

Prüfbericht-Nr.: <i>Test report No.:</i>	50072840 001	Auftrags-Nr.: <i>Order No.:</i>	164079332	Seite 1 von 32 <i>Page 1 of 32</i>	
Kunden-Referenz-Nr.: <i>Client reference No.:</i>	N/A	Auftragsdatum: <i>Order date.:</i>	21.11.2016		
Auftraggeber: <i>Client:</i>	Binatone Electronics International Ltd. Floor 23A, 9 Des Voeux Road West, Sheung Wan, Hong Kong				
Prüfgegenstand: <i>Test item:</i>	5" Video Baby Monitor With Wi-Fi Internet Viewing (Baby Unit)				
Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i>	MBP855CONNECTBU (Trade Mark: motorola)				
Auftrags-Inhalt: <i>Order content:</i>	FCC and IC approval				
Prüfgrundlage: <i>Test specification:</i>	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 CFR47 FCC Part 2: Section 2.1091 CFR47 FCC Part 15: Subpart B Section 15.107 CFR47 FCC Part 15: Subpart B Section 15.109				
Wareneingangsdatum: <i>Date of receipt:</i>	21.11.2016	Please refer to photo documents			
Prüfmuster-Nr.: <i>Test sample No.:</i>	A000452446-001 to A000452446-003				
Prüfzeitraum: <i>Testing period:</i>	20.12.2016 - 01.03.2017				
Ort der Prüfung: <i>Place of testing:</i>	Accurate Technology Co., Ltd.				
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.				
Prüfergebnis*: <i>Test result*:</i>	Pass				
geprüft von / tested by:		kontrolliert von / reviewed by:			
 03.03.2017 Alex Lan / Project Engineer		 03.03.2017 Owen Tian / Technical Certifier			
Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>
Sonstiges / Other:					
FCC ID: VLJ-MBP88 IC: 4522A-MBP88 HVIN: MBP855CONNECTBU					
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>			Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged:</i>		
* Legende: 1 = sehr gut 2 = gut 3 = befriedigend P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n)			4 = ausreichend 5 = mangelhaft N/A = nicht anwendbar N/T = nicht getestet		
Legend: 1 = very good 2 = good 3 = satisfactory P(ass) = passed a.m. test specifications(s) F(ail) = failed a.m. test specifications(s)			4 = sufficient 5 = poor N/A = not applicable N/T = not tested		
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>					

V04

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: Pass

5.1.13 RADIATED EMISSION

RESULT: Pass

6.1.1 ELECTROMAGNETIC FIELDS

RESULT: Pass

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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: Photographs of the Test Set-up

Appendix B: Test Results of Conducted Testing

Appendix C: Test Results of Radiated Testing

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	FSV40	101495	06.01.2018
Open Switch and Control Unit	R&S	OSP120+OSP-B157	101244+100866	06.01.2018
Spurious Emission				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Spectrum Analyzer	R&S	FSV40	101495	06.01.2018
Test Receiver	R&S	ESCS30	100307	06.01.2018
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	09.01.2018
Loop Antenna	Schwarzbeck	FMZB1516	1516131	09.01.2018
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	09.01.2018
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	09.01.2018
RF Switching Unit+PreAMP	Compliance Direction	RSU-M2	38322	06.01.2018
Pre-Amplifier	R&S	CBLU11835 40-01	3791	06.01.2018
50 Coaxial Switch	Anritsu Corp	MP59B	6200506474	06.01.2018
RF Coaxial Cable	SUHNER	N-3m	No.8	06.01.2018
RF Coaxial Cable	RESENBERGER	N-3.5m	No.9	06.01.2018
RF Coaxial Cable	SUHNER	N-6m	No.10	06.01.2018
RF Coaxial Cable	RESENBERGER	N-12m	No.11	06.01.2018
RF Coaxial Cable	RESENBERGER	N-0.5m	No.12	06.01.2018
Conducted Emission on AC Mains				
Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
Test Receiver	R&S	ESCS30	100307	06.01.2018
L.I.S.N.	Schwarzbeck	NLSK8126	8126431	06.01.2018
50Ω Coaxial Switch	Anritsu	MP59B	6100175589	06.01.2018

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 basis 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
Conducted Emission		± 3.0 dB
Radiated Emission (30-1000MHz)	Field strength (dB μ V/m)	± 6.0 dB
Radiated Emission (above 1000MHz)	Field strength (dB μ V/m)	± 6.0 dB
Radio Spectrum		± 1.5 dB

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A & B & C 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 EUT is a 5" Video Baby Monitor With Wi-Fi Internet Viewing system which contains baby unit and parent unit, the baby unit supports Wi-Fi 802.11 b/g/n and general 2.4GHz wireless technologies, and the parent unit only supports general 2.4GHz wireless technology.

This report is for approval of baby unit, the shared parent unit has been approved in TÜV Rheinland report 50061259 001.

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

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment	5" Video Baby Monitor With Wi-Fi Internet Viewing (Baby Unit)
Type Designation	MBP855CONNECTBU
Trade Mark	motorola
FCC ID	VLJ-MBP88
IC	4522A-MBP88
HVIN	MBP855CONNECTBU
Operating Voltage	DC 5.0V 1500mA input via AC/DC adapter DC 3.6V, 900mA via battery
Testing Voltage	AC 120V, 60Hz
AC/DC Adapter #1	Model: S012BEU0500150 Input: AC 100-240V~50/60Hz, 500mA Output: DC 5.0V~1500mA
AC/DC Adapter #2	Model: BLJ06W050150P1-U Input: AC 100-240V~50/60Hz, 0.2A Output: DC 5.0V~1500mA
Battery #1	Model: AAA DC 3.6V, 900mAh Ni-MH battery
Battery #2	Model: GPRHCH93C021 DC 3.6V, 900mAh Ni-MH battery
Battery #1 is the same as Battery #2, only the manufactory and model number are different.	
Technical Specification of general 2.4GHz Wireless	
Operating Frequency	2402 - 2477 MHz
Type of Modulation	GFSK
Channel Number	22 channels
Channel Separation	2 / 5 MHz
Antenna Type	Integral Antenna
Antenna Gain	0 dBi

Technical Specification of Wi-Fi 802.11 b/g/n	
Operating Frequency	2412 - 2462 MHz for 802.11b/g/n(HT20) 2422 - 2452 MHz for 802.11n(HT40)
Type of Modulation	DSSS(DBPSK/DQPSK/CCK) OFDM(BPSK/QPSK/16QAM/64QAM)
Data Rate	1/2/5.5/11 Mbps for 802.11b 6/9/12/18/24/36/48/54 Mbps for 802.11g MCS0 ~ MCS7 for 802.11n
Channel Number	11 channels for 802.11b/g/n(HT20) 7 channels for 802.11n(HT40)
Channel Separation	5 MHz
Antenna Type	Integral Antenna
Gain	0 dBi

Table 3: RF Channel and Frequency of General 2.4GHz Wireless

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
CH02	2402	CH30	2430	CH67	2467
CH04	2404	CH35	2435	CH69	2469
CH06	2406	CH40	2440	CH71	2471
CH08	2408	CH45	2445	CH73	2473
CH10	2410	CH50	2450	CH75	2475
CH15	2415	CH55	2455	CH77	2477
CH20	2420	CH60	2460	/	/
CH25	2425	CH65	2465	/	/

Table 4: RF Channel and Frequency of Wi-Fi 802.11 b/g/n

RF Channel	802.11 b/g/n(HT20)	802.11 n(HT40)
	Frequency (MHz)	Frequency (MHz)
01	2412	/
02	2417	/
03	2422	2422
04	2427	2427
05	2432	2432
06	2437	2437
07	2442	2442
08	2447	2447
09	2452	2452
10	2457	/
11	2462	/

Test frequencies are lowest channel: 2412 MHz, middle channel: 2437 MHz and highest channel: 2462 MHz for 802.11b/g/n(HT20)

Test frequencies are lowest channel: 2422 MHz, middle channel: 2437 MHz and highest channel: 2452 MHz for 802.11n(HT40)

Table 5: Frequency Hopping Information

Technical Specification	Description
Hopping Sequence	Describe how the hopping sequence is generated. Provide an example of the hopping sequence channels, in order to demonstrate that the sequence meets the requirement specified in the definition of a frequency hopping spread spectrum system, found in Section 2.1. This system is controlled by microchip to generate Pseudorandom Frequency Hopping Sequence base on CCITT16 and distributed it over 22 hopping channels. The sequential hops are randomly distributed in both direction and magnitude of change in the hop set which meet the requirement specified in the definition of FCC part 2 section.1. Describe how each individual EUT meets the requirement that each of its hopping channels is used equally on average (e.g., that each new transmission event begins on the next channel in the hopping sequence after the final channel used in the previous transmission event). A single data frame is transmitted on each frequency location before skipping to the next hopping frequency in the list. So each hopping channels is used equally on average in long term.
Receiver input bandwidth	Describe how the associated receiver(s) complies with the requirement that its input bandwidth (either RF or IF) matches the bandwidth of the transmitted signal. Both receiver and transmitter are set to same bandwidth of 2MHz. Describe how the associated receiver(s) has the ability to shift frequencies in synchronization with the transmitted signals. Both transmitter and receiver will share the same device ID so the same sequence is generated for the communication. Moreover, the microchip has a clock recovery mechanism to synchronize the timing between the transmitter and receiver. With the same hopping sequence and timing, the receiver can shift frequencies in synchronization with the transmitted signals.

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, General 2.4GHz wireless transmitting
 - 1. Low channel
 - 2. Middle channel
 - 3. High channel
- B. On, Wi-Fi 802.11 b/g/n wireless transmitting
 - 1. Low channel
 - 2. Middle channel
 - 3. High channel
- C. On, General 2.4GHz wireless on hopping channel
- D. On, Normal operation with general 2.4GHz wireless
- E. On, Normal operation with Wi-Fi 802.11 b/g/n wireless
- F. On, Charging
- G. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

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

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 and ANSI C63.4: 2014.

According to clause 3.1, all tests were performed on model MBP855CONNECTBU in this report.

According to clause 3.2, Radio Spectrum and Radiated Spurious Emission tests were performed on model MBP855CONNECTBU with adapter #1 and battery # 1, and Conducted Emission tests were performed on model MBP855CONNECTBU with adapter #1, #2 and battery # 1 in this report.

4.3 Special Accessories and Auxiliary Equipment

Table 6: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating
Notebook PC	Lenovo	4290-RT8	4290-RT8	N/A
5" Video Baby Monitor With Wi-Fi Internet Viewing (Parent Unit)	VTech (Dongguan) Telecommunications Ltd.	MBP855CONNECTPU	N/A	N/A

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).

Additional countermeasures to the submitted test sample(s) for Radiated Emission were employed to achieve compliance.

4.5 Test Setup Diagram

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

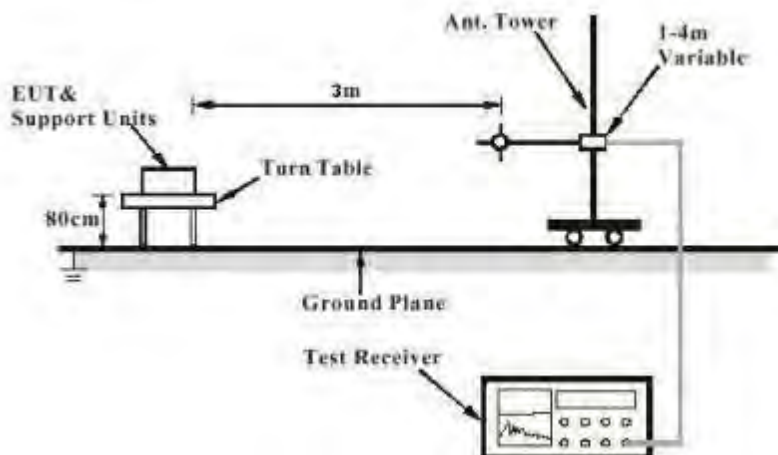


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

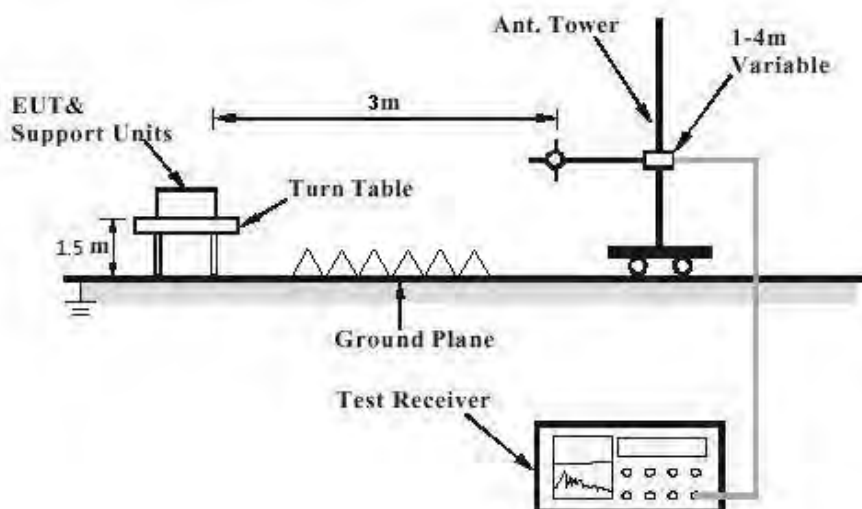


Diagram of Measurement Configuration for Mains Conduction Measurement

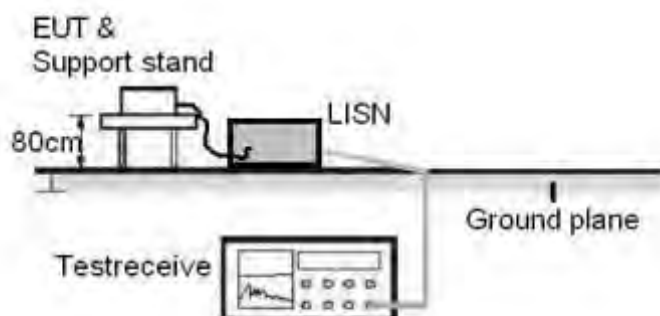
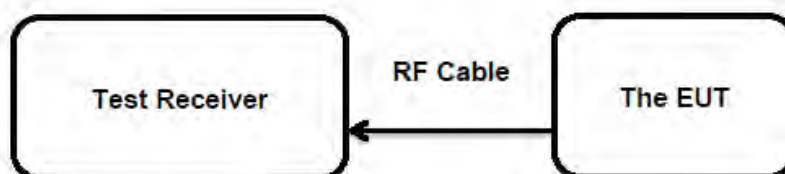


Diagram of Measurement Configuration for Conducted Transmitter Measurement



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

According to the manufacturer declared, the EUT has an internal antenna, the directional gain of antenna is 0 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.

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	: Refer to test result
Input voltage	: AC 120V, 60Hz
Operation mode	: A, B
Test channel	: Low / Middle / High
Ambient temperature	: 25 °C
Relative humidity	: 56 %
Atmospheric pressure	: 101 kPa

For details refer to following test result.

Table 7: Test Result of Maximum Peak Conducted Output Power, General 2.4GHz

Test Mode	Frequency (MHz)	Measured Power		Limit (W)
		(dBm)	(W)	
General 2.4GHz	2402	18.06	0.06397	< 0.125
	2440	17.81	0.06039	
	2477	17.42	0.05521	
Maximum Measured Value		18.06	0.06397	

Table 8: Test Result of Maximum Peak Conducted Output Power, Wi-Fi 802.11 b/g/n

Test Mode	Data Rate	Frequency (MHz)	Measured Power		Limit
			dBm	W	
802.11b	1 Mbps	2412	15.70	0.03715	< 1.0W
		2437	16.10	0.04074	
		2462	16.30	0.04266	
802.11g	6 Mbps	2412	14.30	0.02692	
		2437	14.40	0.02754	
		2462	14.60	0.02884	
802.11n (HT20)	MCS0	2412	12.80	0.01905	
		2437	13.00	0.01995	
		2462	13.20	0.02089	
802.11n (HT40)	MCS0	2422	11.60	0.01445	
		2437	11.30	0.01349	
		2452	11.40	0.01380	
Maximum Measured Value			16.30	0.04266	

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

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	: Refer to test result
Input voltage	: AC 120V, 60Hz
Operation mode	: B
Test channel	: Low / Middle / High
Ambient temperature	: 25 °C
Relative humidity	: 56 %
Atmospheric pressure	: 101 kPa

For details refer to following test result.

Table 9: Test Result of Power Spectral Density, Wi-Fi 802.11 b/g/n

Test Mode	Data Rate	Frequency (MHz)	Measured Peak Power Spectral Density (dBm/3KHz)
802.11b	1 Mbps	2412	-1.35
		2437	-0.94
		2462	-0.60
802.11g	6 Mbps	2412	-16.11
		2437	-15.39
		2462	-15.58
802.11n (HT20)	MCS0	2412	-17.26
		2437	-17.09
		2462	-17.12
802.11n (HT40)	MCS0	2422	-21.84
		2437	-21.58
		2452	-21.42
Maximum Measured Value			-0.60

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

For the measurement records, refer to the appendix B.

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 : Refer to test result

Input voltage : AC 120V, 60Hz

Operation mode : B

Test channel : Low / Middle / High

Ambient temperature : 25 °C

Relative humidity : 56 %

Atmospheric pressure : 101 kPa

For details refer to following test result.

Table 10: Test Result of 6dB Bandwidth, Wi-Fi 802.11 b/g/n

Test Mode	Data Rate	Frequency (MHz)	-6dB Bandwidth (MHz)	Limit (kHz)
802.11b	1 Mbps	2412	9.726	> 500
		2437	9.639	
		2462	9.682	
802.11g	6 Mbps	2412	16.541	
		2437	16.541	
		2462	16.541	
802.11n (HT20)	MCS0	2412	17.843	
		2437	17.844	
		2462	17.800	
802.11n (HT40)	MCS0	2422	36.382	
		2437	36.209	
		2452	36.382	
Minimum Measured Value			9.639	

For the measurement records, refer to the appendix B.

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 : Refer to test result
Input voltage : AC 120V, 60Hz
Operation mode : A, B
Test channel : Low / Middle / High
Ambient temperature : 25 °C
Relative humidity : 56 %
Atmospheric pressure : 101 kPa

For details refer to following test result.

Table 11: Test Result of 99% Bandwidth, General 2.4GHz

Test Mode	Frequency (MHz)	99% Bandwidth (MHz)	Limit (kHz)
General 2.4GHz	2402	1.567	/
	2440	1.589	
	2477	1.580	
Maximum Measured Value		1.589	

Table 12: Test Result of 99% Bandwidth, Wi-Fi 802.11 b/g/n

Test Mode	Data Rate	Frequency (MHz)	99% Bandwidth (MHz)	Limit (kHz)
802.11b	1 Mbps	2412	14.891	/
		2437	14.848	
		2462	14.805	
802.11g	6 Mbps	2412	16.498	
		2437	16.541	
		2462	16.498	
802.11n (HT20)	MCS0	2412	17.757	
		2437	17.757	
		2462	17.757	
802.11n (HT40)	MCS0	2422	36.122	
		2437	36.122	
		2452	36.122	
Maximum Measured Value			36.122	

For the measurement records, refer to the appendix B.

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	: Refer to test result
Input voltage	: AC 120V, 60Hz
Operation mode	: A, B
Test channel	: Low / Middle / High
Ambient temperature	: 25 °C
Relative humidity	: 56 %
Atmospheric pressure	: 101 kPa

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

For the measurement records, refer to the appendix B.

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 Issue 4 Table 4
Kind of test site	: 3m Semi-anechoic Chamber

Test Setup

Date of testing	: Refer to test result
Input voltage	: AC 120V, 60Hz
Operation mode	: A, B
Test channel	: Low / Middle / High
Ambient temperature	: 23°C
Relative humidity	: 48%
Atmospheric pressure	: 101 kPa

Remark:

Testing was carried out within frequency range 9kHz to the tenth harmonics. Only the worst case spurious emissions configuration of the each mode were reported.

The measured result is below the specification limit by a margin less than the measurement uncertainty (the minimum margin is **1.7dB** and the test lab's measurement uncertainty of this test is **6.0dB**); above situation was awarded to the client, and it was considered as acceptable by the client as well.

For the measurement records, refer to the appendix C.

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 : Refer to test result
Input voltage : AC 120V, 60Hz
Operation mode : A
Test channel : Low / Middle / High
Ambient temperature : 25 °C
Relative humidity : 56 %
Atmospheric pressure : 101 kPa

For details refer to following test result.

Table 13: Test Result of 20dB Bandwidth, General 2.4GHz

Test Mode	Frequency (MHz)	20dB Bandwidth (kHz)	2/3 of 20dB Bandwidth (kHz)	Limit (MHz)
General 2.4GHz	2402	1363.2	908.800	/
	2440	1367.6	911.733	
	2477	1358.9	905.933	
Maximum Measured Value		1367.60	911.733	/

For the measurement records, refer to the appendix B.

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	: $\geq 25\text{kHz}$ or $2/3$ of 20dB bandwidth, whichever is greater
Kind of test site	: Shielded Room

Test Setup

Date of testing	: Refer to test result
Input voltage	: AC 120V, 60Hz
Operation mode	: C
Test channel	: Low / Middle / High
Ambient temperature	: 25 °C
Relative humidity	: 56 %
Atmospheric pressure	: 101 kPa

For details refer to following test result.

Table 14: Test Result of Carrier Frequency Separation, General 2.4GHz

Test Mode	Test Channel	Frequency (MHz)	Measured Channel Separation (KHz)	Limit (kHz)
General 2.4GHz	Low Channel	2402	2005.8	≥ 25kHz or 2/3 of 20dB bandwidth
	Adjacency Channel	2404		
	Middle Channel	2440	5001.0	
	Adjacency Channel	2445		
	High Channel	2477	2005.8	
	Adjacency Channel	2475		

Note: The limit is maximum $2/3$ of the 20 dB bandwidth: 911.733 KHz.

For the measurement records, refer to the appendix B

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 : Refer to test result
Input voltage : AC 120V, 60Hz
Operation mode : C
Ambient temperature : 25 °C
Relative humidity : 56 %
Atmospheric pressure : 101 kPa

For details refer to following test result.

Table 15: Test Result of Number of Hopping Frequency, General 2.4GHz

Test Mode	Frequency Range	Measured Quantity of Hopping Channel	Limit
General 2.4GHz	2402 - 2477 MHz	20	≥ 15

For the measurement records, refer to the appendix B.

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	: Refer to test result
Input voltage	: AC 120V, 60Hz
Operation mode	: C
Test channel	: Low / Middle / High
Ambient temperature	: 25 °C
Relative humidity	: 56 %
Atmospheric pressure	: 101 kPa

For details refer to following test result.

Table 16: Test Result of Time of Occupancy, General 2.4GHz

Test EUT	Frequency (MHz)	Pulse width (ms)	Number of Channels	Measured Dwell time (s)	Limit (s)
General 2.4GHz	2402	0.275	89	0.024	0.4s
	2440	0.268	92	0.025	
	2477	0.268	106	0.028	

Note:

Dwell time = Pulse width x Number of channels in Period

Period = 0.4 (seconds/ channel) x 20 (channel) = 8 seconds

For the measurement records, refer to the appendix B.

5.1.12 Conducted Emission on AC Mains**RESULT:****Pass****Test Specification**

Test standard	: FCC Part 15.107(a) & FCC Part 15.207(a) RSS-Gen Clause 8.8 & ICES-003
Basic standard	: ANSI C63.10: 2013 & ANSI C63.4: 2014
Frequency range	: 0.15 – 30MHz
Limits	: FCC Part 15.107(a) & FCC Part 15.207(a) RSS-Gen Table 3 & ICES-003 Table 2
Kind of test site	: Shielded Room

Test Setup

Date of testing	: Refer to test result
Input voltage	: AC 120V, 60Hz
Operation mode	: D+F, E+F
Earthing	: Not connected
Ambient temperature	: 24 °C
Relative humidity	: 53 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix C.

5.1.13 Radiated Emission**RESULT:****Pass****Test Specification**

Test standard	: FCC Part 15.109(a) ICES-003
Basic standard	: ANSI C63.4: 2014
Frequency range	: 30 - 6000MHz
Classification	: Class B
Limits	: FCC Part 15.109(a) ICES-003 Table 5 & Table 7
Kind of test site	: 3m Semi-anechoic Chamber

Test Setup

Date of testing	: Refer to test result
Input voltage	: AC 120V, 60Hz
Operation mode	: F
Earthing	: Not connected
Ambient temperature	: 23 °C
Relative humidity	: 48 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix C.

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: Section 2.1091
CFR47 FCC Part 1: Section 1.1310
FCC KDB Publication 447498 v06
FCC KDB Publication 865664 D02 v01r02
OET Bulletin 65 (Edition 97-01)
RSS-102 Issue 5 March 2015

➤ FCC requirements

FCC requirement: Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 20cm normally can be maintained between the user and the device.

MPE Calculation Method according to OET Bulletin 65

Power Density: $S_{(mW/cm^2)} = PG/4\pi R^2$ or $EIRP/4\pi R^2$

Where:

S = power density (mW/cm²)

P = power input to the antenna (mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna (cm)

The nominal maximum conducted output power specified:

2.4GHz FHSS: 19.00 dBm

802.11b/g/n: 17.00 dBm

From the peak RF output power, the minimum mobile separation distance, d=20 cm, as well as the antenna gain (Max. 0.0 dBi for 2.4GHz FHSS and 0.0 dBi 802.11b/g/n), the RF power density can be calculated as below:

For 2.4GHz FHSS: $S_{(mW/cm^2)} = PG/4\pi R^2 = 0.016 \text{ mW/cm}^2$

For 802.11b/g/n: $S_{(mW/cm^2)} = PG/4\pi R^2 = 0.010 \text{ mW/cm}^2$

Limits for Maximum Permissible Exposure (MPE) according to FCC Part 1.1310:1.0 mW/cm²

For Simultaneous transmitting of 2.4GHz FHSS and 802.11b/g/n:

According to 865664D02 2.2 d) 1):

The sum of the ratios of the spatially averaged results to the applicable frequency dependent MPE limits =
 $0.016/1 + 0.010/1 = 0.026 < 1$

➤ **IC requirements:** The EUT shall comply with the requirement of RSS-102 section 2.5.2.

Exemption from Routine Evaluation Limits – RF Exposure Evaluation

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;

- RF exposure evaluation exempted power for 2.4GHz FHSS: 2.679 W
- RF exposure evaluation exempted power for 802.11b/g/n: 2.684 W

The nominal maximum conducted output power specified:

2.4GHz FHSS: 19.00 dBm

802.11b/g/n: 17.00 dBm

Antenna Gain: 0.0 dBi for 2.4GHz FHSS

Antenna Gain: 0.0 dBi for 802.11b/g/n

The Max. e.i.r.p. for 2.4GHz FHSS: 19.00 dBm = 0.079 W

The Max. e.i.r.p. for 802.11b/g/n: 17.00 dBm = 0.050 W

Both e.i.r.p. for the 2.4GHz FHSS and 802.11b/g/n are less than the RF exposure evaluation exempted power. So RF exposure evaluation is not required.

“RF Radiation Exposure Statement Caution: This Transmitter must be installed to provide a separation distance of at least 20 cm from all persons.”

7 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix A.

8 List of Tables

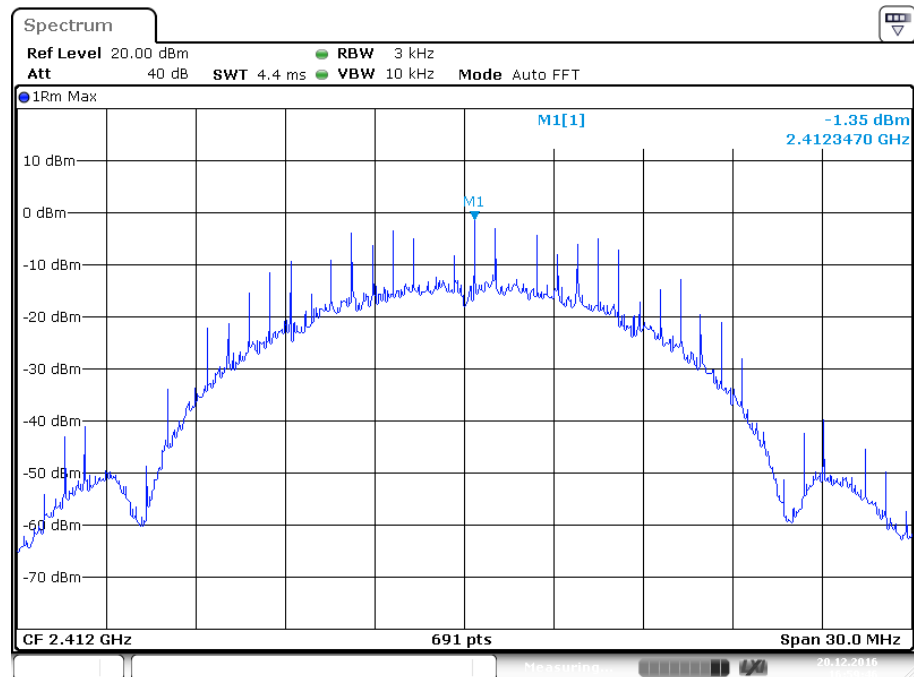
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Appendix B: Test Results of Conducted Testing

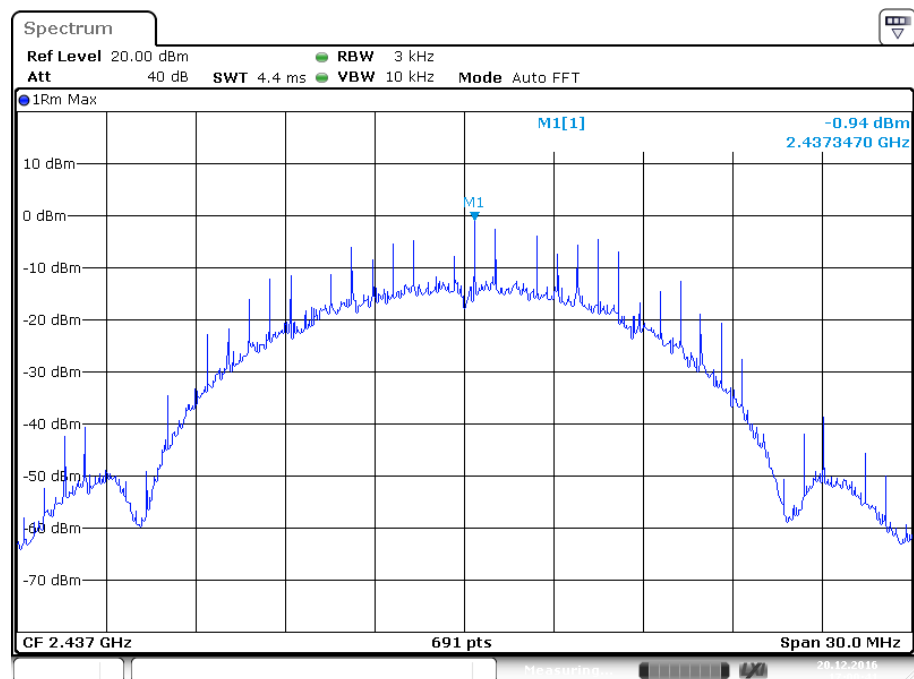
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Appendix B.1: Conducted Power Spectral Density

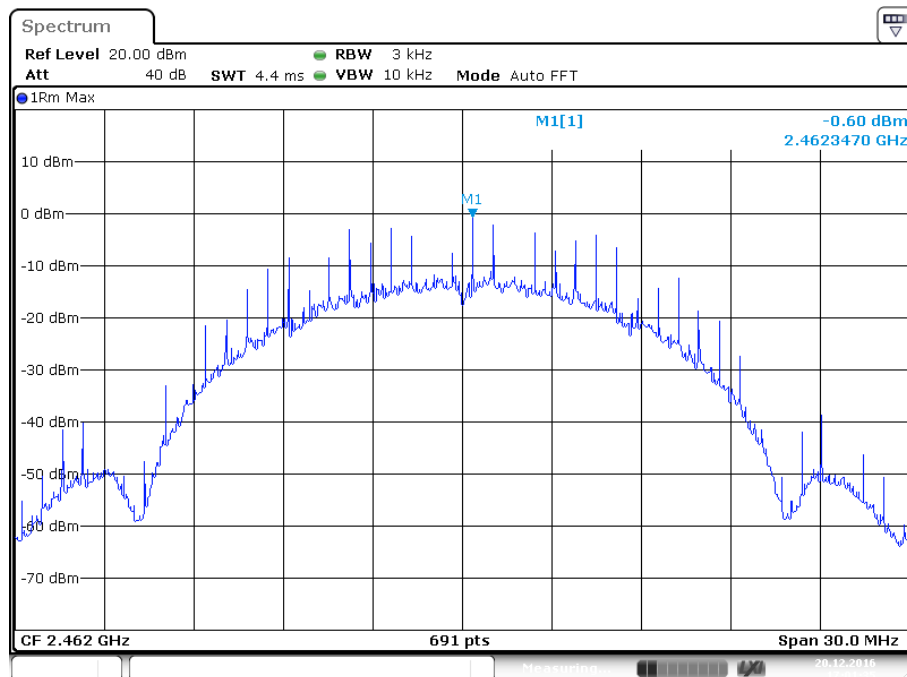
Wi-Fi 802.11 b mode, 1 Mbps



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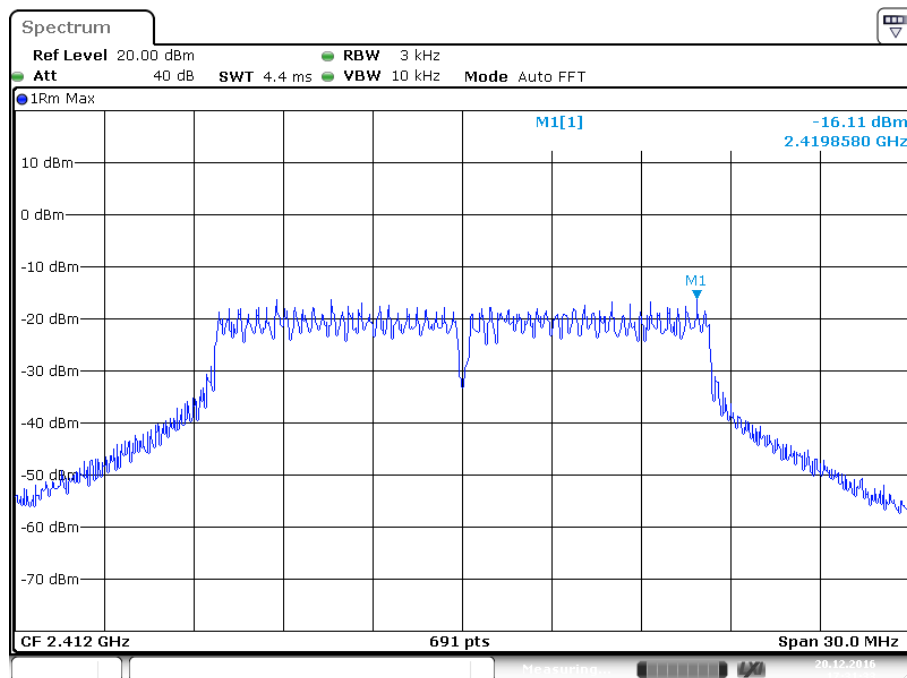


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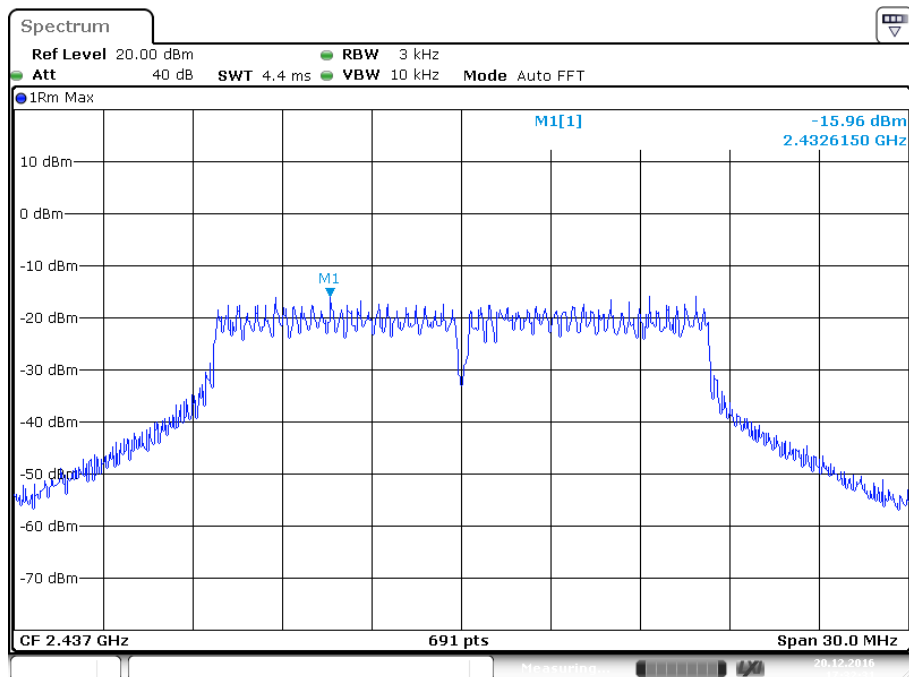


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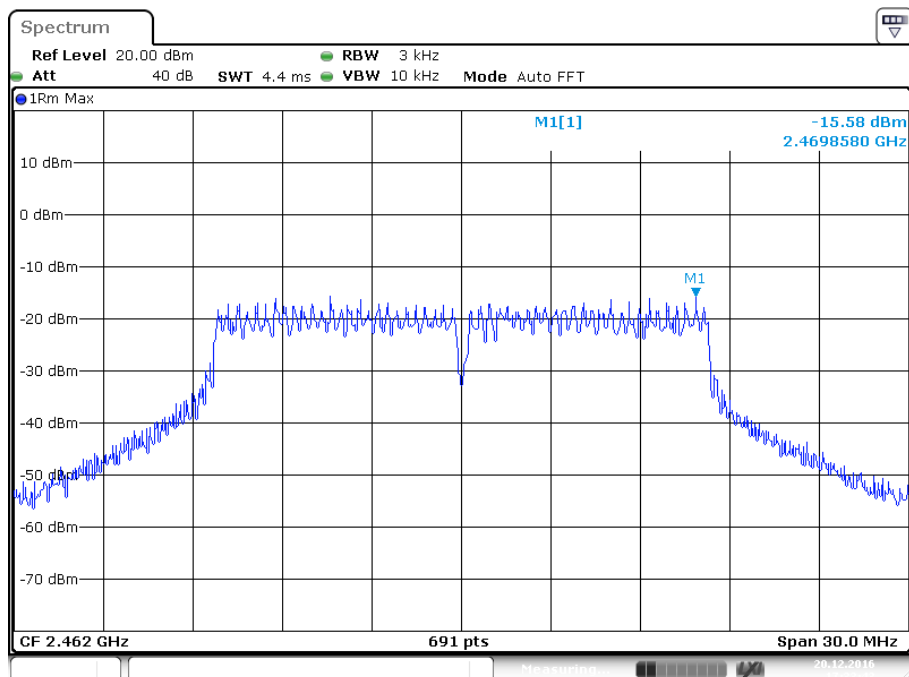
Wi-Fi 802.11 g mode, 6 Mbps



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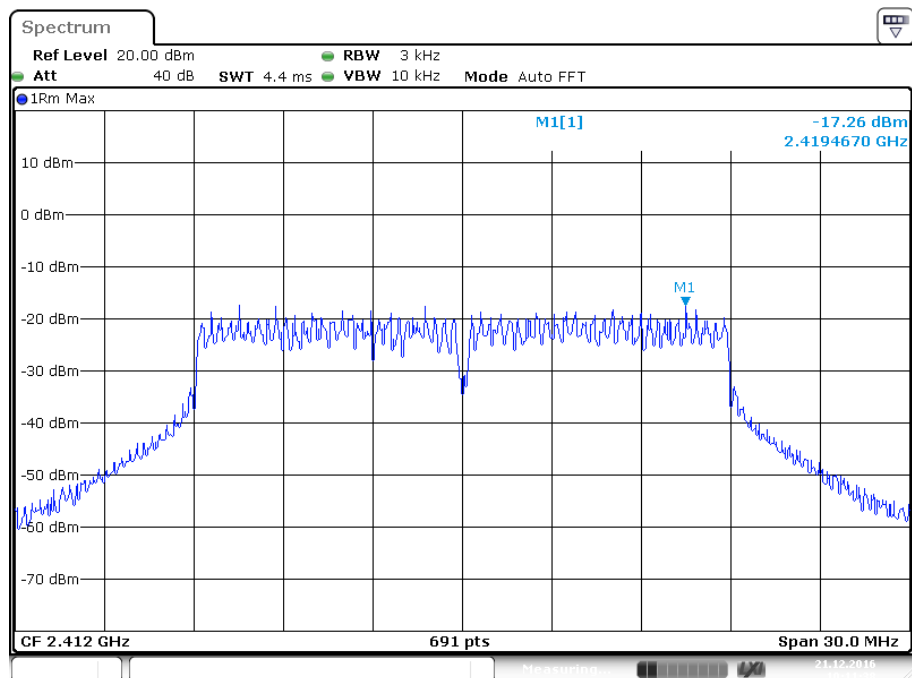


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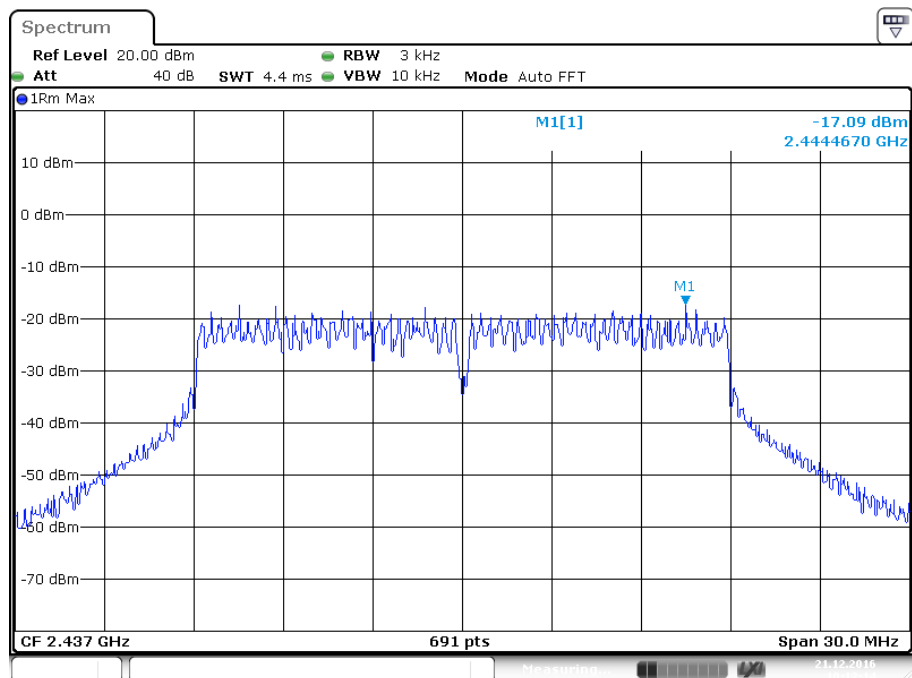


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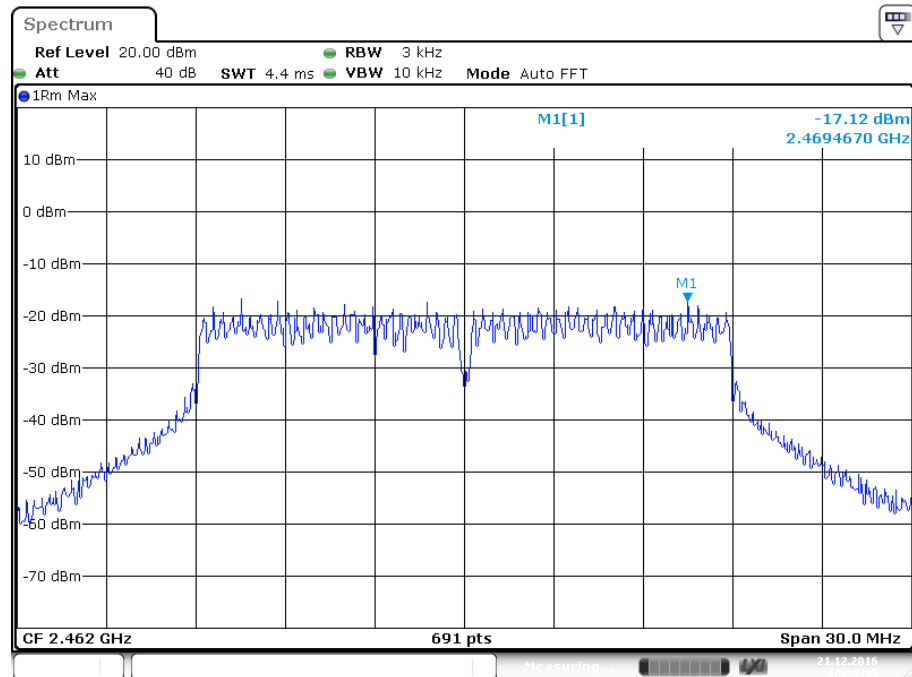
Wi-Fi 802.11 n(HT20) mode, MCS0



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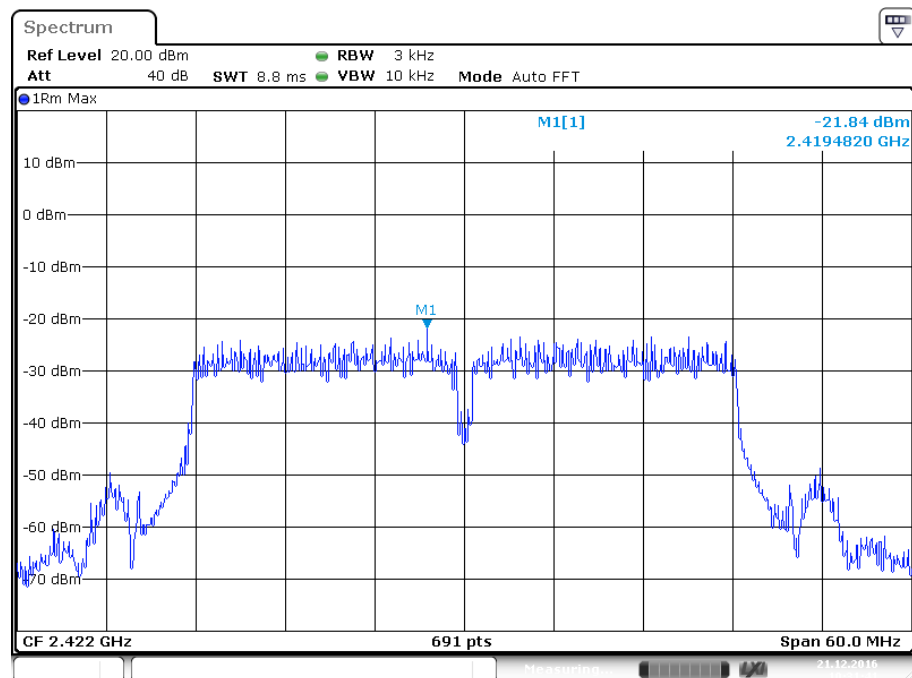


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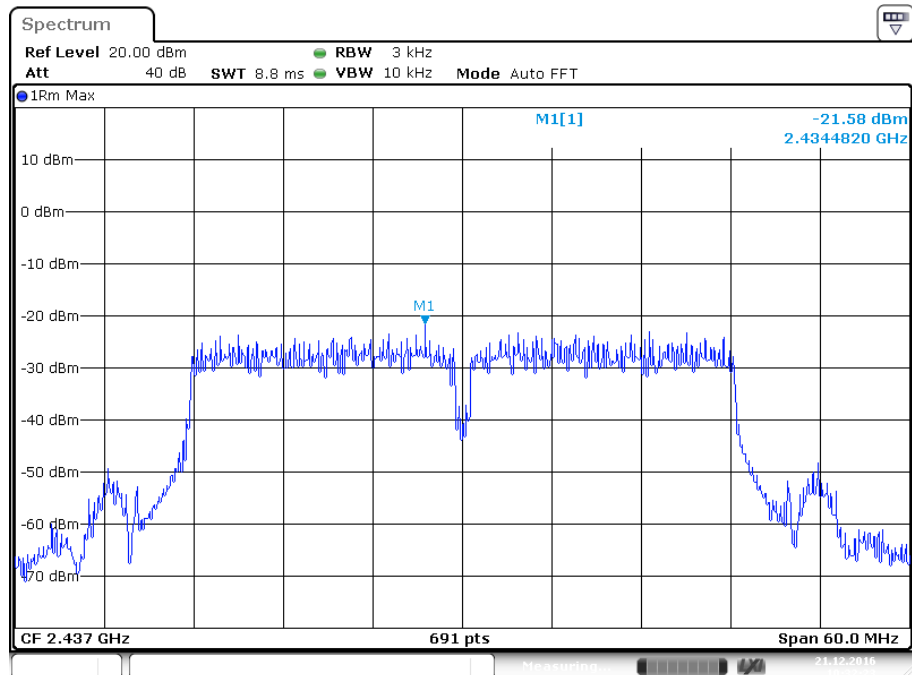


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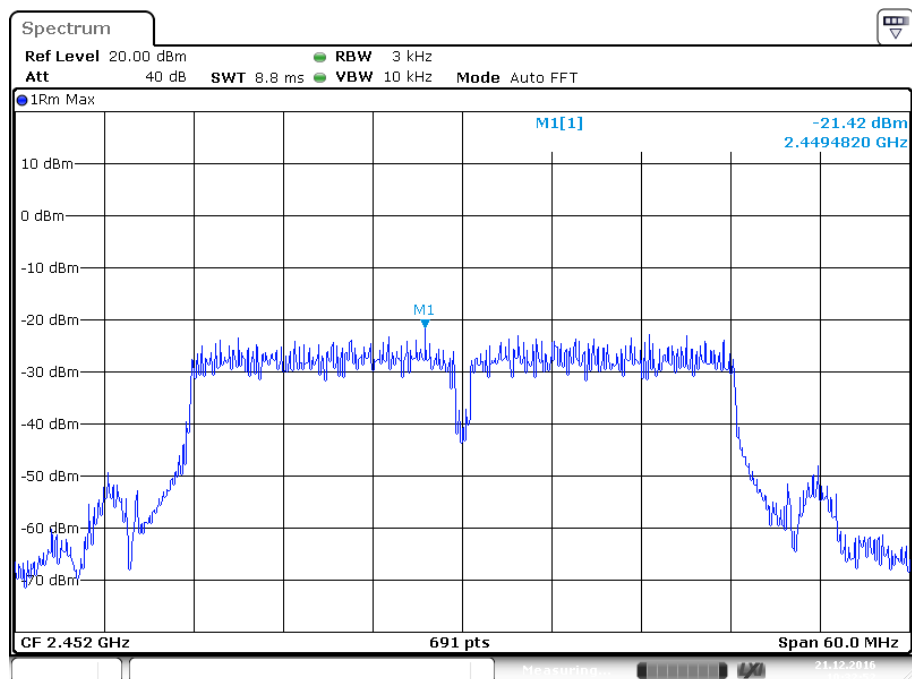
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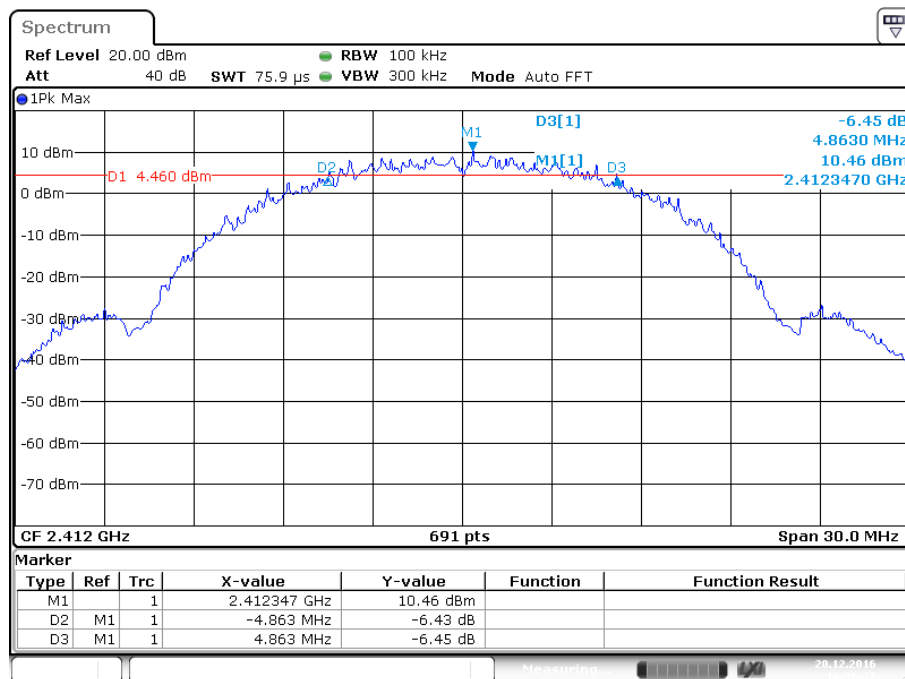
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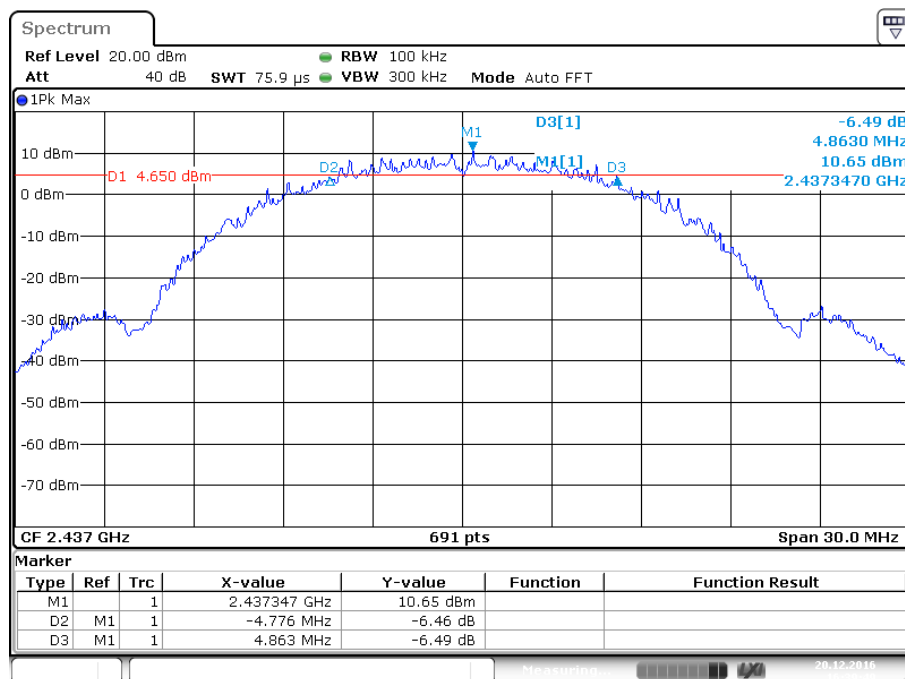
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Appendix B.2: 6dB Bandwidth

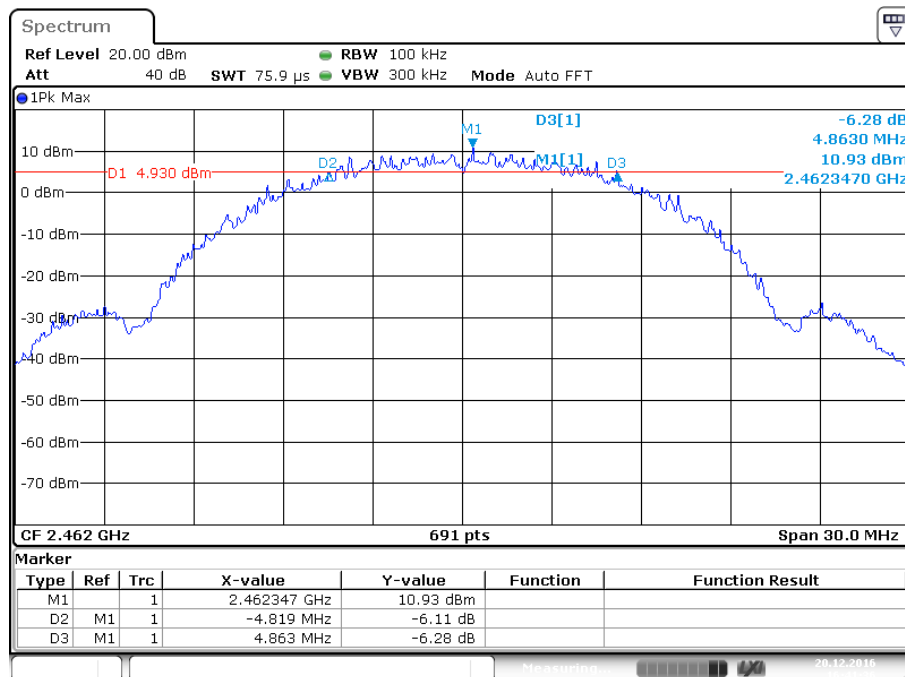
Wi-Fi 802.11 b mode, 1 Mbps



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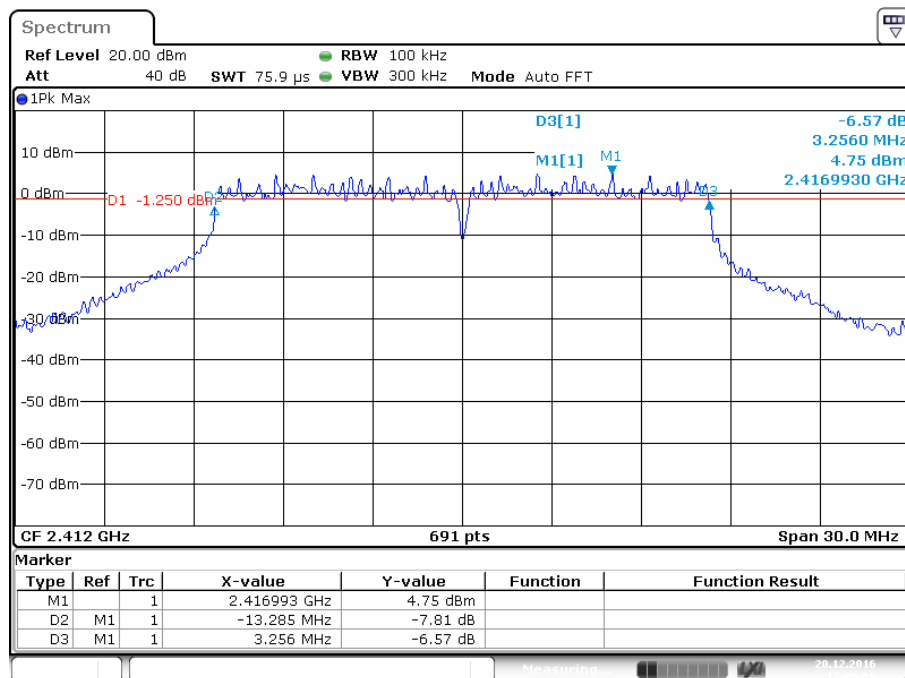


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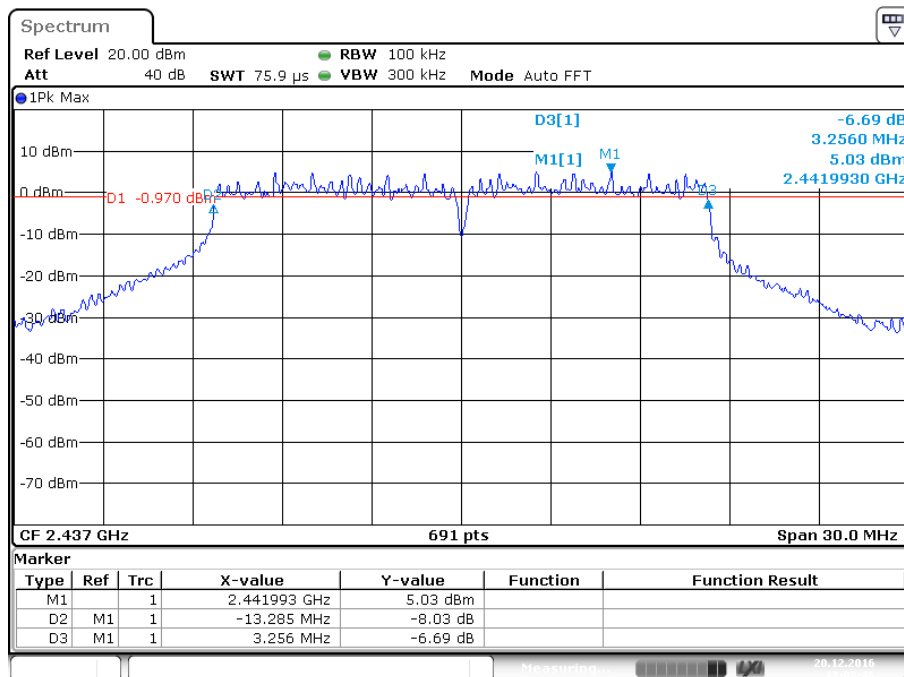


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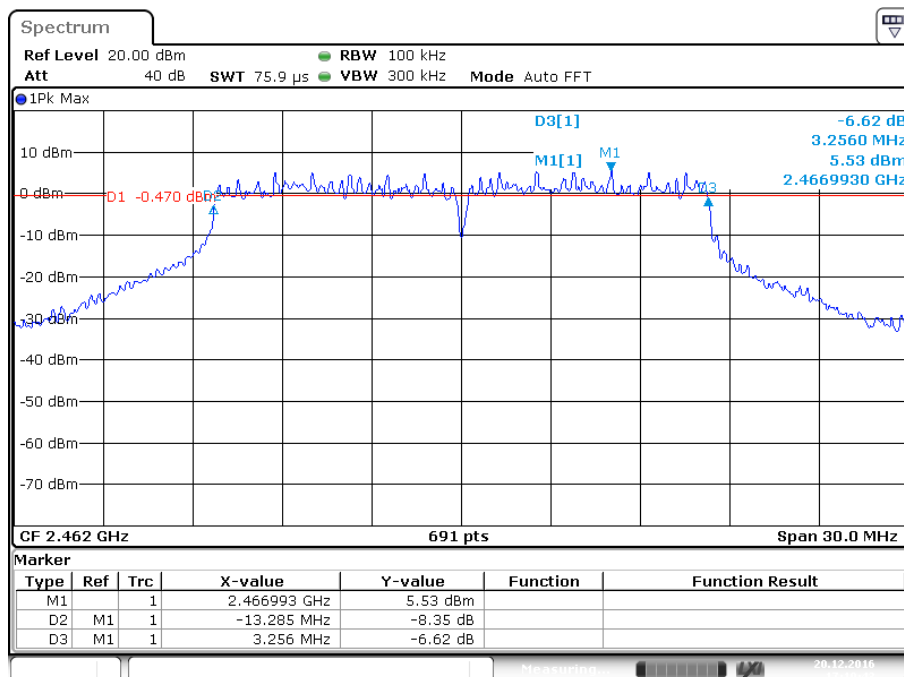
Wi-Fi 802.11 g mode, 6 Mbps



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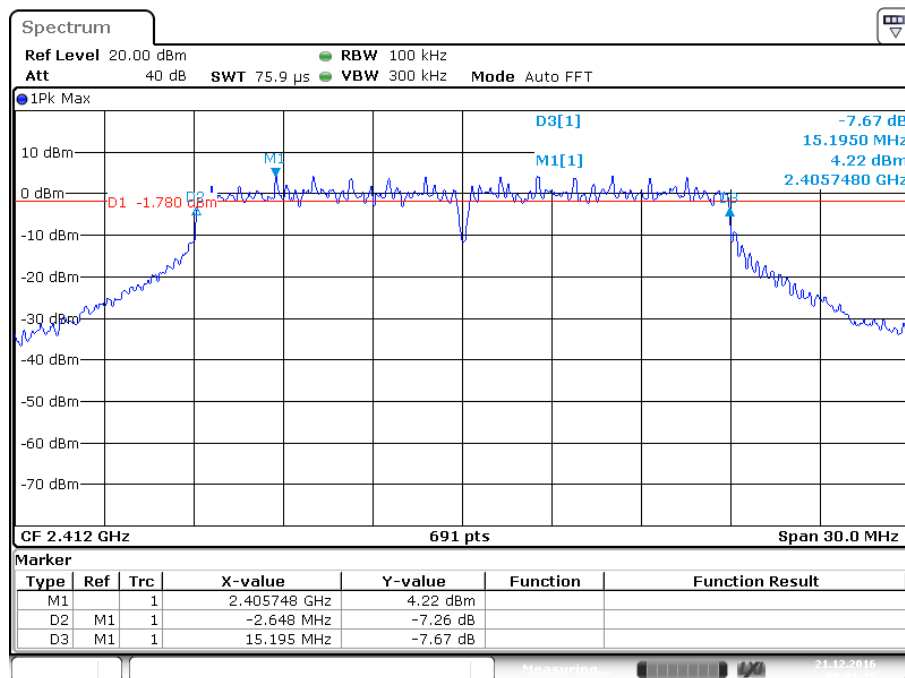


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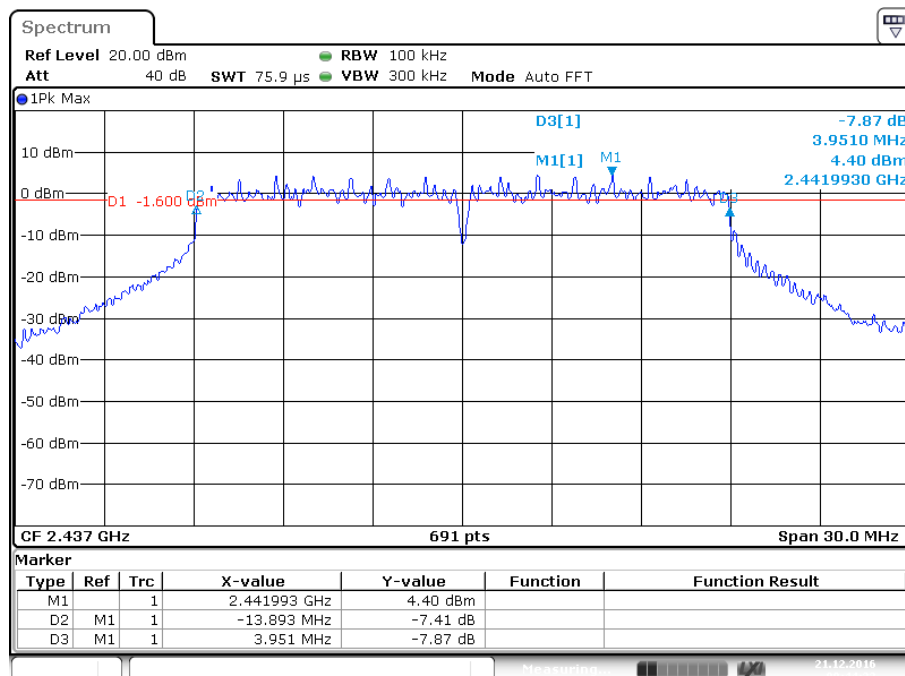


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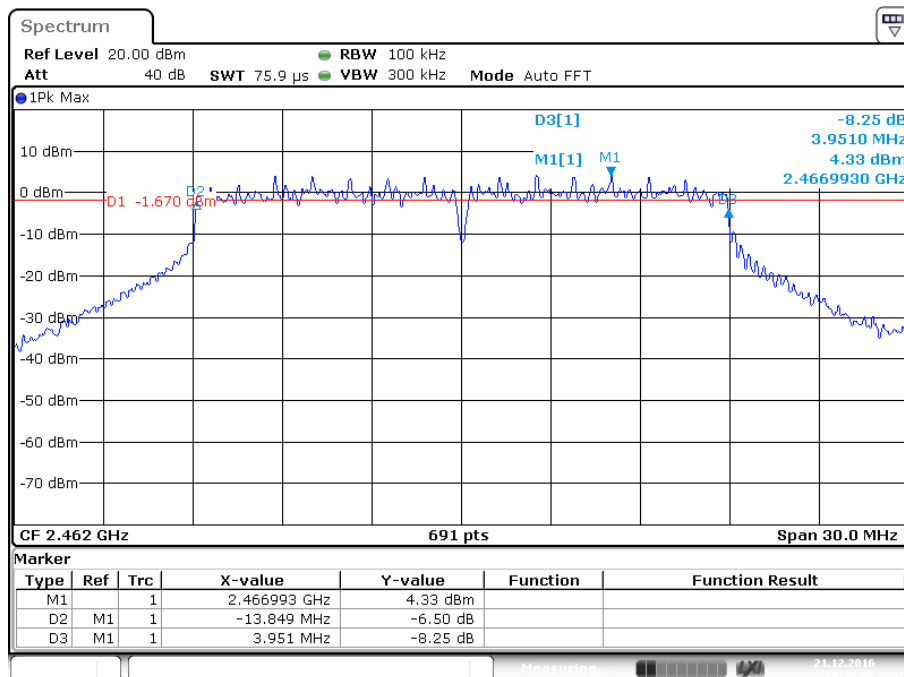
Wi-Fi 802.11 n(HT20) mode, MCS0



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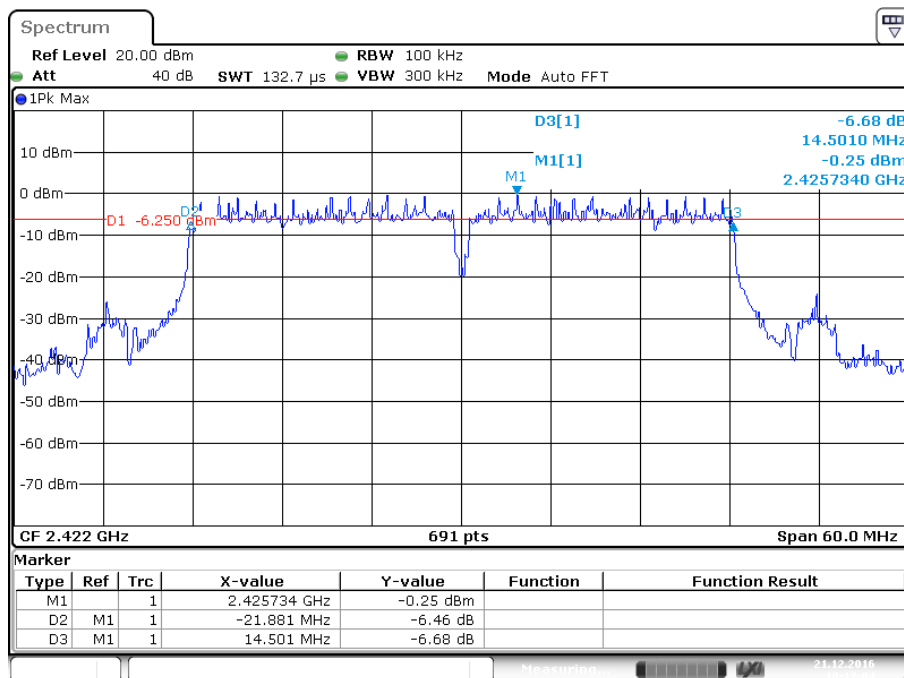


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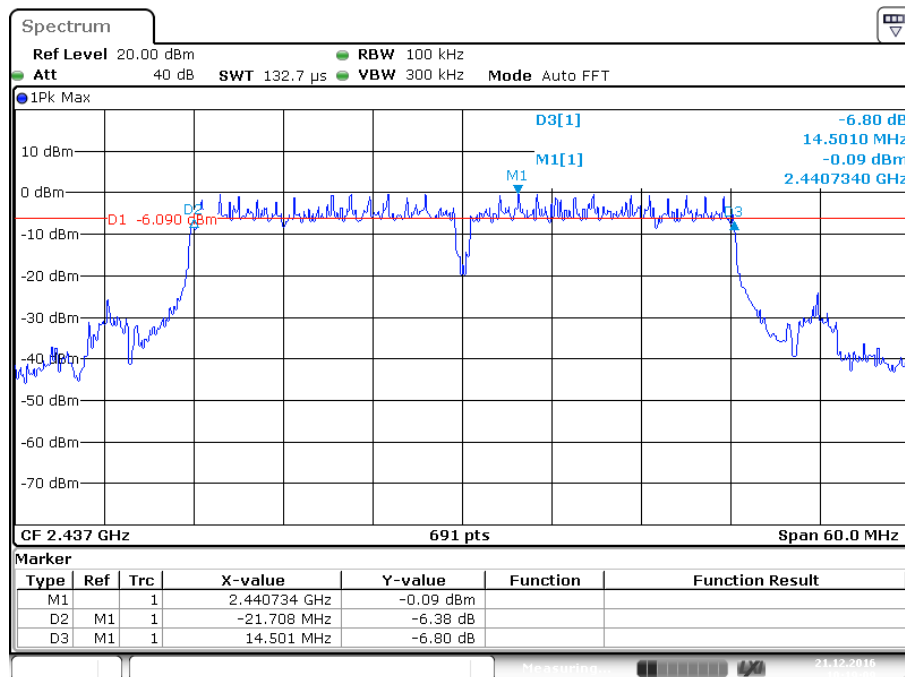


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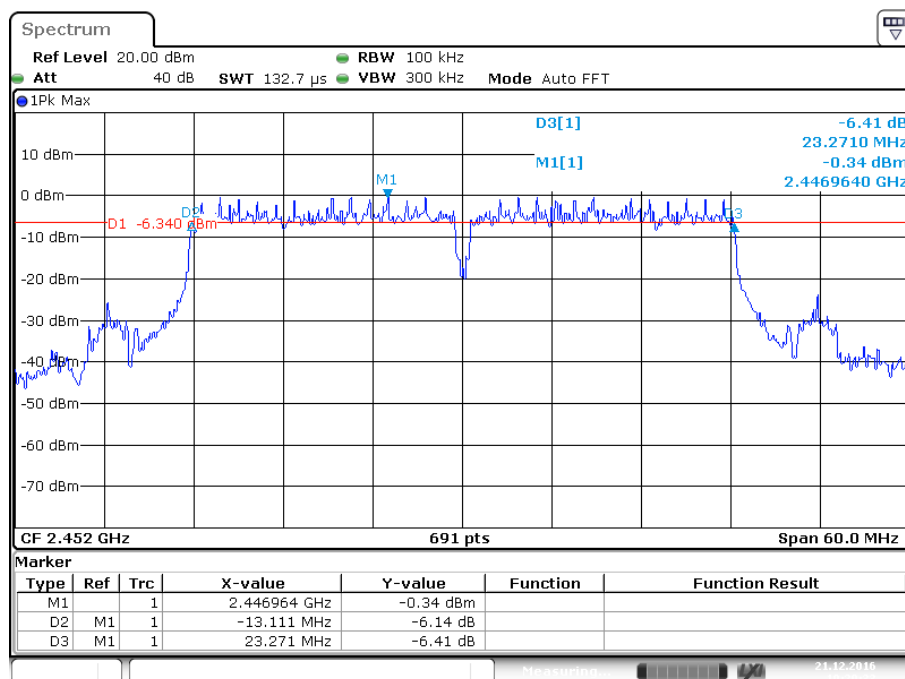
Wi-Fi 802.11 n(HT40) mode, MCS0



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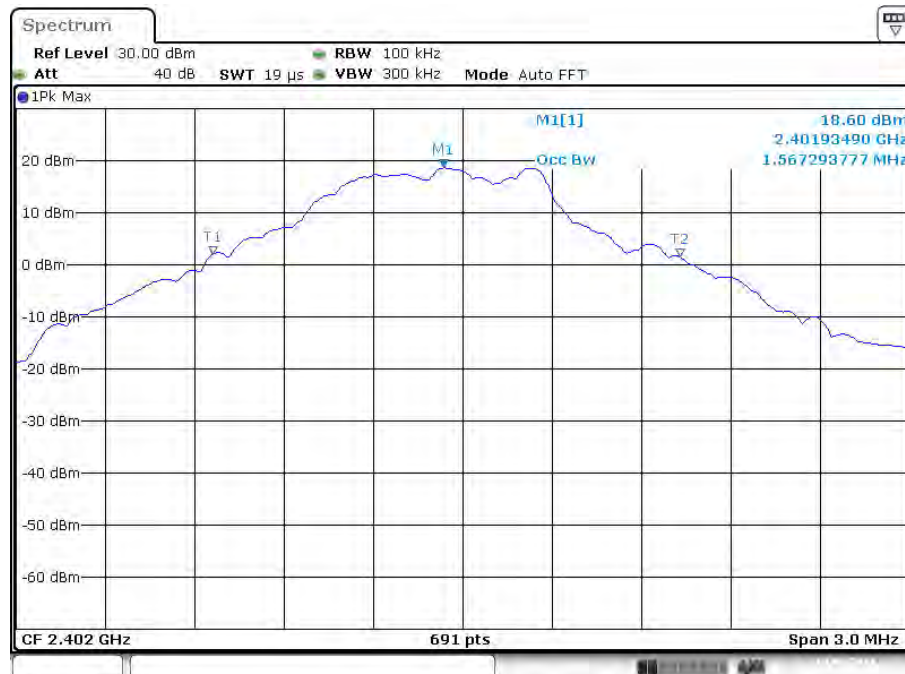
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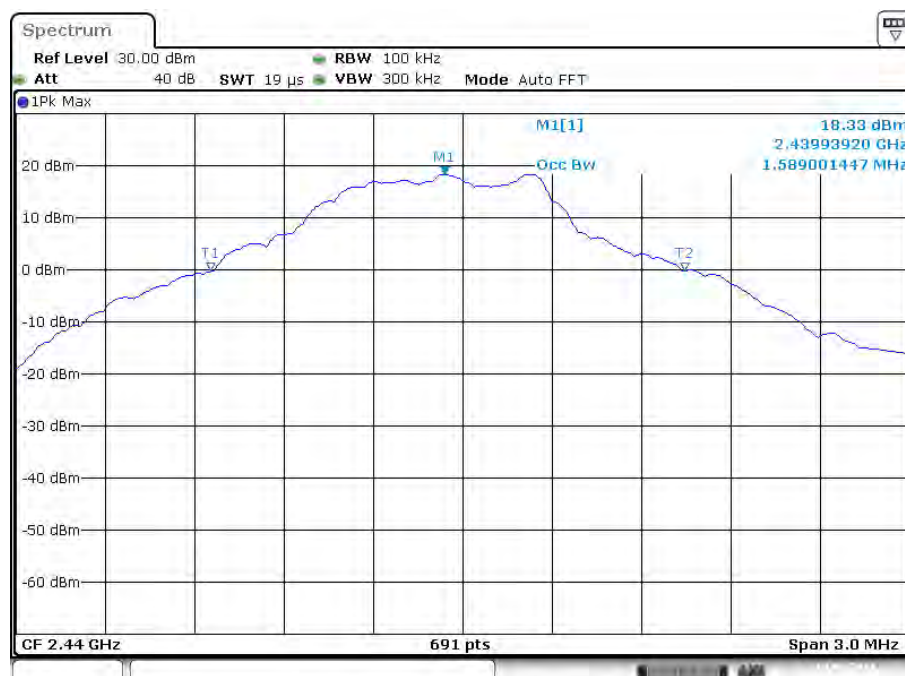
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Appendix B.3: 99% Bandwidth

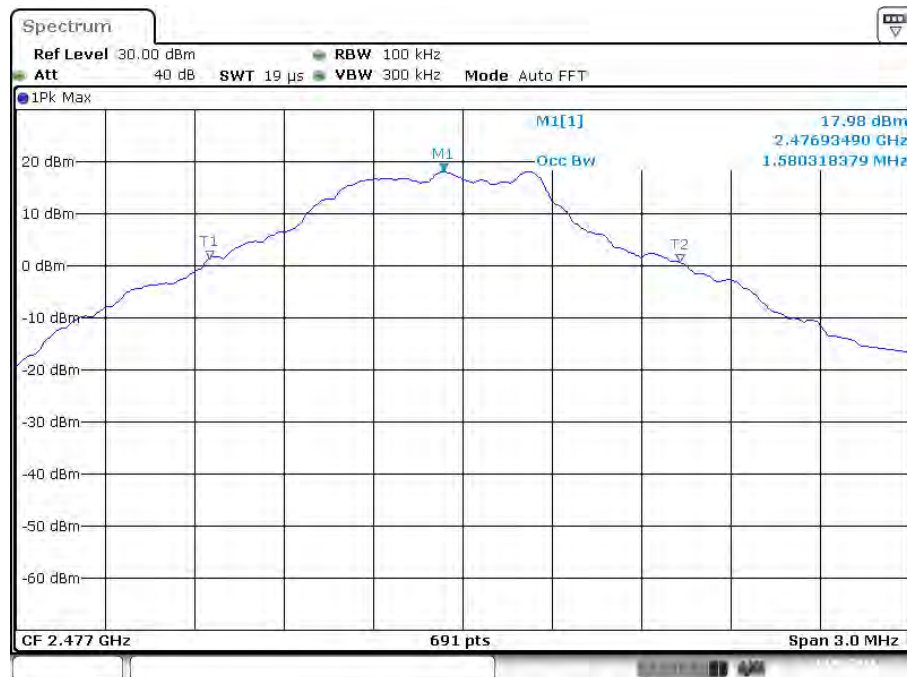
General 2.4GHz



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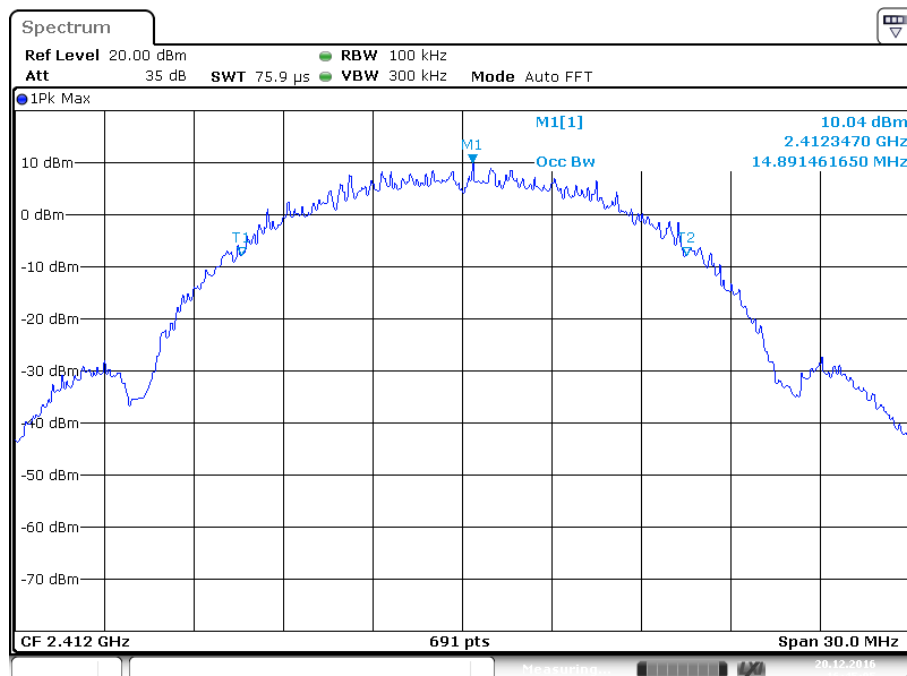


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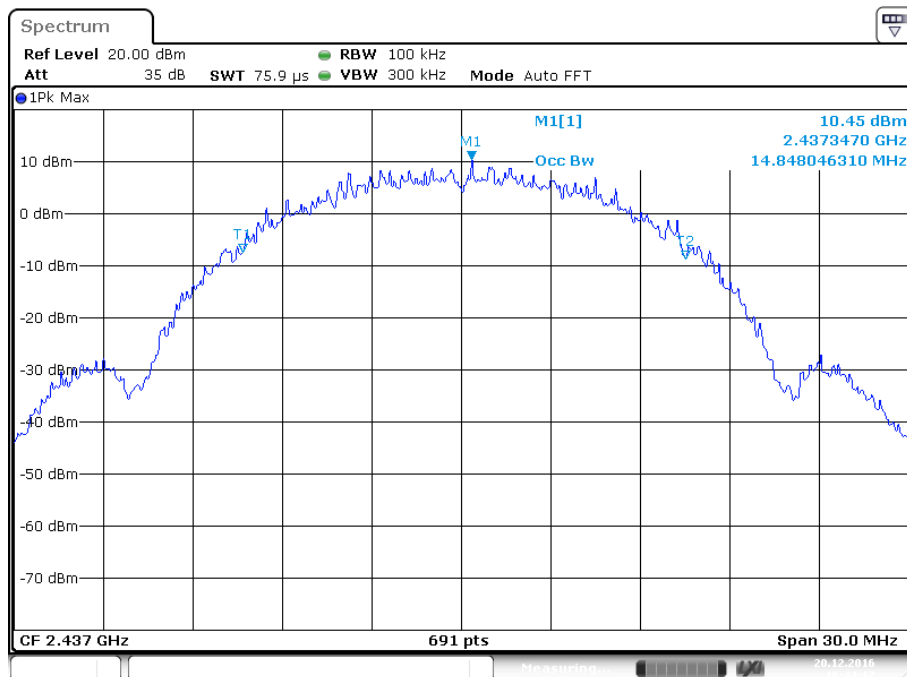


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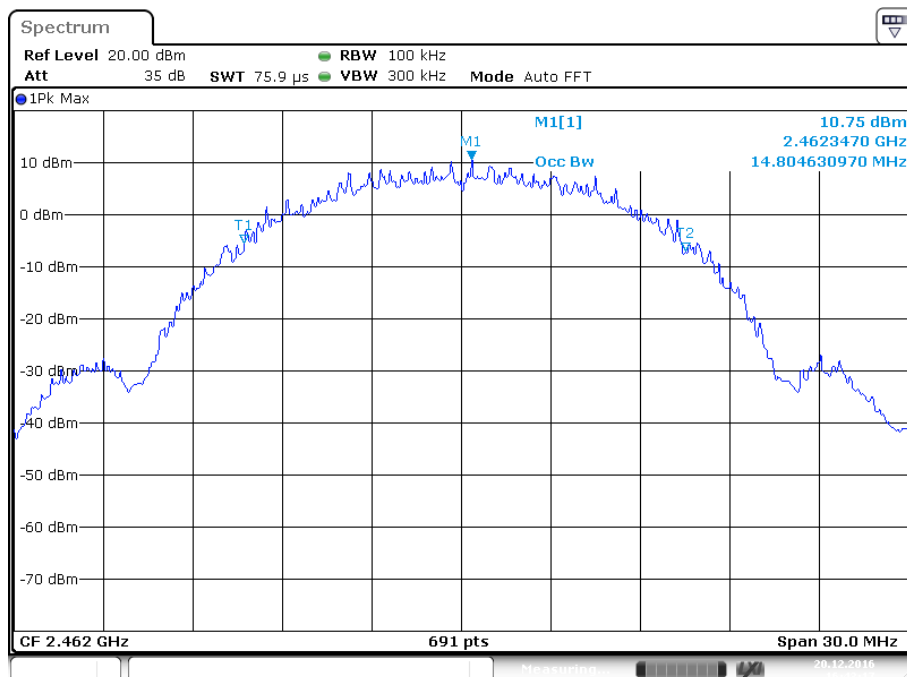
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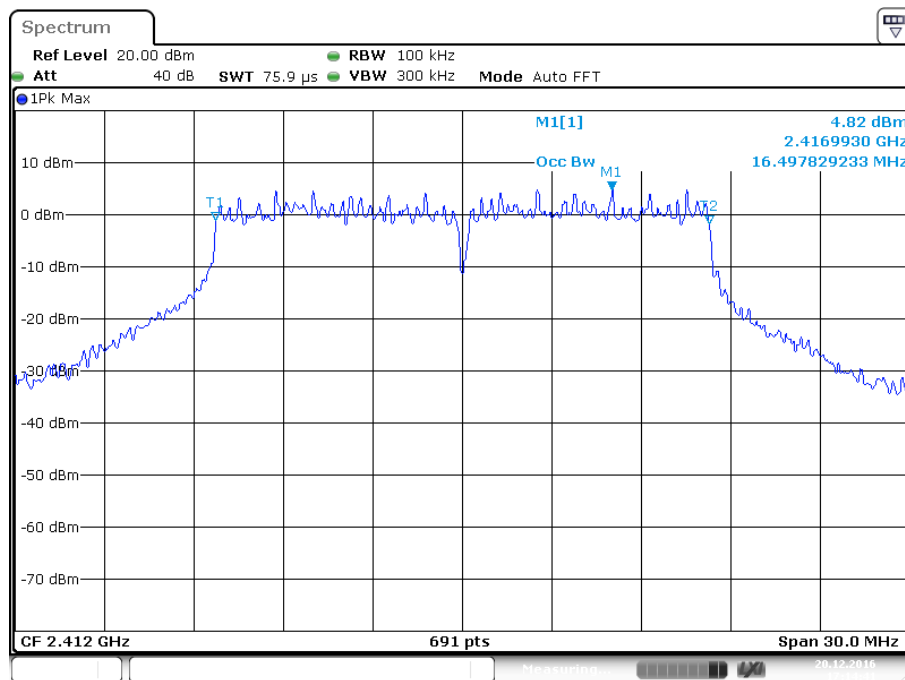


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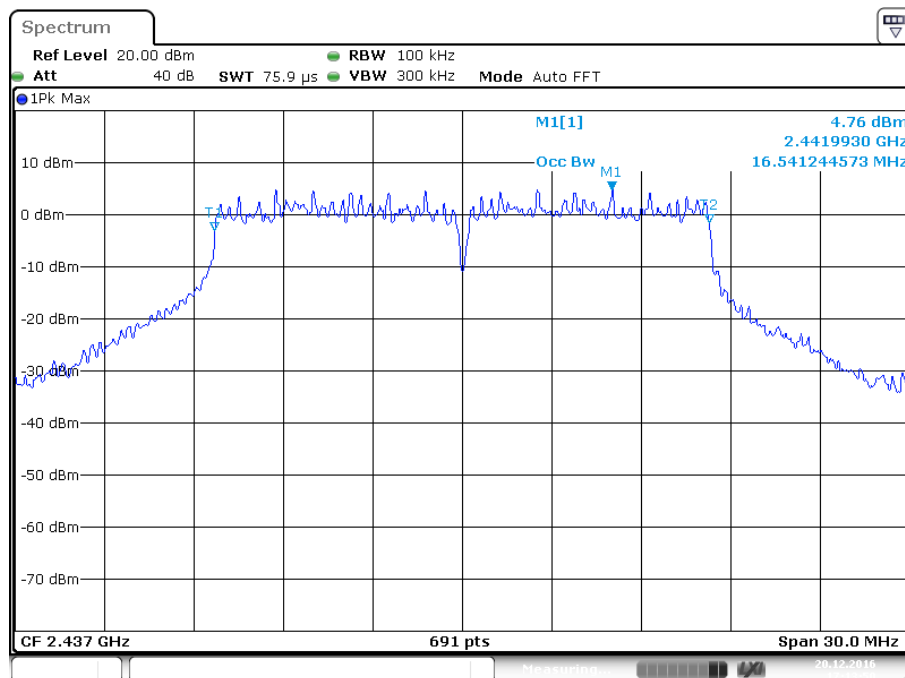


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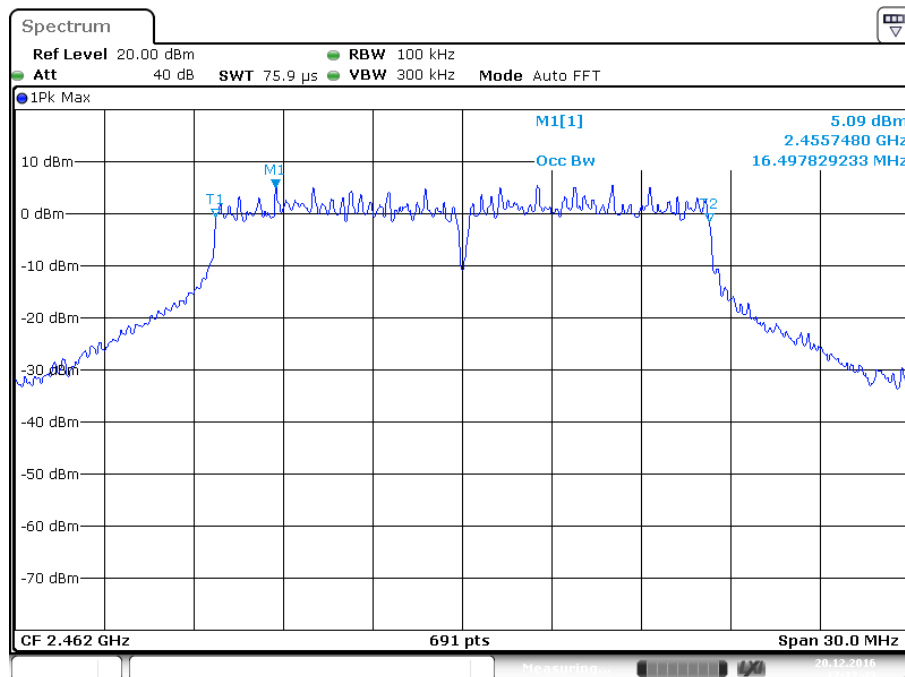
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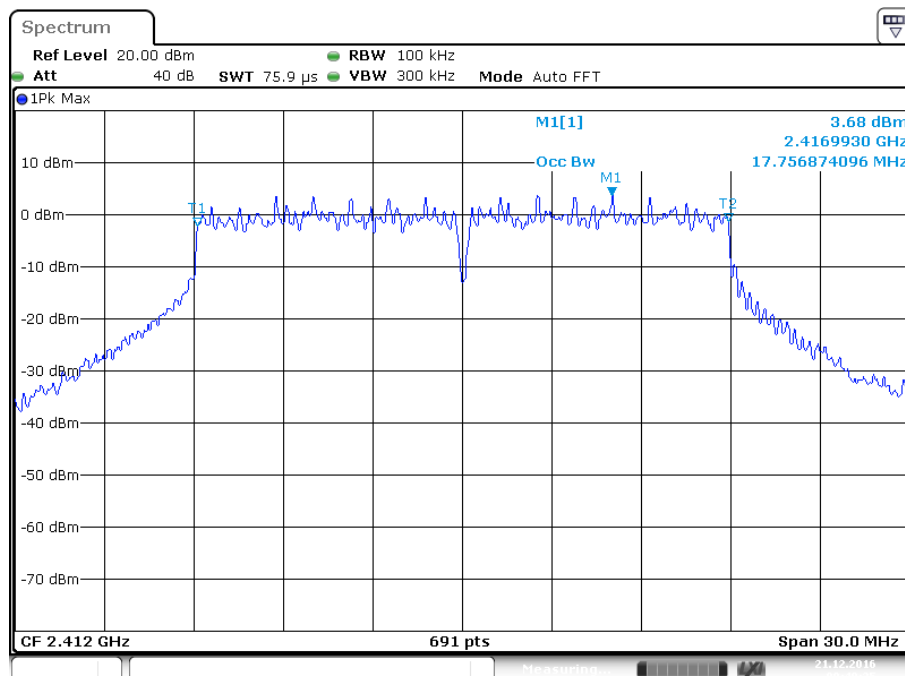


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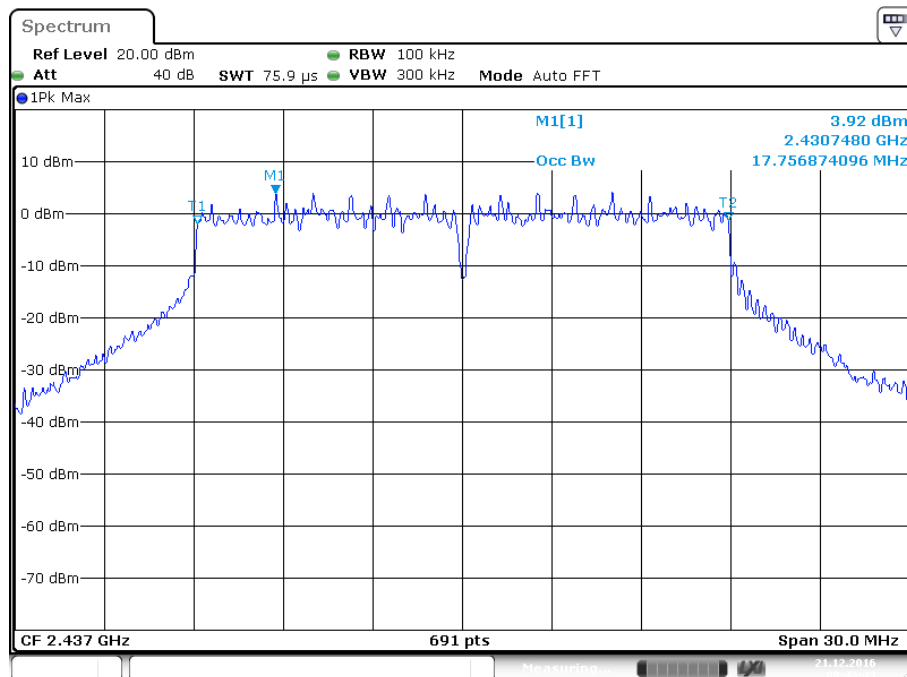


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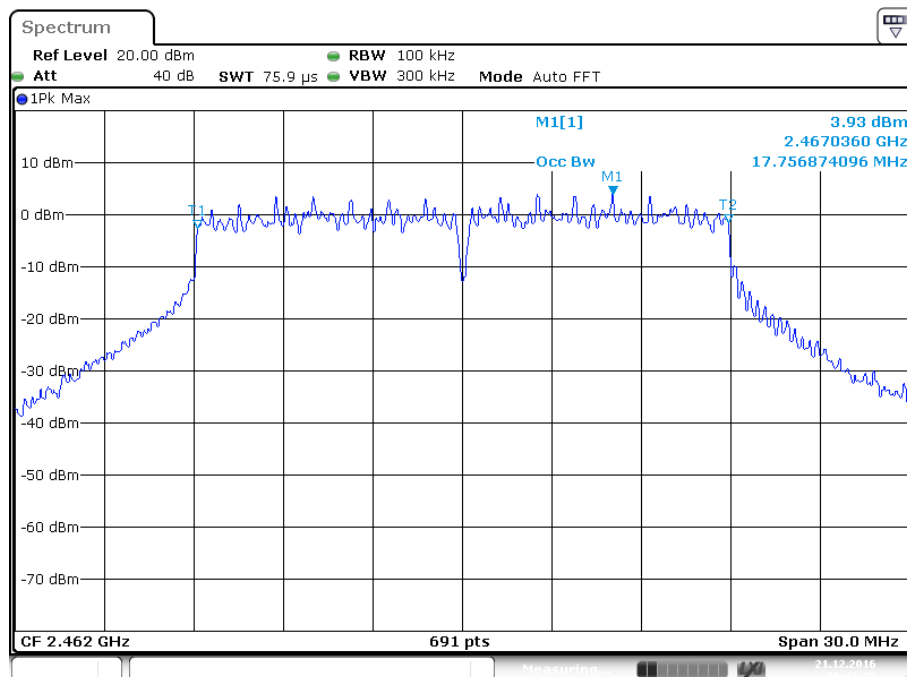
Wi-Fi 802.11 n(HT20) mode, MCS0



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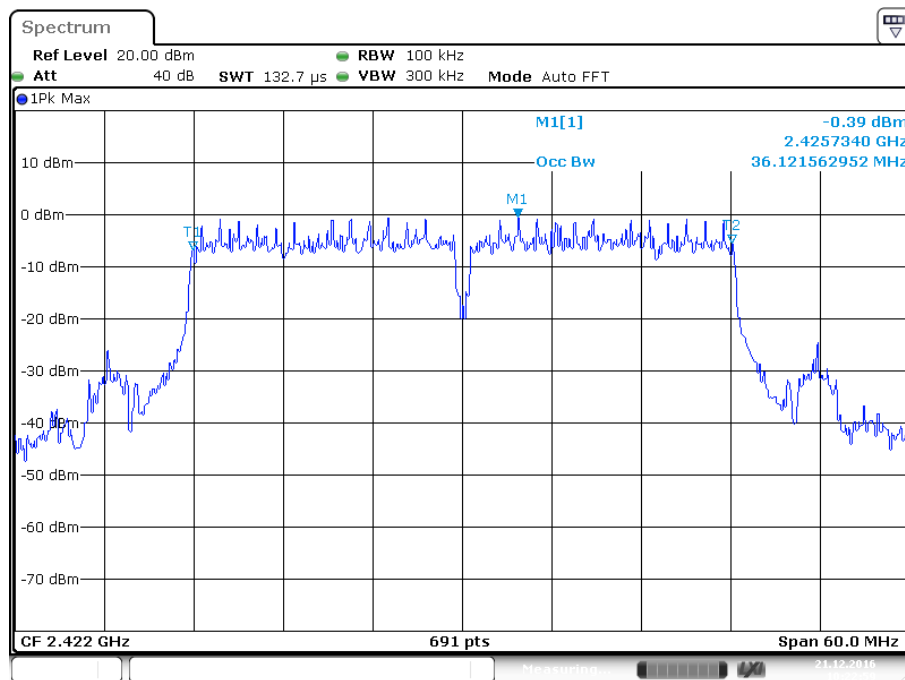


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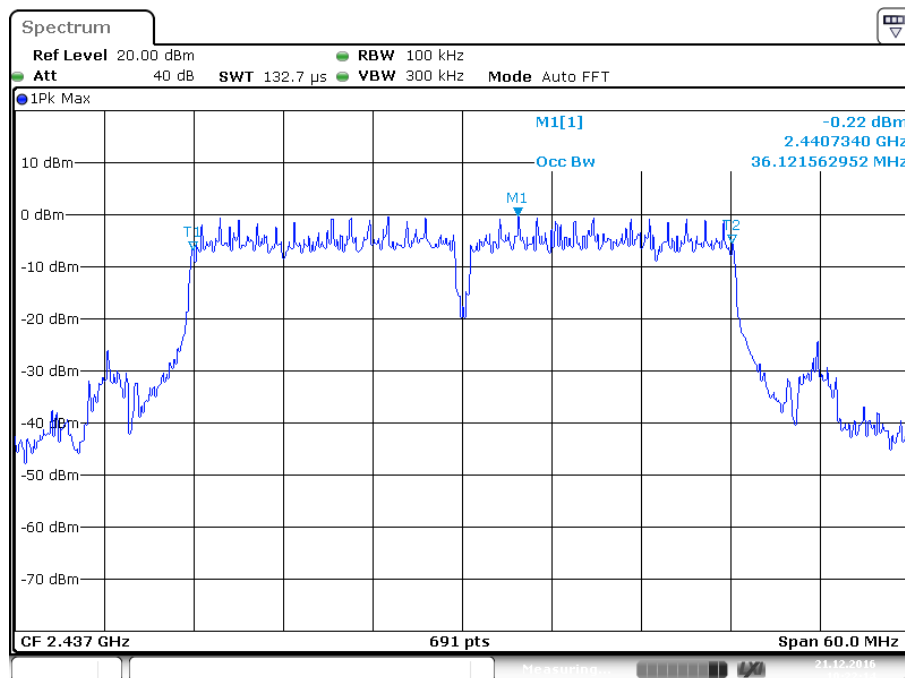


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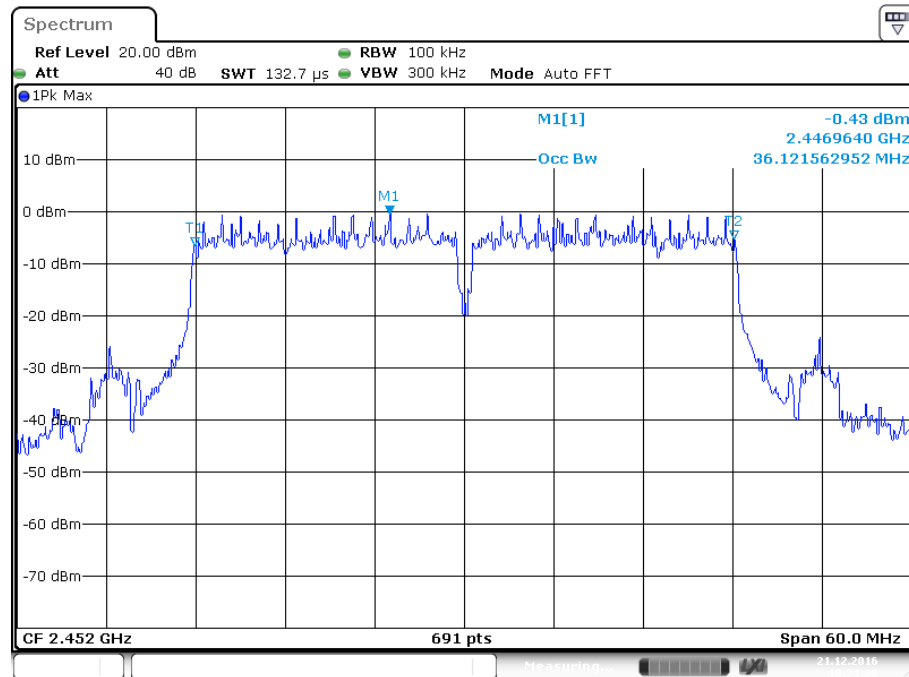
Wi-Fi 802.11 n(HT40) mode, MCS0



Date: 21.DEC.2016 10:22:59



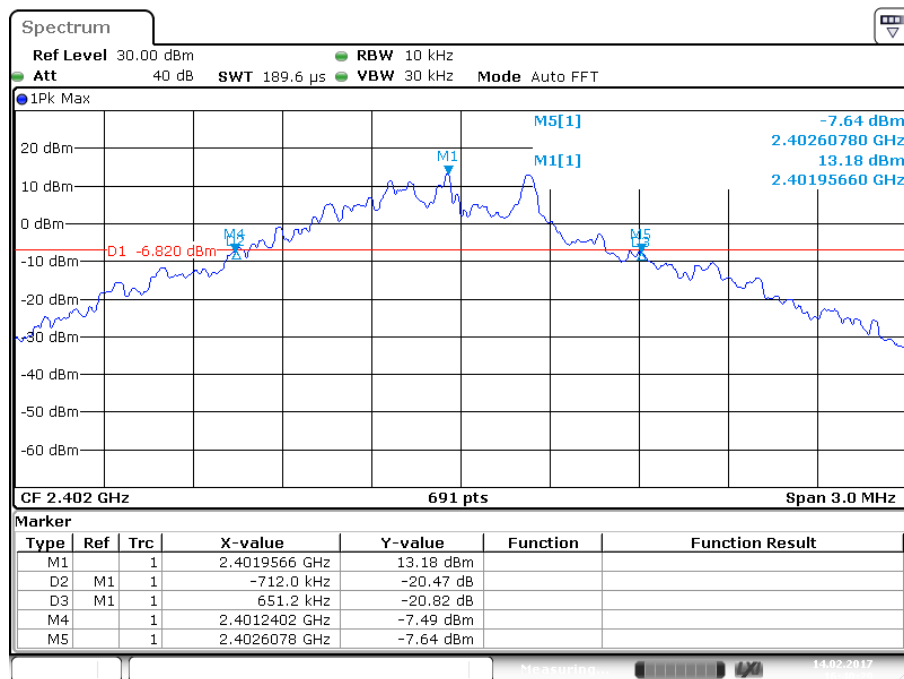
Date: 21.DEC.2016 10:22:14



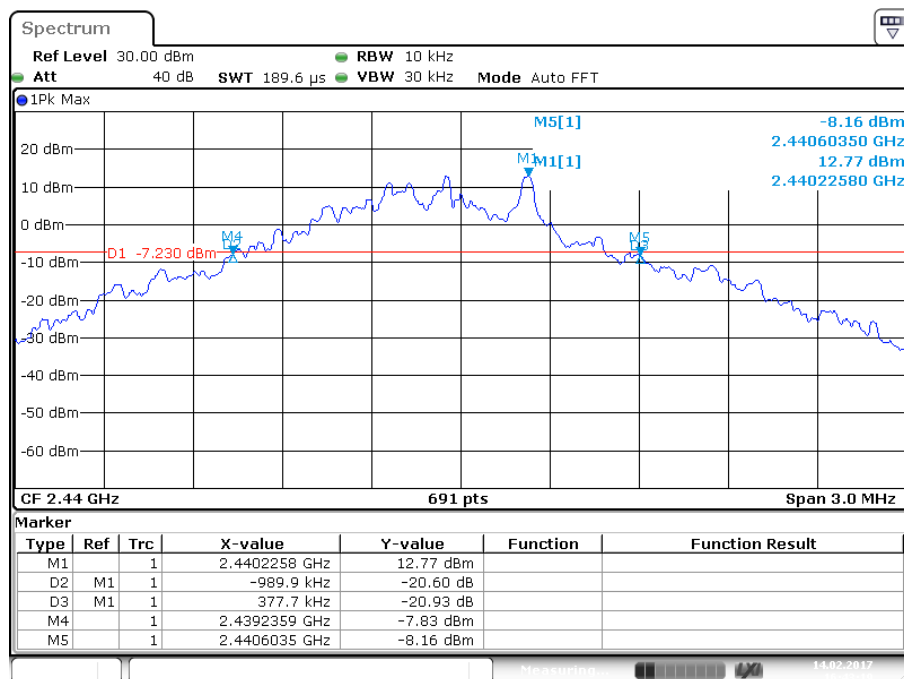
Date: 21.DEC.2016 10:21:29

Appendix B.4: 20dB Bandwidth

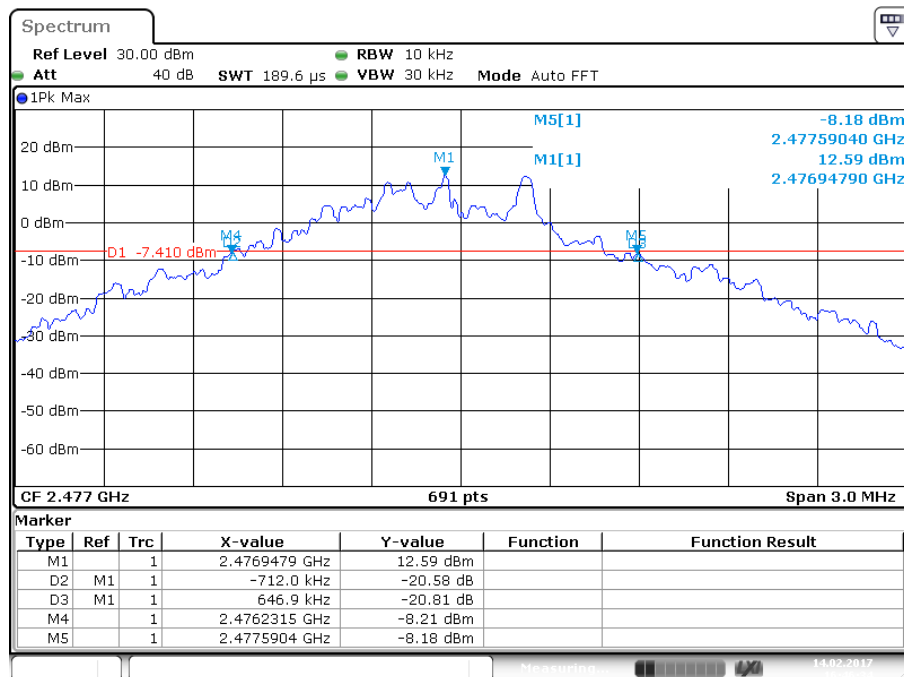
General 2.4GHz



Date: 14.FEB.2017 16:40:29



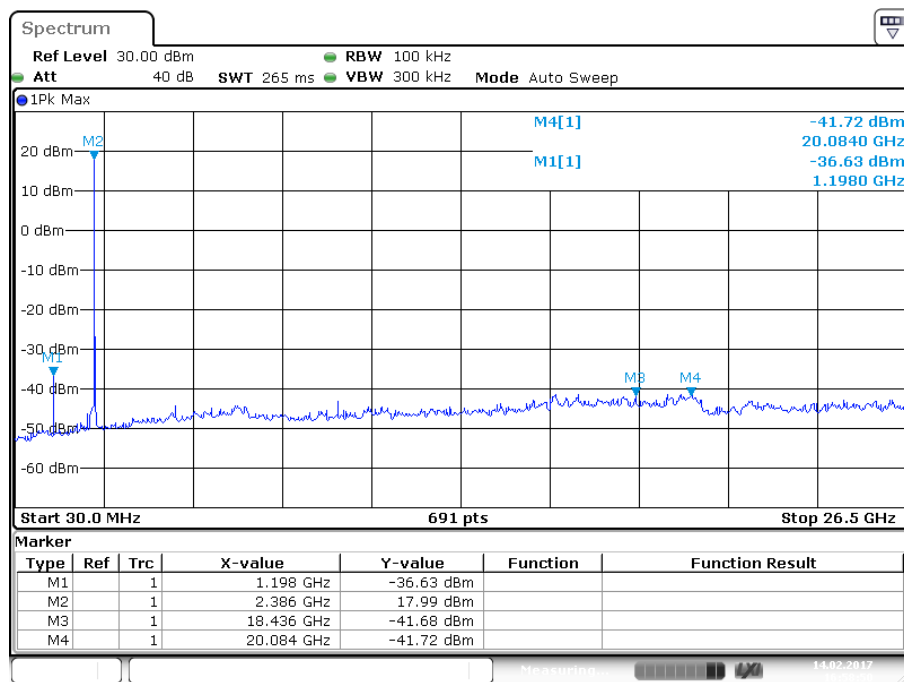
Date: 14.FEB.2017 16:43:20



Date: 14.FEB.2017 16:46:35

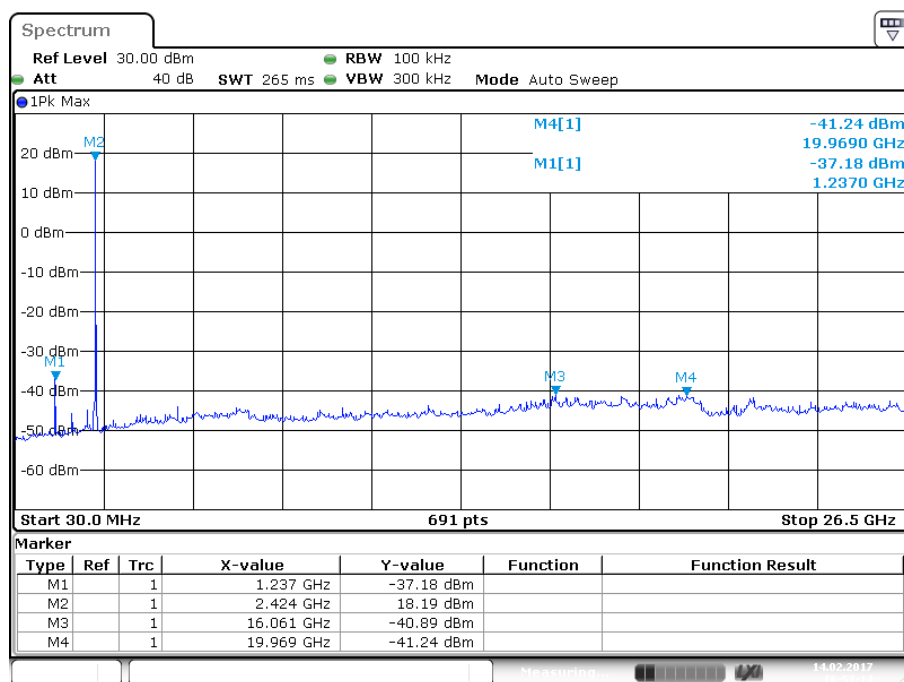
Appendix B.5: Conducted Spurious Emissions Measured in 100 kHz Bandwidth

General 2.4GHz Low Channel



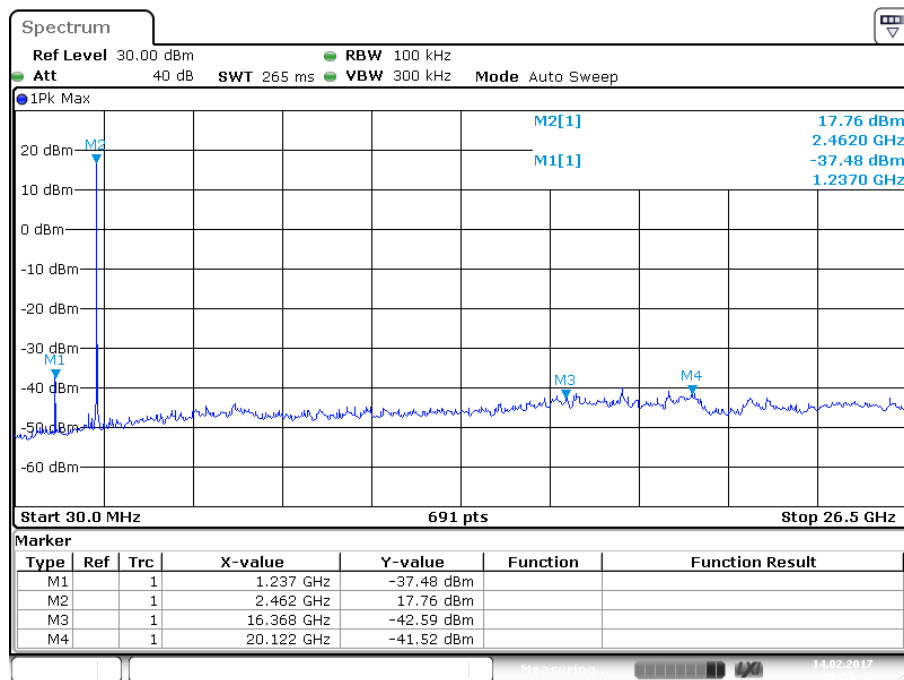
Date: 14.FEB.2017 16:58:51

Middle Channel



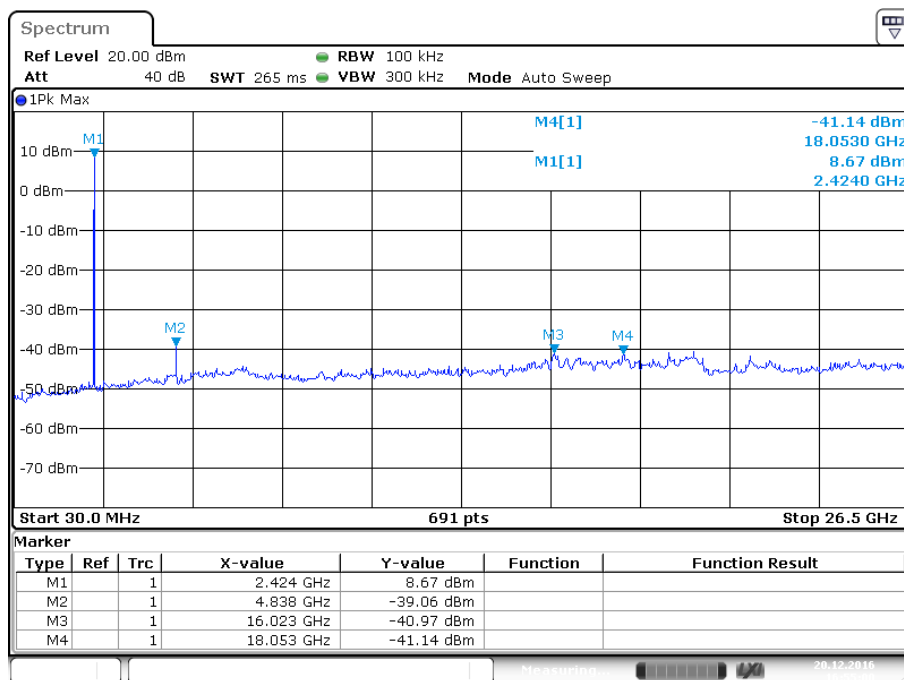
Date: 14.FEB.2017 16:57:15

High Channel



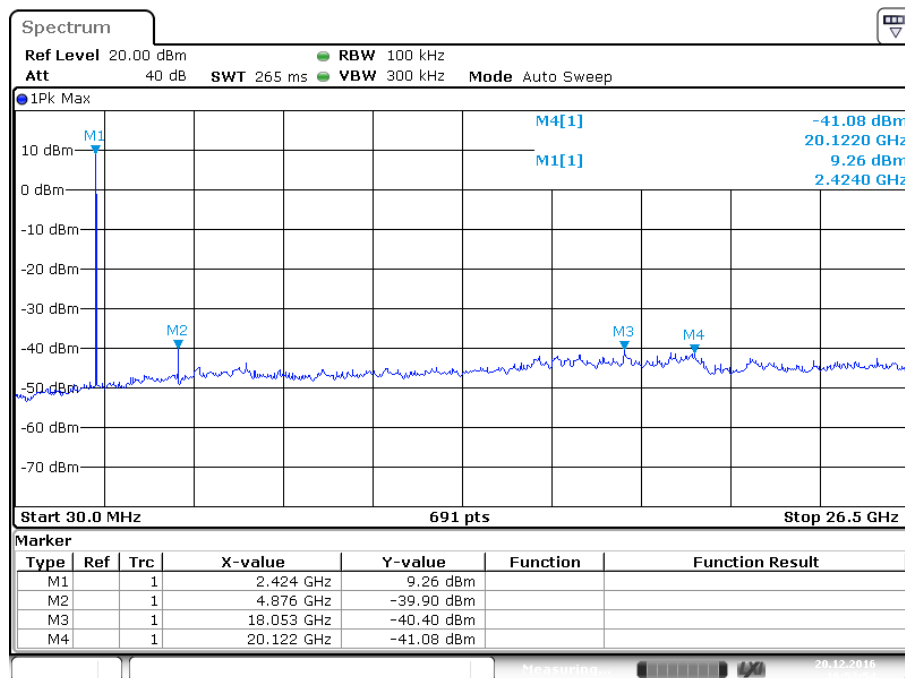
Date: 14.FEB.2017 16:55:47

Wi-Fi 802.11 b mode, 1 Mbps Low Channel



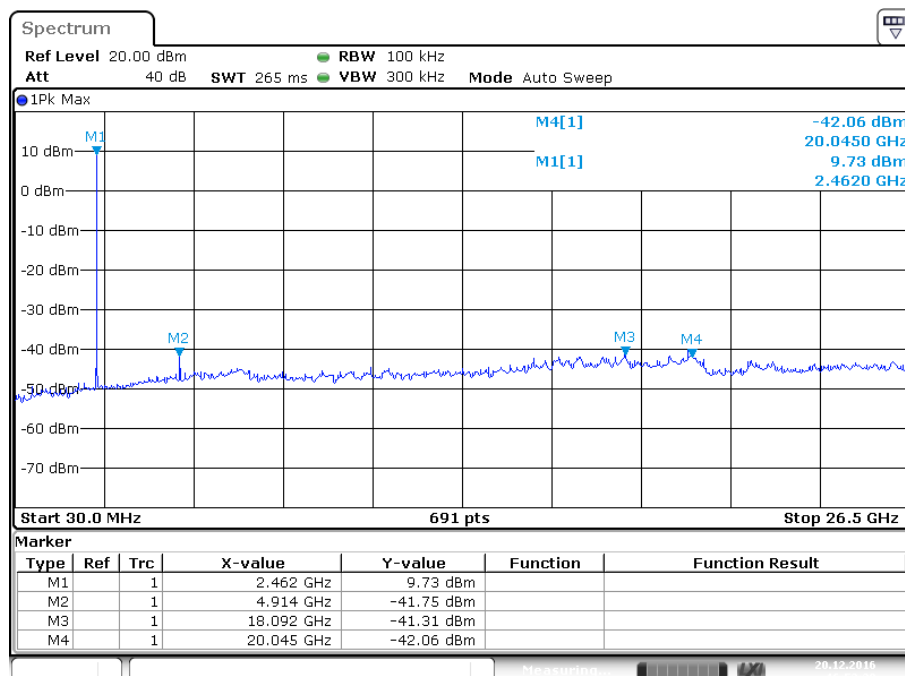
Date: 20.DEC.2016 16:55:00

Middle Channel



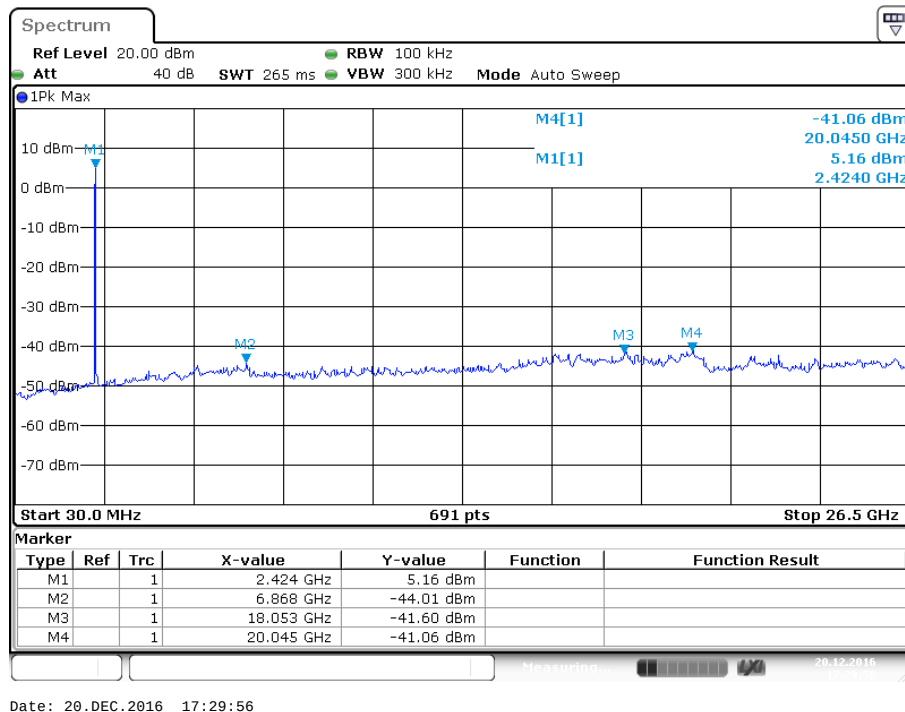
Date: 20.DEC.2016 16:53:55

High Channel

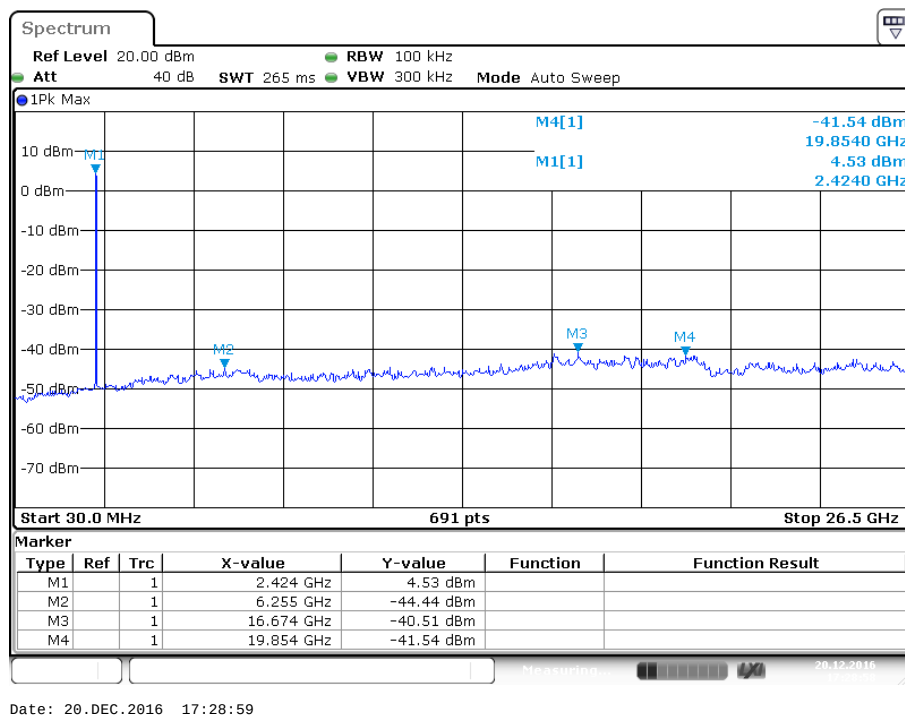


Date: 20.DEC.2016 16:52:40

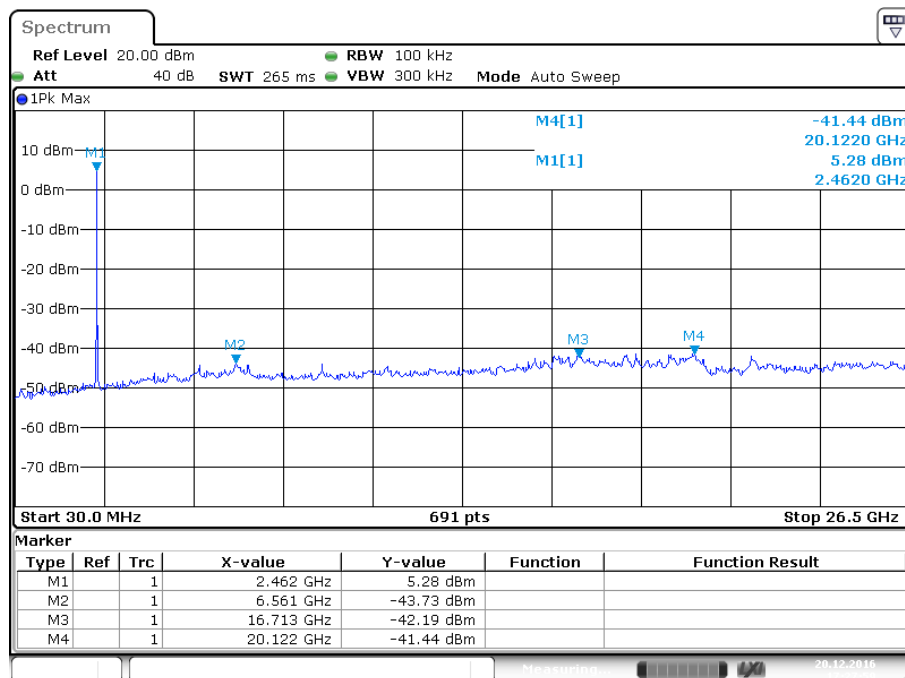
Wi-Fi 802.11 g mode, 6 Mbps
Low Channel



Middle Channel

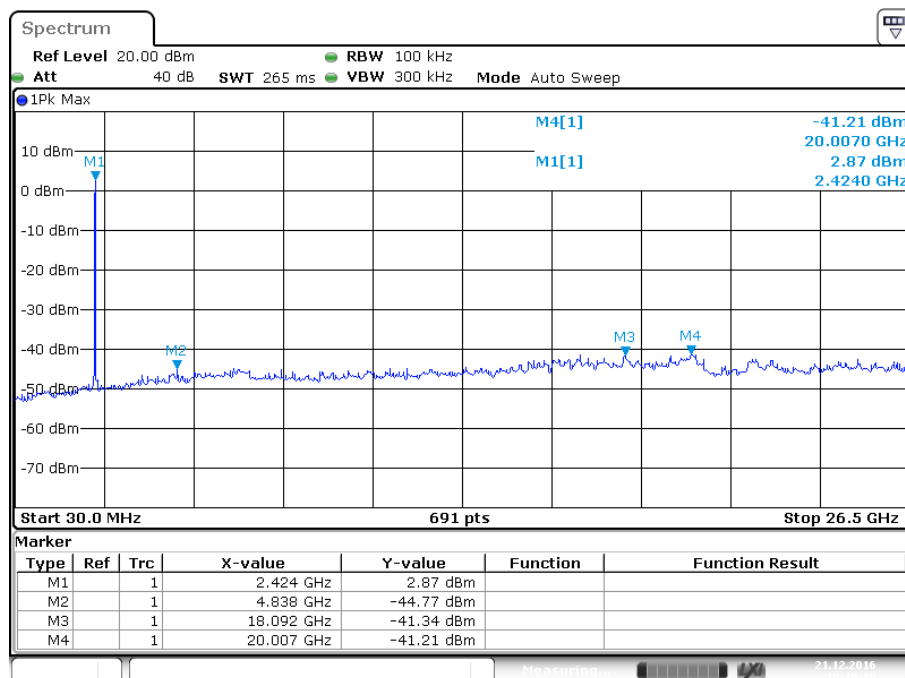


High Channel



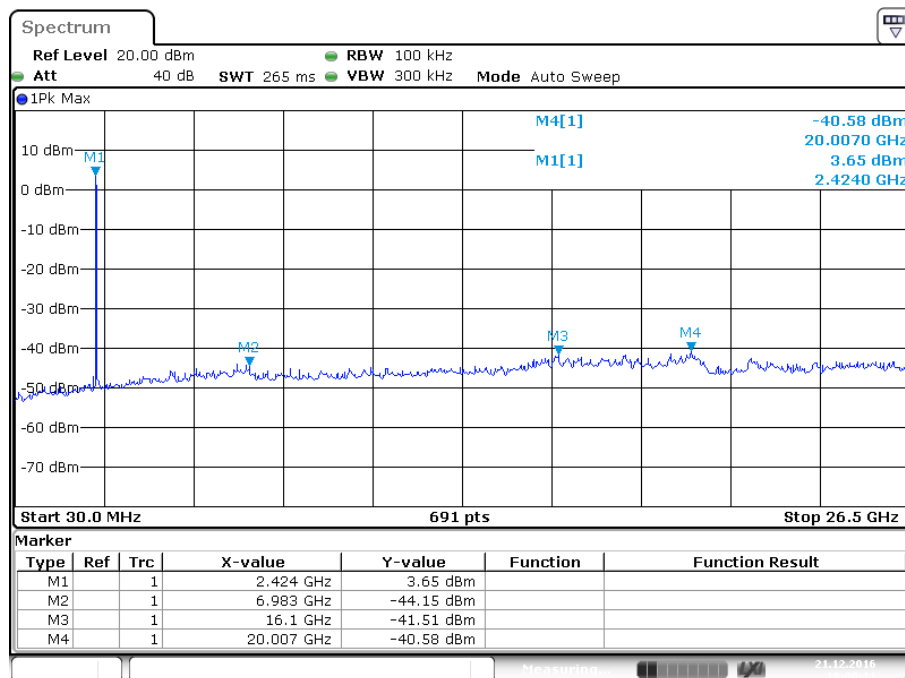
Date: 20.DEC.2016 17:28:00

Wi-Fi 802.11 n(HT20) mode, MCS0 Low Channel



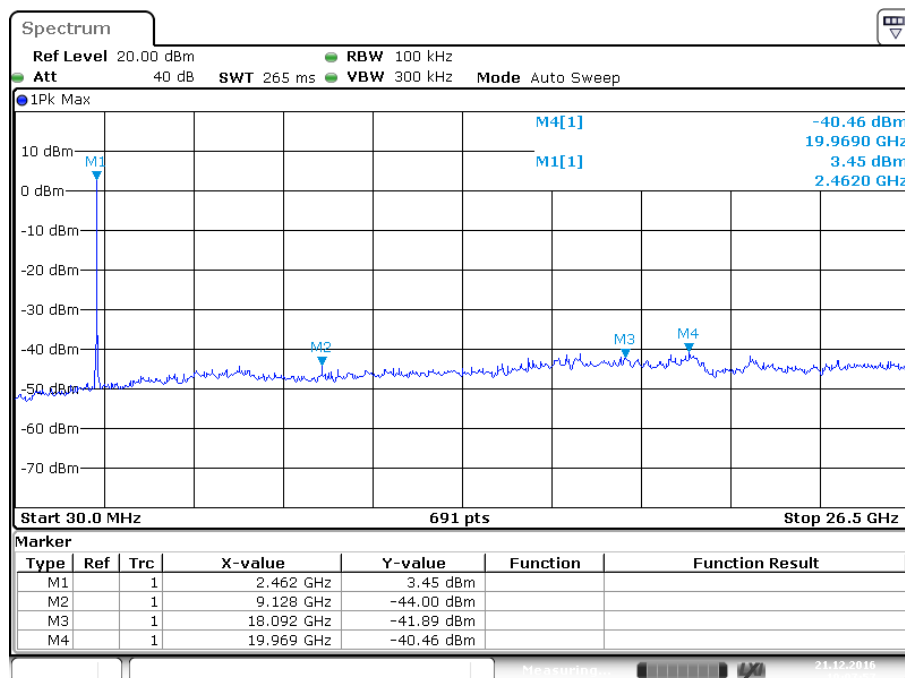
Date: 21.DEC.2016 10:10:10

Middle Channel



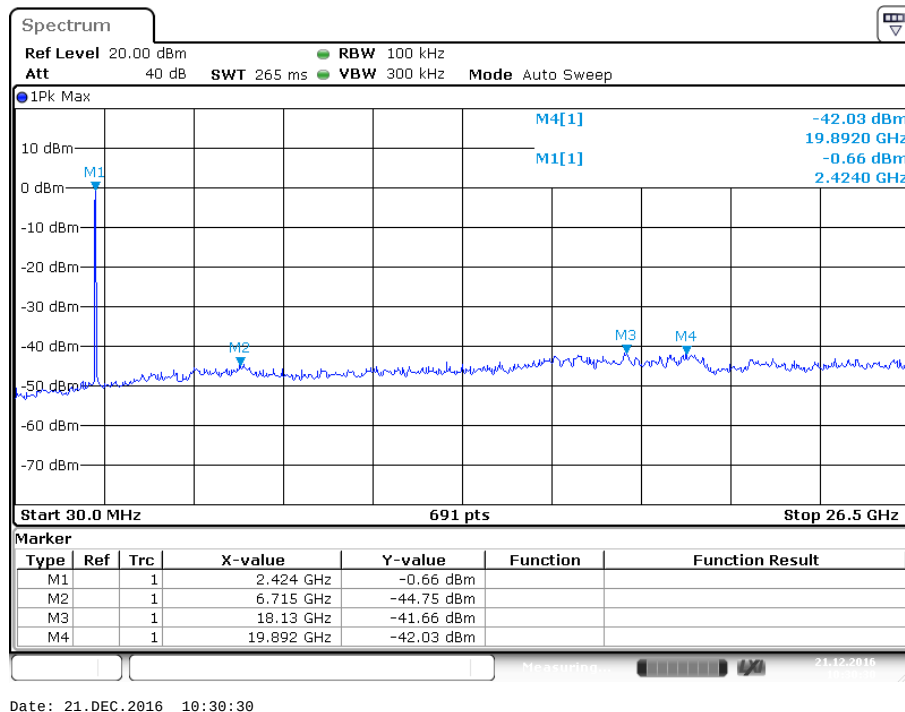
Date: 21.DEC.2016 10:09:11

High Channel

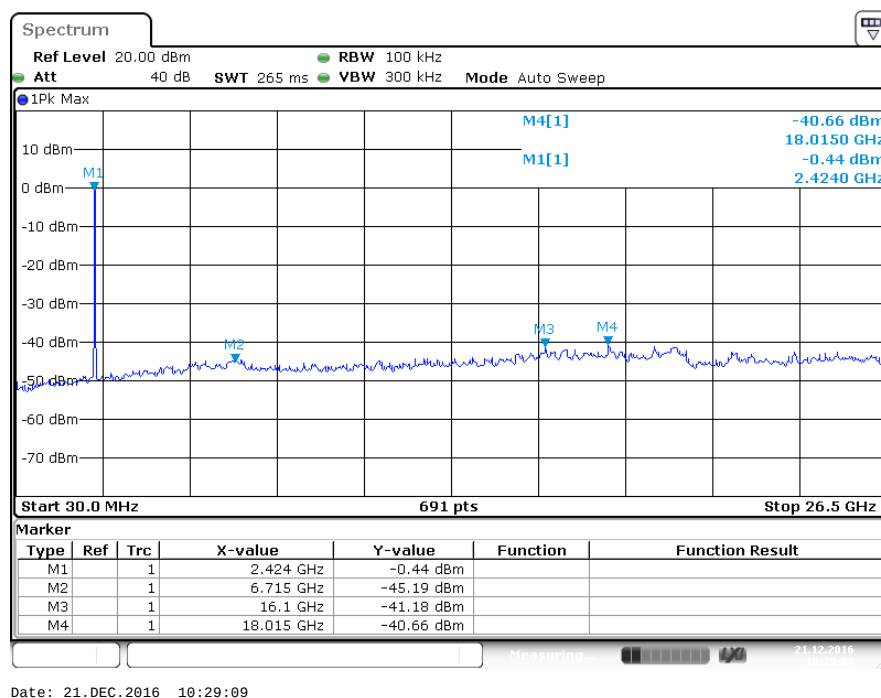


Date: 21.DEC.2016 10:07:57

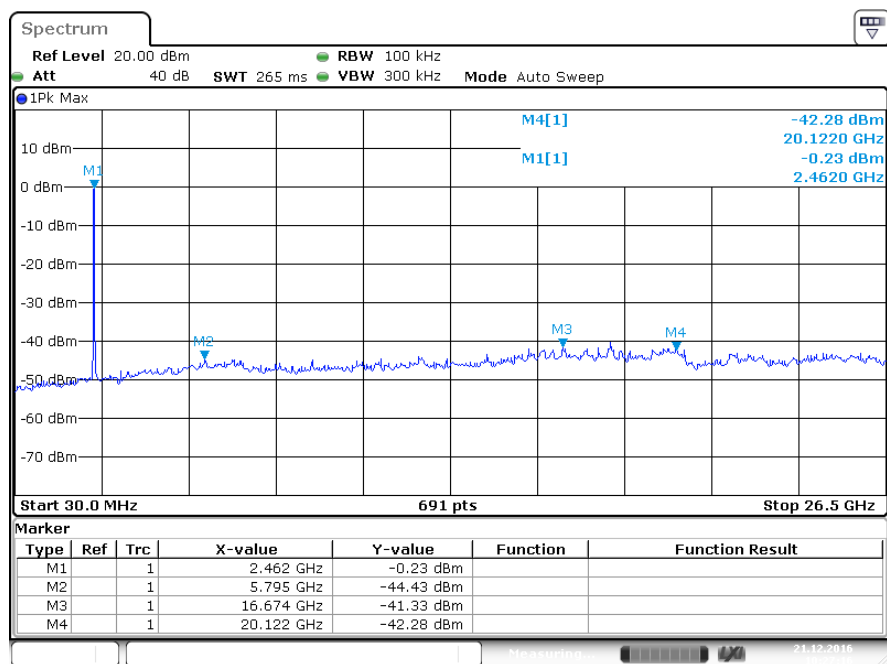
Wi-Fi 802.11 n(HT40) mode, MCS0
Low Channel



Middle Channel

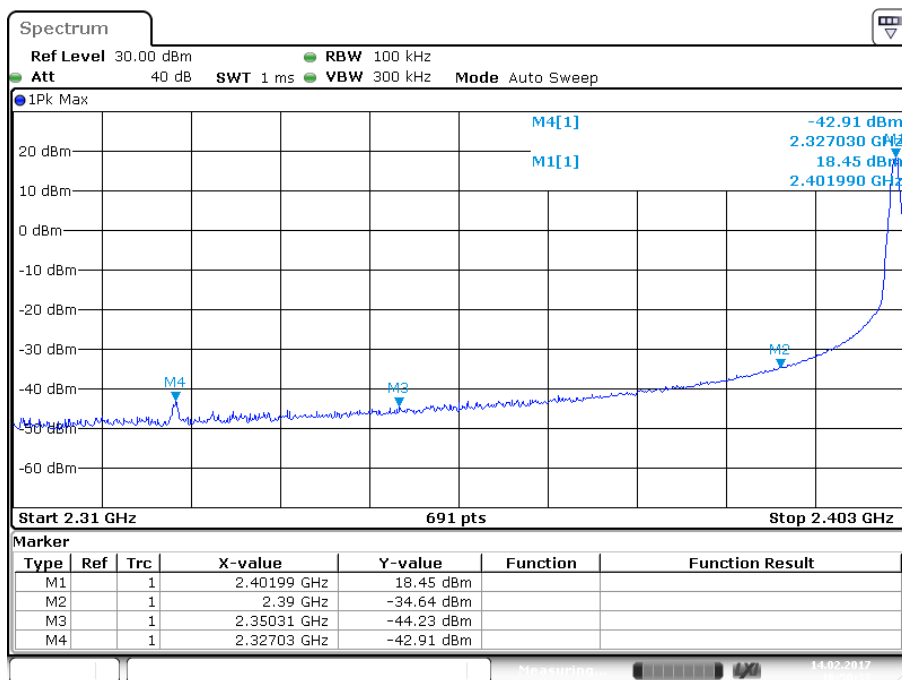


High Channel



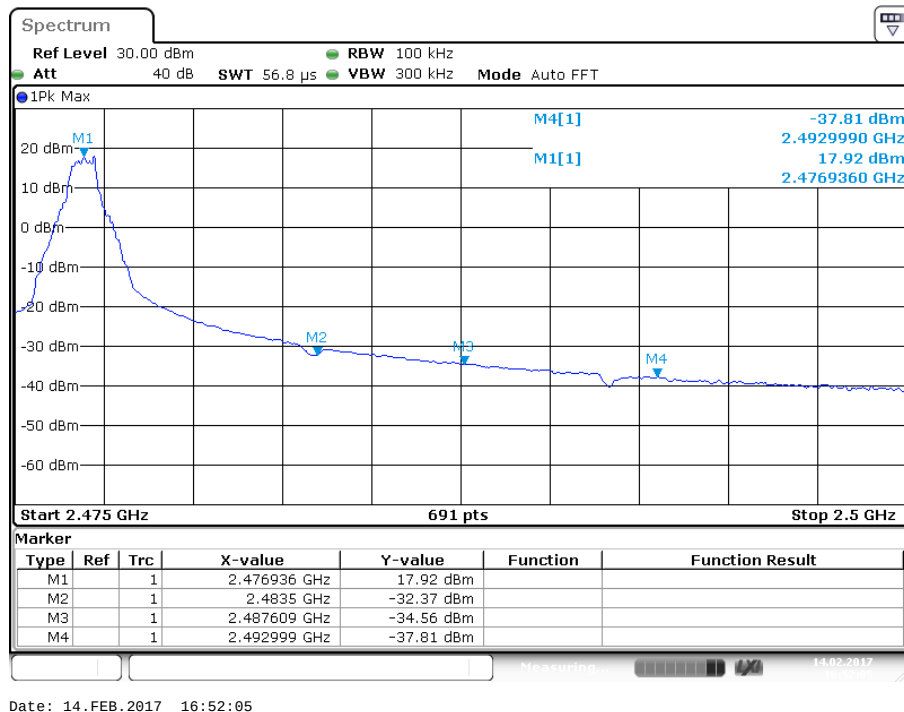
Date: 21.DEC.2016 10:27:16

General 2.4GHz, Band Edge Low Channel

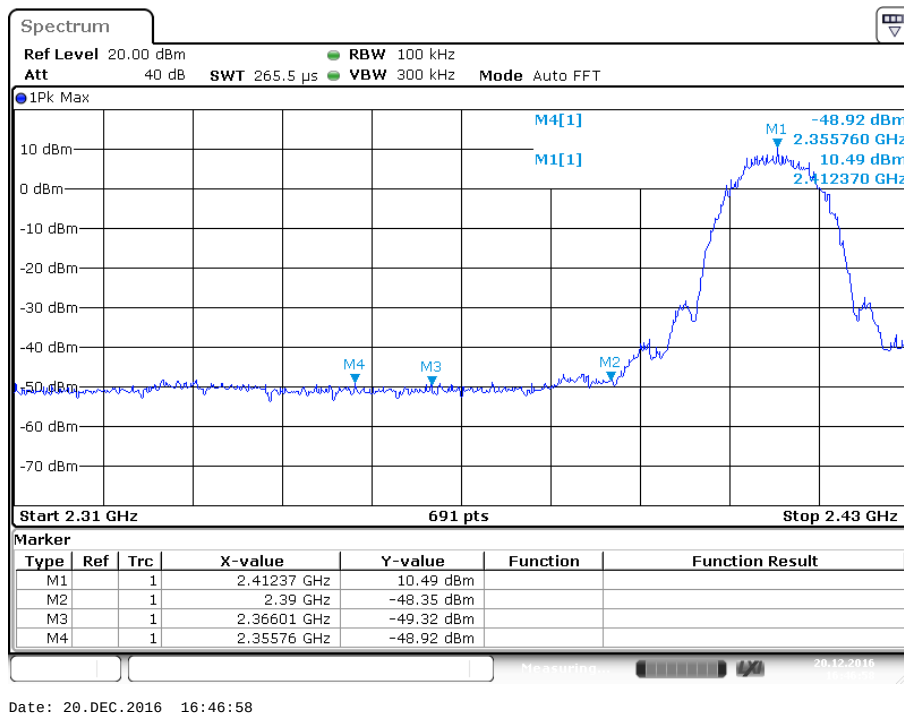


Date: 14.FEB.2017 16:50:38

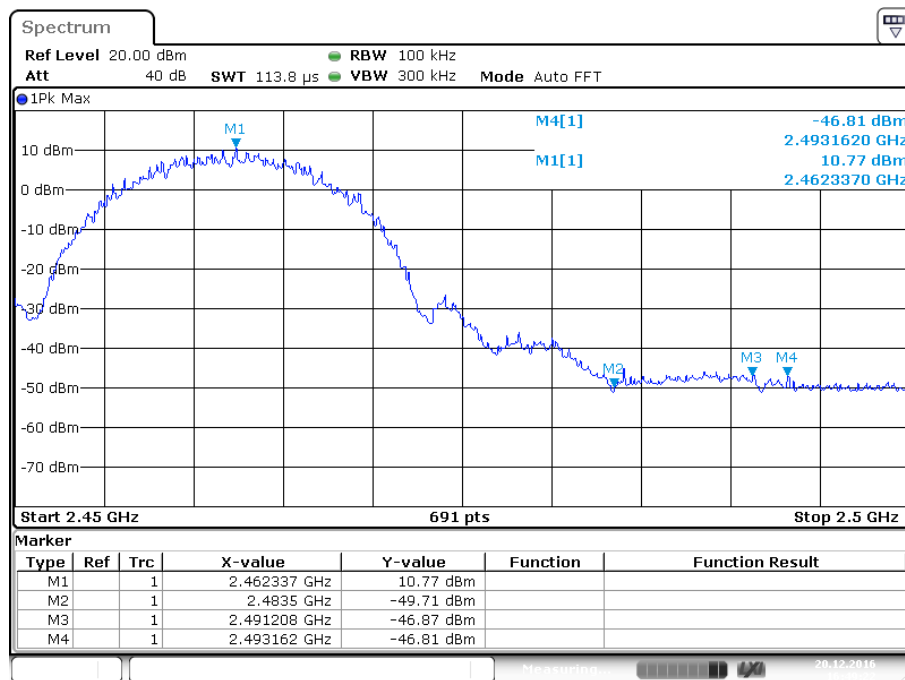
High Channel



Wi-Fi 802.11 b mode, Band Edge Low Channel

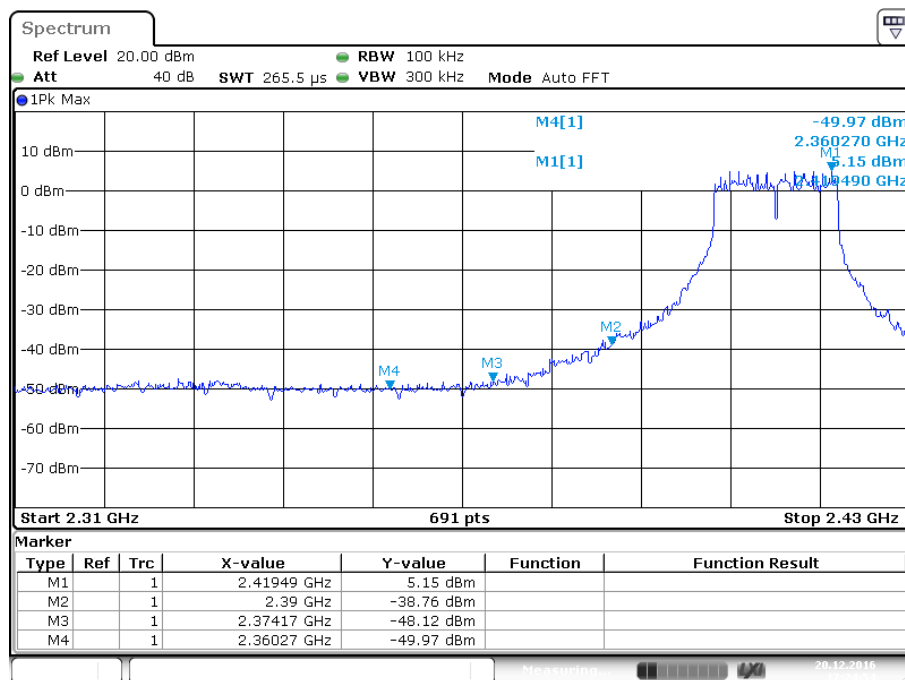


High Channel



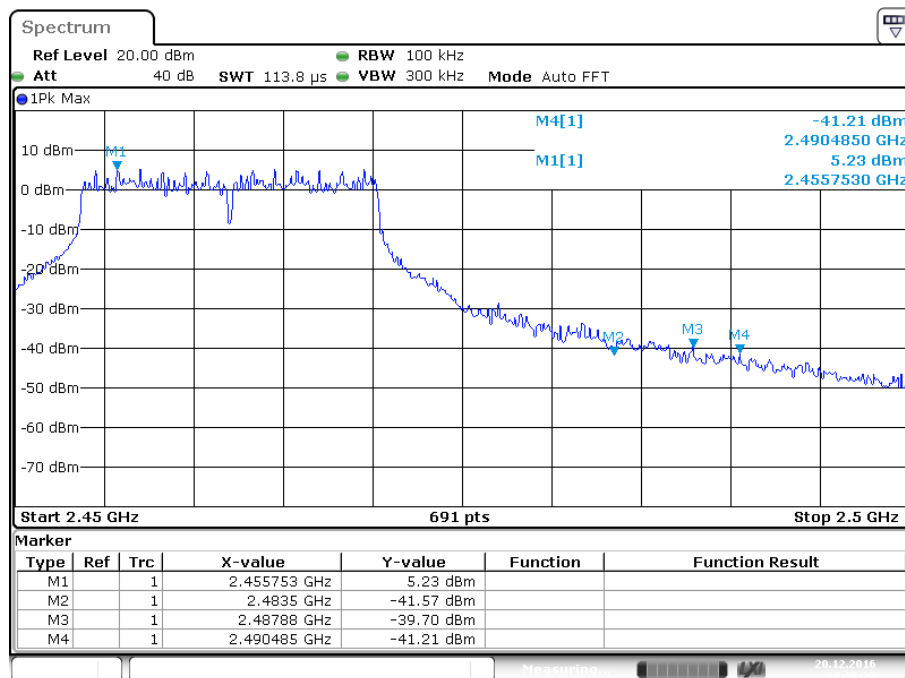
Date: 20.DEC.2016 16:49:23

Wi-Fi 802.11 g mode, Band Edge Low Channel



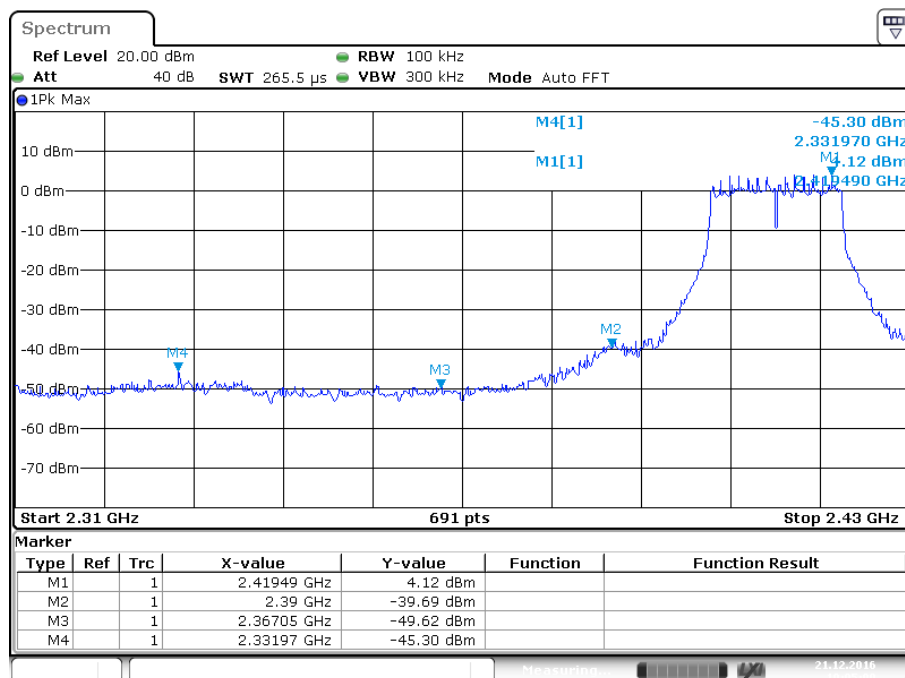
Date: 20.DEC.2016 17:24:55

High Channel



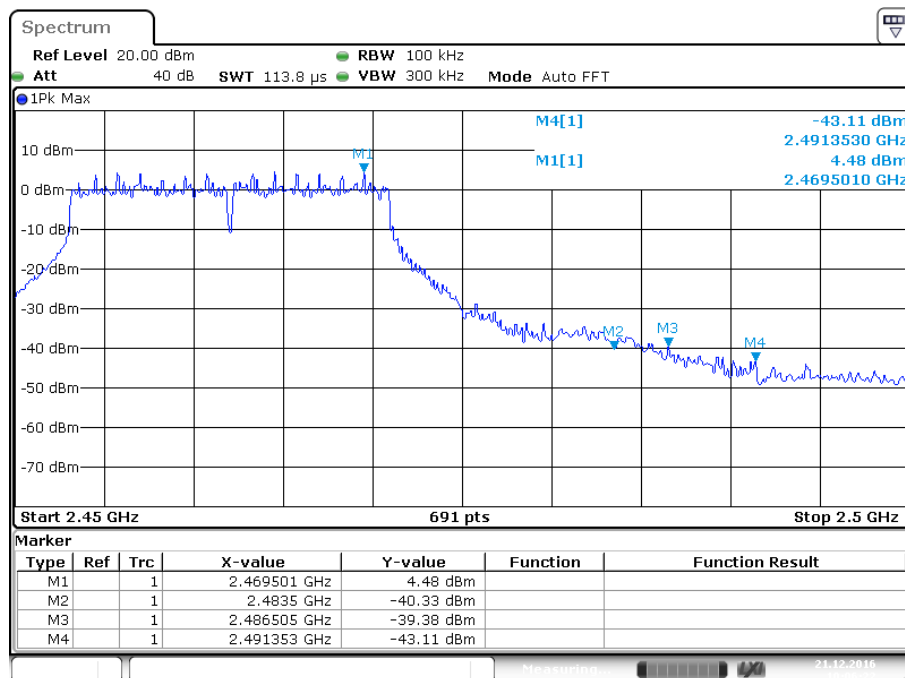
Date: 20.DEC.2016 17:26:24

Wi-Fi 802.11 n(HT20) mode, Band Edge Low Channel



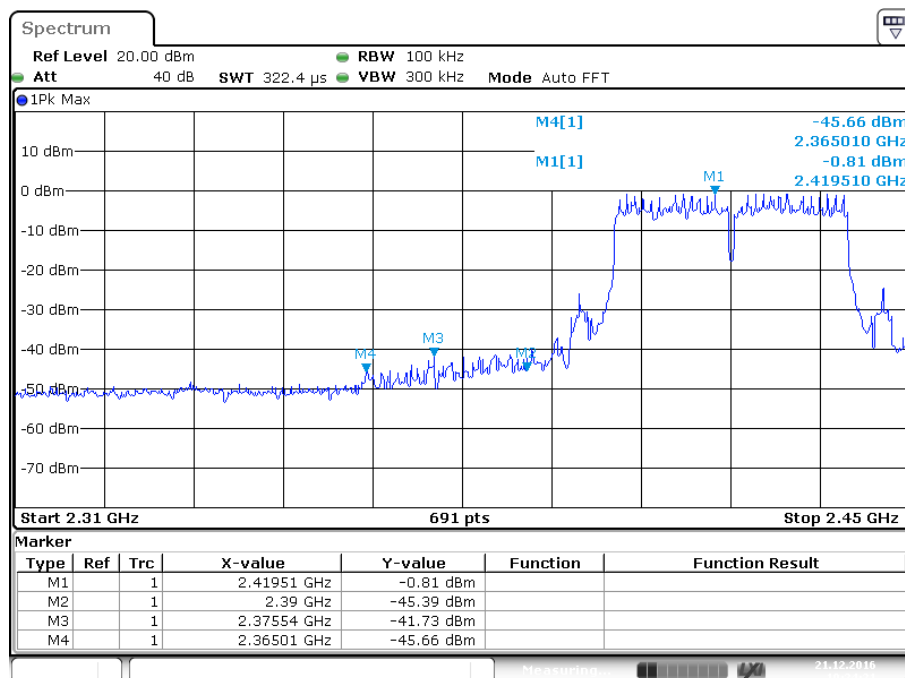
Date: 21.DEC.2016 10:05:00

High Channel



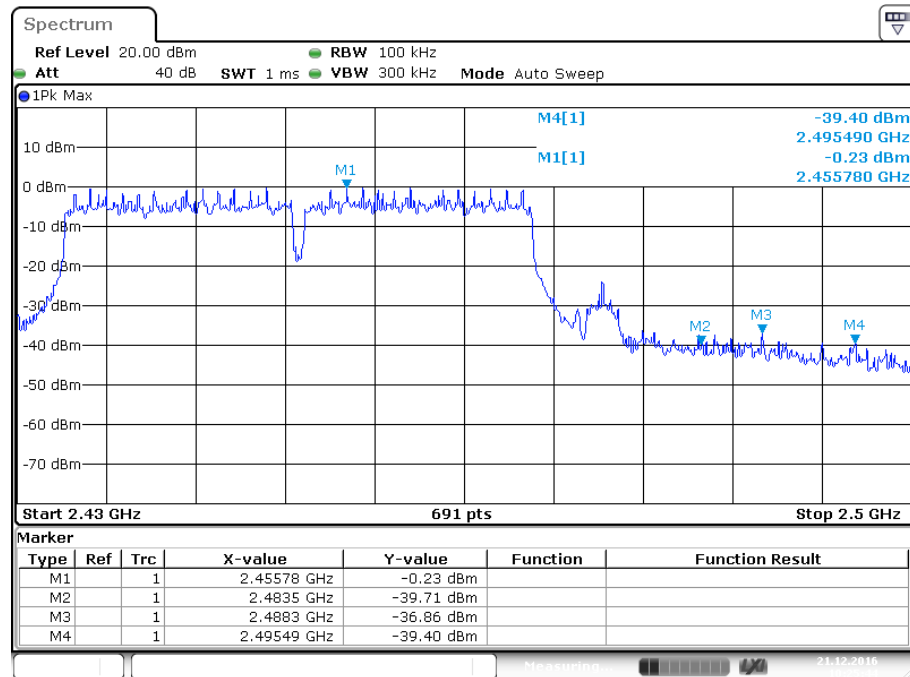
Date: 21.DEC.2016 10:06:22

Wi-Fi 802.11 n(HT40) mode, Band Edge Low Channel



Date: 21.DEC.2016 10:24:21

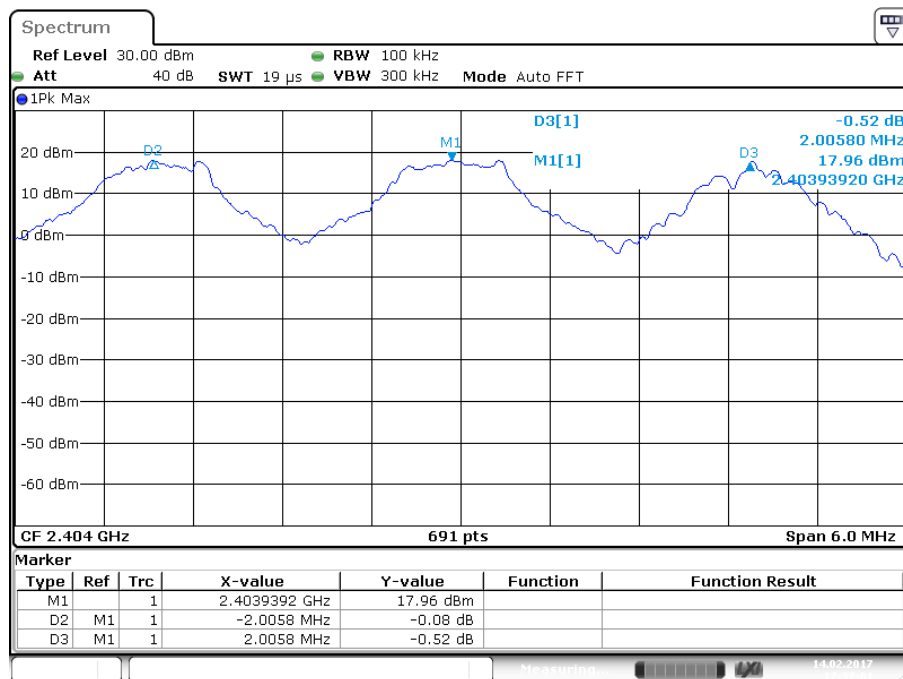
High Channel



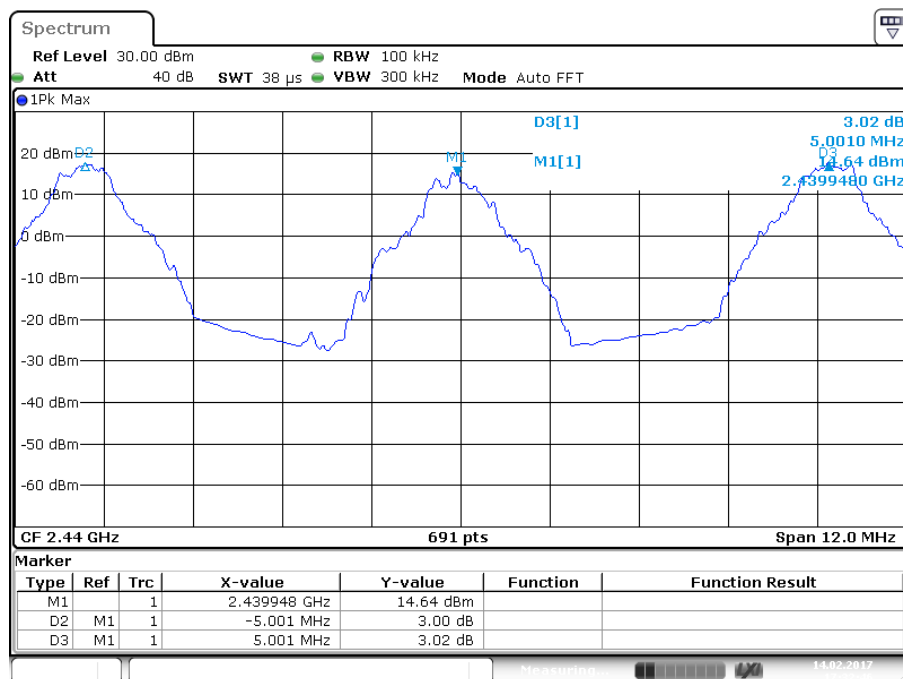
Date: 21.DEC.2016 10:25:44

Appendix B.6: Carrier Frequency Separation

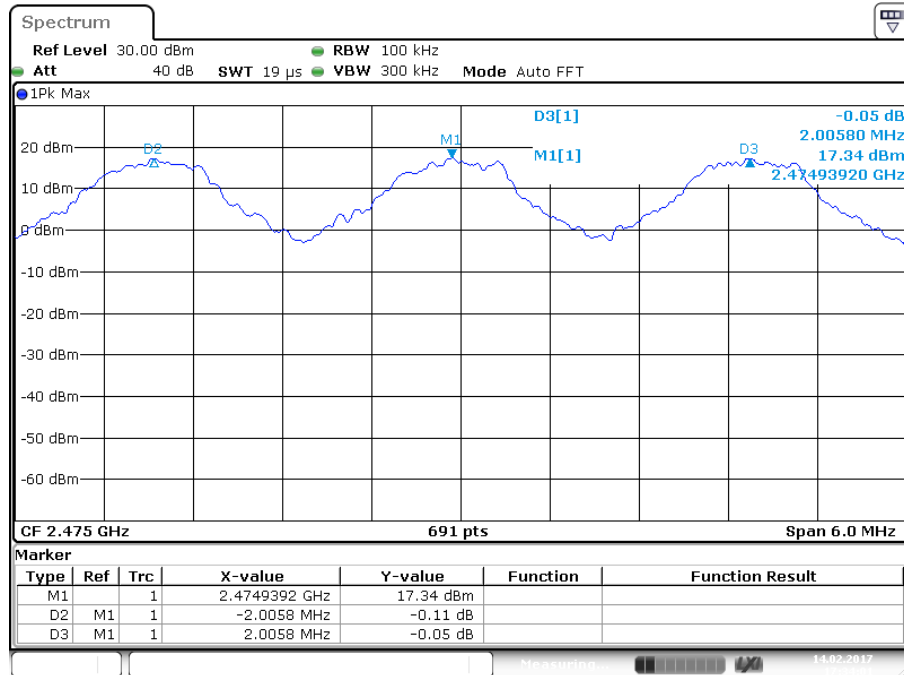
General 2.4GHz



Date: 14.FEB.2017 17:37:02



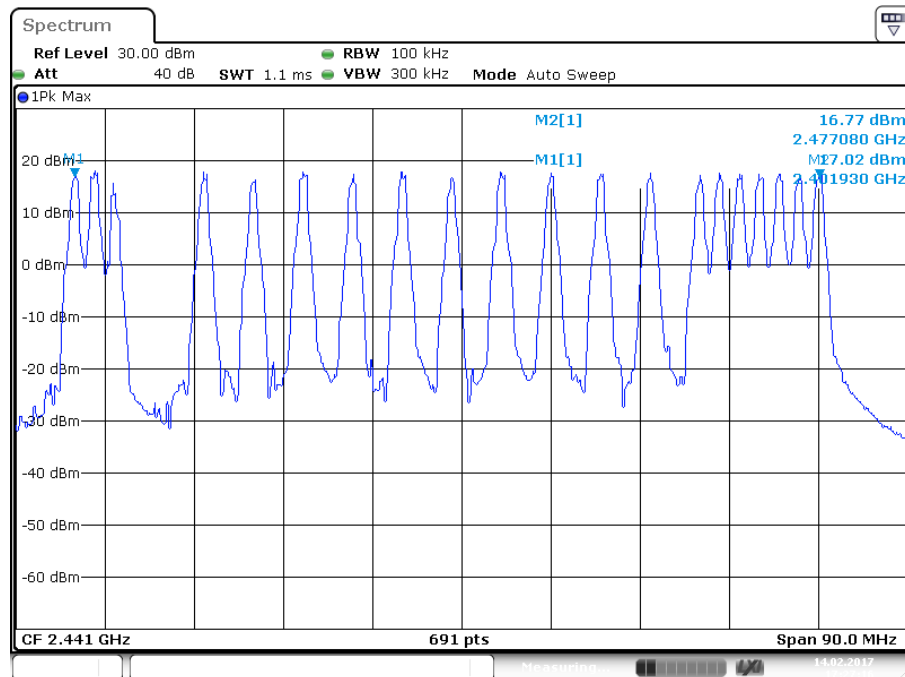
Date: 14.FEB.2017 17:32:47



Date: 14.FEB.2017 17:34:01

Appendix B.7: Number of Hopping Frequency

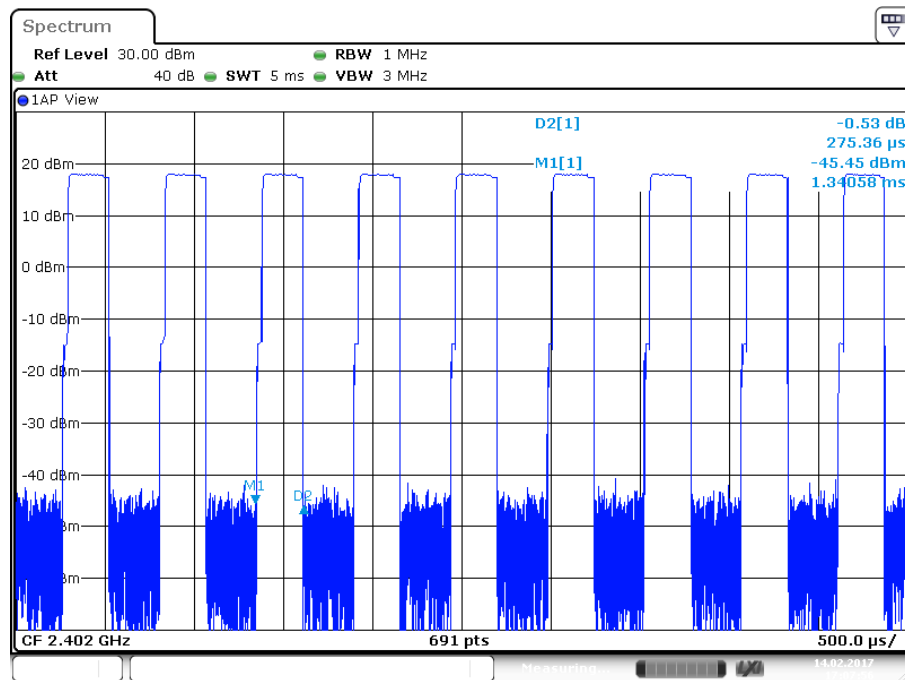
General 2.4GHz



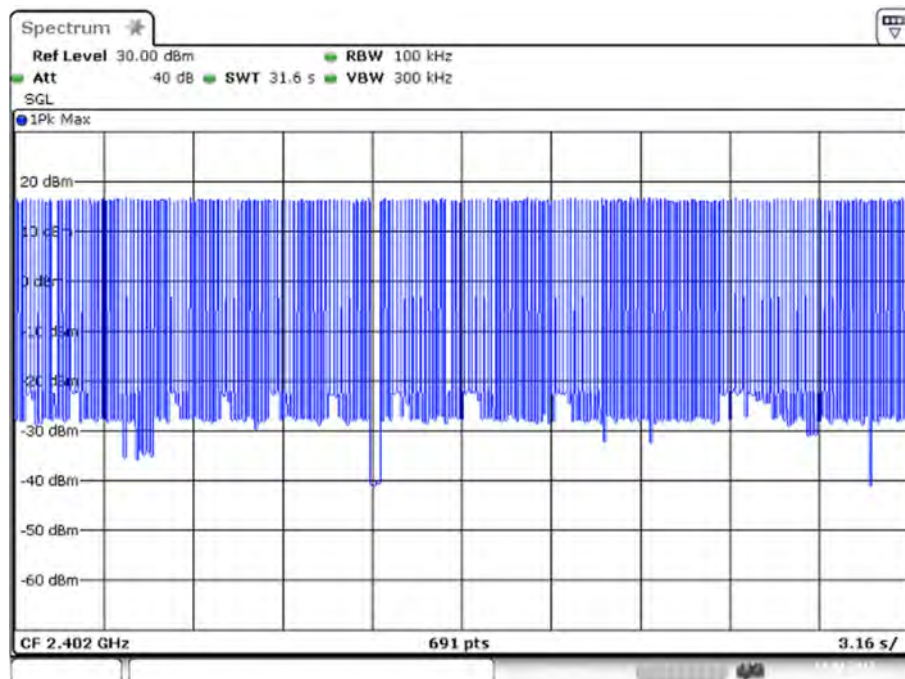
Date: 14.FEB.2017 17:27:17

Appendix B.8: Time of Occupancy

General 2.4GHz Low Channel

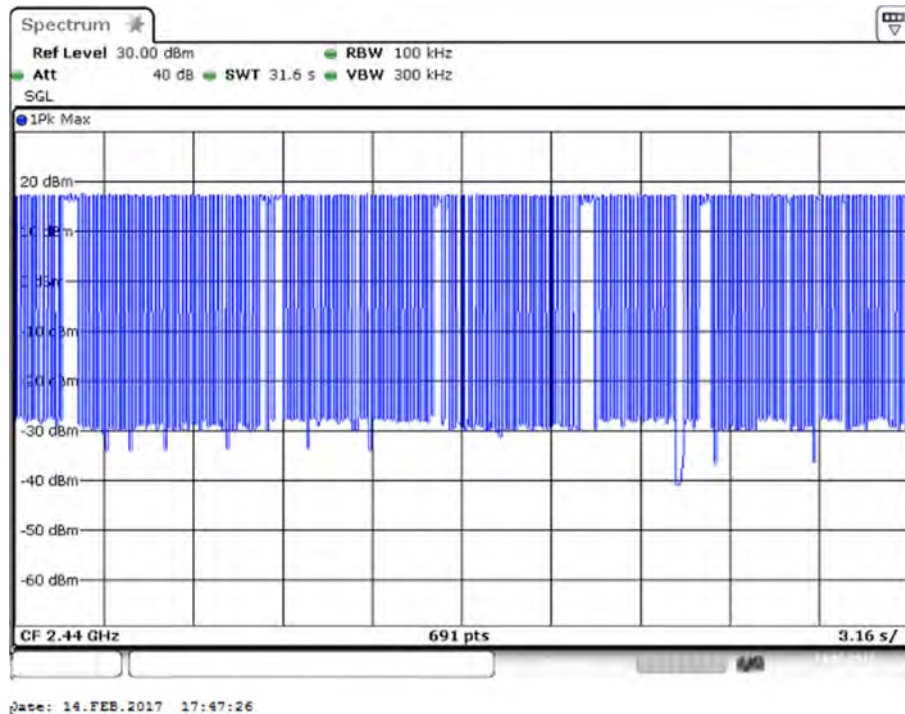
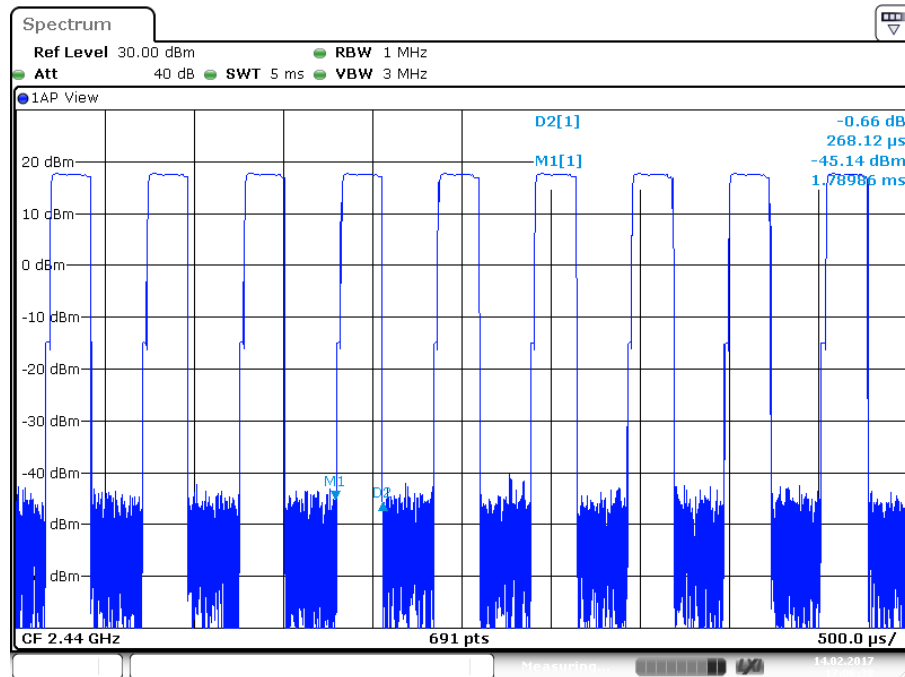


Date: 14.FEB.2017 17:07:57

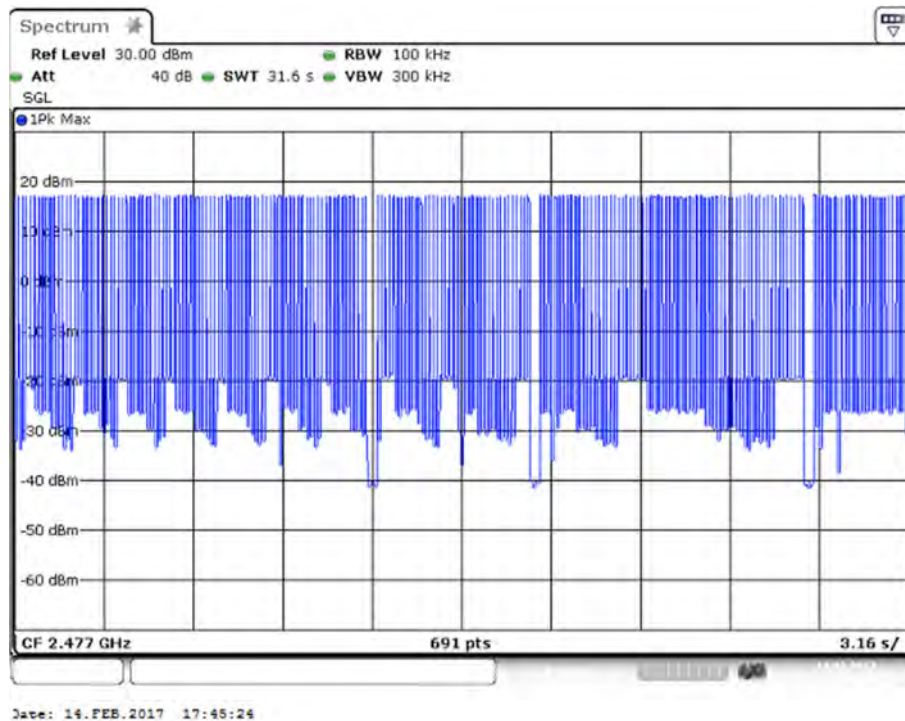
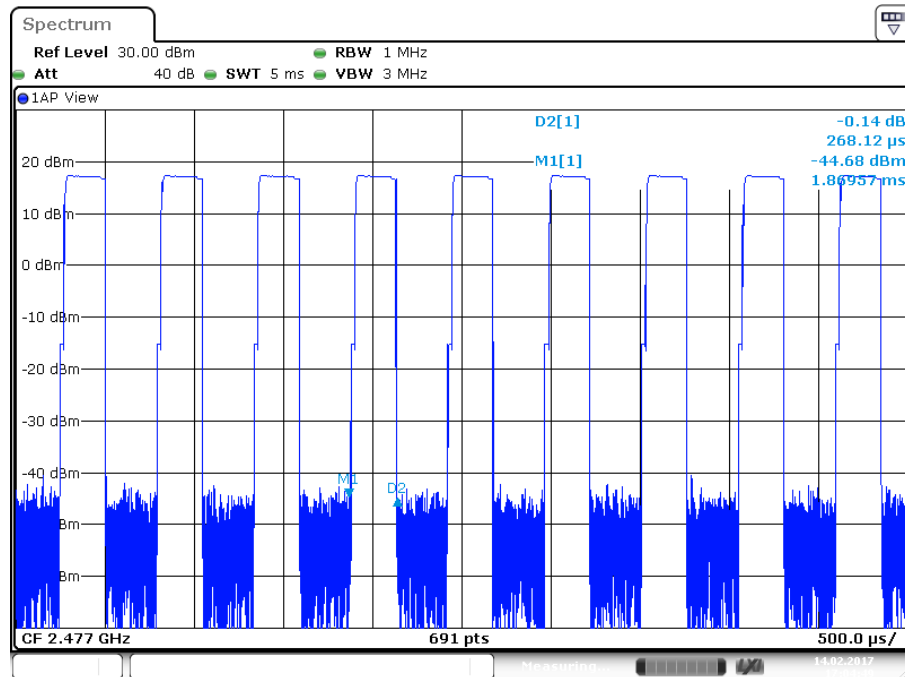


Date: 14.FEB.2017 17:46:38

Middle Channel



High Channel



Appendix C: Test Results of Radiated Testing

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<i>Wi-Fi 802.11 g mode, 54 Mbps.....</i>	<i>26</i>
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Note 1: Testing was carried out within frequency range 9kHz to the tenth harmonics. The measurement results below 30MHz and above 18GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported.

Appendix C.1: Test Results of Radiated Spurious Emissions

General 2.4GHz

30MHz - 1GHz



ACCURATE TECHNOLOGY CO., LTD.

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

Site: 2# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: LGW2017 #1271

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: 5" Video Baby Monitor With Wi-Fi Internet Viewing

Mode: TX 2402MHz

Model: MBP855CONNECT

Manufacturer: Binatone

Polarization: Horizontal

Power Source: AC 120V/60Hz

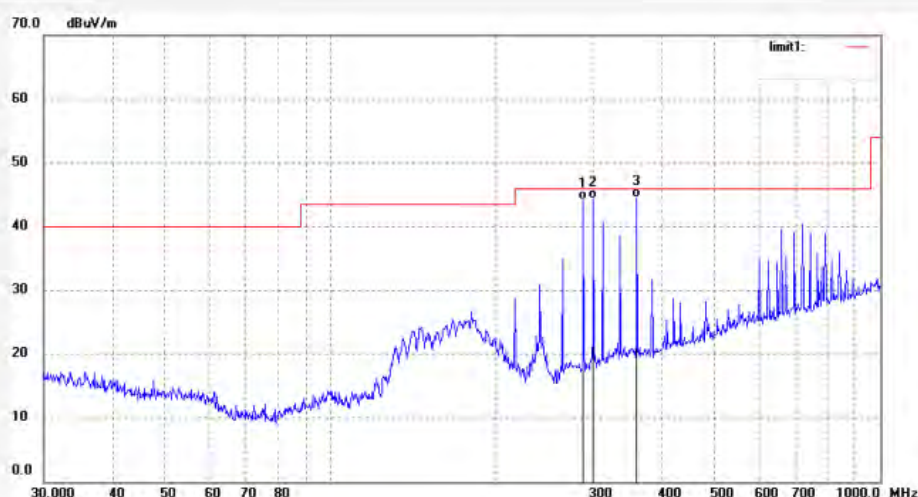
Date: 17/02/18/

Time:

Engineer Signature: LGWADE

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	287.9904	53.57	-9.34	44.23	46.00	-1.77	QP			
2	300.3672	53.44	-9.01	44.43	46.00	-1.57	QP			
3	360.4476	51.71	-7.26	44.45	46.00	-1.55	QP			



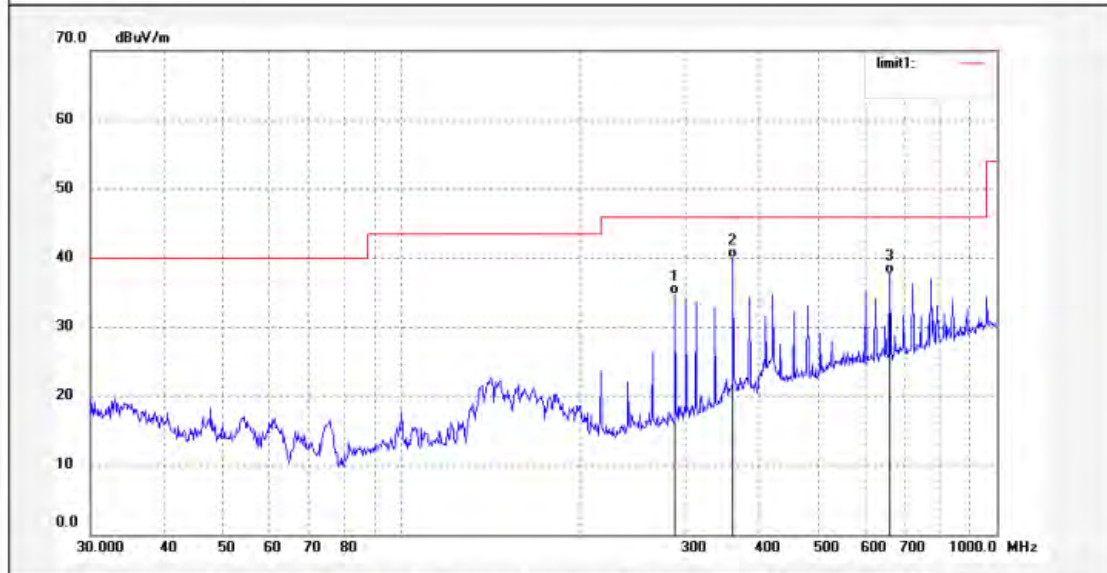
ACCURATE TECHNOLOGY CO., LTD.

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

Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: LGW2017 #1272	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 17/02/18/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: 5" Video Baby Monitor With Wi-Fi Internet Viewing	Engineer Signature: LGWADE
Mode: TX 2402MHz	Distance: 3m
Model: MBP855CONNECT	
Manufacturer: Binatone	

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	287.9904	44.15	-9.34	34.81	46.00	-11.19	QP			
2	360.4476	47.28	-7.26	40.02	46.00	-5.98	QP			
3	661.1504	39.39	-1.59	37.80	46.00	-8.20	QP			



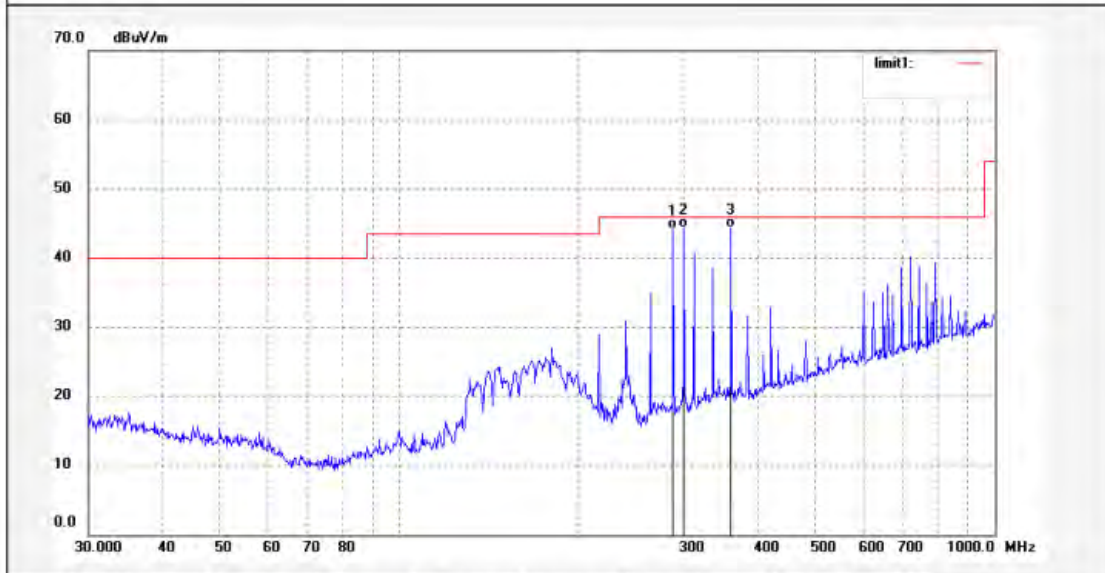
ACCURATE TECHNOLOGY CO., LTD.

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

Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: LGW2017 #1274	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 17/02/18/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: 5" Video Baby Monitor With Wi-Fi Internet Viewing	Engineer Signature: LGWADE
Mode: TX 2440MHz	Distance: 3m
Model: MBP855CONNECT	
Manufacturer: Binatone	

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	287.9904	53.60	-9.34	44.26	46.00	-1.74	QP			
2	300.3672	53.34	-9.01	44.33	46.00	-1.67	QP			
3	360.4476	51.61	-7.26	44.35	46.00	-1.65	QP			



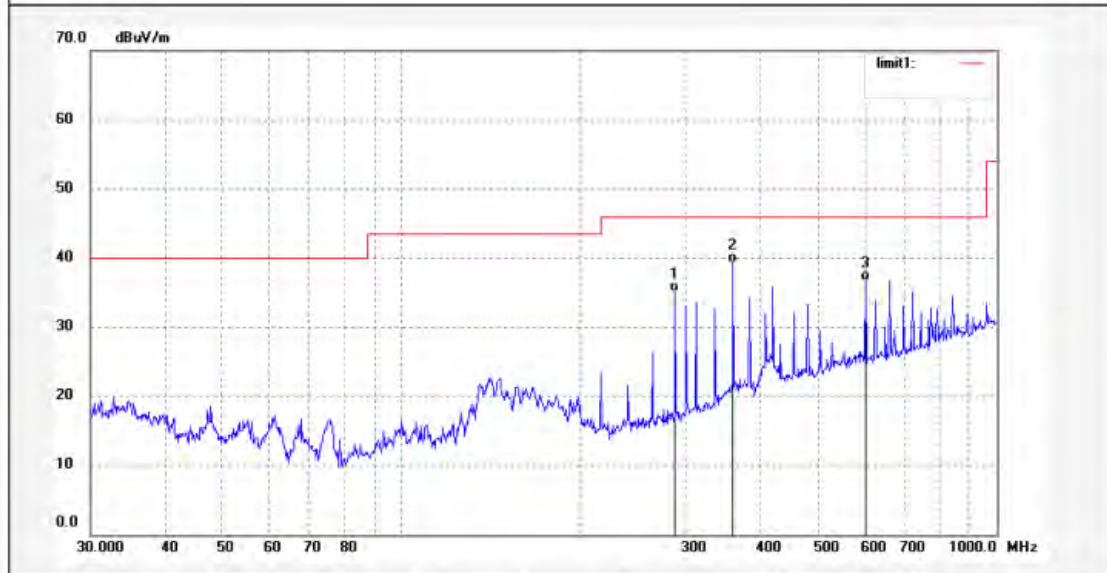
ACCURATE TECHNOLOGY CO., LTD.

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

Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: LGW2017 #1273	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 17/02/18/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: 5" Video Baby Monitor With Wi-Fi Internet Viewing	Engineer Signature: LGWADE
Mode: TX 2440MHz	Distance: 3m
Model: MBP855CONNECT	
Manufacturer: Binatone	

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	287.9904	44.37	-9.34	35.03	46.00	-10.97	QP			
2	360.4476	46.58	-7.26	39.32	46.00	-6.68	QP			
3	601.4265	39.02	-2.37	36.65	46.00	-9.35	QP			



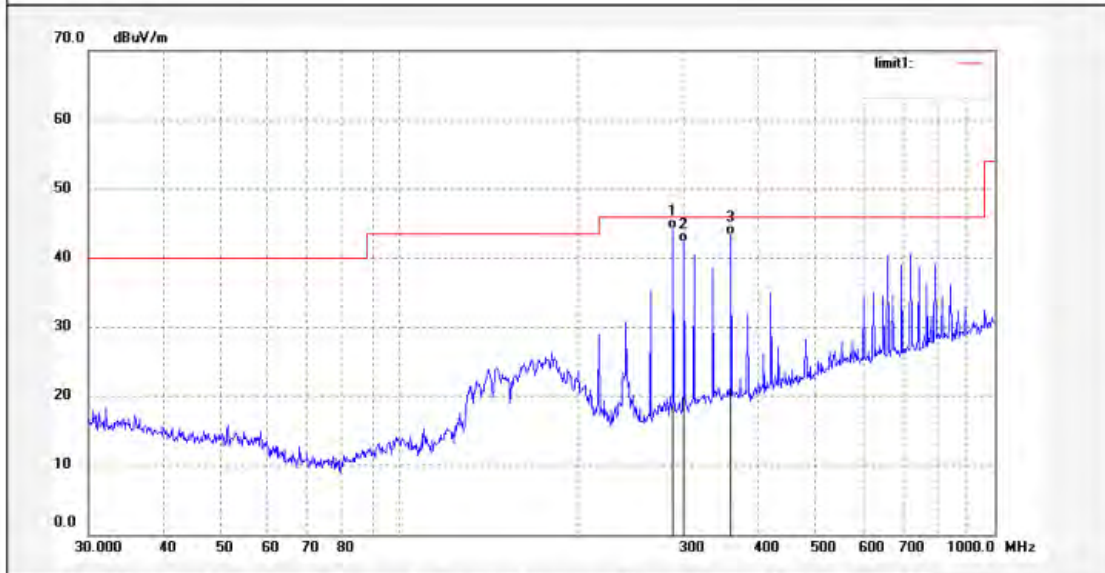
ACCURATE TECHNOLOGY CO., LTD.

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

Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: LGW2017 #1275	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 17/02/18/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: 5" Video Baby Monitor With Wi-Fi Internet Viewing	Engineer Signature: LGWADE
Mode: TX 2477MHz	Distance: 3m
Model: MBP855CONNECT	
Manufacturer: Binatone	

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	287.9904	53.48	-9.34	44.14	46.00	-1.86	QP			
2	300.3672	51.31	-9.01	42.30	46.00	-3.70	QP			
3	360.4476	50.66	-7.26	43.40	46.00	-2.60	QP			