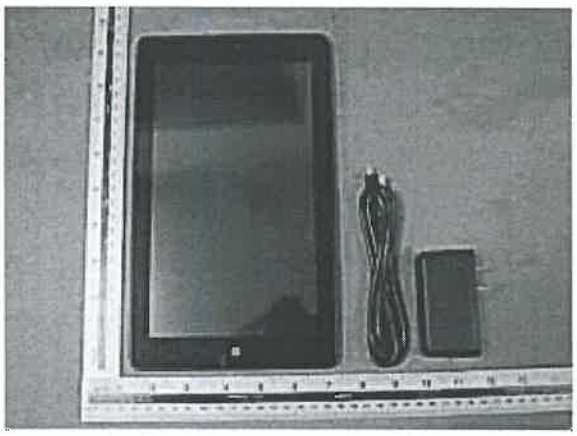
Prüfbericht-Nr.: *Test Report No.:*	**17052611 001**	**Auftrags-Nr.:** *Order No.:*	164044450	**Seite 1 von 67** *Page 1 of 67*
Kunden-Referenz-Nr.: *Client Reference No.:*	434252	**Auftragsdatum:** *Order date.:*	07.09.2015	
Auftraggeber: *Client:*	**Shenzhen Zowee Technology Co., Ltd.** Block 5, Science & Technology Industrial Park of Privately Owned Enterprises, Pingshan, Xili, Nanshan District, Shenzhen, China			
Prüfgegenstand: *Test item:*	Tablet PC			
Bezeichnung / Typ-Nr.: *Identification / Type No.:*	NS-P89W6100			
Auftrags-Inhalt: *Order content:*	FCC/IC Certification			
Prüfgrundlage: *Test specification:*	CFR47 FCC Part 15: Subpart C Section 15.247 CFR47 FCC Part 15: Subpart C Section 15.207 CFR47 FCC Part 15: Subpart C Section 15.209 RSS-247 Issue 1 May 2015 RSS-Gen Issue 4 November 2014			

Wareneingangsdatum: *Date of receipt:*	08.09.2015
Prüfmuster-Nr.: *Test sample No.:*	A000176511-001 to 002
Prüfzeitraum: *Testing period:*	10.09.2015 - 15.09.2015
Ort der Prüfung: *Place of testing:*	Accurate Technology Co., Ltd.
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Shenzhen) Co., Ltd.
Prüfergebnis*: *Test result*:*	Pass



geprüft von / *tested by:*			**kontrolliert von** / *reviewed by:*		
30.09.2015	Ryan Yang / Senior Project Engineer		30.09.2015	Sam Lin / Technical Certifier	
Datum *Date*	**Name/Stellung** *Name/Position*	**Unterschrift** *Signature*	**Datum** *Date*	**Name/Stellung** *Name/Position*	**Unterschrift** *Signature*

Sonstiges / *Other:*

Only evaluate the bluetooth function in this test report.
FCC ID: 2AAP6ZM8021A1
IC: 8257A-NSP89W6100

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

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Mail: service@de.tuv.com · Web: www.tuv.com

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 EMISSIONS
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 1: Test result

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, 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	09.01.2016
Spectrum Analyzer	Agilent	E7405A	MY45115511	09.01.2016
Temp. & Humid. Chamber	Gongwen	HSD-500	0109	09.01.2016
Conducted Emissions				
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Until**
Test Receiver	R&S	ESCS30	100307	09.01.2016
L.I.S.N.	Schwarzbeck	NLSK8126	8126431	09.01.2016
Pulse Limiter	R&S	ESH3-Z2	100815	09.01.2016
50_ Coaxial Switch	Anritsu Corp	MP59B	6200283933	09.01.2016
Radiated Emission & Spurious Emission				
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Until**
Spectrum Analyzer	R&S	FSV40	101495	01.01.2016
Test Receiver	R&S	ESCS30	100307	01.01.2016
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	01.01.2016
Loop Antenna	Schwarzbeck	FMZB1516	1516131	01.01.2016
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	01.01.2016
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	01.01.2016
RF Switching Unit+PreAMP	Compliance Direction	RSU-M2	38322	01.01.2016
Pre-Amplifier	R&S	CBLU11835 40-01	3791	01.01.2016
50 Coaxial Switch	Anritsu Corp	MP59B	6200506474	01.01.2016
RF Coaxial Cable	SUHNER	N-3m	No.8	01.01.2016
RF Coaxial Cable	RESENBERGER	N-3.5m	No.9	01.01.2016
RF Coaxial Cable	SUHNER	N-6m	No.10	01.01.2016
RF Coaxial Cable	RESENBERGER	N-12m	No.11	01.01.2016
50_ Coaxial Switch	Anritsu Corp	MP59B	6200283933	09.01.2016

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

Parameter	Uncertainty
Radio Spectrum	± 0.60 dB
All Emission, Radiated	± 4.42 dB
Conducted Emission	± 2.23 dB
Radiated Emission	± 4.42 dB
Ambient Temperature	25℃
Relative Humidity	56%
Atmospheric Pressure	101 kPa

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix1 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 Meterial Port, Keyuan Rd., Science & Industry Park Nanshan District, 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 EUTs are tablet with Wi-Fi, Bluetooth and GPS function.

Refer to User Manual and Circuit Diagram for further details.

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

Technical Specification	Value	
Product Name	Tablet PC	
Model Number	NS-P89W6100	
Operating Frequency	2402-2480 MHz	
Extreme Temperature Range	-20°C ~ +60°C	
Operation Voltage	DC 3.3V via Internal rechargeable lithium battery	
	AC 120V 60Hz via AC/DC adapter	
Modulation	BDR mode	GFSK
	EDR mode	π/4DQPSK, 8DPSK
	Low Energy mode	GFSK
Number of Channel	BDR & EDR mode:79 channels;	Low Energy mode:40 channels
Channel Spacing	BDR & EDR mode: 1MHz;	Low Energy mode: 2MHz;
Bluetooth Version	Bluetooth 4.0 (dual mode)	
Antenna Type and Gain	PCB Antenna, 2.56 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

3.3 Independent Operation Modes

The basic operation modes are:

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

B. On, Bluetooth transmitting mode (Low Energy mode)
   1. Transmitting
      a. Low Channel
      b. Middle Channel
      c. High Channel
   2. Receiving

C. On, Transmitting on Hopping channel

D. On, Bluetooth connecting mode

E. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- Application Form
- Bill of Material
- Block Diagram
- Circuit Diagram
- FCC/IC Label and Location
- Operation Description
- Photo Document
- User Manual

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum power 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

The EUT was tested together with the following accessories:

Description	Manufacturer	Part No.	Rating
AC/DC Adapter	GLOBAL YEOU DIANN ELECTRIC INDUSTRIAL CO., LTD.	AMS135-0522000FU	Input: AC 100-240V, 50/60Hz, 0.5A Output: DC 5.2V, 2A

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)

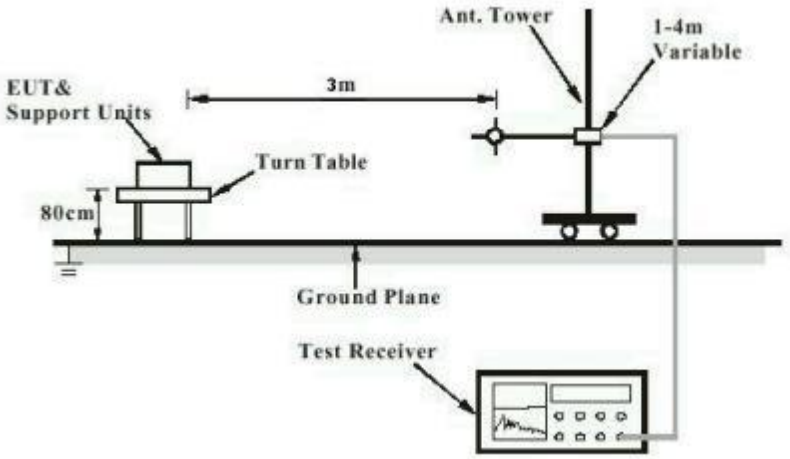


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

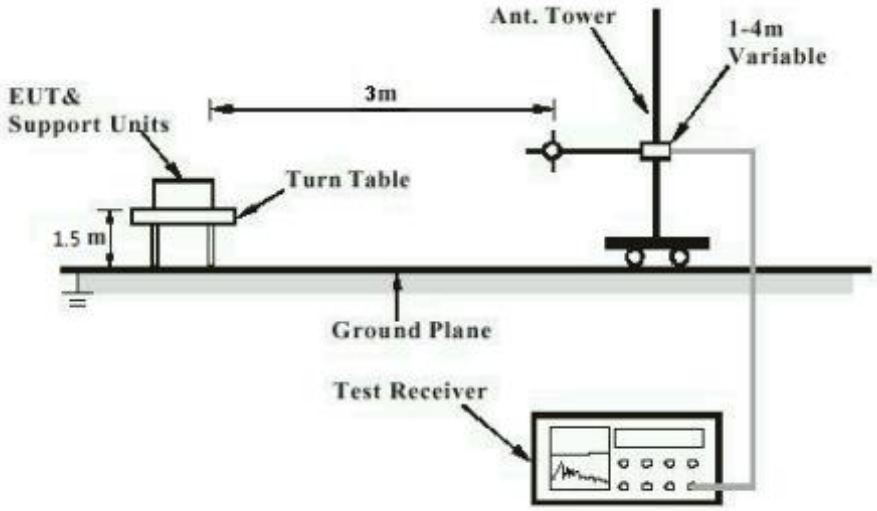


Diagram of Measurement Configuration for Mains Conduction Measurement

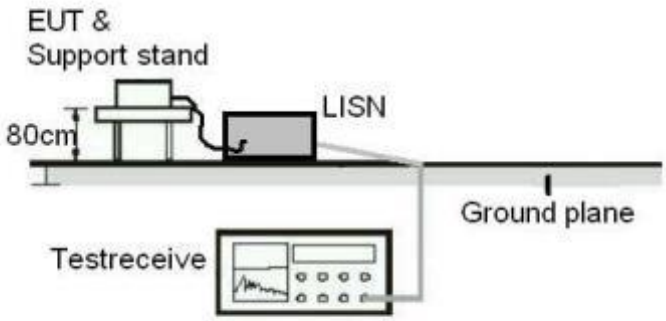
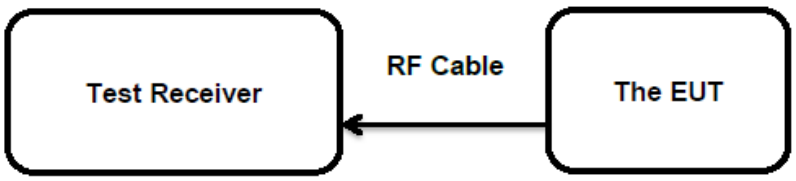


Diagram of Measurement Configuration for Conducted Transmitter Measurement



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
Limits	:	the use of antennas with directional gains that do not exceed 6dBi

According to the manufacturer declared, the EUT has an internal antenna, the directional gain of antenna is 2.56 dBi, 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.

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	:	BDR & EDR: ≤ 0.125 Watts	Low Energy: ≤ 1.0 Watts
Kind of test site	:	Shielded Room	

Test Setup

Date of testing	:	15.09.2015
Input voltage	:	DC 3.3V via Internal rechargeable lithium battery
Operation mode	:	A.1, B.1
Test channel	:	Low / Middle/ High
Ambient temperature	:	25℃
Relative humidity	:	56%
Atmospheric pressure	:	101 kPa

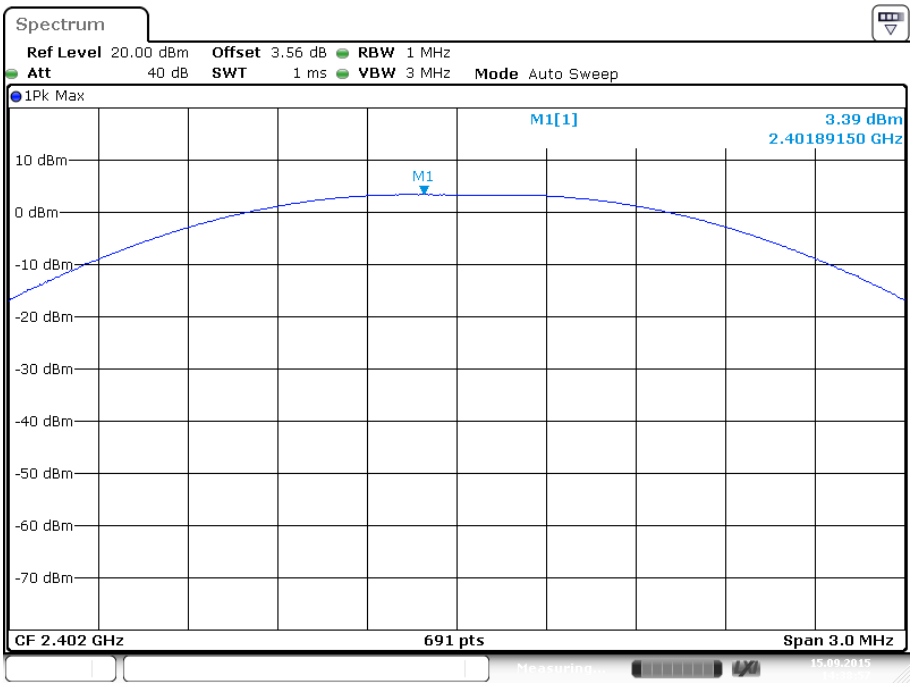
Table 5: Test Result of Maximum Peak Conducted Output Power

Mode	Channel Frequency (MHz)	Peak Output Power		Limit (W)
		(dBm)	(W)	
BDR	2402	3.39	0.00218	≤ 0.125
	2441	3.56	0.00227	
	2480	3.26	0.00212	
EDR	2402	3.73	0.00236	≤ 0.125
	2441	3.85	0.00243	
	2480	3.68	0.00233	
Low Energy	2402	8.03	0.00635	≤ 1.0
	2440	8.17	0.00656	
	2480	8.02	0.00634	
Maximum Measured Value		8.17	0.00656	/

For the measurement records, refer to following test plot:

Test Plot of Maximum Peak Conducted Output Power, BDR mode

Low channel:



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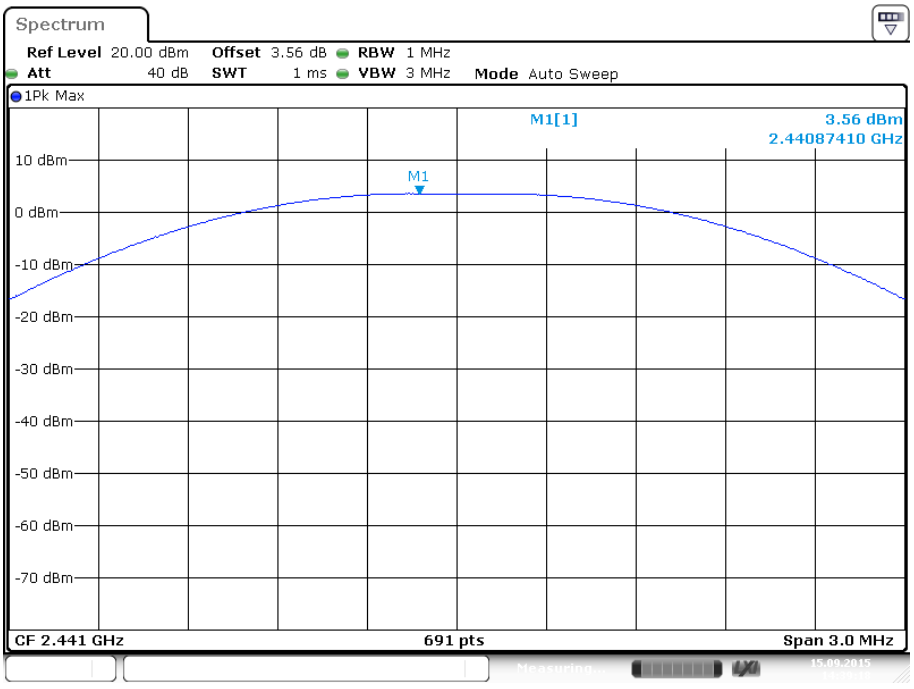
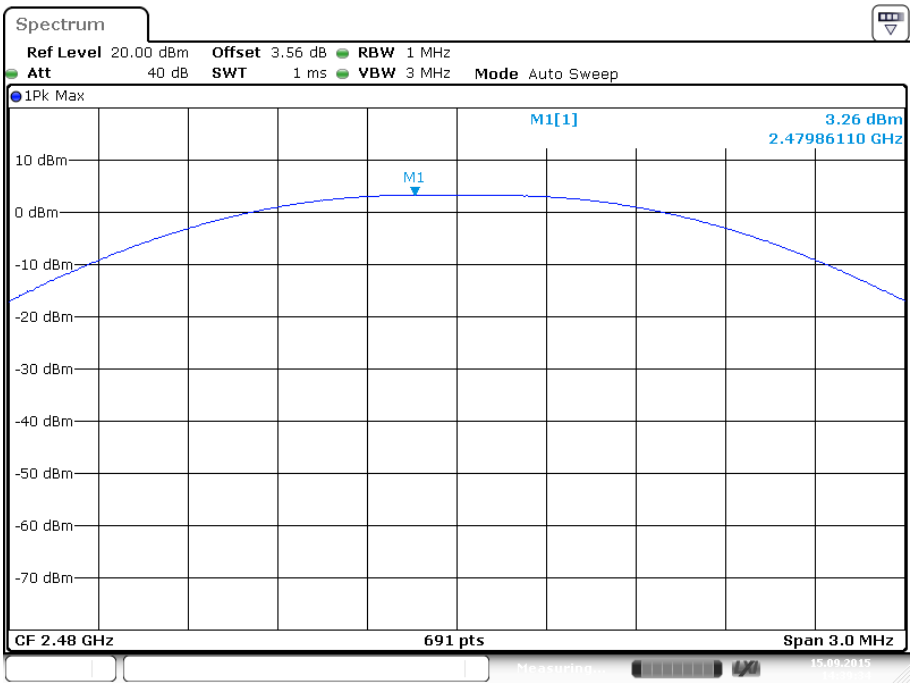
Middle channel:



Date: 15.SEP.2015 14:39:18

High channel:



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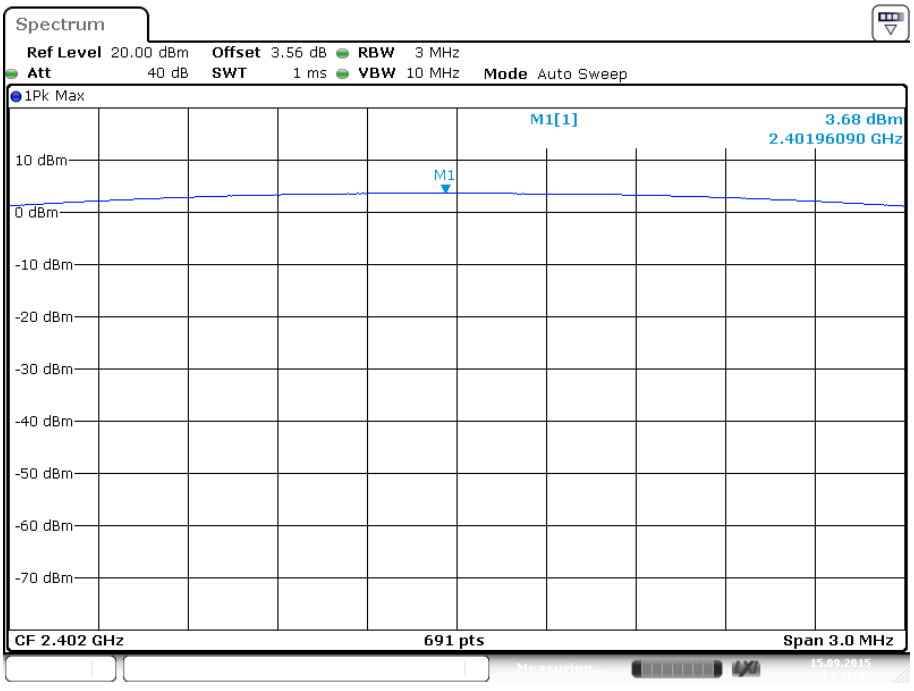
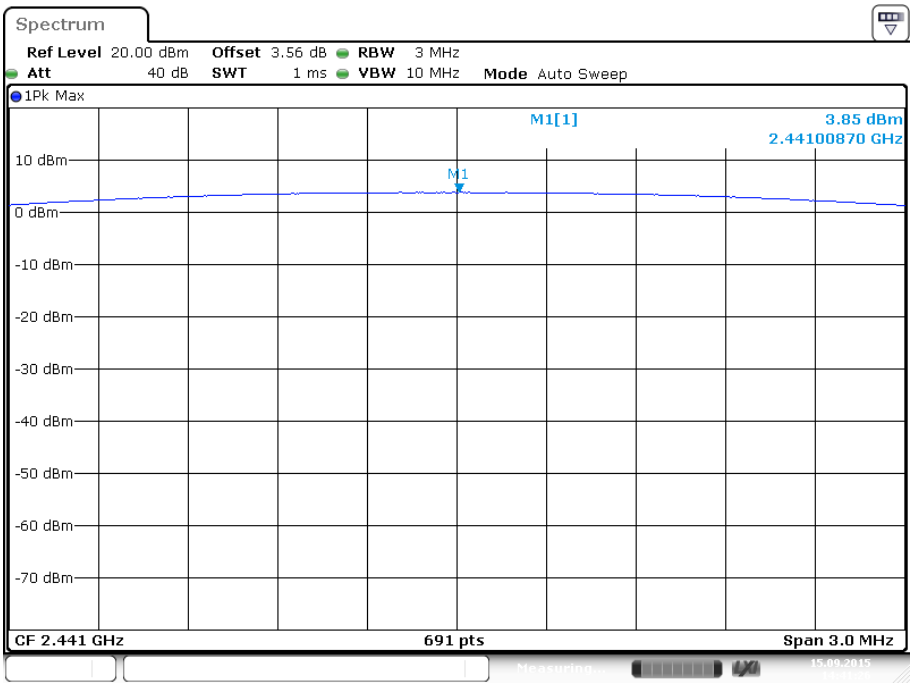
Test Plot of Maximum Peak Conducted Output Power, EDR mode

Low channel:



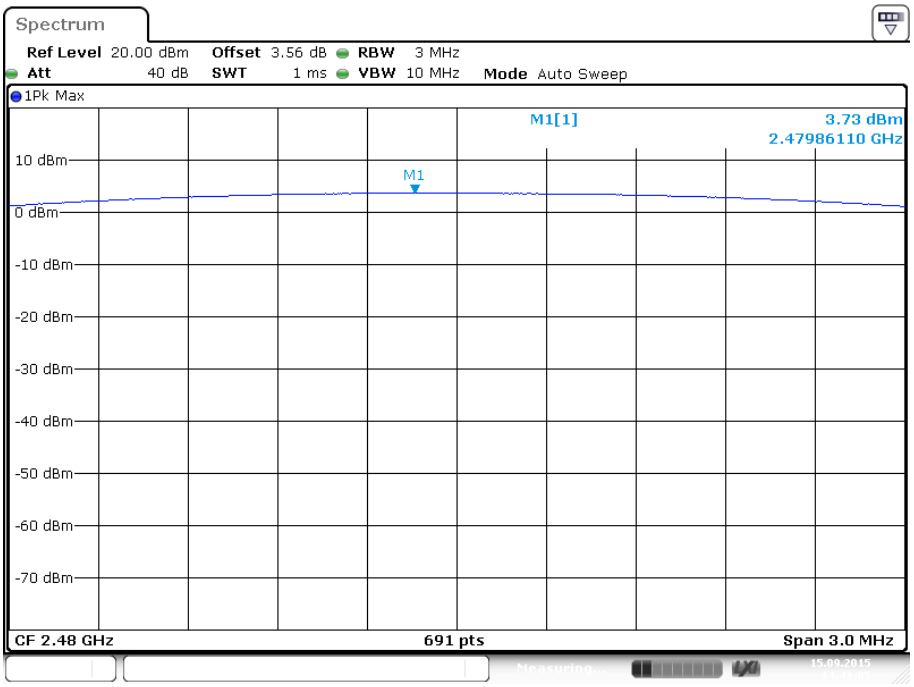
Date: 15.SEP.2015 14:41:42

Middle channel:



Date: 15.SEP.2015 14:41:26

High channel:



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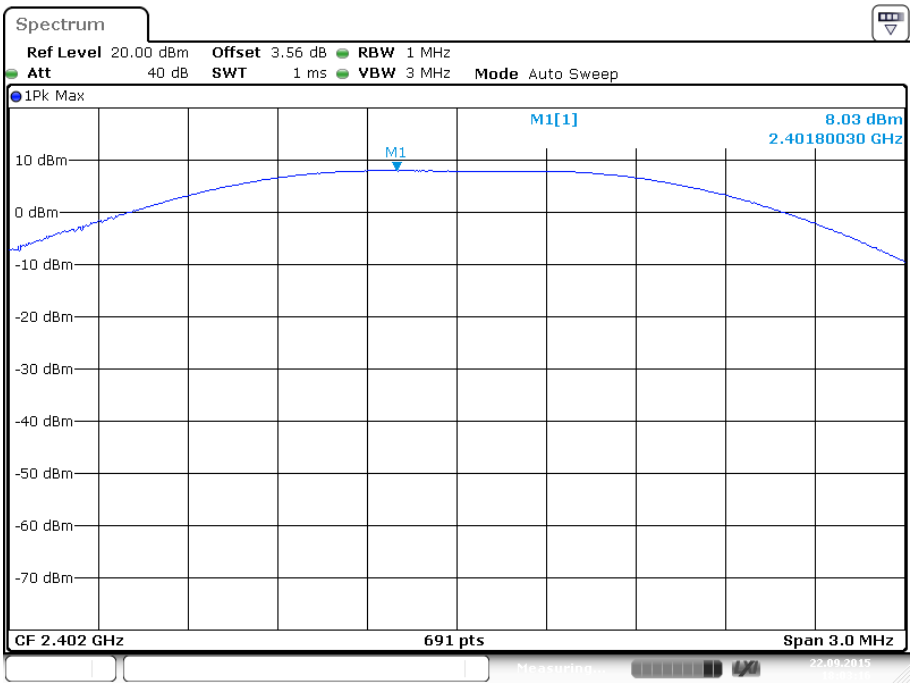
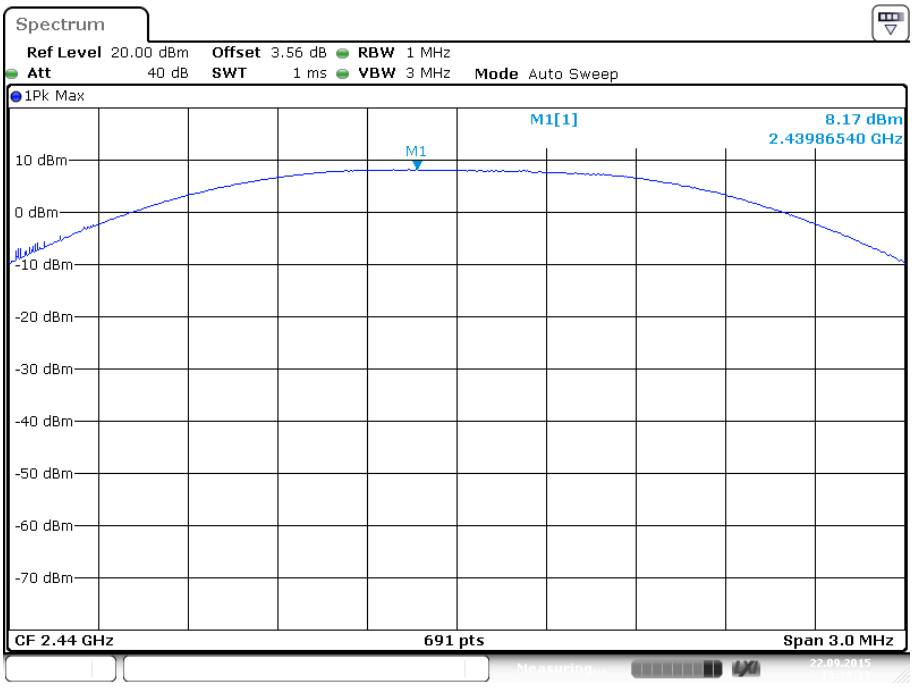
Test Plot of Maximum Peak Conducted Output Power, Low Energy mode

Low channel:



Date: 22.SEP.2015 18:03:15

Middle channel:



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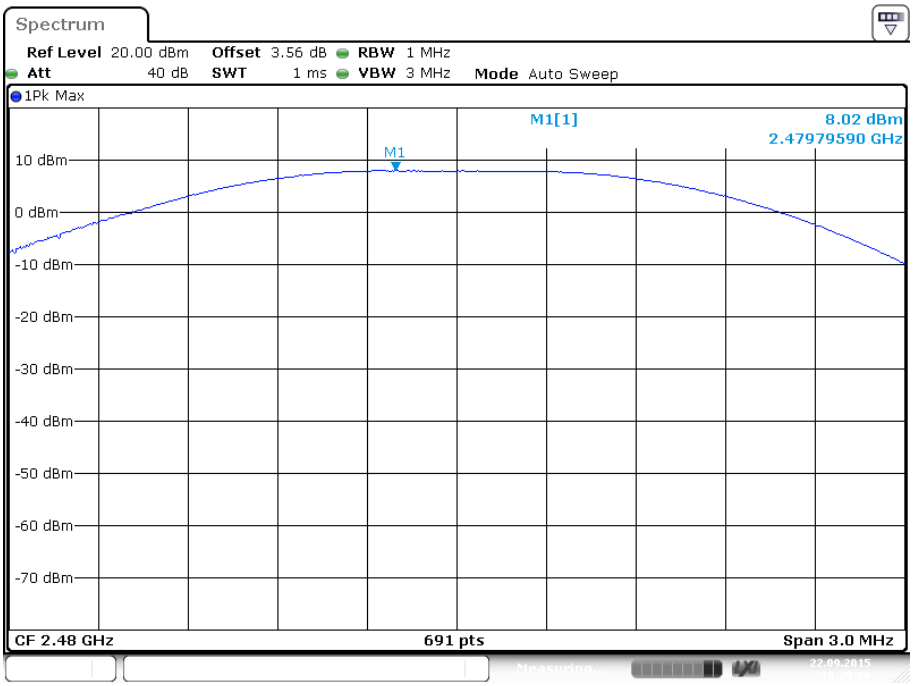
High channel:



Date: 22.SEP.2015 18:29:25

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	:	**Error! Reference source not found.**
Limits	:	8 dBm / 3kHz
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	15.09.2015
Input voltage	:	DC 3.3V via Internal rechargeable lithium battery
Operation mode	:	B.1
Test channel	:	Low / Middle/ High
Ambient temperature	:	25℃
Relative humidity	:	56%
Atmospheric pressure	:	101 kPa

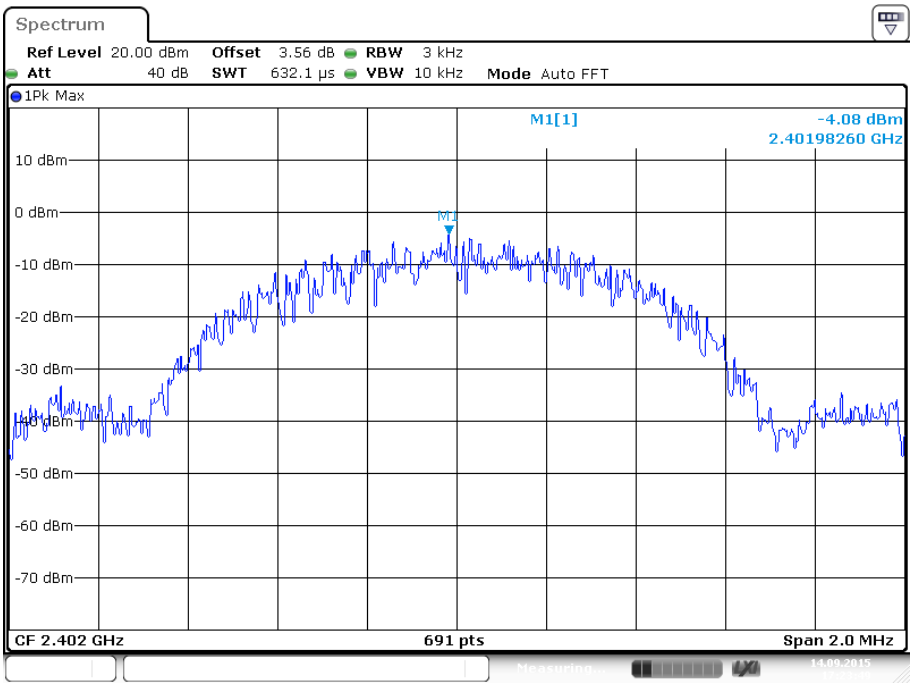
Table 6: Test Result of Power Spectral Density

Mode	Channel Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)
Low Energy	2402	-4.08	8.0
	2440	-4.25	
	2480	-5.08	

For the measurement records, refer to following test plot:

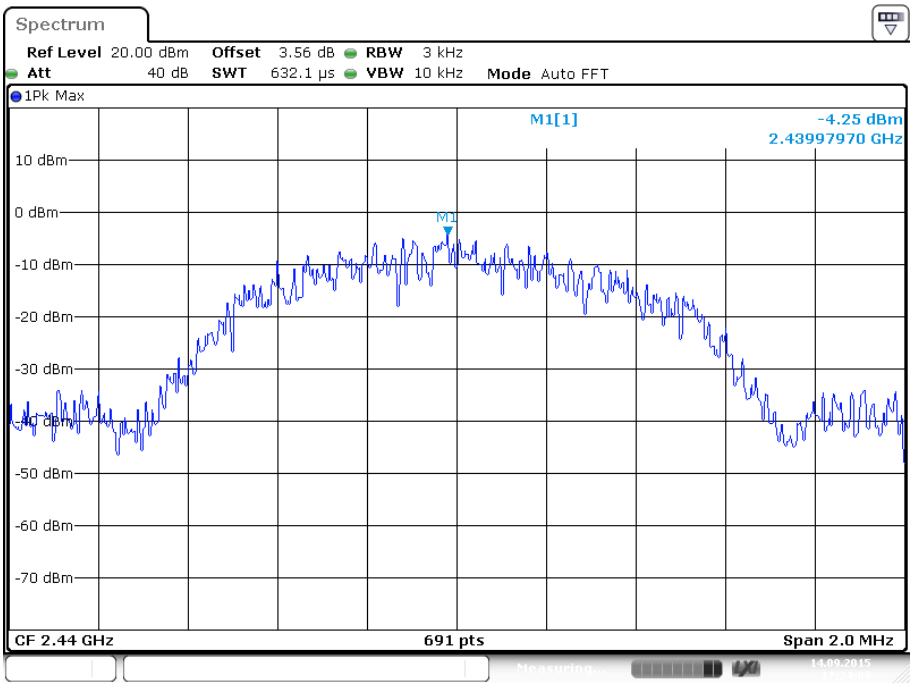
Test Plot of Power Spectral Density, Low Energy mode

Low channel:



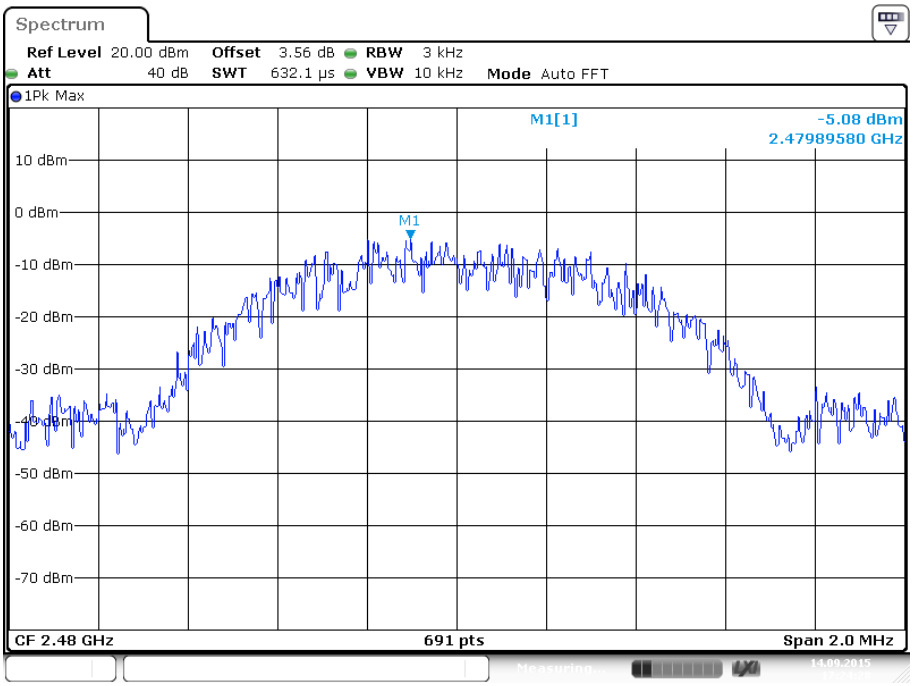
Date: 14.SEP.2015 17:23:49

Middle channel:



Date: 14.SEP.2015 17:24:09

High channel:



Date: 14.SEP.2015 17:24:28

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	:	≥ 500 KHz
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	15.09.2015
Input voltage	:	DC 3.3V via Internal rechargeable lithium battery
Operation mode	:	B.1
Test channel	:	Low / Middle/ High
Ambient temperature	:	25℃
Relative humidity	:	56%
Atmospheric pressure	:	101 kPa

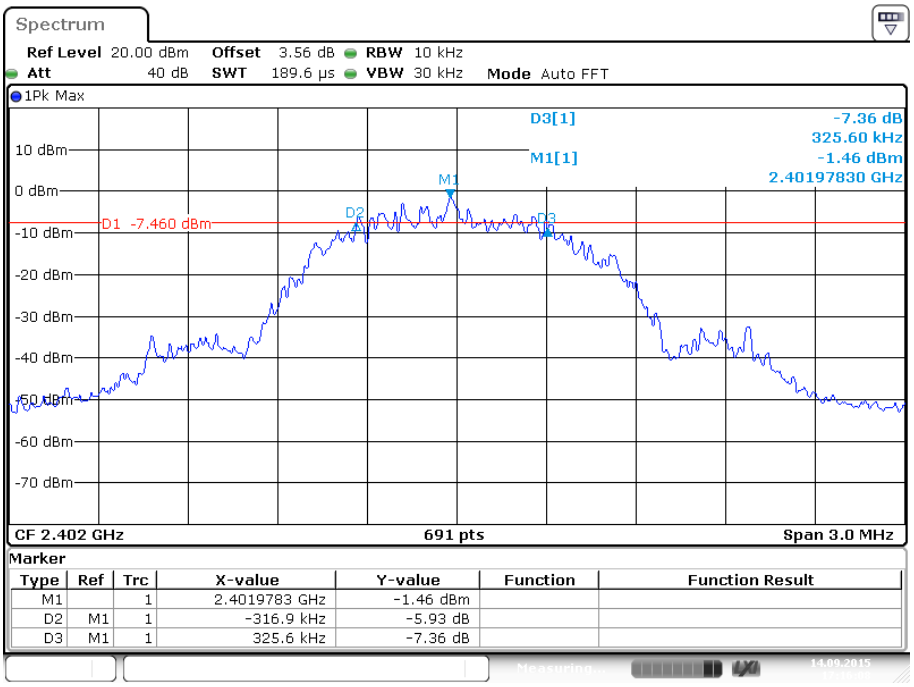
Table 7: Test Result of 6dB Bandwidth

Mode	Channel Frequency (MHz)	-6dB Bandwidth (kHz)	Limit (kHz)
Low Energy	2402	642.50	≥ 500
	2440	651.20	
	2480	599.20	
Minimum Measured Value		599.20	

For the measurement records, refer to following test plot:

Test Plot of 6dB Bandwidth, Low Energy mode

Low channel:



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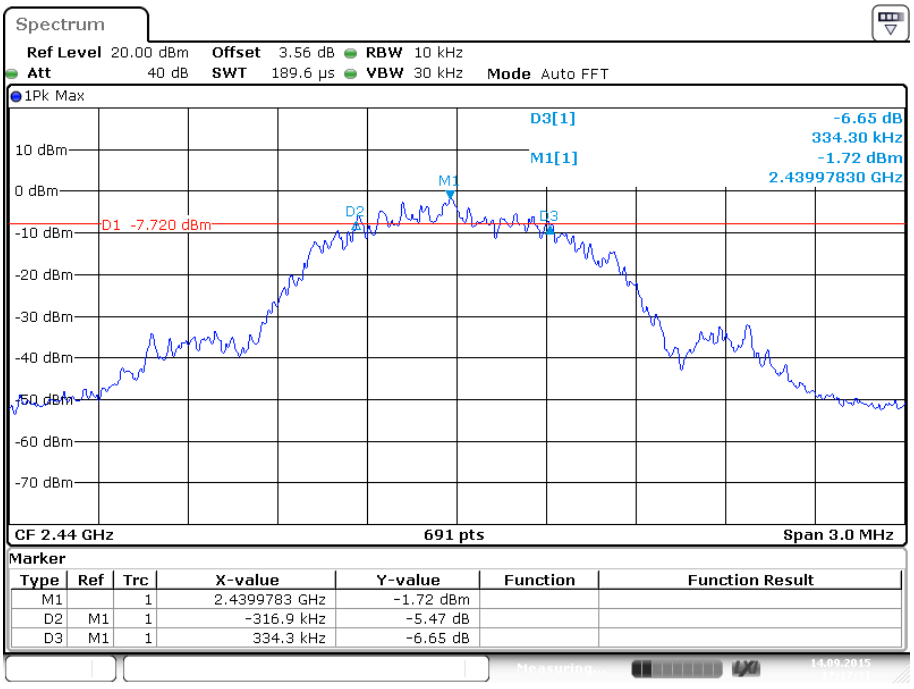
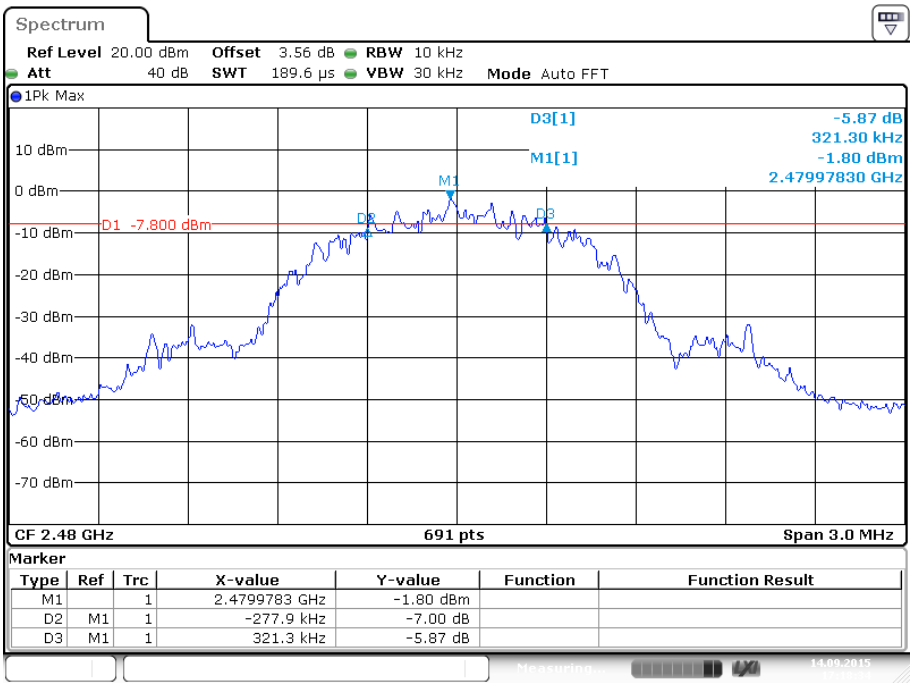
Middle channel:



Date: 14.SEP.2015 17:17:31

High channel:



Date: 14.SEP.2015 17:18:34

5.1.5 99% Bandwidth

RESULT: **Pass**

Test Specification

Test standard	:	RSS-Gen Clause 6.6
Basic standard	:	ANSI C63.10: 2013**Error! Reference source not found.**
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	15.09.2015
Input voltage	:	DC 3.3V via Internal rechargeable lithium battery
Operation mode	:	A.1, B.1
Test channel	:	Low / Middle/ High
Ambient temperature	:	25℃
Relative humidity	:	56%
Atmospheric pressure	:	101 kPa

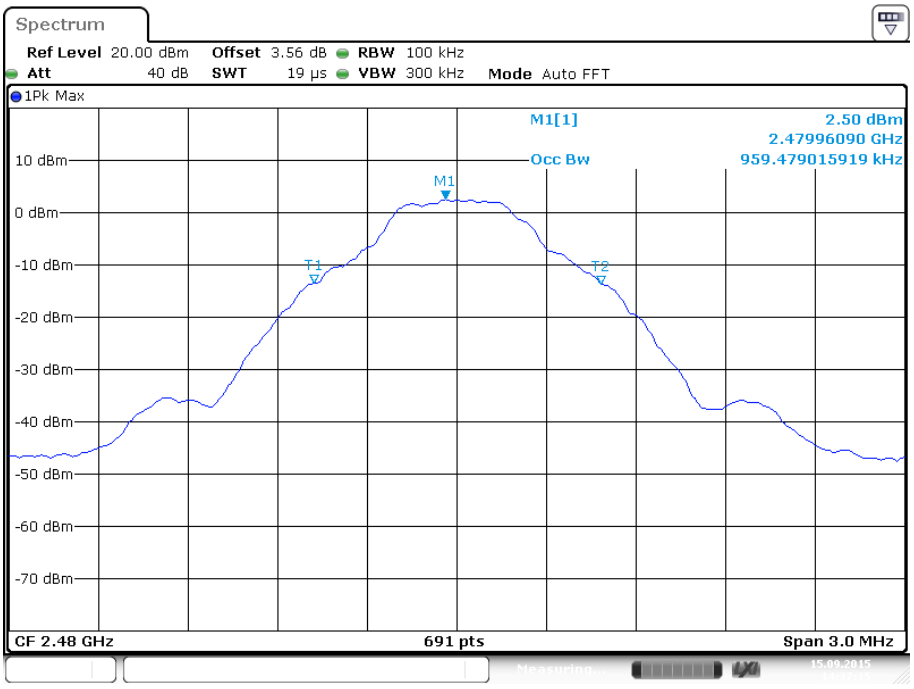
Table 8: Test Result of 99% Bandwidth

Mode	Channel Frequency (MHz)	99% Bandwidth (kHz)	Limit (kHz)
BDR	2402	959.48	/
	2441	959.48	
	2480	959.48	
EDR	2402	1215.63	/
	2441	1215.63	
	2480	1215.63	
Low Energy	2402	1046.31	/
	2440	1041.97	
	2480	1041.97	
Maximum Measured Value		1215.63	/

For the measurement records, refer to following test plot:

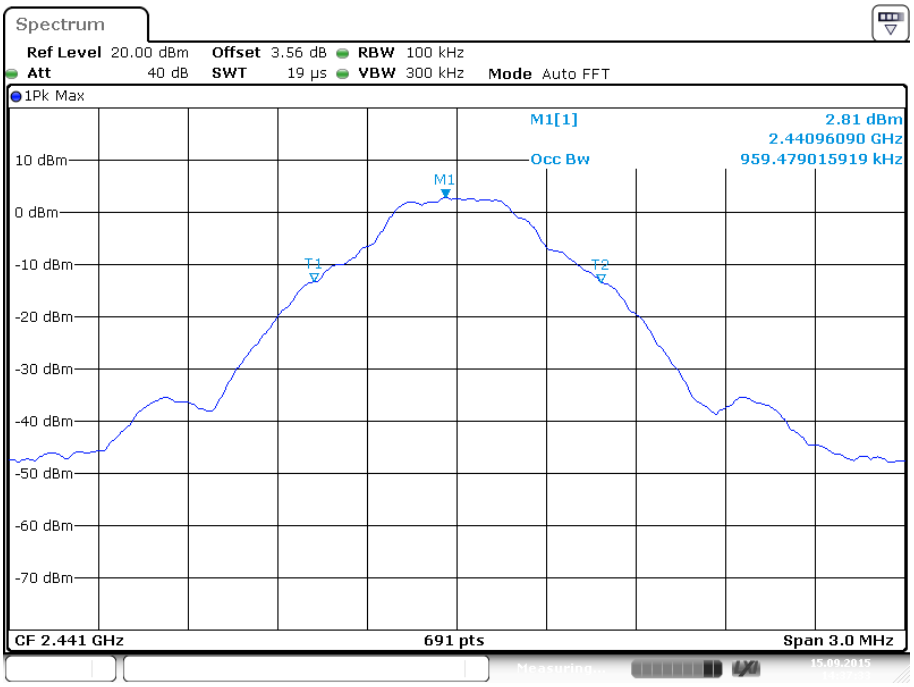
Test Plot of 99% Bandwidth, BDR mode

Low channel:



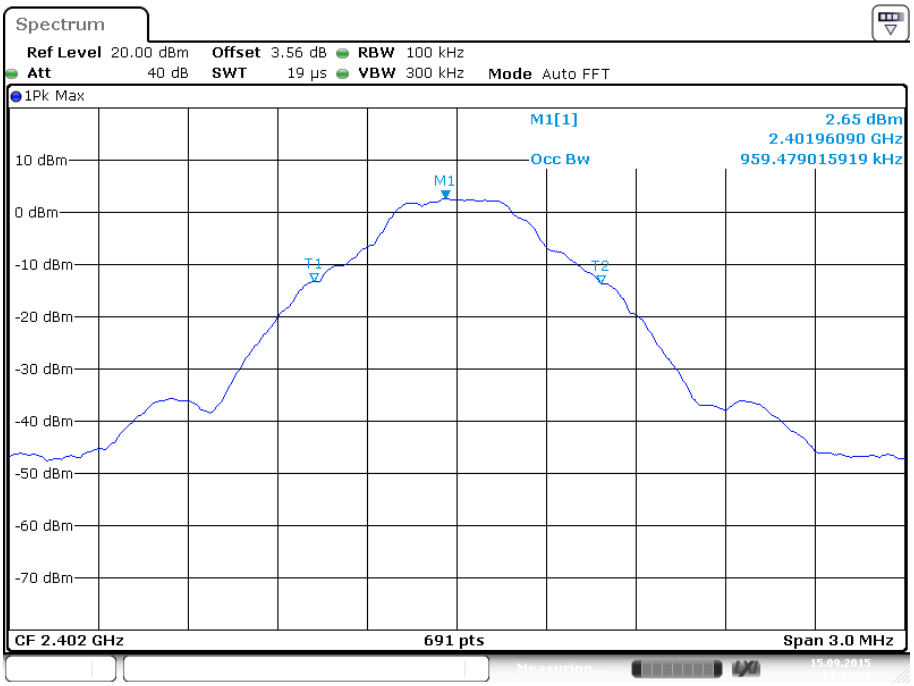
Date: 15.SEP.2015 14:37:15

Middle channel:



Date: 15.SEP.2015 14:37:33

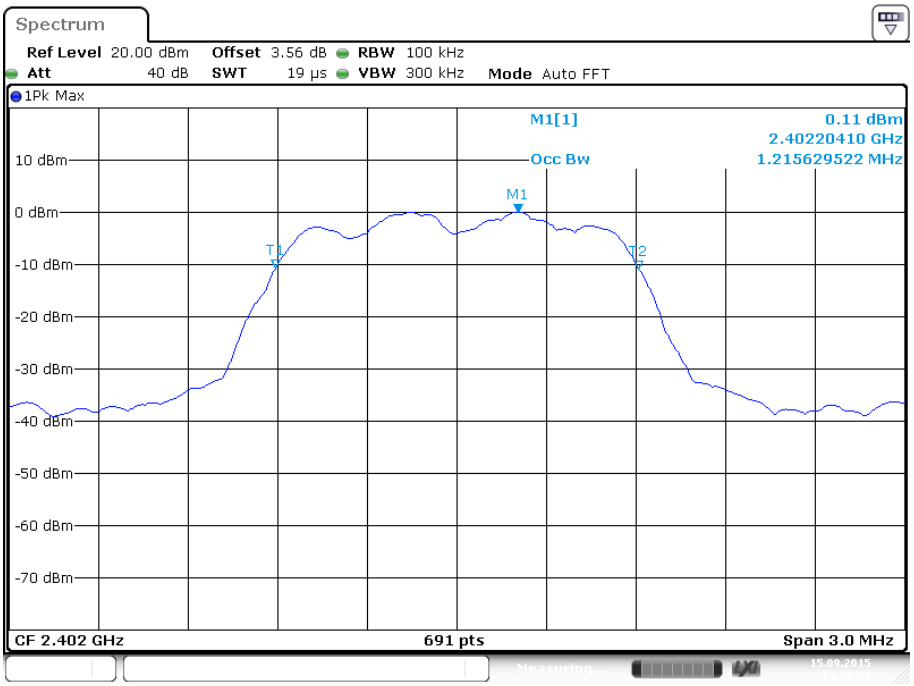
High channel:



Date: 15.SEP.2015 14:37:52

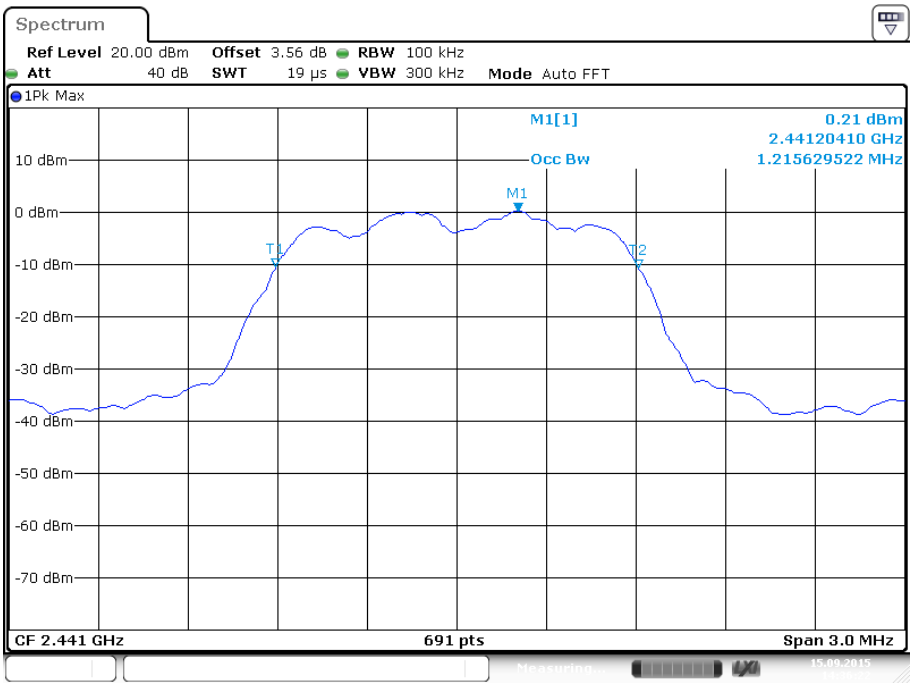
Test Plot of 99% Bandwidth, EDR mode

Low channel:



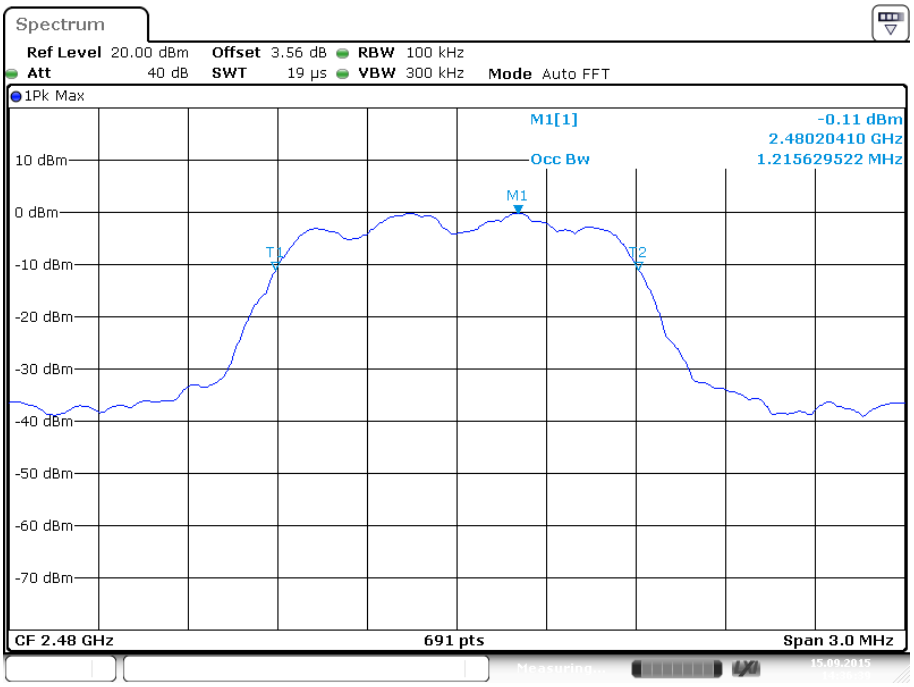
Date: 15.SEP.2015 14:35:59

Middle channel:



Date: 15.SEP.2015 14:36:23

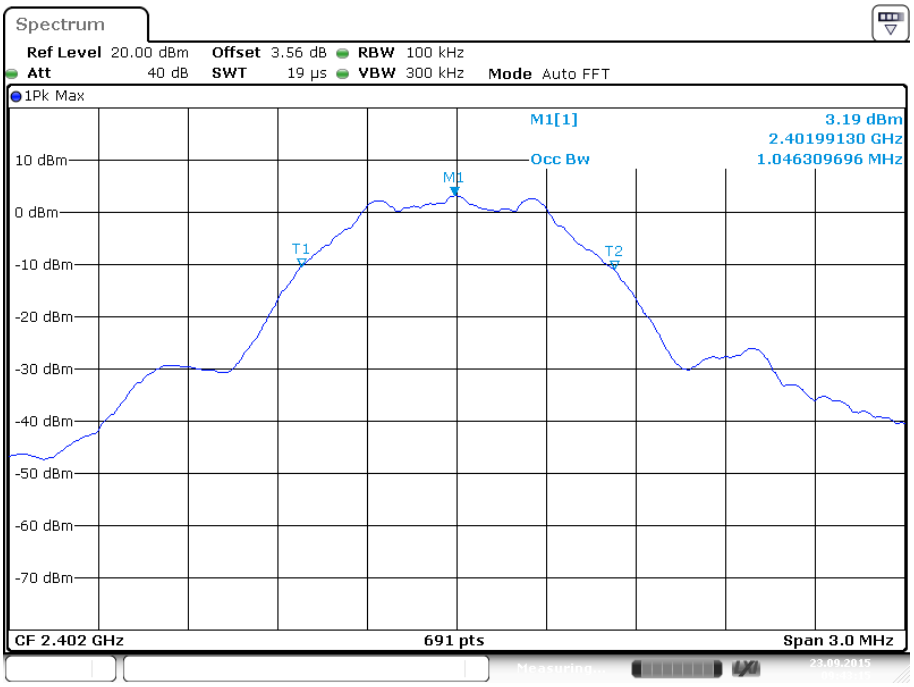
High channel:



Date: 15.SEP.2015 14:36:39

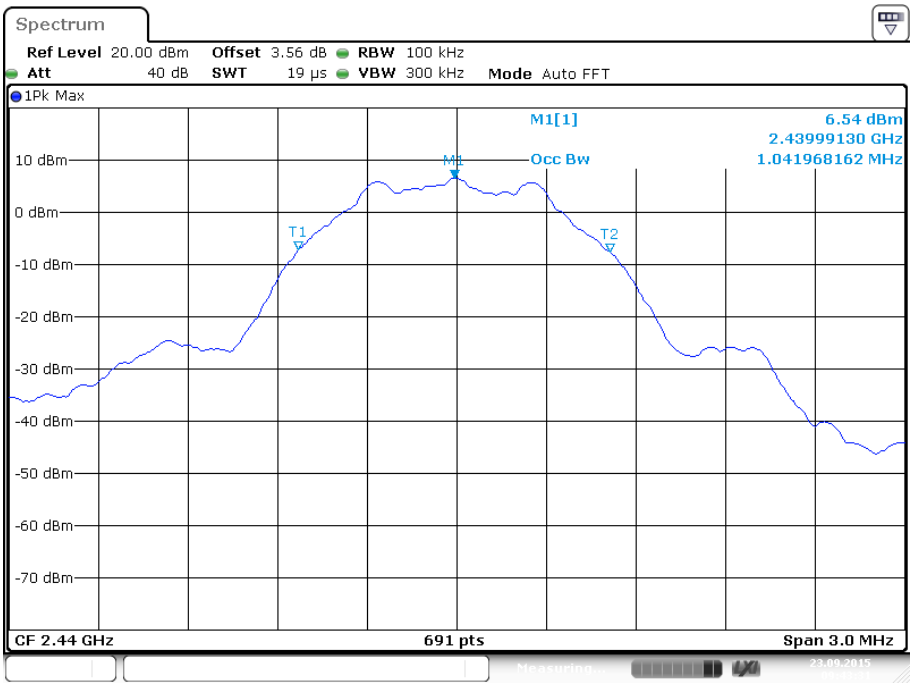
Test Plot of 99% Bandwidth, Low Energy mode

Low channel:



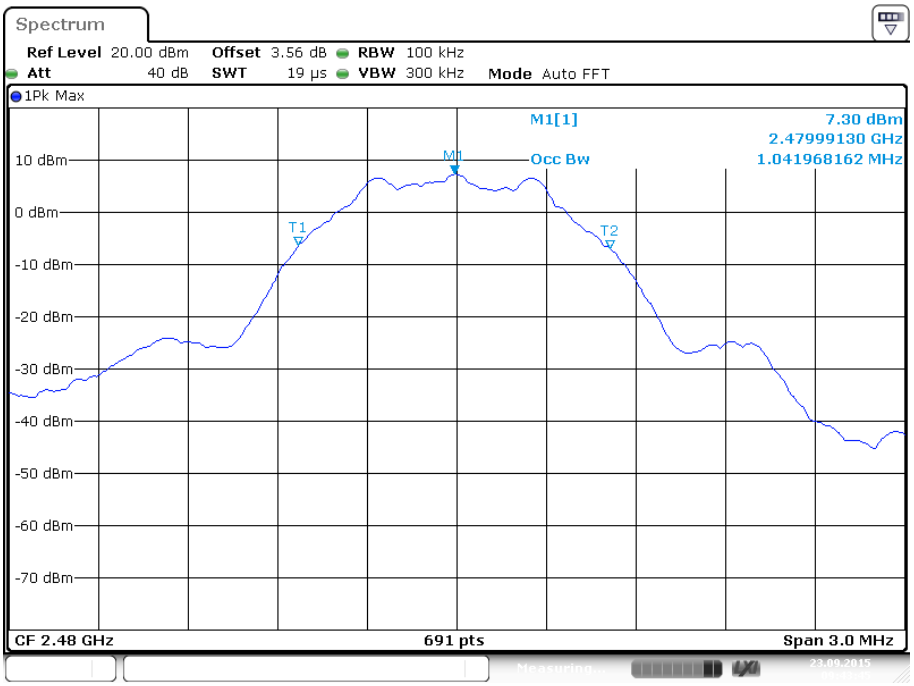
Date: 23.SEP.2015 09:43:15

Middle channel:



Date: 23.SEP.2015 09:43:31

High channel:



Date: 23.SEP.2015 09:43:45

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); In addition, radiated emissions which fall in the restricted bands, must also comply with the radiated emission limits specified in 15.209(a)
Kind of test site	:	Shielded Room

Test Setup

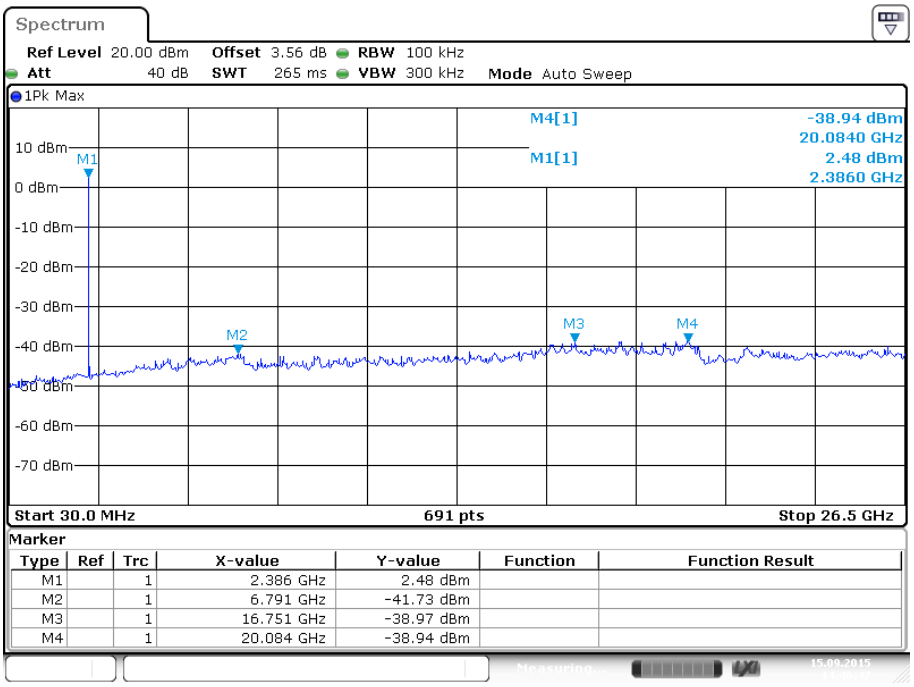
Date of testing	:	15.09.2015
Input voltage	:	DC 3.3V via Internal rechargeable lithium battery
Operation mode	:	A.1, B.1
Test channel	:	Low / Middle/ High
Ambient temperature	:	25℃
Relative humidity	:	56%
Atmospheric pressure	:	101 kPa

All emissions are more than 20dB below fundamental, compliance is achieved as well.

For the measurement records, refer to following test plot:

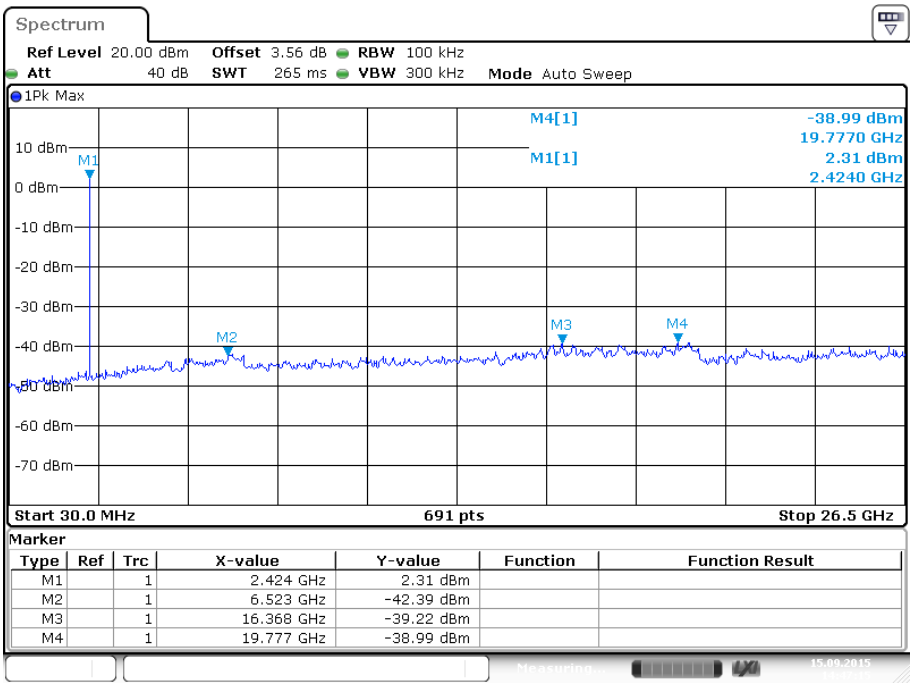
Test Plot of Conducted Spurious Emissions Measured in 100kHz Bandwidth, BDR mode

Low channel:



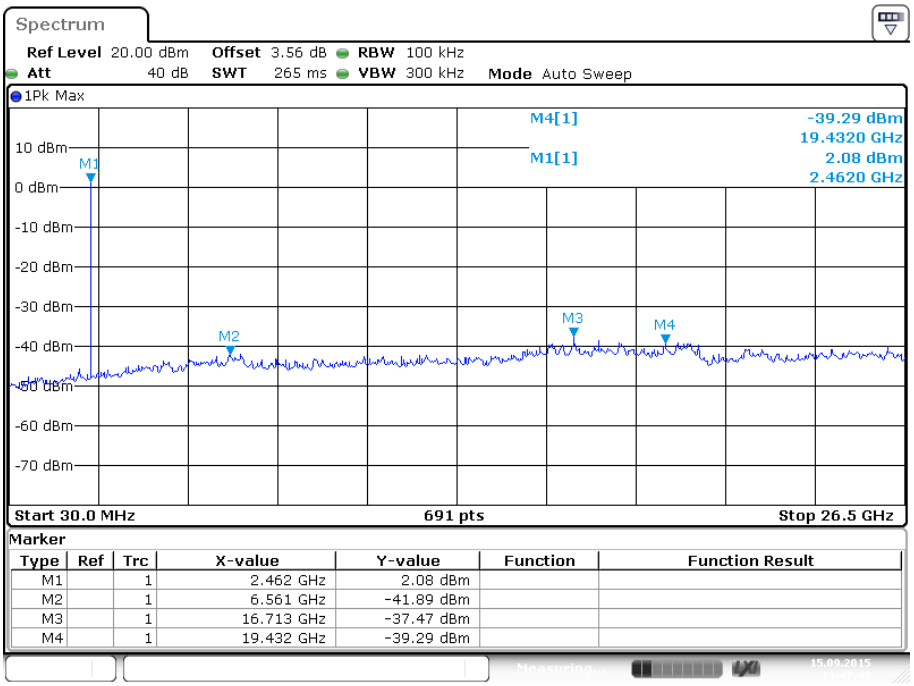
Date: 15.SEP.2015 14:46:47

Middle channel:



Date: 15.SEP.2015 14:47:15

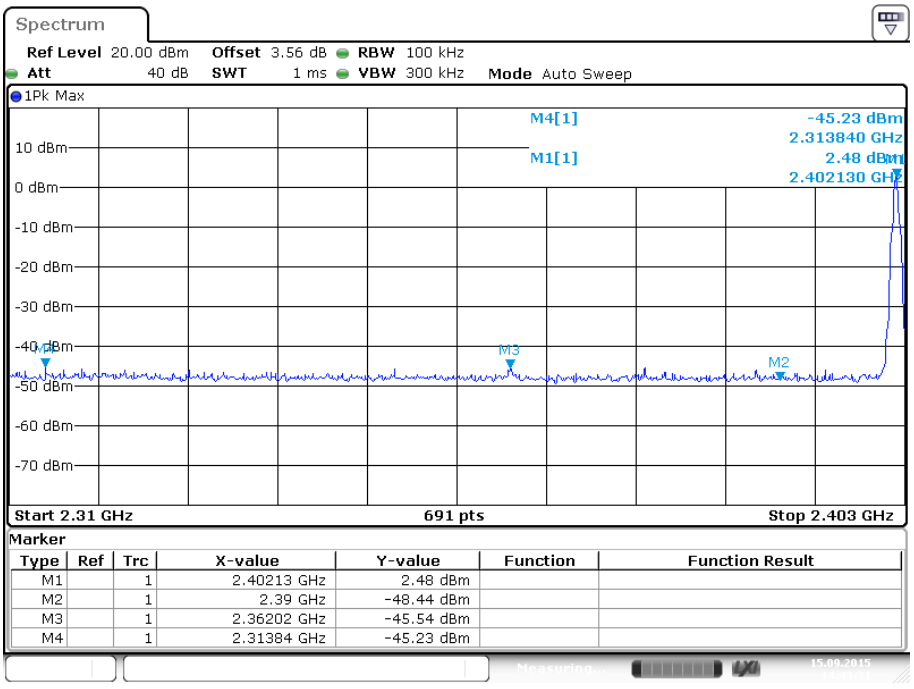
High channel:



Date: 15.SEP.2015 14:47:43

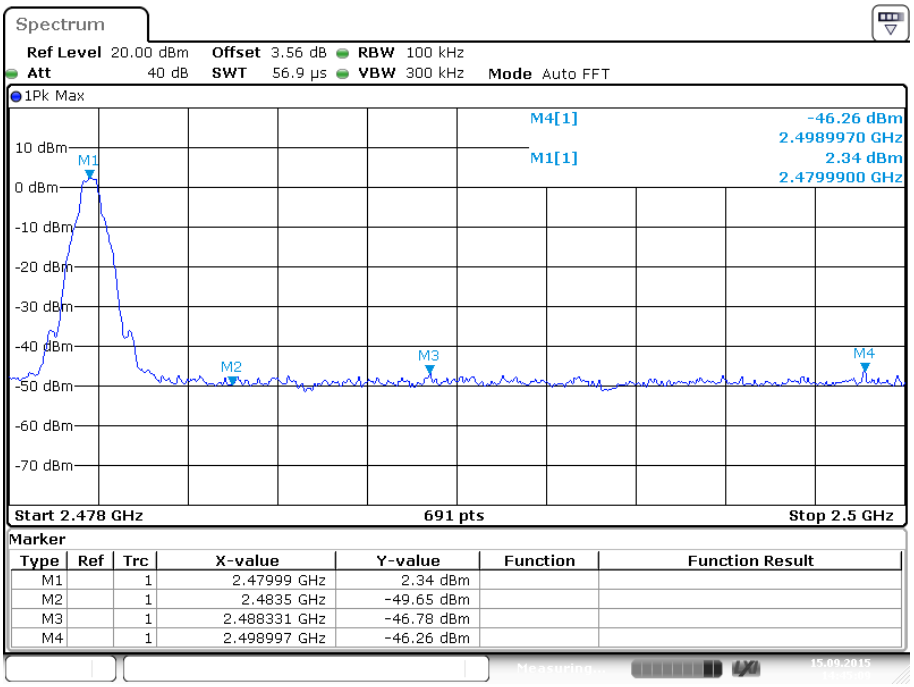
Test Plot of 100 kHz Bandwidth of Frequency Band Edge

Low channel:



Date: 15.SEP.2015 14:43:31

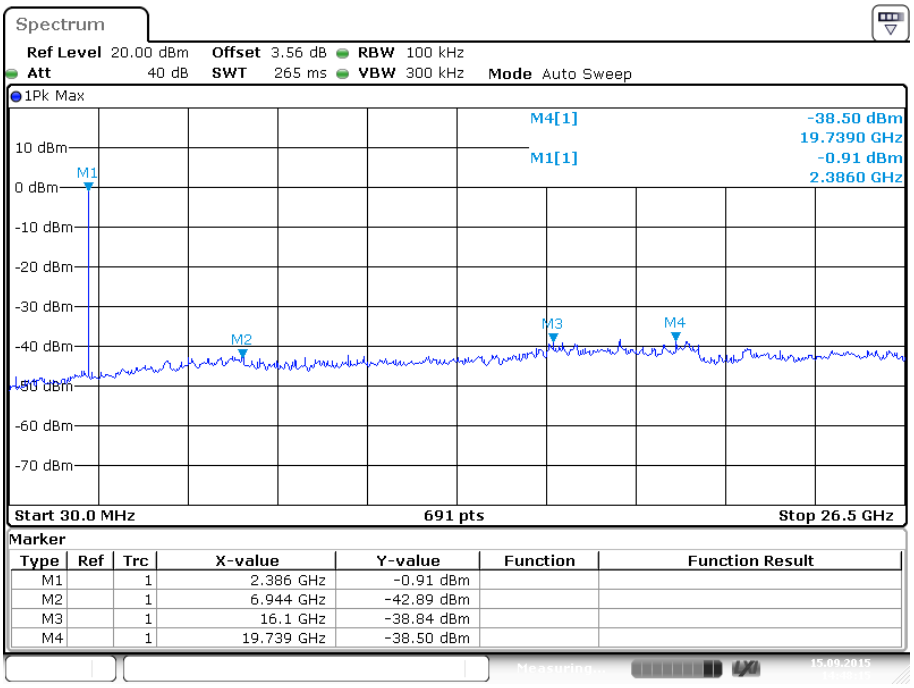
High channel:



Date: 15.SEP.2015 14:45:10

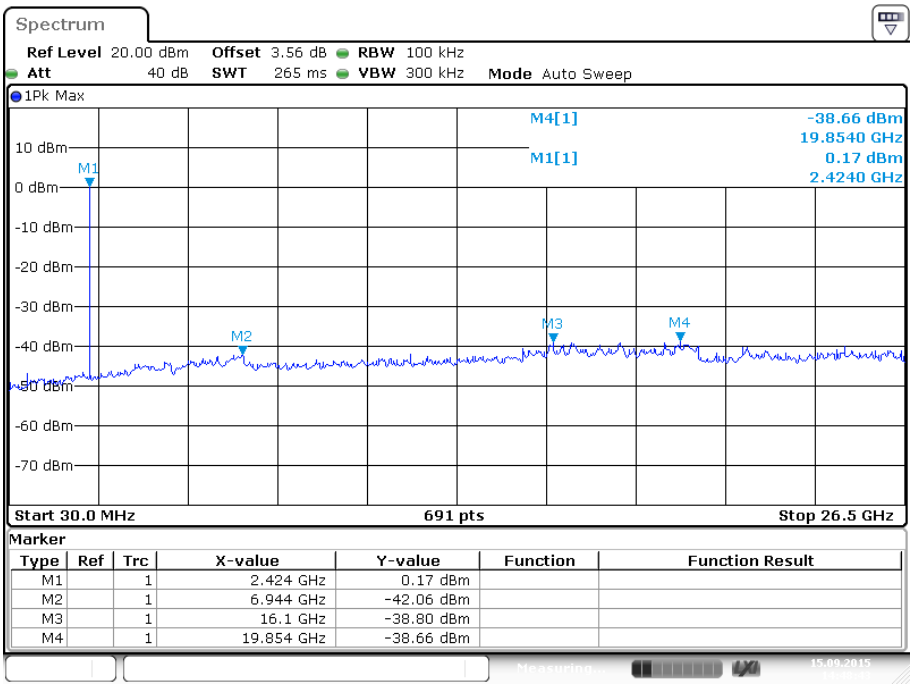
Test Plot of Conducted Spurious Emissions Measured in 100kHz Bandwidth, EDR mode

Low channel:



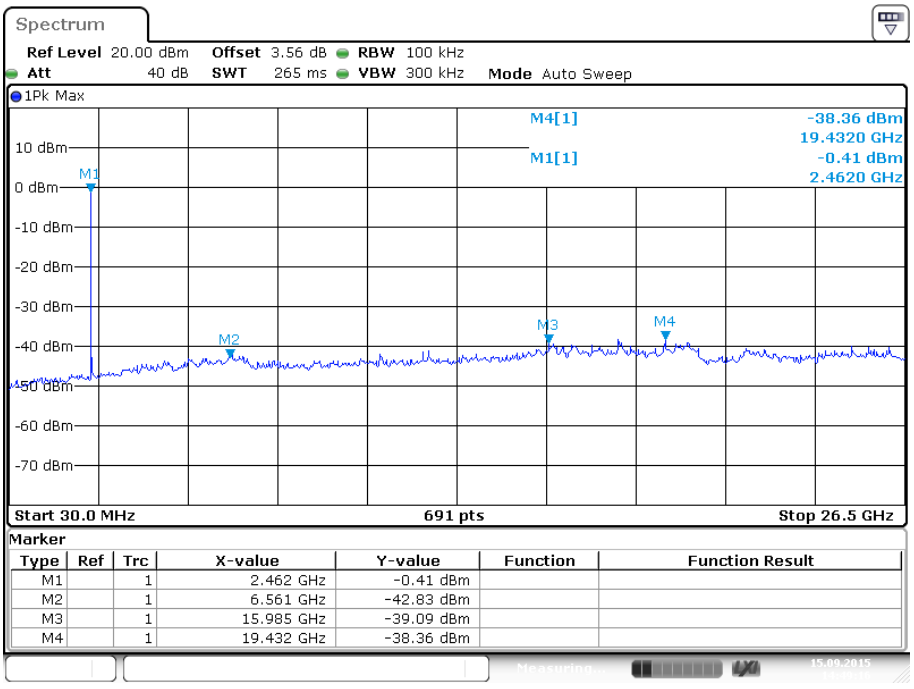
Date: 15.SEP.2015 14:48:15

Middle channel:



Date: 15.SEP.2015 14:48:43

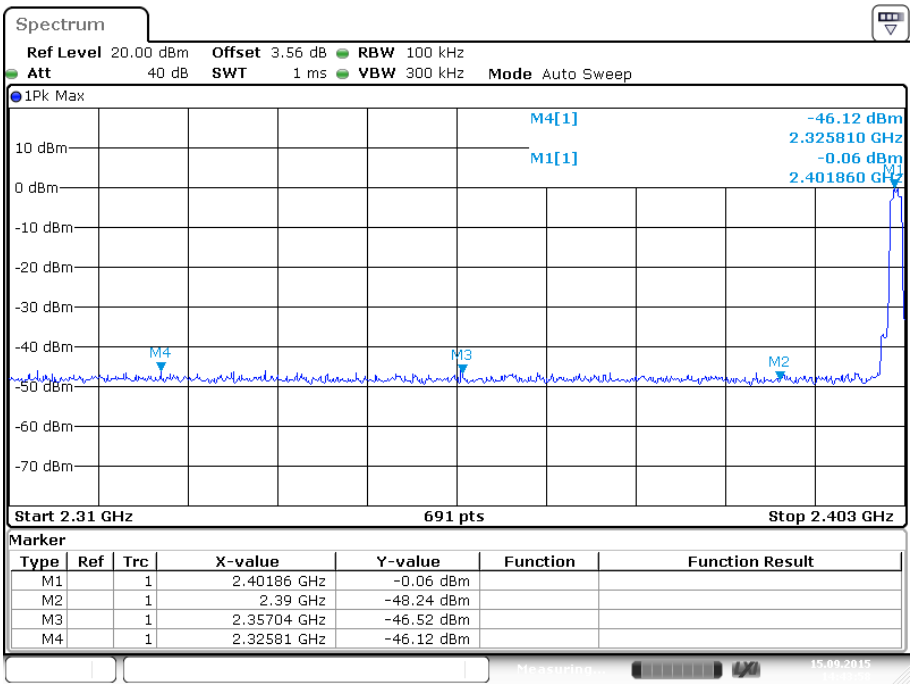
High channel:



Date: 15.SEP.2015 14:49:16

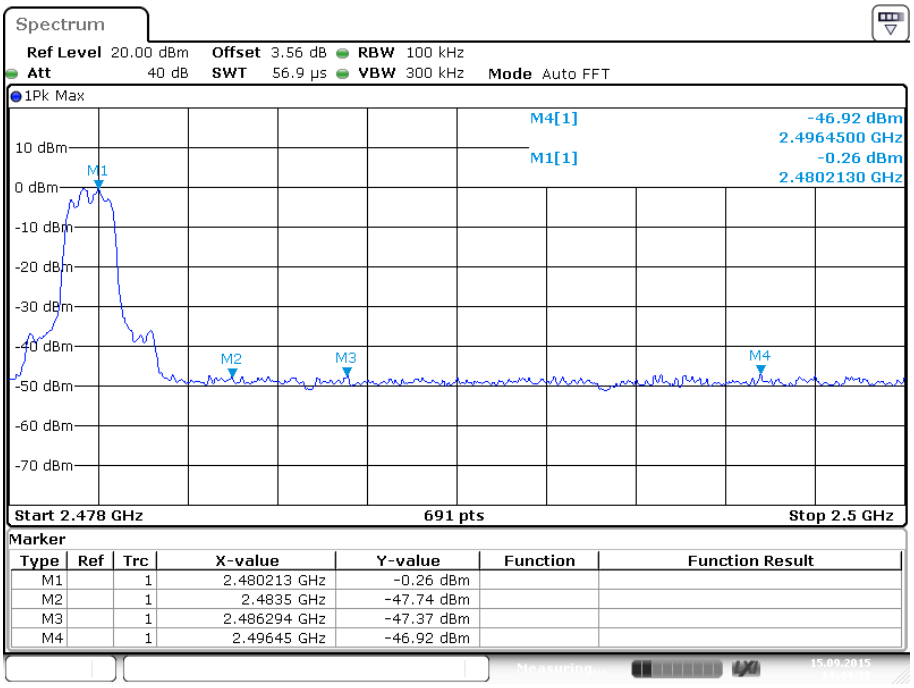
Test Plot of 100 kHz Bandwidth of Frequency Band Edge

Low channel:



Date: 15.SEP.2015 14:43:58

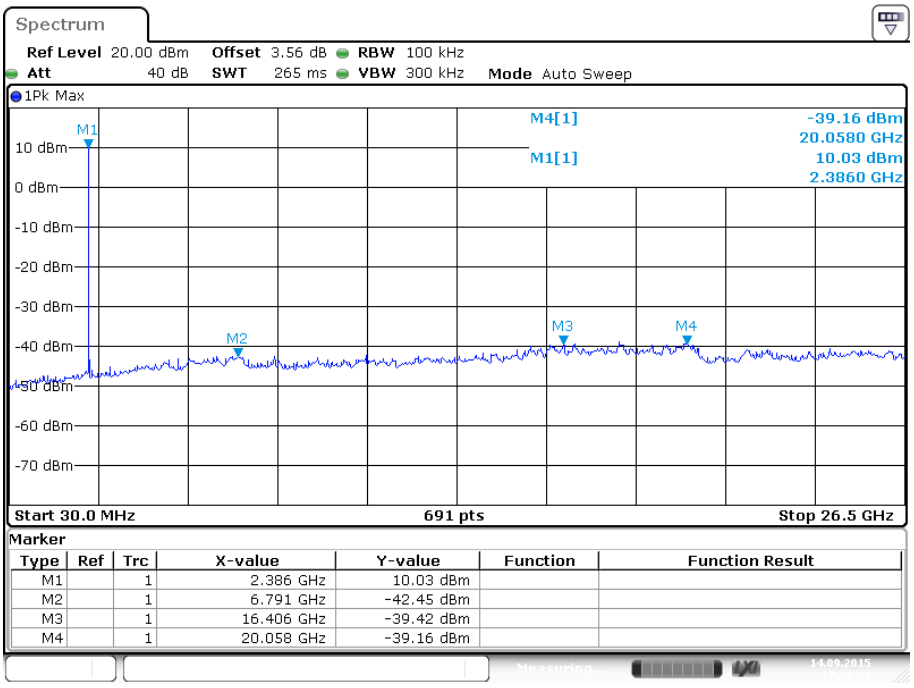
High channel:



Date: 15.SEP.2015 14:44:38

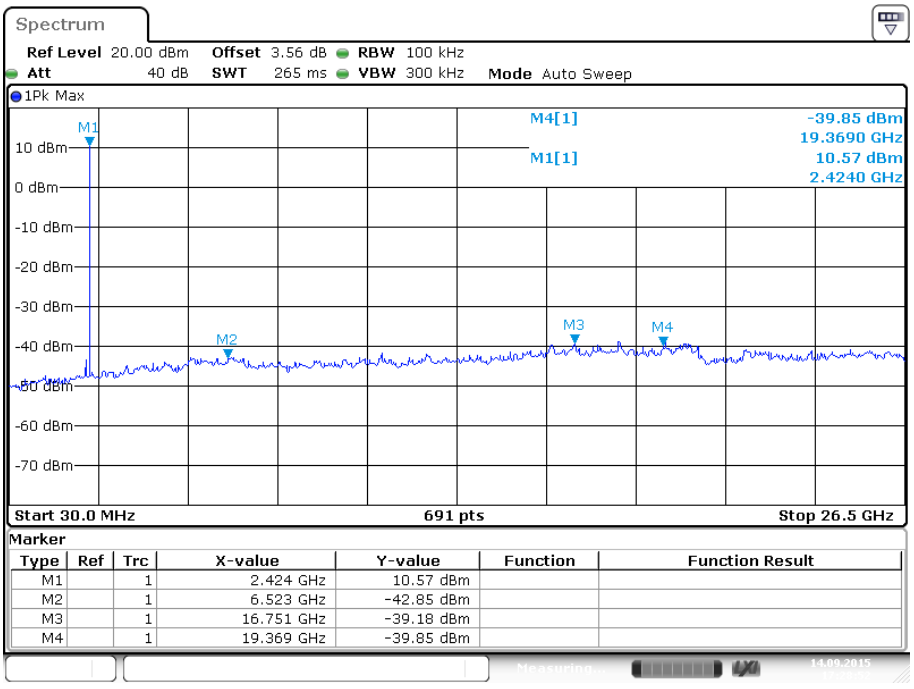
Test Plot of Conducted Spurious Emissions Measured in 100kHz Bandwidth, Low Energy mode

Low channel:



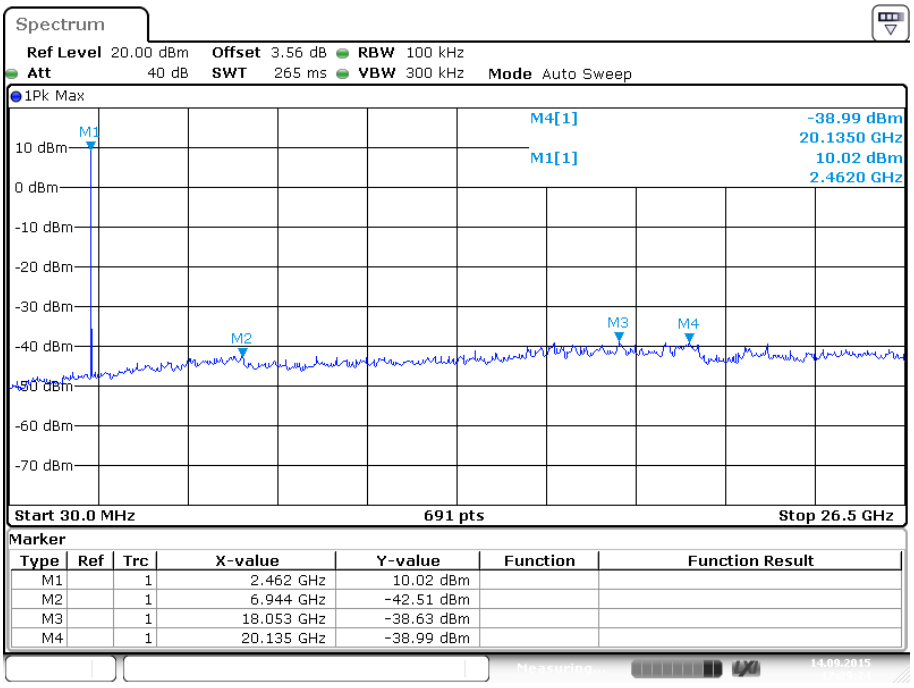
Date: 14.SEP.2015 17:28:20

Middle channel:



Date: 14.SEP.2015 17:28:52

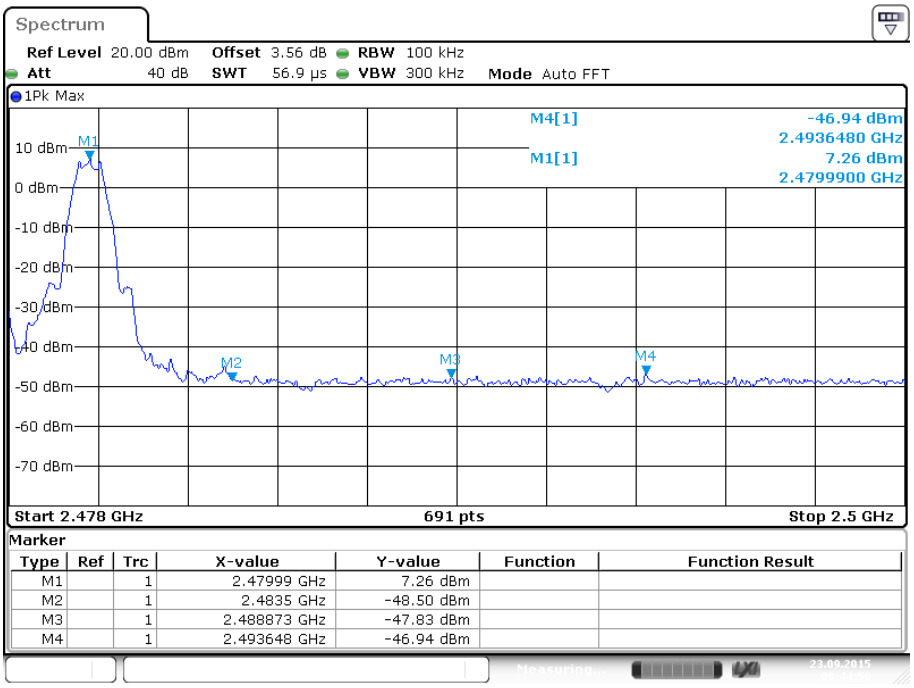
High channel:



Date: 14.SEP.2015 17:29:24

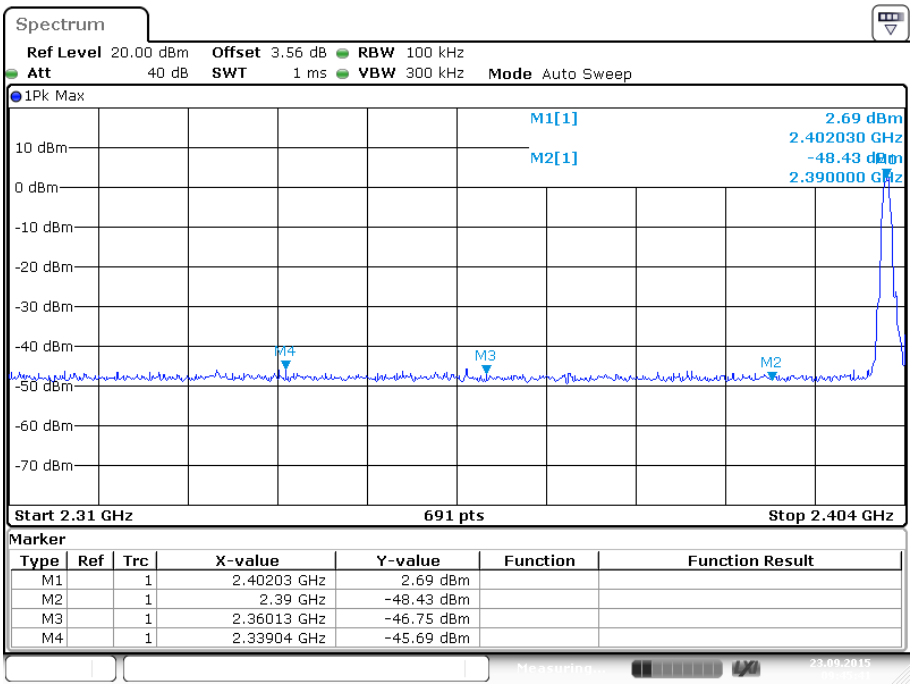
Test Plot of 100 kHz Bandwidth of Frequency Band Edge

Low channel:



Date: 23.SEP.2015 09:44:50

High channel:



Date: 23.SEP.2015 09:45:42

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
Kind of test site	:	3m Semi-anechoic Chamber

Test Setup

Date of testing	:	22.09.2015
Input voltage	:	DC 3.3V via Internal rechargeable lithium battery
Operation mode	:	A.1, B.1
Test channel	:	Low / Middle/ High
Ambient temperature	:	25℃
Relative humidity	:	56%
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 mode at the low (2402 MHz), middle (2441 MHz) and high (2480 MHz) channel with different data packet. Compliance test in continuous transmitting mode with BDR mode (DH5) 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 1.

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	:	15.09.2015
Input voltage	:	DC 3.3V via Internal rechargeable lithium battery
Operation mode	:	A.1
Test channel	:	Low / Middle/ High
Ambient temperature	:	25℃
Relative humidity	:	56%
Atmospheric pressure	:	101 kPa

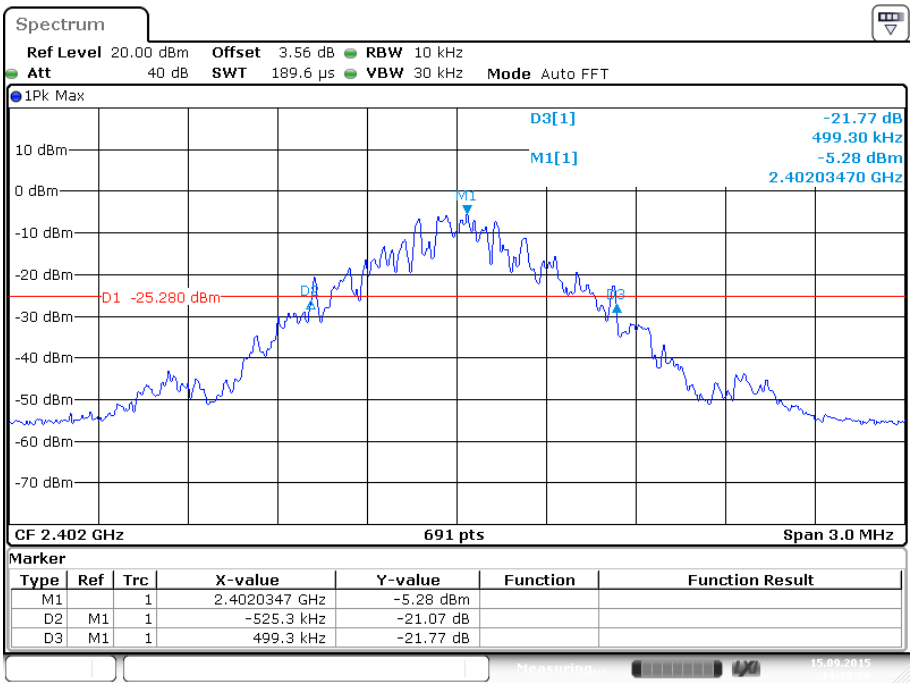
Table 9: Test Result of 20dB Bandwidth

Mode	Channel Frequency (MHz)	20dB Bandwidth (kHz)	2/3 of 20dB Bandwidth (kHz)	Limit (MHz)
BDR	2402	1024.6	683.067	/
	2441	1024.6	683.067	
	2480	1024.6	683.067	
EDR	2402	1289.4	859.600	/
	2441	1293.8	862.533	
	2480	1280.7	853.800	
Maximum Measured Value		1293.80	862.533	/

For the measurement records, refer to following test plot:

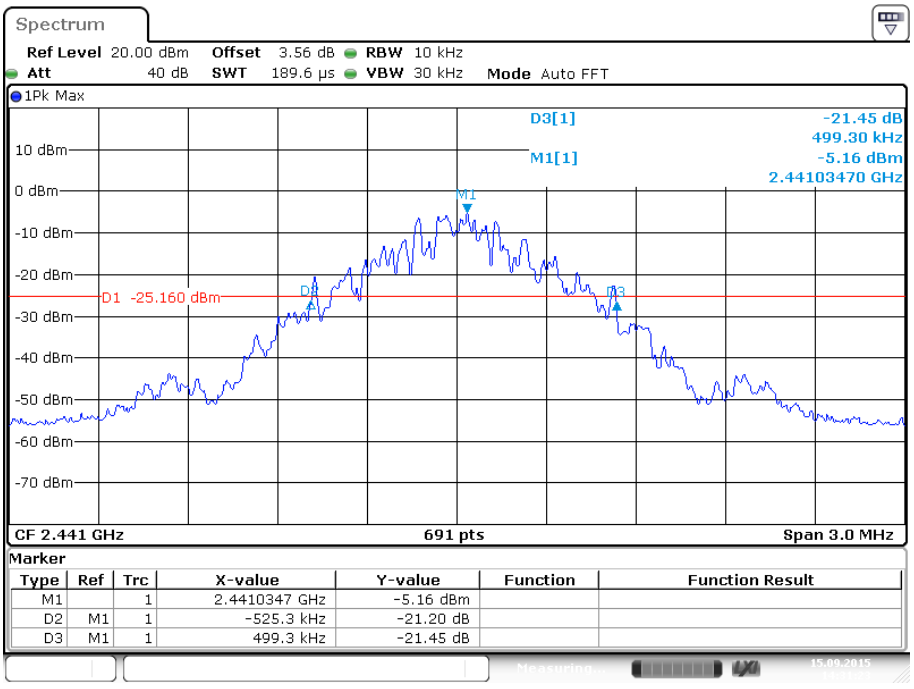
Test Plot of 20dB Bandwidth, BDR mode

Low channel:



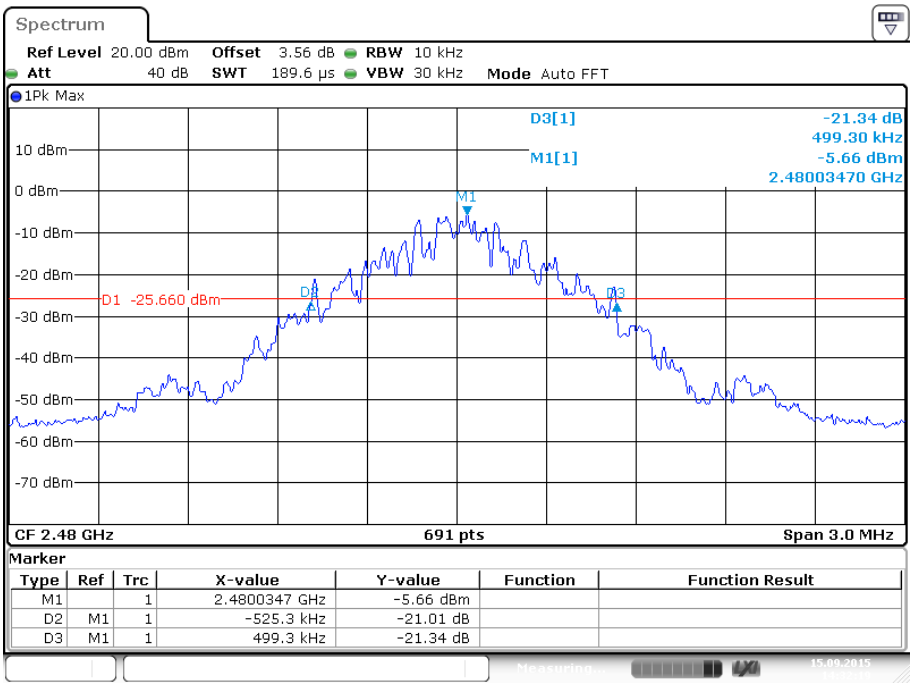
Date: 15.SEP.2015 14:30:26

Middle channel:



Date: 15.SEP.2015 14:31:23

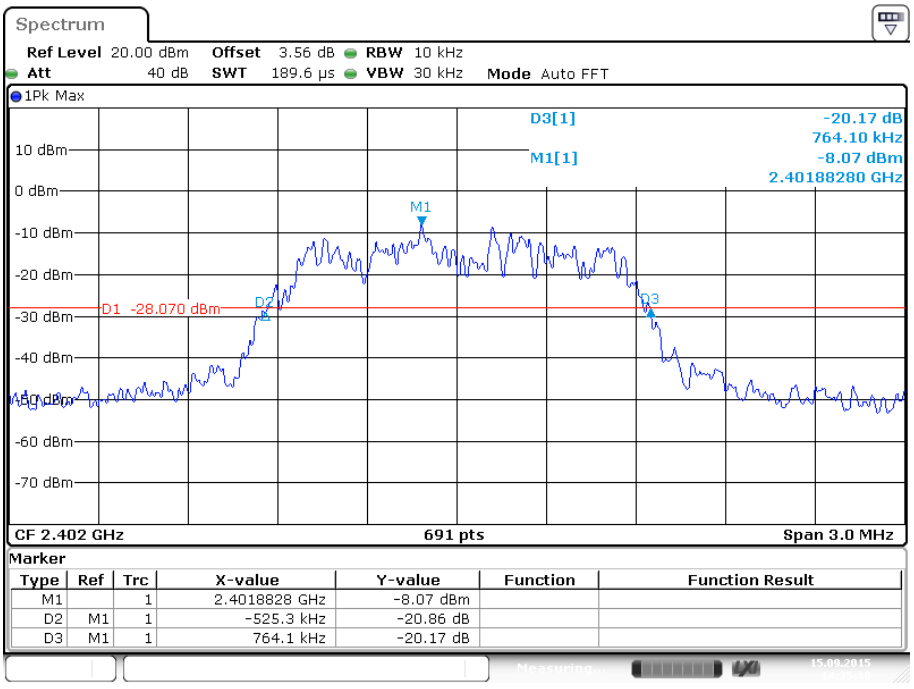
High channel:



Date: 15.SEP.2015 14:32:19

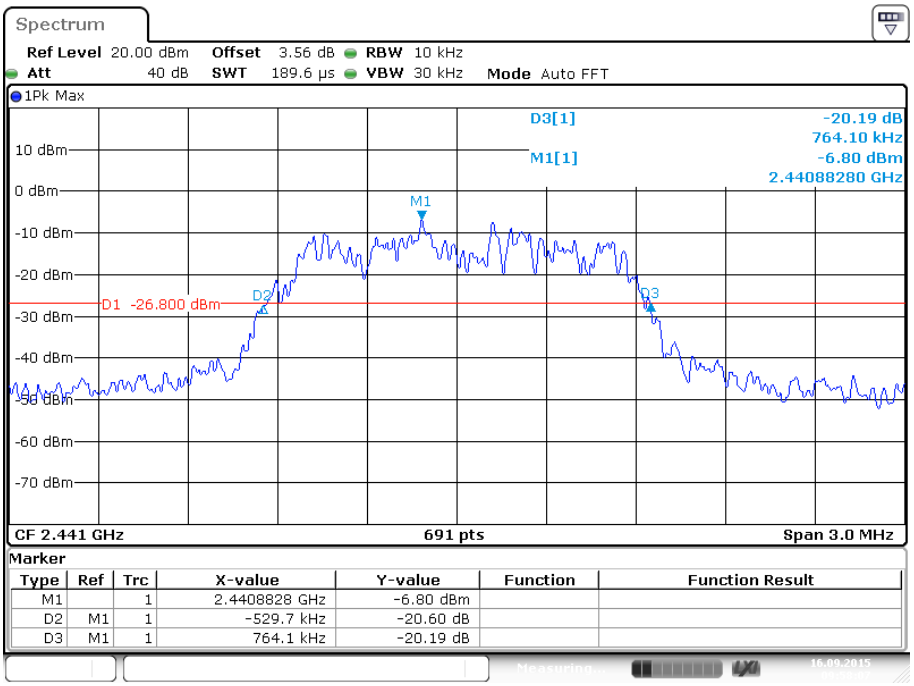
Test Plot of 20dB Bandwidth, EDR mode

Low channel:



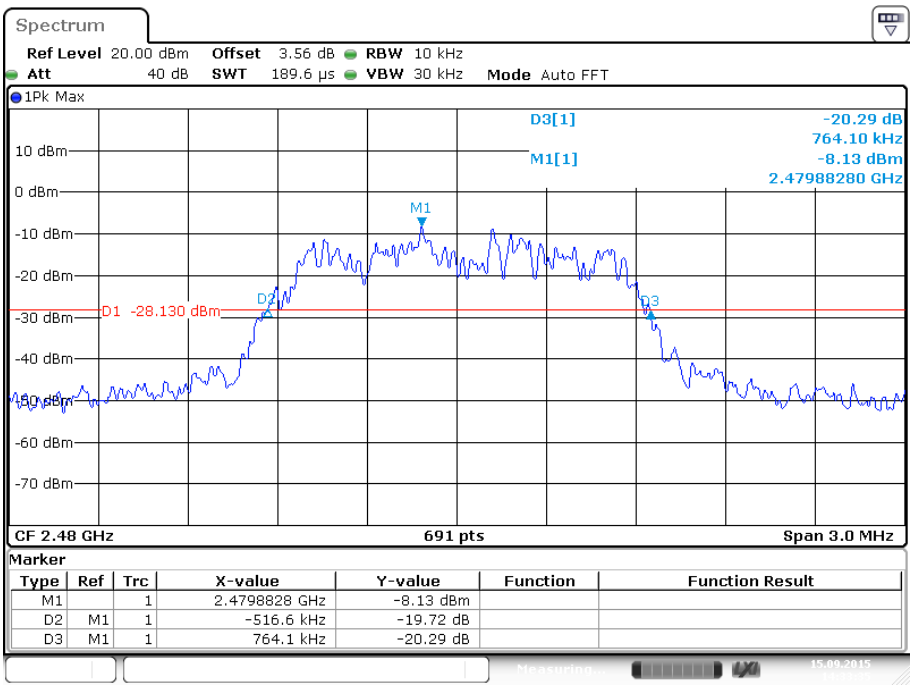
Date: 15.SEP.2015 14:35:11

Middle channel:



Date: 16.SEP.2015 09:58:06

High channel:



Date: 15.SEP.2015 14:33:36

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	:	15.09.2015
Input voltage	:	DC 3.3V via Internal rechargeable lithium battery
Operation mode	:	C
Test channel	:	Low / Middle/ High
Ambient temperature	:	25℃
Relative humidity	:	56%
Atmospheric pressure	:	101 kPa

Table 10: Test Result of Carrier Frequency Separation

Channel	Channel Frequency (MHz)	Measured Channel Separation (KHz)	Limit (kHz)	Result
Low Channel	2402	1002.9	≥ 25kHz or 2/3 of 20dB bandwidth	Pass
Adjacency Channel	2403			
Middle Channel	2441	1002.9		Pass
Adjacency Channel	2442			
High Channel	2480	1002.9		Pass
Adjacency Channel	2479			

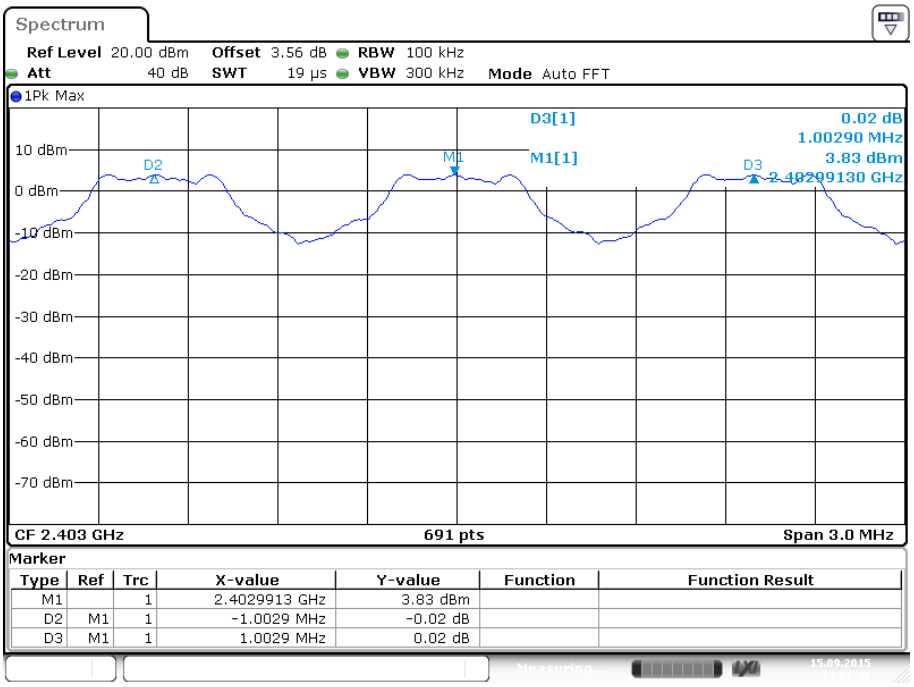
Note:

The limit is maximum 2/3 of the 20 dB bandwidth: 862.533 KHz.

For the measurement records, refer to following test plot:

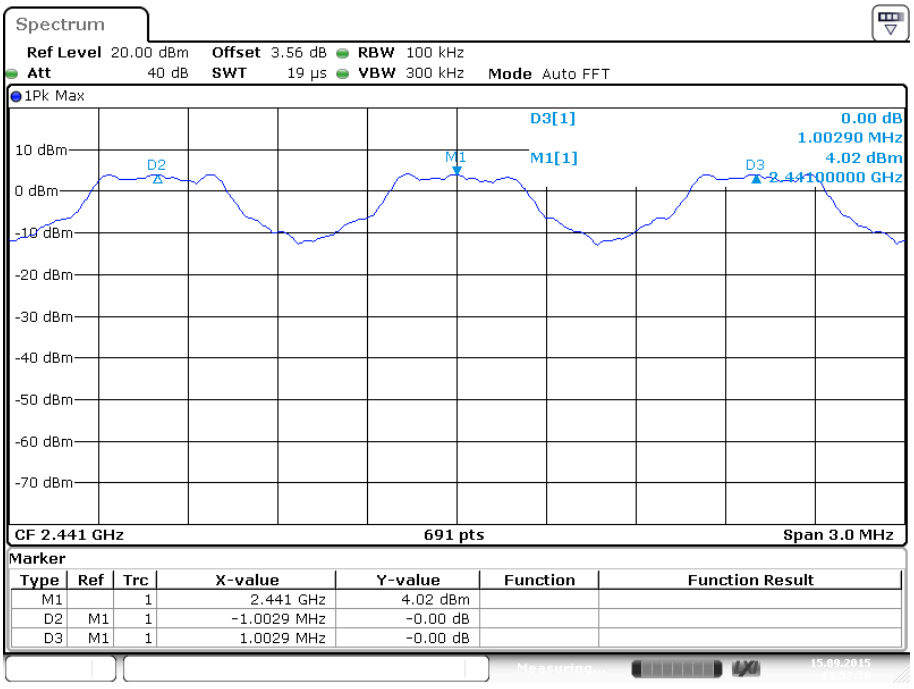
Test Plot of Carrier Frequency Separation

Low channel:



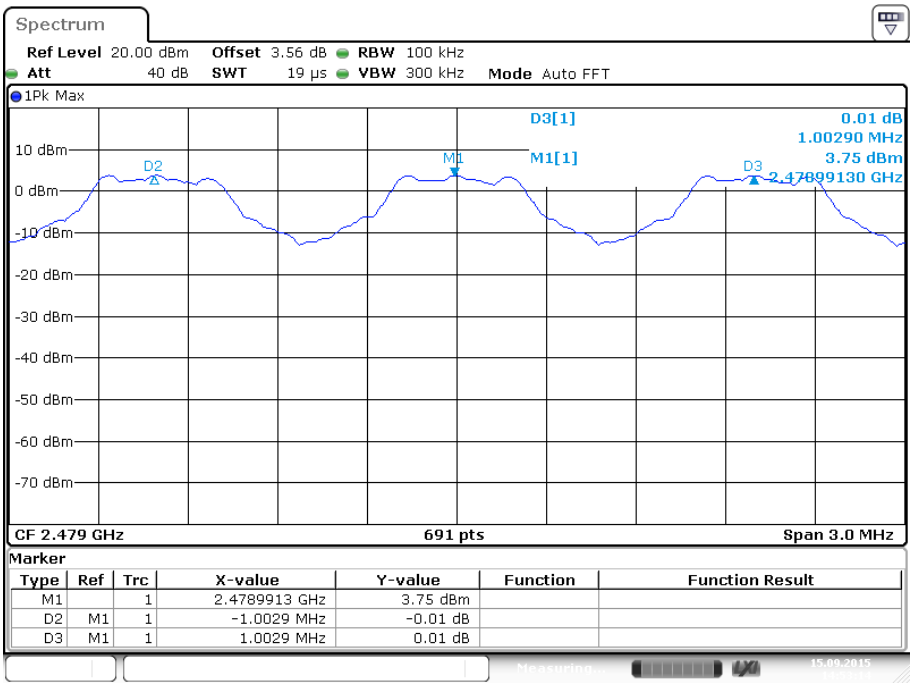
Date: 15.SEP.2015 14:51:46

Middle channel:



Date: 15.SEP.2015 14:52:30

High channel:



Date: 15.SEP.2015 14:53:14

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

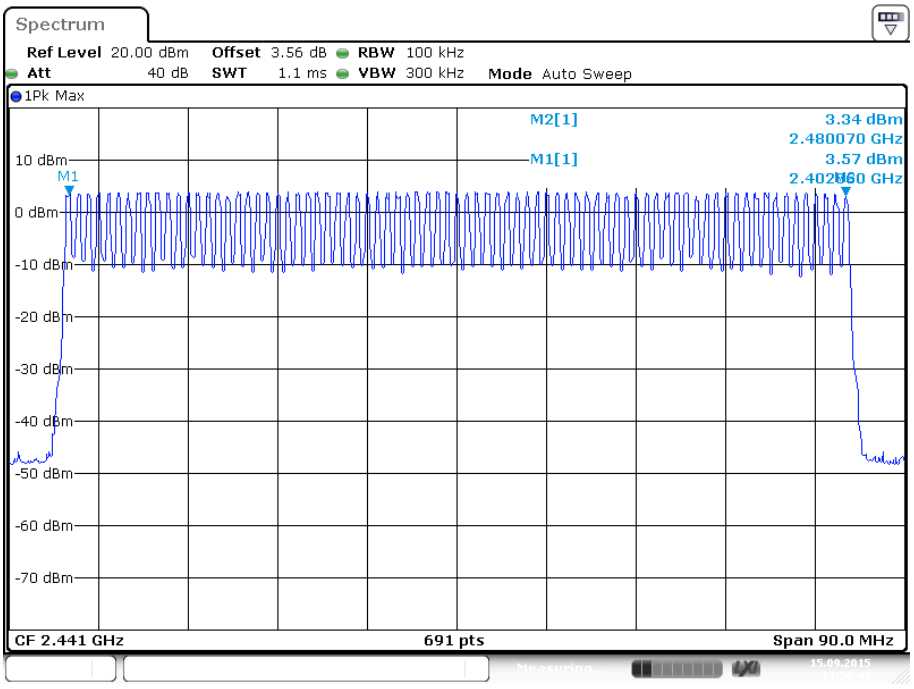
Date of testing	:	15.09.2015
Input voltage	:	DC 3.3V via Internal rechargeable lithium battery
Operation mode	:	C
Ambient temperature	:	25℃
Relative humidity	:	56%
Atmospheric pressure	:	101 kPa

Table 11: 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 following test plot:

Test Plot of Number of Hopping Frequency



Date: 15.SEP.2015 14:50:42

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	:	15.09.2015
Input voltage	:	DC 3.3V via Internal rechargeable lithium battery
Operation mode	:	A.1
Test channel	:	Low / Middle/ High
Ambient temperature	:	25℃
Relative humidity	:	56%
Atmospheric pressure	:	101 kPa

Table 12: Test Result of Time of Occupancy, BDR mode

Channel	Data Mode	Pulse width (ms)	Measured Dwell time(s)	Limit (s)	Result
Low Channel	1DH1	0.374	0.120	0.4	Pass
	1DH3	1.652	0.264	0.4	Pass
	1DH5	2.913	0.311	0.4	Pass
Middle Channel	1DH1	0.377	0.121	0.4	Pass
	1DH3	1.681	0.269	0.4	Pass
	1DH5	2.913	0.311	0.4	Pass
High Channel	1DH1	0.377	0.121	0.4	Pass
	1DH3	1.652	0.264	0.4	Pass
	1DH5	2.913	0.311	0.4	Pass

Table 13: Test Result of Time of Occupancy, EDR mode

Channel	Data Mode	Pulse width (ms)	Measured Dwell time (s)	Limit (s)	Result
Low Channel	3DH1	0.397	0.127	0.4	Pass
	3DH3	1.670	0.267	0.4	Pass
	3DH5	2.945	0.314	0.4	Pass
Middle Channel	3DH1	0.394	0.126	0.4	Pass
	3DH3	1.670	0.267	0.4	Pass
	3DH5	2.967	0.316	0.4	Pass
High Channel	3DH1	0.394	0.126	0.4	Pass
	3DH3	1.684	0.269	0.4	Pass
	3DH5	2.945	0.314	0.4	Pass

Note:

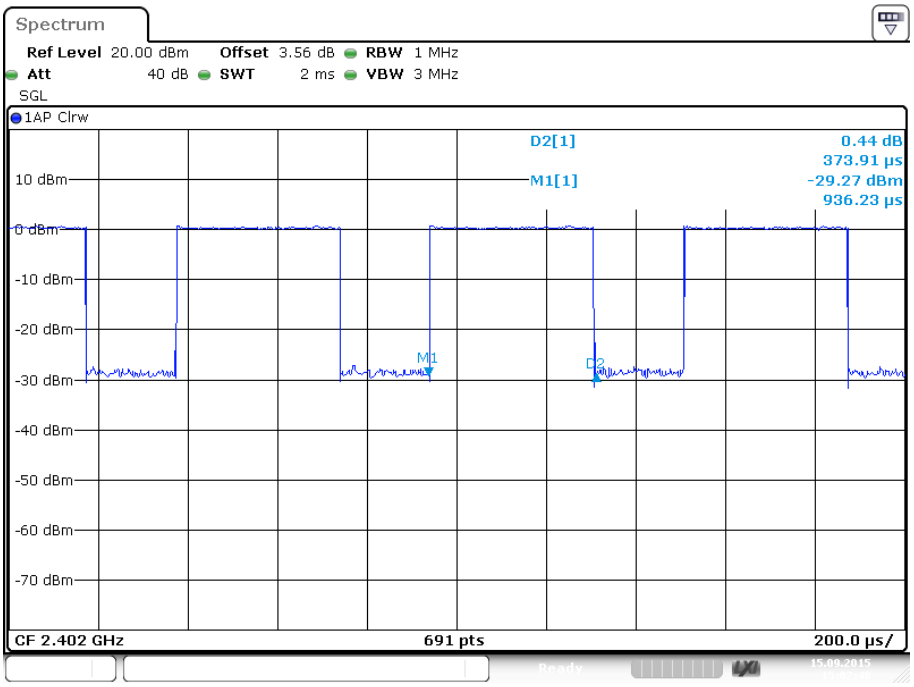
Dwell time = Pulse width x (Hopping rate / Number of channels) x Period

Period = 0.4 (seconds/ channel) x 79 (channel) = 31.6 seconds

For the measurement records, refer to following test plot:

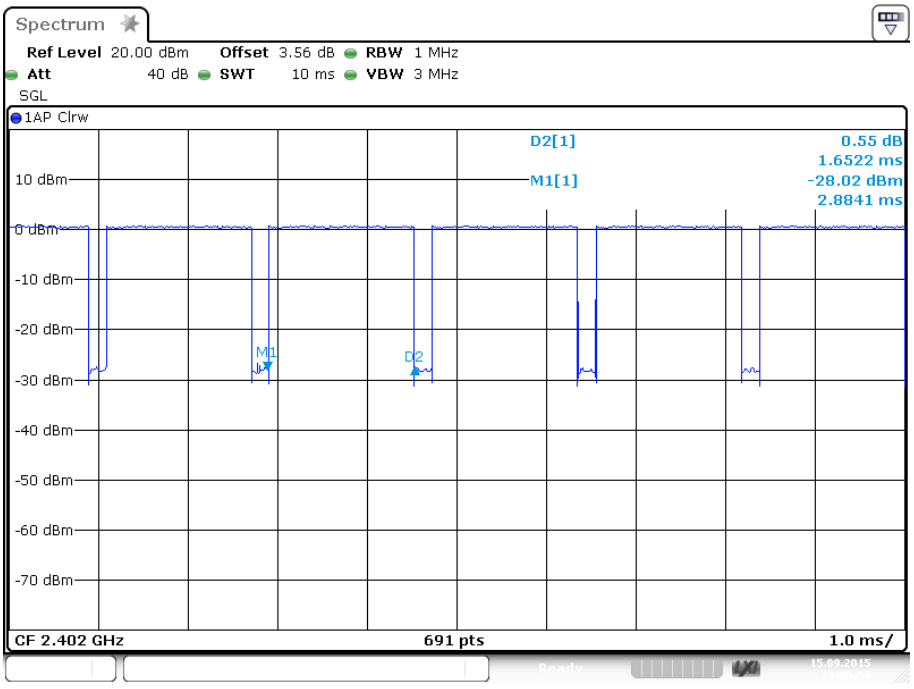
Test Plot of Time of Occupancy, BDR mode

Low channel: DH1



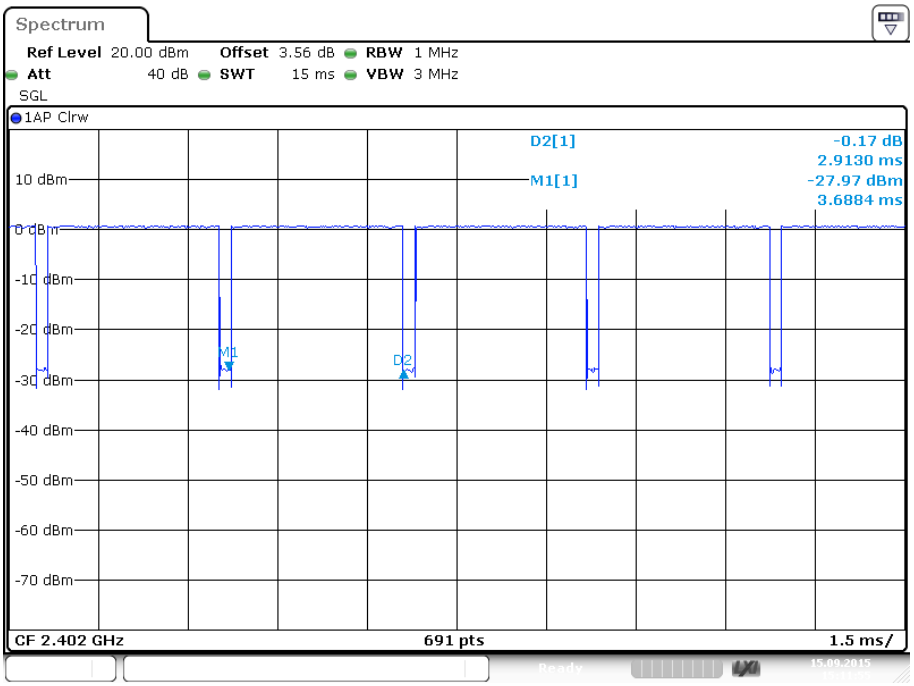
Date: 15.SEP.2015 15:02:49

Low channel: DH3



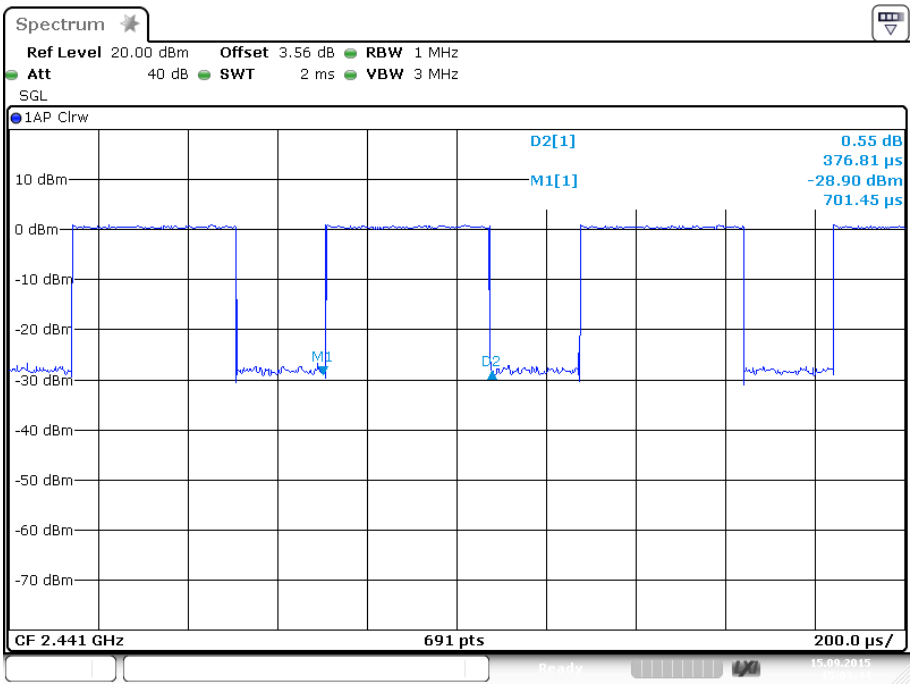
Date: 15.SEP.2015 15:06:59

Low channel: DH5



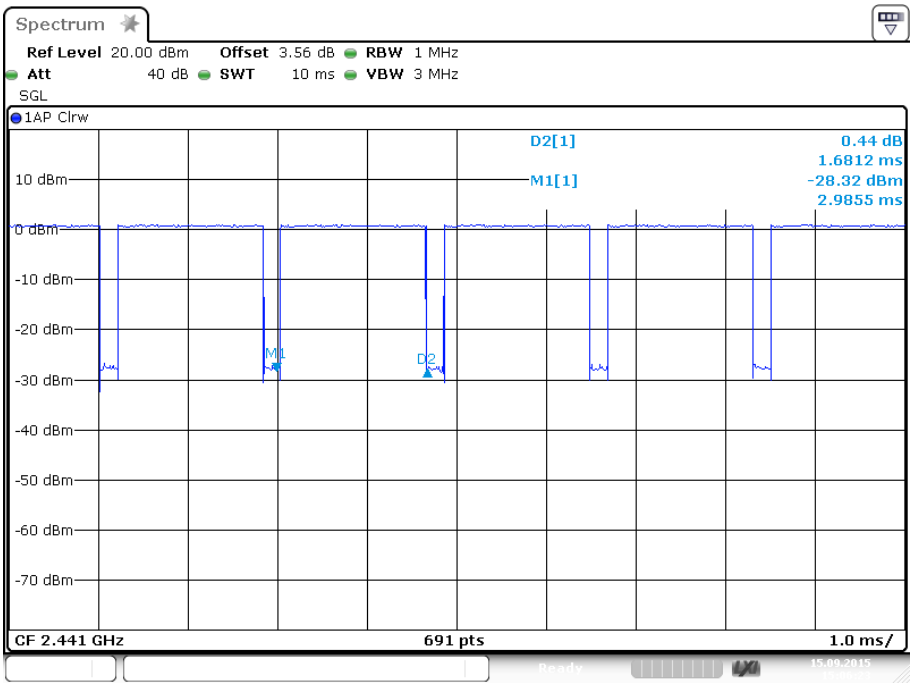
Date: 15.SEP.2015 15:11:55

Middle channel: DH1



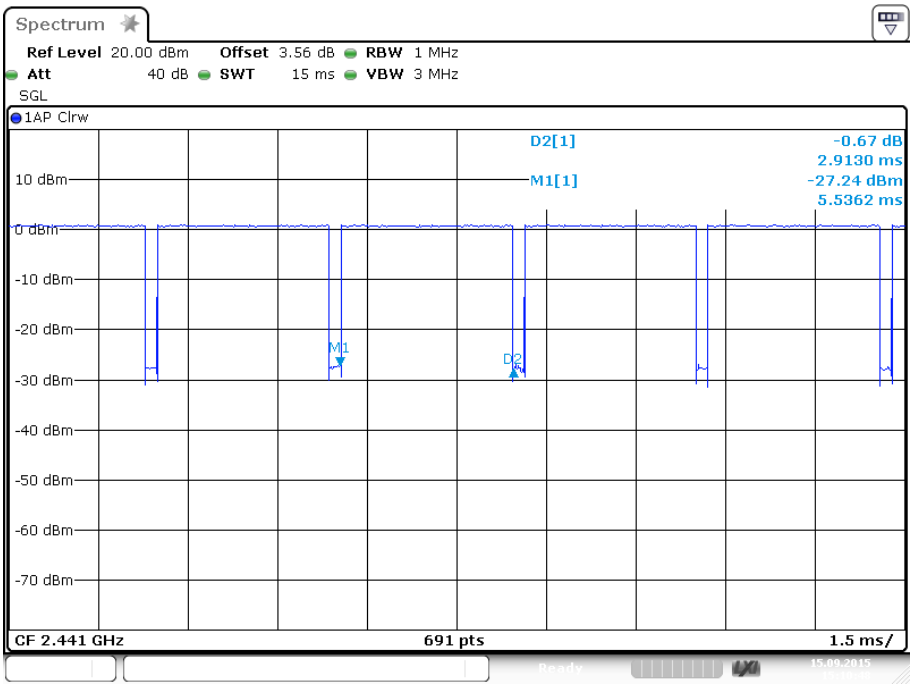
Date: 15.SEP.2015 15:03:44

Middle channel: DH3



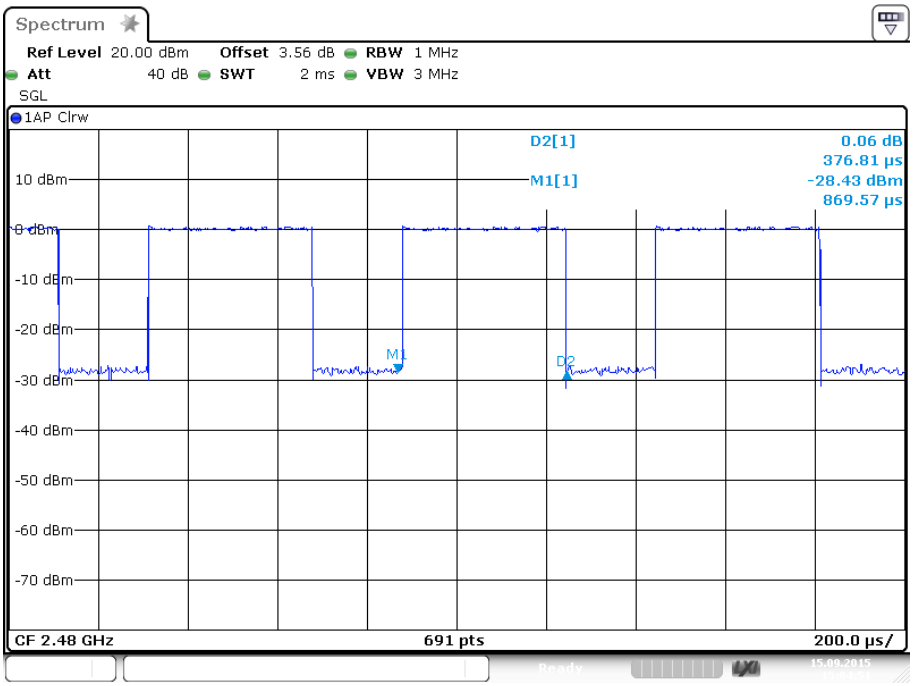
Date: 15.SEP.2015 15:06:23

Middle channel: DH5



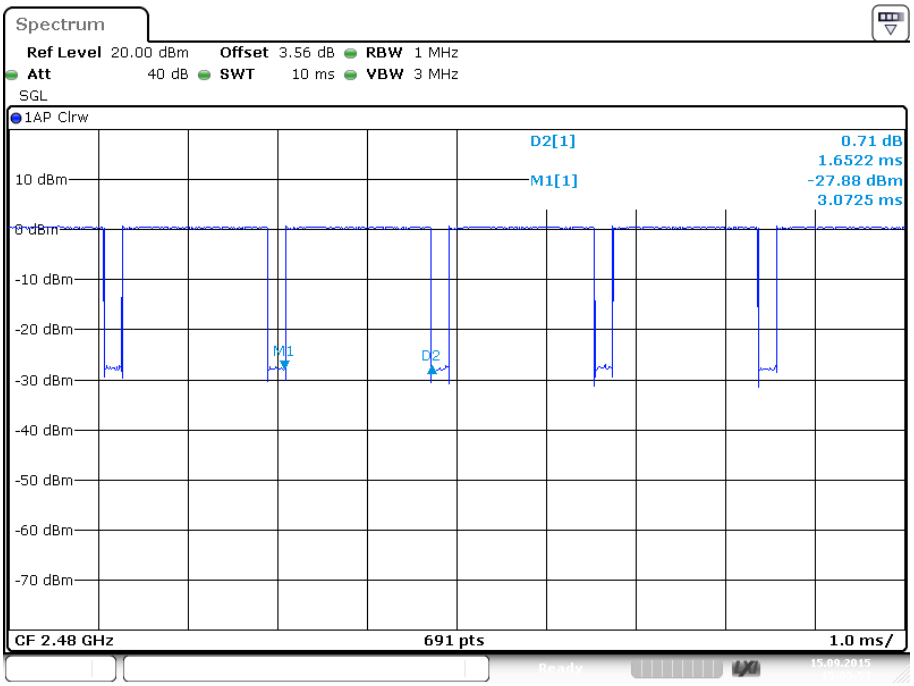
Date: 15.SEP.2015 15:10:48

High channel: DH1



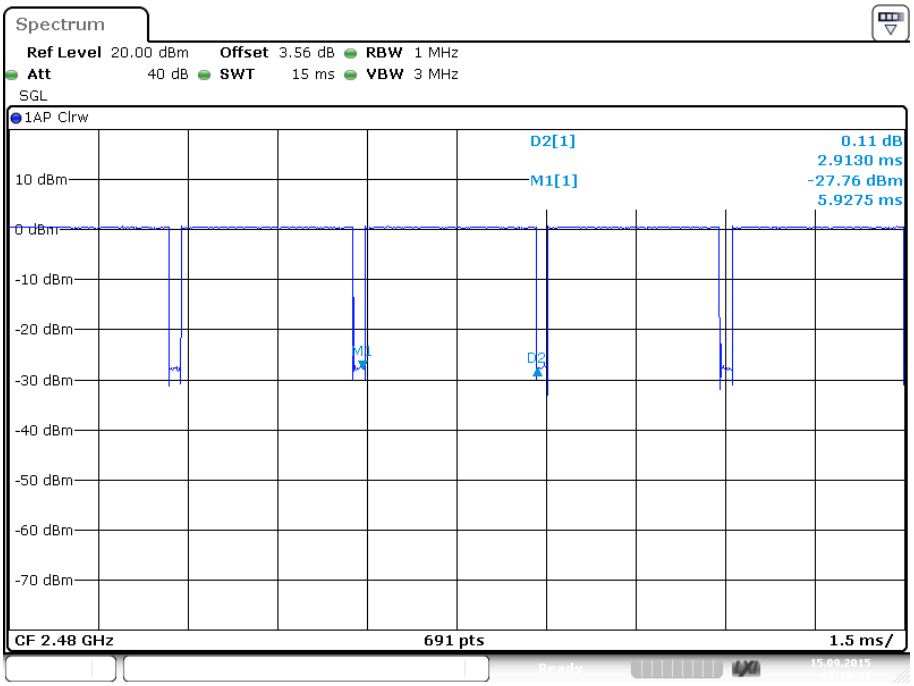
Date: 15.SEP.2015 15:04:51

High channel: DH3



Date: 15.SEP.2015 15:05:53

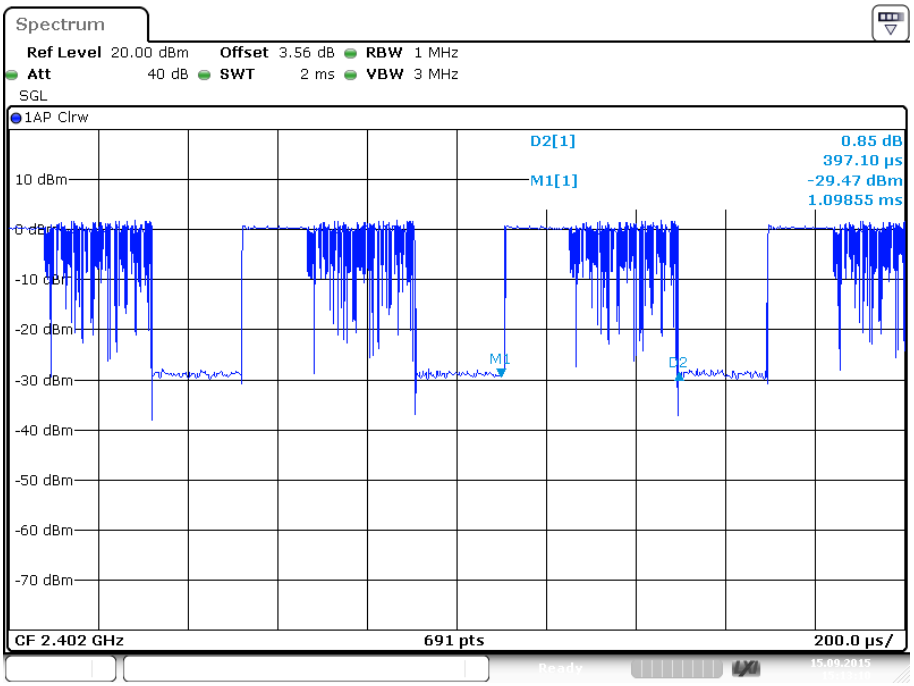
High channel: DH5



Date: 15.SEP.2015 15:10:21

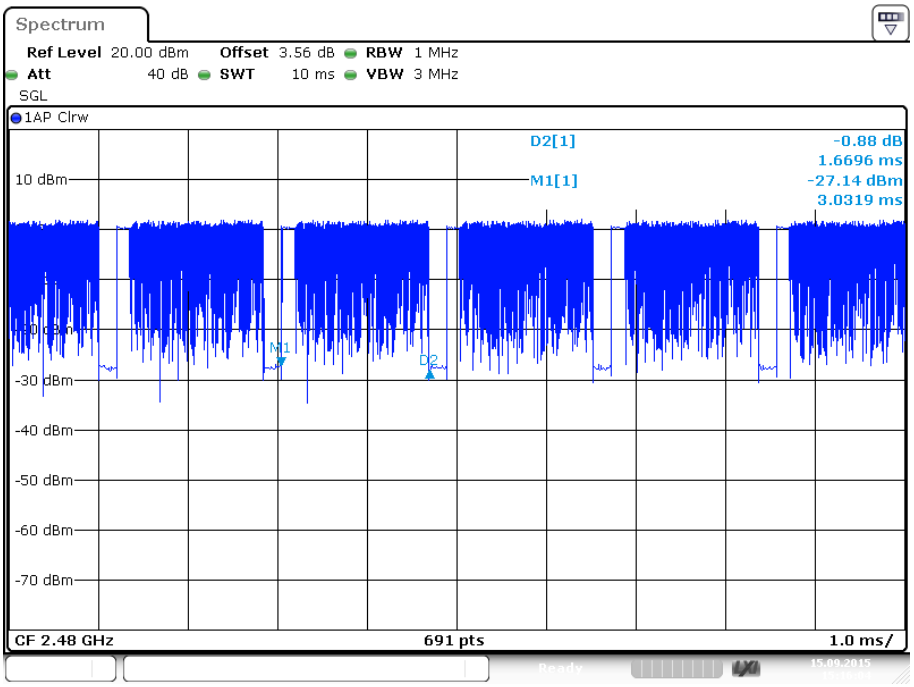
Test Plot of Time of Occupancy, EDR mode

Low channel: 3DH1



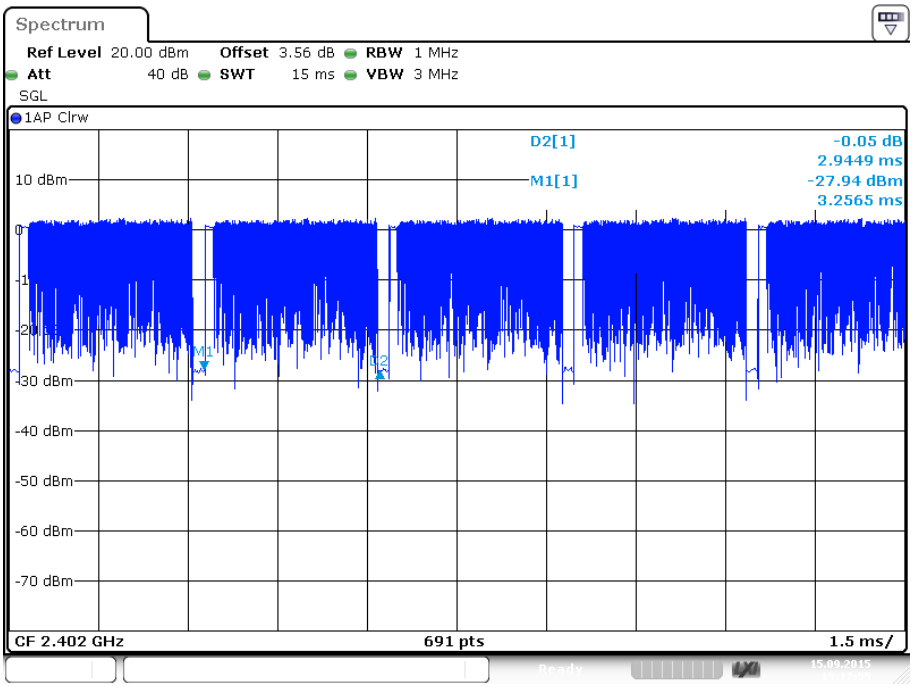
Date: 15.SEP.2015 15:13:10

Low channel: 3DH3



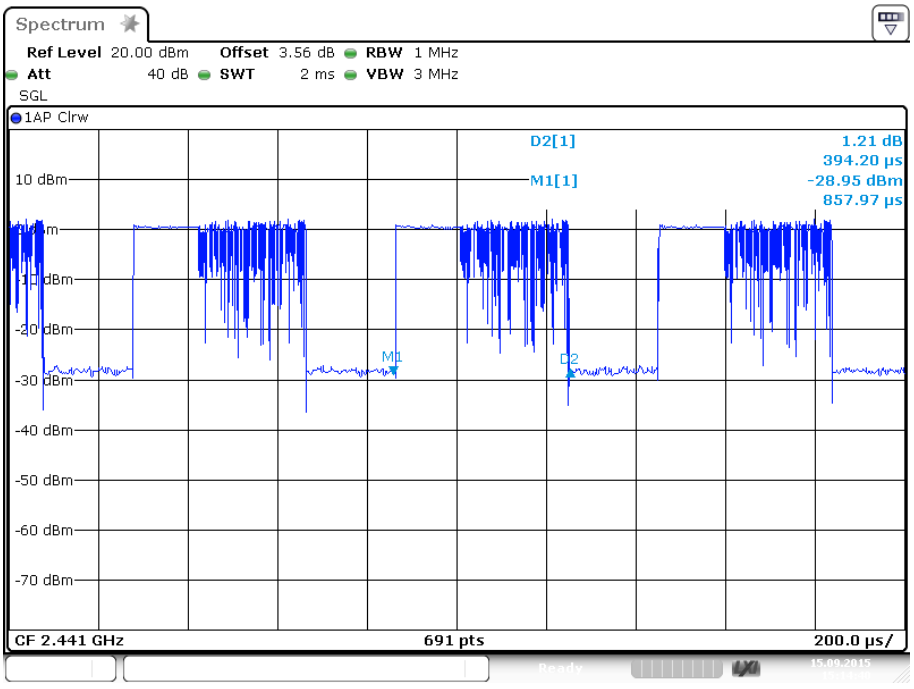
Date: 15.SEP.2015 15:16:04

Low channel: 3DH5



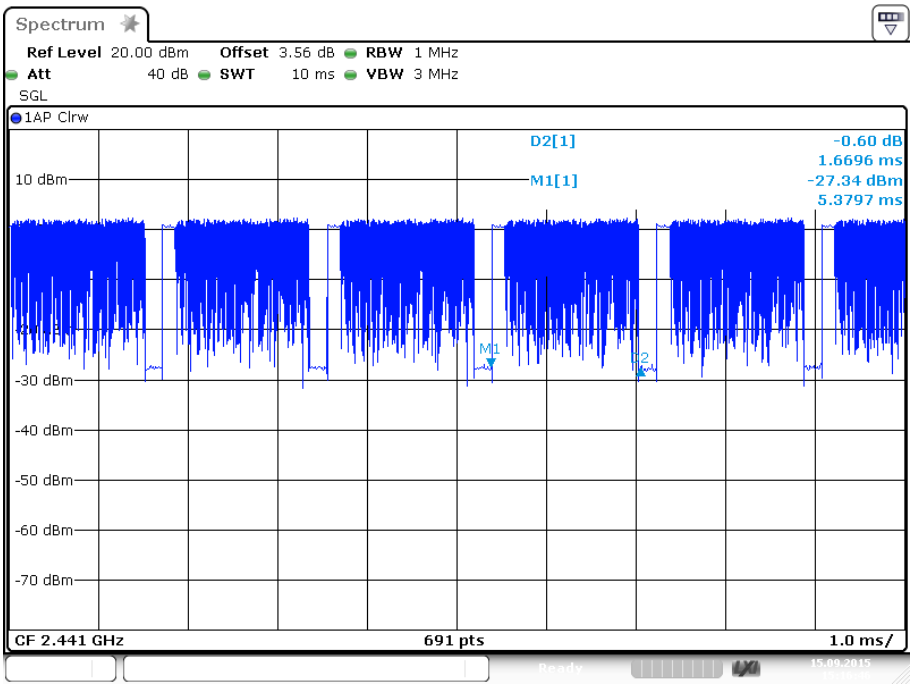
Date: 15.SEP.2015 15:17:55

Middle channel: 3DH1



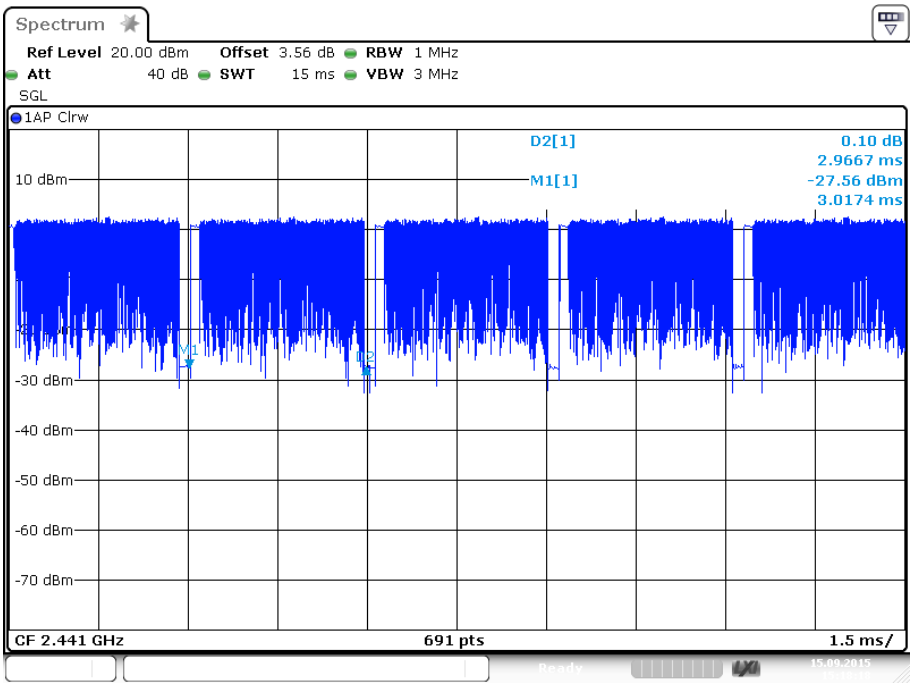
Date: 15.SEP.2015 15:14:40

Middle channel: 3DH3



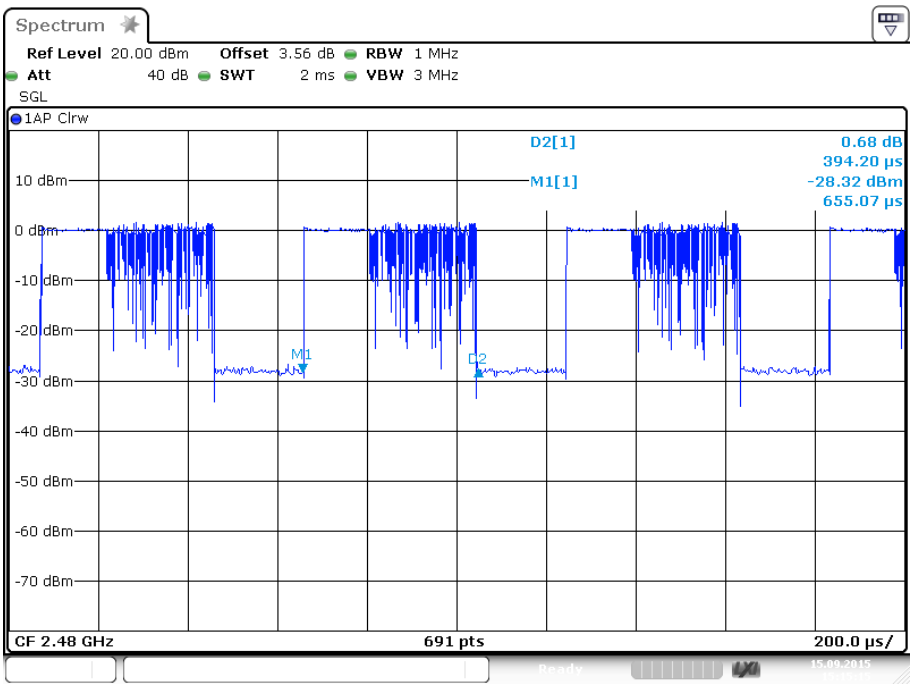
Date: 15.SEP.2015 15:16:46

Middle channel: 3DH5



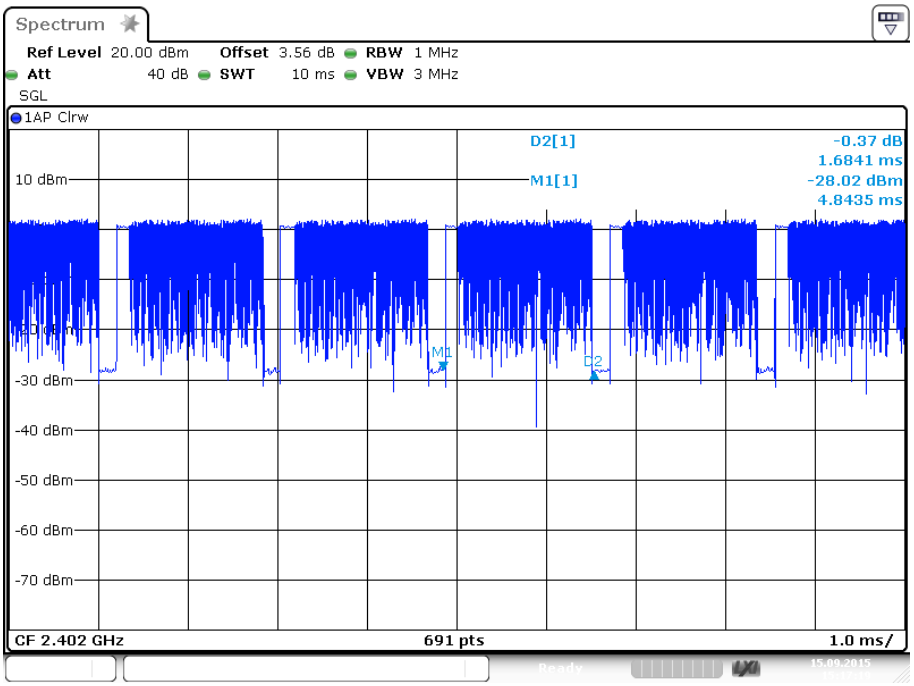
Date: 15.SEP.2015 15:18:18

High channel: 3DH1



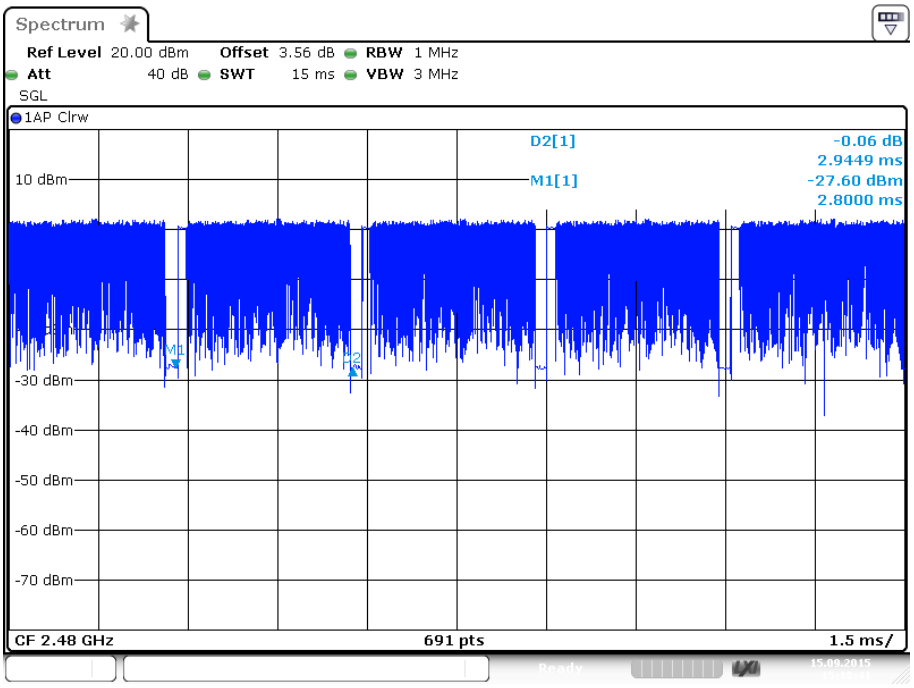
Date: 15.SEP.2015 15:15:16

High channel: 3DH3



Date: 15.SEP.2015 15:17:19

High channel: 3DH5



Date: 15.SEP.2015 15:18:41

5.1.12 Conducted Emissions

RESULT: **Pass**

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

Test Setup

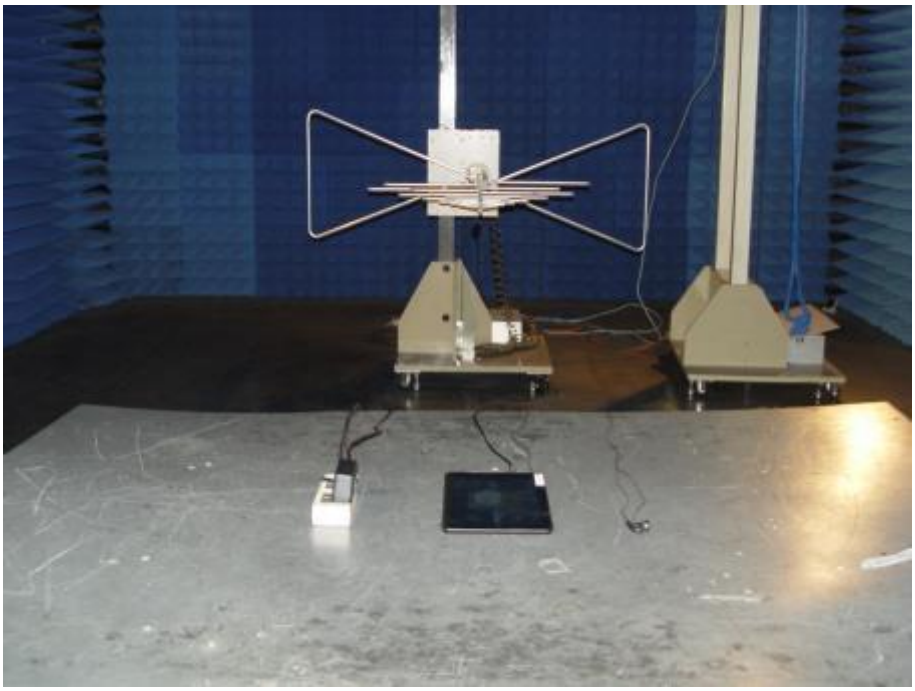
Date of testing	:	10.09.2015
Input voltage	:	AC 120V 60Hz via AC/DC adapter
Operation mode	:	D
Earthing	:	Not connected
Ambient temperature	:	25℃
Relative humidity	:	56%
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix 1.

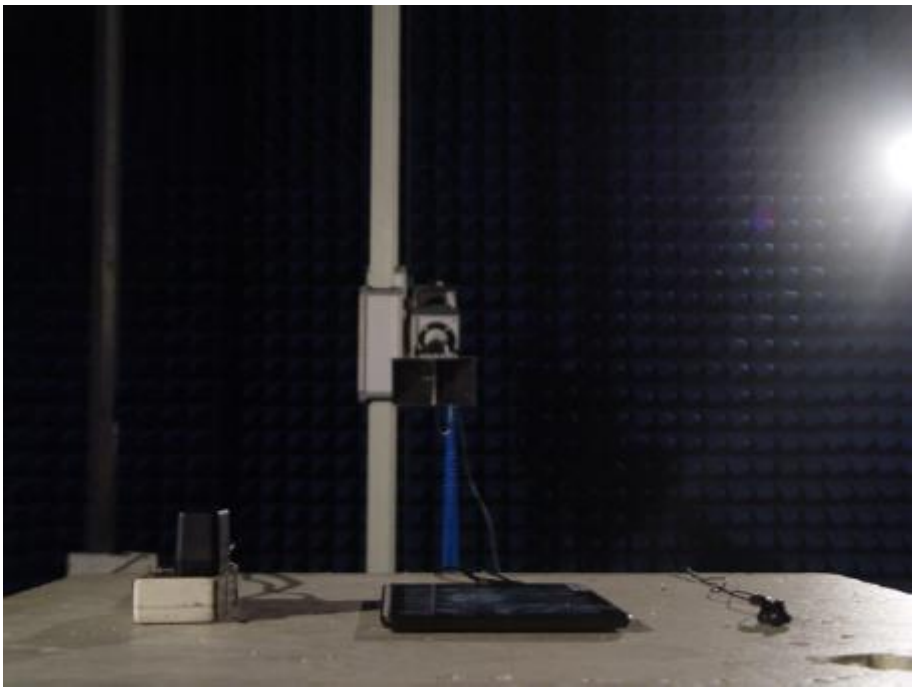
6 Photographs of the Test Set-Up

Photograph 1: Set-up for Radiated Spurious Emissions (9kHz - 30MHz)

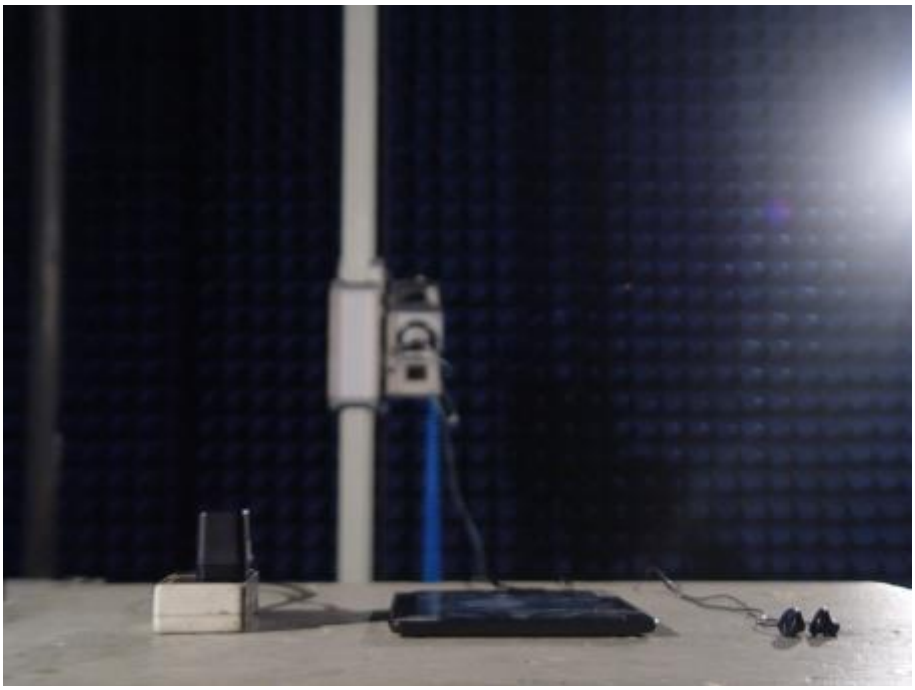
Photograph 2: Set-up for Radiated Spurious Emissions (30MHz-1GHz)



Photograph 3: Set-up for Radiated Spurious Emissions (1GHz ~ 18GHz)



Photograph 4: Set-up for Radiated Spurious Emissions (18GHz ~ 26GHz)



Photograph 5: Set-up for Conducted Emissions

7 List of Tables

8 List of Photographs