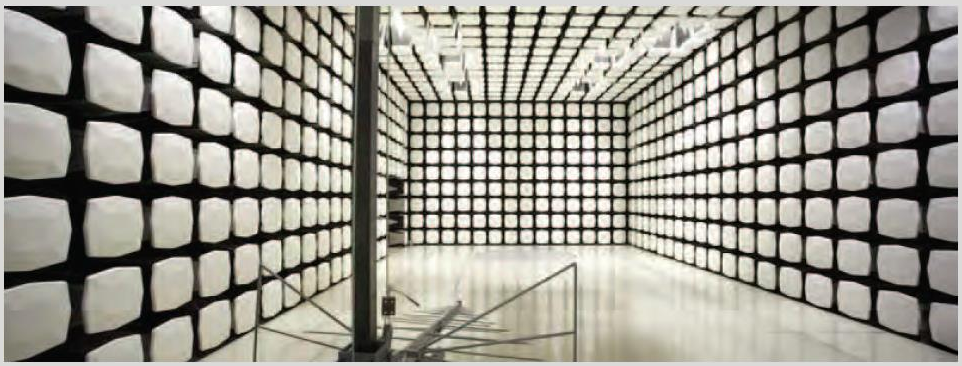
# Polaris Industries, Inc.

**CCU-2**

**FCC 15.247:2020**

**802.11bg SISO Radio**

**Report # POLR0052**



NVLAP LAB CODE: 200630-0

# CERTIFICATE OF TEST

**Last Date of Test: January 3, 2020**
**Polaris Industries, Inc.**
**EUT: CCU-2**

## Radio Equipment Testing

### Standards

| Specification | Method |
|---|---|
| FCC 15.247:2020 | ANSI C63.10:2013, KDB 558074 |

### Results

| Method Clause | Test Description | Applied | Results | Comments |
|---|---|---|---|---|
| 6.2 | Powerline Conducted Emissions | No | N/A | Not required for a battery powered EUT. |
| 11.12.1, 11.13.2, 6.5, 6.6 | Spurious Radiated Emissions | Yes | Pass | |
| 11.6 | Duty Cycle | Yes | N/A | |
| 11.8.2 | Occupied Bandwidth | Yes | Pass | |
| 11.9.2.2.4 | Output Power | Yes | Pass | |
| 11.9.2.2.4 | Equivalent Isotropic Radiated Power | Yes | Pass | |
| 11.10.2 | Power Spectral Density | Yes | Pass | |
| 11.11 | Band Edge Compliance | Yes | Pass | |
| 11.11 | Spurious Conducted Emissions | Yes | Pass | |

### Deviations From Test Standards

None

### Approved By:

*Kyle Holgate, Operations Manager*

***Product compliance is the responsibility of the client; therefore, the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test. This report reflects only those tests from the referenced standards shown in the certificate of test. It does not include inspection or verification of labels, identification, marking or user information. As indicated in the Statement of Work sent with the quotation, Element's standard process is to always use the latest published version of the test methods even when earlier versions are cited in the test specification. Issuance of a purchase order was de facto acceptance of this approach. Otherwise, the client would have advised Element in writing of the specific version of the test methods they wanted applied to the subject testing.***

# REVISION HISTORY

| Revision Number | Description | Date (yyyy-mm-dd) | Page Number |
|---|---|---|---|
| 00 | None | | |

# ACCREDITATIONS AND AUTHORIZATIONS

## United States

**FCC** - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

**A2LA** - Accredited by A2LA to ISO / IEC 17065 as a product certifier. This allows Element to certify transmitters to FCC and IC specifications.

**NVLAP** - Each laboratory is accredited by NVLAP to ISO 17025

## Canada

**ISED** - Recognized by Innovation, Science and Economic Development Canada as a Certification Body (CB) and as a CAB for the acceptance of test data.

## European Union

**European Commission** – Within Element, we have a EU Notified Body validated for the EMCD and RED Directives.

## Australia/New Zealand

**ACMA** - Recognized by ACMA as a CAB for the acceptance of test data.

## Korea

**MSIT / RRA** - Recognized by KCC's RRA as a CAB for the acceptance of test data.

## Japan

**VCCI** - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

## Taiwan

**BSMI** – Recognized by BSMI as a CAB for the acceptance of test data.

**NCC** - Recognized by NCC as a CAB for the acceptance of test data.

## Singapore

**IDA** – Recognized by IDA as a CAB for the acceptance of test data.

## Israel

**MOC** – Recognized by MOC as a CAB for the acceptance of test data.

## Hong Kong

**OFCA** – Recognized by OFCA as a CAB for the acceptance of test data.

## Vietnam

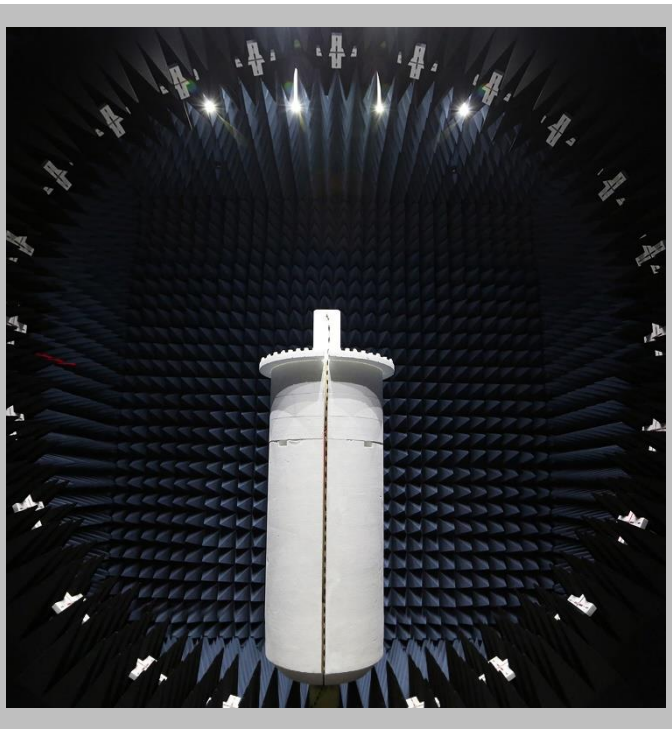
**MIC** – Recognized by MIC as a CAB for the acceptance of test data.

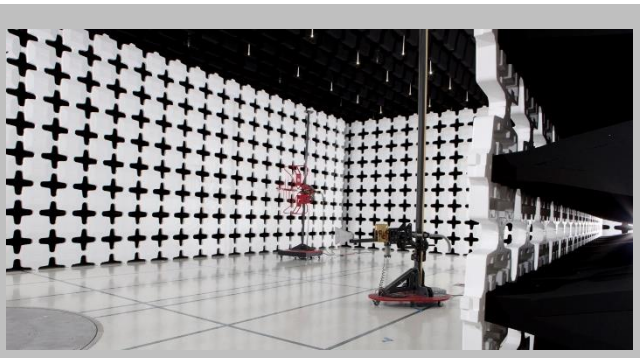
## SCOPE

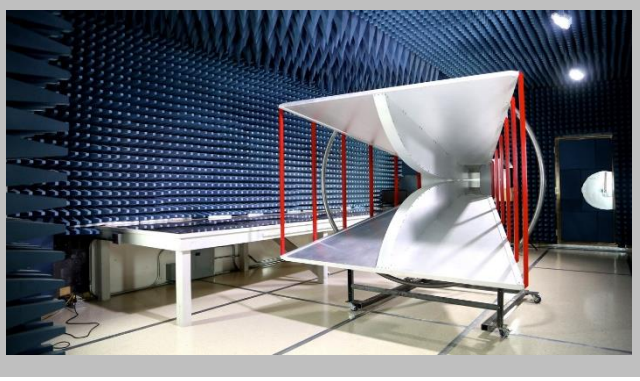
For details on the Scopes of our Accreditations, please visit:
https://www.nwemc.com/emc-testing-accreditations

# FACILITIES

| California | Minnesota | Oregon | Texas | Washington |
|---|---|---|---|---|
| Labs OC01-17<br>41 Tesla<br>Irvine, CA 92618<br>(949) 861-8918 | Labs MN01-10<br>9349 W Broadway Ave.<br>Brooklyn Park, MN 55445<br>(612)-638-5136 | Labs EV01-12<br>6775 NE Evergreen Pkwy #400<br>Hillsboro, OR 97124<br>(503) 844-4066 | Labs TX01-09<br>3801 E Plano Pkwy<br>Plano, TX 75074<br>(469) 304-5255 | Labs NC01-05<br>19201 120th Ave NE<br>Bothell, WA 98011<br>(425)984-6600 |
| **NVLAP** | | | | |
| NVLAP Lab Code: 200676-0 | NVLAP Lab Code: 200881-0 | NVLAP Lab Code: 200630-0 | NVLAP Lab Code:201049-0 | NVLAP Lab Code: 200629-0 |
| **Innovation, Science and Economic Development Canada** | | | | |
| 2834B-1, 2834B-3 | 2834E-1, 2834E-3 | 2834D-1 | 2834G-1 | 2834F-1 |
| **BSMI** | | | | |
| SL2-IN-E-1154R | SL2-IN-E-1152R | SL2-IN-E-1017 | SL2-IN-E-1158R | SL2-IN-E-1153R |
| **VCCI** | | | | |
| A-0029 | A-0109 | A-0108 | A-0201 | A-0110 |
| **Recognized Phase I CAB for ISED, ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA** | | | | |
| US0158 | US0175 | US0017 | US0191 | US0157 |







# MEASUREMENT UNCERTAINTY

element
TMU.2015.07.10

## Measurement Uncertainty

When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement uncertainty is a statistical expression of measurement error qualified by a probability distribution.

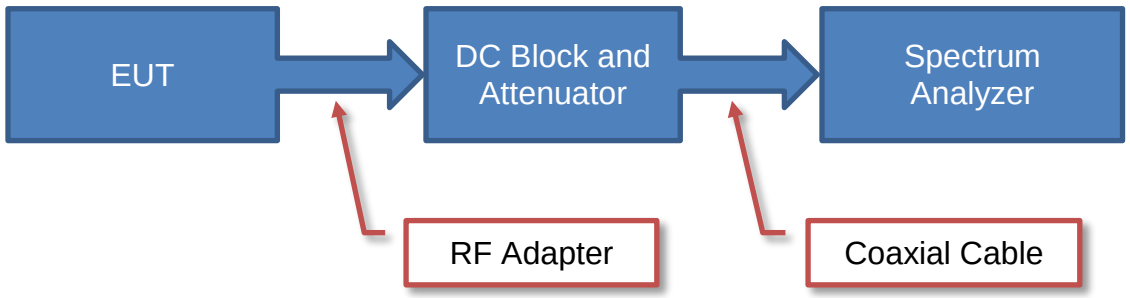
A measurement uncertainty estimation has been performed for each test per our internal quality document QM205.4.6. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) can be found included as part of the applicable test description page. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-2 as applicable), and are available upon request.

The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

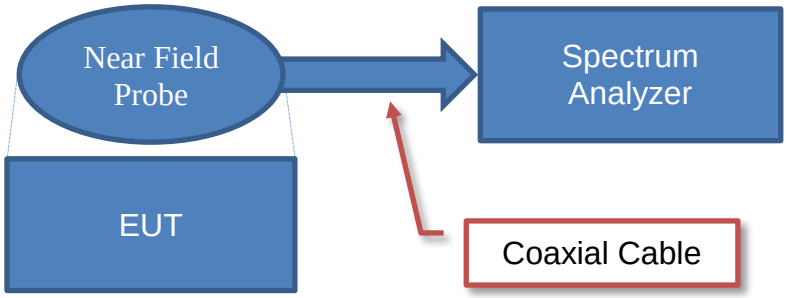
| Test | + MU | - MU |
|---|---|---|
| Frequency Accuracy | 0.0007% | -0.0007% |
| Amplitude Accuracy (dB) | 1.2 dB | -1.2 dB |
| Conducted Power (dB) | 1.2 dB | -1.2 dB |
| Radiated Power via Substitution (dB) | 0.7 dB | -0.7 dB |
| Temperature (degrees C) | 0.7°C | -0.7°C |
| Humidity (% RH) | 2.5% RH | -2.5% RH |
| Voltage (AC) | 1.0% | -1.0% |
| Voltage (DC) | 0.7% | -0.7% |
| Field Strength (dB) | 5.2 dB | -5.2 dB |
| AC Powerline Conducted Emissions (dB) | 2.4 dB | -2.4 dB |

# Test Setup Block Diagrams

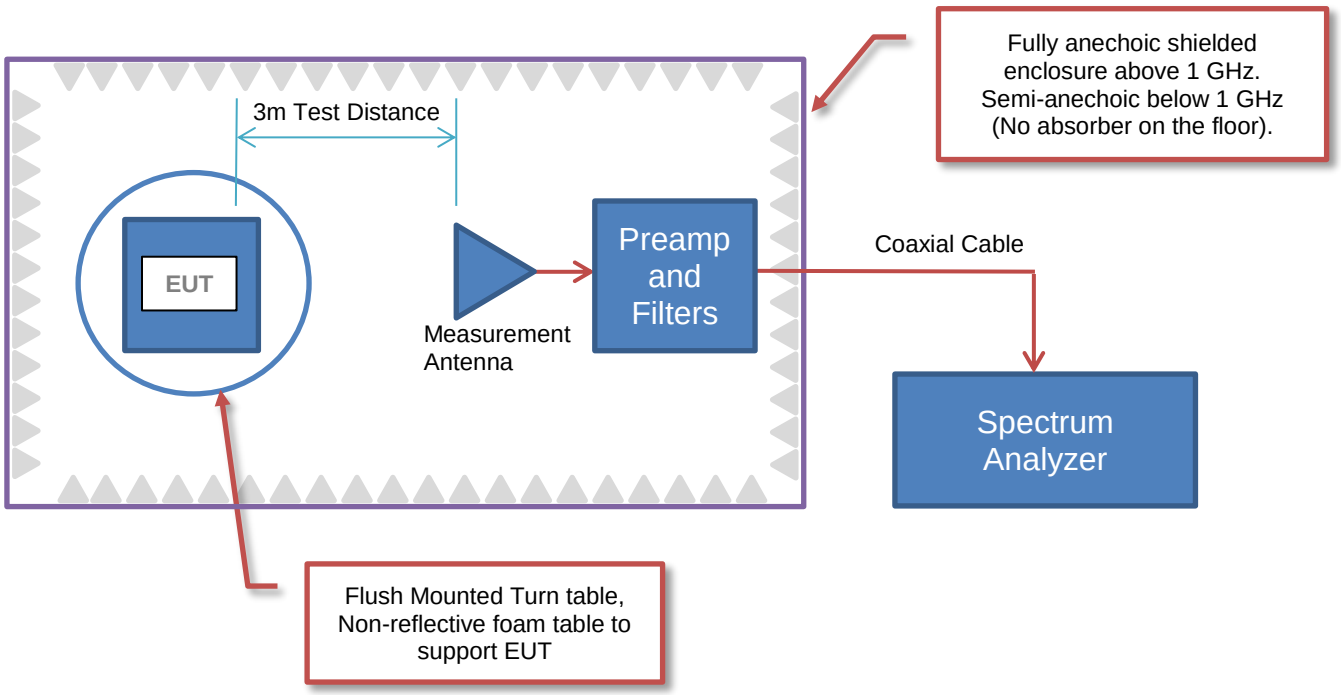
## Antenna Port Conducted Measurements




## Near Field Test Fixture Measurements




## Spurious Radiated Emissions



# PRODUCT DESCRIPTION

## Client and Equipment Under Test (EUT) Information

| | |
|---|---|
| **Company Name:** | Polaris Industries, Inc. |
| **Address:** | 1600 SE 18th Ave |
| **City, State, Zip:** | Battle Ground, WA 98604 |
| **Test Requested By:** | Wayne Rieger |
| **EUT:** | CCU-2 |
| **First Date of Test:** | January 3, 2020 |
| **Last Date of Test:** | January 3, 2020 |
| **Receipt Date of Samples:** | January 3, 2020 |
| **Equipment Design Stage:** | Production |
| **Equipment Condition:** | No Damage |
| **Purchase Authorization:** | Verified |

## Information Provided by the Party Requesting the Test

| **Functional Description of the EUT:** |
|---|
| Connectivity Control Unit |

| **Testing Objective:** |
|---|
| To demonstrate compliance of the 802.11 radio under FCC 15.247 for operation in the 2.4 GHz band. |

# CONFIGURATIONS

## Configuration POLR0058- 3

| EUT | | | |
|---|---|---|---|
| **Description** | **Manufacturer** | **Model/Part Number** | **Serial Number** |
| Connectivity Control Unit | Polaris Industries, Inc. | CCU-2 | Unit #10 |

| Peripherals in test setup boundary | | | |
|---|---|---|---|
| **Description** | **Manufacturer** | **Model/Part Number** | **Serial Number** |
| Serial to Ethernet Converter | RADMOON | None | 11625 |
| AC/DC Adapter Converter | Samsung | None | None |
| DC Power Supply | Topward Electric Instruments Co. | TPS 2000 | TPD |

| Remote Equipment Outside of Test Setup Boundary | | | |
|---|---|---|---|
| **Description** | **Manufacturer** | **Model/Part Number** | **Serial Number** |
| Laptop | Lenovo | T430 | None |

| Cables | | | | | |
|---|---|---|---|---|---|
| **Cable Type** | **Shield** | **Length (m)** | **Ferrite** | **Connection 1** | **Connection 2** |
| USB Power Cable | Yes | .6 m | No | AC/DC Adapter Converter | Serial to Ethernet Converter |
| DC Power Leads (14 volt) | No | 1.6 m | No | DC Power Supply | Connectivity Control Unit |
| Serial Cable | No | .8 m | No | Ethernet Converter | Connectivity Control Unit |
| Ethernet Cat 6 | No | 10 m | No | Laptop | Serial to Ethernet Converter |
| AC Power Cable | No | 1.8 m | No | AC Mains | DC Power Supply |

# CONFIGURATIONS

element
2018-07-17

## Configuration POLR0058- 4

| EUT | | | |
|---|---|---|---|
| **Description** | **Manufacturer** | **Model/Part Number** | **Serial Number** |
| Connectivity Control Unit | Polaris Industries, Inc. | CCU-2 | Regulatory Unit #6 |

| Peripherals in test setup boundary | | | |
|---|---|---|---|
| **Description** | **Manufacturer** | **Model/Part Number** | **Serial Number** |
| Laptop | Lenovo | T430 | None |
| Serial to Ethernet Converter | RADMOON | None | 11625 |
| AC/DC Adapter (Laptop) | Lenovo | 41r4538 | 11S41R4538ZVJ51U05108N |
| AC/DC Adapter (Converter) | Samsung | None | None |

| Cables | | | | | |
|---|---|---|---|---|---|
| **Cable Type** | **Shield** | **Length (m)** | **Ferrite** | **Connection 1** | **Connection 2** |
| AC Power Cable (Laptop) | No | 1.5m | No | AC mains | AC/DC Adapter (Laptop) |
| DC Power Cable (Laptop) | No | 2.0m | Yes | AC/DC Adapter (Laptop) | Laptop |
| Ethernet CAT 5 | No | 1.0 m | No | Laptop | Serial to Ethernet Converter |
| USB Power Cable | Yes | .6 m | No | AC/DC Adapter Converter | Serial to Ethernet Converter |
| DC Power Leads (14 volt) | No | 1.6 m | No | DC Power Supply | Connectivity Control Unit |
| Serial Cable | No | .8 m | No | Serial to Ethernet Converter | Connectivity Control Unit |

# MODIFICATIONS

## Equipment Modifications

| Item | Date | Test | Modification | Note | Disposition of EUT |
|---|---|---|---|---|---|
| 1 | 2020-01-03 | Spurious Radiated Emissions | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Element following the test. |
| 2 | 2020-01-03 | Duty Cycle | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Element following the test. |
| 3 | 2020-01-03 | Occupied Bandwidth | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Element following the test. |
| 4 | 2020-01-03 | Output Power | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Element following the test. |
| 5 | 2020-01-03 | Equivalent Isotropic Radiated Power | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Element following the test. |
| 6 | 2020-01-03 | Power Spectral Density | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Element following the test. |
| 7 | 2020-01-03 | Band Edge Compliance | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Element following the test. |
| 8 | 2020-01-03 | Spurious Conducted Emissions | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | Scheduled testing was completed. |

# SPURIOUS RADIATED EMISSIONS

PSA-ESCI 2019.05.10

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

**MODES OF OPERATION**

802.11bgn, Tx, Low Ch. 1, Mid Ch. 6, High Ch. 11, Software power setting = 10000

**POWER SETTINGS INVESTIGATED**

14VDC

**CONFIGURATIONS INVESTIGATED**

POLR0058 - 3

**FREQUENCY RANGE INVESTIGATED**

| | | | |
|---|---|---|---|
| Start Frequency | 30 MHz | Stop Frequency | 26.5 GHz |

**SAMPLE CALCULATIONS**

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

**TEST EQUIPMENT**

| Description | Manufacturer | Model | ID | Last Cal. | Interval |
|---|---|---|---|---|---|
| Analyzer - Spectrum Analyzer | Agilent | E4446A | AAQ | 24-Mar-2019 | 12 mo |
| Filter - High Pass | Micro-Tronics | HPM50111 | HFO | 18-Nov-2019 | 12 mo |
| Filter - Low Pass | Micro-Tronics | LPM50004 | LFD | 15-Feb-2019 | 12 mo |
| Attenuator | Coaxicom | 3910-20 | AXZ | 15-Feb-2019 | 12 mo |
| Cable | ESM Cable Corp. | TTBJ141-KMKM-72 | EVY | 31-Jul-2019 | 12 mo |
| Cable | None | Standard Gain Horns Cable | EVF | 19-Nov-2019 | 12 mo |
| Cable | N/A | Double Ridge Horn Cables | EVB | 18-Nov-2019 | 12 mo |
| Cable | N/A | Bilog Cables | EVA | 18-Nov-2019 | 12 mo |
| Amplifier - Pre-Amplifier | Miteq | AMF-6F-18002650-25-10P | AVU | 31-Jul-2019 | 12 mo |
| Amplifier - Pre-Amplifier | Miteq | AMF-6F-12001800-30-10P | AVD | 19-Nov-2019 | 12 mo |
| Amplifier - Pre-Amplifier | L-3 Narda-MITEQ | AMF-6F-08001200-30-10P | PAO | 19-Nov-2019 | 12 mo |
| Amplifier - Pre-Amplifier | Miteq | AMF-3D-00100800-32-13P | PAG | 18-Nov-2019 | 12 mo |
| Amplifier - Pre-Amplifier | Miteq | AM-1616-1000 | AOL | 18-Nov-2019 | 12 mo |
| Antenna - Standard Gain | ETS Lindgren | 3160-09 | AIV | NCR | 0 mo |
| Antenna - Standard Gain | ETS Lindgren | 3160-08 | AHV | NCR | 0 mo |
| Antenna - Standard Gain | ETS Lindgren | 3160-07 | AHU | NCR | 0 mo |
| Antenna - Double Ridge | ETS Lindgren | 3115 | AIZ | 7-Feb-2018 | 24 mo |
| Antenna - Biconilog | Teseq | CBL 6141B | AXR | 2-Oct-2018 | 24 mo |

**TEST DESCRIPTION**

The highest gain antenna of each type to be used with the EUT was tested. The EUT was configured for the required transmit frequencies and the modes as showed in the data sheets.

For each configuration, the spectrum was scanned throughout the specified range as part of the exploratory investigation of the emissions. These “pre-scans” are not included in the report. Final measurements on individual emissions were then made and included in this test report.

The individual emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis if required, and adjusting the measurement antenna height and polarization (per ANSI C63.10). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

Measurements were made with the required detectors and annotated on the data for each individual point using the following annotation:

QP = Quasi-Peak Detector
PK = Peak Detector
AV = RMS Detector

Measurements were made to satisfy the specific requirements of the test specification for out of band emissions as well as the restricted band requirements.

If there are no detectable emissions above the noise floor, the data included may show noise floor measurements for reference only.

Measurements at the edges of the allowable band may be presented in an alternative method as provided for in the ANSI C63.10 Marker-Delta method. This method involves performing an in-band fundamental measurement followed by a screen capture of the fundamental and out-of-band emission using reduced measurement instrumentation bandwidths. The amplitude delta measured on this screen capture is applied to the fundamental emission value to show the out-of-band emission level as applied to the limit.

Where the radio test software does not provide for a duty cycle at continuous transmit conditions (> 98%) and the RMS (voltage average) measurements were made across the on and off times of the EUT transmissions, a duty cycle correction is added to the measurements using the formula of 20*LOG(dc).

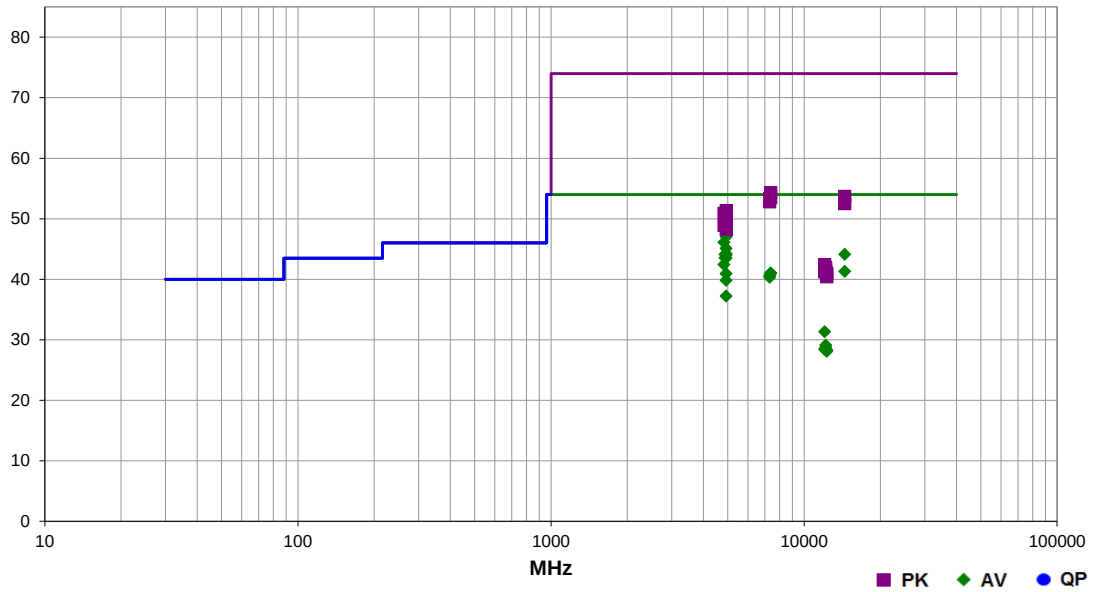
# SPURIOUS RADIATED EMISSIONS

EmiR5 2019.08.15.1 PSA-ESCI 2019.05.10

| | | | | | |
|---|---|---|---|---|---|
| **Work Order:** | POLR0058 | **Date:** | 3-Jan-2020 | | |
| **Project:** | None | **Temperature:** | 20.2 °C | | |
| **Job Site:** | EV01 | **Humidity:** | 41.8% RH | | |
| **Serial Number:** | Unit #10 | **Barometric Pres.:** | 1020 mbar | **Tested by:** | Cole Ghizzone |
| **EUT:** | CCU-2 | | | | |
| **Configuration:** | 3 | | | | |
| **Customer:** | Polaris Industries, Inc. | | | | |
| **Attendees:** | Wayne Rieger | | | | |
| **EUT Power:** | 14VDC | | | | |
| **Operating Mode:** | 802.11bgn, Tx, Low Ch. 1, Mid Ch. 6, High Ch. 11, Software power setting = 10000 | | | | |
| **Deviations:** | None | | | | |
| **Comments:** | See data comments for channel, data rate, and EUT orientation. | | | | |

| **Test Specifications** | **Test Method** |
|---|---|
| FCC 15.247:2020 | ANSI C63.10:2013 |

| **Run #** | 14 | **Test Distance (m)** | 3 | **Antenna Height(s)** | 1 to 4(m) | **Results** | Pass |
|---|---|---|---|---|---|---|---|




| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Antenna Height (meters) | Azimuth (degrees) | Duty Cycle Correction Factor (dB) | External Attenuation (dB) | Polarity/ Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4924.233 | 28.9 | 6.5 | 2.5 | 141.0 | 14.1 | 0.0 | Horz | AV | 0.0 | 49.5 | 54.0 | -4.5 | High Ch. 11, 6Mbps, EUT Vertical |
| 4925.290 | 27.5 | 6.6 | 1.2 | 312.0 | 14.1 | 0.0 | Horz | AV | 0.0 | 48.2 | 54.0 | -5.8 | High Ch. 11, MCS7, EUT Vertical |
| 4925.080 | 27.3 | 6.6 | 1.5 | 88.0 | 14.1 | 0.0 | Horz | AV | 0.0 | 48.0 | 54.0 | -6.0 | High Ch. 11, 54Mbps, EUT Vertical |
| 4923.950 | 40.1 | 6.5 | 1.3 | 37.0 | 0.8 | 0.0 | Horz | AV | 0.0 | 47.4 | 54.0 | -6.6 | High Ch. 11, 1 Mbps, EUT Vertical |
| 4925.460 | 28.7 | 6.6 | 1.6 | 293.0 | 11.7 | 0.0 | Horz | AV | 0.0 | 47.0 | 54.0 | -7.0 | High Ch. 11, 36Mbps, EUT Vertical |
| 4823.992 | 39.5 | 5.8 | 2.0 | 140.0 | 0.8 | 0.0 | Horz | AV | 0.0 | 46.1 | 54.0 | -7.9 | Low Ch. 1, 1Mbps, EUT Vertical |
| 4924.000 | 37.8 | 6.5 | 2.1 | 34.0 | 0.8 | 0.0 | Horz | AV | 0.0 | 45.1 | 54.0 | -8.9 | High Ch. 11, 1 Mbps, EUT On Side |
| 4924.000 | 36.9 | 6.5 | 2.1 | 158.0 | 0.8 | 0.0 | Vert | AV | 0.0 | 44.2 | 54.0 | -9.8 | High Ch. 11, 1 Mbps, EUT On Side |
| 4874.000 | 37.1 | 6.2 | 1.8 | 294.0 | 0.8 | 0.0 | Horz | AV | 0.0 | 44.1 | 54.0 | -9.9 | Mid Ch. 6, 1Mbps, EUT Vertical |
| 14471.920 | 27.4 | 15.9 | 3.7 | 173.0 | 0.8 | 0.0 | Horz | AV | 0.0 | 44.1 | 54.0 | -9.9 | Low Ch. 1, 1Mbps, EUT Vertical |
| 4924.000 | 36.7 | 6.5 | 1.3 | 158.0 | 0.8 | 0.0 | Horz | AV | 0.0 | 44.0 | 54.0 | -10.0 | High Ch. 11, 1 Mbps, EUT Horizontal |
| 4874.008 | 36.5 | 6.2 | 2.0 | 321.0 | 0.8 | 0.0 | Vert | AV | 0.0 | 43.5 | 54.0 | -10.5 | Mid Ch. 6, 1Mbps, EUT On Side |
| 4923.983 | 36.2 | 6.5 | 2.8 | 291.0 | 0.8 | 0.0 | Vert | AV | 0.0 | 43.5 | 54.0 | -10.5 | High Ch. 11, 1 Mbps, EUT Horizontal |
| 4823.967 | 35.8 | 5.8 | 1.0 | 335.0 | 0.8 | 0.0 | Vert | AV | 0.0 | 42.4 | 54.0 | -11.6 | Low Ch. 1, 1Mbps, EUT On Side |
| 14471.890 | 24.6 | 15.9 | 1.5 | 179.0 | 0.8 | 0.0 | Vert | AV | 0.0 | 41.3 | 54.0 | -12.7 | Low Ch. 1, 1Mbps, EUT On Side |
| 7388.308 | 25.3 | 14.9 | 1.5 | 36.0 | 0.8 | 0.0 | Horz | AV | 0.0 | 41.0 | 54.0 | -13.0 | High Ch. 11, 1Mbps, EUT Vertical |
| 7388.350 | 25.3 | 14.9 | 2.3 | 292.0 | 0.8 | 0.0 | Vert | AV | 0.0 | 41.0 | 54.0 | -13.0 | High Ch. 11, 1Mbps, EUT On Side |
| 4924.000 | 33.6 | 6.5 | 2.6 | 203.0 | 0.8 | 0.0 | Vert | AV | 0.0 | 40.9 | 54.0 | -13.1 | High Ch. 11, 1 Mbps, EUT Vertical |
| 7310.167 | 25.9 | 13.9 | 2.7 | 10.0 | 0.8 | 0.0 | Vert | AV | 0.0 | 40.6 | 54.0 | -13.4 | Mid Ch. 6, 1Mbps, EUT On Side |
| 7309.717 | 25.6 | 13.9 | 1.5 | 61.0 | 0.8 | 0.0 | Horz | AV | 0.0 | 40.3 | 54.0 | -13.7 | Mid Ch. 6, 1Mbps, EUT Vertical |
| 4925.540 | 29.0 | 6.6 | 1.3 | 69.0 | 4.2 | 0.0 | Horz | AV | 0.0 | 39.8 | 54.0 | -14.2 | High Ch. 11, MCS0, EUT Vertical |
| 4924.017 | 29.9 | 6.5 | 2.3 | 315.0 | 0.8 | 0.0 | Horz | AV | 0.0 | 37.2 | 54.0 | -16.8 | High Ch. 11, 11Mbps, EUT Vertical |
| 7383.650 | 39.4 | 14.9 | 1.5 | 36.0 | 0.0 | 0.0 | Horz | PK | 0.0 | 54.3 | 74.0 | -19.7 | High Ch. 11, 1Mbps, EUT Vertical |
| 14472.170 | 37.8 | 15.9 | 3.7 | 173.0 | 0.0 | 0.0 | Horz | PK | 0.0 | 53.7 | 74.0 | -20.3 | Low Ch. 1, 1Mbps, EUT Vertical |
| 7387.467 | 38.6 | 14.9 | 2.3 | 292.0 | 0.0 | 0.0 | Vert | PK | 0.0 | 53.5 | 74.0 | -20.5 | High Ch. 11, 1Mbps, EUT On Side |

| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Antenna Height (meters) | Azimuth (degrees) | Duty Cycle Correction Factor (dB) | External Attenuation (dB) | Polarity/ Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7310.633 | 39.4 | 13.9 | 2.7 | 10.0 | 0.0 | 0.0 | Vert | PK | 0.0 | 53.3 | 74.0 | -20.7 | Mid Ch. 6, 1Mbps, EUT On Side |
| 7313.483 | 38.9 | 13.9 | 1.5 | 61.0 | 0.0 | 0.0 | Horz | PK | 0.0 | 52.8 | 74.0 | -21.2 | Mid Ch. 6, 1Mbps, EUT Vertical |
| 14472.620 | 36.6 | 15.9 | 1.5 | 179.0 | 0.0 | 0.0 | Vert | PK | 0.0 | 52.5 | 74.0 | -21.5 | Low Ch. 1, 1Mbps, EUT On Side |
| 12060.740 | 29.5 | 1.0 | 1.8 | 39.0 | 0.8 | 0.0 | Horz | AV | 0.0 | 31.3 | 54.0 | -22.7 | Low Ch. 1, 1Mbps, EUT Vertical |
| 4924.000 | 44.8 | 6.5 | 1.3 | 37.0 | 0.0 | 0.0 | Horz | PK | 0.0 | 51.3 | 74.0 | -22.7 | High Ch. 11, 1 Mbps, EUT Vertical |
| 4823.867 | 45.1 | 5.8 | 2.0 | 140.0 | 0.0 | 0.0 | Horz | PK | 0.0 | 50.9 | 74.0 | -23.1 | Low Ch. 1, 1Mbps, EUT Vertical |
| 4923.667 | 44.0 | 6.5 | 2.5 | 141.0 | 0.0 | 0.0 | Horz | PK | 0.0 | 50.5 | 74.0 | -23.5 | High Ch. 11, 6Mbps, EUT Vertical |
| 4928.380 | 43.7 | 6.6 | 1.6 | 293.0 | 0.0 | 0.0 | Horz | PK | 0.0 | 50.3 | 74.0 | -23.7 | High Ch. 11, 36Mbps, EUT Vertical |
| 4923.983 | 43.8 | 6.5 | 2.3 | 315.0 | 0.0 | 0.0 | Horz | PK | 0.0 | 50.3 | 74.0 | -23.7 | High Ch. 11, 11Mbps, EUT Vertical |
| 4923.580 | 43.6 | 6.5 | 1.2 | 312.0 | 0.0 | 0.0 | Horz | PK | 0.0 | 50.1 | 74.0 | -23.9 | High Ch. 11, MCS7, EUT Vertical |
| 4923.917 | 43.4 | 6.5 | 2.1 | 34.0 | 0.0 | 0.0 | Horz | PK | 0.0 | 49.9 | 74.0 | -24.1 | High Ch. 11, 1 Mbps, EUT On Side |
| 4922.290 | 43.3 | 6.5 | 1.3 | 69.0 | 0.0 | 0.0 | Horz | PK | 0.0 | 49.8 | 74.0 | -24.2 | High Ch. 11, MCS0, EUT Vertical |
| 4923.750 | 43.0 | 6.5 | 1.5 | 88.0 | 0.0 | 0.0 | Horz | PK | 0.0 | 49.5 | 74.0 | -24.5 | High Ch. 11, 54Mbps, EUT Vertical |
| 4924.017 | 42.9 | 6.5 | 2.8 | 291.0 | 0.0 | 0.0 | Vert | PK | 0.0 | 49.4 | 74.0 | -24.6 | High Ch. 11, 1 Mbps, EUT Horizontal |
| 4873.775 | 43.1 | 6.2 | 1.8 | 294.0 | 0.0 | 0.0 | Horz | PK | 0.0 | 49.3 | 74.0 | -24.7 | Mid Ch. 6, 1Mbps, EUT Vertical |
| 4923.950 | 42.7 | 6.5 | 2.1 | 158.0 | 0.0 | 0.0 | Vert | PK | 0.0 | 49.2 | 74.0 | -24.8 | High Ch. 11, 1 Mbps, EUT On Side |
| 12185.780 | 27.5 | 0.8 | 1.5 | 123.0 | 0.8 | 0.0 | Vert | AV | 0.0 | 29.1 | 54.0 | -24.9 | MId Ch. 6, 1Mbps, EUT On Side |
| 4873.975 | 42.9 | 6.2 | 2.0 | 321.0 | 0.0 | 0.0 | Vert | PK | 0.0 | 49.1 | 74.0 | -24.9 | Mid Ch. 6, 1Mbps, EUT On Side |
| 4924.050 | 42.5 | 6.5 | 1.3 | 158.0 | 0.0 | 0.0 | Horz | PK | 0.0 | 49.0 | 74.0 | -25.0 | High Ch. 11, 1 Mbps, EUT Horizontal |
| 4824.233 | 43.1 | 5.8 | 1.0 | 335.0 | 0.0 | 0.0 | Vert | PK | 0.0 | 48.9 | 74.0 | -25.1 | Low Ch. 1, 1Mbps, EUT On Side |
| 12184.160 | 27.1 | 0.8 | 1.5 | 238.0 | 0.8 | 0.0 | Horz | AV | 0.0 | 28.7 | 54.0 | -25.3 | MId Ch. 6, 1Mbps, EUT Vertical |
| 12061.630 | 26.6 | 1.0 | 1.5 | 206.0 | 0.8 | 0.0 | Vert | AV | 0.0 | 28.4 | 54.0 | -25.6 | Low Ch. 1, 1Mbps, EUT On Side |
| 12310.920 | 26.8 | 0.7 | 1.5 | 355.0 | 0.8 | 0.0 | Vert | AV | 0.0 | 28.3 | 54.0 | -25.7 | High Ch. 11, 1Mbps, EUT On Side |
| 4924.150 | 41.8 | 6.5 | 2.6 | 203.0 | 0.0 | 0.0 | Vert | PK | 0.0 | 48.3 | 74.0 | -25.7 | High Ch. 11, 1 Mbps, EUT Vertical |
| 12311.440 | 26.6 | 0.7 | 1.6 | -1.0 | 0.8 | 0.0 | Horz | AV | 0.0 | 28.1 | 54.0 | -25.9 | High Ch. 11, 1Mbps, EUT Vertical |
| 12061.700 | 41.4 | 1.0 | 1.8 | 39.0 | 0.0 | 0.0 | Horz | PK | 0.0 | 42.4 | 74.0 | -31.6 | Low Ch. 1, 1Mbps, EUT Vertical |
| 12182.930 | 41.1 | 0.8 | 1.5 | 238.0 | 0.0 | 0.0 | Horz | PK | 0.0 | 41.9 | 74.0 | -32.1 | MId Ch. 6, 1Mbps, EUT Vertical |
| 12184.660 | 40.5 | 0.8 | 1.5 | 123.0 | 0.0 | 0.0 | Vert | PK | 0.0 | 41.3 | 74.0 | -32.7 | MId Ch. 6, 1Mbps, EUT On Side |
| 12058.760 | 40.2 | 1.0 | 1.5 | 206.0 | 0.0 | 0.0 | Vert | PK | 0.0 | 41.2 | 74.0 | -32.8 | Low Ch. 1, 1Mbps, EUT On Side |
| 12308.260 | 40.3 | 0.7 | 1.6 | -1.0 | 0.0 | 0.0 | Horz | PK | 0.0 | 41.0 | 74.0 | -33.0 | High Ch. 11, 1Mbps, EUT Vertical |
| 12311.540 | 39.7 | 0.7 | 1.5 | 355.0 | 0.0 | 0.0 | Vert | PK | 0.0 | 40.4 | 74.0 | -33.6 | High Ch. 11, 1Mbps, EUT On Side |

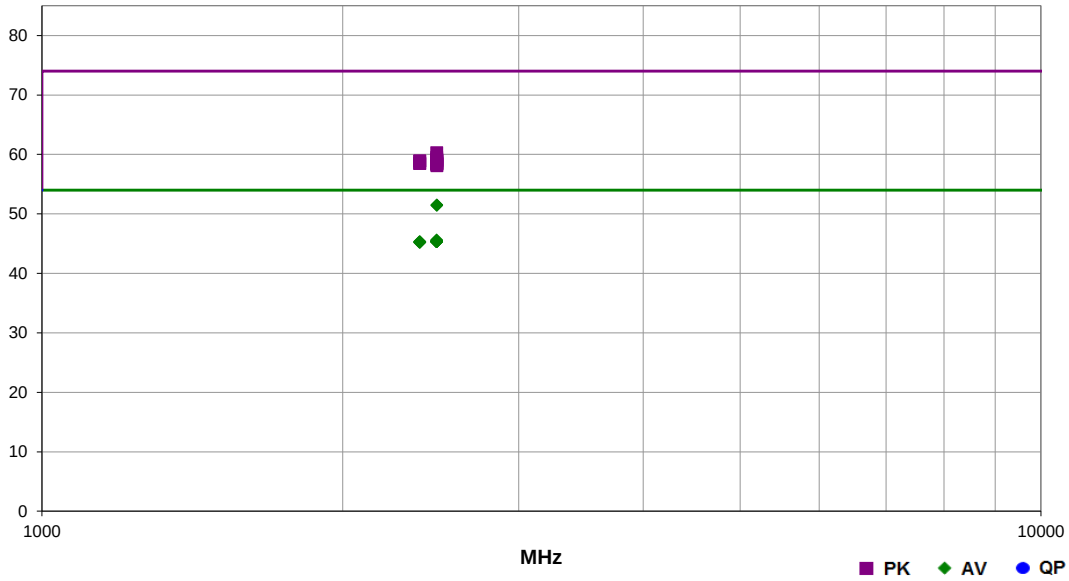
# SPURIOUS RADIATED EMISSIONS

EmiR5 2019.08.15.1 PSA-ESCI 2019.05.10

| | | | | | |
|---|---|---|---|---|---|
| **Work Order:** | POLR0058 | **Date:** | 3-Jan-2020 | | |
| **Project:** | None | **Temperature:** | 20.5 °C | | |
| **Job Site:** | EV01 | **Humidity:** | 41% RH | | |
| **Serial Number:** | Unit #10 | **Barometric Pres.:** | 1028 mbar | **Tested by:** | Cole Ghizzone |
| **EUT:** | CCU-2 | | | | |
| **Configuration:** | 3 | | | | |
| **Customer:** | Polaris Industries, Inc. | | | | |
| **Attendees:** | Wayne Rieger | | | | |
| **EUT Power:** | 14VDC | | | | |
| **Operating Mode:** | 802.11bgn, Tx, Low Ch. 1, Mid Ch. 6, High Ch. 11, Software power setting = 10000 | | | | |
| **Deviations:** | None | | | | |
| **Comments:** | See data comments for channel, data rate, and EUT orientation. Data rates that do not have a Duty Cycle Correction Factor applied to AVG measurements were noisefloor. | | | | |

| **Test Specifications** | **Test Method** |
|---|---|
| FCC 15.247:2020 | ANSI C63.10:2013 |

| **Run #** | 29 | **Test Distance (m)** | 3 | **Antenna Height(s)** | 1 to 4(m) | **Results** | Pass |
|---|---|---|---|---|---|---|---|




| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Antenna Height (meters) | Azimuth (degrees) | Duty Cycle Correction Factor (dB) | External Attenuation (dB) | Polarity/ Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2485.437 | 34.4 | -3.7 | 2.4 | 127.0 | 0.8 | 20.0 | Horz | AV | 0.0 | 51.5 | 54.0 | -2.5 | High Ch. 11, 1Mbps, EUT Vertical |
| 2485.213 | 34.3 | -3.7 | 1.5 | 81.0 | 0.8 | 20.0 | Vert | AV | 0.0 | 51.4 | 54.0 | -2.6 | High Ch. 11, 1Mbps, EUT Vertical |
| 2483.740 | 28.6 | -3.8 | 1.5 | 37.0 | 0.0 | 20.0 | Horz | AV | 0.0 | 45.6 | 54.0 | -8.4 | High Ch. 11, 6Mbps, EUT Vertical |
| 2484.207 | 28.3 | -3.7 | 2.0 | 93.0 | 0.0 | 20.0 | Horz | AV | 0.0 | 45.4 | 54.0 | -8.6 | High Ch. 11, 1Mbps, EUT On Side |
| 2483.897 | 28.4 | -3.8 | 1.5 | 151.0 | 0.0 | 20.0 | Horz | AV | 0.0 | 45.4 | 54.0 | -8.6 | High Ch. 11, 36Mbps, EUT Vertical |
| 2483.590 | 28.4 | -3.8 | 1.5 | 151.0 | 0.0 | 20.0 | Horz | AV | 0.0 | 45.4 | 54.0 | -8.6 | High Ch. 11, 54Mbps, EUT Vertical |
| 2483.657 | 28.3 | -3.8 | 1.5 | 301.0 | 0.0 | 20.0 | Vert | AV | 0.0 | 45.3 | 54.0 | -8.7 | High Ch. 11, 1Mbps, EUT On Side |
| 2483.723 | 28.3 | -3.8 | 1.5 | 269.0 | 0.0 | 20.0 | Horz | AV | 0.0 | 45.3 | 54.0 | -8.7 | High Ch. 11, 1Mbps, EUT Horizontal |
| 2483.723 | 28.3 | -3.8 | 2.7 | 239.0 | 0.0 | 20.0 | Vert | AV | 0.0 | 45.3 | 54.0 | -8.7 | High Ch. 11, 1Mbps, EUT Horizontal |
| 2483.683 | 28.3 | -3.8 | 1.5 | 220.0 | 0.0 | 20.0 | Horz | AV | 0.0 | 45.3 | 54.0 | -8.7 | High Ch. 11, 11Mbps, EUT Vertical |
| 2483.643 | 28.3 | -3.8 | 1.5 | 151.0 | 0.0 | 20.0 | Horz | AV | 0.0 | 45.3 | 54.0 | -8.7 | High Ch. 11, MCS0, EUT Vertical |
| 2483.500 | 28.3 | -3.8 | 1.5 | 151.0 | 0.0 | 20.0 | Horz | AV | 0.0 | 45.3 | 54.0 | -8.7 | High Ch. 11, MCS7, EUT Vertical |
| 2388.077 | 28.5 | -4.0 | 1.5 | 201.0 | 0.0 | 20.0 | Horz | AV | 0.0 | 45.3 | 54.0 | -8.7 | Low Ch. 1, 1Mbps, EUT Vertical |
| 2389.933 | 28.5 | -4.0 | 1.5 | 124.0 | 0.0 | 20.0 | Horz | AV | 0.0 | 45.3 | 54.0 | -8.7 | Low Ch. 1, 6Mbps, EUT Vertical |
| 2388.110 | 28.4 | -4.0 | 1.5 | 225.0 | 0.0 | 20.0 | Vert | AV | 0.0 | 45.2 | 54.0 | -8.8 | Low Ch. 1, 1Mbps, EUT Vertical |
| 2389.963 | 28.4 | -4.0 | 1.5 | 185.0 | 0.0 | 20.0 | Vert | AV | 0.0 | 45.2 | 54.0 | -8.8 | Low Ch. 1, 6Mbps, EUT Vertical |
| 2483.897 | 44.1 | -3.8 | 2.0 | 93.0 | 0.0 | 20.0 | Horz | PK | 0.0 | 60.3 | 74.0 | -13.7 | High Ch. 11, 1Mbps, EUT On Side |
| 2484.543 | 43.2 | -3.7 | 1.5 | 81.0 | 0.0 | 20.0 | Vert | PK | 0.0 | 59.5 | 74.0 | -14.5 | High Ch. 11, 1Mbps, EUT Vertical |
| 2483.993 | 43.0 | -3.8 | 1.5 | 37.0 | 0.0 | 20.0 | Horz | PK | 0.0 | 59.2 | 74.0 | -14.8 | High Ch. 11, 6Mbps, EUT Vertical |
| 2485.240 | 42.7 | -3.7 | 1.5 | 220.0 | 0.0 | 20.0 | Horz | PK | 0.0 | 59.0 | 74.0 | -15.0 | High Ch. 11, 11Mbps, EUT Vertical |
| 2483.833 | 42.8 | -3.8 | 1.5 | 151.0 | 0.0 | 20.0 | Horz | PK | 0.0 | 59.0 | 74.0 | -15.0 | High Ch. 11, 54Mbps, EUT Vertical |
| 2484.503 | 42.6 | -3.7 | 1.5 | 151.0 | 0.0 | 20.0 | Horz | PK | 0.0 | 58.9 | 74.0 | -15.1 | High Ch. 11, MCS0, EUT Vertical |
| 2388.060 | 42.9 | -4.0 | 1.5 | 201.0 | 0.0 | 20.0 | Horz | PK | 0.0 | 58.9 | 74.0 | -15.1 | Low Ch. 1, 1Mbps, EUT Vertical |
| 2388.750 | 42.9 | -4.0 | 1.5 | 225.0 | 0.0 | 20.0 | Vert | PK | 0.0 | 58.9 | 74.0 | -15.1 | Low Ch. 1, 1Mbps, EUT Vertical |
| 2484.213 | 42.4 | -3.7 | 1.5 | 151.0 | 0.0 | 20.0 | Horz | PK | 0.0 | 58.7 | 74.0 | -15.3 | High Ch. 11, 36Mbps, EUT Vertical |
| 2483.833 | 42.3 | -3.8 | 1.5 | 269.0 | 0.0 | 20.0 | Horz | PK | 0.0 | 58.5 | 74.0 | -15.5 | High Ch. 11, 1Mbps, EUT Horizontal |
| 2485.130 | 42.2 | -3.7 | 2.7 | 239.0 | 0.0 | 20.0 | Vert | PK | 0.0 | 58.5 | 74.0 | -15.5 | High Ch. 11, 1Mbps, EUT Horizontal |

| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Antenna Height (meters) | Azimuth (degrees) | Duty Cycle Correction Factor (dB) | External Attenuation (dB) | Polarity/ Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2388.633 | 42.5 | -4.0 | 1.5 | 124.0 | 0.0 | 20.0 | Horz | PK | 0.0 | 58.5 | 74.0 | -15.5 | Low Ch. 1, 6Mbps, EUT Vertical |
| 2388.960 | 42.5 | -4.0 | 1.5 | 185.0 | 0.0 | 20.0 | Vert | PK | 0.0 | 58.5 | 74.0 | -15.5 | Low Ch. 1, 6Mbps, EUT Vertical |
| 2485.493 | 42.1 | -3.7 | 2.4 | 127.0 | 0.0 | 20.0 | Horz | PK | 0.0 | 58.4 | 74.0 | -15.6 | High Ch. 11, 1Mbps, EUT Vertical |
| 2484.230 | 42.0 | -3.7 | 1.5 | 301.0 | 0.0 | 20.0 | Vert | PK | 0.0 | 58.3 | 74.0 | -15.7 | High Ch. 11, 1Mbps, EUT On Side |
| 2484.933 | 41.8 | -3.7 | 1.5 | 151.0 | 0.0 | 20.0 | Horz | PK | 0.0 | 58.1 | 74.0 | -15.9 | High Ch. 11, MCS7, EUT Vertical |

# DUTY CYCLE

XMit 2019.09.05

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

**TEST EQUIPMENT**

| Description | Manufacturer | Model | ID | Last Cal. | Cal. Due |
|---|---|---|---|---|---|
| Meter - Multimeter | Tektronix | DMM912 | MMH | 15-Feb-19 | 15-Feb-22 |
| Power Supply - DC | Dr. Meter | PS-305DM | TZZ | NCR | NCR |
| Generator - Signal | Keysight | N5182B | TFU | 5-Nov-18 | 5-Nov-21 |
| Cable | Micro-Coax | UFD150A-1-0720-200200 | EVH | 28-Mar-19 | 28-Mar-20 |
| Terminator | S.M. Electronics | ST2B | AWM | 9-Apr-19 | 9-Apr-20 |
| Attenuator | S.M. Electronics | SA26B-20 | AUY | 28-Mar-19 | 28-Mar-20 |
| Analyzer - Spectrum Analyzer | Agilent | E4440A | AFA | 12-Feb-19 | 12-Feb-20 |

**TEST DESCRIPTION**

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The Duty Cycle (x) of the single channel operation of the radio as controlled by the provided test software was measured for each of the EUT operating modes.

There is no compliance requirement to be met by this test, so therefore no Pass / Fail criteria.

The measurements were made using a zero span on the spectrum analyzer to see the pulses in the time domain. The transmit power was set to its default maximum.

The duty cycle was calculated by dividing the transmission pulse duration (T) by the total period of a single on and total off time.

If the transmit duty cycle < 98 percent, burst gating may have been used during some of the other tests in this report to only take the measurement during the burst duration.

# DUTY CYCLE

element

TbtTx 2019.08.30.0 XMit 2019.09.05

| | | | | | |
|---|---|---|---|---|---|
| **EUT:** | CCU-2 | | | **Work Order:** | POLR0058 |
| **Serial Number:** | Unit #6 | | | **Date:** | 3-Jan-20 |
| **Customer:** | Polaris Industries, Inc. | | | **Temperature:** | 21.5 °C |
| **Attendees:** | Wayne Rieger | | | **Humidity:** | 40.6% RH |
| **Project:** | None | | | **Barometric Pres.:** | 1016 mbar |
| **Tested by:** | Brandon Hobbs | **Power:** | 14VDC | **Job Site:** | EV06 |

| **TEST SPECIFICATIONS** | **Test Method** |
|---|---|
| FCC 15.247:2020 | ANSI C63.10:2013 |

**COMMENTS**

All losses through the measurement path were accounted for. The Power level was set to a client software setting of 10000.

**DEVIATIONS FROM TEST STANDARD**

None

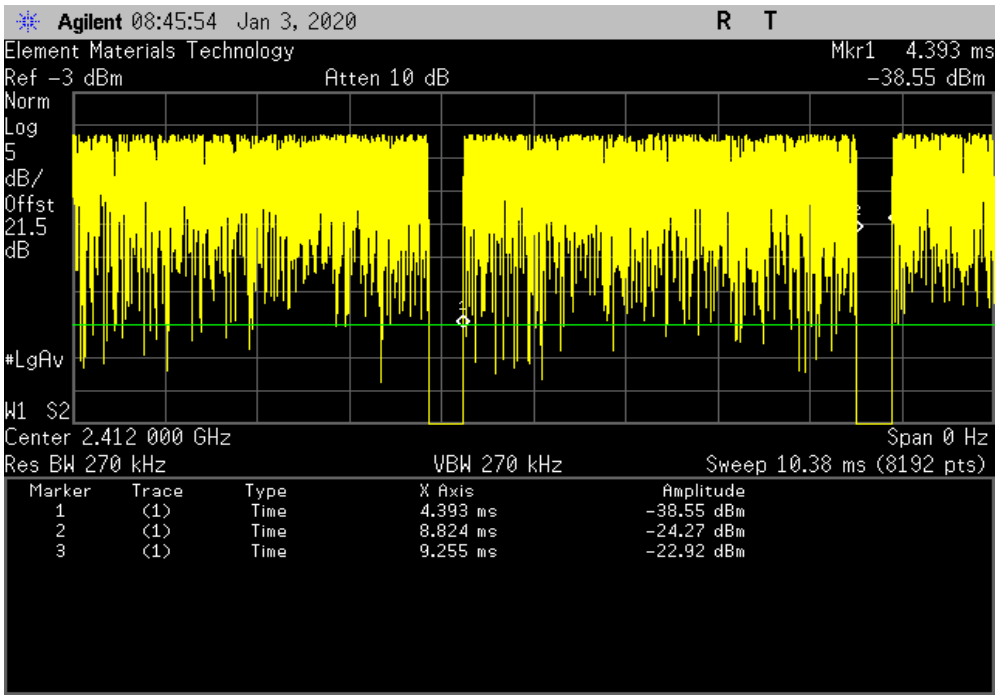
| **Configuration #** | 4 | *Signature* |
|---|---|---|

| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
|---|---|---|---|---|---|---|
| 2400 MHz - 2483.5 MHz Band | | | | | | |
| 802.11(b) 1 Mbps | | | | | | |
| Low Channel 1, 2412 MHz | 4.431 ms | 4.862 ms | 1 | 91.1 | N/A | N/A |
| Low Channel 1, 2412 MHz | N/A | N/A | 87 | N/A | N/A | N/A |
| Mid Channel 6, 2437 MHz | 4.431 ms | 4.822 ms | 1 | 91.9 | N/A | N/A |
| Mid Channel 6, 2437 MHz | N/A | N/A | 5 | N/A | N/A | N/A |
| High Channel 11, 2462 MHz | 4.431 ms | 4.831 ms | 1 | 91.7 | N/A | N/A |
| High Channel 11, 2462 MHz | N/A | N/A | 5 | N/A | N/A | N/A |
| 802.11(b) 11 Mbps | | | | | | |
| Low Channel 1, 2412 MHz | 577 us | 967.9 us | 1 | 59.6 | N/A | N/A |
| Low Channel 1, 2412 MHz | N/A | N/A | 5 | N/A | N/A | N/A |
| Mid Channel 6, 2437 MHz | 577 us | 976.9 us | 1 | 59.1 | N/A | N/A |
| Mid Channel 6, 2437 MHz | N/A | N/A | 5 | N/A | N/A | N/A |
| High Channel 11, 2462 MHz | 577 us | 976.9 us | 1 | 59.1 | N/A | N/A |
| High Channel 11, 2462 MHz | N/A | N/A | 5 | N/A | N/A | N/A |
| 802.11(g) 6 Mbps | | | | | | |
| Low Channel 1, 2412 MHz | 732.383 us | 1.135 ms | 1 | 64.5 | N/A | N/A |
| Low Channel 1, 2412 MHz | N/A | N/A | 5 | N/A | N/A | N/A |
| Mid Channel 6, 2437 MHz | 732.233 us | 1.135 ms | 1 | 64.5 | N/A | N/A |
| Mid Channel 6, 2437 MHz | N/A | N/A | 5 | N/A | N/A | N/A |
| High Channel 11, 2462 MHz | 732.538 us | 1.136 ms | 1 | 64.5 | N/A | N/A |
| High Channel 11, 2462 MHz | N/A | N/A | 5 | N/A | N/A | N/A |
| 802.11(g) 36 Mbps | | | | | | |
| Low Channel 1, 2412 MHz | 139.7 us | 534.4 us | 1 | 26.1 | N/A | N/A |
| Low Channel 1, 2412 MHz | N/A | N/A | 5 | N/A | N/A | N/A |
| Mid Channel 6, 2437 MHz | 139.6 us | 534.6 us | 1 | 26.1 | N/A | N/A |
| Mid Channel 6, 2437 MHz | N/A | N/A | 5 | N/A | N/A | N/A |
| High Channel 11, 2462 MHz | 139.7 us | 543.5 us | 1 | 25.7 | N/A | N/A |
| High Channel 11, 2462 MHz | N/A | N/A | 5 | N/A | N/A | N/A |
| 802.11(g) 54 Mbps | | | | | | |
| Low Channel 1, 2412 MHz | 99.7 us | 503.5 us | 1 | 19.8 | N/A | N/A |
| Low Channel 1, 2412 MHz | N/A | N/A | 5 | N/A | N/A | N/A |
| Mid Channel 6, 2437 MHz | 99.7 us | 503.4 us | 1 | 19.8 | N/A | N/A |
| Mid Channel 6, 2437 MHz | N/A | N/A | 5 | N/A | N/A | N/A |
| High Channel 11, 2462 MHz | 99.9 us | 494.4 us | 1 | 20.2 | N/A | N/A |
| High Channel 11, 2462 MHz | N/A | N/A | 5 | N/A | N/A | N/A |
| 802.11(n) MCS0 | | | | | | |
| Low Channel 1, 2412 MHz | 627.067 us | 1.021 ms | 1 | 61.4 | N/A | N/A |
| Low Channel 1, 2412 MHz | N/A | N/A | 5 | N/A | N/A | N/A |
| Mid Channel 6, 2437 MHz | 627.147 us | 1.021 ms | 1 | 61.4 | N/A | N/A |
| Mid Channel 6, 2437 MHz | N/A | N/A | 5 | N/A | N/A | N/A |
| High Channel 11, 2462 MHz | 628.062 us | 1.021 ms | 1 | 61.5 | N/A | N/A |
| High Channel 11, 2462 MHz | N/A | N/A | 5 | N/A | N/A | N/A |
| 802.11(n) MCS7 | | | | | | |
| Low Channel 1, 2412 MHz | 96.8 us | 491.7 us | 1 | 19.7 | N/A | N/A |
| Low Channel 1, 2412 MHz | N/A | N/A | 5 | N/A | N/A | N/A |
| Mid Channel 6, 2437 MHz | 96.8 us | 491.7 us | 1 | 19.7 | N/A | N/A |
| Mid Channel 6, 2437 MHz | N/A | N/A | 5 | N/A | N/A | N/A |
| High Channel 11, 2462 MHz | 97 us | 491.6 us | 1 | 19.7 | N/A | N/A |
| High Channel 11, 2462 MHz | N/A | N/A | 5 | N/A | N/A | N/A |

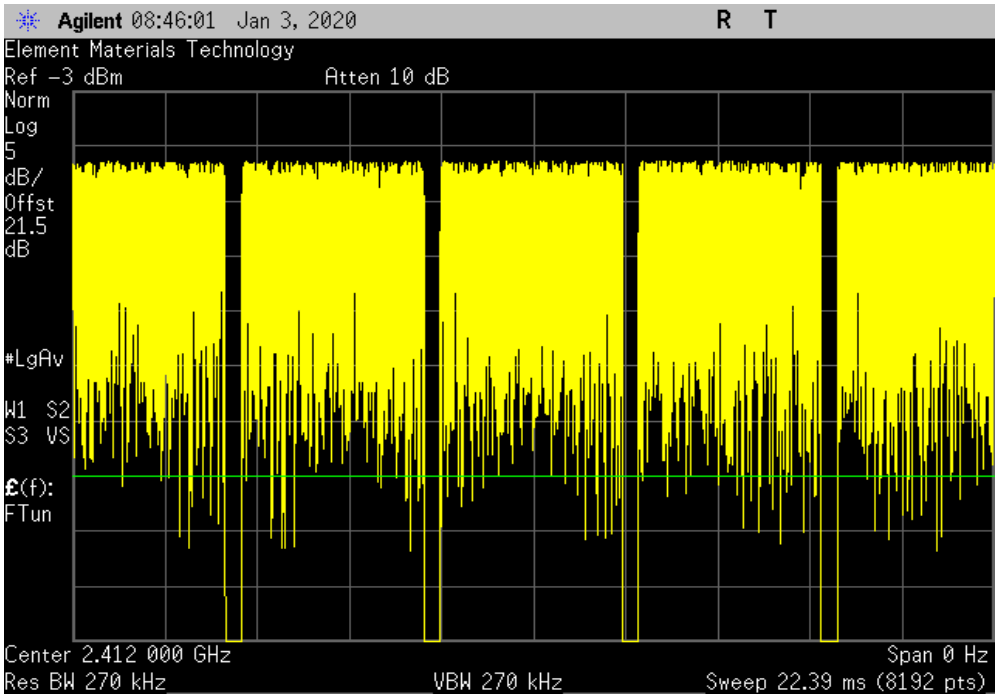
# DUTY CYCLE



| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | 4.431 ms | 4.862 ms | 1 | 91.1 | N/A | N/A |



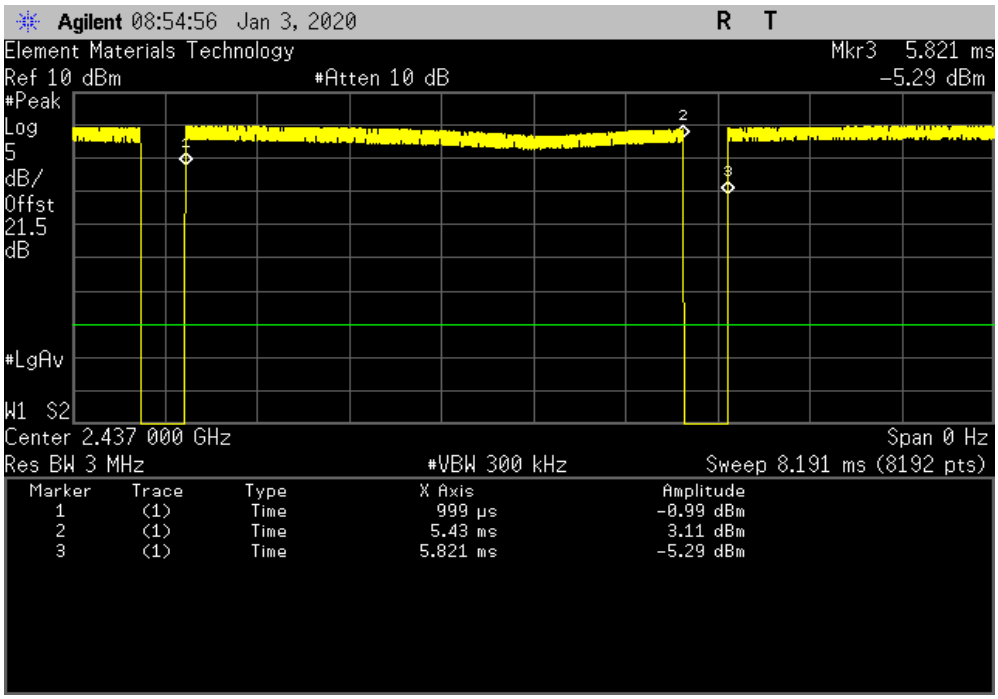

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | N/A | N/A | 87 | N/A | N/A | N/A |



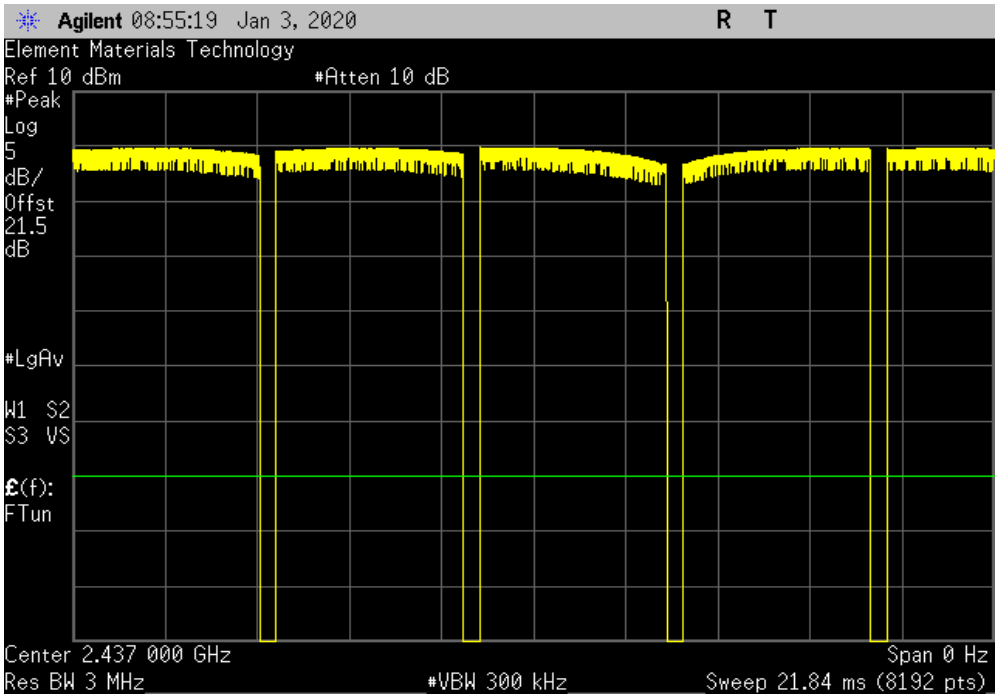
# DUTY CYCLE



| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | 4.431 ms | 4.822 ms | 1 | 91.9 | N/A | N/A |



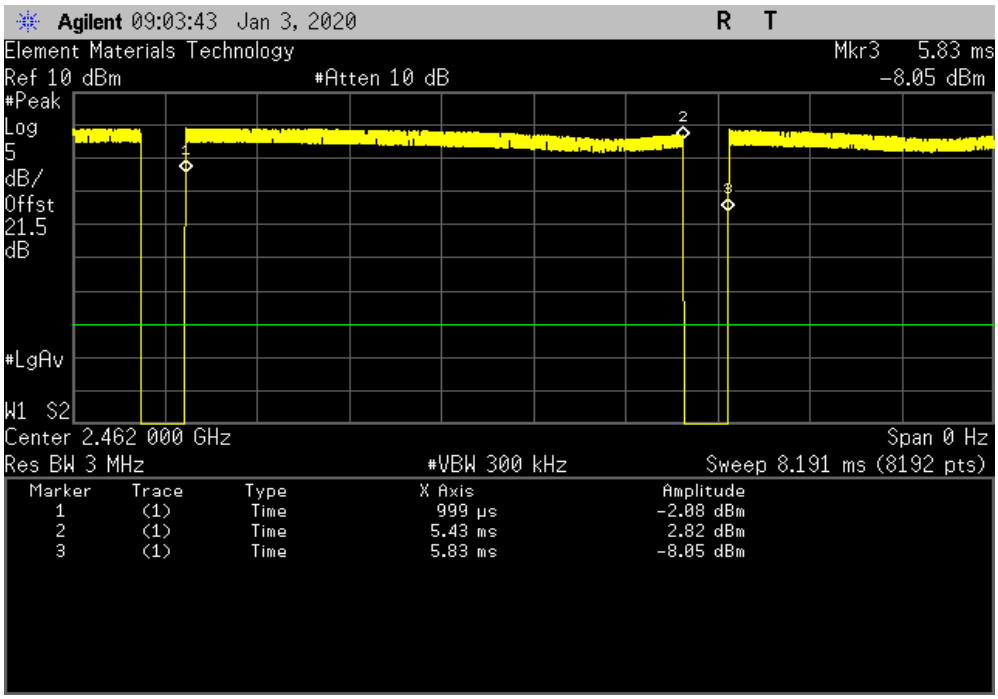

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | N/A | N/A | 5 | N/A | N/A | N/A |



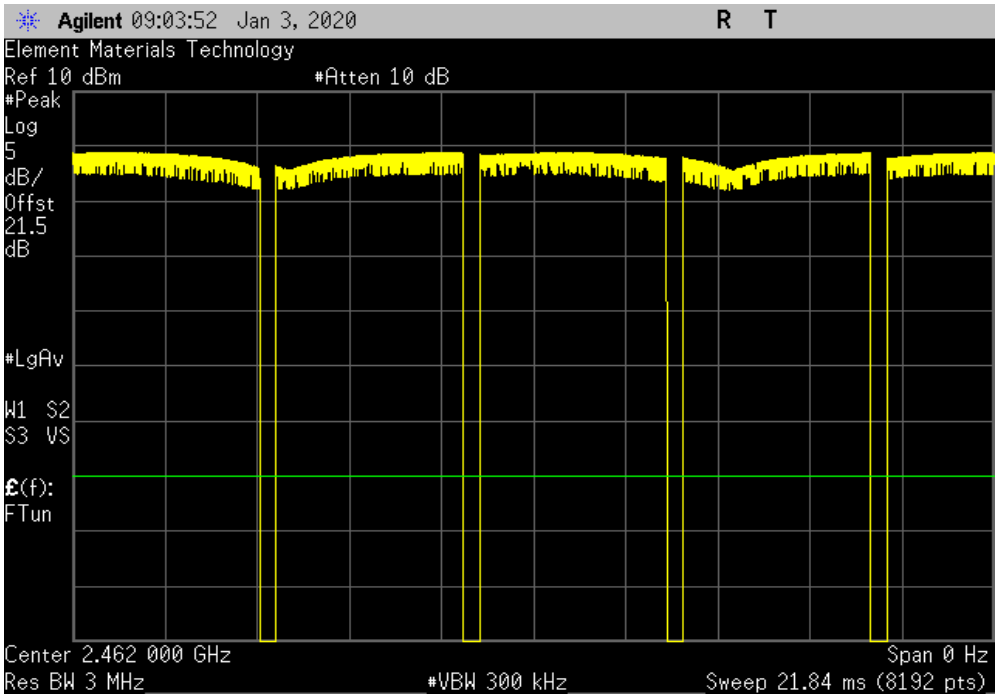
# DUTY CYCLE



| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | 4.431 ms | 4.831 ms | 1 | 91.7 | N/A | N/A |



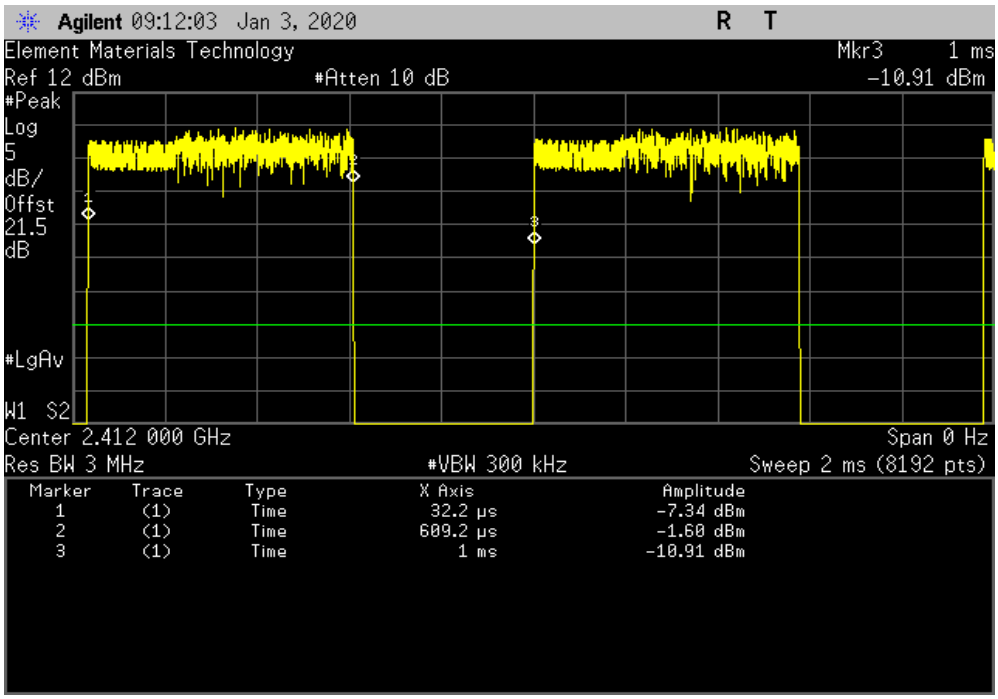

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | N/A | N/A | 5 | N/A | N/A | N/A |



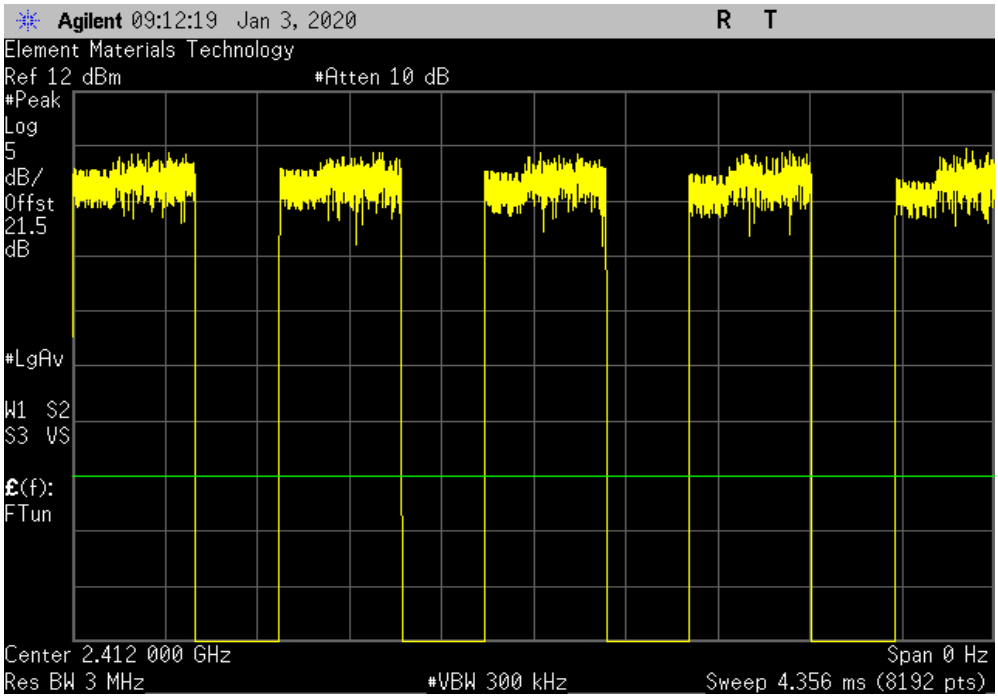
# DUTY CYCLE



| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | 577 us | 967.9 us | 1 | 59.6 | N/A | N/A |



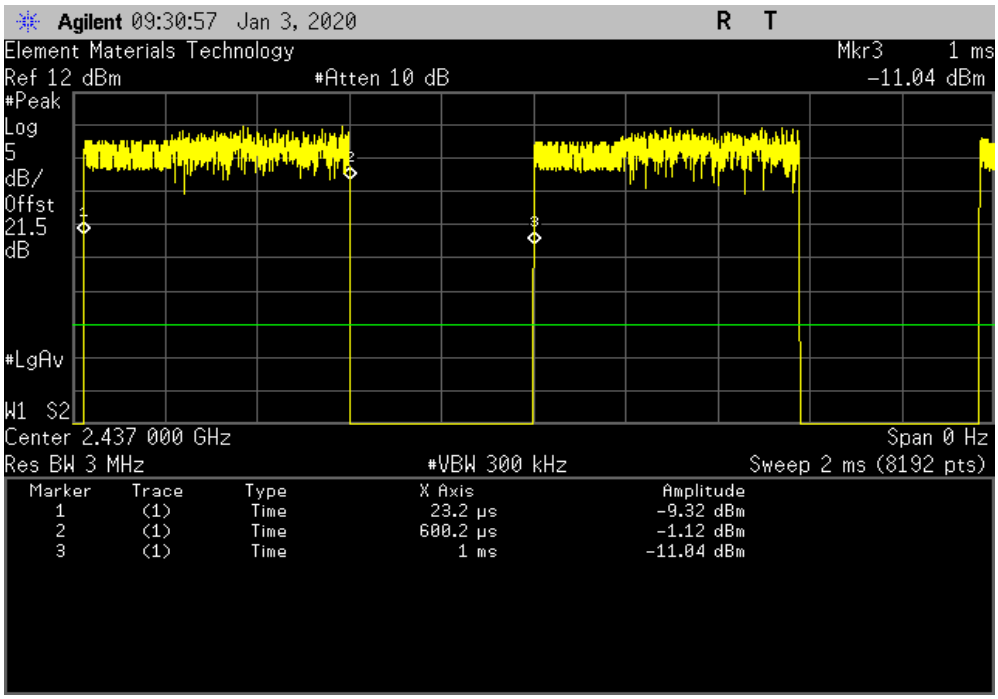

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | N/A | N/A | 5 | N/A | N/A | N/A |



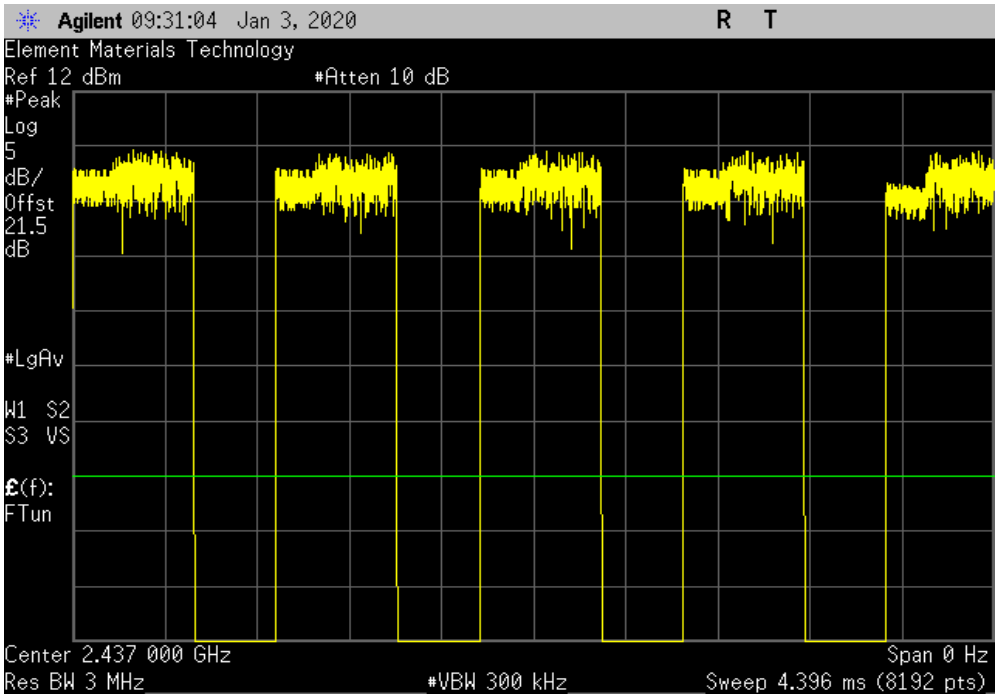
# DUTY CYCLE



| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | 577 us | 976.9 us | 1 | 59.1 | N/A | N/A |



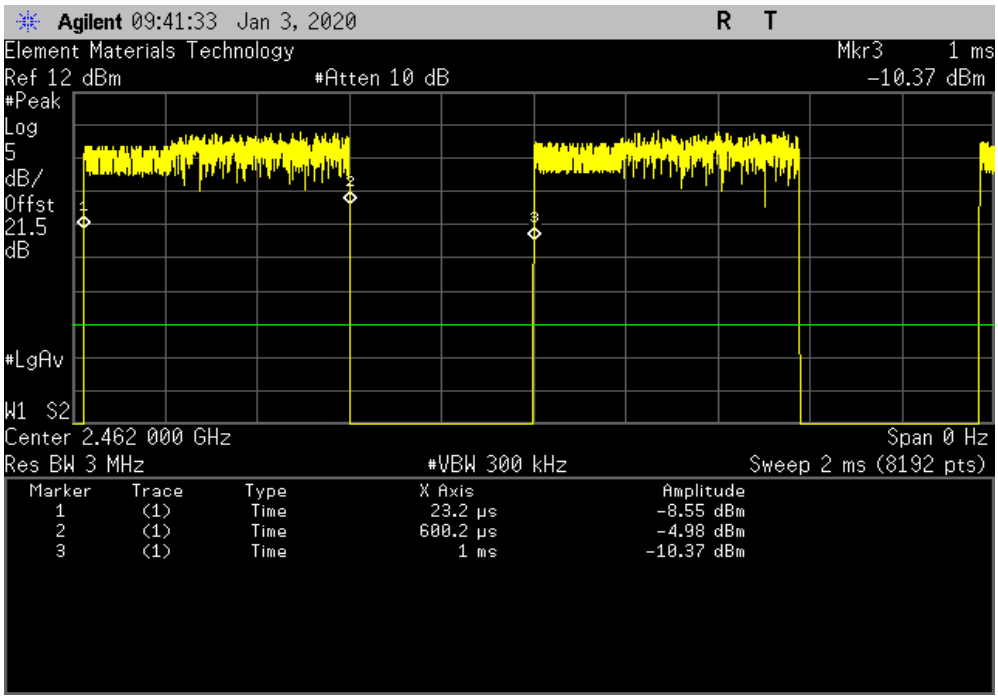

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | N/A | N/A | 5 | N/A | N/A | N/A |



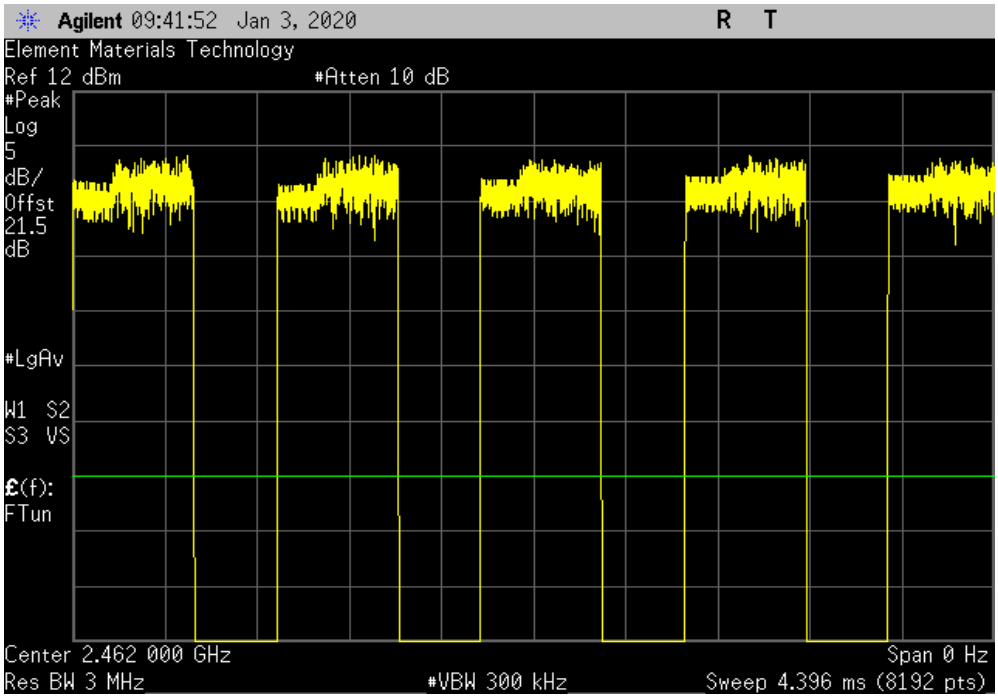
# DUTY CYCLE



| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | 577 us | 976.9 us | 1 | 59.1 | N/A | N/A |



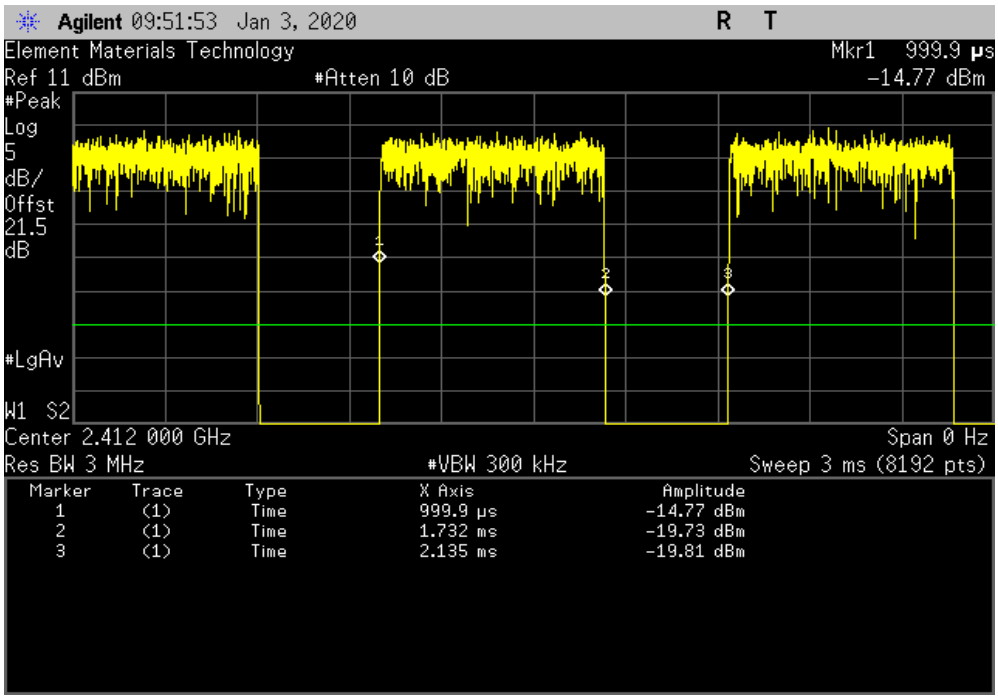

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | N/A | N/A | 5 | N/A | N/A | N/A |



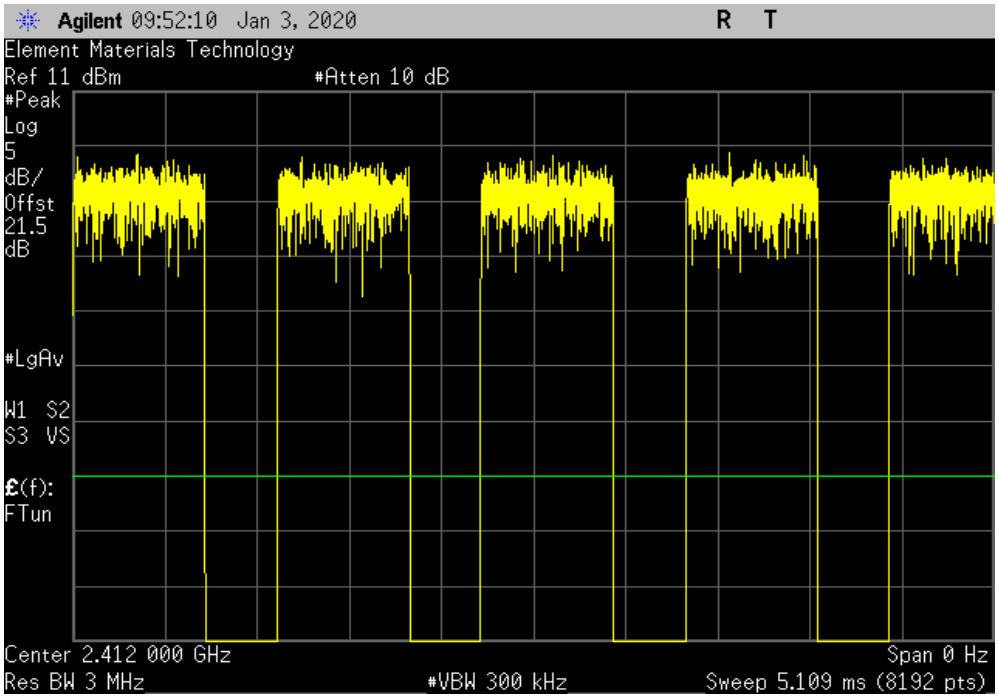
# DUTY CYCLE



| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | 732.383 us | 1.135 ms | 1 | 64.5 | N/A | N/A |



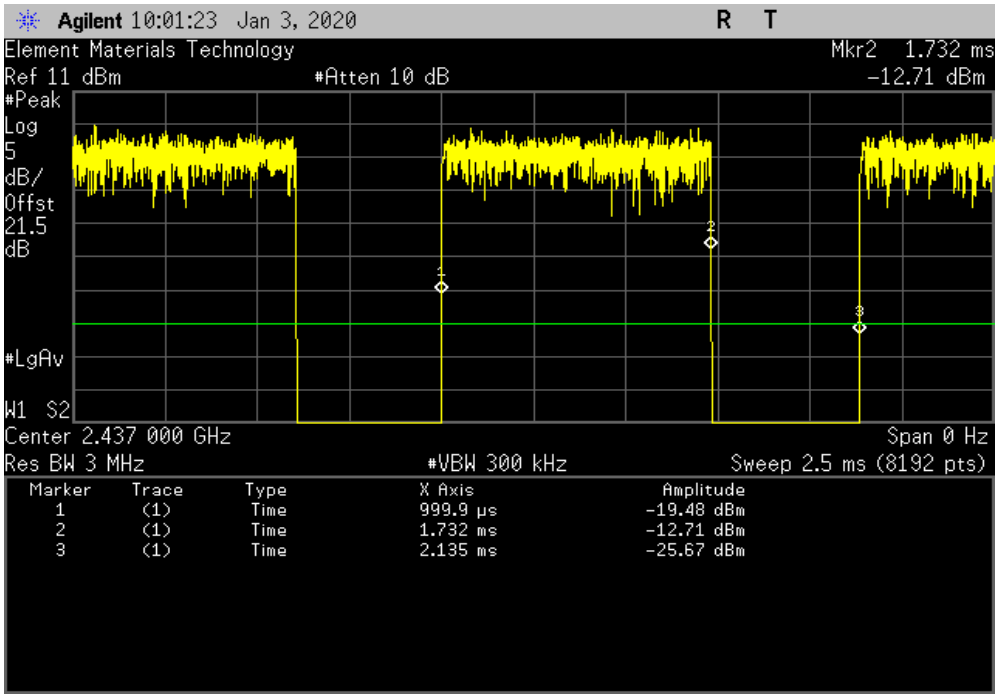

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | N/A | N/A | 5 | N/A | N/A | N/A |



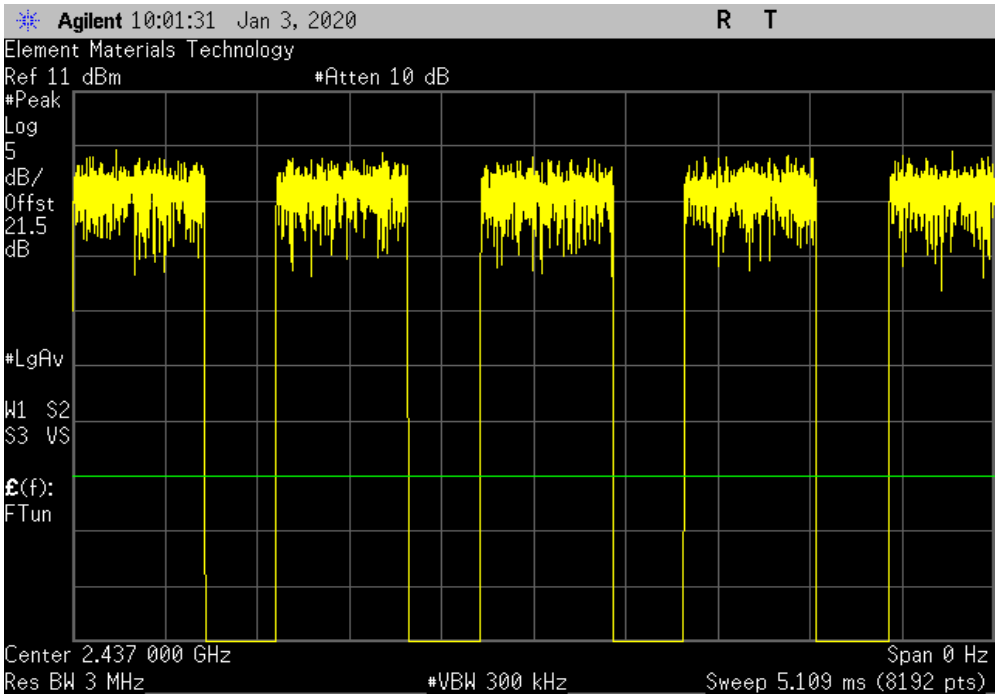
# DUTY CYCLE



| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | 732.233 us | 1.135 ms | 1 | 64.5 | N/A | N/A |



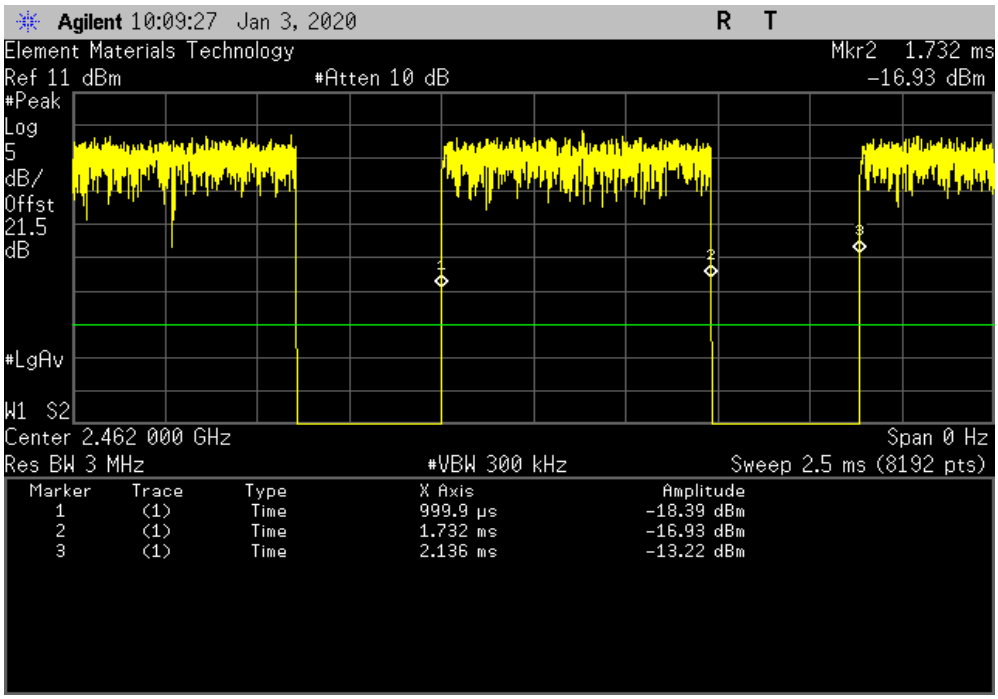

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | N/A | N/A | 5 | N/A | N/A | N/A |



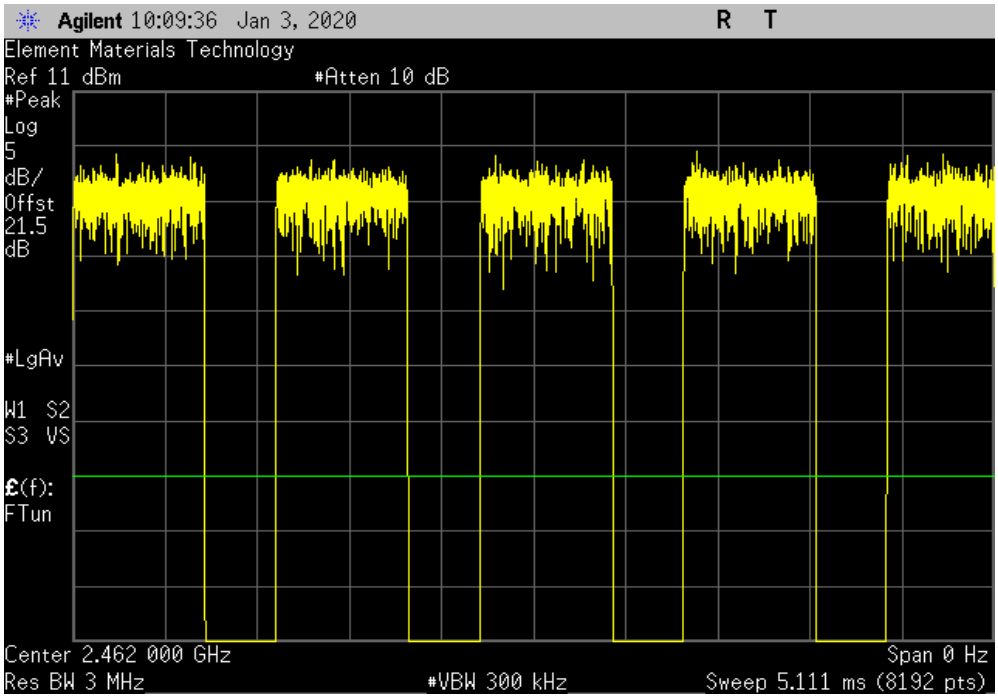
# DUTY CYCLE



| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | 732.538 us | 1.136 ms | 1 | 64.5 | N/A | N/A |

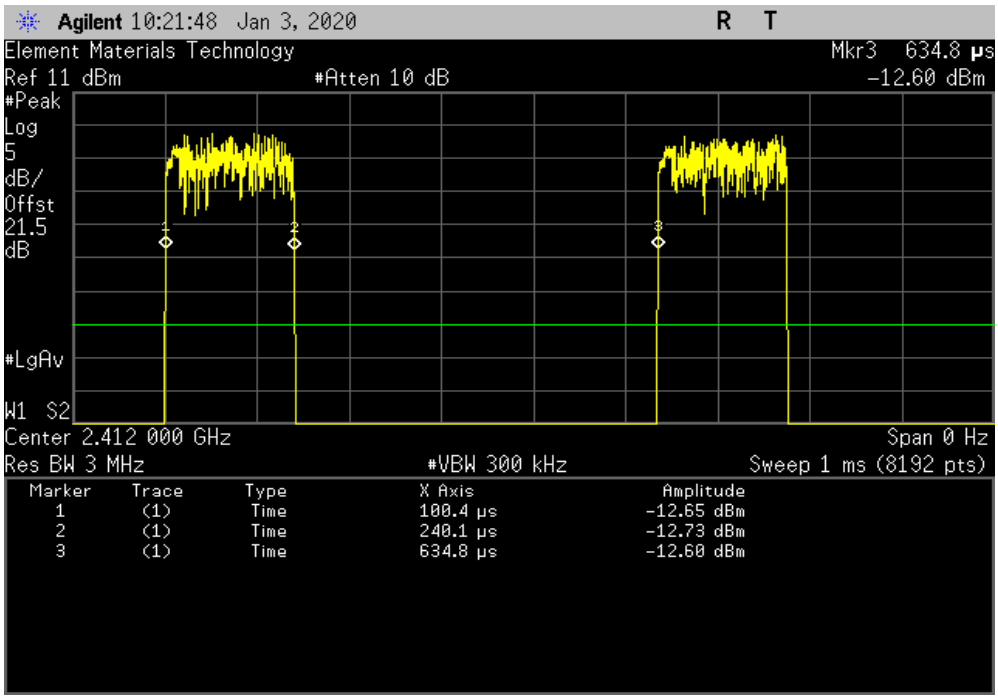



| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | N/A | N/A | 5 | N/A | N/A | N/A |

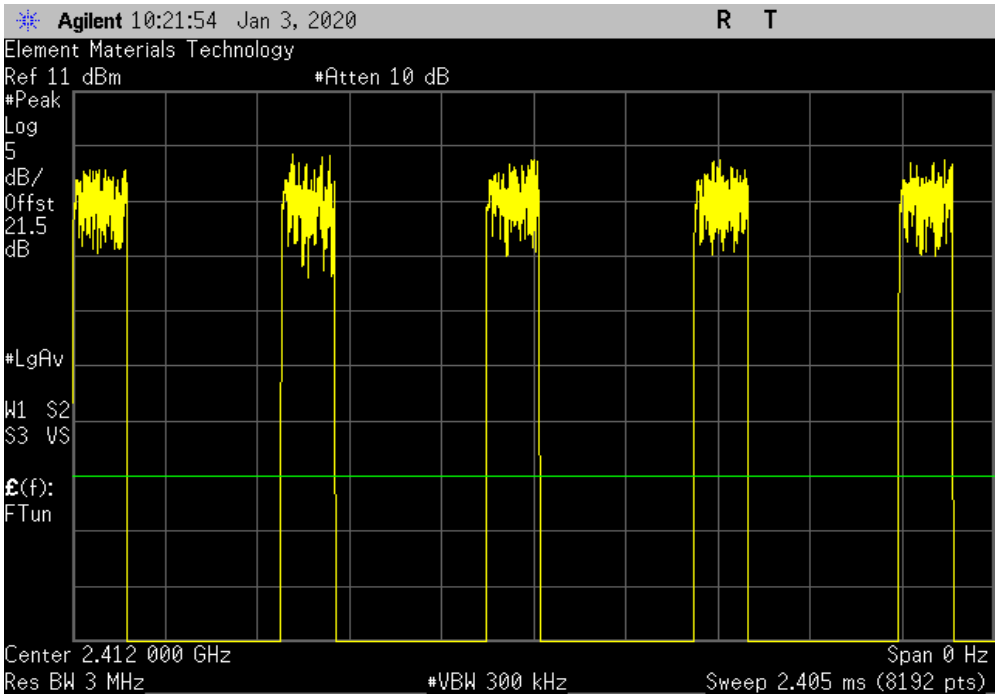


# DUTY CYCLE

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | 139.7 us | 534.4 us | 1 | 26.1 | N/A | N/A |



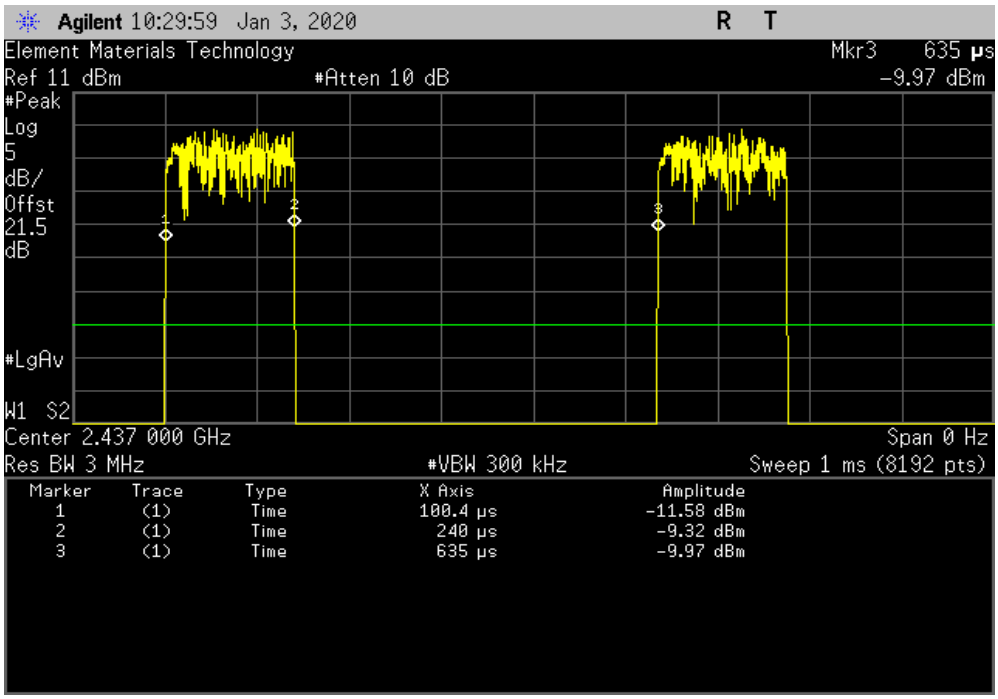

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | N/A | N/A | 5 | N/A | N/A | N/A |



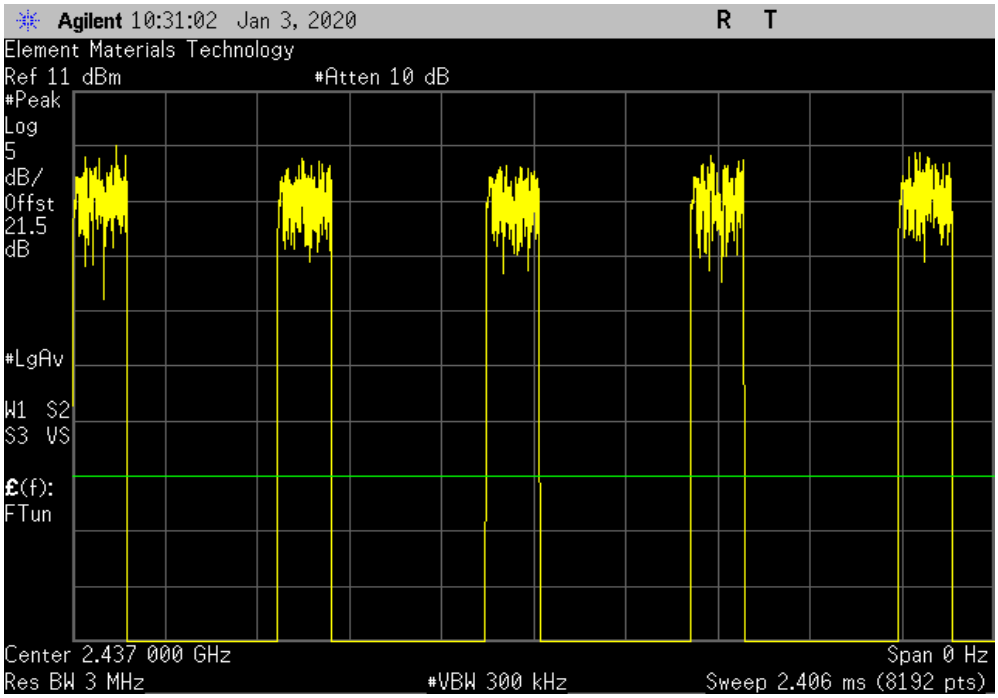
# DUTY CYCLE



| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | 139.6 us | 534.6 us | 1 | 26.1 | N/A | N/A |



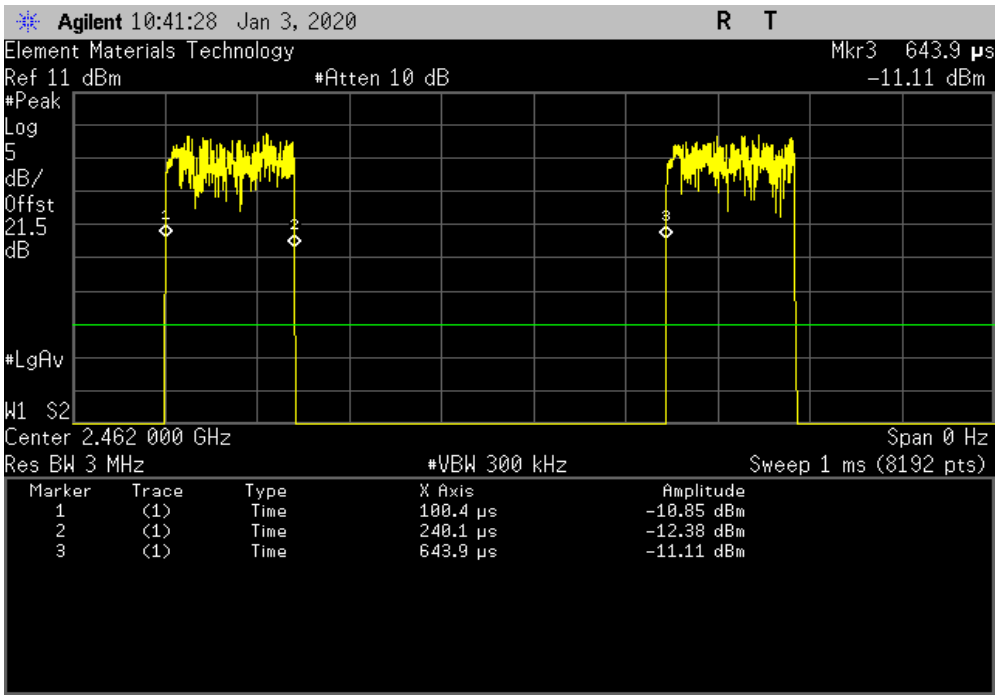

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | N/A | N/A | 5 | N/A | N/A | N/A |



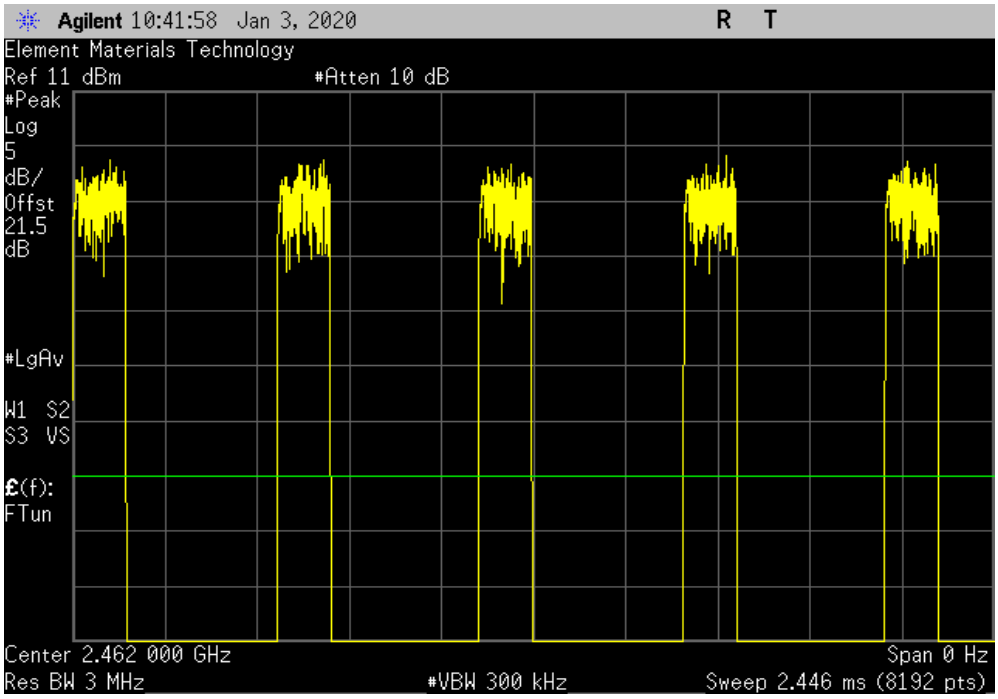
# DUTY CYCLE



| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | 139.7 us | 543.5 us | 1 | 25.7 | N/A | N/A |

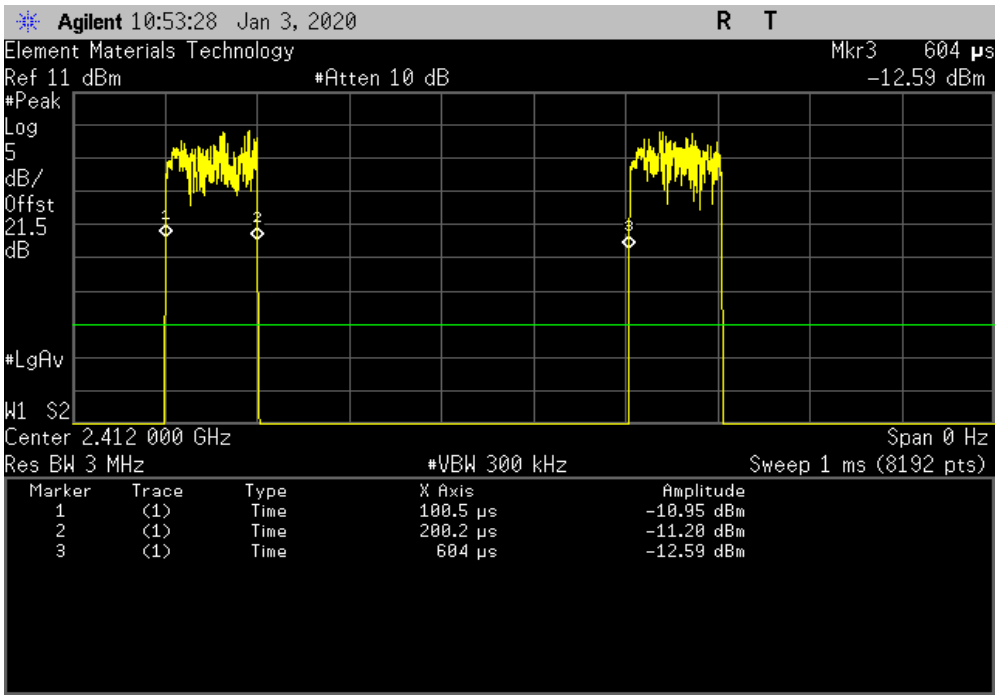



| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | N/A | N/A | 5 | N/A | N/A | N/A |

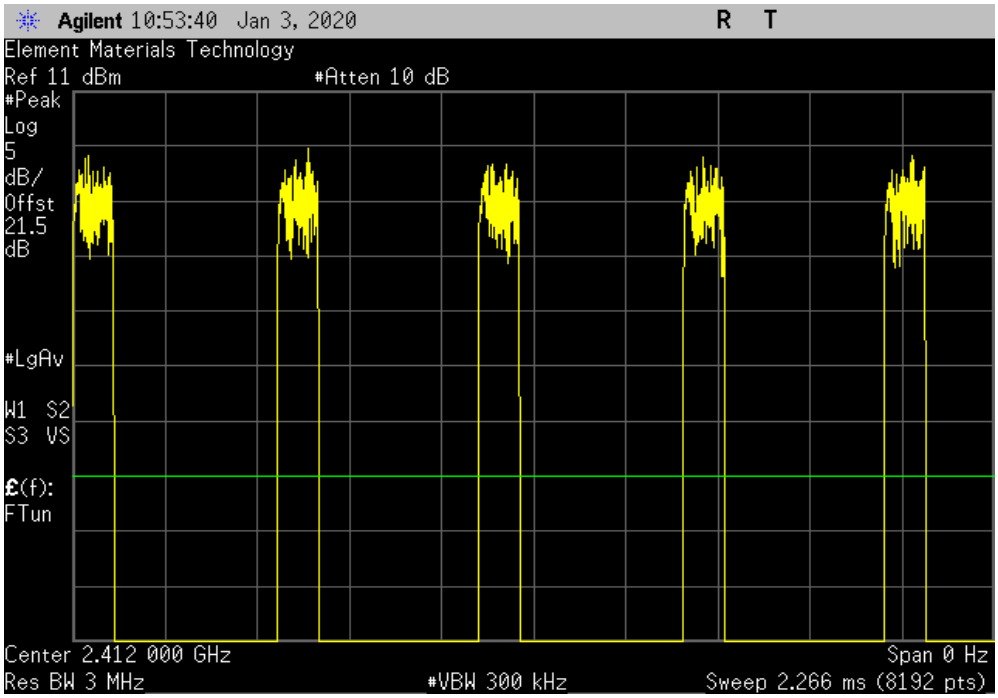


# DUTY CYCLE

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | 99.7 us | 503.5 us | 1 | 19.8 | N/A | N/A |

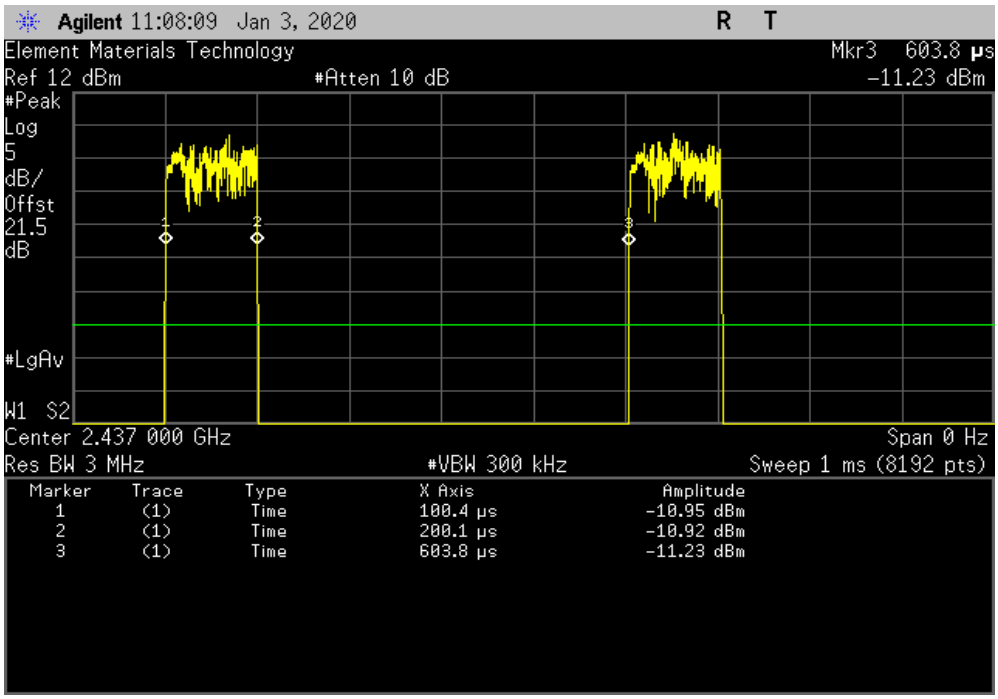



| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | N/A | N/A | 5 | N/A | N/A | N/A |

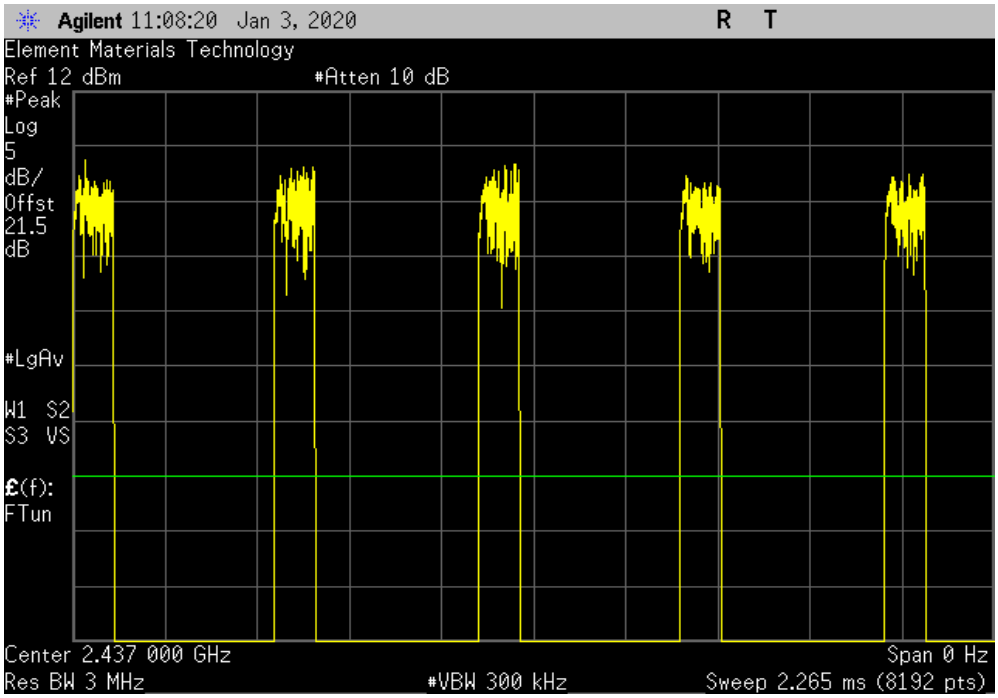


# DUTY CYCLE

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | 99.7 us | 503.4 us | 1 | 19.8 | N/A | N/A |



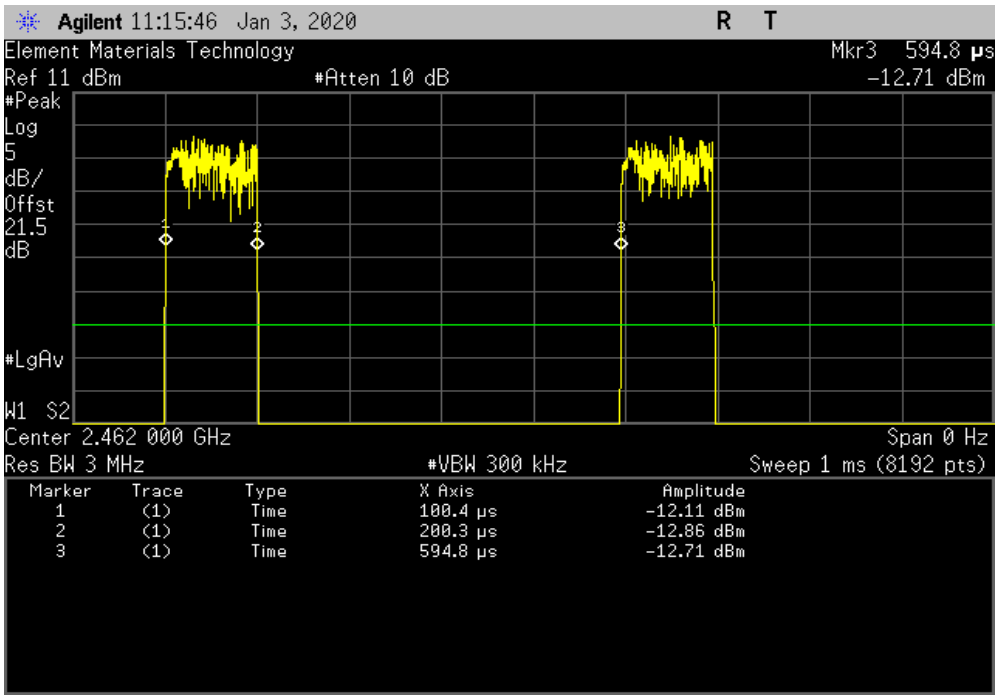

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | N/A | N/A | 5 | N/A | N/A | N/A |



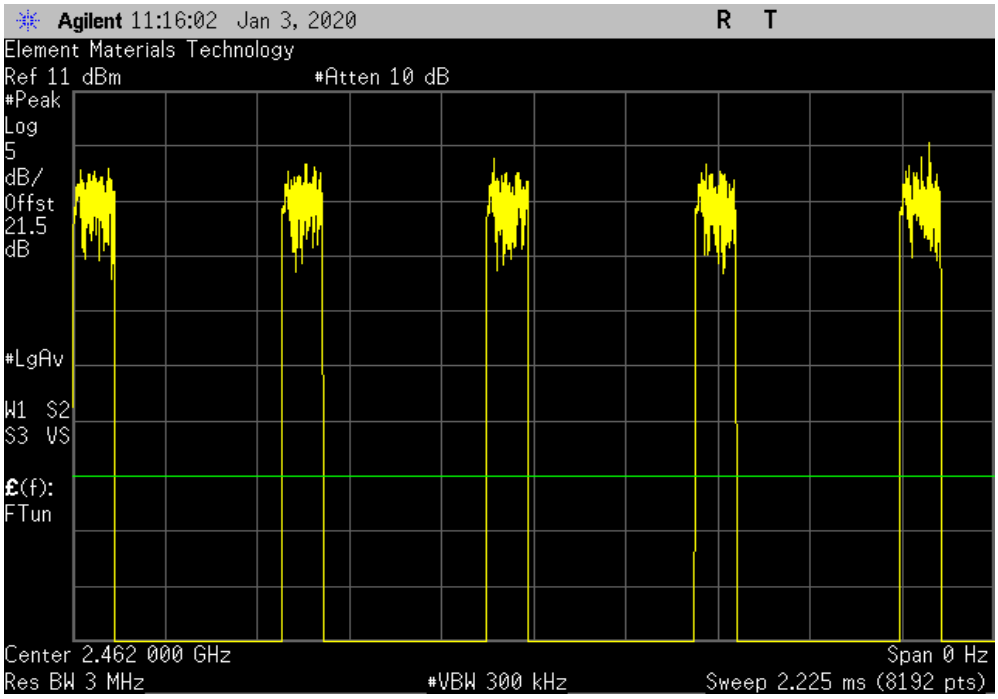
# DUTY CYCLE



| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | 99.9 us | 494.4 us | 1 | 20.2 | N/A | N/A |



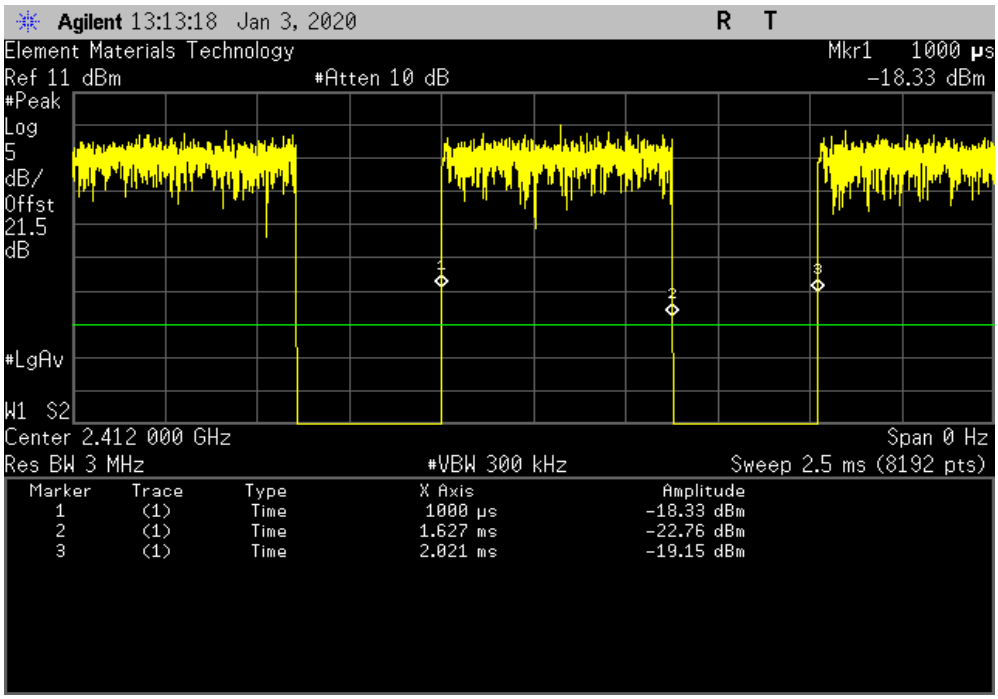

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | N/A | N/A | 5 | N/A | N/A | N/A |



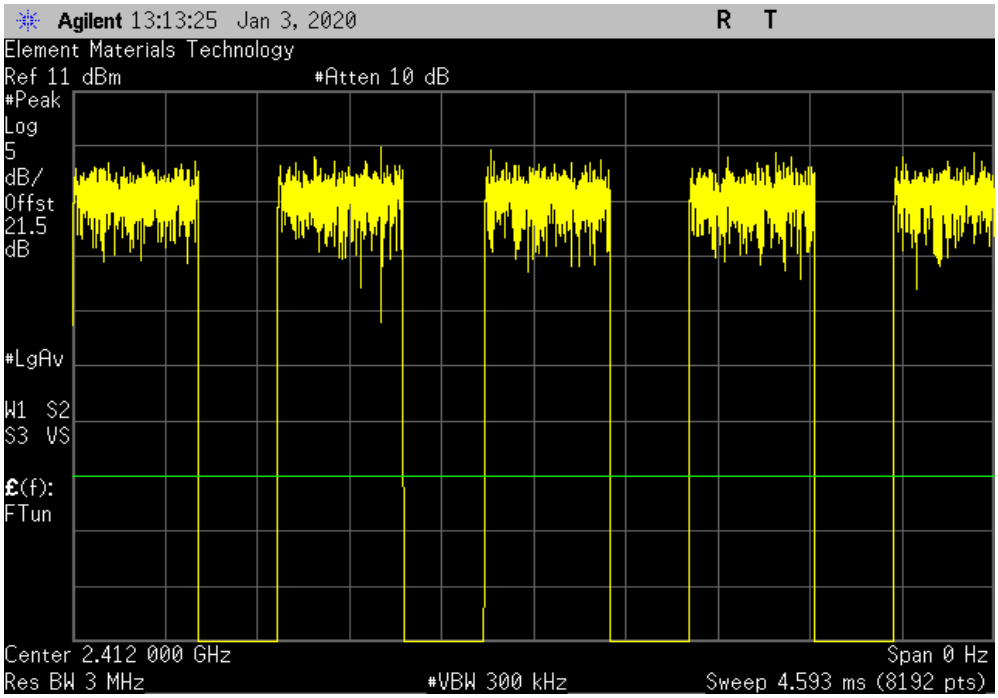
# DUTY CYCLE



| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | 627.067 us | 1.021 ms | 1 | 61.4 | N/A | N/A |



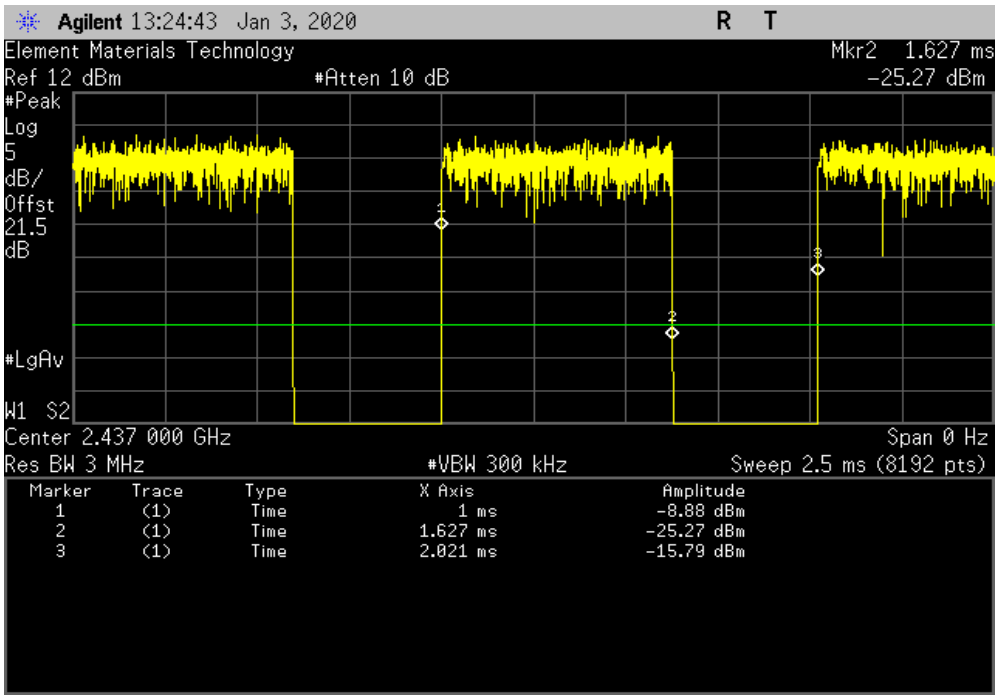

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | N/A | N/A | 5 | N/A | N/A | N/A |



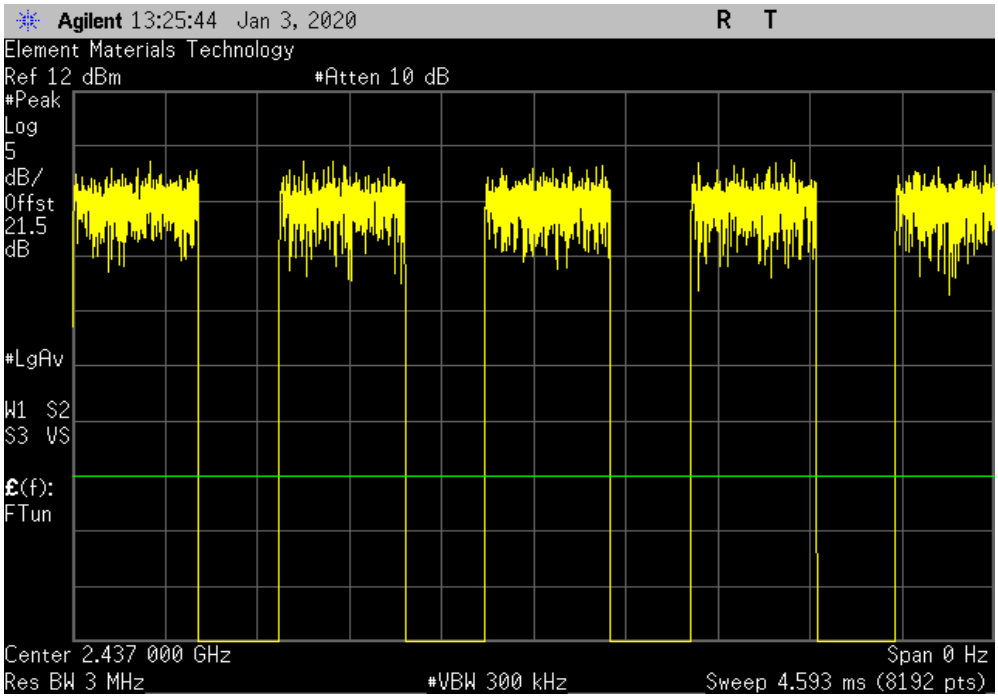
# DUTY CYCLE



| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | 627.147 us | 1.021 ms | 1 | 61.4 | N/A | N/A |



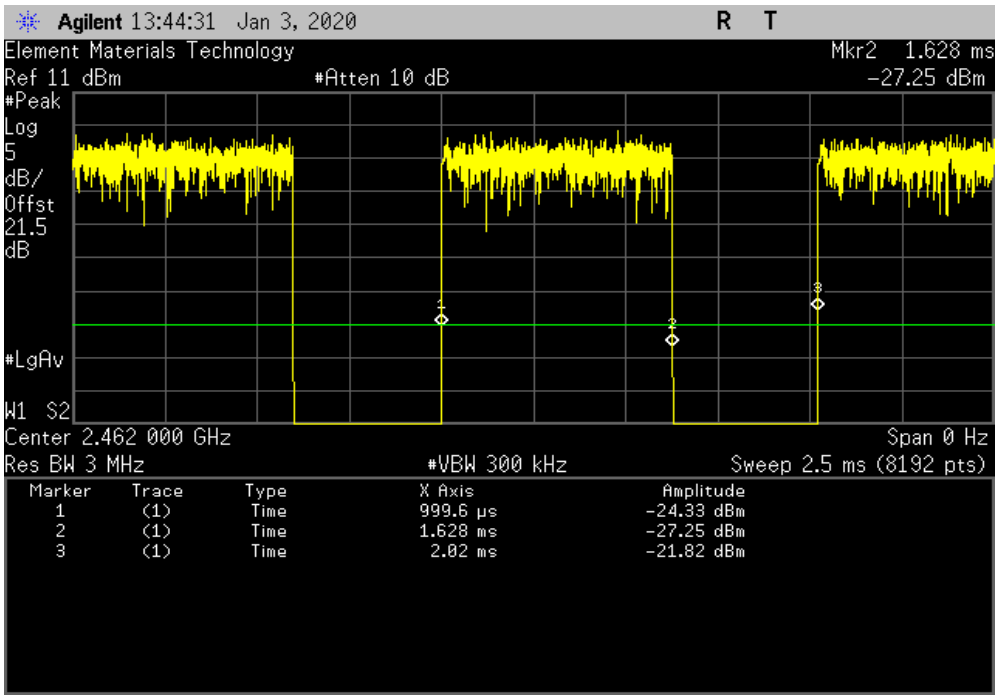

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | N/A | N/A | 5 | N/A | N/A | N/A |



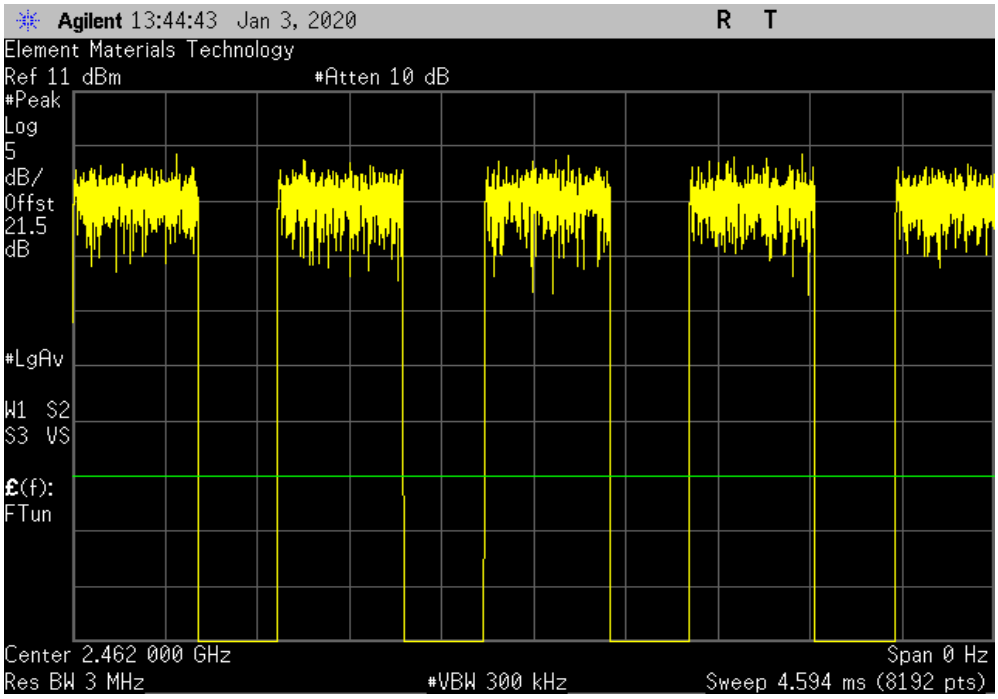
# DUTY CYCLE



| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | 628.062 us | 1.021 ms | 1 | 61.5 | N/A | N/A |



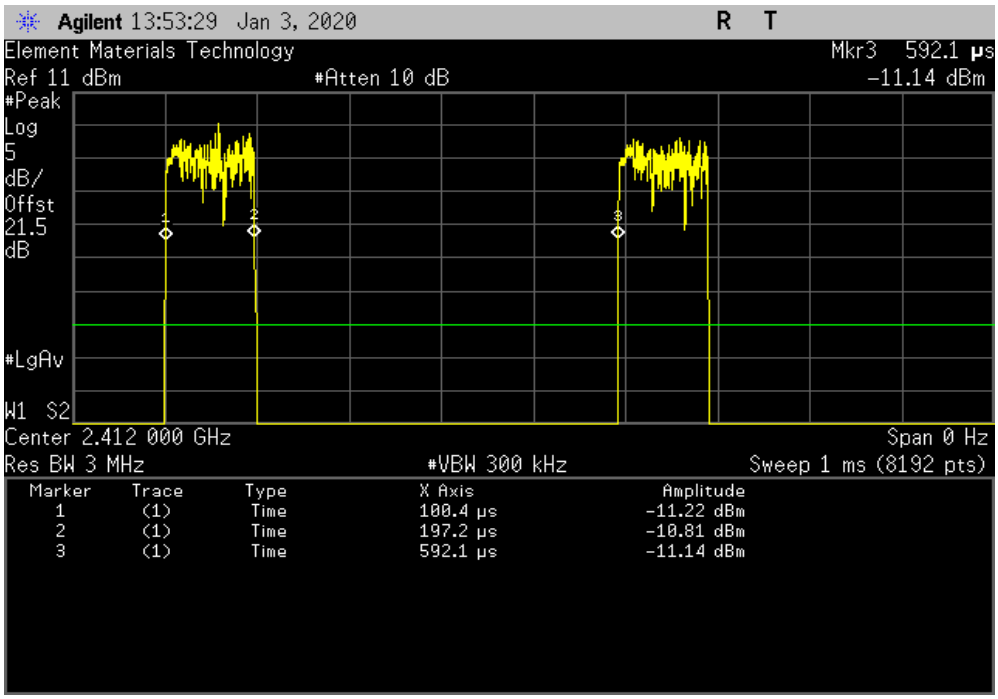

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | N/A | N/A | 5 | N/A | N/A | N/A |



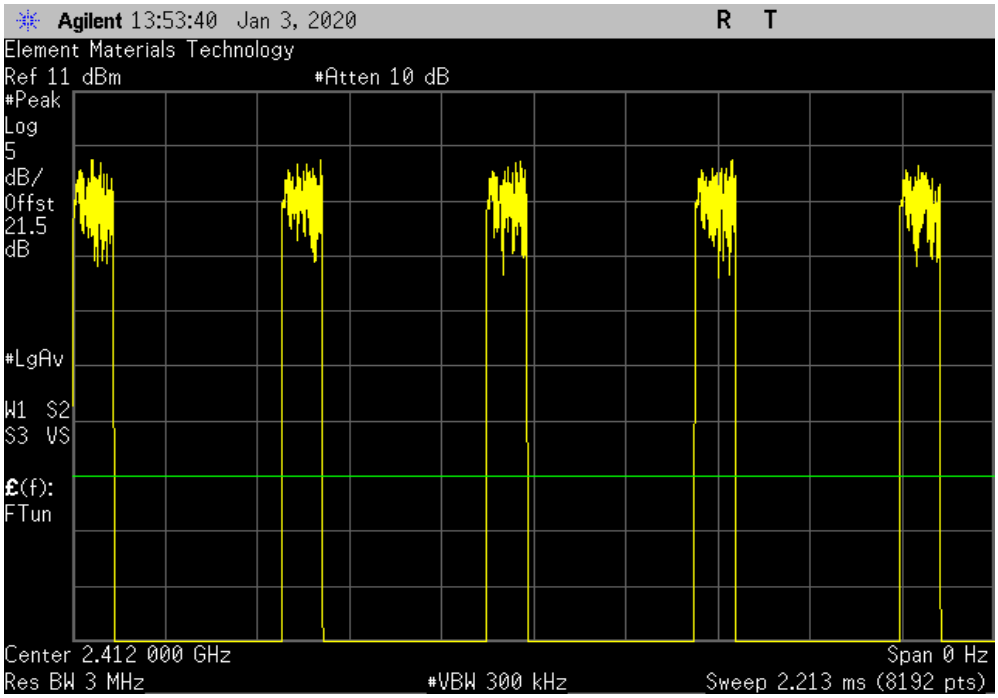
# DUTY CYCLE



| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | 96.8 us | 491.7 us | 1 | 19.7 | N/A | N/A |

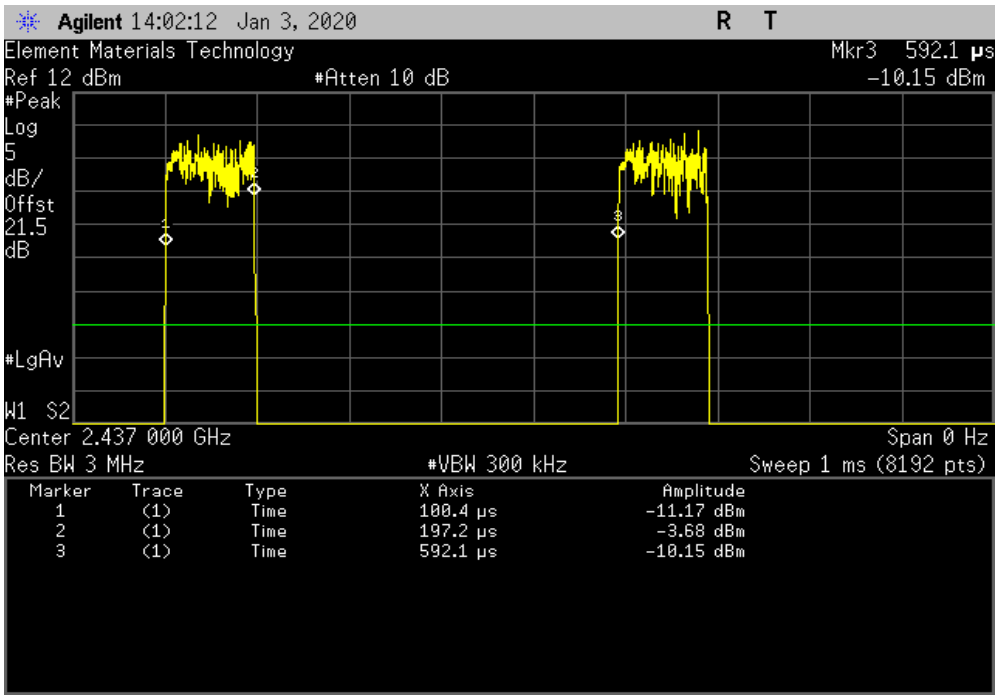



| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | N/A | N/A | 5 | N/A | N/A | N/A |

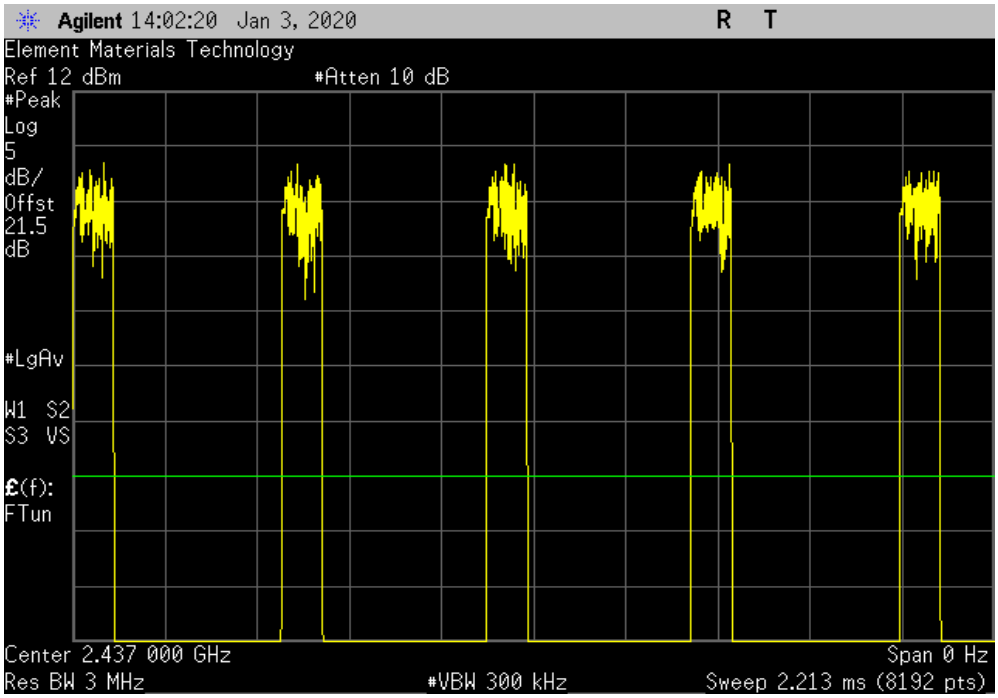


# DUTY CYCLE

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | 96.8 us | 491.7 us | 1 | 19.7 | N/A | N/A |

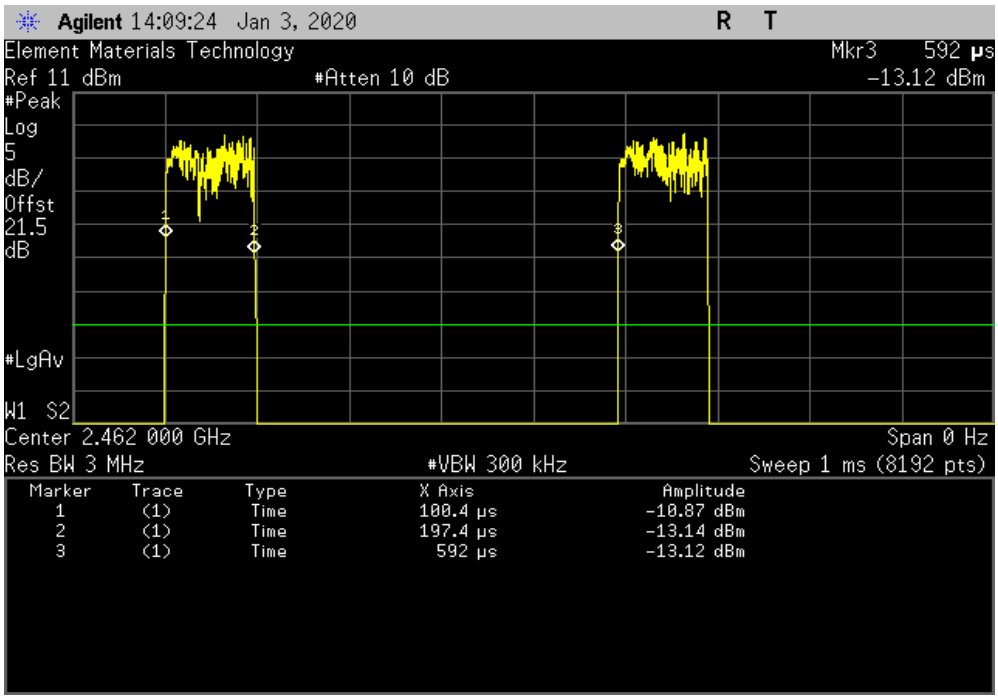



| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | N/A | N/A | 5 | N/A | N/A | N/A |

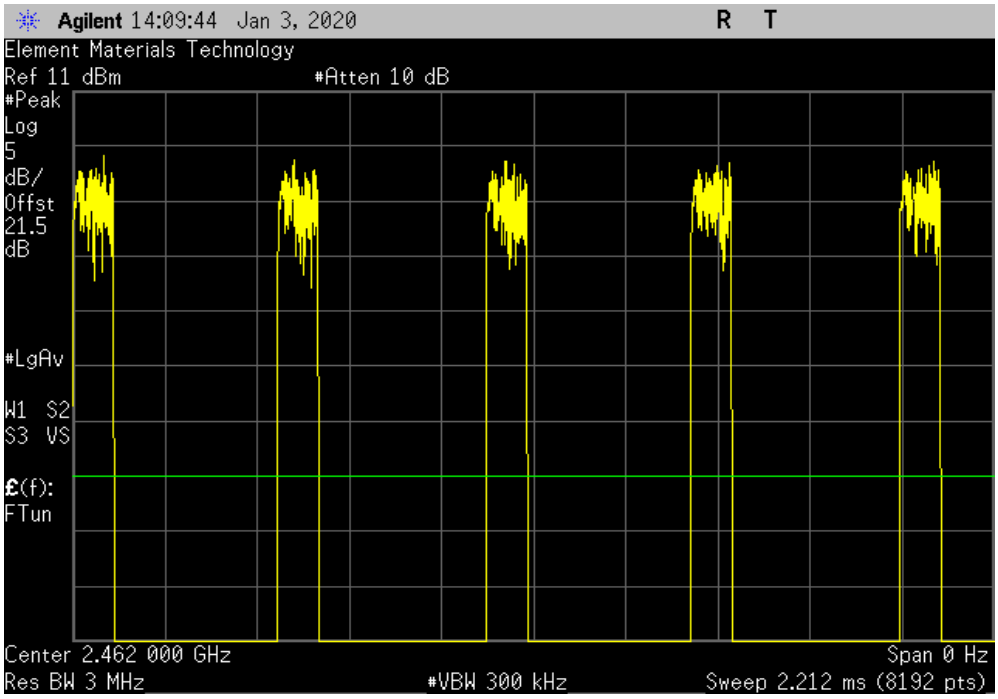


# DUTY CYCLE

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | 97 us | 491.6 us | 1 | 19.7 | N/A | N/A |




| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Pulse Width | Period | Number of Pulses | Value (%) | Limit (%) | Results |
| | N/A | N/A | 5 | N/A | N/A | N/A |



# OCCUPIED BANDWIDTH

XMit 2019.09.05

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

**TEST EQUIPMENT**

| Description | Manufacturer | Model | ID | Last Cal. | Cal. Due |
|---|---|---|---|---|---|
| Meter - Multimeter | Tektronix | DMM912 | MMH | 15-Feb-19 | 15-Feb-22 |
| Power Supply - DC | Dr. Meter | PS-305DM | TZZ | NCR | NCR |
| Generator - Signal | Keysight | N5182B | TFU | 5-Nov-18 | 5-Nov-21 |
| Cable | Micro-Coax | UFD150A-1-0720-200200 | EVH | 28-Mar-19 | 28-Mar-20 |
| Attenuator | S.M. Electronics | SA26B-20 | AUY | 28-Mar-19 | 28-Mar-20 |
| Terminator | S.M. Electronics | ST2B | AWM | 9-Apr-19 | 9-Apr-20 |
| Analyzer - Spectrum Analyzer | Agilent | E4440A | AFA | 12-Feb-19 | 12-Feb-20 |

**TEST DESCRIPTION**

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The EUT was set to the channels and modes listed in the datasheet.

The 6dB occupied bandwidth was measured using 100 kHz resolution bandwidth and 300 kHz video bandwidth. The 99.0% occupied bandwidth was also measured at the same time which can be needed during Output Power depending on the applicable method.

# OCCUPIED BANDWIDTH

TbtTx 2019.08.30.0 XMit 2019.09.05

| | | | | | |
|---|---|---|---|---|---|
| **EUT:** | **CCU-2** | | | **Work Order:** | **POLR0058** |
| **Serial Number:** | **Unit #6** | | | **Date:** | **3-Jan-20** |
| **Customer:** | **Polaris Industries, Inc.** | | | **Temperature:** | **21.5 °C** |
| **Attendees:** | **Wayne Rieger** | | | **Humidity:** | **40.5% RH** |
| **Project:** | **None** | | | **Barometric Pres.:** | **1016 mbar** |
| **Tested by:** | **Brandon Hobbs** | **Power:** | **14VDC** | **Job Site:** | **EV06** |

| **TEST SPECIFICATIONS** | **Test Method** |
|---|---|
| **FCC 15.247:2020** | ANSI C63.10:2013 |
| | |

**COMMENTS**

**All losses through the measurement path were accounted for. The Power level was set to a client software setting of 10000.**

**DEVIATIONS FROM TEST STANDARD**

**None**

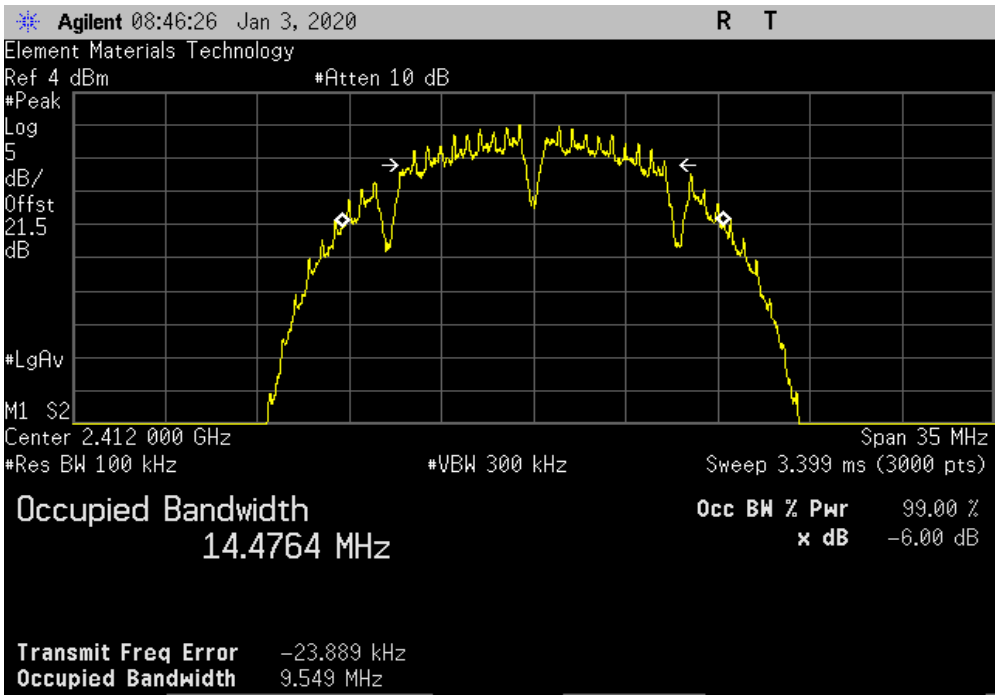
| **Configuration #** | **4** | *Signature* |
|---|---|---|

| | **Value** | **Limit (>)** | **Result** |
|---|---|---|---|
| 2400 MHz - 2483.5 MHz Band | | | |
| 802.11(b) 1 Mbps | | | |
| Low Channel 1, 2412 MHz | 9.549 MHz | 500 kHz | Pass |
| Mid Channel 6, 2437 MHz | 9.648 MHz | 500 kHz | Pass |
| High Channel 11, 2462 MHz | 10.007 MHz | 500 kHz | Pass |
| 802.11(b) 11 Mbps | | | |
| Low Channel 1, 2412 MHz | 9.424 MHz | 500 kHz | Pass |
| Mid Channel 6, 2437 MHz | 10.619 MHz | 500 kHz | Pass |
| High Channel 11, 2462 MHz | 9.076 MHz | 500 kHz | Pass |
| 802.11(g) 6 Mbps | | | |
| Low Channel 1, 2412 MHz | 15.05 MHz | 500 kHz | Pass |
| Mid Channel 6, 2437 MHz | 14.819 MHz | 500 kHz | Pass |
| High Channel 11, 2462 MHz | 13.817 MHz | 500 kHz | Pass |
| 802.11(g) 36 Mbps | | | |
| Low Channel 1, 2412 MHz | 15.017 MHz | 500 kHz | Pass |
| Mid Channel 6, 2437 MHz | 15.068 MHz | 500 kHz | Pass |
| High Channel 11, 2462 MHz | 15.138 MHz | 500 kHz | Pass |
| 802.11(g) 54 Mbps | | | |
| Low Channel 1, 2412 MHz | 15.078 MHz | 500 kHz | Pass |
| Mid Channel 6, 2437 MHz | 15.055 MHz | 500 kHz | Pass |
| High Channel 11, 2462 MHz | 15.078 MHz | 500 kHz | Pass |
| 802.11(n) MCS0 | | | |
| Low Channel 1, 2412 MHz | 15.024 MHz | 500 kHz | Pass |
| Mid Channel 6, 2437 MHz | 14.942 MHz | 500 kHz | Pass |
| High Channel 11, 2462 MHz | 13.135 MHz | 500 kHz | Pass |
| 802.11(n) MCS7 | | | |
| Low Channel 1, 2412 MHz | 15.116 MHz | 500 kHz | Pass |
| Mid Channel 6, 2437 MHz | 15.108 MHz | 500 kHz | Pass |
| High Channel 11, 2462 MHz | 15.052 MHz | 500 kHz | Pass |

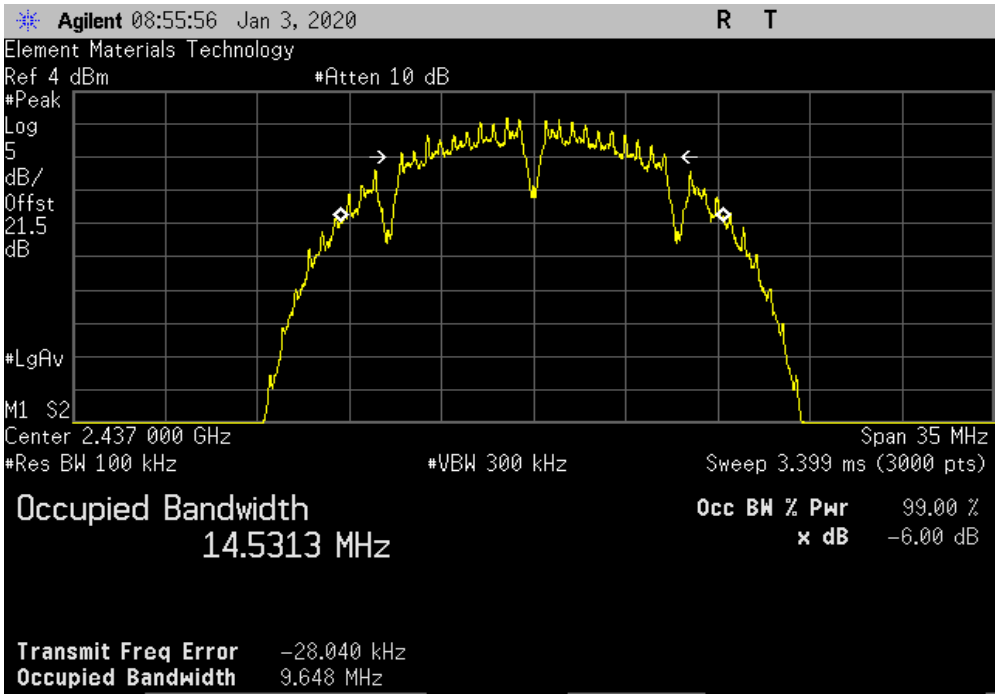
# OCCUPIED BANDWIDTH



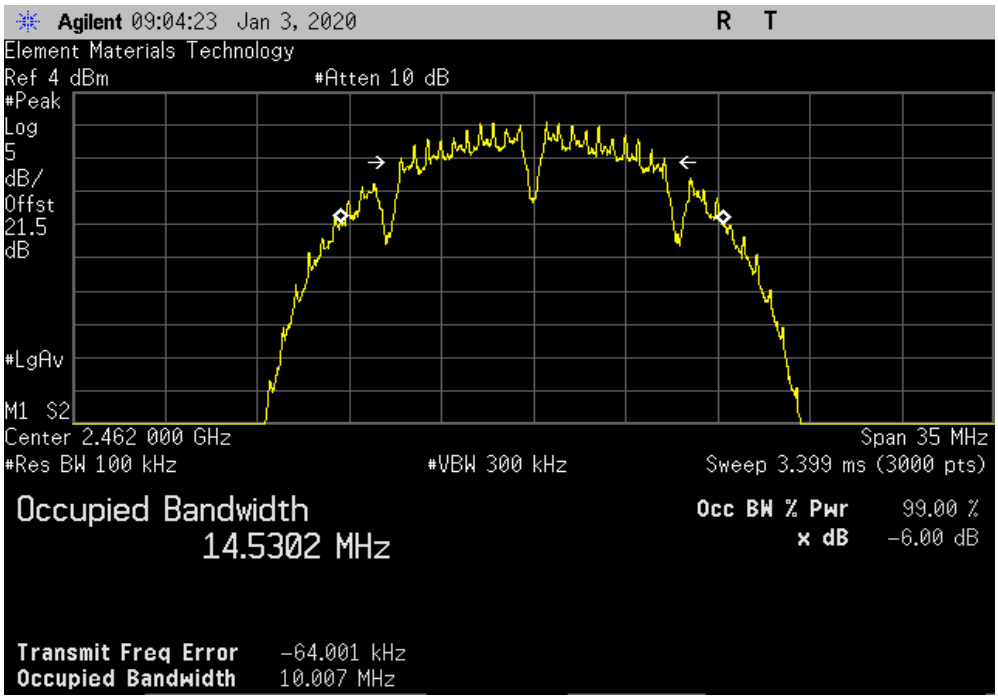
| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value | Limit (>) | Result |
| | | | | 9.549 MHz | 500 kHz | Pass |



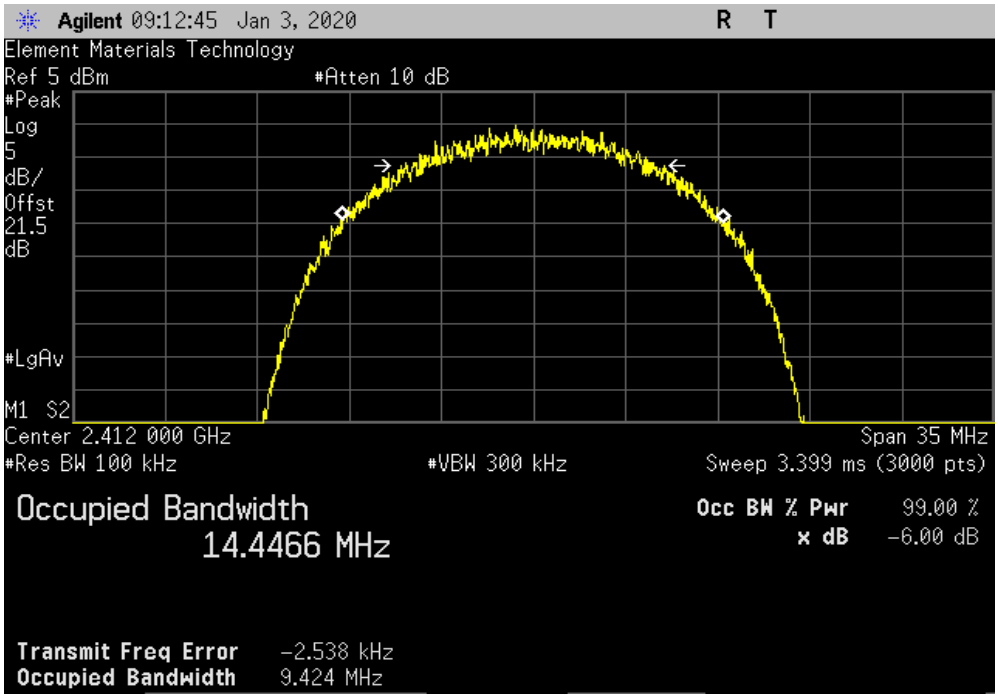

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value | Limit (>) | Result |
| | | | | 9.648 MHz | 500 kHz | Pass |



| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value | Limit (>) | Result |
| | | | | 10.007 MHz | 500 kHz | Pass |



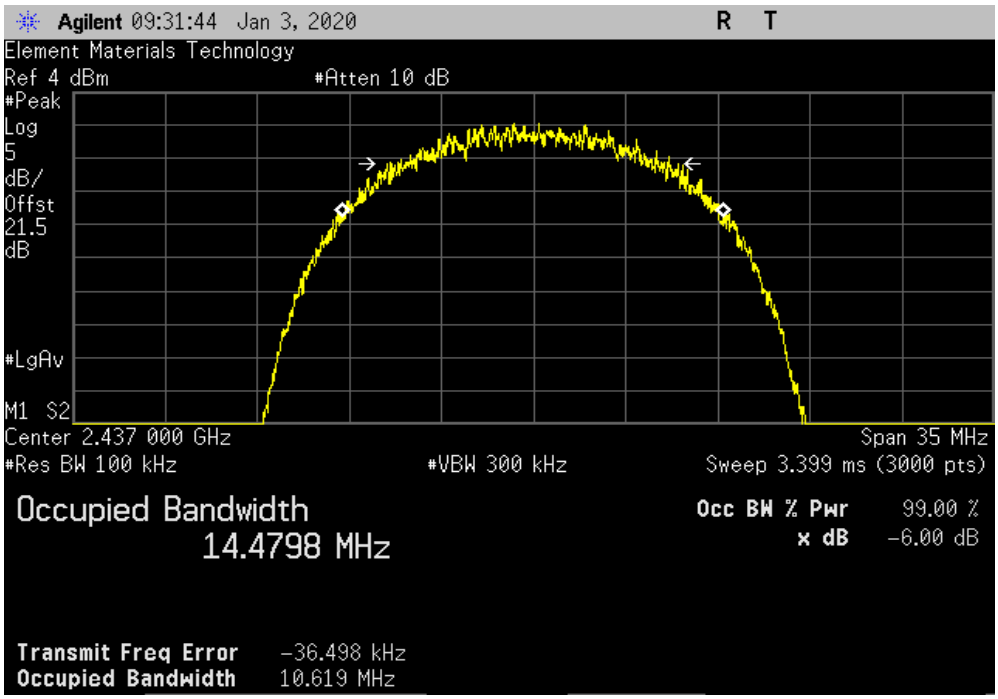

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value | Limit (>) | Result |
| | | | | 9.424 MHz | 500 kHz | Pass |



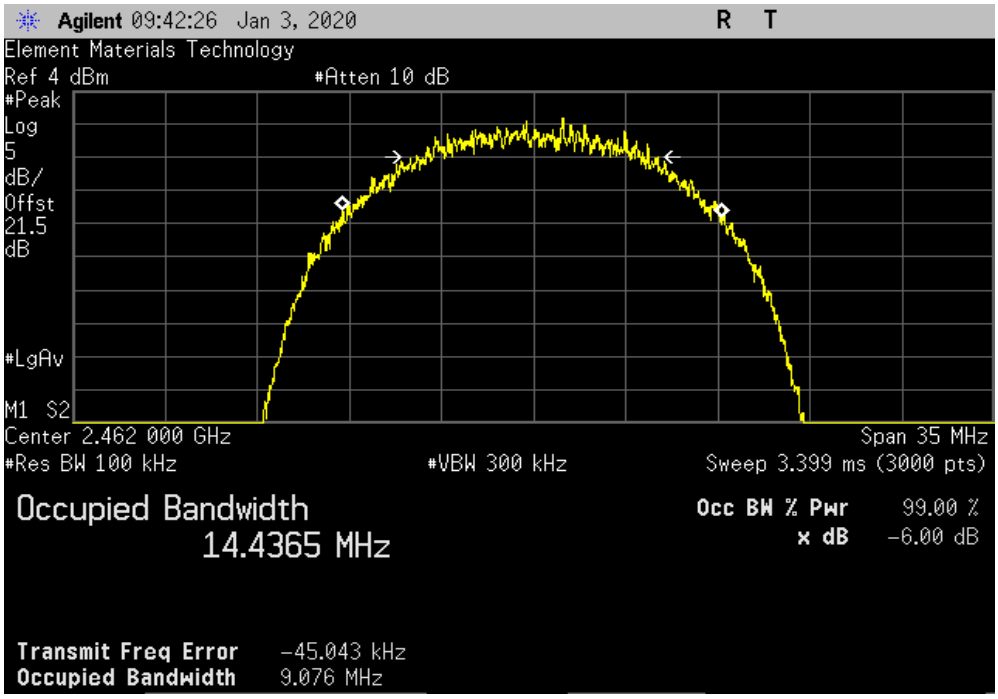
# OCCUPIED BANDWIDTH



| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value | Limit (>) | Result |
| | | | | 10.619 MHz | 500 kHz | Pass |



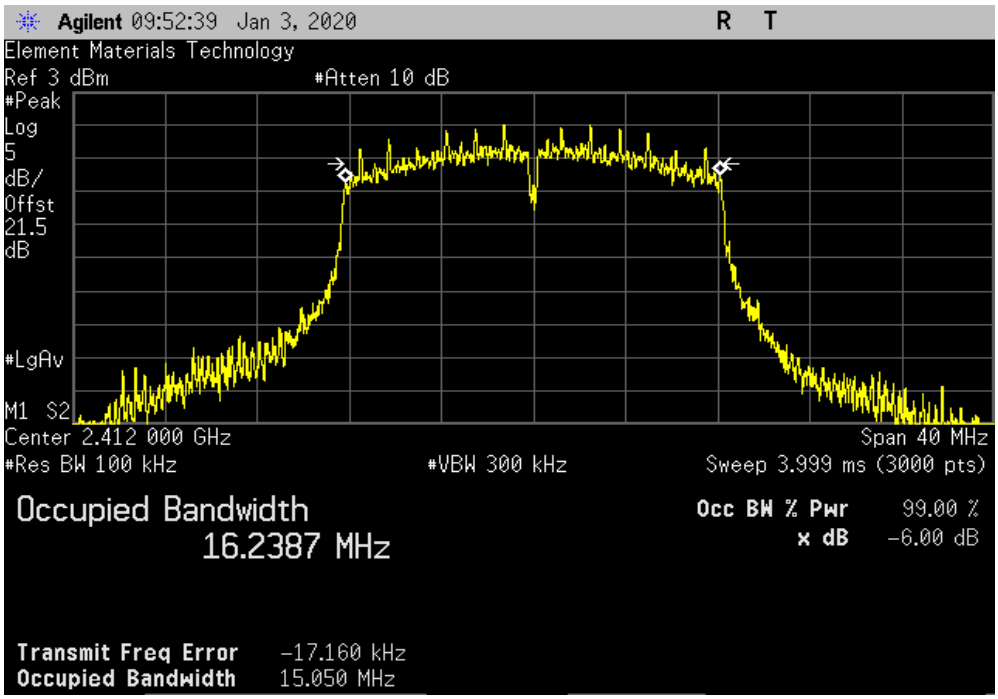

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value | Limit (>) | Result |
| | | | | 9.076 MHz | 500 kHz | Pass |



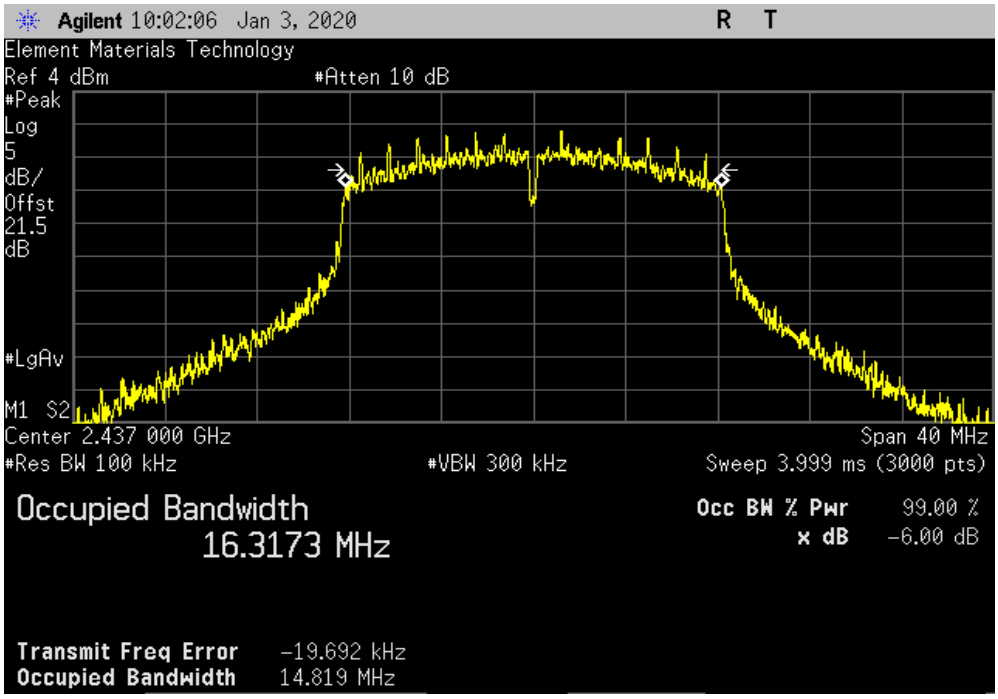
# OCCUPIED BANDWIDTH



| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value | Limit (>) | Result |
| | | | | 15.05 MHz | 500 kHz | Pass |



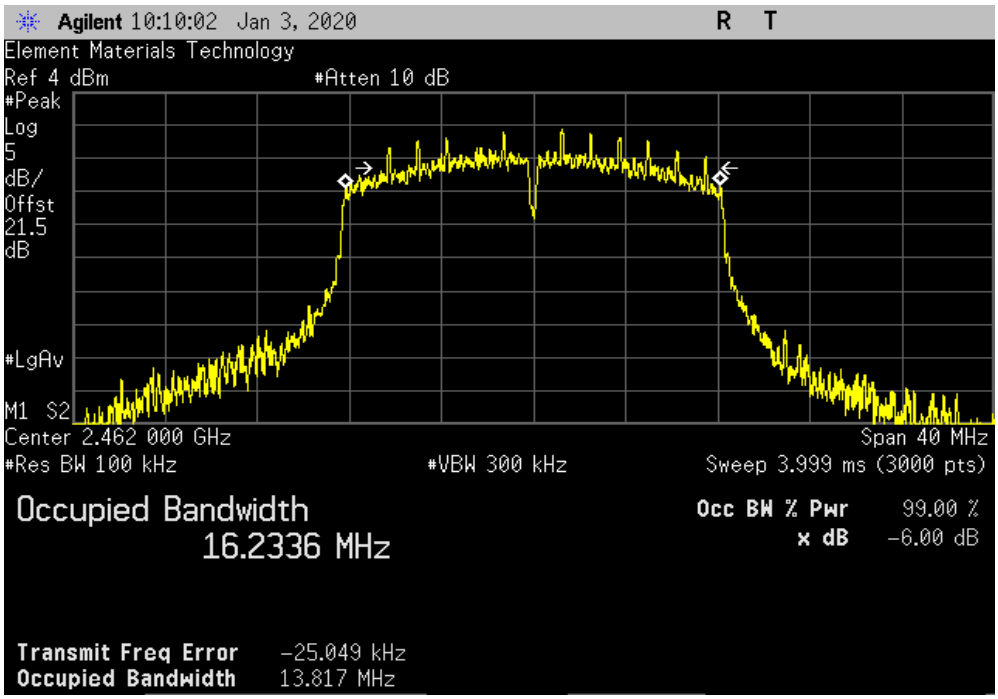

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value | Limit (>) | Result |
| | | | | 14.819 MHz | 500 kHz | Pass |



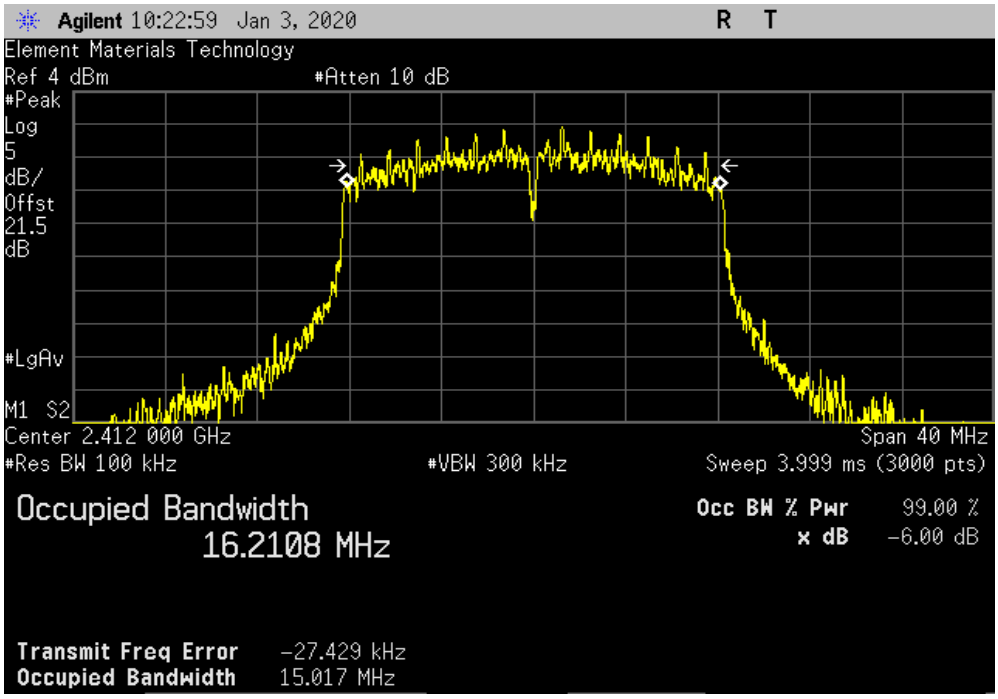
# OCCUPIED BANDWIDTH

TbtTx 2019.08.30.0 XMit 2019.09.05

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value | Limit (>) | Result |
| | | | | 13.817 MHz | 500 kHz | Pass |



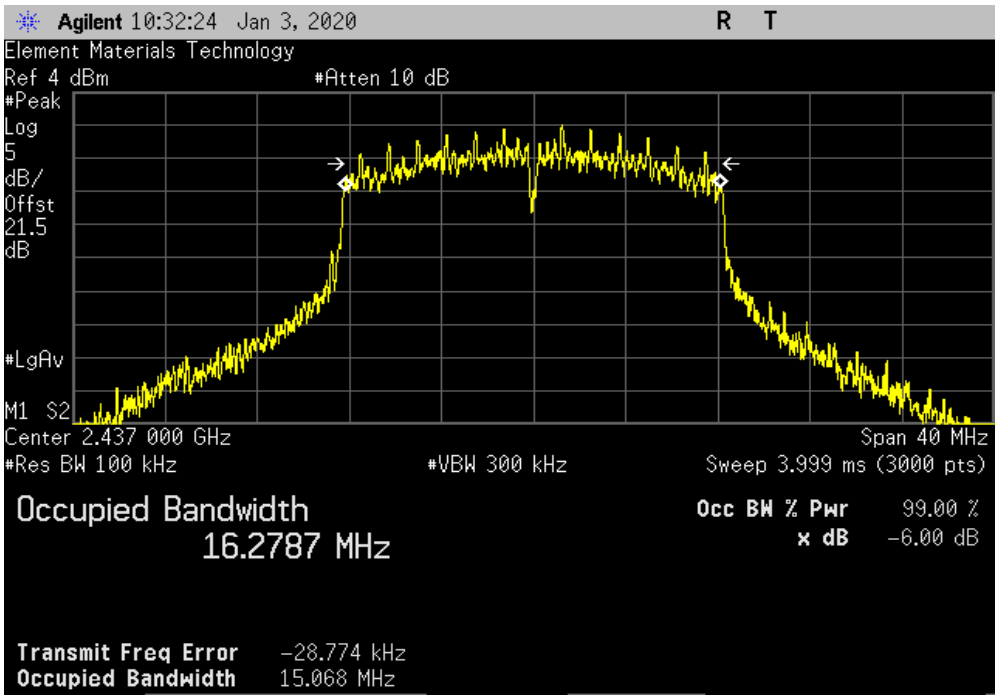

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value | Limit (>) | Result |
| | | | | 15.017 MHz | 500 kHz | Pass |



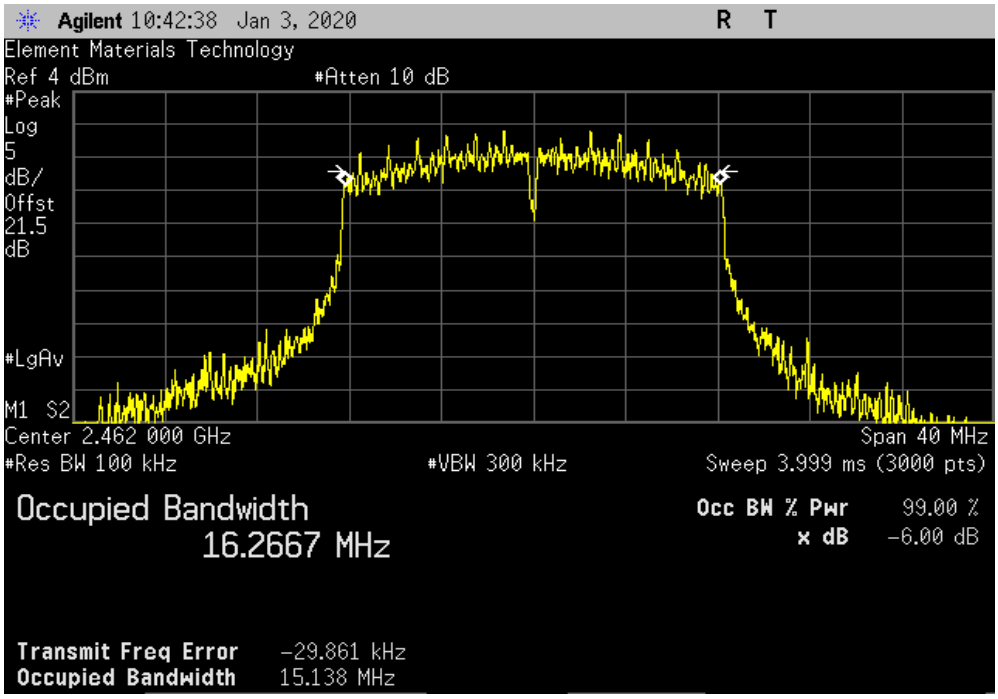
# OCCUPIED BANDWIDTH



| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value | Limit (>) | Result |
| | | | | 15.068 MHz | 500 kHz | Pass |

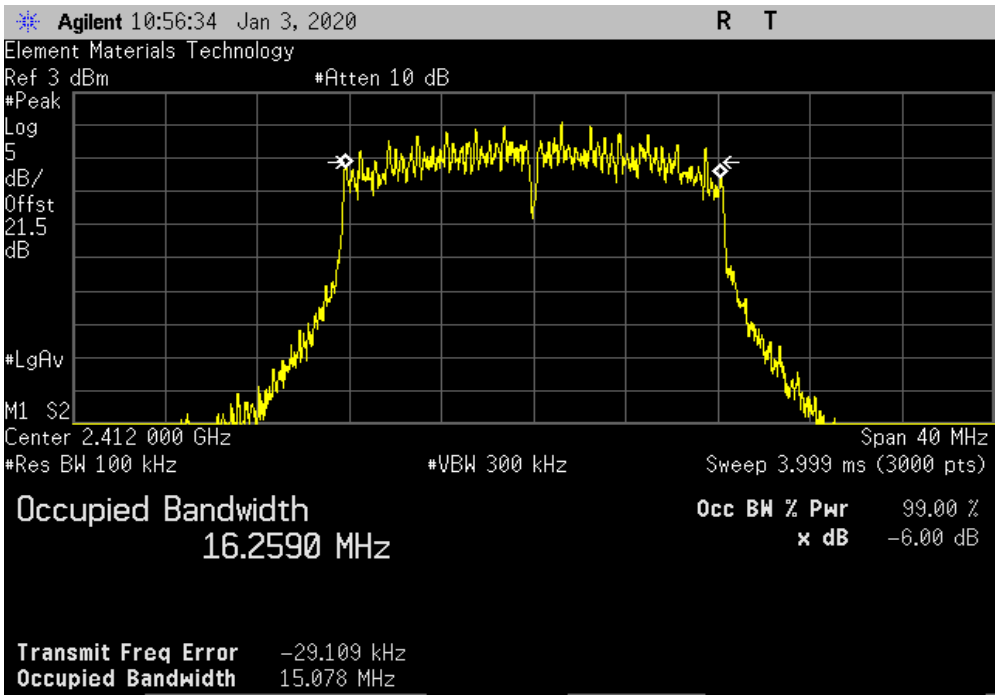



| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value | Limit (>) | Result |
| | | | | 15.138 MHz | 500 kHz | Pass |

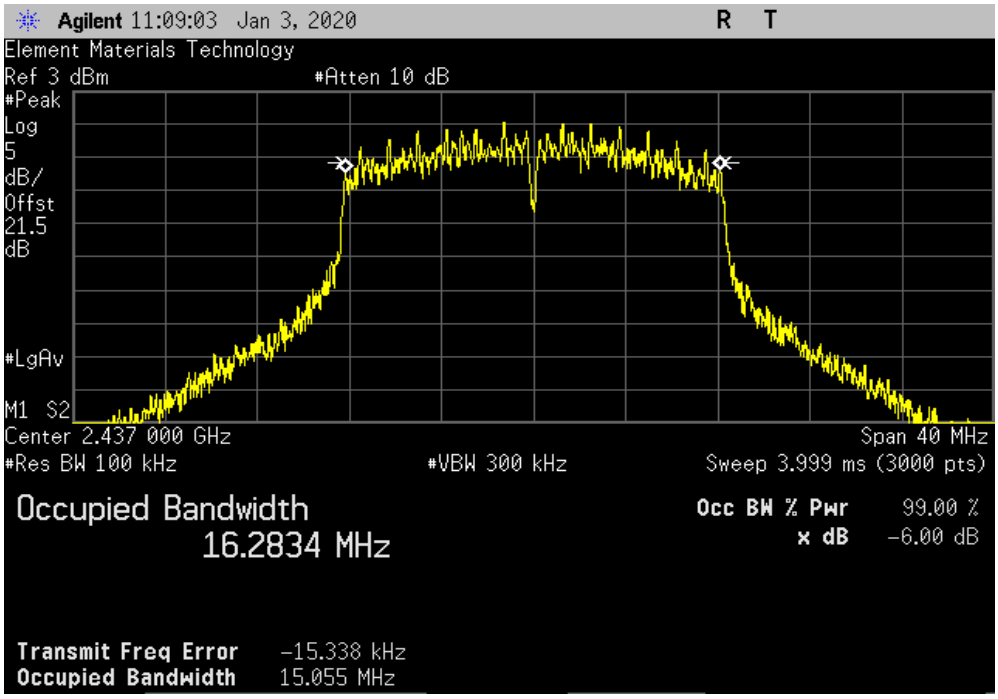


# OCCUPIED BANDWIDTH

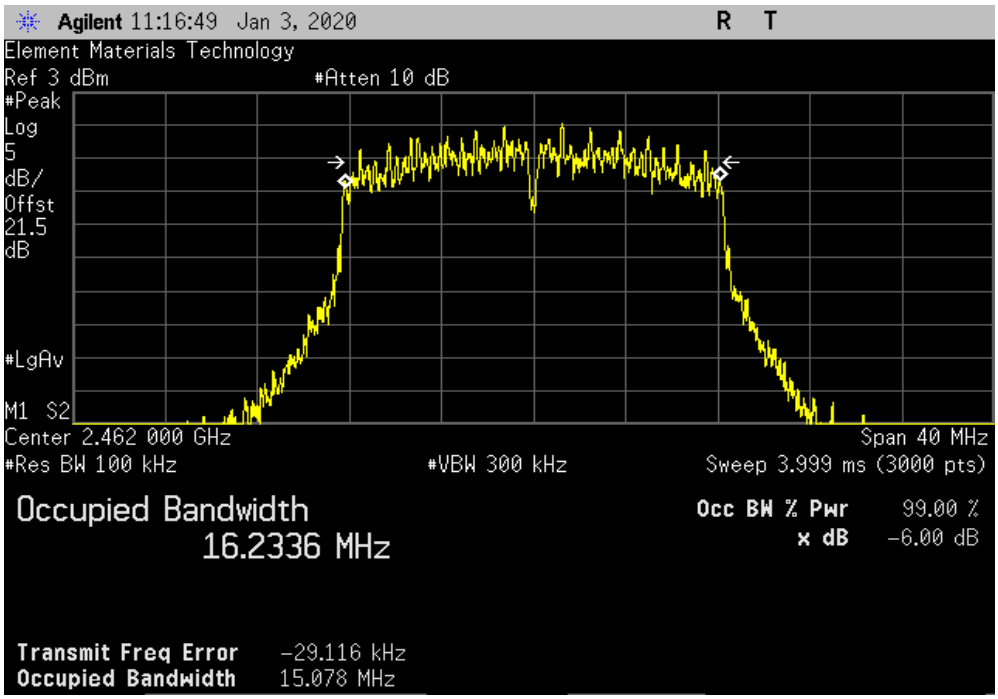
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value | Limit (>) | Result |
| | | | | 15.078 MHz | 500 kHz | Pass |



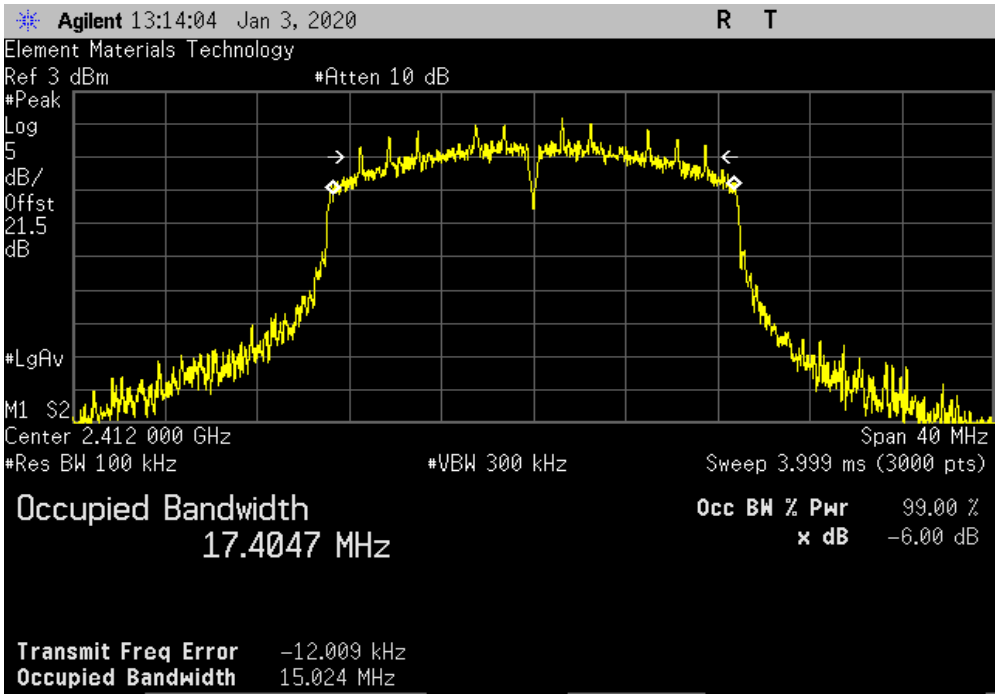

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value | Limit (>) | Result |
| | | | | 15.055 MHz | 500 kHz | Pass |



| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value | Limit (>) | Result |
| | | | | 15.078 MHz | 500 kHz | Pass |

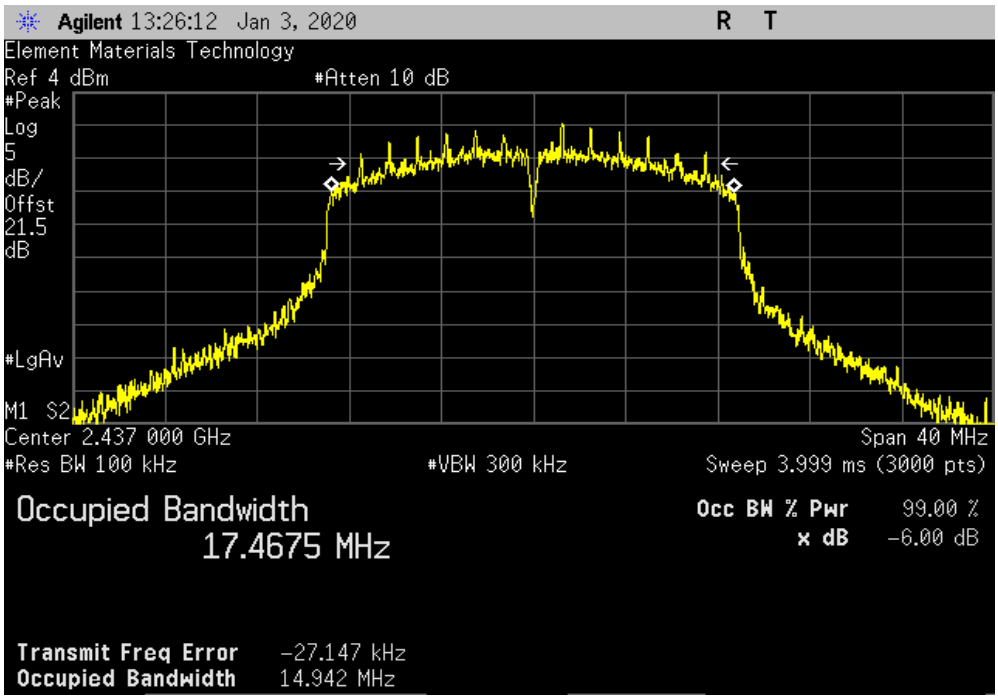



| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value | Limit (>) | Result |
| | | | | 15.024 MHz | 500 kHz | Pass |

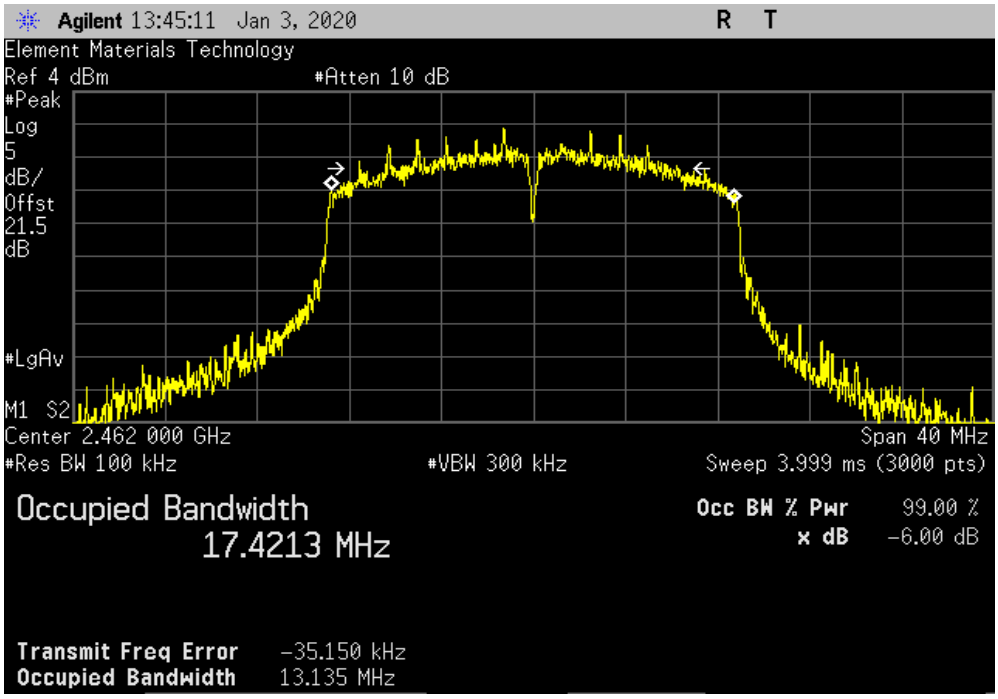


# OCCUPIED BANDWIDTH

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value | Limit (>) | Result |
| | | | | 14.942 MHz | 500 kHz | Pass |

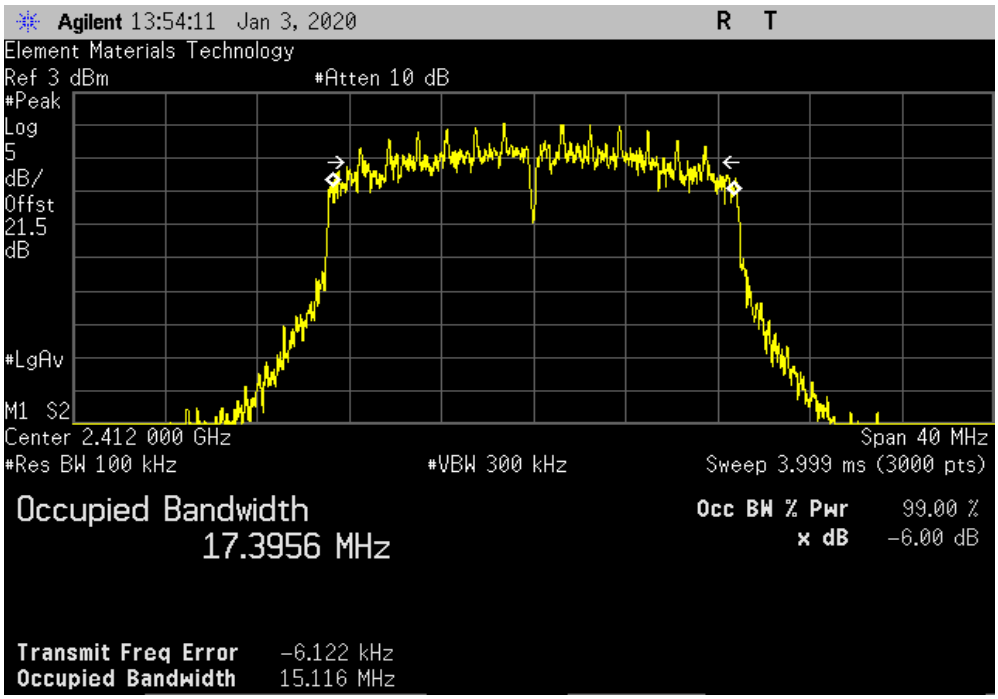



| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value | Limit (>) | Result |
| | | | | 13.135 MHz | 500 kHz | Pass |

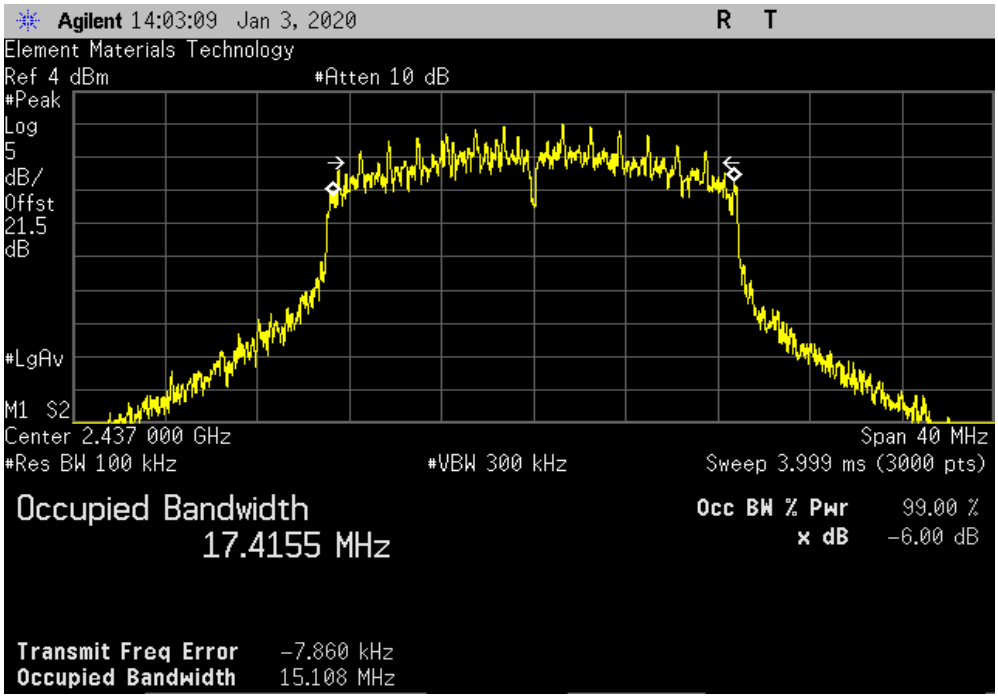


# OCCUPIED BANDWIDTH

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value | Limit (>) | Result |
| | | | | 15.116 MHz | 500 kHz | Pass |



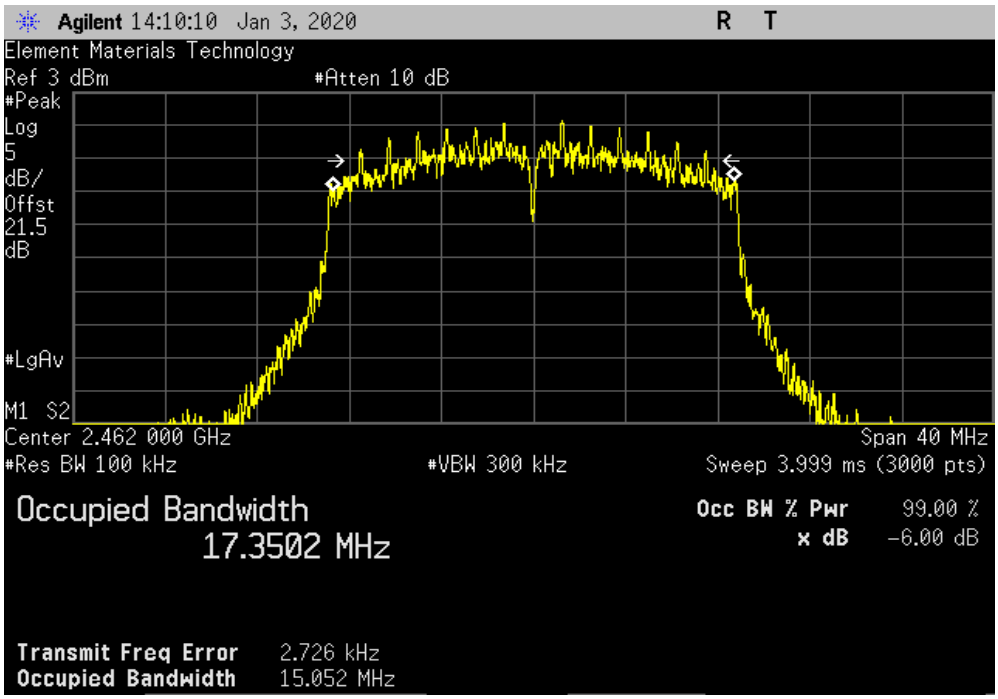

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value | Limit (>) | Result |
| | | | | 15.108 MHz | 500 kHz | Pass |



# OCCUPIED BANDWIDTH



| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value | Limit (>) | Result |
| | | | | 15.052 MHz | 500 kHz | Pass |



# OUTPUT POWER

XMit 2019.09.05

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

**TEST EQUIPMENT**

| Description | Manufacturer | Model | ID | Last Cal. | Cal. Due |
|---|---|---|---|---|---|
| Meter - Multimeter | Tektronix | DMM912 | MMH | 15-Feb-19 | 15-Feb-22 |
| Power Supply - DC | Dr. Meter | PS-305DM | TZZ | NCR | NCR |
| Generator - Signal | Keysight | N5182B | TFU | 5-Nov-18 | 5-Nov-21 |
| Cable | Micro-Coax | UFD150A-1-0720-200200 | EVH | 28-Mar-19 | 28-Mar-20 |
| Attenuator | S.M. Electronics | SA26B-20 | AUY | 28-Mar-19 | 28-Mar-20 |
| Terminator | S.M. Electronics | ST2B | AWM | 9-Apr-19 | 9-Apr-20 |
| Analyzer - Spectrum Analyzer | Agilent | E4440A | AFA | 12-Feb-19 | 12-Feb-20 |

**TEST DESCRIPTION**

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The fundamental emission output power (maximum average conducted output power) was measured using the channels and modes as called out on the following data sheets. The transmit power was set to its default maximum.

Prior to measuring output power; the emission bandwidth (B) and the transmission pulse duration (T) were measured. Both are required to determine the method of measuring Maximum Conducted Output Power. The transmission pulse duration (T) was measured using a zero span on the spectrum analyzer to see the pulses in the time domain.

The method AVGSA-2 in section 11.9.2.2.4 of ANSI C63.10:2013 was used to make the measurement. This method uses trace averaging across ON and OFF times of the EUT transmissions in the spectrum analyzer channel power function using an RMS detector. Following the measurement a duty cycle correction was applied by adding [10 log (1 / D)], where D is the duty cycle, to the measured power to compute the average power during the actual transmission times.

# OUTPUT POWER

TbtTx 2019.08.30.0 XMit 2019.09.05

| | | | | | |
|---|---|---|---|---|---|
| **EUT:** | **CCU-2** | | | **Work Order:** | **POLR0058** |
| **Serial Number:** | **Unit #6** | | | **Date:** | **3-Jan-20** |
| **Customer:** | **Polaris Industries, Inc.** | | | **Temperature:** | **21.5 °C** |
| **Attendees:** | **Wayne Rieger** | | | **Humidity:** | **40.5% RH** |
| **Project:** | **None** | | | **Barometric Pres.:** | **1016 mbar** |
| **Tested by:** | **Brandon Hobbs** | **Power:** | **14VDC** | **Job Site:** | **EV06** |

| **TEST SPECIFICATIONS** | **Test Method** |
|---|---|
| **FCC 15.247:2020** | ANSI C63.10:2013 |
| | |

**COMMENTS**

**All losses through the measurement path were accounted for. The Power level was set to a client software setting of 10000.**

**DEVIATIONS FROM TEST STANDARD**

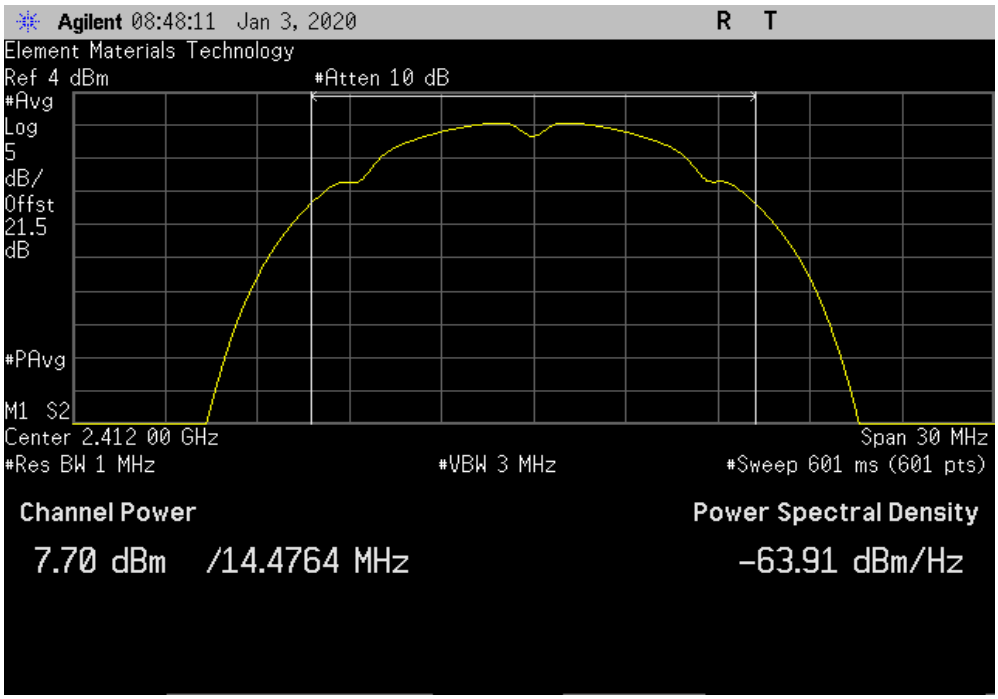
**None**

| **Configuration #** | **4** | *Signature* |
|---|---|---|

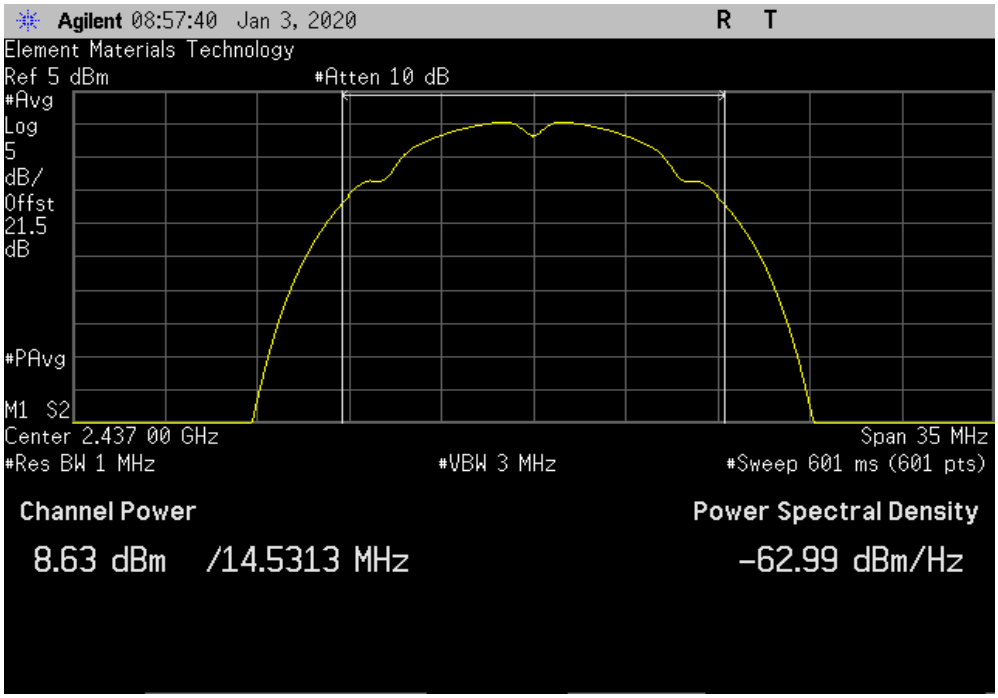
| | Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Limit (dBm) | Result |
|---|---|---|---|---|---|
| 2400 MHz - 2483.5 MHz Band | | | | | |
| 802.11(b) 1 Mbps | | | | | |
| Low Channel 1, 2412 MHz | 7.7 | 0.4 | 8.1 | 30 | Pass |
| Mid Channel 6, 2437 MHz | 8.63 | 0.4 | 9 | 30 | Pass |
| High Channel 11, 2462 MHz | 8.245 | 0.4 | 8.6 | 30 | Pass |
| 802.11(b) 11 Mbps | | | | | |
| Low Channel 1, 2412 MHz | 6.858 | 2.2 | 9.1 | 30 | Pass |
| Mid Channel 6, 2437 MHz | 6.865 | 2.3 | 9.1 | 30 | Pass |
| High Channel 11, 2462 MHz | 6.385 | 2.3 | 8.7 | 30 | Pass |
| 802.11(g) 6 Mbps | | | | | |
| Low Channel 1, 2412 MHz | 6.741 | 1.9 | 8.6 | 30 | Pass |
| Mid Channel 6, 2437 MHz | 6.962 | 1.9 | 8.9 | 30 | Pass |
| High Channel 11, 2462 MHz | 6.575 | 1.9 | 8.5 | 30 | Pass |
| 802.11(g) 36 Mbps | | | | | |
| Low Channel 1, 2412 MHz | 2.873 | 5.8 | 8.7 | 30 | Pass |
| Mid Channel 6, 2437 MHz | 3.164 | 5.8 | 9 | 30 | Pass |
| High Channel 11, 2462 MHz | 2.79 | 5.9 | 8.7 | 30 | Pass |
| 802.11(g) 54 Mbps | | | | | |
| Low Channel 1, 2412 MHz | 1.589 | 7 | 8.6 | 30 | Pass |
| Mid Channel 6, 2437 MHz | 1.922 | 7 | 9 | 30 | Pass |
| High Channel 11, 2462 MHz | 1.461 | 6.9 | 8.4 | 30 | Pass |
| 802.11(n) MCS0 | | | | | |
| Low Channel 1, 2412 MHz | 6.476 | 2.1 | 8.6 | 30 | Pass |
| Mid Channel 6, 2437 MHz | 6.847 | 2.1 | 9 | 30 | Pass |
| High Channel 11, 2462 MHz | 6.371 | 2.1 | 8.5 | 30 | Pass |
| 802.11(n) MCS7 | | | | | |
| Low Channel 1, 2412 MHz | 1.748 | 7.1 | 8.8 | 30 | Pass |
| Mid Channel 6, 2437 MHz | 2.022 | 7.1 | 9.1 | 30 | Pass |
| High Channel 11, 2462 MHz | 1.571 | 7.1 | 8.6 | 30 | Pass |

# OUTPUT POWER

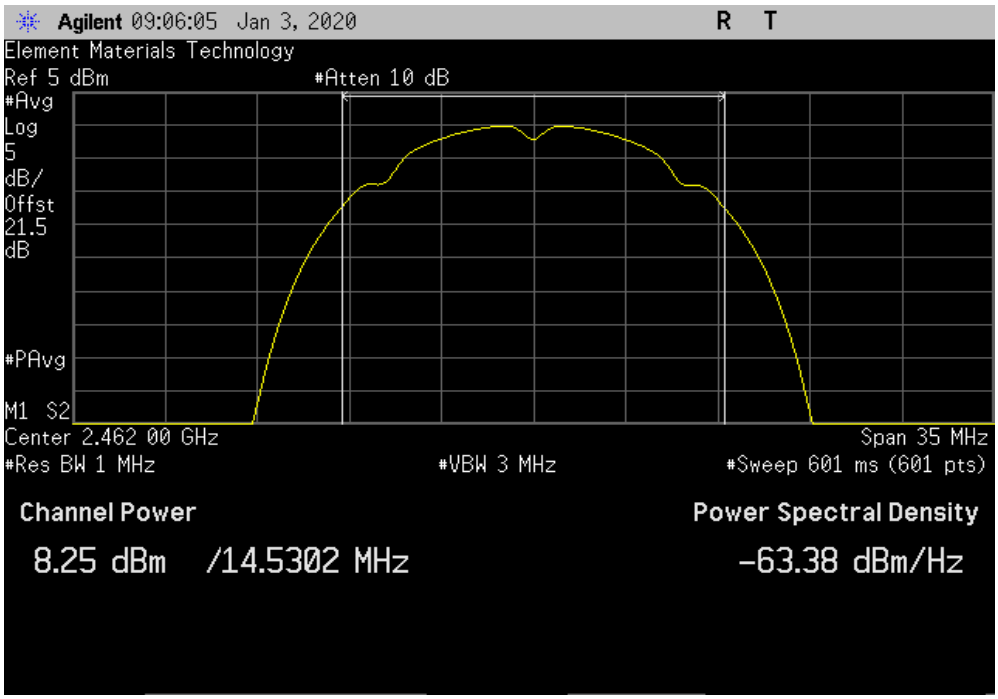
| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Limit (dBm) | Result |
| | | 7.7 | 0.4 | 8.1 | 30 | Pass |



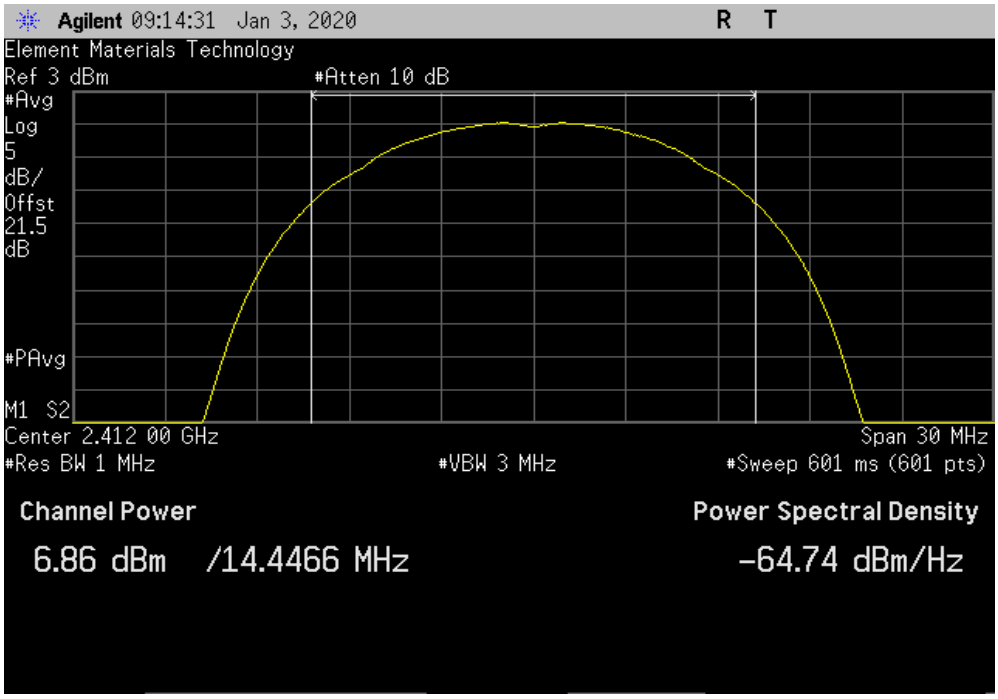

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Limit (dBm) | Result |
| | | 8.63 | 0.4 | 9 | 30 | Pass |



| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Limit (dBm) | Result |
| | | 8.245 | 0.4 | 8.6 | 30 | Pass |

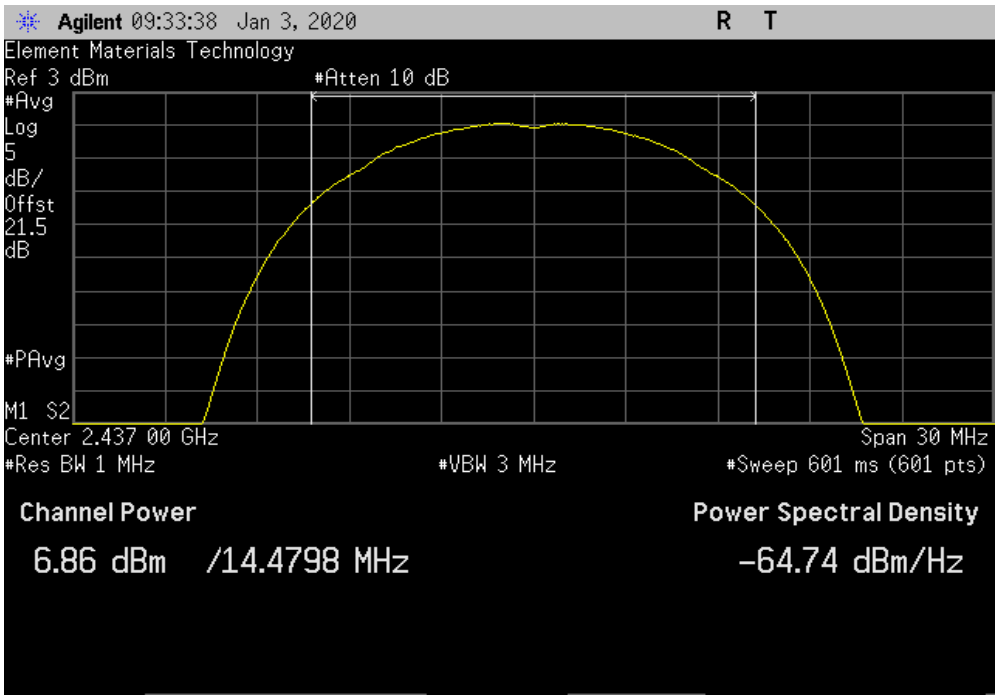



| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Limit (dBm) | Result |
| | | 6.858 | 2.2 | 9.1 | 30 | Pass |

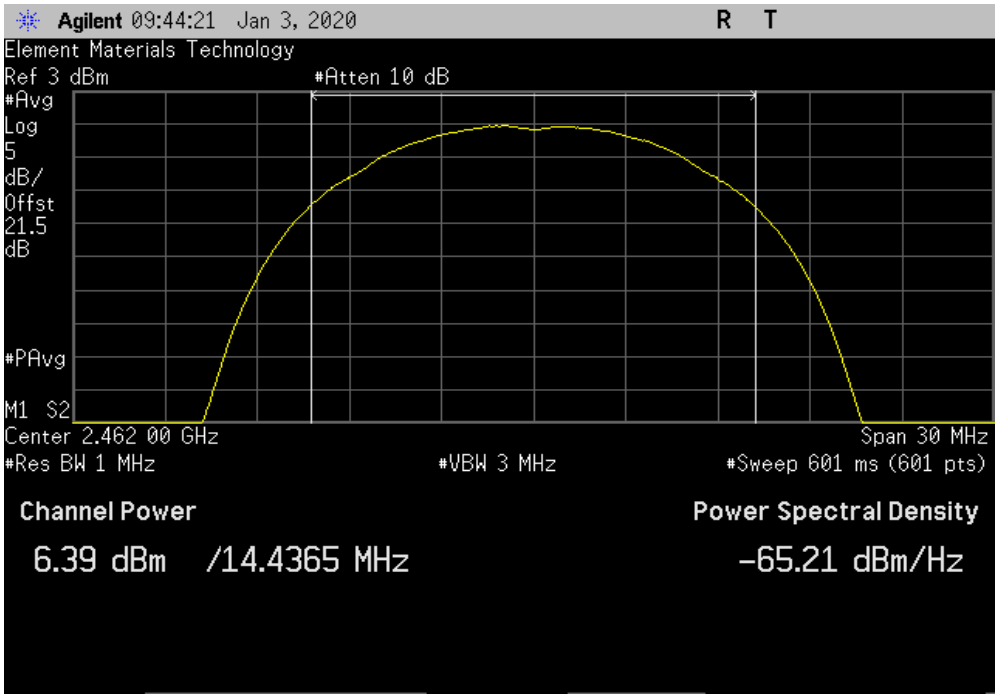


# OUTPUT POWER

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Limit (dBm) | Result |
| | | 6.865 | 2.3 | 9.1 | 30 | Pass |

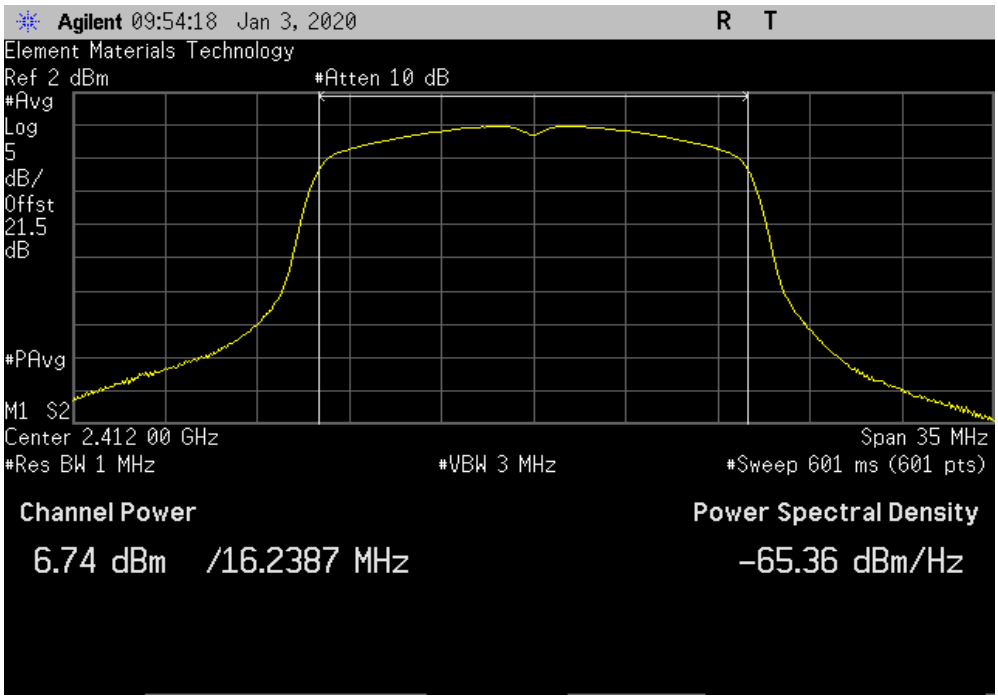



| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Limit (dBm) | Result |
| | | 6.385 | 2.3 | 8.7 | 30 | Pass |

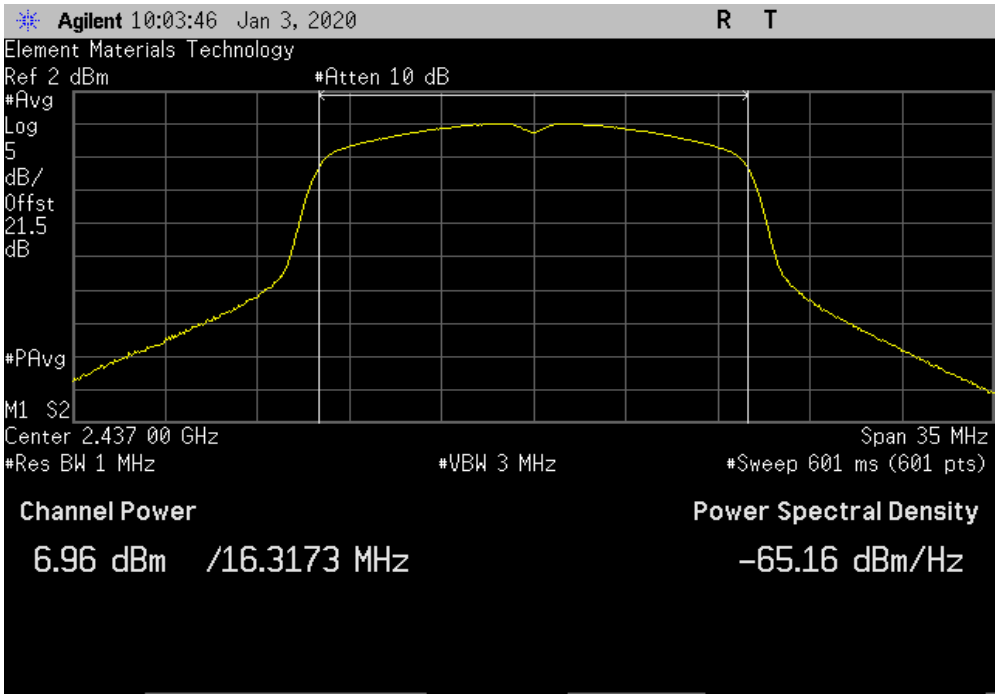


# OUTPUT POWER

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Limit (dBm) | Result |
| | | 6.741 | 1.9 | 8.6 | 30 | Pass |

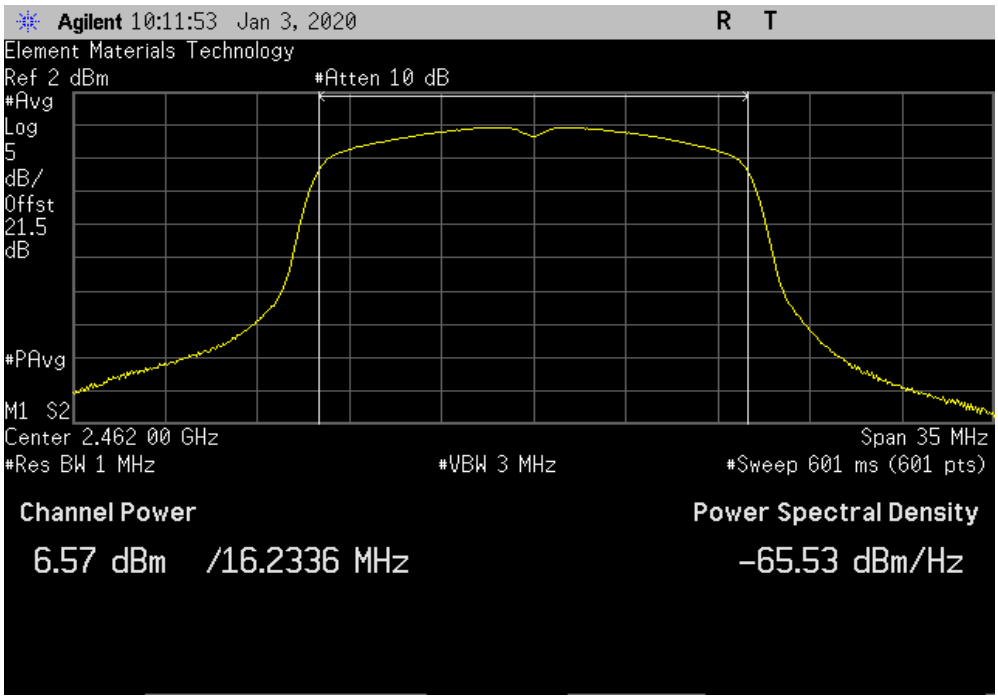



| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Limit (dBm) | Result |
| | | 6.962 | 1.9 | 8.9 | 30 | Pass |

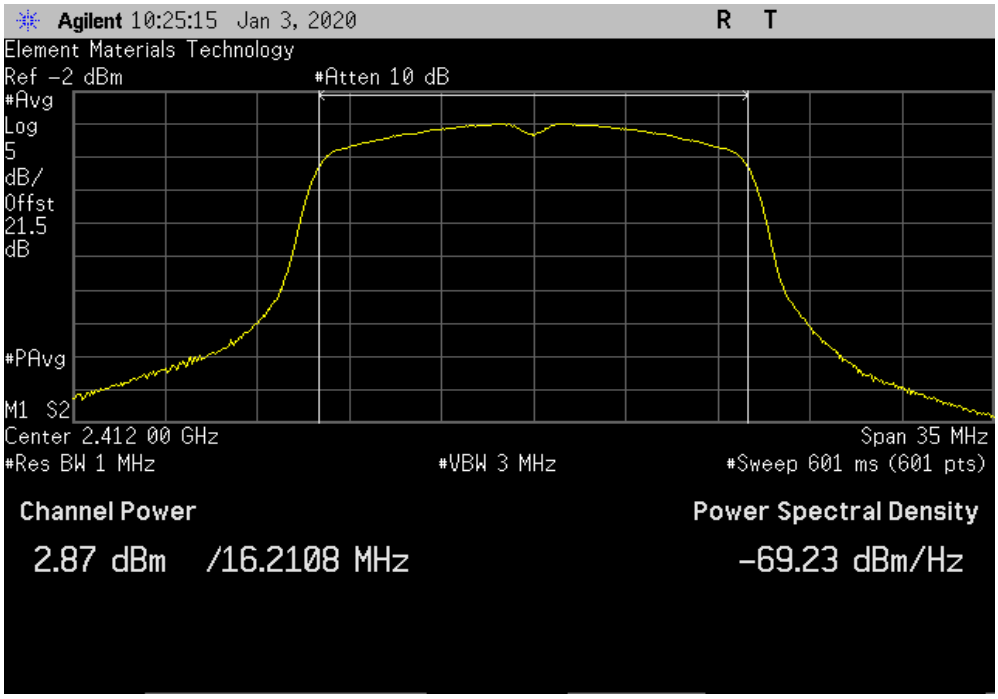


# OUTPUT POWER

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Limit (dBm) | Result |
| | | 6.575 | 1.9 | 8.5 | 30 | Pass |

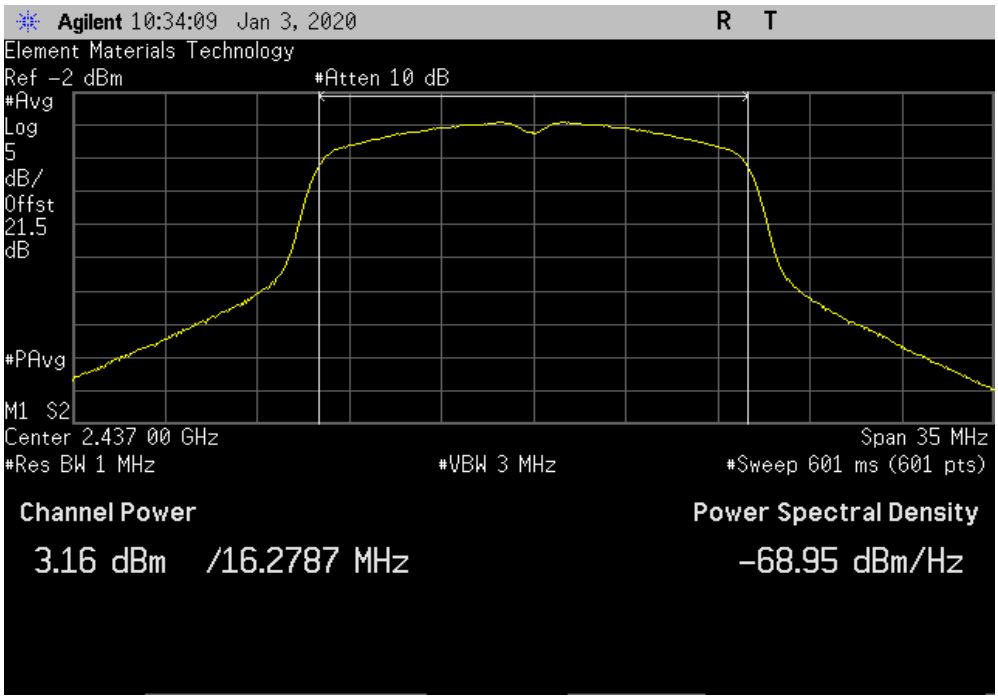



| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Limit (dBm) | Result |
| | | 2.873 | 5.8 | 8.7 | 30 | Pass |

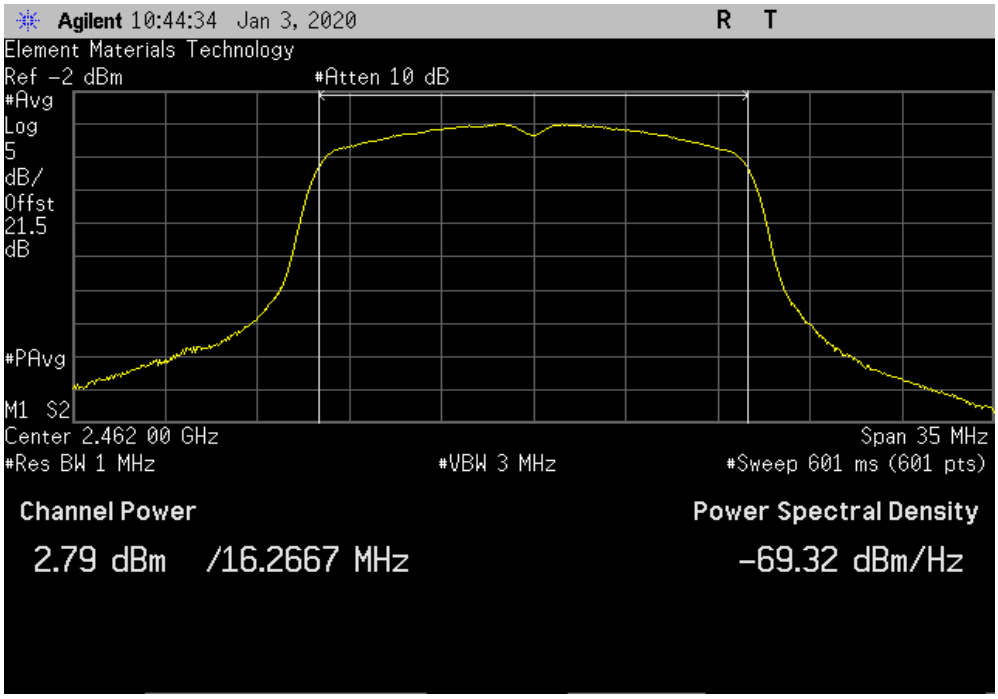


# OUTPUT POWER

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Limit (dBm) | Result |
| | | 3.164 | 5.8 | 9 | 30 | Pass |

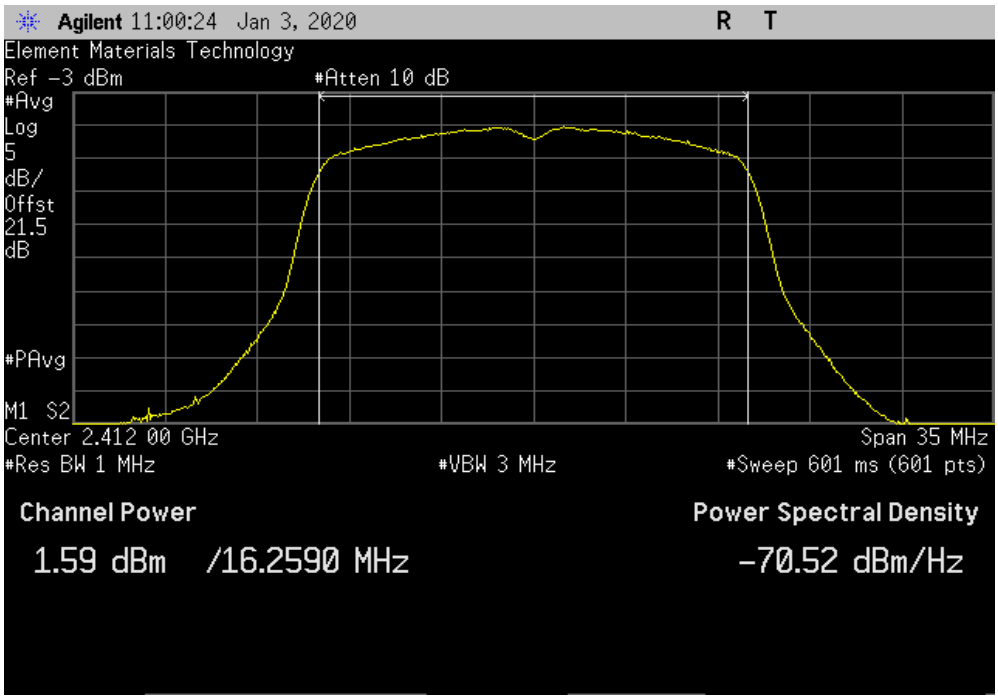



| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Limit (dBm) | Result |
| | | 2.79 | 5.9 | 8.7 | 30 | Pass |

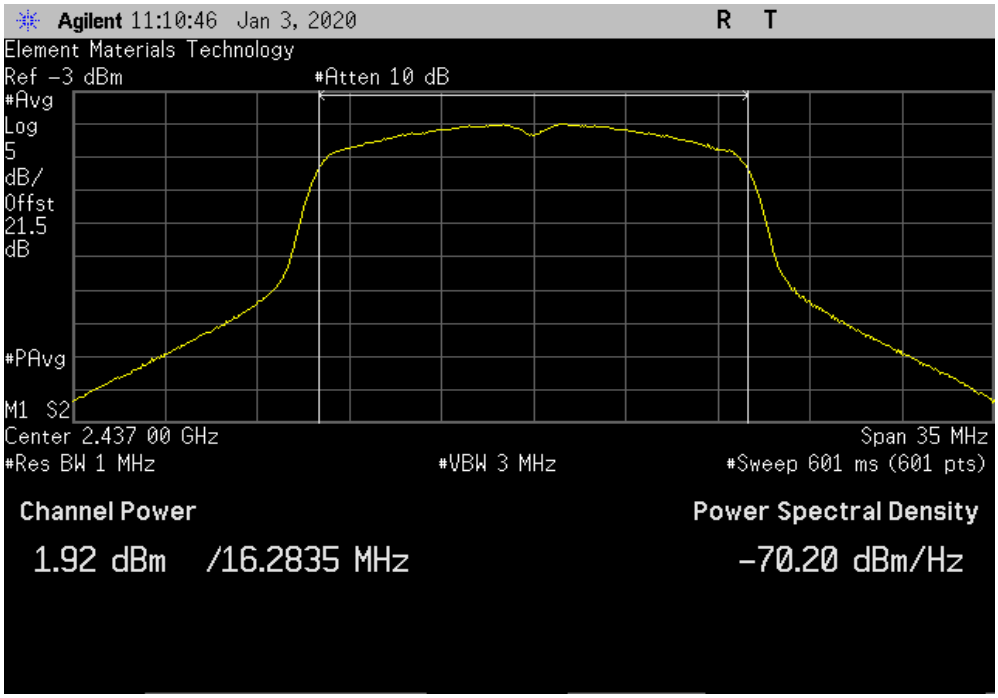


# OUTPUT POWER

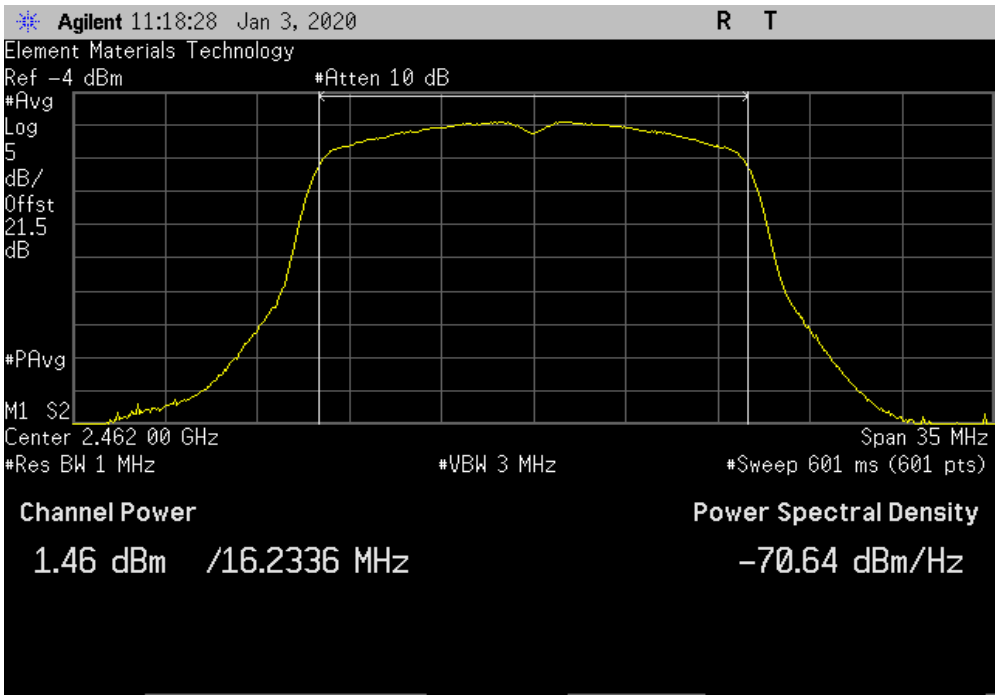
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Limit (dBm) | Result |
| | | 1.589 | 7 | 8.6 | 30 | Pass |



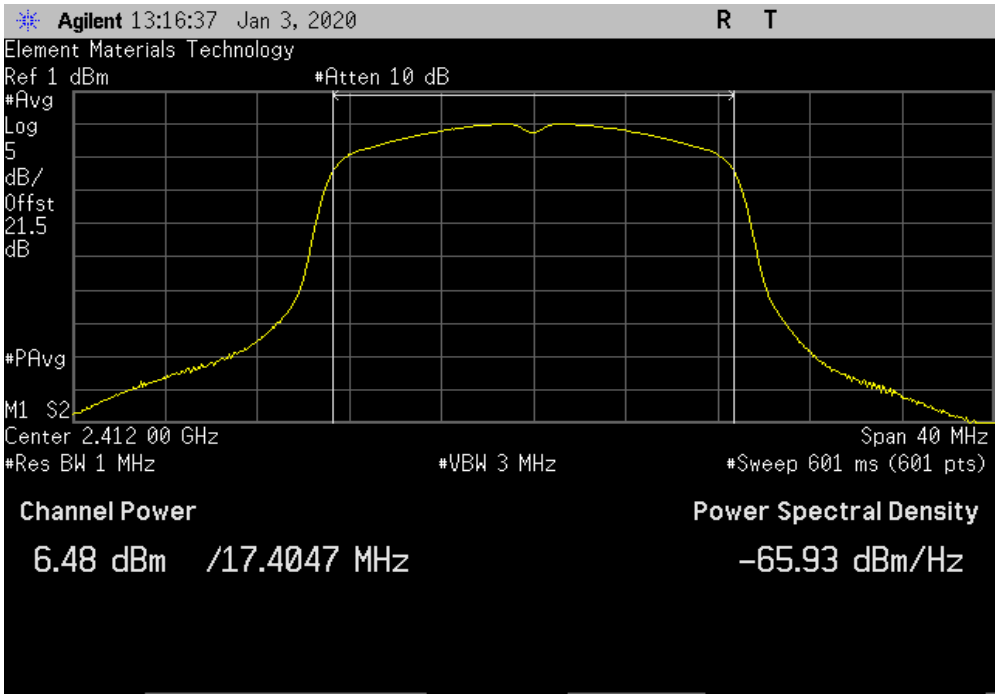

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Limit (dBm) | Result |
| | | 1.922 | 7 | 9 | 30 | Pass |



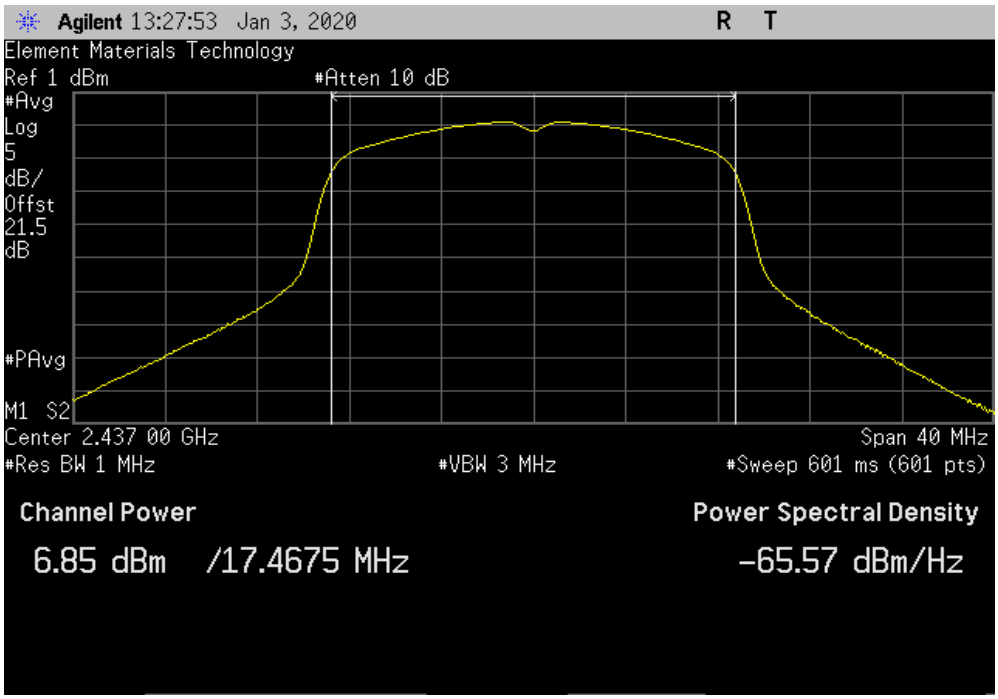
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Limit (dBm) | Result |
| | | 1.461 | 6.9 | 8.4 | 30 | Pass |



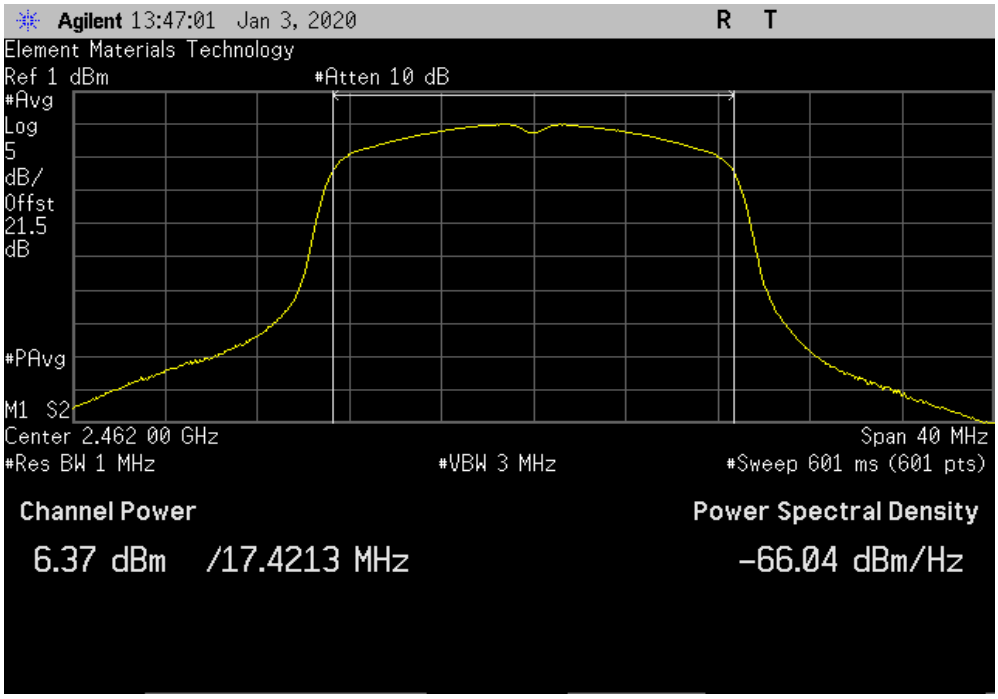

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Limit (dBm) | Result |
| | | 6.476 | 2.1 | 8.6 | 30 | Pass |



| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Limit (dBm) | Result |
| | | 6.847 | 2.1 | 9 | 30 | Pass |

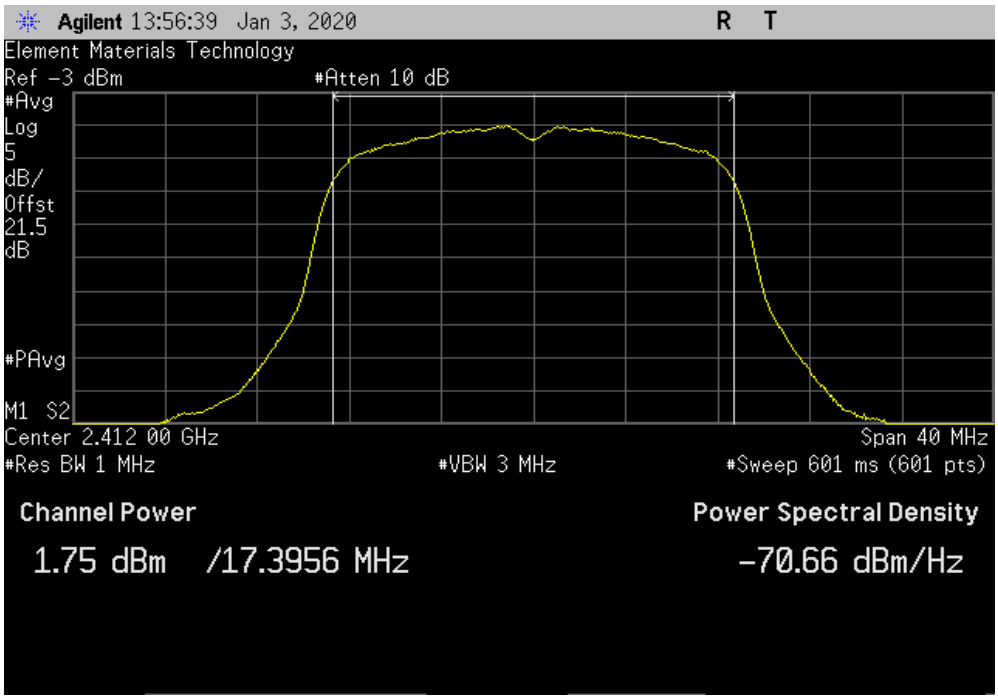



| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Limit (dBm) | Result |
| | | 6.371 | 2.1 | 8.5 | 30 | Pass |

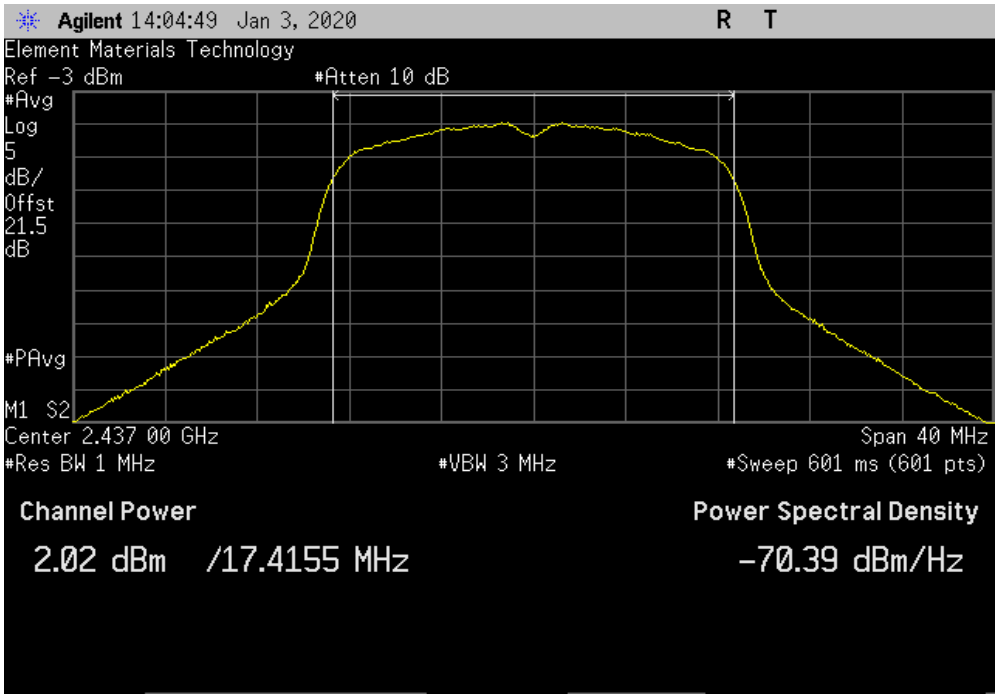


# OUTPUT POWER

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Limit (dBm) | Result |
| | | 1.748 | 7.1 | 8.8 | 30 | Pass |

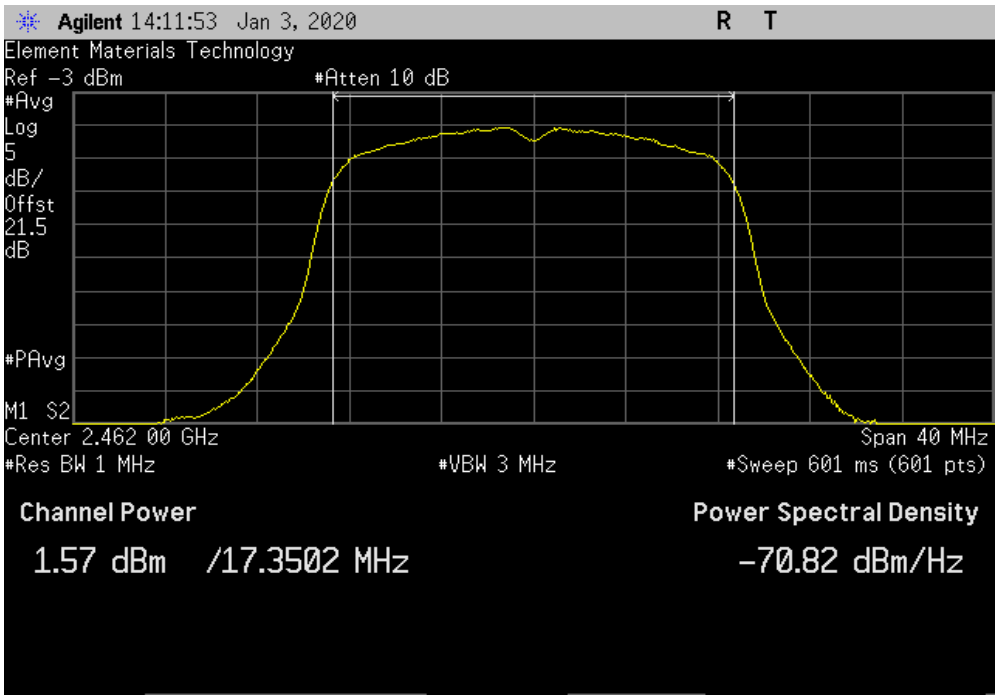



| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Limit (dBm) | Result |
| | | 2.022 | 7.1 | 9.1 | 30 | Pass |



# OUTPUT POWER

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Limit (dBm) | Result |
| | | 1.571 | 7.1 | 8.6 | 30 | Pass |



# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

XMit 2019.09.05

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

**TEST EQUIPMENT**

| Description | Manufacturer | Model | ID | Last Cal. | Cal. Due |
|---|---|---|---|---|---|
| Generator - Signal | Keysight | N5182B | TFU | 5-Nov-18 | 5-Nov-21 |
| Meter - Multimeter | Tektronix | DMM912 | MMH | 15-Feb-19 | 15-Feb-22 |
| Power Supply - DC | Dr. Meter | PS-305DM | TZZ | NCR | NCR |
| Cable | Micro-Coax | UFD150A-1-0720-200200 | EVH | 28-Mar-19 | 28-Mar-20 |
| Attenuator | S.M. Electronics | SA26B-20 | AUY | 28-Mar-19 | 28-Mar-20 |
| Terminator | S.M. Electronics | ST2B | AWM | 9-Apr-19 | 9-Apr-20 |
| Analyzer - Spectrum Analyzer | Agilent | E4440A | AFA | 12-Feb-19 | 12-Feb-20 |

**TEST DESCRIPTION**

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The fundamental emission output power (maximum average conducted output power) was measured using the channels and modes as called out on the following data sheets. The transmit power was set to its default maximum.

Prior to measuring output power; the emission bandwidth (B) and the transmission pulse duration (T) were measured. Both are required to determine the method of measuring Maximum Conducted Output Power. The transmission pulse duration (T) was measured using a zero span on the spectrum analyzer to see the pulses in the time domain.

The method AVGSA-2 in section 11.9.2.2.4 of ANSI C63.10:2013 was used to make the measurement. This method uses trace averaging across ON and OFF times of the EUT transmissions in the spectrum analyzer channel power function using an RMS detector. Following the measurement a duty cycle correction was applied by adding [10 log (1 / D)], where D is the duty cycle, to the measured power to compute the average power during the actual transmission times.

# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

element

TbtTx 2019.08.30.0 XMit 2019.09.05

| | | | | | |
|---|---|---|---|---|---|
| **EUT:** | CCU-2 | | | **Work Order:** | POLR0058 |
| **Serial Number:** | Unit #6 | | | **Date:** | 3-Jan-20 |
| **Customer:** | Polaris Industries, Inc. | | | **Temperature:** | 21.5 °C |
| **Attendees:** | Wayne Rieger | | | **Humidity:** | 40.5% RH |
| **Project:** | None | | | **Barometric Pres.:** | 1016 mbar |
| **Tested by:** | Brandon Hobbs | **Power:** | 14VDC | **Job Site:** | EV06 |

| **TEST SPECIFICATIONS** | **Test Method** |
|---|---|
| FCC 15.247:2020 | ANSI C63.10:2013 |
| | |

**COMMENTS**

All losses through the measurement path were accounted for. The Power level was set to a client software setting of 10000.

**DEVIATIONS FROM TEST STANDARD**

None

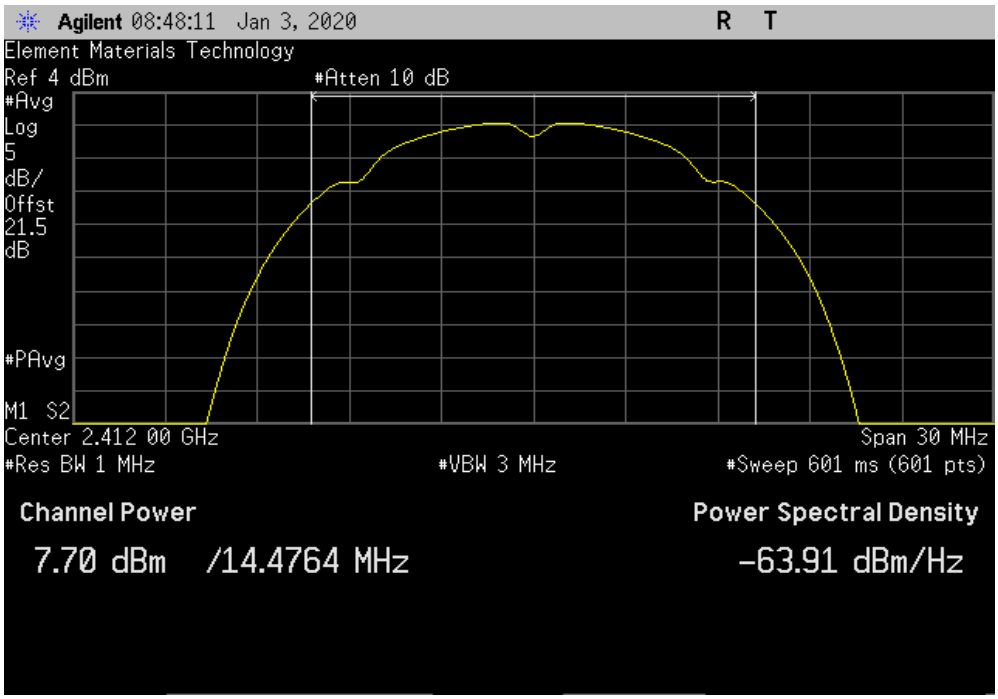
| **Configuration #** | 4 | *Signature* |
|---|---|---|

| | Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Result |
|---|---|---|---|---|---|---|---|
| 2400 MHz - 2483.5 MHz Band | | | | | | | |
| 802.11(b) 1 Mbps | | | | | | | |
| Low Channel 1, 2412 MHz | 7.7 | 0.4 | 8.1 | 0.5 | 8.6 | 36 | Pass |
| Mid Channel 6, 2437 MHz | 8.63 | 0.4 | 9 | 0.5 | 9.5 | 36 | Pass |
| High Channel 11, 2462 MHz | 8.245 | 0.4 | 8.6 | 0.5 | 9.1 | 36 | Pass |
| 802.11(b) 11 Mbps | | | | | | | |
| Low Channel 1, 2412 MHz | 6.858 | 2.2 | 9.1 | 0.5 | 9.6 | 36 | Pass |
| Mid Channel 6, 2437 MHz | 6.865 | 2.3 | 9.1 | 0.5 | 9.6 | 36 | Pass |
| High Channel 11, 2462 MHz | 6.385 | 2.3 | 8.7 | 0.5 | 9.2 | 36 | Pass |
| 802.11(g) 6 Mbps | | | | | | | |
| Low Channel 1, 2412 MHz | 6.741 | 1.9 | 8.6 | 0.5 | 9.1 | 36 | Pass |
| Mid Channel 6, 2437 MHz | 6.962 | 1.9 | 8.9 | 0.5 | 9.4 | 36 | Pass |
| High Channel 11, 2462 MHz | 6.575 | 1.9 | 8.5 | 0.5 | 9 | 36 | Pass |
| 802.11(g) 36 Mbps | | | | | | | |
| Low Channel 1, 2412 MHz | 2.873 | 5.8 | 8.7 | 0.5 | 9.2 | 36 | Pass |
| Mid Channel 6, 2437 MHz | 3.164 | 5.8 | 9 | 0.5 | 9.5 | 36 | Pass |
| High Channel 11, 2462 MHz | 2.79 | 5.9 | 8.7 | 0.5 | 9.2 | 36 | Pass |
| 802.11(g) 54 Mbps | | | | | | | |
| Low Channel 1, 2412 MHz | 1.589 | 7 | 8.6 | 0.5 | 9.1 | 36 | Pass |
| Mid Channel 6, 2437 MHz | 1.922 | 7 | 9 | 0.5 | 9.5 | 36 | Pass |
| High Channel 11, 2462 MHz | 1.461 | 6.9 | 8.4 | 0.5 | 8.9 | 36 | Pass |
| 802.11(n) MCS0 | | | | | | | |
| Low Channel 1, 2412 MHz | 6.476 | 2.1 | 8.6 | 0.5 | 9.1 | 36 | Pass |
| Mid Channel 6, 2437 MHz | 6.847 | 2.1 | 9 | 0.5 | 9.5 | 36 | Pass |
| High Channel 11, 2462 MHz | 6.371 | 2.1 | 8.5 | 0.5 | 9 | 36 | Pass |
| 802.11(n) MCS7 | | | | | | | |
| Low Channel 1, 2412 MHz | 1.748 | 7.1 | 8.8 | 0.5 | 9.3 | 36 | Pass |
| Mid Channel 6, 2437 MHz | 2.022 | 7.1 | 9.1 | 0.5 | 9.6 | 36 | Pass |
| High Channel 11, 2462 MHz | 1.571 | 7.1 | 8.6 | 0.5 | 9.1 | 36 | Pass |

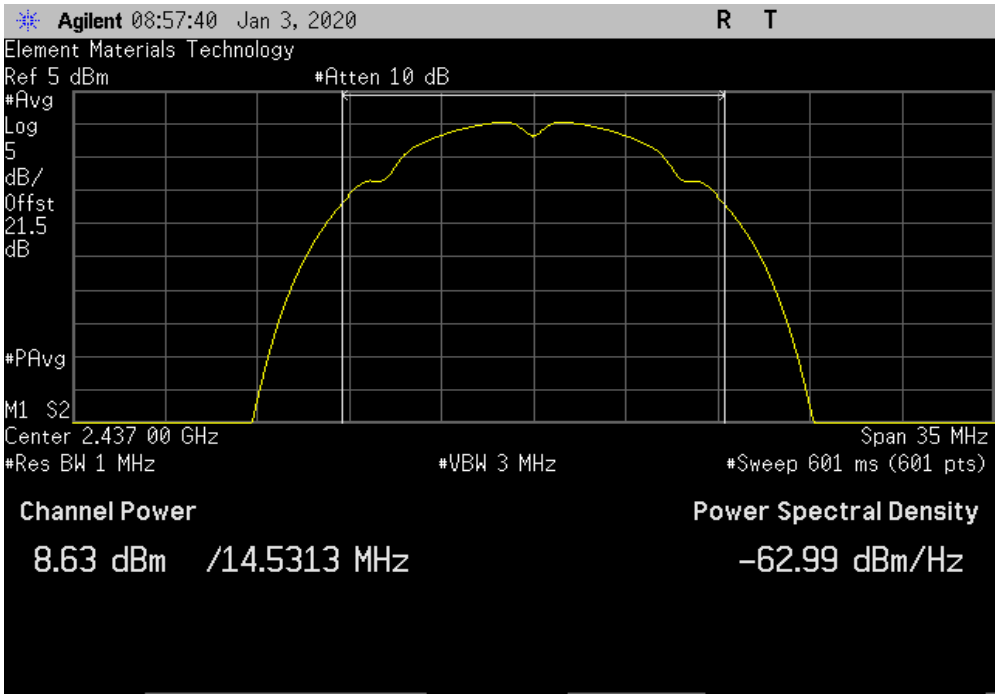
# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Result |
| 7.7 | 0.4 | 8.1 | 0.5 | 8.6 | 36 | Pass |



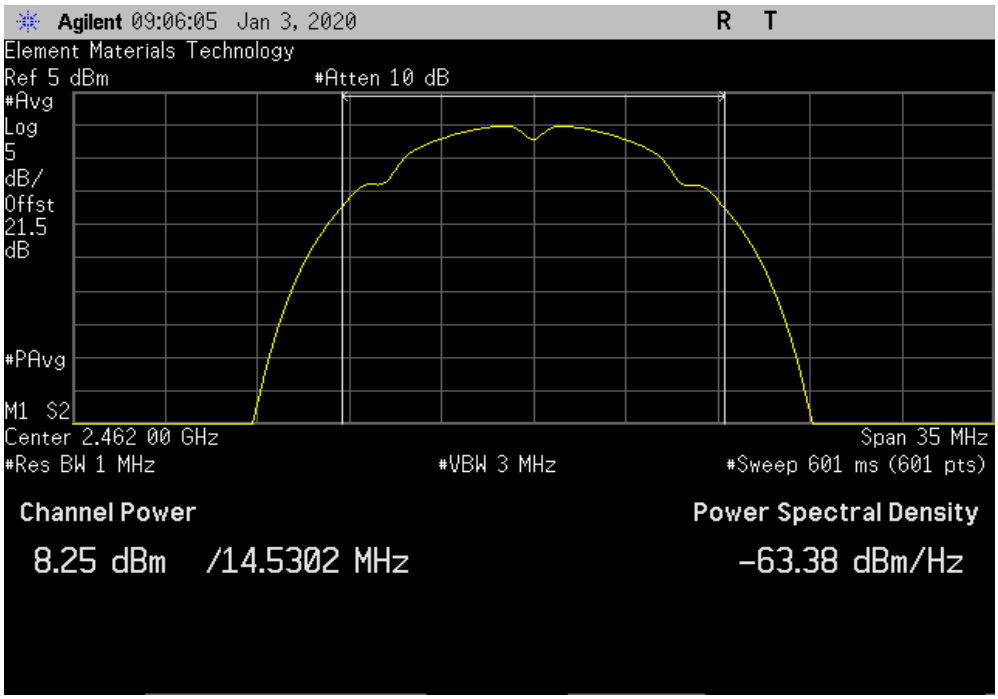

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Result |
| 8.63 | 0.4 | 9 | 0.5 | 9.5 | 36 | Pass |



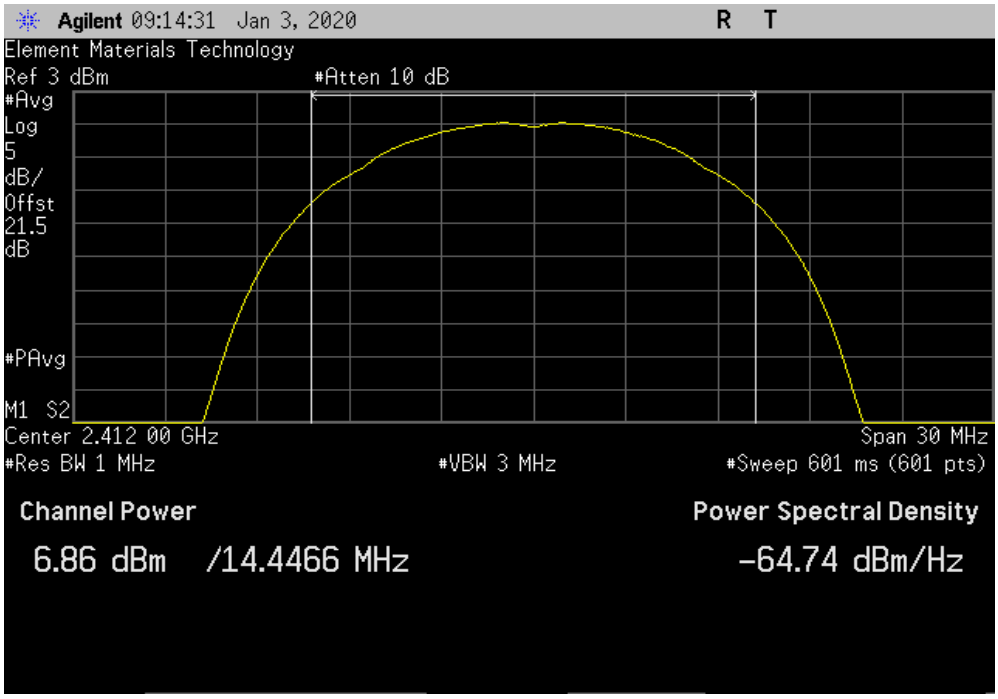
# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Result |
| 8.245 | 0.4 | 8.6 | 0.5 | 9.1 | 36 | Pass |



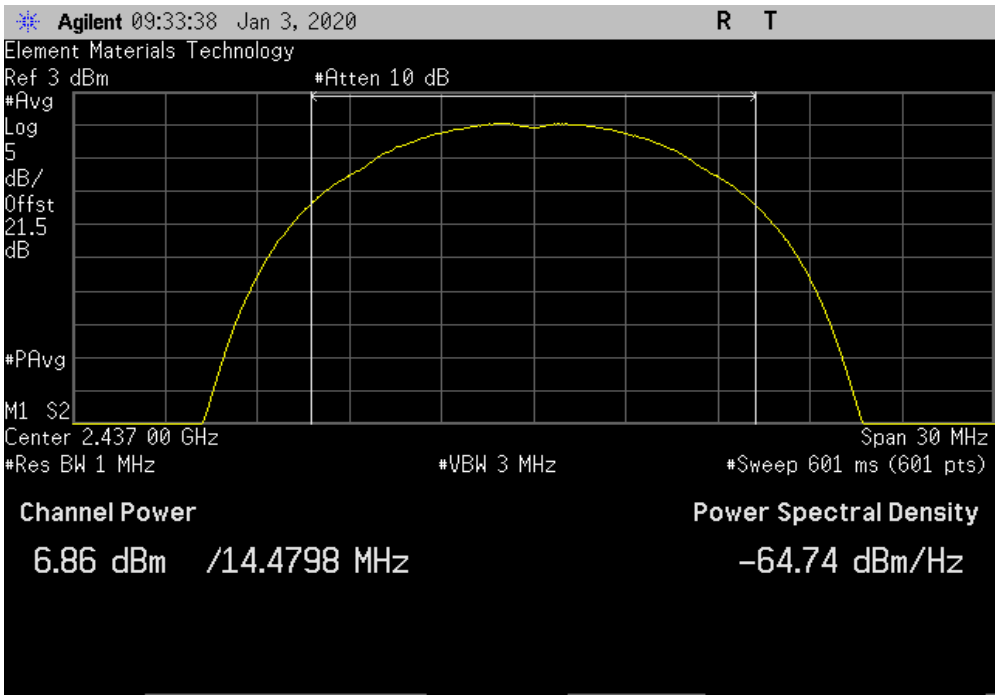

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Result |
| 6.858 | 2.2 | 9.1 | 0.5 | 9.6 | 36 | Pass |



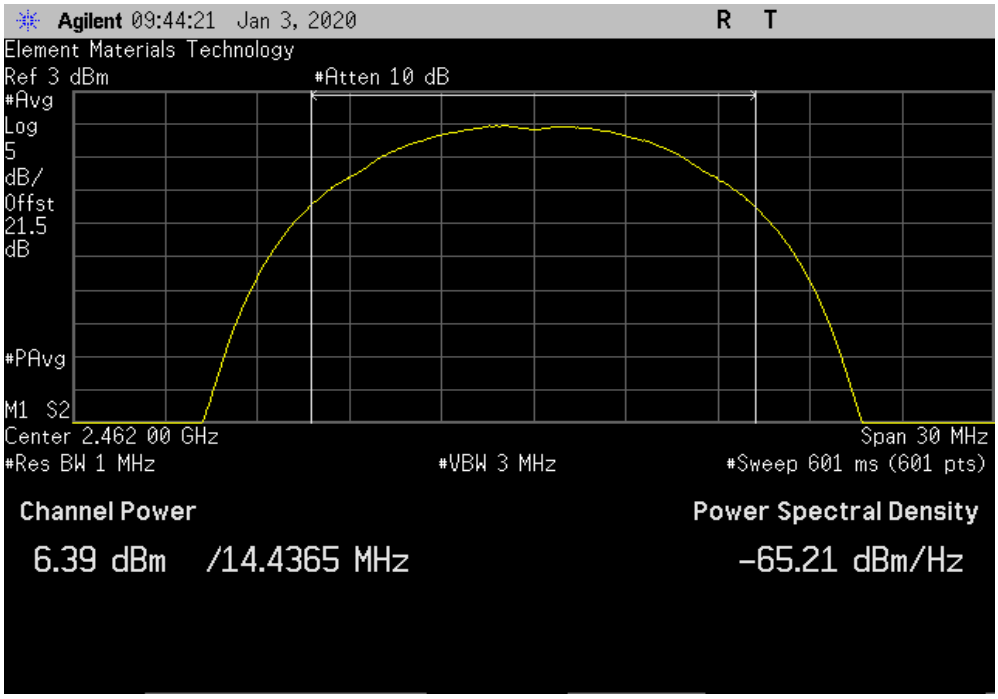
# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Result |
| 6.865 | 2.3 | 9.1 | 0.5 | 9.6 | 36 | Pass |



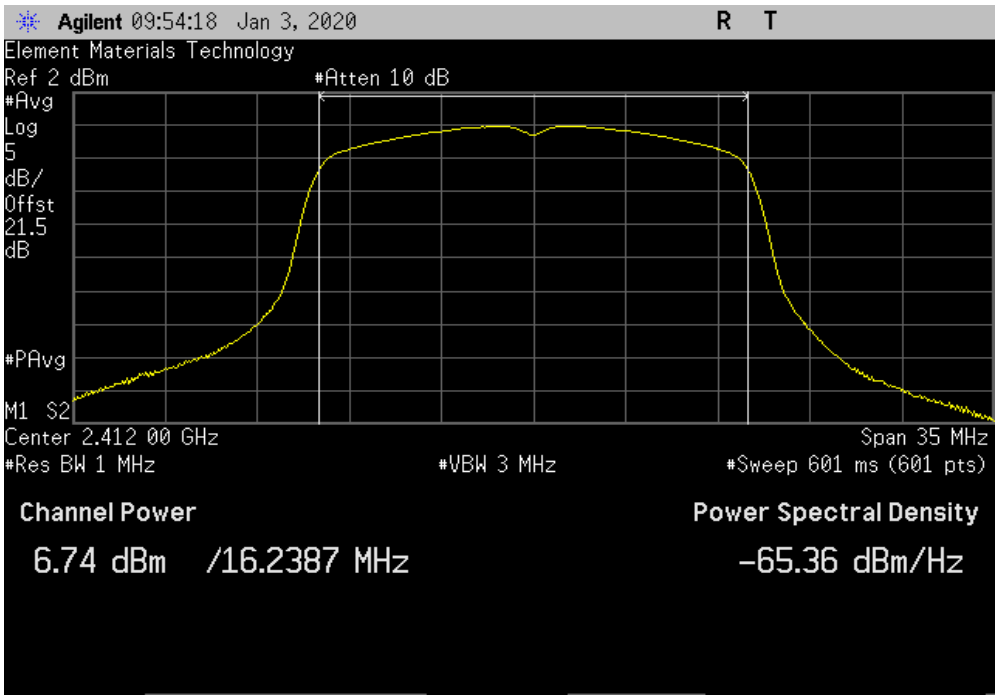

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Result |
| 6.385 | 2.3 | 8.7 | 0.5 | 9.2 | 36 | Pass |



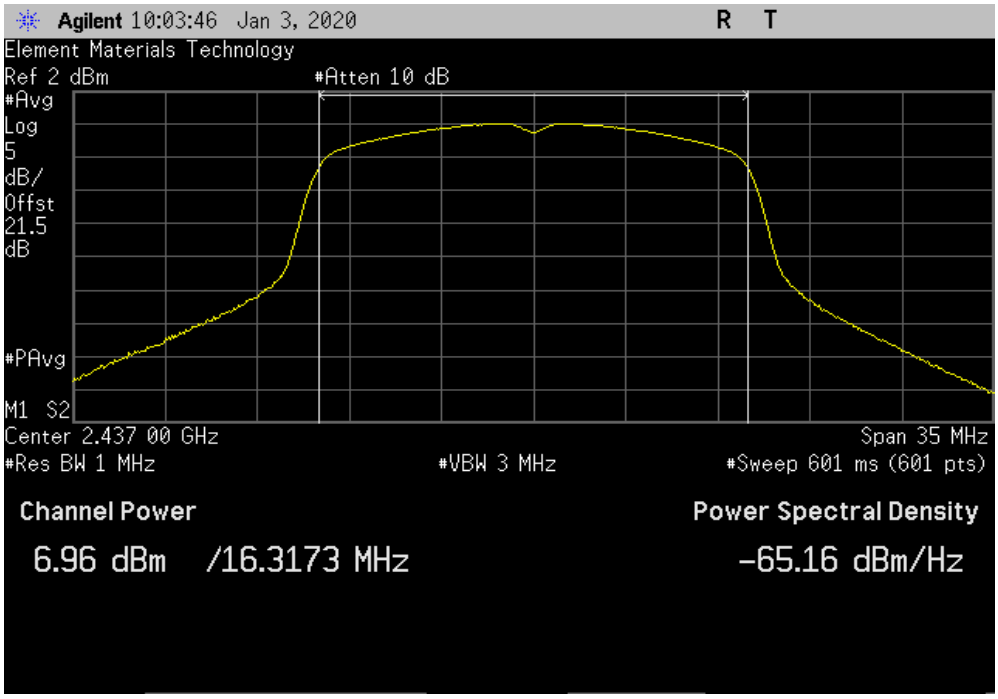
# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Result |
| 6.741 | 1.9 | 8.6 | 0.5 | 9.1 | 36 | Pass |



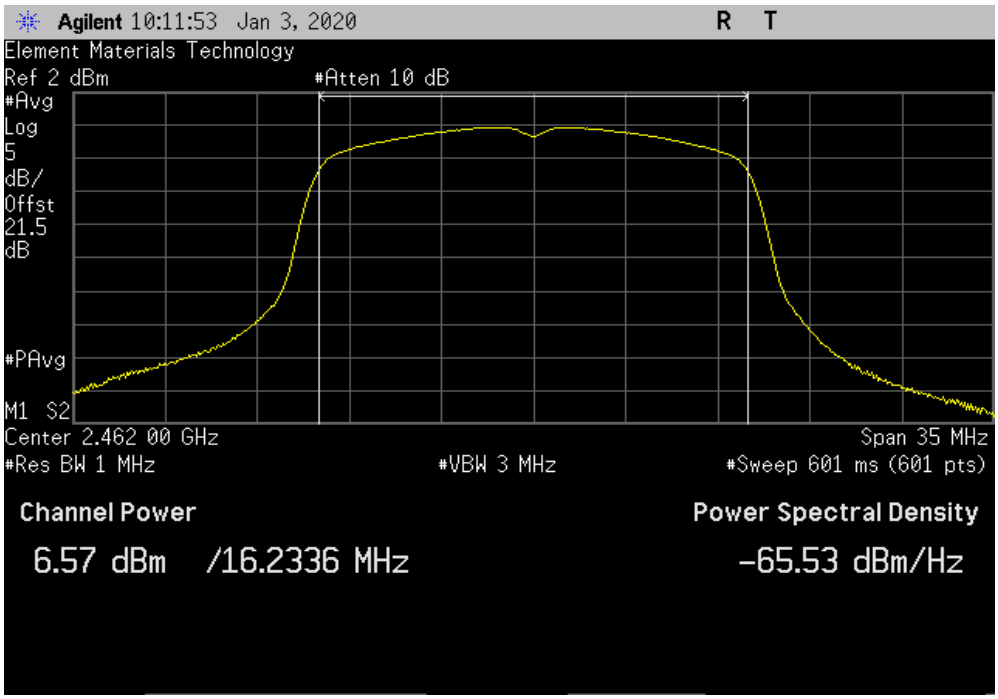

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Result |
| 6.962 | 1.9 | 8.9 | 0.5 | 9.4 | 36 | Pass |



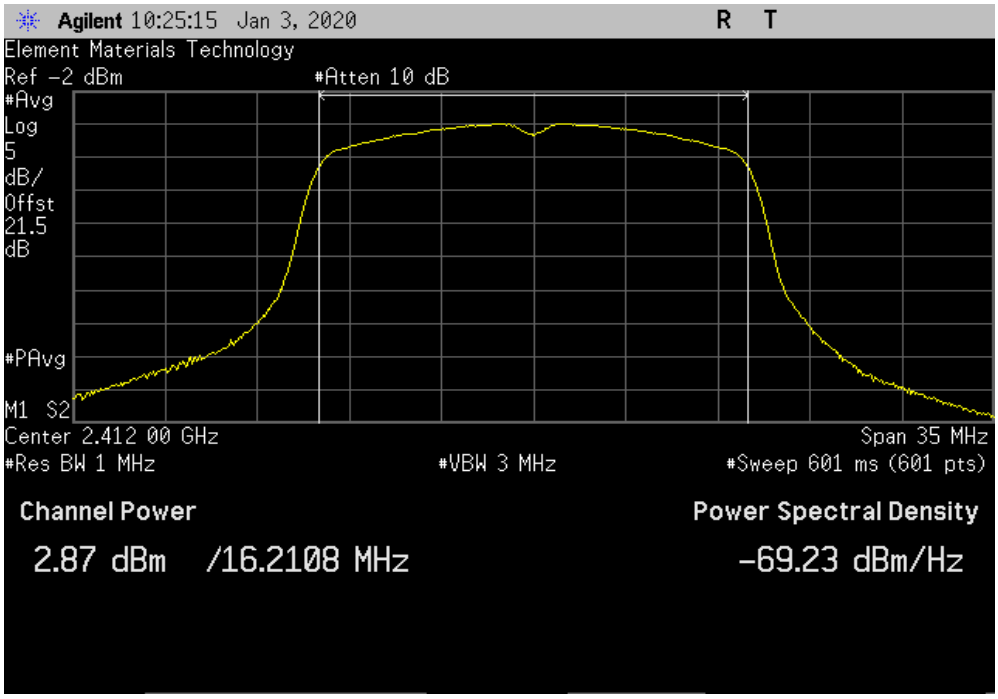
# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Result |
| 6.575 | 1.9 | 8.5 | 0.5 | 9 | 36 | Pass |



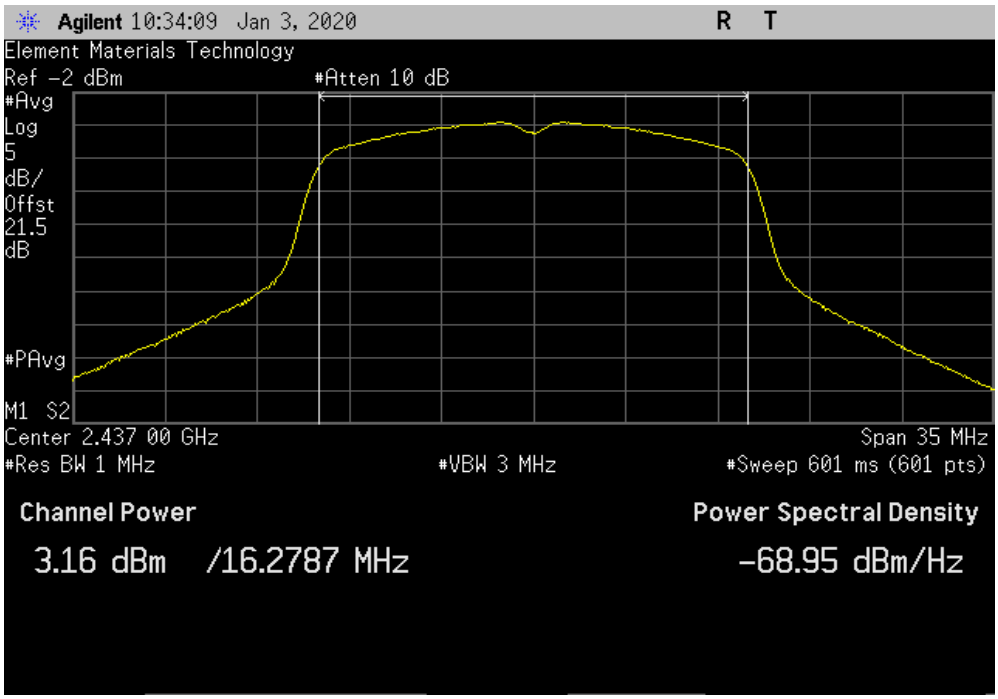

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Result |
| 2.873 | 5.8 | 8.7 | 0.5 | 9.2 | 36 | Pass |



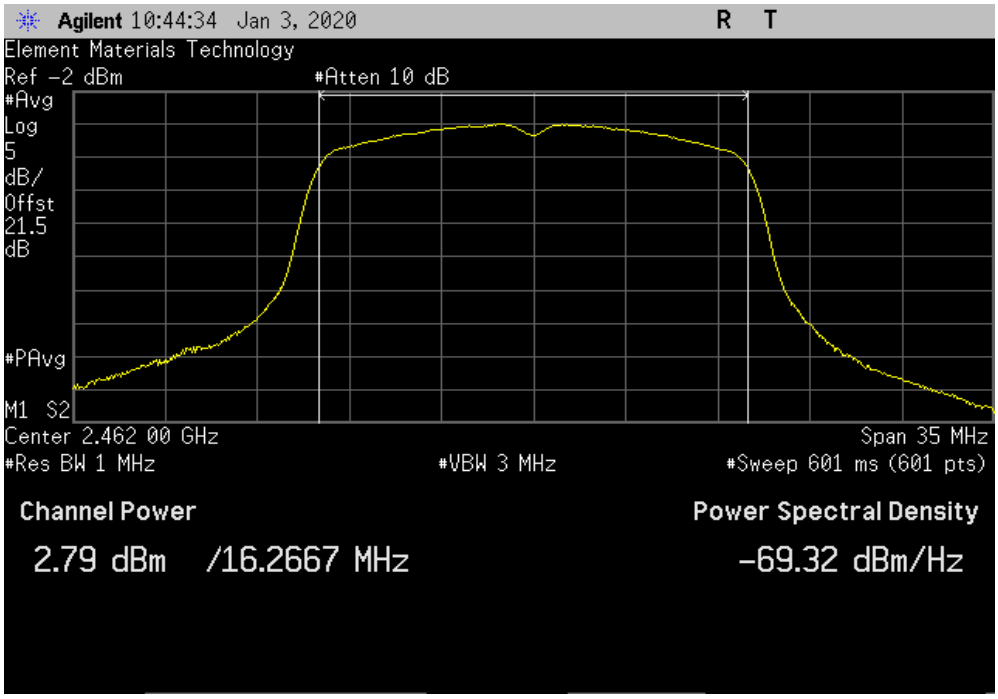
# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Result |
| 3.164 | 5.8 | 9 | 0.5 | 9.5 | 36 | Pass |



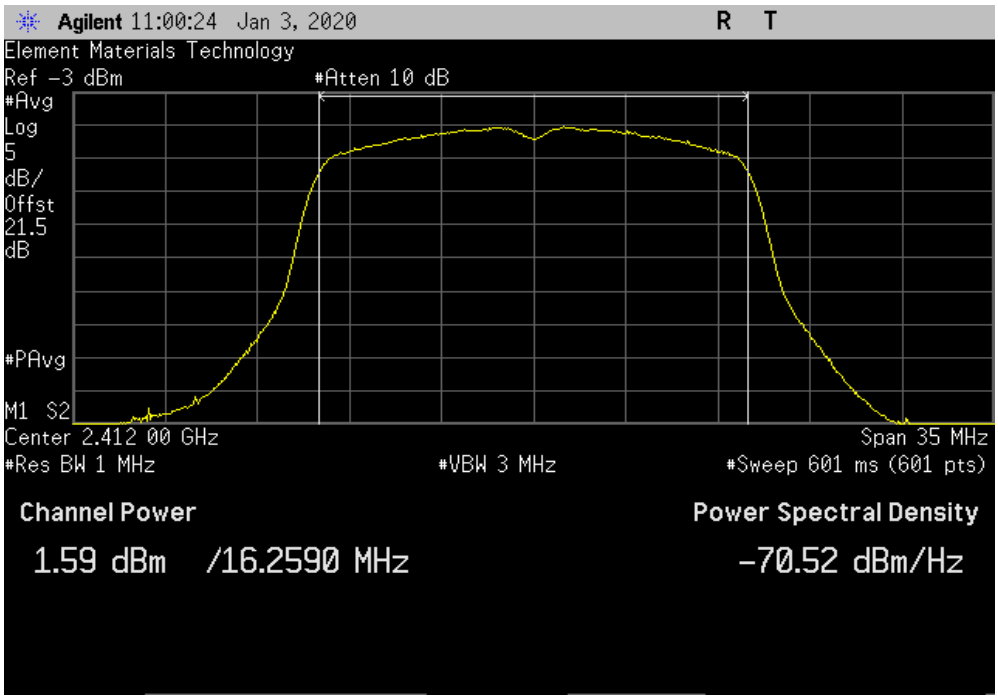

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Result |
| 2.79 | 5.9 | 8.7 | 0.5 | 9.2 | 36 | Pass |



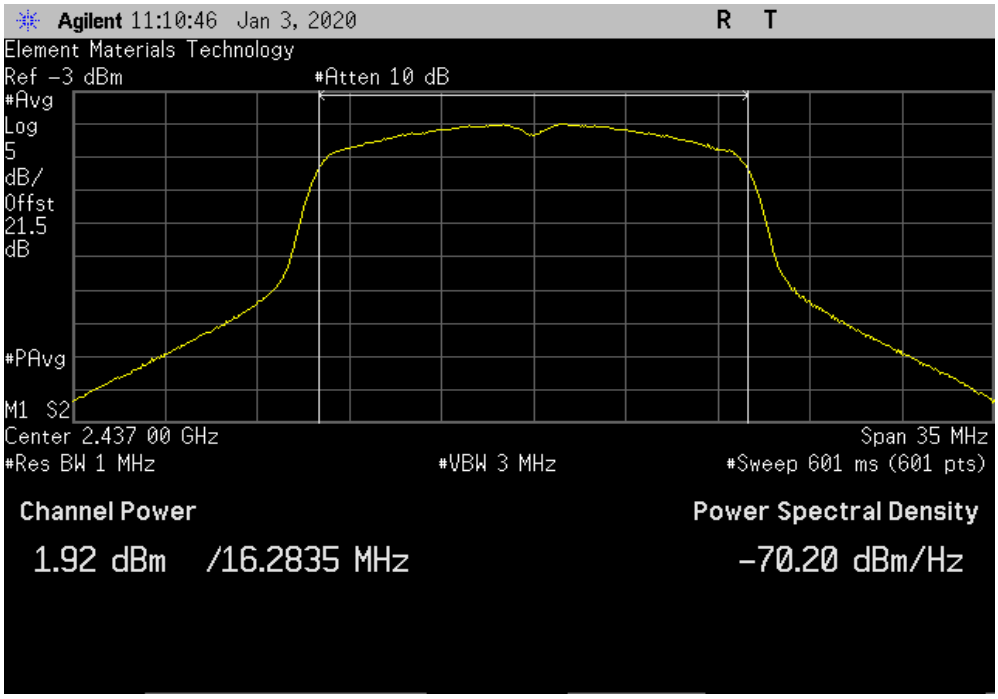
# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Result |
| 1.589 | 7 | 8.6 | 0.5 | 9.1 | 36 | Pass |



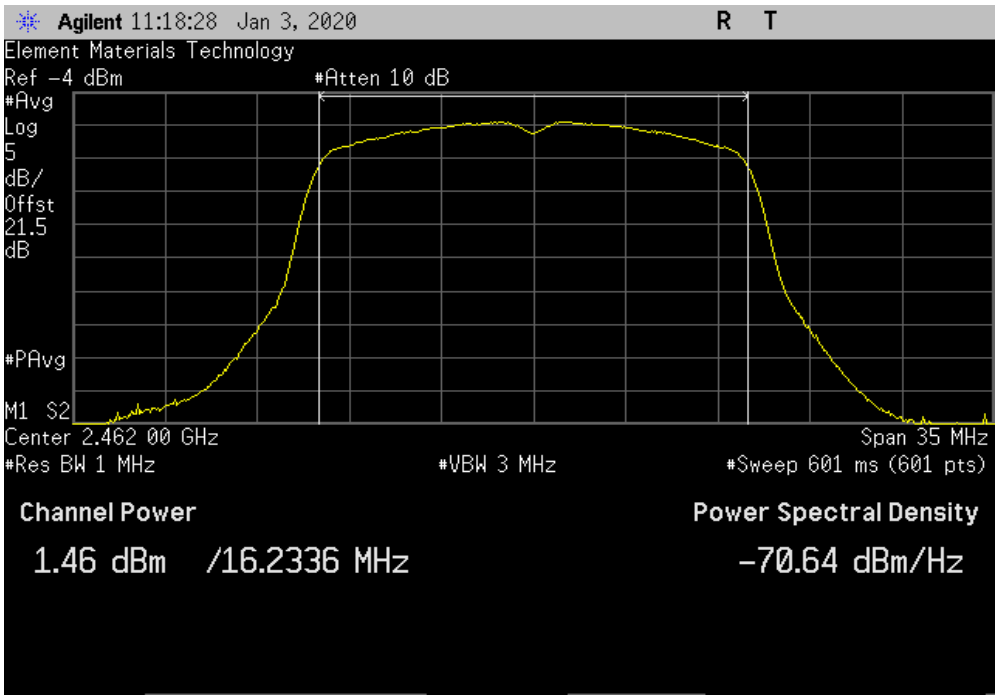

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Result |
| 1.922 | 7 | 9 | 0.5 | 9.5 | 36 | Pass |



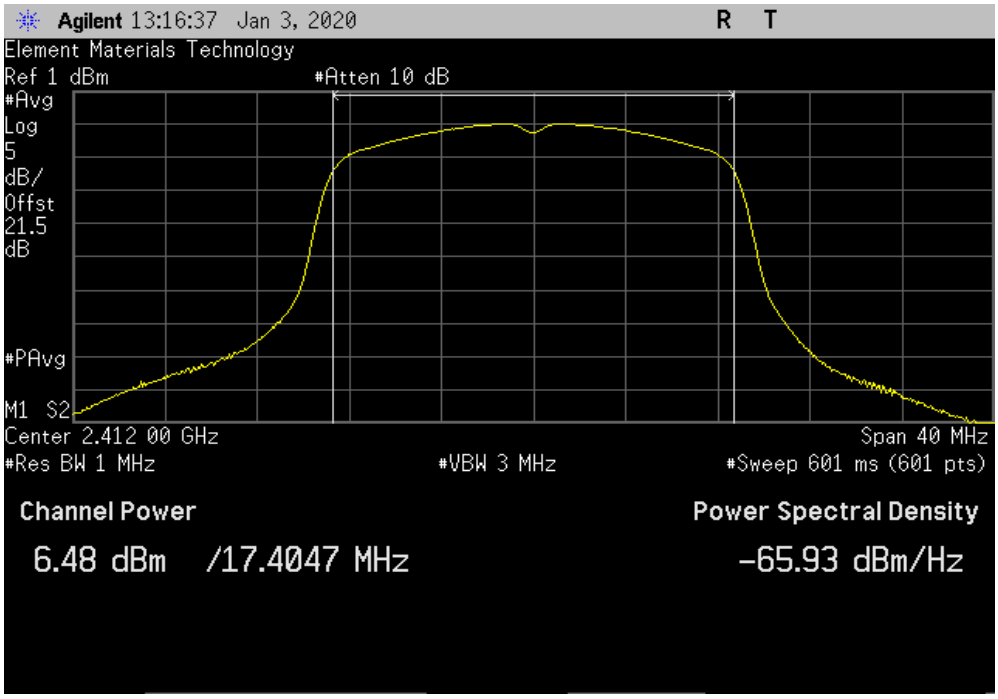
# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Result |
| 1.461 | 6.9 | 8.4 | 0.5 | 8.9 | 36 | Pass |



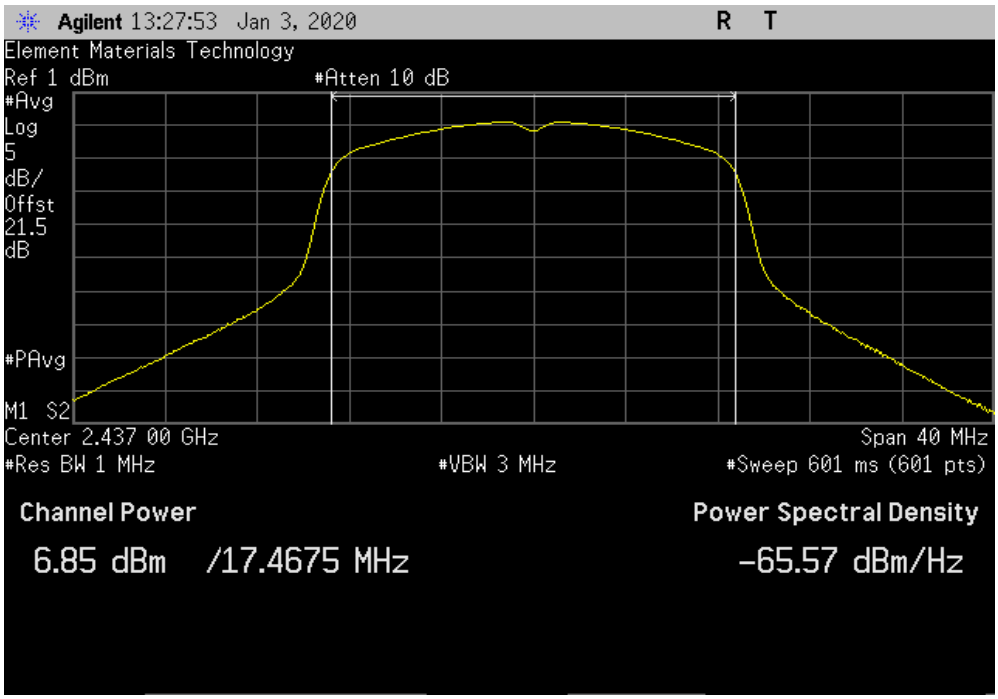

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Result |
| 6.476 | 2.1 | 8.6 | 0.5 | 9.1 | 36 | Pass |



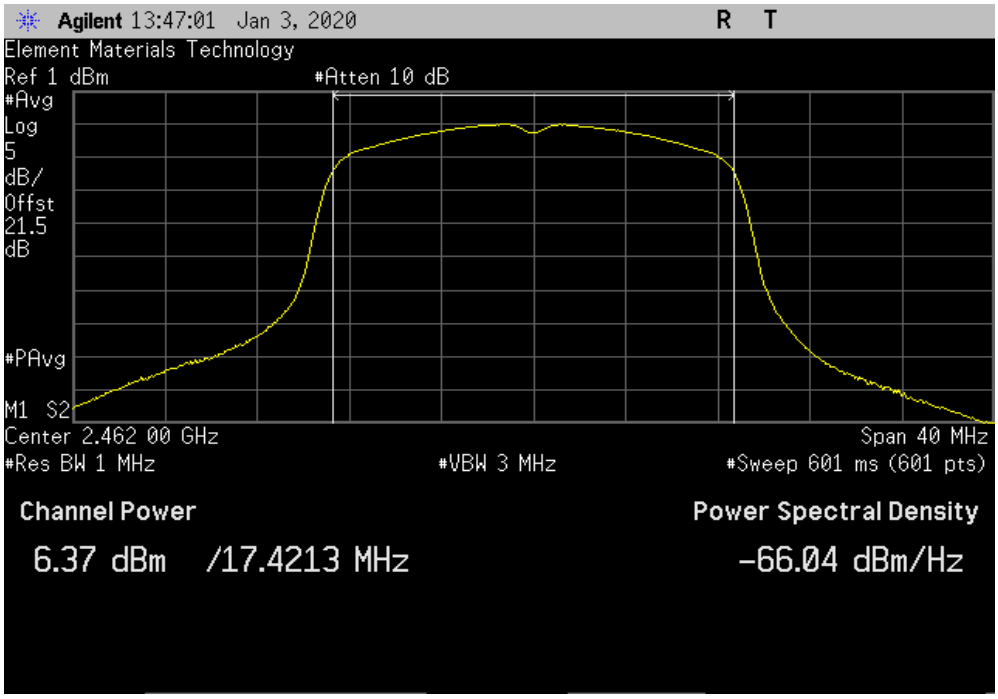
# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Result |
| 6.847 | 2.1 | 9 | 0.5 | 9.5 | 36 | Pass |



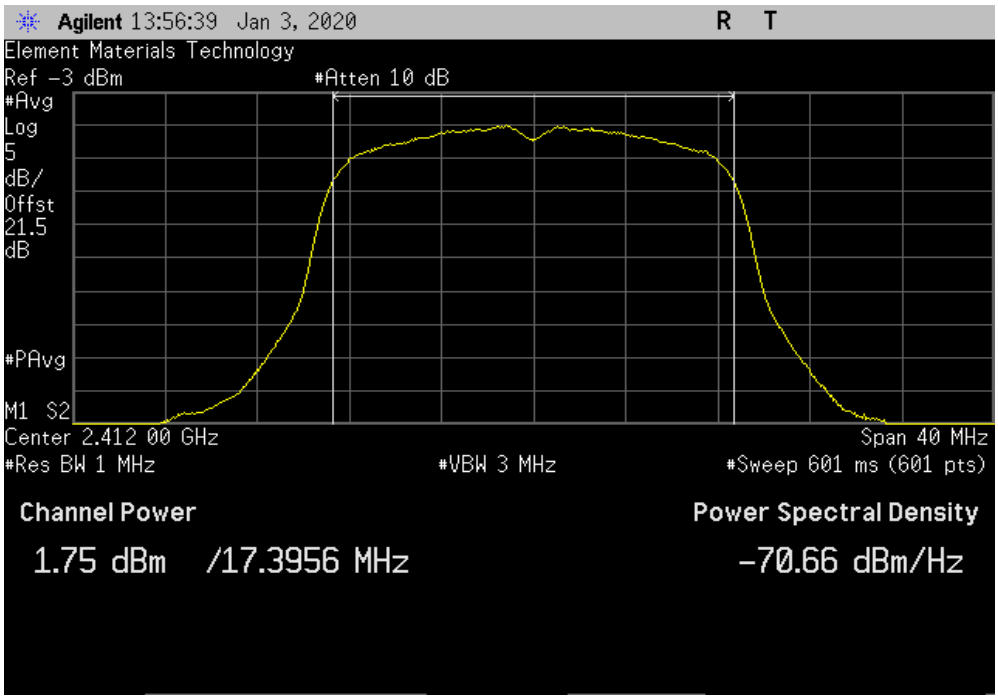

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Result |
| 6.371 | 2.1 | 8.5 | 0.5 | 9 | 36 | Pass |



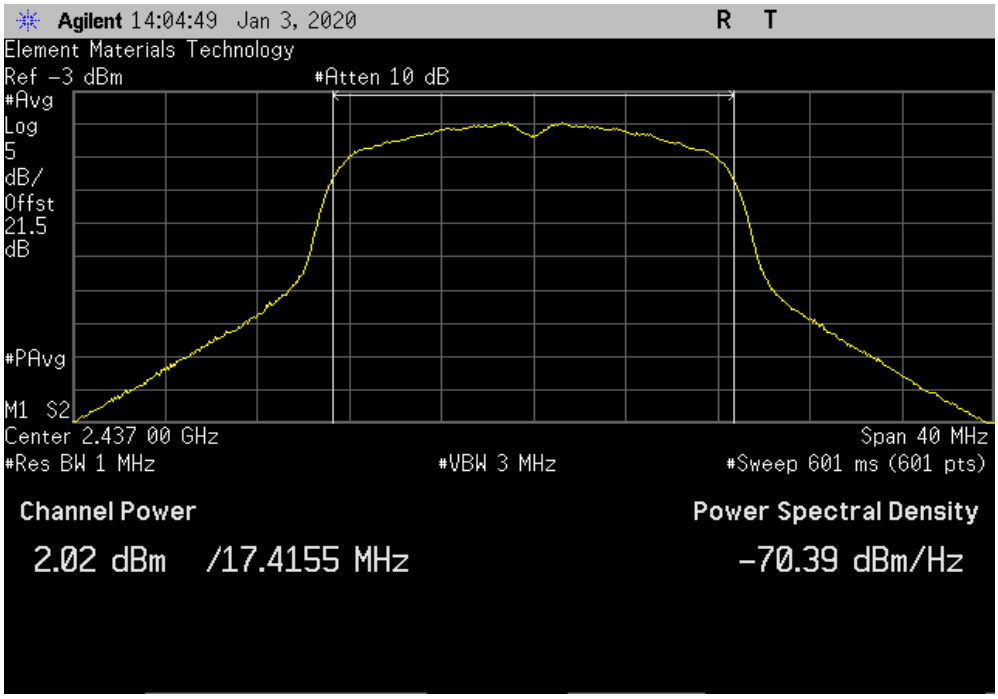
# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Result |
| 1.748 | 7.1 | 8.8 | 0.5 | 9.3 | 36 | Pass |



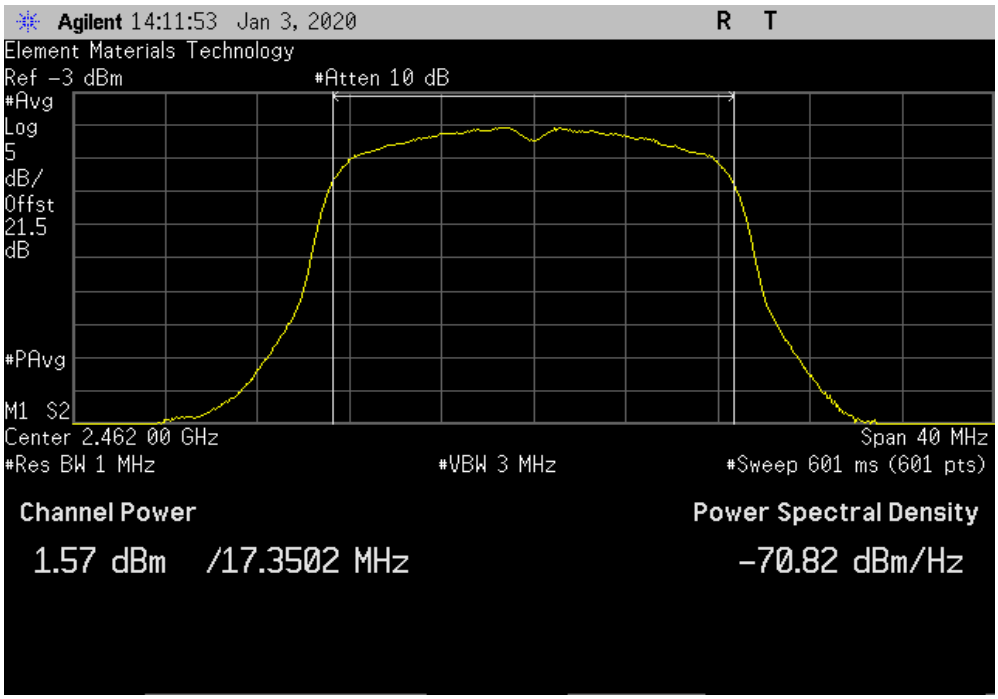

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Result |
| 2.022 | 7.1 | 9.1 | 0.5 | 9.6 | 36 | Pass |



# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

TbtTx 2019.08.30.0 XMit 2019.09.05

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| Avg Cond Pwr (dBm) | Duty Cycle Factor (dB) | Out Pwr (dBm) | Antenna Gain (dBi) | EIRP (dBm) | EIRP Limit (dBm) | Result |
| 1.571 | 7.1 | 8.6 | 0.5 | 9.1 | 36 | Pass |



# POWER SPECTRAL DENSITY

XMit 2019.09.05

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

**TEST EQUIPMENT**

| Description | Manufacturer | Model | ID | Last Cal. | Cal. Due |
|---|---|---|---|---|---|
| Meter - Multimeter | Tektronix | DMM912 | MMH | 15-Feb-19 | 15-Feb-22 |
| Power Supply - DC | Dr. Meter | PS-305DM | TZZ | NCR | NCR |
| Generator - Signal | Keysight | N5182B | TFU | 5-Nov-18 | 5-Nov-21 |
| Cable | Micro-Coax | UFD150A-1-0720-200200 | EVH | 28-Mar-19 | 28-Mar-20 |
| Attenuator | S.M. Electronics | SA26B-20 | AUY | 28-Mar-19 | 28-Mar-20 |
| Terminator | S.M. Electronics | ST2B | AWM | 9-Apr-19 | 9-Apr-20 |
| Analyzer - Spectrum Analyzer | Agilent | E4440A | AFA | 12-Feb-19 | 12-Feb-20 |

**TEST DESCRIPTION**

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The maximum power spectral density measurements was measured using the channels and modes as called out on the following data sheets.

Per the procedure outlined in ANSI C63.10 the peak power spectral density was measured in a 3 kHz RBW.

# POWER SPECTRAL DENSITY

element

TbtTx 2019.08.30.0 XMit 2019.09.05

| | | | | | |
|---|---|---|---|---|---|
| **EUT:** | **CCU-2** | | | **Work Order:** | **POLR0058** |
| **Serial Number:** | **Unit #6** | | | **Date:** | **3-Jan-20** |
| **Customer:** | **Polaris Industries, Inc.** | | | **Temperature:** | **21.5 °C** |
| **Attendees:** | **Wayne Rieger** | | | **Humidity:** | **40.6% RH** |
| **Project:** | **None** | | | **Barometric Pres.:** | **1016 mbar** |
| **Tested by:** | **Brandon Hobbs** | **Power:** | **14VDC** | **Job Site:** | **EV06** |

| **TEST SPECIFICATIONS** | **Test Method** |
|---|---|
| **FCC 15.247:2020** | ANSI C63.10:2013 |

**COMMENTS**

**All losses through the measurement path were accounted for. The Power level was set to a client software setting of 10000.**

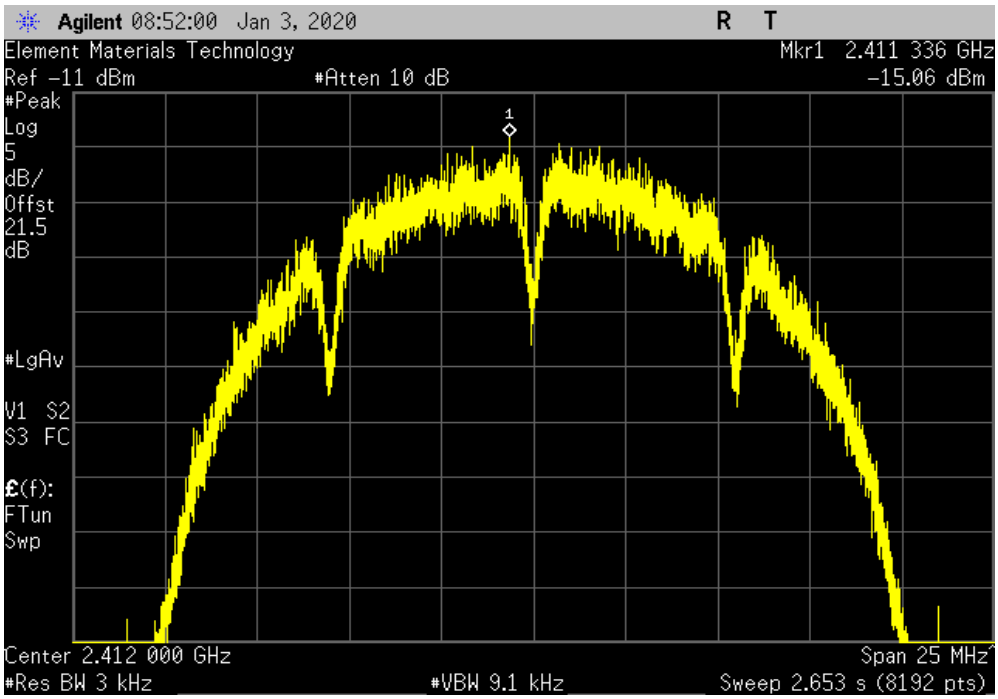
**DEVIATIONS FROM TEST STANDARD**

**None**

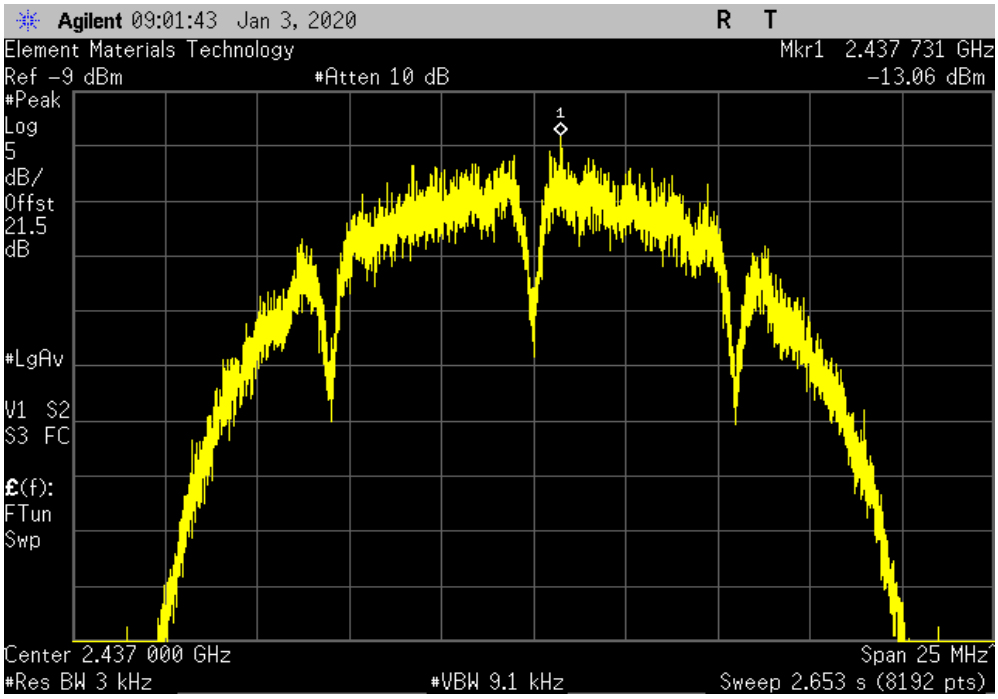
| **Configuration #** | **4** | *Signature* |
|---|---|---|

| | **Value dBm/3kHz** | **Limit < dBm/3kHz** | **Results** |
|---|---|---|---|
| 2400 MHz - 2483.5 MHz Band | | | |
| 802.11(b) 1 Mbps | | | |
| Low Channel 1, 2412 MHz | -15.061 | 8 | Pass |
| Mid Channel 6, 2437 MHz | -13.055 | 8 | Pass |
| High Channel 11, 2462 MHz | -13.072 | 8 | Pass |
| 802.11(b) 11 Mbps | | | |
| Low Channel 1, 2412 MHz | -14.974 | 8 | Pass |
| Mid Channel 6, 2437 MHz | -14.441 | 8 | Pass |
| High Channel 11, 2462 MHz | -15.083 | 8 | Pass |
| 802.11(g) 6 Mbps | | | |
| Low Channel 1, 2412 MHz | -16.427 | 8 | Pass |
| Mid Channel 6, 2437 MHz | -16.304 | 8 | Pass |
| High Channel 11, 2462 MHz | -16.675 | 8 | Pass |
| 802.11(g) 36 Mbps | | | |
| Low Channel 1, 2412 MHz | -16.674 | 8 | Pass |
| Mid Channel 6, 2437 MHz | -17.041 | 8 | Pass |
| High Channel 11, 2462 MHz | -16.928 | 8 | Pass |
| 802.11(g) 54 Mbps | | | |
| Low Channel 1, 2412 MHz | -19.015 | 8 | Pass |
| Mid Channel 6, 2437 MHz | -18.158 | 8 | Pass |
| High Channel 11, 2462 MHz | -18.558 | 8 | Pass |
| 802.11(n) MCS0 | | | |
| Low Channel 1, 2412 MHz | -16.24 | 8 | Pass |
| Mid Channel 6, 2437 MHz | -15.051 | 8 | Pass |
| High Channel 11, 2462 MHz | -17.072 | 8 | Pass |
| 802.11(n) MCS7 | | | |
| Low Channel 1, 2412 MHz | -17.946 | 8 | Pass |
| Mid Channel 6, 2437 MHz | -18.177 | 8 | Pass |
| High Channel 11, 2462 MHz | -18.672 | 8 | Pass |

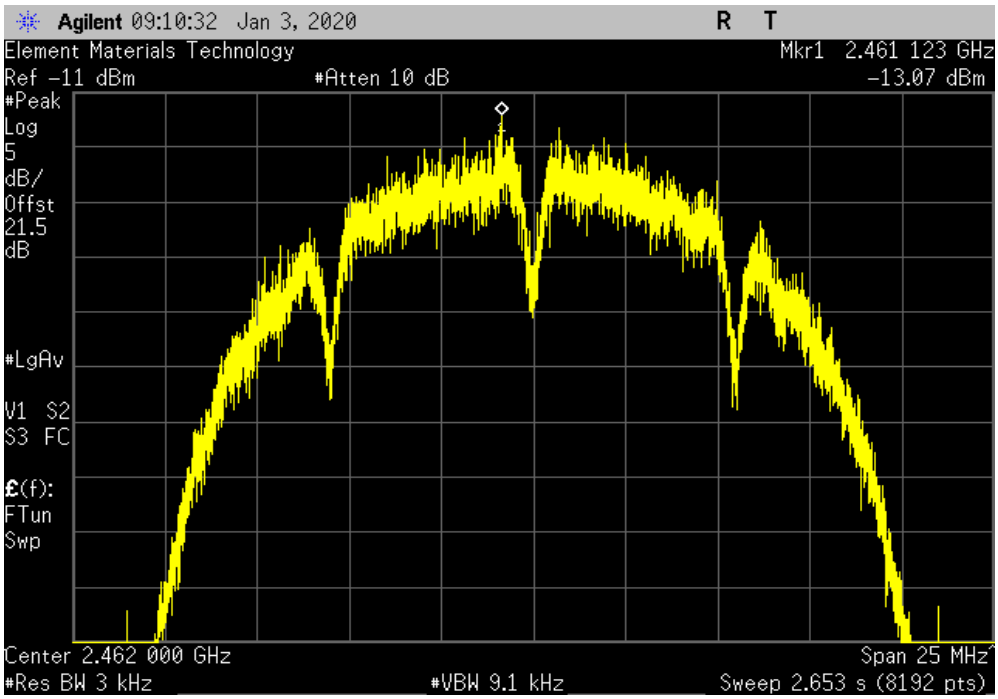
| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value dBm/3kHz | Limit < dBm/3kHz | Results |
| | | | | -15.061 | 8 | Pass |



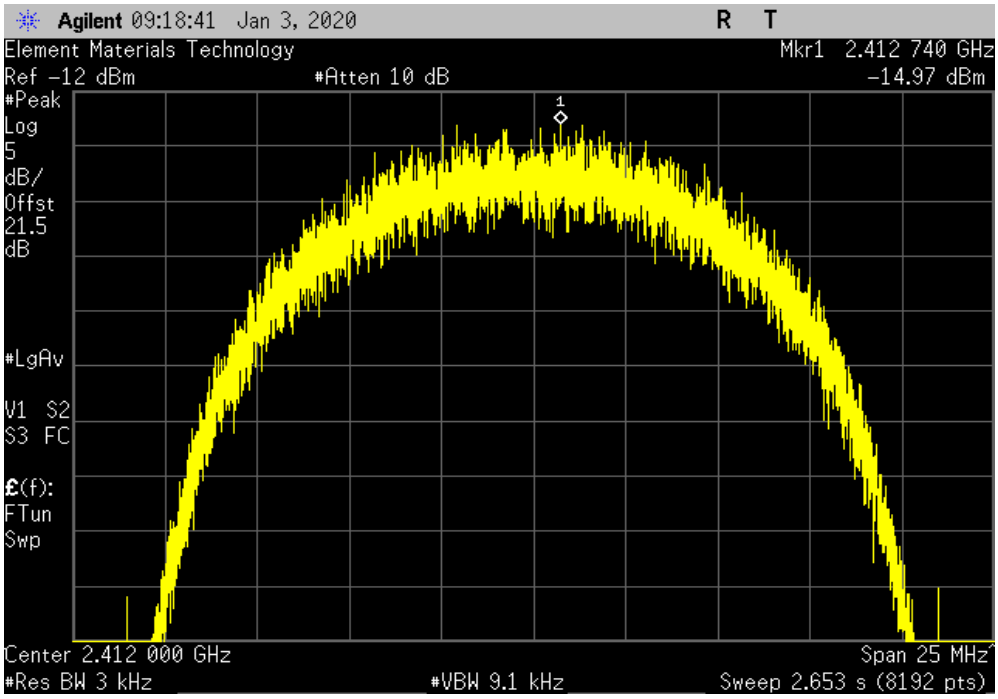

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value dBm/3kHz | Limit < dBm/3kHz | Results |
| | | | | -13.055 | 8 | Pass |



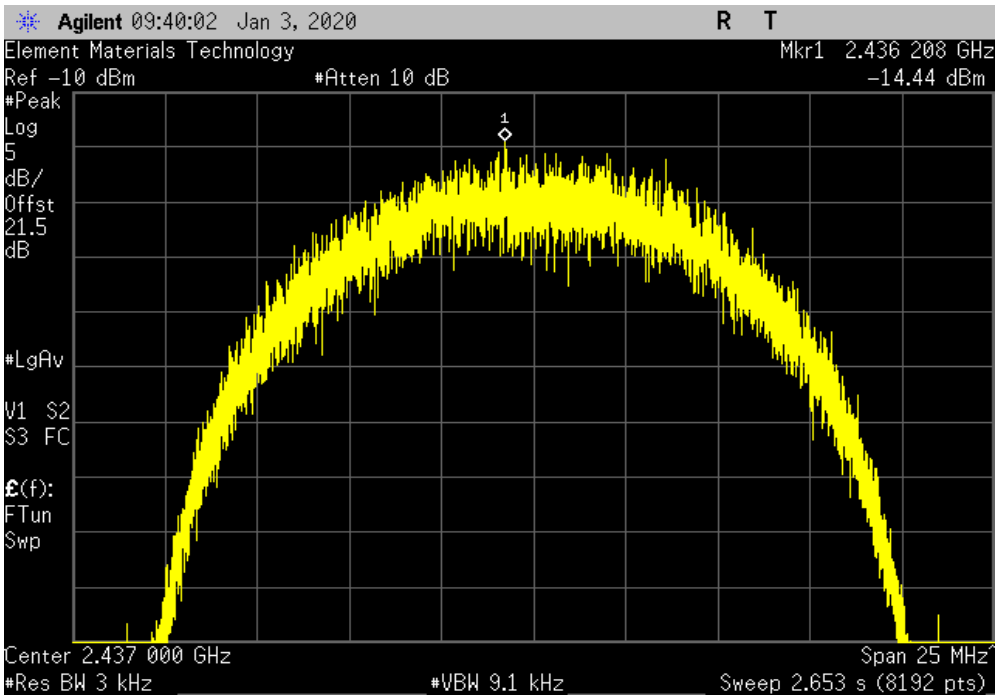
| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value dBm/3kHz | Limit < dBm/3kHz | Results |
| | | | | -13.072 | 8 | Pass |



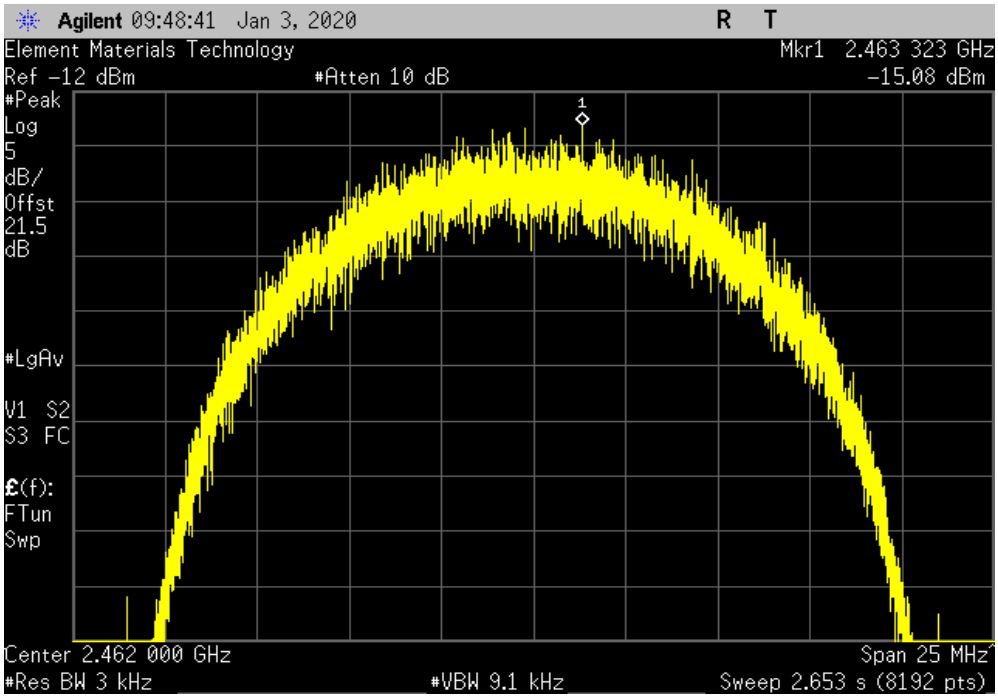

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value dBm/3kHz | Limit < dBm/3kHz | Results |
| | | | | -14.974 | 8 | Pass |



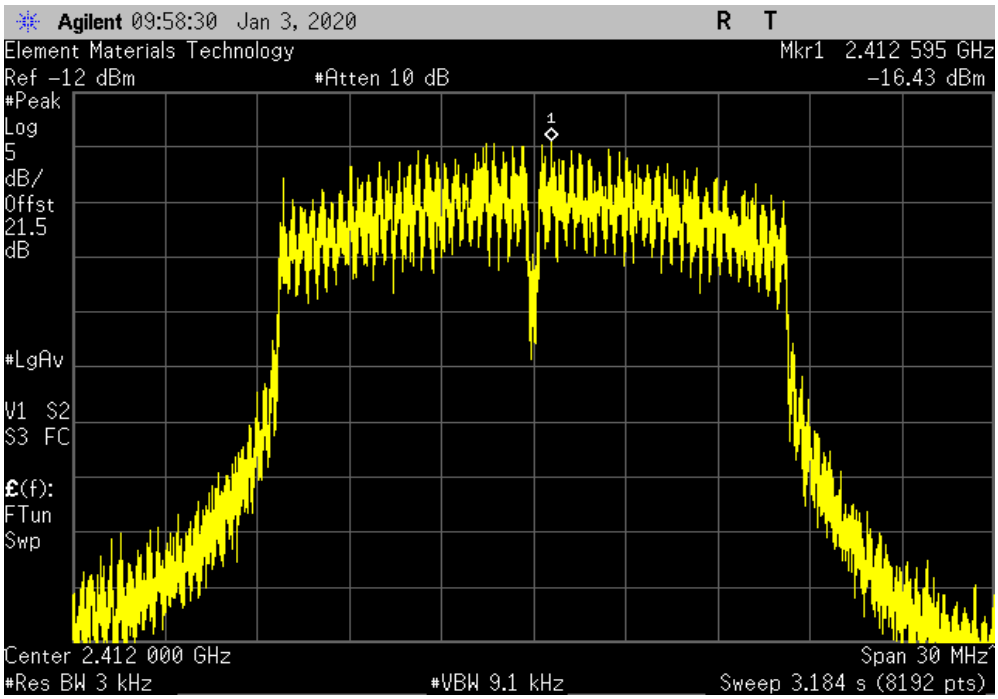
| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value dBm/3kHz | Limit < dBm/3kHz | Results |
| | | | | -14.441 | 8 | Pass |



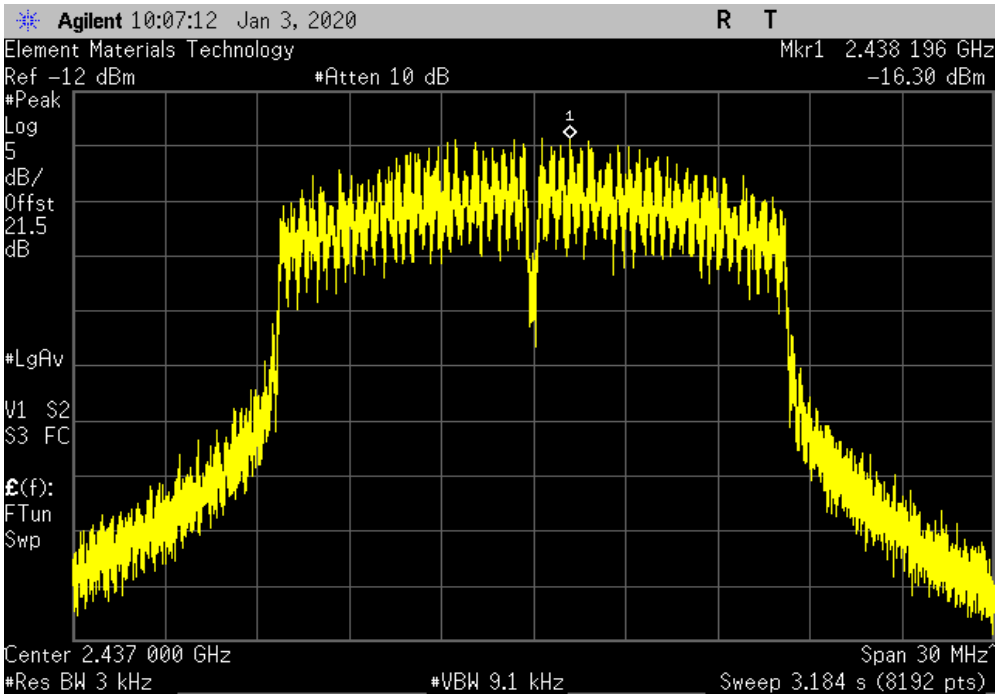

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value dBm/3kHz | Limit < dBm/3kHz | Results |
| | | | | -15.083 | 8 | Pass |



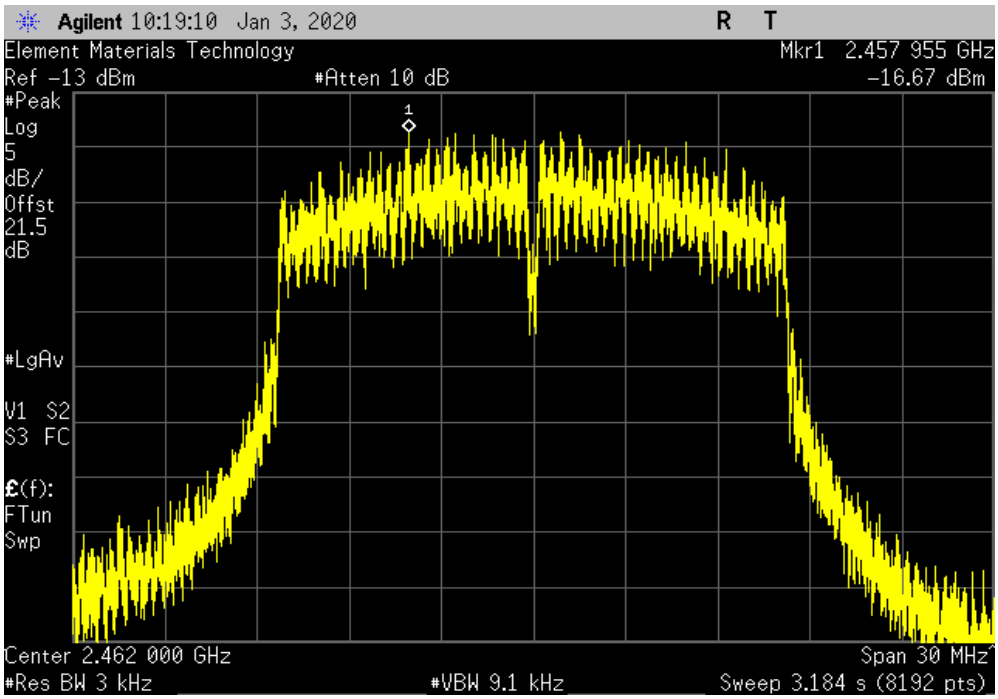
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value dBm/3kHz | Limit < dBm/3kHz | Results |
| | | | | -16.427 | 8 | Pass |



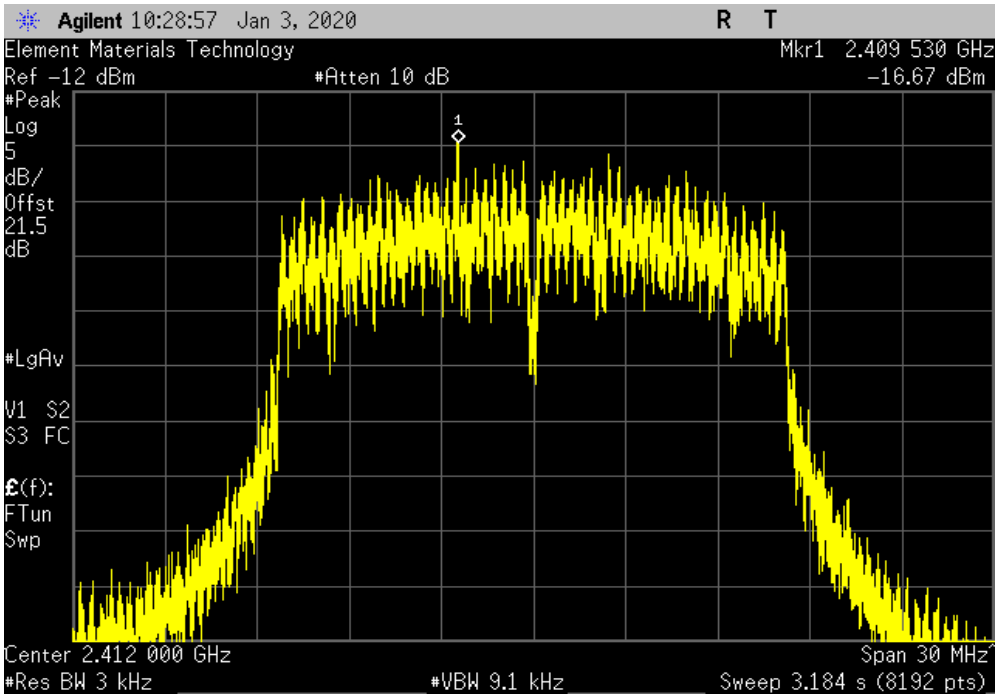

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value dBm/3kHz | Limit < dBm/3kHz | Results |
| | | | | -16.304 | 8 | Pass |



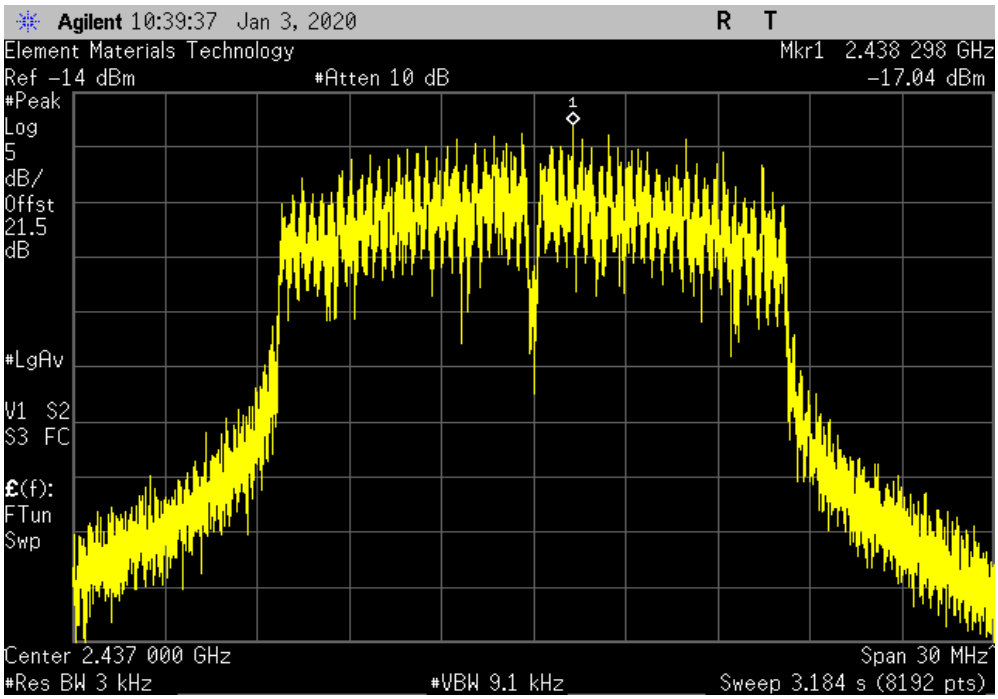
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value dBm/3kHz | Limit < dBm/3kHz | Results |
| | | | | -16.675 | 8 | Pass |



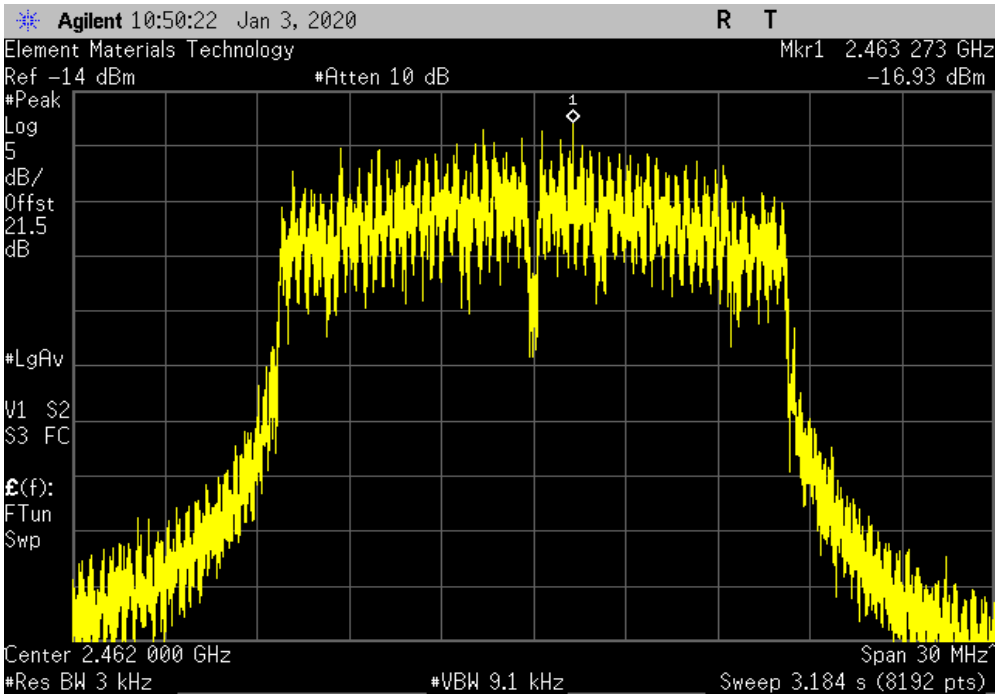

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value dBm/3kHz | Limit < dBm/3kHz | Results |
| | | | | -16.674 | 8 | Pass |



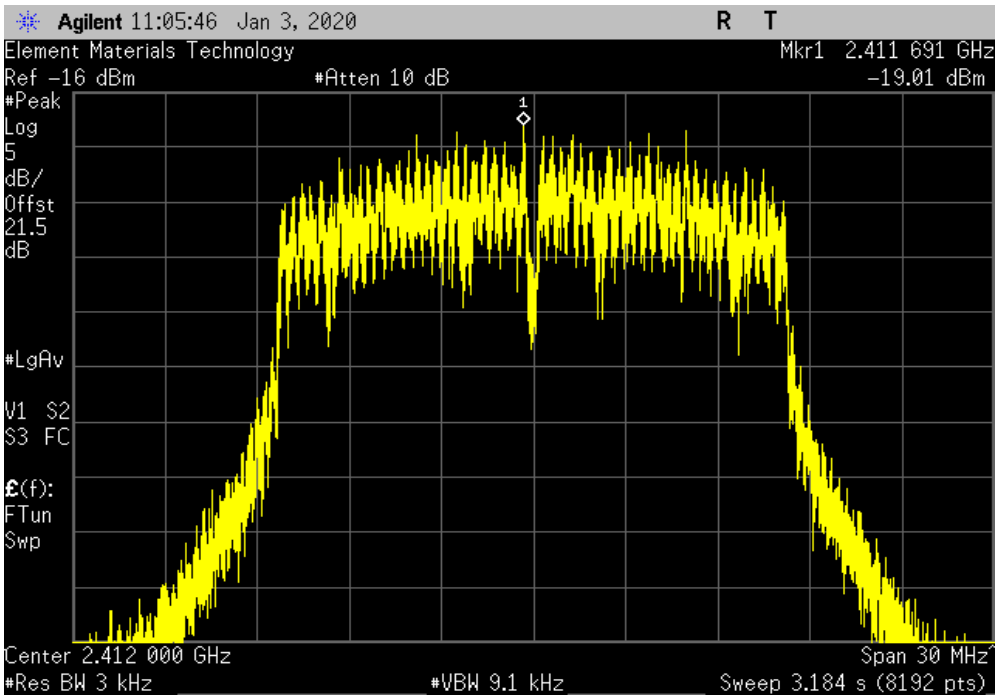
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value dBm/3kHz | Limit < dBm/3kHz | Results |
| | | | | -17.041 | 8 | Pass |



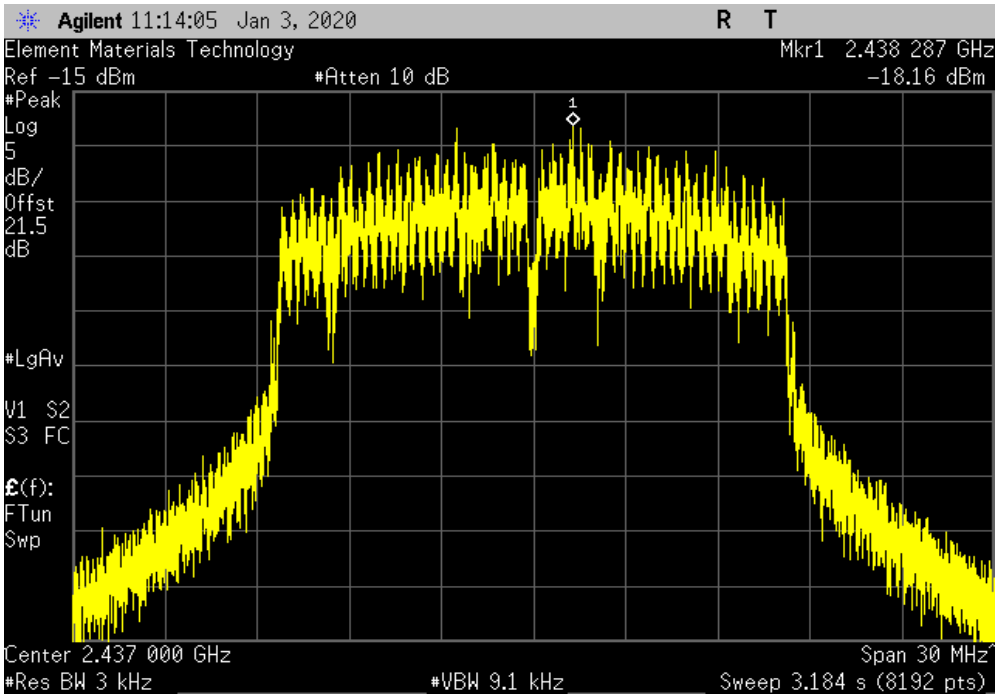

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value dBm/3kHz | Limit < dBm/3kHz | Results |
| | | | | -16.928 | 8 | Pass |



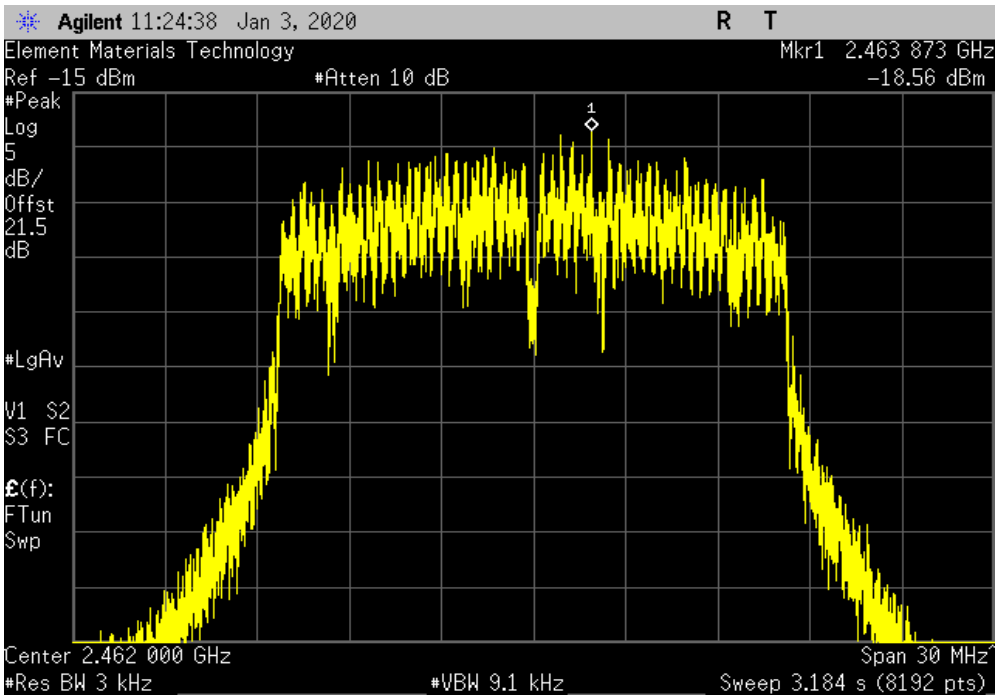
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value dBm/3kHz | Limit < dBm/3kHz | Results |
| | | | | -19.015 | 8 | Pass |



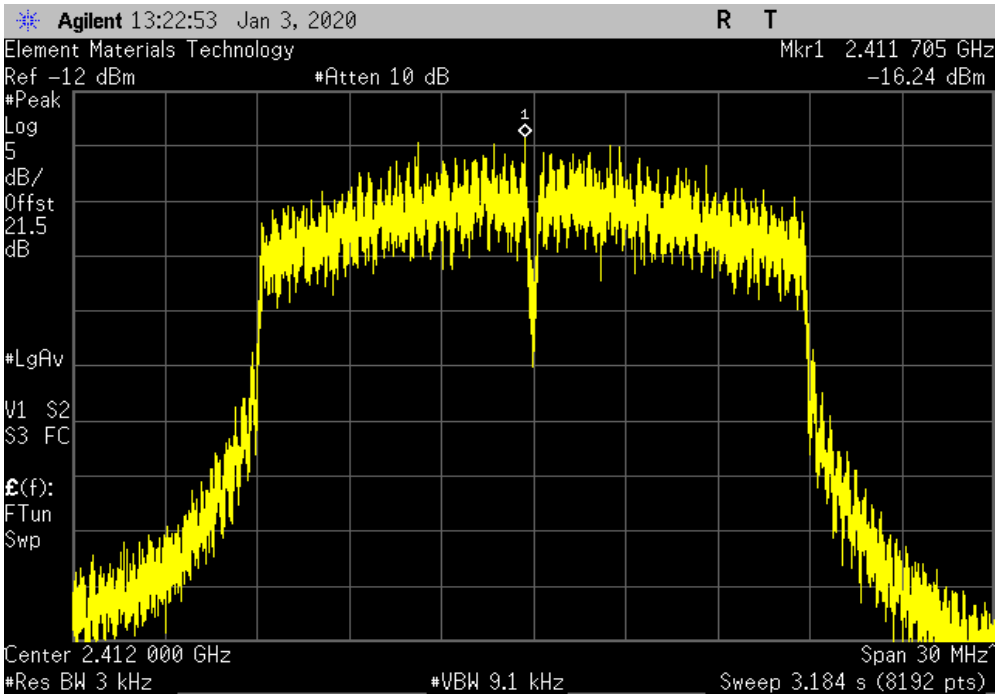

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value dBm/3kHz | Limit < dBm/3kHz | Results |
| | | | | -18.158 | 8 | Pass |



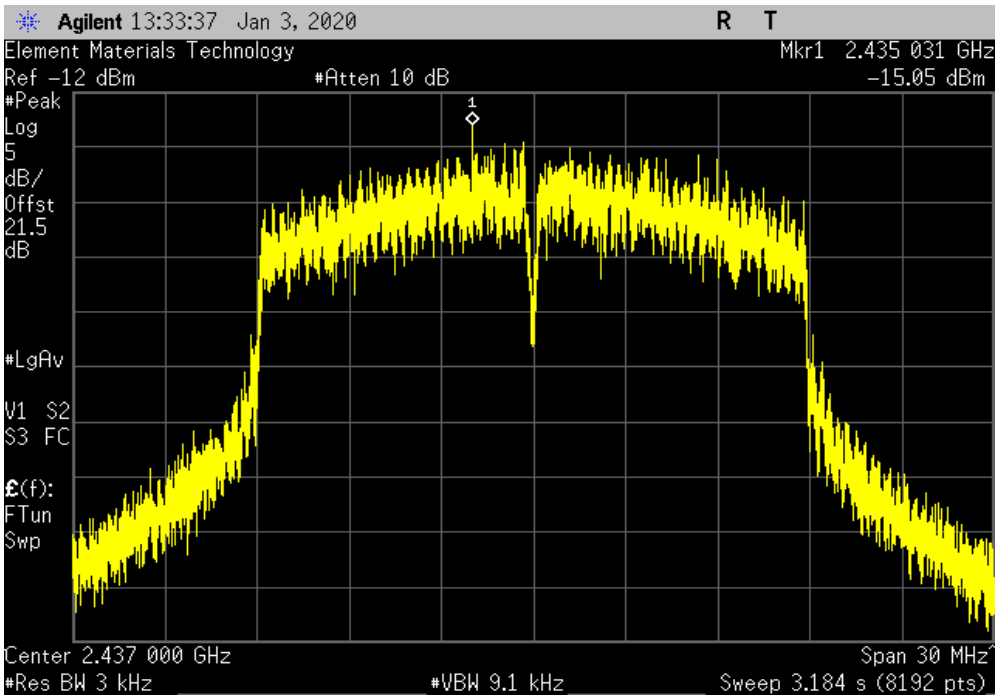
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value dBm/3kHz | Limit < dBm/3kHz | Results |
| | | | | -18.558 | 8 | Pass |



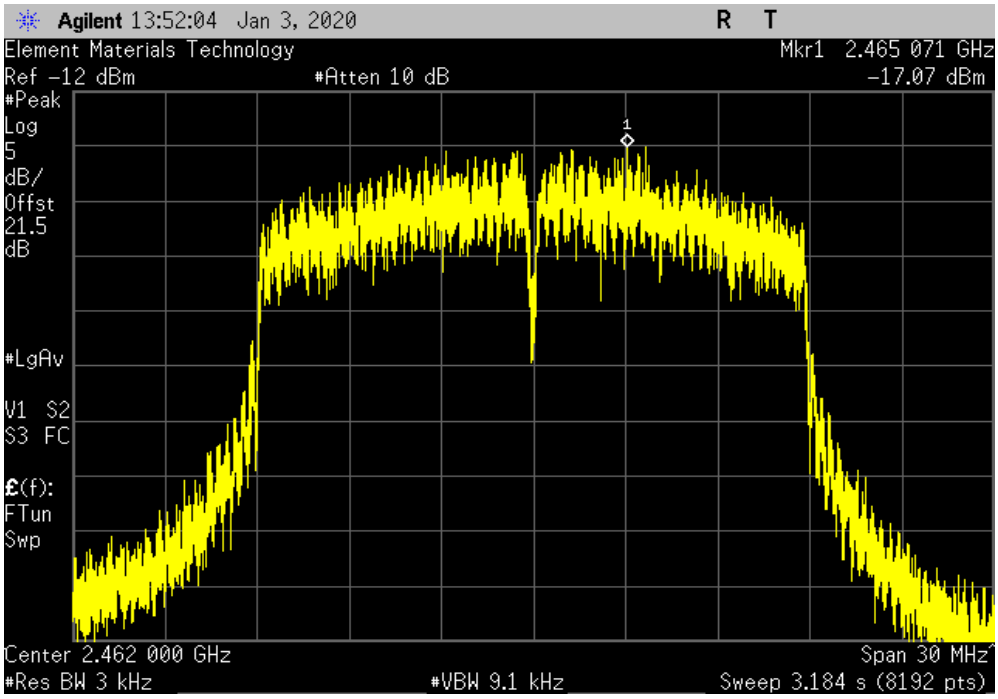

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value dBm/3kHz | Limit < dBm/3kHz | Results |
| | | | | -16.24 | 8 | Pass |



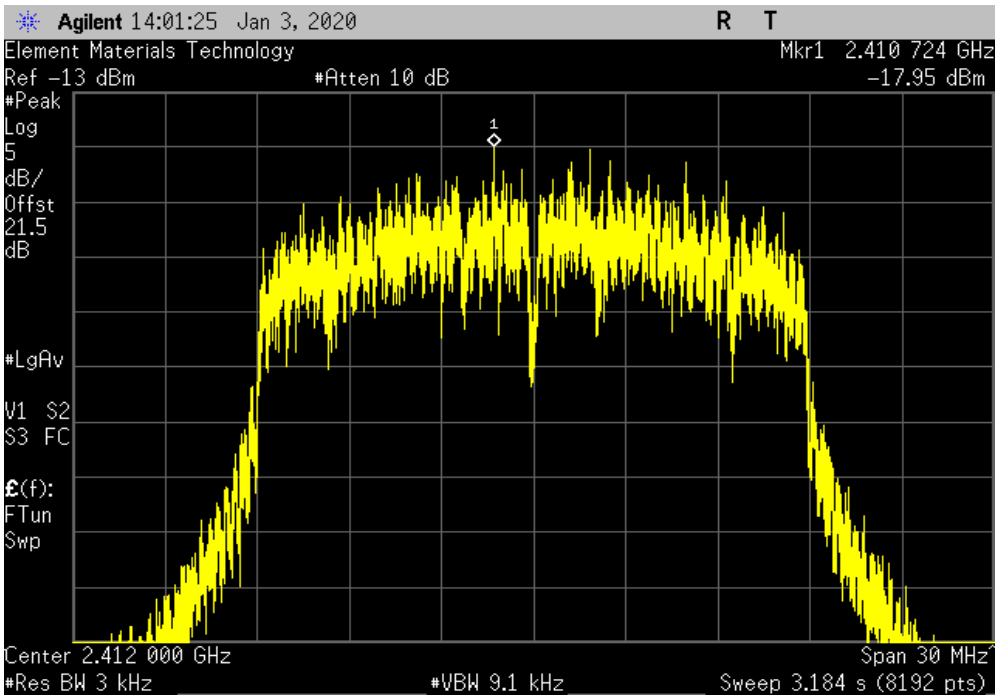
| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value dBm/3kHz | Limit < dBm/3kHz | Results |
| | | | | -15.051 | 8 | Pass |



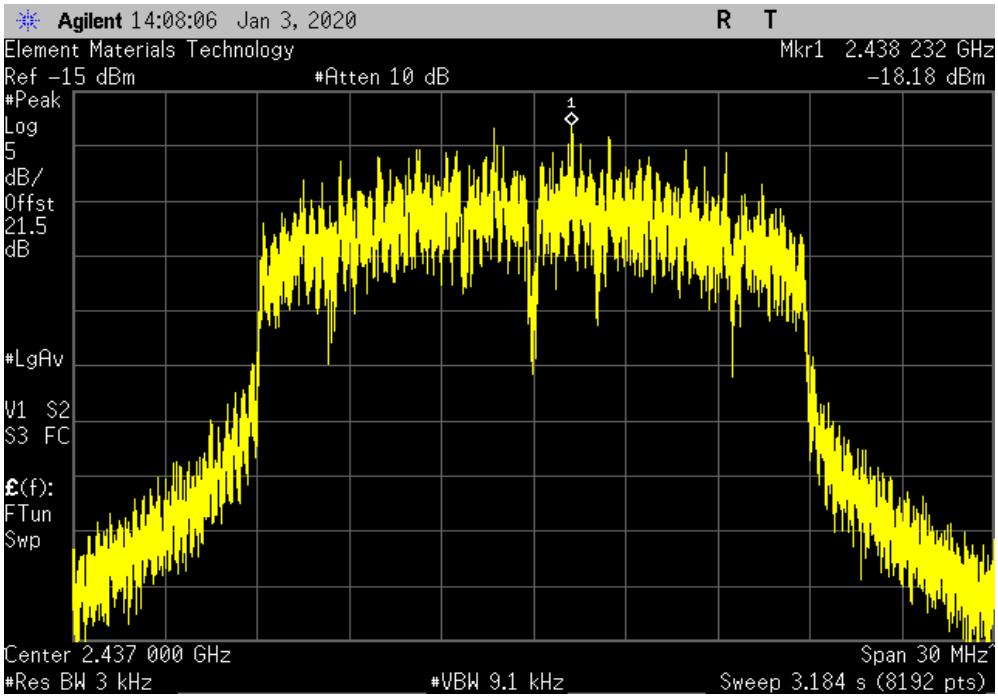

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value dBm/3kHz | Limit < dBm/3kHz | Results |
| | | | | -17.072 | 8 | Pass |



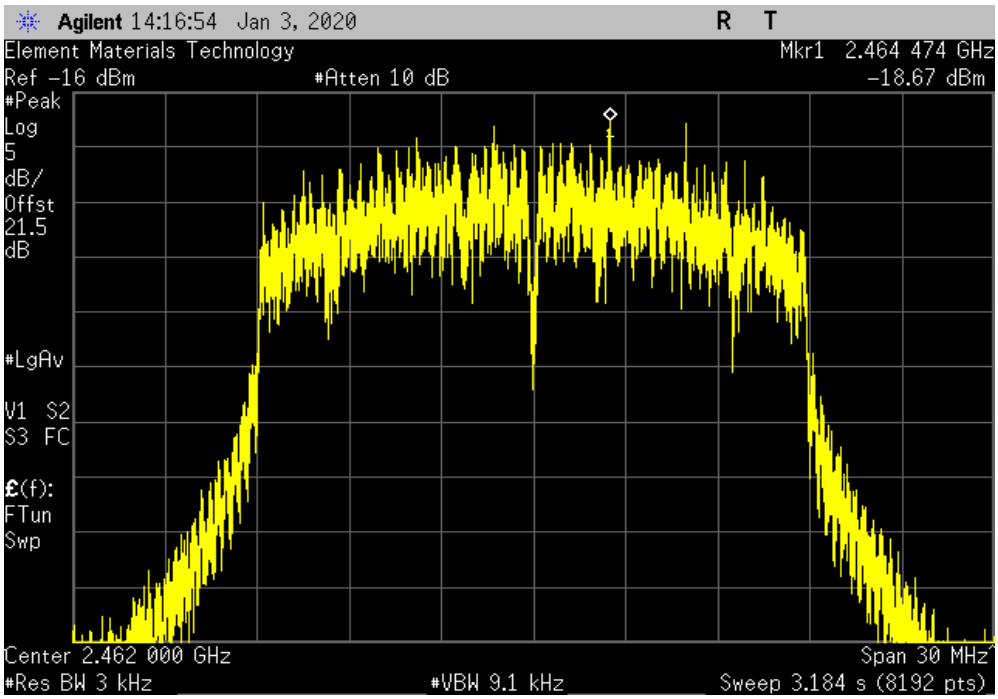
| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value dBm/3kHz | Limit < dBm/3kHz | Results |
| | | | | -17.946 | 8 | Pass |




| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value dBm/3kHz | Limit < dBm/3kHz | Results |
| | | | | -18.177 | 8 | Pass |



| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value dBm/3kHz | Limit < dBm/3kHz | Results |
| | | | | -18.672 | 8 | Pass |



# BAND EDGE COMPLIANCE

XMit 2019.09.05

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

**TEST EQUIPMENT**

| Description | Manufacturer | Model | ID | Last Cal. | Cal. Due |
|---|---|---|---|---|---|
| Meter - Multimeter | Tektronix | DMM912 | MMH | 15-Feb-19 | 15-Feb-22 |
| Power Supply - DC | Dr. Meter | PS-305DM | TZZ | NCR | NCR |
| Generator - Signal | Keysight | N5182B | TFU | 5-Nov-18 | 5-Nov-21 |
| Cable | Micro-Coax | UFD150A-1-0720-200200 | EVH | 28-Mar-19 | 28-Mar-20 |
| Attenuator | S.M. Electronics | SA26B-20 | AUY | 28-Mar-19 | 28-Mar-20 |
| Terminator | S.M. Electronics | ST2B | AWM | 9-Apr-19 | 9-Apr-20 |
| Analyzer - Spectrum Analyzer | Agilent | E4440A | AFA | 12-Feb-19 | 12-Feb-20 |

**TEST DESCRIPTION**

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The spurious RF conducted emissions at the edges of the authorized bands were measured with the EUT set to low and high transmit frequencies in each available band. The channels closest to the band edges were selected. The EUT was transmitting at the data rate(s) listed in the datasheet.

The spectrum was scanned below the lower band edge and above the higher band edge.

# BAND EDGE COMPLIANCE

TbtTx 2019.08.30.0 XMit 2019.09.05

| | | | | | |
|---|---|---|---|---|---|
| **EUT:** | **CCU-2** | | | **Work Order:** | **POLR0058** |
| **Serial Number:** | **Unit #6** | | | **Date:** | **3-Jan-20** |
| **Customer:** | **Polaris Industries, Inc.** | | | **Temperature:** | **21.5 °C** |
| **Attendees:** | **Wayne Rieger** | | | **Humidity:** | **40.6% RH** |
| **Project:** | **None** | | | **Barometric Pres.:** | **1016 mbar** |
| **Tested by:** | **Brandon Hobbs** | **Power:** | **14VDC** | **Job Site:** | **EV06** |

| **TEST SPECIFICATIONS** | **Test Method** |
|---|---|
| **FCC 15.247:2020** | ANSI C63.10:2013 |

**COMMENTS**

**All losses through the measurement path were accounted for. The Power level was set to a client software setting of 10000.**

**DEVIATIONS FROM TEST STANDARD**

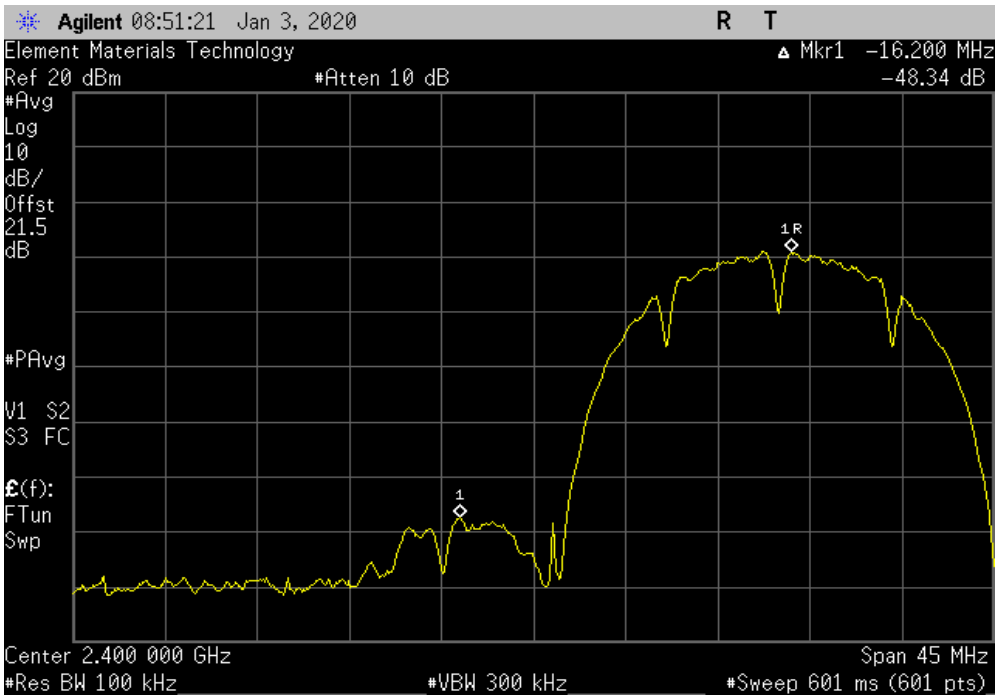
**None**

| **Configuration #** | **4** | *Signature* |
|---|---|---|

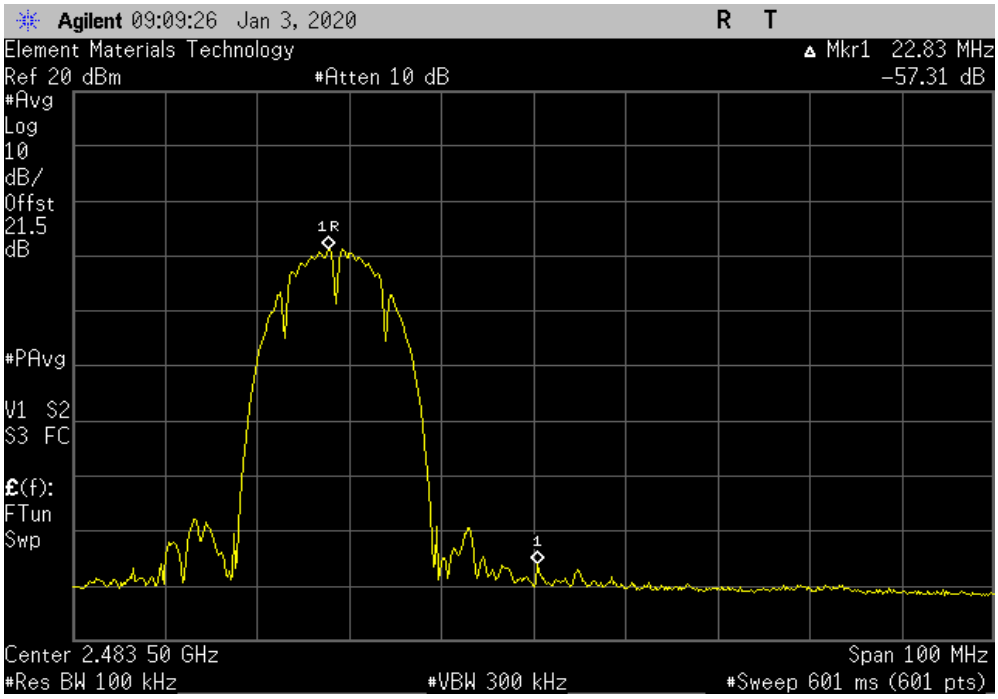
| | **Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
|---|---|---|---|
| 2400 MHz - 2483.5 MHz Band | | | |
| 802.11(b) 1 Mbps | | | |
| Low Channel 1, 2412 MHz | -48.34 | -30 | Pass |
| High Channel 11, 2462 MHz | -57.31 | -30 | Pass |
| 802.11(b) 11 Mbps | | | |
| Low Channel 1, 2412 MHz | -49.64 | -30 | Pass |
| High Channel 11, 2462 MHz | -56.18 | -30 | Pass |
| 802.11(g) 6 Mbps | | | |
| Low Channel 1, 2412 MHz | -35.66 | -30 | Pass |
| High Channel 11, 2462 MHz | -49.14 | -30 | Pass |
| 802.11(g) 36 Mbps | | | |
| Low Channel 1, 2412 MHz | -36.72 | -30 | Pass |
| High Channel 11, 2462 MHz | -50.01 | -30 | Pass |
| 802.11(g) 54 Mbps | | | |
| Low Channel 1, 2412 MHz | -41.72 | -30 | Pass |
| High Channel 11, 2462 MHz | -50.65 | -30 | Pass |
| 802.11(n) MCS0 | | | |
| Low Channel 1, 2412 MHz | -34.1 | -30 | Pass |
| High Channel 11, 2462 MHz | -48.26 | -30 | Pass |
| 802.11(n) MCS7 | | | |
| Low Channel 1, 2412 MHz | -40.55 | -30 | Pass |
| High Channel 11, 2462 MHz | -52.07 | -30 | Pass |

# BAND EDGE COMPLIANCE

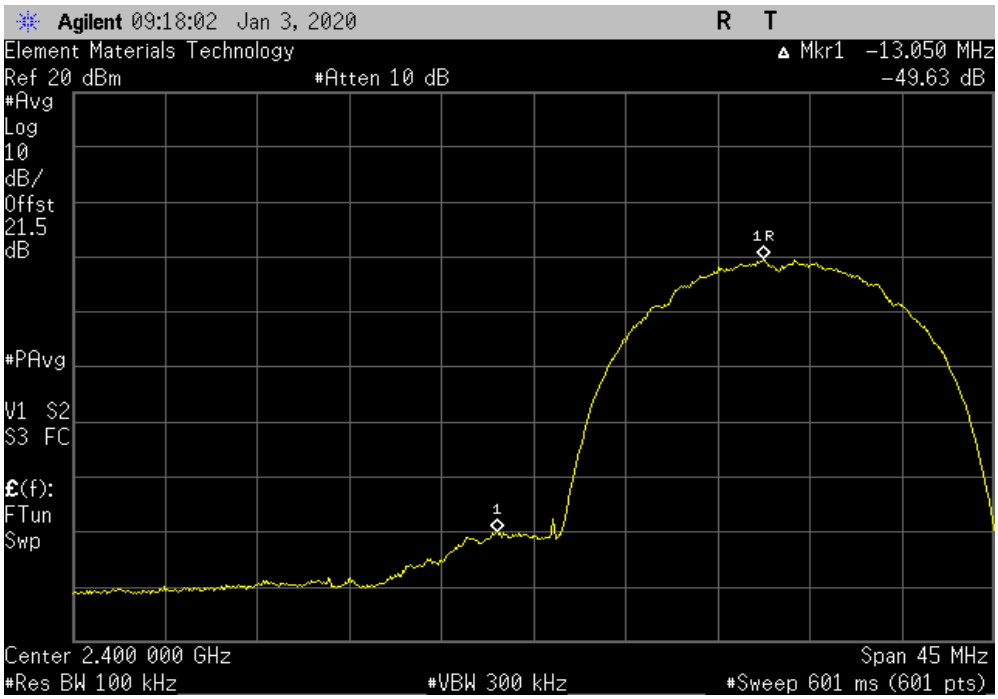
| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value (dBc) | Limit ≤ (dBc) | Result |
| | | | | -48.34 | -30 | Pass |



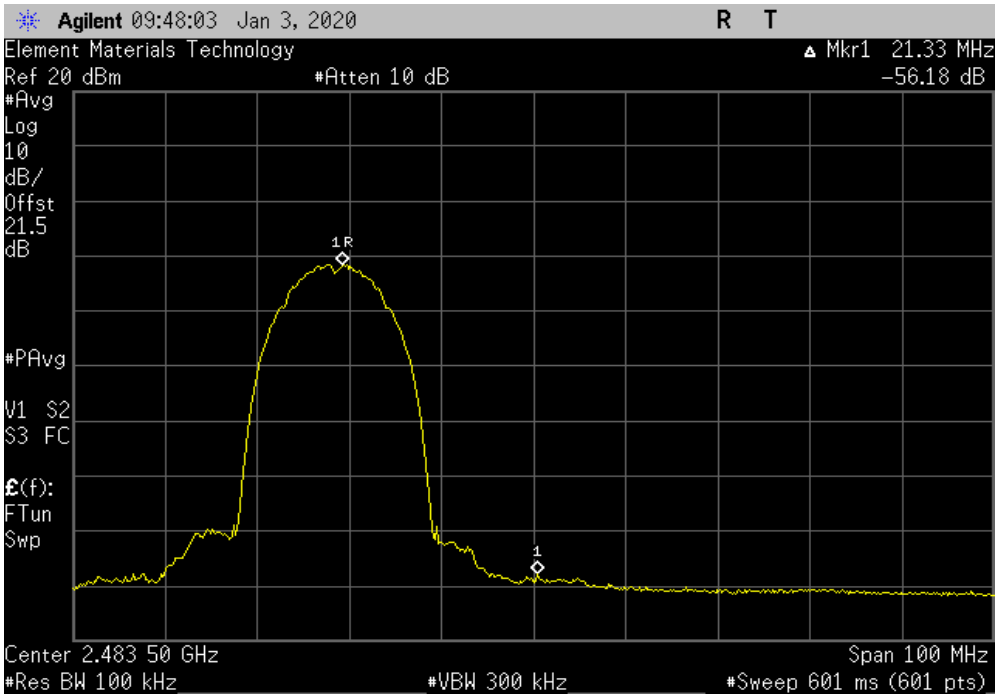

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value (dBc) | Limit ≤ (dBc) | Result |
| | | | | -57.31 | -30 | Pass |



| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value (dBc) | Limit ≤ (dBc) | Result |
| | | | | -49.64 | -30 | Pass |

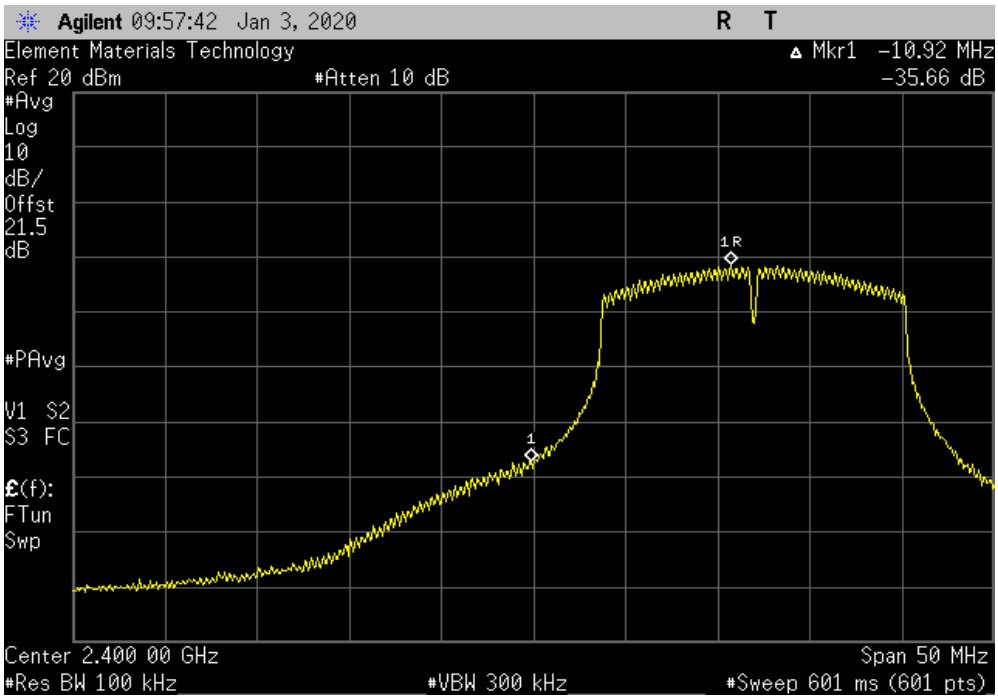



| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value (dBc) | Limit ≤ (dBc) | Result |
| | | | | -56.18 | -30 | Pass |

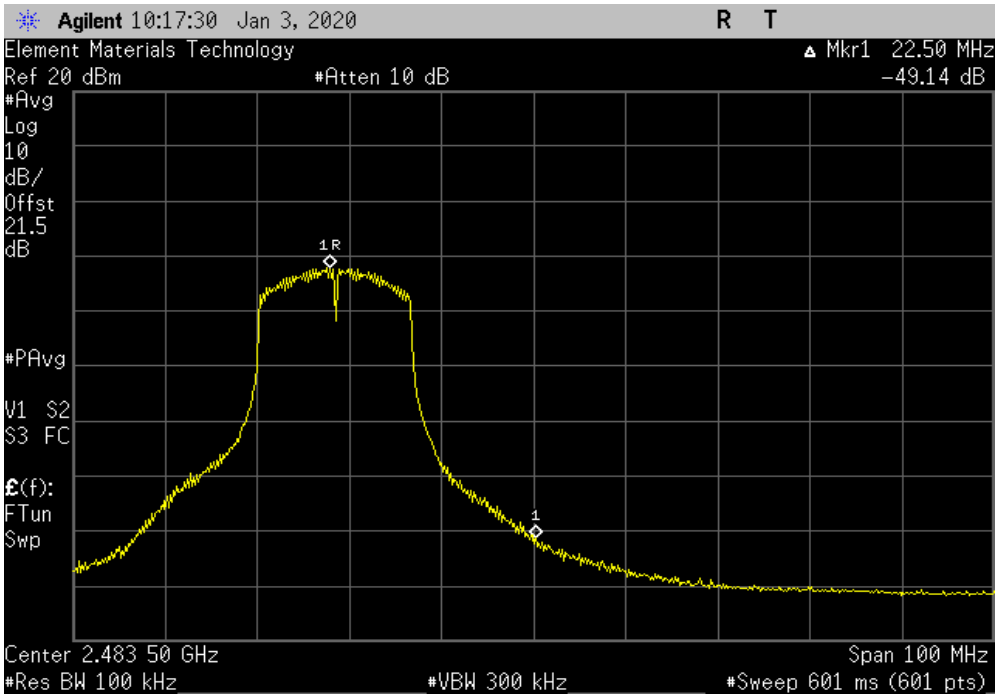


# BAND EDGE COMPLIANCE

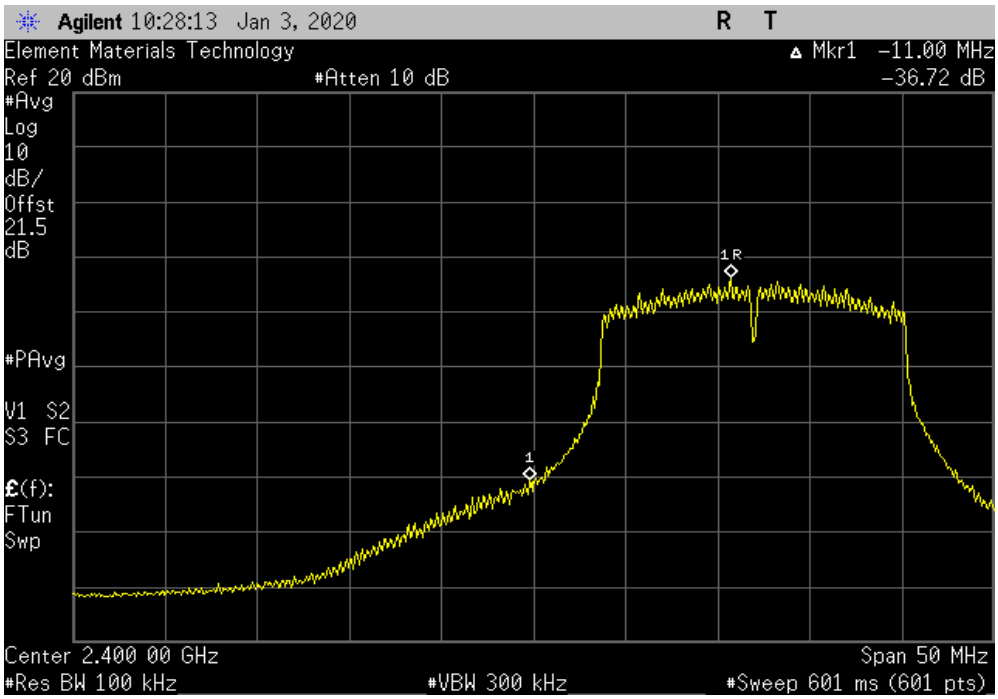
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value (dBc) | Limit ≤ (dBc) | Result |
| | | | | -35.66 | -30 | Pass |



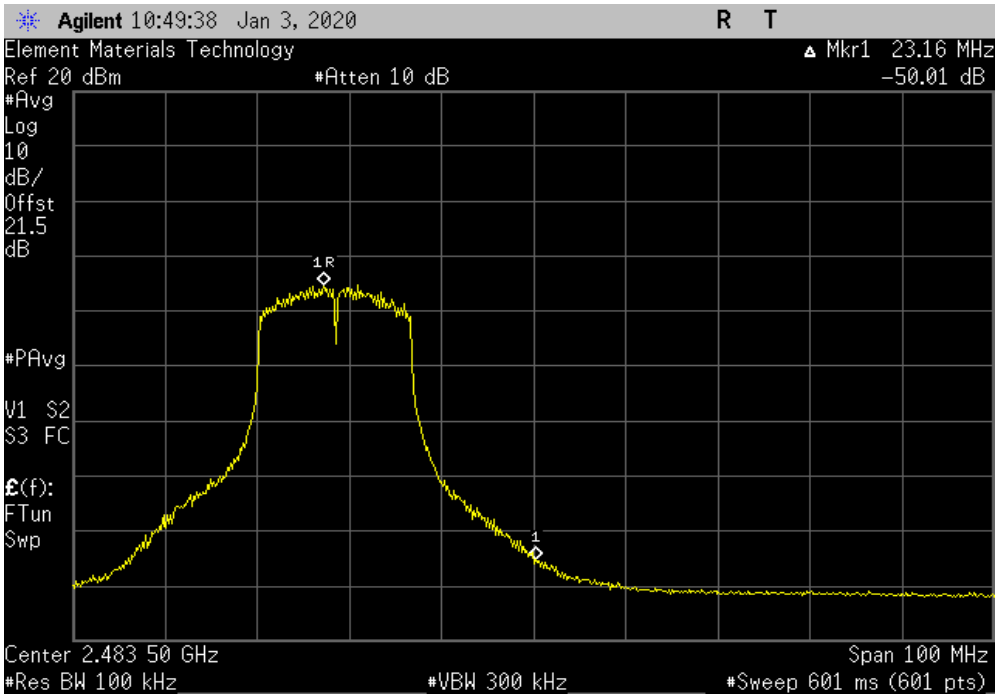

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value (dBc) | Limit ≤ (dBc) | Result |
| | | | | -49.14 | -30 | Pass |



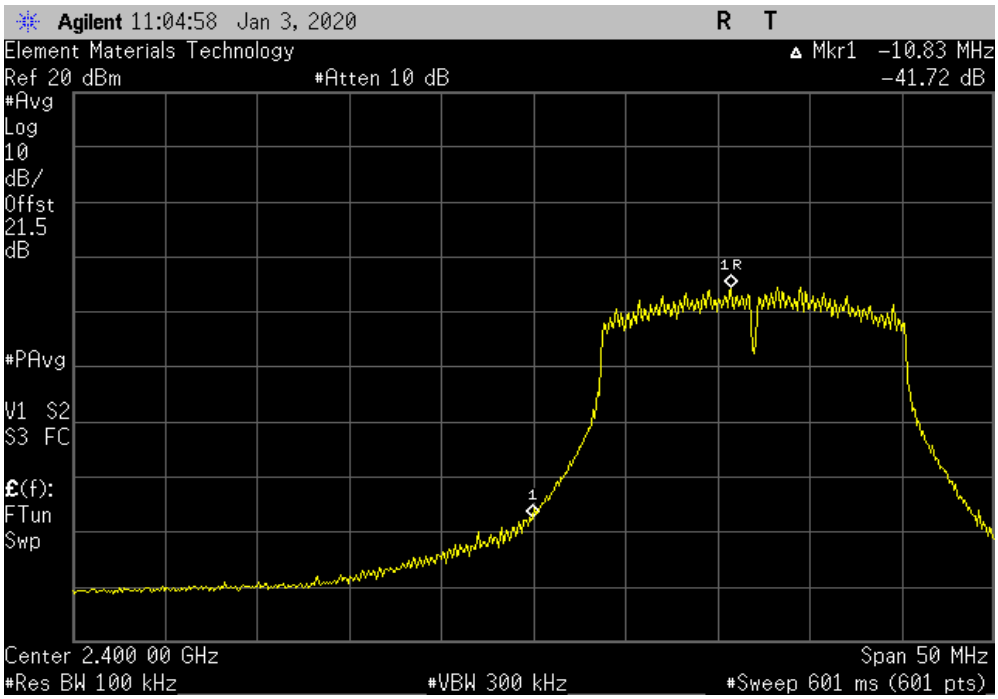
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value (dBc) | Limit ≤ (dBc) | Result |
| | | | | -36.72 | -30 | Pass |



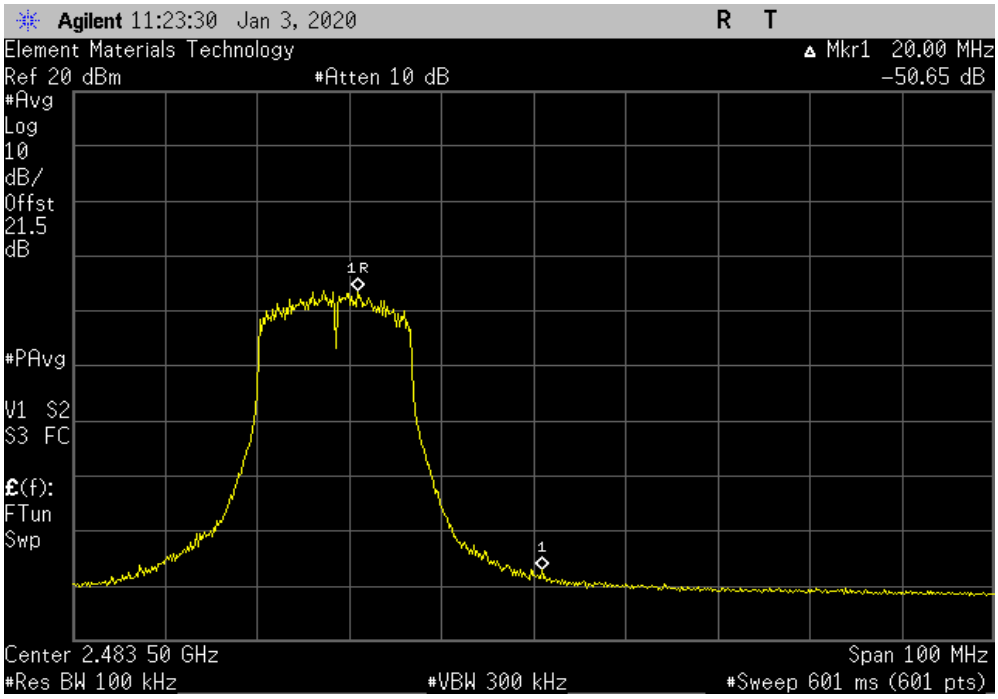

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value (dBc) | Limit ≤ (dBc) | Result |
| | | | | -50.01 | -30 | Pass |



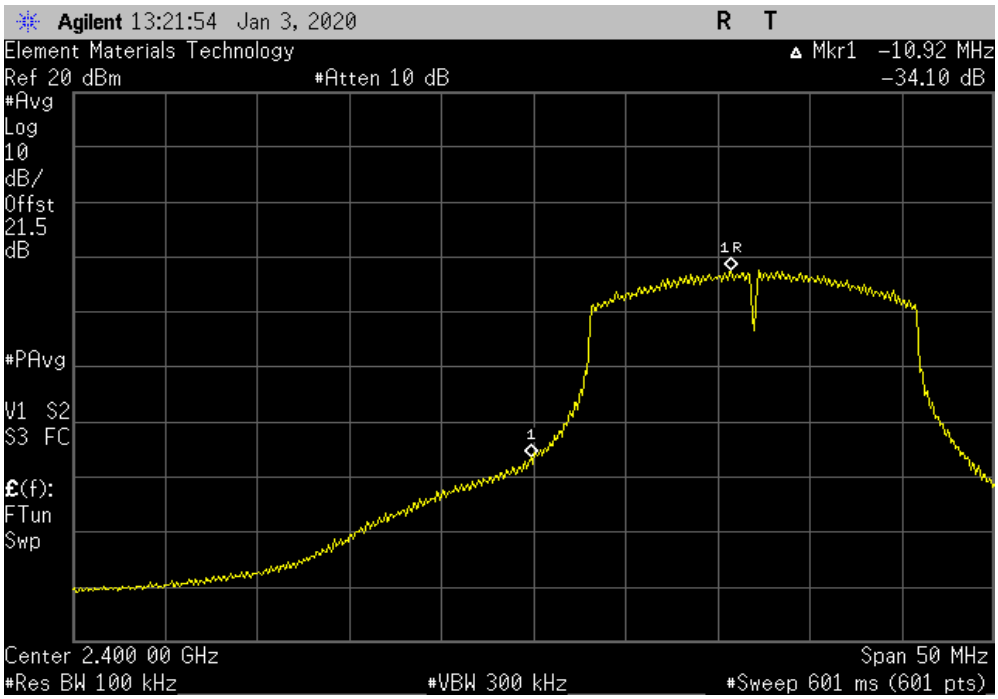
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value (dBc) | Limit ≤ (dBc) | Result |
| | | | | -41.72 | -30 | Pass |



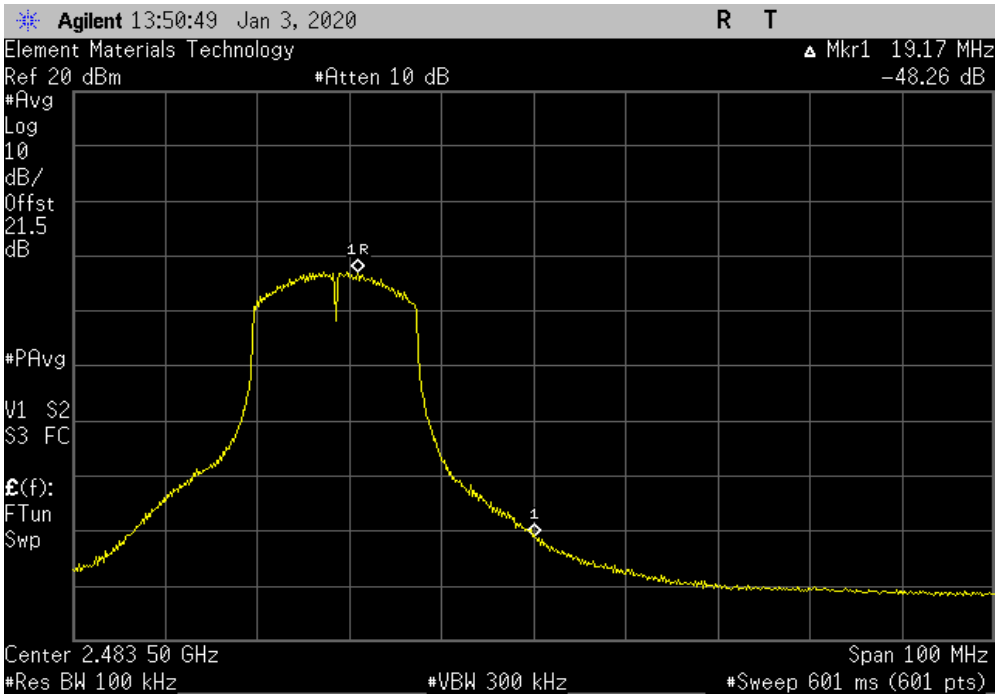

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value (dBc) | Limit ≤ (dBc) | Result |
| | | | | -50.65 | -30 | Pass |



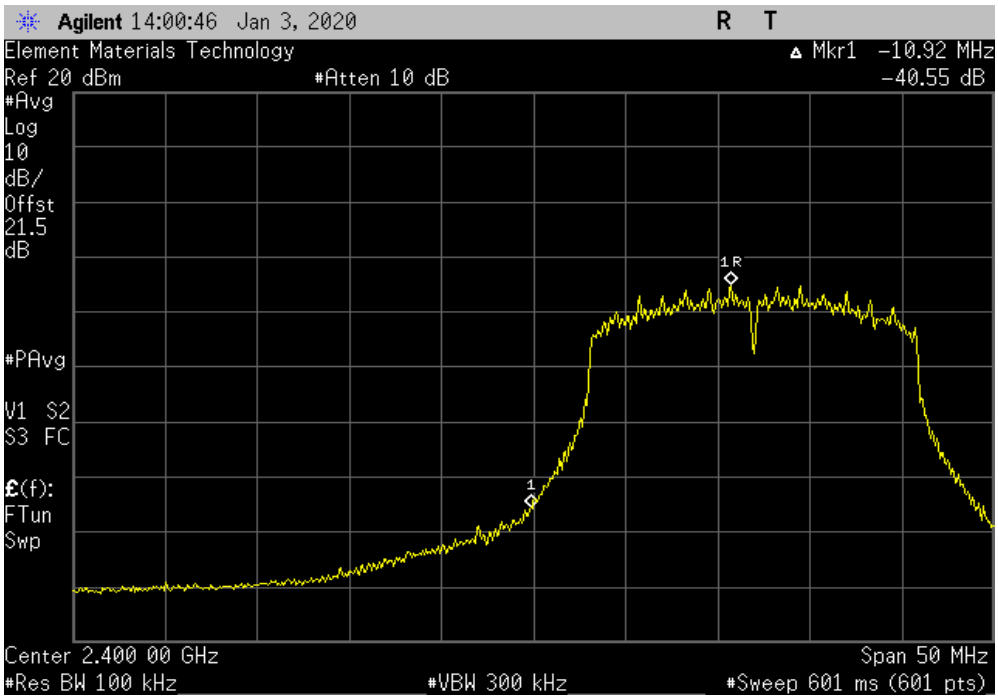
| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value (dBc) | Limit ≤ (dBc) | Result |
| | | | | -34.1 | -30 | Pass |



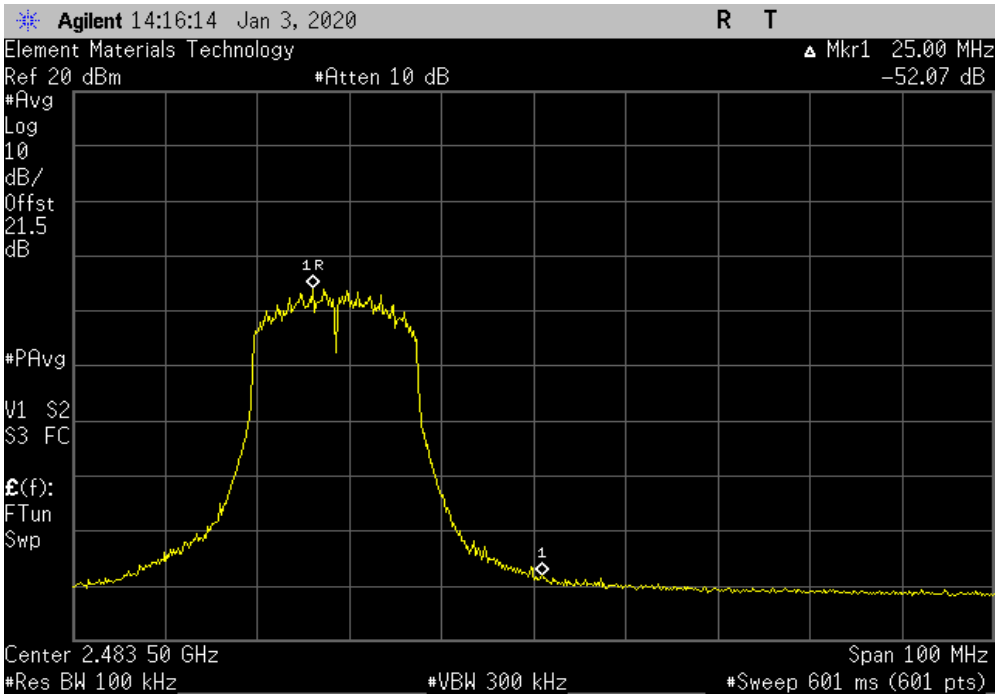

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value (dBc) | Limit ≤ (dBc) | Result |
| | | | | -48.26 | -30 | Pass |



| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value (dBc) | Limit ≤ (dBc) | Result |
| | | | | -40.55 | -30 | Pass |




| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Value (dBc) | Limit ≤ (dBc) | Result |
| | | | | -52.07 | -30 | Pass |



# SPURIOUS CONDUCTED EMISSIONS

XMit 2019.09.05

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

**TEST EQUIPMENT**

| Description | Manufacturer | Model | ID | Last Cal. | Cal. Due |
|---|---|---|---|---|---|
| Generator - Signal | Keysight | N5182B | TFU | 5-Nov-18 | 5-Nov-21 |
| Meter - Multimeter | Tektronix | DMM912 | MMH | 15-Feb-19 | 15-Feb-22 |
| Power Supply - DC | Dr. Meter | PS-305DM | TZZ | NCR | NCR |
| Cable | Micro-Coax | UFD150A-1-0720-200200 | EVH | 28-Mar-19 | 28-Mar-20 |
| Attenuator | S.M. Electronics | SA26B-20 | AUY | 28-Mar-19 | 28-Mar-20 |
| Terminator | S.M. Electronics | ST2B | AWM | 9-Apr-19 | 9-Apr-20 |
| Analyzer - Spectrum Analyzer | Agilent | E4440A | AFA | 12-Feb-19 | 12-Feb-20 |

**TEST DESCRIPTION**

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The spurious RF conducted emissions were measured with the EUT set to low, medium and high transmit frequencies. The EUT was transmitting at the data rate(s) listed in the datasheet. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.

# SPURIOUS CONDUCTED EMISSIONS

element

TbtTx 2019.08.30.0 XMit 2019.09.05

| | | | | | |
|---|---|---|---|---|---|
| **EUT:** | **CCU-2** | | | **Work Order:** | **POLR0058** |
| **Serial Number:** | **Unit #6** | | | **Date:** | **3-Jan-20** |
| **Customer:** | **Polaris Industries, Inc.** | | | **Temperature:** | **21.5 °C** |
| **Attendees:** | **Wayne Rieger** | | | **Humidity:** | **40.6% RH** |
| **Project:** | **None** | | | **Barometric Pres.:** | **1016 mbar** |
| **Tested by:** | **Brandon Hobbs** | **Power:** | **14VDC** | **Job Site:** | **EV06** |

| **TEST SPECIFICATIONS** | **Test Method** |
|---|---|
| **FCC 15.247:2020** | ANSI C63.10:2013 |

**COMMENTS**

**All losses through the measurement path were accounted for. The Power level was set to a client software setting of 10000.**

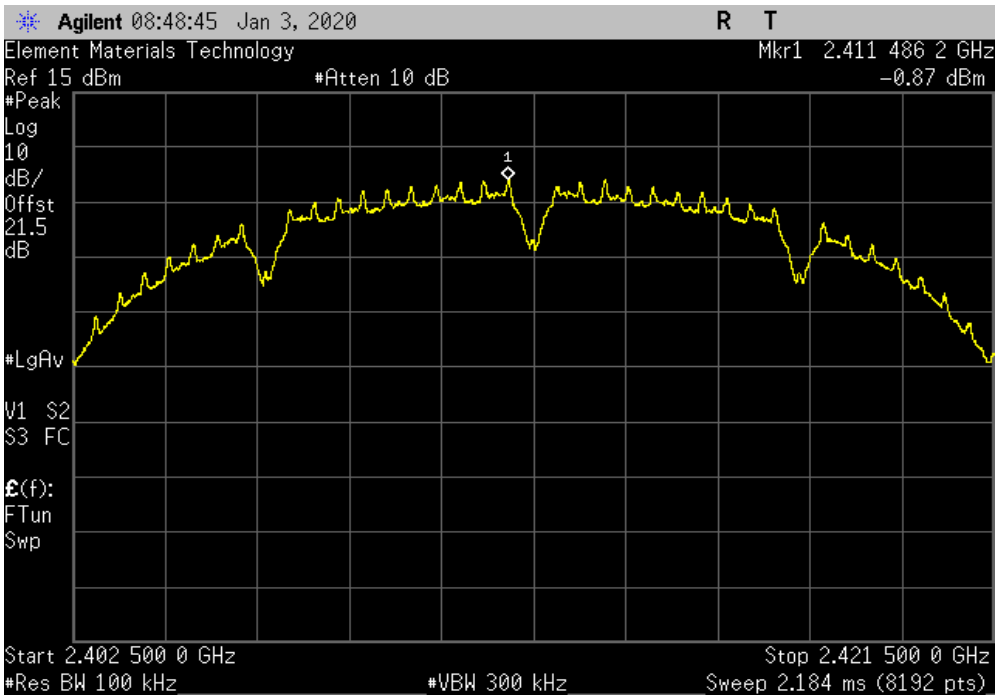
**DEVIATIONS FROM TEST STANDARD**

**None**

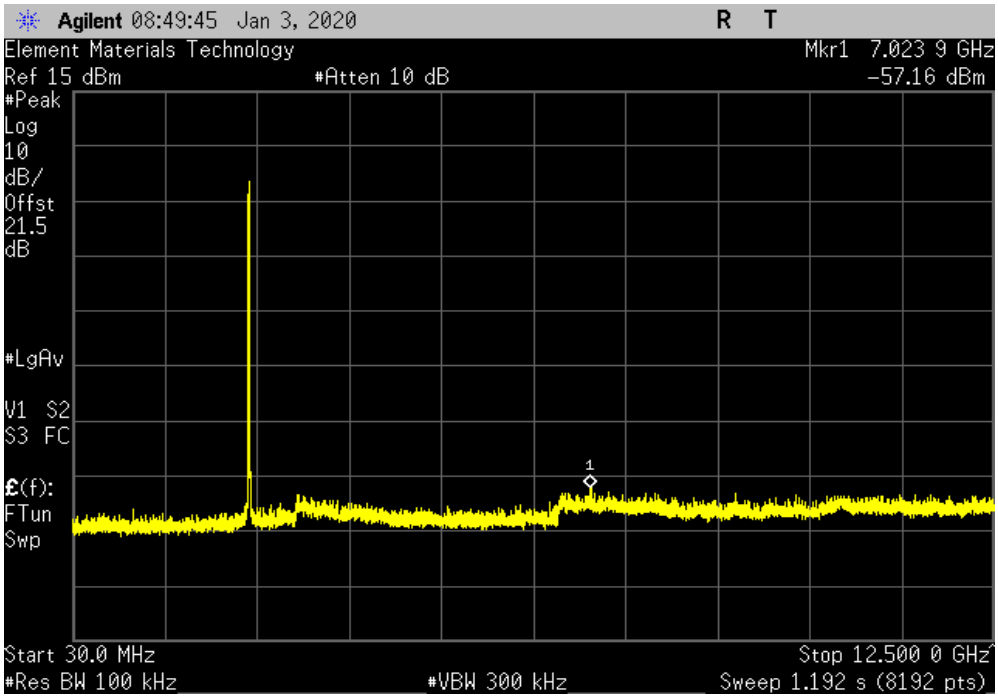
| **Configuration #** | **4** | *Signature* |
|---|---|---|

| | | Frequency Range | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
|---|---|---|---|---|---|---|
| 2400 MHz - 2483.5 MHz Band | | | | | | |
| | 802.11(b) 1 Mbps | | | | | |
| | Low Channel 1, 2412 MHz | Fundamental | 2411.49 | N/A | N/A | N/A |
| | Low Channel 1, 2412 MHz | 30 MHz - 12.5 GHz | 7023.9 | -56.29 | -30 | Pass |
| | Low Channel 1, 2412 MHz | 12.5 GHz - 25 GHz | 24845.9 | -53.23 | -30 | Pass |
| | Mid Channel 6, 2437 MHz | Fundamental | 2437.47 | N/A | N/A | N/A |
| | Mid Channel 6, 2437 MHz | 30 MHz - 12.5 GHz | 10351.9 | -57.19 | -30 | Pass |
| | Mid Channel 6, 2437 MHz | 12.5 GHz - 25 GHz | 24746.7 | -53.74 | -30 | Pass |
| | High Channel 11, 2462 MHz | Fundamental | 2461.48 | N/A | N/A | N/A |
| | High Channel 11, 2462 MHz | 30 MHz - 12.5 GHz | 3097.6 | -56.87 | -30 | Pass |
| | High Channel 11, 2462 MHz | 12.5 GHz - 25 GHz | 20754.5 | -53.47 | -30 | Pass |
| | 802.11(b) 11 Mbps | | | | | |
| | Low Channel 1, 2412 MHz | Fundamental | 2411.61 | N/A | N/A | N/A |
| | Low Channel 1, 2412 MHz | 30 MHz - 12.5 GHz | 10475.2 | -58.29 | -30 | Pass |
| | Low Channel 1, 2412 MHz | 12.5 GHz - 25 GHz | 24792.5 | -54.72 | -30 | Pass |
| | Mid Channel 6, 2437 MHz | Fundamental | 2437.53 | N/A | N/A | N/A |
| | Mid Channel 6, 2437 MHz | 30 MHz - 12.5 GHz | 6918.9 | -58.29 | -30 | Pass |
| | Mid Channel 6, 2437 MHz | 12.5 GHz - 25 GHz | 24975.6 | -54.47 | -30 | Pass |
| | High Channel 11, 2462 MHz | Fundamental | 2461.09 | N/A | N/A | N/A |
| | High Channel 11, 2462 MHz | 30 MHz - 12.5 GHz | 7019.4 | -57.03 | -30 | Pass |
| | High Channel 11, 2462 MHz | 12.5 GHz - 25 GHz | 24212.6 | -53.86 | -30 | Pass |
| | 802.11(g) 6 Mbps | | | | | |
| | Low Channel 1, 2412 MHz | Fundamental | 2413.26 | N/A | N/A | N/A |
| | Low Channel 1, 2412 MHz | 30 MHz - 12.5 GHz | 2385.2 | -51.44 | -30 | Pass |
| | Low Channel 1, 2412 MHz | 12.5 GHz - 25 GHz | 24847.4 | -51.9 | -30 | Pass |
| | Mid Channel 6, 2437 MHz | Fundamental | 2438.24 | N/A | N/A | N/A |
| | Mid Channel 6, 2437 MHz | 30 MHz - 12.5 GHz | 1870.6 | -55.09 | -30 | Pass |
| | Mid Channel 6, 2437 MHz | 12.5 GHz - 25 GHz | 13577.4 | -53.23 | -30 | Pass |
| | High Channel 11, 2462 MHz | Fundamental | 2463.24 | N/A | N/A | N/A |
| | High Channel 11, 2462 MHz | 30 MHz - 12.5 GHz | 7189.9 | -55.81 | -30 | Pass |
| | High Channel 11, 2462 MHz | 12.5 GHz - 25 GHz | 24203.4 | -52.59 | -30 | Pass |
| | 802.11(g) 36 Mbps | | | | | |
| | Low Channel 1, 2412 MHz | Fundamental | 2413.25 | N/A | N/A | N/A |
| | Low Channel 1, 2412 MHz | 30 MHz - 12.5 GHz | 2382.1 | -55.28 | -30 | Pass |
| | Low Channel 1, 2412 MHz | 12.5 GHz - 25 GHz | 24781.8 | -52.41 | -30 | Pass |
| | Mid Channel 6, 2437 MHz | Fundamental | 2438.26 | N/A | N/A | N/A |
| | Mid Channel 6, 2437 MHz | 30 MHz - 12.5 GHz | 7011.7 | -56.56 | -30 | Pass |
| | Mid Channel 6, 2437 MHz | 12.5 GHz - 25 GHz | 24600.2 | -53.18 | -30 | Pass |
| | High Channel 11, 2462 MHz | Fundamental | 2463.25 | N/A | N/A | N/A |
| | High Channel 11, 2462 MHz | 30 MHz - 12.5 GHz | 1870.6 | -51.05 | -30 | Pass |
| | High Channel 11, 2462 MHz | 12.5 GHz - 25 GHz | 24331.6 | -52.43 | -30 | Pass |
| | 802.11(g) 54 Mbps | | | | | |
| | Low Channel 1, 2412 MHz | Fundamental | 2413.24 | N/A | N/A | N/A |
| | Low Channel 1, 2412 MHz | 30 MHz - 12.5 GHz | 2377.5 | -55.75 | -30 | Pass |
| | Low Channel 1, 2412 MHz | 12.5 GHz - 25 GHz | 22254.6 | -52.71 | -30 | Pass |
| | Mid Channel 6, 2437 MHz | Fundamental | 2438.26 | N/A | N/A | N/A |
| | Mid Channel 6, 2437 MHz | 30 MHz - 12.5 GHz | 7037.6 | -56.83 | -30 | Pass |
| | Mid Channel 6, 2437 MHz | 12.5 GHz - 25 GHz | 24633.7 | -53 | -30 | Pass |
| | High Channel 11, 2462 MHz | Fundamental | 2463.25 | N/A | N/A | N/A |
| | High Channel 11, 2462 MHz | 30 MHz - 12.5 GHz | 7011.7 | -56.07 | -30 | Pass |
| | High Channel 11, 2462 MHz | 12.5 GHz - 25 GHz | 24621.5 | -52.19 | -30 | Pass |
| | 802.11(n) MCS0 | | | | | |
| | Low Channel 1, 2412 MHz | Fundamental | 2413.24 | N/A | N/A | N/A |
| | Low Channel 1, 2412 MHz | 30 MHz - 12.5 GHz | 2386.7 | -52.13 | -30 | Pass |
| | Low Channel 1, 2412 MHz | 12.5 GHz - 25 GHz | 20844.5 | -53.02 | -30 | Pass |
| | Mid Channel 6, 2437 MHz | Fundamental | 2438.23 | N/A | N/A | N/A |
| | Mid Channel 6, 2437 MHz | 30 MHz - 12.5 GHz | 7182.2 | -56.18 | -30 | Pass |
| | Mid Channel 6, 2437 MHz | 12.5 GHz - 25 GHz | 22761.3 | -52.14 | -30 | Pass |
| | High Channel 11, 2462 MHz | Fundamental | 2463.24 | N/A | N/A | N/A |
| | High Channel 11, 2462 MHz | 30 MHz - 12.5 GHz | 7139.6 | -56.11 | -30 | Pass |
| | High Channel 11, 2462 MHz | 12.5 GHz - 25 GHz | 24128.6 | -52.55 | -30 | Pass |
| | 802.11(n) MCS7 | | | | | |
| | Low Channel 1, 2412 MHz | Fundamental | 2413.25 | N/A | N/A | N/A |
| | Low Channel 1, 2412 MHz | 30 MHz - 12.5 GHz | 10476.7 | -56.6 | -30 | Pass |
| | Low Channel 1, 2412 MHz | 12.5 GHz - 25 GHz | 14314.5 | -53.13 | -30 | Pass |
| | Mid Channel 6, 2437 MHz | Fundamental | 2438.25 | N/A | N/A | N/A |
| | Mid Channel 6, 2437 MHz | 30 MHz - 12.5 GHz | 7001.1 | -56.5 | -30 | Pass |
| | Mid Channel 6, 2437 MHz | 12.5 GHz - 25 GHz | 13635.4 | -52.39 | -30 | Pass |
| | High Channel 11, 2462 MHz | Fundamental | 2463.25 | N/A | N/A | N/A |
| | High Channel 11, 2462 MHz | 30 MHz - 12.5 GHz | 7004.1 | -55.5 | -30 | Pass |
| | High Channel 11, 2462 MHz | 12.5 GHz - 25 GHz | 24038.6 | -52.9 | -30 | Pass |

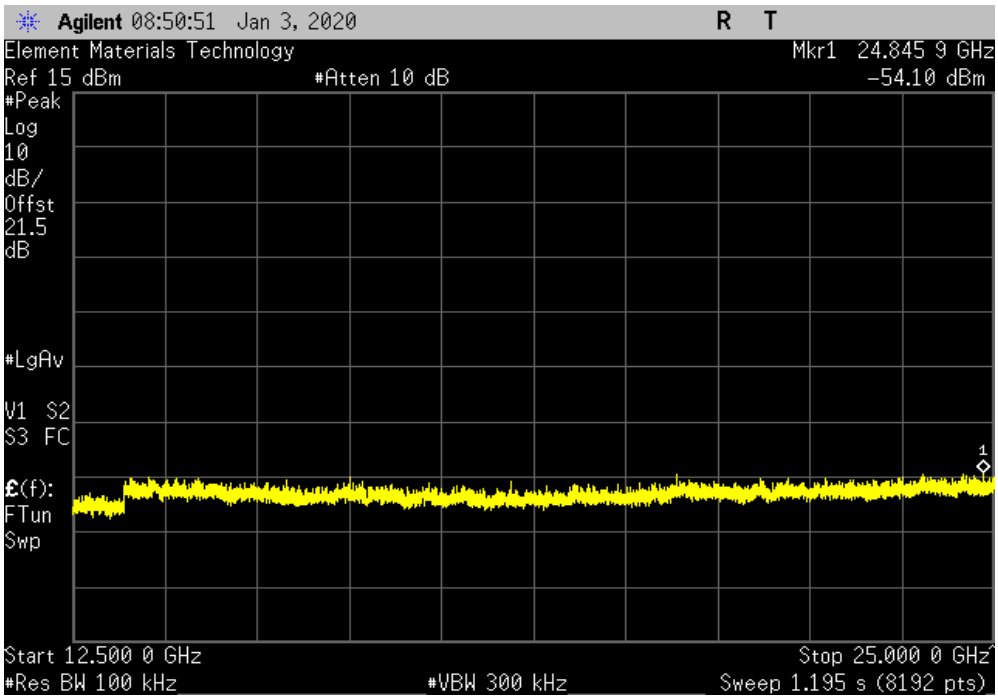
| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Frequency Range | | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| | Fundamental | | 2411.49 | N/A | N/A | N/A |



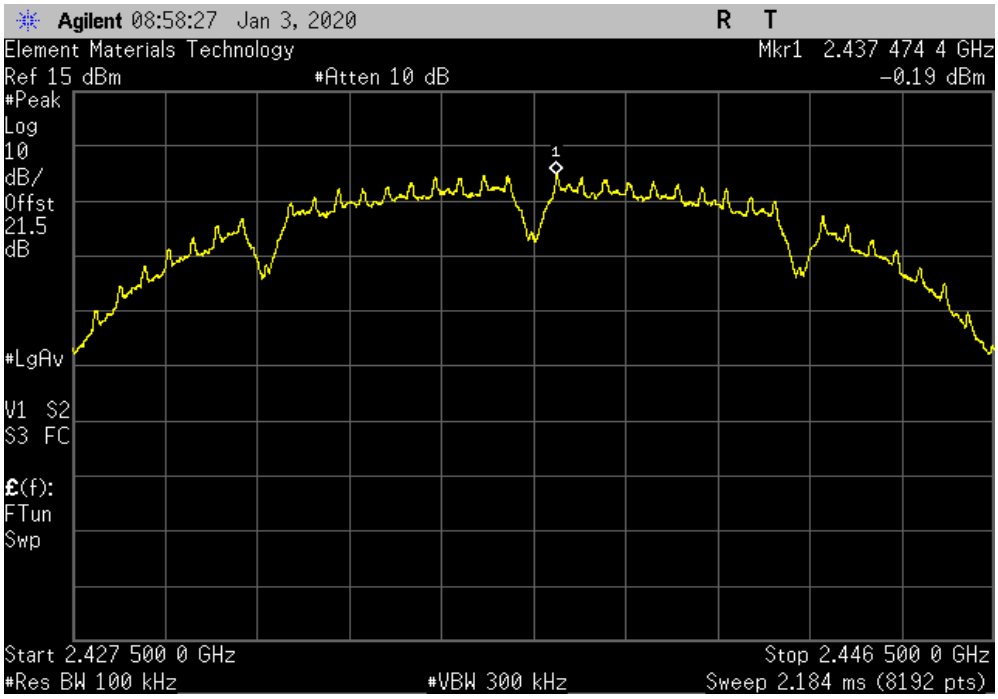

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz | | | | | |
|---|---|---|---|---|---|
| Frequency Range | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| 30 MHz - 12.5 GHz | 7023.9 | -56.29 | -30 | Pass |



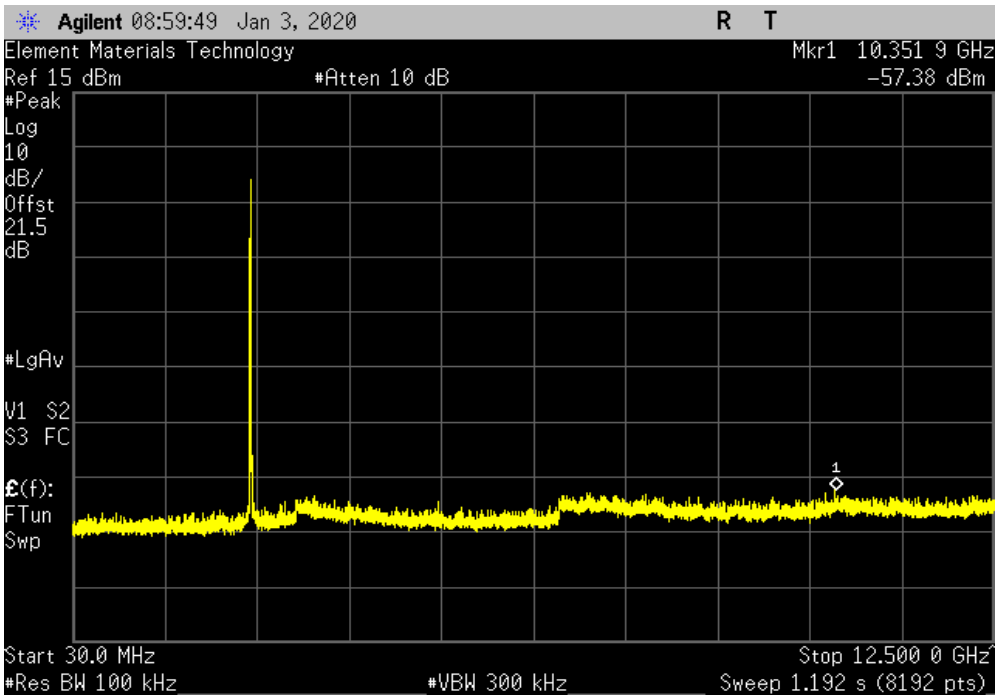
| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz | | | | |
|---|---|---|---|---|
| Frequency Range | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| 12.5 GHz - 25 GHz | 24845.9 | -53.23 | -30 | Pass |



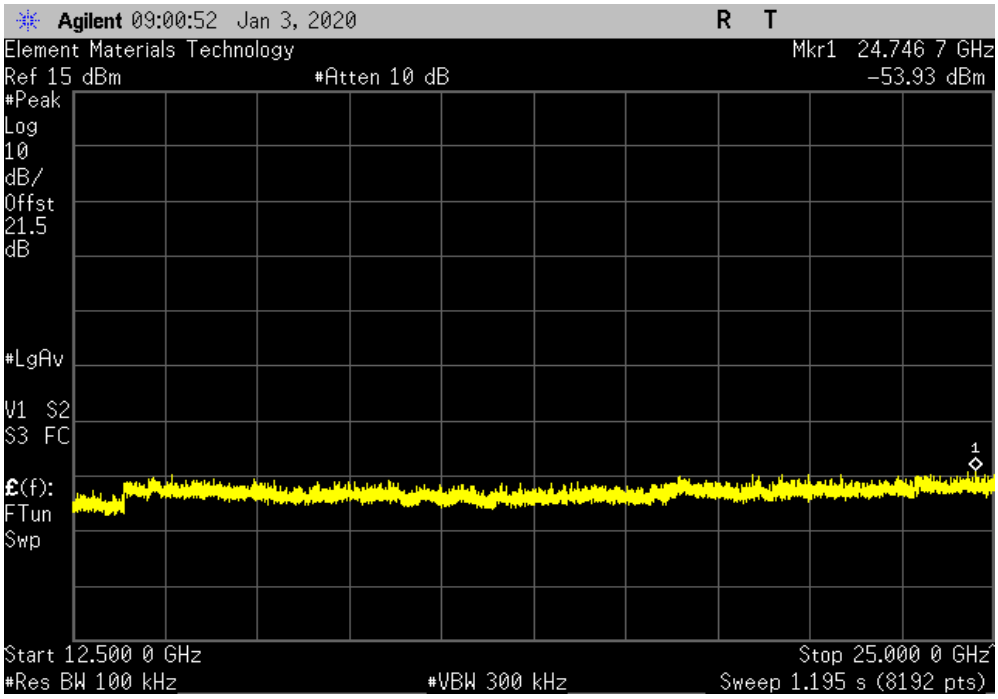

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz | | | | |
|---|---|---|---|---|
| Frequency Range | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| Fundamental | 2437.47 | N/A | N/A | N/A |



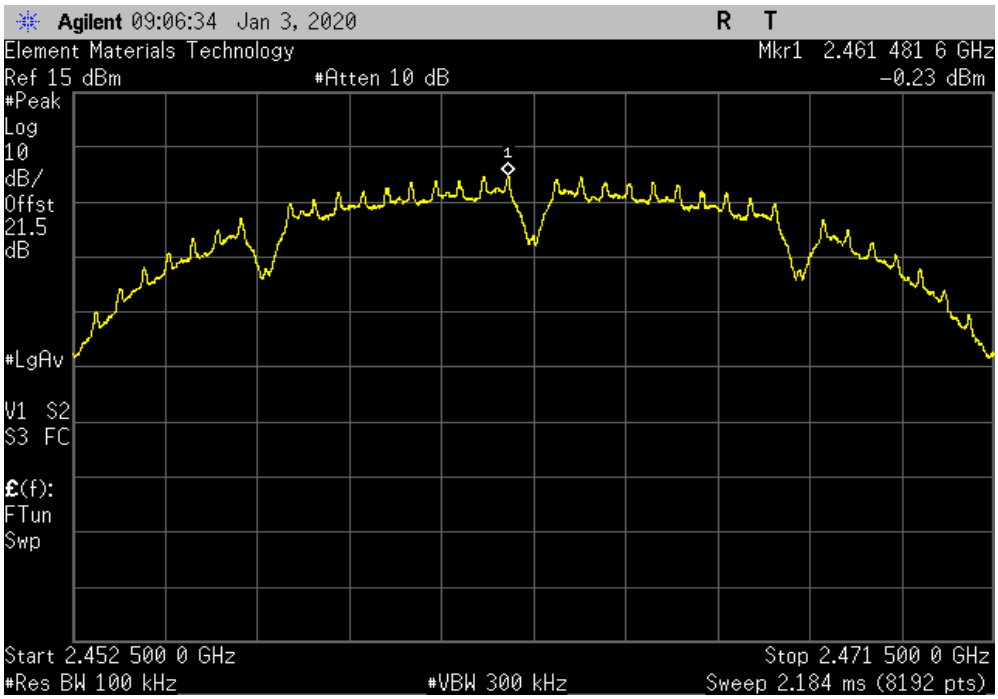
| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 30 MHz - 12.5 GHz | 10351.9 | -57.19 | -30 | Pass |



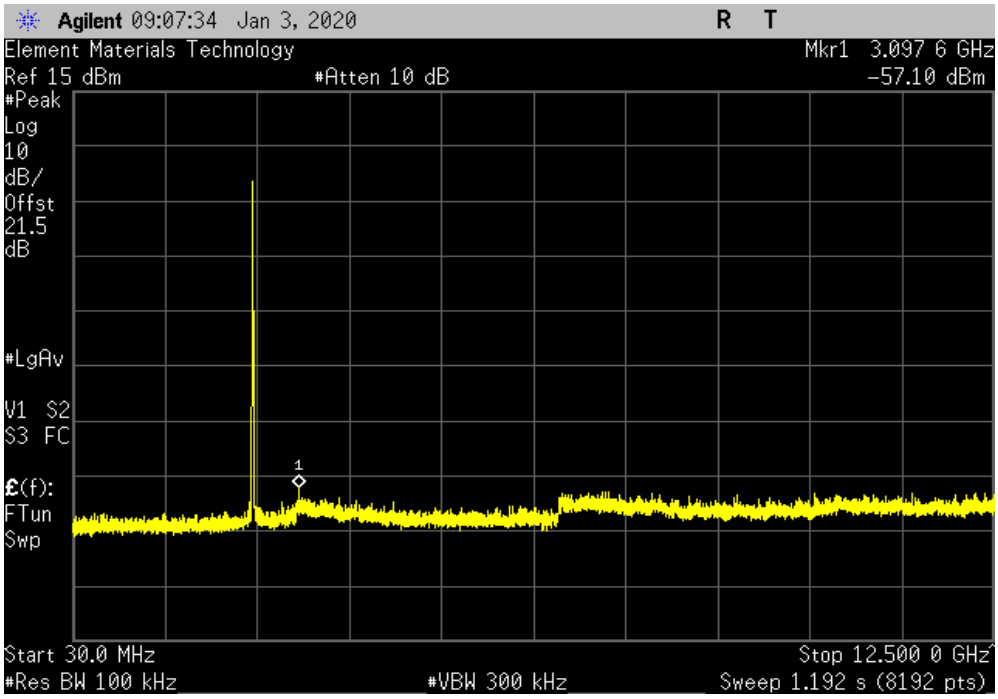

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 12.5 GHz - 25 GHz | 24746.7 | -53.74 | -30 | Pass |



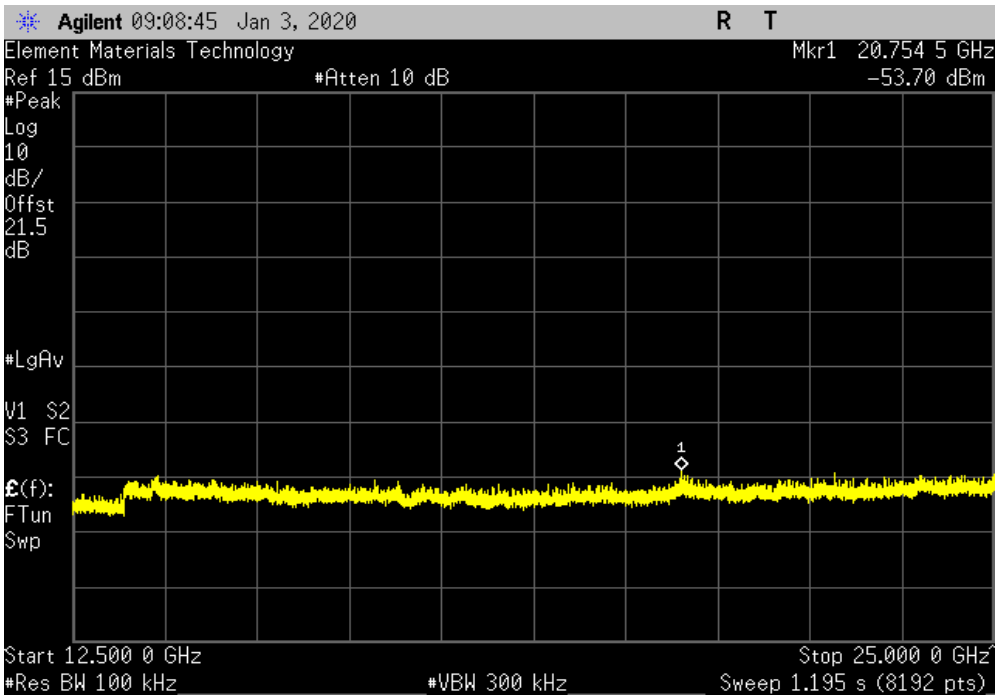
| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz | | | | | |
|---|---|---|---|---|---|
| Frequency Range | | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| | Fundamental | 2461.48 | N/A | N/A | N/A |



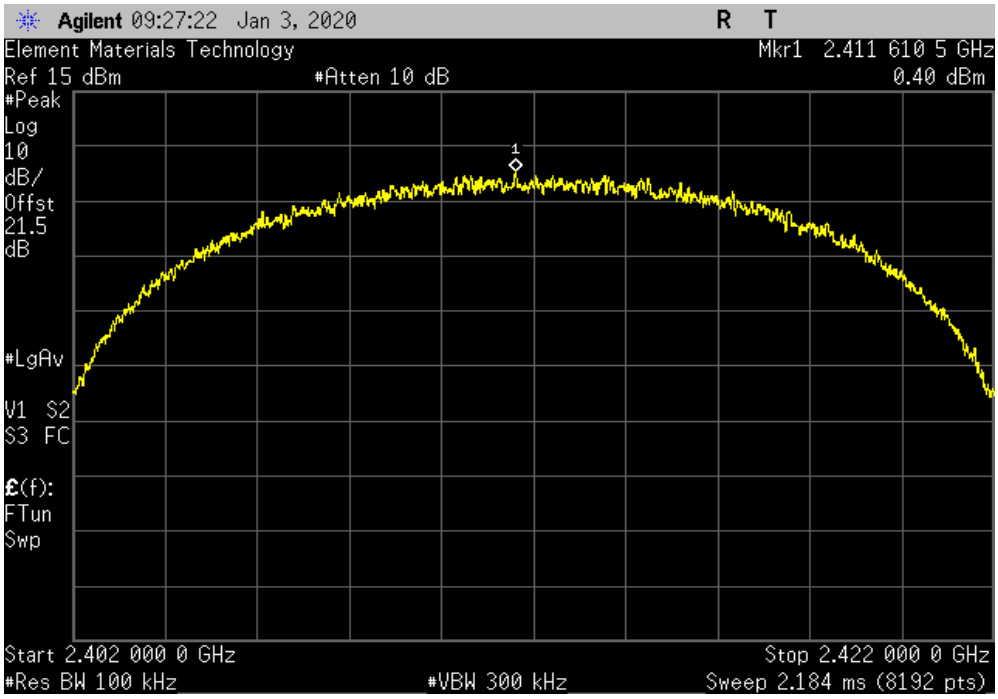

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz | | | | |
|---|---|---|---|---|
| Frequency Range | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| 30 MHz - 12.5 GHz | 3097.6 | -56.87 | -30 | Pass |



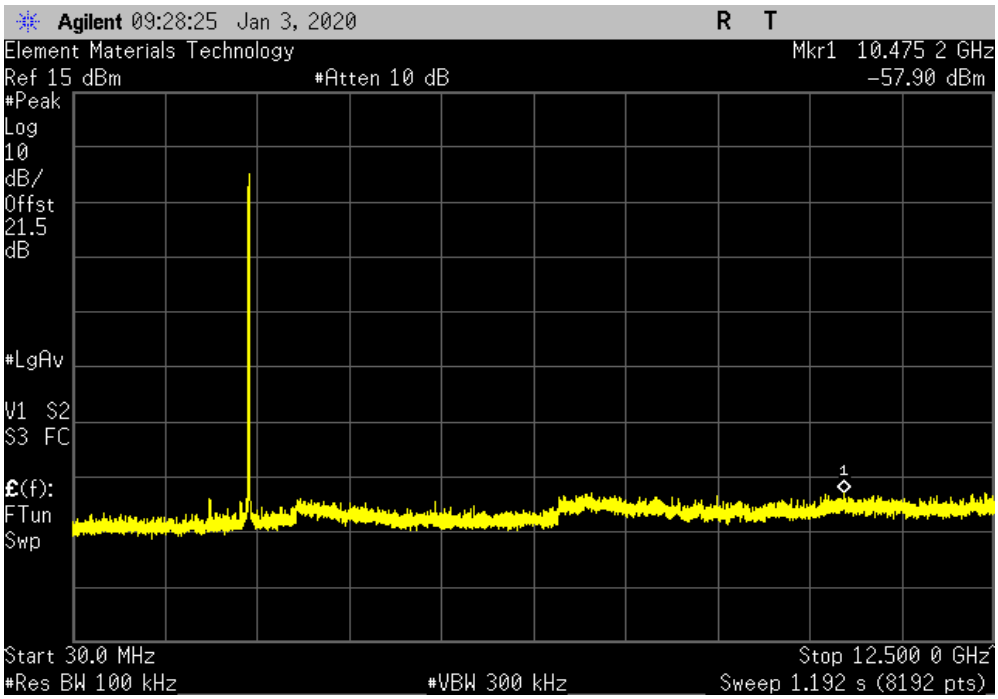
| 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 12.5 GHz - 25 GHz | 20754.5 | -53.47 | -30 | Pass |



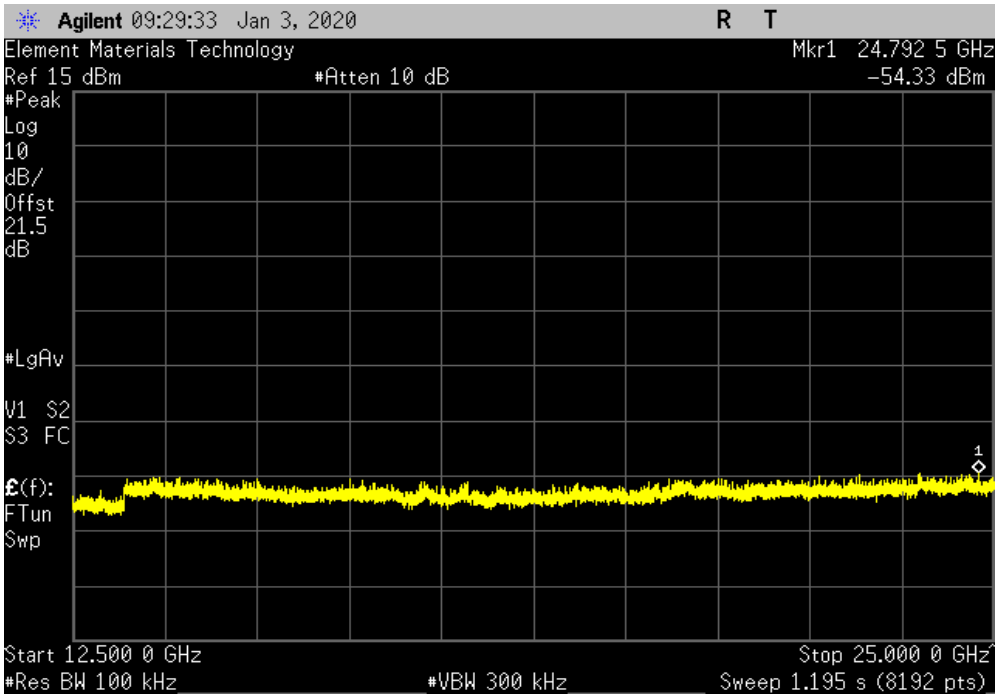

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz | | | | | |
|---|---|---|---|---|---|
| **Frequency Range** | | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| Fundamental | | 2411.61 | N/A | N/A | N/A |



| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 30 MHz - 12.5 GHz | 10475.2 | -58.29 | -30 | Pass |

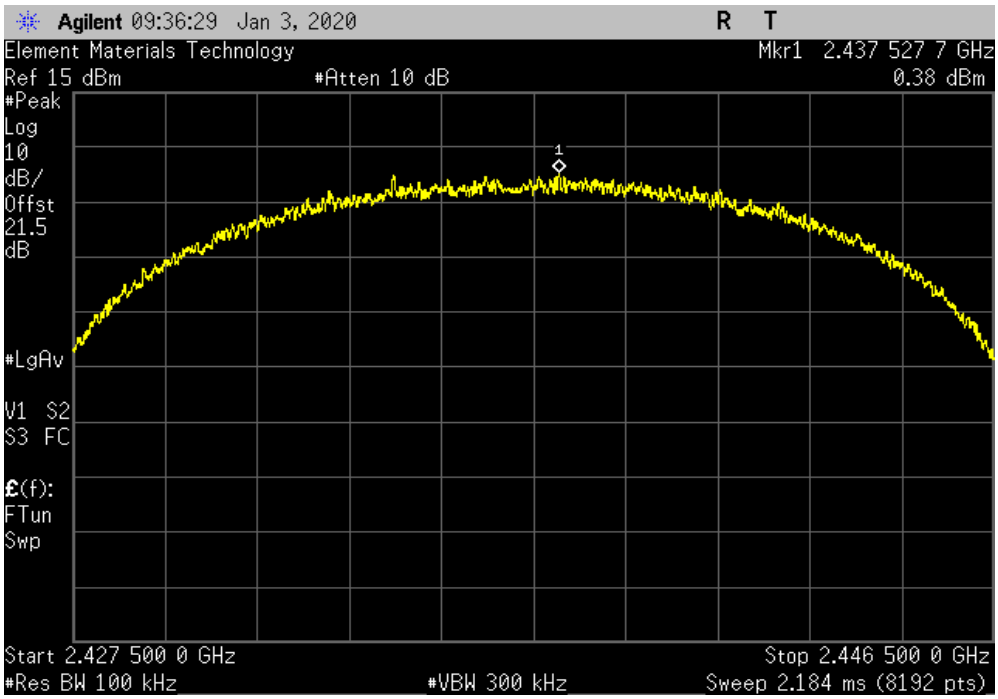



| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 12.5 GHz - 25 GHz | 24792.5 | -54.72 | -30 | Pass |



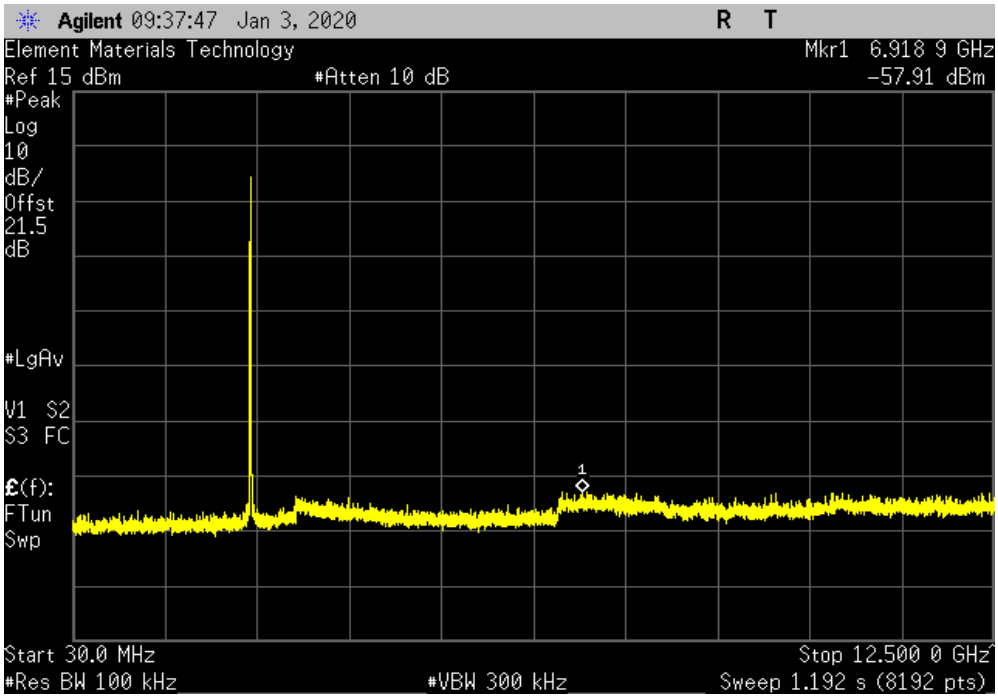
2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz

| Frequency Range | | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
|---|---|---|---|---|---|
| | Fundamental | 2437.53 | N/A | N/A | N/A |

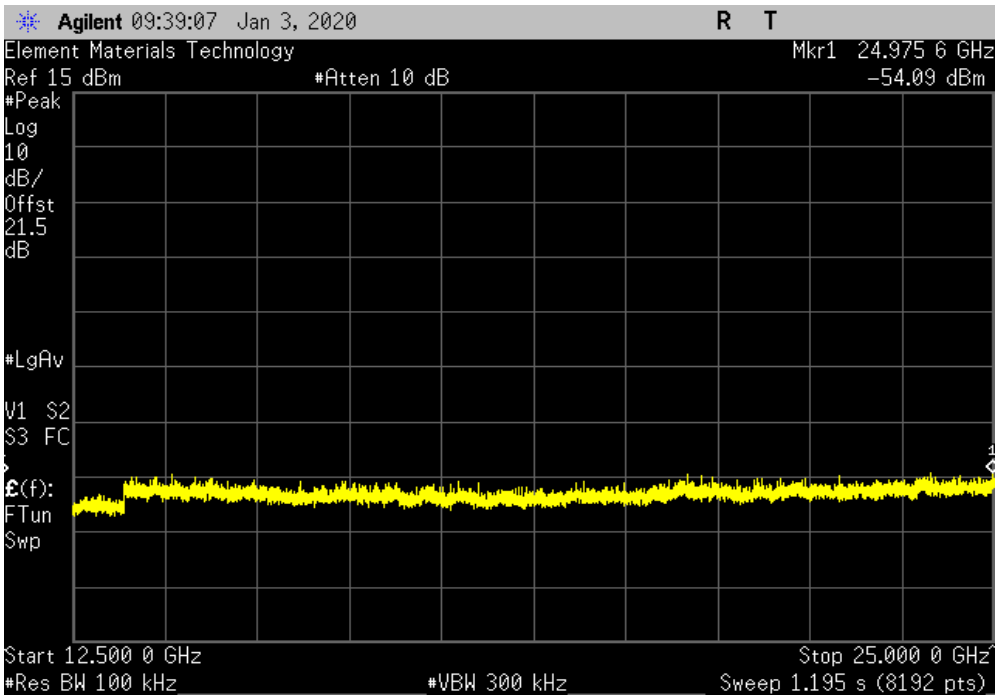



2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz

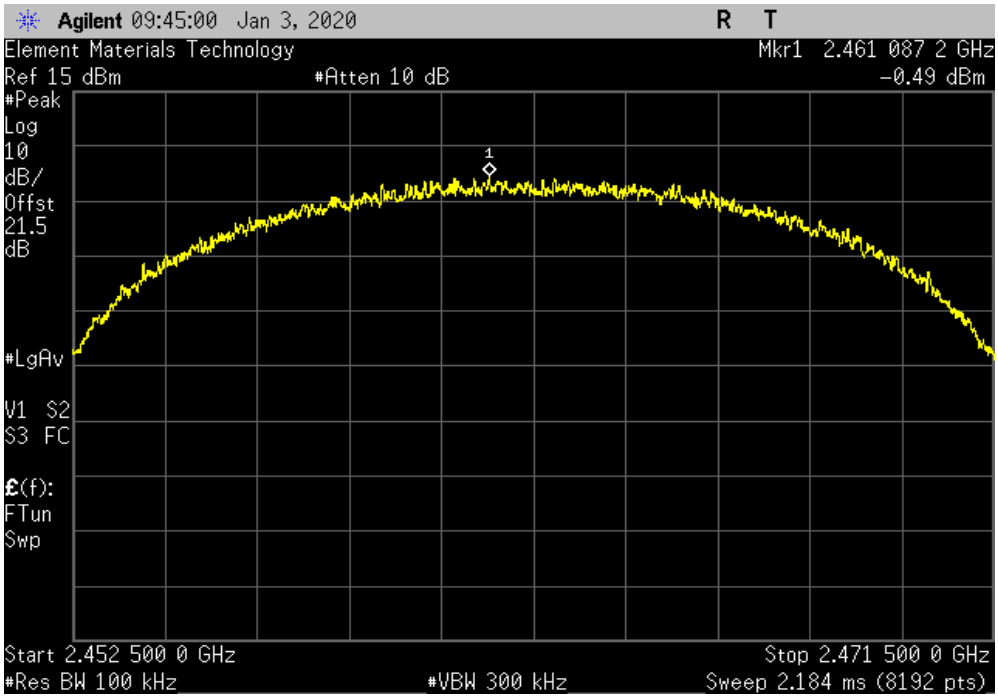
| Frequency Range | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
|---|---|---|---|---|
| 30 MHz - 12.5 GHz | 6918.9 | -58.29 | -30 | Pass |



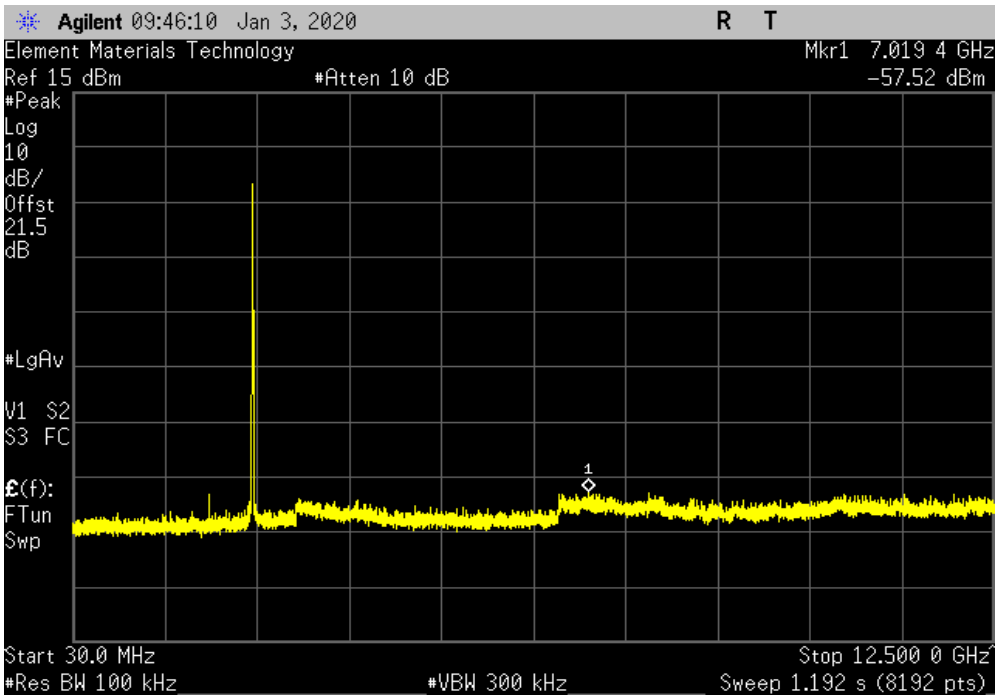
| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz | | | | |
|---|---|---|---|---|
| Frequency Range | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| 12.5 GHz - 25 GHz | 24975.6 | -54.47 | -30 | Pass |



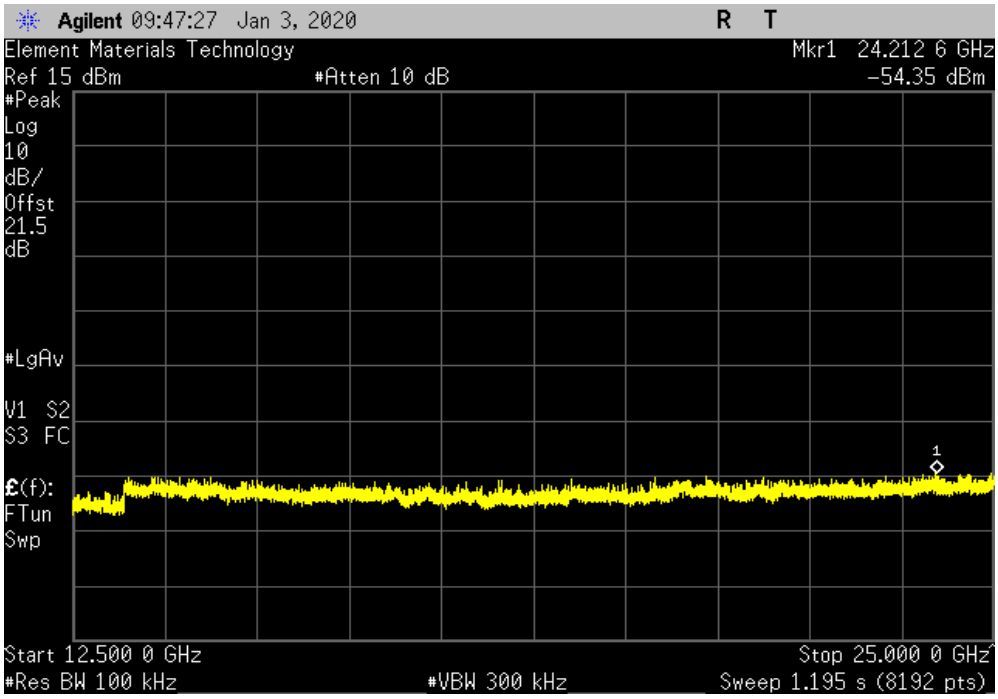

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz | | | | |
|---|---|---|---|---|
| Frequency Range | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| Fundamental | 2461.09 | N/A | N/A | N/A |



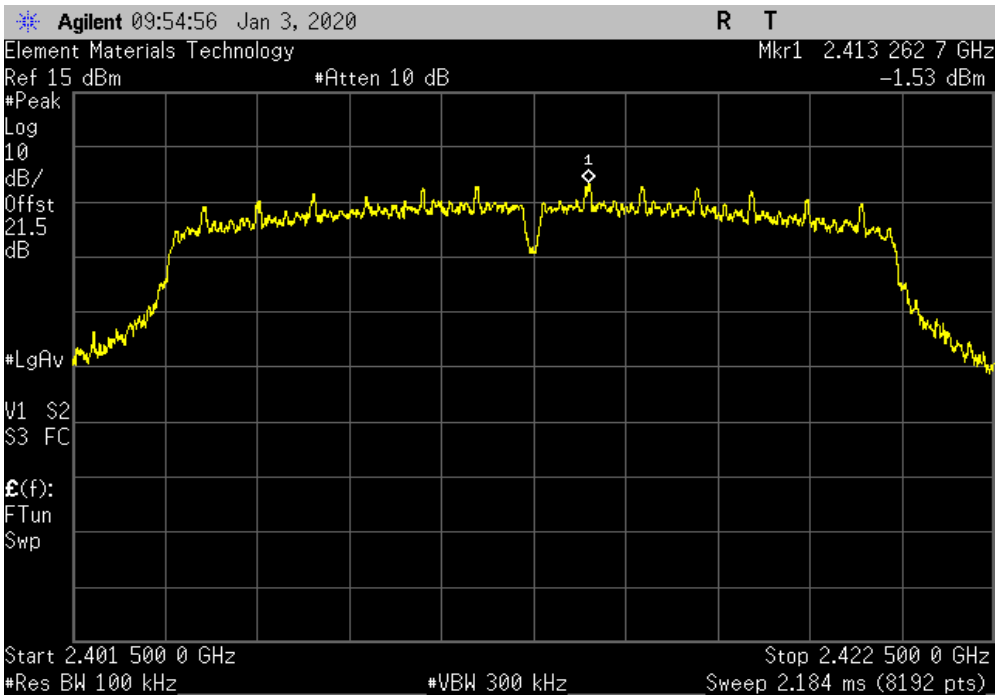
| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 30 MHz - 12.5 GHz | 7019.4 | -57.03 | -30 | Pass |



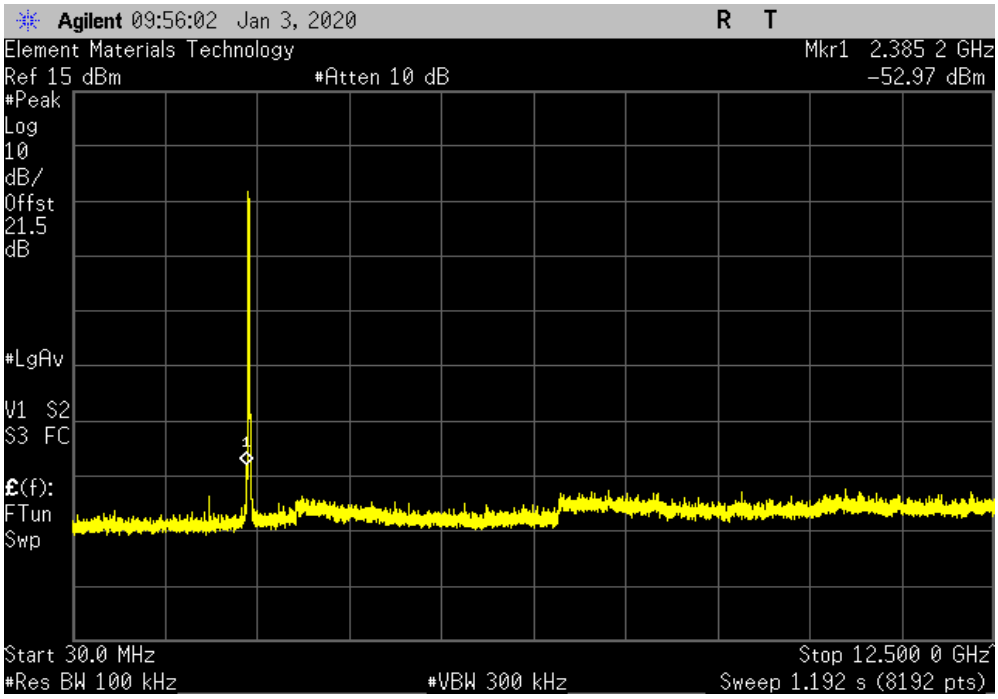

| 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 12.5 GHz - 25 GHz | 24212.6 | -53.86 | -30 | Pass |



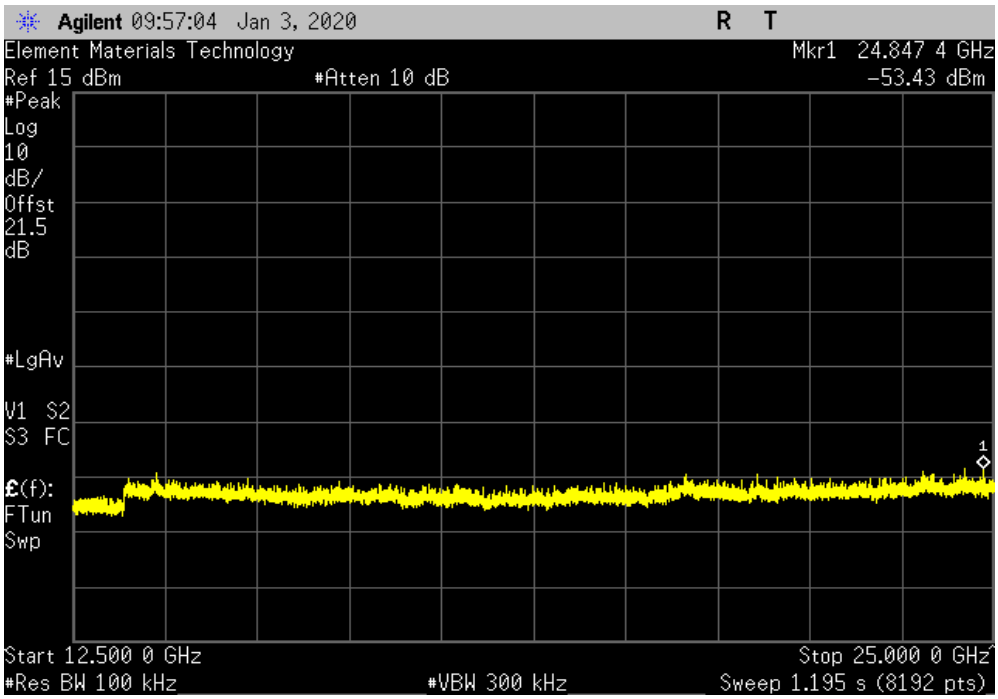
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz | | | | | |
|---|---|---|---|---|---|
| Frequency Range | | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| | Fundamental | 2413.26 | N/A | N/A | N/A |



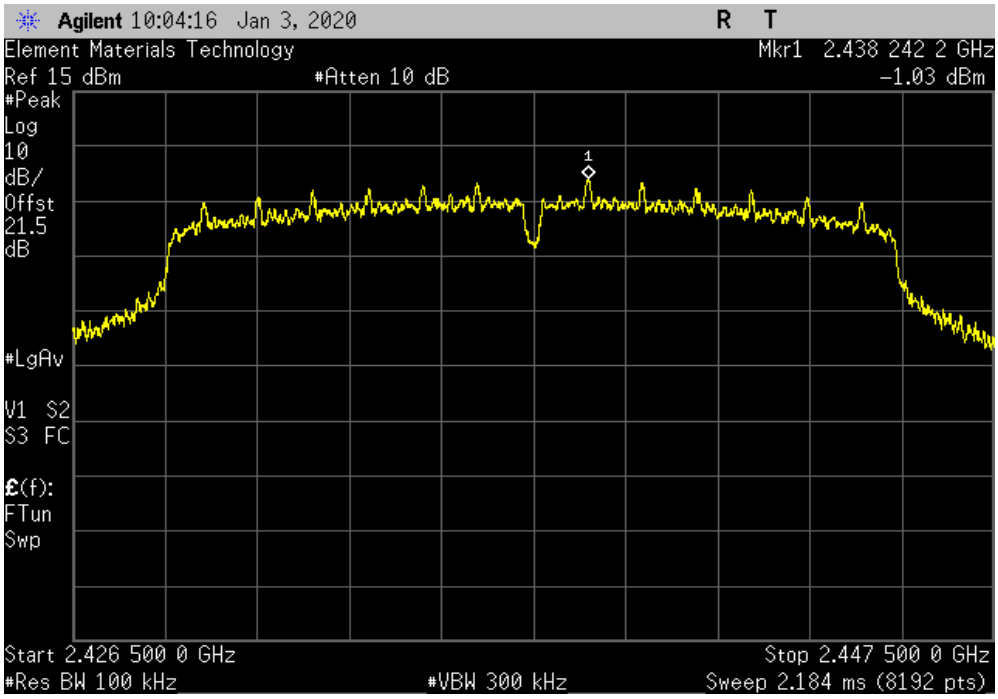

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz | | | | |
|---|---|---|---|---|
| Frequency Range | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| 30 MHz - 12.5 GHz | 2385.2 | -51.44 | -30 | Pass |



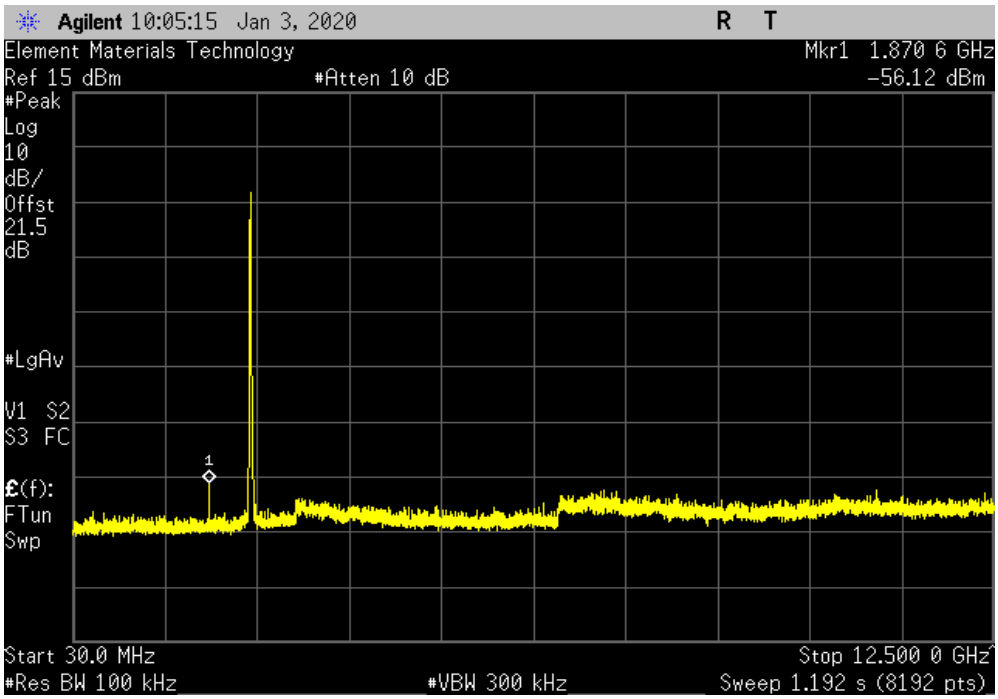
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 12.5 GHz - 25 GHz | 24847.4 | -51.9 | -30 | Pass |



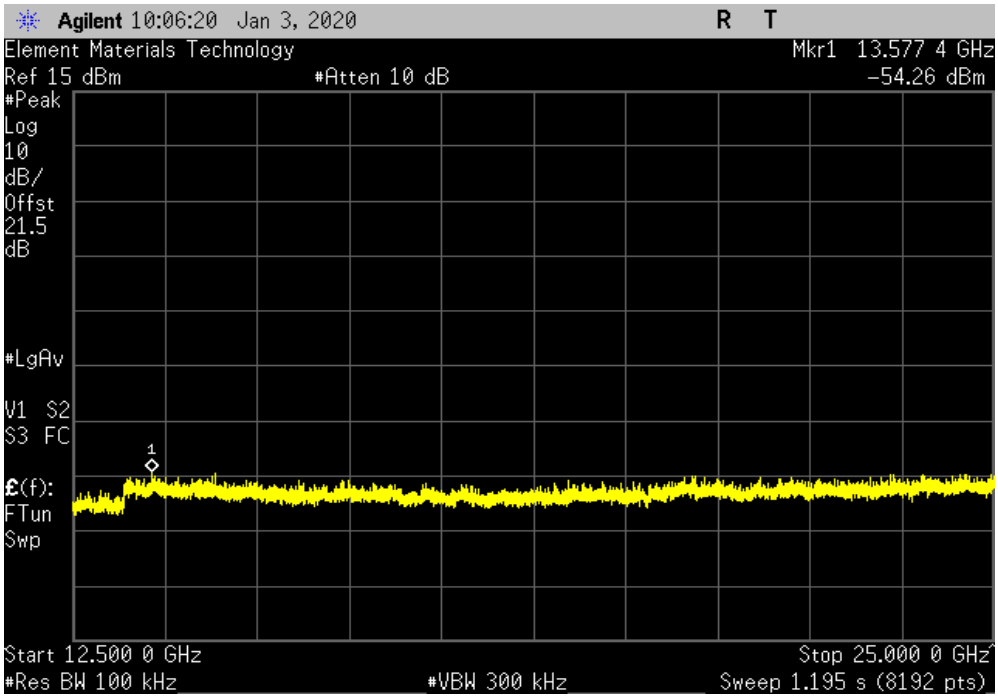

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| Fundamental | 2438.24 | N/A | N/A | N/A |



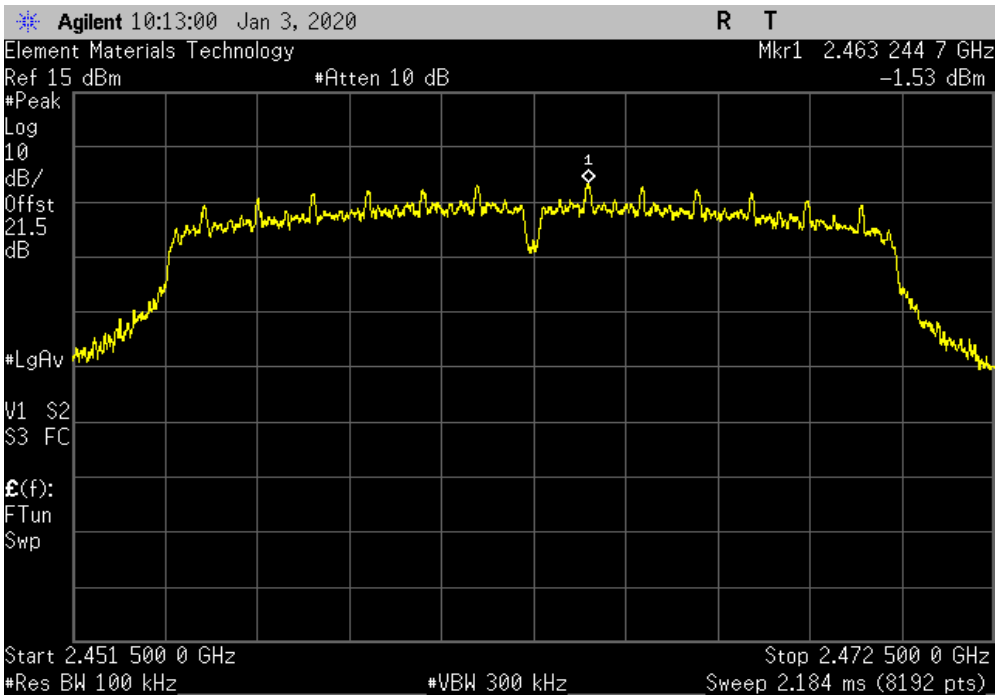
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 30 MHz - 12.5 GHz | 1870.6 | -55.09 | -30 | Pass |



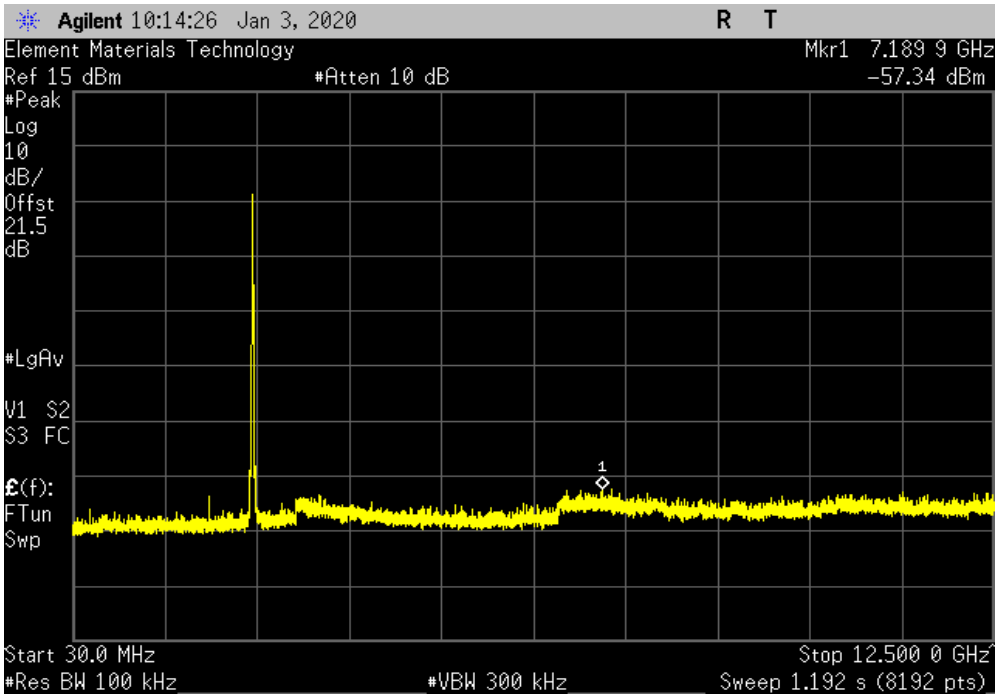

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 12.5 GHz - 25 GHz | 13577.4 | -53.23 | -30 | Pass |



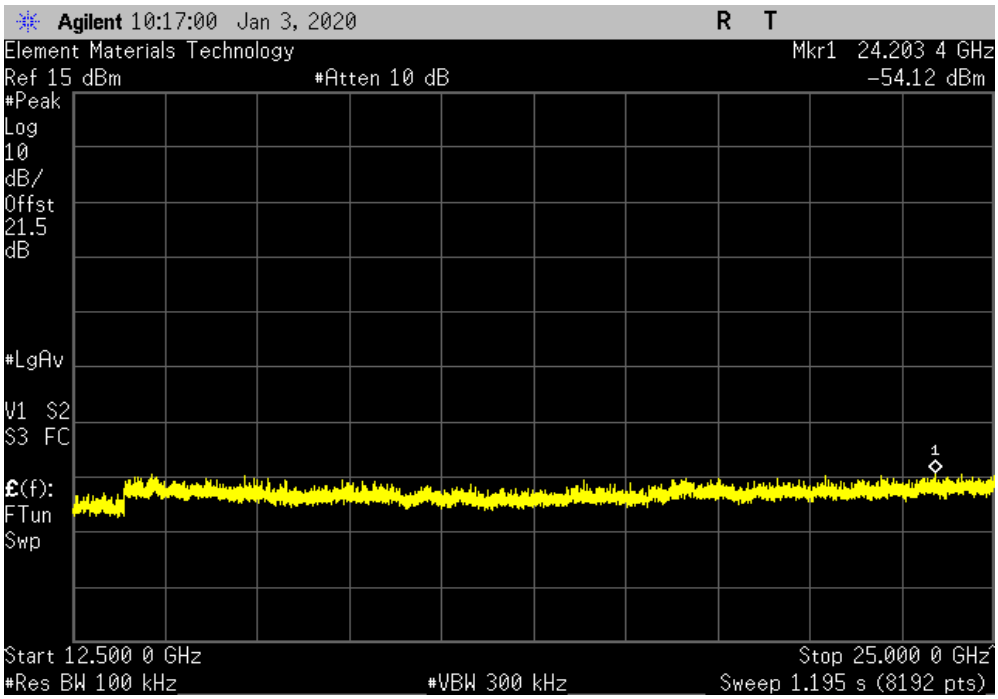
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz | | | | | |
|---|---|---|---|---|---|
| Frequency Range | | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| | Fundamental | 2463.24 | N/A | N/A | N/A |



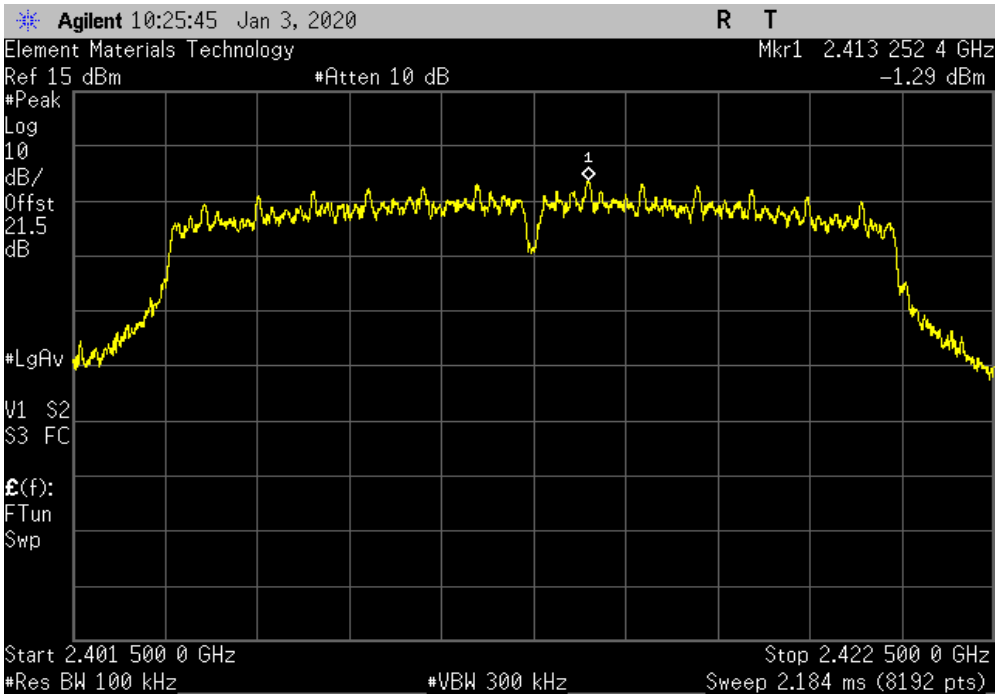

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz | | | | |
|---|---|---|---|---|
| Frequency Range | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| 30 MHz - 12.5 GHz | 7189.9 | -55.81 | -30 | Pass |



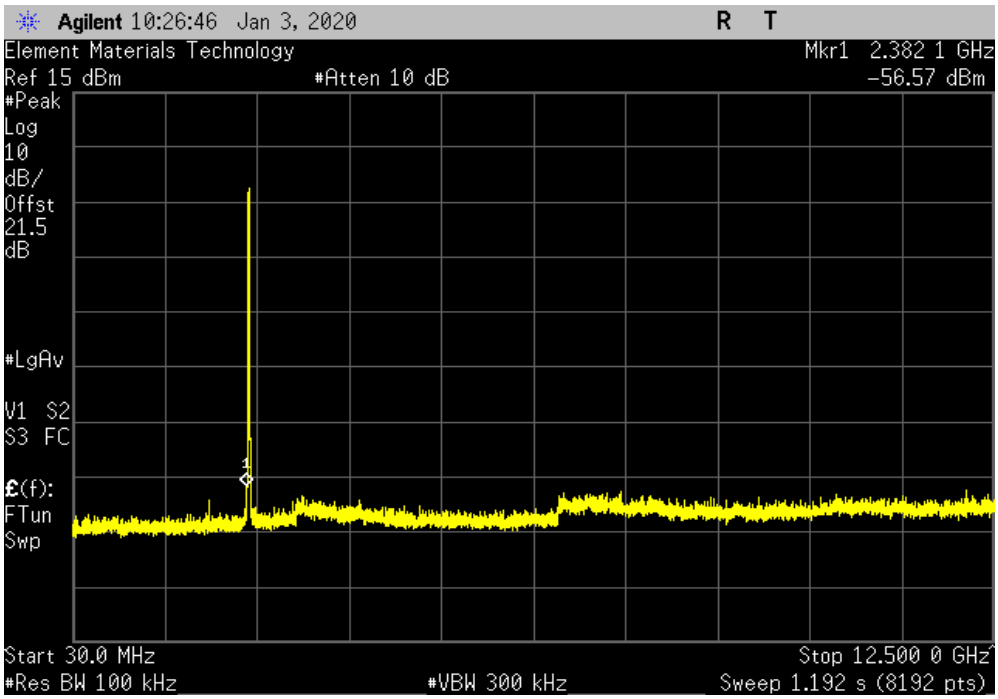
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 12.5 GHz - 25 GHz | 24203.4 | -52.59 | -30 | Pass |



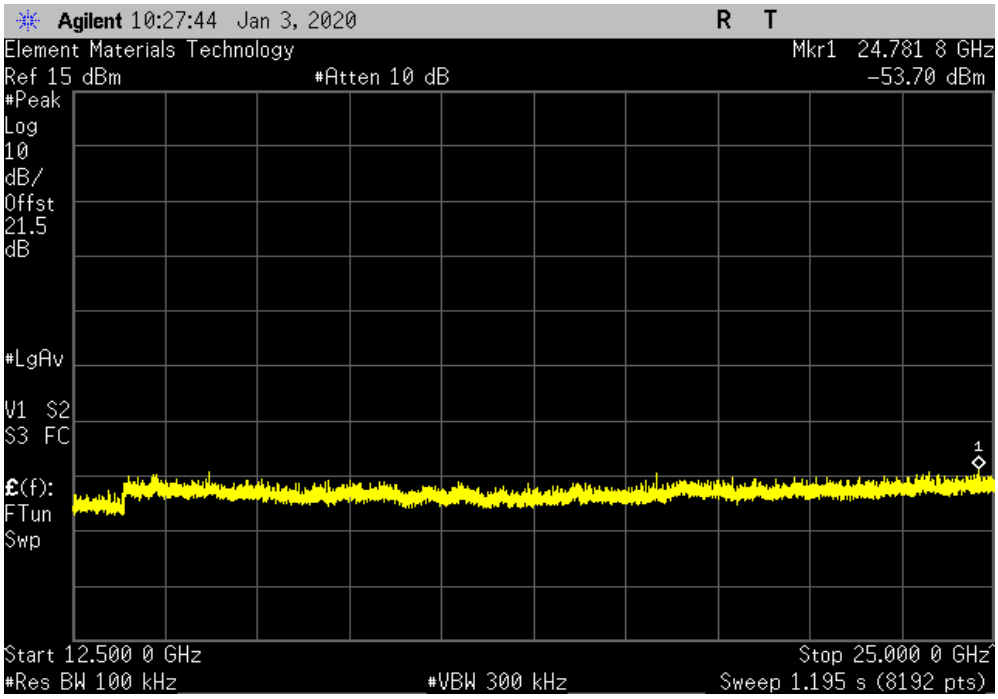

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz | | | | | |
|---|---|---|---|---|---|
| **Frequency Range** | | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| Fundamental | | 2413.25 | N/A | N/A | N/A |



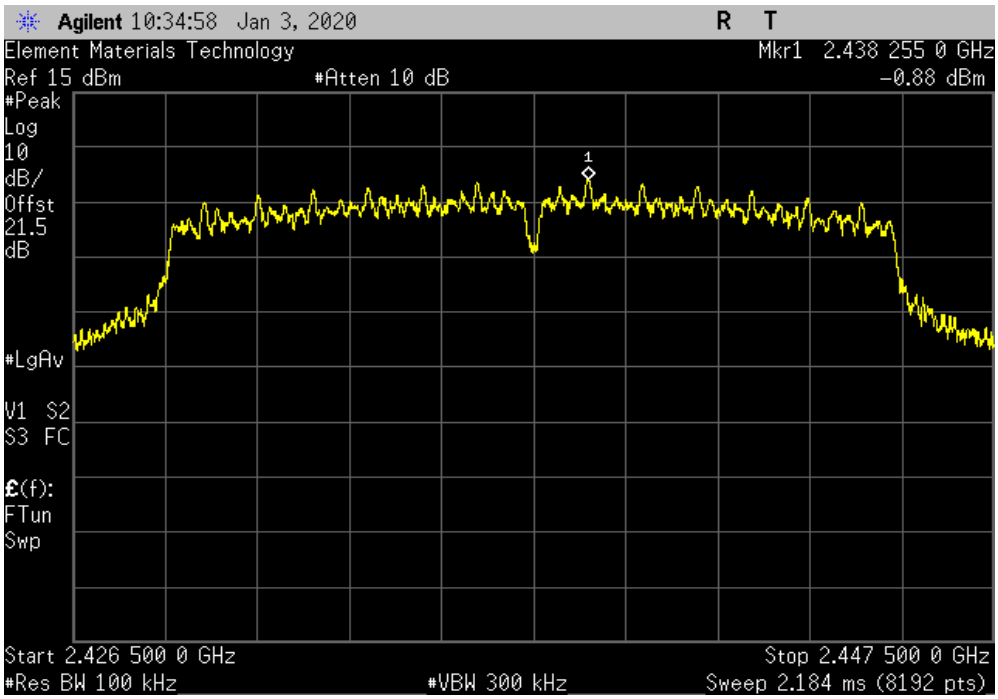
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 30 MHz - 12.5 GHz | 2382.1 | -55.28 | -30 | Pass |



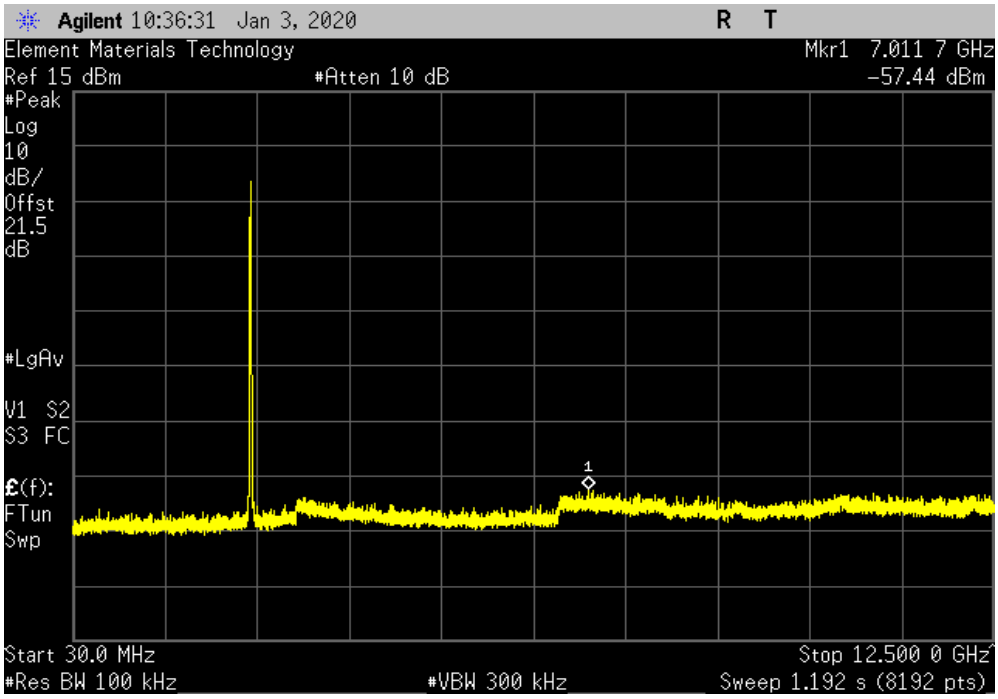

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 12.5 GHz - 25 GHz | 24781.8 | -52.41 | -30 | Pass |



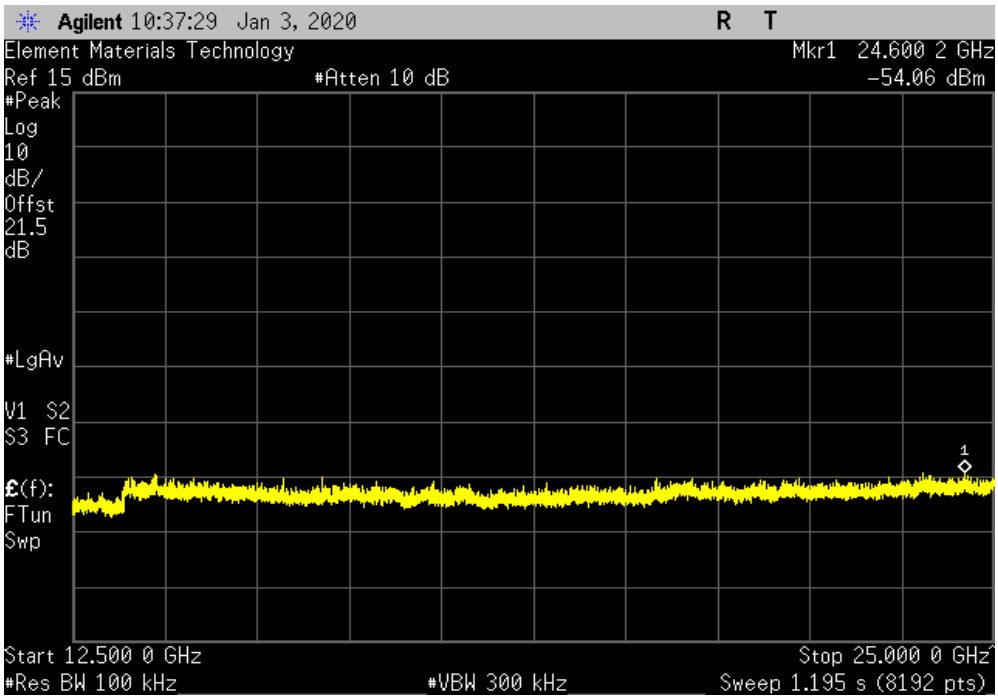
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Frequency Range | | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| | Fundamental | | 2438.26 | N/A | N/A | N/A |



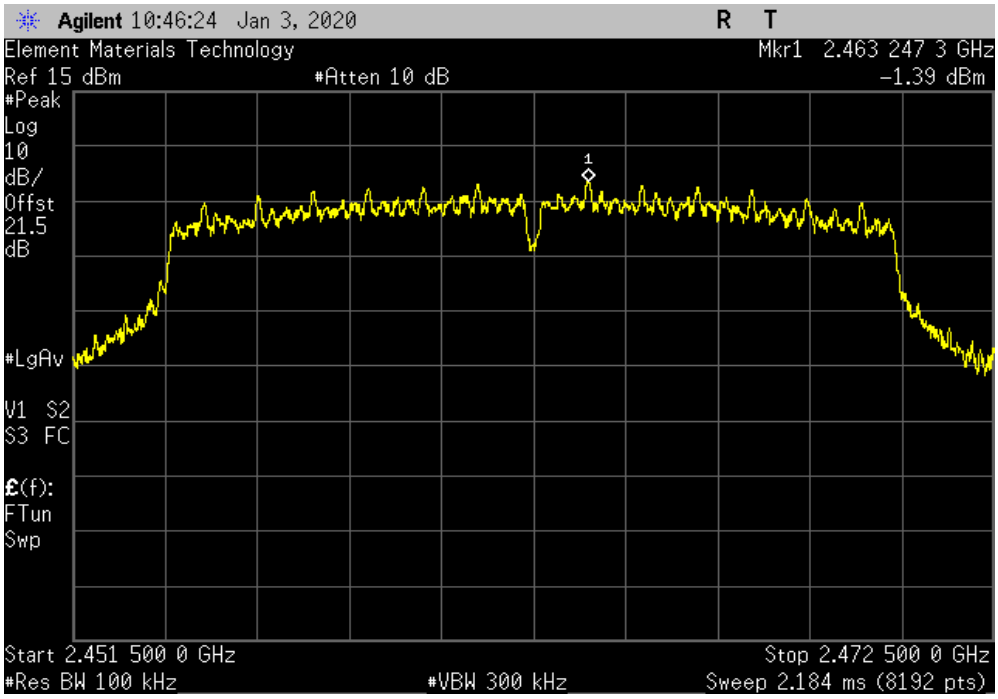

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz | | | | | |
|---|---|---|---|---|---|
| Frequency Range | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| 30 MHz - 12.5 GHz | 7011.7 | -56.56 | -30 | Pass |



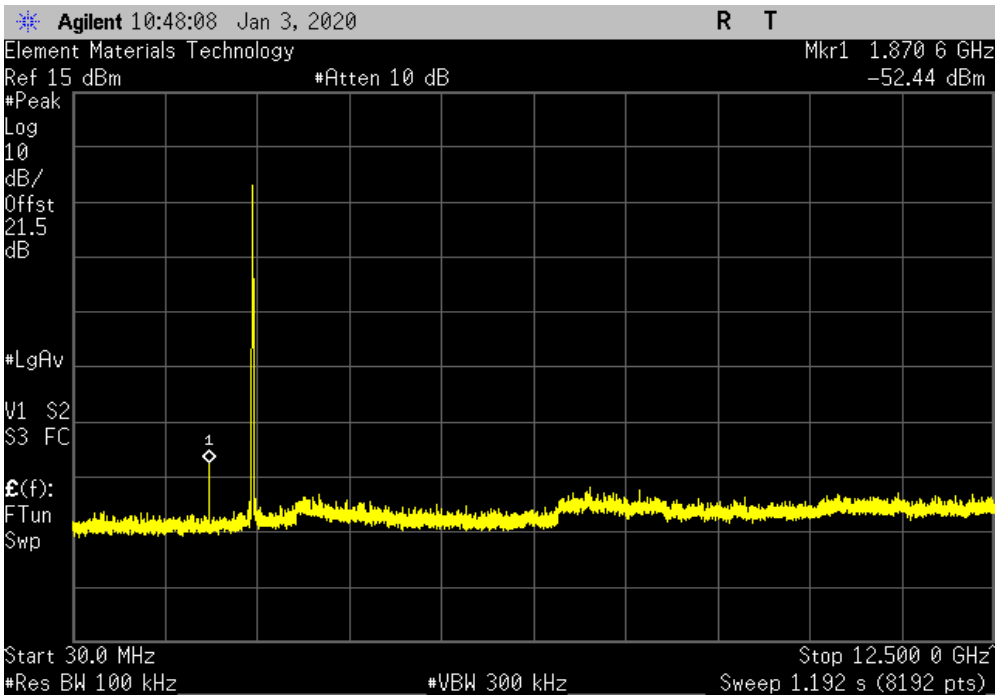
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 12.5 GHz - 25 GHz | 24600.2 | -53.18 | -30 | Pass |



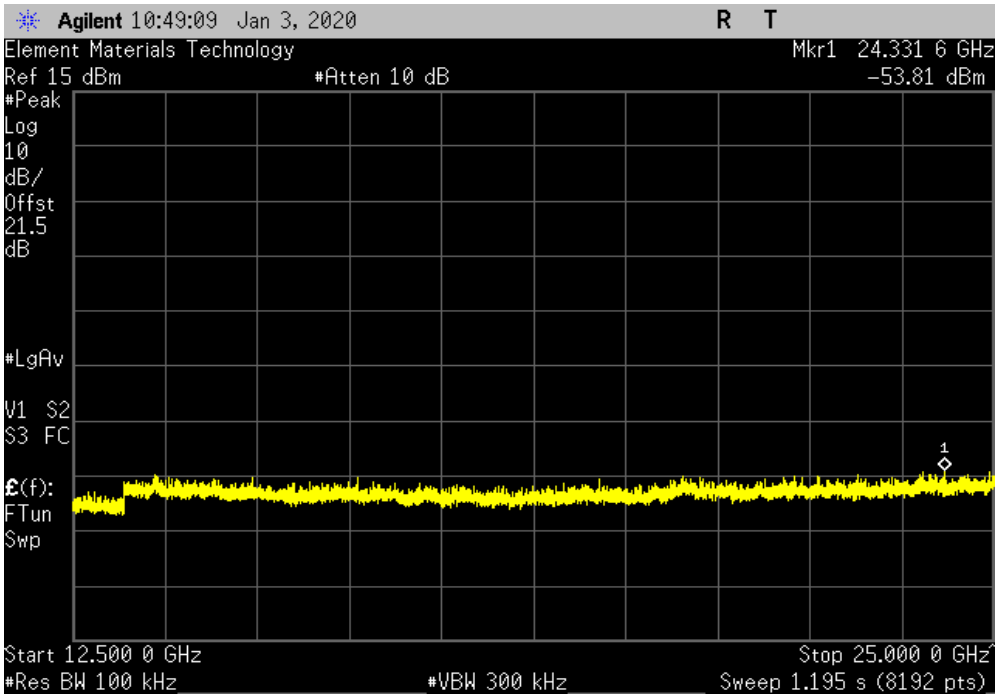

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz | | | | | |
|---|---|---|---|---|---|
| **Frequency Range** | | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| Fundamental | | 2463.25 | N/A | N/A | N/A |



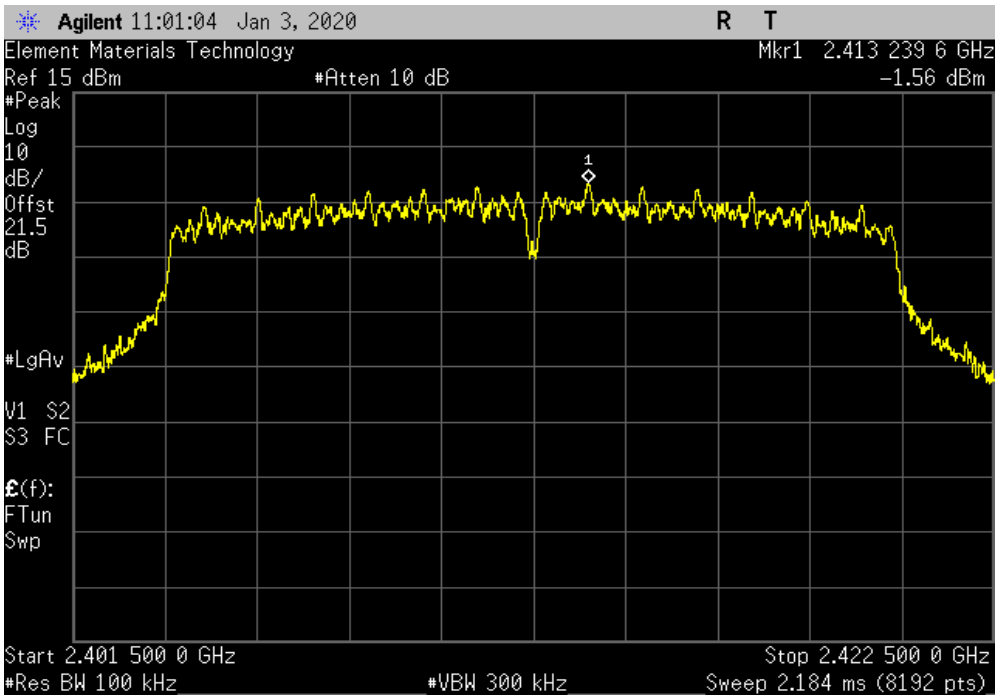
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 30 MHz - 12.5 GHz | 1870.6 | -51.05 | -30 | Pass |



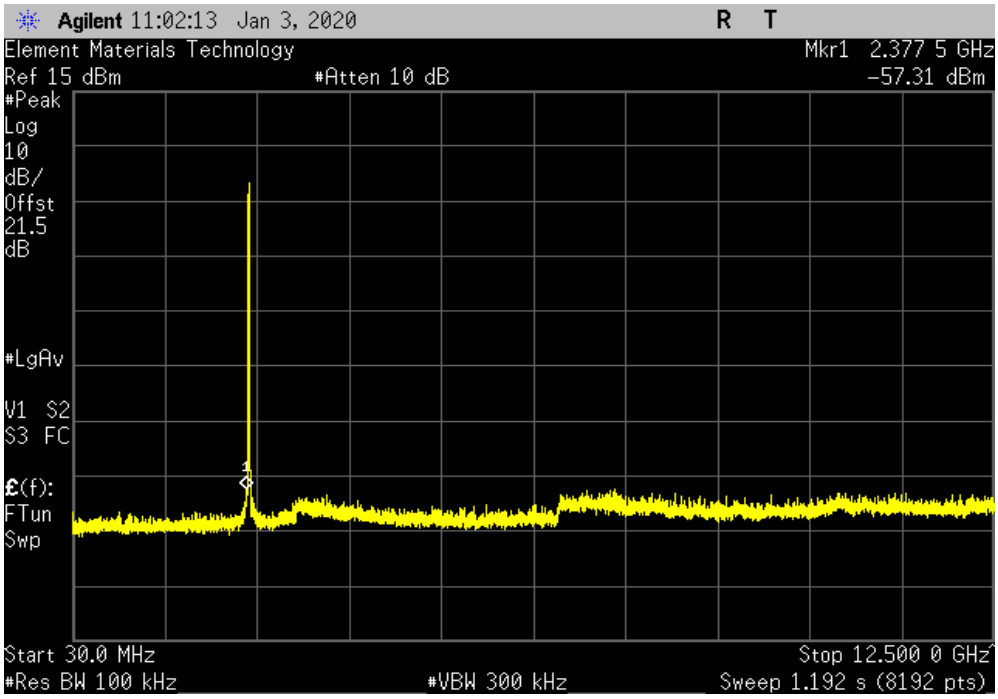

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 12.5 GHz - 25 GHz | 24331.6 | -52.43 | -30 | Pass |



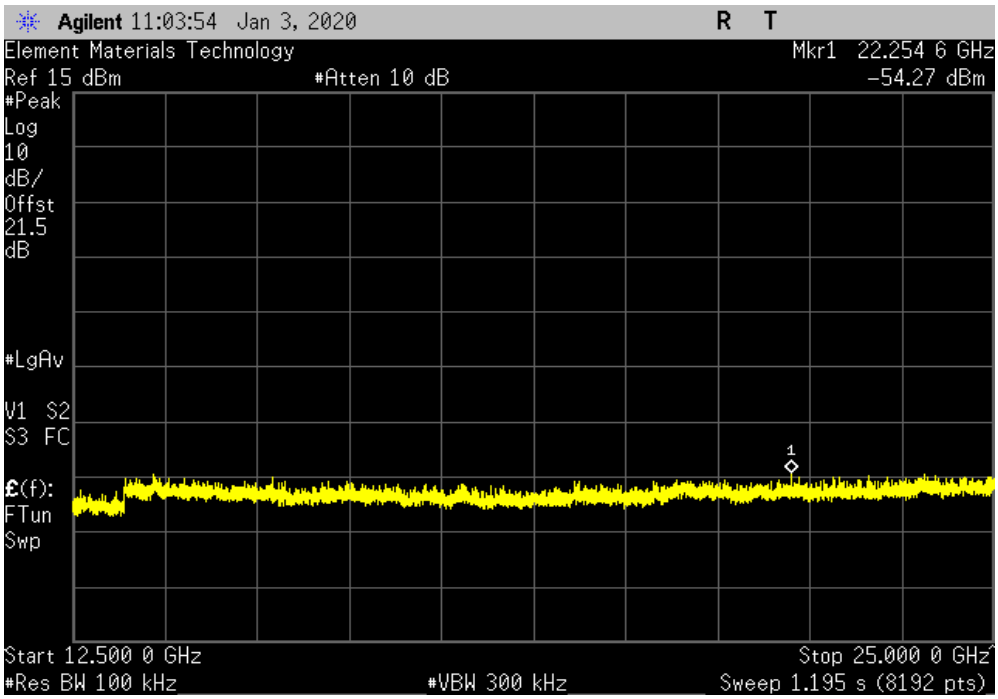
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Frequency Range | | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| | Fundamental | | 2413.24 | N/A | N/A | N/A |



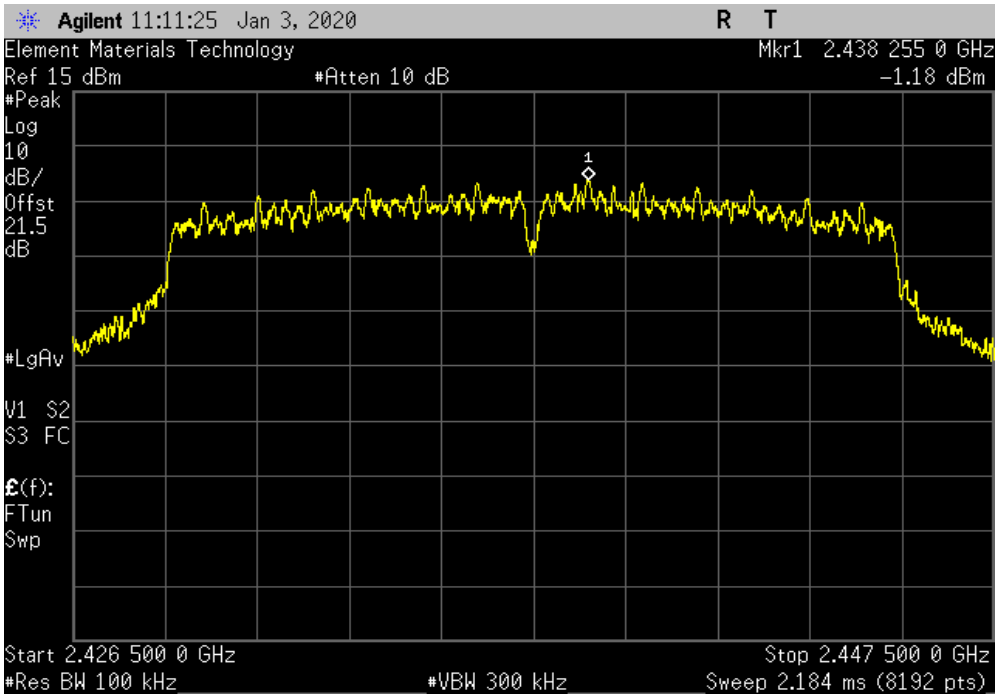

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz | | | | | |
|---|---|---|---|---|---|
| Frequency Range | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| 30 MHz - 12.5 GHz | 2377.5 | -55.75 | -30 | Pass |



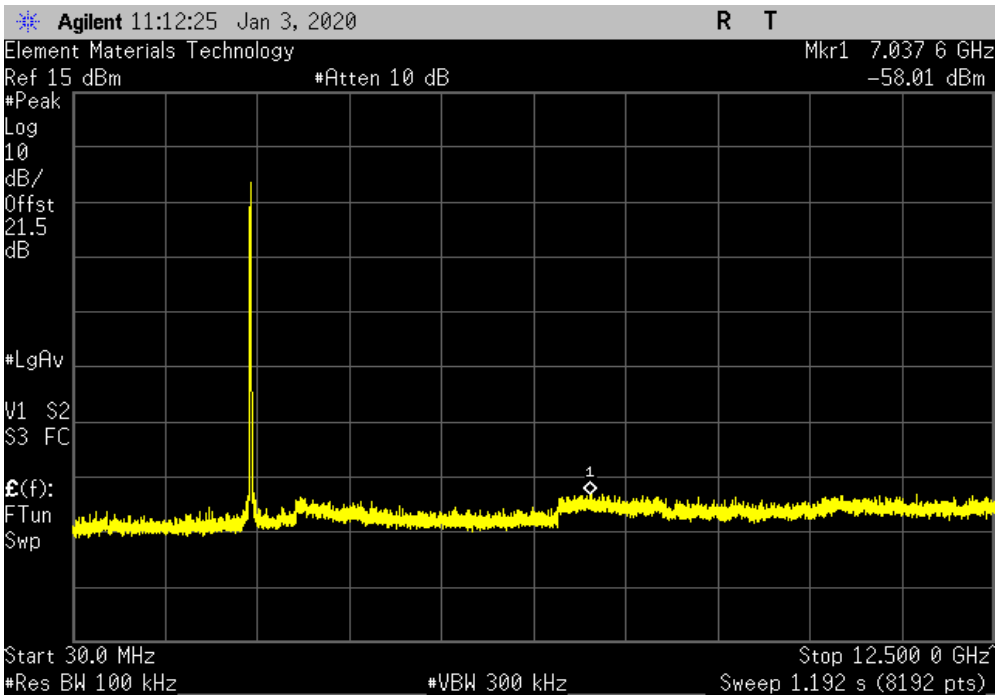
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 12.5 GHz - 25 GHz | 22254.6 | -52.71 | -30 | Pass |



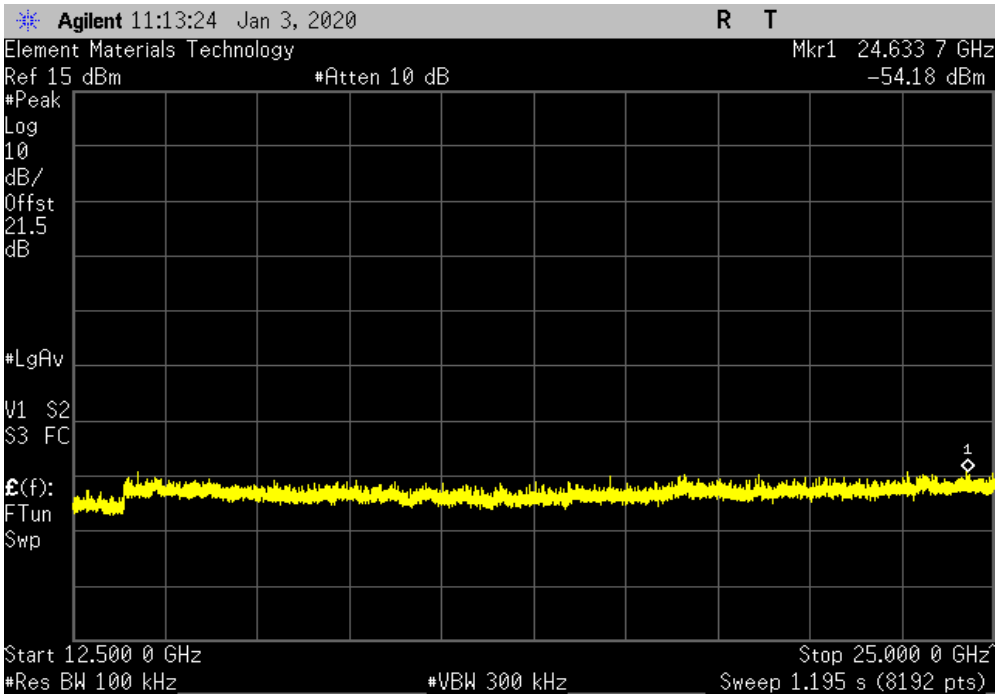

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz | | | | | |
|---|---|---|---|---|---|
| **Frequency Range** | | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| | Fundamental | 2438.26 | N/A | N/A | N/A |



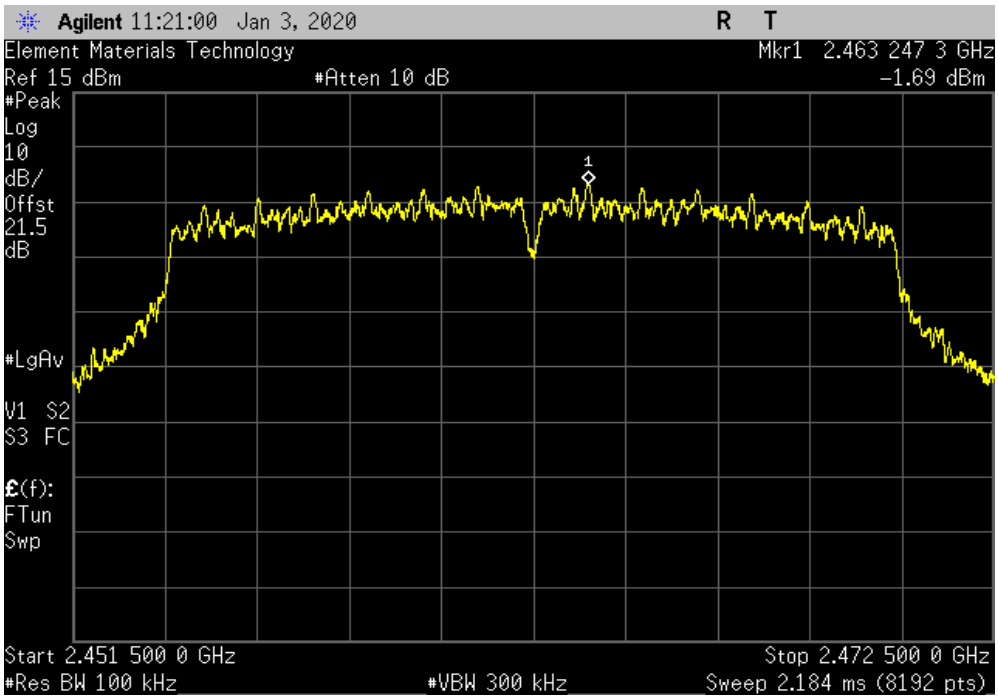
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 30 MHz - 12.5 GHz | 7037.6 | -56.83 | -30 | Pass |



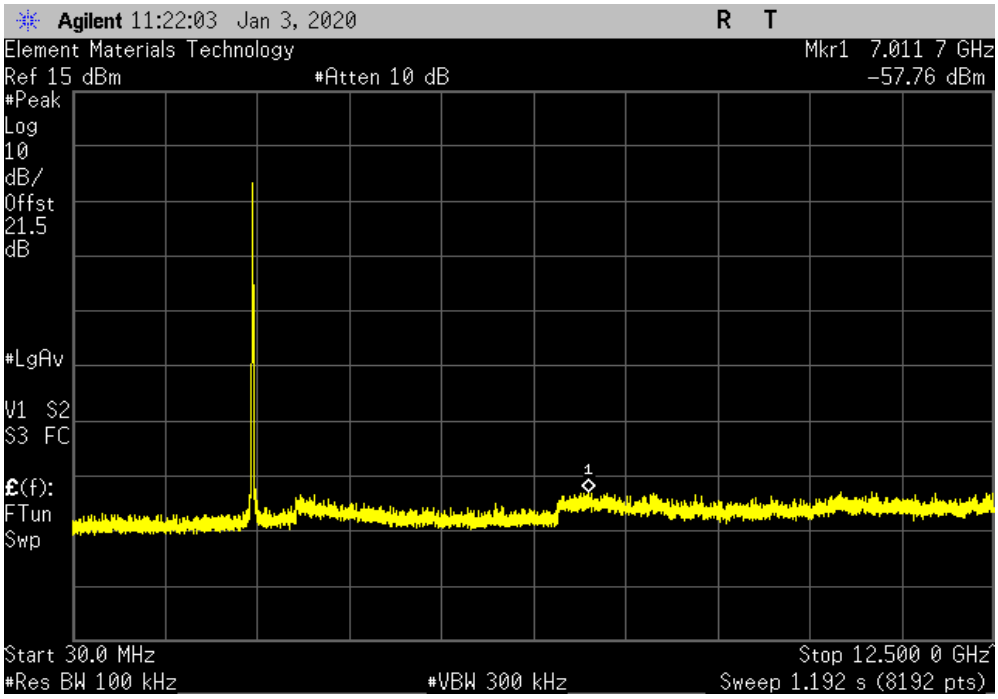

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 12.5 GHz - 25 GHz | 24633.7 | -53 | -30 | Pass |



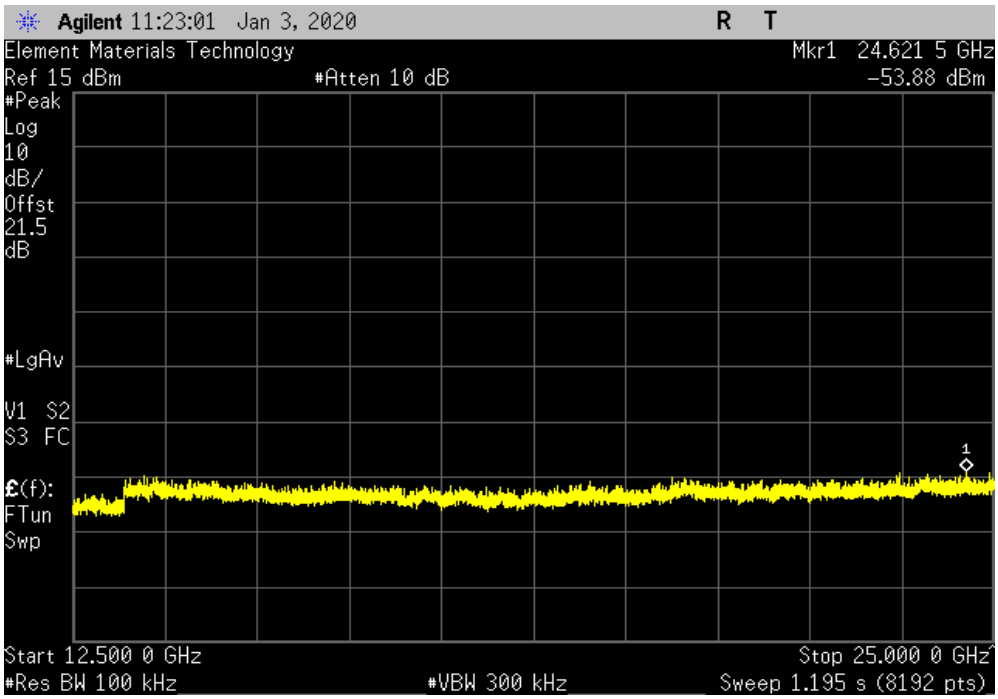
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz | | | | | | |
|---|---|---|---|---|---|---|
| | Frequency Range | | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| | Fundamental | | 2463.25 | N/A | N/A | N/A |



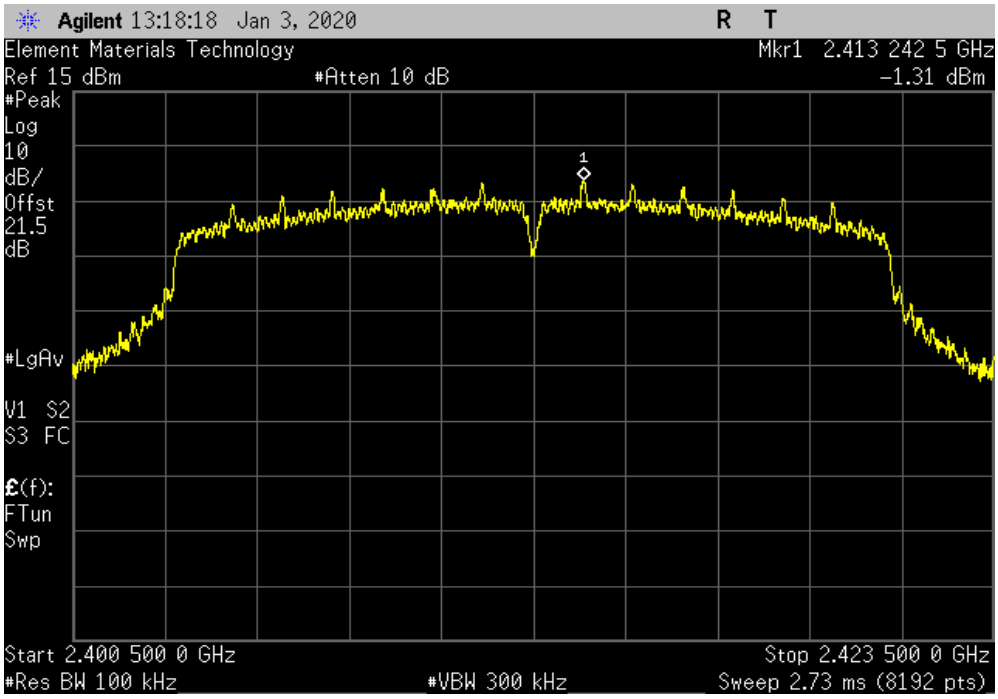

| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz | | | | | |
|---|---|---|---|---|---|
| Frequency Range | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| 30 MHz - 12.5 GHz | 7011.7 | -56.07 | -30 | Pass |



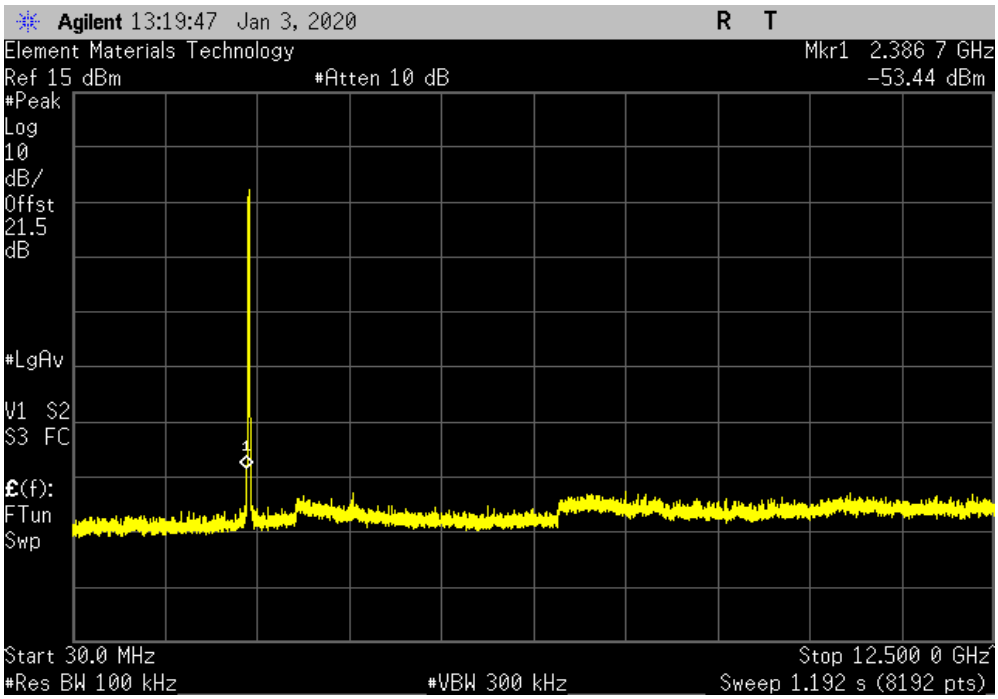
| 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 12.5 GHz - 25 GHz | 24621.5 | -52.19 | -30 | Pass |



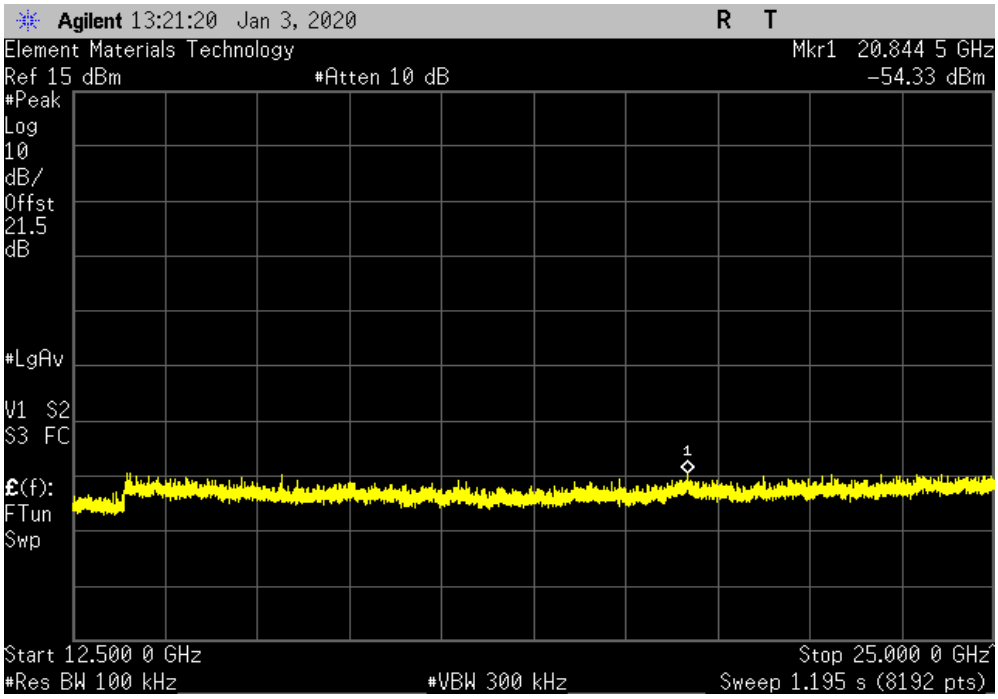

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz | | | | | |
|---|---|---|---|---|---|
| **Frequency Range** | | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| | Fundamental | 2413.24 | N/A | N/A | N/A |



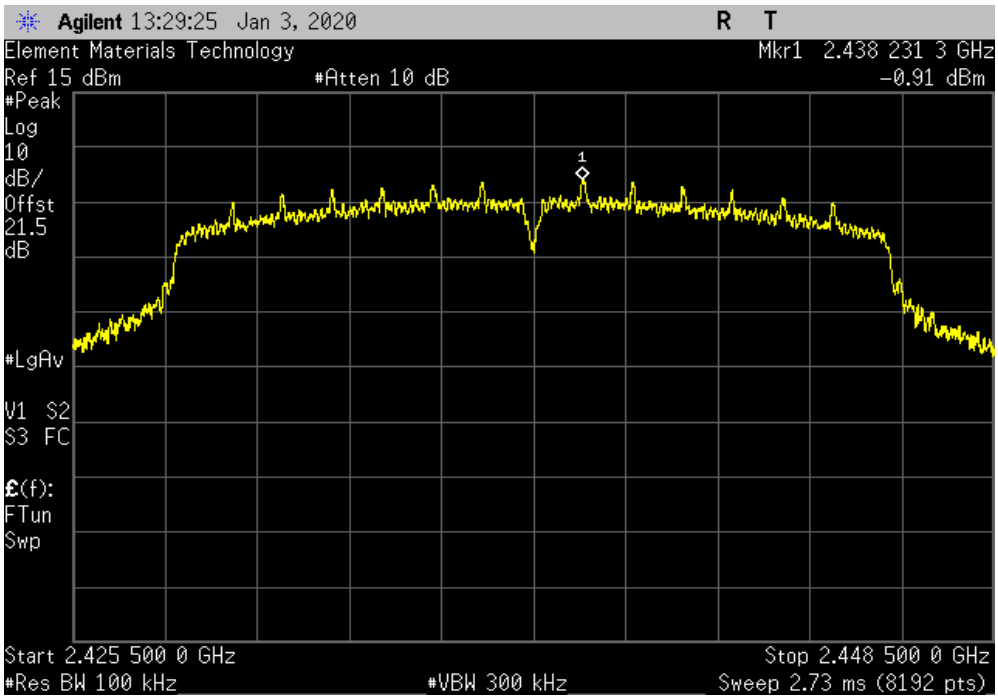
| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 30 MHz - 12.5 GHz | 2386.7 | -52.13 | -30 | Pass |



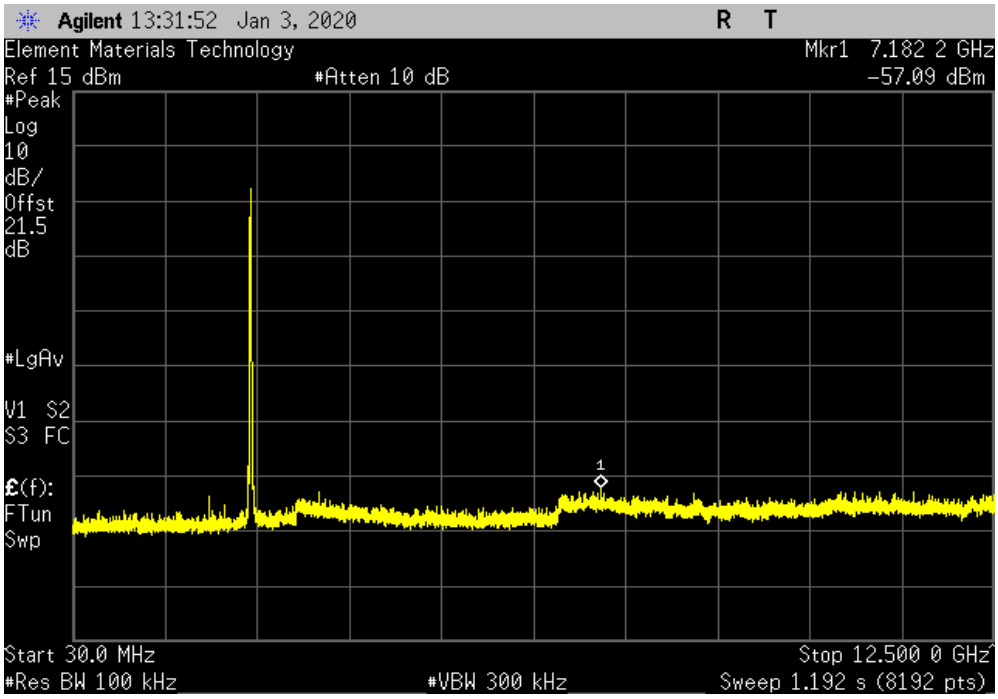

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 12.5 GHz - 25 GHz | 20844.5 | -53.02 | -30 | Pass |



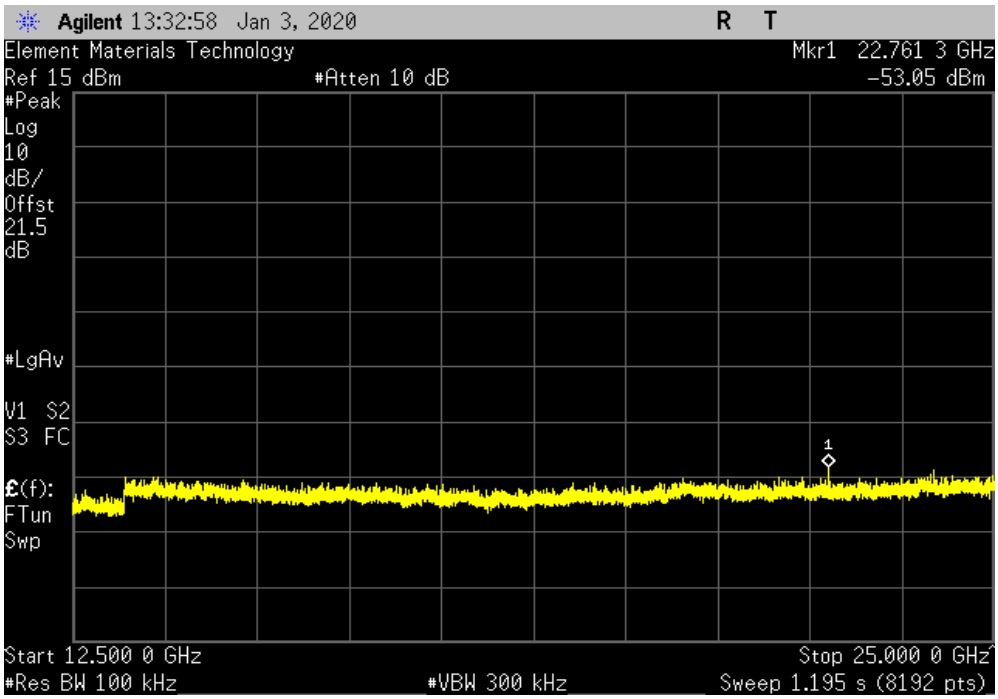
| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz | | | | | |
|---|---|---|---|---|---|
| Frequency Range | | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| | Fundamental | 2438.23 | N/A | N/A | N/A |



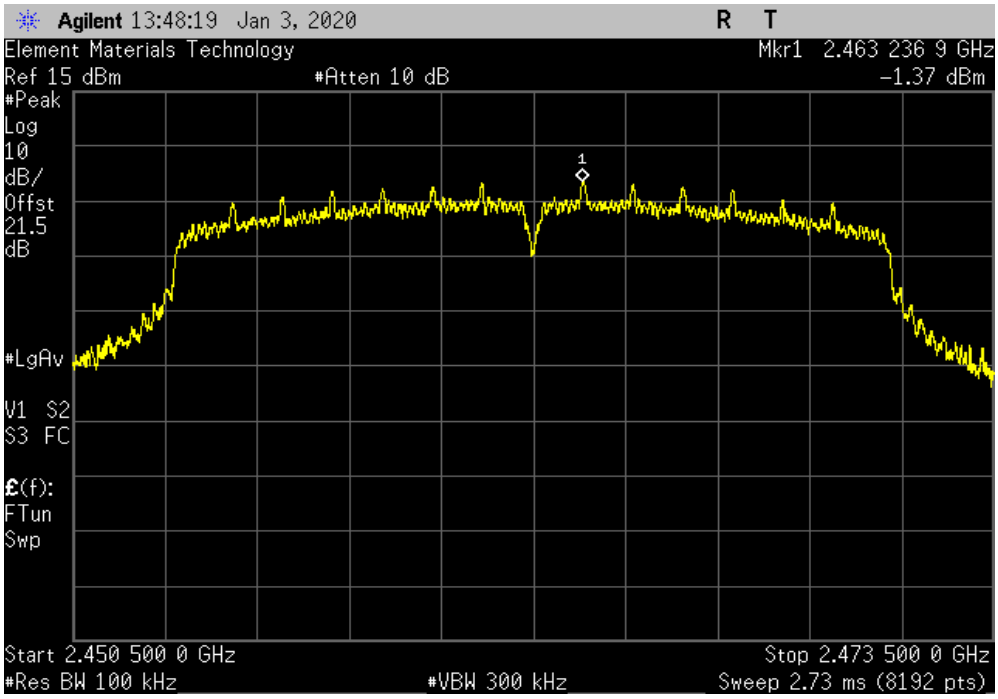

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz | | | | |
|---|---|---|---|---|
| Frequency Range | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| 30 MHz - 12.5 GHz | 7182.2 | -56.18 | -30 | Pass |



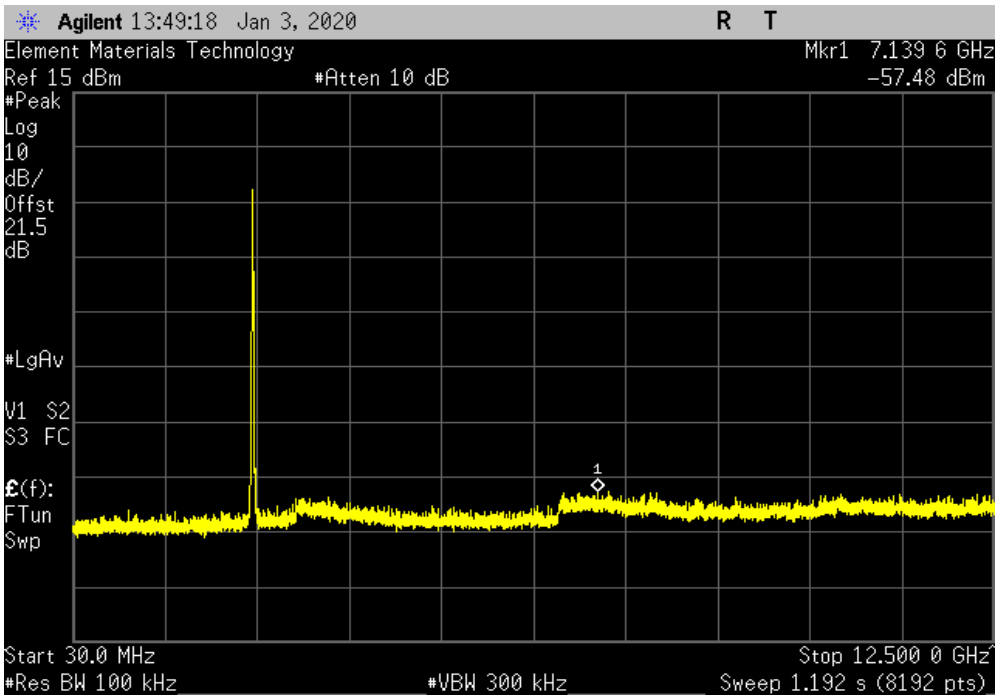
| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 12.5 GHz - 25 GHz | 22761.3 | -52.14 | -30 | Pass |



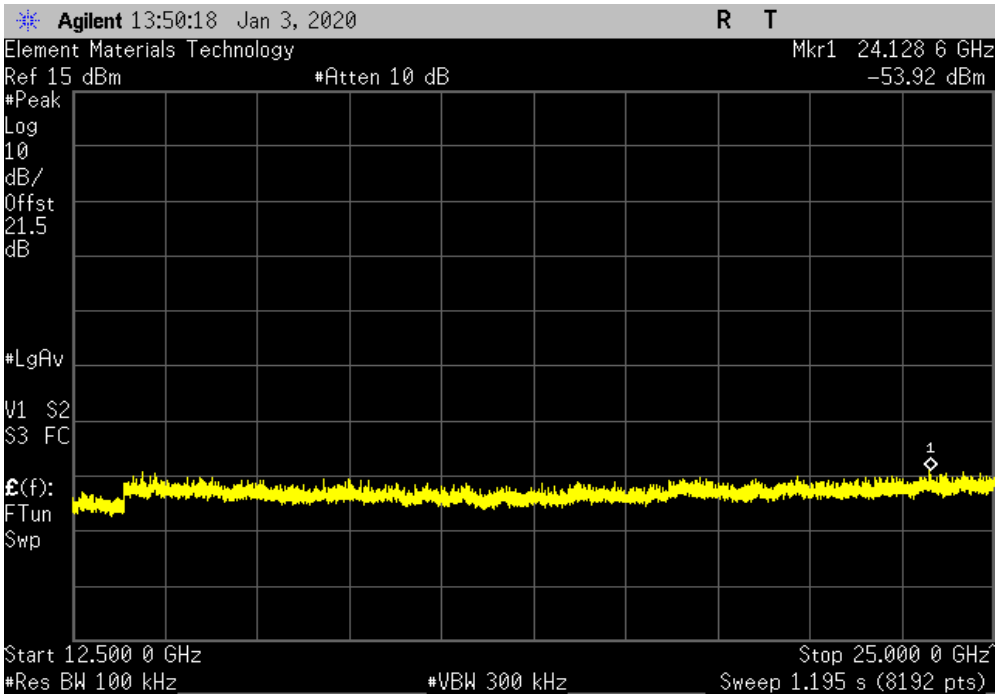

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz | | | | | |
|---|---|---|---|---|---|
| **Frequency Range** | | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| Fundamental | | 2463.24 | N/A | N/A | N/A |



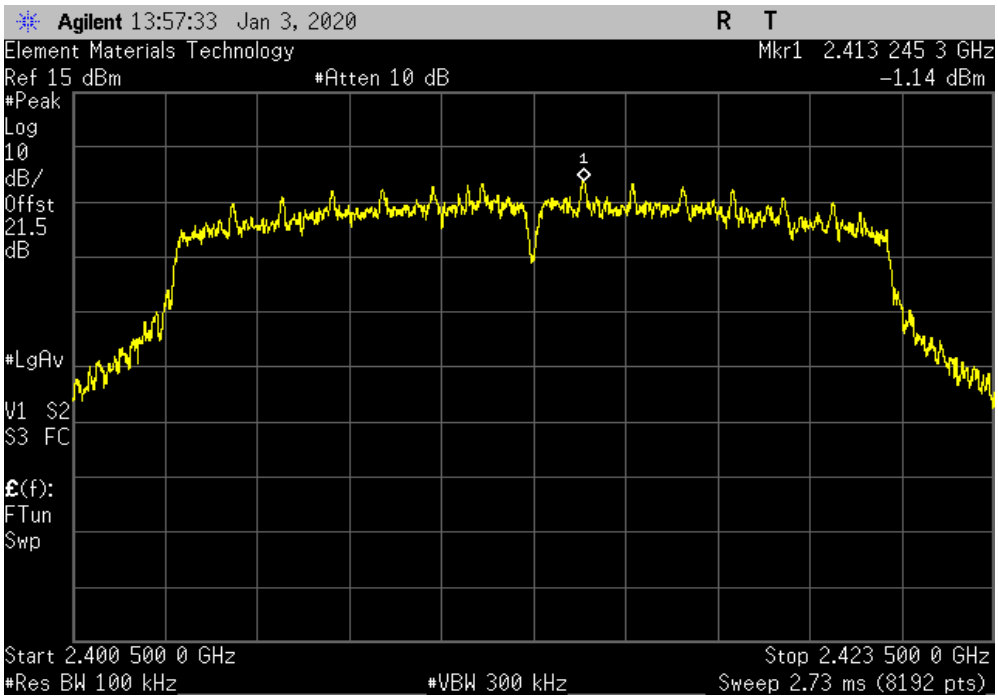
| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 30 MHz - 12.5 GHz | 7139.6 | -56.11 | -30 | Pass |



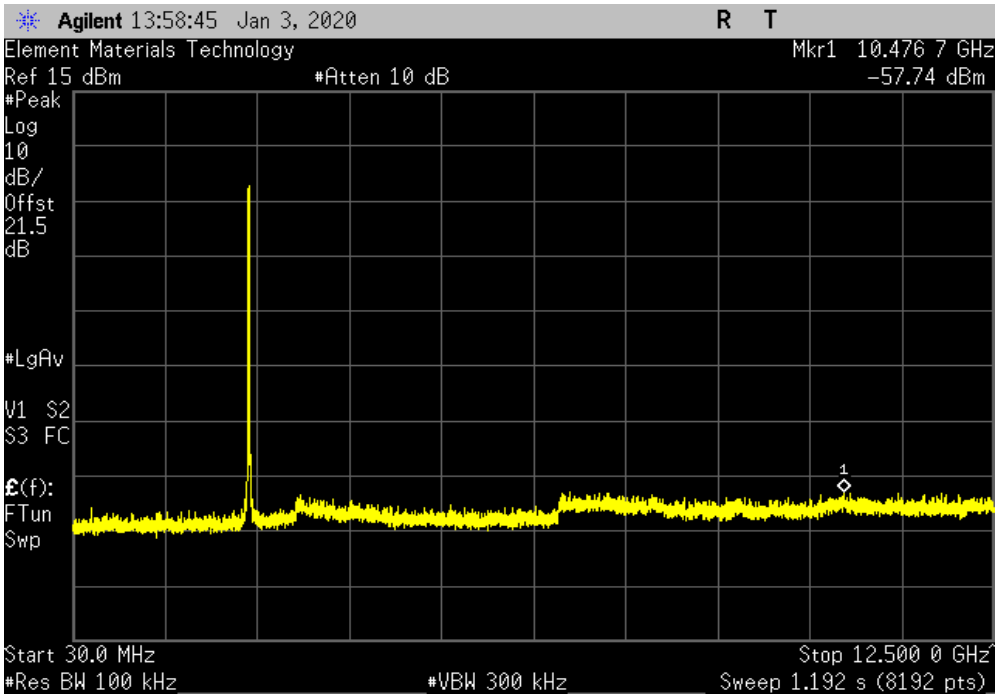

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 12.5 GHz - 25 GHz | 24128.6 | -52.55 | -30 | Pass |



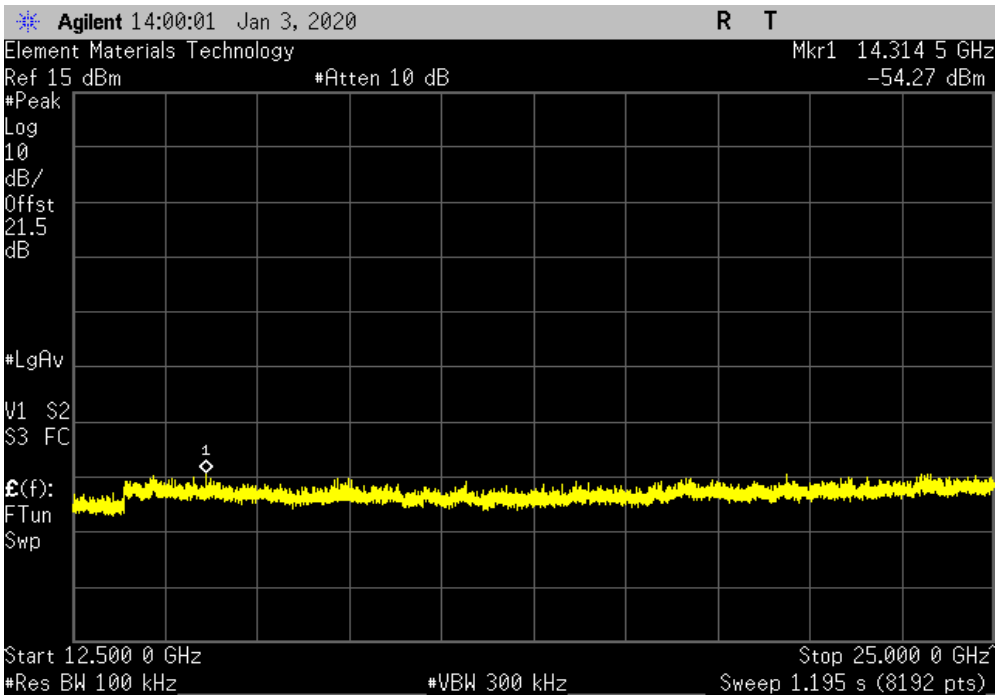
| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz | | | | | |
|---|---|---|---|---|---|
| Frequency Range | | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| Fundamental | | 2413.25 | N/A | N/A | N/A |



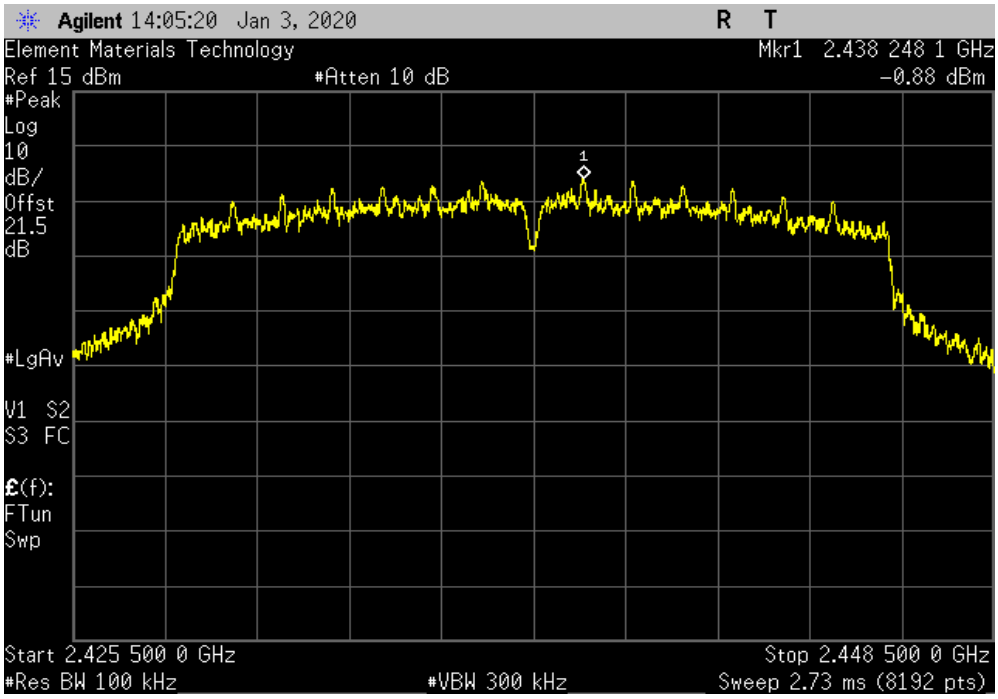

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz | | | | |
|---|---|---|---|---|
| Frequency Range | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| 30 MHz - 12.5 GHz | 10476.7 | -56.6 | -30 | Pass |



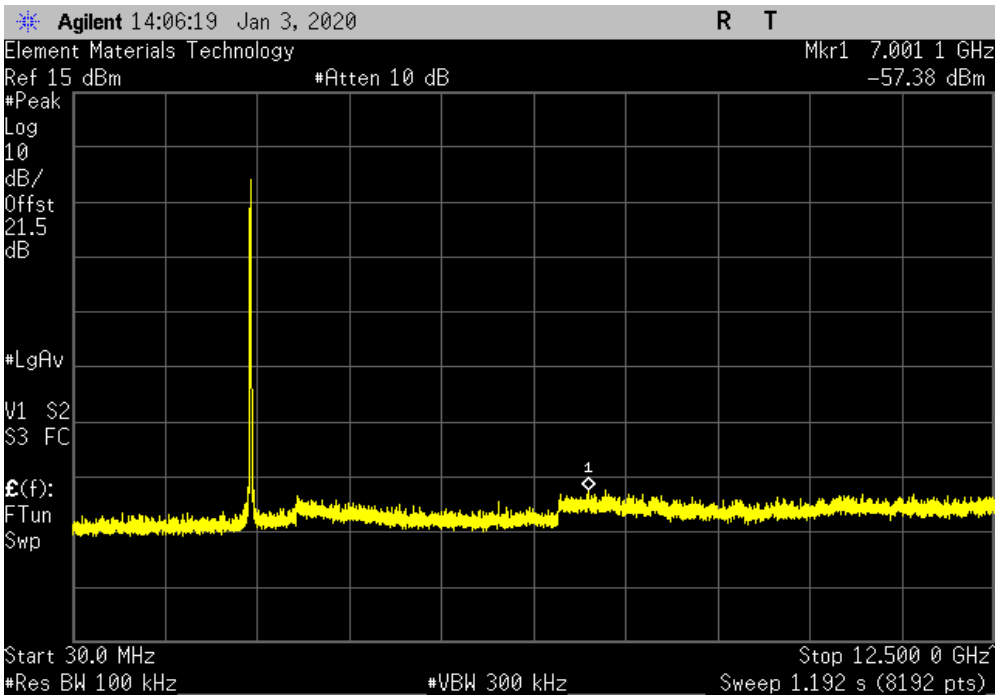
| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz | | | | |
|---|---|---|---|---|
| Frequency Range | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| 12.5 GHz - 25 GHz | 14314.5 | -53.13 | -30 | Pass |



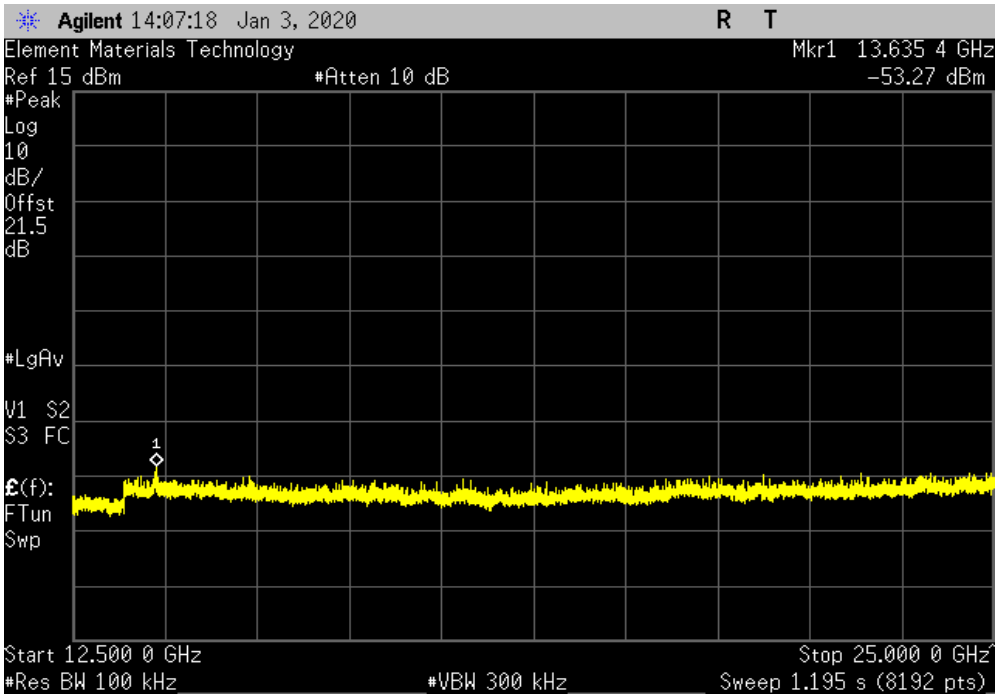

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz | | | | | |
|---|---|---|---|---|---|
| Frequency Range | | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| | Fundamental | 2438.25 | N/A | N/A | N/A |



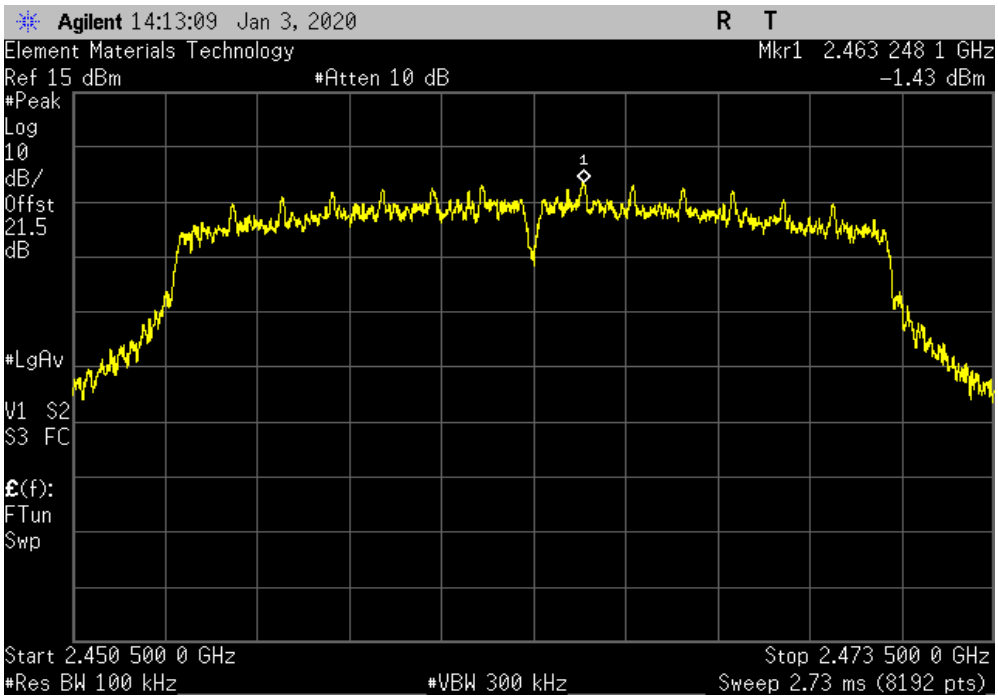
| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 30 MHz - 12.5 GHz | 7001.1 | -56.5 | -30 | Pass |



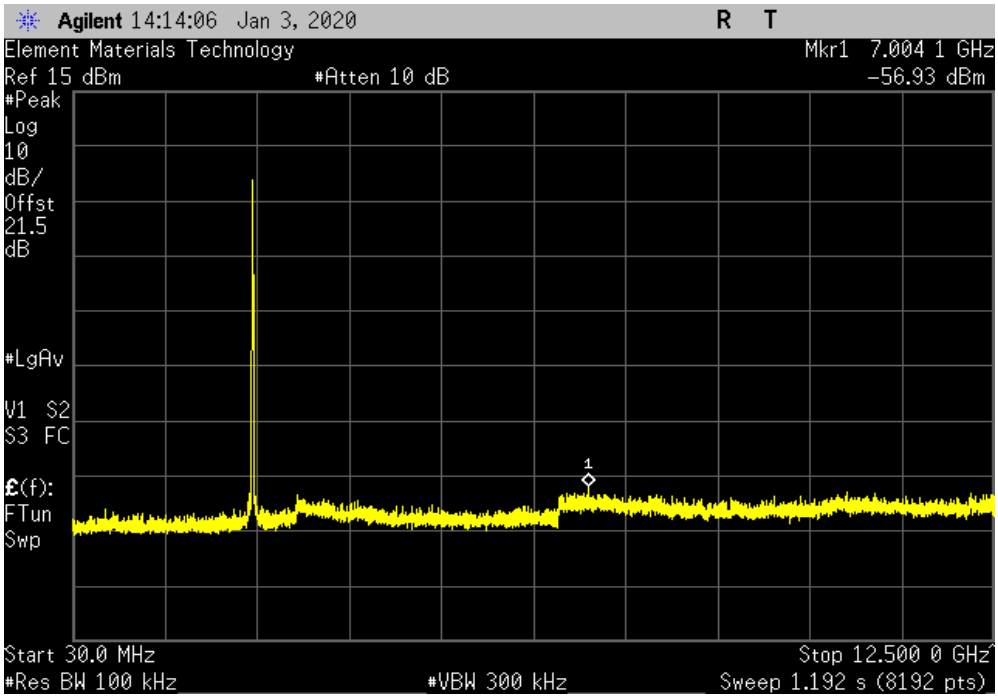

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 12.5 GHz - 25 GHz | 13635.4 | -52.39 | -30 | Pass |



| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz | | | | | |
|---|---|---|---|---|---|
| Frequency Range | | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| Fundamental | | 2463.25 | N/A | N/A | N/A |




| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz | | | | |
|---|---|---|---|---|
| Frequency Range | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
| 30 MHz - 12.5 GHz | 7004.1 | -55.5 | -30 | Pass |



# SPURIOUS CONDUCTED EMISSIONS

TbtTx 2019.08.30.0 XMit 2019.09.05

| 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz | | | | |
|---|---|---|---|---|
| **Frequency Range** | **Measured Freq (MHz)** | **Max Value (dBc)** | **Limit ≤ (dBc)** | **Result** |
| 12.5 GHz - 25 GHz | 24038.6 | -52.9 | -30 | Pass |