Test Report

AIR-AP1832I-x-K9 (x=A,B,D,N,T,Z)

Cisco Aironet 802.11ac Dual Band Access Points

FCC ID: LDK102098 IC: 2461B-102098

2400-2483.5 MHz

Against the following Specifications:

CFR47 Part 15.247 RSS-247 RSS-Gen AS/NZS 4268 LP0002 G.S.R 45 (E)



Cisco Systems 170 West Tasman Drive San Jose, CA 95134

ster Aguine

Author: Jose Aguirre Tested By: TEST ENGINEER

Approved By: Jim Nicholson Title: Technical Leader, Engineering Revision: 3

This report replaces any previously entered test report under EDCS – **11496961**. This test report has been electronically authorized and archived using the CISCO Engineering Document Control system.

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Section 1: Overview

The samples were assessed against the tests under the requirements of the following specifications:

| Emission | |
|---------------------------------|--|
| CFR47 Part 15.247 | |
| RSS-247, Issue 2, February 2017 | |
| RSS-Gen Issue 4: Nov 2014 | |

Measurements were made in accordance with

- ANSI C63.10:2013
- FCC KDB 662911 D01 v02r01
- KDB 558074 D01 Meas Guidance v03r05

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Section 2: Assessment Information

2.1 General

This report contains an assessment of an apparatus against Electromagnetic Compatibility Standards based upon tests carried out on the samples submitted. The testing was performed by and for the use of Cisco systems Inc:

With regard to this assessment, the following points should be noted:

- a) The results contained in this report relate only to the items tested and were obtained in the period between the date of the initial assessment and the date of issue of the report. Manufactured products will not necessarily give identical results due to production and measurement tolerances.
- b) The apparatus was set up and exercised using the configuration and modes of operation defined in this report only.
- c) Where relevant, the apparatus was only assessed using the susceptibility criteria defined in this report and the Test Assessment Plan (TAP).
- d) All testing was performed under the following environmental conditions:

Temperature 15°C to 35°C (54°F to 95°F)

 Atmospheric Pressure
 860mbar to 1060mbar (25.4" to 31.3")

 Humidity
 10% to 75*%

*[Where applicable] For ESD testing the humidity limits used were 30% to 60% and for EFT/B tests the humidity limits used were 25% to 75%.

All AC testing was performed at one or more of the following supply voltages:
 110V 60 Hz (+/-20%)

Units of Measurement

The units of measurements defined in the appendices are reported in specific terms, which are test dependent. Where radiated measurements are concerned these are defined at a particular distance. Basic voltage measurements are defined in units of [dBuV]

As an example, the basic calculation for all measurements is as follows:

Emission level [dBuV] = Indicated voltage level [dBuV] + Cable Loss [dB] + Other correction factors [dB] The combinations of correction factors are dependent upon the exact test configurations [see test equipment lists for further details] and may include:-

Antenna Factors, Pre Amplifier Gain, LISN Loss, Pulse Limiter Loss and Filter Insertion Loss.

Note: to convert the results from dBuV/m to uV/m use the following formula:-

Level in uV/m = Common Antilogarithm [(X dBuV/m)/20] = Y uV/m

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Measurement Uncertainty Values

| voltage and power measurements | ±2dB |
|-----------------------------------|------------|
| conducted EIRP measurements | ± 1.4 dB |
| radiated measurements | ± 3.2 dB |
| frequency measurements | ± 2.4 10-7 |
| temperature measurements | ± 0.54° |
| humidity measurements | ± 2.3% |
| DC and low frequency measurements | ± 2.5% |

Where relevant measurement uncertainty levels have been estimated for tests performed on the apparatus. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Radiated emissions (expanded uncertainty, confidence interval 95%)

| 30 MHz - 300 MHz | +/- 3.8 dB |
|--------------------|------------|
| 300 MHz - 1000 MHz | +/- 4.3 dB |
| 1 GHz - 10 GHz | +/- 4.0 dB |
| 10 GHz - 18GHz | +/- 8.2 dB |
| 18GHz - 26.5GHz | +/- 4.1 dB |
| 26.5GHz - 40GHz | +/- 3.9 dB |

Conducted emissions (expanded uncertainty, confidence interval 95%)

| 30 MHz – 40GHz | +/- 0.38 dB |
|----------------|-------------|
|----------------|-------------|

A product is considered to comply with a requirement if the nominal measured value is below the limit line. The product is considered to not be in compliance in case the nominal measured value is above the limit line.

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2.2 Date of testing

05-May-16 - 14-Nov-16

2.3 Report Issue Date

17-Nov-16

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2.4 Testing facilities

This assessment was performed by:

Testing Laboratory

Cisco Systems, Inc., 125 West Tasman Drive San Jose, CA 95134, USA

Registration Numbers for Industry Canada

| Cisco System Site | Address | Site Identifier |
|-------------------------|----------------------------|--------------------|
| Building P, 10m Chamber | 125 West Tasman Dr | Company #: 2461N-2 |
| | San Jose, CA 95134 | |
| Building P, 5m Chamber | 125 West Tasman Dr | Company #: 2461N-1 |
| | San Jose, CA 95134 | |
| Building I, 5m Chamber | 285 W. Tasman Drive | Company #: 2461M-1 |
| | San Jose, California 95134 | |

Test Engineers

Jose Aguirre

2.5 Equipment Assessed (EUT)

AIR-AP1832I-A-K9

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2.6 EUT Description

The Cisco Aironet 802.11ac Dual Band Access Points support the following modes of operation. The modes are further defined in the radio Theory of Operation. The modes included in this report represent the worst case data for all modes. Data is recorded at the lowest supported data rate for each mode. This report covers operation on channel 1-11.

802.11n/ac - Mode, Tx Paths

802.11n/ac - Legacy CCK, One Antenna, 1 to 11 Mbps 802.11n/ac - Legacy CCK, Two Antennas, 1 to 11 Mbps 802.11n/ac - Legacy CCK, Three Antennas, 1 to 11 Mbps

802.11n/ac - Non HT20, One Antenna, 6 to 54 Mbps, 1ss 802.11n/ac - Non HT20, Two Antennas, 6 to 54 Mbps, 1ss 802.11n/ac - Non HT20, Three Antennas, 6 to 54 Mbps, 1ss

802.11n/ac - Non HT20 Beam Forming, Two Antennas, 6 to 54 Mbps, 1ss 802.11n/ac - Non HT20 Beam Forming, Three Antennas, 6 to 54 Mbps, 1ss

802.11n/ac - HT/VHT20, One Antenna, M0 to M7, 1ss 802.11n/ac - HT/VHT20, Two Antennas, M0 to M7, 1ss 802.11n/ac - HT/VHT20, Two Antennas, M8 to M15, 2ss 802.11n/ac - HT/VHT20, Three Antennas, M0 to M7, 1ss 802.11n/ac - HT/VHT20, Three Antennas, M8 to M15, 2ss

802.11n/ac - HT/VHT20 Beam Forming, Two Antennas, M0 to M7, 1ss 802.11n/ac - HT/VHT20 Beam Forming, Two Antennas, M8 to M15, 2ss 802.11n/ac - HT/VHT20 Beam Forming, Three Antennas, M0 to M7, 1ss 802.11n/ac - HT/VHT20 Beam Forming, Three Antennas, M8 to M15, 2ss

802.11n/ac - HT/VHT20 STBC, Two Antennas, M0 to M7, 2ss 802.11n/ac - HT/VHT20 STBC, Three Antennas, M0 to M7, 2ss

The following antennas are supported by this product series. The data included in this report represent the worst case data for all antennas.

| Frequency | Part Number | Antenna Type | Antenna Gain (dBi) |
|-------------|--------------|--------------|-----------------------|
| 2.4 / 5 GHz | 3x3 Internal | Omni | 3/5 |

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Section 3: Result Summary

3.1 Results Summary Table

Conducted emissions

| Basic Standard | Technical Requirements / Details | Result |
|--|---|--------|
| FCC 15.247 RSS-247 LP0002:3.10.1(6.2.1) | 6dB Bandwidth: Systems using digital modulation techniques may operate in the 2400-2483.5MHz band. The minimum 6dB bandwidth shall be at least 500 kHz. | Pass |
| FCC 15.247 RSS-247 | 99% & 26 dB Bandwidth: The 99% occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. There is no limit for 99% OBW. The 26 dB emission is the width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 26 dB relative to the maximum level measured in the fundamental emission. | Pass |
| FCC 15.247 RSS-247 LP0002:3.10.1(2.3) | Output Power: 15.247 The maximum conducted output power of the intentional radiator for systems using digital modulation in the 2400-2483.5 MHz band shall not exceed 1 Watt (30dBm). If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. RSS-247 For DTSs employing digital modulation techniques operating in the band 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1W. Except as provided in Section 5.4(5), the e.i.r.p. shall not exceed 4 W. | Pass |
| FCC 15.247 RSS-247 LP0002:3.10.1(6.2.2) | Power Spectral Density: For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. | Pass |
| FCC 15.247 RSS-247 LP0002:3.10.1(5)/2.8 | Conducted Spurious Emissions / Band-Edge: In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required | Pass |
| FCC 15.247 RSS-247 FCC 15.205 RSS-Gen | Restricted band: Unwanted emissions falling within the restricted bands, as defined in FCC 15.205 (a) and RSS-Gen 8.10 must also comply with the radiated emission limits specified in FCC 15.209 (a) and RSS-Gen 8.9. | Pass |

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| Basic Standard | Technical Requirements / Details | |
|---|--|------|
| FCC 15.209 RSS-Gen LP0002:3.10.1(5)/2.8 | TX Spurious Emissions: Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the filed strength limits table in this section. Unwanted emissions falling within the restricted bands, as defined in FCC 15.205 (a) and RSS-Gen 8.10 must also comply with the radiated emission limits <i>spe</i> cified in FCC 15.209 (a) and RSS-Gen 8.9. | Pass |
| RSS-Gen LP0002:3.10.1(5)2.8 | RX Spurious Emissions: RSS-Gen 8.9 Except when the requirements applicable to a given device state otherwise, emissions from licence-exempt transmitters shall comply with the field strength limits shown in Table 4 and Table 5 below. Additionally, the level of any transmitter emission shall not exceed the level of the transmitter's fundamental emission. RSS-Gen 8.10 Unwanted emissions that fall into restricted bands of Table 6 shall comply with the limits specified in RSS-Gen; and (c) Unwanted emissions that do not fall within the restricted frequency bands of Table 6 shall comply either with the limits specified in the applicable RSS or with those specified in this RSS-Gen. | Pass |
| FCC 15.207 RSS-Gen LP0002:2.3 | AC conducted Emissions: Except when the requirements applicable to a given device state otherwise, for any radio apparatus equipped to operate from the public utility AC power supply, either directly or indirectly (such as with a battery charger), the radio frequency voltage of emissions conducted back onto the AC power lines in the frequency range of 0.15 MHz to 30 MHz shall not exceed the limits shown in the table in these sections. The more stringent limit applies at the frequency range boundaries. | Pass |

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Radiated Emissions (General requirements)

* MPE calculation is recorded in a separate report

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Section 4: Sample Details

Note: Each sample was evaluated to ensure that its condition was suitable to be used as a test sample prior to the commencement of testing.

4.1 Sample Details

| Sample No. | Equipment Details | Manufacturer | Hardware Rev. | Firmware Rev. | Software Rev. | Serial Number |
|---------------|-------------------|---------------|------------------|------------------|------------------|------------------|
| S01 | AIR-AP1832I-A-K9 | Cisco Systems | P2 | 8.4.1.10 | AP1G4 Sept22 | RFDP2BHY033 |
| S02* | AIR-PWRADPT-RGD1 | Meanwell | A0 | NA | NA | EB3F71752 |

(*) S02 is support equipment Power supply for EUT S01

4.2 System Details

| System # | Description | Samples |
|----------|------------------|---------|
| 1 | AIR-AP1832I-A-K9 | S01 |
| 2 | AIR-PWRADPT-RGD1 | S02 |

4.3 Mode of Operation Details

| Mode# | Description | Comments |
|-------|-------------------------|---|
| 1 | Continuous Transmitting | Continuous Transmitting ≥98% duty cycle |

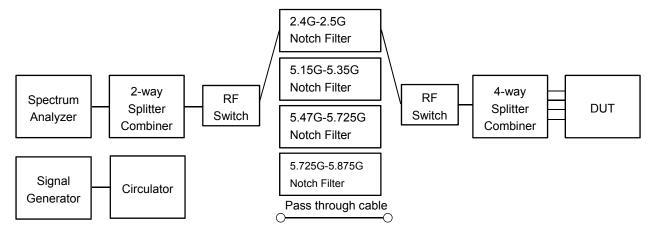
Measurements were made in accordance with

- ANSI C63.10:2013
- FCC KDB 662911 D01 v02r01
- KDB 558074 D01 Meas Guidance v03r05

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Appendix A: Emission Test Results

Conducted Test Setup Diagram



Target Maximum Channel Power

The following table details the maximum supported Total Channel Power for all operating modes.

| | Maximum Channel Power (dBm EIRP) Frequency (MHz) | | | | | |
|-------------------------------------|--|----|----|--|--|--|
| Operating Mode | 2412 2437 24 | | | | | |
| Legacy CCK, 1 to 11 Mbps | 26 | 26 | 26 | | | |
| Non HT20, 6 to 54 Mbps | 22 | 25 | 25 | | | |
| Non HT20 Beam Forming, 6 to 54 Mbps | 25 | 30 | 30 | | | |
| HT/VHT20, M0 to M15 | 21 | 25 | 25 | | | |
| HT/VHT20 Beam Forming, M0 to M15 | 24 | 30 | 30 | | | |
| HT/VHT20 STBC, M0 to M7 | 21 | 25 | 25 | | | |

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A.1 6dB Bandwidth

15.247 / RSS-247 / LP0002:3.10.1(6.2.1) Systems using digital modulation techniques may operate in the 2400-2483.5MHz band. The minimum 6dB bandwidth shall be at least 500 kHz.

Test Procedure

Ref. KDB 558074 D01 DTS Meas Guidance v03r05

ANSI C63.10: 2013

6 BW

Test Procedure

1. Set the radio in the continuous transmitting mode.

2. Allow the trace to stabilize.

3. Setting the x-dB bandwidth mode to -6dB within the measurement set up function.

4. Select the automatic OBW measurement function of an instrument to perform bandwidth measurement.

5. Capture graphs and record pertinent measurement data.

Ref. KDB 558074 D01 DTS Meas Guidance v03r05

ANSI C63.10: 2013 section 11.8.2 Option 2

6 BW Test parameters X dB BW = 6dB (using the OBW function of the spectrum analyzer) Span = Large enough to capture the entire EBW RBW = 100 KHz VBW ≥ 3 x RBW Sweep = Auto couple

Detector = Peak or where practical sample shall be used Trace = Max. Hold

| System Number | Description | Samples | System under test | Support equipment |
|------------------|-------------|---------|-------------------|----------------------|
| | EUT | S01 | \checkmark | |
| 1 | Support | S02 | | $\mathbf{\nabla}$ |

| j: |
|---------|
| -Jun-16 |
| i-, |

Test Result : PASS

See Appendix C for list of test equipment

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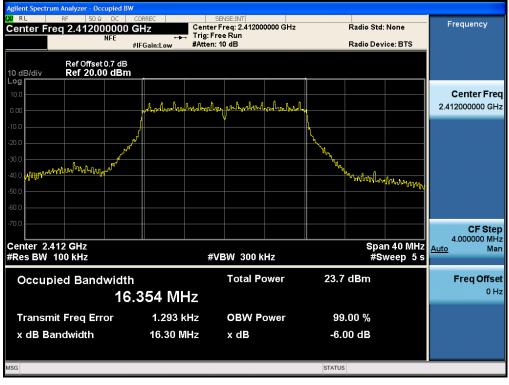
| Frequency (MHz) | Mode | Data Rate (Mbps) | 6dB BW (MHz) | Limit (kHz) | Margin (MHz) |
|--------------------|------------------------|---------------------|-----------------|----------------|-----------------|
| | CCK, 1 to 11 Mbps | 11 | 7.6 | >500 | 7.1 |
| 2412 | Non HT20, 6 to 54 Mbps | 6 | 16.3 | >500 | 15.8 |
| | HT/VHT20, M0 to M15 | m0 | 16.9 | >500 | 16.4 |
| | | | | | |
| | CCK, 1 to 11 Mbps | 11 | 8.1 | >500 | 7.6 |
| 2437 | Non HT20, 6 to 54 Mbps | 6 | 16.3 | >500 | 15.8 |
| | HT/VHT20, M0 to M15 | m0 | 17.3 | >500 | 16.8 |
| | | | | | |
| | CCK, 1 to 11 Mbps | | 8.1 | >500 | 7.6 |
| 2462 | Non HT20, 6 to 54 Mbps | 6 | 16.3 | >500 | 15.8 |
| | HT/VHT20, M0 to M15 | m0 | 16.9 | >500 | 16.4 |

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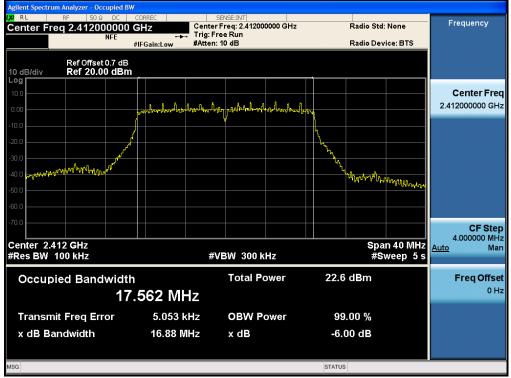


6dB Bandwidth, 2412 MHz, CCK, 1 to 11 Mbps

6dB Bandwidth, 2412 MHz, Non HT20, 6 to 54 Mbps



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6dB Bandwidth, 2412 MHz, HT/VHT20, M0 to M15

6dB Bandwidth, 2437 MHz, CCK, 1 to 11 Mbps

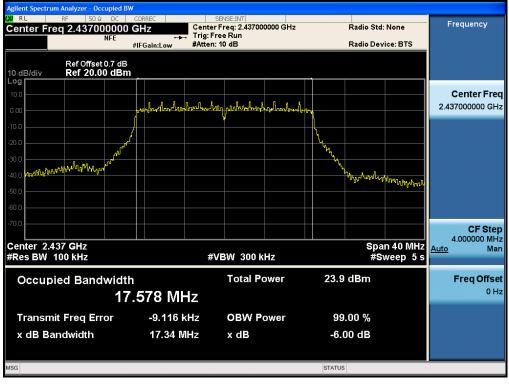


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6dB Bandwidth, 2437 MHz, Non HT20, 6 to 54 Mbps

6dB Bandwidth, 2437 MHz, HT/VHT20, M0 to M15

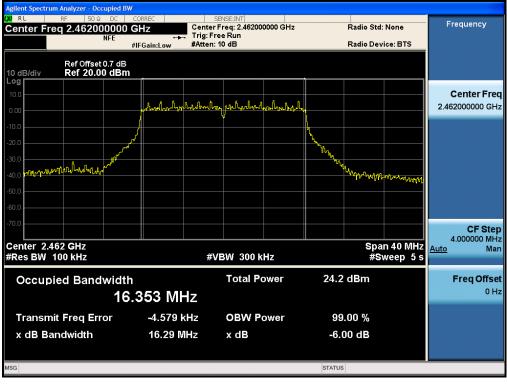


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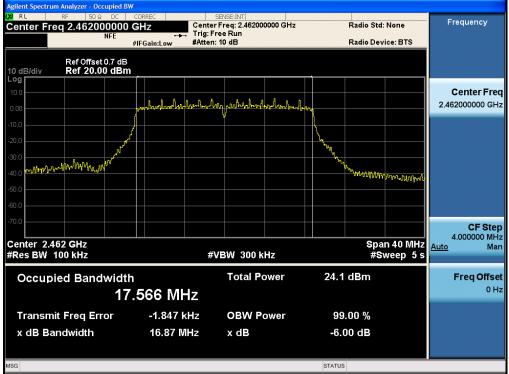


6dB Bandwidth, 2462 MHz, CCK, 1 to 11 Mbps

6dB Bandwidth, 2462 MHz, Non HT20, 6 to 54 Mbps



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6dB Bandwidth, 2462 MHz, HT/VHT20, M0 to M15

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A.2 99% and 26dB Bandwidth

The 99% occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. There is no limit for 99% OBW.

The 26 dB emission is the width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 26 dB relative to the maximum level measured in the fundamental emission.

Test Procedure

Ref. ANSI C63.10: 2013

| 26 BW & 99% BW | |
|---|--|
| Test Procedure | |
| 1. Set the radio in the continuous transmitting mode. | |
| 2. Allow the trace to stabilize. | |
| 3. Setting the x-dB bandwidth mode to -26dB & OBW to 99% within the measurement set up function. | |
| 4. Select the automatic OBW measurement function of an instrument to perform bandwidth measurement. | |
| 5. Capture graphs and record pertinent measurement data. | |

Ref. ANSI C63.10: 2013 section 6.9.3

| Test parameters |
|---|
| X dB BW = -26dB (using the OBW function of the spectrum analyzer) |
| OBW = 99% |
| Span = 1.5 to 5 times the OBW |
| RBW = 1% to 5% of the OBW |
| VBW ≥ 3 x RBW |
| Sweep = Auto couple |
| Detector = Peak or where practical sample shall be used |
| Trace = Max. Hold |

| System Number | Description | Samples | System under test | Support equipment |
|------------------|-------------|---------|-------------------|----------------------|
| | EUT | S01 | \checkmark | |
| 1 | Support | S02 | | \checkmark |

| Tested By : | Date of testing: |
|--------------------|-----------------------|
| Jose Aguirre | 05-May-16 - 06-Jun-16 |
| Test Result : PASS | |

See Appendix C for list of test equipment

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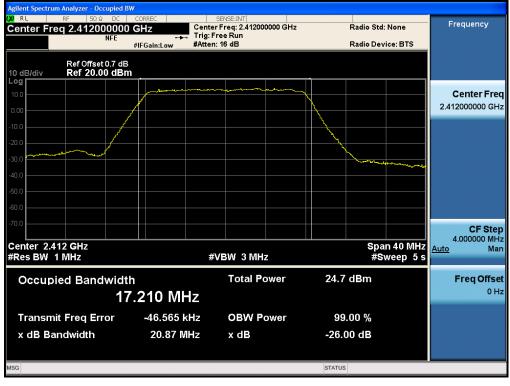
| Frequency (MHz) | Mode | Data Rate (Mbps) | 26dB BW (MHz) | 99% BW (MHz) |
|--------------------|------------------------|---------------------|------------------|-----------------|
| | CCK, 1 to 11 Mbps | 11 | 16.8 | 12.765 |
| 2412 | Non HT20, 6 to 54 Mbps | 6 | 20.9 | 17.210 |
| | HT/VHT20, M0 to M15 | m0 | 21.5 | 18.113 |
| | | | | |
| | CCK, 1 to 11 Mbps | 11 | 16.9 | 12.744 |
| 2437 | Non HT20, 6 to 54 Mbps | 6 | 21.1 | 17.266 |
| | HT/VHT20, M0 to M15 | m0 | 21.7 | 18.155 |
| | | | | |
| | CCK, 1 to 11 Mbps | | 16.8 | 12.712 |
| 2462 | Non HT20, 6 to 54 Mbps | 6 | 21.3 | 17.204 |
| | HT/VHT20, M0 to M15 | m0 | 21.6 | 18.103 |

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26dB / 99% Bandwidth, 2412 MHz, CCK, 1 to 11 Mbps

26dB / 99% Bandwidth, 2412 MHz, Non HT20, 6 to 54 Mbps

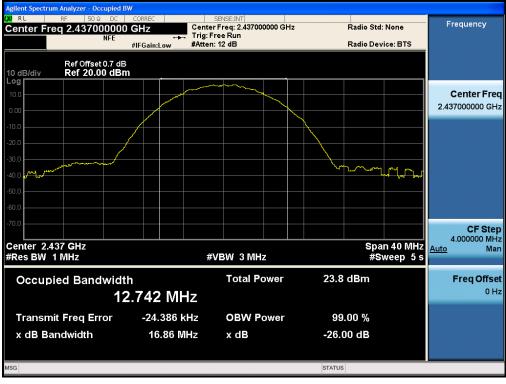


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26dB / 99% Bandwidth, 2412 MHz, HT/VHT20, M0 to M15

26dB / 99% Bandwidth, 2437 MHz, CCK, 1 to 11 Mbps

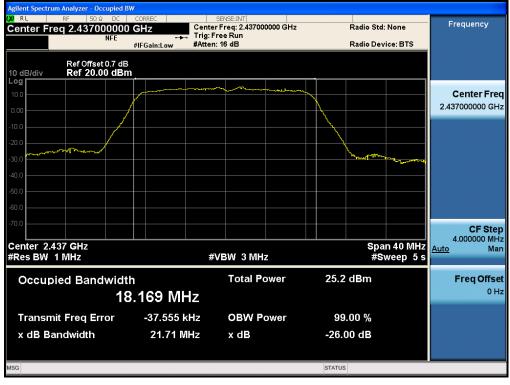


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26dB / 99% Bandwidth, 2437 MHz, Non HT20, 6 to 54 Mbps

26dB / 99% Bandwidth, 2437 MHz, HT/VHT20, M0 to M15

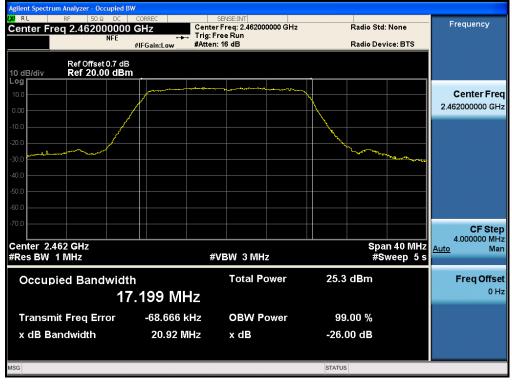


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26dB / 99% Bandwidth, 2462 MHz, CCK, 1 to 11 Mbps

26dB / 99% Bandwidth, 2462 MHz, Non HT20, 6 to 54 Mbps



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| | Analyzer - Occupied E | | | | | | | |
|-------------|------------------------------------|------------------|---------------------------------|--------------|---------------|--------------|-----------------------|--------------------------------|
| | RF 50 Ω DC | | SENSE:INT | 62000000 GHz | | Radio Sto | l: None | Frequency |
| | NFE | + #IFGain:Low | Trig: Free Run #Atten: 16 dB | | | Radio De | vice: BTS | |
| | D-608 | | | | | | | |
| 10 dB/div | Ref Offset 0.7 dB Ref 20.00 dBr | | | | | | | |
| Log | | | | | $\overline{}$ | | | Contor From |
| 10.0 | | / | | | | | | Center Freq 2.462000000 GHz |
| 0.00 | | | | | | | | 2.402000000 0112 |
| -10.0 | / | | | | | | | |
| -20.0 | man | | | | | George and a | | |
| -30.0 | | | | | | | and the second second | |
| -40.0 | | | | | | | | |
| -50.0 | | | | | | | | |
| -60.0 | | | | | | | | |
| -70.0 | | | | | | | | CF Step |
| Center 2.46 | 2 CH7 | | | | | Sna | an 40 MHz | 4 000000 MHz |
| #Res BW 1 | | | #VBW 3 | MHz | | #S | weep 5 s | <u>Auto</u> Man |
| Occupie | ed Bandwidt | h | Tota | al Power | 25.3 | dBm | | Freq Offset |
| Occupit | | 8.092 MI | | | | | | 0 Hz |
| | | | | | | | | |
| Transmit | t Freq Error | -21.394 | kHz OBV | V Power | 99 | 0.00 % | | |
| x dB Bar | ndwidth | 21.56 N | /IHz xdE | 3 | -26. | 00 dB | | |
| | | | | | | | | |
| MSG | | | | | STATU | 3 | | |
| | | | | | | | | |

26dB / 99% Bandwidth, 2462 MHz, HT/VHT20, M0 to M15

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Duty Cycle

EUT transmitting continuously (i.e., with a duty cycle of greater than or equal to 98%)

20MHz Channel plan

| | 5.01673 | | CORREC | | ENSE:INT | | e: Log-Pwr | 12:30:55 PM Feb TRACE | 82.1523 | Marker | |
|------------|--|--------|---------------------------|--------------------|----------|-----------|-------------------------|--------------------------|--------------|---------------|--|
| | | NFE | PNO: Fast • IFGain:Low | Trig: Fr Atten: | | | | DET P | N N N N | Select Marke | |
| | tef 30.00 (| 1Bm | | | | | Δ | | 7 ms 7 dB | | |
| | n an | ****** | hallfer - handfred | lan tanak | | John da | a sharan ta ta shara sa | 3∆2 ? | antes- | Norr | |
| | | | | | | | | | | De | |
| | | | | | | | | | | Fixe | |
| SBW 8 M | | | #VE | W 50 MH | | | <u> </u> | .061 ms (100 | | | |
| MODE TRC 5 | t (Δ) | × | 5.092 ms (A 215.5 µs | -0.1 | dB | CTION FUN | ICTION WIDTH | FUNCTION VALU | | | |
| Δ2 1 | | | 5.017 ms (Δ | | | | | | | Propertie | |
| | | | | | | | | | | M 1 | |
| | | | | | | | | | | | |

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A.3 Maximum Conducted Output Power

15.247 / RSS-247 section 5.4 / LP0002:3.10.1(2.3) The maximum conducted output power of the intentional radiator for systems using digital modulation in the 2400-2483.5 MHz band shall not exceed 1 Watt (30dBm). If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power. The maximum conducted output power is the total transmit power delivered to all antennas and antenna elements, averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or transmitting at a reduced power level. If multiple modes of operation are implemented, the maximum conducted output power is the highest total transmit power occurring in any mode.

The maximum supported antenna gain is 3 dBi. The peak correlated gain for each mode is listed in the table below.

Test Procedure

Ref. KDB 558074 D01 DTS Meas Guidance v03r05 ANSI C63.10: 2013

| Maximum Conducted Output power |
|---|
| Test Procedure |
| 1. Set the radio in the continuous transmitting mode at full power |
| 2. Compute power by integrating the spectrum across the EBW (or alternatively entire 99% OBW) of the signal using |
| the instrument's band power measurement function. The integration shall be performed using the spectrum analyzer |
| band-power measurement function with band limits set equal to the EBW or the OBW band edges. |
| 3. Capture graphs and record pertinent measurement data. |

Ref. 558074 D01 DTS Meas Guidance v03r05 section 9.2 Method AVGSA-1 ANSI C63 10: 2013 section 11.9.2 Method AVGSA-1

| ANOTO 505.10. 2019 Section 11.5.2 Method AV GOA-1 |
|--|
| Maximum Conducted Output power |
| Test parameters |
| Span = >1.5 times the OBW |
| RBW = 1MHz |
| VBW ≥ 3 x RBW |
| Sweep = Auto couple |
| Detector = Peak |
| Trace = Trace Average 100 |
| The "measure-and-sum technique" is used for measuring in-band transmit power of a device. In the measure-and-sum |
| approach, the conducted emission level is measured at each antenna port. The measured results at the various |
| antenna ports are then summed mathematically to determine the total emission level from the device. Summing is |

antenna ports are then summed mathematically to determine the total emission level from the device. Summing is performed in linear power units. (See ANSI C63.10 section 14.3 for Guidance)

| System Number | Description | Samples | System under test | Support equipment |
|------------------|-------------|---------|----------------------|----------------------|
| | EUT | S01 | \checkmark | |
| 1 | Support | S02 | | \checkmark |

| Tested By : | Date of testing: |
|--------------|-----------------------|
| Jose Aguirre | 05-May-16 - 06-Jun-16 |
| | 05-Way-10 - 00-501-10 |

Test Result : PASS

See Appendix C for list of test equipment

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Note: Limit is modified to ensure complying with both conducted power limit of 30dBm and eirp limit of 36 dBm. For antenna gains <6dBi, a product could comply with the 36dBm eirp limit, and still exceed the 30 dBm conducted limit. As a result, for gains <6dBi, we calculate the limit as 36dBm –(6dBi – Actual gain).

| | conducted limit. As a result, for gains <6dBi, we calculate the limit as 36dBm –(6dBi – Actual gain). | | | | | | | | |
|-----------------|---|----------|----------------------------------|----------------------|----------------------|----------------------|--------------------------------------|------------------|-------------|
| Frequency (MHz) | Mode | Tx Paths | Correlated Antenna Gain (dBi) | Tx 1 Max Power (dBm) | Tx 2 Max Power (dBm) | Tx 3 Max Power (dBm) | Total Tx Channel Power (dBm) EIRP | Limit (dBm) EIRP | Margin (dB) |
| | CCK, 1 to 11 Mbps | 1 | 3 | 17.8 | | | 20.8 | 33.0 | 12.2 |
| | CCK, 1 to 11 Mbps | 2 | 3 | 17.8 | 17.6 | | 23.7 | 33.0 | 9.3 |
| | CCK, 1 to 11 Mbps | 3 | 3 | 17.8 | 17.6 | 18.1 | 25.6 | 33.0 | 7.4 |
| | Non HT20, 6 to 54 Mbps | 1 | 3 | 16.3 | | | 19.3 | 33.0 | 13.7 |
| | Non HT20, 6 to 54 Mbps | 2 | 3 | 14.3 | 14.0 | | 20.2 | 33.0 | 12.8 |
| | Non HT20, 6 to 54 Mbps | 3 | 3 | 14.3 | 14.0 | 14.5 | 22.0 | 33.0 | 11.0 |
| | Non HT20 Beam Forming, 6 to 54 Mbps | 2 | 6 | 13.3 | 13.0 | | 22.2 | 36.0 | 13.8 |
| | Non HT20 Beam Forming, 6 to 54 Mbps | 3 | 8 | 11.3 | 10.9 | 11.6 | 24.0 | 36.0 | 12.0 |
| | HT/VHT20, M0 to M7 | 1 | 3 | 15.1 | | | 18.1 | 33.0 | 14.9 |
| 2412 | HT/VHT20, M0 to M7 | 2 | 3 | 14.1 | 13.7 | | 19.9 | 33.0 | 13.1 |
| 2 | HT/VHT20, M8 to M15 | 3 | 3 | 13.0 | 12.8 | 13.4 | 20.8 | 33.0 | 12.2 |
| | HT/VHT20, M0 to M7 | 2 | 3 | 14.1 | 13.7 | | 19.9 | 33.0 | 13.1 |
| | HT/VHT20, M8 to M15 | 3 | 3 | 13.0 | 12.8 | 13.4 | 20.8 | 33.0 | 12.2 |
| | HT/VHT20 Beam Forming, M0 to M7 | 2 | 6 | 12.0 | 11.7 | | 20.9 | 36.0 | 15.1 |
| | HT/VHT20 Beam Forming, M8 to M15 | 3 | 8 | 11.1 | 10.7 | 11.3 | 23.8 | 36.0 | 12.2 |
| | HT/VHT20 Beam Forming, M0 to M7 | 2 | 3 | 14.1 | 13.7 | | 19.9 | 33.0 | 13.1 |
| | HT/VHT20 Beam Forming, M8 to M15 | 3 | 5 | 12.0 | 11.7 | 12.3 | 21.8 | 35.0 | 13.2 |
| | HT/VHT20 STBC, M0 to M7 | 2 | 3 | 14.1 | 13.7 | | 19.9 | 33.0 | 13.1 |
| | HT/VHT20 STBC, M0 to M7 | 3 | 3 | 13.0 | 12.8 | 13.4 | 20.8 | 33.0 | 12.2 |
| | | | | | | | | | |
| | CCK, 1 to 11 Mbps | 1 | 3 | 17.2 | | | 20.2 | 33.0 | 12.8 |
| | CCK, 1 to 11 Mbps | 2 | 3 | 17.2 | 18.5 | | 23.9 | 33.0 | 9.1 |
| | CCK, 1 to 11 Mbps | 3 | 3 | 17.2 | 18.5 | 19.0 | 26.1 | 33.0 | 6.9 |
| | Non HT20, 6 to 54 Mbps | 1 | 3 | 16.7 | | | 19.7 | 33.0 | 13.3 |
| | Non HT20, 6 to 54 Mbps | 2 | 3 | 16.7 | 17.8 | | 23.3 | 33.0 | 9.7 |
| | Non HT20, 6 to 54 Mbps | 3 | 3 | 16.7 | 17.8 | 18.4 | 25.5 | 33.0 | 7.5 |
| 2437 | Non HT20 Beam Forming, 6 to 54 Mbps | 2 | 6 | 16.7 | 17.8 | | 26.3 | 36.0 | 9.7 |
| 24 | Non HT20 Beam Forming, 6 to 54 Mbps | 3 | 8 | 16.7 | 17.8 | 18.4 | 30.5 | 36.0 | 5.5 |
| | HT/VHT20, M0 to M7 | 1 | 3 | 16.5 | | | 19.5 | 33.0 | 13.5 |
| | HT/VHT20, M0 to M7 | 2 | 3 | 16.5 | 17.5 | | 23.0 | 33.0 | 10.0 |
| | HT/VHT20, M8 to M15 | 2 | 3 | 16.5 | 17.5 | | 23.0 | 33.0 | 10.0 |
| | HT/VHT20, M0 to M7 | 3 | 3 | 16.5 | 17.5 | 18.1 | 25.2 | 33.0 | 7.8 |
| | HT/VHT20, M8 to M15 | 3 | 3 | 16.5 | 17.5 | 18.1 | 25.2 | 33.0 | 7.8 |
| | HT/VHT20 Beam Forming, M0 to M7 | 2 | 6 | 16.5 | 17.5 | | 26.0 | 36.0 | 10.0 |
| | | | | | | | | | |

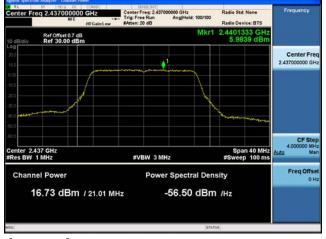
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-uluulu -cisco

| | HT/VHT20 Beam Forming, M8 to M15 | 2 | 3 | 16.5 | 17.5 | | 23.0 | 33.0 | 10.0 |
|---------------|-------------------------------------|---|---|------|------|------|------|------|------|
| | HT/VHT20 Beam Forming, M0 to M7 | 3 | 8 | 16.5 | 17.5 | 18.1 | 30.2 | 36.0 | 5.8 |
| | HT/VHT20 Beam Forming, M8 to M15 | 3 | 5 | 16.5 | 17.5 | 18.1 | 27.2 | 35.0 | 7.8 |
| | HT/VHT20 STBC, M0 to M7 | 2 | 3 | 16.5 | 17.5 | | 23.0 | 33.0 | 10.0 |
| | HT/VHT20 STBC, M0 to M7 | 3 | 3 | 16.5 | 17.5 | 18.1 | 25.2 | 33.0 | 7.8 |
| | | | | | | | | | |
| | CCK, 1 to 11 Mbps | 1 | 3 | 17.3 | | | 20.3 | 33.0 | 12.7 |
| | CCK, 1 to 11 Mbps | 2 | 3 | 17.3 | 18.2 | | 23.8 | 33.0 | 9.2 |
| | CCK, 1 to 11 Mbps | 3 | 3 | 17.3 | 18.2 | 18.7 | 25.9 | 33.0 | 7.1 |
| | Non HT20, 6 to 54 Mbps | 1 | 3 | 16.8 | | | 19.8 | 33.0 | 13.2 |
| | Non HT20, 6 to 54 Mbps | 2 | 3 | 15.7 | 16.7 | | 22.2 | 33.0 | 10.8 |
| | Non HT20, 6 to 54 Mbps | 3 | 3 | 15.7 | 16.7 | 17.2 | 24.3 | 33.0 | 8.7 |
| | Non HT20 Beam Forming, 6 to 54 Mbps | 2 | 6 | 14.8 | 15.6 | | 24.2 | 36.0 | 11.8 |
| | Non HT20 Beam Forming, 6 to 54 Mbps | 3 | 8 | 13.7 | 14.5 | 15.2 | 27.3 | 36.0 | 8.7 |
| 2 | HT/VHT20, M0 to M7 | 1 | 3 | 16.6 | | | 19.6 | 33.0 | 13.4 |
| 2462 | HT/VHT20, M0 to M7 | 2 | 3 | 15.5 | 16.5 | | 22.0 | 33.0 | 11.0 |
| ^{CN} | HT/VHT20, M8 to M15 | 3 | 3 | 14.5 | 15.4 | 15.9 | 23.1 | 33.0 | 9.9 |
| | HT/VHT20, M0 to M7 | 2 | 3 | 15.5 | 16.5 | | 22.0 | 33.0 | 11.0 |
| | HT/VHT20, M8 to M15 | 3 | 3 | 14.5 | 15.4 | 15.9 | 23.1 | 33.0 | 9.9 |
| | HT/VHT20 Beam Forming, M0 to M7 | 2 | 6 | 14.5 | 15.4 | | 24.0 | 36.0 | 12.0 |
| | HT/VHT20 Beam Forming, M8 to M15 | 3 | 8 | 12.5 | 13.3 | 13.9 | 26.0 | 36.0 | 10.0 |
| | HT/VHT20 Beam Forming, M0 to M7 | 2 | 3 | 15.5 | 16.5 | | 22.0 | 33.0 | 11.0 |
| | HT/VHT20 Beam Forming, M8 to M15 | 3 | 5 | 14.5 | 15.4 | 15.9 | 25.1 | 35.0 | 9.9 |
| | HT/VHT20 STBC, M0 to M7 | 2 | 3 | 15.5 | 16.5 | | 22.0 | 33.0 | 11.0 |
| | HT/VHT20 STBC, M0 to M7 | 3 | 3 | 14.5 | 15.4 | 15.9 | 23.1 | 33.0 | 9.9 |
| | | | | | | | | | |

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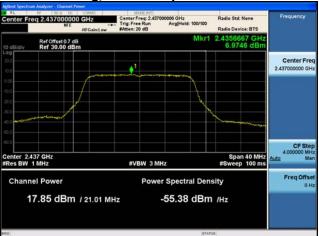
Maximum Transmit Output Power, 2437 MHz, Non HT20 Beam Forming, 6 to 54 Mbps







Antenna C



Antenna B

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A.4 Power Spectral Density

15.247 / RSS-247 / LP0002:3.10.1(6.2.2) For digitally modulated systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

Test Procedure

Ref. KDB 558074 D01 DTS Meas Guidance v03r05

| ANSI 003.10.2013 | |
|---|--|
| Power Spectral Density | |
| Test Procedure | |
| 1. Set the radio in the continuous transmitting mode at full power | |
| 2.Configure Spectrum analyzer as per test parameters below and Peak search marker | |
| 3. Capture graphs and record pertinent measurement data. | |
| | |
| Ref 558074 D01 DTS Meas Guidance v03r05 section 10.2 Peak PSD | |

Ref. 558074 D01 DTS Meas Guidance v03r05 section 10.2 Peak PSD ANSI C63.10: 2013 section 11.10.2 Peak PSD

The "Measure and add 10 log(N) dB technique", where N is the number of outputs, is used for measuring in-band Power Spectral Density. (See ANSI C63.10 section 14.3.2.3)

| System Number | Description | Samples | System under test | Support equipment |
|------------------|-------------|---------|-------------------|----------------------|
| | EUT | S01 | \mathbf{V} | |
| 1 | Support | S02 | | \checkmark |

| Tested By : | Date of testing: |
|--------------------|-----------------------|
| Jose Aguirre | 05-May-16 - 06-Jun-16 |
| Test Result : PASS | |

See Appendix C for list of test equipment

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| Frequency (MHz) | Mode | Data Rate (Mbps) | PSD / Antenna (dBm/3kHz) | Total PSD (dBm/3kHz) | Limit (dBm/3kHz) | Margin (dB) |
|--------------------|------------------------|------------------------|--------------------------------|-------------------------|---------------------|----------------|
| | CCK, 1 to 11 Mbps | 11 | -4.9 | -0.1 | 8.0 | 8.1 |
| 2412 | Non HT20, 6 to 54 Mbps | 6 | -10.3 | -5.5 | 8.0 | 13.5 |
| | HT/VHT20, M0 to M15 | m0 | -12.7 | -7.9 | 8.0 | 15.9 |
| | | | | | | |
| | CCK, 1 to 11 Mbps | 11 | -5.5 | -0.7 | 8.0 | 8.7 |
| 2437 | Non HT20, 6 to 54 Mbps | 6 | -10.7 | -5.9 | 8.0 | 13.9 |
| | HT/VHT20, M0 to M15 | m0 | -11.0 | -6.2 | 8.0 | 14.2 |
| | | | | | | |
| | CCK, 1 to 11 Mbps | 11 | 0.9 | 5.7 | 8.0 | 2.3 |
| 2462 | Non HT20, 6 to 54 Mbps | 6 | -10.7 | -5.9 | 8.0 | 13.9 |
| | HT/VHT20, M0 to M15 | m0 | -11.2 | -6.4 | 8.0 | 14.4 |

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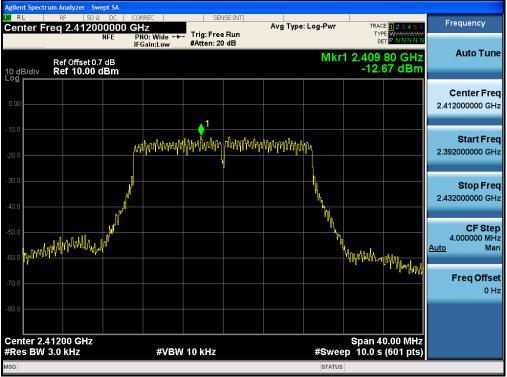


Power Spectral Density, 2412 MHz, CCK, 1 to 11 Mbps

Power Spectral Density, 2412 MHz, Non HT20, 6 to 54 Mbps

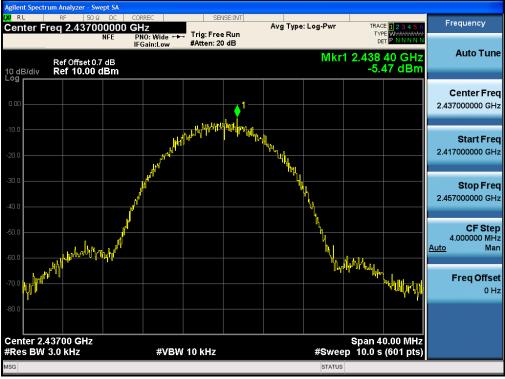


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Power Spectral Density, 2412 MHz, HT/VHT20, M0 to M15



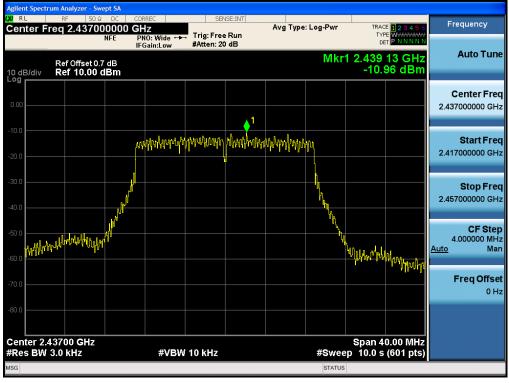


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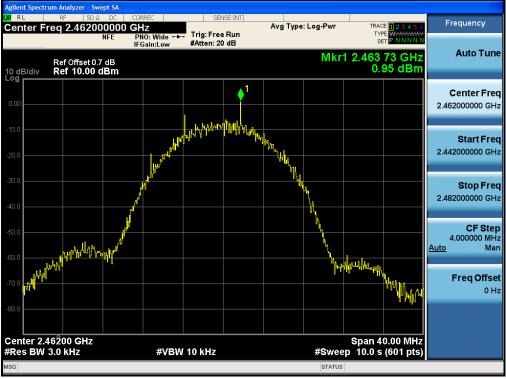


Power Spectral Density, 2437 MHz, Non HT20, 6 to 54 Mbps

Power Spectral Density, 2437 MHz, HT/VHT20, M0 to M15

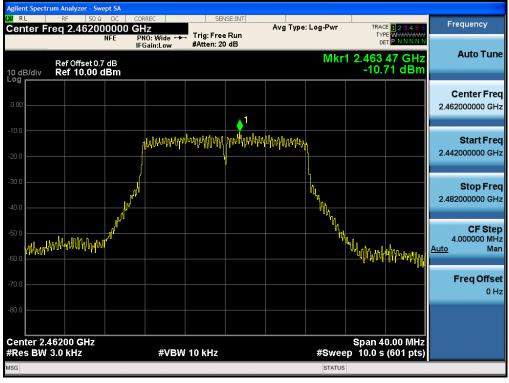


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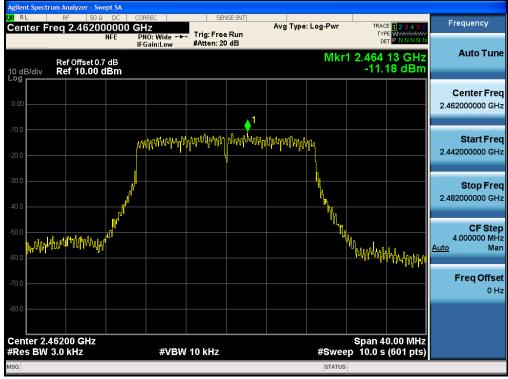


Power Spectral Density, 2462 MHz, CCK, 1 to 11 Mbps

Power Spectral Density, 2462 MHz, Non HT20, 6 to 54 Mbps



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Power Spectral Density, 2462 MHz, HT/VHT20, M0 to M15

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A.5 Conducted Spurious Emissions

15.205 / 15.209 / LP0002 - Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

RSS-Gen 8.9: Except when the requirements applicable to a given device state otherwise, emissions from licence-exempt transmitters shall comply with the field strength limits shown in Table 4 and Table 5 below. Additionally, the level of any transmitter emission shall not exceed the level of the transmitter's fundamental emission.

RSS-Gen 8.10 (b) Unwanted emissions that fall into restricted bands of Table 6 shall comply with the limits specified in RSS-Gen; and (c) Unwanted emissions that do not fall within the restricted frequency bands of Table 6 shall comply either with the limits specified in the applicable RSS or with those specified in this RSS-Gen.

Use formula below to substitute conducted measurements in place of radiated measurements

 $E[dB\mu V/m] = EIRP[dBm] - 20 \log(d[meters]) + 104.77$, where E = field strength and d = 3 meter

1) Average Plot, Limit= -41.25 dBm eirp

2) Peak plot, Limit = -21.25 dBm eirp

Test Procedure

Ref. KDB 558074 D01 DTS Meas Guidance v03r05

ANSI C63.10: 2013

Conducted Spurious Emissions

Test Procedure

1. Connect the antenna port(s) to the spectrum analyzer input.

2. Place the radio in continuous transmit mode

3. Configure Spectrum analyzer as per test parameters below (be sure to enter all losses between the transmitter output and the spectrum analyzer).

4. Use the peak marker function to determine the maximum spurs amplitude level.

5. The "measure-and-sum technique" is used for measuring in-band transmit power of a device. In the measure-and-sum approach, the conducted emission level is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically to determine the total emission level from the device. Summing is performed in linear power units. The worst case output is recorded. (see ANSI C63.10 2013 section 14.3.2.2)

6. Capture graphs and record pertinent measurement data.

Ref. 558074 D01 DTS Meas Guidance v03r05 section 11.1b, 11.2-3, 12.2.4 & 12.2.5.3 ANSI C63.10: 2013 section 11.10.3 & 11.12.2.4 & 11.12.2.5.3

Conducted Spurious Emissions

Test parameters Span = 30 MHz-26 GHz RBW = 100 kHz. VBW \ge 3 x RBW Sweep = Auto couple Detector = Peak Trace = Max Hold

KDB: 558074 D01 DTS Meas Guidance v03r05 section 12.2.2 © add the max antenna gain + ground reflection factor (4.7 dB for frequencies between 30 MHz and 1000 MHz, and 0 dB for frequencies > 1000 MHz).

| System Number | Description | Samples | System under test | Support equipment |
|------------------|-------------|---------|-------------------|----------------------|
| 1 | EUT | S01 | \checkmark | |
| ļ | Support | S02 | | \checkmark |

Test Result : PASS

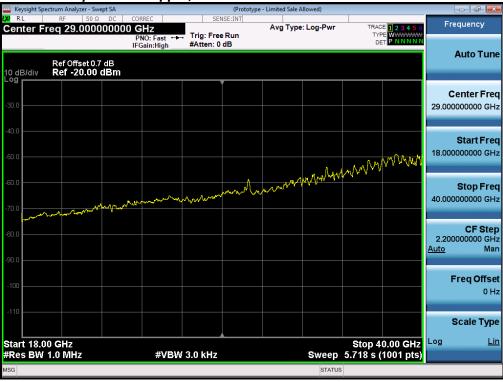
See Appendix C for list of test equipment

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Conducted Spurs Average Upper, All Antennas

Conducted Spurs Peak Upper, All Antennas



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| Frequency (MHz) | Mode | Tx Paths | Correlated Antenna Gain (dBi) | Tx 1 Spur Power (dBm) | Tx 2 Spur Power (dBm) | Tx 3 Spur Power (dBm) | Total Conducted Spur (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------------------|----------|----------------------------------|--------------------------|--------------------------|--------------------------|-------------------------------|-------------|-------------|
| | CCK, 1 to 11 Mbps | 1 | 3 | -75.0 | | | -72.0 | -41.25 | 30.8 |
| | CCK, 1 to 11 Mbps | 2 | 3 | -75.0 | -75.0 | | -69.0 | -41.25 | 27.7 |
| | CCK, 1 to 11 Mbps | 3 | 3 | -75.0 | -75.0 | -72.9 | -66.4 | -41.25 | 25.2 |
| | Non HT20, 6 to 54 Mbps | 1 | 3 | -77.7 | | | -74.7 | -41.25 | 33.5 |
| | Non HT20, 6 to 54 Mbps | 2 | 3 | -70.4 | -70.3 | | -64.3 | -41.25 | 23.1 |
| | Non HT20, 6 to 54 Mbps | 3 | 3 | -70.5 | -78.3 | -78.5 | -66.3 | -41.25 | 25.0 |
| | Non HT20 Beam Forming, 6 to 54 Mbps | 2 | 6 | -70.5 | -78.3 | | -63.8 | -41.25 | 22.6 |
| | Non HT20 Beam Forming, 6 to 54 Mbps | 3 | 8 | -78.6 | -78.0 | -78.8 | -65.7 | -41.25 | 24.4 |
| | HT/VHT20, M0 to M7 | 1 | 3 | -70.6 | | | -67.6 | -41.25 | 26.4 |
| 2412 | HT/VHT20, M0 to M7 | 2 | 3 | -77.8 | -78.2 | | -72.0 | -41.25 | 30.7 |
| 2 | HT/VHT20, M8 to M15 | 2 | 3 | -77.8 | -78.2 | | -72.0 | -41.25 | 30.7 |
| | HT/VHT20, M0 to M7 | 3 | 3 | -78.2 | -78.3 | -70.0 | -65.9 | -41.25 | 24.6 |
| | HT/VHT20, M8 to M15 | 3 | 3 | -78.2 | -78.3 | -70.0 | -65.9 | -41.25 | 24.6 |
| | HT/VHT20 Beam Forming, M0 to M7 | 2 | 6 | -78.2 | -78.3 | | -69.2 | -41.25 | 28.0 |
| | HT/VHT20 Beam Forming, M8 to M15 | 2 | 3 | -77.8 | -78.2 | | -72.0 | -41.25 | 30.7 |
| | HT/VHT20 Beam Forming, M0 to M7 | 3 | 8 | -78.8 | -61.6 | -70.5 | -53.0 | -41.25 | 11.8 |
| | HT/VHT20 Beam Forming, M8 to M15 | 3 | 5 | -74.1 | -70.4 | -78.5 | -63.4 | -41.25 | 22.2 |
| | HT/VHT20 STBC, M0 to M7 | 2 | 3 | -77.8 | -78.2 | | -72.0 | -41.25 | 30.7 |
| | HT/VHT20 STBC, M0 to M7 | 3 | 3 | -78.2 | -78.3 | -70.0 | -65.9 | -41.25 | 24.6 |
| | | | | | | | | | |
| | CCK, 1 to 11 Mbps | 1 | 3 | -75.0 | | | -72.0 | -41.25 | 30.8 |
| | CCK, 1 to 11 Mbps | 2 | 3 | -75.0 | -74.5 | | -68.7 | -41.25 | 27.5 |
| | CCK, 1 to 11 Mbps | 3 | 3 | -75.0 | -74.5 | -70.7 | -65.2 | -41.25 | 23.9 |
| | Non HT20, 6 to 54 Mbps | 1 | 3 | -76.6 | | | -73.6 | -41.25 | 32.4 |
| | Non HT20, 6 to 54 Mbps | 2 | 3 | -76.6 | -70.5 | | -66.5 | -41.25 | 25.3 |
| | Non HT20, 6 to 54 Mbps | 3 | 3 | -76.6 | -70.5 | -70.4 | -63.9 | -41.25 | 22.7 |
| | Non HT20 Beam Forming, 6 to 54 Mbps | 2 | 6 | -76.6 | -70.5 | | -63.5 | -41.25 | 22.3 |
| 37 | Non HT20 Beam Forming, 6 to 54 Mbps | 3 | 8 | -76.6 | -70.5 | -70.4 | -58.9 | -41.25 | 17.7 |
| 2437 | HT/VHT20, M0 to M7 | 1 | 3 | -77.1 | | | -74.1 | -41.25 | 32.9 |
| | HT/VHT20, M0 to M7 | 2 | 3 | -77.1 | -76.3 | | -70.7 | -41.25 | 29.4 |
| | HT/VHT20, M8 to M15 | 2 | 3 | -77.1 | -76.3 | | -70.7 | -41.25 | 29.4 |
| | HT/VHT20, M0 to M7 | 3 | 3 | -77.1 | -76.3 | -76.4 | -68.8 | -41.25 | 27.6 |
| | HT/VHT20, M8 to M15 | 3 | 3 | -77.1 | -76.3 | -76.4 | -68.8 | -41.25 | 27.6 |
| | HT/VHT20 Beam Forming, M0 to M7 | 2 | 6 | -77.1 | -76.3 | | -67.7 | -41.25 | 26.4 |
| | HT/VHT20 Beam Forming, M8 to M15 | 2 | 3 | -77.1 | -76.3 | | -70.7 | -41.25 | 29.4 |
| | HT/VHT20 Beam Forming, M0 to M7 | 3 | 8 | -77.1 | -76.3 | -76.4 | -63.8 | -41.25 | 22.6 |

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| HT/VHT20 Beam Forming, M8 to M15 | 3 | 5 | -77.1 | -76.3 | -76.4 | -66.8 | -41.25 | 25.6 |
|-------------------------------------|---|--|---|---|---|--|---|--|
| HT/VHT20 STBC, M0 to M7 | 2 | 3 | -77.1 | -76.3 | | -70.7 | -41.25 | 29.4 |
| HT/VHT20 STBC, M0 to M7 | 3 | 3 | -77.1 | -76.3 | -76.4 | -68.8 | -41.25 | 27.6 |
| | | | | | | | | |
| CCK, 1 to 11 Mbps | 1 | 3 | -74.8 | | | -71.8 | -41.25 | 30.6 |
| CCK, 1 to 11 Mbps | 2 | 3 | -74.8 | -76.9 | | -69.7 | -41.25 | 28.5 |
| CCK, 1 to 11 Mbps | 3 | 3 | -74.8 | -76.9 | -76.4 | -68.2 | -41.25 | 26.9 |
| Non HT20, 6 to 54 Mbps | 1 | 3 | -77.5 | | | -74.5 | -41.25 | 33.3 |
| Non HT20, 6 to 54 Mbps | 2 | 3 | -77.5 | -77.2 | | -71.3 | -41.25 | 30.1 |
| Non HT20, 6 to 54 Mbps | 3 | 3 | -77.5 | -77.2 | -70.4 | -65.9 | -41.25 | 24.7 |
| Non HT20 Beam Forming, 6 to 54 Mbps | 2 | 6 | -77.5 | -77.2 | | -68.3 | -41.25 | 27.1 |
| Non HT20 Beam Forming, 6 to 54 Mbps | 3 | 8 | -77.5 | -77.2 | -70.4 | -60.9 | -41.25 | 19.7 |
| HT/VHT20, M0 to M7 | 1 | 3 | -76.9 | | | -73.9 | -41.25 | 32.7 |
| HT/VHT20, M0 to M7 | 2 | 3 | -76.9 | -76.9 | | -70.9 | -41.25 | 29.6 |
| HT/VHT20, M8 to M15 | 2 | 3 | -76.9 | -76.9 | | -70.9 | -41.25 | 29.6 |
| HT/VHT20, M0 to M7 | 3 | 3 | -76.9 | -76.9 | -77.0 | -69.2 | -41.25 | 27.9 |
| HT/VHT20, M8 to M15 | 3 | 3 | -76.9 | -76.9 | -77.0 | -69.2 | -41.25 | 27.9 |
| HT/VHT20 Beam Forming, M0 to M7 | 2 | 6 | -76.9 | -76.9 | | -67.9 | -41.25 | 26.6 |
| HT/VHT20 Beam Forming, M8 to M15 | 2 | 3 | -76.9 | -76.9 | | -70.9 | -41.25 | 29.6 |
| HT/VHT20 Beam Forming, M0 to M7 | 3 | 8 | -76.9 | -76.9 | -77.0 | -64.2 | -41.25 | 22.9 |
| HT/VHT20 Beam Forming, M8 to M15 | 3 | 5 | -76.9 | -76.9 | -77.0 | -67.2 | -41.25 | 25.9 |
| HT/VHT20 STBC, M0 to M7 | 2 | 3 | -76.9 | -76.9 | | -70.9 | -41.25 | 29.6 |
| HT/VHT20 STBC, M0 to M7 | 3 | 3 | -76.9 | -76.9 | -77.0 | -69.2 | -41.25 | 27.9 |
| | HT/VHT20 STBC, M0 to M7 HT/VHT20 STBC, M0 to M7 CCK, 1 to 11 Mbps CCK, 1 to 11 Mbps CCK, 1 to 11 Mbps CCK, 1 to 11 Mbps Non HT20, 6 to 54 Mbps Non HT20, 6 to 54 Mbps Non HT20, 6 to 54 Mbps Non HT20 Beam Forming, 6 to 54 Mbps Non HT20 Beam Forming, 6 to 54 Mbps Non HT20 Beam Forming, 6 to 54 Mbps HT/VHT20, M0 to M7 HT/VHT20, M0 to M7 HT/VHT20, M0 to M7 HT/VHT20, M8 to M15 HT/VHT20, M8 to M15 HT/VHT20 Beam Forming, M0 to M7 HT/VHT20 Beam Forming, M8 to M15 HT/VHT20 STBC, M0 to M7 | HT/VHT20 STBC, M0 to M7 2 HT/VHT20 STBC, M0 to M7 3 CCK, 1 to 11 Mbps 1 CCK, 1 to 11 Mbps 2 CCK, 1 to 11 Mbps 3 Non HT20, 6 to 54 Mbps 1 Non HT20, 6 to 54 Mbps 2 Non HT20, 6 to 54 Mbps 2 Non HT20, 6 to 54 Mbps 2 Non HT20, 6 to 54 Mbps 3 Non HT20 Beam Forming, 6 to 54 Mbps 2 Non HT20 Beam Forming, 6 to 54 Mbps 3 HT/VHT20, M0 to M7 1 HT/VHT20, M0 to M7 1 HT/VHT20, M0 to M7 2 HT/VHT20, M8 to M15 3 HT/VHT20, M8 to M15 3 HT/VHT20 Beam Forming, M0 to M7 2 HT/VHT20 Beam Forming, M0 to M7 3 HT/VHT20 Beam Forming, M8 to M15 3 HT/VHT20 Beam Forming, M8 to M15 3 HT/VHT20 Beam Forming, M0 to M7 3 HT/VHT20 Beam Forming, M8 to M15 3 HT/VHT20 STBC, M0 to M7 3 HT/VHT20 STBC, M0 to M7 3 | HT/VHT20 STBC, M0 to M7 2 3 HT/VHT20 STBC, M0 to M7 3 3 CCK, 1 to 11 Mbps 1 3 CCK, 1 to 11 Mbps 2 3 CCK, 1 to 11 Mbps 2 3 CCK, 1 to 11 Mbps 2 3 Non HT20, 6 to 54 Mbps 1 3 Non HT20, 6 to 54 Mbps 2 3 Non HT20, 6 to 54 Mbps 2 3 Non HT20 Beam Forming, 6 to 54 Mbps 2 6 Non HT20 Beam Forming, 6 to 54 Mbps 3 8 HT/VHT20, M0 to M7 1 3 HT/VHT20, M0 to M7 2 3 HT/VHT20, M0 to M7 3 3 HT/VHT20, M0 to M7 3 3 HT/VHT20, M0 to M7 3 3 HT/VHT20, M8 to M15 2 3 HT/VHT20 Beam Forming, M0 to M7 2 6 HT/VHT20 Beam Forming, M0 to M7 3 8 HT/VHT20 Beam Forming, M8 to M15 2 3 HT/VHT20 Beam Forming, M0 to M7 3 8 HT/VHT20 Beam Forming, M8 to M15 3 5 | HT/VHT20 STBC, M0 to M7 2 3 -77.1 HT/VHT20 STBC, M0 to M7 3 3 -77.1 CCK, 1 to 11 Mbps 1 3 -74.8 CCK, 1 to 11 Mbps 2 3 -74.8 CCK, 1 to 11 Mbps 2 3 -74.8 CCK, 1 to 11 Mbps 3 3 -74.8 CCK, 1 to 11 Mbps 3 3 -74.8 CCK, 1 to 11 Mbps 2 3 -74.8 CCK, 1 to 11 Mbps 3 3 -74.8 CCK, 1 to 11 Mbps 3 3 -74.8 Non HT20, 6 to 54 Mbps 1 3 -77.5 Non HT20 for 54 Mbps 2 3 -77.5 Non HT20 Beam Forming, 6 to 54 Mbps 2 6 -77.5 Non HT20 Beam Forming, 6 to 54 Mbps 3 8 -77.5 Non HT20 M0 to M7 1 3 -76.9 HT/VHT20, M0 to M7 2 3 -76.9 HT/VHT20, M8 to M15 3 3 -76.9 HT/VHT20, M8 to M15 3 3 -76.9 HT/VHT20 Beam Forming, M0 to | HT/VHT20 STBC, M0 to M7 2 3 -77.1 -76.3 HT/VHT20 STBC, M0 to M7 3 3 -77.1 -76.3 CCK, 1 to 11 Mbps 1 3 -74.8 -76.9 CCK, 1 to 11 Mbps 2 3 -74.8 -76.9 CCK, 1 to 11 Mbps 3 3 -74.8 -76.9 CCK, 1 to 11 Mbps 3 3 -74.8 -76.9 Non HT20, 6 to 54 Mbps 1 3 -77.5 -77.2 Non HT20, 6 to 54 Mbps 2 3 -77.5 -77.2 Non HT20, 6 to 54 Mbps 3 3 -77.5 -77.2 Non HT20 Beam Forming, 6 to 54 Mbps 3 8 -77.5 -77.2 Non HT20 Beam Forming, 6 to 54 Mbps 3 8 -77.5 -77.2 Non HT20 Beam Forming, 6 to 54 Mbps 3 8 -77.5 -77.2 Non HT20 M0 to M7 1 3 -76.9 -76.9 HT/VHT20, M0 to M7 1 3 -76.9 -76.9 HT/VHT20, M8 to M15 3 3 -76.9 -76.9 HT/VHT20 Be | HT/VHT20 STBC, M0 to M7 2 3 -77.1 -76.3 HT/VHT20 STBC, M0 to M7 3 3 -77.1 -76.3 -76.4 CCK, 1 to 11 Mbps 1 3 -74.8 -76.9 CCK, 1 to 11 Mbps 2 3 -74.8 -76.9 CCK, 1 to 11 Mbps 2 3 -74.8 -76.9 CCK, 1 to 11 Mbps 3 3 -74.8 -76.9 CCK, 1 to 11 Mbps 3 3 -74.8 -76.9 CCK, 1 to 11 Mbps 3 3 -74.8 -76.9 CCK, 1 to 11 Mbps 1 3 -77.5 -76.9 CCK, 1 to 11 Mbps 3 3 -77.5 -77.2 Non HT20, 6 to 54 Mbps 1 3 -77.5 -77.2 Non HT20 Beam Forming, 6 to 54 Mbps 3 8 -77.5 -77.2 Non HT20 Beam Forming, 6 to 54 Mbps 3 8 -77.5 -77.2 Non HT20, M0 to M7 1 3 -76.9 -76.9 HT/VHT20, M0 to M7 2 3 -76.9 -77.0 HT/VHT20, M8 to M15 | HT/VHT20 STBC, M0 to M7 2 3 -77.1 -76.3 -70.7 HT/VHT20 STBC, M0 to M7 3 3 -77.1 -76.3 -76.4 -68.8 CCK, 1 to 11 Mbps 1 3 -74.8 -71.8 -71.8 CCK, 1 to 11 Mbps 2 3 -74.8 -76.9 -69.7 CCK, 1 to 11 Mbps 3 3 -74.8 -76.9 -69.7 CCK, 1 to 11 Mbps 3 3 -74.8 -76.9 -69.7 CCK, 1 to 11 Mbps 3 3 -74.8 -76.4 -68.2 Non HT20, 6 to 54 Mbps 1 3 -77.5 -77.2 -74.5 Non HT20, 6 to 54 Mbps 2 3 -77.5 -77.2 -71.3 Non HT20 Beam Forming, 6 to 54 Mbps 3 8 -77.5 -77.2 -70.4 -66.9 Non HT20 Beam Forming, 6 to 54 Mbps 3 8 -77.5 -77.2 -70.4 -60.9 HT/VHT20, M0 to M7 1 3 -76.9 -77.0 -68.3 Non HT20 Beam Forming, 6 to 54 Mbps 3 8 -77.5 <td< td=""><td>HT/VHT20 STBC, M0 to M7 2 3 -77.1 -76.3 -70.7 -41.25 HT/VHT20 STBC, M0 to M7 3 3 -77.1 -76.3 -76.4 -68.8 -41.25 CCK, 1 to 11 Mbps 1 3 -74.8 -71.8 -41.25 CCK, 1 to 11 Mbps 2 3 -74.8 -76.9 -69.7 -41.25 CCK, 1 to 11 Mbps 3 -74.8 -76.9 -69.7 -41.25 CCK, 1 to 11 Mbps 3 -77.5 -76.4 -68.2 -41.25 Non HT20, 6 to 54 Mbps 1 3 -77.5 -77.2 -71.3 -41.25 Non HT20, 6 to 54 Mbps 2 3 -77.5 -77.2 -71.3 -41.25 Non HT20 6 to 54 Mbps 3 3 -77.5 -77.2 -71.3 -41.25 Non HT20 6 to 54 Mbps 3 3 -77.5 -77.2 -70.4 -65.9 -41.25 Non HT20 Beam Forming, 6 to 54 Mbps 3 8 -77.5 -77.2 -70.4 -60.9 -41.25 Non HT20 M0 to M7 1 3 -76.9</td></td<> | HT/VHT20 STBC, M0 to M7 2 3 -77.1 -76.3 -70.7 -41.25 HT/VHT20 STBC, M0 to M7 3 3 -77.1 -76.3 -76.4 -68.8 -41.25 CCK, 1 to 11 Mbps 1 3 -74.8 -71.8 -41.25 CCK, 1 to 11 Mbps 2 3 -74.8 -76.9 -69.7 -41.25 CCK, 1 to 11 Mbps 3 -74.8 -76.9 -69.7 -41.25 CCK, 1 to 11 Mbps 3 -77.5 -76.4 -68.2 -41.25 Non HT20, 6 to 54 Mbps 1 3 -77.5 -77.2 -71.3 -41.25 Non HT20, 6 to 54 Mbps 2 3 -77.5 -77.2 -71.3 -41.25 Non HT20 6 to 54 Mbps 3 3 -77.5 -77.2 -71.3 -41.25 Non HT20 6 to 54 Mbps 3 3 -77.5 -77.2 -70.4 -65.9 -41.25 Non HT20 Beam Forming, 6 to 54 Mbps 3 8 -77.5 -77.2 -70.4 -60.9 -41.25 Non HT20 M0 to M7 1 3 -76.9 |

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Conducted Spurs Average, 2412 MHz, HT/VHT20 Beam Forming, M0 to M7



| Center Freq 9 | .015000000 NFE | COMPEC OGHZ PNO: Fast IFGain:High | | Av | Type: Log-Pwr | TRACE DELET | Frequency |
|--|-----------------------------|---|--|----------|----------------|------------------------------------|------------------------------|
| Ref (0 dBidiv Ref | offset 0.7 dB -20.00 dBm | a danchigo | | | h | Auto Tuni | |
| 40.0 | | | | | | | Center Fre 9.015000000 GH |
| 60 0 70 0 en 0 | 1 Lann | hun | | ~~~ | | È | Start Fre 30.000000 MH |
| 90.0 100 110 | | | | | | | Stop Fre 18.00000000 GH |
| Start 30 MHz Res BW 1.0 M | lHz | #V | BW 1.0 kHz | | Sweep | Stop 18.000 GH 14.0 s (1001 pts | 1.797000000 GH |
| MCR MODE THC SOL 1 N 1 f 2 N 1 f 3 N 1 f 4 N 1 f 5 N 1 f 6 1 1 f 7 2 1 f 9 1 1 f | × | 2 412 GHz 4 824 GHz 7 236 GHz 911 MHz 7.533 GHz | -65.96 dBm -78.20 dBm -76.25 dBm -61.62 dBm -70.53 dBm | FUNCTION | PUNCTION WIDTH | FUNCTION VALUE | Auto Ma Freq Offse 0 H |
| | | | | | | | |

Antenna B

Antenna A

| enter Freq 9.015 | 0000000 GHz NFE PNO: Fa IFGain:Hi | st Trig: Free Run | | g Type: Log-Pwr | TRACE | Frequency |
|---|--|--|----------|-----------------|-------------------------------------|-------------------------------|
| Ref Offset | 0.7 dB 00 dBm | | | Mkr | 5 16.149 GHz -70.45 dBm | Auto Tune |
| | T | | | | | Center Free 9.015000000 GH |
| | ~~~ ² ~~ | ³ | ~~~~ | ~~~~ | 5 | Start Free 30.000000 MH |
| 50.0 | | | | | | Stop Free 18.000000000 GH |
| Start 30 MHz Res BW 1.0 MHz | # | VBW 1.0 kHz | | | top 18.000 GHz 14.0 s (1001 pts) | CF Step 1.797000000 GH |
| N 1 F 1 N 1 F 2 N 1 F 3 N 1 F 4 N 1 F 5 N 1 F 6 7 7 7 | × 2.412 GH 4.824 GH 7.236 GH 929 MH 16.149 GH | 2 -78 21 dBm 2 -76.79 dBm 2 -63.14 dBm | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | Auto Ma Freq Offse 0 H |
| / 8 9 10 11 12 | | | | | | |

Antenna C

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| Frequency (MHz) | Mode | Tx Paths | Correlated Antenna Gain (dBi) | Tx 1 Spur Power (dBm) | Tx 2 Spur Power (dBm) | Tx 3 Spur Power (dBm) | Total Conducted Spur (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------------------|----------|----------------------------------|--------------------------|--------------------------|--------------------------|-------------------------------|-------------|-------------|
| | CCK, 1 to 11 Mbps | 1 | 3 | -62.3 | | | -59.3 | -21.25 | 38.1 |
| | CCK, 1 to 11 Mbps | 2 | 3 | -62.3 | -61.3 | | -55.8 | -21.25 | 34.5 |
| | CCK, 1 to 11 Mbps | 3 | 3 | -62.3 | -61.3 | -61.9 | -54.0 | -21.25 | 32.8 |
| | Non HT20, 6 to 54 Mbps | 1 | 3 | -60.9 | | | -57.9 | -21.25 | 36.7 |
| | Non HT20, 6 to 54 Mbps | 2 | 3 | -53.6 | -53.2 | | -47.4 | -21.25 | 26.1 |
| | Non HT20, 6 to 54 Mbps | 3 | 3 | -53.8 | -53.8 | -62.9 | -47.5 | -21.25 | 26.3 |
| | Non HT20 Beam Forming, 6 to 54 Mbps | 2 | 6 | -53.8 | -53.8 | | -44.8 | -21.25 | 23.5 |
| | Non HT20 Beam Forming, 6 to 54 Mbps | 3 | 8 | -62.2 | -53.6 | -58.6 | -44.0 | -21.25 | 22.7 |
| N | HT/VHT20, M0 to M7 | 1 | 3 | -60.2 | | | -57.2 | -21.25 | 36.0 |
| 2412 | HT/VHT20, M0 to M7 | 2 | 3 | -54.0 | -53.6 | | -47.8 | -21.25 | 26.5 |
| | HT/VHT20, M8 to M15 | 2 | 3 | -54.0 | -53.6 | | -47.8 | -21.25 | 26.5 |
| [| HT/VHT20, M0 to M7 | 3 | 3 | -60.4 | -60.6 | -61.0 | -52.9 | -21.25 | 31.6 |
| | HT/VHT20, M8 to M15 | 3 | 3 | -60.4 | -60.6 | -61.0 | -52.9 | -21.25 | 31.6 |
| | HT/VHT20 Beam Forming, M0 to M7 | 2 | 6 | -60.4 | -60.6 | | -51.5 | -21.25 | 30.2 |
| | HT/VHT20 Beam Forming, M8 to M15 | 2 | 3 | -54.0 | -53.6 | | -47.8 | -21.25 | 26.5 |
| | HT/VHT20 Beam Forming, M0 to M7 | 3 | 8 | -53.8 | -53.6 | -52.7 | -40.6 | -21.25 | 19.3 |
| | HT/VHT20 Beam Forming, M8 to M15 | 3 | 5 | -62.9 | -53.9 | -61.1 | -47.7 | -21.25 | 26.5 |
| | HT/VHT20 STBC, M0 to M7 | 2 | 3 | -54.0 | -53.6 | | -47.8 | -21.25 | 26.5 |
| | HT/VHT20 STBC, M0 to M7 | 3 | 3 | -60.4 | -60.6 | -61.0 | -52.9 | -21.25 | 31.6 |
| | | | | | | | | | |
| | CCK, 1 to 11 Mbps | 1 | 3 | -62.4 | | | -59.4 | -21.25 | 38.2 |
| | CCK, 1 to 11 Mbps | 2 | 3 | -62.4 | -63.9 | | -57.1 | -21.25 | 35.8 |
| | CCK, 1 to 11 Mbps | 3 | 3 | -62.4 | -63.9 | -60.7 | -54.4 | -21.25 | 33.1 |
| | Non HT20, 6 to 54 Mbps | 1 | 3 | -63.1 | | | -60.1 | -21.25 | 38.9 |
| | Non HT20, 6 to 54 Mbps | 2 | 3 | -63.1 | -62.1 | | -56.6 | -21.25 | 35.3 |
| | Non HT20, 6 to 54 Mbps | 3 | 3 | -63.1 | -62.1 | -62.1 | -54.6 | -21.25 | 33.4 |
| | Non HT20 Beam Forming, 6 to 54 Mbps | 2 | 6 | -63.1 | -62.1 | | -53.6 | -21.25 | 32.3 |
| 37 | Non HT20 Beam Forming, 6 to 54 Mbps | 3 | 8 | -63.1 | -62.1 | -62.1 | -49.6 | -21.25 | 28.4 |
| 2437 | HT/VHT20, M0 to M7 | 1 | 3 | -62.5 | | | -59.5 | -21.25 | 38.3 |
| | HT/VHT20, M0 to M7 | 2 | 3 | -62.5 | -61.1 | | -55.7 | -21.25 | 34.5 |
| | HT/VHT20, M8 to M15 | 2 | 3 | -62.5 | -61.1 | | -55.7 | -21.25 | 34.5 |
| | HT/VHT20, M0 to M7 | 3 | 3 | -62.5 | -61.1 | -61.9 | -54.0 | -21.25 | 32.8 |
| | HT/VHT20, M8 to M15 | 3 | 3 | -62.5 | -61.1 | -61.9 | -54.0 | -21.25 | 32.8 |
| | HT/VHT20 Beam Forming, M0 to M7 | 2 | 6 | -62.5 | -61.1 | | -52.7 | -21.25 | 31.5 |
| | HT/VHT20 Beam Forming, M8 to M15 | 2 | 3 | -62.5 | -61.1 | | -55.7 | -21.25 | 34.5 |
| | HT/VHT20 Beam Forming, M0 to M7 | 3 | 8 | -62.5 | -61.1 | -61.9 | -49.0 | -21.25 | 27.8 |

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| | HT/VHT20 Beam Forming, M8 to M15 | 3 | 5 | -62.5 | -61.1 | -61.9 | -52.0 | -21.25 | 30.8 |
|------|-------------------------------------|---|---|-------|-------|-------|-------|--------|------|
| | HT/VHT20 STBC, M0 to M7 | 2 | 3 | -62.5 | -61.1 | | -55.7 | -21.25 | 34.5 |
| | HT/VHT20 STBC, M0 to M7 | 3 | 3 | -62.5 | -61.1 | -61.9 | -54.0 | -21.25 | 32.8 |
| | | | | | | | | | |
| | CCK, 1 to 11 Mbps | 1 | 3 | -62.6 | | | -59.6 | -21.25 | 38.4 |
| | CCK, 1 to 11 Mbps | 2 | 3 | -62.6 | -62.7 | | -56.6 | -21.25 | 35.4 |
| | CCK, 1 to 11 Mbps | 3 | 3 | -62.6 | -62.7 | -63.4 | -55.1 | -21.25 | 33.9 |
| | Non HT20, 6 to 54 Mbps | 1 | 3 | -62.1 | | | -59.1 | -21.25 | 37.9 |
| | Non HT20, 6 to 54 Mbps | 2 | 3 | -62.1 | -62.0 | | -56.0 | -21.25 | 34.8 |
| | Non HT20, 6 to 54 Mbps | 3 | 3 | -62.1 | -62.0 | -62.4 | -54.4 | -21.25 | 33.1 |
| | Non HT20 Beam Forming, 6 to 54 Mbps | 2 | 6 | -62.1 | -62.0 | | -53.0 | -21.25 | 31.8 |
| | Non HT20 Beam Forming, 6 to 54 Mbps | 3 | 8 | -62.1 | -62.0 | -62.4 | -49.4 | -21.25 | 28.1 |
| | HT/VHT20, M0 to M7 | 1 | 3 | -63.6 | | | -60.6 | -21.25 | 39.4 |
| 2462 | HT/VHT20, M0 to M7 | 2 | 3 | -63.6 | -61.9 | | -56.7 | -21.25 | 35.4 |
| ~ | HT/VHT20, M8 to M15 | 2 | 3 | -63.6 | -61.9 | | -56.7 | -21.25 | 35.4 |
| | HT/VHT20, M0 to M7 | 3 | 3 | -63.6 | -61.9 | -60.9 | -54.2 | -21.25 | 33.0 |
| | HT/VHT20, M8 to M15 | 3 | 3 | -63.6 | -61.9 | -60.9 | -54.2 | -21.25 | 33.0 |
| | HT/VHT20 Beam Forming, M0 to M7 | 2 | 6 | -63.6 | -61.9 | | -53.7 | -21.25 | 32.4 |
| | HT/VHT20 Beam Forming, M8 to M15 | 2 | 3 | -63.6 | -61.9 | | -56.7 | -21.25 | 35.4 |
| | HT/VHT20 Beam Forming, M0 to M7 | 3 | 8 | -63.6 | -61.9 | -60.9 | -49.2 | -21.25 | 28.0 |
| | HT/VHT20 Beam Forming, M8 to M15 | 3 | 5 | -63.6 | -61.9 | -60.9 | -52.2 | -21.25 | 31.0 |
| | HT/VHT20 STBC, M0 to M7 | 2 | 3 | -63.6 | -61.9 | | -56.7 | -21.25 | 35.4 |
| | HT/VHT20 STBC, M0 to M7 | 3 | 3 | -63.6 | -61.9 | -60.9 | -54.2 | -21.25 | 33.0 |

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Conducted Spurs Peak, 2412 MHz, HT/VHT20 Beam Forming, M0 to M7



| Center Freq 9.0150 | PN0: Fast | Trig: Free Run #Atten: 0 dB | Avg Type: Log-Pwr | TRACE DI A S | Frequency |
|---|---|--|--|---|---------------------------------------|
| Ref Offset 0. 10 dBidiv Ref -20.00 | Auto Tune | | | | |
| -40.0 -40.0 | | .3 | | ♦ ⁴ | Center Free 9.015000000 GH |
| and internation | the contraction | | tan fi dan da da da ang ng kalan | ad and a sea of the sea | Start Free 30.000000 MH |
| 90.0 -100 -110 | | | | | Stop Free 18.000000000 GH |
| Start 30 MHz #Res BW 1.0 MHz #R MODE THE SE | #VB\ * | N 3.0 MHz | Sweep 3 | Stop 18.000 GHz 0.0 ms (1001 pts) | CF Step 1.797000000 GH Auto Mar |
| 1 N 1 f 2 N 1 f 3 N 1 f 4 N 1 f 5 6 | 2.412 GHz 4.824 GHz 7.236 GHz 14.855 GHz | -57 49 dBm -62 70 dBm -62 82 dBm -63 60 dBm | | | Freq Offse 0 H |
| 8 9 10 11 | | | | | |

Antenna B

Antenna A

| Frequency | TYPE CONTRACT | | pe: Log-Pwr | Avg | | Trig: Free #Atten: 0 | VO: Fast | | 9.01500 | Freq | enter |
|----------------------------|---|----------------|-----------------------|---------------|----------|---|----------------------------------|------|---------|----------------|----------------|
| Auto Tu | Ref 075et 0.7 dB Mkr4 17.748 GHz 0 dBidly Ref -20.00 dBm -52.72 dBm -52.72 dBm | | | | | | | | | | |
| Center Fr 9.015000000 G | 4 | | | | | | | | | | 10 — 10 — |
| Start Fr 30.000000 Mi | saragar shiziya | wices and | the ange of the first | Cyrin 1. 1417 | un pe | 2 ³ | nt-spelartyp | | Alman | Jarra | |
| Stop Fre 18.00000000 G | | | | | | | | | | | 10 00 10 |
| CF Ste 1.797000000 G | 18.000 GHz is (1001 pts) | Stop 30.0 n | Sweep | | | / 3.0 MHz | #VB | | MHz | 0 MHz W 1.0 | |
| Auto M Freq Offs 01 | ICTION VALUE | FU | UNCTION WIDTH | UNCTION | im im | 66.36 dE -62.68 dE -62.92 dE -52.72 dE | 2 GHz 4 GHz 6 GHz 8 GHz | 4.82 | | | ZZZZ |
| | | | | | | | | | | | |
| | | 10 | STATU | | | | | | | | 2 |

Antenna C

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A.6 Conducted Bandedge

15.205 / 15.247 / RSS-Gen / RSS-247 / LP0002:3.10.1(5) & 2.8 In any 100 kHz bandwidth outside the frequency band in which the digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 30 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), and RSS-Gen 8.10 must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)) and RSS-Gen 8.9...

Test Procedure

Ref. KDB 558074 D01 DTS Meas Guidance v03r05

ANSI C63.10: 2013

Conducted Band edge

Test Procedure

1. Connect the antenna port(s) to the spectrum analyzer input.

2. Place the radio in continuous transmit mode. Use the procedures in KDB 558074 D01 DTS Meas Guidance v03r05 to substitute conducted measurements in place of radiated measurements.

3. Configure Spectrum analyzer as per test parameters below below (be sure to enter all losses between the transmitter output and the spectrum analyzer).

4. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance.

Also measure any emissions in the restricted bands..

5. The "measure-and-sum technique" is used for measuring in-band transmit power of a device. In the

measure-and-sum approach, the conducted emission level is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically to determine the total emission level from the device. Summing is performed in linear power units. The worst case output is recorded.

6. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance.

Also measure any emissions in the restricted bands

7. Capture graphs and record pertinent measurement data.

| Conducted Bandedge | Conducted Bandedge |
|---|--|
| Test parameters non-restricted Band | Test parameters restricted Band |
| KDB 558074 D01 v03r05 section 11.1b, 11.2-3, also see | KDB 558074 D01 v03r05 section 12.2.4 & 12.2.5.3 also |
| ANSI C63.10: 2013 section 11.10.3 | see ANSI C63.10: 2013 section 11.12.4 & 11.12.5.3 |
| RBW = 100 kHz | RBW = 1 MHz |
| VBW ≥ 3 x RBW | VBW \geq 3 x RBW for Peak, 100Hz for Average |
| Sweep = Auto couple | Sweep = Auto couple |
| Detector = Peak | Detector = Peak |
| Trace = Max Hold. | Trace = Max Hold. |

| System Number | Description | Samples | System under test | Support equipment |
|------------------|-------------|---------|-------------------|----------------------|
| | EUT | S01 | V | |
| 1 | Support | S02 | | \checkmark |

| Tested By : | Date of testing: |
|--------------------|-----------------------|
| Jose Aguirre | 05-May-16 - 06-Jun-16 |
| Test Result : PASS | |

See Appendix C for list of test equipment

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Restricted Band

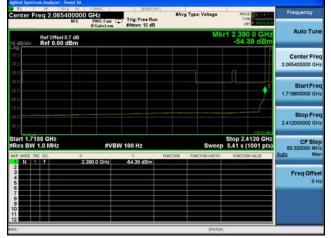
| Frequency (MHz) | Mode | Tx Paths | Correlated Antenna Gain (dBi) | Tx 1 Bandedge Level (dBm) | Tx 2 Bandedge Level (dBm) | Tx 3 Bandedge Level (dBm) | Total Tx Bandedge Level (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|-------------------------------------|----------|----------------------------------|------------------------------|------------------------------|------------------------------|----------------------------------|-------------|-------------|
| | CCK, 1 to 11 Mbps | 1 | 3 | -57.0 | | | -54.0 | -41.25 | 12.8 |
| | CCK, 1 to 11 Mbps | 2 | 3 | -57.0 | -56.0 | | -50.5 | -41.25 | 9.2 |
| | CCK, 1 to 11 Mbps | 3 | 3 | -57.0 | -56.0 | -56.6 | -48.7 | -41.25 | 7.5 |
| | Non HT20, 6 to 54 Mbps | 1 | 3 | -45.0 | | | -42.0 | -41.25 | 0.8 |
| | Non HT20, 6 to 54 Mbps | 2 | 3 | -50.1 | -49.9 | | -44.0 | -41.25 | 2.7 |
| | Non HT20, 6 to 54 Mbps | 3 | 3 | -50.1 | -49.9 | -48.5 | -41.7 | -41.25 | 0.4 |
| | Non HT20 Beam Forming, 6 to 54 Mbps | 2 | 6 | -52.4 | -52.0 | | -43.2 | -41.25 | 1.9 |
| | Non HT20 Beam Forming, 6 to 54 Mbps | 3 | 8 | -56.2 | -55.8 | -55.5 | -43.1 | -41.25 | 1.8 |
| N | HT/VHT20, M0 to M7 | 1 | 3 | -45.4 | | | -42.4 | -41.25 | 1.2 |
| 2412 | HT/VHT20, M0 to M7 | 2 | 3 | -47.6 | -47.3 | | -41.4 | -41.25 | 0.2 |
| | HT/VHT20, M8 to M15 | 3 | 3 | -50.3 | -49.6 | -48.7 | -41.7 | -41.25 | 0.5 |
| | HT/VHT20, M0 to M7 | 2 | 3 | -47.6 | -47.3 | | -41.4 | -41.25 | 0.2 |
| | HT/VHT20, M8 to M15 | 3 | 3 | -50.3 | -49.6 | -48.7 | -41.7 | -41.25 | 0.5 |
| | HT/VHT20 Beam Forming, M0 to M7 | 2 | 6 | -52.4 | -51.9 | | -43.1 | -41.25 | 1.9 |
| | HT/VHT20 Beam Forming, M8 to M15 | 3 | 8 | -54.4 | -54.0 | -53.8 | -41.3 | -41.25 | 0.0 |
| | HT/VHT20 Beam Forming, M0 to M7 | 2 | 3 | -47.6 | -47.3 | | -41.4 | -41.25 | 0.2 |
| | HT/VHT20 Beam Forming, M8 to M15 | 3 | 5 | -52.4 | -51.9 | -51.4 | -42.1 | -41.25 | 0.9 |
| | HT/VHT20 STBC, M0 to M7 | 2 | 3 | -47.6 | -47.3 | | -41.4 | -41.25 | 0.2 |
| | HT/VHT20 STBC, M0 to M7 | 3 | 3 | -50.3 | -49.6 | -48.7 | -41.7 | -41.25 | 0.5 |
| | | | | | | | | | |
| | CCK, 1 to 11 Mbps | 1 | 3 | -58.2 | | | -55.2 | -41.25 | 14.0 |
| | CCK, 1 to 11 Mbps | 2 | 3 | -58.2 | -57.3 | | -51.7 | -41.25 | 10.5 |
| | CCK, 1 to 11 Mbps | 3 | 3 | -58.2 | -57.3 | -57.3 | -49.8 | -41.25 | 8.6 |
| | Non HT20, 6 to 54 Mbps | 1 | 3 | -44.4 | | | -41.4 | -41.25 | 0.2 |
| | Non HT20, 6 to 54 Mbps | 2 | 3 | -48.1 | -50.1 | | -43.0 | -41.25 | 1.7 |
| | Non HT20, 6 to 54 Mbps | 3 | 3 | -48.1 | -50.1 | -49.8 | -41.5 | -41.25 | 0.2 |
| 62 | Non HT20 Beam Forming, 6 to 54 Mbps | 2 | 6 | -51.1 | -52.9 | | -42.9 | -41.25 | 1.6 |
| 2462 | Non HT20 Beam Forming, 6 to 54 Mbps | 3 | 8 | -53.1 | -55.7 | -54.4 | -41.5 | -41.25 | 0.3 |
| | HT/VHT20, M0 to M7 | 1 | 3 | -45.2 | | | -42.2 | -41.25 | 1.0 |
| | HT/VHT20, M0 to M7 | 2 | 3 | -48.0 | -49.5 | | -42.7 | -41.25 | 1.4 |
| | HT/VHT20, M8 to M15 | 3 | 3 | -50.2 | -52.1 | -51.2 | -43.3 | -41.25 | 2.1 |
| | HT/VHT20, M0 to M7 | 2 | 3 | -48.0 | -49.5 | | -42.7 | -41.25 | 1.4 |
| | HT/VHT20, M8 to M15 | 3 | 3 | -50.2 | -52.1 | -51.2 | -43.3 | -41.25 | 2.1 |
| | HT/VHT20 Beam Forming, M0 to M7 | 2 | 6 | -50.2 | -52.1 | | -42.0 | -41.25 | 0.8 |

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| HT/VHT20 Beam Forming, M8 to M15 | 3 | 8 | -54.8 | -56.9 | -56.4 | -43.2 | -41.25 | 1.9 |
|----------------------------------|---|---|-------|-------|-------|-------|--------|-----|
| HT/VHT20 Beam Forming, M0 to M7 | 2 | 3 | -48.0 | -49.5 | | -42.7 | -41.25 | 1.4 |
| HT/VHT20 Beam Forming, M8 to M15 | 3 | 5 | -50.2 | -52.1 | -51.2 | -41.3 | -41.25 | 0.1 |
| HT/VHT20 STBC, M0 to M7 | 2 | 3 | -48.0 | -49.5 | | -42.7 | -41.25 | 1.4 |
| HT/VHT20 STBC, M0 to M7 | 3 | 3 | -50.2 | -52.1 | -51.2 | -43.3 | -41.25 | 2.1 |

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Conducted Bandedge Average, 2412 MHz, HT/VHT20 Beam Forming, M0 to M7, M0 to M9 1ss



| enter Freq 2.0654 | NFE PNO: F | ast 🗭 Trig: Free Run aw #Atten: 14 dB | #Avg Type: Voltage | TRACE DE A | Frequency |
|-----------------------------------|-----------------|--|------------------------|--------------------------------------|-------------------------------|
| Ref Offset 0 | 1.7 dB 1Bm | | Mk | r1 2.390 0 GHz -53.98 dBm | Auto Tune |
| | | | | | Center Free 2.065400000 GH |
| 0.0 0.0 0.0 | | | | | Start Fre 1.718800000 GH |
| 00 00 00 | | | | | Stop Fre 2.412000000 GH |
| tart 1.7188 GHz Res BW 1.0 MHz | | #VBW 100 Hz | Sweep | Stop 2.4120 GHz 5.41 s (1001 pts) | CF Ste 69.320000 MH |
| KR MODE TRC SOL | × 2,390.0 GH | y 453,98 dBm | FUNCTION FUNCTION WOTH | FUNCTION VALUE | Auto Mar |
| 23456 | | | | | Freq Offse 0 H |
| 7 | | | | | |
| 2 | | | STATUS | | |

Antenna B

Antenna A

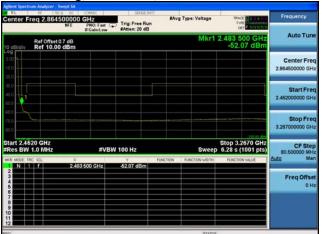
| RL Center F | | 5400000 C | PNO: Fast | Trig: Free Run #Atten: 14 dB | #As | g Type: Voltage | TRACE DET | Frequency |
|-------------------------|----------------------|------------------|-----------|---------------------------------|----------|-----------------|--------------------------------------|------------------------------|
| 0 dBldiv | Ref Offse Ref 0.0 | t0.7 dB 0 dBm | | | | Mk | r1 2.390 0 GHz -53.83 dBm | Auto Tun |
| 10.0 20.0 | | | | | | | | Center Fre 2.065400000 GH |
| 40.0 50.0 60.0 | | | | | | | ¹ | Start Fre 1.718800000 GH |
| 70.0 00.0 00.0 | | | | | | | | Stop Fre 2.412000000 GH |
| start 1.71 Res BW | 88 GHz 1.0 MHz | | #VB | W 100 Hz | | Sweep | Stop 2.4120 GHz 5.41 s (1001 pts) | CF Ste 69.320000 MH |
| AR MODE T | | × 2.39 | 00 GHz | √-53.83 dBm | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | Auto Mi |
| 3456 | | | | | | | | Freq Offs 0 F |
| 7 8 9 10 11 | | | | | | | | |
| 12 | | | | | | STATUS | | |

Antenna C

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Conducted Bandedge Average, 2462 MHz, HT/VHT20 Beam Forming, M8 to M15, M0 to M9 2ss





Antenna A



| enter Freq 2. | | PNO: Fast C | Trig: Free Ru | #Av | g Type: Voltage | TRACE DE LA S | Frequency |
|--------------------------------|----------------------------|-------------|---------------|----------|-----------------|-----------------------------|-----------------------------------|
| 0 dB/div Ref | offset 0.7 dB 10.00 dBm | #Gain:Low | satten: 20 db | | Mkr1 | 2.483 500 GHz -51.21 dBm | Auto Tun |
| 09 100 100 100 | | | | | | | Center Fre 2.864500000 GH |
| | | | | | | | Start Fre 2.452000000 GH |
| 00 | | | | | | | Stop Fre 3.267000000 GH |
| tart 2.4620 GH Res BW 1.0 M | | #VB | W 100 Hz | | Sweep | | CF Ste 80.500000 Mi Auto Mi |
| RR MODE TRC SCL | 2.483 | 1600 GHz | -51.21 dBm | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | Freq Offse |
| 6 7 8 9 10 | | | | | | | |
| 2 | | | | | | | |

Antenna C

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| Frequency (MHz) | Mode | Tx Paths | Correlated Antenna Gain (dBi) | Tx 1 Bandedge Level (dBm) | Tx 2 Bandedge Level (dBm) | Tx 3 Bandedge Level (dBm) | Total Tx Bandedge Level (dBm) | Limit (dBm) | Margin (dB) |
|-----------------|--|----------|----------------------------------|------------------------------|------------------------------|------------------------------|----------------------------------|-------------|-------------|
| | CCK, 1 to 11 Mbps | 1 | 3 | -40.0 | | | -37.0 | -21.25 | 15.8 |
| | CCK, 1 to 11 Mbps | 2 | 3 | -40.0 | -33.5 | | -29.6 | -21.25 | 8.4 |
| | CCK, 1 to 11 Mbps | 3 | 3 | -40.0 | -33.5 | -47.3 | -29.5 | -21.25 | 8.2 |
| | Non HT20, 6 to 54 Mbps | 1 | 3 | -32.0 | | | -29.0 | -21.25 | 7.8 |
| | Non HT20, 6 to 54 Mbps | 2 | 3 | -33.4 | -33.4 | | -27.4 | -21.25 | 6.1 |
| | Non HT20, 6 to 54 Mbps | 3 | 3 | -36.7 | -34.0 | -36.4 | -27.8 | -21.25 | 6.5 |
| | Non HT20 Beam Forming, 6 to 54 Mbps | 2 | 6 | -36.7 | -34.0 | | -26.1 | -21.25 | 4.9 |
| | Non HT20 Beam Forming, 6 to 54 Mbps | 3 | 8 | -40.1 | -38.3 | -40.5 | -26.8 | -21.25 | 5.5 |
| N | HT/VHT20, M0 to M7 | 1 | 3 | -32.7 | | | -29.7 | -21.25 | 8.5 |
| 2412 | HT/VHT20, M0 to M7 | 2 | 3 | -34.1 | -34.3 | | -28.2 | -21.25 | 6.9 |
| | HT/VHT20, M8 to M15 | 2 | 3 | -34.1 | -34.3 | | -28.2 | -21.25 | 6.9 |
| | HT/VHT20, M0 to M7 | 3 | 3 | -36.3 | -39.0 | -36.9 | -29.5 | -21.25 | 8.2 |
| | HT/VHT20, M8 to M15 | 3 | 3 | -36.3 | -39.0 | -36.9 | -29.5 | -21.25 | 8.2 |
| | HT/VHT20 Beam Forming, M0 to M7 | 2 | 6 | -36.3 | -39.0 | | -28.4 | -21.25 | 7.2 |
| | HT/VHT20 Beam Forming, M8 to M15 | 2 | 3 | -34.1 | -34.3 | | -28.2 | -21.25 | 6.9 |
| | HT/VHT20 Beam Forming, M0 to M7 | 3 | 8 | -40.9 | -39.3 | -43.1 | -28.1 | -21.25 | 6.8 |
| | HT/VHT20 Beam Forming, M8 to M15 | 3 | 5 | -38.0 | -40.2 | -37.8 | -28.8 | -21.25 | 7.5 |
| | HT/VHT20 STBC, M0 to M7 | 2 | 3 | -34.1 | -34.3 | | -28.2 | -21.25 | 6.9 |
| | HT/VHT20 STBC, M0 to M7 | 3 | 3 | -36.3 | -39.0 | -36.9 | -29.5 | -21.25 | 8.2 |
| | | | | | | | | | |
| | CCK, 1 to 11 Mbps | 1 | 3 | -39.2 | | | -36.2 | -21.25 | 15.0 |
| | CCK, 1 to 11 Mbps | 2 | 3 | -39.2 | -32.1 | | -28.3 | -21.25 | 7.1 |
| | CCK, 1 to 11 Mbps | 3 | 3 | -39.2 | -32.1 | -45.5 | -28.2 | -21.25 | 6.9 |
| | Non HT20, 6 to 54 Mbps | 1 | 3 | -33.5 | | | -30.5 | -21.25 | 9.3 |
| | Non HT20, 6 to 54 Mbps | 2 | 3 | -37.4 | -32.7 | | -28.4 | -21.25 | 7.2 |
| | Non HT20, 6 to 54 Mbps | 3 | 3 | -37.4 | -32.7 | -38.9 | -27.7 | -21.25 | 6.5 |
| 32 | Non HT20 Beam Forming, 6 to 54 Mbps | 2 | 6 | -40.9 | -32.4 | | -25.8 | -21.25 | 4.6 |
| 2462 | Non HT20 Beam Forming, 6 to 54 Mbps | 3 | 8 | -39.4 | -36.6 | -43.8 | -26.3 | -21.25 | 5.0 |
| | HT/VHT20, M0 to M7, M0 to M9 1ss | 1 | 3 | -33.2 | 0.1.0 | | -30.2 | -21.25 | 9.0 |
| | HT/VHT20, M0 to M7, M0 to M9 1ss | 2 | 3 | -37.8 | -31.9 | 14.0 | -27.9 | -21.25 | 6.7 |
| | HT/VHT20, M0 to M7, M0 to M9 1ss | 3 | 3 | -40.1 | -32.5 | -41.2 | -28.3 | -21.25 | 7.1 |
| | HT/VHT20, M8 to M15, M0 to M9 2ss | 2 | 3 | -37.8 | -31.9 | 14.0 | -27.9 | -21.25 | 6.7 |
| | HT/VHT20, M8 to M15, M0 to M9 2ss | 3 | 3 | -40.1 | -32.5 | -41.2 | -28.3 | -21.25 | 7.1 |
| | HT/VHT20 Beam Forming, M0 to M7, M0 to M9 1ss | 2 | 6 | -40.1 | -32.5 | | -25.8 | -21.25 | 4.6 |

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| HT/VHT20 Beam Forming, M0 to M7, M0 to M9 1ss | 3 | 8 | -45.7 | -36.4 | -46.0 | -27.5 | -21.25 | 6.3 |
|--|---|---|-------|-------|-------|-------|--------|------|
| HT/VHT20 Beam Forming, M0 to M7 | 3 | 8 | -62.9 | -61.5 | -63.3 | -49.7 | -21.25 | 28.5 |
| HT/VHT20 Beam Forming, M8 to M15 | 3 | 5 | -62.9 | -61.5 | -63.3 | -52.7 | -21.25 | 31.5 |
| HT/VHT20 STBC, M0 to M7 | 2 | 3 | -62.9 | -61.5 | | -56.1 | -21.25 | 34.9 |
| HT/VHT20 STBC, M0 to M7 | 3 | 3 | -62.9 | -61.5 | -63.3 | -54.7 | -21.25 | 33.5 |

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Conducted Bandedge Peak, 2412 MHz, Non HT20 Beam Forming, 6 to 54 Mbps



| Center Freq 2.36100000 | GH7 | Avg Type: ree Run 12 dB | | | Frequency |
|--|--------------------|-------------------------------|-------------------|---------------------|----------------------------------|
| Ref Offset 0.7 dB | P Galitzow Shirten | | Mkr2 2.388 -34 | 8 37 GHz .03 dBm | Auto Tuni |
| 200 | | | \$ ² 1 | | Center Fre 2.361000000 GH |
| 40.0 50.0 60.0 60.0 | anar Palita, Ang | henehoore | 1. Ind | | Start Fre 2.310000000 GH |
| -70.0 | | | | | Stop Fre 2.412000000 GF |
| | | | Stop 2. | 41200 GHz | |
| Start 2.31000 GHz #Res BW 1.0 MHz | #VBW 3.0 MH | lz | Sweep 1.00 m | s (601 pts) | 10.200000 MH |
| #Res BW 1.0 MHz MRR MODE TRC SCL X 1 N 1 F 2.3 | 90.00 GHz -37.12 | FUNCTION FUN | Sweep 1.00 m | s (601 pts) | CF Ste 10.200000 MH uto Ma |
| #Res BW 1.0 MHz MRR MODE TRC SCL X 1 N 1 F 2.3 | Y | FUNCTION FUN | Sweep 1.00 m | s (601 pts) | 10.200000 MH |
| #Res BW 1.0 MHz W/R MODE TRC SCL X 1 N 1 f 2.3 3 4 5 5 | 90.00 GHz -37.12 | FUNCTION FUN | Sweep 1.00 m | s (601 pts) | 10.200000 Mi |

Antenna A

Antenna B



| Center Freq 2.4 | SO Q DC COMMEC 81000000 GHz PNO: Wide C IF Gain1ew | Trig: Free Run #Atten: 18 dB | Avg Type: Log-Pwr | THACE DO A S | Frequency |
|-------------------------------------|---|---------------------------------|-------------------------------|--|-------------------------------|
| Ref Off | set 0.7 dB 00 dBm | | Mkr2 | 2.491 51 GHz -42.44 dBm | Auto Tune |
| -10.0 -20.0 -20.0 | | | 1 | | Center Free 2.481000000 GH |
| 40.0 50.0 42.0 | | | 1 concurrinternetalication | and an | Start Fre 2.462000000 GH |
| -70.0 | | | | | Stop Fre 2.500000000 GH |
| Start 2.46200 GH #Res BW 1.0 MH: | | W 3.0 MHz | Sweep | Stop 2.50000 GHz 1.00 ms (601 pts) | CF Ste 3.800000 MH |
| 1 N 1 F 2 N 1 F 3 4 | 2.483.50 GHz 2.491.51 GHz | 40.95 dBm 42.44 dBm | HEILON PONETON WOTH | PORCHON VALUE | Freq Offse |
| 6 7 8 9 10 | | | | | |
| 12 | | | | | |

Antenna A

| Center F | req 2.4810 | 00000 GHz PNO: Wide C IFGain:Low | Trig: Free Run #Atten: 18 dB | Avg Type: Log-Pwr | TYPE DET | Frequency |
|----------------------|-------------------------------|--|---------------------------------|-------------------|--|-------------------------------------|
| t0 dB/div | Ref Offset 0 Ref 0.00 d | 7 dB Bm | | Mkr2 | 2.483 53 GHz -32.44 dBm | Auto Tune |
| -10.0 | | | | 2 | | Center Fred 2.481000000 GH: |
| 40.0 50.0 60.0 | | 1 | พางเป็นไปไปได้ | ALAN MURAND | li di Milaiza | Start Free 2.462000000 GH |
| 70.0 00.0 00.0 | | | | | | Stop Free 2.500000000 GH |
| Res BW | 5200 GHz 1.0 MHz NC SCL | #VB 2.483 50 GHz | W 3.0 MHz 7 FU -38.89 dBm | | top 2.50000 GHz 1.00 ms (601 pts) FUNCTION VALUE | CF Step 3.800000 MHz Auto Mar |
| N 3 4 5 6 7 8 9 | | 2,483 50 GHz 2,483 53 GHz | -32.44 dBm | | | Freq Offse 0 Hz |
| 9 10 11 12 | | | | STATUS | | |

Antenna B

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Non-Restristred Band

| Frequency (MHz) | Mode | Data Rate (Mbps) | Conducted Bandedge Delta (dB) | Limit (dBc) | Margin (dB) |
|--------------------|------------------------|------------------------|--|----------------|----------------|
| | CCK, 1 to 11 Mbps | 11 | 49.7 | >30 | 19.7 |
| 2412 | Non HT20, 6 to 54 Mbps | 6 | 37.9 | >30 | 7.9 |
| | HT/VHT20, M0 to M15 | m0 | 39.0 | >30 | 9.0 |

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| Agilent Spectru (X) R L | <mark>m Analyzer - Sw</mark> RF 50 ହ | | RREC | SENS | E:INT | | | | | - |
|----------------------------|---|-------------------|---------------------------|---|-------|---------------------------------------|-------------------------|--------------|----------------------------|-------------------------------|
| Center Fre | eq 2.4060 | | -Iz NO: Wide 🗔 | Trig: Free | | Avg Typ | e: Log-Pwr | TY | CE 1 2 3 4 5 6 PE MWWWW | Frequency |
| | | IF | Gain:Low | #Atten: 20 | dB | | A 14 | | 52 MHz | Auto Tune |
| 10 dB/div | Ref Offset 0. Ref 10.00 | | | | | | | - 4 | 9.67 dB | |
| 0.00 | | | | - And Anna a | - | N'y ^{ndynt} w ^a h | ∽ ^{™⊅‡} 3∆2 √, | Mulmon Maria | | Center Freq |
| -10.0 | | | | And the second | | | | | March March | 2.406000000 GHz |
| -30.0 | | <mark>2</mark> | 1 h/ | pro la companya de la | | | | | - Ad | 01 |
| -40.0 | - hornor | window | www | | | | | | | Start Freq 2.390000000 GHz |
| -50.0 | And a start of the | | | | | | | | | |
| -70.0 | | | | | | | | | | Stop Freq |
| -80.0 | | | | | | | | | | 2.422000000 GHz |
| Start 2.390 | | | | | | | | | -150.00 dBm 2200 GHz | CF Step |
| #Res BW 1 | | | #VBV | V 300 kHz | | | | | 1001 pts) | 3.200000 MHz Auto Man |
| MKR MODE TRO | f | × 2.400 00 | | Y -41.71 dBi | | TION FL | INCTION WIDTH | FUNCTIO | IN VALUE | Man |
| 2 Ν 1 3 Δ2 1 4 | f f (Δ) | 2.397 48 15.55 | <u>8 GHZ</u> 2 MHz (Δ) | -38.64 dBı 49.67 d | | | | | | Freq Offset |
| 5 6 | | | | | | | | | | 0 Hz |
| 7 8 | | | | | | | | | | |
| 9 | | | | | | | | | | |
| 11 12 | | | | | | | | | | |
| MSG | | | | | | | STATUS | 5 | | |

Conducted Bandedge Delta, 2412 MHz, CCK, 1 to 11 Mbps

Conducted Bandedge Delta, 2412 MHz, Non HT20, 6 to 54 Mbps

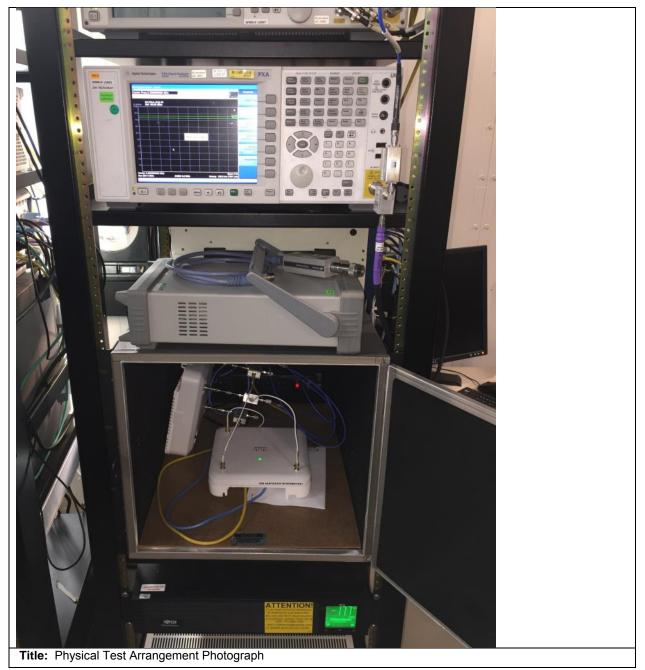


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| LXI RL | rum Analyzer - Sw RF 50 Ω req 2.40601 | DC COR | z | | E:INT | Avg Type | e: Log-Pwr | | E 123456 E M WWWW | Frequency |
|-------------------------------|---|-----------------|------------------------|-------------------------------------|---|----------|---------------------------|---|--------------------------------------|-------------------------------------|
| 10 dB/div | Ref Offset 0. Ref 10.00 ⊧ | IFG 7 dB | IO: Wide 🕞 Sain:Low | #Atten: 20 | | | ΔMk | r3 18.1 | 44 MHz 8.99 dB | Auto Tune |
| Log 0.00 -10.0 -20.0 | | | , | Marillanaura | , , , , , , , , , , , , , , , , , , , | mann | <mark>∧,∩∽,∿~,, 3∆</mark> | 2 ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | where and here | Center Freq 2.406000000 GHz |
| -30.0 -40.0 -50.0 | iland worker | 2 Jamannagay | A war | | | | | | | Start Freq 2.390000000 GHz |
| -60.0 -70.0 -80.0 | | | | | | | | | | Stop Fred 2.422000000 GHz |
| Start 2.39 #Res BW | 100 kHz | × | #VBW | 300 kHz | FUNC | | | | -150.00 dBm 2200 GHz 1001 pts) | CF Step 3.200000 MHz Auto Mar |
| 1 N 1 2 N 1 | f f f (Δ) | 2.400 000 | | -41.19 dBr -34.25 dBr 38.99 d | n n | | | FUNCTIO | | Freq Offset 0 Hz |
| 7 8 9 10 11 12 | | | | | | | | | | |
| MSG | | | | | | | STATUS | | | |

Conducted Bandedge Delta, 2412 MHz, HT/VHT20, M0 to M15

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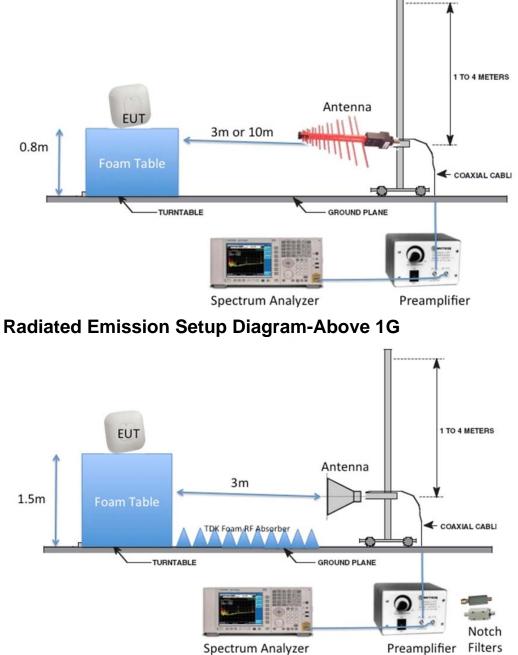
This is a dual band 2.4GHz / 5GHz device. All ports in this test set up photo are connected as all testing is automated. Section 2.6 of this test report given an overview of the different Tx antenna combinations used by this device.

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Appendix B: Emission Test Results

Testing Laboratory: Cisco Systems, Inc., 125 West Tasman Drive, San Jose, CA 95134, USA

Radiated Emission Setup Diagram-Below 1G



Spectrum Analyzer

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B.1 Radiated Spurious Emissions

15.205 / RSS-Gen / LP0002:3.10.1(5)/2.8 Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) and RSS-Gen 8.10, must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)) and RSS-Gen 8.9.

Ref. ANSI C63.10: 2013 section 4.1.4.2.2, 4.1.4.2.3, 6.6.4 & 11.12.2

Using Vasona, configure the spectrum analyzer as shown below (be sure to enter all losses between the transmitter output and the spectrum analyzer). Place the radio in continuous transmit mode.

| Span: | 1GHz – 18 GHz |
|-----------------------|-----------------------------------|
| Reference Level: | 80 dBuV |
| Attenuation: | 10 dB |
| Sweep Time: | Coupled |
| Resolution Bandwidth: | 1MHz |
| Video Bandwidth: | 3 MHz for peak, 1 KHz for average |
| Detector: | Peak |

Terminate the access Point RF ports with 50 ohm loads.

Maximize Turntable (find worst case table angle), Maximize Antenna (find worst case height)

Save 2 plots: 1) Average plot, Limit= 54dBuV/m @3m 2) Peak plot, Limit = 74dBuV/m @3m

Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands.

This report represents the worst case data for all supported operating modes and antennas. There are no measurable emissions above 18 GHz.

| System Number | Description | Samples | System under test | Support equipment |
|------------------|-------------|---------|----------------------|----------------------|
| 4 | EUT | S01 | \checkmark | |
| 1 | Support | S02 | | \checkmark |

| Tested By : | Date of testing: |
|--------------------|-----------------------|
| Jose Aguirre | 05-May-16 - 06-Jun-16 |
| Test Result : PASS | |

See Appendix C for list of test equipment

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B.1.A Transmitter Radiated Spurious Emissions-Average Worst Case

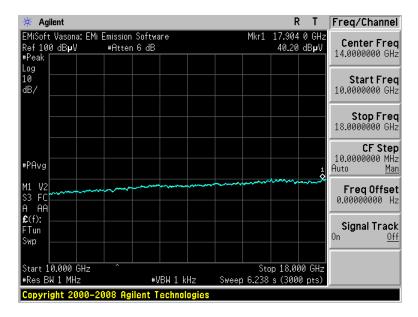
| Frequency (MHz) | Mode | Data Rate (Mbps) | Spurious Emission Level (dBuV/m) | Limit (dBuV/m) | Margin dB |
|--------------------|-------------------|---------------------|---|-------------------|--------------|
| 2412 | CCK, 1 to 11 Mbps | 1 | 40.2 | 54 | 13.8 |
| 2437 | CCK, 1 to 11 Mbps | 1 | 40.3 | 54 | 13.7 |
| 2462 | CCK, 1 to 11 Mbps | 1 | 39.8 | 54 | 14.2 |

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| 🔆 Agilent | | | F | 2 T | Peak Search |
|--|-------------------------------------|------------------------|---------------------------|-------------------------|----------------|
| EMiSoft Vasona: E Ref 100 dBµV #Peak | Mi Emission Software #Atten 6 dB | | | 58 GHz dB µ V | Next Peak |
| .og LØ | | | | | Next Pk Right |
| 3B/ | | | | | |
| www.www. | 2 Munumanna | | \$ \$ | 4 • | Next Pk Left |
| PAvg | | | | | Min Search |
| Start 1.000 GHz | | | Stop 10.0 | | |
| Res BW 1 MHz Marker Trace | #VBW 1 Type | LKHZ Swee XAxis | ep 7.018 s (300 Amplit | | Pk-Pk Search |
| 1 (1) 2 (1) | Freq Freq | 2.412 GHz 3.665 GHz | 34.02 d 37.09 d | BµV BµV | Mkr → Cl |
| 3 (1) 4 (1) | Freq Freq | 7.234 GHz 9.658 GHz | 34.45 d 38.72 d | | |
| | | | | | More 1 of 2 |

Average Radiated Transmitter Spurs, 2412 MHz, 6 to 54 Mbps

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| 🔆 Agilent | | | | R | Т | Trace |
|--|-------------------------------|--|--------------|--|------------------------|------------------------------|
| EMiSoft Vasona: EMi Ref 100 dBµV PPeak | Emission Softw #Atten 6 dB | | Mkr | 4 9.73 37.57 | 9 GHz dB µ V | Trace <u>1</u> 2 3 |
| .og .0 IB/ | | | | | | Clear Write |
| www.umay th | 2 | ······ | 3 | | 4 | Max Hold |
| PAvg | | | | | | Min Hold |
| itart 1.000 GHz Res BW 1 MHz Marker Trace | type | VBW 1 kHz S X Axis | weep 7.018 s | 10.000 (3000 Amplitud | pts) | Viev |
| $ \begin{array}{cccc} 1 & (1) \\ 2 & (1) \\ 3 & (1) \\ 4 & (1) \end{array} $ | Freq Freq Freq Freq | 2.437 GHz 3.668 GHz 7.311 GHz 9.739 GHz | 3: | 3.98 dBµ 5.10 dBµ 4.94 dBµ 7.57 dBµ | 10 10 | Blani |
| | | | | | | More 1 of 2 |

Average Radiated Transmitter Spurs, 2437 MHz, 6 to 54 Mbps

Copyright 2000–2008 Agilent Technologies

Agilent R T Peak Search EMISOft Vasona: EMI Emission Software Ref 100 dBµV +Atten 6 dB *Peak Log 10 dB/ Mkr1 16.423 5 GHz 40.29 dBµV Next Peak Next Pk Right Next Pk Left Min Search #PAvg 4 M1 V2 S3 FC A AA £(f): Pk-Pk Search FTun Mkr→CF òwр More 1 of 2 Start 10.000 GHz #Res BW 1 MHz Stop 18.000 GHz Sweep 6.238 s (3000 pts) #VBW 1 kHz Copyright 2000-20 Technolo R Aailei

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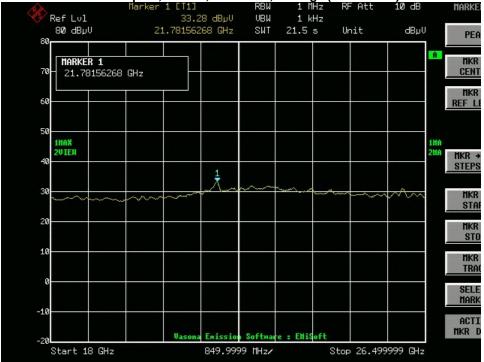
| 🔆 Agilent | t | | | | | R | Т | Mar | ker |
|-------------------------------------|--|--------------------------------------|--|---|-----------------|---|-------------------------|-----------|-------------------------------|
| EMiSoft Va Ref 100 dl #Peak □ | | Emission Soft #Atten 6 d | | | Mk | (r3 7.3) 35.15 | 63 GHz dB µ V | Select | Marker |
| -og 10 dB/ | | | | | | | | | Norma |
| | ~~~~ ¹ | 2 ******* | ······································ | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | 3 | | 4 ~\$ | | Delta |
| *PAvg | | | | | | | | | l ta Pai i king Ref |
| Start 1.00 •Res BW 1 | MHz | | ₩VBW 1 kHz | | Sto ep 7.018 | | l pts) | Span Span | oan Pail Cente |
| Marker 1 2 3 4 | Trace (1) (1) (1) (1) (1) | Type Freq Freq Freq Freq | X A) 2.462 3.664 7.363 9.685 | 2 GHz 4 GHz 3 GHz | | Amplitu 30.54 dE 37.34 dE 35.15 dE 36.93 dE | 8µ0 8µ0 8µ0 | | Of |
| | | | | | | | | | More 1 of 2 |

Average Radiated Transmitter Spurs, 2462 MHz, 6 to 54 Mbps

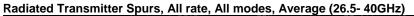
Copyright 2000–2008 Agilent Technologies

Agilent R T Peak Search 28 EMISoft Vasona: EMI Emission Software Ref 100 dBµV +Atten 6 dB +Peak Log 10 dB/ Mkr1 17.026 3 GHz 39.83 dBµV Next Peak Next Pk Right Next Pk Left Min Search #PAvg 1 M1 V2 S3 FC A AA £(f): Pk-Pk Search FTun Mkr→CF òwр More Start 10.000 GHz #Res BW 1 MHz Stop 18.000 GHz Sweep 6.238 s (3000 pts) 1 of 2 ₩VBW 1 kHz 8 Agile Copyright 2000-2008 Technol

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Radiated Transmitter Spurs, All rate, All modes, Average (18-26.5GHz)





No emissions seen above 18GHz. The plots above are representative of all modes tested.

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B.1.P Transmitter Radiated Spurious Emissions-Peak Worst Case

| Frequency (MHz) | Mode | Data Rate (Mbps) | Spurious Emission Level (dBuV/m) | Limit (dBuV/m) | Margin dB |
|--------------------|-------------------|---------------------|---|-------------------|--------------|
| 2412 | CCK, 1 to 11 Mbps | 1 | 50.4 | 74 | 23.6 |
| 2437 | CCK, 1 to 11 Mbps | 1 | 50.8 | 74 | 23.2 |
| 2462 | CCK, 1 to 11 Mbps | 1 | 50.0 | 74 | 24.0 |

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| | | RT | Peak Search |
|--|---|--|---|
| Emission Software #Atten 6 dB | M | 1kr4 9.646 GHz 50.41 dBµV | Next Peak |
| | | | Next Pk Right |
| Anna ann an Anna an An | | | Next Pk Left |
| | | | Min Search |
| | · · · · · · · · · · · · · · · · · · · | | Pk-Pk Search |
| Freq 4.82 Freq 7.23 | 4 GHz 6 GHz | 44.62 dBµV 43.79 dBµV 43.87 dBµV 50.41 dBµV | Mkr → CF |
| | | | More 1 of 2 |
| | 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | #Atten 6 dB | Emission Software Mkr4 9.646 GHz #Atten 6 dB 50.41 dBµV 2 3 4 4 6 4 4 6 4 6 4 7 6 4 6 4 7 6 4 6 6 4 7 6 4 6 6 4 7 6 4 6 6 4 7 6 4 6 6 4 7 6 4 6 6 4 7 6 4 6 6 6 4 7 6 4 6 6 6 6 |

Peak Search 🔆 Agilent R T Mkr1 16.708 9 GHz 48.85 dBµV EMISoft Vasona: EMI Emission Software Ref 100 dBµV #Atten 6 dB #Peak Next Peak Log 10 dB/ Next Pk Right Next Pk Left 1 \$ Min Search #PAvg M1 M2 S3 FC A AA £(f): FTun Sun Pk-Pk Search Mkr → CF бwр More Start 10.000 GHz #Res BW 1 MHz Stop 18.000 GHz Sweep 16.19 ms (3000 pts) 1 of 2 #VBW 3 MHz 0–2008 Agilent Technolo Convri

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Peak Radiated Transmitter Spurs, 2437 MHz, 6 to 54 Mbps

| 🔆 Agilent | | | RT | Marker |
|---|---|--|--|---------------------------------|
| Ref 100 dB µ V #Peak | Mi Emission Softwa #Atten 6 dB | re | Mkr3 7.317 GHz 44.26 dB µ V | Select Marker 1 2 <u>3</u> 4 |
| Log 10 dB/ | | | | Norma |
| ANT ANT ANT AND | 1 ************************************ | <i>بۇرىدە ئەرىمەر يەرىمەر يەرە</i> | 3 <u>Sund</u> er state st | Delta |
| | | | | Delta Pair |
| #PAvg | | | | (Tracking Ref) Ref 🛛 🛓 |
| Start 1.000 GHz #Res BW 1 MHz | *V | 3WI3 MHz Sweep | Stop 10.000 GHz 15.19 ms (3000 pts) | Span Pair Span Center |
| Marker Trac 1 (1) | e Type Freg | X Axis 2.437 GHz | Amplitude 42.31 dBµV | |
| 2 (1) 3 (1) 4 (1) | Freq Freq Freq | 3.668 GHz 7.317 GHz 9.745 GHz | 43.26 dBµV 44.26 dBµV 47.71 dBµV | Off |
| | | | | More 1 of 2 |

Agilent R T Peak Search EMISOft Vasona: EMI Emission Software Ref 100 dBµV +Atten 6 dB *Peak Log 10 dB/ Mkr1 16.716 9 GHz 50.48 dBµV Next Peak Next Pk Right Next Pk Left 1 \$ Min Search #PAvg M1 V2 S3 FC A AA £(f): FTun Swp Pk-Pk Search Mkr→CF More 1 of 2 Start 10.000 GHz #Res BW 1 MHz Stop 18.000 GHz Sweep 16.19 ms (3000 pts) ₩VBW 3 MHz Copyright 2000-20 R Aailei nt Tech

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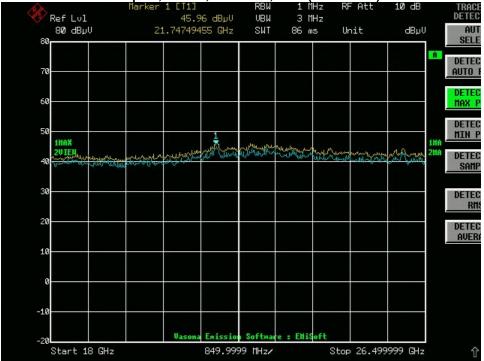
Peak Radiated Transmitter Spurs, 2462 MHz, 6 to 54 Mbps

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| 🔆 Agilent | | | | | | F | ? T | Trace |
|--------------------------------------|--------------------------|------------------------------|--|-----------------|----------------|--|---|------------------------------|
| EMiSoft Vas Ref 100 dB #Peak [| | Emission Soft #Atten 6 d | | | Mk | | 85 GHz dB µ V | Trace 1 <u>2</u> 3 |
| Log 10 dB/ | | | | | | | | Clear Write |
| n vierta | | 2 Japana and parameter | ميەجىرار يەسوقارىيدلەرىي | nutives and the | 3 | ana latan | 4 And the second | Max Hold |
| #PAvg | | | | | | | | Min Hold |
| Start 1.000 #Res BW 1 Marker | | Туре | #VBW 3 MHz X Axis | | Sto 15.04 m | | | View |
| 1 2 3 4 | (1) (1) (1) (1) | Freq Freq Freq Freq | 2.462 G 3.664 G 7.386 G 9.685 G | iHz iHz | | 39.70 dl 44.09 dl 44.13 dl 47.62 dl | ΒμV ΒμV ΒμV | Blank |
| | | | | | | | | More 1 of 2 |

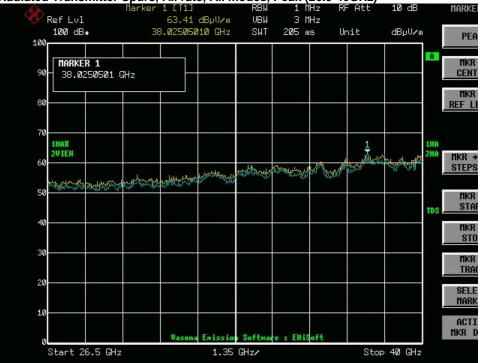
Freq/Channel Agilent RT EMISoft Vasona: EMI Emission Software Ref 100 dBµV +Atten 6 dB +Peak Log 10 dB/ Mkr1 16.431 5 GHz 50.02 dBµV Center Freq 14.0000000 GHz Start Freq 10.0000000 GHz Stop Freq 18.0000000 GHz **CF Step** 10.0000000 MHz Auto <u>Man</u> ō #PAvg M1 V2 S3 FC A AA £(f): FTun Sun FreqOffset 0.00000000 Hz Signal Track 0n <u>0ff</u> ŝwр Stop 18.000 GHz Sweep 16.19 ms (3000 pts) Start 10.000 GHz ₩VBW 3 MHz #Res BW 1 MHz Copyright 2000-20 R Aailei nt Tech

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Radiated Transmitter Spurs, All rate, All modes, Peak (18-26.5GHz)

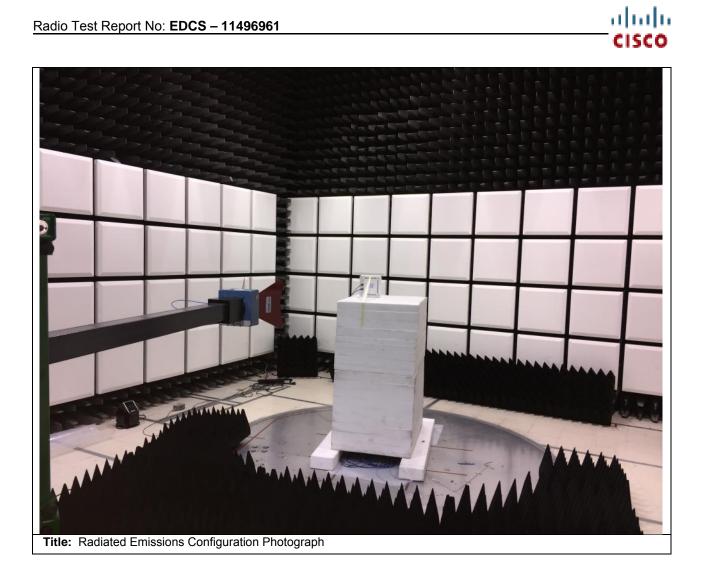
Radiated Transmitter Spurs, All rate, All modes, Peak (26.5-40GHz)



No emissions seen above 18GHz. The plots above are representative of all modes tested.

Radiated Test Setup

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B.2 Receiver Spurious Emissions

RSS-Gen Receivers are required to comply with the limits of spurious emissions as set out in this section. Receiver emission measurements are to be performed as per the normative test method referenced in Section 3.

Radiated emissions which fall in the restricted bands, as defined in RSS-Gen section 8.10, must also comply with the radiated emission limits specified in RSS-Gen section 8.9.

For emissions at frequencies below 1 GHz, measurements shall be performed using a CISPR quasi-peak detector and the related measurement bandwidth. At frequencies above 1 GHz, measurements shall be performed using a linear average detector with a minimum resolution bandwidth of 1 MHz.

Ref. RSS-Gen section 8.9 & 8.10 ANSI C63.10: 2013 section 4.1.4.2.2, 4.1.4.2.3, 6.6.4 & 11.12.2

Using Vasona, configure the spectrum analyzer as shown below (be sure to enter all losses between the transmitter output and the spectrum analyzer). Place the radio in continuous transmit mode.

| 1GHz – 18 GHz |
|----------------------------------|
| 80 dBuV |
| 10 dB |
| Coupled |
| 1MHz |
| 3MHz for Peak, 1 kHz for average |
| Peak |
| |

Radiated emission measurements shall be performed with the receiver antenna connected to the receiver antenna terminals.

Maximize Turntable (find worst case table angle), Maximize Antenna (find worst case height)

Save plot: 1) Average Plot (Vertical and Horizontal), Limit= 54dBuV/m @3m 2) Peak Plot (Vertical and Horizontal), Limit= 74dBuV/m @3m

This report represents the worst case data for all supported operating modes and antennas. There are no measurable emissions above 18 GHz.

| System Number | Description | Samples | System under test | Support equipment |
|------------------|-------------|---------|-------------------|----------------------|
| 1 | EUT | S01 | \mathbf{V} | |
| | Support | S02 | | \checkmark |

| Tested By : | Date of testing: |
|-------------------|-----------------------|
| Jose Aguirre | 05-May-16 - 06-Jun-16 |
| Turk Dury H. DAGO | |

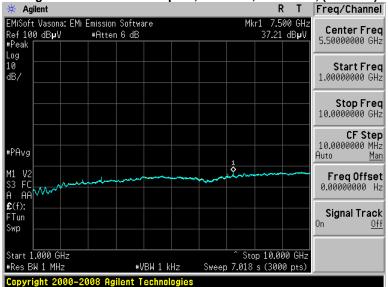
Test Result : PASS

See Appendix C for list of test equipment

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B.2.A Receiver Radiated Spurious Emissions (Average Measurements)

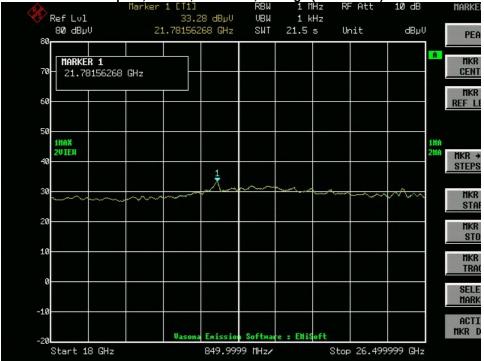
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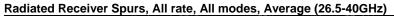
Average Radiated Receiver Spurs, All Rates, All Modes, (1-18GHz) Horizontal

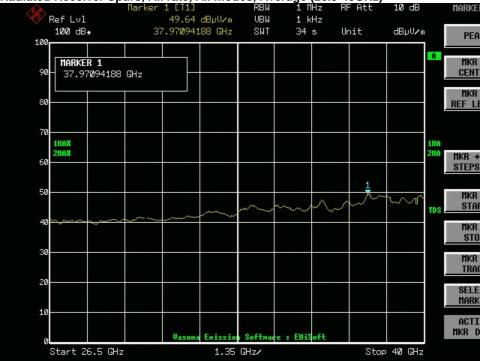
| 🔆 Agilent | | | RT | Peak Search |
|---|-------------------|-----------------------|------------------------------|---------------|
| EMiSoft Vasona: EMi Emission Ref 100 dB µ V #Atter #Peak | | Mkr1 (| 16.412 8 GH 40.54 dBµ\ | |
| Log 10 dB/ | | | | Next Pk Right |
| | | | | Next Pk Left |
| #PAvg | | 1 | | Min Search |
| M1 V2 S3 FC | | ¥ | ~~~~~~ | Pk-Pk Search |
| £ (f): FTun Swp | | | | Mkr → CF |
| Start 10.000 GHz #Res BW 1 MHz | *VBW 1 kHz | Stop Sweep 6.238 s |) 18.000 GH: 5 (3000 pts) | |
| File Operation Status, C: | VASONA.GIF file s | aved | | |

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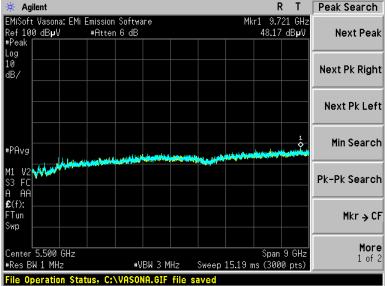
Radiated Receiver Spurs, All rate, All modes, Average (18-26.5GHz)





No emissions seen above 18GHz. The plots above are representative of all modes tested.

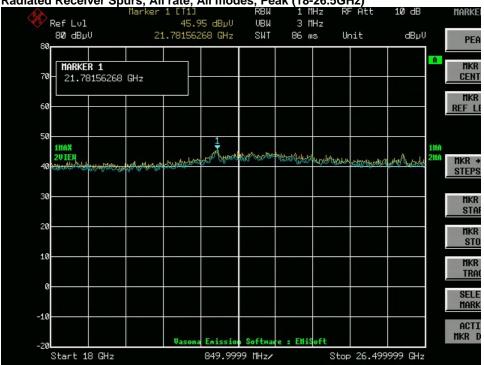
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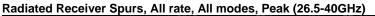
Peak Radiated Receiver Spurs, All Rates, All Modes, (1-18GHz) Horizontal

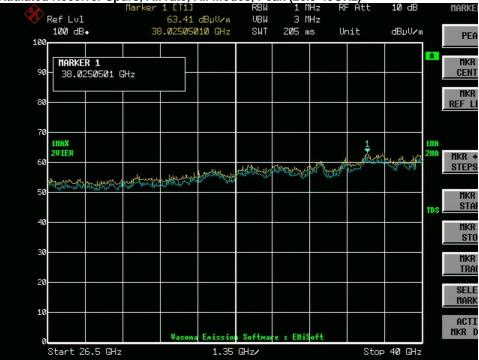
| EMiSoft Vasona: EMi Emission Software Mkr1 16.188 7 GHz | |
|---|----------------|
| Ref 100 dB µ V | Next Peak |
| Log 10 dB/ | Next Pk Right |
| | Next Pk Left |
| | Min Search |
| M1 V2 | Pk-Pk Search |
| £(f): FTun Swp | Mkr → CF |
| Start 10.000 GHz Stop 18.000 GHz #Res BW 1 MHz #VBW 3 MHz Sweep 16.19 ms (3000 pts) File Operation Status, C:\VASONA.61F file saved | More 1 of 2 |

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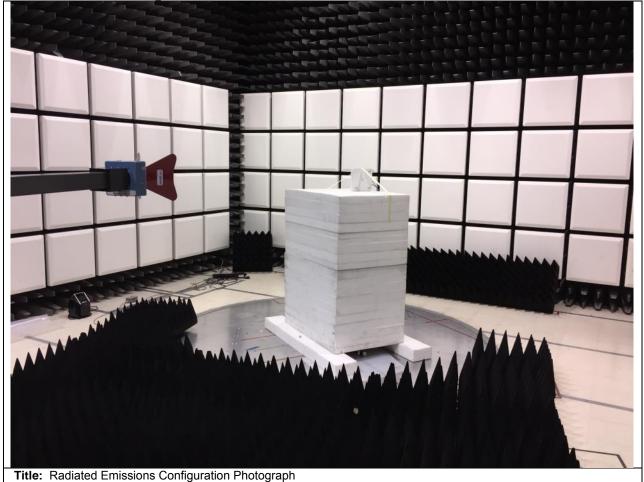
Radiated Receiver Spurs, All rate, All modes, Peak (18-26.5GHz)





No emissions seen above 18GHz. The plots above are representative of all modes tested.

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B.3 Radiated Emissions 30MHz to 1GHz

15.205 / 15.209 / RSS-Gen / LP0002:3.10.1(5)/2.8 Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)) and RSS-Gen section 8.9.

Ref. ANSI C63.10: 2013 section 6.5

Using Vasona, configure the spectrum analyzer as shown below (be sure to enter all losses between the transmitter output and the spectrum analyzer). Place the radio in continuous transmit mode.

| Span: | 30MHz – 1GHz |
|-----------------------|--|
| Reference Level: | 80 dBuV |
| Attenuation: | 10 dB |
| Sweep Time: | Coupled |
| Resolution Bandwidth: | 100kHz |
| Video Bandwidth: | 300kHz |
| Detector: | Peak for Pre-scan, Quasi-Peak |
| | Compliance shall be determined using CISPR quasi-peak detection; |
| | however, peak detection is permitted as an alternative to quasi-peak |
| | detection. |
| | |

Terminate the access Point RF ports with 50 ohm loads.

Maximize Turntable (find worst case table angle), Maximize Antenna (find worst case height)

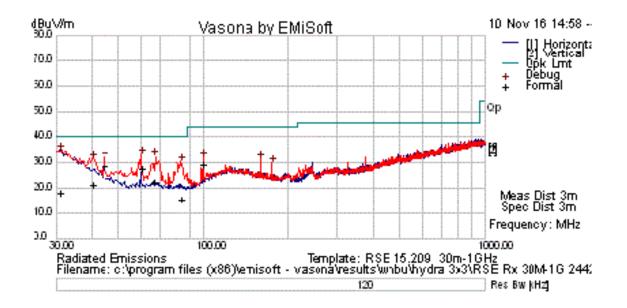
This report represents the worst case data for all supported operating modes and antennas.

| System Number | Description | Samples | System under test | Support equipment |
|------------------|-------------|---------|----------------------|----------------------|
| | EUT | S01 | V | |
| 1 | Support | S02 | | \checkmark |

| Tested By : | Date of testing: |
|--------------------|------------------|
| Jose Aguirre | 10-Nov-16 |
| Test Result : PASS | |

See Appendix C for list of test equipment

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Test Results Table

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail |
|------------------|-------------|---------------|----------|-----------------|---------------------|-----|-----------|------------|-----------------|--------------|---------------|
| 30.97 | -2.9 | 0.5 | 20.7 | 18.2 | Quasi Max | H | 222 | 186 | 40 | -21.8 | Pass |
| 60.003 | 19.6 | 0.7 | 7.4 | 27.7 | Quasi Max | V | 146 | 171 | 40 | -12.3 | Pass |
| 66.358 | 14 | 0.7 | 8 | 22.6 | Quasi Max | V | 145 | 39 | 40 | -17.4 | Pass |
| 44.236 | 17.2 | 0.6 | 10.8 | 28.6 | Quasi Max | V | 105 | 280 | 40 | -11.4 | Pass |
| 40.185 | 6.9 | 0.5 | 13.9 | 21.3 | Quasi Max | V | 115 | 85 | 40 | -18.7 | Pass |
| 83.35 | 7.2 | 0.8 | 7.5 | 15.4 | Quasi Max | V | 139 | 228 | 40 | -24.6 | Pass |
| 100 | 18.4 | 0.8 | 10.2 | 29.4 | Quasi Max | V | 124 | 352 | 43.5 | -14.1 | Pass |

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B.4 AC Conducted Emissions

FCC 15.207 (a) & RSS-Gen 8.8 / LP0002:2.3 Except when the requirements applicable to a given device state otherwise, for any radio apparatus equipped to operate from the public utility AC power supply, either directly or indirectly (such as with a battery charger), the radio frequency voltage of emissions conducted back onto the AC power lines in the frequency range of 0.15 MHz to 30 MHz shall not exceed the limits shown in the table in these sections. The more stringent limit applies at the frequency range boundaries.

Measurement Procedure Accordance with ANSI C63.10:2013 section 6.2

Using Vasona, configure the spectrum analyzer as shown below (be sure to enter all losses between the transmitter output and the spectrum analyzer). Place the radio in continuous transmit mode.

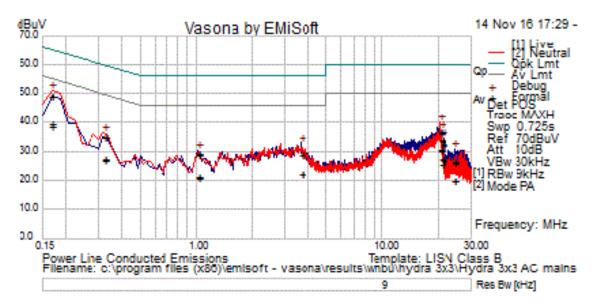
| Span: | 150 KHz – 30 MHz |
|-----------------------|----------------------|
| Attenuation: | 10 dB |
| Sweep Time: | Coupled |
| Resolution Bandwidth: | 9 KHz |
| Video Bandwidth: | 30 KHz |
| Detector: | Quasi-Peak / Average |

| System Number | Description | Samples | System under test | Support equipment |
|------------------|-------------|---------|----------------------|----------------------|
| | EUT | S01 | K | |
| 1 | Support | S02 | | \checkmark |

| Tested By : | Date of testing: | |
|--------------------|------------------|--|
| Jose Aguirre | 14-Nov-16 | |
| Test Result : PASS | | |

See separate EMC test report for test data.

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Test Results Table

| Frequency | Raw | Cable | Factors | Level | Measurement | Line | Limit | Margin | Pass |
|-----------|------|-------|---------|-------|-------------|---------|-------|--------|-------|
| MHz | dBuV | Loss | dB | dBuV | Туре | | dBuV | dB | /Fail |
| 24.552 | 5.6 | 20.5 | 0.3 | 26.4 | Quasi Peak | Live | 60 | -33.6 | Pass |
| 1.027 | 9 | 20 | 0 | 29 | Quasi Peak | Live | 56 | -27 | Pass |
| 20.421 | 15.7 | 20.4 | 0.2 | 36.4 | Quasi Peak | Live | 60 | -23.6 | Pass |
| 0.169 | 28 | 21.2 | 0.1 | 49.3 | Quasi Peak | Live | 65 | -15.7 | Pass |
| 21.145 | 11.6 | 20.4 | 0.2 | 32.3 | Quasi Peak | Live | 60 | -27.7 | Pass |
| 3.657 | 8.6 | 20.1 | 0.1 | 28.7 | Quasi Peak | Live | 56 | -27.3 | Pass |
| 20.668 | 12.9 | 20.4 | 0.2 | 33.6 | Quasi Peak | Live | 60 | -26.4 | Pass |
| 0.324 | 14.3 | 20.5 | 0.1 | 34.9 | Quasi Peak | Live | 59.6 | -24.7 | Pass |
| 0.324 | 14.4 | 20.5 | 0.1 | 34.9 | Quasi Peak | Neutral | 59.6 | -24.7 | Pass |
| 20.668 | 13.3 | 20.4 | 0.2 | 34 | Quasi Peak | Neutral | 60 | -26 | Pass |
| 21.145 | 11.8 | 20.4 | 0.2 | 32.5 | Quasi Peak | Neutral | 60 | -27.5 | Pass |
| 0.169 | 27.9 | 21.2 | 0.1 | 49.2 | Quasi Peak | Neutral | 65 | -15.8 | Pass |
| 1.027 | 9.1 | 20 | 0 | 29.2 | Quasi Peak | Neutral | 56 | -26.8 | Pass |
| 24.552 | 5.3 | 20.5 | 0.3 | 26.1 | Quasi Peak | Neutral | 60 | -33.9 | Pass |
| 20.421 | 15.9 | 20.4 | 0.2 | 36.6 | Quasi Peak | Neutral | 60 | -23.4 | Pass |
| 3.657 | 8.6 | 20.1 | 0.1 | 28.7 | Quasi Peak | Neutral | 56 | -27.3 | Pass |
| 24.552 | -0.5 | 20.5 | 0.3 | 20.3 | Average | Live | 50 | -29.7 | Pass |
| 1.027 | 1.2 | 20 | 0 | 21.3 | Average | Live | 46 | -24.7 | Pass |
| 20.421 | 9.9 | 20.4 | 0.2 | 30.6 | Average | Live | 50 | -19.4 | Pass |
| 0.169 | 18 | 21.2 | 0.1 | 39.3 | Average | Live | 55 | -15.7 | Pass |
| 21.145 | 6.3 | 20.4 | 0.2 | 26.9 | Average | Live | 50 | -23.1 | Pass |
| 3.657 | 2.2 | 20.1 | 0.1 | 22.3 | Average | Live | 46 | -23.7 | Pass |
| 20.668 | 5.1 | 20.4 | 0.2 | 25.8 | Average | Live | 50 | -24.2 | Pass |
| 0.324 | 6.6 | 20.5 | 0.1 | 27.2 | Average | Live | 49.6 | -22.4 | Pass |
| 0.324 | 6.8 | 20.5 | 0.1 | 27.3 | Average | Neutral | 49.6 | -22.3 | Pass |
| 20.668 | 7 | 20.4 | 0.2 | 27.7 | Average | Neutral | 50 | -22.3 | Pass |
| 21.145 | 6.4 | 20.4 | 0.2 | 27 | Average | Neutral | 50 | -23 | Pass |
| 0.169 | 17.3 | 21.2 | 0.1 | 38.6 | Average | Neutral | 55 | -16.5 | Pass |
| 1.027 | 1.6 | 20 | 0 | 21.6 | Average | Neutral | 46 | -24.4 | Pass |
| 24.552 | -0.6 | 20.5 | 0.3 | 20.2 | Average | Neutral | 50 | -29.8 | Pass |
| 20.421 | 9.7 | 20.4 | 0.2 | 30.3 | Average | Neutral | 50 | -19.7 | Pass |
| 3.657 | 2.2 | 20.1 | 0.1 | 22.4 | Average | Neutral | 46 | -23.6 | Pass |

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Appendix C: List of Test Equipment Used to perform the test

| | Τε | est Equipment used for Radiated Emissic | ons | | |
|-----------|---|---|---------------------|---------------------|---------------|
| Equip No | Model Manufacturer | Description | Last Cal | Next Cal | Test Item |
| CIS049413 | iBTHP-5-DB9 Newport | 5 inch Temp/RH/ Press Sensor | 18-Dec-15 | 18-Dec-16 | B.1, B.2, B.3 |
| CIS040523 | ESCI Rohde & Schwarz | EMI Test Receiver | 30-Dec-15 | 30-Dec-16 | B.3 |
| CIS001937 | NSA 5m Chamber Cisco | NSA 5m Chamber | 12-Feb-16 | 12-Feb-17 | B.3 |
| CIS049535 | Above 1GHz Site Cal Cisco | Above 1GHz CISPR Site Validation | 13-Feb-16 | 13-Feb-17 | B.1, B.2 |
| CIS028072 | 1840 Cisco | 18-40GHz EMI Test Head | 22-Feb-16 | 22-Feb-17 | B.1, B.2 |
| CIS045588 | JB1 Sunol Sciences | Combination Antenna, 30MHz-2GHz | 9-Mar-16 | 9-Mar-17 | B.3 |
| CIS042000 | E4440A Agilent | Spectrum Analyzer | 6-Jul-16 | 6-Jul-17 | B.1, B.2 |
| CIS037581 | 3117 ETS-Lindgren | Horn Antenna | 7-Oct-16 | 7-Oct-17 | B.1, B.2 |
| CIS045098 | TH0118 Cisco | Mast Mount Preamplifier Array, 1-18GHz | 31-Oct-16 | 31-Oct-17 | B.1, B.2 |
| CIS033602 | CSY-NMNM-80-273001 Midwest Microwave | RF Coaxial Cable, to 18GHz | 8-Nov-16 | 8-Nov-17 | B.1, B.2, B.3 |
| CIS030443 | UFB311A-0-1560-520520 Micro-Coax | RF Coaxial Cable, to 18GHz | 8-Nov-16 | 8-Nov-17 | B.1, B.2, B.3 |
| CIS008024 | SF106A Huber + Suhner | 3 meter Sucoflex cable | 8-Nov-16 | 8-Nov-17 | B.1, B.2, B.3 |
| CIS024201 | FSEK30 Rohde & Schwarz | Spectrum Analyzer 20Hz - 40GHz | 23-Nov-16 | 23-Nov-17 | B.1, B.2 |
| CIS037235 | 50CB-015 JFW | GPIB Control Box | Cal not Required | Cal not Required | B.1, B.2 |
| CIS035244 | 926-8ME Klein Tools | 8 Meter Tape Measure | Cal not Required | Cal not Required | B.1, B.2, B.3 |

| | Test Equipment used for AC Mains Conducted Emissions | | | | | | | | |
|--------|--|---------------------------------|-----------|-----------|-----------|--|--|--|--|
| Equip# | Manufacturer/ Model | Description | Last Cal | Next Cal | Test Item | | | | |
| 8510 | Fischer Custom Communications FCC-450B-2.4-N | Instrumentation Limiter | 16-May-16 | 16-May-17 | B.4 | | | | |
| 23802 | Fischer Custom Communications FCC-801-M2-50A | CDN, 2-LINE 50A | 12-Jan-16 | 12-Jan-17 | B.4 | | | | |
| 45995 | Fischer Custom Communications F-090527-1009-2 | Lisn Adapter | 17-Jun-16 | 17-Jun-17 | B.4 | | | | |
| 49468 | Coleman RG223 | BNC 25 ft Cable | 9-Mar-16 | 9-Mar-17 | B.4 | | | | |
| 31918 | Midwest Microwave TRM-2048-MC-BNC-10 | 50 Ohm, 5W Terminator, Type BNC | 11-Nov-16 | 11-Nov-17 | B.4 | | | | |
| 49531 | TTE H785-150K-50-21378 | High Pass Filter | 3-May-16 | 3-May-17 | B.4 | | | | |

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| 45994 | Fischer Custom Communications F-090527-1009-1 | Line Impedance Stabilization Network | 17-Jun-16 | 17-Jun-17 | B.4 |
|-------|--|---|---------------------|---------------------|-----|
| 18963 | York CNE V | Comparison Noise Emitter, 30 - 1000MHz | Cal Not Required | Cal Not Required | B.4 |
| 45050 | Rohde & Schwarz ESCI | EMI Test Receiver | 11-Sep-16 | 11-Sep-17 | B.4 |
| 51721 | Teseq CDN ST08A | Coupling Decoupling Network | 7-Jun-16 | 7-Jun-17 | B.4 |
| 54231 | Newport iBTHP-5-DB9 | 5 inch Temp/RH/Press Sensor w/20ft cable | 10-Feb-16 | 10-Feb-17 | B.4 |

| Equip# | Manufacturer/ Model | Description | Last Cal | Next Cal | Test Item |
|------------|----------------------|-----------------------------|-----------|-----------|------------|
| CIS054666 | RA08-S1S1-18 | SMA 18" Cable | 25-Sep-15 | 25-Sep-16 | A1 thru A7 |
| 0.000 1000 | MegaPhase | | | | |
| CIS054667 | RA08-S1S1-18 | SMA 18" Cable | 25-Sep-15 | 25-Sep-16 | A1 thru A7 |
| | MegaPhase | | • | • | |
| CIS054668 | RA08-S1S1-18 | SMA 18" Cable | 25-Sep-15 | 25-Sep-16 | A1 thru A7 |
| | MegaPhase | | | | |
| CIS054669 | RA08-S1S1-18 | SMA 18" Cable | 25-Sep-15 | 25-Sep-16 | A1 thru A7 |
| | MegaPhase | | | | |
| CIS054686 | NI PXI-2796 | Plug-in switch module | 6-Oct-15 | 6-Oct-16 | A1 thru A7 |
| | National Instruments | | | | |
| CIS055166 | RFLT4WDC40GK | 4 Way Power Divider 40GHz | 23-Nov-15 | 23-Nov-16 | A1 thru A7 |
| | RF Lambda | | | | |
| CIS054662 | RFLT4WDC40GK | SMA 36" cable | 24-Sep-15 | 24-Sep-16 | A1 thru A7 |
| | RF Lambda | | | | |
| CIS054656 | BRC50705-02 | Band Reject Filter | 24-Sep-15 | 24-Sep-16 | A1 thru A7 |
| | Micro-Tronics | | | | |
| CIS054655 | BRC50704-02 | Notch Filter, | 24-Sep-15 | 24-Sep-16 | A1 thru A7 |
| | Micro-Tronics | SB:5.470-5.725GHz, to 12GHz | | | |
| CIS054654 | BRC50703-02 | Notch Filter, | 24-Sep-15 | 24-Sep-16 | A1 thru A7 |
| | Micro-Tronics | SB:5.150-5.350GHz, to 11GHz | | | |
| CIS054653 | BRM50702-02 | Notch Filter, | 24-Sep-15 | 24-Sep-16 | A1 thru A7 |
| | Micro-Tronics | SB:2.400-2.500GHz, to 18GHz | | | |
| CIS054678 | RA08-S1S1-12 | SMA 12" Cable | 25-Sep-15 | 25-Sep-16 | A1 thru A7 |
| | MegaPhase | | | | |
| CIS054677 | RA08-S1S1-12 | SMA 12" Cable | 25-Sep-15 | 25-Sep-16 | A1 thru A7 |
| | MegaPhase | | | | |
| CIS054676 | RA08-S1S1-12 | SMA 12" Cable | 25-Sep-15 | 25-Sep-16 | A1 thru A7 |
| | MegaPhase | | | | |
| CIS054675 | RA08-S1S1-12 | SMA 12" Cable | 25-Sep-15 | 25-Sep-16 | A1 thru A7 |
| | MegaPhase | | | | |
| CIS054674 | RA08-S1S1-12 | SMA 12" Cable | 25-Sep-15 | 25-Sep-16 | A1 thru A7 |
| | MegaPhase | | | | |
| CIS054673 | RA08-S1S1-12 | SMA 12" Cable | 25-Sep-15 | 25-Sep-16 | A1 thru A7 |

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| | MegaPhase | | | | |
|-----------|----------------------------------|-------------------------------|--------------------------|-----------|------------|
| CIS054672 | RA08-S1S1-12 | SMA 12" Cable | 25-Sep-15 | 25-Sep-16 | A1 thru A7 |
| | MegaPhase | | | | |
| CIS054671 | RA08-S1S1-12 | SMA 12" Cable | 25-Sep-15 | 25-Sep-16 | A1 thru A7 |
| | MegaPhase | | | | |
| CIS054670 | RA08-S1S1-12 | SMA 12" Cable | 25-Sep-15 | 25-Sep-16 | A1 thru A7 |
| | MegaPhase | | | | |
| CIS054664 | GC12-8181-16 | SMA 16" Cable | 25-Sep-15 | 25-Sep-16 | A1 thru A7 |
| | MegaPhase | | | | |
| CIS054663 | F120-S1S1-48 | SMA 48" Cable | 25-Sep-15 | 25-Sep-16 | A1 thru A7 |
| | MegaPhase | | | | |
| CIS054686 | NI PXI-2796 | Plug-in switch module | 6-Oct-15 | 6-Oct-16 | A1 thru A7 |
| | National Instruments | | | | |
| CIS042005 | BWS30W2+ | SMA 30dB Attenuator | 16-Oct-15 | 16-Oct-16 | A1 thru A7 |
| | Mini-Circuits | | | | |
| CIS041995 | BW-S6W2 | 6dB Attenuator | 16-Oct-15 | 16-Oct-16 | A1 thru A7 |
| | Mini-Circuits | | | | |
| CIS054695 | D3C2060 | Circulator | 20-Oct-15 | 20-Oct-16 | A1 thru A7 |
| | Ditom | | | | |
| CIS055146 | RA08-S1S1-12 | 12" SMA Cable | 17-Nov-15 | 17-Nov-16 | A1 thru A7 |
| | Megaphase | | | | |
| CIS050721 | N9030A | PXA Signal Analyzer | 30-Mar-16 | 30-Mar-17 | A1 thru A7 |
| | Keysight | | | | |
| CIS054303 | N5182B | MXG X-Series RF Vector Signal | 6-Apr-16 | 6-Apr-17 | A1 thru A7 |
| | Keysight | Generator | | | |
| CIS055099 | SMART2200RM2U Tripp-Lite | Power Supply | | | A1 thru A7 |
| CIS055094 | PXI-1042 National Instruments | Chassis | Cal Not Required A1 thru | | A1 thru A7 |

Appendix E: Abbreviation Key and Definitions

The following table defines abbreviations used within this test report.

| Abbreviation | Description | Abbreviation | Description | |
|--------------|---|--------------|------------------------------------|--|
| EMC | Electro Magnetic Compatibility | °F | Degrees Fahrenheit | |
| EMI | Electro Magnetic Interference | °C | Degrees Celsius | |
| EUT | Equipment Under Test | Temp | Temperature | |
| ITE | Information Technology Equipment | S/N | Serial Number | |
| TAP | Test Assessment Schedule | Qty | Quantity | |
| ESD | Electro Static Discharge | emf | Electromotive force | |
| EFT | Electric Fast Transient | RMS | Root mean square | |
| EDCS | Engineering Document Control System | Qp | Quasi Peak | |
| Config | Configuration | Av | Average | |
| CIS# | Cisco Number (unique identification number for Cisco test equipment) | Pk | Peak | |
| Cal | Calibration | kHz | Kilohertz (1x10 ³) | |
| EN | European Norm | MHz | MegaHertz (1x10 ⁶) | |
| IEC | International Electro technical Commission | GHz | Gigahertz (1x10 ⁹) | |
| CISPR | International Special Committee on Radio Interference | Н | Horizontal | |
| CDN | Coupling/Decoupling Network | V | Vertical | |
| LISN | Line Impedance Stabilization Network | dB | decibel | |
| PE | Protective Earth | V | Volt | |
| GND | Ground | kV | Kilovolt (1x10 ³) | |
| L1 | Line 1 | μV | Microvolt (1x10 ⁻⁶) | |
| L2 | Line2 | А | Amp | |
| L3 | Line 3 | μA | Micro Amp (1x10 ⁻⁶) | |
| DC | Direct Current | mS | Milli Second (1x10 ⁻³) | |
| RAW | Uncorrected measurement value, as indicated by the measuring device | μS | Micro Second (1x10 ⁻⁶) | |
| RF | Radio Frequency | μS | Micro Second (1x10 ⁻⁶) | |
| SLCE | Signal Line Conducted Emissions | m | Meter | |
| Meas dist | Measurement distance | Spec dist | Specification distance | |
| N/A or NA | Not Applicable | SL | Signal Line (or Telecom Line) | |
| Р | Power Line | L | Live Line | |
| Ν | Neutral Line | R | Return | |
| S | Supply | AC | Alternating Current | |

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