



**DATE: 15 March 2020**

# **I.T.L. (PRODUCT TESTING) LTD. FCC/IC Radio Test Report**

**for**

**AeroScout Ltd.**

**Equipment under test:**

**T12s Asset Tag**

**T12s**

Tested by:

M. Zohar

Approved by:

D. Shidlowsky

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This report relates only to items tested.



## Measurement/Technical Report for AeroScout Ltd.

T12s Asset Tag

T12s

**FCC ID: Q3HTAG1200S**

**IC: 5115A-TAG1200S**

|                                                                                                                                                                           |                                                                                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| This report concerns:                                                                                                                                                     | Original Grant: X<br>Class I Change:<br>Class II Change:                                                                                                                                                                                              |
| Equipment type:                                                                                                                                                           | FCC: (DTS) Digital Transmission System<br>IC: Spread Spectrum Digital Device (2400-2483.5)                                                                                                                                                            |
| Limits used:                                                                                                                                                              | 47CFR15 Section 15.247<br>RSS 247, Issue 2, February 2017, Section 5<br>RSS-Gen, Issue 5, April 2018                                                                                                                                                  |
| Measurement procedure used is KDB 558074 D01 v05r02, ANSI C63.10:2013 and RSS Gen, Issue 5: 2018                                                                          |                                                                                                                                                                                                                                                       |
| Application for Certification prepared by:<br>R. Pinchuck<br>ITL (Product Testing) Ltd.<br>1 Bat Sheva Street<br>Lod, 7120101<br>Israel<br>e-mail Rpinchuck@itlglobal.org | Applicant for this device:<br>(different from "prepared by")<br>Reuven Amsallem<br>AeroScout<br>2 Ilan Ramon St., Science Park<br>Ness-Ziona, 7403635, Israel<br>Tel: +972-8-936-9393<br>Fax: +972-8-936-5977<br>e-mail: reuven.amsalem@aeroscout.com |



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# 1. General Information

## 1.1 Administrative Information

|                                |                                                                                                                    |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Manufacturer:                  | AeroScout Ltd.                                                                                                     |
| Manufacturer's Address:        | 2 Ilan Ramon St.,<br>Science Park<br>Ness-Ziona, 7403635<br>Israel<br>Tel: +972-8-936-9393<br>Fax: +972-8-936-5977 |
| Manufacturer's Representative: | Nir Sade                                                                                                           |
| Equipment Under Test (E.U.T):  | T12s Asset Tag                                                                                                     |
| Equipment PMN:                 | T12s                                                                                                               |
| Equipment Serial No.:          | 2                                                                                                                  |
| Equipment HVIN:                | T12s                                                                                                               |
| Date of Receipt of E.U.T:      | December 29, 2019                                                                                                  |
| Start of Test:                 | December 29, 2019                                                                                                  |
| End of Test:                   | January 07, 2020                                                                                                   |
| Test Laboratory Location:      | I.T.L (Product Testing) Ltd.<br>1 Batsheva St.,<br>Lod<br>ISRAEL 7120101                                           |
| Test Specifications:           | FCC Part 15, Subpart C<br>RSS 247, Issue 2, February 2017, Section 5<br>RSS-Gen, Issue 5, April 2018               |



## **1.2 List of Accreditations**

The EMC laboratory of I.T.L. is accredited by the following bodies:

1. The American Association for Laboratory Accreditation (A2LA) (U.S.A.), Certificate No. 1152.01.
2. The Federal Communications Commission (FCC) (U.S.A.), FCC Designation No. IL1005.
3. The Israel Ministry of the Environment (Israel), Registration No. 1104/01.
4. Department of Innovation, Science and Economic Development (ISED) Canada, CAB identifier: IL1002

I.T.L. Product Testing Ltd. is accredited by the American Association for Laboratory Accreditation (A2LA) and the results shown in this test report have been determined in accordance with I.T.L.'s terms of accreditation unless stated otherwise in the report.

### 1.3 Product Description

The Stanley Healthcare T12s Bidirectional Tag is a component of the enterprise level visibility solution based on standard Wi-Fi communication for location-based applications.

Once deployed, the tag uses its bidirectional functionality to receive firmware and configuration updates from Mobile View. This removes the need to manually collect, update and re-deploy tags in the field.

The T12s can be used for egress point detection, call-button and alerting.

The T12s Tag received and processed via standard Wi-Fi access points, keeping infrastructure costs low and installation simple. As with all tags, location is determined through a unique beaconing method that keeps network impact low, and ensures scalability and long battery life.

T12s components: 3 boards:

MCU+RF(WiFi)

LF receiver 125KHz

URM (ultrasonic receiver)

|                           |                                                                                                                      |
|---------------------------|----------------------------------------------------------------------------------------------------------------------|
| Working voltage           | 3.0VDC battery operated                                                                                              |
| Mode of operation         | Transceiver                                                                                                          |
| Modulations               | For Wi-Fi/b: DSSS,CCK<br>For Wi-Fi/g: OFDM(BPSK,QPSK,16QAM ,64QAM)<br>For Wi-Fi/n: OFDM(BPSK,QPSK,16QAM ,64QAM)      |
| Assigned Frequency Range  | 2400.0-2483.5MHz                                                                                                     |
| Operating Frequency Range | 2412.0-2462.0MHz                                                                                                     |
| Transmit power(conducted) | ~18.0dBm                                                                                                             |
| Antenna Gain              | -2.0 dBi PCB antenna                                                                                                 |
| Modulation BW             | 20MHz                                                                                                                |
| Bit rate (Mbit/s)         | For Wi-Fi/b: 1, 2, 5.5, 11<br>For Wi-Fi/g: 6, 9, 12, 18, 24, 36, 48, 54<br>For Wi-Fi/n: 6.5,13,19.5,26,39,52,58.5,65 |

### 1.4 Test Methodology

Both conducted and radiated testing was performed according to the procedures in KDB 558074 D01 v05r02, ANSI C63.10: 2013 and RSS Gen, Issue 5: 2018. Radiated testing was performed at an antenna to EUT distance of 3 meters.

### 1.5 Test Facility

Emissions tests were performed at I.T.L.'s testing facility in Lod, Israel. I.T.L.'s EMC Laboratory is accredited by A2LA, certificate No. 1152.01, its FCC Designation Number is IL1005 and its ISED designation number is IL1002.



## **1.6 Measurement Uncertainty**

### **Conducted Emission**

Conducted Emission (CISPR 11, EN 55011, CISPR 22, EN 55022, ANSI C63.4)

0.15 – 30 MHz:

Expanded Uncertainty (95% Confidence, K=2):

$\pm 3.44$  dB

### **Radiated Emission**

Radiated Emission (CISPR 11, EN 55011, CISPR 22, EN 55022, ANSI C63.4)  
for open site:

30-1000MHz:

Expanded Uncertainty (95% Confidence, K=2):

$\pm 4.96$  dB

1 GHz to 6 GHz

Expanded Uncertainty (95% Confidence, K=2):

$\pm 5.19$  dB

>6 GHz

Expanded Uncertainty (95% Confidence, K=2):

$\pm 5.51$  dB

## 2. System Test Configuration

### 2.1 Justification

The E.U.T contains a transceiver IEEE 802.11b/g/n standard (Wi-Fi/b/g/n) with only 20MHz CBW.

The unit was evaluated while transmitting at the low channel (2412MHz), the mid channel (2437MHz) and the high channel (2462MHz).

Conducted emission tests were performed with the E.U.T. antenna terminal connected by a RF cable to the Spectrum Analyzer through a 20dB external attenuator.

For Conducted set up, measurements were performed with WUT powered via external DC power supply. For radiated set up, measurements were performed with EUT powered by batteries.

Final radiated emission for Wi-Fi b/g/n modes tests were performed using the lowest and highest bit rates for each different protocol type. The bit rates for each protocol are shown in the table below:

| Protocol Type | “Worst Case” Bit Rate     |
|---------------|---------------------------|
| Wi-Fi/b       | 1,11 Mbit/s               |
| Wi-Fi/g       | 6,54 Mbit/s               |
| Wi-Fi/n       | 6.5,65 Mbit/s (MCS0,MCS7) |

Final radiated emission tests was performed after exploratory emission testing that was performed in 3 orthogonal polarities to determine the “worst case” radiation.

The worst case was the Y axis as the below results show.

| Orientation | Frequency | 2 <sup>nd</sup> Harmonic | 3 <sup>rd</sup> Harmonic | Band Edge |
|-------------|-----------|--------------------------|--------------------------|-----------|
|             | (MHz)     | (dBuV/m)                 | (dBuV/m)                 | (dBuV/m)  |
| X axis      | 2412.0    | 50.3                     | 52.5                     | 63.0      |
|             | 2437.0    | 50.5                     | 52.4                     | -         |
|             | 2462.0    | 50.7                     | 52.0                     | 62.7      |
| Y axis      | 2412.0    | 50.4                     | 53.1                     | 63.6      |
|             | 2437.0    | 51.2                     | 52.9                     | -         |
|             | 2462.0    | 50.8                     | 53.4                     | 69.2      |
| Z axis      | 2412.0    | 50.4                     | 52.3                     | 62.1      |
|             | 2437.0    | 50.2                     | 52.3                     | -         |
|             | 2462.0    | 50.6                     | 52.7                     | 56.7      |

Figure 1. Screening Results

### 2.2 EUT Exercise Software

No special exercise software was used.

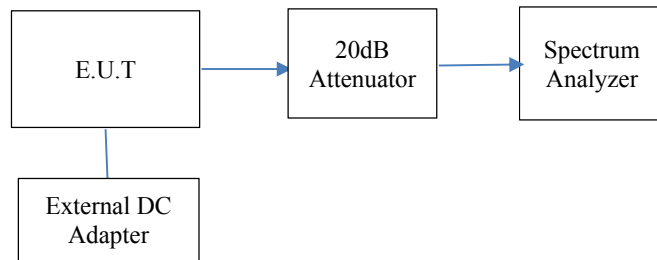
### 2.3 *Special Accessories*

No special exercise software was used.

### 2.4 *Equipment Modifications*

No modifications were necessary in order to achieve compliance.

### 2.5 *Configuration of Tested System*



**Figure 2. Configuration of Tested System Conducted**



**Figure 3. Configuration of Tested System Radiated**

### 3. Conducted & Radiated Measurement Test Set-Up Photos

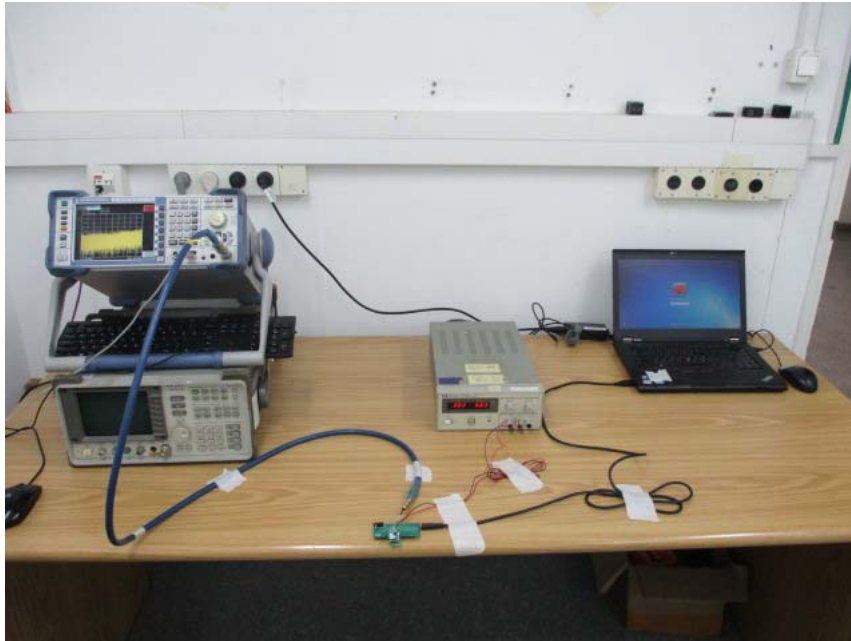


Figure 4. Conducted Test Set-Up



Figure 5. Radiated Emission Test, 0.009-30MHz



**Figure 6. Radiated Emission Test, 30-200MHz**



**Figure 7. Radiated Emission Test, 200-1000MHz**



**Figure 8. Radiated Emission Test, 1-18GHz**

## 4. 6 dB Minimum Bandwidth

### 4.1 Test Specification

FCC Part 15, Subpart C, Section 247(a)(2)

RSS 247, Issue 2, Section 5.2(a)

### 4.2 Test Procedure

(Temperature (20°C)/ Humidity (52%RH))

The E.U.T operation mode and test set-up are as described in Section 2 of this report.

The E.U.T. antenna terminal was connected to the Spectrum Analyzer through an external attenuator and an appropriate coaxial cable (total loss=21.5dB). Special attention was taken to prevent Spectrum Analyzer RF input overload.

The spectrum bandwidth of the E.U.T. at the point of 6 dB below maximum peak power was measured and recorded. The RBW was set to 100 kHz.

### 4.3 Test Limit

Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

#### 4.4 Test Results

| Protocol Type      | Operation Frequency | Reading  | Limit  |
|--------------------|---------------------|----------|--------|
|                    | (MHz)               | (kHz)    | (kHz)  |
| Wi-fi/b(1Mbit/s)   | 2412.0              | 9980.0   | >500.0 |
|                    | 2437.0              | 10060.0  | >500.0 |
|                    | 2462.0              | 10060.0  | >500.0 |
| Wi-fi/b(11Mbit/s)  | 2412.0              | 10140.0  | >500.0 |
|                    | 2437.0              | 9741.0   | >500.0 |
|                    | 2462.0              | 10140.0  | >500.0 |
| Wi-fi/g(6Mbit/s)   | 2412.0              | 15,010.0 | >500.0 |
|                    | 2437.0              | 15,329.0 | >500.0 |
|                    | 2462.0              | 15,090.0 | >500.0 |
| Wi-fi/g(54Mbit/s)  | 2412.0              | 15,888.0 | >500.0 |
|                    | 2437.0              | 16,447.0 | >500.0 |
|                    | 2462.0              | 16,287.0 | >500.0 |
| Wi-fi/n(6.5Mbit/s) | 2412.0              | 15,090.0 | >500.0 |
|                    | 2437.0              | 15,808.0 | >500.0 |
|                    | 2462.0              | 15,090.0 | >500.0 |
| Wi-fi/n(65Mbit/s)  | 2412.0              | 17,645.0 | >500.0 |
|                    | 2437.0              | 17,565.0 | >500.0 |
|                    | 2462.0              | 17,565.0 | >500.0 |

**Figure 9 6 dB Minimum Bandwidth**

JUDGEMENT: Passed

For additional information see *Figure 10* to *Figure 27*.

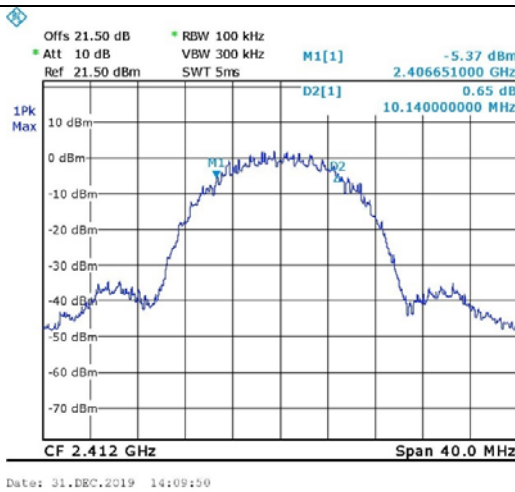


Figure 10. 2412.0 MHz, Wi-fi/b(11Mbit/s)

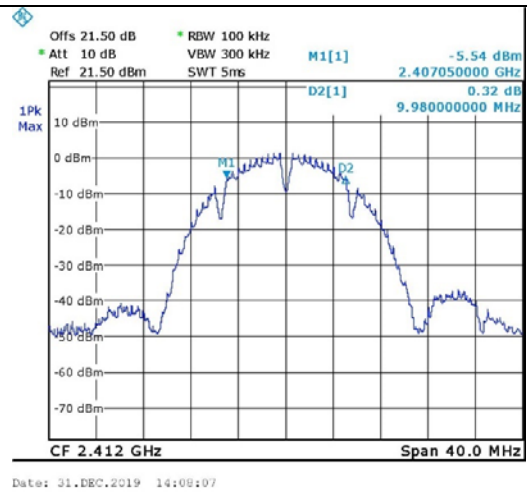


Figure 11. 2412.0 MHz, Wi-fi/b(1Mbit/s)

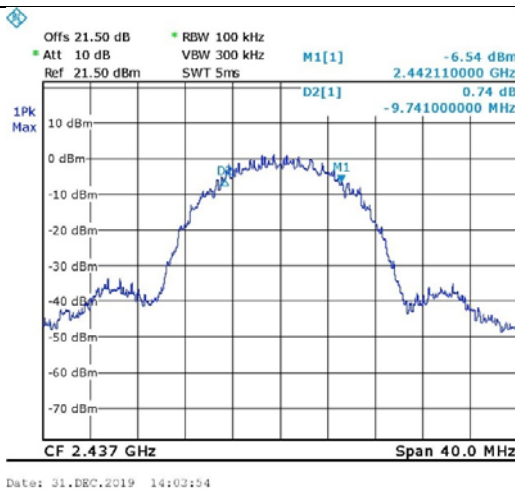


Figure 12. 2437.0 MHz, Wi-fi/b(11Mbit/s)

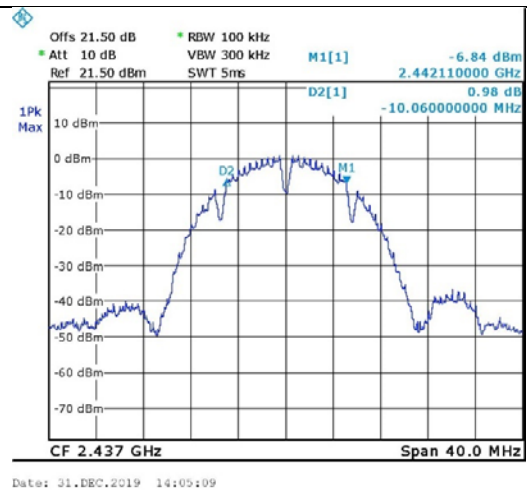


Figure 13. 2437.0 MHz, Wi-fi/b(1Mbit/s)

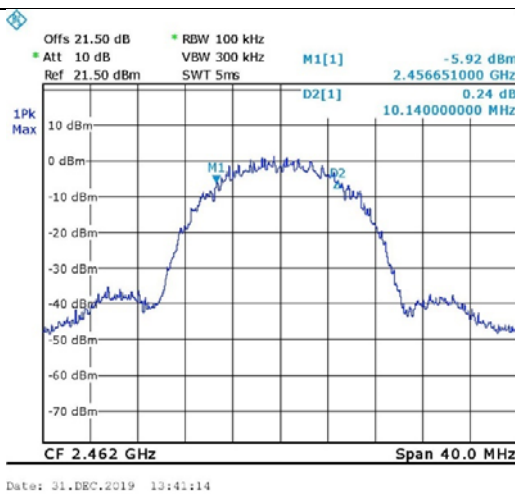


Figure 14. 2462.0 MHz, Wi-fi/b(11Mbit/s)

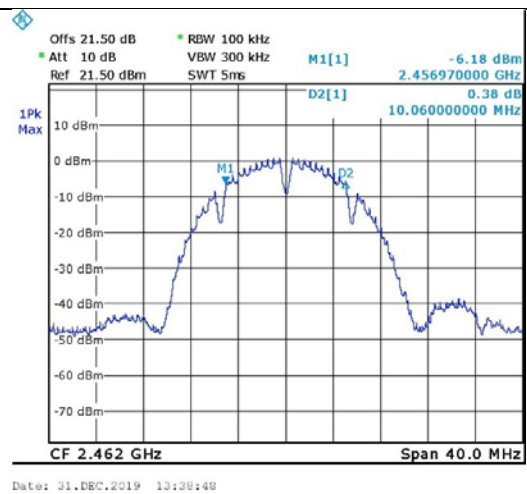


Figure 15. 2462.0 MHz, Wi-fi/b(1Mbit/s)

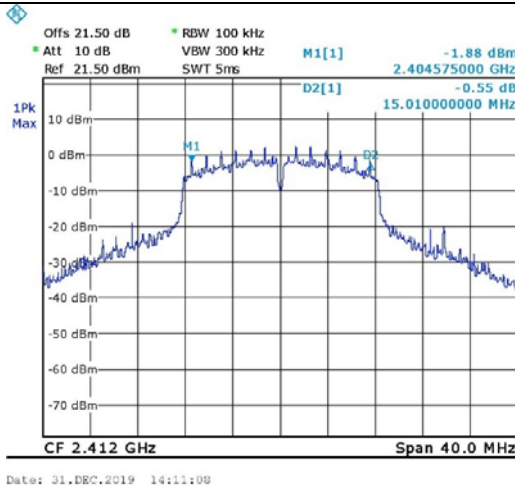


Figure 16. 2412.0 MHz, Wi-fi/g(6Mbit/s)

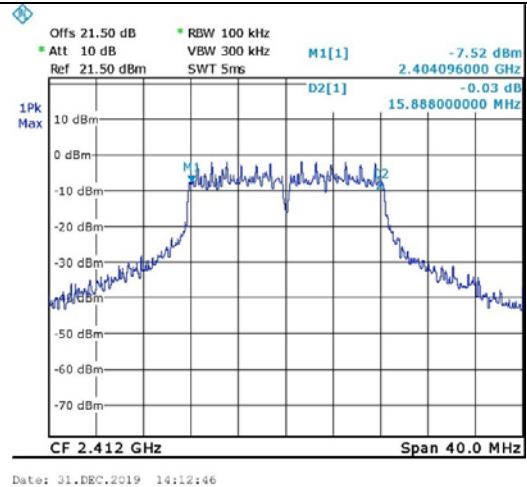


Figure 17. 2412.0 MHz, Wi-fi/g(54Mbit/s)

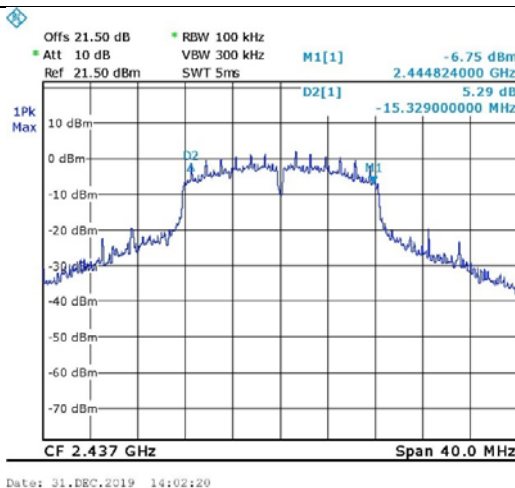


Figure 18. 2437.0 MHz, Wi-fi/g(6Mbit/s)

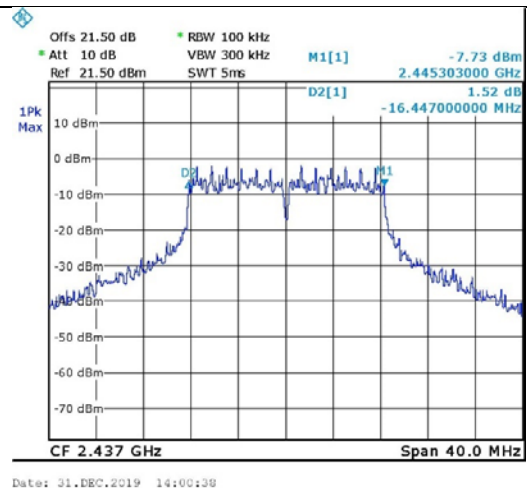


Figure 19. 2437.0 MHz, Wi-fi/g(54Mbit/s)

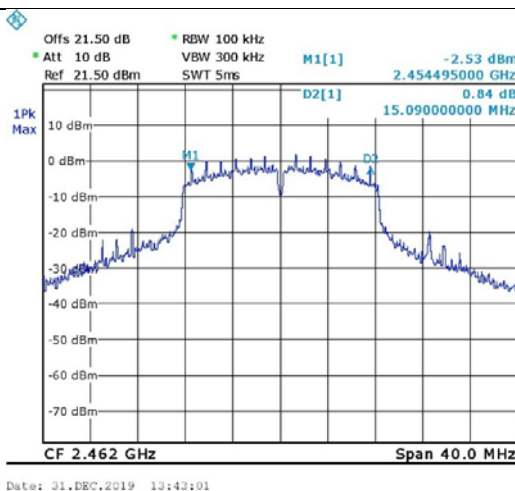


Figure 20. 2462.0 MHz, Wi-fi/g(6Mbit/s)

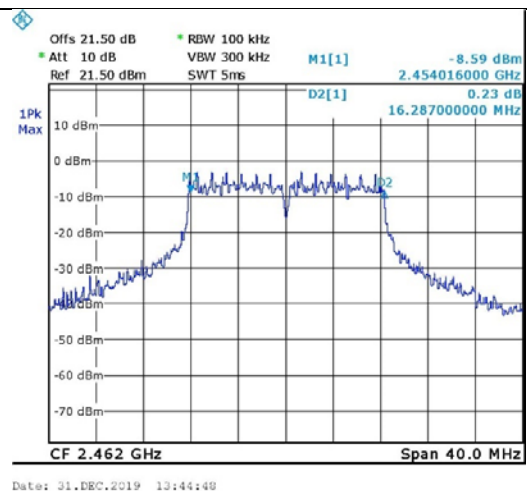


Figure 21. 2462.0 MHz, Wi-fi/g(54Mbit/s)

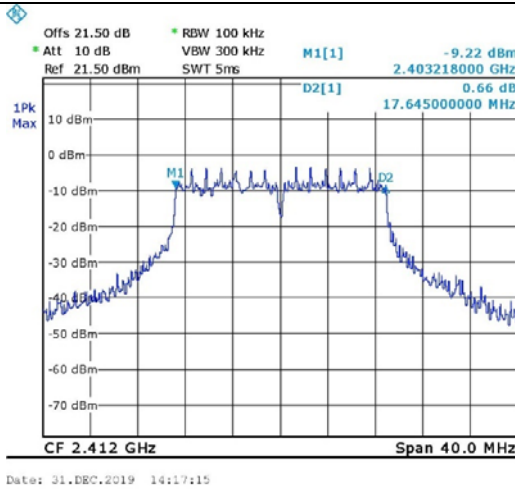


Figure 22. 2412.0 MHz, Wi-fi/n(65Mbit/s)

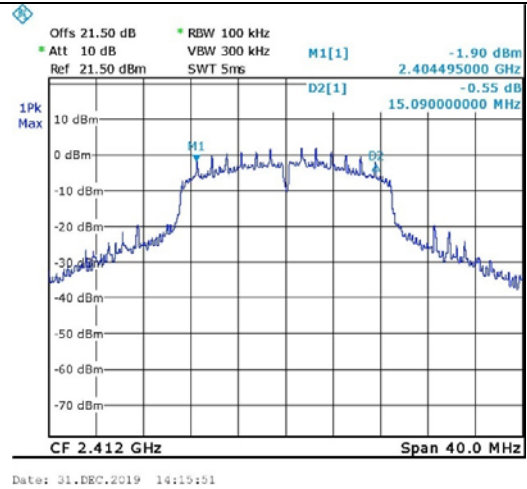


Figure 23. 2412.0 MHz, Wi-fi/n(6.5Mbit/s)

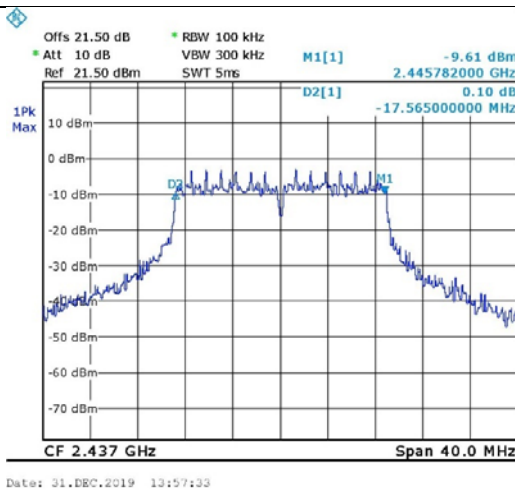


Figure 24. 2437.0 MHz, Wi-fi/n(65Mbit/s)

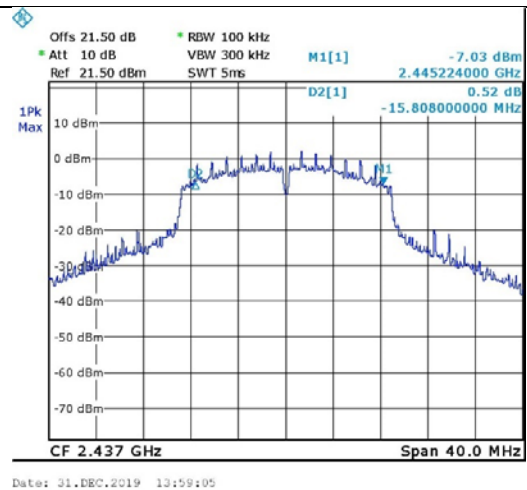


Figure 25. 2437.0 MHz, Wi-fi/n(6.5Mbit/s)

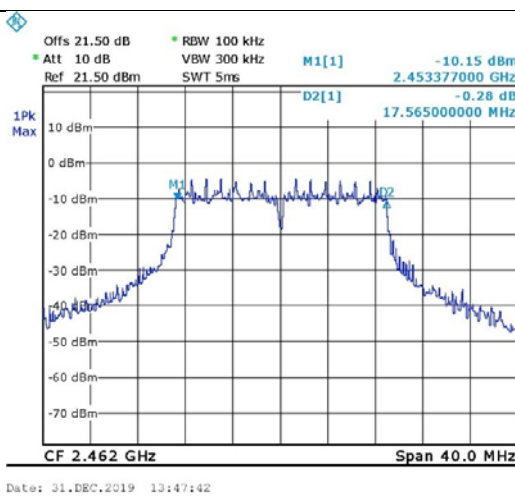


Figure 26. 2462.0 MHz, Wi-fi/n(65Mbit/s)

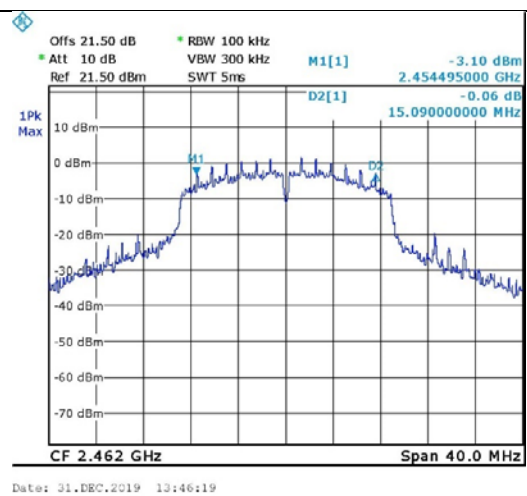


Figure 27. 2462.0 MHz, Wi-fi/n(6.5Mbit/s)



#### 4.5 Test Equipment Used; 6dB Bandwidth

| Instrument        | Manufacturer      | Model              | Serial No. | Last Calibration Date | Next Calibration Due |
|-------------------|-------------------|--------------------|------------|-----------------------|----------------------|
| Spectrum Analyzer | R&S               | FSL6               | 100194     | March 24, 2019        | March 31, 2020       |
| 20dB Attenuator   | Microwave Midwest | ATT-0217-20-NNN-02 | -          | December 24, 2019     | March 31, 2020       |
| RF Cable          | Huber Suner       | Sucofelex          | 27502/4PEA | December 24, 2019     | March 31, 2020       |

Figure 28 Test Equipment Used



## **5. Maximum Conducted Output Power**

### **5.1 Test Specification**

FCC, Part 15, Subpart C, Section 247(b)(3)

RSS 247, Issue 2, Section 5.4(d)

### **5.2 Test Procedure**

(Temperature (20°C)/ Humidity (51%RH))

The E.U.T operation mode and test set-up are as described in Section 2 of this report.

The E.U.T. antenna terminal was connected to the Spectrum Analyzer through an external attenuator and an appropriate coaxial cable (total loss=21.5 dB). Special attention was taken to prevent Spectrum Analyzer RF input overload.

### **5.3 Test Limit**

The maximum peak conducted output power of the intentional radiator for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt.

## 5.4 Test Results

| Protocol Type      | Operation Frequency | Power | Power | Limit  | Margin  |
|--------------------|---------------------|-------|-------|--------|---------|
|                    | (MHz)               | (dBm) | (mW)  | (mW)   | (mW)    |
| Wi-fi/b(1Mbit/s)   | 2412.0              | 14.5  | 28.18 | 1000.0 | -971.82 |
|                    | 2437.0              | 14.0  | 25.12 | 1000.0 | -974.88 |
|                    | 2462.0              | 13.5  | 22.39 | 1000.0 | -977.61 |
| Wi-fi/b(11Mbit/s)  | 2412.0              | 17.6  | 57.54 | 1000.0 | -942.46 |
|                    | 2437.0              | 17.2  | 52.48 | 1000.0 | -947.52 |
|                    | 2462.0              | 17.0  | 50.12 | 1000.0 | -949.88 |
| Wi-fi/g(6Mbit/s)   | 2412.0              | 18.8  | 75.86 | 1000.0 | -924.14 |
|                    | 2437.0              | 18.2  | 66.07 | 1000.0 | -933.93 |
|                    | 2462.0              | 17.6  | 57.54 | 1000.0 | -942.46 |
| Wi-fi/g(54Mbit/s)  | 2412.0              | 15.9  | 38.90 | 1000.0 | -961.10 |
|                    | 2437.0              | 14.9  | 30.90 | 1000.0 | -969.10 |
|                    | 2462.0              | 14.3  | 26.92 | 1000.0 | -973.08 |
| Wi-fi/n(6.5Mbit/s) | 2412.0              | 18.6  | 72.44 | 1000.0 | -927.56 |
|                    | 2437.0              | 18.3  | 67.61 | 1000.0 | -932.39 |
|                    | 2462.0              | 17.9  | 61.66 | 1000.0 | -938.34 |
| Wi-fi/n(65Mbit/s)  | 2412.0              | 14.0  | 25.12 | 1000.0 | -974.88 |
|                    | 2437.0              | 14.0  | 25.12 | 1000.0 | -974.88 |
|                    | 2462.0              | 13.0  | 19.95 | 1000.0 | -980.05 |

**Figure 29 Maximum Peak Power Output**

JUDGEMENT: Passed by 924.14 mW

For additional information see *Figure 30 to Figure 47*.

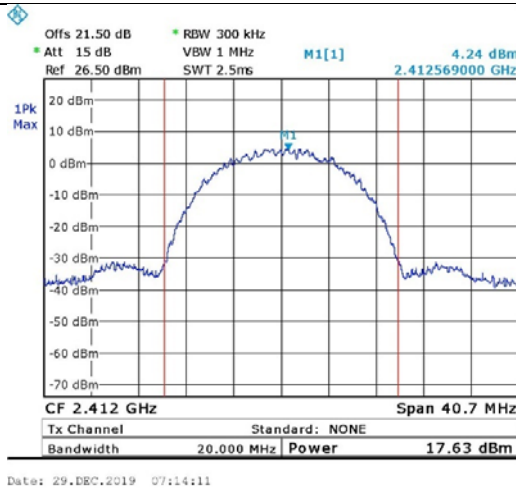


Figure 30. 2412.0 MHz, Wi-fi/b(11Mbit/s)

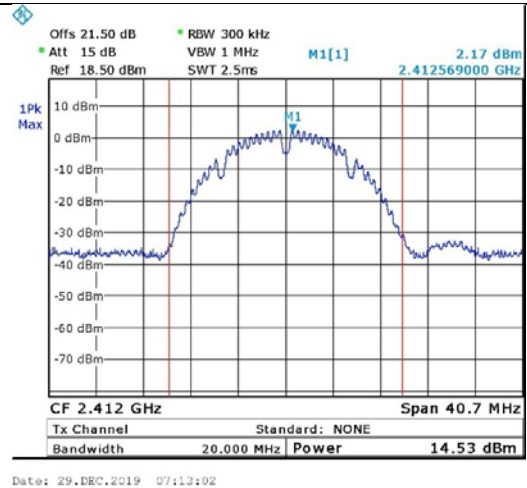


Figure 31. 2412.0 MHz, Wi-fi/b(1Mbit/s)

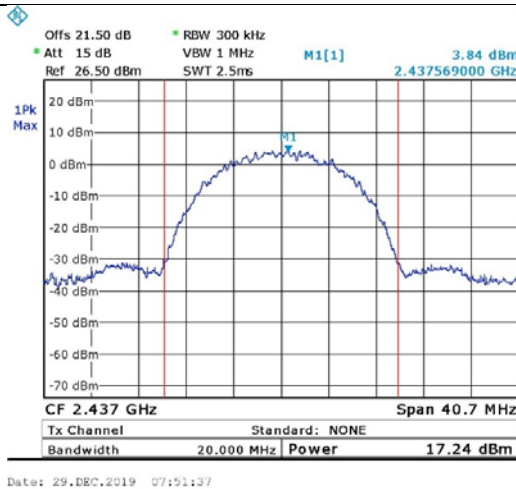


Figure 32. 2437.0 MHz, Wi-fi/b(11Mbit/s)

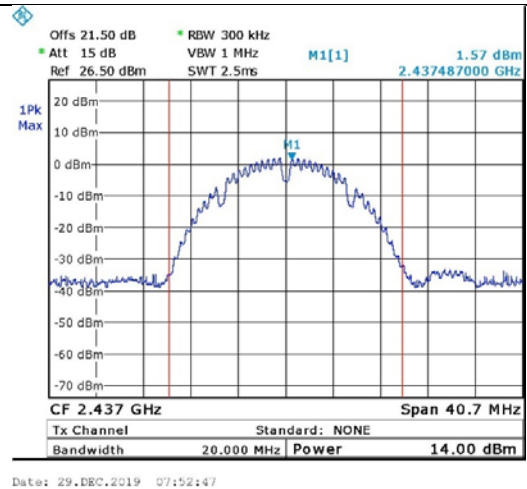


Figure 33. 2437.0 MHz, Wi-fi/b(1Mbit/s)

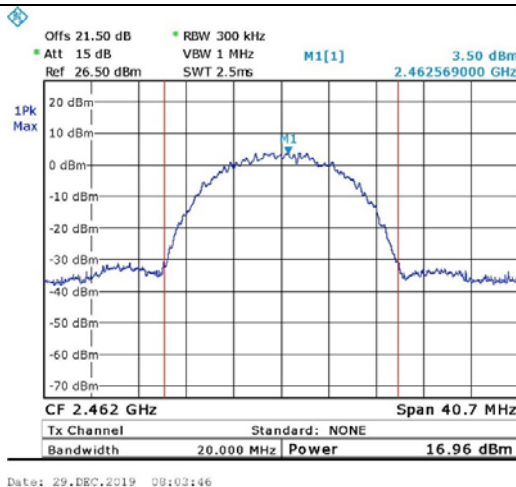


Figure 34. 2462.0 MHz, Wi-fi/b(11Mbit/s)

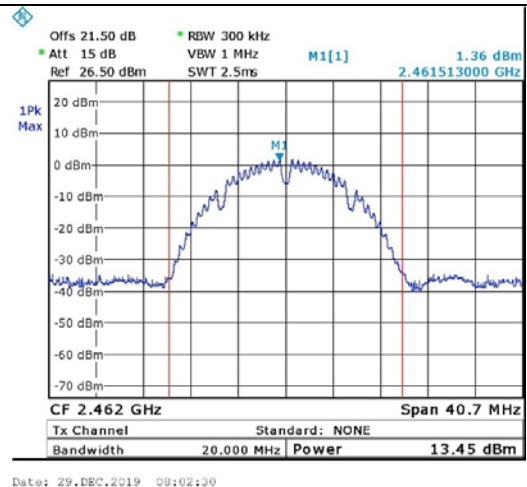
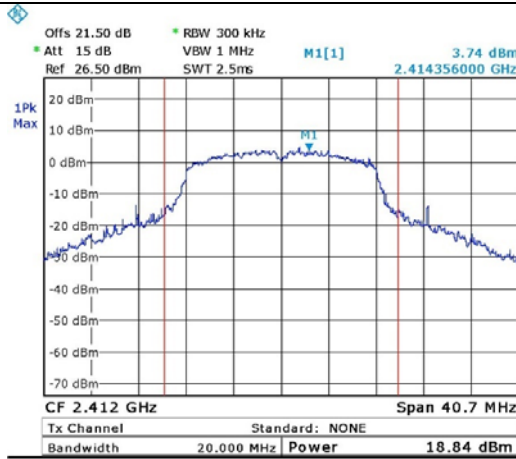
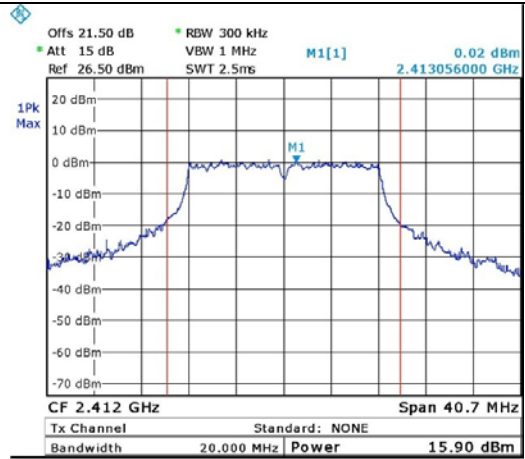


Figure 35. 2462.0 MHz, Wi-fi/b(1Mbit/s)



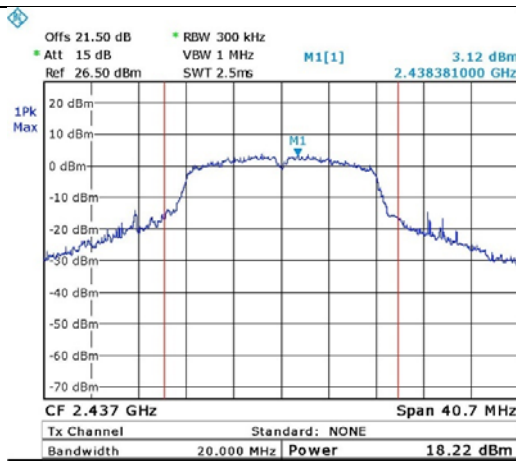
Date: 29.DEC.2019 07:27:41

Figure 36. 2412.0 MHz, Wi-fi/g(6Mbit/s)



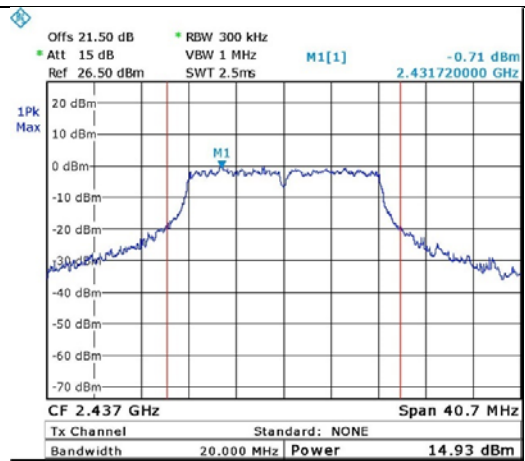
Date: 29.DEC.2019 07:39:03

Figure 37. 2412.0 MHz, Wi-fi/g(54Mbit/s)



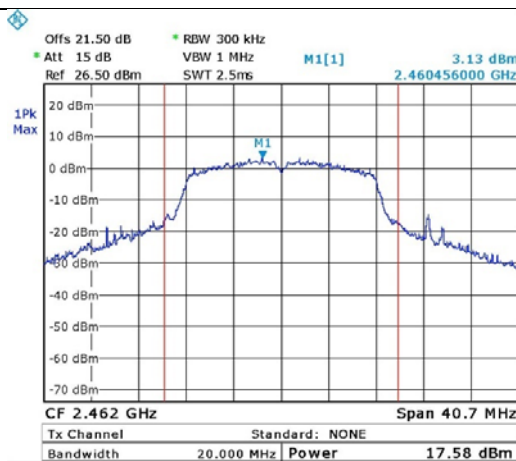
Date: 29.DEC.2019 07:50:23

Figure 38. 2437.0 MHz, Wi-fi/g(6Mbit/s)



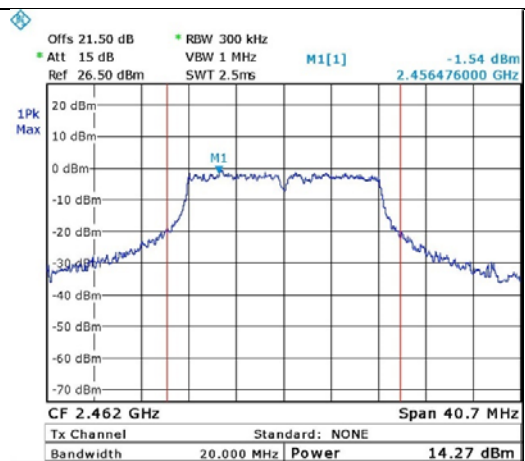
Date: 29.DEC.2019 07:49:34

Figure 39. 2437.0 MHz, Wi-fi/g(54Mbit/s)



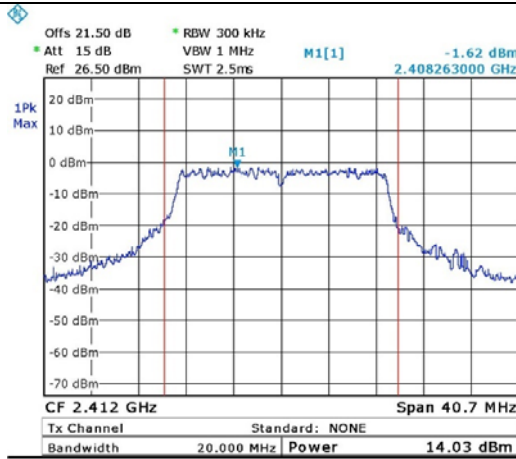
Date: 29.DEC.2019 08:04:37

Figure 40. 2462.0 MHz, Wi-fi/g(6Mbit/s)



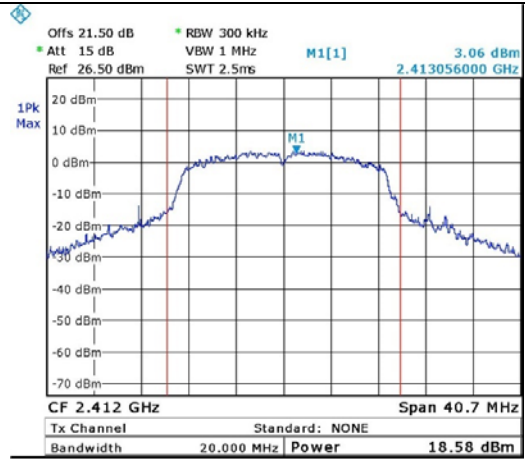
Date: 29.DEC.2019 08:05:44

Figure 41. 2462.0 MHz, Wi-fi/g(54Mbit/s)



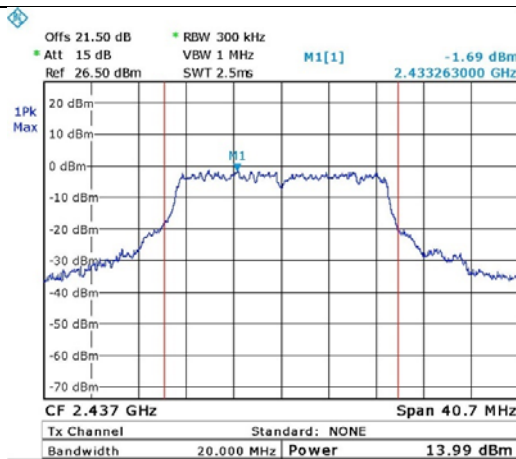
Date: 29.DEC.2019 07:42:02

Figure 42. 2412.0 MHz, Wi-fi/n(65Mbit/s)



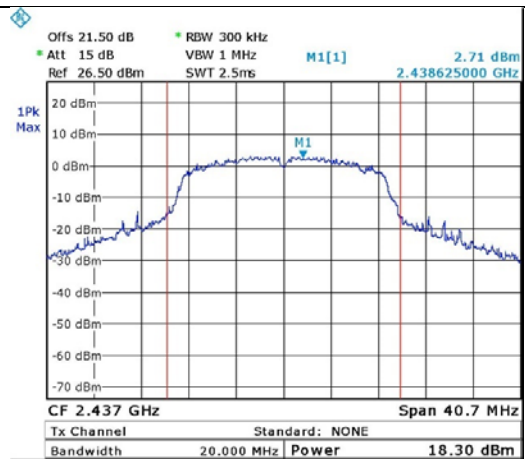
Date: 29.DEC.2019 07:39:57

Figure 43. 2412.0 MHz, Wi-fi/n(6.5Mbit/s)



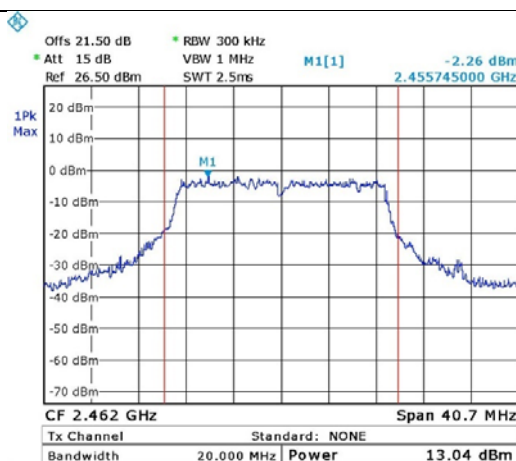
Date: 29.DEC.2019 07:46:54

Figure 44. 2437.0 MHz, Wi-fi/n(65Mbit/s)



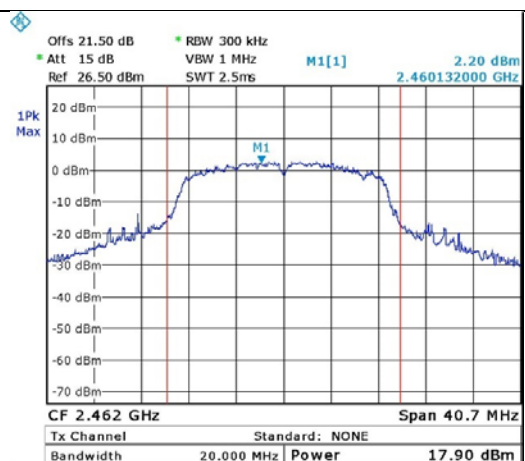
Date: 29.DEC.2019 07:48:10

Figure 45. 2437.0 MHz, Wi-fi/n(6.5Mbit/s)



Date: 29.DEC.2019 08:08:53

Figure 46. 2462.0 MHz, Wi-fi/n(65Mbit/s)



Date: 29.DEC.2019 08:07:20

Figure 47. 2462.0 MHz, Wi-fi/n(6.5Mbit/s)



### 5.5 Test Equipment Used; Maximum Peak Power Output

| Instrument        | Manufacturer      | Model              | Serial No. | Last Calibration Date | Next Calibration Due |
|-------------------|-------------------|--------------------|------------|-----------------------|----------------------|
| Spectrum Analyzer | R&S               | FSL6               | 100194     | March 24, 2019        | March 31, 2020       |
| 20dB Attenuator   | Microwave Midwest | ATT-0217-20-NNN-02 | -          | December 24, 2019     | March 31, 2020       |
| RF Cable          | Huber Suner       | Sucofelex          | 27502/4PEA | December 24, 2019     | March 31, 2020       |

**Figure 48 Test Equipment Used**

## 6. Band Edge Spectrum

### 6.1 Test Specification

FCC, Part 15, Subpart C, Section 247(d)

RSS 247, Issue 2, Section 5.5

### 6.2 Test Procedure

(Temperature (20°C)/ Humidity (51%RH))

The E.U.T operation mode and test set-up are as described in Section 2 of this report.

The E.U.T. antenna terminal was connected to the Spectrum Analyzer through an external attenuator and an appropriate coaxial cable (loss=21.5 dB). Special attention was taken to prevent Spectrum Analyzer RF input overload.

The RBW was set to 100 kHz.

### 6.3 Test Limit

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.

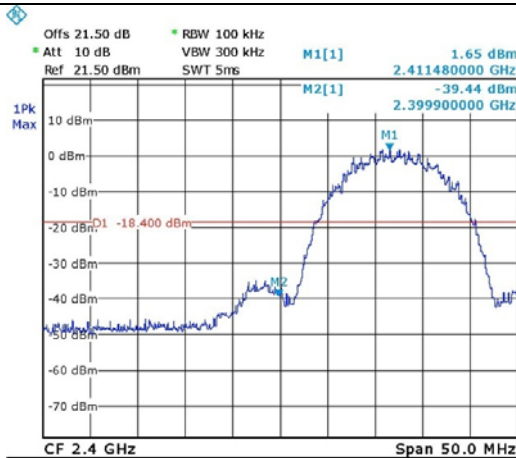
#### 6.4 Test Results

| Protocol Type      | Operation Frequency | Band Edge Frequency | Spectrum Level | Limit | Margin |
|--------------------|---------------------|---------------------|----------------|-------|--------|
|                    | (MHz)               | (MHz)               | (dBm)          | (dBm) | (dB)   |
| Wi-fi/b(1Mbit/s)   | 2412.0              | 2400.0              | -44.8          | -19.0 | -25.8  |
|                    | 2462.0              | 2483.5              | -48.4          | -19.8 | -28.6  |
| Wi-fi/b(11Mbit/s)  | 2412.0              | 2400.0              | -39.4          | -18.4 | -21.0  |
|                    | 2462.0              | 2483.5              | -46.5          | -18.9 | -27.6  |
| Wi-fi/g(6Mbit/s)   | 2412.0              | 2400.0              | -24.8          | -17.4 | -7.4   |
|                    | 2462.0              | 2483.5              | -38.8          | -18.2 | -20.6  |
| Wi-Fi/g(54Mbit/s)  | 2412.0              | 2400.0              | -31.1          | -22.2 | -8.9   |
|                    | 2462.0              | 2483.5              | -43.6          | -22.2 | -21.4  |
| Wi-Fi/n(6.5Mbit/s) | 2412.0              | 2400.0              | -24.4          | -17.9 | -6.5   |
|                    | 2462.0              | 2483.5              | -38.3          | -18.6 | -19.7  |
| Wi-fi/n(65Mbit/s)  | 2412.0              | 2400.0              | -34.3          | -23.5 | -10.8  |
|                    | 2462.0              | 2483.5              | -47.4          | -24.4 | -23.0  |

**Figure 49 Band Edge Spectrum**

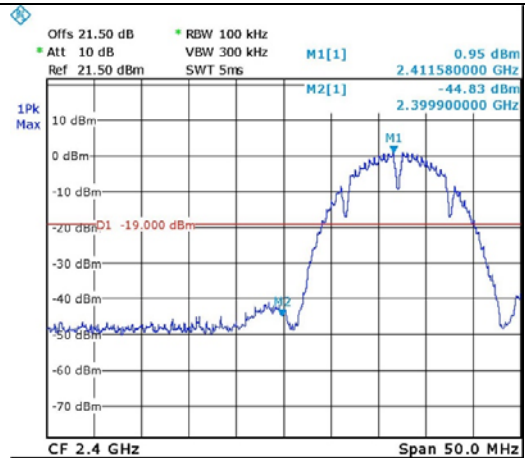
JUDGEMENT: Passed by 6.5 dB

For additional information see *Figure 50* to *Figure 61*.



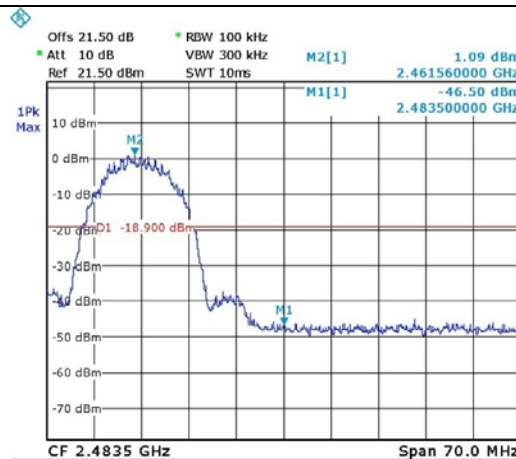
Date: 31.DEC.2019 13:14:37

Figure 50. 2412.0 MHz, Wi-fi/b(11Mbit/s)



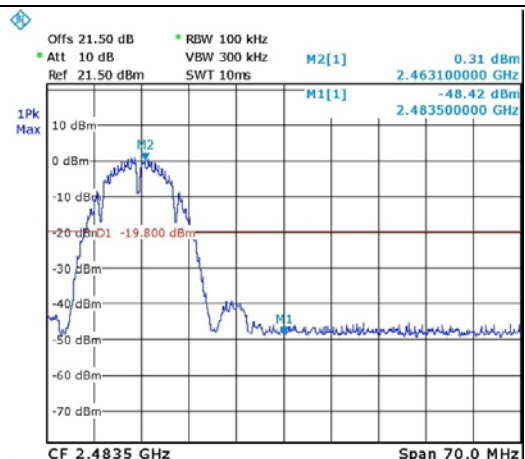
Date: 31.DEC.2019 13:16:07

Figure 51. 2412.0 MHz, Wi-fi/b(1Mbit/s)



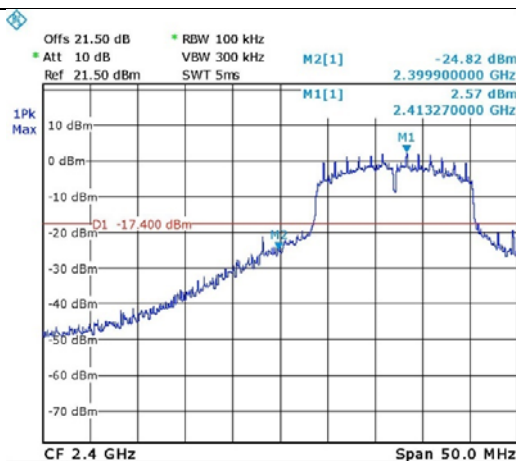
Date: 31.DEC.2019 13:34:36

Figure 52. 2462.0 MHz, Wi-fi/b(11Mbit/s)



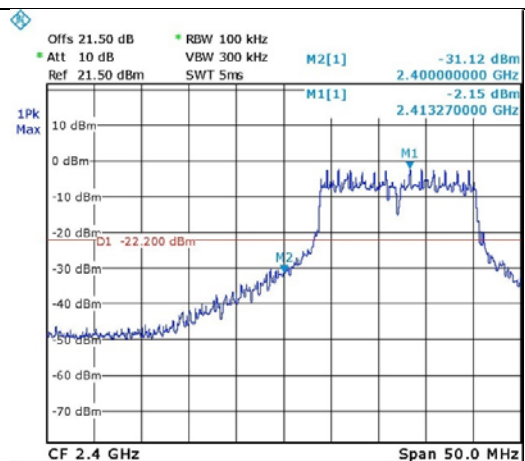
Date: 31.DEC.2019 13:35:36

Figure 53. 2462.0 MHz, Wi-fi/b(1Mbit/s)



Date: 31.DEC.2019 13:13:02

Figure 54. 2412.0 MHz, Wi-fi/g(6Mbit/s)



Date: 31.DEC.2019 13:17:39

Figure 55. 2412.0 MHz, Wi-fi/g(54Mbit/s)

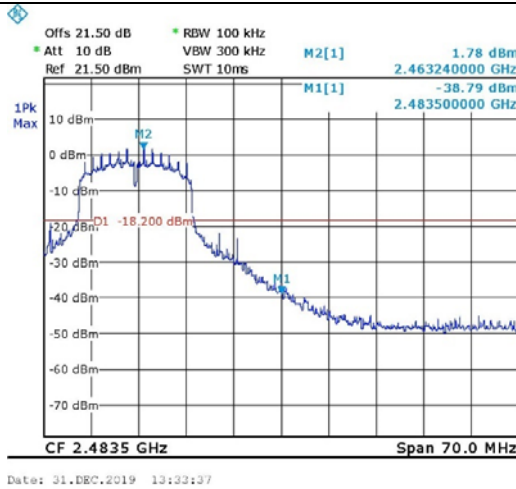


Figure 56. 2462.0 MHz, Wi-fi/g(6Mbit/s)

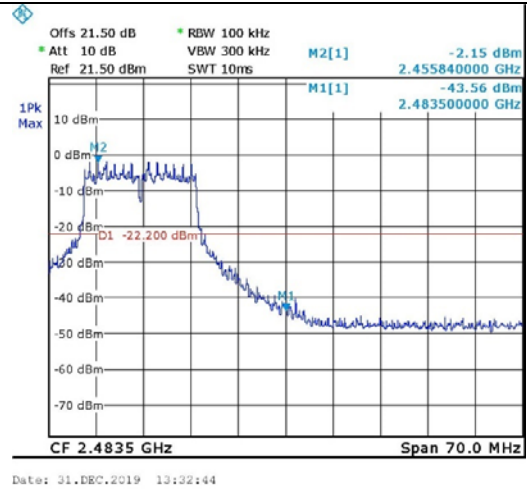


Figure 57. 2462.0 MHz, Wi-fi/g(54Mbit/s)

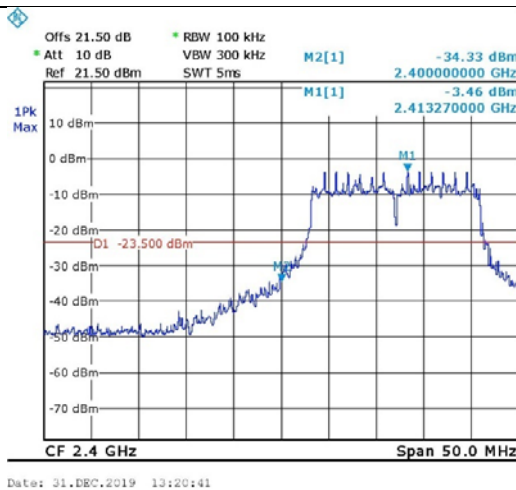


Figure 58. 2412.0 MHz, Wi-fi/n(65Mbit/s)

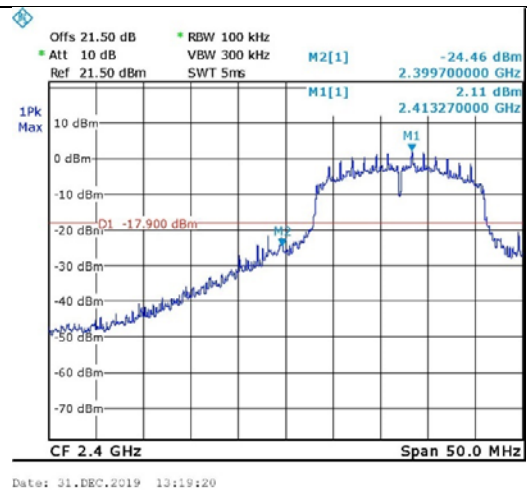


Figure 59. 2412.0 MHz, Wi-fi/n(6.5Mbit/s)

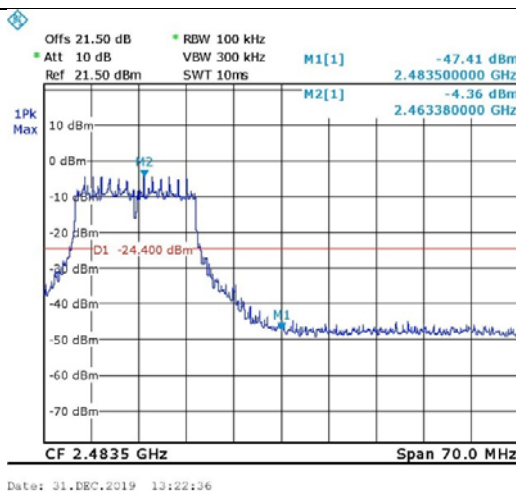


Figure 60. 2462.0 MHz, Wi-fi/n(65Mbit/s)

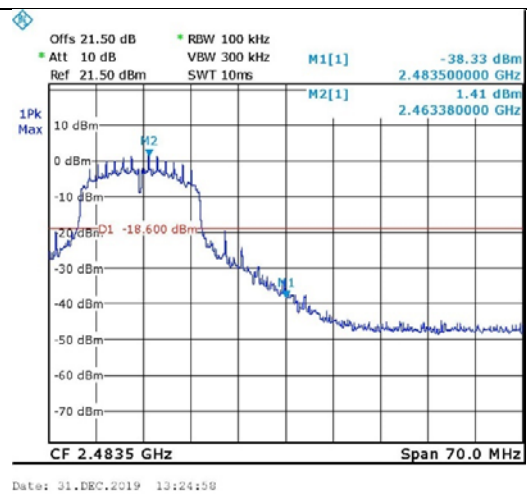


Figure 61. 2462.0 MHz, Wi-fi/n(6.5Mbit/s)



## 6.5 Test Equipment Used; Band Edge

| Instrument        | Manufacturer      | Model              | Serial No. | Last Calibration Date | Next Calibration Due |
|-------------------|-------------------|--------------------|------------|-----------------------|----------------------|
| Spectrum Analyzer | R&S               | FSL6               | 100194     | March 24, 2019        | March 31, 2020       |
| 20dB Attenuator   | Microwave Midwest | ATT-0217-20-NNN-02 | -          | December 24, 2019     | March 31, 2020       |
| RF Cable          | Huber Suner       | Sucofelex          | 27502/4PEA | December 24, 2019     | March 31, 2020       |

Figure 62 Test Equipment Used