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# YIBIN WEIHENG DIGITAL COMPANY LIMITED

# TEST REPORT

**SCOPE OF WORK**
FCC TESTING–I101, NOQB5, NOXQI

**REPORT NUMBER**
181220025SZN-004

**ISSUE DATE** **[REVISED DATE]**
08 January, 2019 [----------]

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**TEST REPORT**

Intertek Report No.:181220025SZN-004

# YIBIN WEIHENG DIGITAL COMPANY LIMITED

Application
For
Certification

## FCC ID: 2AR7L-I101

## TABLET PC

## Model: I101, NOQB5, NOXQI

## Brand name: N/A

## 2.4GHz Wi-Fi Transceiver

Report No.: 181220025SZN-004

We hereby certify that the sample of the above item is considered to comply with the requirements of FCC Part 15, Subpart C for Intentional Radiator, mention 47 CFR [10-1-17]

**Prepared and Checked by:**

**Sign on File**
**Joanna Jiao**
**Engineer**

**Approved by:**

**Kidd Yang**
**Technical Supervisor**
**Date: 08 January, 2019**

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# MEASUREMENT/TECHNICAL REPORT

## TABLET PC

## Model: I101

## FCC ID: 2AR7L-I101

This report concerns (check one) Original Grant ___X___ Class II Change ____

Equipment Type: DTS - Part 15 Digital Transmission Systems (Wi-Fi transmitter portion)

---

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes _____ No ___X_

If yes, defer until : _____
date

Company Name agrees to notify the Commission by: _____
date

of the intended date of announcement of the product so that the grant can be issued on that date.

---

Transition Rules Request per 15.37? Yes _____ No ___X__

If no, assumed Part 15, Subpart C for intentional radiator - the new 47 CFR [10-01-17] Edition] provision.

---

Report prepared by:

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# List of attached file

| Exhibit type | File Description | Filename |
|---|---|---|
| Test Report | Test Report | report.pdf |
| Test Setup Photo | Radiated Emission | radiated photos.pdf |
| External Photo | External Photo | external photos.pdf |
| Internal Photo | Internal Photo | internal photos.pdf |
| Block Diagram | Block Diagram | block.pdf |
| Schematics | Circuit Diagram | circuit.pdf |
| Operation Description | Technical Description | descri.pdf |
| ID Label/Location | Label Artwork and Location | label.pdf |
| User Manual | User Manual | manual.pdf |
| Cover Letter | Confidentiality Letter | request.pdf |
| Cover Letter | Letter of Agency | agency.pdf |

# EXHIBIT 1

# SUMMARY OF TEST RESULTS

## 1.0 Summary of Test results

**TABLET PC**

**Model: I101**

**FCC ID: 2AR7L-I101**

| TEST ITEM | REFERENCE | RESULTS |
|---|---|---|
| Max. Output power | 15.247(b)(3) | Pass |
| 6 dB Bandwidth | 15.247(a)(2) | Pass |
| Max. Power Density | 15.247(e) | Pass |
| Out of Band Antenna Conducted Emission | 15.247(d) | Pass |
| Radiated Emission in Restricted Bands | 15.247(d) | Pass |
| AC Conducted Emission | 15.207 | Pass |
| Antenna Requirement | 15.203 | Pass (See Notes) |

Notes: The EUT uses an Integral Antenna which in accordance to Section 15.203 is considered sufficient to comply with the provisions of this section.

# EXHIBIT 2

# GENERAL DESCRIPTION

## 2.0 General Description

### 2.1 Product Description

The equipment under test(EUT) is a TABLET PC with BT4.0 (dual-mode) operating in 2402-2480MHz and 2.4G WIFI function operating in 2412-2462MHz, The EUT is powered by DC 5V 3A from adapter and DC 3.8V 5000mAh rechargeable Li-Ion Battery . Bluetooth and WiFi transmitters are share one antenna, but cannot transmit simultaneously. For more detail information pls. refer to the user manual.

Antenna Type: Integral Antenna
Antenna Gain: 1.5 dBi Max
Type of Modulation: CCK, BPSK, QPSK, 16QAM, 64QAM,DQPSK, DBPSK.

For electronic filing, the brief circuit description is saved with filename: circuit.pdf.

The Models: NOQB5, NOXQI is the same as the Model: I101 in hardware and electrical aspect. The difference in model number serves as marketing strategy.

### 2.2 Related Submittal(s) Grants

This is an application for certification of transceiver for the TABLET PC which has DTS- Part 15 Digital Transmission Systems (2.4GHz Wi-Fi transmitter portion). and for the classic Bluetooth mode, BLE mode were tested and demonstrated in report 181220025SZN-002, 181220025SZN-003.

### 2.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10 (2013) and KDB 558074 D01 v05. Radiated emission measurement was performed in Semi-anechoic chamber and conducted emission measurement was performed in shielded room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application. All other measurements were made in accordance with the procedures in part 2 of CFR 47.

### 2.4 Test Facility

The Semi-anechoic chamber and shielded room used to collect the radiated data and conducted data are **Intertek Testing Services Shenzhen Ltd. Longhua Branch** and located at 101, 201, Building B, No. 308 Wuhe Avenue, Zhangkengjing Community, GuanHu Subdistrict, LongHua District, Shenzhen, P.R. China. This test facility and site measurement data have been fully placed on file with File Number: CN1188.

# EXHIBIT 3

# SYSTEM TEST CONFIGURATION

## 3.0 System Test Configuration

### 3.1 Justification

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, all cables were manipulated to produce worst case emissions. The EUT was powered by DC 5V 3A from adapter and DC 3.8V 5000mAh rechargeable Li-Ion Battery during the test.

On 802.11b/g/n-HT20/n-HT40 mode, only one antenna is used, and all data rate were tested and only the worst case data is shown in the report.

For maximizing emissions, the EUT was rotated through 360°, the EUT was placed on the styrene turntable with 0.8m up to 1GHz and 1.5 m above 1GHz. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The resolution is 1 MHz or greater for frequencies above 1000 MHz. The spurious emissions more than 20 Db below the permissible value are not reported.

The rear of unit was flushed with the rear of the table.

Radiated emission measurement were performed the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

### 3.2 EUT Exercising Software

The EUT exercise program (provided by client) used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The worst case configuration is used in all specified testing.

The parameters of test software setting:
During the test, Channel and power controlling software provided by the applicant was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the application and is going to be fixed on the firmware of the end product.

## 3.3 Special Accessories

N/A.

## 3.4 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

Uncertainty and Compliance – Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

## 3.5 Equipment Modification

Any modifications installed previous to testing by YIBIN WEIHENG DIGITAL COMPANY LIMITED will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Longhua Branch.

## 3.6 Support Equipment List and Description

This product was tested in the following configuration:

Refer List:

| Description | Manufacturer | Model No. |
|---|---|---|
| IPhone<br>(Provided by Intertek) | Apple | A1303 |
| AC Adapter<br>(Provided by Applicant) | CY-Power | CYHA050300VWUL<br>Input: 100-240Vac 50/60Hz<br>Output: DC 5V,3.0A |
| Mini DHMI cable<br>(Provided by Intertek) | / | Unshielded, 1m |
| Headset cable<br>(Provided by Intertek) | / | Unshielded, 0.5m |
| USB cable<br>(Provided by Applicant) | / | Unshielded, 0.1m |
| USB Memory 1<br>(Provided by Intertek) | / | SDCZ36-002G-P36 |
| USB Memory 2<br>(Provided by Intertek) | / | SSK SFD010 |
| Test TV<br>(Provided by Intertek) | SONY | KDL-24EX520 |

# EXHIBIT 4

# MEASUREMENT RESULTS

Applicant: YIBIN WEIHENG DIGITAL COMPANY LIMITED
Date of Test: 27 December, 2018 Model: I101

## 4.0 Measurement Results

4.1 Maximum Conducted Output Power at Antenna Terminals, FCC Rules 15.247(b)(3):

The antenna power of the EUT was connected to the input of a broadband peak RF power meter. The power meter have a video bandwidth that is greater than DTS bandwidth and utilize a fast-responding diode detector. Power was read directly at the EUT antenna terminals with cable loss added.

For antennas with gains of 6 dBi or less, maximum allowed Transmitter output is 1 watt (+30 dBm).

| IEEE 802.11b (Antenna Gain = 1.5dBi) (CCK, 1Mbps) | | |
|---|---|---|
| Frequency (MHz) | Output in dBm (Peak Reading) | Output in mWatt |
| Low Channel: 2412 | 15.39 | 34.59 |
| Middle Channel: 2437 | 15.81 | 38.11 |
| High Channel: 2462 | 14.35 | 27.23 |

| IEEE 802.11g (Antenna Gain = 1.5dBi) (16QAM, 6Mbps) | | |
|---|---|---|
| Frequency (MHz) | Output in dBm (Peak Reading) | Output in mWatt |
| Low Channel: 2412 | 22.90 | 194.98 |
| Middle Channel: 2437 | 24.37 | 273.53 |
| High Channel: 2462 | 22.78 | 189.67 |

| IEEE 802.11n-HT20 (Antenna Gain = 1.5dBi) (64QAM, 6Mbps) | | |
|---|---|---|
| Frequency (MHz) | Output in dBm (Peak Reading) | Output in mWatt |
| Low Channel: 2412 | 22.85 | 192.75 |
| Middle Channel: 2437 | 24.01 | 251.77 |
| High Channel: 2462 | 23.01 | 199.99 |

| IEEE 802.11n-HT40 (Antenna Gain = 1.5dBi) (64QAM, 13.5Mbps) | | |
|---|---|---|
| Frequency (MHz) | Output in dBm (Peak Reading) | Output in mWatt |
| Low Channel: 2422 | 22.61 | 182.39 |
| Middle Channel: 2437 | 23.50 | 223.87 |
| High Channel: 2452 | 22.75 | 188.36 |

Cable loss: 0.5 dB External Attenuation: 0 dB
Cable loss, external attenuation has been included in OFFSET function
EUT max. conducted output level = 24.37dBm
EUT max. E.I.R.P = 24.37dBm + 1.5dBi = 25.87dBm = 386.37mW
For RF Exposure, the information is saved with filename: SAR report.pdf.

Applicant: YIBIN WEIHENG DIGITAL COMPANY LIMITED
Date of Test: 27 December, 2018 Model: I101

## 4.2 Minimum 6 dB RF Bandwidth, FCC Rule 15.247(a) (2):

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RES BW was set to 100 KHz according to FCC KDB 558074 D01 v05. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK output reading was taken, a DISPLAY line was drawn 6 dB lower than PEAK level. The 6dB bandwidth was determined from where the channel output spectrum intersected the display line.

Limit: The 6 dB Bandwidth is at least 500 kHz.

| IEEE 802.11b (CCK, 1Mbps) | |
|---|---|
| Frequency (MHz) | 6 dB Bandwidth (MHz) |
| 2412 | 10.072 |
| 2437 | 10.072 |
| 2462 | 10.072 |

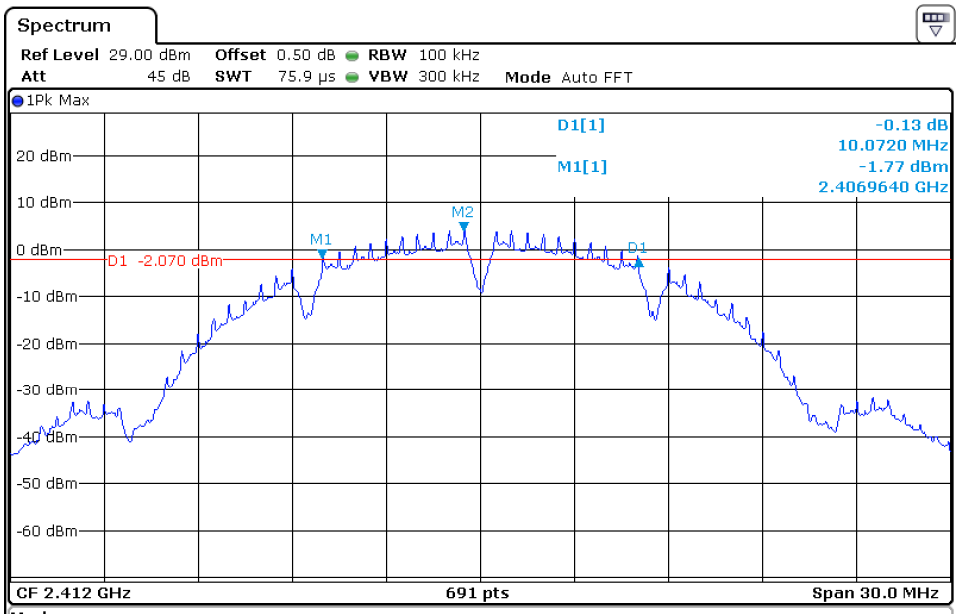
| IEEE 802.11g (16QAM, 6Mbps) | |
|---|---|
| Frequency (MHz) | 6 dB Bandwidth (MHz) |
| 2412 | 16.411 |
| 2437 | 16.411 |
| 2462 | 16.411 |

| IEEE 802.11n-HT20 (64QAM, 6Mbps) | |
|---|---|
| Frequency (MHz) | 6 dB Bandwidth (MHz) |
| 2412 | 17.627 |
| 2437 | 17.627 |
| 2462 | 17.627 |

| IEEE 802.11n-HT40 (64QAM, 13.5Mbps) | |
|---|---|
| Frequency (MHz) | 6 dB Bandwidth (MHz) |
| 2422 | 35.960 |
| 2437 | 35.960 |
| 2452 | 35.960 |

The test plots are attached as below.

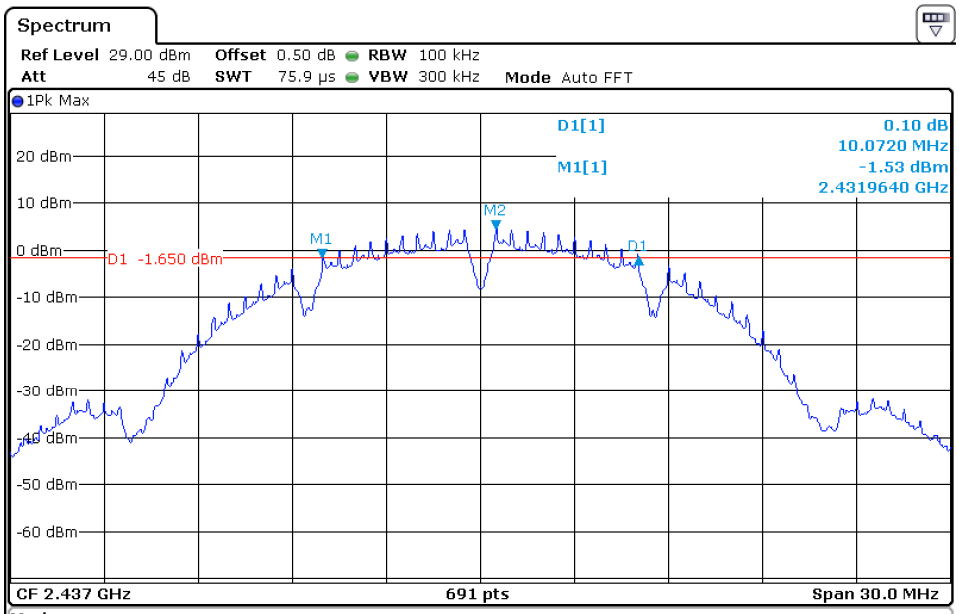
802.11b




Marker

| Type | Ref | Trc | X-value | Y-value | Function | Function Result |
|---|---|---|---|---|---|---|
| M1 | | 1 | 2.406964 GHz | -1.77 dBm | | |
| D1 | M1 | 1 | 10.072 MHz | -0.13 dB | | |
| M2 | | 1 | 2.411479 GHz | 3.93 dBm | | |

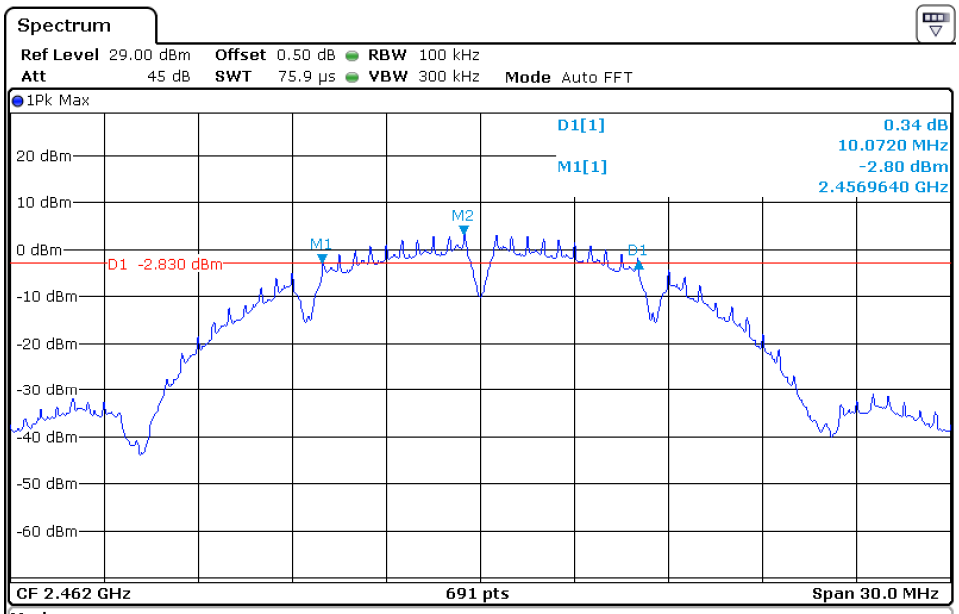
Date: 27.DEC.2018 14:40:12




Marker

| Type | Ref | Trc | X-value | Y-value | Function | Function Result |
|---|---|---|---|---|---|---|
| M1 | | 1 | 2.431964 GHz | -1.53 dBm | | |
| D1 | M1 | 1 | 10.072 MHz | 0.10 dB | | |
| M2 | | 1 | 2.437478 GHz | 4.35 dBm | | |

Date: 27.DEC.2018 14:52:40

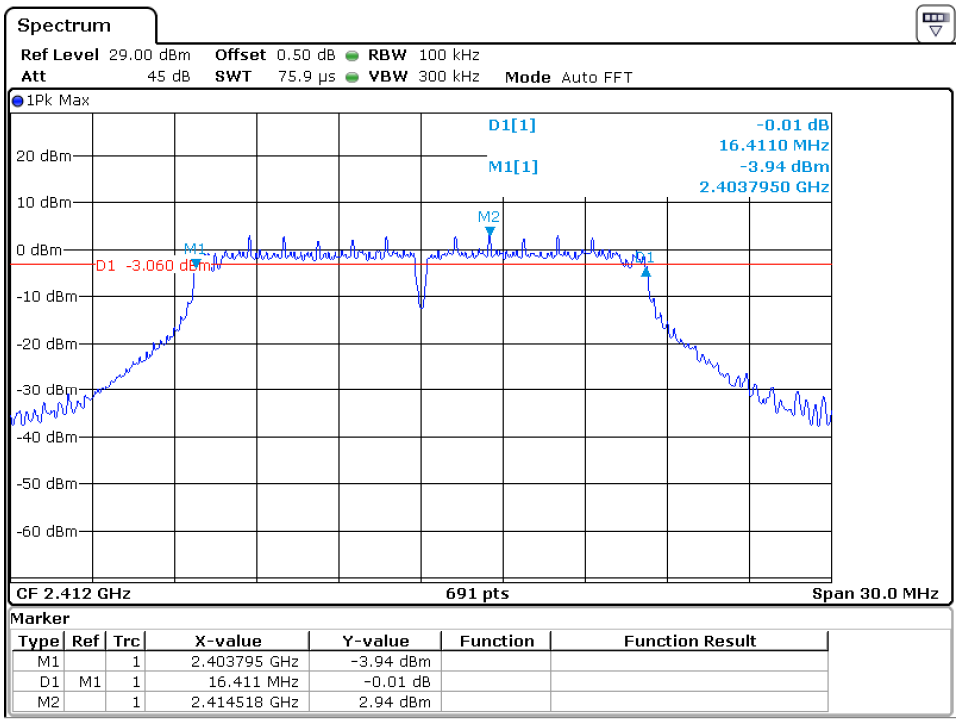



Marker

| Type | Ref | Trc | X-value | Y-value | Function | Function Result |
|---|---|---|---|---|---|---|
| M1 | | 1 | 2.456964 GHz | -2.80 dBm | | |
| D1 | M1 | 1 | 10.072 MHz | 0.34 dB | | |
| M2 | | 1 | 2.461479 GHz | 3.17 dBm | | |

Date: 27.DEC.2018 14:55:44

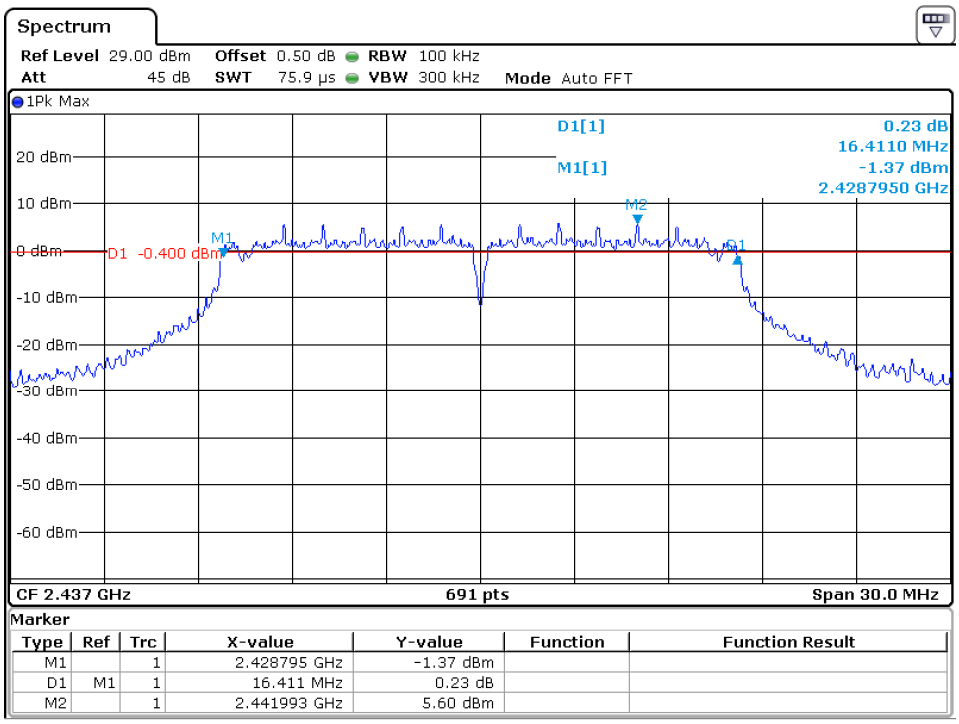
802.11g




Marker

| Type | Ref | Trc | X-value | Y-value | Function | Function Result |
|---|---|---|---|---|---|---|
| M1 | | 1 | 2.403795 GHz | -3.94 dBm | | |
| D1 | M1 | 1 | 16.411 MHz | -0.01 dB | | |
| M2 | | 1 | 2.414518 GHz | 2.94 dBm | | |

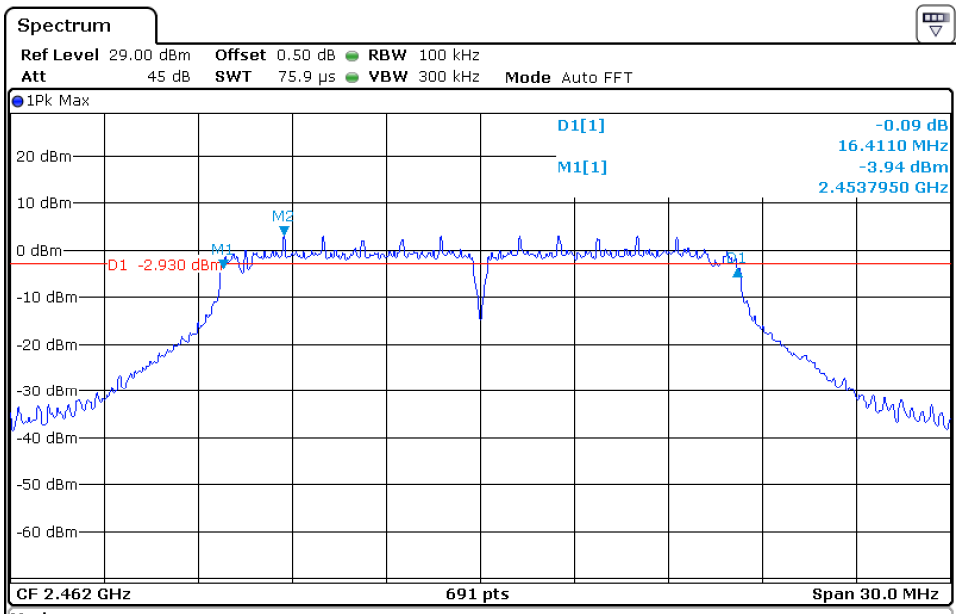
Date: 27.DEC.2018 15:01:07




Marker

| Type | Ref | Trc | X-value | Y-value | Function | Function Result |
|---|---|---|---|---|---|---|
| M1 | | 1 | 2.428795 GHz | -1.37 dBm | | |
| D1 | M1 | 1 | 16.411 MHz | 0.23 dB | | |
| M2 | | 1 | 2.441993 GHz | 5.60 dBm | | |

Date: 27.DEC.2018 15:07:33

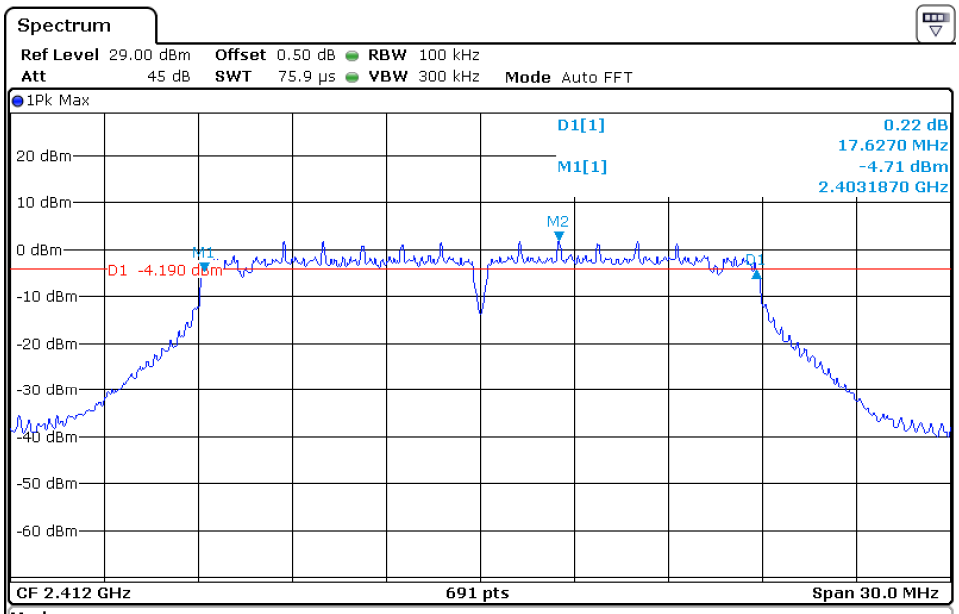



Marker

| Type | Ref | Trc | X-value | Y-value | Function | Function Result |
|---|---|---|---|---|---|---|
| M1 | | 1 | 2.453795 GHz | -3.94 dBm | | |
| D1 | M1 | 1 | 16.411 MHz | -0.09 dB | | |
| M2 | | 1 | 2.455748 GHz | 3.07 dBm | | |

Date: 27.DEC.2018 15:13:46

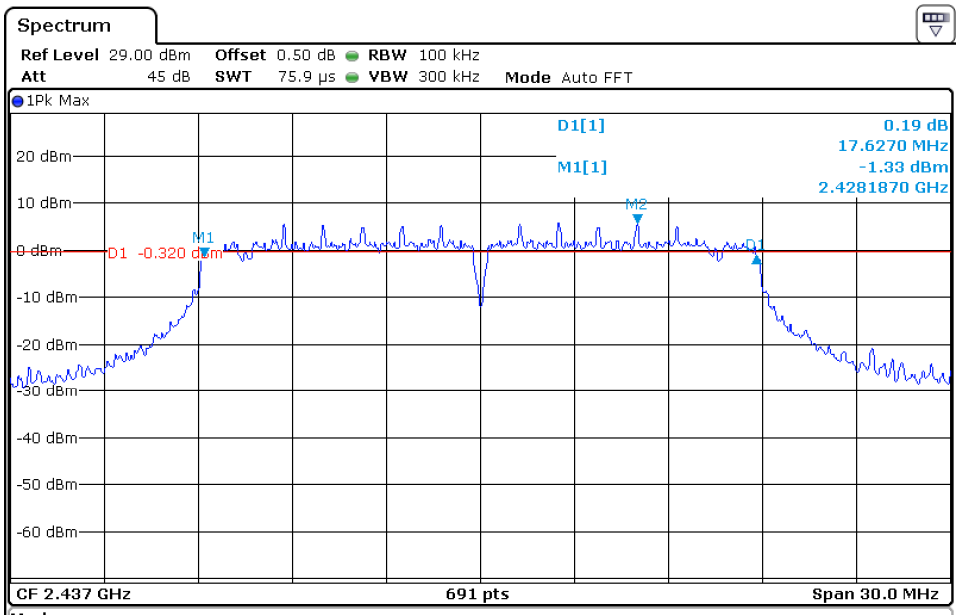
802.11n-HT20




Marker

| Type | Ref | Trc | X-value | Y-value | Function | Function Result |
|---|---|---|---|---|---|---|
| M1 | | 1 | 2.403187 GHz | -4.71 dBm | | |
| D1 | M1 | 1 | 17.627 MHz | 0.22 dB | | |
| M2 | | 1 | 2.414518 GHz | 1.81 dBm | | |

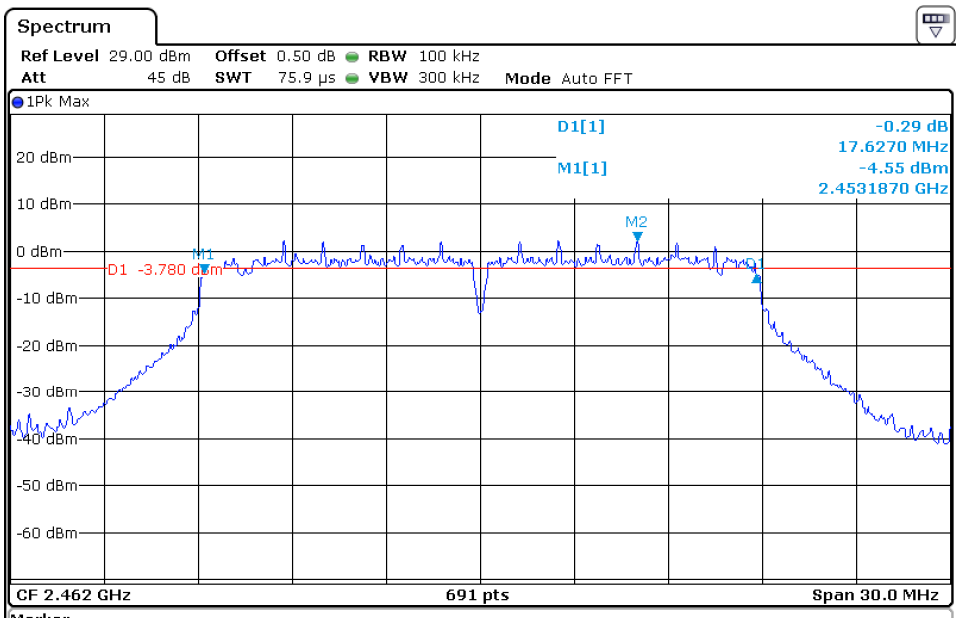
Date: 27.DEC.2018 15:21:52




Marker

| Type | Ref | Trc | X-value | Y-value | Function | Function Result |
|---|---|---|---|---|---|---|
| M1 | | 1 | 2.428187 GHz | -1.33 dBm | | |
| D1 | M1 | 1 | 17.627 MHz | 0.19 dB | | |
| M2 | | 1 | 2.441993 GHz | 5.68 dBm | | |

Date: 27.DEC.2018 15:26:59

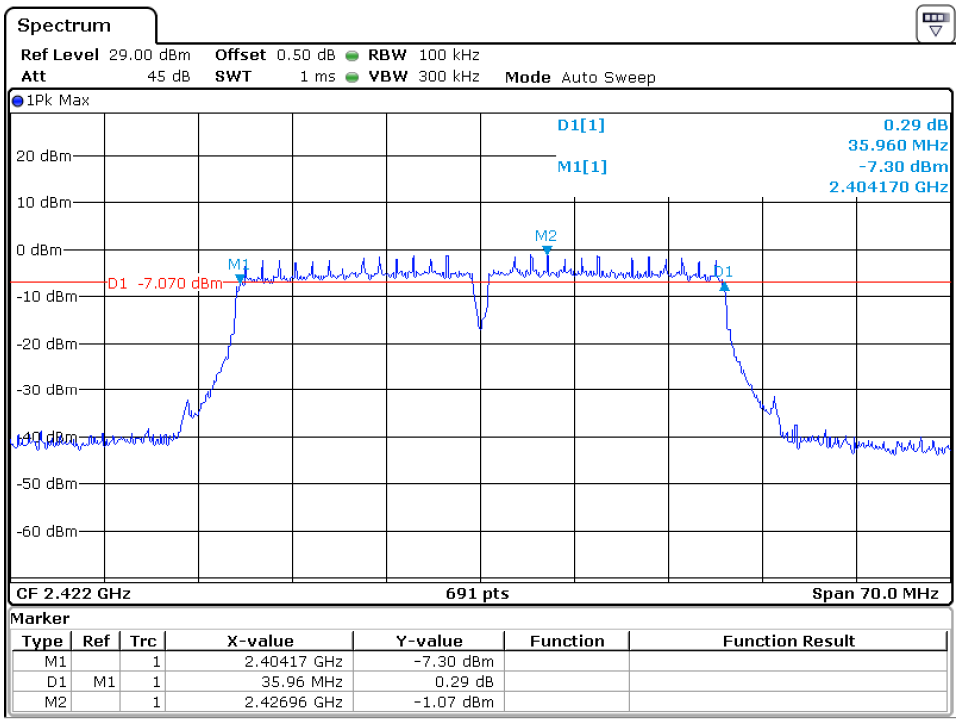



Marker

| Type | Ref | Trc | X-value | Y-value | Function | Function Result |
|---|---|---|---|---|---|---|
| M1 | | 1 | 2.453187 GHz | -4.55 dBm | | |
| D1 | M1 | 1 | 17.627 MHz | -0.29 dB | | |
| M2 | | 1 | 2.466993 GHz | 2.22 dBm | | |

Date: 27.DEC.2018 15:33:50

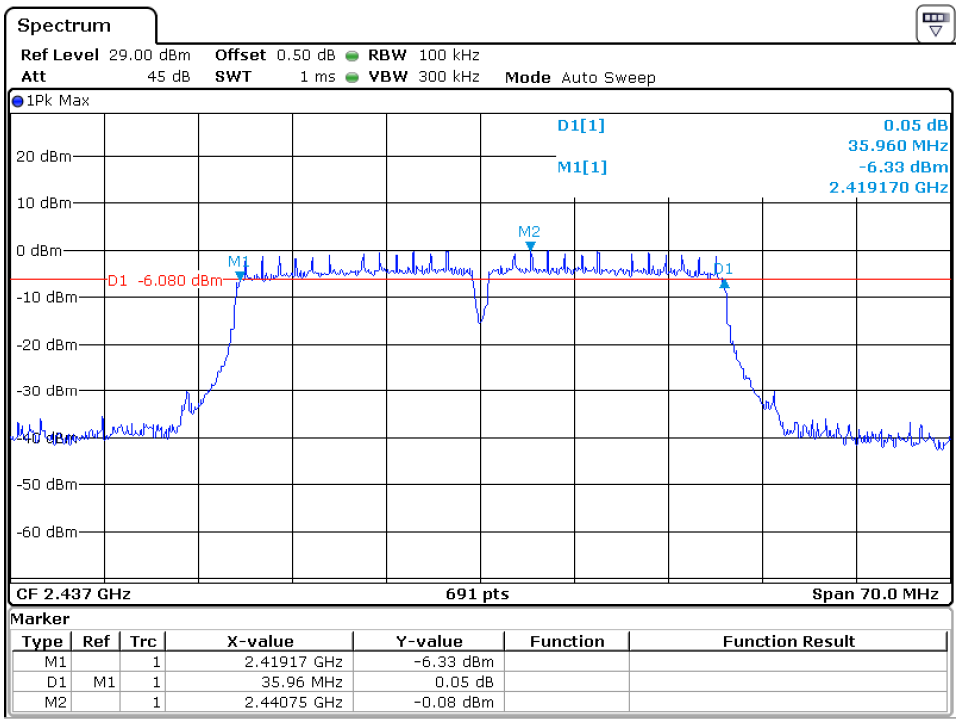
802.11n-HT40




Marker

| Type | Ref | Trc | X-value | Y-value | Function | Function Result |
|---|---|---|---|---|---|---|
| M1 | | 1 | 2.40417 GHz | -7.30 dBm | | |
| D1 | M1 | 1 | 35.96 MHz | 0.29 dB | | |
| M2 | | 1 | 2.42696 GHz | -1.07 dBm | | |

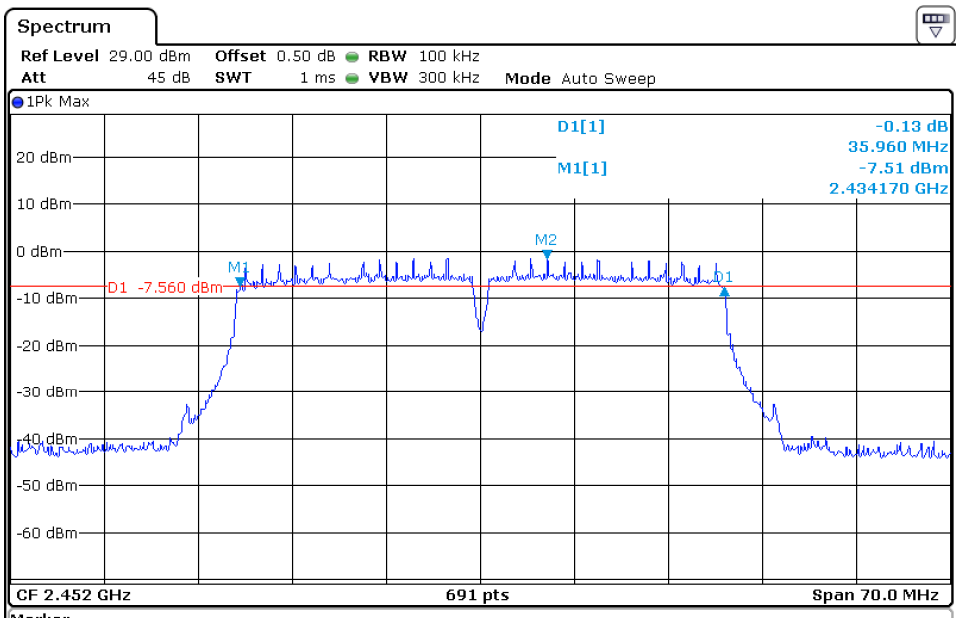
Date: 27.DEC.2018 15:41:07




Marker

| Type | Ref | Trc | X-value | Y-value | Function | Function Result |
|---|---|---|---|---|---|---|
| M1 | | 1 | 2.41917 GHz | -6.33 dBm | | |
| D1 | M1 | 1 | 35.96 MHz | 0.05 dB | | |
| M2 | | 1 | 2.44075 GHz | -0.08 dBm | | |

Date: 27.DEC.2018 15:46:18




Marker

| Type | Ref | Trc | X-value | Y-value | Function | Function Result |
|---|---|---|---|---|---|---|
| M1 | | 1 | 2.43417 GHz | -7.51 dBm | | |
| D1 | M1 | 1 | 35.96 MHz | -0.13 dB | | |
| M2 | | 1 | 2.45696 GHz | -1.56 dBm | | |

Date: 27.DEC.2018 15:51:52

Applicant: YIBIN WEIHENG DIGITAL COMPANY LIMITED
Date of Test: 27 December, 2018 Model: I101

## 4.3 Maximum Power Density Reading, FCC Rule 15.247(e):

The Measurement Procedure PKPSD was set according to the FCC KDB 558074 D01 v05.

Antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.

Limit: The Power Density does not exceed 8dBm/3 kHz.

| IEEE 802.11b (CCK, 1Mbps) | |
|---|---|
| Frequency (MHz) | Power Density with RBW 3KHz |
| 2412 | -8.93 |
| 2437 | -8.85 |
| 2462 | -9.84 |

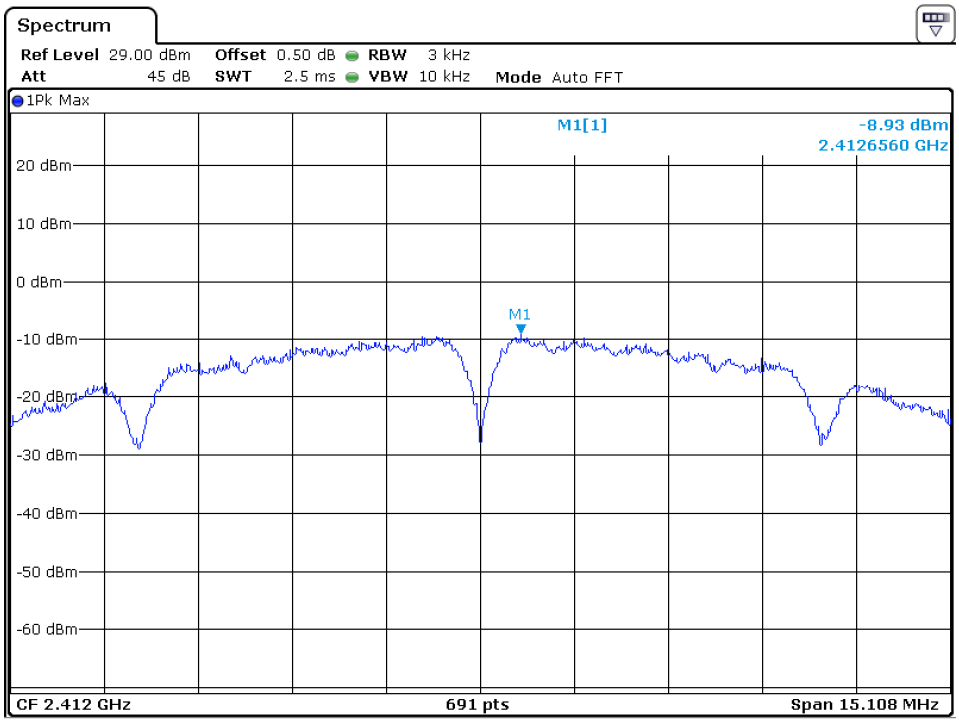
| IEEE 802.11g (16QAM, 6Mbps) | |
|---|---|
| Frequency (MHz) | Power Density with RBW 3KHz |
| 2412 | -9.24 |
| 2437 | -6.99 |
| 2462 | -10.67 |

| IEEE 802.11n-HT20 (64QAM, 6Mbps) | |
|---|---|
| Frequency (MHz) | Power Density with RBW 3KHz |
| 2412 | -12.34 |
| 2437 | -6.81 |
| 2462 | -11.8 |

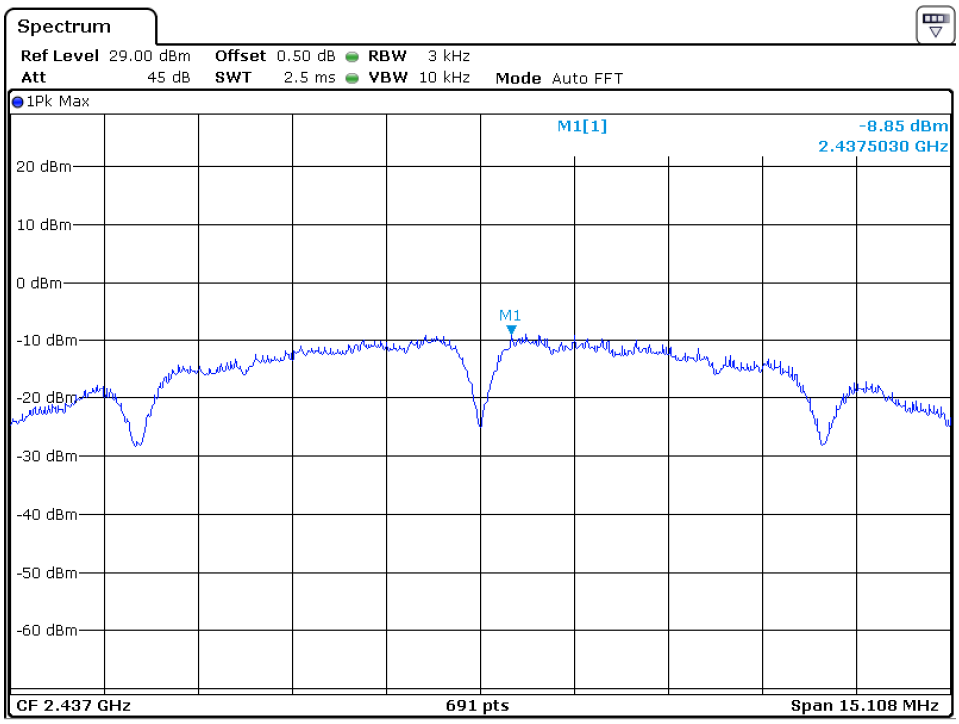
| IEEE 802.11n-HT40 (64QAM, 13.5Mbps) | |
|---|---|
| Frequency (MHz) | Power Density with RBW 3KHz |
| 2422 | -15.04 |
| 2437 | -13.60 |
| 2452 | -15.91 |

The test plots are attached as below.

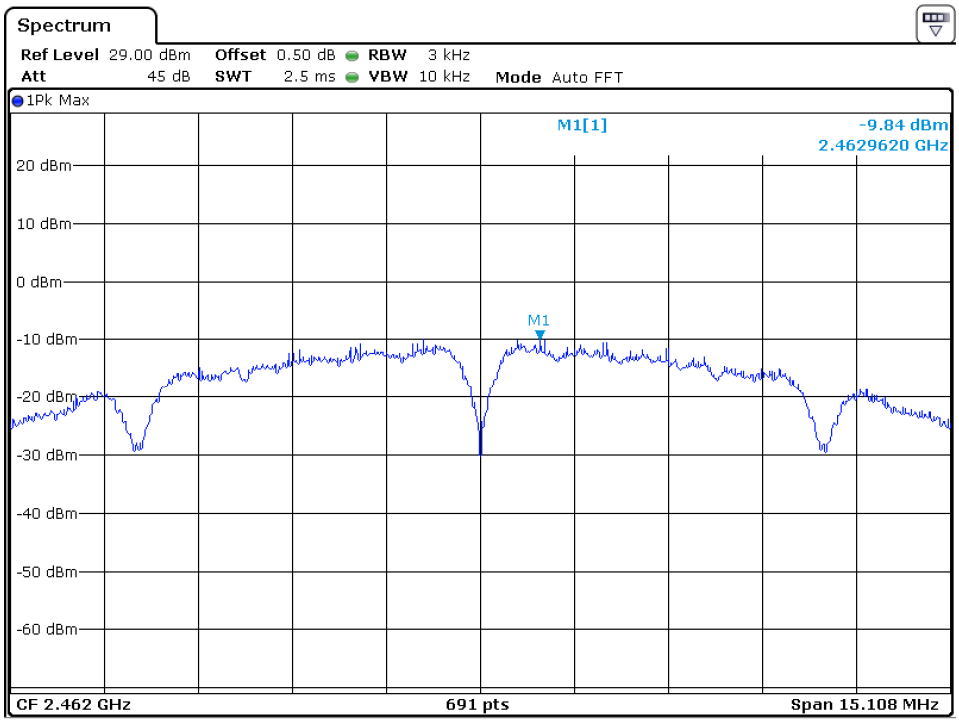
802.11b




Date: 27.DEC.2018 14:42:05

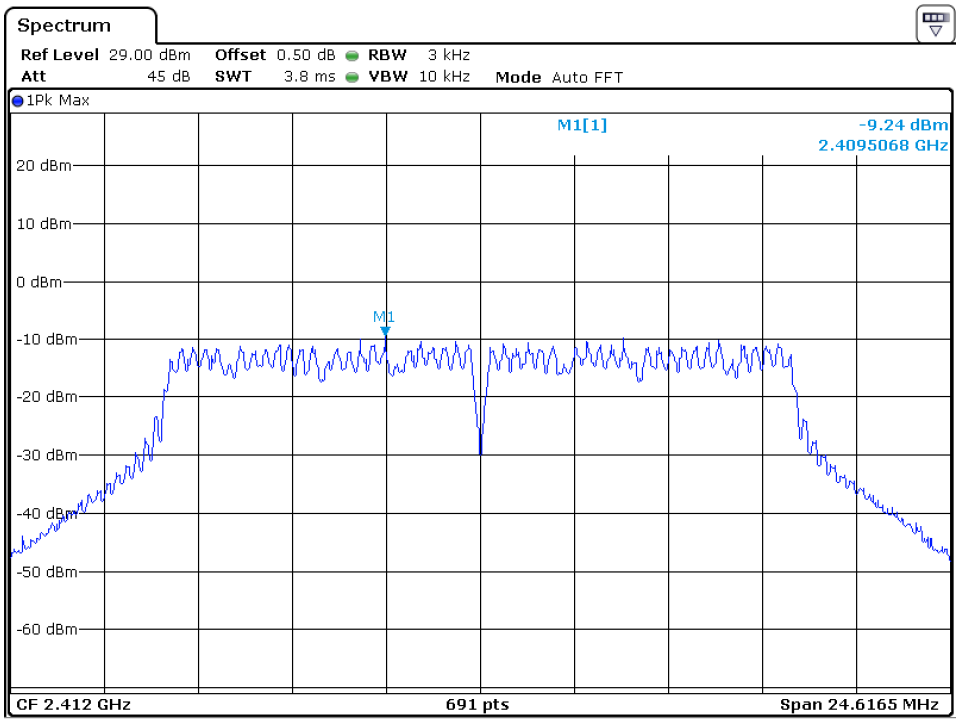



Date: 27.DEC.2018 14:53:34

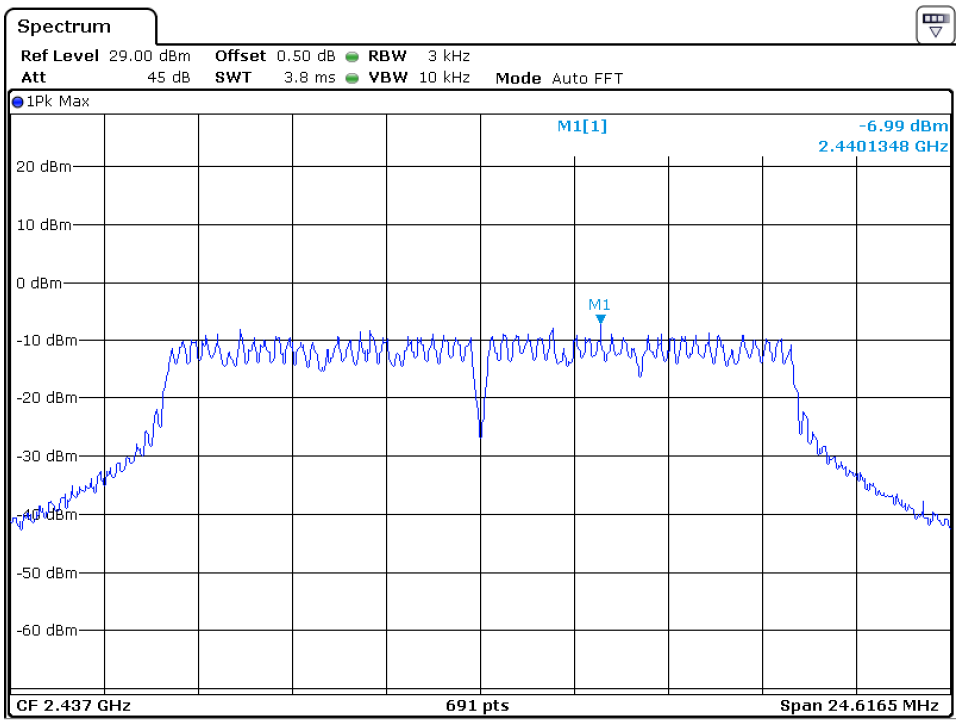



Date: 27.DEC.2018 14:56:27

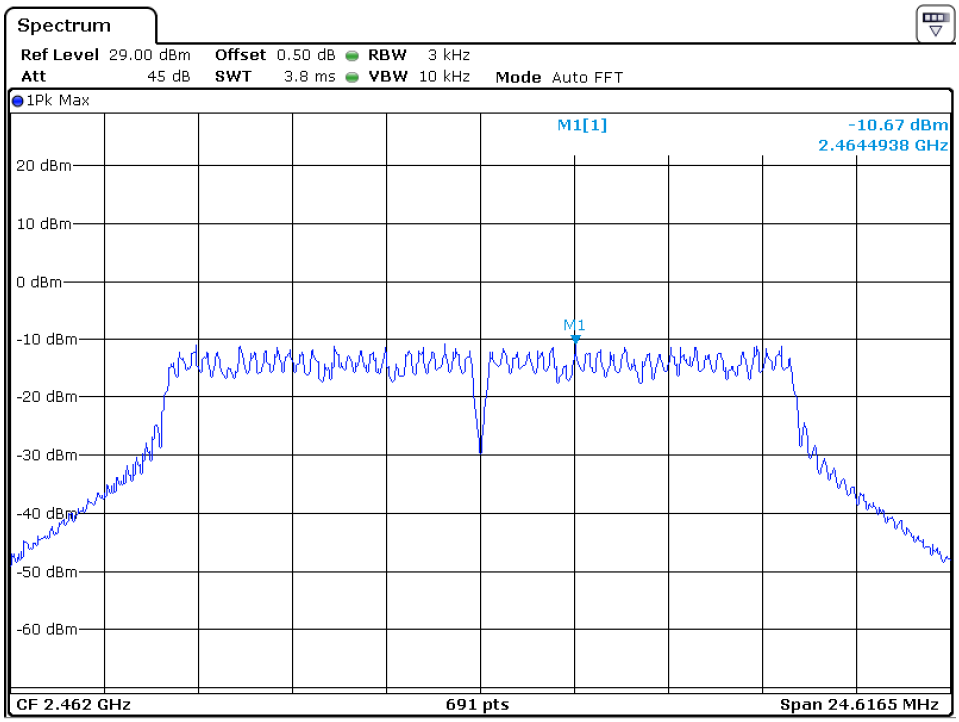
802.11g




Date: 27.DEC.2018 15:03:30

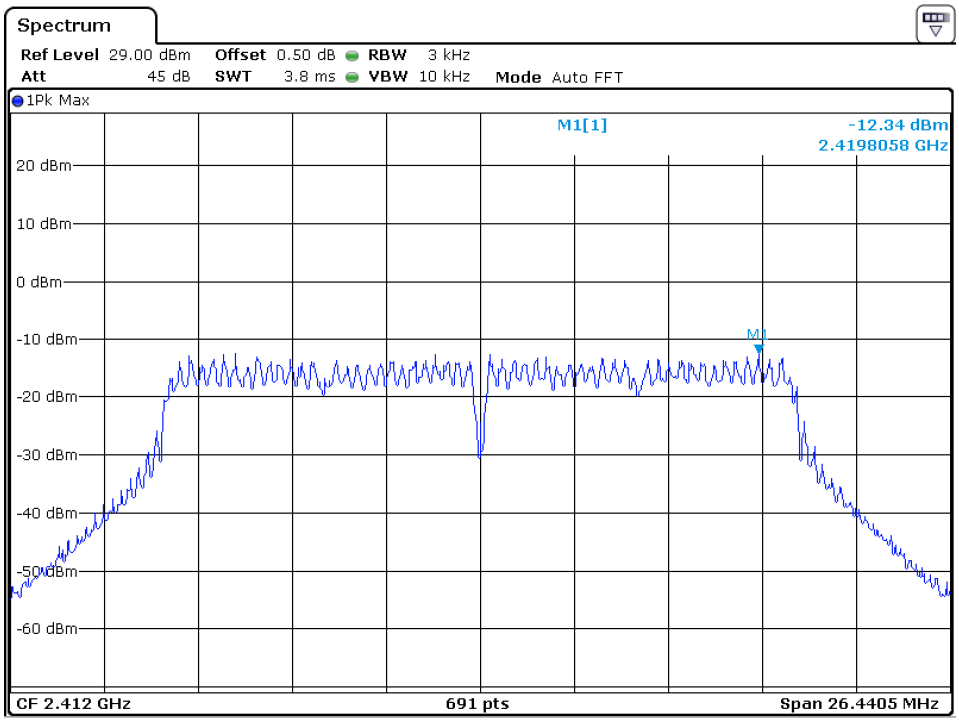



Date: 27.DEC.2018 15:10:38

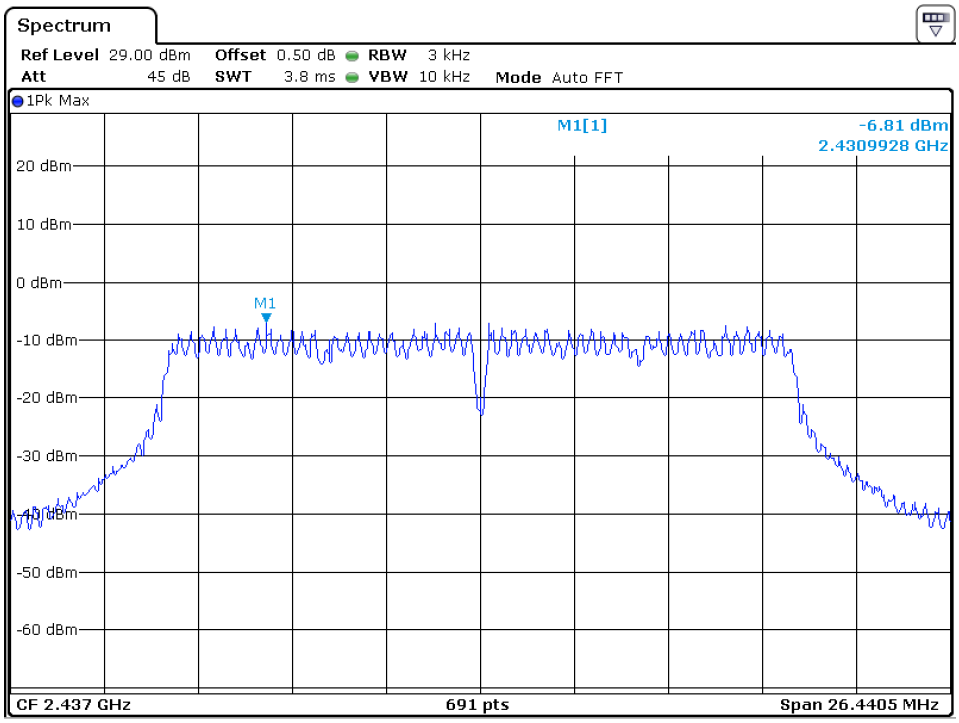



Date: 27.DEC.2018 15:15:47

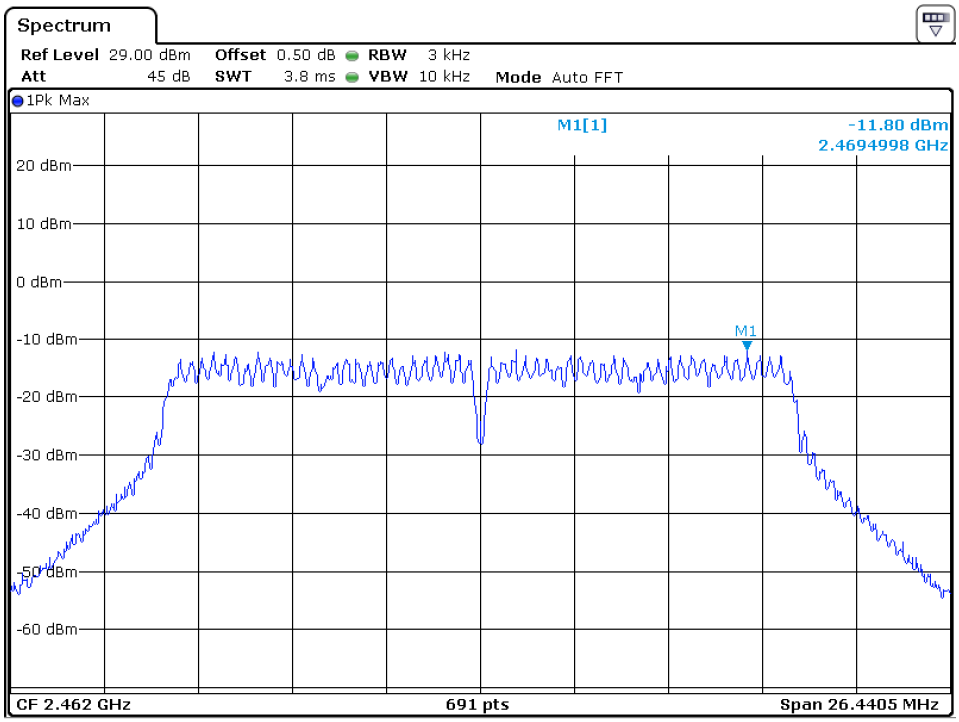
802.11n-HT20




Date: 27.DEC.2018 15:23:03

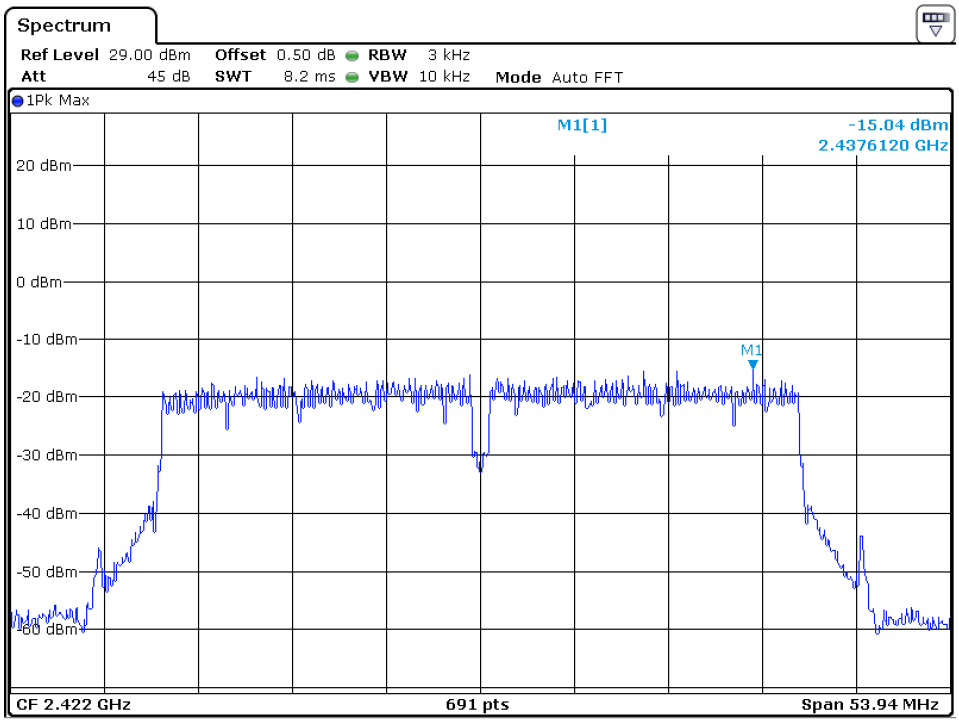



Date: 27.DEC.2018 15:30:44

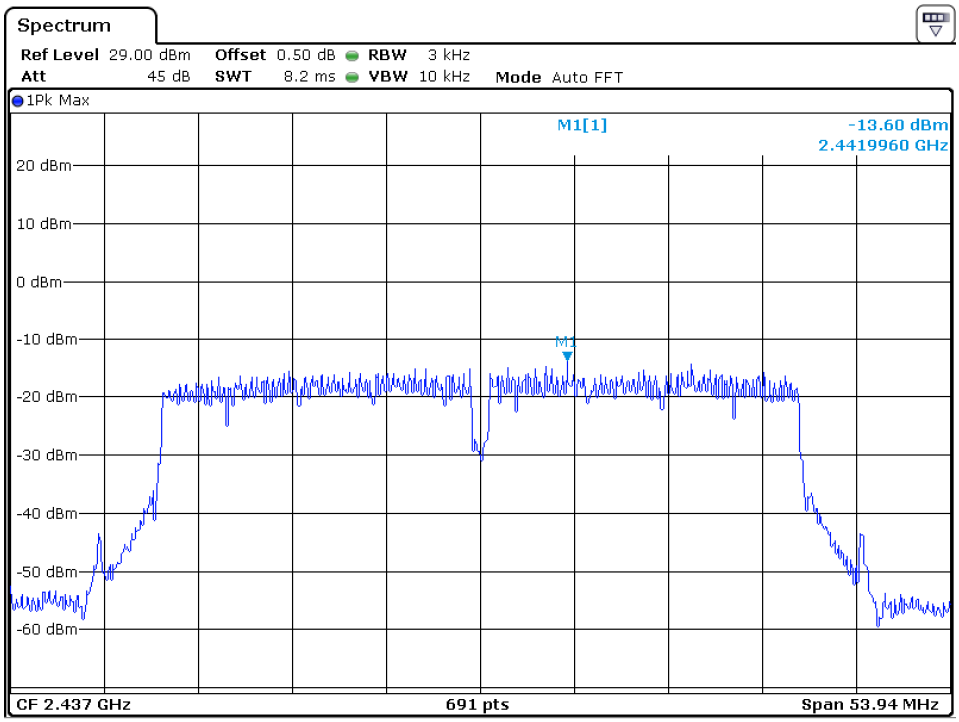



Date: 27.DEC.2018 15:36:01

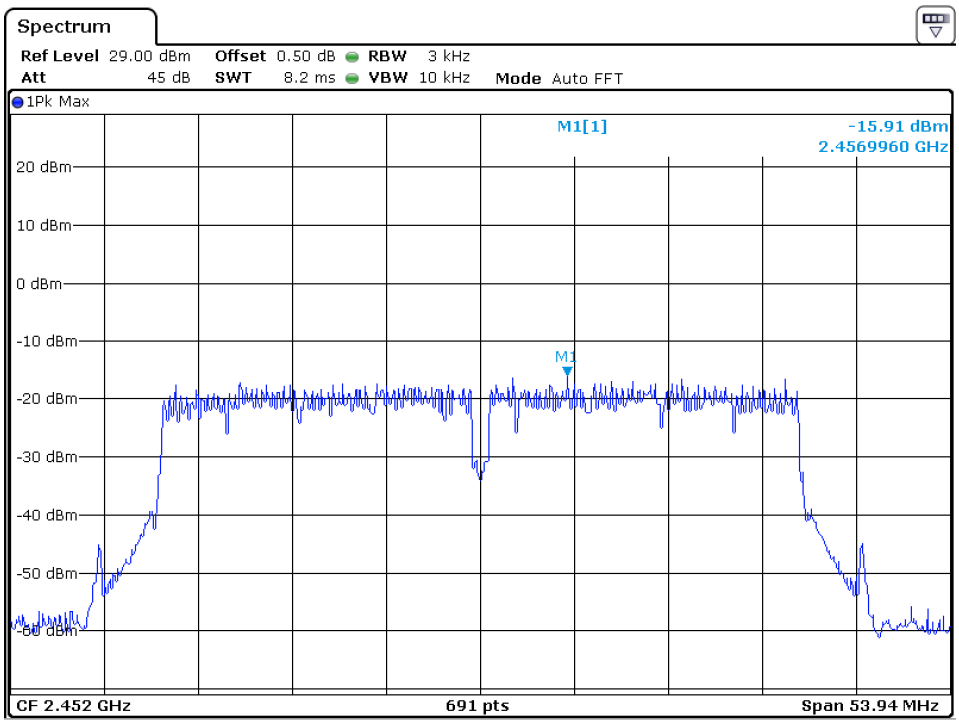
802.11n-HT40




Date: 27.DEC.2018 15:43:02




Date: 27.DEC.2018 15:49:26




Date: 27.DEC.2018 15:53:36

## 4.4 Out of Band Conducted Emissions, FCC Rule 15.247(d)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. The Measurement Procedure was set according to the FCC KDB 558074 D01 v05.

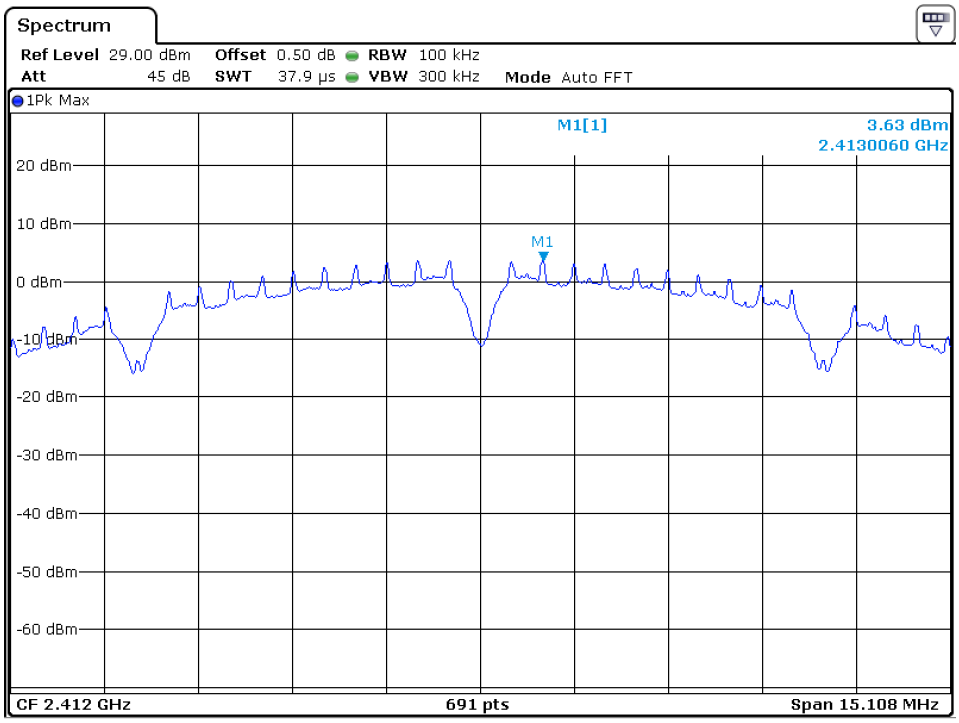
All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the passband.

Refer to the attached test plots for out of band conducted emissions data with rate of 1Mbps for 802.11b, 6Mbps for 802.11g, 6Mbps for 802.11n-HT20 and 13.5Mbps for 802.11n-HT40.

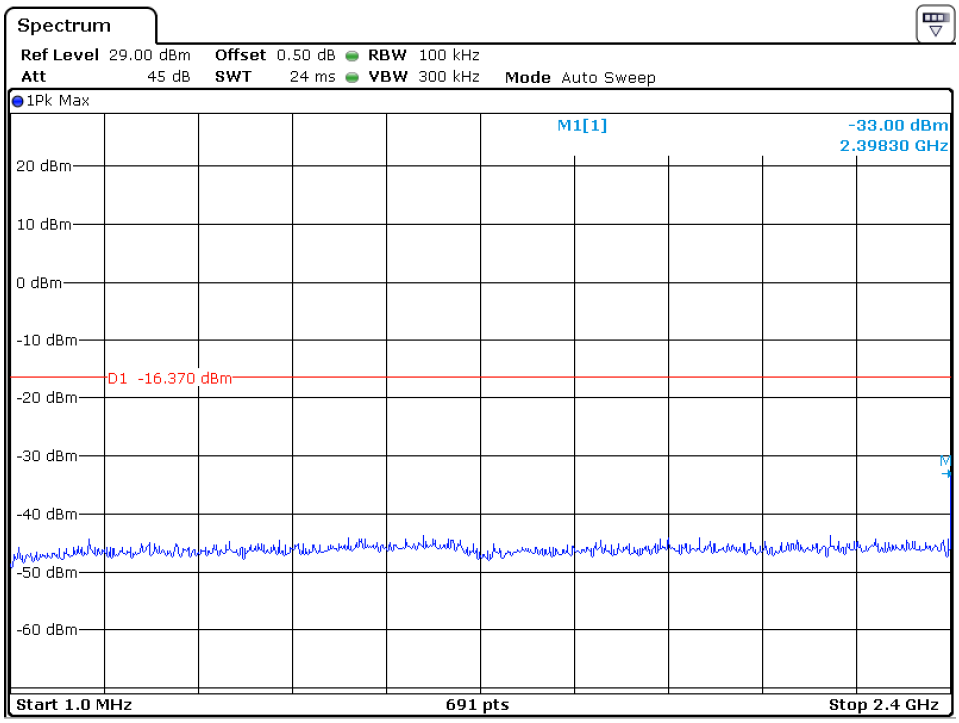
The test plots showed all spurious emission up to the tenth harmonic were measured and they were found to be at least 20 dB below the highest level of the desired power in the passband.

The test plots are attached as below.

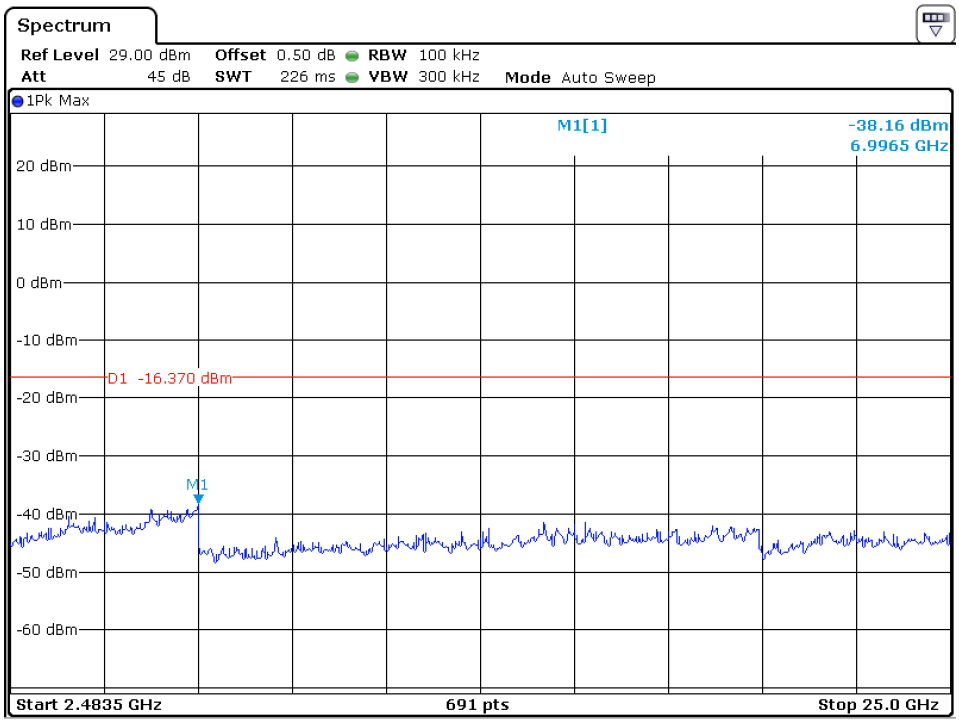
802.11b
Channel 01 (2412MHz) Reference Level: 3.63dBm



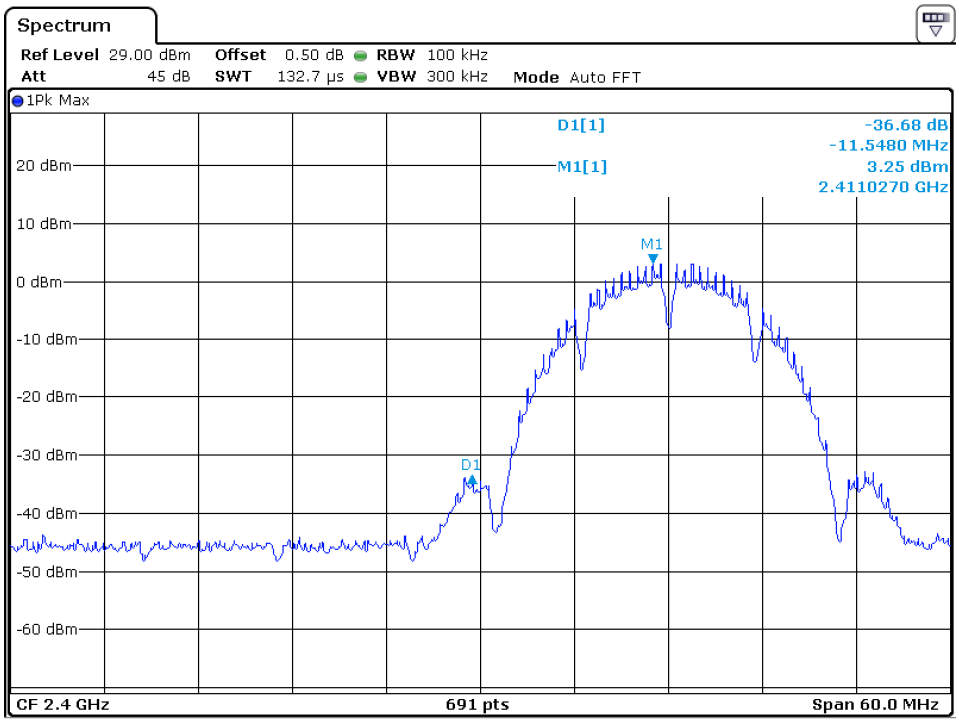

Date: 27.DEC.2018 14:41:09




Date: 27.DEC.2018 14:47:05

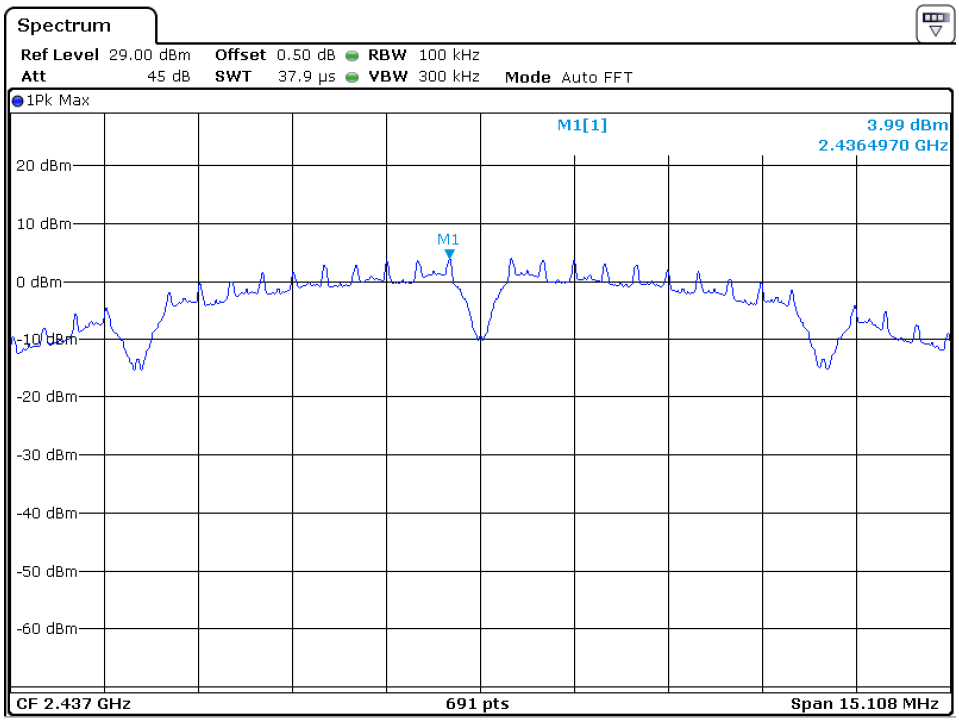



Date: 27.DEC.2018 14:47:20

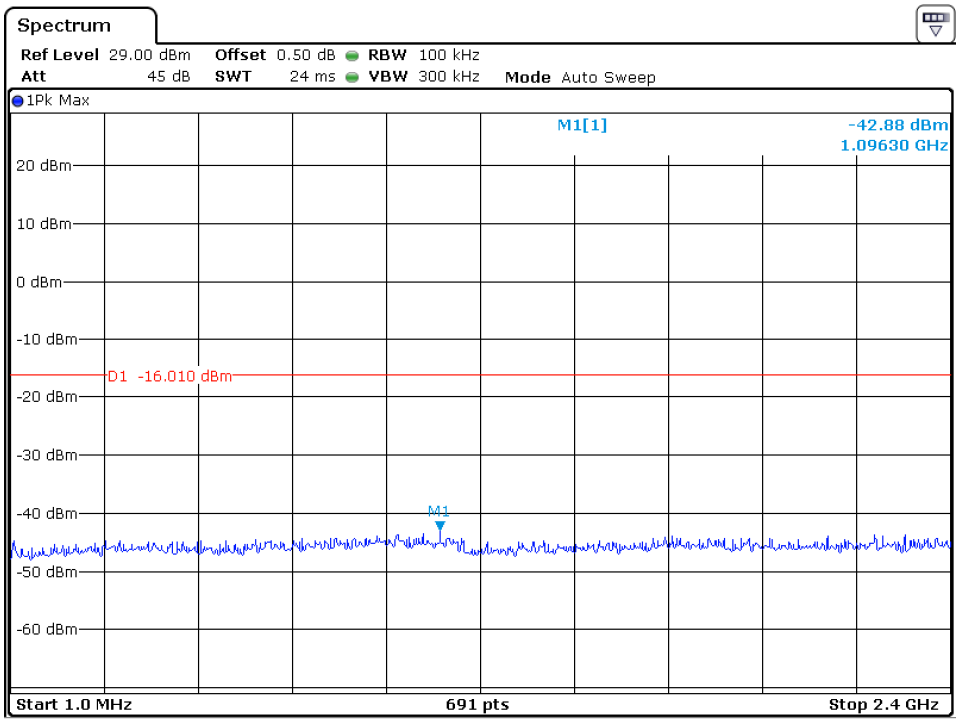



Date: 27.DEC.2018 14:49:05

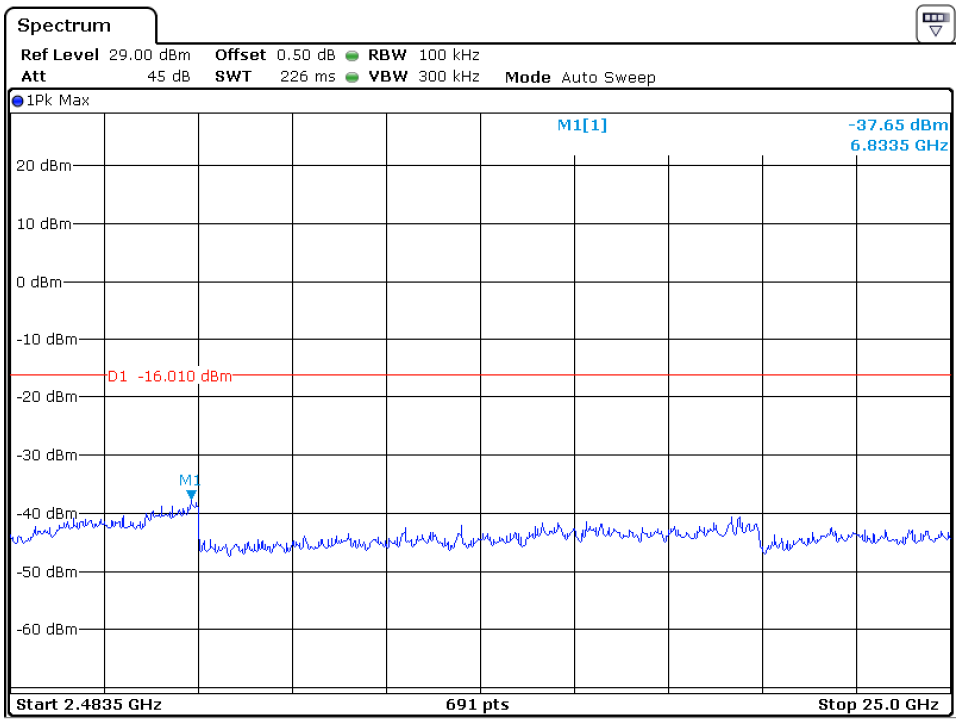
Channel 06 (2437MHz) Reference Level: 3.99dBm




Date: 27.DEC.2018 14:53:09

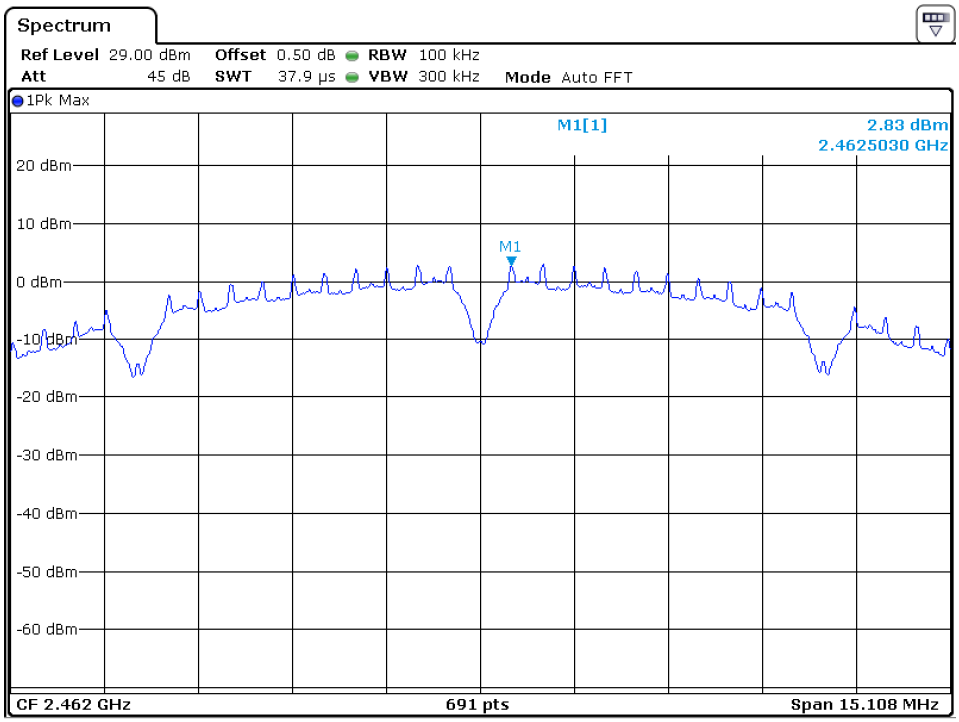



Date: 27.DEC.2018 14:54:16

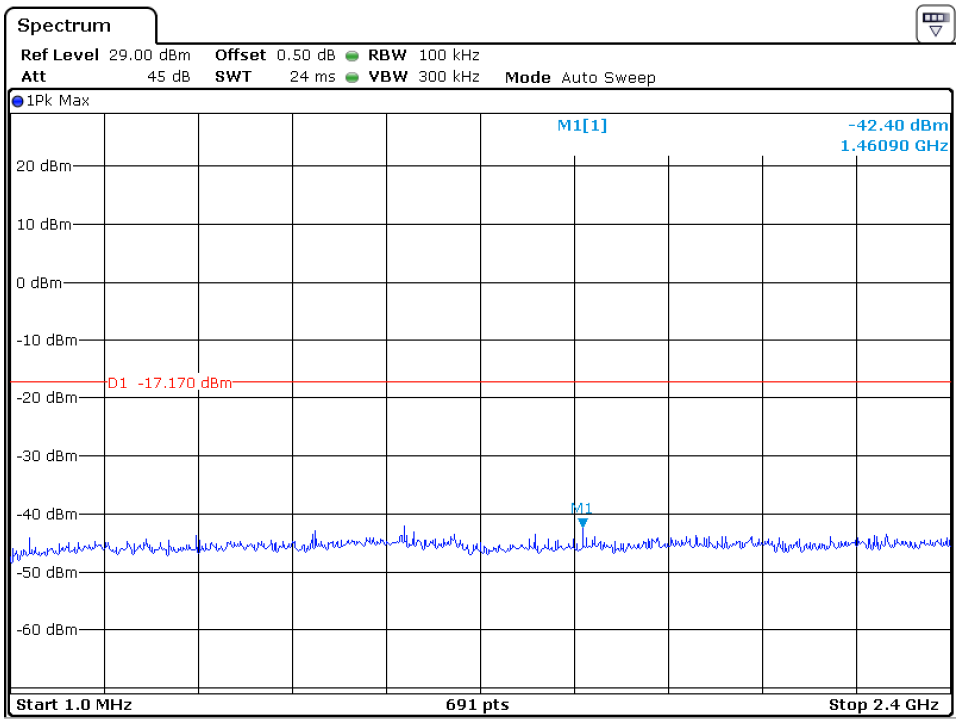



Date: 27.DEC.2018 14:54:45

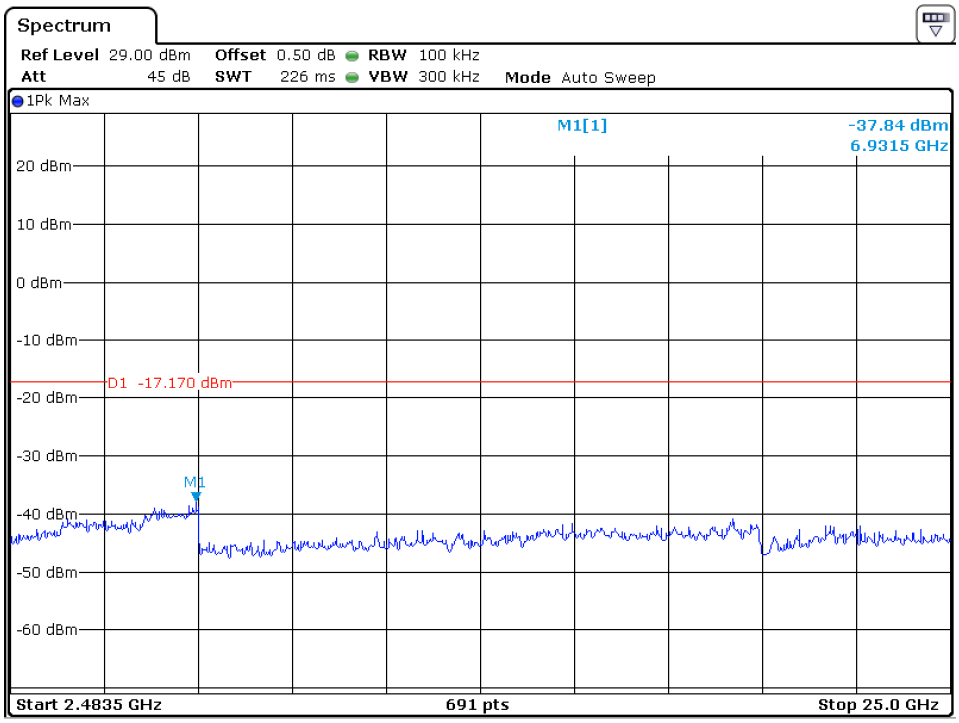
Channel 11 (2462MHz) Reference Level: 2.83dBm



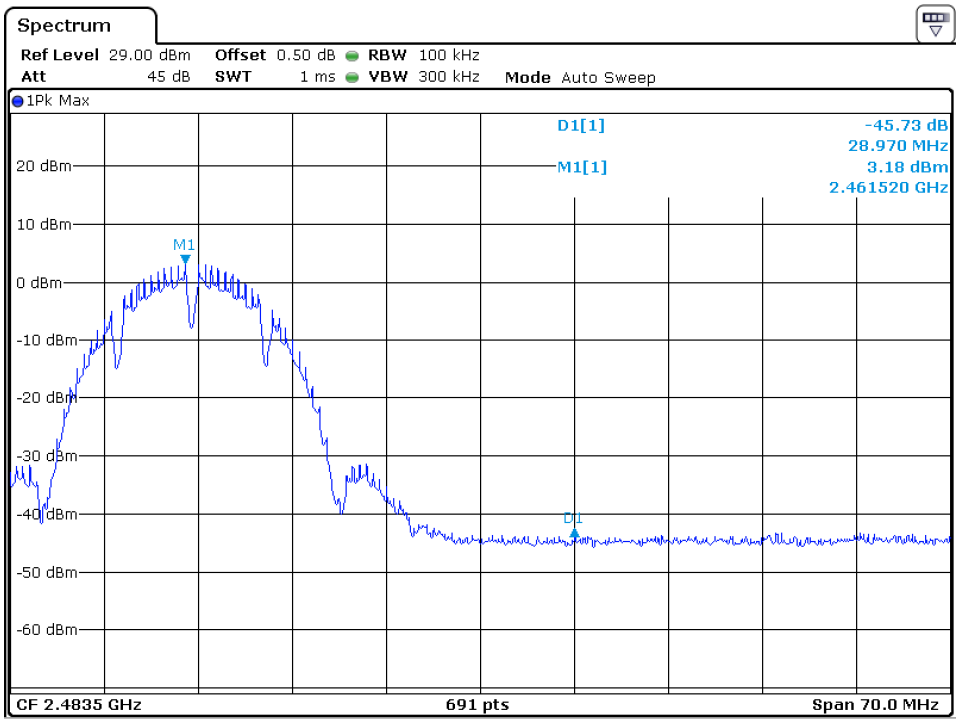

Date: 27.DEC.2018 14:56:08




Date: 27.DEC.2018 14:56:54

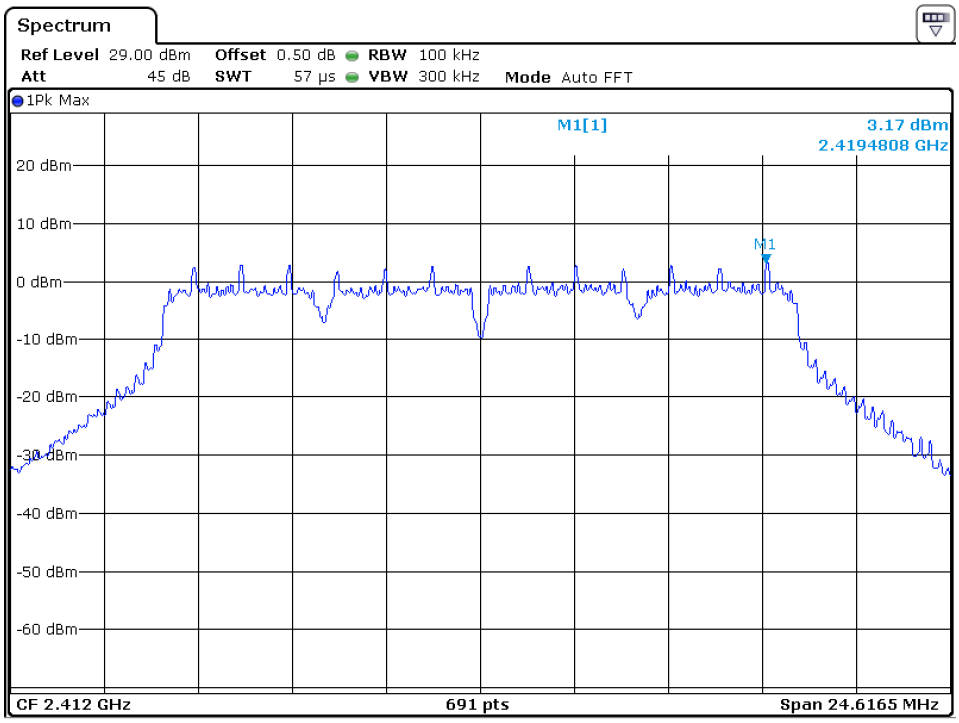



Date: 27.DEC.2018 14:57:19

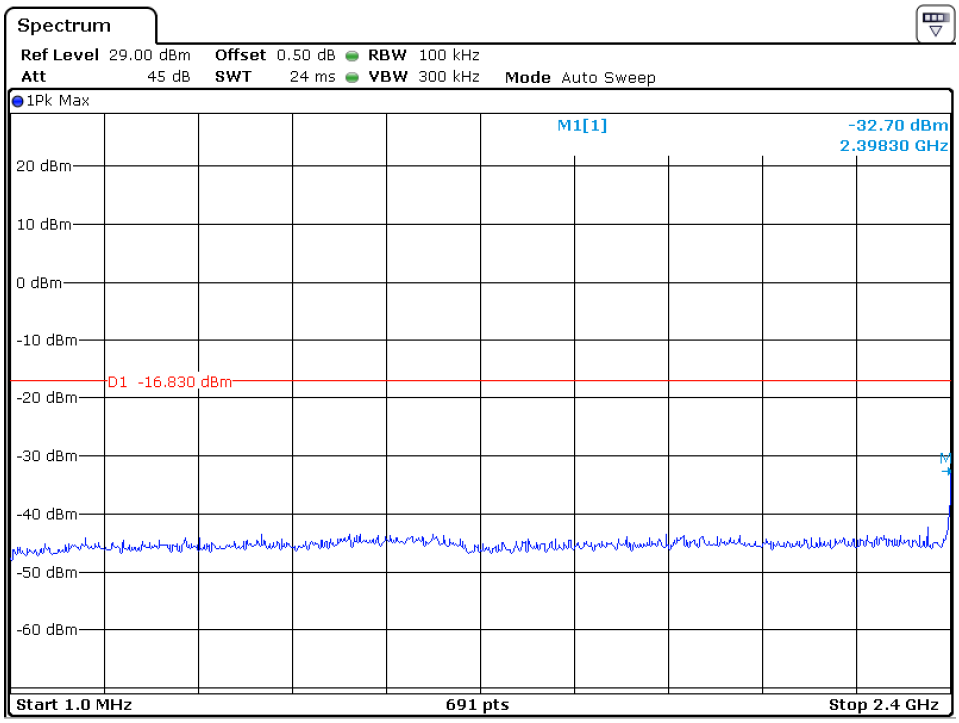



Date: 27.DEC.2018 14:57:52

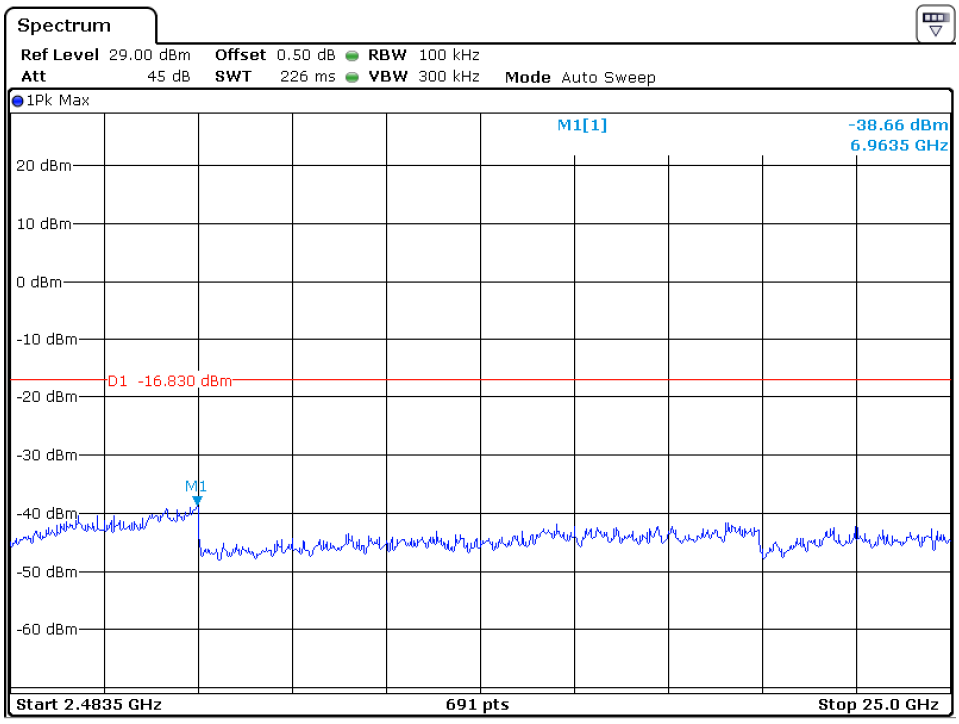
802.11g
Channel 01 (2412MHz) Reference Level: 3.17dBm



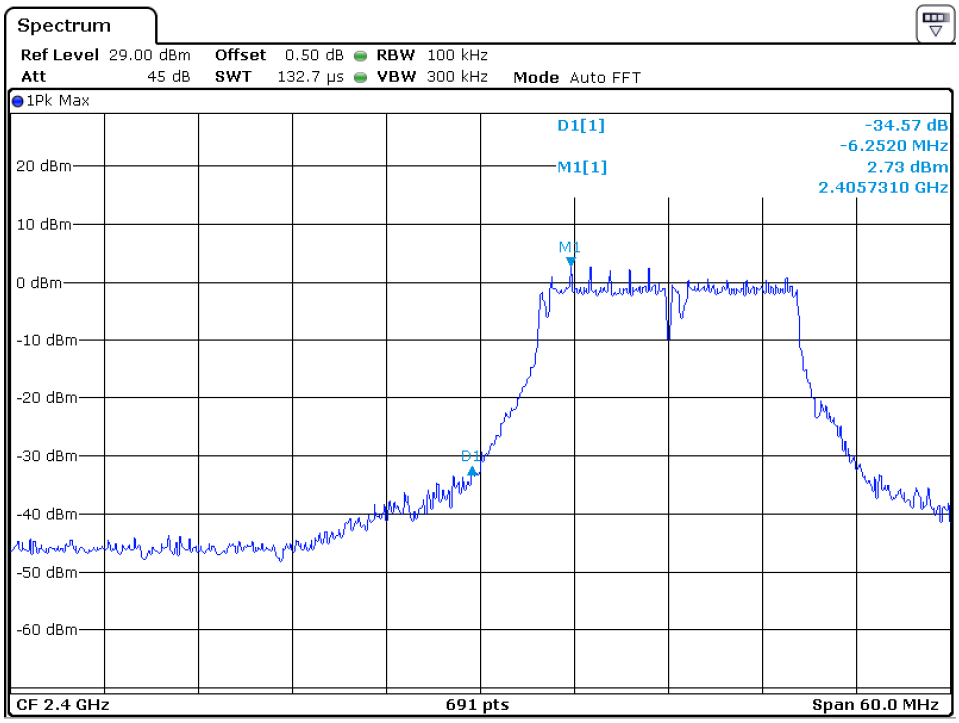

Date: 27.DEC.2018 15:02:12




Date: 27.DEC.2018 15:04:00

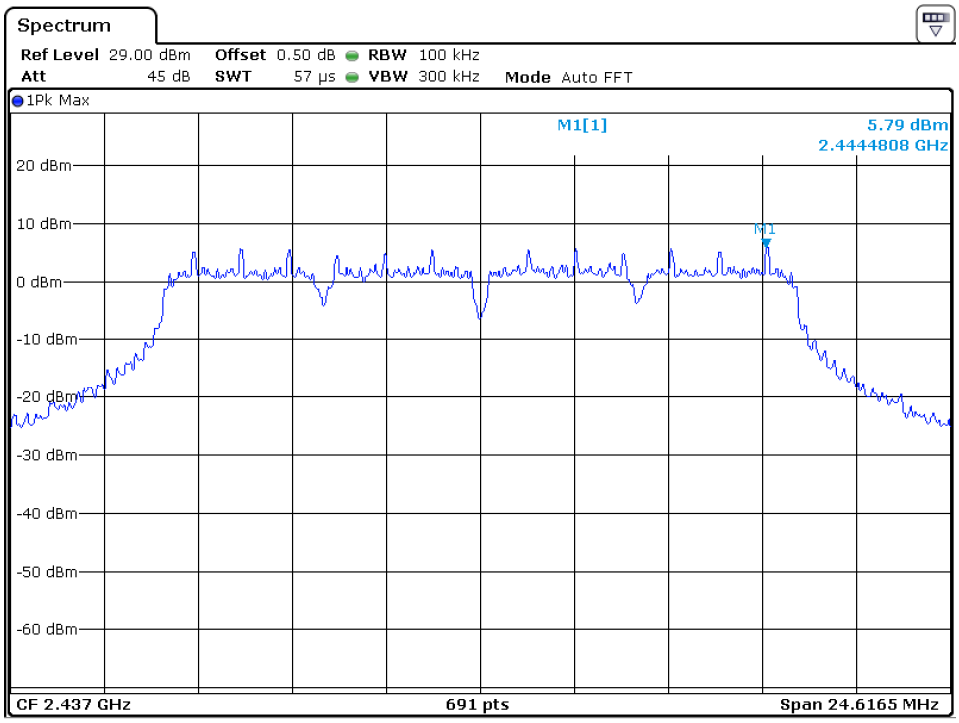



Date: 27.DEC.2018 15:04:19

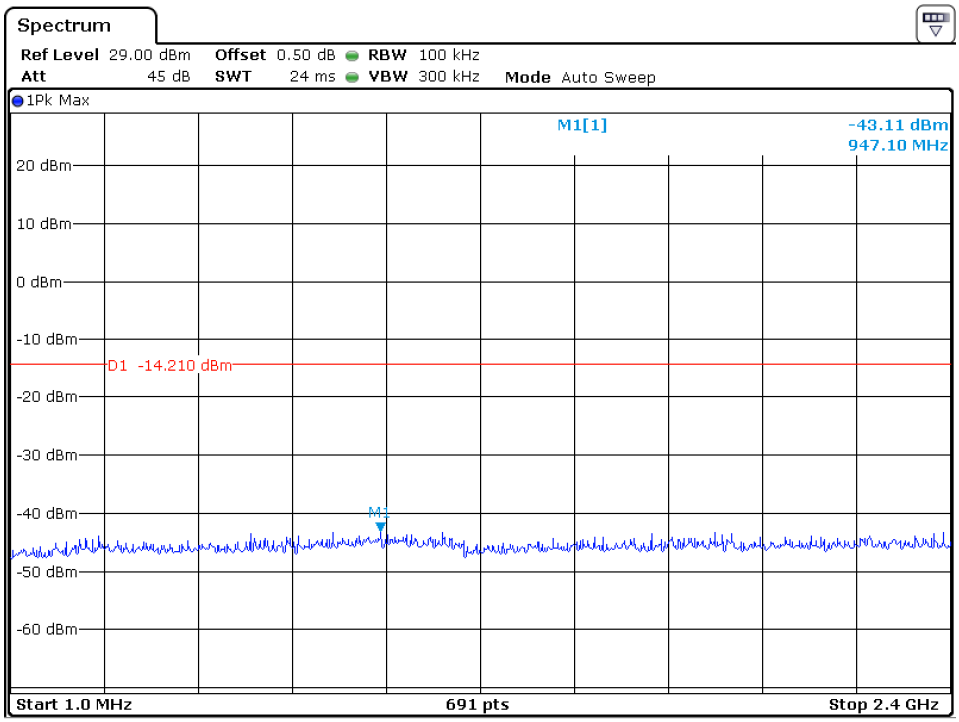



Date: 27.DEC.2018 15:04:56

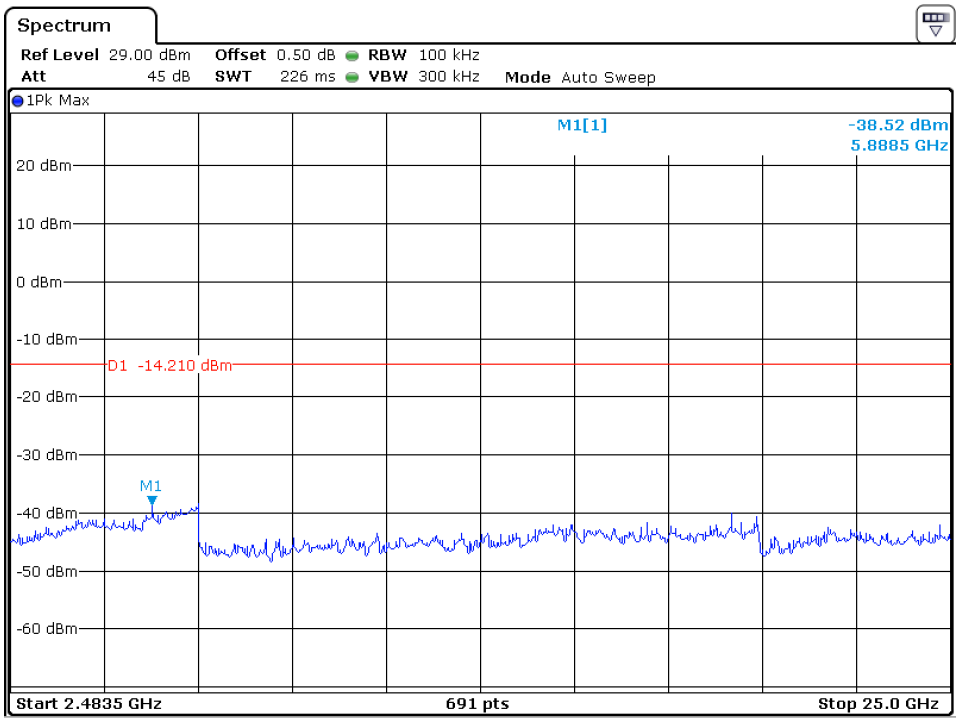
Channel 06 (2437MHz) Reference Level: 5.79dBm




Date: 27.DEC.2018 15:10:13

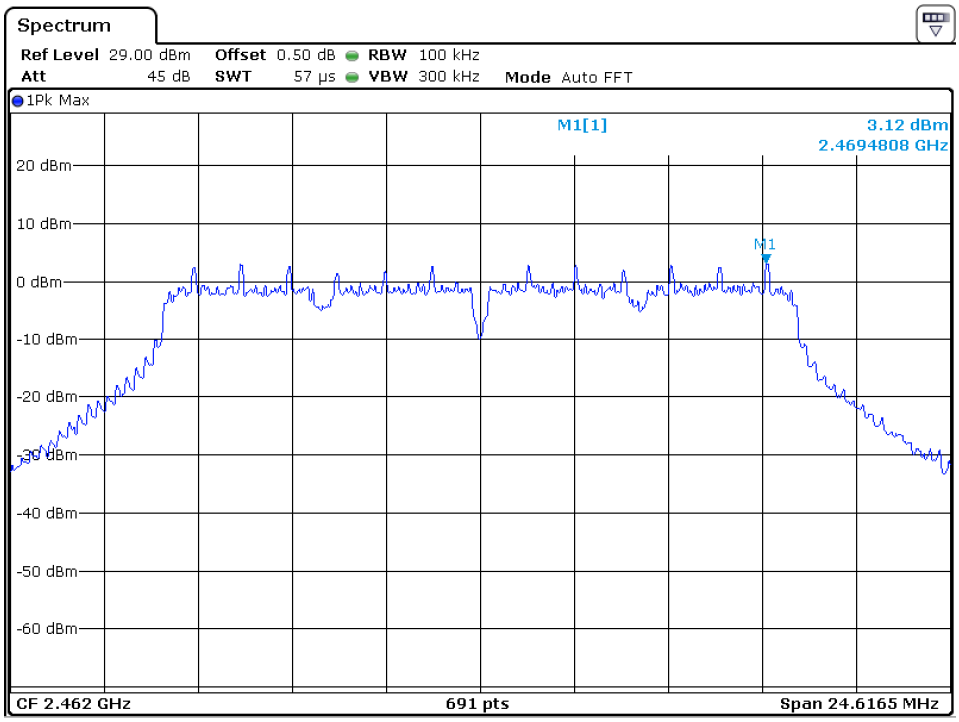



Date: 27.DEC.2018 15:11:15

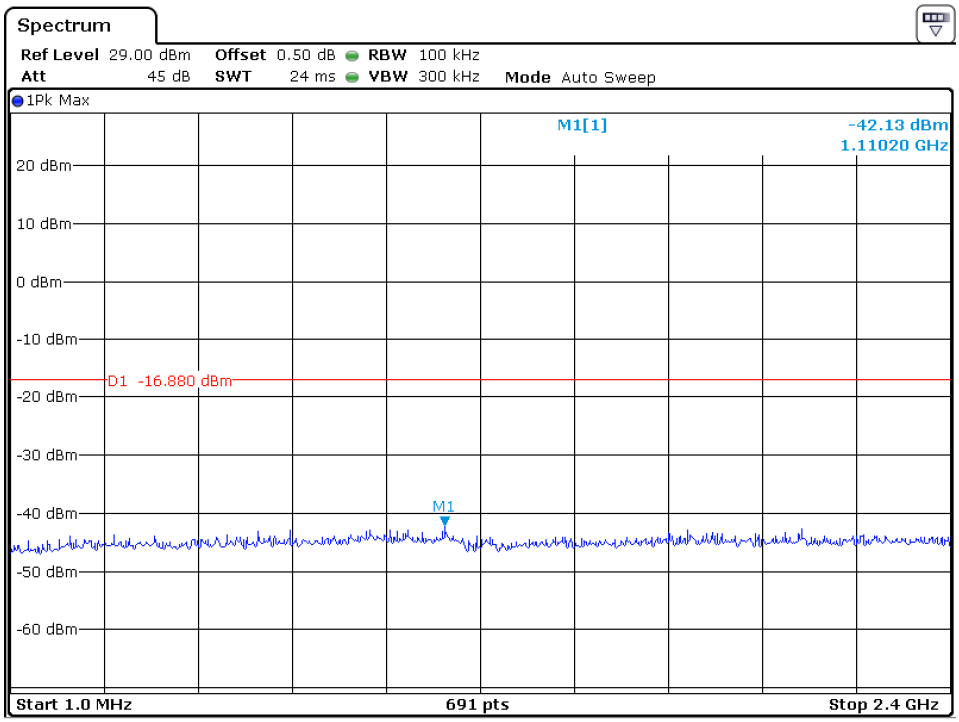



Date: 27.DEC.2018 15:11:31

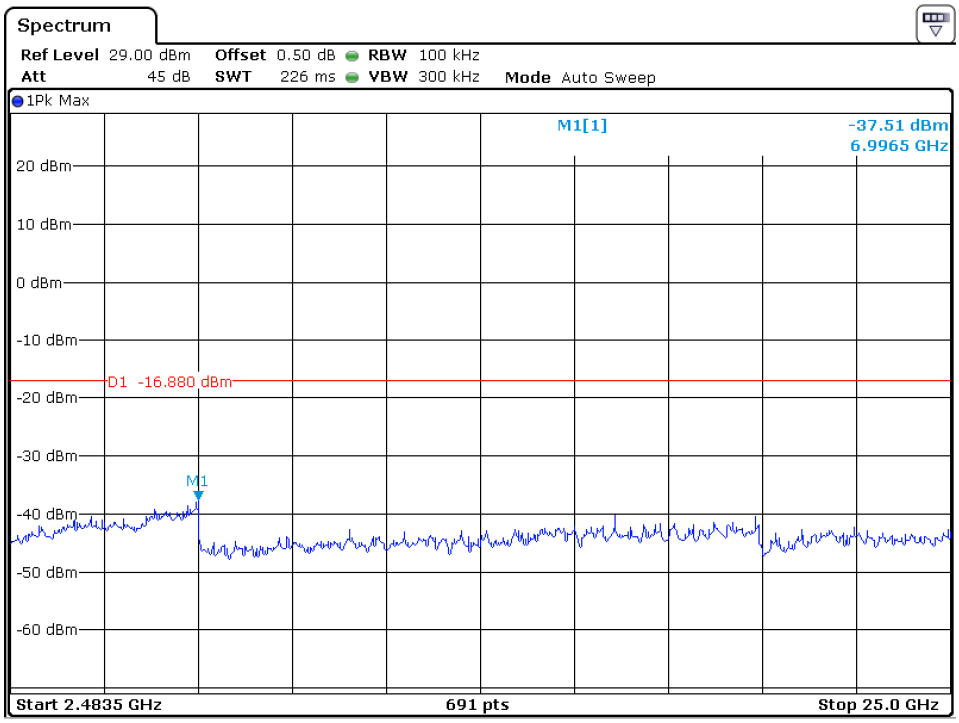
Channel 11 (2462MHz) Reference Level: 3.12dBm



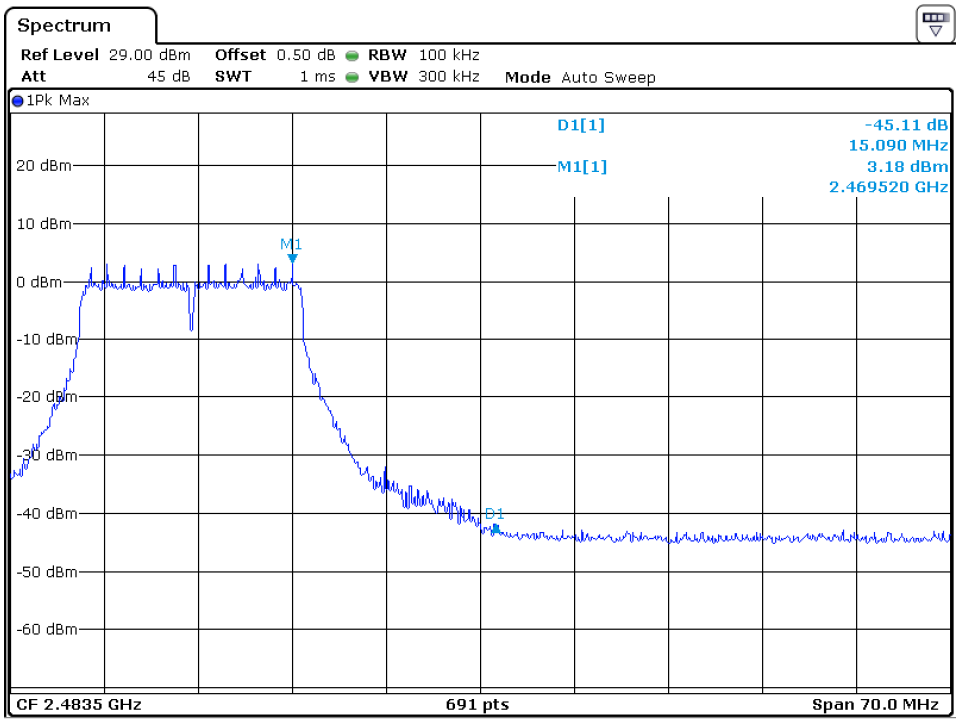

Date: 27.DEC.2018 15:15:16




Date: 27.DEC.2018 15:16:55

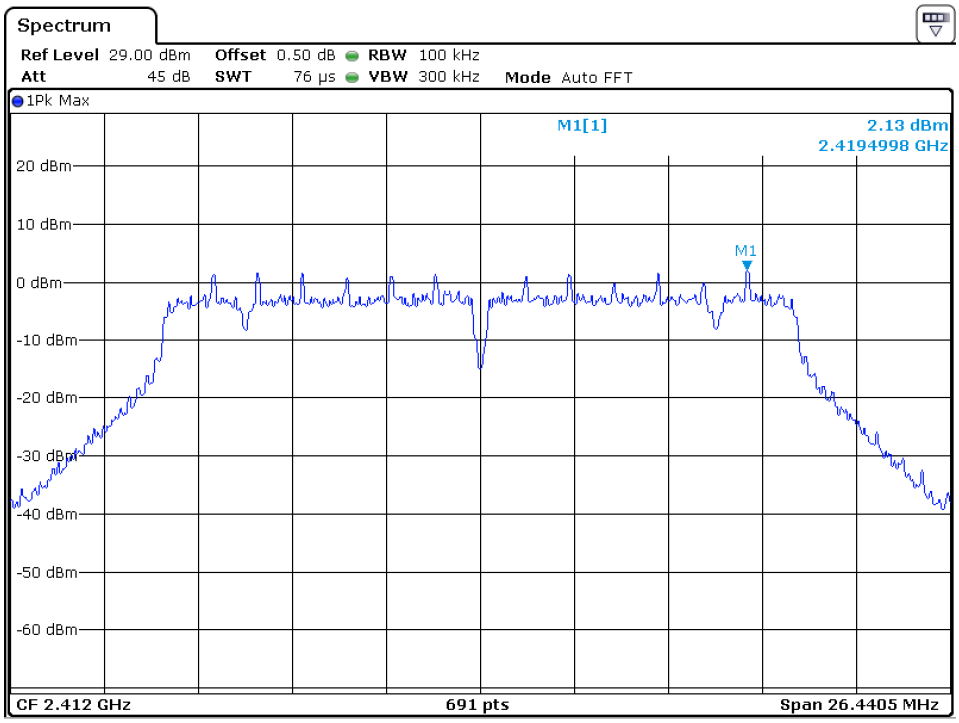



Date: 27.DEC.2018 15:17:25

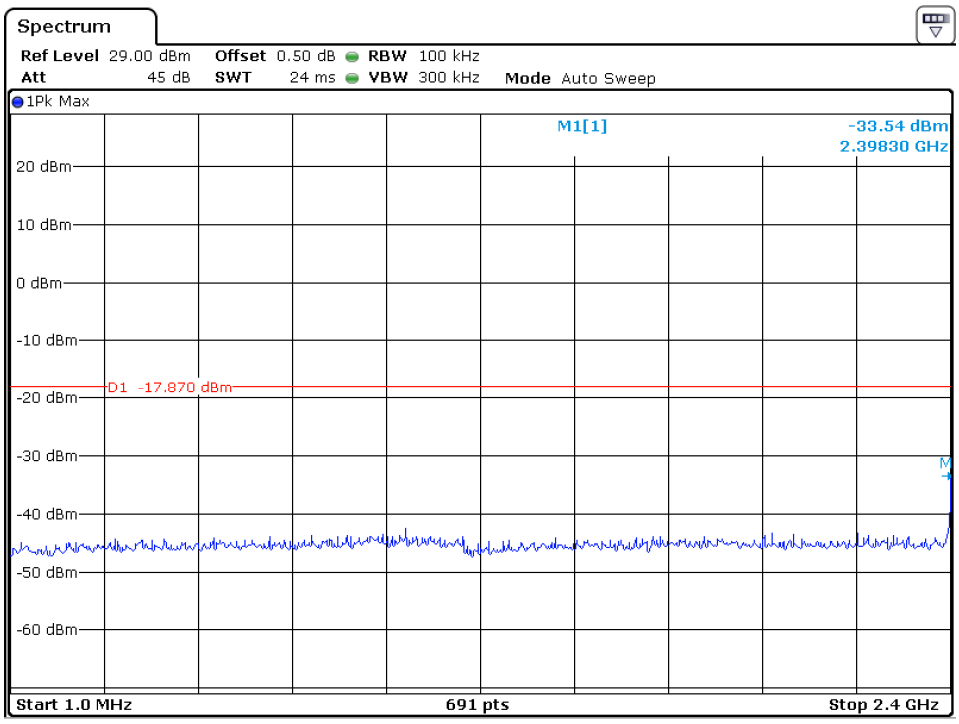



Date: 27.DEC.2018 15:18:21

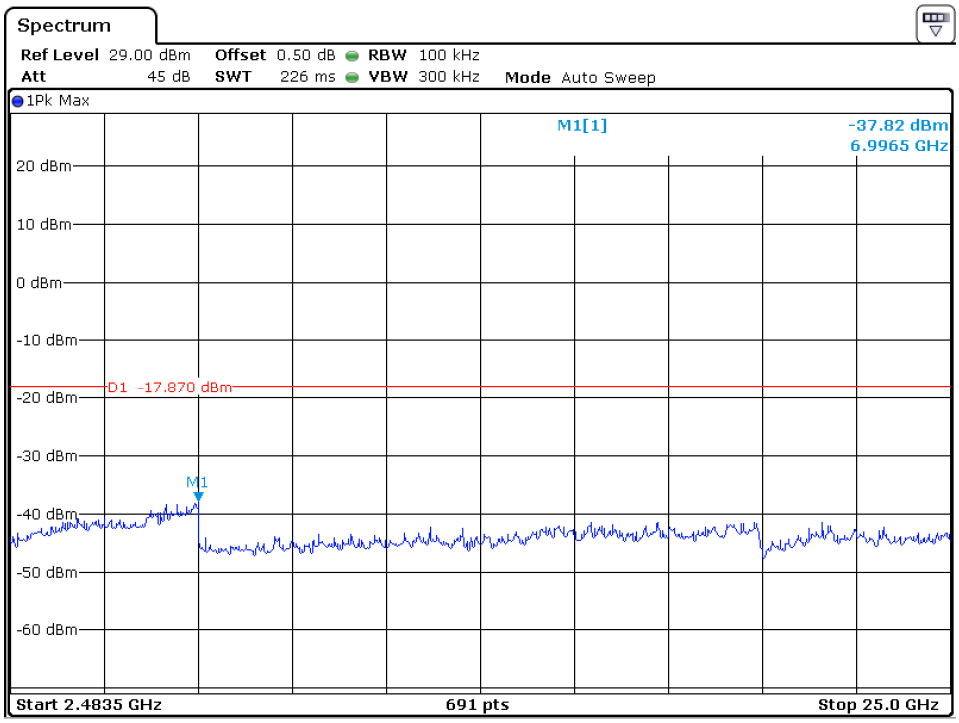
802.11n-HT20
Channel 01 (2412MHz) Reference Level: 2.13dBm



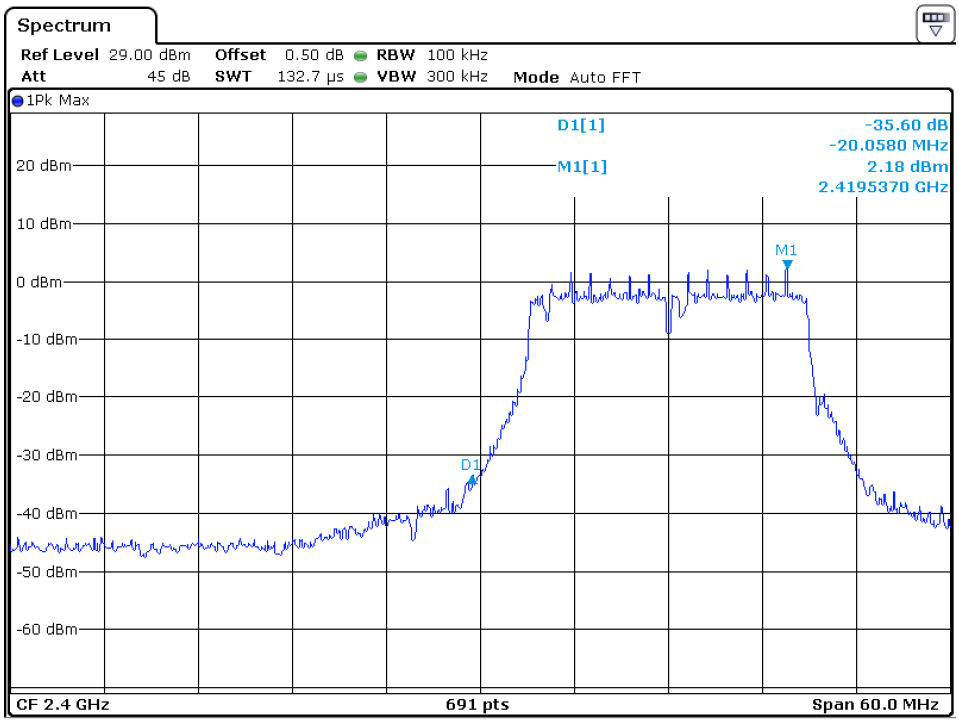

Date: 27.DEC.2018 15:22:44




Date: 27.DEC.2018 15:23:44

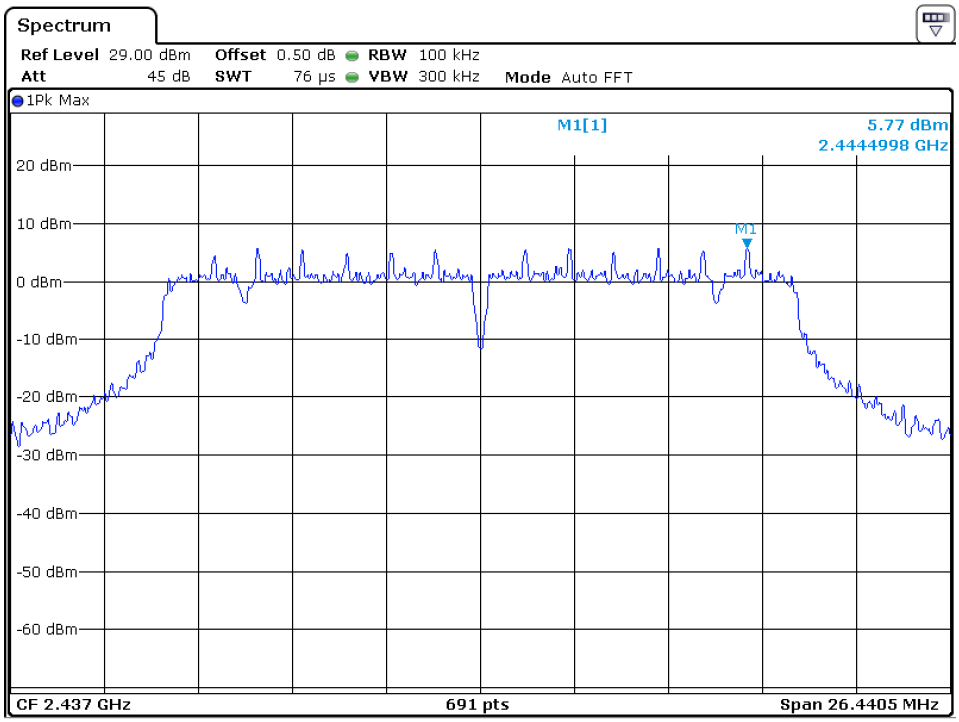



Date: 27.DEC.2018 15:24:11

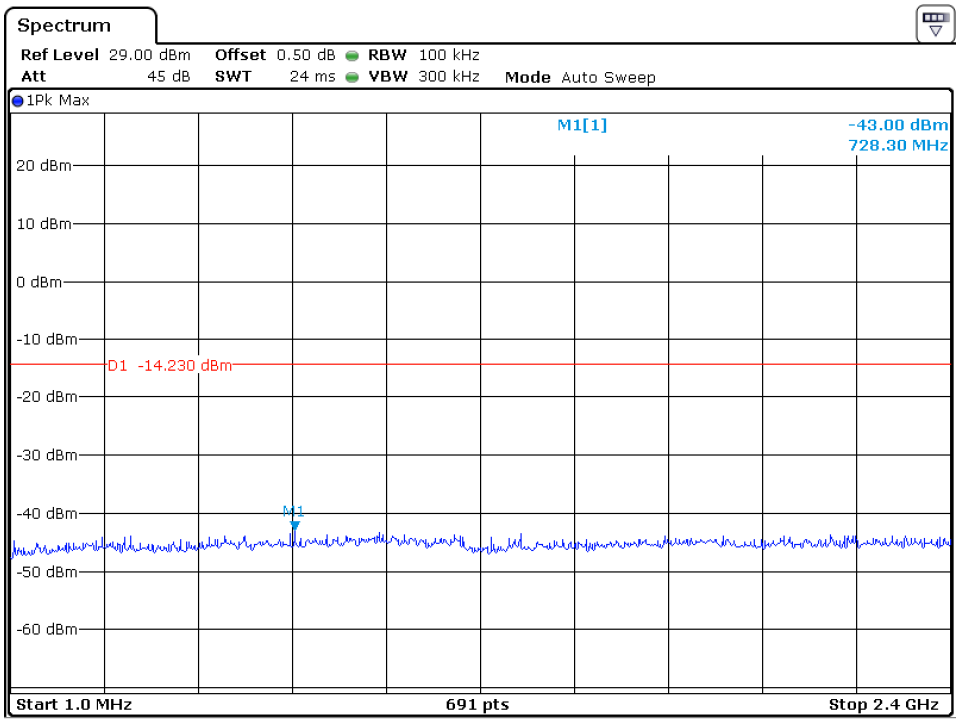



Date: 27.DEC.2018 15:25:10

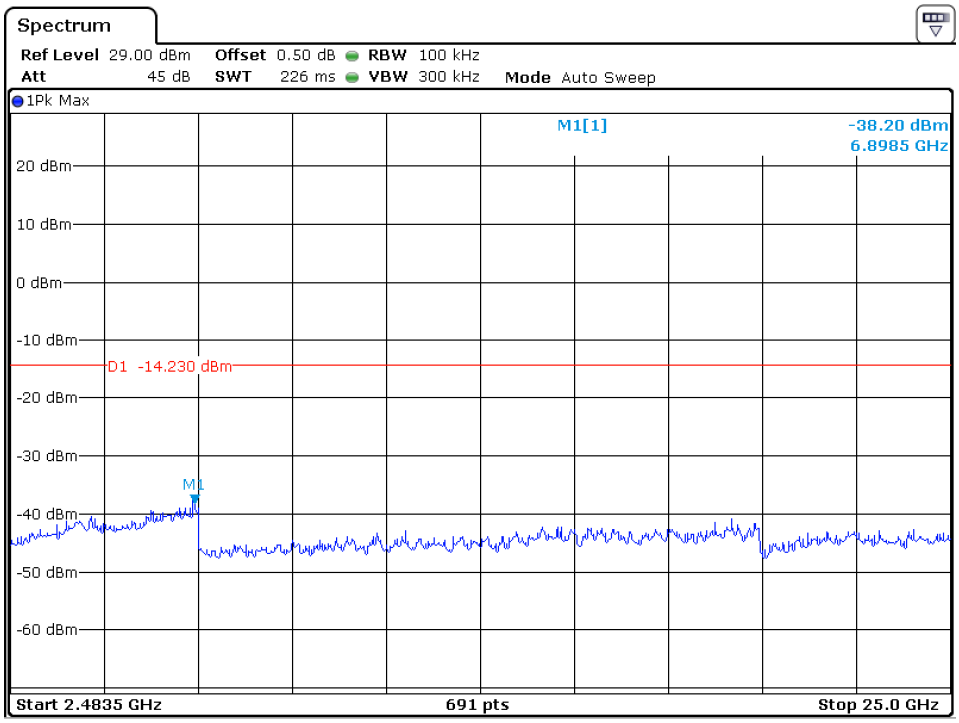
Channel 06 (2437MHz) Reference Level: 5.77dBm




Date: 27.DEC.2018 15:28:02

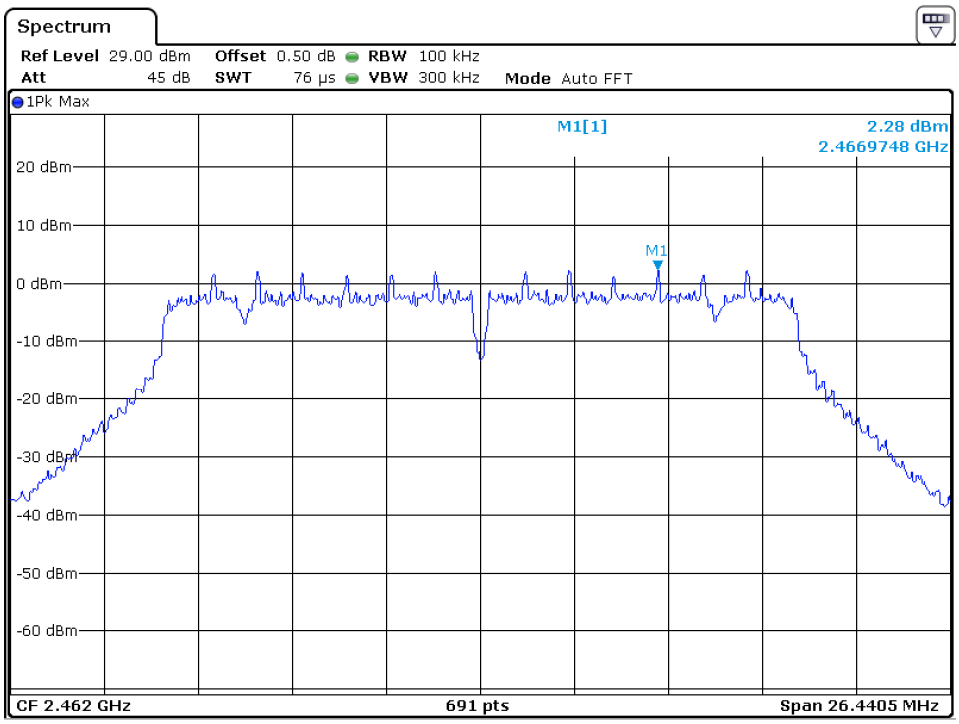



Date: 27.DEC.2018 15:31:25

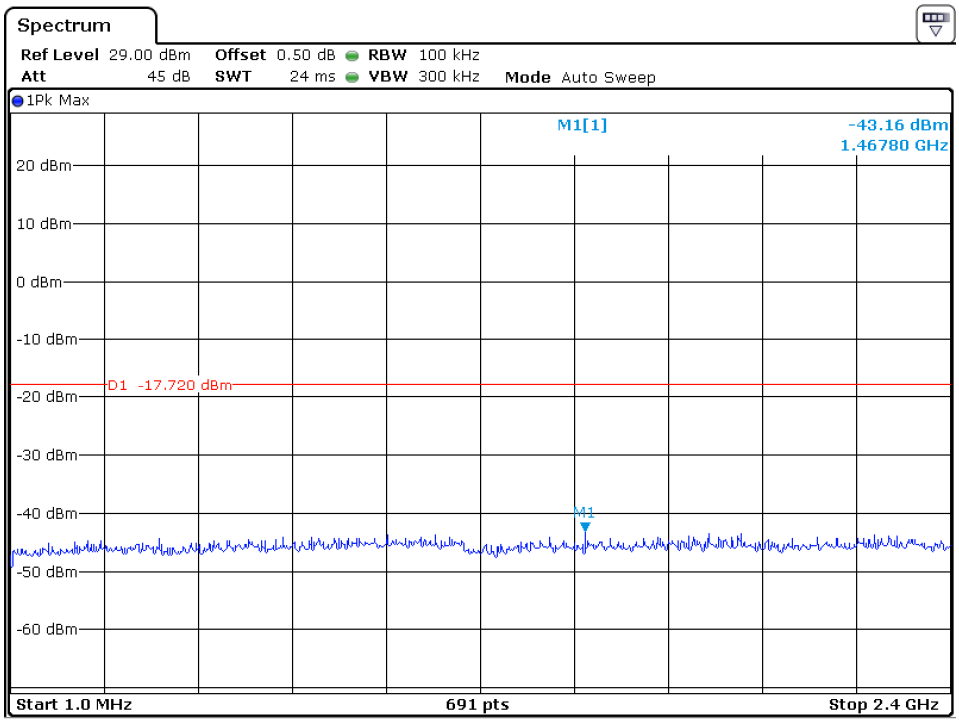



Date: 27.DEC.2018 15:31:51

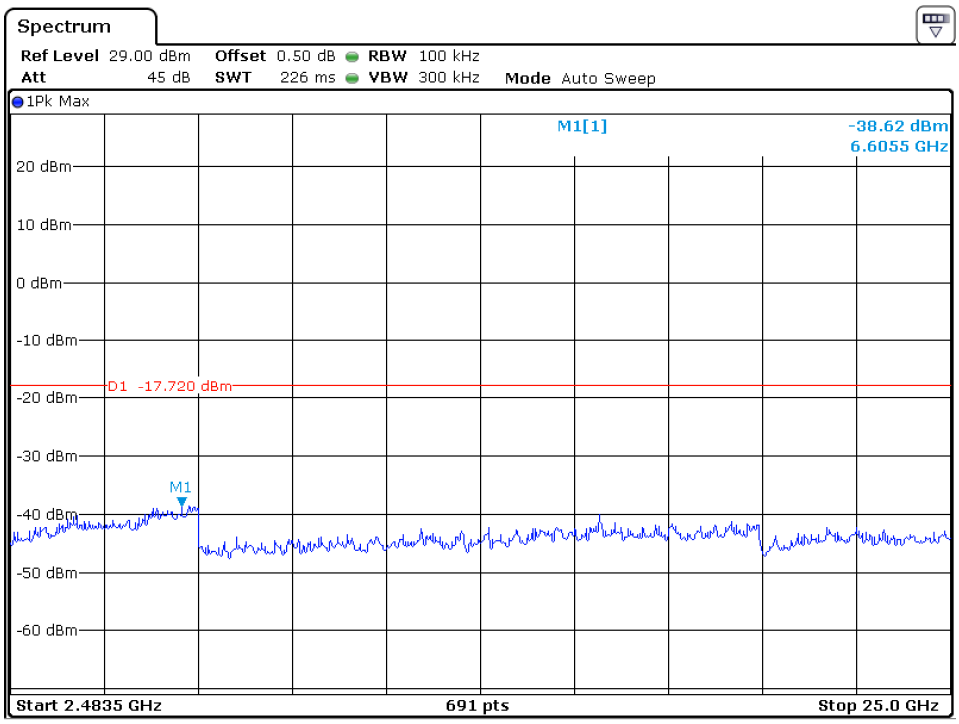
Channel 11 (2462MHz) Reference Level: 2.28dBm



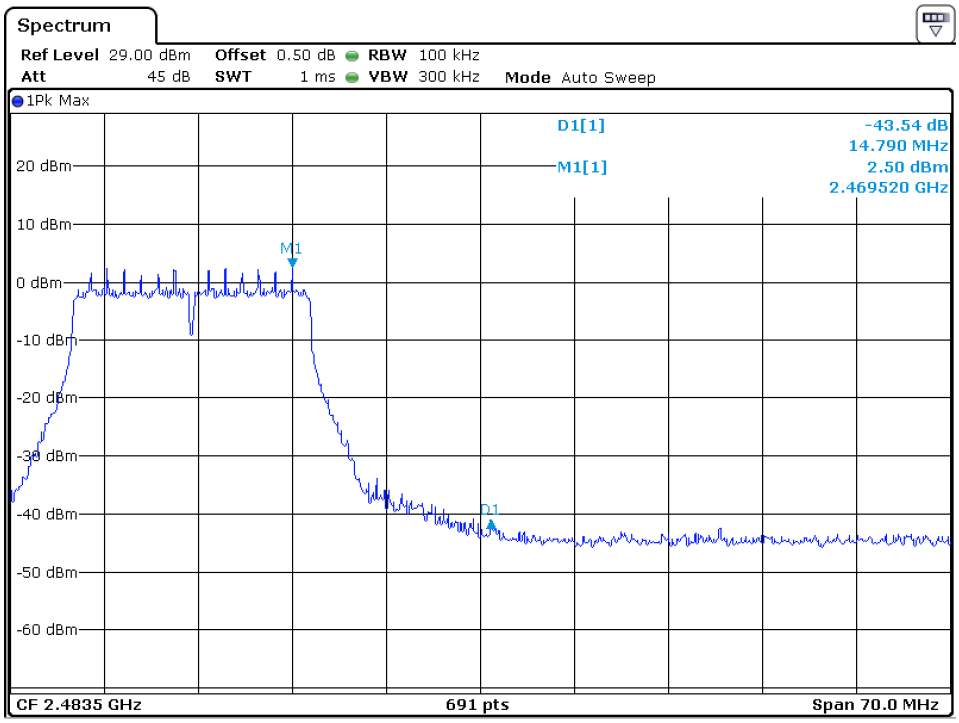

Date: 27.DEC.2018 15:35:34




Date: 27.DEC.2018 15:36:43

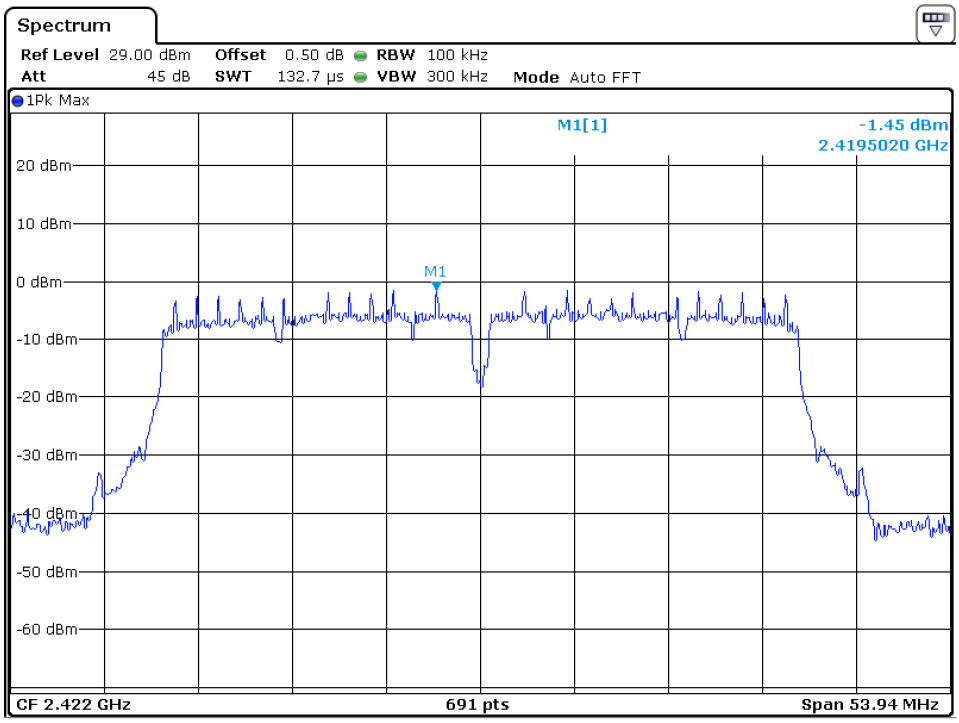



Date: 27.DEC.2018 15:37:17

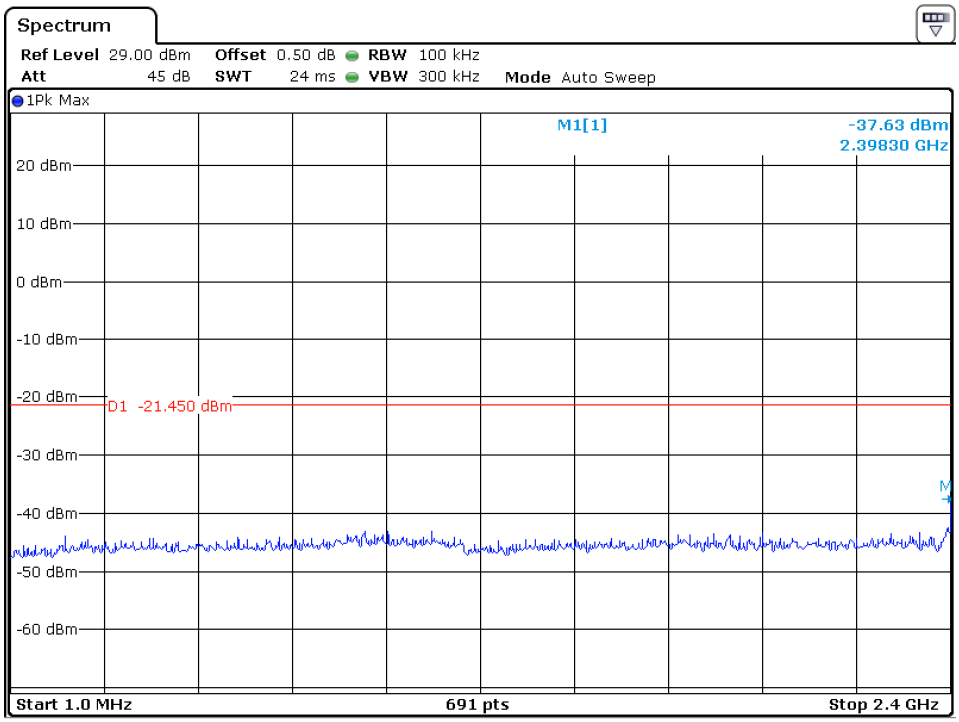



Date: 27.DEC.2018 15:37:52

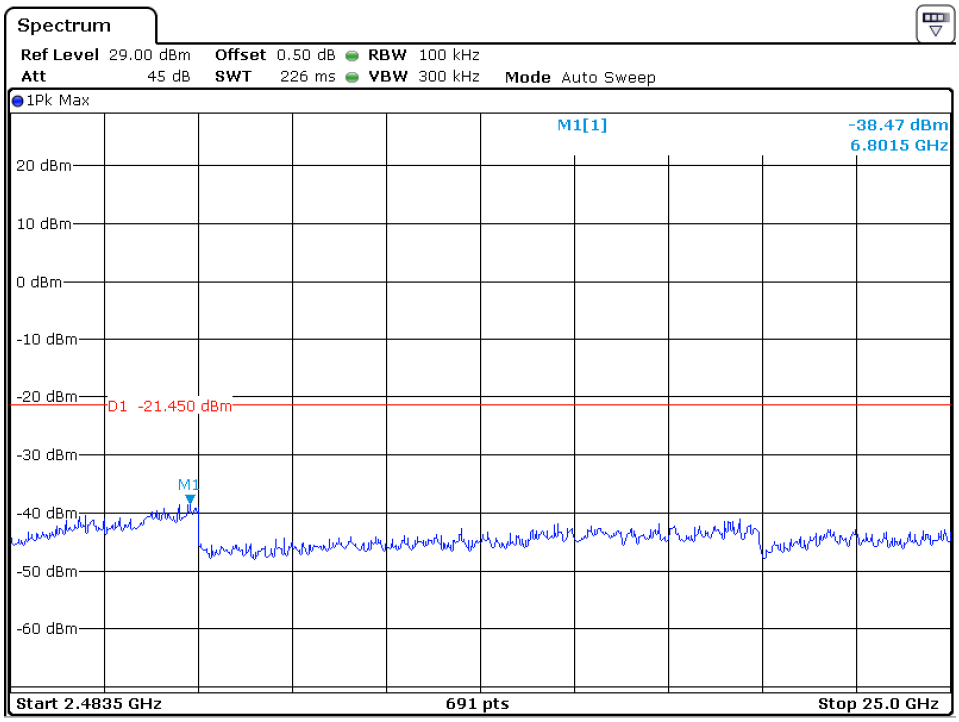
802.11n-HT40
Channel 03 (2422MHz) Reference Level: -1.45dBm



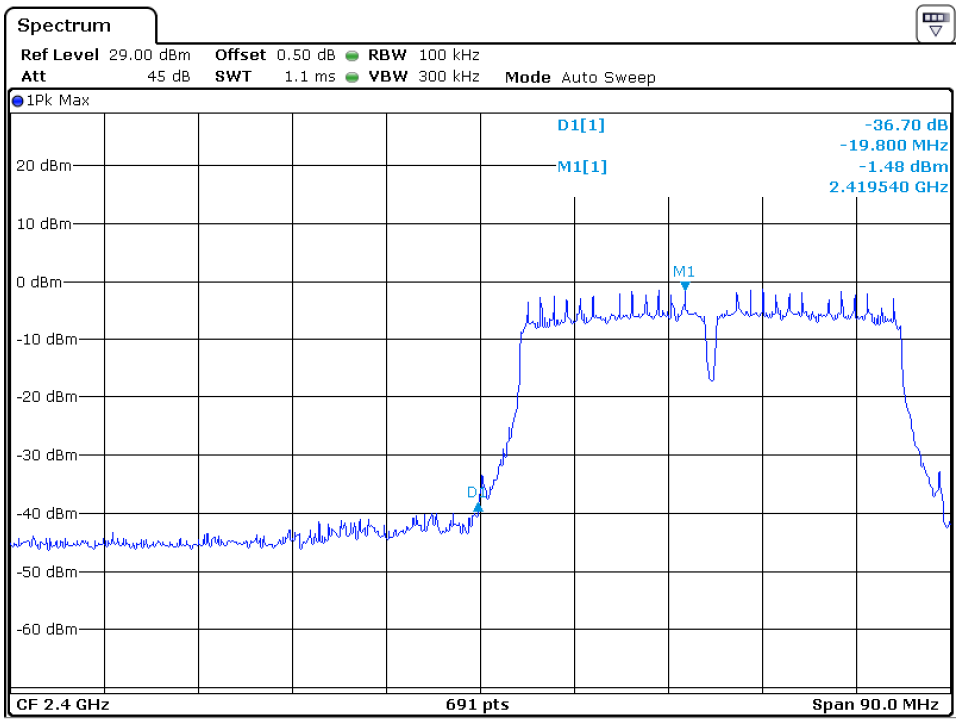

Date: 27.DEC.2018 15:42:29




Date: 27.DEC.2018 15:43:31

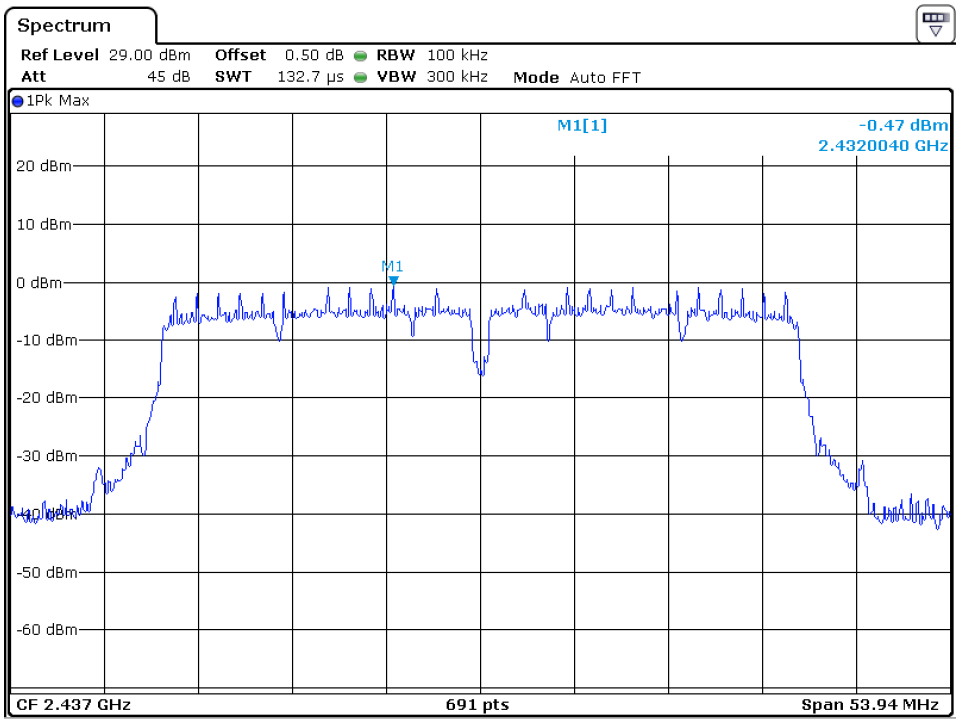



Date: 27.DEC.2018 15:43:59

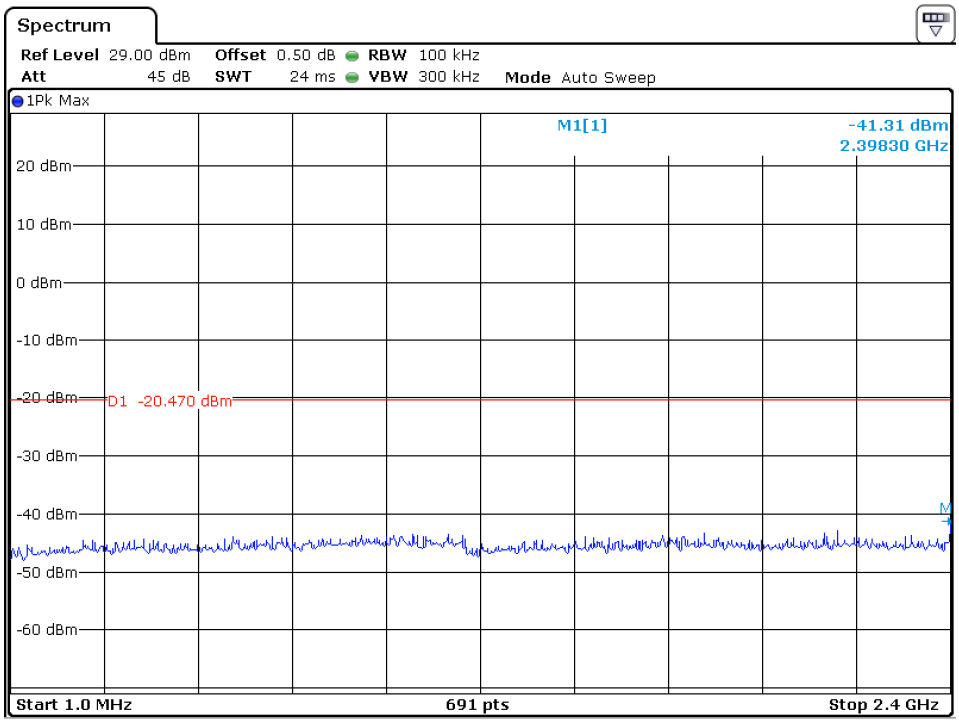



Date: 27.DEC.2018 15:44:35

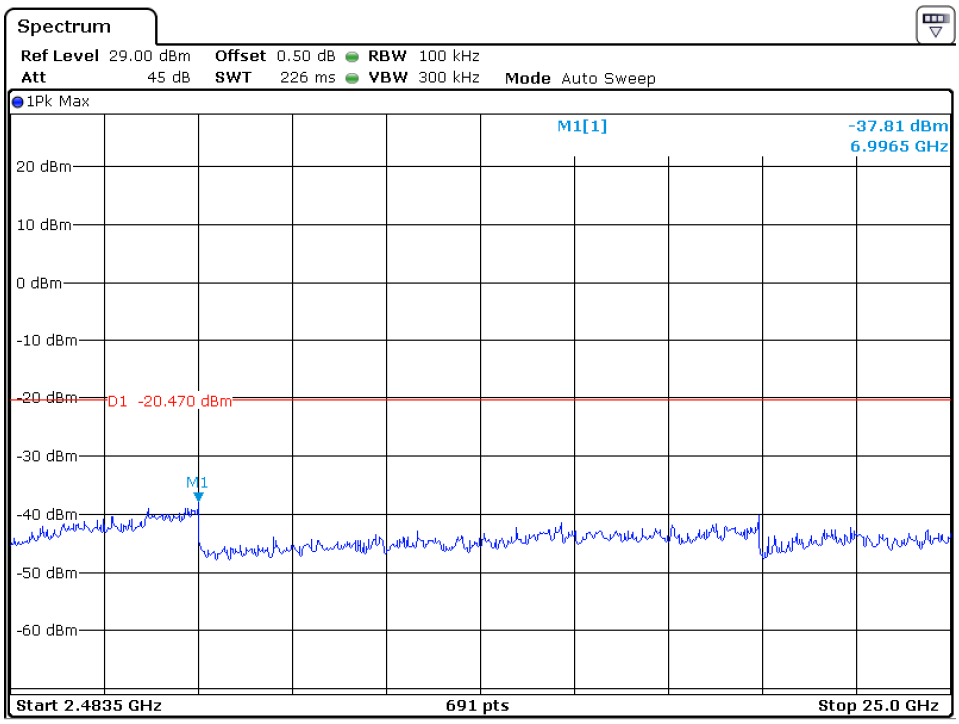
## Channel 06 (2437MHz) Reference Level: -0.47dBm




Date: 27.DEC.2018 15:48:37

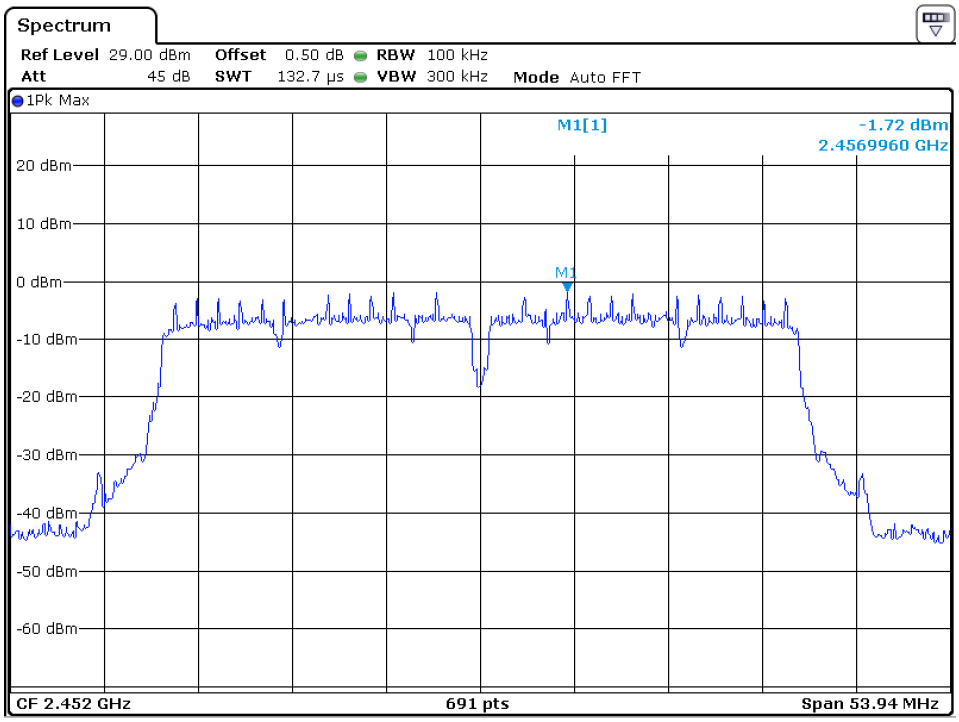



Date: 27.DEC.2018 15:49:52

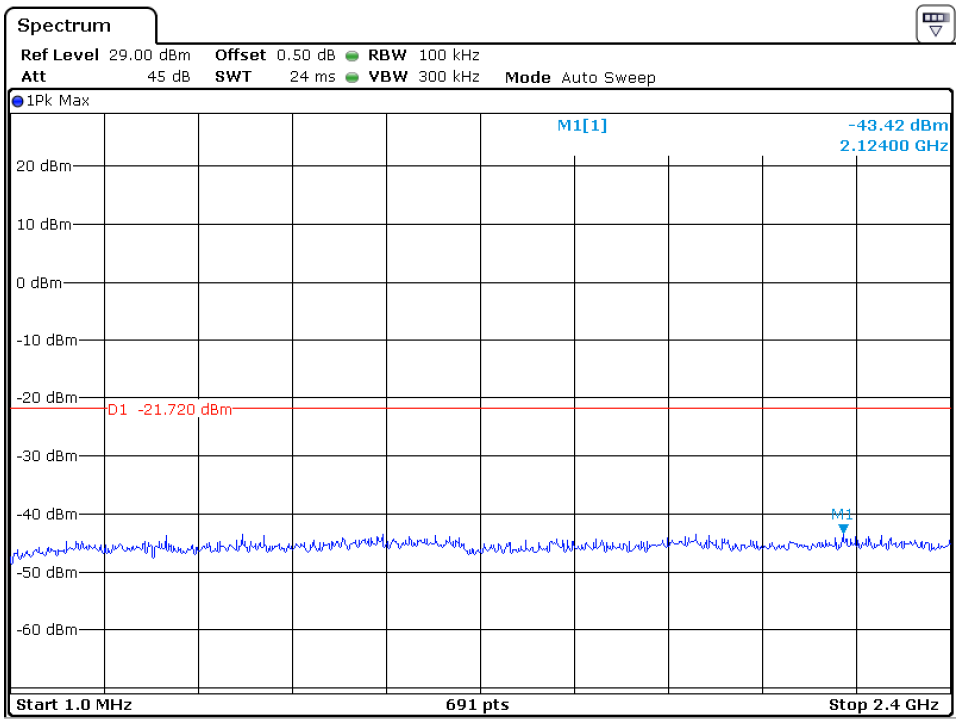



Date: 27.DEC.2018 15:50:17

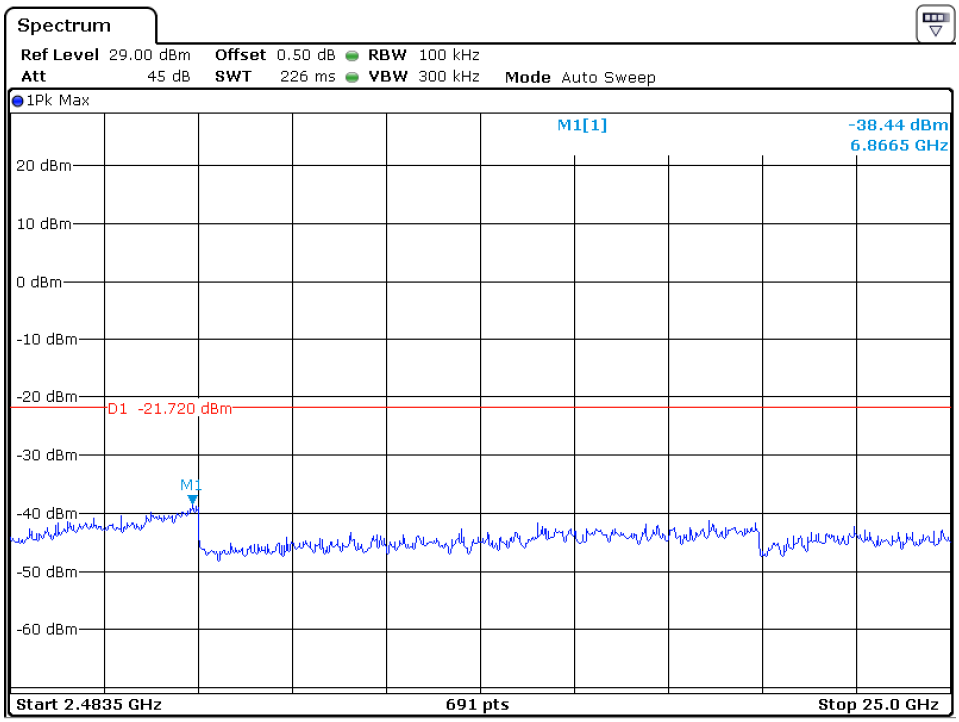
Channel 09 (2452MHz) Reference Level: -1.72dBm



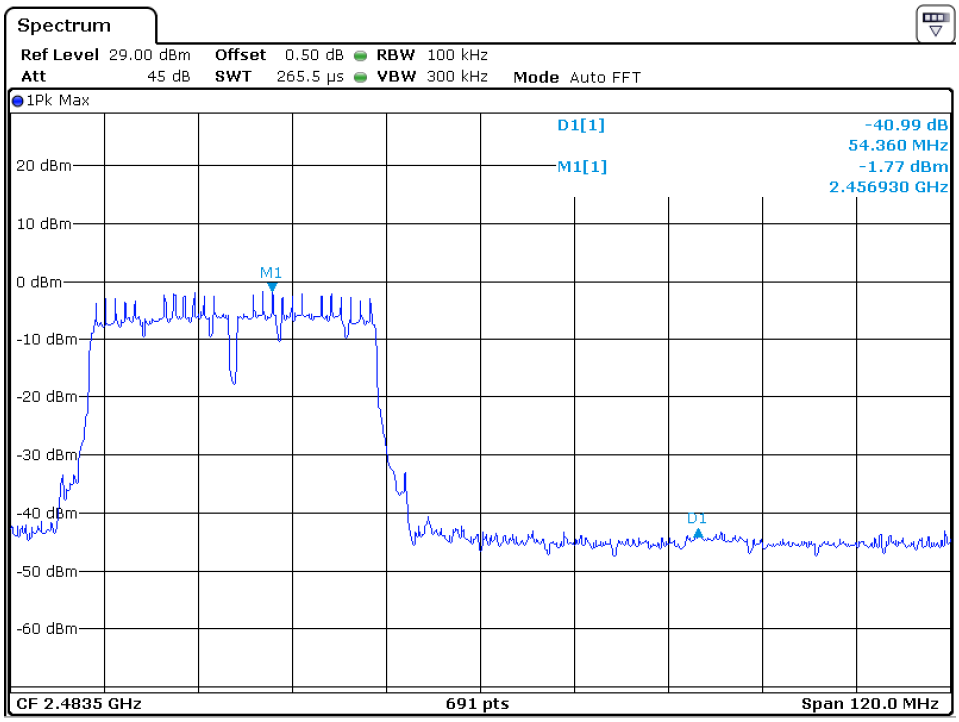

Date: 27.DEC.2018 15:53:09




Date: 27.DEC.2018 15:54:09




Date: 27.DEC.2018 15:54:33




Date: 27.DEC.2018 15:56:01

4.5 Out of Band Radiated Emissions (for emissions in 4.4 above that are less than 20dB below carrier), FCC Rule 15.247(d):

For out of band emissions that are close to or that exceed the 20dB attenuation requirement described in the specification, radiated measurements were performed at a 3m separation distance to determine whether these emissions complied with the general radiated emission requirement.

[×] Not required, since all emissions are more than 20dB below fundamental
[ ] See attached data sheet

## 4.6 Transmitter Radiated Emissions in Restricted Bands, FCC Rule 15.35(b) (c):

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included. All measurements were performed with peak detection unless otherwise specified.

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

## 4.7 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

FS = RA + AF + CF - AG + PD

Where FS = Field Strength in dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB
PD = Pulse Desensitization in dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

FS = RA + AF + CF - AG + PD

<u>Example</u>
Assume a receiver reading of 62.0 dBμV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB. The net field strength for comparison to the appropriate emission limit is 42 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

RA = 62.0 dBμV
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
PD = 0 dB
FS = 62 + 7.4 + 1.6 - 29 + 0 = 42 dBμV/m

Level in mV/m = Common Antilogarithm [(42 dBμV/m)/20] = 125.9 μV/m

Applicant: YIBIN WEIHENG DIGITAL COMPANY LIMITED
Date of Test: 27 December, 2018 Model: I101

## 4.8 Radiated Spurious Emission

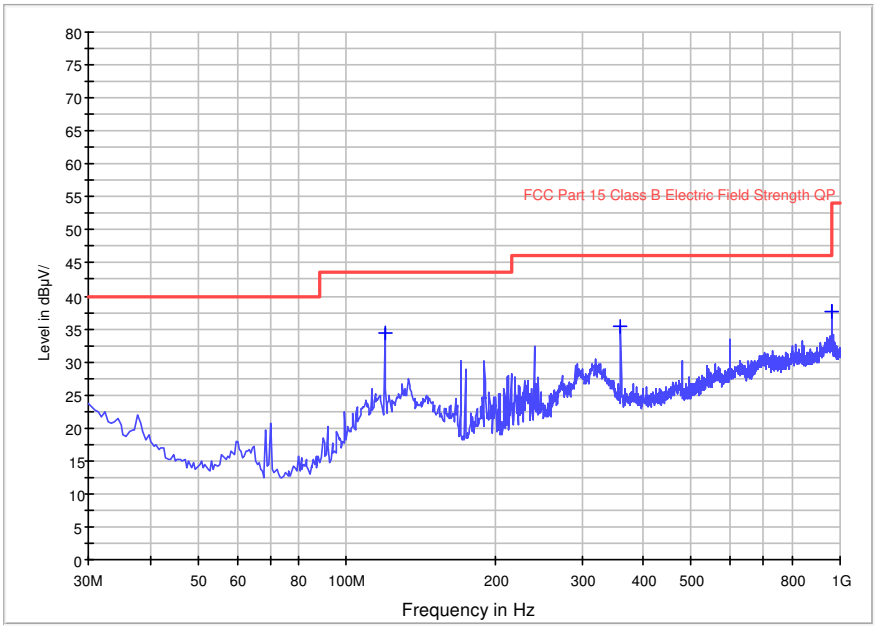
Worst Case Radiated Spurious Emission (802.11b-Channel 01)
at 2390.0MHz
is passed by 4.3dB margin.

For the electronic filing, the worst case radiated emission configuration photographs are saved with filename: radiated photos.pdf.

Applicant: YIBIN WEIHENG DIGITAL COMPANY LIMITED
Date of Test: December 25, 2018
Worst case Model: I101
Worst Case Operating Mode: Transmitting (802.11b-Channel 11)

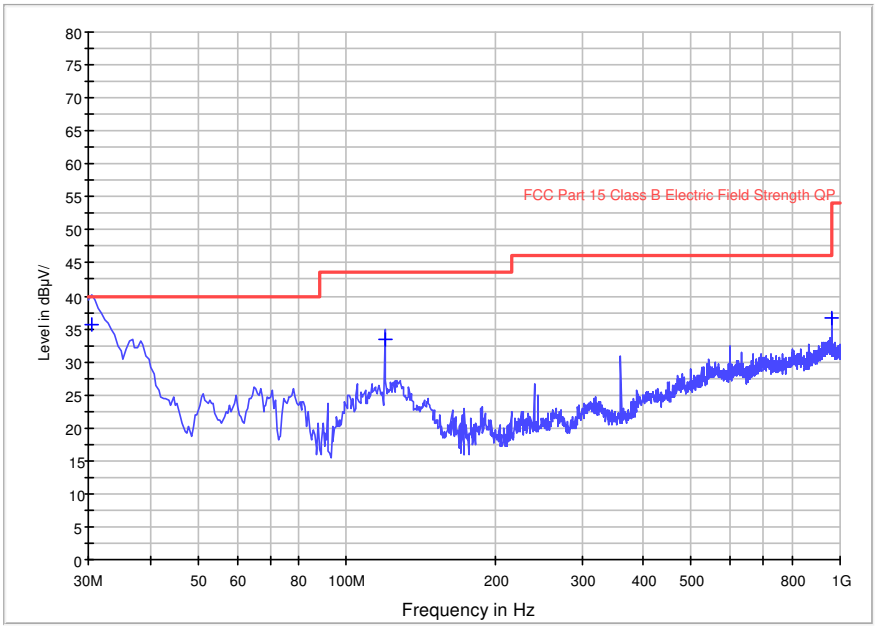
ANT Polarity: Horizontal

FCC Part 15




ANT Polarity: Vertical

FCC Part 15



Applicant: YIBIN WEIHENG DIGITAL COMPANY LIMITED
Date of Test: 27 December, 2018 Model: I101

Worst Case Operating Mode: Transmitting (802.11b-Channel 11)

## Radiated Emissions

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | 120.000000 | 41.1 | 20.0 | 13.3 | 34.4 | 43.5 | -9.1 |
| Horizontal | 359.800000 | 39.7 | 20.0 | 15.7 | 35.4 | 46.0 | -10.6 |
| Horizontal | 960.230000 | 38.2 | 20.0 | 19.3 | 37.5 | 54.0 | -16.5 |
| Vertical | 30.500000 | 42.1 | 20.0 | 13.5 | 35.6 | 40.0 | -4.4 |
| Vertical | 119.725000 | 37.6 | 20.0 | 15.8 | 33.4 | 43.5 | -10.1 |
| Vertical | 960.230000 | 36.3 | 20.0 | 20.3 | 36.6 | 54.0 | -17.4 |

NOTES:
1. Quasi-Peak detector is used for frequency below 1GHz.
2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.

Applicant: YIBIN WEIHENG DIGITAL COMPANY LIMITED
Date of Test: 27 December, 2018 Model: I101

Worst Case Operating Mode: Transmitting (802.11b-Channel 01)

## Radiated Emissions

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *4824.000 | 51.5 | 36.8 | 33.5 | 48.2 | 74.0 | -25.8 |
| Horizontal | *2390.000 | 62.5 | 36.4 | 29.1 | 55.2 | 74.0 | -18.8 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *4824.000 | 43.8 | 36.8 | 33.5 | 40.5 | 54.0 | -13.5 |
| Horizontal | *2390.000 | 57.0 | 36.4 | 29.1 | 49.7 | 54.0 | -4.3 |

NOTES:
1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz/VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Applicant: YIBIN WEIHENG DIGITAL COMPANY LIMITED
Date of Test: 27 December, 2018 Model: I101

Worst Case Operating Mode: Transmitting (802.11b-Channel 06)

## Radiated Emissions

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *4874.000 | 50.5 | 36.7 | 33.4 | 47.2 | 74.0 | -26.8 |
| Horizontal | *7311.000 | 53.8 | 36.6 | 35.8 | 53.0 | 74.0 | -21.0 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *4874.000 | 40.2 | 36.7 | 33.4 | 36.9 | 54.0 | -17.1 |
| Horizontal | *7311.000 | 43.4 | 36.6 | 35.8 | 42.6 | 54.0 | -11.4 |

NOTES:
1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz / VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Applicant: YIBIN WEIHENG DIGITAL COMPANY LIMITED
Date of Test: 27 December, 2018 Model: I101

Worst Case Operating Mode: Transmitting (802.11b-Channel 11)

## Radiated Emissions

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *4924.000 | 49.3 | 36.8 | 33.3 | 45.8 | 74.0 | -28.2 |
| Horizontal | *2484.50 | 59.4 | 36.5 | 29.3 | 52.2 | 74.0 | -21.8 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *4924.000 | 39.3 | 36.8 | 33.3 | 35.8 | 54.0 | -18.2 |
| Horizontal | *2484.50 | 49.4 | 36.5 | 29.3 | 42.2 | 54.0 | -11.8 |

NOTES:
1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz / VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Applicant: YIBIN WEIHENG DIGITAL COMPANY LIMITED
Date of Test: 27 December, 2018 Model: I101

Worst Case Operating Mode: Transmitting (802.11g-Channel 01)

## Radiated Emissions

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *4824.000 | 48.8 | 36.8 | 33.5 | 45.5 | 74.0 | -28.5 |
| Horizontal | *2390.000 | 58.4 | 36.4 | 29.1 | 51.1 | 74.0 | -22.9 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *4824.000 | 38.9 | 36.8 | 33.5 | 35.6 | 54.0 | -18.4 |
| Horizontal | *2390.000 | 49.5 | 36.4 | 29.1 | 42.2 | 54.0 | -11.8 |

NOTES:
1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz/VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Applicant: YIBIN WEIHENG DIGITAL COMPANY LIMITED
Date of Test: 27 December, 2018 Model: I101

Worst Case Operating Mode: Transmitting (802.11g-Channel 06)

## Radiated Emissions

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *4874.000 | 50.5 | 36.7 | 33.4 | 47.2 | 74.0 | -26.8 |
| Horizontal | *7311.000 | 53.8 | 36.6 | 35.8 | 53.0 | 74.0 | -21.0 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *4874.000 | 40.2 | 36.7 | 33.4 | 36.9 | 54.0 | -17.1 |
| Horizontal | *7311.000 | 43.4 | 36.6 | 35.8 | 42.6 | 54.0 | -11.4 |

NOTES:
1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz / VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Applicant: YIBIN WEIHENG DIGITAL COMPANY LIMITED
Date of Test: 27 December, 2018 Model: I101

Worst Case Operating Mode: Transmitting (802.11g-Channel 11)

## Radiated Emissions

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *4924.000 | 51.1 | 36.8 | 33.3 | 47.6 | 74.0 | -26.4 |
| Horizontal | *2484.50 | 60.4 | 36.5 | 29.3 | 53.2 | 74.0 | -20.8 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *4924.000 | 39.6 | 36.8 | 33.3 | 36.1 | 54.0 | -17.9 |
| Horizontal | *2484.50 | 49.2 | 36.5 | 29.3 | 42.0 | 54.0 | -12.0 |

NOTES:
1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz / VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Applicant: YIBIN WEIHENG DIGITAL COMPANY LIMITED
Date of Test: 27 December, 2018 Model: I101

Worst Case Operating Mode: Transmitting (802.11n20-Channel 01)

## Radiated Emissions

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *4824.000 | 48.8 | 36.8 | 33.5 | 45.5 | 74.0 | -28.5 |
| Horizontal | *2390.000 | 58.4 | 36.4 | 29.1 | 51.1 | 74.0 | -22.9 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *4824.000 | 38.9 | 36.8 | 33.5 | 35.6 | 54.0 | -18.4 |
| Horizontal | *2390.000 | 49.5 | 36.4 | 29.1 | 42.2 | 54.0 | -11.8 |

NOTES:
1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz/VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Applicant: YIBIN WEIHENG DIGITAL COMPANY LIMITED
Date of Test: 27 December, 2018 Model: I101

Worst Case Operating Mode: Transmitting (802.11n20-Channel 06)

## Radiated Emissions

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *4874.000 | 50.5 | 36.7 | 33.4 | 47.2 | 74.0 | -26.8 |
| Horizontal | *7311.000 | 53.9 | 36.6 | 35.8 | 53.1 | 74.0 | -20.9 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *4874.000 | 40.2 | 36.7 | 33.4 | 36.9 | 54.0 | -17.1 |
| Horizontal | *7311.000 | 43.4 | 36.6 | 35.8 | 42.6 | 54.0 | -11.4 |

NOTES:
1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz / VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Applicant: YIBIN WEIHENG DIGITAL COMPANY LIMITED
Date of Test: 27 December, 2018 Model: I101

Worst Case Operating Mode: Transmitting (802.11n20-Channel 11)

## Radiated Emissions

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *4924.000 | 49.3 | 36.8 | 33.3 | 45.8 | 74.0 | -28.2 |
| Horizontal | *2484.50 | 59.4 | 36.5 | 29.3 | 52.2 | 74.0 | -21.8 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *4924.000 | 39.3 | 36.8 | 33.3 | 35.8 | 54.0 | -18.2 |
| Horizontal | *2484.50 | 49.4 | 36.5 | 29.3 | 42.2 | 54.0 | -11.8 |

NOTES:
1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz / VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Applicant: YIBIN WEIHENG DIGITAL COMPANY LIMITED
Date of Test: 27 December, 2018 Model: I101

Worst Case Operating Mode: Transmitting (802.11n40-Channel 03)

## Radiated Emissions

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *4844.000 | 50.5 | 36.8 | 33.5 | 47.2 | 74.0 | -26.8 |
| Horizontal | *2390.000 | 59.7 | 36.4 | 29.1 | 52.4 | 74.0 | -21.6 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *4844.000 | 39.7 | 36.8 | 33.5 | 36.4 | 54.0 | -17.6 |
| Horizontal | *2390.000 | 49.5 | 36.4 | 29.1 | 42.2 | 54.0 | -11.8 |

NOTES:

1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz/VBW=10Hz for average value.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Applicant: YIBIN WEIHENG DIGITAL COMPANY LIMITED
Date of Test: 27 December, 2018 Model: I101

Worst Case Operating Mode: Transmitting (802.11n40-Channel 06)

## Radiated Emissions

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *4874.000 | 49.5 | 36.7 | 33.4 | 46.2 | 74.0 | -27.8 |
| Horizontal | *7311.000 | 51.9 | 36.6 | 35.8 | 51.1 | 74.0 | -22.9 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *4874.000 | 40.8 | 36.7 | 33.4 | 37.5 | 54.0 | -16.5 |
| Horizontal | *7311.000 | 41.9 | 36.6 | 35.8 | 41.1 | 54.0 | -12.9 |

NOTES:
1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz / VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Applicant: YIBIN WEIHENG DIGITAL COMPANY LIMITED
Date of Test: 27 December, 2018 Model: I101

Worst Case Operating Mode: Transmitting (802.11n40-Channel 09)

## Radiated Emissions

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Peak Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *4904.000 | 45.8 | 36.8 | 33.3 | 42.3 | 74.0 | -31.7 |
| Horizontal | *2484.50 | 57.0 | 36.5 | 29.3 | 49.8 | 74.0 | -24.2 |

| Polarization | Frequency (MHz) | Reading (dBµV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m (dBµV/m) | Average Limit at 3m (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| Horizontal | *4904.000 | 37.8 | 36.8 | 33.3 | 34.3 | 54.0 | -19.7 |
| Horizontal | *2484.50 | 47.1 | 36.5 | 29.3 | 39.9 | 54.0 | -14.1 |

NOTES:
1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz / VBW=10Hz for average value.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Applicant: YIBIN WEIHENG DIGITAL COMPANY LIMITED
Date of Test: 27 December, 2018
Model: I101

## 4.9 Conducted Emission at Mains Terminal

For electronic filing, the worst case conducted emission configuration photograph is saved with filename: conducted photos.pdf.

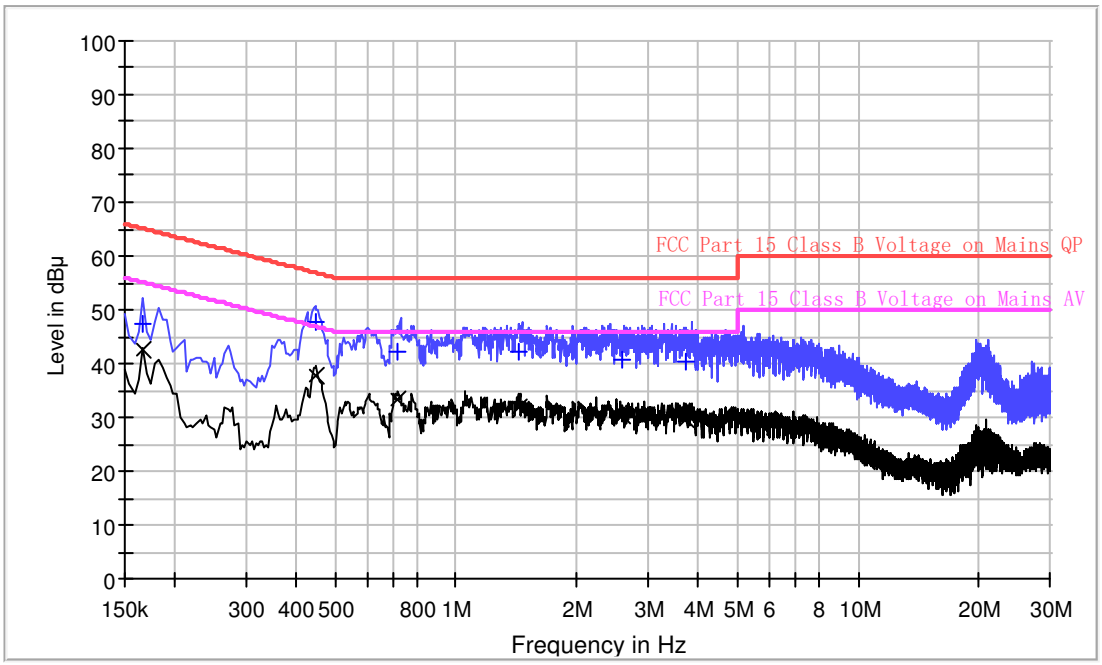
Worst Case Conducted Configuration

at 0.446 MHz

Judgement: Passed by 9.2 dB margin

Applicant: YIBIN WEIHENG DIGITAL COMPANY LIMITED
Model: I101
Worst Case Operating Mode: Charging+WIFI Link
Phase: Live

## Conducted Emission Test - FCC




## Result Table QP

| Frequency (MHz) | QuasiPeak (dB¦ÌV) | Bandwidth (kHz) | Line | Corr. (dB) | Margin (dB) | Limit (dB¦ÌV) |
|---|---|---|---|---|---|---|
| 0.166000 | 47.6 | 9.000 | L1 | 9.6 | 17.6 | 65.2 |
| 0.446000 | 47.6 | 9.000 | L1 | 9.6 | 9.3 | 56.9 |
| 0.718000 | 42.3 | 9.000 | L1 | 9.7 | 13.7 | 56.0 |
| 1.426000 | 42.2 | 9.000 | L1 | 9.7 | 13.8 | 56.0 |
| 2.582000 | 40.7 | 9.000 | L1 | 9.7 | 15.3 | 56.0 |
| 3.710000 | 40.2 | 9.000 | L1 | 9.7 | 15.8 | 56.0 |

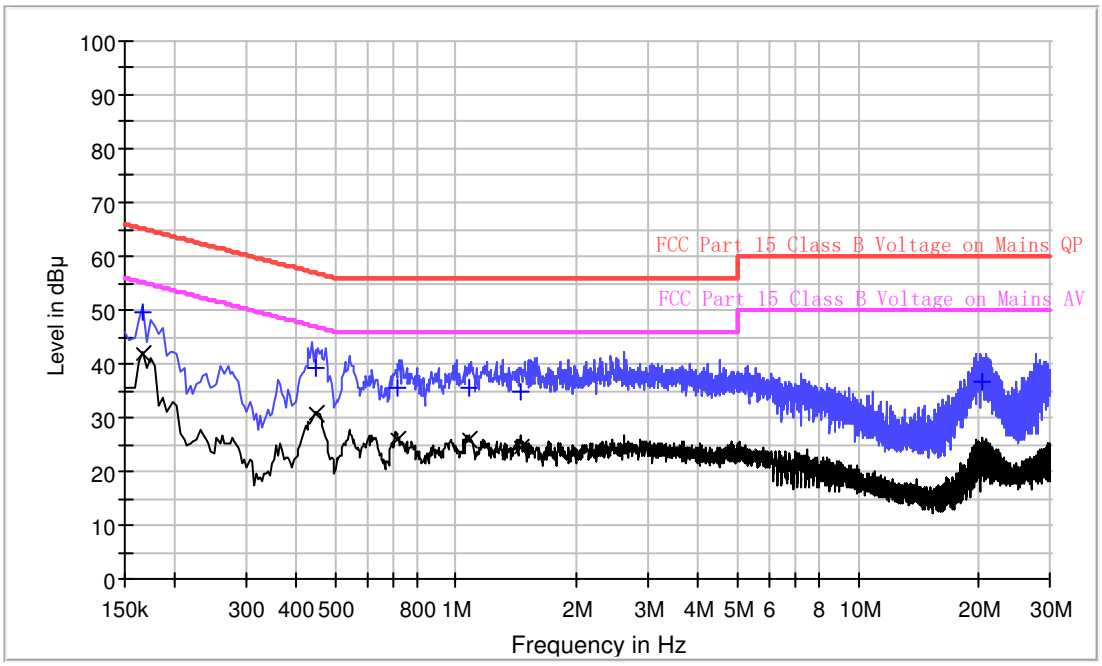
## Result Table AV

| Frequency (MHz) | Average (dB¦ÌV) | Bandwidth (kHz) | Line | Corr. (dB) | Margin (dB) | Limit (dB¦ÌV) |
|---|---|---|---|---|---|---|
| 0.166000 | 42.7 | 9.000 | L1 | 9.6 | 12.5 | 55.2 |
| 0.446000 | 37.7 | 9.000 | L1 | 9.6 | 9.2 | 46.9 |
| 0.718000 | 33.3 | 9.000 | L1 | 9.7 | 12.7 | 46.0 |
| 1.426000 | 31.8 | 9.000 | L1 | 9.7 | 14.2 | 46.0 |
| 2.582000 | 30.3 | 9.000 | L1 | 9.7 | 15.7 | 46.0 |
| 3.710000 | 29.7 | 9.000 | L1 | 9.7 | 16.3 | 46.0 |

Remark:
1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = Limit (dBuV) – Level (dBuV)

Applicant: YIBIN WEIHENG DIGITAL COMPANY LIMITED
Model: I101
Worst Case Operating Mode: Charging+WIFI Link
Phase: Neutral

## Conducted Emission Test - FCC




## Result Table QP

| Frequency (MHz) | QuasiPeak (dB¦ÌV) | Bandwidth (kHz) | Line | Corr. (dB) | Margin (dB) | Limit (dB¦ÌV) |
|---|---|---|---|---|---|---|
| 0.166000 | 49.7 | 9.000 | N | 9.6 | 15.5 | 65.2 |
| 0.450000 | 39.3 | 9.000 | N | 9.6 | 17.6 | 56.9 |
| 0.714000 | 35.7 | 9.000 | N | 9.7 | 20.3 | 56.0 |
| 1.074000 | 35.7 | 9.000 | N | 9.7 | 20.3 | 56.0 |
| 1.450000 | 35.0 | 9.000 | N | 9.7 | 21.0 | 56.0 |
| 20.426000 | 36.8 | 9.000 | N | 10.2 | 23.2 | 60.0 |

## Result Table AV

| Frequency (MHz) | Average (dB¦ÌV) | Bandwidth (kHz) | Line | Corr. (dB) | Margin (dB) | Limit (dB¦ÌV) |
|---|---|---|---|---|---|---|
| 0.166000 | 42.0 | 9.000 | N | 9.6 | 13.2 | 55.2 |
| 0.450000 | 30.7 | 9.000 | N | 9.6 | 16.2 | 46.9 |
| 0.714000 | 26.0 | 9.000 | N | 9.7 | 20.0 | 46.0 |
| 1.074000 | 25.9 | 9.000 | N | 9.7 | 20.1 | 46.0 |
| 1.450000 | 24.3 | 9.000 | N | 9.7 | 21.7 | 46.0 |
| 20.426000 | 23.9 | 9.000 | N | 10.2 | 26.1 | 50.0 |

Remark:
1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = Limit (dBuV) – Level (dBuV)

Applicant: YIBIN WEIHENG DIGITAL COMPANY LIMITED
Date of Test: 27 December, 2018
Model: I101

4.10 Radiated Emissions from Digital Section of Transceiver, FCC Ref: 15.109

[ ] Not required - No digital part

[ ] Test results are attached

[ x ] Included in the separated report.

Applicant: YIBIN WEIHENG DIGITAL COMPANY LIMITED
Date of Test: 27 December, 2018
Model: I101

## 4.11 Transmitter Duty Cycle Calculation and Measurements, FCC Rule 15.35(b), (c)

The EUT antenna output port was connected to the input of the spectrum analyzer. The analyzer center frequency was set to EUT RF channel carrier. The SWEP function on the analyzer was set to ZERO SPAN. The Transmitter ON time was determined from the resultant time-amplitude display:

| | |
|---|---|
| | See attached spectrum analyzer chart (s) for Transmitter timing |
| | See Transmitter timing diagram provided by manufacturer |
| x | Not applicable, duty cycle was not used. |

# EXHIBIT 5

# EQUIPMENT PHOTOGRAPHS

## 5.0 Equipment Photographs

For electronic filing, the photographs are saved with filename: external photos.pdf & internal photos.pdf.

# EXHIBIT 6

# PRODUCT LABELLING

## 6.0 Product Labeling

For electronic filing, the FCC ID label artwork and location is saved with filename: label.pdf.

# EXHIBIT 7

# TECHNICAL SPECIFICATIONS

## 7.0 Technical Specifications

For electronic filing, the block diagram and circuit diagram are saved with filename: block.pdf and circuit.pdf respectively.

# EXHIBIT 8

# INSTRUCTION MANUAL

## 8.0 Instruction Manual

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States.

# EXHIBIT 9

# CONFIDENTIALITY REQUEST

## 9.0 Confidentiality Request

For electronic filing, the confidentiality request of the tested EUT is saved with filename: request.pdf.

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# EXHIBIT 10

# MISCELLANEOUS INFORMATION

## 10.0 Discussion of Pulse Desensitization

The determination of pulse desensitivity was made in accordance with Hewlett Packard Application Note 150-2, *Spectrum Analysis ... Pulsed RF.*

Pulse desensitivity is not applicable for this device since the transmitter transmits the RF signal continuously.

# EXHIBIT 11

# TEST EQUIPMENT LIST

## 11.0 Test Equipment List

| Equipment No. | Equipment | Manufacturer | Model No. | Serial No. | Cal. Date | Due Date |
|---|---|---|---|---|---|---|
| SZ182-02 | RF Power Meter | Anritsu | ML2496A | 1302005 | 5-Jun-2018 | 5-Jun-2019 |
| SZ182-02-01 | Power Sensor | Anritsu | MA2411B | 1207429 | 5-Jun-2018 | 5-Jun-2019 |
| SZ061-12 | BiConiLog Antenna | ETS | 3142E | 00166158 | 14-Sep-2018 | 14-Sep-2019 |
| SZ185-01 | EMI Receiver | R&S | ESCI | 100547 | 24-Jan-2018 | 24-Jan-2019 |
| SZ061-08 | Horn Antenna | ETS | 3115 | 00092346 | 14-Sep-2018 | 14-Sep-2019 |
| SZ061-07 | Pyramidal Horn Antenna | ETS | 3160-09 | 00083067 | 17-Mar-2018 | 17-Mar-2019 |
| SZ061-06 | Active Loop Antenna | Electro-Metrics | EM-6876 | 217 | 11-May-2018 | 11-May-2019 |
| SZ056-03 | Spectrum Analyzer | R&S | FSP 30 | 101148 | 05-Jun-2018 | 05-Jun-2019 |
| SZ056-06 | Signal Analyzer | R&S | FSV 40 | 101101 | 05-Jun-2018 | 05-Jun-2019 |
| SZ181-04 | Preamplifier | Agilent | 8449B | 3008A02474 | 24-Jan-2018 | 24-Jan-2019 |
| SZ188-01 | Anechoic Chamber | ETS | RFD-F/A-100 | 4102 | 16-Jan-2017 | 16-Jan-2019 |
| SZ062-02 | RF Cable | RADIALL | RG 213U | -- | 02-Jun-2018 | 02-Jun-2019 |
| SZ062-05 | RF Cable | RADIALL | 0.04-26.5GHz | -- | 02-Jun-2018 | 02-Jun-2019 |
| SZ062-12 | RF Cable | RADIALL | 0.04-26.5GHz | -- | 02-Jun-2018 | 02-Jun-2019 |
| SZ067-04 | Notch Filter | Micro-Tronics | BRM50702-02 | -- | 05-Jun-2018 | 05-Jun-2019 |
| SZ185-02 | EMI Test Receiver | R&S | ESCI | 100692 | 26-Oct-2018 | 26-Oct-2019 |
| SZ187-01 | Two-Line V-Network | R&S | ENV216 | 100072 | 26-Oct-2018 | 26-Oct-2019 |
| SZ187-02 | Two-Line V-Network | R&S | ENV216 | 100073 | 04-Jul-2018 | 04-Jul-2019 |
| SZ188-03 | Shielding Room | ETS | RFD-100 | 4100 | 16-Jan-2017 | 16-Jan-2019 |

********** End of Report**********