

APPLICATION CERTIFICATION

On Behalf of
ACCO Brands, Inc.

KeyFolio Fit Universal Folio with Keyboard
Model No.: M01268

FCC ID: GV3M01268

Prepared for : ACCO Brands, Inc.
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Report Number : ATE20141072
Date of Test : June 18-July 03,2014
Date of Report : July 03,2014

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Test Report Certification

Applicant : ACCO Brands, Inc.
Manufacturer : Shenzhen Doking Electronic Technology Co.,Ltd
EUT Description : KeyFolio Fit Universal Folio with Keyboard
(A) MODEL NO.: M01268
(B) Trade Name: Kensington
(C) POWER SUPPLY: DC 3.7V (battery)

Measurement Procedure Used:

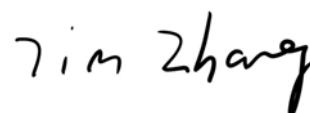
FCC Rules and Regulations Part 15 Subpart C Section 15.247
ANSI C63.4- 2009

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 : June 18-July 03, 2014

Prepared by :



(Tim.zhang, Engineer)

Approved & Authorized Signer :



(Sean Liu, Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	KeyFolio Fit Universal Folio with Keyboard
Model Number	:	M01268
Frequency Band	:	2402MHz-2480MHz
Number of Channels	:	79
Modulation type	:	GFSK, $\Pi/4$ -DQPSK, 8DPSK
Antenna Gain	:	0dBi
Antenna type	:	PCB Antenna
Power Supply	:	DC 3.7V
Applicant	:	ACCO Brands, Inc.
Address	:	333 Twin Dolphin Drive, 6th Floor, Redwood Shores, California, 94065, United States.
Manufacturer	:	Shenzhen Doking Electronic Technology Co.,Ltd
Address	:	Dingfeng Hi-tech Estate, Shapu, Songgang Town, Baoan District, Shenzhen, China
Date of sample received	:	June 18, 2014
Date of Test	:	June 18, 2014-July 03, 2014

1.2. 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

1.3.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, 2014	Jan. 10, 2015
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 11, 2014	Jan. 10, 2015
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 11, 2014	Jan. 10, 2015
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 11, 2014	Jan. 10, 2015
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 15, 2014	Jan. 14, 2015
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 15, 2014	Jan. 14, 2015
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 15, 2014	Jan. 14, 2015
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1067	Jan. 15, 2014	Jan. 14, 2015
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 11, 2014	Jan. 10, 2015
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 11, 2014	Jan. 10, 2015
Highpass Filter	Wainwright Instruments	WHKX3.6/18 G-10SS	N/A	Jan. 11, 2014	Jan. 10, 2015
Band Reject Filter	Wainwright Instruments	WRCG2400/2 485-2375/2510 -60/11SS	N/A	Jan. 11, 2014	Jan. 10, 2015

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

EUT

(EUT: KeyFolio Fit Universal Folio with Keyboard)

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: KeyFolio Fit Universal Folio with Keyboard)

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.

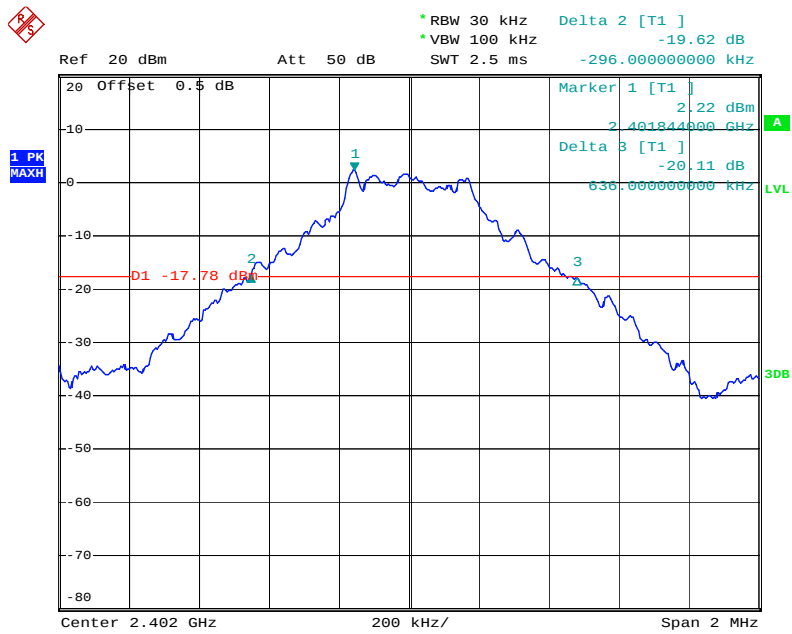
5.6. Test Result

Channel	Frequency (MHz)	GFSK 20dB Bandwidth (MHz)	$\Pi/4$ -DQPSK 20dB Bandwidth (MHz)	8DPSK 20dB Bandwidth (MHz)	Result
Low	2402	0.932	1.272	1.288	Pass
Middle	2441	0.932	1.272	1.288	Pass
High	2480	0.932	1.272	1.288	Pass

The spectrum analyzer plots are attached as below.

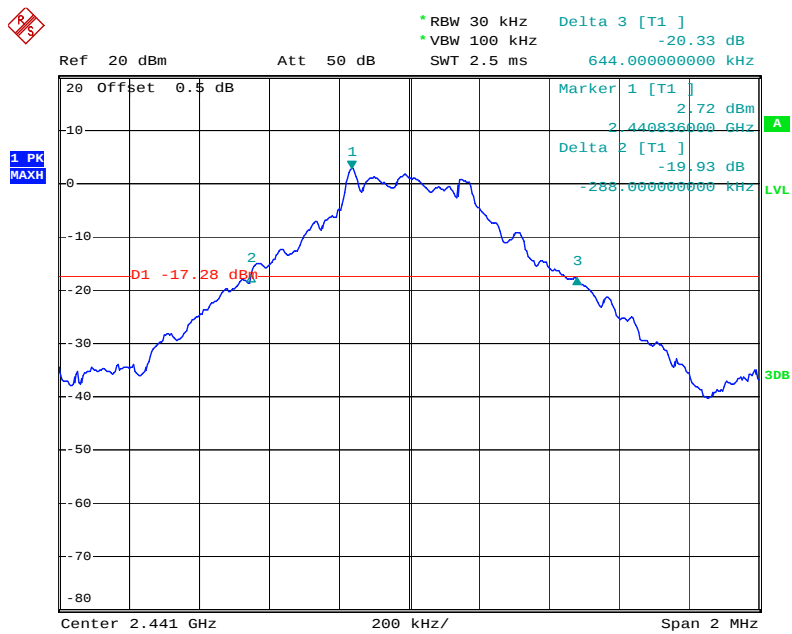
GFSK Mode

Low channel



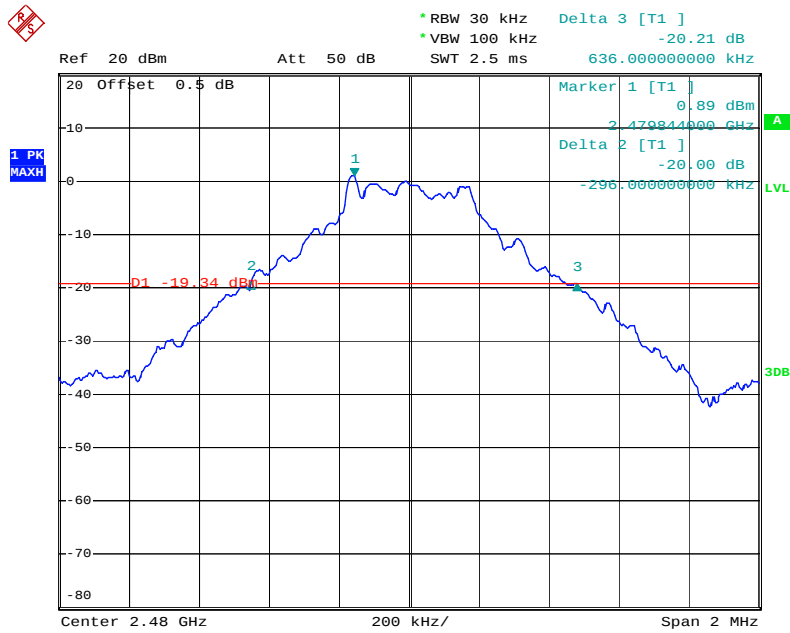
Date: 30.JUN.2014 09:22:10

Middle channel



Date: 30.JUN.2014 09:23:51

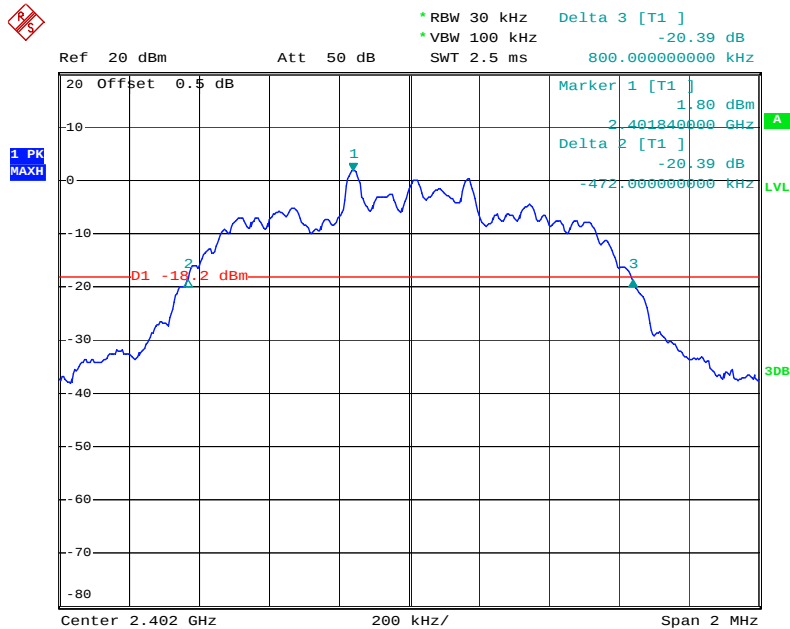
High channel



Date: 30.JUN.2014 09:25:45

II/4-DQPSK Mode

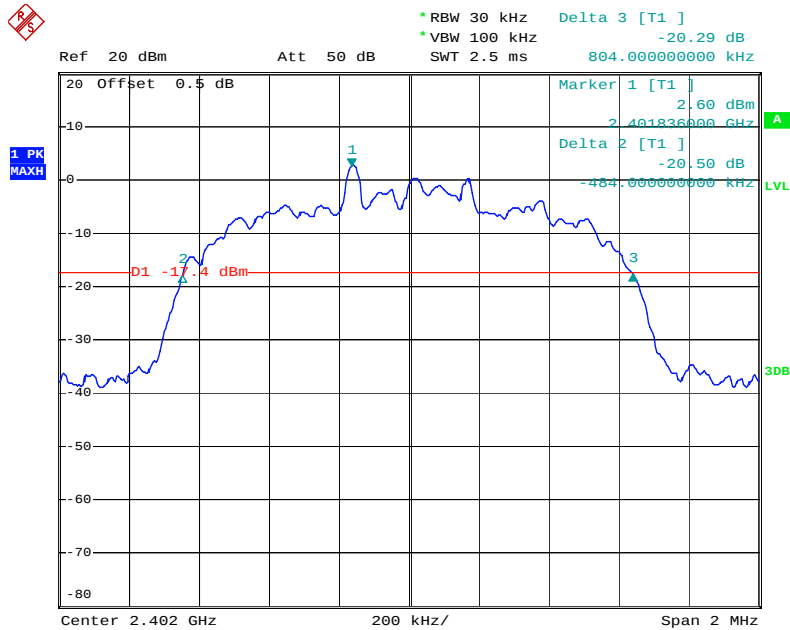
Low channel



Date: 30.JUN.2014 09:31:34

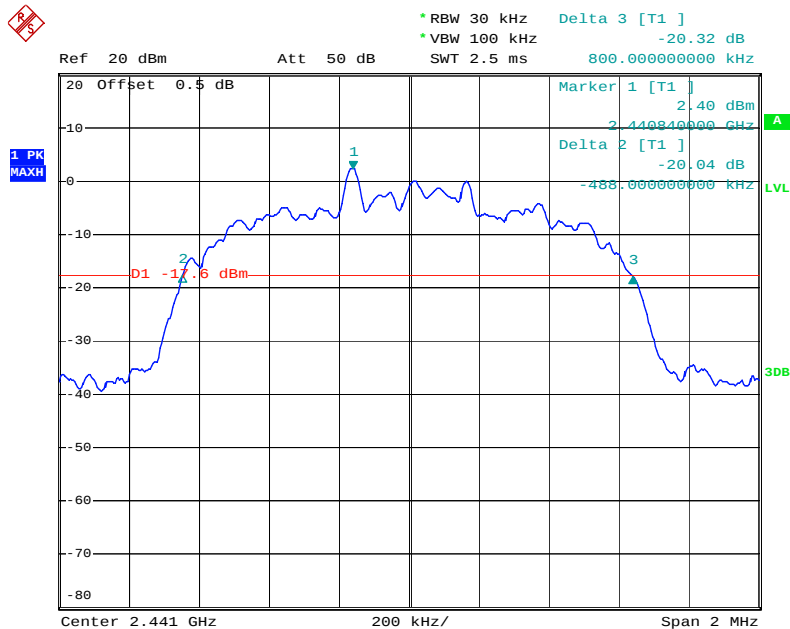
8DPSK Mode

Low channel

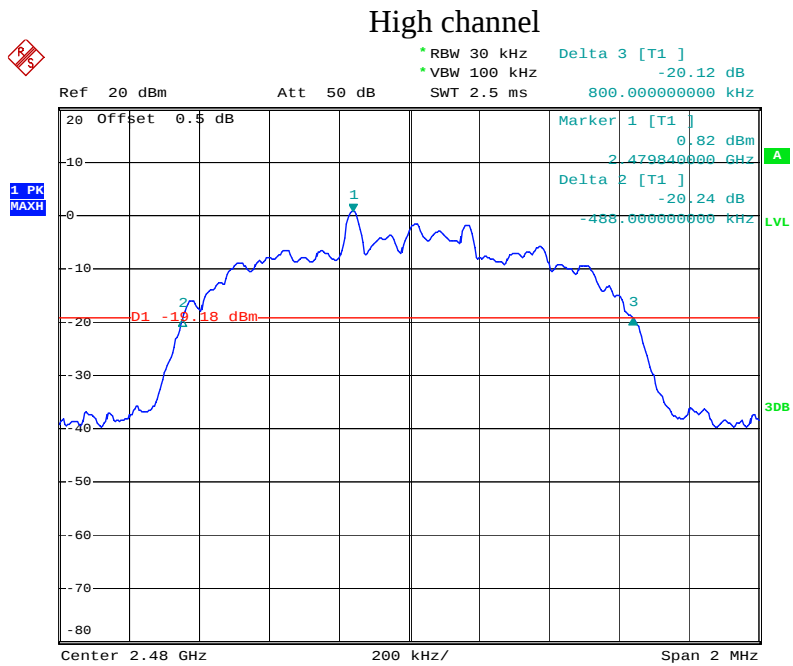


Date: 30.JUN.2014 09:34:08

Middle channel



Date: 30.JUN.2014 09:35:55



Date: 30.JUN.2014 09:37:35

6. CARRIER FREQUENCY SEPARATION TEST

6.1. Block Diagram of Test Setup



(EUT: KeyFolio Fit Universal Folio with Keyboard)

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 100 kHz and VBW to 300 kHz. Adjust Span to 3 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	1.002	25KHz or 20dB bandwidth	PASS
	2403			
Middle	2440	1.002	25KHz or 20dB bandwidth	PASS
	2441			
High	2479	1.002	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	1.002	25KHz or 2/3*20dB bandwidth	PASS
	2441			
High	2479	1.002	25KHz or 2/3*20dB bandwidth	PASS
	2480			

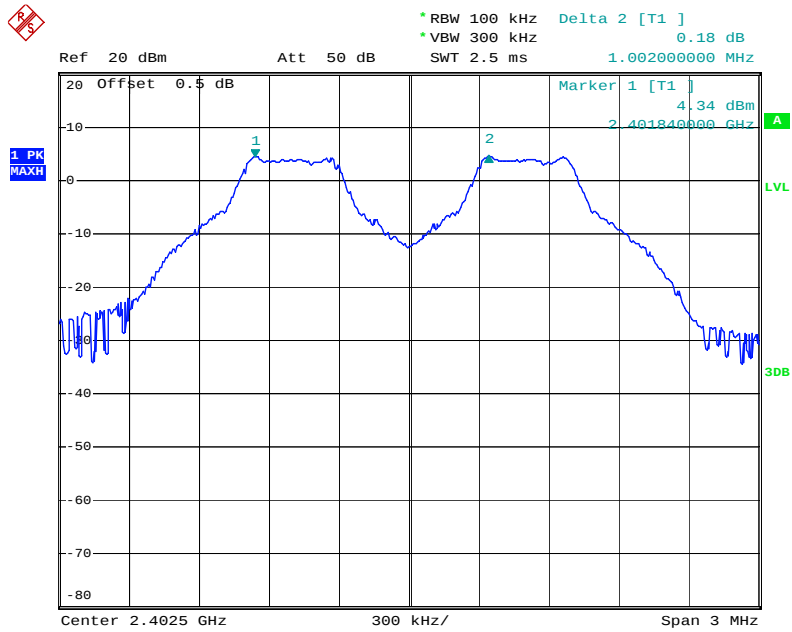
8DPSK

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	1.002	25KHz or 2/3*20dB bandwidth	PASS
	2480			

The spectrum analyzer plots are attached as below.

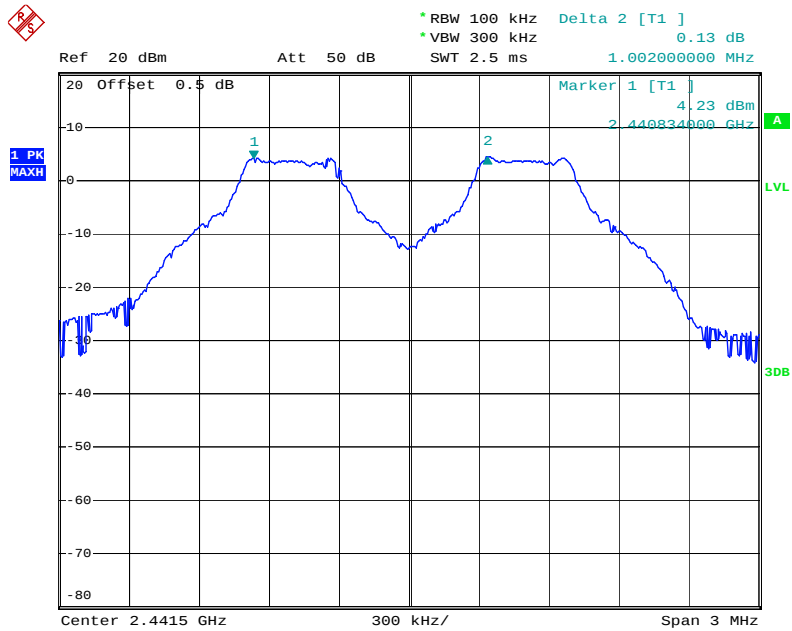
GFSK Mode

Low channel



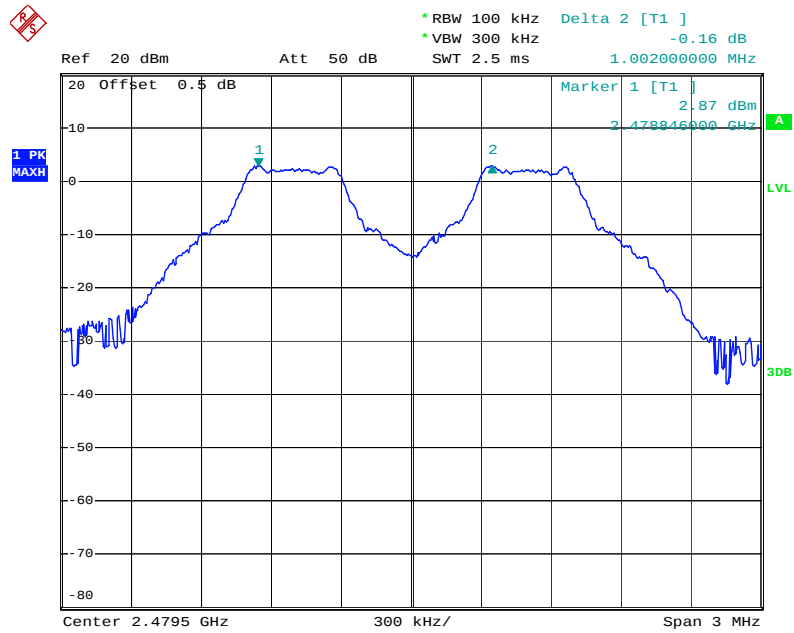
Date: 30.JUN.2014 10:07:55

Middle channel



Date: 30.JUN.2014 10:09:26

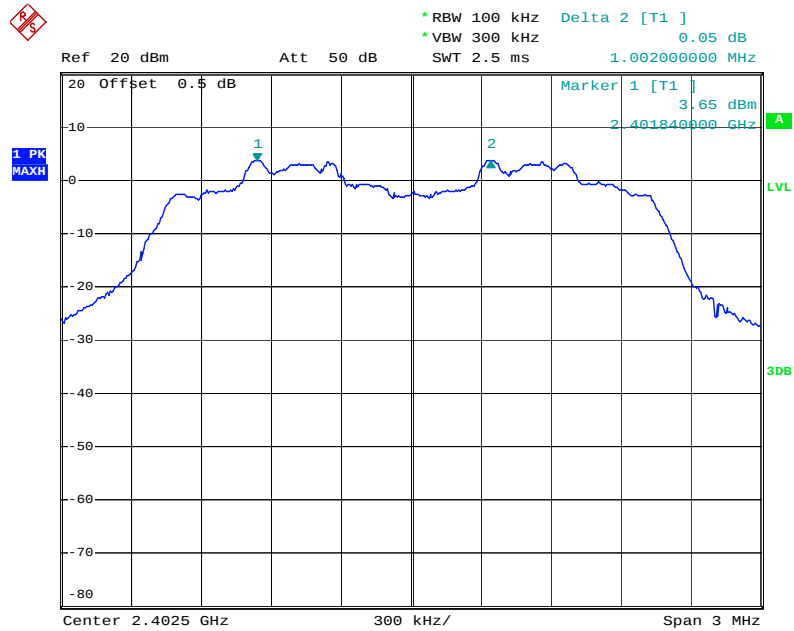
High channel



Date: 30.JUN.2014 10:10:32

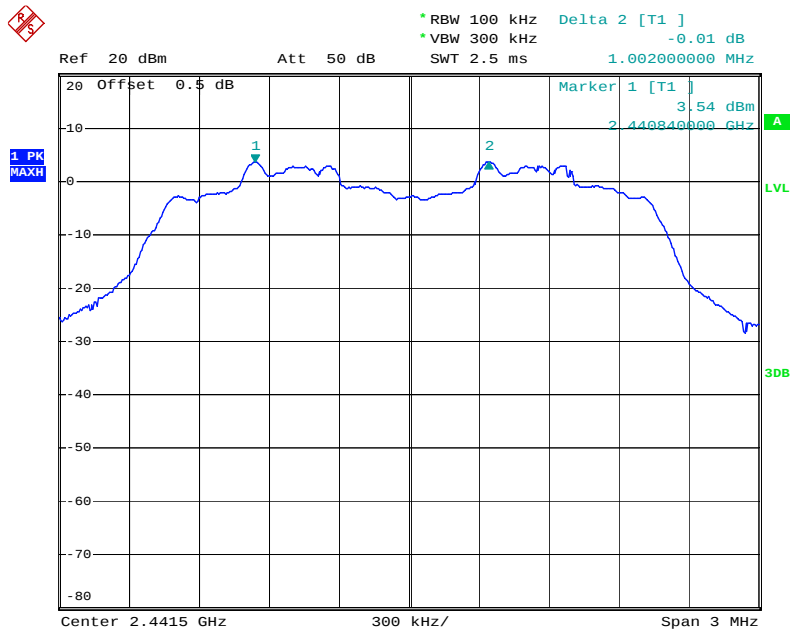
Π/4-DQPSK Mode

Low channel



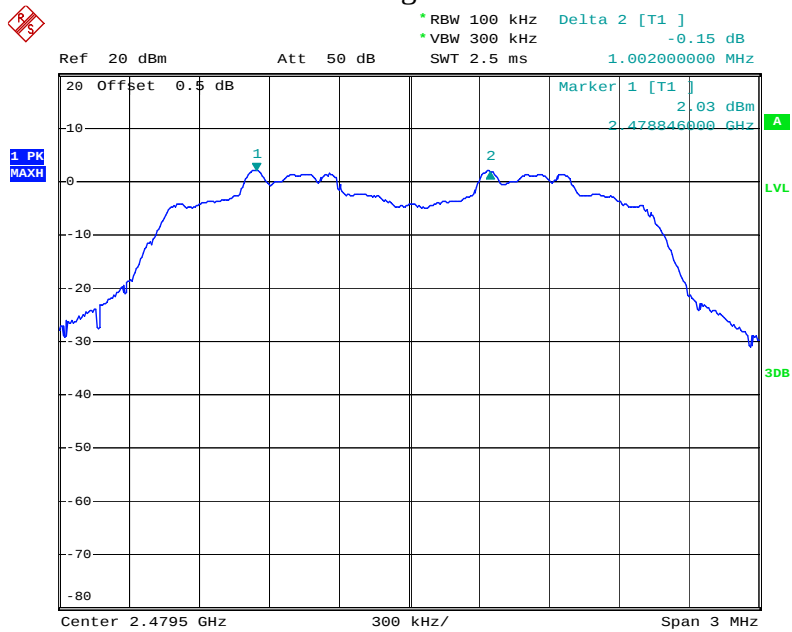
Date: 30.JUN.2014 10:17:49

Middle channel



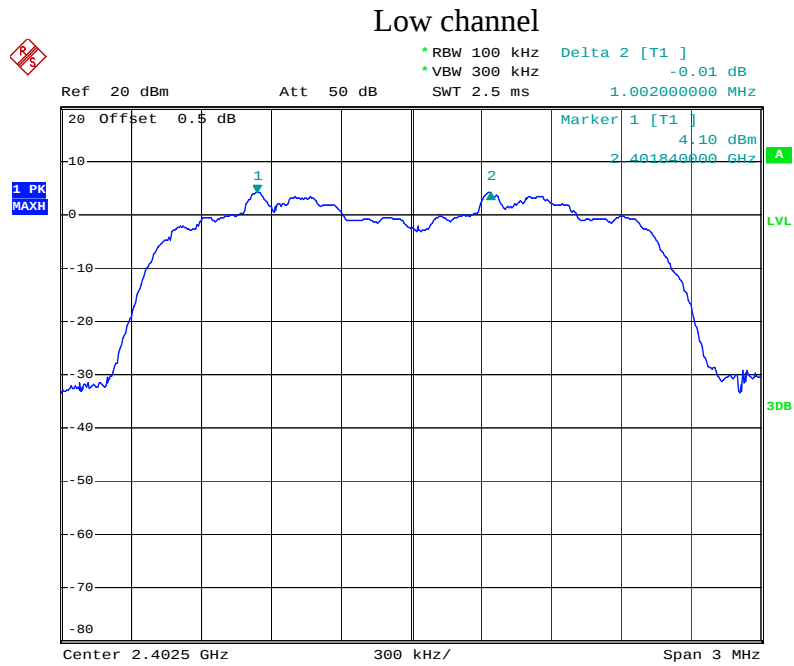
Date: 30.JUN.2014 10:15:17

High channel

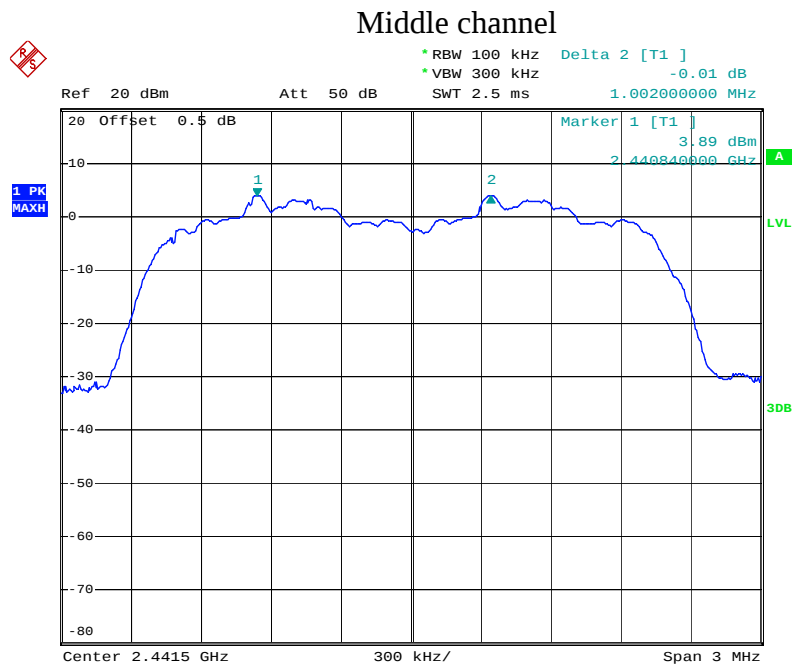


Date: 30.JUN.2014 10:12:48

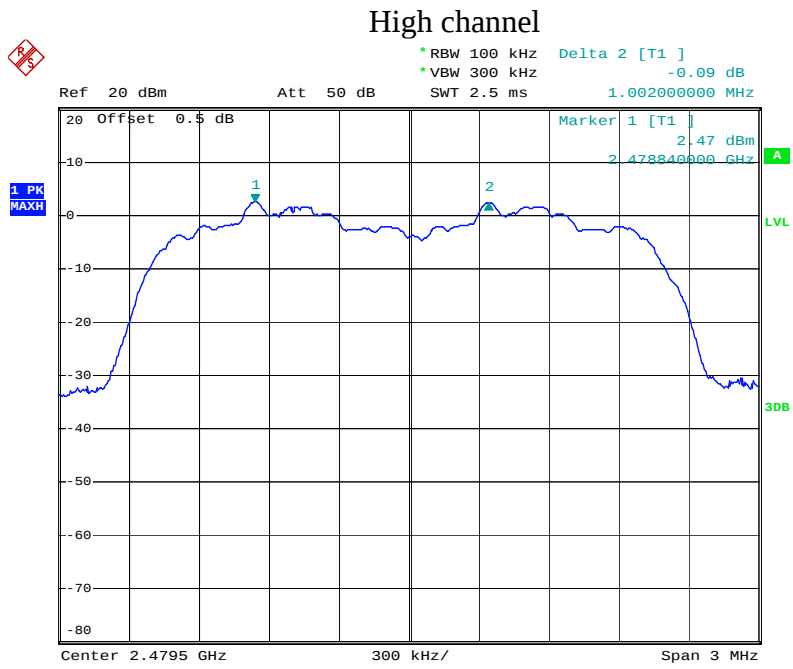
8DPSK Mode



Date: 30.JUN.2014 10:19:00



Date: 30.JUN.2014 10:20:27



Date: 30.JUN.2014 10:22:29

7. NUMBER OF HOPPING FREQUENCY TEST

7.1. Block Diagram of Test Setup



(EUT: KeyFolio Fit Universal Folio with Keyboard)

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.

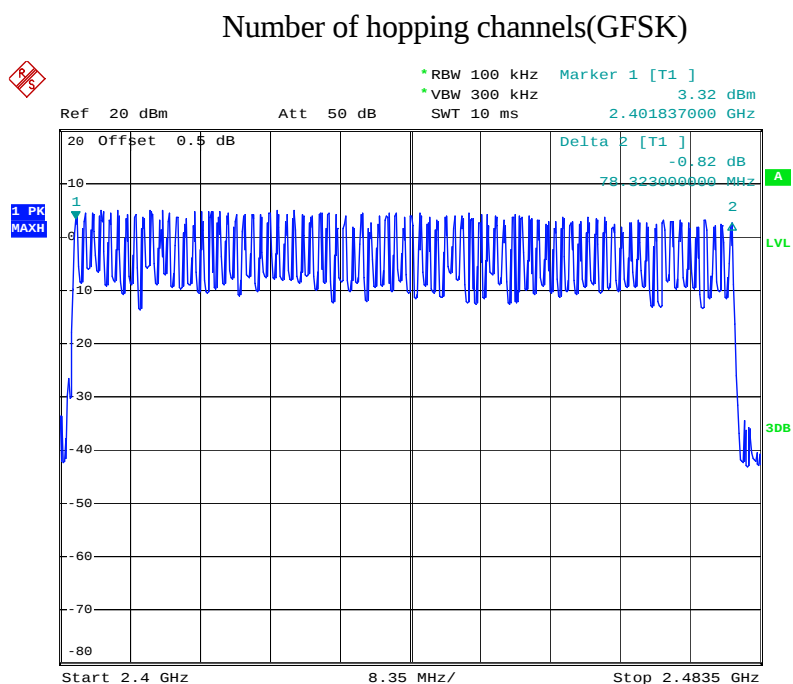
7.5.2. Set the spectrum analyzer as Span=83.5MHz, RBW=100 kHz, VBW=300 kHz.

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

7.6. Test Result

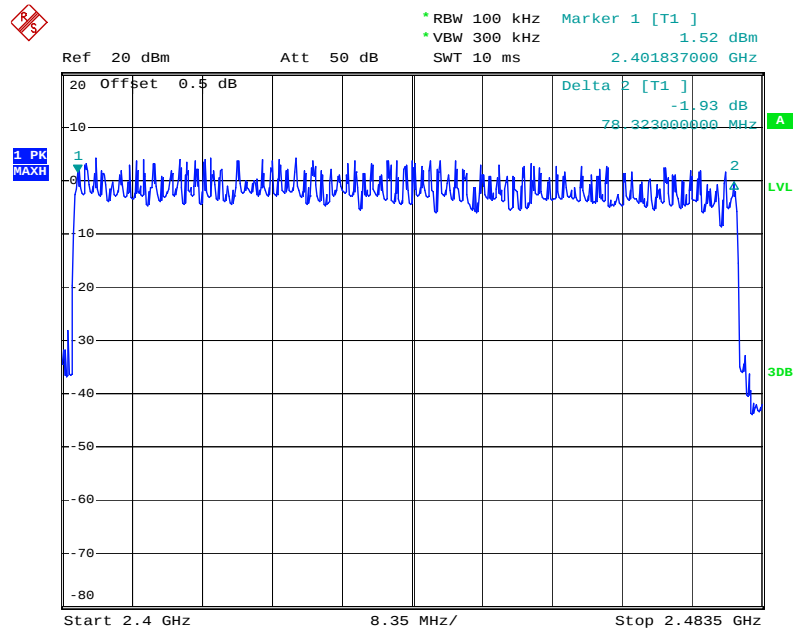
Total number of hopping channel	Measurement result(CH)	Limit(CH)
	79	≥ 15

The spectrum analyzer plots are attached as below.



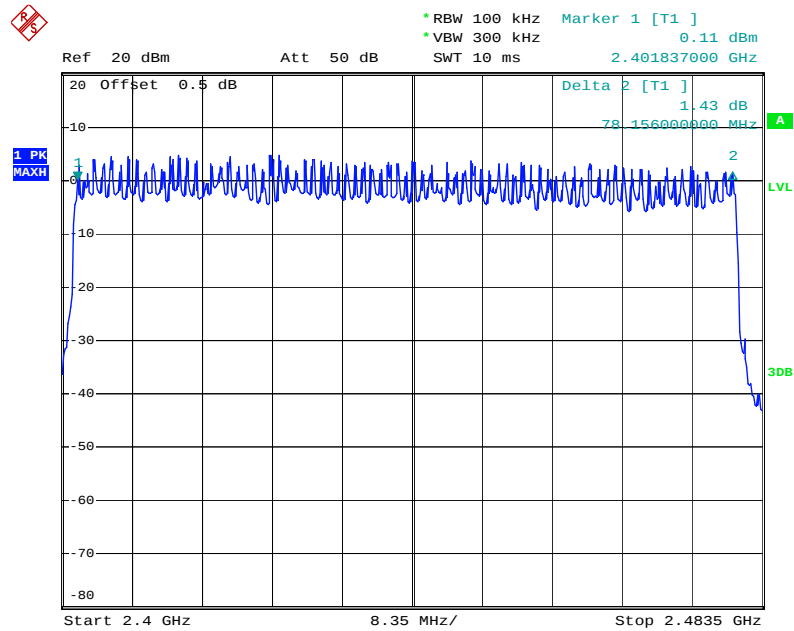
Date: 30.JUN.2014 10:40:23

Number of hopping channels($\Pi/4$ -DQPSK)



Date: 30.JUN.2014 10:45:00

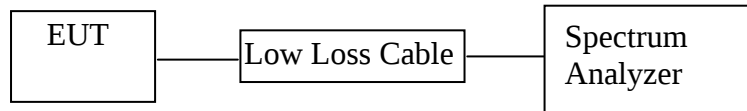
Number of hopping channels(8DPSK)



Date: 30.JUN.2014 10:50:34

8. DWELL TIME TEST

8.1. Block Diagram of Test Setup



(EUT: KeyFolio Fit Universal Folio with Keyboard)

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	0.440	140.80	400
	2441	0.420	134.40	400
	2480	0.420	134.40	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(2*79)) \times 31.6$				
DH3	2402	1.700	272.00	400
	2441	1.680	268.80	400
	2480	1.680	268.80	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(4*79)) \times 31.6$				
DH5	2402	3.000	320.00	400
	2441	3.000	320.00	400
	2480	3.030	323.20	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(6*79)) \times 31.6$				

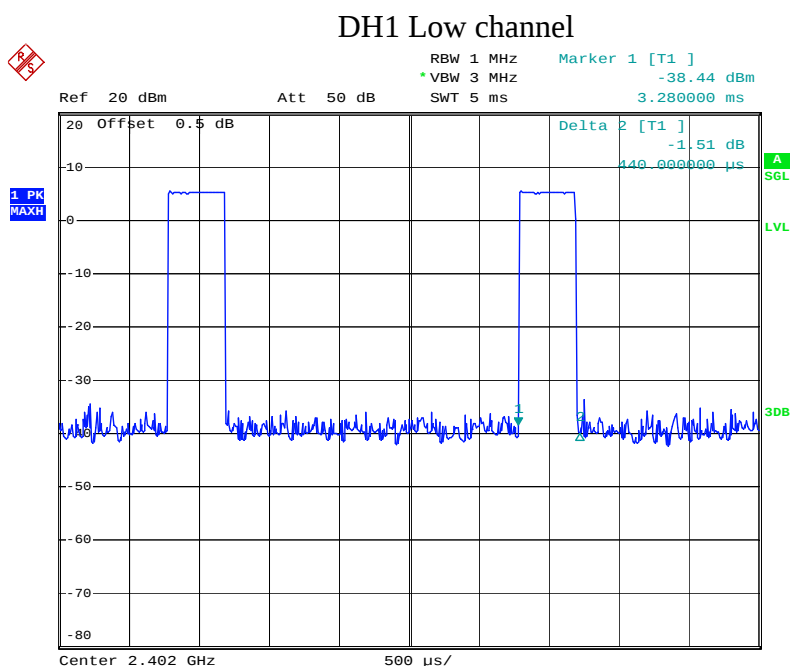
Π/4-DQPSK

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.430	137.60	400
	2441	0.440	140.80	400
	2480	0.440	140.80	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(2*79)) \times 31.6$				
DH3	2402	1.610	257.60	400
	2441	1.620	259.20	400
	2480	1.660	265.60	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(4*79)) \times 31.6$				
DH5	2402	2.980	317.90	400
	2441	3.010	321.07	400
	2480	3.680	392.53	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(6*79)) \times 31.6$				

8DPSK Mode

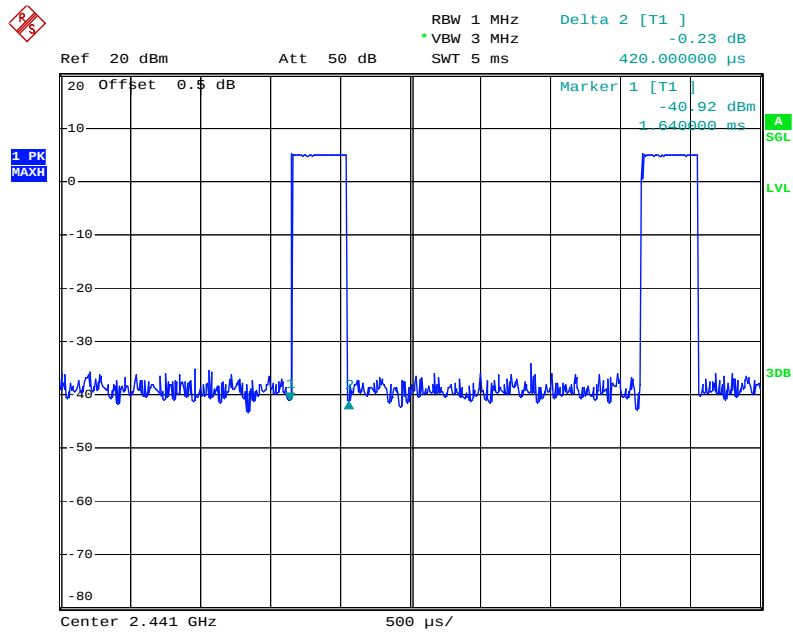
Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.460	147.20	400
	2441	0.440	140.80	400
	2480	0.430	137.60	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(2 \times 79)) \times 31.6$				
DH3	2402	1.550	248.00	400
	2441	1.530	244.80	400
	2480	1.570	251.20	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(4 \times 79)) \times 31.6$				
DH5	2402	2.630	280.53	400
	2441	2.690	286.93	400
	2480	2.630	280.53	400
A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(6 \times 79)) \times 31.6$				

The spectrum analyzer plots are attached as below.



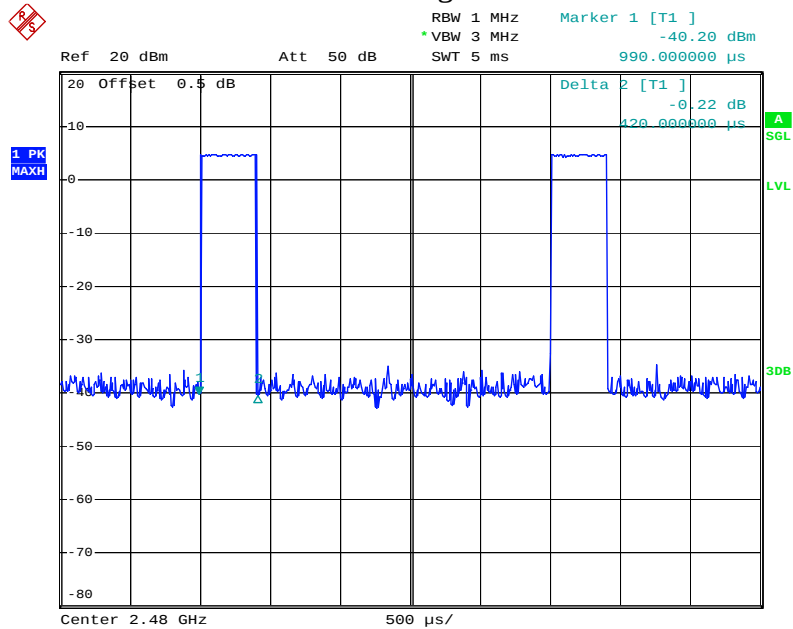
Date: 30.JUN.2014 11:17:45

DH1 Middle channel



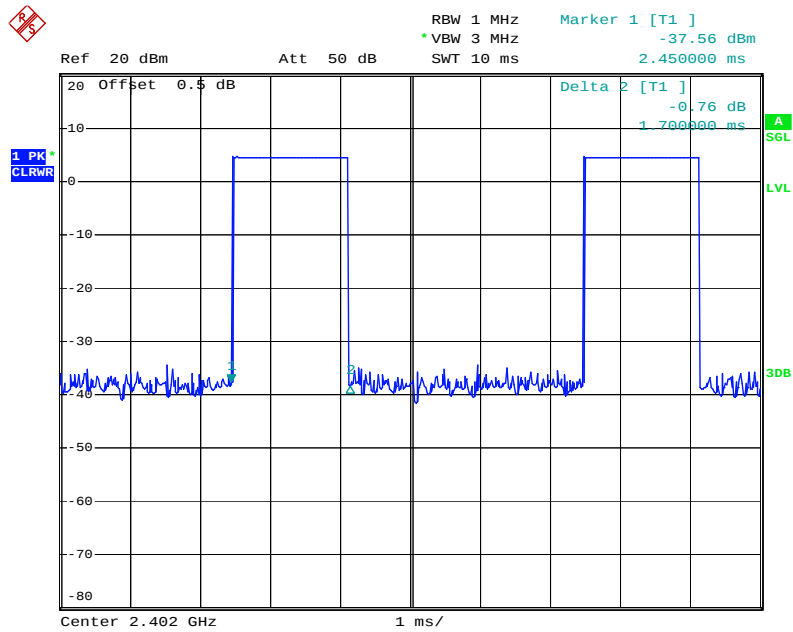
Date: 30.JUN.2014 11:17:09

DH1 High channel



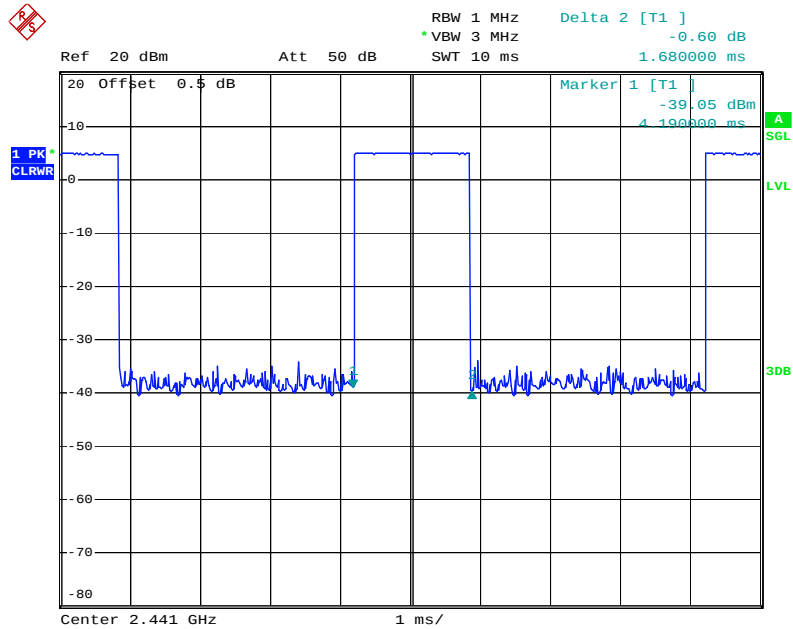
Date: 30.JUN.2014 11:16:28

DH3 Low channel



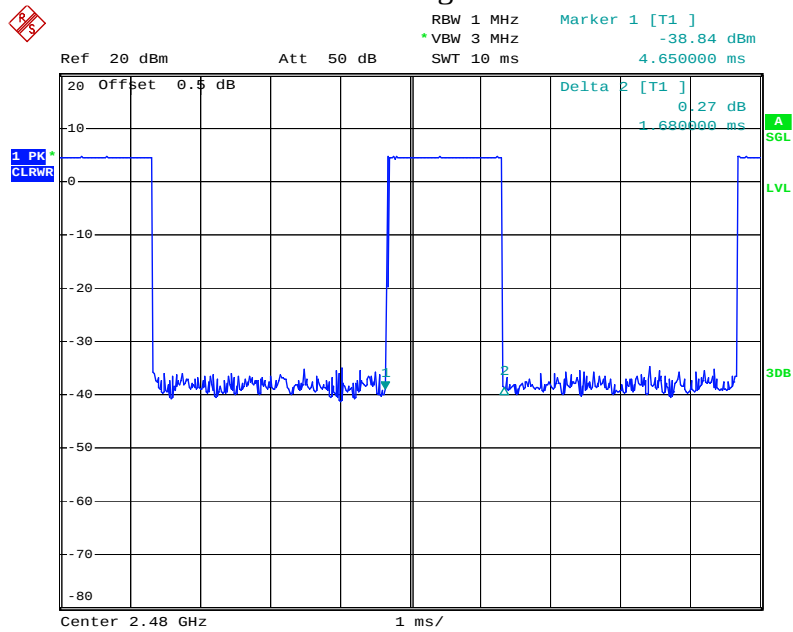
Date: 30.JUN.2014 13:54:12

DH3 Middle channel



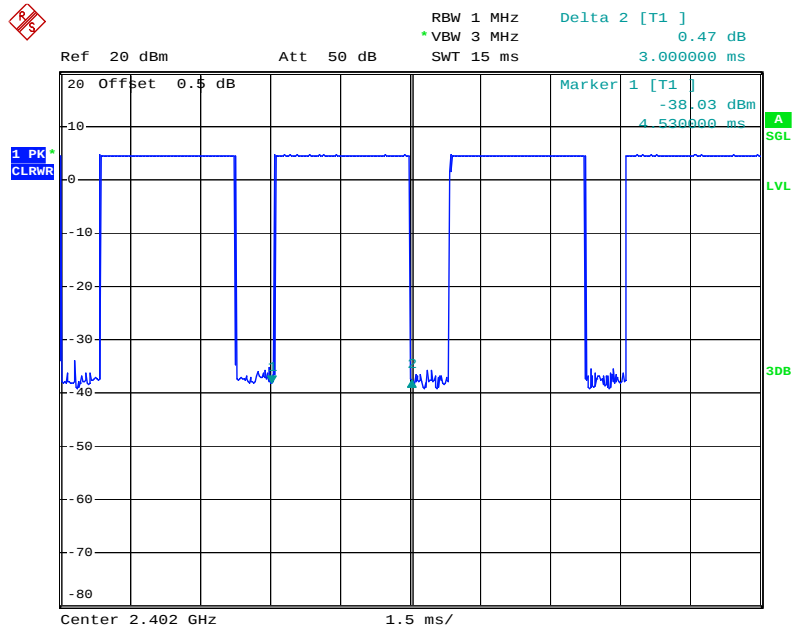
Date: 30.JUN.2014 13:54:51

DH3 High channel



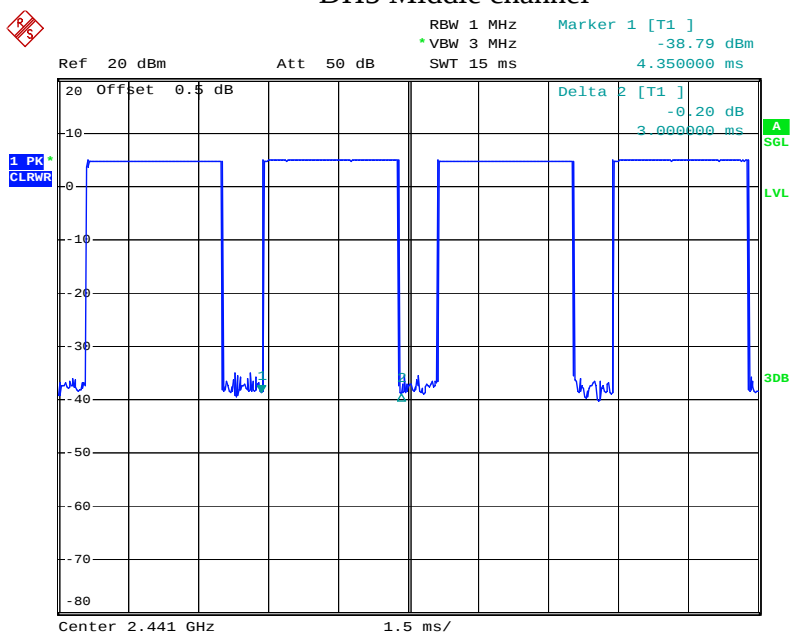
Date: 30.JUN.2014 13:55:28

DH5 Low channel



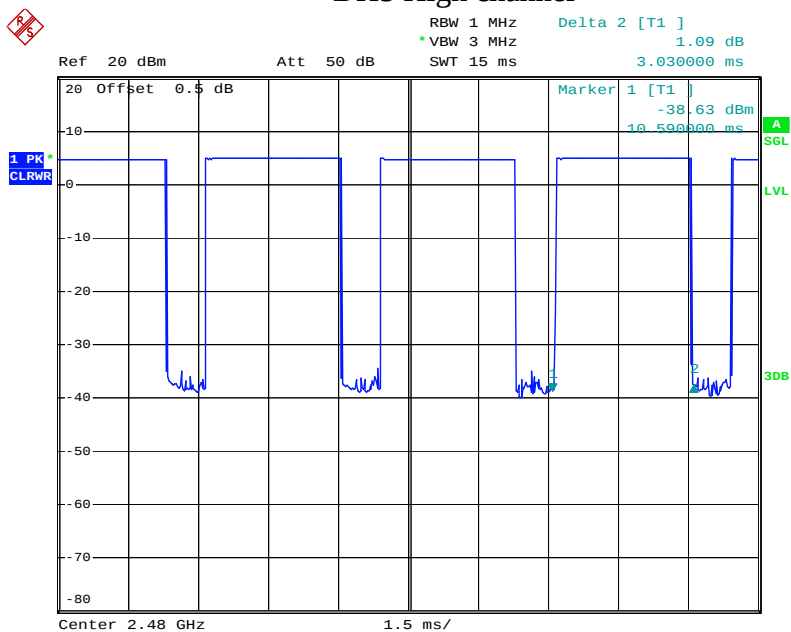
Date: 30.JUN.2014 13:53:14

DH5 Middle channel



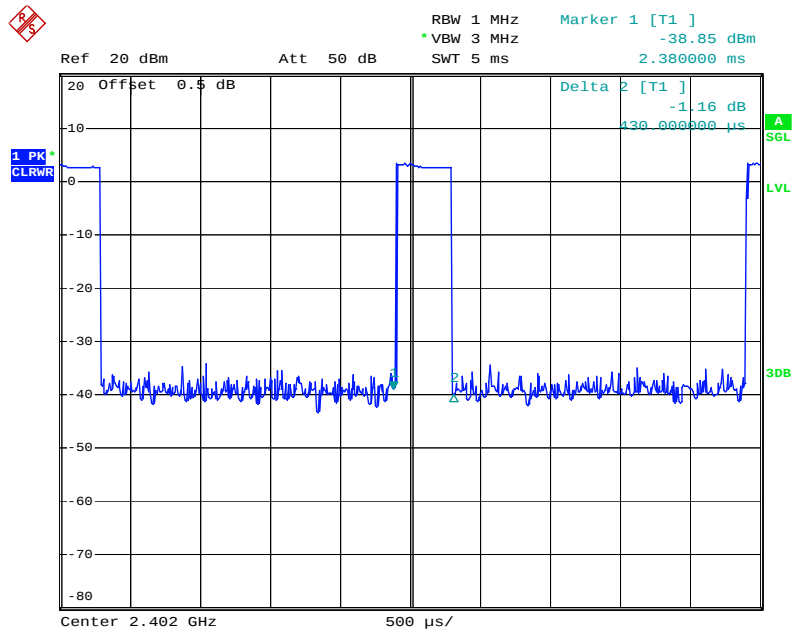
Date: 30.JUN.2014 13:52:43

DH5 High channel



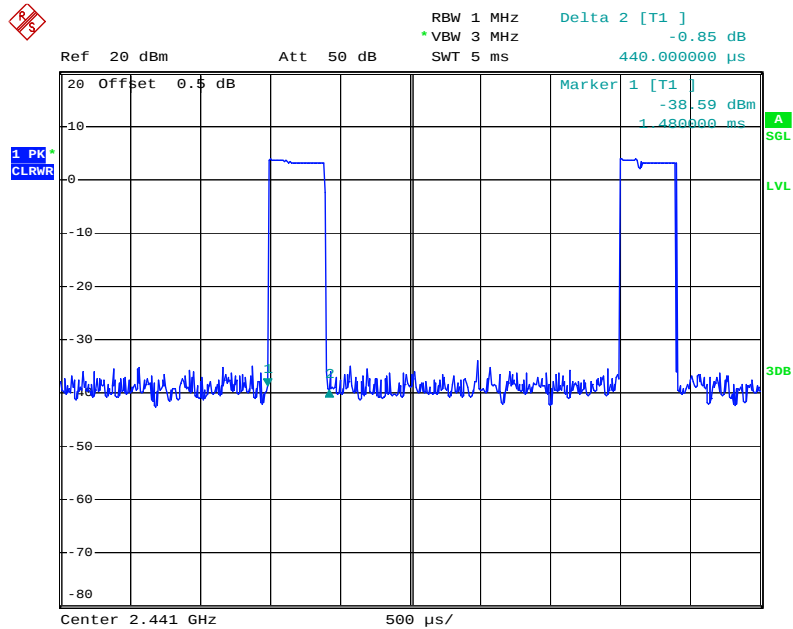
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2DH1 Low channel



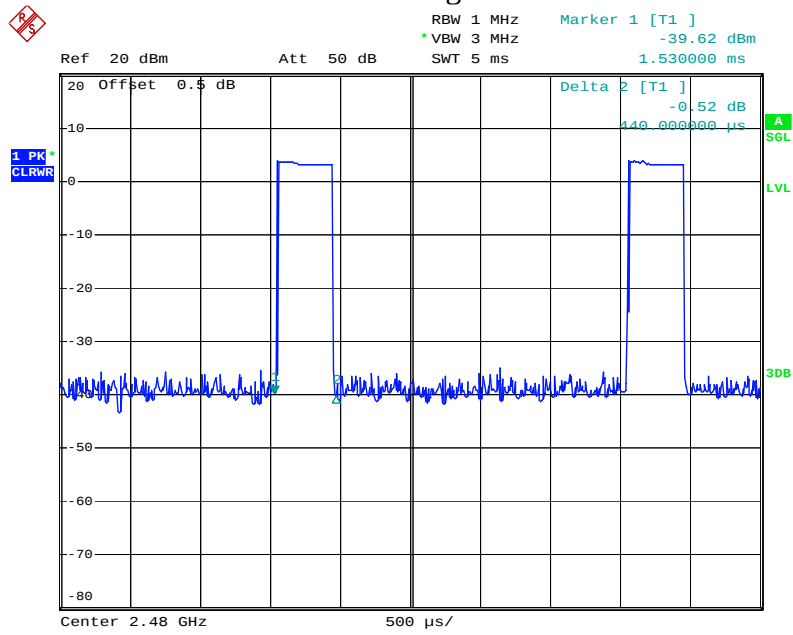
Date: 30.JUN.2014 13:59:21

2DH1 Middle channel



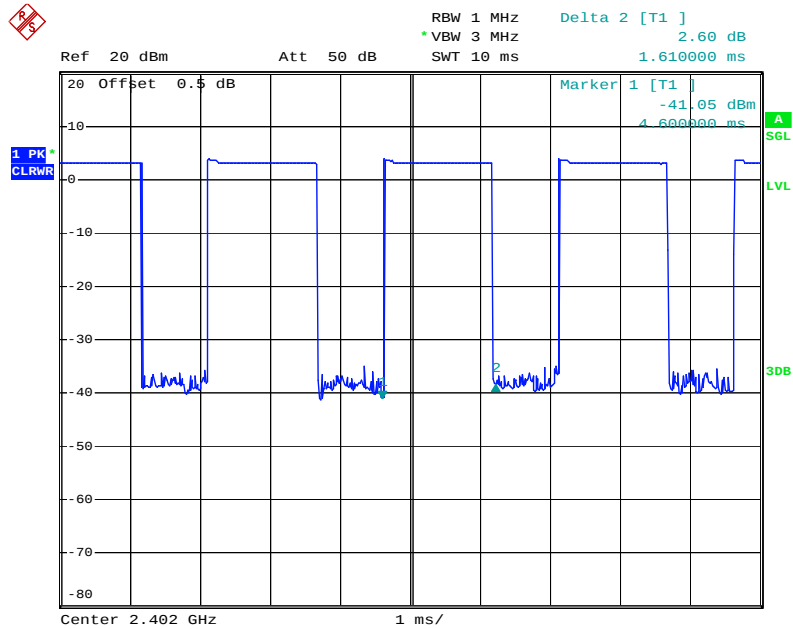
Date: 30.JUN.2014 13:58:22

2DH1 High channel



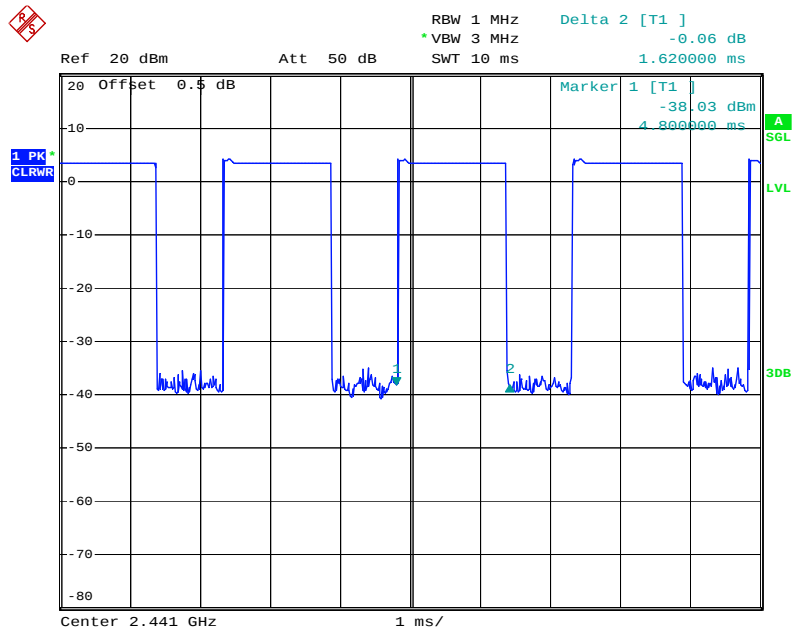
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2DH3 Low channel



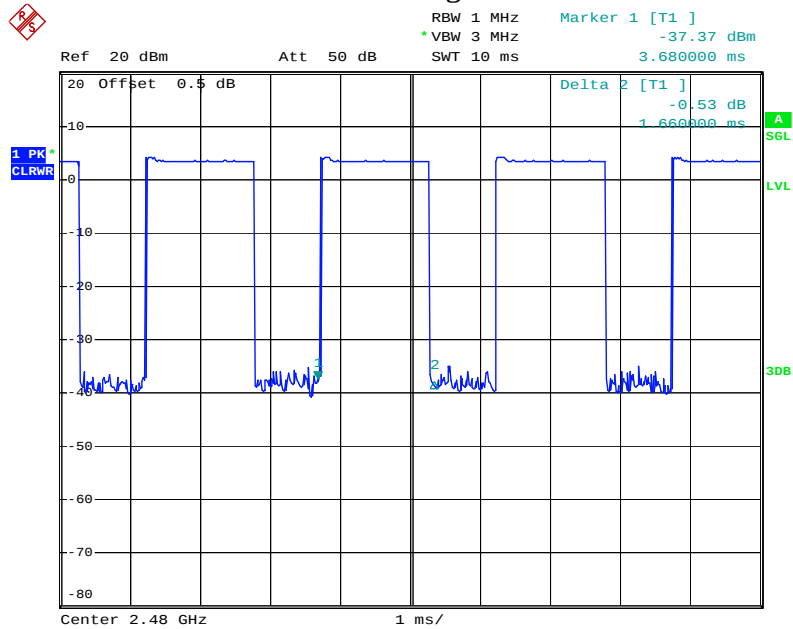
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2DH3 Middle channel



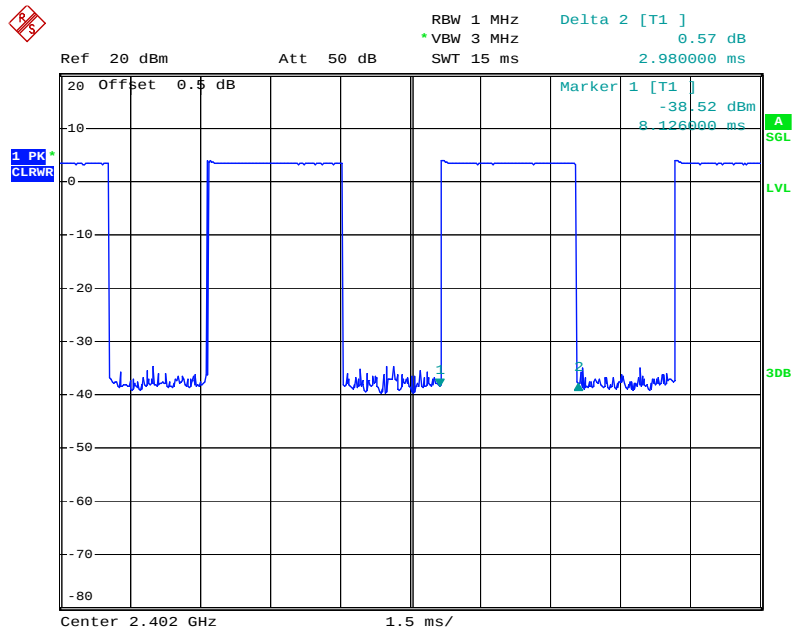
Date: 30.JUN.2014 14:01:05

2DH3 High channel



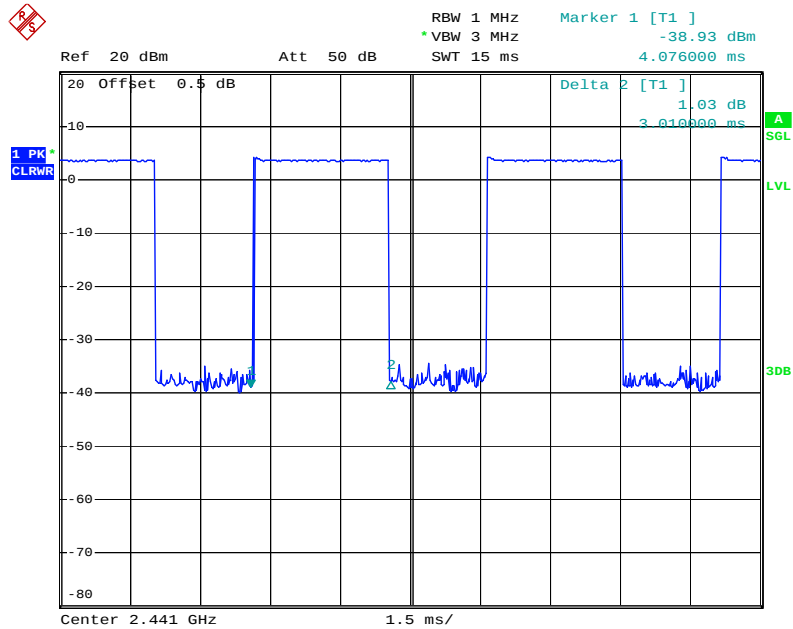
Date: 30.JUN.2014 14:01:41

2DH5 Low channel



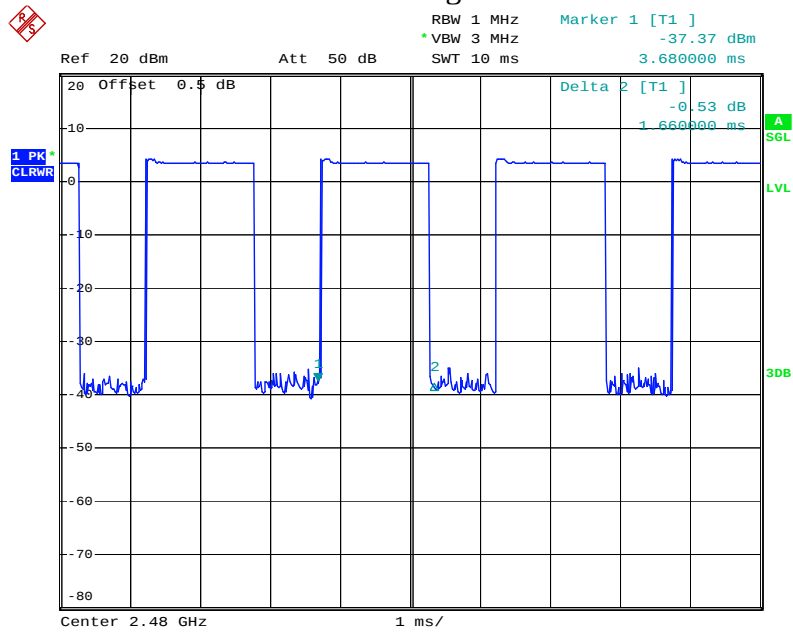
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2DH5 Middle channel



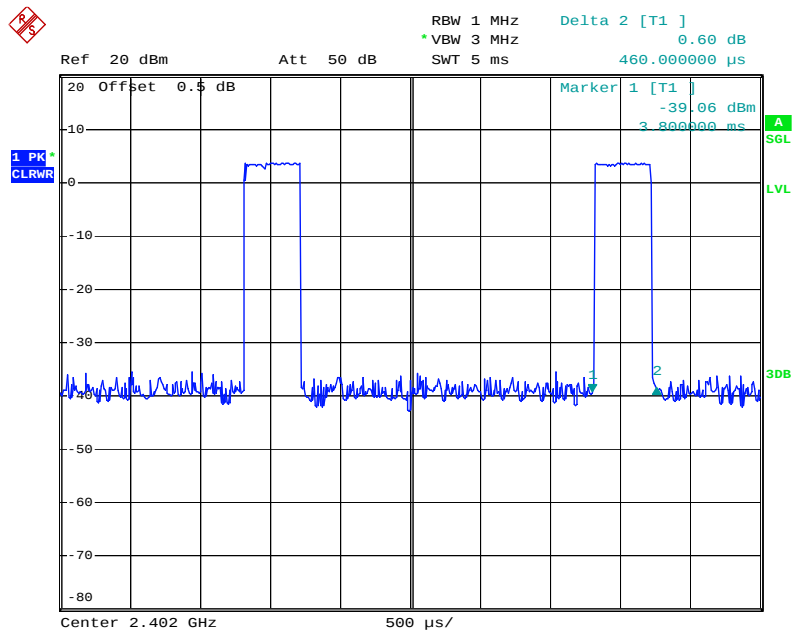
Date: 30.JUN.2014 14:04:42

2DH5 High channel



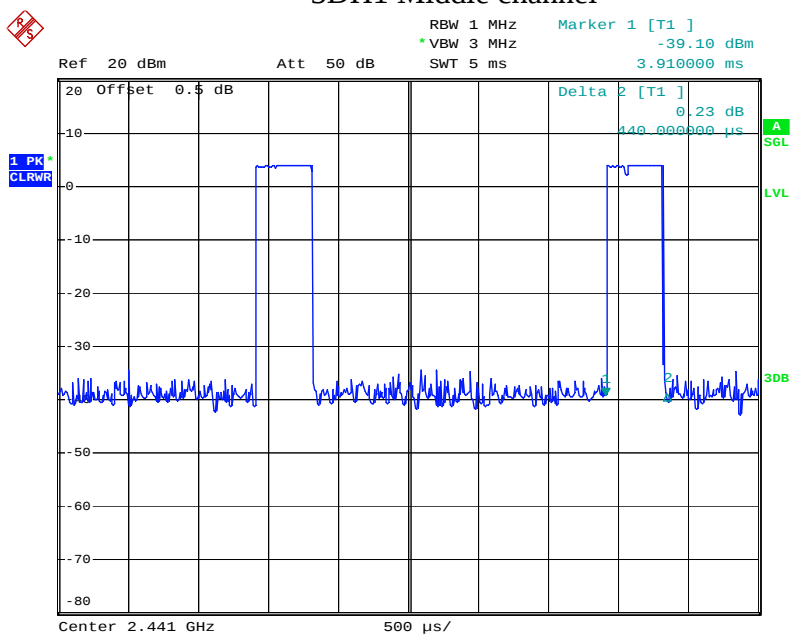
Date: 30.JUN.2014 14:01:41

3DH1 Low channel



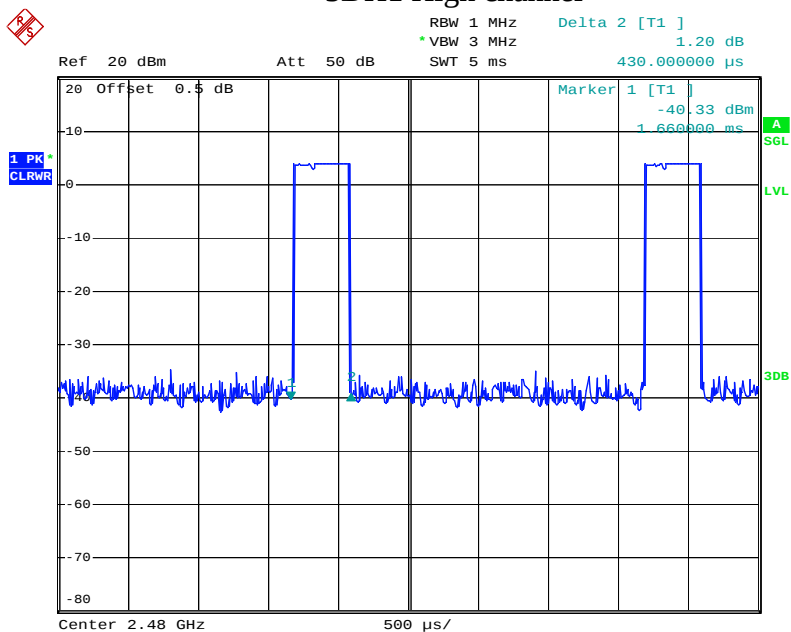
Date: 30.JUN.2014 14:06:27

3DH1 Middle channel



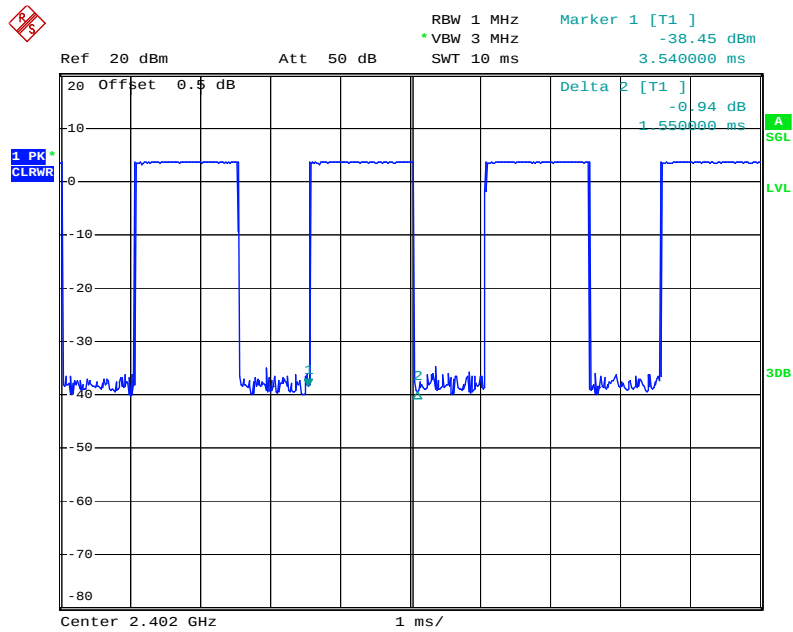
Date: 30.JUN.2014 14:06:56

3DH1 High channel



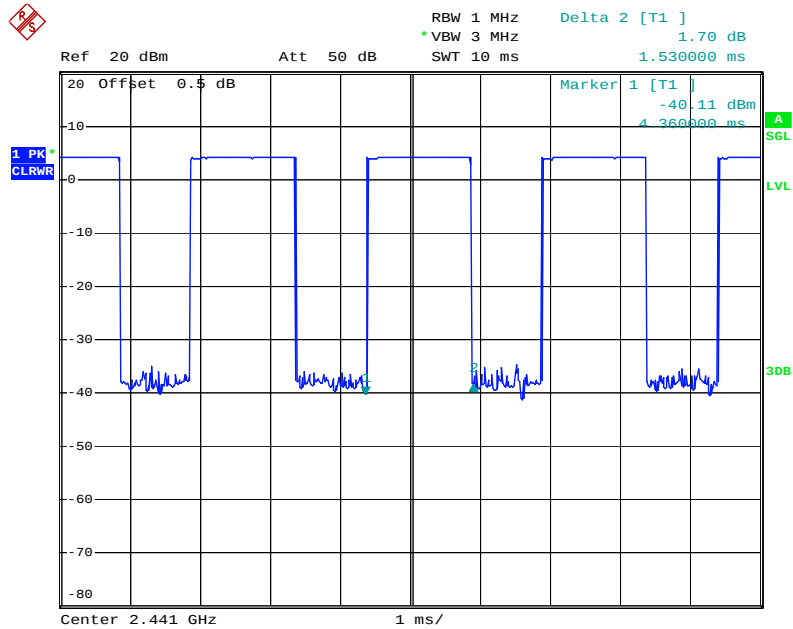
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3DH3 Low channel



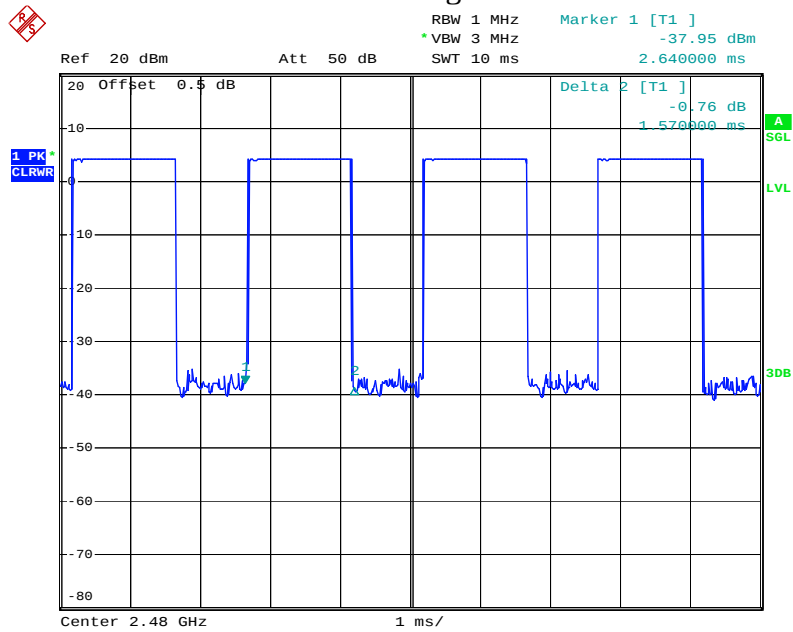
Date: 30.JUN.2014 14:09:54

3DH3 Middle channel



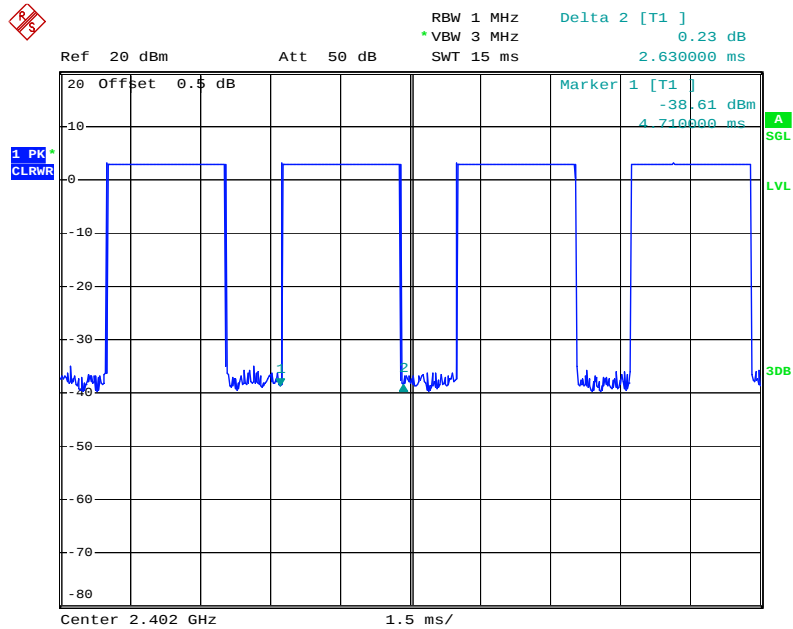
Date: 30.JUN.2014 14:09:22

3DH3 High channel



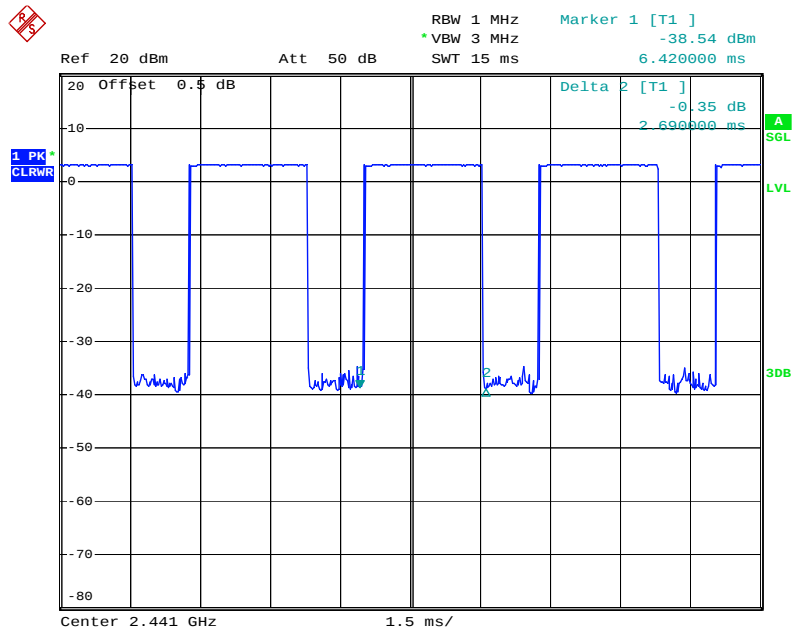
Date: 30.JUN.2014 14:08:54

3DH5 Low channel



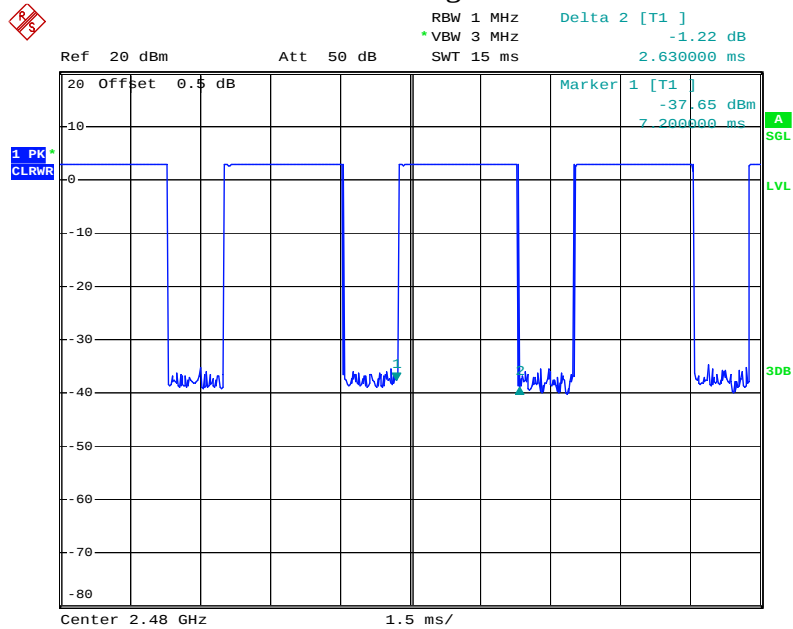
Date: 30.JUN.2014 14:11:24

3DH5 Middle channel



Date: 30.JUN.2014 14:11:58

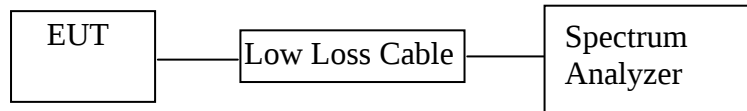
3DH5 High channel



Date: 30.JUN.2014 14:12:30

9. MAXIMUM PEAK OUTPUT POWER TEST

9.1. Block Diagram of Test Setup



(EUT: KeyFolio Fit Universal Folio with Keyboard)

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	5.09/0.003	30 / 1.0
Middle	2441	4.78/0.003	30 / 1.0
High	2480	3.28/0.002	30 / 1.0

Π/4-DQPSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	5.41/0.003	21 / 0.125
Middle	2441	5.11/0.003	21 / 0.125
High	2480	3.46/0.002	21 / 0.125

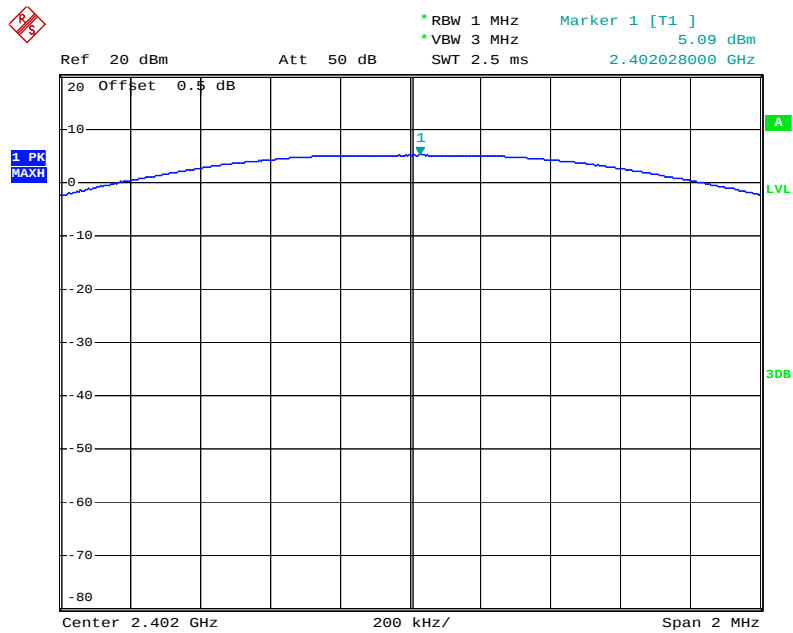
8DPSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	4.68/0.003	21 / 0.125
Middle	2441	4.50/0.003	21 / 0.125
High	2480	3.03/0.002	21 / 0.125

The spectrum analyzer plots are attached as below.

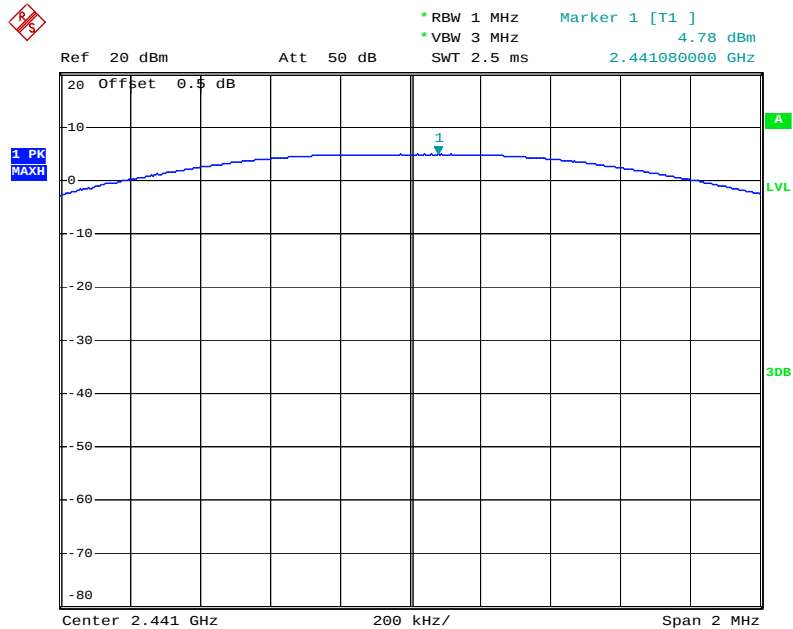
GFSK Mode

Low channel



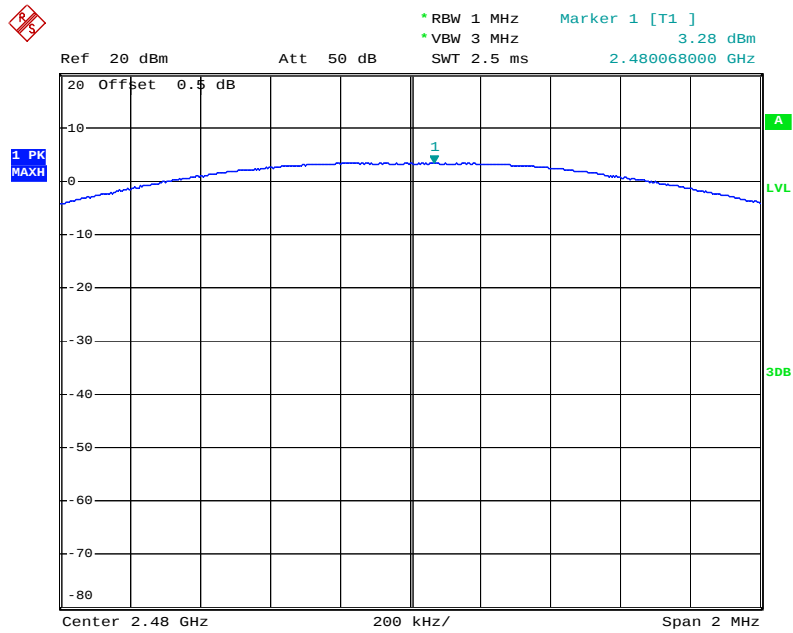
Date: 30.JUN.2014 10:57:28

Middle channel



Date: 30.JUN.2014 10:58:03

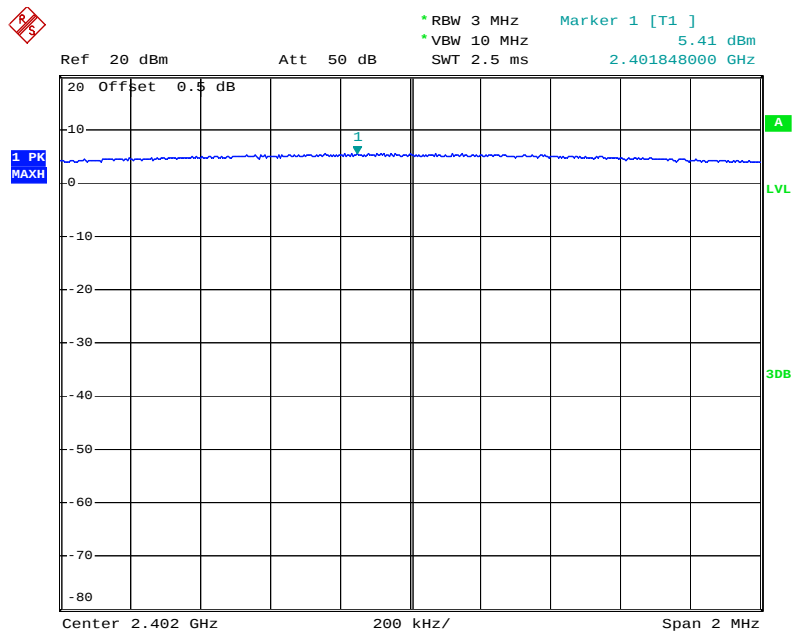
High channel



Date: 30.JUN.2014 10:58:33

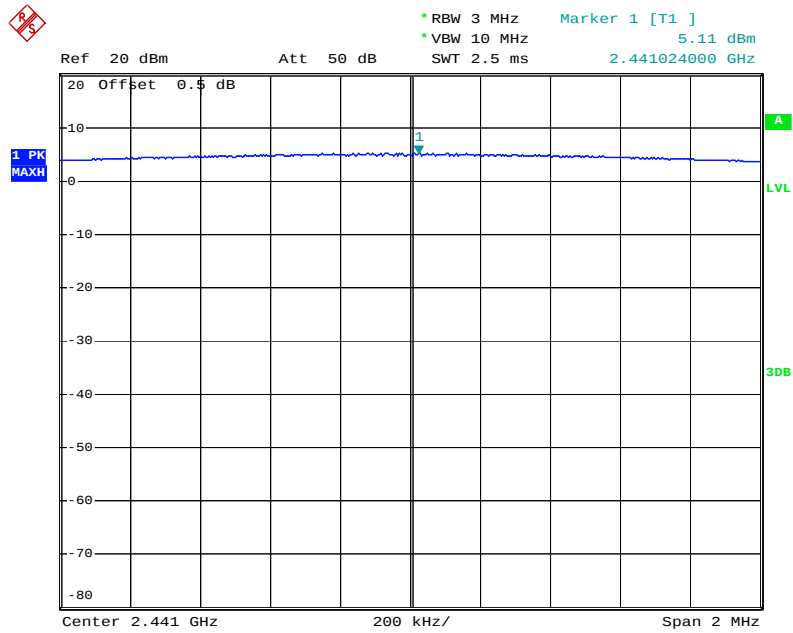
Π/4-DQPSK Mode

Low channel



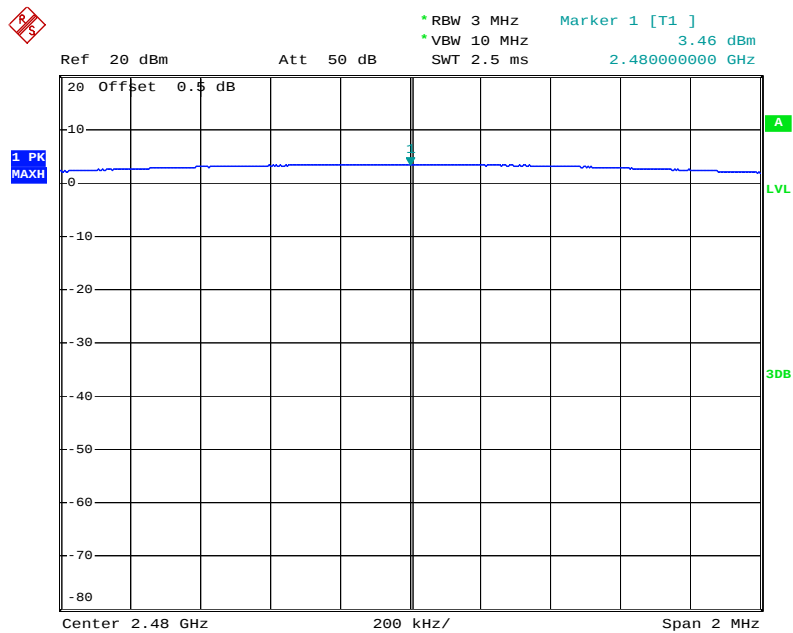
Date: 30.JUN.2014 10:51:29

Middle channel



Date: 30.JUN.2014 10:51:53

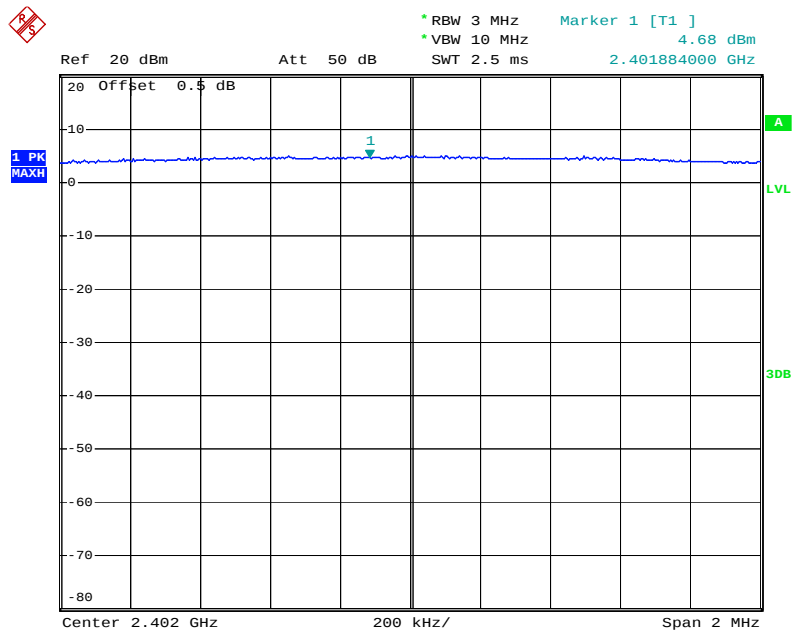
High channel



Date: 30.JUN.2014 10:55:06

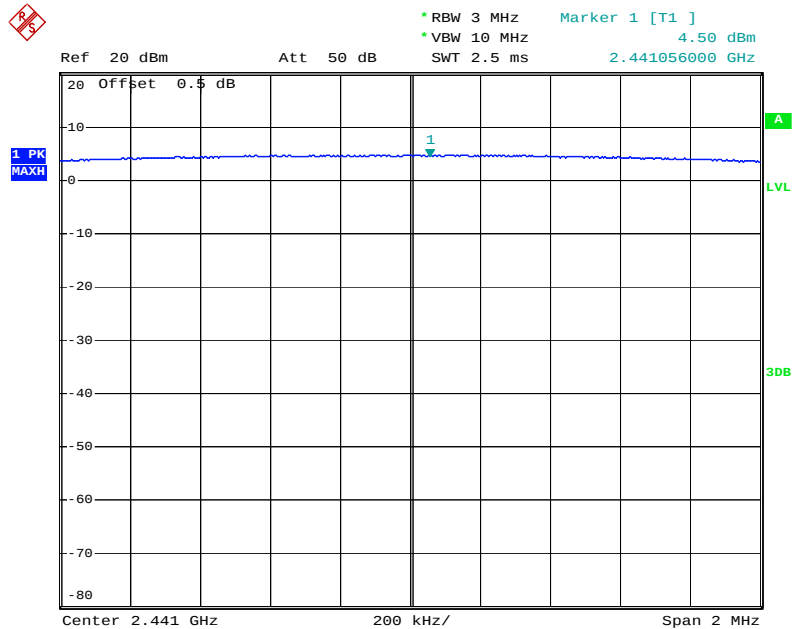
8DPSK Mode

Low channel



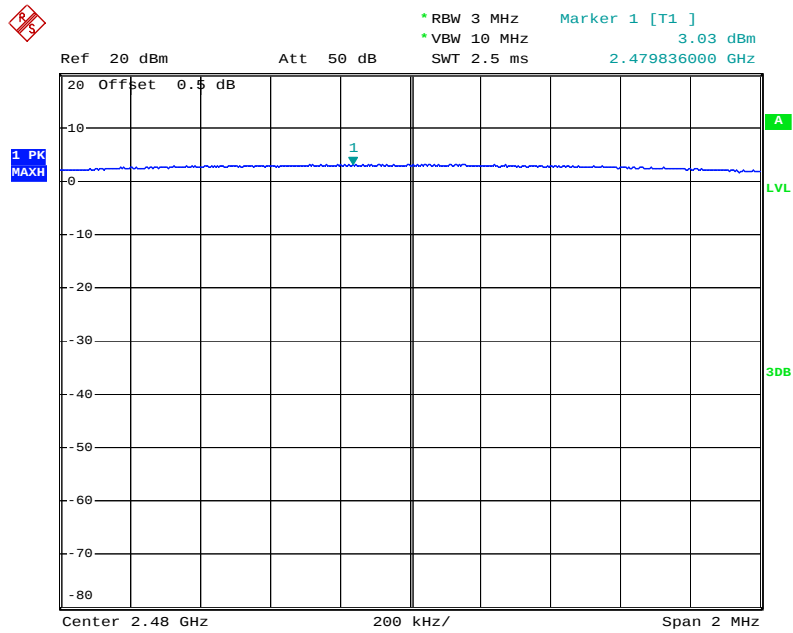
Date: 30.JUN.2014 10:56:46

Middle channel



Date: 30.JUN.2014 10:56:18

High channel



Date: 30.JUN.2014 10:55:41

10. RADIATED EMISSION TEST

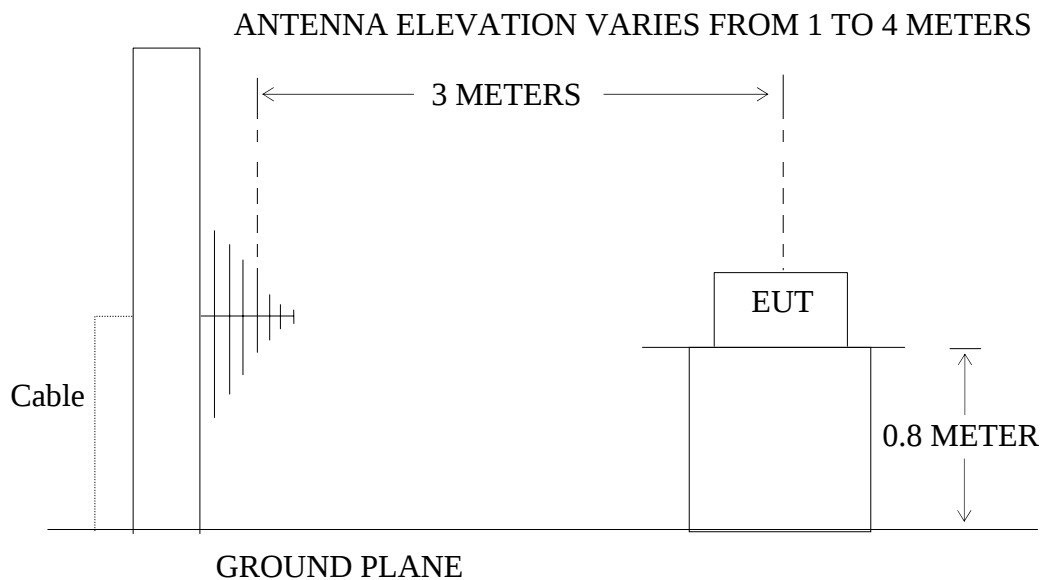
10.1. Block Diagram of Test Setup

10.1.1. Block diagram of connection between the EUT and simulators

EUT

(EUT: KeyFolio Fit Universal Folio with Keyboard)

10.1.2. Anechoic Chamber Test Setup Diagram



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			

¹Until February 1, 1999, this restricted band shall be 0.490-0.510

²Above 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 Section 15.209 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. 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 bilog 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 interface cables must be manipulated according to ANSI C63.4- 2009 on radiated emission measurement.

The bandwidth of test receiver (R&S ESI26) is set at 120 KHz in 30-1000MHz. and set at 1MHz in above 1000MHz.

The frequency range from 30MHz to 25000MHz is checked.

The final measurement in band 9-90 kHz, 110-490 kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

A Quasi-peak measurement was then made for that frequency point for below 1GHz test.

PK and AV for above 1GHz emission test.

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth for average detection(AV) at below at frequency above 1GHz.

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

Frequency Band (MHz)	Function	Resolution Bandwidth	Video Bandwidth
30 to 1000	Peak	100 kHz	100 kHz
Above 1000	Peak	1 MHz	1 MHz
	Average	1 MHz	10 Hz

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 18-25GHz emissions are not reported, because the levels are too low against the limit.

Below 1GHz

Job No.: alen #4490

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: TX 2402MHz

Model: M01268

Manufacturer: Doking

Polarization: Horizontal

Power Source: DC 3.7V

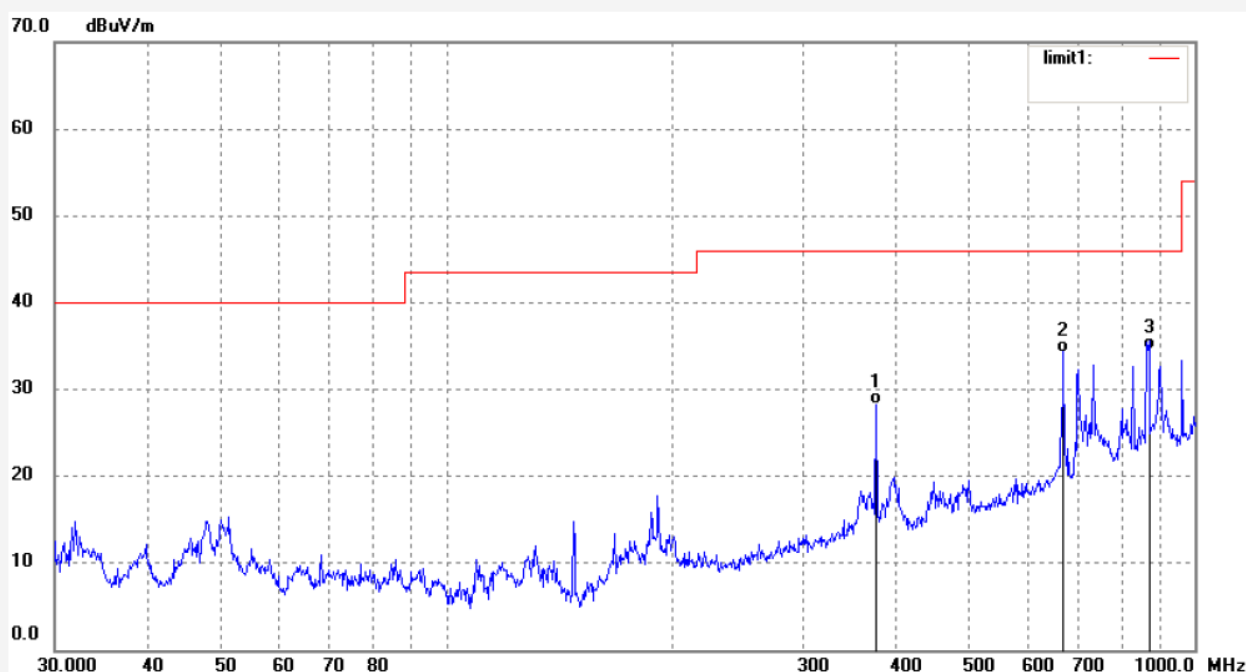
Date: 14/06/24/

Time: 8/53/59

Engineer Signature:

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	374.6225	44.15	-15.82	28.33	46.00	-17.67	QP			
2	668.1422	44.62	-10.32	34.30	46.00	-11.70	QP			
3	869.1301	41.23	-6.64	34.59	46.00	-11.41	QP			

Job No.: alen #4491

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: TX 2402MHz

Model: M01268

Manufacturer: Doking

Polarization: Vertical

Power Source: DC 3.7V

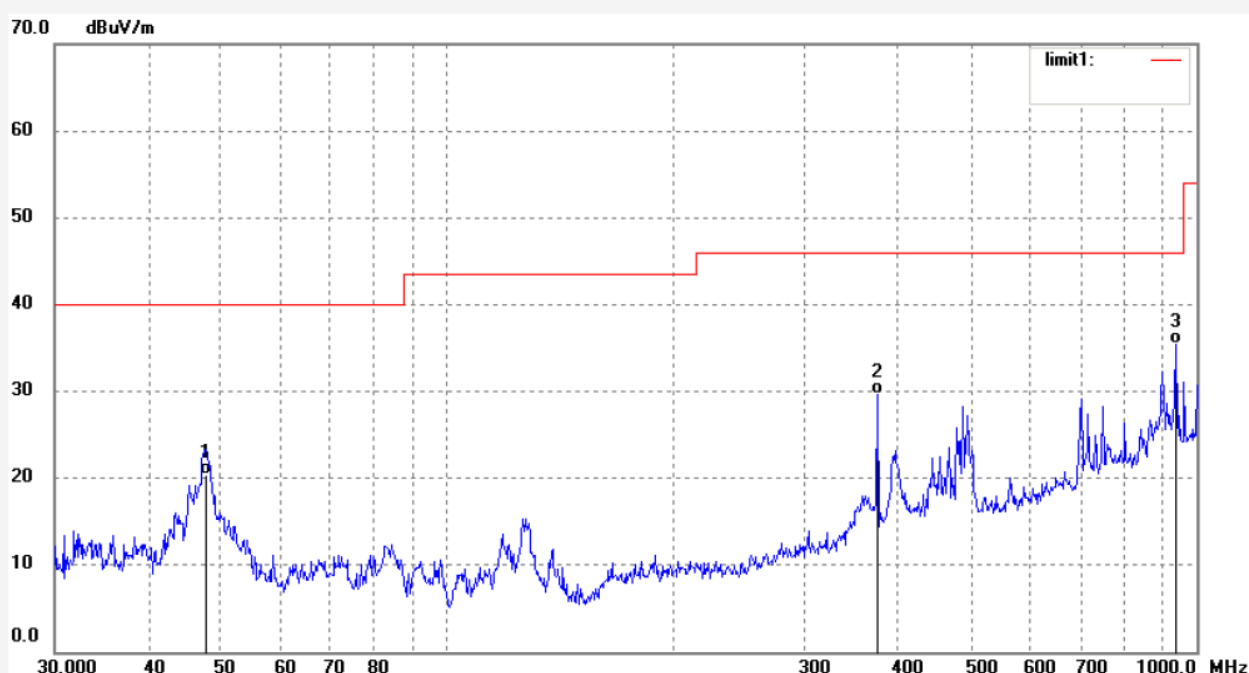
Date: 14/06/24/

Time: 8/55/07

Engineer Signature:

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	47.8260	40.99	-20.57	20.42	40.00	-19.58	QP			
2	374.6225	45.51	-15.82	29.69	46.00	-16.31	QP			
3	938.8325	41.08	-5.56	35.52	46.00	-10.48	QP			

Job No.: alen #4493

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: TX 2441MHz

Model: M01268

Manufacturer: Doking

Polarization: Horizontal

Power Source: DC 3.7V

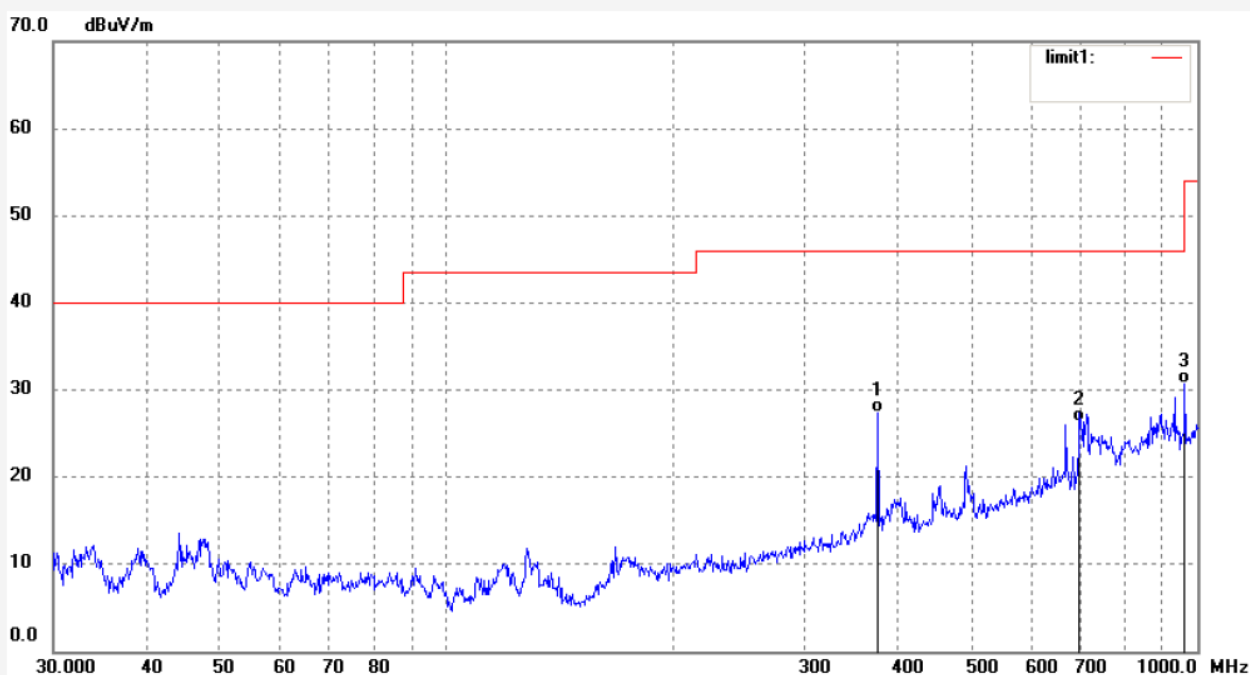
Date: 14/06/24/

Time: 9/00/25

Engineer Signature:

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	374.6225	43.27	-15.82	27.45	46.00	-18.55	QP			
2	696.8567	36.12	-9.85	26.27	46.00	-19.73	QP			
3	962.1622	35.87	-5.23	30.64	54.00	-23.36	QP			

Job No.: alen #4492

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: TX 2441MHz

Model: M01268

Manufacturer: Doking

Polarization: Vertical

Power Source: DC 3.7V

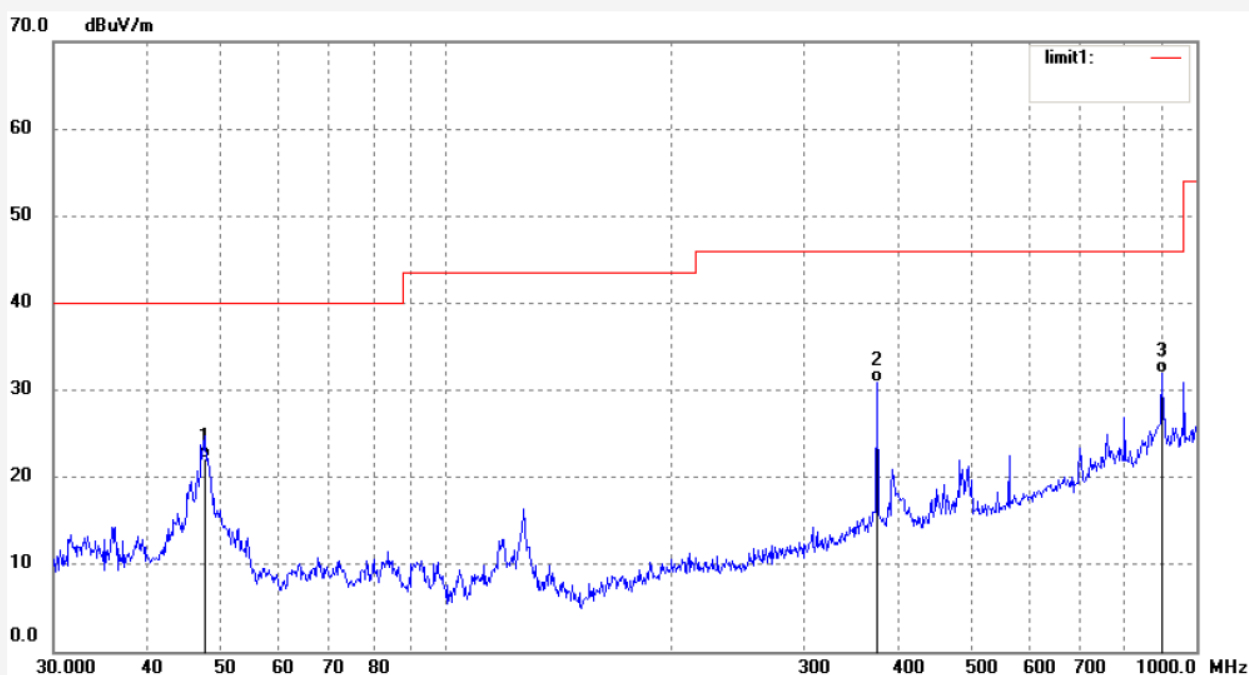
Date: 14/06/24/

Time: 8/56/43

Engineer Signature:

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	47.6584	42.68	-20.56	22.12	40.00	-17.88	QP			
2	374.6225	46.63	-15.82	30.81	46.00	-15.19	QP			
3	900.1473	38.01	-6.11	31.90	46.00	-14.10	QP			

Job No.: alen #4494

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: TX 2480MHz

Model: M01268

Manufacturer: Doking

Polarization: Horizontal

Power Source: DC 3.7V

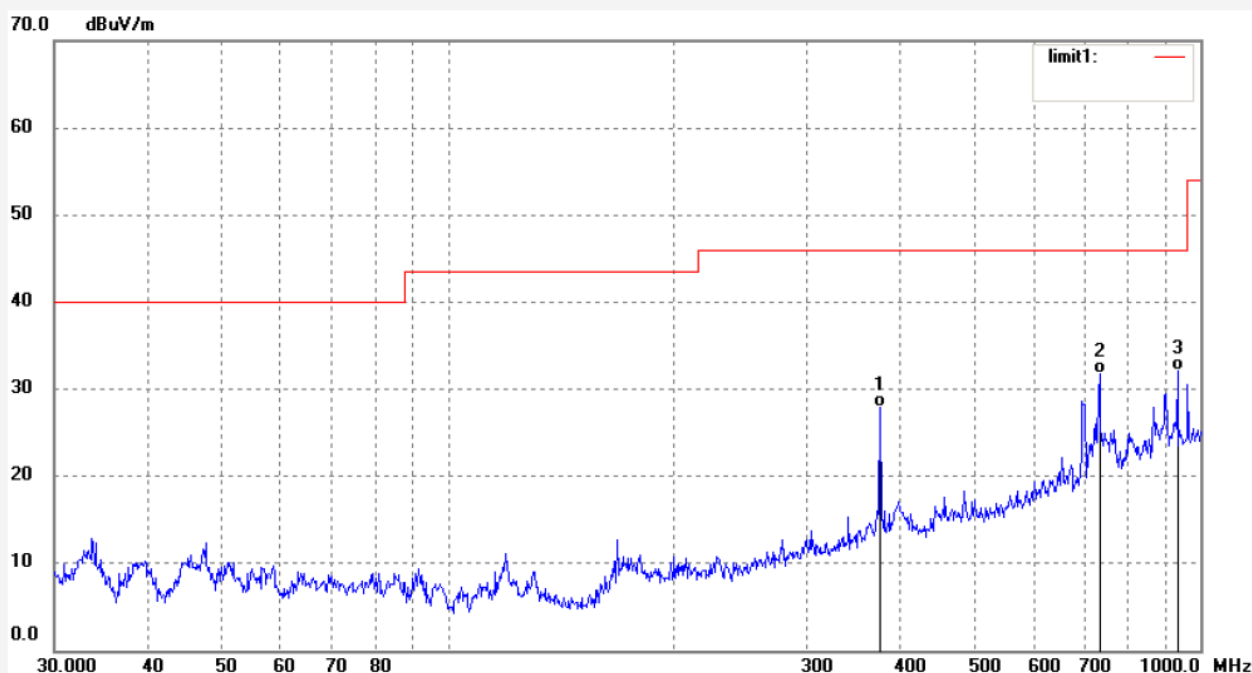
Date: 14/06/24/

Time: 9/01/05

Engineer Signature:

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	374.6225	43.77	-15.82	27.95	46.00	-18.05	QP			
2	734.4913	40.75	-8.98	31.77	46.00	-14.23	QP			
3	932.2714	37.75	-5.63	32.12	46.00	-13.88	QP			

Job No.: alen #4495

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: TX 2480MHz

Model: M01268

Manufacturer: Doking

Polarization: Vertical

Power Source: DC 3.7V

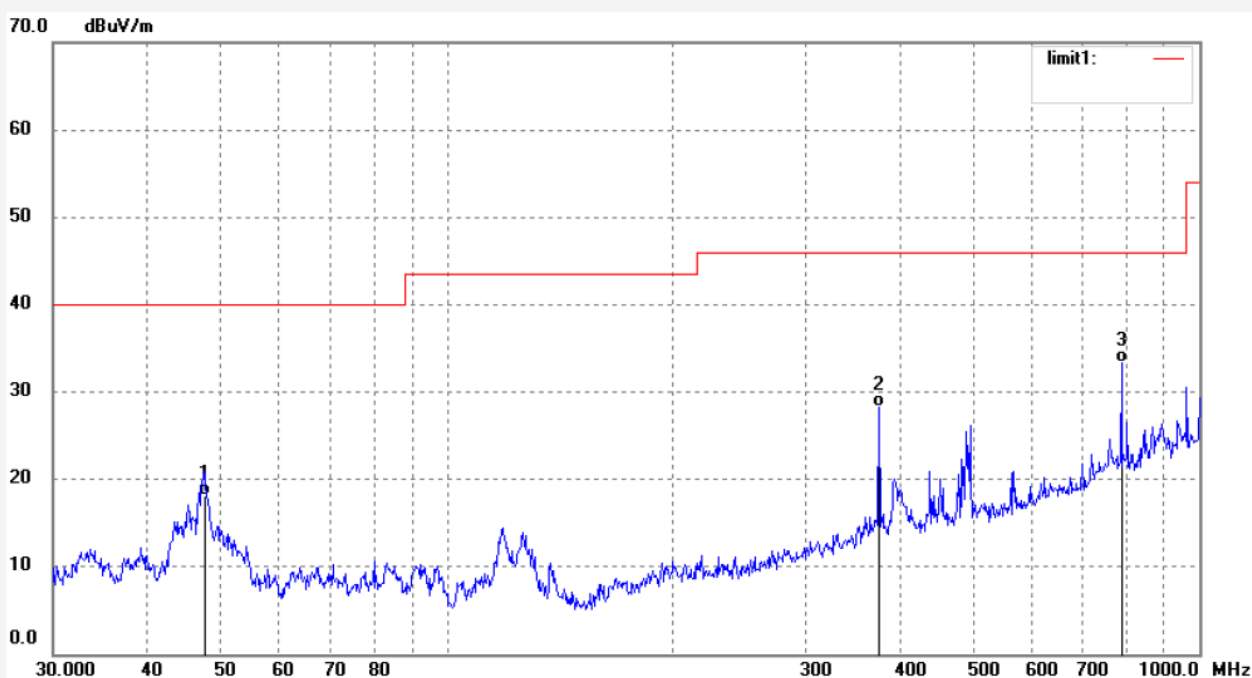
Date: 14/06/24/

Time: 9/02/16

Engineer Signature:

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	47.6584	38.68	-20.56	18.12	40.00	-21.88	QP			
2	374.6225	44.11	-15.82	28.29	46.00	-17.71	QP			
3	787.8513	41.26	-7.96	33.30	46.00	-12.70	QP			

Above 1GHz



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Job No.: alen #4514

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: TX 2402MHz

Model: M01268

Manufacturer: Doking

Polarization: Horizontal

Power Source: DC 3.7V

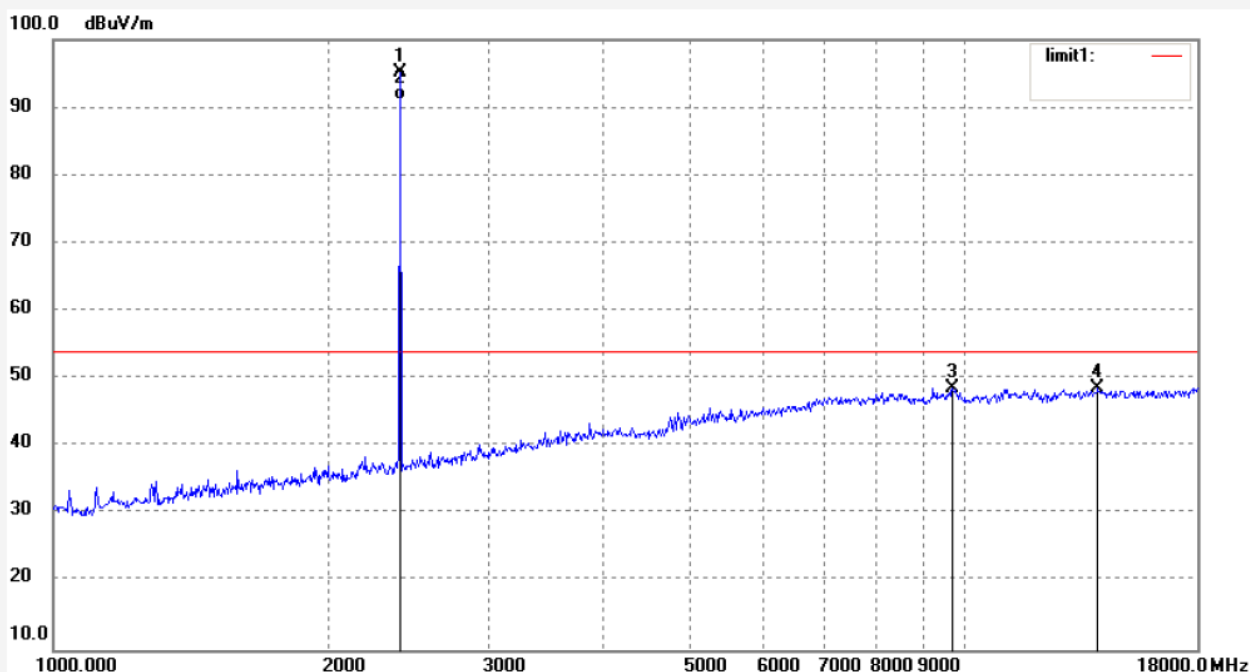
Date: 14/06/24/

Time: 11/44/23

Engineer Signature:

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.053	102.00	-6.76	95.24			peak			
2	2402.053	97.85	-6.76	91.09			AVG			
3	9697.152	43.60	5.00	48.60	54.00	-5.40	peak			
4	13997.929	38.13	10.40	48.53	54.00	-5.47	peak			

Job No.: alen #4515

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: TX 2402MHz

Model: M01268

Manufacturer: Doking

Polarization: Vertical

Power Source: DC 3.7V

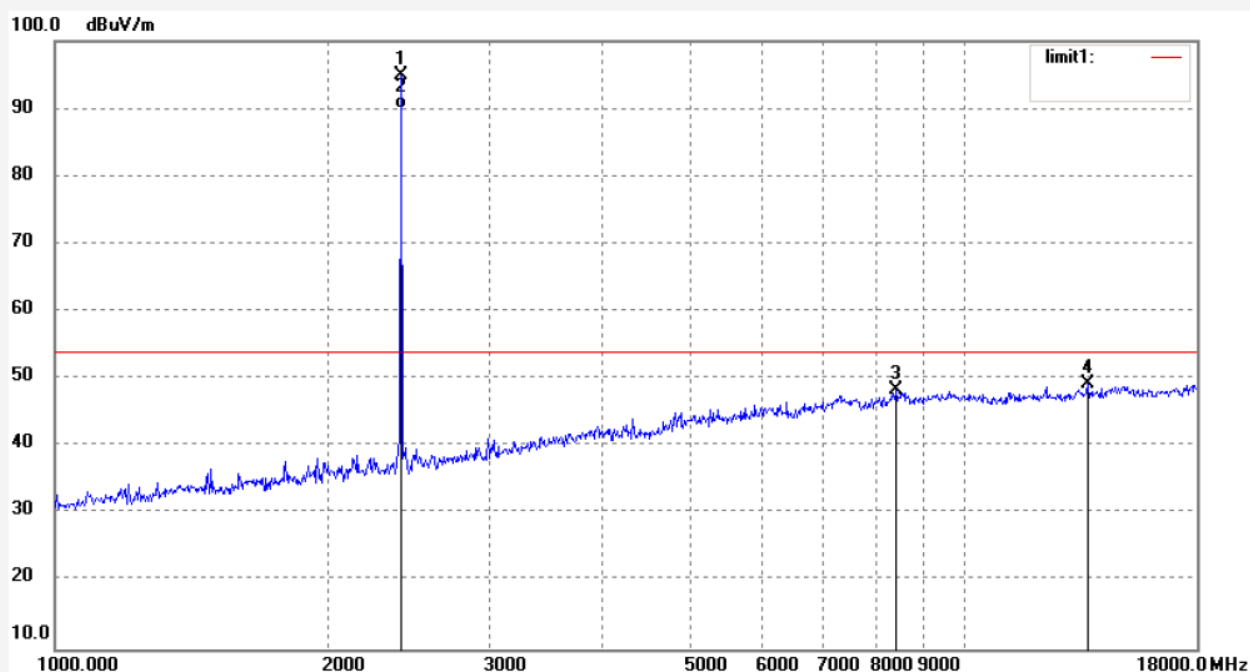
Date: 14/06/24/

Time: 11/46/59

Engineer Signature:

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.053	101.61	-6.76	94.85			peak			
2	2402.053	96.79	-6.76	90.03			AVG			
3	8416.584	45.47	2.85	48.32	54.00	-5.68	peak			
4	13638.492	39.78	9.43	49.21	54.00	-4.79	peak			



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Job No.: alen #4518

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: TX 2441MHz

Model: M01268

Manufacturer: Doking

Polarization: Horizontal

Power Source: DC 3.7V

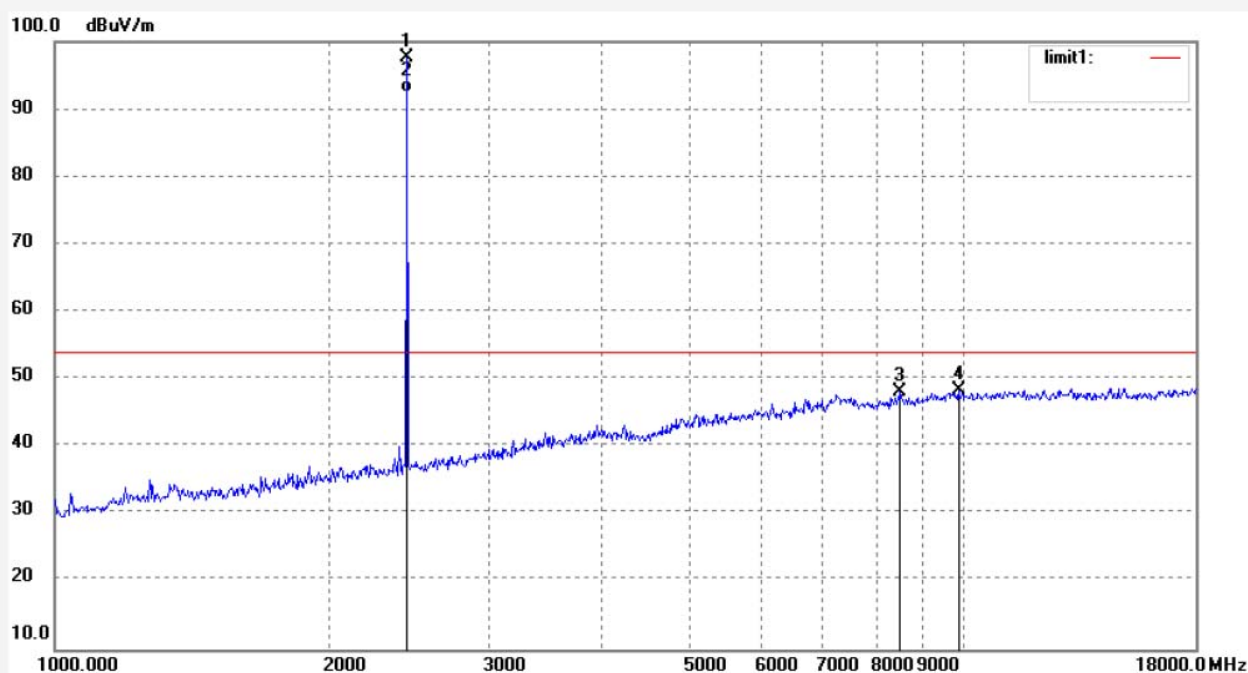
Date: 14/06/24/

Time: 12/21/04

Engineer Signature:

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.051	103.28	-6.64	96.64			peak			
2	2441.051	98.21	-6.64	91.57			AVG			
3	8514.456	45.13	3.01	48.14	54.00	-5.86	peak			
4	9866.789	43.21	5.18	48.39	54.00	-5.61	peak			



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Job No.: alen #4519

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: TX 2441MHz

Model: M01268

Manufacturer: Doking

Polarization: Vertical

Power Source: DC 3.7V

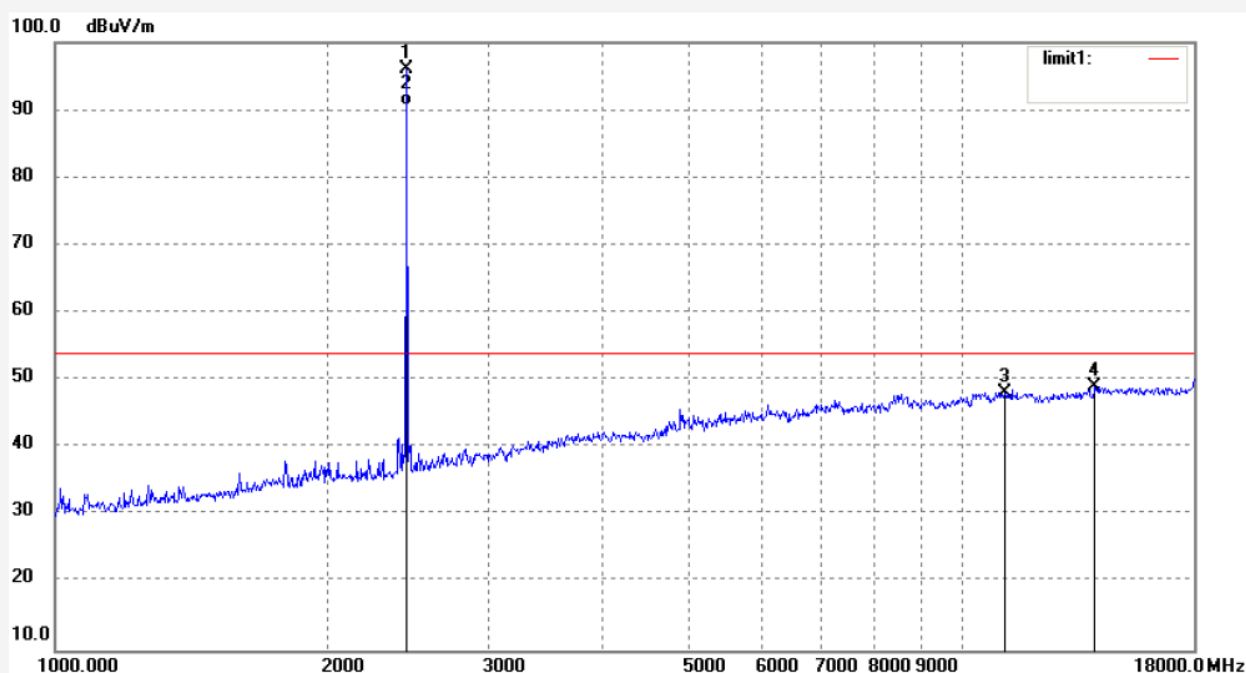
Date: 14/06/24/

Time: 12/22/13

Engineer Signature:

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.051	102.75	-6.64	96.11			peak			
2	2441.051	97.35	-6.64	90.71			AVG			
3	11140.310	42.58	5.65	48.23	54.00	-5.77	peak			
4	13997.929	38.65	10.40	49.05	54.00	-4.95	peak			

Job No.: alen #4522

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: TX 2480MHz

Model: M01268

Manufacturer: Doking

Polarization: Horizontal

Power Source: DC 3.7V

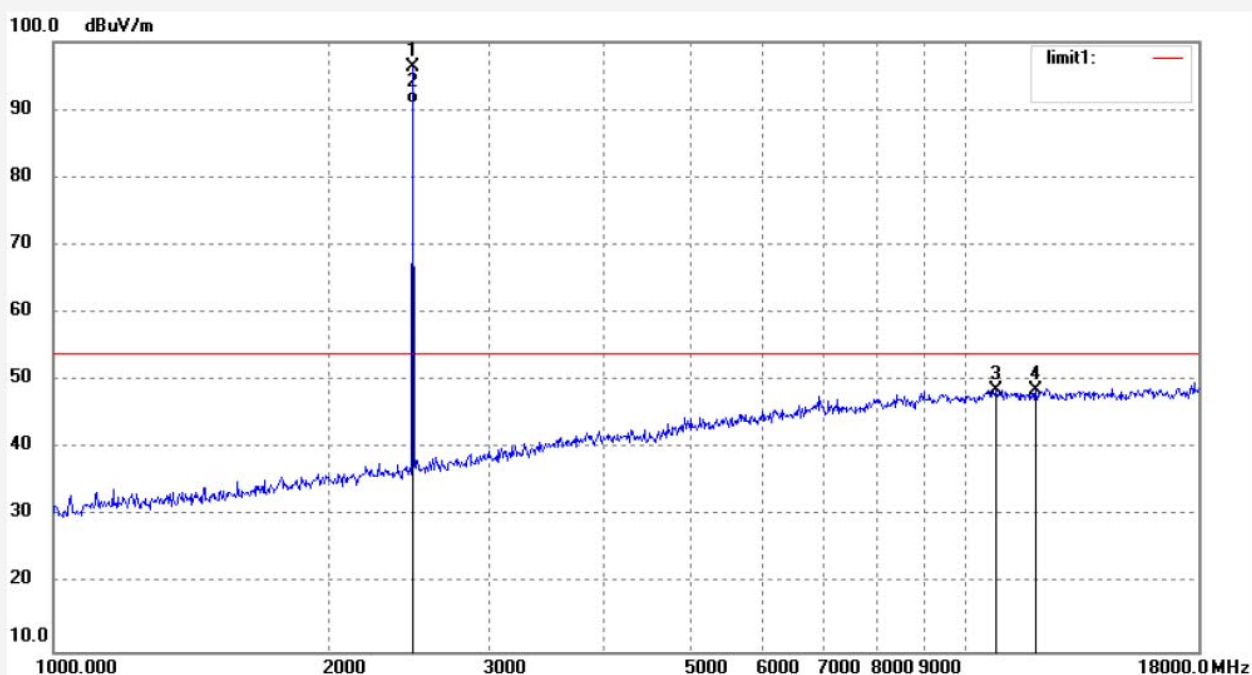
Date: 14/06/24/

Time: 12/29/43

Engineer Signature:

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2479.810	102.75	-6.56	96.19			peak			
2	2479.810	97.41	-6.56	90.85			AVG			
3	10791.685	43.19	5.38	48.57	54.00	-5.43	peak			
4	11940.536	42.20	6.43	48.63	54.00	-5.37	peak			

Job No.: alen #4523

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: TX 2480MHz

Model: M01268

Manufacturer: Doking

Polarization: Vertical

Power Source: DC 3.7V

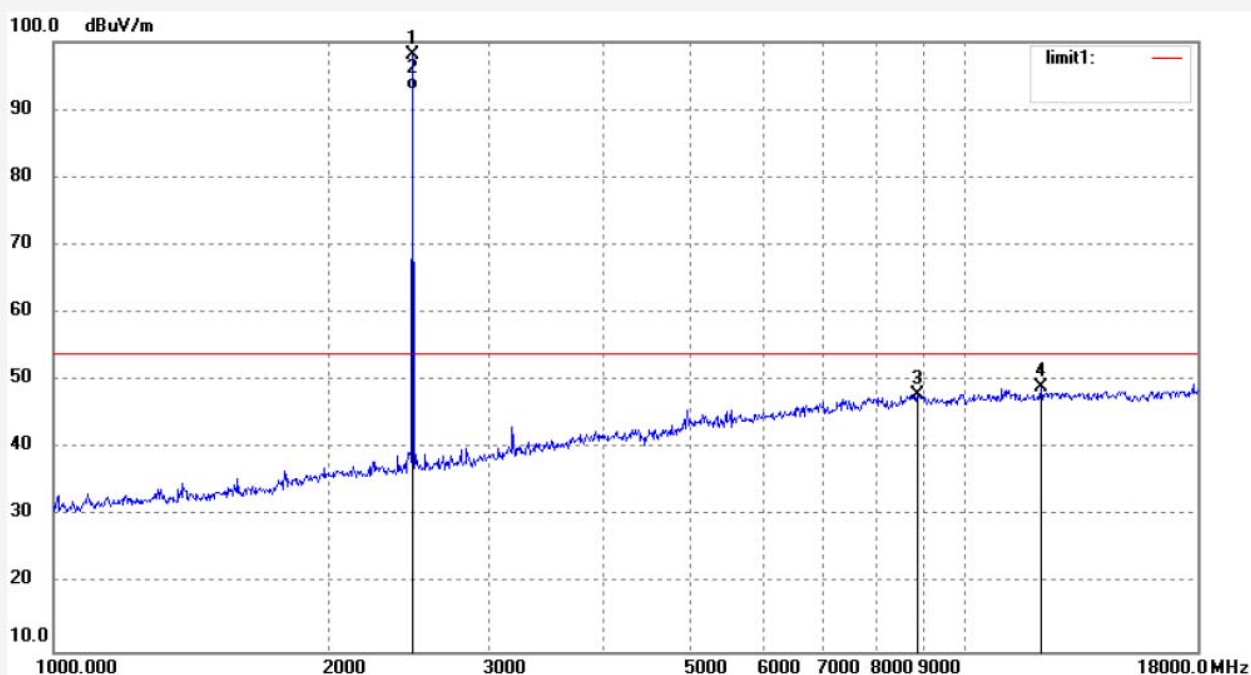
Date: 14/06/24/

Time: 12/31/10

Engineer Signature:

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2479.810	103.71	-6.56	97.15			peak			
2	2479.810	98.47	-6.56	91.91			AVG			
3	8866.061	44.62	3.36	47.98	54.00	-6.02	peak			
4	12114.352	42.37	6.65	49.02	54.00	-4.98	peak			

11.BAND EDGE COMPLIANCE TEST

11.1.Block Diagram of Test Setup



(EUT: KeyFolio Fit Universal Folio with Keyboard)

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.

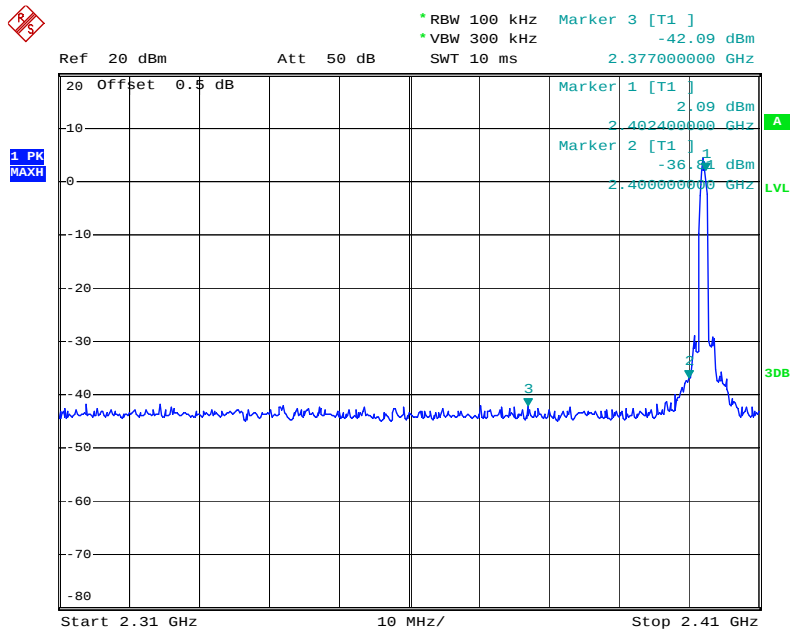
11.5.2. Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz with convenient frequency span including 100 kHz bandwidth from band edge.

11.5.3. The band edges was measured and recorded.

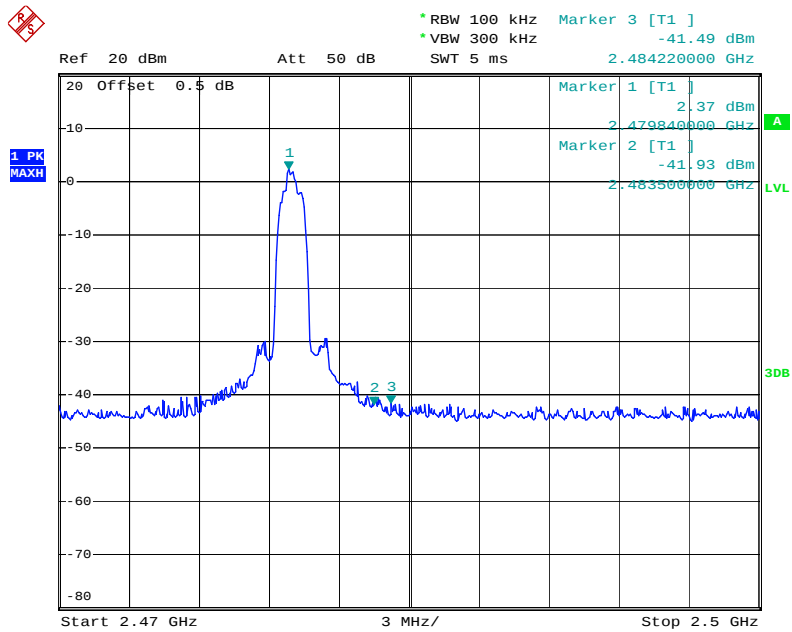
11.6. Test Result

Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
GFSK		
2400.000	38.90	> 20dBc
2484.220	43.86	> 20dBc
Π/4-DQPSK Mode		
2400.000	36.63	> 20dBc
2483.500	42.56	> 20dBc
8DPSK		
2400.000	38.29	> 20dBc
2483.500	42.97	> 20dBc

GFSK

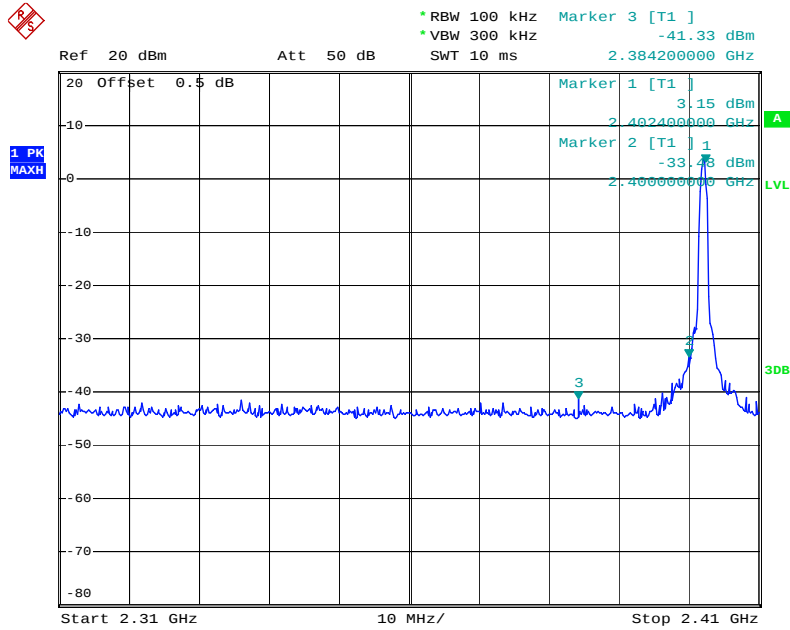


Date: 30.JUN.2014 10:27:17

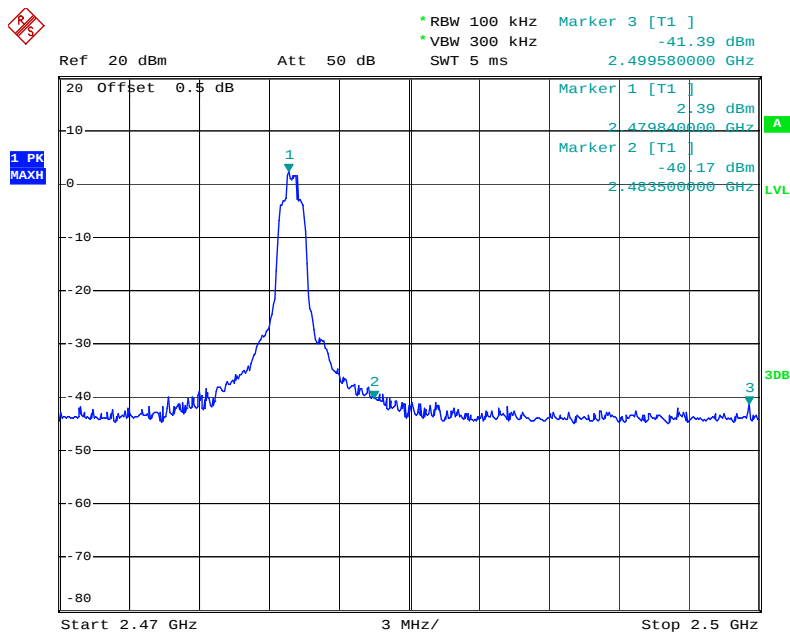


Date: 30.JUN.2014 10:26:01

Π/4-DQPSK Mode

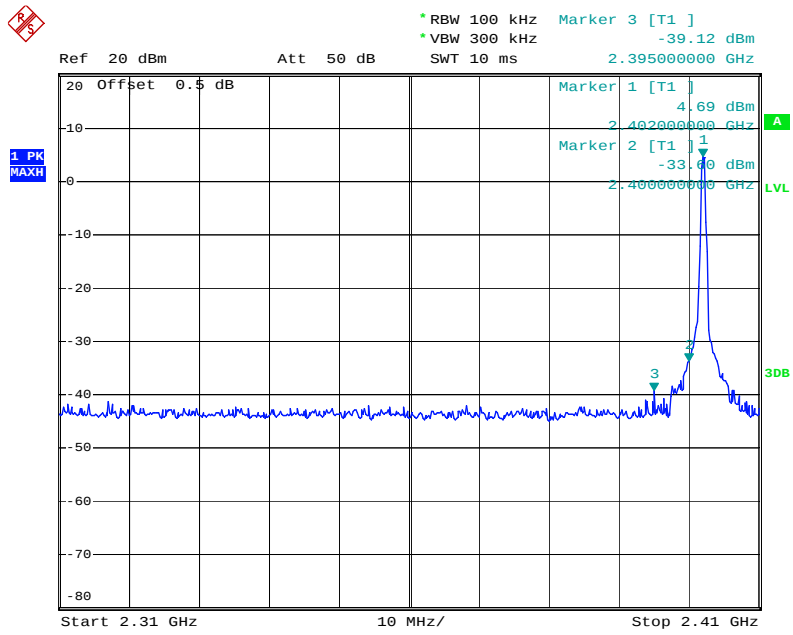


Date: 30.JUN.2014 10:28:18

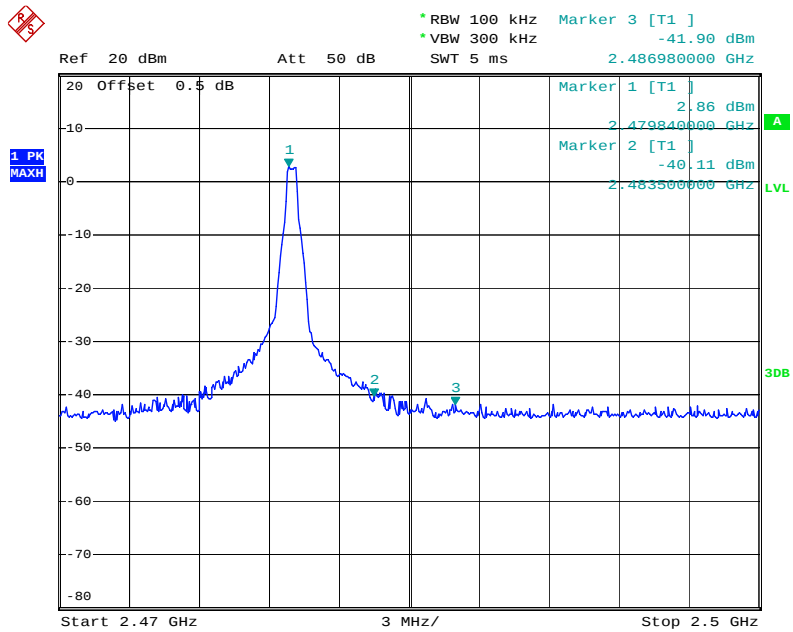


Date: 30.JUN.2014 10:29:38

8DPSK



Date: 30.JUN.2014 10:32:43



Date: 30.JUN.2014 10:31:16

Radiated Band Edge Result

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

3. Display the measurement of peak values.

Non-hopping mode



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Job No.: Ricky #182

Standard: FCC 15C PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 49 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: TX 2402MHz(GFSK)

Model: M01268

Manufacturer: Doking

Polarization: Horizontal

Power Source: DC 3.7V

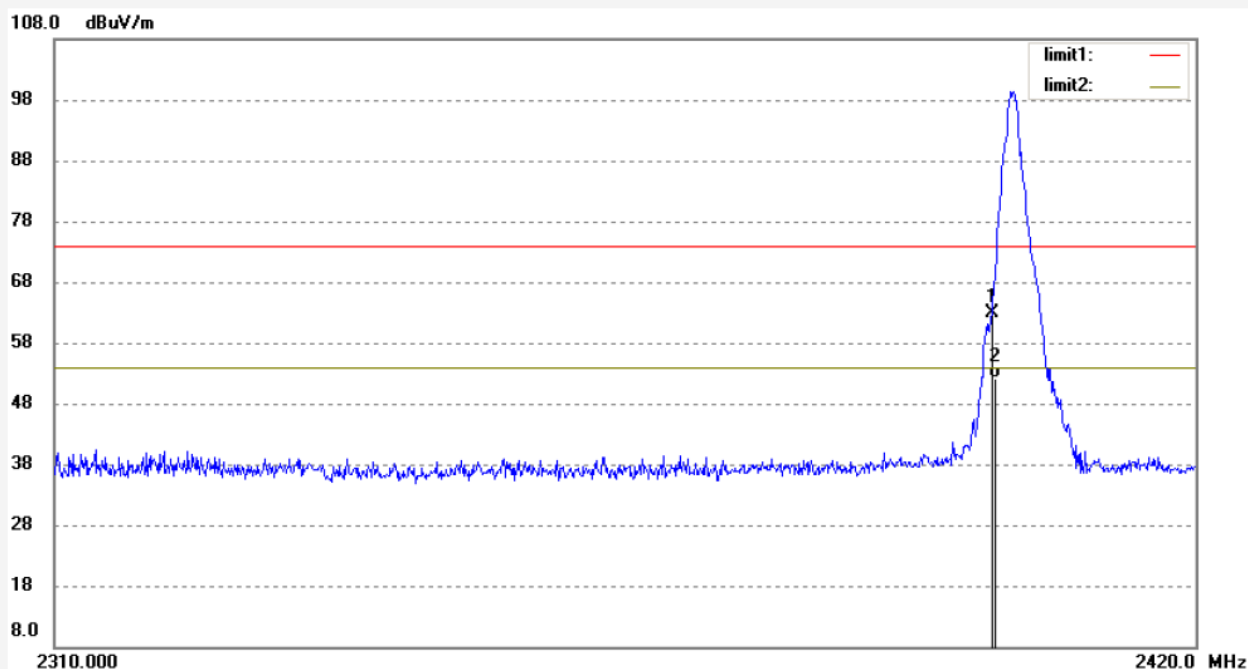
Date: 14/06/24/

Time: 12/48/42

Engineer Signature: Ricky

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2400.000	70.45	-7.46	62.99	74.00	-11.01	peak			
2	2400.000	59.69	-7.46	52.23	54.00	-1.77	AVG			

Job No.: Ricky #181

Standard: FCC 15C PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 49 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: TX 2402MHz(GFSK)

Model: M01268

Manufacturer: Doking

Polarization: Vertical

Power Source: DC 3.7V

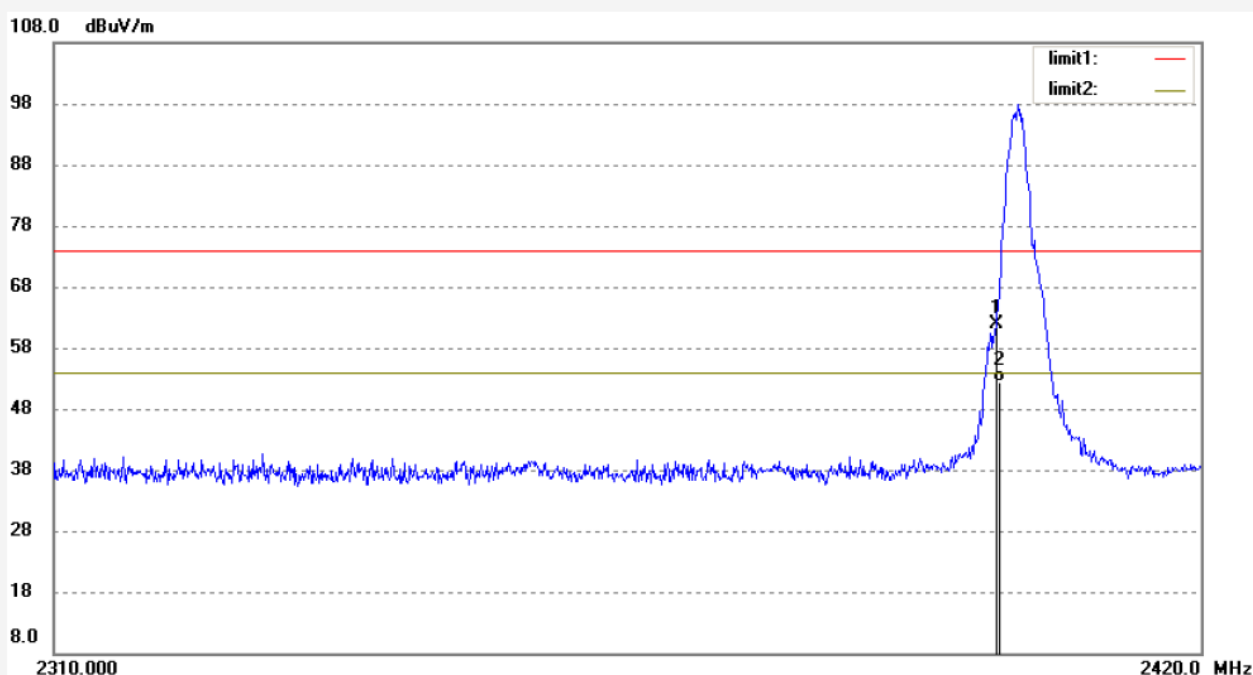
Date: 14/06/24/

Time: 12/46/01

Engineer Signature: Ricky

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2400.000	69.22	-7.46	61.76	74.00	-12.24	peak			
2	2400.000	59.91	-7.46	52.45	54.00	-1.55	AVG			



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Job No.: Ricky #183

Standard: FCC 15C PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 49 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: TX 2480MHz(GFSK)

Model: M01268

Manufacturer: Doking

Polarization: Horizontal

Power Source: DC 3.7V

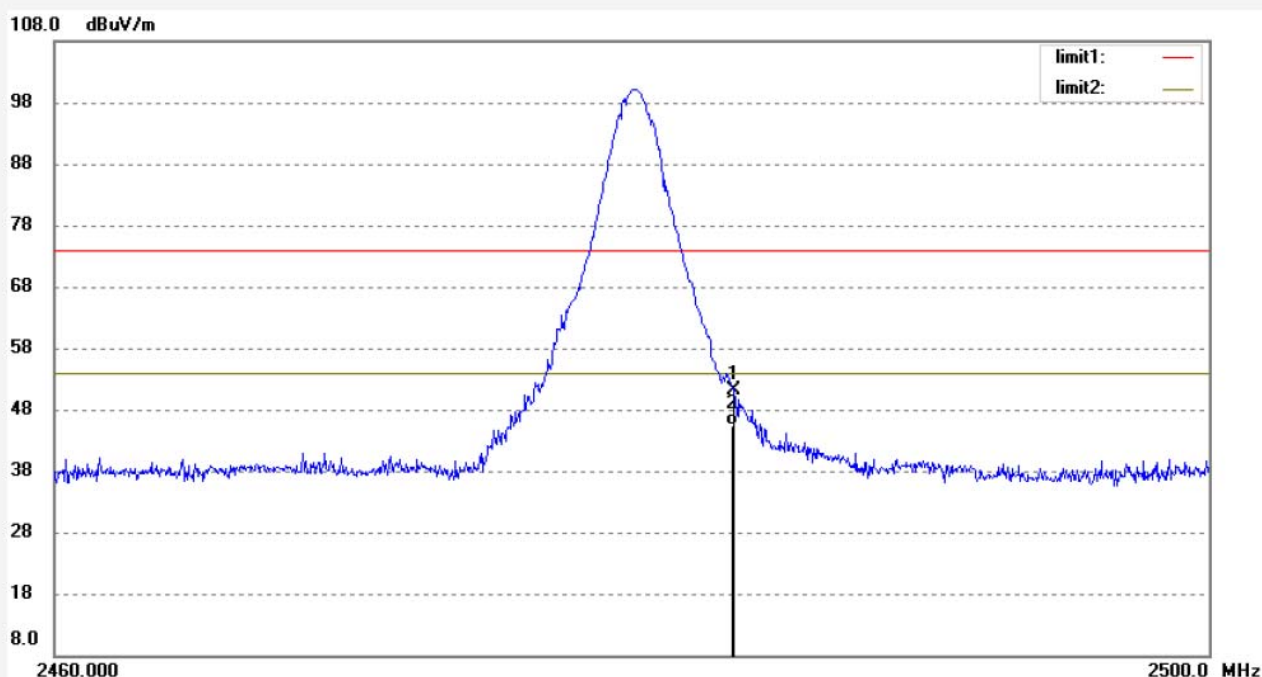
Date: 14/06/24/

Time: 12/50/11

Engineer Signature: Ricky

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.529	58.57	-7.37	51.20	74.00	-22.80	peak			
2	2483.529	52.63	-7.37	45.26	54.00	-8.74	AVG			



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Job No.: Ricky #184

Standard: FCC 15C PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 49 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: TX 2480MHz(GFSK)

Model: M01268

Manufacturer: Doking

Polarization: Vertical

Power Source: DC 3.7V

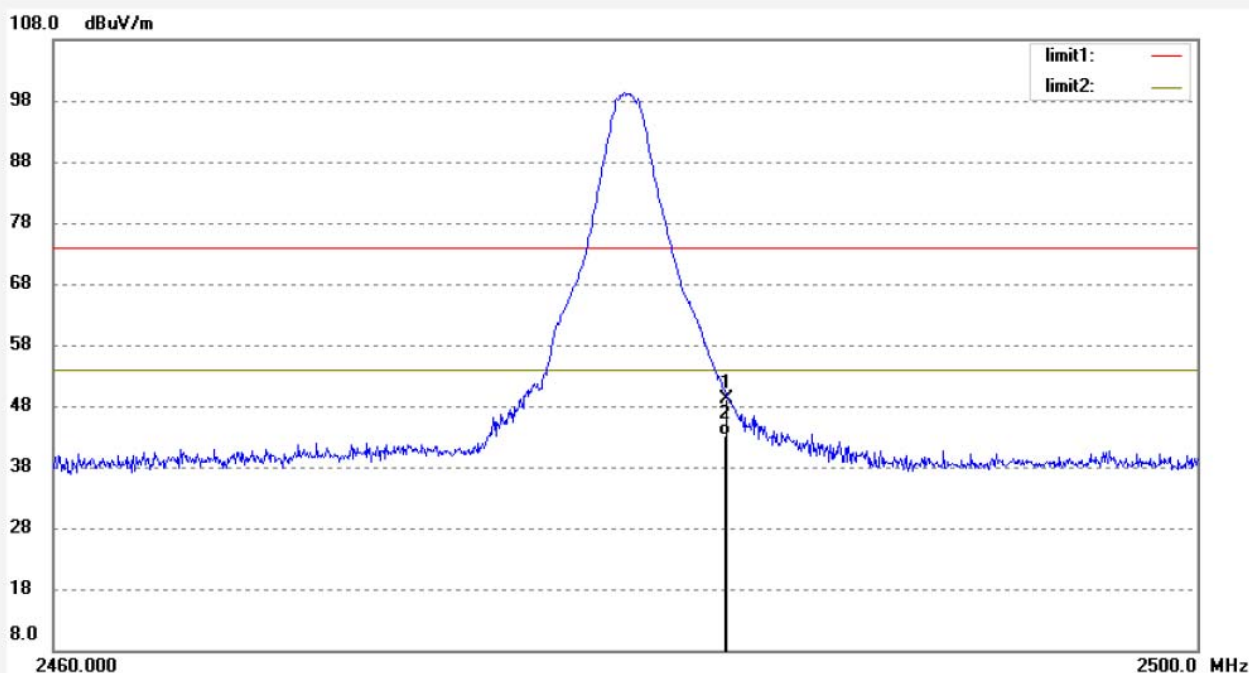
Date: 14/06/24/

Time: 12/54/15

Engineer Signature: Ricky

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.529	56.48	-7.37	49.11	74.00	-24.89	peak			
2	2483.529	50.52	-7.37	43.15	54.00	-10.85	AVG			

Job No.: Ricky #185

Standard: FCC 15C PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 49 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: TX 2402MHz(PI/4DQPSK)

Model: M01268

Manufacturer: Doking

Polarization: Vertical

Power Source: DC 3.7V

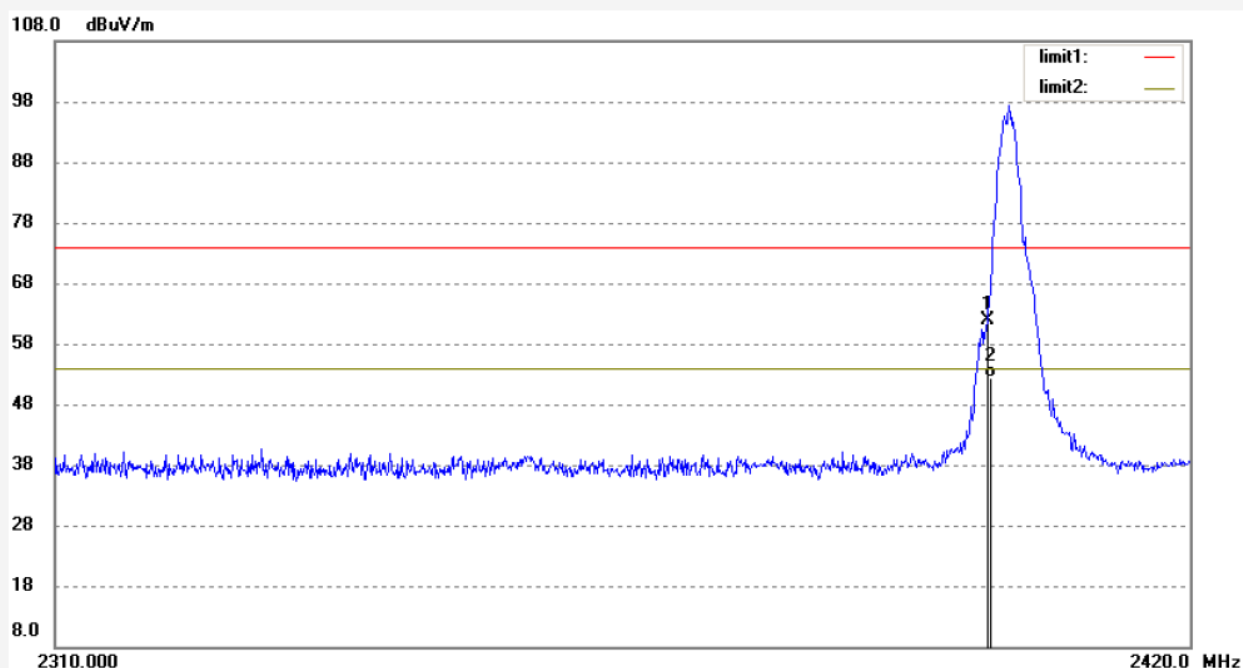
Date: 14/06/24/

Time: 12/56/01

Engineer Signature: Ricky

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2400.000	69.31	-7.46	61.85	74.00	-12.15	peak			
2	2400.000	59.88	-7.46	52.42	54.00	-1.58	AVG			

Job No.: Ricky #186

Standard: FCC 15C PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 49 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: TX 2402MHz(PI/4DQPSK)

Model: M01268

Manufacturer: Doking

Polarization: Horizontal

Power Source: DC 3.7V

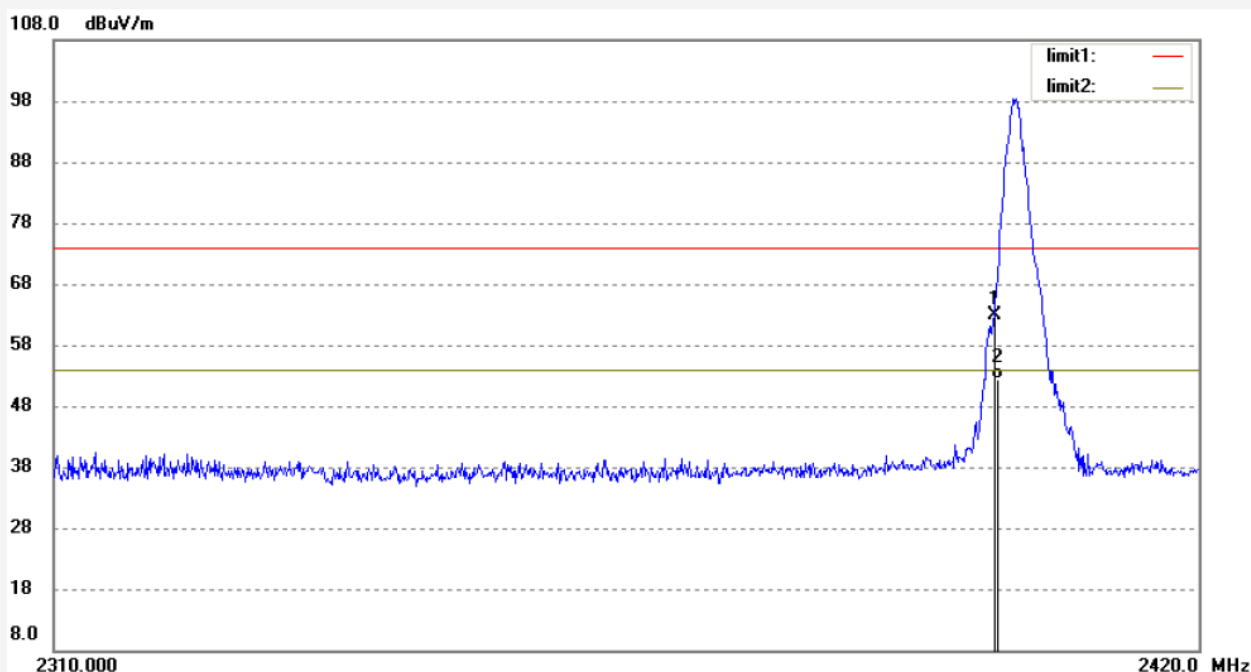
Date: 14/06/24/

Time: 12/57/18

Engineer Signature: Ricky

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2400.000	70.46	-7.46	63.00	74.00	-11.00	peak			
2	2400.000	59.77	-7.46	52.31	54.00	-1.69	AVG			

Job No.: Ricky #187

Standard: FCC 15C PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 49 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: TX 2480MHz(PI/4DQPSK)

Model: M01268

Manufacturer: Doking

Polarization: Horizontal

Power Source: DC 3.7V

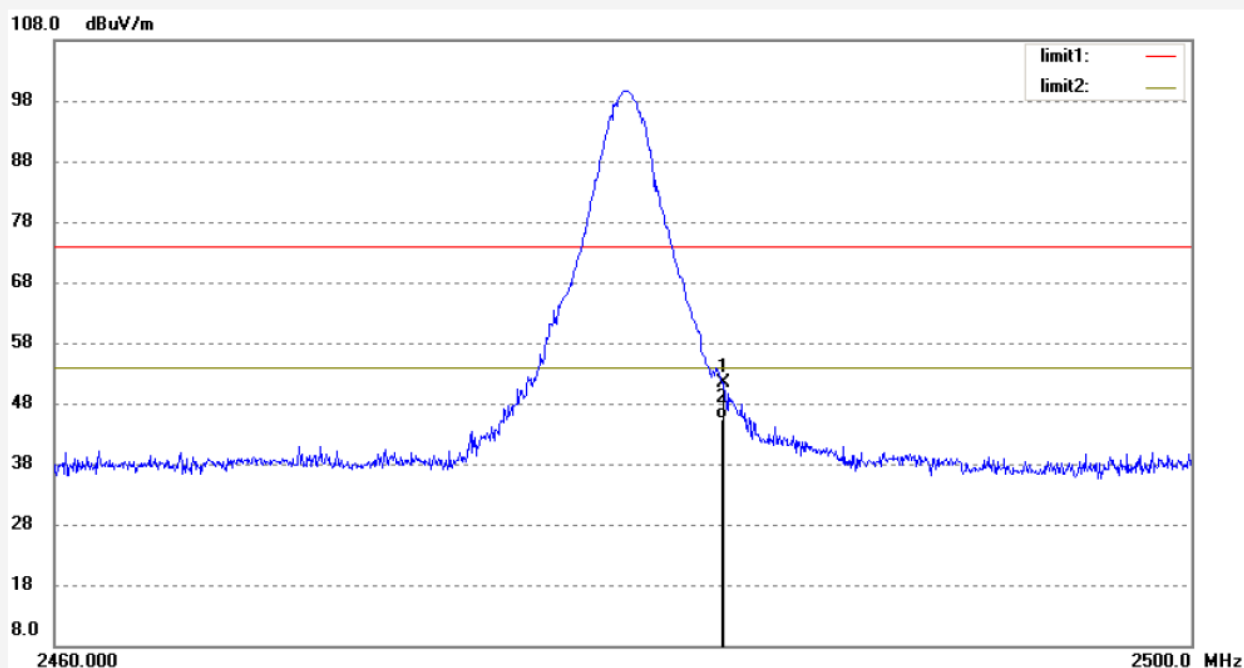
Date: 14/06/24/

Time: 12/59/22

Engineer Signature: Ricky

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.529	58.66	-7.37	51.29	74.00	-22.71	peak			
2	2483.529	52.79	-7.37	45.42	54.00	-8.58	AVG			

Job No.: Ricky #188

Standard: FCC 15C PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 49 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: TX 2480MHz(PI/4DQPSK)

Model: M01268

Manufacturer: Doking

Polarization: Vertical

Power Source: DC 3.7V

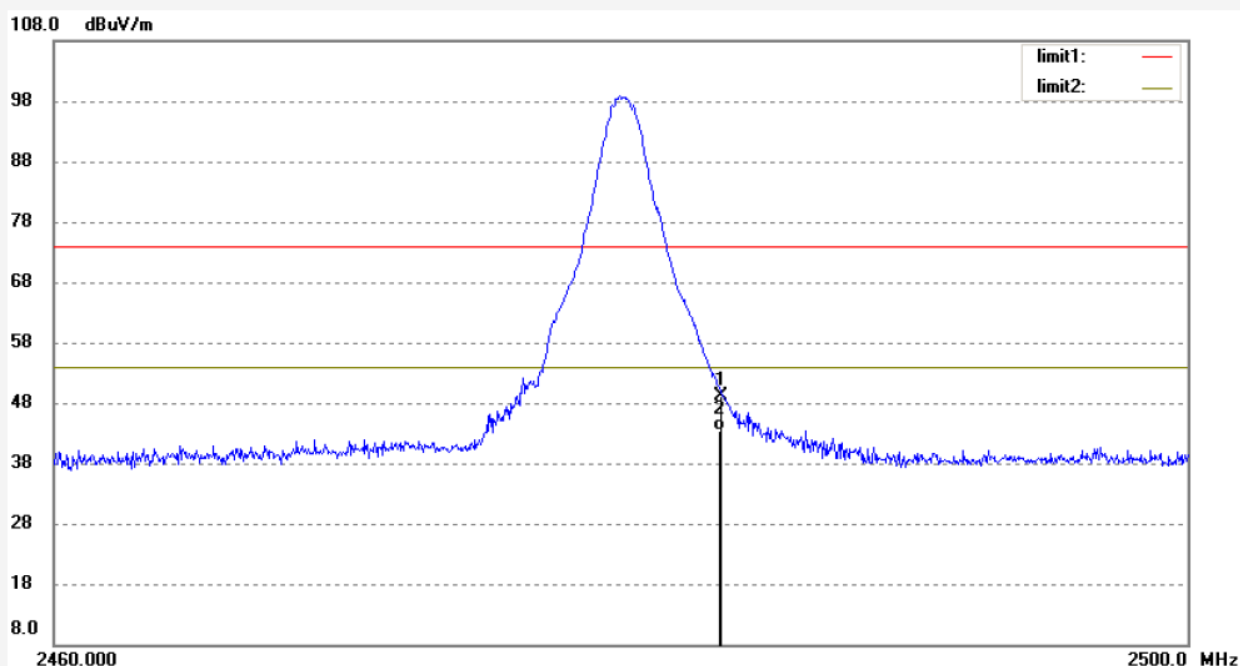
Date: 14/06/24/

Time: 13/01/20

Engineer Signature: Ricky

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.529	56.56	-7.37	49.19	74.00	-24.81	peak			
2	2483.529	50.67	-7.37	43.30	54.00	-10.70	AVG			

Job No.: Ricky #189

Standard: FCC 15C PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 49 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: TX 2402MHz(8QPSK)

Model: M01268

Manufacturer: Doking

Polarization: Vertical

Power Source: DC 3.7V

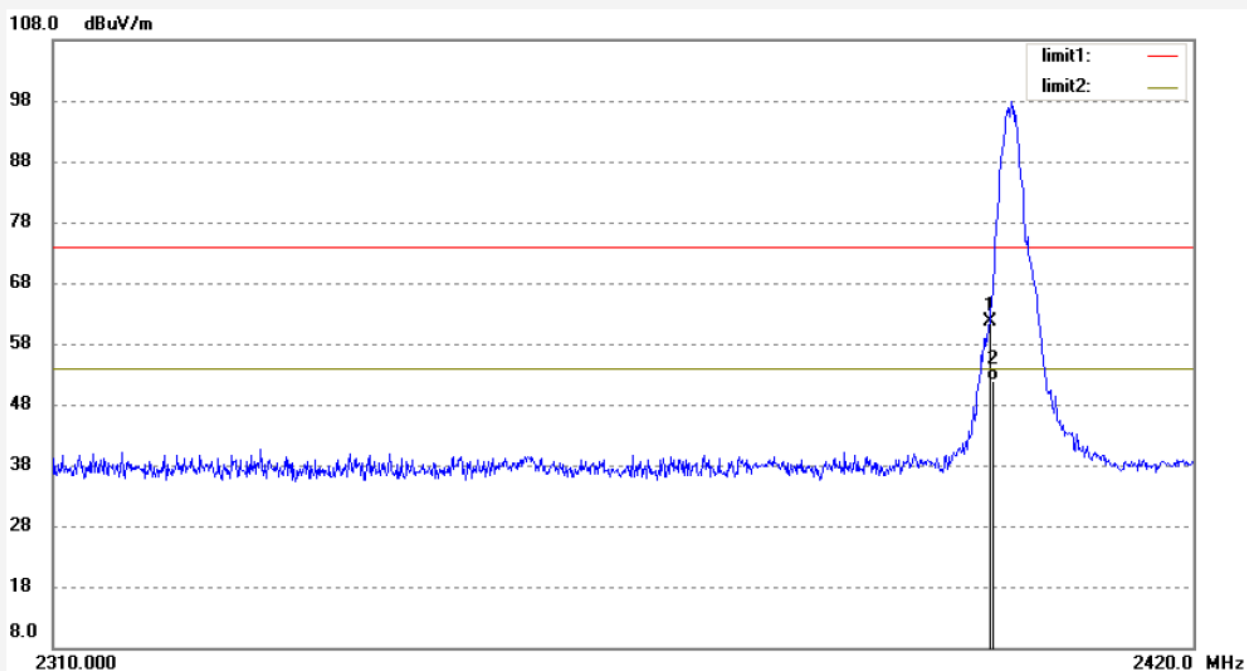
Date: 14/06/24/

Time: 13/03/35

Engineer Signature: Ricky

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2400.000	69.03	-7.46	61.57	74.00	-12.43	peak			
2	2400.000	59.35	-7.46	51.89	54.00	-2.11	AVG			

Job No.: Ricky #190

Standard: FCC 15C PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 49 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: TX 2402MHz(8QPSK)

Model: M01268

Manufacturer: Doking

Polarization: Horizontal

Power Source: DC 3.7V

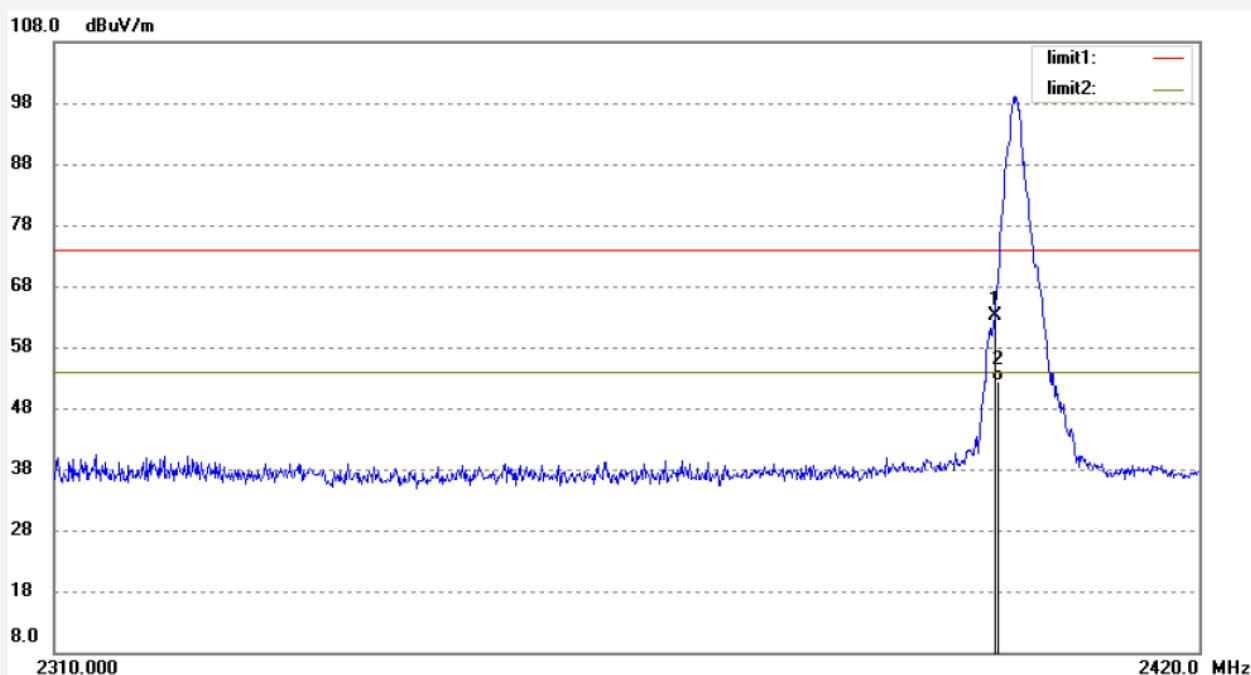
Date: 14/06/24/

Time: 13/04/57

Engineer Signature: Ricky

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2400.000	70.56	-7.46	63.10	74.00	-10.90	peak			
2	2400.000	59.72	-7.46	52.26	54.00	-1.74	AVG			

Job No.: Ricky #191

Standard: FCC 15C PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 49 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: TX 2480MHz(8QPSK)

Model: M01268

Manufacturer: Doking

Polarization: Horizontal

Power Source: DC 3.7V

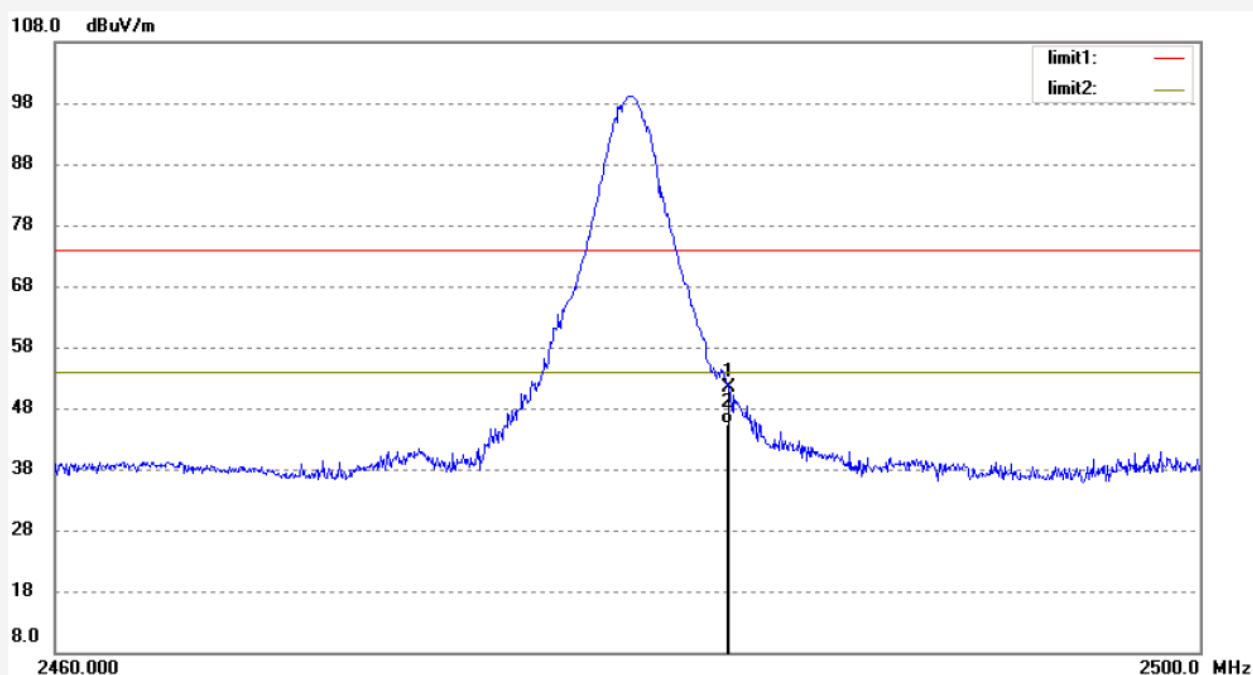
Date: 14/06/24/

Time: 13/06/19

Engineer Signature: Ricky

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.529	58.67	-7.37	51.30	74.00	-22.70	peak			
2	2483.529	52.81	-7.37	45.44	54.00	-8.56	AVG			



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Fax:+86-0755-26503396

Job No.: Ricky #192

Standard: FCC 15C PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 49 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: TX 2480MHz(8QPSK)

Model: M01268

Manufacturer: Doking

Polarization: Vertical

Power Source: DC 3.7V

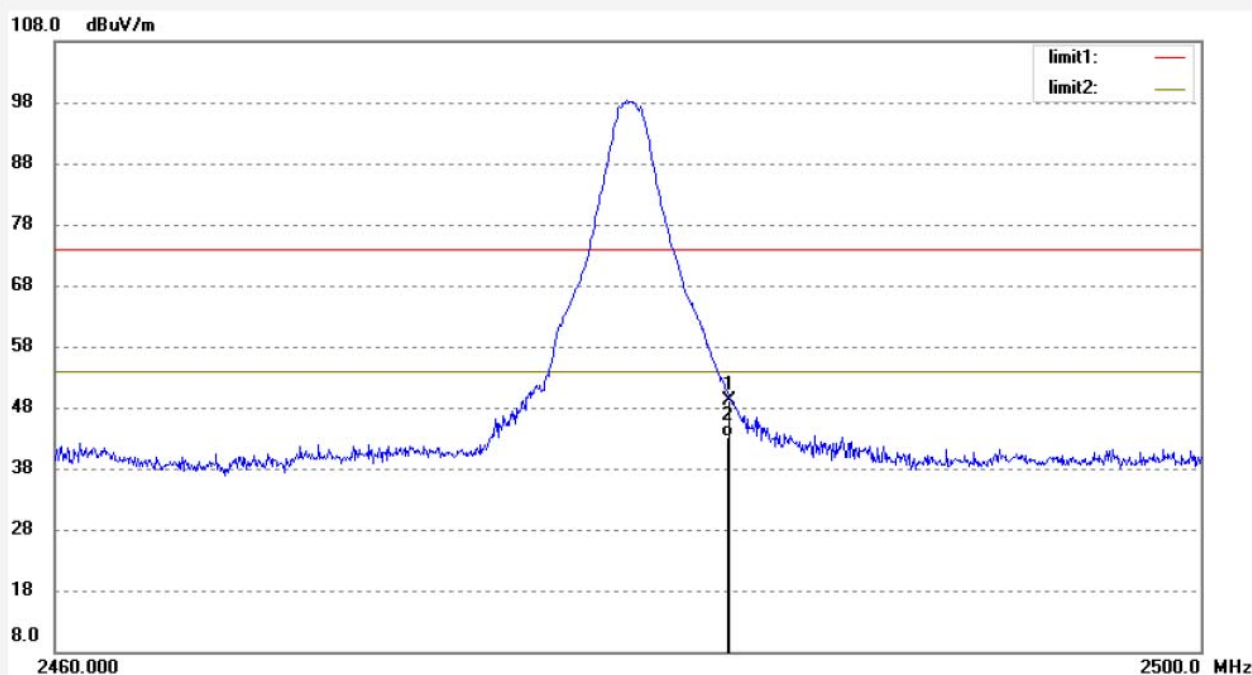
Date: 14/06/24/

Time: 13/09/55

Engineer Signature: Ricky

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.529	56.44	-7.37	49.07	74.00	-24.93	peak			
2	2483.529	50.62	-7.37	43.25	54.00	-10.75	AVG			

Hopping mode



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Site: 1# Chamber

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Fax:+86-0755-26503396

Job No.: STAR #3027

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: HOPPING (GFSK)

Model: M01268

Manufacturer: Doking

Polarization: Horizontal

Power Source: DC 3.7V

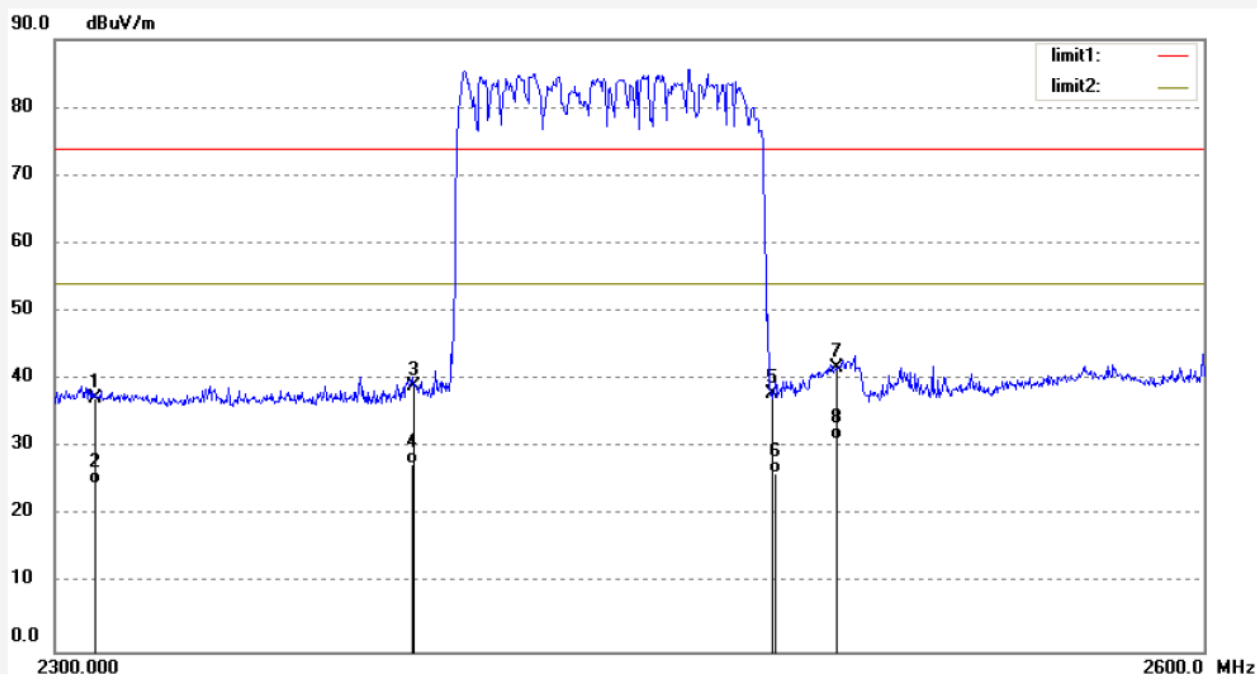
Date: 14/06/24/

Time: 11/22/51

Engineer Signature:

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	44.18	-6.99	37.19	74.00	-36.81	peak			
2	2310.000	31.58	-6.99	24.59	54.00	-29.41	AVG			
3	2390.000	45.89	-6.78	39.11	74.00	-34.89	peak			
4	2390.000	34.25	-6.78	27.47	54.00	-26.53	AVG			
5	2483.500	44.36	-6.54	37.82	74.00	-36.18	peak			
6	2483.500	32.69	-6.54	26.15	54.00	-27.85	AVG			
7	2500.000	48.29	-6.50	41.79	74.00	-32.21	peak			
8	2500.000	37.66	-6.50	31.16	54.00	-22.84	AVG			

Job No.: STAR #3028

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: HOPPING (GFSK)

Model: M01268

Manufacturer: Doking

Polarization: Vertical

Power Source: DC 3.7V

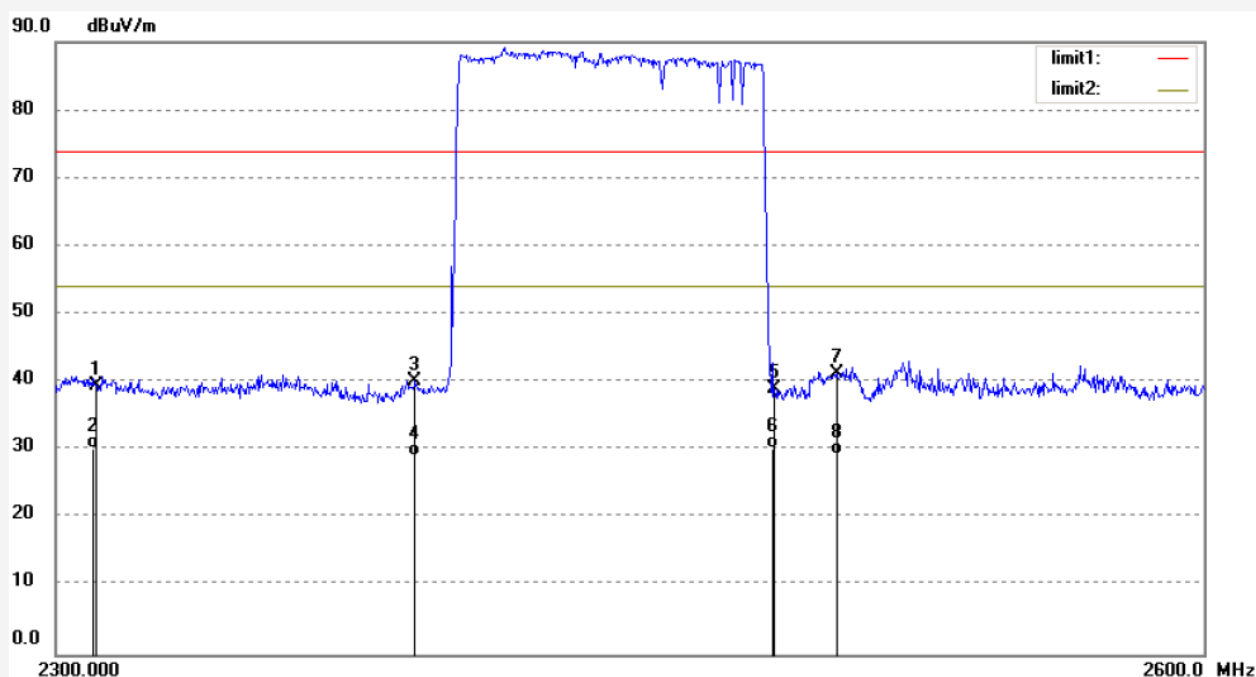
Date: 14/06/24/

Time: 11/25/42

Engineer Signature:

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	46.43	-6.99	39.44	74.00	-34.56	peak			
2	2310.000	37.25	-6.99	30.26	54.00	-23.74	AVG			
3	2390.000	46.86	-6.78	40.08	74.00	-33.92	peak			
4	2390.000	35.86	-6.78	29.08	54.00	-24.92	AVG			
5	2483.500	45.50	-6.54	38.96	74.00	-35.04	peak			
6	2483.500	36.87	-6.54	30.33	54.00	-23.67	AVG			
7	2500.000	47.78	-6.50	41.28	74.00	-32.72	peak			
8	2500.000	35.88	-6.50	29.38	54.00	-24.62	AVG			

Job No.: STAR #3029

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: HOPPING (PI/4DQPSK)

Model: M01268

Manufacturer: Doking

Polarization: Vertical

Power Source: DC 3.7V

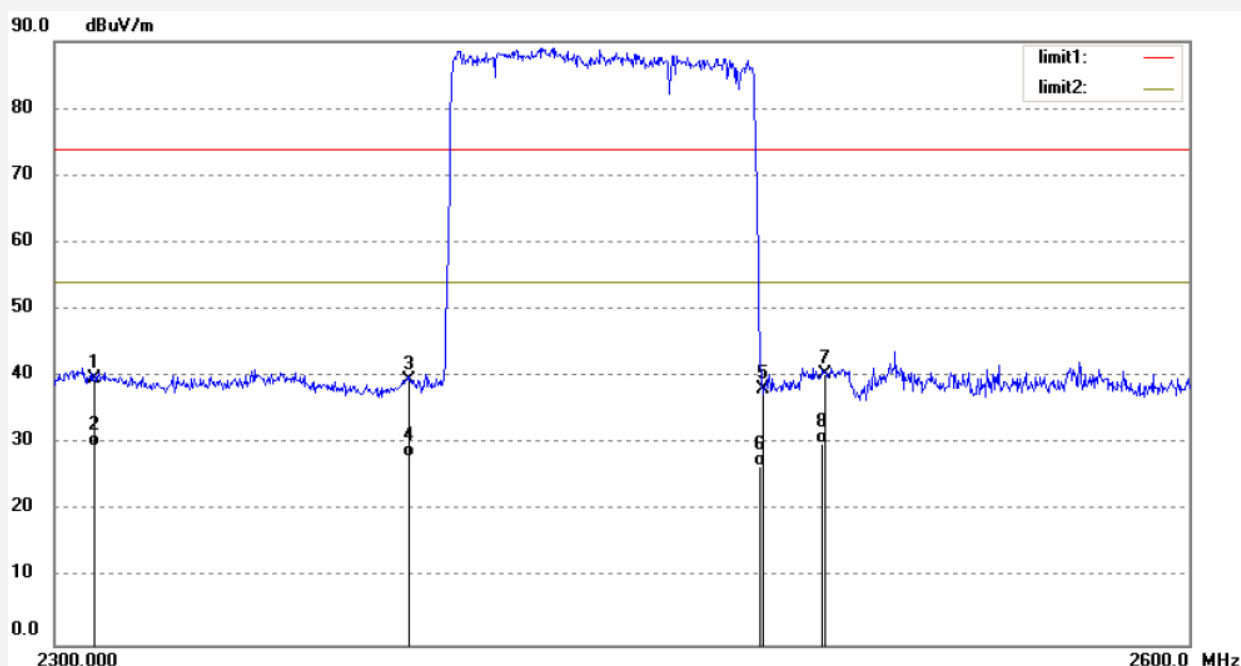
Date: 14/06/24/

Time: 11/28/17

Engineer Signature:

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	46.75	-6.99	39.76	74.00	-34.24	peak			
2	2310.000	36.55	-6.99	29.56	54.00	-24.44	AVG			
3	2390.000	46.28	-6.78	39.50	74.00	-34.50	peak			
4	2390.000	34.89	-6.78	28.11	54.00	-25.89	AVG			
5	2483.500	44.59	-6.54	38.05	74.00	-35.95	peak			
6	2483.500	33.24	-6.54	26.70	54.00	-27.30	AVG			
7	2500.000	46.93	-6.50	40.43	74.00	-33.57	peak			
8	2500.000	36.43	-6.50	29.93	54.00	-24.07	AVG			

Job No.: STAR #3030

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: HOPPING (PI/4DQPSK)

Model: M01268

Manufacturer: Doking

Polarization: Horizontal

Power Source: DC 3.7V

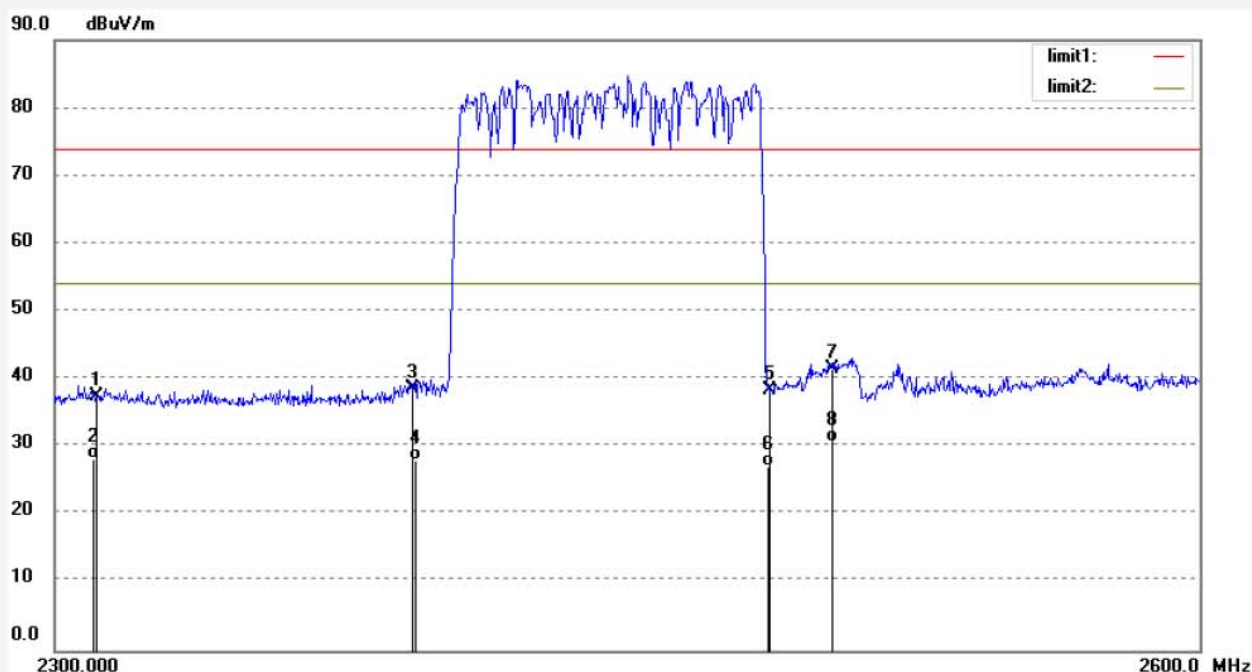
Date: 14/06/24/

Time: 11/31/16

Engineer Signature:

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	44.36	-6.99	37.37	74.00	-36.63	peak			
2	2310.000	35.24	-6.99	28.25	54.00	-25.75	AVG			
3	2390.000	45.45	-6.78	38.67	74.00	-35.33	peak			
4	2390.000	34.80	-6.78	28.02	54.00	-25.98	AVG			
5	2483.500	44.82	-6.54	38.28	74.00	-35.72	peak			
6	2483.500	33.58	-6.54	27.04	54.00	-26.96	AVG			
7	2500.000	48.09	-6.50	41.59	74.00	-32.41	peak			
8	2500.000	37.32	-6.50	30.82	54.00	-23.18	AVG			

Job No.: STAR #3031

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: HOPPING (8QPSK)

Model: M01268

Manufacturer: Doking

Polarization: Horizontal

Power Source: DC 3.7V

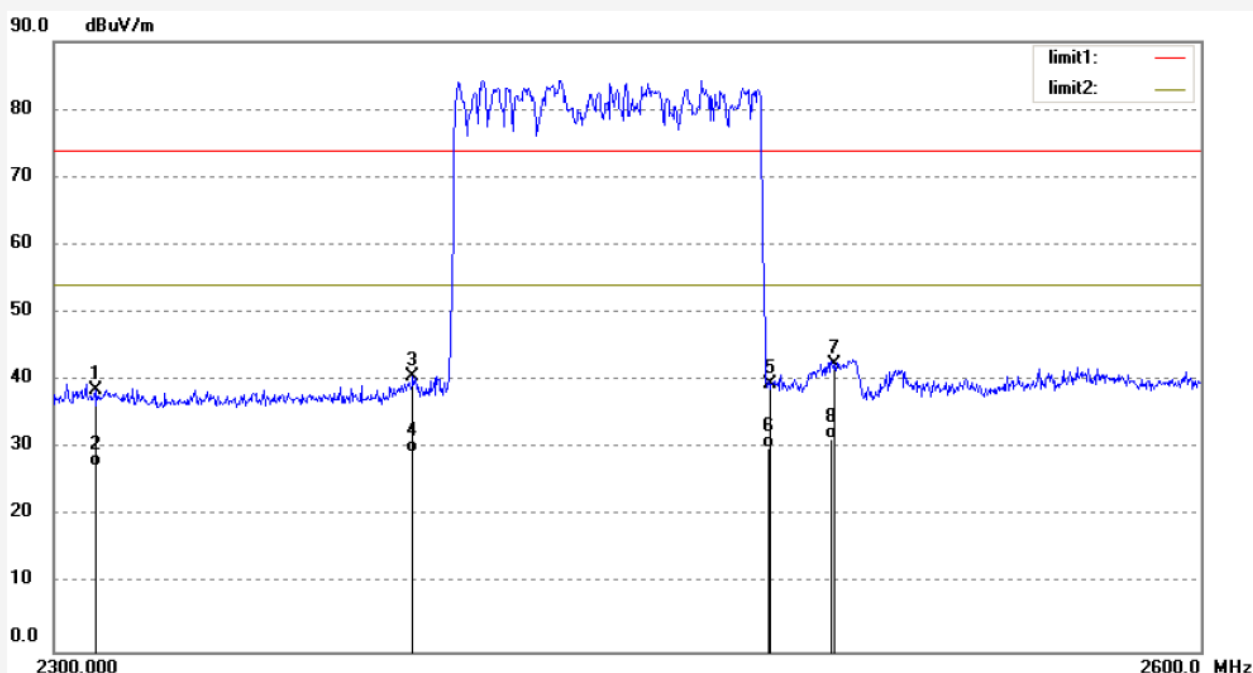
Date: 14/06/24/

Time: 11/36/34

Engineer Signature:

Distance: 3m

Note: Report No:ATE20141072



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	45.68	-6.99	38.69	74.00	-35.31	peak			
2	2310.000	34.29	-6.99	27.30	54.00	-26.70	AVG			
3	2390.000	47.42	-6.78	40.64	74.00	-33.36	peak			
4	2390.000	36.10	-6.78	29.32	54.00	-24.68	AVG			
5	2483.500	45.92	-6.54	39.38	74.00	-34.62	peak			
6	2483.500	36.61	-6.54	30.07	54.00	-23.93	AVG			
7	2500.000	48.96	-6.50	42.46	74.00	-31.54	peak			
8	2500.000	37.88	-6.50	31.38	54.00	-22.62	AVG			

Job No.: STAR #3032

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: KeyFolio Fit Universal Folio with Keyboard

Mode: HOPPING (8QPSK)

Model: M01268

Manufacturer: Doking

Polarization: Vertical

Power Source: DC 3.7V

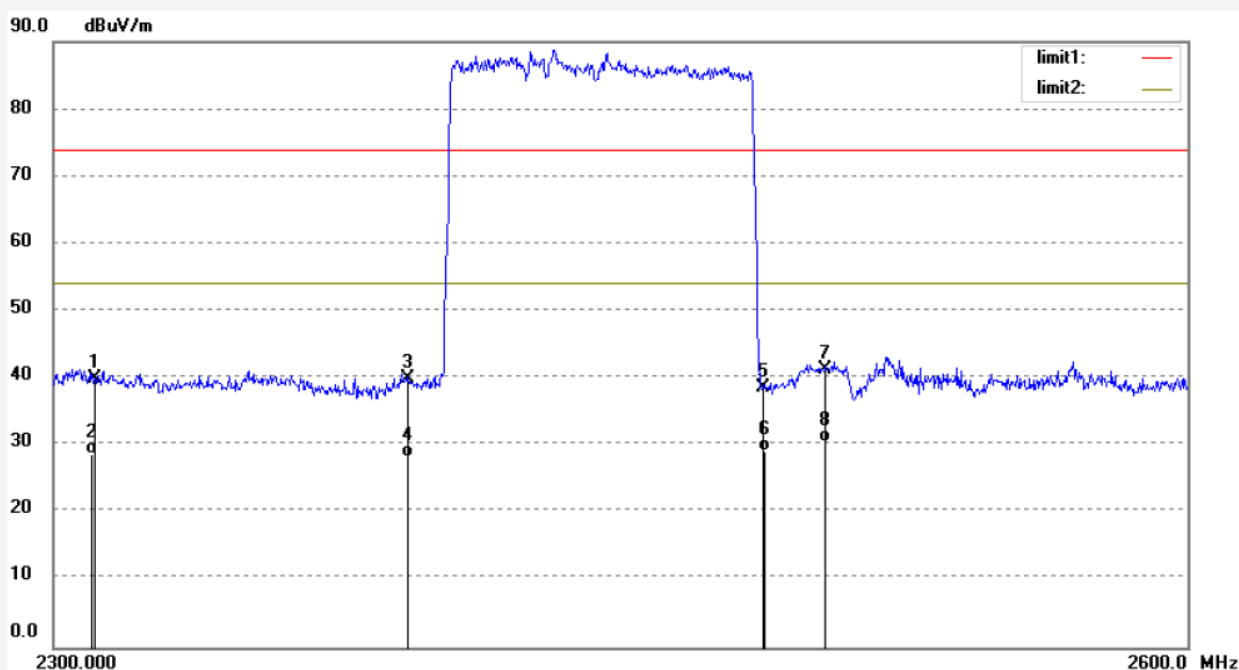
Date: 14/06/24/

Time: 11/39/37

Engineer Signature:

Distance: 3m

Note: Report No:ATE20141072



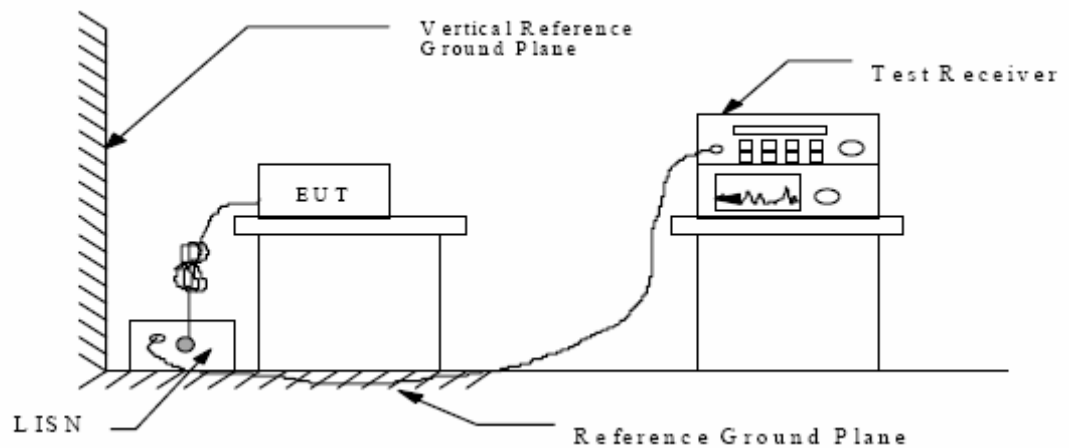
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	46.88	-6.99	39.89	74.00	-34.11	peak			
2	2310.000	35.60	-6.99	28.61	54.00	-25.39	AVG			
3	2390.000	46.74	-6.78	39.96	74.00	-34.04	peak			
4	2390.000	35.10	-6.78	28.32	54.00	-25.68	AVG			
5	2483.500	45.21	-6.54	38.67	74.00	-35.33	peak			
6	2483.500	35.66	-6.54	29.12	54.00	-24.88	AVG			
7	2500.000	47.76	-6.50	41.26	74.00	-32.74	peak			
8	2500.000	36.91	-6.50	30.41	54.00	-23.59	AVG			

12.AC POWER LINE CONDUCTED EMISSION FOR FCC PART

15 SECTION 15.207(A)

12.1.Block Diagram of Test Setup

12.1.1.Shielding Room Test Setup Diagram



12.2.The Emission Limit

12.2.1.Conducted Emission Measurement Limits According to Section 15.207(a)

Frequency (MHz)	Limit dB(μ V)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0

* Decreases with the logarithm of the frequency.

12.3.Configuration of EUT on Measurement

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

12.4.Operating Condition of EUT

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

12.4.2.Turn on the power of all equipment.

12.4.3.Let the EUT work in Test mode measure it.

12.5.Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4- 2009 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9 kHz.

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

12.6.Power Line Conducted Emission Measurement Results

PASS.

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

Test mode : BT Operation&charging								
MEASUREMENT RESULT: "FCC-V02_fin"								
2014-6-26 9:14								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.184440	50.20	10.6	64	14.1	QP	L1	GND	
3.203648	35.20	11.0	56	20.8	QP	L1	GND	
19.561779	26.80	11.0	60	33.2	QP	L1	GND	
MEASUREMENT RESULT: "FCC-V02_fin2"								
2014-6-26 9:14								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.191191	33.30	10.6	54	20.7	AV	L1	GND	
3.203648	25.30	11.0	46	20.7	AV	L1	GND	
5.142712	24.60	11.0	50	25.4	AV	L1	GND	
MEASUREMENT RESULT: "FCC-V01_fin"								
2014-6-26 9:12								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.194076	50.10	10.6	64	13.8	QP	N	GND	
3.099806	34.50	11.0	56	21.5	QP	N	GND	
5.411381	31.40	11.0	60	28.6	QP	N	GND	
MEASUREMENT RESULT: "FCC-V01_fin2"								
2014-6-26 9:12								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.194076	33.30	10.6	54	20.6	AV	N	GND	
3.053725	24.90	11.0	46	21.1	AV	N	GND	
5.677054	20.10	11.0	50	29.9	AV	N	GND	

Emissions attenuated more than 20 dB below the permissible value are not reported.

The spectral diagrams are attached as below.

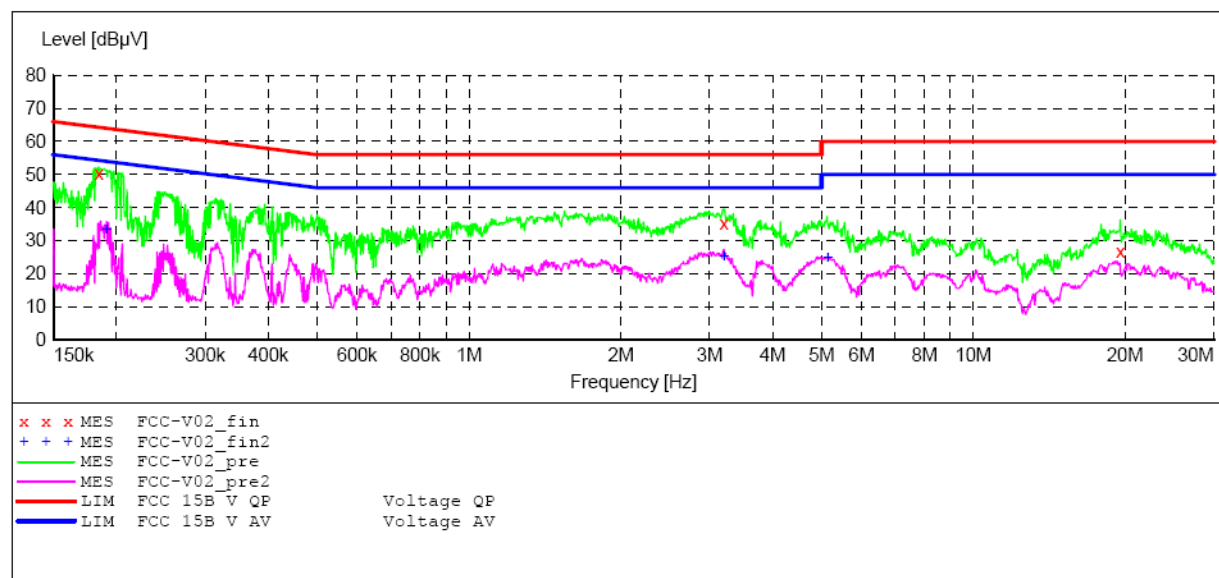
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: KeyFolio Bluetooth Kwyboard M/N:M01268
 Manufacturer: Doking
 Operating Condition: BT/Charging
 Test Site: 1#Shielding Room
 Operator: Alen
 Test Specification: L 120V/60Hz
 Comment: Report No:ATE20141072
 Start of Test: 2014-6-26 / 9:12:43

SCAN TABLE: "V 150K-30MHZ fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz LISN (ESH3-Z5)
 Average



MEASUREMENT RESULT: "FCC-V02_fin"

2014-6-26 9:14

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.184440	50.20	10.6	64	14.1	QP	L1	GND
3.203648	35.20	11.0	56	20.8	QP	L1	GND
19.561779	26.80	11.0	60	33.2	QP	L1	GND

MEASUREMENT RESULT: "FCC-V02_fin2"

2014-6-26 9:14

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.191191	33.30	10.6	54	20.7	AV	L1	GND
3.203648	25.30	11.0	46	20.7	AV	L1	GND
5.142712	24.60	11.0	50	25.4	AV	L1	GND

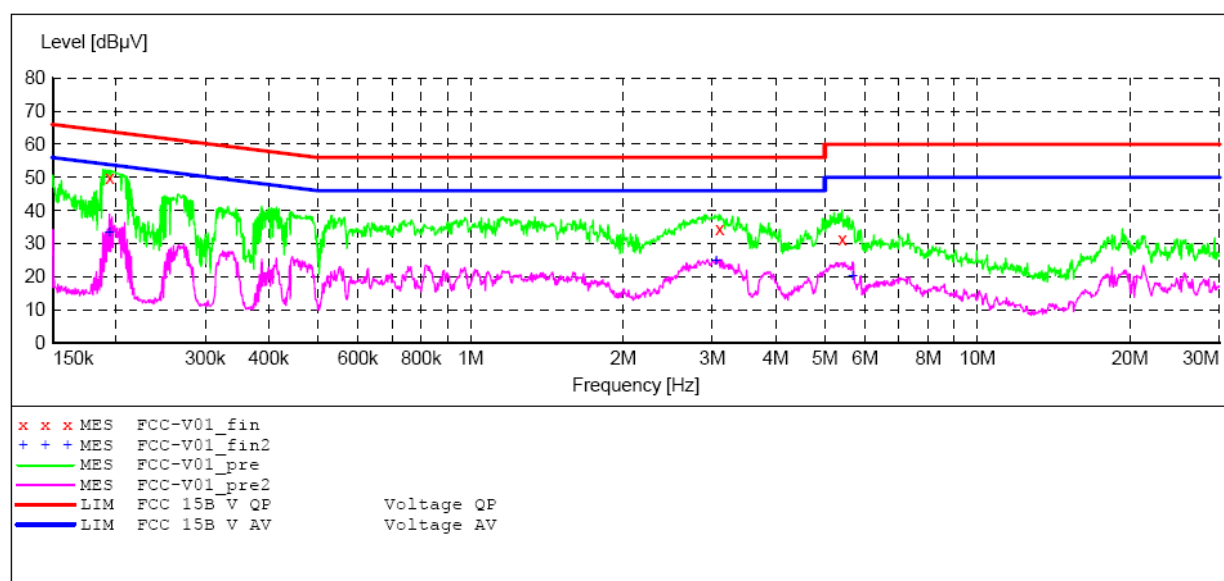
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: KeyFolio Bluetooth Kwyboard M/N:M01268
 Manufacturer: Doking
 Operating Condition: BT/Charging
 Test Site: 1#Shielding Room
 Operator: Alen
 Test Specification: N 120V/60Hz
 Comment: Report No:ATE20141072
 Start of Test: 2014-6-26 / 9:10:07

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz LISN (ESH3-Z5)
 Average



MEASUREMENT RESULT: "FCC-V01_fin"

2014-6-26 9:12

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.194076	50.10	10.6	64	13.8	QP	N	GND
3.099806	34.50	11.0	56	21.5	QP	N	GND
5.411381	31.40	11.0	60	28.6	QP	N	GND

MEASUREMENT RESULT: "FCC-V01_fin2"

2014-6-26 9:12

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.194076	33.30	10.6	54	20.6	AV	N	GND
3.053725	24.90	11.0	46	21.1	AV	N	GND
5.677054	20.10	11.0	50	29.9	AV	N	GND

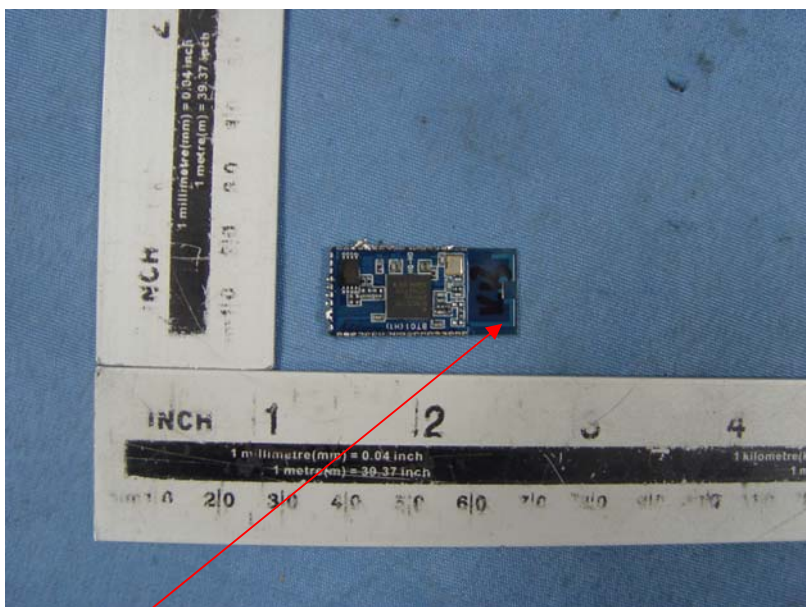
13.ANTENNA REQUIREMENT

13.1.The Requirement

According to Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

13.2.Antenna Construction

The antenna is PCB Layout antenna, no consideration of replacement. Therefore, the equipment complies with the antenna requirement of Section 15.203.



Antenna