

## Test Report

Model: C9120AXI-(X)

# Cisco Catalyst C9120AX Series 802.11ax Access Point

(x=B)

FCC ID: LDKVCVER1937

**5150-5250 MHz**

Against the following Specifications:

CFR47 Part 15.407



Cisco Systems

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This report replaces any previously entered test report under EDCS-17656958. This test report has been electronically authorized and archived using the CISCO Engineering Document Control system. Test Report Template EDCS# 11644122.

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**Section 1: Overview**

The samples were assessed against the tests detailed in section 3 under the requirements of the following specifications:

<b>Specifications:</b>
CFR47 Part 15.407

## 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\*%
- e) 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:

$$\text{Emission level [dBuV]} = \text{Indicated voltage level [dBuV]} + \text{Cable Loss [dB]} + \text{Other correction factors [dB]}$$

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: -

$$\text{Level in uV/m} = \text{Common Antilogarithm } [(X \text{ dBuV/m})/20] = Y \text{ uV/m}$$

## Measurement Uncertainty Values

voltage and power measurements	± 2 dB
conducted EIRP measurements	± 1.4 dB
radiated measurements	± 3.2 dB
frequency measurements	± 2.4 10 <sup>-7</sup>
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
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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 Dates of testing**

29-Mar-19 - 5-Apr-19

14-Mar-19 to 29-Mar-19 (duty cycle)

03-May-19 (upper CSE)

**2.3 Report Issue Date**

30-May-19

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**2.4 Testing facilities**

This assessment was performed by: Chris Blair

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**Headquarters**

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**Test Engineers**

Chris Blair

## 2.5 Equipment Assessed (EUT)

Catalyst C9120AXI-B

## 2.6 EUT Description

Mid-tier 8x8 802.11ax Access Point with Dual 4x4 MIMO with 4 Spatial Streams

The radio supports 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.

802.11a - Non HT20, Two Antennas, 6 to 54 Mbps, 1ss  
802.11a - Non HT20, Three Antennas, 6 to 54 Mbps, 1ss  
802.11a - Non HT20, Four Antennas, 6 to 54 Mbps, 1ss

802.11a - Non HT20 Beam Forming, Two Antennas, 6 to 54 Mbps, 1ss  
802.11a - Non HT20 Beam Forming, Three Antennas, 6 to 54 Mbps, 1ss  
802.11a - Non HT20 Beam Forming, Four 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, Three Antennas, M16 to M23, 3ss  
802.11n/ac - HT/VHT20, Four Antennas, M0 to M7, 1ss  
802.11n/ac - HT/VHT20, Four Antennas, M8 to M15, 2ss  
802.11n/ac - HT/VHT20, Four Antennas, M16 to M23, 3ss  
802.11n/ac - HT/VHT20, Four Antennas, M24 to M31, 4ss

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 Beam Forming, Three Antennas, M16 to M23, 3ss  
802.11n/ac - HT/VHT20 Beam Forming, Four Antennas, M0 to M7, 1ss  
802.11n/ac - HT/VHT20 Beam Forming, Four Antennas, M8 to M15, 2ss  
802.11n/ac - HT/VHT20 Beam Forming, Four Antennas, M16 to M23, 3ss  
802.11n/ac - HT/VHT20 Beam Forming, Four Antennas, M24 to M31, 4ss

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

802.11ax - HE20, One Antenna, M0 to M7, 1ss  
802.11ax - HE20, Two Antennas, M0 to M7, 1ss  
802.11ax - HE20, Two Antennas, M8 to M15, 2ss  
802.11ax - HE20, Three Antennas, M0 to M7, 1ss  
802.11ax - HE20, Three Antennas, M8 to M15, 2ss

802.11ax - HE20, Three Antennas, M16 to M23, 3ss  
802.11ax - HE20, Four Antennas, M0 to M7, 1ss  
802.11ax - HE20, Four Antennas, M8 to M15, 2ss  
802.11ax - HE20, Four Antennas, M16 to M23, 3ss  
802.11ax - HE20, Four Antennas, M24 to M31, 4ss

802.11ax - HE20 Beam Forming, Two Antennas, M0 to M7, 1ss  
802.11ax - HE20 Beam Forming, Two Antennas, M8 to M15, 2ss  
802.11ax - HE20 Beam Forming, Three Antennas, M0 to M7, 1ss  
802.11ax - HE20 Beam Forming, Three Antennas, M8 to M15, 2ss  
802.11ax - HE20 Beam Forming, Three Antennas, M16 to M23, 3ss  
802.11ax - HE20 Beam Forming, Four Antennas, M0 to M7, 1ss  
802.11ax - HE20 Beam Forming, Four Antennas, M8 to M15, 2ss  
802.11ax - HE20 Beam Forming, Four Antennas, M16 to M23, 3ss  
802.11ax - HE20 Beam Forming, Four Antennas, M24 to M31, 4ss

802.11ax - HE20 STBC, Two Antennas, M0 to M7, 2ss  
802.11ax - HE20 STBC, Three Antennas, M0 to M7, 2ss  
802.11ax - HE20 STBC, Four Antennas, M0 to M7, 2ss

802.11a - Non HT40, One Antenna, 6 to 54 Mbps, 1ss  
802.11a - Non HT40, Two Antennas, 6 to 54 Mbps, 1ss  
802.11a - Non HT40, Three Antennas, 6 to 54 Mbps, 1ss  
802.11a - Non HT40, Four Antennas, 6 to 54 Mbps, 1ss

802.11n/ac - HT/VHT40, One Antenna, M0 to M7, 1ss  
802.11n/ac - HT/VHT40, Two Antennas, M0 to M7, 1ss  
802.11n/ac - HT/VHT40, Two Antennas, M8 to M15, 2ss  
802.11n/ac - HT/VHT40, Three Antennas, M0 to M7, 1ss  
802.11n/ac - HT/VHT40, Three Antennas, M8 to M15, 2ss  
802.11n/ac - HT/VHT40, Three Antennas, M16 to M23, 3ss  
802.11n/ac - HT/VHT40, Four Antennas, M0 to M7, 1ss  
802.11n/ac - HT/VHT40, Four Antennas, M8 to M15, 2ss  
802.11n/ac - HT/VHT40, Four Antennas, M16 to M23, 3ss  
802.11n/ac - HT/VHT40, Four Antennas, M24 to M31, 4ss

802.11n/ac - HT/VHT40 Beam Forming, Two Antennas, M0 to M7, 1ss  
802.11n/ac - HT/VHT40 Beam Forming, Two Antennas, M8 to M15, 2ss  
802.11n/ac - HT/VHT40 Beam Forming, Three Antennas, M0 to M7, 1ss  
802.11n/ac - HT/VHT40 Beam Forming, Three Antennas, M8 to M15, 2ss  
802.11n/ac - HT/VHT40 Beam Forming, Three Antennas, M16 to M23, 3ss  
802.11n/ac - HT/VHT40 Beam Forming, Four Antennas, M0 to M7, 1ss  
802.11n/ac - HT/VHT40 Beam Forming, Four Antennas, M8 to M15, 2ss  
802.11n/ac - HT/VHT40 Beam Forming, Four Antennas, M16 to M23, 3ss  
802.11n/ac - HT/VHT40 Beam Forming, Four Antennas, M24 to M31, 4ss

802.11n/ac - HT/VHT40 STBC, Two Antennas, M0 to M7, 2ss



802.11n/ac - HT/VHT40 STBC, Three Antennas, M0 to M7, 2ss

802.11n/ac - HT/VHT40 STBC, Four Antennas, M0 to M7, 2ss

802.11ax - HE40, One Antenna, M0 to M7, 1ss

802.11ax - HE40, Two Antennas, M0 to M7, 1ss

802.11ax - HE40, Two Antennas, M8 to M15, 2ss

802.11ax - HE40, Three Antennas, M0 to M7, 1ss

802.11ax - HE40, Three Antennas, M8 to M15, 2ss

802.11ax - HE40, Three Antennas, M16 to M23, 3ss

802.11ax - HE40, Four Antennas, M0 to M7, 1ss

802.11ax - HE40, Four Antennas, M8 to M15, 2ss

802.11ax - HE40, Four Antennas, M16 to M23, 3ss

802.11ax - HE40, Four Antennas, M24 to M31, 4ss

802.11ax - HE40 Beam Forming, Two Antennas, M0 to M7, 1ss

802.11ax - HE40 Beam Forming, Two Antennas, M8 to M15, 2ss

802.11ax - HE40 Beam Forming, Three Antennas, M0 to M7, 1ss

802.11ax - HE40 Beam Forming, Three Antennas, M8 to M15, 2ss

802.11ax - HE40 Beam Forming, Three Antennas, M16 to M23, 3ss

802.11ax - HE40 Beam Forming, Four Antennas, M0 to M7, 1ss

802.11ax - HE40 Beam Forming, Four Antennas, M8 to M15, 2ss

802.11ax - HE40 Beam Forming, Four Antennas, M16 to M23, 3ss

802.11ax - HE40 Beam Forming, Four Antennas, M24 to M31, 4ss

802.11ax - HE40 STBC, Two Antennas, M0 to M7, 2ss

802.11ax - HE40 STBC, Three Antennas, M0 to M7, 2ss

802.11ax - HE40 STBC, Four Antennas, M0 to M7, 2ss

802.11a - Non HT80, One Antenna, 6 to 54 Mbps, 1ss

802.11a - Non HT80, Two Antennas, 6 to 54 Mbps, 1ss

802.11a - Non HT80, Three Antennas, 6 to 54 Mbps, 1ss

802.11a - Non HT80, Four Antennas, 6 to 54 Mbps, 1ss

802.11ac - VHT80, One Antenna, M0 to M9 1ss

802.11ac - VHT80, Two Antennas, M0 to M9 1ss

802.11ac - VHT80, Two Antennas, M0 to M9 2ss

802.11ac - VHT80, Three Antennas, M0 to M9 1ss

802.11ac - VHT80, Three Antennas, M0 to M9 2ss

802.11ac - VHT80, Three Antennas, M0 to M9 3ss

802.11ac - VHT80, Four Antennas, M0 to M9 1ss

802.11ac - VHT80, Four Antennas, M0 to M9 2ss

802.11ac - VHT80, Four Antennas, M0 to M9 3ss

802.11ac - VHT80, Four Antennas, M0 to M9 4ss

802.11ac - VHT80 Beam Forming, Two Antennas, M0 to M9 1ss

802.11ac - VHT80 Beam Forming, Two Antennas, M0 to M9 2ss

802.11ac - VHT80 Beam Forming, Three Antennas, M0 to M9 1ss

802.11ac - VHT80 Beam Forming, Three Antennas, M0 to M9 2ss



802.11ac - VHT80 Beam Forming, Three Antennas, M0 to M9 3ss  
802.11ac - VHT80 Beam Forming, Four Antennas, M0 to M9 1ss  
802.11ac - VHT80 Beam Forming, Four Antennas, M0 to M9 2ss  
802.11ac - VHT80 Beam Forming, Four Antennas, M0 to M9 3ss  
802.11ac - VHT80 Beam Forming, Four Antennas, M0 to M9 4ss

802.11ac - VHT80 STBC, Two Antennas, M0 to M9 2ss  
802.11ac - VHT80 STBC, Three Antennas, M0 to M9 2ss  
802.11ac - VHT80 STBC, Four Antennas, M0 to M9 2ss

802.11ax - HE80, One Antenna, M0 to M9 1ss  
802.11ax - HE80, Two Antennas, M0 to M9 1ss  
802.11ax - HE80, Two Antennas, M0 to M9 2ss  
802.11ax - HE80, Three Antennas, M0 to M9 1ss  
802.11ax - HE80, Three Antennas, M0 to M9 2ss  
802.11ax - HE80, Three Antennas, M0 to M9 3ss  
802.11ax - HE80, Four Antennas, M0 to M9 1ss  
802.11ax - HE80, Four Antennas, M0 to M9 2ss  
802.11ax - HE80, Four Antennas, M0 to M9 3ss  
802.11ax - HE80, Four Antennas, M0 to M9 4ss

802.11ax - HE80 Beam Forming, Two Antennas, M0 to M9 1ss  
802.11ax - HE80 Beam Forming, Two Antennas, M0 to M9 2ss  
802.11ax - HE80 Beam Forming, Three Antennas, M0 to M9 1ss  
802.11ax - HE80 Beam Forming, Three Antennas, M0 to M9 2ss  
802.11ax - HE80 Beam Forming, Three Antennas, M0 to M9 3ss  
802.11ax - HE80 Beam Forming, Four Antennas, M0 to M9 1ss  
802.11ax - HE80 Beam Forming, Four Antennas, M0 to M9 2ss  
802.11ax - HE80 Beam Forming, Four Antennas, M0 to M9 3ss  
802.11ax - HE80 Beam Forming, Four Antennas, M0 to M9 4ss

802.11ax - HE80 STBC, Two Antennas, M0 to M9 2ss  
802.11ax - HE80 STBC, Three Antennas, M0 to M9 2ss  
802.11ax - HE80 STBC, Four Antennas, M0 to M9 2ss

802.11a - Non HT20, One Antenna, 6 to 54 Mbps, 1ss

802.11a - Non HT160, One Antenna, 6 to 54 Mbps, 1ss  
802.11a - Non HT160, Two Antennas, 6 to 54 Mbps, 1ss  
802.11a - Non HT160, Three Antennas, 6 to 54 Mbps, 1ss  
802.11a - Non HT160, Four Antennas, 6 to 54 Mbps, 1ss

802.11ac - VHT160, One Antenna, M0 to M9 1ss  
802.11ac - VHT160, Two Antennas, M0 to M9 1ss  
802.11ac - VHT160, Two Antennas, M0 to M9 2ss  
802.11ac - VHT160, Three Antennas, M0 to M9 1ss  
802.11ac - VHT160, Three Antennas, M0 to M9 2ss  
802.11ac - VHT160, Three Antennas, M0 to M9 3ss



802.11ac - VHT160, Four Antennas, M0 to M9 1ss  
802.11ac - VHT160, Four Antennas, M0 to M9 2ss  
802.11ac - VHT160, Four Antennas, M0 to M9 3ss  
802.11ac - VHT160, Four Antennas, M0 to M9 4ss

802.11ac - VHT160 Beam Forming, Two Antennas, M0 to M9 1ss  
802.11ac - VHT160 Beam Forming, Two Antennas, M0 to M9 2ss  
802.11ac - VHT160 Beam Forming, Three Antennas, M0 to M9 1ss  
802.11ac - VHT160 Beam Forming, Three Antennas, M0 to M9 2ss  
802.11ac - VHT160 Beam Forming, Three Antennas, M0 to M9 3ss  
802.11ac - VHT160 Beam Forming, Four Antennas, M0 to M9 1ss  
802.11ac - VHT160 Beam Forming, Four Antennas, M0 to M9 2ss  
802.11ac - VHT160 Beam Forming, Four Antennas, M0 to M9 3ss  
802.11ac - VHT160 Beam Forming, Four Antennas, M0 to M9 4ss

802.11ac - VHT160 STBC, Two Antennas, M0 to M9 2ss  
802.11ac - VHT160 STBC, Three Antennas, M0 to M9 2ss  
802.11ac - VHT160 STBC, Four Antennas, M0 to M9 2ss

802.11ax - HE160, One Antenna, M0 to M9 1ss  
802.11ax - HE160, Two Antennas, M0 to M9 1ss  
802.11ax - HE160, Two Antennas, M0 to M9 2ss  
802.11ax - HE160, Three Antennas, M0 to M9 1ss  
802.11ax - HE160, Three Antennas, M0 to M9 2ss  
802.11ax - HE160, Three Antennas, M0 to M9 3ss  
802.11ax - HE160, Four Antennas, M0 to M9 1ss  
802.11ax - HE160, Four Antennas, M0 to M9 2ss  
802.11ax - HE160, Four Antennas, M0 to M9 3ss  
802.11ax - HE160, Four Antennas, M0 to M9 4ss

802.11ax - HE160 Beam Forming, Two Antennas, M0 to M9 1ss  
802.11ax - HE160 Beam Forming, Two Antennas, M0 to M9 2ss  
802.11ax - HE160 Beam Forming, Three Antennas, M0 to M9 1ss  
802.11ax - HE160 Beam Forming, Three Antennas, M0 to M9 2ss  
802.11ax - HE160 Beam Forming, Three Antennas, M0 to M9 3ss  
802.11ax - HE160 Beam Forming, Four Antennas, M0 to M9 1ss  
802.11ax - HE160 Beam Forming, Four Antennas, M0 to M9 2ss  
802.11ax - HE160 Beam Forming, Four Antennas, M0 to M9 3ss  
802.11ax - HE160 Beam Forming, Four Antennas, M0 to M9 4ss

802.11ax - HE160 STBC, Two Antennas, M0 to M9 2ss  
802.11ax - HE160 STBC, Three Antennas, M0 to M9 2ss  
802.11ax - HE160 STBC, Four Antennas, M0 to M9 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)
5150-5250	-	Internal, Dual-band VPOL	5

### Section 3: Result Summary

#### 3.1 Results Summary Table

##### Conducted emissions

Basic Standard	Technical Requirements / Details	Result
FCC 15.407	<p><b>99%- &amp; 26-dB Bandwidth:</b> 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.</p> <p>The 26dB 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.</p>	Pass

FCC 15.407	<p><b>Output Power:</b> (1) For the band 5.15-5.25 GHz.</p> <p>(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. ... If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power ... shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).</p> <p>(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. ... If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p> <p>(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. ... Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.</p> <p>(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p>	Pass
------------	--	------

FCC 15.407	<p><b>Power Spectral Density</b></p> <p>(i) For an outdoor access point operating in the band 5.15-5.25 GHz...the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).</p> <p>(ii) For an indoor access point operating in the band 5.15-5.25 GHz... the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p> <p>(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz ...the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the ... maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.</p> <p>(iv) For mobile and portable client devices in the 5.15-5.25 GHz band...the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used... the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p>	Pass
FCC 15.407	<p><b>Conducted Spurious Emissions / Band-Edge:</b> For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27dBm/MHz.</p>	Pass
FCC 15.407 FCC 15.209 FCC 15.205	<p><b>Restricted band:</b> Unwanted emissions falling within the restricted bands, as defined in FCC 15.205 (a) must also comply with the radiated emission limits specified in FCC 15.209 (a)</p>	Pass

**Radiated Emissions (General requirements)**

<b>Basic Standard</b>	<b>Technical Requirements / Details</b>	<b>Result</b>
FCC 15.209 FCC 15.205	<b>TX Spurious Emissions:</b> Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the field strength limits table in this section.	Not Tested
FCC 15.207	<b>AC Conducted Emissions:</b> 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.	Not Tested

## 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	C9120AXI-B	Cisco Systems	P3C	svn base: 161d279e12e6ede43e 1005ea511bed938de6 923e commit: 161d279e12e6ede43e 1005ea511bed938de6 923e tree c433767fb7ea6e49ba9 1057416fbff23bdd5469 5	Fri Mar 1 03:06:48 PST 2019 cheetah-build6 /san2/BUILD/works pace/Nightly-Cheet ah-axel-bcm-mfg-c 8_9_throttle  * (HEAD detached at 161d279e12)	FOC23070L5A
S02	AIR-PWRINJ6	Cisco	-	N/A	N/A	C1842666300000 3153
S03	C9120AXI-B	Cisco Systems	P3C	svn base: 161d279e12e6ede43e 1005ea511bed938de6 923e commit: 161d279e12e6ede43e 1005ea511bed938de6 923e tree c433767fb7ea6e49ba9 1057416fbff23bdd5469 5	Fri Mar 1 03:06:48 PST 2019 cheetah-build6 /san2/BUILD/works pace/Nightly-Cheet ah-axel-bcm-mfg-c 8_9_throttle  * (HEAD detached at 161d279e12)	FOC23070L3Q
S04	AIR-PWRINJ6	Cisco	V01	N/A	N/A	C1603666300000 0272
S05	C9120AXI-B	Cisco Systems	P3C	svn base: 1f6f4048ecbb6659914 2da892931a7ad499a2 ba2 commit: 1f6f4048ecbb6659914 2da892931a7ad499a2 ba2 tree 1a99c087d0e4d3b13a 635301797e24d54316 c31d	Mon Apr 22 03:10:10 PDT 2019 cheetah-build6 /san2/BUILD/works pace/Nightly-Cheet ah-axel-bcm-mfg-c 8_9_throttle  * (HEAD detached at 1f6f4048ec)	FOC23070L3Q



**4.2 System Details**

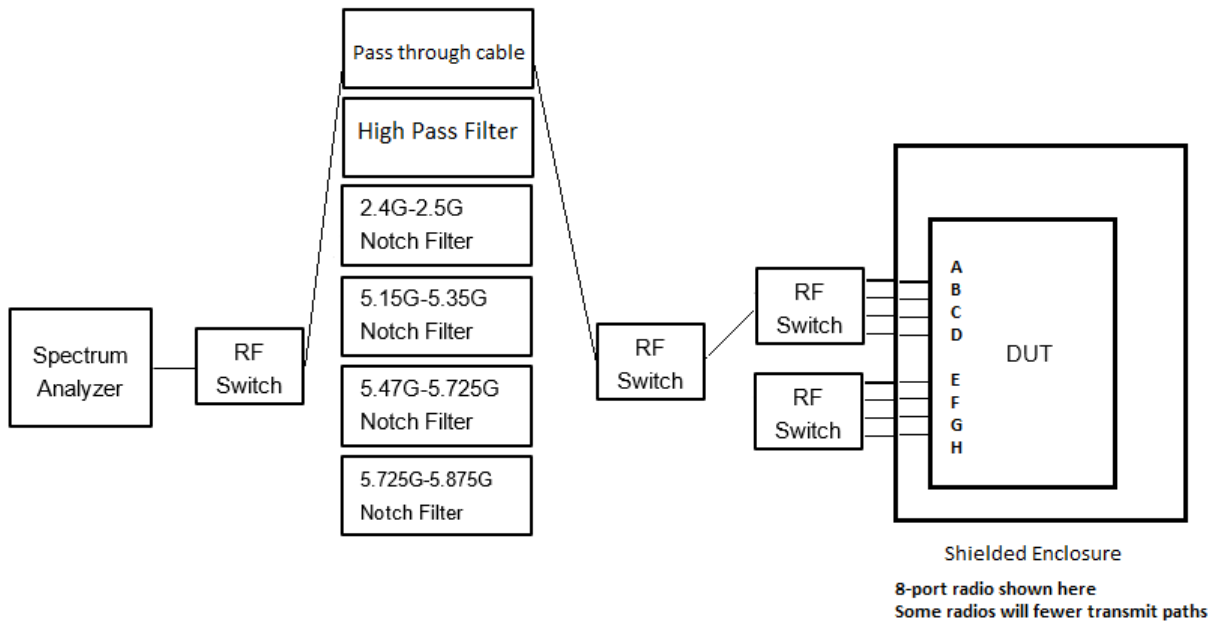
<b>System #</b>	<b>Description</b>	<b>Samples</b>
1	AP and PSU	S01+S02
2	AP and PSU – duty cycle	S03+S04
3	AP and PSU –upper band CSE	S05+S04

**4.3 Mode of Operation Details**

<b>Mode#</b>	<b>Description</b>	<b>Comments</b>
1	Continuous Transmitting	

### 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.

Operating Mode	Maximum Channel Power (dBm)		
	Frequency (MHz)		
	5250		
Non HT160, 6 to 54 Mbps	16		
VHT160, M0 to M9, M0 to M9 1-2ss	18		
VHT160 Beam Forming, M0 to M9, M0 to M9 1-2ss	18		
VHT160 STBC, M0 to M9 1ss	18		
HE160, M0 to M9, M0 to M9 1-2ss	18		
HE160 Beam Forming, M0 to M9, M0 to M9 1-2ss	18		
HE160 STBC, M0 to M9 1ss	18		
	5180	5220	5240
Non HT20, 6 to 54 Mbps	22	22	22
Non HT20 Beam Forming, 6 to 54 Mbps	18	22	22
HT/VHT20, M0 to M31	22	23	23
HT/VHT20 Beam Forming, M0 to M31	22	23	23
HT/VHT20 STBC, M0 to M7	22	23	23
HE20, M0 to M9, M0 to M9 1-2ss	22	24	24
HE20 Beam Forming, M0 to M9, M0 to M9 1-2ss	22	24	24
HE20 STBC, M0 to M9 2ss	22	24	24
	5190	5230	
Non HT40, 6 to 54 Mbps	19	23	
HT/VHT40, M0 to M31	20	23	
HT/VHT40 Beam Forming, M0 to M31	20	23	
HT/VHT40 STBC, M0 to M7	20	23	
HE40, M0 to M9, M0 to M9 1-2ss	20	24	
HE40 Beam Forming, M0 to M9, M0 to M9 1-2ss	20	24	
HE40 STBC, M0 to M9 2ss	20	24	
	5210		
Non HT80, 6 to 54 Mbps	19		
VHT80, M0 to M9, M0 to M9 1-2ss	19		
VHT80 Beam Forming, M0 to M9, M0 to M9 1-2ss	19		
VHT80 STBC, M0 to M9 1ss	19		
HE80, M0 to M9, M0 to M9 1-2ss	20		
HE80 Beam Forming, M0 to M9, M0 to M9 1-2ss	20		
HE80 STBC, M0 to M9 1ss	20		

## A.1 Duty Cycle

### Duty Cycle Test Requirement

From KDB 789033 D02 General UNII Test Procedures New Rules v02r01

#### B. Duty Cycle (x), Transmission Duration (T), and Maximum Power Control Level

1. All measurements are to be performed with the EUT transmitting at 100 percent duty cycle at its maximum power control level; however, if 100 percent duty cycle cannot be achieved, measurements of duty cycle, x, and maximum-power transmission duration, T, are required for each tested mode of operation.

### Duty Cycle Test Method

From KDB 789033 D02 General UNII Test Procedures New Rules v02r01:

#### B. Duty Cycle (x), Transmission Duration (T), and Maximum Power Control Level

The zero-span mode on a spectrum analyzer or EMI receiver, if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission. Set RBW  $\geq$  EBW if possible; otherwise, set RBW to the largest available value. Set VBW  $\geq$  RBW. Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are  $> 50/T$ , where T is defined in section II.B.1.a), and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if  $T \leq 16.7$  microseconds.)

### Duty Cycle Test Information

<b>Tested By:</b> Chris Blair	<b>Date of testing:</b> 14-Mar-19 to 29-Mar-19
<b>Test Result: PASS</b>	

#### Test Equipment

See Appendix C for list of test equipment

#### Samples, Systems, and Modes

System Number	Description	Samples	System under test	Support equipment
2	EUT	S03	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Support	S04	<input type="checkbox"/>	<input checked="" type="checkbox"/>

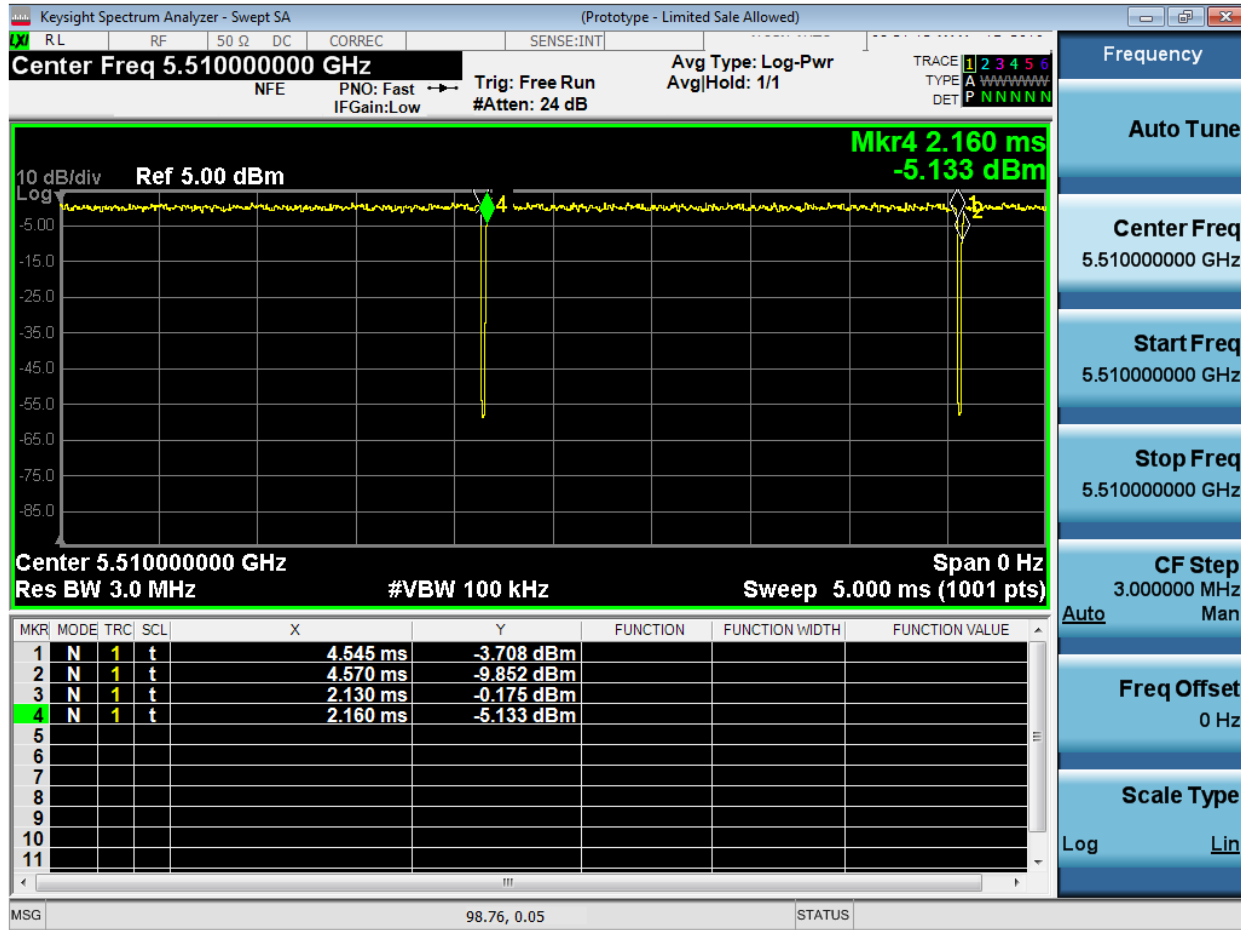
**Duty Cycle Data Table**

Mode	Data Rate	Duty Cycle (%)	Correction Factor (dB)
NonHT20	6Mbps	98.88	0.0
NonHT40		98.76	0.0
NonHT80		98.76	0.0
NonHT160		99.00	0.0
HT20	M0	98.80	0.0
HT40		97.67	0.1
VHT80	m0x1	95.15	0.2
VHT160		91.37	0.4
HE20	m0h1	98.45	0.0
HE40		97.15	0.1
HE80		94.41	0.3
HE160		90.49	0.4



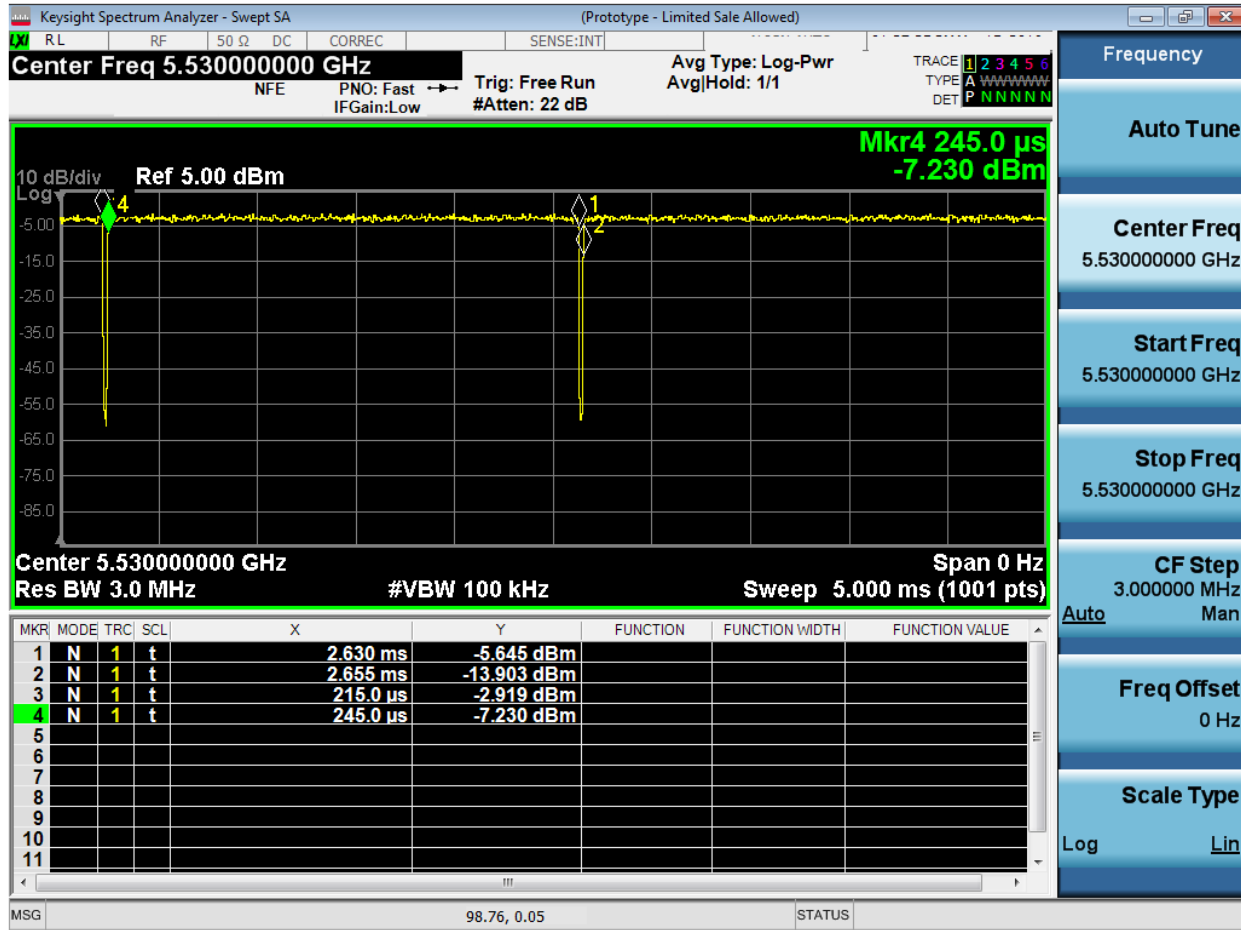


Duty Cycle, NonHT40





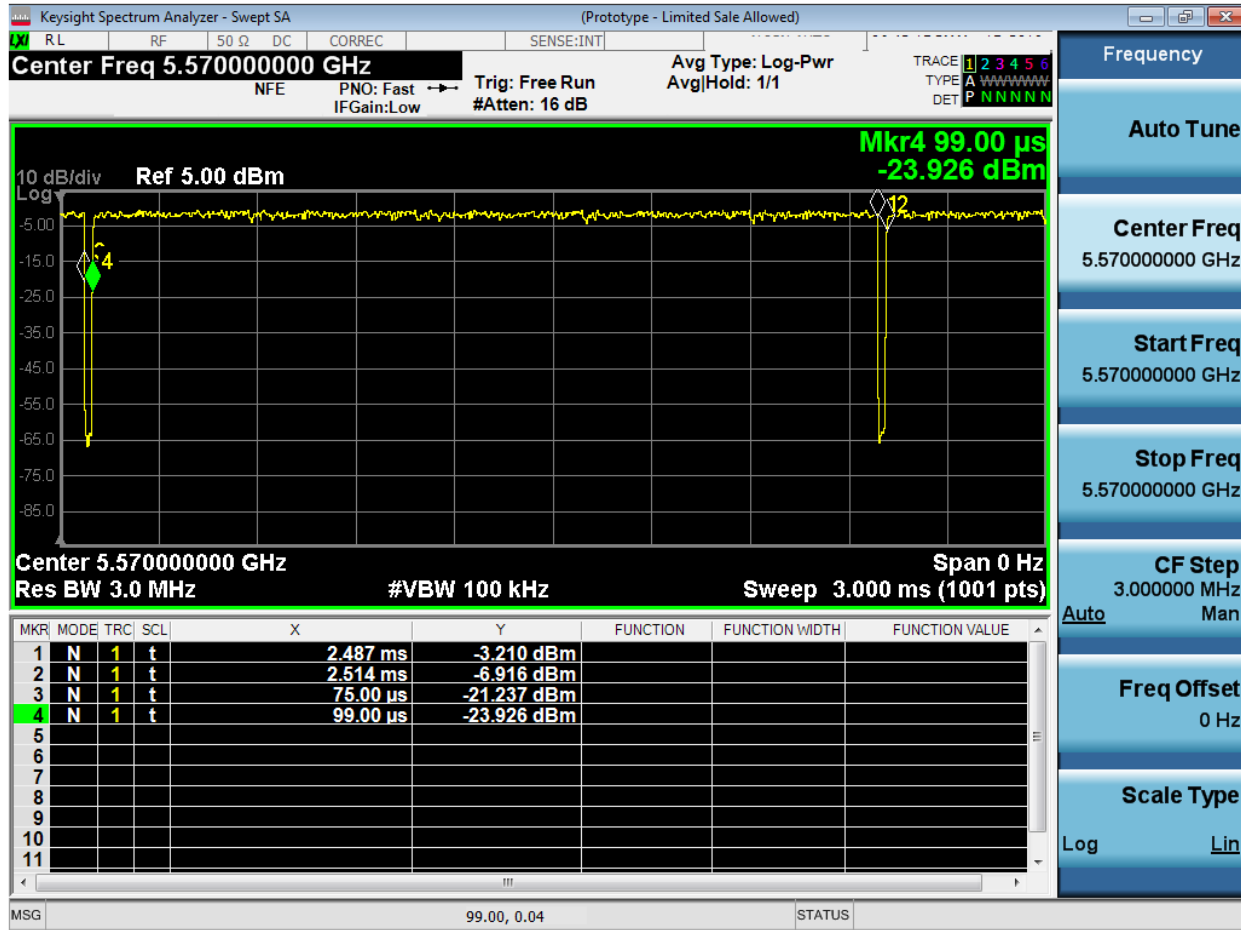
Duty Cycle, NonHT80





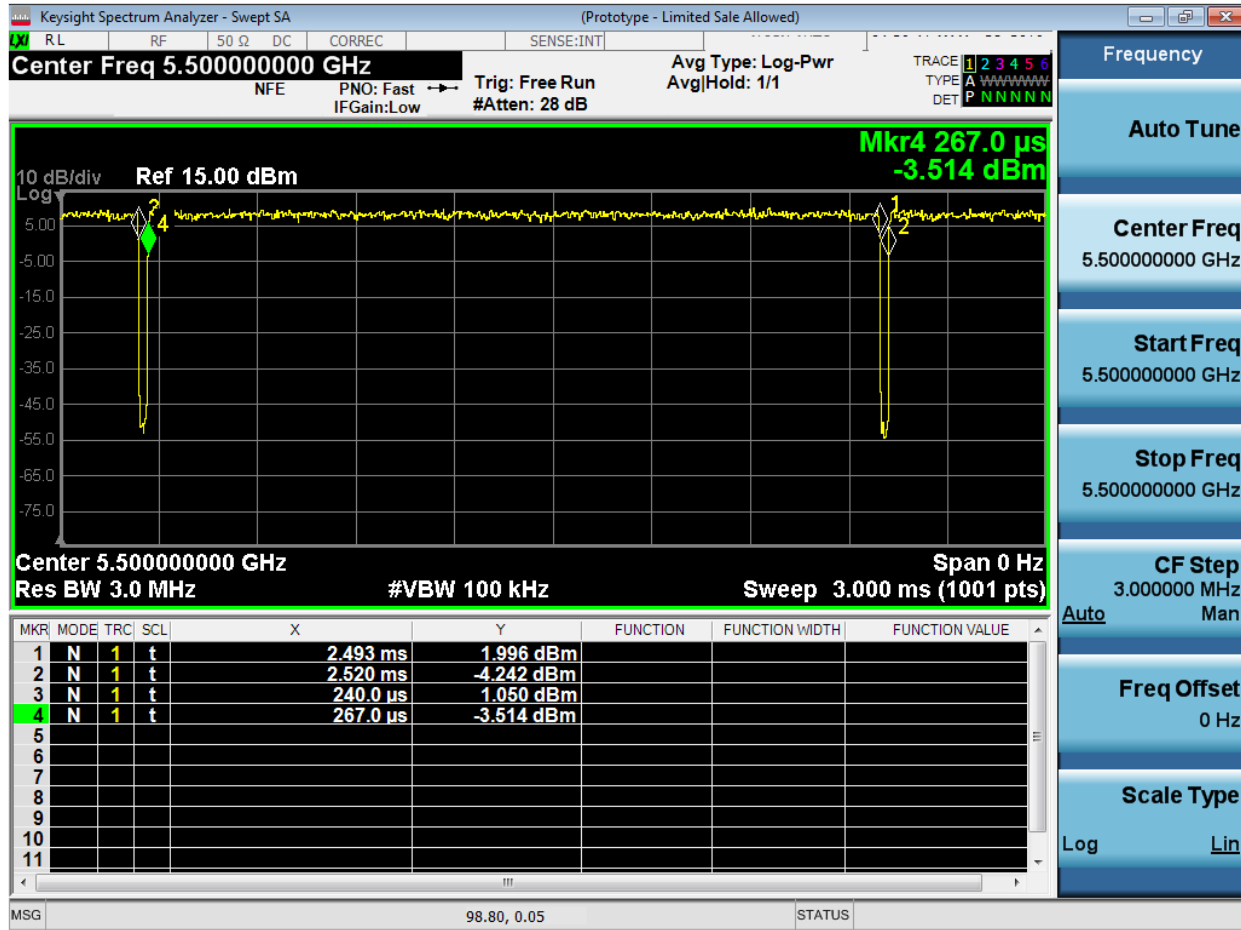


Duty Cycle, NonHT160



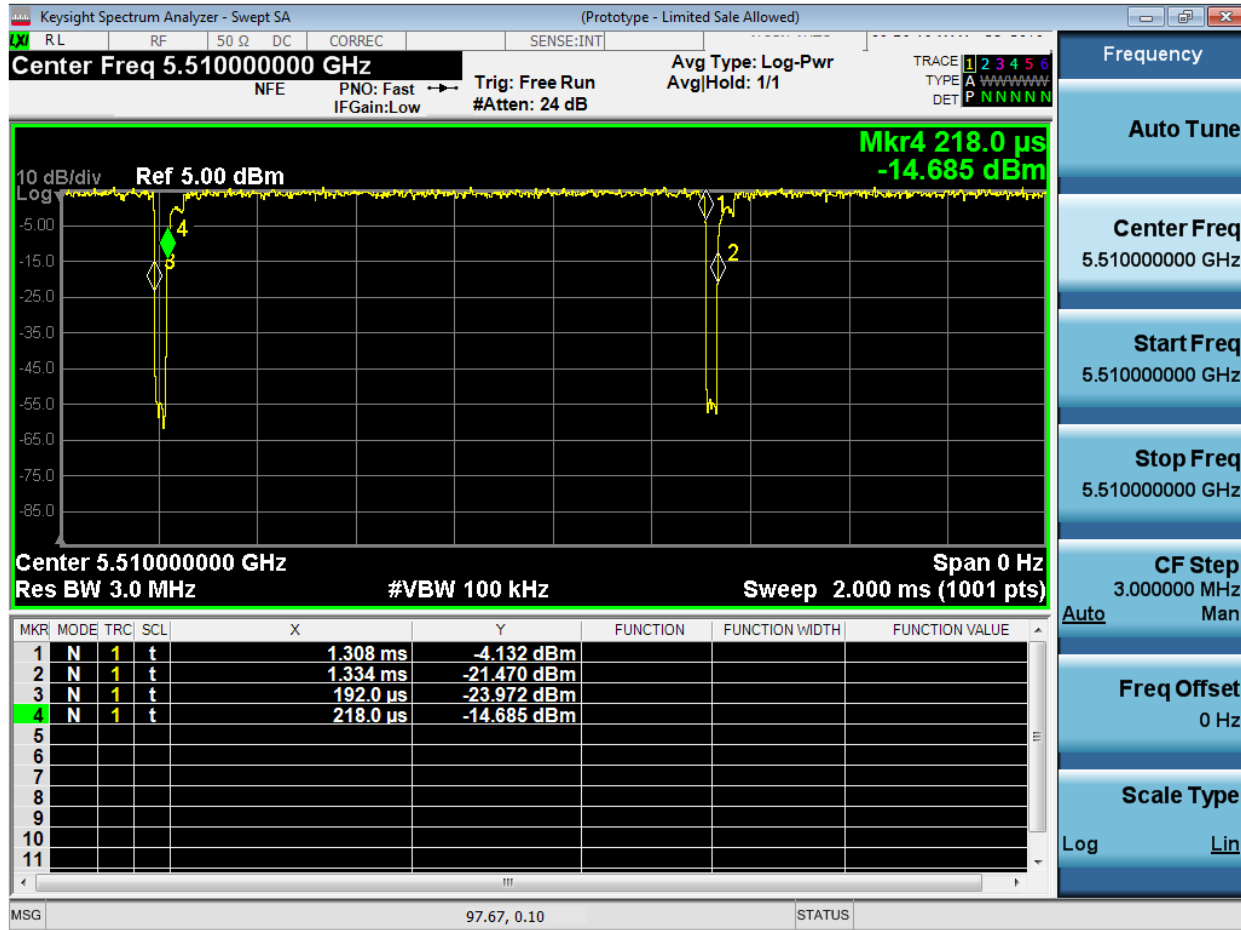


Duty Cycle, HT20



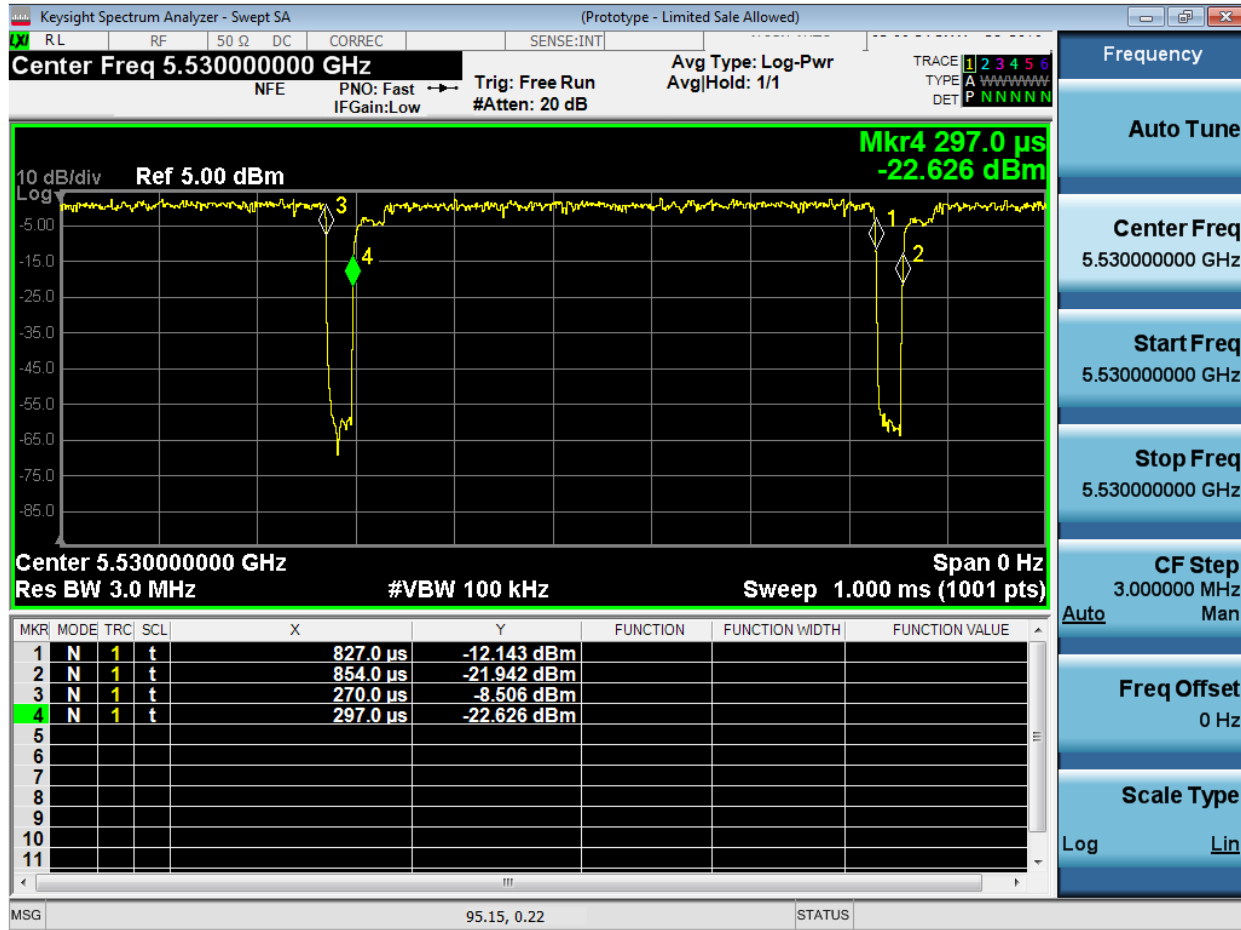


Duty Cycle, HT40



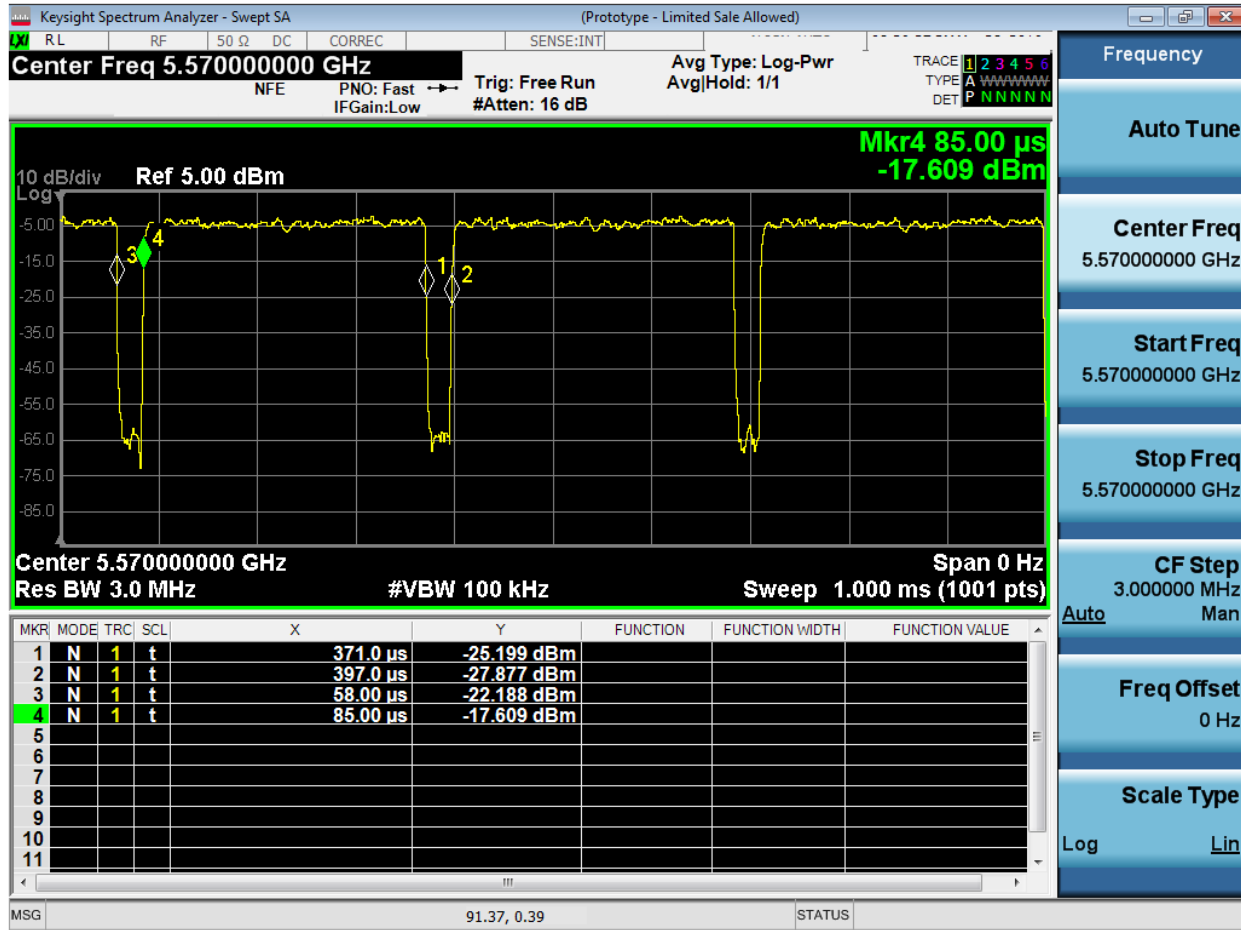


Duty Cycle, VHT80



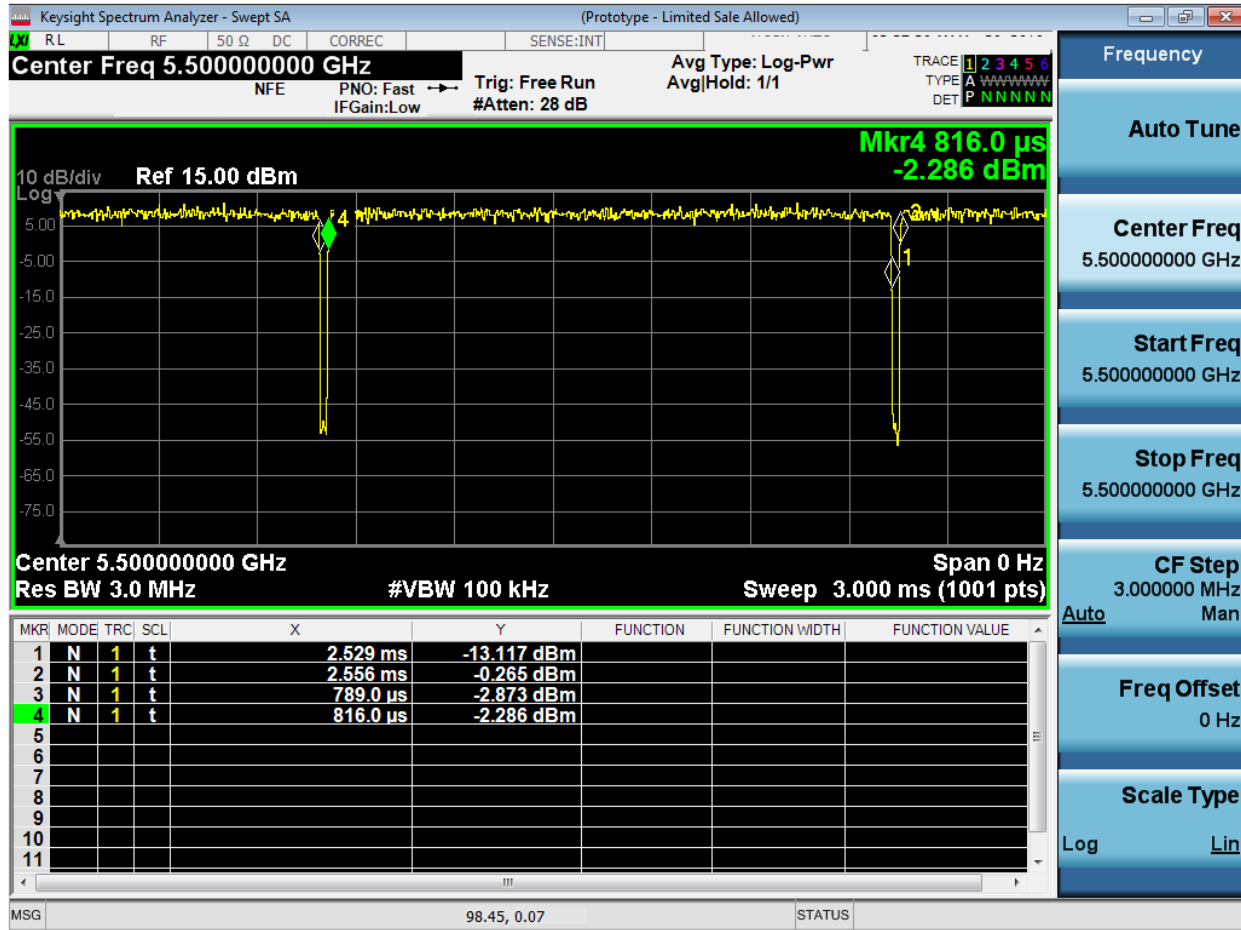


Duty Cycle, VHT160



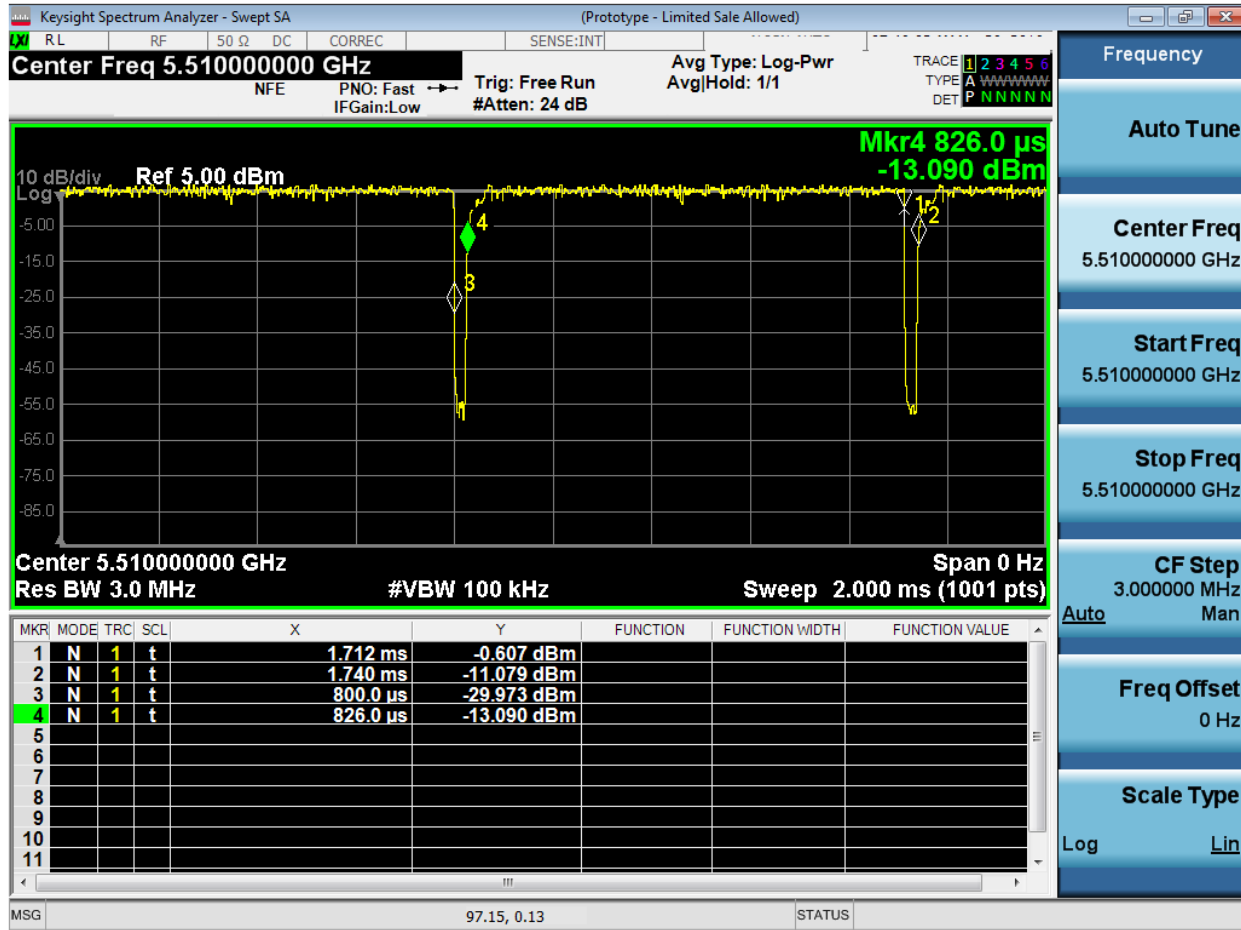


Duty Cycle, HE20



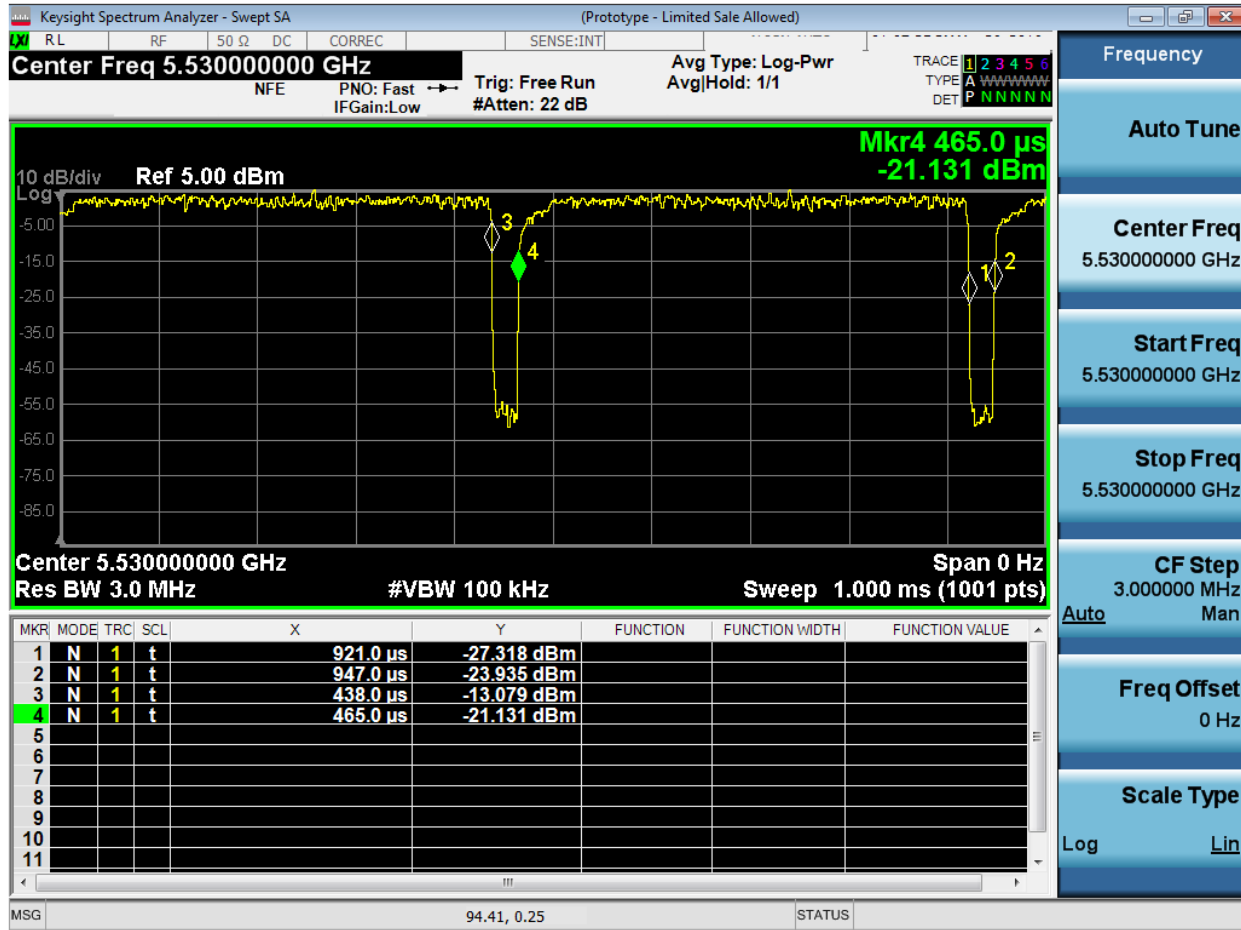


Duty Cycle, HE40





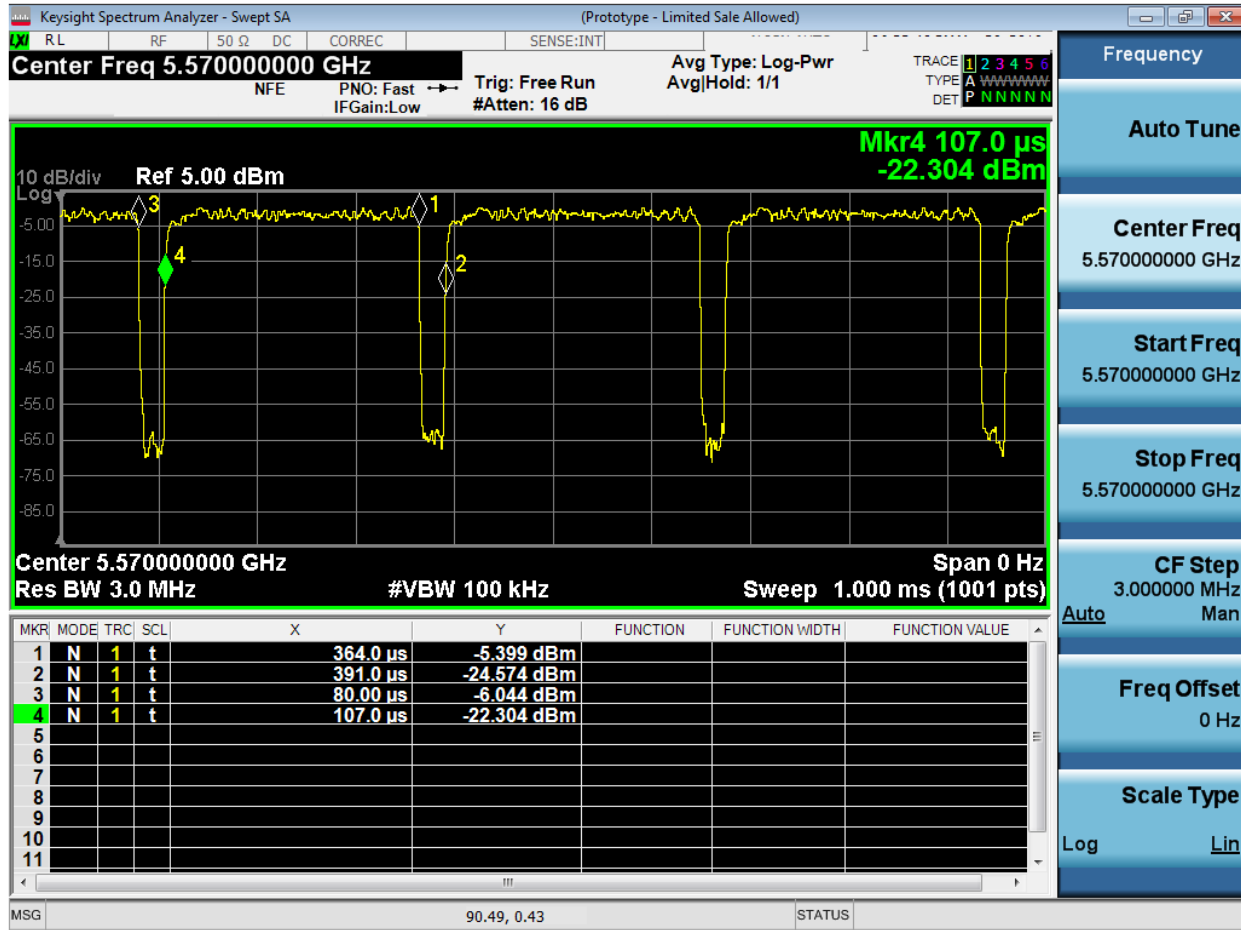
Duty Cycle, HE80







Duty Cycle, HE160



## A.2 99% and 26dB Bandwidth

### 99% and 26dB Bandwidth Test Requirement

For the FCC:

There is no requirement for the value of bandwidth.

Power measurements are made using the 99% Bandwidth as the integration bandwidth.

### 99% and 26dB Bandwidth Test Procedure

The 99-percent 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. Measurement of the 99-percent occupied bandwidth is required only as a condition for using the optional band-edge measurement techniques described in section II.G.3.d). Measurements of 99-percent occupied bandwidth may also optionally be used in lieu of the EBW to define the minimum frequency range over which the spectrum is integrated when measuring maximum conducted output power as described in section II.E. However, the EBW must be measured to determine bandwidth dependent limits on maximum conducted output power in accordance with 15.407(a).

#### Ref. KDB 789033 Section D. 99 Percent Occupied Bandwidth

##### 99% BW

Test Parameters

1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW  $\geq 3 \cdot$  RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).

#### Ref KDB 789033 in Section C. Measurement Bandwidth, Section 1

##### 26 BW

Test parameters

X dB BW = -26dB (using the OBW function of the spectrum analyzer)

Emission Bandwidth (EBW)

- a) Set RBW = approximately 1% of the emission bandwidth.
- b) Set the VBW > RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

#### Samples, Systems, and Modes

System Number	Description	Samples	System under test	Support equipment



1	EUT	S01	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Support	S02	<input type="checkbox"/>	<input checked="" type="checkbox"/>

<b>Tested By:</b> Chris Blair	<b>Date of testing:</b> 29-Mar-19 - 5-Apr-19
<b>Test Result: PASS</b>	

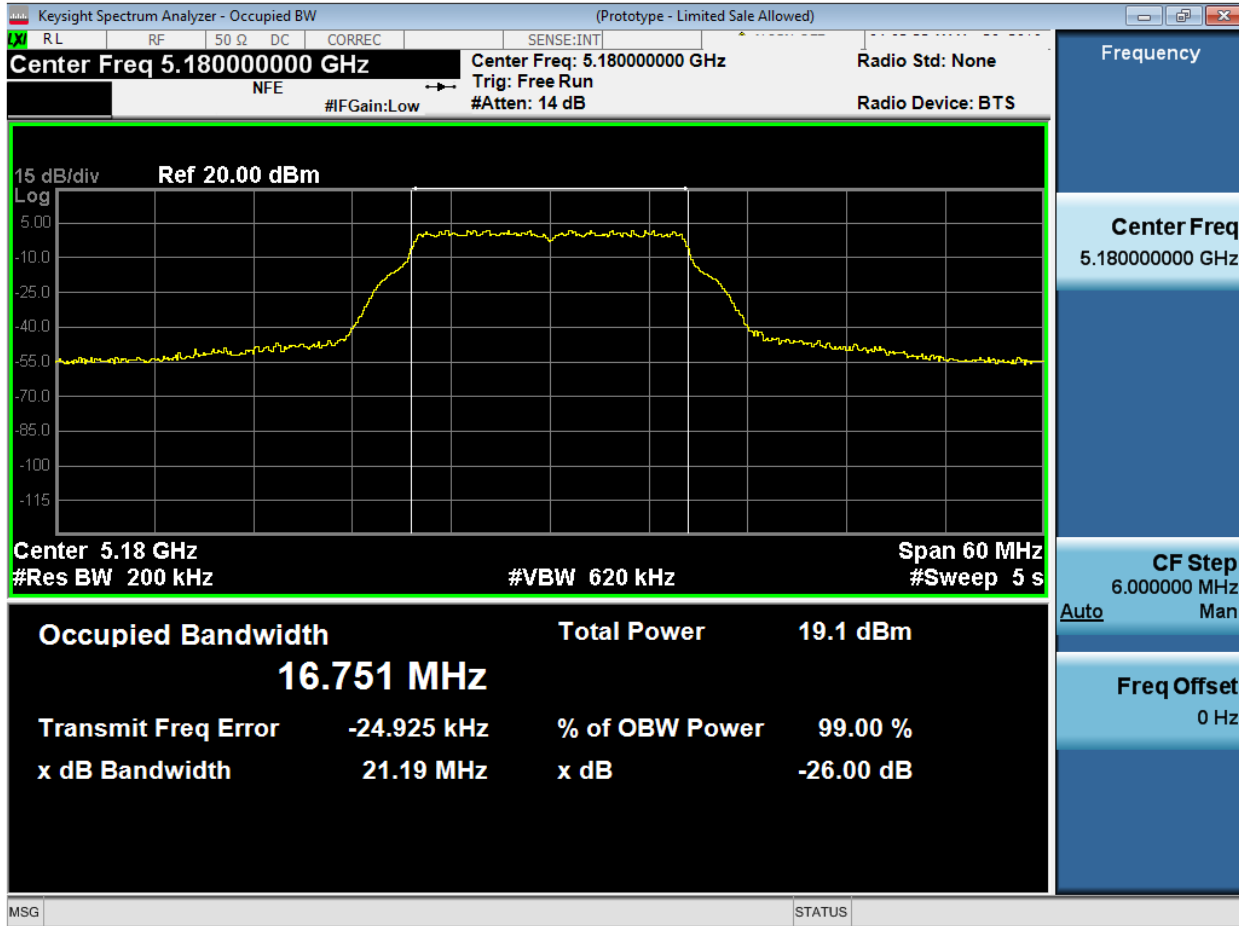
**Test Equipment**

See Appendix C for list of test equipment



Frequency (MHz)	Mode	Data Rate (Mbps)	26dB BW (MHz)	99% BW (MHz)
5180	Non HT20, 6 to 54 Mbps	6	21.2	16.751
	HT/VHT20, M0 to M31	m0	21.8	18.026
	HE20, M0 to M9, M0 to M9 1-2ss	m0h1	21.4	19.097
5190	Non HT40, 6 to 54 Mbps	6	39.8	36.341
	HT/VHT40, M0 to M31	m0	40.1	36.421
	HE40, M0 to M9, M0 to M9 1-2ss	m0h1	39.8	37.563
5210	Non HT80, 6 to 54 Mbps	6	81.9	76.145
	VHT80, M0 to M9, M0 to M9 1-2ss	m0x1	82.3	76.025
	HE80, M0 to M9, M0 to M9 1-2ss	m0h1	81.9	77.094
5220	Non HT20, 6 to 54 Mbps	6	21.2	16.795
	HT/VHT20, M0 to M31	m0	21.8	18.064
	HE20, M0 to M9, M0 to M9 1-2ss	m0h1	21.4	19.118
5230	Non HT40, 6 to 54 Mbps	6	39.8	36.392
	HT/VHT40, M0 to M31	m0	40.2	36.461
	HE40, M0 to M9, M0 to M9 1-2ss	m0h1	39.9	37.633
5240	Non HT20, 6 to 54 Mbps	6	21.2	16.796
	HT/VHT20, M0 to M31	m0	21.8	18.060
	HE20, M0 to M9, M0 to M9 1-2ss	m0h1	21.4	19.116
5250	Non HT160, 6 to 54 Mbps	6	163.5	154.140
	VHT160, M0 to M9, M0 to M9 1-2ss	m0x1	164.9	154.791
	HE160, M0 to M9, M0 to M9 1-2ss	m0h1	163.9	155.088

**26dB / 99% Bandwidth, 5180 MHz, Non HT20, 6 to 54 Mbps**



## A.3 Maximum Conducted Output Power

### Maximum Conducted Output Power Test Requirement

#### 15.407 General technical requirements, (a) Power limits: (1) For the band 5.15-5.25 GHz.

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. ....If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. ...If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. ...Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### Maximum Conducted Output Power Test Procedure

Ref. KDB 789033 D02 General UNII Test Procedures New Rules v02r01  
ANSI C63.10: 2013

<b>Maximum Conducted Output Power</b> Test Procedure
---

- |   |
|---|
| <ol style="list-style-type: none"> <li>1. Set the radio in the continuous transmitting mode at full power</li> <li>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.</li> <li>3. Capture graphs and record pertinent measurement data.</li> </ol> |
|---|

Ref. KDB 789033 D02 General UNII Test Procedures New Rules v02r01  
2. Measurement using a Spectrum Analyzer or EMI Receiver (SA), (d) Method SA-2

**Maximum Conducted Output Power**
**Test parameters**

Method SA-2 (trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

(i) Measure the duty cycle,  $x$ , of the transmitter output signal as described in section II.B.

(ii) Set span to encompass the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.

(iii) Set RBW = 1 MHz.

(iv) Set VBW  $\geq$  3 MHz.

(v) Number of points in sweep  $\geq$  2 Span / RBW. (This ensures that bin-to-bin spacing is  $\leq$  RBW/2, so that narrowband signals are not lost between frequency bins.)

(vi) Sweep time = auto.

(vii) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.

(viii) Do not use sweep triggering. Allow the sweep to “free run”.

(ix) Trace average at least 100 traces in power averaging (i.e., RMS) mode; however, the number of traces to be averaged shall be increased above 100 as needed to ensure that the average accurately represents the true average over the on and off periods of the transmitter.

(x) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument’s band power measurement function with band limits set equal to the EBW (or occupied bandwidth)

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. ANSI C63.10 section 14.3.2.2

**Samples, Systems, and Modes**

System Number	Description	Samples	System under test	Support equipment
1	EUT	S01	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Support	S02	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Tested By:**

Chris Blair

**Date of testing:**

29-Mar-19 - 5-Apr-19

**Test Result: PASS**
**Test Equipment**

See Appendix C for list of test equipment

## Maximum Output Power

Frequency (MHz)	Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 Max Power (dBm)	Tx 2 Max Power (dBm)	Tx 3 Max Power (dBm)	Tx 4 Max Power (dBm)	Total Tx Channel Power (dBm)	Limit (dBm)	Margin (dB)
5180	Non HT20, 6 to 54 Mbps	1	5	17.6				17.6	30.0	12.4
	Non HT20, 6 to 54 Mbps	2	5	16.8	15.2			19.1	30.0	10.9
	Non HT20, 6 to 54 Mbps	3	5	16.8	15.2	15.8		20.8	30.0	9.2
	Non HT20, 6 to 54 Mbps	4	5	16.8	15.2	15.8	16.6	22.2	30.0	7.8
	Non HT20 Beam Forming, 6 to 54 Mbps	2	8	15.6	14.3			18.0	28.0	10.0
	Non HT20 Beam Forming, 6 to 54 Mbps	3	10	13.5	12.2	12.8		17.6	26.0	8.4
	Non HT20 Beam Forming, 6 to 54 Mbps	4	11	12.4	11.3	12.0	12.5	18.1	25.0	6.9
	HT/VHT20, M0 to M7	1	5	16.6				16.6	30.0	13.4
	HT/VHT20, M0 to M7	2	5	16.6	15.2			19.0	30.0	11.0
	HT/VHT20, M8 to M15	2	5	16.6	15.2			19.0	30.0	11.0
	HT/VHT20, M0 to M7	3	5	16.6	15.2	15.8		20.7	30.0	9.3
	HT/VHT20, M8 to M15	3	5	16.6	15.2	15.8		20.7	30.0	9.3
	HT/VHT20, M16 to M23	3	5	16.6	15.2	15.8		20.7	30.0	9.3
	HT/VHT20, M0 to M7	4	5	16.6	15.2	15.8	16.6	22.1	30.0	7.9
	HT/VHT20, M8 to M15	4	5	16.6	15.2	15.8	16.6	22.1	30.0	7.9
	HT/VHT20, M16 to M23	4	5	16.6	15.2	15.8	16.6	22.1	30.0	7.9
	HT/VHT20, M24 to M31	4	5	16.6	15.2	15.8	16.6	22.1	30.0	7.9
	HT/VHT20 Beam Forming, M0 to M7	2	8	15.5	14.2			17.9	28.0	10.1
	HT/VHT20 Beam Forming, M8 to M15	2	5	16.6	15.2			19.0	30.0	11.0
	HT/VHT20 Beam Forming, M0 to M7	3	10	13.9	12.2	12.9		17.8	26.0	8.2
	HT/VHT20 Beam Forming, M8 to M15	3	7	15.5	14.2	15.0		19.7	29.0	9.3
	HT/VHT20 Beam Forming, M16 to M23	3	5	16.6	15.2	15.8		20.7	30.0	9.3
	HT/VHT20 Beam Forming, M0 to M7	4	11	11.8	10.0	10.9	11.5	17.1	25.0	7.9
	HT/VHT20 Beam Forming, M8 to M15	4	8	14.5	13.0	13.9	14.6	20.1	28.0	7.9
	HT/VHT20 Beam Forming, M16 to M23	4	6	15.5	14.2	15.0	15.3	21.0	30.0	9.0
	HT/VHT20 Beam Forming, M24 to M31	4	5	16.6	15.2	15.8	16.6	22.1	30.0	7.9
HT/VHT20 STBC, M0 to M7	2	5	16.6	15.2			19.0	30.0	11.0	





HT/VHT20 STBC, M0 to M7	3	5	16.6	15.2	15.8		20.7	30.0	9.3
HT/VHT20 STBC, M0 to M7	4	5	16.6	15.2	15.8	16.6	22.1	30.0	7.9
HE20, M0 to M9 1ss	1	5	16.9				16.9	30.0	13.1
HE20, M0 to M9 1ss	2	5	16.9	15.5			19.3	30.0	10.7
HE20, M0 to M9 2ss	2	5	16.9	15.5			19.3	30.0	10.7
HE20, M0 to M9 1ss	3	5	16.4	14.5	15.2		20.2	30.0	9.8
HE20, M0 to M9 2ss	3	5	16.4	14.5	15.2		20.2	30.0	9.8
HE20, M0 to M9 3ss	3	5	16.4	14.5	15.2		20.2	30.0	9.8
HE20, M0 to M9 1ss	4	5	16.4	14.5	15.2	15.7	21.5	30.0	8.5
HE20, M0 to M9 2ss	4	5	16.4	14.5	15.2	15.7	21.5	30.0	8.5
HE20, M0 to M9 3ss	4	5	16.4	14.5	15.2	15.7	21.5	30.0	8.5
HE20, M0 to M9 4ss	4	5	16.4	14.5	15.2	15.7	21.5	30.0	8.5
HE20 Beam Forming, M0 to M9 1ss	2	8	15.0	13.4			17.3	28.0	10.7
HE20 Beam Forming, M0 to M9 2ss	2	5	16.9	15.5			19.3	30.0	10.7
HE20 Beam Forming, M0 to M9 1ss	3	10	14.2	12.5	13.2		18.1	26.0	7.9
HE20 Beam Forming, M0 to M9 2ss	3	7	15.0	13.4	14.1		19.0	29.0	10.0
HE20 Beam Forming, M0 to M9 3ss	3	5	16.4	14.5	15.2		20.2	30.0	9.8
HE20 Beam Forming, M0 to M9 1ss	4	11	12.0	10.4	11.2	12.0	17.5	25.0	7.5
HE20 Beam Forming, M0 to M9 2ss	4	8	14.2	12.5	13.2	13.6	19.4	28.0	8.6
HE20 Beam Forming, M0 to M9 3ss	4	6	15.0	13.4	14.1	14.8	20.4	30.0	9.6
HE20 Beam Forming, M0 to M9 4ss	4	5	16.4	14.5	15.2	15.7	21.5	30.0	8.5
HE20 STBC, M0 to M9 2ss	2	5	16.9	15.5			19.3	30.0	10.7
HE20 STBC, M0 to M9 2ss	3	5	16.4	14.5	15.2		20.2	30.0	9.8
HE20 STBC, M0 to M9 2ss	4	5	16.4	14.5	15.2	15.7	21.5	30.0	8.5

5190	Non HT40, 6 to 54 Mbps	1	5	15.5				15.5	30.0	14.5
	Non HT40, 6 to 54 Mbps	2	5	14.5	14.1			17.3	30.0	12.7
	Non HT40, 6 to 54 Mbps	3	5	14.5	14.1	13.8		18.9	30.0	11.1
	Non HT40, 6 to 54 Mbps	4	5	13.5	12.9	12.8	13.1	19.1	30.0	10.9
	HT/VHT40, M0 to M7	1	5	16.2				16.3	30.0	13.7
	HT/VHT40, M0 to M7	2	5	15.4	14.8			18.2	30.0	11.8
	HT/VHT40, M8 to M15	2	5	15.4	14.8			18.2	30.0	11.8
	HT/VHT40, M0 to M7	3	5	14.4	13.8	13.7		18.8	30.0	11.2
	HT/VHT40, M8 to M15	3	5	14.4	13.8	13.7		18.8	30.0	11.2
	HT/VHT40, M16 to M23	3	5	14.4	13.8	13.7		18.8	30.0	11.2
	HT/VHT40, M0 to M7	4	5	14.4	13.8	13.7	13.7	20.0	30.0	10.0
	HT/VHT40, M8 to M15	4	5	14.4	13.8	13.7	13.7	20.0	30.0	10.0
	HT/VHT40, M16 to M23	4	5	14.4	13.8	13.7	13.7	20.0	30.0	10.0
	HT/VHT40, M24 to M31	4	5	14.4	13.8	13.7	13.7	20.0	30.0	10.0



HT/VHT40 Beam Forming, M0 to M7	2	8	14.4	13.8				17.2	28.0	10.8
HT/VHT40 Beam Forming, M8 to M15	2	5	15.4	14.8				18.2	30.0	11.8
HT/VHT40 Beam Forming, M0 to M7	3	10	10.4	9.9	10.1			15.0	26.0	11.0
HT/VHT40 Beam Forming, M8 to M15	3	7	13.3	12.9	13.0			17.9	29.0	11.1
HT/VHT40 Beam Forming, M16 to M23	3	5	14.4	13.8	13.7			18.8	30.0	11.2
HT/VHT40 Beam Forming, M0 to M7	4	11	8.6	7.9	8.1	8.0		14.3	25.0	10.7
HT/VHT40 Beam Forming, M8 to M15	4	8	12.2	11.9	11.9	11.7		18.0	28.0	10.0
HT/VHT40 Beam Forming, M16 to M23	4	6	13.3	12.9	13.0	12.8		19.1	30.0	10.9
HT/VHT40 Beam Forming, M24 to M31	4	5	14.4	13.8	13.7	13.7		20.0	30.0	10.0
HT/VHT40 STBC, M0 to M7	2	5	15.4	14.8				18.2	30.0	11.8
HT/VHT40 STBC, M0 to M7	3	5	14.4	13.8	13.7			18.8	30.0	11.2
HT/VHT40 STBC, M0 to M7	4	5	14.4	13.8	13.7	13.7		20.0	30.0	10.0
HE40, M0 to M9 1ss	1	5	15.9					16.0	30.0	14.0
HE40, M0 to M9 1ss	2	5	14.5	14.0				17.4	30.0	12.6
HE40, M0 to M9 2ss	2	5	14.5	14.0				17.4	30.0	12.6
HE40, M0 to M9 1ss	3	5	14.5	14.0	14.2			19.1	30.0	10.9
HE40, M0 to M9 2ss	3	5	14.5	14.0	14.2			19.1	30.0	10.9
HE40, M0 to M9 3ss	3	5	14.5	14.0	14.2			19.1	30.0	10.9
HE40, M0 to M9 1ss	4	5	14.5	14.0	14.2	14.3		20.4	30.0	9.6
HE40, M0 to M9 2ss	4	5	14.5	14.0	14.2	14.3		20.4	30.0	9.6
HE40, M0 to M9 3ss	4	5	14.5	14.0	14.2	14.3		20.4	30.0	9.6
HE40, M0 to M9 4ss	4	5	14.5	14.0	14.2	14.3		20.4	30.0	9.6
HE40 Beam Forming, M0 to M9 1ss	2	8	13.7	13.1				16.6	28.0	11.4
HE40 Beam Forming, M0 to M9 2ss	2	5	14.5	14.0				17.4	30.0	12.6
HE40 Beam Forming, M0 to M9 1ss	3	10	11.0	10.0	10.3			15.4	26.0	10.6
HE40 Beam Forming, M0 to M9 2ss	3	7	13.7	13.1	13.1			18.2	29.0	10.8
HE40 Beam Forming, M0 to M9 3ss	3	5	14.5	14.0	14.2			19.1	30.0	10.9
HE40 Beam Forming, M0 to M9 1ss	4	11	8.1	7.2	7.4	7.4		13.7	25.0	11.3
HE40 Beam Forming, M0 to M9 2ss	4	8	11.9	11.0	11.3	11.3		17.5	28.0	10.5
HE40 Beam Forming, M0 to M9 3ss	4	6	13.7	13.1	13.1	13.1		19.4	30.0	10.6
HE40 Beam Forming, M0 to M9 4ss	4	5	14.5	14.0	14.2	14.3		20.4	30.0	9.6
HE40 STBC, M0 to M9 2ss	2	5	14.5	14.0				17.4	30.0	12.6
HE40 STBC, M0 to M9 2ss	3	5	14.5	14.0	14.2			19.1	30.0	10.9
HE40 STBC, M0 to M9 2ss	4	5	14.5	14.0	14.2	14.3		20.4	30.0	9.6

5210	Non HT80, 6 to 54 Mbps	1	5	14.5				14.5	30.0	15.5
	Non HT80, 6 to 54 Mbps	2	5	14.5	13.8			17.2	30.0	12.8
	Non HT80, 6 to 54 Mbps	3	5	13.7	12.9	13.4		18.1	30.0	11.9
	Non HT80, 6 to 54 Mbps	4	5	13.7	12.9	13.4	13.3	19.4	30.0	10.6



VHT80, M0 to M9 1ss	1	5	15.3				15.5	30.0	14.5
VHT80, M0 to M9 1ss	2	5	14.6	13.7			17.4	30.0	12.6
VHT80, M0 to M9 2ss	2	5	14.6	13.7			17.4	30.0	12.6
VHT80, M0 to M9 1ss	3	5	14.6	13.7	14.2		19.2	30.0	10.8
VHT80, M0 to M9 2ss	3	5	14.6	13.7	14.2		19.2	30.0	10.8
VHT80, M0 to M9 3ss	3	5	14.6	13.7	14.2		19.2	30.0	10.8
VHT80, M0 to M9 1ss	4	5	13.6	12.8	13.3	13.2	19.5	30.0	10.5
VHT80, M0 to M9 2ss	4	5	13.6	12.8	13.3	13.2	19.5	30.0	10.5
VHT80, M0 to M9 3ss	4	5	13.6	12.8	13.3	13.2	19.5	30.0	10.5
VHT80, M0 to M9 4ss	4	5	13.6	12.8	13.3	13.2	19.5	30.0	10.5
VHT80 Beam Forming, M0 to M9 1ss	2	8	13.6	12.8			16.4	28.0	11.6
VHT80 Beam Forming, M0 to M9 2ss	2	5	14.6	13.7			17.4	30.0	12.6
VHT80 Beam Forming, M0 to M9 1ss	3	10	11.5	10.9	11.5		16.3	26.0	9.7
VHT80 Beam Forming, M0 to M9 2ss	3	7	13.6	12.8	13.3		18.2	29.0	10.8
VHT80 Beam Forming, M0 to M9 3ss	3	5	14.6	13.7	14.2		19.2	30.0	10.8
VHT80 Beam Forming, M0 to M9 1ss	4	11	8.8	8.0	8.7	8.2	14.7	25.0	10.3
VHT80 Beam Forming, M0 to M9 2ss	4	8	12.4	11.7	12.3	12.3	18.4	28.0	9.6
VHT80 Beam Forming, M0 to M9 3ss	4	6	13.6	12.8	13.3	13.2	19.5	30.0	10.5
VHT80 Beam Forming, M0 to M9 4ss	4	5	13.6	12.8	13.3	13.2	19.5	30.0	10.5
VHT80 STBC, M0 to M9 1ss	2	5	14.6	13.7			17.4	30.0	12.6
VHT80 STBC, M0 to M9 1ss	3	5	14.6	13.7	14.2		19.2	30.0	10.8
VHT80 STBC, M0 to M9 1ss	4	5	13.6	12.8	13.3	13.2	19.5	30.0	10.5
HE80, M0 to M9 1ss	1	5	15.8				16.1	30.0	14.0
HE80, M0 to M9 1ss	2	5	15.8	15.1			18.7	30.0	11.3
HE80, M0 to M9 2ss	2	5	15.8	15.1			18.7	30.0	11.3
HE80, M0 to M9 1ss	3	5	14.9	14.1	14.4		19.5	30.0	10.5
HE80, M0 to M9 2ss	3	5	14.9	14.1	14.4		19.5	30.0	10.5
HE80, M0 to M9 3ss	3	5	14.9	14.1	14.4		19.5	30.0	10.5
HE80, M0 to M9 1ss	4	5	13.6	13.0	13.5	13.6	19.7	30.0	10.3
HE80, M0 to M9 2ss	4	5	13.6	13.0	13.5	13.6	19.7	30.0	10.3
HE80, M0 to M9 3ss	4	5	13.6	13.0	13.5	13.6	19.7	30.0	10.3
HE80, M0 to M9 4ss	4	5	13.6	13.0	13.5	13.6	19.7	30.0	10.3
HE80 Beam Forming, M0 to M9 1ss	2	8	13.6	13.0			16.6	28.0	11.4
HE80 Beam Forming, M0 to M9 2ss	2	5	15.8	15.1			18.7	30.0	11.3
HE80 Beam Forming, M0 to M9 1ss	3	10	11.8	11.1	11.5		16.5	26.0	9.5
HE80 Beam Forming, M0 to M9 2ss	3	7	13.6	13.0	13.5		18.4	29.0	10.6
HE80 Beam Forming, M0 to M9 3ss	3	5	14.9	14.1	14.4		19.5	30.0	10.5
HE80 Beam Forming, M0 to M9 1ss	4	11	8.9	8.4	8.9	8.7	15.0	25.0	10.0
HE80 Beam Forming, M0 to M9 2ss	4	8	12.6	12.0	12.6	12.6	18.7	28.0	9.3



HE80 Beam Forming, M0 to M9 3ss	4	6	13.6	13.0	13.5	13.6	19.7	30.0	10.3
HE80 Beam Forming, M0 to M9 4ss	4	5	13.6	13.0	13.5	13.6	19.7	30.0	10.3
HE80 STBC, M0 to M9 1ss	2	5	15.8	15.1			18.7	30.0	11.3
HE80 STBC, M0 to M9 1ss	3	5	14.9	14.1	14.4		19.5	30.0	10.5
HE80 STBC, M0 to M9 1ss	4	5	13.6	13.0	13.5	13.6	19.7	30.0	10.3

5220	Non HT20, 6 to 54 Mbps	1	5	17.9				17.9	30.0	12.1
	Non HT20, 6 to 54 Mbps	2	5	17.9	16.3			20.2	30.0	9.8
	Non HT20, 6 to 54 Mbps	3	5	17.9	16.3	17.0		21.9	30.0	8.1
	Non HT20, 6 to 54 Mbps	4	5	17.0	15.4	16.0	16.7	22.3	30.0	7.7
	Non HT20 Beam Forming, 6 to 54 Mbps	2	8	17.9	16.3			20.2	28.0	7.8
	Non HT20 Beam Forming, 6 to 54 Mbps	3	10	17.9	16.3	17.0		21.9	26.0	4.1
	Non HT20 Beam Forming, 6 to 54 Mbps	4	11	17.0	15.4	16.0	16.7	22.3	25.0	2.7
	HT/VHT20, M0 to M7	1	5	17.7				17.7	30.0	12.3
	HT/VHT20, M0 to M7	2	5	17.7	16.4			20.1	30.0	9.9
	HT/VHT20, M8 to M15	2	5	17.7	16.4			20.1	30.0	9.9
	HT/VHT20, M0 to M7	3	5	17.7	16.4	17.2		21.9	30.0	8.1
	HT/VHT20, M8 to M15	3	5	17.7	16.4	17.2		21.9	30.0	8.1
	HT/VHT20, M16 to M23	3	5	17.7	16.4	17.2		21.9	30.0	8.1
	HT/VHT20, M0 to M7	4	5	17.1	15.5	16.3	16.7	22.5	30.0	7.5
	HT/VHT20, M8 to M15	4	5	17.7	16.4	17.2	17.7	23.3	30.0	6.7
	HT/VHT20, M16 to M23	4	5	17.7	16.4	17.2	17.7	23.3	30.0	6.7
	HT/VHT20, M24 to M31	4	5	17.7	16.4	17.2	17.7	23.3	30.0	6.7
	HT/VHT20 Beam Forming, M0 to M7	2	8	17.7	16.4			20.1	28.0	7.9
	HT/VHT20 Beam Forming, M8 to M15	2	5	17.7	16.4			20.1	30.0	9.9
	HT/VHT20 Beam Forming, M0 to M7	3	10	17.7	16.4	17.2		21.9	26.0	4.1
	HT/VHT20 Beam Forming, M8 to M15	3	7	17.7	16.4	17.2		21.9	29.0	7.1
	HT/VHT20 Beam Forming, M16 to M23	3	5	17.7	16.4	17.2		21.9	30.0	8.1
	HT/VHT20 Beam Forming, M0 to M7	4	11	17.1	15.5	16.3	16.7	22.5	25.0	2.5
	HT/VHT20 Beam Forming, M8 to M15	4	8	17.7	16.4	17.2	17.7	23.3	28.0	4.7
	HT/VHT20 Beam Forming, M16 to M23	4	6	17.7	16.4	17.2	17.7	23.3	30.0	6.7
	HT/VHT20 Beam Forming, M24 to M31	4	5	17.7	16.4	17.2	17.7	23.3	30.0	6.7
	HT/VHT20 STBC, M0 to M7	2	5	17.7	16.4			20.1	30.0	9.9
	HT/VHT20 STBC, M0 to M7	3	5	17.7	16.4	17.2		21.9	30.0	8.1
	HT/VHT20 STBC, M0 to M7	4	5	17.7	16.4	17.2	17.7	23.3	30.0	6.7
	HE20, M0 to M9 1ss	1	5	18.2				18.2	30.0	11.8
	HE20, M0 to M9 1ss	2	5	18.2	16.9			20.6	30.0	9.4
	HE20, M0 to M9 2ss	2	5	18.2	16.9			20.6	30.0	9.4
HE20, M0 to M9 1ss	3	5	18.2	16.9	17.8		22.4	30.0	7.6	

HE20, M0 to M9 2ss	3	5	18.2	16.9	17.8		22.4	30.0	7.6
HE20, M0 to M9 3ss	3	5	18.2	16.9	17.8		22.4	30.0	7.6
HE20, M0 to M9 1ss	4	5	17.5	15.9	16.6	17.1	22.8	30.0	7.2
HE20, M0 to M9 2ss	4	5	18.2	16.9	17.8	18.1	23.8	30.0	6.2
HE20, M0 to M9 3ss	4	5	18.2	16.9	17.8	18.1	23.8	30.0	6.2
HE20, M0 to M9 4ss	4	5	18.2	16.9	17.8	18.1	23.8	30.0	6.2
HE20 Beam Forming, M0 to M9 1ss	2	8	18.2	16.9			20.6	28.0	7.4
HE20 Beam Forming, M0 to M9 2ss	2	5	18.2	16.9			20.6	30.0	9.4
HE20 Beam Forming, M0 to M9 1ss	3	10	18.2	16.9	17.8		22.4	26.0	3.6
HE20 Beam Forming, M0 to M9 2ss	3	7	18.2	16.9	17.8		22.4	29.0	6.6
HE20 Beam Forming, M0 to M9 3ss	3	5	18.2	16.9	17.8		22.4	30.0	7.6
HE20 Beam Forming, M0 to M9 1ss	4	11	17.5	15.9	16.6	17.1	22.8	25.0	2.2
HE20 Beam Forming, M0 to M9 2ss	4	8	18.2	16.9	17.8	18.1	23.8	28.0	4.2
HE20 Beam Forming, M0 to M9 3ss	4	6	18.2	16.9	17.8	18.1	23.8	30.0	6.2
HE20 Beam Forming, M0 to M9 4ss	4	5	18.2	16.9	17.8	18.1	23.8	30.0	6.2
HE20 STBC, M0 to M9 2ss	2	5	18.2	16.9			20.6	30.0	9.4
HE20 STBC, M0 to M9 2ss	3	5	18.2	16.9	17.8		22.4	30.0	7.6
HE20 STBC, M0 to M9 2ss	4	5	18.2	16.9	17.8	18.1	23.8	30.0	6.2

Non HT40, 6 to 54 Mbps	1	5	17.9				17.9	30.0	12.1
Non HT40, 6 to 54 Mbps	2	5	17.9	17.2			20.6	30.0	9.4
Non HT40, 6 to 54 Mbps	3	5	17.9	17.2	17.1		22.2	30.0	7.8
Non HT40, 6 to 54 Mbps	4	5	17.9	17.2	17.1	17.3	23.4	30.0	6.6
HT/VHT40, M0 to M7	1	5	17.5				17.6	30.0	12.4
HT/VHT40, M0 to M7	2	5	17.5	17.0			20.4	30.0	9.6
HT/VHT40, M8 to M15	2	5	17.5	17.0			20.4	30.0	9.6
HT/VHT40, M0 to M7	3	5	17.5	17.0	17.2		22.1	30.0	7.9
HT/VHT40, M8 to M15	3	5	17.5	17.0	17.2		22.1	30.0	7.9
HT/VHT40, M16 to M23	3	5	17.5	17.0	17.2		22.1	30.0	7.9
HT/VHT40, M0 to M7	4	5	17.5	17.0	17.2	17.0	23.3	30.0	6.7
HT/VHT40, M8 to M15	4	5	17.5	17.0	17.2	17.0	23.3	30.0	6.7
HT/VHT40, M16 to M23	4	5	17.5	17.0	17.2	17.0	23.3	30.0	6.7
HT/VHT40, M24 to M31	4	5	17.5	17.0	17.2	17.0	23.3	30.0	6.7
HT/VHT40 Beam Forming, M0 to M7	2	8	17.5	17.0			20.4	28.0	7.6
HT/VHT40 Beam Forming, M8 to M15	2	5	17.5	17.0			20.4	30.0	9.6
HT/VHT40 Beam Forming, M0 to M7	3	10	17.5	17.0	17.2		22.1	26.0	3.9
HT/VHT40 Beam Forming, M8 to M15	3	7	17.5	17.0	17.2		22.1	29.0	6.9
HT/VHT40 Beam Forming, M16 to M23	3	5	17.5	17.0	17.2		22.1	30.0	7.9
HT/VHT40 Beam Forming, M0 to M7	4	11	17.5	17.0	17.2	17.0	23.3	25.0	1.7

HT/VHT40 Beam Forming, M8 to M15	4	8	17.5	17.0	17.2	17.0	23.3	28.0	4.7
HT/VHT40 Beam Forming, M16 to M23	4	6	17.5	17.0	17.2	17.0	23.3	30.0	6.7
HT/VHT40 Beam Forming, M24 to M31	4	5	17.5	17.0	17.2	17.0	23.3	30.0	6.7
HT/VHT40 STBC, M0 to M7	2	5	17.5	17.0			20.4	30.0	9.6
HT/VHT40 STBC, M0 to M7	3	5	17.5	17.0	17.2		22.1	30.0	7.9
HT/VHT40 STBC, M0 to M7	4	5	17.5	17.0	17.2	17.0	23.3	30.0	6.7
HE40, M0 to M9 1ss	1	5	18.1				18.2	30.0	11.8
HE40, M0 to M9 1ss	2	5	18.1	17.4			20.9	30.0	9.1
HE40, M0 to M9 2ss	2	5	18.1	17.4			20.9	30.0	9.1
HE40, M0 to M9 1ss	3	5	18.1	17.4	17.4		22.5	30.0	7.5
HE40, M0 to M9 2ss	3	5	18.1	17.4	17.4		22.5	30.0	7.5
HE40, M0 to M9 3ss	3	5	18.1	17.4	17.4		22.5	30.0	7.5
HE40, M0 to M9 1ss	4	5	18.1	17.4	17.4	17.3	23.7	30.0	6.3
HE40, M0 to M9 2ss	4	5	18.1	17.4	17.4	17.3	23.7	30.0	6.3
HE40, M0 to M9 3ss	4	5	18.1	17.4	17.4	17.3	23.7	30.0	6.3
HE40, M0 to M9 4ss	4	5	18.1	17.4	17.4	17.3	23.7	30.0	6.3
HE40 Beam Forming, M0 to M9 1ss	2	8	18.1	17.4			20.9	28.0	7.1
HE40 Beam Forming, M0 to M9 2ss	2	5	18.1	17.4			20.9	30.0	9.1
HE40 Beam Forming, M0 to M9 1ss	3	10	18.1	17.4	17.4		22.5	26.0	3.5
HE40 Beam Forming, M0 to M9 2ss	3	7	18.1	17.4	17.4		22.5	29.0	6.5
HE40 Beam Forming, M0 to M9 3ss	3	5	18.1	17.4	17.4		22.5	30.0	7.5
HE40 Beam Forming, M0 to M9 1ss	4	11	18.1	17.4	17.4	17.3	23.7	25.0	1.3
HE40 Beam Forming, M0 to M9 2ss	4	8	18.1	17.4	17.4	17.3	23.7	28.0	4.3
HE40 Beam Forming, M0 to M9 3ss	4	6	18.1	17.4	17.4	17.3	23.7	30.0	6.3
HE40 Beam Forming, M0 to M9 4ss	4	5	18.1	17.4	17.4	17.3	23.7	30.0	6.3
HE40 STBC, M0 to M9 2ss	2	5	18.1	17.4			20.9	30.0	9.1
HE40 STBC, M0 to M9 2ss	3	5	18.1	17.4	17.4		22.5	30.0	7.5
HE40 STBC, M0 to M9 2ss	4	5	18.1	17.4	17.4	17.3	23.7	30.0	6.3

5240	Non HT20, 6 to 54 Mbps	1	5	17.9				17.9	30.0	12.1
	Non HT20, 6 to 54 Mbps	2	5	17.9	16.5			20.3	30.0	9.7
	Non HT20, 6 to 54 Mbps	3	5	17.9	16.5	17.4		22.1	30.0	7.9
	Non HT20, 6 to 54 Mbps	4	5	17.1	15.5	16.2	16.8	22.5	30.0	7.5
	Non HT20 Beam Forming, 6 to 54 Mbps	2	8	17.9	16.5			20.3	28.0	7.7
	Non HT20 Beam Forming, 6 to 54 Mbps	3	10	17.9	16.5	17.4		22.1	26.0	3.9
	Non HT20 Beam Forming, 6 to 54 Mbps	4	11	17.1	15.5	16.2	16.8	22.5	25.0	2.5
	HT/VHT20, M0 to M7	1	5	18.0				18.0	30.0	12.0
	HT/VHT20, M0 to M7	2	5	18.0	16.3			20.2	30.0	9.8
	HT/VHT20, M8 to M15	2	5	18.0	16.3			20.2	30.0	9.8

HT/VHT20, M0 to M7	3	5	18.0	16.3	17.0		21.9	30.0	8.1
HT/VHT20, M8 to M15	3	5	18.0	16.3	17.0		21.9	30.0	8.1
HT/VHT20, M16 to M23	3	5	18.0	16.3	17.0		21.9	30.0	8.1
HT/VHT20, M0 to M7	4	5	16.8	15.3	16.1	16.6	22.3	30.0	7.7
HT/VHT20, M8 to M15	4	5	18.0	16.3	17.0	17.6	23.3	30.0	6.7
HT/VHT20, M16 to M23	4	5	18.0	16.3	17.0	17.6	23.3	30.0	6.7
HT/VHT20, M24 to M31	4	5	18.0	16.3	17.0	17.6	23.3	30.0	6.7
HT/VHT20 Beam Forming, M0 to M7	2	8	18.0	16.3			20.2	28.0	7.8
HT/VHT20 Beam Forming, M8 to M15	2	5	18.0	16.3			20.2	30.0	9.8
HT/VHT20 Beam Forming, M0 to M7	3	10	18.0	16.3	17.0		21.9	26.0	4.1
HT/VHT20 Beam Forming, M8 to M15	3	7	18.0	16.3	17.0		21.9	29.0	7.1
HT/VHT20 Beam Forming, M16 to M23	3	5	18.0	16.3	17.0		21.9	30.0	8.1
HT/VHT20 Beam Forming, M0 to M7	4	11	16.8	15.3	16.1	16.6	22.3	25.0	2.7
HT/VHT20 Beam Forming, M8 to M15	4	8	18.0	16.3	17.0	17.6	23.3	28.0	4.7
HT/VHT20 Beam Forming, M16 to M23	4	6	18.0	16.3	17.0	17.6	23.3	30.0	6.7
HT/VHT20 Beam Forming, M24 to M31	4	5	18.0	16.3	17.0	17.6	23.3	30.0	6.7
HT/VHT20 STBC, M0 to M7	2	5	18.0	16.3			20.2	30.0	9.8
HT/VHT20 STBC, M0 to M7	3	5	18.0	16.3	17.0		21.9	30.0	8.1
HT/VHT20 STBC, M0 to M7	4	5	18.0	16.3	17.0	17.6	23.3	30.0	6.7
HE20, M0 to M9 1ss	1	5	18.3				18.3	30.0	11.7
HE20, M0 to M9 1ss	2	5	18.3	16.7			20.6	30.0	9.4
HE20, M0 to M9 2ss	2	5	18.3	16.7			20.6	30.0	9.4
HE20, M0 to M9 1ss	3	5	18.3	16.7	17.7		22.4	30.0	7.6
HE20, M0 to M9 2ss	3	5	18.3	16.7	17.7		22.4	30.0	7.6
HE20, M0 to M9 3ss	3	5	18.3	16.7	17.7		22.4	30.0	7.6
HE20, M0 to M9 1ss	4	5	17.5	15.8	16.8	17.1	22.9	30.0	7.1
HE20, M0 to M9 2ss	4	5	18.3	16.7	17.7	18.1	23.8	30.0	6.2
HE20, M0 to M9 3ss	4	5	18.3	16.7	17.7	18.1	23.8	30.0	6.2
HE20, M0 to M9 4ss	4	5	18.3	16.7	17.7	18.1	23.8	30.0	6.2
HE20 Beam Forming, M0 to M9 1ss	2	8	18.3	16.7			20.6	28.0	7.4
HE20 Beam Forming, M0 to M9 2ss	2	5	18.3	16.7			20.6	30.0	9.4
HE20 Beam Forming, M0 to M9 1ss	3	10	18.3	16.7	17.7		22.4	26.0	3.6
HE20 Beam Forming, M0 to M9 2ss	3	7	18.3	16.7	17.7		22.4	29.0	6.6
HE20 Beam Forming, M0 to M9 3ss	3	5	18.3	16.7	17.7		22.4	30.0	7.6
HE20 Beam Forming, M0 to M9 1ss	4	11	17.5	15.8	16.8	17.1	22.9	25.0	2.1
HE20 Beam Forming, M0 to M9 2ss	4	8	18.3	16.7	17.7	18.1	23.8	28.0	4.2
HE20 Beam Forming, M0 to M9 3ss	4	6	18.3	16.7	17.7	18.1	23.8	30.0	6.2
HE20 Beam Forming, M0 to M9 4ss	4	5	18.3	16.7	17.7	18.1	23.8	30.0	6.2
HE20 STBC, M0 to M9 2ss	2	5	18.3	16.7			20.6	30.0	9.4



HE20 STBC, M0 to M9 2ss	3	5	18.3	16.7	17.7		22.4	30.0	7.6
HE20 STBC, M0 to M9 2ss	4	5	18.3	16.7	17.7	18.1	23.8	30.0	6.2

5250	Non HT160, 6 to 54 Mbps	1	5	13.0				13.0	24.0	11.0
	Non HT160, 6 to 54 Mbps	2	5	12.0	11.9			15.0	24.0	9.0
	Non HT160, 6 to 54 Mbps	3	5	11.0	10.8	11.1		15.7	24.0	8.3
	Non HT160, 6 to 54 Mbps	4	5	9.9	9.8	10.1	10.4	16.1	24.0	7.9
	VHT160, M0 to M9 1ss	1	5	13.7				14.1	24.0	9.9
	VHT160, M0 to M9 1ss	2	5	12.5	12.5			15.9	24.0	8.1
	VHT160, M0 to M9 2ss	2	5	12.5	12.5			15.9	24.0	8.1
	VHT160, M0 to M9 1ss	3	5	11.7	11.5	11.6		16.8	24.0	7.2
	VHT160, M0 to M9 2ss	3	5	11.7	11.5	11.6		16.8	24.0	7.2
	VHT160, M0 to M9 3ss	3	5	11.7	11.5	11.6		16.8	24.0	7.2
	VHT160, M0 to M9 1ss	4	5	11.7	11.5	11.6	12.2	18.2	24.0	5.8
	VHT160, M0 to M9 2ss	4	5	11.7	11.5	11.6	12.2	18.2	24.0	5.8
	VHT160, M0 to M9 3ss	4	5	11.7	11.5	11.6	12.2	18.2	24.0	5.8
	VHT160, M0 to M9 4ss	4	5	11.7	11.5	11.6	12.2	18.2	24.0	5.8
	VHT160 Beam Forming, M0 to M9 1ss	2	8	11.7	11.5			15.0	22.0	7.0
	VHT160 Beam Forming, M0 to M9 2ss	2	5	12.5	12.5			15.9	24.0	8.1
	VHT160 Beam Forming, M0 to M9 1ss	3	10	8.9	8.8	8.9		14.0	20.0	6.0
	VHT160 Beam Forming, M0 to M9 2ss	3	7	11.7	11.5	11.6		16.8	23.0	6.2
	VHT160 Beam Forming, M0 to M9 3ss	3	5	11.7	11.5	11.6		16.8	24.0	7.2
	VHT160 Beam Forming, M0 to M9 1ss	4	11	7.1	6.7	6.8	7.2	13.4	19.0	5.6
	VHT160 Beam Forming, M0 to M9 2ss	4	8	9.9	9.5	9.6	10.2	16.2	22.0	5.8
	VHT160 Beam Forming, M0 to M9 3ss	4	6	9.9	9.5	9.6	10.2	16.2	24.0	7.8
	VHT160 Beam Forming, M0 to M9 4ss	4	5	11.7	11.5	11.6	12.2	18.2	24.0	5.8
	VHT160 STBC, M0 to M9 1ss	2	5	12.5	12.5			15.9	24.0	8.1
	VHT160 STBC, M0 to M9 1ss	3	5	11.7	11.5	11.6		16.8	24.0	7.2
	VHT160 STBC, M0 to M9 1ss	4	5	11.7	11.5	11.6	12.2	18.2	24.0	5.8
	HE160, M0 to M9 1ss	1	5	14.7				15.1	24.0	8.9
	HE160, M0 to M9 1ss	2	5	14.0	13.7			17.3	24.0	6.7
	HE160, M0 to M9 2ss	2	5	14.0	13.7			17.3	24.0	6.7
	HE160, M0 to M9 1ss	3	5	13.1	12.7	12.9		18.1	24.0	5.9
	HE160, M0 to M9 2ss	3	5	13.1	12.7	12.9		18.1	24.0	5.9
	HE160, M0 to M9 3ss	3	5	13.1	12.7	12.9		18.1	24.0	5.9
	HE160, M0 to M9 1ss	4	5	12.0	11.8	11.8	12.5	18.5	24.0	5.5
	HE160, M0 to M9 2ss	4	5	12.0	11.8	11.8	12.5	18.5	24.0	5.5
HE160, M0 to M9 3ss	4	5	12.0	11.8	11.8	12.5	18.5	24.0	5.5	
HE160, M0 to M9 4ss	4	5	12.0	11.8	11.8	12.5	18.5	24.0	5.5	

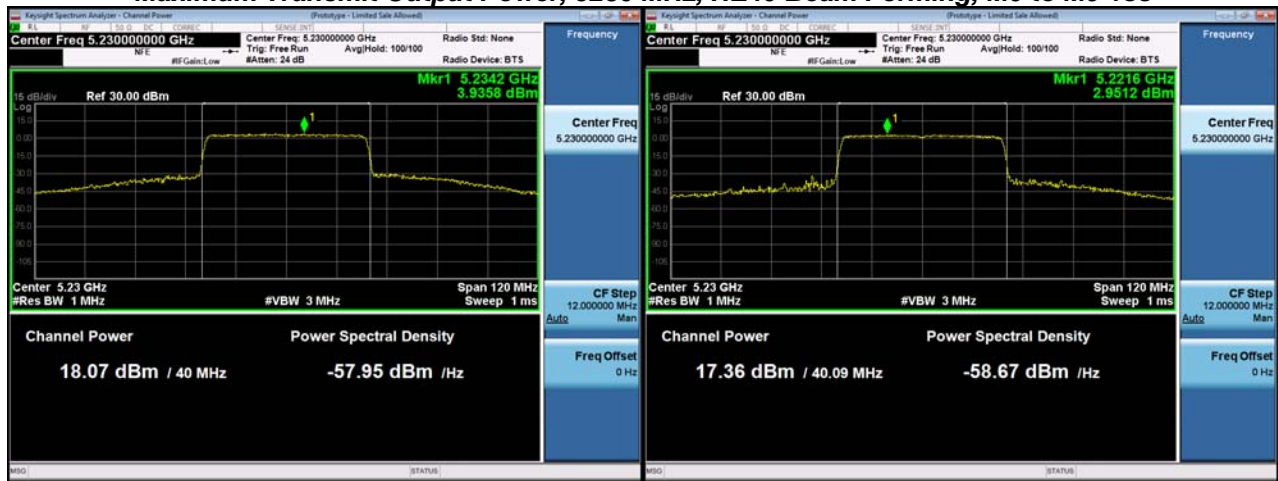




HE160 Beam Forming, M0 to M9 1ss	2	8	13.1	12.7			16.3	22.0	5.7
HE160 Beam Forming, M0 to M9 2ss	2	5	14.0	13.7			17.3	24.0	6.7
HE160 Beam Forming, M0 to M9 1ss	3	10	10.1	9.7	9.9		15.1	20.0	4.9
HE160 Beam Forming, M0 to M9 2ss	3	7	12.0	11.8	11.8		17.1	23.0	5.9
HE160 Beam Forming, M0 to M9 3ss	3	5	13.1	12.7	12.9		18.1	24.0	5.9
HE160 Beam Forming, M0 to M9 1ss	4	11	8.0	7.9	8.1	8.4	14.6	19.0	4.4
HE160 Beam Forming, M0 to M9 2ss	4	8	10.8	10.9	10.8	11.3	17.4	22.0	4.6
HE160 Beam Forming, M0 to M9 3ss	4	6	12.0	11.8	11.8	12.5	18.5	24.0	5.5
HE160 Beam Forming, M0 to M9 4ss	4	5	12.0	11.8	11.8	12.5	18.5	24.0	5.5
HE160 STBC, M0 to M9 1ss	2	5	14.0	13.7			17.3	24.0	6.7
HE160 STBC, M0 to M9 1ss	3	5	13.1	12.7	12.9		18.1	24.0	5.9
HE160 STBC, M0 to M9 1ss	4	5	12.0	11.8	11.8	12.5	18.5	24.0	5.5

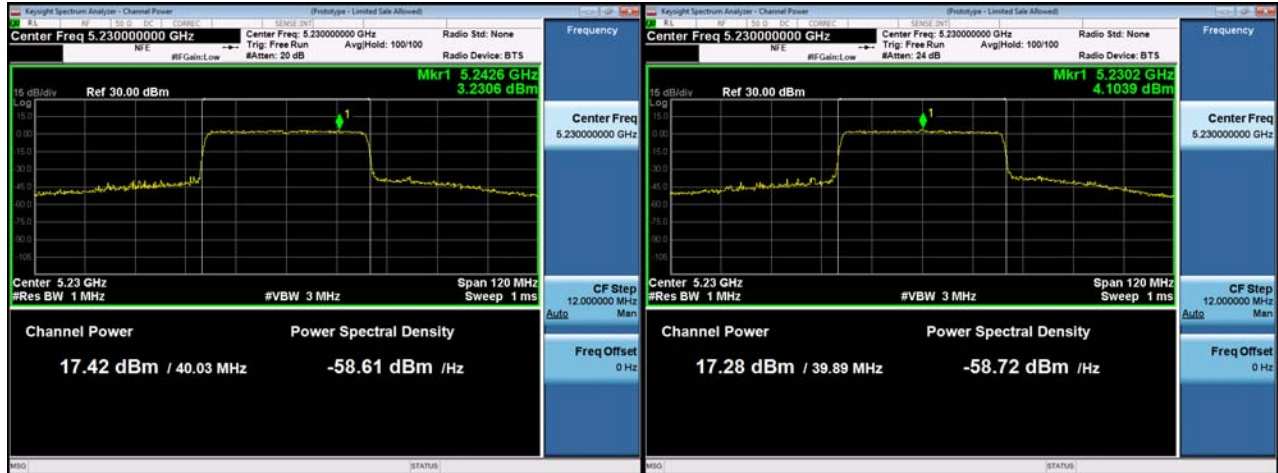
Note: UNII II Limit is applied to channel 5250 as it resides in both UNII I and UNII II bands and total channel power was measured.

**Maximum Transmit Output Power, 5230 MHz, HE40 Beam Forming, M0 to M9 1ss**



**Antenna A**

**Antenna B**



**Antenna C**

**Antenna D**

## A.4 Power Spectral Density

### Power Spectral Density Test Requirement

#### 15.407 General technical requirements, (a) Power limits: (1) For the band 5.15-5.25 GHz.

(i) For an outdoor access point operating in the band 5.15-5.25 GHz ... the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(ii) For an indoor access point operating in the band 5.15-5.25 GHz... the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz...the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For client devices in the 5.15-5.25 GHz band, .... the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### Power Spectral Density Test Procedure

#### Ref. KDB 789033 D02 General UNII Test Procedures New Rules v02r01

##### F. Maximum Power Spectral Density (PSD)

#### Power Spectral Density

##### Test Procedure

The rules require “maximum power spectral density” measurements where the intent is to measure the maximum value of the time average of the power spectral density measured during a period of continuous transmission.

1. Create an average power spectrum for the EUT operating mode being tested by following the instructions in section II.E.2. for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, “Compute power...”. (This procedure is required even if the maximum conducted output power measurement was performed using a power meter, method PM.)

2. Use the peak search function on the instrument to find the peak of the spectrum and record its value.

3. Make the following adjustments to the peak value of the spectrum, if applicable: a) If Method SA-2 or SA-2 Alternative was used, add  $10 \log(1/x)$ , where  $x$  is the duty cycle, to the peak of the spectrum.

b) If Method SA-3 Alternative was used and the linear mode was used in step II.E.2.g) (viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.

4. The result is the Maximum PSD over 1 MHz reference bandwidth.

**Ref. KDB 789033 D02 General UNII Test Procedures New Rules v02r01****2. Measurement using a Spectrum Analyzer or EMI Receiver (SA), (d) Method SA-2****Power Spectral Density**

## Test parameters

Method SA-2 (trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

- (i) Measure the duty cycle,  $x$ , of the transmitter output signal as described in section II.B.
- (ii) Set span to encompass the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- (iii) Set RBW = 1 MHz.
- (iv) Set VBW  $\geq$  3 MHz.
- (v) Number of points in sweep  $\geq$  2 Span / RBW. (This ensures that bin-to-bin spacing is  $\leq$  RBW/2, so that narrowband signals are not lost between frequency bins.)
- (vi) Sweep time = auto.
- (vii) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
- (viii) Do not use sweep triggering. Allow the sweep to “free run”.
- (ix) Trace average at least 100 traces in power averaging (i.e., RMS) mode; however, the number of traces to be averaged shall be increased above 100 as needed to ensure that the average accurately represents the true average over the on and off periods of the transmitter.
- (x) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument’s band power measurement function with band limits set equal to the EBW (or occupied bandwidth)

**F. Maximum Power Spectral Density (PSD)**

- 2. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
- 3. Make the following adjustments to the peak value of the spectrum, if applicable: a) If Method SA-2 or SA-2 Alternative was used, add  $10 \log(1/x)$ , where  $x$  is the duty cycle, to the peak of the spectrum.

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. ANSI C63.10 section 14.3.2.2

**Samples, Systems, and Modes**

System Number	Description	Samples	System under test	Support equipment
1	EUT	S01	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Support	S02	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Tested By:**  
Chris Blair

**Date of testing:**  
29-Mar-19 - 5-Apr-19



<b>Test Result: PASS</b>	

**Test Equipment**

See Appendix C for list of test equipment

## Power Spectral Density

Frequency (MHz)	Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 PSD (dBm/MHz)	Tx 2 PSD (dBm/MHz)	Tx 3 PSD (dBm/MHz)	Tx 4 PSD (dBm/MHz)	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)
5180	Non HT20, 6 to 54 Mbps	1	5	6.7				6.7	17.0	10.3
	Non HT20, 6 to 54 Mbps	2	8	5.8	4.4			8.2	15.0	6.8
	Non HT20, 6 to 54 Mbps	3	10	5.8	4.4	4.7		9.8	13.0	3.2
	Non HT20, 6 to 54 Mbps	4	11	5.8	4.4	4.7	5.7	11.2	12.0	0.8
	Non HT20 Beam Forming, 6 to 54 Mbps	2	8	4.5	3.2			6.9	15.0	8.1
	Non HT20 Beam Forming, 6 to 54 Mbps	3	10	2.4	1.4	2.0		6.7	13.0	6.3
	Non HT20 Beam Forming, 6 to 54 Mbps	4	11	1.4	0.3	1.4	1.5	7.2	12.0	4.8
	HT/VHT20, M0 to M7	1	5	5.3				5.3	17.0	11.7
	HT/VHT20, M0 to M7	2	8	5.3	3.9			7.7	15.0	7.3
	HT/VHT20, M8 to M15	2	5	5.3	3.9			7.7	17.0	9.3
	HT/VHT20, M0 to M7	3	10	5.3	3.9	4.6		9.4	13.0	3.6
	HT/VHT20, M8 to M15	3	7	5.3	3.9	4.6		9.4	16.0	6.6
	HT/VHT20, M16 to M23	3	5	5.3	3.9	4.6		9.4	17.0	7.6
	HT/VHT20, M0 to M7	4	11	5.3	3.9	4.6	5.4	10.9	12.0	1.1
	HT/VHT20, M8 to M15	4	8	5.3	3.9	4.6	5.4	10.9	15.0	4.1
	HT/VHT20, M16 to M23	4	6	5.3	3.9	4.6	5.4	10.9	17.0	6.1
	HT/VHT20, M24 to M31	4	5	5.3	3.9	4.6	5.4	10.9	17.0	6.1
	HT/VHT20 Beam Forming, M0 to M7	2	8	4.3	3.0			6.7	15.0	8.3
	HT/VHT20 Beam Forming, M8 to M15	2	5	5.3	3.9			7.7	17.0	9.3
	HT/VHT20 Beam Forming, M0 to M7	3	10	2.7	1.2	1.7		6.7	13.0	6.3
	HT/VHT20 Beam Forming, M8 to M15	3	7	4.3	3.0	3.8		8.5	16.0	7.5
	HT/VHT20 Beam Forming, M16 to M23	3	5	5.3	3.9	4.6		9.4	17.0	7.6
	HT/VHT20 Beam Forming, M0 to M7	4	11	0.6	-1.3	0.1	0.2	6.0	12.0	6.0
	HT/VHT20 Beam Forming, M8 to M15	4	8	3.3	1.9	2.9	3.2	8.9	15.0	6.1
	HT/VHT20 Beam Forming, M16 to M23	4	6	4.3	3.0	3.8	3.9	9.8	17.0	7.2
	HT/VHT20 Beam Forming, M24 to M31	4	5	5.3	3.9	4.6	5.4	10.9	17.0	6.1
	HT/VHT20 STBC, M0 to M7	2	5	5.3	3.9			7.7	17.0	9.3
	HT/VHT20 STBC, M0 to M7	3	7	5.3	3.9	4.6		9.4	16.0	6.6

HT/VHT20 STBC, M0 to M7	4	8	5.3	3.9	4.6	5.4	10.9	15.0	4.1
HE20, M0 to M9 1ss	1	5	5.8				5.8	17.0	11.2
HE20, M0 to M9 1ss	2	8	5.8	4.0			8.0	15.0	7.0
HE20, M0 to M9 2ss	2	5	5.8	4.0			8.0	17.0	9.0
HE20, M0 to M9 1ss	3	10	5.0	3.3	3.9		8.9	13.0	4.1
HE20, M0 to M9 2ss	3	7	5.0	3.3	3.9		8.9	16.0	7.1
HE20, M0 to M9 3ss	3	5	5.0	3.3	3.9		8.9	17.0	8.1
HE20, M0 to M9 1ss	4	11	5.0	3.3	3.9	4.7	10.3	12.0	1.7
HE20, M0 to M9 2ss	4	8	5.0	3.3	3.9	4.7	10.3	15.0	4.7
HE20, M0 to M9 3ss	4	6	5.0	3.3	3.9	4.7	10.3	17.0	6.7
HE20, M0 to M9 4ss	4	5	5.0	3.3	3.9	4.7	10.3	17.0	6.7
HE20 Beam Forming, M0 to M9 1ss	2	8	3.9	2.1			6.1	15.0	8.9
HE20 Beam Forming, M0 to M9 2ss	2	5	5.8	4.0			8.0	17.0	9.0
HE20 Beam Forming, M0 to M9 1ss	3	10	2.7	1.0	2.0		6.7	13.0	6.3
HE20 Beam Forming, M0 to M9 2ss	3	7	3.9	2.1	3.2		7.9	16.0	8.1
HE20 Beam Forming, M0 to M9 3ss	3	5	5.0	3.3	3.9		8.9	17.0	8.1
HE20 Beam Forming, M0 to M9 1ss	4	11	0.3	-0.9	-0.1	0.5	6.0	12.0	6.0
HE20 Beam Forming, M0 to M9 2ss	4	8	2.7	1.0	2.0	2.5	8.1	15.0	6.9
HE20 Beam Forming, M0 to M9 3ss	4	6	3.9	2.1	3.2	3.4	9.2	17.0	7.8
HE20 Beam Forming, M0 to M9 4ss	4	5	5.0	3.3	3.9	4.7	10.3	17.0	6.7
HE20 STBC, M0 to M9 2ss	2	5	5.8	4.0			8.0	17.0	9.0
HE20 STBC, M0 to M9 2ss	3	7	5.0	3.3	3.9		8.9	16.0	7.1
HE20 STBC, M0 to M9 2ss	4	8	5.0	3.3	3.9	4.7	10.3	15.0	4.7

5190	Non HT40, 6 to 54 Mbps	1	5	1.7				1.7	17.0	15.3
	Non HT40, 6 to 54 Mbps	2	8	0.6	0.7			3.7	15.0	11.3
	Non HT40, 6 to 54 Mbps	3	10	0.6	0.7	0.0		5.2	13.0	7.8
	Non HT40, 6 to 54 Mbps	4	11	-0.2	-0.8	-0.8	-0.7	5.4	12.0	6.6
	HT/VHT40, M0 to M7	1	5	2.2				2.3	17.0	14.7
	HT/VHT40, M0 to M7	2	8	1.5	0.4			4.1	15.0	10.9
	HT/VHT40, M8 to M15	2	5	1.5	0.4			4.1	17.0	12.9
	HT/VHT40, M0 to M7	3	10	0.2	-0.3	-0.5		4.7	13.0	8.3
	HT/VHT40, M8 to M15	3	7	0.2	-0.3	-0.5		4.7	16.0	11.3
	HT/VHT40, M16 to M23	3	5	0.2	-0.3	-0.5		4.7	17.0	12.3
	HT/VHT40, M0 to M7	4	11	0.2	-0.3	-0.5	-0.2	5.9	12.0	6.1
	HT/VHT40, M8 to M15	4	8	0.2	-0.3	-0.5	-0.2	5.9	15.0	9.1
	HT/VHT40, M16 to M23	4	6	0.2	-0.3	-0.5	-0.2	5.9	17.0	11.1
	HT/VHT40, M24 to M31	4	5	0.2	-0.3	-0.5	-0.2	5.9	17.0	11.1
	HT/VHT40 Beam Forming, M0 to M7	2	8	0.2	-0.3			3.1	15.0	11.9

	HT/VHT40 Beam Forming, M8 to M15	2	5	1.5	0.4			4.1	17.0	12.9
	HT/VHT40 Beam Forming, M0 to M7	3	10	-3.3	-4.3	-4.0		1.0	13.0	12.0
	HT/VHT40 Beam Forming, M8 to M15	3	7	-0.4	-1.3	-1.1		4.0	16.0	12.0
	HT/VHT40 Beam Forming, M16 to M23	3	5	0.2	-0.3	-0.5		4.7	17.0	12.3
	HT/VHT40 Beam Forming, M0 to M7	4	11	-5.5	-6.0	-6.1	-6.2	0.2	12.0	11.8
	HT/VHT40 Beam Forming, M8 to M15	4	8	-1.8	-2.3	-2.3	-2.1	4.0	15.0	11.0
	HT/VHT40 Beam Forming, M16 to M23	4	6	-0.4	-1.3	-1.1	-1.3	5.1	17.0	11.9
	HT/VHT40 Beam Forming, M24 to M31	4	5	0.2	-0.3	-0.5	-0.2	5.9	17.0	11.1
	HT/VHT40 STBC, M0 to M7	2	5	1.5	0.4			4.1	17.0	12.9
	HT/VHT40 STBC, M0 to M7	3	7	0.2	-0.3	-0.5		4.7	16.0	11.3
	HT/VHT40 STBC, M0 to M7	4	8	0.2	-0.3	-0.5	-0.2	5.9	15.0	9.1
	HE40, M0 to M9 1ss	1	5	2.2				2.3	17.0	14.7
	HE40, M0 to M9 1ss	2	8	0.5	0.0			3.4	15.0	11.6
	HE40, M0 to M9 2ss	2	5	0.5	0.0			3.4	17.0	13.6
	HE40, M0 to M9 1ss	3	10	0.5	0.0	0.0		5.1	13.0	7.9
	HE40, M0 to M9 2ss	3	7	0.5	0.0	0.0		5.1	16.0	10.9
	HE40, M0 to M9 3ss	3	5	0.5	0.0	0.0		5.1	17.0	11.9
	HE40, M0 to M9 1ss	4	11	0.5	0.0	0.0	1.4	6.7	12.0	5.3
	HE40, M0 to M9 2ss	4	8	0.5	0.0	0.0	1.4	6.7	15.0	8.3
	HE40, M0 to M9 3ss	4	6	0.5	0.0	0.0	1.4	6.7	17.0	10.3
	HE40, M0 to M9 4ss	4	5	0.5	0.0	0.0	1.4	6.7	17.0	10.3
	HE40 Beam Forming, M0 to M9 1ss	2	8	-0.8	-1.3			2.1	15.0	12.9
	HE40 Beam Forming, M0 to M9 2ss	2	5	0.5	0.0			3.4	17.0	13.6
	HE40 Beam Forming, M0 to M9 1ss	3	10	-3.5	-4.0	-4.0		1.1	13.0	11.9
	HE40 Beam Forming, M0 to M9 2ss	3	7	-0.8	-1.3	-1.2		3.8	16.0	12.2
	HE40 Beam Forming, M0 to M9 3ss	3	5	0.5	0.0	0.0		5.1	17.0	11.9
	HE40 Beam Forming, M0 to M9 1ss	4	11	-6.1	-7.2	-6.8	-5.6	-0.2	12.0	12.2
	HE40 Beam Forming, M0 to M9 2ss	4	8	-2.1	-3.3	-2.9	-1.7	3.7	15.0	11.3
	HE40 Beam Forming, M0 to M9 3ss	4	6	-0.8	-1.3	-1.2	-0.4	5.2	17.0	11.8
	HE40 Beam Forming, M0 to M9 4ss	4	5	0.5	0.0	0.0	1.4	6.7	17.0	10.3
	HE40 STBC, M0 to M9 2ss	2	5	0.5	0.0			3.4	17.0	13.6
	HE40 STBC, M0 to M9 2ss	3	7	0.5	0.0	0.0		5.1	16.0	10.9
	HE40 STBC, M0 to M9 2ss	4	8	0.5	0.0	0.0	1.4	6.7	15.0	8.3
5210	Non HT80, 6 to 54 Mbps	1	5	-2.2				-2.2	17.0	19.2
	Non HT80, 6 to 54 Mbps	2	8	-2.2	-2.9			0.5	15.0	14.5
	Non HT80, 6 to 54 Mbps	3	10	-2.4	-3.8	-2.8		1.8	13.0	11.2
	Non HT80, 6 to 54 Mbps	4	11	-2.4	-3.8	-2.8	-2.5	3.2	12.0	8.8
	VHT80, M0 to M9 1ss	1	5	-1.9				-1.7	17.0	18.7



VHT80, M0 to M9 1ss	2	8	-2.4	-3.2			0.4	15.0	14.6
VHT80, M0 to M9 2ss	2	5	-2.4	-3.2			0.4	17.0	16.6
VHT80, M0 to M9 1ss	3	10	-2.4	-3.2	-2.7		2.2	13.0	10.8
VHT80, M0 to M9 2ss	3	7	-2.4	-3.2	-2.7		2.2	16.0	13.8
VHT80, M0 to M9 3ss	3	5	-2.4	-3.2	-2.7		2.2	17.0	14.8
VHT80, M0 to M9 1ss	4	11	-3.8	-4.3	-3.8	-2.7	2.6	12.0	9.4
VHT80, M0 to M9 2ss	4	8	-3.8	-4.3	-3.8	-2.7	2.6	15.0	12.4
VHT80, M0 to M9 3ss	4	6	-3.8	-4.3	-3.8	-2.7	2.6	17.0	14.4
VHT80, M0 to M9 4ss	4	5	-3.8	-4.3	-3.8	-2.7	2.6	17.0	14.4
VHT80 Beam Forming, M0 to M9 1ss	2	8	-3.8	-4.3			-0.8	15.0	15.8
VHT80 Beam Forming, M0 to M9 2ss	2	5	-2.4	-3.2			0.4	17.0	16.6
VHT80 Beam Forming, M0 to M9 1ss	3	10	-5.7	-6.3	-5.7		-0.9	13.0	13.9
VHT80 Beam Forming, M0 to M9 2ss	3	7	-3.8	-4.3	-3.8		1.0	16.0	15.0
VHT80 Beam Forming, M0 to M9 3ss	3	5	-2.4	-3.2	-2.7		2.2	17.0	14.8
VHT80 Beam Forming, M0 to M9 1ss	4	11	-8.2	-8.7	-8.4	-7.6	-2.0	12.0	14.0
VHT80 Beam Forming, M0 to M9 2ss	4	8	-4.7	-5.4	-4.8	-3.8	1.6	15.0	13.4
VHT80 Beam Forming, M0 to M9 3ss	4	6	-3.8	-4.3	-3.8	-2.7	2.6	17.0	14.4
VHT80 Beam Forming, M0 to M9 4ss	4	5	-3.8	-4.3	-3.8	-2.7	2.6	17.0	14.4
VHT80 STBC, M0 to M9 1ss	2	5	-2.4	-3.2			0.4	17.0	16.6
VHT80 STBC, M0 to M9 1ss	3	5	-2.4	-3.2	-2.7		2.2	17.0	14.8
VHT80 STBC, M0 to M9 1ss	4	5	-3.8	-4.3	-3.8	-2.7	2.6	17.0	14.4
HE80, M0 to M9 1ss	1	5	-1.2				-1.0	17.0	18.0
HE80, M0 to M9 1ss	2	8	-1.2	-2.1			1.6	15.0	13.4
HE80, M0 to M9 2ss	2	5	-1.2	-2.1			1.6	17.0	15.4
HE80, M0 to M9 1ss	3	10	-2.1	-3.0	-2.5		2.5	13.0	10.5
HE80, M0 to M9 2ss	3	7	-2.1	-3.0	-2.5		2.5	16.0	13.5
HE80, M0 to M9 3ss	3	5	-2.1	-3.0	-2.5		2.5	17.0	14.5
HE80, M0 to M9 1ss	4	11	-3.5	-3.9	-3.7	-1.7	3.2	12.0	8.8
HE80, M0 to M9 2ss	4	8	-3.5	-3.9	-3.7	-1.7	3.2	15.0	11.8
HE80, M0 to M9 3ss	4	6	-3.5	-3.9	-3.7	-1.7	3.2	17.0	13.8
HE80, M0 to M9 4ss	4	5	-3.5	-3.9	-3.7	-1.7	3.2	17.0	13.8
HE80 Beam Forming, M0 to M9 1ss	2	8	-3.5	-3.9			-0.4	15.0	15.4
HE80 Beam Forming, M0 to M9 2ss	2	5	-1.2	-2.1			1.6	17.0	15.4
HE80 Beam Forming, M0 to M9 1ss	3	10	-5.2	-5.7	-5.7		-0.5	13.0	13.5
HE80 Beam Forming, M0 to M9 2ss	3	7	-3.5	-3.9	-3.7		1.3	16.0	14.7
HE80 Beam Forming, M0 to M9 3ss	3	5	-2.1	-3.0	-2.5		2.5	17.0	14.5
HE80 Beam Forming, M0 to M9 1ss	4	11	-8.2	-8.9	-7.8	-6.4	-1.5	12.0	13.5
HE80 Beam Forming, M0 to M9 2ss	4	8	-4.6	-5.3	-4.8	-2.5	2.1	15.0	12.9
HE80 Beam Forming, M0 to M9 3ss	4	6	-3.5	-3.9	-3.7	-1.7	3.2	17.0	13.8

HE80 Beam Forming, M0 to M9 4ss	4	5	-3.5	-3.9	-3.7	-1.7	3.2	17.0	13.8
HE80 STBC, M0 to M9 1ss	2	5	-1.2	-2.1			1.6	17.0	15.4
HE80 STBC, M0 to M9 1ss	3	5	-2.1	-3.0	-2.5		2.5	17.0	14.5
HE80 STBC, M0 to M9 1ss	4	5	-3.5	-3.9	-3.7	-1.7	3.2	17.0	13.8

5220	Non HT20, 6 to 54 Mbps	1	5	7.0				7.0	17.0	10.0
	Non HT20, 6 to 54 Mbps	2	8	7.0	5.5			9.3	15.0	5.7
	Non HT20, 6 to 54 Mbps	3	10	7.0	5.5	6.0		11.0	13.0	2.0
	Non HT20, 6 to 54 Mbps	4	11	5.9	4.4	5.1	5.8	11.4	12.0	0.6
	Non HT20 Beam Forming, 6 to 54 Mbps	2	8	7.0	5.5			9.3	15.0	5.7
	Non HT20 Beam Forming, 6 to 54 Mbps	3	10	7.0	5.5	6.0		11.0	13.0	2.0
	Non HT20 Beam Forming, 6 to 54 Mbps	4	11	5.9	4.4	5.1	5.8	11.4	12.0	0.6
	HT/VHT20, M0 to M7	1	5	6.5				6.5	17.0	10.5
	HT/VHT20, M0 to M7	2	8	6.5	5.1			8.9	15.0	6.1
	HT/VHT20, M8 to M15	2	5	6.5	5.1			8.9	17.0	8.1
	HT/VHT20, M0 to M7	3	10	6.5	5.1	5.8		10.6	13.0	2.4
	HT/VHT20, M8 to M15	3	7	6.5	5.1	5.8		10.6	16.0	5.4
	HT/VHT20, M16 to M23	3	5	6.5	5.1	5.8		10.6	17.0	6.4
	HT/VHT20, M0 to M7	4	11	5.9	4.6	5.1	5.6	11.3	12.0	0.7
	HT/VHT20, M8 to M15	4	8	6.5	5.1	5.8	6.7	12.1	15.0	2.9
	HT/VHT20, M16 to M23	4	6	6.5	5.1	5.8	6.7	12.1	17.0	4.9
	HT/VHT20, M24 to M31	4	5	6.5	5.1	5.8	6.7	12.1	17.0	4.9
	HT/VHT20 Beam Forming, M0 to M7	2	8	6.5	5.1			8.9	15.0	6.1
	HT/VHT20 Beam Forming, M8 to M15	2	5	6.5	5.1			8.9	17.0	8.1
	HT/VHT20 Beam Forming, M0 to M7	3	10	6.5	5.1	5.8		10.6	13.0	2.4
	HT/VHT20 Beam Forming, M8 to M15	3	7	6.5	5.1	5.8		10.6	16.0	5.4
	HT/VHT20 Beam Forming, M16 to M23	3	5	6.5	5.1	5.8		10.6	17.0	6.4
	HT/VHT20 Beam Forming, M0 to M7	4	11	5.9	4.6	5.1	5.6	11.3	12.0	0.7
	HT/VHT20 Beam Forming, M8 to M15	4	8	6.5	5.1	5.8	6.7	12.1	15.0	2.9
	HT/VHT20 Beam Forming, M16 to M23	4	6	6.5	5.1	5.8	6.7	12.1	17.0	4.9
	HT/VHT20 Beam Forming, M24 to M31	4	5	6.5	5.1	5.8	6.7	12.1	17.0	4.9
	HT/VHT20 STBC, M0 to M7	2	5	6.5	5.1			8.9	17.0	8.1
	HT/VHT20 STBC, M0 to M7	3	7	6.5	5.1	5.8		10.6	16.0	5.4
	HT/VHT20 STBC, M0 to M7	4	8	6.5	5.1	5.8	6.7	12.1	15.0	2.9
	HE20, M0 to M9 1ss	1	5	6.7				6.7	17.0	10.3
	HE20, M0 to M9 1ss	2	8	6.7	5.7			9.2	15.0	5.8
	HE20, M0 to M9 2ss	2	5	6.7	5.7			9.2	17.0	7.8
	HE20, M0 to M9 1ss	3	10	6.7	5.7	6.4		11.1	13.0	1.9
HE20, M0 to M9 2ss	3	7	6.7	5.7	6.4		11.1	16.0	4.9	

HE20, M0 to M9 3ss	3	5	6.7	5.7	6.4		11.1	17.0	5.9
HE20, M0 to M9 1ss	4	11	6.1	4.5	5.5	5.7	11.5	12.0	0.5
HE20, M0 to M9 2ss	4	8	6.7	5.7	6.4	6.9	12.5	15.0	2.5
HE20, M0 to M9 3ss	4	6	6.7	5.7	6.4	6.9	12.5	17.0	4.5
HE20, M0 to M9 4ss	4	5	6.7	5.7	6.4	6.9	12.5	17.0	4.5
HE20 Beam Forming, M0 to M9 1ss	2	8	6.7	5.7			9.2	15.0	5.8
HE20 Beam Forming, M0 to M9 2ss	2	5	6.7	5.7			9.2	17.0	7.8
HE20 Beam Forming, M0 to M9 1ss	3	10	6.7	5.7	6.4		11.1	13.0	1.9
HE20 Beam Forming, M0 to M9 2ss	3	7	6.7	5.7	6.4		11.1	16.0	4.9
HE20 Beam Forming, M0 to M9 3ss	3	5	6.7	5.7	6.4		11.1	17.0	5.9
HE20 Beam Forming, M0 to M9 1ss	4	11	6.1	4.5	5.5	5.7	11.5	12.0	0.5
HE20 Beam Forming, M0 to M9 2ss	4	8	6.7	5.7	6.4	6.9	12.5	15.0	2.5
HE20 Beam Forming, M0 to M9 3ss	4	6	6.7	5.7	6.4	6.9	12.5	17.0	4.5
HE20 Beam Forming, M0 to M9 4ss	4	5	6.7	5.7	6.4	6.9	12.5	17.0	4.5
HE20 STBC, M0 to M9 2ss	2	5	6.7	5.7			9.2	17.0	7.8
HE20 STBC, M0 to M9 2ss	3	7	6.7	5.7	6.4		11.1	16.0	4.9
HE20 STBC, M0 to M9 2ss	4	8	6.7	5.7	6.4	6.9	12.5	15.0	2.5

Non HT40, 6 to 54 Mbps	1	5	4.0				4.0	17.0	13.0
Non HT40, 6 to 54 Mbps	2	8	4.0	3.5			6.8	15.0	8.2
Non HT40, 6 to 54 Mbps	3	10	4.0	3.5	3.3		8.4	13.0	4.6
Non HT40, 6 to 54 Mbps	4	11	4.0	3.5	3.3	3.4	9.6	12.0	2.4
HT/VHT40, M0 to M7	1	5	3.5				3.6	17.0	13.4
HT/VHT40, M0 to M7	2	8	3.5	2.9			6.3	15.0	8.7
HT/VHT40, M8 to M15	2	5	3.5	2.9			6.3	17.0	10.7
HT/VHT40, M0 to M7	3	10	3.5	2.9	3.1		8.0	13.0	5.0
HT/VHT40, M8 to M15	3	7	3.5	2.9	3.1		8.0	16.0	8.0
HT/VHT40, M16 to M23	3	5	3.5	2.9	3.1		8.0	17.0	9.0
HT/VHT40, M0 to M7	4	11	3.5	2.9	3.1	3.0	9.3	12.0	2.7
HT/VHT40, M8 to M15	4	8	3.5	2.9	3.1	3.0	9.3	15.0	5.7
HT/VHT40, M16 to M23	4	6	3.5	2.9	3.1	3.0	9.3	17.0	7.7
HT/VHT40, M24 to M31	4	5	3.5	2.9	3.1	3.0	9.3	17.0	7.7
HT/VHT40 Beam Forming, M0 to M7	2	8	3.5	2.9			6.3	15.0	8.7
HT/VHT40 Beam Forming, M8 to M15	2	5	3.5	2.9			6.3	17.0	10.7
HT/VHT40 Beam Forming, M0 to M7	3	10	3.5	2.9	3.1		8.0	13.0	5.0
HT/VHT40 Beam Forming, M8 to M15	3	7	3.5	2.9	3.1		8.0	16.0	8.0
HT/VHT40 Beam Forming, M16 to M23	3	5	3.5	2.9	3.1		8.0	17.0	9.0
HT/VHT40 Beam Forming, M0 to M7	4	11	3.5	2.9	3.1	3.0	9.3	12.0	2.7
HT/VHT40 Beam Forming, M8 to M15	4	8	3.5	2.9	3.1	3.0	9.3	15.0	5.7

	HT/VHT40 Beam Forming, M16 to M23	4	6	3.5	2.9	3.1	3.0	9.3	17.0	7.7
	HT/VHT40 Beam Forming, M24 to M31	4	5	3.5	2.9	3.1	3.0	9.3	17.0	7.7
	HT/VHT40 STBC, M0 to M7	2	5	3.5	2.9			6.3	17.0	10.7
	HT/VHT40 STBC, M0 to M7	3	7	3.5	2.9	3.1		8.0	16.0	8.0
	HT/VHT40 STBC, M0 to M7	4	8	3.5	2.9	3.1	3.0	9.3	15.0	5.7
	HE40, M0 to M9 1ss	1	5	3.9				4.0	17.0	13.0
	HE40, M0 to M9 1ss	2	8	3.9	3.0			6.6	15.0	8.4
	HE40, M0 to M9 2ss	2	5	3.9	3.0			6.6	17.0	10.4
	HE40, M0 to M9 1ss	3	10	3.9	3.0	3.2		8.3	13.0	4.7
	HE40, M0 to M9 2ss	3	7	3.9	3.0	3.2		8.3	16.0	7.7
	HE40, M0 to M9 3ss	3	5	3.9	3.0	3.2		8.3	17.0	8.7
	HE40, M0 to M9 1ss	4	11	3.9	3.0	3.2	4.1	9.7	12.0	2.3
	HE40, M0 to M9 2ss	4	8	3.9	3.0	3.2	4.1	9.7	15.0	5.3
	HE40, M0 to M9 3ss	4	6	3.9	3.0	3.2	4.1	9.7	17.0	7.3
	HE40, M0 to M9 4ss	4	5	3.9	3.0	3.2	4.1	9.7	17.0	7.3
	HE40 Beam Forming, M0 to M9 1ss	2	8	3.9	3.0			6.6	15.0	8.4
	HE40 Beam Forming, M0 to M9 2ss	2	5	3.9	3.0			6.6	17.0	10.4
	HE40 Beam Forming, M0 to M9 1ss	3	10	3.9	3.0	3.2		8.3	13.0	4.7
	HE40 Beam Forming, M0 to M9 2ss	3	7	3.9	3.0	3.2		8.3	16.0	7.7
	HE40 Beam Forming, M0 to M9 3ss	3	5	3.9	3.0	3.2		8.3	17.0	8.7
	HE40 Beam Forming, M0 to M9 1ss	4	11	3.9	3.0	3.2	4.1	9.7	12.0	2.3
	HE40 Beam Forming, M0 to M9 2ss	4	8	3.9	3.0	3.2	4.1	9.7	15.0	5.3
	HE40 Beam Forming, M0 to M9 3ss	4	6	3.9	3.0	3.2	4.1	9.7	17.0	7.3
	HE40 Beam Forming, M0 to M9 4ss	4	5	3.9	3.0	3.2	4.1	9.7	17.0	7.3
	HE40 STBC, M0 to M9 2ss	2	5	3.9	3.0			6.6	17.0	10.4
	HE40 STBC, M0 to M9 2ss	3	7	3.9	3.0	3.2		8.3	16.0	7.7
	HE40 STBC, M0 to M9 2ss	4	8	3.9	3.0	3.2	4.1	9.7	15.0	5.3

5240	Non HT20, 6 to 54 Mbps	1	5	7.1				7.1	17.0	9.9
	Non HT20, 6 to 54 Mbps	2	8	7.1	5.6			9.4	15.0	5.6
	Non HT20, 6 to 54 Mbps	3	10	7.1	5.6	6.3		11.1	13.0	1.9
	Non HT20, 6 to 54 Mbps	4	11	6.1	4.5	5.1	5.8	11.4	12.0	0.6
	Non HT20 Beam Forming, 6 to 54 Mbps	2	8	7.1	5.6			9.4	15.0	5.6
	Non HT20 Beam Forming, 6 to 54 Mbps	3	10	7.1	5.6	6.3		11.1	13.0	1.9
	Non HT20 Beam Forming, 6 to 54 Mbps	4	11	6.1	4.5	5.1	5.8	11.4	12.0	0.6
	HT/VHT20, M0 to M7	1	5	6.7				6.7	17.0	10.3
	HT/VHT20, M0 to M7	2	8	6.7	5.1			9.0	15.0	6.0
	HT/VHT20, M8 to M15	2	5	6.7	5.1			9.0	17.0	8.0
	HT/VHT20, M0 to M7	3	10	6.7	5.1	5.7		10.7	13.0	2.3

HT/VHT20, M8 to M15	3	7	6.7	5.1	5.7		10.7	16.0	5.3
HT/VHT20, M16 to M23	3	5	6.7	5.1	5.7		10.7	17.0	6.3
HT/VHT20, M0 to M7	4	11	5.4	3.9	5.0	5.3	11.0	12.0	1.0
HT/VHT20, M8 to M15	4	8	6.7	5.1	5.7	6.6	12.1	15.0	2.9
HT/VHT20, M16 to M23	4	6	6.7	5.1	5.7	6.6	12.1	17.0	4.9
HT/VHT20, M24 to M31	4	5	6.7	5.1	5.7	6.6	12.1	17.0	4.9
HT/VHT20 Beam Forming, M0 to M7	2	8	6.7	5.1			9.0	15.0	6.0
HT/VHT20 Beam Forming, M8 to M15	2	5	6.7	5.1			9.0	17.0	8.0
HT/VHT20 Beam Forming, M0 to M7	3	10	6.7	5.1	5.7		10.7	13.0	2.3
HT/VHT20 Beam Forming, M8 to M15	3	7	6.7	5.1	5.7		10.7	16.0	5.3
HT/VHT20 Beam Forming, M16 to M23	3	5	6.7	5.1	5.7		10.7	17.0	6.3
HT/VHT20 Beam Forming, M0 to M7	4	11	5.4	3.9	5.0	5.3	11.0	12.0	1.0
HT/VHT20 Beam Forming, M8 to M15	4	8	6.7	5.1	5.7	6.6	12.1	15.0	2.9
HT/VHT20 Beam Forming, M16 to M23	4	6	6.7	5.1	5.7	6.6	12.1	17.0	4.9
HT/VHT20 Beam Forming, M24 to M31	4	5	6.7	5.1	5.7	6.6	12.1	17.0	4.9
HT/VHT20 STBC, M0 to M7	2	5	6.7	5.1			9.0	17.0	8.0
HT/VHT20 STBC, M0 to M7	3	7	6.7	5.1	5.7		10.7	16.0	5.3
HT/VHT20 STBC, M0 to M7	4	8	6.7	5.1	5.7	6.6	12.1	15.0	2.9
HE20, M0 to M9 1ss	1	5	7.0				7.0	17.0	10.0
HE20, M0 to M9 1ss	2	8	7.0	5.5			9.3	15.0	5.7
HE20, M0 to M9 2ss	2	5	7.0	5.5			9.3	17.0	7.7
HE20, M0 to M9 1ss	3	10	7.0	5.5	6.0		11.0	13.0	2.0
HE20, M0 to M9 2ss	3	7	7.0	5.5	6.0		11.0	16.0	5.0
HE20, M0 to M9 3ss	3	5	7.0	5.5	6.0		11.0	17.0	6.0
HE20, M0 to M9 1ss	4	11	6.2	4.2	5.6	5.6	11.5	12.0	0.5
HE20, M0 to M9 2ss	4	8	7.0	5.5	6.0	7.0	12.4	15.0	2.6
HE20, M0 to M9 3ss	4	6	7.0	5.5	6.0	7.0	12.4	17.0	4.6
HE20, M0 to M9 4ss	4	5	7.0	5.5	6.0	7.0	12.4	17.0	4.6
HE20 Beam Forming, M0 to M9 1ss	2	8	7.0	5.5			9.3	15.0	5.7
HE20 Beam Forming, M0 to M9 2ss	2	5	7.0	5.5			9.3	17.0	7.7
HE20 Beam Forming, M0 to M9 1ss	3	10	7.0	5.5	6.0		11.0	13.0	2.0
HE20 Beam Forming, M0 to M9 2ss	3	7	7.0	5.5	6.0		11.0	16.0	5.0
HE20 Beam Forming, M0 to M9 3ss	3	5	7.0	5.5	6.0		11.0	17.0	6.0
HE20 Beam Forming, M0 to M9 1ss	4	11	6.2	4.2	5.6	5.6	11.5	12.0	0.5
HE20 Beam Forming, M0 to M9 2ss	4	8	7.0	5.5	6.0	7.0	12.4	15.0	2.6
HE20 Beam Forming, M0 to M9 3ss	4	6	7.0	5.5	6.0	7.0	12.4	17.0	4.6
HE20 Beam Forming, M0 to M9 4ss	4	5	7.0	5.5	6.0	7.0	12.4	17.0	4.6
HE20 STBC, M0 to M9 2ss	2	5	7.0	5.5			9.3	17.0	7.7
HE20 STBC, M0 to M9 2ss	3	7	7.0	5.5	6.0		11.0	16.0	5.0

	HE20 STBC, M0 to M9 2ss	4	8	7.0	5.5	6.0	7.0	12.4	15.0	2.6
5250	Non HT160, 6 to 54 Mbps	1	5	-3.7				-3.7	11.0	14.7
	Non HT160, 6 to 54 Mbps	2	8	-4.6	-7.4			-2.8	9.0	11.8
	Non HT160, 6 to 54 Mbps	3	10	-5.7	-8.2	-8.2		-2.4	7.0	9.4
	Non HT160, 6 to 54 Mbps	4	11	-7.2	-9.2	-9.1	-2.4	0.0	6.0	6.0
	VHT160, M0 to M9 1ss	1	5	-5.2				-4.8	11.0	15.8
	VHT160, M0 to M9 1ss	2	8	-6.6	-7.4			-3.6	9.0	12.6
	VHT160, M0 to M9 2ss	2	5	-6.6	-7.4			-3.6	11.0	14.6
	VHT160, M0 to M9 1ss	3	10	-7.7	-8.1	-8.3		-2.9	7.0	9.9
	VHT160, M0 to M9 2ss	3	7	-7.7	-8.1	-8.3		-2.9	10.0	12.9
	VHT160, M0 to M9 3ss	3	5	-7.7	-8.1	-8.3		-2.9	11.0	13.9
	VHT160, M0 to M9 1ss	4	11	-7.7	-8.1	-8.3	-2.8	0.4	6.0	5.6
	VHT160, M0 to M9 2ss	4	8	-7.7	-8.1	-8.3	-2.8	0.4	9.0	8.6
	VHT160, M0 to M9 3ss	4	6	-7.7	-8.1	-8.3	-2.8	0.4	11.0	10.6
	VHT160, M0 to M9 4ss	4	5	-7.7	-8.1	-8.3	-2.8	0.4	11.0	10.6
	VHT160 Beam Forming, M0 to M9 1ss	2	8	-7.7	-8.1			-4.5	9.0	13.5
	VHT160 Beam Forming, M0 to M9 2ss	2	5	-6.6	-7.4			-3.6	11.0	14.6
	VHT160 Beam Forming, M0 to M9 1ss	3	10	-9.8	-11.2	-10.8		-5.4	7.0	12.4
	VHT160 Beam Forming, M0 to M9 2ss	3	7	-7.7	-8.1	-8.3		-2.9	10.0	12.9
	VHT160 Beam Forming, M0 to M9 3ss	3	5	-7.7	-8.1	-8.3		-2.9	11.0	13.9
	VHT160 Beam Forming, M0 to M9 1ss	4	11	-11.5	-12.8	-13.2	-7.8	-4.3	6.0	10.3
	VHT160 Beam Forming, M0 to M9 2ss	4	8	-9.3	-10.2	-9.9	-4.9	-1.6	9.0	10.6
	VHT160 Beam Forming, M0 to M9 3ss	4	6	-9.3	-10.2	-9.9	-4.9	-1.6	11.0	12.6
	VHT160 Beam Forming, M0 to M9 4ss	4	5	-7.7	-8.1	-8.3	-2.8	0.4	11.0	10.6
	VHT160 STBC, M0 to M9 1ss	2	5	-6.6	-7.4			-3.6	11.0	14.6
	VHT160 STBC, M0 to M9 1ss	3	5	-7.7	-8.1	-8.3		-2.9	11.0	13.9
	VHT160 STBC, M0 to M9 1ss	4	5	-7.7	-8.1	-8.3	-2.8	0.4	11.0	10.6
	HE160, M0 to M9 1ss	1	5	-4.2				-3.8	11.0	14.8
	HE160, M0 to M9 1ss	2	8	-4.9	-6.1			-2.0	9.0	11.0
	HE160, M0 to M9 2ss	2	5	-4.9	-6.1			-2.0	11.0	13.0
	HE160, M0 to M9 1ss	3	10	-5.8	-7.0	-7.3		-1.4	7.0	8.4
	HE160, M0 to M9 2ss	3	7	-5.8	-7.0	-7.3		-1.4	10.0	11.4
	HE160, M0 to M9 3ss	3	5	-5.8	-7.0	-7.3		-1.4	11.0	12.4
HE160, M0 to M9 1ss	4	11	-7.5	-8.2	-8.0	-2.8	0.5	6.0	5.5	
HE160, M0 to M9 2ss	4	8	-7.5	-8.2	-8.0	-2.8	0.5	9.0	8.5	
HE160, M0 to M9 3ss	4	6	-7.5	-8.2	-8.0	-2.8	0.5	11.0	10.5	
HE160, M0 to M9 4ss	4	5	-7.5	-8.2	-8.0	-2.8	0.5	11.0	10.5	
HE160 Beam Forming, M0 to M9 1ss	2	8	-5.8	-7.0			-2.9	9.0	11.9	



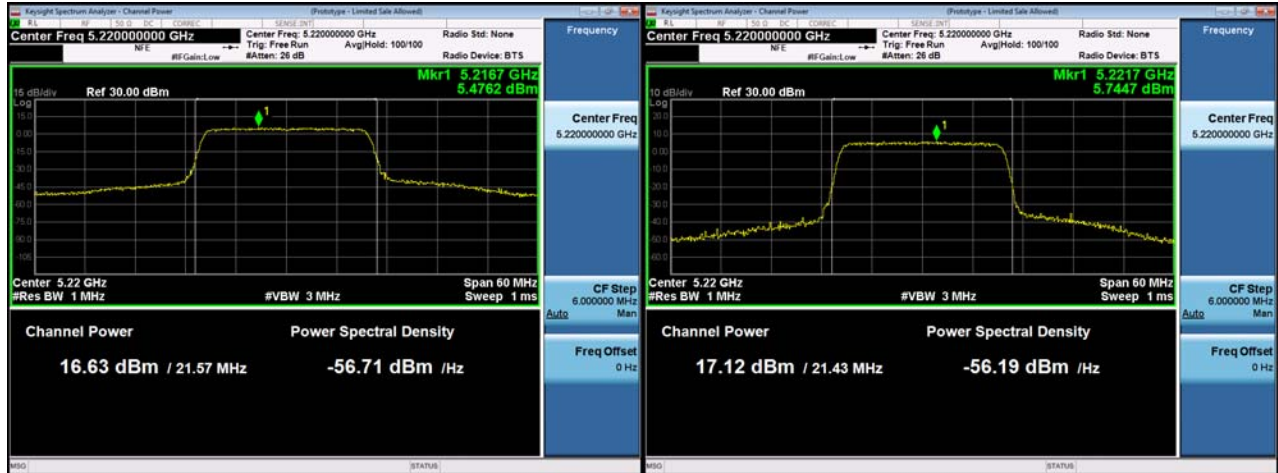
HE160 Beam Forming, M0 to M9 2ss	2	5	-4.9	-6.1			-2.0	11.0	13.0
HE160 Beam Forming, M0 to M9 1ss	3	10	-9.0	-10.2	-10.1		-4.5	7.0	11.5
HE160 Beam Forming, M0 to M9 2ss	3	7	-7.5	-8.2	-8.0		-2.7	10.0	12.7
HE160 Beam Forming, M0 to M9 3ss	3	5	-5.8	-7.0	-7.3		-1.4	11.0	12.4
HE160 Beam Forming, M0 to M9 1ss	4	11	-10.5	-12.1	-11.8	-6.6	-3.2	6.0	9.2
HE160 Beam Forming, M0 to M9 2ss	4	8	-8.5	-8.7	-9.0	-3.5	-0.3	9.0	9.3
HE160 Beam Forming, M0 to M9 3ss	4	6	-7.5	-8.2	-8.0	-2.8	0.5	11.0	10.5
HE160 Beam Forming, M0 to M9 4ss	4	5	-7.5	-8.2	-8.0	-2.8	0.5	11.0	10.5
HE160 STBC, M0 to M9 1ss	2	5	-4.9	-6.1			-2.0	11.0	13.0
HE160 STBC, M0 to M9 1ss	3	5	-5.8	-7.0	-7.3		-1.4	11.0	12.4
HE160 STBC, M0 to M9 1ss	4	5	-7.5	-8.2	-8.0	-2.8	0.5	11.0	10.5

**Power Spectral Density, 5220 MHz, HE20, M0 to M9 1ss**



**Antenna A**

**Antenna B**



**Antenna C**

**Antenna D**



## A.5 Conducted Spurious Emissions

### Conducted Spurious Emissions Test Requirement

**15.407(b) Undesirable emission limits.** Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
- (6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209.
- (7) The provisions of §15.205 apply to intentional radiators operating under this section.
- (8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

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)).

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

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

- 1) Average Plot, Limit= -41.25 dBm eirp
- 2) Peak plot, Limit = -21.25 dBm eirp

### KDB 789033 D02 General UNII Test Procedures New Rules v02r01

#### 2. Unwanted Emissions that fall Outside of the Restricted Bands

- a) For all measurements, follow the requirements in II.G.3. “*General Requirements for Unwanted Emissions Measurements.*”
- b) At frequencies below 1000 MHz, use the procedure described in II.G.4. “*Procedure for Unwanted Emissions Measurements Below 1000 MHz.*”
- c) At frequencies above 1000 MHz, use the procedure for maximum emissions described in II.G.5., “*Procedure for Unwanted Emissions Measurements Above 1000 MHz.*”
- (i) Sections 15.407(b)(1-3) specifies the unwanted emissions limit for the U-NII-1 and U-NII-2 bands. As specified, emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz.<sup>3</sup>

### Conducted Spurious Emissions Test Procedure

#### KDB 789033 D02 General UNII Test Procedures New Rules v02r01

Ref. 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. ANSI C63.10: 2013 section 12.7.6 (Peak) and 12.7.7.2 (Average)**

**KDB 789033 D02 General UNII Test Procedures New Rules v02r01, Sec. 5 (Peak), Sec. 6 (Average Method AD)**

### Conducted Spurious Emissions

Test parameters

#### Peak

RBW = 1 MHz

VBW  $\geq$  3 MHz

Sweep = Auto

Detector = Peak

Trace = Max Hold.

#### Average

RBW = 1 MHz

VBW  $\geq$  3 MHz

Sweep = Auto

Detector = RMS

Power Averaging

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).

### Samples, Systems, and Modes

System Number	Description	Samples	System under test	Support equipment
1	EUT – lower band	S01	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Support	S02	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	EUT – upper band	S05	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Support	S04	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### Tested By:

Chris Blair

#### Date of testing:

29-Mar-19 - 5-Apr-19

03-May-19 (upper band)

**Test Result: PASS**

#### Test Equipment

See Appendix C for list of test equipment

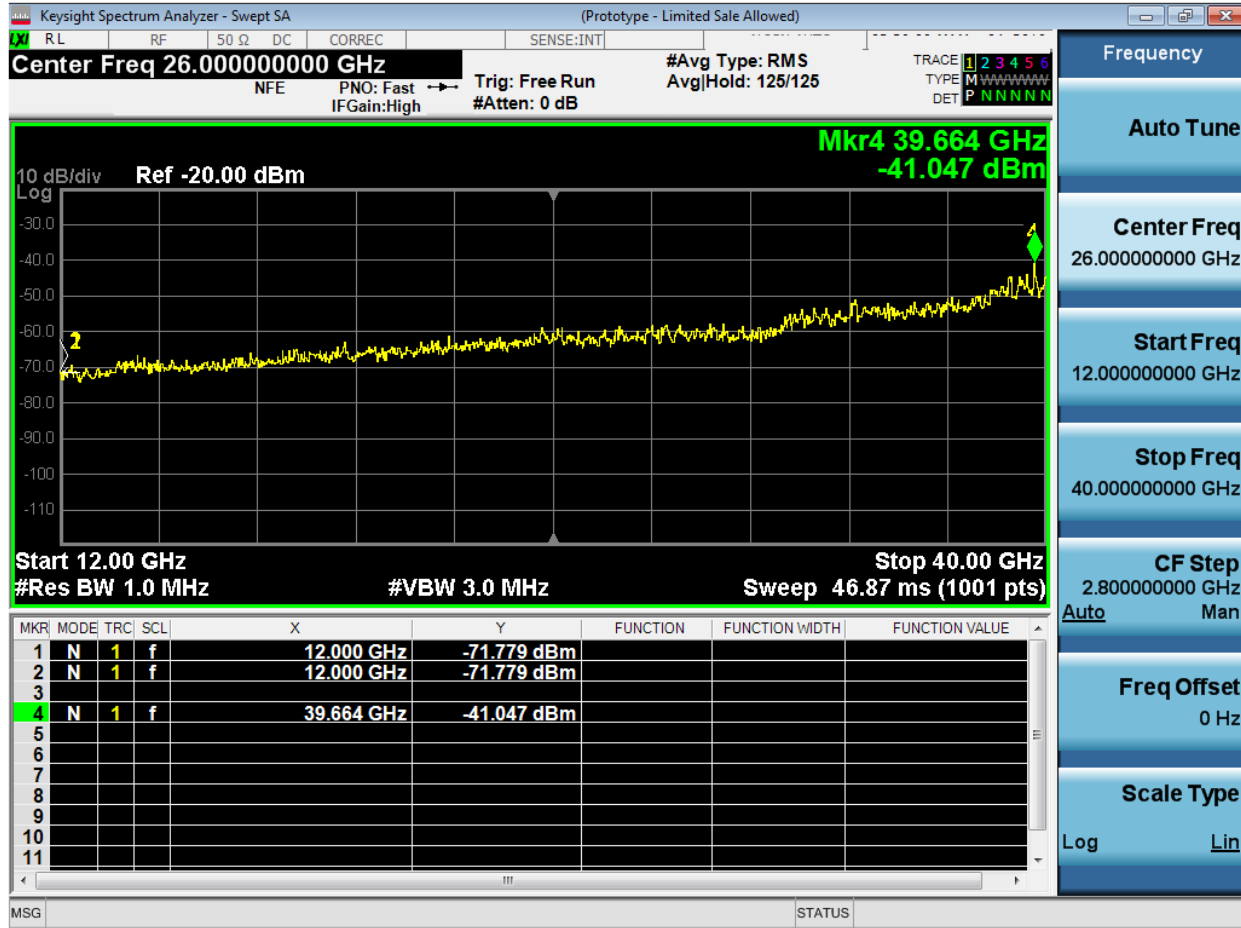


**Conducted Spurs Average Upper, 5180 MHz, Non HT20, 6 to 54 Mbps**





**Conducted Spurs Peak Upper, 5180 MHz, Non HT20, 6 to 54 Mbps**



Frequency (MHz)	Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 Spur Power (dBm)	Tx 2 Spur Power (dBm)	Tx 3 Spur Power (dBm)	Tx 4 Spur Power (dBm)	Total Conducted Spur (dBm)	Limit (dBm)	Margin (dB)
5180	Non HT20, 6 to 54 Mbps	1	5	-60.9				-55.9	-41.25	14.7
	Non HT20, 6 to 54 Mbps	2	5	-61.6	-60.3			-52.9	-41.25	11.6
	Non HT20, 6 to 54 Mbps	3	5	-61.6	-60.3	-60.2		-50.9	-41.25	9.6
	Non HT20, 6 to 54 Mbps	4	5	-61.6	-60.3	-60.2	-59.0	-49.2	-41.25	7.9
	Non HT20 Beam Forming, 6 to 54 Mbps	2	8	-62.1	-62.0			-51.0	-41.25	9.8
	Non HT20 Beam Forming, 6 to 54 Mbps	3	10	-64.3	-63.2	-63.1		-48.7	-41.25	7.5
	Non HT20 Beam Forming, 6 to 54 Mbps	4	11	-65.1	-63.5	-63.6	-62.3	-46.5	-41.25	5.2
	HT/VHT20, M0 to M7	1	5	-61.8				-56.8	-41.25	15.6
	HT/VHT20, M0 to M7	2	5	-61.8	-60.3			-53.0	-41.25	11.7
	HT/VHT20, M8 to M15	2	5	-61.8	-60.3			-53.0	-41.25	11.7
	HT/VHT20, M0 to M7	3	5	-61.8	-60.3	-60.2		-50.9	-41.25	9.7
	HT/VHT20, M8 to M15	3	5	-61.8	-60.3	-60.2		-50.9	-41.25	9.7
	HT/VHT20, M16 to M23	3	5	-61.8	-60.3	-60.2		-50.9	-41.25	9.7
	HT/VHT20, M0 to M7	4	5	-61.8	-60.3	-60.2	-58.9	-49.2	-41.25	7.9
	HT/VHT20, M8 to M15	4	5	-61.8	-60.3	-60.2	-58.9	-49.2	-41.25	7.9
	HT/VHT20, M16 to M23	4	5	-61.8	-60.3	-60.2	-58.9	-49.2	-41.25	7.9
	HT/VHT20, M24 to M31	4	5	-61.8	-60.3	-60.2	-58.9	-49.2	-41.25	7.9
	HT/VHT20 Beam Forming, M0 to M7	2	8	-62.4	-62.0			-51.2	-41.25	9.9
	HT/VHT20 Beam Forming, M8 to M15	2	5	-61.8	-60.3			-53.0	-41.25	11.7
	HT/VHT20 Beam Forming, M0 to M7	3	10	-64.4	-63.3	-63.1		-48.8	-41.25	7.5
	HT/VHT20 Beam Forming, M8 to M15	3	7	-62.4	-62.0	-60.6		-49.8	-41.25	8.6
	HT/VHT20 Beam Forming, M16 to M23	3	5	-61.8	-60.3	-60.2		-50.9	-41.25	9.7
	HT/VHT20 Beam Forming, M0 to M7	4	11	-65.5	-64.2	-64.2	-62.8	-47.0	-41.25	5.8
	HT/VHT20 Beam Forming, M8 to M15	4	8	-64.0	-62.8	-62.4	-60.9	-48.4	-41.25	7.1
	HT/VHT20 Beam Forming, M16 to M23	4	6	-62.4	-62.0	-60.6	-59.5	-48.9	-41.25	7.7
	HT/VHT20 Beam Forming, M24 to M31	4	5	-61.8	-60.3	-60.2	-58.9	-49.2	-41.25	7.9
	HT/VHT20 STBC, M0 to M7	2	5	-61.8	-60.3			-53.0	-41.25	11.7
	HT/VHT20 STBC, M0 to M7	3	5	-61.8	-60.3	-60.2		-50.9	-41.25	9.7
	HT/VHT20 STBC, M0 to M7	4	5	-61.8	-60.3	-60.2	-58.9	-49.2	-41.25	7.9
	HE20, M0 to M9 1ss	1	5	-61.6				-56.6	-41.25	15.4
	HE20, M0 to M9 1ss	2	5	-61.6	-60.4			-52.9	-41.25	11.7
	HE20, M0 to M9 2ss	2	5	-61.6	-60.4			-52.9	-41.25	11.7
HE20, M0 to M9 1ss	3	5	-62.0	-62.0	-60.6		-51.7	-41.25	10.5	
HE20, M0 to M9 2ss	3	5	-62.0	-62.0	-60.6		-51.7	-41.25	10.5	

	HE20, M0 to M9 3ss	3	5	-62.0	-62.0	-60.6		-51.7	-41.25	10.5
	HE20, M0 to M9 1ss	4	5	-62.0	-62.0	-60.6	-59.6	-49.9	-41.25	8.7
	HE20, M0 to M9 2ss	4	5	-62.0	-62.0	-60.6	-59.6	-49.9	-41.25	8.7
	HE20, M0 to M9 3ss	4	5	-62.0	-62.0	-60.6	-59.6	-49.9	-41.25	8.7
	HE20, M0 to M9 4ss	4	5	-62.0	-62.0	-60.6	-59.6	-49.9	-41.25	8.7
	HE20 Beam Forming, M0 to M9 1ss	2	8	-63.8	-62.7			-52.2	-41.25	11.0
	HE20 Beam Forming, M0 to M9 2ss	2	5	-61.6	-60.4			-52.9	-41.25	11.7
	HE20 Beam Forming, M0 to M9 1ss	3	10	-64.3	-63.2	-63.0		-48.7	-41.25	7.4
	HE20 Beam Forming, M0 to M9 2ss	3	7	-63.8	-62.7	-62.3		-51.1	-41.25	9.9
	HE20 Beam Forming, M0 to M9 3ss	3	5	-62.0	-62.0	-60.6		-51.7	-41.25	10.5
	HE20 Beam Forming, M0 to M9 1ss	4	11	-65.5	-64.1	-64.3	-62.9	-47.1	-41.25	5.8
	HE20 Beam Forming, M0 to M9 2ss	4	8	-64.3	-63.2	-63.0	-61.7	-48.9	-41.25	7.7
	HE20 Beam Forming, M0 to M9 3ss	4	6	-63.8	-62.7	-62.3	-60.9	-50.3	-41.25	9.0
	HE20 Beam Forming, M0 to M9 4ss	4	5	-62.0	-62.0	-60.6	-59.6	-49.9	-41.25	8.7
	HE20 STBC, M0 to M9 2ss	2	5	-61.6	-60.4			-52.9	-41.25	11.7
	HE20 STBC, M0 to M9 2ss	3	5	-62.0	-62.0	-60.6		-51.7	-41.25	10.5
	HE20 STBC, M0 to M9 2ss	4	5	-62.0	-62.0	-60.6	-59.6	-49.9	-41.25	8.7
5190	Non HT40, 6 to 54 Mbps	1	5	-61.9				-56.9	-41.25	15.7
	Non HT40, 6 to 54 Mbps	2	5	-62.5	-60.5			-53.4	-41.25	12.1
	Non HT40, 6 to 54 Mbps	3	5	-62.5	-60.5	-60.6		-51.3	-41.25	10.1
	Non HT40, 6 to 54 Mbps	4	5	-63.9	-62.2	-62.6	-60.9	-51.2	-41.25	10.0
	HT/VHT40, M0 to M7	1	5	-61.7				-56.6	-41.25	15.4
	HT/VHT40, M0 to M7	2	5	-62.1	-59.9			-52.8	-41.25	11.5
	HT/VHT40, M8 to M15	2	5	-62.1	-59.9			-52.8	-41.25	11.5
	HT/VHT40, M0 to M7	3	5	-63.2	-61.2	-61.1		-51.9	-41.25	10.6
	HT/VHT40, M8 to M15	3	5	-63.2	-61.2	-61.1		-51.9	-41.25	10.6
	HT/VHT40, M16 to M23	3	5	-63.2	-61.2	-61.1		-51.9	-41.25	10.6
	HT/VHT40, M0 to M7	4	5	-63.2	-61.2	-61.1	-60.2	-50.2	-41.25	8.9
	HT/VHT40, M8 to M15	4	5	-63.2	-61.2	-61.1	-60.2	-50.2	-41.25	8.9
	HT/VHT40, M16 to M23	4	5	-63.2	-61.2	-61.1	-60.2	-50.2	-41.25	8.9
	HT/VHT40, M24 to M31	4	5	-63.2	-61.2	-61.1	-60.2	-50.2	-41.25	8.9
	HT/VHT40 Beam Forming, M0 to M7	2	8	-63.2	-61.2			-51.0	-41.25	9.7
	HT/VHT40 Beam Forming, M8 to M15	2	5	-62.1	-59.9			-52.8	-41.25	11.5
	HT/VHT40 Beam Forming, M0 to M7	3	10	-65.9	-64.0	-64.2		-49.7	-41.25	8.5
	HT/VHT40 Beam Forming, M8 to M15	3	7	-64.4	-62.3	-62.4		-51.1	-41.25	9.8
	HT/VHT40 Beam Forming, M16 to M23	3	5	-63.2	-61.2	-61.1		-51.9	-41.25	10.6
	HT/VHT40 Beam Forming, M0 to M7	4	11	-67.5	-65.5	-65.1	-64.8	-48.5	-41.25	7.2
	HT/VHT40 Beam Forming, M8 to M15	4	8	-64.9	-63.0	-63.2	-62.1	-49.1	-41.25	7.8
	HT/VHT40 Beam Forming, M16 to M23	4	6	-64.4	-62.3	-62.4	-61.3	-50.3	-41.25	9.1
	HT/VHT40 Beam Forming, M24 to M31	4	5	-63.2	-61.2	-61.1	-60.2	-50.2	-41.25	8.9
HT/VHT40 STBC, M0 to M7	2	5	-62.1	-59.9			-52.8	-41.25	11.5	
HT/VHT40 STBC, M0 to M7	3	5	-63.2	-61.2	-61.1		-51.9	-41.25	10.6	

	HT/VHT40 STBC, M0 to M7	4	5	-63.2	-61.2	-61.1	-60.2	-50.2	-41.25	8.9
	HE40, M0 to M9 1ss	1	5	-61.9				-56.8	-41.25	15.5
	HE40, M0 to M9 1ss	2	5	-63.2	-61.1			-53.9	-41.25	12.6
	HE40, M0 to M9 2ss	2	5	-63.2	-61.1			-53.9	-41.25	12.6
	HE40, M0 to M9 1ss	3	5	-63.2	-61.1	-60.9		-51.7	-41.25	10.5
	HE40, M0 to M9 2ss	3	5	-63.2	-61.1	-60.9		-51.7	-41.25	10.5
	HE40, M0 to M9 3ss	3	5	-63.2	-61.1	-60.9		-51.7	-41.25	10.5
	HE40, M0 to M9 1ss	4	5	-63.2	-61.1	-60.9	-60.2	-50.1	-41.25	8.8
	HE40, M0 to M9 2ss	4	5	-63.2	-61.1	-60.9	-60.2	-50.1	-41.25	8.8
	HE40, M0 to M9 3ss	4	5	-63.2	-61.1	-60.9	-60.2	-50.1	-41.25	8.8
	HE40, M0 to M9 4ss	4	5	-63.2	-61.1	-60.9	-60.2	-50.1	-41.25	8.8
	HE40 Beam Forming, M0 to M9 1ss	2	8	-64.2	-62.4			-52.1	-41.25	10.8
	HE40 Beam Forming, M0 to M9 2ss	2	5	-63.2	-61.1			-53.9	-41.25	12.6
	HE40 Beam Forming, M0 to M9 1ss	3	10	-65.7	-63.8	-64.2		-49.6	-41.25	8.3
	HE40 Beam Forming, M0 to M9 2ss	3	7	-64.2	-62.4	-62.4		-51.0	-41.25	9.8
	HE40 Beam Forming, M0 to M9 3ss	3	5	-63.2	-61.1	-60.9		-51.7	-41.25	10.5
	HE40 Beam Forming, M0 to M9 1ss	4	11	-68.7	-67.1	-67.3	-66.1	-50.1	-41.25	8.8
	HE40 Beam Forming, M0 to M9 2ss	4	8	-65.0	-63.4	-63.7	-62.4	-49.4	-41.25	8.1
	HE40 Beam Forming, M0 to M9 3ss	4	6	-64.2	-62.4	-62.4	-61.3	-50.3	-41.25	9.1
	HE40 Beam Forming, M0 to M9 4ss	4	5	-63.2	-61.1	-60.9	-60.2	-50.1	-41.25	8.8
	HE40 STBC, M0 to M9 2ss	2	5	-63.2	-61.1			-53.9	-41.25	12.6
	HE40 STBC, M0 to M9 2ss	3	5	-63.2	-61.1	-60.9		-51.7	-41.25	10.5
	HE40 STBC, M0 to M9 2ss	4	5	-63.2	-61.1	-60.9	-60.2	-50.1	-41.25	8.8
5210	Non HT80, 6 to 54 Mbps	1	5	-61.9				-56.9	-41.25	15.7
	Non HT80, 6 to 54 Mbps	2	5	-61.9	-59.9			-52.8	-41.25	11.5
	Non HT80, 6 to 54 Mbps	3	5	-62.5	-61.0	-60.6		-51.5	-41.25	10.3
	Non HT80, 6 to 54 Mbps	4	5	-62.5	-61.0	-60.6	-59.6	-49.8	-41.25	8.5
	VHT80, M0 to M9 1ss	1	5	-61.8				-56.6	-41.25	15.3
	VHT80, M0 to M9 1ss	2	5	-62.1	-60.6			-53.1	-41.25	11.8
	VHT80, M0 to M9 2ss	2	5	-62.1	-60.6			-53.1	-41.25	11.8
	VHT80, M0 to M9 1ss	3	5	-62.1	-60.6	-60.4		-51.0	-41.25	9.7
	VHT80, M0 to M9 2ss	3	5	-62.1	-60.6	-60.4		-51.0	-41.25	9.7
	VHT80, M0 to M9 3ss	3	5	-62.1	-60.6	-60.4		-51.0	-41.25	9.7
	VHT80, M0 to M9 1ss	4	5	-63.8	-62.0	-60.8	-60.2	-50.3	-41.25	9.0
	VHT80, M0 to M9 2ss	4	5	-63.8	-62.0	-60.8	-60.2	-50.3	-41.25	9.0
	VHT80, M0 to M9 3ss	4	5	-63.8	-62.0	-60.8	-60.2	-50.3	-41.25	9.0
	VHT80, M0 to M9 4ss	4	5	-63.8	-62.0	-60.8	-60.2	-50.3	-41.25	9.0
	VHT80 Beam Forming, M0 to M9 1ss	2	8	-63.8	-62.0			-51.6	-41.25	10.3
	VHT80 Beam Forming, M0 to M9 2ss	2	5	-62.1	-60.6			-53.1	-41.25	11.8
	VHT80 Beam Forming, M0 to M9 1ss	3	10	-65.0	-63.2	-63.1		-48.7	-41.25	7.4
	VHT80 Beam Forming, M0 to M9 2ss	3	7	-63.8	-62.0	-60.8		-50.0	-41.25	8.8
VHT80 Beam Forming, M0 to M9 3ss	3	5	-62.1	-60.6	-60.4		-51.0	-41.25	9.7	

	VHT80 Beam Forming, M0 to M9 1ss	4	11	-66.4	-64.7	-64.7	-63.4	-47.4	-41.25	6.2
	VHT80 Beam Forming, M0 to M9 2ss	4	8	-64.5	-62.8	-62.5	-61.2	-48.4	-41.25	7.1
	VHT80 Beam Forming, M0 to M9 3ss	4	6	-63.8	-62.0	-60.8	-60.2	-49.3	-41.25	8.0
	VHT80 Beam Forming, M0 to M9 4ss	4	5	-63.8	-62.0	-60.8	-60.2	-50.3	-41.25	9.0
	VHT80 STBC, M0 to M9 1ss	2	5	-62.1	-60.6			-53.1	-41.25	11.8
	VHT80 STBC, M0 to M9 1ss	3	5	-62.1	-60.6	-60.4		-51.0	-41.25	9.7
	VHT80 STBC, M0 to M9 1ss	4	5	-63.8	-62.0	-60.8	-60.2	-50.3	-41.25	9.0
	HE80, M0 to M9 1ss	1	5	-61.7				-56.5	-41.25	15.2
	HE80, M0 to M9 1ss	2	5	-61.7	-59.6			-52.3	-41.25	11.0
	HE80, M0 to M9 2ss	2	5	-61.7	-59.6			-52.3	-41.25	11.0
	HE80, M0 to M9 1ss	3	5	-62.3	-60.2	-60.4		-50.8	-41.25	9.6
	HE80, M0 to M9 2ss	3	5	-62.3	-60.2	-60.4		-50.8	-41.25	9.6
	HE80, M0 to M9 3ss	3	5	-62.3	-60.2	-60.4		-50.8	-41.25	9.6
	HE80, M0 to M9 1ss	4	5	-63.6	-61.8	-60.7	-59.6	-49.9	-41.25	8.7
	HE80, M0 to M9 2ss	4	5	-63.6	-61.8	-60.7	-59.6	-49.9	-41.25	8.7
	HE80, M0 to M9 3ss	4	5	-63.6	-61.8	-60.7	-59.6	-49.9	-41.25	8.7
	HE80, M0 to M9 4ss	4	5	-63.6	-61.8	-60.7	-59.6	-49.9	-41.25	8.7
	HE80 Beam Forming, M0 to M9 1ss	2	8	-63.6	-61.8			-51.3	-41.25	10.1
	HE80 Beam Forming, M0 to M9 2ss	2	5	-61.7	-59.6			-52.3	-41.25	11.0
	HE80 Beam Forming, M0 to M9 1ss	3	10	-64.9	-63.0	-63.2		-48.6	-41.25	7.3
	HE80 Beam Forming, M0 to M9 2ss	3	7	-63.6	-61.8	-60.7		-49.9	-41.25	8.6
	HE80 Beam Forming, M0 to M9 3ss	3	5	-62.3	-60.2	-60.4		-50.8	-41.25	9.6
	HE80 Beam Forming, M0 to M9 1ss	4	11	-66.3	-64.6	-64.6	-63.2	-47.3	-41.25	6.0
	HE80 Beam Forming, M0 to M9 2ss	4	8	-64.3	-62.7	-62.3	-61.0	-48.1	-41.25	6.9
	HE80 Beam Forming, M0 to M9 3ss	4	6	-63.6	-61.8	-60.7	-59.6	-48.9	-41.25	7.7
	HE80 Beam Forming, M0 to M9 4ss	4	5	-63.6	-61.8	-60.7	-59.6	-49.9	-41.25	8.7
	HE80 STBC, M0 to M9 1ss	2	5	-61.7	-59.6			-52.3	-41.25	11.0
	HE80 STBC, M0 to M9 1ss	3	5	-62.3	-60.2	-60.4		-50.8	-41.25	9.6
	HE80 STBC, M0 to M9 1ss	4	5	-63.6	-61.8	-60.7	-59.6	-49.9	-41.25	8.7
5220	Non HT20, 6 to 54 Mbps	1	5	-61.5				-56.5	-41.25	15.3
	Non HT20, 6 to 54 Mbps	2	5	-61.5	-60.3			-52.8	-41.25	11.6
	Non HT20, 6 to 54 Mbps	3	5	-61.5	-60.3	-59.6		-50.6	-41.25	9.4
	Non HT20, 6 to 54 Mbps	4	5	-61.9	-60.6	-60.1	-59.2	-49.3	-41.25	8.1
	Non HT20 Beam Forming, 6 to 54 Mbps	2	8	-61.5	-60.3			-49.8	-41.25	8.6
	Non HT20 Beam Forming, 6 to 54 Mbps	3	10	-61.5	-60.3	-59.6		-45.6	-41.25	4.4
	Non HT20 Beam Forming, 6 to 54 Mbps	4	11	-61.9	-60.6	-60.1	-59.2	-43.3	-41.25	2.1
	HT/VHT20, M0 to M7	1	5	-61.5				-56.5	-41.25	15.3
	HT/VHT20, M0 to M7	2	5	-61.5	-60.0			-52.7	-41.25	11.4
	HT/VHT20, M8 to M15	2	5	-61.5	-60.0			-52.7	-41.25	11.4
	HT/VHT20, M0 to M7	3	5	-61.5	-60.0	-59.4		-50.4	-41.25	9.2
	HT/VHT20, M8 to M15	3	5	-61.5	-60.0	-59.4		-50.4	-41.25	9.2
	HT/VHT20, M16 to M23	3	5	-61.5	-60.0	-59.4		-50.4	-41.25	9.2



	HT/VHT20, M0 to M7	4	5	-61.8	-60.7	-60.2	-59.1	-49.3	-41.25	8.1
	HT/VHT20, M8 to M15	4	5	-61.5	-60.0	-59.4	-58.5	-48.7	-41.25	7.4
	HT/VHT20, M16 to M23	4	5	-61.5	-60.0	-59.4	-58.5	-48.7	-41.25	7.4
	HT/VHT20, M24 to M31	4	5	-61.5	-60.0	-59.4	-58.5	-48.7	-41.25	7.4
	HT/VHT20 Beam Forming, M0 to M7	2	8	-61.5	-60.0			-49.7	-41.25	8.4
	HT/VHT20 Beam Forming, M8 to M15	2	5	-61.5	-60.0			-52.7	-41.25	11.4
	HT/VHT20 Beam Forming, M0 to M7	3	10	-61.5	-60.0	-59.4		-45.4	-41.25	4.2
	HT/VHT20 Beam Forming, M8 to M15	3	7	-61.5	-60.0	-59.4		-48.4	-41.25	7.2
	HT/VHT20 Beam Forming, M16 to M23	3	5	-61.5	-60.0	-59.4		-50.4	-41.25	9.2
	HT/VHT20 Beam Forming, M0 to M7	4	11	-61.8	-60.7	-60.2	-59.1	-43.3	-41.25	2.1
	HT/VHT20 Beam Forming, M8 to M15	4	8	-61.5	-60.0	-59.4	-58.5	-45.7	-41.25	4.4
	HT/VHT20 Beam Forming, M16 to M23	4	6	-61.5	-60.0	-59.4	-58.5	-47.7	-41.25	6.4
	HT/VHT20 Beam Forming, M24 to M31	4	5	-61.5	-60.0	-59.4	-58.5	-48.7	-41.25	7.4
	HT/VHT20 STBC, M0 to M7	2	5	-61.5	-60.0			-52.7	-41.25	11.4
	HT/VHT20 STBC, M0 to M7	3	5	-61.5	-60.0	-59.4		-50.4	-41.25	9.2
	HT/VHT20 STBC, M0 to M7	4	5	-61.5	-60.0	-59.4	-58.5	-48.7	-41.25	7.4
	HE20, M0 to M9 1ss	1	5	-61.5				-56.5	-41.25	15.3
	HE20, M0 to M9 1ss	2	5	-61.5	-59.9			-52.6	-41.25	11.4
	HE20, M0 to M9 2ss	2	5	-61.5	-59.9			-52.6	-41.25	11.4
	HE20, M0 to M9 1ss	3	5	-61.5	-59.9	-59.3		-50.4	-41.25	9.1
	HE20, M0 to M9 2ss	3	5	-61.5	-59.9	-59.3		-50.4	-41.25	9.1
	HE20, M0 to M9 3ss	3	5	-61.5	-59.9	-59.3		-50.4	-41.25	9.1
	HE20, M0 to M9 1ss	4	5	-61.6	-60.5	-60.1	-59.1	-49.2	-41.25	8.0
	HE20, M0 to M9 2ss	4	5	-61.5	-59.9	-59.3	-58.5	-48.6	-41.25	7.4
	HE20, M0 to M9 3ss	4	5	-61.5	-59.9	-59.3	-58.5	-48.6	-41.25	7.4
	HE20, M0 to M9 4ss	4	5	-61.5	-59.9	-59.3	-58.5	-48.6	-41.25	7.4
	HE20 Beam Forming, M0 to M9 1ss	2	8	-61.5	-59.9			-49.6	-41.25	8.4
	HE20 Beam Forming, M0 to M9 2ss	2	5	-61.5	-59.9			-52.6	-41.25	11.4
	HE20 Beam Forming, M0 to M9 1ss	3	10	-61.5	-59.9	-59.3		-45.4	-41.25	4.1
	HE20 Beam Forming, M0 to M9 2ss	3	7	-61.5	-59.9	-59.3		-48.4	-41.25	7.1
	HE20 Beam Forming, M0 to M9 3ss	3	5	-61.5	-59.9	-59.3		-50.4	-41.25	9.1
	HE20 Beam Forming, M0 to M9 1ss	4	11	-61.6	-60.5	-60.1	-59.1	-43.2	-41.25	2.0
	HE20 Beam Forming, M0 to M9 2ss	4	8	-61.5	-59.9	-59.3	-58.5	-45.6	-41.25	4.4
	HE20 Beam Forming, M0 to M9 3ss	4	6	-61.5	-59.9	-59.3	-58.5	-47.6	-41.25	6.4
	HE20 Beam Forming, M0 to M9 4ss	4	5	-61.5	-59.9	-59.3	-58.5	-48.6	-41.25	7.4
	HE20 STBC, M0 to M9 2ss	2	5	-61.5	-59.9			-52.6	-41.25	11.4
	HE20 STBC, M0 to M9 2ss	3	5	-61.5	-59.9	-59.3		-50.4	-41.25	9.1
	HE20 STBC, M0 to M9 2ss	4	5	-61.5	-59.9	-59.3	-58.5	-48.6	-41.25	7.4
5230	Non HT40, 6 to 54 Mbps	1	5	-61.0				-56.0	-41.25	14.8
	Non HT40, 6 to 54 Mbps	2	5	-61.0	-59.1			-51.9	-41.25	10.7
	Non HT40, 6 to 54 Mbps	3	5	-61.0	-59.1	-58.6		-49.7	-41.25	8.4
	Non HT40, 6 to 54 Mbps	4	5	-61.0	-59.1	-58.6	-58.3	-48.1	-41.25	6.9

HT/VHT40, M0 to M7	1	5	-61.6				-56.5	-41.25	15.3
HT/VHT40, M0 to M7	2	5	-61.6	-59.4			-52.3	-41.25	11.0
HT/VHT40, M8 to M15	2	5	-61.6	-59.4			-52.3	-41.25	11.0
HT/VHT40, M0 to M7	3	5	-61.6	-59.4	-58.8		-49.9	-41.25	8.7
HT/VHT40, M8 to M15	3	5	-61.6	-59.4	-58.8		-49.9	-41.25	8.7
HT/VHT40, M16 to M23	3	5	-61.6	-59.4	-58.8		-49.9	-41.25	8.7
HT/VHT40, M0 to M7	4	5	-61.6	-59.4	-58.8	-58.6	-48.3	-41.25	7.1
HT/VHT40, M8 to M15	4	5	-61.6	-59.4	-58.8	-58.6	-48.3	-41.25	7.1
HT/VHT40, M16 to M23	4	5	-61.6	-59.4	-58.8	-58.6	-48.3	-41.25	7.1
HT/VHT40, M24 to M31	4	5	-61.6	-59.4	-58.8	-58.6	-48.3	-41.25	7.1
HT/VHT40 Beam Forming, M0 to M7	2	8	-61.6	-59.4			-49.3	-41.25	8.0
HT/VHT40 Beam Forming, M8 to M15	2	5	-61.6	-59.4			-52.3	-41.25	11.0
HT/VHT40 Beam Forming, M0 to M7	3	10	-61.6	-59.4	-58.8		-44.9	-41.25	3.7
HT/VHT40 Beam Forming, M8 to M15	3	7	-61.6	-59.4	-58.8		-47.9	-41.25	6.7
HT/VHT40 Beam Forming, M16 to M23	3	5	-61.6	-59.4	-58.8		-49.9	-41.25	8.7
HT/VHT40 Beam Forming, M0 to M7	4	11	-61.6	-59.4	-58.8	-58.6	-42.3	-41.25	1.1
HT/VHT40 Beam Forming, M8 to M15	4	8	-61.6	-59.4	-58.8	-58.6	-45.3	-41.25	4.1
HT/VHT40 Beam Forming, M16 to M23	4	6	-61.6	-59.4	-58.8	-58.6	-47.3	-41.25	6.1
HT/VHT40 Beam Forming, M24 to M31	4	5	-61.6	-59.4	-58.8	-58.6	-48.3	-41.25	7.1
HT/VHT40 STBC, M0 to M7	2	5	-61.6	-59.4			-52.3	-41.25	11.0
HT/VHT40 STBC, M0 to M7	3	5	-61.6	-59.4	-58.8		-49.9	-41.25	8.7
HT/VHT40 STBC, M0 to M7	4	5	-61.6	-59.4	-58.8	-58.6	-48.3	-41.25	7.1
HE40, M0 to M9 1ss	1	5	-61.1				-56.0	-41.25	14.7
HE40, M0 to M9 1ss	2	5	-61.1	-59.3			-52.0	-41.25	10.7
HE40, M0 to M9 2ss	2	5	-61.1	-59.3			-52.0	-41.25	10.7
HE40, M0 to M9 1ss	3	5	-61.1	-59.3	-58.9		-49.8	-41.25	8.5
HE40, M0 to M9 2ss	3	5	-61.1	-59.3	-58.9		-49.8	-41.25	8.5
HE40, M0 to M9 3ss	3	5	-61.1	-59.3	-58.9		-49.8	-41.25	8.5
HE40, M0 to M9 1ss	4	5	-61.1	-59.3	-58.9	-58.4	-48.2	-41.25	6.9
HE40, M0 to M9 2ss	4	5	-61.1	-59.3	-58.9	-58.4	-48.2	-41.25	6.9
HE40, M0 to M9 3ss	4	5	-61.1	-59.3	-58.9	-58.4	-48.2	-41.25	6.9
HE40, M0 to M9 4ss	4	5	-61.1	-59.3	-58.9	-58.4	-48.2	-41.25	6.9
HE40 Beam Forming, M0 to M9 1ss	2	8	-61.1	-59.3			-49.0	-41.25	7.7
HE40 Beam Forming, M0 to M9 2ss	2	5	-61.1	-59.3			-52.0	-41.25	10.7
HE40 Beam Forming, M0 to M9 1ss	3	10	-61.1	-59.3	-58.9		-44.8	-41.25	3.5
HE40 Beam Forming, M0 to M9 2ss	3	7	-61.1	-59.3	-58.9		-47.8	-41.25	6.5
HE40 Beam Forming, M0 to M9 3ss	3	5	-61.1	-59.3	-58.9		-49.8	-41.25	8.5
<b>HE40 Beam Forming, M0 to M9 1ss</b>	<b>4</b>	<b>11</b>	<b>-61.1</b>	<b>-59.3</b>	<b>-58.9</b>	<b>-58.4</b>	<b>-42.2</b>	<b>-41.25</b>	<b>0.9</b>
HE40 Beam Forming, M0 to M9 2ss	4	8	-61.1	-59.3	-58.9	-58.4	-45.2	-41.25	3.9
HE40 Beam Forming, M0 to M9 3ss	4	6	-61.1	-59.3	-58.9	-58.4	-47.2	-41.25	5.9
HE40 Beam Forming, M0 to M9 4ss	4	5	-61.1	-59.3	-58.9	-58.4	-48.2	-41.25	6.9
HE40 STBC, M0 to M9 2ss	2	5	-61.1	-59.3			-52.0	-41.25	10.7
HE40 STBC, M0 to M9 2ss	3	5	-61.1	-59.3	-58.9		-49.8	-41.25	8.5

HE40 STBC, M0 to M9 2ss	4	5	-61.1	-59.3	-58.9	-58.4	-48.2	-41.25	6.9
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5240	Non HT20, 6 to 54 Mbps	1	5	-61.1				-56.1	-41.25	14.9
	Non HT20, 6 to 54 Mbps	2	5	-61.1	-59.2			-52.0	-41.25	10.8
	Non HT20, 6 to 54 Mbps	3	5	-61.1	-59.2	-58.4		-49.7	-41.25	8.4
	Non HT20, 6 to 54 Mbps	4	5	-61.5	-59.9	-59.1	-58.2	-48.5	-41.25	7.2
	Non HT20 Beam Forming, 6 to 54 Mbps	2	8	-61.1	-59.2			-49.0	-41.25	7.8
	Non HT20 Beam Forming, 6 to 54 Mbps	3	10	-61.1	-59.2	-58.4		-44.7	-41.25	3.4
	Non HT20 Beam Forming, 6 to 54 Mbps	4	11	-61.5	-59.9	-59.1	-58.2	-42.5	-41.25	1.2
	HT/VHT20, M0 to M7	1	5	-61.2				-56.2	-41.25	15.0
	HT/VHT20, M0 to M7	2	5	-61.2	-60.0			-52.5	-41.25	11.3
	HT/VHT20, M8 to M15	2	5	-61.2	-60.0			-52.5	-41.25	11.3
	HT/VHT20, M0 to M7	3	5	-61.2	-60.0	-58.6		-50.0	-41.25	8.8
	HT/VHT20, M8 to M15	3	5	-61.2	-60.0	-58.6		-50.0	-41.25	8.8
	HT/VHT20, M16 to M23	3	5	-61.2	-60.0	-58.6		-50.0	-41.25	8.8
	HT/VHT20, M0 to M7	4	5	-62.0	-60.2	-59.4	-58.5	-48.8	-41.25	7.6
	HT/VHT20, M8 to M15	4	5	-61.2	-60.0	-58.6	-57.9	-48.2	-41.25	7.0
	HT/VHT20, M16 to M23	4	5	-61.2	-60.0	-58.6	-57.9	-48.2	-41.25	7.0
	HT/VHT20, M24 to M31	4	5	-61.2	-60.0	-58.6	-57.9	-48.2	-41.25	7.0
	HT/VHT20 Beam Forming, M0 to M7	2	8	-61.2	-60.0			-49.5	-41.25	8.3
	HT/VHT20 Beam Forming, M8 to M15	2	5	-61.2	-60.0			-52.5	-41.25	11.3
	HT/VHT20 Beam Forming, M0 to M7	3	10	-61.2	-60.0	-58.6		-45.0	-41.25	3.8
	HT/VHT20 Beam Forming, M8 to M15	3	7	-61.2	-60.0	-58.6		-48.0	-41.25	6.8
	HT/VHT20 Beam Forming, M16 to M23	3	5	-61.2	-60.0	-58.6		-50.0	-41.25	8.8
	HT/VHT20 Beam Forming, M0 to M7	4	11	-62.0	-60.2	-59.4	-58.5	-42.8	-41.25	1.6
	HT/VHT20 Beam Forming, M8 to M15	4	8	-61.2	-60.0	-58.6	-57.9	-45.2	-41.25	4.0
	HT/VHT20 Beam Forming, M16 to M23	4	6	-61.2	-60.0	-58.6	-57.9	-47.2	-41.25	6.0
	HT/VHT20 Beam Forming, M24 to M31	4	5	-61.2	-60.0	-58.6	-57.9	-48.2	-41.25	7.0
	HT/VHT20 STBC, M0 to M7	2	5	-61.2	-60.0			-52.5	-41.25	11.3
	HT/VHT20 STBC, M0 to M7	3	5	-61.2	-60.0	-58.6		-50.0	-41.25	8.8
	HT/VHT20 STBC, M0 to M7	4	5	-61.2	-60.0	-58.6	-57.9	-48.2	-41.25	7.0
	HE20, M0 to M9 1ss	1	5	-61.1				-56.1	-41.25	14.9
	HE20, M0 to M9 1ss	2	5	-61.1	-59.5			-52.2	-41.25	11.0
	HE20, M0 to M9 2ss	2	5	-61.1	-59.5			-52.2	-41.25	11.0
	HE20, M0 to M9 1ss	3	5	-61.1	-59.5	-58.3		-49.7	-41.25	8.5
HE20, M0 to M9 2ss	3	5	-61.1	-59.5	-58.3		-49.7	-41.25	8.5	
HE20, M0 to M9 3ss	3	5	-61.1	-59.5	-58.3		-49.7	-41.25	8.5	
HE20, M0 to M9 1ss	4	5	-61.7	-60.0	-59.0	-58.4	-48.6	-41.25	7.3	
HE20, M0 to M9 2ss	4	5	-61.1	-59.5	-58.3	-57.6	-47.9	-41.25	6.7	
HE20, M0 to M9 3ss	4	5	-61.1	-59.5	-58.3	-57.6	-47.9	-41.25	6.7	
HE20, M0 to M9 4ss	4	5	-61.1	-59.5	-58.3	-57.6	-47.9	-41.25	6.7	
HE20 Beam Forming, M0 to M9 1ss	2	8	-61.1	-59.5			-49.2	-41.25	8.0	

	HE20 Beam Forming, M0 to M9 2ss	2	5	-61.1	-59.5			-52.2	-41.25	11.0
	HE20 Beam Forming, M0 to M9 1ss	3	10	-61.1	-59.5	-58.3		-44.7	-41.25	3.5
	HE20 Beam Forming, M0 to M9 2ss	3	7	-61.1	-59.5	-58.3		-47.7	-41.25	6.5
	HE20 Beam Forming, M0 to M9 3ss	3	5	-61.1	-59.5	-58.3		-49.7	-41.25	8.5
	HE20 Beam Forming, M0 to M9 1ss	4	11	-61.7	-60.0	-59.0	-58.4	-42.6	-41.25	1.3
	HE20 Beam Forming, M0 to M9 2ss	4	8	-61.1	-59.5	-58.3	-57.6	-44.9	-41.25	3.7
	HE20 Beam Forming, M0 to M9 3ss	4	6	-61.1	-59.5	-58.3	-57.6	-46.9	-41.25	5.7
	HE20 Beam Forming, M0 to M9 4ss	4	5	-61.1	-59.5	-58.3	-57.6	-47.9	-41.25	6.7
	HE20 STBC, M0 to M9 2ss	2	5	-61.1	-59.5			-52.2	-41.25	11.0
	HE20 STBC, M0 to M9 2ss	3	5	-61.1	-59.5	-58.3		-49.7	-41.25	8.5
	HE20 STBC, M0 to M9 2ss	4	5	-61.1	-59.5	-58.3	-57.6	-47.9	-41.25	6.7
5250	Non HT160, 6 to 54 Mbps	1	5	-60.4				-55.4	-41.25	14.2
	Non HT160, 6 to 54 Mbps	2	5	-61.3	-59.1			-52.1	-41.25	10.8
	Non HT160, 6 to 54 Mbps	3	5	-62.3	-59.5	-59.2		-50.4	-41.25	9.1
	Non HT160, 6 to 54 Mbps	4	5	-63.7	-61.2	-60.0	-59.5	-49.8	-41.25	8.6
	VHT160, M0 to M9 1ss	1	5	-61.4				-56.0	-41.25	14.8
	VHT160, M0 to M9 1ss	2	5	-62.6	-60.0			-52.7	-41.25	11.5
	VHT160, M0 to M9 2ss	2	5	-62.6	-60.0			-52.7	-41.25	11.5
	VHT160, M0 to M9 1ss	3	5	-63.9	-61.2	-61.3		-51.8	-41.25	10.6
	VHT160, M0 to M9 2ss	3	5	-63.9	-61.2	-61.3		-51.8	-41.25	10.6
	VHT160, M0 to M9 3ss	3	5	-63.9	-61.2	-61.3		-51.8	-41.25	10.6
	VHT160, M0 to M9 1ss	4	5	-63.9	-61.2	-61.3	-59.8	-49.9	-41.25	8.7
	VHT160, M0 to M9 2ss	4	5	-63.9	-61.2	-61.3	-59.8	-49.9	-41.25	8.7
	VHT160, M0 to M9 3ss	4	5	-63.9	-61.2	-61.3	-59.8	-49.9	-41.25	8.7
	VHT160, M0 to M9 4ss	4	5	-63.9	-61.2	-61.3	-59.8	-49.9	-41.25	8.7
	VHT160 Beam Forming, M0 to M9 1ss	2	8	-63.9	-61.2			-50.9	-41.25	9.7
	VHT160 Beam Forming, M0 to M9 2ss	2	5	-62.6	-60.0			-52.7	-41.25	11.5
	VHT160 Beam Forming, M0 to M9 1ss	3	10	-65.7	-63.4	-63.4		-48.9	-41.25	7.6
	VHT160 Beam Forming, M0 to M9 2ss	3	7	-63.9	-61.2	-61.3		-49.8	-41.25	8.6
	VHT160 Beam Forming, M0 to M9 3ss	3	5	-63.9	-61.2	-61.3		-51.8	-41.25	10.6
	VHT160 Beam Forming, M0 to M9 1ss	4	11	-66.6	-64.5	-64.6	-63.4	-47.2	-41.25	6.0
	VHT160 Beam Forming, M0 to M9 2ss	4	8	-64.9	-63.0	-62.9	-61.6	-48.5	-41.25	7.3
	VHT160 Beam Forming, M0 to M9 3ss	4	6	-64.9	-63.0	-62.9	-61.6	-50.5	-41.25	9.3
	VHT160 Beam Forming, M0 to M9 4ss	4	5	-63.9	-61.2	-61.3	-59.8	-49.9	-41.25	8.7
	VHT160 STBC, M0 to M9 1ss	2	5	-62.6	-60.0			-52.7	-41.25	11.5
	VHT160 STBC, M0 to M9 1ss	3	5	-63.9	-61.2	-61.3		-51.8	-41.25	10.6
	VHT160 STBC, M0 to M9 1ss	4	5	-63.9	-61.2	-61.3	-59.8	-49.9	-41.25	8.7
	HE160, M0 to M9 1ss	1	5	-60.3				-54.9	-41.25	13.6
	HE160, M0 to M9 1ss	2	5	-61.2	-59.1			-51.6	-41.25	10.3
	HE160, M0 to M9 2ss	2	5	-61.2	-59.1			-51.6	-41.25	10.3
	HE160, M0 to M9 1ss	3	5	-62.3	-59.9	-59.3		-50.1	-41.25	8.9
	HE160, M0 to M9 2ss	3	5	-62.3	-59.9	-59.3		-50.1	-41.25	8.9



HE160, M0 to M9 3ss	3	5	-62.3	-59.9	-59.3		-50.1	-41.25	8.9
HE160, M0 to M9 1ss	4	5	-63.6	-61.3	-60.0	-59.6	-49.4	-41.25	8.2
HE160, M0 to M9 2ss	4	5	-63.6	-61.3	-60.0	-59.6	-49.4	-41.25	8.2
HE160, M0 to M9 3ss	4	5	-63.6	-61.3	-60.0	-59.6	-49.4	-41.25	8.2
HE160, M0 to M9 4ss	4	5	-63.6	-61.3	-60.0	-59.6	-49.4	-41.25	8.2
HE160 Beam Forming, M0 to M9 1ss	2	8	-62.3	-59.9			-49.5	-41.25	8.2
HE160 Beam Forming, M0 to M9 2ss	2	5	-61.2	-59.1			-51.6	-41.25	10.3
HE160 Beam Forming, M0 to M9 1ss	3	10	-65.1	-62.8	-62.9		-48.3	-41.25	7.0
HE160 Beam Forming, M0 to M9 2ss	3	7	-63.6	-61.3	-60.0		-49.2	-41.25	7.9
HE160 Beam Forming, M0 to M9 3ss	3	5	-62.3	-59.9	-59.3		-50.1	-41.25	8.9
HE160 Beam Forming, M0 to M9 1ss	4	11	-66.2	-63.7	-63.9	-62.8	-46.5	-41.25	5.3
HE160 Beam Forming, M0 to M9 2ss	4	8	-64.6	-61.8	-61.9	-60.6	-47.5	-41.25	6.3
HE160 Beam Forming, M0 to M9 3ss	4	6	-63.6	-61.3	-60.0	-59.6	-48.4	-41.25	7.2
HE160 Beam Forming, M0 to M9 4ss	4	5	-63.6	-61.3	-60.0	-59.6	-49.4	-41.25	8.2
HE160 STBC, M0 to M9 1ss	2	5	-61.2	-59.1			-51.6	-41.25	10.3
HE160 STBC, M0 to M9 1ss	3	5	-62.3	-59.9	-59.3		-50.1	-41.25	8.9
HE160 STBC, M0 to M9 1ss	4	5	-63.6	-61.3	-60.0	-59.6	-49.4	-41.25	8.2

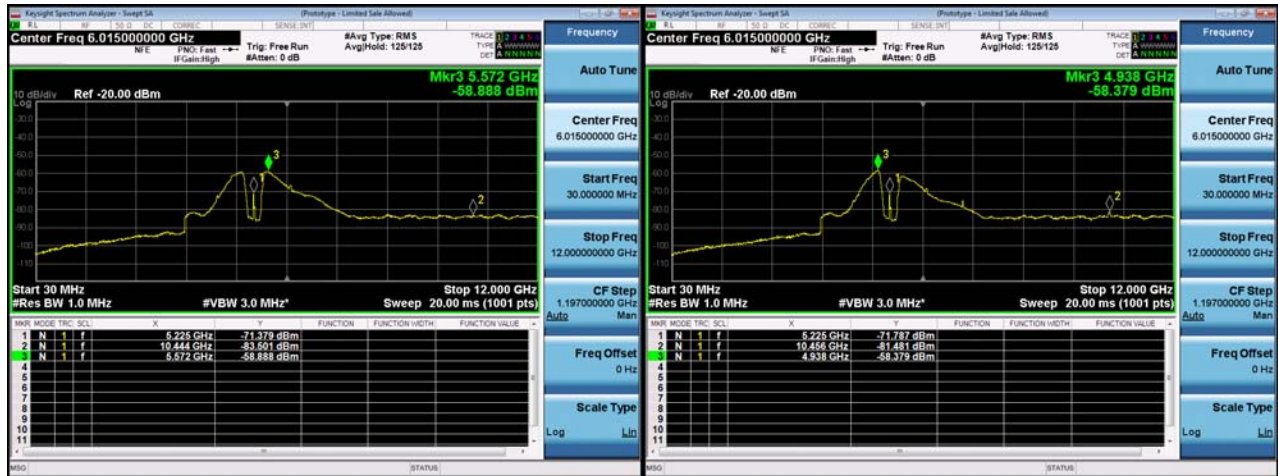


**Conducted Spurs Average, 5230 MHz, HE40 Beam Forming, M0 to M9 1ss**



**Antenna A**

**Antenna B**



**Antenna C**

**Antenna D**

Frequency (MHz)	Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 Spur Power (dBm)	Tx 2 Spur Power (dBm)	Tx 3 Spur Power (dBm)	Tx 4 Spur Power (dBm)	Total Conducted Spur (dBm)	Limit (dBm)	Margin (dB)
5180	Non HT20, 6 to 54 Mbps	1	5	-49.9				-44.9	-21.25	23.7
	Non HT20, 6 to 54 Mbps	2	5	-51.2	-49.0			-42.0	-21.25	20.7
	Non HT20, 6 to 54 Mbps	3	5	-51.2	-49.0	-49.3		-40.0	-21.25	18.7
	Non HT20, 6 to 54 Mbps	4	5	-51.2	-49.0	-49.3	-48.7	-38.4	-21.25	17.2
	Non HT20 Beam Forming, 6 to 54 Mbps	2	8	-50.6	-50.8			-39.7	-21.25	18.4
	Non HT20 Beam Forming, 6 to 54 Mbps	3	10	-54.2	-52.9	-53.0		-38.6	-21.25	17.3
	Non HT20 Beam Forming, 6 to 54 Mbps	4	11	-54.2	-53.1	-52.2	-51.3	-35.5	-21.25	14.3
	HT/VHT20, M0 to M7	1	5	-51.4				-46.4	-21.25	25.2
	HT/VHT20, M0 to M7	2	5	-51.4	-49.9			-42.6	-21.25	21.3
	HT/VHT20, M8 to M15	2	5	-51.4	-49.9			-42.6	-21.25	21.3
	HT/VHT20, M0 to M7	3	5	-51.4	-49.9	-49.0		-40.2	-21.25	19.0
	HT/VHT20, M8 to M15	3	5	-51.4	-49.9	-49.0		-40.2	-21.25	19.0
	HT/VHT20, M16 to M23	3	5	-51.4	-49.9	-49.0		-40.2	-21.25	19.0
	HT/VHT20, M0 to M7	4	5	-51.4	-49.9	-49.0	-47.6	-38.2	-21.25	17.0
	HT/VHT20, M8 to M15	4	5	-51.4	-49.9	-49.0	-47.6	-38.2	-21.25	17.0
	HT/VHT20, M16 to M23	4	5	-51.4	-49.9	-49.0	-47.6	-38.2	-21.25	17.0
	HT/VHT20, M24 to M31	4	5	-51.4	-49.9	-49.0	-47.6	-38.2	-21.25	17.0
	HT/VHT20 Beam Forming, M0 to M7	2	8	-51.7	-51.1			-40.4	-21.25	19.1
	HT/VHT20 Beam Forming, M8 to M15	2	5	-51.4	-49.9			-42.6	-21.25	21.3
	HT/VHT20 Beam Forming, M0 to M7	3	10	-53.9	-51.8	-52.4		-37.8	-21.25	16.6
	HT/VHT20 Beam Forming, M8 to M15	3	7	-51.7	-51.1	-48.6		-38.5	-21.25	17.2
	HT/VHT20 Beam Forming, M16 to M23	3	5	-51.4	-49.9	-49.0		-40.2	-21.25	19.0
	HT/VHT20 Beam Forming, M0 to M7	4	11	-55.3	-53.7	-53.7	-51.6	-36.4	-21.25	15.1
	HT/VHT20 Beam Forming, M8 to M15	4	8	-53.4	-52.2	-51.4	-50.2	-37.6	-21.25	16.4
	HT/VHT20 Beam Forming, M16 to M23	4	6	-51.7	-51.1	-48.6	-48.9	-37.9	-21.25	16.6
	HT/VHT20 Beam Forming, M24 to M31	4	5	-51.4	-49.9	-49.0	-47.6	-38.2	-21.25	17.0
	HT/VHT20 STBC, M0 to M7	2	5	-51.4	-49.9			-42.6	-21.25	21.3
	HT/VHT20 STBC, M0 to M7	3	5	-51.4	-49.9	-49.0		-40.2	-21.25	19.0
	HT/VHT20 STBC, M0 to M7	4	5	-51.4	-49.9	-49.0	-47.6	-38.2	-21.25	17.0
	HE20, M0 to M9 1ss	1	5	-49.4				-44.4	-21.25	23.2
	HE20, M0 to M9 1ss	2	5	-49.4	-49.3			-41.3	-21.25	20.1
	HE20, M0 to M9 2ss	2	5	-49.4	-49.3			-41.3	-21.25	20.1
HE20, M0 to M9 1ss	3	5	-51.9	-51.0	-49.6		-41.0	-21.25	19.7	
HE20, M0 to M9 2ss	3	5	-51.9	-51.0	-49.6		-41.0	-21.25	19.7	

	HE20, M0 to M9 3ss	3	5	-51.9	-51.0	-49.6		-41.0	-21.25	19.7
	HE20, M0 to M9 1ss	4	5	-51.9	-51.0	-49.6	-49.3	-39.3	-21.25	18.1
	HE20, M0 to M9 2ss	4	5	-51.9	-51.0	-49.6	-49.3	-39.3	-21.25	18.1
	HE20, M0 to M9 3ss	4	5	-51.9	-51.0	-49.6	-49.3	-39.3	-21.25	18.1
	HE20, M0 to M9 4ss	4	5	-51.9	-51.0	-49.6	-49.3	-39.3	-21.25	18.1
	HE20 Beam Forming, M0 to M9 1ss	2	8	-52.7	-51.7			-41.2	-21.25	19.9
	HE20 Beam Forming, M0 to M9 2ss	2	5	-49.4	-49.3			-41.3	-21.25	20.1
	HE20 Beam Forming, M0 to M9 1ss	3	10	-53.5	-52.4	-52.5		-38.0	-21.25	16.8
	HE20 Beam Forming, M0 to M9 2ss	3	7	-52.7	-51.7	-51.2		-40.1	-21.25	18.8
	HE20 Beam Forming, M0 to M9 3ss	3	5	-51.9	-51.0	-49.6		-41.0	-21.25	19.7
	HE20 Beam Forming, M0 to M9 1ss	4	11	-54.7	-53.2	-53.4	-51.7	-36.1	-21.25	14.8
	HE20 Beam Forming, M0 to M9 2ss	4	8	-53.5	-52.4	-52.5	-51.1	-38.3	-21.25	17.0
	HE20 Beam Forming, M0 to M9 3ss	4	6	-52.7	-51.7	-51.2	-50.2	-39.3	-21.25	18.1
	HE20 Beam Forming, M0 to M9 4ss	4	5	-51.9	-51.0	-49.6	-49.3	-39.3	-21.25	18.1
	HE20 STBC, M0 to M9 2ss	2	5	-49.4	-49.3			-41.3	-21.25	20.1
	HE20 STBC, M0 to M9 2ss	3	5	-51.9	-51.0	-49.6		-41.0	-21.25	19.7
	HE20 STBC, M0 to M9 2ss	4	5	-51.9	-51.0	-49.6	-49.3	-39.3	-21.25	18.1
5190	Non HT40, 6 to 54 Mbps	1	5	-51.8				-46.8	-21.25	25.6
	Non HT40, 6 to 54 Mbps	2	5	-51.7	-49.9			-42.7	-21.25	21.4
	Non HT40, 6 to 54 Mbps	3	5	-51.7	-49.9	-50.4		-40.8	-21.25	19.6
	Non HT40, 6 to 54 Mbps	4	5	-53.7	-52.0	-51.4	-50.5	-40.7	-21.25	19.5
	HT/VHT40, M0 to M7	1	5	-50.9				-45.8	-21.25	24.6
	HT/VHT40, M0 to M7	2	5	-51.6	-49.9			-42.6	-21.25	21.3
	HT/VHT40, M8 to M15	2	5	-51.6	-49.9			-42.6	-21.25	21.3
	HT/VHT40, M0 to M7	3	5	-51.3	-50.4	-50.5		-40.8	-21.25	19.6
	HT/VHT40, M8 to M15	3	5	-51.3	-50.4	-50.5		-40.8	-21.25	19.6
	HT/VHT40, M16 to M23	3	5	-51.3	-50.4	-50.5		-40.8	-21.25	19.6
	HT/VHT40, M0 to M7	4	5	-51.3	-50.4	-50.5	-49.5	-39.3	-21.25	18.0
	HT/VHT40, M8 to M15	4	5	-51.3	-50.4	-50.5	-49.5	-39.3	-21.25	18.0
	HT/VHT40, M16 to M23	4	5	-51.3	-50.4	-50.5	-49.5	-39.3	-21.25	18.0
	HT/VHT40, M24 to M31	4	5	-51.3	-50.4	-50.5	-49.5	-39.3	-21.25	18.0
	HT/VHT40 Beam Forming, M0 to M7	2	8	-51.3	-50.4			-39.7	-21.25	18.5
	HT/VHT40 Beam Forming, M8 to M15	2	5	-51.6	-49.9			-42.6	-21.25	21.3
	HT/VHT40 Beam Forming, M0 to M7	3	10	-55.2	-52.3	-53.6		-38.7	-21.25	17.4
	HT/VHT40 Beam Forming, M8 to M15	3	7	-53.4	-50.7	-51.8		-40.0	-21.25	18.7
	HT/VHT40 Beam Forming, M16 to M23	3	5	-51.3	-50.4	-50.5		-40.8	-21.25	19.6
	HT/VHT40 Beam Forming, M0 to M7	4	11	-56.2	-54.4	-53.7	-52.9	-37.0	-21.25	15.8
	HT/VHT40 Beam Forming, M8 to M15	4	8	-54.4	-52.3	-52.6	-51.0	-38.3	-21.25	17.0
	HT/VHT40 Beam Forming, M16 to M23	4	6	-53.4	-50.7	-51.8	-50.2	-39.2	-21.25	18.0
HT/VHT40 Beam Forming, M24 to M31	4	5	-51.3	-50.4	-50.5	-49.5	-39.3	-21.25	18.0	
HT/VHT40 STBC, M0 to M7	2	5	-51.6	-49.9			-42.6	-21.25	21.3	
HT/VHT40 STBC, M0 to M7	3	5	-51.3	-50.4	-50.5		-40.8	-21.25	19.6	



	HT/VHT40 STBC, M0 to M7	4	5	-51.3	-50.4	-50.5	-49.5	-39.3	-21.25	18.0
	HE40, M0 to M9 1ss	1	5	-50.5				-45.4	-21.25	24.1
	HE40, M0 to M9 1ss	2	5	-53.3	-49.7			-43.0	-21.25	21.7
	HE40, M0 to M9 2ss	2	5	-53.3	-49.7			-43.0	-21.25	21.7
	HE40, M0 to M9 1ss	3	5	-53.3	-49.7	-49.2		-40.5	-21.25	19.2
	HE40, M0 to M9 2ss	3	5	-53.3	-49.7	-49.2		-40.5	-21.25	19.2
	HE40, M0 to M9 3ss	3	5	-53.3	-49.7	-49.2		-40.5	-21.25	19.2
	HE40, M0 to M9 1ss	4	5	-53.3	-49.7	-49.2	-48.5	-38.7	-21.25	17.4
	HE40, M0 to M9 2ss	4	5	-53.3	-49.7	-49.2	-48.5	-38.7	-21.25	17.4
	HE40, M0 to M9 3ss	4	5	-53.3	-49.7	-49.2	-48.5	-38.7	-21.25	17.4
	HE40, M0 to M9 4ss	4	5	-53.3	-49.7	-49.2	-48.5	-38.7	-21.25	17.4
	HE40 Beam Forming, M0 to M9 1ss	2	8	-53.8	-52.1			-41.7	-21.25	20.5
	HE40 Beam Forming, M0 to M9 2ss	2	5	-53.3	-49.7			-43.0	-21.25	21.7
	HE40 Beam Forming, M0 to M9 1ss	3	10	-54.6	-53.0	-53.5		-38.7	-21.25	17.5
	HE40 Beam Forming, M0 to M9 2ss	3	7	-53.8	-52.1	-51.7		-40.5	-21.25	19.3
	HE40 Beam Forming, M0 to M9 3ss	3	5	-53.3	-49.7	-49.2		-40.5	-21.25	19.2
	HE40 Beam Forming, M0 to M9 1ss	4	11	-58.1	-56.3	-56.8	-54.7	-39.2	-21.25	17.9
	HE40 Beam Forming, M0 to M9 2ss	4	8	-55.1	-52.7	-53.1	-51.0	-38.6	-21.25	17.3
	HE40 Beam Forming, M0 to M9 3ss	4	6	-53.8	-52.1	-51.7	-51.1	-39.9	-21.25	18.7
	HE40 Beam Forming, M0 to M9 4ss	4	5	-53.3	-49.7	-49.2	-48.5	-38.7	-21.25	17.4
	HE40 STBC, M0 to M9 2ss	2	5	-53.3	-49.7			-43.0	-21.25	21.7
	HE40 STBC, M0 to M9 2ss	3	5	-53.3	-49.7	-49.2		-40.5	-21.25	19.2
	HE40 STBC, M0 to M9 2ss	4	5	-53.3	-49.7	-49.2	-48.5	-38.7	-21.25	17.4
5210	Non HT80, 6 to 54 Mbps	1	5	-51.8				-46.8	-21.25	25.6
	Non HT80, 6 to 54 Mbps	2	5	-51.8	-49.0			-42.2	-21.25	20.9
	Non HT80, 6 to 54 Mbps	3	5	-52.0	-50.4	-50.0		-40.9	-21.25	19.7
	Non HT80, 6 to 54 Mbps	4	5	-52.0	-50.4	-50.0	-48.3	-39.0	-21.25	17.7
	VHT80, M0 to M9 1ss	1	5	-51.2				-46.0	-21.25	24.7
	VHT80, M0 to M9 1ss	2	5	-51.1	-50.5			-42.6	-21.25	21.3
	VHT80, M0 to M9 2ss	2	5	-51.1	-50.5			-42.6	-21.25	21.3
	VHT80, M0 to M9 1ss	3	5	-51.1	-50.5	-49.8		-40.4	-21.25	19.2
	VHT80, M0 to M9 2ss	3	5	-51.1	-50.5	-49.8		-40.4	-21.25	19.2
	VHT80, M0 to M9 3ss	3	5	-51.1	-50.5	-49.8		-40.4	-21.25	19.2
	VHT80, M0 to M9 1ss	4	5	-52.7	-51.9	-50.3	-49.2	-39.6	-21.25	18.3
	VHT80, M0 to M9 2ss	4	5	-52.7	-51.9	-50.3	-49.2	-39.6	-21.25	18.3
	VHT80, M0 to M9 3ss	4	5	-52.7	-51.9	-50.3	-49.2	-39.6	-21.25	18.3
	VHT80, M0 to M9 4ss	4	5	-52.7	-51.9	-50.3	-49.2	-39.6	-21.25	18.3
	VHT80 Beam Forming, M0 to M9 1ss	2	8	-52.7	-51.9			-41.1	-21.25	19.8
	VHT80 Beam Forming, M0 to M9 2ss	2	5	-51.1	-50.5			-42.6	-21.25	21.3
	VHT80 Beam Forming, M0 to M9 1ss	3	10	-54.7	-52.9	-52.1		-38.1	-21.25	16.9
	VHT80 Beam Forming, M0 to M9 2ss	3	7	-52.7	-51.9	-50.3		-39.5	-21.25	18.3
VHT80 Beam Forming, M0 to M9 3ss	3	5	-51.1	-50.5	-49.8		-40.4	-21.25	19.2	

	VHT80 Beam Forming, M0 to M9 1ss	4	11	-55.3	-53.9	-53.9	-52.7	-36.6	-21.25	15.4
	VHT80 Beam Forming, M0 to M9 2ss	4	8	-52.9	-52.3	-50.9	-50.0	-37.1	-21.25	15.9
	VHT80 Beam Forming, M0 to M9 3ss	4	6	-52.7	-51.9	-50.3	-49.2	-38.6	-21.25	17.3
	VHT80 Beam Forming, M0 to M9 4ss	4	5	-52.7	-51.9	-50.3	-49.2	-39.6	-21.25	18.3
	VHT80 STBC, M0 to M9 1ss	2	5	-51.1	-50.5			-42.6	-21.25	21.3
	VHT80 STBC, M0 to M9 1ss	3	5	-51.1	-50.5	-49.8		-40.4	-21.25	19.2
	VHT80 STBC, M0 to M9 1ss	4	5	-52.7	-51.9	-50.3	-49.2	-39.6	-21.25	18.3
	HE80, M0 to M9 1ss	1	5	-50.7				-45.5	-21.25	24.2
	HE80, M0 to M9 1ss	2	5	-50.7	-48.7			-41.3	-21.25	20.1
	HE80, M0 to M9 2ss	2	5	-50.7	-48.7			-41.3	-21.25	20.1
	HE80, M0 to M9 1ss	3	5	-51.6	-50.2	-49.7		-40.4	-21.25	19.2
	HE80, M0 to M9 2ss	3	5	-51.6	-50.2	-49.7		-40.4	-21.25	19.2
	HE80, M0 to M9 3ss	3	5	-51.6	-50.2	-49.7		-40.4	-21.25	19.2
	HE80, M0 to M9 1ss	4	5	-52.6	-51.2	-50.1	-49.3	-39.4	-21.25	18.1
	HE80, M0 to M9 2ss	4	5	-52.6	-51.2	-50.1	-49.3	-39.4	-21.25	18.1
	HE80, M0 to M9 3ss	4	5	-52.6	-51.2	-50.1	-49.3	-39.4	-21.25	18.1
	HE80, M0 to M9 4ss	4	5	-52.6	-51.2	-50.1	-49.3	-39.4	-21.25	18.1
	HE80 Beam Forming, M0 to M9 1ss	2	8	-52.6	-51.2			-40.6	-21.25	19.3
	HE80 Beam Forming, M0 to M9 2ss	2	5	-50.7	-48.7			-41.3	-21.25	20.1
	HE80 Beam Forming, M0 to M9 1ss	3	10	-54.3	-52.3	-52.1		-37.8	-21.25	16.5
	HE80 Beam Forming, M0 to M9 2ss	3	7	-52.6	-51.2	-50.1		-39.2	-21.25	17.9
	HE80 Beam Forming, M0 to M9 3ss	3	5	-51.6	-50.2	-49.7		-40.4	-21.25	19.2
	HE80 Beam Forming, M0 to M9 1ss	4	11	-56.0	-54.0	-53.5	-52.6	-36.6	-21.25	15.3
	HE80 Beam Forming, M0 to M9 2ss	4	8	-53.9	-51.4	-51.3	-50.0	-37.2	-21.25	15.9
	HE80 Beam Forming, M0 to M9 3ss	4	6	-52.6	-51.2	-50.1	-49.3	-38.4	-21.25	17.1
	HE80 Beam Forming, M0 to M9 4ss	4	5	-52.6	-51.2	-50.1	-49.3	-39.4	-21.25	18.1
	HE80 STBC, M0 to M9 1ss	2	5	-50.7	-48.7			-41.3	-21.25	20.1
	HE80 STBC, M0 to M9 1ss	3	5	-51.6	-50.2	-49.7		-40.4	-21.25	19.2
	HE80 STBC, M0 to M9 1ss	4	5	-52.6	-51.2	-50.1	-49.3	-39.4	-21.25	18.1
5220	Non HT20, 6 to 54 Mbps	1	5	-50.1				-45.1	-21.25	23.9
	Non HT20, 6 to 54 Mbps	2	5	-50.1	-50.1			-42.1	-21.25	20.8
	Non HT20, 6 to 54 Mbps	3	5	-50.1	-50.1	-49.3		-40.0	-21.25	18.8
	Non HT20, 6 to 54 Mbps	4	5	-51.5	-50.3	-49.2	-48.7	-38.8	-21.25	17.5
	Non HT20 Beam Forming, 6 to 54 Mbps	2	8	-50.1	-50.1			-39.1	-21.25	17.8
	Non HT20 Beam Forming, 6 to 54 Mbps	3	10	-50.1	-50.1	-49.3		-35.0	-21.25	13.8
	Non HT20 Beam Forming, 6 to 54 Mbps	4	11	-51.5	-50.3	-49.2	-48.7	-32.8	-21.25	11.5
	HT/VHT20, M0 to M7	1	5	-51.1				-46.1	-21.25	24.9
	HT/VHT20, M0 to M7	2	5	-51.1	-48.9			-41.9	-21.25	20.6
	HT/VHT20, M8 to M15	2	5	-51.1	-48.9			-41.9	-21.25	20.6
	HT/VHT20, M0 to M7	3	5	-51.1	-48.9	-48.6		-39.6	-21.25	18.4
	HT/VHT20, M8 to M15	3	5	-51.1	-48.9	-48.6		-39.6	-21.25	18.4
	HT/VHT20, M16 to M23	3	5	-51.1	-48.9	-48.6		-39.6	-21.25	18.4

	HT/VHT20, M0 to M7	4	5	-51.0	-49.9	-49.3	-48.3	-38.5	-21.25	17.2
	HT/VHT20, M8 to M15	4	5	-51.1	-48.9	-48.6	-47.7	-37.9	-21.25	16.6
	HT/VHT20, M16 to M23	4	5	-51.1	-48.9	-48.6	-47.7	-37.9	-21.25	16.6
	HT/VHT20, M24 to M31	4	5	-51.1	-48.9	-48.6	-47.7	-37.9	-21.25	16.6
	HT/VHT20 Beam Forming, M0 to M7	2	8	-51.1	-48.9			-38.9	-21.25	17.6
	HT/VHT20 Beam Forming, M8 to M15	2	5	-51.1	-48.9			-41.9	-21.25	20.6
	HT/VHT20 Beam Forming, M0 to M7	3	10	-51.1	-48.9	-48.6		-34.6	-21.25	13.4
	HT/VHT20 Beam Forming, M8 to M15	3	7	-51.1	-48.9	-48.6		-37.6	-21.25	16.4
	HT/VHT20 Beam Forming, M16 to M23	3	5	-51.1	-48.9	-48.6		-39.6	-21.25	18.4
	HT/VHT20 Beam Forming, M0 to M7	4	11	-51.0	-49.9	-49.3	-48.3	-32.5	-21.25	11.2
	HT/VHT20 Beam Forming, M8 to M15	4	8	-51.1	-48.9	-48.6	-47.7	-34.9	-21.25	13.6
	HT/VHT20 Beam Forming, M16 to M23	4	6	-51.1	-48.9	-48.6	-47.7	-36.9	-21.25	15.6
	HT/VHT20 Beam Forming, M24 to M31	4	5	-51.1	-48.9	-48.6	-47.7	-37.9	-21.25	16.6
	HT/VHT20 STBC, M0 to M7	2	5	-51.1	-48.9			-41.9	-21.25	20.6
	HT/VHT20 STBC, M0 to M7	3	5	-51.1	-48.9	-48.6		-39.6	-21.25	18.4
	HT/VHT20 STBC, M0 to M7	4	5	-51.1	-48.9	-48.6	-47.7	-37.9	-21.25	16.6
	HE20, M0 to M9 1ss	1	5	-51.2				-46.2	-21.25	25.0
	HE20, M0 to M9 1ss	2	5	-51.2	-49.7			-42.4	-21.25	21.1
	HE20, M0 to M9 2ss	2	5	-51.2	-49.7			-42.4	-21.25	21.1
	HE20, M0 to M9 1ss	3	5	-51.2	-49.7	-49.1		-40.1	-21.25	18.9
	HE20, M0 to M9 2ss	3	5	-51.2	-49.7	-49.1		-40.1	-21.25	18.9
	HE20, M0 to M9 3ss	3	5	-51.2	-49.7	-49.1		-40.1	-21.25	18.9
	HE20, M0 to M9 1ss	4	5	-50.2	-49.9	-49.6	-47.1	-38.0	-21.25	16.7
	HE20, M0 to M9 2ss	4	5	-51.2	-49.7	-49.1	-48.1	-38.4	-21.25	17.1
	HE20, M0 to M9 3ss	4	5	-51.2	-49.7	-49.1	-48.1	-38.4	-21.25	17.1
	HE20, M0 to M9 4ss	4	5	-51.2	-49.7	-49.1	-48.1	-38.4	-21.25	17.1
	HE20 Beam Forming, M0 to M9 1ss	2	8	-51.2	-49.7			-39.4	-21.25	18.1
	HE20 Beam Forming, M0 to M9 2ss	2	5	-51.2	-49.7			-42.4	-21.25	21.1
	HE20 Beam Forming, M0 to M9 1ss	3	10	-51.2	-49.7	-49.1		-35.1	-21.25	13.9
	HE20 Beam Forming, M0 to M9 2ss	3	7	-51.2	-49.7	-49.1		-38.1	-21.25	16.9
	HE20 Beam Forming, M0 to M9 3ss	3	5	-51.2	-49.7	-49.1		-40.1	-21.25	18.9
	HE20 Beam Forming, M0 to M9 1ss	4	11	-50.2	-49.9	-49.6	-47.1	-32.0	-21.25	10.7
	HE20 Beam Forming, M0 to M9 2ss	4	8	-51.2	-49.7	-49.1	-48.1	-35.4	-21.25	14.1
	HE20 Beam Forming, M0 to M9 3ss	4	6	-51.2	-49.7	-49.1	-48.1	-37.4	-21.25	16.1
	HE20 Beam Forming, M0 to M9 4ss	4	5	-51.2	-49.7	-49.1	-48.1	-38.4	-21.25	17.1
	HE20 STBC, M0 to M9 2ss	2	5	-51.2	-49.7			-42.4	-21.25	21.1
	HE20 STBC, M0 to M9 2ss	3	5	-51.2	-49.7	-49.1		-40.1	-21.25	18.9
	HE20 STBC, M0 to M9 2ss	4	5	-51.2	-49.7	-49.1	-48.1	-38.4	-21.25	17.1
5230	Non HT40, 6 to 54 Mbps	1	5	-49.9				-44.9	-21.25	23.7
	Non HT40, 6 to 54 Mbps	2	5	-49.9	-48.3			-41.0	-21.25	19.8
	Non HT40, 6 to 54 Mbps	3	5	-49.9	-48.3	-48.3		-39.0	-21.25	17.7
	Non HT40, 6 to 54 Mbps	4	5	-49.9	-48.3	-48.3	-48.1	-37.6	-21.25	16.3

HT/VHT40, M0 to M7	1	5	-51.7					-46.6	-21.25	25.4
HT/VHT40, M0 to M7	2	5	-51.7	-48.4				-41.6	-21.25	20.4
HT/VHT40, M8 to M15	2	5	-51.7	-48.4				-41.6	-21.25	20.4
HT/VHT40, M0 to M7	3	5	-51.7	-48.4	-49.0			-39.6	-21.25	18.4
HT/VHT40, M8 to M15	3	5	-51.7	-48.4	-49.0			-39.6	-21.25	18.4
HT/VHT40, M16 to M23	3	5	-51.7	-48.4	-49.0			-39.6	-21.25	18.4
HT/VHT40, M0 to M7	4	5	-51.7	-48.4	-49.0	-48.4		-38.1	-21.25	16.8
HT/VHT40, M8 to M15	4	5	-51.7	-48.4	-49.0	-48.4		-38.1	-21.25	16.8
HT/VHT40, M16 to M23	4	5	-51.7	-48.4	-49.0	-48.4		-38.1	-21.25	16.8
HT/VHT40, M24 to M31	4	5	-51.7	-48.4	-49.0	-48.4		-38.1	-21.25	16.8
HT/VHT40 Beam Forming, M0 to M7	2	8	-51.7	-48.4				-38.6	-21.25	17.4
HT/VHT40 Beam Forming, M8 to M15	2	5	-51.7	-48.4				-41.6	-21.25	20.4
HT/VHT40 Beam Forming, M0 to M7	3	10	-51.7	-48.4	-49.0			-34.6	-21.25	13.4
HT/VHT40 Beam Forming, M8 to M15	3	7	-51.7	-48.4	-49.0			-37.6	-21.25	16.4
HT/VHT40 Beam Forming, M16 to M23	3	5	-51.7	-48.4	-49.0			-39.6	-21.25	18.4
HT/VHT40 Beam Forming, M0 to M7	4	11	-51.7	-48.4	-49.0	-48.4		-32.1	-21.25	10.8
HT/VHT40 Beam Forming, M8 to M15	4	8	-51.7	-48.4	-49.0	-48.4		-35.1	-21.25	13.8
HT/VHT40 Beam Forming, M16 to M23	4	6	-51.7	-48.4	-49.0	-48.4		-37.1	-21.25	15.8
HT/VHT40 Beam Forming, M24 to M31	4	5	-51.7	-48.4	-49.0	-48.4		-38.1	-21.25	16.8
HT/VHT40 STBC, M0 to M7	2	5	-51.7	-48.4				-41.6	-21.25	20.4
HT/VHT40 STBC, M0 to M7	3	5	-51.7	-48.4	-49.0			-39.6	-21.25	18.4
HT/VHT40 STBC, M0 to M7	4	5	-51.7	-48.4	-49.0	-48.4		-38.1	-21.25	16.8
HE40, M0 to M9 1ss	1	5	-50.6					-45.5	-21.25	24.2
HE40, M0 to M9 1ss	2	5	-50.6	-48.0				-41.0	-21.25	19.7
HE40, M0 to M9 2ss	2	5	-50.6	-48.0				-41.0	-21.25	19.7
HE40, M0 to M9 1ss	3	5	-50.6	-48.0	-48.8			-39.1	-21.25	17.9
HE40, M0 to M9 2ss	3	5	-50.6	-48.0	-48.8			-39.1	-21.25	17.9
HE40, M0 to M9 3ss	3	5	-50.6	-48.0	-48.8			-39.1	-21.25	17.9
HE40, M0 to M9 1ss	4	5	-50.6	-48.0	-48.8	-47.4		-37.4	-21.25	16.1
HE40, M0 to M9 2ss	4	5	-50.6	-48.0	-48.8	-47.4		-37.4	-21.25	16.1
HE40, M0 to M9 3ss	4	5	-50.6	-48.0	-48.8	-47.4		-37.4	-21.25	16.1
HE40, M0 to M9 4ss	4	5	-50.6	-48.0	-48.8	-47.4		-37.4	-21.25	16.1
HE40 Beam Forming, M0 to M9 1ss	2	8	-50.6	-48.0				-38.0	-21.25	16.7
HE40 Beam Forming, M0 to M9 2ss	2	5	-50.6	-48.0				-41.0	-21.25	19.7
HE40 Beam Forming, M0 to M9 1ss	3	10	-50.6	-48.0	-48.8			-34.1	-21.25	12.9
HE40 Beam Forming, M0 to M9 2ss	3	7	-50.6	-48.0	-48.8			-37.1	-21.25	15.9
HE40 Beam Forming, M0 to M9 3ss	3	5	-50.6	-48.0	-48.8			-39.1	-21.25	17.9
<b>HE40 Beam Forming, M0 to M9 1ss</b>	<b>4</b>	<b>11</b>	<b>-50.6</b>	<b>-48.0</b>	<b>-48.8</b>	<b>-47.4</b>		<b>-31.4</b>	<b>-21.25</b>	<b>10.1</b>
HE40 Beam Forming, M0 to M9 2ss	4	8	-50.6	-48.0	-48.8	-47.4		-34.4	-21.25	13.1
HE40 Beam Forming, M0 to M9 3ss	4	6	-50.6	-48.0	-48.8	-47.4		-36.4	-21.25	15.1
HE40 Beam Forming, M0 to M9 4ss	4	5	-50.6	-48.0	-48.8	-47.4		-37.4	-21.25	16.1
HE40 STBC, M0 to M9 2ss	2	5	-50.6	-48.0				-41.0	-21.25	19.7
HE40 STBC, M0 to M9 2ss	3	5	-50.6	-48.0	-48.8			-39.1	-21.25	17.9

	HE40 STBC, M0 to M9 2ss	4	5	-50.6	-48.0	-48.8	-47.4	-37.4	-21.25	16.1
5240	Non HT20, 6 to 54 Mbps	1	5	-50.8				-45.8	-21.25	24.6
	Non HT20, 6 to 54 Mbps	2	5	-50.8	-48.3			-41.4	-21.25	20.1
	Non HT20, 6 to 54 Mbps	3	5	-50.8	-48.3	-47.9		-39.1	-21.25	17.8
	Non HT20, 6 to 54 Mbps	4	5	-50.7	-49.0	-48.9	-47.8	-38.0	-21.25	16.7
	Non HT20 Beam Forming, 6 to 54 Mbps	2	8	-50.8	-48.3			-38.4	-21.25	17.1
	Non HT20 Beam Forming, 6 to 54 Mbps	3	10	-50.8	-48.3	-47.9		-34.1	-21.25	12.8
	Non HT20 Beam Forming, 6 to 54 Mbps	4	11	-50.7	-49.0	-48.9	-47.8	-32.0	-21.25	10.7
	HT/VHT20, M0 to M7	1	5	-50.5				-45.5	-21.25	24.3
	HT/VHT20, M0 to M7	2	5	-50.5	-49.4			-41.9	-21.25	20.7
	HT/VHT20, M8 to M15	2	5	-50.5	-49.4			-41.9	-21.25	20.7
	HT/VHT20, M0 to M7	3	5	-50.5	-49.4	-48.6		-39.7	-21.25	18.4
	HT/VHT20, M8 to M15	3	5	-50.5	-49.4	-48.6		-39.7	-21.25	18.4
	HT/VHT20, M16 to M23	3	5	-50.5	-49.4	-48.6		-39.7	-21.25	18.4
	HT/VHT20, M0 to M7	4	5	-51.4	-50.5	-49.1	-48.2	-38.6	-21.25	17.4
	HT/VHT20, M8 to M15	4	5	-50.5	-49.4	-48.6	-47.1	-37.7	-21.25	16.5
	HT/VHT20, M16 to M23	4	5	-50.5	-49.4	-48.6	-47.1	-37.7	-21.25	16.5
	HT/VHT20, M24 to M31	4	5	-50.5	-49.4	-48.6	-47.1	-37.7	-21.25	16.5
	HT/VHT20 Beam Forming, M0 to M7	2	8	-50.5	-49.4			-38.9	-21.25	17.7
	HT/VHT20 Beam Forming, M8 to M15	2	5	-50.5	-49.4			-41.9	-21.25	20.7
	HT/VHT20 Beam Forming, M0 to M7	3	10	-50.5	-49.4	-48.6		-34.7	-21.25	13.4
	HT/VHT20 Beam Forming, M8 to M15	3	7	-50.5	-49.4	-48.6		-37.7	-21.25	16.4
	HT/VHT20 Beam Forming, M16 to M23	3	5	-50.5	-49.4	-48.6		-39.7	-21.25	18.4
	HT/VHT20 Beam Forming, M0 to M7	4	11	-51.4	-50.5	-49.1	-48.2	-32.6	-21.25	11.4
	HT/VHT20 Beam Forming, M8 to M15	4	8	-50.5	-49.4	-48.6	-47.1	-34.7	-21.25	13.5
	HT/VHT20 Beam Forming, M16 to M23	4	6	-50.5	-49.4	-48.6	-47.1	-36.7	-21.25	15.5
	HT/VHT20 Beam Forming, M24 to M31	4	5	-50.5	-49.4	-48.6	-47.1	-37.7	-21.25	16.5
	HT/VHT20 STBC, M0 to M7	2	5	-50.5	-49.4			-41.9	-21.25	20.7
	HT/VHT20 STBC, M0 to M7	3	5	-50.5	-49.4	-48.6		-39.7	-21.25	18.4
	HT/VHT20 STBC, M0 to M7	4	5	-50.5	-49.4	-48.6	-47.1	-37.7	-21.25	16.5
	HE20, M0 to M9 1ss	1	5	-51.0				-46.0	-21.25	24.8
	HE20, M0 to M9 1ss	2	5	-51.0	-49.1			-41.9	-21.25	20.7
	HE20, M0 to M9 2ss	2	5	-51.0	-49.1			-41.9	-21.25	20.7
	HE20, M0 to M9 1ss	3	5	-51.0	-49.1	-46.8		-38.9	-21.25	17.6
	HE20, M0 to M9 2ss	3	5	-51.0	-49.1	-46.8		-38.9	-21.25	17.6
HE20, M0 to M9 3ss	3	5	-51.0	-49.1	-46.8		-38.9	-21.25	17.6	
HE20, M0 to M9 1ss	4	5	-50.6	-49.9	-49.1	-47.8	-38.2	-21.25	17.0	
HE20, M0 to M9 2ss	4	5	-51.0	-49.1	-46.8	-47.2	-37.2	-21.25	16.0	
HE20, M0 to M9 3ss	4	5	-51.0	-49.1	-46.8	-47.2	-37.2	-21.25	16.0	
HE20, M0 to M9 4ss	4	5	-51.0	-49.1	-46.8	-47.2	-37.2	-21.25	16.0	
HE20 Beam Forming, M0 to M9 1ss	2	8	-51.0	-49.1			-38.9	-21.25	17.7	
HE20 Beam Forming, M0 to M9 2ss	2	5	-51.0	-49.1			-41.9	-21.25	20.7	

	HE20 Beam Forming, M0 to M9 1ss	3	10	-51.0	-49.1	-46.8		-33.9	-21.25	12.6
	HE20 Beam Forming, M0 to M9 2ss	3	7	-51.0	-49.1	-46.8		-36.9	-21.25	15.6
	HE20 Beam Forming, M0 to M9 3ss	3	5	-51.0	-49.1	-46.8		-38.9	-21.25	17.6
	HE20 Beam Forming, M0 to M9 1ss	4	11	-50.6	-49.9	-49.1	-47.8	-32.2	-21.25	11.0
	HE20 Beam Forming, M0 to M9 2ss	4	8	-51.0	-49.1	-46.8	-47.2	-34.2	-21.25	13.0
	HE20 Beam Forming, M0 to M9 3ss	4	6	-51.0	-49.1	-46.8	-47.2	-36.2	-21.25	15.0
	HE20 Beam Forming, M0 to M9 4ss	4	5	-51.0	-49.1	-46.8	-47.2	-37.2	-21.25	16.0
	HE20 STBC, M0 to M9 2ss	2	5	-51.0	-49.1			-41.9	-21.25	20.7
	HE20 STBC, M0 to M9 2ss	3	5	-51.0	-49.1	-46.8		-38.9	-21.25	17.6
	HE20 STBC, M0 to M9 2ss	4	5	-51.0	-49.1	-46.8	-47.2	-37.2	-21.25	16.0
5250	Non HT160, 6 to 54 Mbps	1	5	-45.8				-40.8	-21.25	19.6
	Non HT160, 6 to 54 Mbps	2	5	-46.5	-48.4			-39.3	-21.25	18.1
	Non HT160, 6 to 54 Mbps	3	5	-49.4	-49.5	-48.9		-39.5	-21.25	18.2
	Non HT160, 6 to 54 Mbps	4	5	-53.3	-51.2	-49.7	-49.1	-39.5	-21.25	18.3
	VHT160, M0 to M9 1ss	1	5	-46.5				-41.1	-21.25	19.9
	VHT160, M0 to M9 1ss	2	5	-48.5	-47.6			-39.6	-21.25	18.4
	VHT160, M0 to M9 2ss	2	5	-48.5	-47.6			-39.6	-21.25	18.4
	VHT160, M0 to M9 1ss	3	5	-50.4	-49.7	-51.1		-40.2	-21.25	19.0
	VHT160, M0 to M9 2ss	3	5	-50.4	-49.7	-51.1		-40.2	-21.25	19.0
	VHT160, M0 to M9 3ss	3	5	-50.4	-49.7	-51.1		-40.2	-21.25	19.0
	VHT160, M0 to M9 1ss	4	5	-50.4	-49.7	-51.1	-48.6	-38.4	-21.25	17.2
	VHT160, M0 to M9 2ss	4	5	-50.4	-49.7	-51.1	-48.6	-38.4	-21.25	17.2
	VHT160, M0 to M9 3ss	4	5	-50.4	-49.7	-51.1	-48.6	-38.4	-21.25	17.2
	VHT160, M0 to M9 4ss	4	5	-50.4	-49.7	-51.1	-48.6	-38.4	-21.25	17.2
	VHT160 Beam Forming, M0 to M9 1ss	2	8	-50.4	-49.7			-38.6	-21.25	17.4
	VHT160 Beam Forming, M0 to M9 2ss	2	5	-48.5	-47.6			-39.6	-21.25	18.4
	VHT160 Beam Forming, M0 to M9 1ss	3	10	-54.2	-52.7	-53.3		-38.2	-21.25	16.9
	VHT160 Beam Forming, M0 to M9 2ss	3	7	-50.4	-49.7	-51.1		-38.2	-21.25	17.0
	VHT160 Beam Forming, M0 to M9 3ss	3	5	-50.4	-49.7	-51.1		-40.2	-21.25	19.0
	VHT160 Beam Forming, M0 to M9 1ss	4	11	-56.3	-53.5	-53.0	-51.7	-35.9	-21.25	14.7
	VHT160 Beam Forming, M0 to M9 2ss	4	8	-53.8	-52.4	-52.5	-50.9	-37.9	-21.25	16.6
	VHT160 Beam Forming, M0 to M9 3ss	4	6	-53.8	-52.4	-52.5	-50.9	-39.9	-21.25	18.6
	VHT160 Beam Forming, M0 to M9 4ss	4	5	-50.4	-49.7	-51.1	-48.6	-38.4	-21.25	17.2
	VHT160 STBC, M0 to M9 1ss	2	5	-48.5	-47.6			-39.6	-21.25	18.4
	VHT160 STBC, M0 to M9 1ss	3	5	-50.4	-49.7	-51.1		-40.2	-21.25	19.0
	VHT160 STBC, M0 to M9 1ss	4	5	-50.4	-49.7	-51.1	-48.6	-38.4	-21.25	17.2
	HE160, M0 to M9 1ss	1	5	-44.2				-38.8	-21.25	17.5
	HE160, M0 to M9 1ss	2	5	-46.6	-47.8			-38.7	-21.25	17.5
	HE160, M0 to M9 2ss	2	5	-46.6	-47.8			-38.7	-21.25	17.5
	HE160, M0 to M9 1ss	3	5	-51.5	-48.5	-48.3		-39.0	-21.25	17.8
	HE160, M0 to M9 2ss	3	5	-51.5	-48.5	-48.3		-39.0	-21.25	17.8
	HE160, M0 to M9 3ss	3	5	-51.5	-48.5	-48.3		-39.0	-21.25	17.8



HE160, M0 to M9 1ss	4	5	-53.1	-50.4	-50.4	-49.2	-39.1	-21.25	17.9
HE160, M0 to M9 2ss	4	5	-53.1	-50.4	-50.4	-49.2	-39.1	-21.25	17.9
HE160, M0 to M9 3ss	4	5	-53.1	-50.4	-50.4	-49.2	-39.1	-21.25	17.9
HE160, M0 to M9 4ss	4	5	-53.1	-50.4	-50.4	-49.2	-39.1	-21.25	17.9
HE160 Beam Forming, M0 to M9 1ss	2	8	-51.5	-48.5			-38.3	-21.25	17.1
HE160 Beam Forming, M0 to M9 2ss	2	5	-46.6	-47.8			-38.7	-21.25	17.5
HE160 Beam Forming, M0 to M9 1ss	3	10	-54.5	-51.4	-52.9		-37.6	-21.25	16.3
HE160 Beam Forming, M0 to M9 2ss	3	7	-53.1	-50.4	-50.4		-38.9	-21.25	17.7
HE160 Beam Forming, M0 to M9 3ss	3	5	-51.5	-48.5	-48.3		-39.0	-21.25	17.8
HE160 Beam Forming, M0 to M9 1ss	4	11	-55.7	-52.6	-52.2	-51.9	-35.4	-21.25	14.2
HE160 Beam Forming, M0 to M9 2ss	4	8	-53.8	-51.4	-51.6	-49.6	-36.9	-21.25	15.7
HE160 Beam Forming, M0 to M9 3ss	4	6	-53.1	-50.4	-50.4	-49.2	-38.1	-21.25	16.9
HE160 Beam Forming, M0 to M9 4ss	4	5	-53.1	-50.4	-50.4	-49.2	-39.1	-21.25	17.9
HE160 STBC, M0 to M9 1ss	2	5	-46.6	-47.8			-38.7	-21.25	17.5
HE160 STBC, M0 to M9 1ss	3	5	-51.5	-48.5	-48.3		-39.0	-21.25	17.8
HE160 STBC, M0 to M9 1ss	4	5	-53.1	-50.4	-50.4	-49.2	-39.1	-21.25	17.9

**Conducted Spurs Peak, 5230 MHz, HE40 Beam Forming, M0 to M9 1ss**



Antenna A

Antenna B



Antenna C

Antenna D



## A.6 Conducted Band Edge

### Conducted Band Edge Test Requirement

**15.407(b) Undesirable emission limits.** Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
- (6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209.
- (7) The provisions of §15.205 apply to intentional radiators operating under this section.
- (8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

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)).

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

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

- 1) Average Plot, Limit= -41.25 dBm eirp
- 2) Peak plot, Limit = -21.25 dBm eirp

#### KDB 789033 D02 General UNII Test Procedures New Rules v02r01

#### 2. Unwanted Emissions that fall Outside of the Restricted Bands

- a) For all measurements, follow the requirements in II.G.3. “*General Requirements for Unwanted Emissions Measurements.*”
- b) At frequencies below 1000 MHz, use the procedure described in II.G.4. “*Procedure for Unwanted Emissions Measurements Below 1000 MHz.*”
- c) At frequencies above 1000 MHz, use the procedure for maximum emissions described in II.G.5., “*Procedure for Unwanted Emissions Measurements Above 1000 MHz.*”
- (i) Sections 15.407(b)(1-3) specifies the unwanted emissions limit for the U-NII-1 and U-NII-2 bands. As specified, emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz.<sup>3</sup>

### Conducted Band Edge Test Procedure

#### KDB 789033 D02 General UNII Test Procedures New Rules v02r01

Ref. 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. ANSI C63.10: 2013 section 12.7.6 (Peak) and 12.7.7.2 (Average)**

**KDB 789033 D02 General UNII Test Procedures New Rules v02r01, Sec. 5 (Peak), Sec. 6 (Average Method AD)**

### Conducted Spurious Emissions

Test parameters

#### Peak

RBW = 1 MHz

VBW  $\geq$  3 MHz

Sweep = Auto

Detector = Peak

Trace = Max Hold.

#### Average

RBW = 1 MHz

VBW  $\geq$  3 MHz

Sweep = Auto

Detector = RMS

Power Averaging

### Samples, Systems, and Modes

System Number	Description	Samples	System under test	Support equipment
1	EUT	S01	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Support	S02	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### Tested By:

Chris Blair

#### Date of testing:

29-Mar-19 - 5-Apr-19

**Test Result: PASS**

#### Test Equipment

See Appendix C for list of test equipment

Frequency (MHz)	Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 Band edge Level (dBm)	Tx 2 Band edge Level (dBm)	Tx 3 Band edge Level (dBm)	Tx 4 Band edge Level (dBm)	Total Tx Band edge Level (dBm)	Limit (dBm)	Margin (dB)
5180	Non HT20, 6 to 54 Mbps	1	5	-48.1				-43.1	-41.25	1.9
	Non HT20, 6 to 54 Mbps	2	5	-50.2	-54.4			-43.8	-41.25	2.6
	Non HT20, 6 to 54 Mbps	3	5	-50.2	-54.4	-53.6		-42.6	-41.25	1.3
	Non HT20, 6 to 54 Mbps	4	5	-50.2	-54.4	-53.6	-52.5	-41.4	-41.25	0.1
	Non HT20 Beam Forming, 6 to 54 Mbps	2	8	-53.1	-55.3			-43.1	-41.25	1.8
	Non HT20 Beam Forming, 6 to 54 Mbps	3	10	-57.0	-57.4	-57.6		-42.6	-41.25	1.3
	<b>Non HT20 Beam Forming, 6 to 54 Mbps</b>	<b>4</b>	<b>11</b>	<b>-58.2</b>	<b>-59.3</b>	<b>-58.3</b>	<b>-57.5</b>	<b>-41.3</b>	<b>-41.25</b>	<b>0.0</b>
	HT/VHT20, M0 to M7	1	5	-50.5				-45.5	-41.25	4.3
	HT/VHT20, M0 to M7	2	5	-50.5	-53.6			-43.8	-41.25	2.5
	HT/VHT20, M8 to M15	2	5	-50.5	-53.6			-43.8	-41.25	2.5
	HT/VHT20, M0 to M7	3	5	-50.5	-53.6	-53.3		-42.5	-41.25	1.2
	HT/VHT20, M8 to M15	3	5	-50.5	-53.6	-53.3		-42.5	-41.25	1.2
	HT/VHT20, M16 to M23	3	5	-50.5	-53.6	-53.3		-42.5	-41.25	1.2
	HT/VHT20, M0 to M7	4	5	-50.5	-53.6	-53.3	-52.4	-41.3	-41.25	0.0
	HT/VHT20, M8 to M15	4	5	-50.5	-53.6	-53.3	-52.4	-41.3	-41.25	0.0
	HT/VHT20, M16 to M23	4	5	-50.5	-53.6	-53.3	-52.4	-41.3	-41.25	0.0
	HT/VHT20, M24 to M31	4	5	-50.5	-53.6	-53.3	-52.4	-41.3	-41.25	0.0
	HT/VHT20 Beam Forming, M0 to M7	2	8	-52.8	-55.5			-42.9	-41.25	1.7
	HT/VHT20 Beam Forming, M8 to M15	2	5	-50.5	-53.6			-43.8	-41.25	2.5
	HT/VHT20 Beam Forming, M0 to M7	3	10	-55.5	-58.4	-56.4		-41.8	-41.25	0.6
	HT/VHT20 Beam Forming, M8 to M15	3	7	-52.8	-55.5	-54.9		-42.5	-41.25	1.2
	HT/VHT20 Beam Forming, M16 to M23	3	5	-50.5	-53.6	-53.3		-42.5	-41.25	1.2
	HT/VHT20 Beam Forming, M0 to M7	4	11	-57.7	-59.6	-59.5	-58.3	-41.7	-41.25	0.4
	HT/VHT20 Beam Forming, M8 to M15	4	8	-55.3	-56.9	-55.7	-54.9	-41.6	-41.25	0.4
	HT/VHT20 Beam Forming, M16 to M23	4	6	-52.8	-55.5	-54.9	-54.3	-42.2	-41.25	1.0
	HT/VHT20 Beam Forming, M24 to M31	4	5	-50.5	-53.6	-53.3	-52.4	-41.3	-41.25	0.0
	HT/VHT20 STBC, M0 to M7	2	5	-50.5	-53.6			-43.8	-41.25	2.5
	HT/VHT20 STBC, M0 to M7	3	5	-50.5	-53.6	-53.3		-42.5	-41.25	1.2
	HT/VHT20 STBC, M0 to M7	4	5	-50.5	-53.6	-53.3	-52.4	-41.3	-41.25	0.0
	HE20, M0 to M9 1ss	1	5	-48.1				-43.1	-41.25	1.9
HE20, M0 to M9 1ss	2	5	-48.1	-52.4			-41.7	-41.25	0.5	

	HE20, M0 to M9 2ss	2	5	-48.1	-52.4			-41.7	-41.25	0.5
	HE20, M0 to M9 1ss	3	5	-50.4	-55.2	-54.0		-42.9	-41.25	1.7
	HE20, M0 to M9 2ss	3	5	-50.4	-55.2	-54.0		-42.9	-41.25	1.7
	HE20, M0 to M9 3ss	3	5	-50.4	-55.2	-54.0		-42.9	-41.25	1.7
	HE20, M0 to M9 1ss	4	5	-50.4	-55.2	-54.0	-53.5	-41.9	-41.25	0.6
	HE20, M0 to M9 2ss	4	5	-50.4	-55.2	-54.0	-53.5	-41.9	-41.25	0.6
	HE20, M0 to M9 3ss	4	5	-50.4	-55.2	-54.0	-53.5	-41.9	-41.25	0.6
	HE20, M0 to M9 4ss	4	5	-50.4	-55.2	-54.0	-53.5	-41.9	-41.25	0.6
	HE20 Beam Forming, M0 to M9 1ss	2	8	-53.7	-56.5			-43.9	-41.25	2.6
	HE20 Beam Forming, M0 to M9 2ss	2	5	-48.1	-52.4			-41.7	-41.25	0.5
	HE20 Beam Forming, M0 to M9 1ss	3	10	-55.8	-56.5	-57.3		-41.7	-41.25	0.5
	HE20 Beam Forming, M0 to M9 2ss	3	7	-53.7	-56.5	-56.1		-43.5	-41.25	2.2
	HE20 Beam Forming, M0 to M9 3ss	3	5	-50.4	-55.2	-54.0		-42.9	-41.25	1.7
	HE20 Beam Forming, M0 to M9 1ss	4	11	-57.9	-59.4	-59.2	-58.7	-41.7	-41.25	0.5
	HE20 Beam Forming, M0 to M9 2ss	4	8	-55.8	-56.5	-57.3	-55.9	-42.3	-41.25	1.1
	HE20 Beam Forming, M0 to M9 3ss	4	6	-53.7	-56.5	-56.1	-54.8	-43.1	-41.25	1.9
	HE20 Beam Forming, M0 to M9 4ss	4	5	-50.4	-55.2	-54.0	-53.5	-41.9	-41.25	0.6
	HE20 STBC, M0 to M9 2ss	2	5	-48.1	-52.4			-41.7	-41.25	0.5
	HE20 STBC, M0 to M9 2ss	3	5	-50.4	-55.2	-54.0		-42.9	-41.25	1.7
	HE20 STBC, M0 to M9 2ss	4	5	-50.4	-55.2	-54.0	-53.5	-41.9	-41.25	0.6
5190	Non HT40, 6 to 54 Mbps	1	5	-47.0				-42.0	-41.25	0.8
	Non HT40, 6 to 54 Mbps	2	5	-51.3	-52.3			-43.8	-41.25	2.5
	Non HT40, 6 to 54 Mbps	3	5	-51.3	-52.3	-53.5		-42.5	-41.25	1.3
	Non HT40, 6 to 54 Mbps	4	5	-53.7	-54.1	-55.2	-54.3	-43.3	-41.25	2.0
	HT/VHT40, M0 to M7	1	5	-47.4				-42.3	-41.25	1.1
	HT/VHT40, M0 to M7	2	5	-50.2	-51.5			-42.7	-41.25	1.4
	HT/VHT40, M8 to M15	2	5	-50.2	-51.5			-42.7	-41.25	1.4
	HT/VHT40, M0 to M7	3	5	-52.8	-52.9	-53.4		-43.2	-41.25	1.9
	HT/VHT40, M8 to M15	3	5	-52.8	-52.9	-53.4		-43.2	-41.25	1.9
	HT/VHT40, M16 to M23	3	5	-52.8	-52.9	-53.4		-43.2	-41.25	1.9
	HT/VHT40, M0 to M7	4	5	-52.8	-52.9	-53.4	-53.4	-42.0	-41.25	0.7
	HT/VHT40, M8 to M15	4	5	-52.8	-52.9	-53.4	-53.4	-42.0	-41.25	0.7
	HT/VHT40, M16 to M23	4	5	-52.8	-52.9	-53.4	-53.4	-42.0	-41.25	0.7
	HT/VHT40, M24 to M31	4	5	-52.8	-52.9	-53.4	-53.4	-42.0	-41.25	0.7
	HT/VHT40 Beam Forming, M0 to M7	2	8	-52.8	-52.9			-41.7	-41.25	0.5
	HT/VHT40 Beam Forming, M8 to M15	2	5	-50.2	-51.5			-42.7	-41.25	1.4
	HT/VHT40 Beam Forming, M0 to M7	3	10	-56.7	-56.5	-57.6		-42.0	-41.25	0.8
	HT/VHT40 Beam Forming, M8 to M15	3	7	-54.2	-54.2	-55.3		-42.7	-41.25	1.4
	HT/VHT40 Beam Forming, M16 to M23	3	5	-52.8	-52.9	-53.4		-43.2	-41.25	1.9
	HT/VHT40 Beam Forming, M0 to M7	4	11	-58.5	-58.3	-59.2	-59.7	-41.8	-41.25	0.5
HT/VHT40 Beam Forming, M8 to M15	4	8	-55.1	-55.0	-56.6	-56.2	-41.6	-41.25	0.3	
HT/VHT40 Beam Forming, M16 to M23	4	6	-54.2	-54.2	-55.3	-55.2	-42.6	-41.25	1.3	

	HT/VHT40 Beam Forming, M24 to M31	4	5	-52.8	-52.9	-53.4	-53.4	-42.0	-41.25	0.7
	HT/VHT40 STBC, M0 to M7	2	5	-50.2	-51.5			-42.7	-41.25	1.4
	HT/VHT40 STBC, M0 to M7	3	5	-52.8	-52.9	-53.4		-43.2	-41.25	1.9
	HT/VHT40 STBC, M0 to M7	4	5	-52.8	-52.9	-53.4	-53.4	-42.0	-41.25	0.7
	HE40, M0 to M9 1ss	1	5	-47.5				-42.4	-41.25	1.1
	HE40, M0 to M9 1ss	2	5	-52.0	-52.7			-44.2	-41.25	2.9
	HE40, M0 to M9 2ss	2	5	-52.0	-52.7			-44.2	-41.25	2.9
	HE40, M0 to M9 1ss	3	5	-52.0	-52.7	-53.1		-42.7	-41.25	1.4
	HE40, M0 to M9 2ss	3	5	-52.0	-52.7	-53.1		-42.7	-41.25	1.4
	HE40, M0 to M9 3ss	3	5	-52.0	-52.7	-53.1		-42.7	-41.25	1.4
	HE40, M0 to M9 1ss	4	5	-52.0	-52.7	-53.1	-53.4	-41.6	-41.25	0.4
	HE40, M0 to M9 2ss	4	5	-52.0	-52.7	-53.1	-53.4	-41.6	-41.25	0.4
	HE40, M0 to M9 3ss	4	5	-52.0	-52.7	-53.1	-53.4	-41.6	-41.25	0.4
	HE40, M0 to M9 4ss	4	5	-52.0	-52.7	-53.1	-53.4	-41.6	-41.25	0.4
	HE40 Beam Forming, M0 to M9 1ss	2	8	-53.4	-54.3			-42.7	-41.25	1.4
	HE40 Beam Forming, M0 to M9 2ss	2	5	-52.0	-52.7			-44.2	-41.25	2.9
	HE40 Beam Forming, M0 to M9 1ss	3	10	-56.6	-56.5	-57.2		-41.9	-41.25	0.6
	HE40 Beam Forming, M0 to M9 2ss	3	7	-53.4	-54.3	-54.8		-42.2	-41.25	1.0
	HE40 Beam Forming, M0 to M9 3ss	3	5	-52.0	-52.7	-53.1		-42.7	-41.25	1.4
	HE40 Beam Forming, M0 to M9 1ss	4	11	-58.5	-59.2	-60.0	-59.6	-42.1	-41.25	0.9
	HE40 Beam Forming, M0 to M9 2ss	4	8	-55.1	-55.1	-56.9	-55.9	-41.5	-41.25	0.3
	HE40 Beam Forming, M0 to M9 3ss	4	6	-53.4	-54.3	-54.8	-54.7	-42.1	-41.25	0.9
	HE40 Beam Forming, M0 to M9 4ss	4	5	-52.0	-52.7	-53.1	-53.4	-41.6	-41.25	0.4
	HE40 STBC, M0 to M9 2ss	2	5	-52.0	-52.7			-44.2	-41.25	2.9
	HE40 STBC, M0 to M9 2ss	3	5	-52.0	-52.7	-53.1		-42.7	-41.25	1.4
	HE40 STBC, M0 to M9 2ss	4	5	-52.0	-52.7	-53.1	-53.4	-41.6	-41.25	0.4
5210	Non HT80, 6 to 54 Mbps	1	5	-49.1				-44.1	-41.25	2.9
	Non HT80, 6 to 54 Mbps	2	5	-49.1	-53.6			-42.8	-41.25	1.5
	Non HT80, 6 to 54 Mbps	3	5	-51.6	-54.6	-51.7		-42.7	-41.25	1.4
	Non HT80, 6 to 54 Mbps	4	5	-51.6	-54.6	-51.7	-53.3	-41.6	-41.25	0.4
	VHT80, M0 to M9 1ss	1	5	-47.3				-42.1	-41.25	0.8
	VHT80, M0 to M9 1ss	2	5	-51.0	-53.4			-43.8	-41.25	2.6
	VHT80, M0 to M9 2ss	2	5	-51.0	-53.4			-43.8	-41.25	2.6
	VHT80, M0 to M9 1ss	3	5	-51.0	-53.4	-51.7		-41.9	-41.25	0.7
	VHT80, M0 to M9 2ss	3	5	-51.0	-53.4	-51.7		-41.9	-41.25	0.7
	VHT80, M0 to M9 3ss	3	5	-51.0	-53.4	-51.7		-41.9	-41.25	0.7
	VHT80, M0 to M9 1ss	4	5	-53.1	-54.6	-53.9	-54.5	-42.7	-41.25	1.5
	VHT80, M0 to M9 2ss	4	5	-53.1	-54.6	-53.9	-54.5	-42.7	-41.25	1.5
	VHT80, M0 to M9 3ss	4	5	-53.1	-54.6	-53.9	-54.5	-42.7	-41.25	1.5
	VHT80, M0 to M9 4ss	4	5	-53.1	-54.6	-53.9	-54.5	-42.7	-41.25	1.5
	VHT80 Beam Forming, M0 to M9 1ss	2	8	-53.1	-54.6			-42.6	-41.25	1.3
	VHT80 Beam Forming, M0 to M9 2ss	2	5	-51.0	-53.4			-43.8	-41.25	2.6

VHT80 Beam Forming, M0 to M9 1ss	3	10	-56.9	-56.3	-56.8		-41.7	-41.25	0.4
VHT80 Beam Forming, M0 to M9 2ss	3	7	-53.1	-54.6	-53.9		-41.8	-41.25	0.6
VHT80 Beam Forming, M0 to M9 3ss	3	5	-51.0	-53.4	-51.7		-41.9	-41.25	0.7
VHT80 Beam Forming, M0 to M9 1ss	4	11	-58.7	-58.6	-58.6	-59.9	-41.7	-41.25	0.4
VHT80 Beam Forming, M0 to M9 2ss	4	8	-55.3	-56.4	-55.6	-56.2	-41.6	-41.25	0.4
VHT80 Beam Forming, M0 to M9 3ss	4	6	-53.1	-54.6	-53.9	-54.5	-41.7	-41.25	0.5
VHT80 Beam Forming, M0 to M9 4ss	4	5	-53.1	-54.6	-53.9	-54.5	-42.7	-41.25	1.5
VHT80 STBC, M0 to M9 1ss	2	5	-51.0	-53.4			-43.8	-41.25	2.6
VHT80 STBC, M0 to M9 1ss	3	5	-51.0	-53.4	-51.7		-41.9	-41.25	0.7
VHT80 STBC, M0 to M9 1ss	4	5	-53.1	-54.6	-53.9	-54.5	-42.7	-41.25	1.5
HE80, M0 to M9 1ss	1	5	-49.0				-43.8	-41.25	2.5
HE80, M0 to M9 1ss	2	5	-49.0	-51.2			-41.7	-41.25	0.5
HE80, M0 to M9 2ss	2	5	-49.0	-51.2			-41.7	-41.25	0.5
HE80, M0 to M9 1ss	3	5	-51.1	-54.0	-51.4		-42.0	-41.25	0.7
HE80, M0 to M9 2ss	3	5	-51.1	-54.0	-51.4		-42.0	-41.25	0.7
HE80, M0 to M9 3ss	3	5	-51.1	-54.0	-51.4		-42.0	-41.25	0.7
HE80, M0 to M9 1ss	4	5	-54.8	-55.0	-53.3	-54.1	-43.0	-41.25	1.7
HE80, M0 to M9 2ss	4	5	-54.8	-55.0	-53.3	-54.1	-43.0	-41.25	1.7
HE80, M0 to M9 3ss	4	5	-54.8	-55.0	-53.3	-54.1	-43.0	-41.25	1.7
HE80, M0 to M9 4ss	4	5	-54.8	-55.0	-53.3	-54.1	-43.0	-41.25	1.7
HE80 Beam Forming, M0 to M9 1ss	2	8	-54.8	-55.0			-43.6	-41.25	2.4
HE80 Beam Forming, M0 to M9 2ss	2	5	-49.0	-51.2			-41.7	-41.25	0.5
HE80 Beam Forming, M0 to M9 1ss	3	10	-56.3	-56.3	-57.0		-41.5	-41.25	0.2
HE80 Beam Forming, M0 to M9 2ss	3	7	-54.8	-55.0	-53.3		-42.3	-41.25	1.0
HE80 Beam Forming, M0 to M9 3ss	3	5	-51.1	-54.0	-51.4		-42.0	-41.25	0.7
HE80 Beam Forming, M0 to M9 1ss	4	11	-58.8	-58.6	-59.1	-59.7	-41.8	-41.25	0.5
HE80 Beam Forming, M0 to M9 2ss	4	8	-55.9	-55.2	-55.6	-56.4	-41.5	-41.25	0.2
HE80 Beam Forming, M0 to M9 3ss	4	6	-54.8	-55.0	-53.3	-54.1	-42.0	-41.25	0.7
HE80 Beam Forming, M0 to M9 4ss	4	5	-54.8	-55.0	-53.3	-54.1	-43.0	-41.25	1.7
HE80 STBC, M0 to M9 1ss	2	5	-49.0	-51.2			-41.7	-41.25	0.5
HE80 STBC, M0 to M9 1ss	3	5	-51.1	-54.0	-51.4		-42.0	-41.25	0.7
HE80 STBC, M0 to M9 1ss	4	5	-54.8	-55.0	-53.3	-54.1	-43.0	-41.25	1.7
5250									
Non HT160, 6 to 54 Mbps	1	5	-53.5				-48.5	-41.25	7.3
Non HT160, 6 to 54 Mbps	2	5	-56.1	-52.6			-46.0	-41.25	4.7
Non HT160, 6 to 54 Mbps	3	5	-57.6	-53.8	-53.8		-45.0	-41.25	3.7
Non HT160, 6 to 54 Mbps	4	5	-59.1	-58.6	-58.1	-56.9	-47.1	-41.25	5.8
VHT160, M0 to M9 1ss	1	5	-49.9				-44.5	-41.25	3.3
VHT160, M0 to M9 1ss	2	5	-53.2	-53.8			-45.1	-41.25	3.8
VHT160, M0 to M9 2ss	2	5	-53.2	-53.8			-45.1	-41.25	3.8
VHT160, M0 to M9 1ss	3	5	-57.2	-55.9	-56.4		-46.3	-41.25	5.1
VHT160, M0 to M9 2ss	3	5	-57.2	-55.9	-56.4		-46.3	-41.25	5.1
VHT160, M0 to M9 3ss	3	5	-57.2	-55.9	-56.4		-46.3	-41.25	5.1

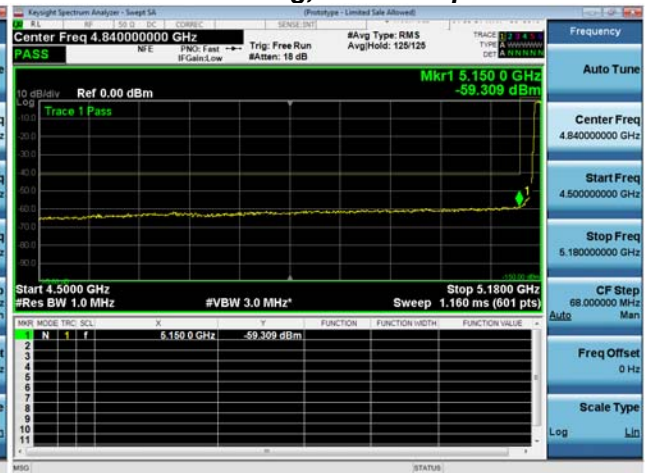
VHT160, M0 to M9 1ss	4	5	-57.2	-55.9	-56.4	-55.8	-44.9	-41.25	3.6
VHT160, M0 to M9 2ss	4	5	-57.2	-55.9	-56.4	-55.8	-44.9	-41.25	3.6
VHT160, M0 to M9 3ss	4	5	-57.2	-55.9	-56.4	-55.8	-44.9	-41.25	3.6
VHT160, M0 to M9 4ss	4	5	-57.2	-55.9	-56.4	-55.8	-44.9	-41.25	3.6
VHT160 Beam Forming, M0 to M9 1ss	2	8	-57.2	-55.9			-45.1	-41.25	3.9
VHT160 Beam Forming, M0 to M9 2ss	2	5	-53.2	-53.8			-45.1	-41.25	3.8
VHT160 Beam Forming, M0 to M9 1ss	3	10	-60.1	-58.9	-58.9		-44.1	-41.25	2.9
VHT160 Beam Forming, M0 to M9 2ss	3	7	-57.2	-55.9	-56.4		-44.3	-41.25	3.1
VHT160 Beam Forming, M0 to M9 3ss	3	5	-57.2	-55.9	-56.4		-46.3	-41.25	5.1
VHT160 Beam Forming, M0 to M9 1ss	4	11	-60.5	-60.2	-61.2	-60.2	-43.1	-41.25	1.8
VHT160 Beam Forming, M0 to M9 2ss	4	8	-56.6	-57.6	-58.7	-58.5	-43.4	-41.25	2.1
VHT160 Beam Forming, M0 to M9 3ss	4	6	-56.6	-57.6	-58.7	-58.5	-45.4	-41.25	4.1
VHT160 Beam Forming, M0 to M9 4ss	4	5	-57.2	-55.9	-56.4	-55.8	-44.9	-41.25	3.6
VHT160 STBC, M0 to M9 1ss	2	5	-53.2	-53.8			-45.1	-41.25	3.8
VHT160 STBC, M0 to M9 1ss	3	5	-57.2	-55.9	-56.4		-46.3	-41.25	5.1
VHT160 STBC, M0 to M9 1ss	4	5	-57.2	-55.9	-56.4	-55.8	-44.9	-41.25	3.6
HE160, M0 to M9 1ss	1	5	-52.5				-47.1	-41.25	5.8
HE160, M0 to M9 1ss	2	5	-54.7	-53.3			-45.5	-41.25	4.3
HE160, M0 to M9 2ss	2	5	-54.7	-53.3			-45.5	-41.25	4.3
HE160, M0 to M9 1ss	3	5	-56.0	-55.2	-55.1		-45.2	-41.25	4.0
HE160, M0 to M9 2ss	3	5	-56.0	-55.2	-55.1		-45.2	-41.25	4.0
HE160, M0 to M9 3ss	3	5	-56.0	-55.2	-55.1		-45.2	-41.25	4.0
HE160, M0 to M9 1ss	4	5	-57.5	-56.7	-56.6	-56.4	-45.3	-41.25	4.1
HE160, M0 to M9 2ss	4	5	-57.5	-56.7	-56.6	-56.4	-45.3	-41.25	4.1
HE160, M0 to M9 3ss	4	5	-57.5	-56.7	-56.6	-56.4	-45.3	-41.25	4.1
HE160, M0 to M9 4ss	4	5	-57.5	-56.7	-56.6	-56.4	-45.3	-41.25	4.1
HE160 Beam Forming, M0 to M9 1ss	2	8	-56.0	-55.2			-44.1	-41.25	2.9
HE160 Beam Forming, M0 to M9 2ss	2	5	-54.7	-53.3			-45.5	-41.25	4.3
HE160 Beam Forming, M0 to M9 1ss	3	10	-58.7	-58.1	-59.0		-43.4	-41.25	2.1
HE160 Beam Forming, M0 to M9 2ss	3	7	-57.5	-56.7	-56.6		-44.7	-41.25	3.5
HE160 Beam Forming, M0 to M9 3ss	3	5	-56.0	-55.2	-55.1		-45.2	-41.25	4.0
HE160 Beam Forming, M0 to M9 1ss	4	11	-60.8	-59.9	-60.7	-60.0	-42.9	-41.25	1.6
HE160 Beam Forming, M0 to M9 2ss	4	8	-58.1	-56.7	-58.1	-57.8	-43.2	-41.25	1.9
HE160 Beam Forming, M0 to M9 3ss	4	6	-57.5	-56.7	-56.6	-56.4	-44.3	-41.25	3.1
HE160 Beam Forming, M0 to M9 4ss	4	5	-57.5	-56.7	-56.6	-56.4	-45.3	-41.25	4.1
HE160 STBC, M0 to M9 1ss	2	5	-54.7	-53.3			-45.5	-41.25	4.3
HE160 STBC, M0 to M9 1ss	3	5	-56.0	-55.2	-55.1		-45.2	-41.25	4.0
HE160 STBC, M0 to M9 1ss	4	5	-57.5	-56.7	-56.6	-56.4	-45.3	-41.25	4.1



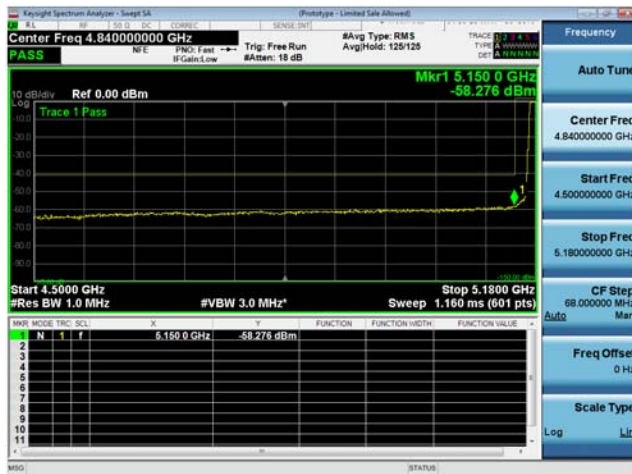
**Conducted Band edge Average, 5180 MHz, Non HT20 Beam Forming, 6 to 54 Mbps**



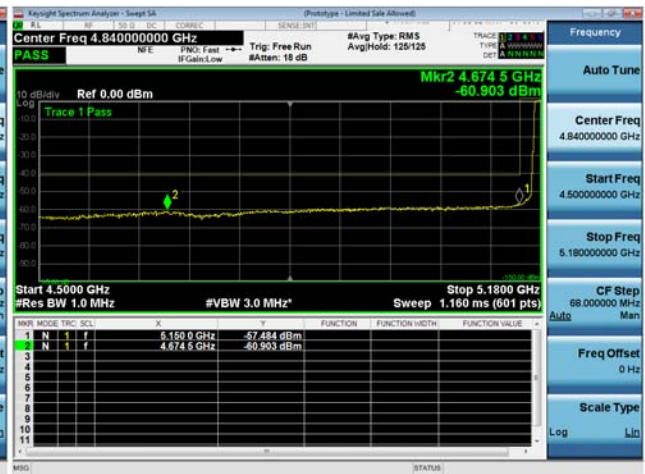
**Antenna A**



**Antenna B**



**Antenna C**



**Antenna D**



Frequency (MHz)	Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 Band edge Level (dBm)	Tx 2 Band edge Level (dBm)	Tx 3 Band edge Level (dBm)	Tx 4 Band edge Level (dBm)	Total Tx Band edge Level (dBm)	Limit (dBm)	Margin (dB)
5180	Non HT20, 6 to 54 Mbps	1	5	-33.8				-28.8	-21.25	7.6
	Non HT20, 6 to 54 Mbps	2	5	-35.5	-40.5			-29.3	-21.25	8.1
	Non HT20, 6 to 54 Mbps	3	5	-35.5	-40.5	-42.0		-28.6	-21.25	7.4
	Non HT20, 6 to 54 Mbps	4	5	-35.5	-40.5	-42.0	-40.7	-27.8	-21.25	6.6
	Non HT20 Beam Forming, 6 to 54 Mbps	2	8	-40.4	-42.2			-30.2	-21.25	8.9
	Non HT20 Beam Forming, 6 to 54 Mbps	3	10	-45.3	-47.3	-46.2		-31.4	-21.25	10.2
	Non HT20 Beam Forming, 6 to 54 Mbps	4	11	-45.3	-46.4	-46.5	-46.2	-29.1	-21.25	7.8
	HT/VHT20, M0 to M7	1	5	-37.3				-32.3	-21.25	11.1
	HT/VHT20, M0 to M7	2	5	-37.3	-41.2			-30.8	-21.25	9.6
	HT/VHT20, M8 to M15	2	5	-37.3	-41.2			-30.8	-21.25	9.6
	HT/VHT20, M0 to M7	3	5	-37.3	-41.2	-42.5		-30.0	-21.25	8.7
	HT/VHT20, M8 to M15	3	5	-37.3	-41.2	-42.5		-30.0	-21.25	8.7
	HT/VHT20, M16 to M23	3	5	-37.3	-41.2	-42.5		-30.0	-21.25	8.7
	HT/VHT20, M0 to M7	4	5	-37.3	-41.2	-42.5	-41.2	-29.0	-21.25	7.8
	HT/VHT20, M8 to M15	4	5	-37.3	-41.2	-42.5	-41.2	-29.0	-21.25	7.8
	HT/VHT20, M16 to M23	4	5	-37.3	-41.2	-42.5	-41.2	-29.0	-21.25	7.8
	HT/VHT20, M24 to M31	4	5	-37.3	-41.2	-42.5	-41.2	-29.0	-21.25	7.8
	HT/VHT20 Beam Forming, M0 to M7	2	8	-37.9	-43.6			-28.9	-21.25	7.6
	HT/VHT20 Beam Forming, M8 to M15	2	5	-37.3	-41.2			-30.8	-21.25	9.6
	HT/VHT20 Beam Forming, M0 to M7	3	10	-44.1	-46.3	-46.7		-30.8	-21.25	9.5
	HT/VHT20 Beam Forming, M8 to M15	3	7	-37.9	-43.6	-43.5		-29.0	-21.25	7.8
	HT/VHT20 Beam Forming, M16 to M23	3	5	-37.3	-41.2	-42.5		-30.0	-21.25	8.7
	HT/VHT20 Beam Forming, M0 to M7	4	11	-46.9	-49.4	-48.6	-47.3	-30.9	-21.25	9.7
	HT/VHT20 Beam Forming, M8 to M15	4	8	-43.5	-44.0	-46.0	-43.6	-30.1	-21.25	8.9
	HT/VHT20 Beam Forming, M16 to M23	4	6	-37.9	-43.6	-43.5	-43.3	-29.3	-21.25	8.0
	HT/VHT20 Beam Forming, M24 to M31	4	5	-37.3	-41.2	-42.5	-41.2	-29.0	-21.25	7.8
	HT/VHT20 STBC, M0 to M7	2	5	-37.3	-41.2			-30.8	-21.25	9.6
	HT/VHT20 STBC, M0 to M7	3	5	-37.3	-41.2	-42.5		-30.0	-21.25	8.7
	HT/VHT20 STBC, M0 to M7	4	5	-37.3	-41.2	-42.5	-41.2	-29.0	-21.25	7.8
	HE20, M0 to M9 1ss	1	5	-31.4				-26.4	-21.25	5.2
HE20, M0 to M9 1ss	2	5	-31.4	-41.7			-26.0	-21.25	4.8	

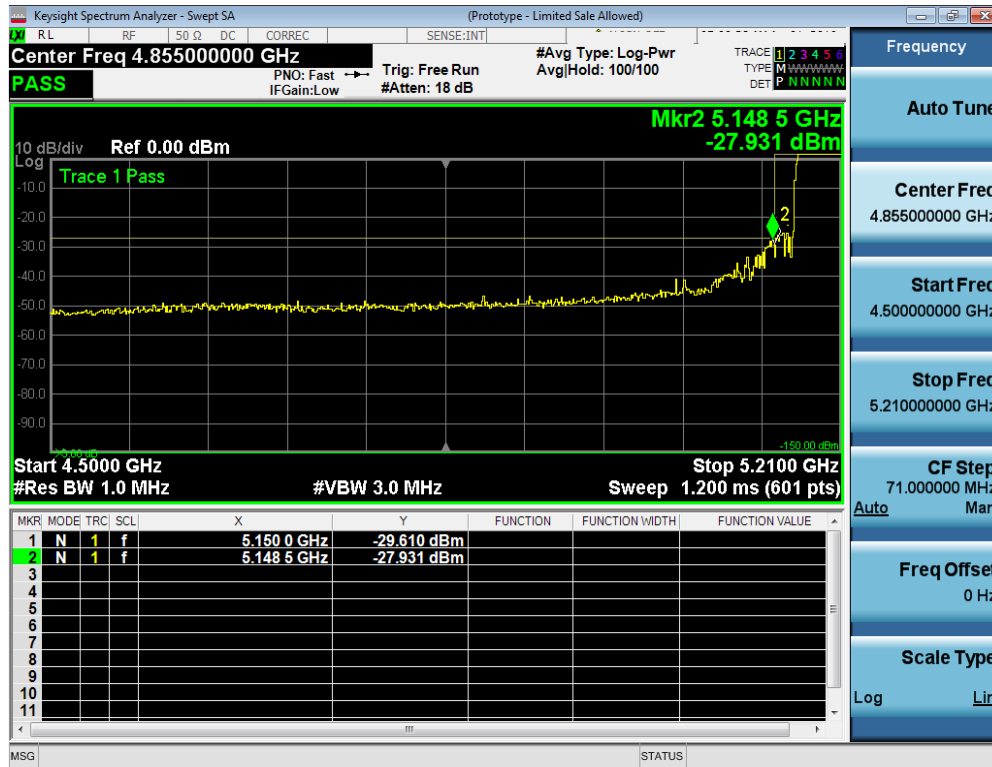
	HE20, M0 to M9 2ss	2	5	-31.4	-41.7			-26.0	-21.25	4.8
	HE20, M0 to M9 1ss	3	5	-37.8	-43.8	-42.5		-30.8	-21.25	9.5
	HE20, M0 to M9 2ss	3	5	-37.8	-43.8	-42.5		-30.8	-21.25	9.5
	HE20, M0 to M9 3ss	3	5	-37.8	-43.8	-42.5		-30.8	-21.25	9.5
	HE20, M0 to M9 1ss	4	5	-37.8	-43.8	-42.5	-40.9	-29.6	-21.25	8.4
	HE20, M0 to M9 2ss	4	5	-37.8	-43.8	-42.5	-40.9	-29.6	-21.25	8.4
	HE20, M0 to M9 3ss	4	5	-37.8	-43.8	-42.5	-40.9	-29.6	-21.25	8.4
	HE20, M0 to M9 4ss	4	5	-37.8	-43.8	-42.5	-40.9	-29.6	-21.25	8.4
	HE20 Beam Forming, M0 to M9 1ss	2	8	-43.4	-45.0			-33.1	-21.25	11.9
	HE20 Beam Forming, M0 to M9 2ss	2	5	-31.4	-41.7			-26.0	-21.25	4.8
	HE20 Beam Forming, M0 to M9 1ss	3	10	-44.0	-45.1	-44.9		-29.9	-21.25	8.6
	HE20 Beam Forming, M0 to M9 2ss	3	7	-43.4	-45.0	-42.5		-31.7	-21.25	10.5
	HE20 Beam Forming, M0 to M9 3ss	3	5	-37.8	-43.8	-42.5		-30.8	-21.25	9.5
	HE20 Beam Forming, M0 to M9 1ss	4	11	-45.7	-48.5	-45.3	-46.8	-29.4	-21.25	8.1
	HE20 Beam Forming, M0 to M9 2ss	4	8	-44.0	-45.1	-44.9	-43.6	-30.3	-21.25	9.1
	HE20 Beam Forming, M0 to M9 3ss	4	6	-43.4	-45.0	-42.5	-40.4	-30.5	-21.25	9.2
	HE20 Beam Forming, M0 to M9 4ss	4	5	-37.8	-43.8	-42.5	-40.9	-29.6	-21.25	8.4
	HE20 STBC, M0 to M9 2ss	2	5	-31.4	-41.7			-26.0	-21.25	4.8
	HE20 STBC, M0 to M9 2ss	3	5	-37.8	-43.8	-42.5		-30.8	-21.25	9.5
	HE20 STBC, M0 to M9 2ss	4	5	-37.8	-43.8	-42.5	-40.9	-29.6	-21.25	8.4
5190	Non HT40, 6 to 54 Mbps	1	5	-29.0				-24.0	-21.25	2.8
	Non HT40, 6 to 54 Mbps	2	5	-34.5	-39.8			-28.4	-21.25	7.1
	Non HT40, 6 to 54 Mbps	3	5	-34.5	-39.8	-43.4		-28.0	-21.25	6.7
	Non HT40, 6 to 54 Mbps	4	5	-38.6	-45.7	-44.9	-43.5	-31.2	-21.25	9.9
	HT/VHT40, M0 to M7	1	5	-32.2				-27.1	-21.25	5.9
	HT/VHT40, M0 to M7	2	5	-34.6	-40.5			-28.5	-21.25	7.3
	HT/VHT40, M8 to M15	2	5	-34.6	-40.5			-28.5	-21.25	7.3
	HT/VHT40, M0 to M7	3	5	-38.4	-43.2	-44.6		-31.3	-21.25	10.1
	HT/VHT40, M8 to M15	3	5	-38.4	-43.2	-44.6		-31.3	-21.25	10.1
	HT/VHT40, M16 to M23	3	5	-38.4	-43.2	-44.6		-31.3	-21.25	10.1
	HT/VHT40, M0 to M7	4	5	-38.4	-43.2	-44.6	-42.9	-30.5	-21.25	9.2
	HT/VHT40, M8 to M15	4	5	-38.4	-43.2	-44.6	-42.9	-30.5	-21.25	9.2
	HT/VHT40, M16 to M23	4	5	-38.4	-43.2	-44.6	-42.9	-30.5	-21.25	9.2
	HT/VHT40, M24 to M31	4	5	-38.4	-43.2	-44.6	-42.9	-30.5	-21.25	9.2
	HT/VHT40 Beam Forming, M0 to M7	2	8	-38.4	-43.2			-29.1	-21.25	7.8
	HT/VHT40 Beam Forming, M8 to M15	2	5	-34.6	-40.5			-28.5	-21.25	7.3
	HT/VHT40 Beam Forming, M0 to M7	3	10	-47.5	-47.8	-46.5		-32.4	-21.25	11.1
	HT/VHT40 Beam Forming, M8 to M15	3	7	-44.1	-44.9	-45.9		-33.0	-21.25	11.8
	HT/VHT40 Beam Forming, M16 to M23	3	5	-38.4	-43.2	-44.6		-31.3	-21.25	10.1
	HT/VHT40 Beam Forming, M0 to M7	4	11	-48.9	-48.1	-50.6	-48.2	-31.7	-21.25	10.5
HT/VHT40 Beam Forming, M8 to M15	4	8	-46.3	-46.2	-47.7	-46.0	-32.4	-21.25	11.1	
HT/VHT40 Beam Forming, M16 to M23	4	6	-44.1	-44.9	-45.9	-44.2	-32.6	-21.25	11.3	

	HT/VHT40 Beam Forming, M24 to M31	4	5	-38.4	-43.2	-44.6	-42.9	-30.5	-21.25	9.2
	HT/VHT40 STBC, M0 to M7	2	5	-34.6	-40.5			-28.5	-21.25	7.3
	HT/VHT40 STBC, M0 to M7	3	5	-38.4	-43.2	-44.6		-31.3	-21.25	10.1
	HT/VHT40 STBC, M0 to M7	4	5	-38.4	-43.2	-44.6	-42.9	-30.5	-21.25	9.2
	HE40, M0 to M9 1ss	1	5	-32.6				-27.5	-21.25	6.2
	HE40, M0 to M9 1ss	2	5	-35.9	-33.1			-26.1	-21.25	4.9
	HE40, M0 to M9 2ss	2	5	-35.9	-33.1			-26.1	-21.25	4.9
	HE40, M0 to M9 1ss	3	5	-35.9	-33.1	-39.4		-25.5	-21.25	4.3
	HE40, M0 to M9 2ss	3	5	-35.9	-33.1	-39.4		-25.5	-21.25	4.3
	HE40, M0 to M9 3ss	3	5	-35.9	-33.1	-39.4		-25.5	-21.25	4.3
	HE40, M0 to M9 1ss	4	5	-35.9	-33.1	-39.4	-39.7	-25.0	-21.25	3.8
	HE40, M0 to M9 2ss	4	5	-35.9	-33.1	-39.4	-39.7	-25.0	-21.25	3.8
	HE40, M0 to M9 3ss	4	5	-35.9	-33.1	-39.4	-39.7	-25.0	-21.25	3.8
	HE40, M0 to M9 4ss	4	5	-35.9	-33.1	-39.4	-39.7	-25.0	-21.25	3.8
	HE40 Beam Forming, M0 to M9 1ss	2	8	-35.2	-43.1			-26.4	-21.25	5.2
	HE40 Beam Forming, M0 to M9 2ss	2	5	-35.9	-33.1			-26.1	-21.25	4.9
	HE40 Beam Forming, M0 to M9 1ss	3	10	-47.4	-47.1	-45.7		-31.8	-21.25	10.5
	HE40 Beam Forming, M0 to M9 2ss	3	7	-35.2	-43.1	-45.0		-27.0	-21.25	5.8
	HE40 Beam Forming, M0 to M9 3ss	3	5	-35.9	-33.1	-39.4		-25.5	-21.25	4.3
	HE40 Beam Forming, M0 to M9 1ss	4	11	-47.8	-49.3	-49.7	-50.5	-32.1	-21.25	10.8
	HE40 Beam Forming, M0 to M9 2ss	4	8	-46.1	-45.0	-48.3	-45.7	-32.0	-21.25	10.7
	HE40 Beam Forming, M0 to M9 3ss	4	6	-35.2	-43.1	-45.0	-39.6	-26.9	-21.25	5.7
	HE40 Beam Forming, M0 to M9 4ss	4	5	-35.9	-33.1	-39.4	-39.7	-25.0	-21.25	3.8
	HE40 STBC, M0 to M9 2ss	2	5	-35.9	-33.1			-26.1	-21.25	4.9
	HE40 STBC, M0 to M9 2ss	3	5	-35.9	-33.1	-39.4		-25.5	-21.25	4.3
	HE40 STBC, M0 to M9 2ss	4	5	-35.9	-33.1	-39.4	-39.7	-25.0	-21.25	3.8
5210	Non HT80, 6 to 54 Mbps	1	5	-34.3				-29.3	-21.25	8.1
	Non HT80, 6 to 54 Mbps	2	5	-34.3	-37.6			-27.6	-21.25	6.4
	Non HT80, 6 to 54 Mbps	3	5	-31.3	-39.5	-40.0		-25.2	-21.25	4.0
	Non HT80, 6 to 54 Mbps	4	5	-31.3	-39.5	-40.0	-33.9	-23.7	-21.25	2.4
	<b>VHT80, M0 to M9 1ss</b>	<b>1</b>	<b>5</b>	<b>-27.9</b>				<b>-22.7</b>	<b>-21.25</b>	<b>1.4</b>
	VHT80, M0 to M9 1ss	2	5	-30.3	-37.3			-24.3	-21.25	3.0
	VHT80, M0 to M9 2ss	2	5	-30.3	-37.3			-24.3	-21.25	3.0
	VHT80, M0 to M9 1ss	3	5	-30.3	-37.3	-38.2		-23.7	-21.25	2.5
	VHT80, M0 to M9 2ss	3	5	-30.3	-37.3	-38.2		-23.7	-21.25	2.5
	VHT80, M0 to M9 3ss	3	5	-30.3	-37.3	-38.2		-23.7	-21.25	2.5
	VHT80, M0 to M9 1ss	4	5	-36.1	-42.7	-39.1	-41.2	-27.8	-21.25	6.6
	VHT80, M0 to M9 2ss	4	5	-36.1	-42.7	-39.1	-41.2	-27.8	-21.25	6.6
	VHT80, M0 to M9 3ss	4	5	-36.1	-42.7	-39.1	-41.2	-27.8	-21.25	6.6
	VHT80, M0 to M9 4ss	4	5	-36.1	-42.7	-39.1	-41.2	-27.8	-21.25	6.6
	VHT80 Beam Forming, M0 to M9 1ss	2	8	-36.1	-42.7			-27.0	-21.25	5.8
	VHT80 Beam Forming, M0 to M9 2ss	2	5	-30.3	-37.3			-24.3	-21.25	3.0

VHT80 Beam Forming, M0 to M9 1ss	3	10	-44.0	-46.4	-47.7			-30.8	-21.25	9.5	
VHT80 Beam Forming, M0 to M9 2ss	3	7	-36.1	-42.7	-39.1			-26.5	-21.25	5.3	
VHT80 Beam Forming, M0 to M9 3ss	3	5	-30.3	-37.3	-38.2			-23.7	-21.25	2.5	
VHT80 Beam Forming, M0 to M9 1ss	4	11	-49.8	-48.8	-48.4	-48.3		-31.5	-21.25	10.3	
VHT80 Beam Forming, M0 to M9 2ss	4	8	-40.4	-45.3	-46.2	-44.4		-29.2	-21.25	8.0	
VHT80 Beam Forming, M0 to M9 3ss	4	6	-36.1	-42.7	-39.1	-41.2		-26.8	-21.25	5.6	
VHT80 Beam Forming, M0 to M9 4ss	4	5	-36.1	-42.7	-39.1	-41.2		-27.8	-21.25	6.6	
VHT80 STBC, M0 to M9 1ss	2	5	-30.3	-37.3				-24.3	-21.25	3.0	
VHT80 STBC, M0 to M9 1ss	3	5	-30.3	-37.3	-38.2			-23.7	-21.25	2.5	
VHT80 STBC, M0 to M9 1ss	4	5	-36.1	-42.7	-39.1	-41.2		-27.8	-21.25	6.6	
HE80, M0 to M9 1ss	1	5	-30.6					-25.4	-21.25	4.1	
HE80, M0 to M9 1ss	2	5	-30.6	-38.7				-24.7	-21.25	3.5	
HE80, M0 to M9 2ss	2	5	-30.6	-38.7				-24.7	-21.25	3.5	
HE80, M0 to M9 1ss	3	5	-35.8	-43.6	-43.8			-29.3	-21.25	8.1	
HE80, M0 to M9 2ss	3	5	-35.8	-43.6	-43.8			-29.3	-21.25	8.1	
HE80, M0 to M9 3ss	3	5	-35.8	-43.6	-43.8			-29.3	-21.25	8.1	
HE80, M0 to M9 1ss	4	5	-41.2	-44.0	-43.2	-43.0		-31.5	-21.25	10.2	
HE80, M0 to M9 2ss	4	5	-41.2	-44.0	-43.2	-43.0		-31.5	-21.25	10.2	
HE80, M0 to M9 3ss	4	5	-41.2	-44.0	-43.2	-43.0		-31.5	-21.25	10.2	
HE80, M0 to M9 4ss	4	5	-41.2	-44.0	-43.2	-43.0		-31.5	-21.25	10.2	
HE80 Beam Forming, M0 to M9 1ss	2	8	-41.2	-44.0				-31.1	-21.25	9.9	
HE80 Beam Forming, M0 to M9 2ss	2	5	-30.6	-38.7				-24.7	-21.25	3.5	
HE80 Beam Forming, M0 to M9 1ss	3	10	-48.0	-44.8	-47.6			-31.5	-21.25	10.3	
HE80 Beam Forming, M0 to M9 2ss	3	7	-41.2	-44.0	-43.2			-30.6	-21.25	9.4	
HE80 Beam Forming, M0 to M9 3ss	3	5	-35.8	-43.6	-43.8			-29.3	-21.25	8.1	
HE80 Beam Forming, M0 to M9 1ss	4	11	-50.2	-50.7	-48.3	-48.6		-32.1	-21.25	10.8	
HE80 Beam Forming, M0 to M9 2ss	4	8	-44.9	-45.9	-45.4	-46.8		-31.4	-21.25	10.2	
HE80 Beam Forming, M0 to M9 3ss	4	6	-41.2	-44.0	-43.2	-43.0		-30.5	-21.25	9.2	
HE80 Beam Forming, M0 to M9 4ss	4	5	-41.2	-44.0	-43.2	-43.0		-31.5	-21.25	10.2	
HE80 STBC, M0 to M9 1ss	2	5	-30.6	-38.7				-24.7	-21.25	3.5	
HE80 STBC, M0 to M9 1ss	3	5	-35.8	-43.6	-43.8			-29.3	-21.25	8.1	
HE80 STBC, M0 to M9 1ss	4	5	-41.2	-44.0	-43.2	-43.0		-31.5	-21.25	10.2	
5250	Non HT160, 6 to 54 Mbps	1	5	-31.1					-26.1	-21.25	4.9
	Non HT160, 6 to 54 Mbps	2	5	-35.9	-38.9				-29.1	-21.25	7.9
	Non HT160, 6 to 54 Mbps	3	5	-41.9	-44.2	-44.1			-33.5	-21.25	12.2
	Non HT160, 6 to 54 Mbps	4	5	-45.8	-45.4	-44.9	-45.1		-34.3	-21.25	13.0
	VHT160, M0 to M9 1ss	1	5	-28.0					-22.6	-21.25	1.4
	VHT160, M0 to M9 1ss	2	5	-32.9	-34.5				-25.2	-21.25	4.0
	VHT160, M0 to M9 2ss	2	5	-32.9	-34.5				-25.2	-21.25	4.0
	VHT160, M0 to M9 1ss	3	5	-35.9	-37.4	-36.9			-26.5	-21.25	5.3
	VHT160, M0 to M9 2ss	3	5	-35.9	-37.4	-36.9			-26.5	-21.25	5.3
	VHT160, M0 to M9 3ss	3	5	-35.9	-37.4	-36.9			-26.5	-21.25	5.3

VHT160, M0 to M9 1ss	4	5	-35.9	-37.4	-36.9	-36.3	-25.2	-21.25	3.9
VHT160, M0 to M9 2ss	4	5	-35.9	-37.4	-36.9	-36.3	-25.2	-21.25	3.9
VHT160, M0 to M9 3ss	4	5	-35.9	-37.4	-36.9	-36.3	-25.2	-21.25	3.9
VHT160, M0 to M9 4ss	4	5	-35.9	-37.4	-36.9	-36.3	-25.2	-21.25	3.9
VHT160 Beam Forming, M0 to M9 1ss	2	8	-35.9	-37.4			-25.2	-21.25	3.9
VHT160 Beam Forming, M0 to M9 2ss	2	5	-32.9	-34.5			-25.2	-21.25	4.0
VHT160 Beam Forming, M0 to M9 1ss	3	10	-40.4	-45.1	-39.3		-25.8	-21.25	4.6
VHT160 Beam Forming, M0 to M9 2ss	3	7	-35.9	-37.4	-36.9		-24.5	-21.25	3.3
VHT160 Beam Forming, M0 to M9 3ss	3	5	-35.9	-37.4	-36.9		-26.5	-21.25	5.3
VHT160 Beam Forming, M0 to M9 1ss	4	11	-41.4	-41.1	-43.9	-44.6	-25.1	-21.25	3.8
VHT160 Beam Forming, M0 to M9 2ss	4	8	-40.3	-42.2	-39.4	-36.3	-24.6	-21.25	3.3
VHT160 Beam Forming, M0 to M9 3ss	4	6	-40.3	-42.2	-39.4	-36.3	-26.6	-21.25	5.3
VHT160 Beam Forming, M0 to M9 4ss	4	5	-35.9	-37.4	-36.9	-36.3	-25.2	-21.25	3.9
VHT160 STBC, M0 to M9 1ss	2	5	-32.9	-34.5			-25.2	-21.25	4.0
VHT160 STBC, M0 to M9 1ss	3	5	-35.9	-37.4	-36.9		-26.5	-21.25	5.3
VHT160 STBC, M0 to M9 1ss	4	5	-35.9	-37.4	-36.9	-36.3	-25.2	-21.25	3.9
HE160, M0 to M9 1ss	1	5	-34.3				-28.9	-21.25	7.6
HE160, M0 to M9 1ss	2	5	-38.5	-41.5			-31.3	-21.25	10.1
HE160, M0 to M9 2ss	2	5	-38.5	-41.5			-31.3	-21.25	10.1
HE160, M0 to M9 1ss	3	5	-43.7	-43.5	-44.7		-33.7	-21.25	12.5
HE160, M0 to M9 2ss	3	5	-43.7	-43.5	-44.7		-33.7	-21.25	12.5
HE160, M0 to M9 3ss	3	5	-43.7	-43.5	-44.7		-33.7	-21.25	12.5
HE160, M0 to M9 1ss	4	5	-45.5	-44.6	-45.1	-45.0	-33.6	-21.25	12.3
HE160, M0 to M9 2ss	4	5	-45.5	-44.6	-45.1	-45.0	-33.6	-21.25	12.3
HE160, M0 to M9 3ss	4	5	-45.5	-44.6	-45.1	-45.0	-33.6	-21.25	12.3
HE160, M0 to M9 4ss	4	5	-45.5	-44.6	-45.1	-45.0	-33.6	-21.25	12.3
HE160 Beam Forming, M0 to M9 1ss	2	8	-43.7	-43.5			-32.2	-21.25	10.9
HE160 Beam Forming, M0 to M9 2ss	2	5	-38.5	-41.5			-31.3	-21.25	10.1
HE160 Beam Forming, M0 to M9 1ss	3	10	-50.1	-46.3	-47.0		-32.3	-21.25	11.1
HE160 Beam Forming, M0 to M9 2ss	3	7	-45.5	-44.6	-45.1		-32.8	-21.25	11.6
HE160 Beam Forming, M0 to M9 3ss	3	5	-43.7	-43.5	-44.7		-33.7	-21.25	12.5
HE160 Beam Forming, M0 to M9 1ss	4	11	-49.8	-48.7	-48.3	-48.9	-31.4	-21.25	10.2
HE160 Beam Forming, M0 to M9 2ss	4	8	-47.9	-46.5	-47.1	-46.4	-32.5	-21.25	11.2
HE160 Beam Forming, M0 to M9 3ss	4	6	-45.5	-44.6	-45.1	-45.0	-32.6	-21.25	11.3
HE160 Beam Forming, M0 to M9 4ss	4	5	-45.5	-44.6	-45.1	-45.0	-33.6	-21.25	12.3
HE160 STBC, M0 to M9 1ss	2	5	-38.5	-41.5			-31.3	-21.25	10.1
HE160 STBC, M0 to M9 1ss	3	5	-43.7	-43.5	-44.7		-33.7	-21.25	12.5
HE160 STBC, M0 to M9 1ss	4	5	-45.5	-44.6	-45.1	-45.0	-33.6	-21.25	12.3

*Conducted Band edge Peak, 5210 MHz, VHT80, M0 to M9 1ss*



**Antenna A**

**Appendix B: Radiated Emission Test Results**

Note: Results for Transmitter Radiated Spurious Emissions are in BAEL Report R1902193-407 (Cisco EDCS# 17740428).

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

Equip#	Manufacturer/ Model	Description	Last Cal	Next Due	Test Item
<b>Test Equipment used for conducted tests</b>					
57478	Cisco ATIL	Automation Test Insertion Loss	Cal Not Required		A1 thru A6
55096	PXI-1042 National Instruments	Chassis	Cal Not Required		A1 thru A6
55109	Agilent N9030A-550	PXA Signal Analyzer, 3Hz to 50GHz	29 Oct 2018	29 Oct 2019	A1 thru A6
57239	National Instruments PXI-8115	Embedded Controller	Cal Not Required		A1 thru A6
57250	National Instruments PXI-2796	40 GHz Dual 6x1 Multiplexer (SP6T)	Cal Not Required		A1 thru A6
56093	National Instruments PXI-2796	40 GHz Dual 6x1 Multiplexer (SP6T)	Cal Not Required		A1 thru A6
57251	National Instruments PXI-2799	Switch 1x1	Cal Not Required		A1 thru A6
56328	Pasternack PE5019-1	Torque wrench	14 Feb 2019	14 Feb 2020	A1 thru A6
6322	Lufft 5063-33W	Dial hygrometer	28 Dec 2018	28 Dec 2019	A1 thru A6
036772	Fluke 175	RMS multimeter	22 May 2018	22 May 2019	A1 thru A6
<b>Test Equipment used for duty cycle and upper band CSE</b>					
57475	Cisco ATIL	Automation Test Insertion Loss	Cal Not Required		A1 thru A6
55095	PXI-1042 National Instruments	Chassis	Cal Not Required		A1 thru A6
57236	National Instruments PXI-8115	Embedded Controller	Cal Not Required		A1 thru A6
56090	National Instruments PXI-2796	40 GHz Dual 6x1 Multiplexer (SP6T)	Cal Not Required		A1 thru A6
57242	National Instruments PXI-2796	40 GHz Dual 6x1 Multiplexer (SP6T)	Cal Not Required		A1 thru A6
57243	National Instruments PXI-2799	Switch 1x1	Cal Not Required		A1 thru A6
53614	Agilent N9030A-550	PXA Signal Analyzer, 3Hz to 50GHz	17 Jul 2018	17 Jul 2019	A1 thru A6

### Appendix D: 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 <sup>3</sup> )
EN	European Norm	MHz	Megahertz (1x10 <sup>6</sup> )
IEC	International Electro technical Commission	GHz	Gigahertz (1x10 <sup>9</sup> )
CISPR	International Special Committee on Radio Interference	H	Horizontal
CDN	Coupling/Decoupling Network	V	Vertical
LISN	Line Impedance Stabilization Network	dB	decibel
PE	Protective Earth	V	Volt
GND	Ground	kV	Kilovolt (1x10 <sup>3</sup> )
L1	Line 1	μV	Microvolt (1x10 <sup>-6</sup> )
L2	Line2	A	Amp
L3	Line 3	μA	Micro Amp (1x10 <sup>-6</sup> )
DC	Direct Current	mS	Milli Second (1x10 <sup>-3</sup> )
RAW	Uncorrected measurement value, as indicated by the measuring device	μS	Micro Second (1x10 <sup>-6</sup> )
RF	Radio Frequency	μS	Micro Second (1x10 <sup>-6</sup> )
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)
P	Power Line	L	Live Line
N	Neutral Line	R	Return
S	Supply	AC	Alternating Current

## Appendix E: Photographs of Test Setups

EUT Photos have been omitted from this test report. Photos can be found in the supplementary exhibit included in the submission and EDCS# 17749029.

## Appendix F: Software Used to Perform Testing

Cisco Internal LabView Radio Test Automation Software rev46, rev49  
Cisco Internal LabView Radio Test Automation Report Generator Software rev25

## Appendix G: Test Procedures

Measurements were made in accordance with

- KDB 789033 - D02 General UNII Test Procedures New Rules v02r01
- KDB 662911 - MIMO
- ANSI C63.4 2014 Unintentional Radiators
- ANSI C63.10 2013 Intentional Radiators

Test procedures are summarized below:

FCC 5GHz Test Procedures	EDCS # 1445048
FCC 5GHz RSE Test Procedures	EDCS # 1511600

## Appendix H: Scope of Accreditation

The scope of accreditation of Cisco Systems, Inc. can be found on the A2LA web page at:

<http://www.a2la.org/scopepdf/1178-01.pdf>

## Appendix I: Test Assessment Plan

Compliance Test Plan: EDCS:16915207

Target Power Tables EDCS# 16415414

## Appendix J: UUT Software Info

APD4E8.8019.54E4#

APD4E8.8019.54E4#show ver  
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Cisco AP Software, (ap1g7), [cheetah-build6:/san2/BUILD/workspace/Nightly-Cheetah-axel-bcm-mfg-c8\_9\_throttle]  
Technical Support: <http://www.cisco.com/techsupport>  
Copyright (c) 1986-2019 by Cisco Systems, Inc.  
Compiled Fri Mar 1 03:06:48 PST 2019

ROM: Bootstrap program is U-Boot boot loader  
BOOTLDR: U-Boot boot loader Version

APD4E8.8019.54E4 uptime is 0 days, 0 hours, 11 minutes  
Last reload time : Sun Mar 3 00:02:55 UTC 2019  
Last reload reason : unknown

cisco C9120AXI-B with 1776976/1109520K bytes of memory.  
Processor board ID 0  
AP Running Image : 8.8.1.10  
Primary Boot Image : 8.8.1.10  
Backup Boot Image : 0.0.0.0  
Primary Boot Image Hash:  
Backup Boot Image Hash:  
1 Gigabit Ethernet interfaces  
2 802.11 Radios  
Radio FW version : 17.10 RC25.2101  
NSS FW version : NA

Base ethernet MAC Address : D4:E8:80:19:54:E4  
Part Number : 0-000000-00  
PCA Assembly Number : 800-105698-01  
PCA Revision Number : 08  
PCB Serial Number : FOC23070L5A  
Top Assembly Part Number : 800-105698-01  
Top Assembly Serial Number : 0  
Top Revision Number : 08  
Product/Model Number : C9120AXI-B

APD4E8.8019.54E4#  
APD4E8.8019.54E4#  
APD4E8.8019.54E4#



APD4E8.8019.54E4#devs  
EXITING CISCO SHELL. PLEASE EXECUTE EXIT IN DEVSHELL TO GET BACK TO CISCO SHELL.

BusyBox v1.23.2 (2019-03-01 02:34:16 PST) built-in shell (ash)

Welcome to Cisco.

Usage of this device is governed by Cisco's End User License Agreement,  
available at:

[http://www.cisco.com/c/en/us/td/docs/general/warranty/English/EU1KEN\\_.html](http://www.cisco.com/c/en/us/td/docs/general/warranty/English/EU1KEN_.html).

mD4E8801954E4:/#

mD4E8801954E4:/#

mD4E8801954E4:/# cat MERAKI\_BUILD.extra

Fri Mar 1 03:06:48 PST 2019

cheetah-build6

/san2/BUILD/workspace/Nightly-Cheetah-axel-bcm-mfg-c8\_9\_throttle

\* (HEAD detached at 161d279e12)

svn base: 161d279e12e6ede43e1005ea511bed938de6923e

commit: 161d279e12e6ede43e1005ea511bed938de6923e

tree c433767fb7ea6e49ba91057416fbff23bdd54695

mD4E8801954E4:/#

mD4E8801954E4:/#

mD4E8801954E4:/#

mD4E8801954E4:/# show\_cookie

Part Number : 0-000000-00

Board Revision : 00

PCB Serial Number : FOC23070L5A

PCB Fab Part Number : 0-000000-00

Deviation Number : 0

MAC Address : D4:E8:80:19:54:E4

MAC Address Block Size : 4

Radio 0 MAC Address : D4:E8:80:19:D3:20

Radio 0 MAC Address Block Size : 16

Radio 1 MAC Address : D4:E8:80:19:D3:30

Radio 1 MAC Address Block Size : 16

PCA Assembly Number : 800-105698-01

PCA Revision Number : 08

Product/Model Number : C9120AXI-B

Top Assembly Part Number : 800-105698-01

Top Revision Number : 08

Top Assembly Serial Number : 0

RMA Test History : 00

RMA History : 00

RMA Number : 00-00-00-00

Device Type : 4C  
Max Association Allowed : 2  
Radio(2.4G) Carrier Set : 0000  
Radio(2.4G) Max Transmit Power Level : 100  
Radio(2.4G) Antenna Diversity Support: 01  
Radio(2.4G) Encryption Ability : 0002  
Radio(5G) Carrier Set : 0029  
Radio(5G) Max Transmit Power Level : 100  
Radio(5G) Antenna Diversity Support : 01  
Radio(5G) Encryption Ability : 0002  
Radio(802.11g) Radio Mode : 255  
PEP Product Identifier (PID) : C9120AXI-B  
PEP Version Identifier (VID) : V01  
System Flags : 00  
Controller Type : 0000  
Host Controller Type : 0000  
Mfr Service Date : 2019.03.01-47:59:59  
Radio(49) Carrier Set : 0000  
Radio(49) Max Transmit Power Level : 0  
Radio(49) Antenna Diversity Support : 00  
Radio(49) Encryption Ability : 0000  
Radio(58) Carrier Set : 0029  
Radio(58) Max Transmit Power Level : 100  
Radio(58) Antenna Diversity Support : 01  
Radio(58) Encryption Ability : 0002  
ACT2 ID : C9120  
Static AP Mode : 0  
mD4E8801954E4:/# cat /storage/rxtx\_mode  
tx  
mD4E8801954E4:/#  
mD4E8801954E4:/#  
mD4E8801954E4:/# cd /usr/bin/bcm/mfg  
mD4E8801954E4:/usr/bin/bcm/mfg#  
mD4E8801954E4:/usr/bin/bcm/mfg#  
mD4E8801954E4:/usr/bin/bcm/mfg# ./dfstool.lua

Vanc dfstool  
BOARD: Axel BCM !!!!!

Display config:

```
wl -i apr0v0 status | head -3  
"SSID: "apr0v0"  
Mode: <unknown> RSSI: 0 dBm SNR: 0 dB noise: 0 dBm Channel: 34  
BSSID: 00:00:00:00:00:00 Capability: "
```

Display config:

```
wl -i apr1v0 status | head -3  
"SSID: "apr1v0"
```



Mode: <unknown>      RSSI: 0 dBm      SNR: 0 dB      noise: 0 dBm      Channel: 34  
BSSID: 00:00:00:00:00:00 Capability: "

```
show_carrier_cookies | grep -o '..$'  
rc:result="41"
```

```
show_carrier_cookies | cut -d ',' -f2  
rc:result="0"
```

```
wl -i apr1v0 country US  
wl -i apr0v0 country US  
>
```



**UUT software info for upper band CSE test, May 3**

PD4E8.8019.4B74#show ver  
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Cisco AP Software, (ap1g7), [cheetah-build6:/san2/BUILD/workspace/Nightly-Cheetah-axel-bcm-mfg-c8\_9\_throttle]  
Technical Support: <http://www.cisco.com/techsupport>  
Copyright (c) 1986-2019 by Cisco Systems, Inc.  
Compiled Mon Apr 22 03:10:10 PDT 2019

ROM: Bootstrap program is U-Boot boot loader  
BOOTLDR: U-Boot boot loader Version

APD4E8.8019.4B74 uptime is 0 days, 0 hours, 8 minutes  
Last reload time : Mon Apr 22 03:55:15 UTC 2019  
Last reload reason : unknown

cisco C9120AXI-B with 1776976/1106088K bytes of memory.  
Processor board ID 0  
AP Running Image : 8.8.1.10  
Primary Boot Image : 8.8.1.10  
Backup Boot Image : 0.0.0.0  
Primary Boot Image Hash:  
Backup Boot Image Hash:  
1 Gigabit Ethernet interfaces  
2 802.11 Radios  
Radio FW version : 17.10 RC25.2101  
NSS FW version : NA

Base ethernet MAC Address : D4:E8:80:19:4B:74  
Part Number : 0-000000-00  
PCA Assembly Number : 800-105698-01  
PCA Revision Number : 08  
PCB Serial Number : FOC23070L3Q  
Top Assembly Part Number : 800-105698-01  
Top Assembly Serial Number : 0  
Top Revision Number : 08  
Product/Model Number : C9120AXI-B

APD4E8.8019.4B74#



```
APD4E8.8019.4B74#
APD4E8.8019.4B74#
APD4E8.8019.4B74#
APD4E8.8019.4B74#devs
EXITING CISCO SHELL. PLEASE EXECUTE EXIT IN DEVSHELL TO GET BACK TO CISCO SHELL.
```

BusyBox v1.23.2 (2019-04-22 02:37:53 PDT) built-in shell (ash)

Welcome to Cisco.

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[http://www.cisco.com/c/en/us/td/docs/general/warranty/English/EU1KEN\\_.html](http://www.cisco.com/c/en/us/td/docs/general/warranty/English/EU1KEN_.html).

```
mD4E880194B74:##
mD4E880194B74:##
mD4E880194B74:##
mD4E880194B74:##
mD4E880194B74:##
mD4E880194B74:## cat MERAKI_BUILD.extra
Mon Apr 22 03:10:10 PDT 2019
cheetah-build6
/san2/BUILD/workspace/Nightly-Cheetah-axel-bcm-mfg-c8_9_throttle
```

\* (HEAD detached at 1f6f4048ec)

```
svn base: 1f6f4048ecbb66599142da892931a7ad499a2ba2
commit: 1f6f4048ecbb66599142da892931a7ad499a2ba2
tree 1a99c087d0e4d3b13a635301797e24d54316c31d
mD4E880194B74:##
mD4E880194B74:##
mD4E880194B74:##
mD4E880194B74:##
mD4E880194B74:##
mD4E880194B74:## show_cookie
Part Number           : 0-000000-00
Board Revision        : 00
PCB Serial Number     : FOC23070L3Q
PCB Fab Part Number   : 0-000000-00
Deviation Number      : 0
MAC Address           : D4:E8:80:19:4B:74
MAC Address Block Size : 4
Radio 0 MAC Address   : D4:E8:80:19:87:A0
Radio 0 MAC Address Block Size : 16
Radio 1 MAC Address   : D4:E8:80:19:87:B0
Radio 1 MAC Address Block Size : 16
PCA Assembly Number   : 800-105698-01
```



PCA Revision Number : 08  
Product/Model Number : C9120AXI-B  
Top Assembly Part Number : 800-105698-01  
Top Revision Number : 08  
Top Assembly Serial Number : 0  
RMA Test History : 00  
RMA History : 00  
RMA Number : 00-00-00-00  
Device Type : 4C  
Max Association Allowed : 2  
Radio(2.4G) Carrier Set : 0000  
Radio(2.4G) Max Transmit Power Level : 100  
Radio(2.4G) Antenna Diversity Support: 01  
Radio(2.4G) Encryption Ability : 0002  
Radio(5G) Carrier Set : 0029  
Radio(5G) Max Transmit Power Level : 100  
Radio(5G) Antenna Diversity Support : 01  
Radio(5G) Encryption Ability : 0002  
Radio(802.11g) Radio Mode : 255  
PEP Product Identifier (PID) : C9120AXI-B  
PEP Version Identifier (VID) : V01  
System Flags : 00  
Controller Type : 0000  
Host Controller Type : 0000  
Mfr Service Date : 2019.02.21-47:59:59  
Radio(49) Carrier Set : 0000  
Radio(49) Max Transmit Power Level : 0  
Radio(49) Antenna Diversity Support : 00  
Radio(49) Encryption Ability : 0000  
Radio(58) Carrier Set : 0029  
Radio(58) Max Transmit Power Level : 100  
Radio(58) Antenna Diversity Support : 01  
Radio(58) Encryption Ability : 0002  
ACT2 ID : C9120  
Static AP Mode : 0  
mD4E880194B74:##  
mD4E880194B74:##  
mD4E880194B74:##  
mD4E880194B74:## cat /storage/rxtx\_mode  
tx  
mD4E880194B74:## cd /usr/bin/bcm/mfg  
mD4E880194B74:/usr/bin/bcm/mfg# ./dfstool.lua  
  
Vanc dfstool  
BOARD: Axel BCM !!!!!  
  
Display config:  
wl -i apr0v0 status | head -3



```
"SSID: "apr0v0"  
Mode: <unknown>      RSSI: 0 dBm      SNR: 0 dB      noise: 0 dBm      Channel: 34  
BSSID: 00:00:00:00:00:00 Capability: "
```

Display config:

```
wl -i apr1v0 status | head -3
```

```
"SSID: "apr1v0"  
Mode: <unknown>      RSSI: 0 dBm      SNR: 0 dB      noise: 0 dBm      Channel: 34  
BSSID: 00:00:00:00:00:00 Capability: "
```

```
show_carrier_cookies | grep -o '..$'  
rc:result="41"
```

```
show_carrier_cookies | cut -d ',' -f2  
rc:result="0"
```

```
wl -i apr1v0 country US  
wl -i apr0v0 country US  
>
```



**UUT software info for duty cycle, March 14-29**

APD4E8.8019.4B74#Test watchdog monitoring off  
APD4E8.8019.4B74#show ver  
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Cisco AP Software, (ap1g7), [cheetah-build6:/san2/BUILD/workspace/Nightly-Cheetah-axel-bcm-mfg-c8\_9\_throttle]  
Technical Support: <http://www.cisco.com/techsupport>  
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Compiled Fri Mar 1 03:06:48 PST 2019

ROM: Bootstrap program is U-Boot boot loader  
BOOTLDR: U-Boot boot loader Version

APD4E8.8019.4B74 uptime is 0 days, 0 hours, 12 minutes  
Last reload time : Fri Mar 1 04:54:13 UTC 2019  
Last reload reason : unknown

cisco C9120AXI-B with 1776976/1104340K bytes of memory.  
Processor board ID 0  
AP Running Image : 8.8.1.10  
Primary Boot Image : 8.8.1.10  
Backup Boot Image : 0.0.0.0  
Primary Boot Image Hash:  
Backup Boot Image Hash:  
1 Gigabit Ethernet interfaces  
2 802.11 Radios  
Radio FW version : 17.10 RC25.2101  
NSS FW version : NA

Base ethernet MAC Address : D4:E8:80:19:4B:74  
Part Number : 0-000000-00  
PCA Assembly Number : 800-105698-01  
PCA Revision Number : 08  
PCB Serial Number : FOC23070L3Q  
Top Assembly Part Number : 800-105698-01  
Top Assembly Serial Number : 0  
Top Revision Number : 08  
Product/Model Number : C9120AXI-B



```
APD4E8.8019.4B74#
APD4E8.8019.4B74#
APD4E8.8019.4B74#
APD4E8.8019.4B74#
APD4E8.8019.4B74#devs
EXITING CISCO SHELL. PLEASE EXECUTE EXIT IN DEVSHELL TO GET BACK TO CISCO SHELL.
```

BusyBox v1.23.2 (2019-03-01 02:34:16 PST) built-in shell (ash)

Welcome to Cisco.

Usage of this device is governed by Cisco's End User License Agreement, available at:

[http://www.cisco.com/c/en/us/td/docs/general/warranty/English/EU1KEN\\_.html](http://www.cisco.com/c/en/us/td/docs/general/warranty/English/EU1KEN_.html).

```
mD4E880194B74:##
mD4E880194B74:##
mD4E880194B74:##
mD4E880194B74:## cat MERAKI_BUILD.extra
Fri Mar 1 03:06:48 PST 2019
cheetah-build6
/san2/BUILD/workspace/Nightly-Cheetah-axel-bcm-mfg-c8_9_throttle
```

\* (HEAD detached at 161d279e12)

svn base: 161d279e12e6ede43e1005ea511bed938de6923e

commit: 161d279e12e6ede43e1005ea511bed938de6923e

tree c433767fb7ea6e49ba91057416fbff23bdd54695

```
mD4E880194B74:##
mD4E880194B74:##
mD4E880194B74:##
mD4E880194B74:## show_cookie
Part Number          : 0-000000-00
Board Revision       : 00
PCB Serial Number    : FOC23070L3Q
PCB Fab Part Number  : 0-000000-00
Deviation Number     : 0
MAC Address          : D4:E8:80:19:4B:74
MAC Address Block Size : 4
Radio 0 MAC Address  : D4:E8:80:19:87:A0
Radio 0 MAC Address Block Size : 16
Radio 1 MAC Address  : D4:E8:80:19:87:B0
Radio 1 MAC Address Block Size : 16
PCA Assembly Number  : 800-105698-01
PCA Revision Number  : 08
Product/Model Number : C9120AXI-B
Top Assembly Part Number : 800-105698-01
```



Top Revision Number : 08  
Top Assembly Serial Number : 0  
RMA Test History : 00  
RMA History : 00  
RMA Number : 00-00-00-00  
Device Type : 4C  
Max Association Allowed : 2  
Radio(2.4G) Carrier Set : 0000  
Radio(2.4G) Max Transmit Power Level : 100  
Radio(2.4G) Antenna Diversity Support: 01  
Radio(2.4G) Encryption Ability : 0002  
Radio(5G) Carrier Set : 0029  
Radio(5G) Max Transmit Power Level : 100  
Radio(5G) Antenna Diversity Support : 01  
Radio(5G) Encryption Ability : 0002  
Radio(802.11g) Radio Mode : 255  
PEP Product Identifier (PID) : C9120AXI-B  
PEP Version Identifier (VID) : V01  
System Flags : 00  
Controller Type : 0000  
Host Controller Type : 0000  
Mfr Service Date : 2019.02.21-47:59:59  
Radio(49) Carrier Set : 0000  
Radio(49) Max Transmit Power Level : 0  
Radio(49) Antenna Diversity Support : 00  
Radio(49) Encryption Ability : 0000  
Radio(58) Carrier Set : 0029  
Radio(58) Max Transmit Power Level : 100  
Radio(58) Antenna Diversity Support : 01  
Radio(58) Encryption Ability : 0002  
ACT2 ID : C9120  
Static AP Mode : 0  
mD4E880194B74:/#  
mD4E880194B74:/#  
mD4E880194B74:/#  
mD4E880194B74:/# cat /storage/rxtx\_mode  
tx  
mD4E880194B74:/# cd /usr/bin/bcm/mfg  
mD4E880194B74:/usr/bin/bcm/mfg# ./dfstool.lua

Vanc dfstool  
BOARD: Axel BCM !!!!!

Display config:

wl -i apr0v0 status | head -3

"SSID: "apr0v0"

Mode: <unknown>      RSSI: 0 dBm      SNR: 0 dB      noise: 0 dB      Channel: 34

BSSID: 00:00:00:00:00:00 Capability: "





Display config:

```
wl -i apr1v0 status | head -3
```

```
"SSID: "apr1v0"
```

```
Mode: <unknown>      RSSI: 0 dBm      SNR: 0 dB      noise: 0 dBm      Channel: 34
```

```
BSSID: 00:00:00:00:00:00 Capability: "
```

```
show_carrier_cookies | grep -o '..$'
```

```
rc:result="41"
```

```
show_carrier_cookies | cut -d ',' -f2
```

```
rc:result="0"
```

```
wl -i apr1v0 country US
```

```
wl -i apr0v0 country US
```

```
>
```

# End