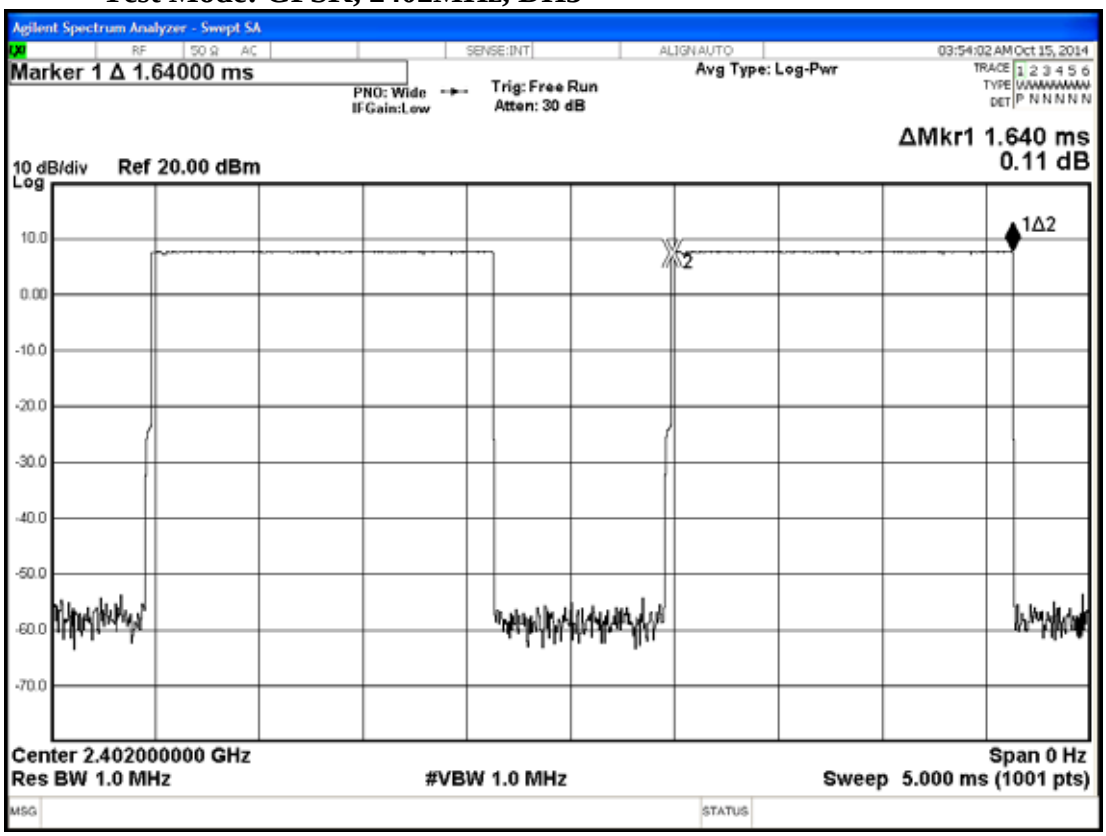
17 channels*31.6 seconds/5s*2.890ms = 310.5016ms (<400ms)

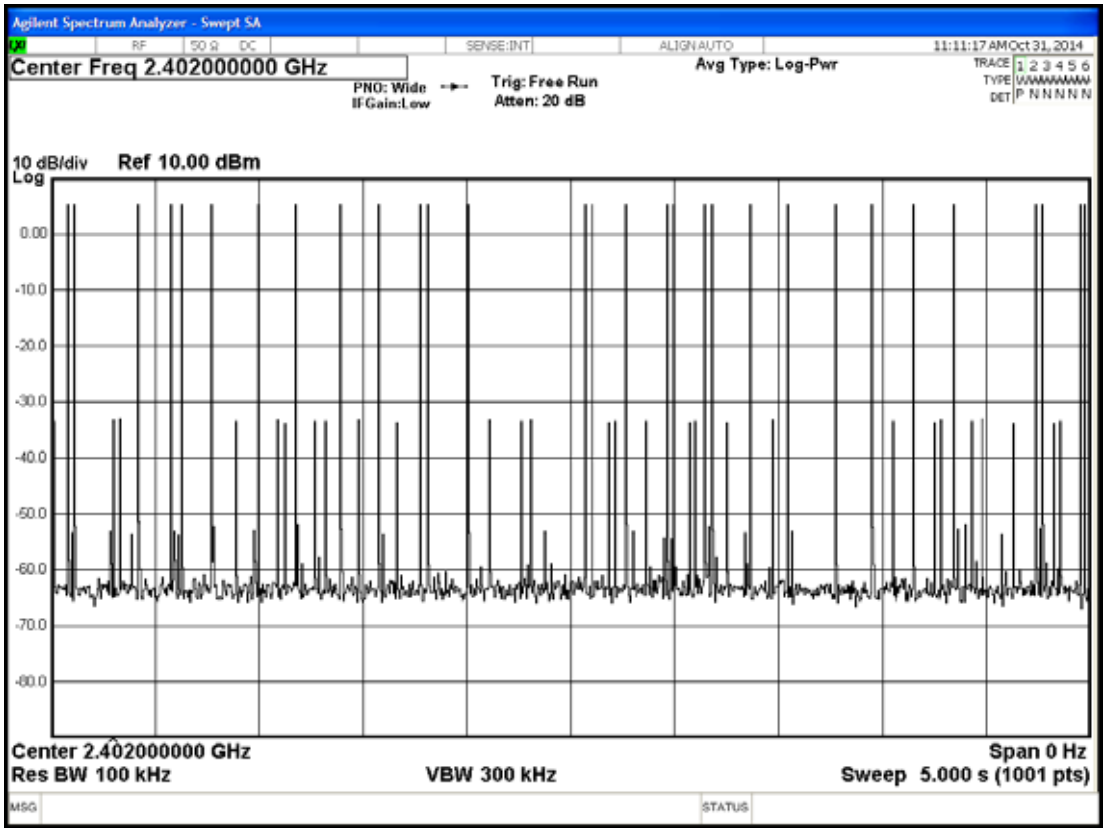
Test Mode: GFSK, 2402MHz, DH1



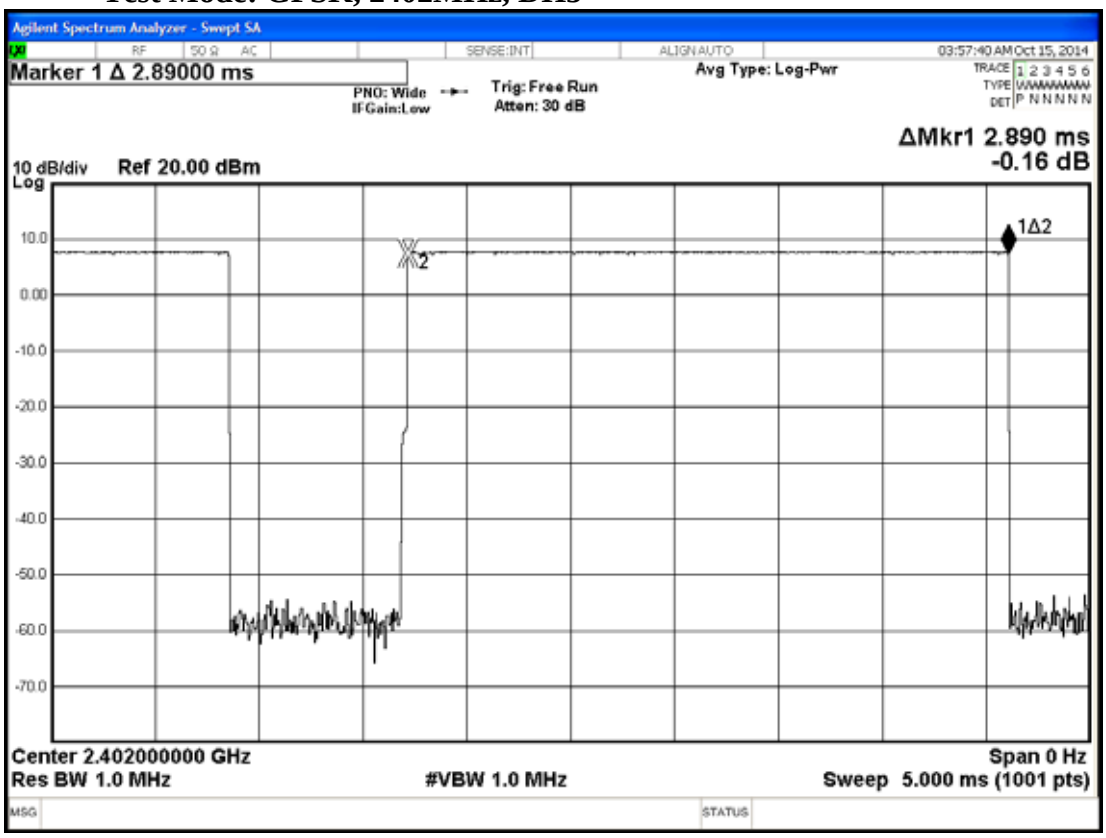


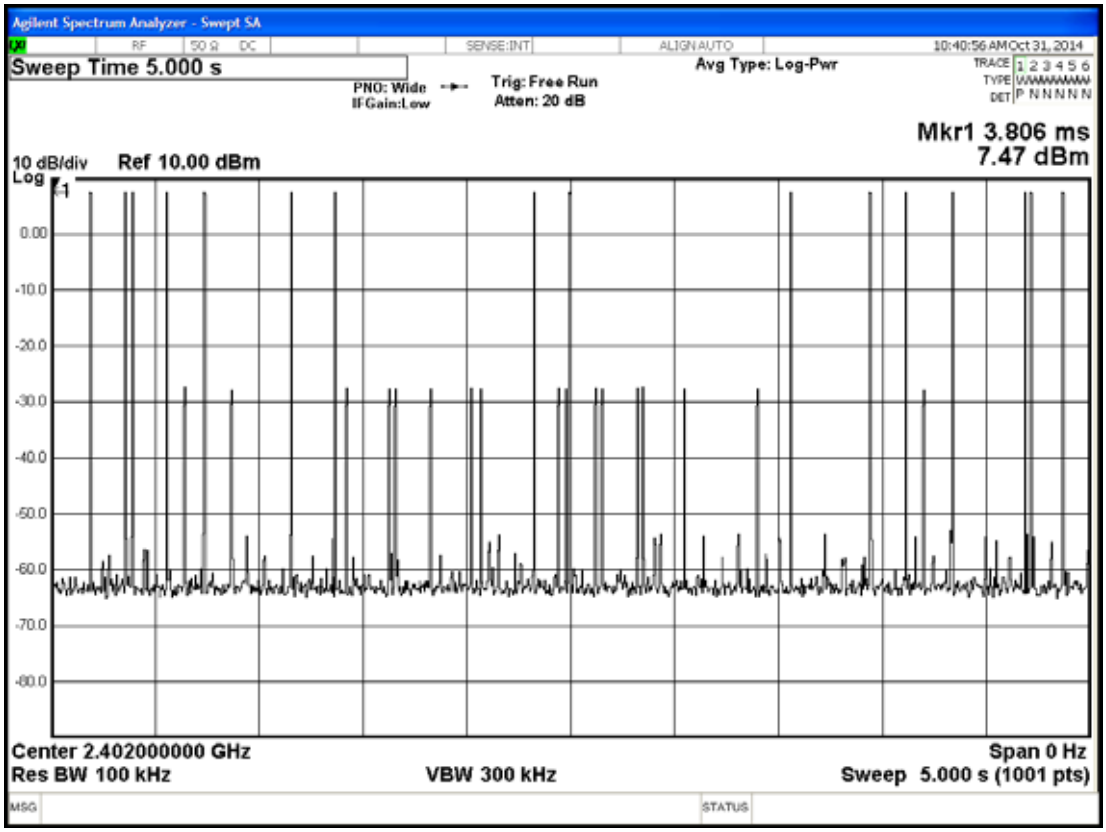
Test Mode: GFSK, 2402MHz, DH3





Test Mode: GFSK, 2402MHz, DH5





7.6.5. Type of Modulation：GFSK, Test Frequency：2441MHz

Observation Period:: 79channels*0.4 seconds = 31.6 seconds

DH1 : For each 5 seconds of 51 channels appearance, the longest time of occupancy for each of 31.6 seconds is:

51 channels*31.6 seconds/5s* 0.385ms = 124.0932ms (<400ms)

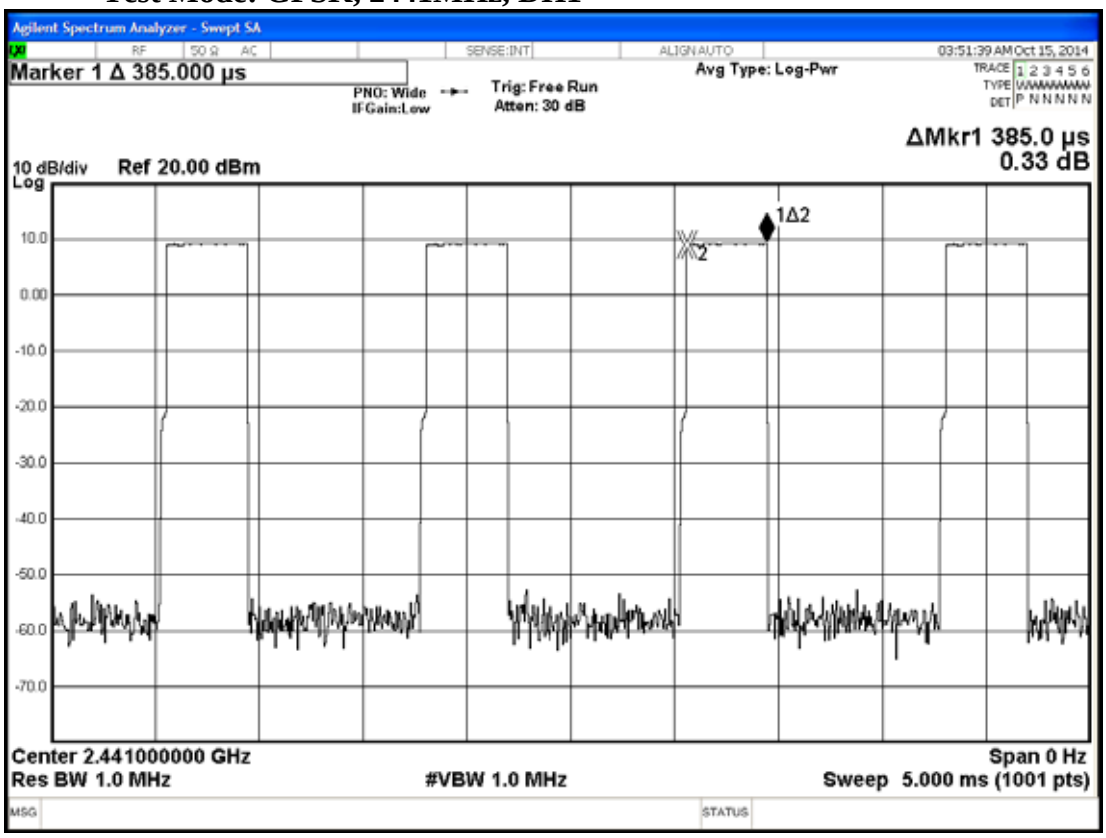
DH3 : For each 5 seconds of 21 channels appearance, the longest time of occupancy for each of 31.6 seconds is:

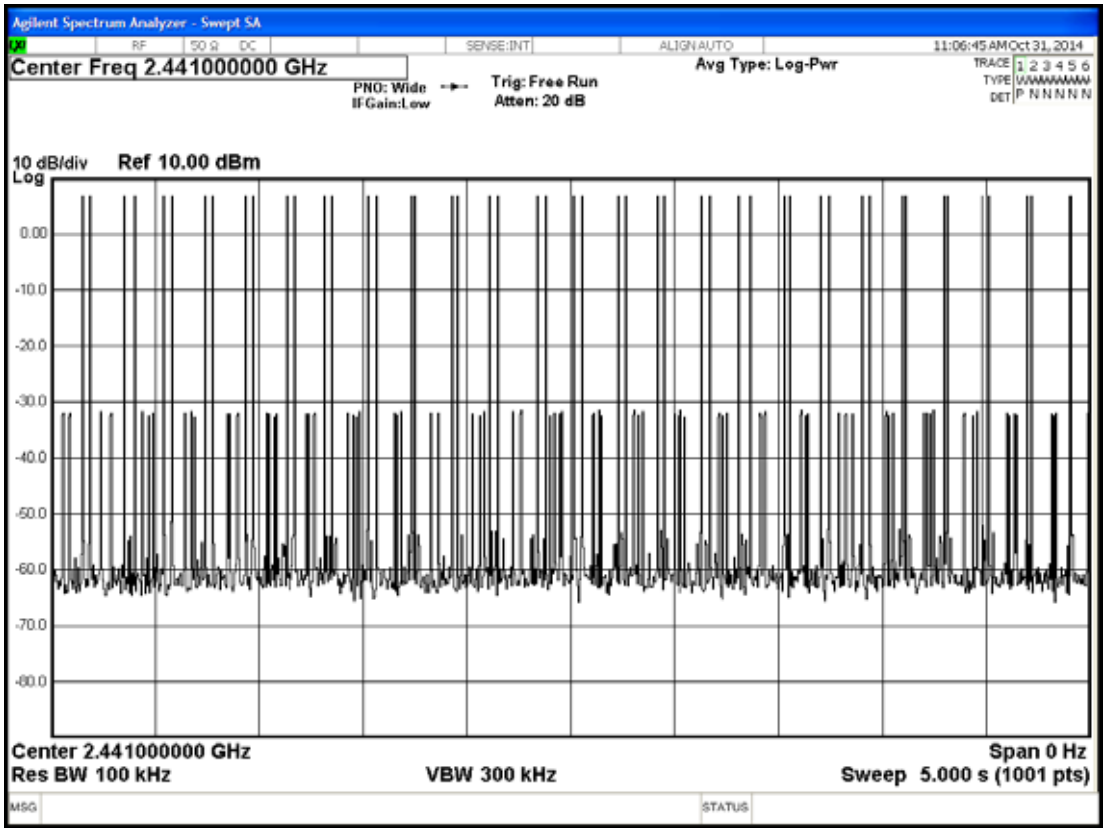
21 channels*31.6 seconds/5s* 1.630ms = 216.3336ms (<400ms)

DH5 : For each 5 seconds of 15 channels appearance, the longest time of occupancy for each of 31.6 seconds is:

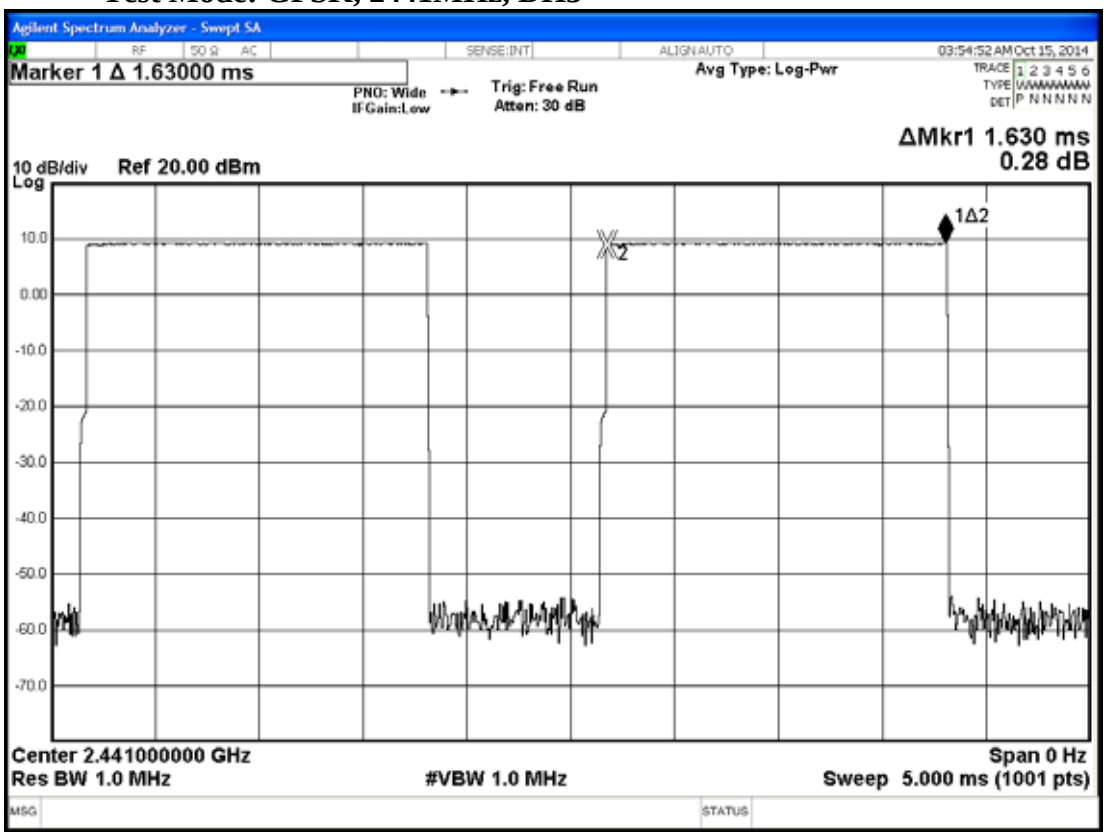
15 channels*31.6 seconds/5s*2.890ms = 273.9720ms (<400ms)

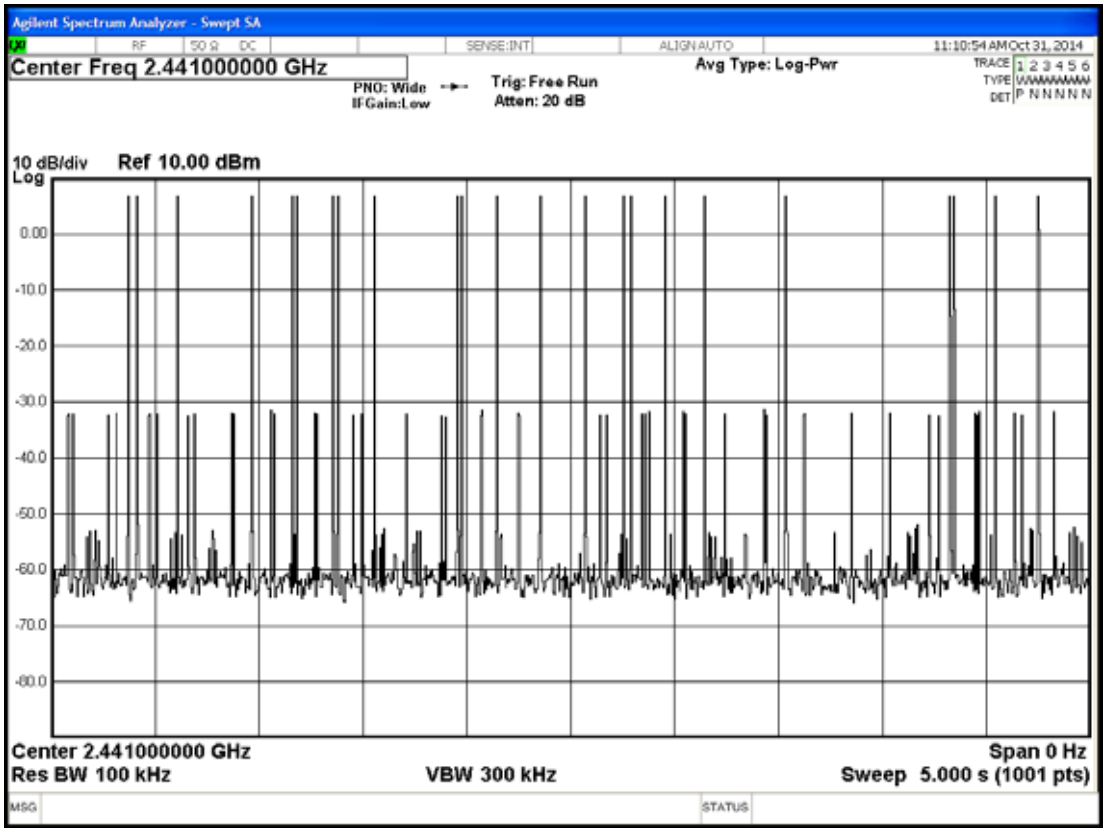
Test Mode: GFSK, 2441MHz, DH1



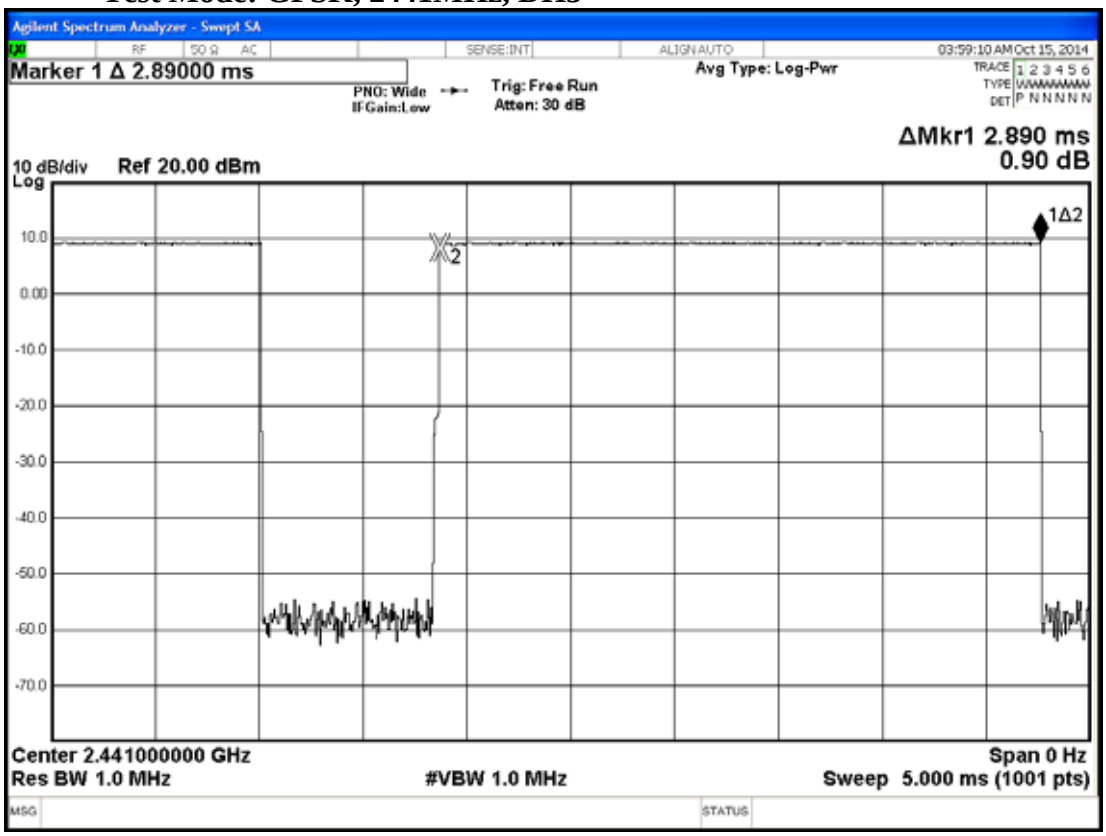


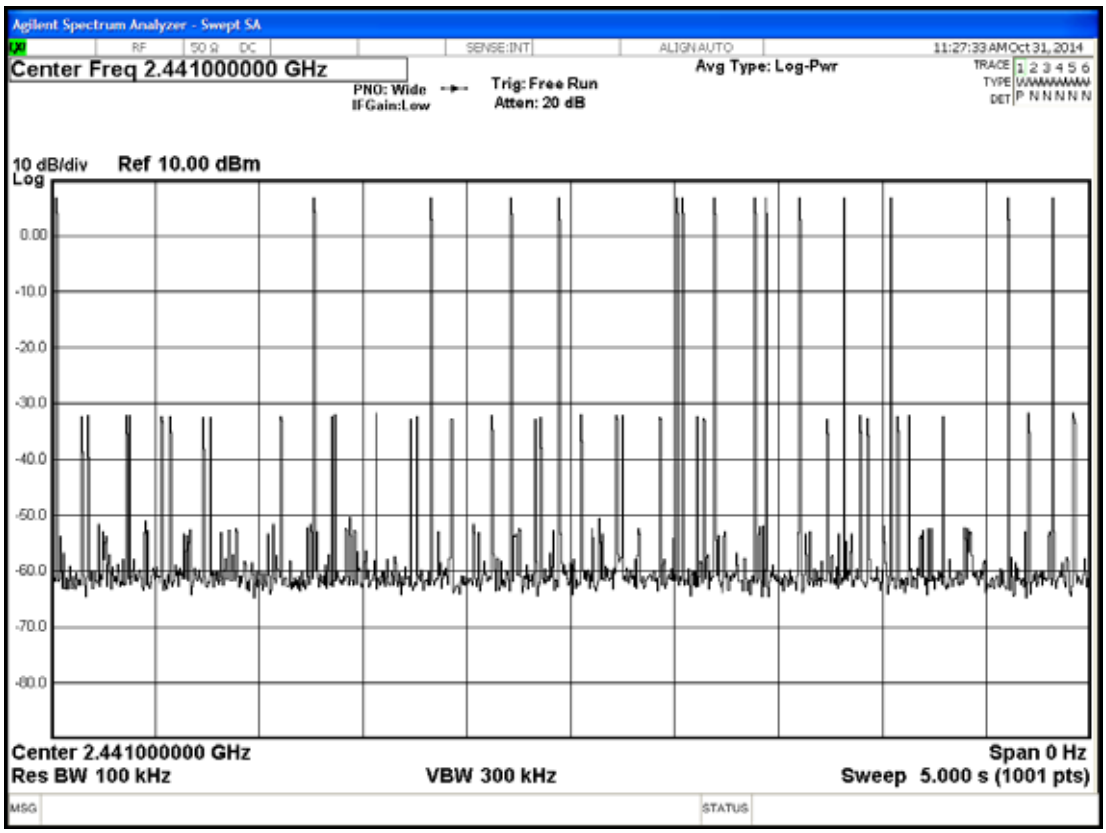
Test Mode: GFSK, 2441MHz, DH3





Test Mode: GFSK, 2441MHz, DH5





7.6.6. Type of Modulation：GFSK, Test Frequency：2480MHz

Observation Period:: 79channels*0.4 seconds = 31.6 seconds

DH1 : For each 5 seconds of 51 channels appearance, the longest time of occupancy for each of 31.6 seconds is:

51 channels*31.6 seconds/5s* 0.380ms = 122.4816ms (<400ms)

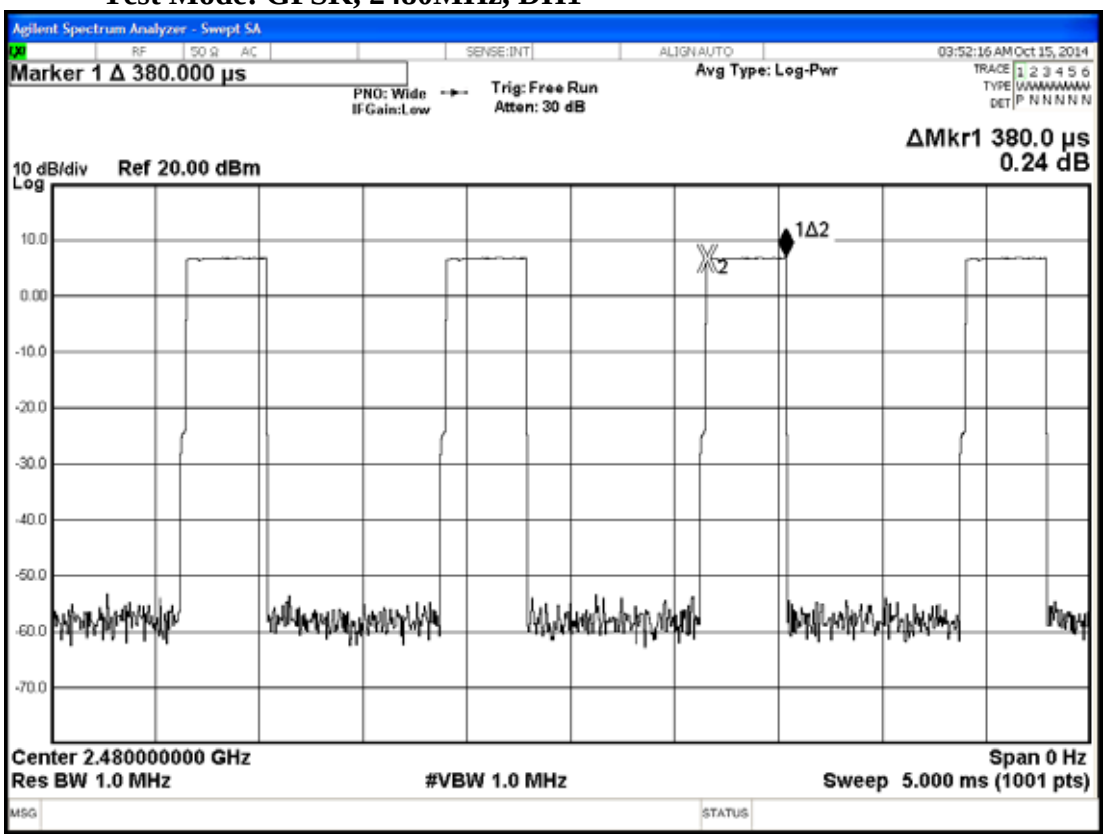
DH3 : For each 5 seconds of 24 channels appearance, the longest time of occupancy for each of 31.6 seconds is:

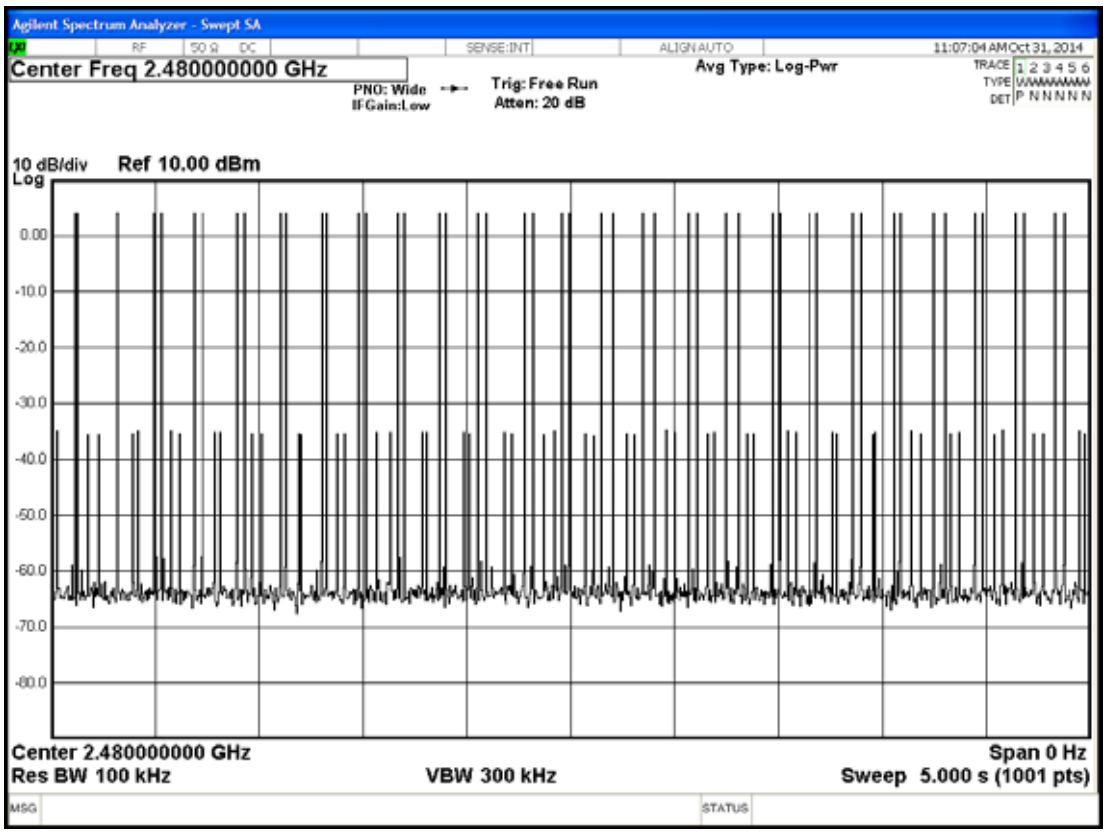
24 channels*31.6 seconds/5s* 1.640ms = 248.7552ms (<400ms)

DH5 : For each 5 seconds of 14 channels appearance, the longest time of occupancy for each of 31.6 seconds is:

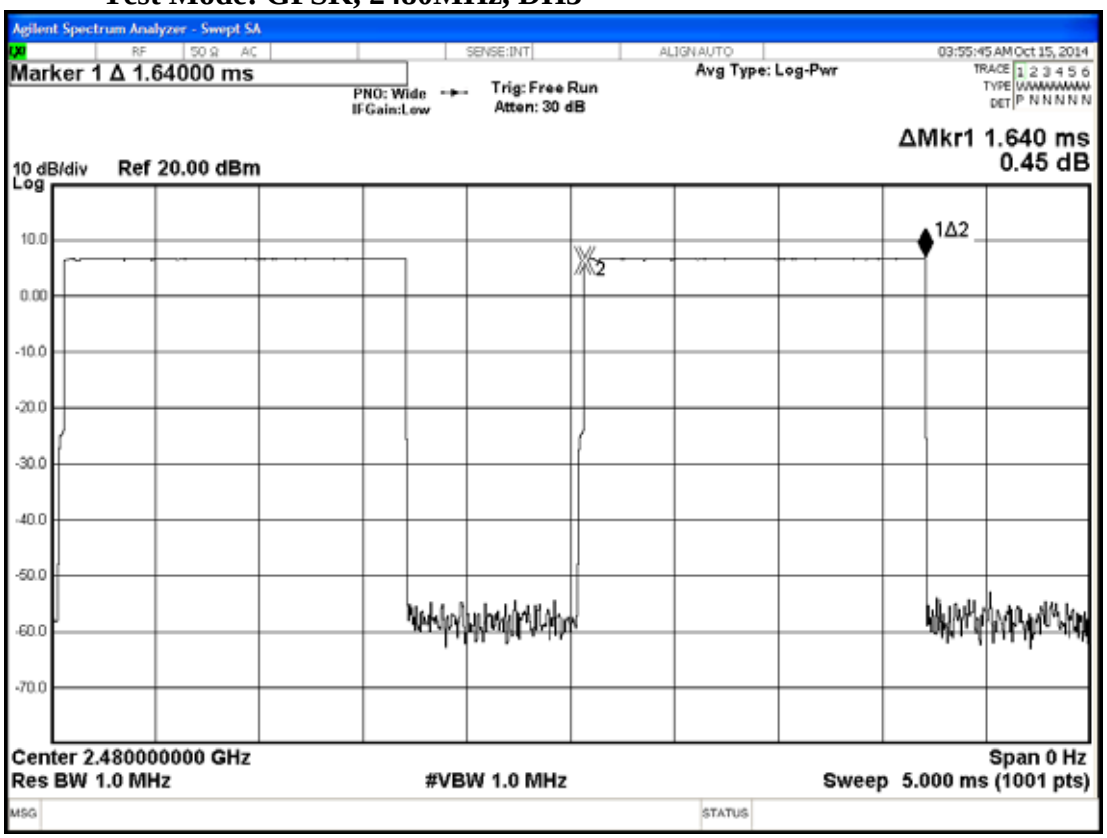
14 channels*31.6 seconds/5s*2.885ms = 255.2648ms (<400ms)

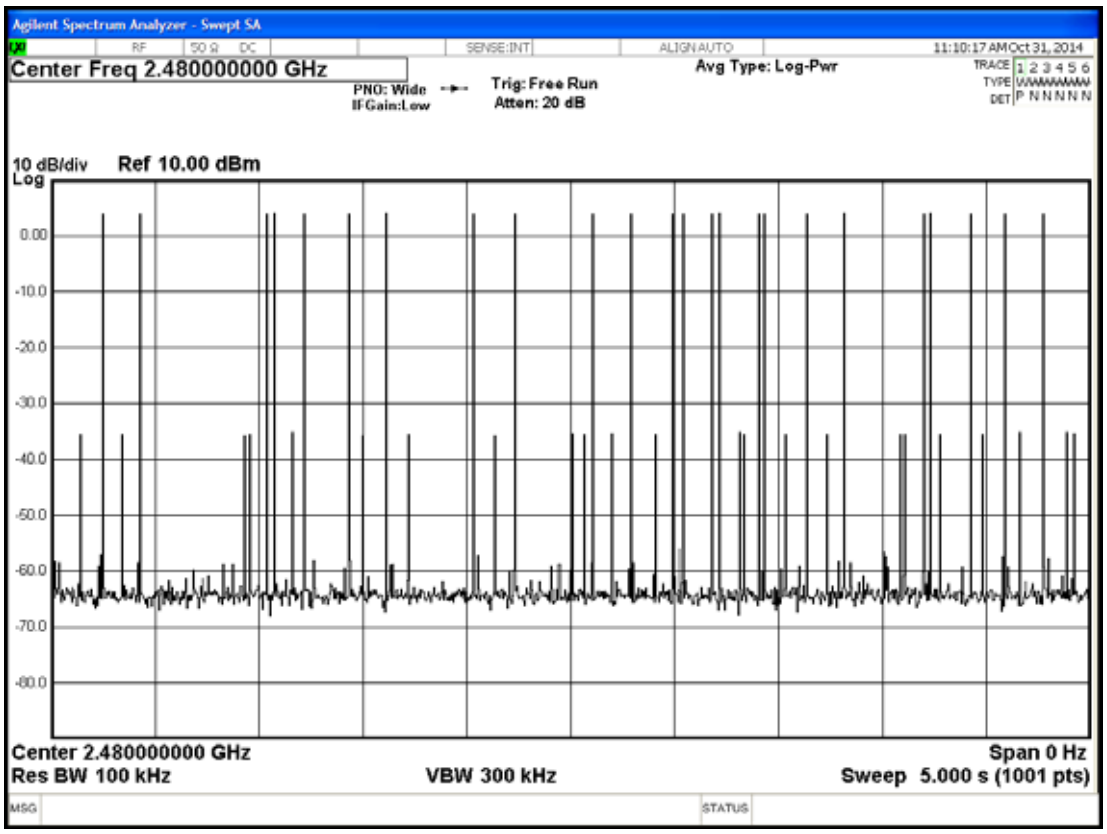
Test Mode: GFSK, 2480MHz, DH1



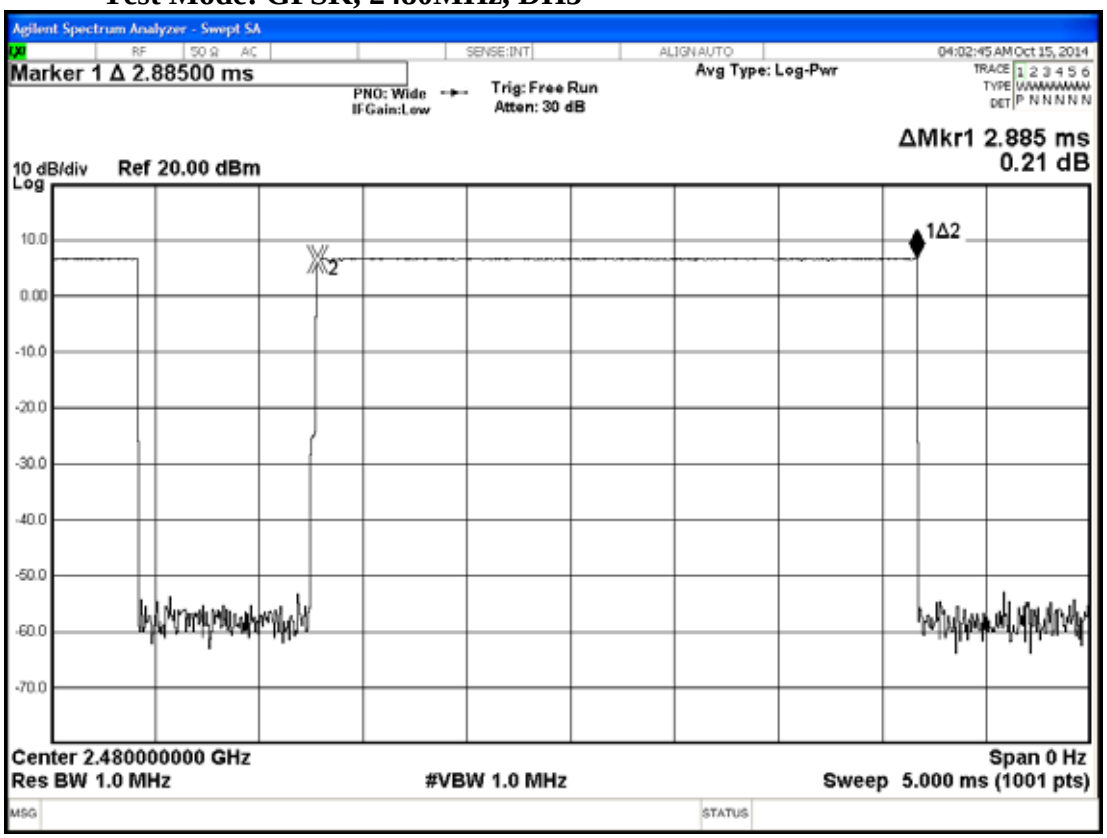


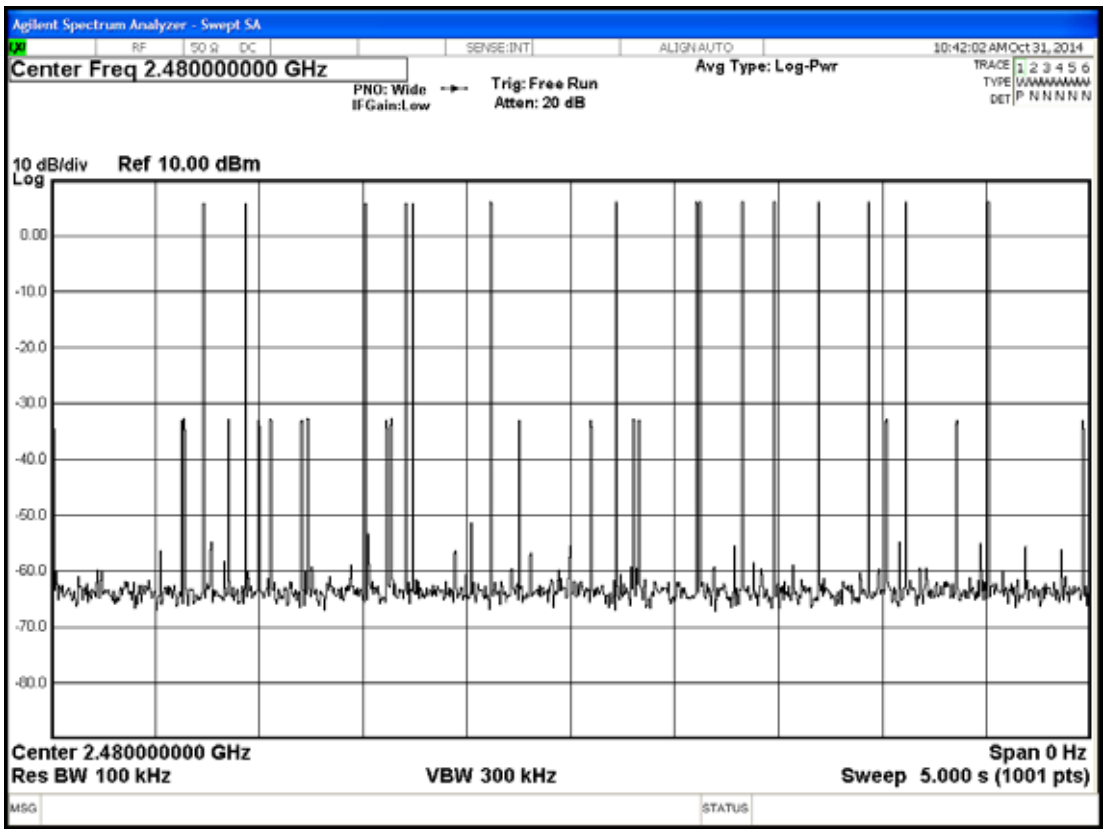
Test Mode: GFSK, 2480MHz, DH3





Test Mode: GFSK, 2480MHz, DH5





8. NUMBER OF HOPPING CHANNELS MEASUREMENT

8.1. Test Equipment

The following test equipment was used during the number of hopping channels measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Spectrum Analyzer	Agilent	N9030A-526	MY53310269	2014. 09. 19	1 Year

8.2. Block Diagram of Test Setup

The same as section 5.2.

8.3. Specification Limits [§15.247(a)(1)(iii), RSS-210 §A8.2 (d)]

Frequency hopping systems which use fewer than 20 hopping frequencies may employ intelligent hopping techniques to avoid interference to other transmissions. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 non-overlapping channels.

8.4. Operating Condition of EUT

Same as carrier frequency separation measurement which was listed in section 5.4.

8.5. Test Procedure

The transmitter output was connected to the spectrum analyzer. The bandwidth of the fundamental frequency was measure by spectrum analyzer with 100kHz RBW and 100kHz VBW. Sweep=Auto ; Detector function=peak ; Trace=Max hold
The measurement guideline was according to FCC Public Notice DA 00-705.

8.6. Test Results

PASSED. All the test results are attached in next page.

[Note: We performed testing of the highest and lowest data rate.]

EUT: Digital Media Player M/N: NW-ZX2

Test Date: 2014. 10. 31 Temperature: 25℃ Humidity: 55%

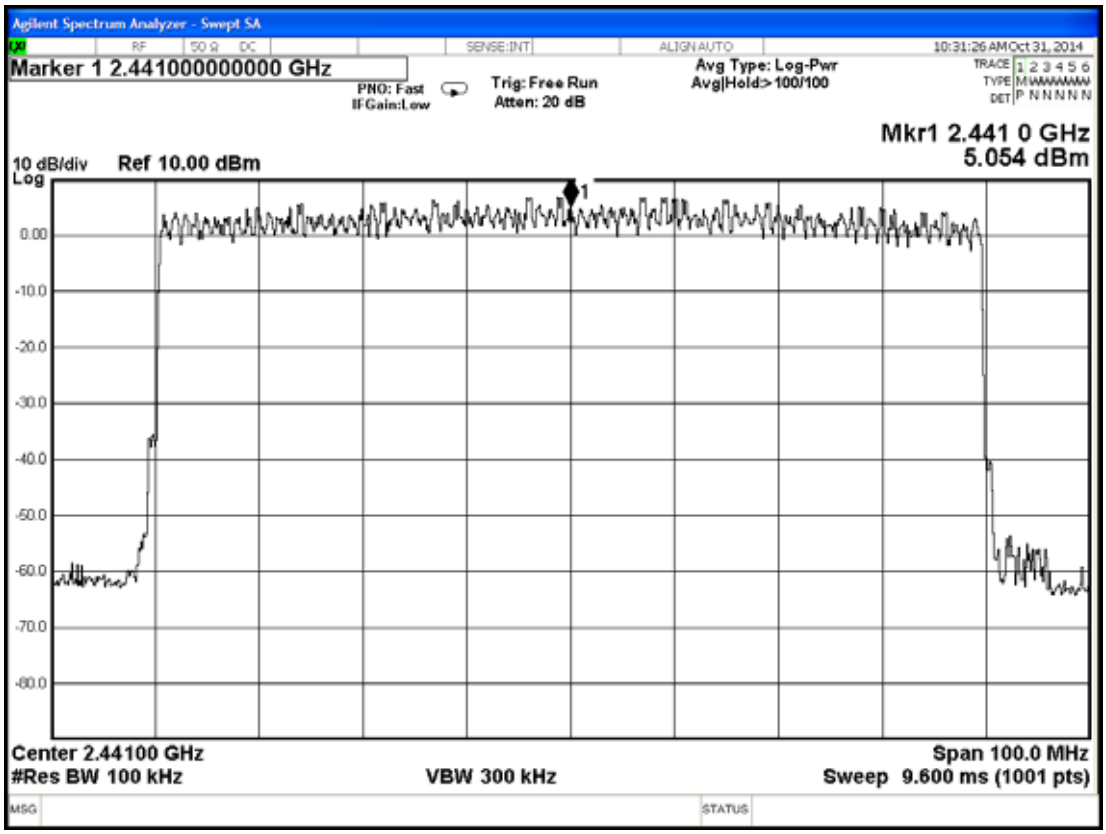
8.6.1. Type of Modulation: 8-DPSK

The number hopping channel is 79.

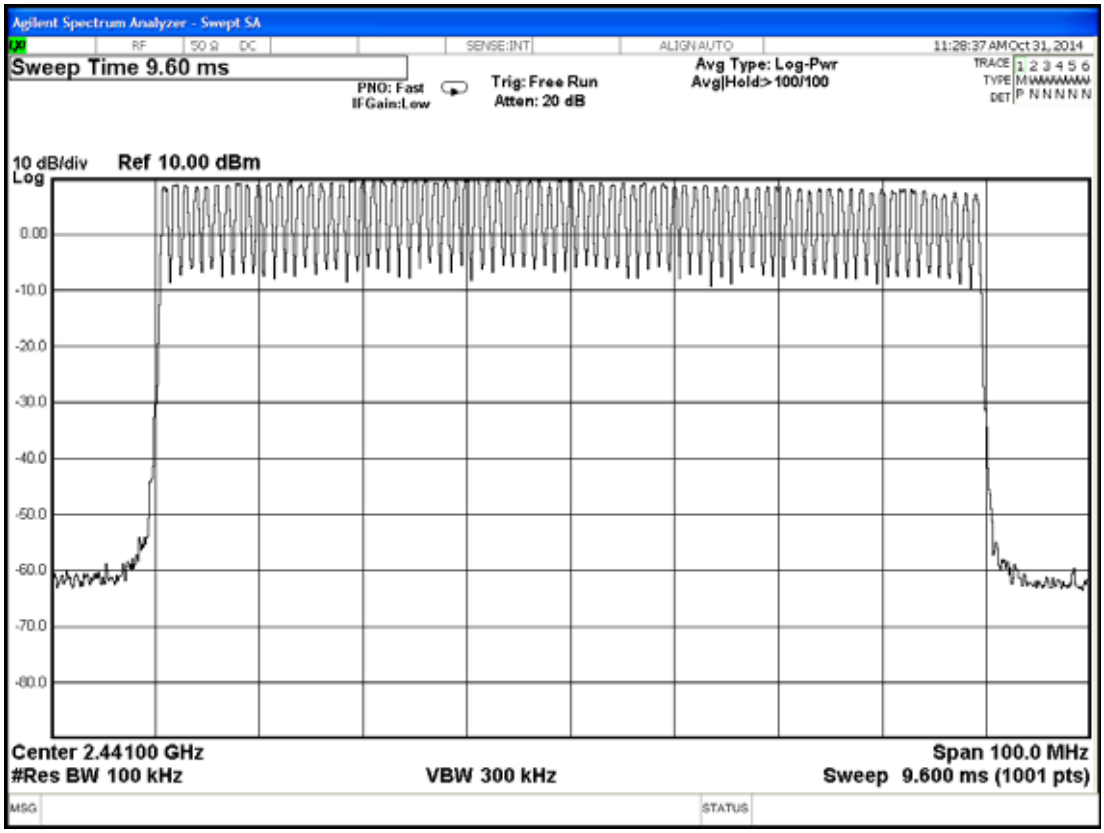
8.6.2. Type of Modulation: GFSK

The number hopping channel is 79.

Test Mode: 8-DPSK



Test Mode: GFSK



9. MAXIMUM PEAK OUTPUT POWER MEASUREMENT

9.1. Test Equipment

The following test equipment was used during the maximum peak output power measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Spectrum Analyzer	Agilent	N9030A-526	MY53310269	2014. 09. 19	1 Year

9.2. Block Diagram of Test Setup

The same as section 5.2.

9.3. Specification Limits [§15.247(b)-(1), RSS-210 §A8.4 (2)]

The Limits of maximum Peak Output Power for frequency hopping systems in 2400-2483.5MHz is: 0.125Watt. (21dBm)

9.4. Operating Condition of EUT

Same as carrier frequency separation measurement which was listed in 5.4.

9.5. Test Procedure

The transmitter output was connected to the spectrum analyzer.
Span can encompass the waveform
RBW>EBW
VBW≧RBW
Sweep=5MHz
The measurement guideline was according to FCC Public Notice DA 00-705.

9.6. Test Results

PASSED. All the test results are listed below

.

[Note: We performed testing of the highest and lowest data rate.]

EUT: Digital Media Player M/N: NW-ZX2

Test Date: 2014. 10. 15 Temperature: 25℃ Humidity: 50%

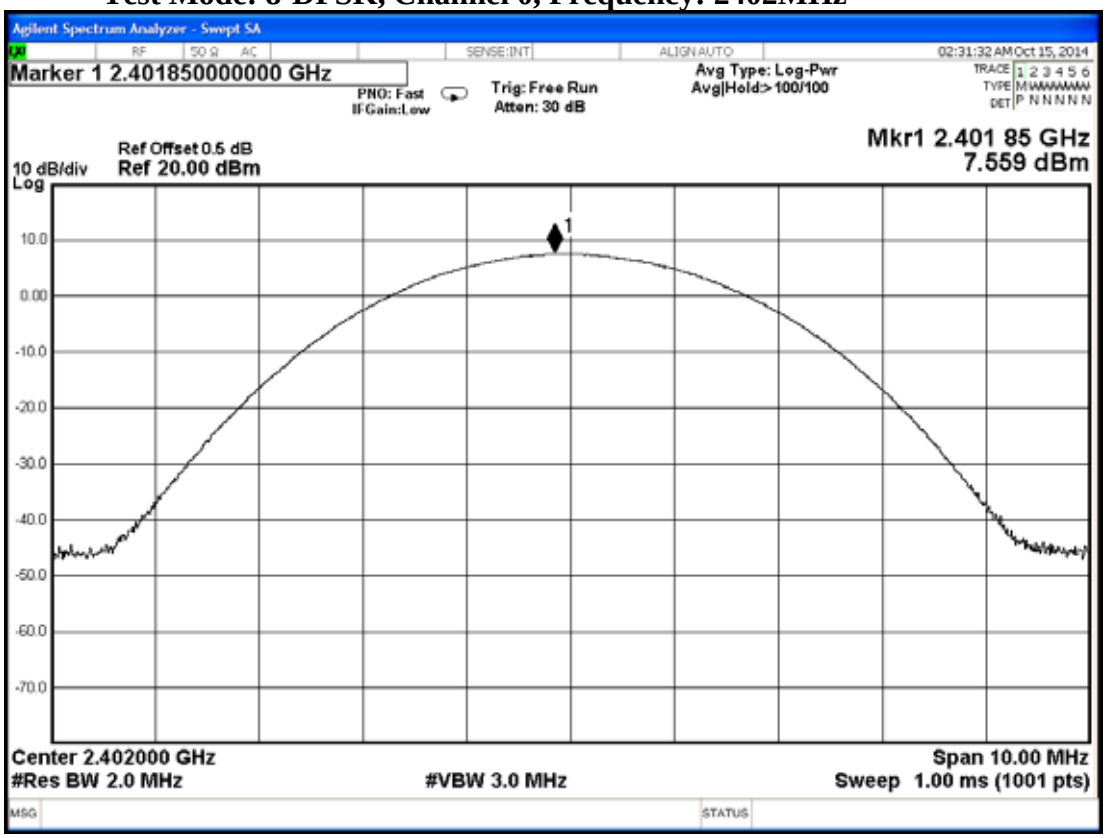
9.6.1.Type of Modulation: 8-DPSK

No.	Channel	Test Frequency	**Peak Output Power**	Limit
1.	0	2402MHz	**7.559dBm**	21dBm
2.	39	2441MHz	**9.507dBm**	21dBm
3.	78	2480MHz	**7.080dBm**	21dBm

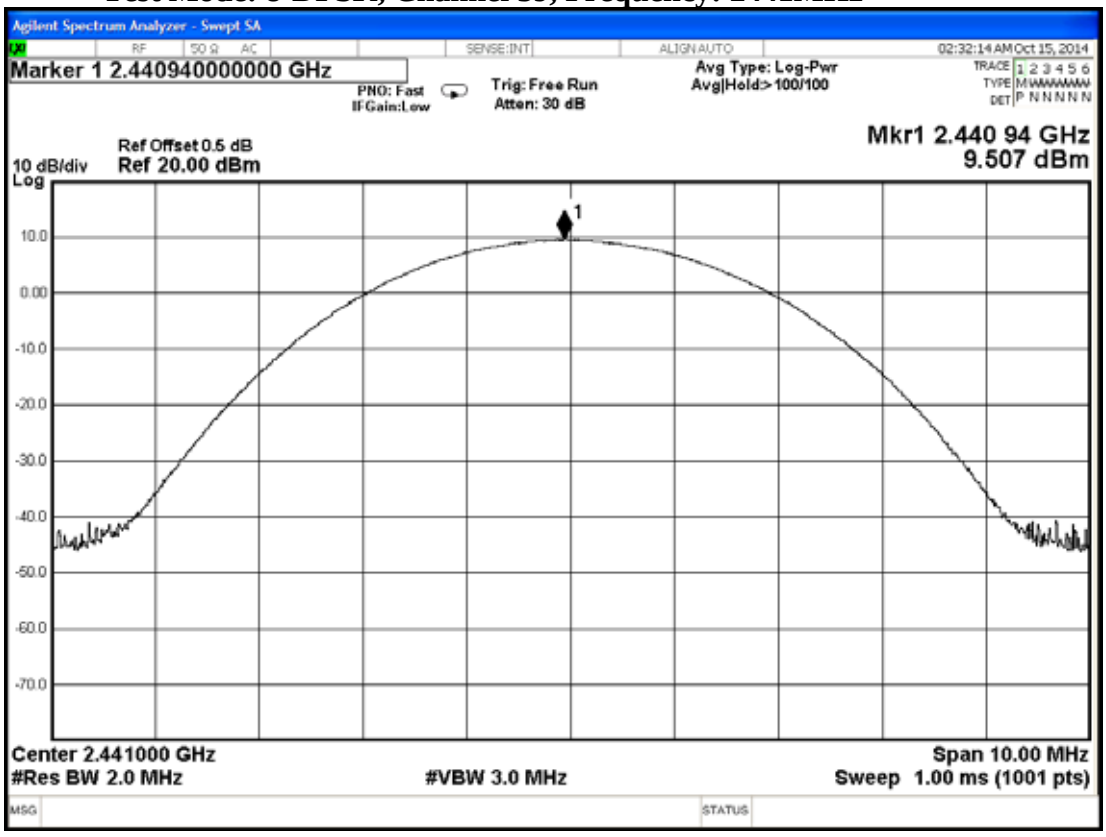
9.6.2.Type of Modulation: GFSK

No.	Channel	Test Frequency	**Peak Output Power**	Limit
1.	0	2402MHz	**8.337dBm**	21dBm
2.	39	2441MHz	**9.812dBm**	21dBm
3.	78	2480MHz	**7.393dBm**	21dBm

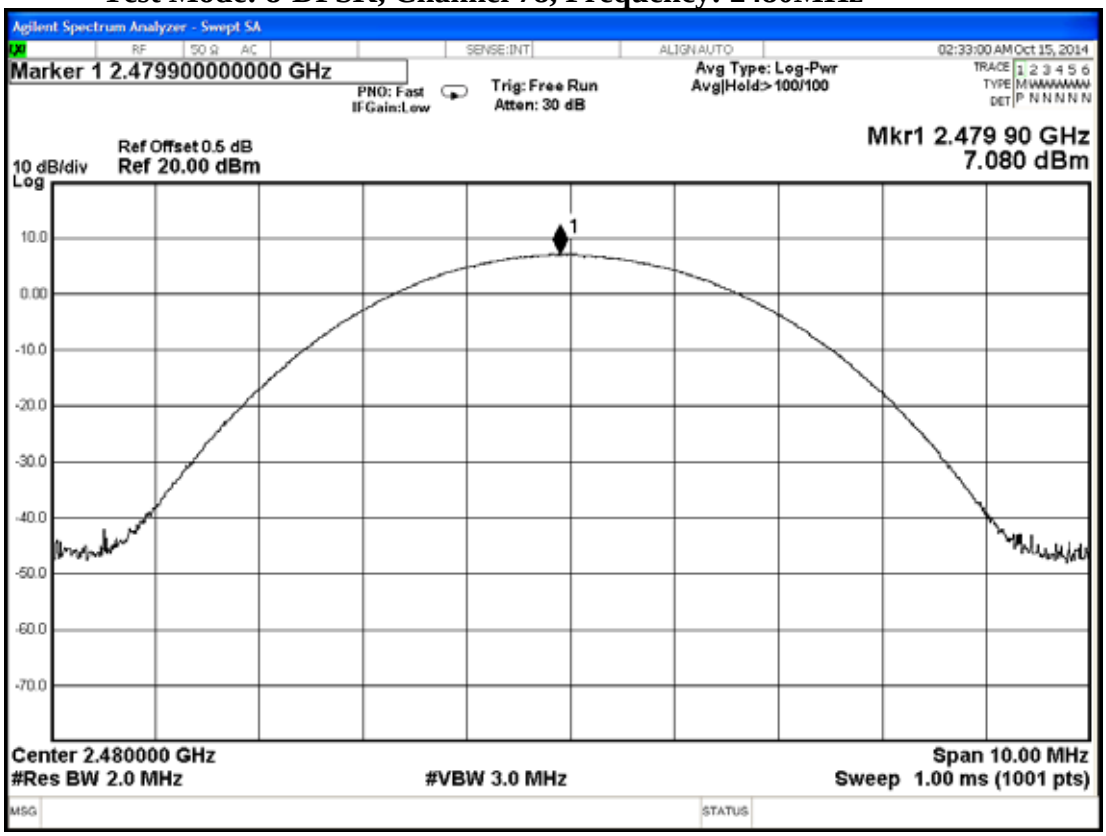
Test Mode: 8-DPSK, Channel 0, Frequency: 2402MHz



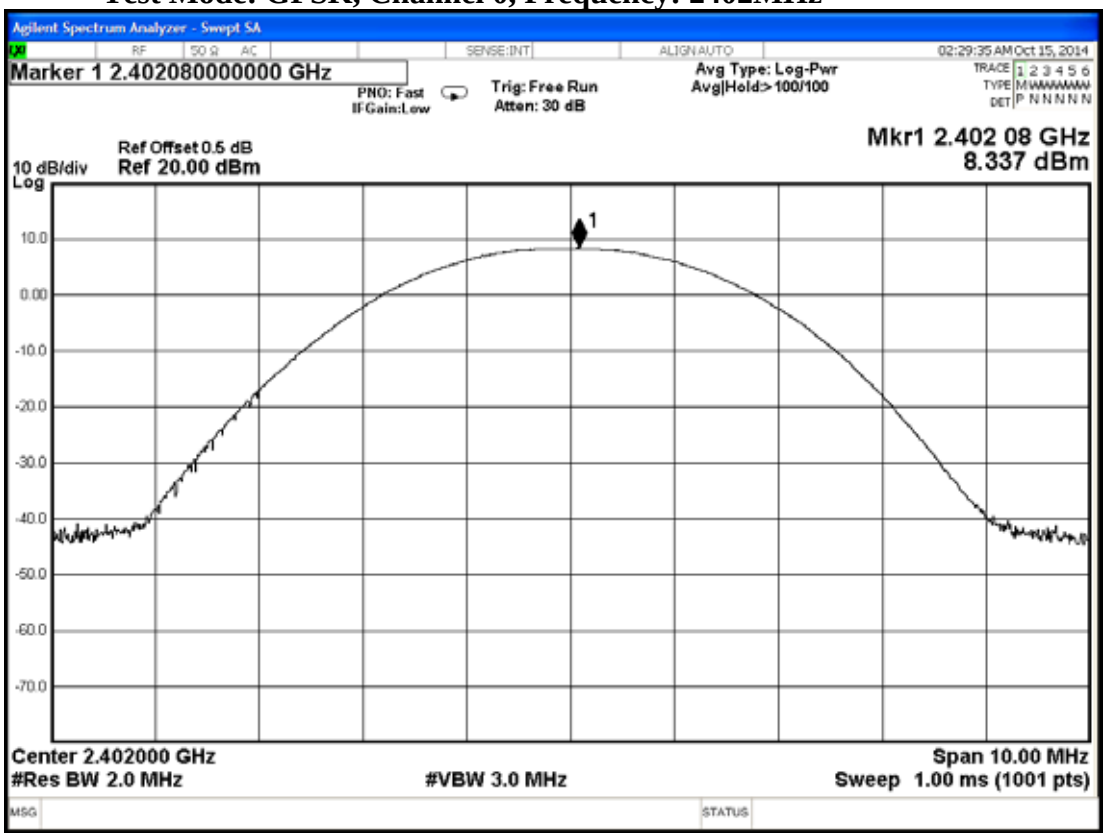
Test Mode: 8-DPSK, Channel 39, Frequency: 2441MHz



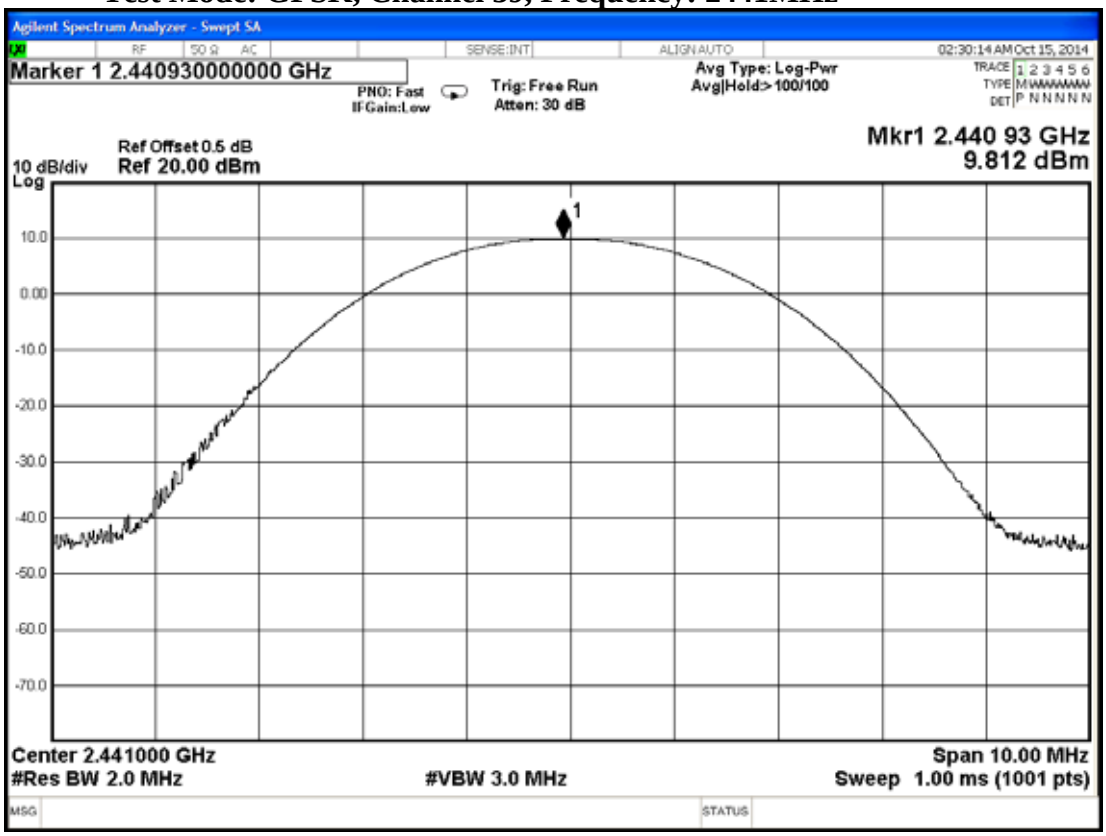
Test Mode: 8-DPSK, Channel 78, Frequency: 2480MHz



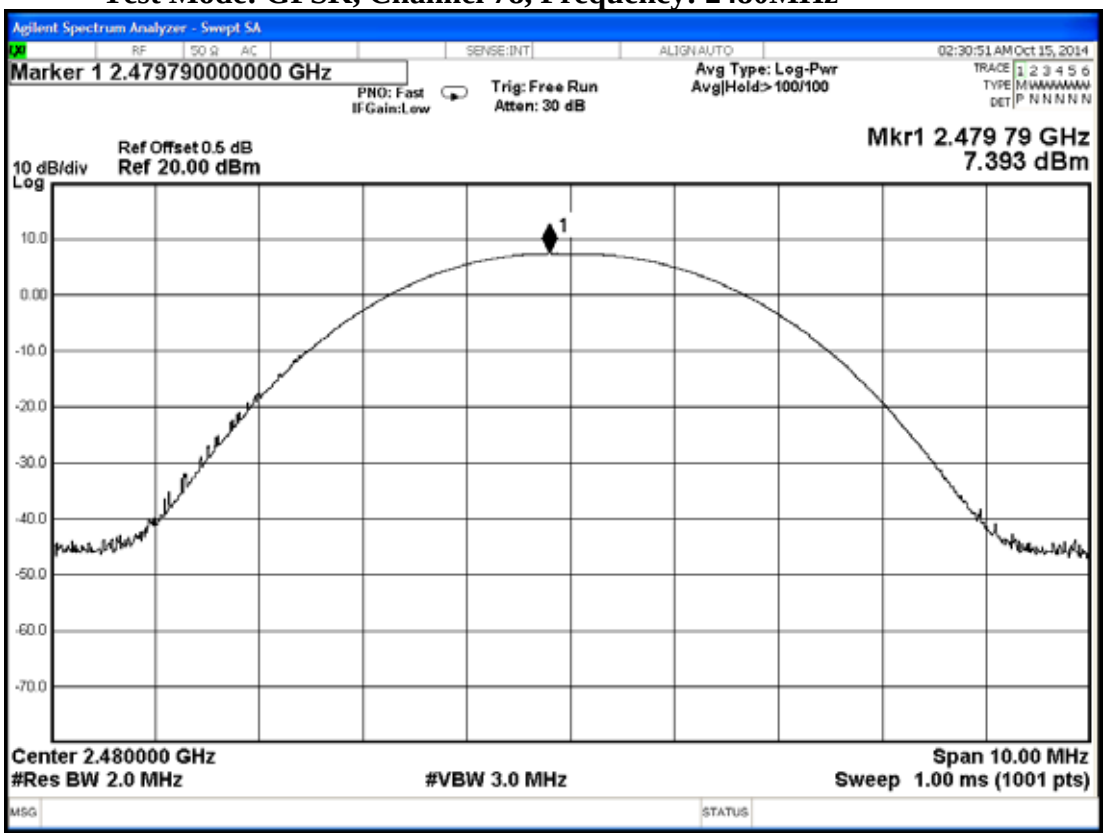
Test Mode: GFSK, Channel 0, Frequency: 2402MHz



Test Mode: GFSK, Channel 39, Frequency: 2441MHz



Test Mode: GFSK, Channel 78, Frequency: 2480MHz



10. EMISSION LIMITATIONS MEASUREMENT

10.1. Test Equipment

The following test equipment was used during the emission limitations test:

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Spectrum Analyzer	Agilent	N9030A-526	MY53310269	2014. 09. 19	1 Year

10.2. Block Diagram of Test Setup

The same as section 5.2.

10.3. Specification Limits [§15.247(c), RSS-210 §A8.5]

10.3.1. In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (See Section 15.205(c)).(※This test result attaching to §3.6.3)

10.3.2. The reference level for determining limit of emission limitations is according to the value measured indicated in plots at section 9.6.

10.4. Operating Condition of EUT

Same as carrier frequency separation measurement which was listed in section 5.4.

10.5. Test Procedure

The transmitter output was connected to the spectrum analyzer. Set both RBW and VBW of spectrum analyzer to 100 KHz with suitable frequency span including 100 KHz bandwidth from band edge.
The measurement guideline was according to FCC Public Notice DA 00-705.

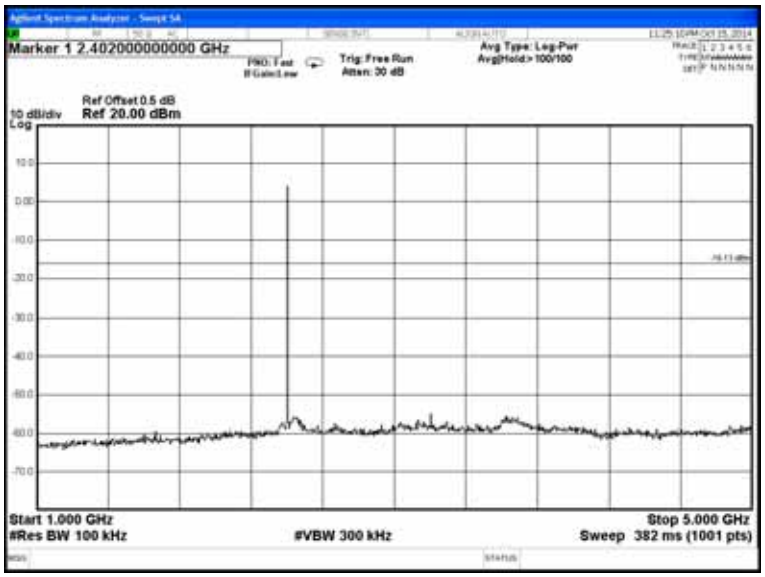
10.6. Test Results

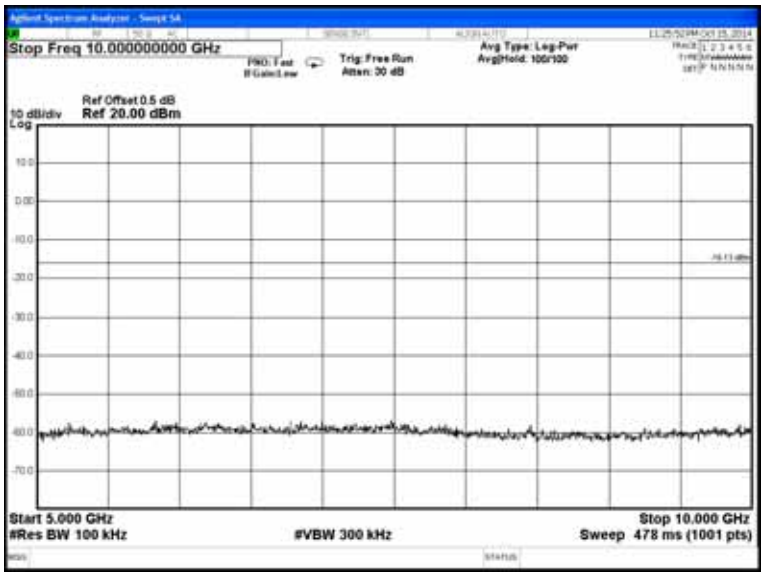
PASSED. The testing data was attached in the next pages.

EUT: Digital Media Player M/N: NW-ZX2

Test Date: 2014. 10. 15 Temperature: 25℃ Humidity: 50%

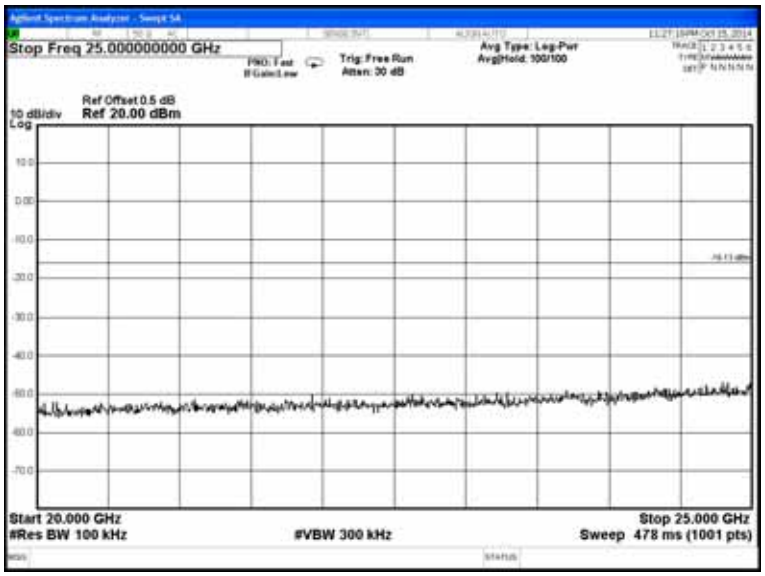
8-DPSK, Channel 0, Frequency: 2402MHz



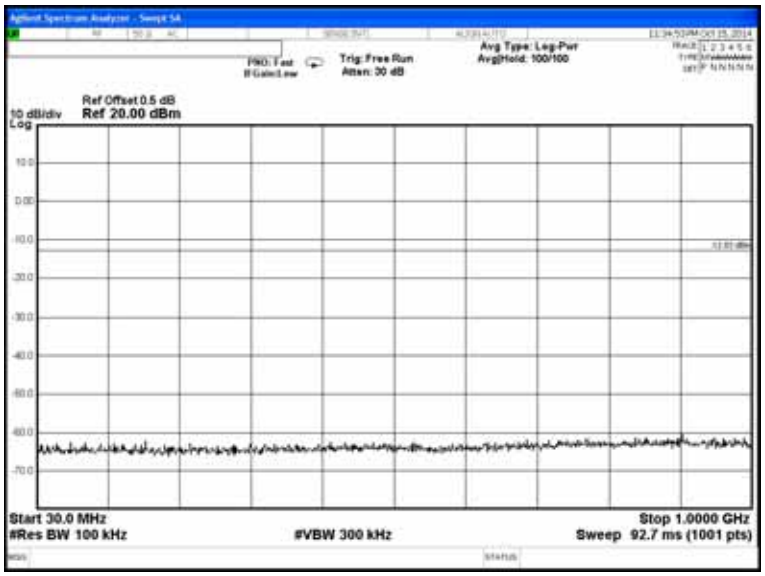


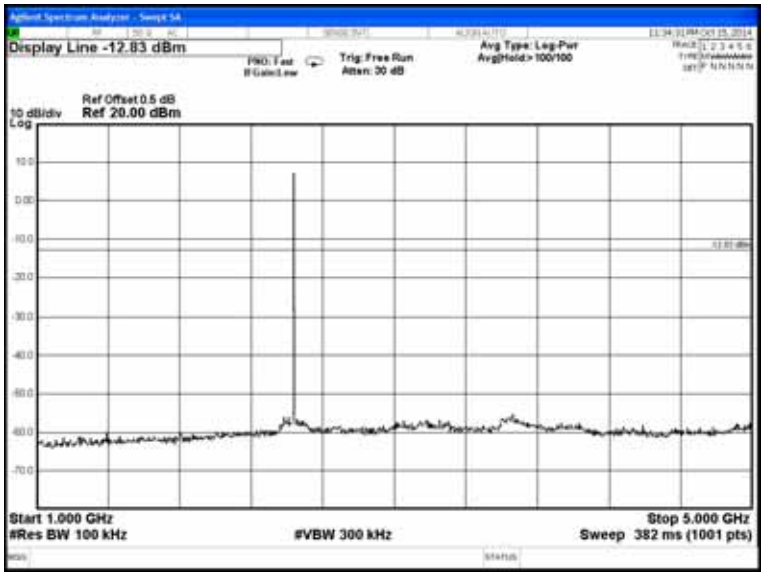
Stop Freq 15.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 0.5 dB
10 dB/div
Log
Ref 20.00 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 15.000 GHz
Sweep 478 ms (1001 pts)

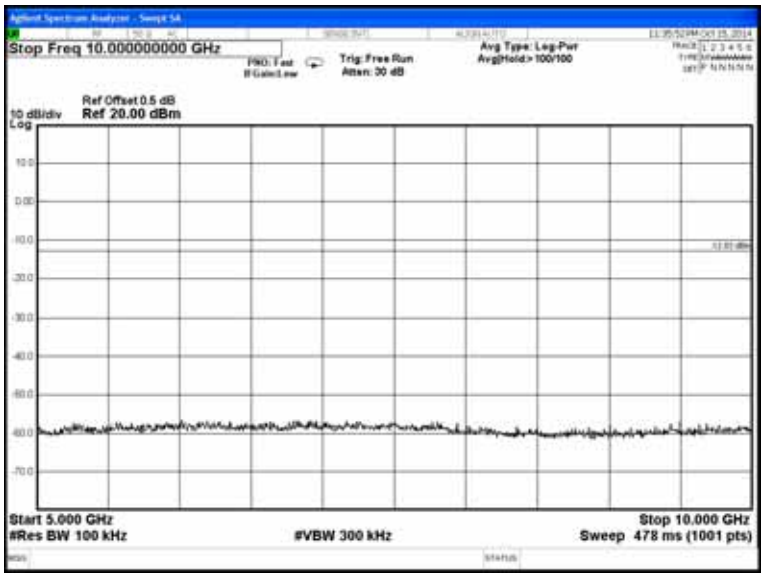
Stop Freq 20.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 0.5 dB
10 dB/div
Log
Ref 20.00 dBm
Start 15.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 20.000 GHz
Sweep 478 ms (1001 pts)

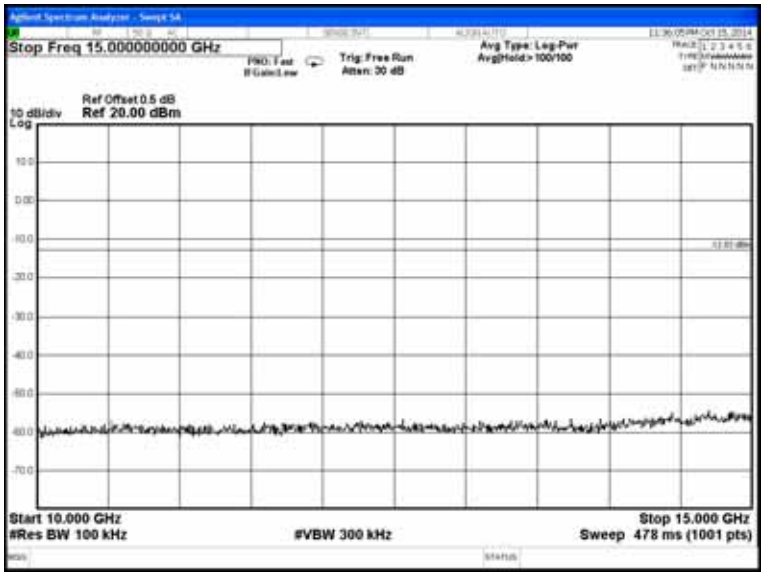

Stop Freq 25.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 100/100
Ref Offset 0.5 dB
10 dB/div
Log
Ref 20.00 dBm
Start 20.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 478 ms (1001 pts)

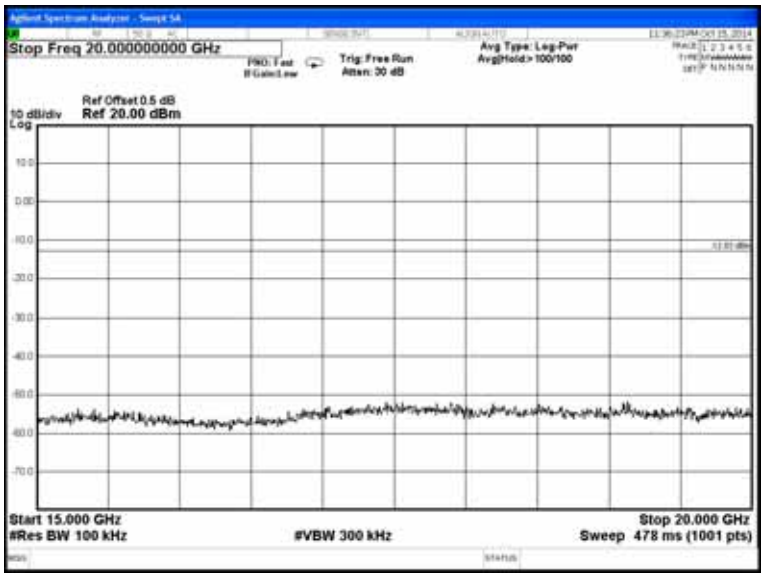
8-DPSK, Channel 39, Frequency: 2441MHz

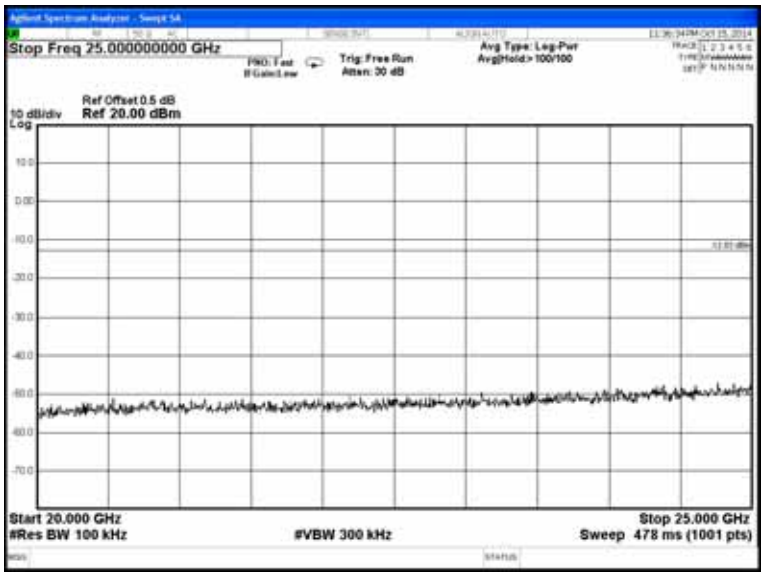




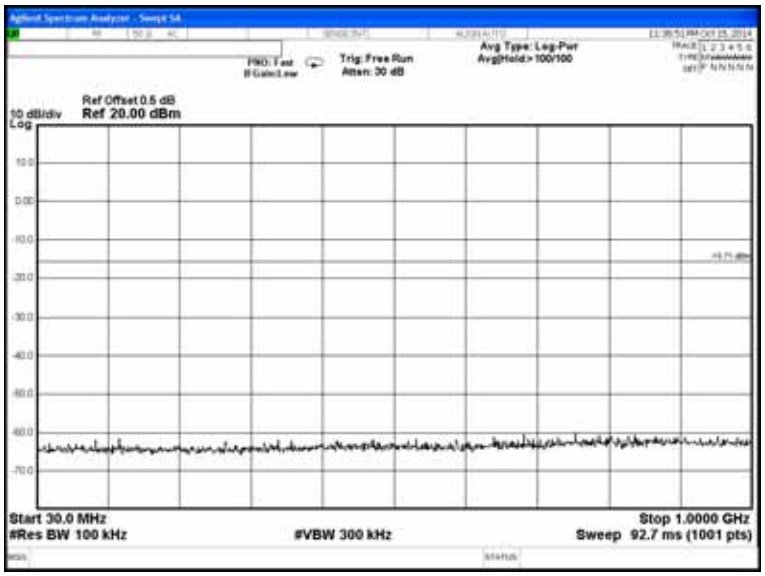


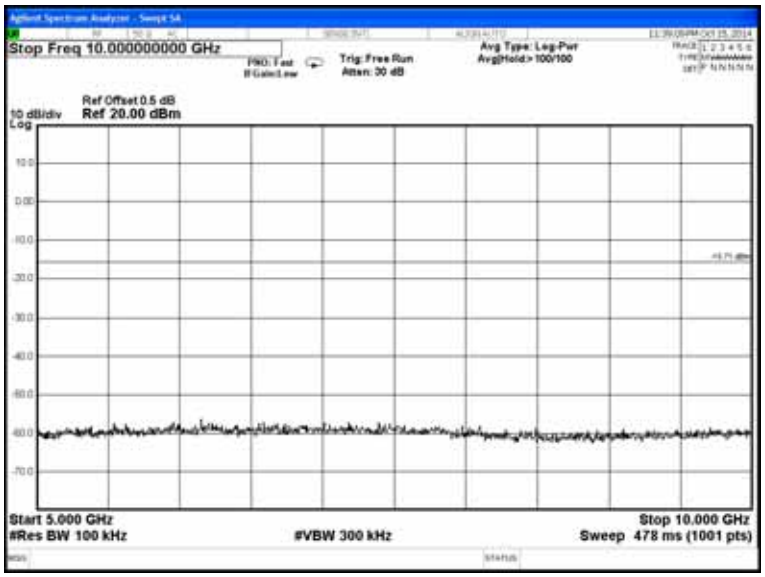

Stop Freq 15.000000000 GHz
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Log
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 15.000 GHz
Sweep 478 ms (1001 pts)


Stop Freq 20.000000000 GHz
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Log
Start 15.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 20.000 GHz
Sweep 478 ms (1001 pts)

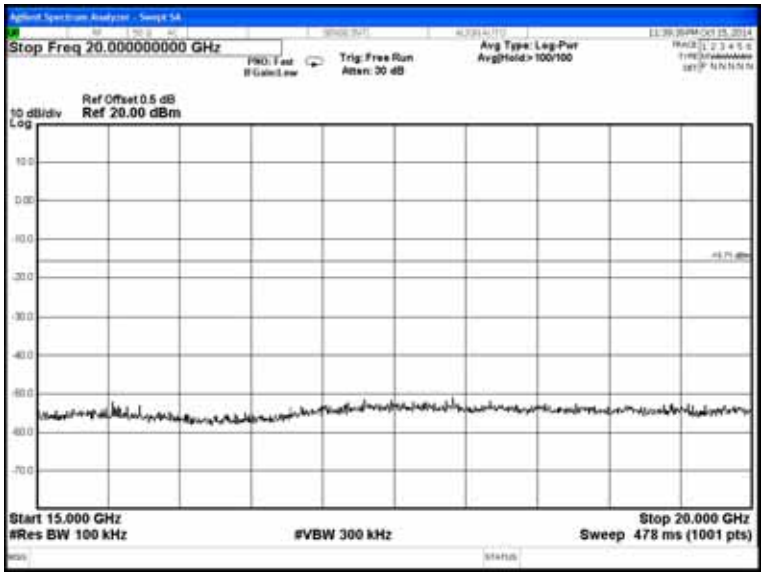

Stop Freq 25.000000000 GHz
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Log
Start 20.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 478 ms (1001 pts)

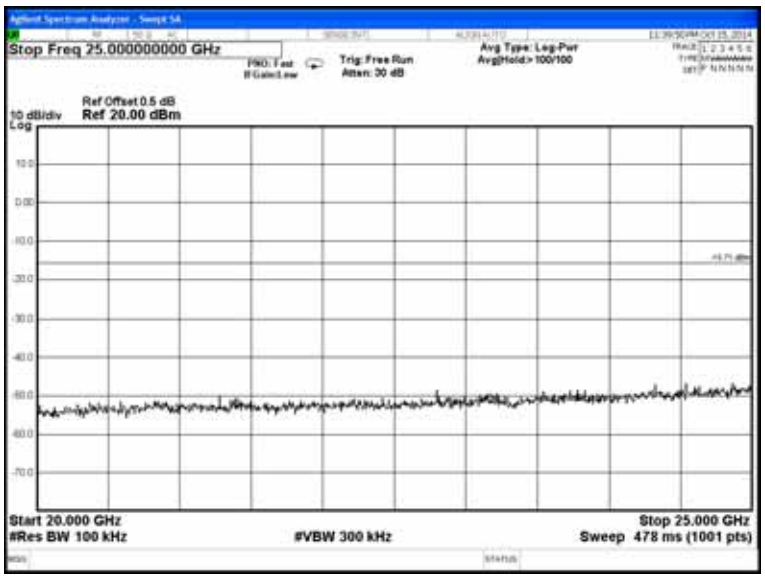
8-DPSK, Channel 78, Frequency: 2480MHz



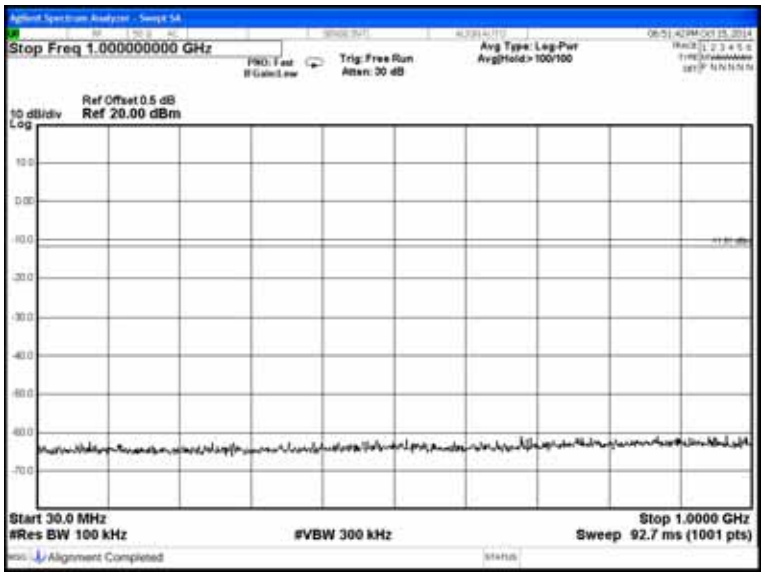


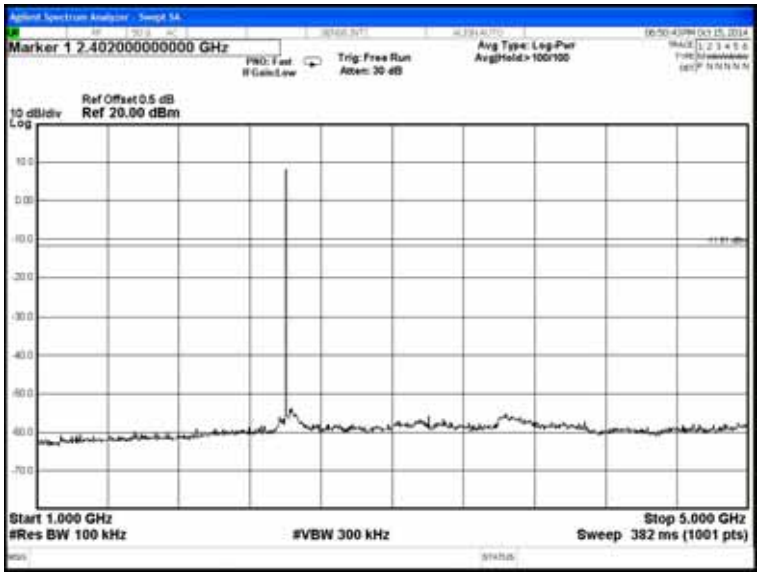
Stop Freq 15.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 0.5 dB
10 dB/div
Log
Ref 20.00 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 15.000 GHz
Sweep 478 ms (1001 pts)

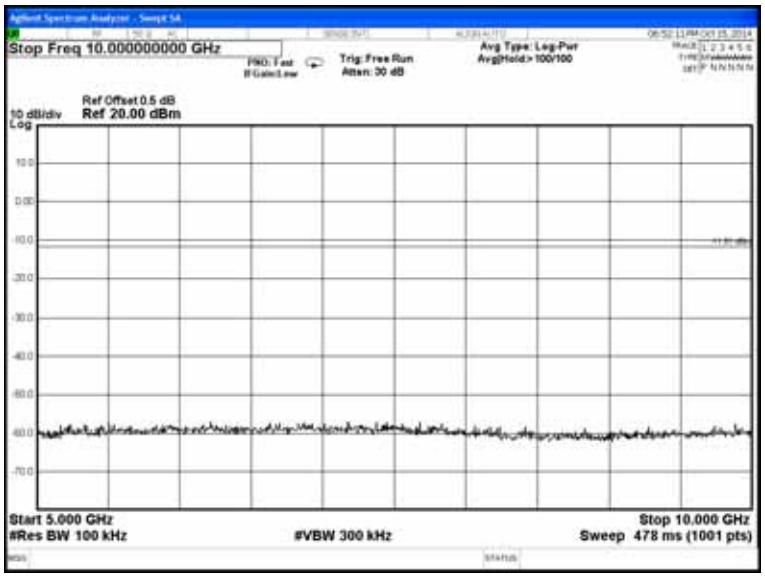

Stop Freq 20.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 0.5 dB
10 dB/div
Log
Ref 20.00 dBm
Start 15.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 20.000 GHz
Sweep 478 ms (1001 pts)


Stop Freq 25.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 0.5 dB
10 dB/div
Log
Ref 20.00 dBm
Start 20.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 478 ms (1001 pts)

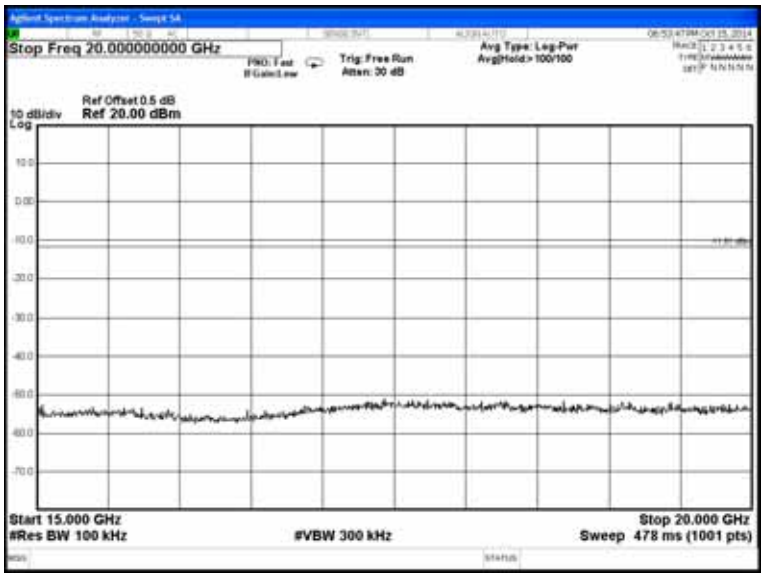
GFSK, Channel 0, Frequency: 2402MHz

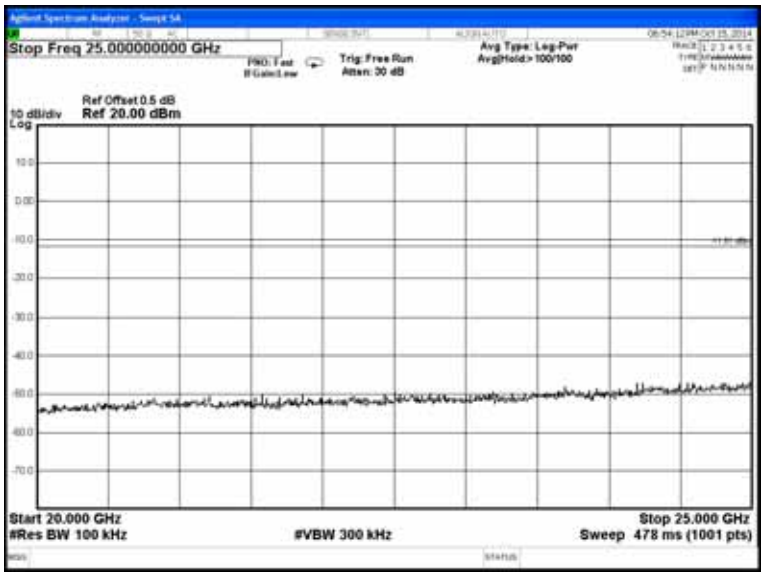




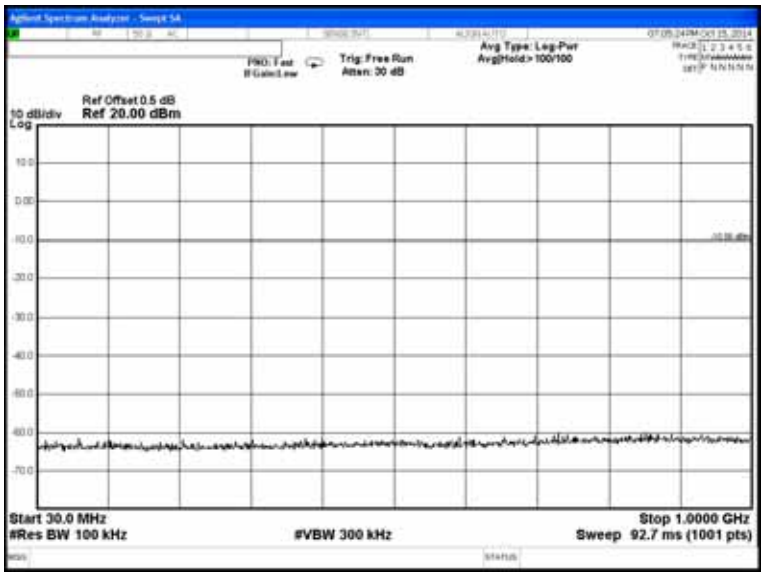


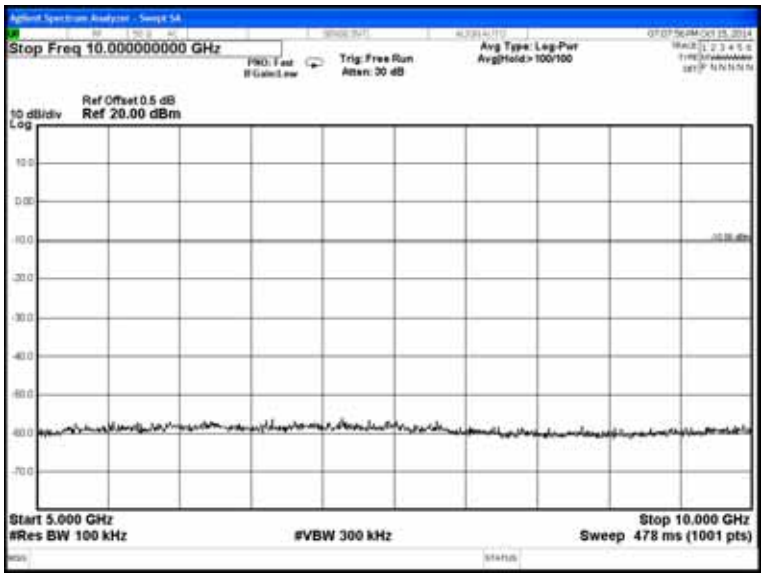
Stop Freq 15.000000000 GHz
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Log
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 15.000 GHz
Sweep 478 ms (1001 pts)
Alignment Completed

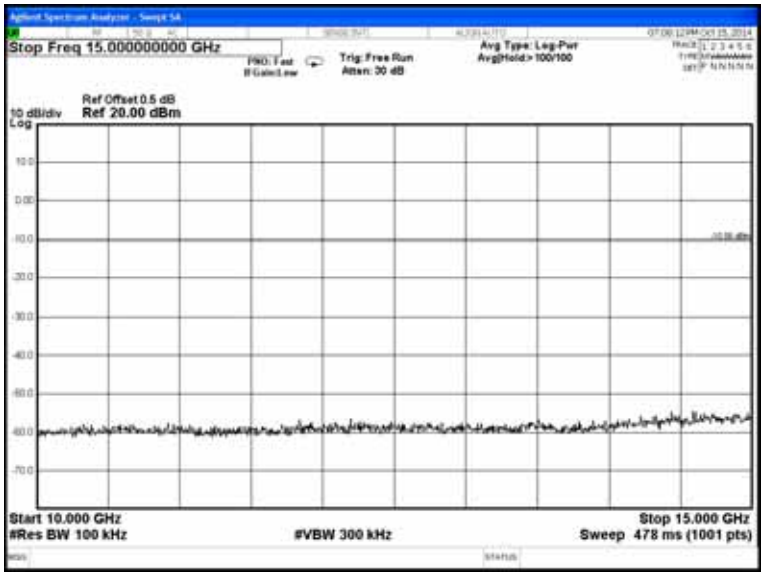

Stop Freq 20.000000000 GHz
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Log
Start 15.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 20.000 GHz
Sweep 478 ms (1001 pts)

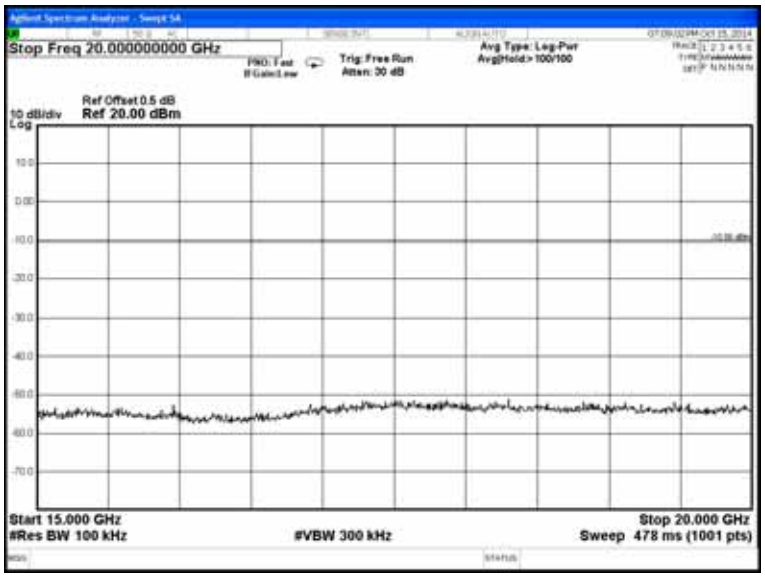

Stop Freq 25.000000000 GHz
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Log
Start 20.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 478 ms (1001 pts)

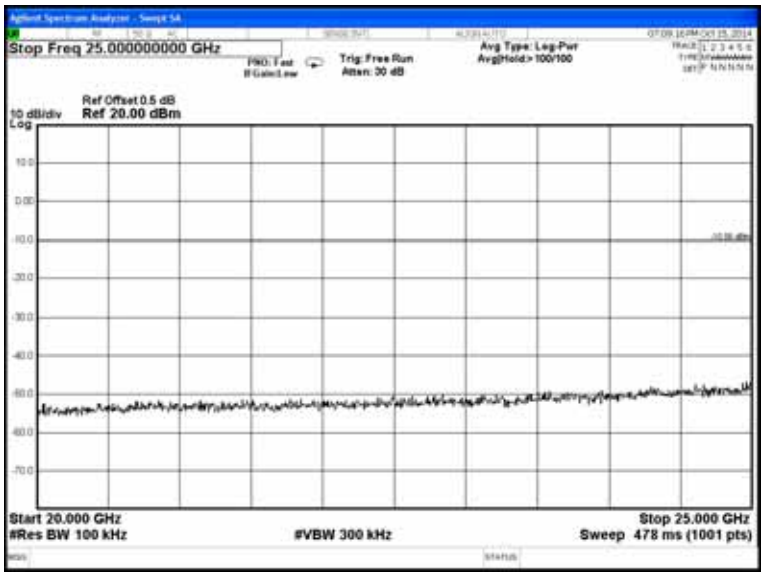
GFSK, Channel 39, Frequency: 2441MHz



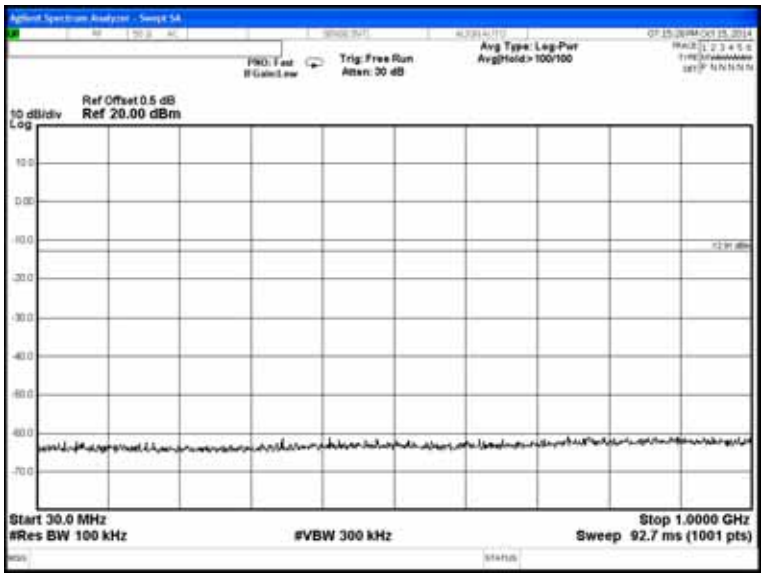


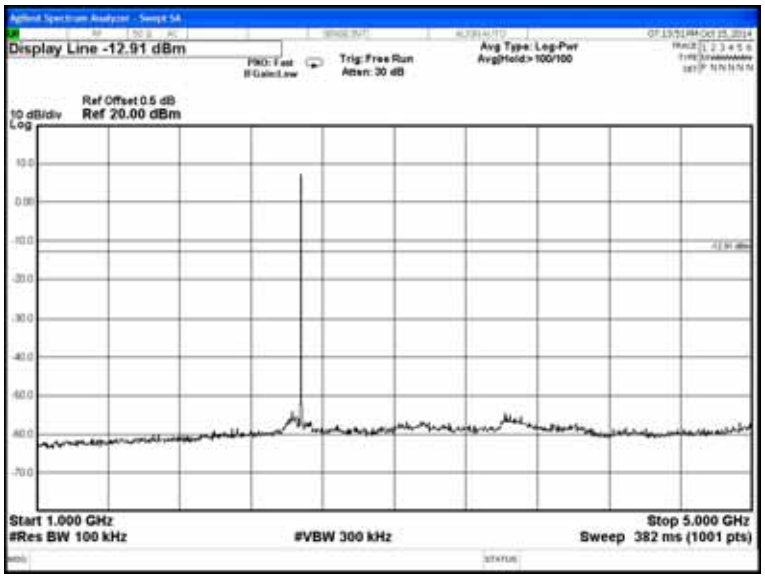

Stop Freq 15.000000000 GHz
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Log
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 15.000 GHz
Sweep 478 ms (1001 pts)

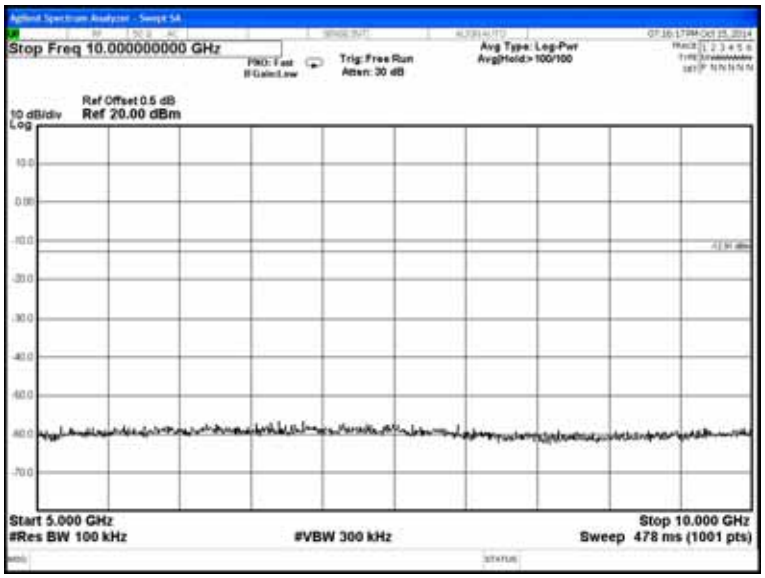

Stop Freq 20.000000000 GHz
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Log
Start 15.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 20.000 GHz
Sweep 478 ms (1001 pts)

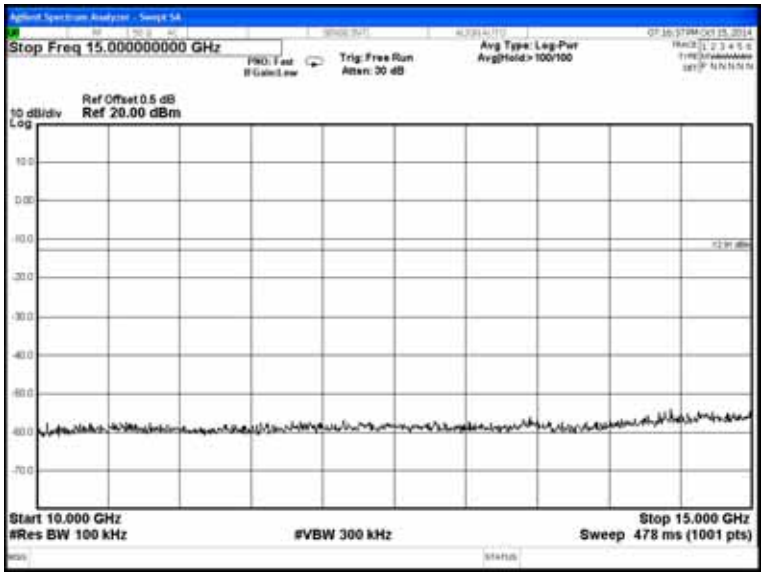

Stop Freq 25.000000000 GHz
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Log
Start 20.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 478 ms (1001 pts)

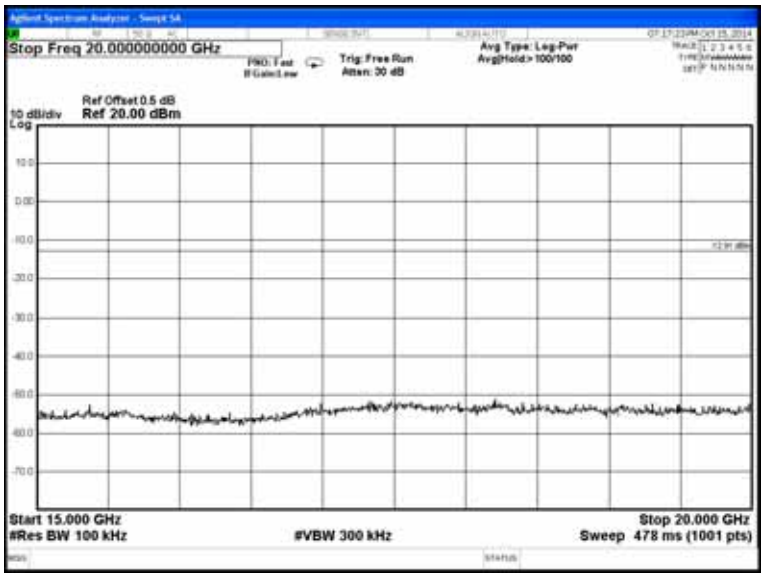
GFSK, Channel 78, Frequency: 2480MHz








Stop Freq 15.000000000 GHz
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Log
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 15.000 GHz
Sweep 478 ms (1001 pts)


Stop Freq 20.000000000 GHz
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Log
Start 15.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 20.000 GHz
Sweep 478 ms (1001 pts)

Stop Freq 25.000000000 GHz
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 0.5 dB
10 dB/div
Ref 20.00 dBm
Log
Start 20.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 478 ms (1001 pts)

11. BAND EDGES MEASUREMENT

11.1. Test Equipment

The following test equipment was used during the band edges measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Spectrum Analyzer	Agilent	N9030A-526	MY53310269	2014. 09. 19	1 Year

11.2. Block Diagram of Test Setup

The same as section 5.2.

11.3. Specification Limits [§15.247(c), RSS-210 §A8.5]

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (See Section 15.205(c)). (※This test result attaching to §3.6.3)

11.4. Operating Condition of EUT

Same as carrier frequency separation measurement which was listed in section 4.4.

11.5. Test Procedure

The transmitter output was connected to the spectrum analyzer. Set both RBW and VBW of spectrum analyzer to 100kHz with suitable frequency span including 100kHz bandwidth from band edge.
The measurement guideline was according to FCC Public Notice DA 00-705.

11.6. Test Results

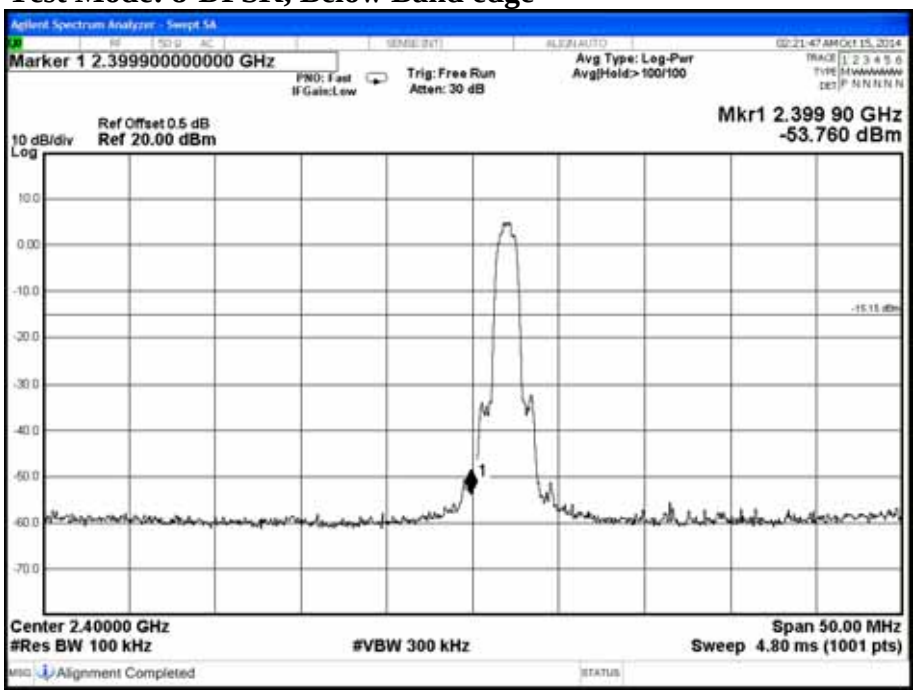
PASSED. The testing data was attached in the next pages.

[Note: We performed testing of the highest and lowest data rate.]

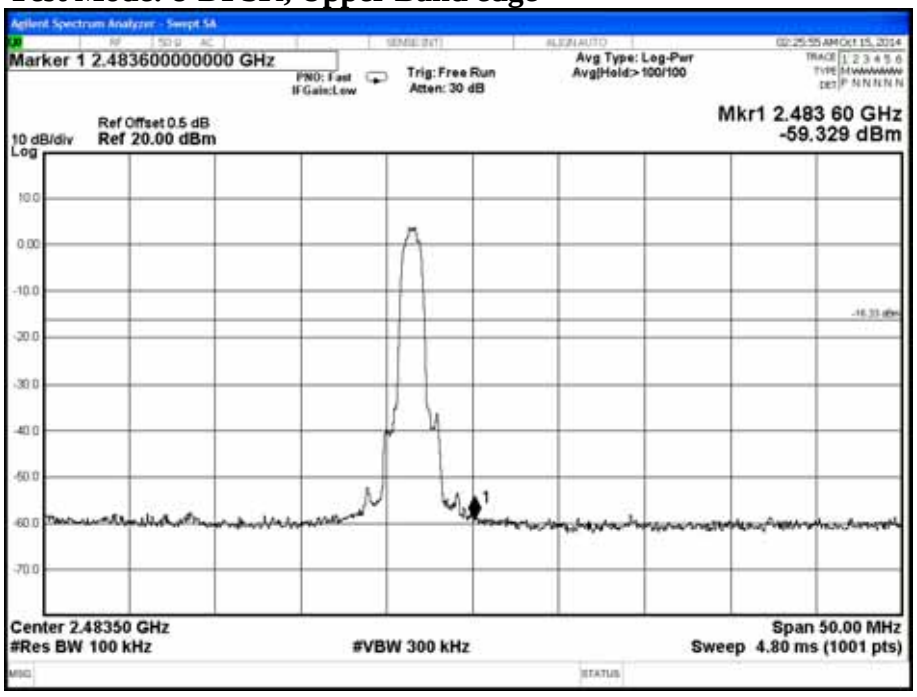
EUT: Digital Media Player M/N: NW-ZX2

Test Date: 2014. 10. 15 Temperature: 25℃ Humidity: 50%

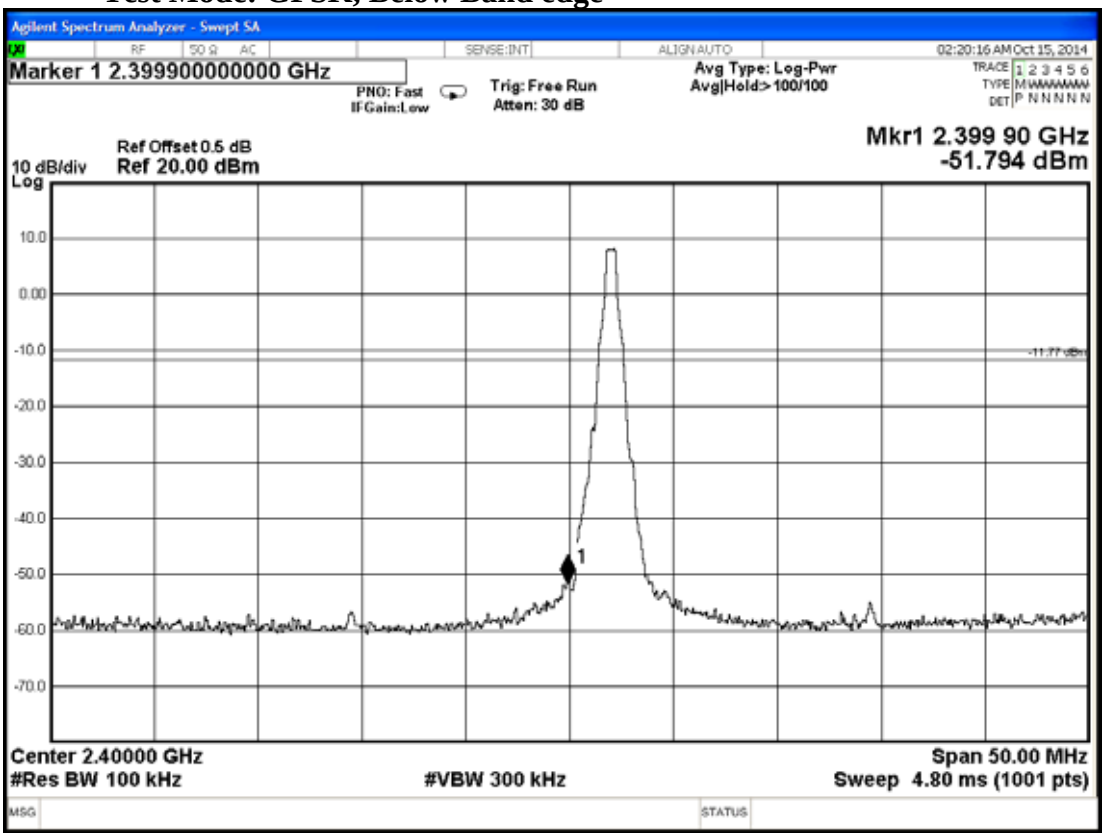
Test Mode: 8-DPSK, Below Band edge



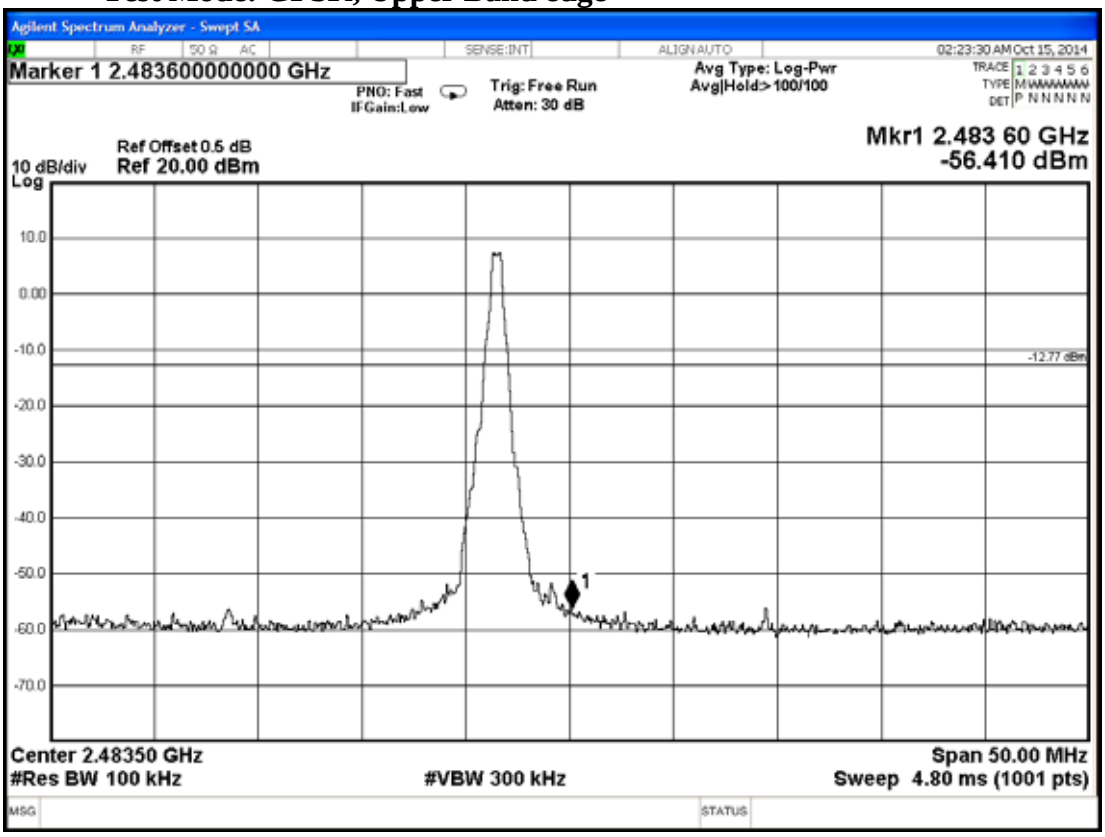
Test Mode: 8-DPSK, Upper Band edge



Test Mode: GFSK, Below Band edge



Test Mode: GFSK, Upper Band edge



12. DEVIATION TO TEST SPECIFICATIONS

【NONE】