Prüfbericht-Nr.: *Test report No.:*	**50069503 001**	**Auftrags-Nr.:** *Order No.:*	164082333	Seite 1 von 28 *Page 1 of 28*
Kunden-Referenz-Nr.: *Client reference No.:*	N/A	**Auftragsdatum:** *Order date.:*	20.12.2016	
Auftraggeber: *Client:*	**PST Eletronica LTDA** Av. Alan Turing, 385 Cidade Universitaria, Campinas, Brazil			
Prüfgegenstand: *Test item:*	EZ-ELD			
Bezeichnung / Typ-Nr.: *Identification / Type No.:*	ELD1.0			
Auftrags-Inhalt: *Order content:*	FCC and IC approval			
Prüfgrundlage: *Test specification:*	CFR47 FCC Part 15.247 CFR47 FCC Part 15.209 CFR47 FCC Part 2.1093		RSS-247 Issue 1 RSS-Gen Issue 4 RSS-102 Issue 5	

Wareneingangsdatum: *Date of receipt:*	05.01.2017
Prüfmuster-Nr.: *Test sample No.:*	A000474280-001 A000474280-003 A000474280-005
Prüfzeitraum: *Testing period:*	12.01.2017 - 16.01.2017
Ort der Prüfung: *Place of testing:*	Accurate Technology Co., Ltd.
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Shenzhen) Co., Ltd.
Prüfergebnis*: *Test result*:*	Pass

Please refer to photo documents

geprüft von / *tested by:*			**kontrolliert von** / *reviewed by:*		
25.01.2017	Andy Yan / Project Manager		25.01.2017	Sam Lin / Technical Certifier	
Datum *Date*	**Name/Stellung** *Name/Position*	**Unterschrift** *Signature*	**Datum** *Date*	**Name/Stellung** *Name/Position*	**Unterschrift** *Signature*

Sonstiges / *Other:*

FCC ID: 2AKA8-ELD100A0
IC: 22098-ELD100A0 HVIN: ELD1.0

Zustand des Prüfgegenstandes bei Anlieferung: *Condition of the test item at delivery:*	Prüfmuster vollständig und unbeschädigt *Test item complete and undamaged:*

* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhalt
	P(ass) = entspricht o.g. Prüfgrundlage(n)		F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
Legend:	1 = very good	2 = good	3 = satisfactory	4 = sufficient	5 = poor
	P(ass) = passed a.m. test specifications(s)		F(ail) = failed a.m. test specifications(s)	N/A = not applicable	N/T = not tested

Test Summary

5.1.1 ANTENNA REQUIREMENT
RESULT: Pass

5.1.2 MAXIMUM PEAK CONDUCTED OUTPUT POWER
RESULT: Pass

5.1.3 CONDUCTED POWER SPECTRAL DENSITY
RESULT: Pass

5.1.4 6DB BANDWIDTH
RESULT: Pass

5.1.5 99% BANDWIDTH
RESULT: Pass

5.1.6 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 KHZ BANDWIDTH
RESULT: Pass

5.1.7 RADIATED SPURIOUS EMISSION
RESULT: Pass

5.1.8 20DB BANDWIDTH
RESULT: Pass

5.1.9 CARRIER FREQUENCY SEPARATION
RESULT: Pass

5.1.10 NUMBER OF HOPPING FREQUENCY
RESULT: Pass

5.1.11 TIME OF OCCUPANCY
RESULT: Pass

5.1.12 CONDUCTED EMISSION ON AC MAINS
RESULT: Not Applicable

6.1.1 ELECTROMAGNETIC FIELDS
RESULT: Pass

Contents

1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Test Results of Bluetooth 4.2 (Dual mode) of Conducted Testing

Appendix B:Test Results of Bluetooth 4.2 (Dual mode) of Radiated Emission

2 Test Sites

2.1 Test Facilities

Accurate Technology Co., Ltd.
F1, Bldg. A, Changyuan New Material Port Keyuan Rd., Science & Industry Park, Nanshan Shenzhen, 518057, P.R. China

FCC Registration No.: 752051

Test site Industry Canada No.: 5077A-2

The tests at the test sites have been conducted under the supervision of a TÜV engineer.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Accurate Technology Co., Ltd.

Radio Spectrum Test				
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Until**
Spectrum Analyzer	R&S	ESPI3	100396/003	07.01.2018
Spurious Emission				
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Until**
Spectrum Analyzer	R&S	FSV40	101495	07.01.2018
Test Receiver	R&S	ESCS30	100307	07.01.2018
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	10.01.2018
Loop Antenna	Schwarzbeck	FMZB1516	1516131	10.01.2018
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	10.01.2018
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	10.01.2018
RF Switching Unit+PreAMP	Compliance Direction	RSU-M2	38322	07.01.2018
Pre-Amplifier	R&S	CBLU11835 40-01	3791	07.01.2018
50 Coaxial Switch	Anritsu Corp	MP59B	6200506474	07.01.2018
RF Coaxial Cable	SUHNER	N-3m	No.8	07.01.2018
RF Coaxial Cable	RESENBERGER	N-3.5m	No.9	07.01.2018
RF Coaxial Cable	SUHNER	N-6m	No.10	07.01.2018
RF Coaxial Cable	RESENBERGER	N-12m	No.11	07.01.2018
50_ Coaxial Switch	Anritsu Corp	MP59B	6200283933	07.01.2018

2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basics using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table

Item	Extended Uncertainty
Radiated Emission	U=±6dB, k=2, σ=95%
Occupied Channel Bandwidth	±5.0 %
RF Output Power, Conducted	±1.5 dB
Power Spectral Density, Conducted	±3.0 dB
Unwanted Emission, Conducted	±3.0 dB
Duty Cycle	±5.0 %

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A & B of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The Accurate Technology Co., Ltd. Test facility located at F1, Bldg. A, Changyuan New Material Port Keyuan Rd., Science & Industry Park, Nanshan Shenzhen, 518057, P.R. China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3 General Product Information

3.1 Product Function and Intended Use

The EZ-ELD supports Bluetooth 4.2 (dual mode) and it is a device for capturing vehicle information from the Diagnostic Port and send it through a Bluetooth connection to a Tablet / Cellphone. This report is for Bluetooth function of DTS and DSS.

For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

Technical Specification	Value
Kind of Equipment	EZ-ELD
Type Designation	ELD1.0
FCC ID	2AKA8-ELD100A0
IC	22098-ELD100A0
HVIN	ELD1.0
Operating Frequency	2402 - 2480 MHz
Typical Operating Voltage	DC 12V
Testing Voltage	DC 12V
Type of Modulation	GFSK, π/4DQPSK, 8DPSK
Channel Number	BDR & EDR mode:79 channels; Low Energy mode:40 channels
Channel Separation	BDR & EDR mode:1MHz; Low Energy mode:2MHz
Wireless Technology	Bluetooth 4.2 (Dual mode)
Antenna Type	Integral Antenna
Max. Antenna Gain	0.00 dBi

Table 3: RF Channel and Frequency of Bluetooth

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
00	**2402.00**	20	2422.00	40	2442.00	60	2462.00
01	2403.00	21	2423.00	41	2443.00	61	2463.00
02	2404.00	22	2424.00	42	2444.00	62	2464.00
03	2405.00	23	2425.00	43	2445.00	63	2465.00
04	2406.00	24	2426.00	44	2446.00	64	2466.00
05	2407.00	25	2427.00	45	2447.00	65	2467.00
06	2408.00	26	2428.00	46	2448.00	66	2468.00
07	2409.00	27	2429.00	47	2449.00	67	2469.00
08	2410.00	28	2430.00	48	2450.00	68	2470.00
09	2411.00	29	2431.00	49	2451.00	69	2471.00
10	2412.00	30	2432.00	50	2452.00	70	2472.00
11	2413.00	31	2433.00	51	2453.00	71	2473.00
12	2414.00	32	2434.00	52	2454.00	72	2474.00
13	2415.00	33	2435.00	53	2455.00	73	2475.00
14	2416.00	34	2436.00	54	2456.00	74	2476.00
15	2417.00	35	2437.00	55	2457.00	75	2477.00
16	2418.00	36	2438.00	56	2458.00	76	2478.00
17	2419.00	37	2439.00	57	2459.00	77	2479.00
18	2420.00	38	2440.00	58	2460.00	**78**	**2480.00**
19	2421.00	**39**	**2441.00**	59	2461.00	--	--

Table 4: RF Channel and Frequency of Bluetooth Low Energy

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
00	**2402.00**	10	2422.00	20	2442.00	30	2462.00
01	2404.00	11	2424.00	21	2444.00	31	2464.00
02	2406.00	12	2426.00	22	2446.00	32	2466.00
03	2408.00	13	2428.00	23	2448.00	33	2468.00
04	2410.00	14	2430.00	24	2450.00	34	2470.00
05	2412.00	15	2432.00	25	2452.00	35	2472.00
06	2414.00	16	2434.00	26	2454.00	36	2474.00
07	2416.00	17	2436.00	27	2456.00	37	2476.00
08	2418.00	18	2438.00	28	2458.00	38	2478.00
09	2420.00	**19**	**2440.00**	29	2460.00	**39**	**2480.00**

Table 5: Frequency Hopping Information

Technical Specification	Description
Hopping Range	Hereby we declare that the frequency range of this device is 2402-2480MHz. This is according the Bluetooth Core Specification V2.1 + EDR for devices which will be operated in the USA. This was checked during the Bluetooth Qualification tests.
Hopping Sequence	Example of a 79 hopping sequence in data mode: 33,04,21,44,23,42,53,46,55,48,40,59,72,29,76,31,08,73, 07,75,09,45,60,39,58,13,47,11,77,52,35,50,65,54,67,56, 69,62,71,64, 7,25,27,66,57,70,74,61,78,63,10,41,05,43, 15,44,64,68,02,70,06,01,51,03,55,05,03,66,53,49,36,47..
Receiver input bandwidth	The input bandwidth of the receiver is 1MHz. In every connection one Bluetooth device is the master and the other one is the slave. The master determines the hopping sequence. The slave follows this sequence. Both devices shift between RX and TX time slot according to the clock of the master. Additionally the type of connection is set up at the beginning of the connection. The master adapts its hopping frequency and its TX/RX timing according to the packet type of the connection. Also the slave of the connection will use these settings. Repeating of a packer has no influence on the hopping sequence. The hopping sequence generated by the master of the connection will be followed in any case. That means a repeated packet will not be send on the same frequency, it is send on the next frequency of the hopping sequence.

3.3 Independent Operation Modes

The basic operation modes are:

A. On
   1. Bluetooth transmitting mode (BDR & EDR mode)
      a) Low Channel
      b) Middle Channel
      c) High Channel
   2. Bluetooth transmitting mode (Low Energy mode)
      a) Low Channel
      b) Middle Channel
      c) High Channel

B. On, Transmitting on Hopping channel

C. On, Bluetooth connecting mode

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- Application Form
- Block Diagram
- Schematics
- Technical Description
- FCC/IC Label and Location Info
- Photo Document
- User Manual

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All testing were performed according to the procedures in ANSI C63.10: 2013.

4.3 Special Accessories and Auxiliary Equipment

Table 6: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating
Galaxy J1 mini	SAMSUNG	SM-J105M	RQ8H80CJ7EL	--
Power Supply Harness	PST Eletronica LTDA	--	--	--
Load Box	PST Eletronica LTDA	--	--	--
DC Power Battery	--	--	--	DC 12V

4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

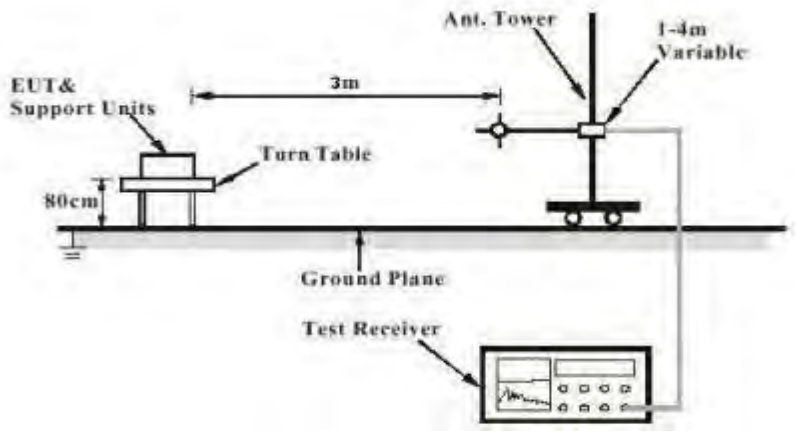


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

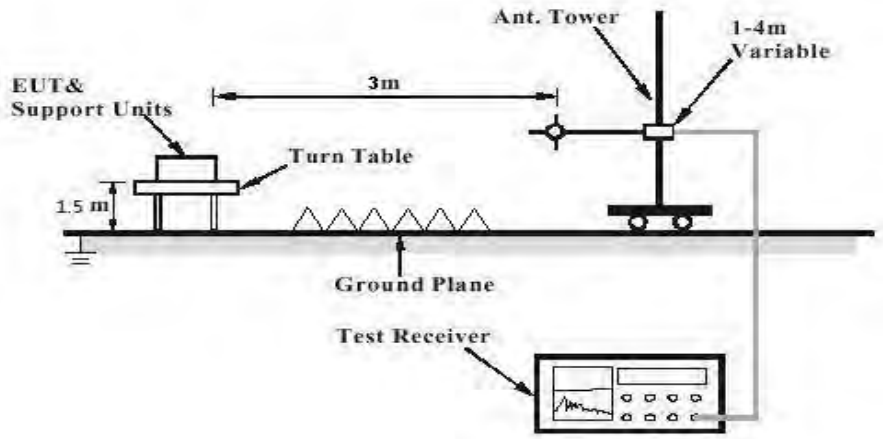
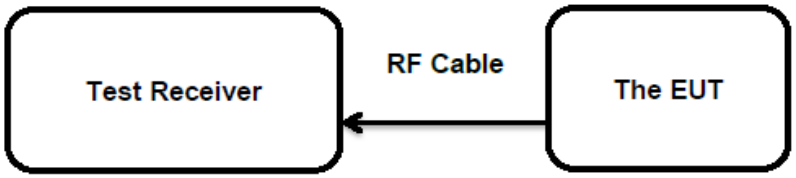


Diagram of Measurement Configuration for Conducted Transmitter Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT: **Pass**

Test Specification

Test standard : FCC Part 15.247(b)(4) and Part 15.203
RSS-Gen Clause 8.3

According to the manufacturer declared, the EUT has an integral antenna, the directional gain of antenna is 0dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

5.1.2 Maximum Peak Conducted Output Power

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(b)(1)&(3)
		RSS-247 Clause 5.4(2)&(4)
Basic standard	:	ANSI C63.10: 2013
Limits	:	FHSS < 0.125 Watts, DSSS < 1.0 Watts
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	16.01.2017
Input voltage	:	DC 12 V
Operation mode	:	A.1, A.2
Test channel	:	Low / Middle / High
Ambient temperature	:	25 ℃
Relative humidity	:	56 %
Atmospheric pressure	:	101 kPa

Table 7: Test Result of Maximum Peak Conducted Output Power

Test Mode	Channel Frequency (MHz)	Measured Peak Output Power		Limit (W)
		(dBm)	(W)	
BDR	2402	0.54	0.0011	< 0.125
	2441	1.17	0.0013	
	2480	1.20	0.0013	
EDR	2402	0.65	0.0012	< 0.125
	2441	1.07	0.0013	
	2480	1.19	0.0013	
Low Energy	2402	0.16	0.0010	< 1.0
	2440	0.52	0.0011	
	2480	0.88	0.0012	
Maximum Measured Value		1.20	0.0013	/

Note: The cable loss 0.5 dB is taken into account in results.

This testing was carried out on all operation modes, but only the worst case was presented in this report.

For the measurement records, refer to the appendix A.

5.1.3 Conducted Power Spectral Density

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(e)
		RSS-247 Clause 5.2(2)
Basic standard	:	ANSI C63.10: 2013
Limits	:	8 dBm/3kHz
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	16.01.2017
Input voltage	:	DC 12 V
Operation mode	:	A.2
Test channel	:	Low / Middle / High
Ambient temperature	:	25 ℃
Relative humidity	:	56 %
Atmospheric pressure	:	101 kPa

Table 8: Test Result of Power Spectral Density, Low Energy

Test Mode	Test Channel (MHz)	Power Spectrum Density(dBm/3kHz)	Limit (dBm/3kHz)
Low Energy	2402	-14.94	< 8.0
	2440	-14.39	
	2480	-13.97	
Maximum Measured Value		-13.97	

Note: The cable loss 0.5 dB is taken into account in results.

This testing was carried out on all operation modes, but only the worst case was presented in this report.

For the measurement records, refer to the appendix A.

5.1.4 6dB Bandwidth

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(a)(2)
		RSS-247 Clause 5.2(1)
Basic standard	:	ANSI C63.10: 2013
Limits	:	More than 500 KHz
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	16.01.2017
Input voltage	:	DC 12 V
Operation mode	:	A.2
Test channel	:	Low / Middle / High
Ambient temperature	:	25 ℃
Relative humidity	:	56 %
Atmospheric pressure	:	101 kPa

Table 9: Test Result of 6dB Bandwidth, Low Energy

Test Mode	Test Channel (MHz)	-6dB Bandwidth (kHz)	Limit (kHz)
Low Energy	2402	703.3	> 500
	2440	712.0	
	2480	712.0	
Minimum Measured Value		703.3	

For the measurement records, refer to the appendix A.

5.1.5 99% Bandwidth

RESULT: **Pass**

Test Specification

Test standard	:	RSS-Gen Clause 6.6
Basic standard	:	ANSI C63.10: 2013
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	16.01.2017
Input voltage	:	DC 12 V
Operation mode	:	A.1, A.2
Test channel	:	Low / Middle / High
Ambient temperature	:	25 ℃
Relative humidity	:	56 %
Atmospheric pressure	:	101 kPa

Table 10: Test Result of 99% Bandwidth

Test Mode	Channel Frequency (MHz)	99% Bandwidth (kHz)	Limit (kHz)
BDR	2402	981.2	/
	2441	976.8	
	2480	976.8	
EDR	2402	1185.2	/
	2441	1185.2	
	2480	1176.6	
Low Energy	2402	1081.0	/
	2440	1085.4	
	2480	1081.0	
Maximum Measured Value		1185.2	/

For the measurement records, refer to the appendix A.

5.1.6 Conducted Spurious Emissions Measured in 100 kHz Bandwidth

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(d)
		RSS-247 Clause 5.5
Basic standard	:	ANSI C63.10: 2013
Limits	:	20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power);
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	16.01.2017
Input voltage	:	DC 12 V
Operation mode	:	A.1, A.2
Test channel	:	Low / Middle / High
Ambient temperature	:	25 ℃
Relative humidity	:	56 %
Atmospheric pressure	:	101 kPa

Test results of 100kHz Bandwidth of Frequency Band Edge by Conducted method refer to following test plot, and compliance is achieved as well.

For the measurement records, refer to the appendix A.

5.1.7 Radiated Spurious Emission

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(d) & FCC Part 15.205
		RSS-247 Clause 3.3
Basic standard	:	ANSI C63.10: 2013
Limits	:	Refer to 15.209(a) of FCC part 15.247(d)
		RSS-Gen Table 4 & Table 5
Kind of test site	:	3m Semi-anechoic Chamber

Test Setup

Date of testing	:	12.01.2017
Input voltage	:	DC 12 V
Operation mode	:	A.1, A.2
Test channel	:	Low / Middle / High
Ambient temperature	:	23 ℃
Relative humidity	:	48 %
Atmospheric pressure	:	101 kPa

Remark:
During the pretest the EUT was rotated through three orthogonal axes to determine the attitude that maximizes the emissions. After that the EUT was manually handled to find the orientation that has the maximum emission, which is the orientation shown in the test set-up photos.

Pre-test the EUT in continuous transmitting with different data packet. Compliance test in continuous transmitting mode with BDR and BLE mode as the worst case was found.

Testing was carried out within frequency range 9kHz to the tenth harmonics.

For the measurement records, refer to the appendix B.

5.1.8 20dB Bandwidth

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(a)(1)
		RSS-247 Clause 5.1(1)
Basic standard	:	ANSI C63.10: 2013
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	16.01.2017
Input voltage	:	DC 12 V
Operation mode	:	A.1
Test channel	:	Low / Middle / High
Ambient temperature	:	25 ℃
Relative humidity	:	56 %
Atmospheric pressure	:	101 kPa

Table 11: Test Result of 20dB Bandwidth

Test Mode	Channel Frequency (MHz)	20dB Bandwidth (kHz)	2/3 of 20dB Bandwidth (kHz)	Limit (MHz)
BDR	2402	907.4	604.9	Within the Frequency band 2400~2483.5MHz
	2441	907.4	604.9	
	2480	903.0	602.0	
EDR	2402	1206.9	804.6	
	2441	1206.9	804.6	
	2480	1206.9	804.6	
Maximum Measured Value		1206.9	804.6	

For the measurement records, refer to the appendix A.

5.1.9 Carrier Frequency Separation

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(a)(1)
		RSS-247 Clause 5.1(2)
Basic standard	:	ANSI C63.10: 2013
Limits	:	≥ 25kHz or 2/3 of 20dB bandwidth, whichever is greater
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	16.01.2017
Input voltage	:	DC 12 V
Operation mode	:	B
Test channel	:	Low / Middle / High
Ambient temperature	:	25 ℃
Relative humidity	:	56 %
Atmospheric pressure	:	101 kPa

Table 12: Test Result of Carrier Frequency Separation

Channel	Channel Frequency (MHz)	Measured Channel Separation (KHz)	Limit (kHz)	Result
Low Channel	2402	1003	≥ 25kHz or 2/3 of 20dB bandwidth	Pass
Adjacency Channel	2403			
Middle Channel	2441	1003		Pass
Adjacency Channel	2442			
High Channel	2480	1003		Pass
Adjacency Channel	2479			

Note:

The limit is maximum 2/3 of the 20 dB bandwidth: 804.6 KHz.

For the measurement records, refer to the appendix A.

5.1.10 Number of Hopping Frequency

RESULT: **Pass**

Test Specification

Test standard	:	FCC part 15.247(a)(1)(iii)
		RSS-247 Clause 5.1(4)
Basic standard	:	ANSI C63.10: 2013
Limits	:	≥ 15 non-overlapping channels
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	16.01.2017
Input voltage	:	DC 12 V
Operation mode	:	B
Ambient temperature	:	25 ℃
Relative humidity	:	56 %
Atmospheric pressure	:	101 kPa

Table 13: Test Result of Number of Hopping Frequency

Frequency Range	Measured Quantity of Hopping Channel	Limit	Result
2402 to 2480 MHz	79	≥15	Pass

For the measurement records, refer to the appendix A.

5.1.11 Time of Occupancy

RESULT: **Pass**

Test Specification

Test standard	:	FCC part 15.247(a)(1)(iii)
		RSS-247 Clause 5.1(4)
Basic standard	:	ANSI C63.10: 2013
Limits	:	< 0.4s
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	16.01.2017
Input voltage	:	DC 12 V
Operation mode	:	B
Test channel	:	Low / Middle / High
Ambient temperature	:	25 ℃
Relative humidity	:	56 %
Atmospheric pressure	:	101 kPa

Table 14: Test Result of Time of Occupancy

Test Mode	Test Channel	Data Packet	Pulse width (ms)	Measured Dwell time(s)	Limit (s)
BDR mode	2402	DH1	0.420	0.134	< 0.4s
		DH3	1.681	0.269	
		DH5	2.957	0.316	
	2441	DH1	0.413	0.132	
		DH3	1.681	0.269	
		DH5	2.957	0.316	
	2480	DH1	0.413	0.132	
		DH3	1.681	0.269	
		DH5	2.957	0.316	
EDR mode	2402	3DH1	0.420	0.134	
		3DH3	1.696	0.271	
		3DH5	2.957	0.316	
	2441	3DH1	0.428	0.137	
		3DH3	1.696	0.271	
		3DH5	2.957	0.316	
	2480	3DH1	0435	0.139	
		3DH3	1.696	0.271	
		3DH5	2.978	0.318	
Maximum Measured Value			**2.978**	**0.318**	

Note:

Dwell time = Pulse width x (Hopping rate / Number of channels) x Period

Period = 0.4 x 79 (channel) = 31.6 seconds

This testing was carried out on all operation modes, but only the worst case was presented in this report.

For the measurement records, refer to the appendix A.

5.1.12 Conducted Emission on AC Mains

RESULT: **Not Applicable**

Test Specification

Test standard	:	FCC Part 15.207(a)
		RSS-Gen Clause 8.8
Basic standard	:	ANSI C63.10: 2013
Frequency range	:	0.15 – 30MHz
Limits	:	FCC Part 15.207(a)
		RSS-Gen Table 3
Kind of test site	:	Shielded Room

Note: This equipment will be installed in the vehicle environment and does not connect to AC Main Source, hence it is exempted from AC Main conducted emission.

6 Safety Human Exposure

6.1 Radio Frequency Exposure Compliance

6.1.1 Electromagnetic Fields

RESULT:

Pass

Test Specification

Test standard	:	CFR47 FCC Part 2.1093
		RSS 102 Issue 5
Limit	:	FCC KDB Publication 447498 v06
		RSS 102 Issue 5, Clause 2.5.1

Measurement Record:

The minimum distance for the EUT is less than 5mm.

The maximum tested e.i.r.p.: 1.2dBm = 1.3mW

The maximum specified e.i.r.p.: 2.0dBm = 1.6mW

Antenna Gain: 0dBi

For FCC, according to KDB 447498 D01 v06 4.3.1 a):

The maximum specified output power of the transmitter is 2.0dBm (1.6mW), which is below the SAR exclusion threshold level in Bluetooth Band 9.5mW, hence the EUT is exempted from routine evaluation.

For IC, according to RSS 102 Issue 5, Clause 2.5.1:

The maximum specified peak output power & e.i.r.p. of the transmitter is 2.0dBm (1.6mW), which is below the SAR exclusion threshold level in Bluetooth band 4mW ≈ 6.02dBm, hence the EUT is exempted from routine evaluation.

7 Photographs of the Test Set-Up

Photograph 1: Set-up for Radiated Spurious Emission up to 1GHz

Please refer to the attached setup photos.

Photograph 2: Set-up for Radiated Spurious Emission above 1GHz

Please refer to the attached setup photos.

8 List of Tables

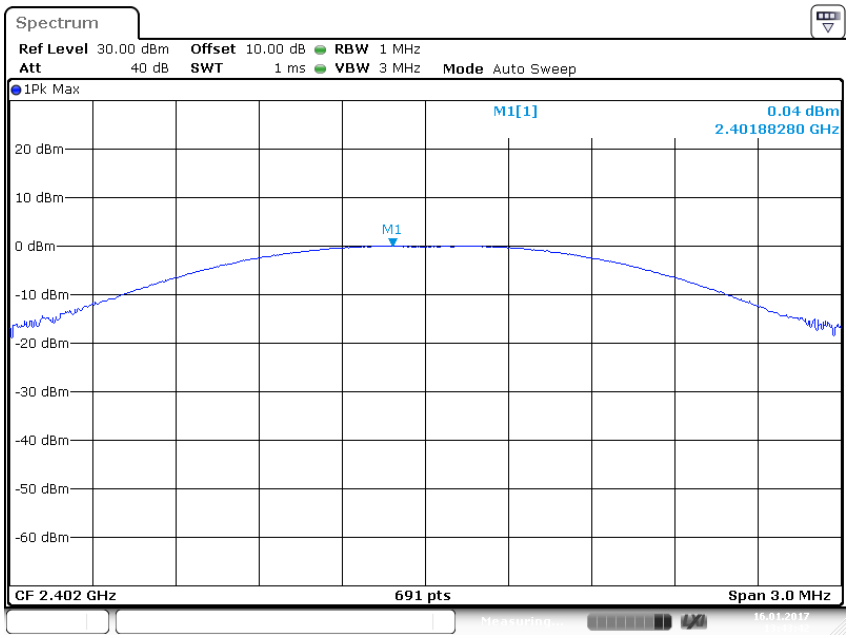
9 List of Photographs

Appendix A

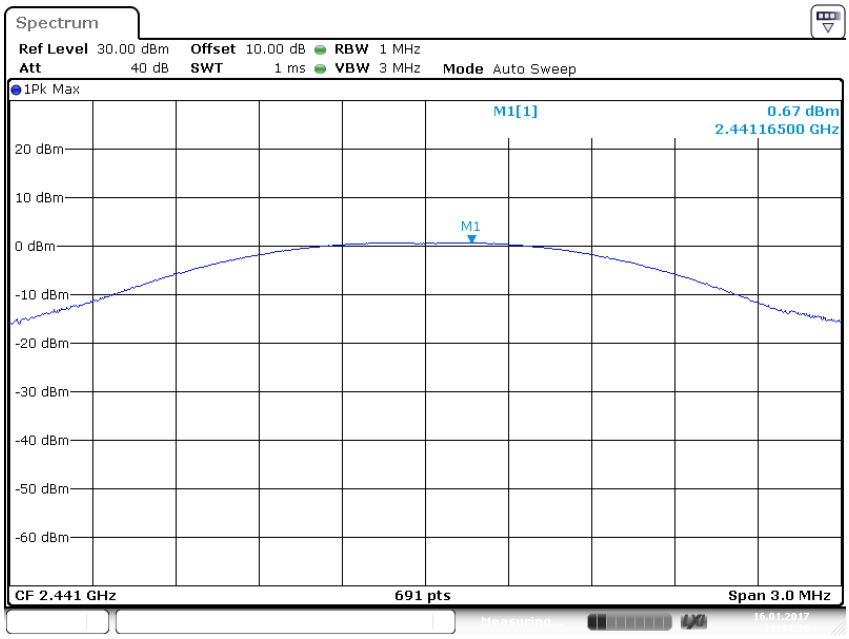
Test Results of Bluetooth 4.2 (Dual mode) of Conducted Testing

Appendix A.1: Test Plots of Maximum Peak Conducted Output Power

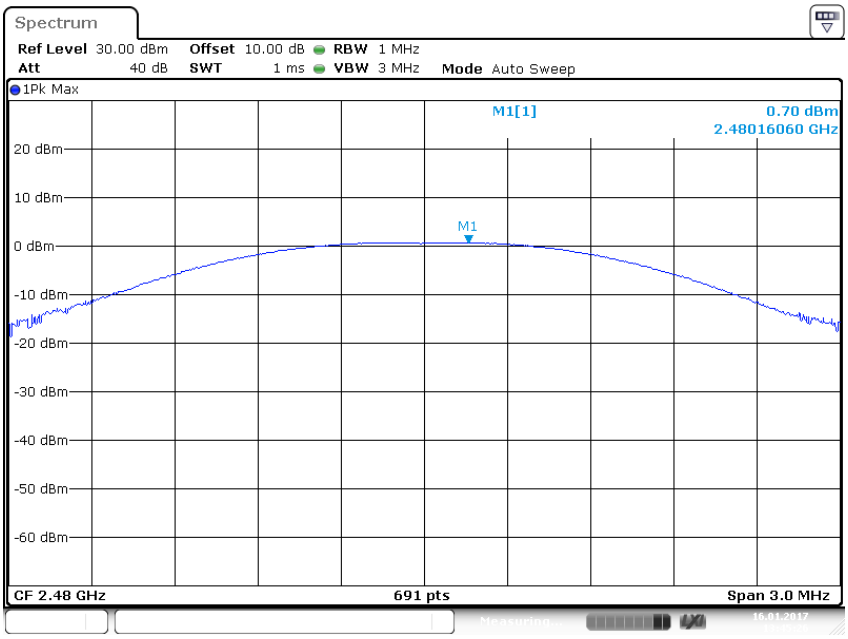
BDR Mode, DH1



Date: 16.JAN.2017 13:43:42

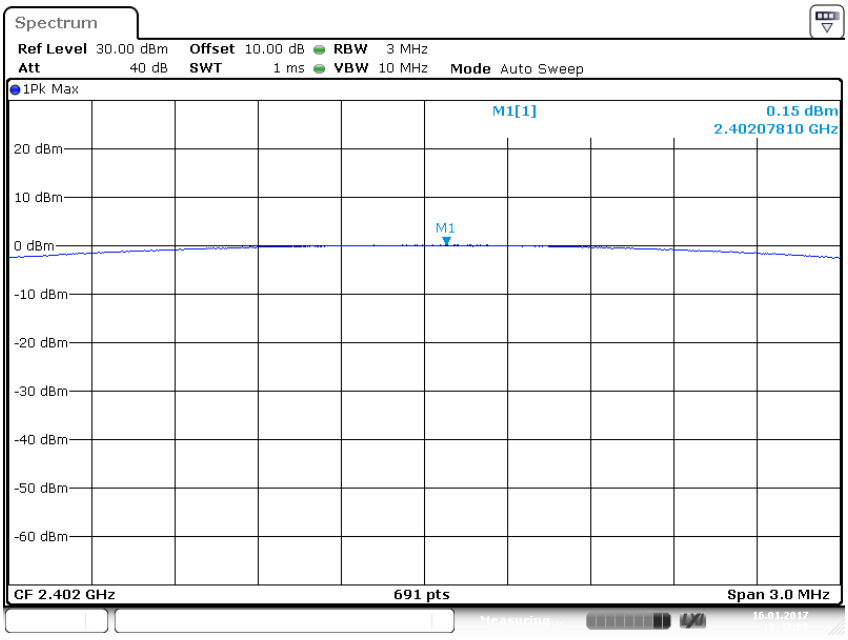


Date: 16.JAN.2017 13:44:36

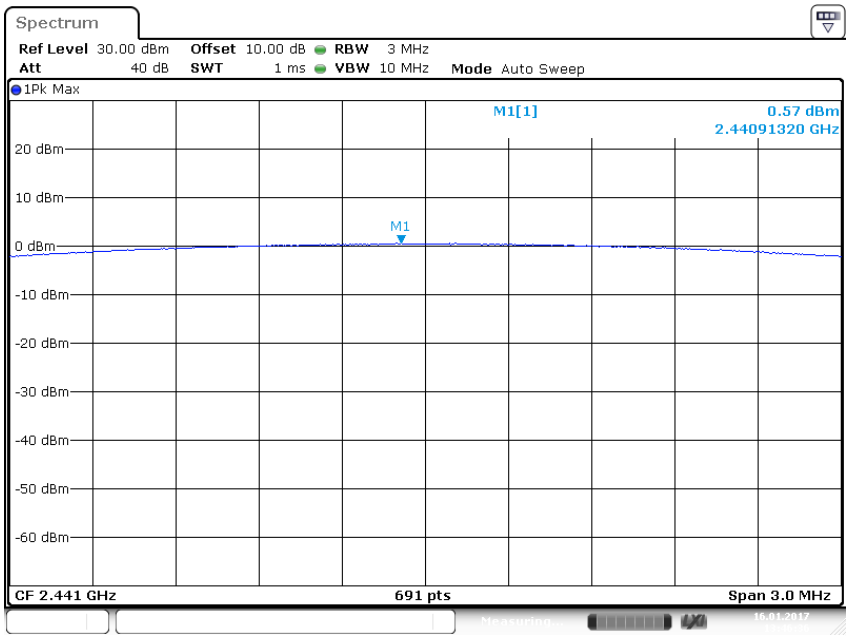


Date: 16.JAN.2017 13:45:26

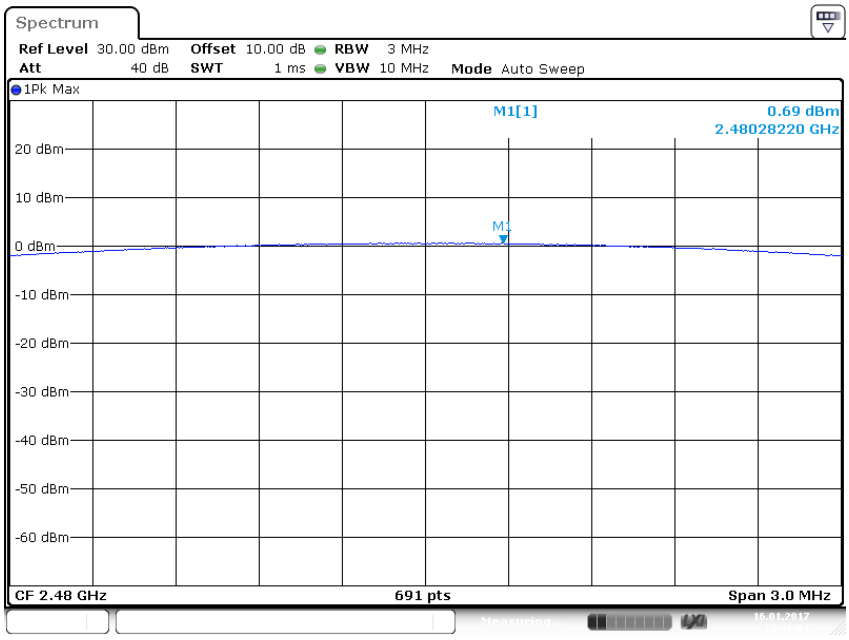
EDR Mode, 3DH1



Date: 16.JAN.2017 13:47:09

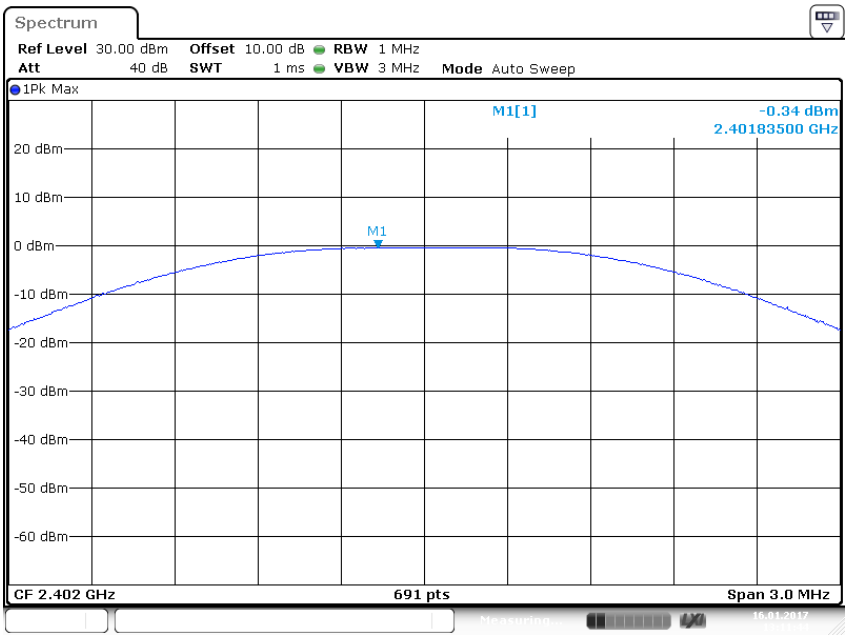


Date: 16.JAN.2017 13:46:36

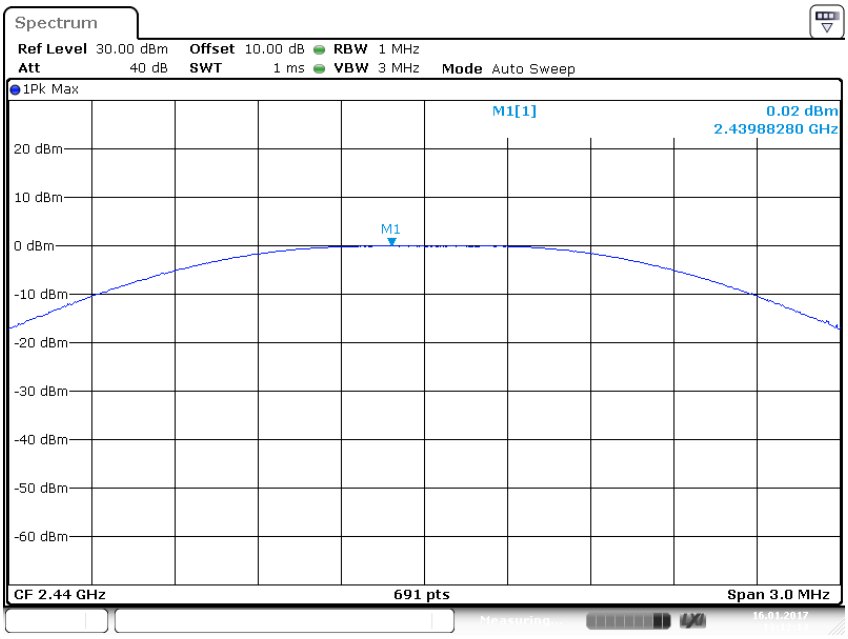


Date: 16.JAN.2017 13:46:01

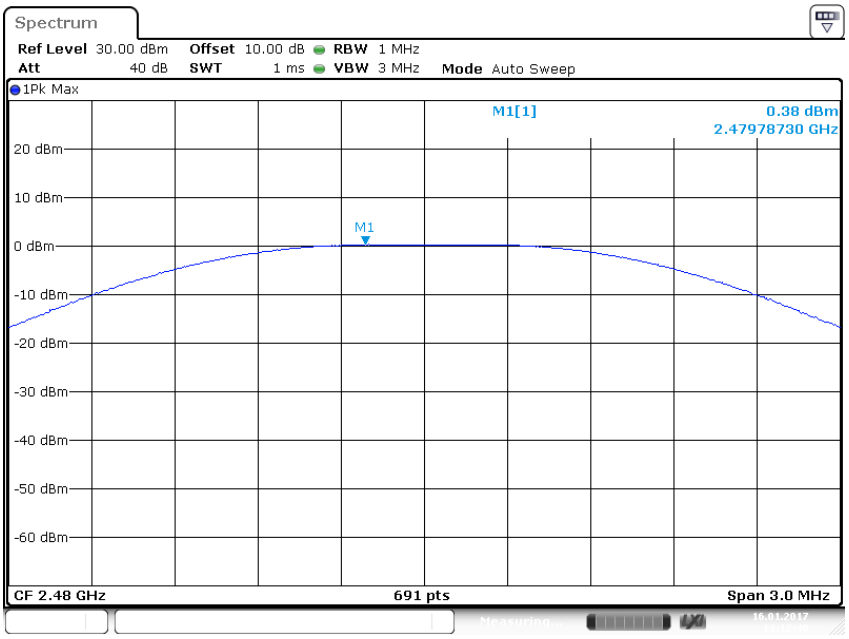
Low Energy Mode



Date: 16.JAN.2017 13:11:44



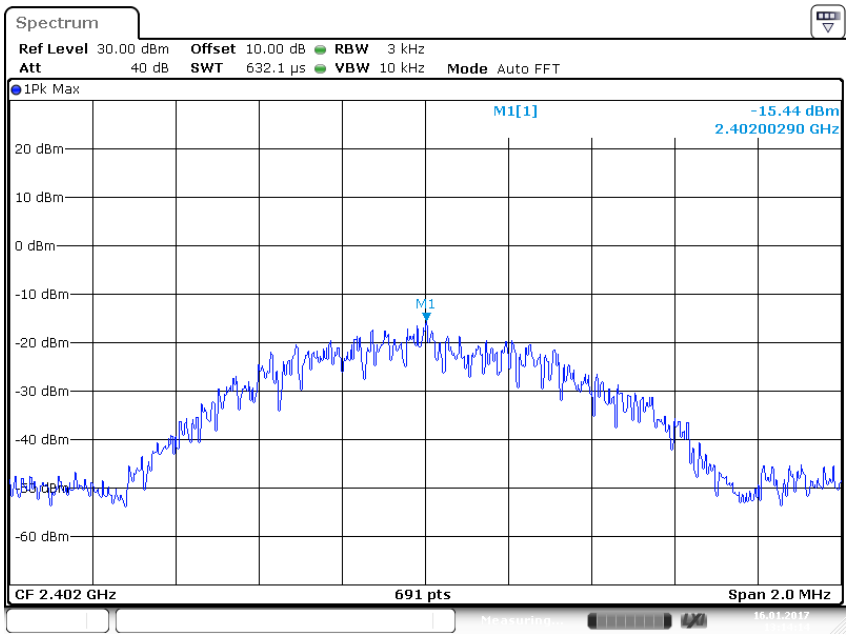
Date: 16.JAN.2017 13:12:13



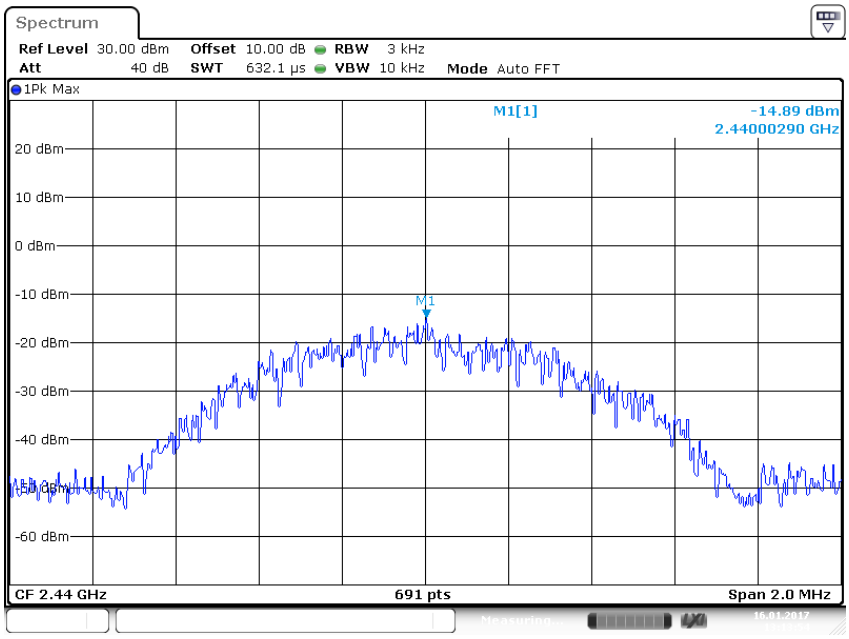
Date: 16.JAN.2017 13:12:40

Appendix A.2: Test Plots of Conducted Power Spectral Density

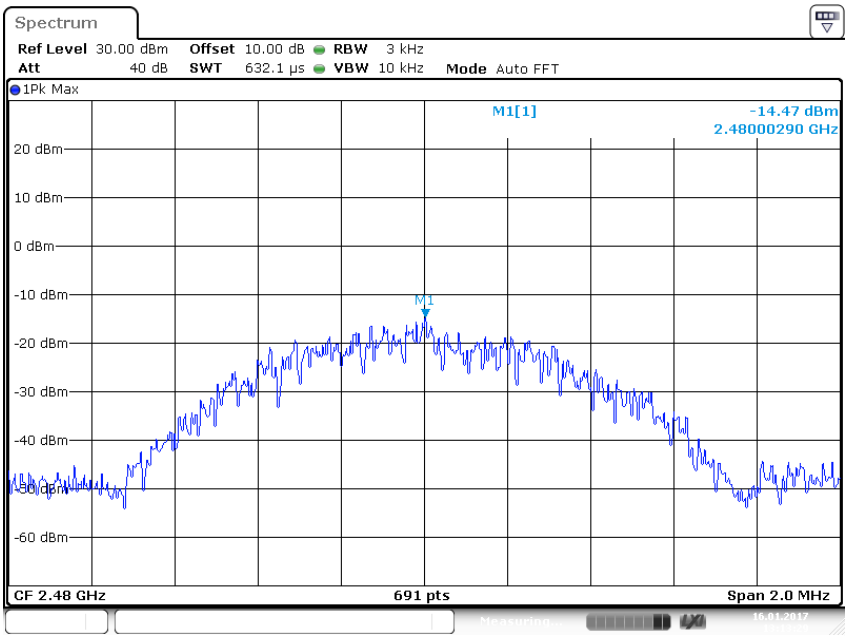
Low Energy Mode



Date: 16.JAN.2017 13:14:14



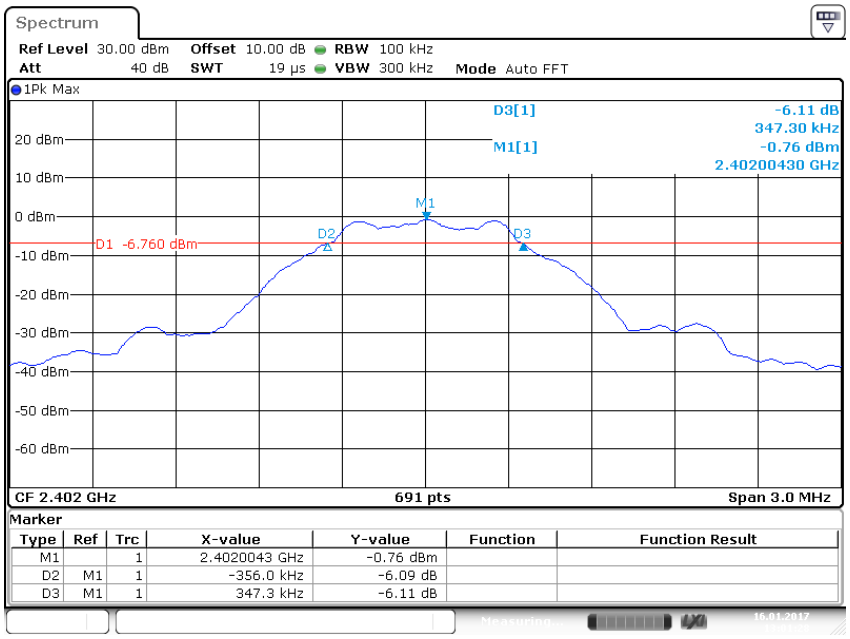
Date: 16.JAN.2017 13:13:53



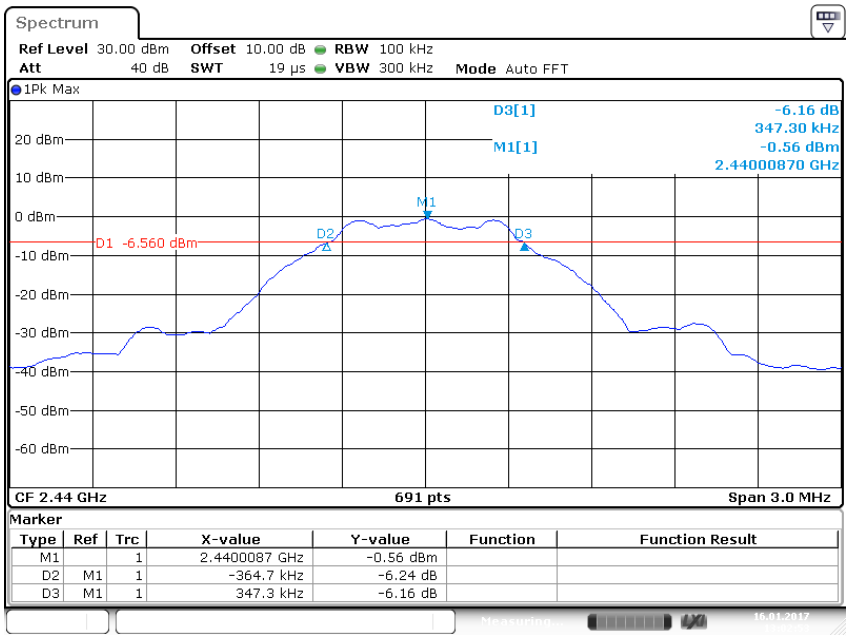
Date: 16.JAN.2017 13:13:29

Appendix A.3: Test Plots of 6dB Bandwidth

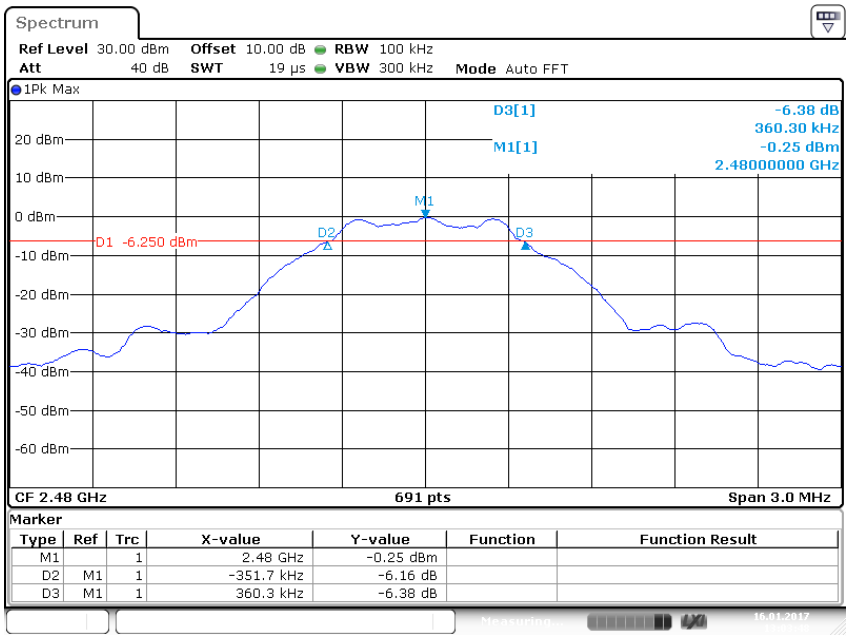
Low Energy Mode



Date: 16.JAN.2017 13:01:28



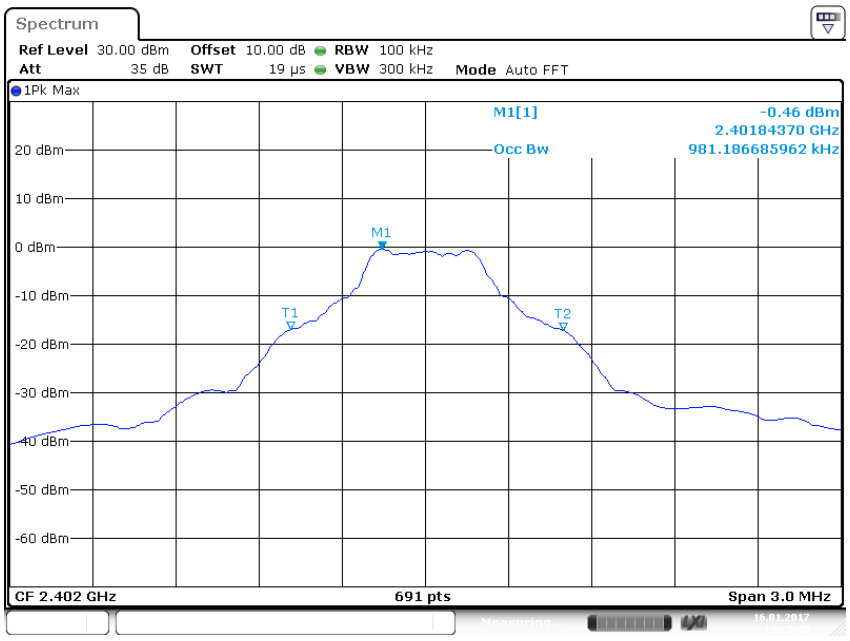
Date: 16.JAN.2017 13:02:53



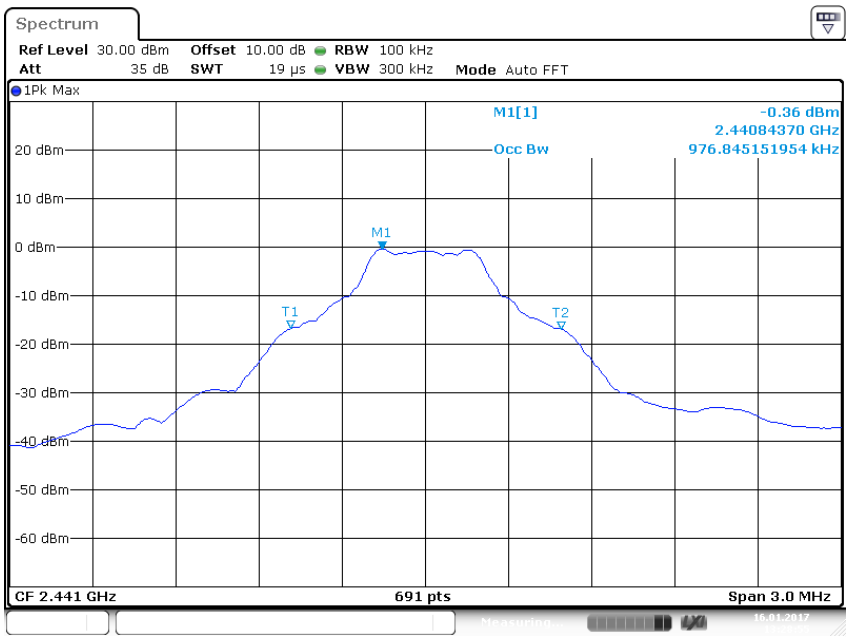
Date: 16.JAN.2017 13:03:48

Appendix A.4: Test Plots of 99% Bandwidth

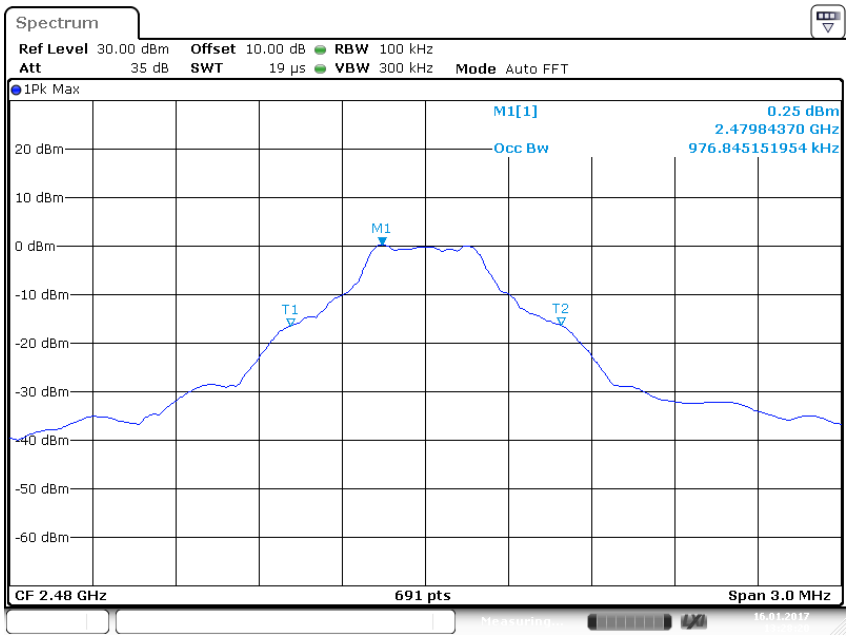
BDR Mode, DH1



Date: 16.JAN.2017 13:29:48

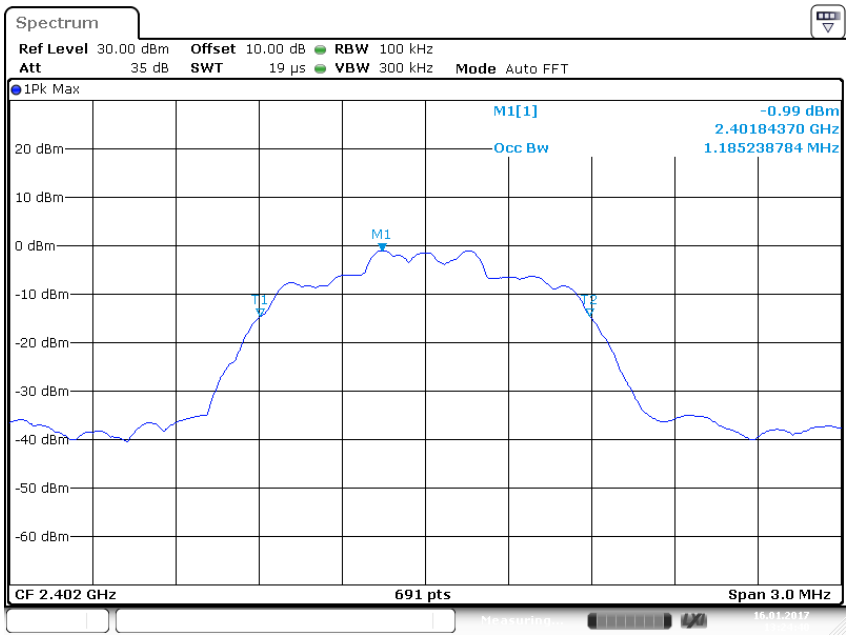


Date: 16.JAN.2017 13:28:55

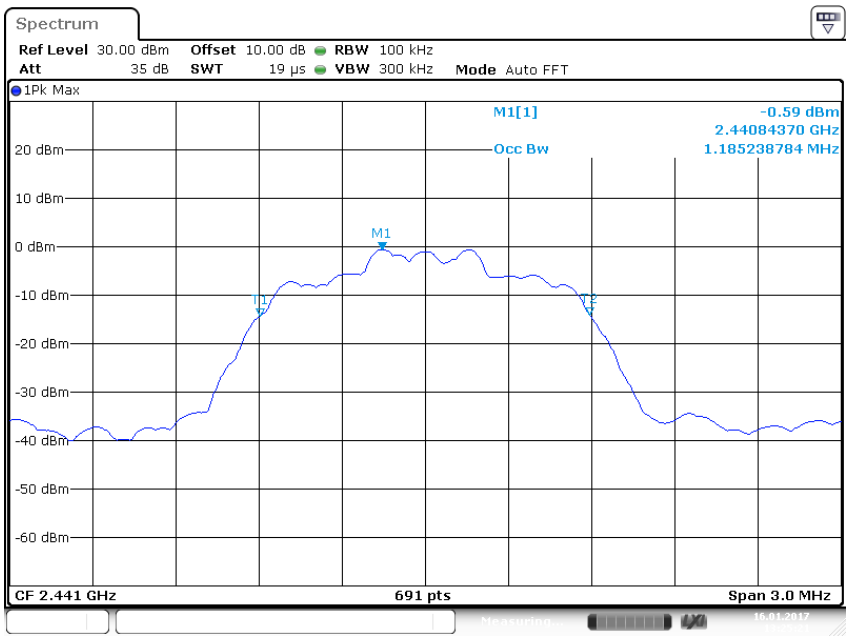


Date: 16.JAN.2017 13:28:20

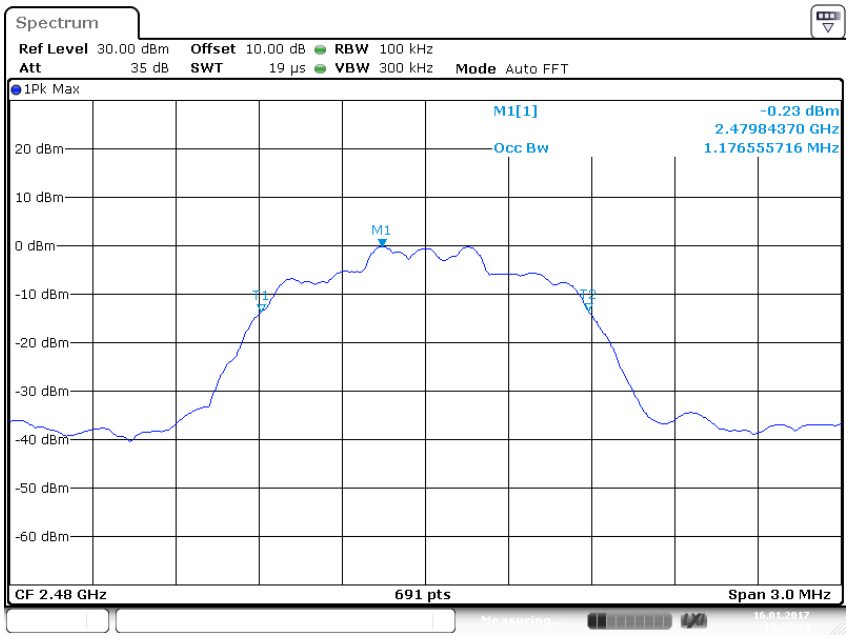
EDR Mode, 3DH1



Date: 16.JAN.2017 13:24:40

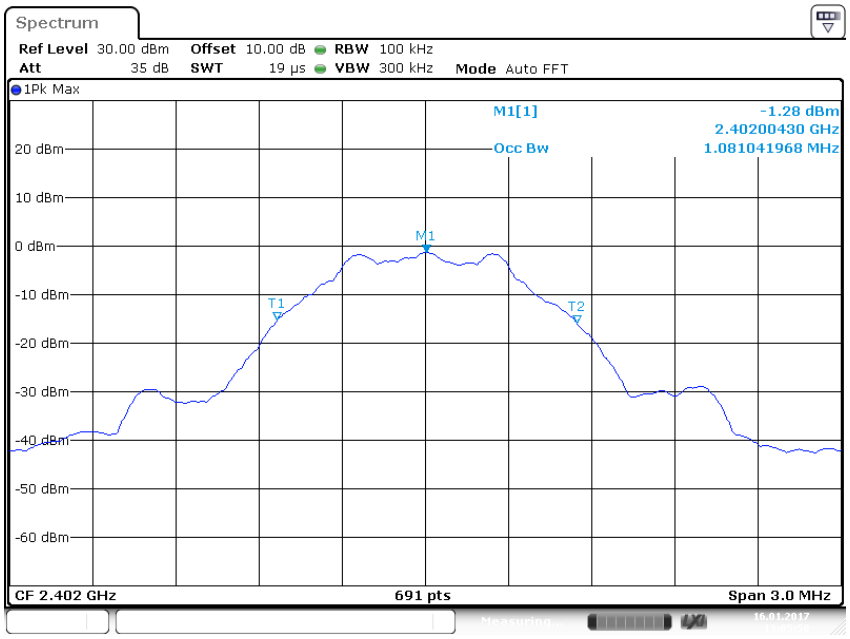


Date: 16.JAN.2017 13:25:21

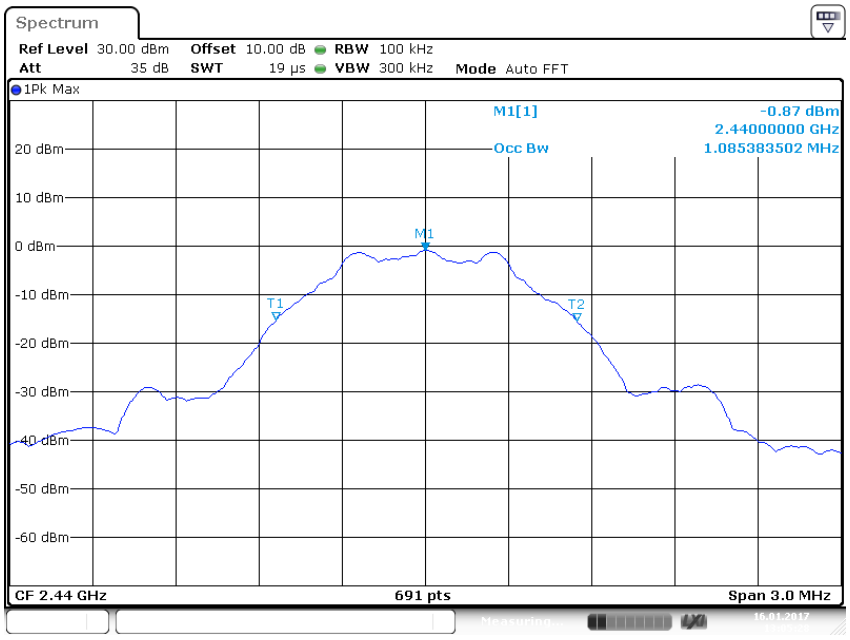


Date: 16.JAN.2017 13:25:44

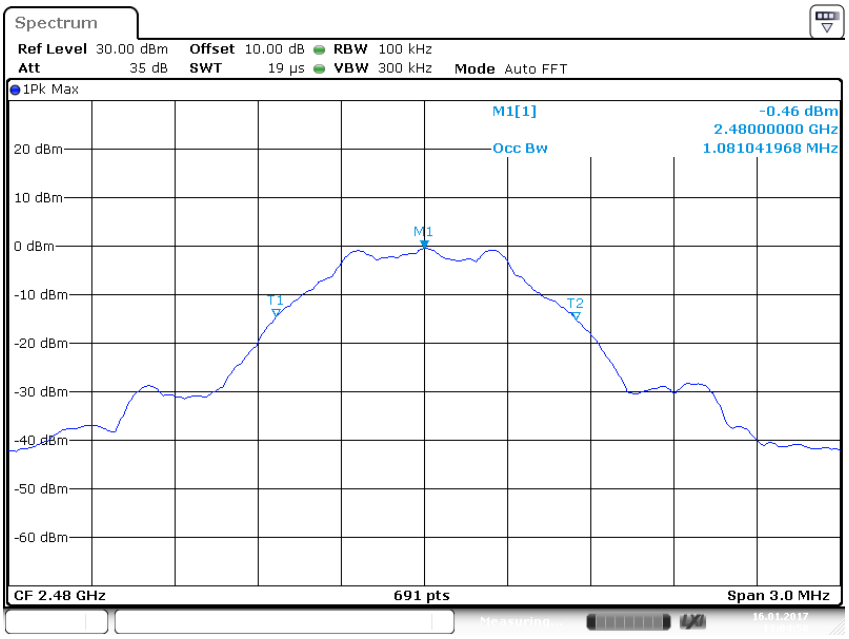
Low Energy Mode



Date: 16.JAN.2017 13:05:58



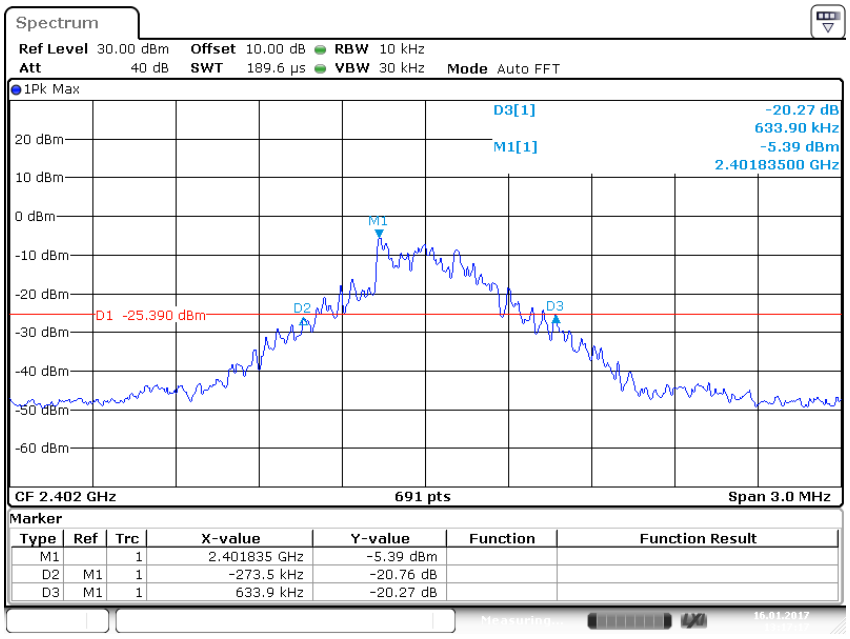
Date: 16.JAN.2017 13:05:28



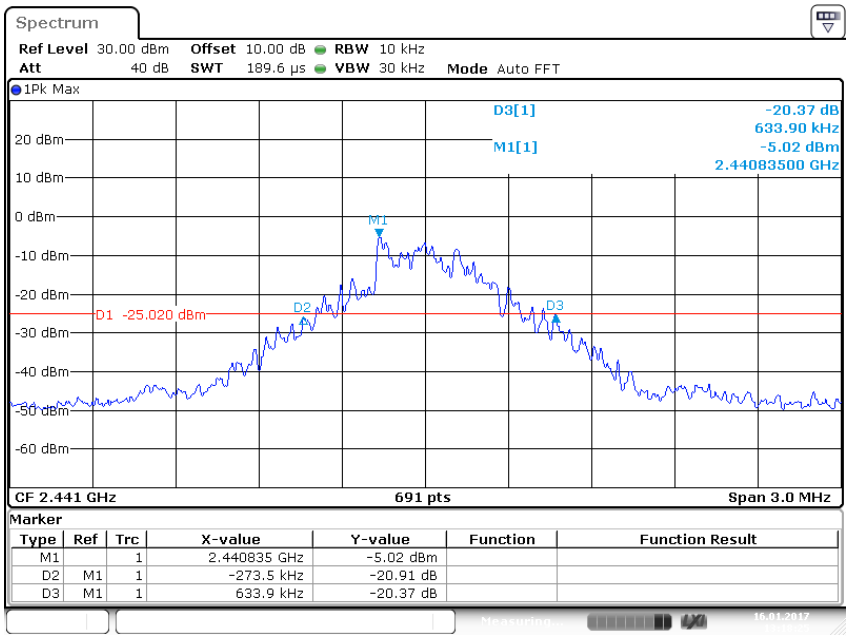
Date: 16.JAN.2017 13:04:58

Appendix A.5: Test Plots of 20dB Bandwidth

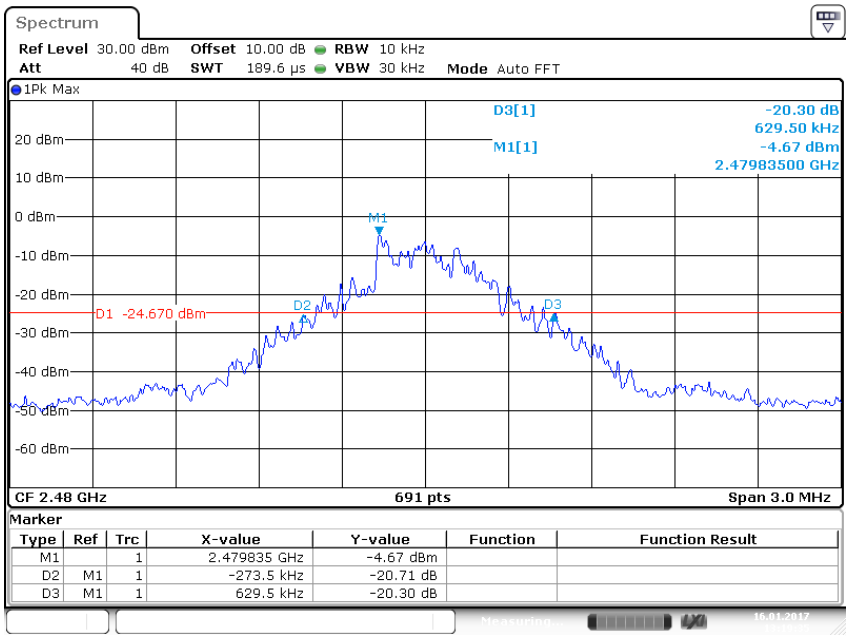
BDR Mode, DH1



Date: 16.JAN.2017 13:17:17

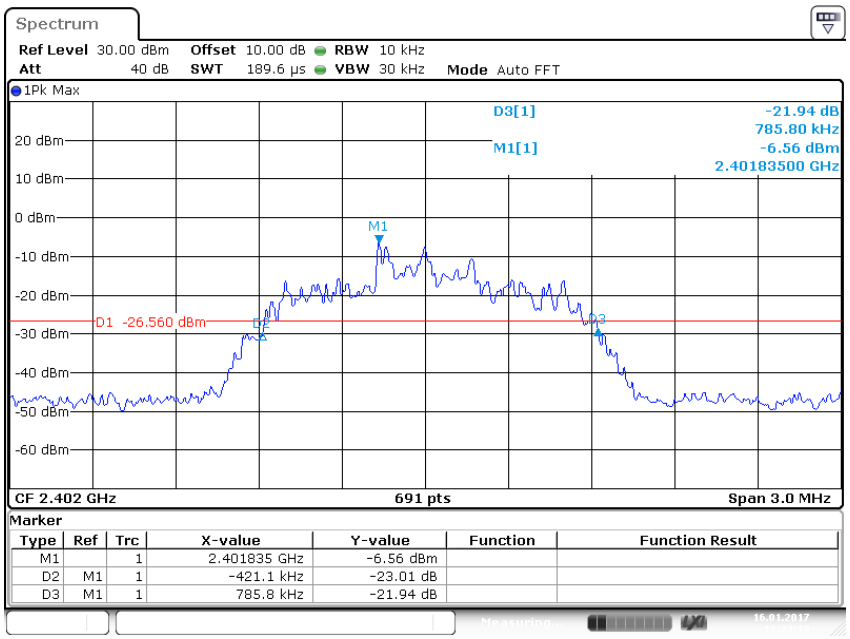


Date: 16.JAN.2017 13:18:25

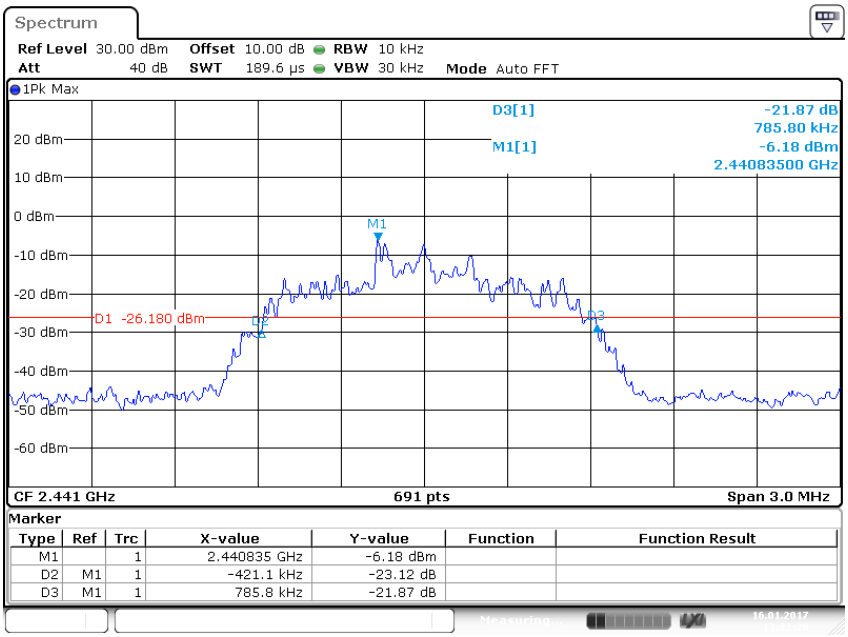


Date: 16.JAN.2017 13:19:35

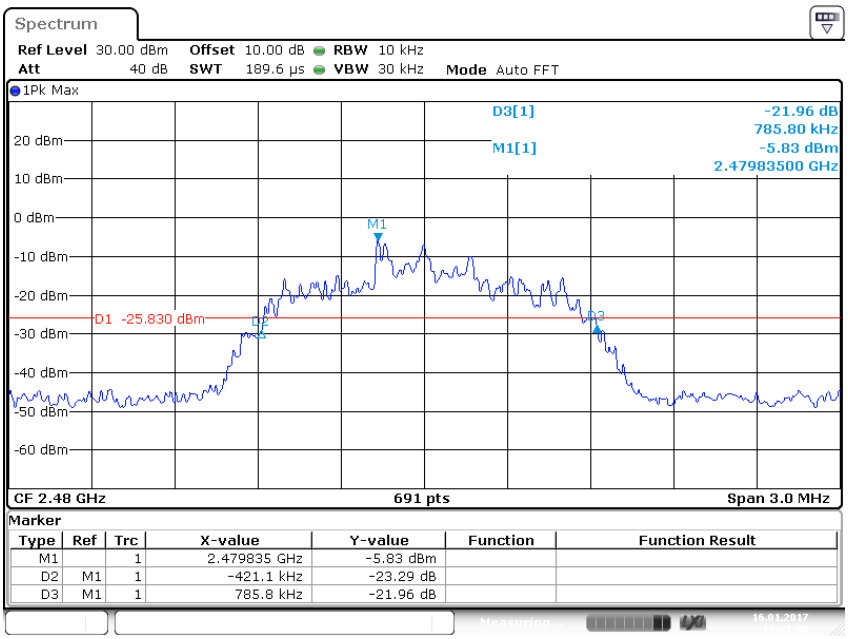
EDR Mode, 3DH1



Date: 16.JAN.2017 13:23:19



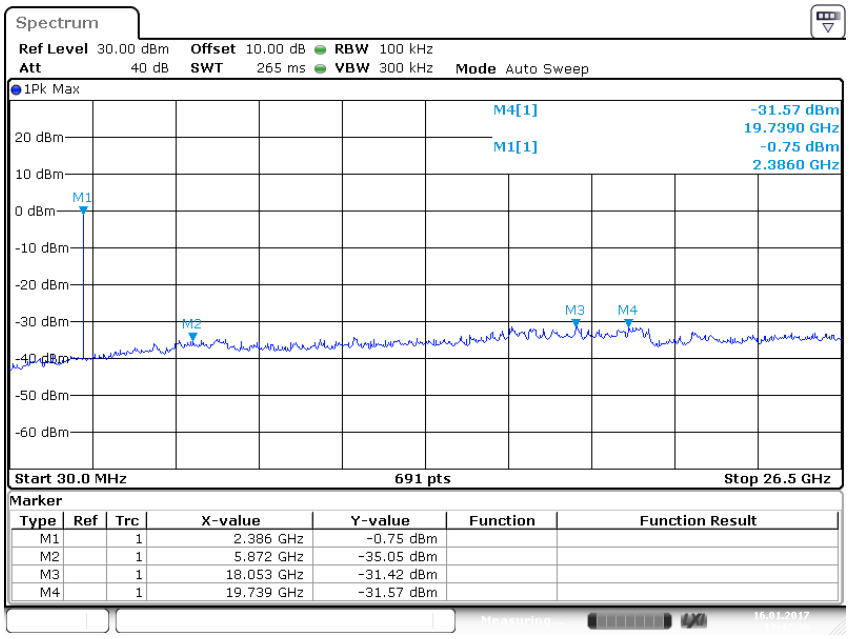
Date: 16.JAN.2017 13:22:20



Date: 16.JAN.2017 13:21:08

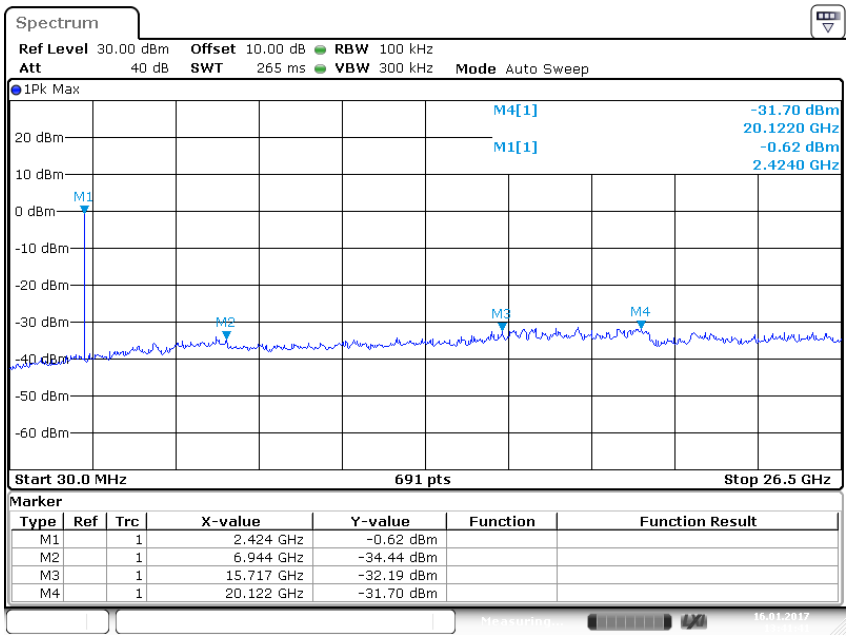
Appendix A.6: Test Plots of Conducted Spurious Emissions Measured in 100 kHz Bandwidth

BDR Mode, DH1
Low Channel



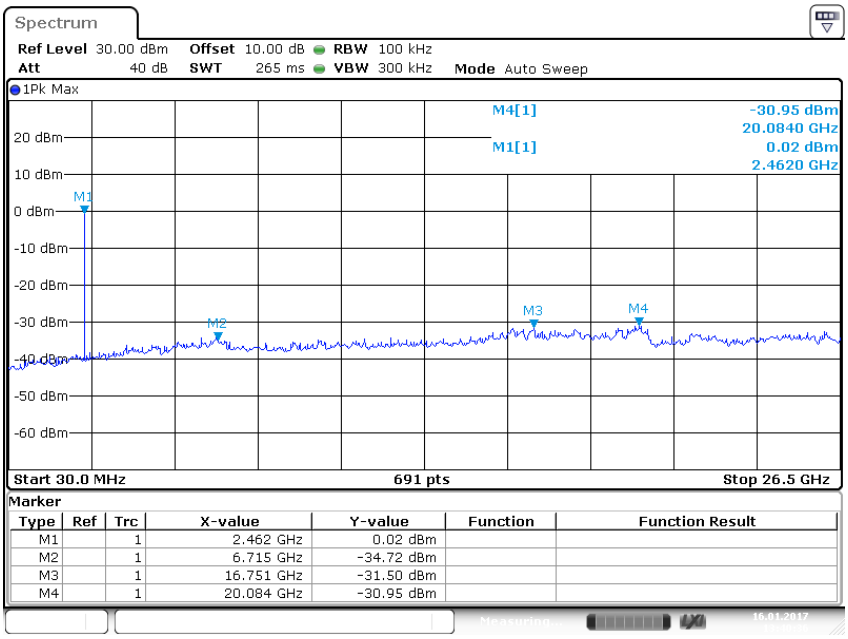
Date: 16.JAN.2017 13:42:36

Middle Channel



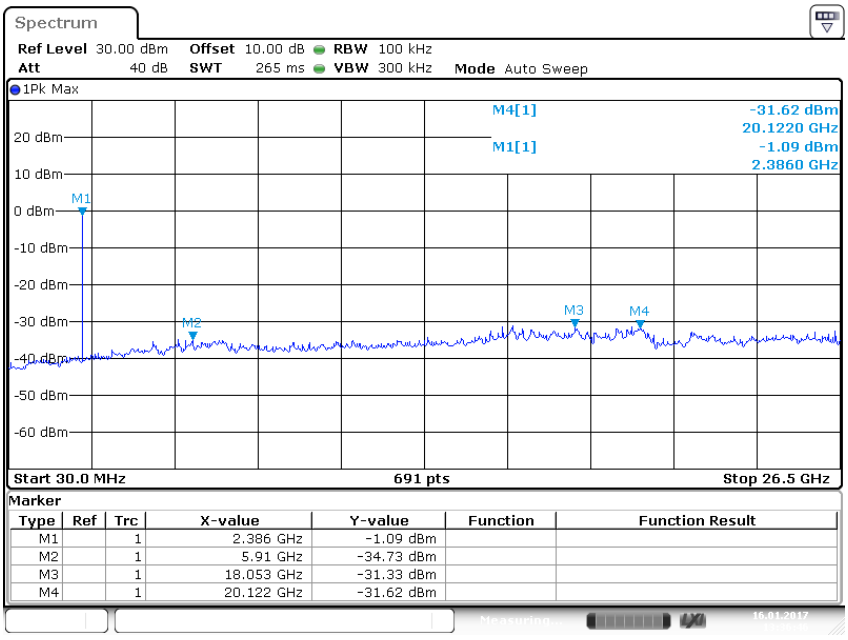
Date: 16.JAN.2017 13:41:41

High Channel



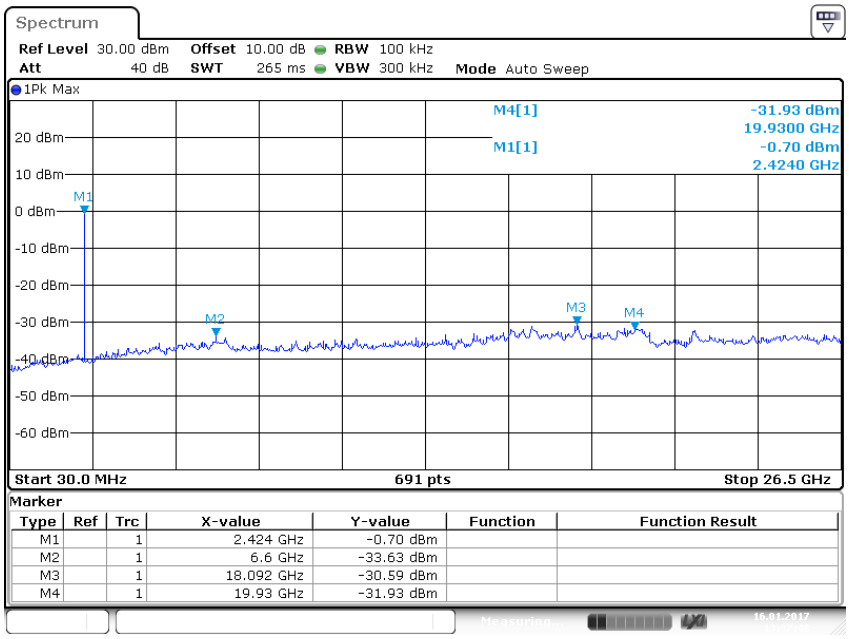
Date: 16.JAN.2017 13:40:36

EDR Mode, 3DH1
Low Channel



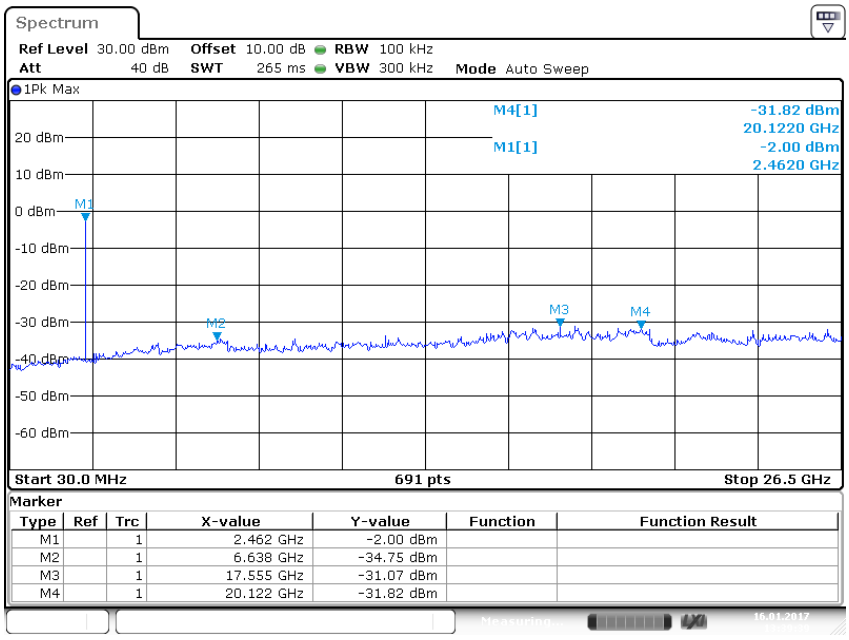
Date: 16.JAN.2017 13:36:46

Middle Channel



Date: 16.JAN.2017 13:37:48

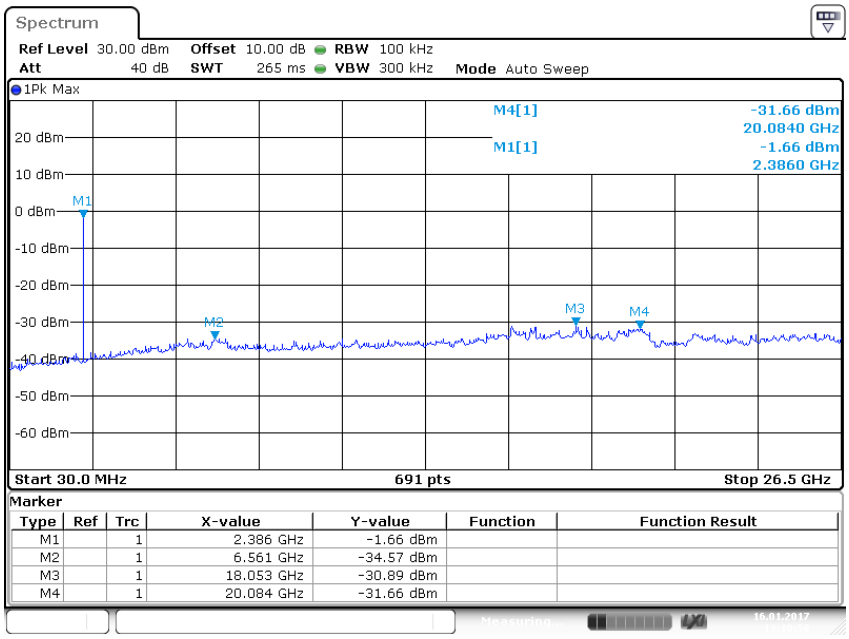
High Channel



Date: 16.JAN.2017 13:39:39

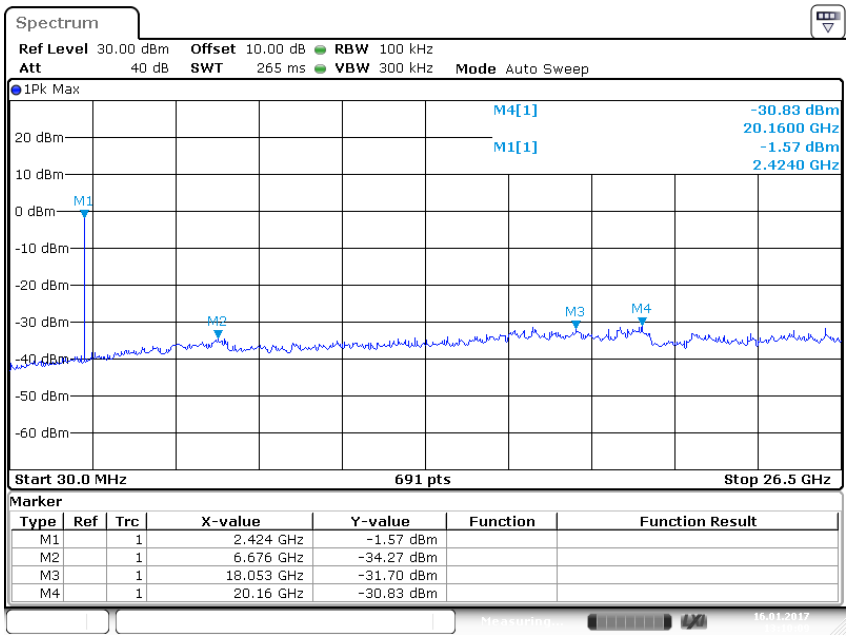
Low Energy Mode

Low Channel



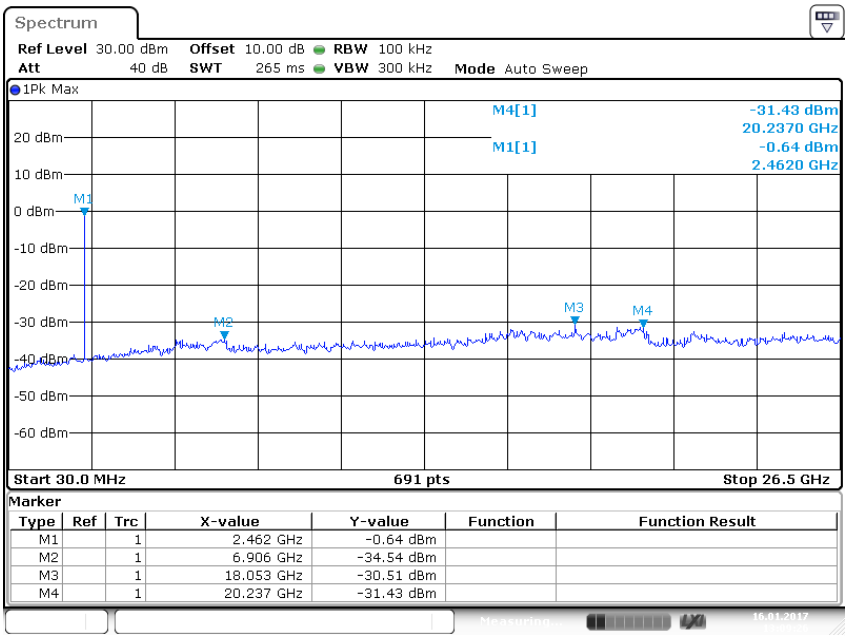
Date: 16.JAN.2017 13:10:58

Middle Channel



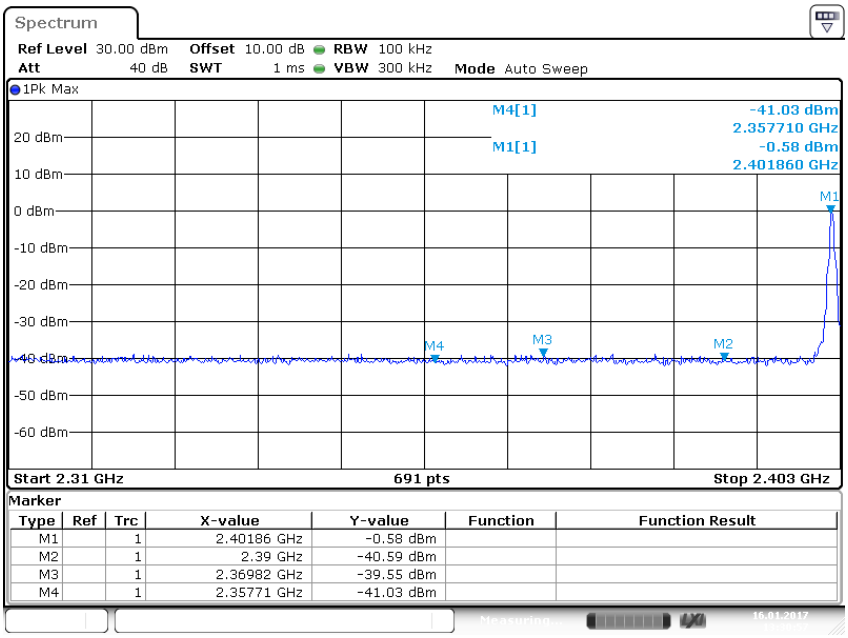
Date: 16.JAN.2017 13:10:09

High Channel

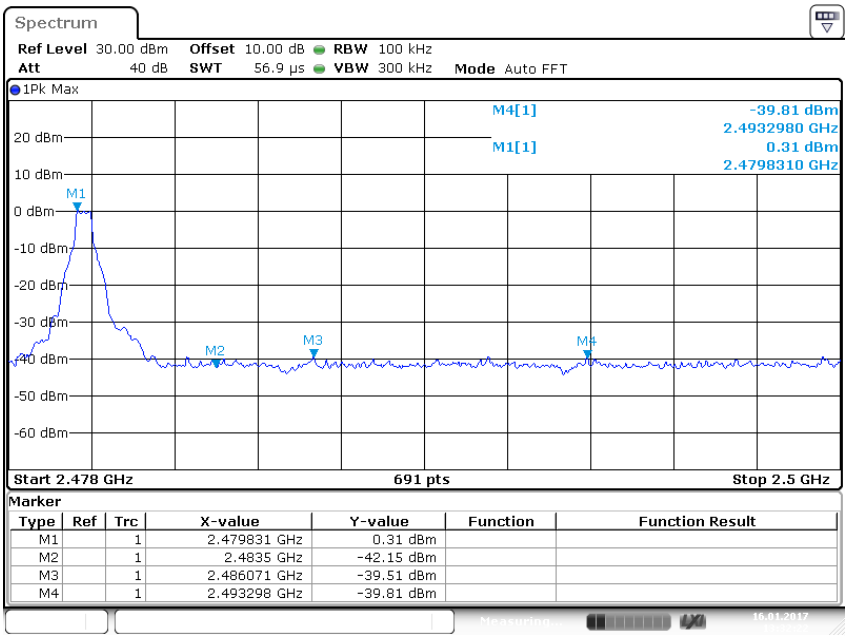


Date: 16.JAN.2017 13:09:26

BDR Mode, Band Edge

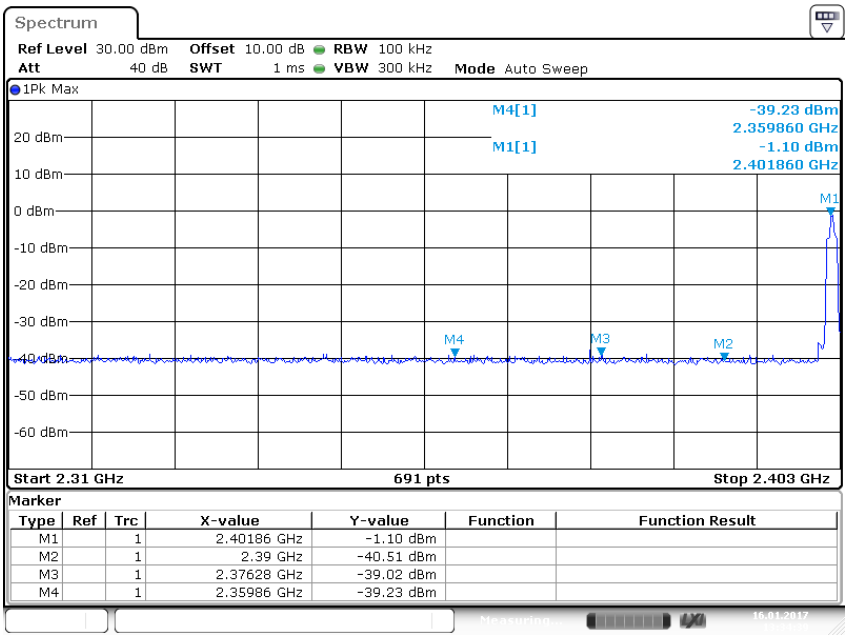


Date: 16.JAN.2017 13:30:57

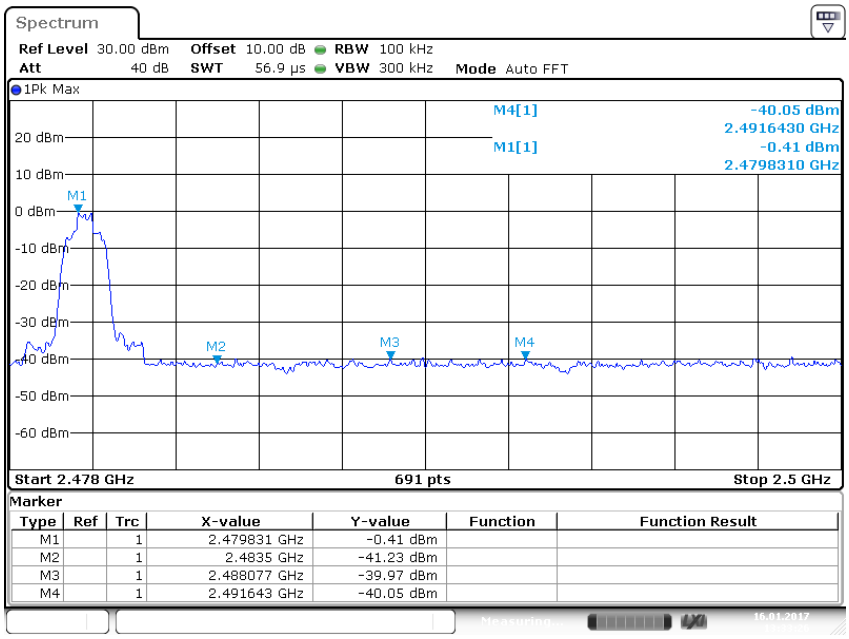


Date: 16.JAN.2017 13:32:22

EDR Mode, Band Edge

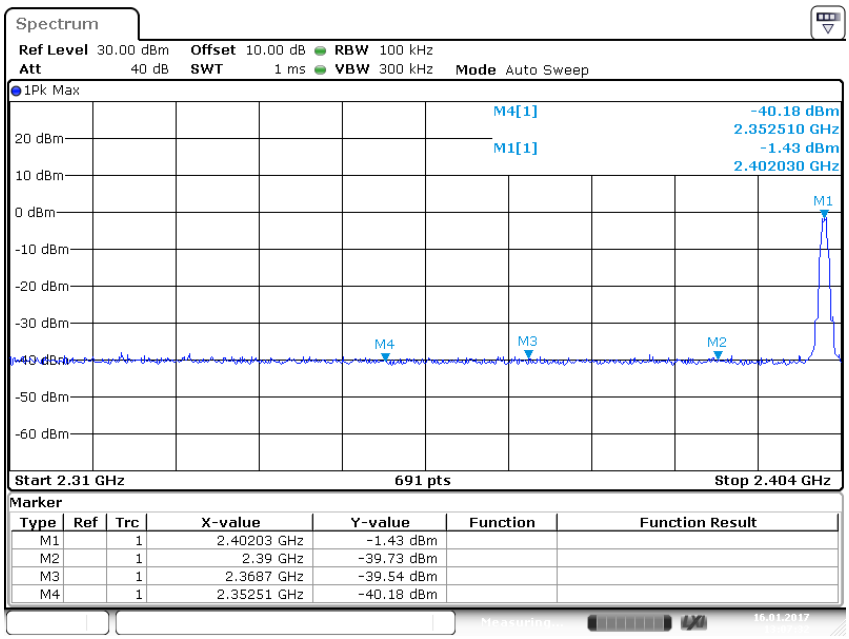


Date: 16.JAN.2017 13:34:39

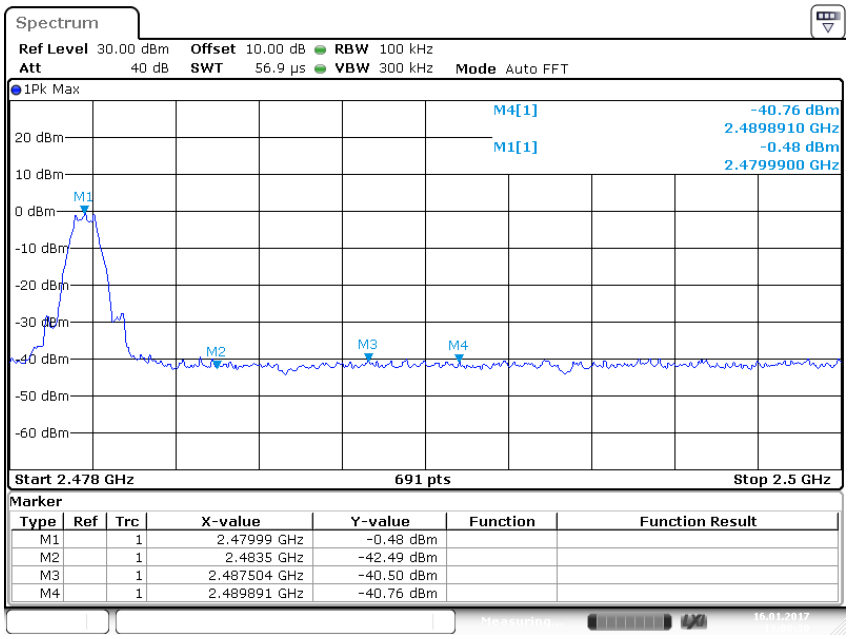


Date: 16.JAN.2017 13:33:26

Low Energy Mode, Band Edge



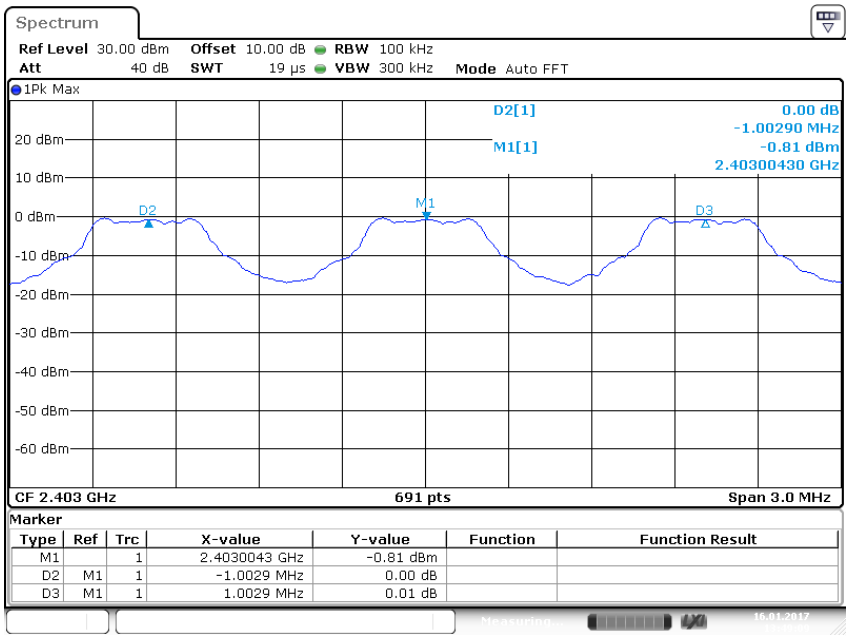
Date: 16.JAN.2017 13:07:32



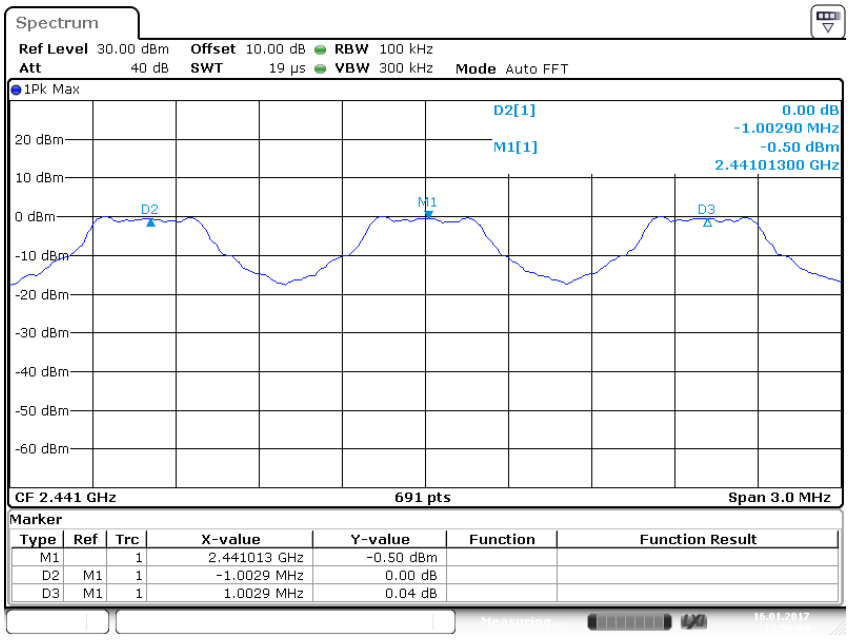
Date: 16.JAN.2017 13:08:30

Appendix A.7: Test Plots of Carrier Frequency Separation

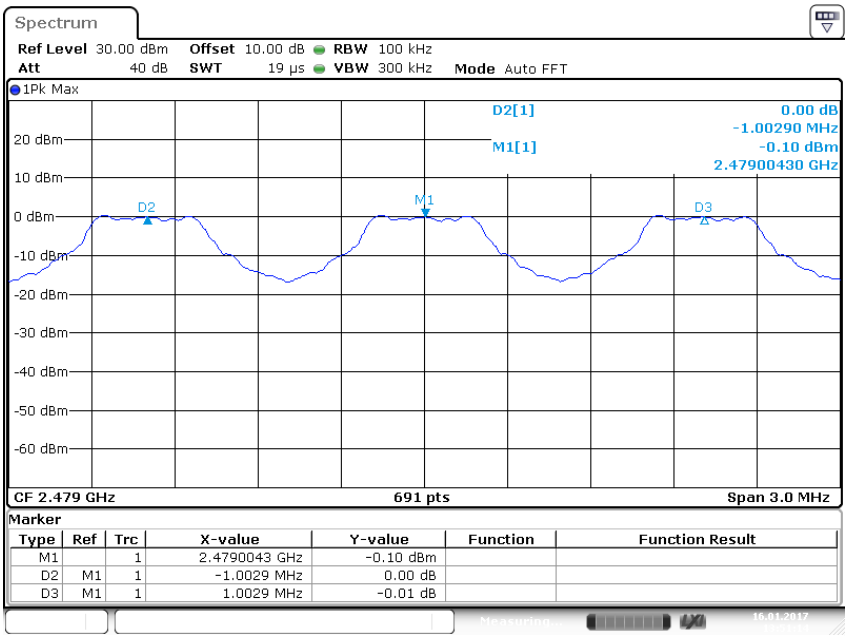
Hopping Mode



Date: 16.JAN.2017 13:49:09



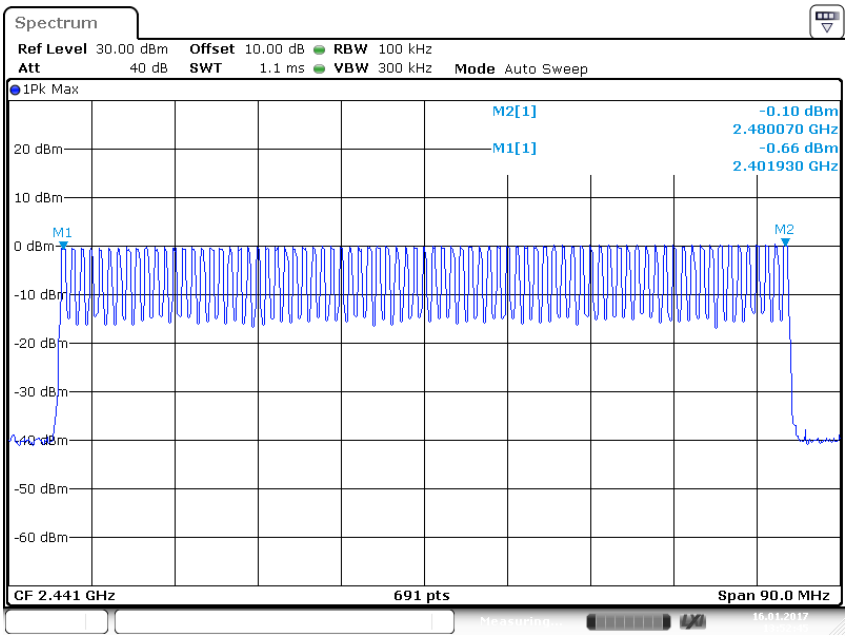
Date: 16.JAN.2017 13:50:09



Date: 16.JAN.2017 13:51:14

Appendix A.8: Test Plots of Number of Hopping Frequency

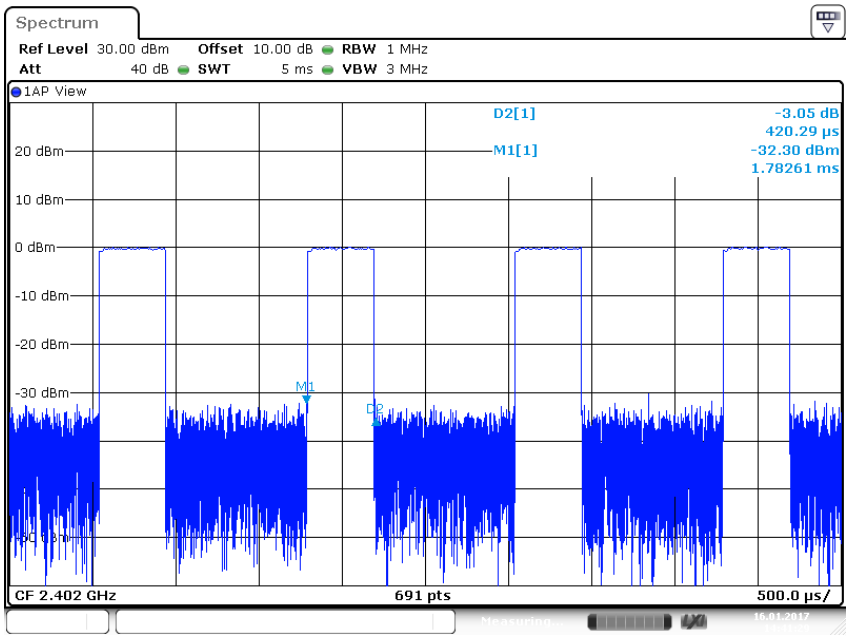
Hopping Mode



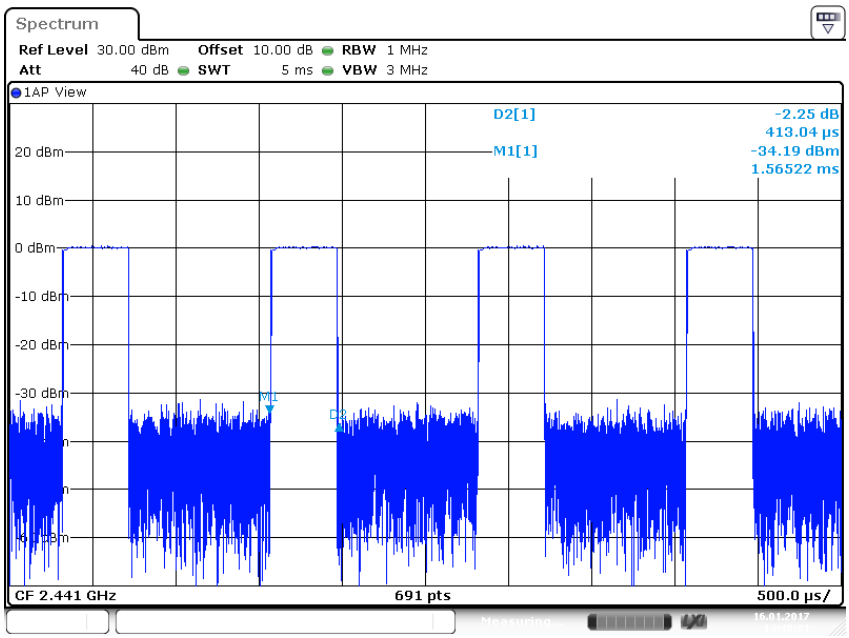
Date: 16.JAN.2017 13:52:45

Appendix A.9: Test Plots of Time of Occupancy

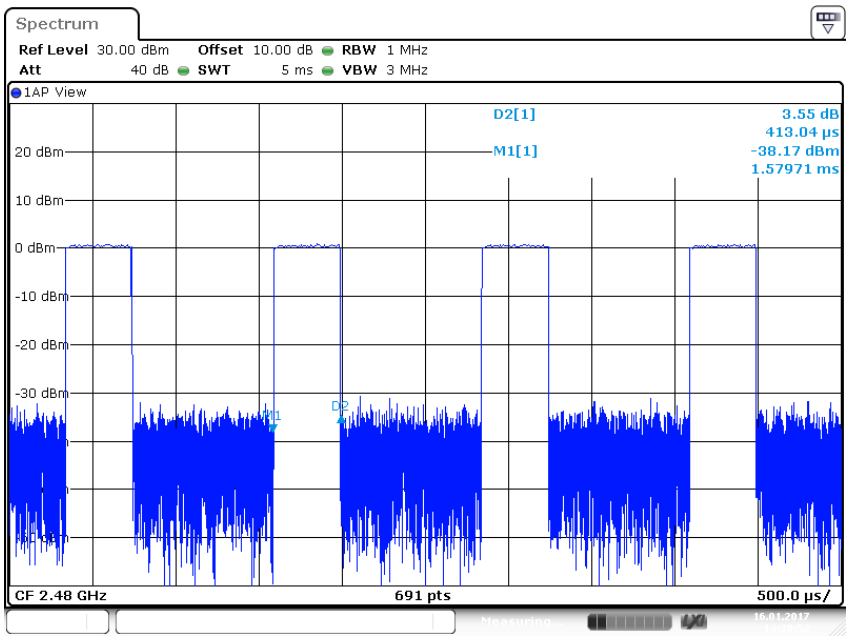
BDR Mode, DH1



Date: 16.JAN.2017 14:41:29

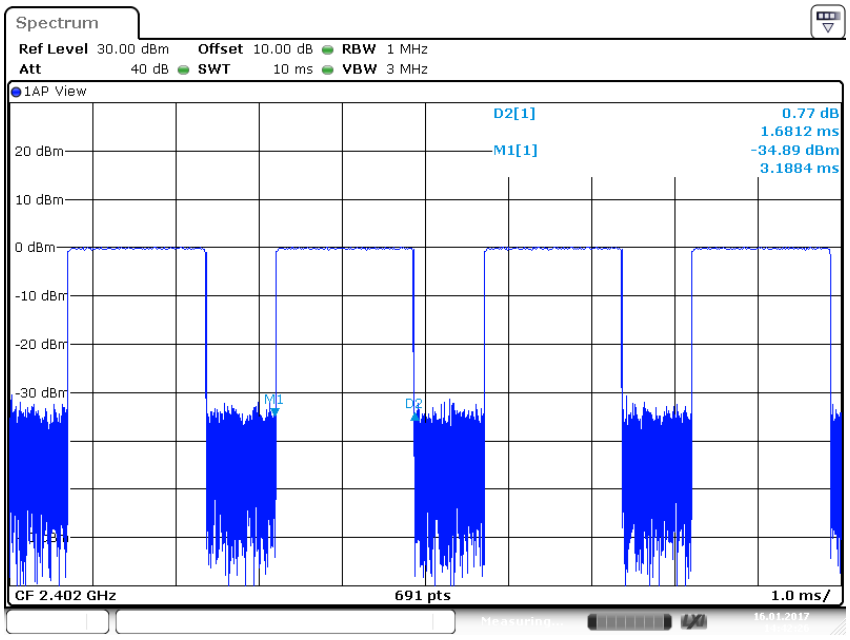


Date: 16.JAN.2017 14:40:31

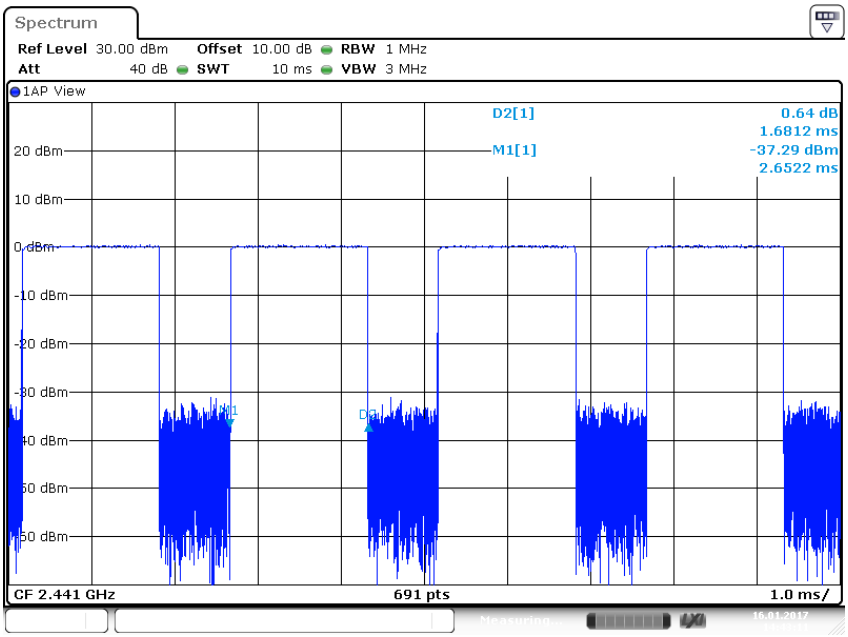


Date: 16.JAN.2017 14:39:52

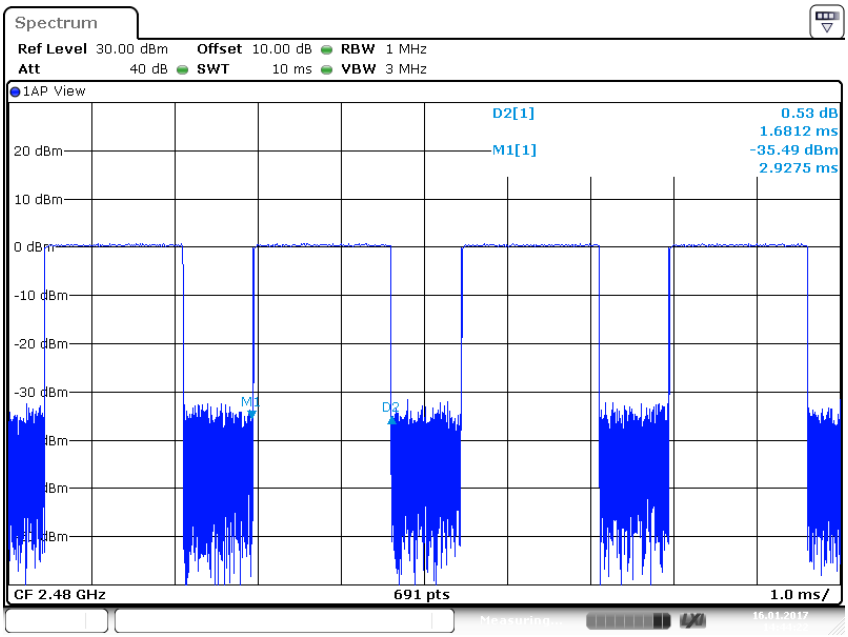
BDR Mode, DH3



Date: 16.JAN.2017 14:42:26

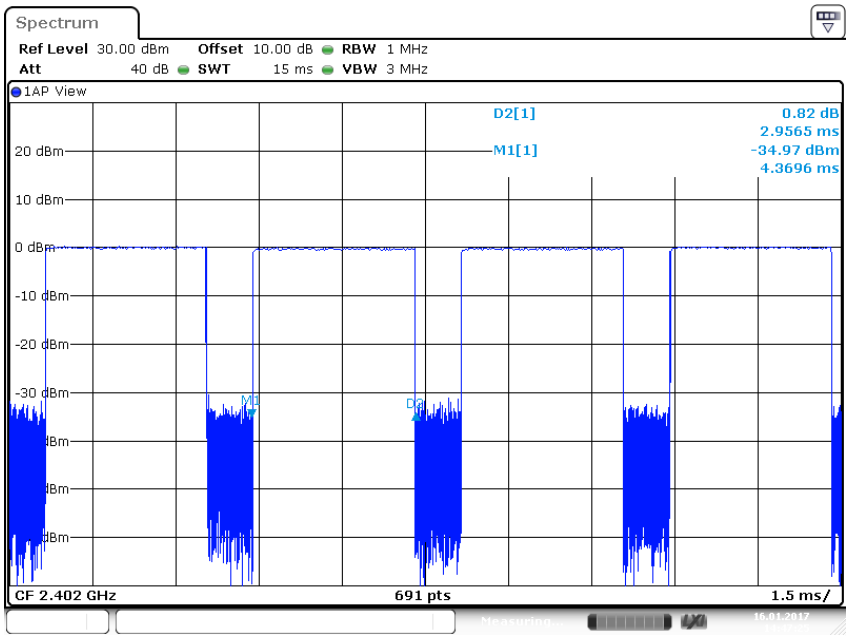


Date: 16.JAN.2017 14:43:11

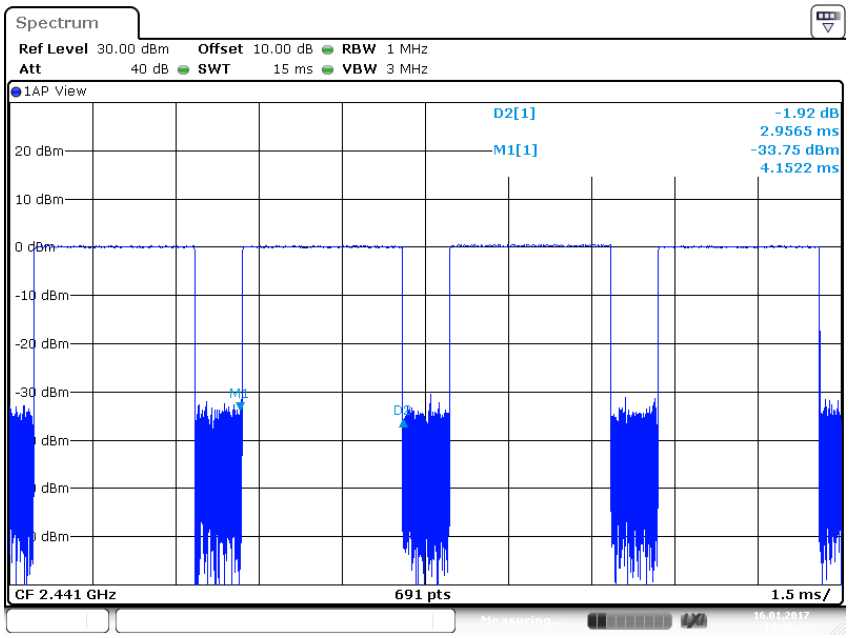


Date: 16.JAN.2017 14:44:22

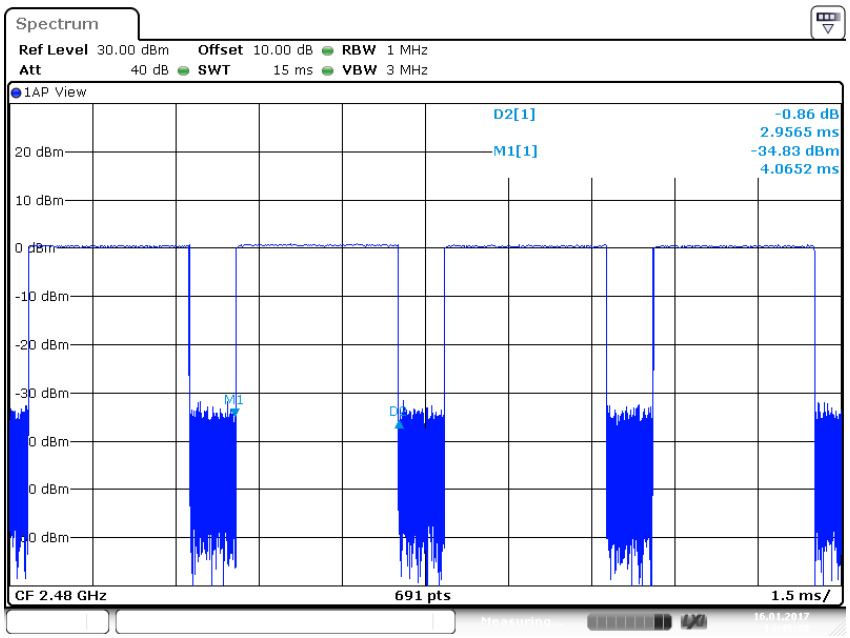
BDR Mode, DH5



Date: 16.JAN.2017 14:47:25

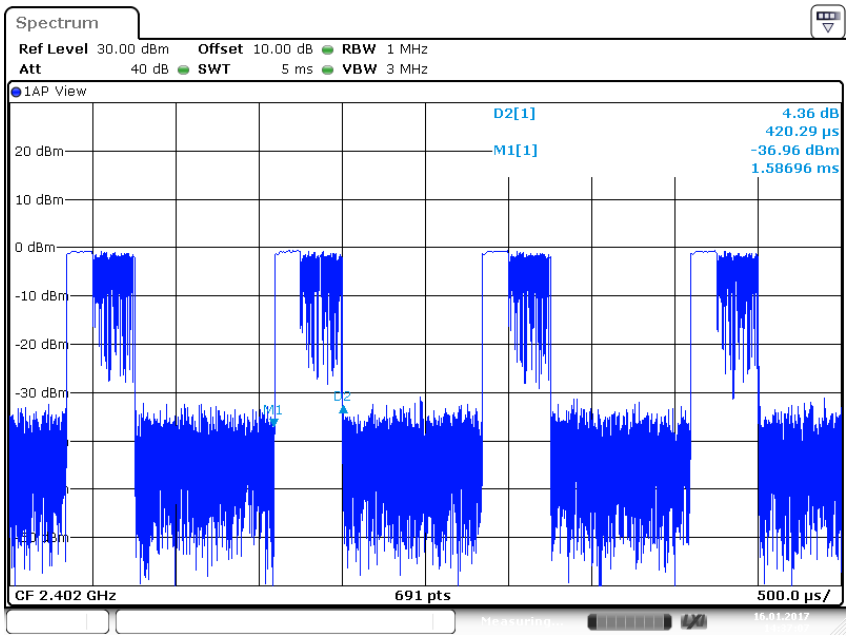


Date: 16.JAN.2017 14:46:29

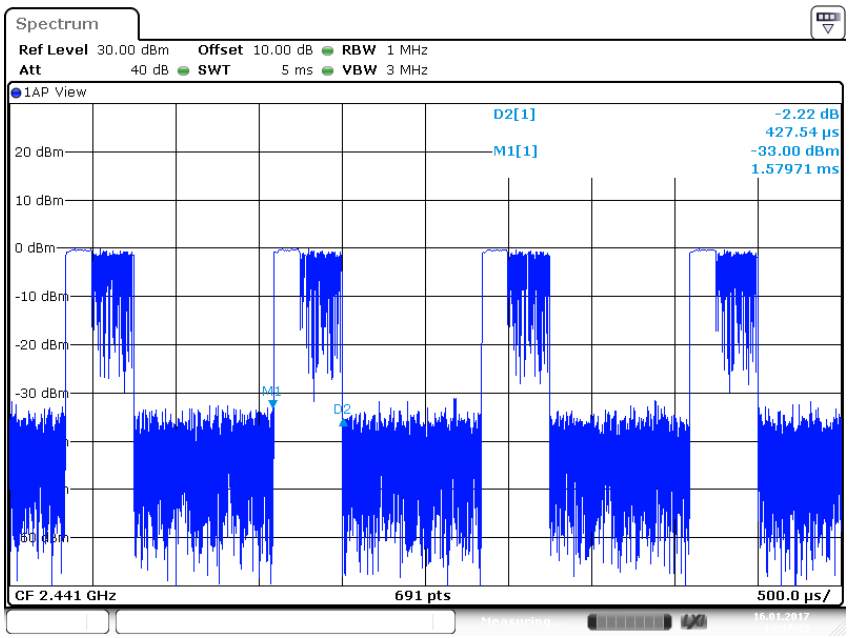


Date: 16.JAN.2017 14:45:38

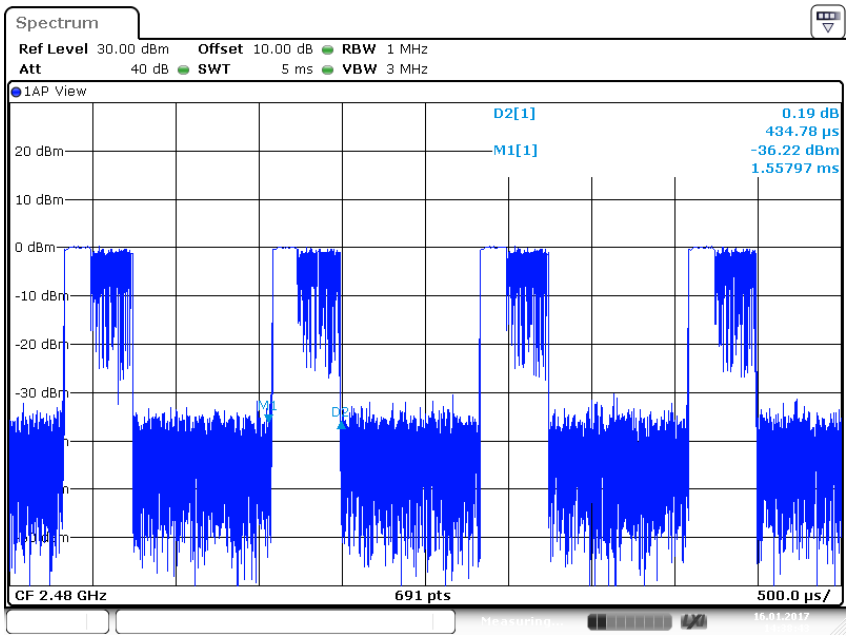
EDR Mode, 3DH1



Date: 16.JAN.2017 14:37:07

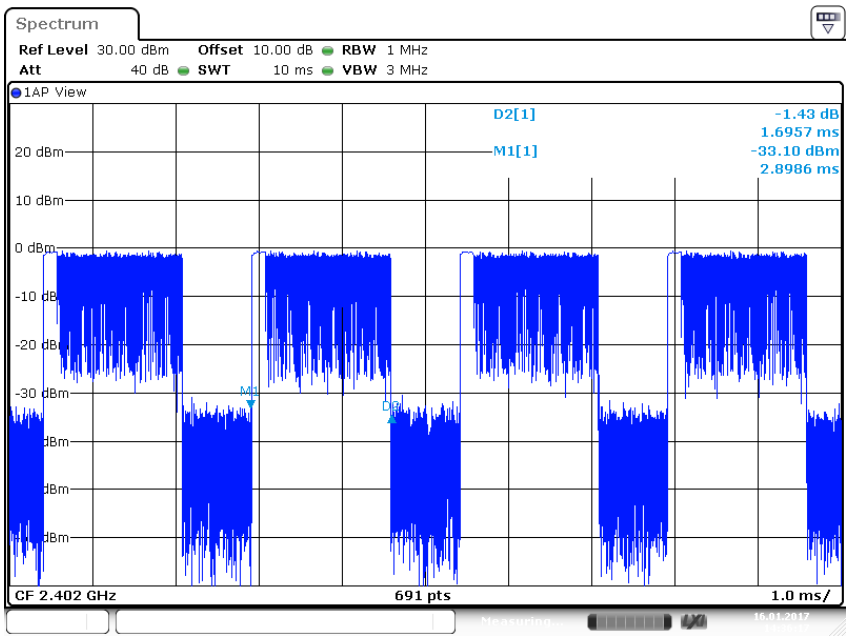


Date: 16.JAN.2017 14:37:45

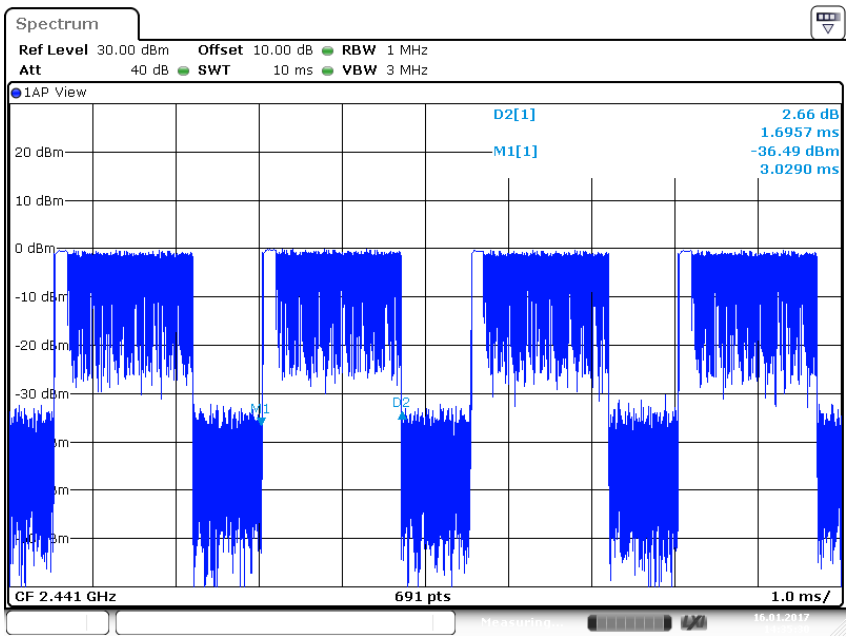


Date: 16.JAN.2017 14:38:43

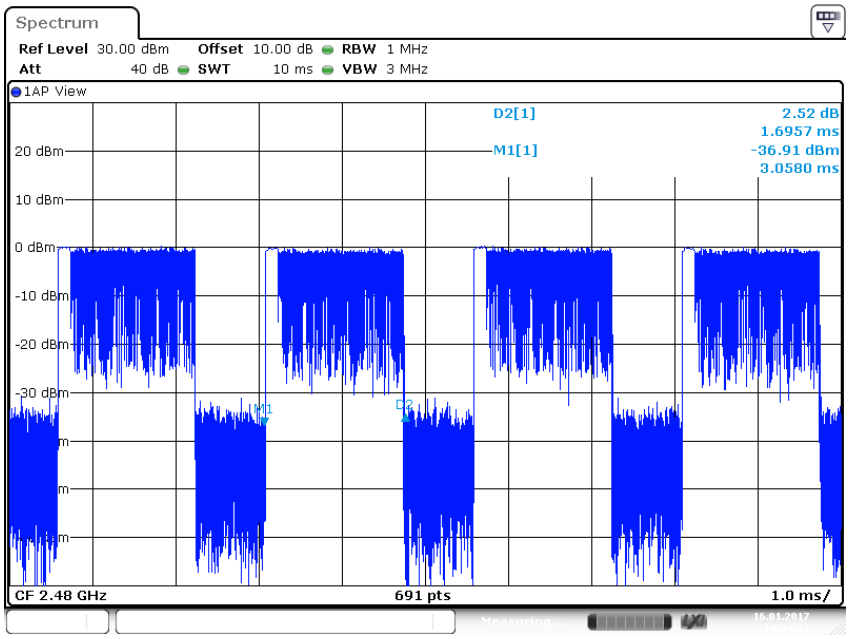
EDR Mode, 3DH3



Date: 16.JAN.2017 14:36:17

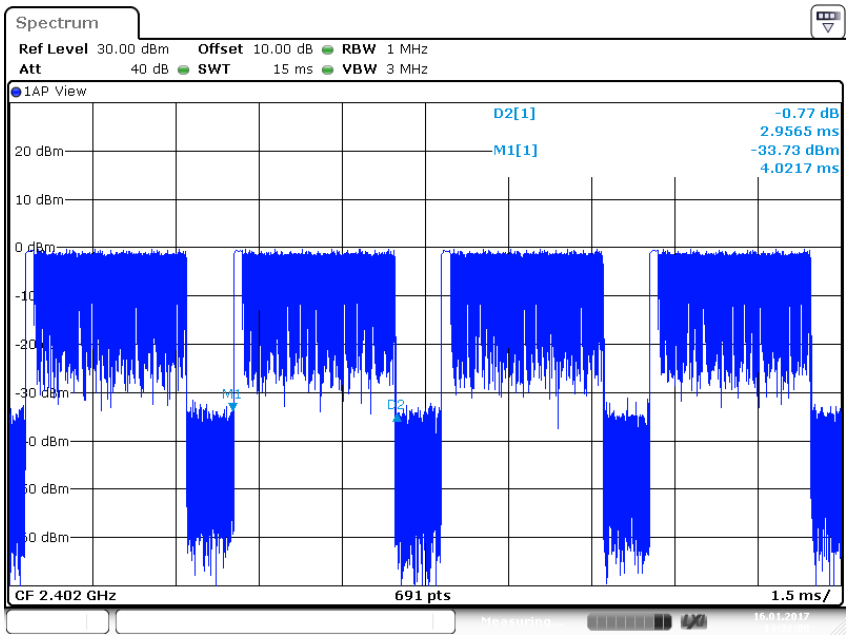


Date: 16.JAN.2017 14:35:30

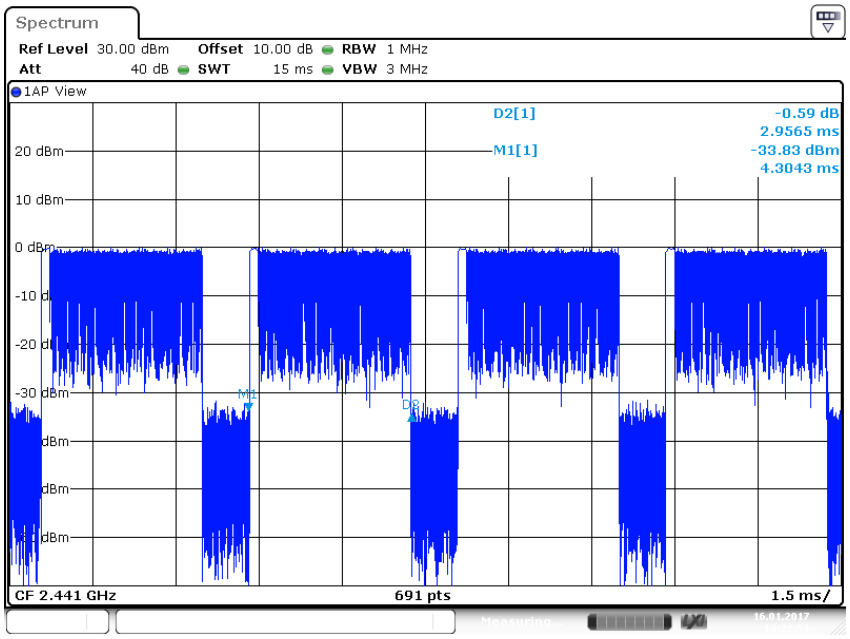


Date: 16.JAN.2017 14:34:53

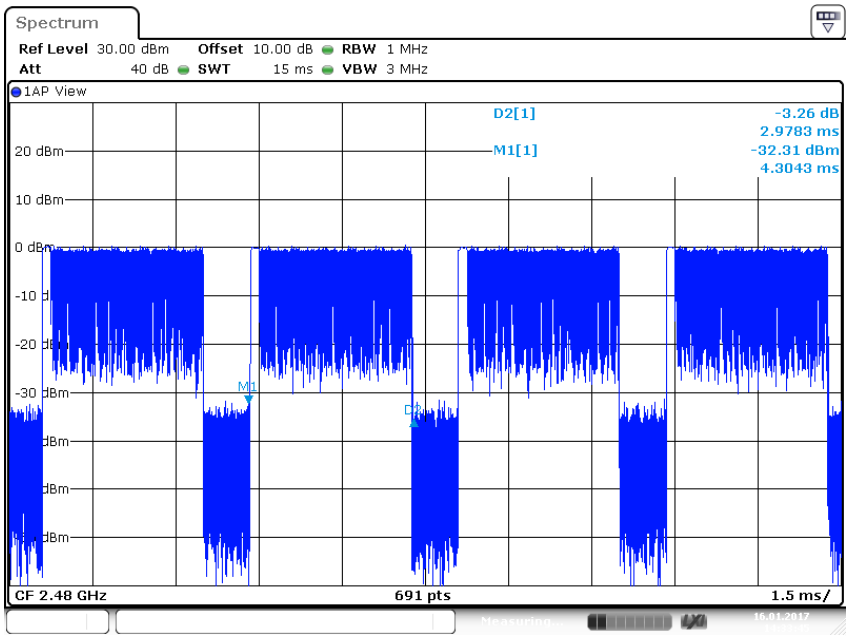
EDR Mode, 3DH5



Date: 16.JAN.2017 14:32:00



Date: 16.JAN.2017 14:32:51



Date: 16.JAN.2017 14:33:45

Appendix B

Test Results of Bluetooth 4.2 (Dual mode) of Radiated Emission

Note: The radiated spurious emission were measured from 9KHz to 26.5GHz, the spurious emissions from 9KHz-30MHz and 18GHz-26.5GHz were greater than 20dB below the limit, so the radiated Spurious Emissions (9kHz – 30MHz and 18GHz-26.5GHz) tests were recorded but not showed in the appendix B.

Appendix B.1: Test Plots of Radiated Spurious Emission

BDR mode, 30MHz - 1GHz

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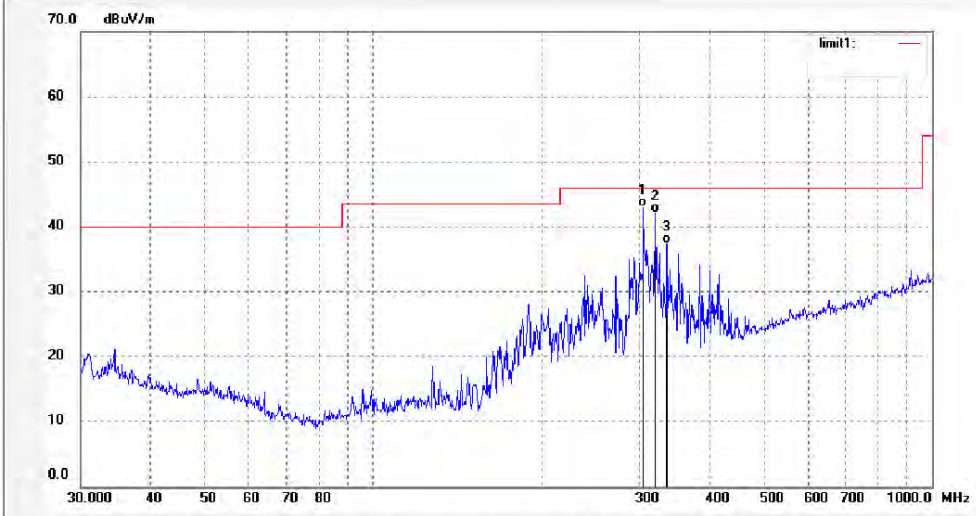
Job No.: LGW2017 #928	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2402MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	304.6099	51.88	-8.93	42.95	46.00	-3.05	QP			
2	319.9370	50.55	-8.45	42.10	46.00	-3.90	QP			
3	336.0350	45.19	-7.91	37.28	46.00	-8.72	QP			

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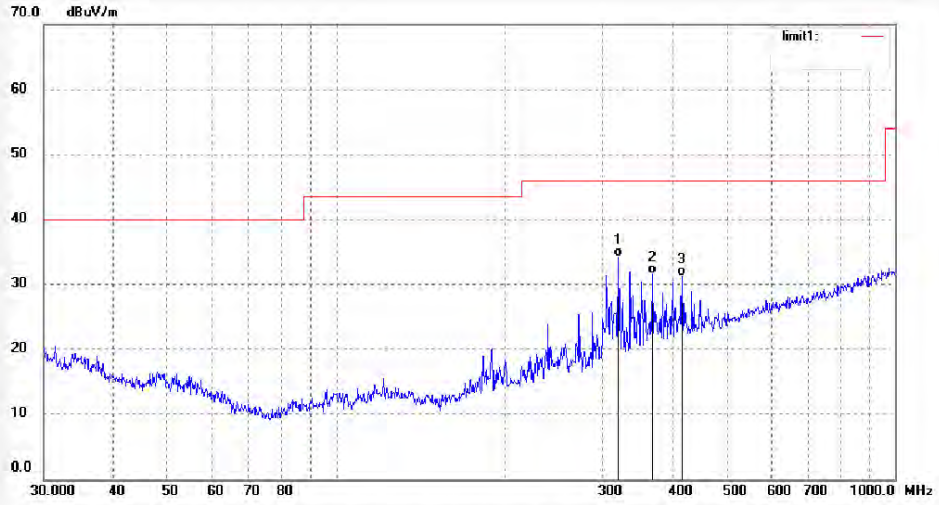
Job No.: LGW2017 #929
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: ELD 1.0
Mode: TX 2402MHz
Model: ELD 1.0
Manufacturer: PST Eletronica LTDA

Polarization: Vertical
Power Source: DC 12V
Date: 2017/01/12
Time:
Engineer Signature: LGWADE
Distance: 3m

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	319.9370	42.68	-8.45	34.23	46.00	-11.77	QP			
2	368.1116	38.70	-7.17	31.53	46.00	-14.47	QP			
3	416.1791	37.20	-5.95	31.25	46.00	-14.75	QP			

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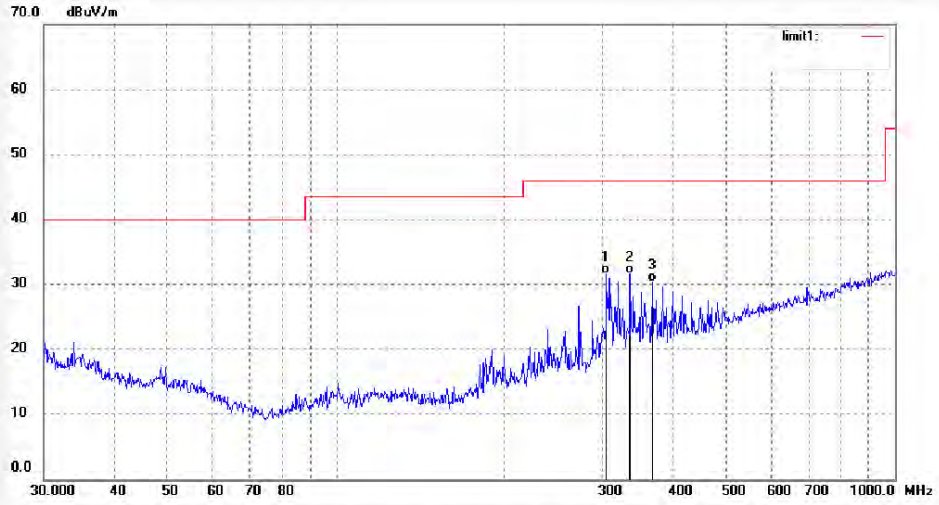
Job No.: LGW2017 #930	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2441MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	304.6099	40.53	-8.93	31.60	46.00	-14.40	QP			
2	336.0351	39.52	-7.91	31.61	46.00	-14.39	QP			
3	368.1116	37.59	-7.17	30.42	46.00	-15.58	QP			

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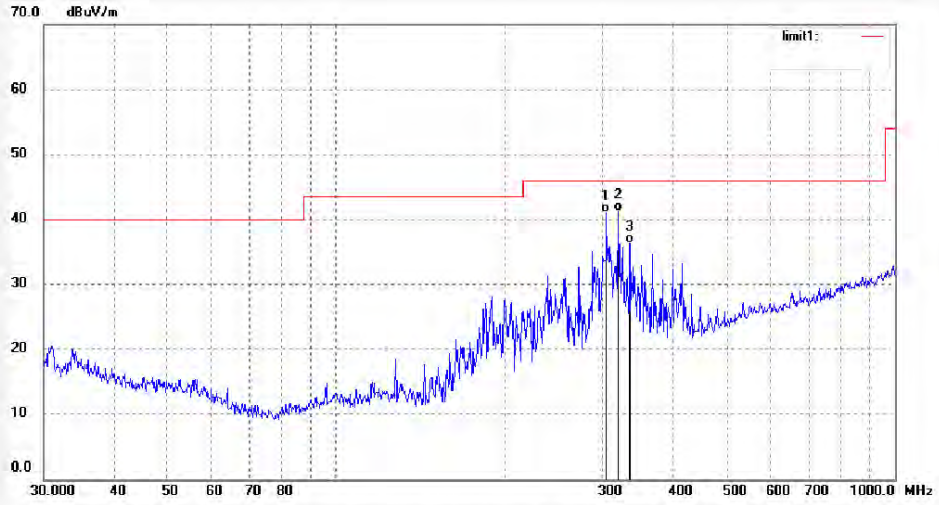
Job No.: LGW2017 #931	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2441MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	304.6099	49.94	-8.93	41.01	46.00	-4.99	QP			
2	319.9370	49.69	-8.45	41.24	46.00	-4.76	QP			
3	336.0351	44.21	-7.91	36.30	46.00	-9.70	QP			

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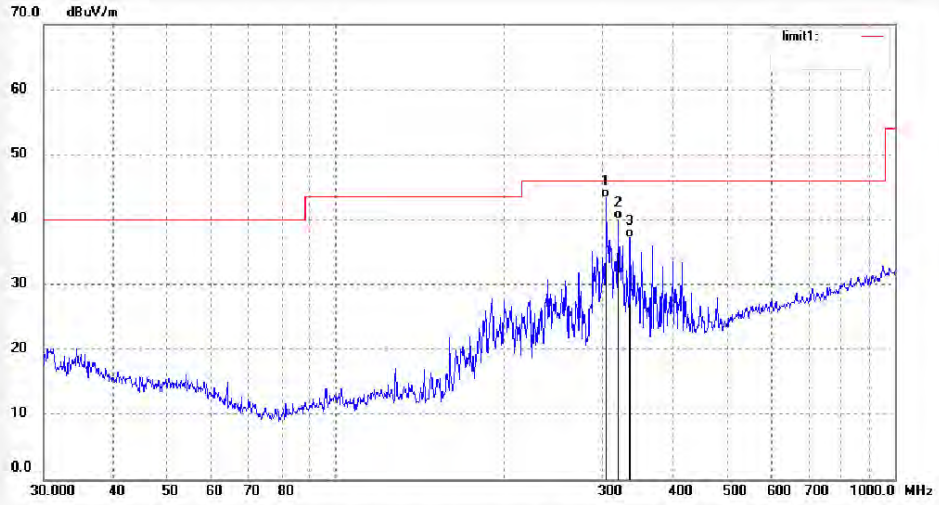
Job No.: LGW2017 #932	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2480MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	304.6099	52.27	-8.93	43.34	46.00	-2.66	QP			
2	319.9370	48.50	-8.45	40.05	46.00	-5.95	QP			
3	336.0351	45.07	-7.91	37.16	46.00	-8.84	QP			

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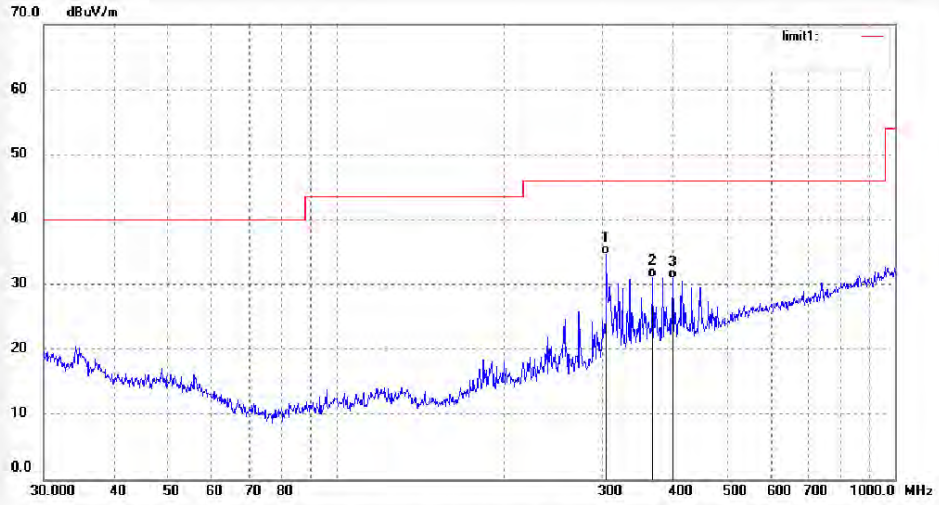
Job No.: LGW2017 #933	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2480MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	304.6099	43.46	-8.93	34.53	46.00	-11.47	QP			
2	368.1116	38.29	-7.17	31.12	46.00	-14.88	QP			
3	400.4318	37.24	-6.43	30.81	46.00	-15.19	QP			

BDR mode, 1GHz - 18GHz

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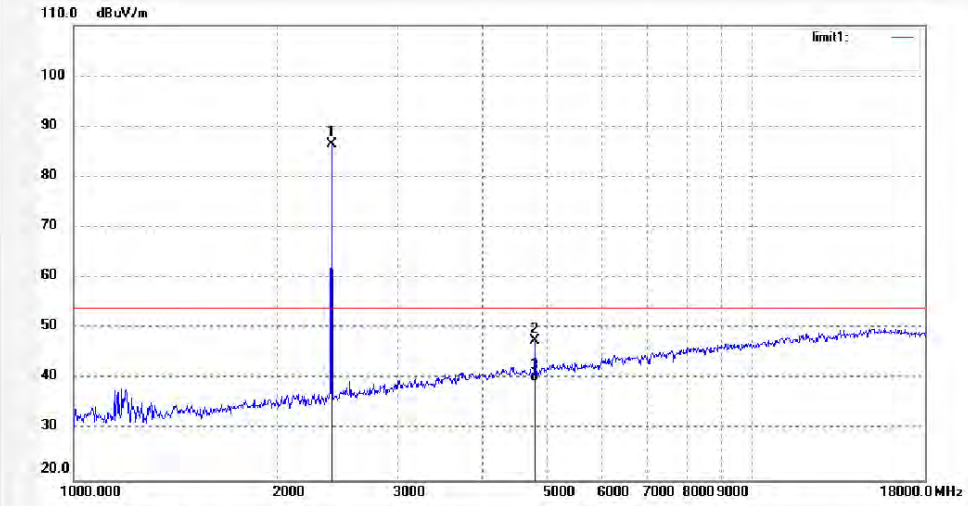
Job No.: LGW2017 #909
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: ELD 1.0
Mode: TX 2402MHz
Model: ELD 1.0
Manufacturer: PST Eletronica LTDA

Polarization: Vertical
Power Source: DC 12V
Date: 2017/01/12
Time:
Engineer Signature: LGWADE
Distance: 3m

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	88.15	-1.61	86.54	/	/	peak			
2	4804.029	42.68	4.90	47.58	74.00	-26.42	peak			
3	4804.029	34.51	4.90	39.41	54.00	-14.59	AVG			

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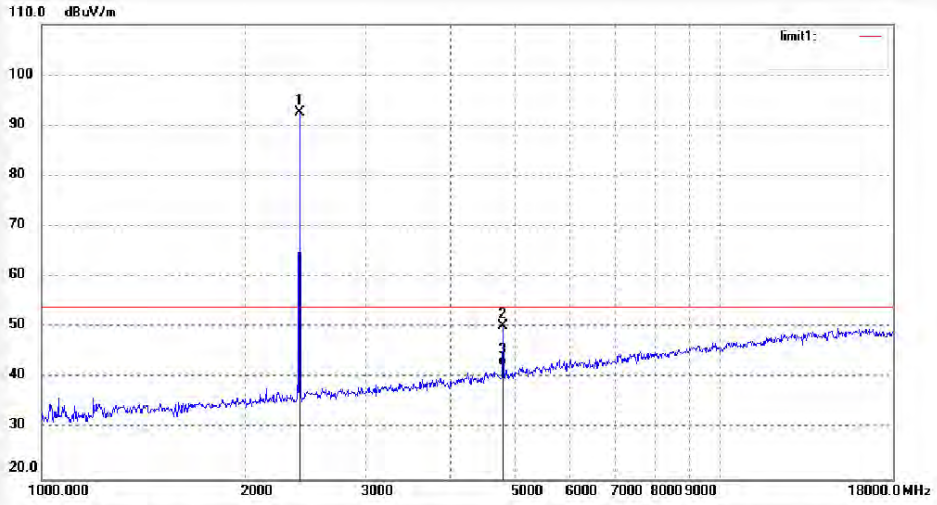
Job No.: LGW2017 #910	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2402MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	94.15	-1.61	92.54	/	/	peak			
2	4804.028	45.33	4.90	50.23	74.00	-23.77	peak			
3	4804.028	37.46	4.90	42.36	54.00	-11.64	AVG			

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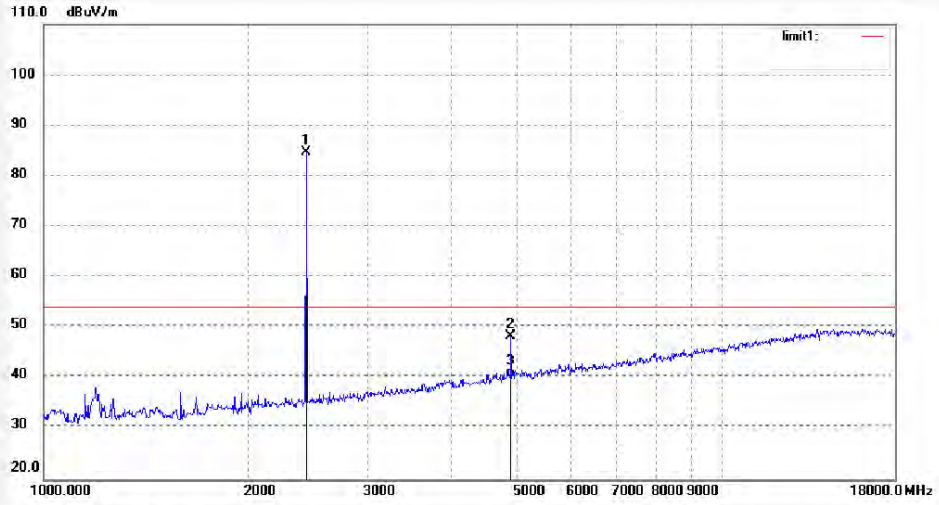
Job No.: LGW2017 #913	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2441MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.000	86.16	-1.44	84.72	/	/	peak			
2	4882.027	42.63	5.61	48.24	74.00	-25.76	peak			
3	4882.027	34.60	5.61	40.21	54.00	-13.79	AVG			

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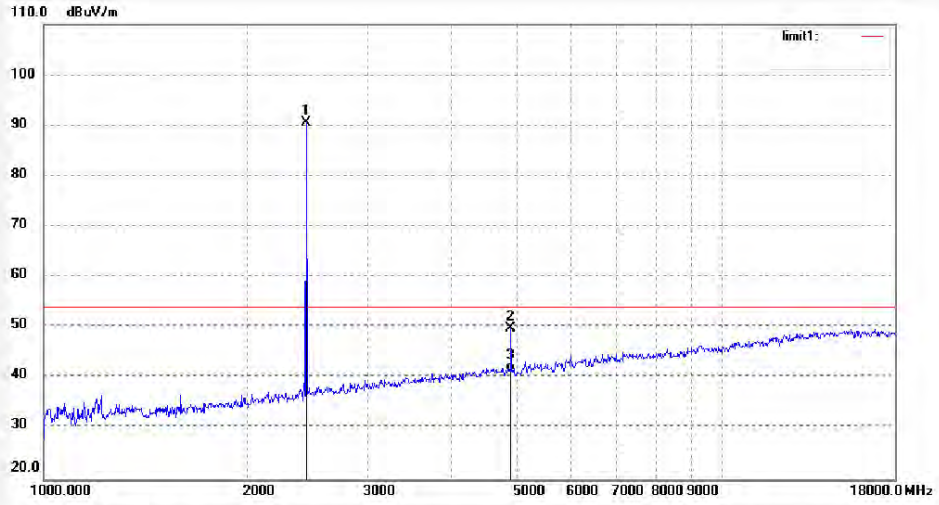
Job No.: LGW2017 #914	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2441MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.000	92.08	-1.44	90.64	/	/	peak			
2	4882.025	44.20	5.61	49.81	74.00	-24.19	peak			
3	4882.025	35.76	5.61	41.37	54.00	-12.63	AVG			

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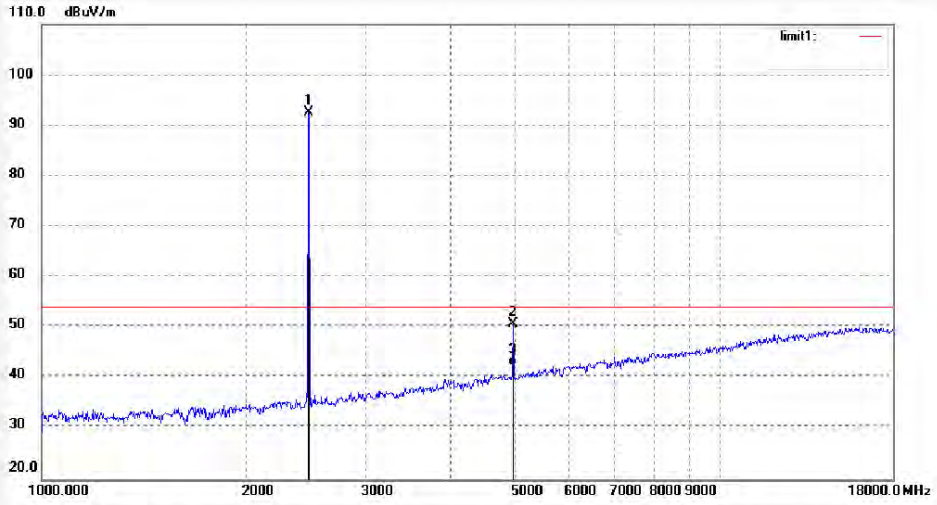
Job No.: LGW2017 #915	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2480MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	93.96	-1.40	92.56	/	/	peak			
2	4960.026	44.62	6.10	50.72	74.00	-23.28	peak			
3	4960.026	36.24	6.10	42.34	54.00	-11.66	AVG			

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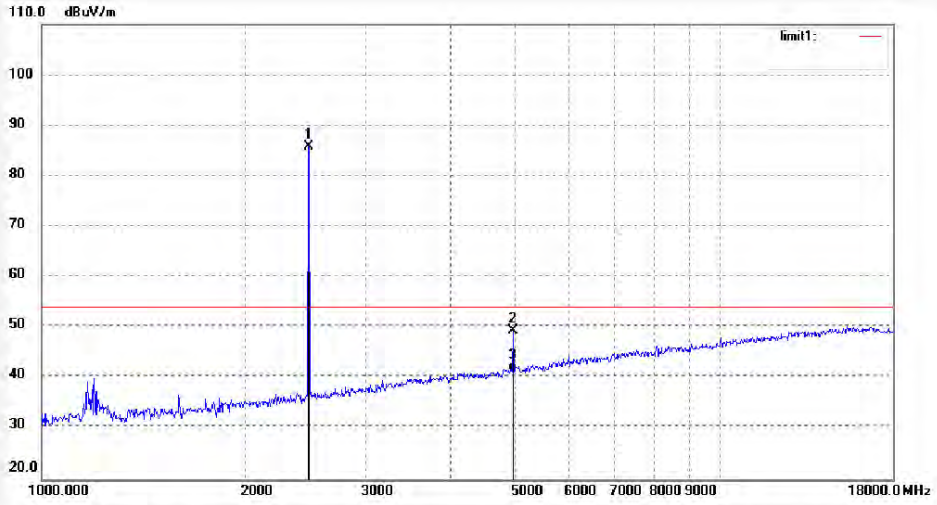
Job No.: LGW2017 #916	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2480MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	87.18	-1.40	85.78	/	/	peak			
2	4960.028	43.24	6.10	49.34	74.00	-24.66	peak			
3	4960.028	35.26	6.10	41.36	54.00	-12.64	AVG			

Low Energy mode, 30MHz - 1GHz

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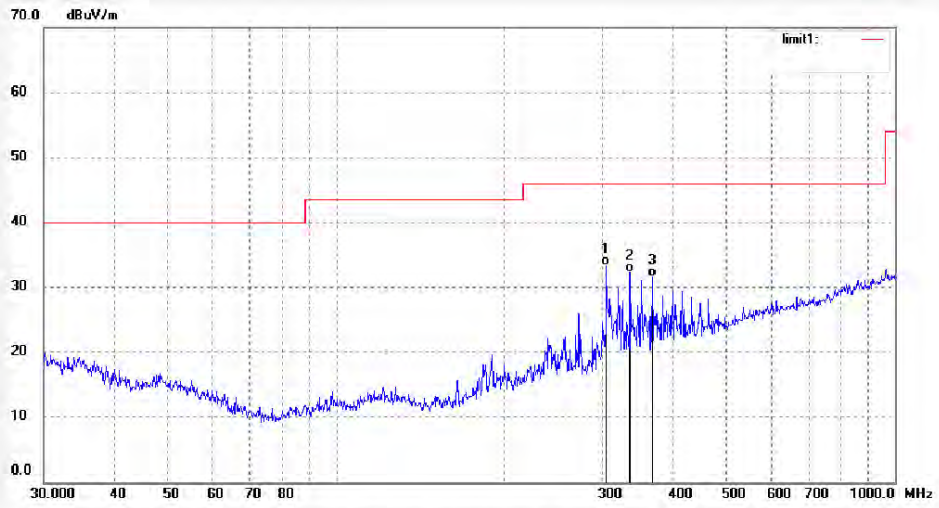
Job No.: LGW2017 #934
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: ELD 1.0
Mode: TX 2402MHz
Model: ELD 1.0
Manufacturer: PST Eletronica LTDA

Polarization: Vertical
Power Source: DC 12V
Date: 2017/01/12
Time:
Engineer Signature: LGWADE
Distance: 3m

Note: Bluetooth 4.0



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	304.6099	42.30	-8.93	33.37	46.00	-12.63	QP			
2	336.0350	40.23	-7.91	32.32	46.00	-13.68	QP			
3	368.1116	38.73	-7.17	31.56	46.00	-14.44	QP			

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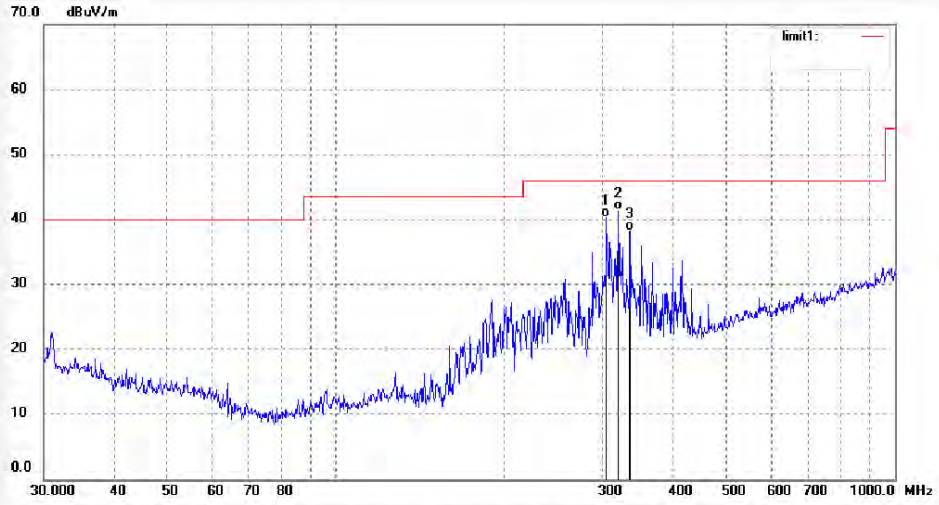
Job No.: LGW2017 #935	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2402MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth 4.0



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	304.6099	49.34	-8.93	40.41	46.00	-5.59	QP			
2	319.9370	49.76	-8.45	41.31	46.00	-4.69	QP			
3	336.0351	46.23	-7.91	38.32	46.00	-7.68	QP			

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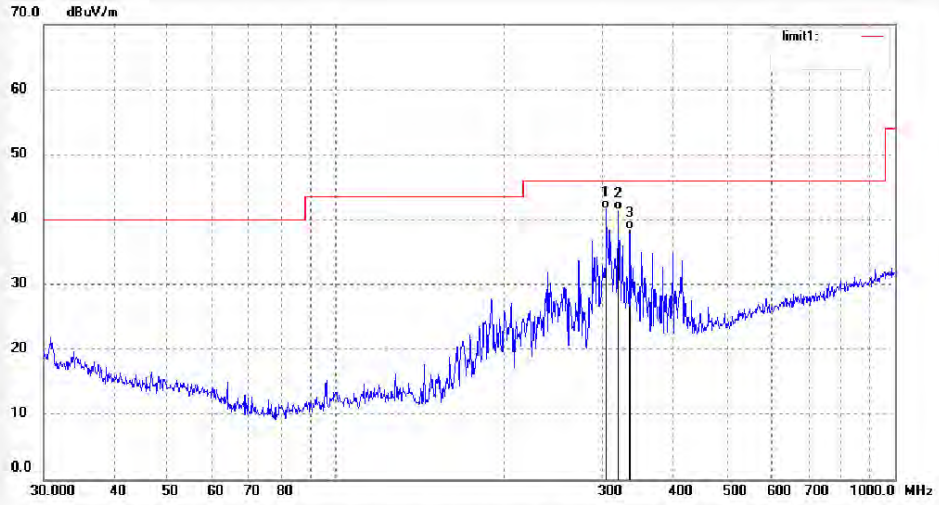
Job No.: LGW2017 #936	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2440MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth 4.0



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	304.6099	50.49	-8.93	41.56	46.00	-4.44	QP			
2	319.9370	49.88	-8.45	41.43	46.00	-4.57	QP			
3	336.0351	46.30	-7.91	38.39	46.00	-7.61	QP			

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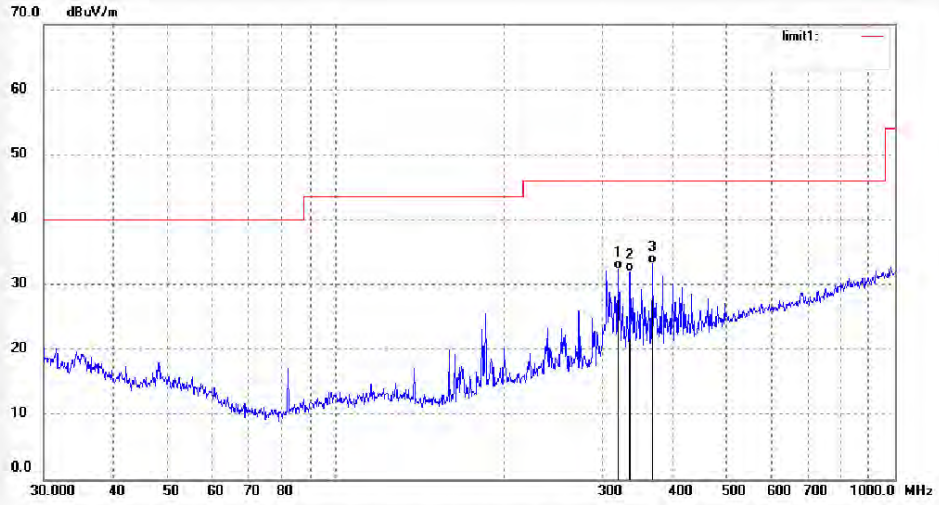
Job No.: LGW2017 #937	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2440MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth 4.0



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	319.9370	40.66	-8.45	32.21	46.00	-13.79	QP			
2	336.0350	39.77	-7.91	31.86	46.00	-14.14	QP			
3	368.1116	40.33	-7.17	33.16	46.00	-12.84	QP			

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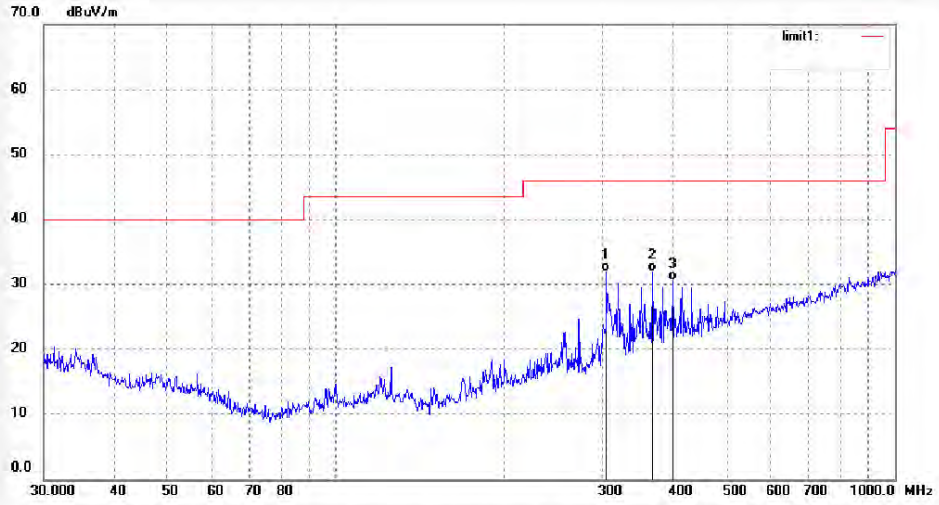
Job No.: LGW2017 #938	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2480MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth 4.0



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	304.6099	40.93	-8.93	32.00	46.00	-14.00	QP			
2	368.1116	39.19	-7.17	32.02	46.00	-13.98	QP			
3	400.4318	36.97	-6.43	30.54	46.00	-15.46	QP			

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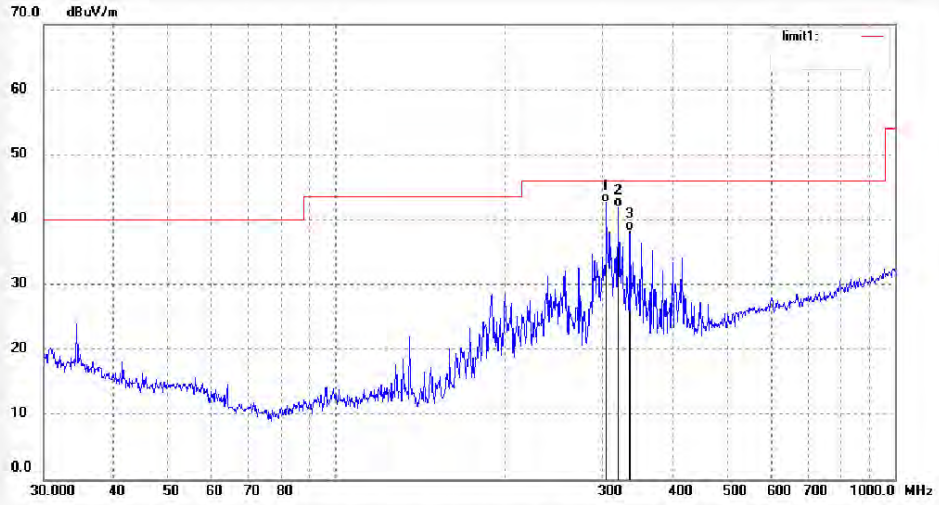
Job No.: LGW2017 #939	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2480MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth 4.0



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	304.6099	51.48	-8.93	42.55	46.00	-3.45	QP			
2	319.9370	50.41	-8.45	41.96	46.00	-4.04	QP			
3	336.0351	46.14	-7.91	38.23	46.00	-7.77	QP			

Low Energy mode, 1GHz - 18GHz

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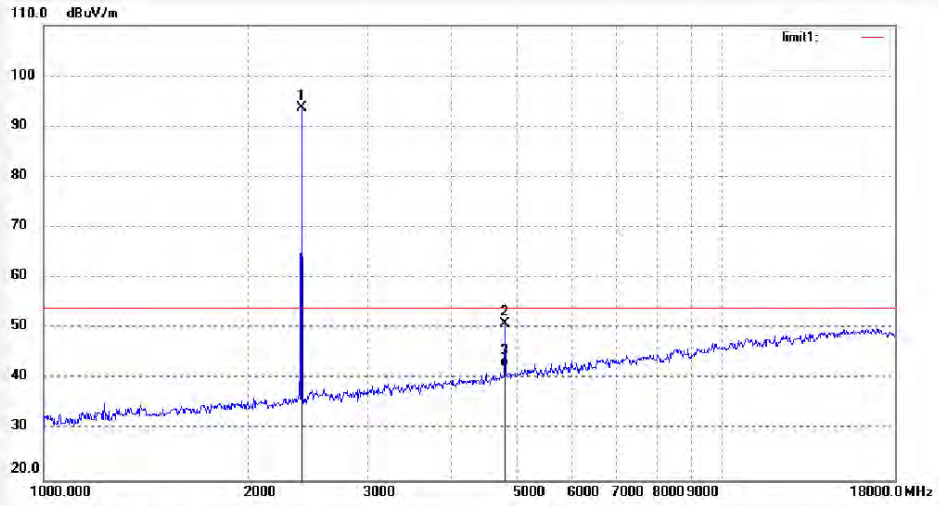
Job No.: LGW2017 #919
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: ELD 1.0
Mode: TX 2402MHz
Model: ELD 1.0
Manufacturer: PST Eletronica LTDA

Polarization: Horizontal
Power Source: DC 12V
Date: 2017/01/12
Time:
Engineer Signature: LGWADE
Distance: 3m

Note: Bluetooth 4.0



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	95.22	-1.61	93.61	/	/	peak			
2	4804.026	46.02	4.90	50.92	74.00	-23.08	peak			
3	4804.026	37.44	4.90	42.34	54.00	-11.66	AVG			

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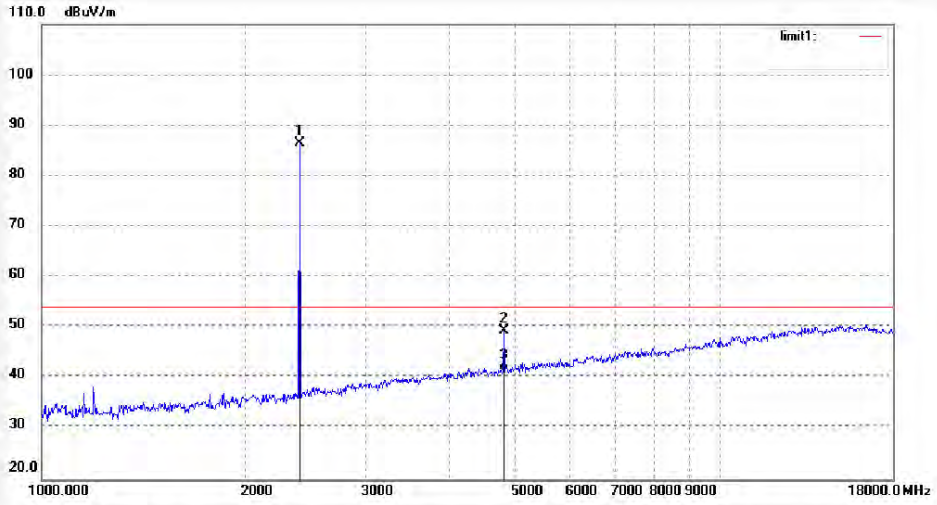
Job No.: LGW2017 #920	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2402MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth 4.0



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	88.06	-1.61	86.45	/	/	peak			
2	4804.028	44.43	4.90	49.33	74.00	-24.67	peak			
3	4804.028	36.44	4.90	41.34	54.00	-12.66	AVG			

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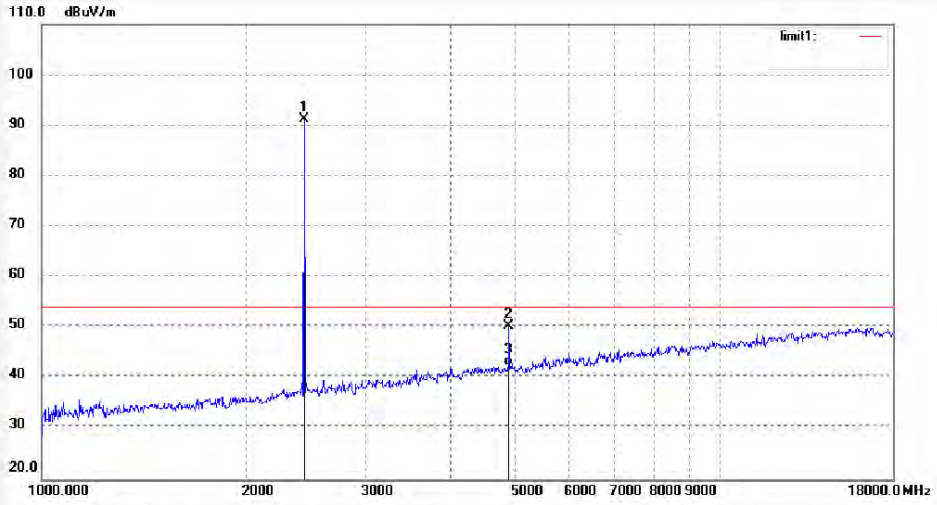
Job No.: LGW2017 #923	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2440MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth 4.0



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2440.000	92.61	-1.46	91.15	/	/	peak			
2	4880.029	44.68	5.60	50.28	74.00	-23.72	peak			
3	4880.029	36.75	5.60	42.35	54.00	-11.65	AVG			

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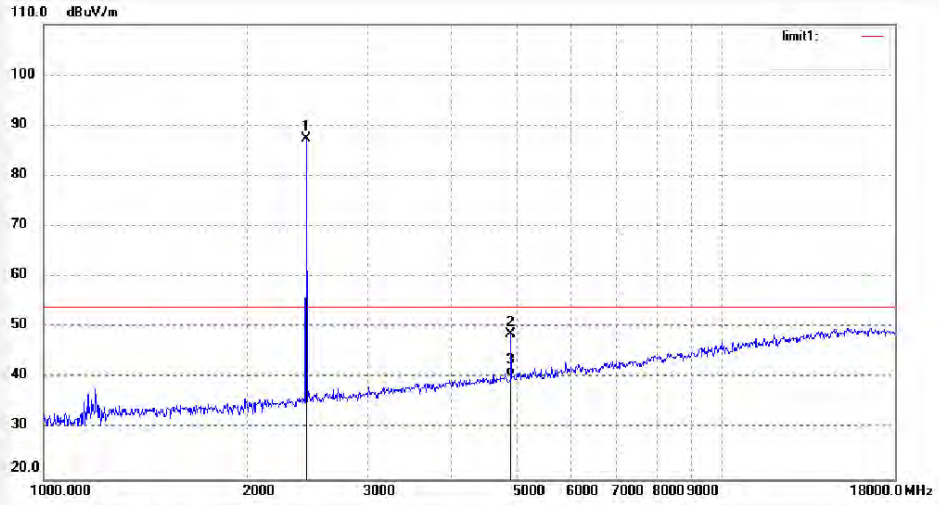
Job No.: LGW2017 #924	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2440MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth 4.0



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2440.000	88.74	-1.46	87.28	/	/	peak			
2	4880.025	43.03	5.60	48.63	74.00	-25.37	peak			
3	4880.025	34.74	5.60	40.34	54.00	-13.66	AVG			

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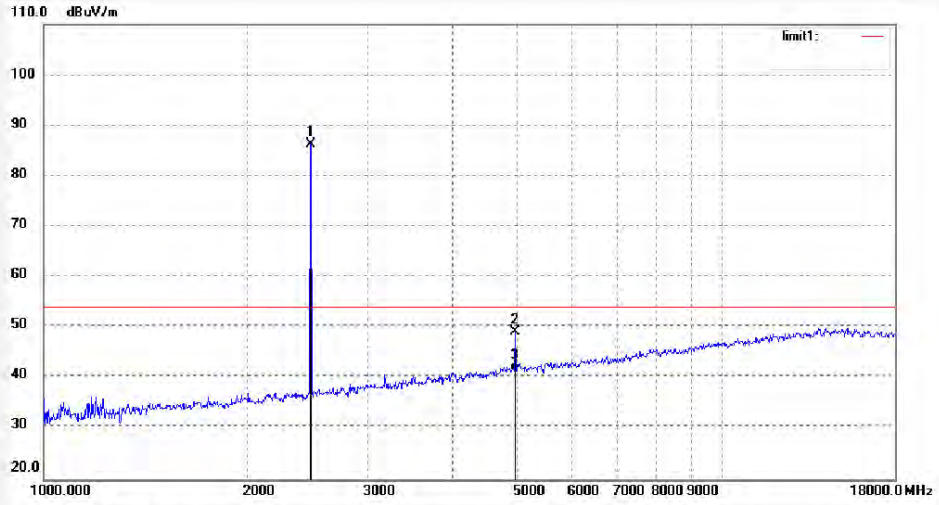
Job No.: LGW2017 #925	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2480MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth 4.0



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	87.61	-1.40	86.21	/	/	peak			
2	4960.027	43.07	6.10	49.17	74.00	-24.83	peak			
3	4960.027	35.24	6.10	41.34	54.00	-12.66	AVG			

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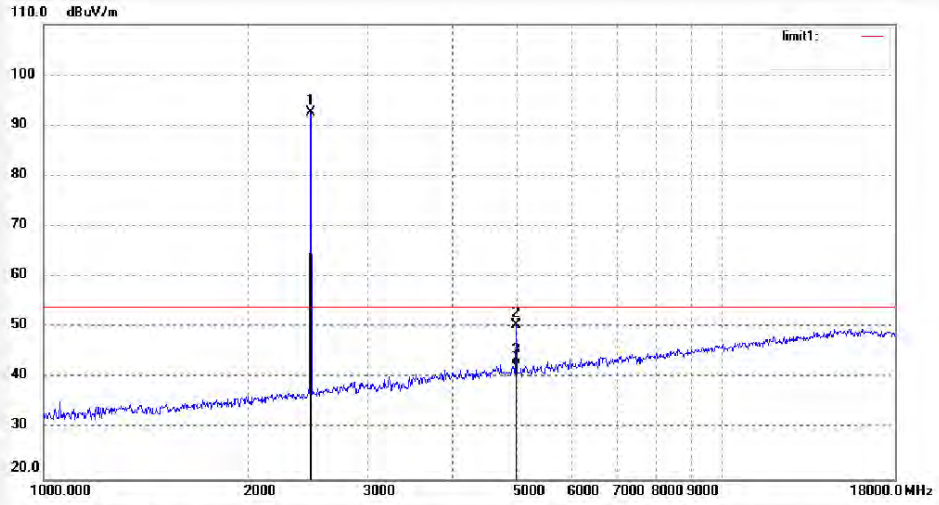
Job No.: LGW2017 #926	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2480MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth 4.0



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	94.06	-1.40	92.66	/	/	peak			
2	4960.028	44.38	6.10	50.48	74.00	-23.52	peak			
3	4960.028	36.24	6.10	42.34	54.00	-11.66	AVG			

Appendix B.2: Test Plots of Band Edge (Radiated)

BDR mode, Low Channel

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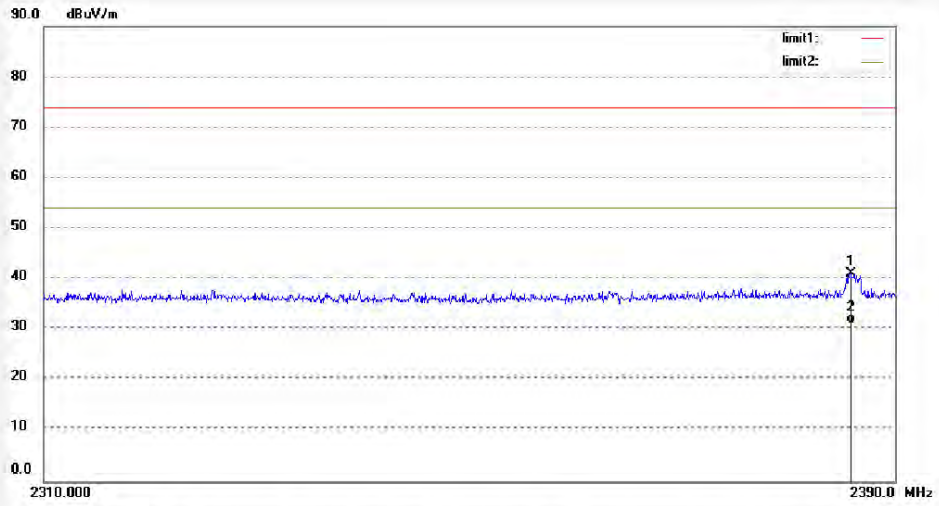
Job No.: LGW2017 #911	Polarization: Horizontal
Standard: FCC (Band Edge)	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2402MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2385.840	42.90	-1.74	41.16	74.00	-32.84	peak			
2	2385.840	32.98	-1.74	31.24	54.00	-22.76	AVG			

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Tel:+86-0755-26503290
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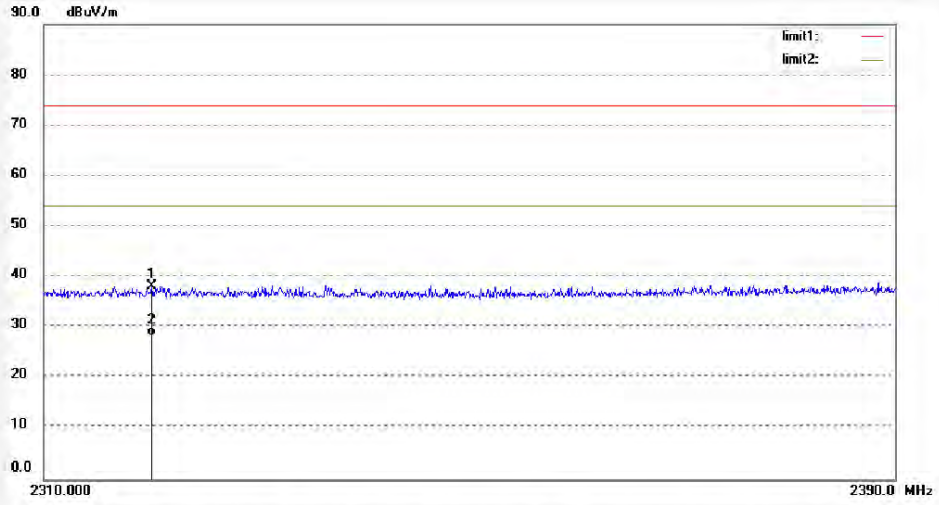
Job No.: LGW2017 #912	Polarization: Vertical
Standard: FCC (Band Edge)	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2402MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2320.080	40.26	-2.04	38.22	74.00	-35.78	peak			
2	2320.080	30.38	-2.04	28.34	54.00	-25.66	AVG			

BDR mode, High Channel

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Tel:+86-0755-26503290
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Job No.: LGW2017 #917	Polarization: Vertical
Standard: FCC (Band Edge)	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2480MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth

No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2485.298	40.33	-1.40	38.93	74.00	-35.07	peak			
2	2485.298	30.04	-1.40	28.64	54.00	-25.36	AVG			

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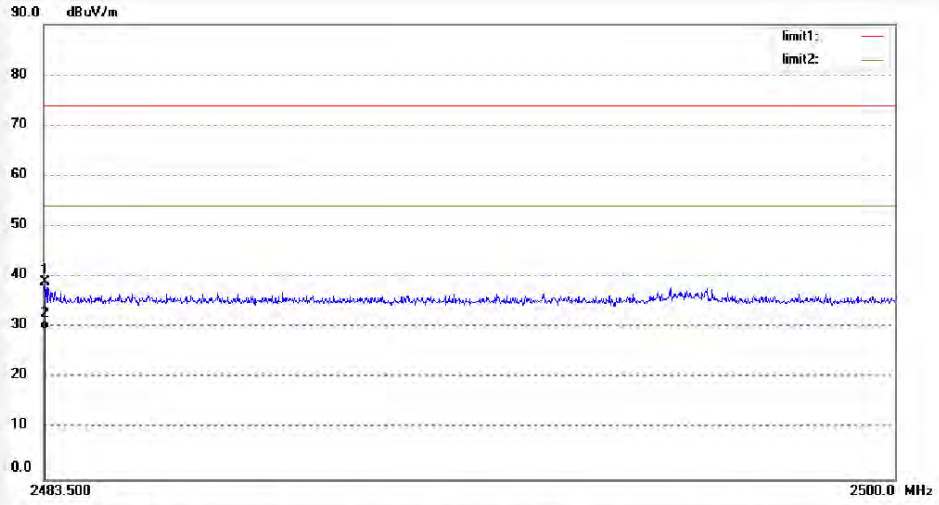
Job No.: LGW2017 #918	Polarization: Horizontal
Standard: FCC (Band Edge)	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2480MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.533	40.50	-1.40	39.10	74.00	-34.90	peak			
2	2483.533	31.05	-1.40	29.65	54.00	-24.35	AVG			

Low Energy mode, Low Channel

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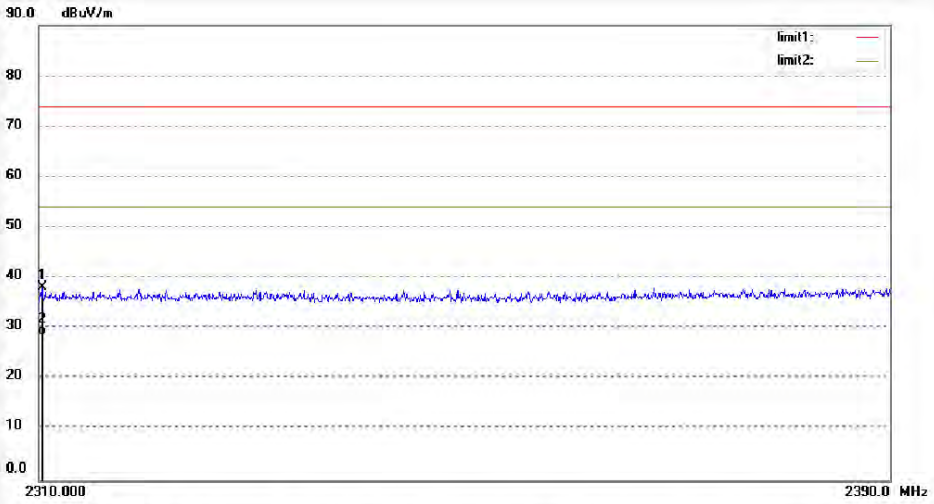
Job No.: LGW2017 #921
Standard: FCC (Band Edge)
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: ELD 1.0
Mode: TX 2402MHz
Model: ELD 1.0
Manufacturer: PST Eletronica LTDA

Polarization: Vertical
Power Source: DC 12V
Date: 2017/01/12
Time:
Engineer Signature: LGWADE
Distance: 3m

Note: Bluetooth 4.0



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.320	40.28	-2.03	38.25	74.00	-35.75	peak			
2	2310.320	30.68	-2.03	28.65	54.00	-25.35	AVG			

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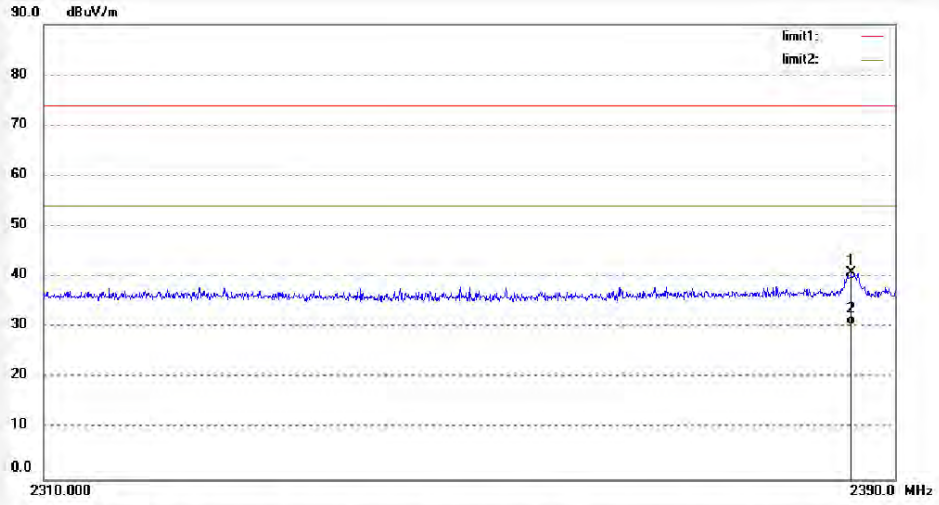
Job No.: LGW2017 #922	Polarization: Horizontal
Standard: FCC (Band Edge)	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2402MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth 4.0



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2385.920	42.54	-1.74	40.80	74.00	-33.20	peak			
2	2385.920	32.31	-1.74	30.57	54.00	-23.43	AVG			

Low Energy mode, High Channel

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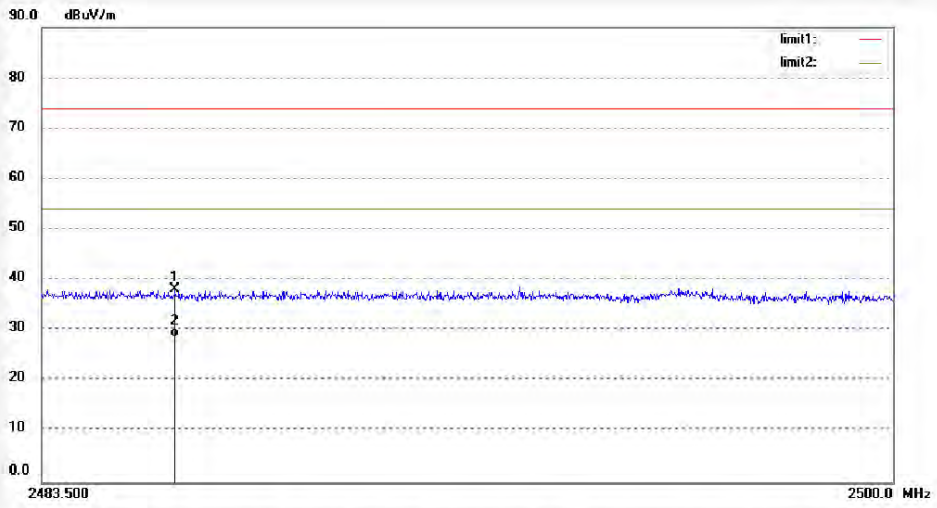
Job No.: LGW2017 #927	Polarization: Horizontal
Standard: FCC (Band Edge)	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2480MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth 4.0



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2486.090	39.64	-1.40	38.24	74.00	-35.76	peak			
2	2486.090	30.04	-1.40	28.64	54.00	-25.36	AVG			

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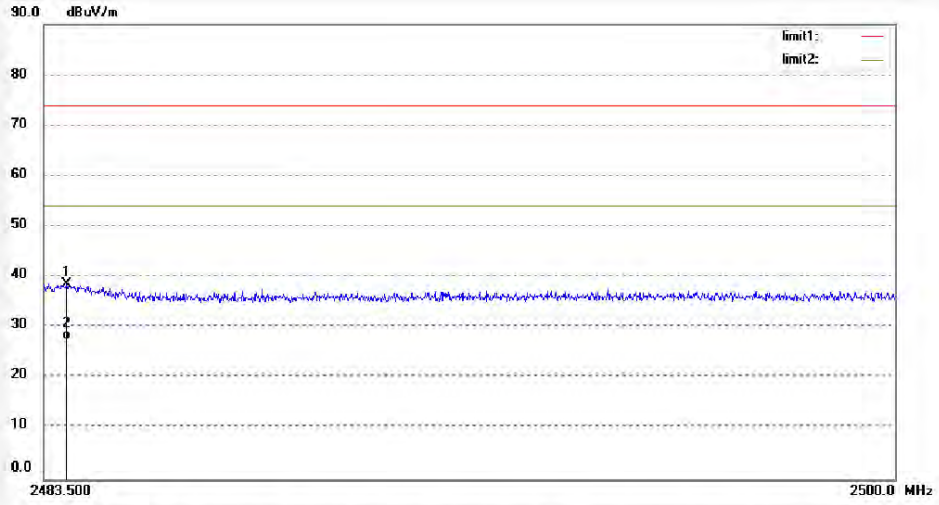
Job No.: LGW2017 #940	Polarization: Vertical
Standard: FCC (Band Edge)	Power Source: DC 12V
Test item: Radiation Test	Date: 2017/01/12
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: ELD 1.0	Engineer Signature: LGWADE
Mode: TX 2480MHz	Distance: 3m
Model: ELD 1.0	
Manufacturer: PST Eletronica LTDA	

Note: Bluetooth 4.0



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.945	45.86	-7.38	38.48	74.00	-35.52	peak			
2	2483.945	34.94	-7.38	27.56	54.00	-26.44	AVG			