

# RF TEST REPORT



Report No.: FCC\_SL17063001-RUC-018\_W52W58  
Supersede Report No.:

|                                                     |   |                                                                              |
|-----------------------------------------------------|---|------------------------------------------------------------------------------|
| Applicant                                           | : | Ruckus Wireless, Inc.                                                        |
| Product Name                                        | : | T310 (C/D) Access Point                                                      |
| Model No.                                           | : | T310                                                                         |
| Test Standard                                       | : | 47 CFR 15.407                                                                |
| Test Method                                         | : | ANSI C63.4: 2014<br>789033 D02 General UNII Test Procedures New Rules v01r02 |
| FCC ID                                              | : | S9GT310                                                                      |
| IC ID                                               | : | 5912A-T310                                                                   |
| Dates of test                                       | : | 08/21/2017-10/05/2017                                                        |
| Issue Date                                          | : | 10/06/2017                                                                   |
| Test Result                                         | : | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail       |
| Equipment complied with the specification [X]       |   |                                                                              |
| Equipment did not comply with the specification [ ] |   |                                                                              |

|                                                                                                                                      |                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| This Test Report is Issued Under the Authority of:                                                                                   |                                                                                      |
|                                                   |  |
| Cipher                                                                                                                               | Chen Ge                                                                              |
| Test Engineer                                                                                                                        | Engineer Reviewer                                                                    |
| This test report may be reproduced in full only<br>Test result presented in this test report is applicable to the tested sample only |                                                                                      |

Issued By:  
SIEMIC Laboratories  
775 Montague Expressway, Milpitas, 95035 CA



775 Montague Expressway, Milpitas, CA 95035, USA • Phone: (+1) 408 526 1188 • Facsimile (+1) 408 526 1088

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## Laboratory Introduction

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In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

### Accreditations for Conformity Assessment

| Country/Region | Accreditation Body     | Scope                             |
|----------------|------------------------|-----------------------------------|
| USA            | FCC, A2LA              | EMC, RF/Wireless, Telecom         |
| Canada         | IC, A2LA, NIST         | EMC, RF/Wireless, Telecom         |
| Taiwan         | BSMI, NCC, NIST        | EMC, RF, Telecom, Safety          |
| Hong Kong      | OFTA, NIST             | RF/Wireless, Telecom              |
| Australia      | NATA, NIST             | EMC, RF, Telecom, Safety          |
| Korea          | KCC/RRA, NIST          | EMI, EMS, RF, Telecom, Safety     |
| Japan          | VCCI, JATE, TELEC, RFT | EMI, RF/Wireless, Telecom         |
| Mexico         | NOM, COFETEL, Caniety  | Safety, EMC, RF/Wireless, Telecom |
| Europe         | A2LA, NIST             | EMC, RF, Telecom, Safety          |
| Israel         | MOC, NIST              | EMC, RF, Telecom, Safety          |

### Accreditations for Product Certifications

| Country   | Accreditation Body | Scope                 |
|-----------|--------------------|-----------------------|
| USA       | FCC TCB, NIST      | EMC, RF, Telecom      |
| Canada    | IC FCB, NIST       | EMC, RF, Telecom      |
| Singapore | iDA, NIST          | EMC, RF, Telecom      |
| EU        | NB                 | EMC & R&TTE Directive |
| Japan     | MIC (RCB 208)      | RF, Telecom           |
| Hong Kong | OFTA (US002)       | RF, Telecom           |

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## 1 Report Revision History

| Report No.                    | Report Version | Description | Issue Date |
|-------------------------------|----------------|-------------|------------|
| FCC_SL17063001-RUC-018_W52W58 | None           | Original    | 10/06/2017 |
|                               |                |             |            |
|                               |                |             |            |
|                               |                |             |            |
|                               |                |             |            |

## 2 Executive Summary

The purpose of this test program was to demonstrate compliance of following product

Company: Ruckus Wireless, Inc.  
Product: T310 (C/D) Access Point  
Model: T310

against the current Stipulated Standards. The specified model product stated above has demonstrated compliance with the Stipulated Standard listed on 1<sup>st</sup> page.

## 3 Customer information

|                      |   |                                                        |
|----------------------|---|--------------------------------------------------------|
| Applicant Name       | : | Ruckus Wireless, Inc.                                  |
| Applicant Address    | : | 350 West Java Drive, Sunnyvale, California 94089 U.S.A |
| Manufacturer Name    | : | Ruckus Wireless, Inc.                                  |
| Manufacturer Address | : | 350 West Java Drive, Sunnyvale, California 94089 U.S.A |

## 4 Test site information

|                      |                                             |
|----------------------|---------------------------------------------|
| Lab performing tests | SIEMIC Laboratories                         |
| Lab Address          | 775 Montague Expressway, Milpitas, CA 95035 |
| FCC Test Site No.    | 881796                                      |
| IC Test Site No.     | 4842D-2                                     |
| VCCI Test Site No.   | A0133                                       |

## 5 Modification

| Index | Item | Description | Note |
|-------|------|-------------|------|
| -     | -    | -           | -    |
|       |      |             |      |
|       |      |             |      |
|       |      |             |      |
|       |      |             |      |
|       |      |             |      |

## 6 EUT Information

### 6.1 EUT Description

|                           |                         |
|---------------------------|-------------------------|
| Product Name              | T310 (C/D) Access Point |
| Model No.                 | T310                    |
| Trade Name                | Ruckus                  |
| Serial No.                | 291706000098            |
| Host Model No.            | N/A                     |
| Input Power               | 100-240VAC 50/60Hz      |
| Power Adapter Manu/Model  | HK-AD-120A100-US        |
| Power Adapter SN          | N/A                     |
| Date of EUT received      | 08/20/2017              |
| Equipment Class/ Category | DTS, UNII               |
| Port/Connectors           | PoE, Ethernet           |

### 6.2 Radio Description

| Radio Type             | 802.11a                                                                          | 802.11n-20M                     | 802.11n-40M                     | 802.11ac-80M                            |
|------------------------|----------------------------------------------------------------------------------|---------------------------------|---------------------------------|-----------------------------------------|
| Operating Frequency    | 5180-5240MHz<br>5745-5825MHz                                                     | 5180-5240MHz<br>5745-5825MHz    | 5190-5230MHz<br>5755-5795MHz    | 5210MHz<br>5775MHz                      |
| Modulation             | OFDM (BPSK, QPSK, 16QAM, 64QAM)                                                  | OFDM (BPSK, QPSK, 16QAM, 64QAM) | OFDM (BPSK, QPSK, 16QAM, 64QAM) | OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) |
| Channel Spacing        | 20MHz                                                                            | 20MHz                           | 40MHz                           | 80MHz                                   |
| Number of Channels     | 9                                                                                | 9                               | 4                               | 2                                       |
| Antenna Type           | PCB Antenna                                                                      |                                 |                                 |                                         |
| Antenna Gain (Peak)    | 5GHz: 3.5 dBi for Vertical 2 dBi for Horizontal                                  |                                 |                                 |                                         |
| Antenna Connector Type | U.FL                                                                             |                                 |                                 |                                         |
| Note                   | Two PCB antenna's, One dual band horizontal, and One dual band vertical antenna. |                                 |                                 |                                         |

Note: The AP supports Beamforming mode and the power setting for Beamforming and Non-Beamforming modes are the same.

#### EUT Power level setting

| Mode         | Frequency | ART Power Setting |
|--------------|-----------|-------------------|
| 802.11-a     | 5180      | 40                |
| 802.11-a     | 5200      | 44                |
| 802.11-a     | 5240      | 44                |
| 802.11-n-20  | 5180      | 40                |
| 802.11-n-20  | 5200      | 44                |
| 802.11-n-20  | 5240      | 44                |
| 802.11-n-40  | 5190      | 32                |
| 802.11-n-40  | 5230      | 44                |
| 802.11-ac-80 | 5210      | 32                |
|              |           |                   |
| 802.11-a     | 5745      | 44                |
| 802.11-a     | 5785      | 44                |
| 802.11-a     | 5825      | 44                |
| 802.11-n-20  | 5745      | 44                |
| 802.11-n-20  | 5785      | 44                |
| 802.11-n-20  | 5825      | 44                |
| 802.11-n-40  | 5755      | 44                |
| 802.11-n-40  | 5795      | 44                |
| 802.11-ac-80 | 5775      | 44                |

Note: All data rate has been verified and worst case was used for all test items.



### 6.3 EUT Photos - External



Top View



Bottom View



Front View



Rear View



Right Side View



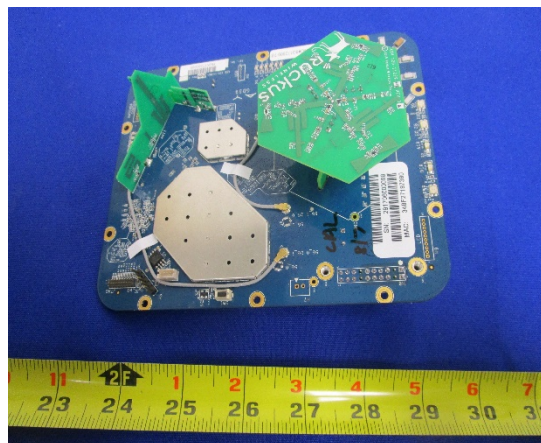
Left Side View



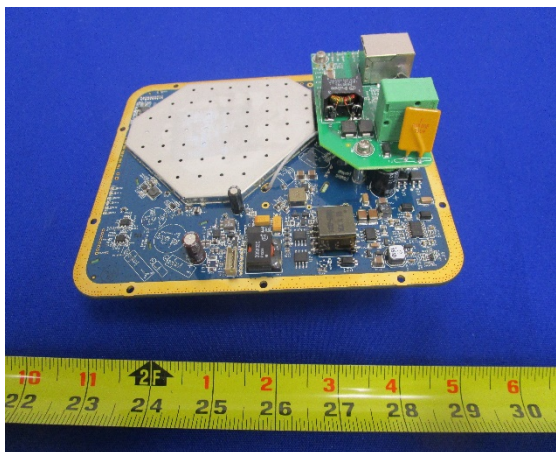
#### 6.4 EUT Photos - Internal



EUT Case off View



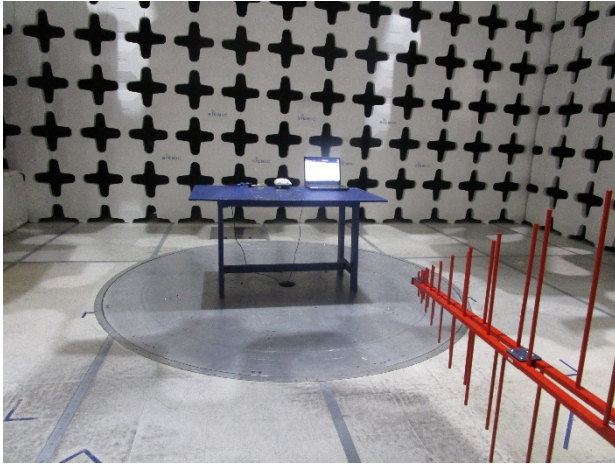
Modem Board Top View



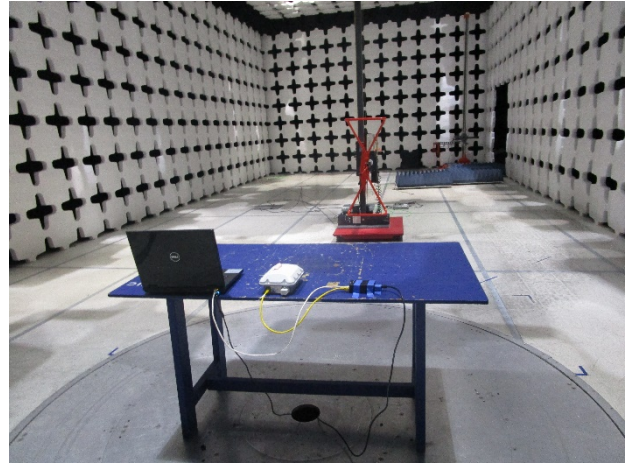
Modem Board Bottom View



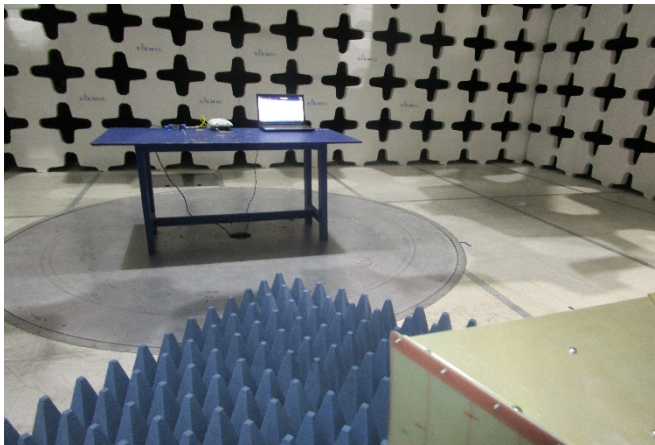
## 6.5 Test Setup Photos



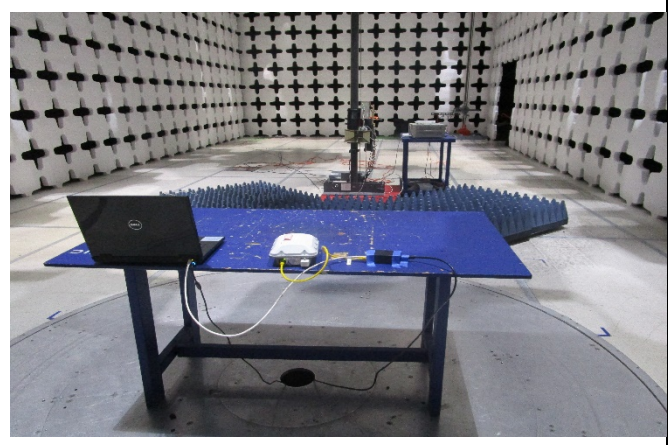
Radiated Emissions (<1GHz) – Front View



Radiated Emissions (<1GHz) – Rear View



Radiated Emissions (>1GHz) – Front View



Radiated Emissions (>1GHz) – Rear View



Conducted Emissions - P.O.E Mode – Front View



Conducted Emissions - P.O.E Mode – Rear View



Conducted Emissions - Power Supply Mode – Front View



Conducted Emissions - Power Supply Mode – Rear View



## 7 Supporting Equipment/Software and cabling Description

### 7.1 Supporting Equipment

| Item | Supporting Equipment Description | Model       | Serial Number | Manufacturer | Note |
|------|----------------------------------|-------------|---------------|--------------|------|
| 1    | Laptop                           | VOSTRO 1520 | 26543939185   | Dell         | -    |
|      |                                  |             |               |              |      |
|      |                                  |             |               |              |      |

### 7.2 Cabling Description

| Item | Connection Start |          | Connection Stop              |          | Length / shielding Info |           | Note |
|------|------------------|----------|------------------------------|----------|-------------------------|-----------|------|
|      | From             | I/O Port | To                           | I/O Port | Length (m)              | Shielding |      |
| 1    | EUT              | RJ45     | Power Over Ethernet Injector | RJ45     | >3m                     | N/A       | -    |
| 2    | Laptop           | RJ45     | Power Over Ethernet Injector | RJ45     | >3m                     | N/A       |      |

### 7.3 Test Software Description

| Test Item  | Software       | Description                                                               |
|------------|----------------|---------------------------------------------------------------------------|
| RF Testing | Command prompt | Set the EUT to transmit continuously in different test modes and channels |
|            |                |                                                                           |
|            |                |                                                                           |

## 8 Test Summary

| Test Item                      | Test standard |           | Test Method/Procedure                                                         | Pass / Fail                                                              |
|--------------------------------|---------------|-----------|-------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Restricted Band of Operation   | FCC           | 15.205    | ANSI C63.4 – 2014<br>789033 D02 General UNII Test Procedures New Rules v01r02 | <input checked="" type="checkbox"/> Pass<br><input type="checkbox"/> N/A |
| AC Conducted Emissions Voltage | FCC           | 15.207(a) | ANSI C63.4 – 2014                                                             | <input checked="" type="checkbox"/> Pass<br><input type="checkbox"/> N/A |

| Test Item                                 | Test standard |                               | Test Method/Procedure                                                         | Pass / Fail                                                              |
|-------------------------------------------|---------------|-------------------------------|-------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| 26 & 6 dB Emission Bandwidth              | FCC           | 15.407 (a) (2)                | 789033 D02 General UNII Test Procedures New Rules v01r02                      | <input checked="" type="checkbox"/> Pass<br><input type="checkbox"/> N/A |
| Maximum conducted Output Power            | FCC           | 15.407 (a) (2)                | 789033 D02 General UNII Test Procedures New Rules v01r02                      | <input checked="" type="checkbox"/> Pass<br><input type="checkbox"/> N/A |
| Power reduction (Antenna Gain > 6 dBi)    | FCC           | 15.407 (a) (2)                | -                                                                             | <input type="checkbox"/> Pass<br><input checked="" type="checkbox"/> N/A |
| Band Edge and Radiated Spurious Emissions | FCC           | 15.407(b)(2),<br>15.407(b)(6) | ANSI C63.4 – 2014<br>789033 D02 General UNII Test Procedures New Rules v01r02 | <input checked="" type="checkbox"/> Pass<br><input type="checkbox"/> N/A |
| Power Spectral Density                    | FCC           | 15.407 (a) (2)                | 789033 D02 General UNII Test Procedures New Rules v01r02                      | <input checked="" type="checkbox"/> Pass<br><input type="checkbox"/> N/A |
| Frequency Stability                       | FCC           | 15.407 (g)                    | -                                                                             | <input type="checkbox"/> Pass<br><input checked="" type="checkbox"/> N/A |
| Transmit Power Control (TPC)              | FCC           | 15.407 (h)(1)                 | -                                                                             | <input type="checkbox"/> Pass<br><input checked="" type="checkbox"/> N/A |
| User Manual                               | FCC           | -                             | -                                                                             | <input checked="" type="checkbox"/> Pass<br><input type="checkbox"/> N/A |

|        |                                                                                                                                                                                                                                                                                                                                                         |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Remark | <ol style="list-style-type: none"> <li>All measurement uncertainties are not taken into consideration for all presented test result.</li> <li>The applicant shall ensure frequency stability by showing that an emission is maintained within the band of operation under all normal operating conditions as specified in the user's manual.</li> </ol> |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 9 Measurement Uncertainty

### 9.1 Conducted Emissions

The test is to measure the conducted emissions to the mains port of the EUT.

Some error sources that can contribute to the total uncertainty:

- Uncertainty of the receiver
- Uncertainty of the LISN
- Uncertainty of cables
- Uncertainty due to the mismatches
- Etc, see the below table for details

| Source of Uncertainty         | Value (dB) | Probability Distribution | Division | Sensitivity Coefficient | Expanded Uncertainty |
|-------------------------------|------------|--------------------------|----------|-------------------------|----------------------|
| Receiver Reading              | 0.12       | Rectangular              | 1.732    | 1                       | 0.069284             |
| Cable Insertion Loss          | 0.21       | Normal                   | 2        | 1                       | 0.105                |
| Filter Insertion Loss         | 0.25       | Normal                   | 2        | 1                       | 0.125                |
| LISN Insertion Loss           | 0.40       | Normal                   | 2        | 1                       | 0.20                 |
| Receiver CW accuracy          | 0.5        | Rectangular              | 1.732    | 1                       | 0.2886836            |
| Pulse Amplitude Response      | 1.5        | Rectangular              | 1.732    | 1                       | 0.86605081           |
| PRF Response                  | 1.5        | Rectangular              | 1.732    | 1                       | 0.86605081           |
| Mismatch LISN - Receiver      | 0.25       | U-Shape                  | 1.414    | 1                       | 0.1768033            |
| LISN Impedance                | 2.5        | Triangular               | 2.449    | 1                       | 1.0208248            |
| Combined Standard Uncertainty |            |                          |          |                         | 1.928133             |
| Expanded Uncertainty (K=2)    |            |                          |          |                         | 3.856266             |

The total derived measurement uncertainty is +/- 3.86 dB.

### 9.2 Radiated Emissions (30MHz to 1GHz)

The test is to measure the radiated emissions of the EUT.

Some error sources that can contribute to the total uncertainty:

- Uncertainty of the receiver
- Uncertainty of the antenna
- Uncertainty of cables
- Uncertainty due to the mismatches
- NSA Calibration
- Etc., details see the below table

| Source of Uncertainty         | Value (dB) | Probability Distribution | Division | Sensitivity Coefficient | Expanded Uncertainty |
|-------------------------------|------------|--------------------------|----------|-------------------------|----------------------|
| Receiver Reading              | 0.12       | Rectangular              | 1.732    | 1                       | 0.069284             |
| Cable Insertion Loss          | 0.21       | Normal                   | 2        | 1                       | 0.105                |
| Filter Insertion Loss         | 0.25       | Normal                   | 2        | 1                       | 0.125                |
| Antenna Factor                | 0.65       | Normal                   | 2        | 1                       | 0.325                |
| Receiver CW accuracy          | 0.5        | Rectangular              | 1.732    | 1                       | 0.2886836            |
| Pulse Amplitude Response      | 1.5        | Rectangular              | 1.732    | 1                       | 0.86605081           |
| PRF Response                  | 1.5        | Rectangular              | 1.732    | 1                       | 0.86605081           |
| Mismatch Filter - Receiver    | 0.25       | U-Shape                  | 1.414    | 1                       | 0.1768033            |
| NSA Calibration               | 4.0        | U-Shape                  | 1.414    | 1                       | 2.8288543            |
| Combined Standard Uncertainty |            |                          |          |                         | 3.0059131            |
| Expanded Uncertainty (K=2)    |            |                          |          |                         | 6.0118262            |

The total derived measurement uncertainty is +/- 6.00 dB.



### 9.3 Radiated Emissions (1GHz to 40GHz)

The test is to measure the radiated emissions of the EUT.

Some error sources that can contribute to the total uncertainty:

- Uncertainty of the receiver
- Uncertainty of the antenna
- Uncertainty of cables
- Uncertainty due to the mismatches
- VSWR Calibration
- Etc., details see the below table

| Source of Uncertainty         | Value (dB) | Probability Distribution | Division | Sensitivity Coefficient | Expanded Uncertainty |
|-------------------------------|------------|--------------------------|----------|-------------------------|----------------------|
| Receiver Reading              | 0.12       | Rectangular              | 1.732    | 1                       | 0.0692840            |
| Cable Insertion Loss          | 0.21       | Normal                   | 2        | 1                       | 0.1050000            |
| Filter Insertion Loss         | 0.25       | Normal                   | 2        | 1                       | 0.1250000            |
| Antenna Factor                | 0.65       | Normal                   | 2        | 1                       | 0.3250000            |
| Receiver CW accuracy          | 0.5        | Rectangular              | 1.732    | 1                       | 0.2886836            |
| Pulse Amplitude Response      | 1.5        | Rectangular              | 1.732    | 1                       | 0.8660508            |
| PRF Response                  | 1.5        | Rectangular              | 1.732    | 1                       | 0.8660508            |
| Mismatch Filter - Receiver    | 0.25       | U-Shape                  | 1.414    | 1                       | 0.1768033            |
| VSWR Calibration              | 2.0        | U-Shape                  | 1.414    | 1                       | 1.4144272            |
| Combined Standard Uncertainty |            |                          |          |                         | 4.2363               |
| Expanded Uncertainty (K=2)    |            |                          |          |                         | 8.4726               |

The total derived measurement uncertainty is +/- 8.47 dB.

### 9.4 RF conducted measurement

The test is to measure the RF output power from the EUT.

Some error sources that can contribute to the total uncertainty:

- Uncertainty of the Reference Level Uncertainty
- Uncertainty of variable attenuators
- Uncertainty of cables
- Uncertainty due to the mismatches

| Source of Uncertainty         | Value (dB) | Probability Distribution | Division | Sensitivity Coefficient | Expanded Uncertainty |
|-------------------------------|------------|--------------------------|----------|-------------------------|----------------------|
| Reference Level               | 0.12       | Rectangular              | 1.732    | 1                       | 0.069284             |
| Cable Insertion Loss          | 0.21       | Normal                   | 2        | 1                       | 0.105                |
| Attenuator                    | 0.25       | Normal                   | 2        | 1                       | 0.125                |
| Mismatch                      | 0.25       | U-Shape                  | 1.414    | 1                       | 0.1768033            |
| Combined Standard Uncertainty |            |                          |          |                         | 0.476087             |
| Expanded Uncertainty (K=2)    |            |                          |          |                         | 0.952174             |

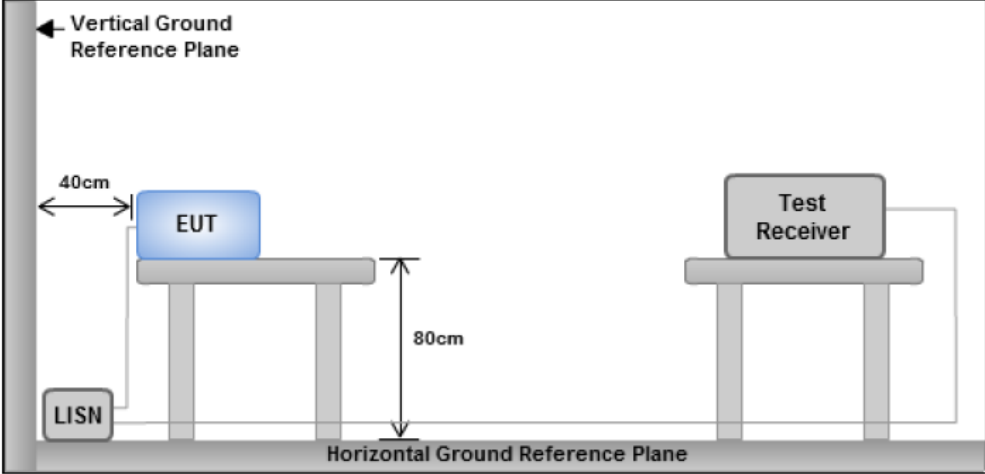
The total derived measurement uncertainty is +/- 0.95 dB.

## 10 Measurements, Examination and Derived Results

### 10.1 Conducted Emissions

#### Conducted Emission Limit

| Frequency ranges<br>(MHz) | Limit (dBuV) |         |
|---------------------------|--------------|---------|
|                           | QP           | Average |
| 0.15 ~ 0.5                | 66 – 56      | 56 – 46 |
| 0.5 ~ 5                   | 56           | 46      |
| 5 ~ 30                    | 60           | 50      |

| Spec       | Item                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Applicable                          |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| 15.207(a)  | a)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | For Low-power radio-frequency devices that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 $\mu$ H/50 ohms line impedance stabilization network (LISN). The lower limit applies at the boundary between the frequency ranges. | <input checked="" type="checkbox"/> |
| Test Setup |  <p><b>Note: 1.</b> Support units were connected to second LISN.<br/><b>2.</b> Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes</p>                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                     |
| Procedure  | <ul style="list-style-type: none"> <li>- The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table, as shown in Annex B.</li> <li>- The power supply for the EUT was fed through a 50<math>\Omega</math>/50<math>\mu</math>H EUT LISN, connected to filtered mains.</li> <li>- The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable.</li> <li>- All other supporting equipment was powered separately from another main supply.</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                     |
| Remark     | EUT was tested at 120VAC, 60Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                     |
| Result     | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                     |

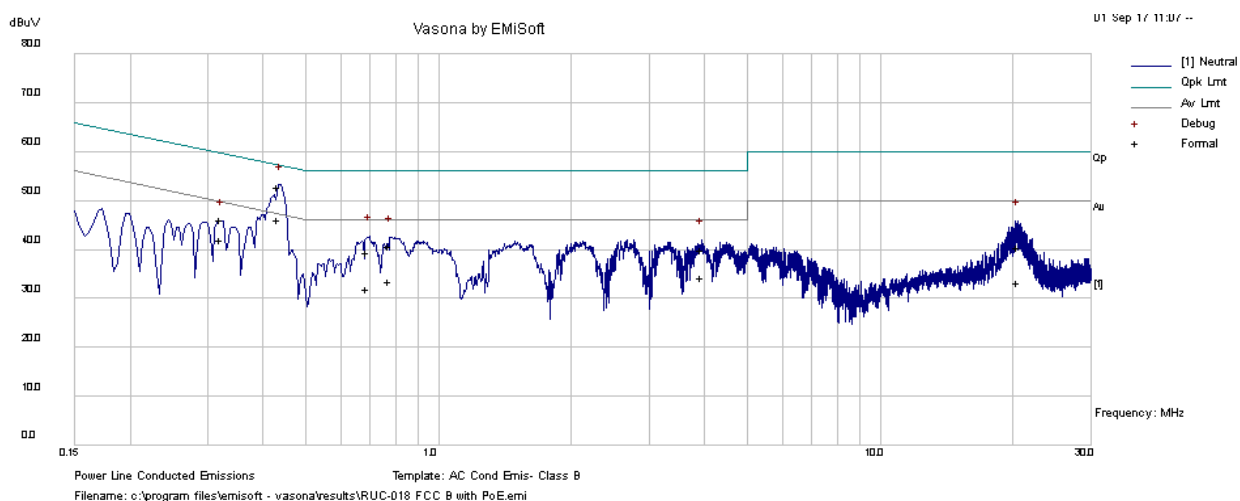
Test Data    ☒ Yes                      ☐ N/A

Test Plot    ☒ Yes (See below)              ☐ N/A

Test was done by Kushal Shastri at Conducted Emission test site.

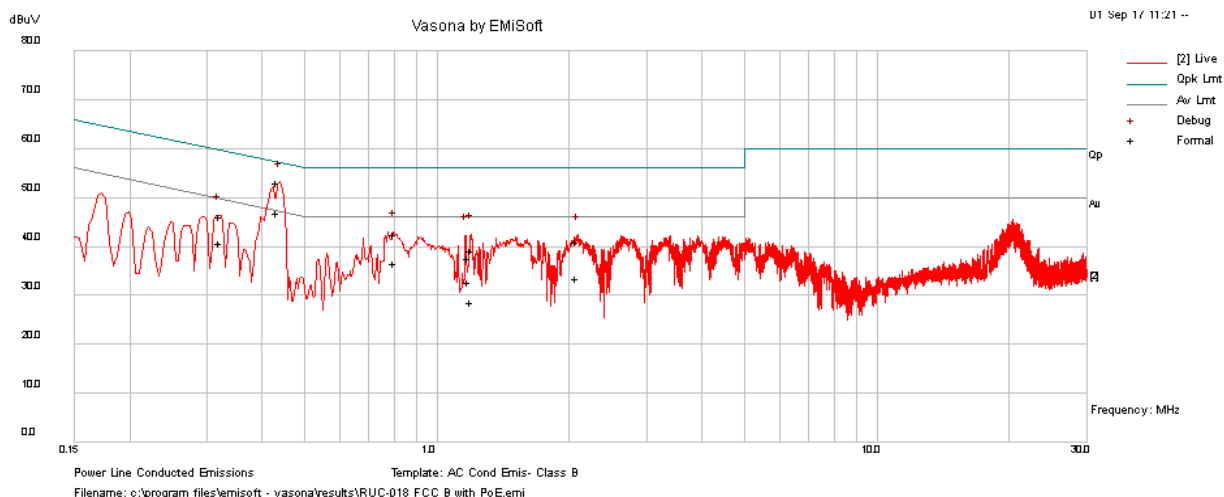
## Conducted Emission Test Results

|                           |                       |        |         |                                                                               |
|---------------------------|-----------------------|--------|---------|-------------------------------------------------------------------------------|
| Test specification:       | Conducted Emissions   |        |         |                                                                               |
| Environmental Conditions: | Temp(°C):             | 25.7   | Result: | <input checked="" type="checkbox"/> Pass<br><br><input type="checkbox"/> Fail |
|                           | Humidity (%):         | 43.3   |         |                                                                               |
|                           | Atmospheric(mbar):    | 1014.9 |         |                                                                               |
| Mains Power:              | 120Vac, 60Hz          |        |         |                                                                               |
| Tested by:                | Kushal Shastri        |        |         |                                                                               |
| Test Date:                | 08/21/2017-10/05/2017 |        |         |                                                                               |
| Remarks                   | Neutral- P.O.E Mode   |        |         |                                                                               |



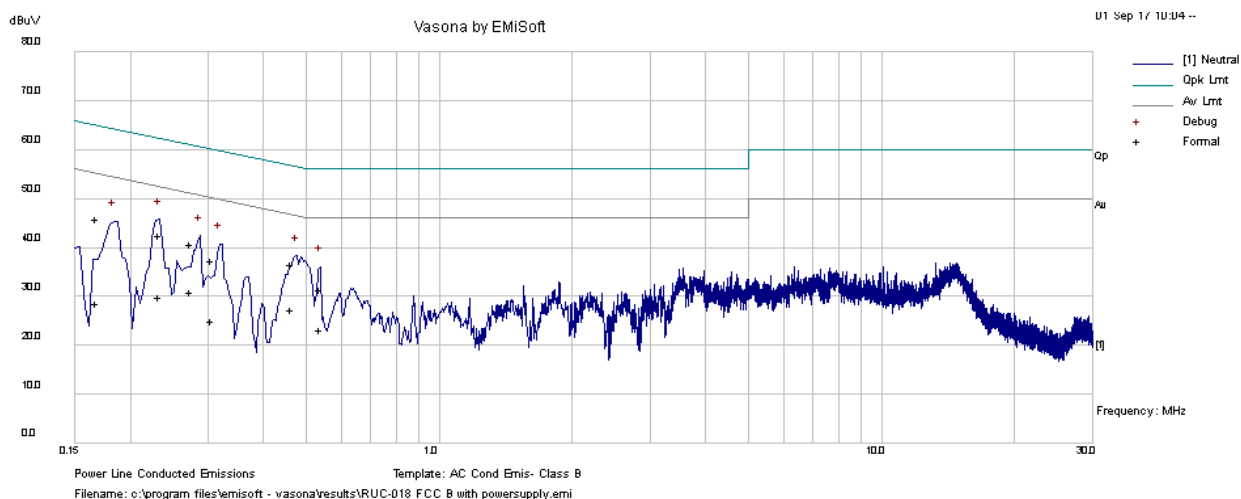
| Frequency (MHz) | Raw (dBuV) | Cable Loss (dB) | Factors (dB) | Level (dBuV) | Measurement Type | Line / Neutral | Limit (dBuV) | Margin (dB) | Pass /Fail |
|-----------------|------------|-----------------|--------------|--------------|------------------|----------------|--------------|-------------|------------|
| 0.432421        | 42.16      | 10.01           | 0.68         | 52.84        | Quasi Peak       | Neutral        | 57.21        | -4.36       | Pass       |
| 0.686549        | 28.78      | 10.01           | 0.56         | 39.35        | Quasi Peak       | Neutral        | 56           | -16.65      | Pass       |
| 0.771415        | 30.22      | 10.01           | 0.55         | 40.78        | Quasi Peak       | Neutral        | 56           | -15.22      | Pass       |
| 0.319527        | 35.24      | 10              | 0.81         | 46.06        | Quasi Peak       | Neutral        | 59.72        | -13.66      | Pass       |
| 3.932571        | 29.4       | 10.03           | 0.5          | 39.93        | Quasi Peak       | Neutral        | 56           | -16.07      | Pass       |
| 20.48071        | 29.82      | 10.07           | 0.67         | 40.56        | Quasi Peak       | Neutral        | 60           | -19.44      | Pass       |
| 0.432421        | 35.47      | 10.01           | 0.68         | 46.15        | Average          | Neutral        | 47.21        | -1.06       | Pass       |
| 0.686549        | 21.35      | 10.01           | 0.56         | 31.92        | Average          | Neutral        | 46           | -14.08      | Pass       |
| 0.771415        | 23.03      | 10.01           | 0.55         | 33.6         | Average          | Neutral        | 46           | -12.4       | Pass       |
| 0.319527        | 31.06      | 10              | 0.81         | 41.88        | Average          | Neutral        | 49.72        | -7.84       | Pass       |
| 3.932571        | 23.65      | 10.03           | 0.5          | 34.18        | Average          | Neutral        | 46           | -11.82      | Pass       |
| 20.48071        | 22.54      | 10.07           | 0.67         | 33.28        | Average          | Neutral        | 50           | -16.72      | Pass       |

|                           |                       |        |         |                                                                                              |
|---------------------------|-----------------------|--------|---------|----------------------------------------------------------------------------------------------|
| Test specification:       | Conducted Emissions   |        |         |                                                                                              |
| Environmental Conditions: | Temp(°C):             | 25.7   | Result: | <div><input checked="" type="checkbox"/> Pass</div> <div><input type="checkbox"/> Fail</div> |
|                           | Humidity (%):         | 43.3   |         |                                                                                              |
|                           | Atmospheric(mbar):    | 1014.9 |         |                                                                                              |
| Mains Power:              | 120Vac, 60Hz          |        |         |                                                                                              |
| Tested by:                | Kushal Shastri        |        |         |                                                                                              |
| Test Date:                | 08/21/2017-10/05/2017 |        |         |                                                                                              |
| Remarks                   | Live - P.O.E Mode     |        |         |                                                                                              |



| Frequency (MHz) | Raw (dBuV) | Cable Loss (dB) | Factors (dB) | Level (dBuV) | Measurement Type | Line / Neutral | Limit (dBuV) | Margin (dB) | Pass /Fail |
|-----------------|------------|-----------------|--------------|--------------|------------------|----------------|--------------|-------------|------------|
| 0.432709        | 42.5       | 10.01           | 0.68         | 53.18        | Quasi Peak       | Live           | 57.2         | -4.02       | Pass       |
| 0.797327        | 32.02      | 10.01           | 0.55         | 42.58        | Quasi Peak       | Live           | 56           | -13.42      | Pass       |
| 0.320621        | 35.23      | 10              | 0.81         | 46.04        | Quasi Peak       | Live           | 59.69        | -13.65      | Pass       |
| 1.192701        | 28.73      | 10.02           | 0.52         | 39.27        | Quasi Peak       | Live           | 56           | -16.73      | Pass       |
| 2.080816        | 30.49      | 10.02           | 0.5          | 41.02        | Quasi Peak       | Live           | 56           | -14.98      | Pass       |
| 1.178802        | 27.07      | 10.02           | 0.52         | 37.6         | Quasi Peak       | Live           | 56           | -18.4       | Pass       |
| 0.432709        | 36.14      | 10.01           | 0.68         | 46.82        | Average          | Live           | 47.2         | -0.38       | Pass       |
| 0.797327        | 25.95      | 10.01           | 0.55         | 36.52        | Average          | Live           | 46           | -9.48       | Pass       |
| 0.320621        | 29.98      | 10              | 0.81         | 40.8         | Average          | Live           | 49.69        | -8.89       | Pass       |
| 1.192701        | 18.15      | 10.02           | 0.52         | 28.69        | Average          | Live           | 46           | -17.31      | Pass       |
| 2.080816        | 22.94      | 10.02           | 0.5          | 33.46        | Average          | Live           | 46           | -12.54      | Pass       |
| 1.178802        | 22.11      | 10.02           | 0.52         | 32.65        | Average          | Live           | 46           | -13.35      | Pass       |

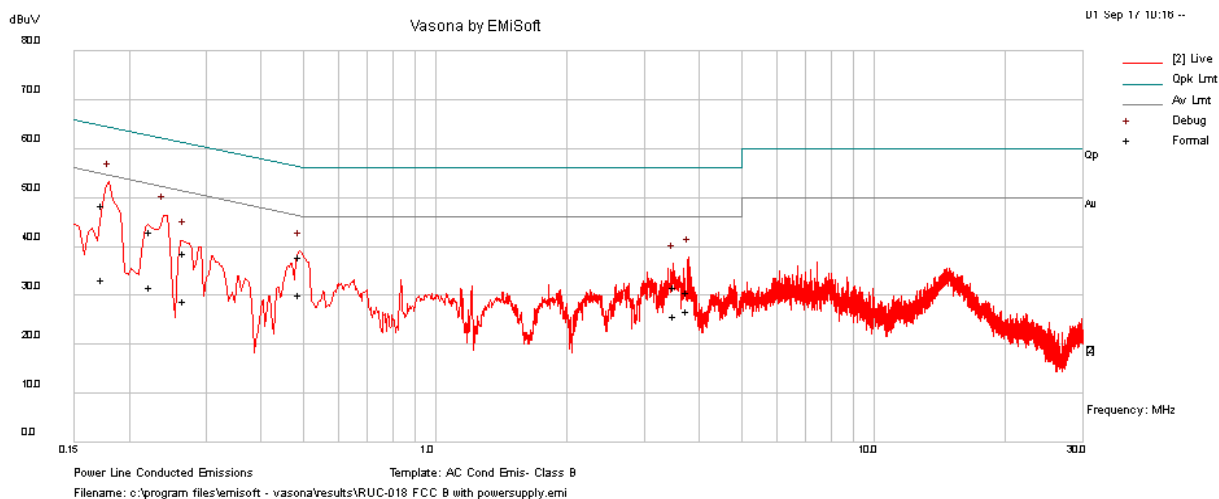
|                           |                       |        |         |                                                                               |
|---------------------------|-----------------------|--------|---------|-------------------------------------------------------------------------------|
| Test specification:       | Conducted Emissions   |        |         |                                                                               |
| Environmental Conditions: | Temp(°C):             | 25.7   | Result: | <input checked="" type="checkbox"/> Pass<br><br><input type="checkbox"/> Fail |
|                           | Humidity (%):         | 43.3   |         |                                                                               |
|                           | Atmospheric(mbar):    | 1014.9 |         |                                                                               |
| Mains Power:              | 120Vac, 60Hz          |        |         |                                                                               |
| Tested by:                | Kushal Shastri        |        |         |                                                                               |
| Test Date:                | 08/21/2017-10/05/2017 |        |         |                                                                               |
| Remarks                   | Neutral- Power Supply |        |         |                                                                               |



| Frequency (MHz) | Raw (dBuV) | Cable Loss (dB) | Factors (dB) | Level (dBuV) | Measurement Type | Line / Neutral | Limit (dBuV) | Margin (dB) | Pass /Fail |
|-----------------|------------|-----------------|--------------|--------------|------------------|----------------|--------------|-------------|------------|
| 0.23281         | 31.49      | 10              | 1.08         | 42.58        | Quasi Peak       | Neutral        | 62.35        | -19.77      | Pass       |
| 0.463756        | 25.99      | 10.01           | 0.65         | 36.65        | Quasi Peak       | Neutral        | 56.63        | -19.97      | Pass       |
| 0.273752        | 29.75      | 10              | 0.93         | 40.68        | Quasi Peak       | Neutral        | 61           | -20.32      | Pass       |
| 0.168108        | 34.22      | 10              | 1.52         | 45.75        | Quasi Peak       | Neutral        | 65.05        | -19.3       | Pass       |
| 0.305904        | 26.39      | 10              | 0.84         | 37.23        | Quasi Peak       | Neutral        | 60.08        | -22.85      | Pass       |
| 0.536705        | 20.9       | 10.01           | 0.61         | 31.52        | Quasi Peak       | Neutral        | 56           | -24.48      | Pass       |
| 0.23281         | 18.74      | 10              | 1.08         | 29.82        | Average          | Neutral        | 52.35        | -22.52      | Pass       |
| 0.463756        | 16.74      | 10.01           | 0.65         | 27.4         | Average          | Neutral        | 46.63        | -19.22      | Pass       |
| 0.273752        | 19.99      | 10              | 0.93         | 30.91        | Average          | Neutral        | 51           | -20.09      | Pass       |
| 0.168108        | 17.16      | 10              | 1.52         | 28.69        | Average          | Neutral        | 55.05        | -26.37      | Pass       |
| 0.305904        | 14.22      | 10              | 0.84         | 25.06        | Average          | Neutral        | 50.08        | -25.02      | Pass       |
| 0.536705        | 12.69      | 10.01           | 0.61         | 23.31        | Average          | Neutral        | 46           | -22.69      | Pass       |



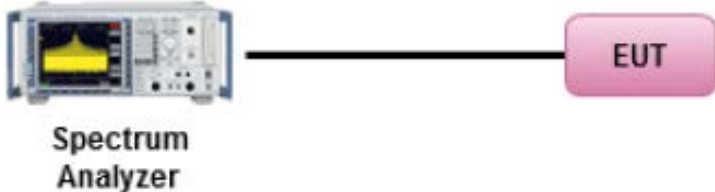
|                           |                       |        |         |                                                                               |
|---------------------------|-----------------------|--------|---------|-------------------------------------------------------------------------------|
| Test specification:       | Conducted Emissions   |        |         |                                                                               |
| Environmental Conditions: | Temp(°C):             | 25.7   | Result: | <input checked="" type="checkbox"/> Pass<br><br><input type="checkbox"/> Fail |
|                           | Humidity (%):         | 43.3   |         |                                                                               |
|                           | Atmospheric(mbar):    | 1014.9 |         |                                                                               |
| Mains Power:              | 120Vac, 60Hz          |        |         |                                                                               |
| Tested by:                | Kushal Shastri        |        |         |                                                                               |
| Test Date:                | 08/21/2017-10/05/2017 |        |         |                                                                               |
| Remarks                   | Live- Power Supply    |        |         |                                                                               |



| Frequency (MHz) | Raw (dBuV) | Cable Loss (dB) | Factors (dB) | Level (dBuV) | Measurement Type | Line / Neutral | Limit (dBuV) | Margin (dB) | Pass /Fail |
|-----------------|------------|-----------------|--------------|--------------|------------------|----------------|--------------|-------------|------------|
| 0.173242        | 37.05      | 10              | 1.47         | 48.52        | Quasi Peak       | Live           | 64.8         | -16.28      | Pass       |
| 0.223118        | 31.77      | 10              | 1.13         | 42.9         | Quasi Peak       | Live           | 62.7         | -19.8       | Pass       |
| 0.48802         | 27.3       | 10.01           | 0.64         | 37.95        | Quasi Peak       | Live           | 56.2         | -18.25      | Pass       |
| 3.762982        | 20.11      | 10.03           | 0.5          | 30.65        | Quasi Peak       | Live           | 56           | -25.35      | Pass       |
| 3.501415        | 21.29      | 10.03           | 0.5          | 31.82        | Quasi Peak       | Live           | 56           | -24.18      | Pass       |
| 0.267331        | 27.61      | 10              | 0.94         | 38.56        | Quasi Peak       | Live           | 61.2         | -22.64      | Pass       |
| 0.173242        | 21.71      | 10              | 1.47         | 33.18        | Average          | Live           | 54.8         | -21.62      | Pass       |
| 0.223118        | 20.52      | 10              | 1.13         | 31.65        | Average          | Live           | 52.7         | -21.05      | Pass       |
| 0.48802         | 19.45      | 10.01           | 0.64         | 30.1         | Average          | Live           | 46.2         | -16.1       | Pass       |
| 3.762982        | 16.34      | 10.03           | 0.5          | 26.87        | Average          | Live           | 46           | -19.13      | Pass       |
| 3.501415        | 15.15      | 10.03           | 0.5          | 25.68        | Average          | Live           | 46           | -20.32      | Pass       |
| 0.267331        | 17.79      | 10              | 0.94         | 28.74        | Average          | Live           | 51.2         | -22.46      | Pass       |

## 10.2 26 dB Bandwidth & 6 dB Bandwidth

Requirement(s):

| Spec           | Item                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Requirement                                                                                            | Applicable                                                                 |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| § 15.407       | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 26 dB Emission BW: Report only for reference.                                                          | <input checked="" type="checkbox"/>                                        |
|                | a) (2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 26 dB Emission BW: Report only for power limit calculation.                                            | <input type="checkbox"/>                                                   |
|                | e)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz. | <input checked="" type="checkbox"/>                                        |
| Test Setup     |  <p><b>Spectrum Analyzer</b> <b>EUT</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                        |                                                                            |
| Test Procedure | <p>789033 D02 General UNII Test Procedures New Rules v01r02</p> <p><u>26dB Emission bandwidth measurement procedure (Other than 5.725-5.85 GHz)</u></p> <ul style="list-style-type: none"> <li>- Allow the trace to stabilize.</li> <li>- Use the spectrum analyzer built-in measurement function to determine the 26dB BW. <ul style="list-style-type: none"> <li>o Set RBW = around 1% of emission bandwidth</li> <li>o Set VBW &gt; RBW</li> <li>o Detector = Peak</li> <li>o Trace mode = max hold</li> </ul> </li> <li>- Capture the plot.</li> <li>- Repeat above steps for different test channel and other modulation type.</li> </ul> <p><u>6 dB Minimum emission bandwidth measurement procedure (for 5.725-5.85 GHz)</u></p> <ul style="list-style-type: none"> <li>- Allow the trace to stabilize.</li> <li>- Use the spectrum analyzer built-in measurement function to determine the 6dB BW. <ul style="list-style-type: none"> <li>o Set RBW = 100 KHz</li> <li>o Set VBW ≥ 3 x RBW</li> <li>o Detector = Peak</li> <li>o Trace mode = max hold</li> <li>o Sweep = auto couple</li> </ul> </li> <li>- Capture the plot.</li> <li>- Repeat above steps for different test channel and other modulation type.</li> </ul> |                                                                                                        |                                                                            |
| Test Date      | 08/21/2017-10/05/2017                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Environmental condition                                                                                | Temperature 22°C<br>Relative Humidity 38%<br>Atmospheric Pressure 1020mbar |
| Remark         | 99% BW result is presented here to show the channels in 5.1GHz is not crossing to DFS channel since the 26 dB BW is too wide.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                        |                                                                            |
| Result         | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                        |                                                                            |

Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes ☐ N/A

Test was done by Cipher at RF test site.

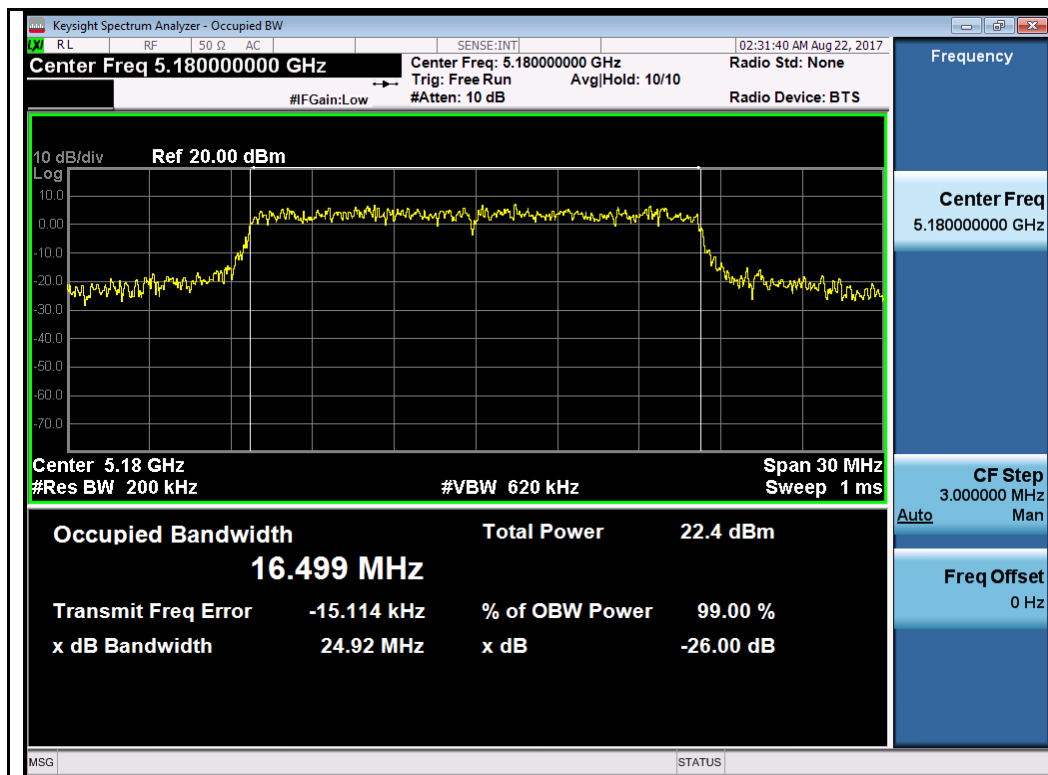
26dB Bandwidth measurement result for 5.2GHz

| Type    | Test mode   | Freq (MHz) | CH   | Result (MHz) | Limit (MHz) |
|---------|-------------|------------|------|--------------|-------------|
| 26dB BW | 802.11a     | 5180       | Low  | 16.499       | -           |
|         |             | 5200       | Mid  | 17.116       | -           |
|         |             | 5240       | High | 17.025       | -           |
|         | 802.11n-20  | 5180       | Low  | 17.688       | -           |
|         |             | 5200       | Mid  | 17.961       | -           |
|         |             | 5240       | High | 17.978       | -           |
|         | 802.11n-40  | 5190       | Low  | 35.988       | -           |
|         |             | 5230       | High | 41.546       | -           |
|         | 802.11ac-80 | 5210       | Mid  | 75.886       | -           |

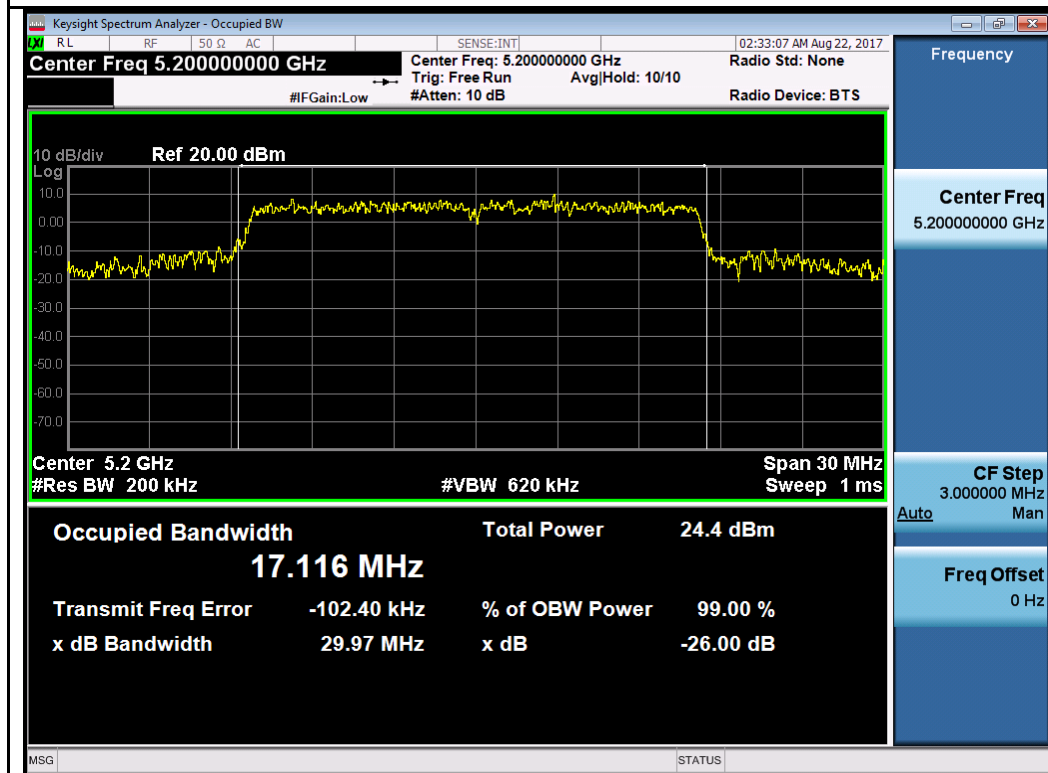
6dB Bandwidth measurement result for 5.8GHz

| Type   | Test mode   | Freq (MHz) | CH   | Result (MHz) | Limit (MHz) | Result |
|--------|-------------|------------|------|--------------|-------------|--------|
| 6dB BW | 802.11a     | 5745       | Low  | 16.469       | ≥0.5        | Pass   |
|        |             | 5785       | Mid  | 15.743       | ≥0.5        | Pass   |
|        |             | 5825       | High | 14.756       | ≥0.5        | Pass   |
|        | 802.11n-20  | 5745       | Low  | 17.756       | ≥0.5        | Pass   |
|        |             | 5785       | Mid  | 17.726       | ≥0.5        | Pass   |
|        |             | 5825       | High | 17.672       | ≥0.5        | Pass   |
|        | 802.11n-40  | 5755       | Low  | 33.770       | ≥0.5        | Pass   |
|        |             | 5795       | High | 35.984       | ≥0.5        | Pass   |
|        | 802.11ac-80 | 5775       | Mid  | 76.391       | ≥0.5        | Pass   |

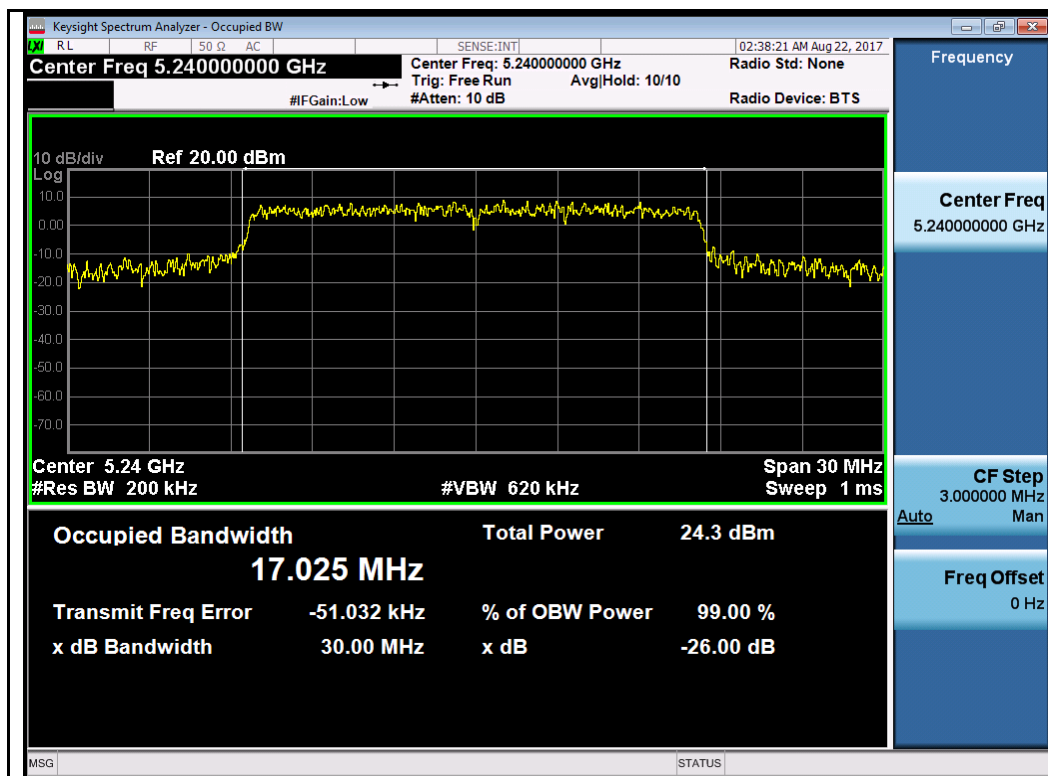
26dB Bandwidth Test Plots  
W52:



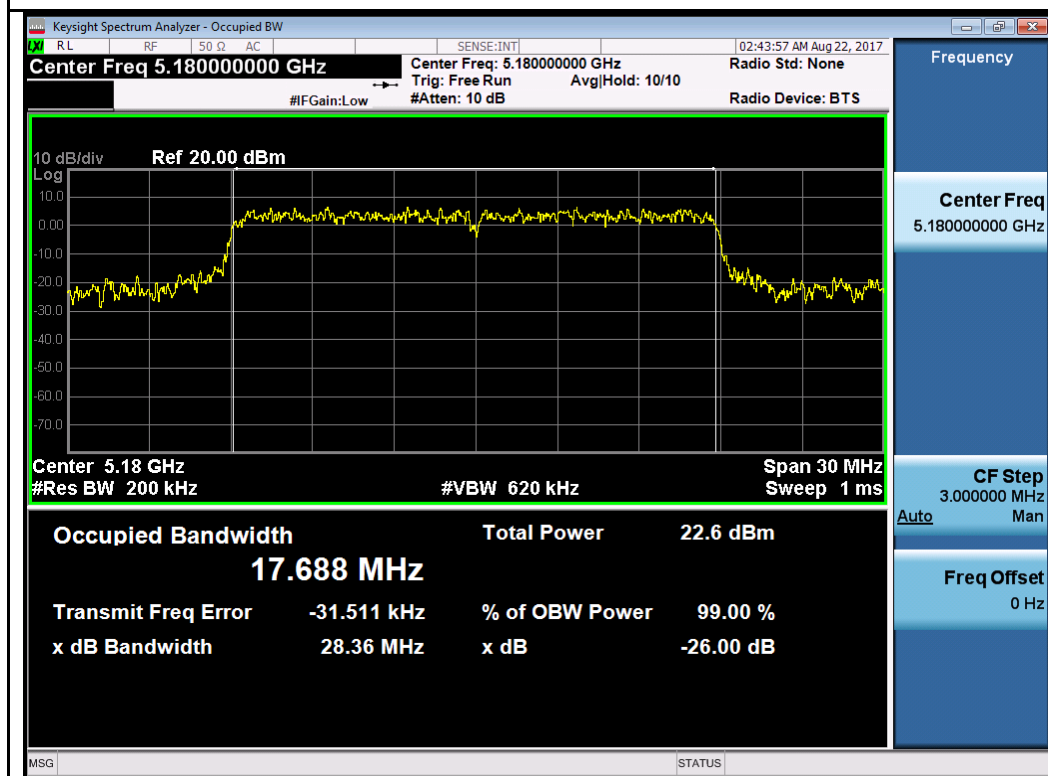
802.11a-5180MHz



802.11a-5200MHz

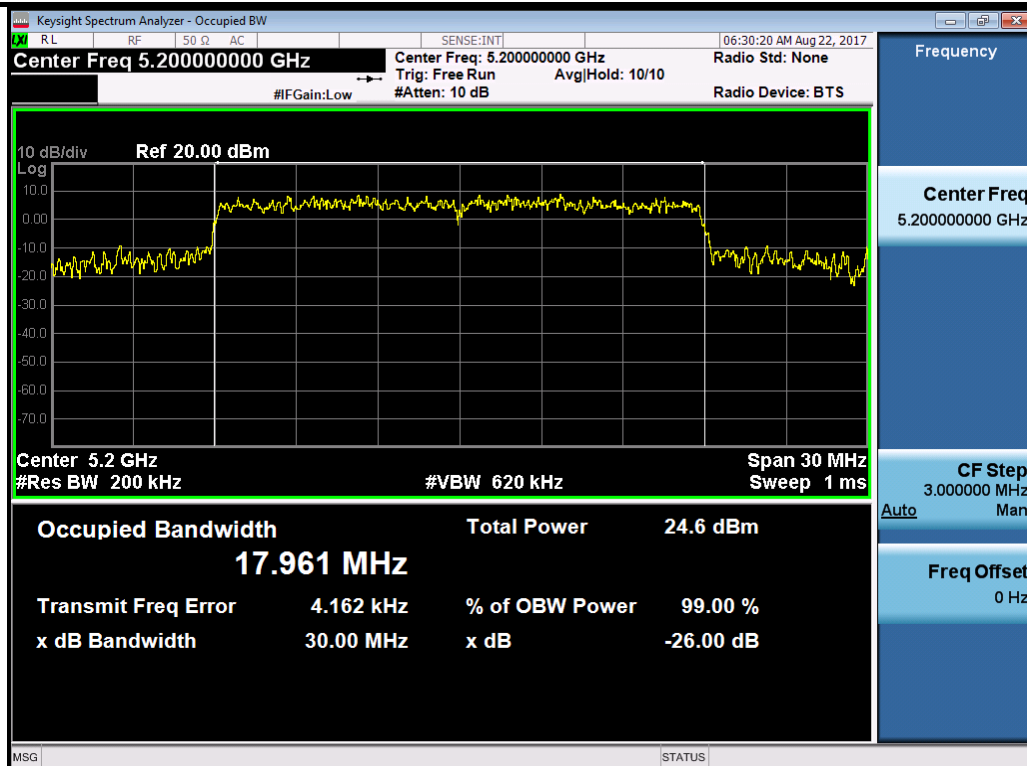


802.11a-5240MHz

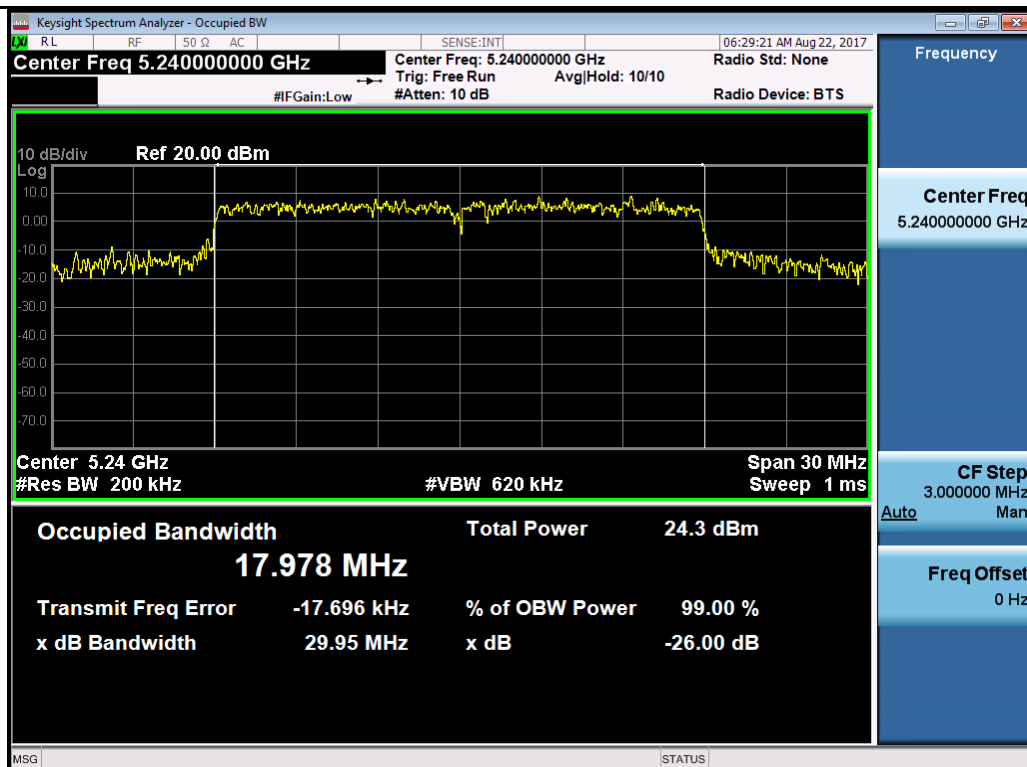


802.11n-HT20-5180MHz

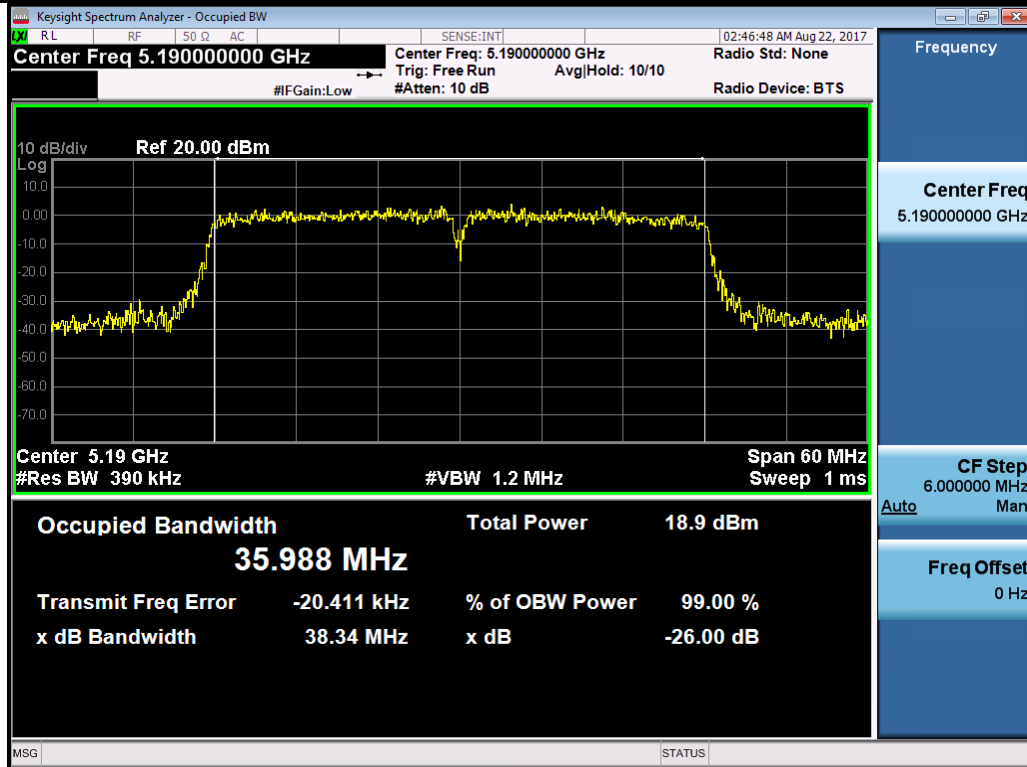




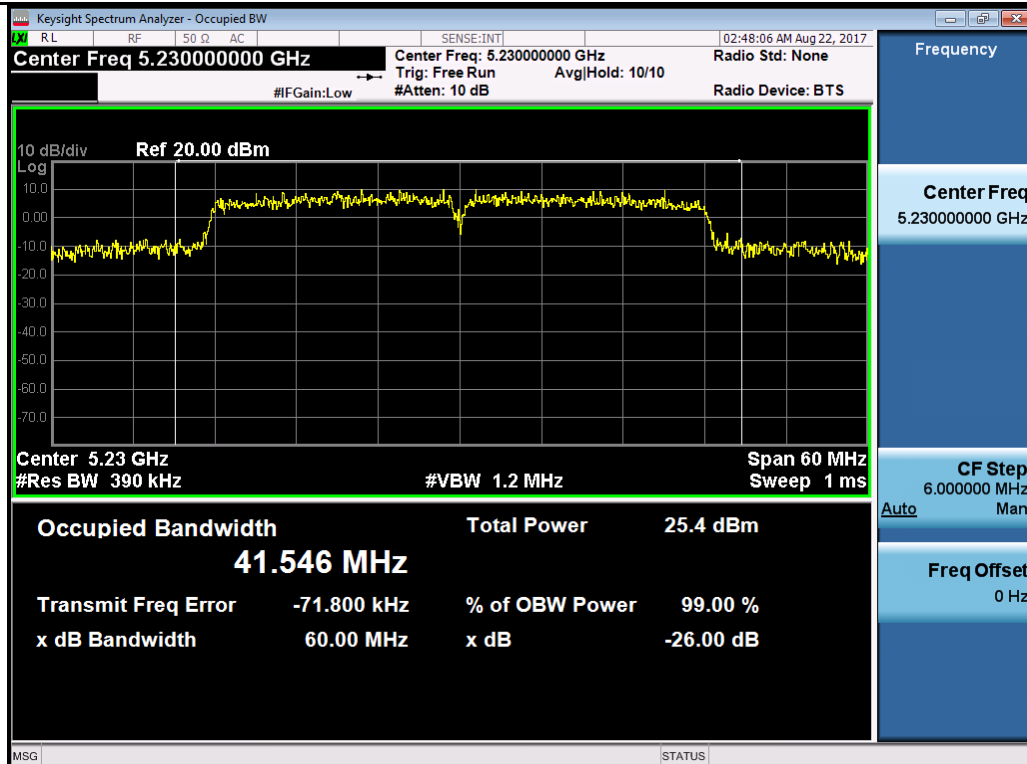
802.11n-HT20-5200MHz



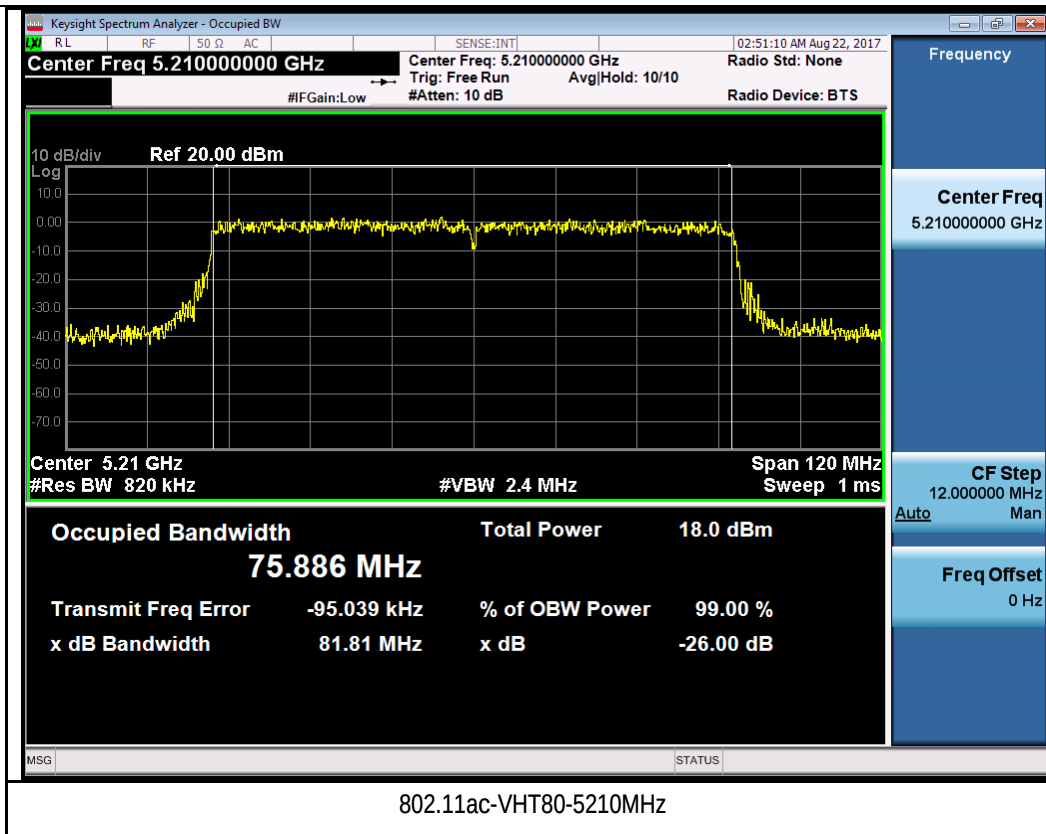
802.11n-HT20-5240MHz



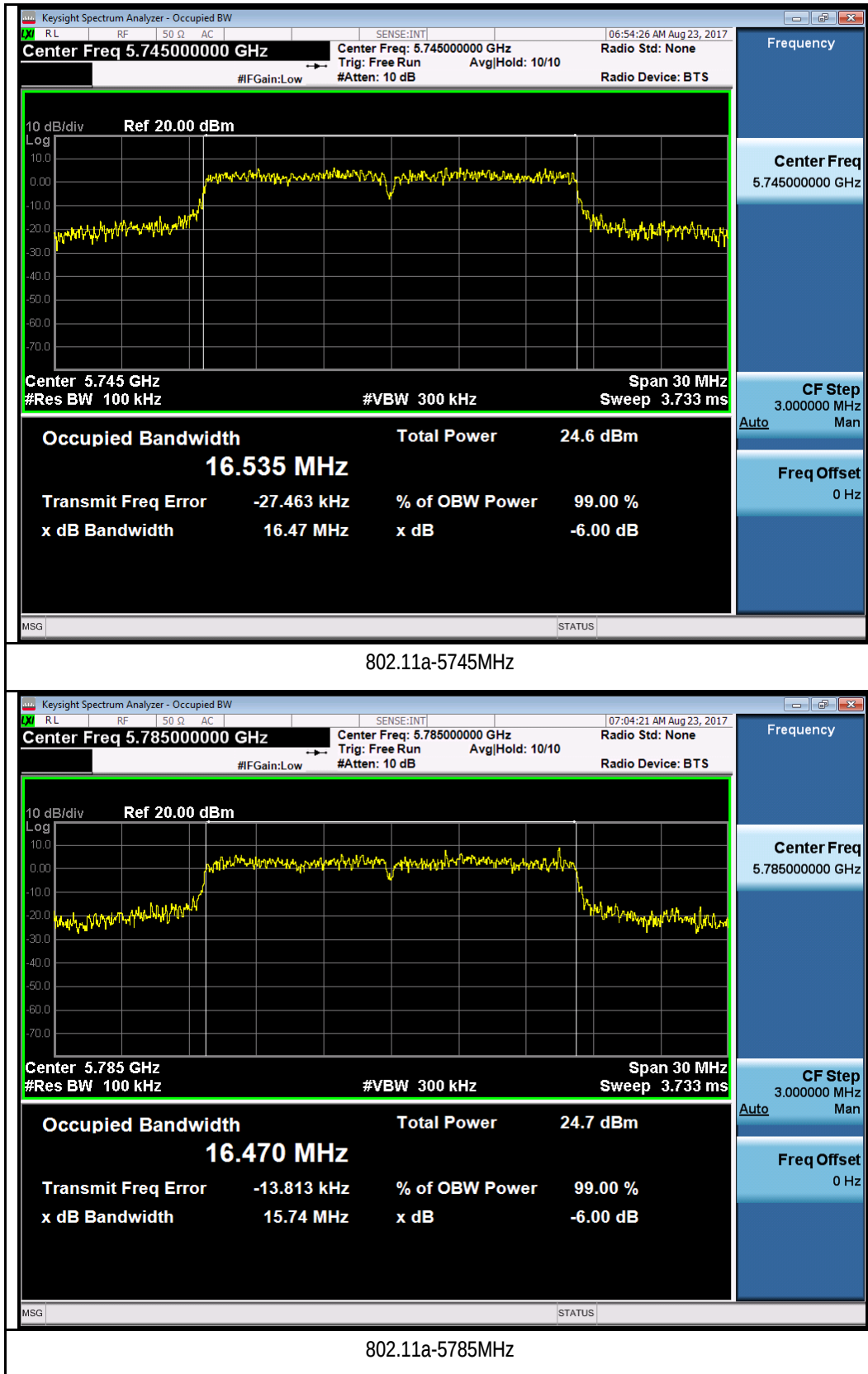
802.11n-HT40-5190MHz

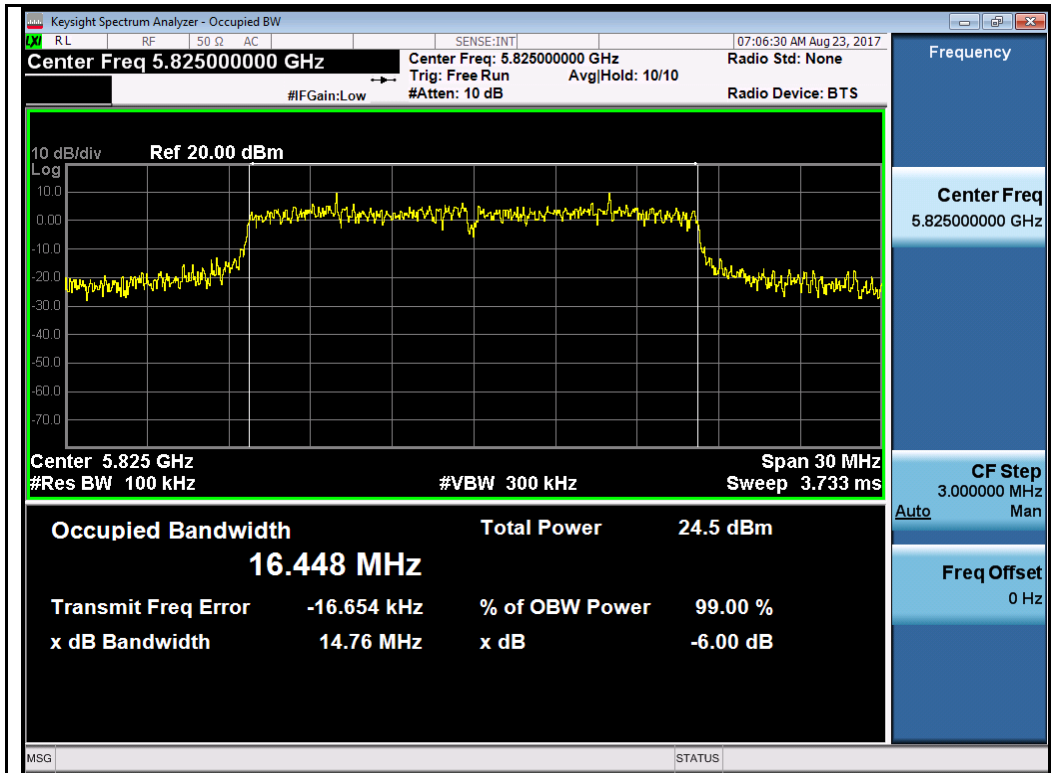


802.11n-HT40-5230MHz

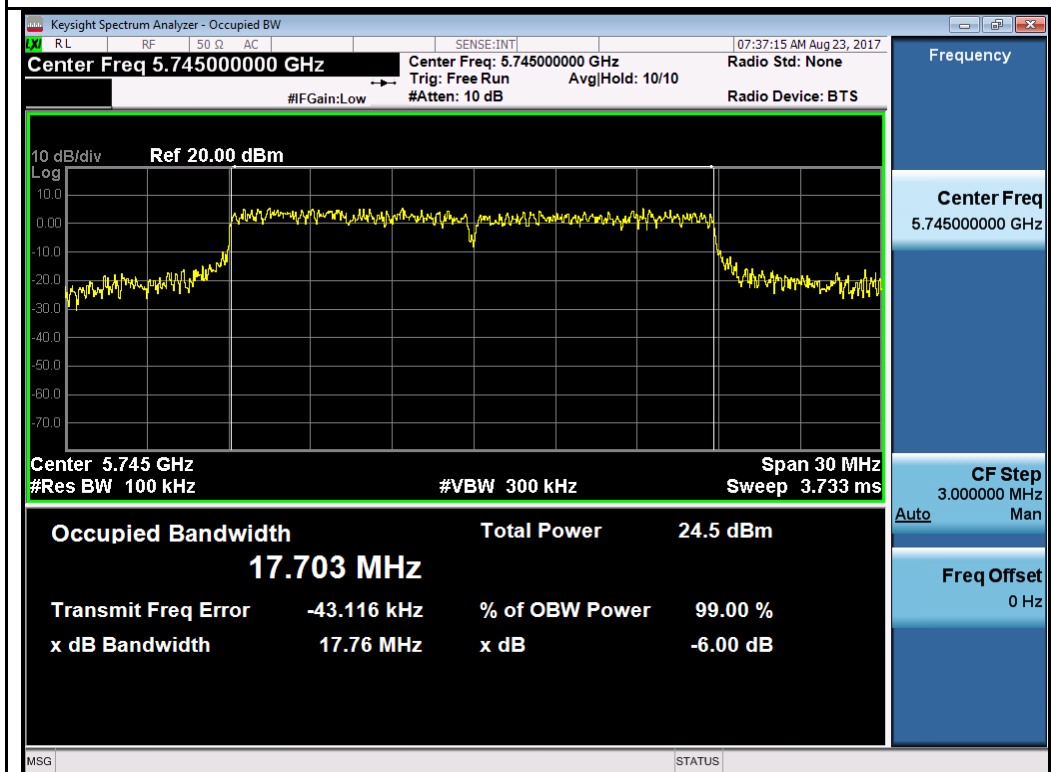


6dB Bandwidth Test Plots  
W58:

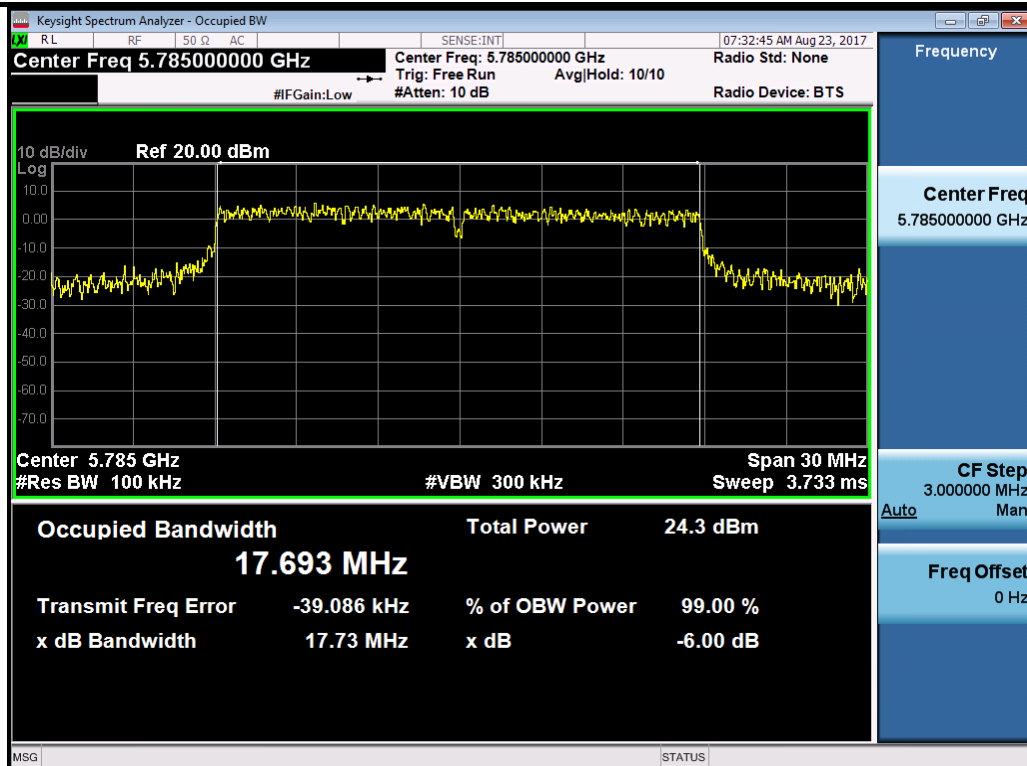




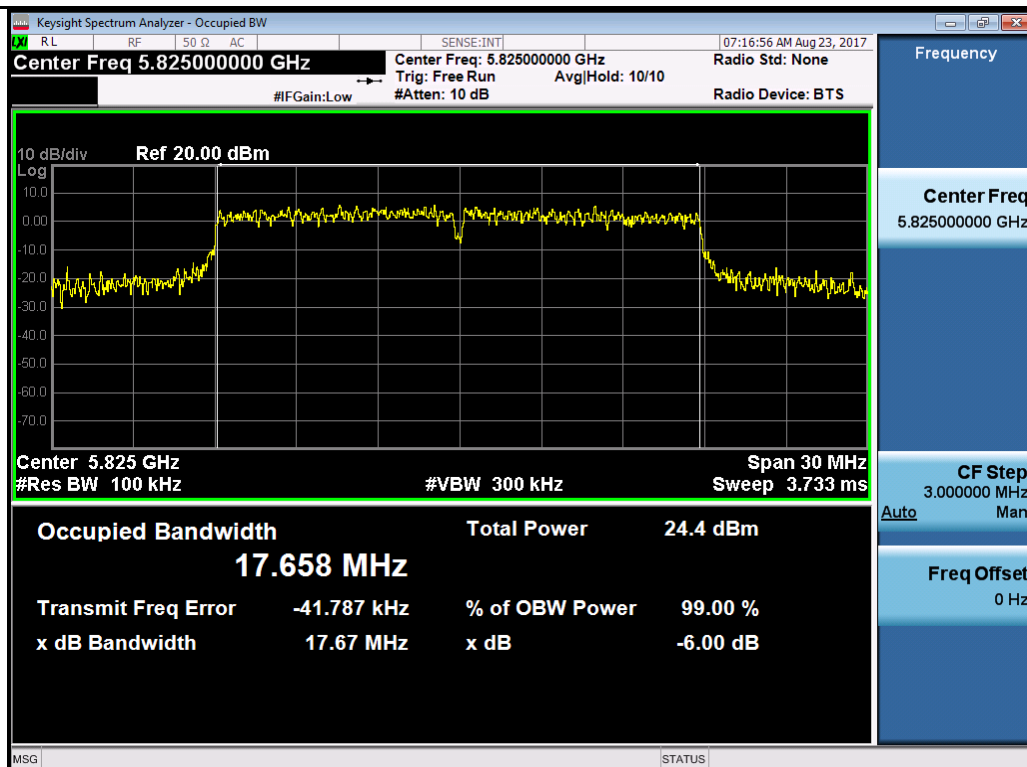
802.11a-5825MHz



802.11n-HT20-5745MHz

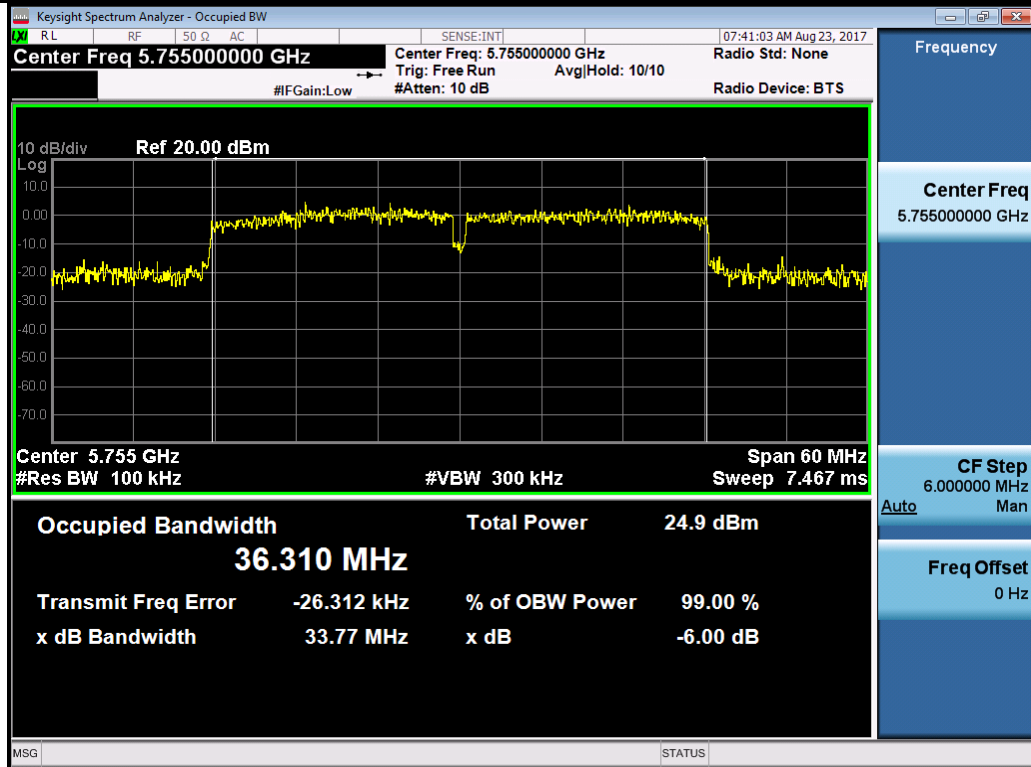


802.11n-HT20-5785MHz

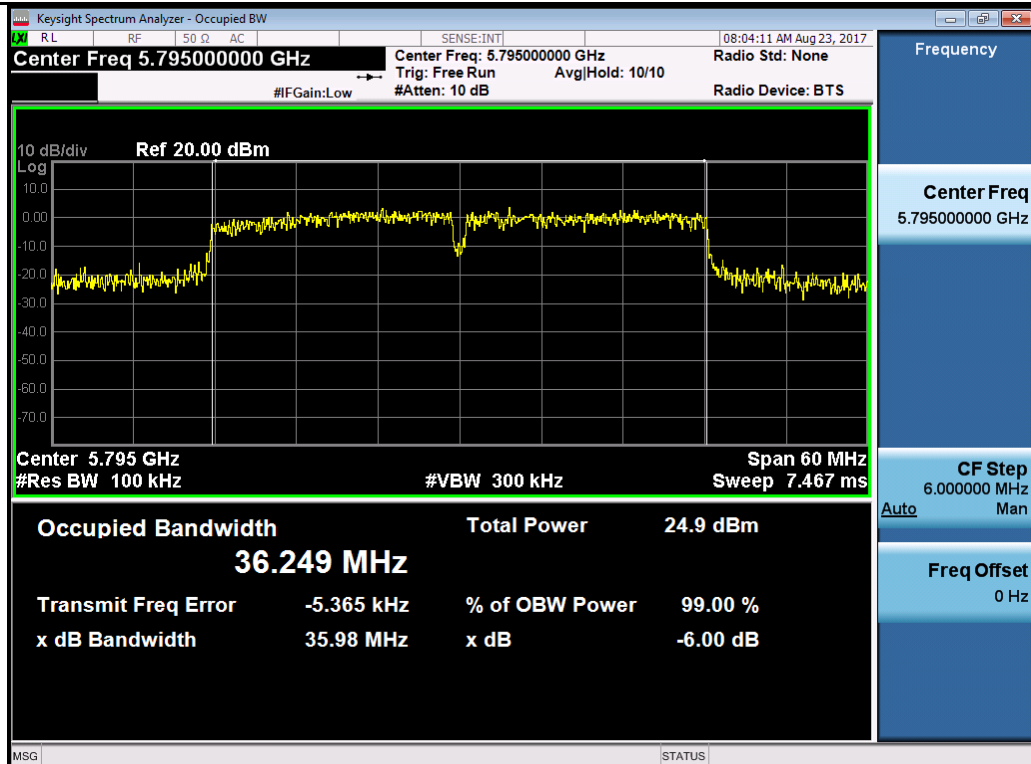


802.11n-HT20-5825MHz

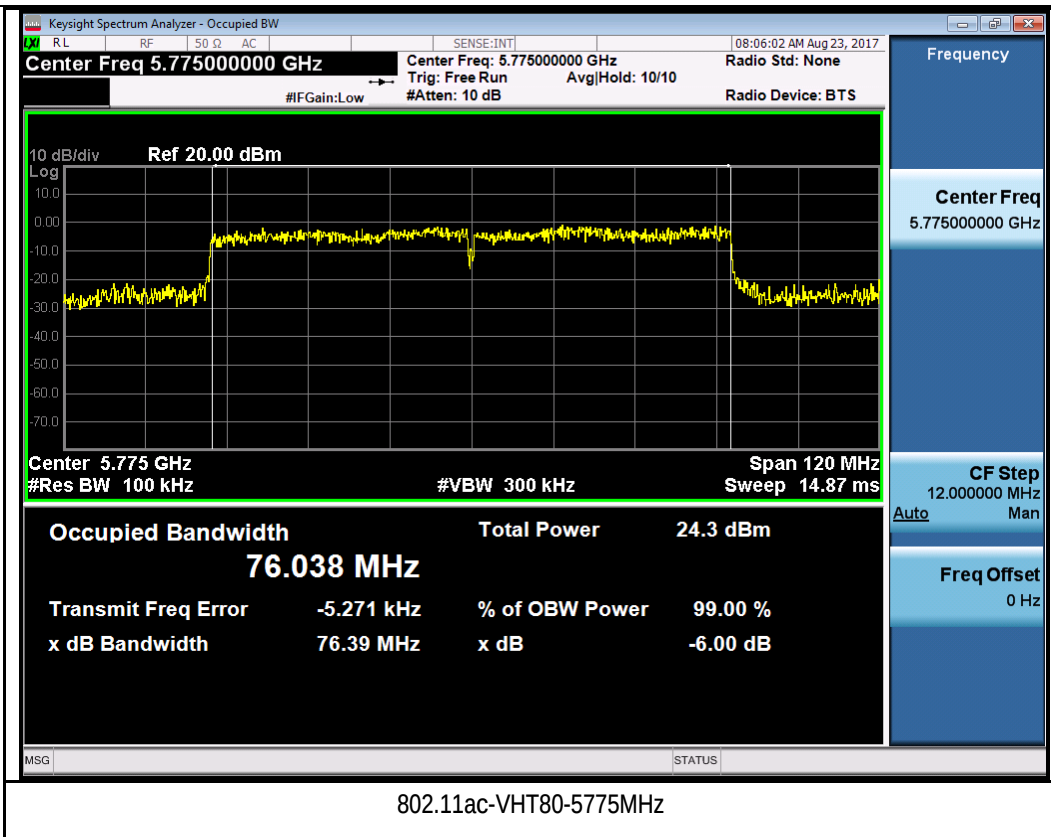




802.11n-HT40-5755MHz



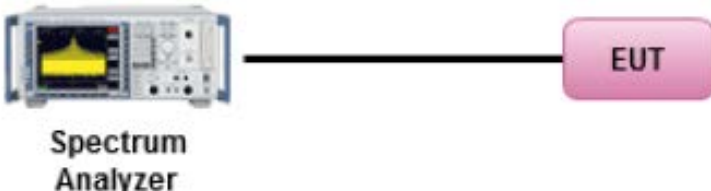
802.11n-HT40-5795MHz



### 10.3 Output Power

#### Requirement(s):

| Spec     | Item      | Requirement                                                                                                                                                                                                            | Applicable                          |
|----------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| § 15.407 | a)(1)(ii) | For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. | <input checked="" type="checkbox"/> |
|          | a)(3)     | For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.                                                                                             | <input checked="" type="checkbox"/> |

|            |                                                                                                                                                                |  |  |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Test Setup |  <p style="text-align: center;"><b>Spectrum Analyzer</b>      <b>EUT</b></p> |  |  |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|

|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Test Procedure | 789033 D02 General UNII Test Procedures New Rules v01r02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |
|                | <p><u>Measurement using a Spectrum Analyzer or EMI Receiver (SA)</u><br/> Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep):</p> <ul style="list-style-type: none"> <li>(i) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.</li> <li>(ii) Set RBW = 1 MHz</li> <li>(iii) Set VBW = 3 MHz</li> <li>(iv) Number of points in sweep <math>\geq 2 \times \text{span} / \text{RBW}</math>. (This ensures that bin-to-bin spacing is <math>\leq \text{RBW}/2</math>, so that narrowband signals are not lost between frequency bins.)</li> <li>(v) Sweep time = auto.</li> <li>(vi) Detector = power averaging (rms), if available. Otherwise, use sample detector mode.</li> <li>(vii) If transmit duty cycle &lt; 98%, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle <math>\geq 98\%</math>, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run."</li> <li>(viii) Trace average at least 100 traces in power averaging (rms) mode.</li> <li>(ix) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.</li> </ul> |  |  |

|           |                                                                        |                         |                                                          |                         |
|-----------|------------------------------------------------------------------------|-------------------------|----------------------------------------------------------|-------------------------|
| Test Date | 08/21/2017-10/05/2017                                                  | Environmental condition | Temperature<br>Relative Humidity<br>Atmospheric Pressure | 21°C<br>40%<br>1019mbar |
| Remark    | N/A                                                                    |                         |                                                          |                         |
| Result    | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail |                         |                                                          |                         |

Test Data    ☒ Yes      ☐ N/A

Test Plot    ☒ Yes (See below)      ☐ N/A

Test was done by Cipher at RF test site.

### Output Power measurement result for 5.2GHz

| Type         | Test mode    | Freq (MHz) | CH   | Conducted Power (dBm) |        |                | Limit (dBm) | Result |
|--------------|--------------|------------|------|-----------------------|--------|----------------|-------------|--------|
|              |              |            |      | Chain0                | Chain1 | Combined Power |             |        |
| Output Power | 802.11a      | 5180       | Low  | 19.01                 | 19.05  | 22.04          | 30          | Pass   |
|              | 802.11a      | 5200       | Mid  | 20.56                 | 20.49  | 23.53          | 30          | Pass   |
|              | 802.11a      | 5240       | High | 20.35                 | 20.38  | 23.38          | 30          | Pass   |
|              | 802.11n-20M  | 5180       | Low  | 19.05                 | 19.22  | 22.15          | 30          | Pass   |
|              | 802.11n-20M  | 5200       | Mid  | 21.06                 | 20.89  | 23.99          | 30          | Pass   |
|              | 802.11n-20M  | 5240       | High | 20.56                 | 20.91  | 23.75          | 30          | Pass   |
|              | 802.11n-40M  | 5190       | Low  | 14.32                 | 15.17  | 17.78          | 30          | Pass   |
|              | 802.11n-40M  | 5230       | Mid  | 20.83                 | 21.16  | 24.01          | 30          | Pass   |
|              | 802.11ac-80M | 5210       | High | 15.36                 | 15.08  | 18.23          | 30          | Pass   |

### Output Power measurement result for 5.8GHz

| Type         | Test mode    | Freq (MHz) | CH   | Conducted Power (dBm) |        |                | Limit (dBm) | Result |
|--------------|--------------|------------|------|-----------------------|--------|----------------|-------------|--------|
|              |              |            |      | Chain0                | Chain1 | Combined Power |             |        |
| Output Power | 802.11a      | 5745       | Low  | 20.72                 | 21.01  | 23.88          | 30          | Pass   |
|              | 802.11a      | 5785       | Mid  | 20.80                 | 20.97  | 23.90          | 30          | Pass   |
|              | 802.11a      | 5825       | High | 20.92                 | 20.46  | 23.71          | 30          | Pass   |
|              | 802.11n-20M  | 5745       | Low  | 20.69                 | 20.75  | 23.73          | 30          | Pass   |
|              | 802.11n-20M  | 5785       | Mid  | 20.78                 | 20.55  | 23.68          | 30          | Pass   |
|              | 802.11n-20M  | 5825       | High | 20.86                 | 20.92  | 23.90          | 30          | Pass   |
|              | 802.11n-40M  | 5755       | Low  | 21.69                 | 21.80  | 24.75          | 30          | Pass   |
|              | 802.11n-40M  | 5795       | Mid  | 21.18                 | 21.98  | 24.61          | 30          | Pass   |
|              | 802.11ac-80M | 5775       | High | 20.27                 | 21.83  | 24.13          | 30          | Pass   |

Note: Two chains are cross-polarized, additional gain is  $10 \log_{10}(NANT)=0\text{dB}$ ,  $N=1$ , max directional gain of the EUT is 3.5dBi. No limit adjustment is needed. All the mode transmission is MIMO.