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# Emissions Test Report

**EUT Name:** Wi-Fi Module

**Model No.:** NVG5X8AC

CFR 47 Part 15.247: 2018 and RSS 247: 2017

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| | |
|---|---|
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| *Revision Number:* | 0 |

# Revisions

| Revision No. | Date MM/DD/YYYY | Reason for Change | Author |
|---|---|---|---|
| 0 | 05/09/2019 | Original Document | N/A |
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Note: Latest revision report will replace all previous reports.

# Statement of Compliance

| | |
|---|---|
| *Applicant:* | ARRIS International plc<br>310 Province Mine Road, Ste. 200<br>Nevada City, CA 95959<br>(530) 274-5440 |
| *Requester / Applicant:* | Mark Rieger |
| *Name of Equipment:* | Wi-Fi Module |
| *Model No.* | NVG5X8AC |
| *Type of Equipment:* | Intentional Radiator |
| *Application of Regulations:* | CFR 47 Part 15.247: 2018 and RSS 247: 2017 |
| *Test Dates:* | Nov 14, 2018 to Mar 11, 2019 |

*Guidance Documents:*

Emissions: ANSI C63.10-2013, KDB 558074 D01 Measurement Guidance v05r02, KDB 662911 D01 Multiple Transmitter Output v02r01

*Test Methods:*

Emissions: ANSI C63.10-2013, KDB 558074 D01 Measurement Guidance v05r02, KDB 662911 D01 Multiple Transmitter Output v02r01

The electromagnetic compatibility test and documented data described in this report has been performed and recorded by TUV Rheinland, in accordance with the standards and procedures listed herein. As the responsible authorized agent of the EMC laboratory, I hereby declare that the equipment described above has been shown to be compliant with the EMC requirements of the stated regulations and standards based on these results. If any special accessories and/or modifications were required for compliance, they are listed in the Executive Summary of this report.

This report must not be used to claim product endorsement by A2LA or any agency of the U.S. Government. This report contains data that are not covered by A2LA accreditation. This report shall not be reproduced except in full, without the written authorization of TUV Rheinland of North America.

| | | | |
|---|---|---|---|
| Kerwinn Corpuz | | Richard Decker | |
| Test Engineer | Date May 09, 2019 | Laboratory Signature | Date May 09, 2019 |

**Testing Cert #3331.02** **US1131** **2932M-1**

# 1 Executive Summary

## 1.1 Scope

This report is intended to document the status of conformance with the requirements of the CFR 47 Part 15.247: 2018 and RSS 247: 2017 based on the results of testing performed on Nov 14, 2018 to Mar 11, 2019 on the Wi-Fi Module Model NVG5X8AC manufactured by ARRIS International plc This report only applies to the specific samples tested under the stated test conditions. It is the responsibility of the manufacturer to assure that additional production units of this model are manufactured with identical or EMI equivalent electrical and mechanical components. This report is further intended to document changes and modifications to the EUT throughout its life cycle. All documentation will be included as a supplement.

## 1.2 Purpose

Testing was performed to evaluate the EMC performance of the EUT in accordance with the applicable requirements, procedures, and criteria defined in the application of regulations and application of standards listed in this report.

The 2412 MHz to 2462 MHz frequency band for WiFi is covered in this document.

## 1.3 Summary of Test Results

**Table 1:** Summary of Test Results

| Test | Test Method<br>ANSI C63.10: 2013 | Test Parameters<br>(Measured) | Result |
|---|---|---|---|
| Spurious Emission in Transmitted Mode | CFR47 15.209, CFR47 15.247(d), RSS-GEN Sect.8.9 | Class B | **Complied** |
| Restricted Bands of Operation | CFR47 15.205, RSS GEN Sect.8.10 | Class B | **Complied** |
| AC Power Conducted Emission | CFR47 15.207, RSS-GEN Sect.8.8 | Class B | **Complied** |
| Occupied Bandwidth | CFR47 15.247 (a2), RSS GEN Sect.6.7 | See plots | **Complied** |
| Maximum Output Power | CFR47 15.247 (b), RSS 247 Sect. 5.4 (d) | 25.99 dBm (802.11b)<br>25.99 dBm (802.11g)<br>*28.39 dBm (HT 20)<br>*28.31 dBm (HT 40) | **Complied** |
| Peak Power Spectral Density | CFR47 15.247 (e), RSS 247 Sect. 5.2 (b) | < 8 dBm/3kHz | **Complied** |
| Out of Band Emission | CFR47 15.247 (d), RSS 247 Sect.5.5 | 30 MHz - 26 GHz < 20 dBm/100kHz | **Complied** |
| RF Exposure | CFR47 15.247 (i), RSS-102 Issue 5 | General Population | **Complied** |

Note: This test report covers 2400 MHz to 2483.5 MHz band. * = summed power.

## 1.4 Special Accessories

No special accessories were necessary in order to achieve compliance.

## 1.5 Equipment Modifications

None

# 2 Laboratory Information

## *2.1 Accreditations & Endorsements*

### 2.1.1 US Federal Communications Commission

TUV Rheinland of North America at 1279 Quarry Ln, Pleasanton, CA 94566 is recognized by the commission for performing testing services for the general public on a fee basis. These laboratory test facilities have been fully described in reports submitted to and accepted by the FCC (US1131). The laboratory scope of accreditation includes: Title 47 CFR Parts 15, 18, and 90. The accreditation is updated every 3 years.

### 2.1.2 NIST / A2LA

TUV Rheinland of North America is accredited by the National Voluntary Laboratory Accreditation Program, which is administered under the auspices of the National Institute of Standards and Technology. The laboratory has been assessed and accredited in accordance with ISO Guide 17025:2005 (Testing Cert #3331.02). The scope of laboratory accreditation includes emission and immunity testing. The accreditation is updated annually.

### 2.1.3 Canada

TUV Rheinland of North America at the 1279 Quarry Ln, Pleasanton, CA 94566 address is accredited for performing testing services for the general public on a fee basis. This laboratory test facilities have been fully described in reports submitted to and accepted (File Number 2932M-1). This reference number is the indication to the Certification Officers that the site meets the requirements. The accreditation is updated every 3 years.

### 2.1.4 Japan – VCCI

The Voluntary Control Council for Interference by Information Technology Equipment (VCCI) is a group that consists of Information Technology Equipment (ITE) manufacturers and EMC test laboratories. The purpose of the Council is to take voluntary control measures against electromagnetic interference from Information Technology Equipment, and thereby contribute to the development of a socially beneficial and responsible state of affairs in the realm of Information Technology Equipment in Japan. TUV Rheinland of North America at 1279 Quarry Ln, Pleasanton, CA 94566 has been assessed and approved in accordance with the Regulations for Voluntary Control Measures.

VCCI Registration No. for Pleasanton: A-0268

### 2.1.5 Acceptance by Mutual Recognition Arrangement

The United States has an established agreement with specific countries under the Asia Pacific Laboratory Accreditation Corporation (APLAC) Mutual Recognition Arrangement. Under this agreement, all TUV Rheinland at 1279 Quarry Ln, Pleasanton, CA 94566 test results and test reports within the scope of the laboratory NIST / A2LA accreditation will be accepted by each member country.

## 2.2 Test Facilities

All of the test facilities are located at 1279 Quarry Lane, Pleasanton, California 94566, USA. The 5015 Brandin Court, Fremont, California 94538, USA location is considered a Pleasanton annex.

### 2.2.1 Emission Test Facility

The Semi-Anechoic chamber and AC Line Conducted measurement facility used to collect the radiated and conducted data has been constructed in accordance with ANSI C63.7:1992. The site has been measured in accordance with and verified to comply with the theoretical normalized site attenuation requirements of ANSI C63.4-2014, at a test distance of 3 and 5 meters. The site is listed with the FCC and accredited by A2LA (Lab Code Testing Cert #3331.02). The 3/5-meter semi-anechoic chamber used to collect the radiated data has been verified to comply with the theoretical normalized site attenuation requirements of ANSI C63.4-2014, at a test distance of 3 meter and 5 meters. A report detailing this site can be obtained from TUV Rheinland of North America.

### 2.2.2 Immunity Test Facility

ESD, EFT, Surge, PQF: These tests are performed in an environmentally controlled room with a 3.7 m x 4.8 m x 3.175 mm thick aluminum floor connected to PE ground.

For ESD testing, tabletop equipment is placed on an insulated mat with a surface resistivity of $10^9$ Ohms/square on a 1.6 m x 0.8 m x 0.8 m high non-conductive table with a 3.175 mm aluminum top (Horizontal Coupling Plane). The HCP is connected to the main ground plane via a low impedance ground strap through two 470-kΩ resistors. The Vertical Coupling Plane consists of an aluminum plate 50 cm x 50 cm x 3.175 mm thick. The VCP is connected to the main ground plane via a low impedance ground strap through two 470-kΩ resistors.

For EFT, Surge, PQF, the HCP and VCP are removed.

RF Field Immunity testing is performed in a 7.3m x 4.3m x 4.1m anechoic chamber.

RF Conducted and Magnetic Field Immunity testing is performed on a 4.8m x 3.7m x 3.175mm thick aluminum ground plane.

All test areas allow a minimum distance of 1 meter from the EUT to walls or conducting objects.

## 2.3 Measurement Uncertainty

Two types of measurement uncertainty are expressed in this report, per *ISO Guide To The Expression Of Uncertainty In Measurement*, 1st Edition, 1995.

*The Combined Standard Uncertainty* is the standard uncertainty of the result of a measurement when that result is obtained from the values of a number of other quantities; it is equal to the positive square root of the sum of the variances or co-variances of these other quantities, weighted according to how the measurement result varies with changes in these quantities. The term *standard uncertainty* is the result of a measurement expressed as a standard deviation.

### 2.3.1 Sample Calculation – radiated & conducted emissions

The field strength is calculated by subtracting the Amplifier Gain and adding the Cable Loss and Antenna Correction Factor to the measured reading. The basic equation is as follows:

Field Strength (dBμV/m) = RAW - AMP + CBL + ACF

Where: RAW = Measured level before correction (dBμV)

AMP = Amplifier Gain (dB)

CBL = Cable Loss (dB)

ACF = Antenna Correction Factor (dB/m)

$$\mu V/m = 10^{\frac{dB\mu V/m}{20}}$$

**Sample radiated emissions calculation @ 30 MHz**

**Measurement +Antenna Factor–Amplifier Gain+Cable loss=Radiated Emissions (dBuV/m)**

25 dBuV/m + 17.5 dB – 20 dB + 1.0 dB = 23.5 dBuV/m

## 2.3.2 Measurement Uncertainty

| Per CISPR 16-4-2 | $U_{lab}$ | $U_{cispr}$ |
|---|---|---|
| **Radiated Disturbance @ 10 meters** | | |
| 30 – 1,000 MHz | 2.25 dB | 4.51 dB |
| **Radiated Disturbance @ 3 meters** | | |
| 30 – 1,000 MHz | 2.26 dB | 4.52 dB |
| 1 – 6 GHz | 2.12 dB | 4.25 dB |
| 6 – 18 GHz | 2.47 dB | 4.93 dB |
| **Conducted Disturbance @ Mains Terminals** | | |
| 150 kHz – 30 MHz | 1.09 dB | 2.18 dB |
| **Disturbance Power** | | |
| 30 MHz – 300 MHz | 3.92 dB | 4.3 dB |

**Voltech PM6000A**

| | |
|---|---|
| The estimated combined standard uncertainty for harmonic current and flicker measurements is ± 5.0%. | Per CISPR 16-4-2 Methods |

### 2.3.3 Measurement Uncertainty Radio

| |
|---|
| The estimated combined standard uncertainty for radio frequency measurements is ± 6.62 x $10^{-8}$ |
| The estimated combined standard uncertainty for frequency tolerance measurements is ± 3.88 Hz |
| The estimated combined standard uncertainty for carrier power measurements is ± 0.7 dB. |
| The estimated combined standard uncertainty for adjacent channel power measurements is ± 1.47 dB. |
| The estimated combined standard uncertainty for modulation frequency response measurements is ± 0.46 dB. |
| The estimated combined standard uncertainty for transmitter conducted emission measurements is ± 2.06 dB |

The expanded uncertainty at a level of 95% confidence is obtained by multiplying the combined standard uncertainty by a coverage factor k = 2.

### 2.3.4 Measurement Uncertainty Immunity

| | |
|---|---|
| The estimated combined standard uncertainty for ESD immunity measurements is ± 8.2%. | Per IEC 61000-4-2 |
| The estimated combined standard uncertainty for radiated immunity measurements is ± 4.10 dB. | Per IEC 61000-4-3 |
| The estimated combined standard uncertainty for conducted immunity measurements with CDN is ± 3.66 dB | Per IEC 61000-4-6 |
| The estimated combined standard uncertainty for power frequency magnetic field immunity is ± 2.9%. | Per IEC 61000-4-8 |

**Thermo KeyTek EMC Pro**

| |
|---|
| The estimated combined standard uncertainty for EFT fast transient immunity measurements is ± 2.6%. |
| The estimated combined standard uncertainty for surge immunity measurements is ± 2.6%. |
| The estimated combined standard uncertainty for voltage variation and interruption measurements is ± 1.74%. |

The expanded uncertainty at a level of 95% confidence is obtained by multiplying the combined standard uncertainty by a coverage factor of 2. Compliance criteria are not based on measurement uncertainty.

## 2.4 Calibration Traceability

All measurement instrumentation is traceable to the National Institute of Standards and Technology (NIST). Measurement method complies with ANSI/NCSL Z540-1-1994 and ISO Standard 17025:2005. Equipment calibration records are kept on file at the test facility.

# 3 Product Information

## 3.1 Product Description

The Model NVG5X8AC, Wi-Fi Module, is a Wi-Fi Module operating in the 2.4 GHz and 5 GHz frequency bands over 20 MHz, 40 MHz and 80 MHz channels.

## 3.2 Equipment Configuration

A description of the equipment configuration is given in the Test Plan Section. The EUT was tested as called for in the test standard and was configured and operated in a manner consistent with its intended use. The EUT was connected to rated power and allowed to reach intended operating conditions. The placement of the EUT system components was guided by the test standard and selected to represent typical installation conditions.

In the case of an EUT that can operate in more than one configuration, preliminary testing was performed to determine the configuration that produced maximum radiation.

The final configuration was selected to produce the worst case radiation for emissions testing and to place the EUT in the most susceptible state for immunity testing.

## 3.3 Operating Mode

A description of the operation mode is given in the Test Plan Section. In the case of an EUT that can operate in more than one state, preliminary testing was performed to determine the operating mode that produced maximum radiation.

The final operating mode was selected to produce the worst case radiation for emissions testing and to place the EUT in the most susceptible state for immunity testing.

## 3.4 Unique Antenna Connector

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of CFR47 Parts 15.211, 15.213, 15.217, 15.219, or 15.221.

### 3.4.1 Results

The Wi-Fi Module has 8 PCB antennas for both 2.4 GHz and 5 GHz range. The 2.4 – 2.4835 GHz band uses Printed Circuit Board (PCB) antennas; connecting to the module via U.FL connectors. The antenna gains are listed below.

| Antenna Peak Gain | | | | |
|---|---|---|---|---|
| **Frequency (MHz)** | **Ant 5 (dBi)** | **Ant 6 (dBi)** | **Ant 7 (dBi)** | **Ant 8 (dBi)** |
| 2400 | 3.8 | 5.4 | 3.9 | 4.8 |
| 2410 | 3.7 | 5.0 | 3.9 | 5.1 |
| 2420 | 3.5 | 5.1 | 3.9 | 5.1 |
| 2430 | 3.7 | 5.1 | 3.9 | 5.1 |
| 2440 | 3.8 | 4.9 | 4.0 | 5.2 |
| 2450 | 3.8 | 5.0 | 4.1 | 5.2 |
| 2460 | 3.8 | 4.9 | 4.1 | 5.2 |
| 2470 | 3.8 | 5.0 | 4.1 | 5.1 |
| 2480 | 3.9 | 4.8 | 4.1 | 5.0 |
| 2490 | 3.7 | 5.0 | 4.0 | 4.7 |
| 2500 | 3.6 | 4.9 | 3.9 | 4.7 |

| Correlated Composite Peak Gain | | | |
|---|---|---|---|
| **Frequency (MHz)** | **Correlated Total Gain (dBi)** | **Correlated Phi Gain (dBi)** | **Correlated Theta Gain (dBi)** |
| 2400 | 7.5 | 4.8 | 5.7 |
| 2410 | 7.6 | 4.6 | 5.7 |
| 2420 | 7.5 | 4.5 | 5.8 |
| 2430 | 7.5 | 4.7 | 5.8 |
| 2440 | 7.4 | 4.6 | 5.6 |
| 2450 | 7.3 | 4.4 | 5.6 |
| 2460 | 7.3 | 4.4 | 5.6 |
| 2470 | 7.2 | 4.5 | 5.7 |
| 2480 | 7.0 | 4.5 | 5.5 |
| 2490 | 6.8 | 4.5 | 5.4 |
| 2500 | 6.6 | 4.4 | 5.2 |

# 4 Emissions

Testing was performed in accordance with CFR 47 Part 15.247: 2018 and RSS 247: 2017. These test methods are listed under the laboratory's A2LA Scope of Accreditation. This test measures the levels emanating from the EUT, thus evaluating the potential for the EUT to cause radio frequency interference to other electronic devices.

## 4.1 Duty Cycle Verification

The intent is to test at 100% duty cycle; however, a small reduction in duty cycle (to no lower than 98%) is permitted. If the transmit duty cycle <98%, the calculated duty cycle shall be added to the measured output power.

Verification of transmit duty cycle. The duty cycle (%) = (ON time / Period) * 100.

| Technology | Frequency (MHz) | ON time (mSec) | Period (mSec) | Result (%) | Result (dB) |
|---|---|---|---|---|---|
| 802.11b | 2412 | -- | -- | 100 | 0.0 |
| 802.11g | 2412 | 2.056 | 2.086 | 98.5 | 0.0 |
| 802.11n-HT20 | 2412 | 1.921 | 1.952 | 98.4 | 0.0 |
| 802.11n-HT40 | 2422 | 0.9302 | 0.9844 | 94.5 | 0.25 |

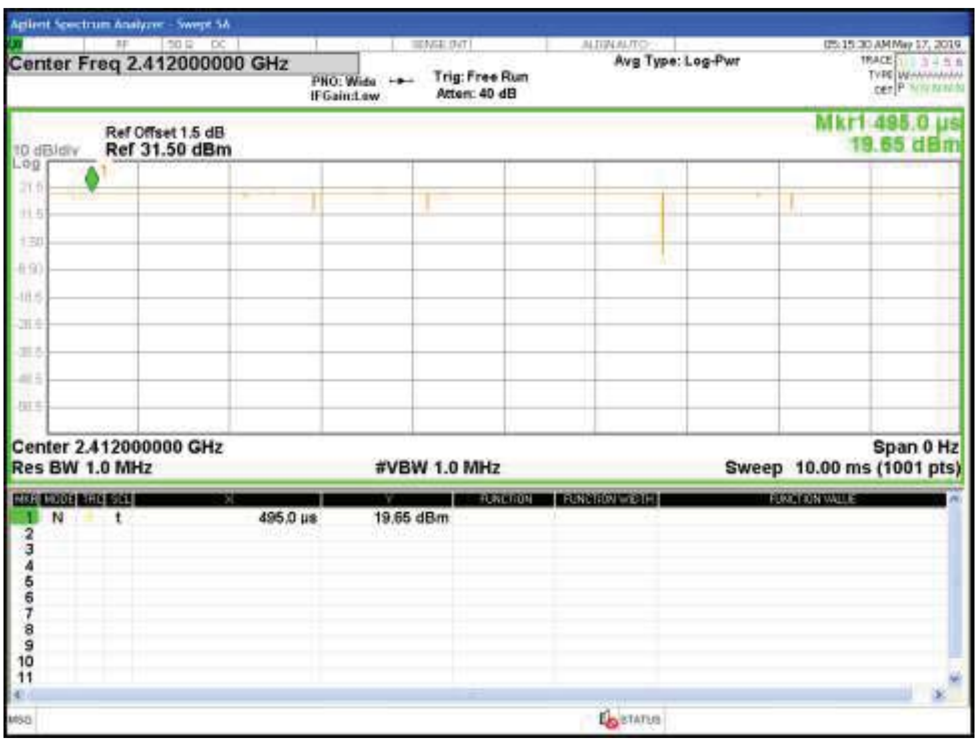



**Figure 1:** 802.11b Transmit Duty Cycle


**Figure 2:** 802.11g Transmit Duty Cycle

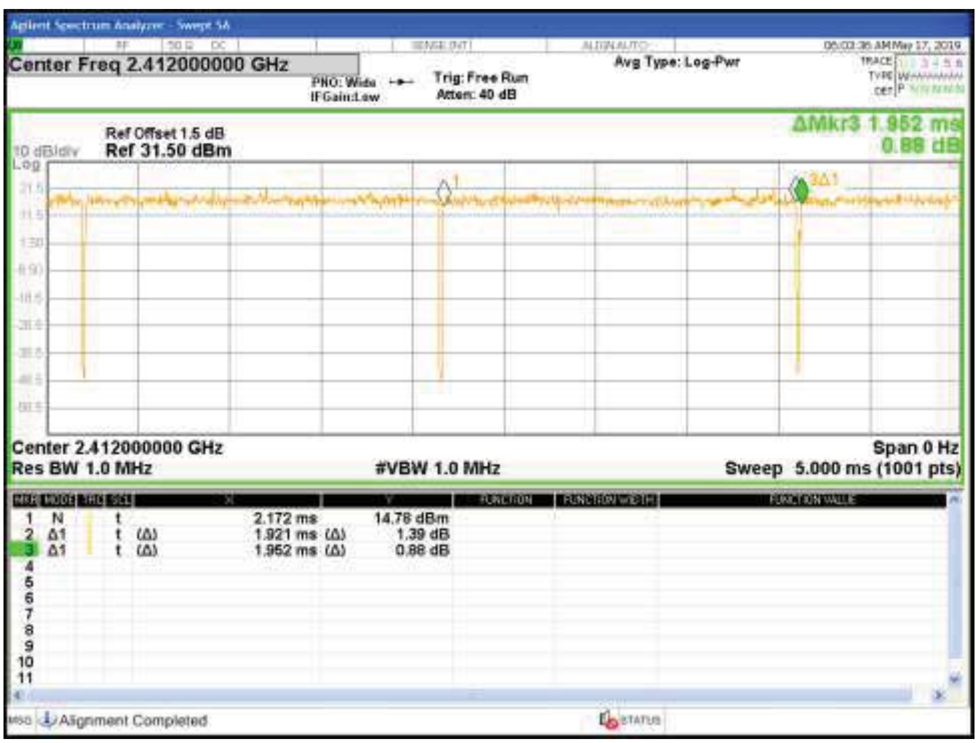



**Figure 3:** 802.11n-HT20 Transmit Duty Cycle


**Figure 4:** 802.11n-HT40 Transmit Duty Cycle

## *4.2 Output Power Requirements*

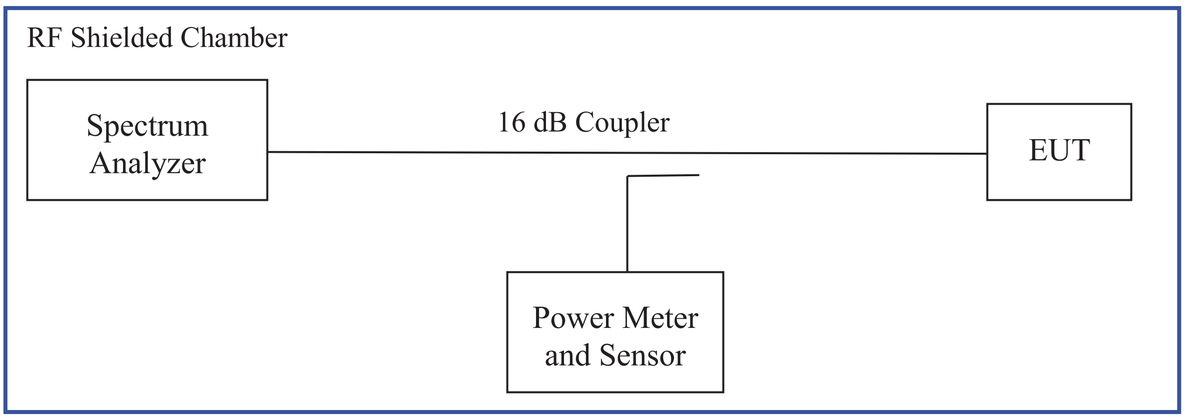
*The maximum output power requirement is the maximum equivalent isotropic radiated power delivering at the transmitting antenna under specified conditions of measurements in the presence of modulation.*

*The maximum peak conducted output power in the band 2400-2483.5 MHz: 1 W*

### 4.2.1 Test Method

The ANSI C63.10-2013 Section 11.9.2.2.2. Conducted method was used to measure the channel power output. The preliminary investigation was performed at different data rate / chain to determine the highest power output for each mode. The worst findings were conducted on 3 channels in each operating range per CFR47 Part 15.247(b) and RSS 247 Sect. 5.4(d); 2400 MHz to 2483.5 MHz. The worst mode results indicated below.

Test Setup:




*Method AVGSA-1 of "KDB 558074 – DTS Measurement Guidance v03r05" applies since the EUT continuously transmits with duty cycle greater than 98%. Sample detector was used.*

Each chain was measured individually and applied the measure-and-sum approach per KDB662911.

### 4.2.2 Results

As originally tested, the EUT was found to be compliant to the requirements of the test standard(s).

**Table 2:** RF Output Power at the Antenna Port – Test Results – Non Beamforming

| | |
|---|---|
| **Test Date:** March 21, 2019 | **Test By:** Kerwinn Corpuz |
| **Test Method:** Conducted Measurement | **Power Setting:** See test plan |
| **Antenna Type:** PCB | **Max. Antenna Gain:** + 5.4 dBi |
| **Operating Mode:** Non Beamforming & Uncorrelated | **Signal State:** Modulated |
| **Ambient Temp.:** 22° C | **Relative Humidity:**38% |

**802.11b, 1x4**

| Operating Channel (MHz) | Ch0 [dBm] | Ch1 [dBm] | Ch2 [dBm] | Ch3 [dBm] | CF [dB] | Max Power (RMS) [dBm] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|
| 2412.00 | 25.63 | 25.99 | 25.16 | 25.02 | 0.0 | 25.99 | 30.00 | -4.01 |
| 2437.00 | 23.10 | 23.60 | 22.88 | 23.04 | 0.0 | 23.60 | 30.00 | -6.40 |
| 2462.00 | 18.87 | 19.30 | 19.29 | 19.47 | 0.0 | 19.47 | 30.00 | -10.53 |

**Note:** The highest output power was observed at 11b 1 Mbps,, 1 Data Streams at 100% Duty Cycle.

**802.11g, 1x4**

| Operating Channel (MHz) | Ch0 [dBm] | Ch1 [dBm] | Ch2 [dBm] | Ch3 [dBm] | CF [dB] | Max Power (RMS) [dBm] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|
| 2412.00 | 25.01 | 25.42 | 24.87 | 24.40 | 0.0 | 25.42 | 30.00 | -4.58 |
| 2437.00 | 25.77 | 25.99 | 25.56 | 25.18 | 0.0 | 25.99 | 30.00 | -4.01 |
| 2462.00 | 25.00 | 25.91 | 25.45 | 24.70 | 0.0 | 25.91 | 30.00 | -4.09 |

**Note:** The highest output power was observed at 11g 6 Mbps, 1 Data Streams at 98.5% Duty Cycle.

**802.11n-HT20, 1x4**

| Operating Channel (MHz) | Ch0 [dBm] | Ch1 [dBm] | Ch2 [dBm] | Ch3 [dBm] | CF [dB] | Max Power (RMS) [dBm] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|
| 2412.00 | 25.73 | 25.97 | 25.49 | 24.99 | 0.0 | 25.97 | 30.00 | -4.03 |
| 2437.00 | 25.72 | 25.87 | 25.42 | 25.03 | 0.0 | 25.87 | 30.00 | -4.13 |
| 2462.00 | 24.14 | 24.75 | 24.37 | 23.69 | 0.0 | 24.75 | 30.00 | -5.25 |

**Note:** The highest output power was observed at HT20 MCS0, 1 Data Streams at 98.4% Duty Cycle.

**Table 3:** RF Output Power at the Antenna Port – Test Results – Non Beamforming Continued

| | |
|---|---|
| **Test Date:** March 21, 2019 | **Test By:** Kerwinn Corpuz |
| **Test Method:** Conducted Measurement | **Power Setting:** See test plan |
| **Antenna Type:** PCB | **Max. Antenna Gain:** + 5.4 dBi |
| **Operating Mode:** Non Beamforming & Uncorrelated | **Signal State:** Modulated |
| **Ambient Temp.:** 22° C | **Relative Humidity:**38% |

| 802.11n-HT40, 1x4 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Operating Channel (MHz)** | **Ch0 [dBm]** | **Ch1 [dBm]** | **Ch2 [dBm]** | **Ch3 [dBm]** | **CF [dB]** | **Max Power (RMS) [dBm]** | **Limit [dBm]** | **Margin [dB]** |
| 2422.00 | 24.45 | 24.76 | 24.26 | 24.84 | 0.25 | 24.84 | 30.00 | -4.91 |
| 2437.00 | 25.42 | 25.53 | 25.42 | 25.73 | 0.25 | 25.73 | 30.00 | -4.02 |
| 2452.00 | 25.98 | 25.62 | 25.16 | 25.89 | 0.25 | 25.98 | 30.00 | -3.77 |
| **Note:** The highest output power was observed at HT40 MCS0,, 1 Data Streams at 94.5% Duty Cycle. | | | | | | | | |

**Table 4:** RF Output Power at the Antenna Port – Test Results – Non Beamforming Continued

| | |
|---|---|
| **Test Date:** March 21, 2019 | **Test By:** Kerwinn Corpuz |
| **Test Method:** Conducted Measurement | **Power Setting:** See test plan |
| **Antenna Type:** PCB | **Directional Antenna Gain:** + 7.6 dBi |
| **Operating Mode:** Non Beamforming & Uncorrelated | **Signal State:** Modulated |
| **Ambient Temp.:** 22° C | **Relative Humidity:**38% |

**802.11n-HT20, 4x4**

| Operating Channel (MHz) | Ch0 [dBm] | Ch1 [dBm] | Ch2 [dBm] | Ch3 [dBm] | CF [dB] | Total Power (RMS) [dBm] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|
| 2412.00 | 22.54 | 22.47 | 22.25 | 22.20 | 0.0 | 28.39 | 28.40 | -0.01 |
| 2437.00 | 22.58 | 22.44 | 22.12 | 22.16 | 0.0 | 28.35 | 28.40 | -0.05 |
| 2462.00 | 22.13 | 22.47 | 22.06 | 21.97 | 0.0 | 28.18 | 28.40 | -0.22 |

**Note:** 1. The highest output power was observed at HT20 MCS0, 4 Data Streams at 98.4% Duty Cycle.
2. Limit = $P_{Limit} – (G_{Tx} – 6)$; $P_{Limit}$ = Output Power Limit; $G_{Tx}$ = Max Transmitter Antenna Gain

**802.11n-HT40, 4x4**

| Operating Channel (MHz) | Ch0 [dBm] | Ch1 [dBm] | Ch2 [dBm] | Ch3 [dBm] | CF [dB] | Total Power (RMS) [dBm] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|
| 2412.00 | 22.12 | 22.00 | 22.10 | 22.25 | 0.25 | 28.14 | 28.40 | -0.01 |
| 2437.00 | 22.04 | 22.15 | 22.08 | 22.18 | 0.25 | 28.13 | 28.40 | -0.02 |
| 2462.00 | 22.26 | 22.01 | 21.78 | 22.36 | 0.25 | 28.13 | 28.40 | -0.02 |

**Note:** 1. The highest output power was observed at HT40 MCS0, 4 Data Streams at 94.5% Duty Cycle.
2. Limit = $P_{Limit} – (G_{Tx} – 6)$; $P_{Limit}$ = Output Power Limit; $G_{Tx}$ = Max Transmitter Antenna Gain

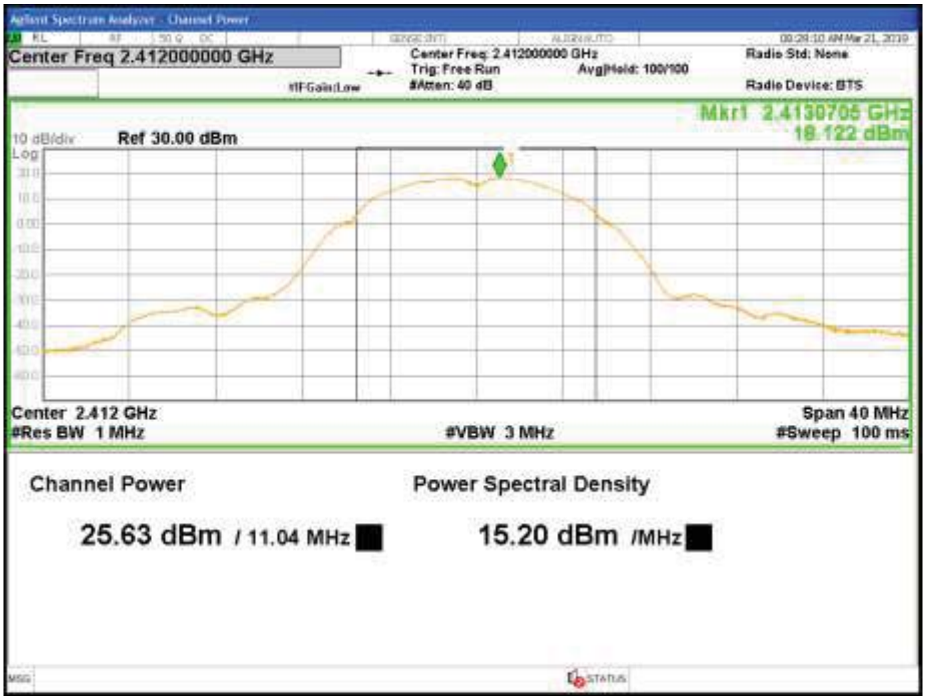



Figure 5: FCC RMS MAX POWER-2412MHz-11b-1x4-q98-Ch0


Figure 6: FCC RMS MAX POWER-2412MHz-11b-1x4-q98-Ch1

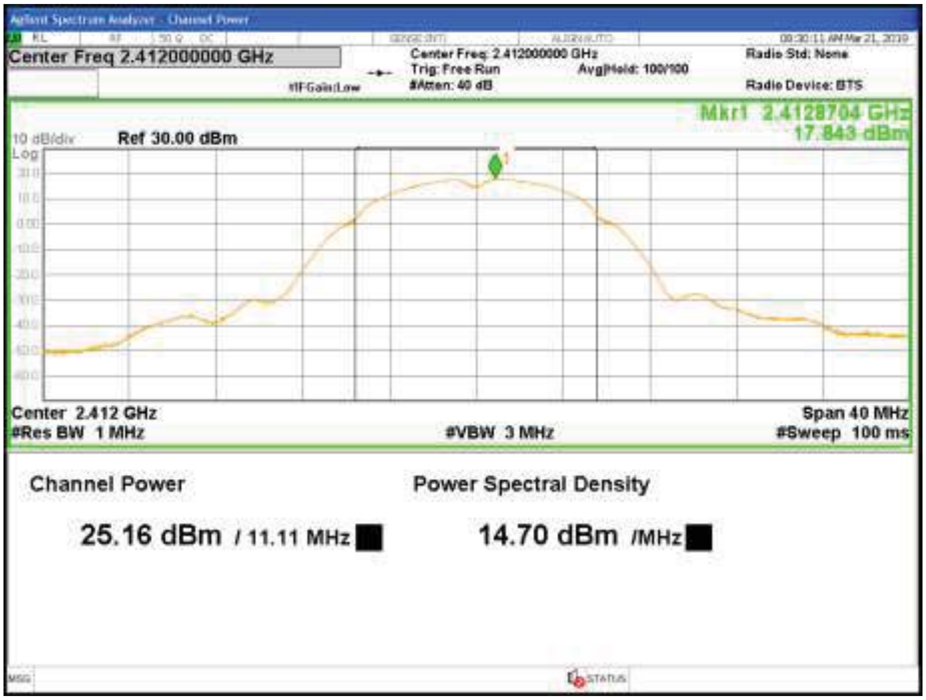



Figure 7: FCC RMS MAX POWER-2412MHz-11b-1x4-q98-Ch2

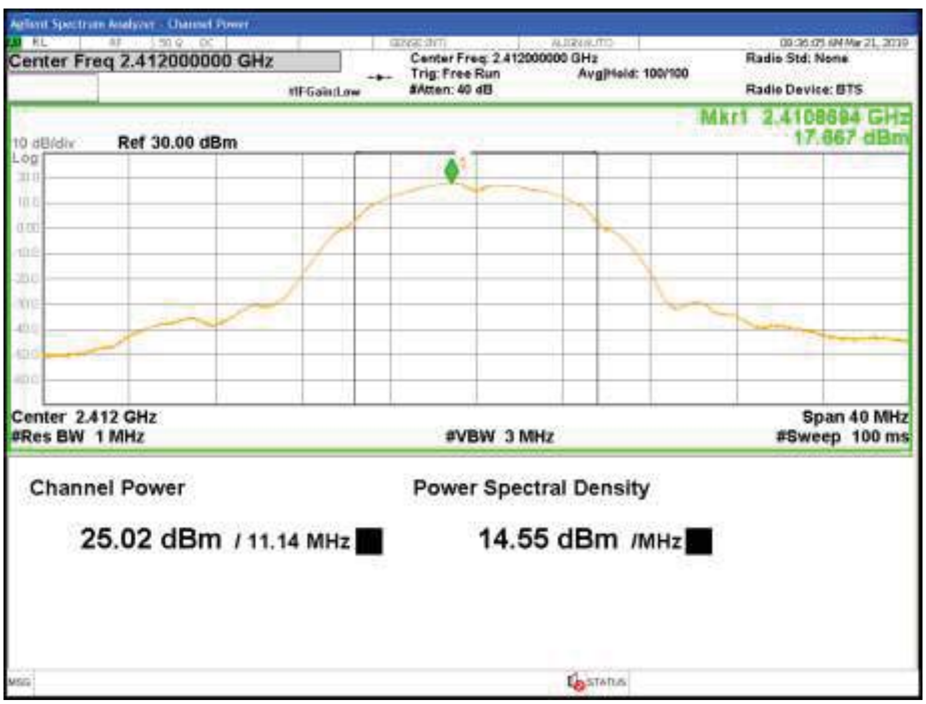



Figure 8: FCC RMS MAX POWER-2412MHz-11b-1x4-q98-Ch3


Figure 9: FCC RMS MAX POWER-2437MHz-11b-1x4-q90-Ch0


Figure 10: FCC RMS MAX POWER-2437MHz-11b-1x4-q90-Ch1


Figure 11: FCC RMS MAX POWER-2437MHz-11b-1x4-q90-Ch2


Figure 12: FCC RMS MAX POWER-2437MHz-11b-1x4-q90-Ch3


Figure 13: FCC RMS MAX POWER-2462MHz-11b-1x4-q78-Ch0


Figure 14: FCC RMS MAX POWER-2462MHz-11b-1x4-q78-Ch1

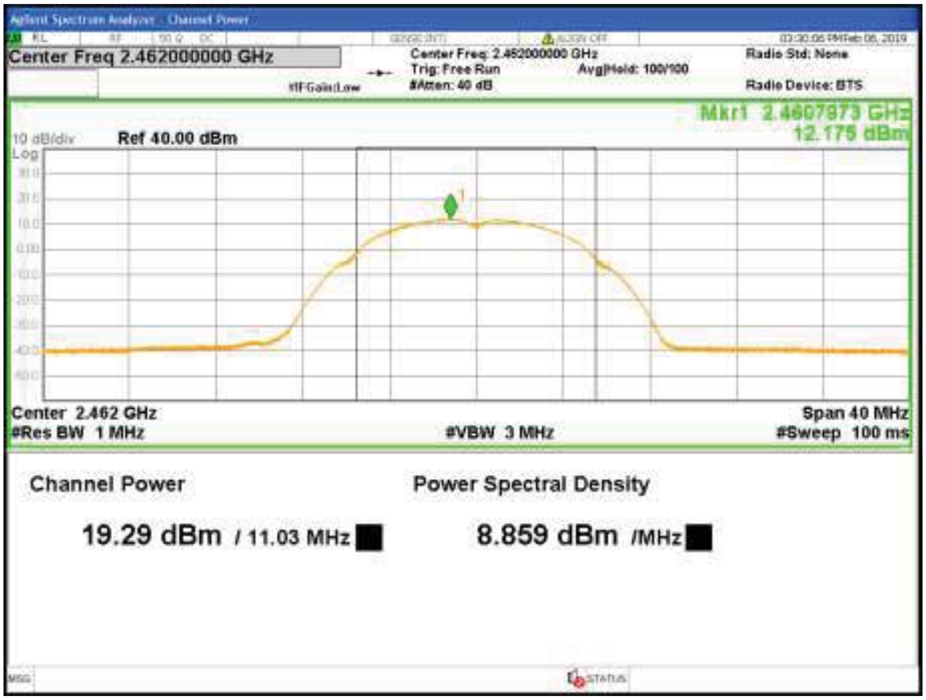



Figure 15: FCC RMS MAX POWER-2462MHz-11b-1x4-q78-Ch2


Figure 16: FCC RMS MAX POWER-2462MHz-11b-1x4-q78-Ch3

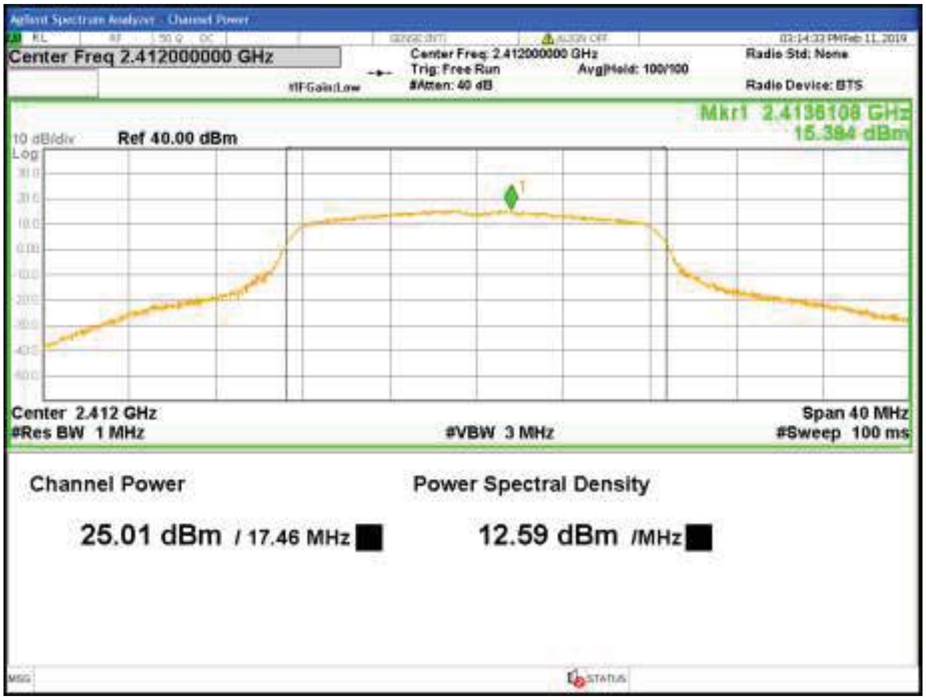



Figure 17: FCC RMS MAX POWER-2412MHz-11g-1x4-q99-Ch0

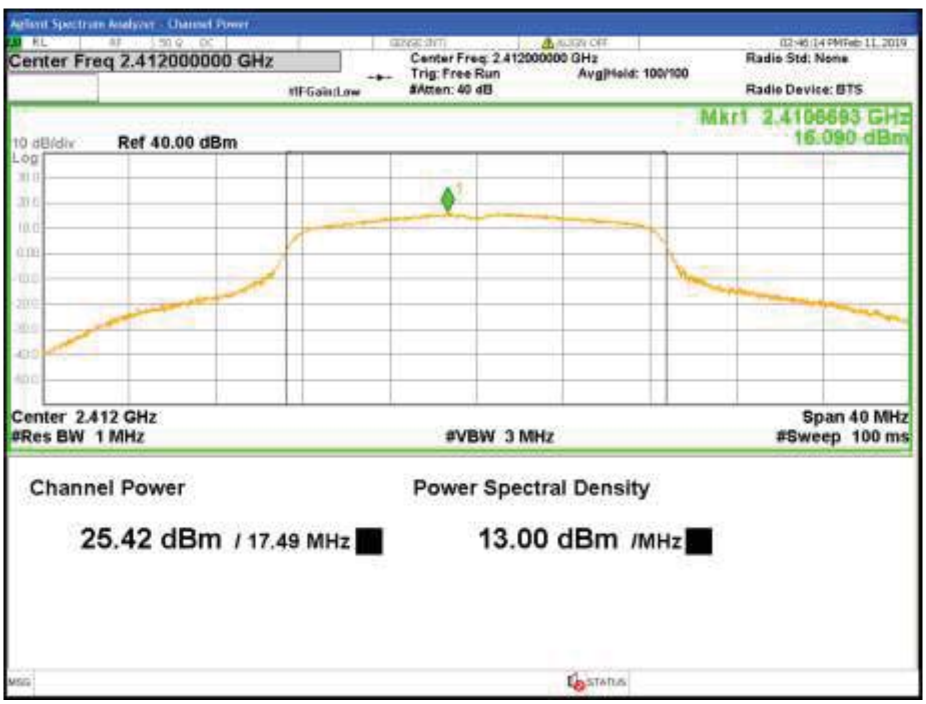



Figure 18: FCC RMS MAX POWER-2412MHz-11g-1x4-q99-Ch1

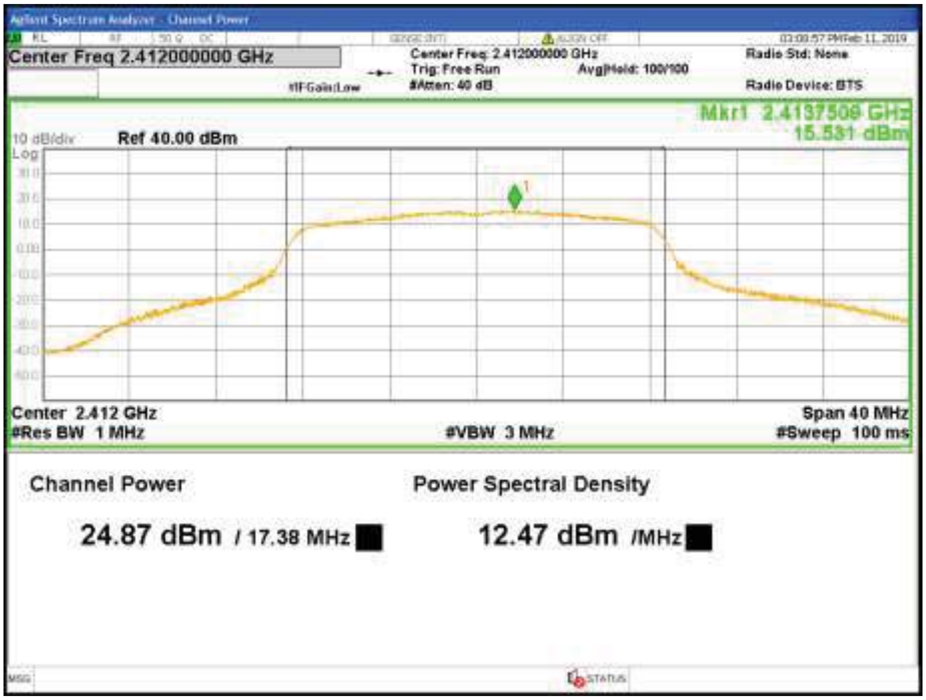



Figure 19: FCC RMS MAX POWER-2412MHz-11g-1x4-q99-Ch2

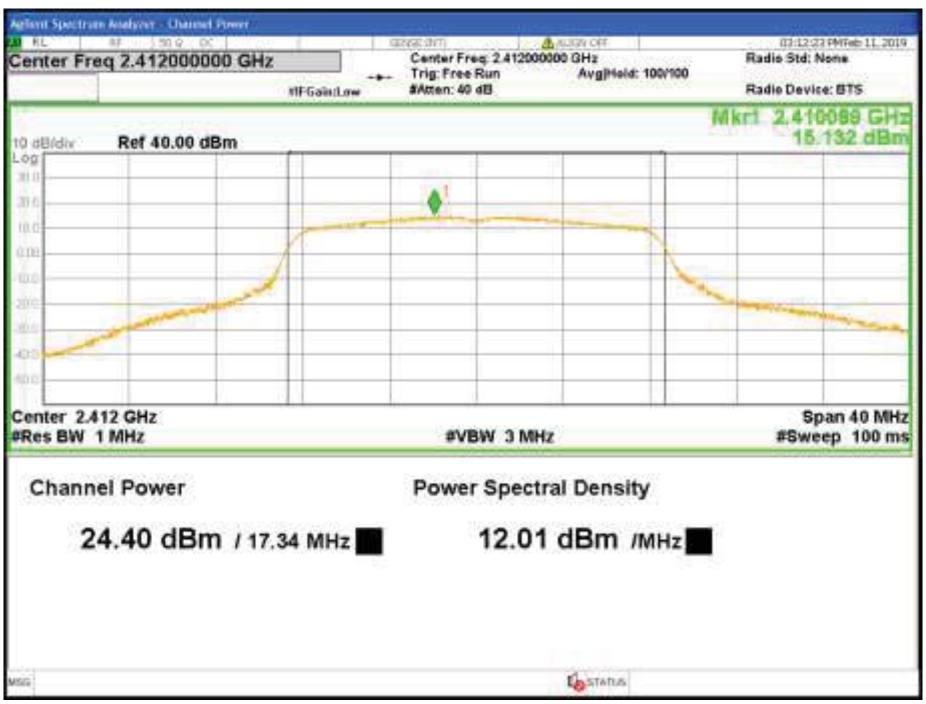



Figure 20: FCC RMS MAX POWER-2412MHz-11g-1x4-q99-Ch3

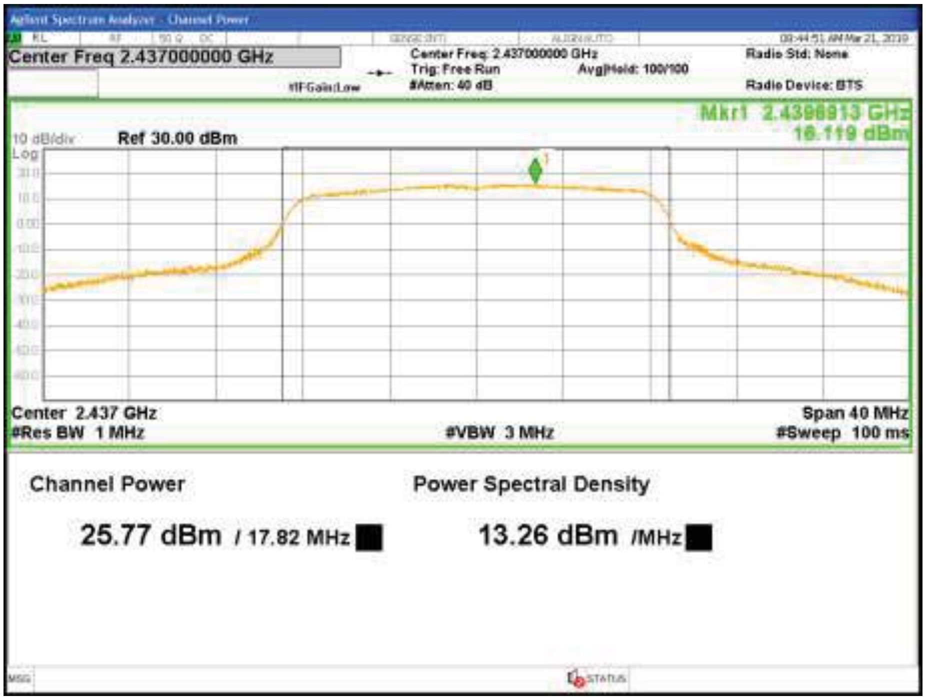



Figure 21: FCC RMS MAX POWER-2437MHz-11g-1x4-q100-Ch0

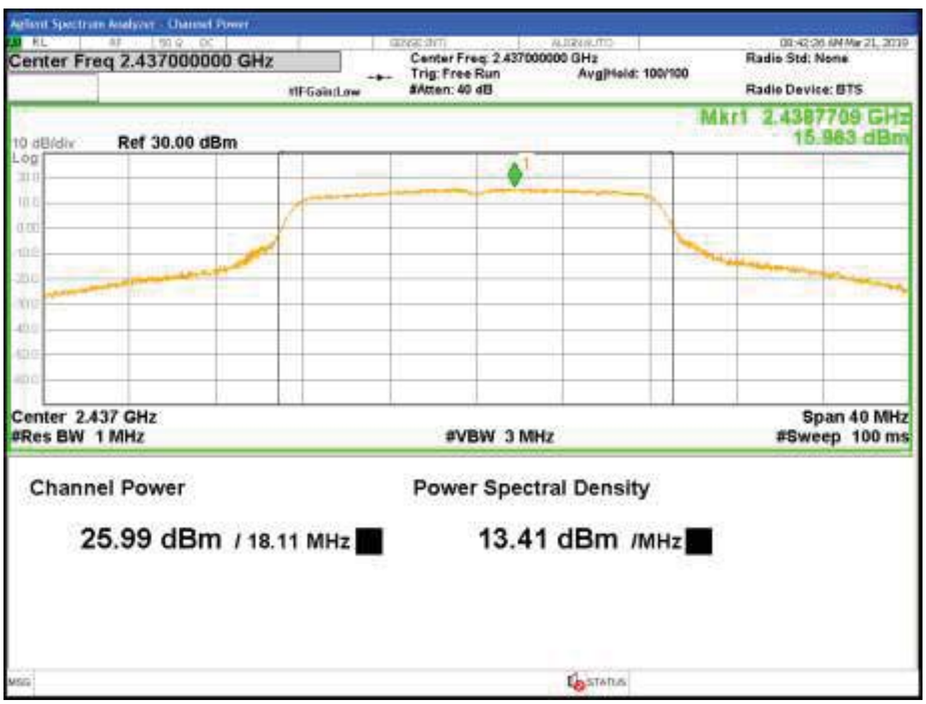



Figure 22: FCC RMS MAX POWER-2437MHz-11g-1x4-q100-Ch1

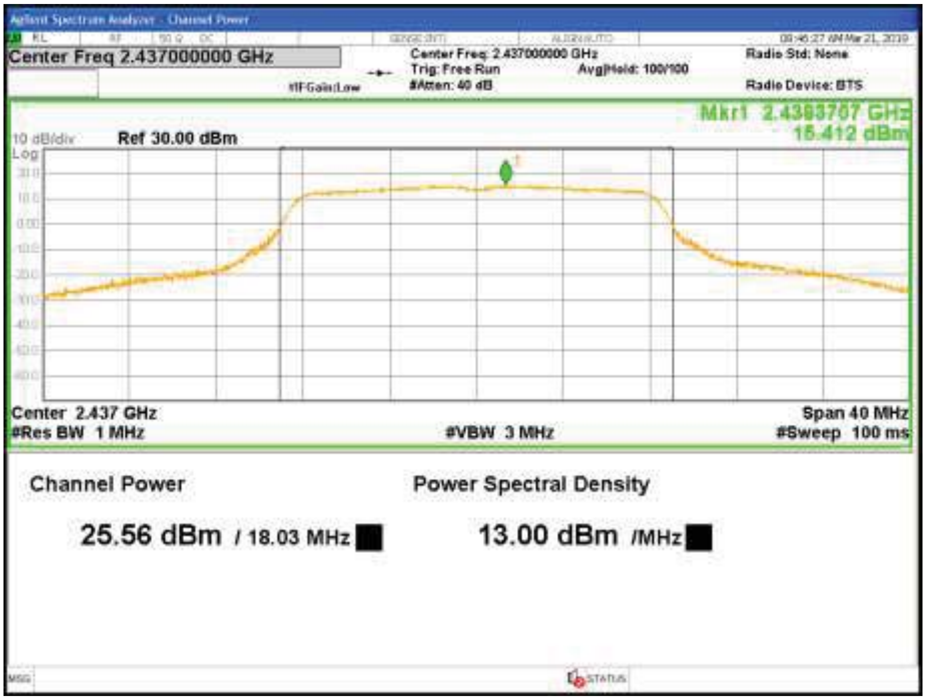



Figure 23: FCC RMS MAX POWER-2437MHz-11g-1x4-q100-Ch2


Figure 24: FCC RMS MAX POWER-2437MHz-11g-1x4-q100-Ch3

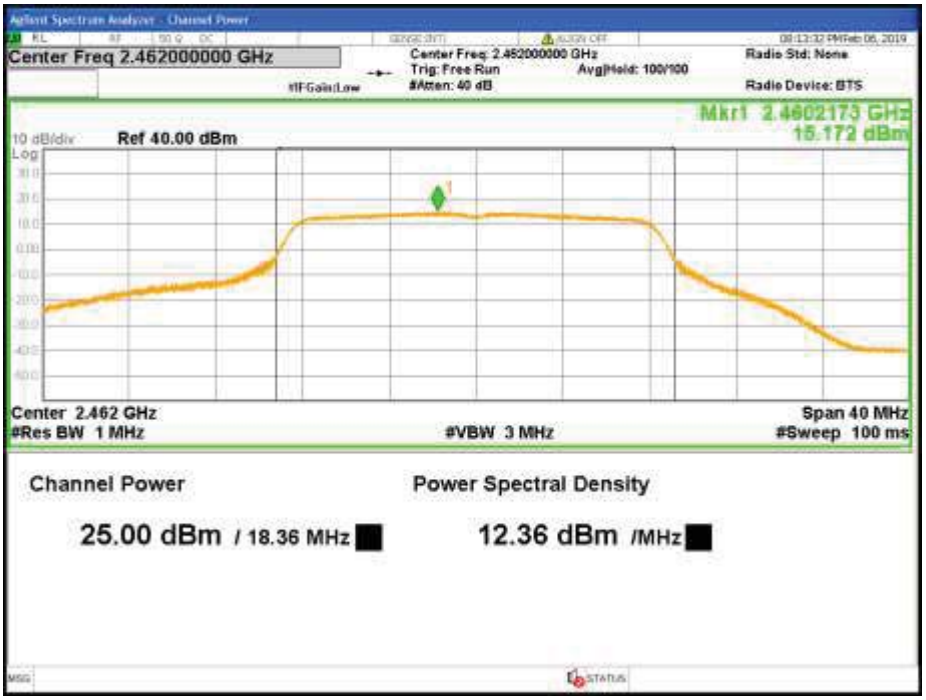



Figure 25: FCC RMS MAX POWER-2462MHz-11g-1x4-q102-Ch0


Figure 26: FCC RMS MAX POWER-2462MHz-11g-1x4-q102-Ch1

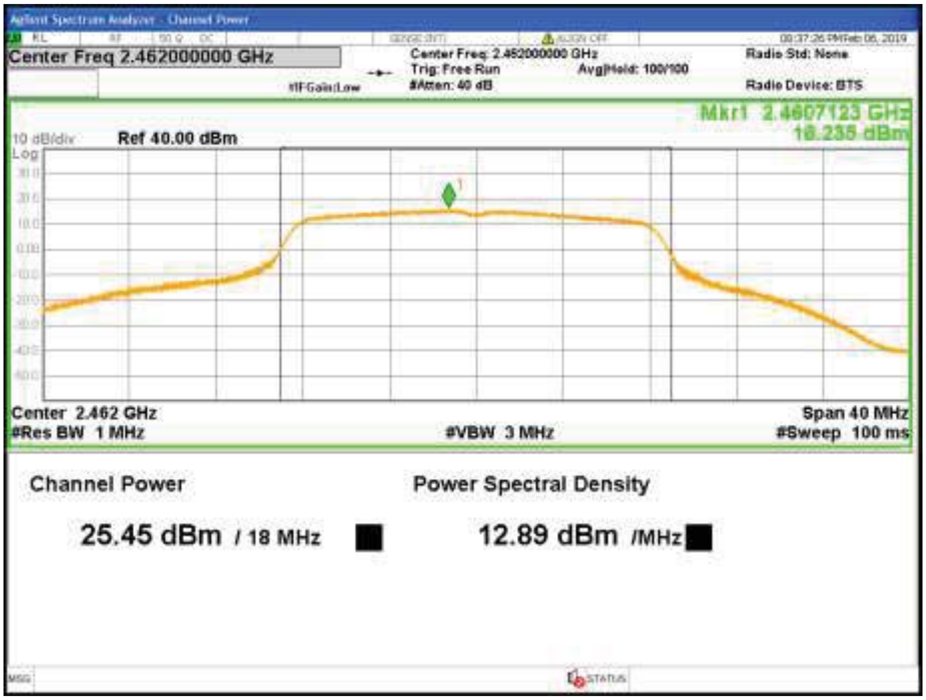



Figure 27: FCC RMS MAX POWER-2462MHz-11g-1x4-q102-Ch2

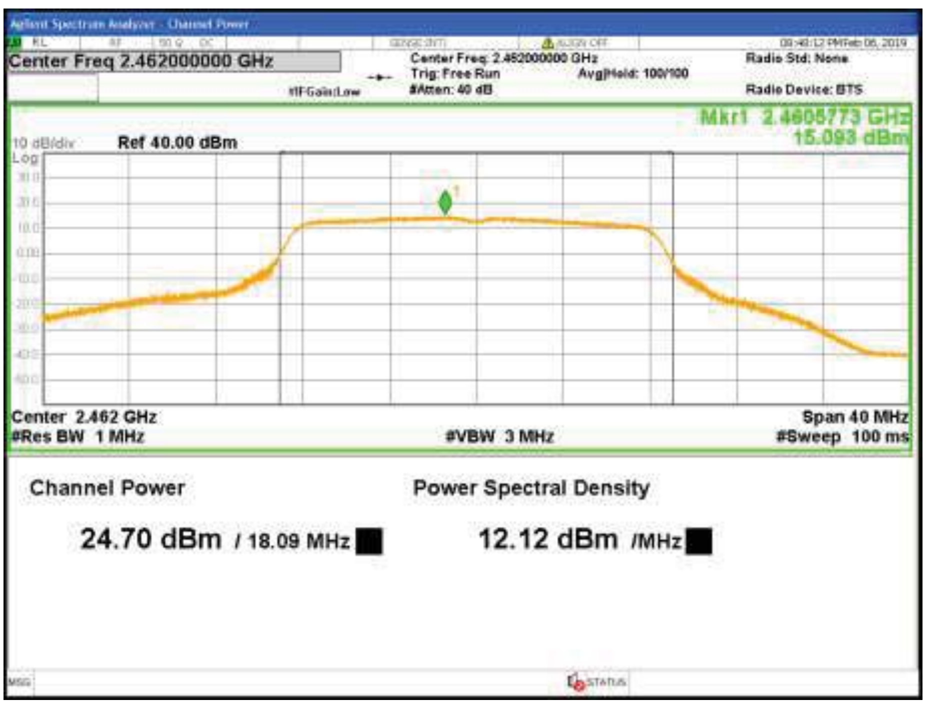



Figure 28: FCC RMS MAX POWER-2462MHz-11g-1x4-q102-Ch3

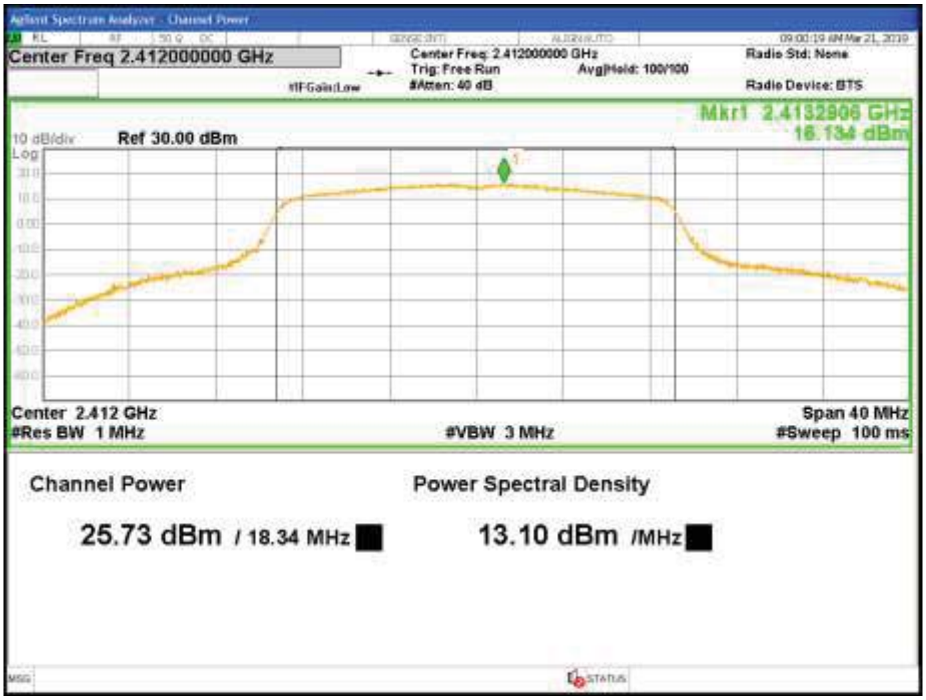



Figure 29: FCC RMS MAX POWER-2412MHz-HT20-1x4-q100-Ch0


Figure 30: FCC RMS MAX POWER-2412MHz-HT20-1x4-q100-Ch1

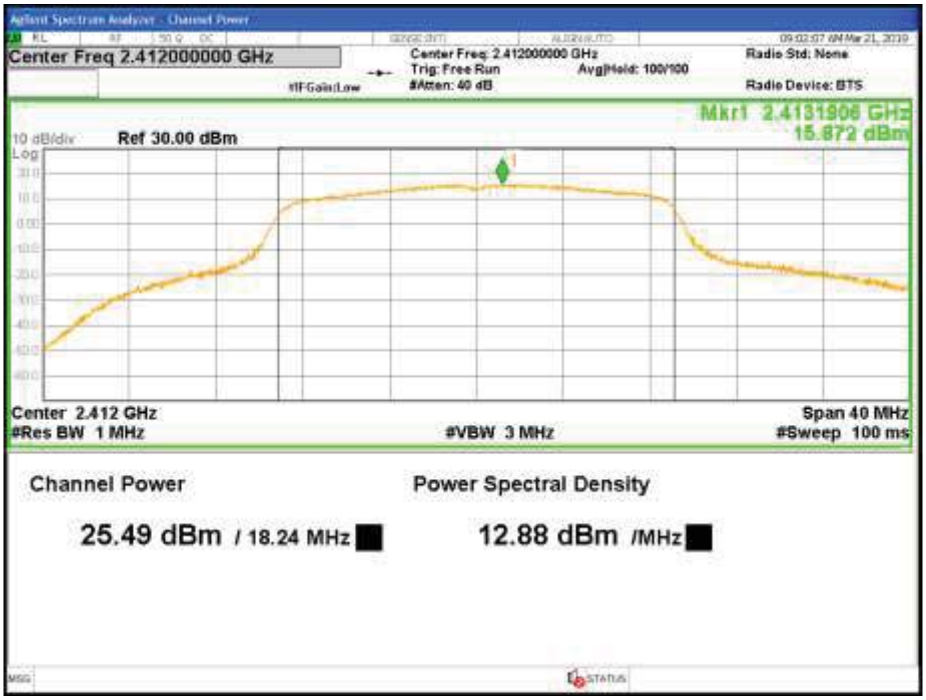



Figure 31: FCC RMS MAX POWER-2412MHz-HT20-1x4-q100-Ch2

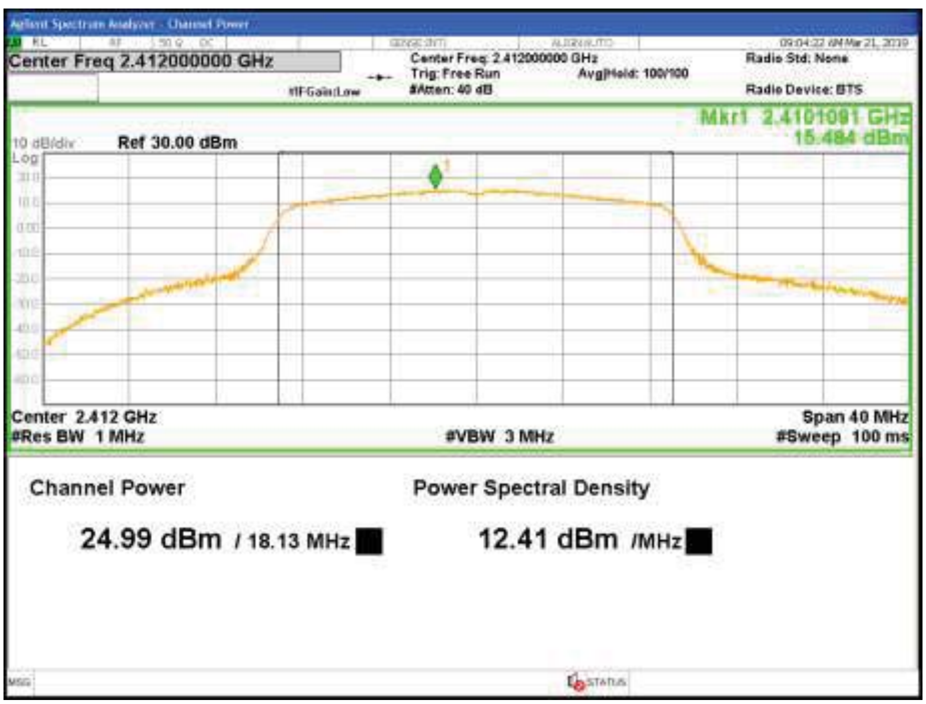



Figure 32: FCC RMS MAX POWER-2412MHz-HT20-1x4-q100-Ch3

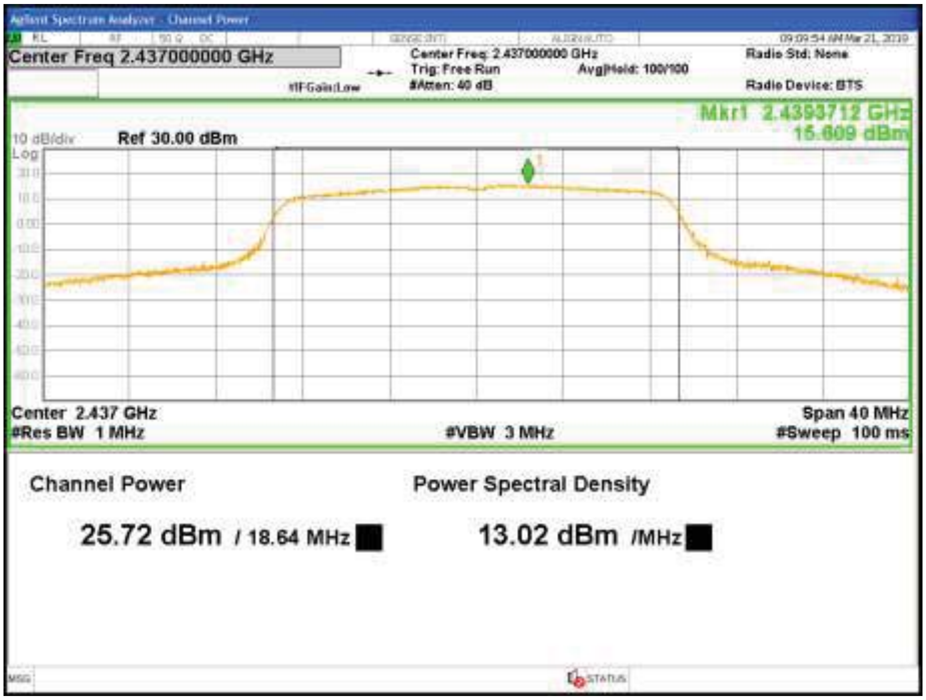



Figure 33: FCC RMS MAX POWER-2437MHz-HT20-1x4-q100-Ch0

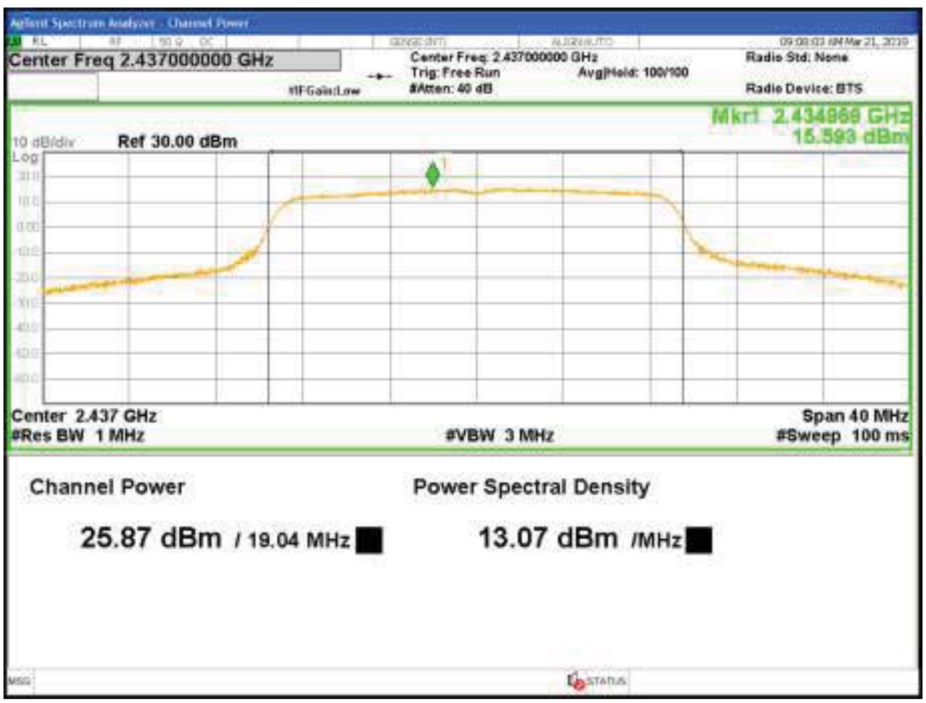



Figure 34: FCC RMS MAX POWER-2437MHz-HT20-1x4-q100-Ch1

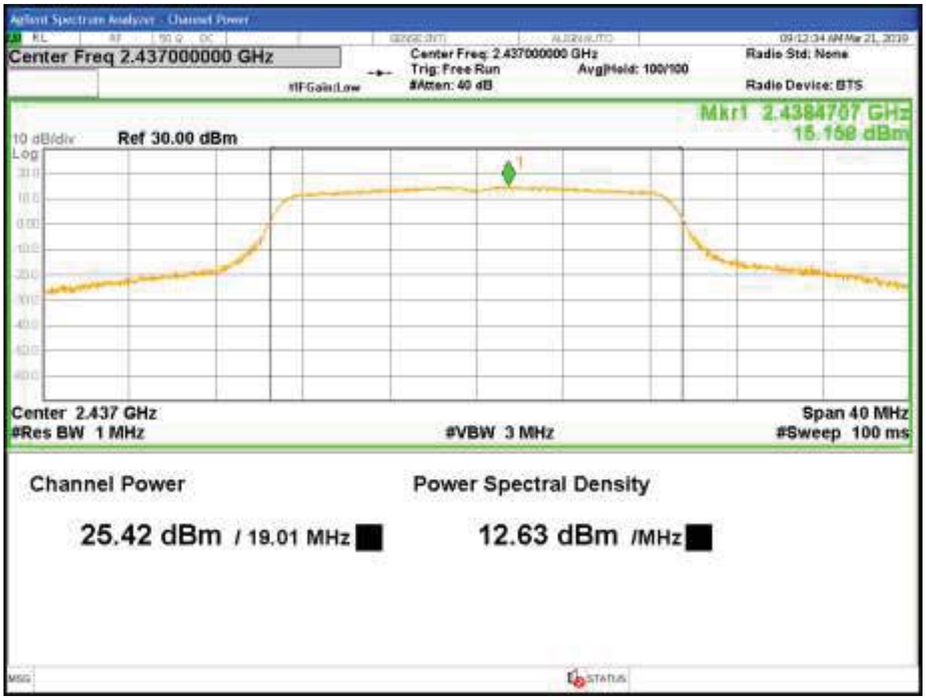



Figure 35: FCC RMS MAX POWER-2437MHz-HT20-1x4-q100-Ch2


Figure 36: FCC RMS MAX POWER-2437MHz-HT20-1x4-q100-Ch3

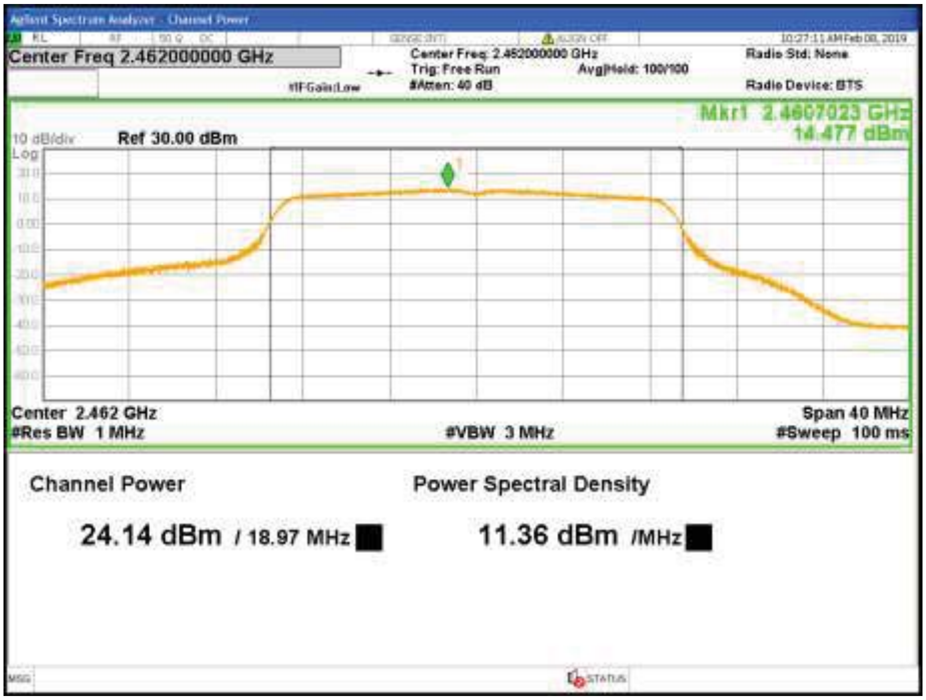



Figure 37: FCC RMS MAX POWER-2462MHz-HT20-1x4-q100-Ch0

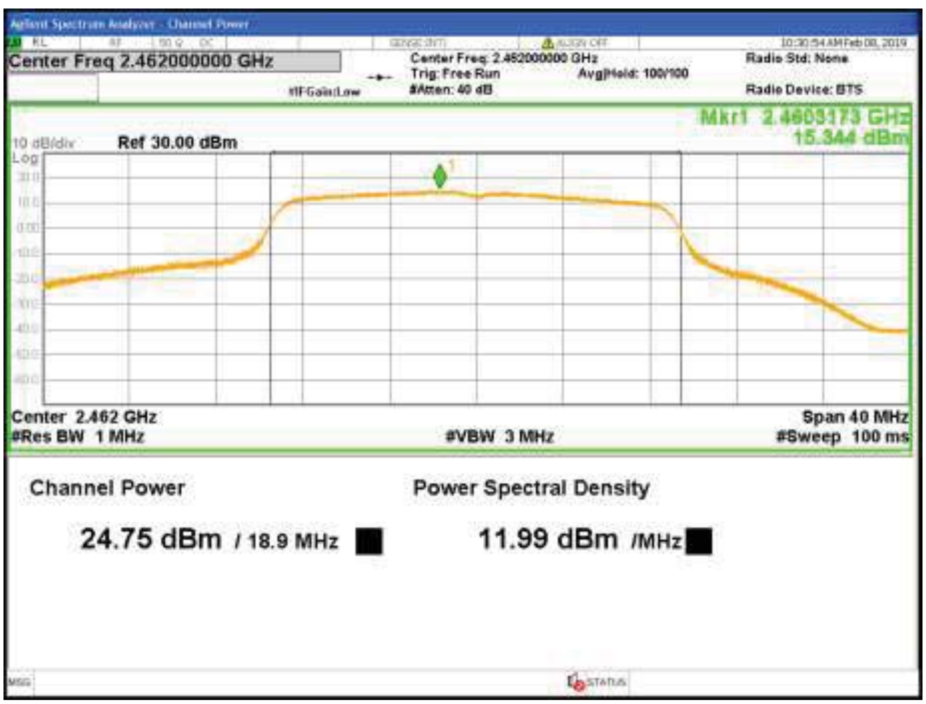



Figure 38: FCC RMS MAX POWER-2462MHz-HT20-1x4-q100-Ch1

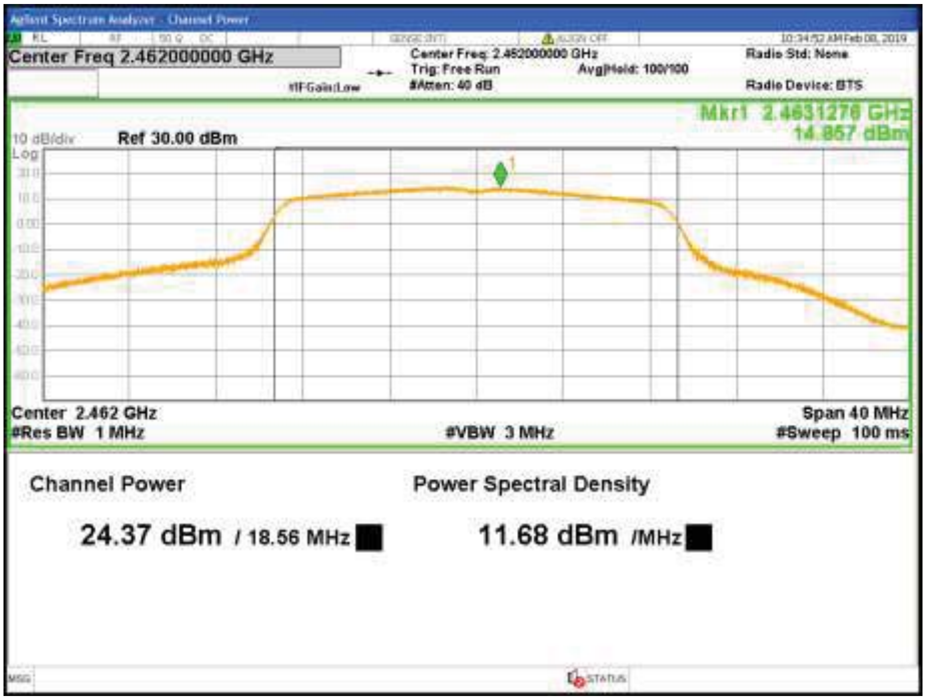



Figure 39: FCC RMS MAX POWER-2462MHz-HT20-1x4-q100-Ch2

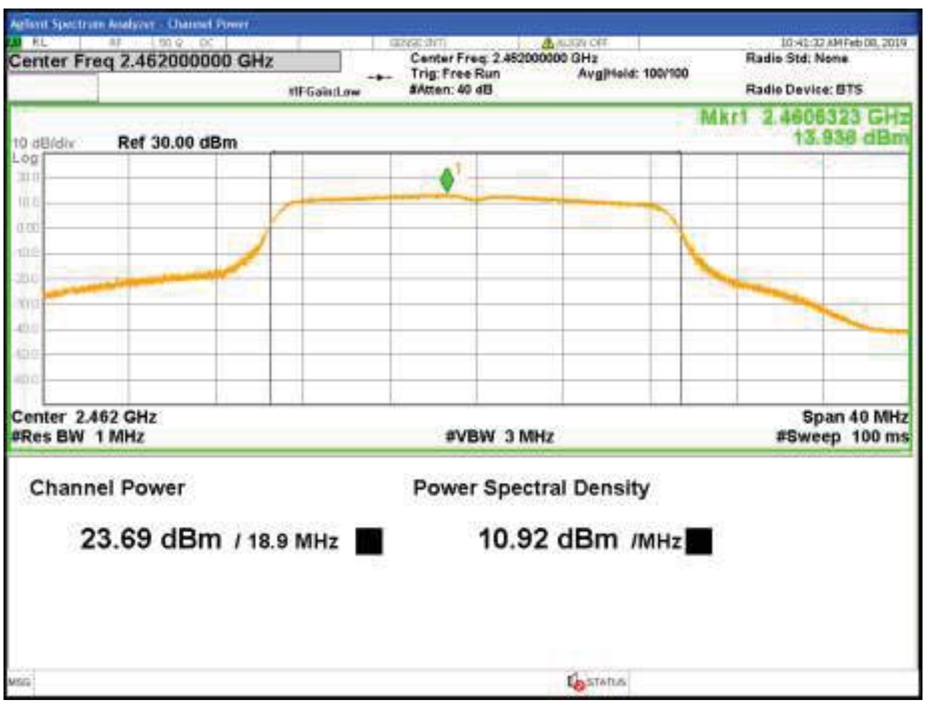



Figure 40: FCC RMS MAX POWER-2462MHz-HT20-1x4-q100-Ch3

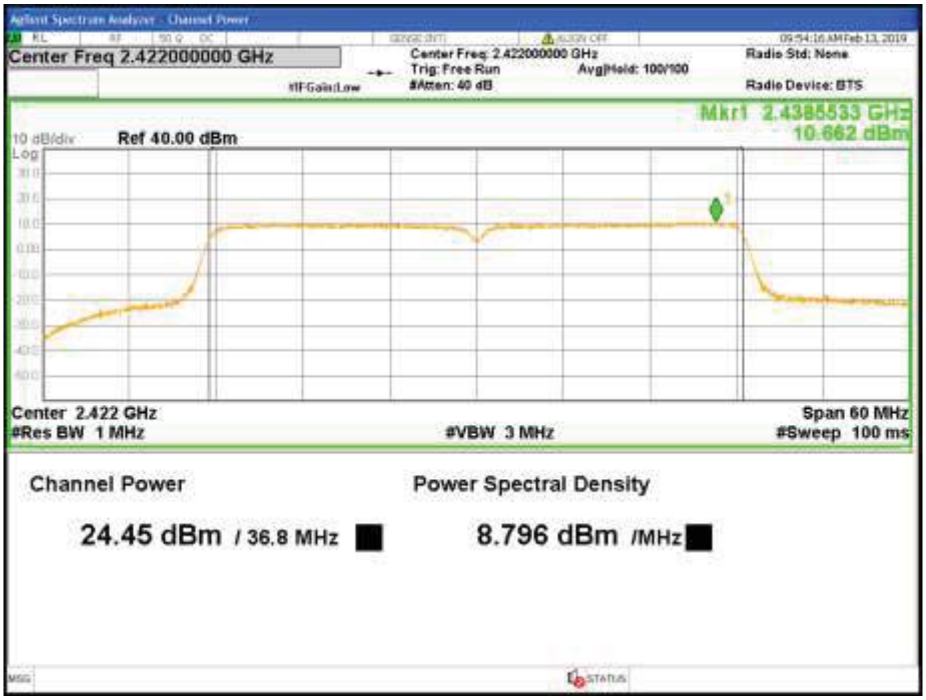



Figure 41: FCC RMS MAX POWER-2422MHz-HT40-1x4-q98-Ch0

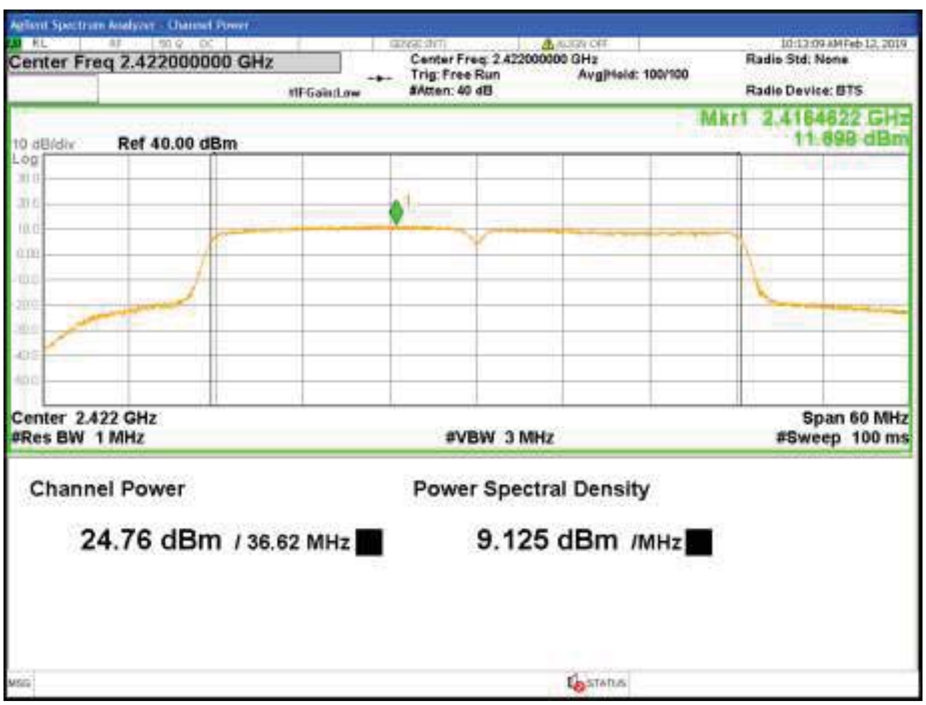



Figure 42: FCC RMS MAX POWER-2422MHz-HT40-1x4-q98-Ch1

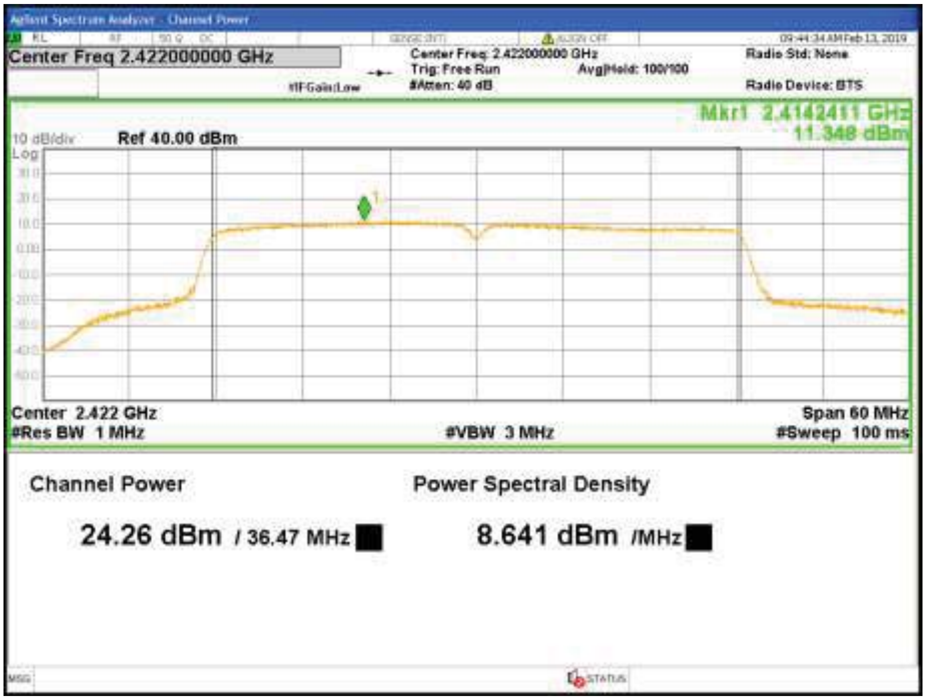



Figure 43: FCC RMS MAX POWER-2422MHz-HT40-1x4-q98-Ch2

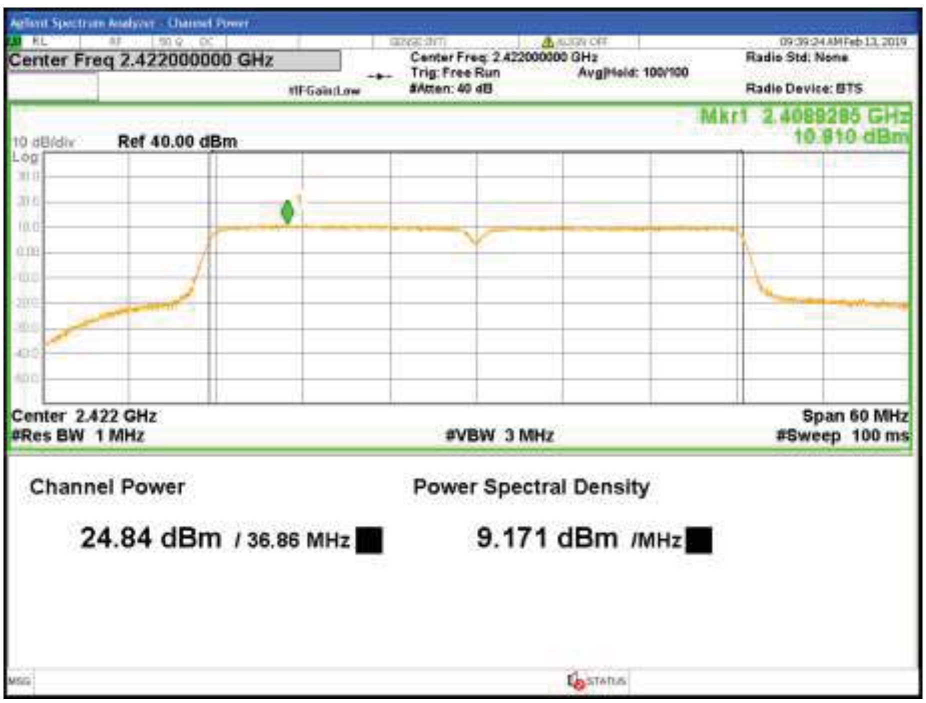



Figure 44: FCC RMS MAX POWER-2422MHz-HT40-1x4-q98-Ch3

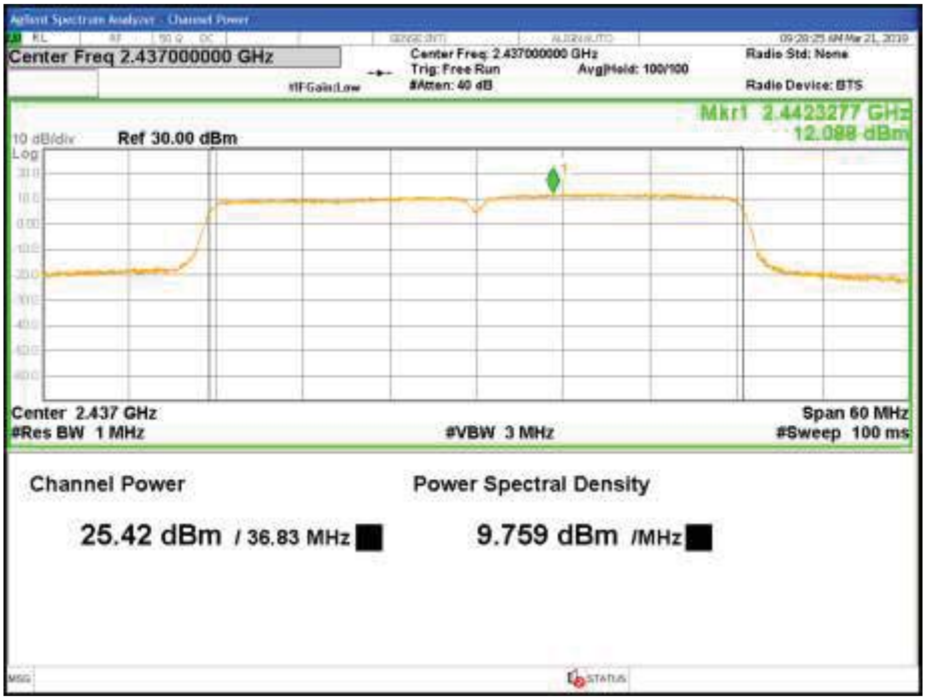



Figure 45: FCC RMS MAX POWER-2437MHz-HT40-1x4-q100-Ch0

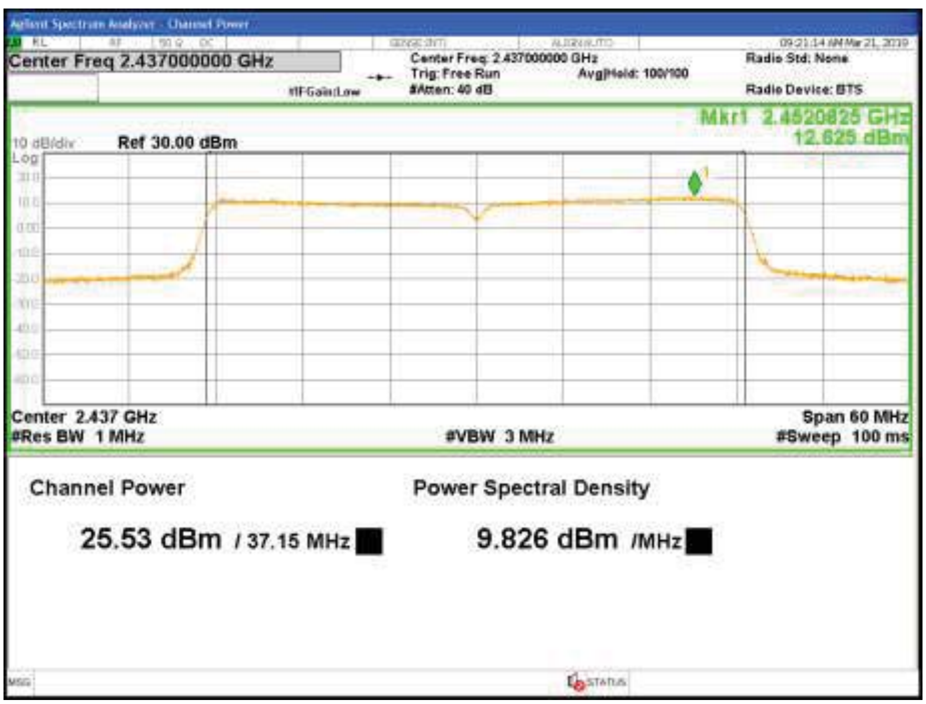



Figure 46: FCC RMS MAX POWER-2437MHz-HT40-1x4-q100-Ch1

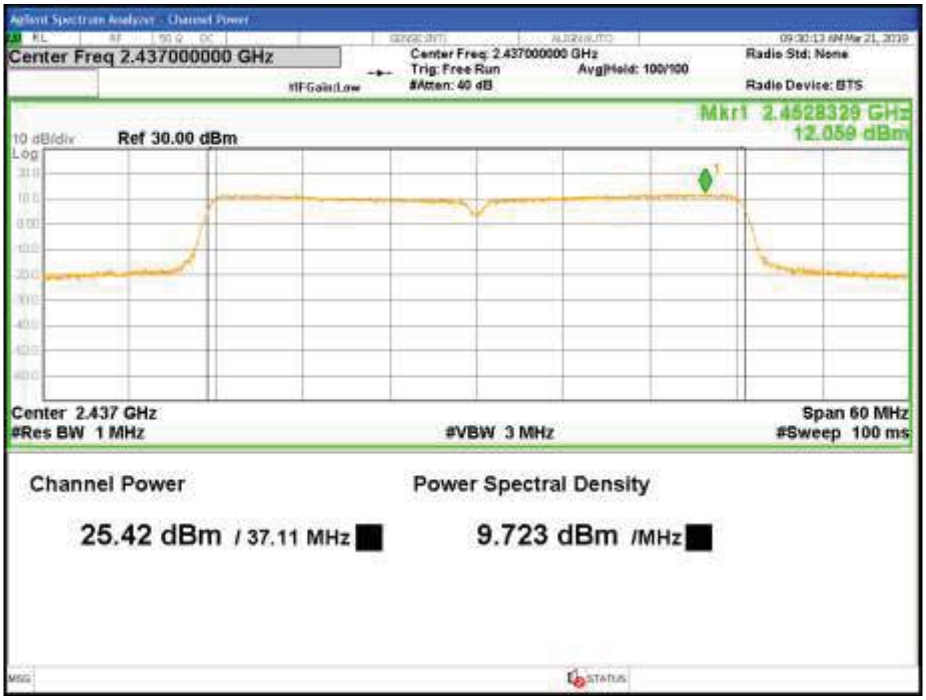



Figure 47: FCC RMS MAX POWER-2437MHz-HT40-1x4-q100-Ch2

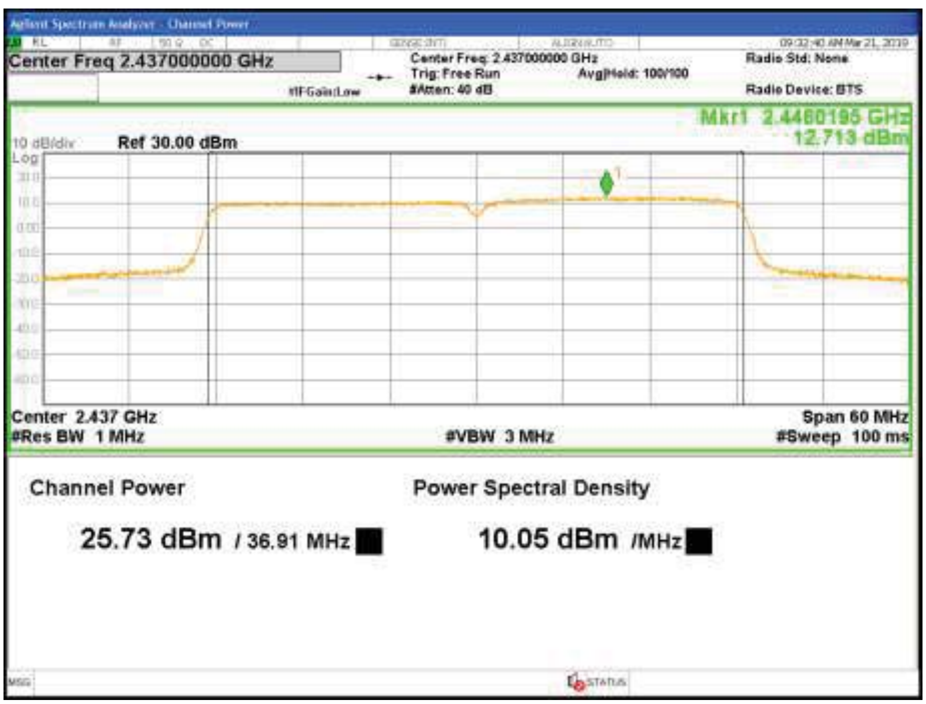



Figure 48: FCC RMS MAX POWER-2437MHz-HT40-1x4-q100-Ch3

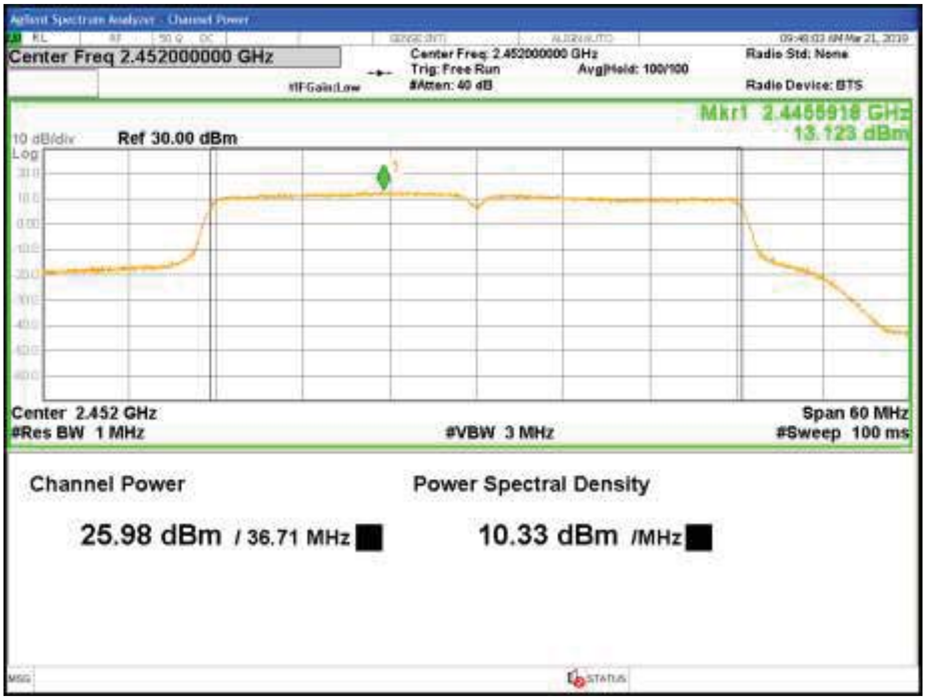



Figure 49: FCC RMS MAX POWER-2452MHz-HT40-1x4-q102-Ch0


Figure 50: FCC RMS MAX POWER-2452MHz-HT40-1x4-q102-Ch1

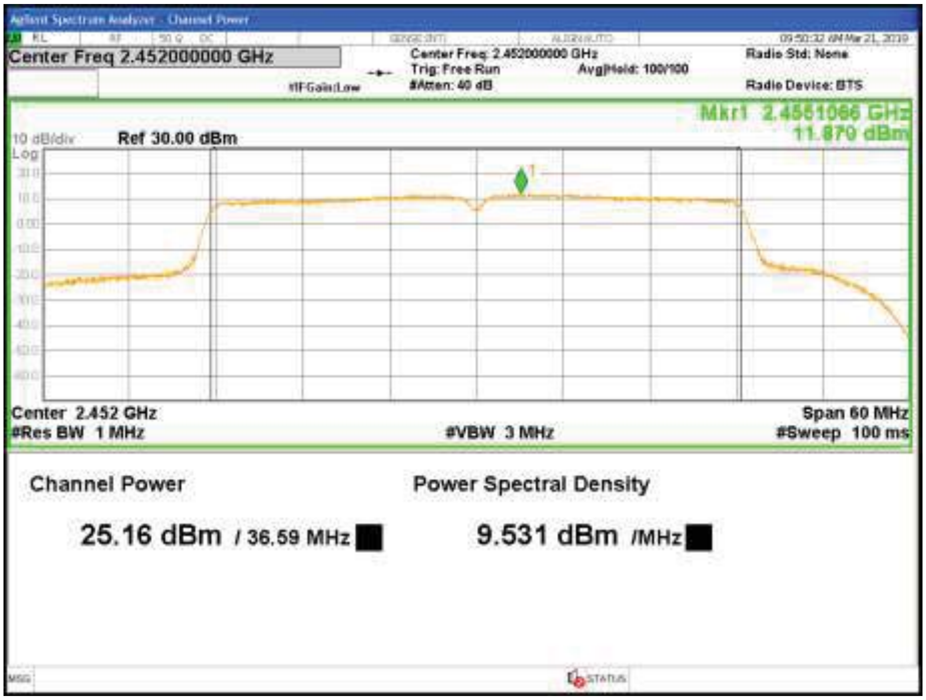



Figure 51: FCC RMS MAX POWER-2452MHz-HT40-1x4-q102-Ch2


Figure 52: FCC RMS MAX POWER-2452MHz-HT40-1x4-q102-Ch3

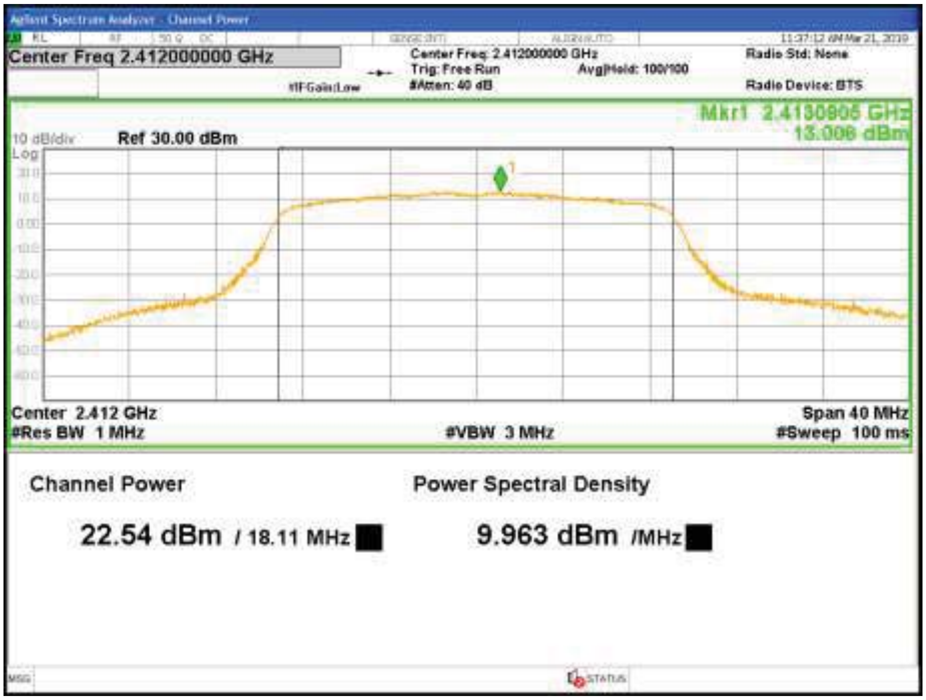



Figure 53: FCC RMS MAX POWER-2412MHz-HT20-4x4-q87-Ch0


Figure 54: FCC RMS MAX POWER-2412MHz-HT20-4x4-q87-Ch1

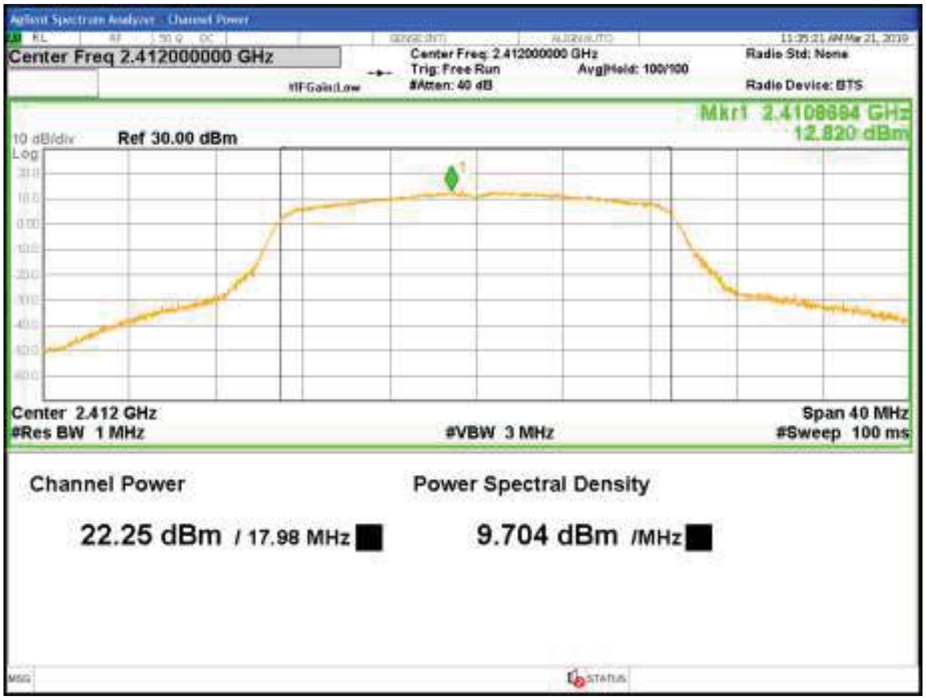



Figure 55: FCC RMS MAX POWER-2412MHz-HT20-4x4-q87-Ch2


Figure 56: FCC RMS MAX POWER-2412MHz-HT20-4x4-q87-Ch3

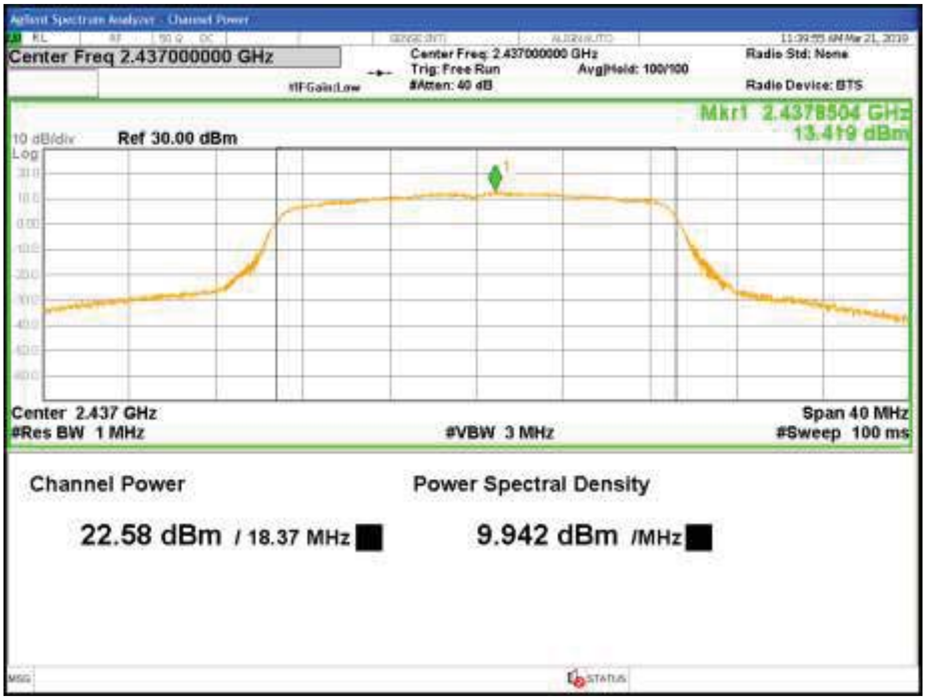



Figure 57: FCC RMS MAX POWER-2437MHz-HT20-4x4-q88-Ch0

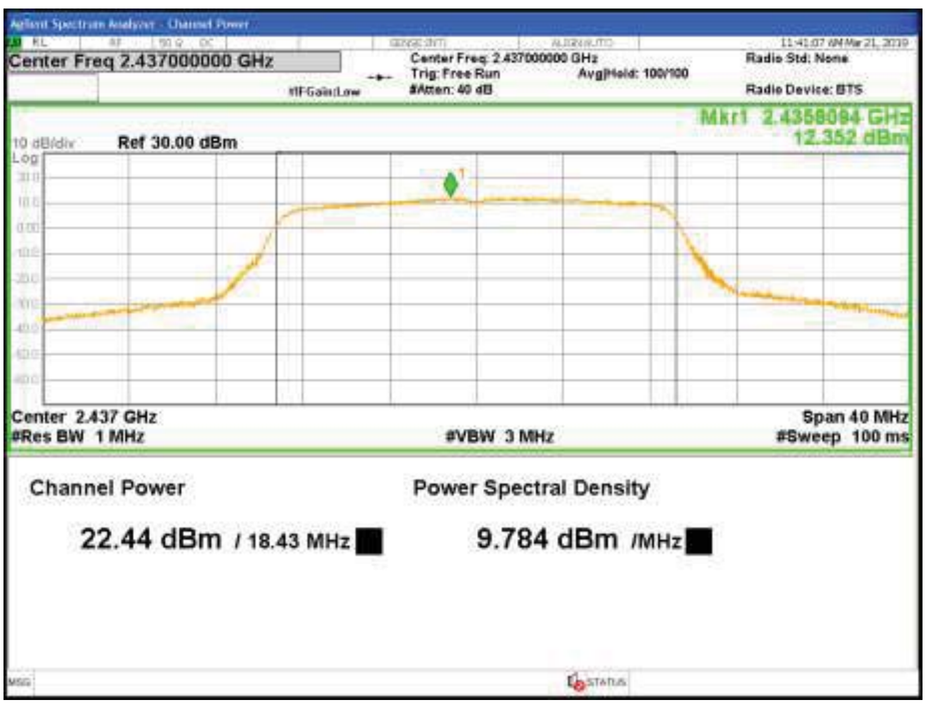



Figure 58: FCC RMS MAX POWER-2437MHz-HT20-4x4-q88-Ch1

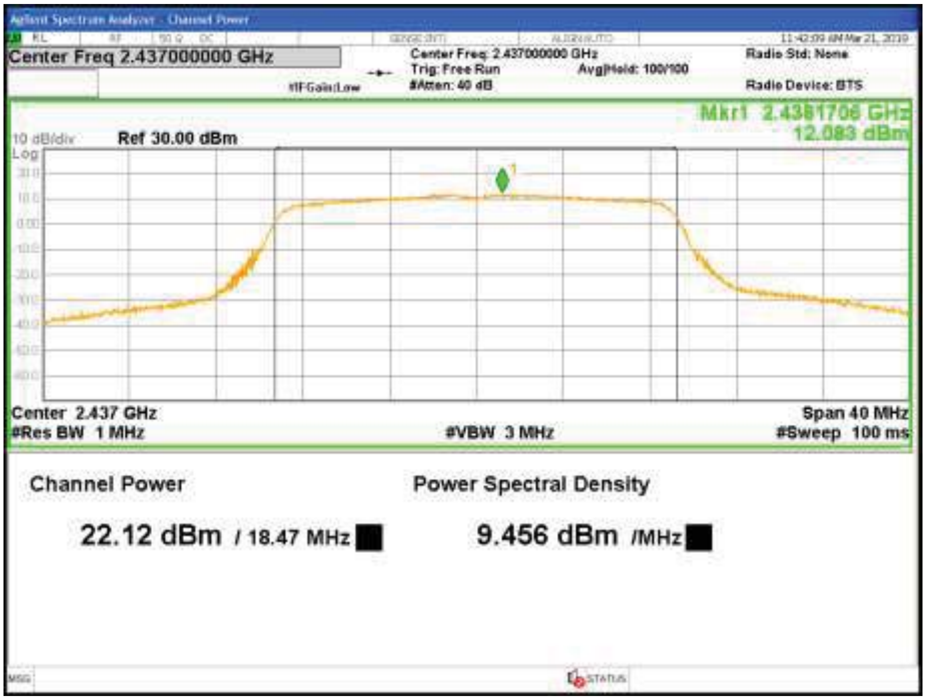



Figure 59: FCC RMS MAX POWER-2437MHz-HT20-4x4-q88-Ch2

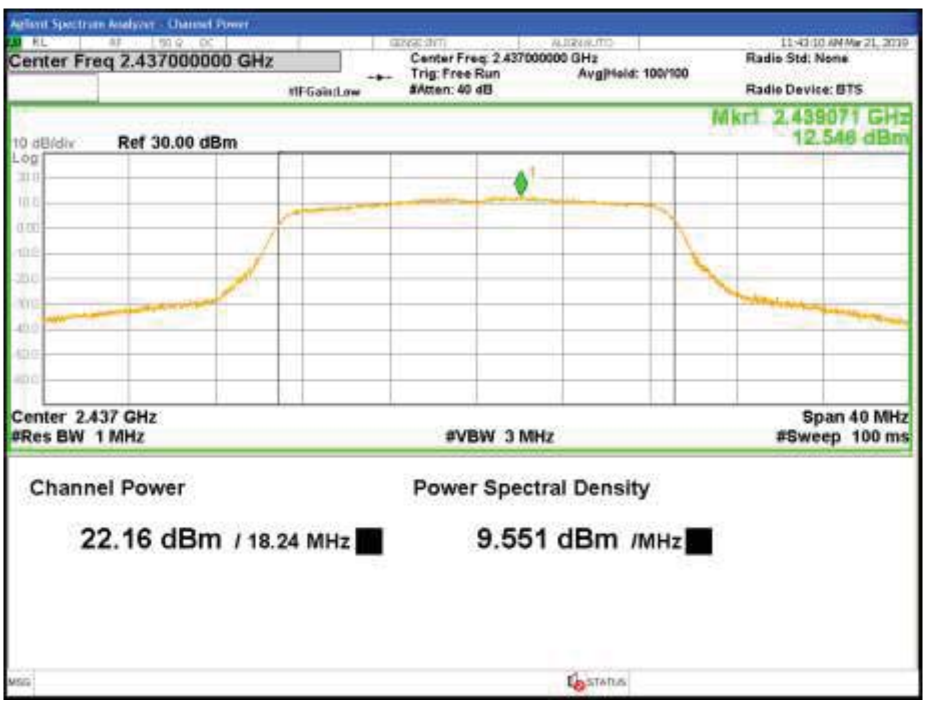



Figure 60: FCC RMS MAX POWER-2437MHz-HT20-4x4-q88-Ch3

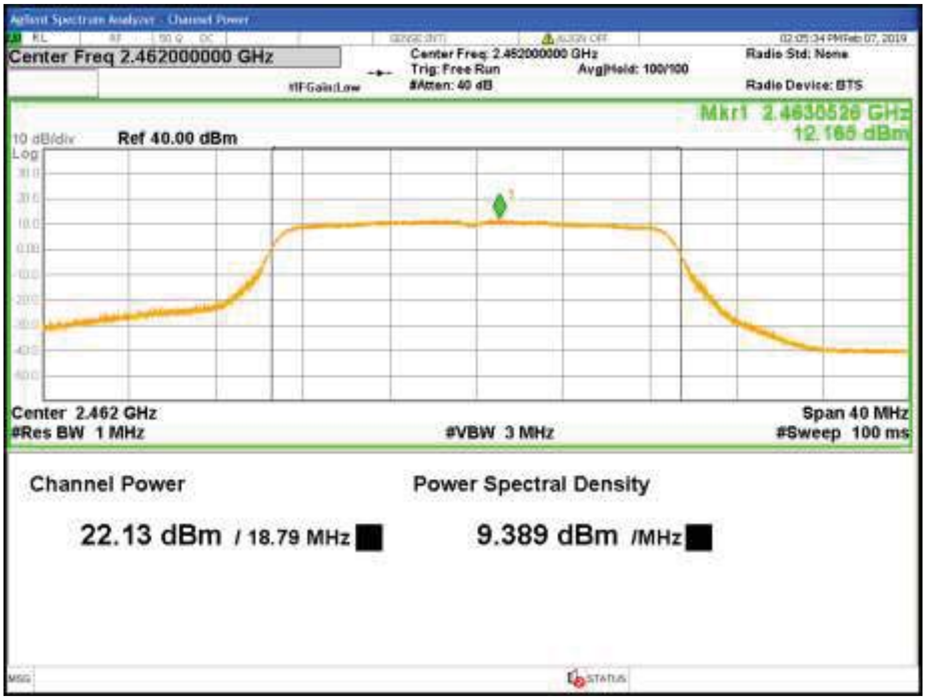



Figure 61: FCC RMS MAX POWER-2462MHz-HT20-4x4-q90-Ch0


Figure 62: FCC RMS MAX POWER-2462MHz-HT20-4x4-q90-Ch1

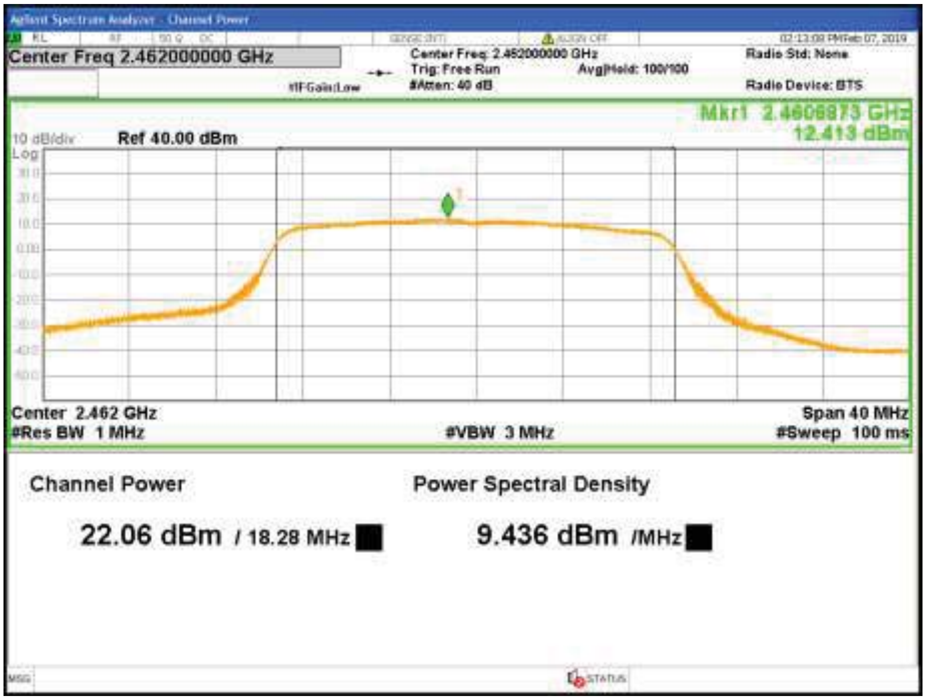



Figure 63: FCC RMS MAX POWER-2462MHz-HT20-4x4-q90-Ch2


Figure 64: FCC RMS MAX POWER-2462MHz-HT20-4x4-q90-Ch3

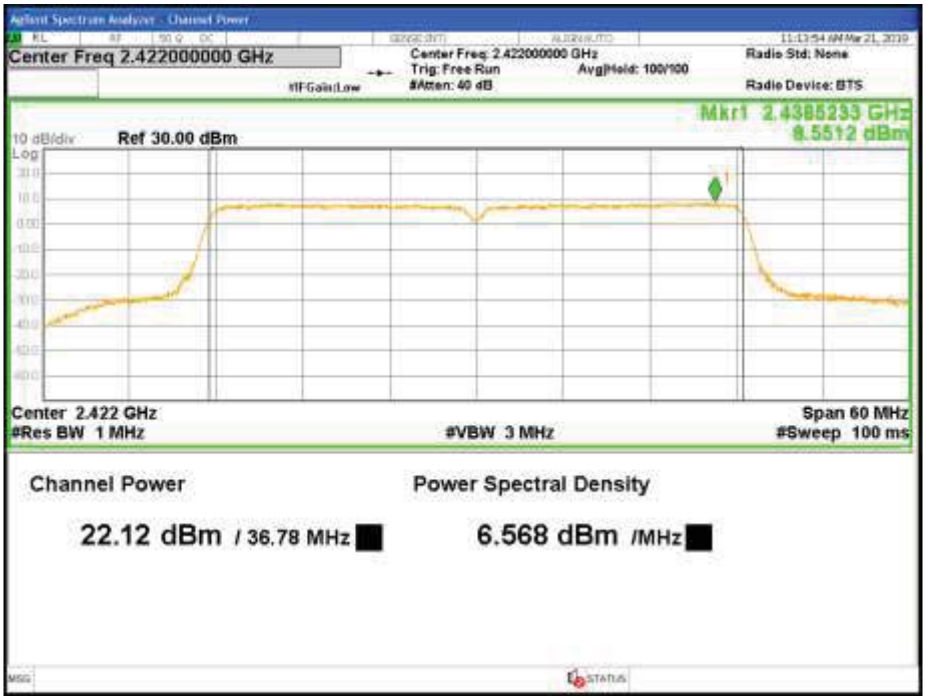



Figure 65: FCC RMS MAX POWER-2422MHz-HT40-4x4-q88-Ch0


Figure 66: FCC RMS MAX POWER-2422MHz-HT40-4x4-q88-Ch1

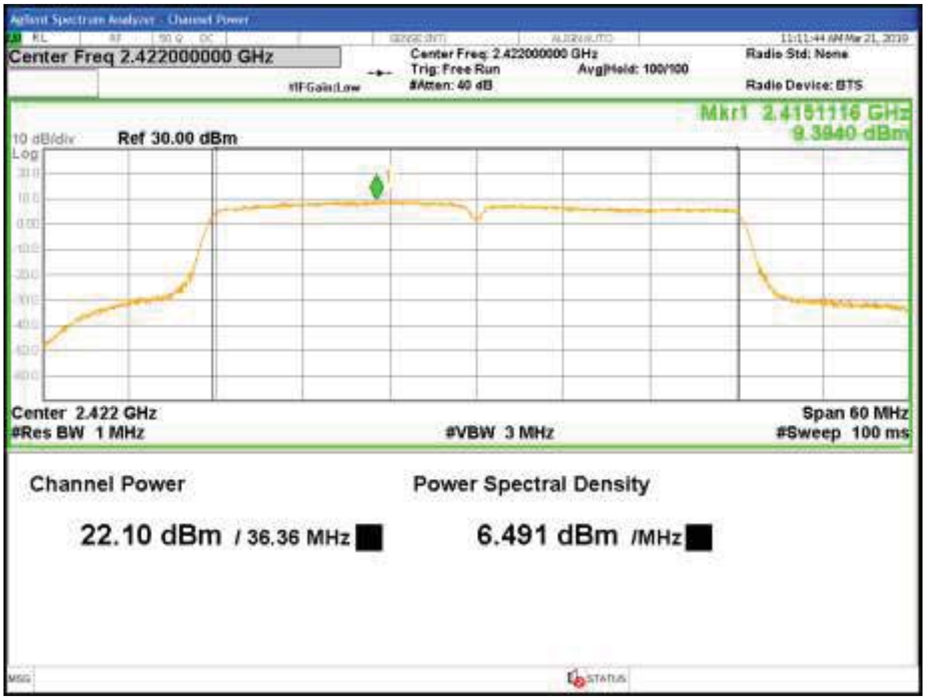



Figure 67: FCC RMS MAX POWER-2422MHz-HT40-4x4-q88-Ch2

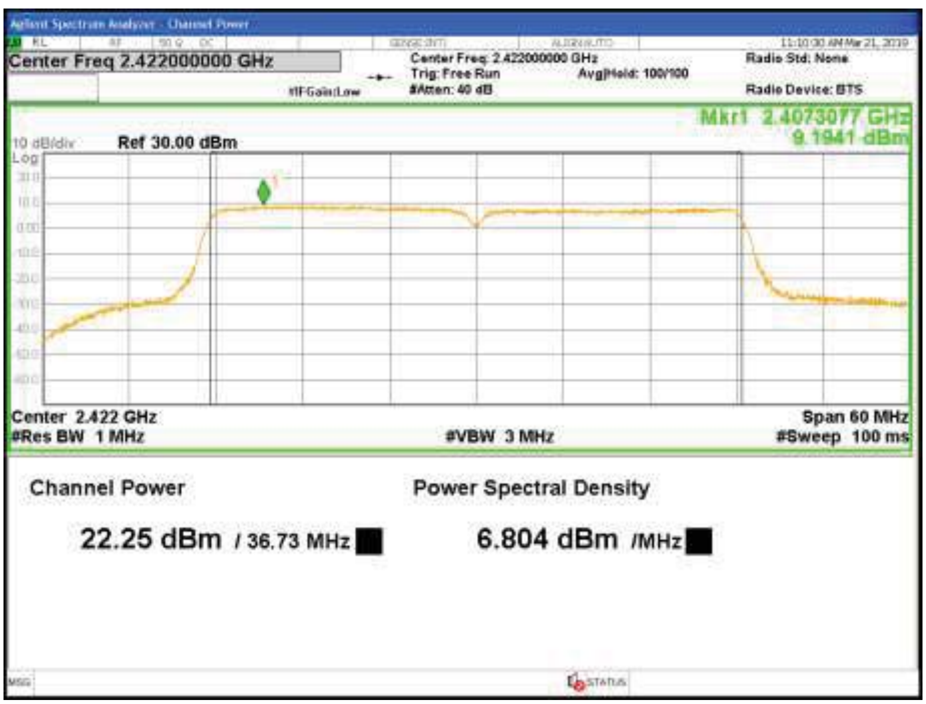



Figure 68: FCC RMS MAX POWER-2422MHz-HT40-4x4-q88-Ch3

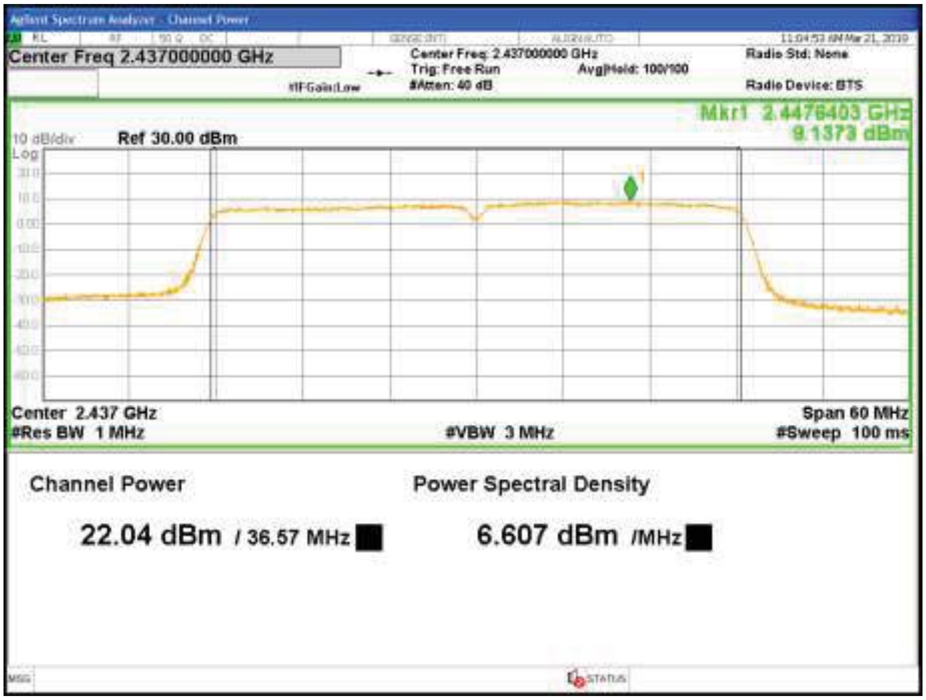



Figure 69: FCC RMS MAX POWER-2437MHz-HT40-4x4-q87-Ch0

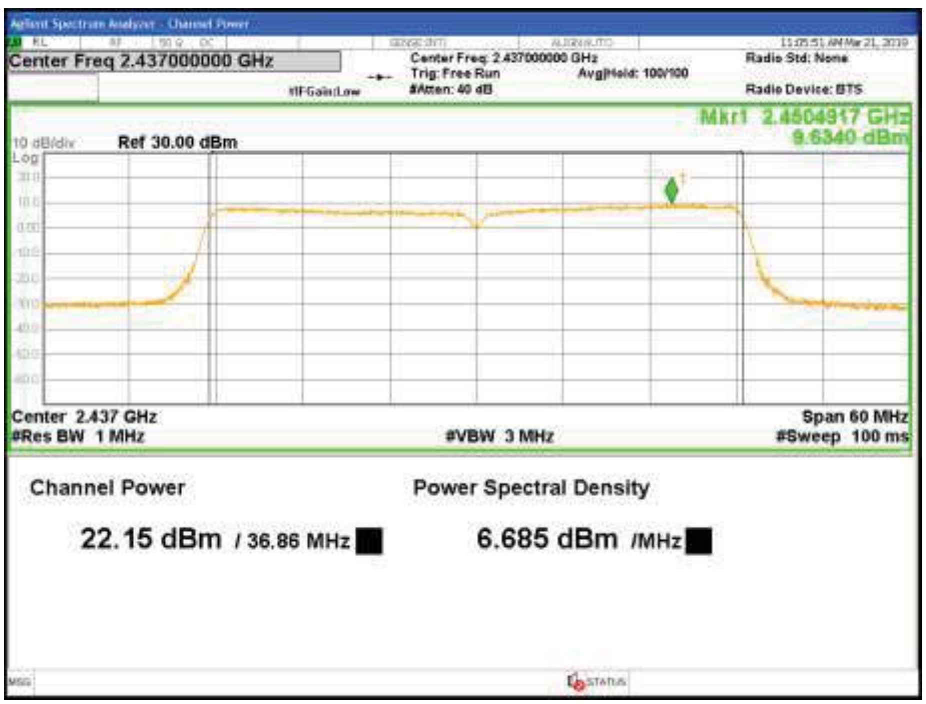



Figure 70: FCC RMS MAX POWER-2437MHz-HT40-4x4-q87-Ch1

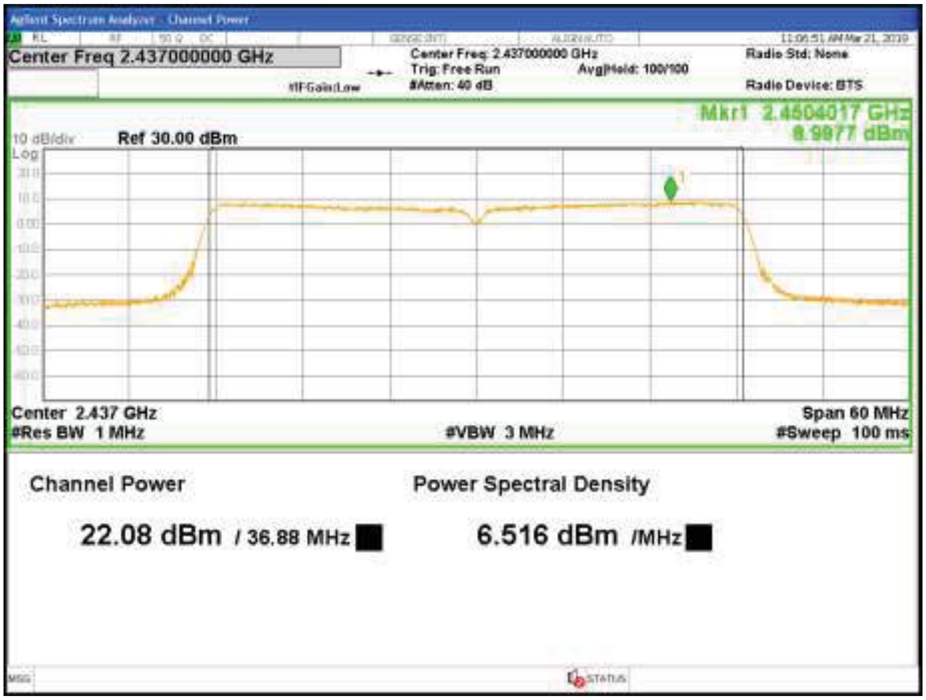



Figure 71: FCC RMS MAX POWER-2437MHz-HT40-4x4-q87-Ch2

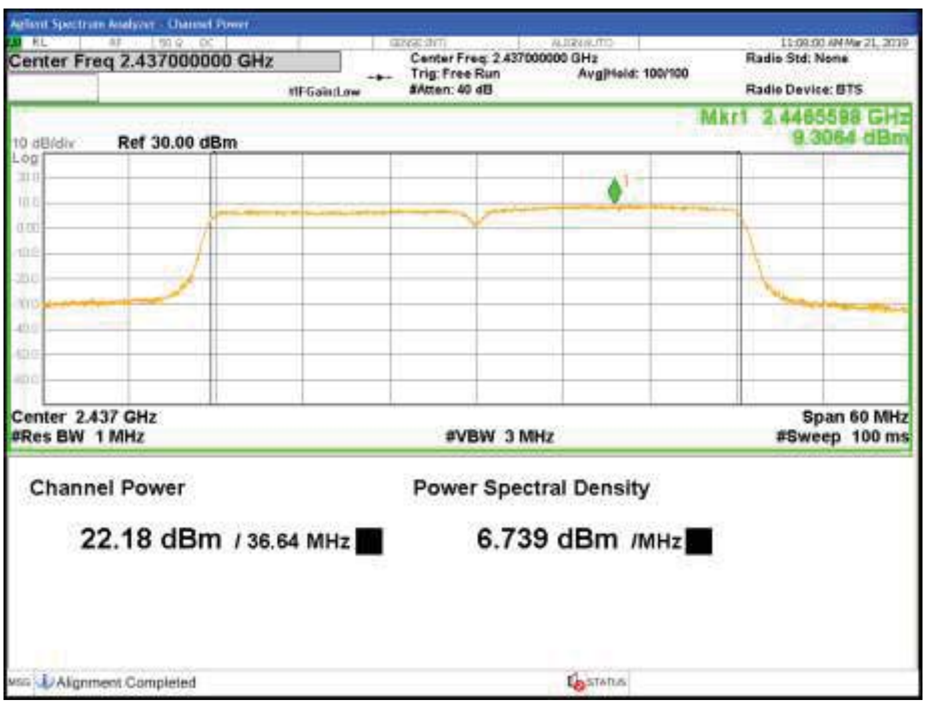



Figure 72: FCC RMS MAX POWER-2437MHz-HT40-4x4-q87-Ch3

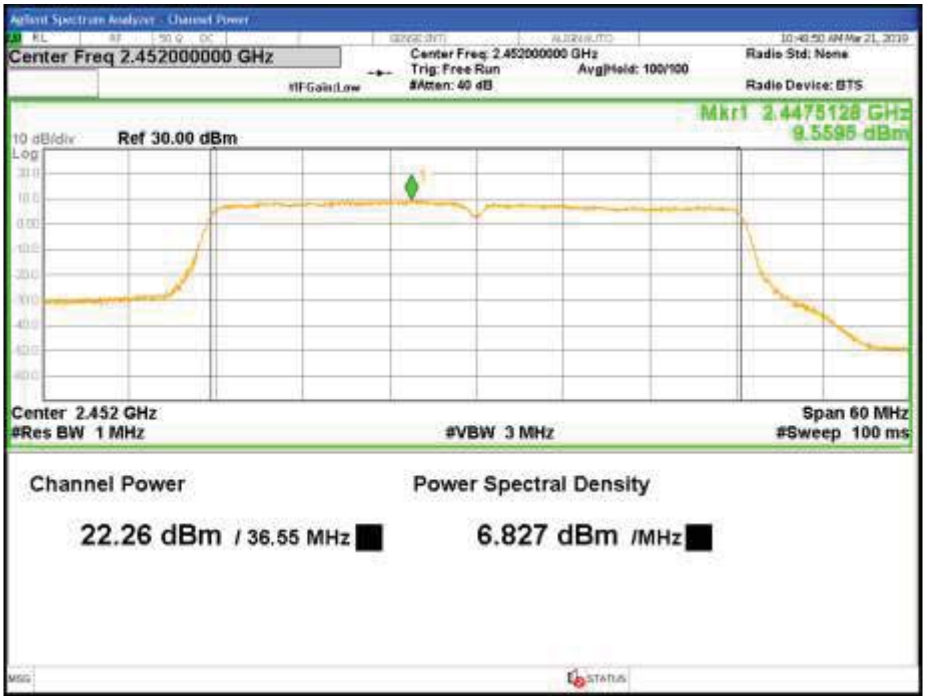



Figure 73: FCC RMS MAX POWER-2452MHz-HT40-4x4-q88-Ch0


Figure 74: FCC RMS MAX POWER-2452MHz-HT40-4x4-q88-Ch1

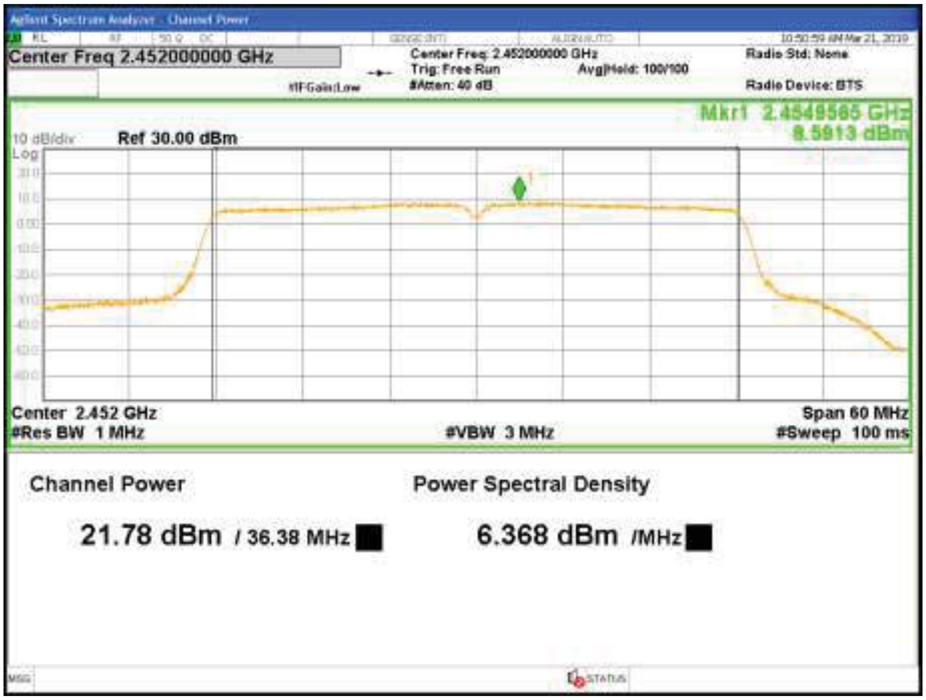



Figure 75: FCC RMS MAX POWER-2452MHz-HT40-4x4-q88-Ch2


Figure 76: FCC RMS MAX POWER-2452MHz-HT40-4x4-q88-Ch3

## 4.3 Occupied Bandwidth

*The occupied bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency.*

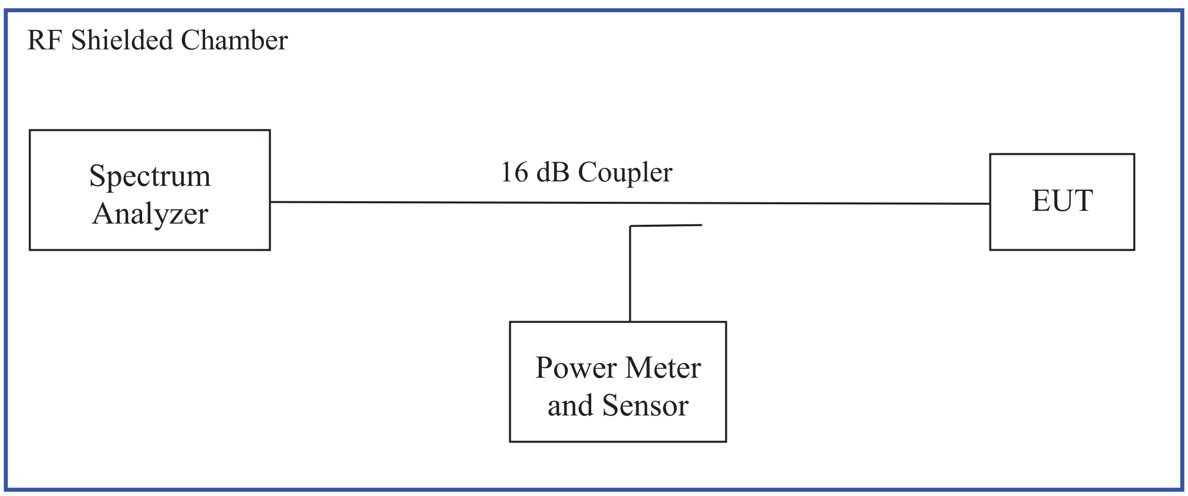
*The 99% bandwidth is the bandwidth in which 99% of the transmitted power occupied.*

*The minimum 6 dB bandwidth shall be at least 500 kHz.*

### 4.3.1 Test Method

The conducted method was used to measure the occupied bandwidth according to ANSI C63.10:2013 Section 11.8. The measurement was performed with modulation per CFR47 15.247 (a) (2) and RSS Gen Sect. 6.7. The preliminary investigation was performed to find the narrowest 6 dB bandwidth for each operational mode at different data rates. This worst finding was performed on 3 channels in each operating frequency range; 2400 MHz to 2483.5 MHz, a 6 dB bandwidth was used. The worst results indicated below.

Test Setup:




### 4.3.2 Results

As originally tested, the EUT was found to be compliant to the requirements of the test standard(s).

**Table 5:** Occupied Bandwidth – Test Results

| | |
|---|---|
| **Test Date:** March 21, 2019 | **Test By:** Kerwinn Corpuz |
| **Test Method:** Conducted Measurements | **Power Setting:** See test plan |
| **Antenna Type:** PCB | **Max. Antenna Gain:** + 5.4 dBi |
| **Operating Mode:** Non Beamforming & Uncorrelated | **Signal State**: Modulated |
| **Ambient Temp.:** 22 °C | **Relative Humidity:**38% |

**Bandwidth for 802.11b**

| Freq. (MHz) | 99% Bandwidth (MHz) | | | | 6dB Bandwidth (MHz) | | | |
|---|---|---|---|---|---|---|---|---|
| | Ch0 | Ch1 | Ch2 | Ch3 | Ch0 | Ch1 | Ch2 | Ch3 |
| 2412 | 10.41 | 10.32 | 10.42 | 10.26 | 8.05 | 8.02 | 7.10 | 7.57 |
| 2437 | 10.21 | 10.36 | 10.45 | 10.27 | 8.05 | 8.07 | 8.07 | 7.58 |
| 2462 | 10.41 | 10.31 | 10.21 | 10.41 | 8.06 | 7.57 | 7.57 | 8.06 |

**Note**: The bandwidths measured at 802.11b, 1 Mbps.

**Bandwidth for 802.11g**

| Freq. (MHz) | 99% Bandwidth (MHz) | | | | 6dB Bandwidth (MHz) | | | |
|---|---|---|---|---|---|---|---|---|
| | Ch0 | Ch1 | Ch2 | Ch3 | Ch0 | Ch1 | Ch2 | Ch3 |
| 2412 | 16.51 | 16.61 | 16.52 | 16.37 | 15.10 | 13.87 | 15.04 | 15.08 |
| 2437 | 16.52 | 16.81 | 16.65 | 16.50 | 15.09 | 15.48 | 15.09 | 15.07 |
| 2462 | 16.73 | 16.71 | 16.57 | 16.59 | 15.80 | 15.04 | 15.11 | 15.68 |

**Note**: The bandwidths measured at 802.11g, 6 Mbps.

**Bandwidth for 802.11n-HT20**

| Freq. (MHz) | 99% Bandwidth (MHz) | | | | 6dB Bandwidth (MHz) | | | |
|---|---|---|---|---|---|---|---|---|
| | Ch0 | Ch1 | Ch2 | Ch3 | Ch0 | Ch1 | Ch2 | Ch3 |
| 2412 | 17.58 | 17.63 | 17.61 | 17.50 | 15.08 | 15.04 | 15.08 | 15.08 |
| 2437 | 17.65 | 17.83 | 17.82 | 17.64 | 15.11 | 15.41 | 16.08 | 15.10 |
| 2462 | 17.82 | 17.72 | 17.60 | 17.66 | 16.41 | 15.92 | 15.08 | 16.06 |

**Note**: The bandwidths measured at 802.11n-HT20, MCS0.

**Bandwidth for 802.11n-HT40**

| Freq. (MHz) | 99% Bandwidth (MHz) | | | | 6dB Bandwidth (MHz) | | | |
|---|---|---|---|---|---|---|---|---|
| | Ch0 | Ch1 | Ch2 | Ch3 | Ch0 | Ch1 | Ch2 | Ch3 |
| 2422 | 36.36 | 36.20 | 36.10 | 36.30 | 36.36 | 35.32 | 35.13 | 36.31 |
| 2437 | 36.21 | 36.44 | 36.42 | 36.25 | 35.70 | 36.35 | 36.35 | 36.05 |
| 2452 | 36.18 | 36.10 | 36.11 | 36.12 | 35.47 | 35.13 | 35.69 | 35.44 |

**Note**: The bandwidths measured at 802.11n-HT40, MCS0.

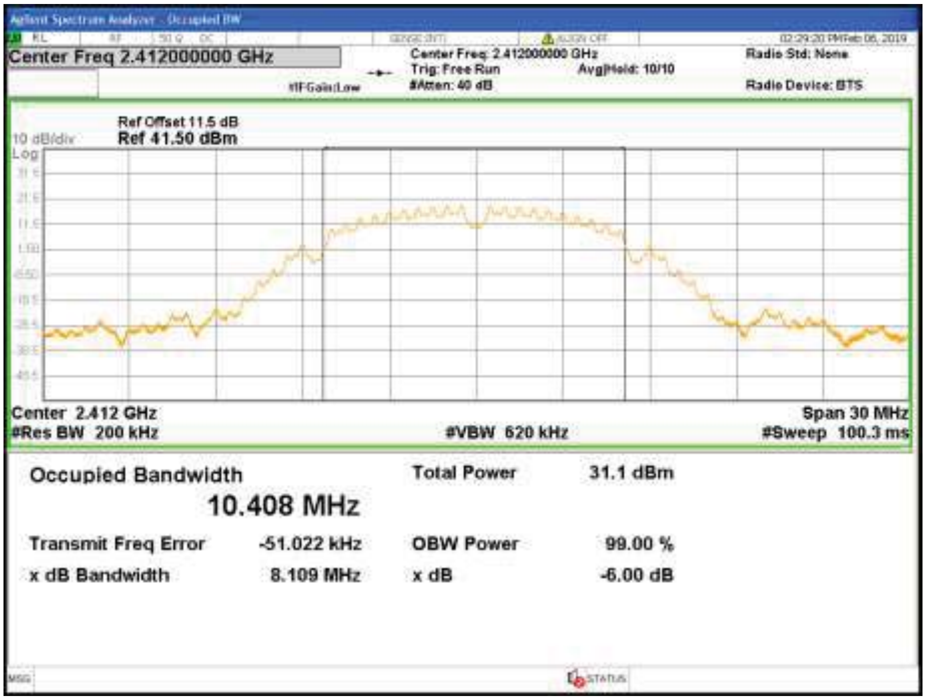



Figure 77: FCC-99%-OBW-2412MHz-11b-1x4-q98-Ch0


Figure 78: FCC-6dB-OBW-2412MHz-11b-1x4-q98-Ch0

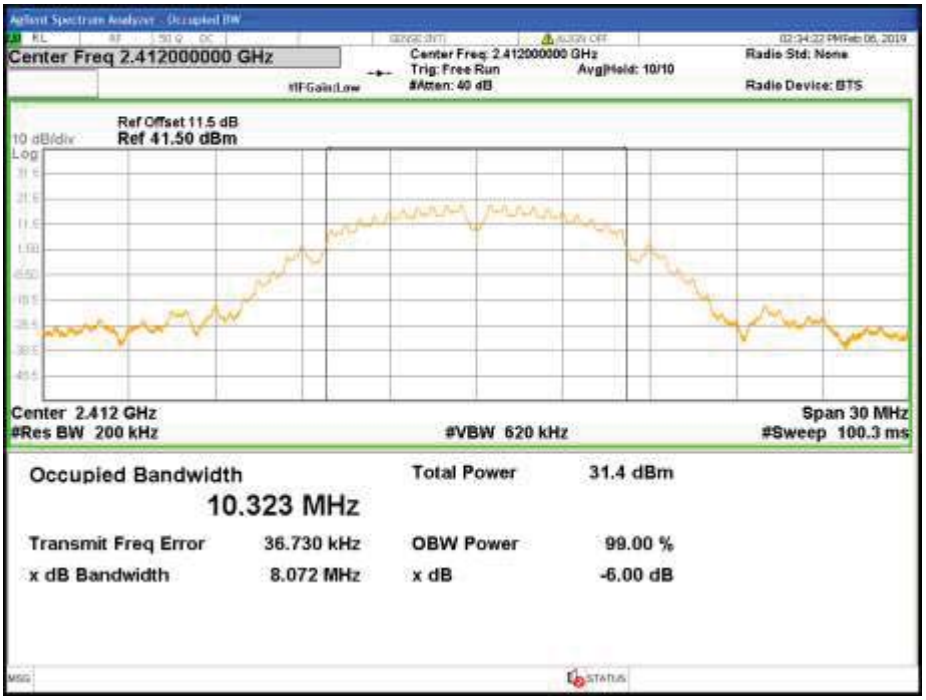



Figure 79: FCC-99%-OBW-2412MHz-11b-1x4-q98-Ch1


Figure 80: FCC-6dB-OBW-2412MHz-11b-1x4-q98-Ch1

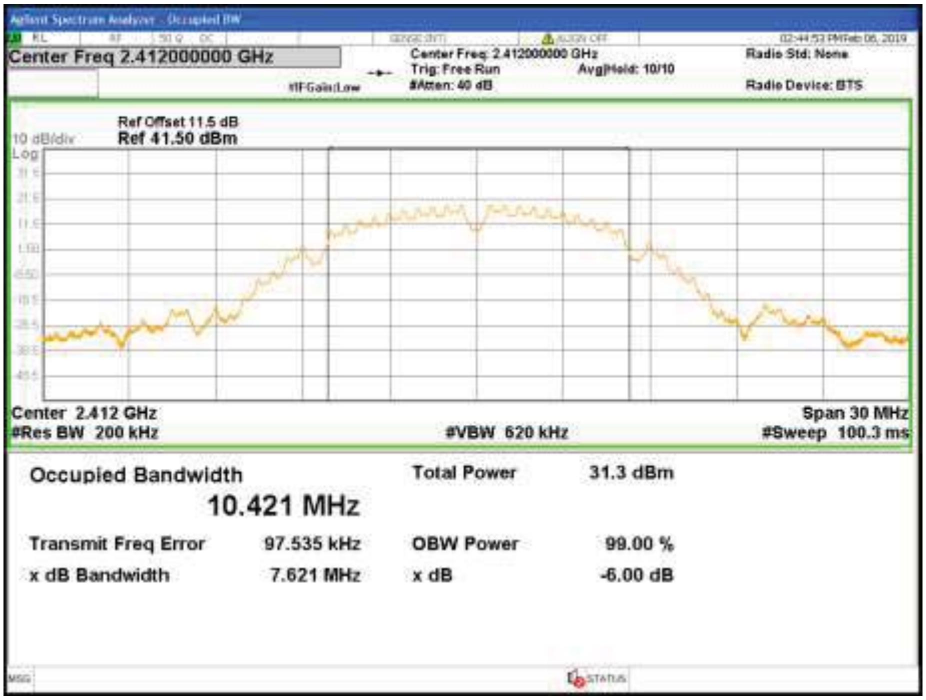



Figure 81: FCC-99%-OBW-2412MHz-11b-1x4-q98-Ch2


Figure 82: FCC-6dB-OBW-2412MHz-11b-1x4-q98-Ch2

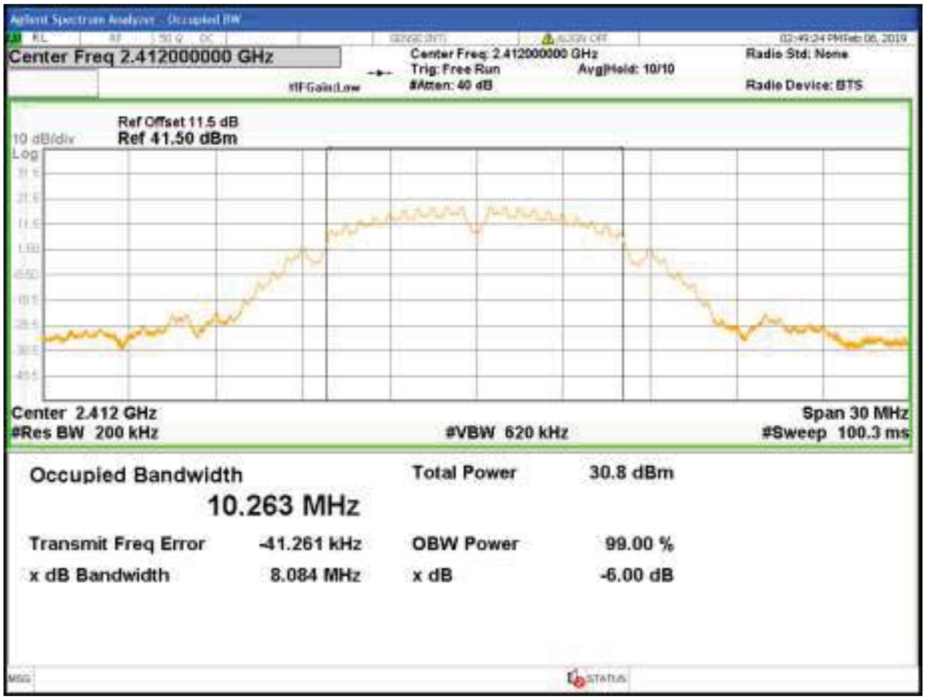



Figure 83: FCC-99%-OBW-2412MHz-11b-1x4-q98-Ch3


Figure 84: FCC-6dB-OBW-2412MHz-11b-1x4-q98-Ch3

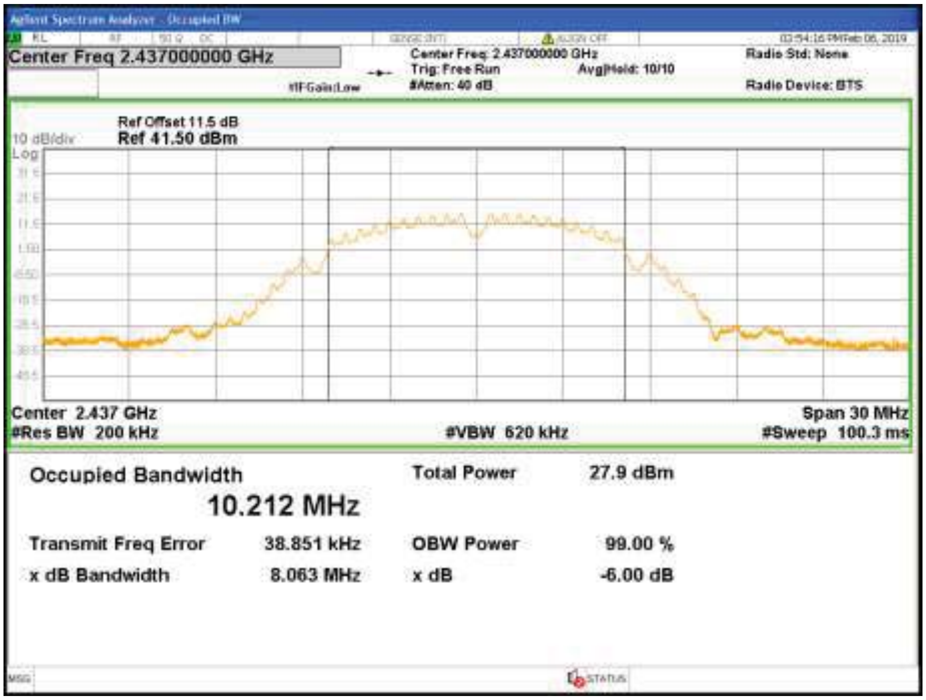



Figure 85: FCC-99%-OBW-2437MHz-11b-1x4-q90-Ch0


Figure 86: FCC-6dB-OBW-2437MHz-11b-1x4-q90-Ch0

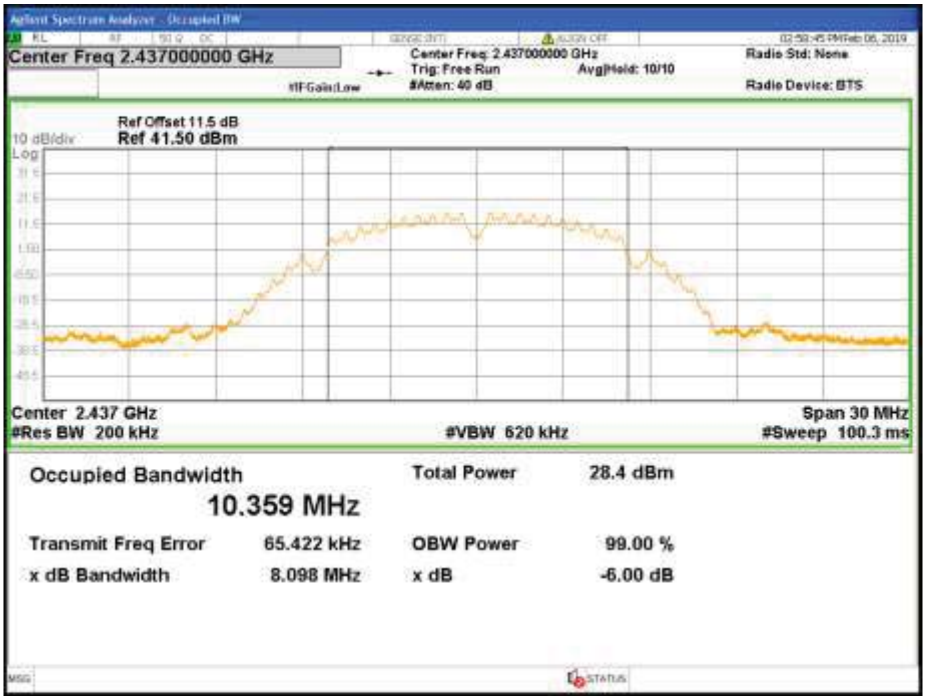



Figure 87: FCC-99%-OBW-2437MHz-11b-1x4-q90-Ch1


Figure 88: FCC-6dB-OBW-2437MHz-11b-1x4-q90-Ch1

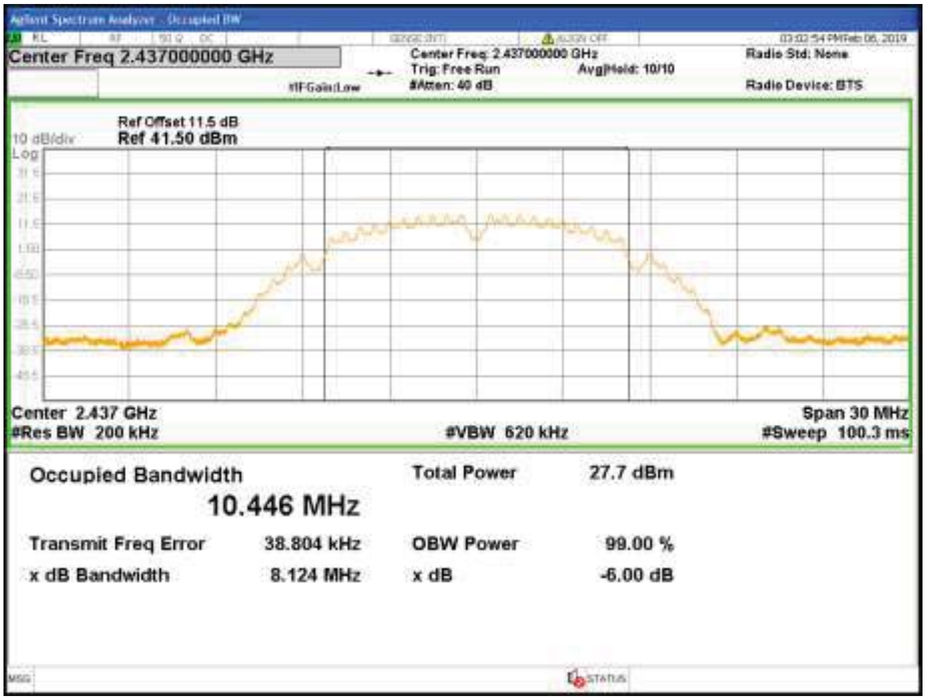



Figure 89: FCC-99%-OBW-2437MHz-11b-1x4-q90-Ch2


Figure 90: FCC-6dB-OBW-2437MHz-11b-1x4-q90-Ch2

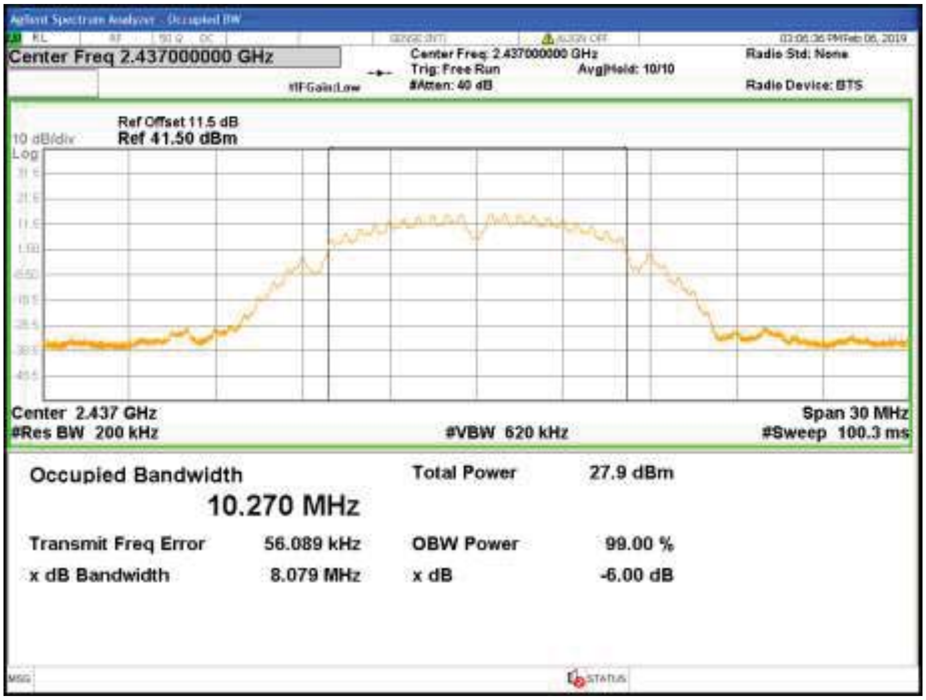



Figure 91: FCC-99%-OBW-2437MHz-11b-1x4-q90-Ch3


Figure 92: FCC-6dB-OBW-2437MHz-11b-1x4-q90-Ch3

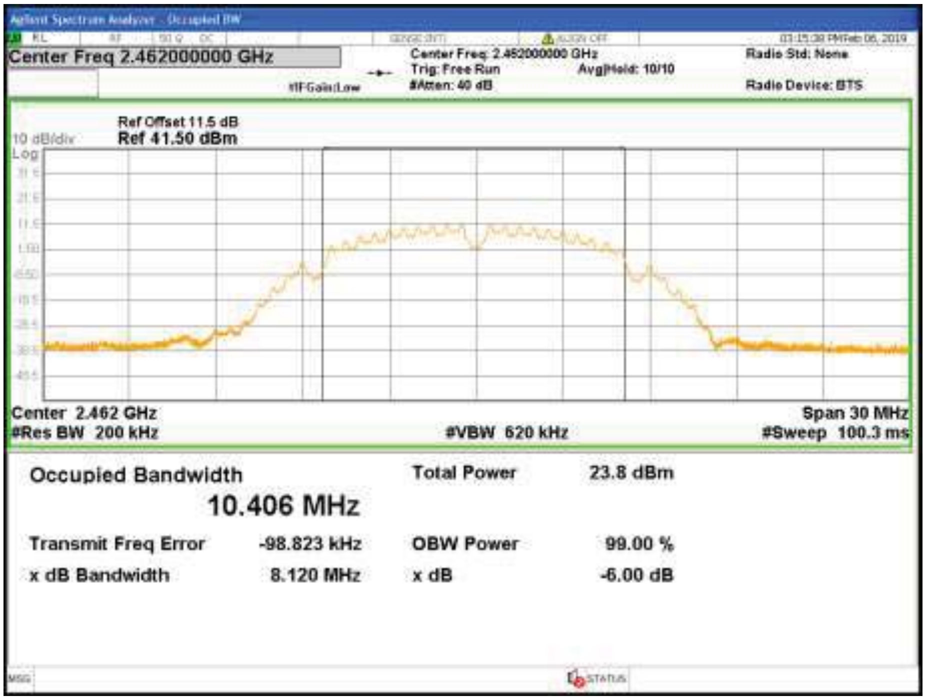



Figure 93: FCC-99%-OBW-2462MHz-11b-1x4-q78-Ch0

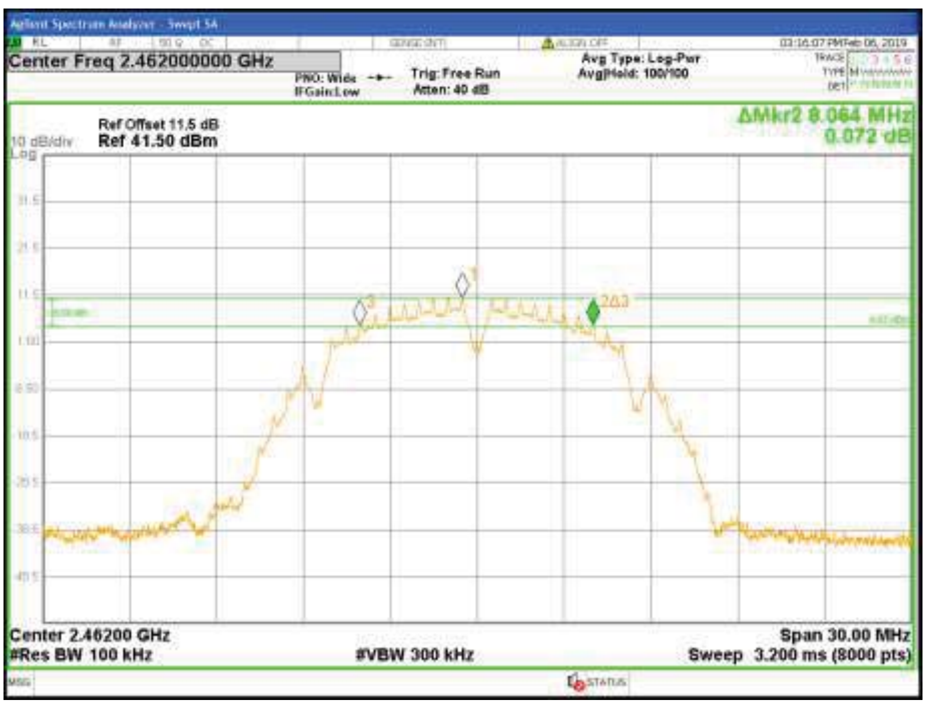



Figure 94: FCC-6dB-OBW-2462MHz-11b-1x4-q78-Ch0

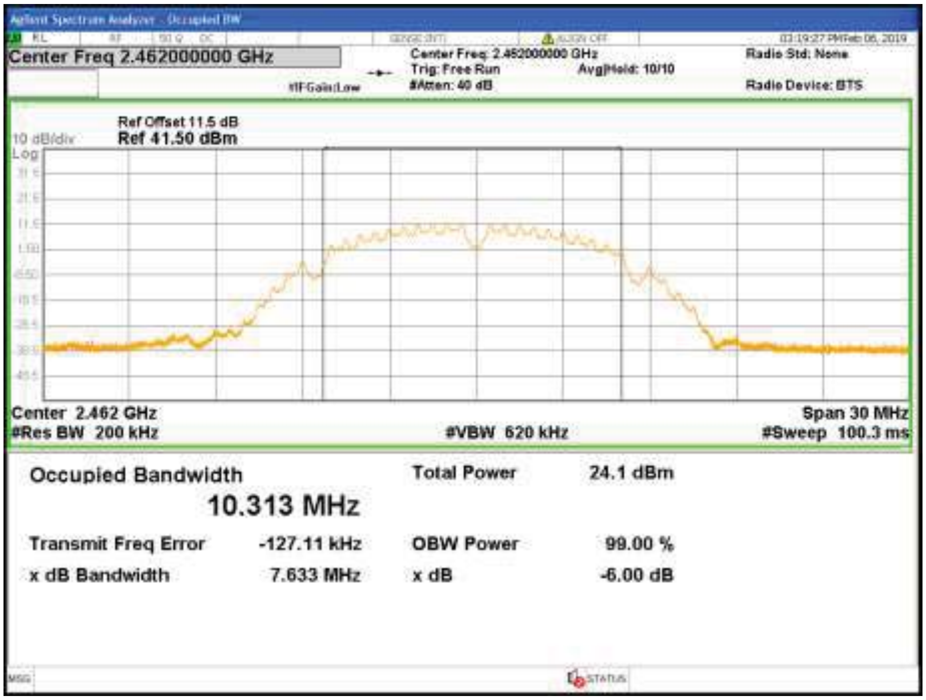



Figure 95: FCC-99%-OBW-2462MHz-11b-1x4-q78-Ch1

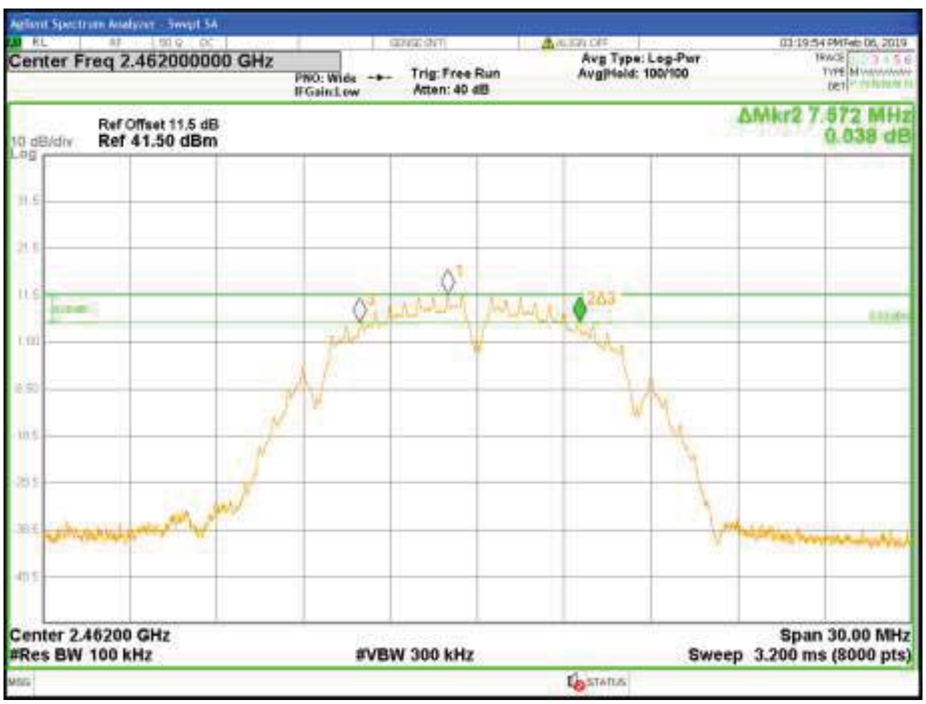



Figure 96: FCC-6dB-OBW-2462MHz-11b-1x4-q78-Ch1

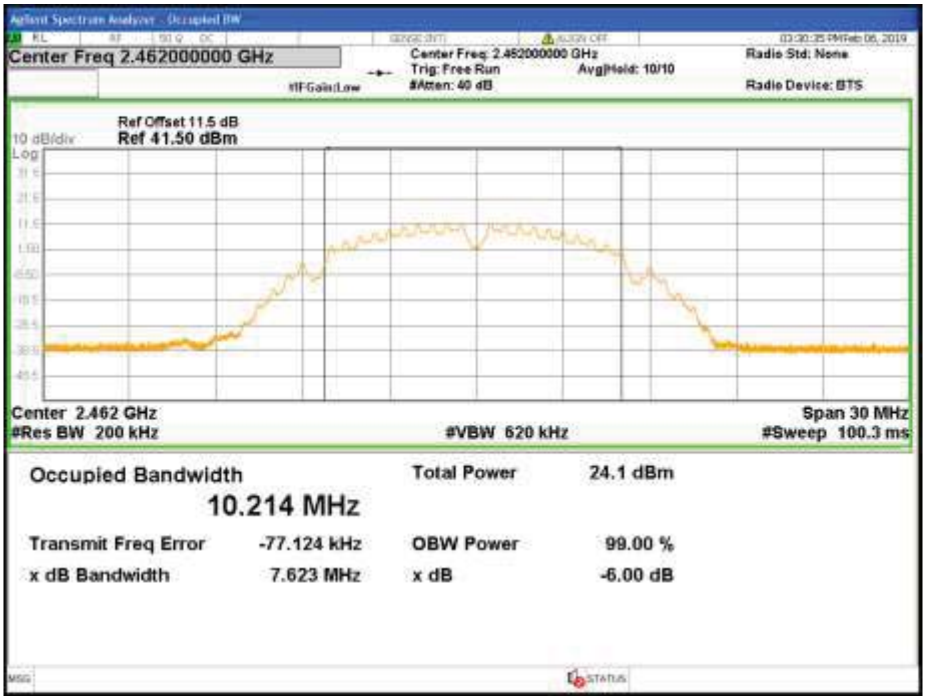



Figure 97: FCC-99%-OBW-2462MHz-11b-1x4-q78-Ch2

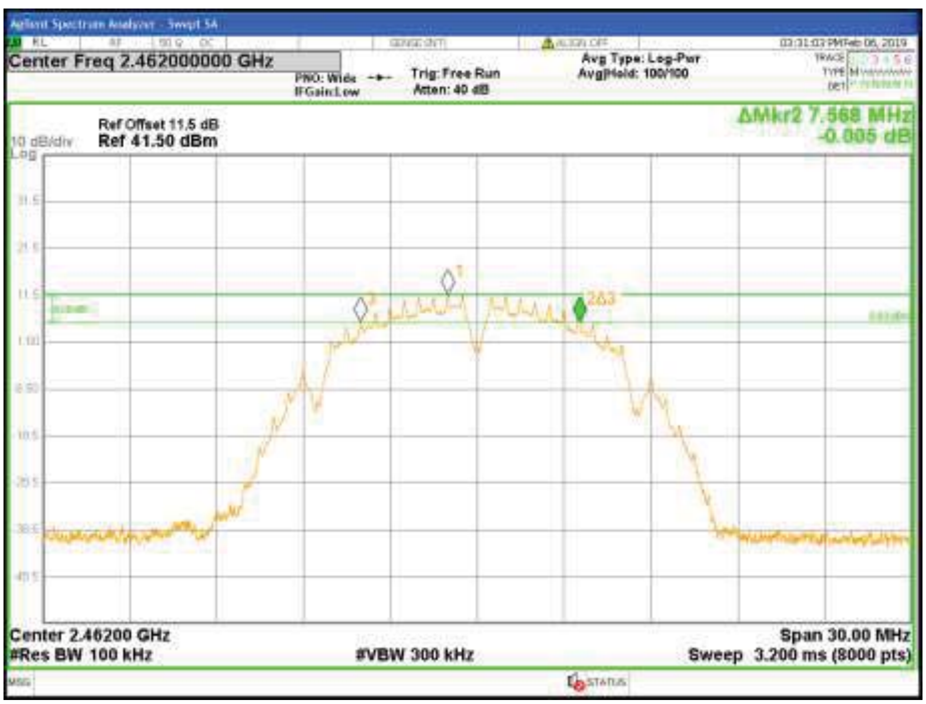



Figure 98: FCC-6dB-OBW-2462MHz-11b-1x4-q78-Ch2

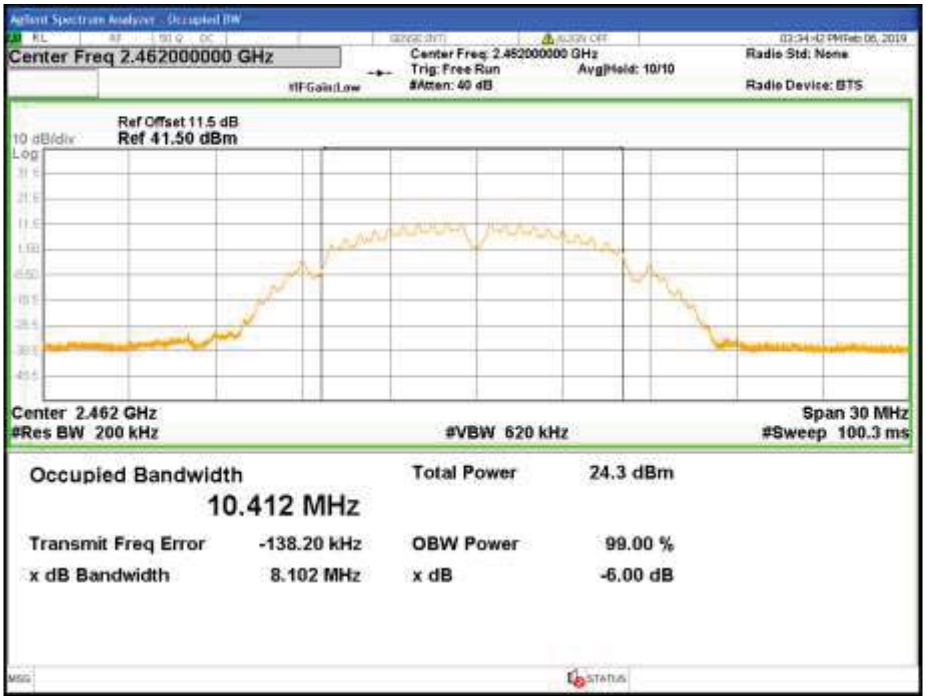



Figure 99: FCC-99%-OBW-2462MHz-11b-1x4-q78-Ch3


Figure 100: FCC-6dB-OBW-2462MHz-11b-1x4-q78-Ch3


Figure 101: FCC-99%-OBW-2412MHz-11g-1x4-q99-Ch0


Figure 102: FCC-6dB-OBW-2412MHz-11g-1x4-q99-Ch0


Figure 103: FCC-99%-OBW-2412MHz-11g-1x4-q99-Ch1

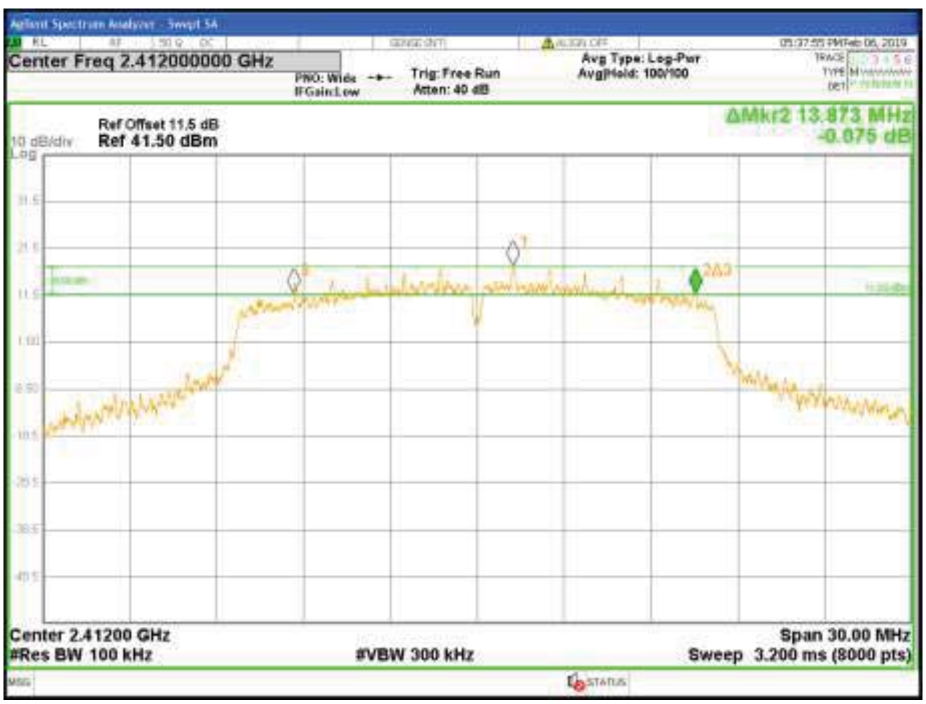



Figure 104: FCC-6dB-OBW-2412MHz-11g-1x4-q99-Ch1


Figure 105: FCC-99%-OBW-2412MHz-11g-1x4-q99-Ch2


Figure 106: FCC-6dB-OBW-2412MHz-11g-1x4-q99-Ch2


Figure 107: FCC-99%-OBW-2412MHz-11g-1x4-q99-Ch3


Figure 108: FCC-6dB-OBW-2412MHz-11g-1x4-q99-Ch3


Figure 109: FCC-99%-OBW-2437MHz-11g-1x4-q100-Ch0


Figure 110: FCC-6dB-OBW-2437MHz-11g-1x4-q100-Ch0


Figure 111: FCC-99%-OBW-2437MHz-11g-1x4-q100-Ch1


Figure 112: FCC-6dB-OBW-2437MHz-11g-1x4-q100-Ch1


Figure 113: FCC-99%-OBW-2437MHz-11g-1x4-q100-Ch2


Figure 114: FCC-6dB-OBW-2437MHz-11g-1x4-q100-Ch2


Figure 115: FCC-99%-OBW-2437MHz-11g-1x4-q100-Ch3


Figure 116: FCC-6dB-OBW-2437MHz-11g-1x4-q100-Ch3


Figure 117: FCC-99%-OBW-2462MHz-11g-1x4-q102-Ch0


Figure 118: FCC-6dB-OBW-2462MHz-11g-1x4-q102-Ch0


Figure 119: FCC-99%-OBW-2462MHz-11g-1x4-q102-Ch1


Figure 120: FCC-6dB-OBW-2462MHz-11g-1x4-q102-Ch1


Figure 121: FCC-99%-OBW-2462MHz-11g-1x4-q102-Ch2


Figure 122: FCC-6dB-OBW-2462MHz-11g-1x4-q102-Ch2


Figure 123: FCC-99%-OBW-2462MHz-11g-1x4-q102-Ch3


Figure 124: FCC-6dB-OBW-2462MHz-11g-1x4-q102-Ch3


Figure 125: FCC-99%-OBW-2412MHz-HT20-1x4-q100-Ch0

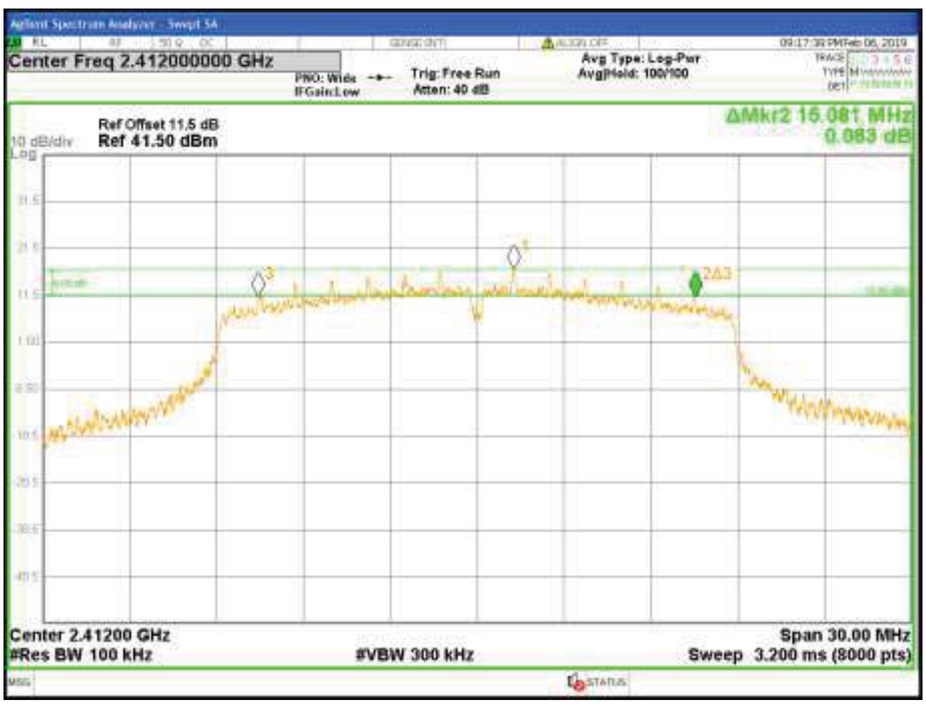



Figure 126: FCC-6dB-OBW-2412MHz-HT20-1x4-q100-Ch0


Figure 127: FCC-99%-OBW-2412MHz-HT20-1x4-q100-Ch1


Figure 128: FCC-6dB-OBW-2412MHz-HT20-1x4-q100-Ch1

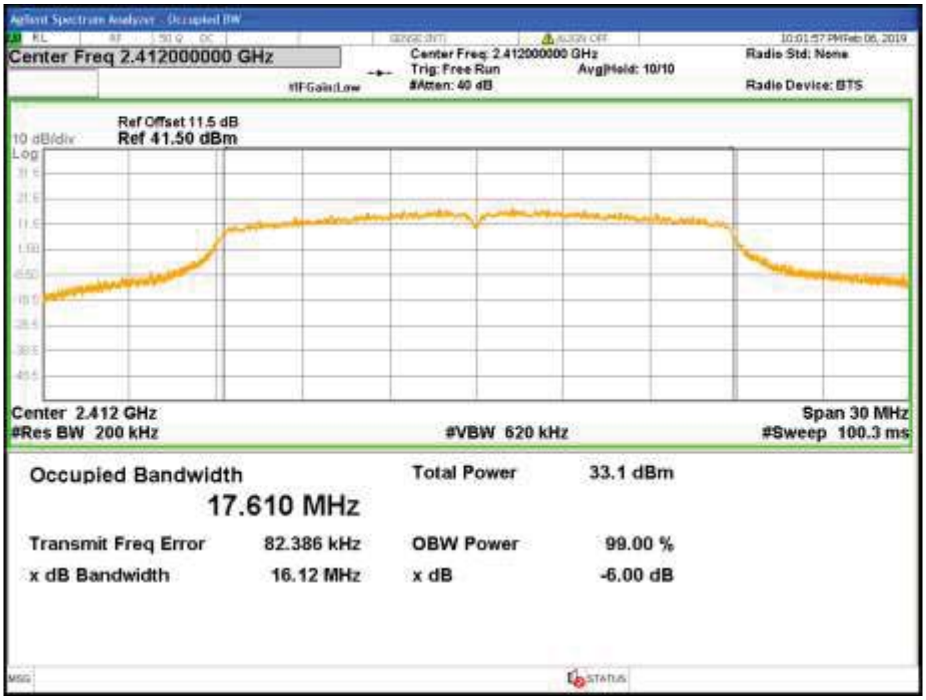



Figure 129: FCC-99%-OBW-2412MHz-HT20-1x4-q100-Ch2

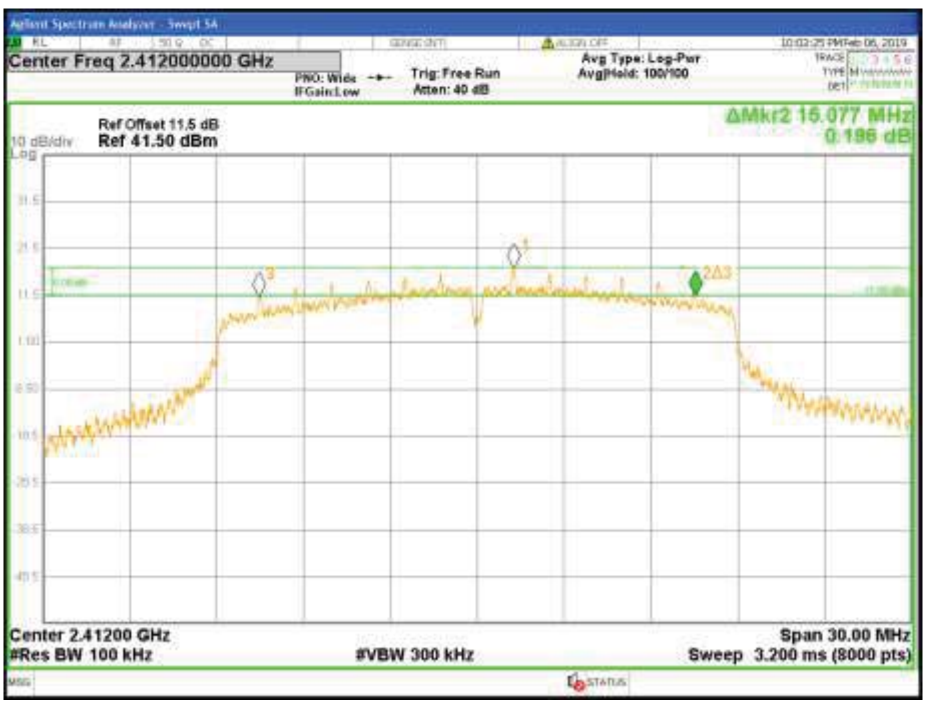



Figure 130: FCC-6dB-OBW-2412MHz-HT20-1x4-q100-Ch2

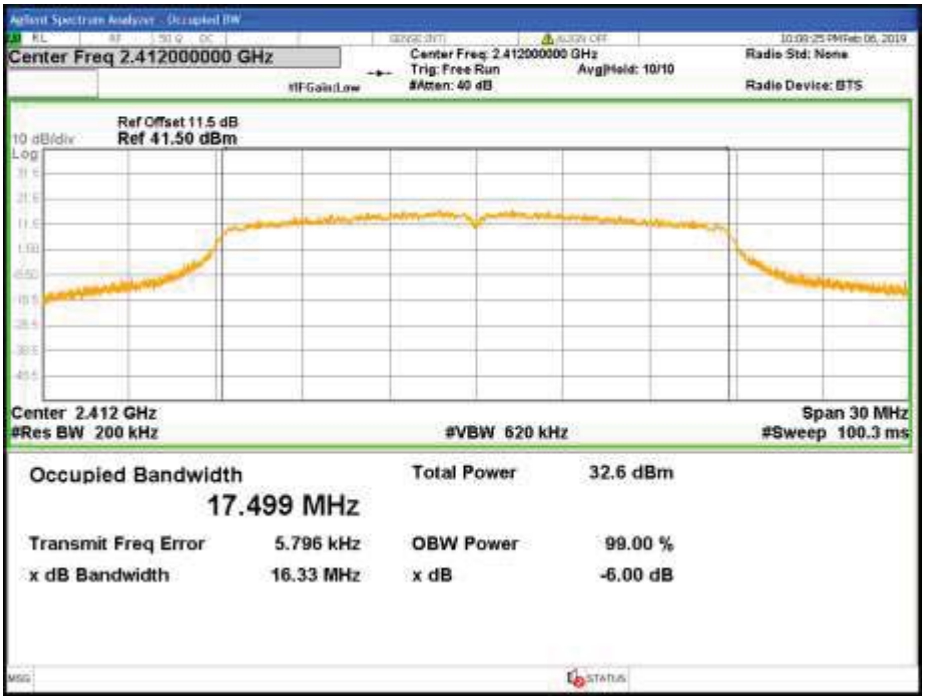



Figure 131: FCC-99%-OBW-2412MHz-HT20-1x4-q100-Ch3


Figure 132: FCC-6dB-OBW-2412MHz-HT20-1x4-q100-Ch3


Figure 133: FCC-99%-OBW-2437MHz-HT20-1x4-q100-Ch0


Figure 134: FCC-6dB-OBW-2437MHz-HT20-1x4-q100-Ch0


Figure 135: FCC-99%-OBW-2437MHz-HT20-1x4-q100-Ch1

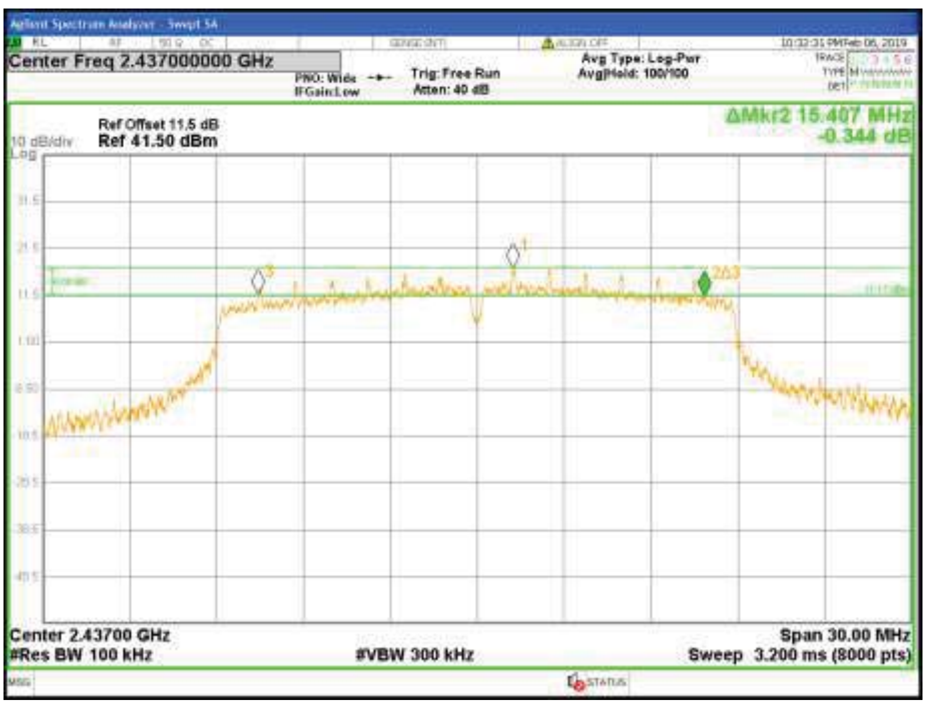



Figure 136: FCC-6dB-OBW-2437MHz-HT20-1x4-q100-Ch1

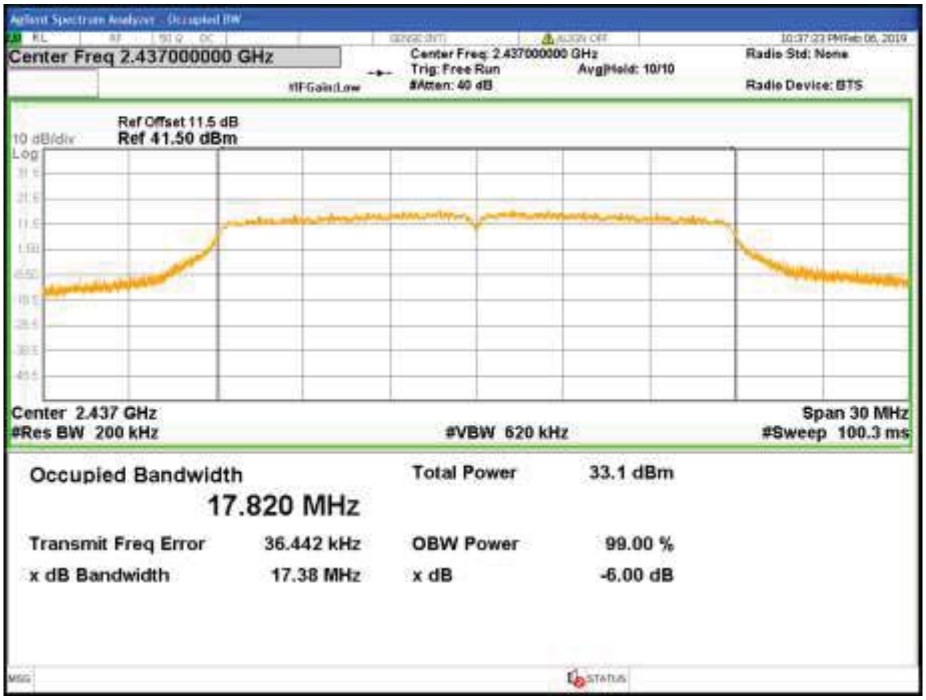



Figure 137: FCC-99%-OBW-2437MHz-HT20-1x4-q100-Ch2


Figure 138: FCC-6dB-OBW-2437MHz-HT20-1x4-q100-Ch2

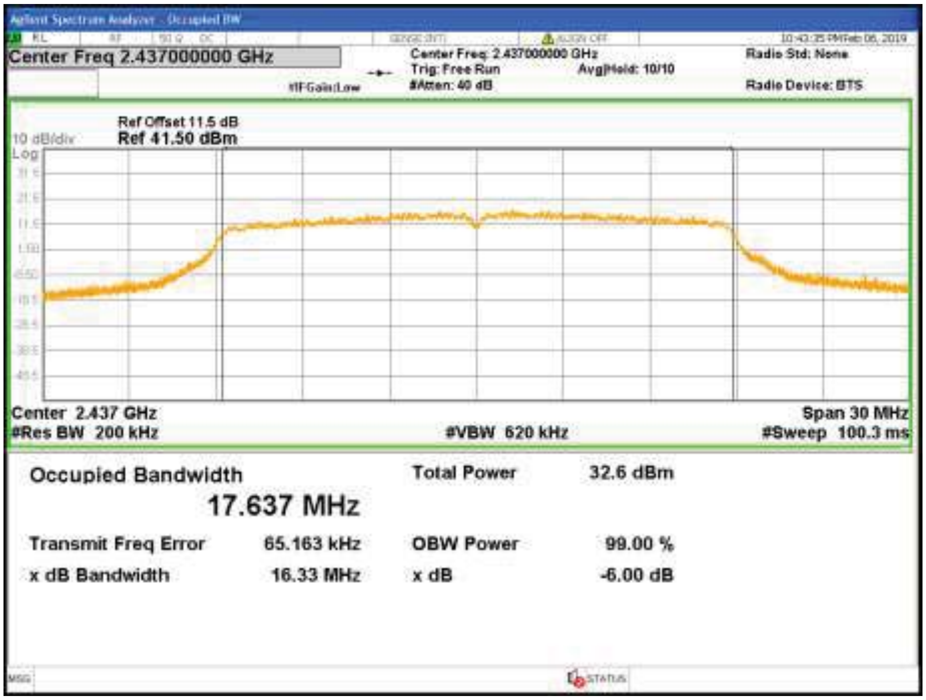



Figure 139: FCC-99%-OBW-2437MHz-HT20-1x4-q100-Ch3


Figure 140: FCC-6dB-OBW-2437MHz-HT20-1x4-q100-Ch3

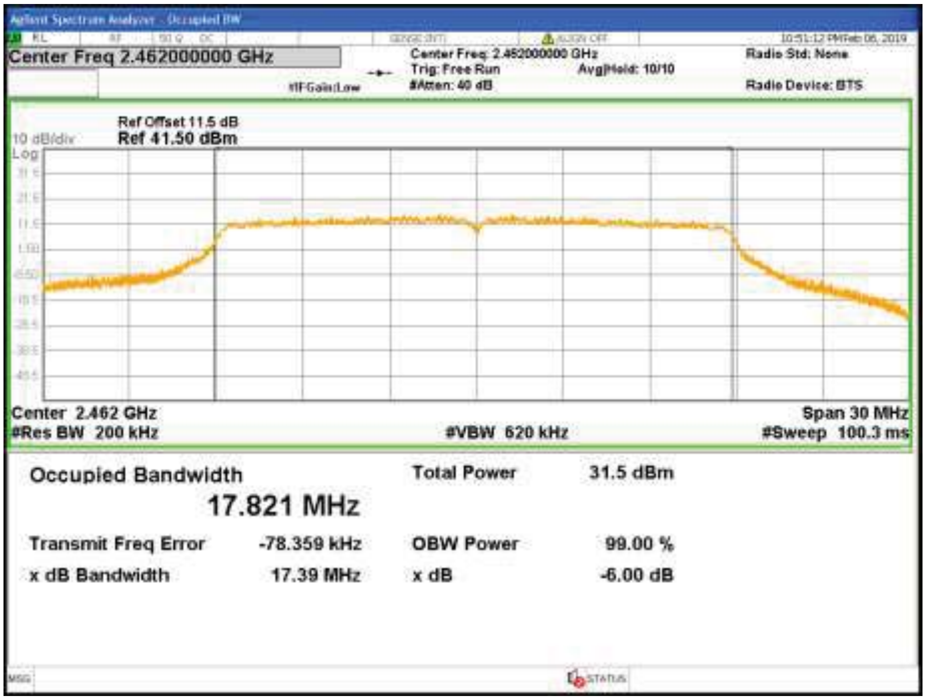



Figure 141: FCC-99%-OBW-2462MHz-HT20-1x4-q100-Ch0


Figure 142: FCC-6dB-OBW-2462MHz-HT20-1x4-q100-Ch0


Figure 143: FCC-99%-OBW-2462MHz-HT20-1x4-q100-Ch1

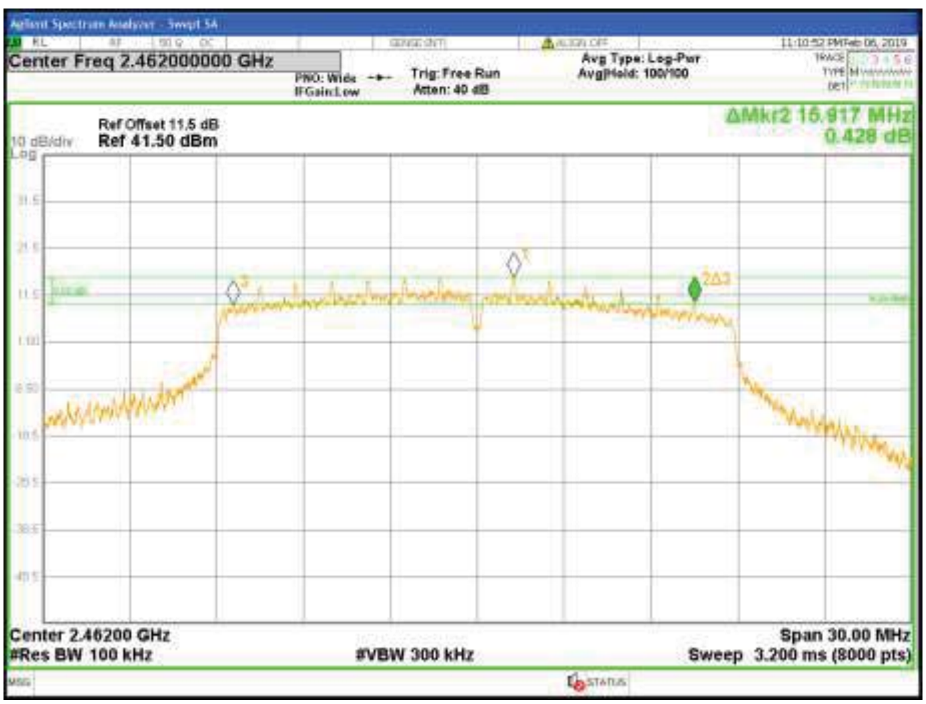



Figure 144: FCC-6dB-OBW-2462MHz-HT20-1x4-q100-Ch1

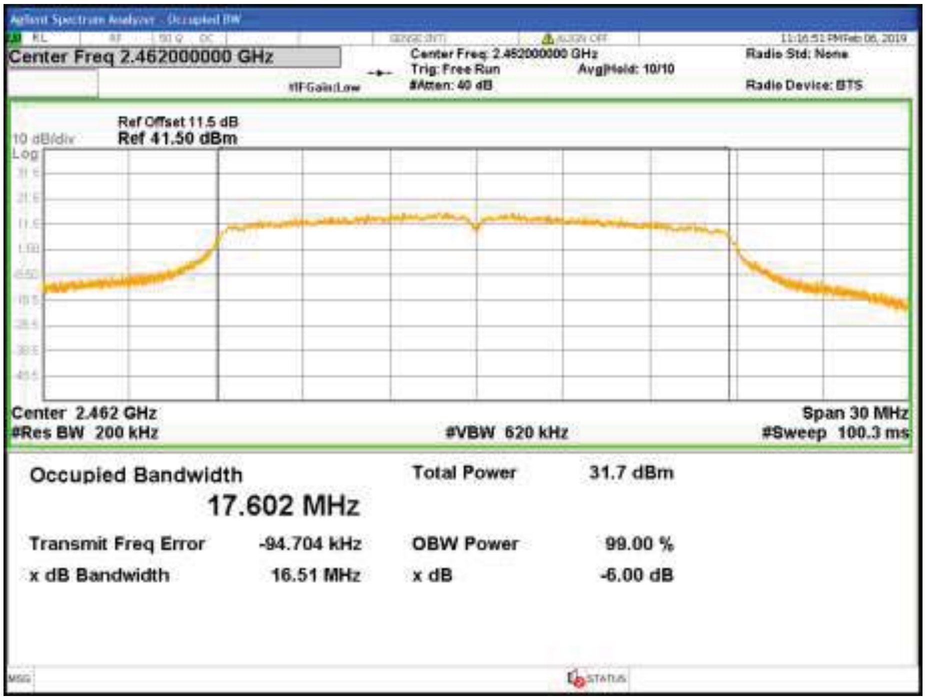



Figure 145: FCC-99%-OBW-2462MHz-HT20-1x4-q100-Ch2


Figure 146: FCC-6dB-OBW-2462MHz-HT20-1x4-q100-Ch2

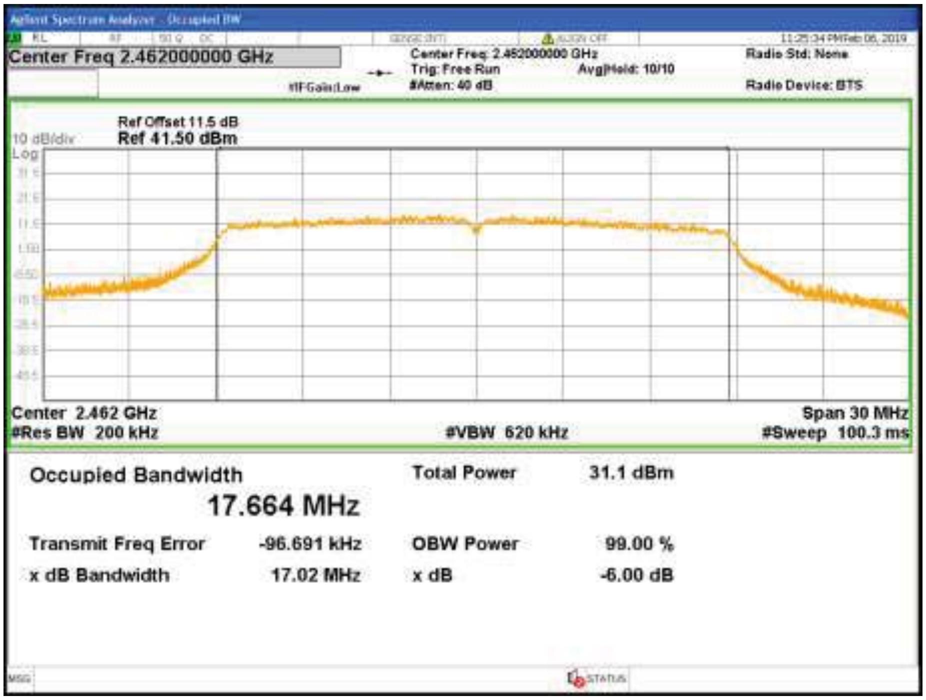



Figure 147: FCC-99%-OBW-2462MHz-HT20-1x4-q100-Ch3

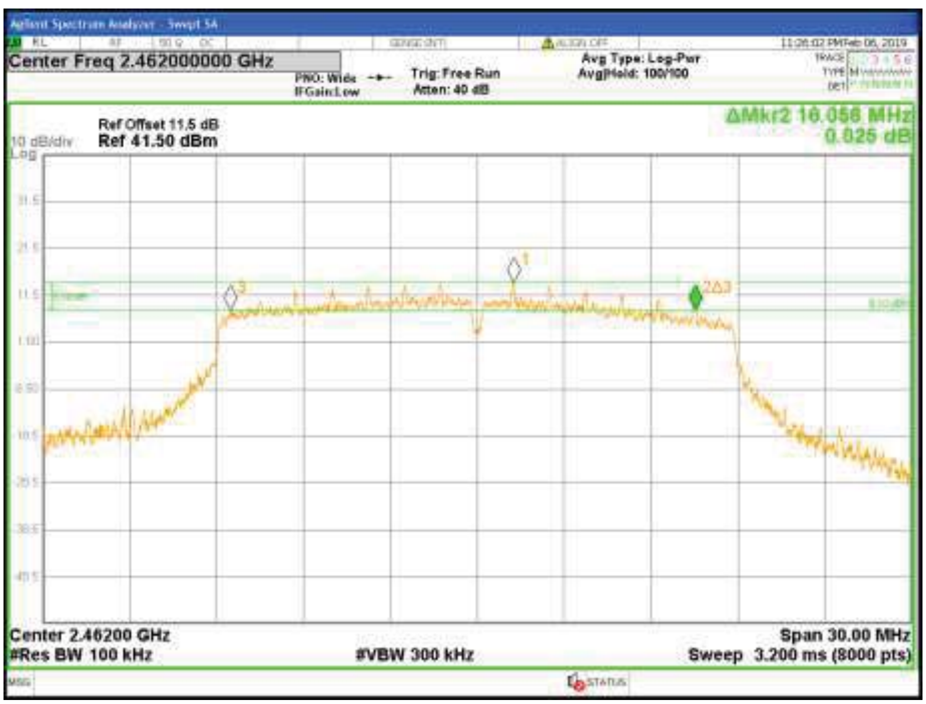



Figure 148: FCC-6dB-OBW-2462MHz-HT20-1x4-q100-Ch3

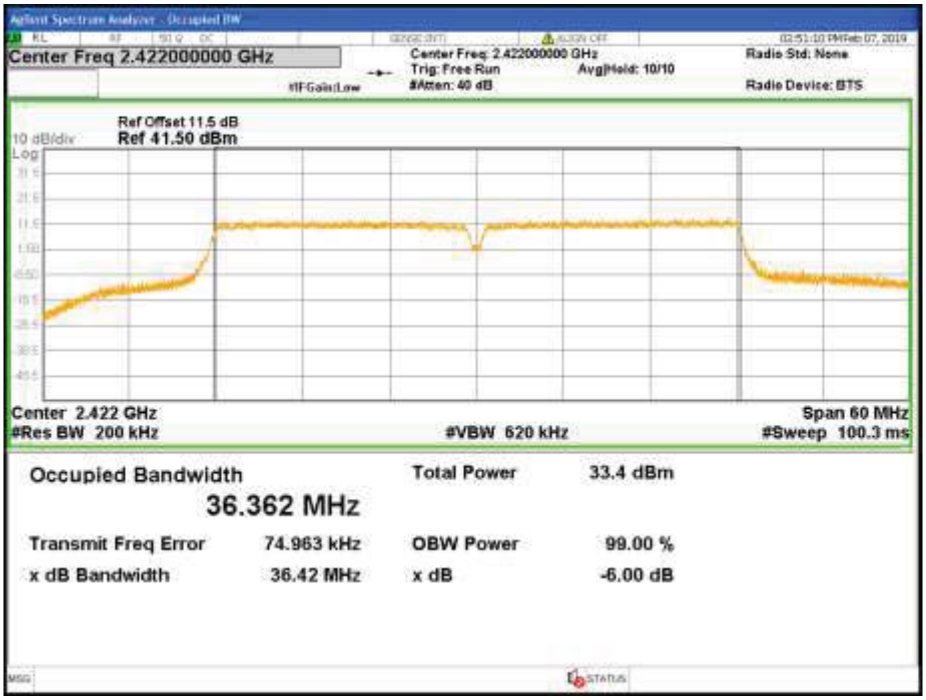



Figure 149: FCC-99%-OBW-2422MHz-HT40-1x4-q98-Ch0

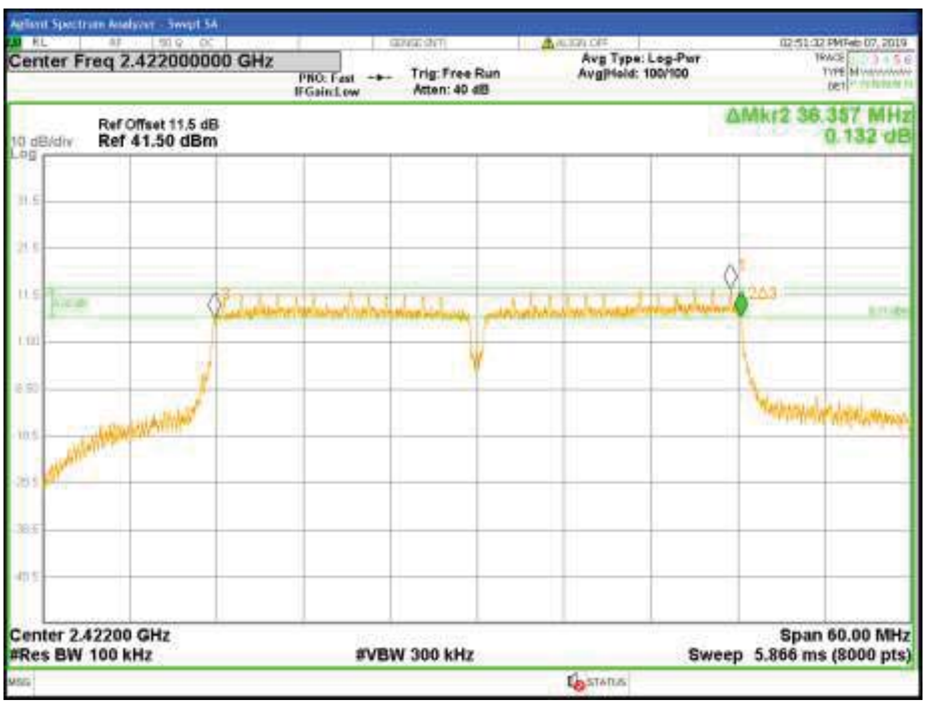



Figure 150: FCC-6dB-OBW-2422MHz-HT40-1x4-q98-Ch0

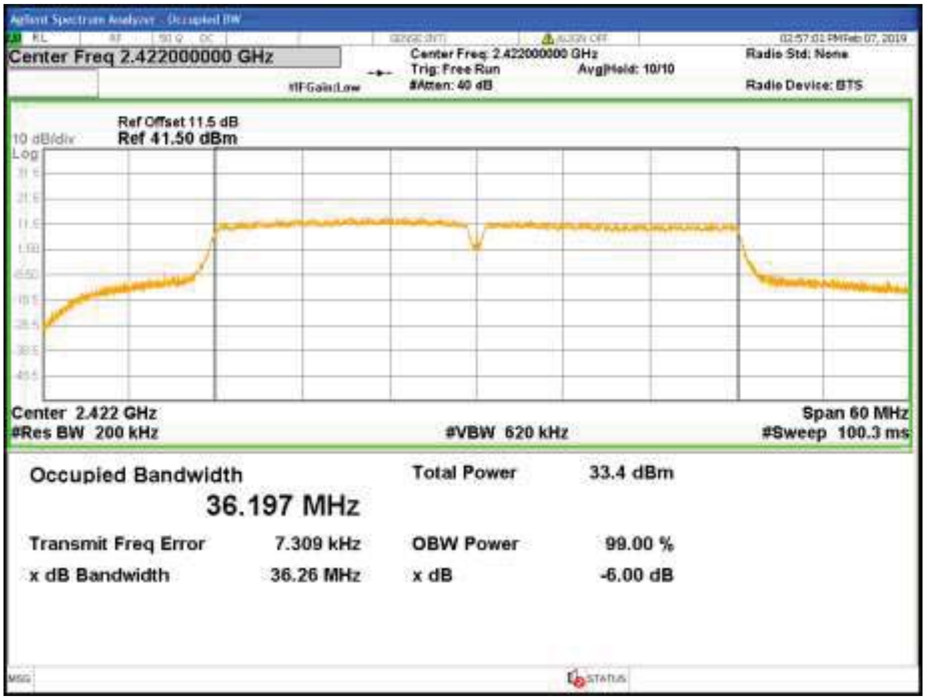



Figure 151: FCC-99%-OBW-2422MHz-HT40-1x4-q98-Ch1


Figure 152: FCC-6dB-OBW-2422MHz-HT40-1x4-q98-Ch1

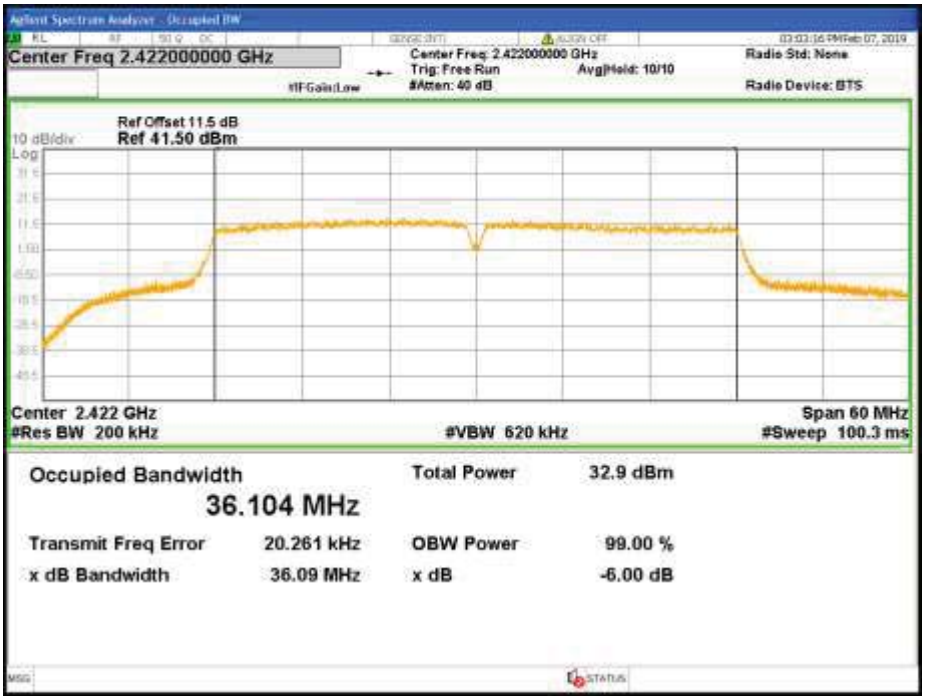



Figure 153: FCC-99%-OBW-2422MHz-HT40-1x4-q98-Ch2

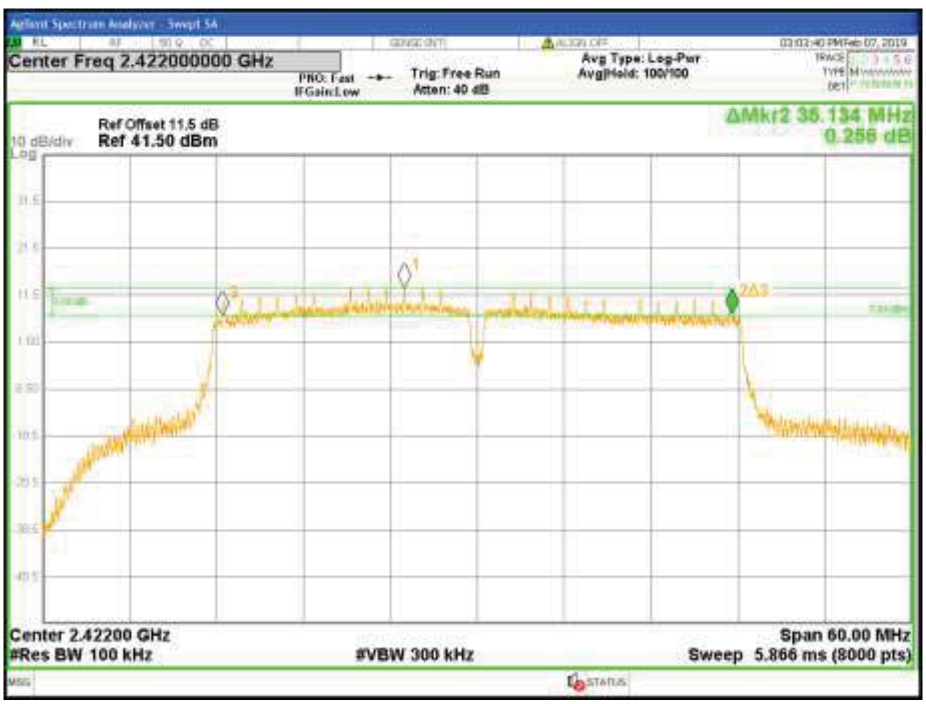



Figure 154: FCC-6dB-OBW-2422MHz-HT40-1x4-q98-Ch2

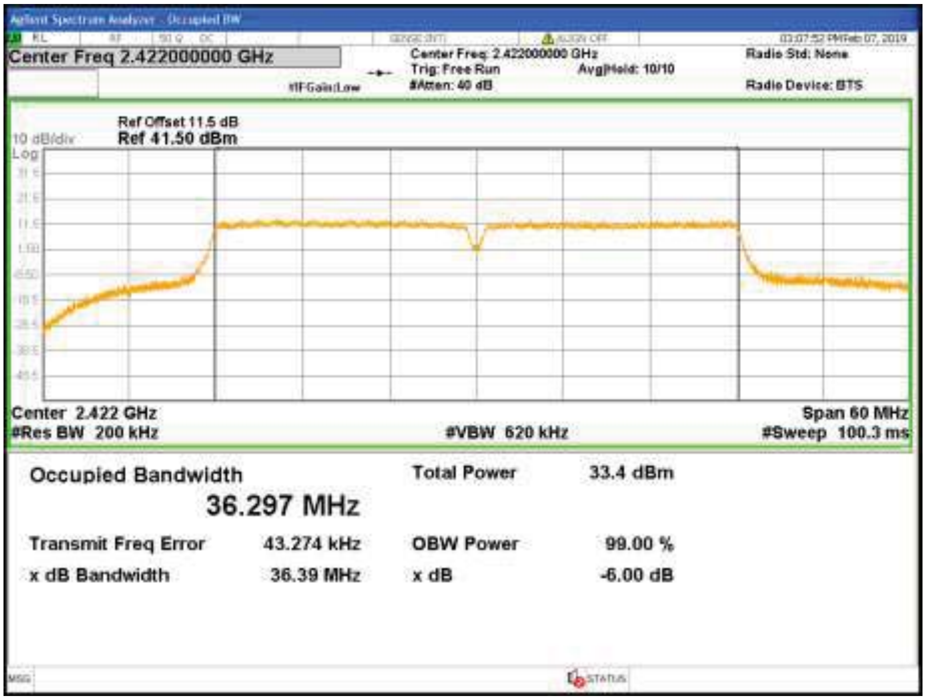



Figure 155: FCC-99%-OBW-2422MHz-HT40-1x4-q98-Ch3

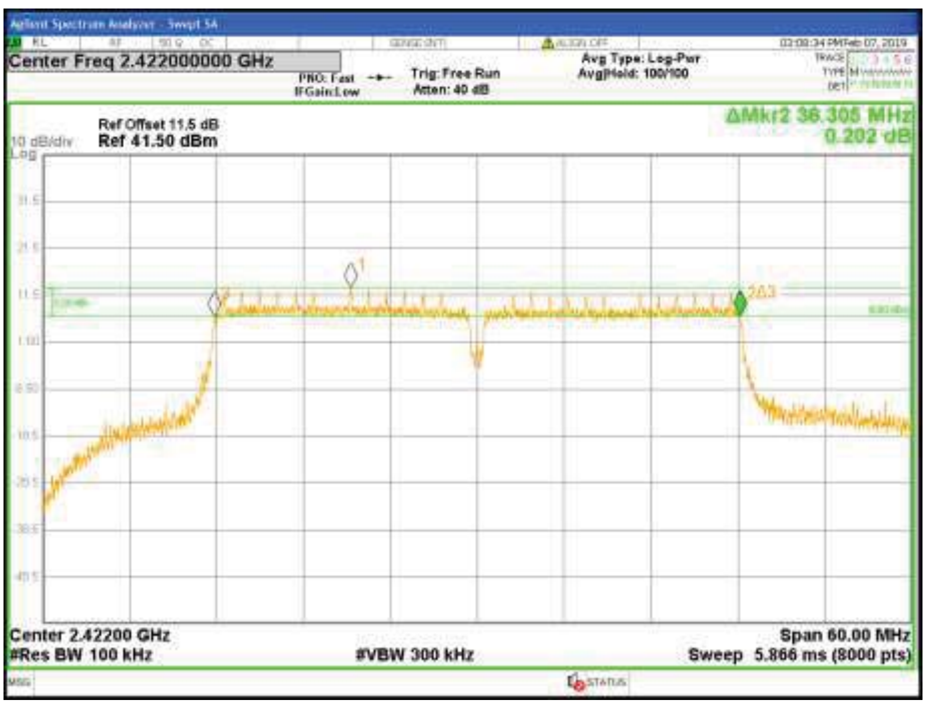



Figure 156: FCC-6dB-OBW-2422MHz-HT40-1x4-q98-Ch3

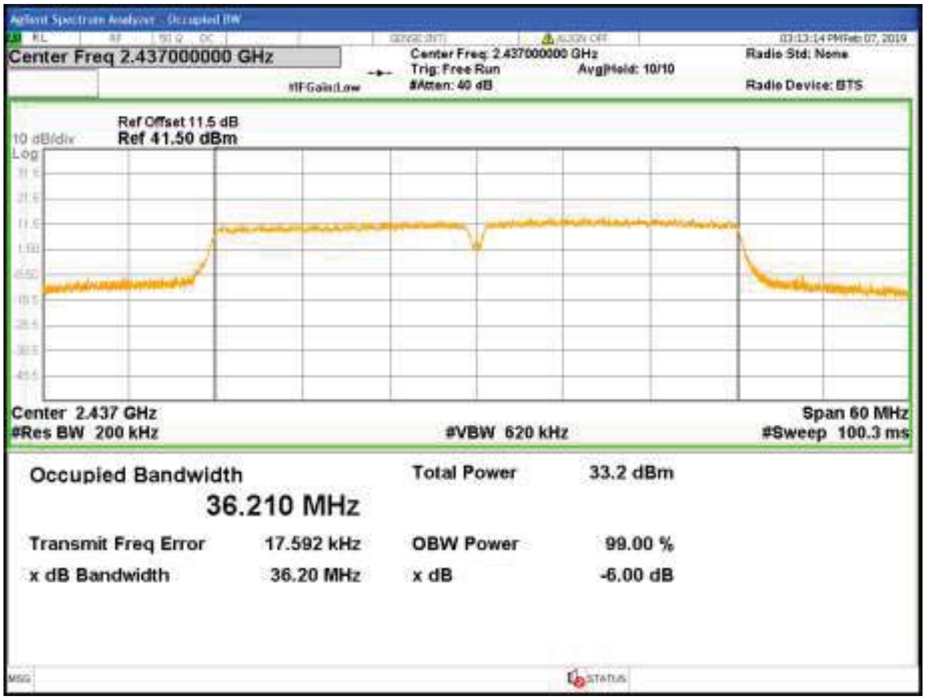



Figure 157: FCC-99%-OBW-2437MHz-HT40-1x4-q100-Ch0

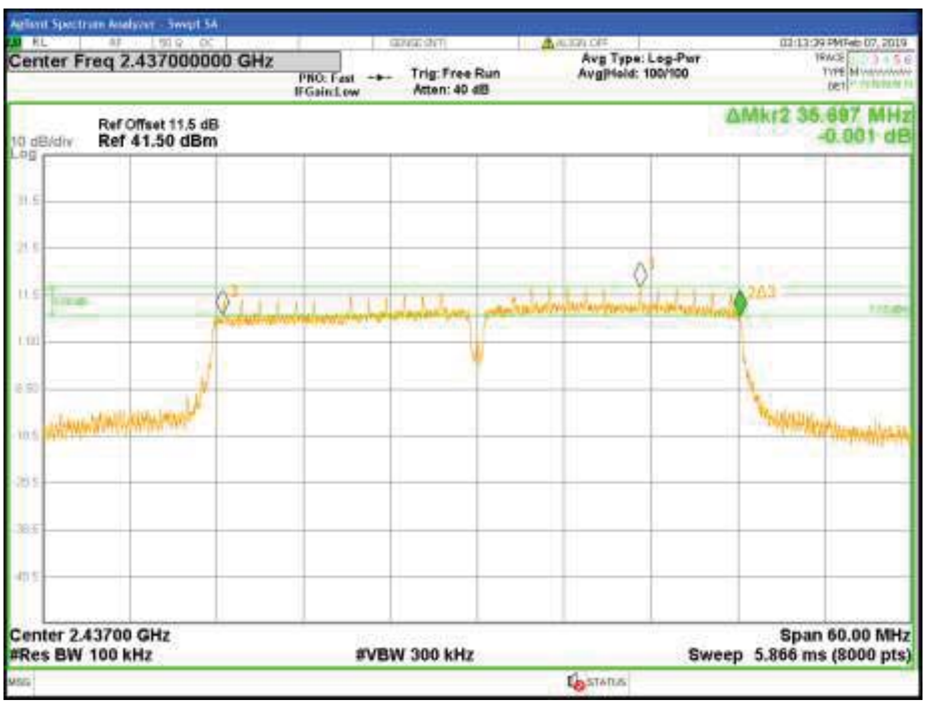



Figure 158: FCC-6dB-OBW-2437MHz-HT40-1x4-q100-Ch0