APPLICATION CERTIFICATION FCC Part 15C
On Behalf of
Zylux Acoustic Corporation.

Flicks Portable Projector
Model No.: BK01DW45A * , BK02DW45A * , BK03DW45A * , BK04DW45A *

FCC ID: XN6-BKDW45

Prepared for	:	Zylux Acoustic Corporation.
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Report No.	:	ATE20151790
Date of Test	:	July 22-Aug 12, 2015
Date of Report	:	Aug 12, 2015

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Test Report Certification

Applicant	:	Zylux Acoustic Corporation.
Manufacturer	:	Dashbon, Inc.
Factory	:	Zhao Yang Electronic(Shenzhen) Co., Ltd.
EUT Description	:	Flicks Portable Projector
Model No.	:	BK01DW45A * , BK02DW45A * , BK03DW45A * , BK04DW45A * Note: 1.character " * " can be A-Z or Blank, indicate different Color 2. Except that the battery capacity is not the same between BK01DW45A * and BK02DW45A * , other circuits are the same.
Trade Name	:	Dashbon

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.247
ANSI C63.10: 2013

The device described above is tested by ACCURATE TECHNOLOGY CO. LTD to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.247 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY CO. LTD is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of ACCURATE TECHNOLOGY CO. LTD.

Date of Test : July 22, 2015-Aug 12, 2015
Date of Report: Aug 12, 2015

Prepared by : Tim Zhang
(Tim.zhang, Engineer)

Approved & Authorized Signer : Sean Liu
(Sean Liu, Manager)

1. GENERAL INFORMATION

1.1.Description of Device (EUT)

EUT	:	Flicks Portable Projector
Model Number	:	BK01DW45A * , BK02DW45A * , BK03DW45A * , BK04DW45A * Note: 1.character " * " can be A-Z or Blank, indicate different Color 2. Except that the battery capacity is not the same between BK01DW45A * and BK02DW45A * , other circuits are the same.
Bluetooth version	:	BT 2.1+EDR
Frequency Range	:	2402MHz-2480MHz
Number of Channels	:	79
Antenna Gain	:	0dBi
Antenna type	:	PCB Antenna
Trade Name	:	Dashbon
Power Supply	:	AC 120V/60Hz
Adapter	:	Model: A10-090P3A Input: AC100-240V; 50/60Hz Output: DC 19V; 4.74A
Modulation mode	:	GFSK, π/4 DQPSK, 8DPSK
Applicant	:	Zylux Acoustic Corporation.
Address	:	3F, 22 Lane 35, Jihu Road, NeiHu Technolongy Park, 114 Taipei Taiwan
Manufacturer	:	Dashbon, Inc.
Address	:	4F No 94 Baozhong Rd, Xindian District, New Taipei City, 23144 Taiwan.
Factory	:	Zhao Yang Electronic(Shenzhen) Co., Ltd.
Address	:	Section A, 4th Floor, Building 1 & Building 2, De Yong Jia Industrial PaYu Lv Community, Gong Ming Street, Guang Ming New District, ShenZhen, PRC
Date of sample received	:	July 22, 2015
Date of Test	:	July 22, 2015-Aug 12, 2015

1.2.Accessory and Auxiliary Equipment

PC	Manufacturer: LENOVO M/N: 4290-RT8 S/N: R9-FW93G 11/08

1.3.Description of Test Facility

EMC Lab	:	Accredited by TUV Rheinland Shenzhen Listed by FCC The Registration Number is 752051 Listed by Industry Canada The Registration Number is 5077A-2 Accredited by China National Accreditation Committee for Laboratories The Certificate Registration Number is L3193
Name of Firm	:	ACCURATE TECHNOLOGY CO. LTD
Site Location	:	F1, Bldg. A, Changyuan New Material Port, Keyuan Rd. Science & Industry Park, Nanshan, Shenzhen, Guangdong P.R. China

1.4.Measurement Uncertainty

Conducted Emission Expanded Uncertainty	=	2.23dB, k=2
Radiated emission expanded uncertainty (9kHz-30MHz)	=	3.08dB, k=2
Radiated emission expanded uncertainty (30MHz-1000MHz)	=	4.42dB, k=2
Radiated emission expanded uncertainty (Above 1GHz)	=	4.06dB, k=2

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated dates	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 11, 2015	Jan. 10, 2016
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 11, 2015	Jan. 10, 2016
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 11, 2015	Jan. 10, 2016
Pre-Amplifier	Rohde&Schwarz	CBLU1183540-01	3791	Jan. 11, 2015	Jan. 10, 2016
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 15, 2015	Jan. 14, 2016
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 15, 2015	Jan. 14, 2016
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 15, 2015	Jan. 14, 2016
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 15, 2015	Jan. 14, 2016
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 11, 2015	Jan. 10, 2016
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 11, 2015	Jan. 10, 2016
Highpass Filter	Wainwright Instruments	WHKX3.6/18G-10SS	N/A	Jan. 11, 2015	Jan. 10, 2016
Band Reject Filter	Wainwright Instruments	WRCG2400/2485-2375/2510-60/11SS	N/A	Jan. 11, 2015	Jan. 10, 2016

3. OPERATION OF EUT DURING TESTING

3.1.Operating Mode

The mode is used: Transmitting mode
Low Channel: 2402MHz
Middle Channel: 2441MHz
High Channel: 2480MHz
Hopping

3.2.Configuration and peripherals

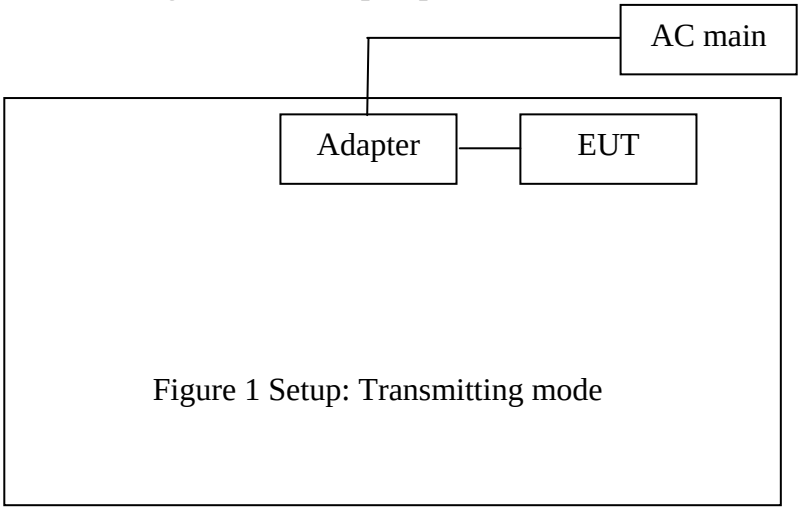
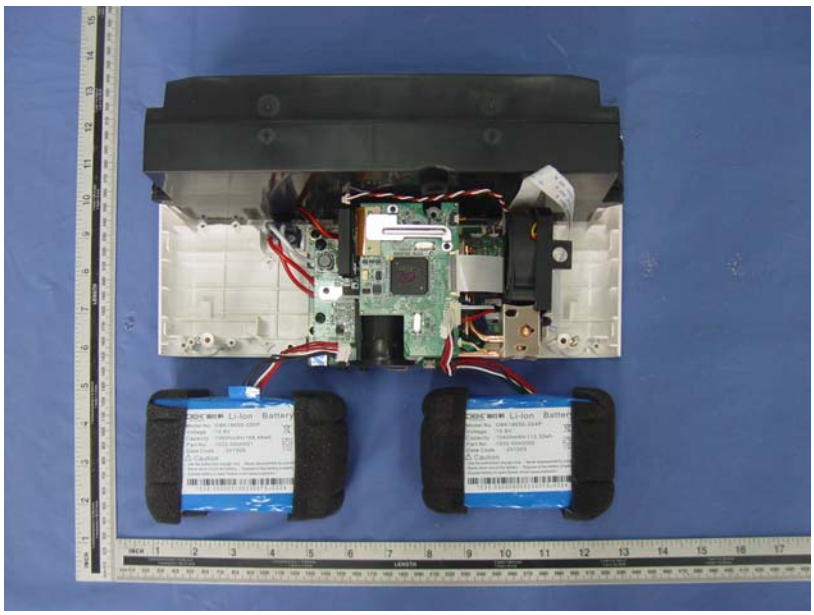
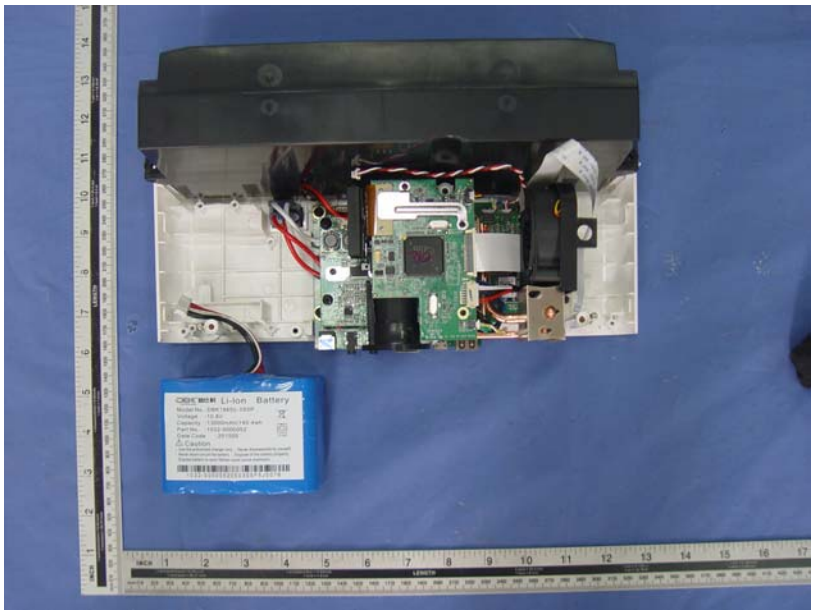


Figure 1 Setup: Transmitting mode

3.3.Sample differences and their testing instructions





Note: BK01DW45A * , BK02DW45A * , BK03DW45A * , BK04DW45A *
character “ * ” can be A-Z or Blank, indicate different Color
Except that the battery capacity is not the same between BK01DW45A * and BK02DW45A * , BK02DW45A * series’ EUT are equipped with two battery. The battery capacity is 15600mAH and 10400mAH respectively.
BK01DW45A * series’ EUT only equipped with a battery. The battery capacity is 13000mAH.
The other circuits are all the same.

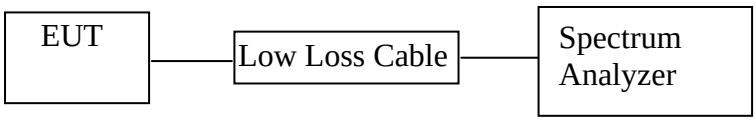
The difference of the EUT’ battery may affect the test with the following two items:
AC Power Line Conducted Emission Test and Radiated Spurious Emission Test
So we have two different types of test data in the report.

4. TEST PROCEDURES AND RESULTS

FCC Rules	Description of Test	Result
Section 15.207	Conducted Emission Test	Compliant
Section 15.247(a)(1)	20dB Bandwidth Test	Compliant
Section 15.247(a)(1)	Carrier Frequency Separation Test	Compliant
Section 15.247(a)(1)(iii)	Number Of Hopping Frequency Test	Compliant
Section 15.247(a)(1)(iii)	Dwell Time Test	Compliant
Section 15.247(b)(1)	Maximum Peak Output Power Test	Compliant
Section 15.247(d) Section 15.209	Radiated Emission Test	Compliant
Section 15.247(d)	Band Edge Compliance Test	Compliant
Section 15.203	Antenna Requirement	Compliant

5. 20DB BANDWIDTH TEST

5.1.Block Diagram of Test Setup



(EUT: Flicks Portable Projector)

5.2.The Requirement For Section 15.247(a)(1)

Section 15.247(a)(1): Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

5.3.EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

5.4.Operating Condition of EUT

5.4.1.Setup the EUT and simulator as shown as Section 5.1.

5.4.2.Turn on the power of all equipment.

5.4.3.Let the EUT work in TX (Hopping off) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

5.5.Test Procedure

5.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.

5.5.2.Set RBW of spectrum analyzer to 30 kHz and VBW to 100 kHz.

5.5.3.The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

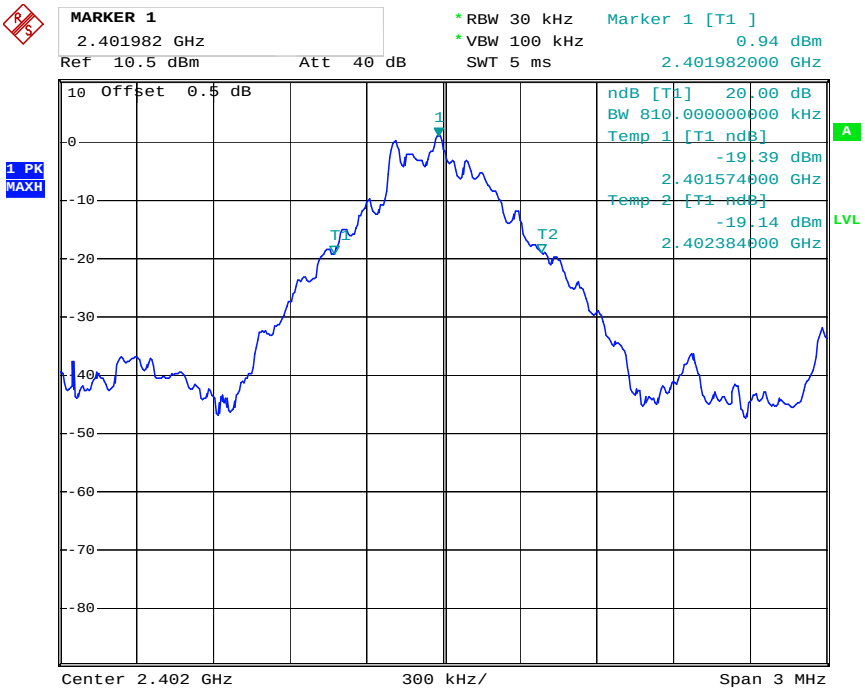
5.6.Test Result

Channel	Frequency (MHz)	GFSK 20dB Bandwidth (MHz)	Π/4-DQPSK 20dB Bandwidth (MHz)	8DPSK 20dB Bandwidth (MHz)	Result
Low	2402	0.810	1.260	1.272	Pass
Middle	2441	0.810	1.260	1.266	Pass
High	2480	0.882	1.260	1.266	Pass

The spectrum analyzer plots are attached as below.

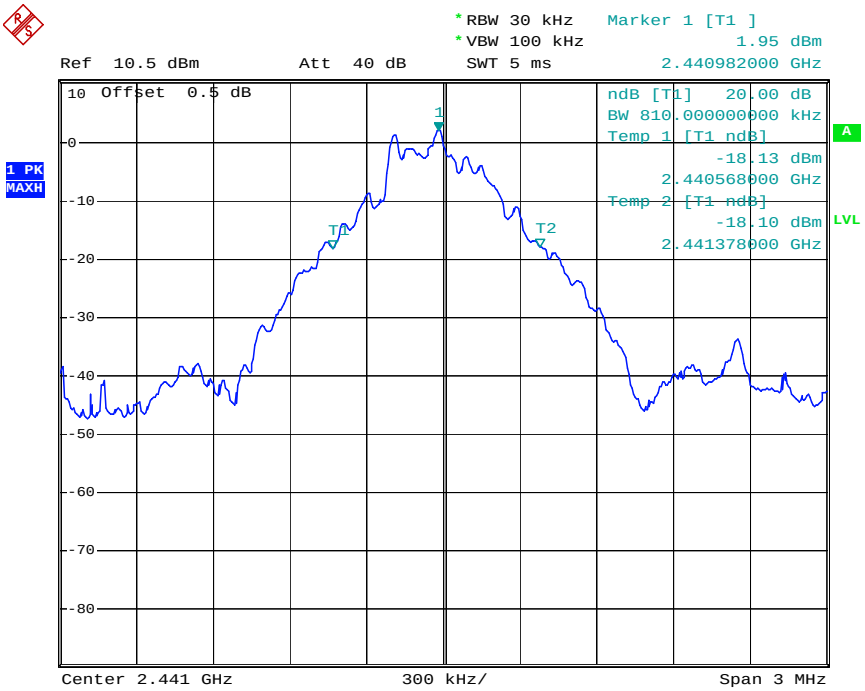
GFSK Mode

Low channel



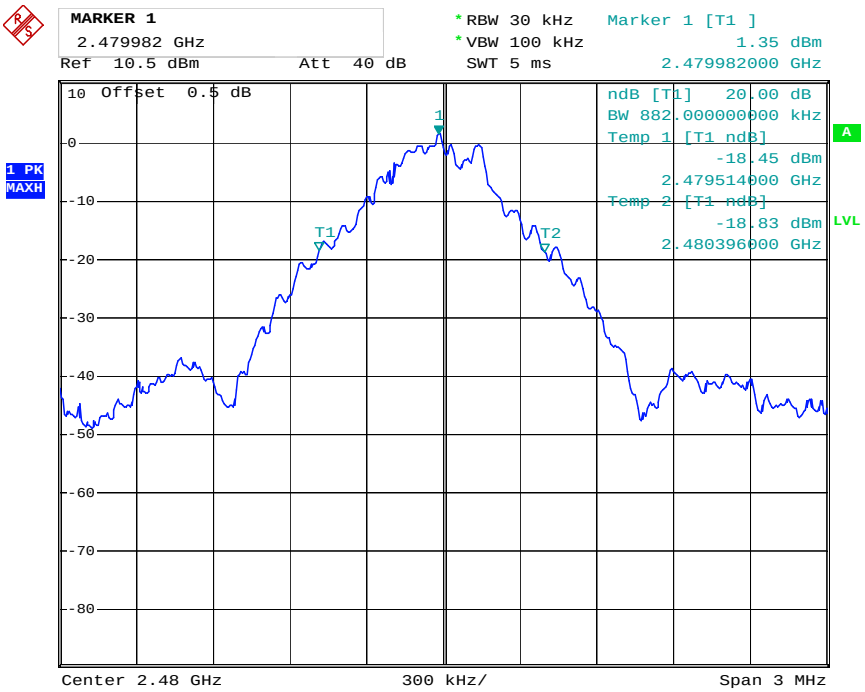
Date: 23.JUL.2015 16:29:01

Middle channel



Date: 23.JUL.2015 16:28:12

High channel



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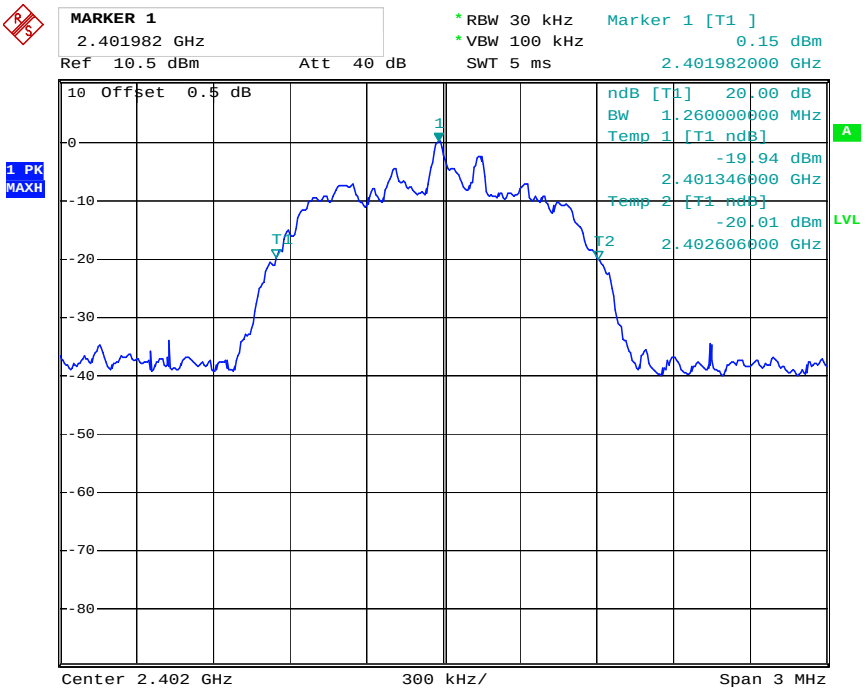
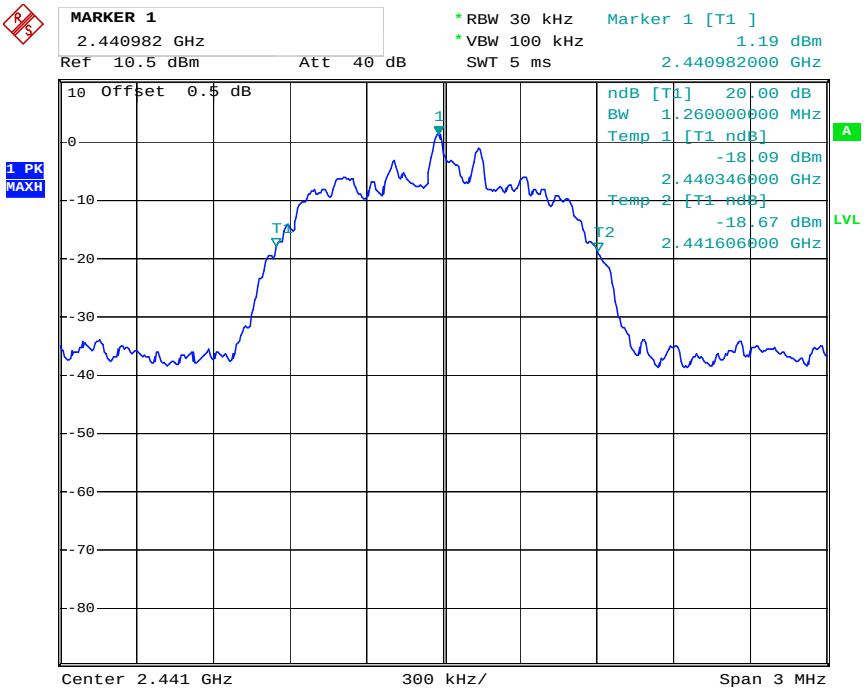
Π/4-DQPSK Mode

Low channel



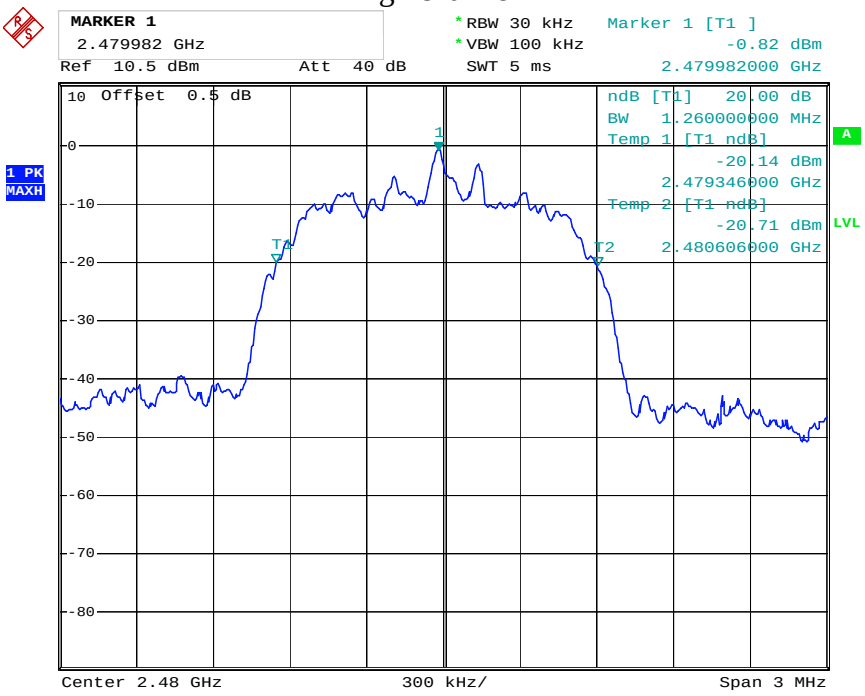
Date: 23.JUL.2015 16:32:06

Middle channel



Date: 23.JUL.2015 16:32:43

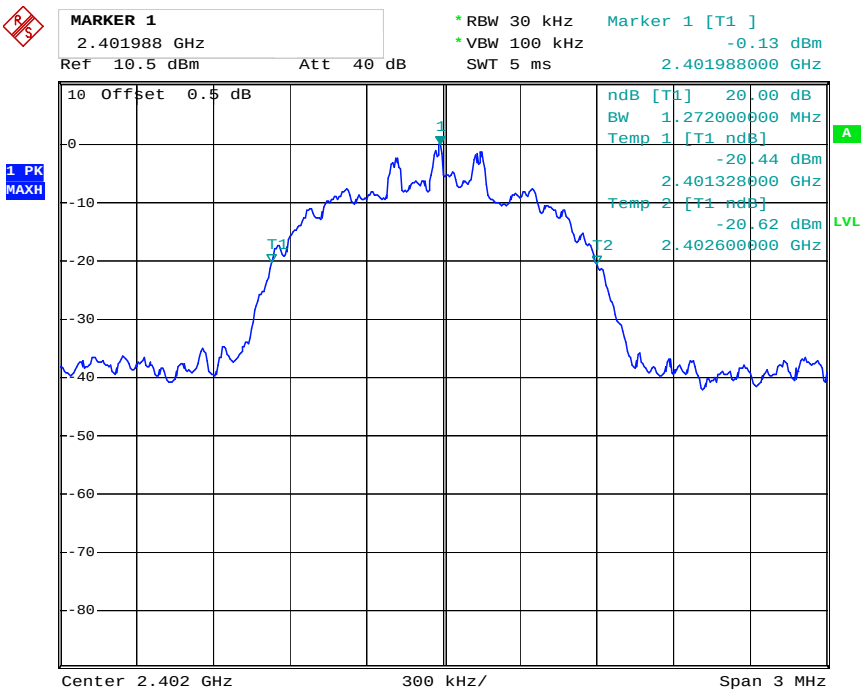
High channel



Date: 23.JUL.2015 16:41:06

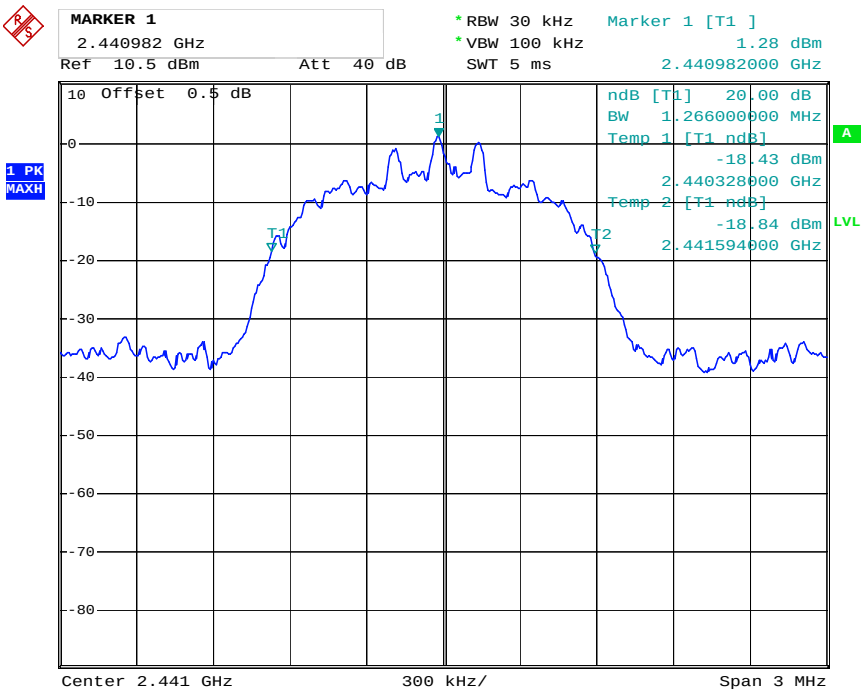
8DPSK Mode

Low channel



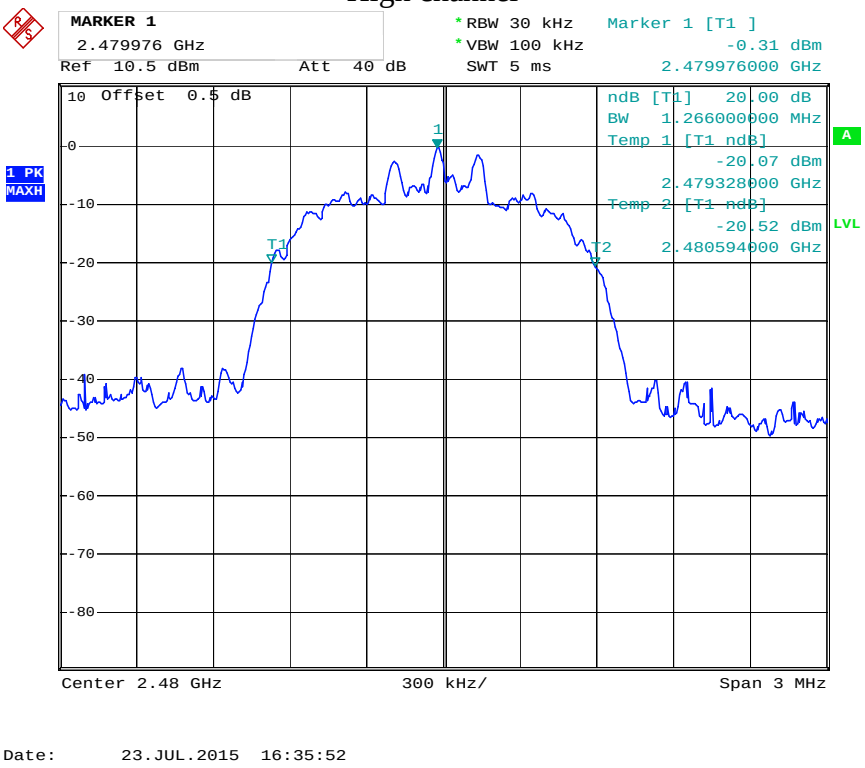
Date: 23.JUL.2015 16:34:34

Middle channel



Date: 23.JUL.2015 16:35:16

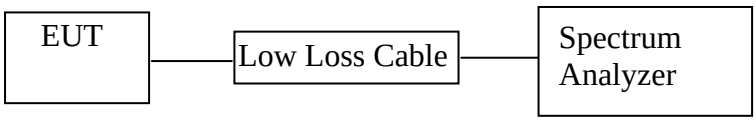
High channel



Date: 23.JUL.2015 16:35:52

6. CARRIER FREQUENCY SEPARATION TEST

6.1.Block Diagram of Test Setup



(EUT: Flicks Portable Projector)

6.2.The Requirement For Section 15.247(a)(1)

Section 15.247(a)(1): Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, 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, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudorandomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

6.3.EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

6.4.Operating Condition of EUT

6.4.1.Setup the EUT and simulator as shown as Section 6.1.

6.4.2.Turn on the power of all equipment.

6.4.3.Let the EUT work in TX (Hopping on) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

6.5.Test Procedure

6.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.

6.5.2.Set RBW of spectrum analyzer to 30 kHz and VBW to 100 kHz. Adjust Span to 2 MHz.

6.5.3.Set the adjacent channel of the EUT maxhold another trace.

6.5.4.Measurement the channel separation

6.6.Test Result

GFSK

Channel	Frequency (MHz)	Channel Separation(MHz)	Limit (MHz)	Result
Low	2402	1.000	25KHz or 20dB bandwidth	PASS
	2403			
Middle	2440	1.004	25KHz or20dB bandwidth	PASS
	2441			
High	2479	1.008	25KHz or 20dB bandwidth	PASS
	2480			

Π/4-DQPSK

Channel	Frequency (MHz)	Channel Separation(MHz)	Limit (MHz)	Result
Low	2402	1.002	25KHz or 2/3*20dB bandwidth	PASS
	2403			
Middle	2440	1.008	25KHz or 2/3*20dB bandwidth	PASS
	2441			
High	2479	1.014	25KHz or 2/3*20dB bandwidth	PASS
	2480			

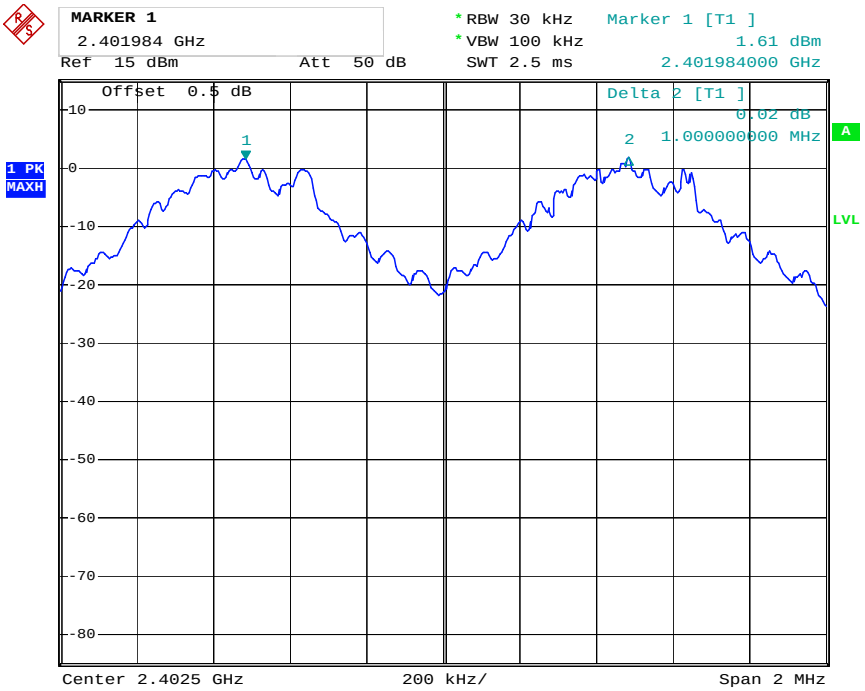
8DPSK

Channel	Frequency (MHz)	Channel Separation(MHz)	Limit (MHz)	Result
Low	2402	1.002	25KHz or 2/3*20dB bandwidth	PASS
	2403			
Middle	2440	1.002	25KHz or 2/3*20dB bandwidth	PASS
	2441			
High	2479	1.014	25KHz or 2/3*20dB bandwidth	PASS
	2480			

The spectrum analyzer plots are attached as below.

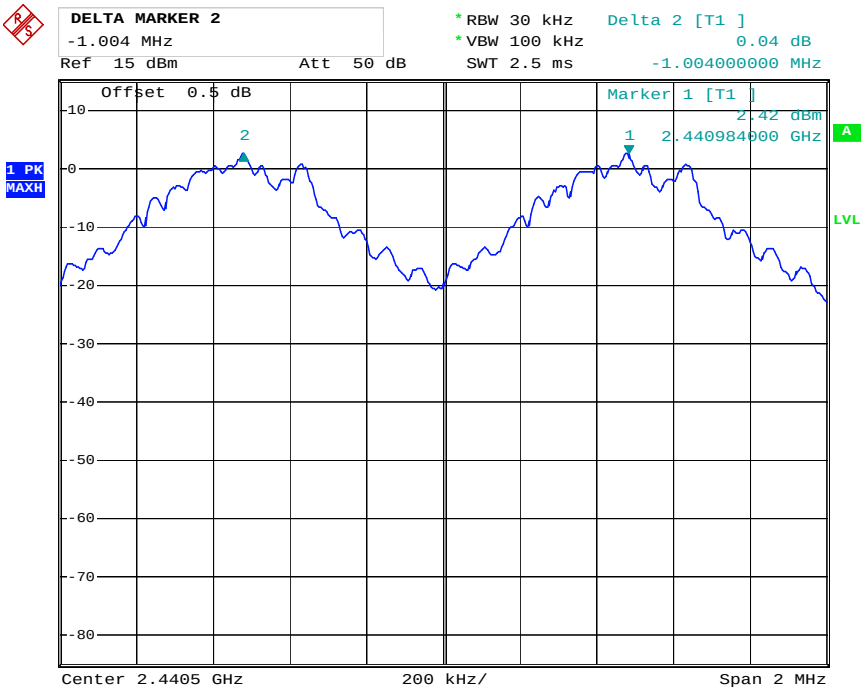
GFSK Mode

Low channel



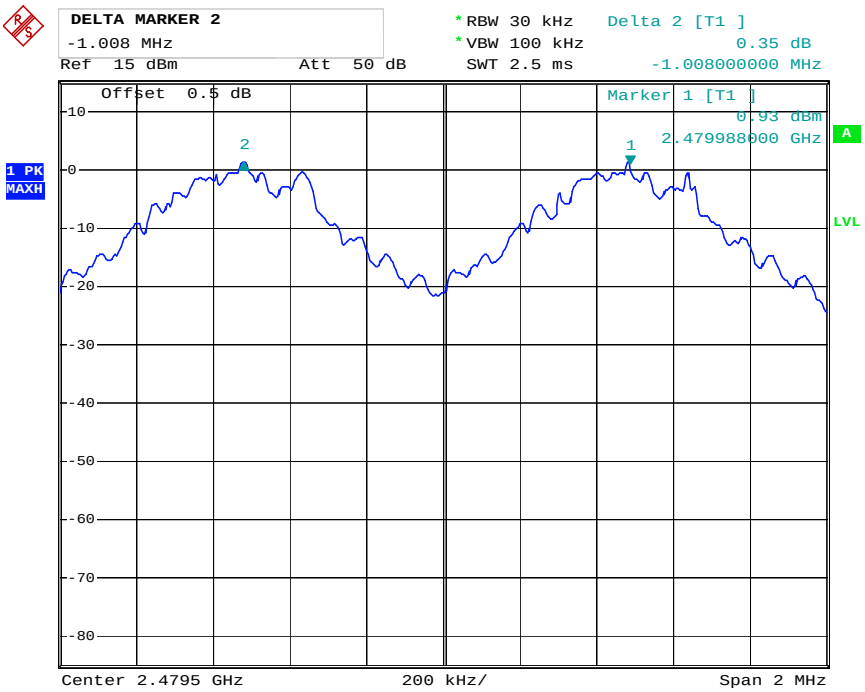
Date: 23.JUL.2015 17:04:11

Middle channel



Date: 23.JUL.2015 17:05:33

High channel



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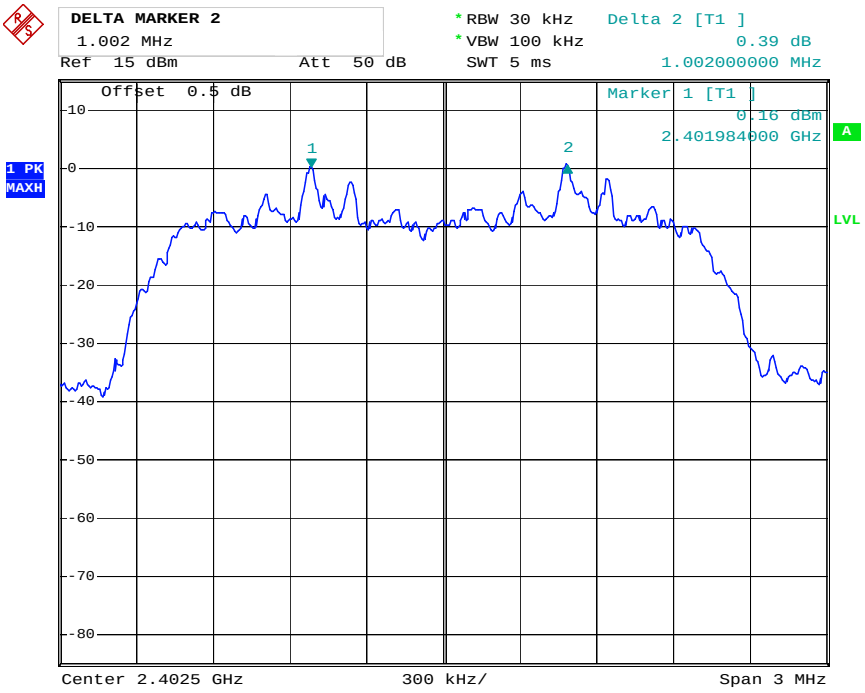
Π/4-DQPSK Mode

Low channel



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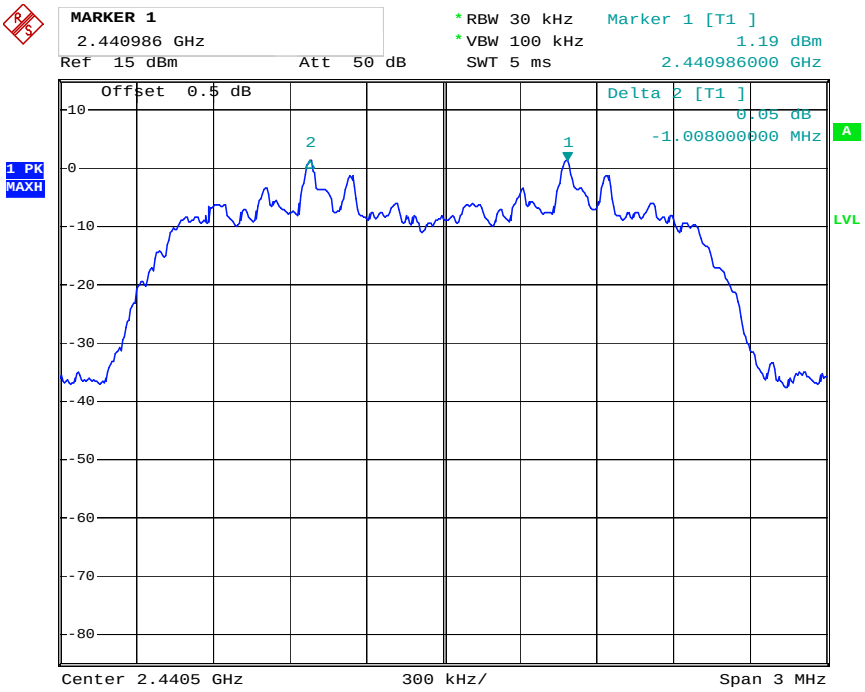
Middle channel



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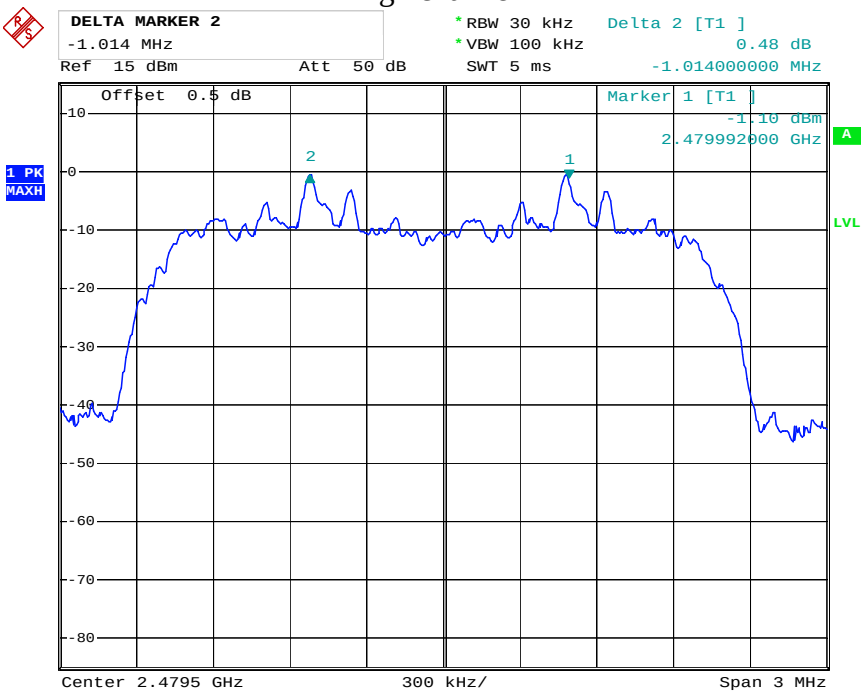
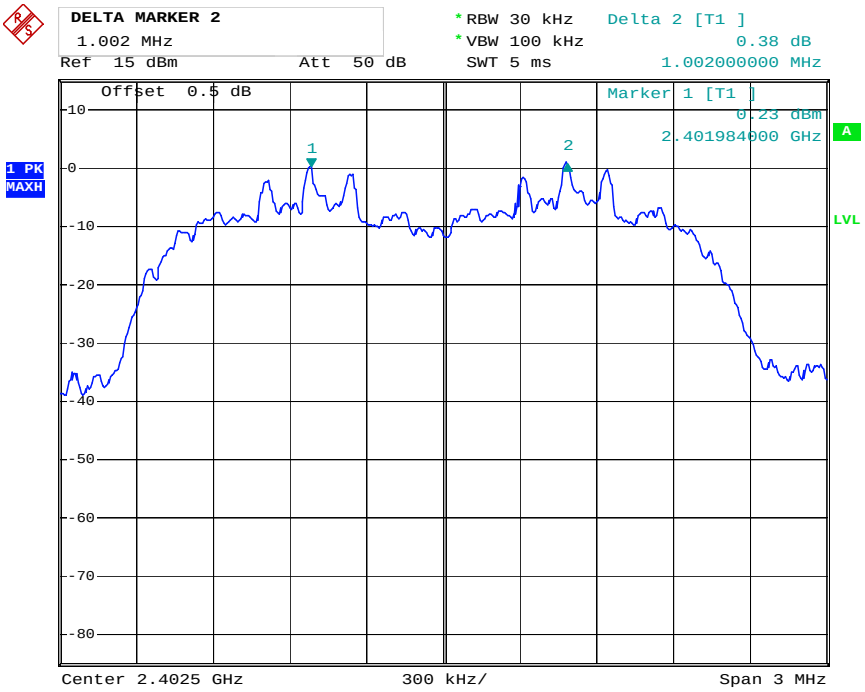
High channel



Date: 23.JUL.2015 17:10:47

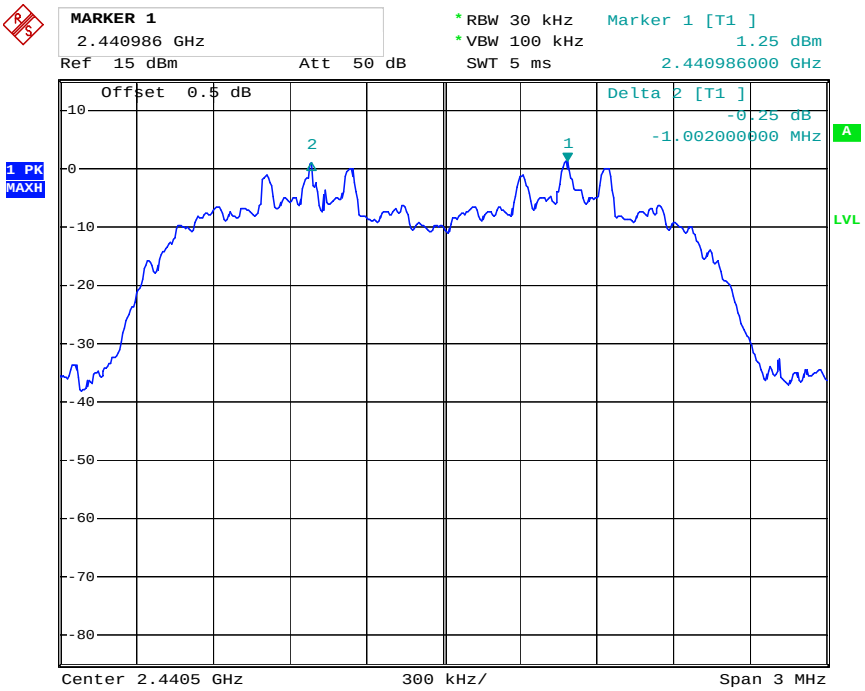
8DPSK Mode

Low channel



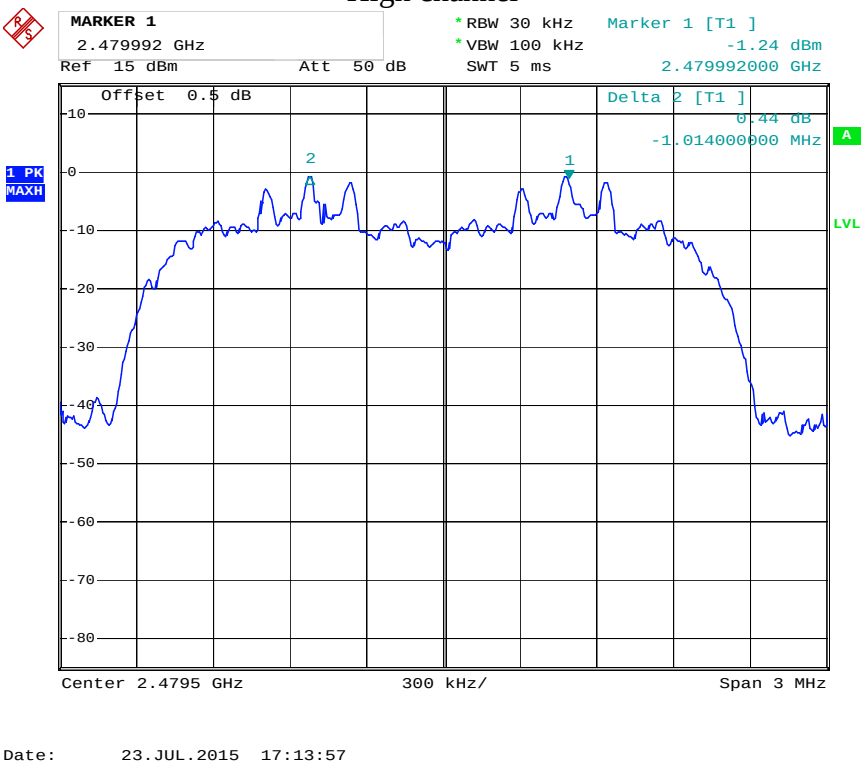
Date: 23.JUL.2015 17:11:54

Middle channel



Date: 23.JUL.2015 17:12:50

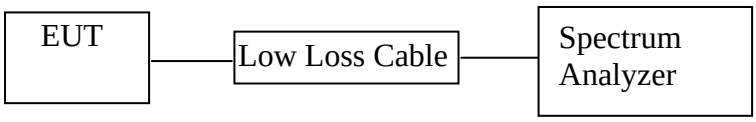
High channel



Date: 23.JUL.2015 17:13:57

7. NUMBER OF HOPPING FREQUENCY TEST

7.1.Block Diagram of Test Setup



(EUT: Flicks Portable Projector)

7.2.The Requirement For Section 15.247(a)(1)(iii)

Section 15.247(a)(1)(iii): Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

7.3.EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

7.4.Operating Condition of EUT

7.4.1.Setup the EUT and simulator as shown as Section 7.1.

7.4.2.Turn on the power of all equipment.

7.4.3.Let the EUT work in TX (Hopping on) modes measure it.

7.5.Test Procedure

7.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.

7.5.2.Set the spectrum analyzer as Span=83.5MHz, RBW=100 kHz, VBW=300 kHz.

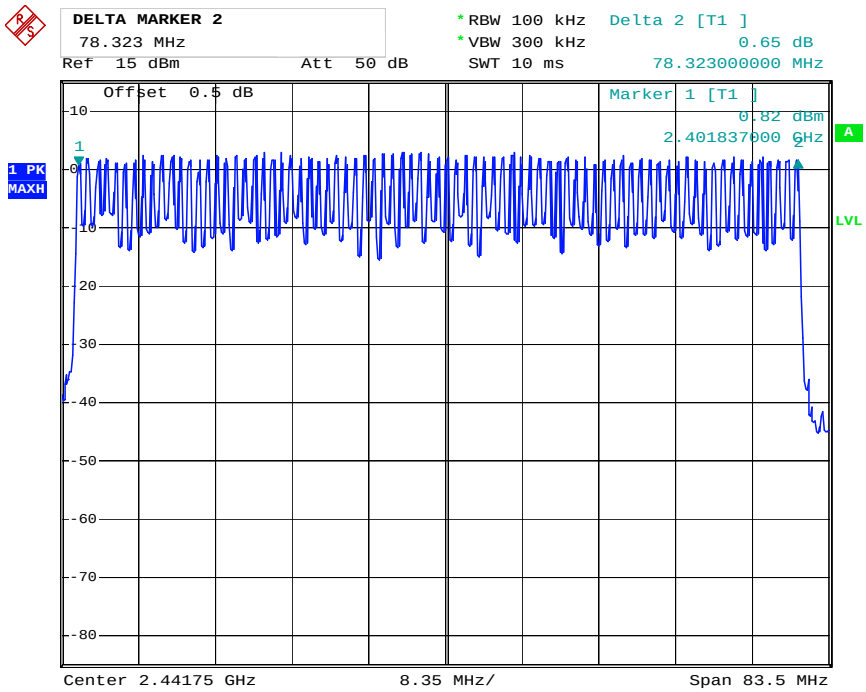
7.5.3.Max hold, view and count how many channel in the band.

7.6.Test Result

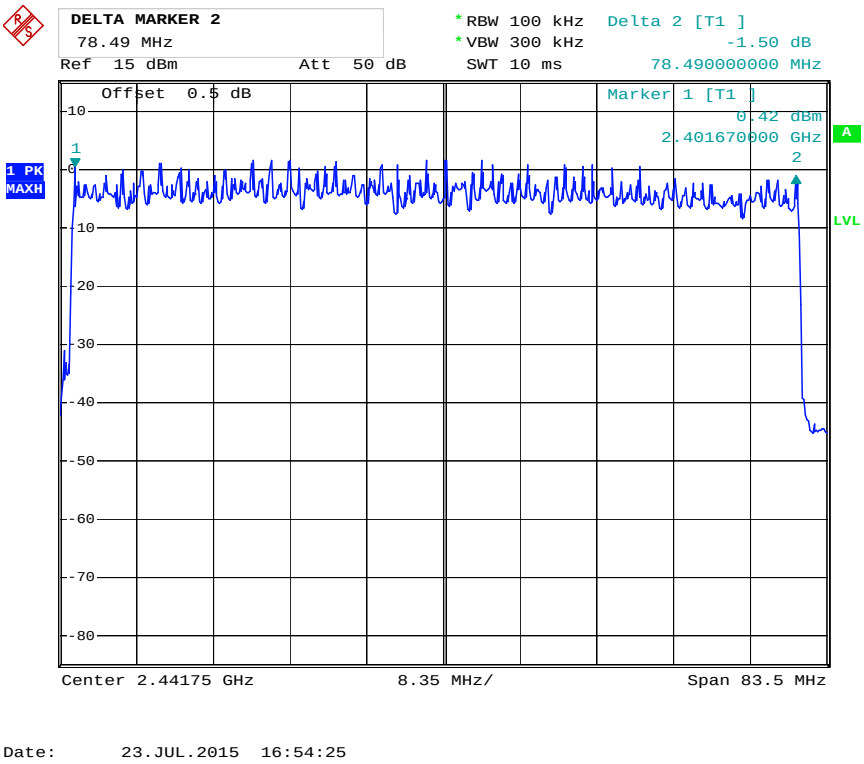
Total number of hopping channel	Measurement result(CH)	Limit(CH)
	79	⩾15

The spectrum analyzer plots are attached as below.

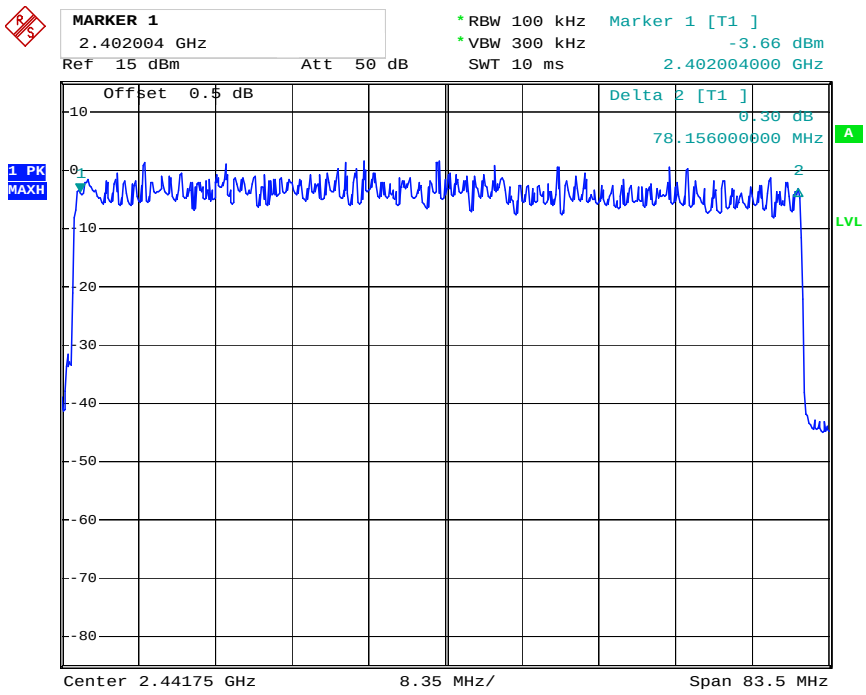
Number of hopping channels(GFSK)



Number of hopping channels(Π/4-DQPSK)

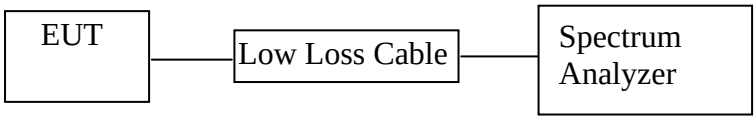


Number of hopping channels(8DPSK)



8. DWELL TIME TEST

8.1.Block Diagram of Test Setup



(EUT: Flicks Portable Projector)

8.2.The Requirement For Section 15.247(a)(1)(iii)

Section 15.247(a)(1)(iii): Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 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 the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

8.3.EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

8.4.Operating Condition of EUT

8.4.1.Setup the EUT and simulator as shown as Section 8.1.

8.4.2.Turn on the power of all equipment.

8.4.3.Let the EUT work in TX (Hopping on) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

8.5.Test Procedure

8.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.

8.5.2.Set center frequency of spectrum analyzer = operating frequency.

8.5.3.Set the spectrum analyzer as RBW=1MHz, VBW=3MHz, Span=0Hz, Adjust Sweep=5ms, 10ms, 15ms. Get the pulse time.

8.5.4.Repeat above procedures until all frequency measured were complete.

8.6.Test Result

GFSK Mode

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.442	141.44	400
	2441	0.442	141.44	400
	2480	0.438	140.16	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(2*79))×31.6				
DH3	2402	1.728	276.48	400
	2441	1.757	281.12	400
	2480	1.743	278.88	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(4*79))×31.6				
DH5	2402	3.004	320.43	400
	2441	3.025	322.67	400
	2480	2.960	315.73	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(6*79))×31.6				

Π/4-DQPSK

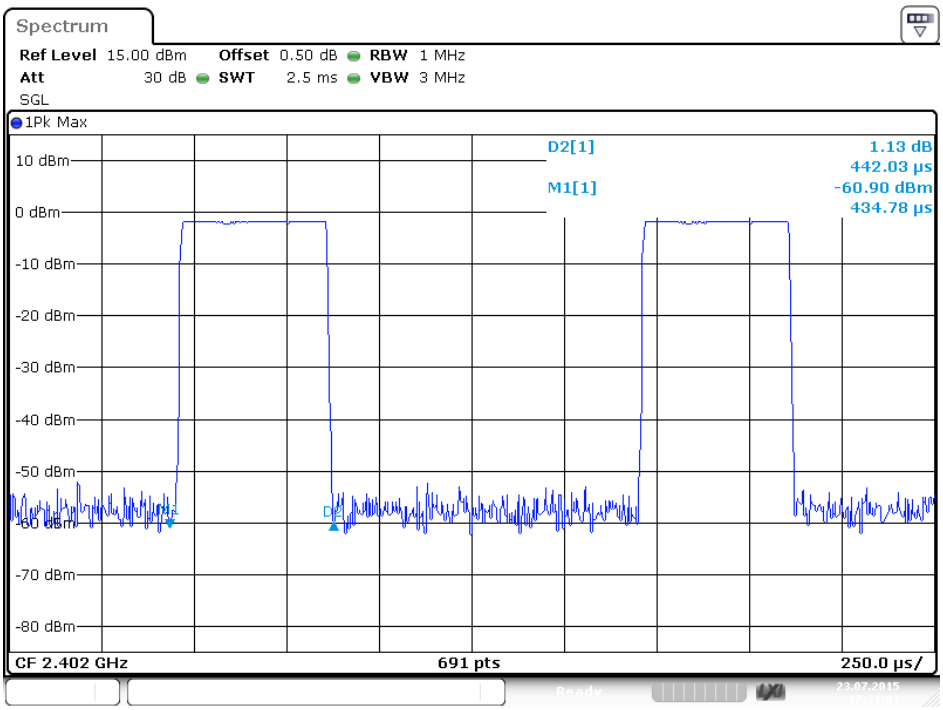
Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.442	141.44	400
	2441	0.449	143.68	400
	2480	0.442	141.44	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(2*79))×31.6				
DH3	2402	1.746	279.36	400
	2441	1.775	284.00	400
	2480	1.732	277.12	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(4*79))×31.6				
DH5	2402	3.058	326.19	400
	2441	3.058	326.19	400
	2480	3.058	326.19	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(6*79))×31.6				

8DPSK Mode

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.449	143.68	400
	2441	0.463	148.16	400
	2480	0.449	143.68	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(2*79))×31.6				
DH3	2402	1.732	277.12	400
	2441	1.732	277.12	400
	2480	1.746	279.36	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(4*79))×31.6				
DH5	2402	3.036	323.84	400
	2441	2.993	319.25	400
	2480	3.036	323.84	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(6*79))×31.6				

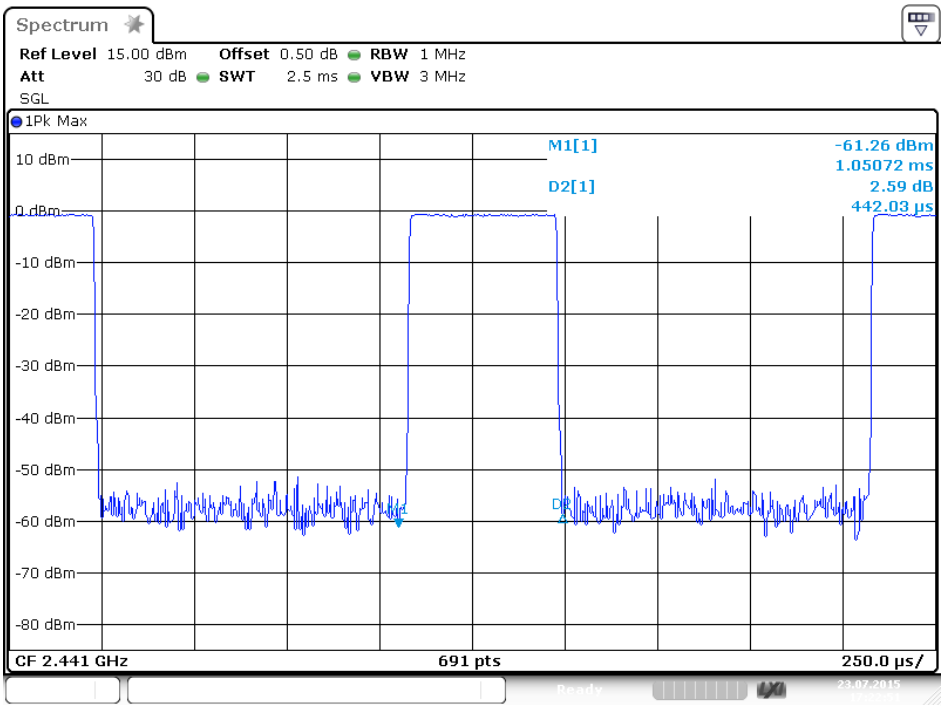
The spectrum analyzer plots are attached as below.

DH1 Low channel



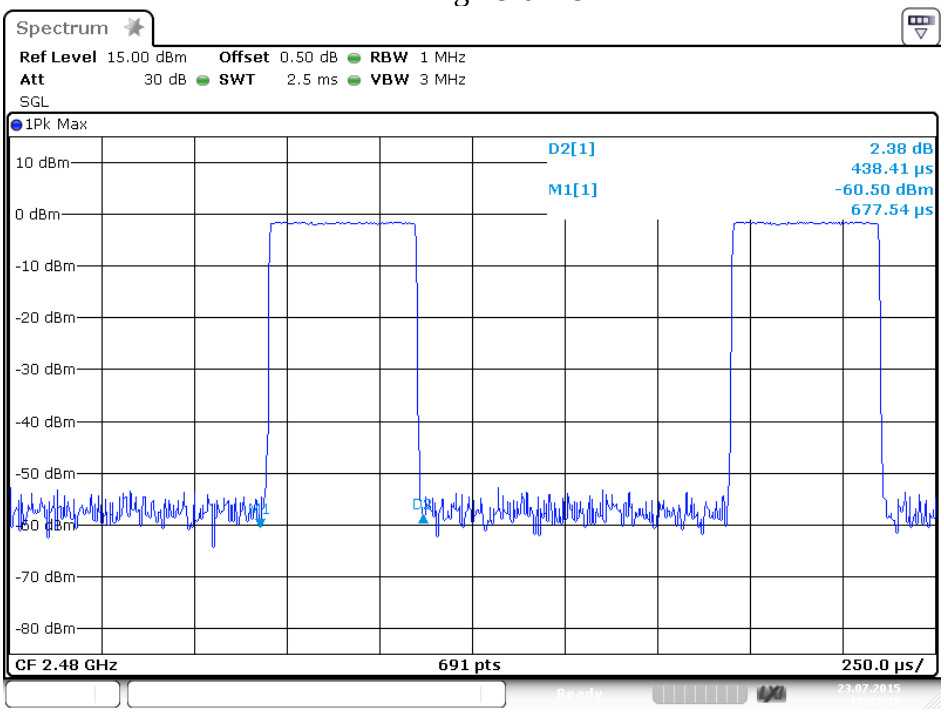
Date: 23.JUL.2015 17:21:03

DH1 Middle channel



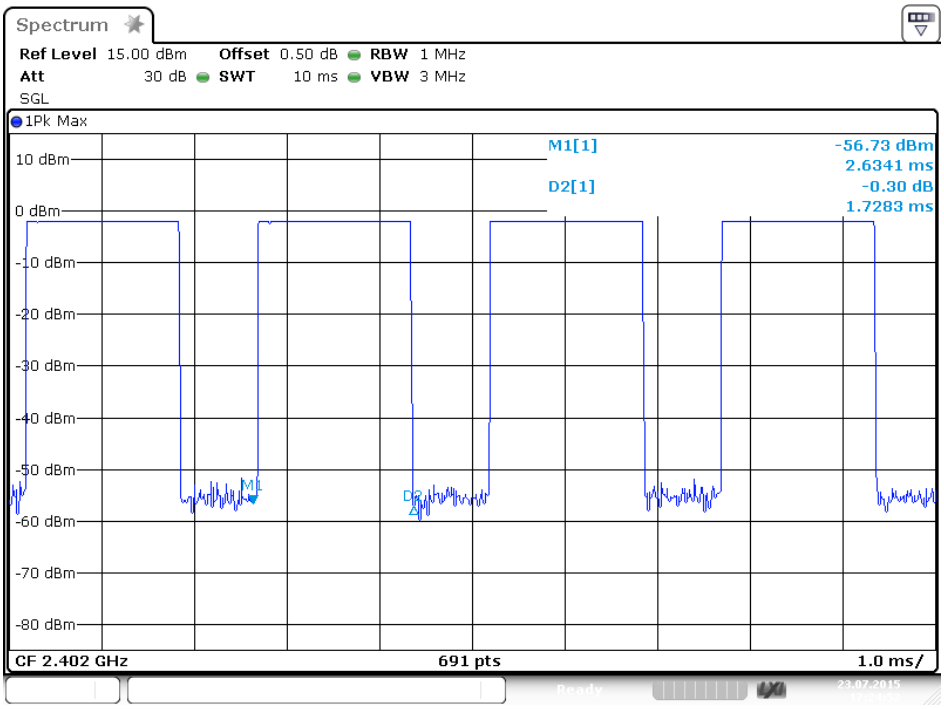
Date: 23.JUL.2015 17:22:52

DH1 High channel



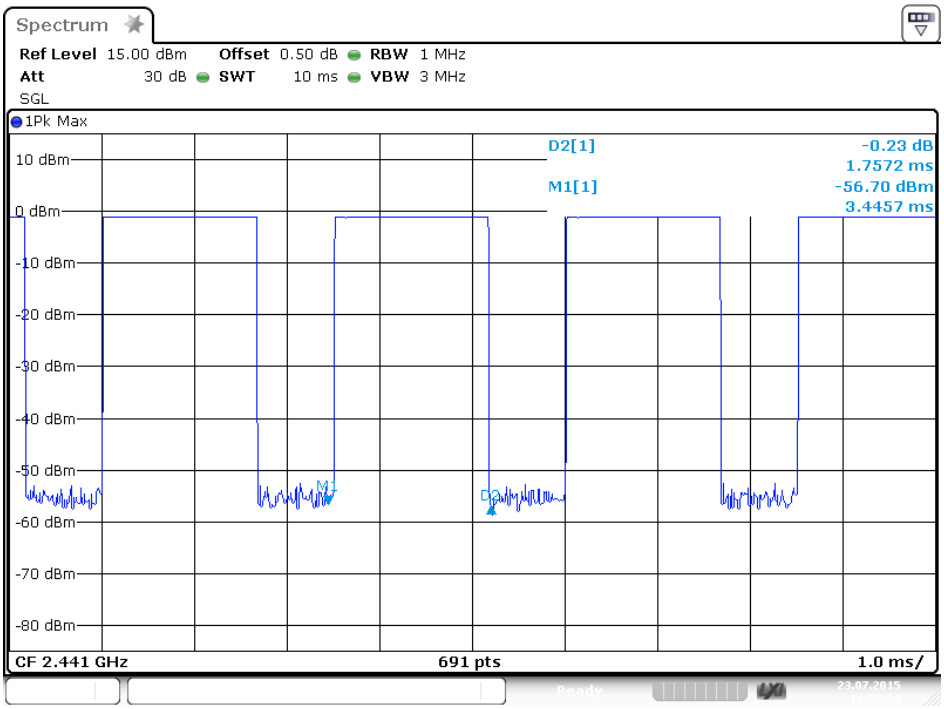
Date: 23.JUL.2015 17:23:29

DH3 Low channel



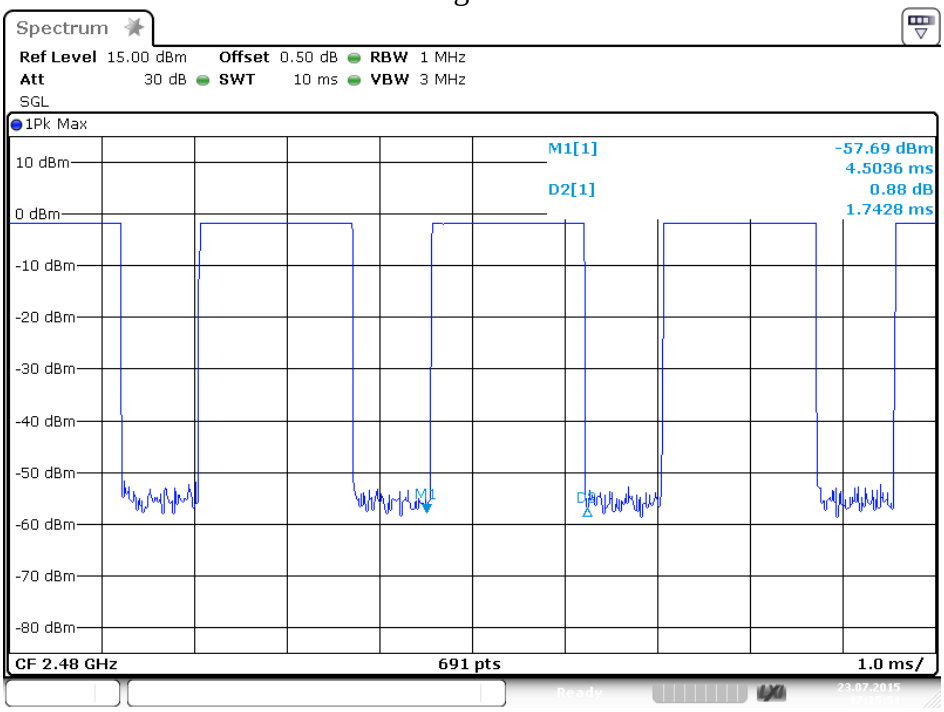
Date: 23.JUL.2015 17:24:53

DH3 Middle channel



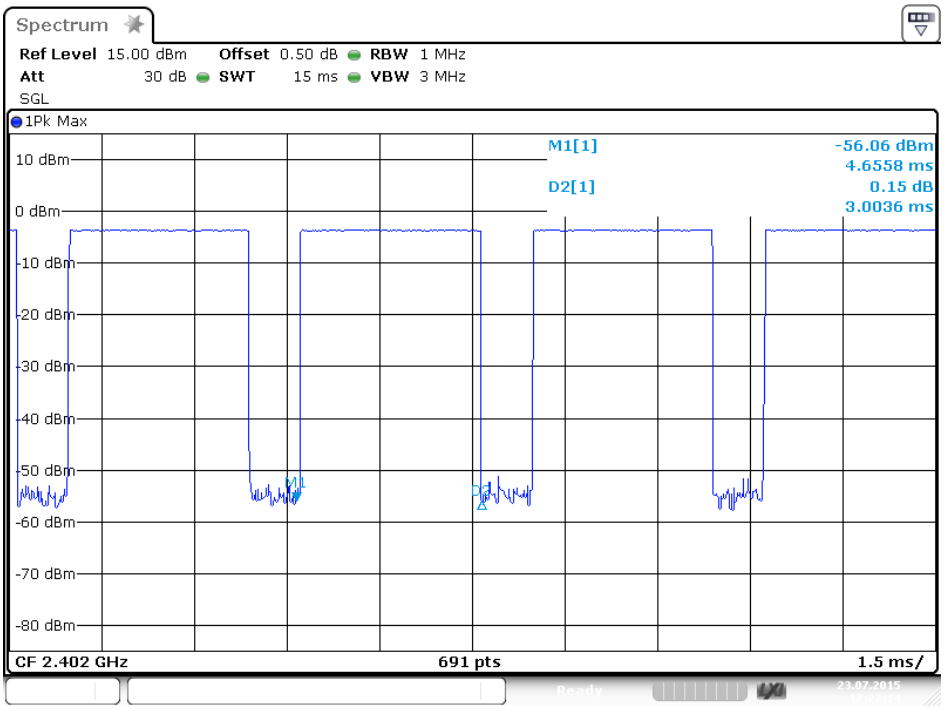
Date: 23.JUL.2015 17:25:25

DH3 High channel



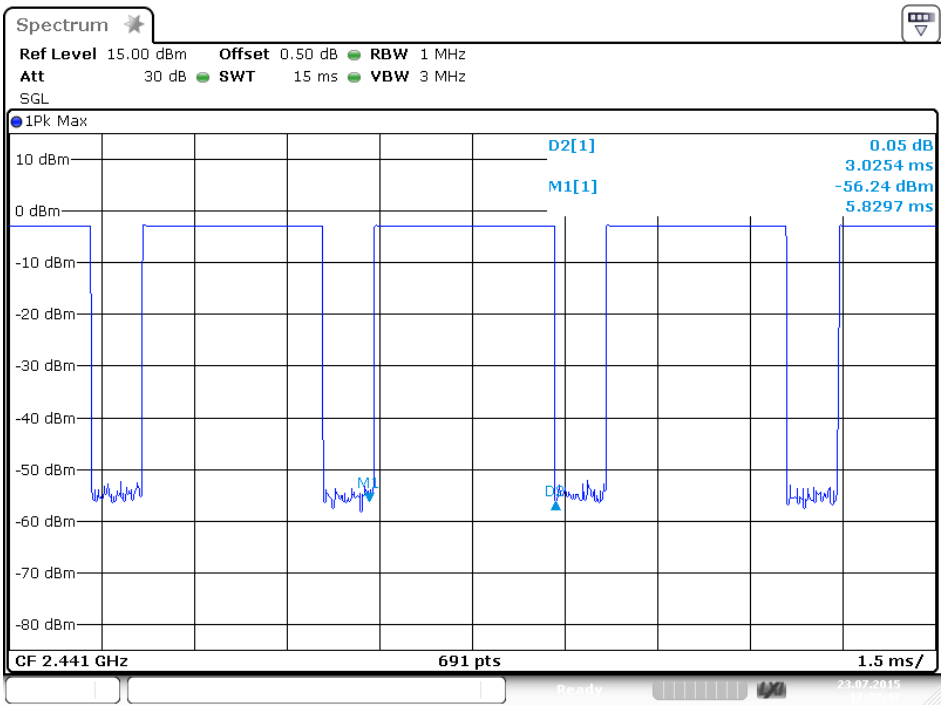
Date: 23.JUL.2015 17:25:51

DH5 Low channel



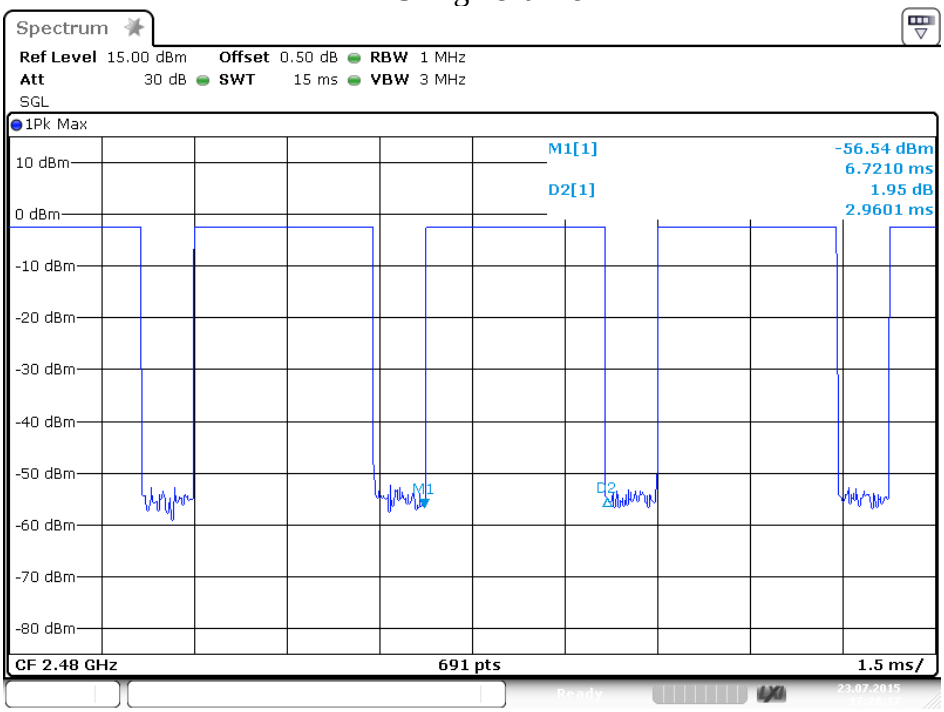
Date: 23.JUL.2015 17:27:15

DH5 Middle channel



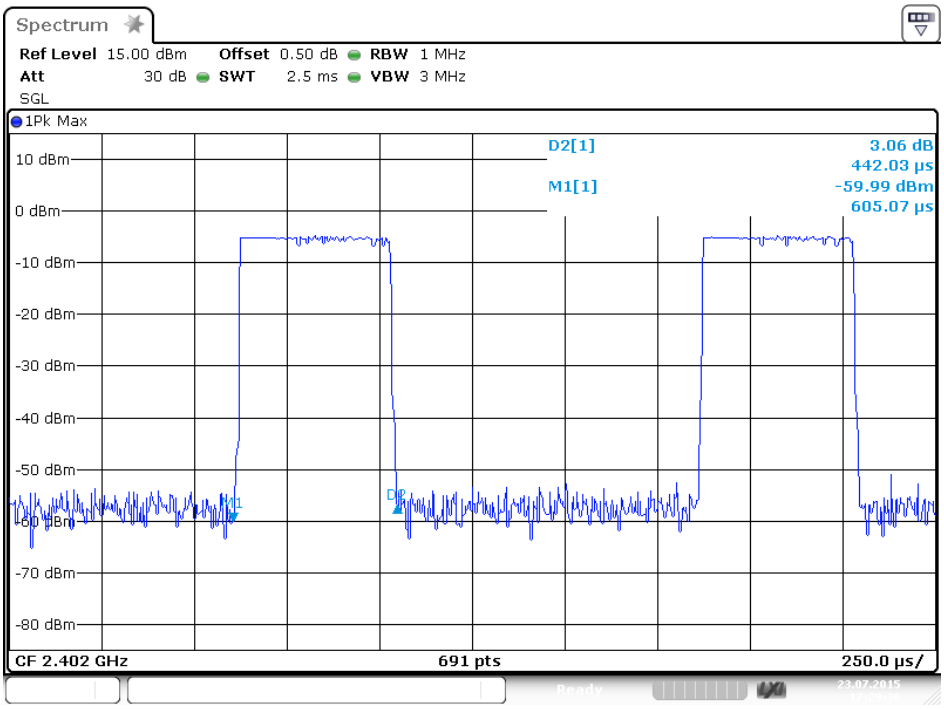
Date: 23.JUL.2015 17:27:47

DH5 High channel



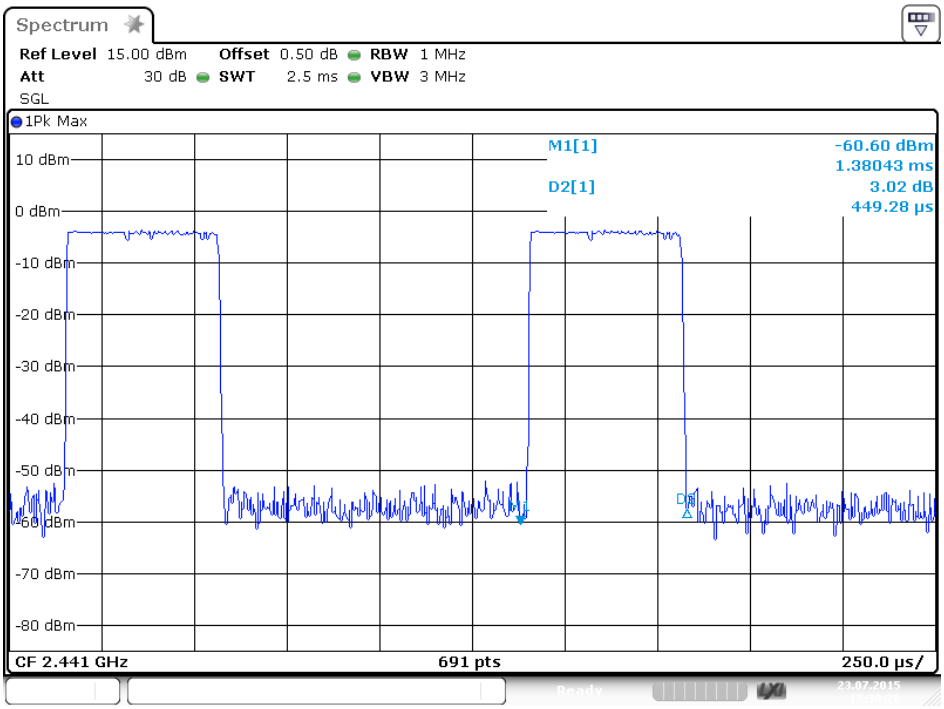
Date: 23.JUL.2015 17:28:18

2DH1 Low channel



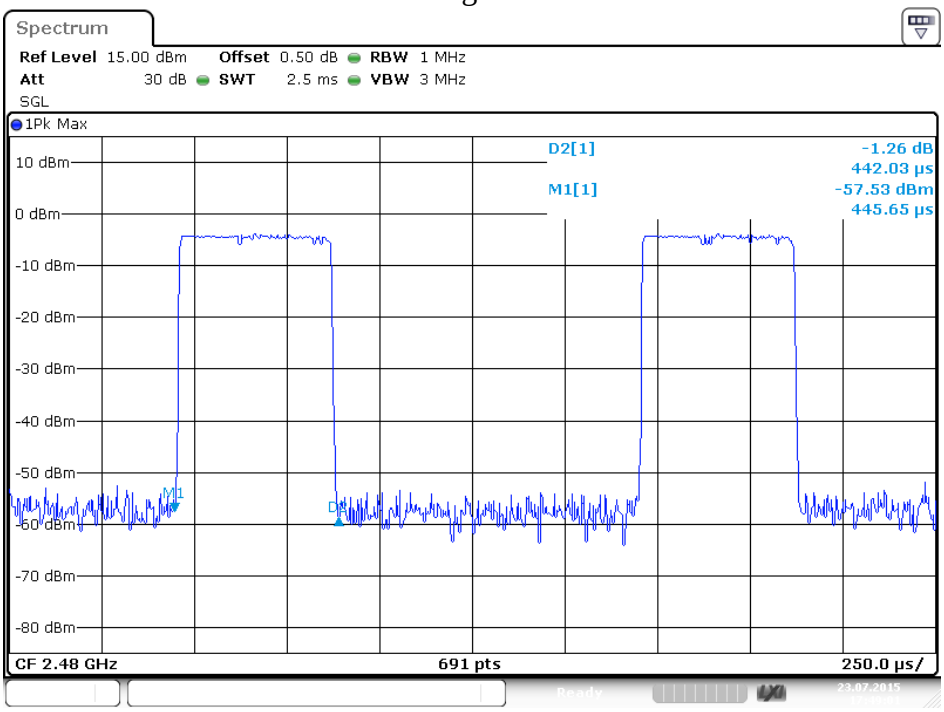
Date: 23.JUL.2015 17:29:36

2DH1 Middle channel



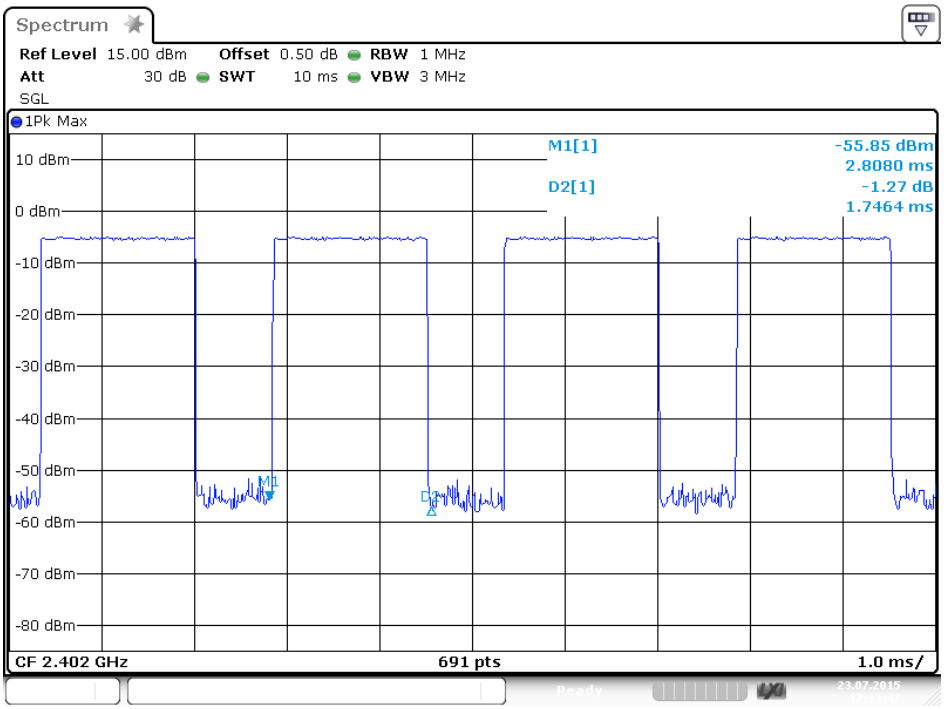
Date: 23.JUL.2015 17:30:27

2DH1 High channel



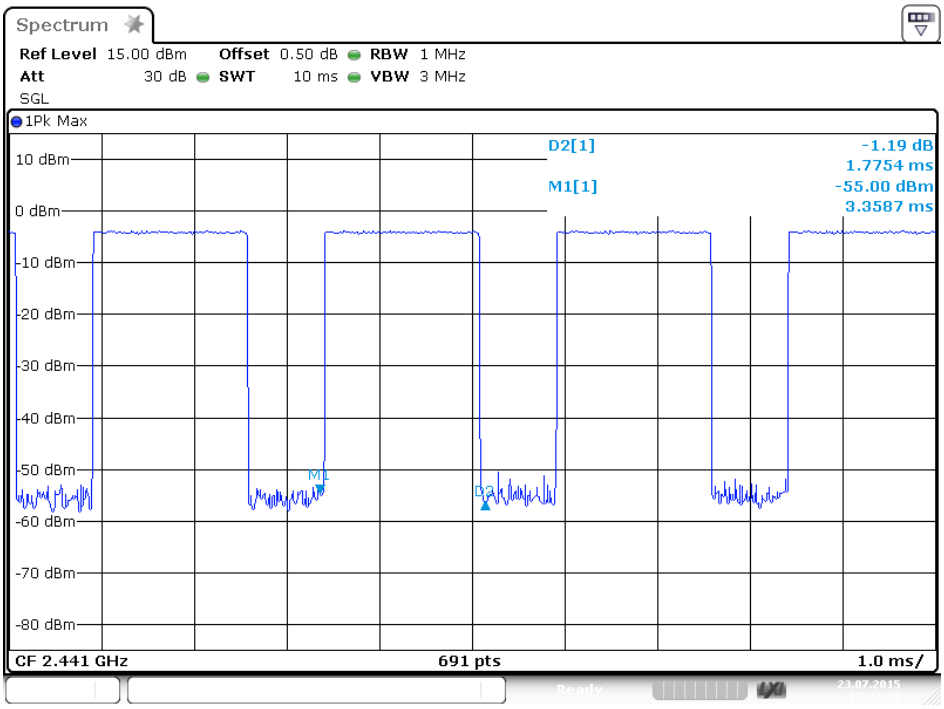
Date: 23.JUL.2015 17:49:01

2DH3 Low channel



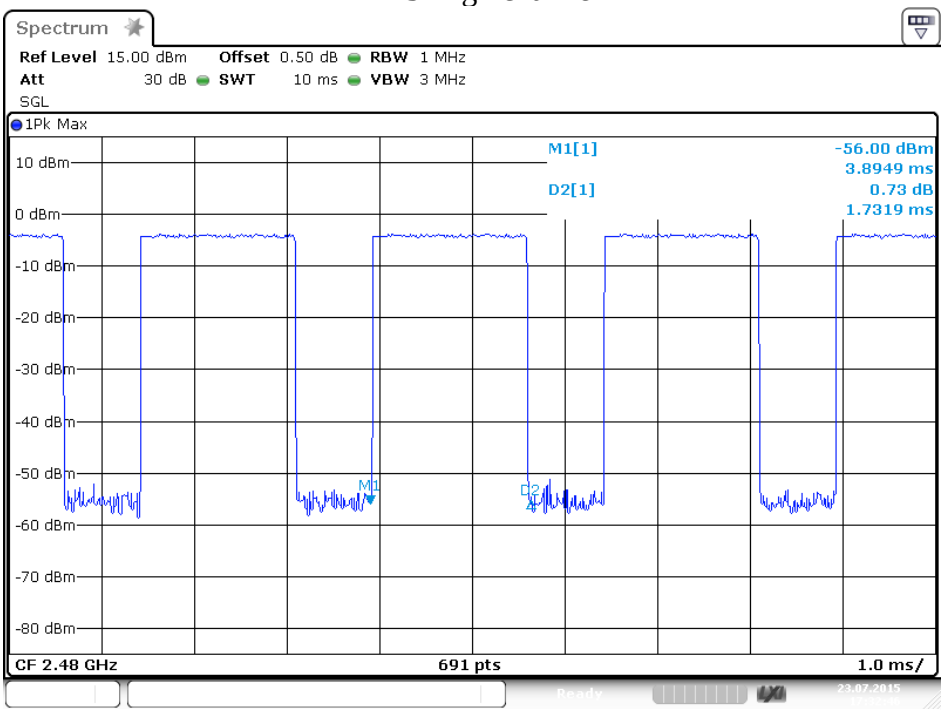
Date: 23.JUL.2015 17:31:48

2DH3 Middle channel



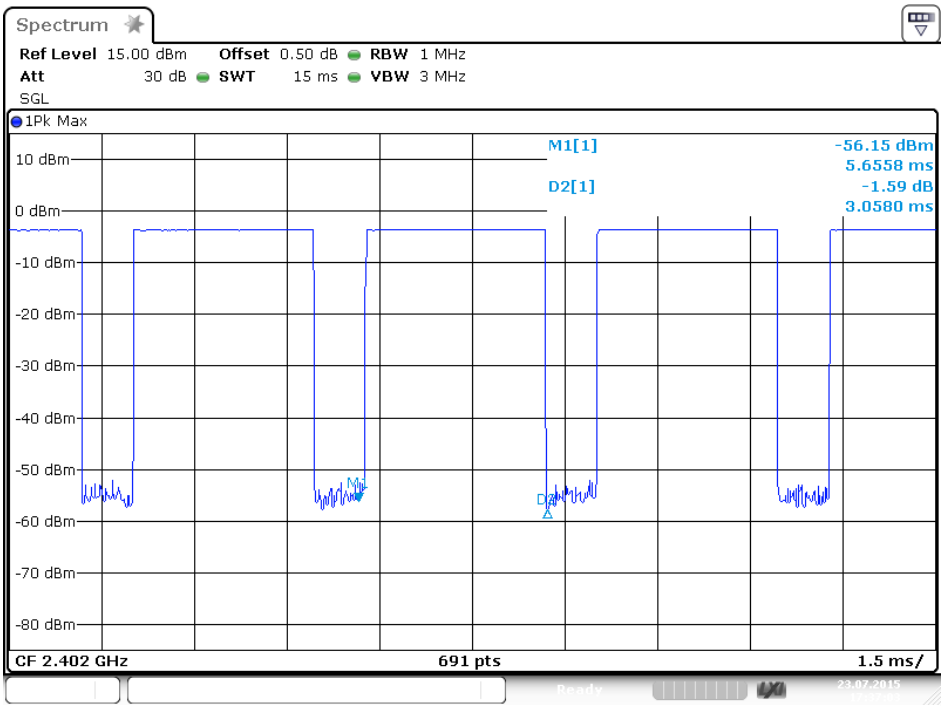
Date: 23.JUL.2015 17:32:21

2DH3 High channel



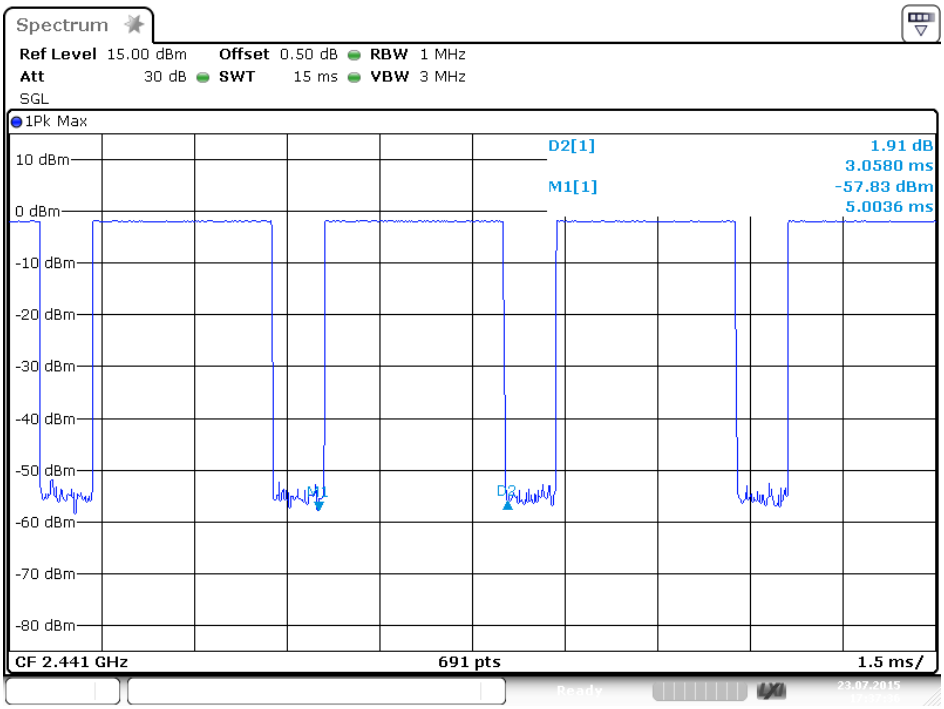
Date: 23.JUL.2015 17:32:47

2DH5 Low channel



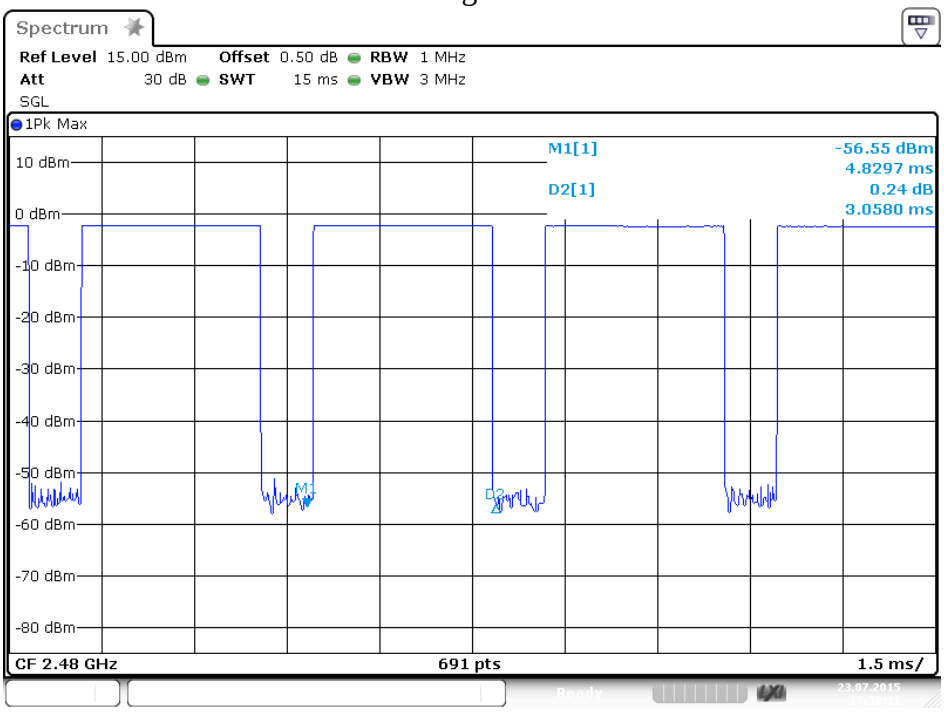
Date: 23.JUL.2015 17:37:03

2DH5 Middle channel



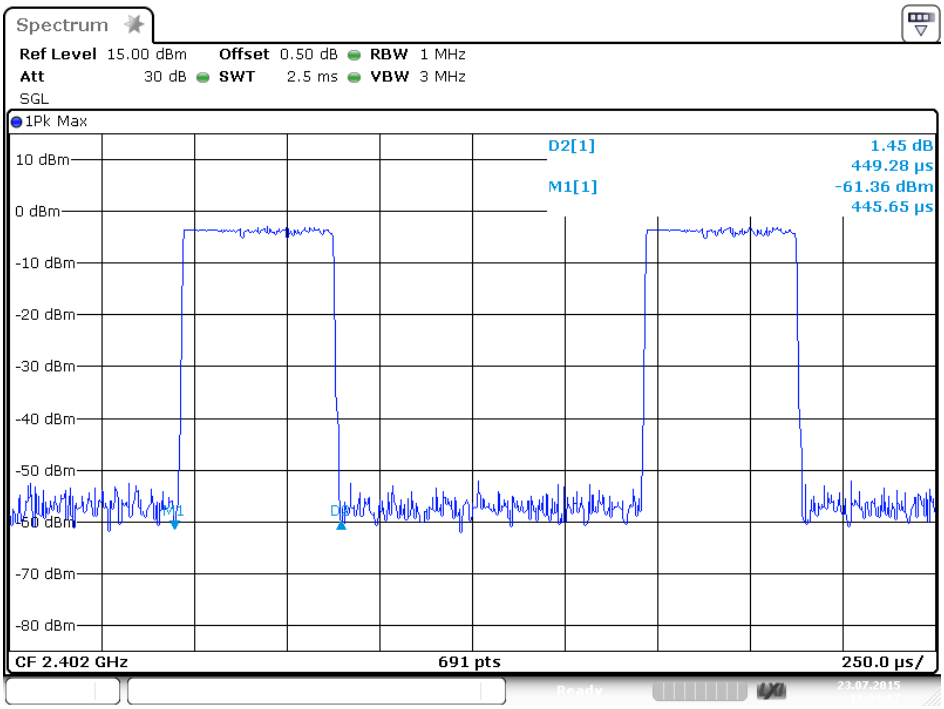
Date: 23.JUL.2015 17:37:36

2DH5 High channel



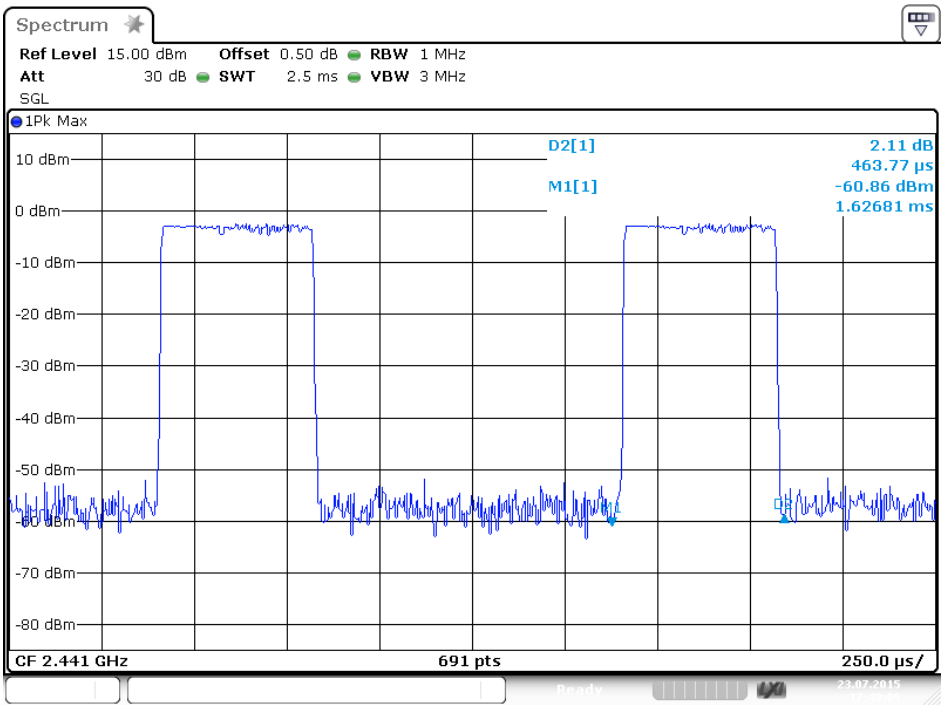
Date: 23.JUL.2015 17:38:12

3DH1 Low channel



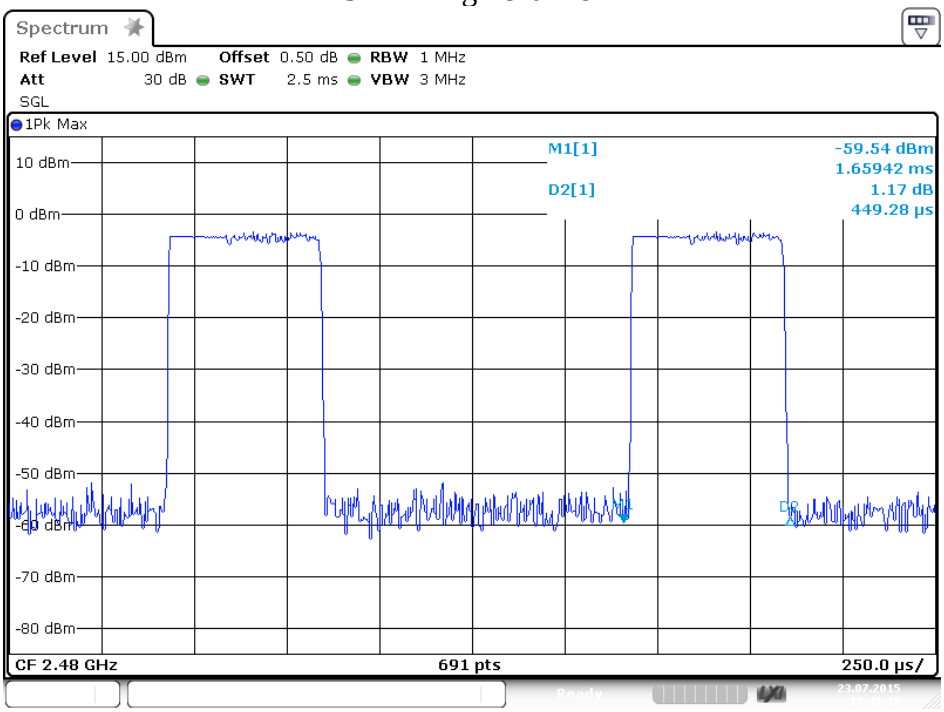
Date: 23.JUL.2015 17:39:08

3DH1 Middle channel



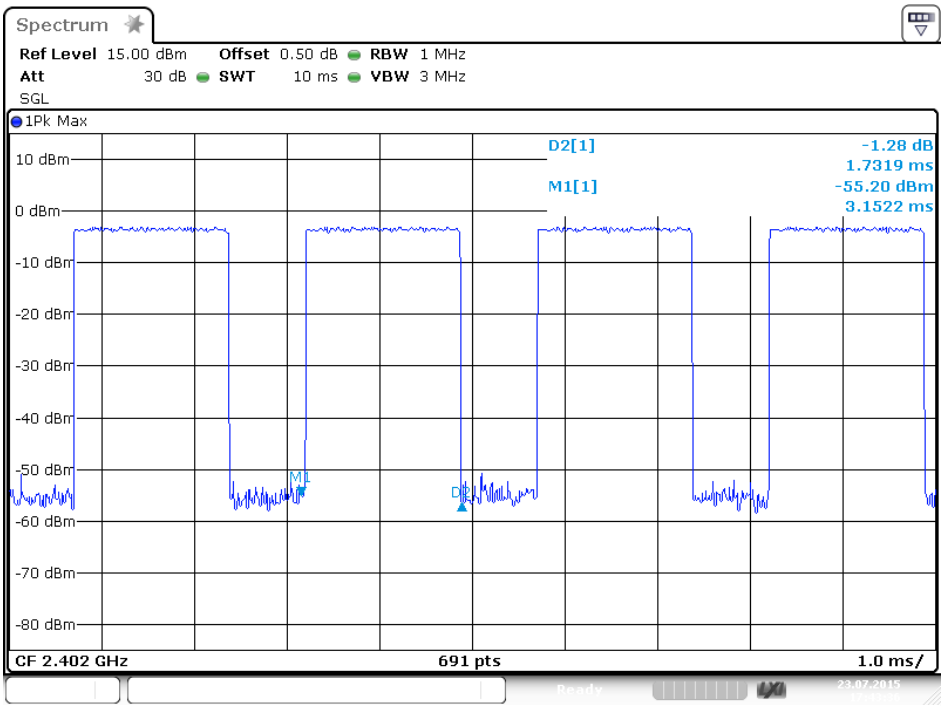
Date: 23.JUL.2015 17:40:09

3DH1 High channel



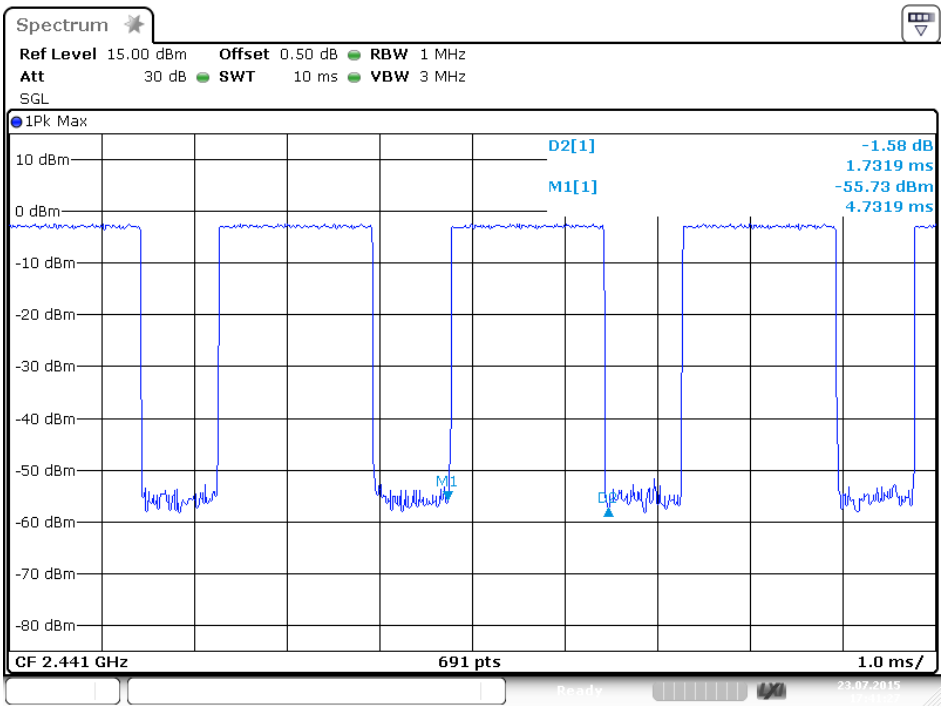
Date: 23.JUL.2015 17:40:40

3DH3 Low channel



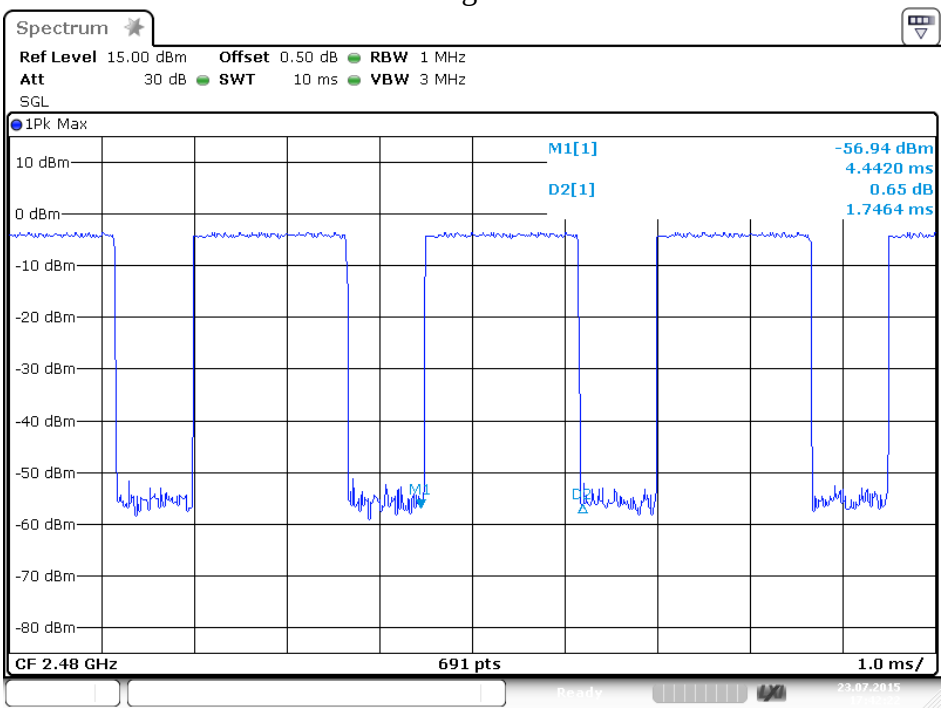
Date: 23.JUL.2015 17:43:37

3DH3 Middle channel



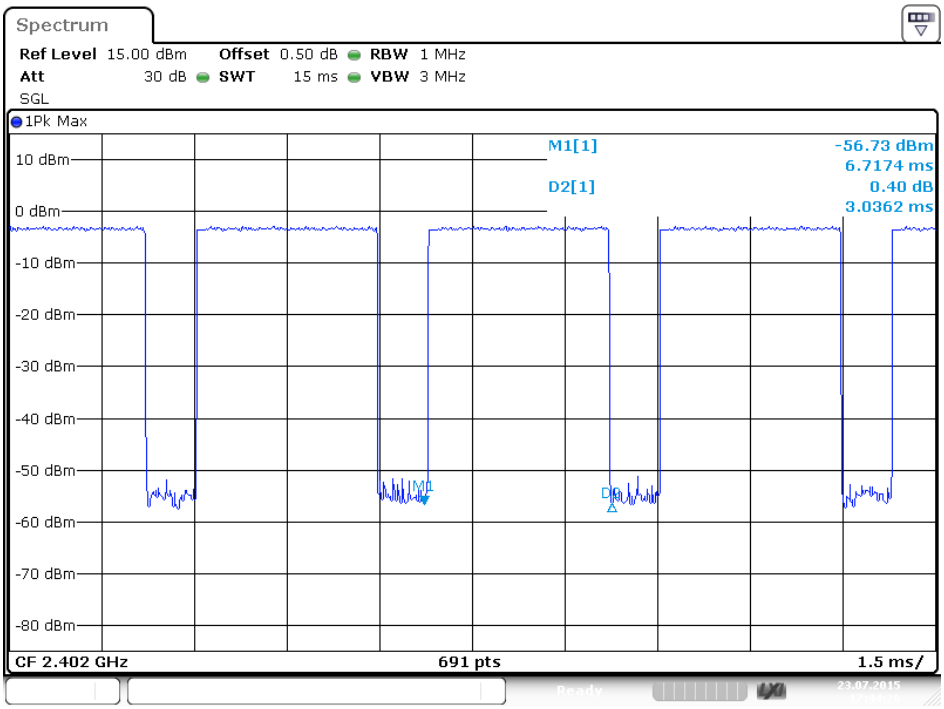
Date: 23.JUL.2015 17:41:28

3DH3 High channel



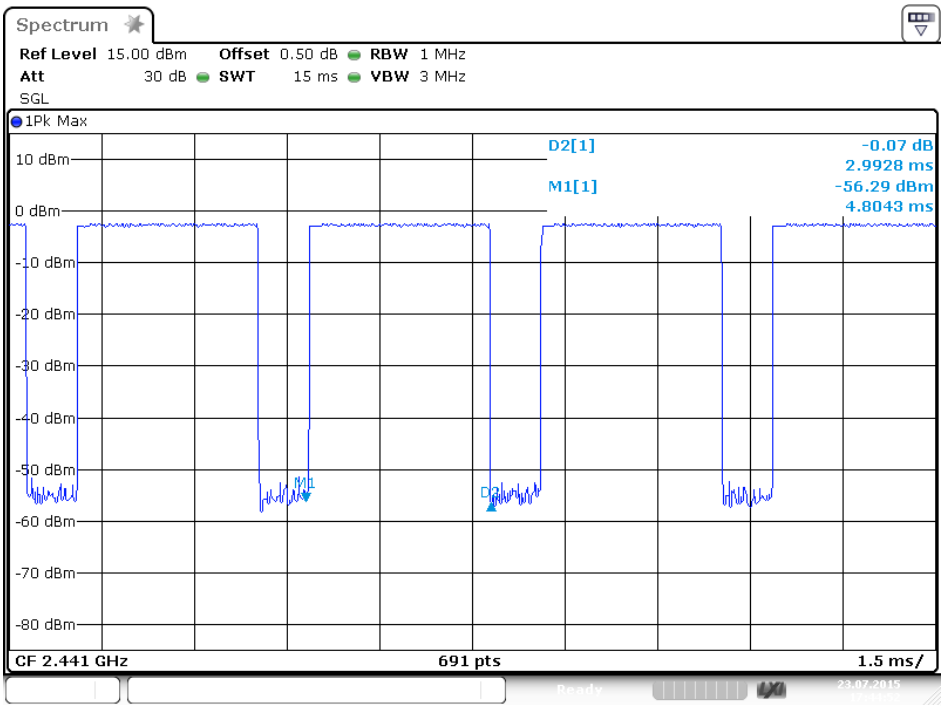
Date: 23.JUL.2015 17:42:23

3DH5 Low channel



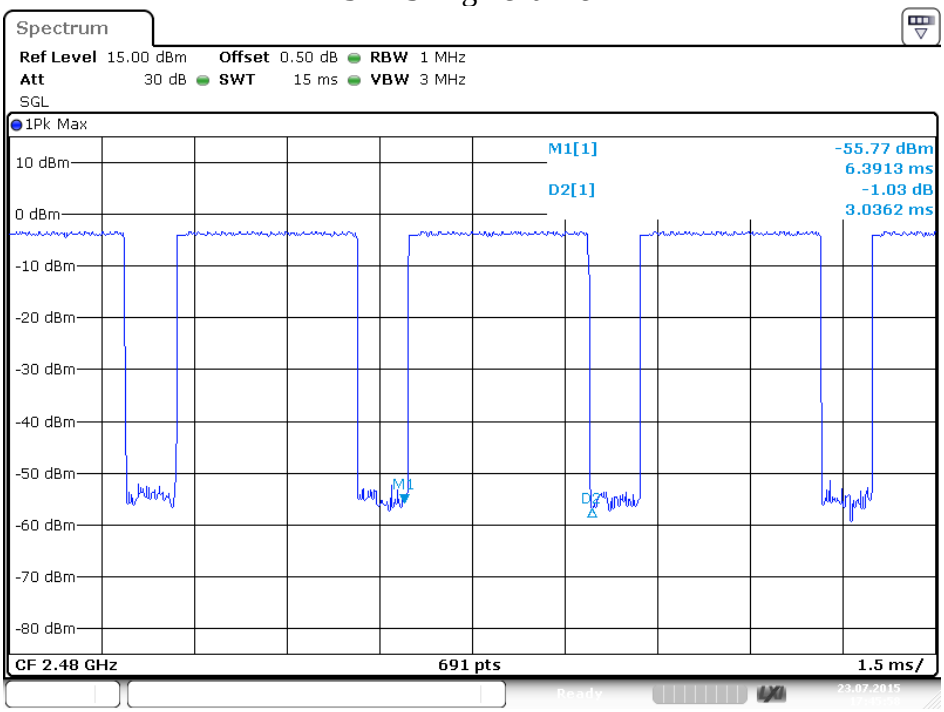
Date: 23.JUL.2015 17:44:27

3DH5 Middle channel



Date: 23.JUL.2015 17:44:53

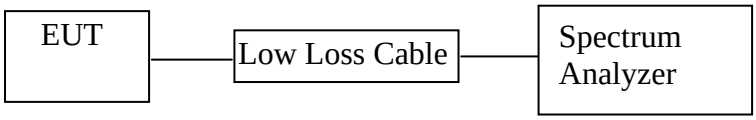
3DH5 High channel



Date: 23.JUL.2015 17:45:58

9. MAXIMUM PEAK OUTPUT POWER TEST

9.1.Block Diagram of Test Setup



(EUT: Flicks Portable Projector)

9.2.The Requirement For Section 15.247(b)(1)

Section 15.247(b)(1): For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

9.3.EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

9.4.Operating Condition of EUT

9.4.1.Setup the EUT and simulator as shown as Section 9.1.

9.4.2.Turn on the power of all equipment.

9.4.3.Let the EUT work in TX (Hopping off) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

9.5.Test Procedure

9.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.

9.5.2.Set RBW of spectrum analyzer to 1MHz and VBW to 3MHz for GFSK mode

9.5.3.Set RBW of spectrum analyzer to 3MHz and VBW to 3MHz for other mode

9.5.4.Measurement the maximum peak output power.

9.6.Test Result

GFSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	2.22/0.0017	30 / 1.0
Middle	2441	2.85/0.0019	30 / 1.0
High	2480	1.71/0.0015	30 / 1.0

Π/4-DQPSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	0.32/0.0011	21 / 0.125
Middle	2441	1.72/0.0015	21 / 0.125
High	2480	-0.20/0.0010	21 / 0.125

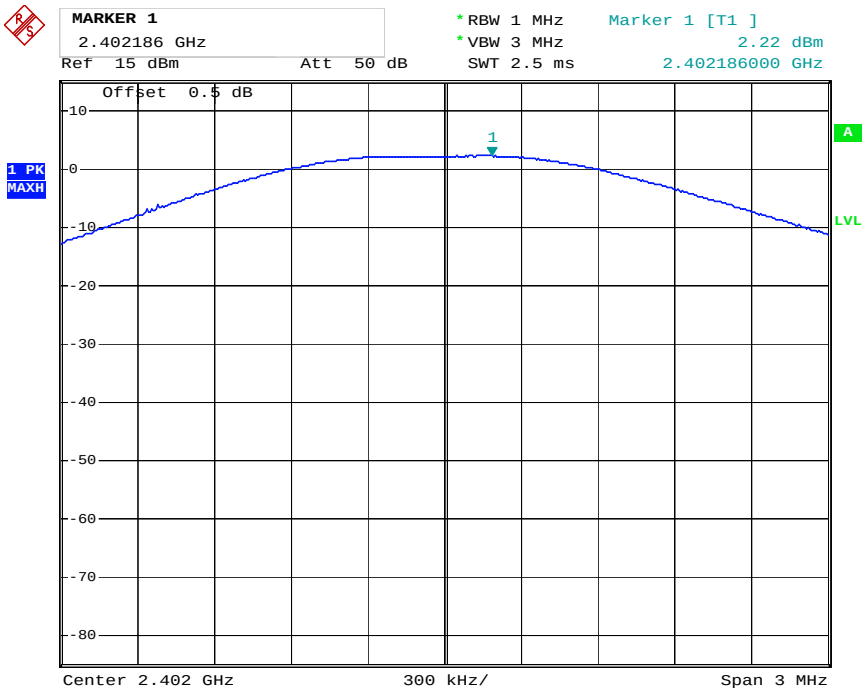
8DPSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	0.70/0.0012	21 / 0.125
Middle	2441	1.42/0.0014	21 / 0.125
High	2480	0.13/0.0010	21 / 0.125

The spectrum analyzer plots are attached as below.

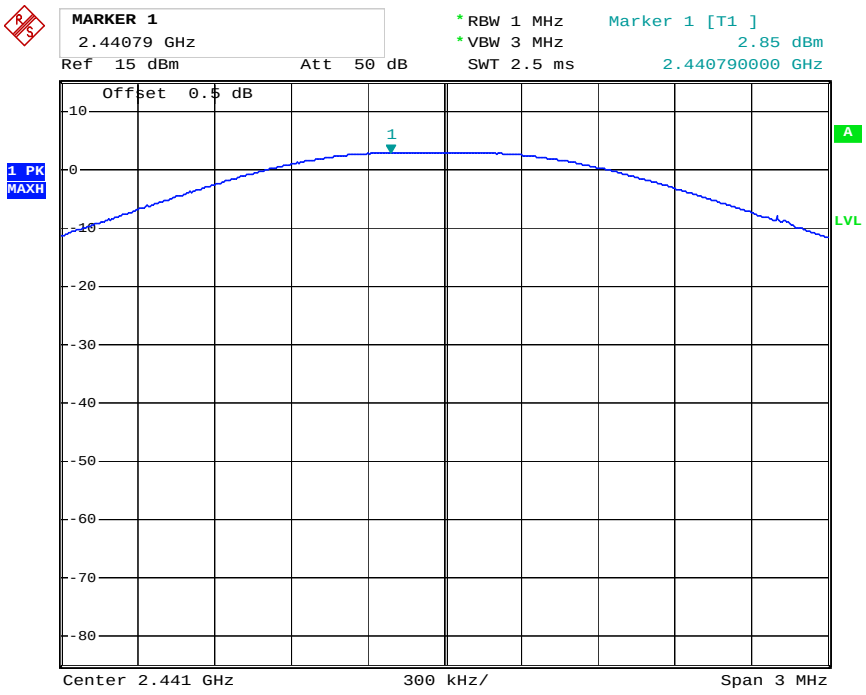
GFSK Mode

Low channel



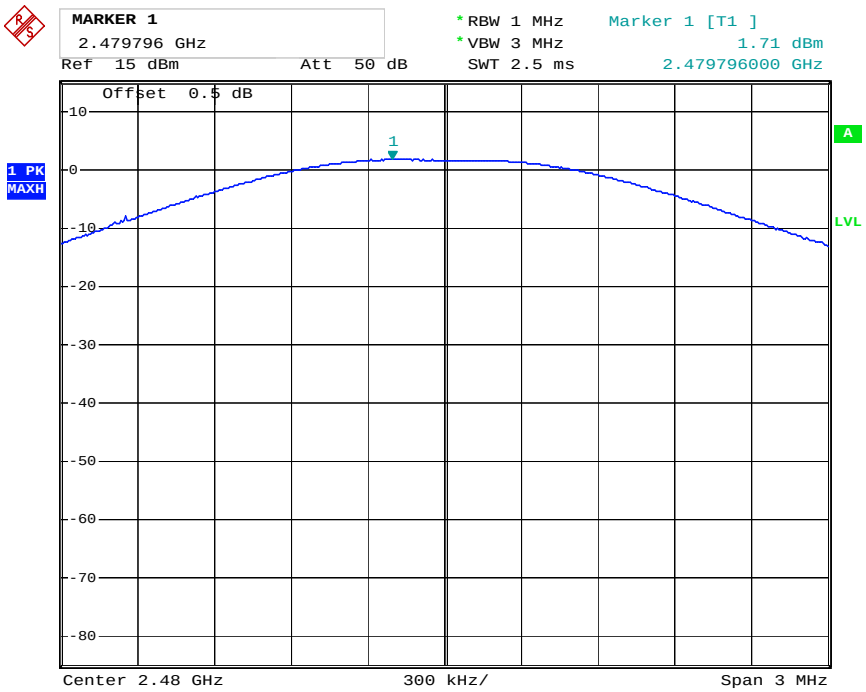
Date: 23.JUL.2015 16:56:44

Middle channel



Date: 23.JUL.2015 16:57:14

High channel



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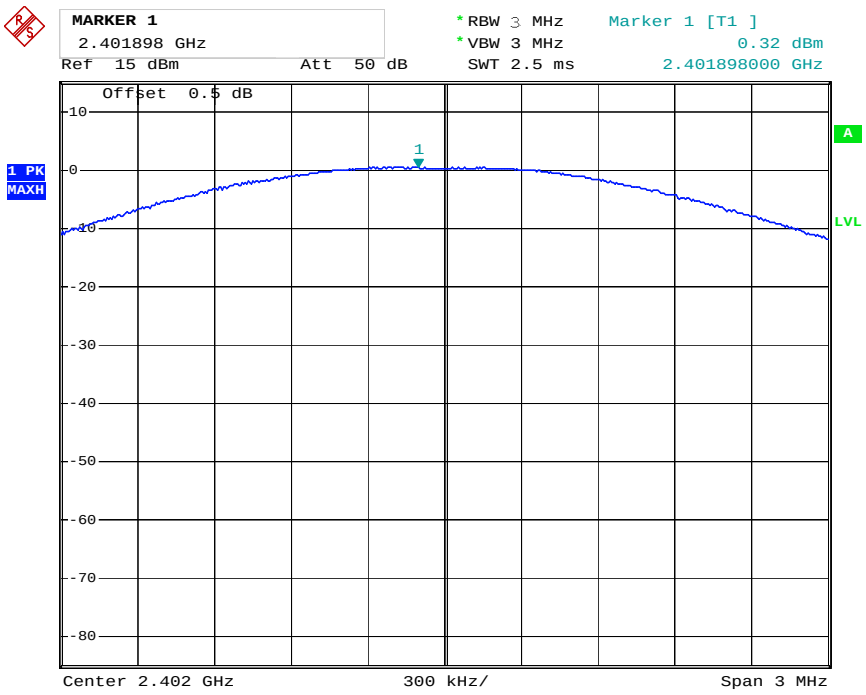
Π/4-DQPSK Mode

Low channel



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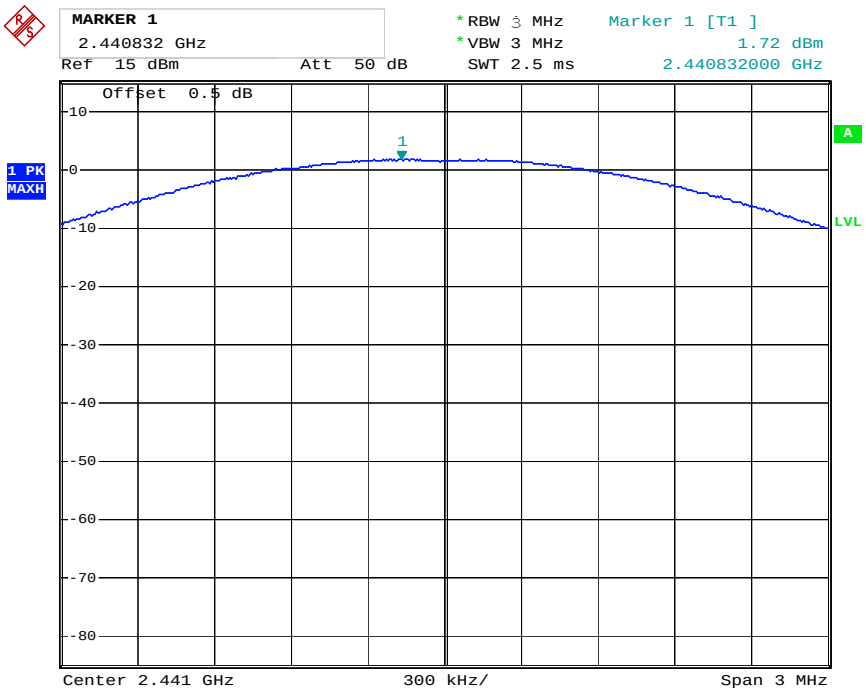
Middle channel



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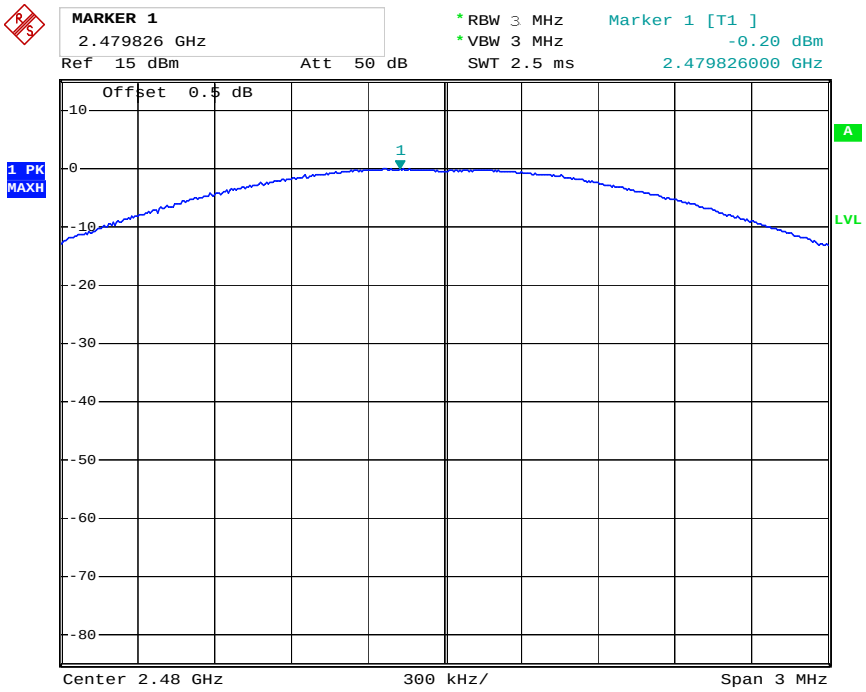
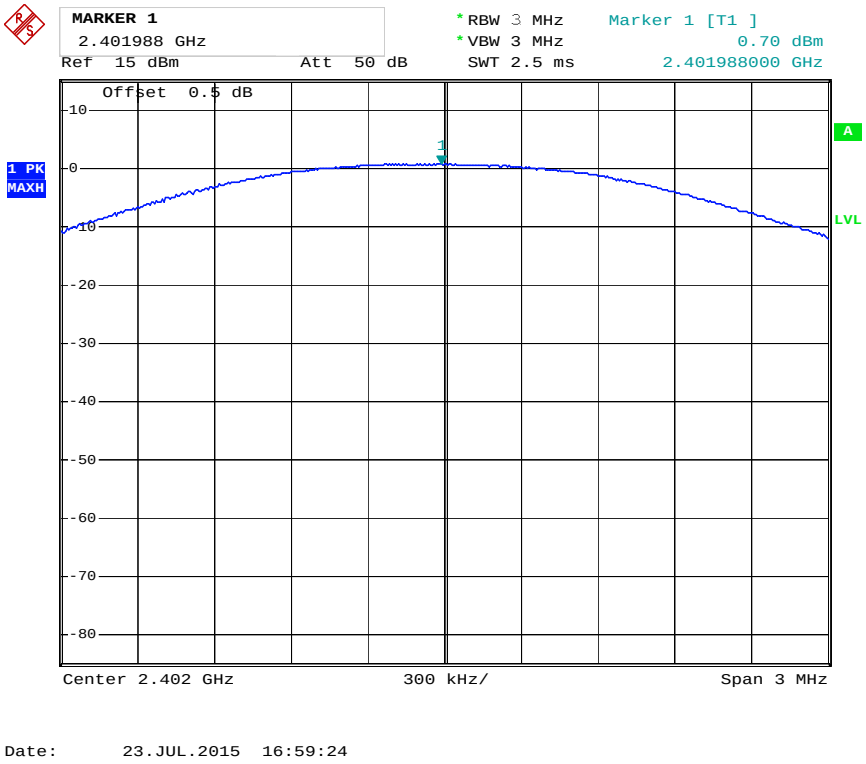
High channel



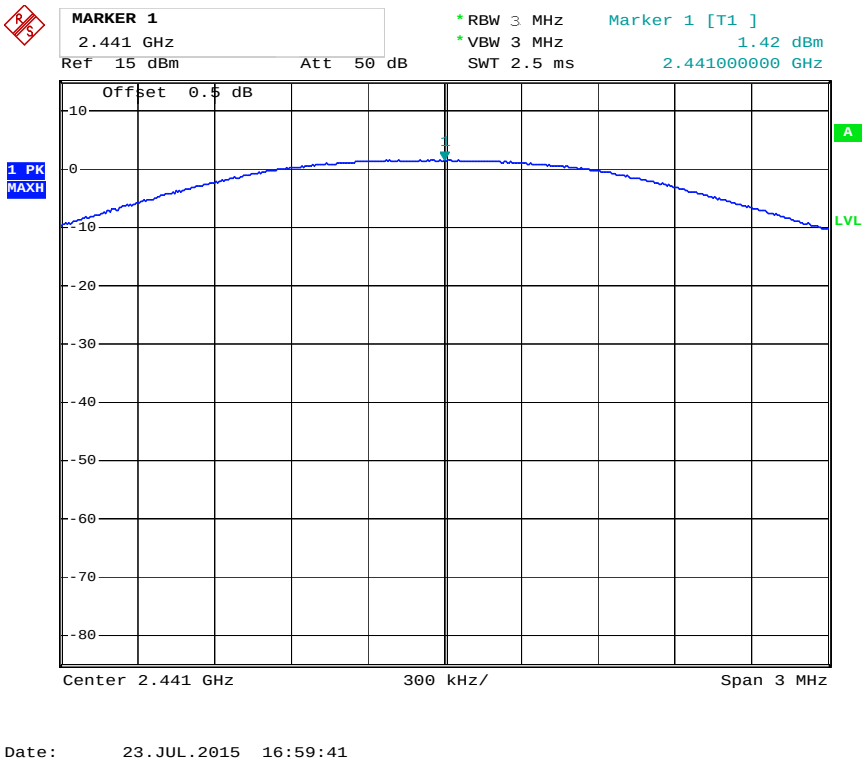
Date: 23.JUL.2015 16:58:50

8DPSK Mode

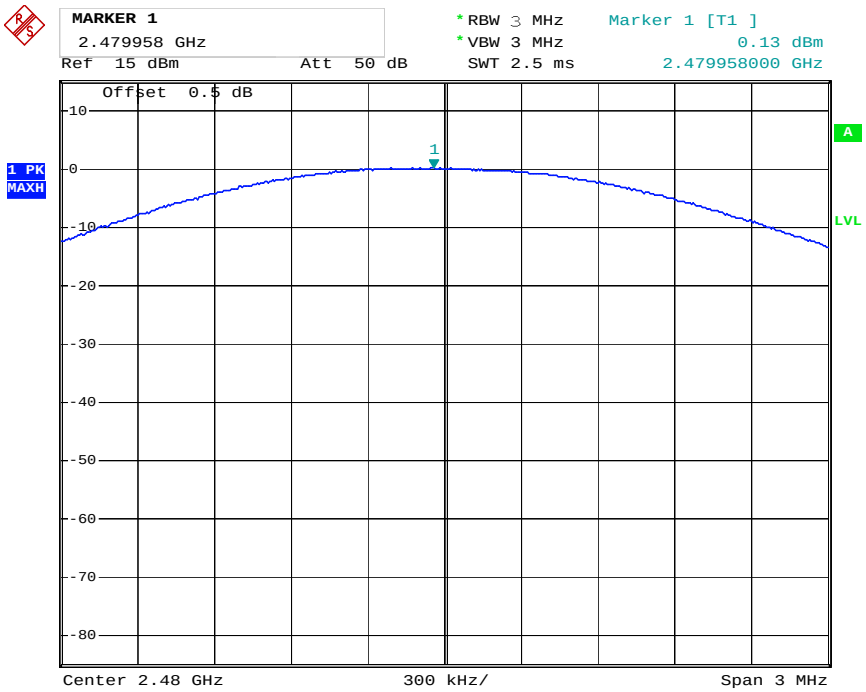
Low channel



Middle channel



High channel



Date: 23.JUL.2015 17:00:00

10.RADIATED EMISSION TEST

10.1.Block Diagram of Test Setup

10.1.1.Block diagram of connection between the EUT and peripherals

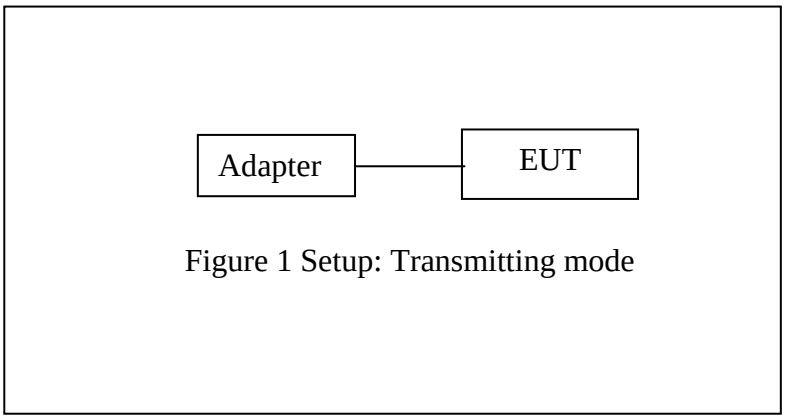
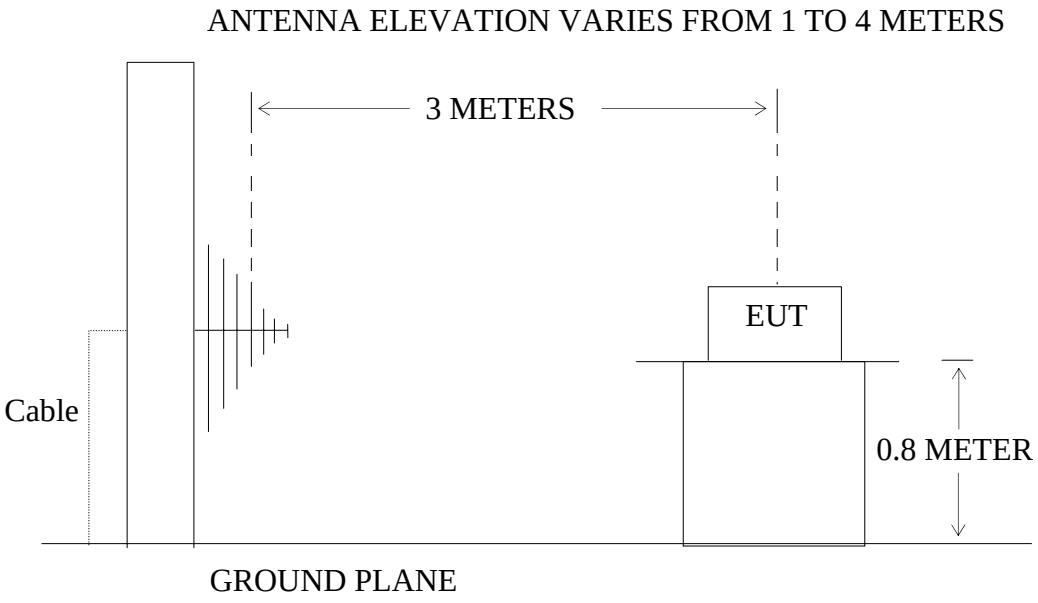


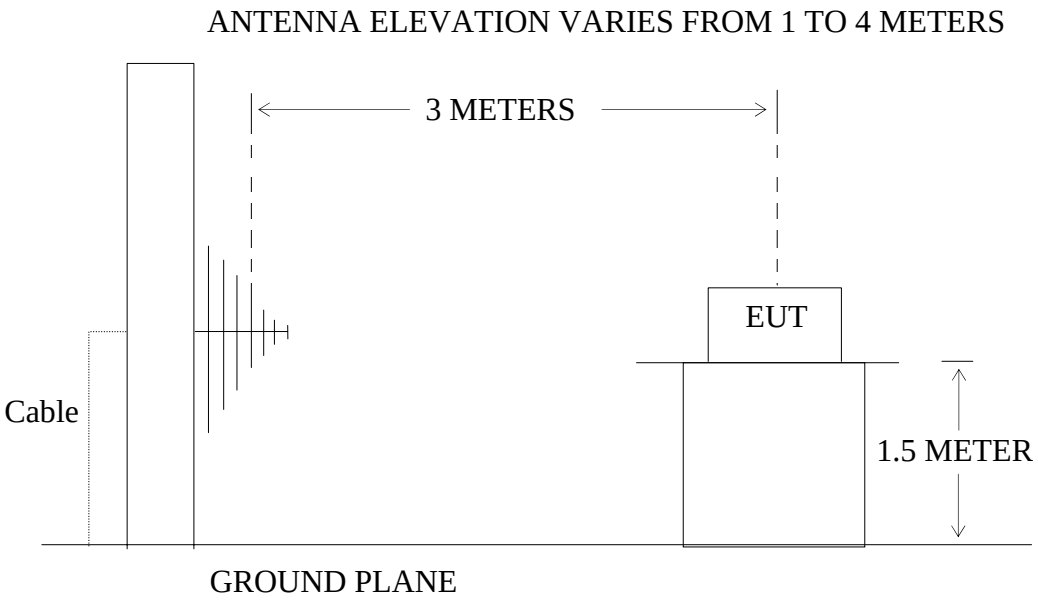
Figure 1 Setup: Transmitting mode

10.1.2.Semi-Anechoic Chamber Test Setup Diagram

Below 1GHz



Above 1GHz



10.2.The Limit For Section 15.247(d)

Section 15.247(d): In any 100 kHz 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 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

10.3.Restricted bands of operation

10.3.1.FCC Part 15.205 Restricted bands of operation

(a) Except as shown in paragraph (d) of this section, Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
[1]0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	([2])
13.36-13.41			

[1]Until February 1, 1999, this restricted band shall be 0.490-0.510
[2]Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emission appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, Compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

10.4.Configuration of EUT on Measurement

The equipment is installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

10.5.Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground(Below 1GHz). The EUT and its simulators are placed on a turntable, which is 1.5 meter high above ground(Above 1GHz). The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bi-log antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the EUT location must be manipulated according to ANSI C63.10:2013 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

10.6.The Field Strength of Radiation Emission Measurement Results

Note: 1.We tested GFSK mode, Π/4-DQPSK Mode & 8QPSK mode and recorded the worst case data (GFSK mode) for all test mode.

2. The test frequency is from 30MHz to 25GHz, The 18-25GHz emissions are not reported, because the levels are too low against the limit.

3. I have tested two different types (BK01DW45A* & BK02DW45A*) of products and recorded the results of the worst case data(above 1GHz).

Below 1GHz

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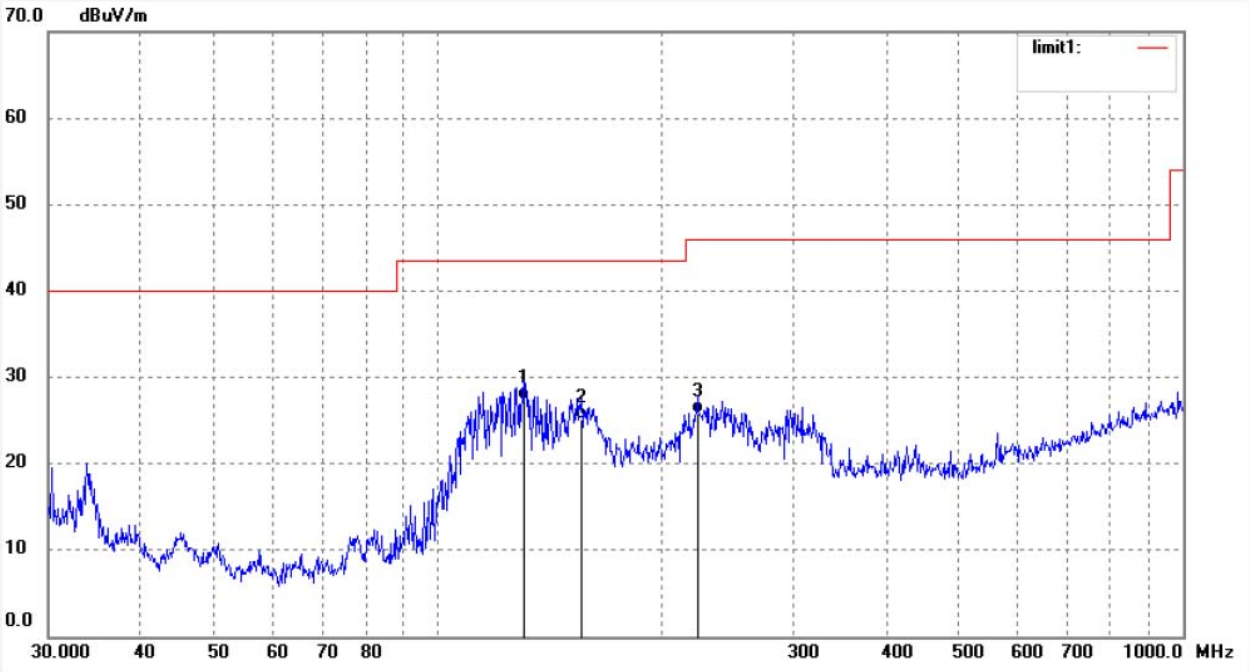
Job No.: STAR2015 #1588	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/08/05/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 13/39/55
EUT: Flicks Portable Projector	Engineer Signature:
Mode: TX 2402MHz	Distance: 3m
Model: BK01DW45A*	
Manufacturer: Dashbon, Inc.	

Note: Report No.:ATE20151790



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	130.7634	49.21	-21.75	27.46	43.50	-16.04	QP			
2	155.8771	46.86	-21.79	25.07	43.50	-18.43	QP			
3	223.0630	44.20	-18.37	25.83	46.00	-20.17	QP			

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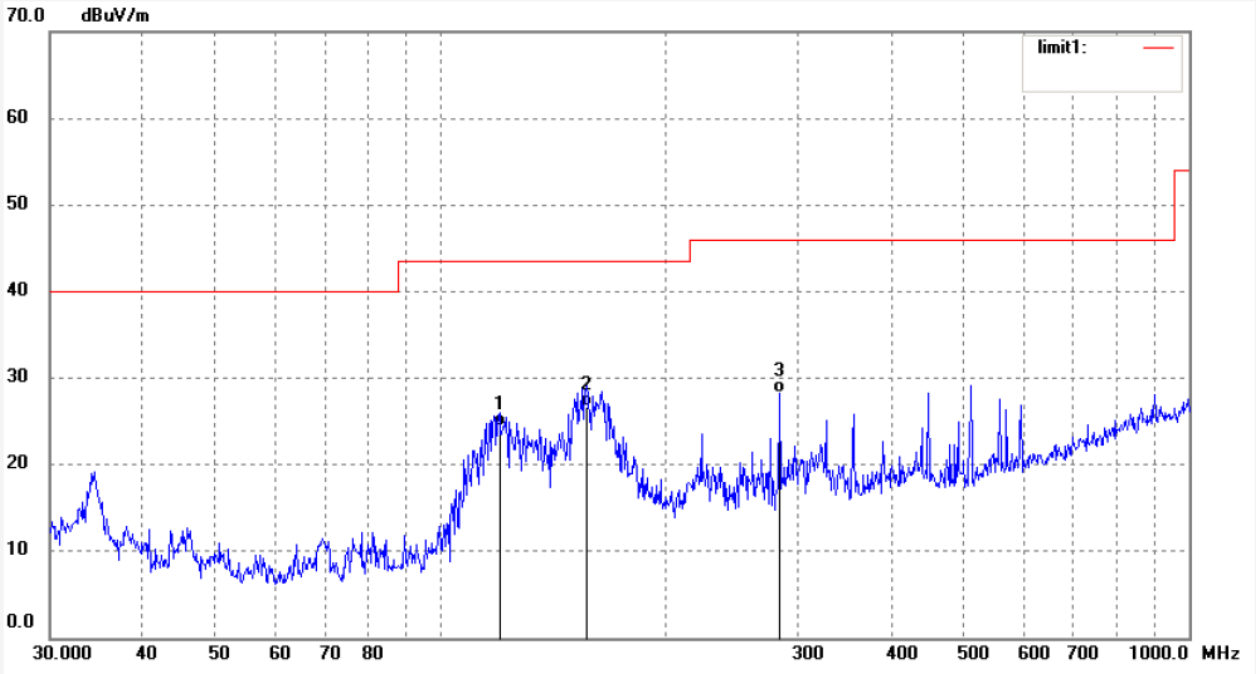
Job No.: STAR2015 #1587	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/08/05/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 13/38/27
EUT: Flicks Portable Projector	Engineer Signature:
Mode: TX 2402MHz	Distance: 3m
Model: BK01DW45A*	
Manufacturer: Dashbon, Inc.	

Note: Report No.:ATE20151790



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	119.7672	45.66	-21.32	24.34	43.50	-19.16	QP			
2	156.9764	48.40	-21.68	26.72	43.50	-16.78	QP			
3	284.2606	44.88	-16.60	28.28	46.00	-17.72	QP			

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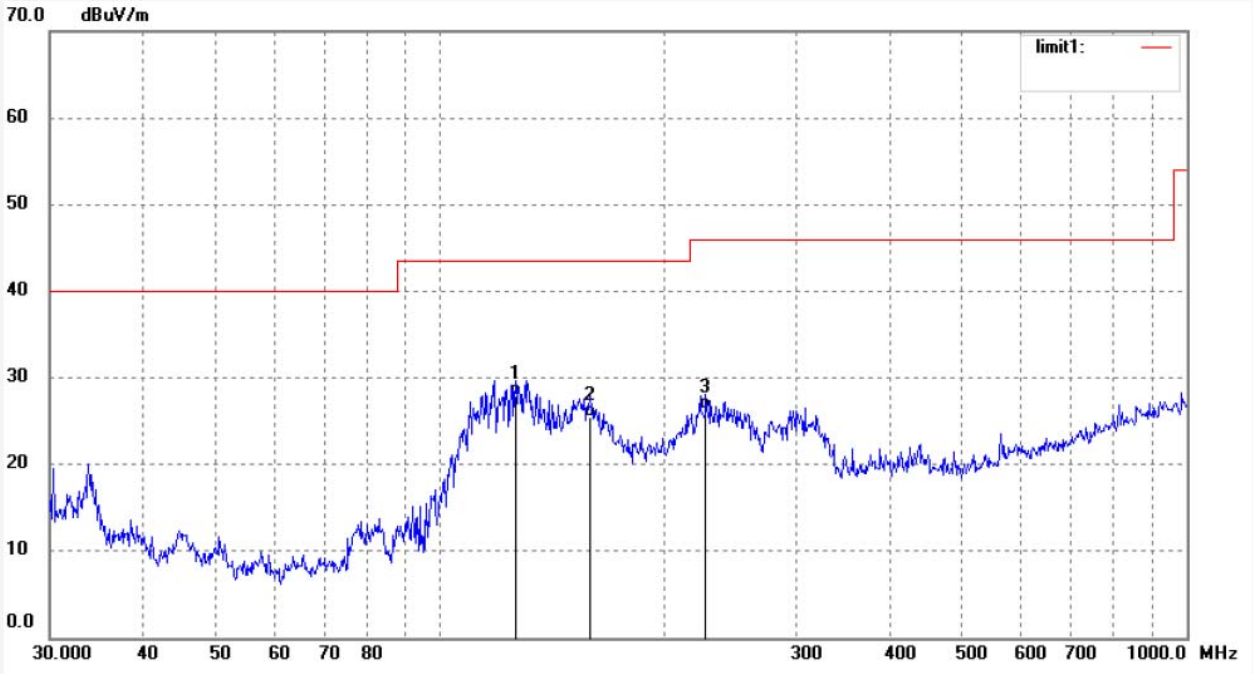
Job No.: STAR2015 #1589	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/08/05/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 13/41/38
EUT: Flicks Portable Projector	Engineer Signature:
Mode: TX 2441MHz	Distance: 3m
Model: BK01DW45A*	
Manufacturer: Dashbon, Inc.	

Note: Report No.:ATE20151790



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	126.2487	49.60	-21.60	28.00	43.50	-15.50	QP			
2	158.6399	46.99	-21.49	25.50	43.50	-18.00	QP			
3	227.0164	44.72	-18.33	26.39	46.00	-19.61	QP			

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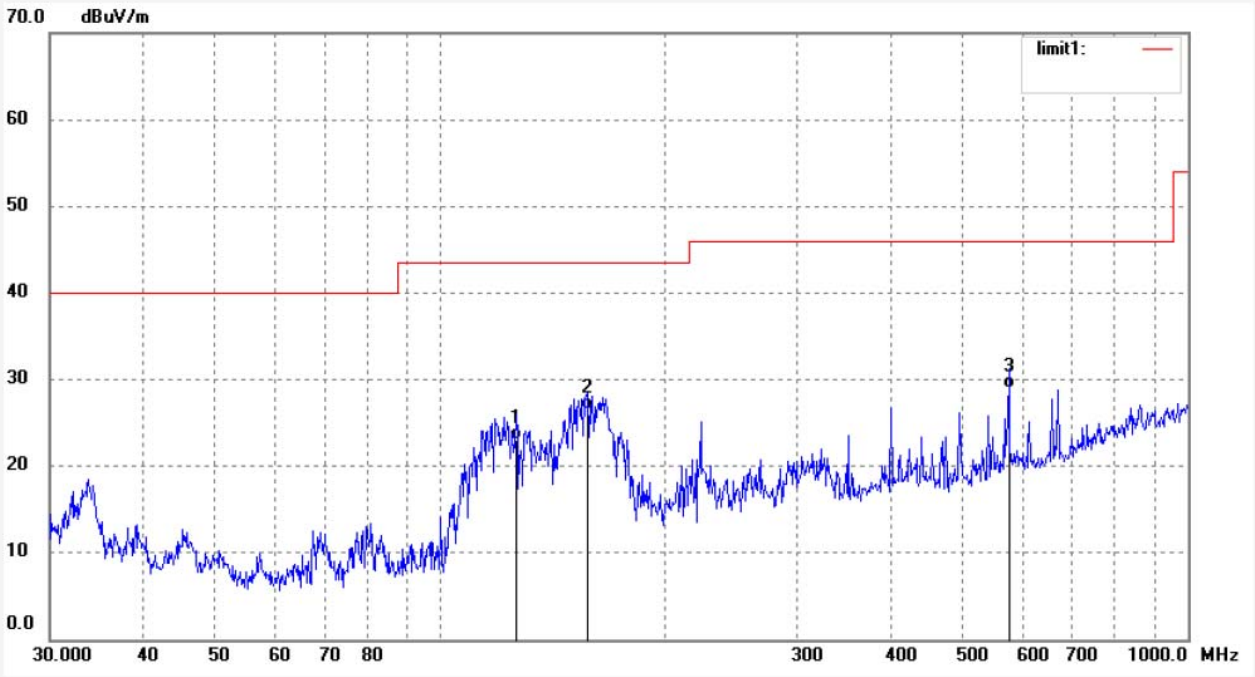
Job No.: STAR2015 #1590	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/08/05/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 13/42/22
EUT: Flicks Portable Projector	Engineer Signature:
Mode: TX 2441MHz	Distance: 3m
Model: BK01DW45A*	
Manufacturer: Dashbon, Inc.	

Note: Report No.:ATE20151790



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	126.2486	44.67	-21.60	23.07	43.50	-20.43	QP			
2	157.5289	48.10	-21.61	26.49	43.50	-17.01	QP			
3	576.0085	39.53	-10.48	29.05	46.00	-16.95	QP			

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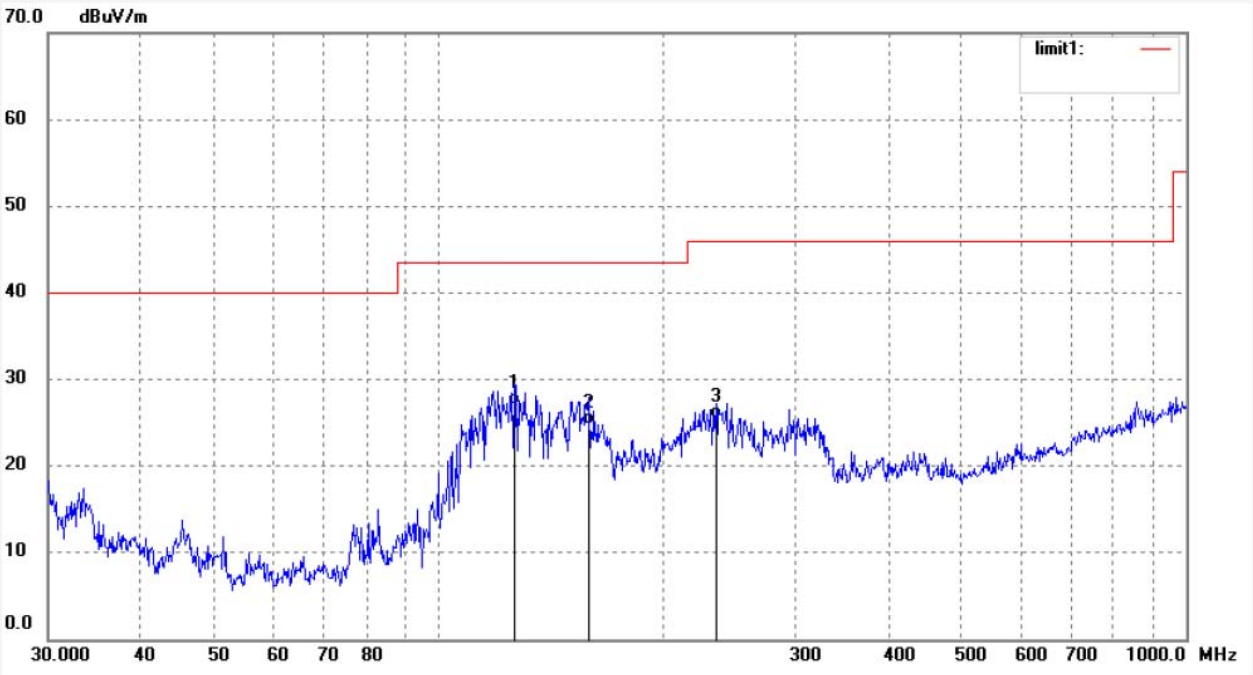
Job No.: STAR2015 #1592	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/08/05/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 13/44/32
EUT: Flicks Portable Projector	Engineer Signature:
Mode: TX 2480MHz	Distance: 3m
Model: BK01DW45A*	
Manufacturer: Dashbon, Inc.	

Note: Report No.:ATE20151790



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	126.2487	48.67	-21.60	27.07	43.50	-16.43	QP			
2	158.6399	46.26	-21.49	24.77	43.50	-18.73	QP			
3	235.1346	43.72	-18.28	25.44	46.00	-20.56	QP			

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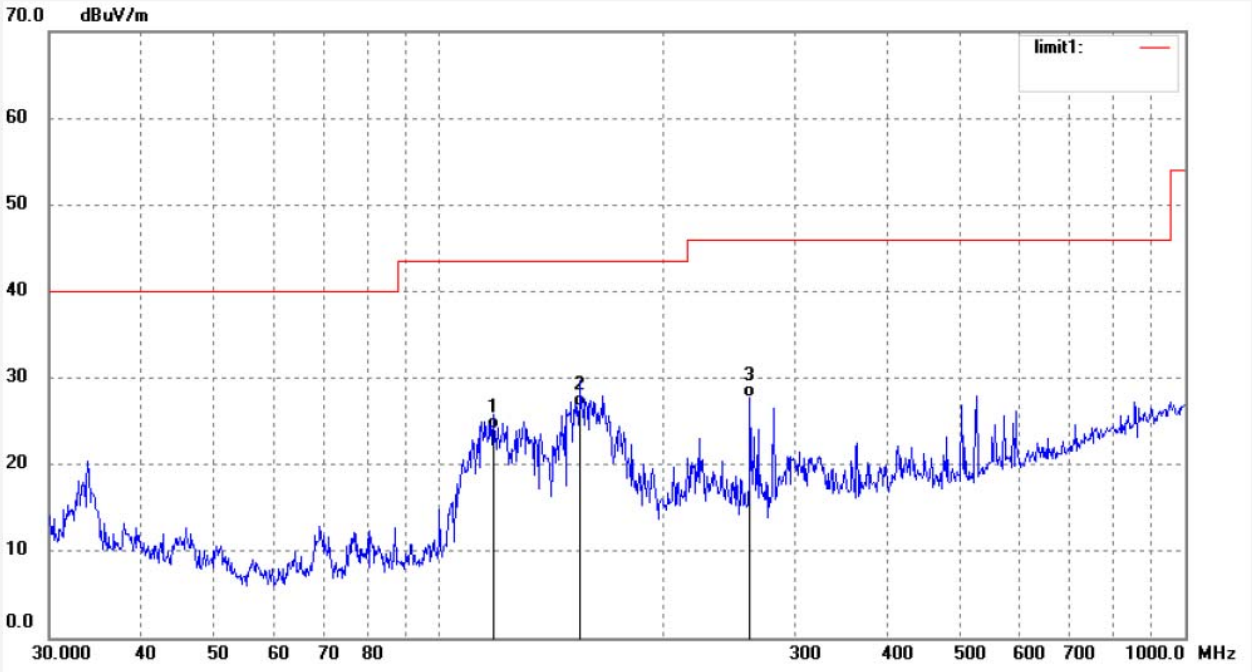
Job No.: STAR2015 #1591	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/08/05/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 13/43/17
EUT: Flicks Portable Projector	Engineer Signature:
Mode: TX 2480MHz	Distance: 3m
Model: BK01DW45A*	
Manufacturer: Dashbon, Inc.	

Note: Report No.:ATE20151790



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	118.0957	45.37	-21.27	24.10	43.50	-19.40	QP			
2	154.7857	48.67	-21.91	26.76	43.50	-16.74	QP			
3	261.2730	45.30	-17.50	27.80	46.00	-18.20	QP			

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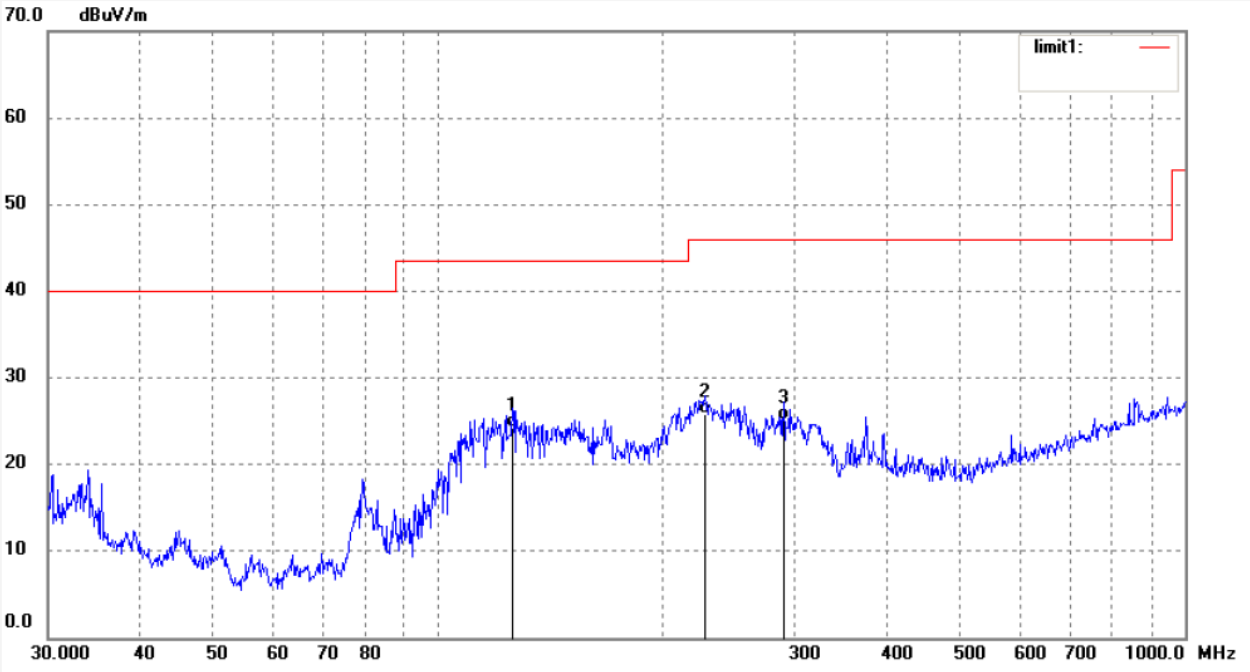
Job No.: STAR2015 #1569	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/08/05/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/34/32
EUT: Flicks Portable Projector	Engineer Signature:
Mode: TX 2402MHz	Distance: 3m
Model: BK02DW45A*	
Manufacturer: Dashbon, Inc.	

Note: Report No.:ATE20151790



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	125.8059	45.79	-21.57	24.22	43.50	-19.28	QP			
2	227.8155	44.21	-18.33	25.88	46.00	-20.12	QP			
3	290.3170	41.62	-16.49	25.13	46.00	-20.87	QP			

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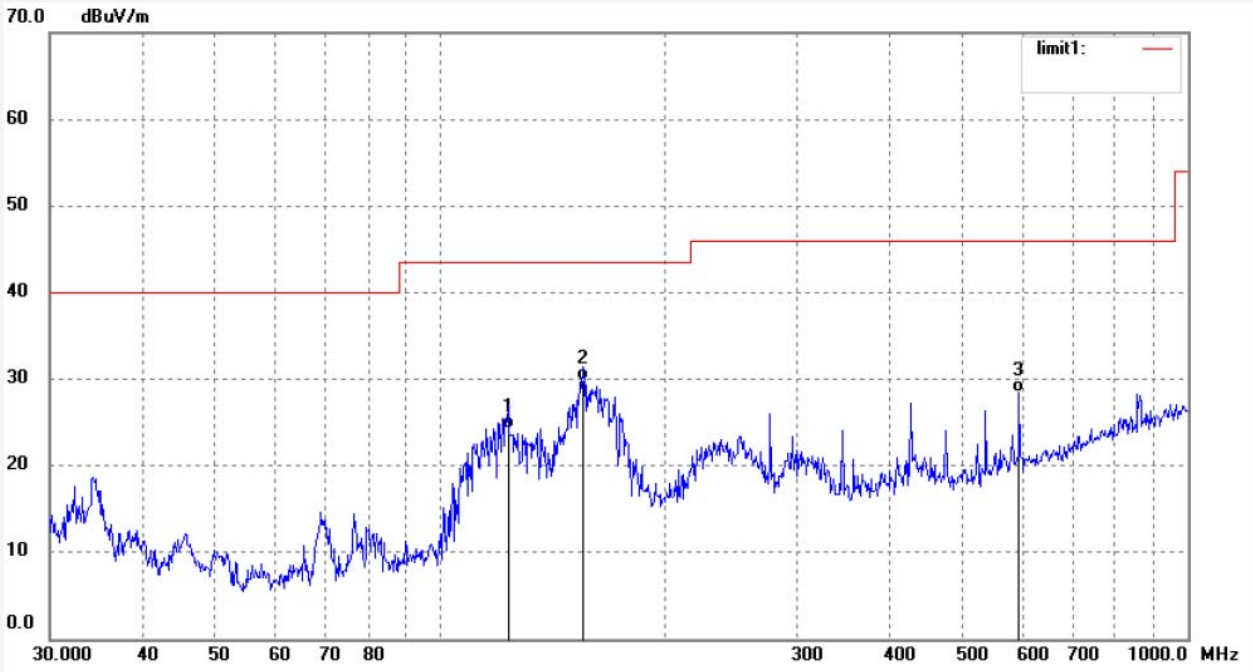
Job No.: STAR2015 #1570	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/08/05/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/35/28
EUT: Flicks Portable Projector	Engineer Signature:
Mode: TX 2402MHz	Distance: 3m
Model: BK02DW45A*	
Manufacturer: Dashbon, Inc.	

Note: Report No.:ATE20151790



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	123.1814	45.67	-21.46	24.21	43.50	-19.29	QP			
2	155.3305	51.66	-21.85	29.81	43.50	-13.69	QP			
3	594.5143	38.51	-10.04	28.47	46.00	-17.53	QP			

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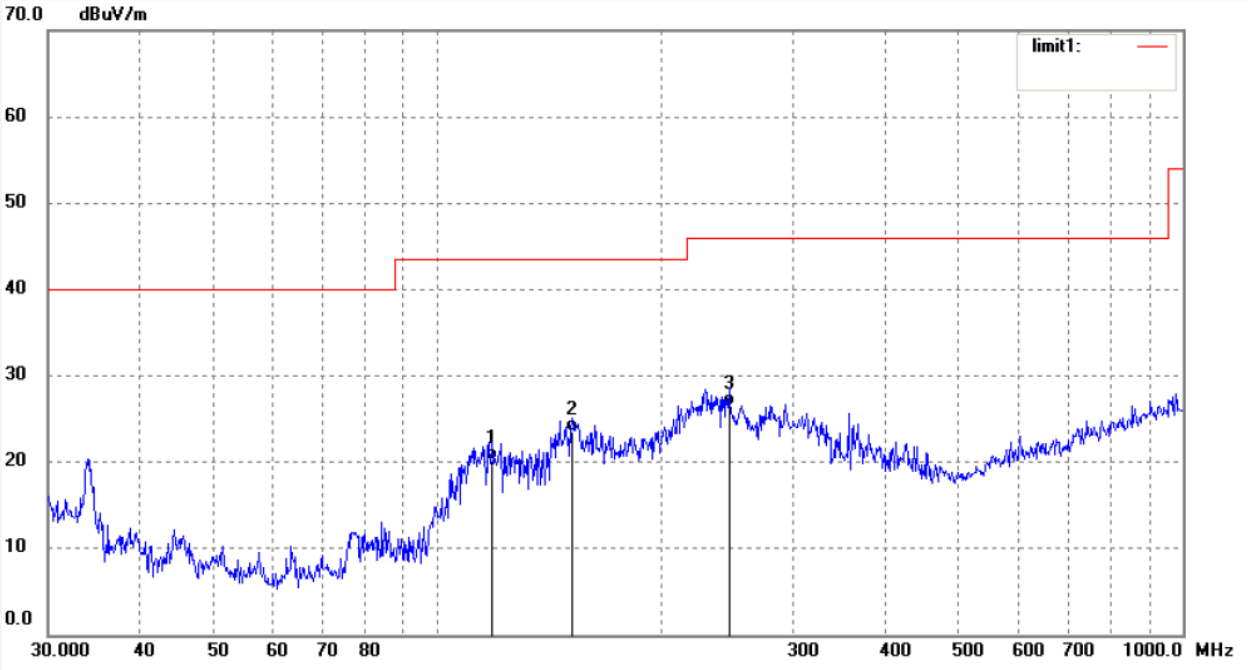
Job No.: STAR2015 #1572	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/08/05/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/36/54
EUT: Flicks Portable Projector	Engineer Signature:
Mode: TX 2441MHz	Distance: 3m
Model: BK02DW45A*	
Manufacturer: Dashbon, Inc.	

Note: Report No.:ATE20151790



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	118.5113	41.52	-21.28	20.24	43.50	-23.26	QP			
2	151.5567	45.78	-22.18	23.60	43.50	-19.90	QP			
3	246.1237	44.66	-18.20	26.46	46.00	-19.54	QP			

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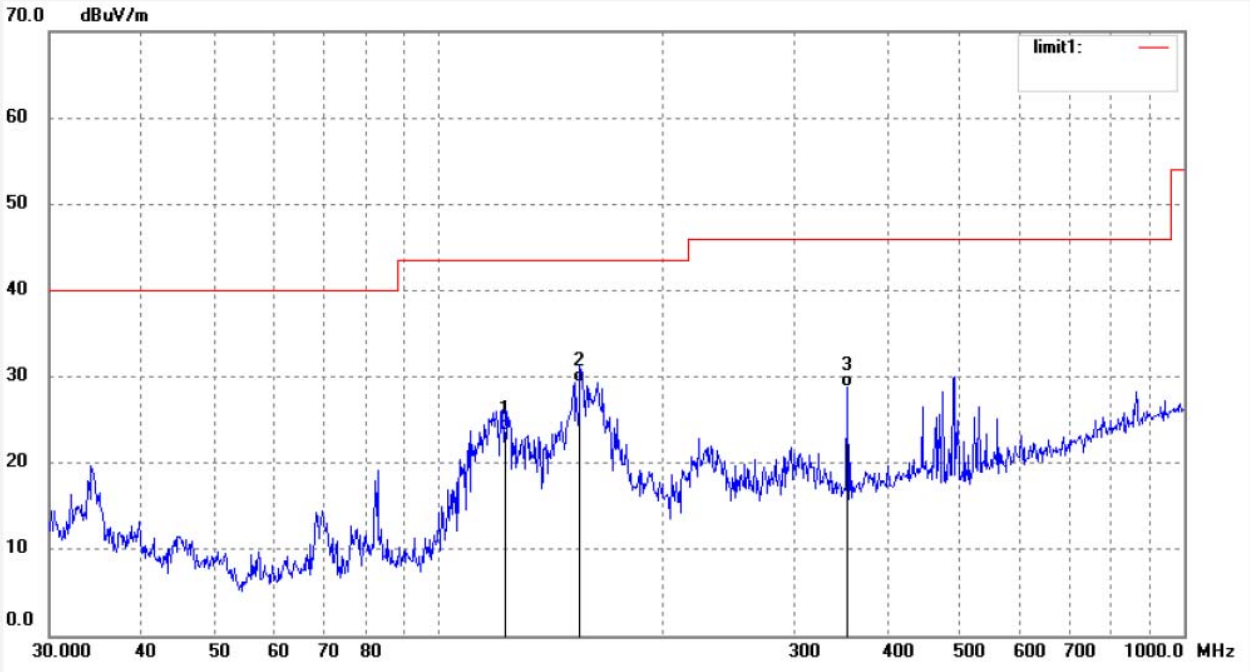
Fax:+86-0755-26503396

Job No.: STAR2015 #1571	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/08/05/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/36/13
EUT: Flicks Portable Projector	Engineer Signature:
Mode: TX 2441MHz	Distance: 3m
Model: BK02DW45A*	
Manufacturer: Dashbon, Inc.	

Note: Report No.:ATE20151790



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	122.7493	45.11	-21.45	23.66	43.50	-19.84	QP			
2	154.7856	51.29	-21.91	29.38	43.50	-14.12	QP			
3	353.4471	43.30	-14.50	28.80	46.00	-17.20	QP			

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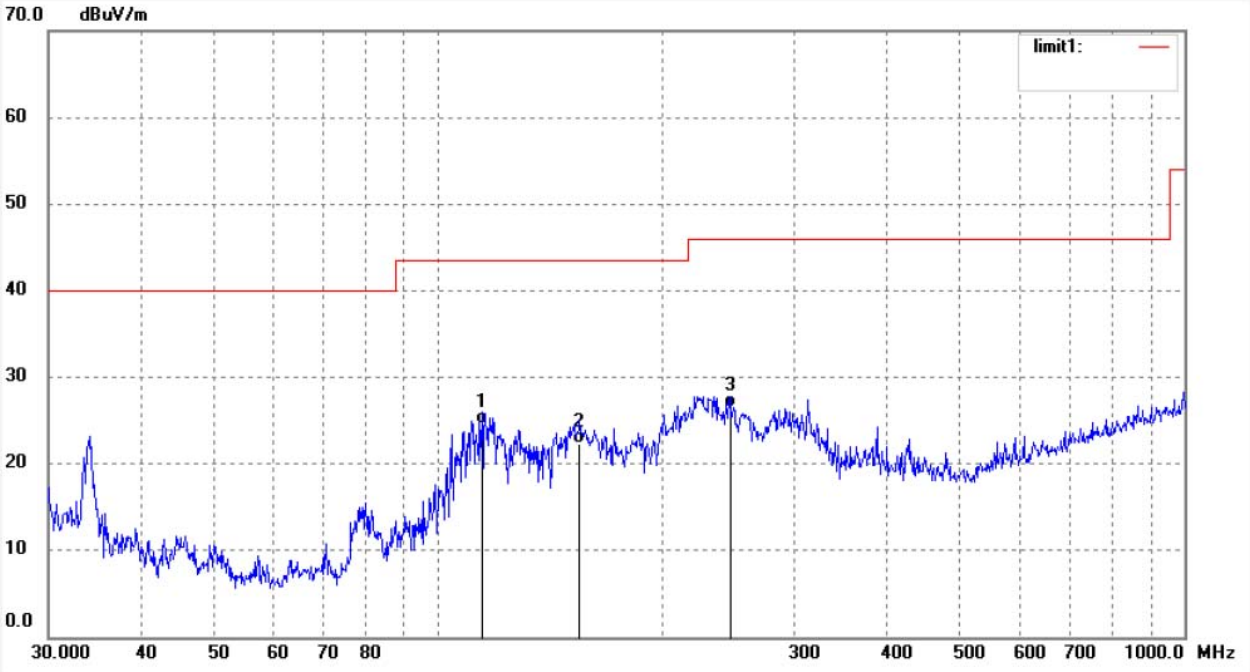
Job No.: STAR2015 #1573	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/08/05/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/37/53
EUT: Flicks Portable Projector	Engineer Signature:
Mode: TX 2480MHz	Distance: 3m
Model: BK02DW45A*	
Manufacturer: Dashbon, Inc.	

Note: Report No.:ATE20151790



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	114.4197	45.70	-21.18	24.52	43.50	-18.98	QP			
2	154.7856	44.22	-21.91	22.31	43.50	-21.19	QP			
3	246.1237	44.65	-18.20	26.45	46.00	-19.55	QP			

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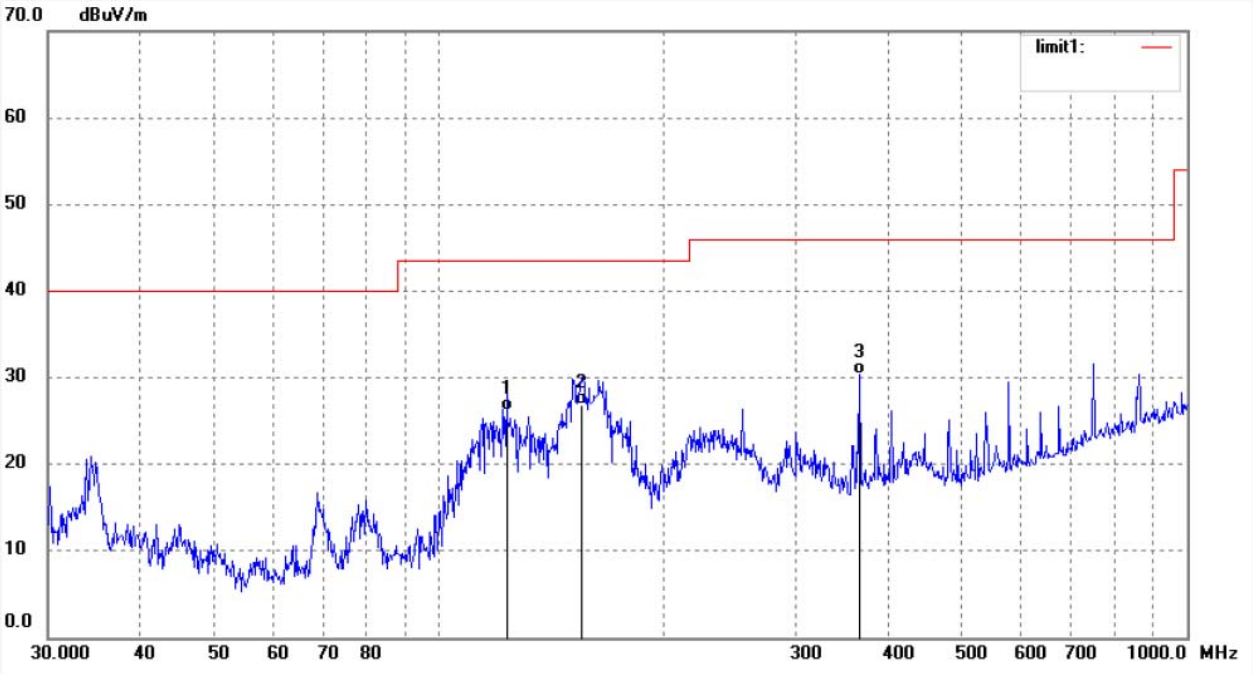
Job No.: STAR2015 #1574	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/08/05/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/38/49
EUT: Flicks Portable Projector	Engineer Signature:
Mode: TX 2480MHz	Distance: 3m
Model: BK02DW45A*	
Manufacturer: Dashbon, Inc.	

Note: Report No.:ATE20151790



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	123.1814	47.60	-21.46	26.14	43.50	-17.36	QP			
2	155.3305	48.63	-21.85	26.78	43.50	-16.72	QP			
3	364.8025	44.69	-14.25	30.44	46.00	-15.56	QP			

Above 1GHz

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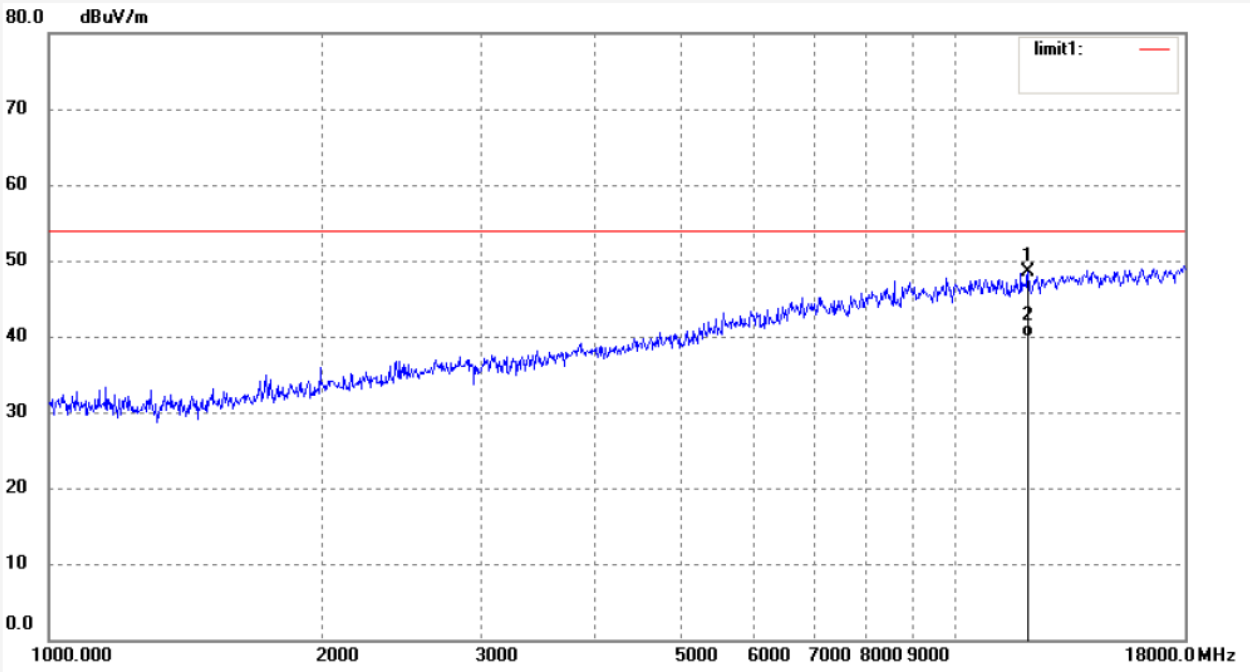
Job No.: STAR2015 #1576	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/08/05/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/41/45
EUT: Flicks Portable Projector	Engineer Signature:
Mode: TX 2402MHz	Distance: 3m
Model: BK02DW45A*	
Manufacturer: Dashbon, Inc.	

Note: Report No.:ATE20151790



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	12080.583	41.20	7.32	48.52	74.00	-25.48	peak			
2	12080.583	32.67	7.32	39.99	54.00	-14.01	peak			

Note: Average measurement with peak detection at No.2

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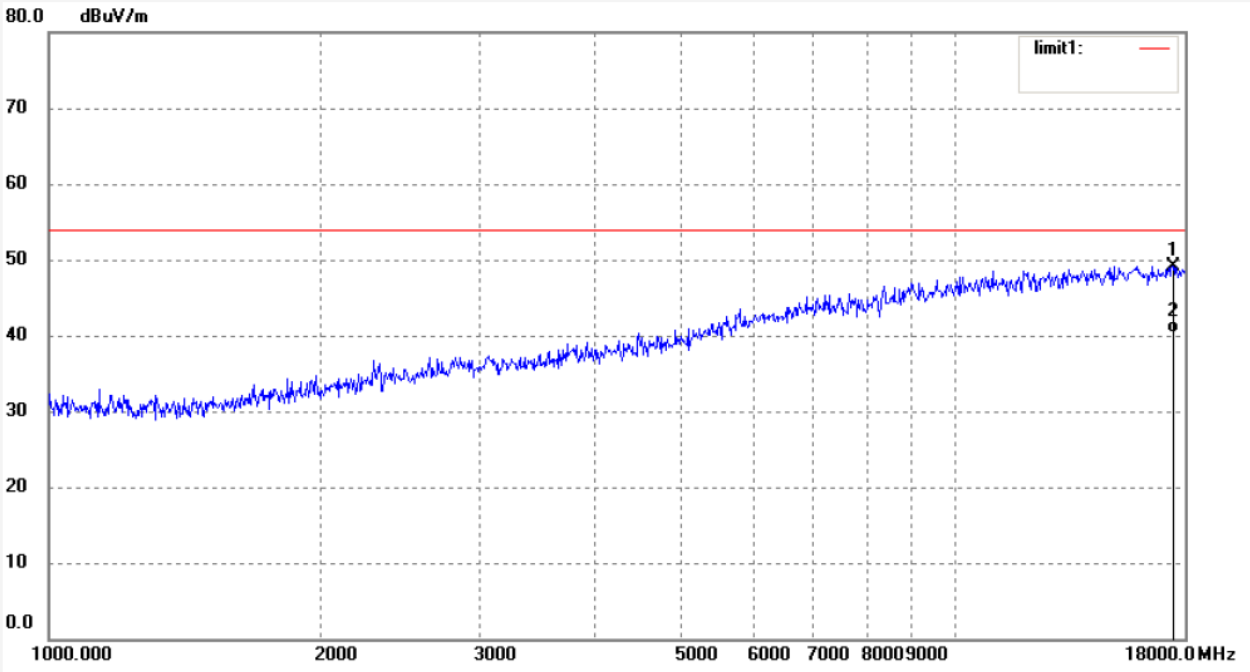
Job No.: STAR2015 #1575	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/08/05/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/40/59
EUT: Flicks Portable Projector	Engineer Signature:
Mode: TX 2402MHz	Distance: 3m
Model: BK02DW45A*	
Manufacturer: Dashbon, Inc.	

Note: Report No.:ATE20151790



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	17483.617	32.10	16.98	49.08	74.00	-24.92	peak			
2	17483.617	23.24	16.98	40.22	54.00	-13.78	peak			

Note: Average measurement with peak detection at No.2

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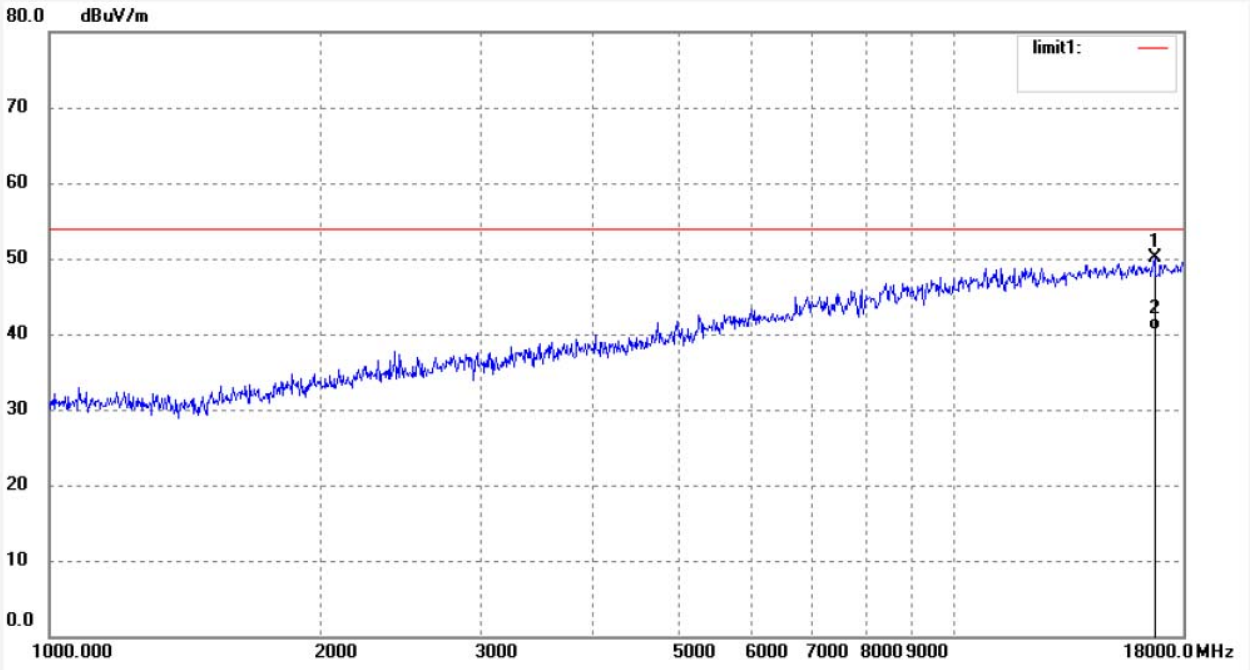
Job No.: STAR2015 #1577	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/08/05/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/42/38
EUT: Flicks Portable Projector	Engineer Signature:
Mode: TX 2441MHz	Distance: 3m
Model: BK02DW45A*	
Manufacturer: Dashbon, Inc.	

Note: Report No.:ATE20151790



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	16736.686	36.00	14.08	50.08	74.00	-23.92	peak			
2	16736.686	26.44	14.08	40.52	54.00	-13.48	peak			

Note: Average measurement with peak detection at No.2

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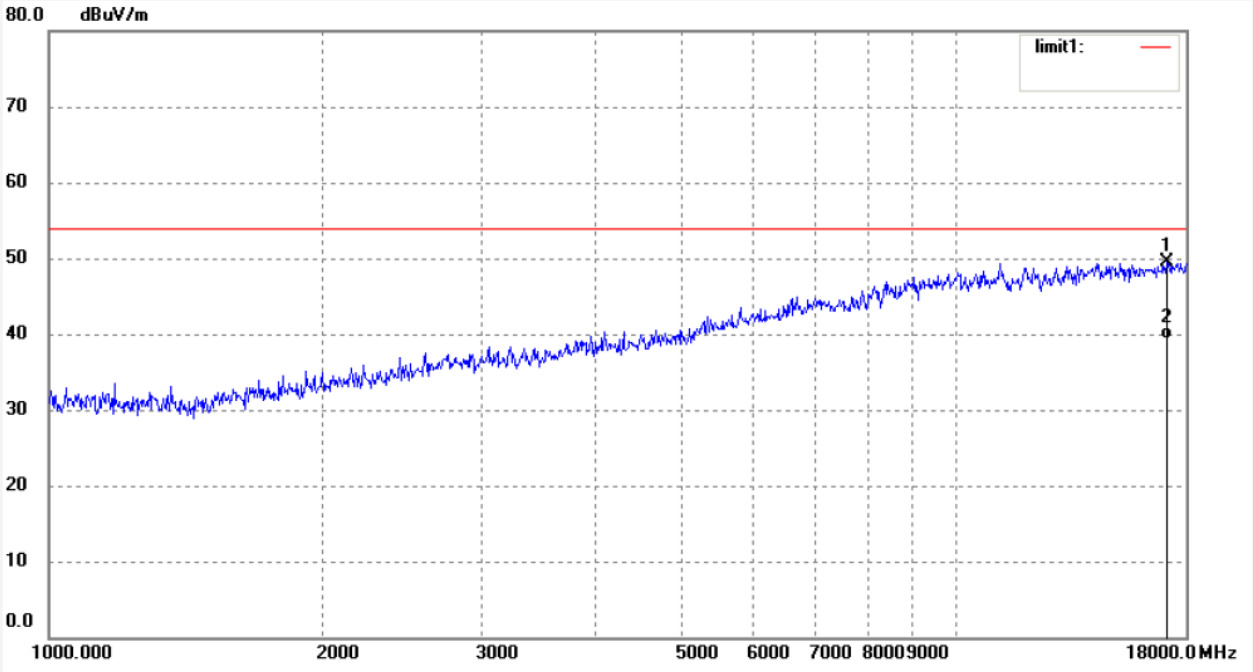
Job No.: STAR2015 #1578	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/08/05/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/43/27
EUT: Flicks Portable Projector	Engineer Signature:
Mode: TX 2441MHz	Distance: 3m
Model: BK02DW45A*	
Manufacturer: Dashbon, Inc.	

Note: Report No.:ATE20151790



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	17180.926	33.76	15.70	49.46	74.00	-24.54	peak			
2	17180.926	23.55	15.70	39.25	54.00	-14.75	peak			

Note: Average measurement with peak detection at No.2

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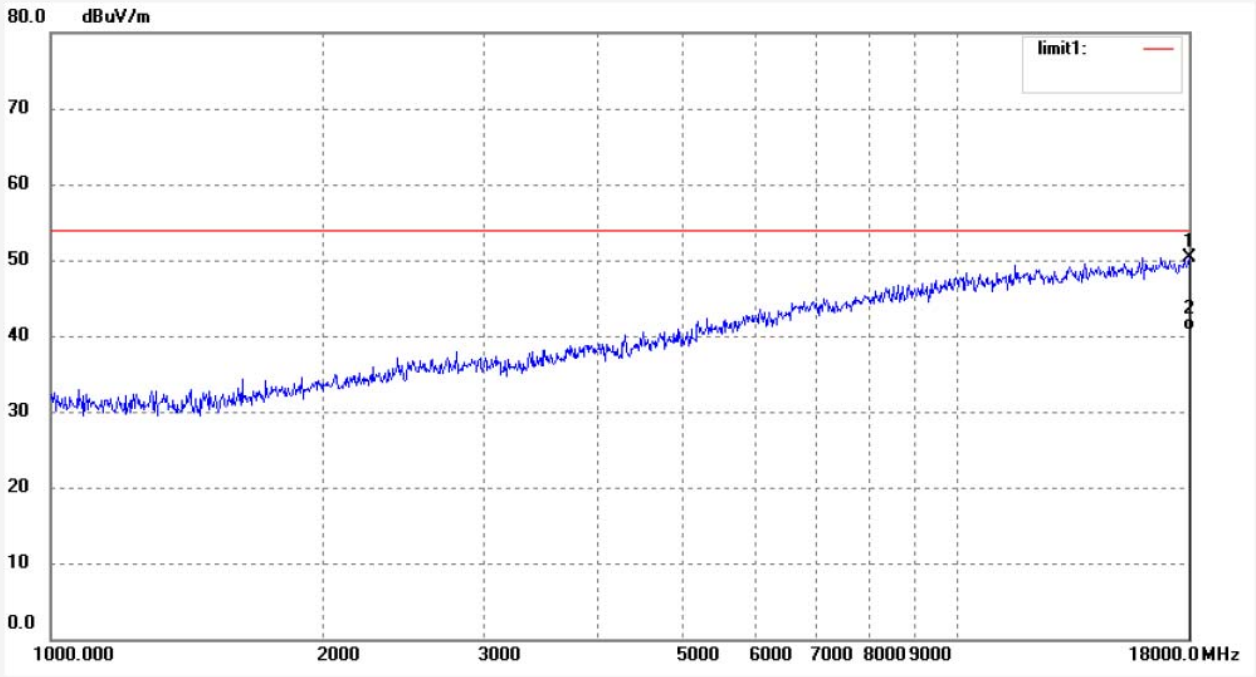
Job No.: STAR2015 #1580	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/08/05/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/45/45
EUT: Flicks Portable Projector	Engineer Signature:
Mode: TX 2480MHz	Distance: 3m
Model: BK02DW45A*	
Manufacturer: Dashbon, Inc.	

Note: Report No.:ATE20151790



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	18000.000	30.82	19.58	50.40	74.00	-23.60	peak			
2	18000.000	21.12	19.58	40.70	54.00	-13.30	peak			

Note: Average measurement with peak detection at No.2

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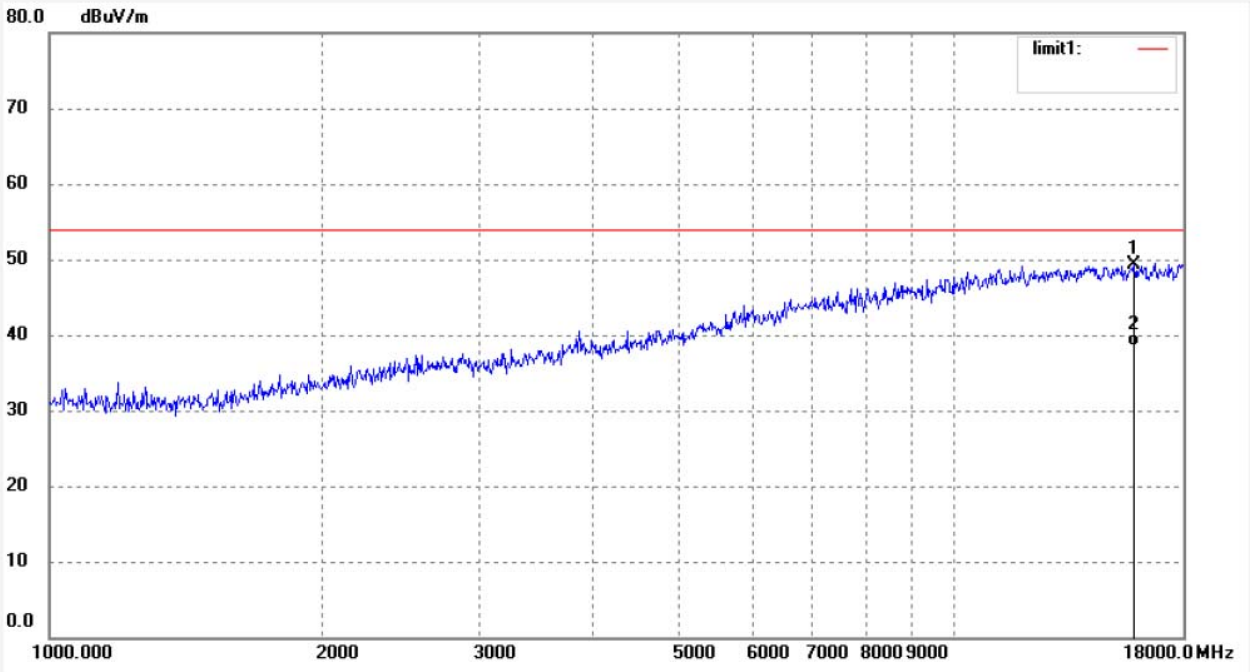
Job No.: STAR2015 #1579	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 15/08/05/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/44/40
EUT: Flicks Portable Projector	Engineer Signature:
Mode: TX 2480MHz	Distance: 3m
Model: BK02DW45A*	
Manufacturer: Dashbon, Inc.	

Note: Report No.:ATE20151790

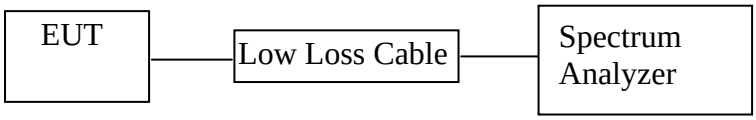


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	15882.369	36.47	12.75	49.22	74.00	-24.78	peak			
2	15882.369	25.78	12.75	38.53	54.00	-15.47	peak			

Note: Average measurement with peak detection at No.2

11.BAND EDGE COMPLIANCE TEST

11.1.Block Diagram of Test Setup



(EUT: Flicks Portable Projector)

11.2.The Requirement For Section 15.247(d)

Section 15.247(d): In any 100 kHz 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 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

11.3.EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

11.4.Operating Condition of EUT

11.4.1.Setup the EUT and simulator as shown as Section 11.1.

11.4.2.Turn on the power of all equipment.

11.4.3.Let the EUT work in TX (Hopping off, Hopping on) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2480MHz TX frequency to transmit.

11.5.Test Procedure

11.5.1.The transmitter output was connected to the spectrum analyzer via a low loss cable.

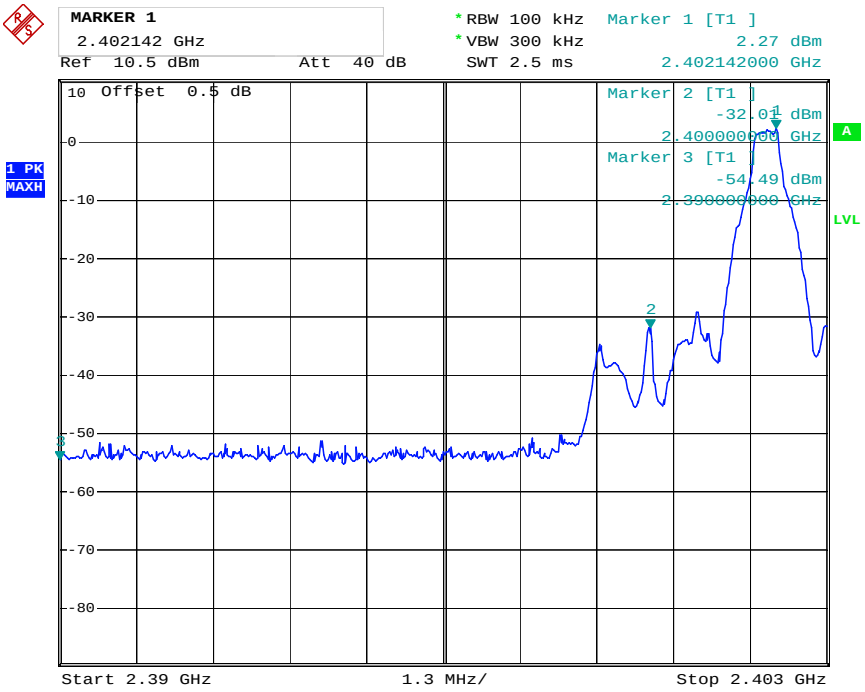
11.5.2.Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz with convenient frequency span including 100 kHz bandwidth from band edge.

11.5.3.The band edges was measured and recorded.

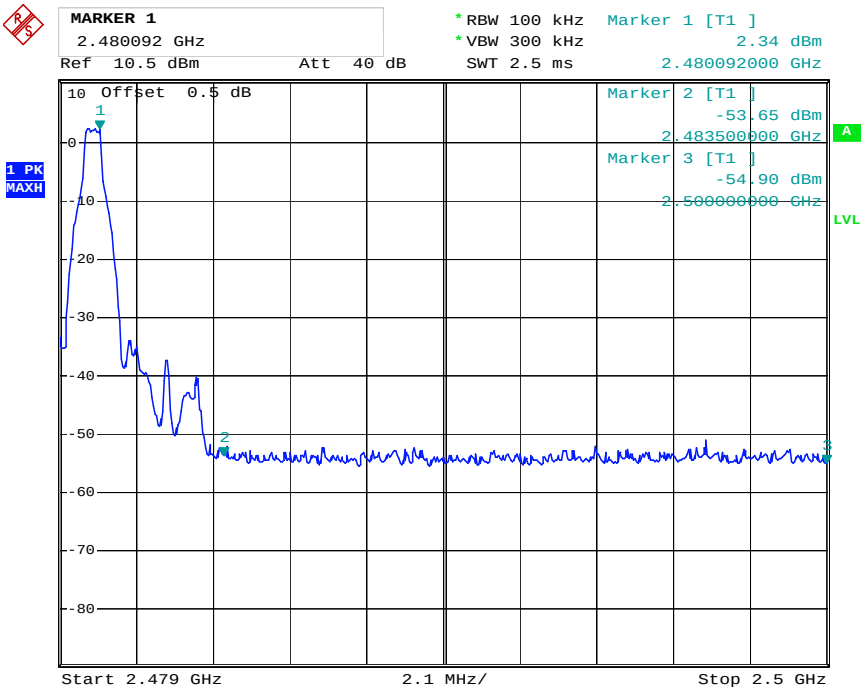
11.6.Test Result

Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
GFSK		
2400.00	34.28	> 20dBc
2483.50	55.99	> 20dBc
Π/4-DQPSK Mode		
2400.00	37.38	> 20dBc
2483.50	53.66	> 20dBc
8DPSK		
2400.00	37.33	> 20dBc
2483.50	54.21	> 20dBc

GFSK



Date: 23.JUL.2015 16:43:03



Date: 23.JUL.2015 16:44:22