FCC and Industry Canada Testing of the DAQRI International Limited DAQRI Compute Pack In accordance with FCC 47 CFR Part 15C, Industry Canada RSS-247 and Industry Canada RSS-GEN

Product Service

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Prepared for: DAQRI LLC
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FCC ID: 2AEWMDQR002001
IC: TBC

COMMERCIAL-IN-CONFIDENCE

Date: June 2017
Document Number: 75936979-06 | Issue: 01

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Project Management	Steven White	02 June 2017	
Authorised Signatory	Matthew Russell	02 June 2017	

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Product Service document control rules.

ENGINEERING STATEMENT
The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC 47 CFR Part 15C, Industry Canada RSS-247 and Industry Canada RSS-GEN. The sample tested was found to comply with the requirements defined in the applied rules.

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Testing	Mehadi Choudhury	02 June 2017	
Testing	Graeme Lawler	02 June 2017	

FCC Accreditation
90987 Octagon House, Fareham Test Laboratory

Industry Canada Accreditation
IC2932B-1 Octagon House, Fareham Test Laboratory

EXECUTIVE SUMMARY
A sample of this product was tested and found to be in compliance with FCC 47 CFR Part 15C: 2016 and Industry Canada RSS-247: Issue 2 (2017-02) and Industry Canada RSS-GEN: Issue 4 (2014-11).

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Product Service

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1 Report Summary

1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

Issue	Description of Change	Date of Issue
1	First Issue	02 June 2017

Table 1

1.2 Introduction

Applicant	DAQRI LLC
Manufacturer	DAQRI International Limited
Model Number(s)	DAQRI Compute Pack
Serial Number(s)	OA565-7DF-5A51EMTGNF and OA565-7DF-82K70497C1
Hardware Version(s)	DCP DE
Software Version(s)	V16
Number of Samples Tested	2
Test Specification/Issue/Date	FCC 47 CFR Part 15C: 2016 Industry Canada RSS-247: Issue 2 (2017-02) Industry Canada RSS-GEN: Issue 4 (2014-11)
Order Number Date	106966 16-November-2016
Date of Receipt of EUT	09-January-2017 and 19-April-2017
Start of Test	19-April-2017
Finish of Test	05-May-2017
Name of Engineer(s)	Mehadi Choudhury and Graeme Lawler
Related Document(s)	ANSI C63.10 (2013)

1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC 47 CFR Part 15C, Industry Canada RSS-247 and Industry Canada RSS-GEN is shown below.

Section	Specification Clause			Test Description	Result	Comments/Base Standard
	Part 15C	RSS-247	RSS-GEN			
Configuration: Bluetooth						
-	15.207	-	8.8	AC Power Line Conducted Emissions	N/T	As per Document 75936979 Report 08*
2.1	15.247 (b)(3)	5.4	-	Maximum Conducted Output Power	Pass	ANSI C63.10
2.2	15.247 (a)(1)	5.1	-	Frequency Hopping Systems - Number of Hopping Channels	Pass	ANSI C63.10
2.3	15.247 (a)(1)	5.1	-	Frequency Hopping Systems - 20 dB Bandwidth	Pass	ANSI C63.10
2.4	15.247 (a)(1)	5.1	-	Frequency Hopping Systems - Channel Separation	Pass	ANSI C63.10
2.5	15.247 (a)(1)	5.1	-	Frequency Hopping Systems - Average Time of Occupancy	Pass	ANSI C63.10
2.6	15.247 (d)	5.5	-	Authorised Band Edges	Pass	ANSI C63.10
2.7	15.205	-	8.10	Restricted Band Edges	Pass	ANSI C63.10
2.8	15.247 (d) and 15.205	5.5	6.13	Spurious Radiated Emissions	Pass	ANSI C63.10

Table 2

N/T = Not Tested

*AC Power Line Conducted Emissions was only performed for the transmitter with the highest conducted RF output power as this was considered worst case for this test as this would draw the maximum amount of current. Test results can be found in Document 75936979 Report 08.

Product Service

1.4 Application Form

EQUIPMENT DESCRIPTION	
Model Name/Number	DAQRI Compute Pack
Part Number	870-00163
Hardware Version	DCP DE
Software Version	V16
FCC ID (if applicable)	2AEWMDQR002001
Industry Canada ID (if applicable)	TBC
Technical Description (Please provide a brief description of the intended use of the equipment)	DAQRI Compute Pack is a mobile computer that powers a lightweight wearable human-machine interface that connects workers in a variety of industries and environments to real time information and augmented work instruction.

Types of Modulations used by the Equipment	
☒	FHSS
☒	Other forms of modulation
In case of FHSS Modulation	
In case of non-Adaptive Frequency Hopping equipment:	
	Number of Hopping Frequencies:
In case of Adaptive Frequency Hopping Equipment:	
	Maximum number of Hopping Frequencies: 79
	Minimum number of Hopping Frequencies: 20
Dwell Time: Up to 3.2 ms for Bluetooth	
Adaptive / non-adaptive equipment:	
☐	non-adaptive Equipment
☒	adaptive Equipment without the possibility to switch to a non-adaptive mode
☐	adaptive Equipment which can also operate in a non-adaptive mode
In case of adaptive equipment:	
The maximum Channel Occupancy Time implemented by the equipment: ms	
☐	The equipment has implemented an LBT based DAA mechanism
In case of equipment using modulation different from FHSS:	
☐	The equipment is Frame Based equipment
☒	The equipment is Load Based equipment
☐	The equipment can switch dynamically between Frame Based and Load Based equipment
The CCA time implemented by the equipment: µs	
☒	The equipment has implemented an non-LBT based DAA mechanism
☐	The equipment can operate in more than one adaptive mode

In case of non-adaptive Equipment:		
The maximum RF Output Power (e.i.r.p.): 19 dBm		
The maximum (corresponding) Duty Cycle: 100 %		
Equipment with dynamic behaviour, that behaviour is described here. (e.g. the different combinations of duty cycle and corresponding power levels to be declared):		
The worst case operational mode for each of the following tests:		
RF Output Power:		
Power Spectral Density:		
Duty cycle, Tx-Sequence, Tx-gap:		
Accumulated Transmit Time, Frequency Occupation & Hopping Sequence (only for FHSS equipment):		
Hopping Frequency Separation (only for FHSS equipment):		
Medium Utilisation:		
Adaptivity & Receiver Blocking:		
Nominal Channel Bandwidth:		
Transmitter unwanted emissions in the OOB domain:		
Transmitter unwanted emissions in the spurious domain:		
Receiver spurious emissions:		
The different transmit operating modes (tick all that apply):		
☒	Operating mode 1: Single Antenna Equipment	
	☒	Equipment with only 1 antenna
	☒	Equipment with 2 diversity antennas but only 1 antenna active at any moment in time
	☐	Smart Antenna Systems with 2 or more antennas, but operating in a (legacy) mode where only 1 antenna is used. (e.g. IEEE 802.11™ [i.3] legacy mode in smart antenna systems)
☒	Operating mode 2: Smart Antenna Systems - Multiple Antennas without beam forming	
	☒	Single spatial stream / Standard throughput / (e.g. IEEE 802.11™ [i.3] legacy mode)
	☒	High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 1
	☒	High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 2
	☐	High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 3
	☐	High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 4
	☐	High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 5
NOTE: Add more lines if more channel bandwidths are supported.		
☐	Operating mode 3: Smart Antenna Systems - Multiple Antennas with beam forming	
	☐	Single spatial stream / Standard throughput (e.g. IEEE 802.11™ [i.3] legacy mode)
	☐	High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 1
	☐	High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 2
	☐	High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 3
	☐	High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 4
	☐	High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 5
NOTE: Add more lines if more channel bandwidths are supported.		

In case of Smart Antenna Systems:
The number of Receive chains: 2
The number of Transmit chains: 2
☒ symmetrical power distribution
☐ asymmetrical power distribution
In case of beam forming, the maximum (additional) beam forming gain: dB
NOTE: The additional beam forming gain does not include the basic gain of a single antenna.
Operating Frequency Range(s) of the equipment:
Operating Frequency Range 1: 2400 MHz to 2483.5 MHz
Operating Frequency Range 2: MHz to MHz
Operating Frequency Range 3: MHz to MHz
NOTE: Add more lines if more Frequency Ranges are supported.
Nominal Channel Bandwidth(s):
Nominal Channel Bandwidth1: 20 MHz
Nominal Channel Bandwidth2: 40 MHz
Nominal Channel Bandwidth3: Bluetooth 1 MHz
Nominal Channel Bandwidth4: BLE 2 MHz
Nominal Channel Bandwidth5: MHz
NOTE: Add more lines if more channel bandwidths are supported.
Type of Equipment (stand-alone, combined, plug-in radio device, etc.):
☒ Stand-alone
☐ Combined Equipment (Equipment where the radio part is fully integrated within another type of equipment)
☐ Plug-in radio device (Equipment intended for a variety of host systems)
☐ Other
The normal and extreme operating conditions that apply to the equipment:
Normal operating conditions (if applicable):
Operating temperature: °C
Other (please specify if applicable):
Extreme operating conditions:
Operating temperature range: Minimum 0 °C to Maximum 30 °C
Other (please specify if applicable): Minimum °C to Maximum °C
Details provided are for the:
☒ stand-alone equipment
☐ combined (or host) equipment
☐ test jig

The intended combination(s) of the radio equipment power settings and one or more antenna assemblies and their corresponding e.i.r.p levels:			
Antenna Type:			
☒ Integral Antenna (information to be provided in case of conducted measurements)			
Antenna Gain: 2 dBi			
If applicable, additional beamforming gain (excluding basic antenna gain): dB			
☒ Temporary RF connector provided			
☐ No temporary RF connector provided			
☐ Dedicated Antennas (equipment with antenna connector)			
☐ Single power level with corresponding antenna(s)			
☐ Multiple power settings and corresponding antenna(s)			
Number of different Power Levels:			
Power Level 1: dBm			
Power Level 2: dBm			
Power Level 3: dBm			
NOTE 1: Add more lines in case the equipment has more power levels.			
NOTE 2: These power levels are conducted power levels (at antenna connector).			
For each of the Power Levels, provide the intended antenna assemblies, their corresponding gains (G) and the resulting e.i.r.p. levels also taking into account the beamforming gain (Y) if applicable			
Power Level 1: 19 dBm			
Number of antenna assemblies provided for this power level:			
Assembly #	**Gain (dBi)**	**e.i.r.p (dBm)**	**Part number or model number**
1	2	19	Taoglas FXP840
2	2	19	Taoglas FXP840
3			
4			
NOTE: Add more rows in case more antenna assemblies are supported for this power level.			
Power Level 2: dBm			
Number of antenna assemblies provided for this power level:			
Assembly #	**Gain (dBi)**	**e.i.r.p (dBm)**	**Part number or model number**
1			
2			
3			
4			
NOTE: Add more rows in case more antenna assemblies are supported for this power level.			
Power Level 3: dBm			
Number of antenna assemblies provided for this power level:			
Assembly #	**Gain (dBi)**	**e.i.r.p (dBm)**	**Part number or model number**
1			
2			
3			
4			
NOTE: Add more rows in case more antenna assemblies are supported for this power level.			

The nominal voltages of the stand-alone radio equipment or the nominal voltages of the combined (host) equipment or test jig in case of plug-in devices:		
Details provided are for the:		
☒	stand-alone equipment	
☐	combined (or host) equipment	
☐	test jig	
Supply Voltage	☐ AC mains State AC voltage	V
	☐ DC State DC voltage	V
In case of DC, indicate the type of power source		
☐	Internal Power Supply	
☐	External Power Supply or AC/DC adapter	
☐	Battery	
☒	Other: Li-ion	
Describe the test modes available which can facilitate testing:		
The equipment type (e.g. Bluetooth®, IEEE 802.11™ [i.3] IEEE 802.15.4™ [i.4], proprietary, etc.):		
If applicable, the statistical analysis referred in clause 5.4.1 q)		
To be provided as separate attachment		
If applicable, the statistical analysis referred in clause 5.4.1 r)		
To be provided as separate attachment		
Geo-location capability supported by the equipment:		
☒ Yes		
☒	The geographical location determined by the equipment as defined in clause 4.3.1.13.2 or clause 4.3.2.12.2 is not accessible to the user.	
☐ No		
Describe the minimum performance criteria that apply to the equipment (see clause 4.3.1.12.3 or 4.3.2.11.3)		
Combination for testing (see clause 5.3.2.3 of EN 300 328 V21.1)		
From all combinations of conducted power settings and intended antenna assembly(ies) specified in clause 5.4.1 m), specify the combination resulting in the highest e.i.r.p. for the radio equipment. Unless otherwise specified in ETSI EN 300 328, this power setting is to be used for testing against the requirements of ETSI EN 300 328. In case there is more than one such conducted power setting resulting in the same (highest) e.i.r.p. level, the highest power setting is to be used for testing. See also ETS EN 300 328, clause 5.3.2.3		
Highest overall e.i.r.p. value: 19 dBm		
Corresponding Antenna assembly gain: 2 dBi		Antenna Assembly #:
Corresponding conducted power setting: dBm (also the power level to be used for testing)		Listed as Power Setting #:
Additional information provided by the applicant		
Modulation		
ITU Class(es) of emission: 20M0 G1D, 40M0 G1D, 2M00 G1D, 1M00 G1D		
Can the transmitter operate unmodulated? ☐ Yes ☒ No		

Duty Cycle	
The transmitter is intended for:	
☒	Continuous duty
☐	Intermittent duty
☐	Continuous operation possible for testing purposes
About the UUT	
☐	The equipment submitted are representative production models
☐	If not, the equipment submitted are pre-production models?
☒	If pre-production equipment are submitted, the final production equipment will be identical in all respects with the equipment tested
☐	If not, supply full details
☐	The equipment submitted is CE marked
Additional items and/or supporting equipment provided	
☒	Spare batteries (e.g. for portable equipment)
☒	Battery charging device
☒	External Power Supply or AC/DC adapter
☐	Test Jig or interface box
☐	RF test fixture (for equipment with integrated antennas)
☐	Host System
	Manufacturer
	Model
	Model Name
☐	Combined equipment
	Manufacturer
	Model
	Model Name
☒	User Manual
☐	Technical documentation (Handbook and circuit diagrams)

I hereby declare that that the information supplied is correct and complete.

Name: Dave Williams Position held: Certification Test Manager
Date: 26th May 2017

1.5 Product Information

1.5.1 Technical Description

DAQRI Compute Pack is a mobile computer that powers a lightweight wearable human-machine interface that connects workers in a variety of industries and environments to real time information and augmented work instruction.

1.6 Deviations from the Standard

No deviations from the applicable test standard were made during testing.

1.7 EUT Modification Record

The table below details modifications made to the EUT during the test programme.
The modifications incorporated during each test are recorded on the appropriate test pages.

Modification State	Description of Modification still fitted to EUT	Modification Fitted By	Date Modification Fitted
Serial Number: OA565-7DF-5A51EMTGNF			
0	As supplied by the customer	Not Applicable	Not Applicable
Serial Number: OA565-7DF-82K70497C1			
0	As supplied by the customer	Not Applicable	Not Applicable

Table 3

1.8 Test Location

TÜV SÜD Product Service conducted the following tests at our Fareham Test Laboratory.

Test Name	Name of Engineer(s)	Accreditation
Configuration: Bluetooth		
Maximum Conducted Output Power	Mehadi Choudhury	UKAS
Frequency Hopping Systems - Number of Hopping Channels	Mehadi Choudhury	UKAS
Frequency Hopping Systems - 20 dB Bandwidth	Mehadi Choudhury	UKAS
Frequency Hopping Systems - Channel Separation	Mehadi Choudhury	UKAS
Frequency Hopping Systems - Average Time of Occupancy	Mehadi Choudhury	UKAS
Authorised Band Edges	Graeme Lawler	UKAS
Restricted Band Edges	Graeme Lawler	UKAS
Spurious Radiated Emissions	Graeme Lawler	UKAS

Table 4

Office Address:

Octagon House
Concorde Way
Segensworth North
Fareham
Hampshire
PO15 5RL
United Kingdom

2 Test Details

2.1 Maximum Conducted Output Power

2.1.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (b)(3)
Industry Canada RSS-247, Clause 5.4

2.1.2 Equipment Under Test and Modification State

DAQRI Compute Pack, S/N: OA565-7DF-5A51EMTGNF - Modification State 0

2.1.3 Date of Test

04-May-2017

2.1.4 Test Method

The test was performed in accordance with ANSI C63.10, clause 7.8.5

2.1.5 Environmental Conditions

Ambient Temperature	25.0 °C
Relative Humidity	35.2 %

2.1.6 Test Results

Bluetooth

Testing was performed on the modulation/packet type with the highest conducted output power. This modulation/packet type was GFSK/DH5.

Frequency (MHz)	Output Power	
	(dBm)	(mW)
2402	5.45	3.51
2441	5.85	3.85
2472	5.16	3.28

Table 5

FCC 47 CFR Part 15C, Limit Clause 15.247 (b)

The maximum peak conducted output power of the intentional radiator shall not exceed the following:

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 5725-5850MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

Industry Canada RSS-247, Limit Clause 5.4 (b)

For FHSs operating in the band 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1.0 W if the hopset uses 75 or more hopping channel; the maximum peak conducted output power shall not exceed 0.125 W if the hopset uses less than 75 hopping channel. The e.i.r.p. shall not exceed 4 W except as provided in section 5.4(e) of the specification.

2.1.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 1.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
20dB/2W Attenuator	Narda	4772-20	462	-	O/P Mon
Attenuator (20dB, 1W)	Sealectro	60-674-1020-89	1520	12	30-Jun-2017
Hygrometer	Rotronic	I-1000	3220	12	23-Aug-2017
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	15-Sep-2017
Calibration Unit	Rohde & Schwarz	ZV-Z54	4368	12	08-Sep-2017
Frequency Standard	Spectracom	Secure Sync 1200-0408-0601	4393	6	09-Sep-2017
PXA Signal Analyser	Keysight Technologies	N9030A	4654	12	06-Oct-2017
2 metre SMA Cable	IW Microwave	3PS-1806LC-788-3PS	4829	12	24-Jan-2018

Table 6

O/P Mon – Output Monitored using calibrated equipment

2.2 Frequency Hopping Systems - Number of Hopping Channels

2.2.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (a)(1)
Industry Canada RSS-247, Clause 5.1

2.2.2 Equipment Under Test and Modification State

DAQRI Compute Pack, S/N: OA565-7DF-5A51EMTGNF - Modification State 0

2.2.3 Date of Test

04-May-2017

2.2.4 Test Method

The test was performed in accordance with ANSI C63.10, clause 7.8.3.

2.2.5 Environmental Conditions

Ambient Temperature	25.0 °C
Relative Humidity	35.2 %

2.2.6 Test Results

Bluetooth

Number of Hopping Channels: 79

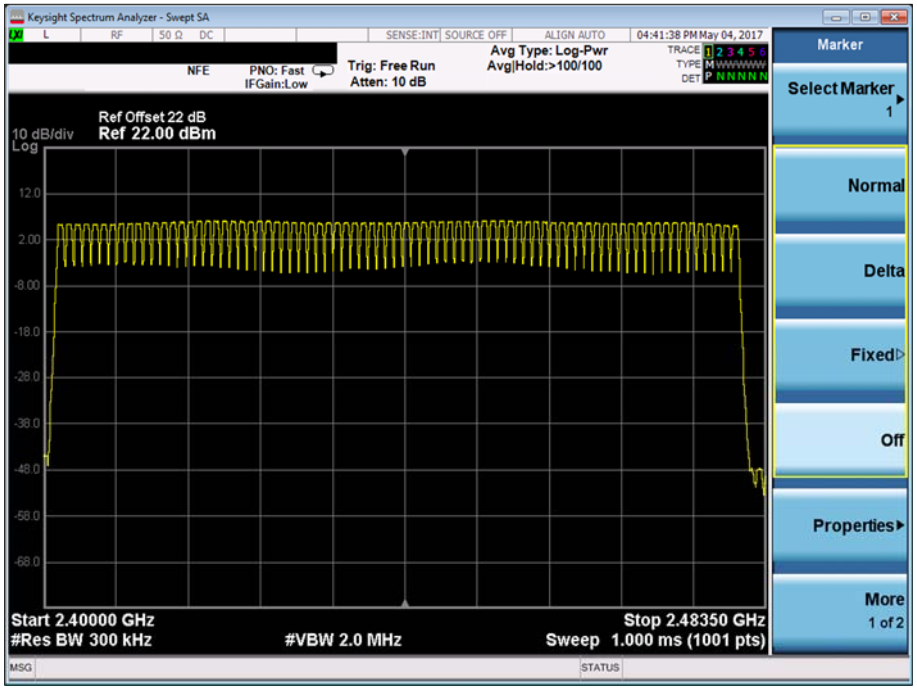

Figure 1

FCC 47 CFR Part 15C, Limit Clause 15.247 (a)(1)(iii)

≥ 15 channels

Industry Canada RSS-247, Limit Clause 5.1 (d)

FHSs operating in the band 2400-2483.5 MHz shall use at least 15 hopping channels.

2.2.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 1.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
20dB/2W Attenuator	Narda	4772-20	462	-	O/P Mon
Attenuator (20dB, 1W)	Sealectro	60-674-1020-89	1520	12	30-Jun-2017
Hygrometer	Rotronic	I-1000	3220	12	23-Aug-2017
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	15-Sep-2017
Calibration Unit	Rohde & Schwarz	ZV-Z54	4368	12	08-Sep-2017
Frequency Standard	Spectracom	Secure Sync 1200-0408-0601	4393	6	09-Sep-2017
PXA Signal Analyser	Keysight Technologies	N9030A	4654	12	06-Oct-2017
2 metre SMA Cable	IW Microwave	3PS-1806LC-788-3PS	4829	12	24-Jan-2018

Table 7

O/P Mon – Output Monitored using calibrated equipment

2.3 Frequency Hopping Systems - 20 dB Bandwidth

2.3.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (a)(1)
Industry Canada RSS-247, Clause 5.1

2.3.2 Equipment Under Test and Modification State

DAQRI Compute Pack, S/N: OA565-7DF-5A51EMTGNF - Modification State 0

2.3.3 Date of Test

04-May-2017

2.3.4 Test Method

The test was performed in accordance with ANSI C63.10, clause 6.9.2.

2.3.5 Environmental Conditions

Ambient Temperature	25.0 °C
Relative Humidity	35.2 %

2.3.6 Test Results

Bluetooth

Frequency (MHz)	20 dB Bandwidth (kHz)		
	GFSK	π/4 DQPSK	8-DPSK
2402	1010	1506	1454
2441	1006	1505	1457
2472	1008	1506	1456

Table 8

Figure 2 – 2402 MHz - GFSK

Figure 3 - 2402 MHz - π/4 DQPSK

Figure 4 - 2402 MHz - 8-DPSK

Figure 5 - 2441 MHz - GFSK

Figure 6 - 2441 MHz - π/4 DQPSK

Figure 7 - 2441 MHz - 8-DPSK

Figure 8 - 2480 MHz - GFSK

Figure 9 - 2480 MHz - π/4 DQPSK

Figure 10 - 2480 MHz - 8-DPSK

FCC 47 CFR Part 15C, Limit Clause

None specified.

Industry Canada RSS-247, Limit Clause

None specified.

2.3.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 1.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
20dB/2W Attenuator	Narda	4772-20	462	-	O/P Mon
Attenuator (20dB, 1W)	Sealectro	60-674-1020-89	1520	12	30-Jun-2017
Hygrometer	Rotronic	I-1000	3220	12	23-Aug-2017
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	15-Sep-2017
Calibration Unit	Rohde & Schwarz	ZV-Z54	4368	12	08-Sep-2017
Frequency Standard	Spectracom	Secure Sync 1200-0408-0601	4393	6	09-Sep-2017
PXA Signal Analyser	Keysight Technologies	N9030A	4654	12	06-Oct-2017
2 metre SMA Cable	IW Microwave	3PS-1806LC-788-3PS	4829	12	24-Jan-2018

Table 9

O/P Mon – Output Monitored using calibrated equipment

2.4 Frequency Hopping Systems - Channel Separation

2.4.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (a)(1)
Industry Canada RSS-247, Clause 5.1

2.4.2 Equipment Under Test and Modification State

DAQRI Compute Pack, S/N: OA565-7DF-5A51EMTGNF - Modification State 0

2.4.3 Date of Test

05-May-2017

2.4.4 Test Method

The test was performed in accordance with ANSI C63.10, clause 7.8.2.

2.4.5 Environmental Conditions

Ambient Temperature	24.8 °C
Relative Humidity	31.4 %

2.4.6 Test Results

Bluetooth

Modulation	Channel Separation (MHz)
GFSK	1.004
π/4 DQPSK	1.004
8-DPSK	1.012

Table 10

Figure 11 - GFSK

Figure 12 - π/4 DQPSK

Figure 13 - 8-DPSK

FCC 47 CFR Part 15C, Limit Clause 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 band 2400-2483.5 MHz 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 0.125 W.

Industry Canada RSS-247, Limit Clause 5.1 (b)

FHSs 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, FHSs operating in the band 2400-2483.5 MHz 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 that the systems operate with an output power no greater than 0.125 W.

2.4.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 1.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
20dB/2W Attenuator	Narda	4772-20	462	-	O/P Mon
Attenuator (20dB, 1W)	Sealectro	60-674-1020-89	1520	12	30-Jun-2017
Hygrometer	Rotronic	I-1000	3220	12	23-Aug-2017
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	15-Sep-2017
Calibration Unit	Rohde & Schwarz	ZV-Z54	4368	12	08-Sep-2017
Frequency Standard	Spectracom	Secure Sync 1200-0408-0601	4393	6	09-Sep-2017
PXA Signal Analyser	Keysight Technologies	N9030A	4654	12	06-Oct-2017
2 metre SMA Cable	IW Microwave	3PS-1806LC-788-3PS	4829	12	24-Jan-2018

Table 11

O/P Mon – Output Monitored using calibrated equipment

2.5 Frequency Hopping Systems - Average Time of Occupancy

2.5.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (a)(1)
Industry Canada RSS-247, Clause 5.1

2.5.2 Equipment Under Test and Modification State

DAQRI Compute Pack, S/N: OA565-7DF-5A51EMTGNF - Modification State 0

2.5.3 Date of Test

05-May-2017

2.5.4 Test Method

The test was performed in accordance with ANSI C63.10, clause 7.8.4.

2.5.5 Environmental Conditions

Ambient Temperature	24.8 °C
Relative Humidity	31.4 %

2.5.6 Test Results

Bluetooth

Packet Type	Dwell Time (ms)	Number of Transmissions	Average Occupancy Time (ms)
DH1	0.378	107	40.446
DH3	1.633	91	148.603
DH5	2.881	94	270.814

Table 12

Figure 14 - DH1, Dwell Time

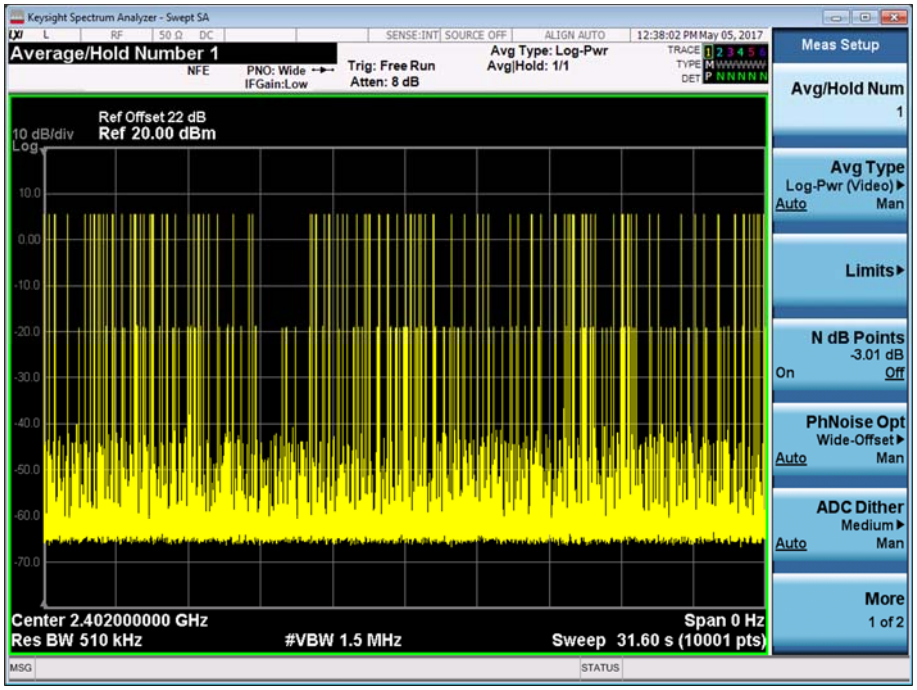

Figure 15 - DH1, Total Average Time of Occupancy

Figure 16 - DH3, Dwell Time

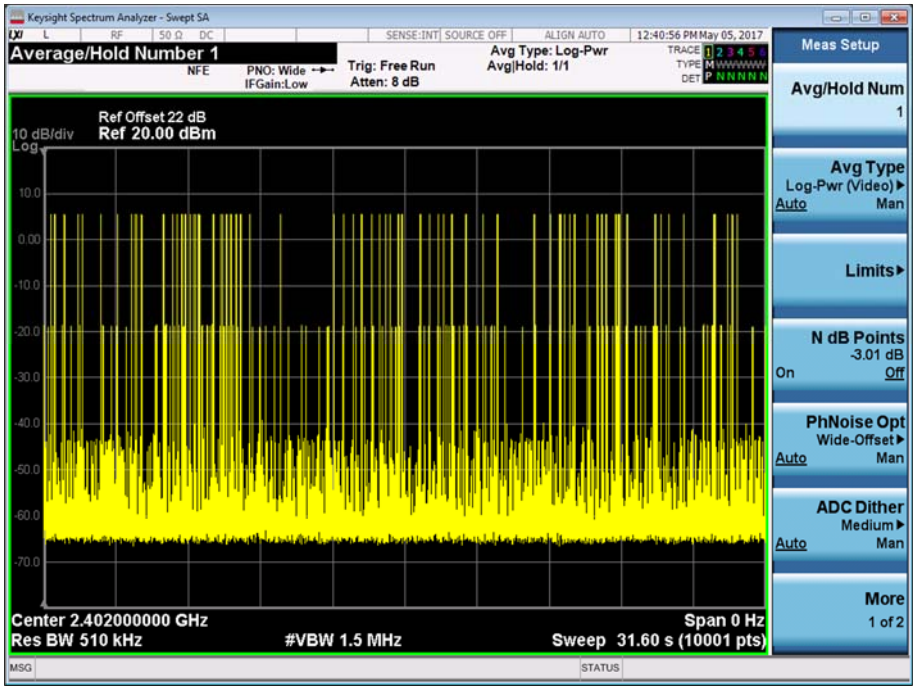

Figure 17 - DH3, Total Average Time of Occupancy

Figure 18 - DH5, Dwell Time

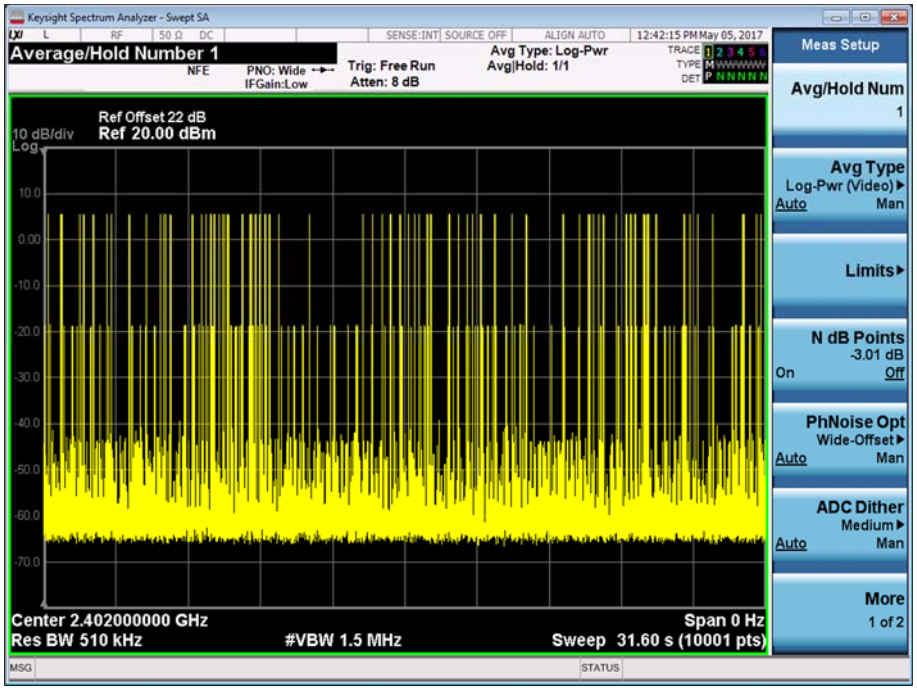

Figure 19 - DH5, Total Average Time of Occupancy

FCC 47 CFR Part 15C, Limit Clause 15.247 (a)(1)(iii)

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.

Industry Canada RSS-247, Limit Clause 5.1 (d)

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. Transmissions on particular hopping frequencies may be avoided or suppressed provided that at least 15 hopping channels are used.

2.5.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 1.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
20dB/2W Attenuator	Narda	4772-20	462	-	O/P Mon
Attenuator (20dB, 1W)	Sealectro	60-674-1020-89	1520	12	30-Jun-2017
Hygrometer	Rotronic	I-1000	3220	12	23-Aug-2017
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	15-Sep-2017
Calibration Unit	Rohde & Schwarz	ZV-Z54	4368	12	08-Sep-2017
Frequency Standard	Spectracom	Secure Sync 1200-0408-0601	4393	6	09-Sep-2017
PXA Signal Analyser	Keysight Technologies	N9030A	4654	12	06-Oct-2017
2 metre SMA Cable	IW Microwave	3PS-1806LC-788-3PS	4829	12	24-Jan-2018

Table 13

O/P Mon – Output Monitored using calibrated equipment

2.6 Authorised Band Edges

2.6.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (d)
Industry Canada RSS-247, Clause 5.5

2.6.2 Equipment Under Test and Modification State

DAQRI Compute Pack, S/N: OA565-7DF-82K70497C1 - Modification State 0

2.6.3 Date of Test

19-April-2017

2.6.4 Test Method

Testing was performed in accordance with ANSI C63.10-2013 clause 6.10.4

2.6.5 Environmental Conditions

Ambient Temperature	17.9 °C
Relative Humidity	29.0 %

2.6.6 Test Results

Bluetooth

Mode	Modulation	Frequency (MHz)	Measured Frequency (MHz)	Peak Level (dBµV/m)
Static	GFSK	2402	2400.0	46.91
Static	GFSK	2480	2483.5	48.72
Hopping	GFSK	2402	2400.0	47.47
Hopping	GFSK	2480	2483.5	51.32
Static	π/4 DQPSK	2402	2400.0	52.15
Static	π/4 DQPSK	2480	2483.5	47.05
Hopping	π/4 DQPSK	2402	2400.0	48.30
Hopping	π/4 DQPSK	2480	2483.5	47.78
Static	8-DPSK	2402	2400.0	49.90
Static	8-DPSK	2480	2483.5	47.49
Hopping	8-DPSK	2402	2400.0	49.25
Hopping	8-DPSK	2402	2483.5	49.79

Table 14

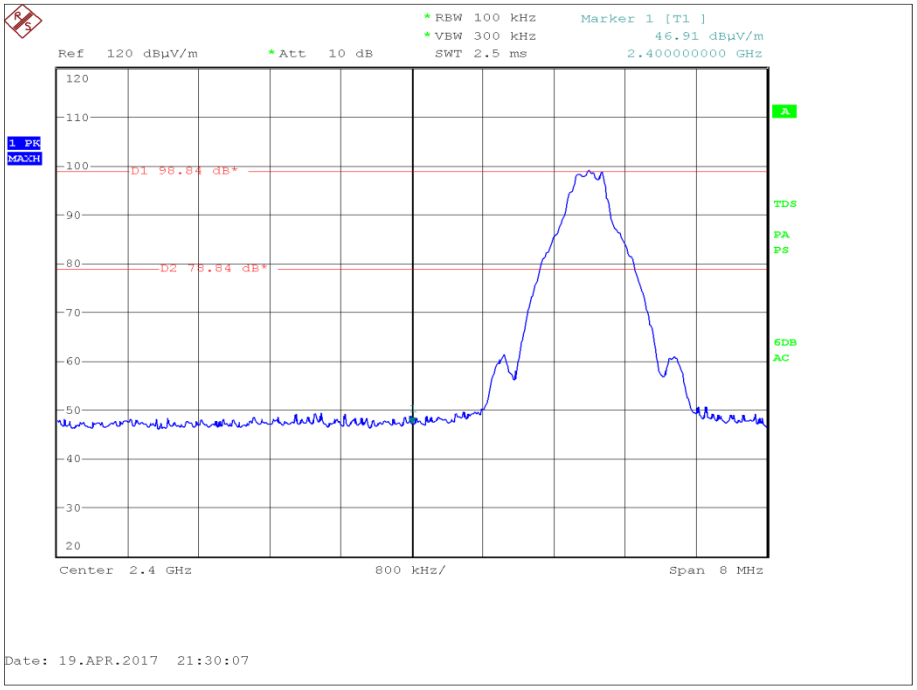

Figure 20 - Static - GFSK - 2402 MHz - Measured Frequency 2400.0 MHz

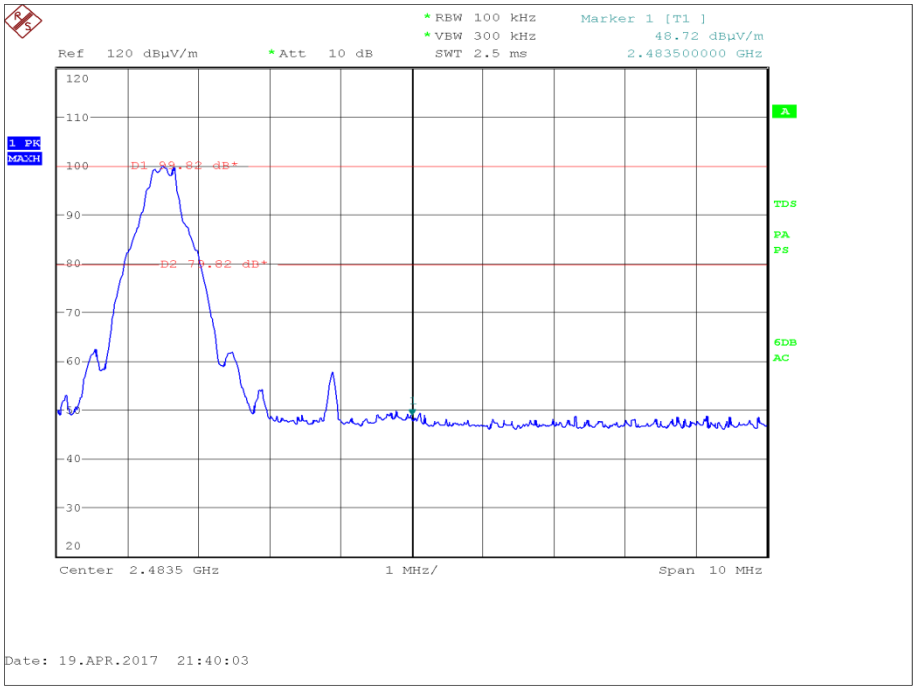

Figure 21 - Static - GFSK - 2480 MHz - Measured Frequency 2483.5 MHz

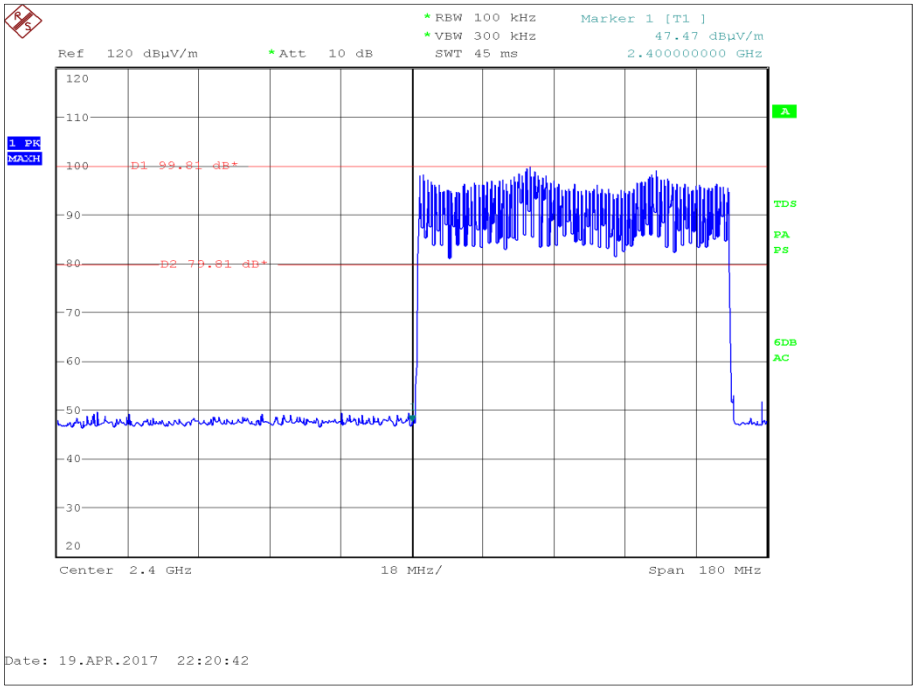

Figure 22 - Hopping - GFSK - 2402 MHz - Measured Frequency 2400.0 MHz

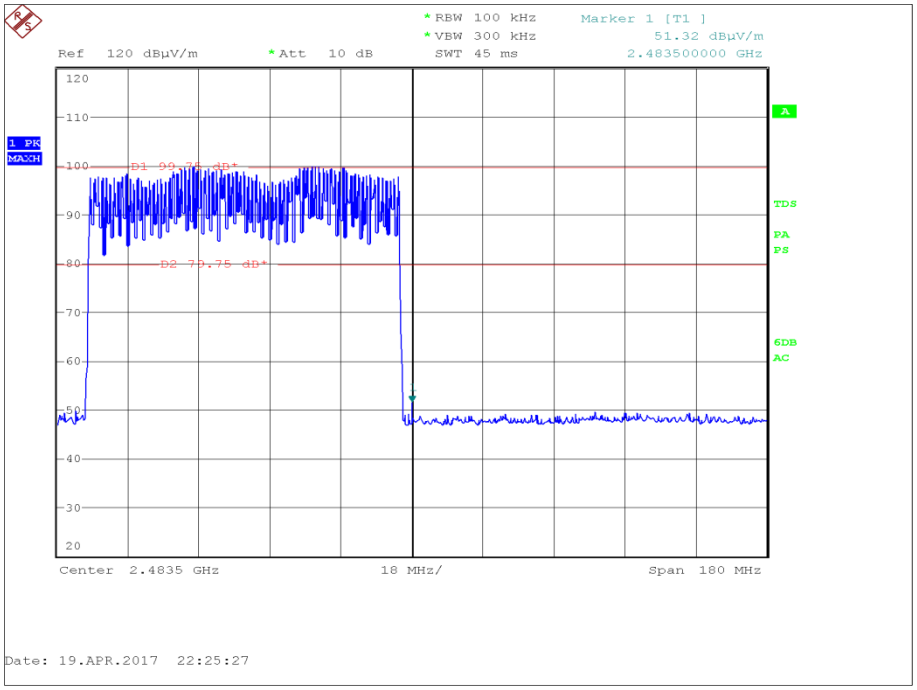

Figure 23 - Hopping - GFSK - 2480 MHz - Measured Frequency 2483.5 MHz

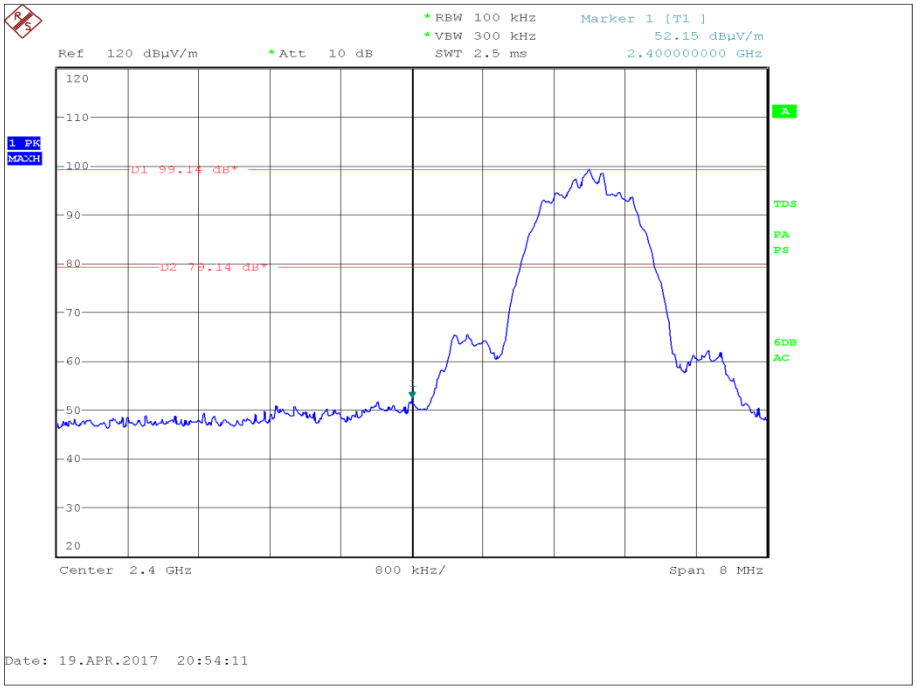

Figure 24 - Static - π/4 DQPSK - 2402 MHz - Measured Frequency 2400.0 MHz

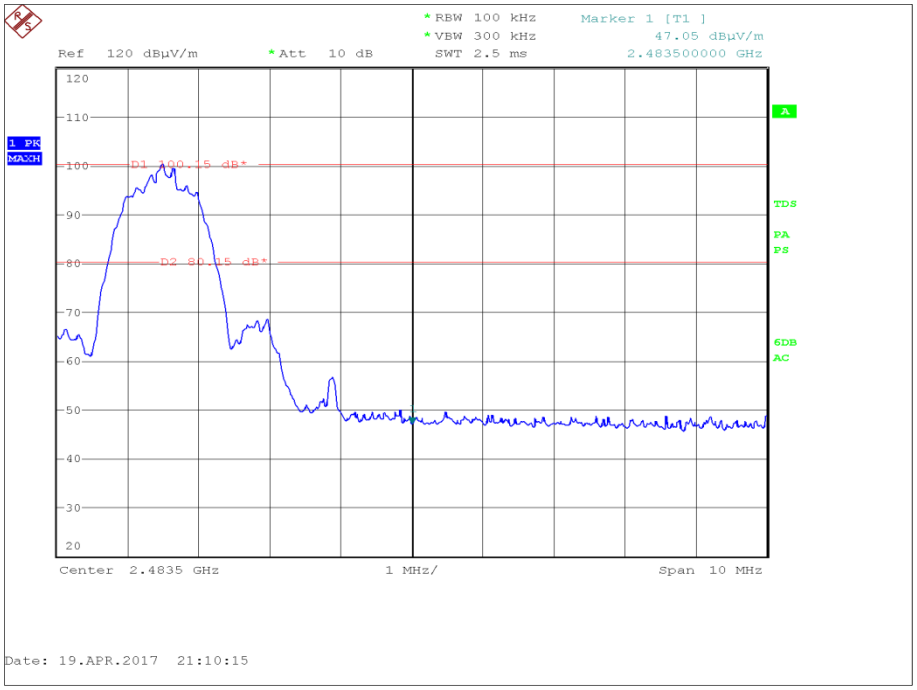

Figure 25 - Static - π/4 DQPSK - 2480 MHz - Measured Frequency 2483.5 MHz

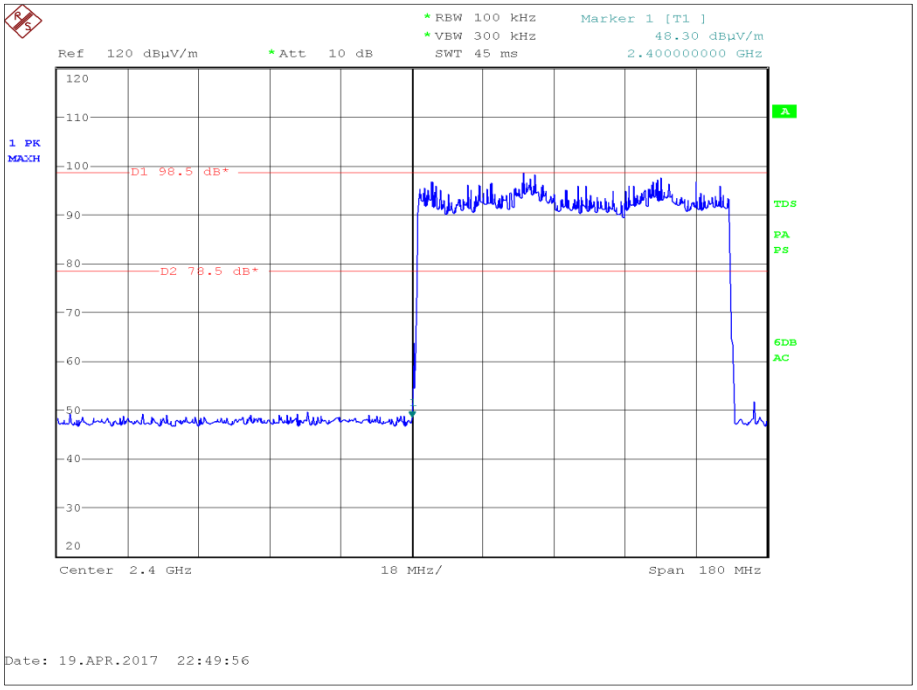

Figure 26 - Hopping - π/4 DQPSK - 2402 MHz - Measured Frequency 2400.0 MHz

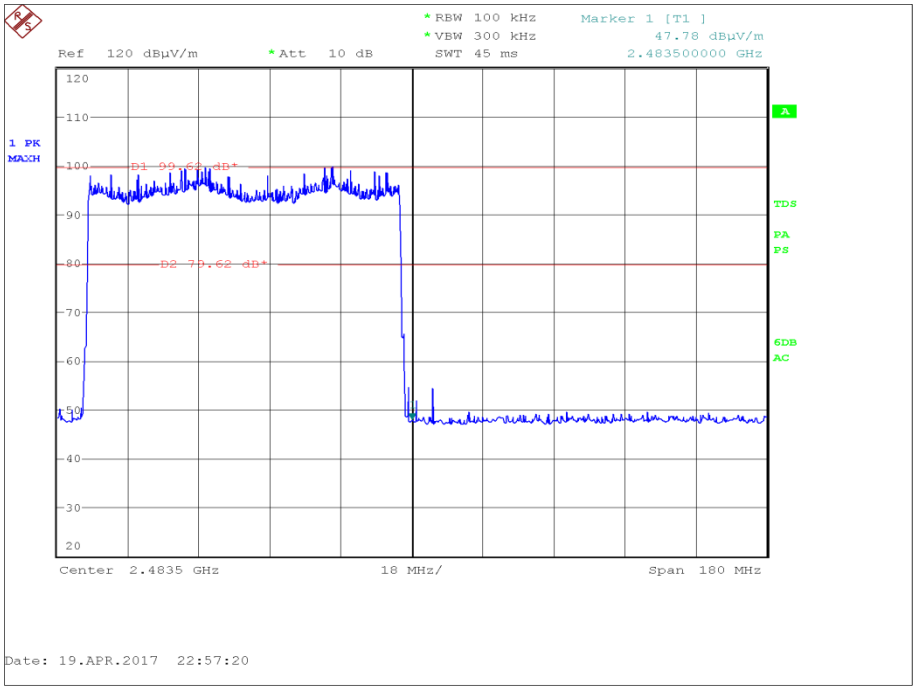

Figure 27 - Hopping - π/4 DQPSK - 2480 MHz - Measured Frequency 2483.5 MHz

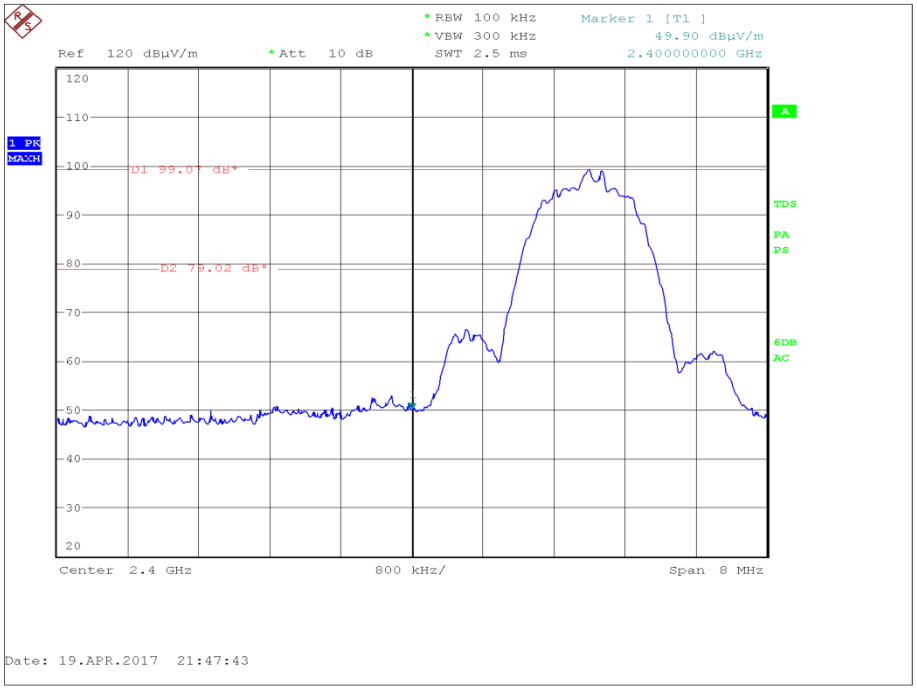

Figure 28 - Static - 8-DPSK - 2402 MHz - Measured Frequency 2400.0 MHz

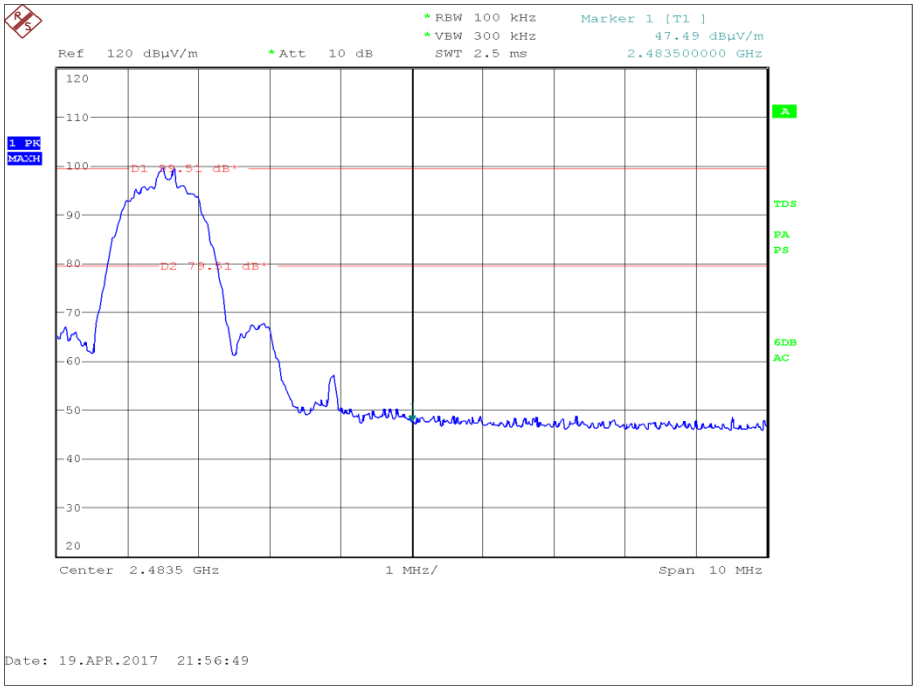

Figure 29 - Static - 8-DPSK - 2480 MHz - Measured Frequency 2483.5 MHz

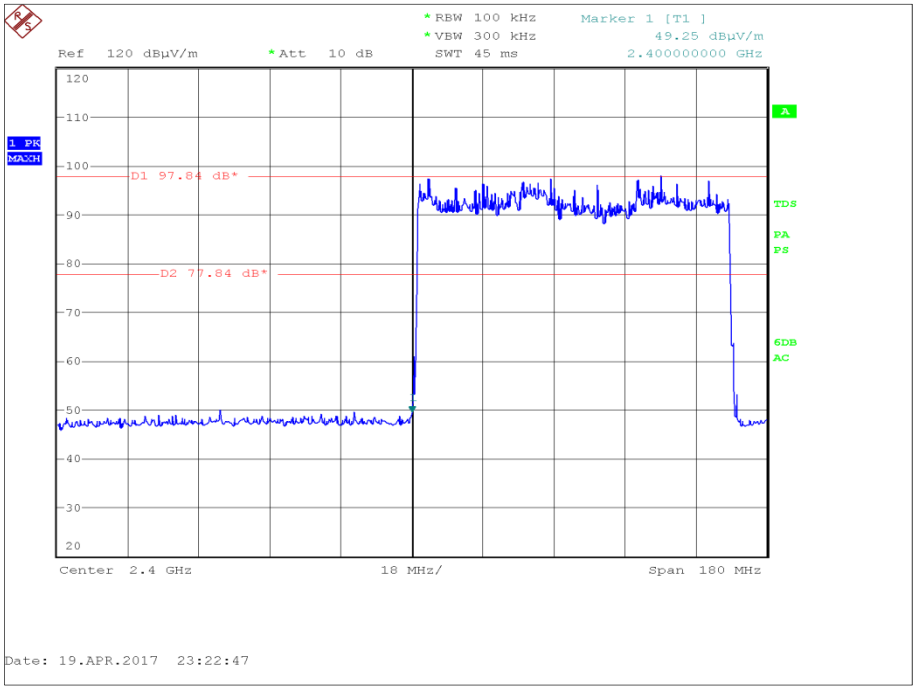

Figure 30 - Hopping - 8-DPSK - 2402 MHz - Measured Frequency 2400.0 MHz

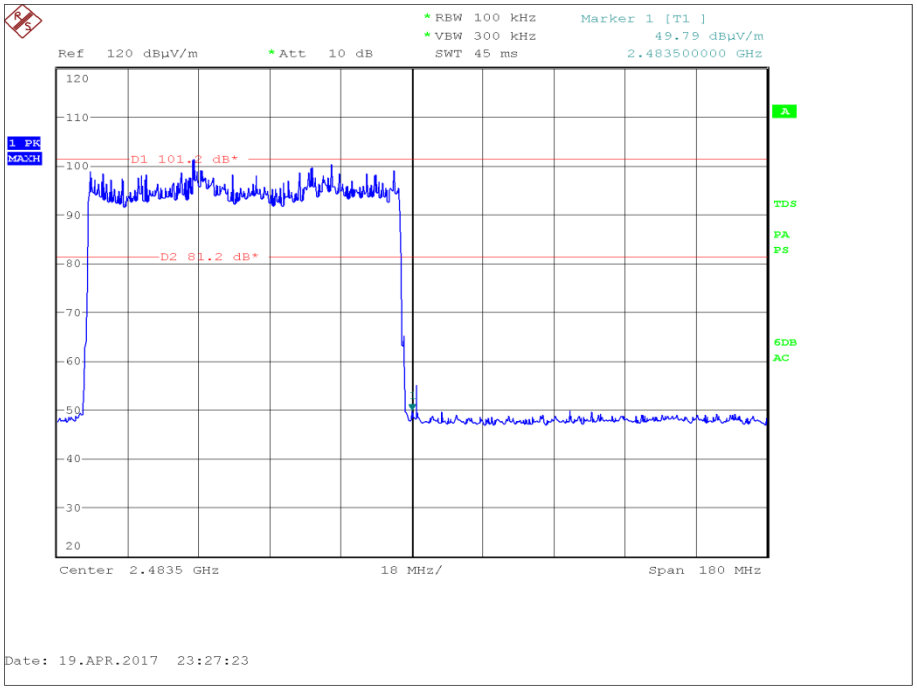

Figure 31 - Hopping - 8-DPSK - 2402 MHz - Measured Frequency 2483.5 MHz

FCC 47 CFR Part 15C, Limit Clause 15.247 (d)

20 dB below the fundamental measured in a 100 kHz bandwidth using a peak detector. If the transmitter complies with the conducted power limits, based on the use of RMS averaging over a time interval, the attenuation required shall be 30 dB below the fundamental instead of 20 dB.

Industry Canada RSS-247, Limit Clause 5.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section 5.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

2.6.7 Test Location and Test Equipment Used

This test was carried out in EMC Chamber 5.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
Screened Room (5)	Rainford	Rainford	1545	36	20-Dec-2017
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Hygromer	Rotronic	A1	2138	12	02-Feb-2018
Cable (N-N, 8m)	Rhophase	NPS-2302-8000-NPS	3248	-	O/P Mon
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	12-Nov-2017
Tilt Antenna Mast	maturo Gmbh	TAM 4.0-P	3916	-	TU
Mast Controller	maturo Gmbh	NCD	3917	-	TU
Cable (Yellow, Rx, Km-Km 2m)	Scott Cables	KPS-1501-2000-KPS	4527	-	O/P Mon
Double Ridge Broadband Horn Antenna	Schwarzbeck	BBHA 9120 B	4848	12	17-Feb-2018

Table 15

TU - Traceability Unscheduled
O/P Mon – Output Monitored using calibrated equipment

2.7 Restricted Band Edges

2.7.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.205
Industry Canada RSS-GEN, Clause 8.10

2.7.2 Equipment Under Test and Modification State

DAQRI Compute Pack, S/N: OA565-7DF-82K70497C1 - Modification State 0

2.7.3 Date of Test

19-April-2017

2.7.4 Test Method

Testing was performed in accordance with ANSI C63.10, clause 6.10.5

Plots for average measurements were taken in accordance with ANSI C63.10, clause 4.1.4.2.3

Final average measurements were taken in accordance with ANSI C63.10, clause 4.1.4.2.2

2.7.5 Environmental Conditions

Ambient Temperature	17.9 °C
Relative Humidity	29.0 %

2.7.6 Test Results

Bluetooth

Mode	Modulation	Frequency (MHz)	Measured Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
Static	GFSK	2402	2390.0	58.04	46.37
Static	GFSK	2480	2483.5	58.15	46.82
Hopping	GFSK	2402	2390.0	58.73	46.42
Hopping	GFSK	2480	2483.5	57.89	46.03
Static	π/4 DQPSK	2402	2390.0	57.65	46.40
Static	π/4 DQPSK	2480	2483.5	58.85	47.12
Hopping	π/4 DQPSK	2402	2390.0	58.52	46.40
Hopping	π/4 DQPSK	2480	2483.5	58.02	46.11
Static	8-DPSK	2402	2390.0	57.50	46.42
Static	8-DPSK	2480	2483.5	59.59	47.56
Hopping	8-DPSK	2402	2390.0	58.23	46.40
Hopping	8-DPSK	2480	2483.5	58.15	46.15

Table 16

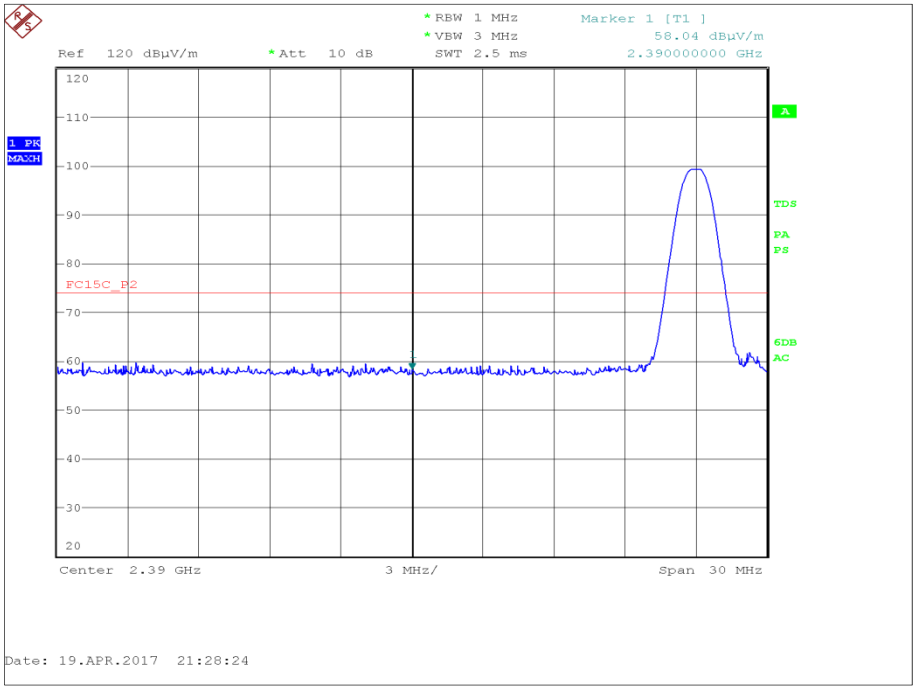

Figure 32 - Static - GFSK - 2402 MHz - Measured Frequency 2390.0 MHz - Peak

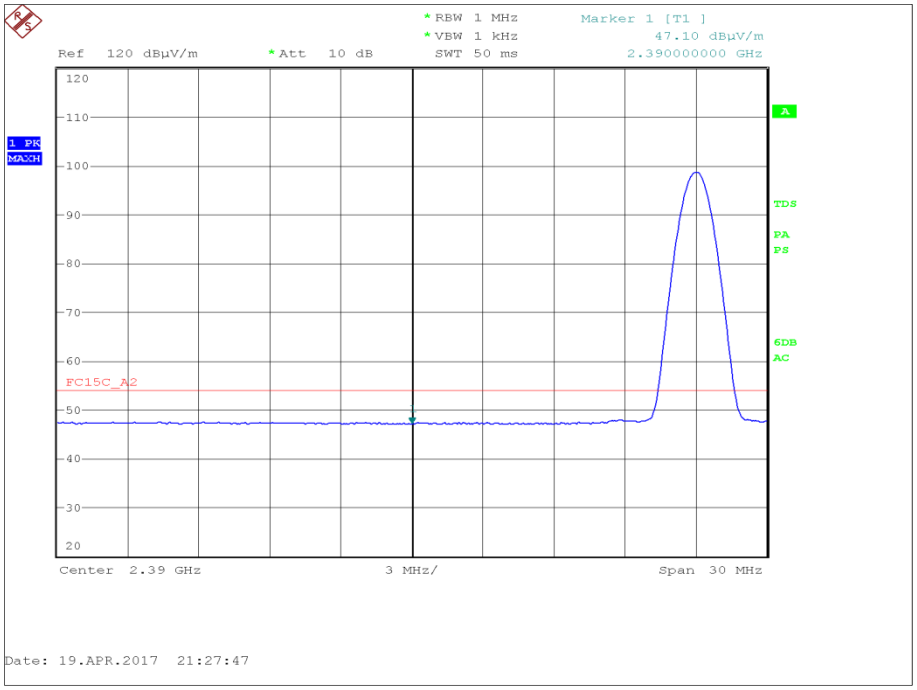

Figure 33 - Static - GFSK - 2402 MHz - Measured Frequency 2390.0 MHz - Average

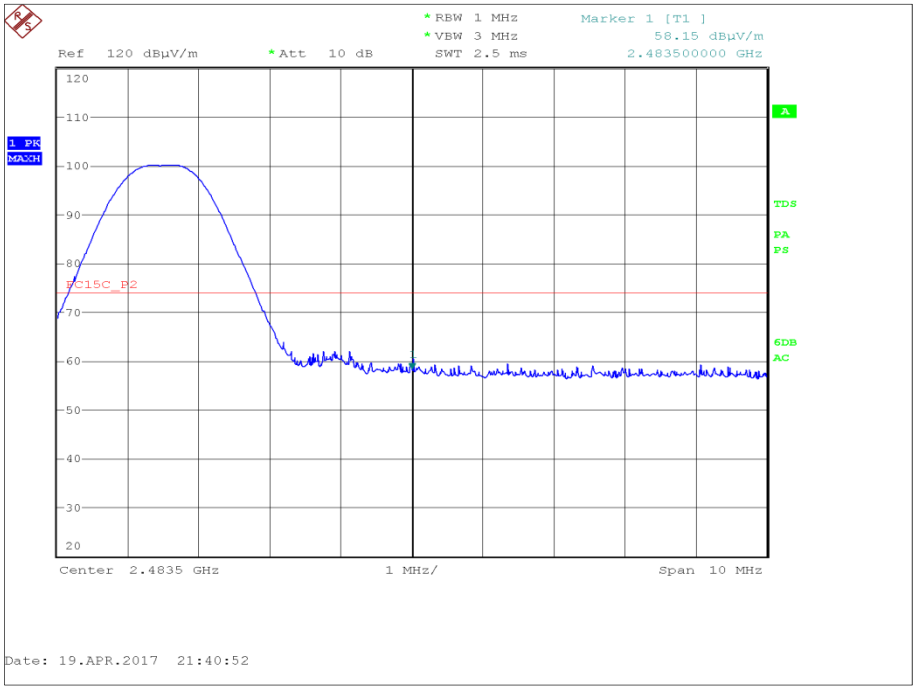

Figure 34 - Static - GFSK - 2480 MHz - Measured Frequency 2483.5 MHz - Peak

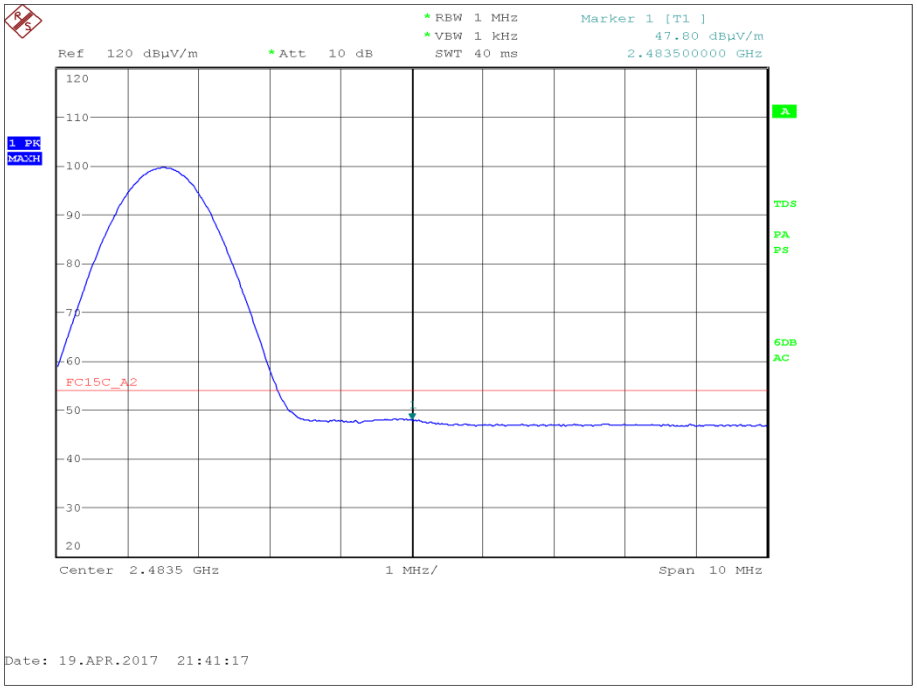

Figure 35 - Static - GFSK - 2480 MHz - Measured Frequency 2483.5 MHz - Average

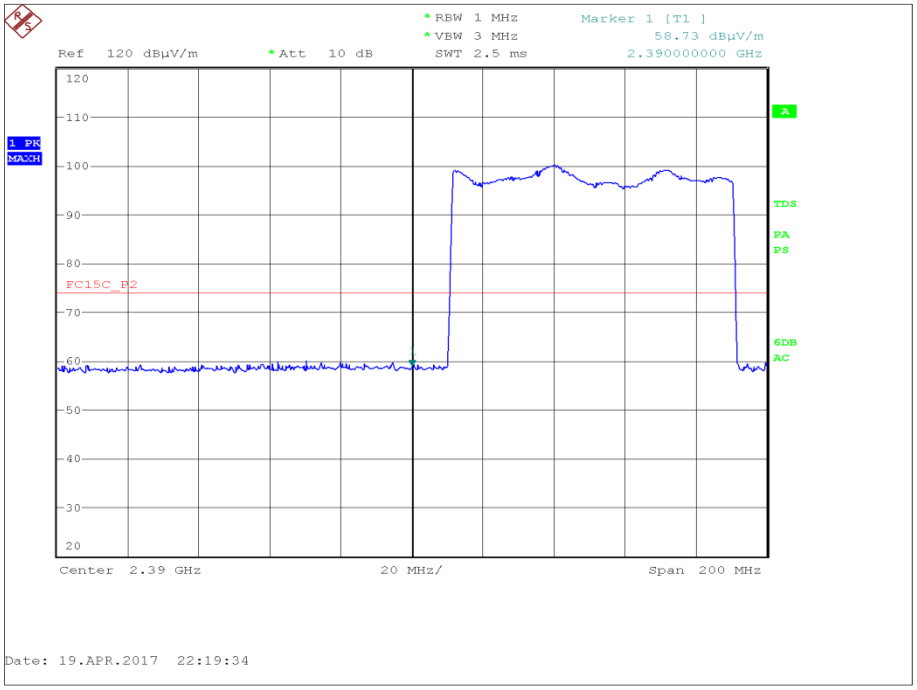

Figure 36 - Hopping - GFSK - 2402 MHz - Measured Frequency 2390.0 MHz - Peak

Figure 37 - Hopping - GFSK - 2402 MHz - Measured Frequency 2390.0 MHz - Average

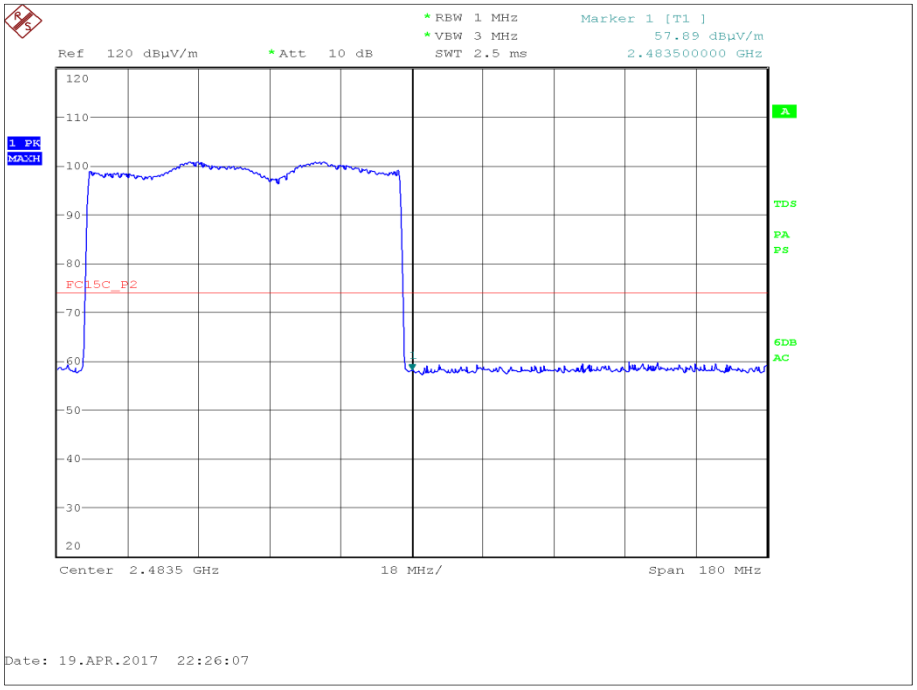

Figure 38 - Hopping - GFSK - 2480 MHz - Measured Frequency 2483.5 MHz - Peak

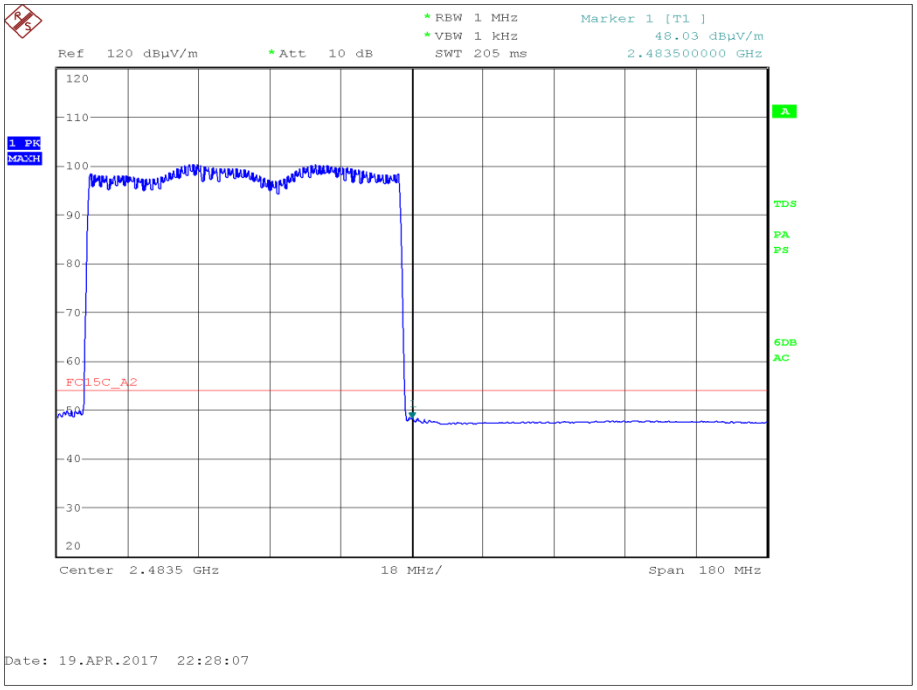

Figure 39 - Hopping - GFSK - 2480 MHz - Measured Frequency 2483.5 MHz - Average

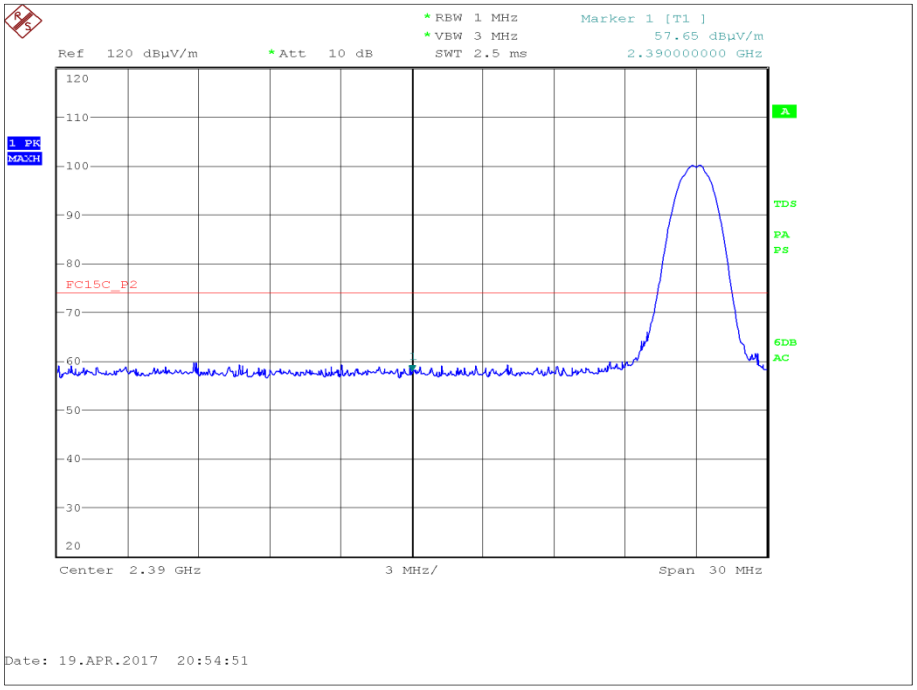

Figure 40 - Static - π/4 DQPSK - 2402 MHz - Measured Frequency 2390.0 MHz - Peak

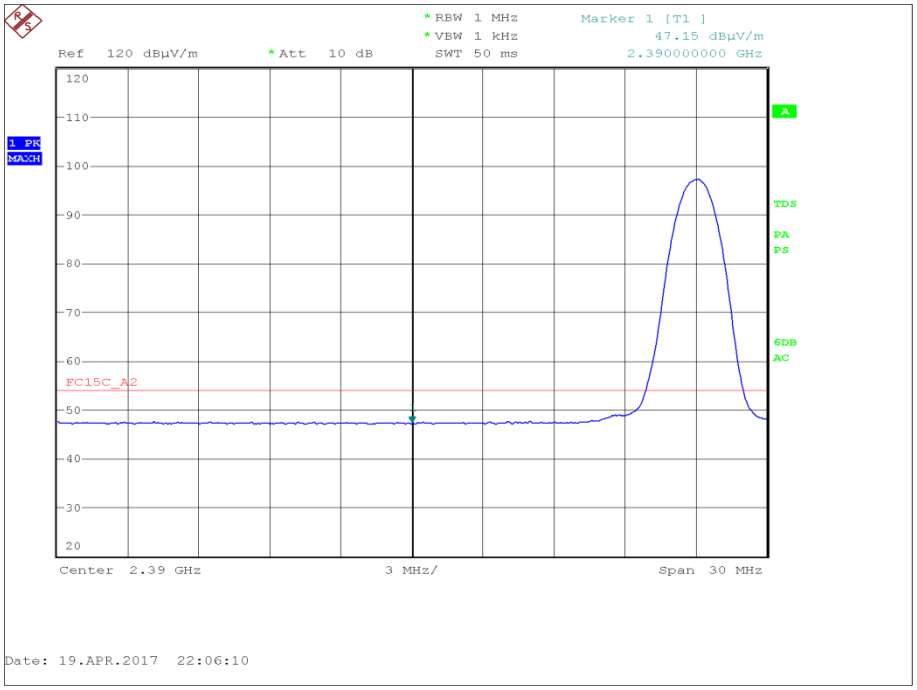

Figure 41 - Static - π/4 DQPSK - 2402 MHz - Measured Frequency 2390.0 MHz - Average

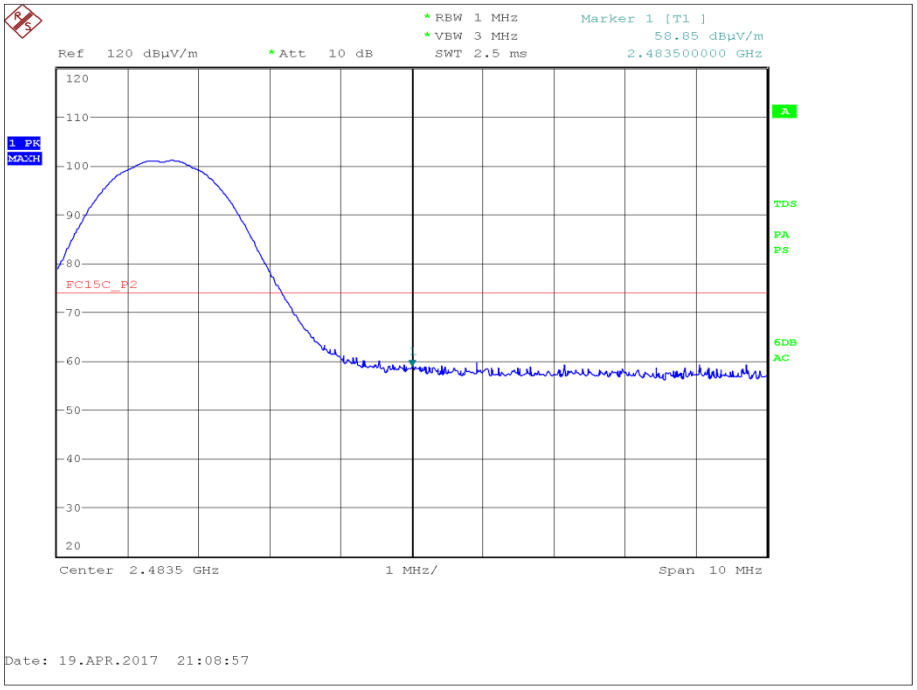

Figure 42 - Static - π/4 DQPSK - 2480 MHz - Measured Frequency 2483.5 MHz - Peak

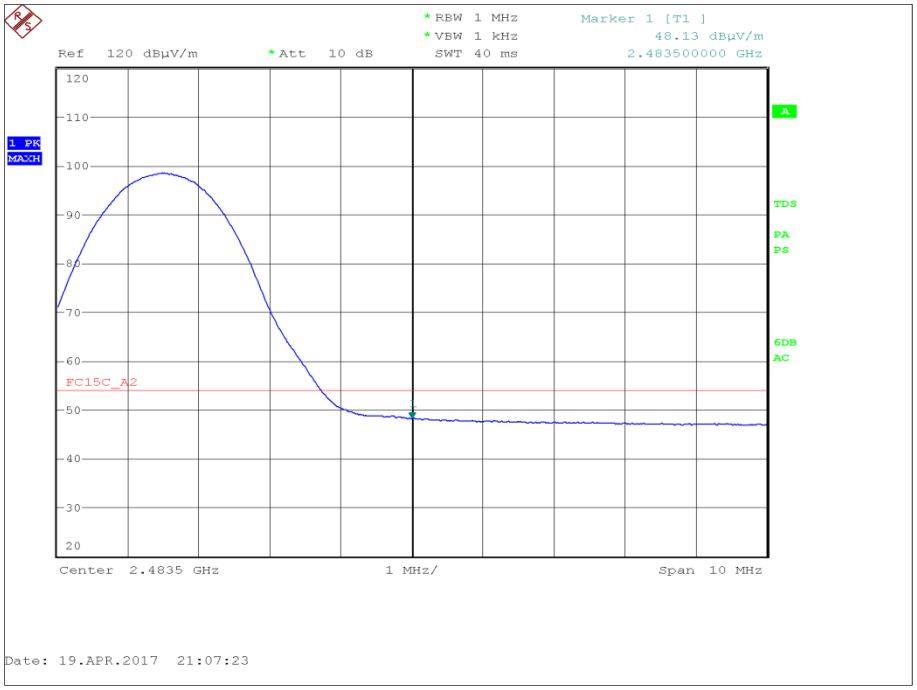

Figure 43 - Static - π/4 DQPSK - 2480 MHz - Measured Frequency 2483.5 MHz - Average

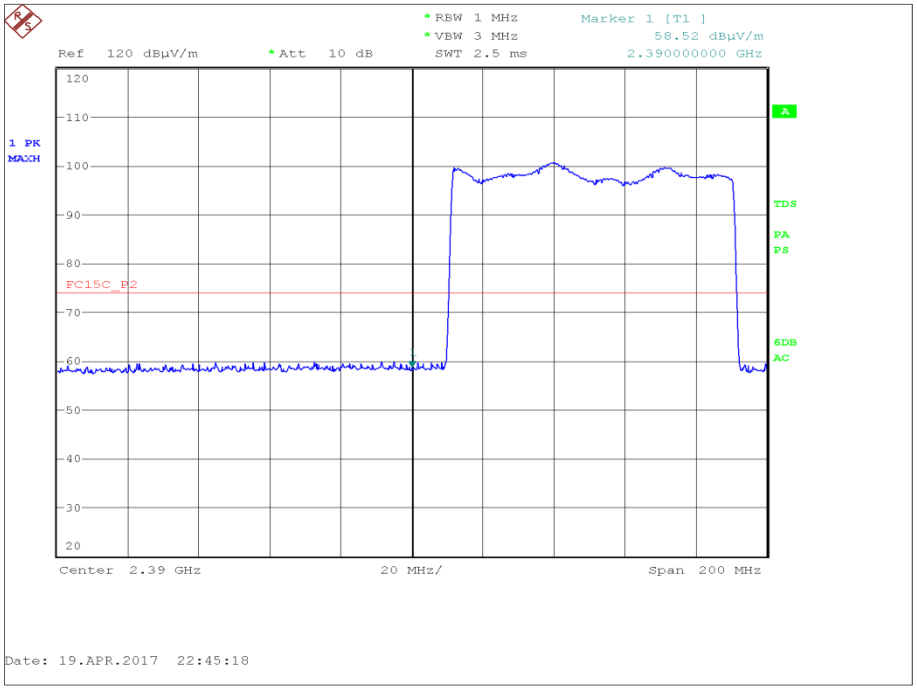

Figure 44 - Hopping - π/4 DQPSK - 2402 MHz - Measured Frequency 2390.0 MHz - Peak

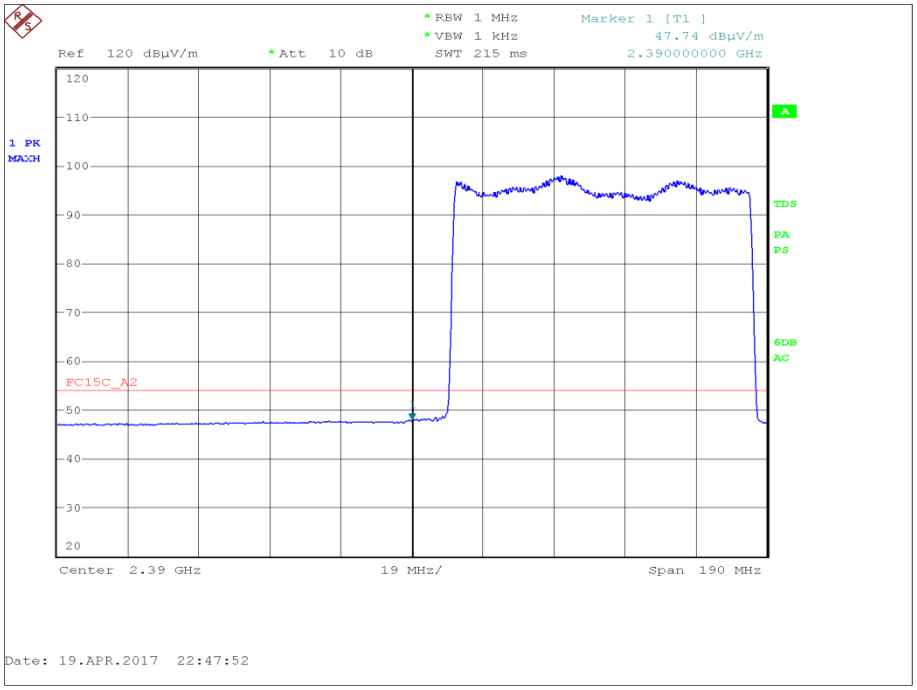

Figure 45 - Hopping - π/4 DQPSK - 2402 MHz - Measured Frequency 2390.0 MHz - Average

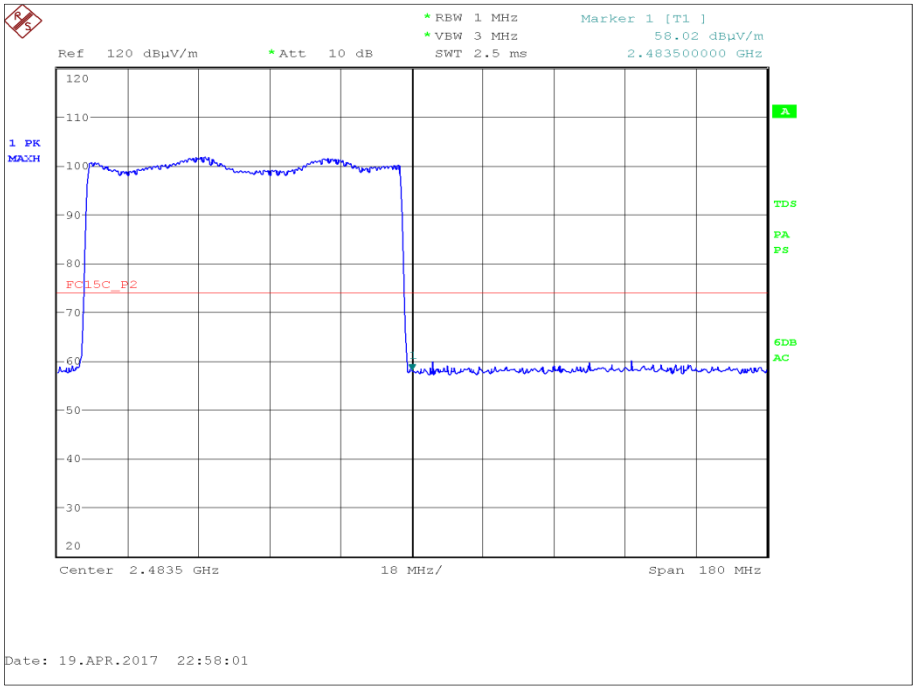

Figure 46 - Hopping - π/4 DQPSK - 2480 MHz - Measured Frequency 2483.5 MHz - Peak

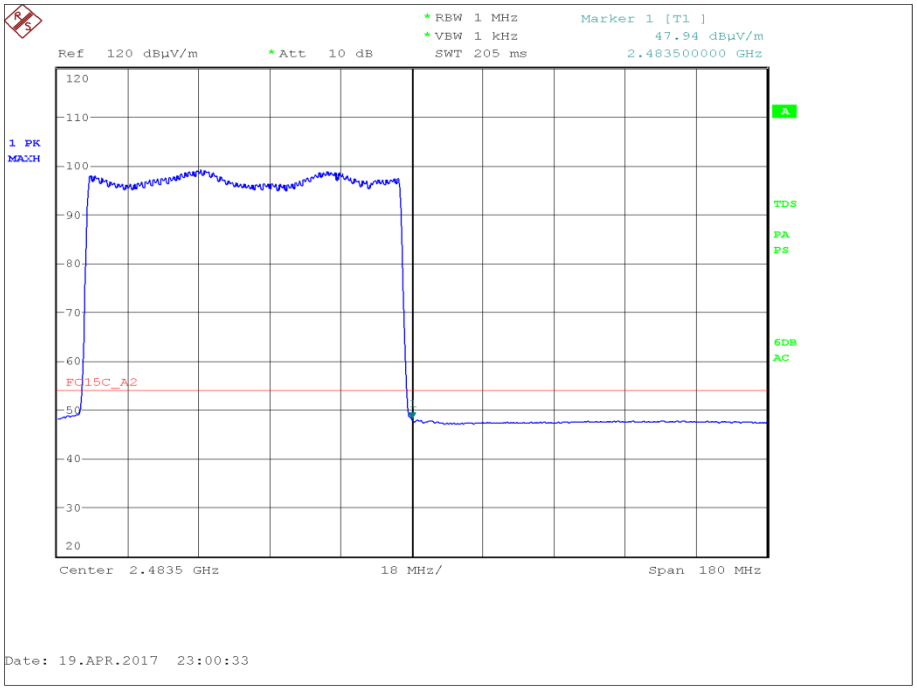

Figure 47 - Hopping - π/4 DQPSK - 2480 MHz - Measured Frequency 2483.5 MHz - Average

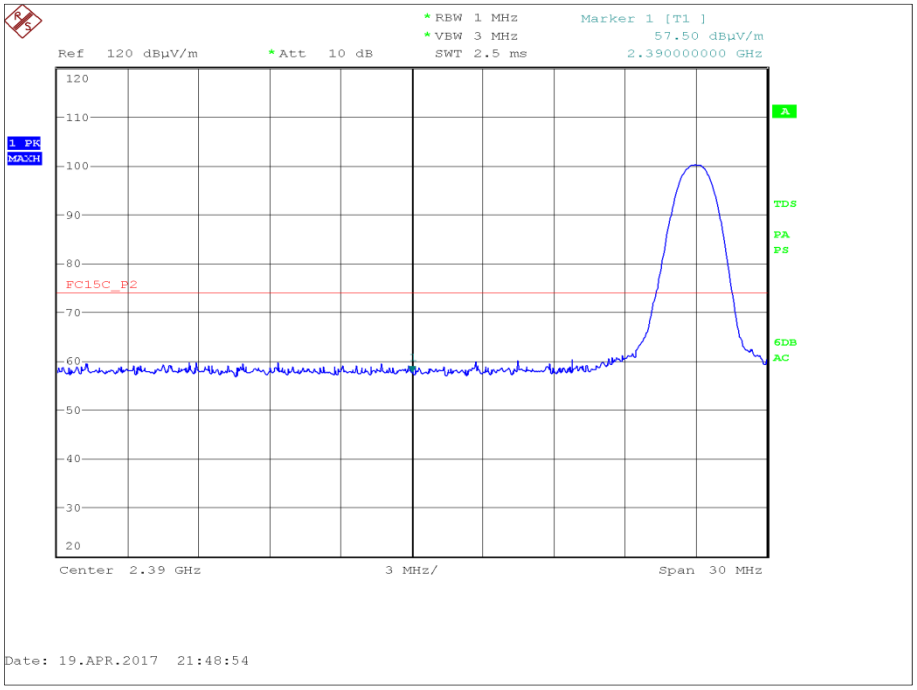

Figure 48 - Static - 8-DPSK - 2402 MHz - Measured Frequency 2390.0 MHz - Peak

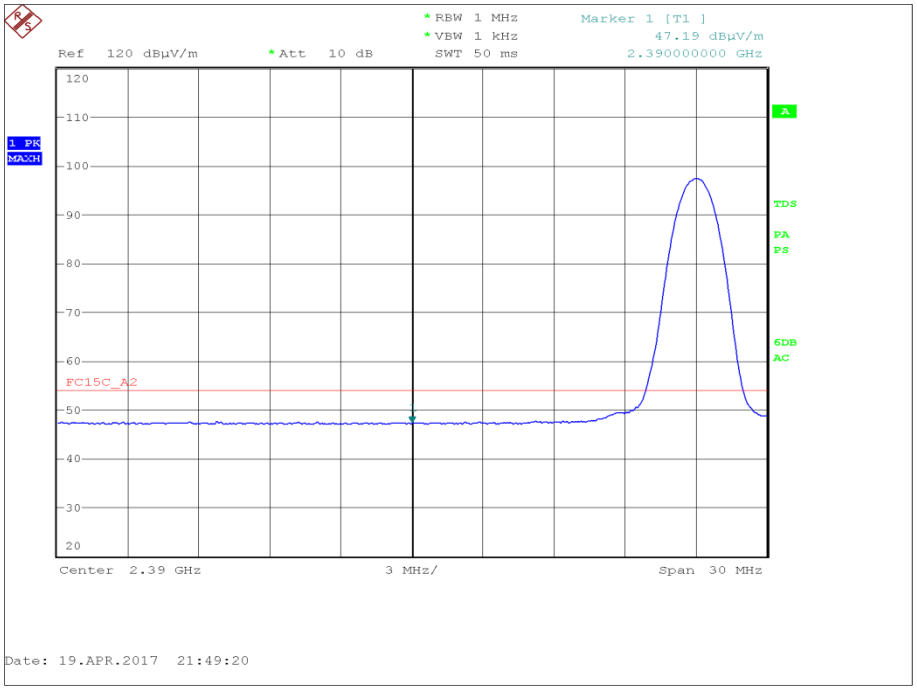

Figure 49 - Static - 8-DPSK - 2402 MHz - Measured Frequency 2390.0 MHz - Average

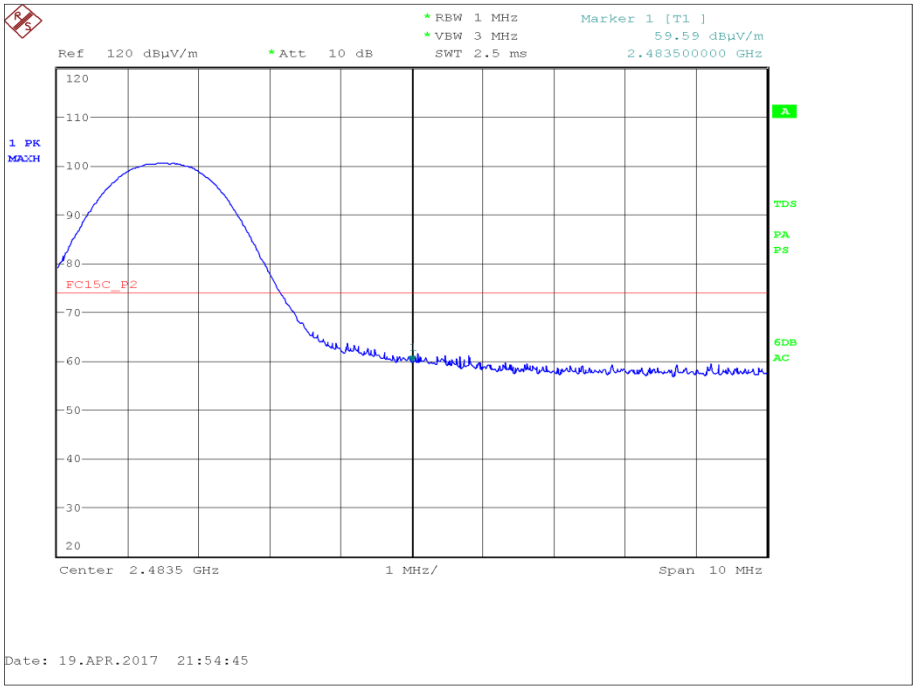

Figure 50 - Static - 8-DPSK - 2480 MHz - Measured Frequency 2483.5 MHz - Peak

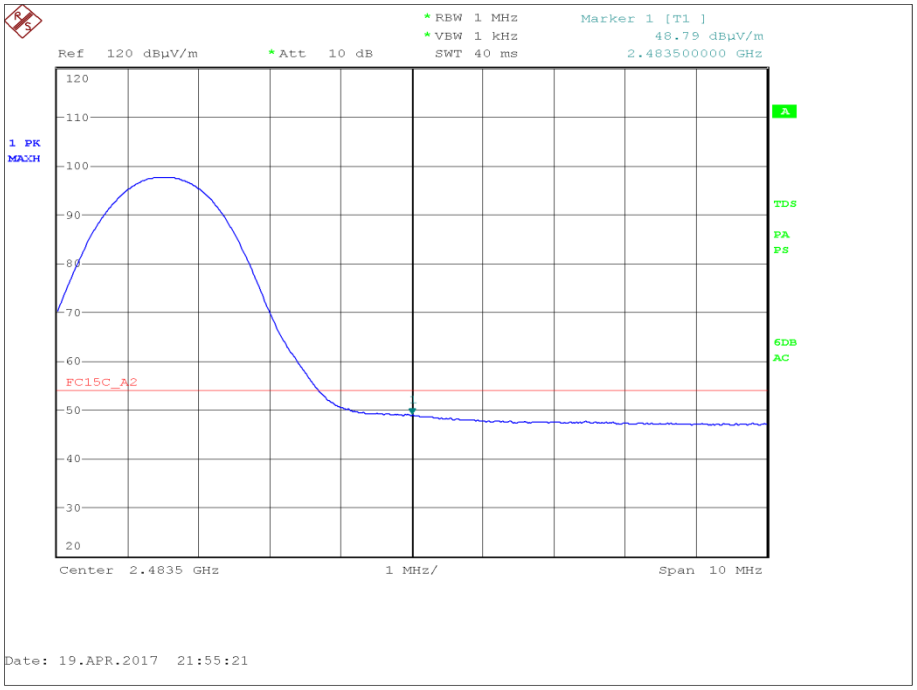

Figure 51 - Static - 8-DPSK - 2480 MHz - Measured Frequency 2483.5 MHz - Average

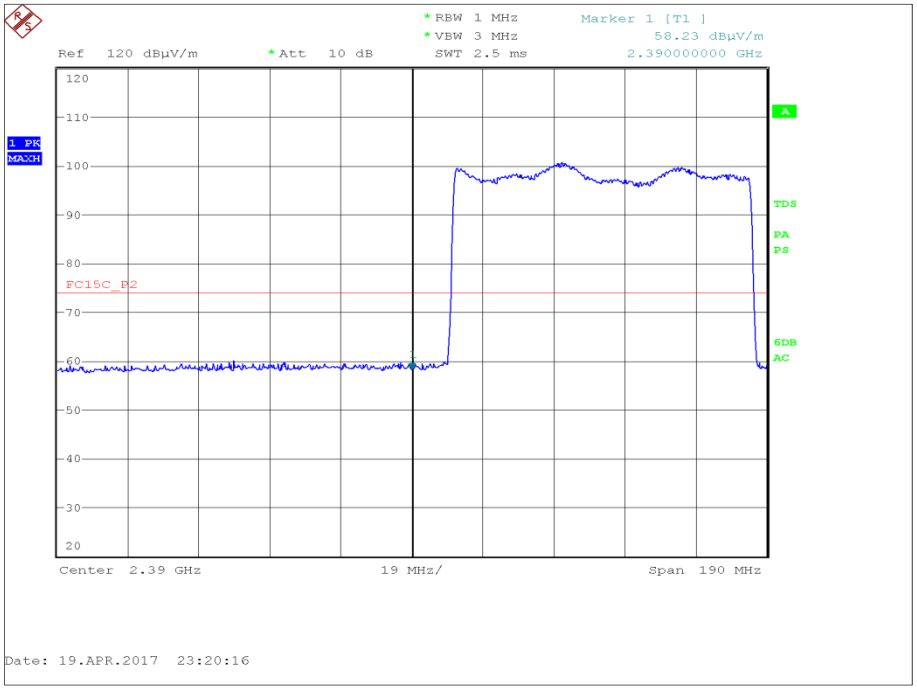

Figure 52 - Hopping - 8-DPSK - 2402 MHz - Measured Frequency 2390.0 MHz - Peak

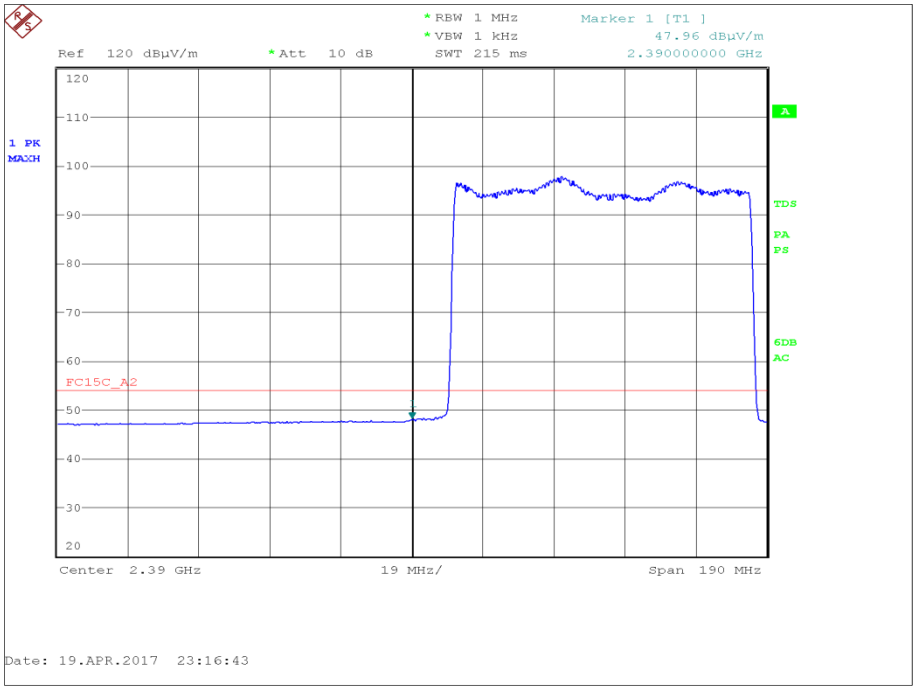

Figure 53 - Hopping - 8-DPSK - 2402 MHz - Measured Frequency 2390.0 MHz - Average

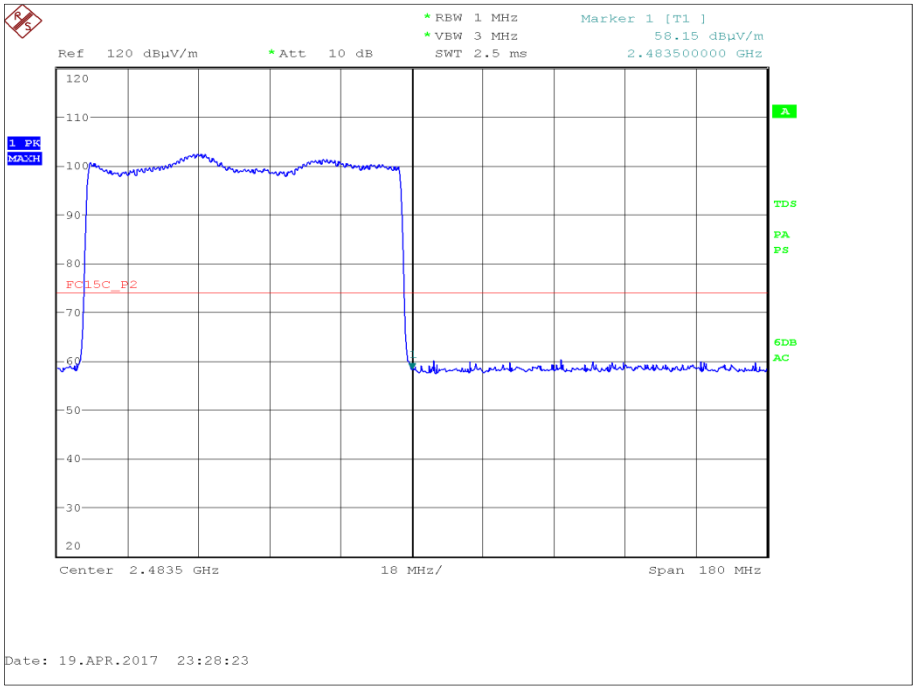

Figure 54 - Hopping - 8-DPSK - 2480 MHz - Measured Frequency 2483.5 MHz - Peak

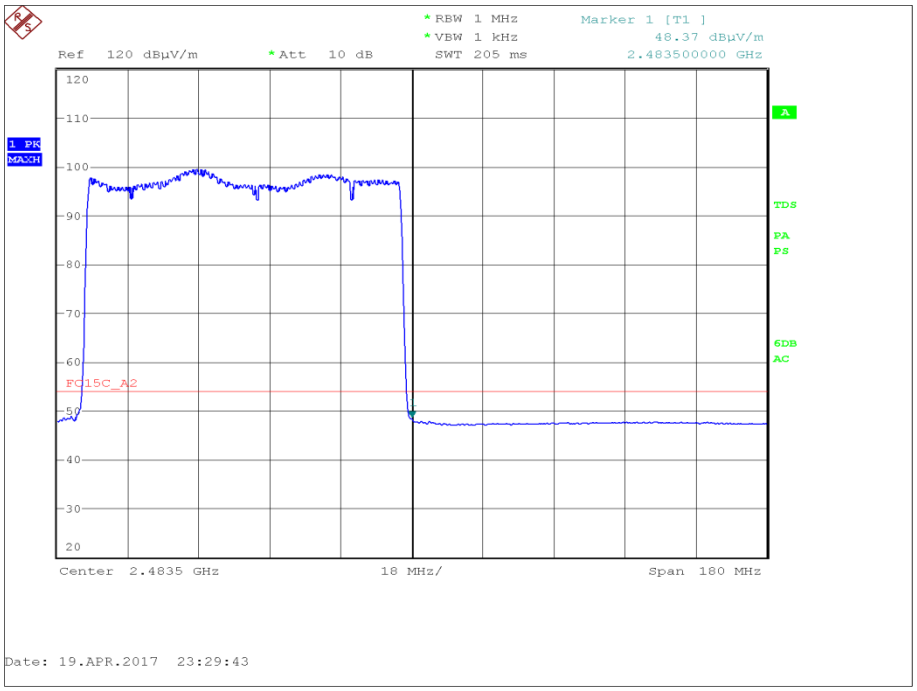

Figure 55 - Hopping - 8-DPSK - 2480 MHz - Measured Frequency 2483.5 MHz - Average

FCC 47 CFR Part 15C, Limit Clause 15.205

	Peak (dBµV/m)	Average (dBµV/m)
Restricted Bands of Operation	74	54

Table 17

Industry Canada RSS-GEN, Limit Clause 8.9

Frequency (MHz)	Field Strength (µV/m at 3 metres)
30-88	100
88-216	150
216-960	200
Above 960*	500

Table 18

*Unless otherwise specified, for all frequencies greater than 1 GHz, the radiated emission limits for licence-exempt radio apparatus stated in applicable RSSs (including RSS-Gen) are based on measurements using a linear average detector function having a minimum resolution bandwidth of 1 MHz. If an average limit is specified for the EUT, then the peak emission shall also be measured with instrumentation properly adjusted for such factors as pulse desensitization to ensure the peak emission is less than 20 dB above the average limit.

2.7.7 Test Location and Test Equipment Used

This test was carried out in EMC Chamber 5.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
Screened Room (5)	Rainford	Rainford	1545	36	20-Dec-2017
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Hygromer	Rotronic	A1	2138	12	02-Feb-2018
Cable (N-N, 8m)	Rhophase	NPS-2302-8000-NPS	3248	-	O/P Mon
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	12-Nov-2017
Tilt Antenna Mast	maturo Gmbh	TAM 4.0-P	3916	-	TU
Mast Controller	maturo Gmbh	NCD	3917	-	TU
Cable (Yellow, Rx, Km-Km 2m)	Scott Cables	KPS-1501-2000-KPS	4527	-	O/P Mon
Double Ridge Broadband Horn Antenna	Schwarzbeck	BBHA 9120 B	4848	12	17-Feb-2018

Table 19

O/P Mon - Output Monitored using calibrated equipment
TU - Traceability Unscheduled

2.8 Spurious Radiated Emissions

2.8.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (d) and 15.205
Industry Canada RSS-247, Clause 5.5
Industry Canada RSS-GEN, Clause 6.13

2.8.2 Equipment Under Test and Modification State

DAQRI Compute Pack, S/N: OA565-7DF-82K70497C1 - Modification State 0

2.8.3 Date of Test

19-April-2017 to 26-April-2017

2.8.4 Test Method

Testing was performed in accordance with ANSI C63.10, clause 6.3, 6.5 and 6.6

Plots for average measurements were taken in accordance with ANSI C63.10, clause 4.1.4.2.3

Final average measurements were taken in accordance with ANSI C63.10, clause 4.1.4.2.2

2.8.5 Environmental Conditions

Ambient Temperature	17.9 - 19.4 °C
Relative Humidity	24.0 - 33.0 %

2.8.6 Test Results

Bluetooth

Testing was performed on the modulation and packet type which resulted in the highest conducted output power. The Modulation/Packet type was GFSK/DH5.

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	QP Margin (dBuV/m)	Angle(Deg)	Height(m)	Polarity
37.500	26.8	40.0	-13.2	344	1.00	Horizontal
399.900	26.5	46.0	-19.5	1	1.00	Horizontal
410.000	28.7	46.0	-17.3	360	1.00	Horizontal
608.000	30.6	46.0	-15.4	221	2.99	Horizontal
614.000	30.6	46.0	-15.4	220	1.00	Horizontal
960.000	34.0	46.0	-12.0	274	2.28	Horizontal

Table 20 - 2402 MHz - 30 MHz to 1 GHz

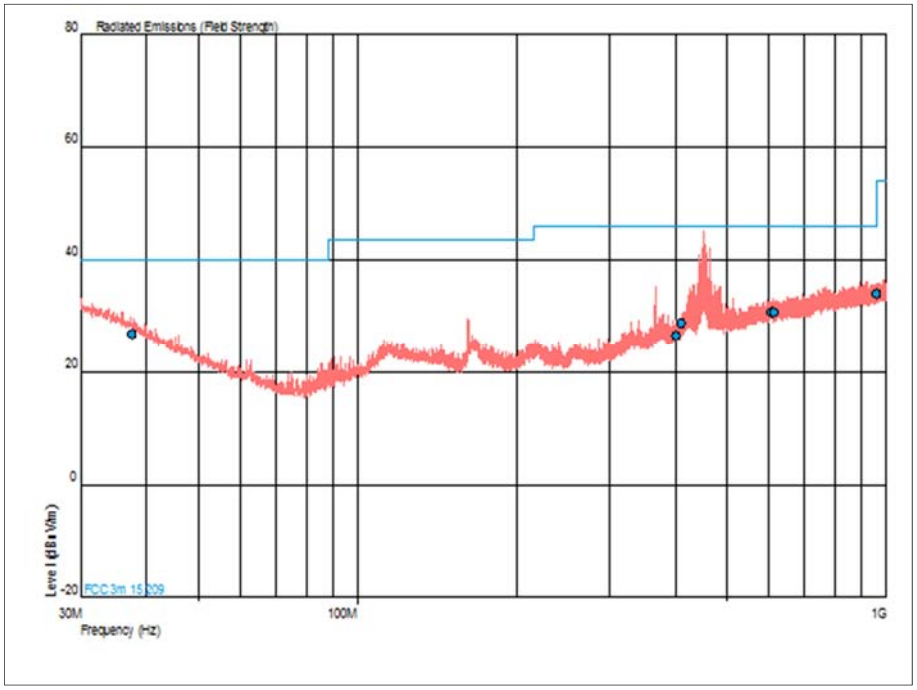

Figure 56

Figure 57 - 2402 MHz - 30 MHz to 1 GHz - Horizontal and Vertical

Frequency (MHz)	Result (µV/m)		Limit (µV/m)		Margin (µV/m)	
	Peak	Average	Peak	Average	Peak	Average
*						

Table 21 - 2402 MHz - 1 GHz to 25 GHz

*No emissions were detected within 10 dB of the limit.

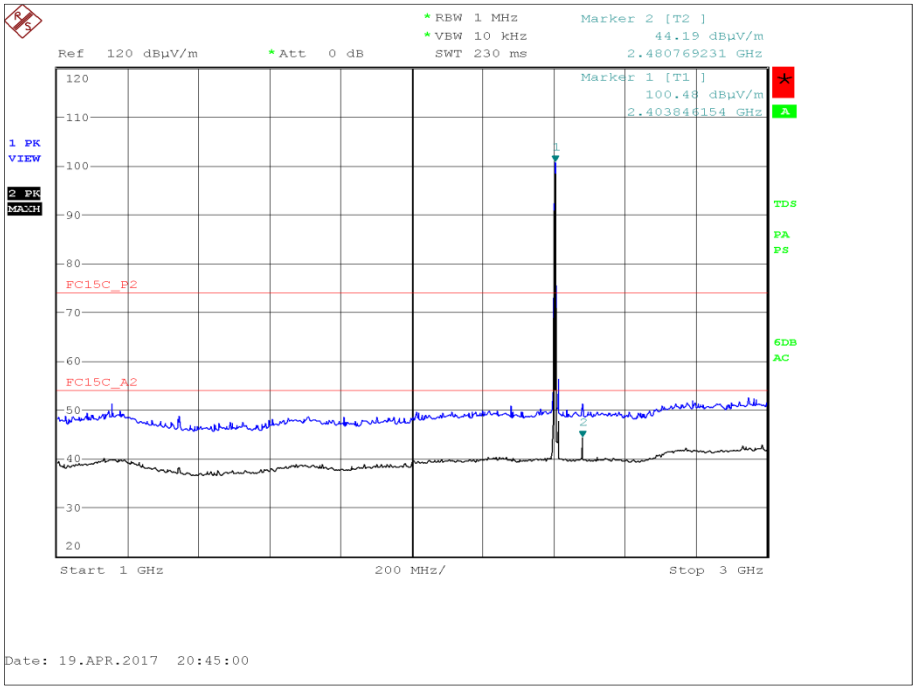

Figure 58 - 2402 MHz - 1 GHz to 3 GHz - Horizontal and Vertical

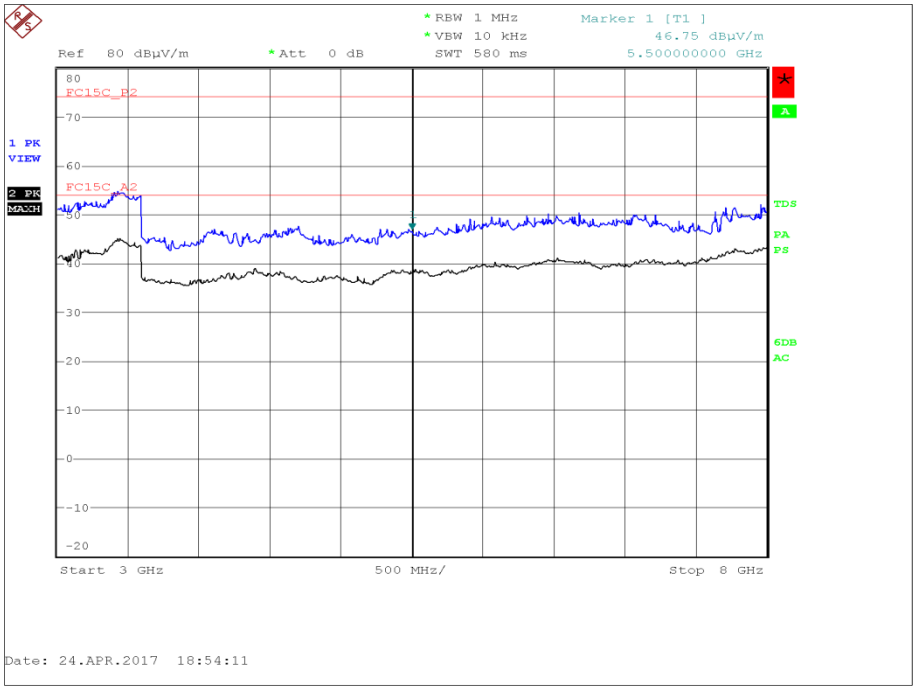

Figure 59 - 2402 MHz - 3 GHz to 8 GHz - Horizontal and Vertical

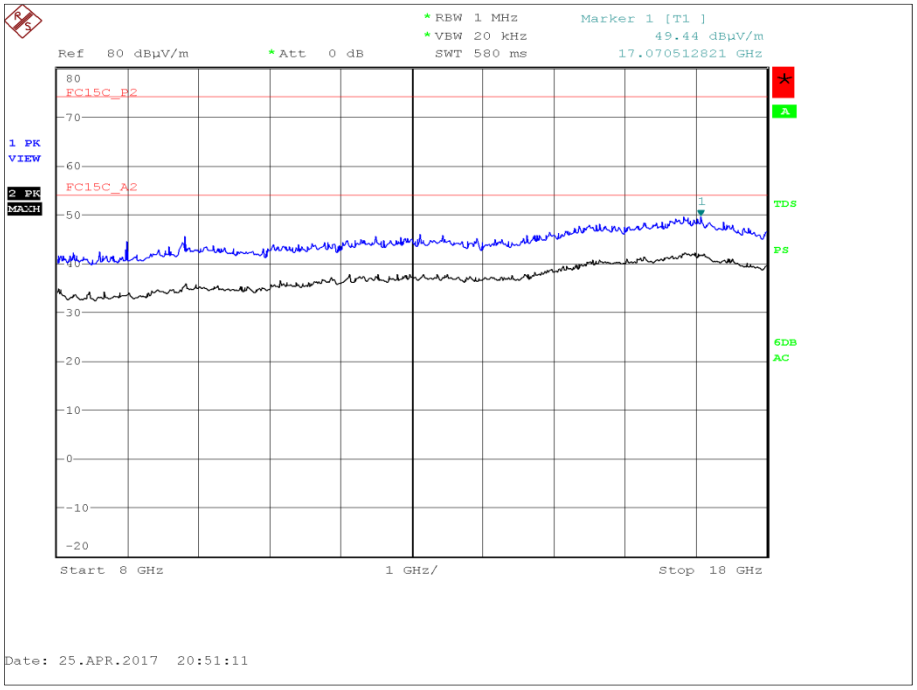

Figure 60 - 2402 MHz - 8 GHz to 18 GHz - Horizontal and Vertical

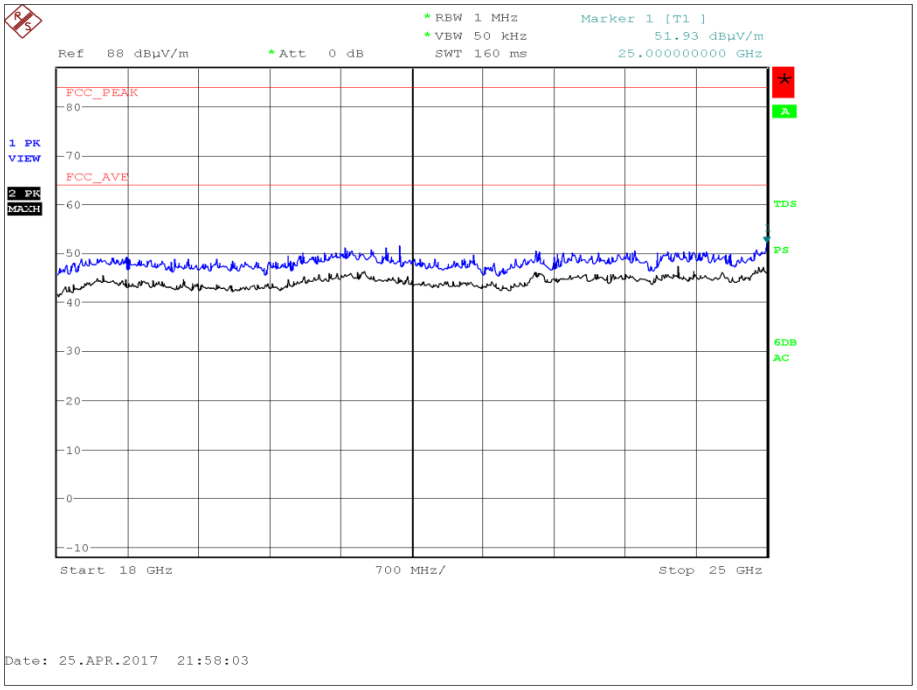

Figure 61 - 2402 MHz - 18 GHz to 25 GHz - Horizontal and Vertical

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	QP Margin (dBuV/m)	Angle(Deg)	Height(m)	Polarity
37.500	26.9	40.0	-13.1	44	1.00	Horizontal
173.200	21.3	43.5	-22.2	360	1.00	Vertical
242.458	20.7	46.0	-25.3	203	1.00	Vertical
325.457	24.1	46.0	-21.9	84	1.00	Horizontal
410.000	28.8	46.0	-17.2	360	1.00	Horizontal
614.000	30.5	46.0	-15.5	222	1.00	Horizontal

Table 22 - 2441 MHz - 30 MHz to 1 GHz

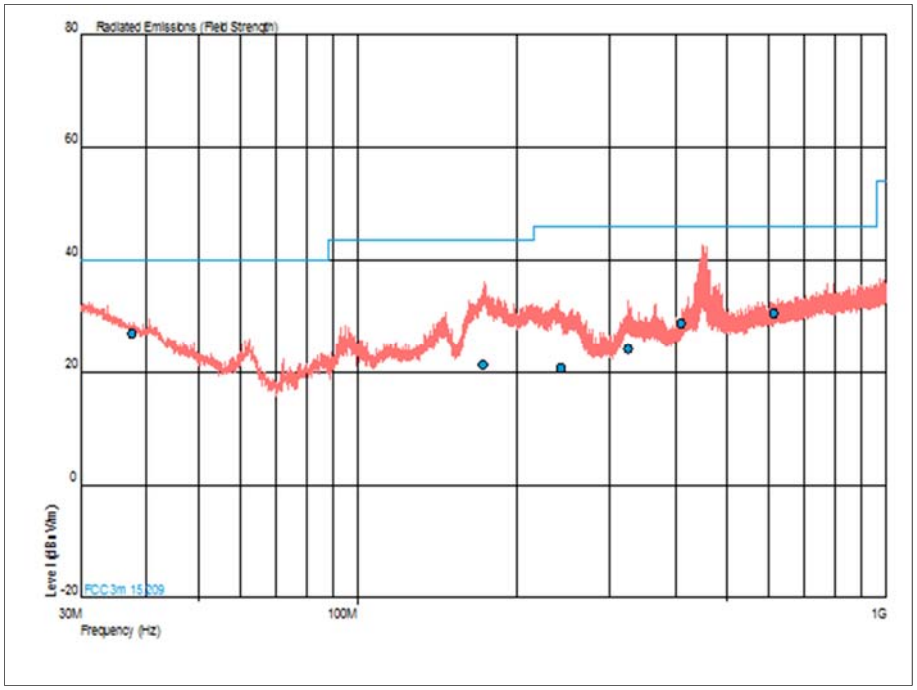

Figure 62 - 2441 MHz - 30 MHz to 1 GHz - Horizontal and Vertical

Frequency (MHz)	Result (µV/m)		Limit (µV/m)		Margin (µV/m)	
	Peak	Average	Peak	Average	Peak	Average
*						

Table 23 - 2441 MHz - 1 GHz to 25 GHz

*No emissions were detected within 10 dB of the limit.

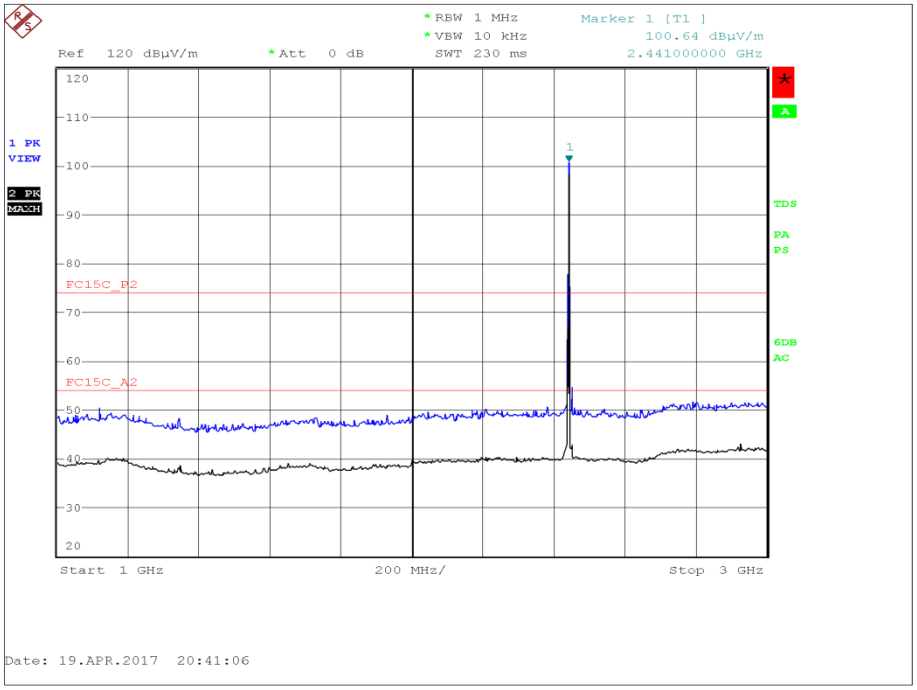

Figure 63 - 2441 MHz - 1 GHz to 3 GHz - Horizontal and Vertical

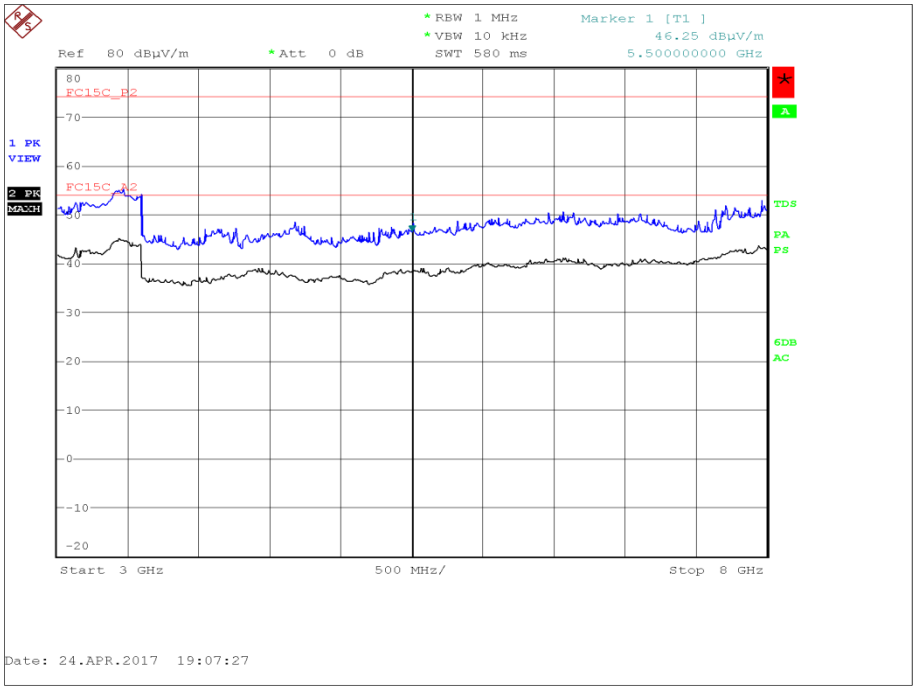

Figure 64 - 2441 MHz - 3 GHz to 8 GHz - Horizontal and Vertical

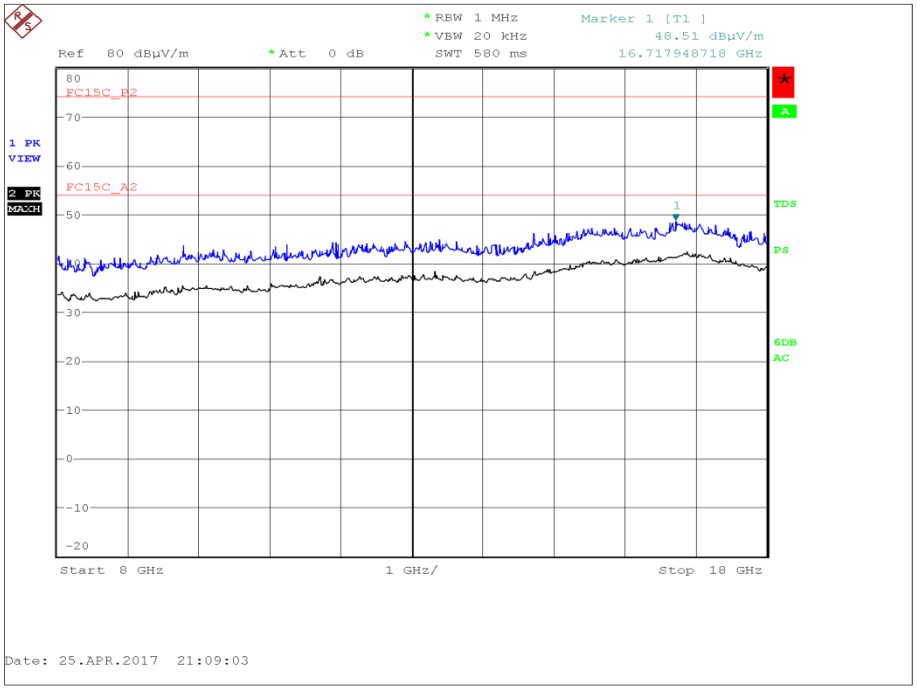

Figure 65 - 2441 MHz - 8 GHz to 18 GHz - Horizontal and Vertical

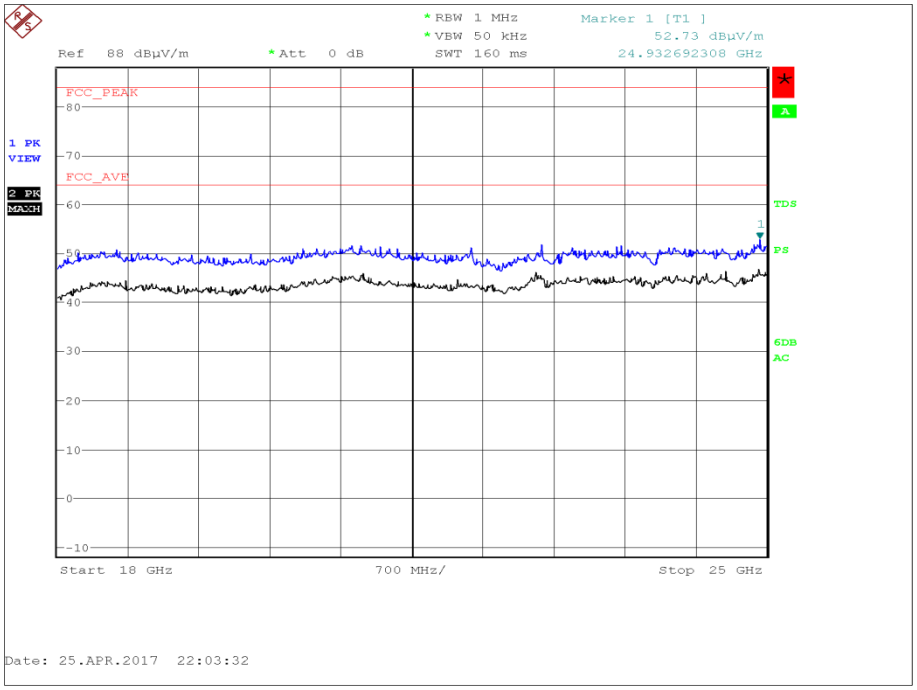

Figure 66 - 2441 MHz - 18 GHz to 25 GHz - Horizontal and Vertical

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	QP Margin (dBuV/m)	Angle(Deg)	Height(m)	Polarity
37.500	27.0	40.0	-13.0	245	1.00	Vertical
173.200	24.6	43.5	-18.9	80	1.00	Vertical
241.875	24.8	46.0	-21.2	360	1.00	Vertical
328.813	27.9	46.0	-18.1	0	1.00	Horizontal
410.000	28.2	46.0	-17.8	358	1.00	Horizontal
614.000	30.5	46.0	-15.5	205	1.00	Horizontal

Table 24 - 2472 MHz - 30 MHz to 1 GHz

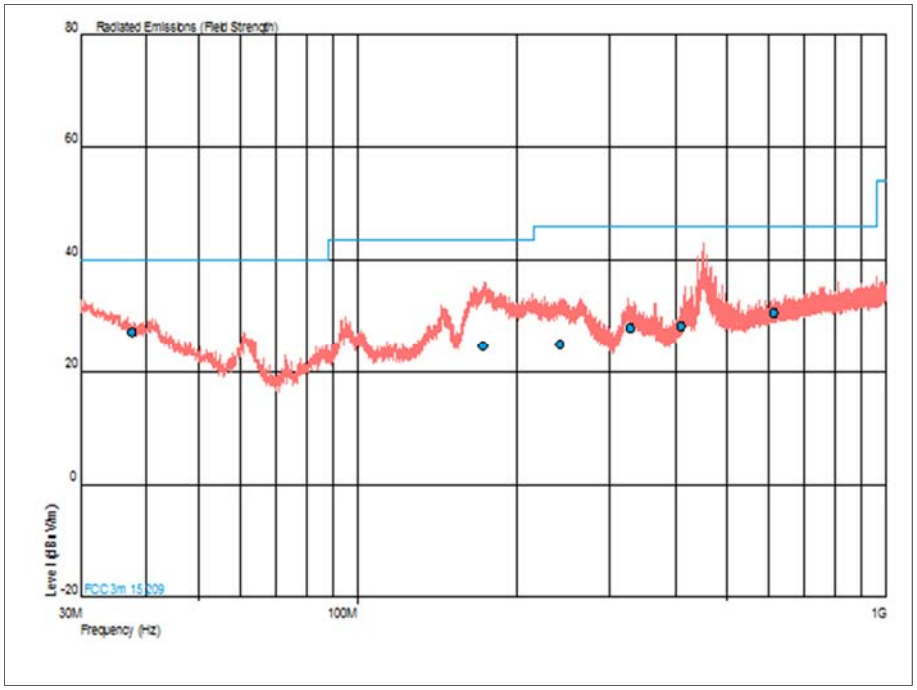

Figure 67 - 2472 MHz - 30 MHz to 1 GHz - Horizontal and Vertical

Frequency (MHz)	Result (µV/m)		Limit (µV/m)		Margin (µV/m)	
	Peak	Average	Peak	Average	Peak	Average
*						

Table 25 - 2472 MHz - 1 GHz to 25 GHz

*No emissions were detected within 10 dB of the limit.

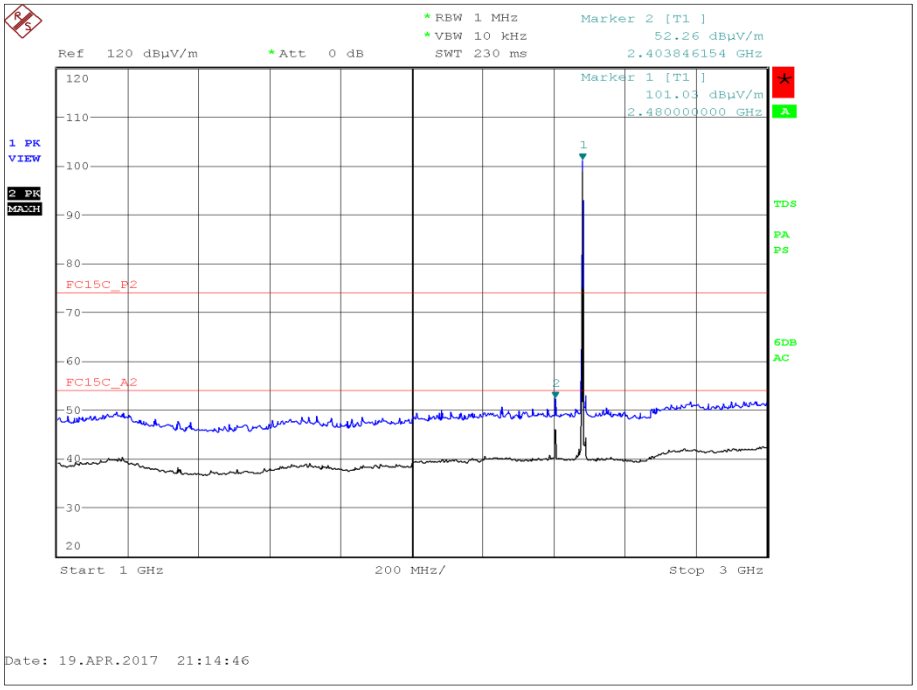

Figure 68 - 2472 MHz - 1 GHz to 3 GHz - Horizontal and Vertical

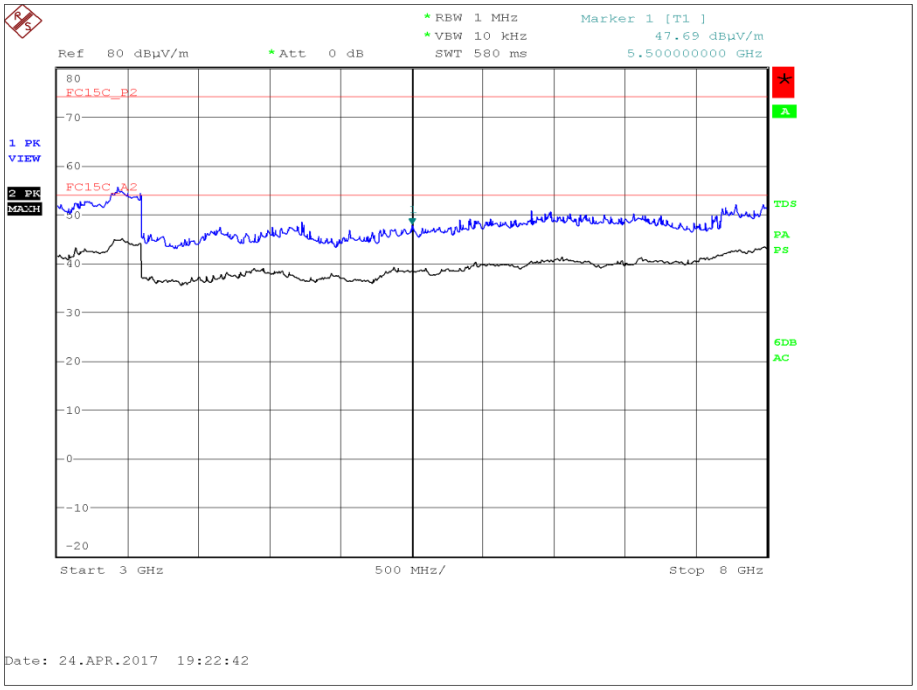

Figure 69 - 2472 MHz - 3 GHz to 8 GHz - Horizontal and Vertical

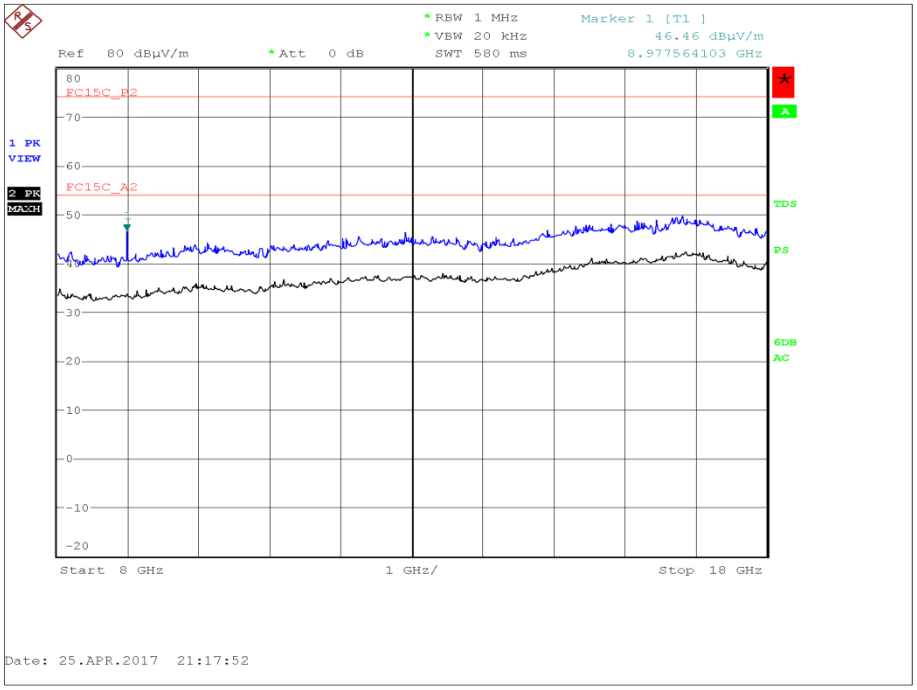

Figure 70 - 2472 MHz - 8 GHz to 18 GHz - Horizontal and Vertical

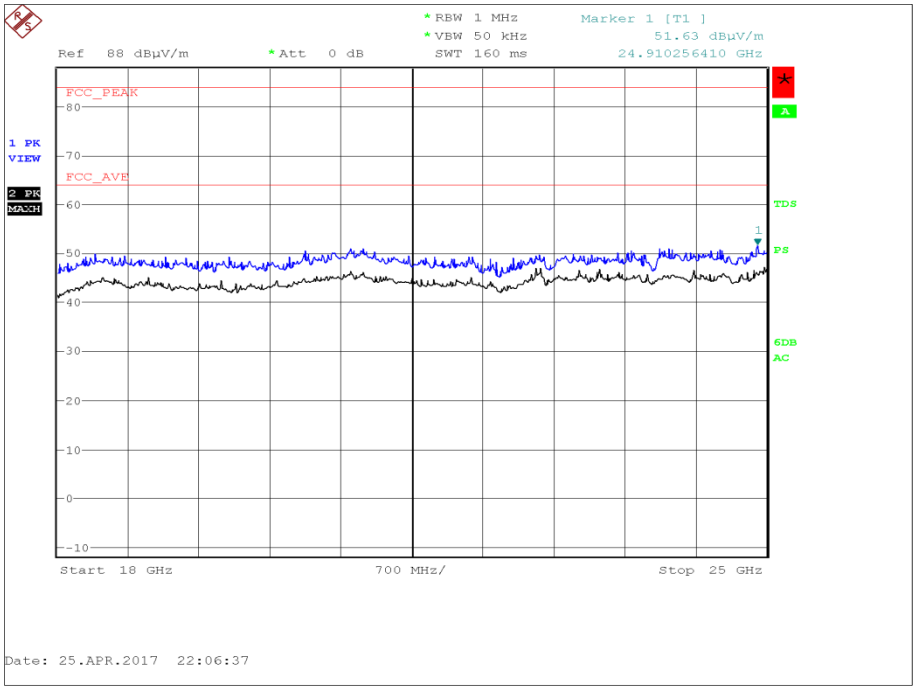

Figure 71 - 2472 MHz - 18 GHz to 25 GHz - Horizontal and Vertical

FCC 47 CFR Part 15C, Limit Clause 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 § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in 15.209(a).

Industry Canada RSS-247, Limit Clause 5.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

2.8.7 Test Location and Test Equipment Used

This test was carried out in EMC Chamber 5.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
Antenna 18-40GHz (Double Ridge Guide)	Link Microtek Ltd	AM180HA-K-TU2	230	24	12-Feb-2018
Signal Generator (10MHz to 40GHz)	Rohde & Schwarz	SMR40	1002	12	14-Oct-2017
Antenna 18-40GHz (Double Ridge Guide)	Q-Par Angus Ltd	QSH 180K	1511	24	07-Dec-2018
Pre-Amplifier	Phase One	PS04-0086	1533	12	29-Jul-2017
18GHz - 40GHz Pre-Amplifier	Phase One	PSO4-0087	1534	12	23-Jan-2018
Screened Room (5)	Rainford	Rainford	1545	36	20-Dec-2017
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Hygromer	Rotronic	A1	2138	12	02-Feb-2018
Filter (Hi Pass)	Lorch	9HP7-7000-SR	2833	12	06-Feb-2018
Antenna (Bilog)	Chase	CBL6143	2904	24	11-Jun-2017
Signal Generator (10MHz to 40GHz)	Rohde & Schwarz	SMR40	3171	12	02-Nov-2017

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
Cable (N-N, 8m)	Rhophase	NPS-2302-8000-NPS	3248	-	O/P Mon
Cable (N-N, 8m)	Rhophase	NPS-2302-8000-NPS	3248	12	02-May-2018
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	12-Nov-2017
Tilt Antenna Mast	maturo Gmbh	TAM 4.0-P	3916	-	TU
Mast Controller	maturo Gmbh	NCD	3917	-	TU
Cable 1503 2M 2.92(P)m 2.92(P)m	Rhophase	KPS-1503A-2000-KPS	4293	12	23-Jan-2018
Suspended Substrate Highpass Filter	Advance Power Components	11SH10-3000/X18000-O/O	4411	12	22-May-2017
Cable (Rx, Km-Km 2m)	Scott Cables	KPS-1501-2000-KPS	4526	6	23-Jul-2017
Cable (Yellow, Rx, Km-Km 2m)	Scott Cables	KPS-1501-2000-KPS	4527	-	O/P Mon
Cable (Rx, SMAm-SMAm 0.5m)	Scott Cables	SLSLL18-SMSM-00.50M	4528	6	03-Feb-2017
Double Ridged Waveguide Horn Antenna	ETS-Lindgren	3117	4722	12	17-Feb-2018
9m N type RF cable	Rosenberger	2303-0 9.0m PNm PNm	4827	6	26-Jul-2017
Double Ridge Broadband Horn Antenna	Schwarzbeck	BBHA 9120 B	4848	12	17-Feb-2018

Table 26

TU - Traceability Unscheduled
O/P Mon – Output Monitored using calibrated equipment

3 Measurement Uncertainty

For a 95% confidence level, the measurement uncertainties for defined systems are:

Test Name	Measurement Uncertainty
Frequency Hopping Systems - Number of Hopping Channels	-
Frequency Hopping Systems - 20 dB Bandwidth	± 16.74 kHz
Frequency Hopping Systems - Channel Separation	± 16.74 kHz
Frequency Hopping Systems - Average Time of Occupancy	-
Maximum Conducted Output Power	± 0.70 dB
Spurious Radiated Emissions	30 MHz to 1 GHz: ± 5.1 dB 1 GHz to 40 GHz: ± 6.3 dB
Restricted Band Edges	30 MHz to 1 GHz: ± 5.1 dB 1 GHz to 40 GHz: ± 6.3 dB
Authorised Band Edges	Conducted: ± 3.08 dB Radiated: 30 MHz to 1 GHz: ± 5.1 dB Radiated: 1 GHz to 40 GHz: ± 6.3 dB

Table 27