APPLICATION FOR CERTIFICATION

On Behalf of

LG Electronics Inc.

(1)Car Navigation/CD Player (2)Car CD Player

Models No.：(1)LNC1700ENFS (2)LAC1720INFS (3)LAC1730ENFS (4)LAC1130INFS (5)LAC1830ENFS (6)LAC1420IWFS (7)LAC1430EWFS

FCC ID：BEJLACFS

Prepared for : LG Electronics Inc.
19-1, Cheongho-ri, Jinwi-myeon,
Pyeongtaek-si, Gyeonggi-do,
451-713 Korea

Prepared By : AUDIX Technology Corporation
EMC Department
No. 53-11, Tin-Fu Tsun, Lin-Kou,
Taipei, Taiwan.

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

File Number	：	C1M1103327
Report Number	：	EM-F1000263
Date of Test	：	Mar. 21 ~ 22, 2011
Date of Report	：	Mar. 23, 2011

TABLE OF CONTENTS

TEST REPORT CERTIFICATION

Applicant	:	LG Electronics Inc.
Manufacturer	:	LG Electronics Inc.
EUT Description	:	(1)Car Navigation/CD Player (2)Car CD Player
FCC ID	:	**BEJLACFS**
(A) Model No.	:	(1)LNC1700ENFS (2)LAC1720INFS (3)LAC1730ENFS (4)LAC1130INFS (5)LAC1830ENFS (6)LAC1420IWFS (7)LAC1430EWFS
(B) Serial No.	:	N/A
(C) Power Supply	:	DC 12V
(D) Test Voltage	:	DC 12V (Via DC Power Supply)

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C, Oct 2009
ANSI C63.4/2003
FCC Public Notice DA 00-705, Mar. 2000

(FCC CFR 47 Part 15C, §15.205, §15.207, §15.209 and §15.247)

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 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 official limits.

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 : Mar. 21 ~ 22, 2011 Date of Report : Mar. 23, 2011

Producer : _____
(Tina Huang/Administrator)

Review : _____
(Henning Chang/Supervisor)

Signatory : _____
(Ben Cheng/Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description : (1)Car Navigation/CD Player (2)Car CD Player
(The EUT has Bluetooth and GPS function, this report for Bluetooth, GPS is tested in other report of EM-F1000265)

Model Number : (1)LNC1700ENFS (2)LAC1720INFS
(3)LAC1730ENFS (4)LAC1130INFS
(5)LAC1830ENFS (6)LAC1420IWFS
(7)LAC1430EWFS

Above all models differences are as following list, other internal board、circuit are the same.

Model	XM (Note 3)	Navigation	Audio AMP		Heatsink	Bracket	Country
			Built-in	External			
(1)LNC1700ENFS	○	○	X	○	X	○	USA
(2)LAC1720INFS	○	X	○	X	○	X	
(3)LAC1730ENFS	○	X	X	○	X	○	
(4)LAC1130INFS	X	X	○	X	○	X	
(5)LAC1830ENFS	X	X	X	○	X	○	
(6)LAC1420IWFS	X	X	○	X	○	X	USA and 16 Countries (Note 2)
(7)LAC1430EWFS	X	X	X	○	X	○	

Note: 1. "○" is support ; "X" is not support.
2. 16 Countries are include CHILE、DOMINICA Republic、GRENADA、BRITISH GUYANA、JAMAICA、MEXICO、NICARAGUA、SURINAM、TRINIDAD & TOBAGO、URUGUAY、VENEZUELA、BELIZE、ST.LUCIA、ST.VINCENT、ANTIGUA、ST.KITT.
3. Satellite radio.

All models are built with BT module, and the model LNC1700ENFS is the worst case and tested in this report.

Serial Number : N/A

FCC ID : BEJLACFS

Applicant : LG Electronics Inc.
19-1, Cheongho-ri, Jinwi-myeon,
Pyeongtaek-si, Gyeonggi-do,
451-713 Korea

Manufacturer : LG Electronics Inc.
19-1, Cheongho-ri, Jinwi-myeon,
Pyeongtaek-si, Gyeonggi-do,
451-713 Korea

Bluetooth Module	:	LG Innotek Co., Ltd. M/N RBFA-CFB2A
GPS Module	:	Trimble. M/N 66300-20
Fundamental Range	:	2400MHz - 2483.5MHz
Channel Number	:	79
Radio Technology	:	GFSK,π /4DQPSK, 8-DPSK
Antenna	:	Multilayer Chip Antenna, Gain: 3.5dBi (Peak)
Date of Receipt of Sample	:	Mar. 21, 2011
Date of Test	:	Mar. 21 ~ 22, 2011

1.2. Tested Supporting System Details

1.2.1. DC POWER SUPPLY

Model Number	:	3303A
Serial Number	:	721773
Manufacturer	:	TOP WARD
DC Power Cable	:	Non-Shielded, Detachable, 0.8m
AC Power Cord	:	Non-Shielded, Detachable, 1.8m

1.3. Description of Test Facility

Name of Firm	:	**AUDIX Technology Corporation** **EMC Department** No. 53-11, Tin-Fu Tsun, Lin-Kou Hsiang, Taipei Hsien, Taiwan
Test Site (AC)	:	**Semi-Anechoic Chamber** No. 53-11, Tin-Fu Tsun, Lin-Kou Hsiang, Taipei Hsien, Taiwan May 14, 2009 File on Federal Communication Commission Registration Number: 90993
NVLAP Lab. Code	:	200077-0
TAF Accreditation No	:	1724

1.4. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty (dB)
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
Band Edges	± 0.13dB

2. CONDUCTED EMISSION MEASUREMET

【The EUT only employs DC power for operation, no conductive emission limits are required according to FCC Part 15 Section §15.207】

3. RADIATED EMISSION MEASUREMENT

3.1. Test Equipment

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

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

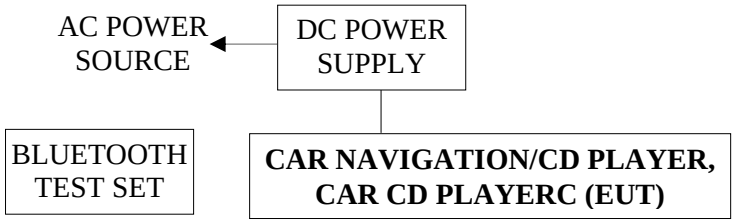
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E4446A	US44300366	Aug. 04, 10’	Aug. 03, 11’
2.	Test Receiver	R & S	ESCS30	100265	Sep. 01, 10’	Aug. 31, 11’
3.	Pre-Amplifier	HP	8447D	2944A06305	Feb. 10, 11’	Feb. 09, 12’
4.	Biconical Antenna	CHASE	VBA6106A	1264	Mar. 08, 11’	Mar. 07, 12’
5.	Log Periodic Antenna	Schwarzbeck	UHALP9108-A	0810	Mar. 08, 11’	Mar. 07, 12’

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

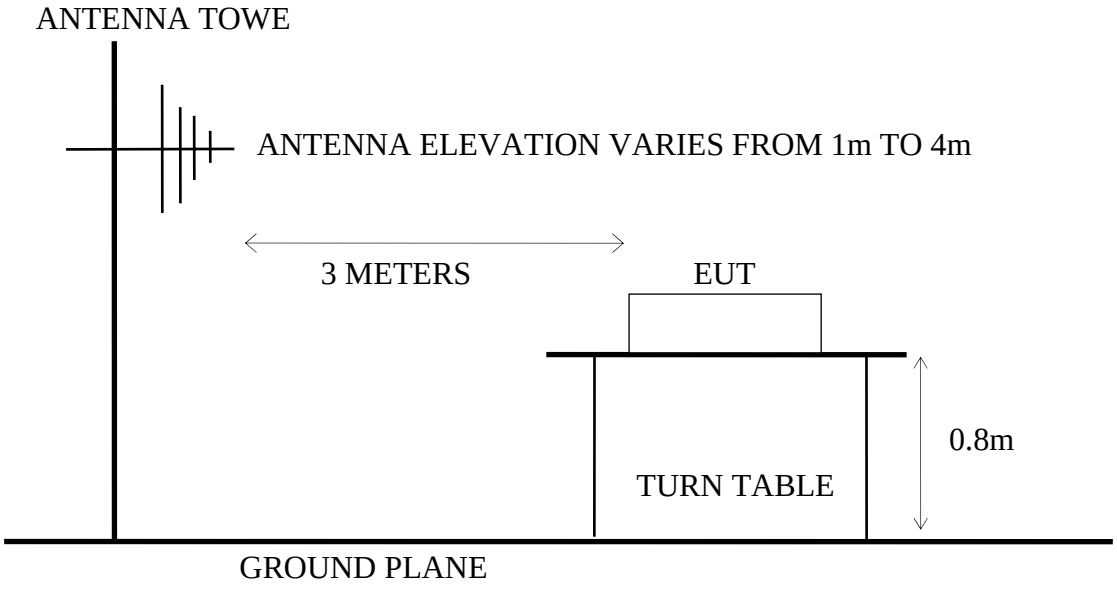
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E4446A	US44300366	Aug. 04, 10’	Aug. 03, 11’
2.	Pre-Amplifier	HP	8449B	3008A00529	Dec. 10, 10’	Dec. 09, 11’
3.	Horn Antenna	EMCO	3115	9112-3775	May 10, 10’	May 09, 11’
4.	Horn Antenna	EMCO	3116	2653	Oct. 04, 10’	Oct. 03, 11’
5.	Bluetooth Test Set	Anritsu	MT8852B	6K00005697	Nov. 25, 10’	Nov. 24, 11’

3.2. Block Diagram of Test Setup

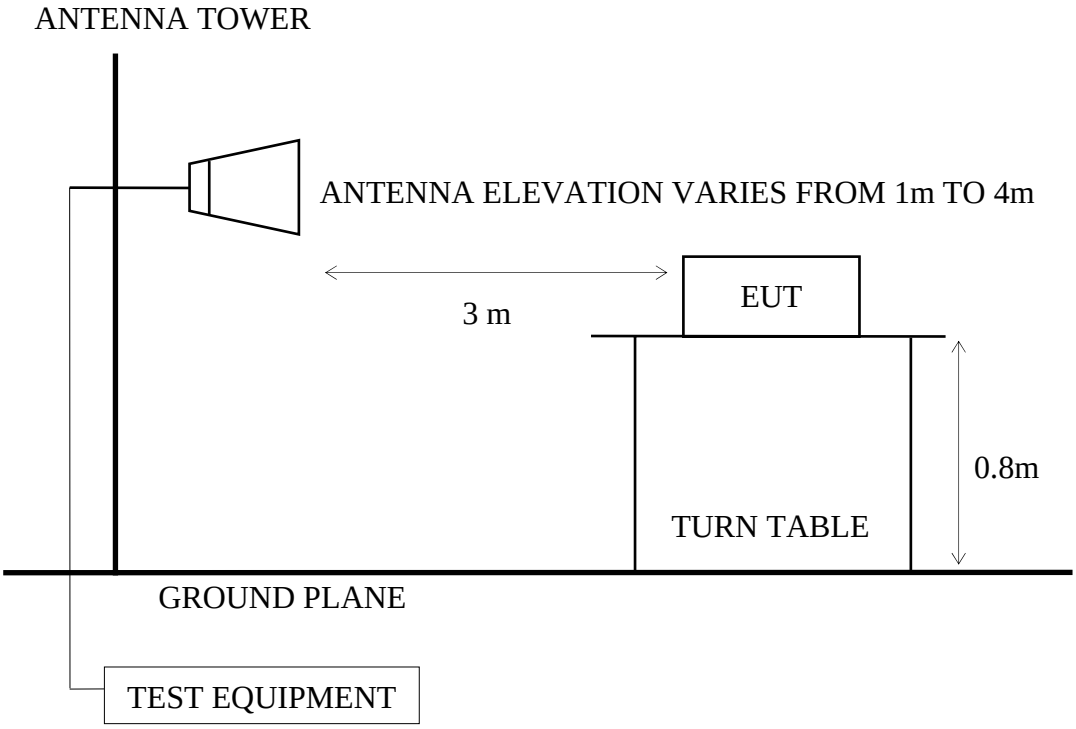
3.2.1. Block Diagram of connection between EUT and simulators



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



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



3.3. Radiated Emission Limits (§15.209)

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).

3.4. Operating Condition of EUT

3.4.1. Set up the EUT [(1)Car Navigation/CD Player (2)Car CD Player] and simulator as shown on 3.2.1.

3.4.2. To turn on the power of all equipments.

3.4.3. Transmitting Mode: The EUT was controlled and set as continuously transmit signals at 2402MHz, 2441MHz and 2480MHz via Bluetooth test set during testing.

3.4.4. Receiver Mode: The EUT was controlled and set as continuously receive signals at 2441MHz via Bluetooth test set during testing..

3.5. 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 biconical 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 regulation, and the measurement guideline was according to FCC Public Notice DA 00-705.

The bandwidth of the R&S Test Receiver ESCS30 was set at 120kHz. (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.

Above 1GHz was measured with peak and average detector. For frequency from 1GHz to 2.68GHz and 4GHz to 25GHz or , we checked it in 1 meter distance and with a shorter cable 2 meter instead of original's. There is no signal exist.

3.6. Radiated Emission Measurement Results

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

EUT：(1)Car Navigation/CD Player (2)Car CD Player M/N：LNC1700ENFS

Test Date：Mar. 22, 2011 Temperature：21℃ Humidity：55%

For Frequency Range 30MHz-1000MHz:

[Note: Three types of modulation (8-DPSK,π /4DQPSK, GFSK) were evaluated but only the worst case (8-DPSK) was reported in this report.]

The EUT with the following test modes were tested during the testing and all the test results are listed in section 3.6.1.

No.	Test Mode and Frequency		Reference Test Data No.	
			Horizontal	Vertical
1.	Transmitting	2402MHz (CH0)	# 11	# 12
2.		2441MHz (CH39)	# 11	# 12
3.		2480MHz (CH78)	# 11	# 12
4.	Receiving	2441MHz (CH39)	# 9	# 10

* Type of modulation: 8-DPSK.

* All above final readings were measured with Quasi-Peak detector.

For Frequency Range above 1GHz:

[Note: Three types of modulation (8-DPSK,π /4DQPSK, GFSK) were evaluated but only the worst case (8-DPSK) was reported in this report.]

The EUT with the following test modes were tested during the testing and all the test results are listed in section 3.6.2.

No.	Test Mode and Frequency		Reference Test Data No.	
			Horizontal	Vertical
1.	Transmitting	2402MHz (CH0)	# 6, 14	# 5, 13
2.		2441MHz (CH39)	# 6, 14	# 5, 13
3.		2480MHz (CH78)	# 5, 13	# 6, 14
4.	Receiving	2441MHz (CH39)	# 5, 11	# 6, 12

* Type of modulation: 8-DPSK.

For Restricted Bands:

[Note: Three types of modulation (8-DPSK,π /4DQPSK, GFSK) were evaluated but only the worst case (8-DPSK) was reported in this report.]

The EUT was tested in restricted bands and all the test results are listed in section 3.6.3. (The restricted bands defined in part 15.205(a))

No.	Test Mode and Frequency		Reference Test Data No.	
			Horizontal	Vertical
1.	Transmitting	2402MHz (CH0)	# 1, 4	# 2 , 3
2.		2480MHz (CH78)	# 8, 5	# 7, 6

* Type of modulation: 8-DPSK.

3.6.1. Frequency Range 30MHz-1000MHz Measurement Result

```
Site no.      : A/C Chamber                  Data no.   : 11
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A     Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 21*C /55%             Engineer   : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : TX2402(8DPSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	127.000	19.56	2.40	5.48	27.44	43.50	16.06	
2	144.460	20.31	2.60	3.14	26.05	43.50	17.45	
3	226.910	21.96	3.30	3.84	29.09	46.00	16.91	
4	272.500	25.10	3.70	0.41	29.21	46.00	16.79	
5	369.500	16.93	4.60	2.68	24.21	46.00	21.79	
6	709.000	23.54	6.60	0.68	30.83	46.00	15.17	
7	900.090	24.96	7.37	3.86	36.19	46.00	9.81	

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.      : A/C Chamber                  Data no.   : 12
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A     Ant. pol. : VERTICAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 21*C /55%             Engineer   : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : TX2402(8DPSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	45.520	18.57	1.40	7.39	27.35	40.00	12.65	
2	54.250	14.79	1.50	7.35	23.64	40.00	16.36	
3	397.630	17.64	4.80	1.90	24.34	46.00	21.66	
4	469.410	18.29	5.80	3.72	27.81	46.00	18.19	
5	621.700	21.37	6.20	0.59	28.16	46.00	17.84	
6	709.000	23.54	6.60	0.79	30.94	46.00	15.06	
7	828.310	24.62	7.10	0.68	32.40	46.00	13.60	
8	971.870	26.79	7.70	0.10	34.59	54.00	19.41	

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.      : A/C Chamber                  Data no.  : 11
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A     Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 21*C /55%             Engineer  : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : TX2441(8DPSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	146.400	20.47	2.50	2.48	25.45	43.50	18.05	
2	226.910	21.96	3.30	2.01	27.26	46.00	18.74	
3	272.500	25.10	3.70	0.73	29.53	46.00	16.47	
4	369.500	16.93	4.60	1.79	23.32	46.00	22.68	
5	757.500	23.61	6.73	0.08	30.42	46.00	15.58	
6	828.310	24.62	7.10	1.10	32.82	46.00	13.18	
7	900.090	24.96	7.37	3.54	35.87	46.00	10.13	
8	971.870	26.79	7.70	0.03	34.52	54.00	19.48	

```
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.      : A/C Chamber                  Data no.  : 12
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A     Ant. pol. : VERTICAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 21*C /55%             Engineer  : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : TX2441(8DPSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	54.250	14.79	1.50	12.52	28.81	40.00	11.19	
2	94.990	16.51	2.00	3.00	21.51	43.50	21.99	
3	397.630	17.64	4.80	1.20	23.64	46.00	22.36	
4	709.000	23.54	6.60	0.56	30.71	46.00	15.29	
5	828.310	24.62	7.10	1.54	33.26	46.00	12.74	
6	865.170	26.00	7.20	0.42	33.62	46.00	12.38	
7	876.810	25.35	7.30	0.59	33.24	46.00	12.76	

```
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.      : A/C Chamber                  Data no.  : 11
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A     Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 21*C /55%             Engineer  : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : TX2480(8DPSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	144.460	20.31	2.60	2.88	25.79	43.50	17.71	
2	226.910	21.96	3.30	3.76	29.01	46.00	16.99	
3	272.500	25.10	3.70	0.48	29.28	46.00	16.72	
4	360.770	16.24	4.43	4.31	24.98	46.00	21.02	
5	383.080	17.33	4.62	1.95	23.91	46.00	22.09	
6	709.000	23.54	6.60	1.57	31.72	46.00	14.28	
7	900.090	24.96	7.37	3.84	36.17	46.00	9.83	

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.      : A/C Chamber                  Data no.  : 12
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A     Ant. pol. : VERTICAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 21*C /55%             Engineer  : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : TX2480(8DPSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	45.520	18.57	1.40	7.58	27.54	40.00	12.46	
2	56.190	14.11	1.60	7.94	23.65	40.00	16.35	
3	133.790	19.89	2.40	2.16	24.45	43.50	19.05	
4	161.920	20.85	2.70	1.04	24.59	43.50	18.91	
5	709.000	23.54	6.60	1.19	31.34	46.00	14.66	
6	828.310	24.62	7.10	1.73	33.45	46.00	12.55	
7	865.170	26.00	7.20	0.69	33.89	46.00	12.11	
8	900.090	24.96	7.37	0.92	33.25	46.00	12.75	

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.      : A/C Chamber                  Data no.  : 9
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A     Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 21*C /55%             Engineer  : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : RX2441(8DPSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	144.460	20.31	2.60	1.69	24.60	43.50	18.90	
2	226.910	21.96	3.30	2.99	28.24	46.00	17.76	
3	272.500	25.10	3.70	0.59	29.39	46.00	16.61	
4	296.750	26.59	4.00	0.64	31.23	46.00	14.77	
5	317.120	14.80	4.10	4.73	23.63	46.00	22.37	
6	365.620	16.65	4.50	3.19	24.34	46.00	21.66	
7	709.000	23.54	6.60	0.24	30.39	46.00	15.61	
8	900.090	24.96	7.37	3.86	36.19	46.00	9.81	

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.      : A/C Chamber                  Data no.  : 10
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A     Ant. pol. : VERTICAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 21*C /55%             Engineer  : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : RX2441(8DPSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	45.520	18.57	1.40	6.86	26.82	40.00	13.18	
2	54.250	14.79	1.50	6.12	22.41	40.00	17.59	
3	161.920	20.85	2.70	1.62	25.17	43.50	18.33	
4	297.720	26.68	3.98	-0.77	29.89	46.00	16.11	
5	558.650	19.89	6.70	1.00	27.58	46.00	18.42	
6	709.000	23.54	6.60	1.29	31.44	46.00	14.56	
7	828.310	24.62	7.10	1.84	33.56	46.00	12.44	
8	900.090	24.96	7.37	1.51	33.84	46.00	12.16	
9	964.110	26.80	7.60	0.17	34.57	54.00	19.43	

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

3.6.2. Frequency Range Above 1GHz Measurement Results

Test Mode: Transmitting Mode, Frequency: 2402MHz (CH0)

```
Site no.      : A/C Chamber                 Data no.  : 6
Dis. / Ant.   : 3m   3115(3775)             Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C (1G-PK)
Env. / Ins.   : E4446A 21*C /55%            Engineer  : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : TX2402(8DPSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	2850.280	29.53	7.03	11.55	48.10	74.00	25.90	Peak
2	3147.280	30.38	7.32	9.54	47.23	74.00	26.77	Peak
3	3457.480	31.03	7.70	9.44	48.16	74.00	25.84	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.      : A/C Chamber                 Data no.  : 14
Dis. / Ant.   : 3m   3115(3775)             Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 21*C /55%            Engineer  : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : TX2402(8DPSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	2850.280	29.53	7.03	10.34	46.90	54.00	7.10	Average
2	3147.280	30.38	7.32	8.59	46.29	54.00	7.71	Average
3	3457.480	31.03	7.70	8.32	47.04	54.00	6.96	Average

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. : A/C Chamber Data no. : 5
Dis. / Ant. : 3m 3115(3775) Ant. pol. : VERTICAL
Limit : FCC PART-15C (1G-PK)
Env. / Ins. : E4446A 21*C /55% Engineer : Jarwei Wang
EUT : LNC1700ENFS
Power Rating : DC 12V
Test Mode : TX2402(8DPSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	2850.280	29.53	7.03	12.65	49.20	74.00	24.80	Peak
2	3147.280	30.38	7.32	8.59	46.28	74.00	27.72	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. : A/C Chamber Data no. : 13
Dis. / Ant. : 3m 3115(3775) Ant. pol. : VERTICAL
Limit : FCC PART-15C (1G-AV)
Env. / Ins. : E4446A 21*C /55% Engineer : Jarwei Wang
EUT : LNC1700ENFS
Power Rating : DC 12V
Test Mode : TX2402(8DPSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	2850.280	29.53	7.03	11.41	47.97	54.00	6.04	Average
2	3147.280	30.38	7.32	7.39	45.09	54.00	8.91	Average

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

Test Mode: Transmitting Mode, Frequency: 2441MHz (CH39)

```
Site no.      : A/C Chamber                 Data no.  : 6
Dis. / Ant.   : 3m   3115(3775)             Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C (1G-PK)
Env. / Ins.   : E4446A 21*C /55%            Engineer  : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : TX2441(8DPSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	2847.640	29.53	7.00	12.15	48.68	74.00	25.32	Peak
2	3147.280	30.38	7.32	9.49	47.18	74.00	26.82	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.      : A/C Chamber                 Data no.  : 14
Dis. / Ant.   : 3m   3115(3775)             Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 21*C /55%            Engineer  : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : TX2441(8DPSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	2847.640	29.53	7.00	11.16	47.70	54.00	6.30	Average
2	3147.280	30.38	7.32	8.36	46.06	54.00	7.95	Average

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.      : A/C Chamber                 Data no.  : 5
Dis. / Ant.   : 3m   3115(3775)             Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-PK)
Env. / Ins.   : E4446A 21*C /55%            Engineer  : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : TX2441(8DPSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	2850.280	29.53	7.03	12.56	49.11	74.00	24.89	Peak
2	3118.240	30.34	7.31	8.31	45.96	74.00	28.04	Peak
3	3147.280	30.38	7.32	8.85	46.54	74.00	27.46	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.      : A/C Chamber                 Data no.  : 13
Dis. / Ant.   : 3m   3115(3775)             Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 21*C /55%            Engineer  : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : TX2441(8DPSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	2850.280	29.53	7.03	11.18	47.74	54.00	6.26	Average
2	3118.240	30.34	7.31	6.79	44.44	54.00	9.56	Average
3	3147.280	30.38	7.32	7.69	45.39	54.00	8.61	Average

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

Test Mode: Transmitting Mode, Frequency: 2480MHz (CH78)

```
Site no.      : A/C Chamber                 Data no.   : 5
Dis. / Ant.   : 3m   3115(3775)             Ant. pol.  : HORIZONTAL
Limit         : FCC PART-15C (1G-PK)
Env. / Ins.   : E4446A 21*C /55%            Engineer   : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : TX2480(8DPSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	2850.280	29.53	7.03	12.10	48.65	74.00	25.35	Peak
2	3118.240	30.34	7.31	8.85	46.50	74.00	27.50	Peak
3	3147.280	30.38	7.32	9.58	47.27	74.00	26.73	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.      : A/C Chamber                 Data no.   : 13
Dis. / Ant.   : 3m   3115(3775)             Ant. pol.  : HORIZONTAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 21*C /55%            Engineer   : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : TX2480(8DPSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	2850.280	29.53	7.03	11.07	47.63	54.00	6.37	Average
2	3118.240	30.34	7.31	7.71	45.36	54.00	8.64	Average
3	3147.280	30.38	7.32	8.72	46.42	54.00	7.58	Average

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.      : A/C Chamber                 Data no.  : 6
Dis. / Ant.   : 3m   3115(3775)             Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-PK)
Env. / Ins.   : E4446A 21*C /55%            Engineer  : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : TX2480(8DPSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	2850.280	29.53	7.03	12.60	49.15	74.00	24.85	Peak
2	3147.280	30.38	7.32	8.92	46.61	74.00	27.39	Peak
3	3164.440	30.41	7.34	8.05	45.79	74.00	28.21	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.      : A/C Chamber                 Data no.  : 14
Dis. / Ant.   : 3m   3115(3775)             Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 21*C /55%            Engineer  : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : TX2480(8DPSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	2850.280	29.53	7.03	11.66	48.22	54.00	5.78	Average
2	3147.280	30.38	7.32	7.68	45.38	54.00	8.62	Average
3	3164.440	30.41	7.34	6.92	44.67	54.00	9.33	Average

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

Test Mode: Receiving Mode, Frequency: 2441MHz (CH39)

```
Site no.      : A/C Chamber                 Data no.  : 5
Dis. / Ant.   : 3m   3115(3775)             Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C (1G-PK)
Env. / Ins.   : E4446A 21*C /55%            Engineer  : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : RX2441(8DPSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	2854.840	29.53	7.03	11.27	47.83	74.00	26.17	Peak
2	3150.940	30.41	7.32	9.05	46.78	74.00	27.22	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.      : A/C Chamber                 Data no.  : 11
Dis. / Ant.   : 3m   3115(3775)             Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 21*C /55%            Engineer  : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : RX2441(8DPSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	2854.840	29.53	7.03	10.21	46.76	54.00	7.24	Average
2	3150.940	30.41	7.32	7.66	45.40	54.00	8.61	Average

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.      : A/C Chamber                 Data no.  : 6
Dis. / Ant.   : 3m   3115(3775)             Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-PK)
Env. / Ins.   : E4446A 21*C /55%            Engineer  : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : RX2441(8DPSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	2854.840	29.53	7.03	13.00	49.56	74.00	24.44	Peak
2	3150.940	30.41	7.32	8.62	46.35	74.00	27.65	Peak

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

```
Site no.      : A/C Chamber                 Data no.  : 12
Dis. / Ant.   : 3m   3115(3775)             Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 21*C /55%            Engineer  : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : RX2441(8DPSK)
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	2854.840	29.53	7.03	11.71	48.27	54.00	5.73	Average
2	3150.940	30.41	7.32	7.29	45.02	54.00	8.98	Average

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

3.6.3.Restricted Bands Measurement Results

Date of Test： Mar. 22, 2011 Temperature： 21℃

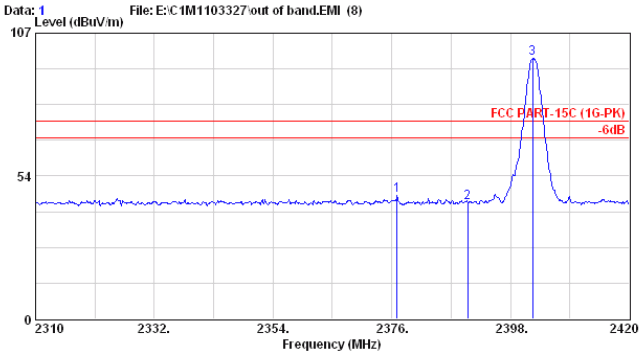
EUT： (1)Car Navigation/CD Player (2)Car CD Player Humidity： 55%

Test Mode： Transmitting Mode, Frequency: 2402MHz (CH0), 8-DPSK

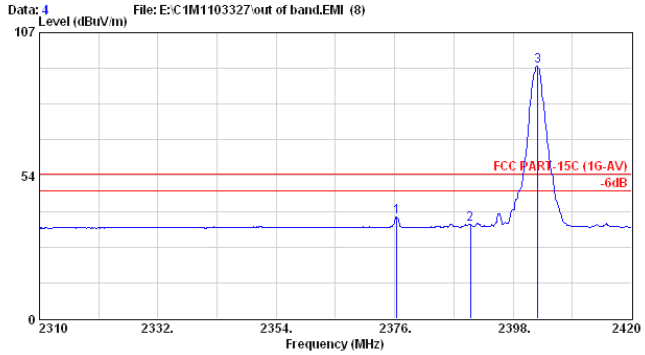
	Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB
Peak *	2376.990	28.08	6.32	11.71	46.11	74.00	27.89
Average *	2376.440	28.08	6.32	3.63	38.03	54.00	15.97

Remark ： 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.
2. Low frequency section (spurious in the restricted band 2310-2390MHz).
3. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.

AUDIX TECHNOLOGY Corp. EMC Laboratory
No.53-11, Tin-fu Tsun, Lin-kou Hsiang, Taipei County, Taiwan R.O.C. Post Code:24443
Tel:+886-2-26092133 Fax:+886-2-26099303
Email:ttemc@ttemc.com.tw




```
Site no.      : A/C Chamber                 Data no.   : 1
Dis. / Ant.   : 3m   3115(3775)             Ant. pol.  : HORIZONTAL
Limit         : FCC PART-15C (1G-PK)
Env. / Ins.   : E4446A 21*C /55%            Engineer   : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : TX2402(8DPSK)
```




```
Site no.      : A/C Chamber                 Data no.   : 4
Dis. / Ant.   : 3m   3115(3775)             Ant. pol.  : HORIZONTAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 21*C /55%            Engineer   : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : TX2402(8DPSK)
```

Date of Test： Mar. 22, 2011 Temperature： 21℃

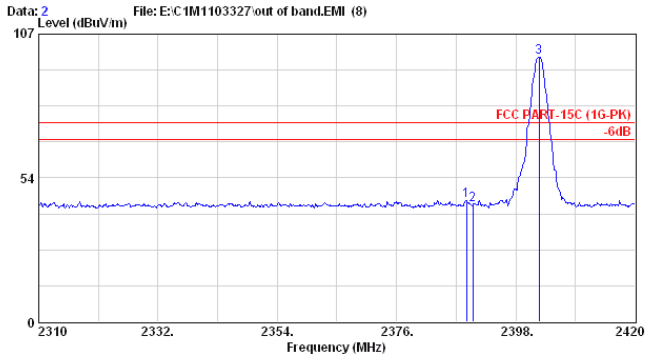
EUT： (1)Car Navigation/CD Player
(2)Car CD Player Humidity： 55%

Test Mode： Transmitting Mode, Frequency: 2402MHz (CH0), 8-DPSK

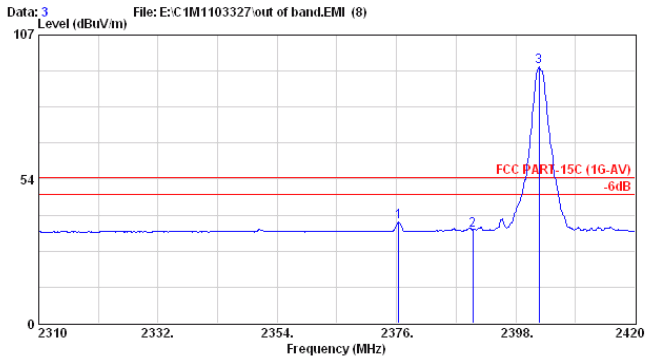
	Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB
Peak *	2388.870	28.10	6.34	10.78	45.22	74.00	28.78
Average *	2376.440	28.08	6.32	3.23	37.63	54.00	16.37

Remark ： 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.
2. Low frequency section (spurious in the restricted band 2310-2390MHz).
3. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.

AUDIX TECHNOLOGY Corp. EMC Laboratory
No.53-11, Tin-fu Tsun, Lin-kou Hsiang, Taipei County, Taiwan R.O.C. Post Code:24443
Tel:+886-2-26092133 Fax:+886-2-26099303
Email:ttemc@ttemc.com.tw



Site no. : A/C Chamber Data no. : 2
Dis. / Ant. : 3m 3115(3775) Ant. pol. : VERTICAL
Limit : FCC PART-15C (1G-PK)
Env. / Ins. : E4446A 21*C /55% Engineer : Jarwei Wang
EUT : LNC1700ENFS
Power Rating : DC 12V
Test Mode : TX2402(8DPSK)



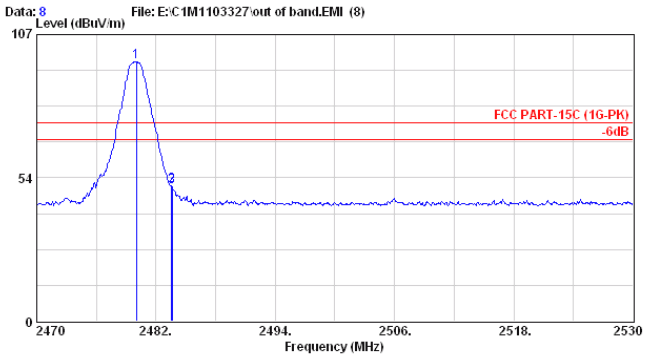
Site no. : A/C Chamber Data no. : 3
Dis. / Ant. : 3m 3115(3775) Ant. pol. : VERTICAL
Limit : FCC PART-15C (1G-AV)
Env. / Ins. : E4446A 21*C /55% Engineer : Jarwei Wang
EUT : LNC1700ENFS
Power Rating : DC 12V
Test Mode : TX2402(8DPSK)

Date of Test：	Mar. 22, 2011	Temperature：	21℃
EUT：	(1)Car Navigation/CD Player (2)Car CD Player	Humidity：	55%
Test Mode：	Transmitting Mode, Frequency: 2480MHz (CH78), 8-DPSK		

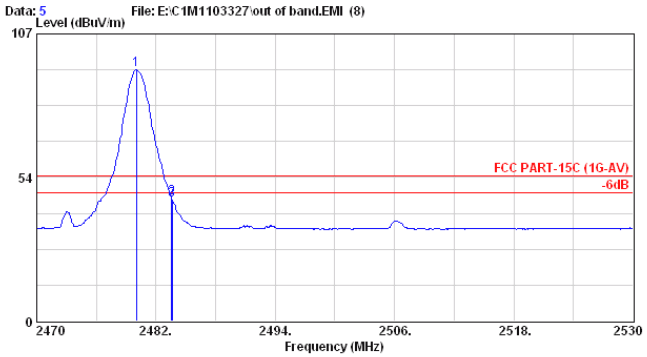
	Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB
Peak *	2483.560	28.18	6.45	15.79	50.42	74.00	23.58
Average *	2483.620	28.18	6.45	10.50	45.13	54.00	8.87

Remark ： 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.
2. Low fr ɹuency section (spurious in the restricted band 2483.5-2500MHz).
3. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.

AUDIX TECHNOLOGY Corp. EMC Laboratory
No.53-11, Tin-fu Tsun, Lin-kou Hsiang, Taipei County, Taiwan R.O.C. Post Code:24443
Tel:+886-2-26092133 Fax:+886-2-26099303
Email:ttemc@ttemc.com.tw




```
Site no.      : A/C Chamber                Data no.   : 8
Dis. / Ant.   : 3m   3115(3775)            Ant. pol.  : HORIZONTAL
Limit         : FCC PART-15C (1G-PK)
Env. / Ins.   : E4446A 21*C /55%           Engineer   : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : TX2480(8DPSK)
```



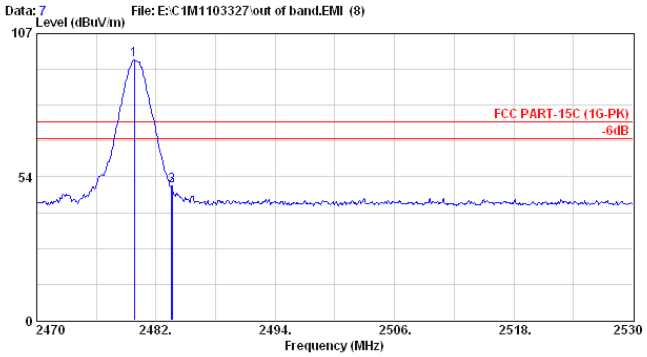

```
Site no.      : A/C Chamber                Data no.   : 5
Dis. / Ant.   : 3m   3115(3775)            Ant. pol.  : HORIZONTAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 21*C /55%           Engineer   : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : TX2480(8DPSK)
```

Date of Test：	Mar. 22, 2011	Temperature：	21℃
EUT：	(1)Car Navigation/CD Player (2)Car CD Player	Humidity：	55%
Test Mode：	Transmitting Mode, Frequency: 2480MHz (CH78), 8-DPSK		

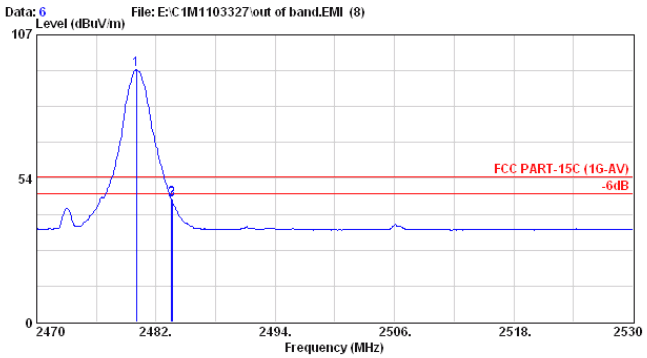
	Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB
Peak *	2483.620	28.18	6.45	15.50	50.13	74.00	23.87
Average *	2483.560	28.18	6.45	11.06	45.69	54.00	8.31

Remark ： 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.
2. Low frequency section (spurious in the restricted band 2483.5-2500MHz).
3. '*' The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.

AUDIX TECHNOLOGY Corp. EMC Laboratory
No.53-11, Tin-fu Tsun, Lin-kou Hsiang, Taipei County, Taiwan R.O.C. Post Code:24443
Tel:+886-2-26092133 Fax:+886-2-26099303
Email:ttemc@ttemc.com.tw




```
Site no.      : A/C Chamber                Data no.  : 7
Dis. / Ant.   : 3m   3115(3775)            Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-PK)
Env. / Ins.   : E4446A 21*C /55%           Engineer  : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : TX2480(8DPSK)
```




```
Site no.      : A/C Chamber                Data no.  : 6
Dis. / Ant.   : 3m   3115(3775)            Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 21*C /55%           Engineer  : Jarwei Wang
EUT           : LNC1700ENFS
Power Rating  : DC 12V
Test Mode     : TX2480(8DPSK)
```

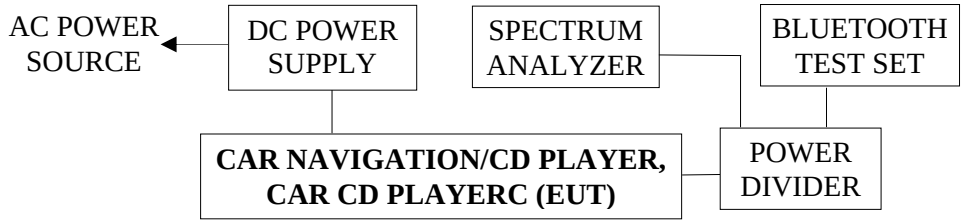
4. 20dB BANDWIDTH MEASUREMENT

4.1. Test Equipment

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

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9010A-526	MY48031076	Oct. 05, 10’	Oct. 04, 11’
2.	Bluetooth Test Set	Anritsu	MT8852B	6K00005697	Nov. 25, 10’	Nov. 24, 11’
3.	Power Divider	Anritsu	K240C	019728	Aug. 05, 10’	Aug. 04, 11’

4.2. Block Diagram of Test Setup



4.3. Specification Limits (§15.247(a)(1))

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.

4.4. Operating Condition of EUT

4.4.1. Set up the EUT and simulator as shown on 4.2.

4.4.2. To turn on the power of all equipment.

4.4.3. The EUT [(1)Car Navigation/CD Player (2)Car CD Player] was controlled and set as continuous transmitting via Bluetooth test set during testing.

4.5. 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. 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.

4.6. Test Results

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

[Note: Three types of modulation (8-DPSK,π /4DQPSK, GFSK) were evaluated but only two types of modulation (8-DPSK and GFSK) were reported in this report.]

EUT：(1)Car Navigation/CD Player (2)Car CD Player M/N：LNC1700ENFS

Test Date : Mar. 21, 2011 Temperature : 21 ℃ Humidity : 55 %

4.6.1. Type of Modulation: 8-DPSK

No.	Channel	Test Frequency	**20dB Bandwidth**	**2/3 (20dB Bandwidth)**
1.	0	2402MHz	**1.248MHz**	**0.832MHz**
2.	39	2441MHz	**1.260MHz**	**0.840MHz**
3.	78	2480MHz	**1.266MHz**	**0.844MHz**

The maximum two-thirds of the 20dB bandwidth shall be at maximum 0.844MHz.

4.6.2. Type of Modulation: GFSK

No.	Channel	Test Frequency	**20dB Bandwidth**	**2/3 (20dB Bandwidth)**
1.	0	2402MHz	**828kHz**	**552kHz**
2.	39	2441MHz	**921kHz**	**614kHz**
3.	78	2480MHz	**885kHz**	**590kHz**

The maximum two-thirds of the 20dB bandwidth shall be at maximum 614kHz.

Figure 1: 8-DPSK, Channel 0, Frequency: 2402MHz

Figure 2: 8-DPSK, Channel 39, Frequency: 2441MHz

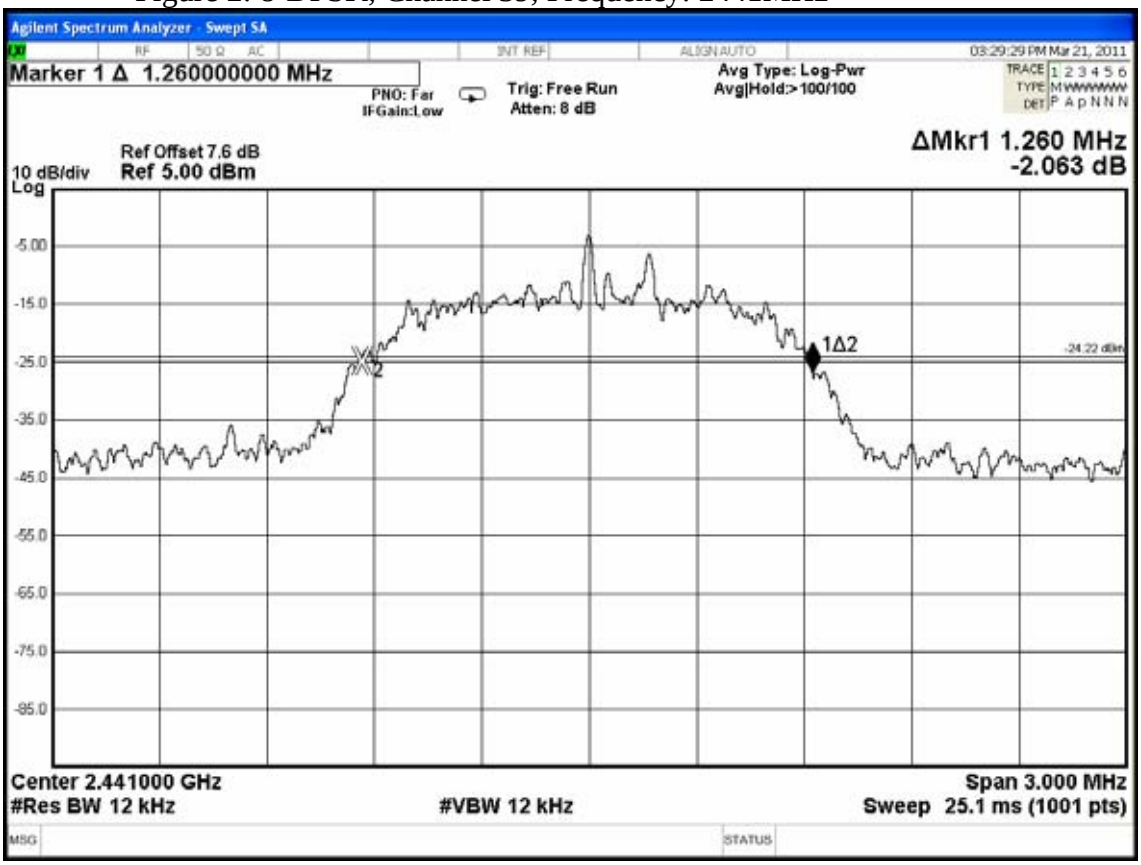


Figure 3: 8-DPSK, Channel 78, Frequency: 2480MHz

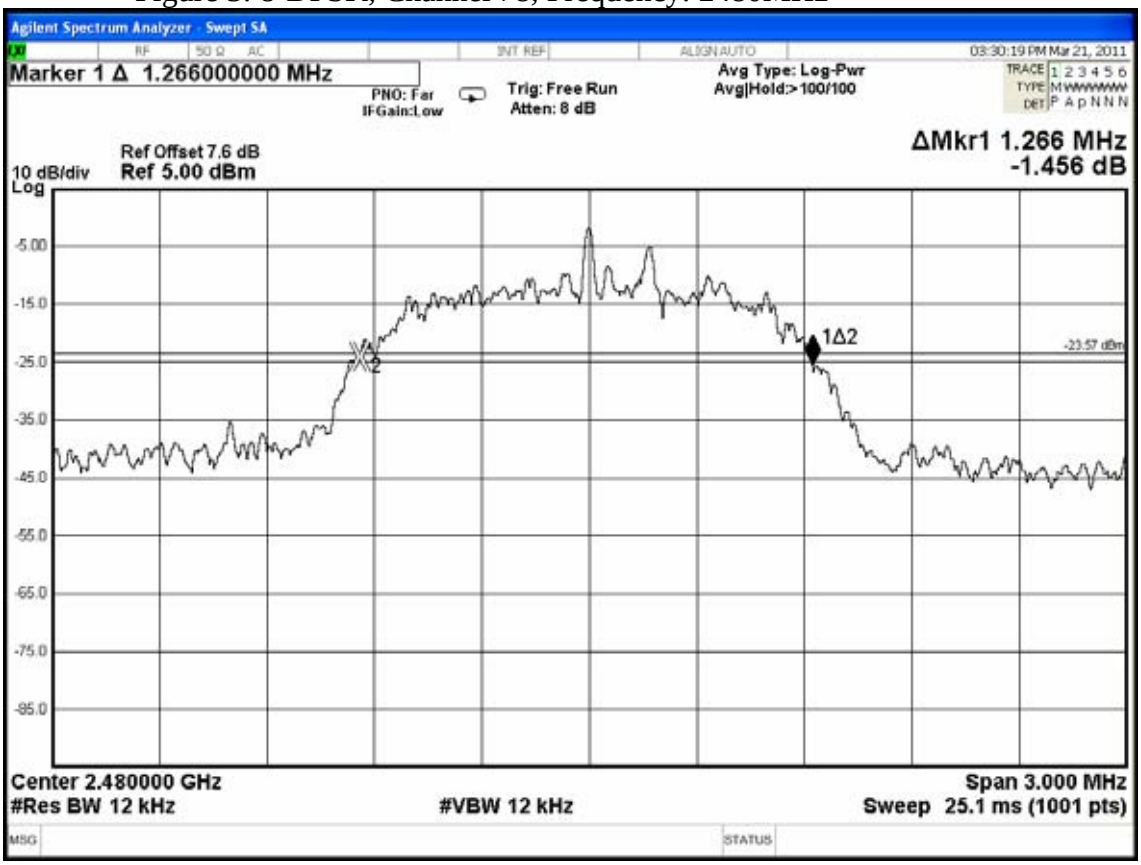


Figure 4: GFSK, Channel 0, Frequency: 2402MHz

Figure 5: GFSK, Channel 39, Frequency: 2441MHz

Figure 6: GFSK, Channel 78, Frequency: 2480MHz

5. CARRIER FREQUENCY SEPARATION MEASUREMENT

5.1. Test Equipment

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

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9010A-526	MY48031076	Oct. 05, 10’	Oct. 04, 11’
2.	Bluetooth Test Set	Anritsu	MT8852B	6K00005697	Nov. 25, 10’	Nov. 24, 11’
3.	Power Divider	Anritsu	K240C	019728	Aug. 05, 10’	Aug. 04, 11’

5.2. Block Diagram of Test Setup

The same as section.4.2.

5.3. Specification Limits (§15.247(a)(1))

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.

5.4. Operating Condition of EUT

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

5.5. 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.

5.6. Test Results

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

[Note: Three types of modulation (8-DPSK,π /4DQPSK, GFSK) were evaluated but only two types of modulation (8-DPSK and GFSK) were reported in this report.]

EUT：(1)Car Navigation/CD Player (2)Car CD Player M/N：LNC1700ENFS

Test Date : Mar. 21, 2011 Temperature : 21 ℃ Humidity : 55 %

5.6.1. Type of Modulation: 8-DPSK

1. 2402MHz adjacent channel of carrier frequency separation: 1.002MHz。
2. 2441MHz adjacent channel of right carrier frequency separation: 1.002MHz。
3. 2441MHz adjacent channel of left carrier frequency separation: 1.002MHz。
4. 2480MHz adjacent channel of carrier frequency separation: 1.002MHz。

[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.]

5.6.2. Type of Modulation: GFSK

1. 2402MHz adjacent channel of carrier frequency separation: 1.002MHz。
2. 2441MHz adjacent channel of right carrier frequency separation: 1.002MHz。
3. 2441MHz adjacent channel of left carrier frequency separation: 1.002MHz。
4. 2480MHz adjacent channel of carrier frequency separation: 1.002MHz。

[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.]

Figure 1: 8-DPSK, 2402MHz adjacent channel of carrier frequency separation

Figure 2: 8-DPSK, 2441MHz adjacent channel of right carrier frequency separation

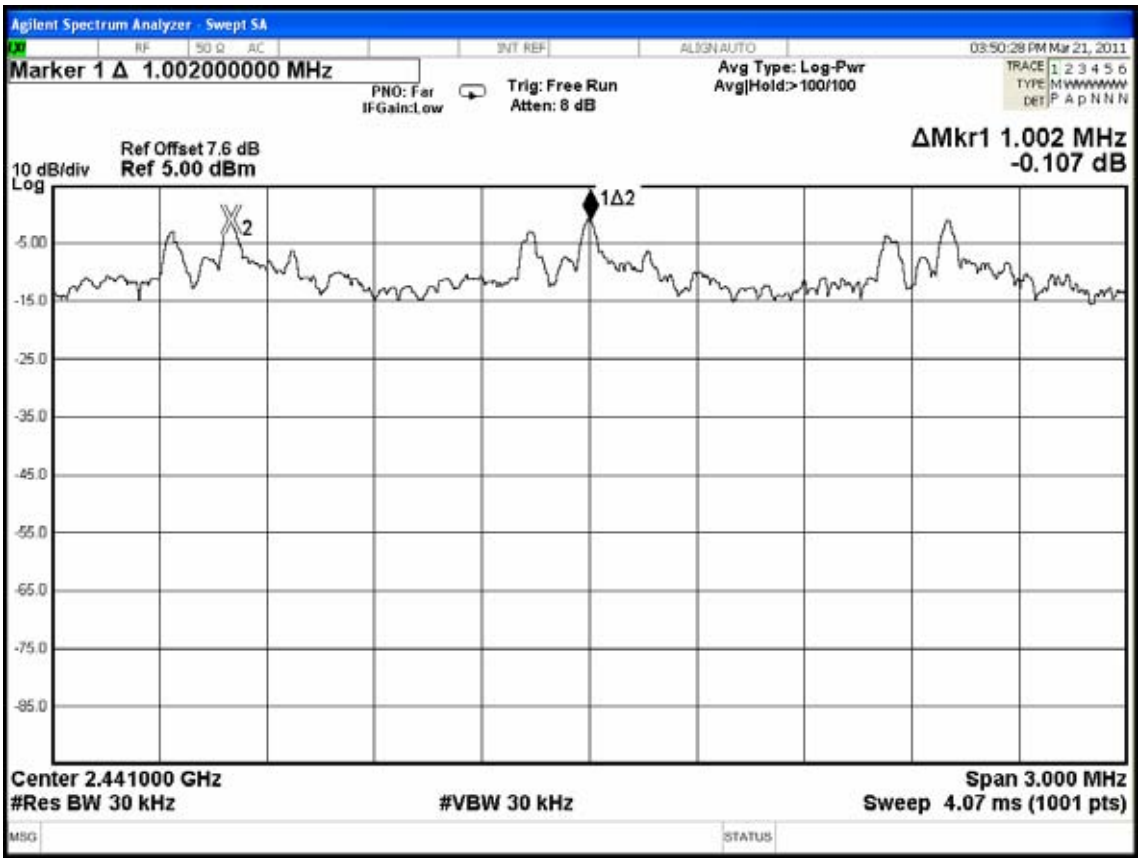


Figure 3: 8-DPSK, 2441MHz adjacent channel of left carrier frequency separation

Figure 4: 8-DPSK, 2480MHz adjacent channel of carrier frequency separation

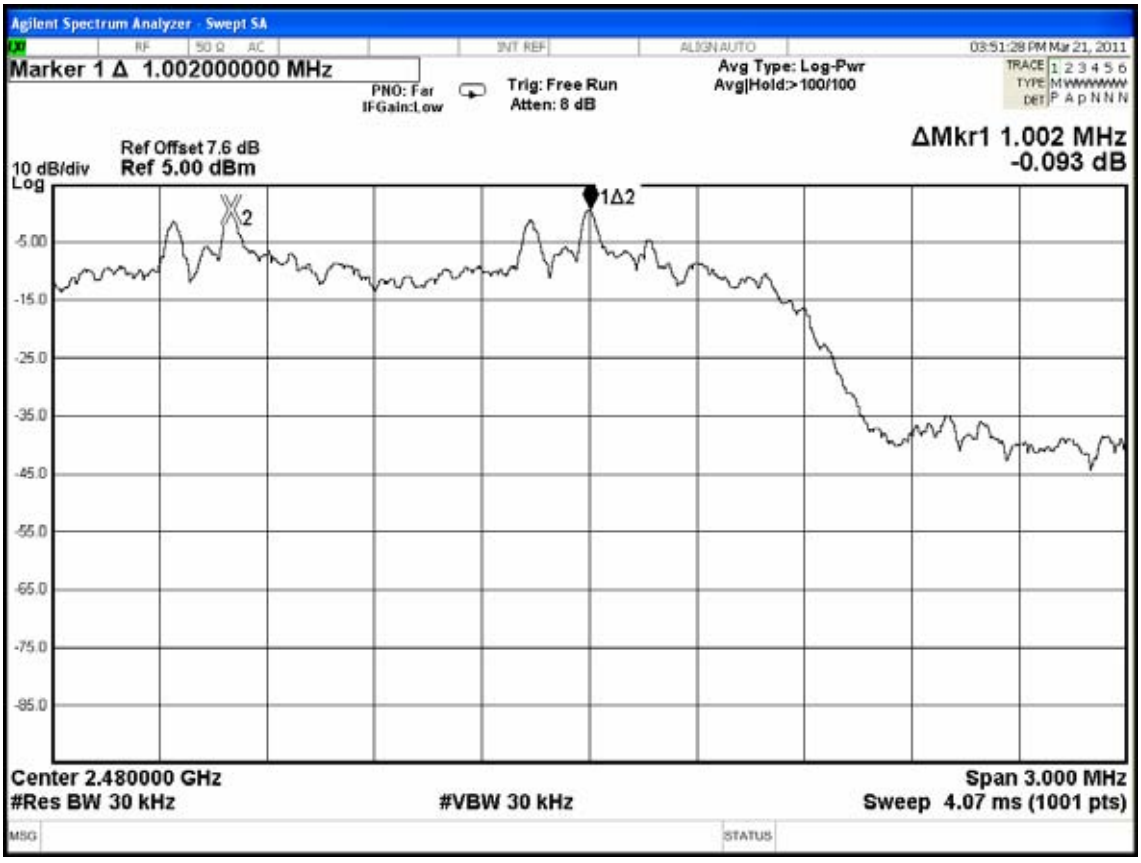


Figure 5: GFSK, 2402MHz adjacent channel of carrier frequency separation

Figure 6: GFSK, 2441MHz adjacent channel of right carrier frequency separation

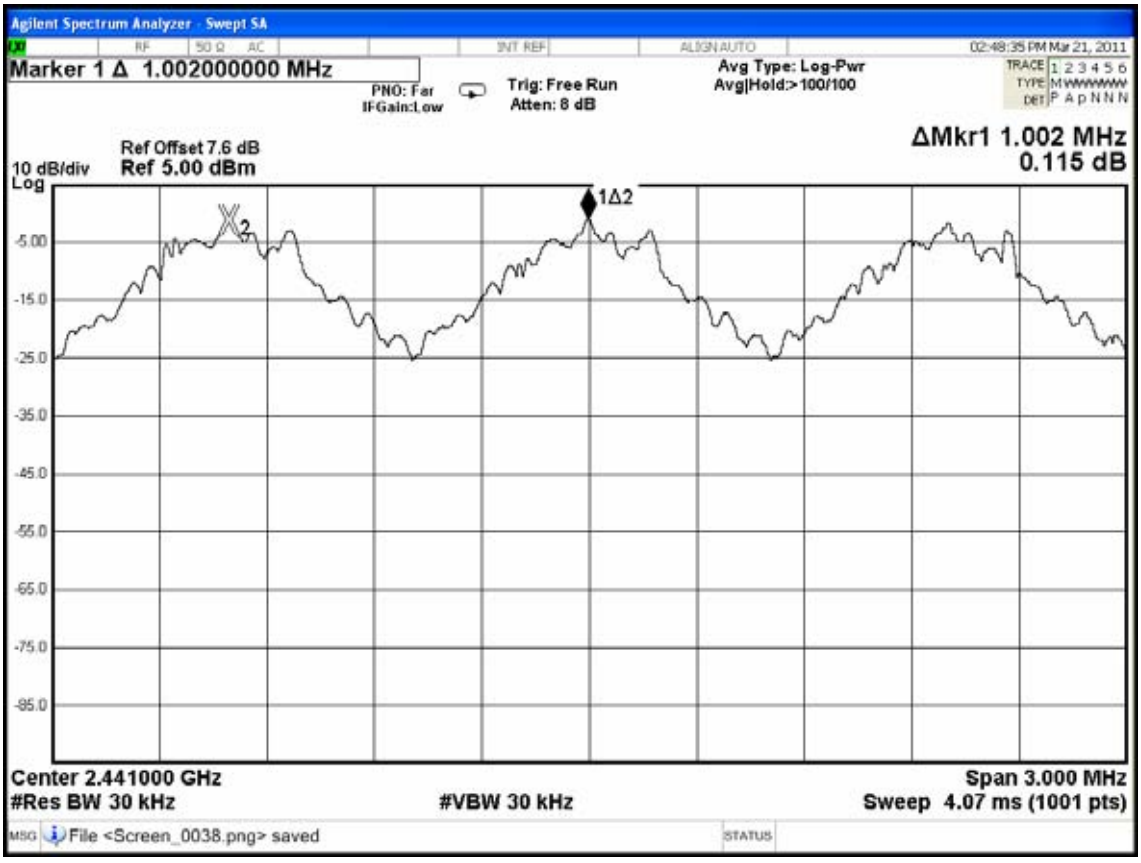


Figure 7: GFSK, 2441MHz adjacent channel of left carrier frequency separation

Figure 8: GFSK, 2480MHz adjacent channel of carrier frequency separation

6. TIME OF OCCUPANCY MEASUREMENT

6.1. Test Equipment

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

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9010A-526	MY48031076	Oct. 05, 10’	Oct. 04, 11’
2.	Bluetooth Test Set	Anritsu	MT8852B	6K00005697	Nov. 25, 10’	Nov. 24, 11’
3.	Power Divider	Anritsu	K240C	019728	Aug. 05, 10’	Aug. 04, 11’

6.2. Block Diagram of Test Setup

The same as section.4.2.

6.3. Specification Limits (§15.247(a)(1)(iii))

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.

6.4. Operating Condition of EUT

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

6.5. 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.

6.6. Test Results

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

[Note: Three types of modulation (8-DPSK,π /4DQPSK, GFSK) were evaluated but only two types of modulation (8-DPSK and GFSK) were reported in this report.]

EUT：(1)Car Navigation/CD Player (2)Car CD Player M/N：LNC1700ENFS

Test Date : Mar. 21, 2011 Temperature : 21 ℃ Humidity : 55 %

6.6.1. Type of Modulation：8-DPSK,

Test Frequency：2402MHz

Duty cycle: 79channels*0.4 seconds = 31.6 seconds

3DH1 : A The system makes worst case 1600 hops per second or 1 time slot has a length of 625us with 79 channels. A DH1 packet need 1 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 800 hops per second with 79 channels. So you have each channel 10.13 time per second and so for 31.6 seconds you have 320 time of appearance.

Each Tx-time per appearance is 390.0us.

10.13 time*31.6 seconds* 0.390ms = 124.842ms (<400ms)

B. 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/5* 0.390ms = 125.704ms (<400ms)

3DH3 : A The system makes worst case 1600 hops per second or 1 time slot has a length of 625us with 79 channels. A DH3 packet need 3 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 400 hops per second with 79 channels. So you have each channel 5.1 time per second and so for 31.6 seconds you have 161 time of appearance.

Each Tx-time per appearance is 1650us.

5.1 time*31.6 seconds* 1.650ms = 265.914ms (<400ms)

B. 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/5* 1.650ms = 260.770ms (<400ms)

3DH5 : A The system makes worst case 1600 hops per second or 1 time slot has a length of 625us with 79 channels. A DH5 packet need 1 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 266.7 hops per second with 79 channels. So you have each channel 3.37 time per second and so for 31.6 seconds you have 106 time of appearance.

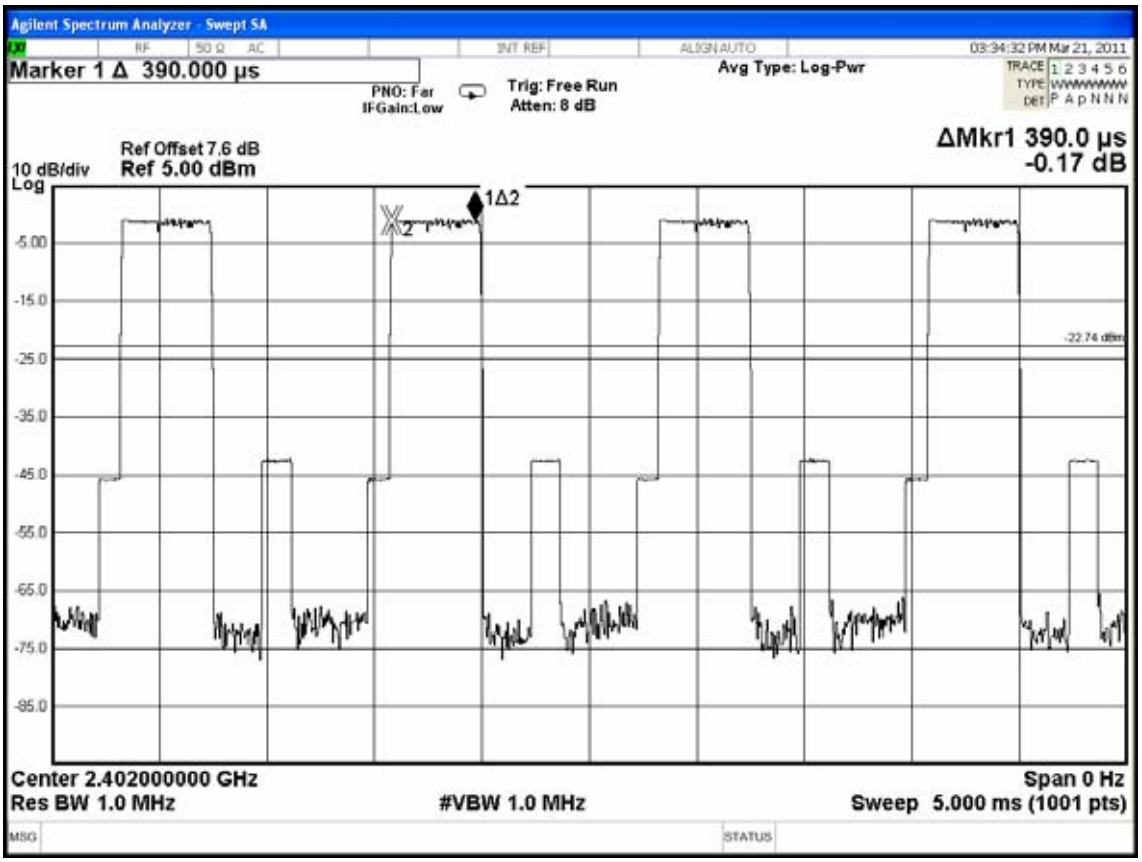
Each Tx-time per appearance is 2900us.

3.37 time*31.6 seconds* 2.900ms = 308.826ms (<400ms)

B. 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/5* 2.900ms = 293.248ms (<400ms)

Figure 1: 8-DPSK, 2402MHz, 3DH1



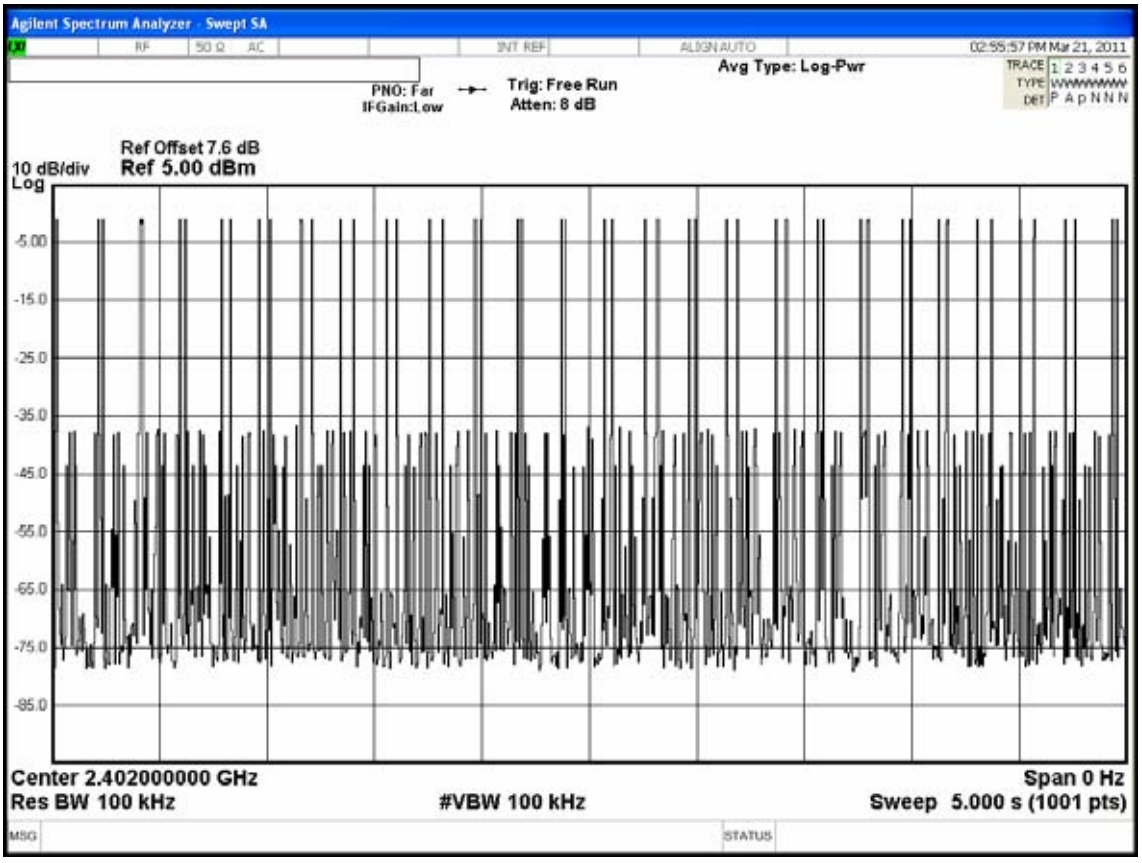
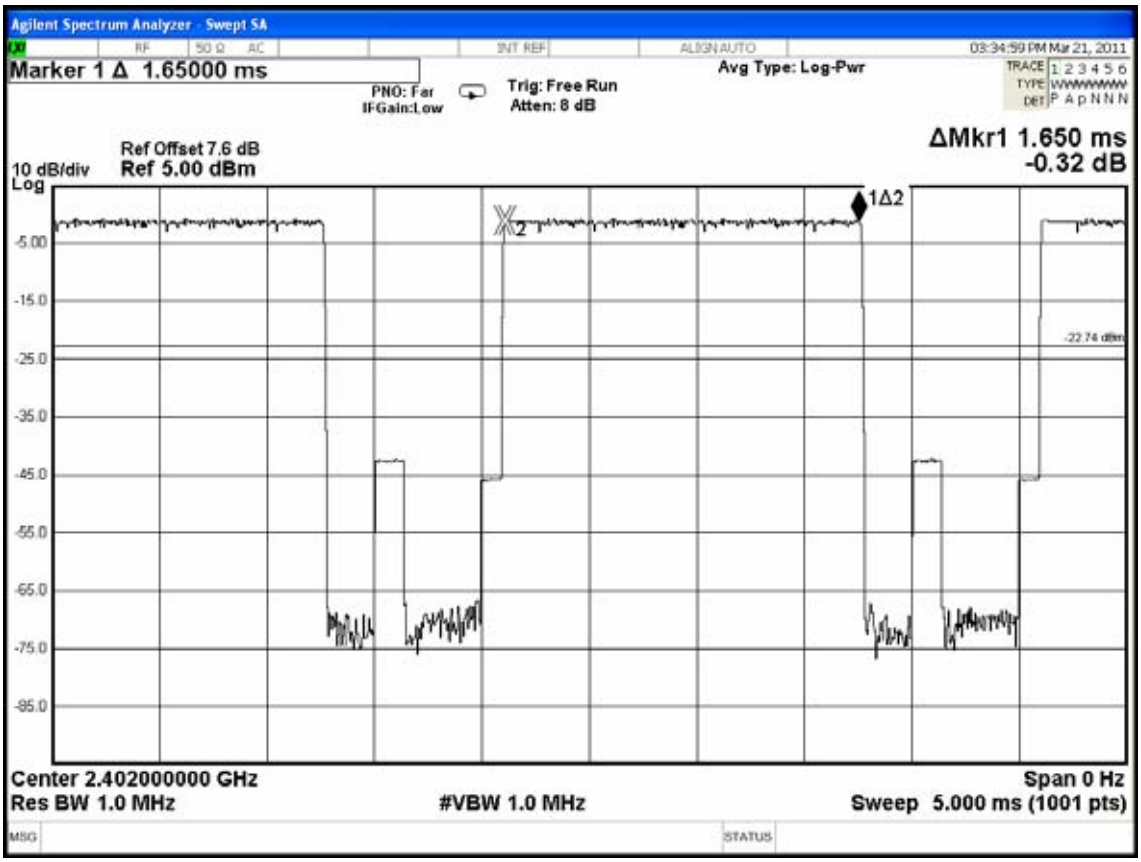


Figure 2: 8-DPSK, 2402MHz, 3DH3



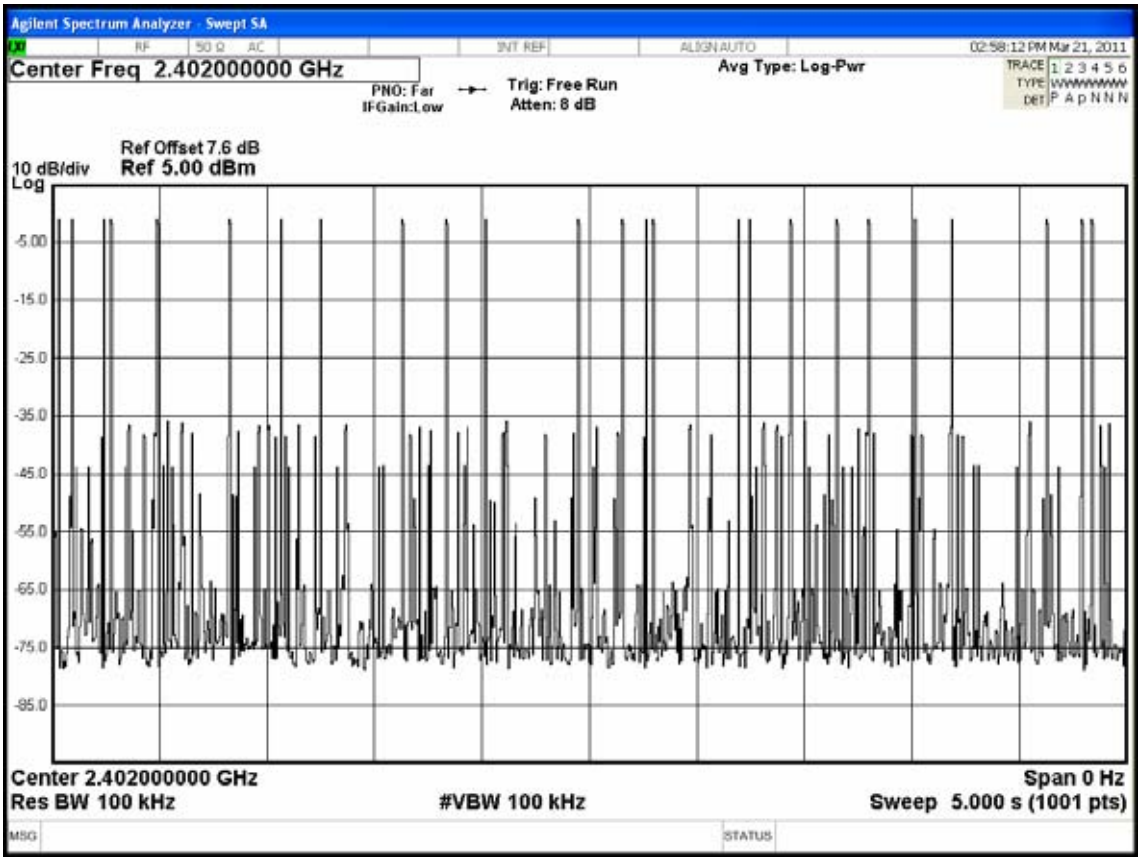
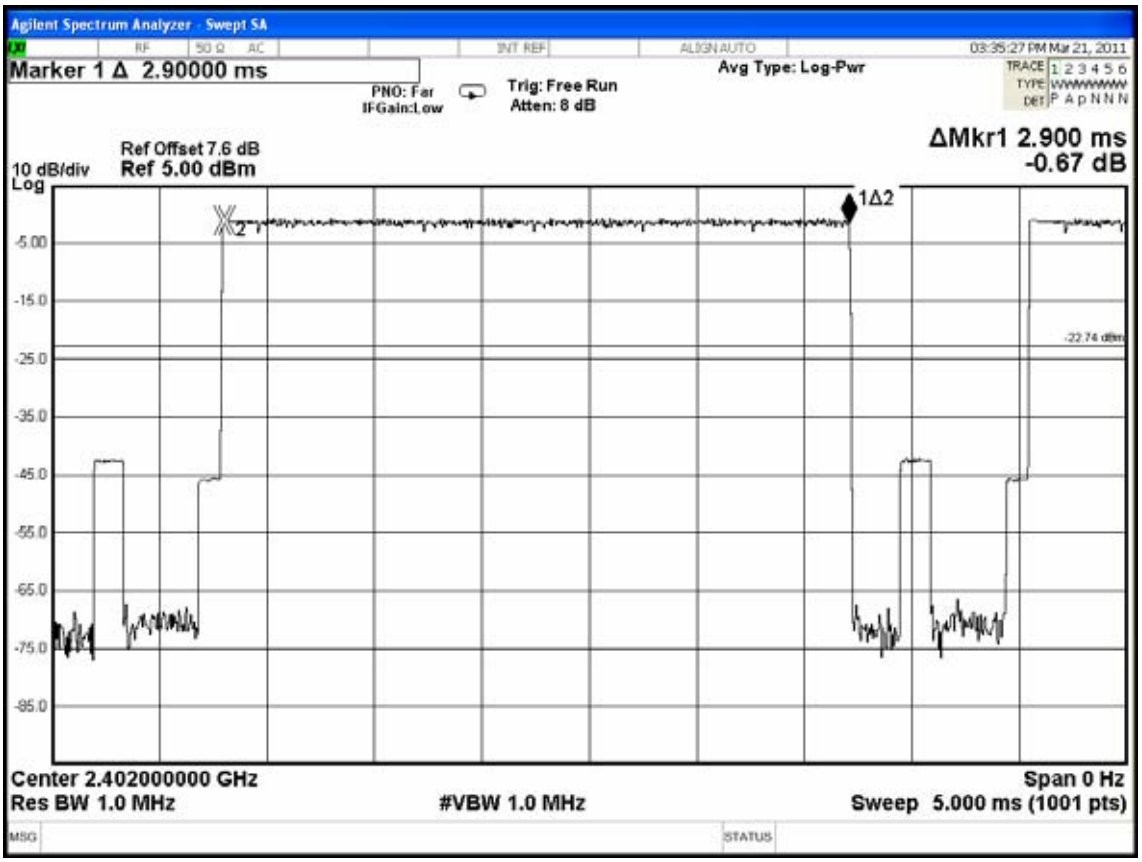
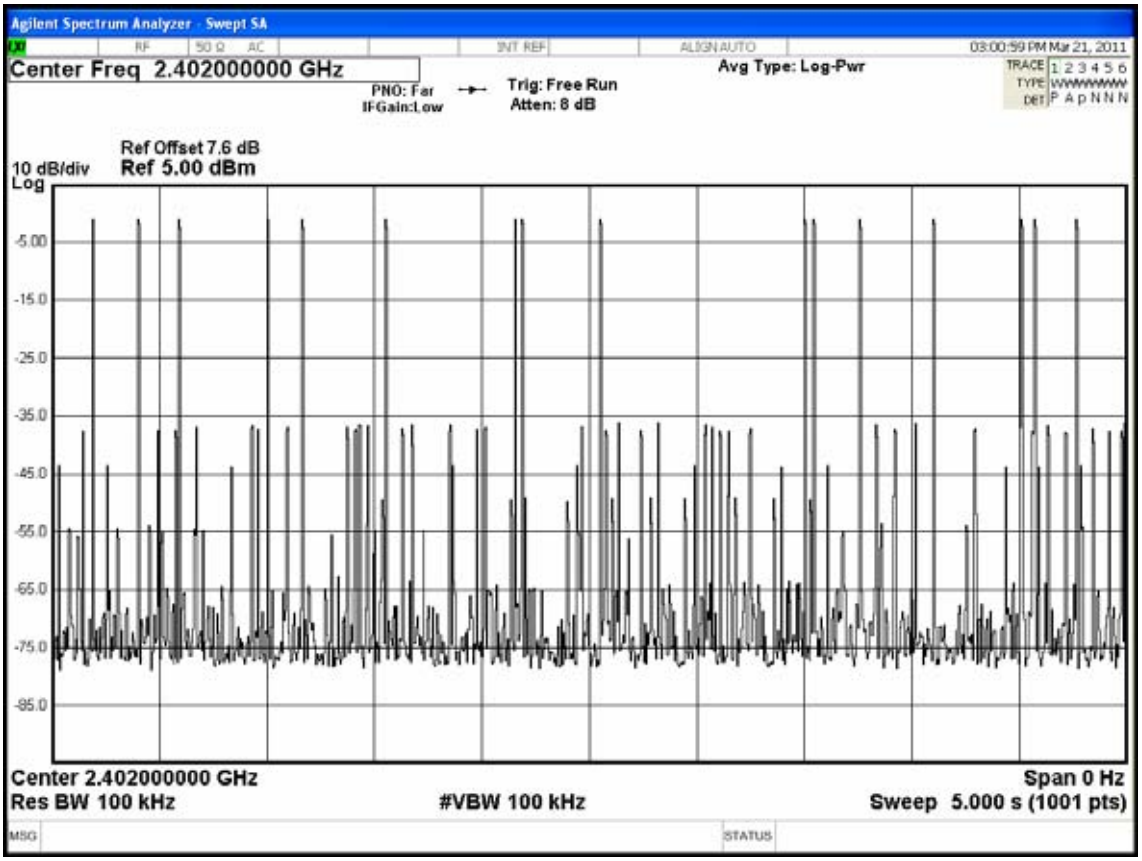


Figure 3: 8-DPSK, 2402MHz, 3DH5





Test Frequency：2441MHz

Duty cycle: 79channels*0.4 seconds = 31.6 seconds

3DH1 : A The system makes worst case 1600 hops per second or 1 time slot has a length of 625us with 79 channels. A DH1 packet need 1 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 800 hops per second with 79 channels. So you have each channel 10.13 time per second and so for 31.6 seconds you have 320 time of appearance.

Each Tx-time per appearance is 390.0us.

10.13 time*31.6 seconds* 0.390ms = 124.842ms (<400ms)

B. 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/5* 0.390ms = 125.704ms (<400ms)

3DH3 : A The system makes worst case 1600 hops per second or 1 time slot has a length of 625us with 79 channels. A DH3 packet need 3 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 400 hops per second with 79 channels. So you have each channel 5.1 time per second and so for 31.6 seconds you have 161 time of appearance.

Each Tx-time per appearance is 1650us.

5.1 time*31.6 seconds* 1.650ms = 265.914ms (<400ms)

B. 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/5* 1.650ms = 260.770ms (<400ms)

3DH5 : A The system makes worst case 1600 hops per second or 1 time slot has a length of 625us with 79 channels. A DH5 packet need 1 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 266.7 hops per second with 79 channels. So you have each channel 3.37 time per second and so for 31.6 seconds you have 106 time of appearance.

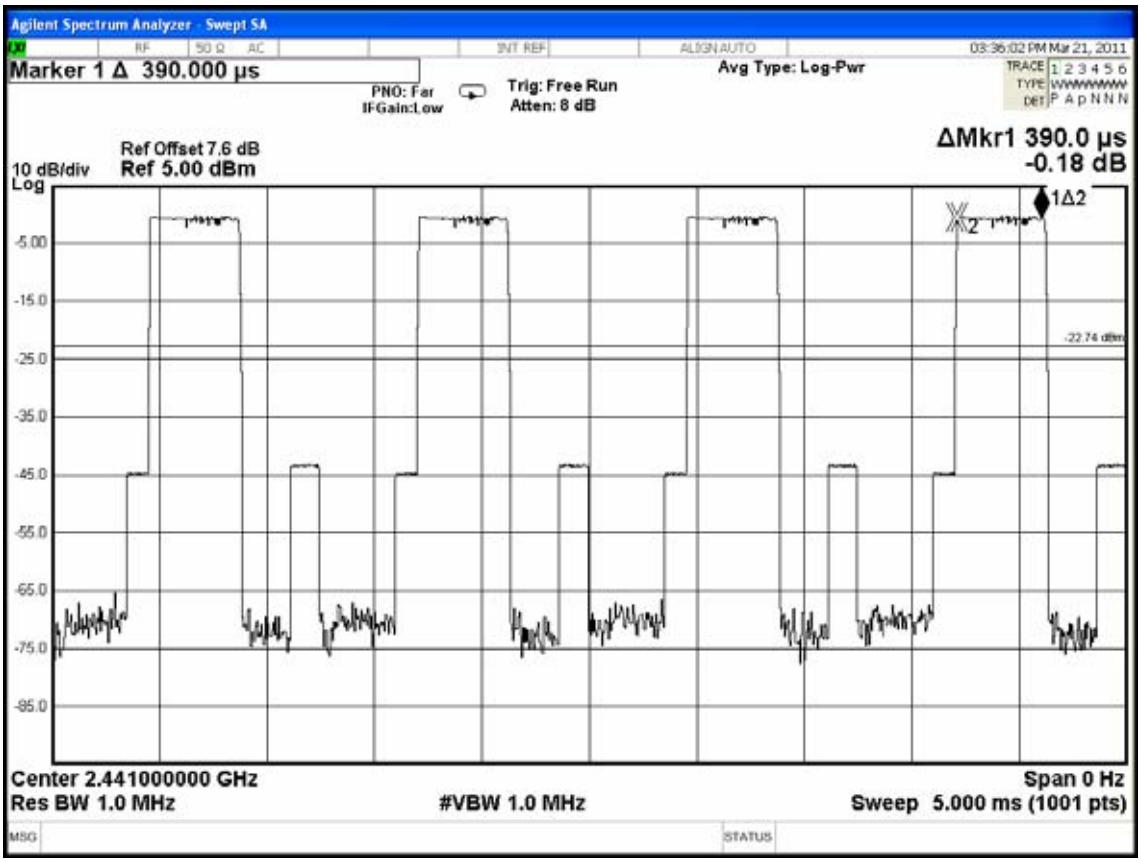
Each Tx-time per appearance is 2900us.

3.37 time*31.6 seconds* 2.900ms = 308.826ms (<400ms)

B. 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/5* 2.900ms = 293.248ms (<400ms)

Figure 1: 8-DPSK, 2441MHz, 3DH1



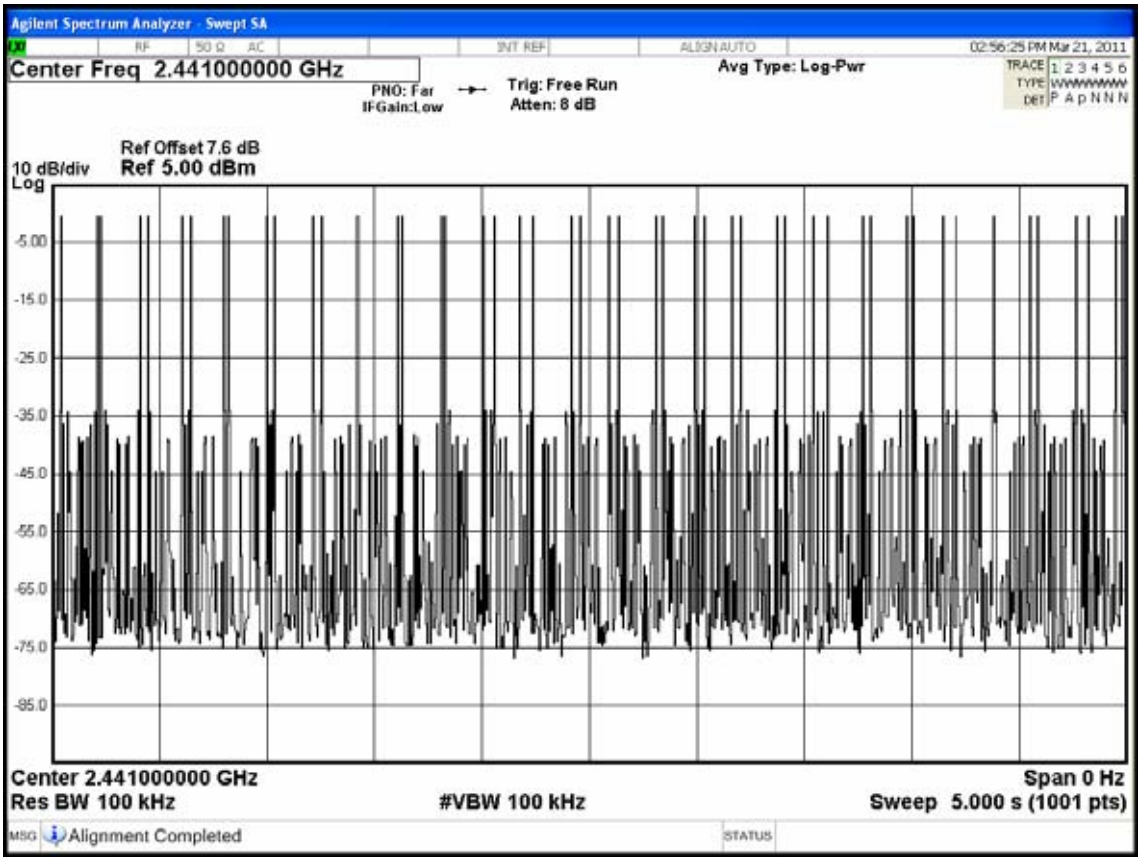
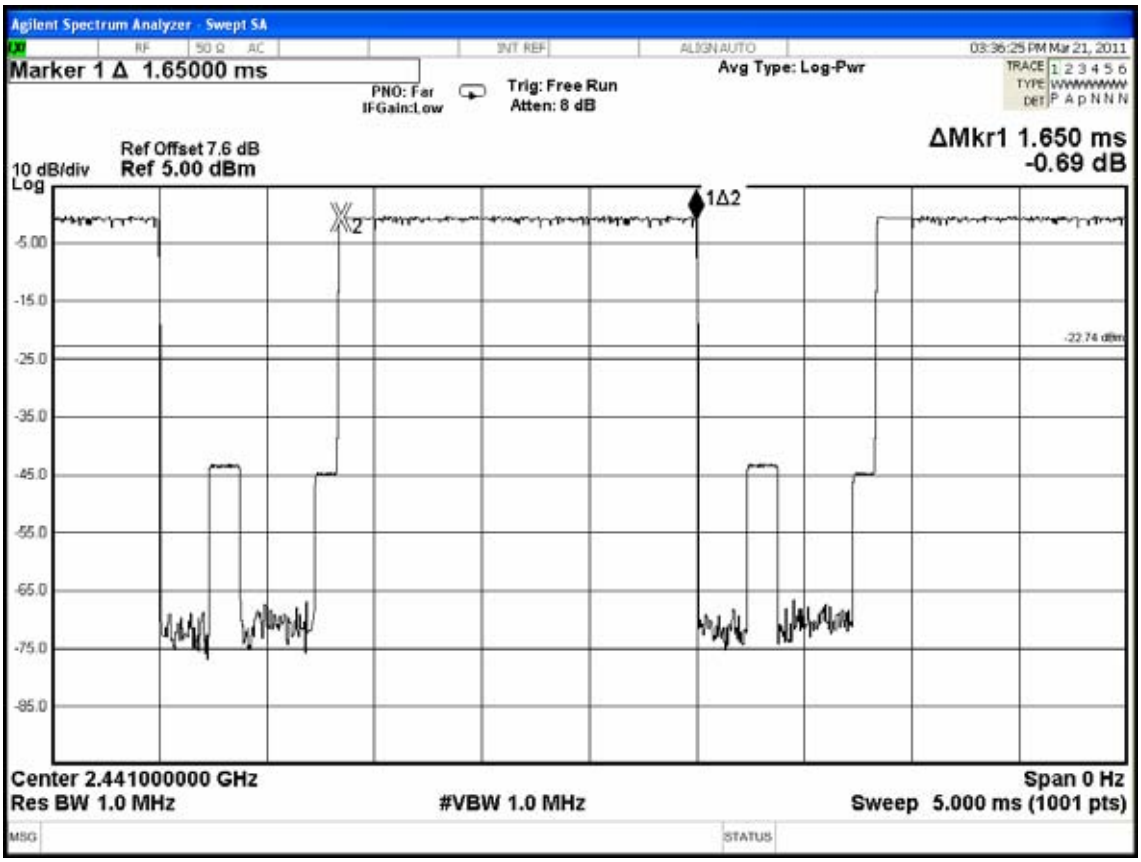


Figure 2: 8-DPSK, 2441MHz, 3DH3



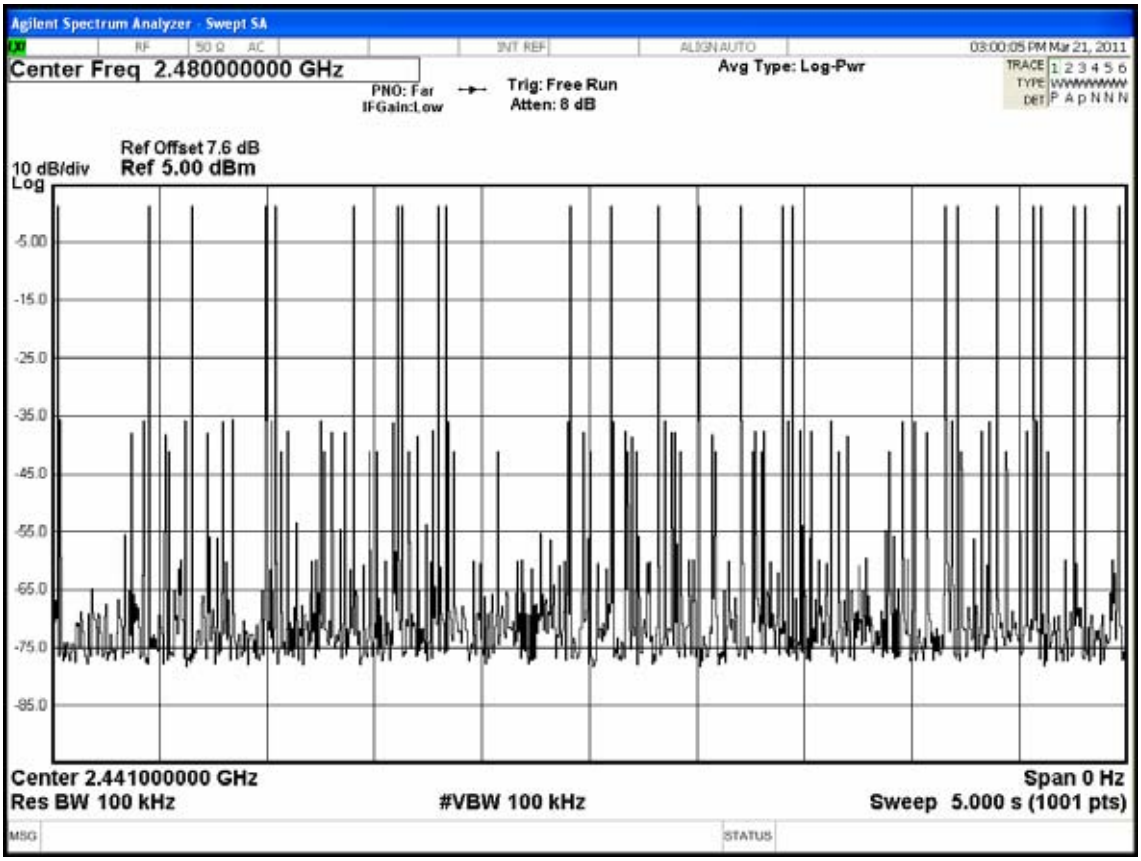
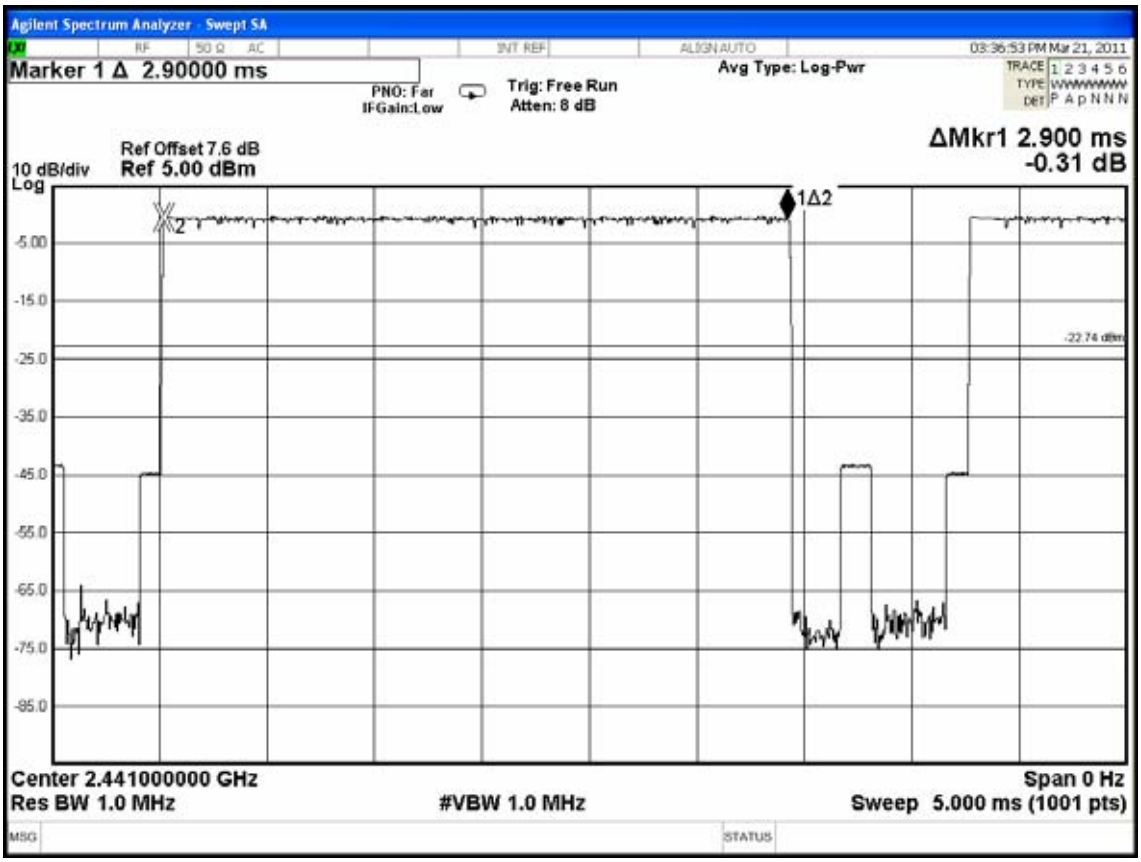
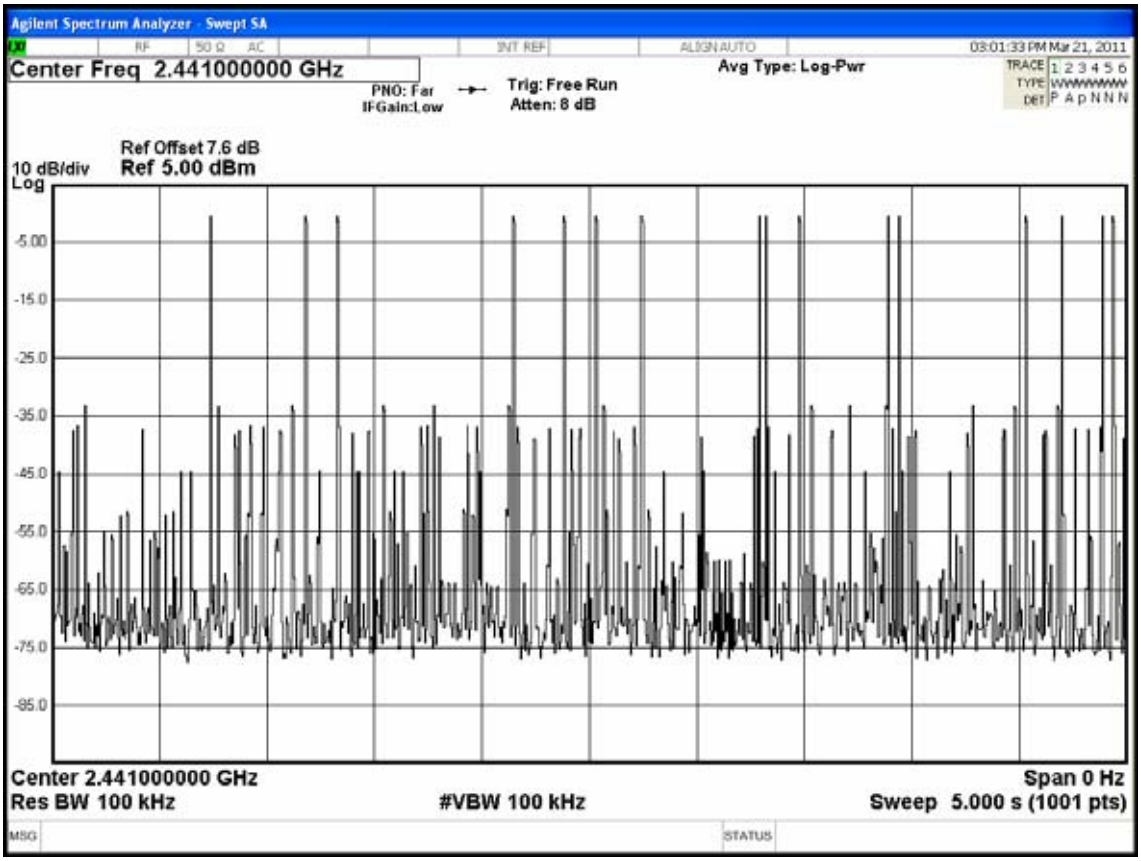


Figure 3: 8-DPSK, 2441MHz, 3DH5





Test Frequency：2480MHz

Duty cycle: 79channels*0.4 seconds = 31.6 seconds

3DH1 : A The system makes worst case 1600 hops per second or 1 time slot has a length of 625us with 79 channels. A DH1 packet need 1 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 800 hops per second with 79 channels. So you have each channel 10.13 time per second and so for 31.6 seconds you have 320 time of appearance.

Each Tx-time per appearance is 390.0us.

10.13 time*31.6 seconds* 0.390ms = 124.842ms (<400ms)

B. 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/5* 0.390ms = 125.704ms (<400ms)

3DH3 : A The system makes worst case 1600 hops per second or 1 time slot has a length of 625us with 79 channels. A DH3 packet need 3 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 400 hops per second with 79 channels. So you have each channel 5.1 time per second and so for 31.6 seconds you have 161 time of appearance.

Each Tx-time per appearance is 1650us.

5.1 time*31.6 seconds* 1.650ms = 265.914ms (<400ms)

B. 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/5* 1.650ms = 260.770ms (<400ms)

3DH5 : A The system makes worst case 1600 hops per second or 1 time slot has a length of 625us with 79 channels. A DH5 packet need 1 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 266.7 hops per second with 79 channels. So you have each channel 3.37 time per second and so for 31.6 seconds you have 106 time of appearance.

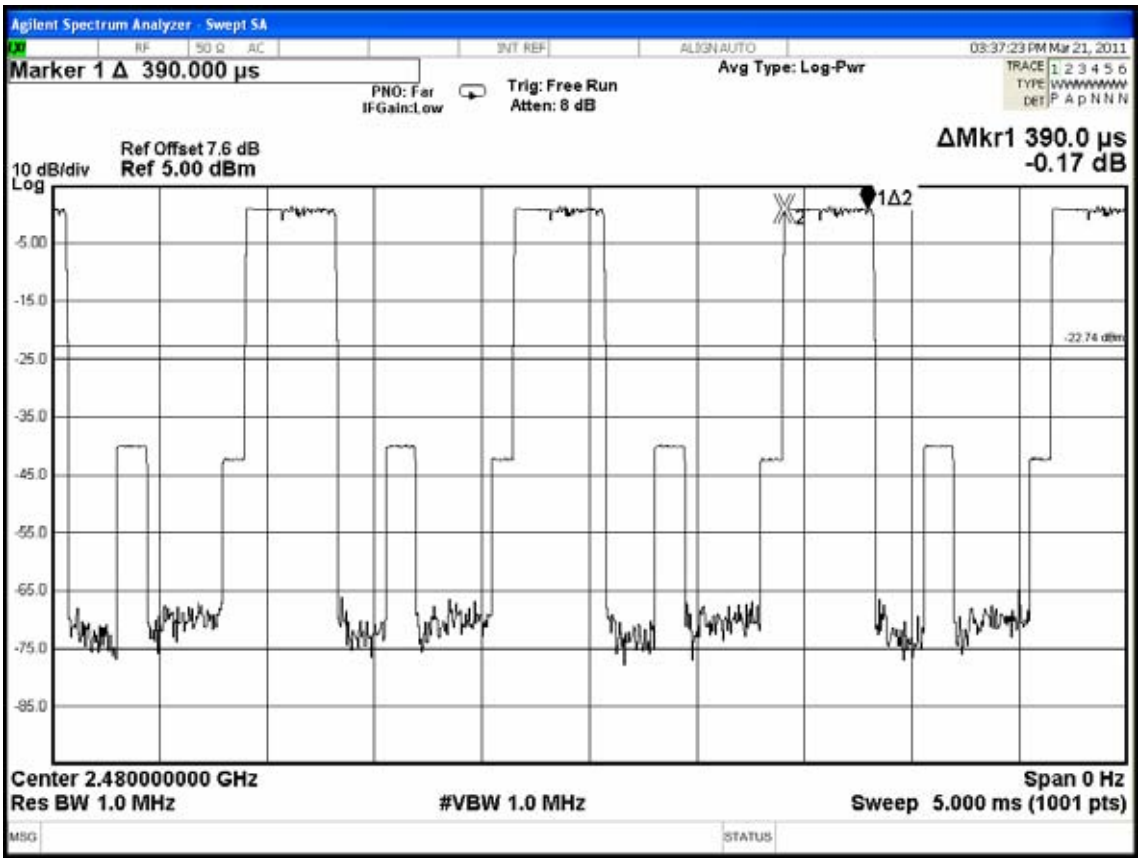
Each Tx-time per appearance is 2900us.

3.37 time*31.6 seconds* 2.900ms = 308.826ms (<400ms)

B. 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/5* 2.900ms = 293.248ms (<400ms)

Figure 1: 8-DPSK, 2480MHz, 3DH1



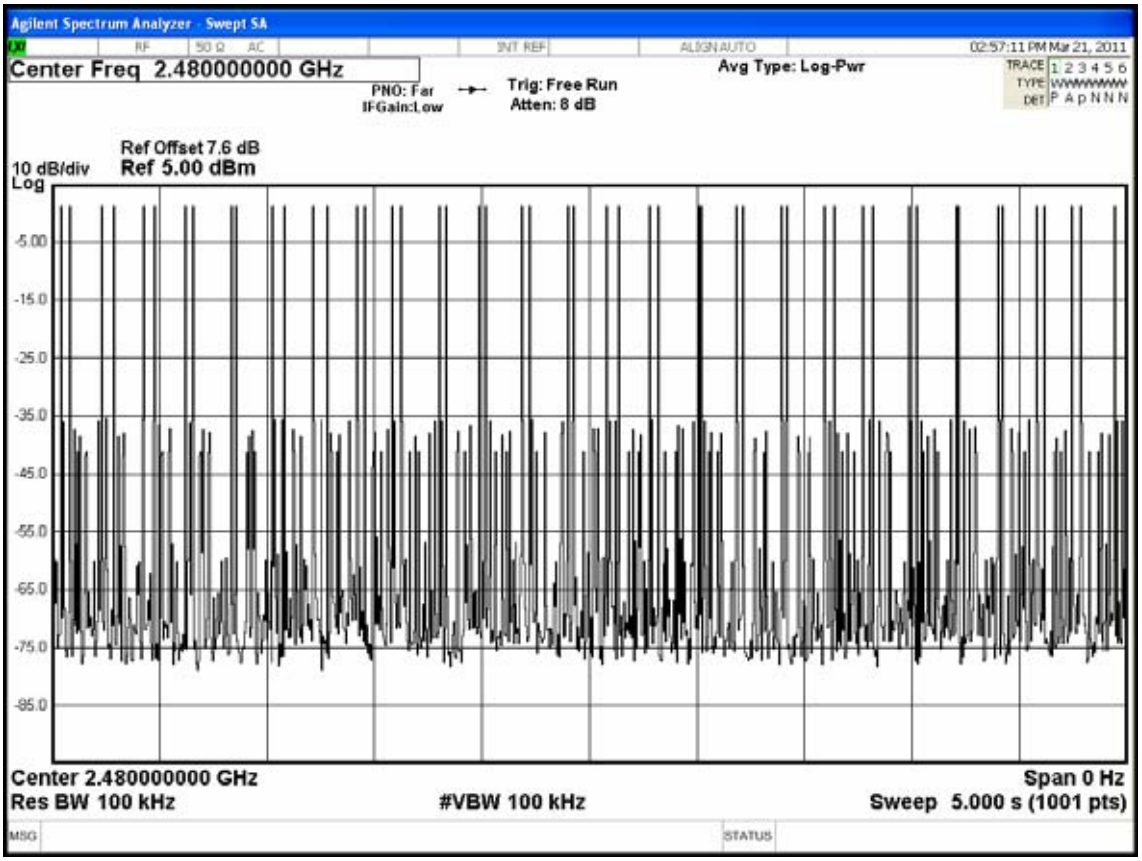
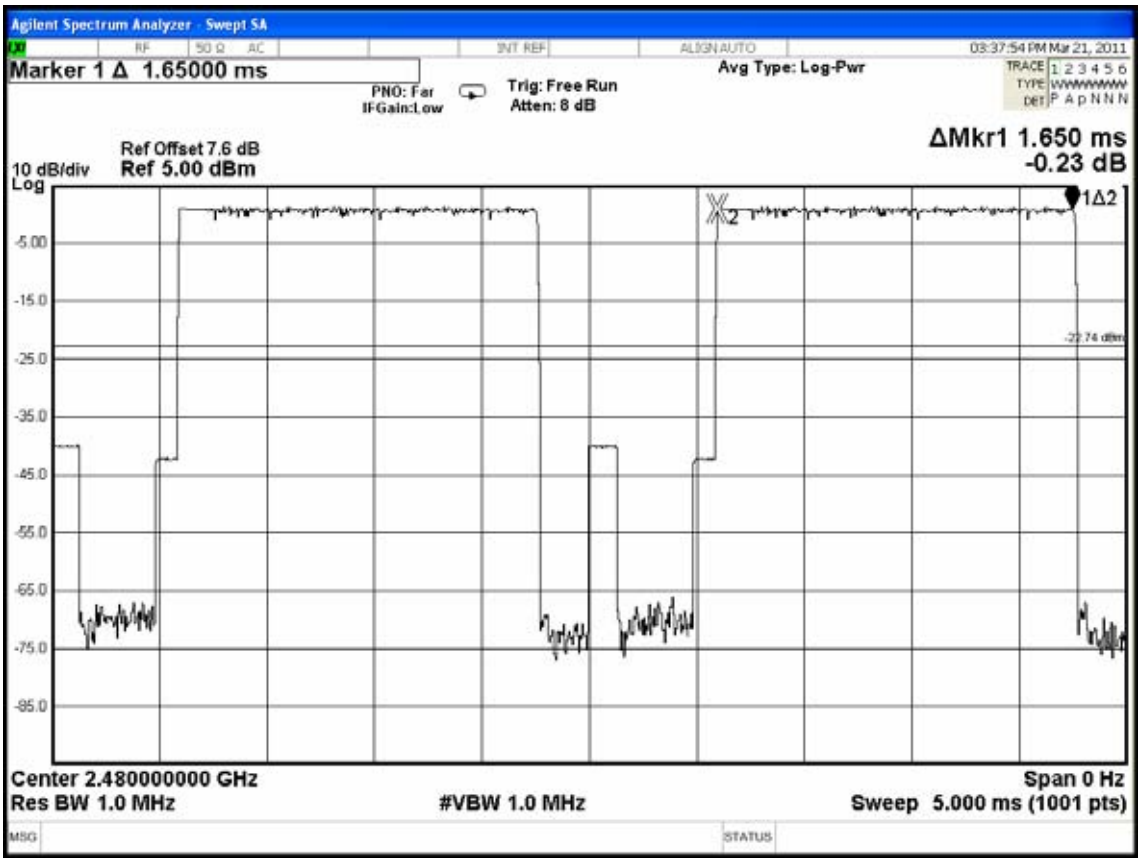


Figure 2: 8-DPSK, 2480MHz, 3DH3



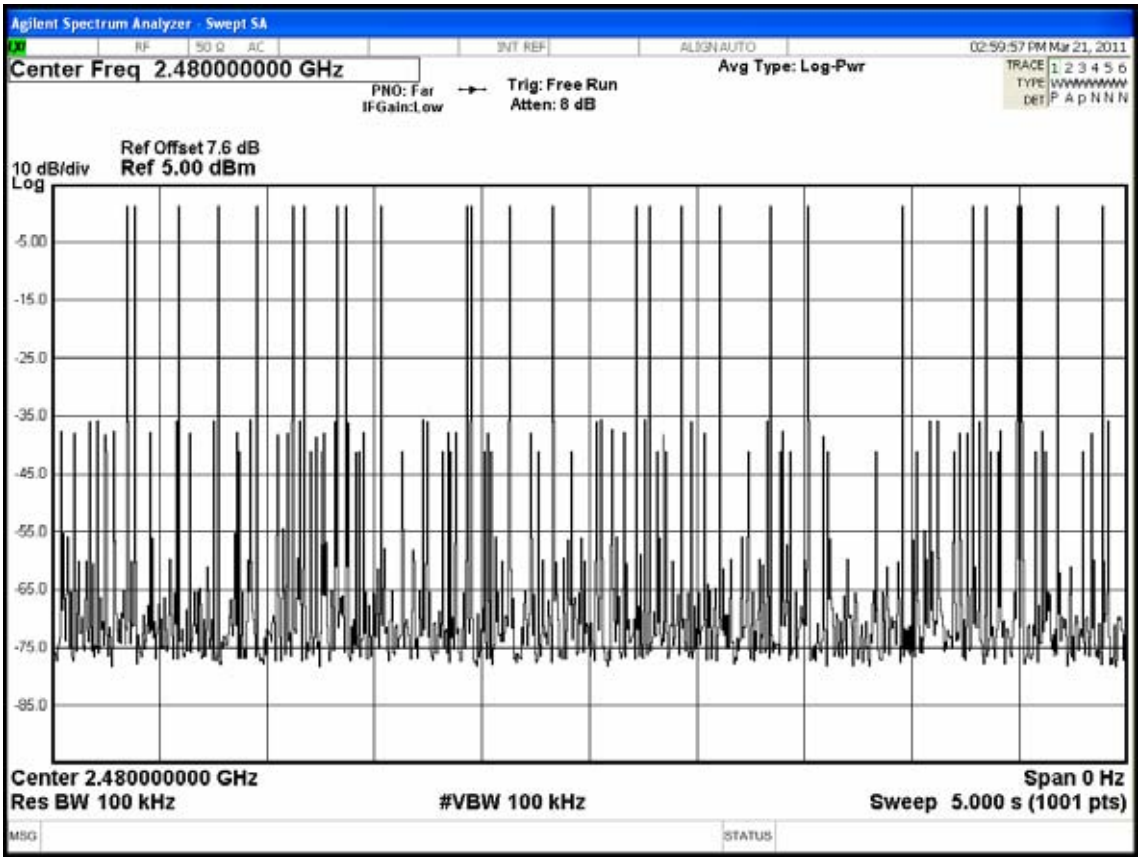
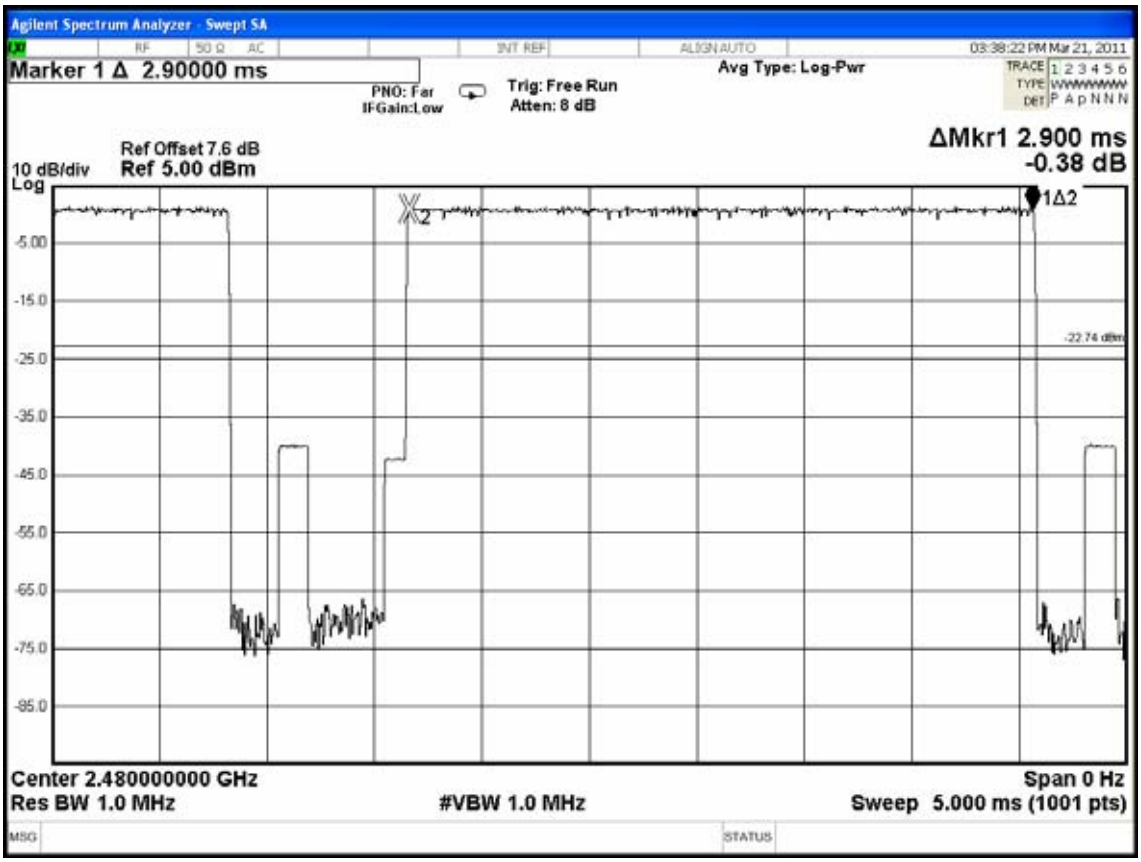
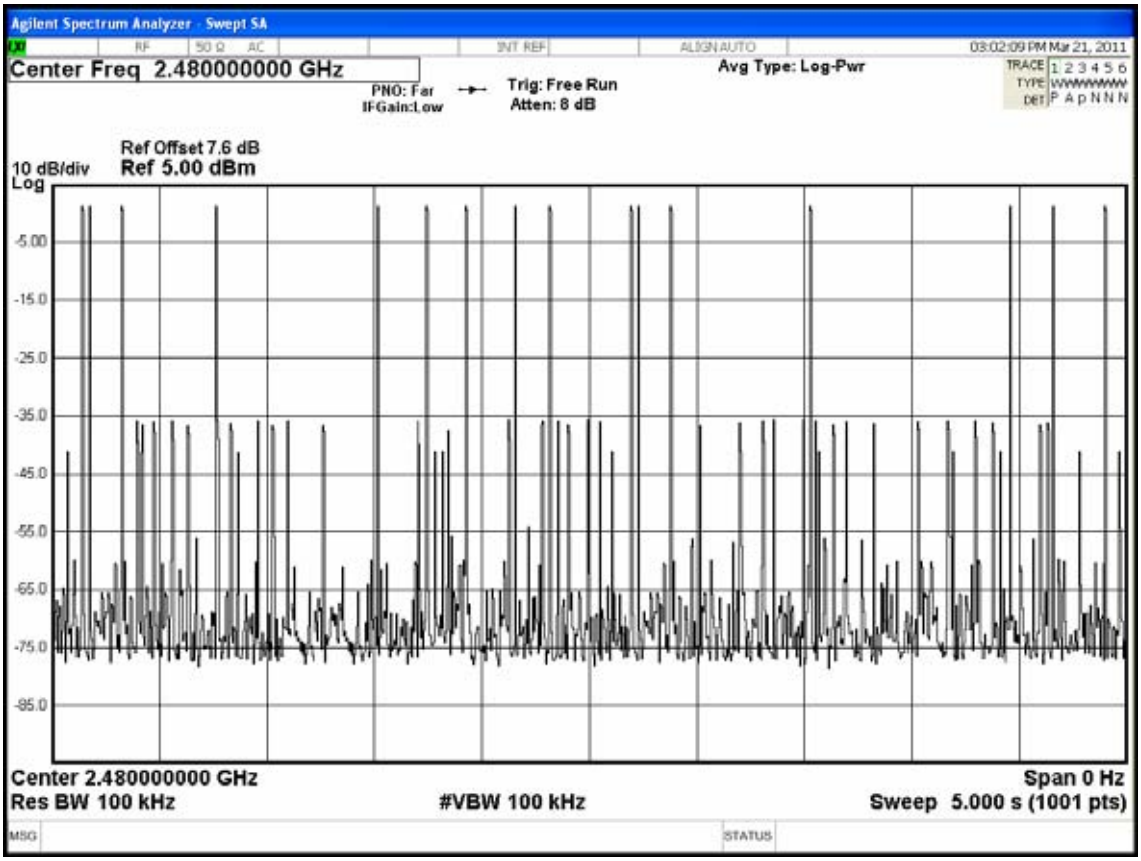


Figure 3: 8-DPSK, 2480MHz, 3DH5





6.6.2. Type of Modulation：GFSK,

Test Frequency：2402MHz

Duty cycle: 79channels*0.4 seconds = 31.6 seconds

DH1 : A The system makes worst case 1600 hops per second or 1 time slot has a length of 625us with 79 channels. A DH1 packet need 1 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 800 hops per second with 79 channels. So you have each channel 10.13 time per second and so for 31.6 seconds you have 320 time of appearance.

Each Tx-time per appearance is 390.0us.

10.13 time*31.6 seconds* 0.390ms = 124.842ms (<400ms)

B. 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/5* 0.390ms = 125.704ms (<400ms)

DH3 : A The system makes worst case 1600 hops per second or 1 time slot has a length of 625us with 79 channels. A DH3 packet need 3 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 400 hops per second with 79 channels. So you have each channel 5.1 time per second and so for 31.6 seconds you have 161 time of appearance.

Each Tx-time per appearance is 1650us.

5.1 time*31.6 seconds* 1.650ms = 265.914ms (<400ms)

B. 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/5* 1.650ms = 260.770ms (<400ms)

DH5 : A The system makes worst case 1600 hops per second or 1 time slot has a length of 625us with 79 channels. A DH5 packet need 1 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 266.7 hops per second with 79 channels. So you have each channel 3.37 time per second and so for 31.6 seconds you have 106 time of appearance.

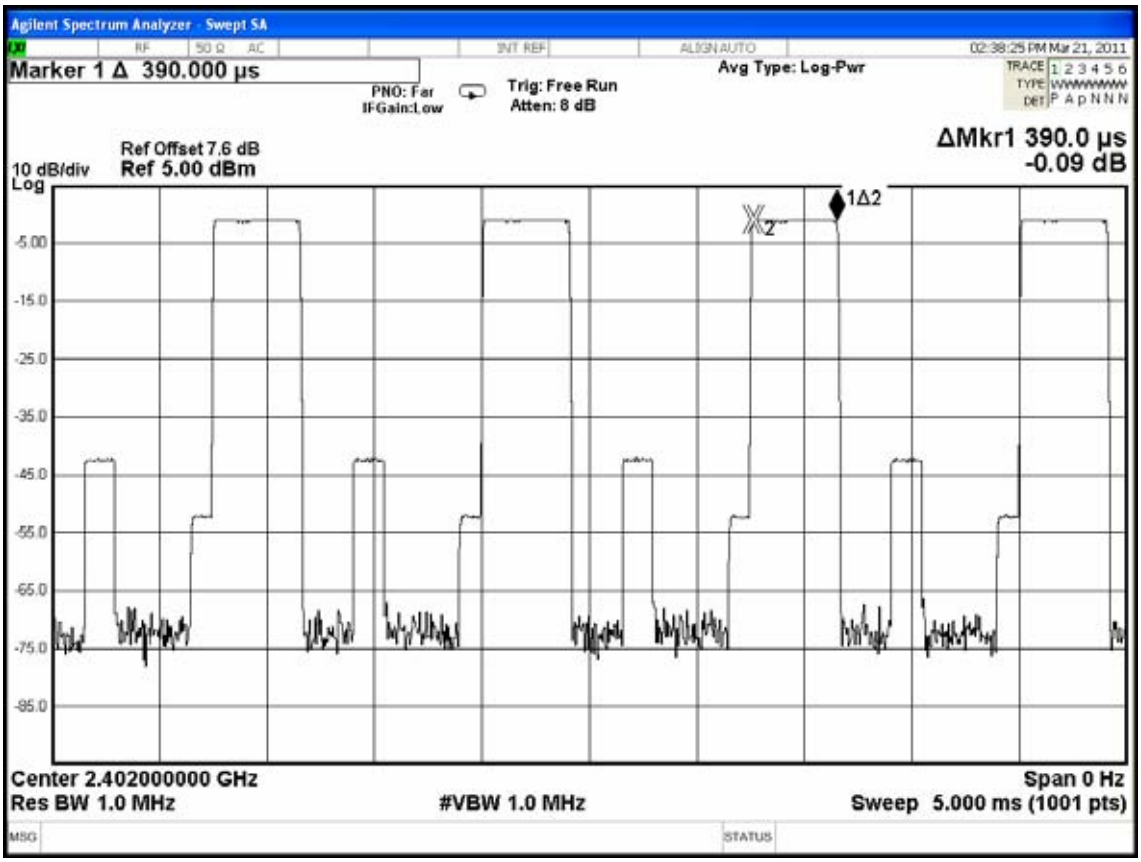
Each Tx-time per appearance is 2900us.

3.37 time*31.6 seconds* 2.900ms = 308.826ms (<400ms)

B. 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/5* 2.900ms = 293.248ms (<400ms)

Figure 1: GFSK, 2402MHz, DH1



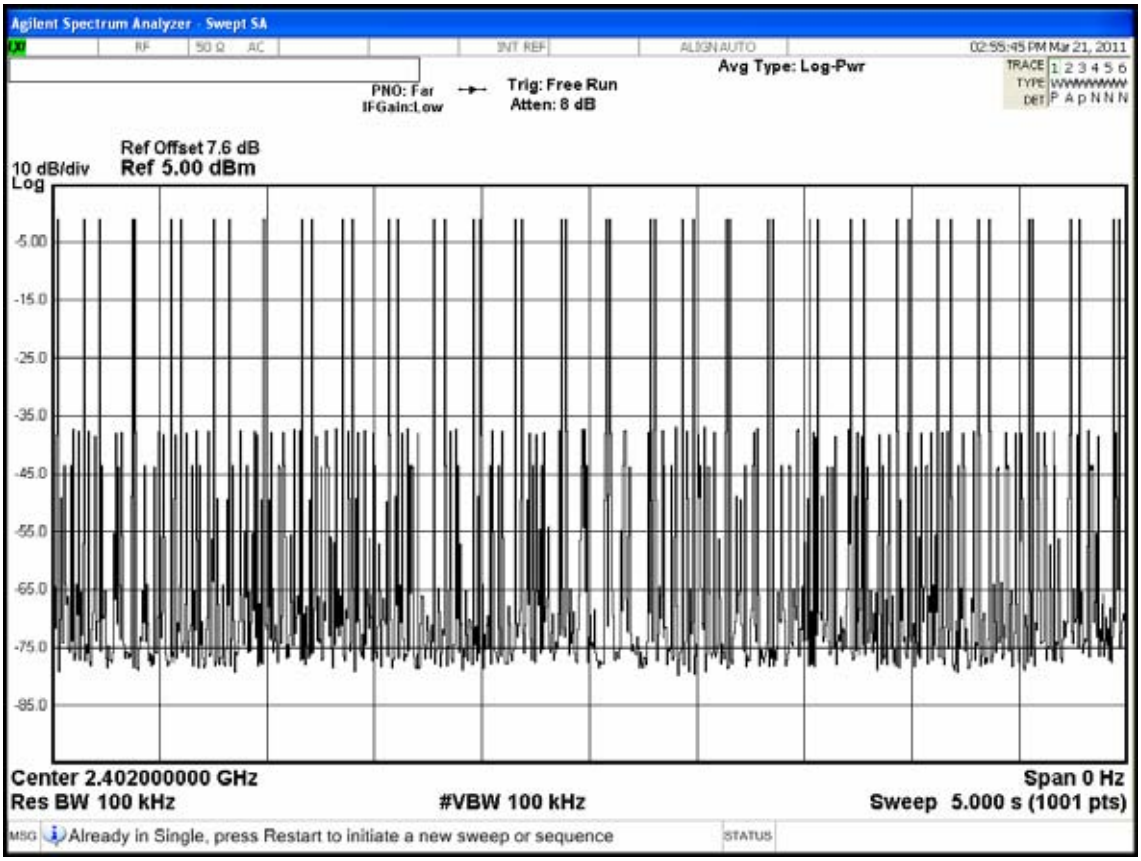
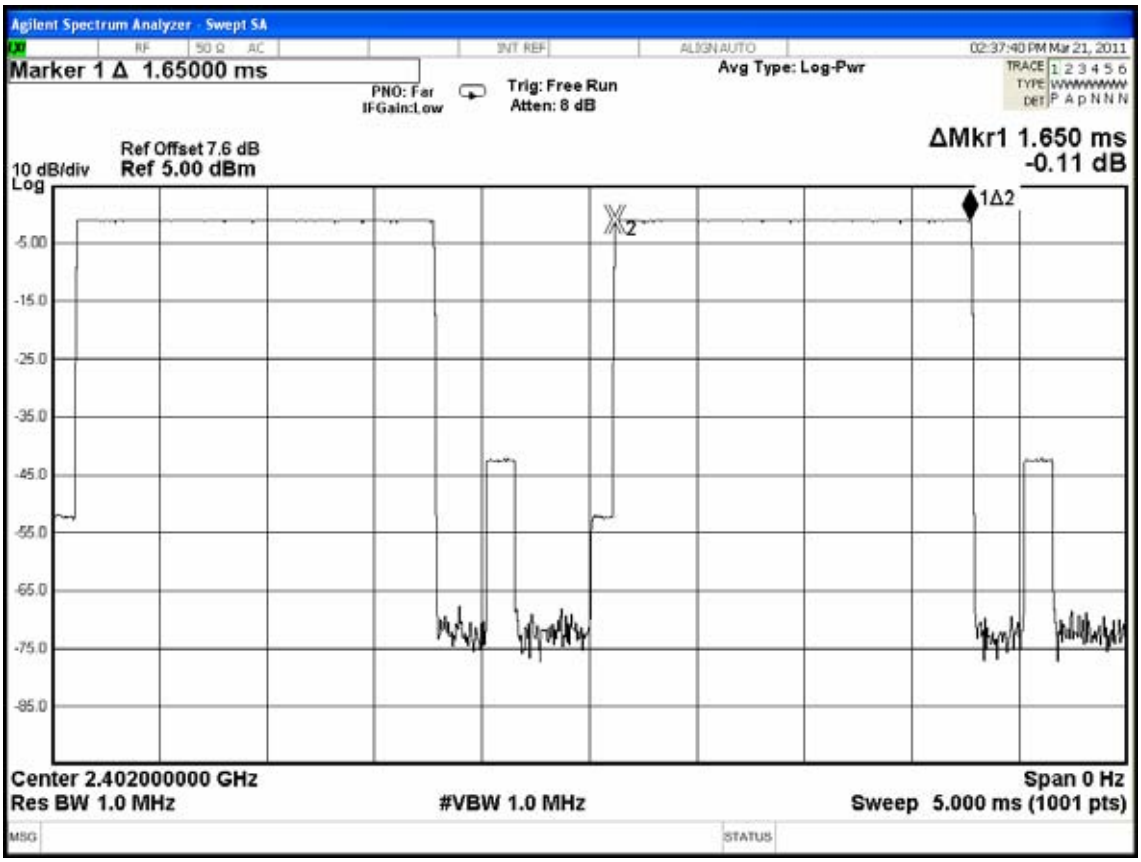


Figure 2: GFSK, 2402MHz, DH3



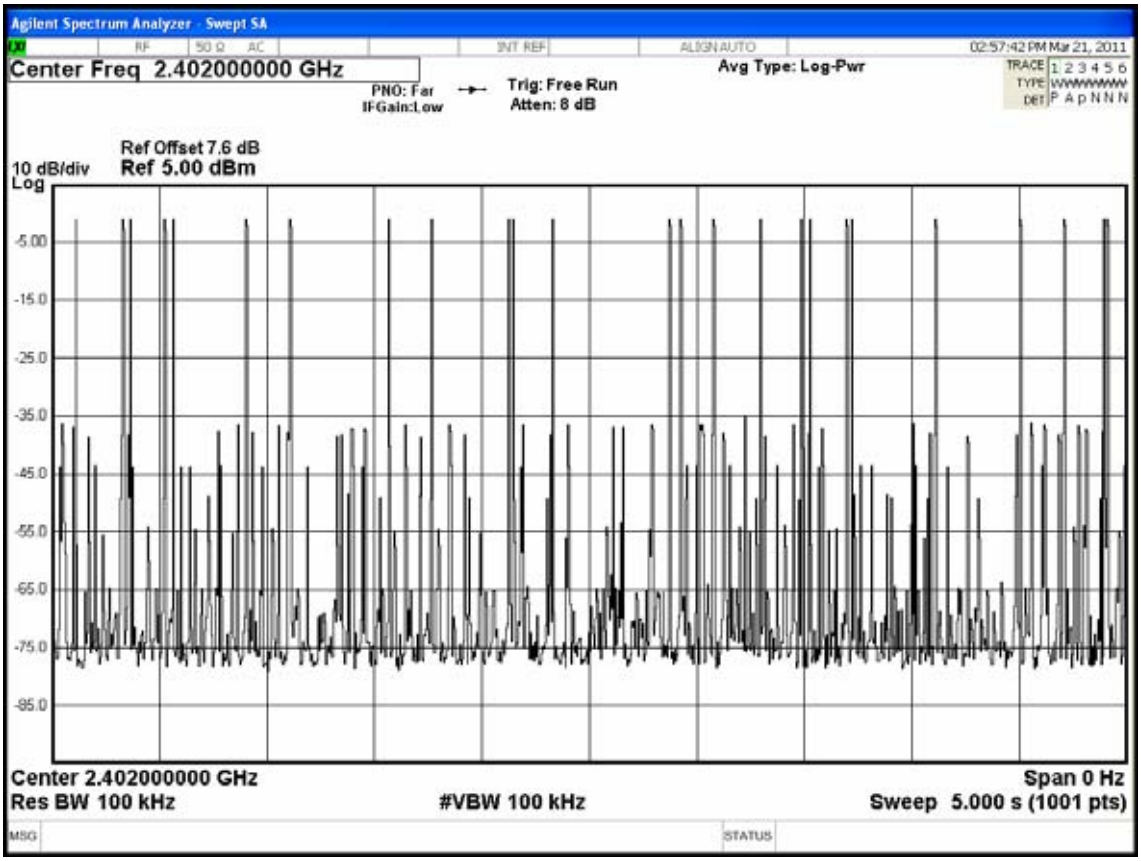
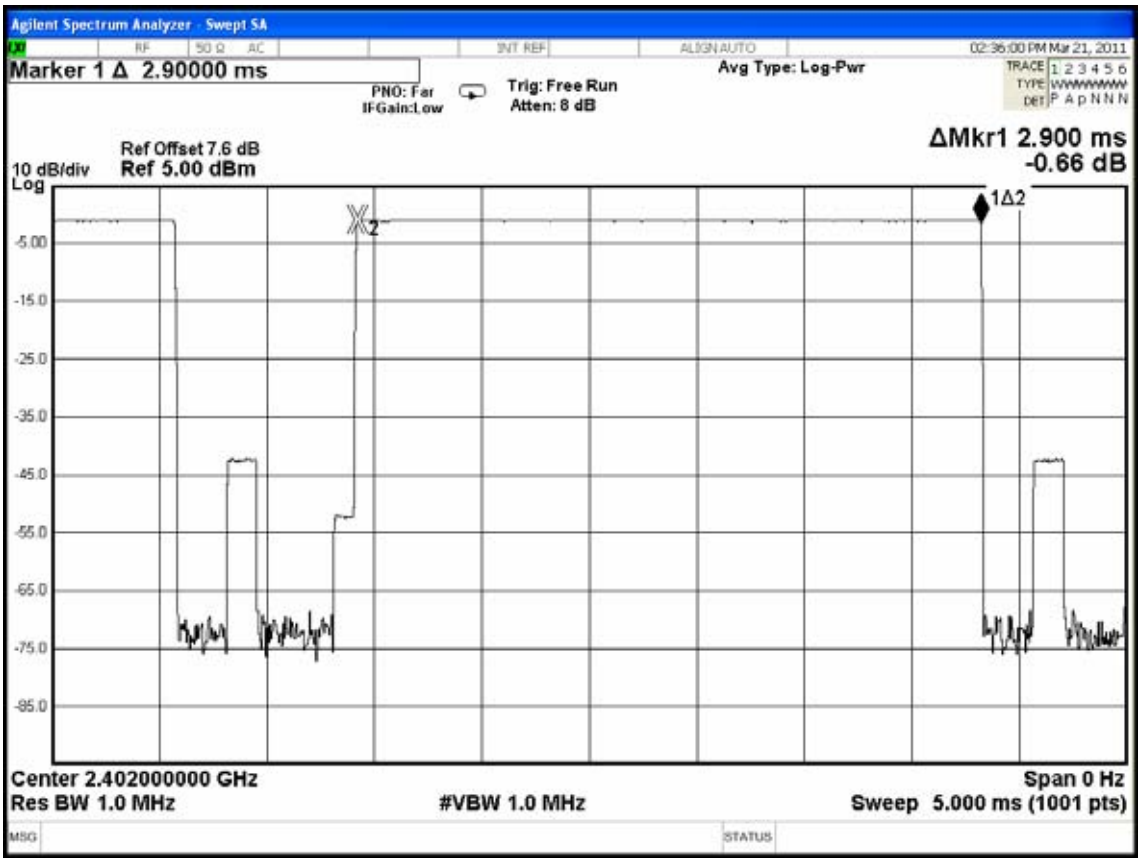
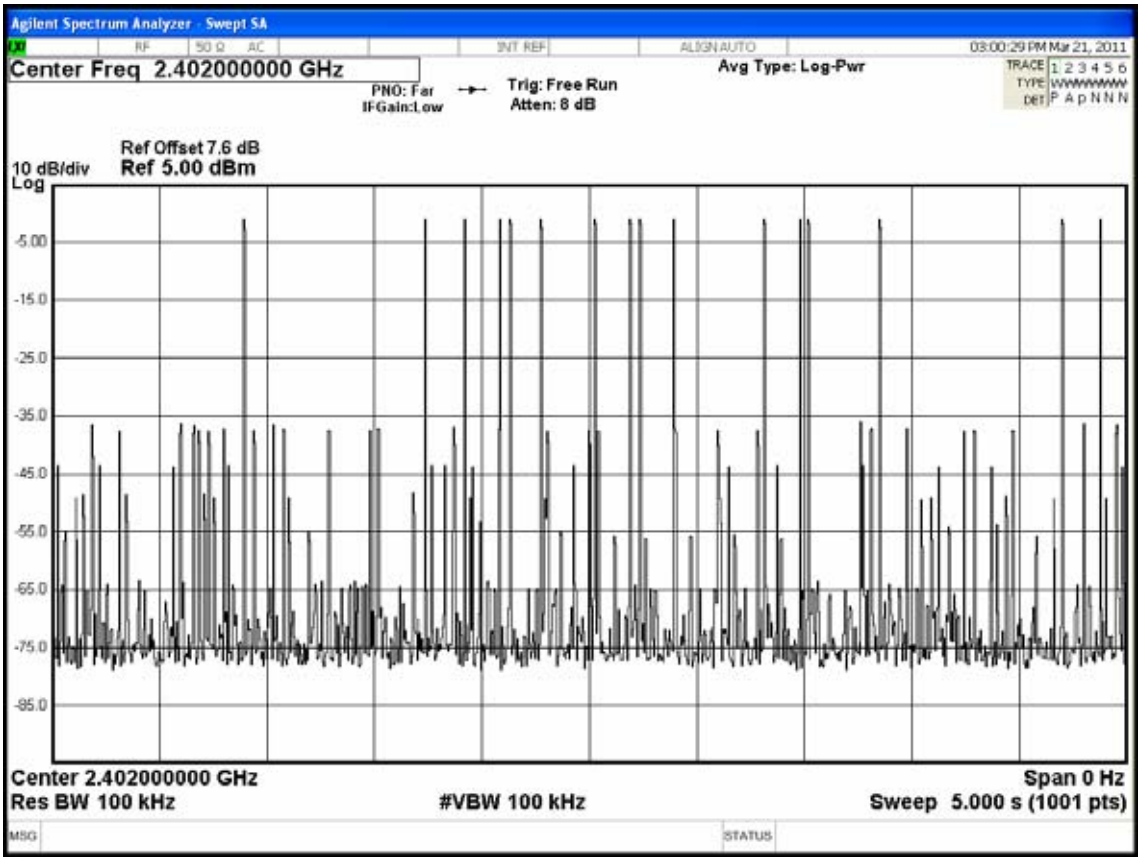


Figure 3: GFSK, 2402MHz, DH5





Test Frequency：2441MHz

Duty cycle: 79channels*0.4 seconds = 31.6 seconds

DH1 : A The system makes worst case 1600 hops per second or 1 time slot has a length of 625us with 79 channels. A DH1 packet need 1 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 800 hops per second with 79 channels. So you have each channel 10.13 time per second and so for 31.6 seconds you have 320 time of appearance.

Each Tx-time per appearance is 390.0us.

10.13 time*31.6 seconds* 0.390ms = 124.842ms (<400ms)

B. 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/5* 0.390ms = 125.704ms (<400ms)

DH3 : A The system makes worst case 1600 hops per second or 1 time slot has a length of 625us with 79 channels. A DH3 packet need 3 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 400 hops per second with 79 channels. So you have each channel 5.1 time per second and so for 31.6 seconds you have 161 time of appearance.

Each Tx-time per appearance is 1650us.

5.1 time*31.6 seconds* 1.650ms = 265.914ms (<400ms)

B. 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/5* 1.650ms = 260.770ms (<400ms)

DH5 : A The system makes worst case 1600 hops per second or 1 time slot has a length of 625us with 79 channels. A DH5 packet need 1 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 266.7 hops per second with 79 channels. So you have each channel 3.37 time per second and so for 31.6 seconds you have 106 time of appearance.

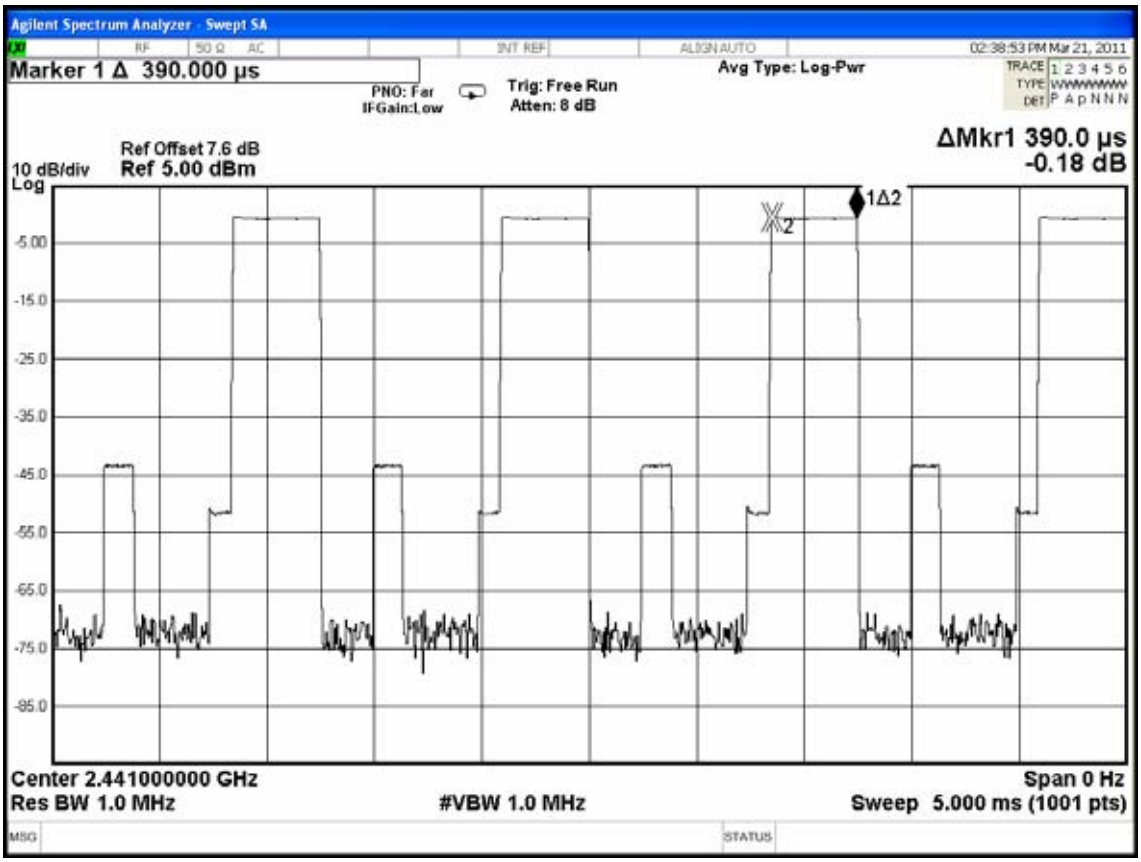
Each Tx-time per appearance is 2900us.

3.37 time*31.6 seconds* 2.900ms = 308.826ms (<400ms)

B. 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/5* 2.900ms = 293.248ms (<400ms)

Figure 1: GFSK, 2441MHz, DH1



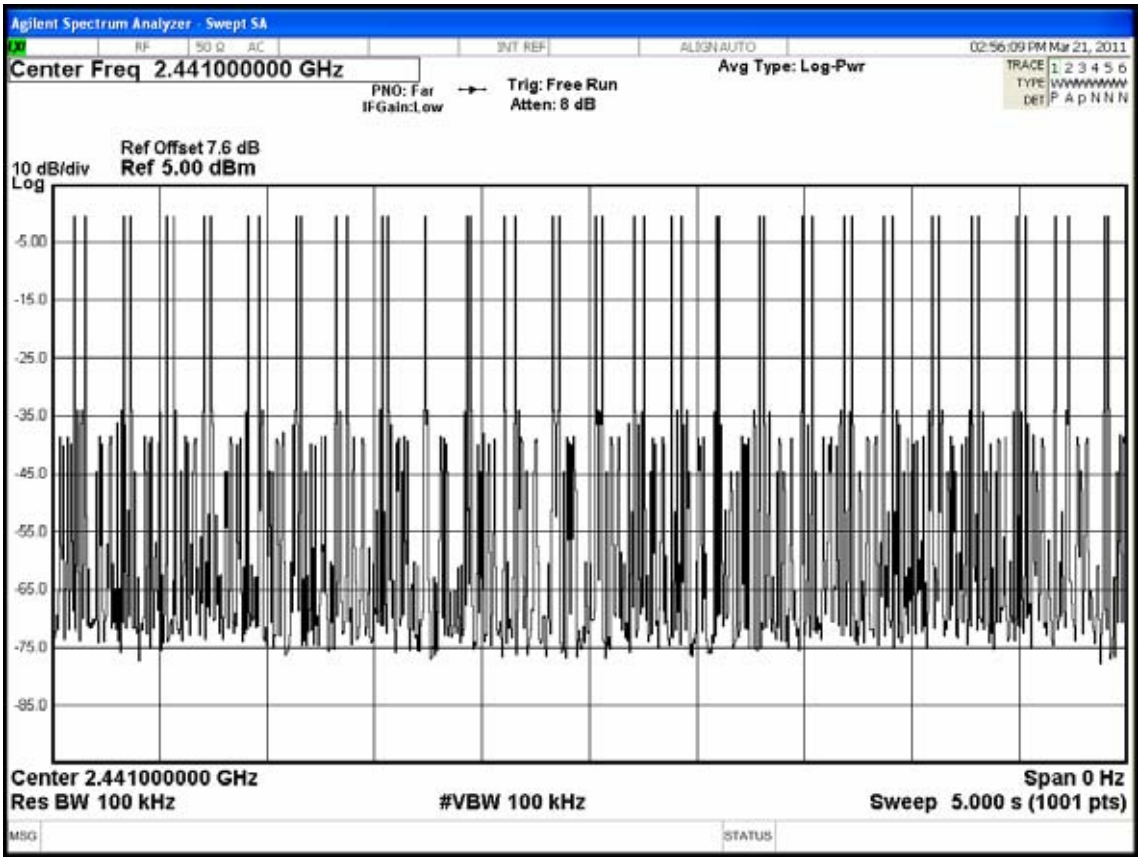
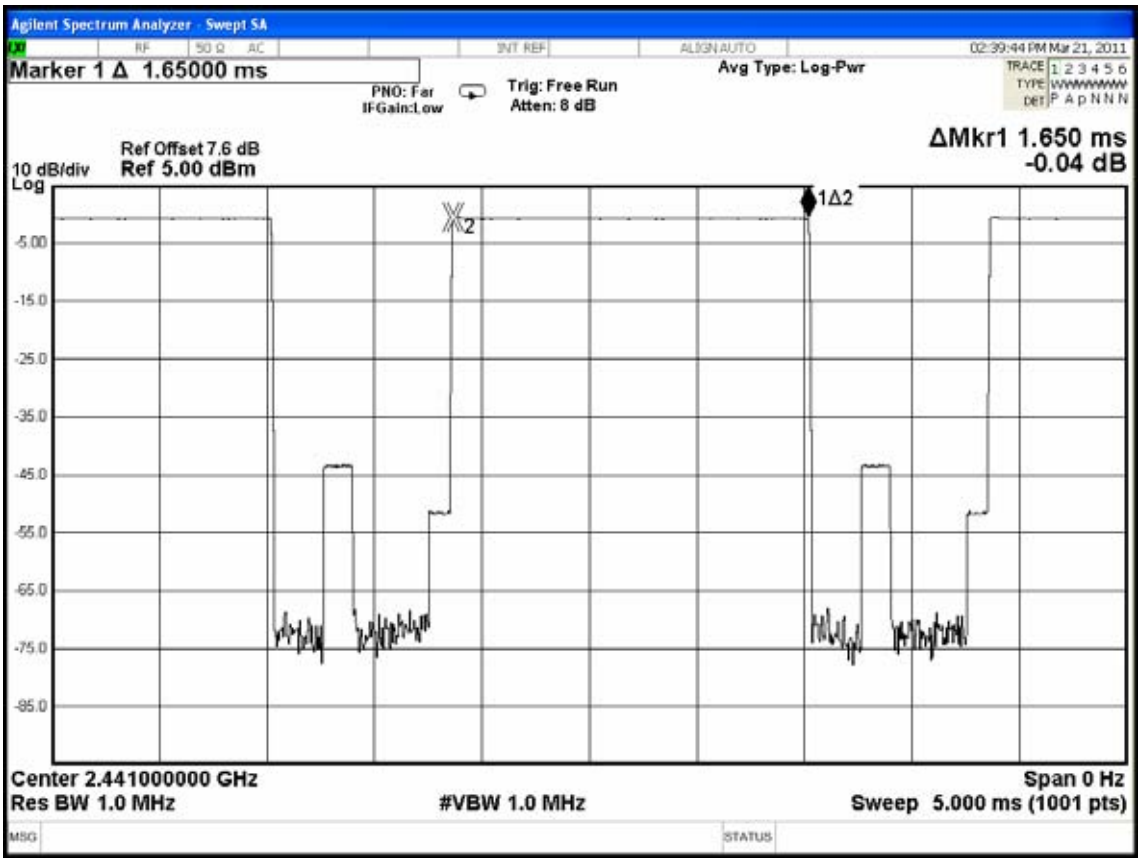


Figure 2: GFSK, 2441MHz, DH3



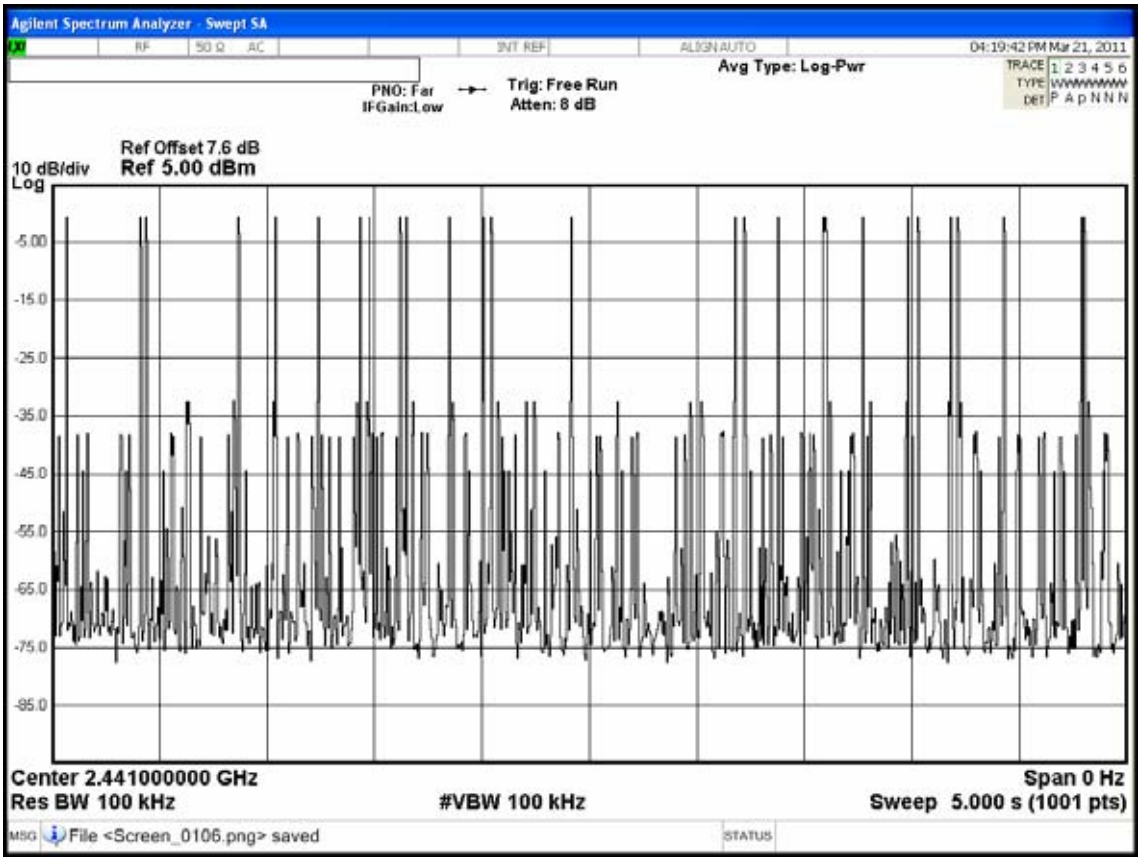
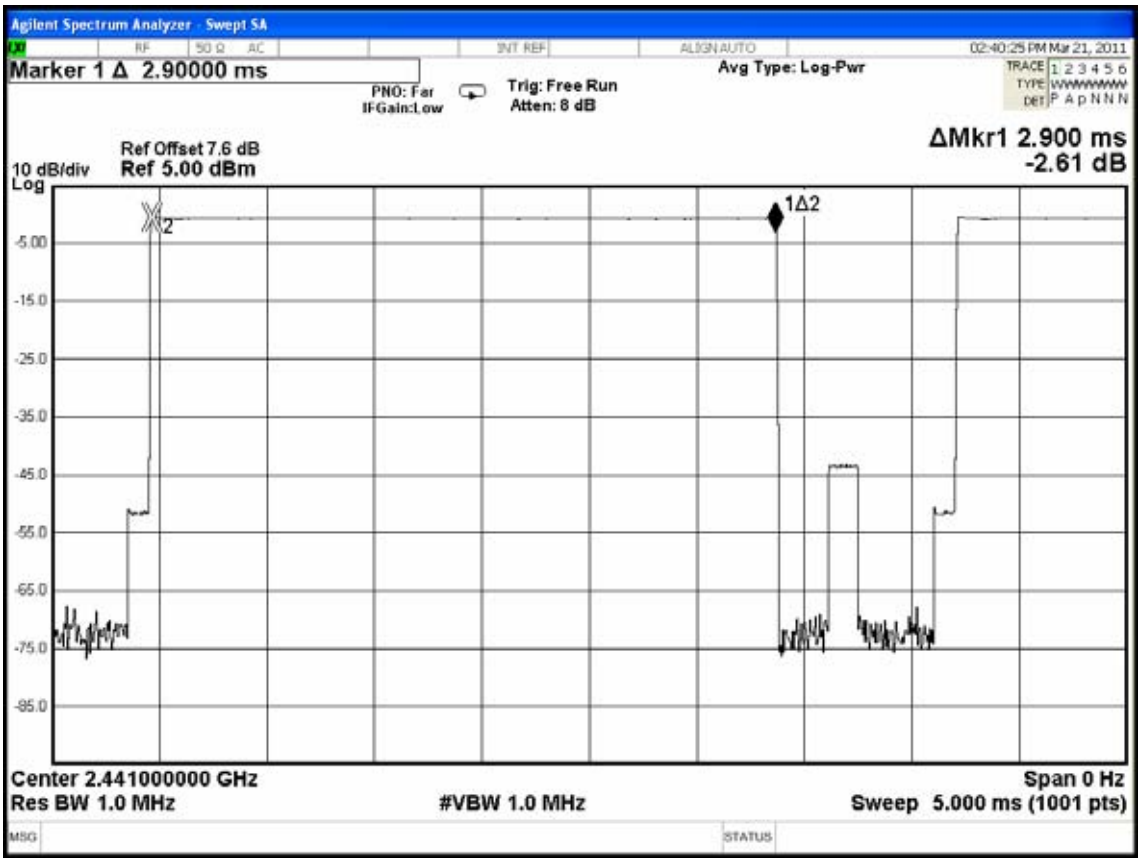
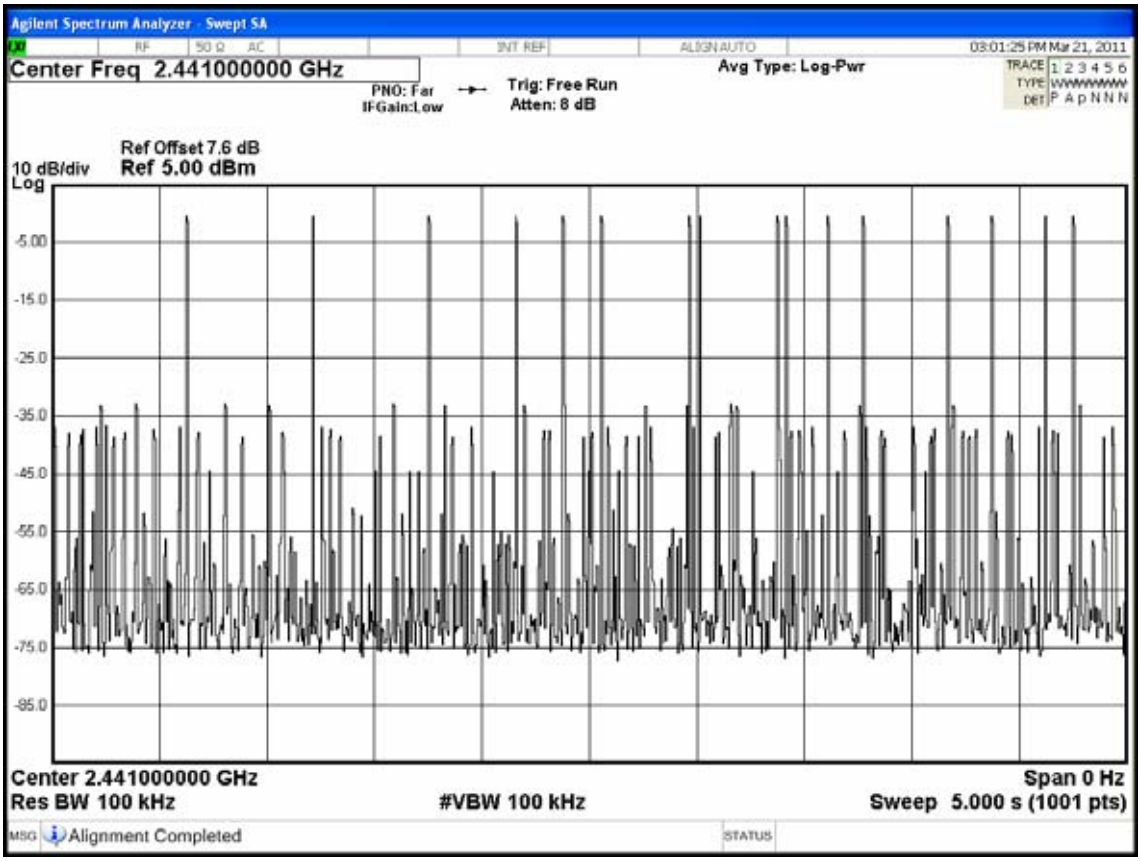


Figure 3: GFSK, 2441MHz, DH5





Test Frequency：2480MHz

Duty cycle: 79channels*0.4 seconds = 31.6 seconds

DH1 : A The system makes worst case 1600 hops per second or 1 time slot has a length of 625us with 79 channels. A DH1 packet need 1 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 800 hops per second with 79 channels. So you have each channel 10.13 time per second and so for 31.6 seconds you have 320 time of appearance.

Each Tx-time per appearance is 390.0us.

10.13 time*31.6 seconds* 0.390ms = 124.842ms (<400ms)

B. 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/5* 0.390ms = 125.704ms (<400ms)

DH3 : A The system makes worst case 1600 hops per second or 1 time slot has a length of 625us with 79 channels. A DH3 packet need 3 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 400 hops per second with 79 channels. So you have each channel 5.1 time per second and so for 31.6 seconds you have 161 time of appearance.

Each Tx-time per appearance is 1650us.

5.1 time*31.6 seconds* 1.650ms = 265.914ms (<400ms)

B. 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/5* 1.650ms = 260.770ms (<400ms)

DH5 : A The system makes worst case 1600 hops per second or 1 time slot has a length of 625us with 79 channels. A DH5 packet need 1 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 266.7 hops per second with 79 channels. So you have each channel 3.37 time per second and so for 31.6 seconds you have 106 time of appearance.

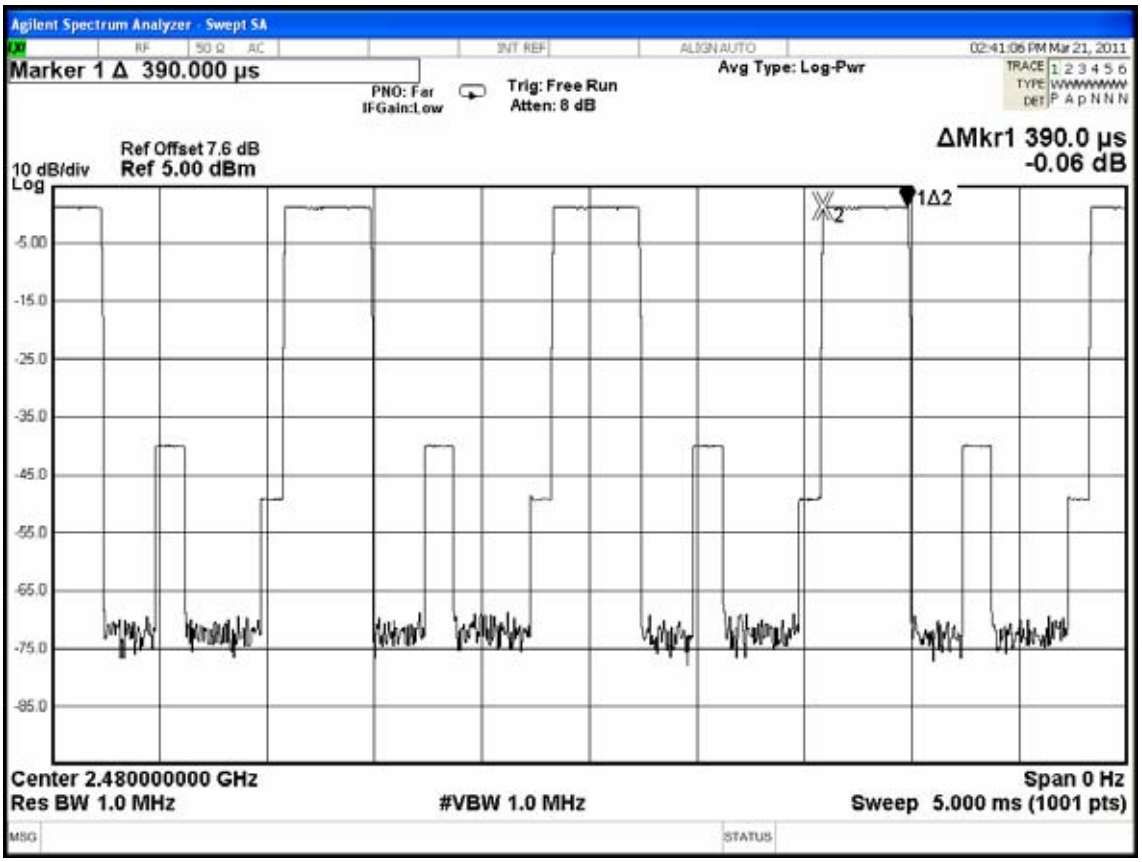
Each Tx-time per appearance is 2900us.

3.37 time*31.6 seconds* 2.900ms = 308.826ms (<400ms)

B. 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/5* 2.900ms = 293.248ms (<400ms)

Figure 1: GFSK, 2480MHz, DH1



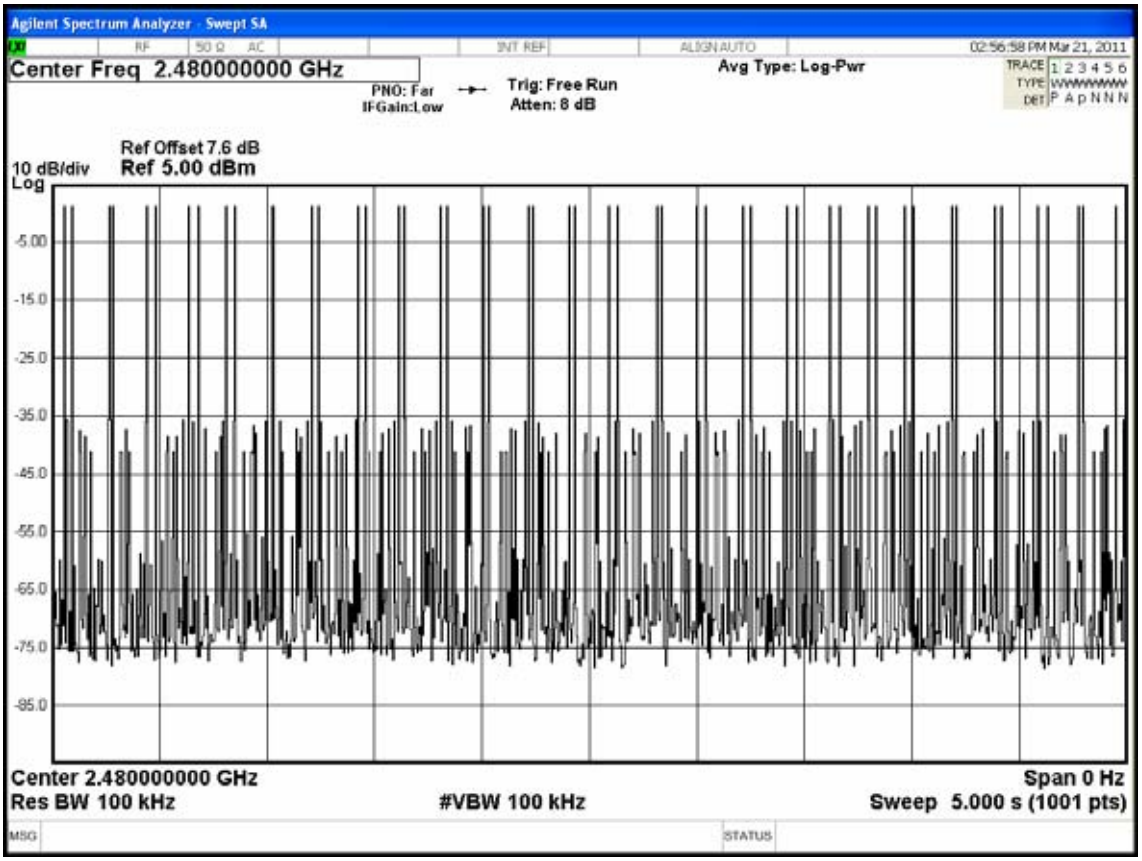
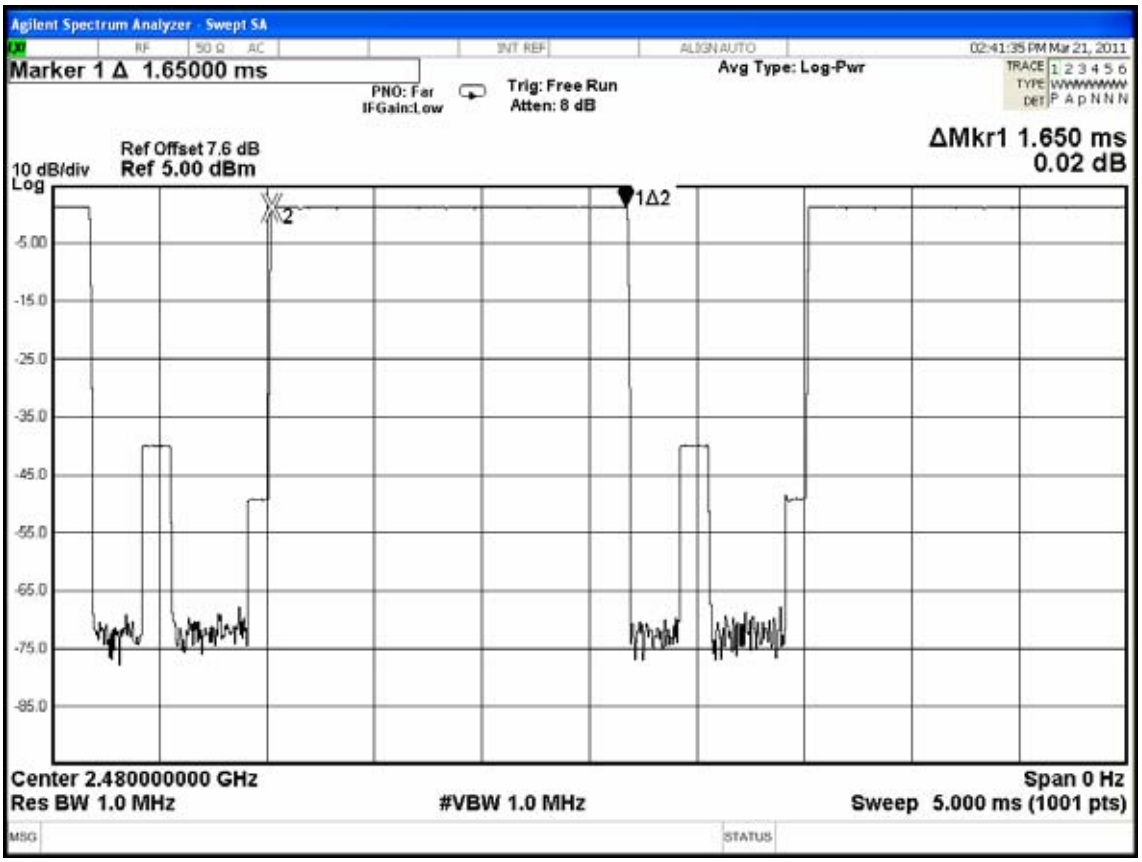


Figure 2: GFSK, 2480MHz, DH3



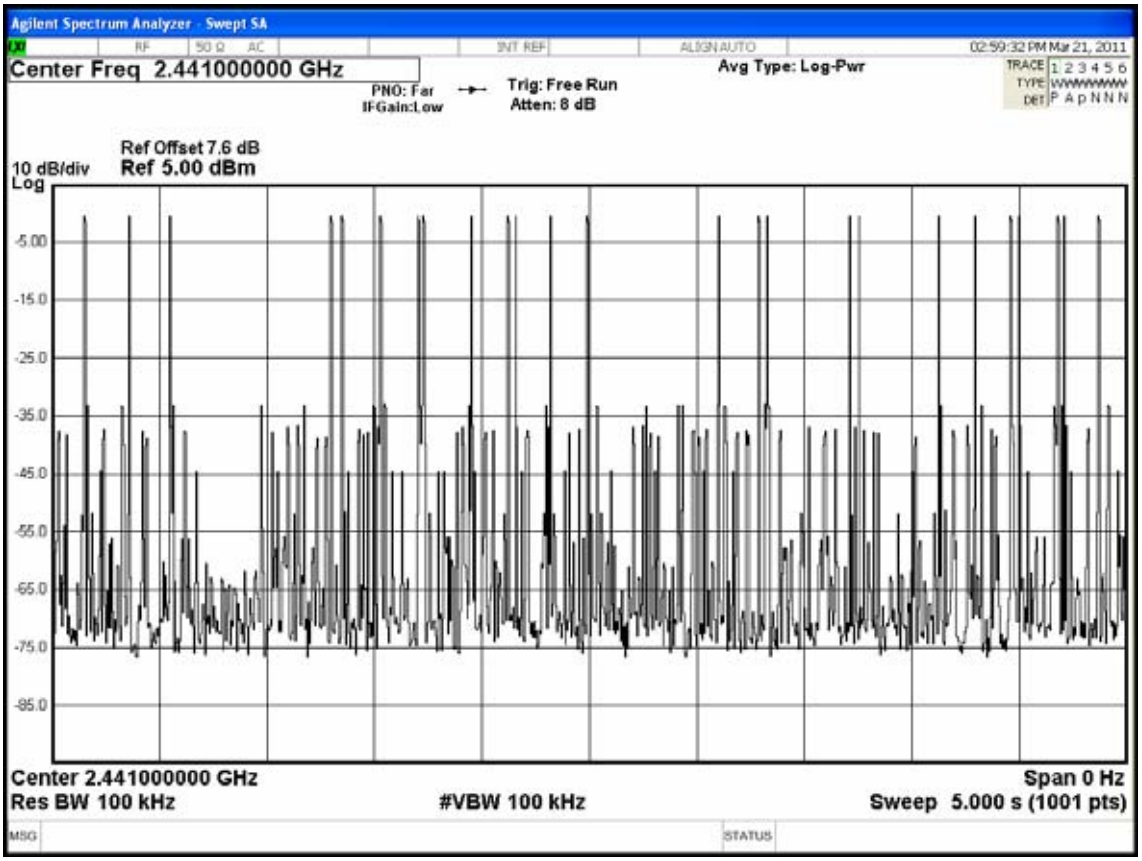
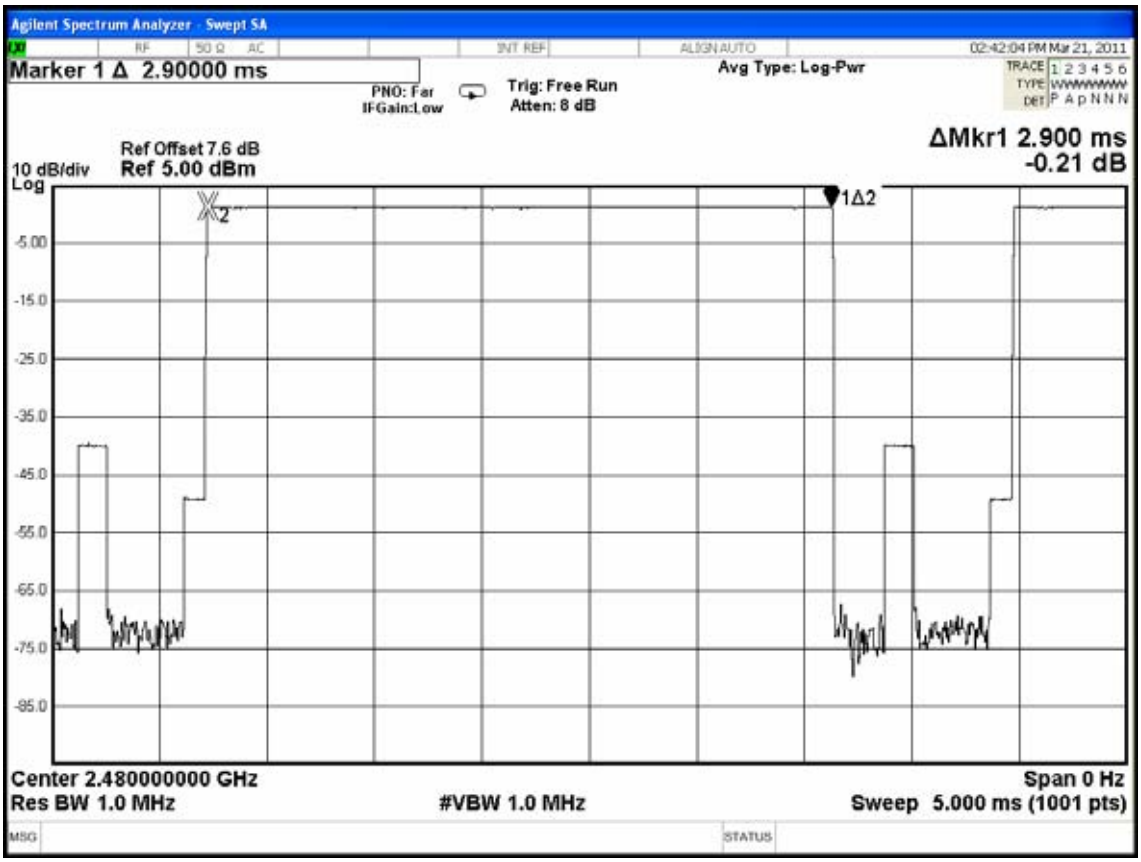
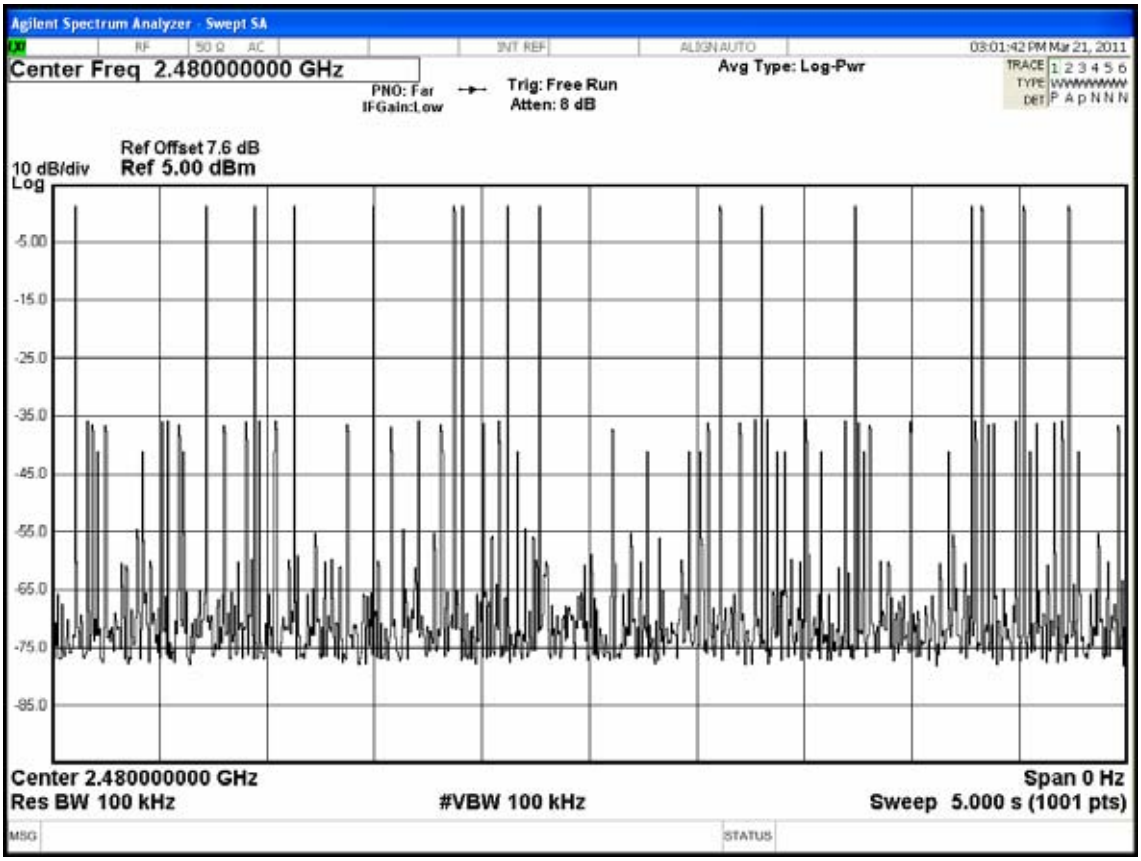


Figure 3: GFSK, 2480MHz, DH5





7. NUMBER OF HOPPING CHANNELS MEASUREMENT

7.1. Test Equipment

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

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9010A-526	MY48031076	Oct. 05, 10’	Oct. 04, 11’
2.	Bluetooth Test Set	Anritsu	MT8852B	6K00005697	Nov. 25, 10’	Nov. 24, 11’
3.	Power Divider	Anritsu	K240C	019728	Aug. 05, 10’	Aug. 04, 11’

7.2. Block Diagram of Test Setup

The same as section.4.2.

7.3. Specification Limits (§15.247(a)(1)(iii))

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.

7.4. Operating Condition of EUT

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

7.5. 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.

7.6. Test Results

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

[Note: Three types of modulation (8-DPSK,π /4DQPSK, GFSK) were evaluated but only two types of modulation (8-DPSK and GFSK) were reported in this report.]

EUT：(1)Car Navigation/CD Player (2)Car CD Player M/N：LNC1700ENFS

Test Date : Mar. 21, 2011 Temperature : 21 ℃ Humidity : 55 %

7.6.1.Type of Modulation: 8-DPSK

The number hopping channel is 79.

7.6.2.Type of Modulation: GFSK

The number hopping channel is 79.

Figure 1: 8-DPSK

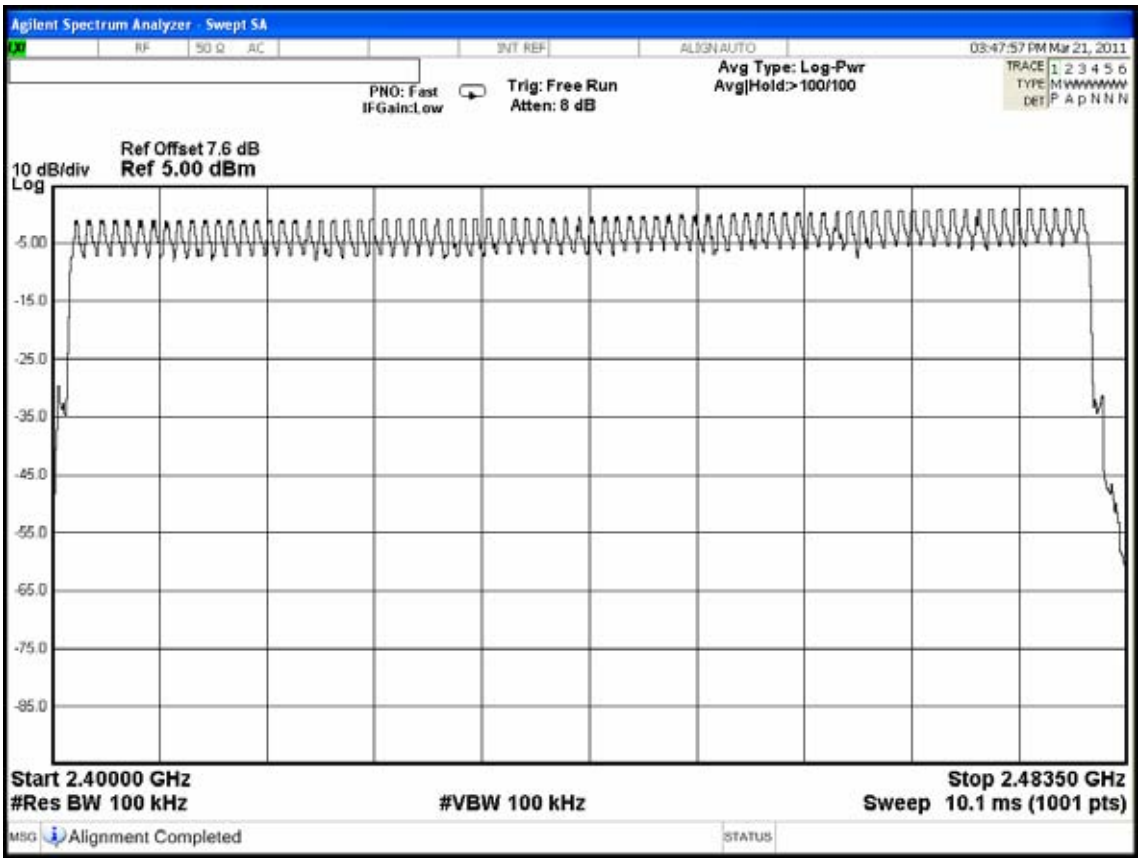
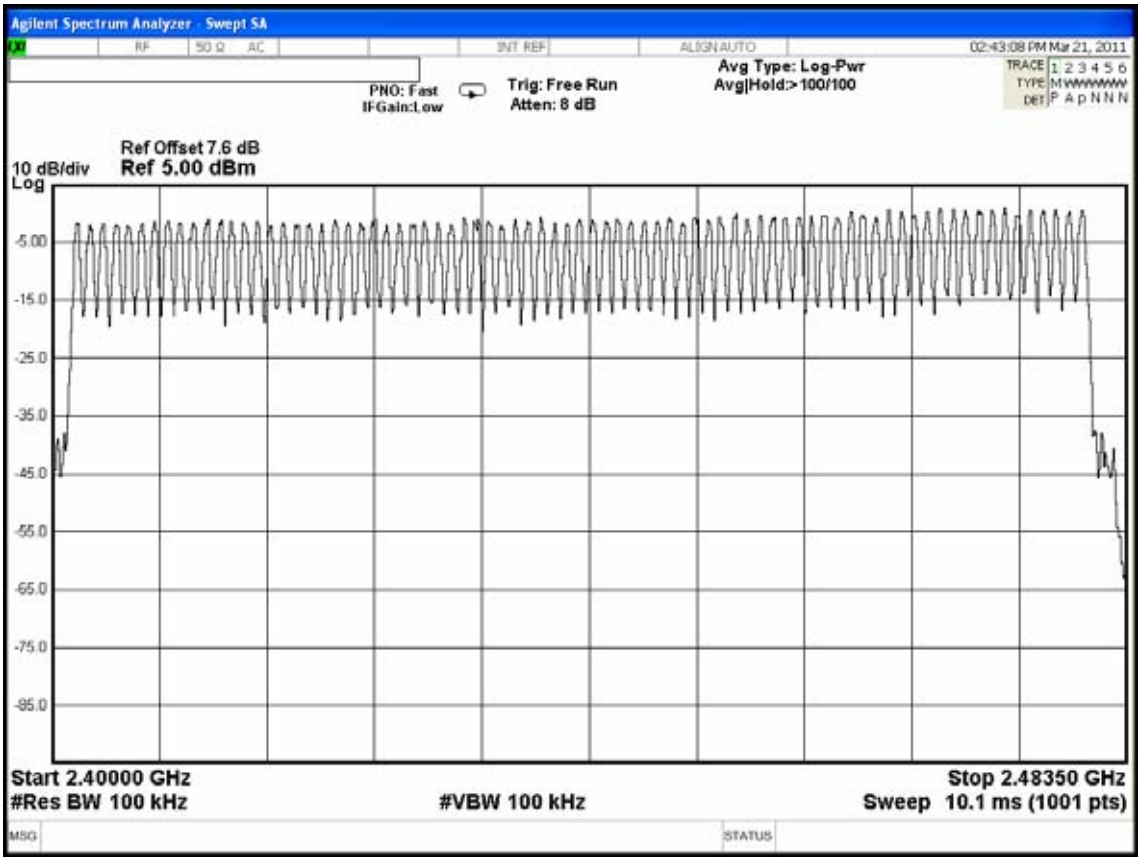


Figure 2: GFSK



8. MAXIMUM PEAK OUTPUT POWER MEASUREMENT

8.1. Test Equipment

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

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9010A-526	MY48031076	Oct. 05, 10’	Oct. 04, 11’
2.	Bluetooth Test Set	Anritsu	MT8852B	6K00005697	Nov. 25, 10’	Nov. 24, 11’
3.	Power Divider	Anritsu	K240C	019728	Aug. 05, 10’	Aug. 04, 11’

8.2. Block Diagram of Test Setup

The same as section.4.2.

8.3. Specification Limits (§15.247(b)-(1))

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

8.4. Operating Condition of EUT

Same as carrier frequency separation measurement which was listed in 4.4 except the test set up replaced by section 8.2.

8.5. Test Procedure

The transmitter output was connected to the spectrum analyzer.
Span can encompass the waveform
RBW=1MHz
VBW=3MHz
Sweep=5MHz
The measurement guideline was according to FCC Public Notice DA 00-705.

8.6. Test Results

PASSED. All the test results are listed below.

[Note: Three types of modulation (8-DPSK,π /4DQPSK, GFSK) were evaluated but only two types of modulation (8-DPSK and GFSK) were reported in this report.]

EUT：(1)Car Navigation/CD Player (2)Car CD Player M/N：LNC1700ENFS

Test Date : Mar. 21, 2011 Temperature : 21 ℃ Humidity : 55 %

8.6.1.Type of Modulation: 8-DPSK

No.	Channel	Test Frequency	**Peak Output Power**	Limit
1.	0	2402MHz	**-0.629dBm**	21dBm
2.	39	2441MHz	**-0.040dBm**	21dBm
3.	78	2480MHz	**1.511dBm**	21dBm

8.6.2.Type of Modulation: GFSK

No.	Channel	Test Frequency	**Peak Output Power**	Limit
1.	0	2402MHz	**-1.043dBm**	21dBm
2.	39	2441MHz	**-0.571dBm**	21dBm
3.	78	2480MHz	**1.225dBm**	21dBm

Figure 1: 8-DPSK, Channel 0, Frequency: 2402MHz

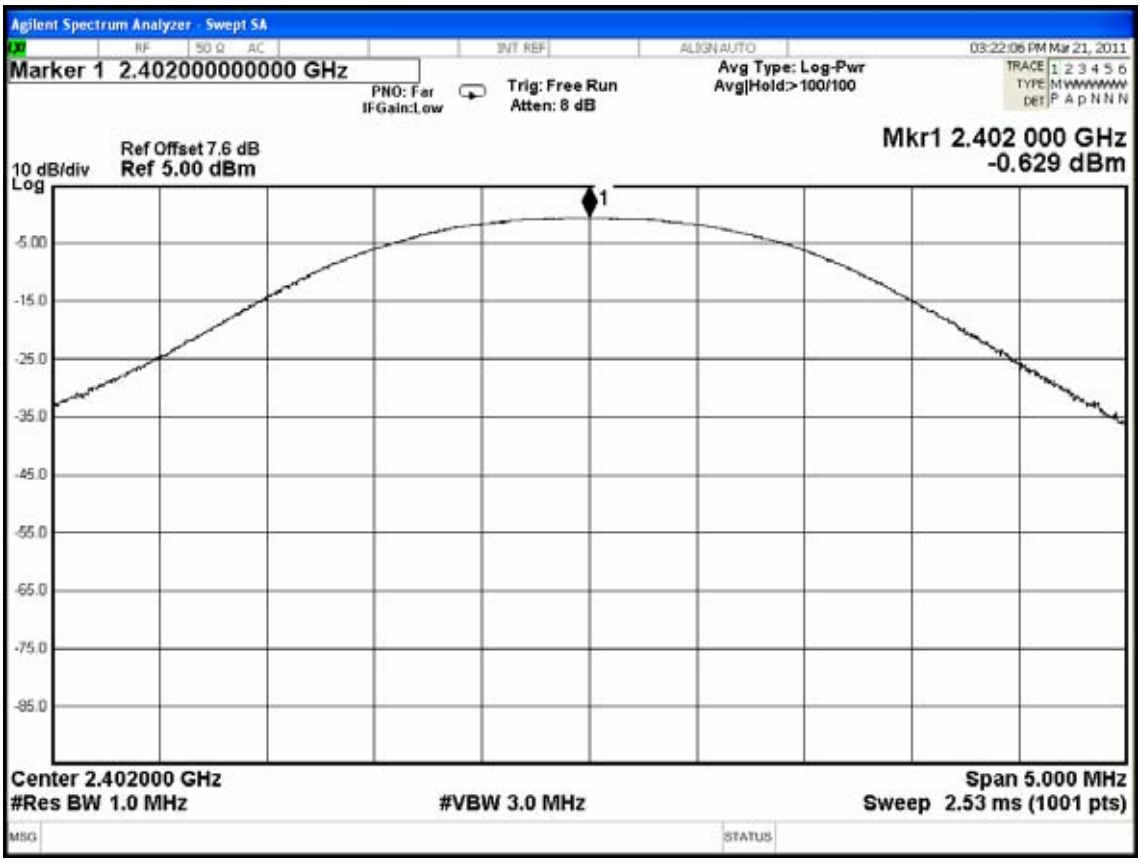


Figure 2: 8-DPSK, Channel 39, Frequency: 2441MHz

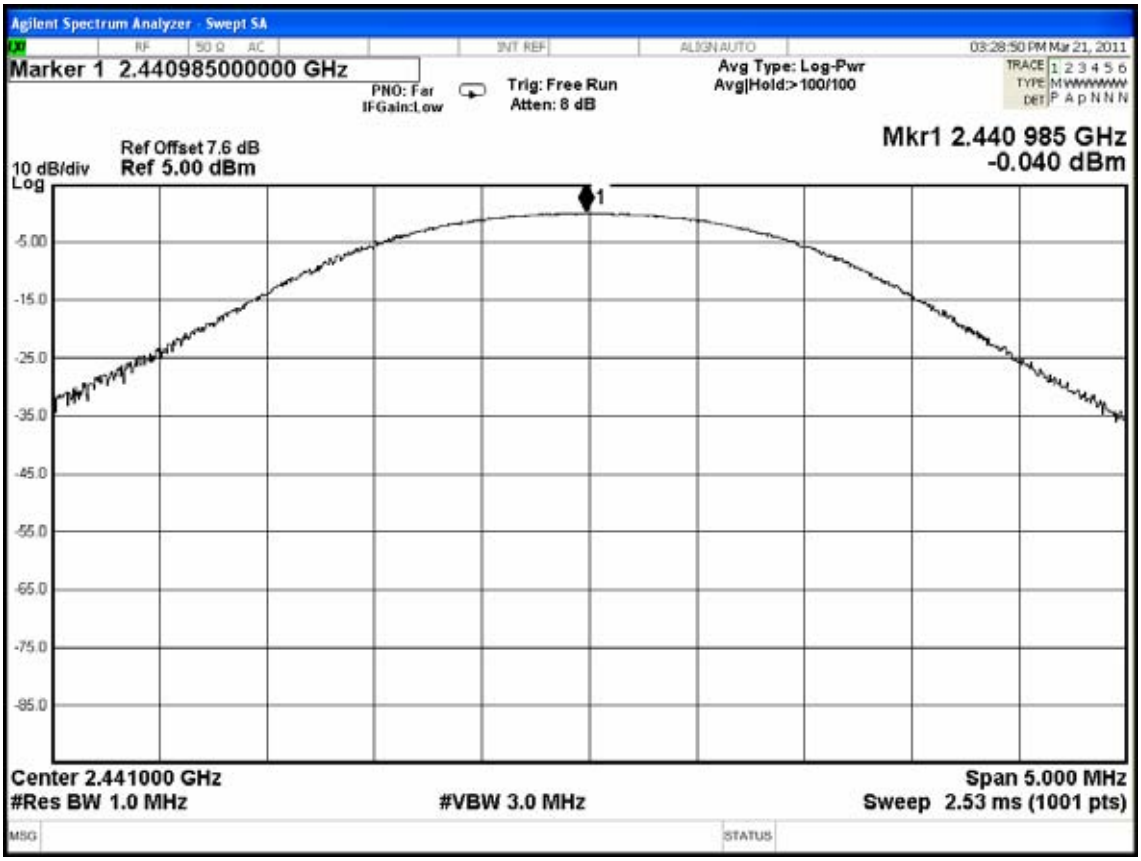


Figure 3: 8-DPSK, Channel 78, Frequency: 2480MHz

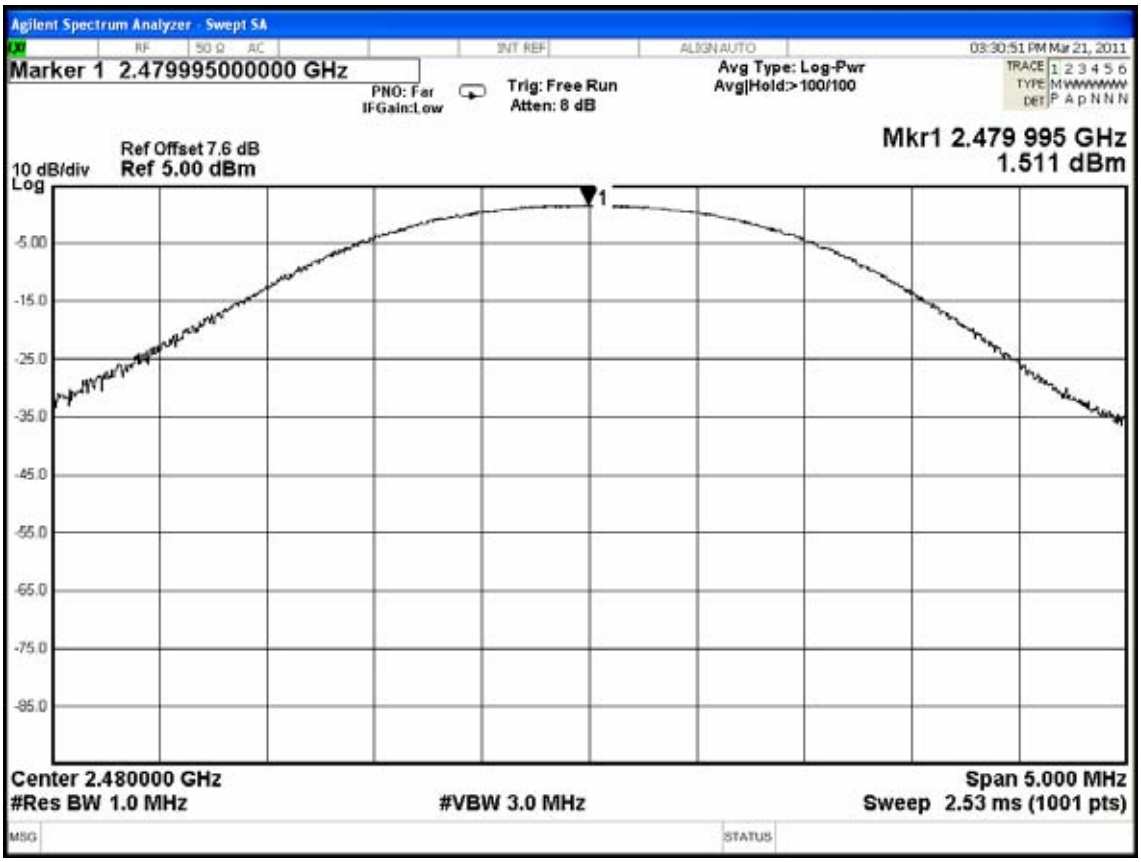


Figure 4: GFSK, Channel 0, Frequency: 2402MHz

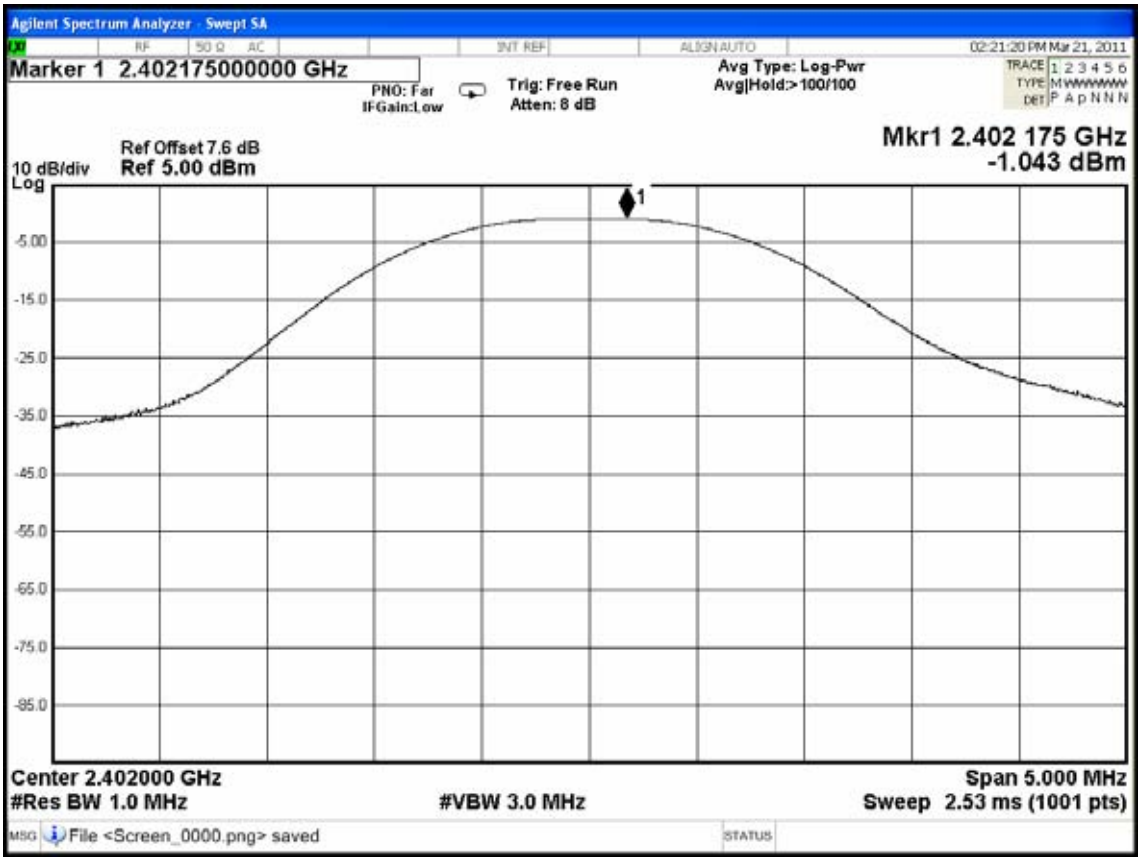


Figure 5: GFSK, Channel 39, Frequency: 2441MHz

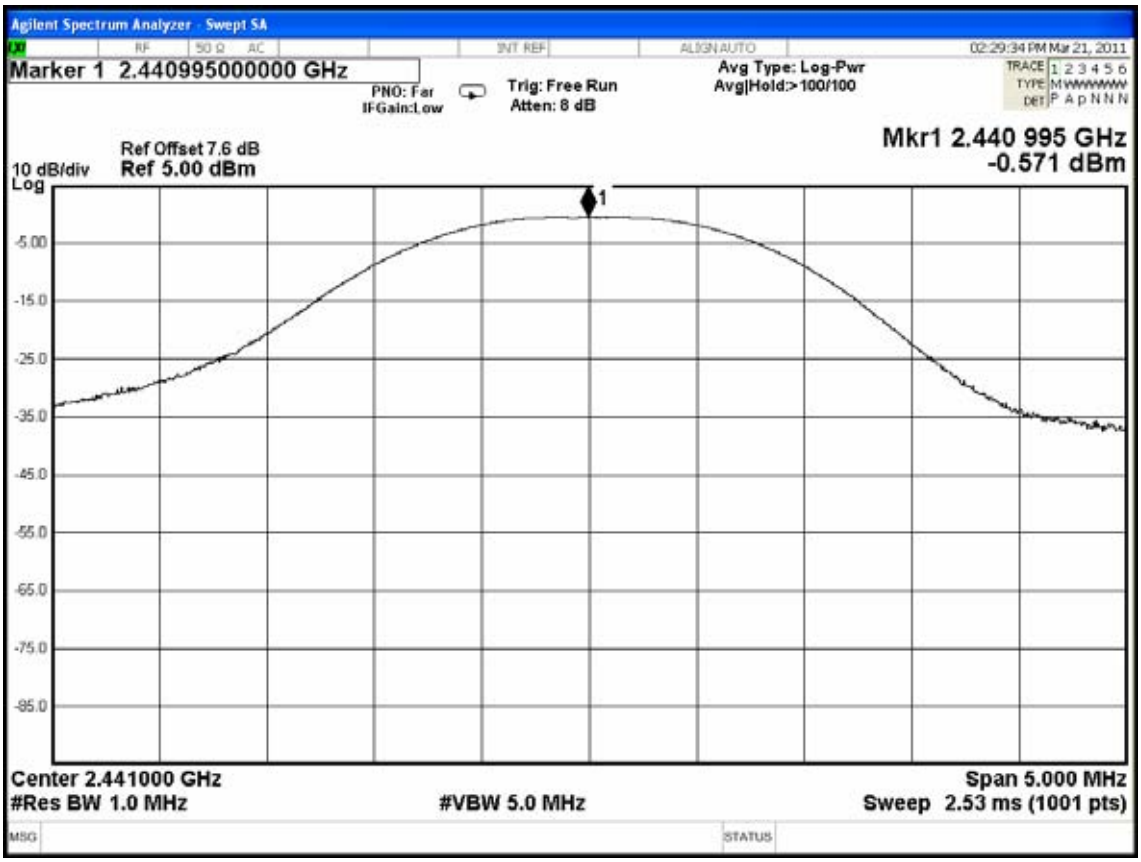
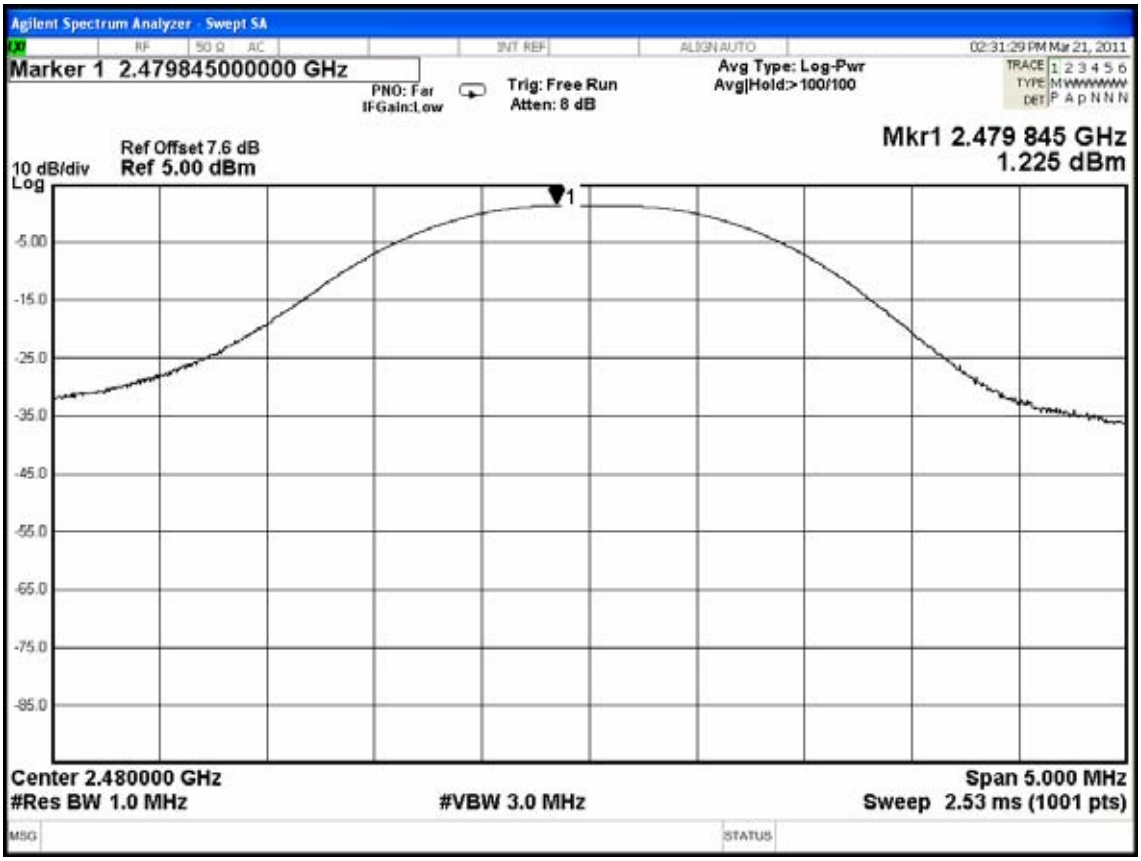


Figure 6: GFSK, Channel 78, Frequency: 2480MHz



9. EMISSION LIMITATIONS MEASUREMENT

9.1. Test Equipment

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

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9010A-526	MY48031076	Oct. 05, 10'	Oct. 04, 11'
2.	Bluetooth Test Set	Anritsu	MT8852B	6K00005697	Nov. 25, 10'	Nov. 24, 11'
3.	Power Divider	Anritsu	K240C	019728	Aug. 05, 10'	Aug. 04, 11'

9.2. Block Diagram of Test Setup

The same as section.4.2.

9.3. Specification Limits (§15.247(c))

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)

9.4. Operating Condition of EUT

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

9.5. Test Procedure

The transmitter output was connected to the spectrum analyzer. Set both RBW and VBW of spectrum analyzer to 100kHz with frequency range from 30MHz to 25GHz. The measurement guideline was according to FCC Public Notice DA 00-705.

9.6. Test Results

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

[Note: Three types of modulation (8-DPSK,π /4DQPSK, GFSK) were evaluated but only two types of modulation (8-DPSK and GFSK) were reported in this report.]

EUT：(1)Car Navigation/CD Player (2)Car CD Player M/N：LNC1700ENFS

Test Date : Mar. 21, 2011 Temperature : 21 ℃ Humidity : 55 %

9.6.1. Type of Modulation: 8-DPSK

Test Frequency: 2402MHz:

Figure 1: 8-DPSK, Channel 0, Frequency: 2402MHz (30MHz ~ 1GHz)

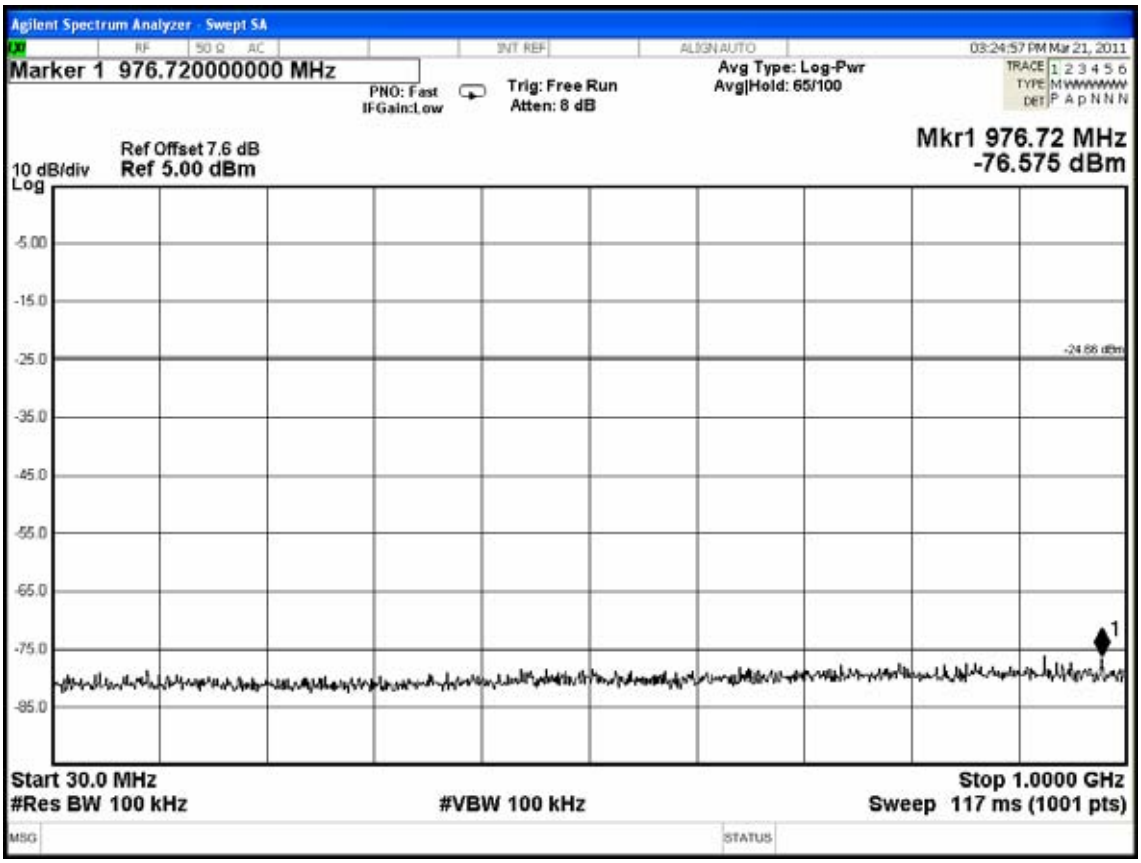


Figure 2: 8-DPSK, Channel 0, Frequency: 2402MHz (1GHz ~ 5GHz)

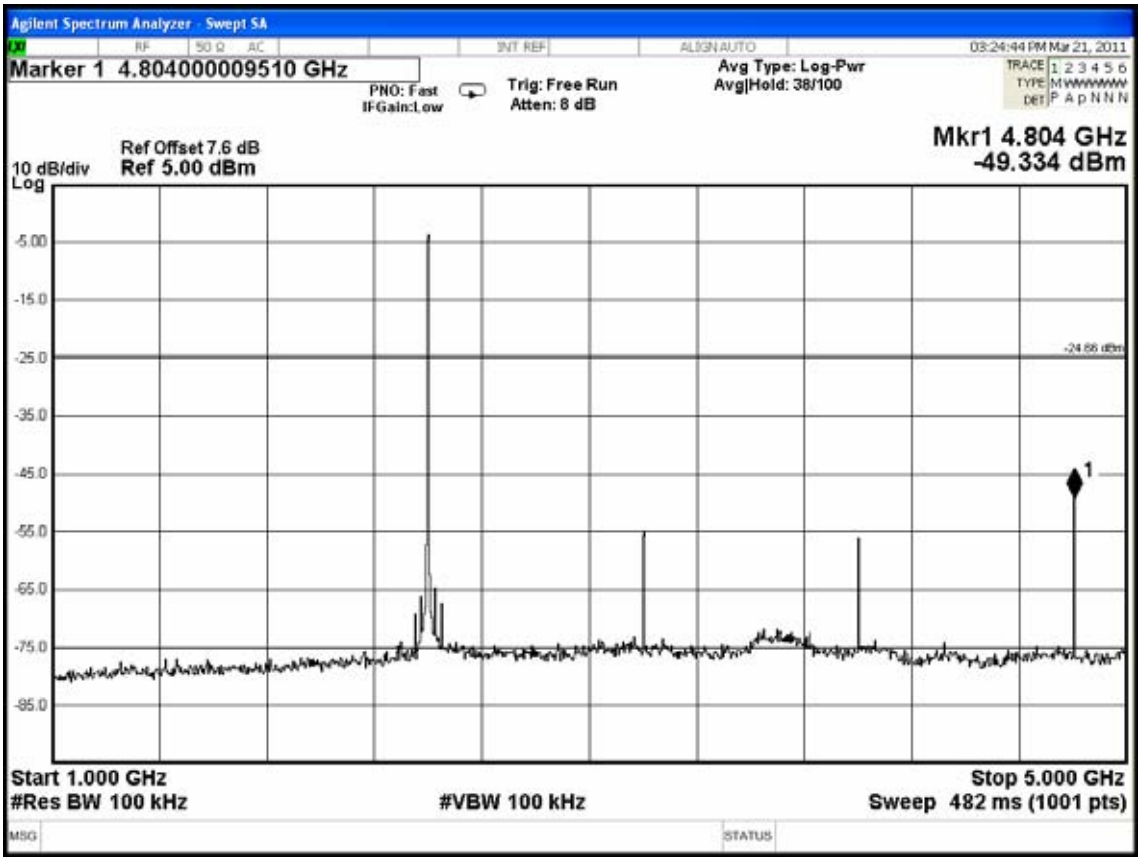


Figure 3: 8-DPSK, Channel 0, Frequency: 2402MHz (5GHz ~ 10GHz)

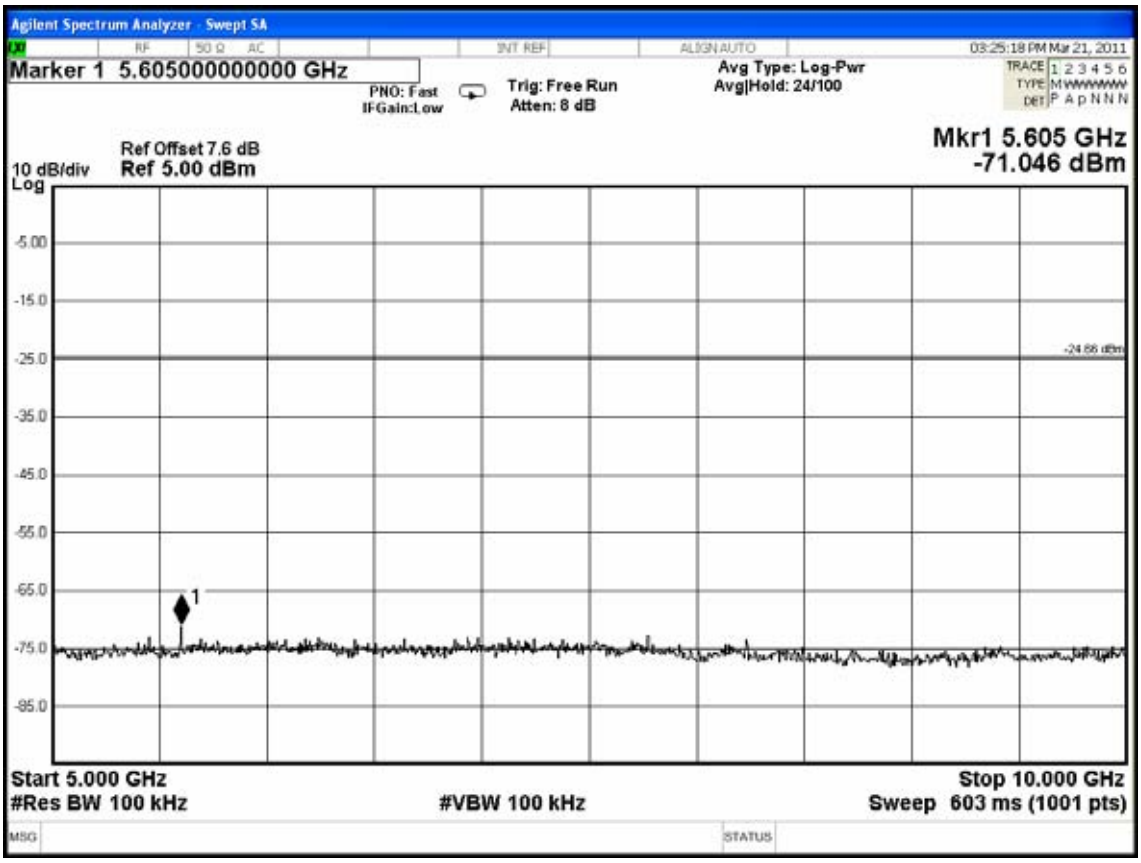


Figure 4: 8-DPSK, Channel 0, Frequency: 2402MHz (10GHz ~ 15GHz)

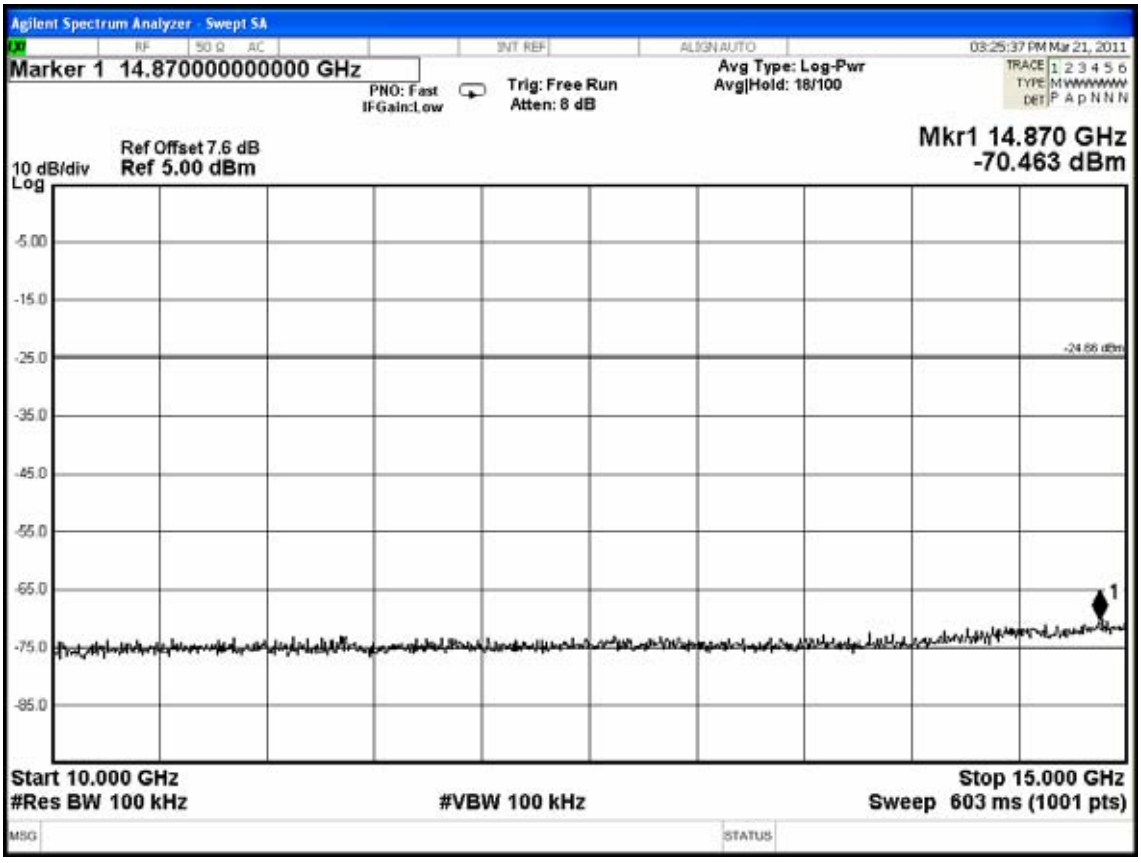
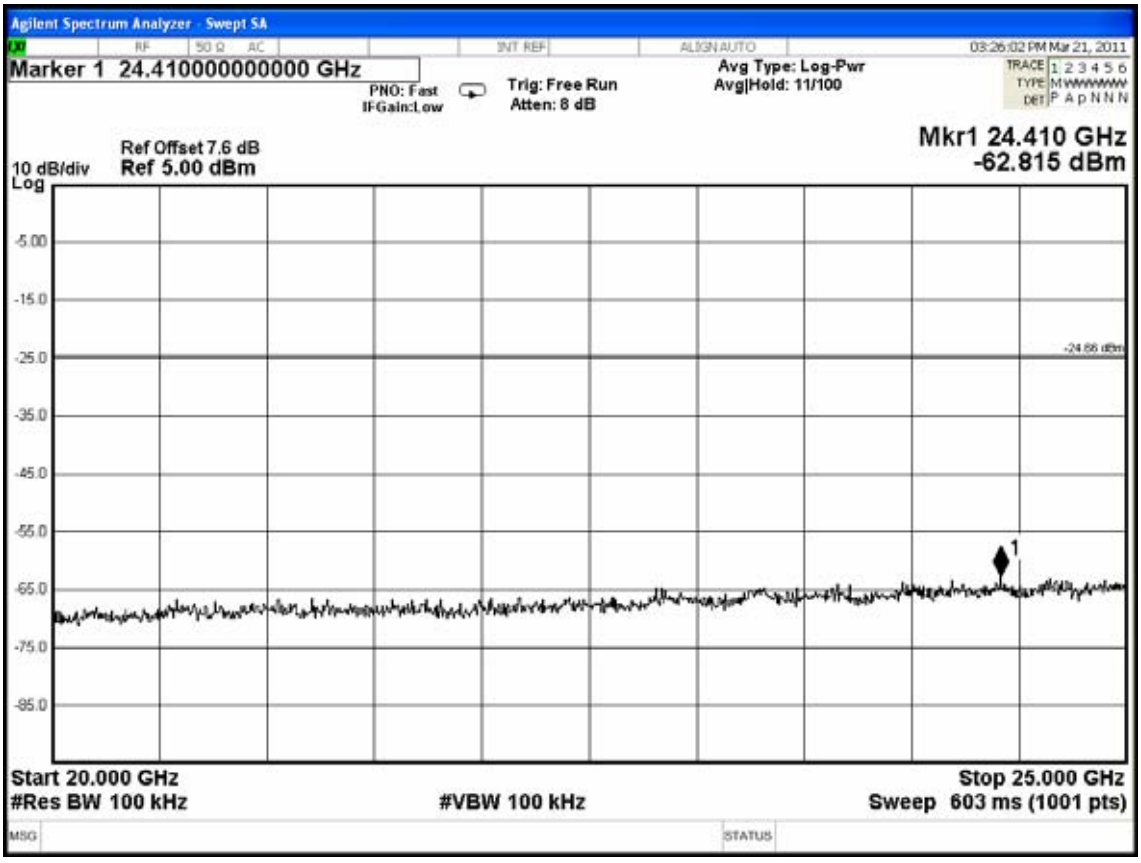


Figure 5: 8-DPSK, Channel 0, Frequency: 2402MHz (15GHz ~ 20GHz)

Figure 6: 8-DPSK, Channel 0, Frequency: 2402MHz (20GHz ~ 25GHz)



Test Frequency: 2441MHz:

Figure 1: 8-DPSK, Channel 39, Frequency: 2441MHz (30MHz ~ 1GHz)

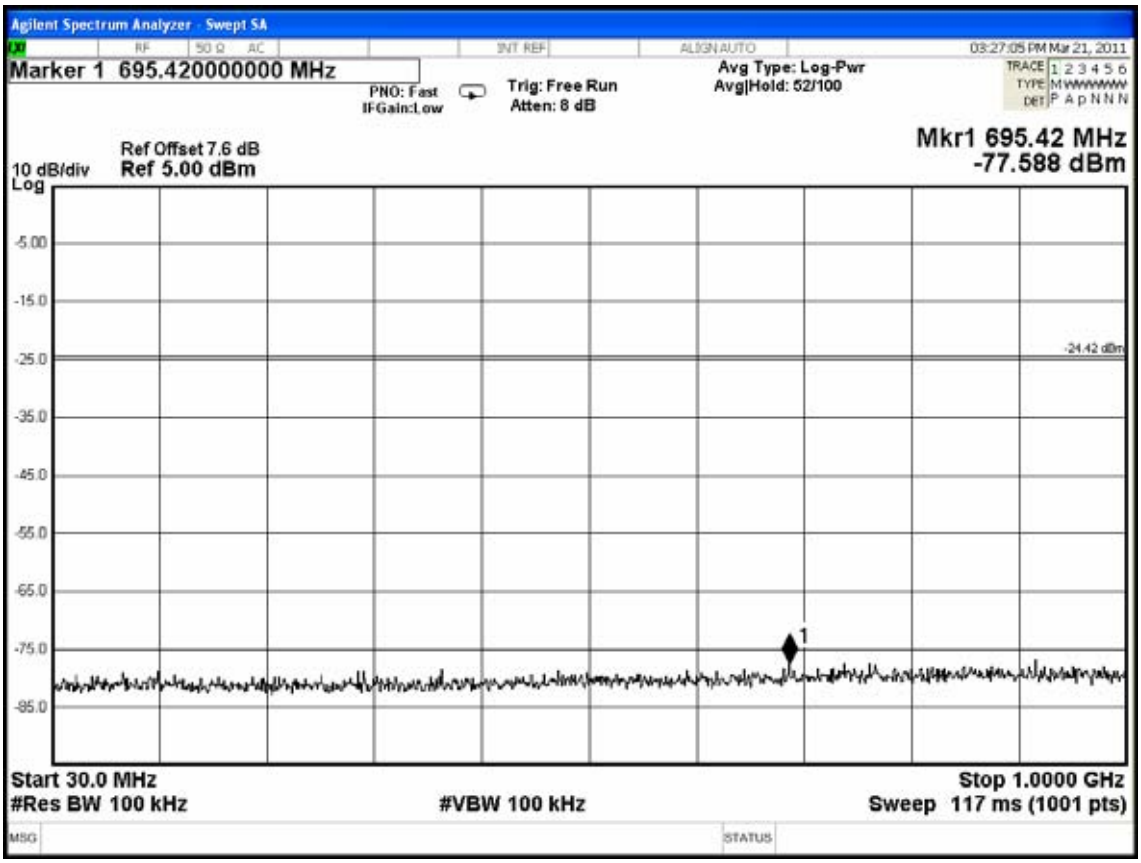


Figure 2: 8-DPSK, Channel 39, Frequency: 2441MHz (1GHz ~ 5GHz)

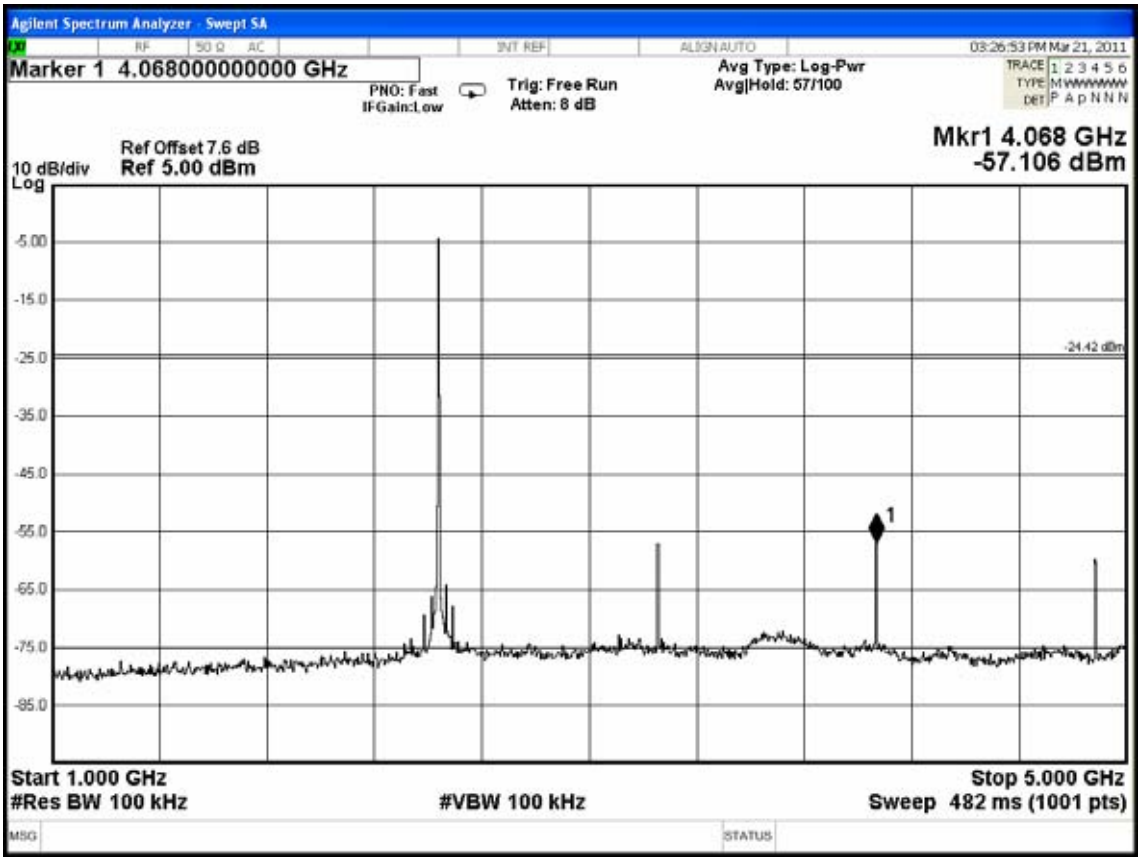


Figure 3: 8-DPSK, Channel 39, Frequency: 2441MHz (5GHz ~ 10GHz)

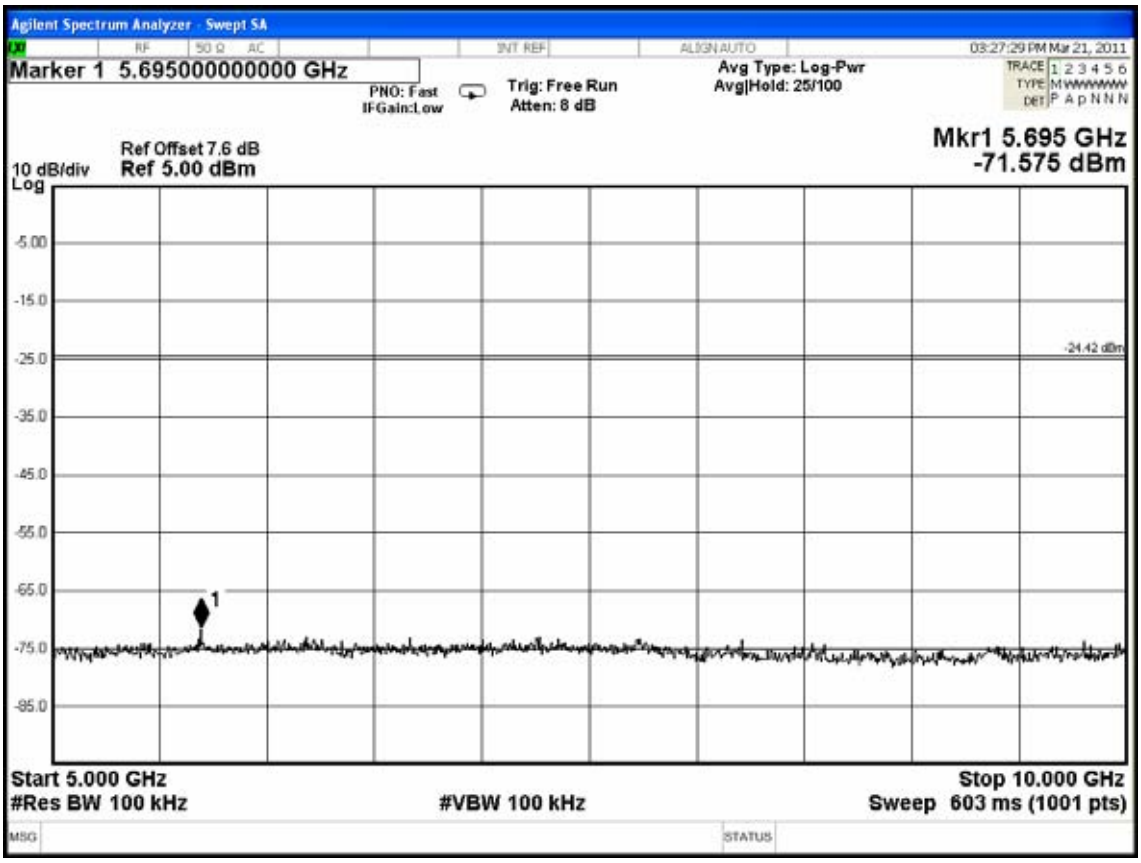


Figure 4: 8-DPSK, Channel 39, Frequency: 2441MHz (10GHz ~ 15GHz)

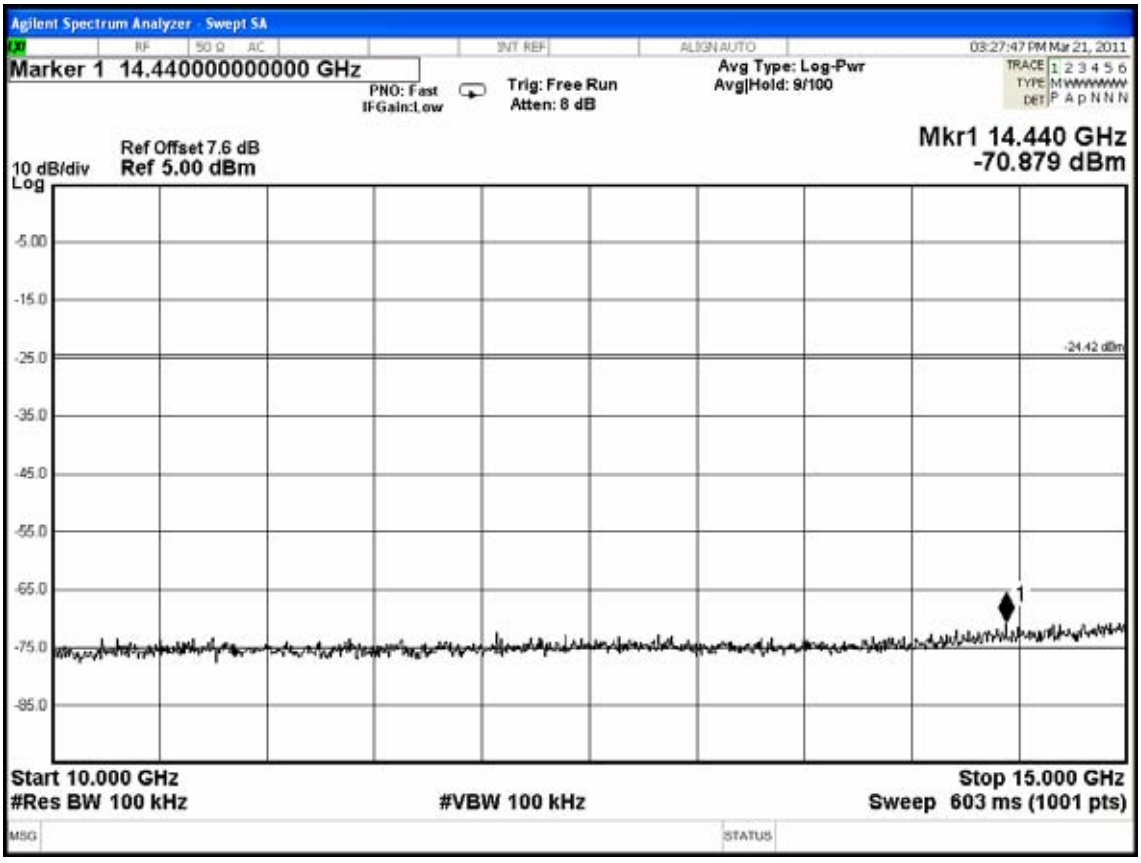
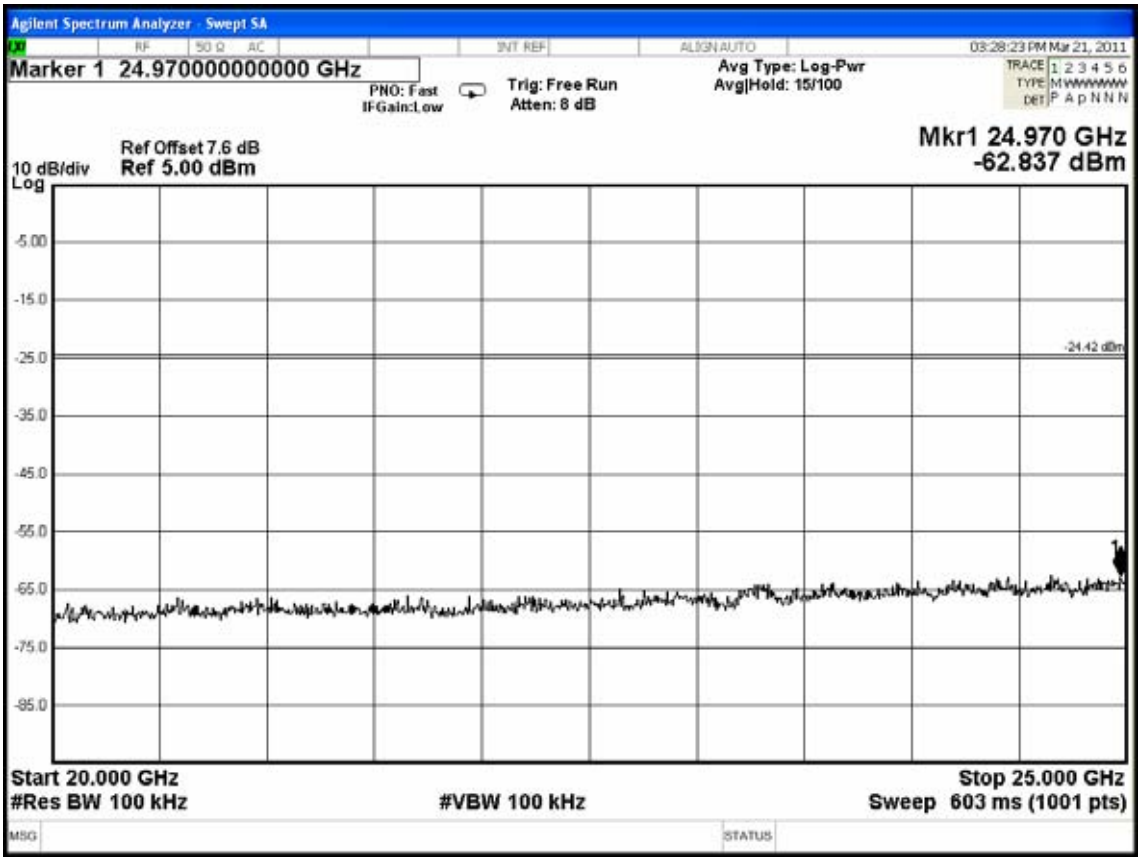


Figure 5: 8-DPSK, Channel 39, Frequency: 2441MHz (15GHz ~ 20GHz)

Figure 6: 8-DPSK, Channel 39, Frequency: 2441MHz (20GHz ~ 25GHz)



Test Frequency: 2480MHz:

Figure 1: 8-DPSK, Channel 78, Frequency: 2480MHz (30MHz ~ 1GHz)

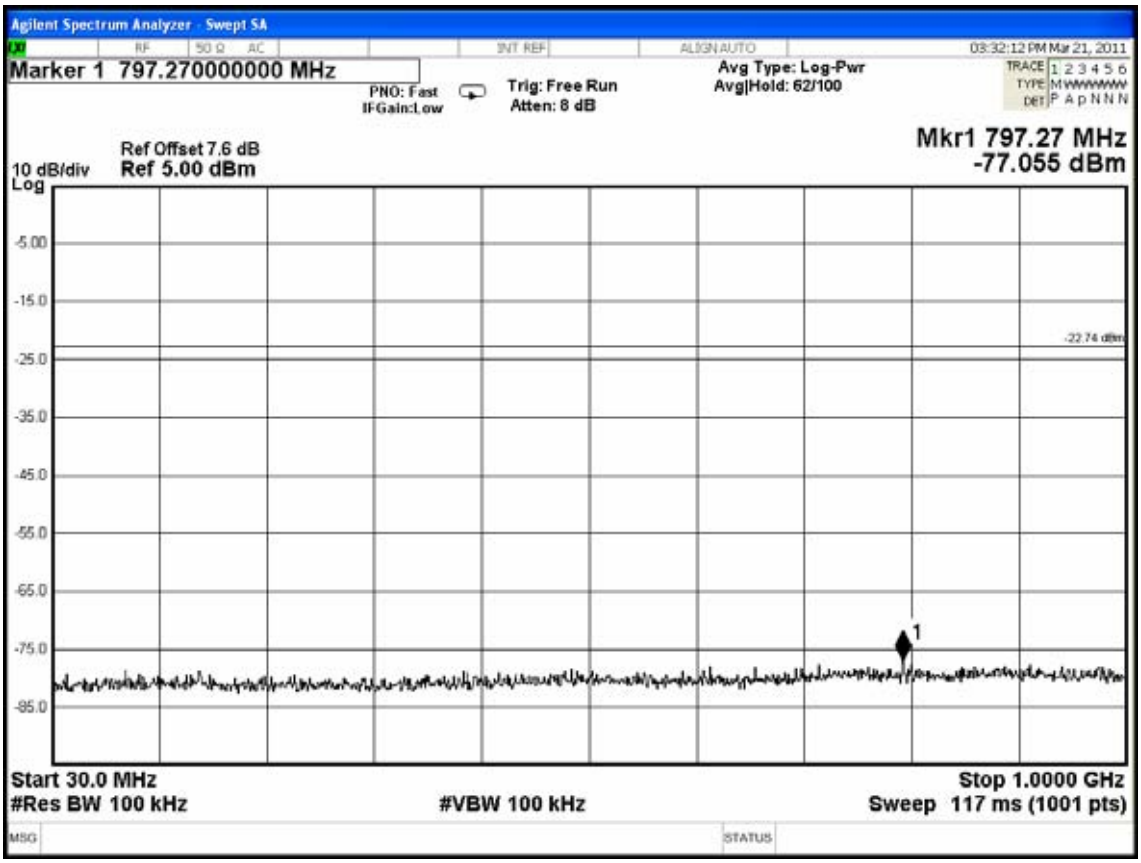


Figure 2: 8-DPSK, Channel 78, Frequency: 2480MHz (1GHz ~ 5GHz)

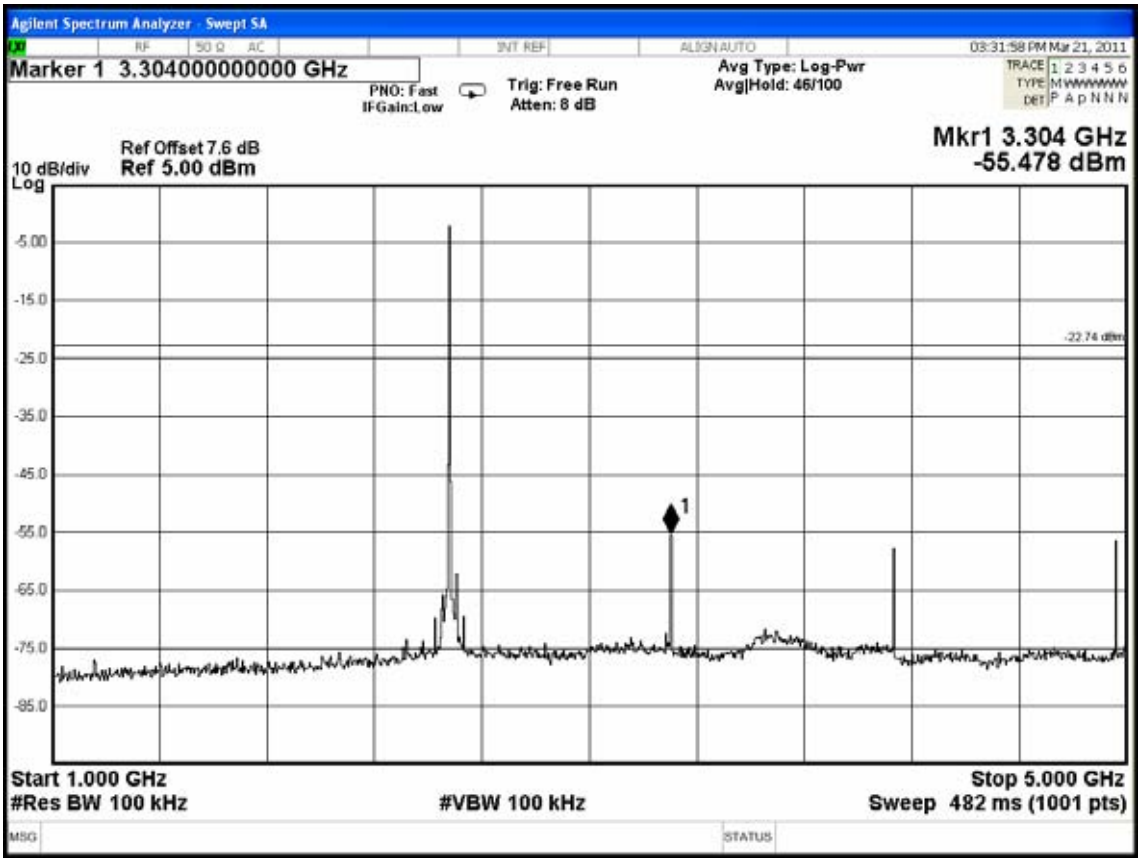


Figure 3: 8-DPSK, Channel 78, Frequency: 2480MHz (5GHz ~ 10GHz)

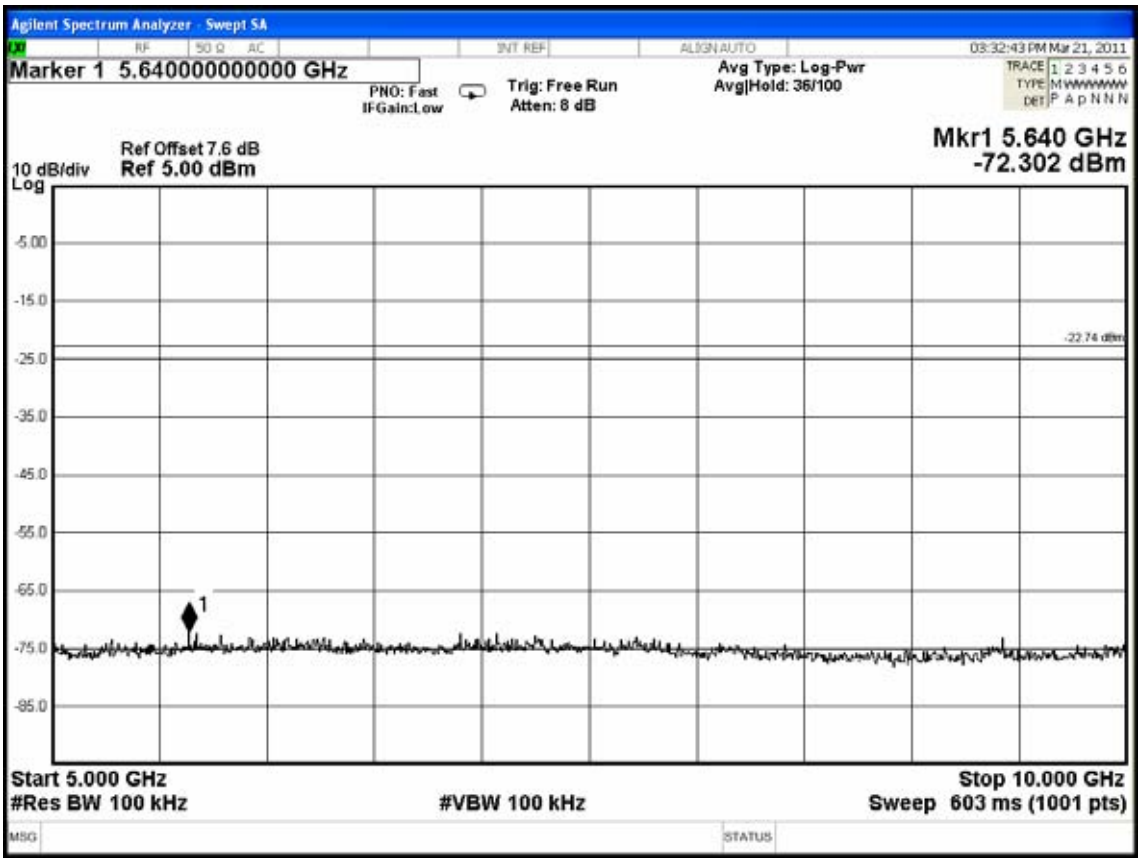


Figure 4: 8-DPSK, Channel 78, Frequency: 2480MHz (10GHz ~ 15GHz)

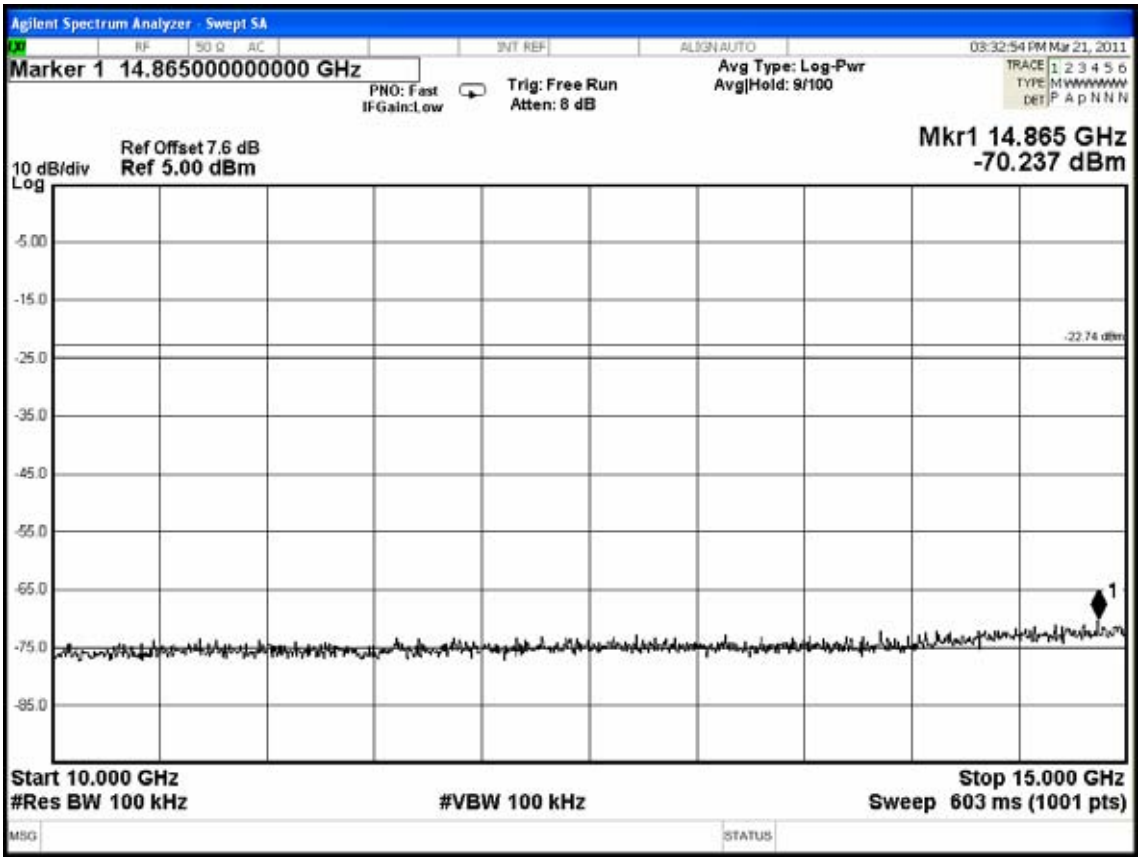
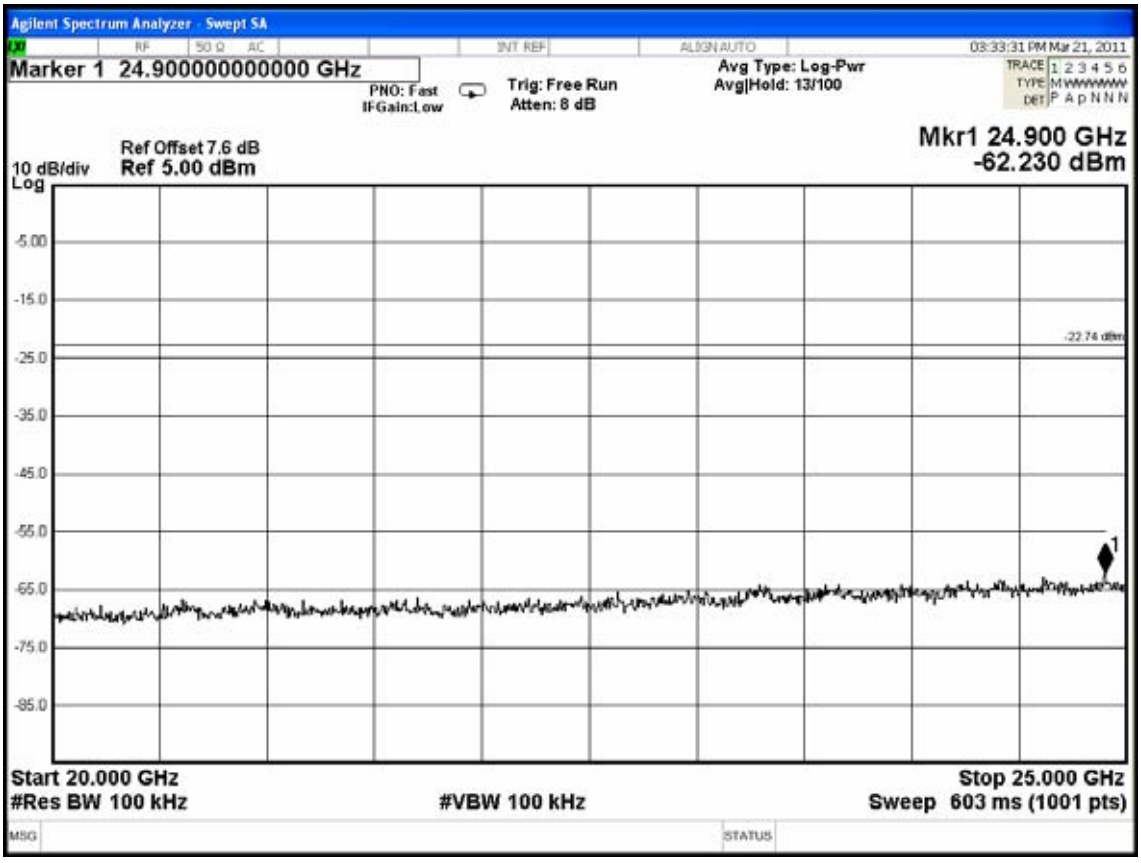


Figure 5: 8-DPSK, Channel 78, Frequency: 2480MHz (15GHz ~ 20GHz)

Figure 6: 8-DPSK, Channel 78, Frequency: 2480MHz (20GHz ~ 25GHz)



9.6.2. Type of Modulation: GFSK

Test Frequency: 2402MHz:

Figure 1: GFSK, Channel 0, Frequency: 2402MHz (30MHz ~ 1GHz)

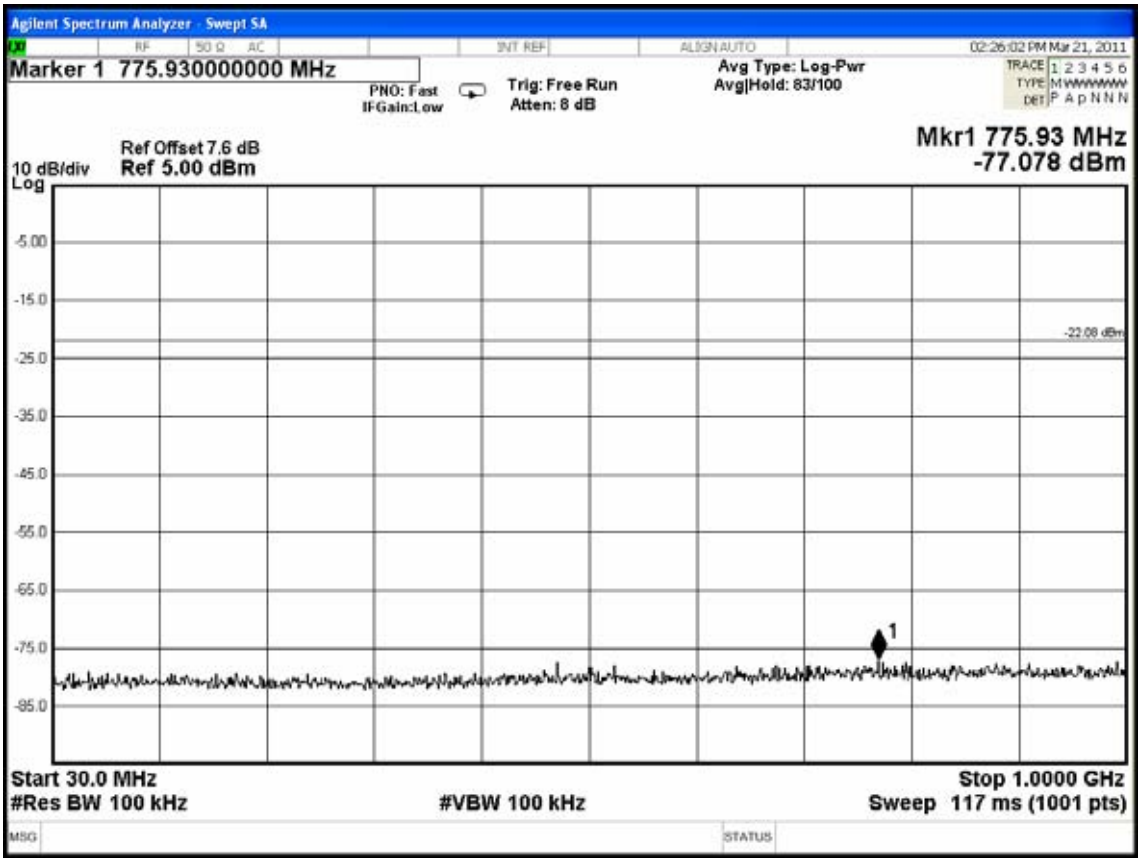


Figure 2: GFSK, Channel 0, Frequency: 2402MHz (1GHz ~ 5GHz)

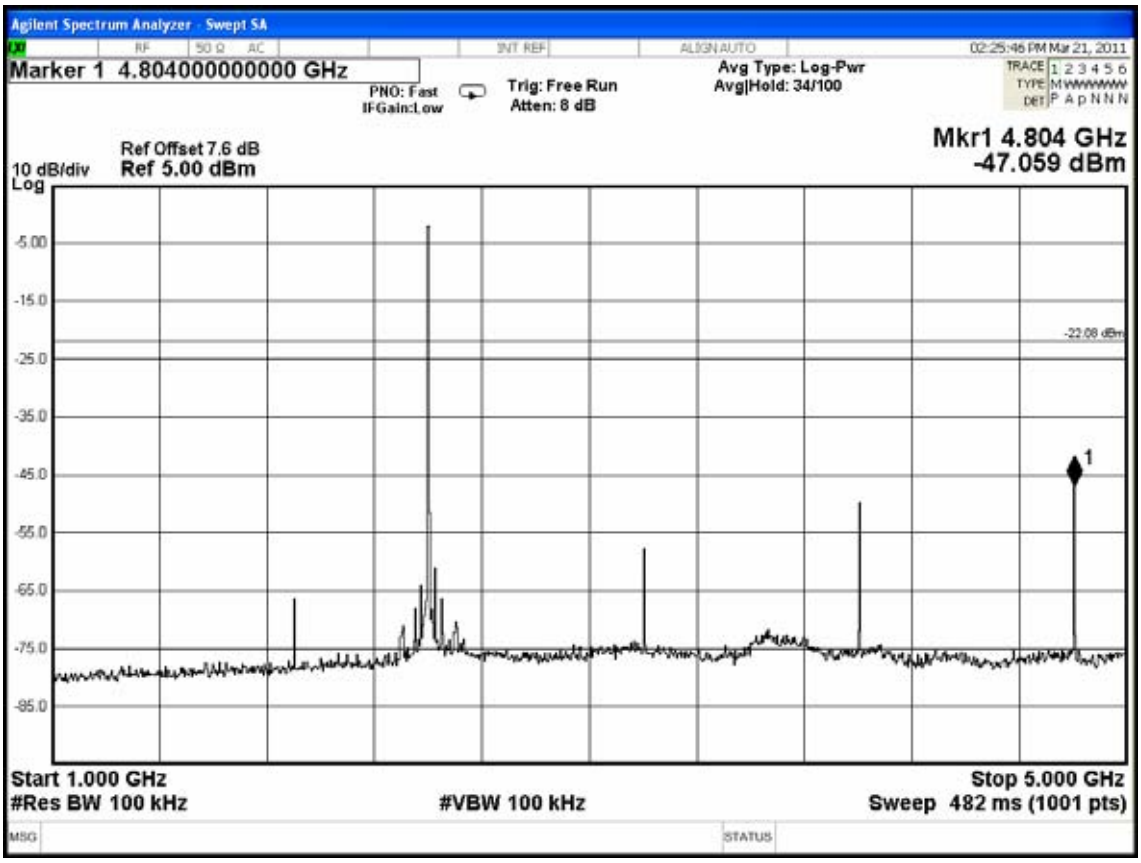


Figure 3: GFSK, Channel 0, Frequency: 2402MHz (5GHz ~ 10GHz)

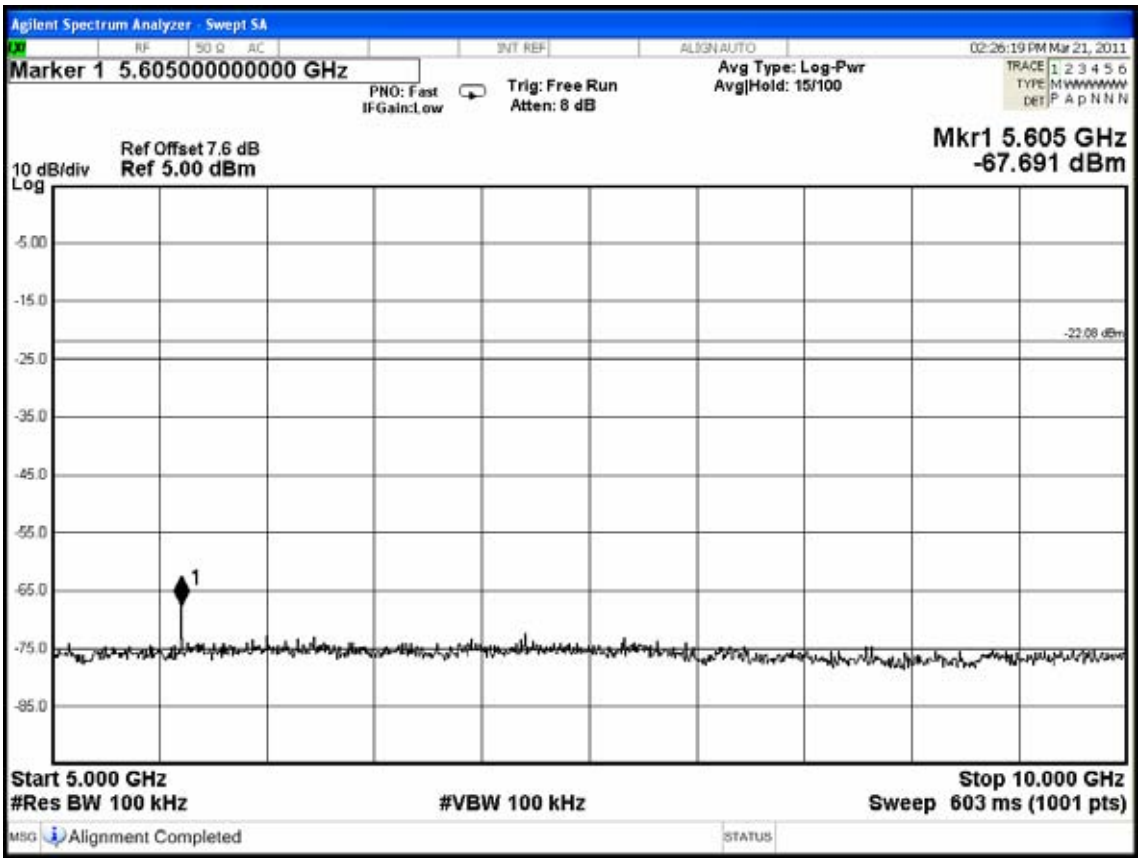


Figure 4: GFSK, Channel 0, Frequency: 2402MHz (10GHz ~ 15GHz)

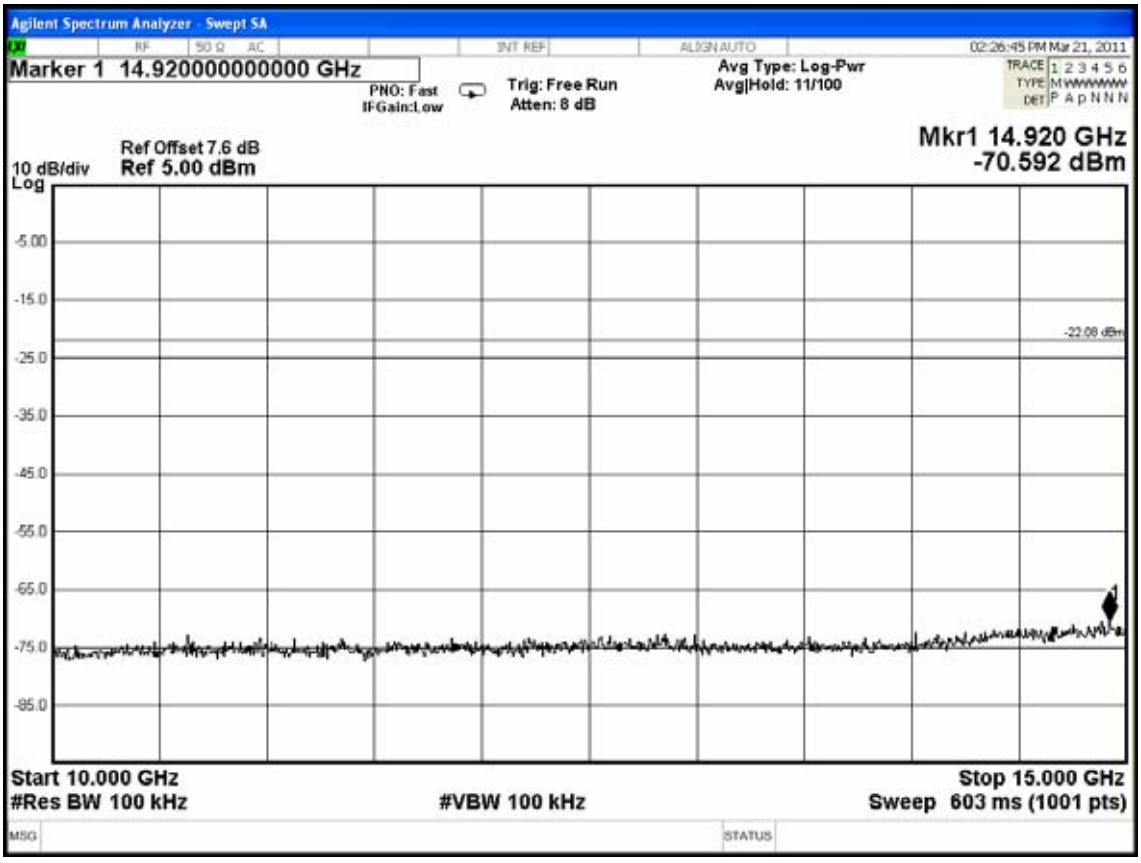
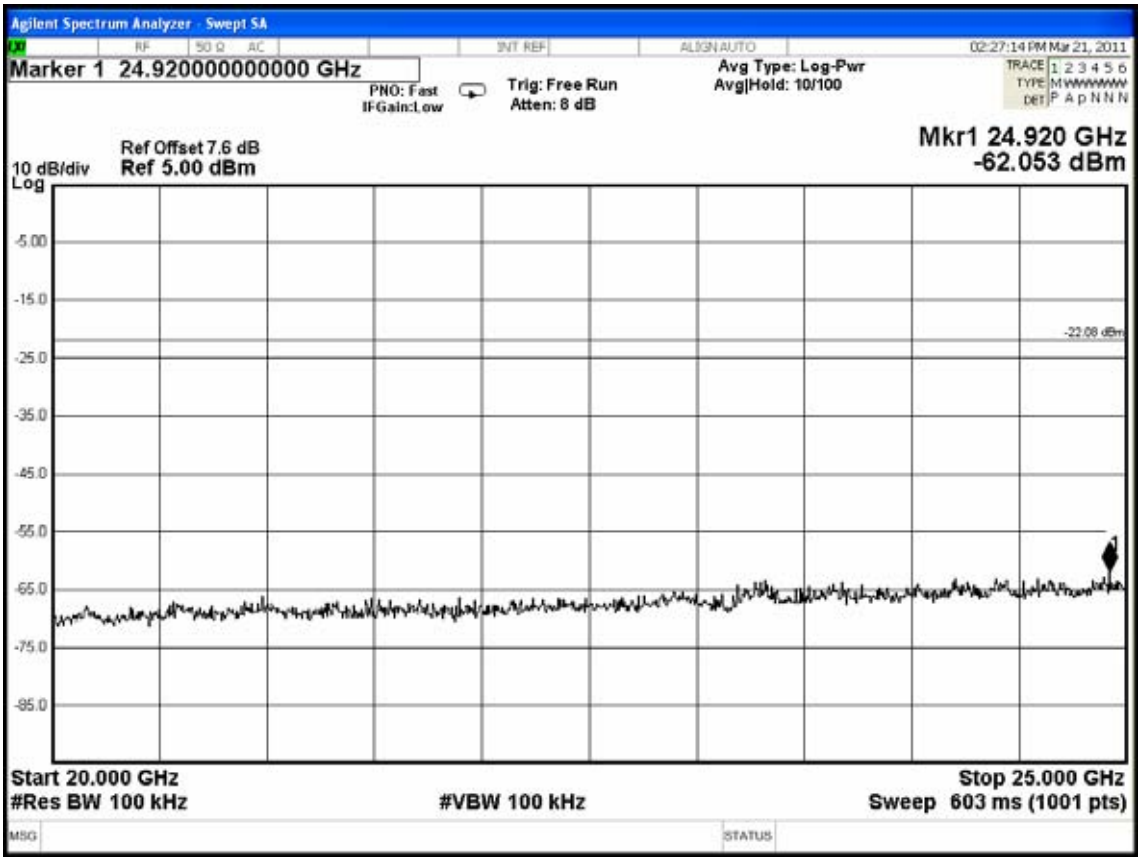


Figure 5: GFSK, Channel 0, Frequency: 2402MHz (15GHz ~ 20GHz)

Figure 6: GFSK, Channel 0, Frequency: 2402MHz (20GHz ~ 25GHz)



Test Frequency: 2441MHz:

Figure 1: GFSK, Channel 39, Frequency: 2441MHz (30MHz ~ 1GHz)

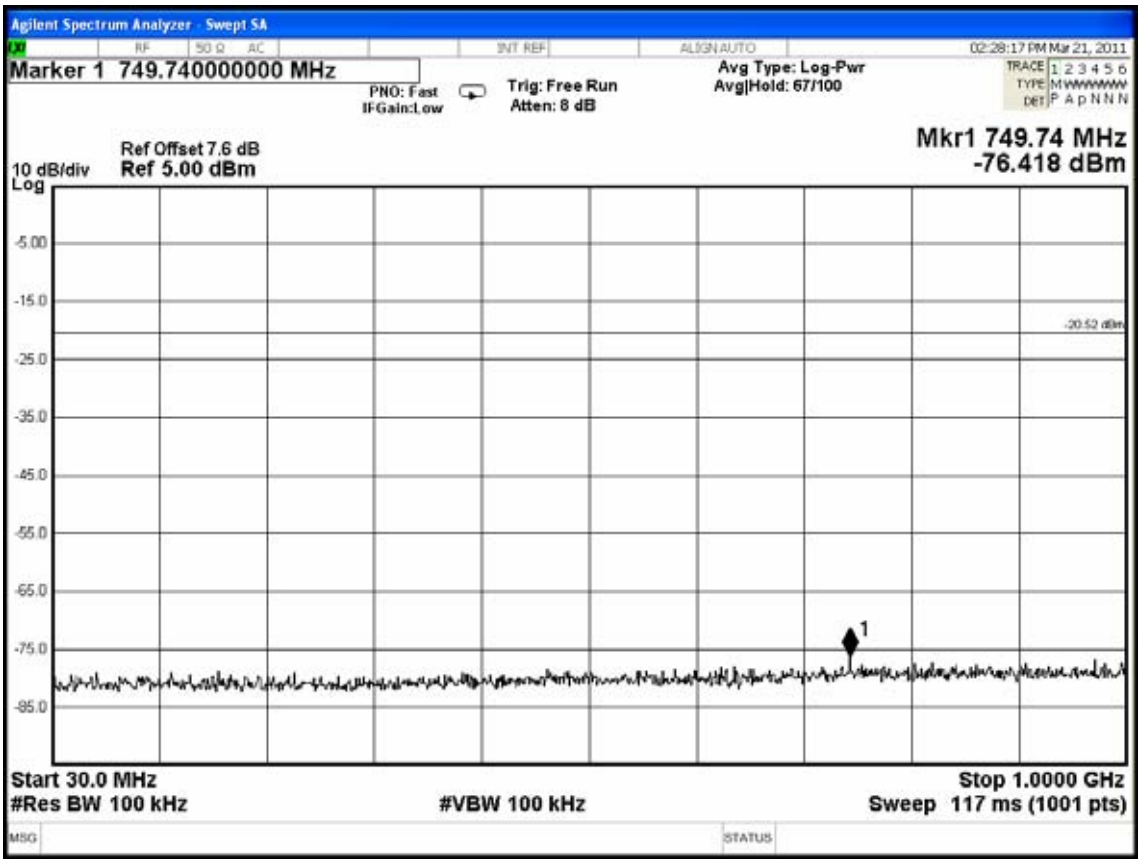


Figure 2: GFSK, Channel 39, Frequency: 2441MHz (1GHz ~ 5GHz)

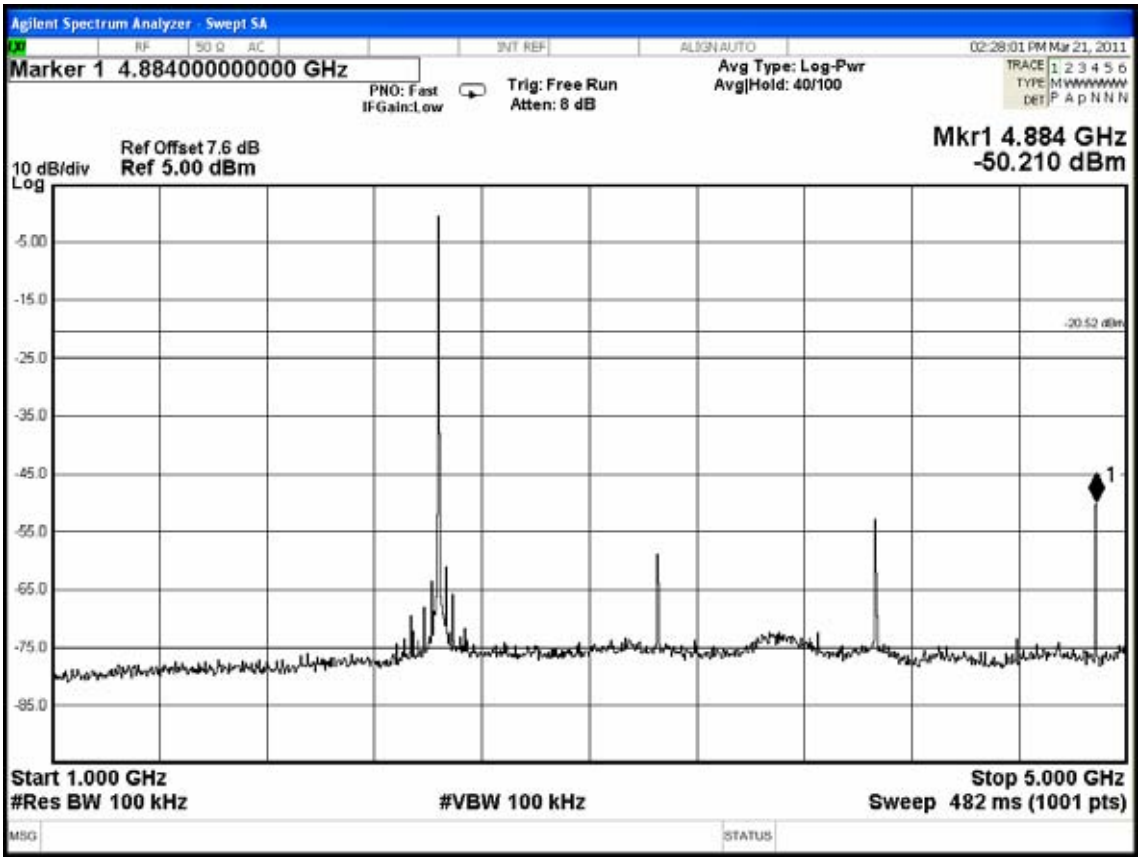


Figure 3: GFSK, Channel 39, Frequency: 2441MHz (5GHz ~ 10GHz)

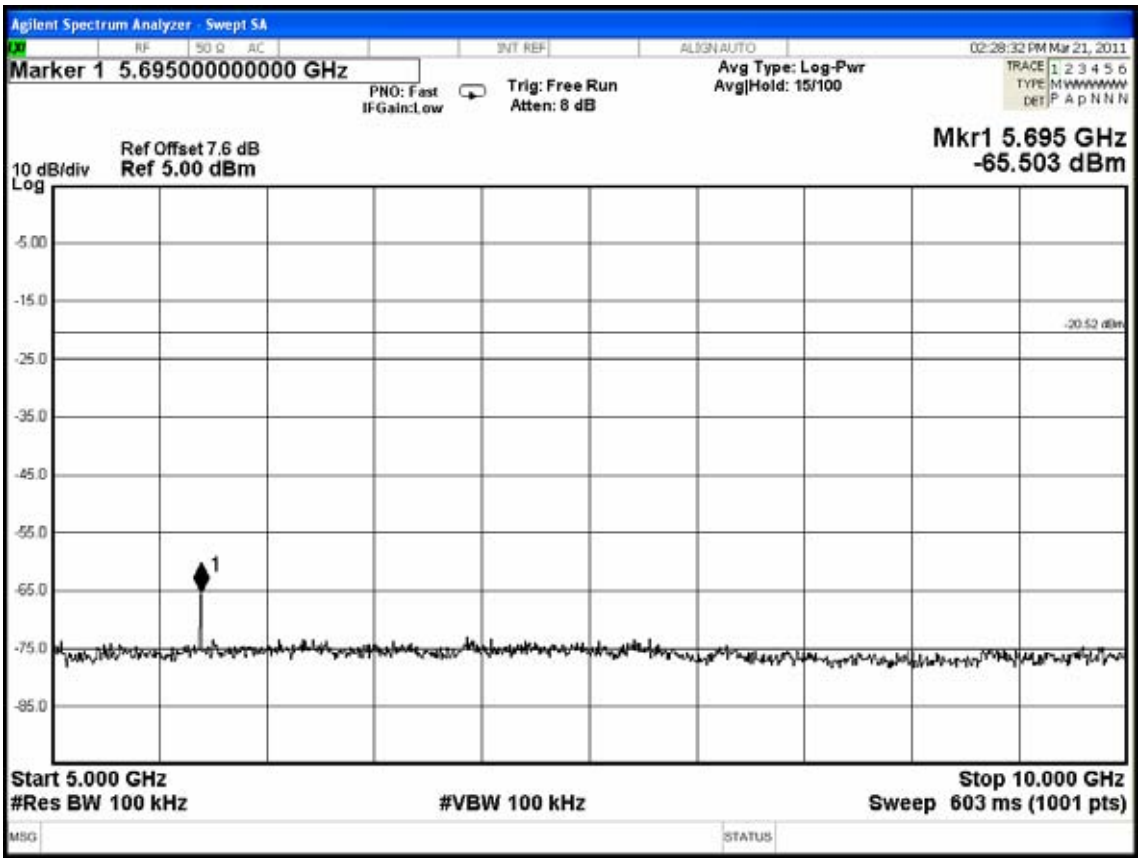


Figure 4: GFSK, Channel 39, Frequency: 2441MHz (10GHz ~ 15GHz)

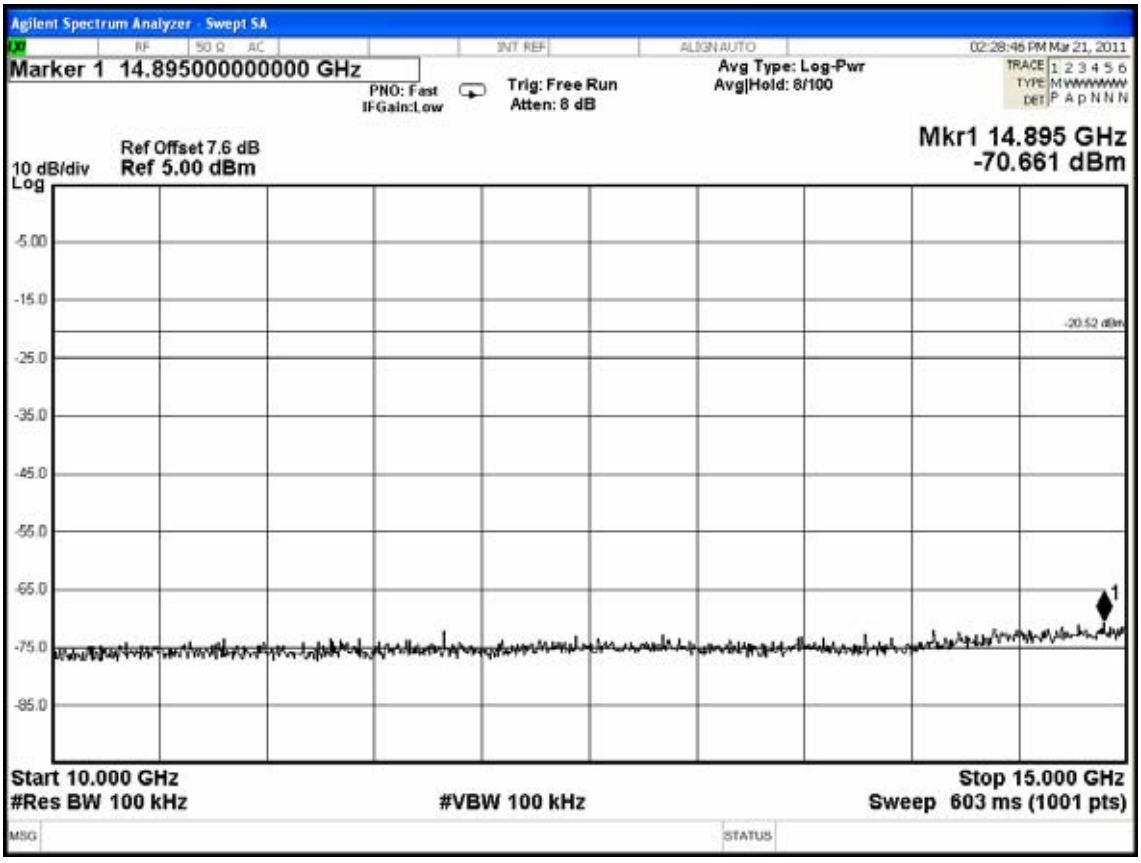
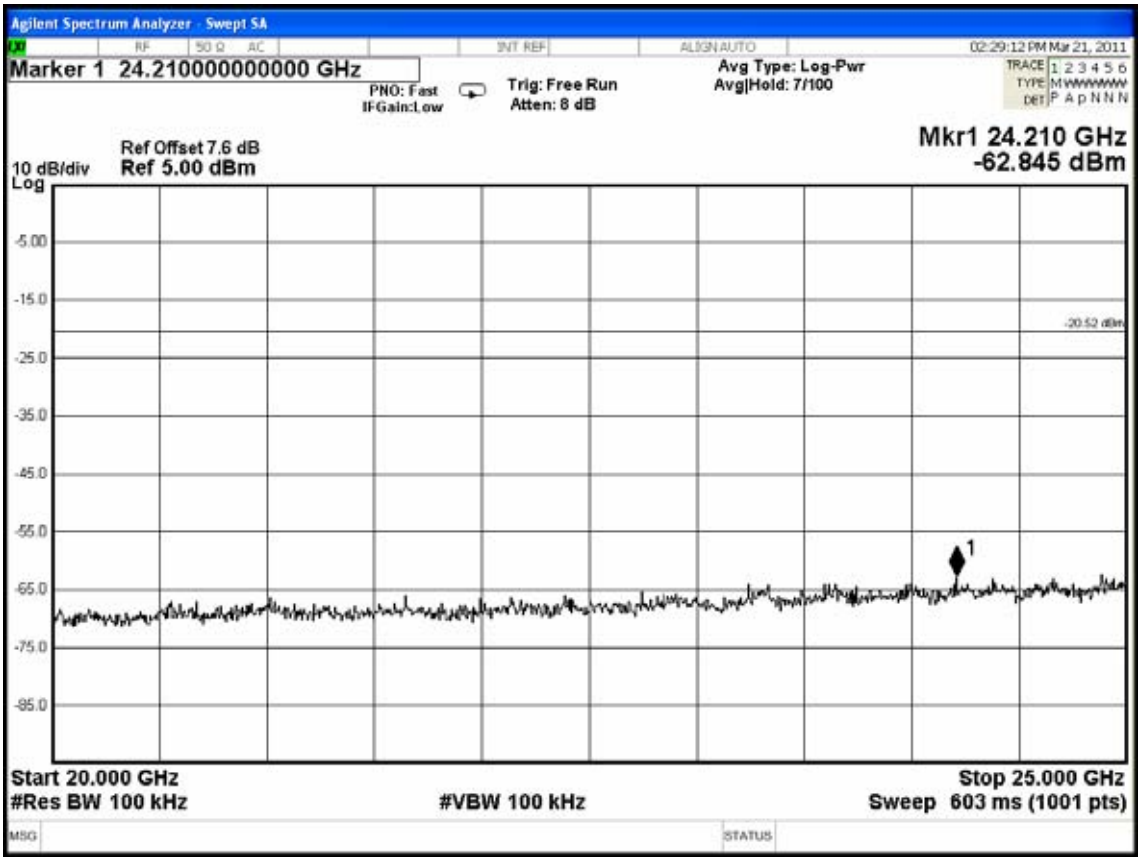


Figure 5: GFSK, Channel 39, Frequency: 2441MHz (15GHz ~ 20GHz)

Figure 6: GFSK, Channel 39, Frequency: 2441MHz (20GHz ~ 25GHz)



Test Frequency: 2480MHz:

Figure 1: GFSK, Channel 78, Frequency: 2480MHz (30MHz ~ 1GHz)

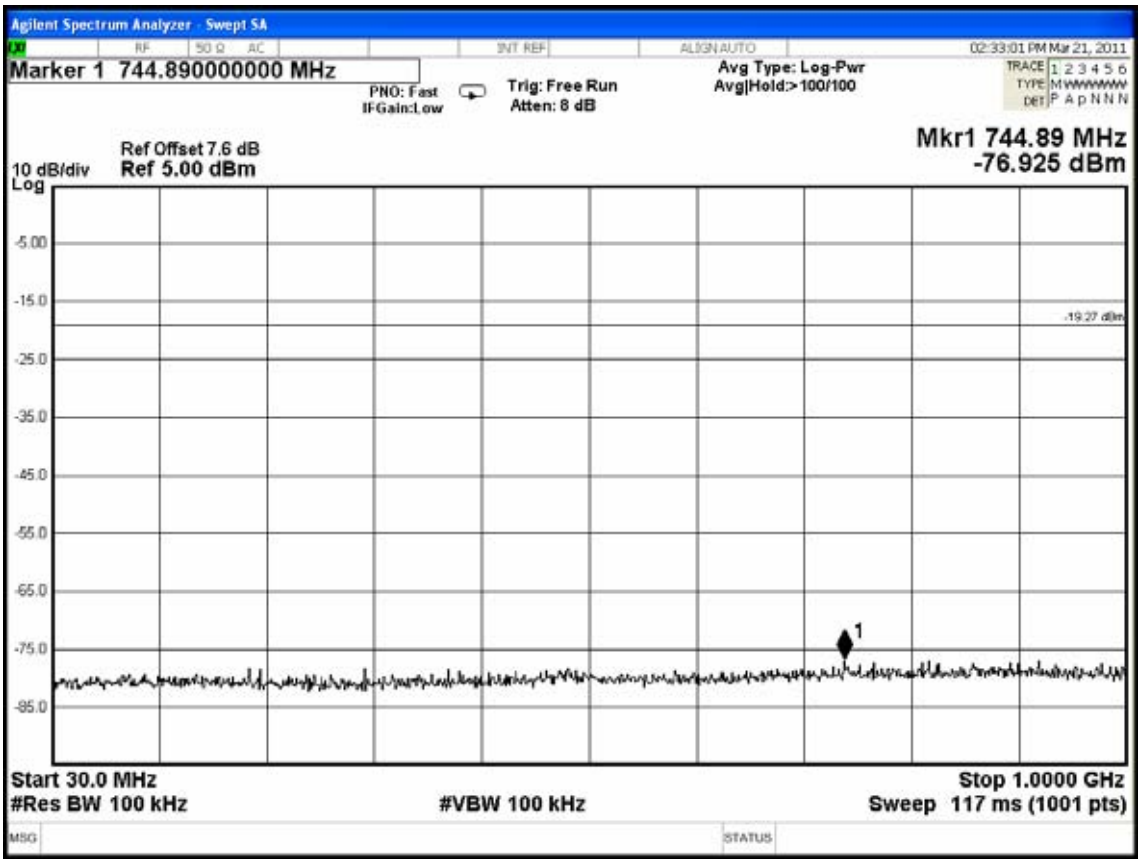


Figure 2: GFSK, Channel 78, Frequency: 2480MHz (1GHz ~ 5GHz)

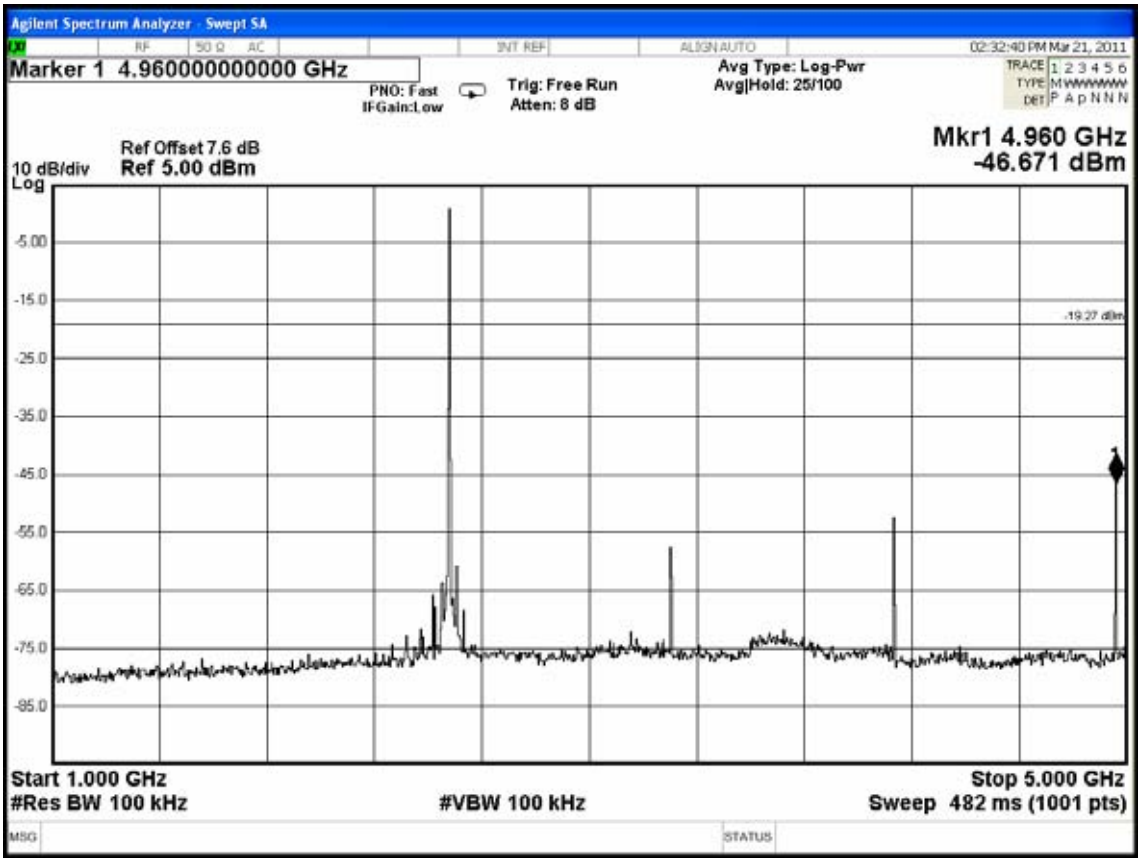


Figure 3: GFSK, Channel 78, Frequency: 2480MHz (5GHz ~ 10GHz)

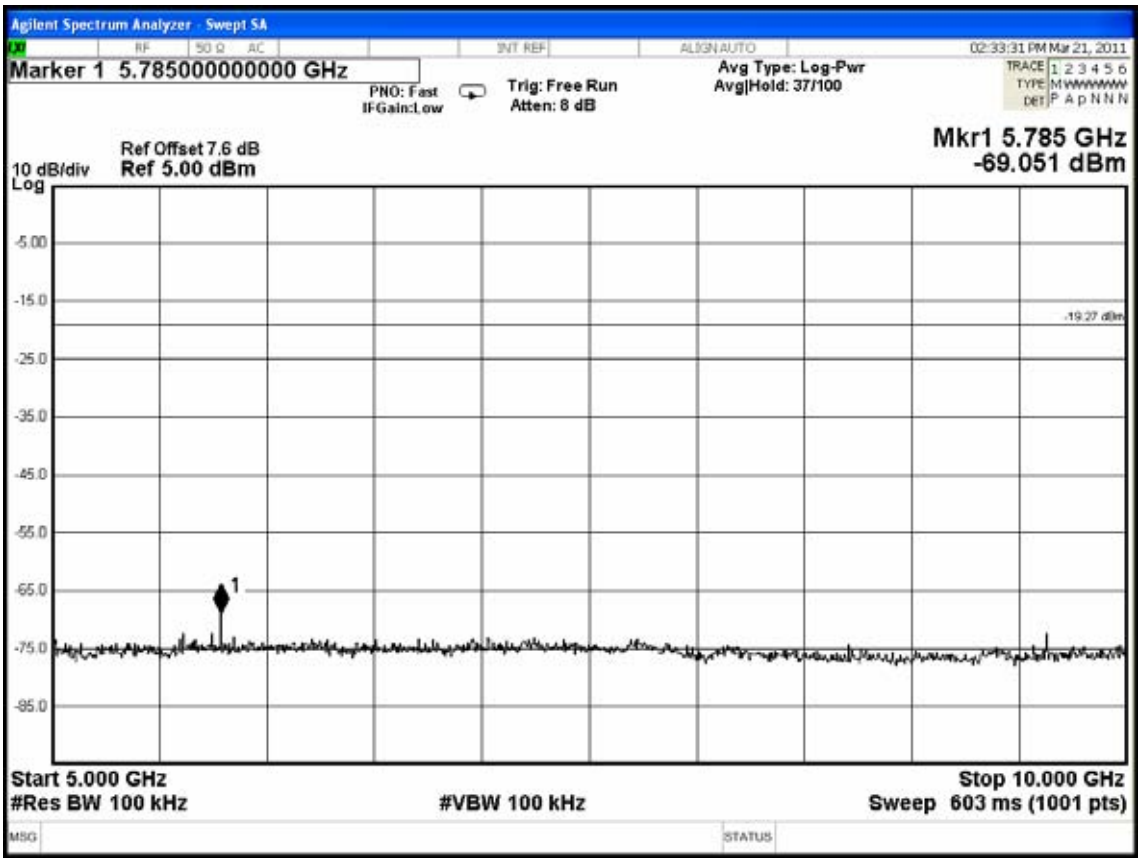


Figure 4: GFSK, Channel 78, Frequency: 2480MHz (10GHz ~ 15GHz)

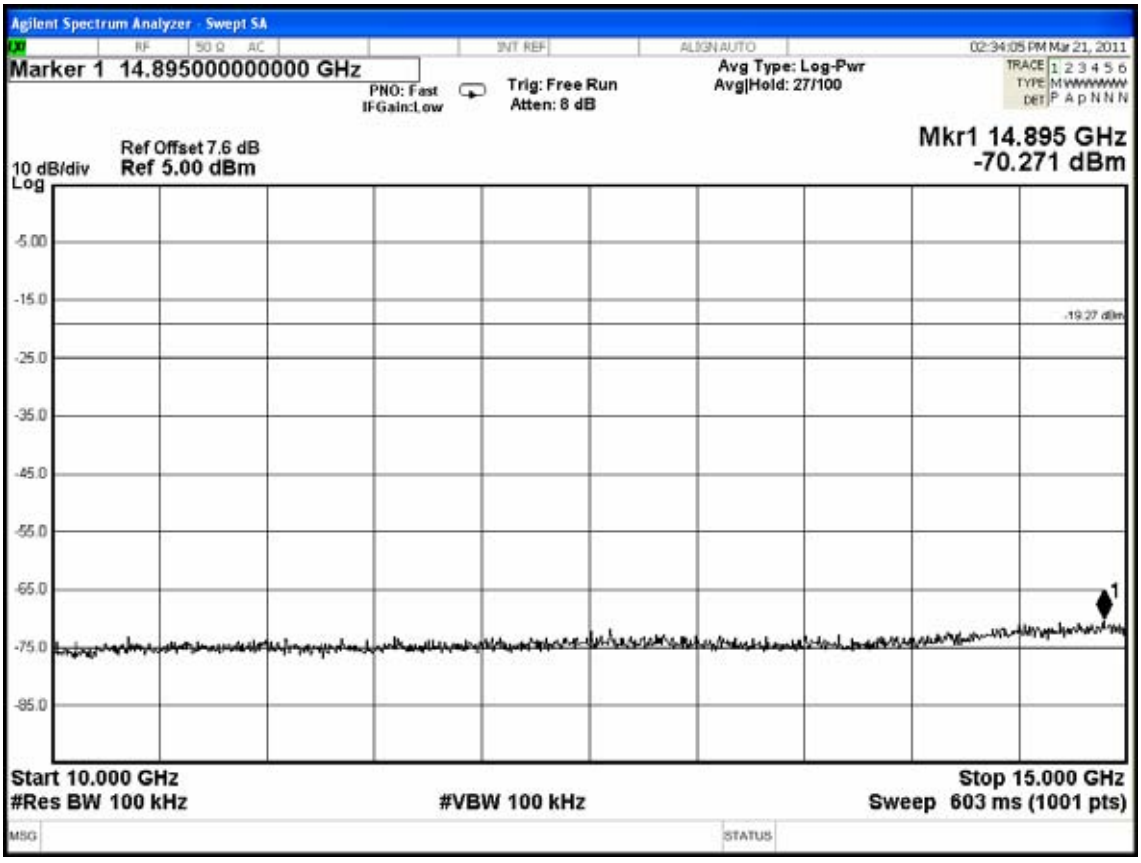


Figure 5: GFSK, Channel 78, Frequency: 2480MHz (15GHz ~ 20GHz)

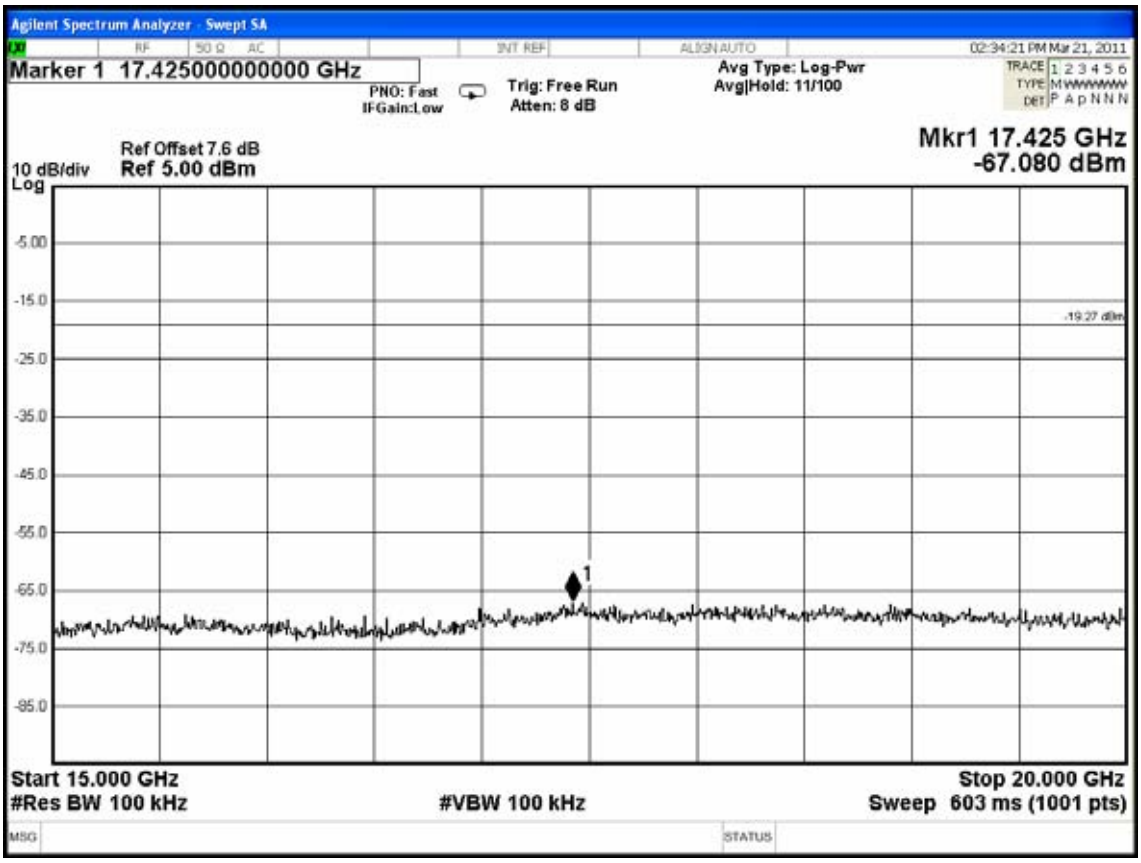


Figure 6: GFSK, Channel 78, Frequency: 2480MHz (20GHz ~ 25GHz)

10. BAND EDGES MEASUREMENT

10.1. Test Equipment

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

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9010A-526	MY48031076	Oct. 05, 10’	Oct. 04, 11’
2.	Bluetooth Test Set	Anritsu	MT8852B	6K00005697	Nov. 25, 10’	Nov. 24, 11’
3.	Power Divider	Anritsu	K240C	019728	Aug. 05, 10’	Aug. 04, 11’

10.2. Block Diagram of Test Setup

The same as section.4.2.

10.3. Specification Limits (§15.247(c))

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)

10.4. Operating Condition of EUT

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

10.5. 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.

10.6. Test Results

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

[Note: Three types of modulation (8-DPSK,π /4DQPSK, GFSK) were evaluated but only two types of modulation (8-DPSK and GFSK) were reported in this report.]

EUT：(1)Car Navigation/CD Player (2)Car CD Player M/N：LNC1700ENFS

Test Date : Mar. 21, 2011 Temperature : 21 ℃ Humidity : 55 %

10.6.1. Type of Modulation: 8-DPSK

1. Upper Band edge : The highest emission level is -45.955dBm on 2.39990GHz。
2. Below Band edge: The highest emission level is -56.358dBm on 2.48360GHz。

10.6.2. Type of Modulation: GFSK

1. Upper Band edge : The highest emission level is -43.691dBm on 2.39990GHz。
2. Below Band edge: The highest emission level is -59.554dBm on 2.48360GHz。

Figure 1: 8-DPSK, Upper Band edge

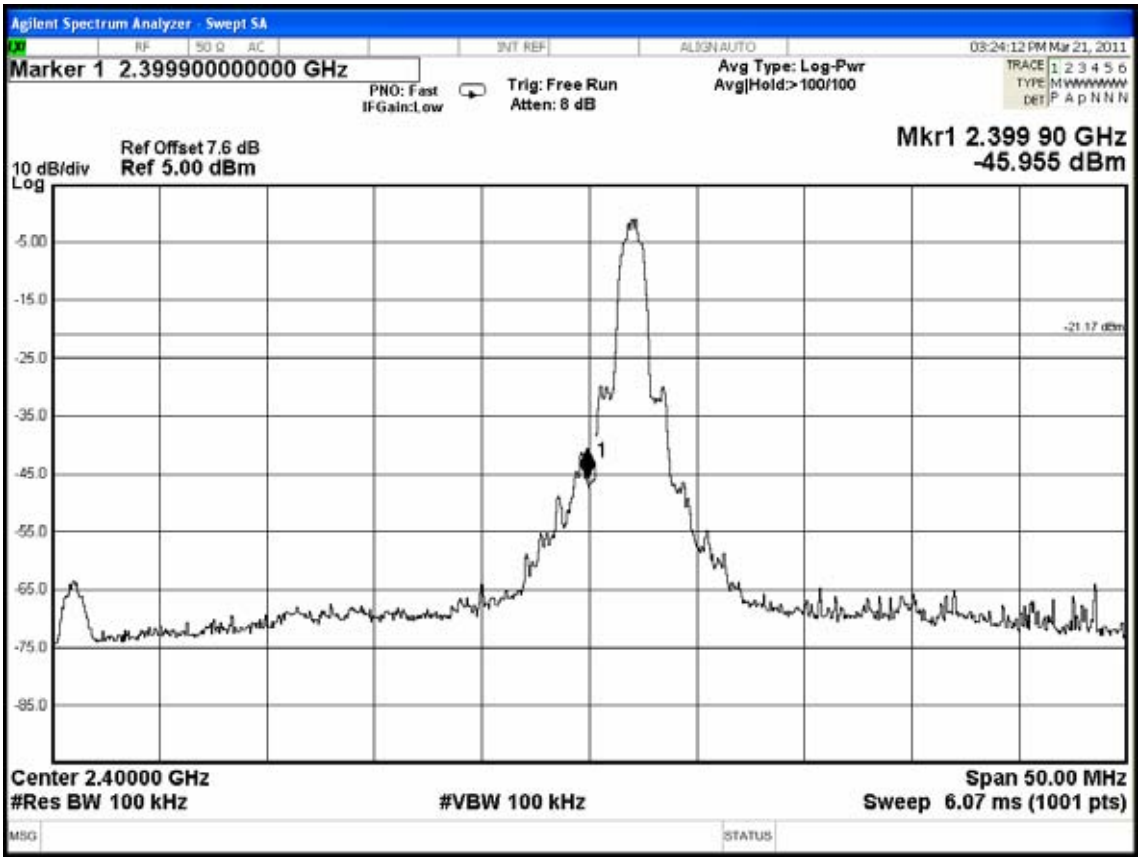


Figure 2: 8-DPSK, Below Band edge

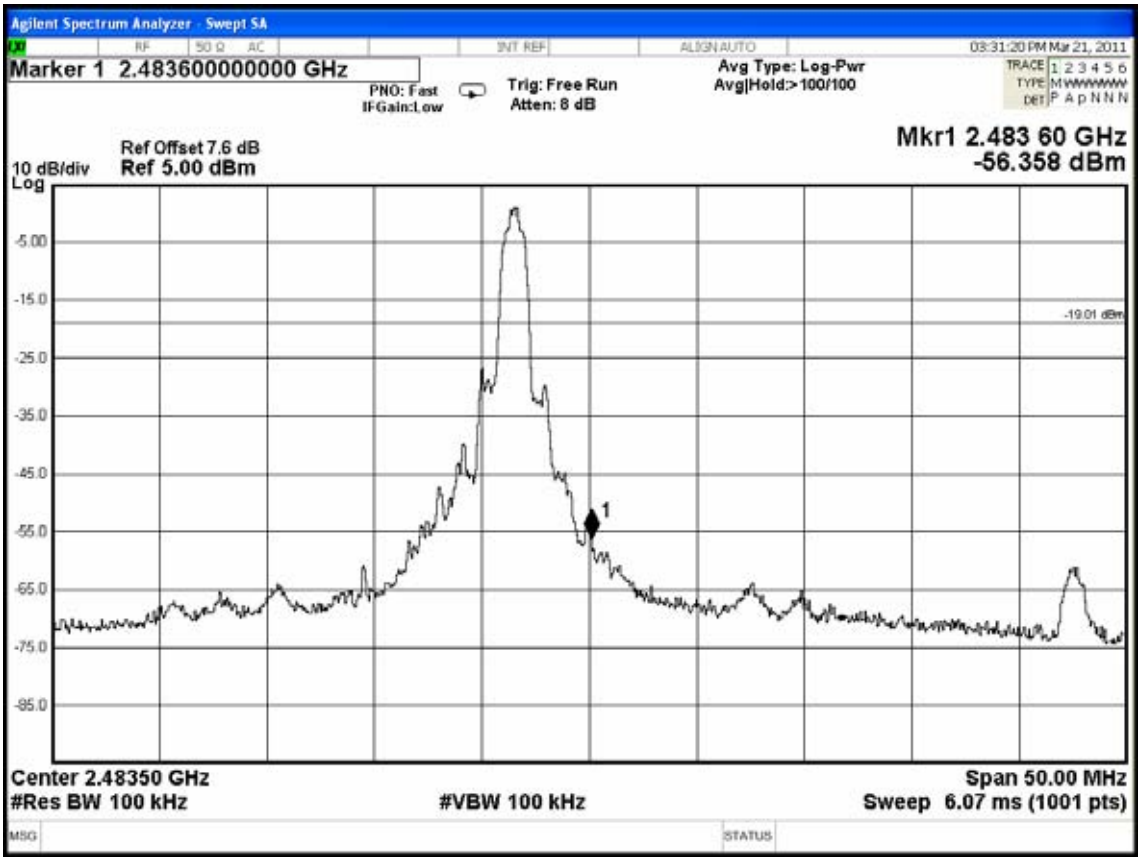


Figure 3: GFSK, Upper Band edge

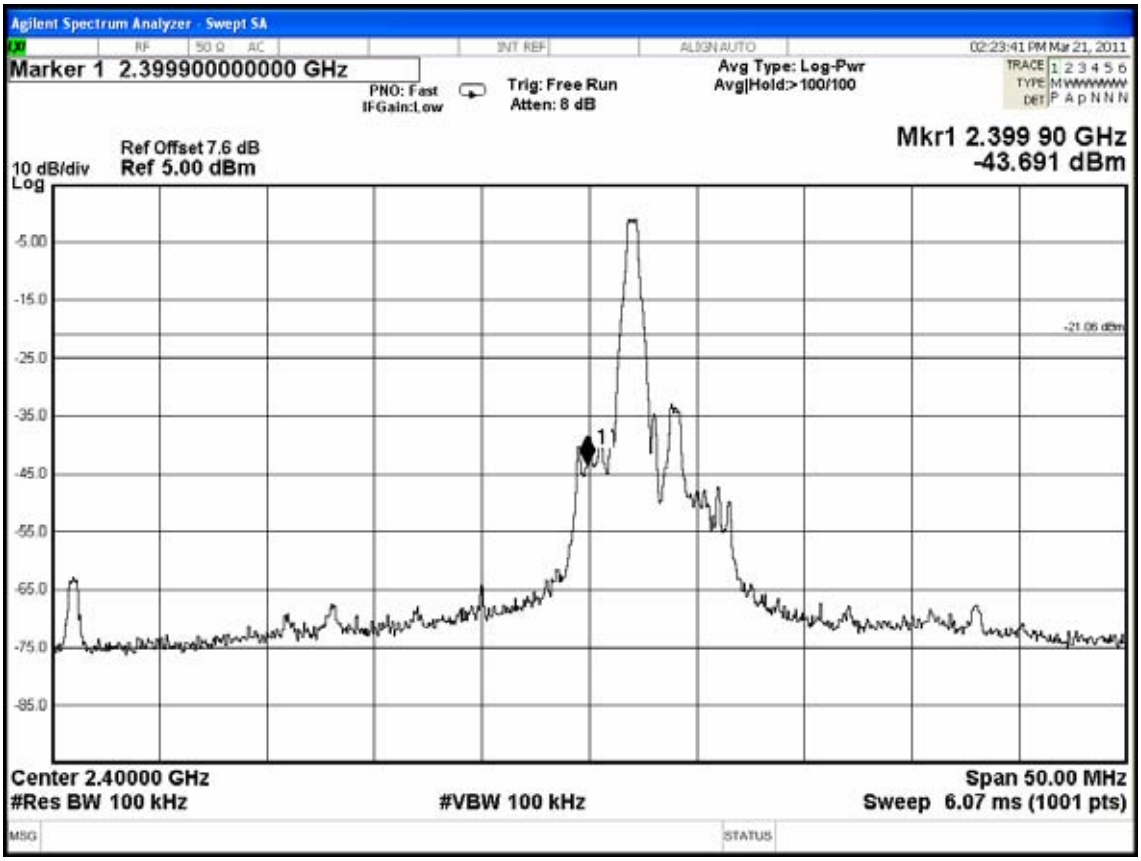
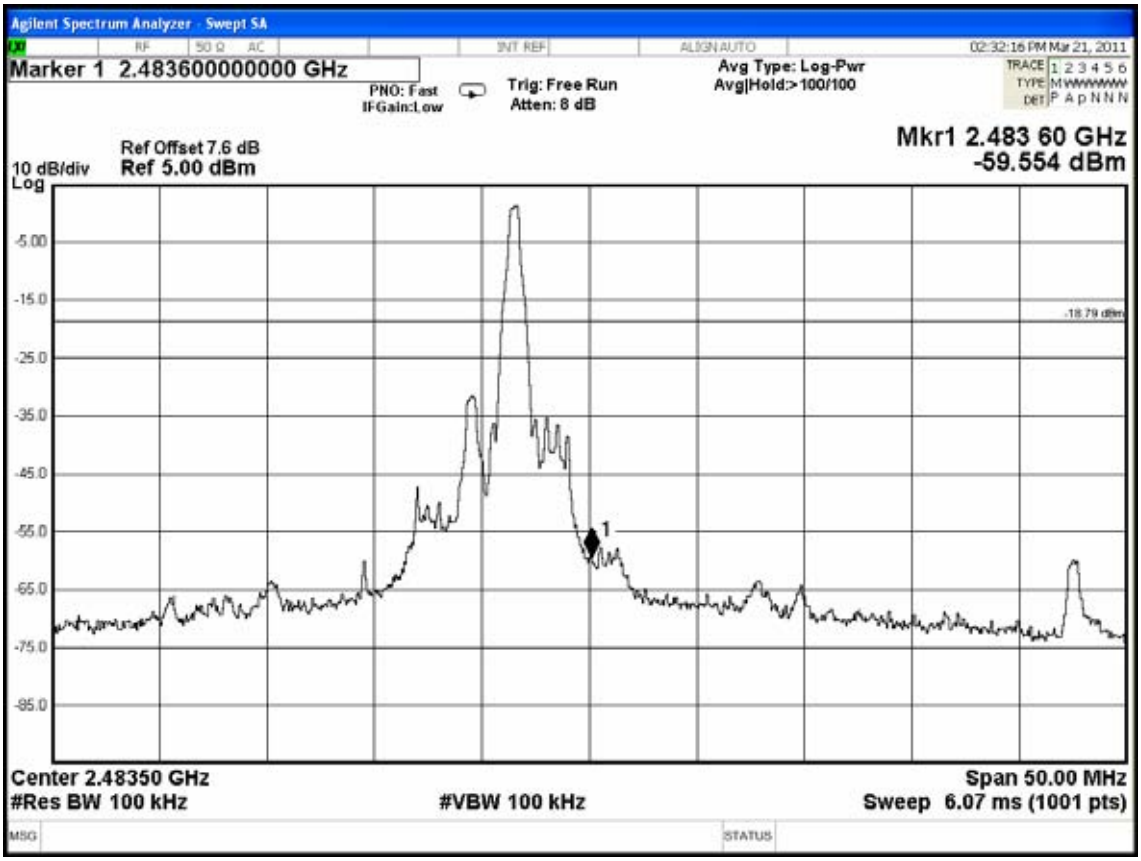


Figure 4: GFSK, Below Band edge



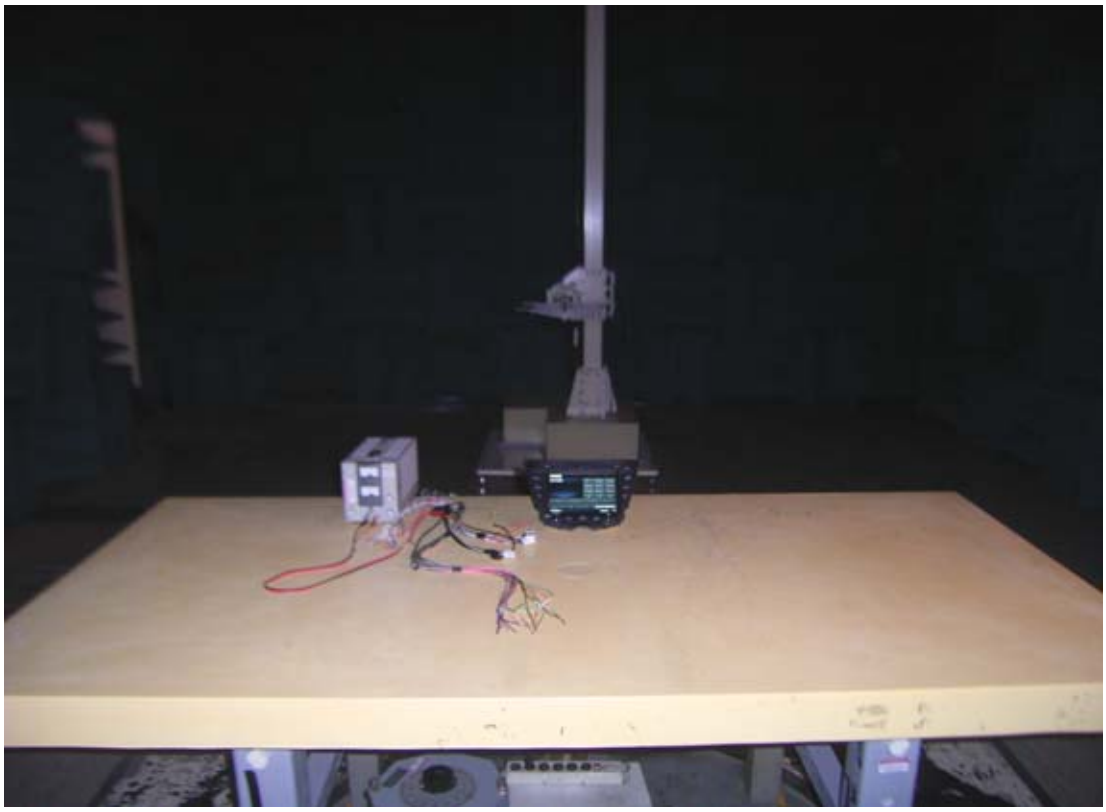
11. DEVIATION TO TEST SPECIFICATIONS

【NONE】

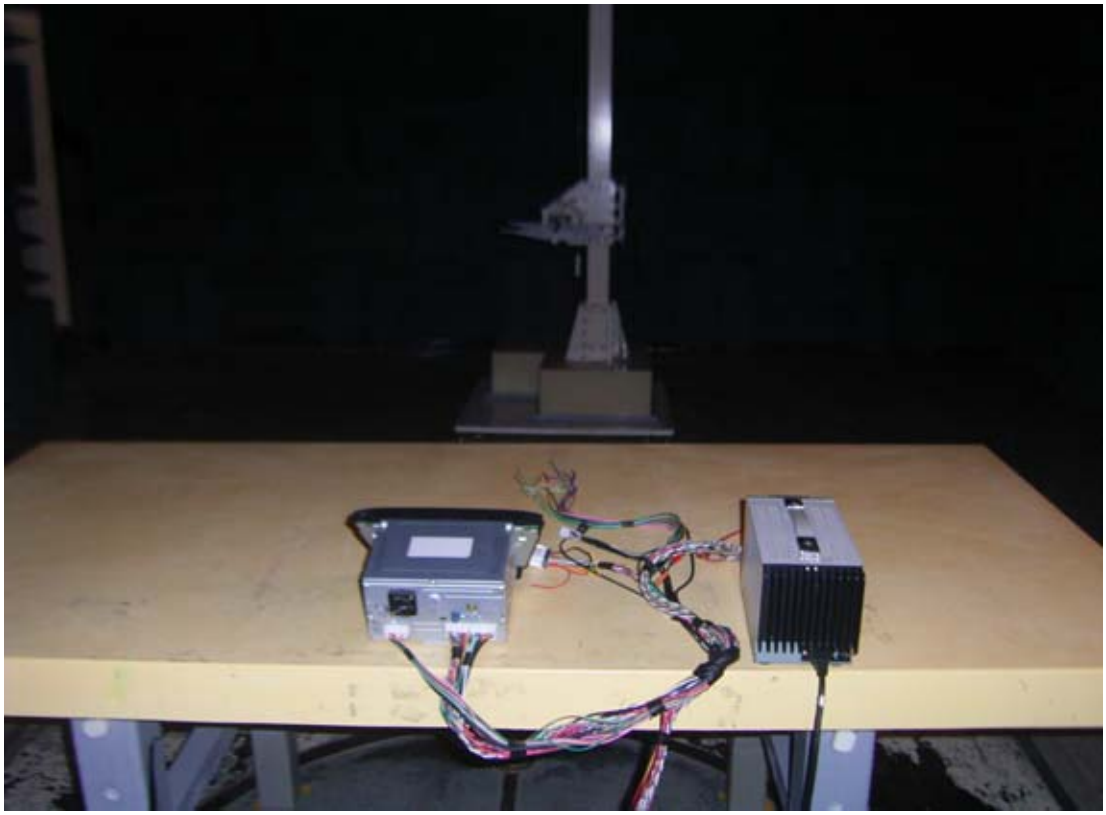
12. PHOTOGRAPHS

12.1. Photos of Radiated Emission Measurement at Semi-Anechoic Chamber

12.1.1. Frequency Range 30MHz-1GHz

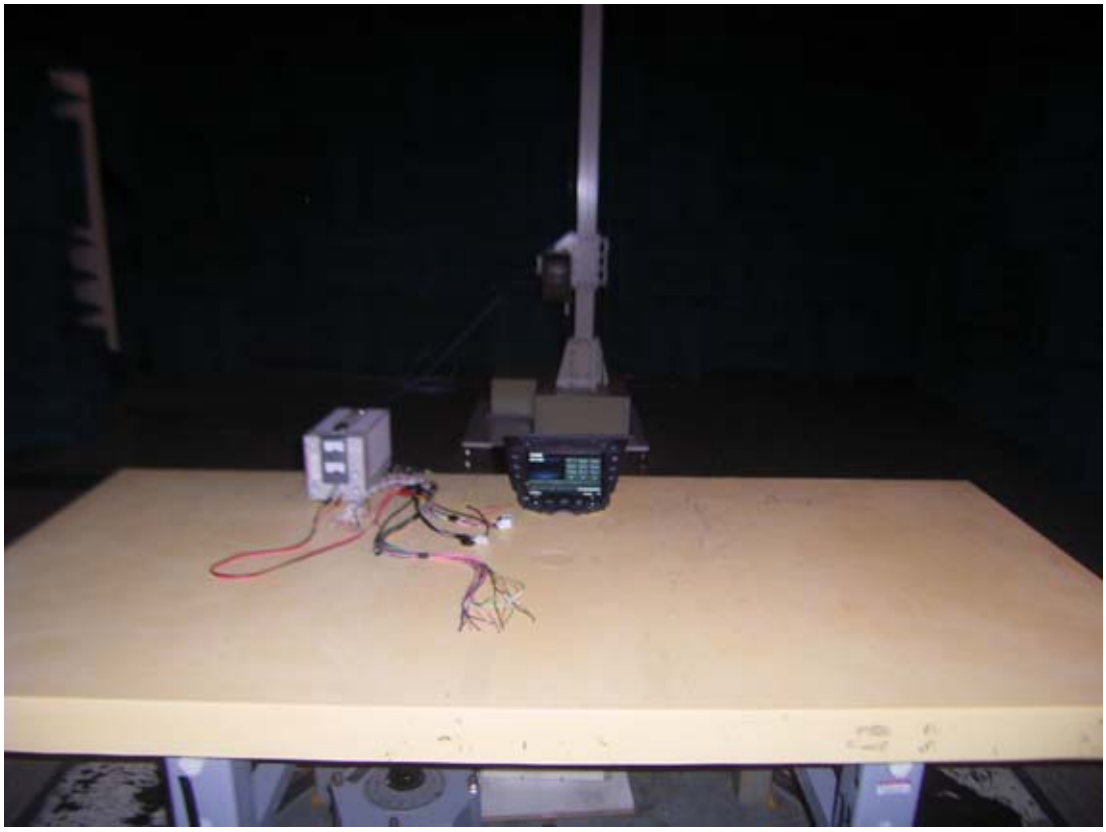


FRONT VIEW OF RADIATED MEASUREMENT



BACK VIEW OF RADIATED MEASUREMENT

12.1.2. Frequency Range Above 1GHz



FRONT VIEW OF RADIATED MEASUREMENT

BACK VIEW OF RADIATED MEASUREMENT

12.2.Photo of Section RF Conducted Measurement