

APPLICATION FOR CERTIFICATION

On Behalf of

LG Electronics Inc.

Pocket Photo

Models No. : PD221

FCC ID : BEJ9QK-DMPD221

IC : 2703H-DMPD221

Brand : LG

Prepared for : LG Electronics Inc.
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Pyeongtaek-si, Gyeonggi-do,
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TEST REPORT CERTIFICATION

Applicant : LG Electronics Inc.
Manufacturer #1 : LG Electronics Inc.
Manufacturer #2 : DS GLOBAL, Inc.
EUT Description : Pocket Photo
FCC ID : **BEJ9QK-DMPD221**
IC : **2703H-DMPD221**
(A) Model No. : PD221
(B) Serial No. : N/A
(C) Power Supply : DC 5V
(D) Test Voltage : AC 120V, 60Hz (Via AC Adapter)

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C, Oct 2011
(FCC CFR 47 Part 15C, §15.205, §15.207, §15.209 and §15.247)
ANSI C63.4/2003
FCC Public Notice DA 00-705, Mar. 2000

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


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

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

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

Date of Test : Oct. 15 ~ 25, 2012 Date of Report : Oct. 25, 2012

Producer : 
(Tina Huang/Administrator)

Signatory : 
(Leon Liu/Deputy General Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	:	Pocket Photo
Model Number	:	PD221
Serial Number	:	N/A
FCC ID	:	BEJ9QK-DMPD221
IC	:	2703H-DMPD221
Brand	:	LG
Applicant	:	LG Electronics Inc. 19-1, Cheongho-ri, Jinwi-myeon, Pyeongtaek-si, Gyeonggi-do, 451-713 Korea
Manufacturer #1	:	LG Electronics Inc. 19-1, Cheongho-ri, Jinwi-myeon, Pyeongtaek-si, Gyeonggi-do, 451-713 Korea
Manufacturer #2	:	DS GLOBAL, Inc. Byeoksan Digital Valley 2 Cha #1212, 481-10, Gasan-dong, Geumcheon-gu, Seoul, Korea.
Communication	:	Bluetooth 2.1 + EDR
Fundamental Range	:	2402MHz - 2480MHz
Channel Number	:	79
Radio Technology	:	GFSK, π /4DQPSK, 8-DPSK
Antenna (Chip Antenna)	:	Gain: -0.22dBi (Peak)

USB Cable : Non-Shielded, Detachable, 1.2m

AC Adapter : DONGDO, M/N MCS-01WD
Input: 100-240V~, 50/60Hz 0.2A
Output: 5V, 1.2A

Date of Receipt of Sample : Oct. 15, 2012

Date of Test : Oct. 15 ~ 25, 2012

1.2. Tested Supporting System Details

1.2.1. MOBILE PHONE

Model Number : LG-P705

Serial Number : N/A

NCC ID : CCAF123G0340T5

Brand : LG

1.2.2. POWER SOCKET

Model Number : N/A

Serial Number : N/A

Manufacturer : AUDIX

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, Dingfu, Linkou Dist.,
New Taipei City 244, Taiwan, R.O.C.

Test Location & Facility : **No. 7 Shielded Room**
(C3/AC) No. 53-11, Dingfu, Linkou Dist.,
New Taipei City 244, Taiwan, R.O.C.

Semi-Anechoic Chamber
No. 53-11, Dingfu, Linkou Dist.,
New Taipei City 244, Taiwan, R.O.C.
May 11, 2012 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)
Conduction Test	150kHz~30MHz	±1.73dB
Radiation Test (Distance: 3m)	30MHz~300MHz	±2.91dB
	300MHz~1000MHz	±2.94dB
	Above 1GHz	± 5.02dB

Remark : Uncertainty = $ku_c(y)$

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

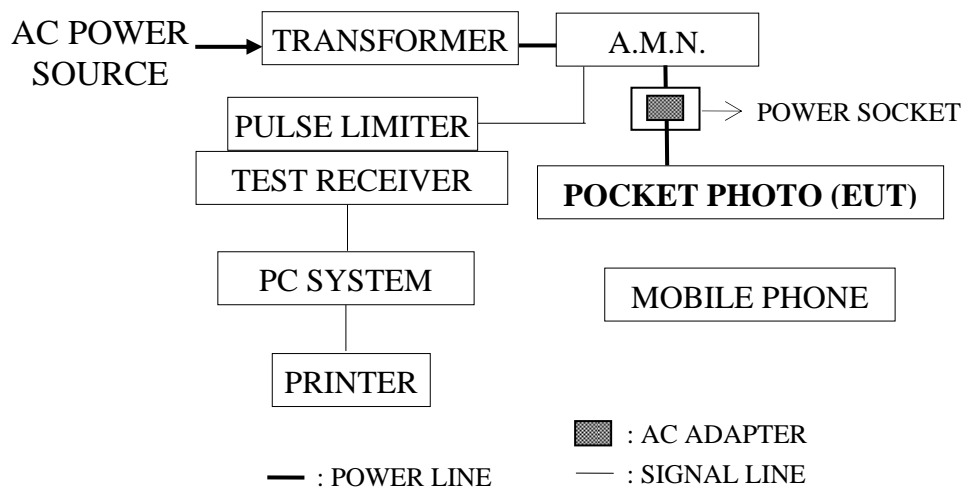
2. POWERLINE CONDUCTED EMISSION MEASUREMENT

2.1. Test Equipment

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

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R & S	ESCI	101276	Apr. 30, 12'	Apr. 29, 13'
2.	A.M.N.	R&S	ESH2-Z5	100366	Mar. 26, 12'	Mar. 25, 13'
3.	Pulse Limiter	R&S	ESH3-Z2	101495	Mar. 26, 12'	Mar. 25, 13'

2.2. Block Diagram of Test Setup



2.3. Powerline Conducted Emission Limit (§15.207, RSS-Gen §7.2.2/Table 2)

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

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

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

2.4. Operating Condition of EUT

- 2.4.1. Setup the **EUT (Pocket Photo)** as shown on 2.2.
- 2.4.2. Turn on the power of all equipment.
- 2.4.3. The **EUT (Pocket Photo)** was link to AC adapter, the EUT on charging and transmitting function during all testing.

2.5. Test Procedure

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

The bandwidth of the R & S Test Receiver ESCI was set at 10kHz.

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

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

2.6. Powerline Conducted Emission Measurement Results

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

The EUT was measured during this section testing and all the test results are listed in next pages.

EUT : Pocket Photo Model No. : PD221

Test Date : Oct. 17, 2012 Temperature : 25 Humidity : 52%

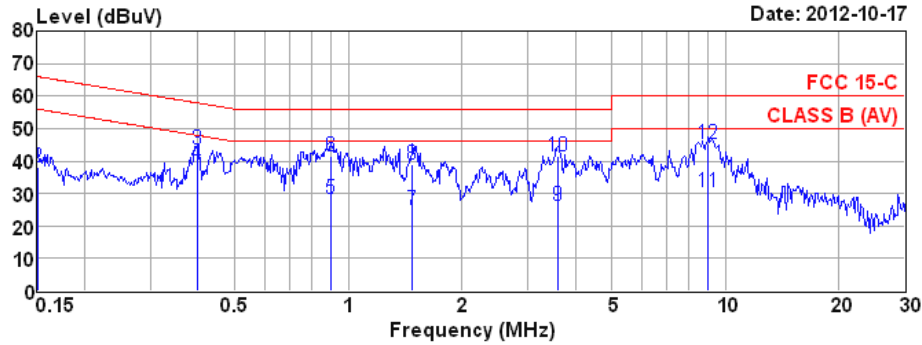
The details are as follows :

Mode	Reference Test Data	
	Neutral	Line
1.	# 8	# 7



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Data: 8 File: D:\test data\REPORT\IC1M1210XXX\IC1M1210172-C-D.EM6 (12)



Site no. : No.7 Shielded Room Data no. : 8
 Dis. / Ant. : ESH2-Z5 366 Ant. pol. : NEUTRAL
 Limit : FCC 15-C
 Env. / Ins. : 25°C / 52% ESCI (1276) Engineer : Fate
 EUT : PD221
 Power Rating : 120Vac/60Hz
 Test Mode : Operating

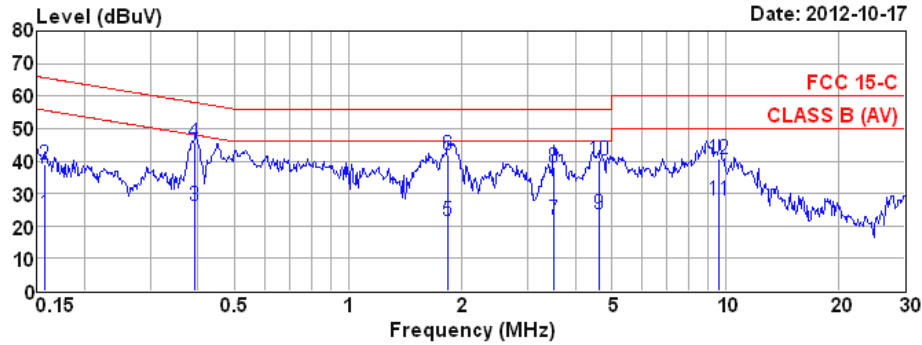
	Freq. (MHz)	AMN. Factor (dB)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.15	0.10	9.92	16.29	26.31	55.94	29.63	Average
2	0.15	0.10	9.92	28.07	38.09	65.94	27.85	QP
3	0.40	0.10	9.97	33.41	43.48	47.90	4.42	Average
4	0.40	0.10	9.97	28.92	38.99	57.90	18.91	QP
5	0.90	0.19	9.99	18.27	28.45	46.00	17.55	Average
6	0.90	0.19	9.99	31.20	41.38	56.00	14.62	QP
7	1.48	0.20	10.00	14.91	25.11	46.00	20.89	Average
8	1.48	0.20	10.00	28.58	38.78	56.00	17.22	QP
9	3.60	0.20	10.03	15.86	26.09	46.00	19.91	Average
10	3.60	0.20	10.03	31.12	41.35	56.00	14.65	QP
11	9.01	0.29	9.94	20.06	30.29	50.00	19.71	Average
12	9.01	0.29	9.94	35.22	45.45	60.00	14.55	QP

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



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Data: 7 File: D:\test data\REPORT\IC1M1210XXX\IC1M1210172-C-D.EM6 (12)



Site no. : No.7 Shielded Room Data no. : 7
 Dis. / Ant. : ESH2-Z5 366 Ant. pol. : LINE
 Limit : FCC 15-C
 Env. / Ins. : 25°C / 52% ESCI (1276) Engineer : Fate
 EUT : PD221
 Power Rating : 120Vac/60Hz
 Test Mode : Operating

	Freq. (MHz)	AMN. Factor (dB)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.16	0.10	9.92	13.63	23.65	55.65	32.00	Average
2	0.16	0.10	9.92	29.00	39.02	65.65	26.63	QP
3	0.39	0.10	9.97	16.10	26.17	47.99	21.82	Average
4	0.39	0.10	9.97	35.71	45.78	57.99	12.21	QP
5	1.84	0.20	10.00	11.42	21.62	46.00	24.38	Average
6	1.84	0.20	10.00	31.69	41.89	56.00	14.11	QP
7	3.51	0.20	10.04	11.90	22.14	46.00	23.86	Average
8	3.51	0.20	10.04	28.08	38.32	56.00	17.68	QP
9	4.62	0.22	10.02	13.35	23.59	46.00	22.41	Average
10	4.62	0.22	10.02	29.81	40.05	56.00	15.95	QP
11	9.65	0.30	9.90	17.72	27.92	50.00	22.08	Average
12	9.65	0.30	9.90	30.36	40.56	60.00	19.44	QP

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

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)

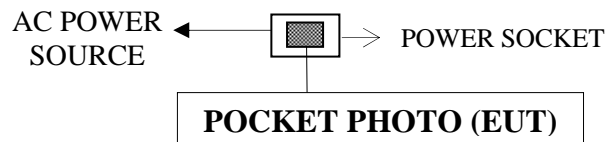
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E4446A	US44300366	Aug. 07, 12'	Aug. 06, 13'
2.	Test Receiver	R & S	ESCS30	100338	Jul. 04, 12'	Jul. 03, 13'
3.	Amplifier	HP	8447D	2944A06305	Feb. 13, 12'	Feb. 12, 13'
4.	Log Periodic Antenna	Schwarzbeck	UHALP 9108-A	0810	Mar. 03, 12'	Mar. 02, 13'
5.	Biconical Antenna	CHASE	VBA6106A	1264	Mar. 03, 12'	Mar. 02, 13'

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. 07, 12'	Aug. 06, 13'
2.	Test Receiver	R & S	ESCS30	100338	Jul. 04, 12'	Jul. 03, 13'
3.	Pre-Amplifier	HP	8449B	3008A00529	Dec. 09, 11'	Dec. 08, 12'
4.	2.4GHz Notch Filter	EWT	EWT-14-0 070-R1	G2	Feb. 14, 12'	Feb. 13, 13'
5.	3.5G High Pass Filter	HP	84300-800 38	005	Dec. 15, 11'	Dec. 14, 12'
6.	Horn Antenna	EMCO	3115	9112-3775	May 09, 12'	May 08, 13'
7.	Horn Antenna	EMCO	3116	2653	Oct. 15, 12'	Oct. 14, 13'

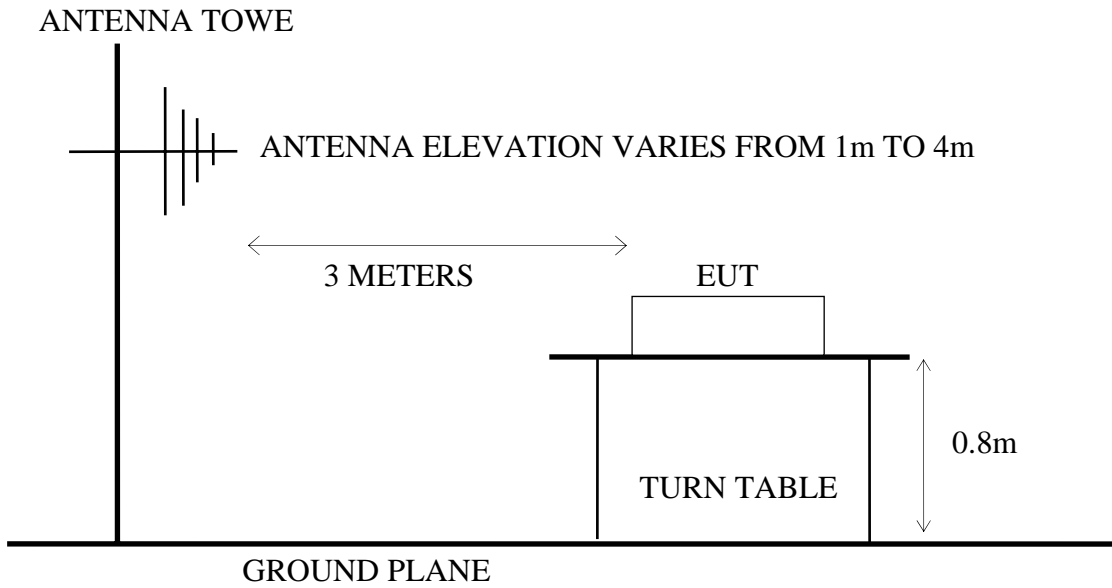
3.2. Block Diagram of Test Setup

3.2.1. Block Diagram of connection between EUT and simulators

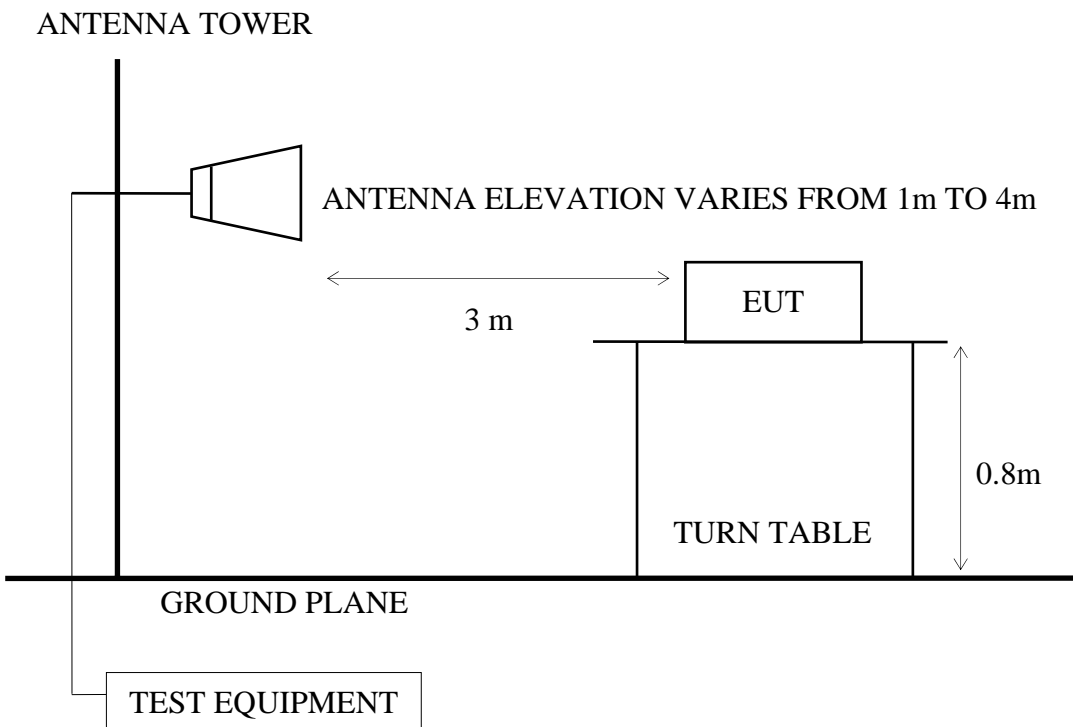


■ : AC ADAPTER

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, RSS-210 §2.7/Table 2)

Frequency MHz	Distance Meters	Field Strengths Limits	
		$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$
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 $\text{dB}\mu\text{V/m}$ (Peak) 54.0 $\text{dB}\mu\text{V/m}$ (Average)	

- Remark :
- (1) Emission level ($\text{dB}\mu\text{V/m}$) = 20 log Emission level ($\mu\text{V/m}$)
 - (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 (Pocket Photo) and simulator as shown on 3.2.1.
- 3.4.2. To turn on the power of all equipments.
- 3.4.3. The **EUT (Pocket Photo)** was link to AC adapter, the EUT on charging and transmitting function during all testing.
- 3.4.4. The EUT set to continuously transmit signals at 2402MHz, 2441MHz and 2480MHz during all test time. (The test program is cmd.exe)

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, RSS-Gen and RSS-210 regulation, and the measurement guideline was according to FCC Public Notice DA 00-705.

The bandwidth of the R&S Test Receiver 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 10th harmonics from fundamental frequency) was checked.

Above 1GHz was measured with peak and average detector. For frequency from 1GHz to 25GHz, 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 : Pocket Photo

M/N : PD221

Test Date : Oct. 16, 2012 Temperature : 26 Humidity : 61%

The EUT linked AC adapter and with battery (emitted the fundamental frequency with data code at the stand, side and lie conditions) modes were evaluated, select the **worst test mode (EUT link AC adapter)** was tested in this section.

For Frequency Range 30MHz-1000MHz:

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

The EUT linked AC adapter 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)	# 12	# 11
2.		2441MHz (CH39)	# 12	# 11
3.		2480MHz (CH78)	# 12	# 11

* Type of modulation: GFSK.

* 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 (GFSK) was reported in this report.]

The EUT linked AC adapter with following test modes was performed during this section 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)	# 2	# 1
2.		2441MHz (CH39)	# 2	# 1
3.		2480MHz (CH78)	--(Note 3)	--(Note 3)

* Type of modulation: GFSK.

Note: 1. Above all final readings were measured with Peak detector.

2. For measurements above 1GHz to 2.68GHz or 4GHz-5.5GHz, the peak measured value complies with the average limit, it is unnecessary to perform an average measurement. (According to ANSI C63.4-2003 section 8.3.1.2)
3. The emissions (up to 25GHz) not reported are too low to be measured.

For Restricted Bands:

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

The EUT linked AC adapter 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)	# 3, 4	# 1 , 2
2.		2480MHz (CH78)	# 7, 8	# 5, 6

* Type of modulation: GFSK.

3.6.1. Frequency Range 30MHz-1000MHz Measurement Result

Transmit, Frequency: 2402MHz (GFSK)

Site no. : A/C Chamber Data no. : 12
 Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : HORIZONTAL
 Limit : FCC PART-15C
 Env. / Ins. : E4446A 26°C/61% Vic Fong
 EUT : PD221
 Power Rating : AC120V 60HZ
 Test Mode : TX2402MHz (GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	102.090	17.29	2.10	5.41	24.80	43.50	18.70	QP
2	180.930	21.32	2.90	5.16	29.38	43.50	14.12	QP

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. : VERTICAL
 Limit : FCC PART-15C
 Env. / Ins. : E4446A 26°C/61% Vic Fong
 EUT : PD221
 Power Rating : AC120V 60HZ
 Test Mode : TX2402MHz (GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	858.380	25.98	7.20	1.57	34.75	46.00	11.25	QP

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

Transmit, Frequency: 2441MHz (GFSK)

Site no. : A/C Chamber Data no. : 12
 Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : HORIZONTAL
 Limit : FCC PART-15C
 Env. / Ins. : E4446A 26°C/61% Vic Fong
 EUT : PD221
 Power Rating : AC120V 60HZ
 Test Mode : TX2441MHz (GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	102.090	17.29	2.10	5.20	24.59	43.50	18.91	QP

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. : VERTICAL
 Limit : FCC PART-15C
 Env. / Ins. : E4446A 26°C/61% Vic Fong
 EUT : PD221
 Power Rating : AC120V 60HZ
 Test Mode : TX2441MHz (GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	56.730	13.77	1.60	16.47	31.84	40.00	8.16	QP
2	191.190	21.55	3.00	3.49	28.04	43.50	15.46	QP

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

Transmit, Frequency: 2480MHz (GFSK)

Site no. : A/C Chamber Data no. : 12
 Dis. / Ant. : 3m VBA6106A/UHALP9108A Ant. pol. : HORIZONTAL
 Limit : FCC PART-15C
 Env. / Ins. : E4446A 26°C/61% Vic Fong
 EUT : PD221
 Power Rating : AC120V 60HZ
 Test Mode : TX2480MHz (GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	102.750	17.40	2.10	3.68	23.18	43.50	20.32	QP
2	749.740	23.25	6.70	0.56	30.51	46.00	15.49	QP

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. : VERTICAL
 Limit : FCC PART-15C
 Env. / Ins. : E4446A 26°C/61% Vic Fong
 EUT : PD221
 Power Rating : AC120V 60HZ
 Test Mode : TX2480MHz (GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	84.320	14.58	1.90	10.73	27.21	40.00	12.79	QP

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. For Above 1GHz Frequency Range Measurement Results

Transmit, Frequency: 2402MHz (GFSK)

Site no. : A/C Chamber
 Dis. / Ant. : 3m 3115(4927)
 Limit : FCC PART-15C (1G-AV)
 Env. / Ins. : E4446A 26°C/61%
 EUT : PD221
 Power Rating : AC120V 60HZ
 Test Mode : TX2402MHz (GFSK)

Data no. : 2
 Ant. pol. : HORIZONTAL
 Vic Fong

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	1645.120	26.27	6.45	20.14	52.86	54.00	1.14	Peak
2	2380.960	28.43	6.33	15.49	50.26	54.00	3.74	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
 Dis. / Ant. : 3m 3115(4927)
 Limit : FCC PART-15C (1G-AV)
 Env. / Ins. : E4446A 26°C/61%
 EUT : PD221
 Power Rating : AC120V 60HZ
 Test Mode : TX2402MHz (GFSK)

Data no. : 1
 Ant. pol. : VERTICAL
 Vic Fong

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	2451.520	28.59	6.41	16.92	51.91	54.00	2.09	Peak

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

Transmit, Frequency: 2441MHz (GFSK)

Site no. : A/C Chamber
 Dis. / Ant. : 3m 3115(4927)
 Limit : FCC PART-15C (1G-AV)
 Env. / Ins. : E4446A 26°C/61%
 EUT : PD221
 Power Rating : AC120V 60HZ
 Test Mode : TX2441MHz(GFSK)

Data no. : 2
 Ant. pol. : HORIZONTAL
 Vic Fong

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission		Margin	Remark
				Level (dBµV)	Limits Ant. pol. : HORIZONTAL		
1703.920	26.46	6.85	50.08	49.07	54.00	4.93	Peak
4880.500	33.18	9.15	45.26	53.01	54.00	0.99	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
 Dis. / Ant. : 3m 3115(4927)
 Limit : FCC PART-15C (1G-AV)
 Env. / Ins. : E4446A 26°C/61%
 EUT : PD221
 Power Rating : AC120V 60HZ
 Test Mode : TX2441MHz(GFSK)

Data no. : 1
 Ant. pol. : VERTICAL
 Vic Fong

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission		Margin	Remark
				Level (dBµV/m)	Limits (dBµV/m)		
1456.960	25.60	5.31	47.08	43.51	54.00	10.49	Peak
4891.000	33.21	9.16	45.71	53.51	54.00	0.49	Peak

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

Transmit, Frequency: 2480MHz (GFSK)

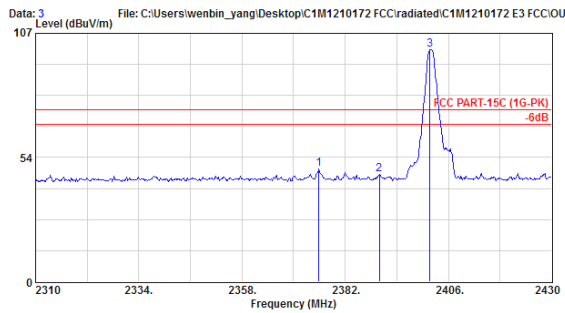
The emissions (up to 25GHz) not reported are too low to be measured.

3.6.3. Restricted Bands Measurement Results

Date of Test : Oct. 16, 2012 Temperature : 26
 EUT : Pocket Photo Humidity : 61%
 Test Mode : Transmitting Mode, Frequency: 2402MHz (CH0), GFSK



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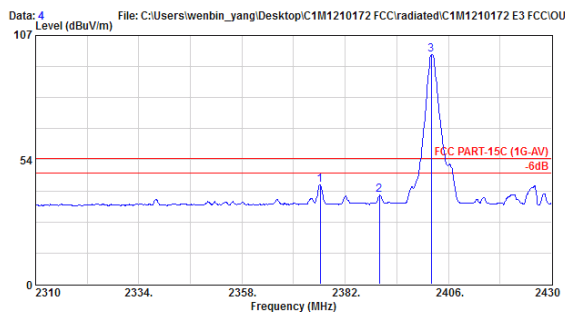
Site no. : A/C Chamber Data no. : 3
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : FCC PART-15C (16-PR)
 Env. / Ins. : E4446A 26°C/61% Vic Fong
 EUT : PD221
 Power Rating : AC120V 60HZ
 Test Mode : TX2402MHz (GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2375.880	28.43	6.32	13.77	48.53	74.00	25.47	Peak
2	2390.000	28.47	6.34	11.61	46.43	74.00	27.57	Peak
3	2401.680	28.47	6.35	65.15	99.98	74.00	-25.98	Peak

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



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Site no. : A/C Chamber Data no. : 4
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : FCC PART-15C (16-AV)
 Env. / Ins. : E4446A 26°C/61% Vic Fong
 EUT : PD221
 Power Rating : AC120V 60HZ
 Test Mode : TX2402MHz (GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2376.240	28.43	6.32	8.09	42.84	54.00	11.16	Average
2	2390.000	28.47	6.34	3.58	38.40	54.00	15.60	Average
3	2402.040	28.47	6.36	63.94	98.77	54.00	-44.77	Average

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

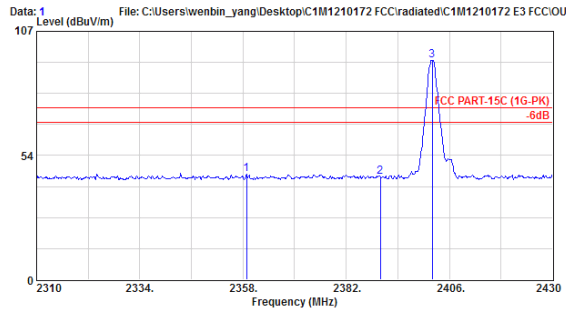
Date of Test : Oct. 16, 2012 Temperature : 26

EUT : Pocket Photo Humidity : 61%

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



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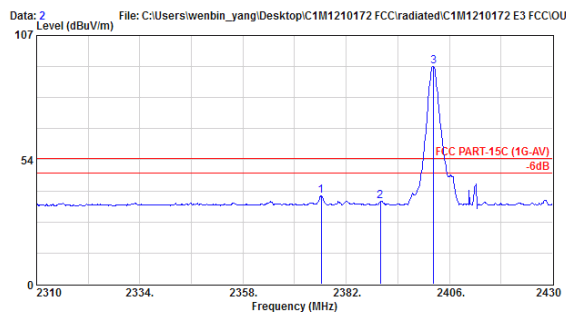
Site no. : A/C Chamber Data no. : 1
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : FCC PART-15C (1G-PK)
 Env. / Ins. : E4446A 26°C/61% Vic Fong
 EUT : PD221
 Power Rating : AC120V 60HZ
 Test Mode : TX2402MHz (GFSK)

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1 2358.840	28.40	6.29	10.66	45.35	74.00	28.65	Peak
2 2390.000	28.47	6.34	9.28	44.10	74.00	29.90	Peak
3 2402.040	28.47	6.36	59.76	94.59	74.00	-20.59	Peak

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



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Site no. : A/C Chamber Data no. : 2
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : FCC PART-15C (1G-AV)
 Env. / Ins. : E4446A 26°C/61% Vic Fong
 EUT : PD221
 Power Rating : AC120V 60HZ
 Test Mode : TX2402MHz (GFSK)

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1 2376.240	28.43	6.32	3.30	38.05	54.00	15.95	Average
2 2390.000	28.47	6.34	0.97	35.79	54.00	18.21	Average
3 2402.280	28.47	6.36	58.99	93.82	54.00	-39.82	Average

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

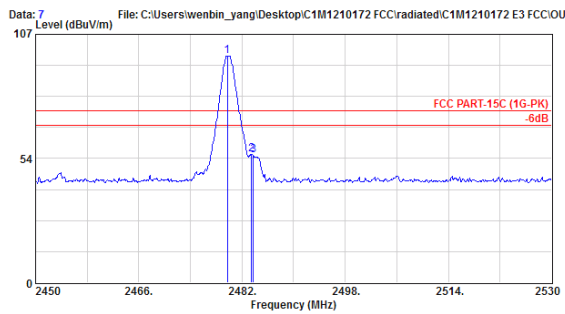
Date of Test : Oct. 16, 2012 Temperature : 26

EUT : Pocket Photo Humidity : 61%

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



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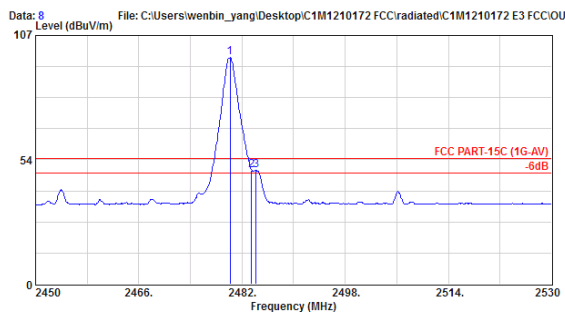
Site no. : A/C Chamber Data no. : 7
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : FCC PART-15C (1G-PK)
 Env. / Ins. : E4446A 26°C/61% Vic Fong
 EUT : PD221
 Power Rating : AC120V 60HZ
 Test Mode : TX2402MHz (GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Emission Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2479.760	28.66	6.44	62.64	97.74	74.00	-23.74	Peak
2	2483.500	28.66	6.45	20.31	55.43	74.00	18.57	Peak
3	2483.760	28.66	6.45	19.69	54.81	74.00	19.19	Peak

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



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Site no. : A/C Chamber Data no. : 8
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : FCC PART-15C (1G-AV)
 Env. / Ins. : E4446A 26°C/61% Vic Fong
 EUT : PD221
 Power Rating : AC120V 60HZ
 Test Mode : TX2402MHz (GFSK)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Emission Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2480.160	28.66	6.44	62.34	97.45	54.00	-43.45	Average
2	2483.500	28.66	6.45	13.74	48.86	54.00	5.14	Average
3	2484.160	28.66	6.45	13.87	48.98	54.00	5.02	Average

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

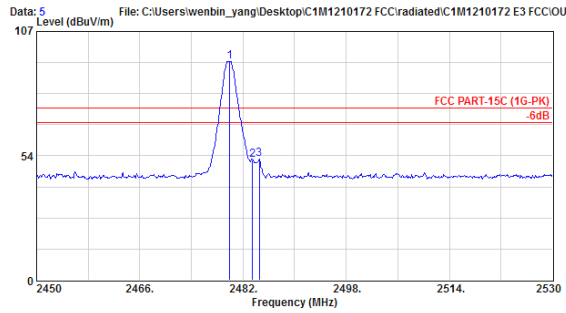
Date of Test : Oct. 16, 2012 Temperature : 26

EUT : Pocket Photo Humidity : 61%

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



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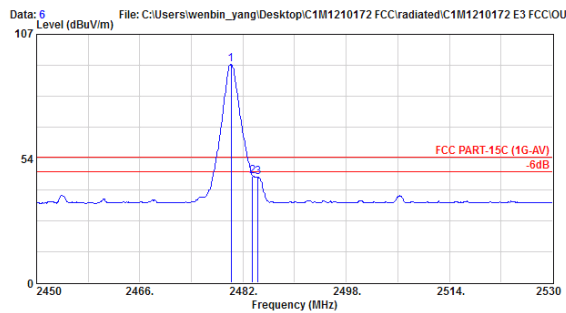
Site no. : A/C Chamber Data no. : 5
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : FCC PART-15C (1G-PK)
 Env. / Ins. : E4446A 26°C/61% Vic Fong
 EUT : PD221
 Power Rating : AC120V 60HZ
 Test Mode : TX2402MHz (GFSK)

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1 2479.920	28.66	6.44	59.03	94.14	74.00	-20.14	Peak
2 2483.500	28.66	6.45	16.79	51.91	74.00	22.09	Peak
3 2484.560	28.66	6.45	17.05	52.16	74.00	21.84	Peak

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



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Site no. : A/C Chamber Data no. : 6
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : FCC PART-15C (1G-AV)
 Env. / Ins. : E4446A 26°C/61% Vic Fong
 EUT : PD221
 Power Rating : AC120V 60HZ
 Test Mode : TX2402MHz (GFSK)

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1 2480.160	28.66	6.44	58.96	94.07	54.00	-40.07	Average
2 2483.500	28.66	6.45	10.64	45.76	54.00	8.24	Average
3 2484.320	28.66	6.45	10.42	45.53	54.00	8.47	Average

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

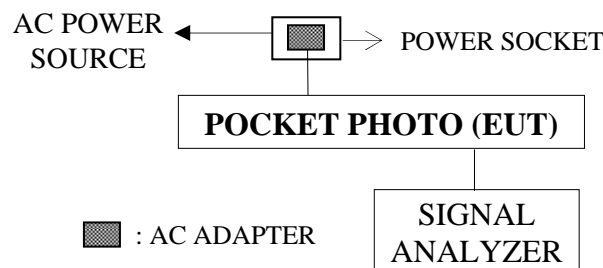
4. 20dB BANDWIDTH MEASUREMENT

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.	Signal Analyzer	R & S	FSV7	102493	Apr. 26, 12'	Apr. 25, 13'

4.2. Block Diagram of Test Setup



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

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

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 (Pocket Photo) linked AC adapter, the test program “cmd.exe” was used to enable the EUT to transmit data at different channel frequency individually.

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 and VBW is equal to RBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

The measurement guideline was according to FCC Public Notice DA 00-705.

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 : Pocket Photo

M/N : PD221

Test Date : Oct. 15, 2012 Temperature : 25

Humidity : 66 %

4.6.1. Type of Modulation: 8-DPSK

No.	Channel	Test Frequency	20dB Bandwidth	2/3 (20dB Bandwidth)
1.	0	2402MHz	1.2000MHz	0.8000MHz
2.	39	2441MHz	1.2408MHz	0.8272MHz
3.	78	2480MHz	1.2557MHz	0.8371MHz

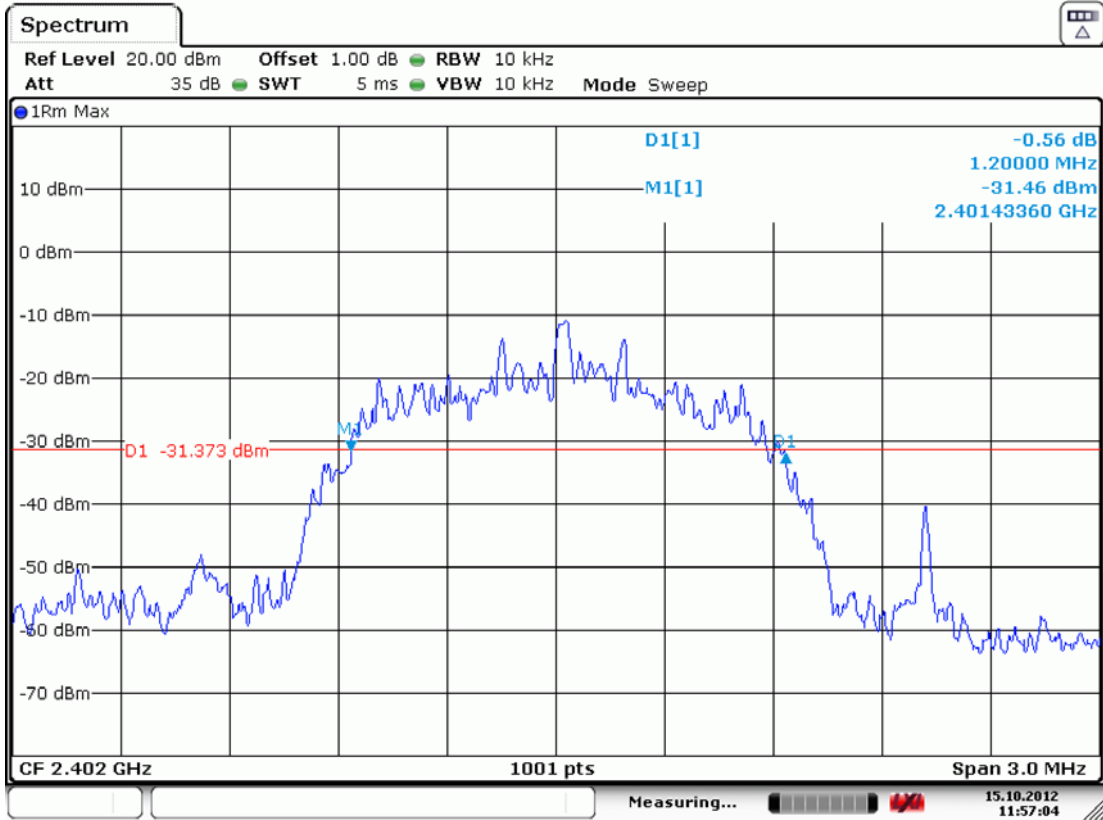
The maximum two-thirds of the 20dB bandwidth shall be at maximum 0.8371MHz.

4.6.2. Type of Modulation: GFSK

No.	Channel	Test Frequency	20dB Bandwidth	2/3 (20dB Bandwidth)
1.	0	2402MHz	932.1kHz	621.4kHz
2.	39	2441MHz	932.0kHz	621.3kHz
3.	78	2480MHz	932.0kHz	621.3kHz

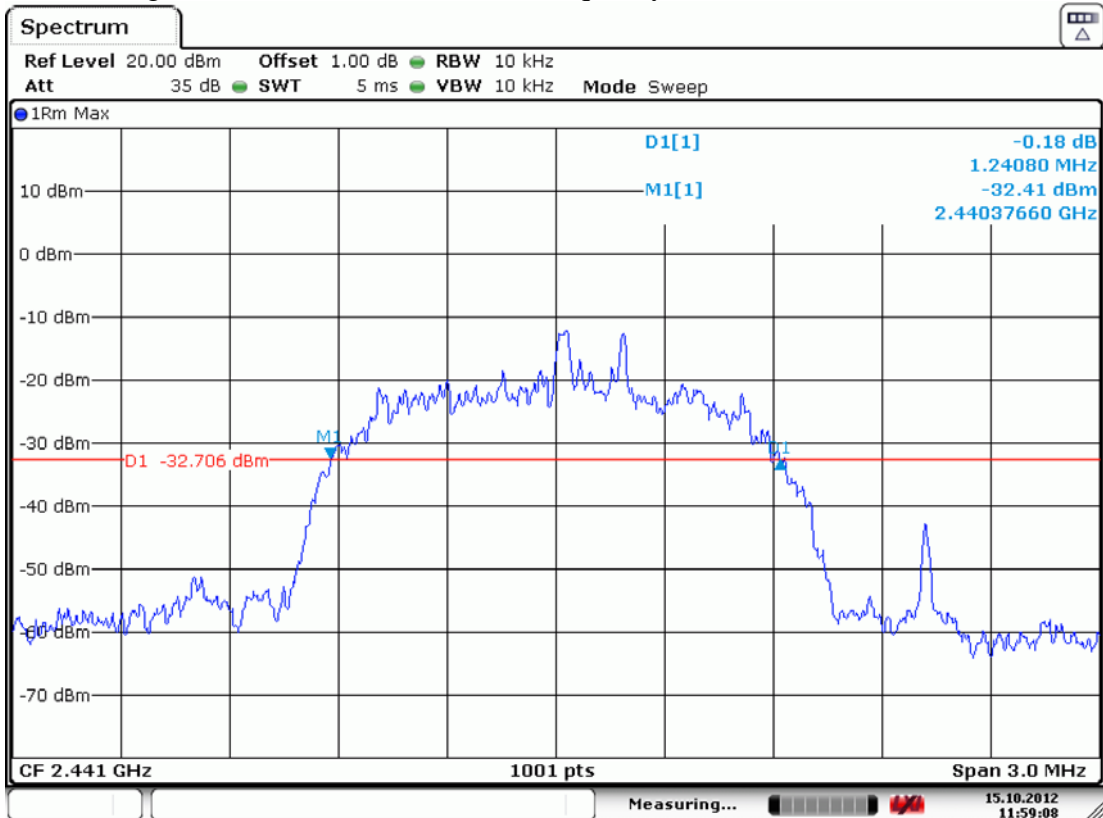
The maximum two-thirds of the 20dB bandwidth shall be at maximum 621.4kHz.

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



Date: 15.OCT.2012 11:57:04

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



Date: 15.OCT.2012 11:59:08

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

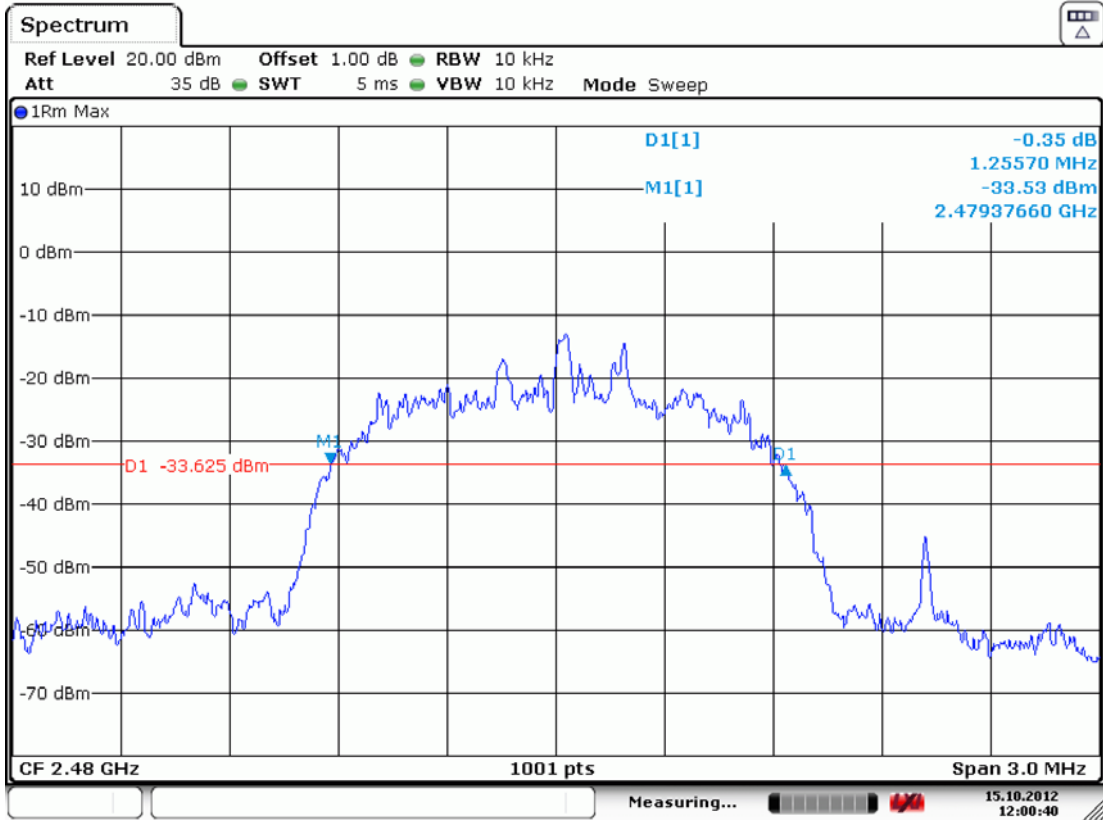


Figure 4: GFSK, Channel 0, Frequency: 2402MHz

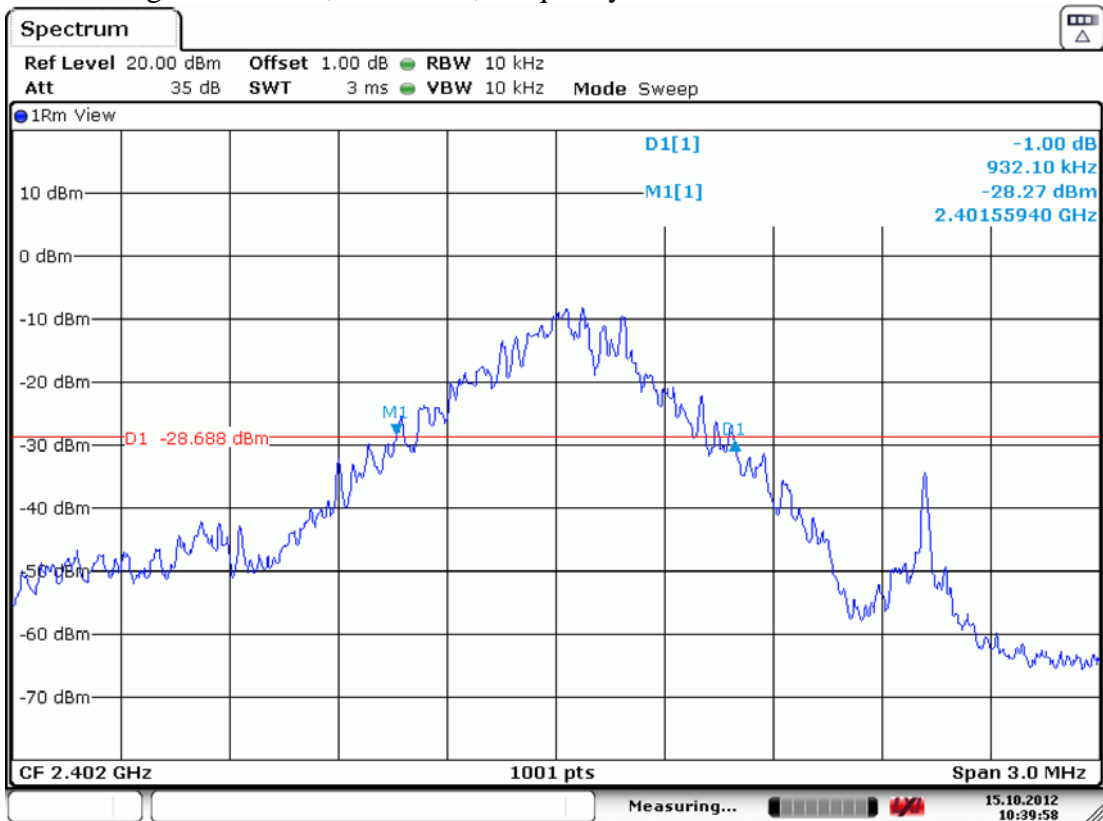
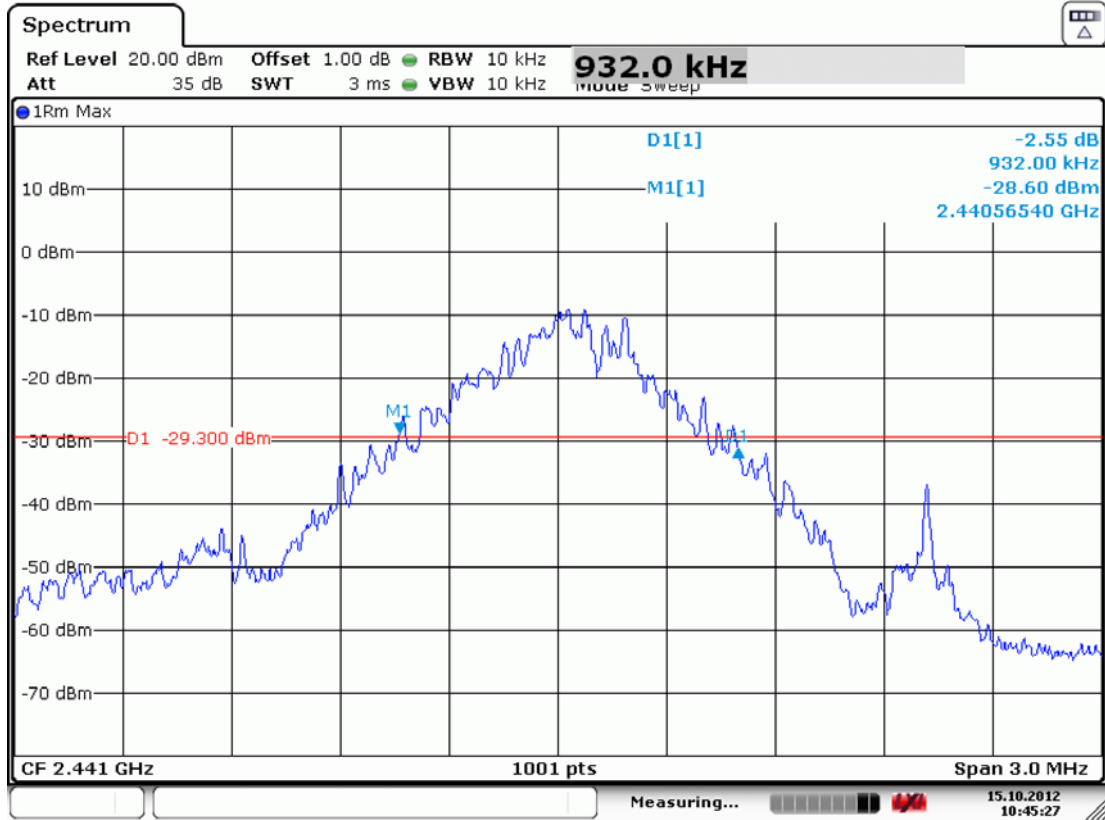
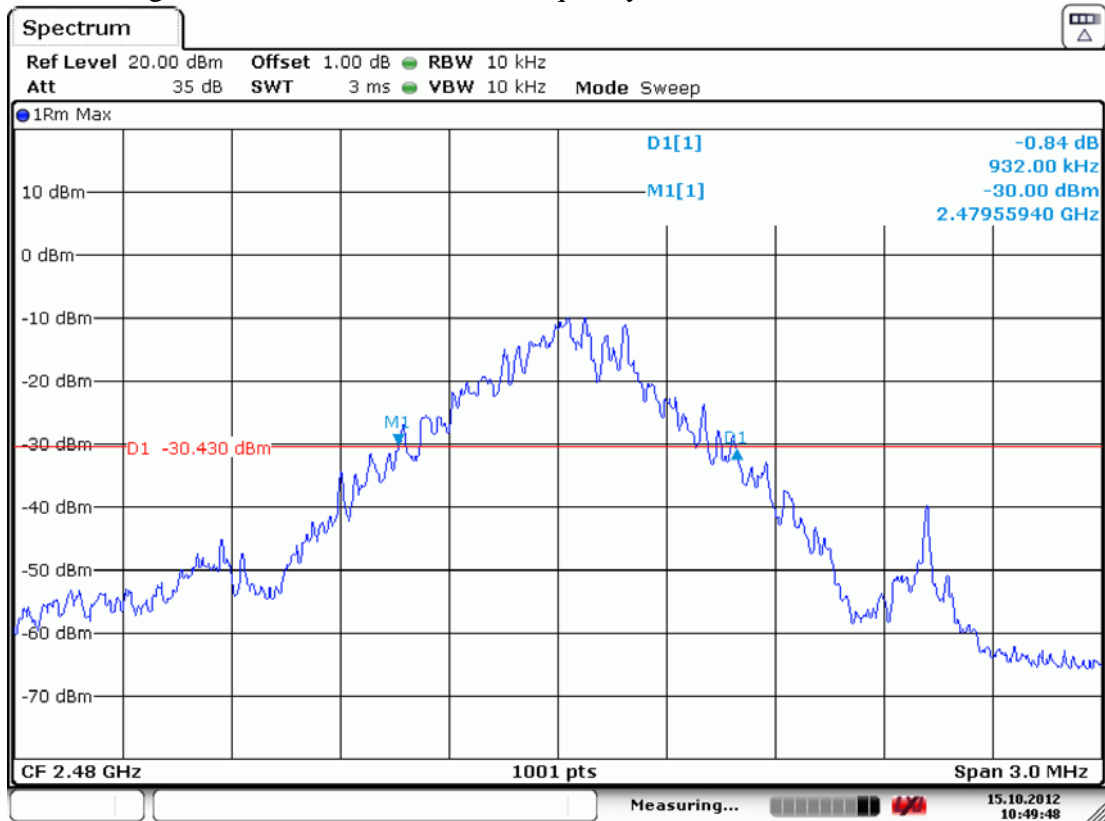


Figure 5: GFSK, Channel 39, Frequency: 2441MHz



Date: 15.OCT.2012 10:45:27

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



Date: 15.OCT.2012 10:49:49

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.	Signal Analyzer	R & S	FSV7	102493	Apr. 26, 12'	Apr. 25, 13'

5.2. Block Diagram of Test Setup

The same as section.4.2.

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

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

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 : Pocket Photo M/N : PD221

Test Date : Oct. 15, 2012 Temperature : 25 Humidity : 66 %

5.6.1. Type of Modulation: 8-DPSK

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

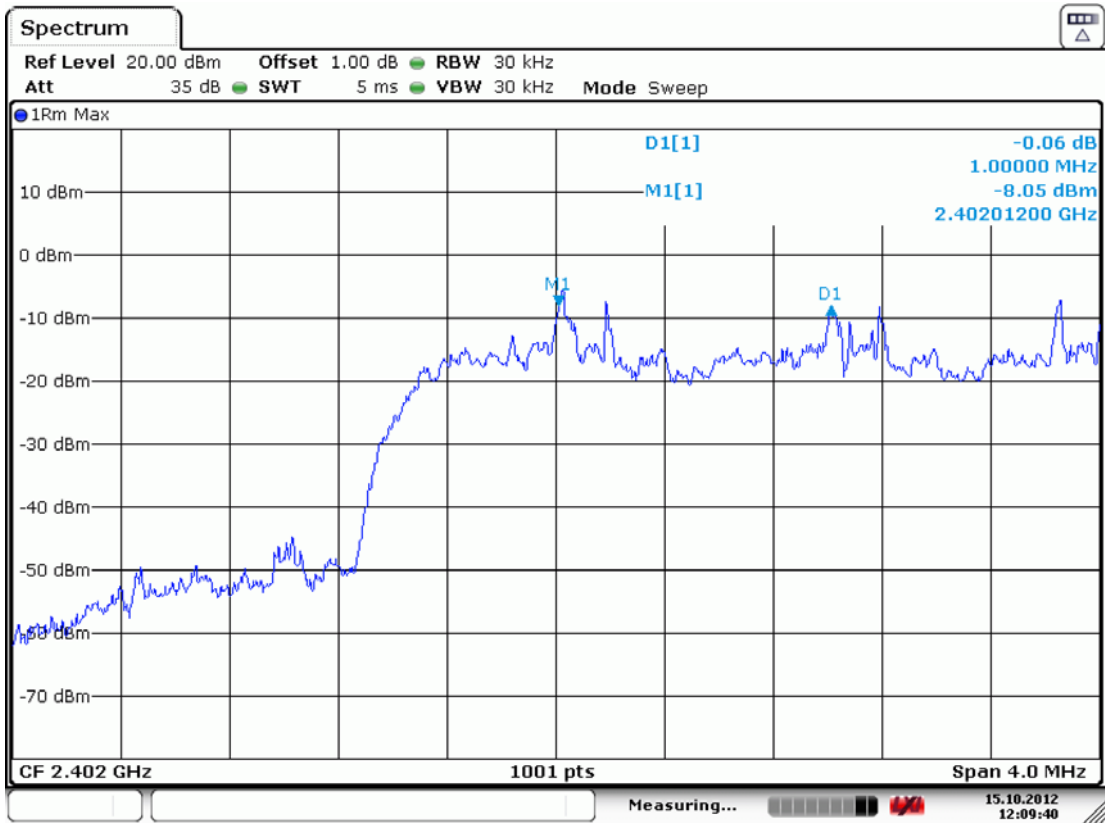
[Above values have met the requirement as specified in section 4.3: frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.]

5.6.2. Type of Modulation: GFSK

1. 2402MHz adjacent channel of carrier frequency separation: 1.000MHz.
2. 2441MHz adjacent channel of right carrier frequency separation: 988kHz.
3. 2441MHz adjacent channel of left carrier frequency separation: 1.000MHz.
4. 2480MHz adjacent channel of carrier frequency separation: 1.000MHz.

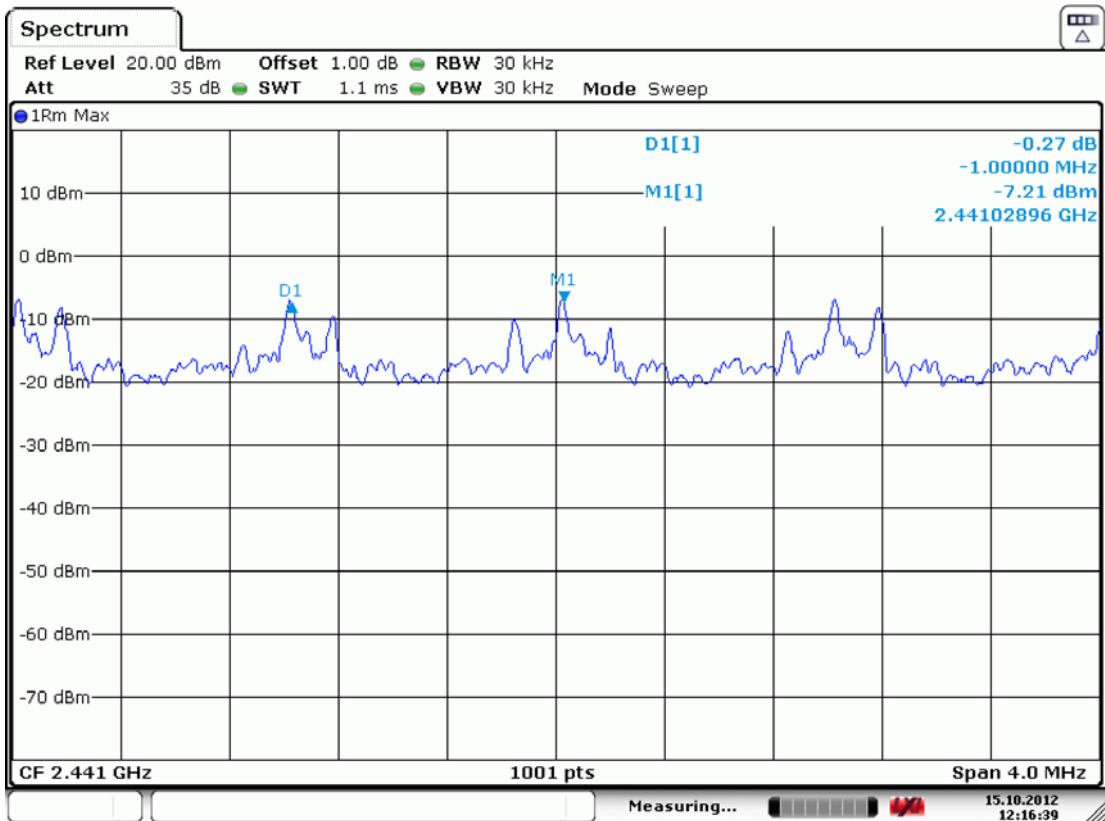
[Above values have met the requirement as specified in section 4.3: frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.]

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



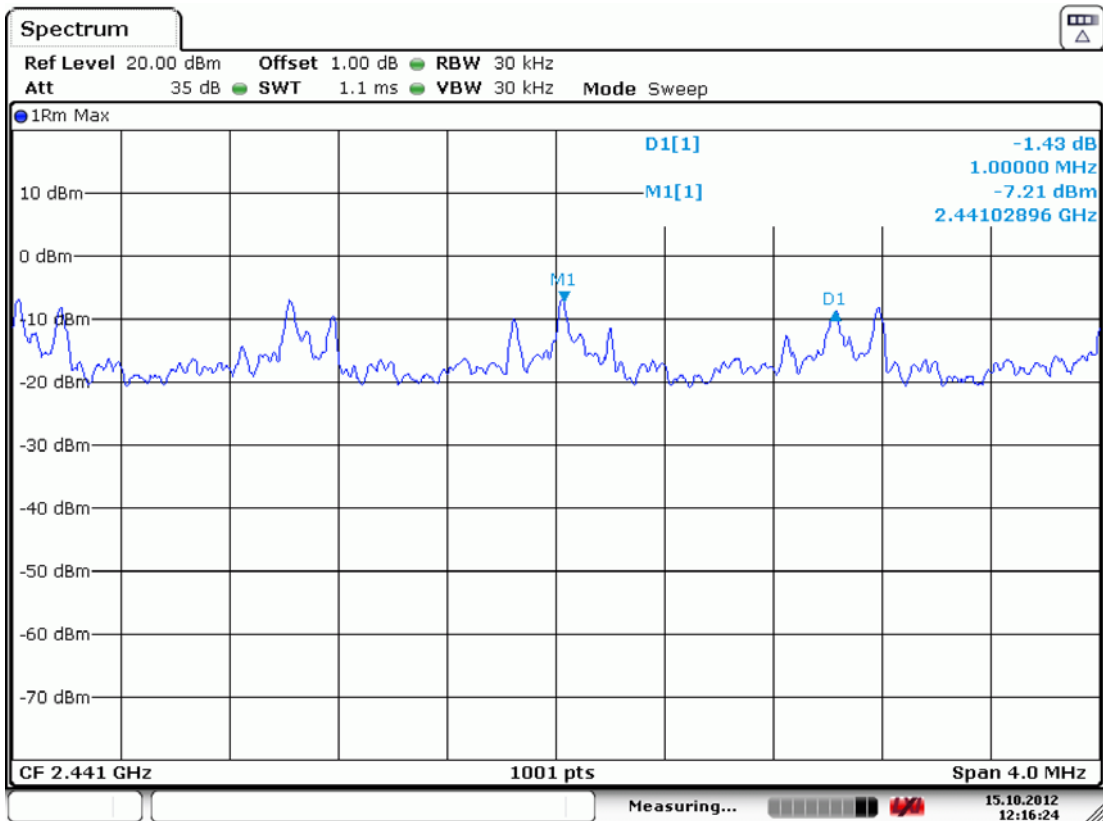
Date: 15.OCT.2012 12:09:40

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



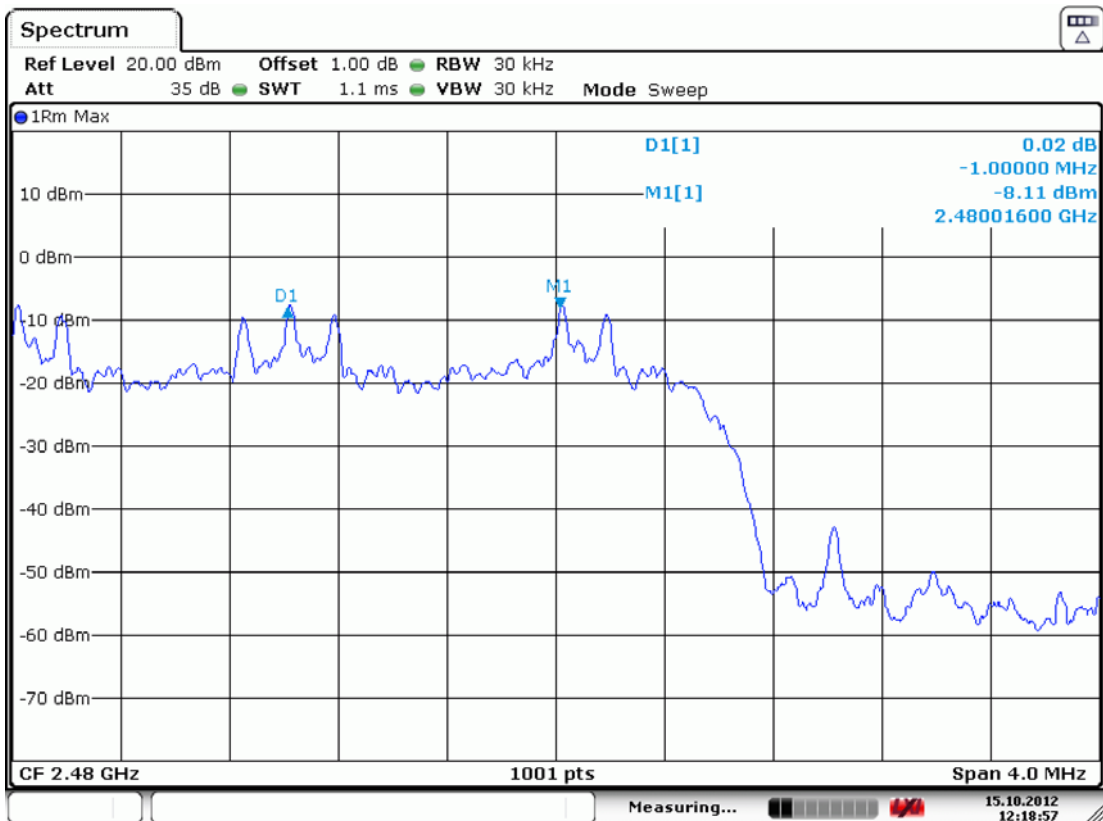
Date: 15.OCT.2012 12:16:39

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



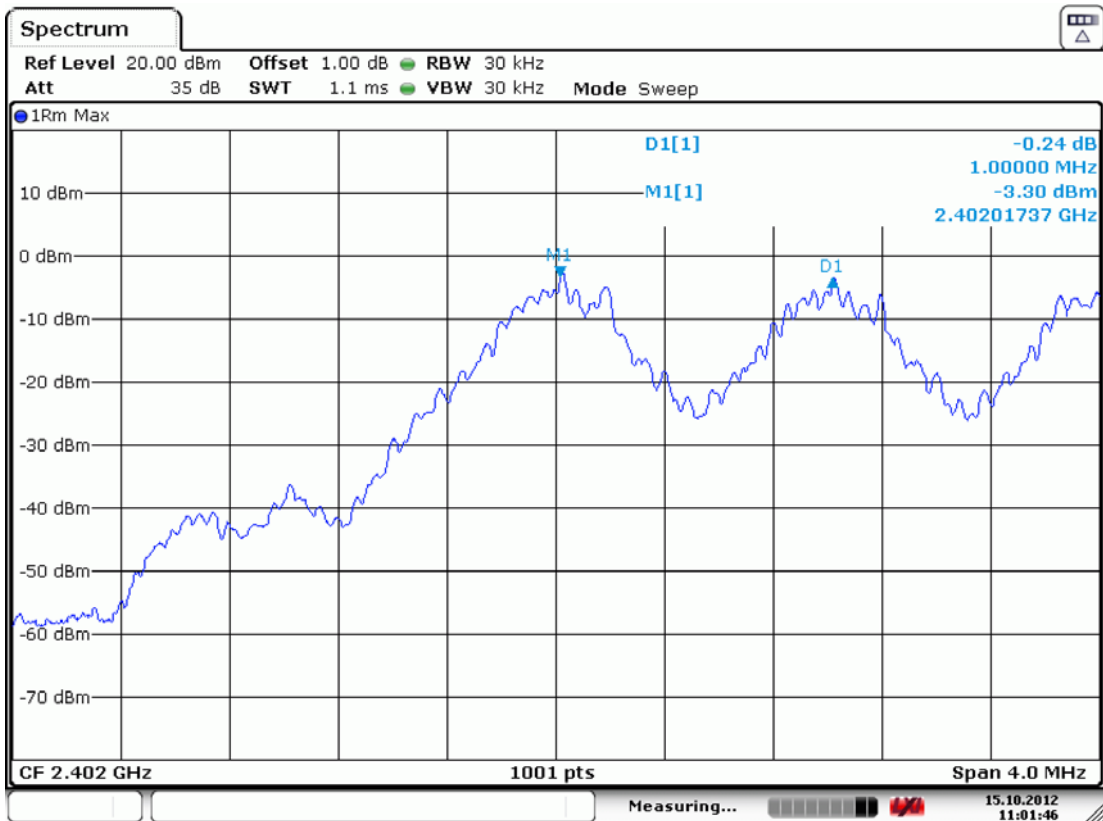
Date: 15.OCT.2012 12:16:24

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



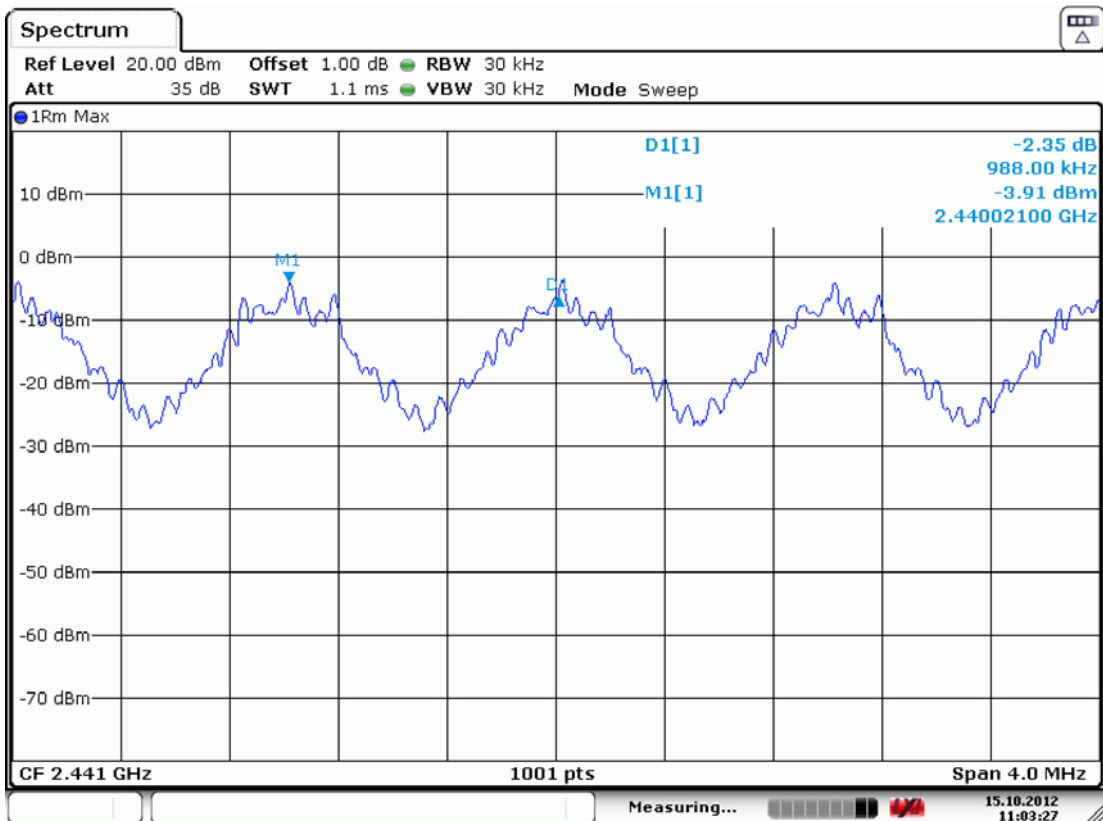
Date: 15.OCT.2012 12:18:57

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



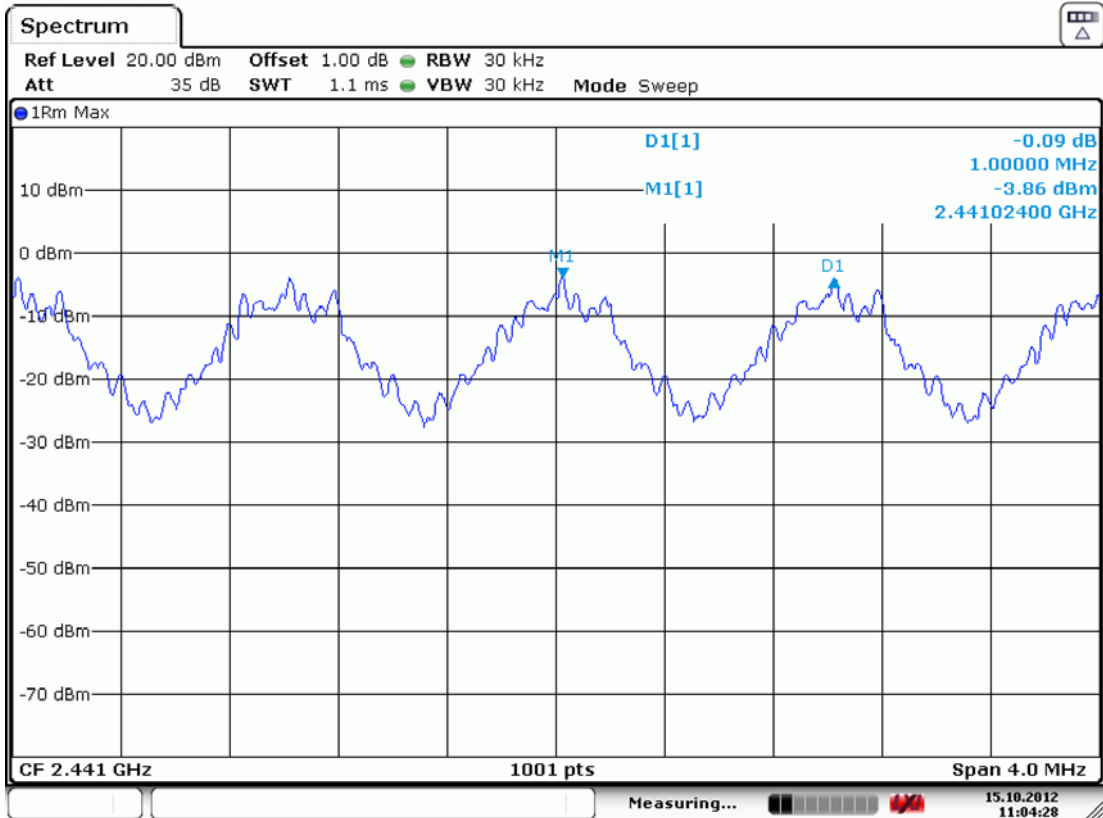
Date: 15.OCT.2012 11:01:46

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



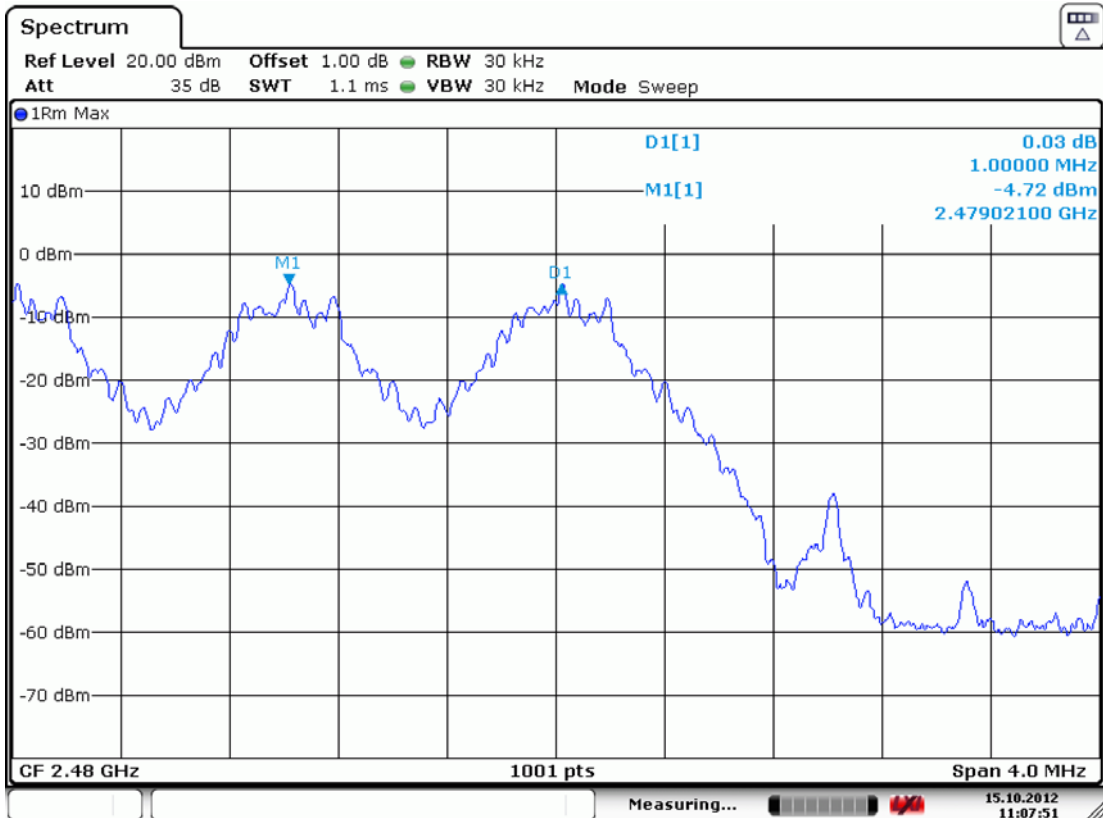
Date: 15.OCT.2012 11:03:27

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



Date: 15.OCT.2012 11:04:28

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



Date: 15.OCT.2012 11:07:51

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.	Signal Analyzer	R & S	FSV7	102493	Apr. 26, 12'	Apr. 25, 13'

6.2. Block Diagram of Test Setup

The same as section.4.2.

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

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

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 : Pocket Photo M/N : PD221

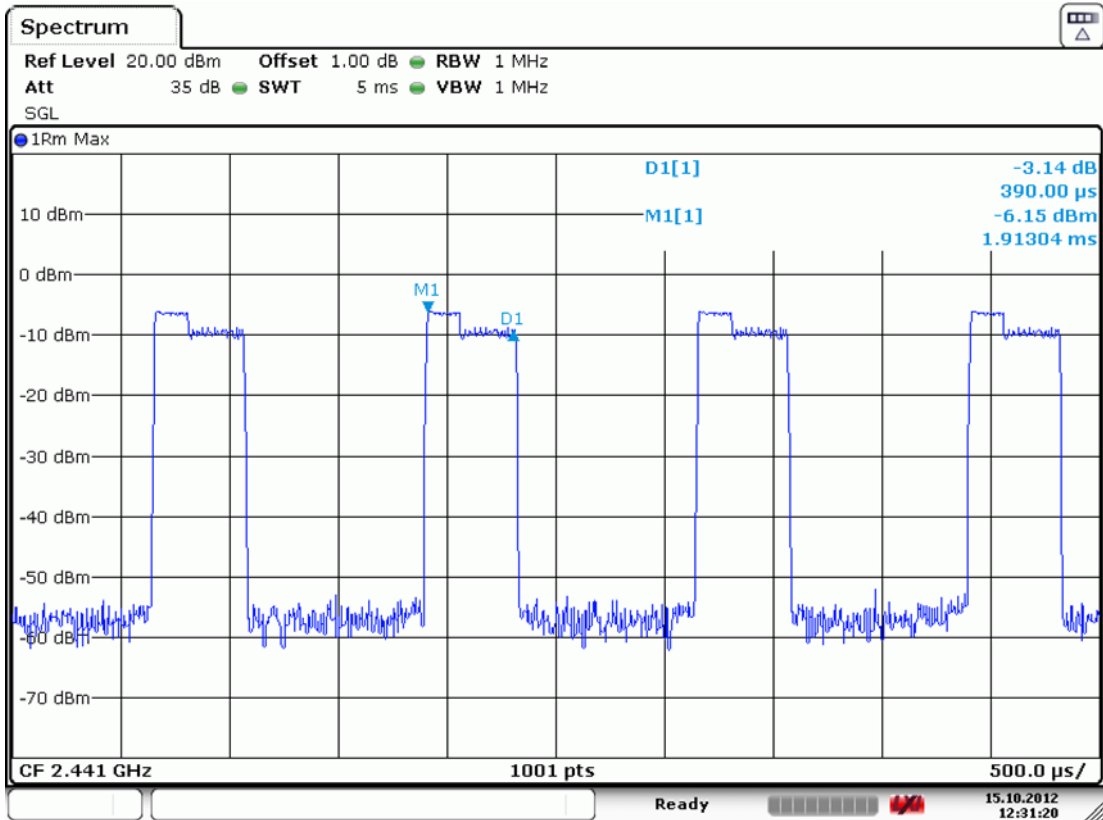
Test Date : Oct. 15, 2012 Temperature : 25 Humidity : 66 %

The hopping rate is 1600 hops per second although any ne channel may be used for a single hop slot, 3 hop slots or 5 hop slots. The dwell time per channel is, therefore either 0.625ms (single slot), 1.875ms (three slot) or 3.125ms (five slot). The average time of occupancy will not exceed 0.4s in any time interval of 0.4s multiplied by the number of channels being used.

The test results are slightly shorter than the dwell time per channel detailed above to allow for settling times at each frequency hop. Please see the following table:

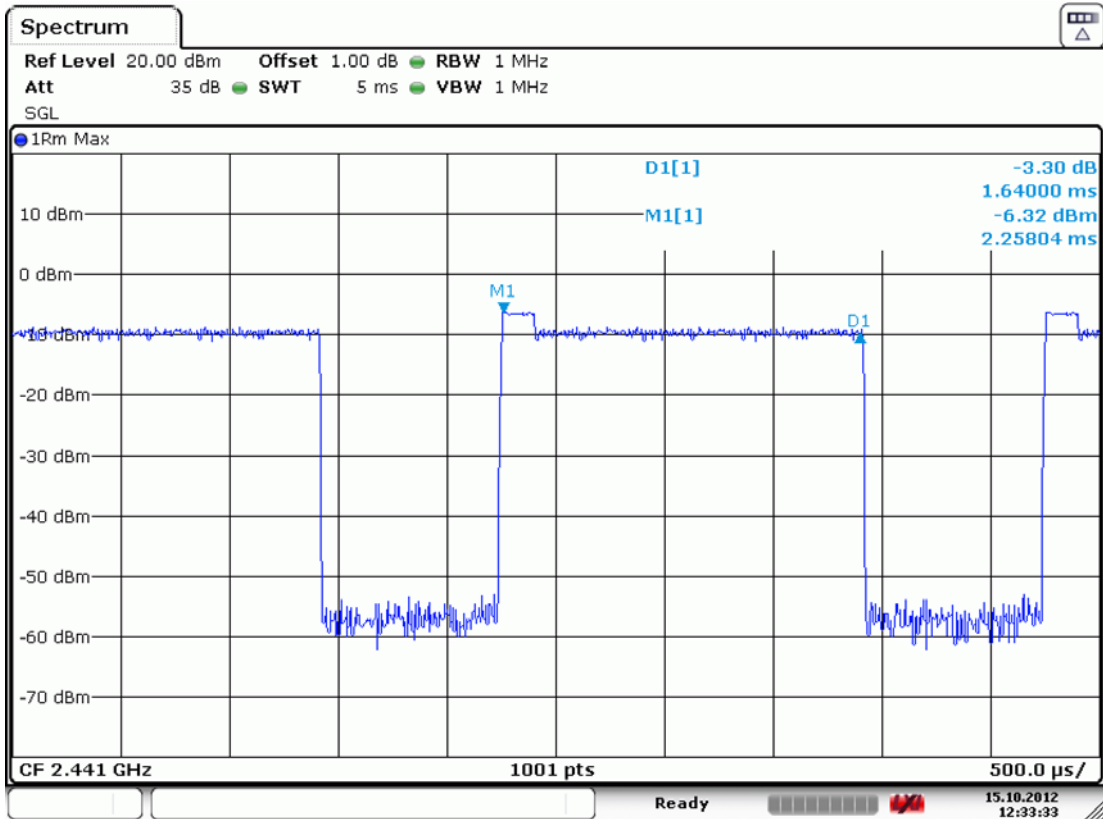
Test Frequency	Modulation Type	Duration (ms)	Remark	
2441MHz	8-DPSK	3DH1	0.390	Figure 1
		3DH3	1.640	Figure 2
		3DH5	2.900	Figure 3
2441MHz	GFSK	DH1	0.380	Figure 4
		DH3	1.630	Figure 5
		DH5	2.890	Figure 6

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



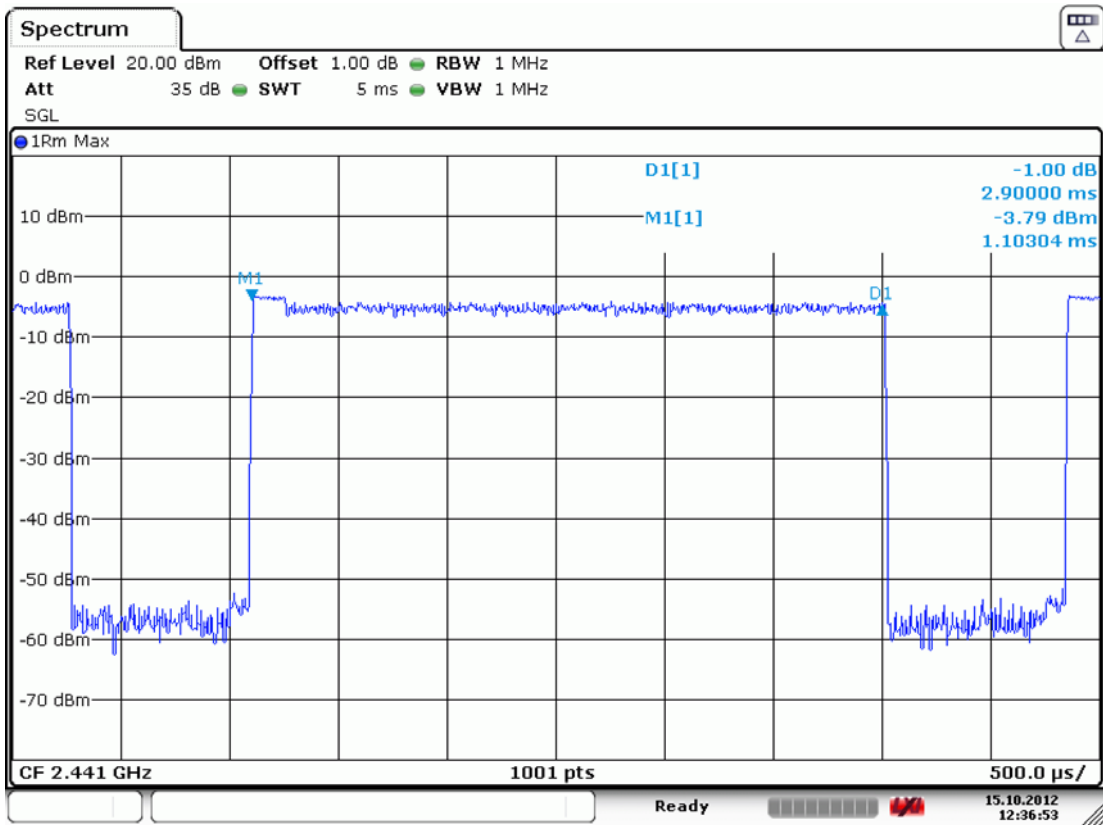
Date: 15.OCT.2012 12:31:20

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



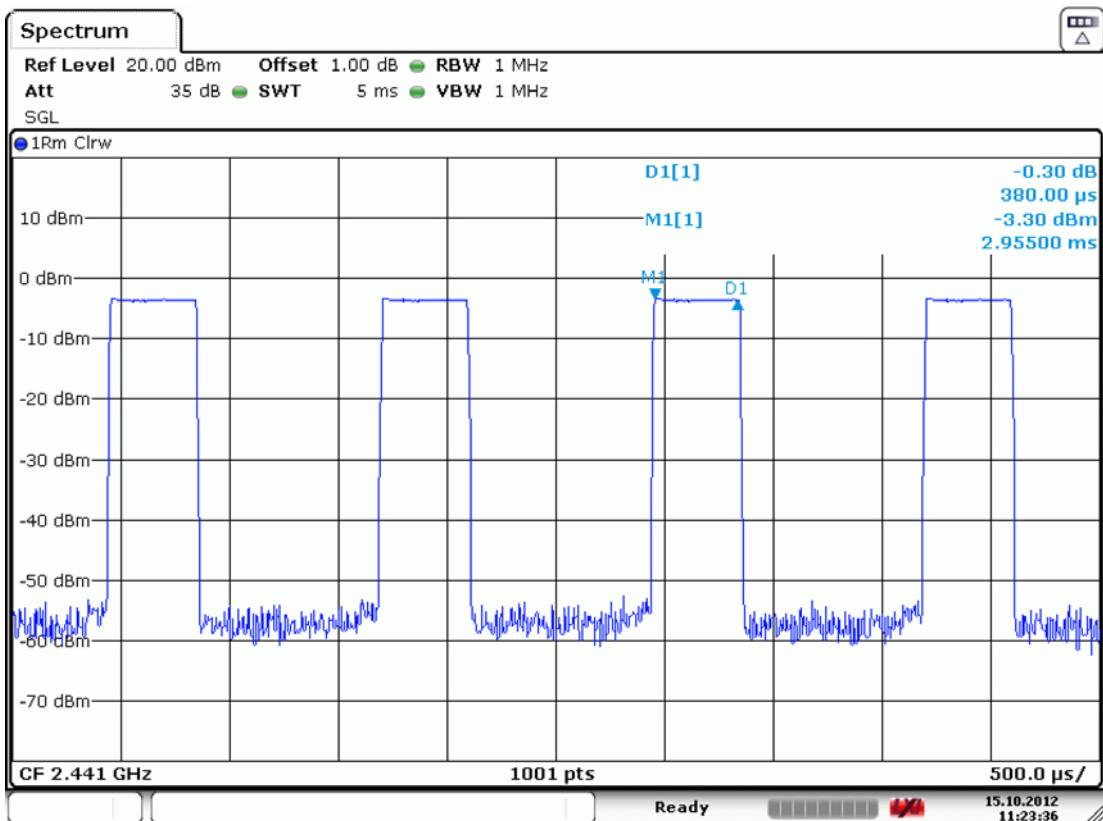
Date: 15.OCT.2012 12:33:33

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



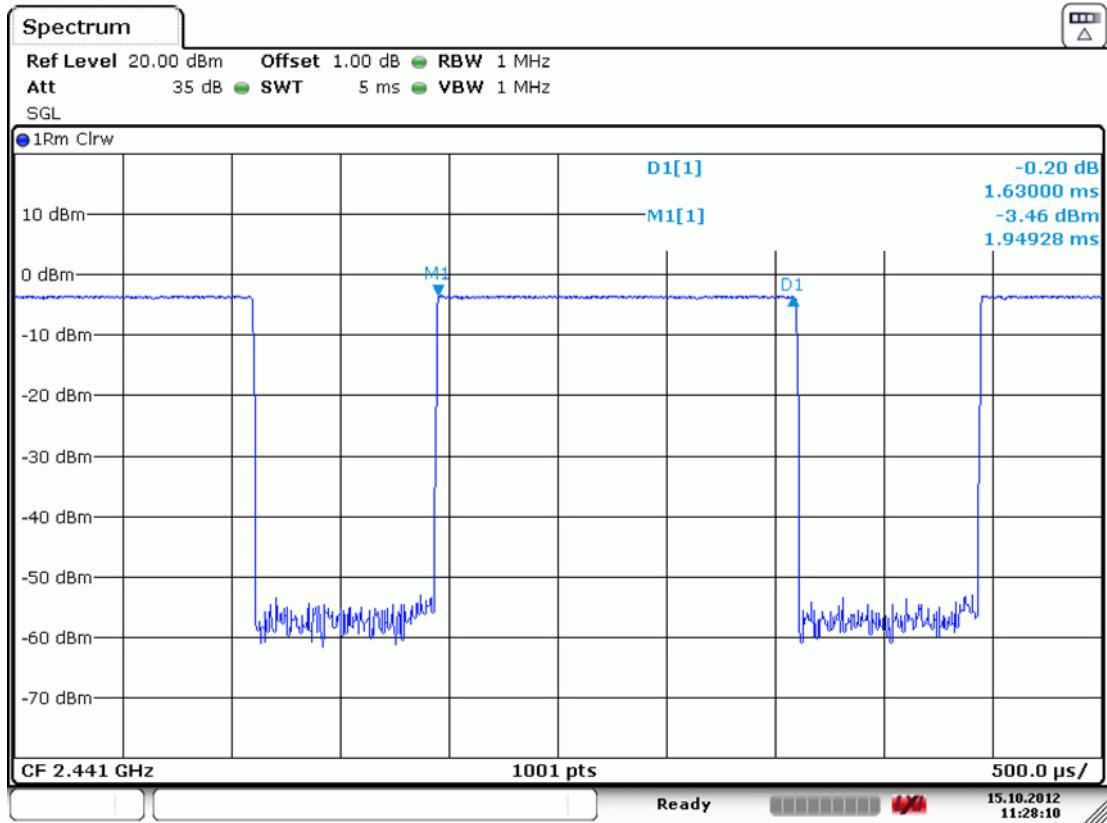
Date: 15.OCT.2012 12:36:53

Figure 4: GFSK, 2441MHz, DH1



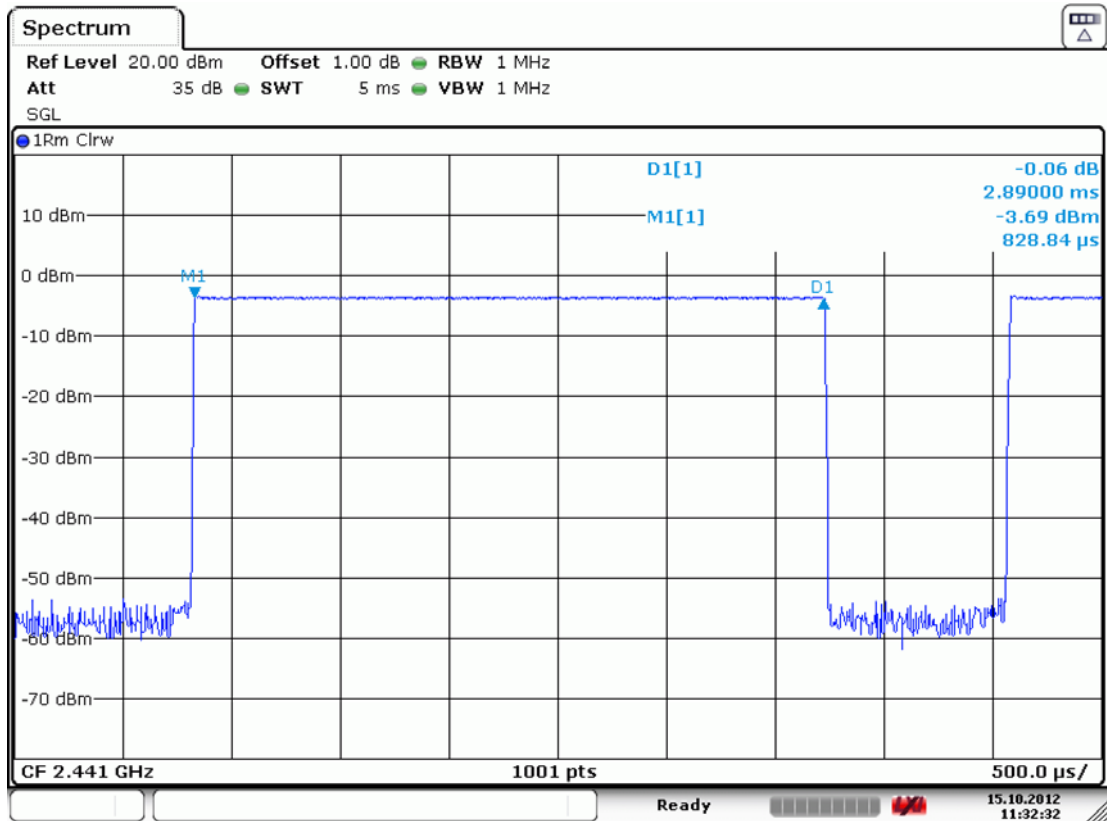
Date: 15.OCT.2012 11:23:36

Figure 5: GFSK, 2441MHz, DH3



Date: 15.OCT.2012 11:28:10

Figure 6: GFSK, 2441MHz, DH5



Date: 15.OCT.2012 11:32:32

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.	Signal Analyzer	R & S	FSV7	102493	Apr. 26, 12'	Apr. 25, 13'

7.2. Block Diagram of Test Setup

The same as section.4.2.

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

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

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 : Pocket Photo M/N : LAC9313SE

Test Date : Oct. 15, 2012 Temperature : 25 Humidity : 66 %

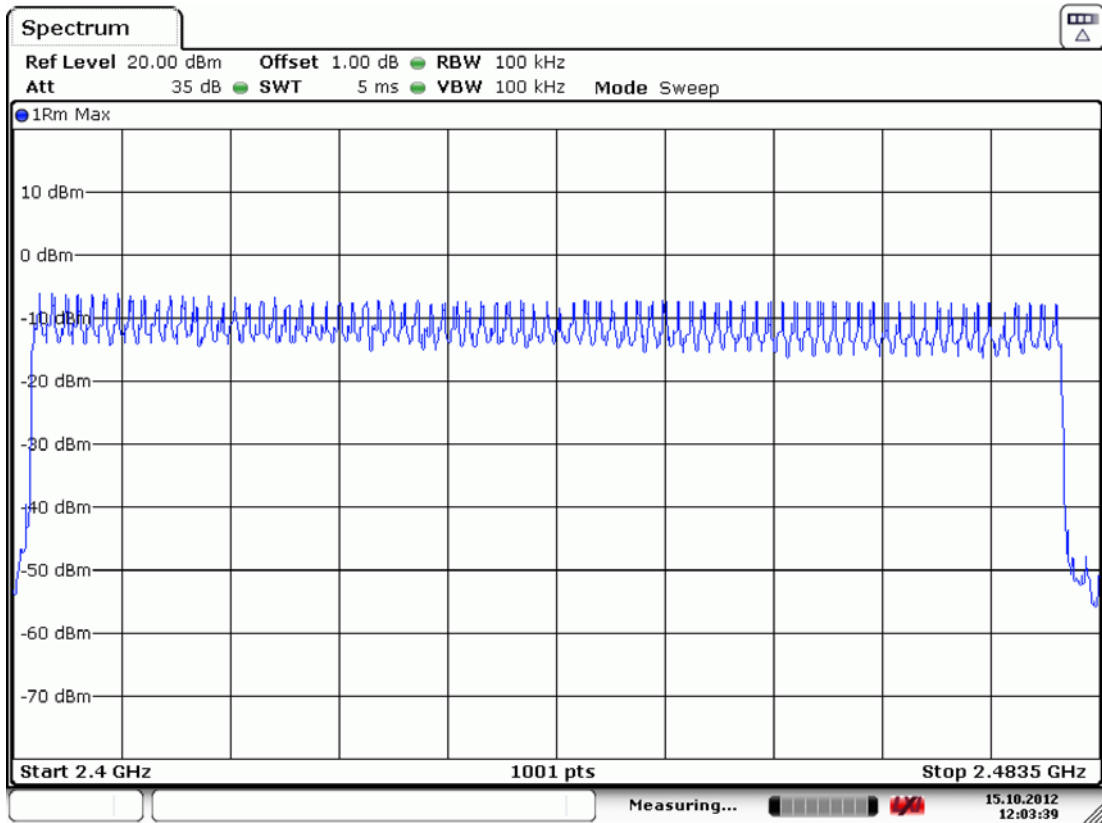
7.6.1.Type of Modulation: 8-DPSK

The number hopping channel is 79.

7.6.2.Type of Modulation: GFSK

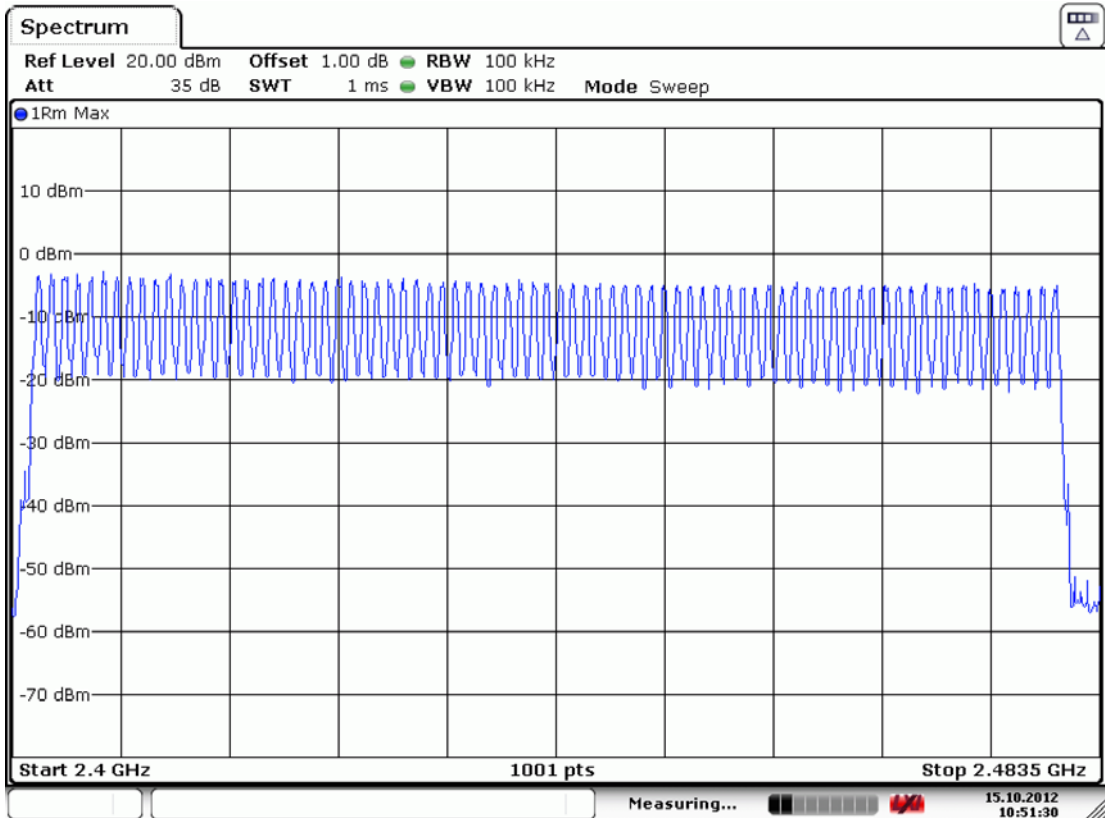
The number hopping channel is 79.

Figure 1: 8-DPSK



Date: 15.OCT.2012 12:03:39

Figure 2: GFSK



Date: 15.OCT.2012 10:51:30

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.	Signal Analyzer	R & S	FSV7	102493	Apr. 26, 12'	Apr. 25, 13'

8.2. Block Diagram of Test Setup

The same as section.4.2.

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

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

8.4. Operating Condition of EUT

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

8.5. Test Procedure

The transmitter output was connected to the spectrum analyzer.

Span can encompass the waveform

RBW>EBW

VBW RBW

Sweep=5MHz

The measurement guideline was according to FCC Public Notice DA 00-705.

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 : Pocket Photo M/N : PD221

Test Date : Oct. 15, 2012 Temperature : 25 Humidity : 56 %

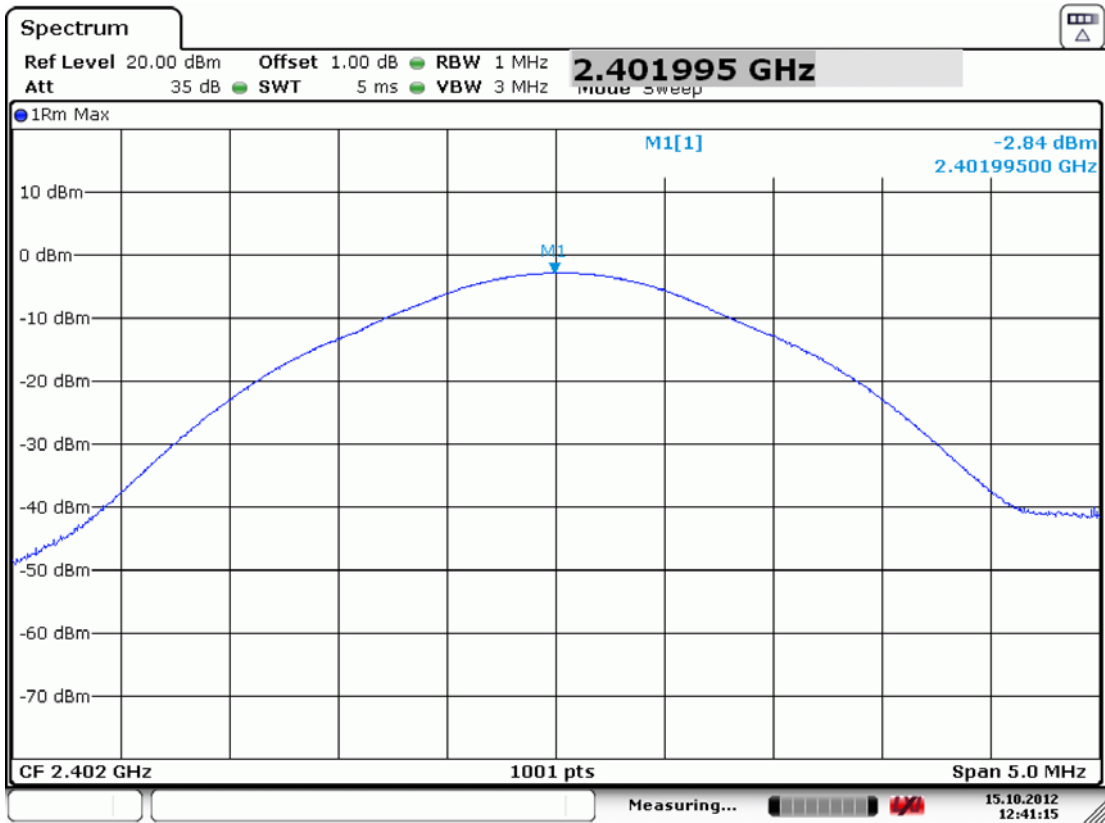
8.6.1.Type of Modulation: 8-DPSK

No.	Channel	Test Frequency	Peak Output Power	Limit
1.	0	2402MHz	-2.84dBm	21dBm
2.	39	2441MHz	-3.12dBm	21dBm
3.	78	2480MHz	-3.98dBm	21dBm

8.6.2.Type of Modulation: GFSK

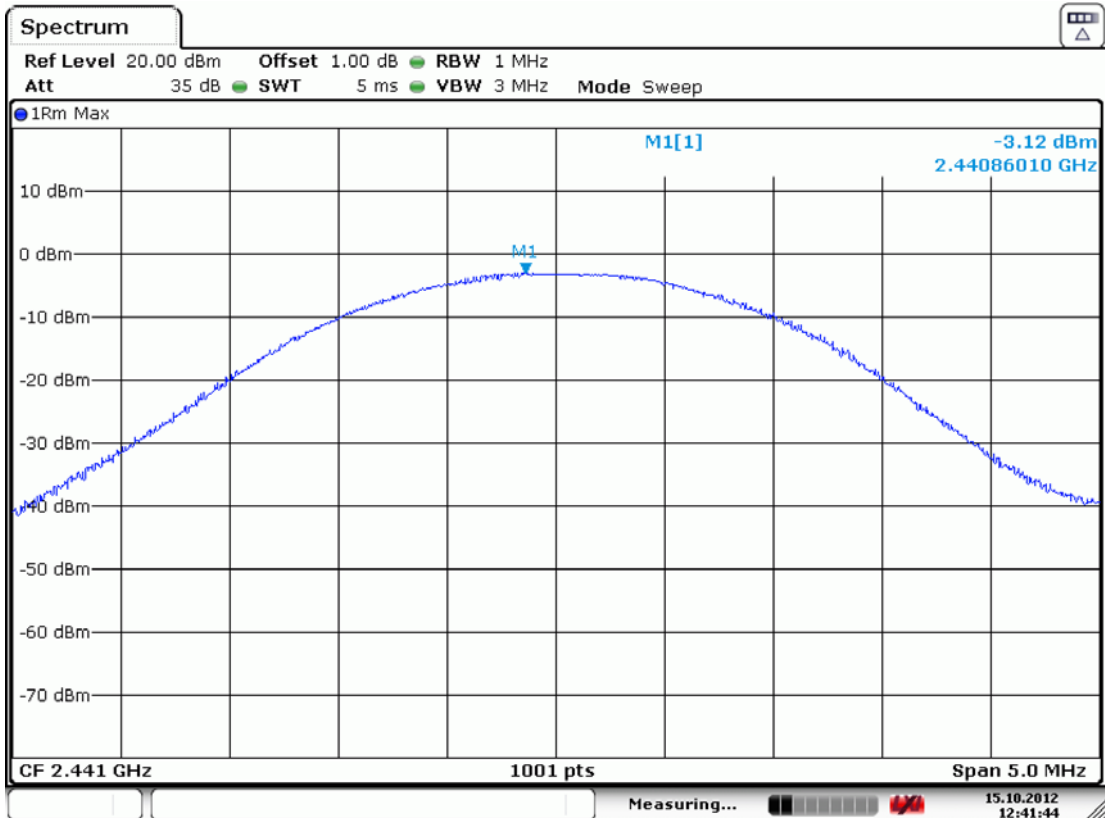
No.	Channel	Test Frequency	Peak Output Power	Limit
1.	0	2402MHz	-2.44dBm	21dBm
2.	39	2441MHz	-3.28dBm	21dBm
3.	78	2480MHz	-4.05dBm	21dBm

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



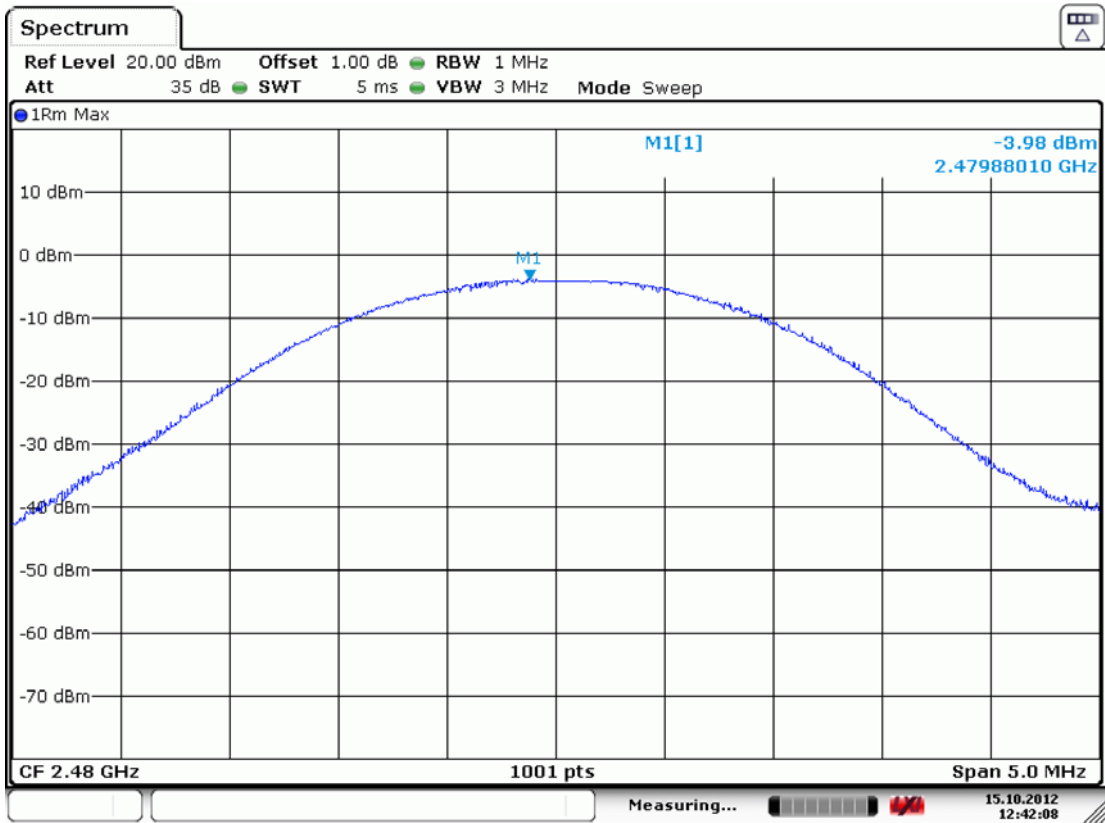
Date: 15.OCT.2012 12:41:15

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



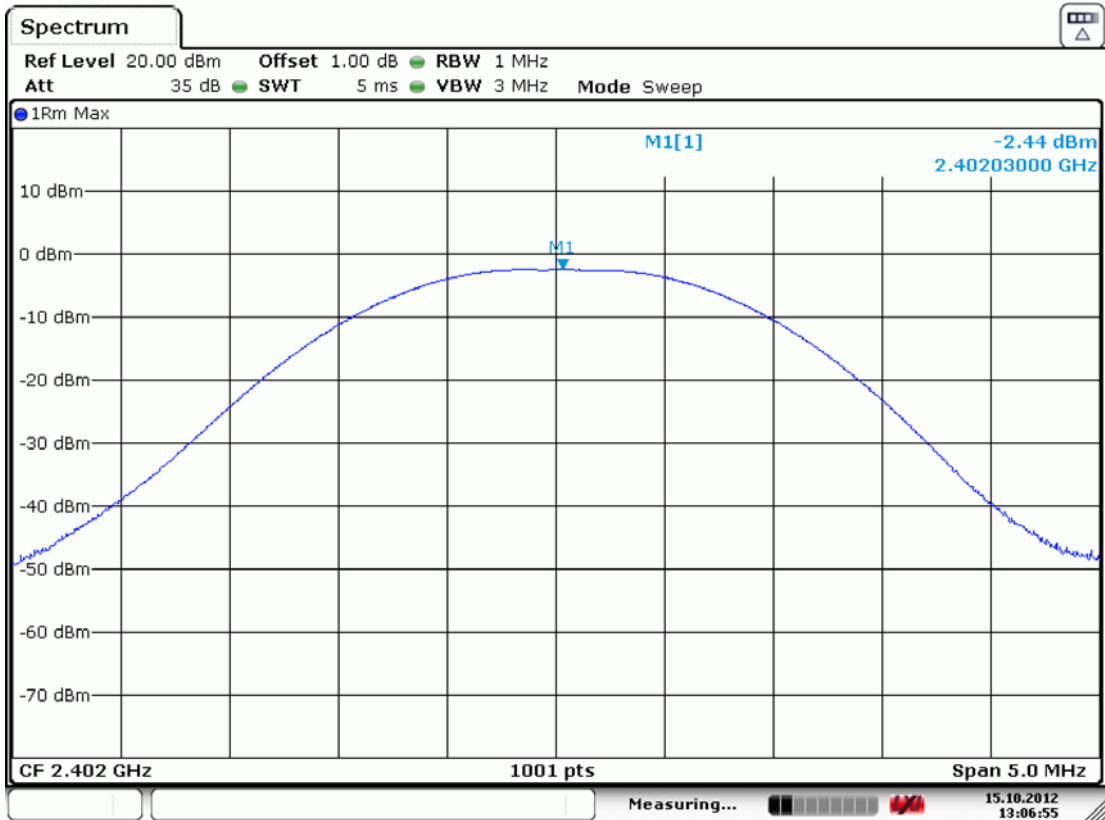
Date: 15.OCT.2012 12:41:44

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



Date: 15.OCT.2012 12:42:08

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



Date: 15.OCT.2012 13:06:56

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

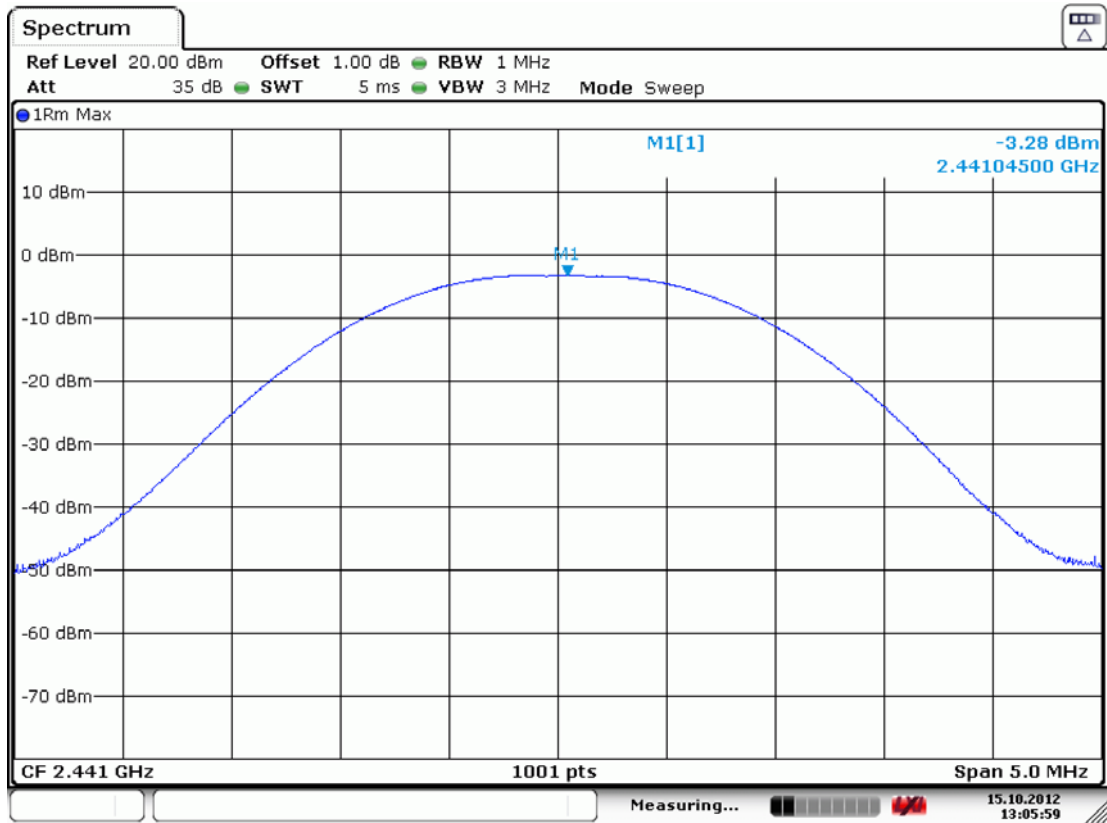
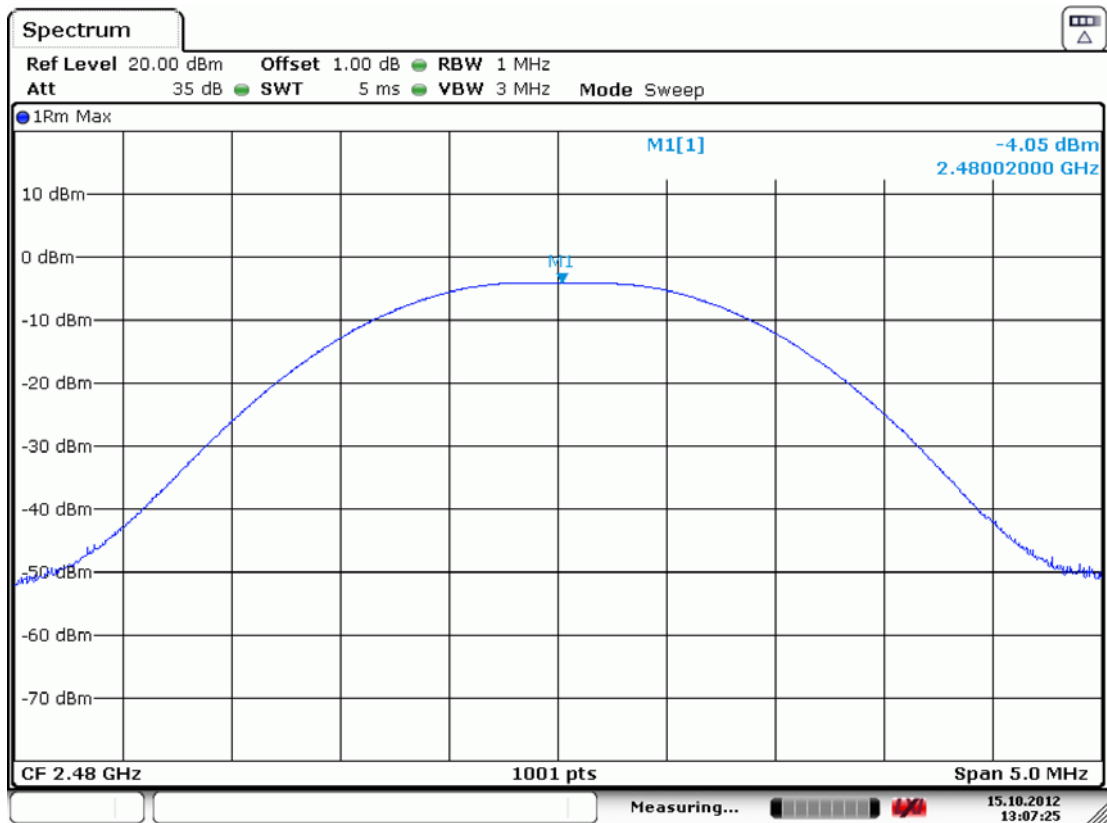


Figure 6: GFSK, Channel 78, Frequency: 2480MHz



9. EMISSION LIMITATIONS MEASUREMENT

9.1. Test Equipment

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

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9030A-544	US51350140	Oct. 17, 12'	Oct. 16, 13'

9.2. Block Diagram of Test Setup

The same as section.4.2.

9.3. Specification Limits (§15.247(c), RSS-210 §A8.5)

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

9.3.2. The reference level for determining limit of emission limitations is according to the value measured indicated in plots at section 8.6.

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 suitable frequency span including 100kHz bandwidth from band edge.

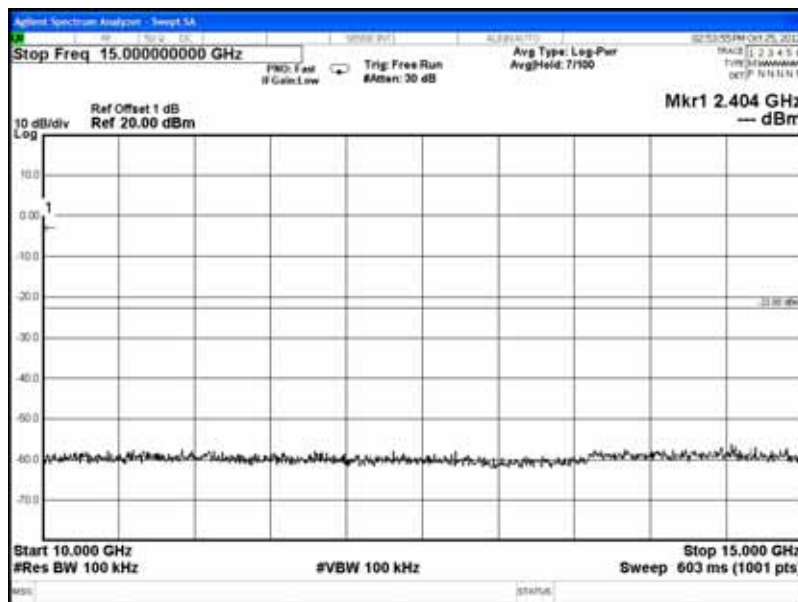
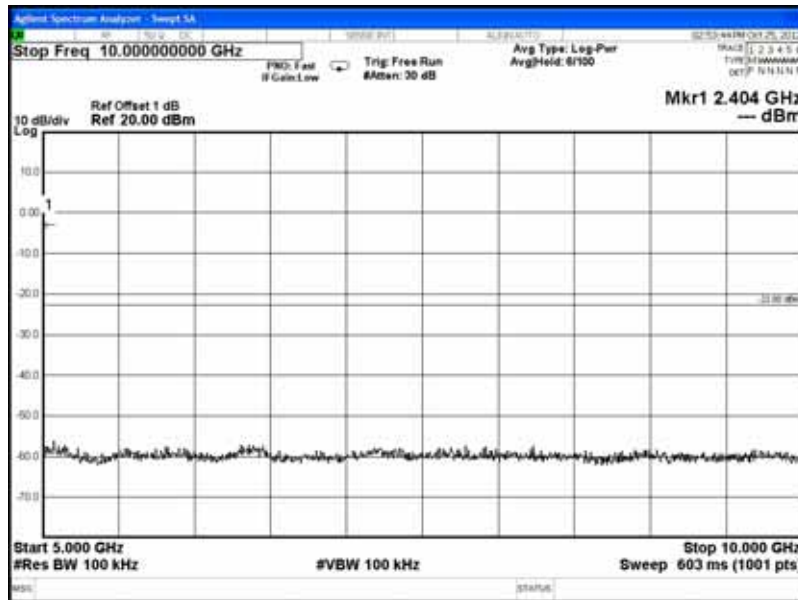
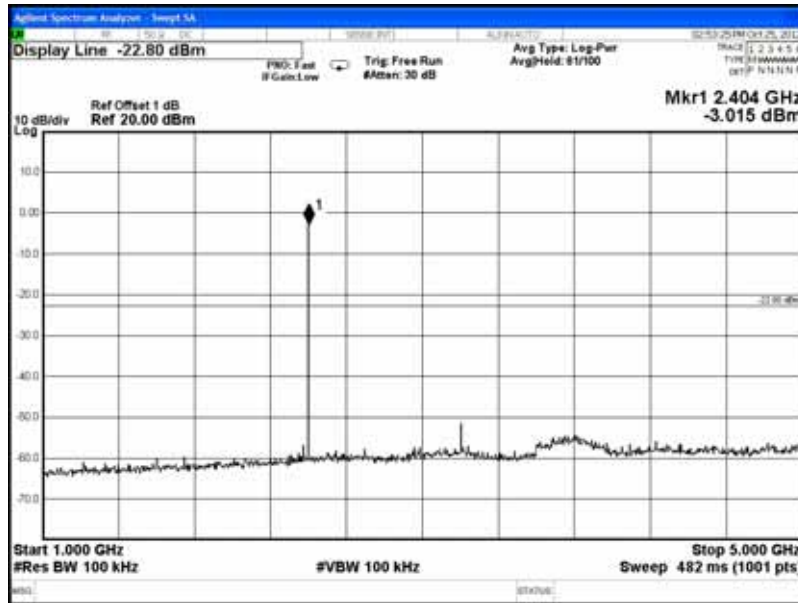
The measurement guideline was according to FCC Public Notice DA 00-705.

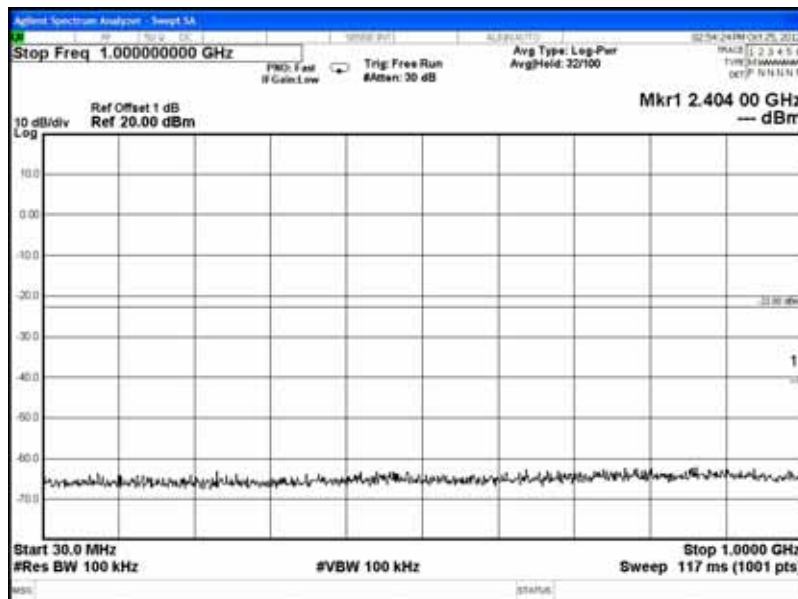
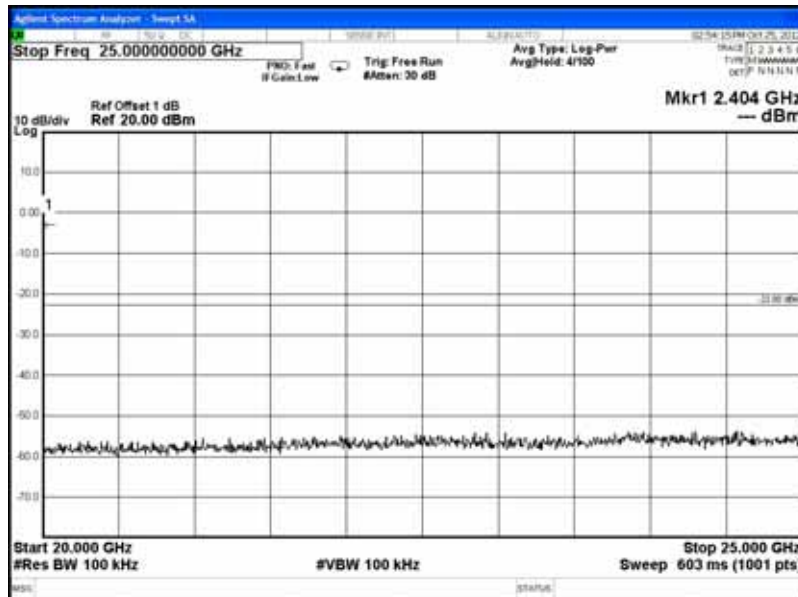
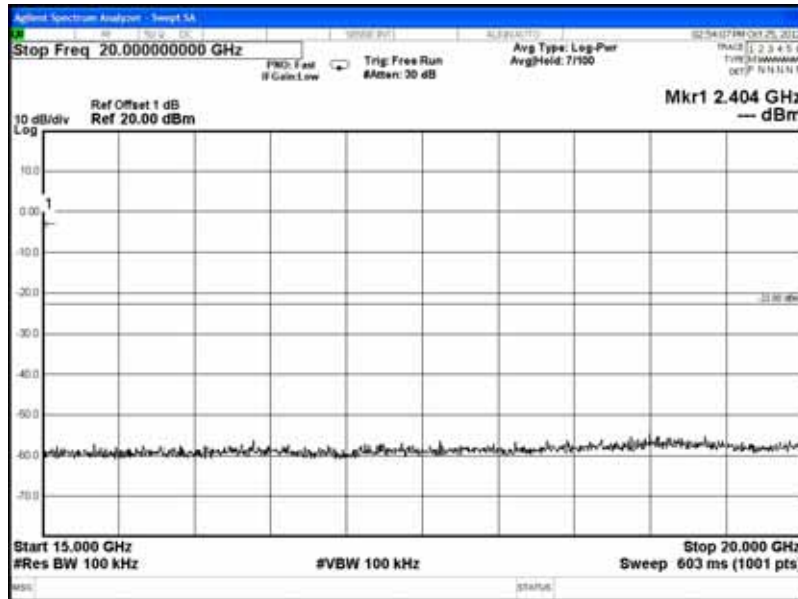
9.6. Test Results

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

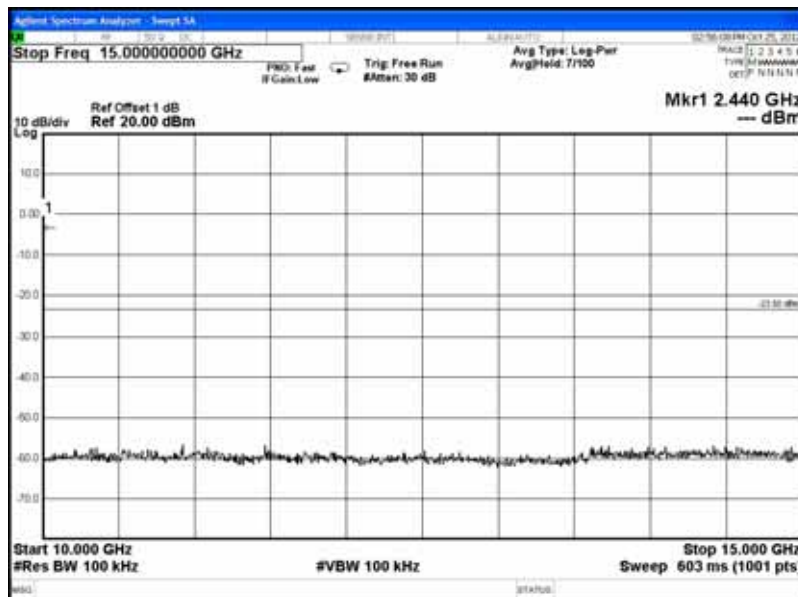
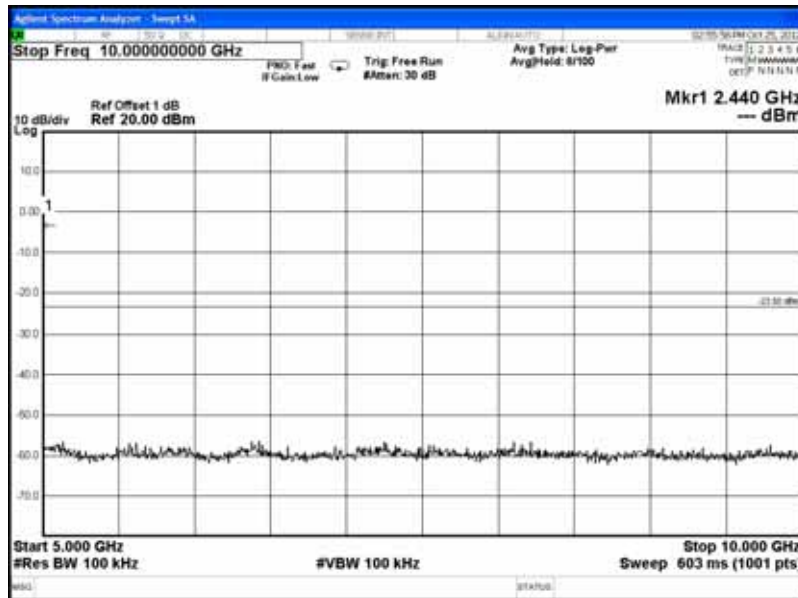
Test Date: Oct. 25, 2012 Temperature : 24 Humidity : 62%

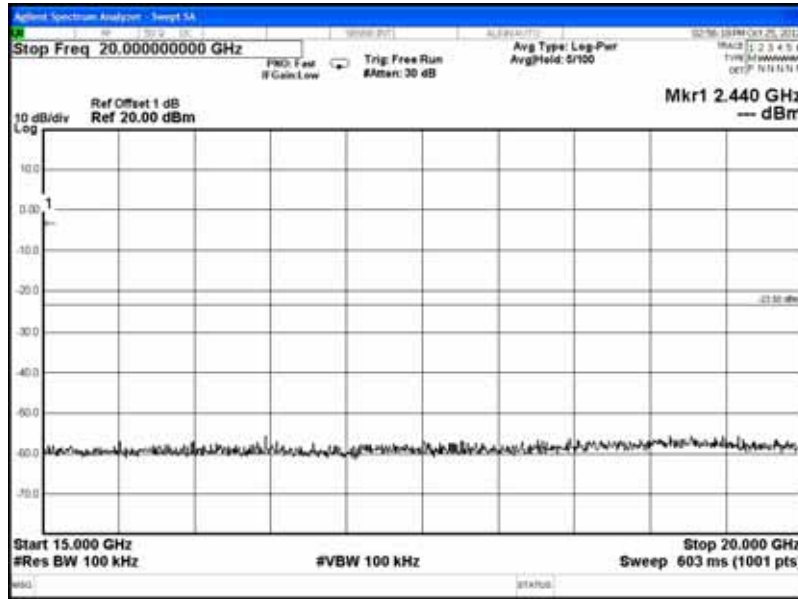
8-DPSK, Channel 0, Frequency: 2402MHz



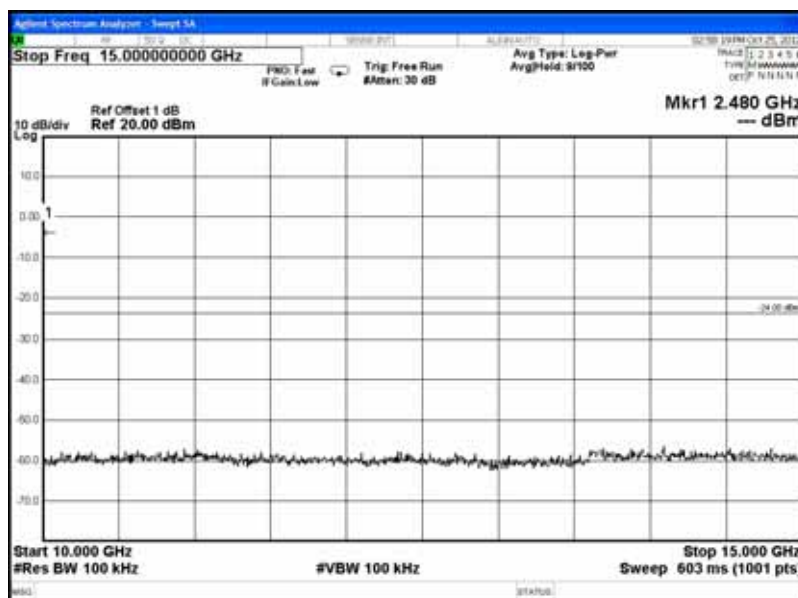
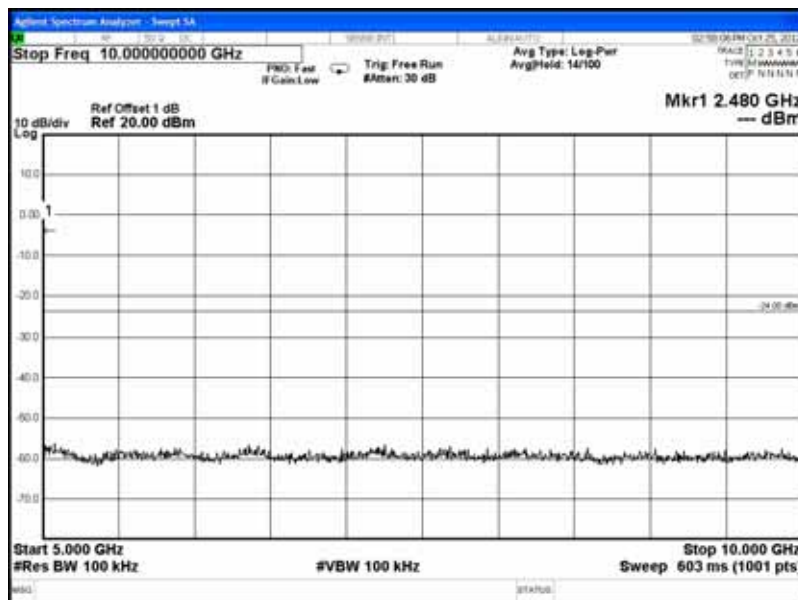
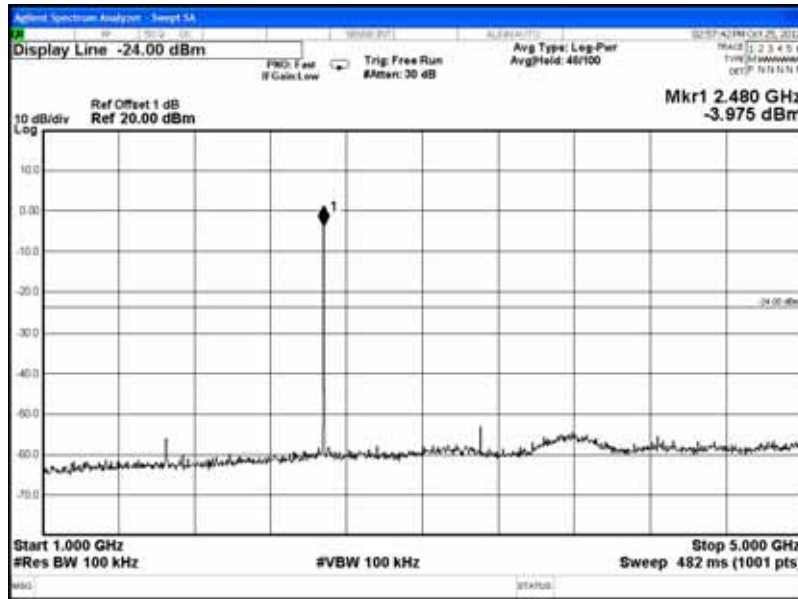


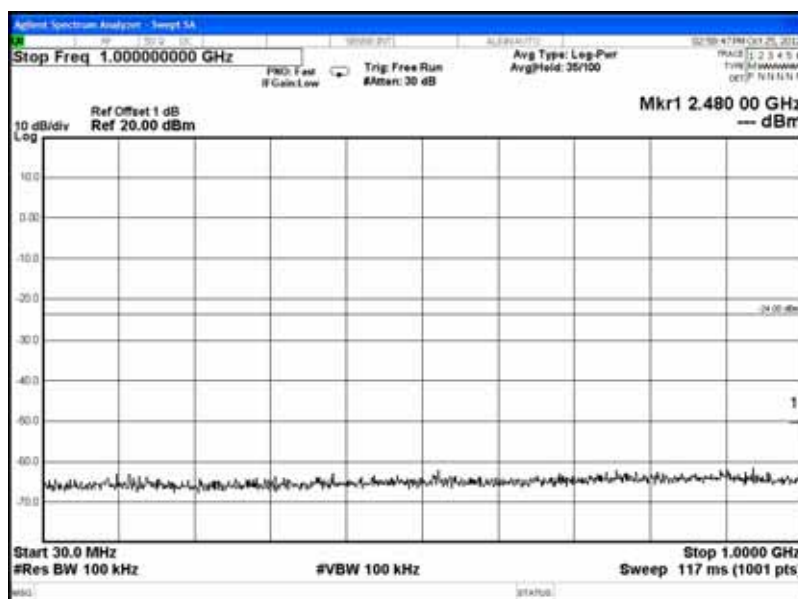
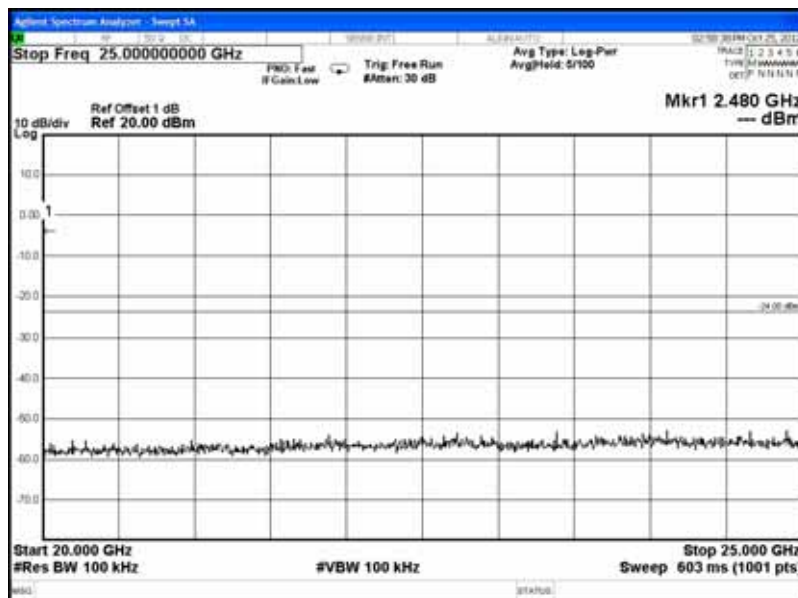
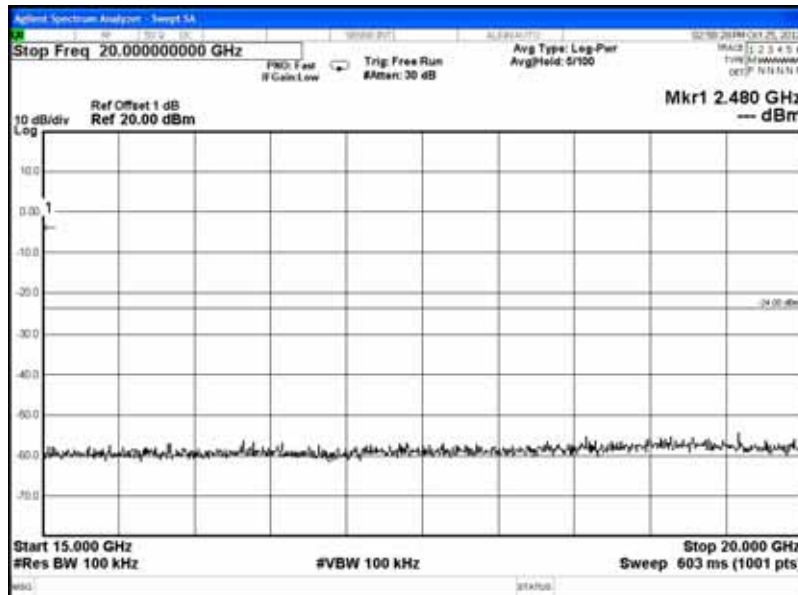
8-DPSK, Channel 39, Frequency: 2441MHz



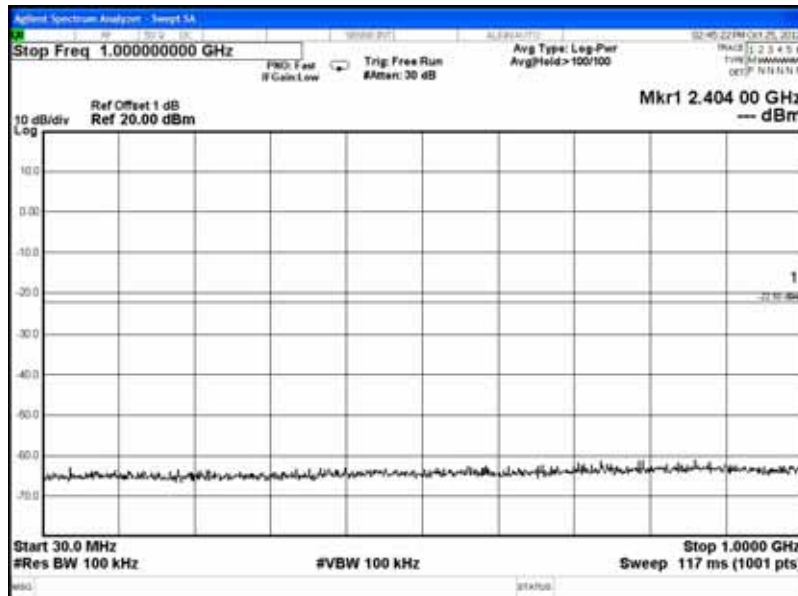
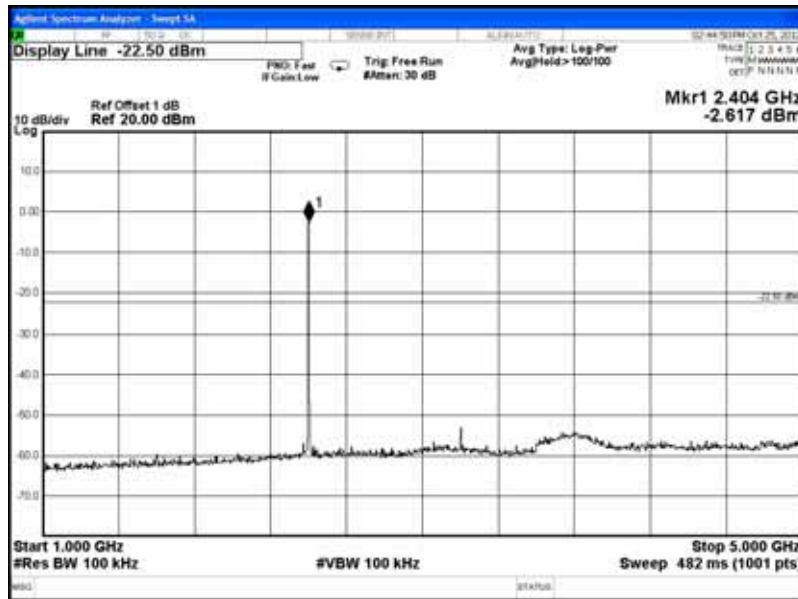


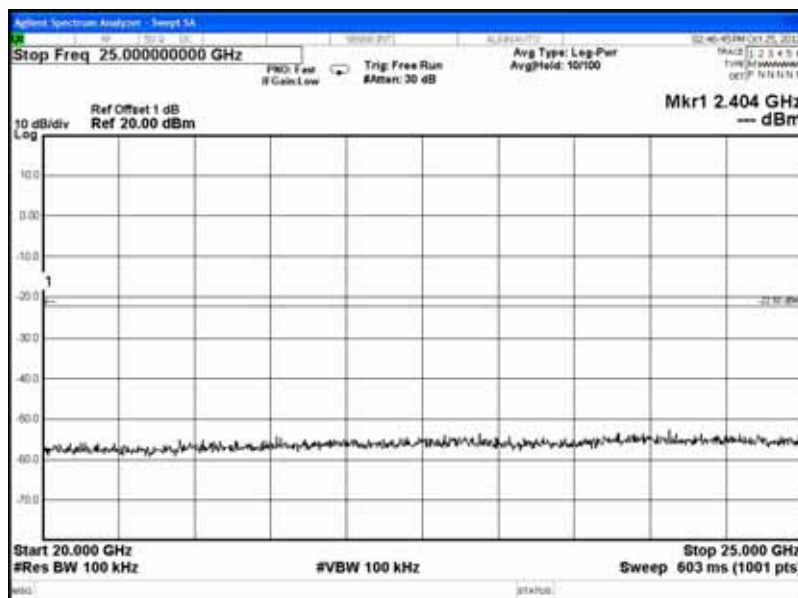
8-DPSK, Channel 78, Frequency: 2480MHz



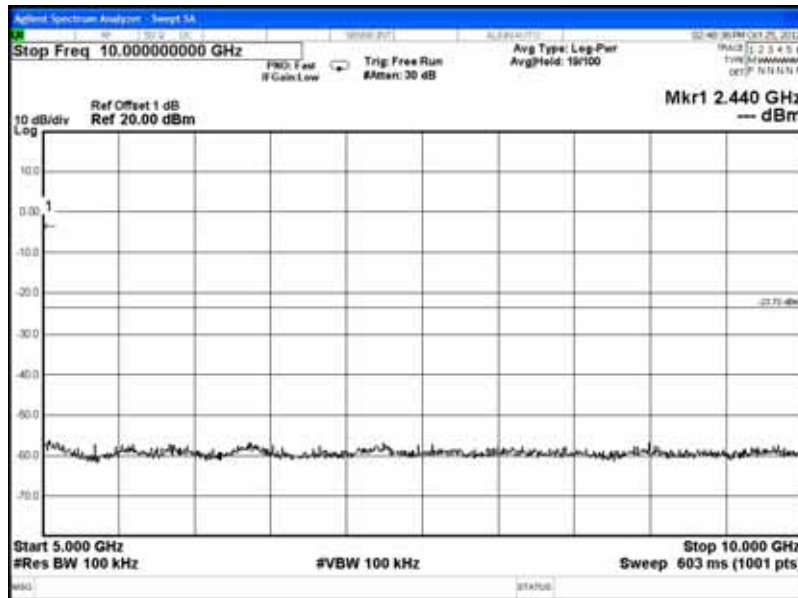


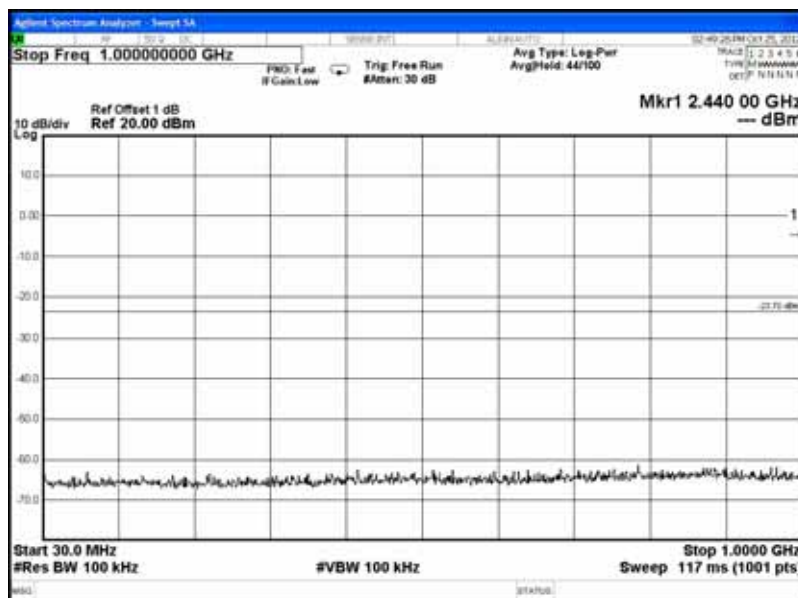
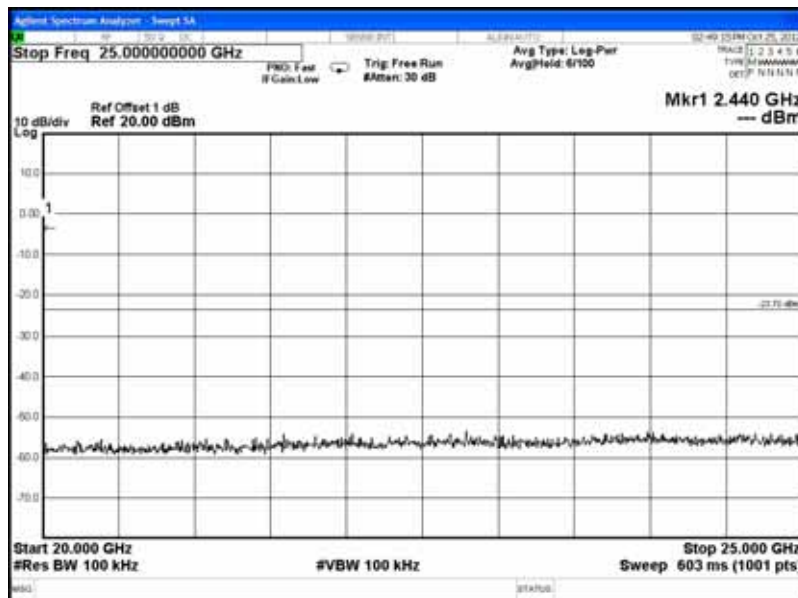
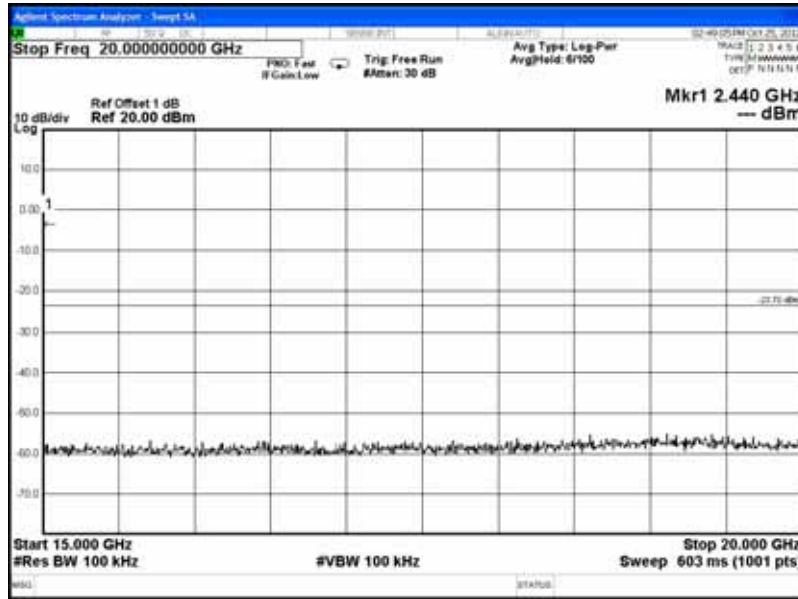
GFSK, Channel 0, Frequency: 2402MHz



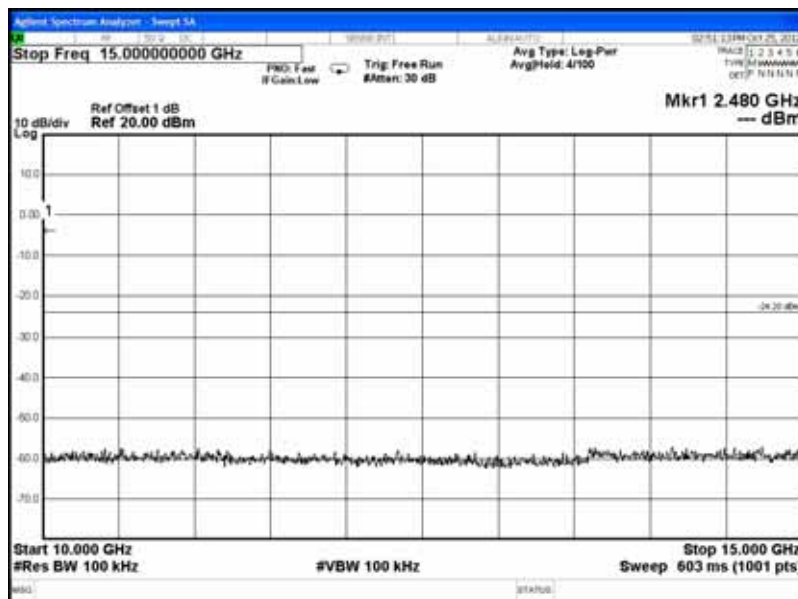
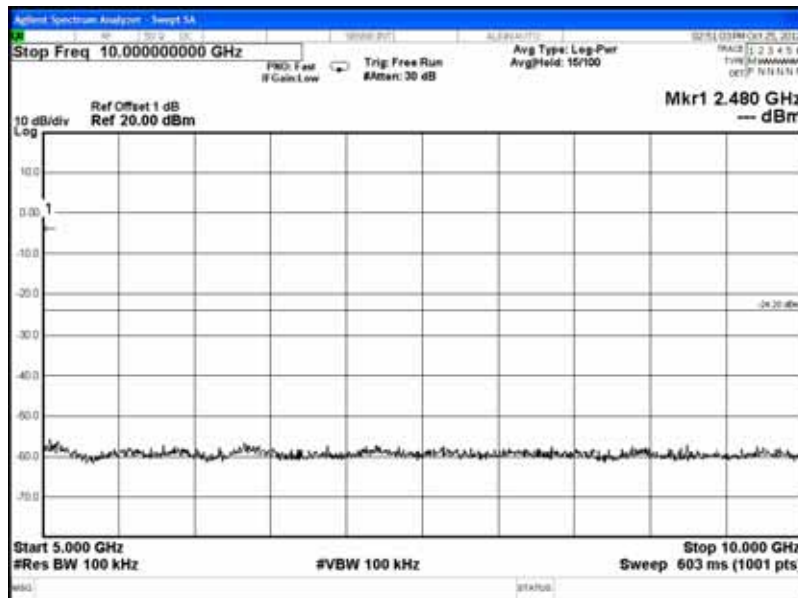


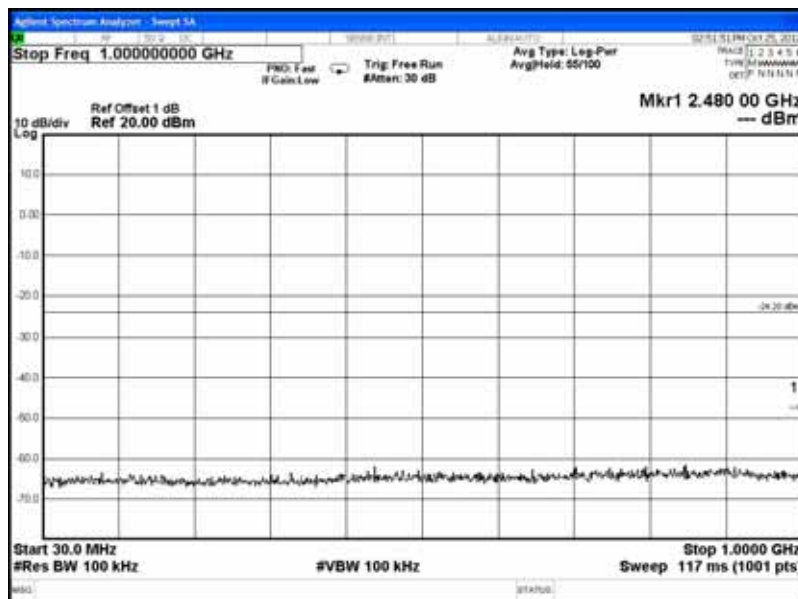
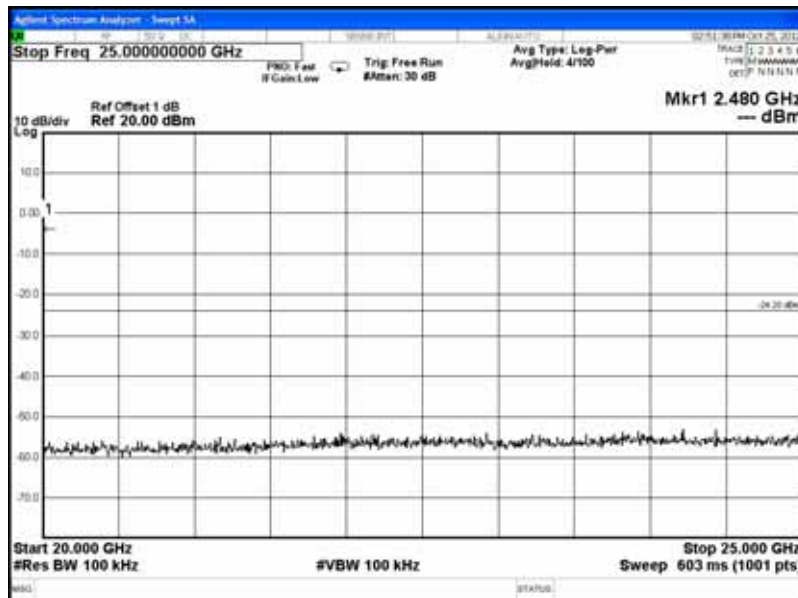
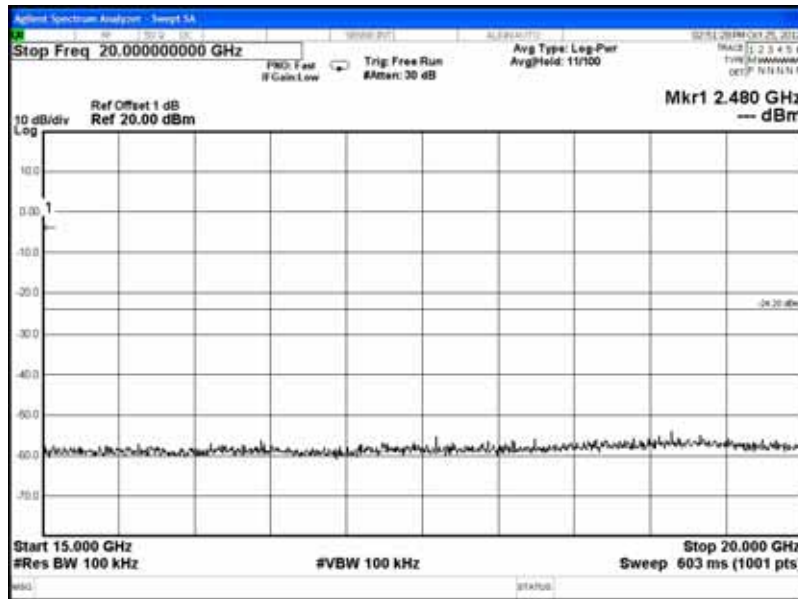
GFSK, Channel 39, Frequency: 2441MHz





GFSK, Channel 78, Frequency: 2480MHz





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.	Signal Analyzer	R & S	FSV7	102493	Apr. 26, 12'	Apr. 25, 13'

10.2. Block Diagram of Test Setup

The same as section.4.2.

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

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

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 : Pocket Photo

M/N : LAC9313SE

Test Date : Sep. 25, 2012 Temperature : 25 Humidity : 59 %

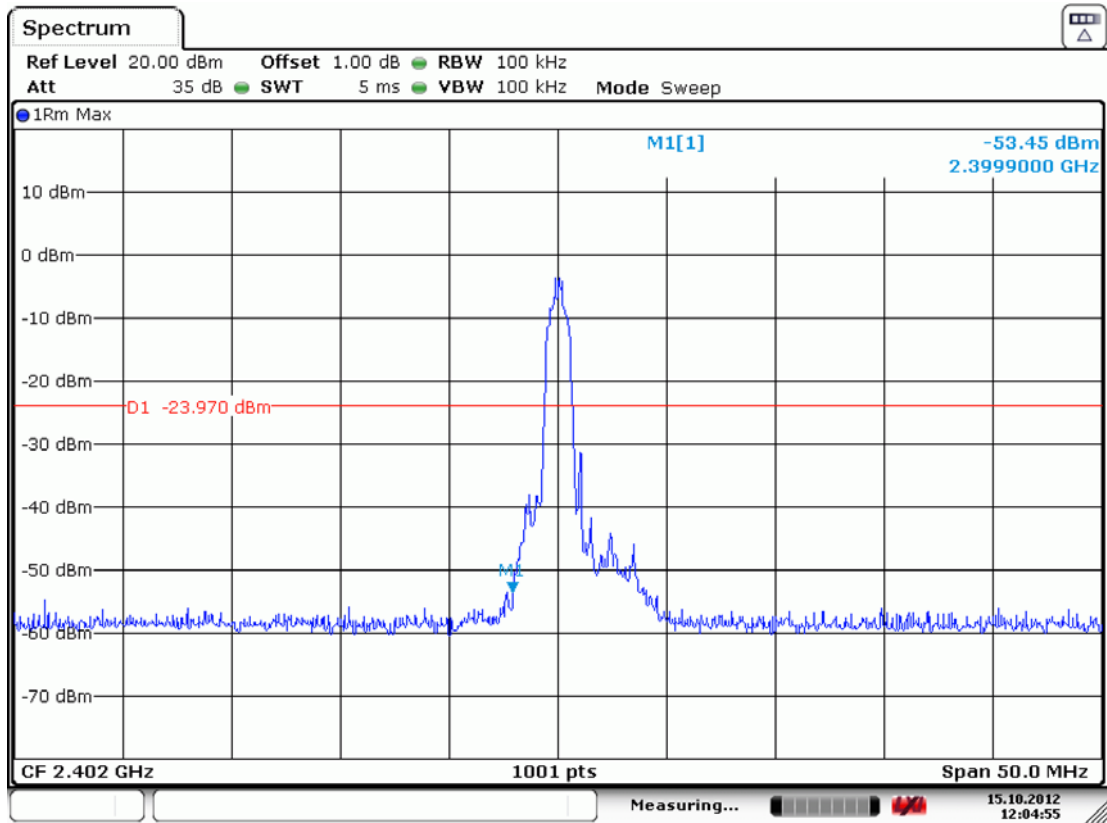
10.6.1. Type of Modulation: 8-DPSK

1. Below Band edge : The highest emission level is -53.45dBm on 2.39990GHz.
2. Upper Band edge: The highest emission level is -50.76dBm on 2.48350GHz.

10.6.2. Type of Modulation: GFSK

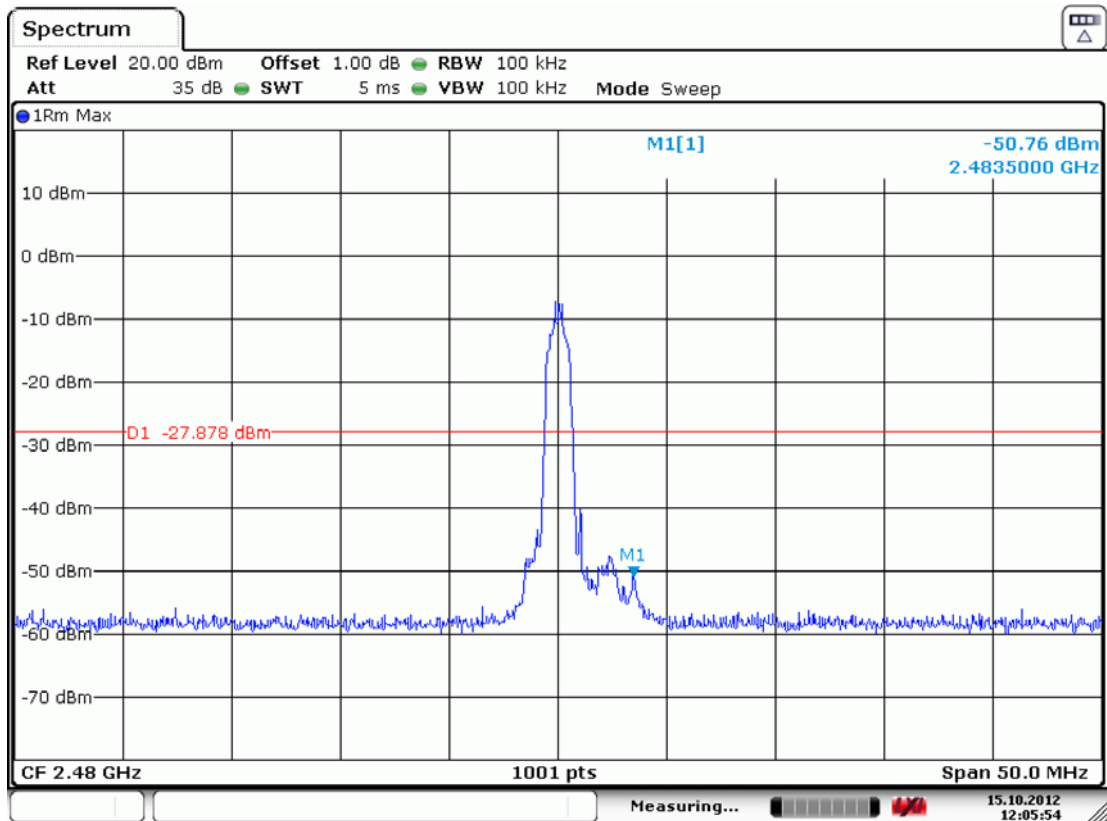
1. Below Band edge : The highest emission level is -55.73dBm on 2.39990GHz.
2. Upper Band edge: The highest emission level is -51.22dBm on 2.48360GHz.

Figure 1: 8-DPSK, Below Band edge



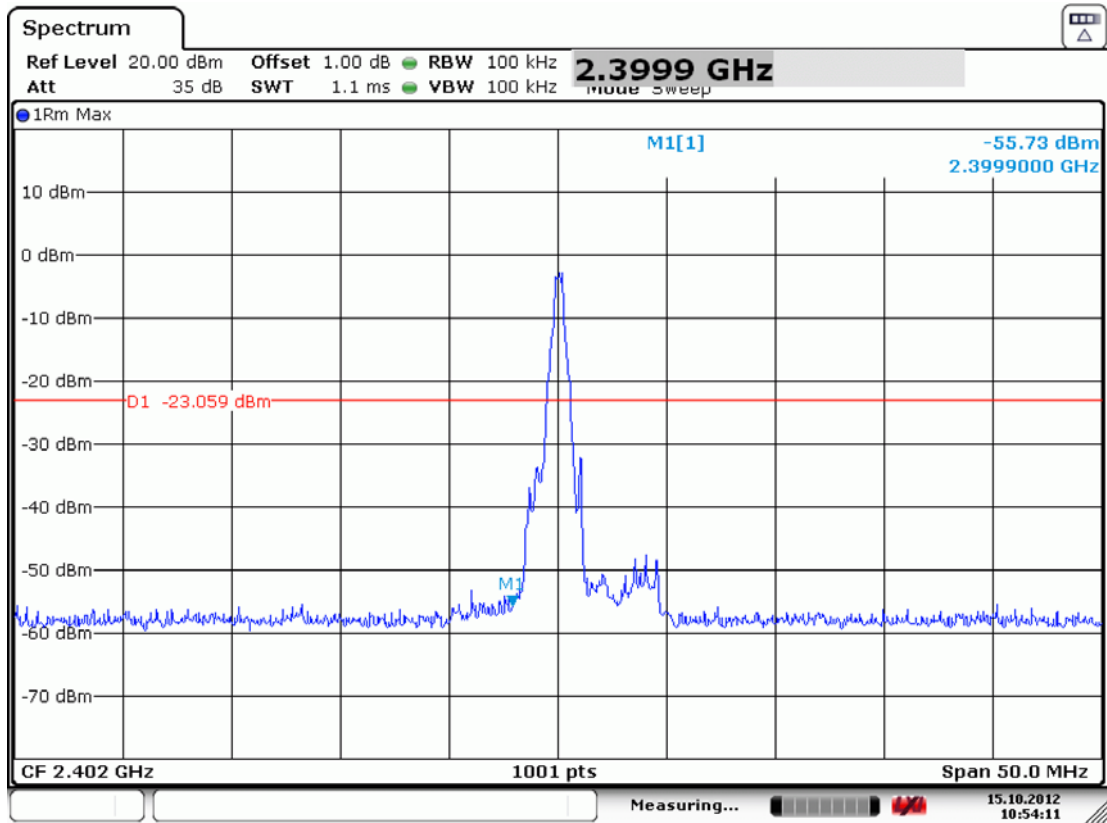
Date: 15.OCT.2012 12:04:55

Figure 2: 8-DPSK, Upper Band edge



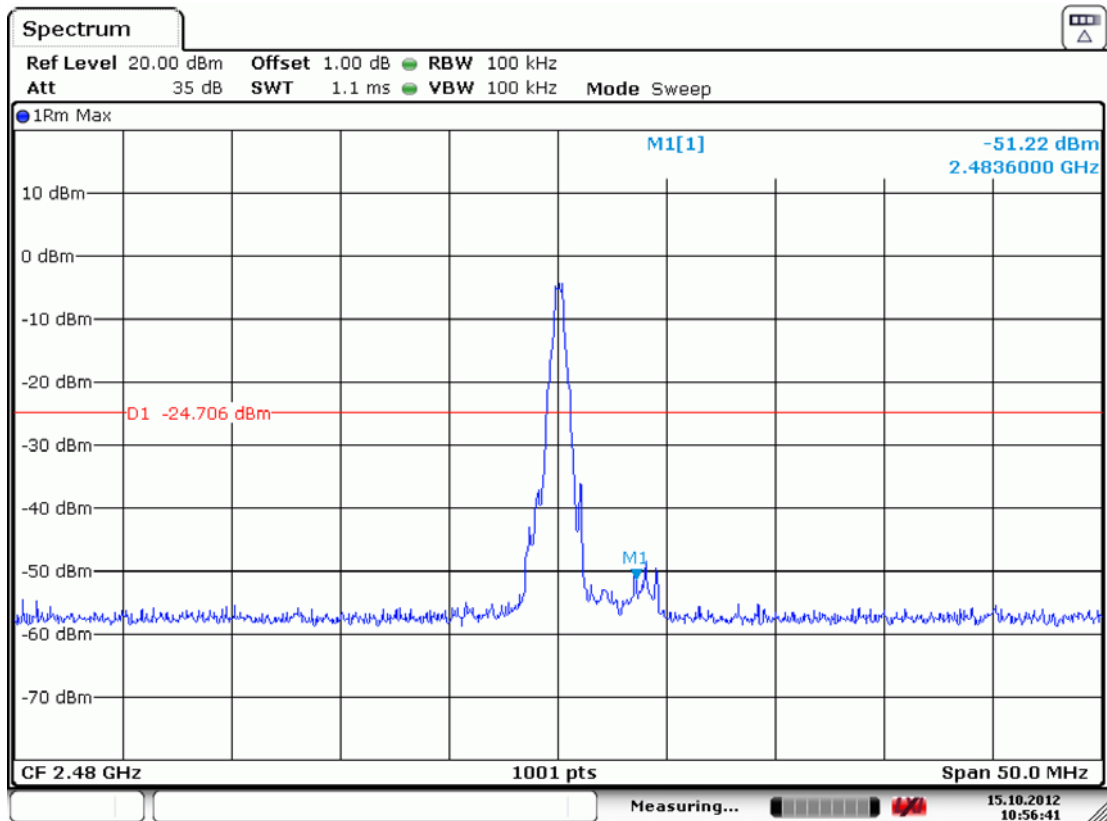
Date: 15.OCT.2012 12:05:54

Figure 3: GFSK, Below Band edge



Date: 15.OCT.2012 10:54:11

Figure 4: GFSK, Upper Band edge



Date: 15.OCT.2012 10:56:40

11.DEVIATION TO TEST SPECIFICATIONS

【NONE】