**Shenzhen Most Technology Service Co., Ltd.**
No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park, Nanshan, Shenzhen, Guangdong, China.

# FCC PART 15 SUBPART C TEST REPORT

## FCC PART 15 SUBPART E 15.407

| | |
|---|---|
| **Report Reference No.**.....: | **MTEB24120058-R3** |
| **FCC ID**..... : | **YMX-KP04** |
| Compiled by ( position+printed name+signature)..: | File administrators Alisa Luo |
| Supervised by ( position+printed name+signature)..: | Test Engineer Sunny Deng |
| Approved by ( position+printed name+signature)..: | Manager Yvette Zhou |
| Date of issue.....: | **Dec.05,2024** |
| **Representative Laboratory Name .:** | **Shenzhen Most Technology Service Co., Ltd.** |
| Address .....: | No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park, Nanshan, Shenzhen, Guangdong, China. |
| **Applicant's name**.....: | **XIAMEN COMFORT SCIENCE & TECHNOLOGY GROUP CO.,LTD.** |
| Address .....: | (5/F)NO.168, QIANPU ROAD,SIMING DISTRICT,XIAMEN,Fujian CHINA |
| **Test specification** .....**:** | |
| Standard .....: | **FCC Part 15 Subpart E 15.407** |



| | |
|---|---|
| **Test item description .....:** | KP04 controller |
| Trade Mark .....: | N/A |
| Model/Type reference.....: | KP04 |
| Listed Models .....: | N/A |
| Ratings .....: | DC 24V by Adapter |
| Modulation .....: | OFDM |
| Frequency..... | From 5180MHz-5240MHz；5260MHz-5320MHz；5500MHz-5700MHz；5745MHz-5825MHz |
| Hardware version .....: | V1.0 |
| Software version .....: | V1.0 |
| Result.....: | **PASS** |

# T E S T  R E P O R T

| | | |
|---|---|---|
| Equipment under Test | : | KP04 controller |
| Model /Type | : | KP04 |
| Listed Models | : | N/A |
| Remark | | N/A |
| Applicant | : | XIAMEN COMFORT SCIENCE & TECHNOLOGY GROUP CO.,LTD. |
| Address | : | (5/F)NO.168, QIANPU ROAD,SIMING DISTRICT,XIAMEN,Fujian CHINA |
| Manufacturer | : | XIAMEN HEALTHCARE ELECTRONIC CO.,LTD. |
| Address | : | 65-66#, 62-63# BUILDING, SIMING ZONE, TONGAN INDUSTRIAL DISTRICT, XIAMEN CITY, FUJIAN PROVINCE, P.R.CHINA |

| **Test Result**: | **PASS** |
|---|---|

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

# Contents

# 1 Revision History

| Revision | Issue Date | Revisions | Revised By |
|---|---|---|---|
| 00 | 2024.12.05 | Initial Issue | Alisa Luo |
| | | | |
| | | | |

# 2 TEST STANDARDS

The tests were performed according to following standards:

FCC Rules Part 15 Subpart E—Unlicensed National Information Infrastructure Devices
ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices
KDB789033 D02: General UNII Test Procedures New Rules v01r02

# 3 SUMMARY

## 3.1 General Remarks

| | | |
|---|---|---|
| Date of receipt of test sample | : | 2024.11.10 |
| | | |
| Testing commenced on | : | 2024.11.11 |
| | | |
| Testing concluded on | : | 2024.12.05 |

## 3.2 Product Description

| | | | | |
|---|---|---|---|---|
| Product Description: | KP04 controller | | | |
| Model: | KP04 | | | |
| Power supply: | DC 24V by Adapter | | | |
| Testing sample ID： | MTYP06424/6930 | | | |
| **WIFI** | | | | |
| Supported type: | 20MHz system | 40MHz system | 80MHz system | 160MHz system |
| | 802.11a<br>802.11n<br>802.11ac | 802.11n<br>802.11ac | 802.11ac | N/A |
| Operation frequency: | 5180MHz-5240MHz<br>5260MHz-5320MHz<br>5500MHz-5700MHz<br>5745MHz-5825MHz | 5190MHz-5230MHz<br>5270-5310<br>5510-5670<br>5755MHz-5795MHz | 5210MHz<br>5290MHz<br>5530MHz-5610MHz<br>5775MHz | N/A |
| Modulation: | OFDM | OFDM | OFDM | N/A |
| Antenna type: | FPC Antenna | | | |
| Antenna gain: | Antenna A:<br>5180MHz-5240MHz:4.29dBi,<br>5260MHz-5320MHz:3.73dBi,<br>5500MHz-5700MHz:3.77dBi,<br>5745MHz-5825MHz:3.74dBi, | Antenna B:<br>5180MHz-5240MHz:3.63dBi,<br>5260MHz-5320MHz:2.83dBi,<br>5500MHz-5700MHz:3.32dBi,<br>5745MHz-5825MHz:3.28dBi, | | |

## 3.3 Equipment Under Test

### Power supply system utilised

| | | | | | |
|---|---|---|---|---|---|
| Power supply voltage | : | ○ | 230V / 50 Hz | ○ | 120V / 60Hz |
| | | ○ | 12 V DC | ○ | 24 V DC |
| | | ● | Other (specified in blank below) | | |

DC 24V by Adapter

## 3.4 Short description of the Equipment under Test (EUT)

This is a KP04 controller For more details, refer to the user's manual of the EUT.

## 3.5 EUT operation mode

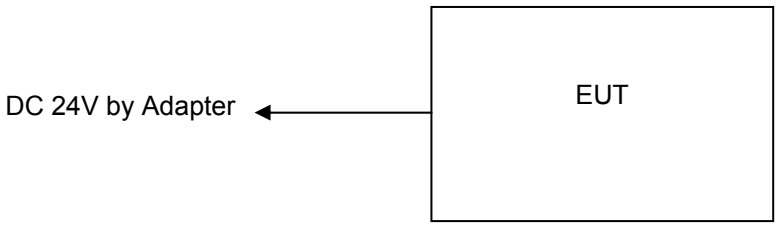
The Applicant provides communication tools software (AT command) to control the EUT for staying in continuous transmitting (Duty Cycle more than 98%) and receiving mode for testing.
All test performed at the low, middle and high of operational frequency range of each mode.

Operation Frequency List WIFI on 5G Band：

| Operating band | 20MHz | | 40MHz | | 80MHz | |
|---|---|---|---|---|---|---|
| | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| U-NII 1 (5150MHz-5250MHz) | **36** | **5180** | **38** | **5190** | **42** | **5210** |
| | **40** | **5200** | | | | |
| | 44 | 5220 | **46** | **5230** | | |
| | **48** | **5240** | | | | |
| U-NII 2A | **52** | **5260** | **54** | **5270** | **58** | **5290** |
| | **56** | **5280** | | | | |
| | 60 | 5300 | **62** | **5310** | | |
| | **64** | **5320** | | | | |
| U-NII 2C | **100** | **5500** | **102** | **5510** | **106** | **5530** |
| | 104 | 5520 | | | | |
| | 108 | 5540 | 110 | 5550 | | |
| | 112 | 5560 | | | | |
| | 116 | 5580 | **118** | **5590** | **122** | **5610** |
| | **120** | **5600** | | | | |
| | 124 | 5620 | 126 | 5630 | | |
| | 128 | 5640 | | | | |
| | 132 | 5660 | **134** | **5670** | **--** | **--** |
| | **140** | **5700** | | | **--** | **--** |
| U-NII 3 (5725MHz-5850MHz) | **149** | **5745** | **151** | **5755** | **155** | **5775** |
| | 153 | 5765 | | | | |
| | **157** | **5785** | **159** | **5795** | | |
| | 161 | 5805 | | | | |
| | **165** | **5825** | -- | -- | -- | -- |

Note: The line display in grey is those Channels/Frequencies select to test in this report for each operation mode.

## 3.6 Block Diagram of Test Setup




## 3.1 Test Item (Equipment Under Test) Description

| Short designation | EUT Name | EUT Description | Serial number | Hardware status | Software status |
|---|---|---|---|---|---|
| EUT A | | | | | |
| EUT B | | | | | |
| | | | | | |

*: declared by the applicant. According to customers information EUTs A and B are the same devices.

## 3.2 Auxiliary Equipment (AE) Description

| AE short designation | EUT Name (if available) | EUT Description | Serial number (if available) | Software (if used) |
|---|---|---|---|---|
| AE 1 | Adapter | KP87T-240300 | | |
| AE 2 | | | | |

## 3.3 Antenna Information*

| Short designation | Antenna Name | Antenna Type | Frequency Range | Serial number | Antenna Peak Gain | |
|---|---|---|---|---|---|---|
| Antenna | --- | FPC Antenna | 5180MHz-5240MHz<br>5260MHz-5320MHz<br>5500MHz-5700MHz<br>5745MHz-5825MHz | --- | Antenna A:<br>4.29dBi,<br>3.63dBi,<br>3.77dBi,<br>2.83dBi | Antenna B:<br>4.23dBi,<br>3.58dBi,<br>3.32dBi,<br>3.28dBi |
| Antenna | | | | | | |
| | | | | | | |

*: declared by the applicant.

## 3.4 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended to comply with Section 15.407 of the FCC Part 15, Subpart E Rules.

## 3.5 Modifications

No modifications were implemented to meet testing criteria.

## 3.6 EUT configuration

**The following peripheral devices and interface cables were connected during the measurement:**

○ - supplied by the manufacturer

● - Supplied by the lab

| | | | |
|---|---|---|---|
| ● | ADAPTER | M/N: | KP87T-240300 |
| | | Manufacturer: | Strong Power Electronics Technology Co.,Ltd |

# 4 TEST ENVIRONMENT

## 4.1 Address of the test laboratory

**Shenzhen Most Technology Service Co., Ltd.**
No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park, Nanshan, Shenzhen, Guangdong, China.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.4:2014 and CISPR 16-1-4:2010 SVSWR requirement for radiated emission above 1GHz.

## 4.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

The test facility is recognized, certified, or accredited by the following organizations:

### FCC-Registration No.: 0031192610

Shenzhen Most Technology Service Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

### A2LA-Lab Cert. No.: 6343.01

Shenzhen Most Technology Service Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

## 4.3 Environmental conditions

Radiated Emission:

| | |
|---|---|
| Temperature: | 23 ° C |
| | |
| Humidity: | 48 % |
| | |
| Atmospheric pressure: | 950-1050mbar |

AC Main Conducted testing：

| | |
|---|---|
| Temperature: | 24 ° C |
| | |
| Humidity: | 45 % |
| | |
| Atmospheric pressure: | 950-1050mbar |

Conducted testing：

| | |
|---|---|
| Temperature: | 24 ° C |
| | |
| Humidity: | 45 % |
| | |
| Atmospheric pressure: | 950-1050mbar |

## 4.4 Test Description

| FCC Requirement | | |
|---|---|---|
| FCC Part 15.207 | AC Power Conducted Emission | PASS |
| FCC Part 15.407(a) | Emission Bandwidth(26dBm Bandwidth) | $PASS_{Note1}$ |
| FCC Part 15.407(e) | Minimum Emission Bandwidth(6dBm Bandwidth) | $PASS_{Note2}$ |
| FCC Part 15.407(a) | Maximum Conducted Output Power | PASS |
| FCC Part 15.407(a) | Peak Power Spectral Density | PASS |
| FCC Part 15.407(g) | Frequency Stability | PASS |
| FCC Part 15.407(b) | Undesirable emission | PASS |
| FCC Part 15.407(b)/15.205/15.209 | Radiated Emissions | PASS |
| FCC Part 15.407(h) | Dynamic Frequency Selection | N/A $_{Note\ 3}$ |
| FCC Part 15.203/15.247(b) | Antenna Requirement | PASS |

Note 1: Apply to U-NII 1, U-NII 2A, and U-NII 2C band.
Note 2: Apply to U-NII 3 band only.
Note 3: DFS is a separate report.

**Data Rate Used:**
Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

| Test Items | Mode | Data Rate |
|---|---|---|
| Maximum Conducted Output Power<br>Power Spectral Density<br>Emission Bandwidth(26dBm Bandwidth)<br>Minimum Emission Bandwidth(6dBm Bandwidth)<br>Undesirable emission<br>Frequency Stability | 11a/OFDM | 54 Mbps |
| | 11n(20MHz),11ac(20MHz)/OFDM | MCS7 |
| | 11n(40MHz),11ac(40MHz)/OFDM | MCS9 |
| | 11ac(80MHz)/OFDM | MCS11 |

## 4.5 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen Most Technology Service Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Most Technology Service Co., Ltd. is reported:

| Test | Range | Measurement Uncertainty | Notes |
|---|---|---|---|
| Radiated Emission | 30~1000MHz | 4.10 dB | (1) |
| Radiated Emission | 1~18GHz | 4.32 dB | (1) |
| Radiated Emission | 18-40GHz | 5.54 dB | (1) |
| Conducted Disturbance | 0.15~30MHz | 3.12 dB | (1) |

| | | | |
|---|---|---|---|
| 20dB Bandwidth & 99% Bandwidth | / | 5% | (1) |
| Maximum Conducted Output Power | / | 0.80dB | (1) |
| Spurious RF Conducted Emission | / | 1.6dB | (1) |

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

## 4.6 Equipments Used during the Test

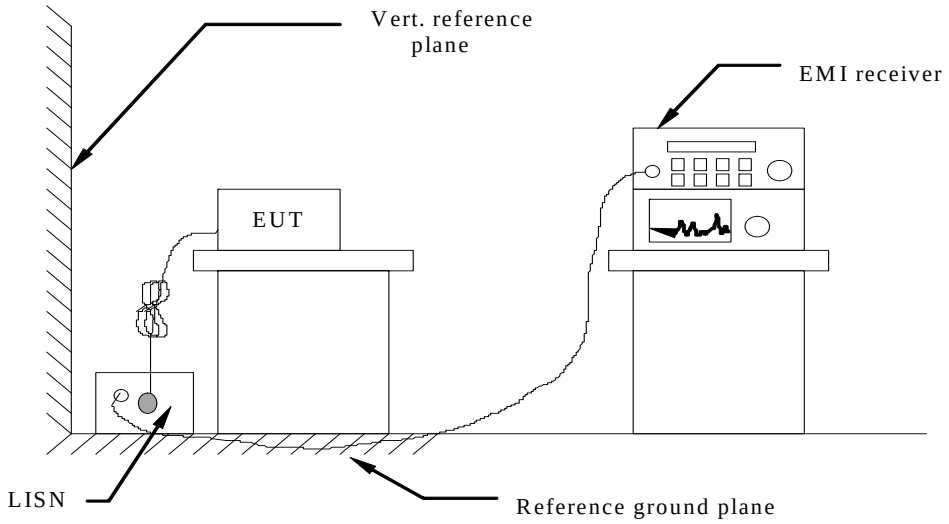
| Item | Equipment | Manufacturer | Model No. | Serial No. | Firmware versions | Last Cal. | Cal. Interval |
|---|---|---|---|---|---|---|---|
| 1. | L.I.S.N. | R&S | ENV216 | 100093 | / | 2024/03/15 | 1 Year |
| 2 | Three-phase artificial power network | Schwarzback Mess | NNLK8129 | 8129178 | / | 2024/03/15 | 1 Year |
| 3. | Receiver | R&S | ESCI | 100492 | V3.0-10-2 | 2024/03/15 | 1 Year |
| 4 | Receiver | R&S | ESPI | 101202 | V3.0-10-2 | 2024/03/15 | 1 Year |
| 5 | Spectrum analyzer | Agilent | 9020A | MT-E306 | A14.16 | 2024/03/15 | 1 Year |
| 6 | Bilong Antenna | Sunol Sciences | JB3 | A121206 | / | 2024/08/15 | 1 Year |
| 7 | Horn antenna | HF Antenna | HF Antenna | MT-E158 | / | 2024/03/15 | 1 Year |
| 8 | Loop antenna | Beijing Daze | ZN30900B | / | / | 2024/03/15 | 1 Year |
| 9 | Horn antenna | R&S | OBH100400 | 26999002 | / | 2024/03/15 | 1 Year |
| 10 | Wireless Communication Test Set | R&S | CMW500 | / | CMW-BASE-3.7.21 | 2024/03/15 | 1 Year |
| 11 | Spectrum analyzer | R&S | FSP | 100019 | V4.40 SP2 | 2024/03/15 | 1 Year |
| 12 | High gain antenna | Schwarzbeck | LB-180400KF | MT-E389 | / | 2024/03/15 | 1 Year |
| 13 | Preamplifier | Schwarzbeck | BBV 9743 | MT-E390 | / | 2024/03/15 | 1 Year |
| 14 | Pre-amplifier | EMCI | EMC051845SE | MT-E391 | / | 2024/03/15 | 1 Year |
| 15 | Pre-amplifier | Agilent | 83051A | MT-E392 | / | 2024/03/15 | 1 Year |
| 16 | High pass filter unit | Tonscend | JS0806-F | MT-E393 | / | 2024/03/15 | 1 Year |
| 17 | RF Cable(below1GHz) | Times | 9kHz-1GHz | MT-E394 | / | 2024/03/15 | 1 Year |
| 18 | RF Cable(above 1GHz) | Times | 1-40G | MT-E395 | / | 2024/03/15 | 1 Year |
| 19 | RF Cable (9KHz-40GHz) | Tonscend | 170660 | N/A | / | 2024/03/15 | 1 Year |

Note: The Cal.Interval was one year.

# 5 TEST CONDITIONS AND RESULTS

## 5.1 AC Power Conducted Emission

**TEST CONFIGURATION**




**TEST PROCEDURE**

1 The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10-2013.
2 Support equipment, if needed, was placed as per ANSI C63.10-2013
3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10-2013
4 The EUT received DC 24V power from adapter, the adapter received AC120V/60Hz and AC 240V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5 All support equipments received AC power from a second LISN, if any.
6 The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT.The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7 Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8 During the above scans, the emissions were maximized by cable manipulation.

**AC Power Conducted Emission Limit**

For intentional device, according to § 15.207(a) AC Power Conducted Emission Limits is as following：

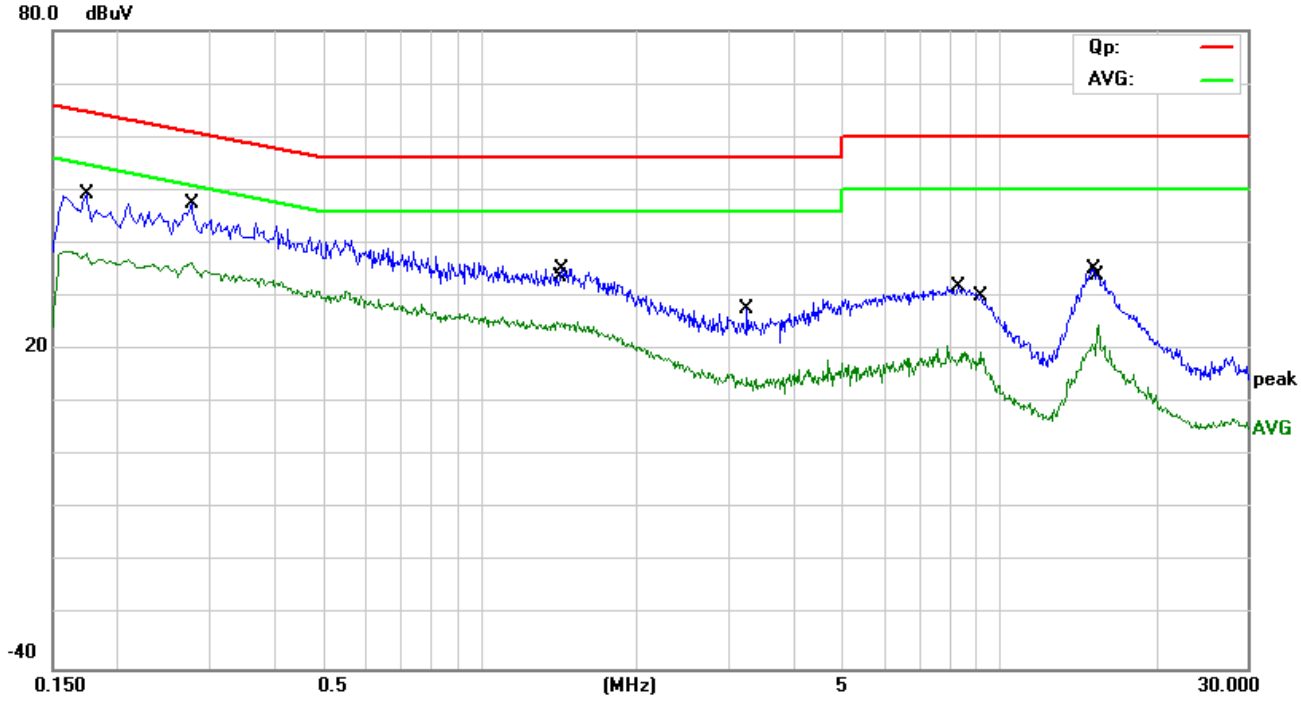
| Frequency range (MHz) | Limit (dBuV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15-0.5 | 66 to 56* | 56 to 46* |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |
| * Decreases with the logarithm of the frequency. | | |

**TEST RESULTS**

Remark:

1. WIFI 5G modes were test at 802.11a, 802.11n(20), 802.11n(40)/802.11ac(HT20)/802.11ac(HT40)/802.11ac(HT80)(Low, Middle, and High channel); only the worst result of 802.11a Middle Channel was reported as below:

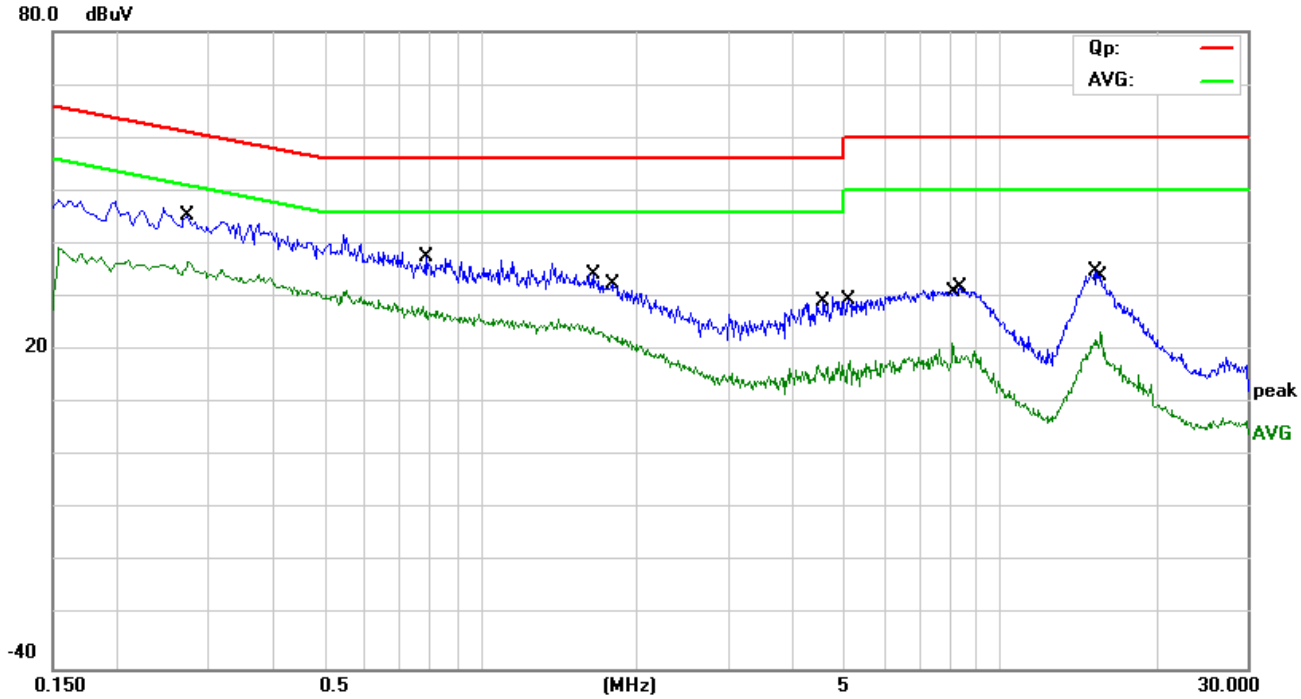
| Power supply: | 120Vac/60Hz | Polarization | L |
|---|---|---|---|




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Over | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | | 0.1740 | 39.60 | 9.61 | 49.21 | 64.77 | -15.56 | QP | |
| 2 | | 0.1740 | 28.45 | 9.61 | 38.06 | 54.77 | -16.71 | AVG | |
| 3 | * | 0.2780 | 37.82 | 9.59 | 47.41 | 60.88 | -13.47 | QP | |
| 4 | | 0.2780 | 26.80 | 9.59 | 36.39 | 50.88 | -14.49 | AVG | |
| 5 | | 1.4060 | 15.70 | 9.60 | 25.30 | 46.00 | -20.70 | AVG | |
| 6 | | 1.4340 | 25.67 | 9.60 | 35.27 | 56.00 | -20.73 | QP | |
| 7 | | 3.2700 | 17.90 | 9.61 | 27.51 | 56.00 | -28.49 | QP | |
| 8 | | 3.2700 | 5.21 | 9.61 | 14.82 | 46.00 | -31.18 | AVG | |
| 9 | | 8.3340 | 22.27 | 9.67 | 31.94 | 60.00 | -28.06 | QP | |
| 10 | | 9.1660 | 9.99 | 9.68 | 19.67 | 50.00 | -30.33 | AVG | |
| 11 | | 15.2220 | 25.52 | 9.70 | 35.22 | 60.00 | -24.78 | QP | |
| 12 | | 15.4900 | 14.94 | 9.70 | 24.64 | 50.00 | -25.36 | AVG | |

*:Maximum data x:Over limit !:over margin

| Power supply: | 120Vac/60Hz | Polarization | N |
|---|---|---|---|




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Over | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | | 0.2740 | 35.61 | 9.60 | 45.21 | 61.00 | -15.79 | QP | |
| 2 | * | 0.2740 | 27.14 | 9.60 | 36.74 | 51.00 | -14.26 | AVG | |
| 3 | | 0.7780 | 18.56 | 9.60 | 28.16 | 46.00 | -17.84 | AVG | |
| 4 | | 0.7860 | 27.88 | 9.60 | 37.48 | 56.00 | -18.52 | QP | |
| 5 | | 1.6460 | 14.61 | 9.60 | 24.21 | 46.00 | -21.79 | AVG | |
| 6 | | 1.7980 | 22.73 | 9.60 | 32.33 | 56.00 | -23.67 | QP | |
| 7 | | 4.5940 | 19.53 | 9.63 | 29.16 | 56.00 | -26.84 | QP | |
| 8 | | 5.1540 | 8.28 | 9.63 | 17.91 | 50.00 | -32.09 | AVG | |
| 9 | | 8.1460 | 11.68 | 9.67 | 21.35 | 50.00 | -28.65 | AVG | |
| 10 | | 8.3980 | 22.15 | 9.67 | 31.82 | 60.00 | -28.18 | QP | |
| 11 | | 15.2300 | 25.14 | 9.70 | 34.84 | 60.00 | -25.16 | QP | |
| 12 | | 15.6500 | 13.88 | 9.70 | 23.58 | 50.00 | -26.42 | AVG | |

*:Maximum data x:Over limit !:over margin

## 5.2 Radiated Emissions

**Limit**

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.
(2) For transmitters operating in the 5.25-5.35 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.
(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(4) For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

**Undesirable emission limits**

| Requirement | Limit(EIRP) | Limit (Field strength at 3m) Note1 |
|---|---|---|
| 15.407(b)(1) | PK:-27(dBm/MHz) | PK:68.2(dBμV/m) |
| 15.407(b)(2) | | |
| 15.407(b)(3) | | |
| 15.407(b)(4) | | |

Note1: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3}$$ μV/m, where P is the eirp (Watts)

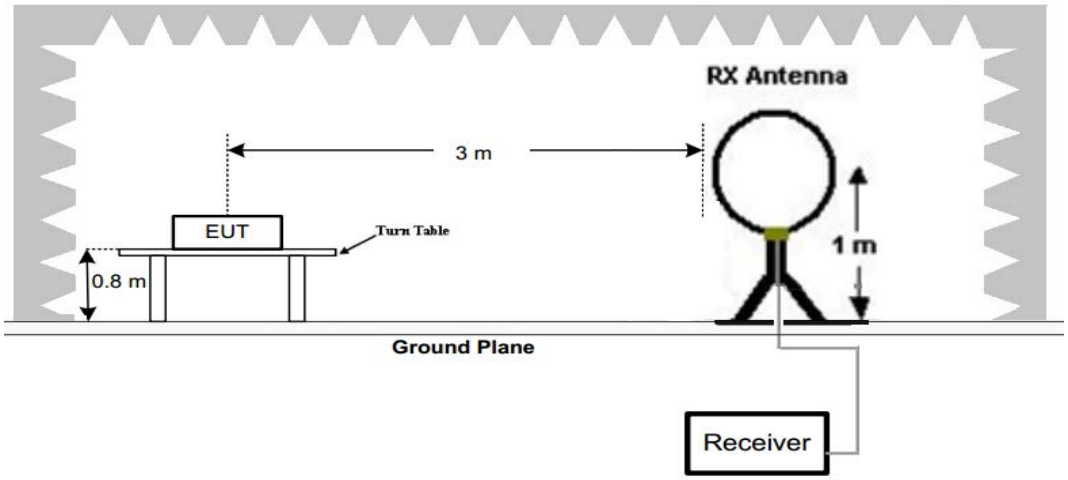
(5) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209
(6)In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a)

Radiated emission limits

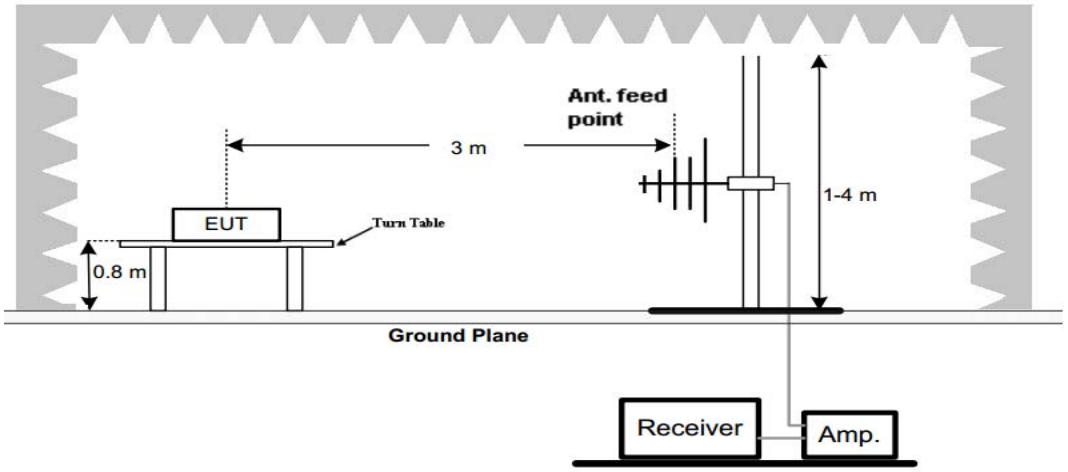
| Frequency (MHz) | Distance (Meters) | Radiated (dBμV/m) | Radiated (μV/m) |
|---|---|---|---|
| 0.009-0.49 | 3 | 20log(2400/F(KHz))+40log(300/3) | 2400/F(KHz) |
| 0.49-1.705 | 3 | 20log(24000/F(KHz))+ 40log(30/3) | 24000/F(KHz) |
| 1.705-30 | 3 | 20log(30)+ 40log(30/3) | 30 |
| 30-88 | 3 | 40.0 | 100 |
| 88-216 | 3 | 43.5 | 150 |
| 216-960 | 3 | 46.0 | 200 |
| Above 960 | 3 | 54.0 | 500 |

**TEST CONFIGURATION**

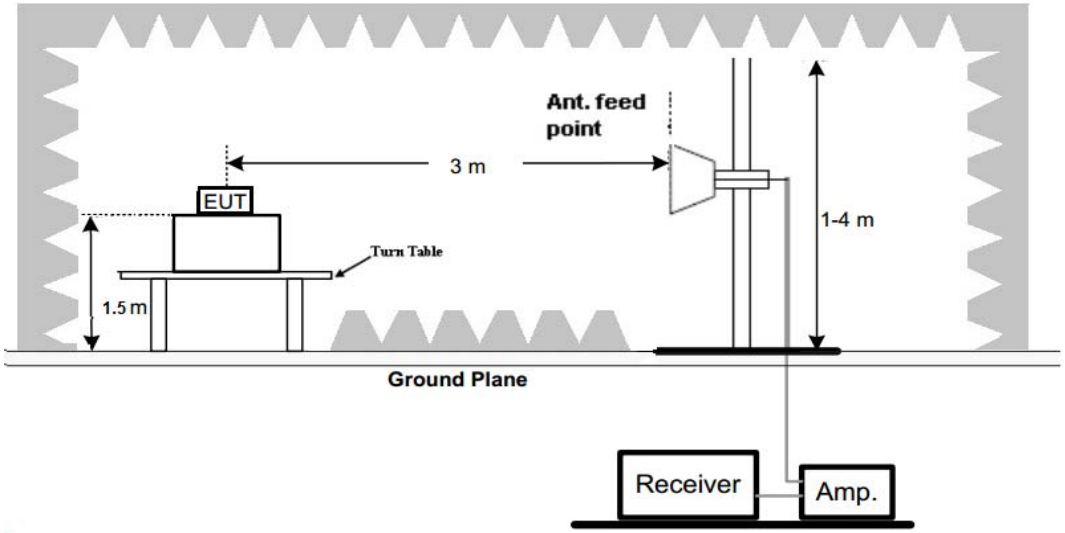
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz




(B) Radiated Emission Test Set-Up, Frequency below 1000MHz




(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



**Test Procedure**

1. Below 1GHz measurement the EUT is placed on a turntable which is 0.8m above ground plane, and above 1GHz measurement EUT was placed on a low permittivity and low loss tangent turn table which is 1.5m above ground plane.
2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0℃ to 360℃ to acquire the highest emissions from EUT
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measurements have been completed.
5. Radiated emission test frequency band from 9KHz to 40GHz.
6. The distance between test antenna and EUT as following table states:

| Test Frequency range | Test Antenna Type | Test Distance |
|---|---|---|
| 9KHz-30MHz | Active Loop Antenna | 3 |
| 30MHz-1GHz | Bilog Antenna | 3 |
| 1GHz-18GHz | Horn Antenna | 3 |
| 18GHz-25GHz | Horn Anternna | 1 |

7. Setting test receiver/spectrum as following table states:

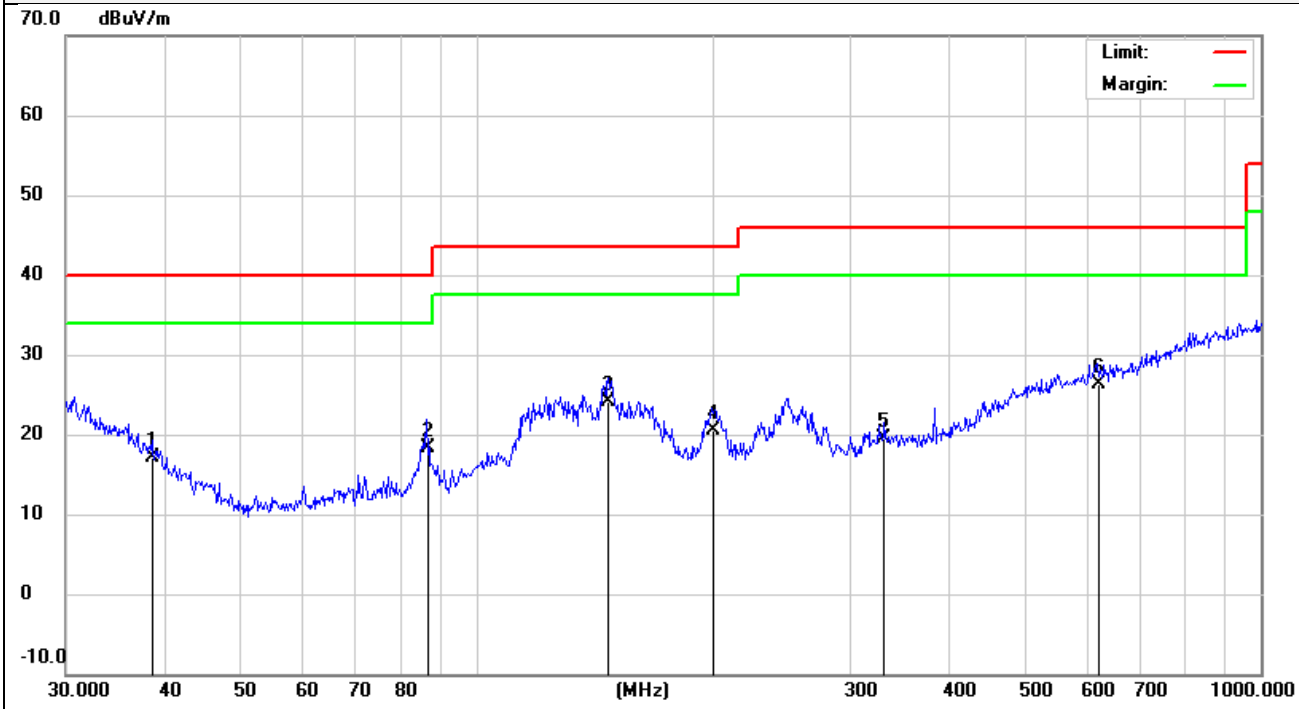
| Test Frequency range | Test Receiver/Spectrum Setting | Detector |
|---|---|---|
| 9KHz-150KHz | RBW=200Hz/VBW=3KHz,Sweep time=Auto | QP |
| 150KHz-30MHz | RBW=9KHz/VBW=100KHz,Sweep time=Auto | QP |
| 30MHz-1GHz | RBW=120KHz/VBW=1000KHz,Sweep time=Auto | QP |
| 1GHz-40GHz | Peak Value: RBW=1MHz/VBW=3MHz, Sweep time=Auto<br>Average Value: RBW=1MHz/VBW=10Hz, Sweep time=Auto | Peak |

**TEST RESULTS**

Remark:
1. This test was performed with EUT in X, Y, Z position and the worse case was found when EUT in X position.
2. All 802.11a / 802.11n (HT20) / 802.11n (HT40)/802.11ac(HT20)/802.11ac(HT40)/802.11ac(HT80) modes have been tested for below 1GHz test, only the worst case 802.11a low channel of U-NII 1 band was recorded.
3. All 802.11a / 802.11n (HT20) / 802.11n (HT40)/802.11ac(HT20)/802.11ac(HT40)/802.11ac(HT80) modes have been tested for above 1GHz test, only the worst case 802.11a was recorded.
4. Radiated emission test from 9 KHz to 10th harmonic of fundamental was verified, and no emission found except system noise floor in 9 KHz to 30MHz and not recorded in this report.
5. Remark: Result=Reading value+Factor

**For 30MHz-1GHz**

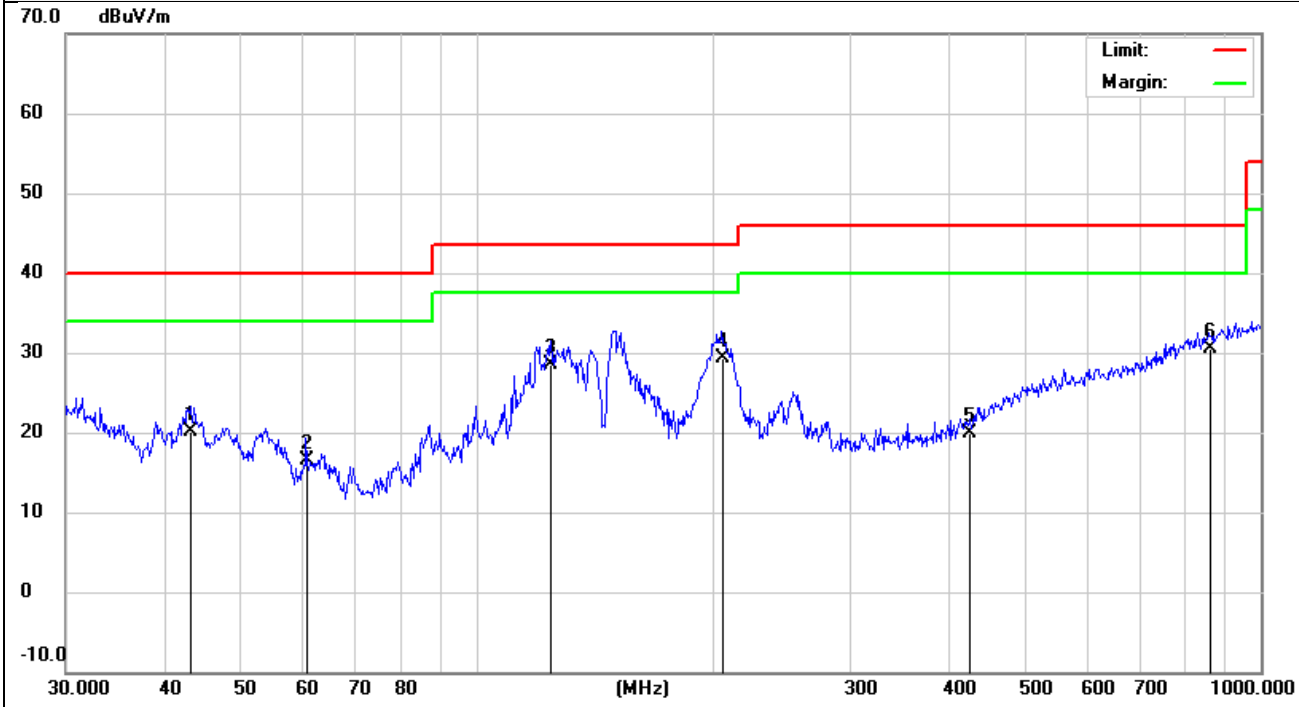
Horizontal




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Over | | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment |
| 1 | | 38.6160 | 2.24 | 14.82 | 17.06 | 40.00 | -22.94 | QP | 200 | 57 | |
| 2 | | 86.5029 | 8.31 | 9.97 | 18.28 | 40.00 | -21.72 | QP | 200 | 124 | |
| 3 | * | 147.4036 | 6.84 | 17.36 | 24.20 | 43.50 | -19.30 | QP | 200 | 188 | |
| 4 | | 199.9856 | 5.26 | 15.20 | 20.46 | 43.50 | -23.04 | QP | 200 | 247 | |
| 5 | | 331.3546 | 3.31 | 16.10 | 19.41 | 46.00 | -26.59 | QP | 200 | 299 | |
| 6 | | 618.5369 | 2.30 | 24.04 | 26.34 | 46.00 | -19.66 | QP | 200 | 326 | |

*:Maximum data x:Over limit !:over margin

Vertical




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Over | | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment |
| 1 | | 43.3534 | 8.60 | 11.59 | 20.19 | 40.00 | -19.81 | QP | 100 | 48 | |
| 2 | | 60.7044 | 7.89 | 8.65 | 16.54 | 40.00 | -23.46 | QP | 100 | 102 | |
| 3 | | 124.5690 | 12.61 | 15.98 | 28.59 | 43.50 | -14.91 | QP | 100 | 188 | |
| 4 | * | 205.6751 | 14.35 | 15.04 | 29.39 | 43.50 | -14.11 | QP | 100 | 247 | |
| 5 | | 426.5210 | 1.02 | 18.81 | 19.83 | 46.00 | -26.17 | QP | 100 | 289 | |
| 6 | | 860.0352 | 2.04 | 28.56 | 30.60 | 46.00 | -15.40 | QP | 100 | 321 | |

*:Maximum data x:Over limit !:over margin

***For 1GHz to 40GHz***

Note: All 802.11a / 802.11n (HT20) / 802.11n (HT40)/802.11ac(HT20)/802.11ac(HT40)/802.11ac(HT80) modes have been tested for above 1GHz test, only the worst case 802.11a was recorded.

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| Polar (H/V) | Frequency (MHz) | Meter Reading (dBuV) | Antenna Factor (dB) | Cable loss (dB) | Preamp factor (dB) | Emission Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) | Detector Type |
|---|---|---|---|---|---|---|---|---|---|
| ***802.11a Mode* -5180MHz** | | | | | | | | | |
| V | 3586 | 55.22 | 29.03 | 5.24 | 36.4 | 53.09 | 68.2 | 15.11 | PK |
| V | 3586 | 43.34 | 29.03 | 5.24 | 36.4 | 41.21 | 54 | 12.79 | AV |
| H | 3586 | 54.16 | 29.03 | 5.24 | 36.4 | 52.03 | 68.2 | 16.17 | PK |
| H | 3586 | 48.89 | 29.03 | 5.24 | 36.4 | 46.76 | 54 | 7.24 | AV |
| V | 10360 | 35.47 | 39.41 | 11.45 | 34.28 | 52.05 | 68.2 | 16.15 | PK |
| V | 10360 | 24.64 | 39.41 | 11.45 | 34.28 | 41.22 | 54 | 12.78 | AV |
| H | 10360 | 33.76 | 39.41 | 11.45 | 34.28 | 50.34 | 68.2 | 17.86 | PK |
| H | 10360 | 27.33 | 39.41 | 11.45 | 34.28 | 43.91 | 54 | 10.09 | AV |
| ***802.11a Mode* -5200MHz** | | | | | | | | | |
| V | 3586 | 53.67 | 29.03 | 5.24 | 36.4 | 51.54 | 68.2 | 16.66 | PK |
| V | 3586 | 43.3 | 29.03 | 5.24 | 36.4 | 41.17 | 54 | 12.83 | AV |
| H | 3586 | 53.29 | 29.03 | 5.24 | 36.4 | 51.16 | 68.2 | 17.04 | PK |
| H | 3586 | 48.61 | 29.03 | 5.24 | 36.4 | 46.48 | 54 | 7.52 | AV |
| V | 10400 | 35.46 | 39.42 | 11.47 | 34.28 | 52.07 | 68.2 | 16.13 | PK |
| V | 10400 | 26.12 | 39.42 | 11.47 | 34.28 | 42.73 | 54 | 11.27 | AV |
| H | 10400 | 37.41 | 39.42 | 11.47 | 34.28 | 54.02 | 68.2 | 14.18 | PK |
| H | 10400 | 28.16 | 39.42 | 11.47 | 34.28 | 44.77 | 54 | 9.23 | AV |
| **802.11a *Mode* -5240MHz** | | | | | | | | | |
| V | 3586 | 53.21 | 29.03 | 5.24 | 36.4 | 51.08 | 68.2 | 17.12 | PK |
| V | 3586 | 43.22 | 29.03 | 5.24 | 36.4 | 41.09 | 54 | 12.91 | AV |
| H | 3586 | 53.1 | 29.03 | 5.24 | 36.4 | 50.97 | 68.2 | 17.23 | PK |
| H | 3586 | 48.82 | 29.03 | 5.24 | 36.4 | 46.69 | 54 | 7.31 | AV |
| V | 10480 | 36.68 | 39.43 | 11.47 | 34.28 | 53.3 | 68.2 | 14.9 | PK |
| V | 10480 | 25.45 | 39.43 | 11.47 | 34.28 | 42.07 | 54 | 11.93 | AV |
| H | 10480 | 37.05 | 39.43 | 11.47 | 34.28 | 53.67 | 68.2 | 14.53 | PK |
| H | 10480 | 27.78 | 39.43 | 11.47 | 34.28 | 44.4 | 54 | 9.6 | AV |

U-NII 2A

| Polar (H/V) | Frequency (MHz) | Meter Reading (dBuV) | Antenna Factor (dB) | Cable loss (dB) | Preamp factor (dB) | Emission Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) | Detector Type |
|---|---|---|---|---|---|---|---|---|---|
| ***802.11a Mode* -5260MHz** | | | | | | | | | |
| V | 3603 | 54.49 | 29.03 | 5.24 | 36.4 | 52.36 | 68.2 | 15.84 | PK |
| V | 3603 | 43.34 | 29.03 | 5.24 | 36.4 | 41.21 | 54 | 12.79 | AV |
| H | 3603 | 53.49 | 29.03 | 5.24 | 36.4 | 51.36 | 68.2 | 16.84 | PK |
| H | 3603 | 46.87 | 29.03 | 5.24 | 36.4 | 44.74 | 54 | 9.26 | AV |
| V | 10520 | 36 | 39.43 | 11.47 | 34.28 | 52.62 | 68.2 | 15.58 | PK |
| V | 10520 | 24.76 | 39.43 | 11.47 | 34.28 | 41.38 | 54 | 12.62 | AV |
| H | 10520 | 35.63 | 39.43 | 11.47 | 34.28 | 52.25 | 68.2 | 15.95 | PK |
| H | 10520 | 27.96 | 39.43 | 11.47 | 34.28 | 44.58 | 54 | 9.42 | AV |
| ***802.11a Mode* -5280MHz** | | | | | | | | | |
| V | 3603 | 53.87 | 29.03 | 5.24 | 36.4 | 51.74 | 68.2 | 16.46 | PK |
| V | 3603 | 43.63 | 29.03 | 5.24 | 36.4 | 41.5 | 54 | 12.5 | AV |
| H | 3603 | 52.35 | 29.03 | 5.24 | 36.4 | 50.22 | 68.2 | 17.98 | PK |
| H | 3603 | 46.52 | 29.03 | 5.24 | 36.4 | 44.39 | 54 | 9.61 | AV |
| V | 10560 | 37.31 | 39.43 | 11.47 | 34.28 | 53.93 | 68.2 | 14.27 | PK |
| V | 10560 | 25.7 | 39.43 | 11.47 | 34.28 | 42.32 | 54 | 11.68 | AV |
| H | 10560 | 37.1 | 39.43 | 11.47 | 34.28 | 53.72 | 68.2 | 14.48 | PK |
| H | 10560 | 28.31 | 39.43 | 11.47 | 34.28 | 44.93 | 54 | 9.07 | AV |
| **802.11a *Mode* -5320MHz** | | | | | | | | | |
| V | 3603 | 54.41 | 29.03 | 5.24 | 36.4 | 52.28 | 68.2 | 15.92 | PK |
| V | 3603 | 42.72 | 29.03 | 5.24 | 36.4 | 40.59 | 54 | 13.41 | AV |
| H | 3603 | 55.22 | 29.03 | 5.24 | 36.4 | 53.09 | 68.2 | 15.11 | PK |
| H | 3603 | 48.39 | 29.03 | 5.24 | 36.4 | 46.26 | 54 | 7.74 | AV |
| V | 10640 | 36.53 | 39.44 | 11.47 | 34.28 | 53.16 | 68.2 | 15.04 | PK |
| V | 10640 | 25.97 | 39.44 | 11.47 | 34.28 | 42.6 | 54 | 11.4 | AV |
| H | 10640 | 36.47 | 39.44 | 11.47 | 34.28 | 53.1 | 68.2 | 15.1 | PK |
| H | 10640 | 28.57 | 39.44 | 11.47 | 34.28 | 45.2 | 54 | 8.8 | AV |

U-NII 2C

| Polar (H/V) | Frequency (MHz) | Meter Reading (dBuV) | Antenna Factor (dB) | Cable loss (dB) | Preamp factor (dB) | Emission Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) | Detector Type |
|---|---|---|---|---|---|---|---|---|---|
| ***802.11a Mode* -5500MHz** | | | | | | | | | |
| V | 4982 | 53.48 | 32.52 | 5.24 | 36.4 | 54.84 | 68.2 | 13.36 | PK |
| V | 4982 | 39.85 | 32.52 | 5.24 | 36.4 | 41.21 | 54 | 12.79 | AV |
| H | 4982 | 51.18 | 32.52 | 5.24 | 36.4 | 52.54 | 68.2 | 15.66 | PK |
| H | 4982 | 45.4 | 32.52 | 5.24 | 36.4 | 46.76 | 54 | 7.24 | AV |
| V | 11000 | 36.18 | 39.46 | 11.47 | 34.28 | 52.83 | 68.2 | 15.37 | PK |
| V | 11000 | 23.89 | 39.46 | 11.47 | 34.28 | 40.54 | 54 | 13.46 | AV |
| H | 11000 | 34.05 | 39.46 | 11.47 | 34.28 | 50.7 | 68.2 | 17.5 | PK |
| H | 11000 | 28.42 | 39.46 | 11.47 | 34.28 | 45.07 | 54 | 8.93 | AV |
| ***802.11a Mode* -5600MHz** | | | | | | | | | |
| V | 4982 | 49.61 | 32.52 | 5.24 | 36.4 | 50.97 | 68.2 | 17.23 | PK |
| V | 4982 | 40.06 | 32.52 | 5.24 | 36.4 | 41.42 | 54 | 12.58 | AV |
| H | 4982 | 49.37 | 32.52 | 5.24 | 36.4 | 50.73 | 68.2 | 17.47 | PK |
| H | 4982 | 43.92 | 32.52 | 5.24 | 36.4 | 45.28 | 54 | 8.72 | AV |
| V | 11200 | 37.07 | 39.46 | 11.47 | 34.28 | 53.72 | 68.2 | 14.48 | PK |
| V | 11200 | 26.59 | 39.46 | 11.47 | 34.28 | 43.24 | 54 | 10.76 | AV |
| H | 11200 | 37.26 | 39.46 | 11.47 | 34.28 | 53.91 | 68.2 | 14.29 | PK |
| H | 11200 | 26.94 | 39.46 | 11.47 | 34.28 | 43.59 | 54 | 10.41 | AV |
| **802.11a *Mode* -5700MHz** | | | | | | | | | |
| V | 4982 | 49.14 | 32.52 | 5.24 | 36.4 | 50.5 | 68.2 | 17.7 | PK |
| V | 4982 | 40.15 | 32.52 | 5.24 | 36.4 | 41.51 | 54 | 12.49 | AV |
| H | 4982 | 50.69 | 32.52 | 5.24 | 36.4 | 52.05 | 68.2 | 16.15 | PK |
| H | 4982 | 44.52 | 32.52 | 5.24 | 36.4 | 45.88 | 54 | 8.12 | AV |
| V | 11400 | 35.75 | 39.46 | 11.47 | 34.28 | 52.4 | 68.2 | 15.8 | PK |
| V | 11400 | 26.95 | 39.46 | 11.47 | 34.28 | 43.6 | 54 | 10.4 | AV |
| H | 11400 | 35.56 | 39.46 | 11.47 | 34.28 | 52.21 | 68.2 | 15.99 | PK |
| H | 11400 | 29.07 | 39.46 | 11.47 | 34.28 | 45.72 | 54 | 8.28 | AV |

U-NII 3

| Polar (H/V) | Frequency (MHz) | Meter Reading (dBuV) | Antenna Factor (dB) | Cable loss (dB) | Preamp factor (dB) | Emission Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) | Detector Type |
|---|---|---|---|---|---|---|---|---|---|
| ***802.11a Mode* -5745MHz** | | | | | | | | | |
| V | 5112 | 52.41 | 32.84 | 5.24 | 36.4 | 54.09 | 68.2 | 14.11 | PK |
| V | 5112 | 39.49 | 32.84 | 5.24 | 36.4 | 41.17 | 54 | 12.83 | AV |
| H | 5112 | 49.49 | 32.84 | 5.24 | 36.4 | 51.17 | 68.2 | 17.03 | PK |
| H | 5112 | 44.46 | 32.84 | 5.24 | 36.4 | 46.14 | 54 | 7.86 | AV |
| V | 11490 | 35.81 | 39.52 | 11.47 | 34.28 | 52.52 | 68.2 | 15.68 | PK |
| V | 11490 | 23.86 | 39.52 | 11.47 | 34.28 | 40.57 | 54 | 13.43 | AV |
| H | 11490 | 34.46 | 39.52 | 11.47 | 34.28 | 51.17 | 68.2 | 17.03 | PK |
| H | 11490 | 26.45 | 39.52 | 11.47 | 34.28 | 43.16 | 54 | 10.84 | AV |
| ***802.11a Mode* -5785MHz** | | | | | | | | | |
| V | 5112 | 49.07 | 32.84 | 5.24 | 36.4 | 50.75 | 68.2 | 17.45 | PK |
| V | 5112 | 39.21 | 32.84 | 5.24 | 36.4 | 40.89 | 54 | 13.11 | AV |
| H | 5112 | 51 | 32.84 | 5.24 | 36.4 | 52.68 | 68.2 | 15.52 | PK |
| H | 5112 | 43.59 | 32.84 | 5.24 | 36.4 | 45.27 | 54 | 8.73 | AV |
| V | 11570 | 37.27 | 39.52 | 11.47 | 34.28 | 53.98 | 68.2 | 14.22 | PK |
| V | 11570 | 26.09 | 39.52 | 11.47 | 34.28 | 42.8 | 54 | 11.2 | AV |
| H | 11570 | 36.32 | 39.52 | 11.47 | 34.28 | 53.03 | 68.2 | 15.17 | PK |
| H | 11570 | 27.19 | 39.52 | 11.47 | 34.28 | 43.9 | 54 | 10.1 | AV |
| **802.11a *Mode* -5825MHz** | | | | | | | | | |
| V | 5112 | 51.02 | 32.84 | 5.24 | 36.4 | 52.7 | 68.2 | 15.5 | PK |
| V | 5112 | 39.83 | 32.84 | 5.24 | 36.4 | 41.51 | 54 | 12.49 | AV |
| H | 5112 | 49.57 | 32.84 | 5.24 | 36.4 | 51.25 | 68.2 | 16.95 | PK |
| H | 5112 | 43.67 | 32.84 | 5.24 | 36.4 | 45.35 | 54 | 8.65 | AV |
| V | 11650 | 35.1 | 39.52 | 11.47 | 34.28 | 51.81 | 68.2 | 16.39 | PK |
| V | 11650 | 25.85 | 39.52 | 11.47 | 34.28 | 42.56 | 54 | 11.44 | AV |
| H | 11650 | 34.69 | 39.52 | 11.47 | 34.28 | 51.4 | 68.2 | 16.8 | PK |
| H | 11650 | 28.07 | 39.52 | 11.47 | 34.28 | 44.78 | 54 | 9.22 | AV |

REMARKS:

1. Emission level (dBuV/m) =Raw Value (dBuV)+Correction Factor (dB/m)
2. Correction Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
3. Margin value = Limit value- Emission level.
4. -- Mean the other emission levels were very low against the limit.
5. RBW1MHz VBW3MHz Peak detector is for PK value; RBW 1MHz VBW10Hz Peak detector is for AV value.

Radiated Band Edge Test:
All 802.11a / 802.11n (HT20) / 802.11n (HT40)/802.11ac(HT20)/802.11ac(HT40)/802.11ac(HT80) modes have been tested for above 1GHz test, only the worst case 802.11a was recorded.
U-NII 1

| Polar (H/V) | Frequency | Meter Reading | Antenna Factor | Cable loss | Preamp factor | Emission Level | Limits | Margin | Detector Type |
|---|---|---|---|---|---|---|---|---|---|
| | (MHz) | (dBuV) | (dB) | (dB) | (dB) | (dBuV/m) | (dBuV/m) | (dB) | |
| ***802.11a*** | | | | | | | | | |
| V | 5150 | 54.98 | 31.22 | 7.62 | 36.5 | 57.32 | 74 | 16.68 | PK |
| V | 5150 | 37.99 | 31.22 | 7.62 | 36.5 | 40.33 | 54 | 13.67 | AV |
| H | 5150 | 55.99 | 31.22 | 7.62 | 36.5 | 58.33 | 74 | 15.67 | PK |
| H | 5150 | 42.54 | 31.22 | 7.62 | 36.5 | 44.88 | 54 | 9.12 | AV |
| V | 5350 | 54.67 | 31.56 | 7.83 | 35.82 | 58.24 | 74 | 15.76 | PK |
| V | 5350 | 39.76 | 31.56 | 7.83 | 35.82 | 43.33 | 54 | 10.67 | AV |
| H | 5350 | 56.14 | 31.56 | 7.83 | 35.82 | 59.71 | 74 | 14.29 | PK |
| H | 5350 | 40.23 | 31.56 | 7.83 | 35.82 | 43.8 | 54 | 10.2 | AV |

U-NII 2A

| Polar (H/V) | Frequency | Meter Reading | Antenna Factor | Cable loss | Preamp factor | Emission Level | Limits | Margin | Detector Type |
|---|---|---|---|---|---|---|---|---|---|
| | (MHz) | (dBuV) | (dB) | (dB) | (dB) | (dBuV/m) | (dBuV/m) | (dB) | |
| ***802.11a*** | | | | | | | | | |
| V | 5150 | 55.85 | 31.22 | 7.62 | 36.5 | 58.19 | 74 | 15.81 | PK |
| V | 5150 | 37.88 | 31.22 | 7.62 | 36.5 | 40.22 | 54 | 13.78 | AV |
| H | 5150 | 55.73 | 31.22 | 7.62 | 36.5 | 58.07 | 74 | 15.93 | PK |
| H | 5150 | 44.17 | 31.22 | 7.62 | 36.5 | 46.51 | 54 | 7.49 | AV |
| V | 5350 | 55.79 | 31.56 | 7.83 | 35.82 | 59.36 | 74 | 14.64 | PK |
| V | 5350 | 39.92 | 31.56 | 7.83 | 35.82 | 43.49 | 54 | 10.51 | AV |
| H | 5350 | 53.95 | 31.56 | 7.83 | 35.82 | 57.52 | 74 | 16.48 | PK |
| H | 5350 | 41.91 | 31.56 | 7.83 | 35.82 | 45.48 | 54 | 8.52 | AV |

U-NII 2C

| Polar (H/V) | Frequency | Meter Reading | Antenna Factor | Cable loss | Preamp factor | Emission Level | Limits | Margin | Detector Type |
|---|---|---|---|---|---|---|---|---|---|
| | (MHz) | (dBuV) | (dB) | (dB) | (dB) | (dBuV/m) | (dBuV/m) | (dB) | |
| ***802.11a*** | | | | | | | | | |
| V | 5460 | 53.92 | 31.22 | 7.62 | 36.5 | 56.26 | 74 | 17.74 | PK |
| V | 5460 | 38.04 | 31.22 | 7.62 | 36.5 | 40.38 | 54 | 13.62 | AV |
| H | 5460 | 54.94 | 31.22 | 7.62 | 36.5 | 57.28 | 74 | 16.72 | PK |
| H | 5460 | 43.94 | 31.22 | 7.62 | 36.5 | 46.28 | 54 | 7.72 | AV |
| V | 5850 | 54.27 | 31.56 | 7.83 | 35.82 | 57.84 | 74 | 16.16 | PK |
| V | 5850 | 39.77 | 31.56 | 7.83 | 35.82 | 43.34 | 54 | 10.66 | AV |
| H | 5850 | 54.07 | 31.56 | 7.83 | 35.82 | 57.64 | 74 | 16.36 | PK |
| H | 5850 | 41.15 | 31.56 | 7.83 | 35.82 | 44.72 | 54 | 9.28 | AV |

U-NII 3

| Polar (H/V) | Frequency (MHz) | Meter Reading (dBuV) | Antenna Factor (dB) | Cable loss (dB) | Preamp factor (dB) | Emission Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) | Detector Type |
|---|---|---|---|---|---|---|---|---|---|
| ***802.11a*** | | | | | | | | | |
| V | 5460 | 54.55 | 31.22 | 7.62 | 36.5 | 56.89 | 74 | 17.11 | PK |
| V | 5460 | 38.22 | 31.22 | 7.62 | 36.5 | 40.56 | 54 | 13.44 | AV |
| H | 5460 | 55.64 | 31.22 | 7.62 | 36.5 | 57.98 | 74 | 16.02 | PK |
| H | 5460 | 44.26 | 31.22 | 7.62 | 36.5 | 46.6 | 54 | 7.4 | AV |
| V | 5850 | 53.47 | 31.56 | 7.83 | 35.82 | 57.04 | 74 | 16.96 | PK |
| V | 5850 | 39.38 | 31.56 | 7.83 | 35.82 | 42.95 | 54 | 11.05 | AV |
| H | 5850 | 53.82 | 31.56 | 7.83 | 35.82 | 57.39 | 74 | 16.61 | PK |
| H | 5850 | 41.01 | 31.56 | 7.83 | 35.82 | 44.58 | 54 | 9.42 | AV |

## 5.3 Conduction spurious emission

**Limit**

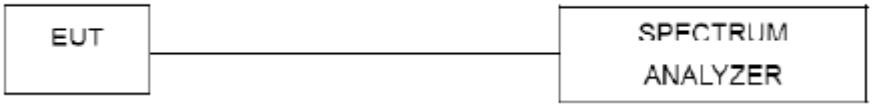
The maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(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.
(2) For transmitters operating in the 5.25-5.35 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.
(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(4) For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

**Test Procedure**

Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.
RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz
VBW ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold
Allow the trace to stabilize

**Test Configuration**




**TEST RESULTS**
See Appendix VI II

## 5.4 Maximum Conducted Average Output Power

**Limit**

**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.

(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.

(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.

(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.

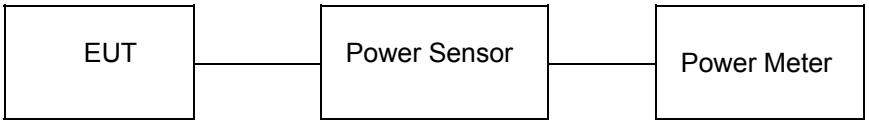
**For the 5.25-5.35 GHz and 5.47-5.725 GHz bands**, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.

**For the band 5.725-5.85 GHz**, the maximum conducted output power over the frequency band of operation shall not exceed 1 W

**Test Procedure**

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power sensor.

**Test Configuration**




**Test Results**

See Appendix IV

## 5.5 Power Spectral Density

**Limit**

(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 MHz band.[note1]

(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 MHz band.[note1]

(iii) For fixed point-to-point access points operating in the band 5.15 - 5.25 GHz, transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi.

(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 MHz band. [note1]

(2) For the 5.25 - 5.35 GHz and 5.47 - 5.725 GHz bands, the peak power spectral density shall not exceed 11 dBm in any 1 MHz band. [note1]

(3) For the band 5.725 - 5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500 kHz band. [note1, note2]

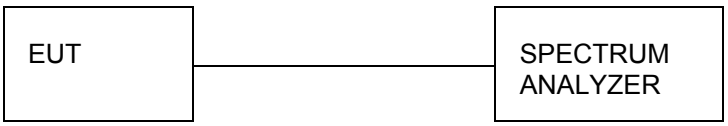
Note1: If transmitting antennas of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Note2: Fixed point - to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information.

**Test Procedure**

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW = 1MHz for U-NII 1, U-NII 2A, U-NII C band and 510KHz for U-NII 3 band.
3. Set the VBW ≥ 3× RBW.
4. Set the span to encompass the entire EBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum power level.

**Test Configuration**




**Test Results**

See Appendix III

## 5.6 Emission Bandwidth (26dBm Bandwidth)

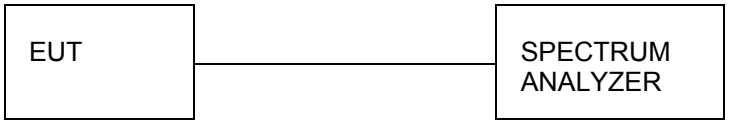
**Limit**

N/A

**Test Procedure**

1. Set resolution bandwidth (RBW) = approximately 1 % of the EBW.
2. Set the video bandwidth (VBW) > RBW.
3. Detector = Peak.
4. Trace mode = Max hold.
5. Measure the maximum width of the emission that is 26 dB down from the peak 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 %.

**Test Configuration**




**Test Results**

See Appendix VII

## 5.7 Minimum Emission Bandwidth (6dBm Bandwidth)

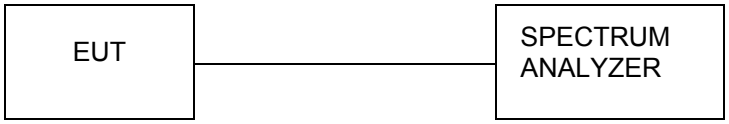
**Limit**

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

**Test Procedure**

1. Set resolution bandwidth (RBW) = 100 kHz
2. Set the video bandwidth 3 x RBW.
3. Detector = Peak.
4. Trace mode = Max hold.
5. Measure the maximum 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 6 dB relative to the maximum level measured in the fundamental emission.

**Test Configuration**




**Test Results**

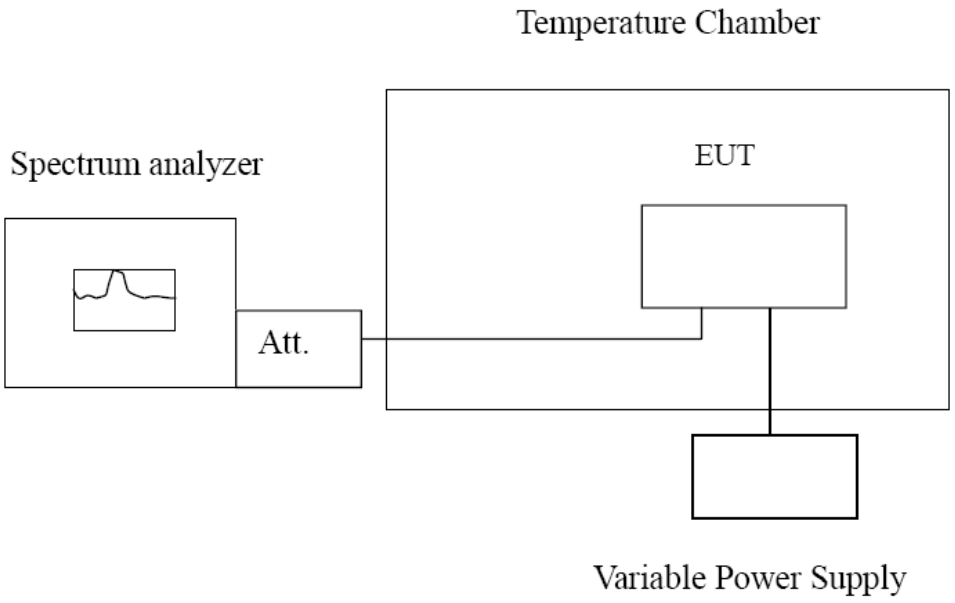
See Appendix VI

## 5.8 Frequency Stability

**LIMIT**

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

**TEST CONFIGURATION**




**TEST PROCEDURE**

**Frequency Stability under Temperature Variations:**
The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20℃ operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30℃. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10℃ increased per stage until the highest temperature of +50℃ reached.

**Frequency Stability under Voltage Variations:**
Set chamber temperature to 20℃. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.
Reduce the input voltage to specify extreme voltage variation (±15%) and endpoint, record the maximum frequency change.

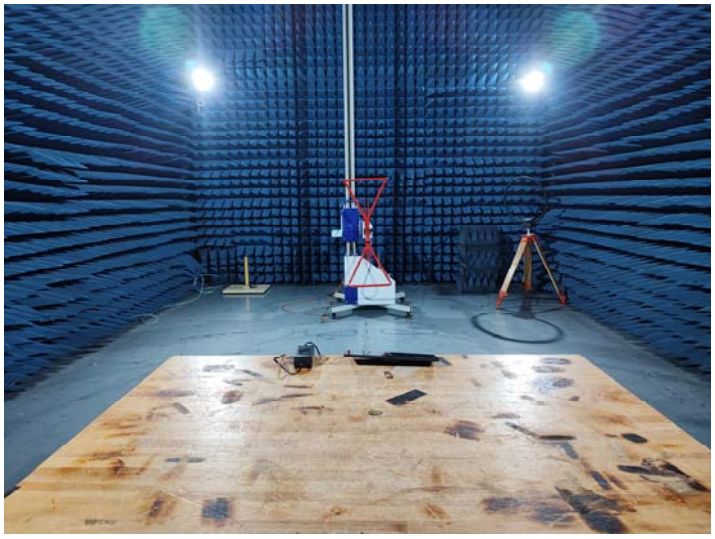
**TEST RESULTS**

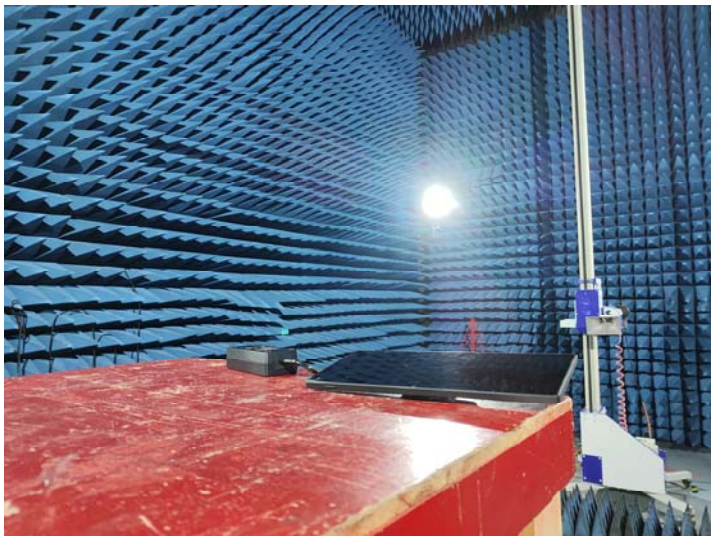
See Appendix I

## 5.9 Duty Cycle Information

See Appendix II

# 6 Test Setup Photos of the EUT





# 7 Photos of the EUT

see photo report.

# APPENDIX I. Frequency Stability

## Antenna A:

**Test Result**

| Condition | Mode | Ch. | Antenna | Center Frequency (MHz) | Calculated Value of Center Frequency(MHz) | Result (ppm) | Limit (ppm) | State |
|---|---|---|---|---|---|---|---|---|
| NT/NV | IEEE 802.11a | 36 | 0 | 5180.0 | 5179.780988 | -42.28 | Within authorized band | PASS |
| | | 40 | | 5200.0 | 5199.783076 | -41.72 | | PASS |
| | | 48 | | 5240.0 | 5239.769988 | -43.9 | | PASS |
| | | 52 | | 5260.0 | 5259.779701 | -41.88 | | PASS |
| | | 56 | | 5280.0 | 5279.769613 | -43.63 | | PASS |
| | | 64 | | 5320.0 | 5319.768750 | -43.47 | | PASS |
| | | 100 | | 5500.0 | 5499.771463 | -41.55 | | PASS |
| | | 120 | | 5600.0 | 5599.770376 | -41.0 | | PASS |
| | | 140 | | 5700.0 | 5699.779576 | -38.67 | | PASS |
| | IEEE 802.11n_20 | 36 | | 5180.0 | 5179.756100 | -47.08 | | PASS |
| | | 40 | | 5200.0 | 5199.758075 | -46.52 | | PASS |
| | | 48 | | 5240.0 | 5240.243537 | 46.48 | | PASS |
| | | 52 | | 5260.0 | 5260.241900 | 45.99 | | PASS |
| | | 56 | | 5280.0 | 5280.239187 | 45.3 | | PASS |
| | | 64 | | 5320.0 | 5319.752650 | -46.49 | | PASS |
| | | 100 | | 5500.0 | 5499.754300 | -44.67 | | PASS |
| | | 120 | | 5600.0 | 5599.760313 | -42.8 | | PASS |
| | | 140 | | 5700.0 | 5699.757400 | -42.56 | | PASS |
| | IEEE 802.11n_40 | 38 | | 5190.0 | 5190.207861 | 40.05 | | PASS |
| | | 46 | | 5230.0 | 5229.959918 | -7.66 | | PASS |
| | | 54 | | 5270.0 | 5269.961143 | -7.37 | | PASS |
| | | 62 | | 5310.0 | 5310.208786 | 39.32 | | PASS |
| | | 102 | | 5510.0 | 5510.211424 | 38.37 | | PASS |
| | | 118 | | 5590.0 | 5590.205261 | 36.72 | | PASS |
| | | 134 | | 5670.0 | 5670.212237 | 37.43 | | PASS |
| | IEEE 802.11ac_20 | 36 | | 5180.0 | 5179.751763 | -47.92 | | PASS |
| | | 40 | | 5200.0 | 5199.752300 | -47.63 | | PASS |
| | | 48 | | 5240.0 | 5239.753488 | -47.04 | | PASS |
| | | 52 | | 5260.0 | 5259.753450 | -46.87 | | PASS |
| | | 56 | | 5280.0 | 5279.750488 | -47.26 | | PASS |
| | | 64 | | 5320.0 | 5319.752863 | -46.45 | | PASS |
| | | 100 | | 5500.0 | 5499.758775 | -43.86 | | PASS |
| | | 120 | | 5600.0 | 5599.753350 | -44.04 | | PASS |
| | | 140 | | 5700.0 | 5699.751800 | -43.54 | | PASS |
| | IEEE 802.11ac_40 | 38 | | 5190.0 | 5189.962293 | -7.27 | | PASS |
| | | 46 | | 5230.0 | 5229.956755 | -8.27 | | PASS |
| | | 54 | | 5270.0 | 5269.959955 | -7.6 | | PASS |
| | | 62 | | 5310.0 | 5310.212037 | 39.93 | | PASS |
| | | 102 | | 5510.0 | 5510.210174 | 38.14 | | PASS |
| | | 118 | | 5590.0 | 5590.213249 | 38.15 | | PASS |
| | | 134 | | 5670.0 | 5670.209624 | 36.97 | | PASS |
| | IEEE 802.11ac_80 | 42 | | 5210.0 | 5210.222699 | 42.74 | | PASS |
| | | 58 | | 5290.0 | 5289.752475 | -46.79 | | PASS |
| | | 106 | | 5530.0 | 5529.750000 | -45.21 | | PASS |
| | | 122 | | 5610.0 | 5609.750000 | -44.56 | | PASS |

**Test Graphs**
**NT/NV**
IEEE 802.11a


**NT/NV_Antenna 0**
**IEEE 802.11a_Channel 36_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11a_Channel 40_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11a_Channel 48_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11a_Channel 52_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11a_Channel 56_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11a_Channel 64_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11a_Channel 100_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11a_Channel 120_20MHz**

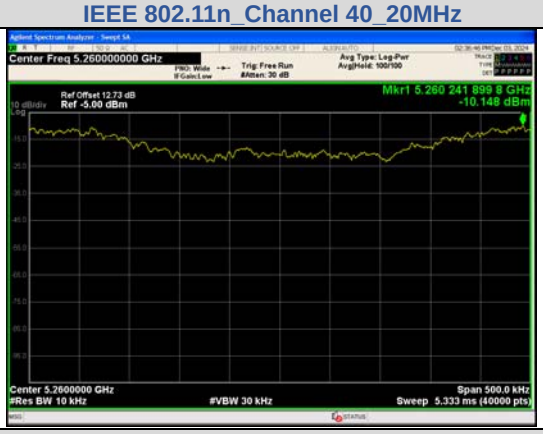

**NT/NV_Antenna 0**
**IEEE 802.11a_Channel 140_20MHz**

IEEE 802.11n_20

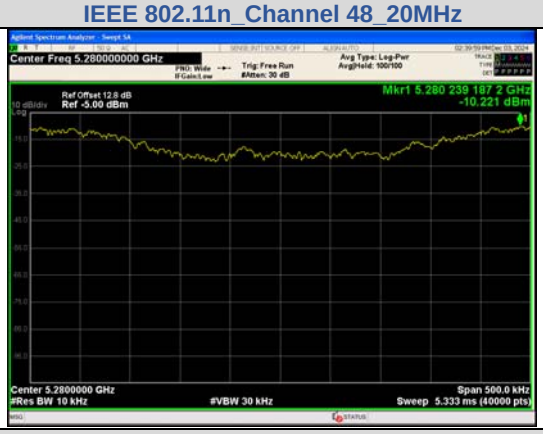

**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 36_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 40_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 48_20MHz**




**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 52_20MHz**




**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 56_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 64_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 100_20MHz**

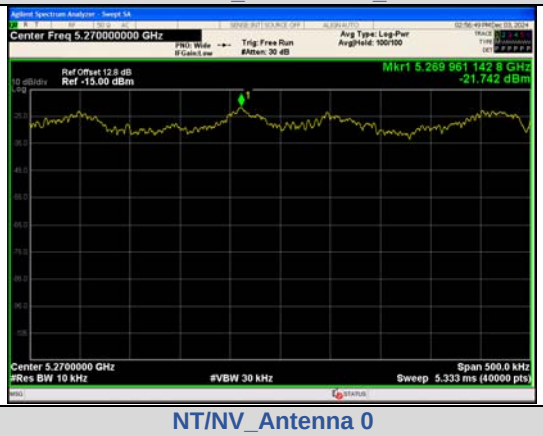

**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 120_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 140_20MHz**

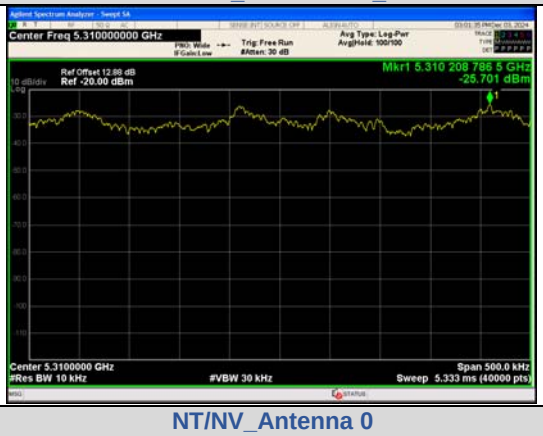
IEEE 802.11n_40


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 38_40MHz**


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 46_40MHz**




**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 54_40MHz**




**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 62_40MHz**


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 102_40MHz**


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 118_40MHz**

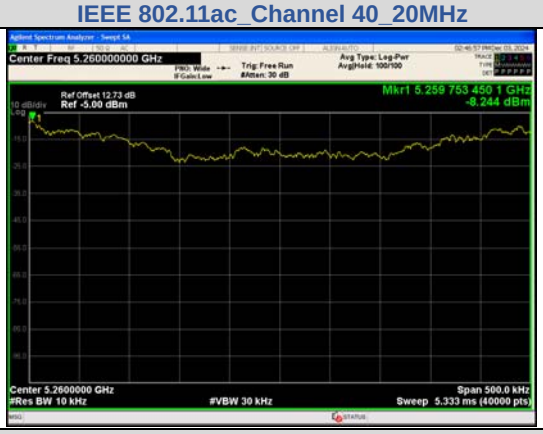

**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 134_40MHz**

IEEE 802.11ac_20


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 36_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 40_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 48_20MHz**




**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 52_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 56_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 64_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 100_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 120_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 140_20MHz**

IEEE 802.11ac_40


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 38_40MHz**


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 46_40MHz**


NT/NV_Antenna 0
IEEE 802.11ac_Channel 54_40MHz


NT/NV_Antenna 0
IEEE 802.11ac_Channel 62_40MHz


NT/NV_Antenna 0
IEEE 802.11ac_Channel 102_40MHz


NT/NV_Antenna 0
IEEE 802.11ac_Channel 118_40MHz


NT/NV_Antenna 0
IEEE 802.11ac_Channel 134_40MHz

IEEE 802.11ac_80


NT/NV_Antenna 0
IEEE 802.11ac_Channel 42_80MHz


NT/NV_Antenna 0
IEEE 802.11ac_Channel 58_80MHz

| | |
|---|---|
|  |  |
| **NT/NV_Antenna 0**<br>**IEEE 802.11ac_Channel 106_80MHz** | **NT/NV_Antenna 0**<br>**IEEE 802.11ac_Channel 122_80MHz** |

**Test Result**

| Condition | Mode | Ch. | Antenna | Center Frequency (MHz) | Calculated Value of Center Frequency(MHz) | Result (ppm) | Limit (ppm) | State |
|---|---|---|---|---|---|---|---|---|
| NT/NV | IEEE 802.11a | 149 | 0 | 5745.0 | 5744.770000 | -40.03 | Within authorized band | PASS |
| | | 157 | | 5785.0 | 5784.774113 | -39.05 | | PASS |
| | | 165 | | 5825.0 | 5824.768613 | -39.72 | | PASS |
| | IEEE 802.11n_20 | 149 | | 5745.0 | 5744.750000 | -43.52 | | PASS |
| | | 157 | | 5785.0 | 5785.244700 | 42.3 | | PASS |
| | | 165 | | 5825.0 | 5824.757575 | -41.62 | | PASS |
| | IEEE 802.11n_40 | 151 | | 5755.0 | 5755.204936 | 35.61 | | PASS |
| | | 159 | | 5795.0 | 5795.209049 | 36.07 | | PASS |
| | IEEE 802.11ac_20 | 149 | | 5745.0 | 5744.758300 | -42.07 | | PASS |
| | | 157 | | 5785.0 | 5784.760600 | -41.38 | | PASS |
| | | 165 | | 5825.0 | 5824.753213 | -42.37 | | PASS |
| | IEEE 802.11ac_40 | 151 | | 5755.0 | 5755.212399 | 36.91 | | PASS |
| | | 159 | | 5795.0 | 5794.959105 | -7.06 | | PASS |
| | IEEE 802.11ac_80 | 155 | | 5775.0 | 5775.004756 | 0.82 | | PASS |

**Test Graphs**
**NT/NV**
IEEE 802.11a


NT/NV_Antenna 0
IEEE 802.11a_Channel 149_20MHz


NT/NV_Antenna 0
IEEE 802.11a_Channel 157_20MHz


NT/NV_Antenna 0
IEEE 802.11a_Channel 165_20MHz

IEEE 802.11n_20


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 149_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 157_20MHz**

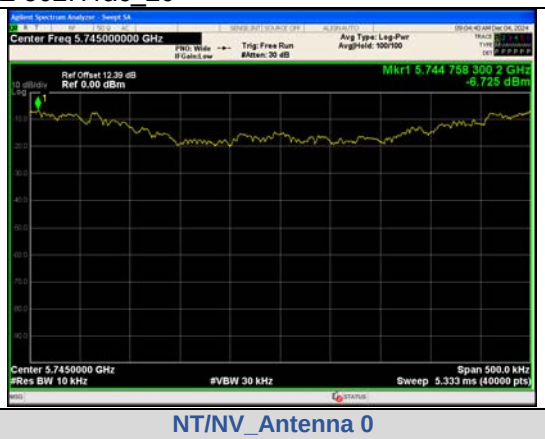

**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 165_20MHz**

IEEE 802.11n_40

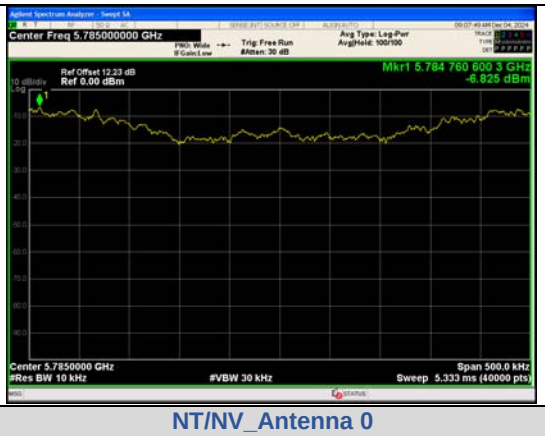

**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 151_40MHz**


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 159_40MHz**

IEEE 802.11ac_20




**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 149_20MHz**




**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 157_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 165_20MHz**

IEEE 802.11ac_40


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 151_40MHz**


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 159_40MHz**

IEEE 802.11ac_80


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 155_80MHz**

# Antenna B:

**Test Result**

| Condition | Mode | Ch. | Antenna | Center Frequency (MHz) | Calculated Value of Center Frequency(MHz) | Result (ppm) | Limit (ppm) | State |
|---|---|---|---|---|---|---|---|---|
| NT/NV | IEEE 802.11a | 36 | 0 | 5180.0 | 5179.772876 | -43.85 | Within authorized band | PASS |
| | | 40 | | 5200.0 | 5199.776576 | -42.97 | | PASS |
| | | 48 | | 5240.0 | 5239.772601 | -43.4 | | PASS |
| | | 52 | | 5260.0 | 5259.773326 | -43.09 | | PASS |
| | | 56 | | 5280.0 | 5279.769625 | -43.63 | | PASS |
| | | 64 | | 5320.0 | 5319.770326 | -43.17 | | PASS |
| | | 100 | | 5500.0 | 5499.770426 | -41.74 | | PASS |
| | | 120 | | 5600.0 | 5599.768288 | -41.38 | | PASS |
| | | 140 | | 5700.0 | 5699.771226 | -40.14 | | PASS |
| | IEEE 802.11n_20 | 36 | | 5180.0 | 5180.242400 | 46.8 | | PASS |
| | | 40 | | 5200.0 | 5200.243412 | 46.81 | | PASS |
| | | 48 | | 5240.0 | 5240.246150 | 46.98 | | PASS |
| | | 52 | | 5260.0 | 5260.244637 | 46.51 | | PASS |
| | | 56 | | 5280.0 | 5279.758038 | -45.83 | | PASS |
| | | 64 | | 5320.0 | 5319.758038 | -45.48 | | PASS |
| | | 100 | | 5500.0 | 5500.242575 | 44.1 | | PASS |
| | | 120 | | 5600.0 | 5600.241325 | 43.09 | | PASS |
| | | 140 | | 5700.0 | 5699.750750 | -43.73 | | PASS |
| | IEEE 802.11n_40 | 38 | | 5190.0 | 5190.204936 | 39.49 | | PASS |
| | | 46 | | 5230.0 | 5230.207674 | 39.71 | | PASS |
| | | 54 | | 5270.0 | 5270.214074 | 40.62 | | PASS |
| | | 62 | | 5310.0 | 5310.208311 | 39.23 | | PASS |
| | | 102 | | 5510.0 | 5510.210762 | 38.25 | | PASS |
| | | 118 | | 5590.0 | 5590.209486 | 37.48 | | PASS |
| | | 134 | | 5670.0 | 5670.208149 | 36.71 | | PASS |
| | IEEE 802.11ac_20 | 36 | | 5180.0 | 5179.752200 | -47.84 | | PASS |
| | | 40 | | 5200.0 | 5199.752825 | -47.53 | | PASS |
| | | 48 | | 5240.0 | 5239.758725 | -46.04 | | PASS |
| | | 52 | | 5260.0 | 5259.750325 | -47.47 | | PASS |
| | | 56 | | 5280.0 | 5279.753200 | -46.74 | | PASS |
| | | 64 | | 5320.0 | 5319.755813 | -45.9 | | PASS |
| | | 100 | | 5500.0 | 5499.750313 | -45.4 | | PASS |
| | | 120 | | 5600.0 | 5599.754125 | -43.91 | | PASS |
| | | 140 | | 5700.0 | 5699.750875 | -43.71 | | PASS |
| | IEEE 802.11ac_40 | 38 | | 5190.0 | 5190.208449 | 40.16 | | PASS |
| | | 46 | | 5230.0 | 5230.208674 | 39.9 | | PASS |
| | | 54 | | 5270.0 | 5270.208424 | 39.55 | | PASS |
| | | 62 | | 5310.0 | 5309.959568 | -7.61 | | PASS |
| | | 102 | | 5510.0 | 5510.209599 | 38.04 | | PASS |
| | | 118 | | 5590.0 | 5590.208261 | 37.26 | | PASS |
| | | 134 | | 5670.0 | 5670.211687 | 37.33 | | PASS |
| | IEEE 802.11ac_80 | 42 | | 5210.0 | 5209.755513 | -46.93 | | PASS |
| | | 58 | | 5290.0 | 5289.757250 | -45.89 | | PASS |
| | | 106 | | 5530.0 | 5529.760088 | -43.38 | | PASS |
| | | 122 | | 5610.0 | 5610.004669 | 0.83 | | PASS |

**Test Graphs**
**NT/NV**
IEEE 802.11a


**NT/NV_Antenna 0**
**IEEE 802.11a_Channel 36_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11a_Channel 40_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11a_Channel 48_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11a_Channel 52_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11a_Channel 56_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11a_Channel 64_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11a_Channel 100_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11a_Channel 120_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11a_Channel 140_20MHz**

IEEE 802.11n_20


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 36_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 40_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 48_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 52_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 56_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 64_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 100_20MHz**

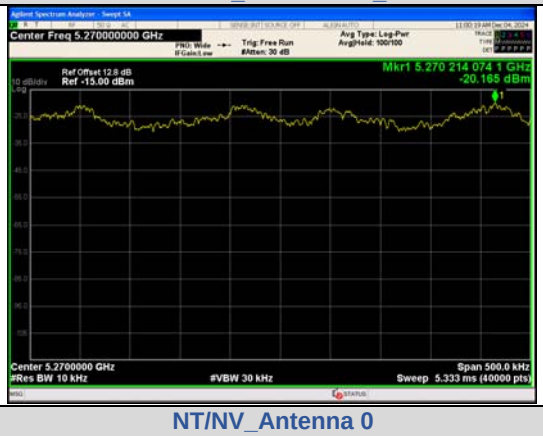

**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 120_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 140_20MHz**

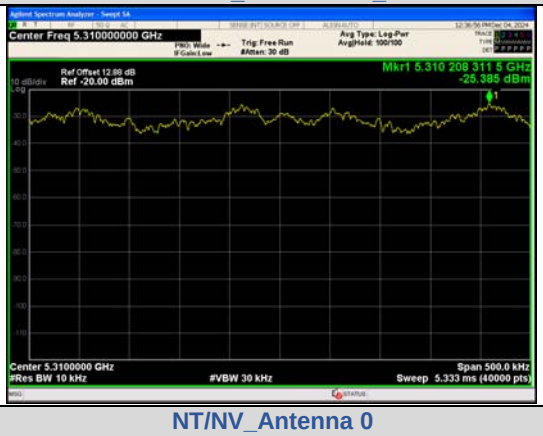
IEEE 802.11n_40


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 38_40MHz**


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 46_40MHz**




**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 54_40MHz**




**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 62_40MHz**


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 102_40MHz**

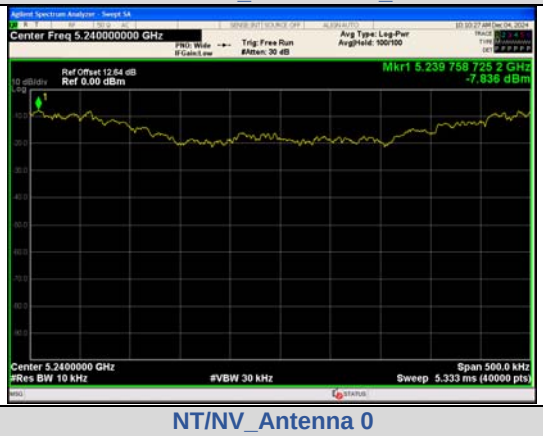

**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 118_40MHz**


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 134_40MHz**

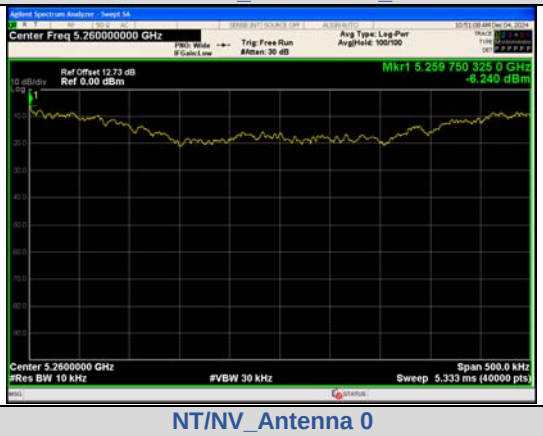
IEEE 802.11ac_20


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 36_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 40_20MHz**




**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 48_20MHz**




**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 52_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 56_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 64_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 100_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 120_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 140_20MHz**

IEEE 802.11ac_40


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 38_40MHz**


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 46_40MHz**


NT/NV_Antenna 0
IEEE 802.11ac_Channel 54_40MHz

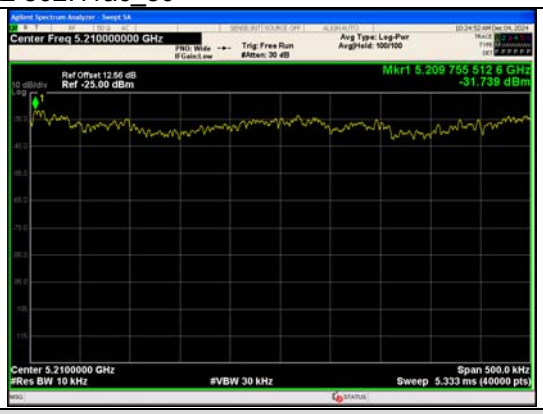

NT/NV_Antenna 0
IEEE 802.11ac_Channel 62_40MHz


NT/NV_Antenna 0
IEEE 802.11ac_Channel 102_40MHz


NT/NV_Antenna 0
IEEE 802.11ac_Channel 118_40MHz


NT/NV_Antenna 0
IEEE 802.11ac_Channel 134_40MHz

IEEE 802.11ac_80




NT/NV_Antenna 0
IEEE 802.11ac_Channel 42_80MHz


NT/NV_Antenna 0
IEEE 802.11ac_Channel 58_80MHz

| | |
|---|---|
|  |  |
| **NT/NV_Antenna 0**<br>**IEEE 802.11ac_Channel 106_80MHz** | **NT/NV_Antenna 0**<br>**IEEE 802.11ac_Channel 122_80MHz** |

**Test Result**

| Condition | Mode | Ch. | Antenna | Center Frequency (MHz) | Calculated Value of Center Frequency(MHz) | Result (ppm) | Limit (ppm) | State |
|---|---|---|---|---|---|---|---|---|
| NT/NV | IEEE 802.11a | 149 | 0 | 5745.0 | 5744.769388 | -40.14 | Within authorized band | PASS |
| | | 157 | | 5785.0 | 5784.770951 | -39.59 | | PASS |
| | | 165 | | 5825.0 | 5824.772101 | -39.12 | | PASS |
| | IEEE 802.11n_20 | 149 | | 5745.0 | 5744.757313 | -42.24 | | PASS |
| | | 157 | | 5785.0 | 5785.242225 | 41.87 | | PASS |
| | | 165 | | 5825.0 | 5824.758425 | -41.47 | | PASS |
| | IEEE 802.11n_40 | 151 | | 5755.0 | 5755.208211 | 36.18 | | PASS |
| | | 159 | | 5795.0 | 5795.210624 | 36.35 | | PASS |
| | IEEE 802.11ac_20 | 149 | | 5745.0 | 5744.752463 | -43.09 | | PASS |
| | | 157 | | 5785.0 | 5784.757850 | -41.86 | | PASS |
| | | 165 | | 5825.0 | 5824.751888 | -42.59 | | PASS |
| | IEEE 802.11ac_40 | 151 | | 5755.0 | 5755.208749 | 36.27 | | PASS |
| | | 159 | | 5795.0 | 5795.208149 | 35.92 | | PASS |
| | IEEE 802.11ac_80 | 155 | | 5775.0 | 5774.762513 | -41.12 | | PASS |

**Test Graphs**
**NT/NV**
IEEE 802.11a


NT/NV_Antenna 0
IEEE 802.11a_Channel 149_20MHz


NT/NV_Antenna 0
IEEE 802.11a_Channel 157_20MHz


NT/NV_Antenna 0
IEEE 802.11a_Channel 165_20MHz

IEEE 802.11n_20


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 149_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 157_20MHz**

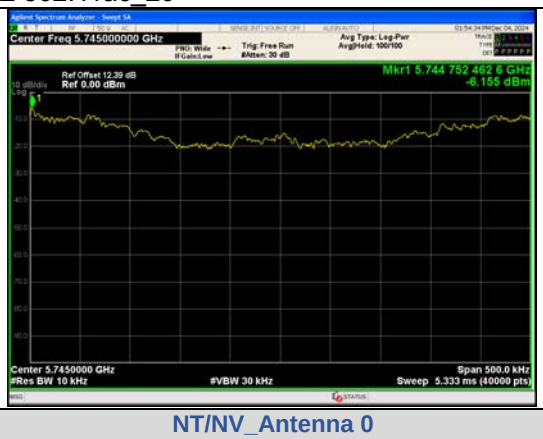

**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 165_20MHz**

IEEE 802.11n_40

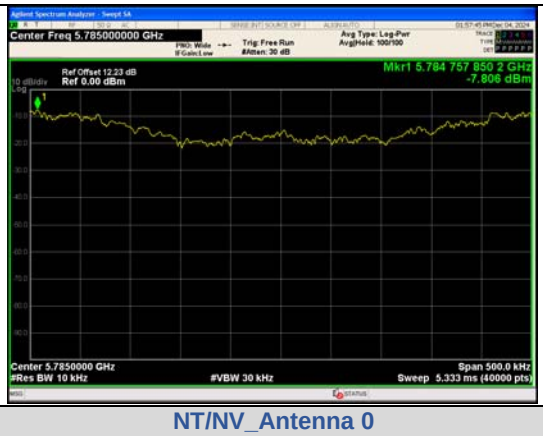

**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 151_40MHz**


**NT/NV_Antenna 0**
**IEEE 802.11n_Channel 159_40MHz**

IEEE 802.11ac_20




**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 149_20MHz**




**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 157_20MHz**


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 165_20MHz**

IEEE 802.11ac_40


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 151_40MHz**


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 159_40MHz**

IEEE 802.11ac_80


**NT/NV_Antenna 0**
**IEEE 802.11ac_Channel 155_80MHz**

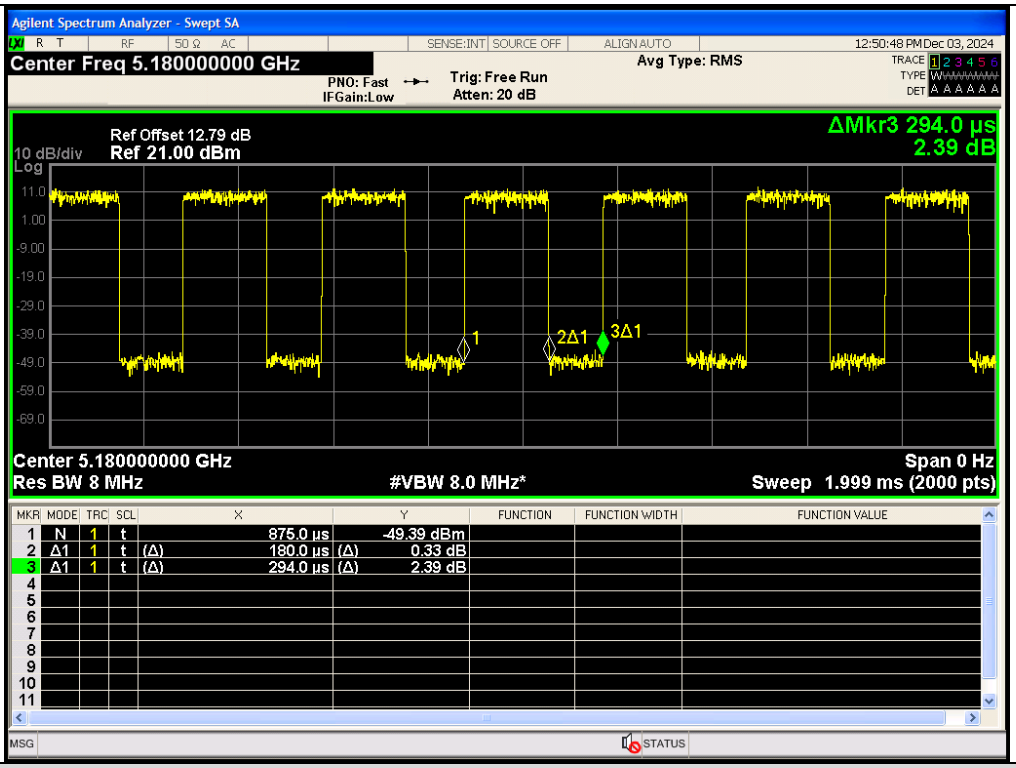
# APPENDIX II. Duty Cycle

## Antenna A:

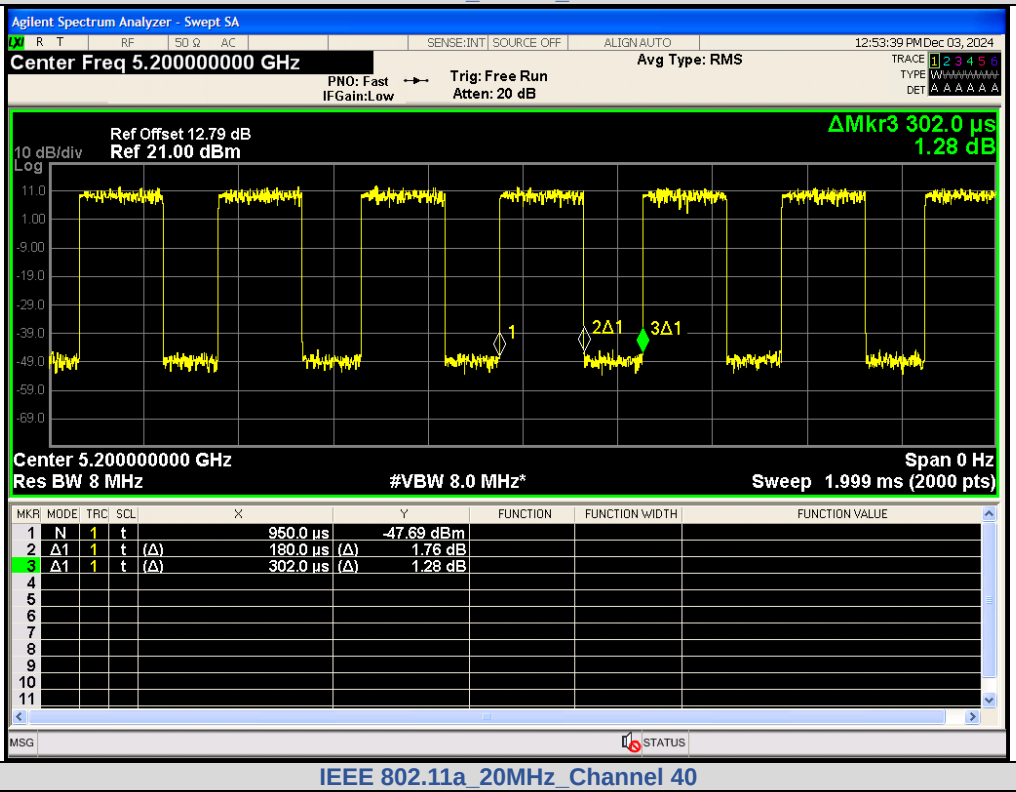
**Test Result**

| Mode | Data rates | Channel | Antenna | On Time (ms) | Period (ms) | Duty Cycle (%) | Duty Cycle (linear) | Duty Cycle Factor (dB) |
|---|---|---|---|---|---|---|---|---|
| IEEE 802.11a | 54 | 36 | 1 | 0.180 | 0.294 | 61.22 | 0.6122 | 2.1311 |
| | | 40 | | 0.180 | 0.302 | 59.60 | 0.5960 | 2.2475 |
| | | 48 | | 0.181 | 0.294 | 61.56 | 0.6156 | 2.107 |
| | | 52 | | 0.179 | 0.293 | 60.90 | 0.6090 | 2.1538 |
| | | 56 | | 0.180 | 0.303 | 59.41 | 0.5941 | 2.2614 |
| | | 64 | | 0.180 | 0.303 | 59.41 | 0.5941 | 2.2614 |
| | | 100 | | 0.180 | 0.303 | 59.41 | 0.5941 | 2.2614 |
| | | 120 | | 0.180 | 0.303 | 59.41 | 0.5941 | 2.2614 |
| | | 140 | | 0.180 | 0.302 | 59.60 | 0.5960 | 2.2475 |
| IEEE 802.11n_20 | MCS 7 | 36 | | 0.167 | 0.300 | 55.82 | 0.5582 | 2.5321 |
| | | 40 | | 0.169 | 0.300 | 56.33 | 0.5633 | 2.4926 |
| | | 48 | | 0.168 | 0.300 | 56.00 | 0.5600 | 2.5181 |
| | | 52 | | 0.167 | 0.300 | 55.82 | 0.5582 | 2.5321 |
| | | 56 | | 0.167 | 0.299 | 55.73 | 0.5573 | 2.5391 |
| | | 64 | | 0.167 | 0.300 | 55.82 | 0.5582 | 2.5321 |
| | | 100 | | 0.167 | 0.300 | 55.60 | 0.5560 | 2.5493 |
| | | 120 | | 0.168 | 0.291 | 57.73 | 0.5773 | 2.386 |
| | | 140 | | 0.168 | 0.300 | 56.00 | 0.5600 | 2.5181 |
| IEEE 802.11n_40 | | 38 | | 0.108 | 0.294 | 36.73 | 0.3673 | 4.3498 |
| | | 46 | | 0.107 | 0.302 | 35.37 | 0.3537 | 4.5136 |
| | | 54 | | 0.107 | 0.302 | 35.37 | 0.3537 | 4.5136 |
| | | 62 | | 0.108 | 0.294 | 36.73 | 0.3673 | 4.3498 |
| | | 102 | | 0.107 | 0.383 | 27.84 | 0.2784 | 5.5533 |
| | | 118 | | 0.108 | 0.294 | 36.73 | 0.3673 | 4.3498 |
| | | 134 | | 0.108 | 0.293 | 36.86 | 0.3686 | 4.3344 |
| IEEE 802.11ac_20 | | 52 | | 0.172 | 0.295 | 58.31 | 0.5831 | 2.3426 |
| | | 56 | | 0.172 | 0.349 | 49.28 | 0.4928 | 3.0733 |
| | | 64 | | 0.172 | 0.303 | 56.77 | 0.5677 | 2.4588 |
| | | 100 | | 0.172 | 0.295 | 58.31 | 0.5831 | 2.3426 |
| | | 120 | | 0.172 | 0.295 | 58.31 | 0.5831 | 2.3426 |
| | | 140 | | 0.172 | 0.294 | 58.50 | 0.5850 | 2.3284 |
| | MCS 9 | 36 | | 0.172 | 0.304 | 56.58 | 0.5658 | 2.4734 |
| | | 40 | | 0.172 | 0.304 | 56.58 | 0.5658 | 2.4734 |
| | | 48 | | 0.172 | 0.294 | 58.50 | 0.5850 | 2.3284 |
| IEEE 802.11ac_40 | MCS 7 | 54 | | 0.108 | 0.302 | 35.76 | 0.3576 | 4.466 |
| | | 62 | | 0.108 | 0.293 | 36.86 | 0.3686 | 4.3344 |
| | | 102 | | 0.108 | 0.303 | 35.64 | 0.3564 | 4.4806 |
| | | 118 | | 0.107 | 0.311 | 34.32 | 0.3432 | 4.6445 |
| | | 134 | | 0.107 | 0.302 | 35.51 | 0.3551 | 4.4965 |
| | MCS 9 | 38 | | 0.107 | 0.302 | 35.29 | 0.3529 | 4.5235 |
| | | 46 | | 0.109 | 0.303 | 35.97 | 0.3597 | 4.4406 |
| IEEE 802.11ac_80 | MCS 7 | 58 | | 0.076 | 0.297 | 25.59 | 0.2559 | 5.9193 |
| | | 106 | | 0.074 | 0.297 | 25.06 | 0.2506 | 6.0102 |
| | | 122 | | 0.075 | 0.297 | 25.28 | 0.2528 | 5.9722 |
| | MCS 9 | 42 | | 0.075 | 0.297 | 25.11 | 0.2511 | 6.0015 |

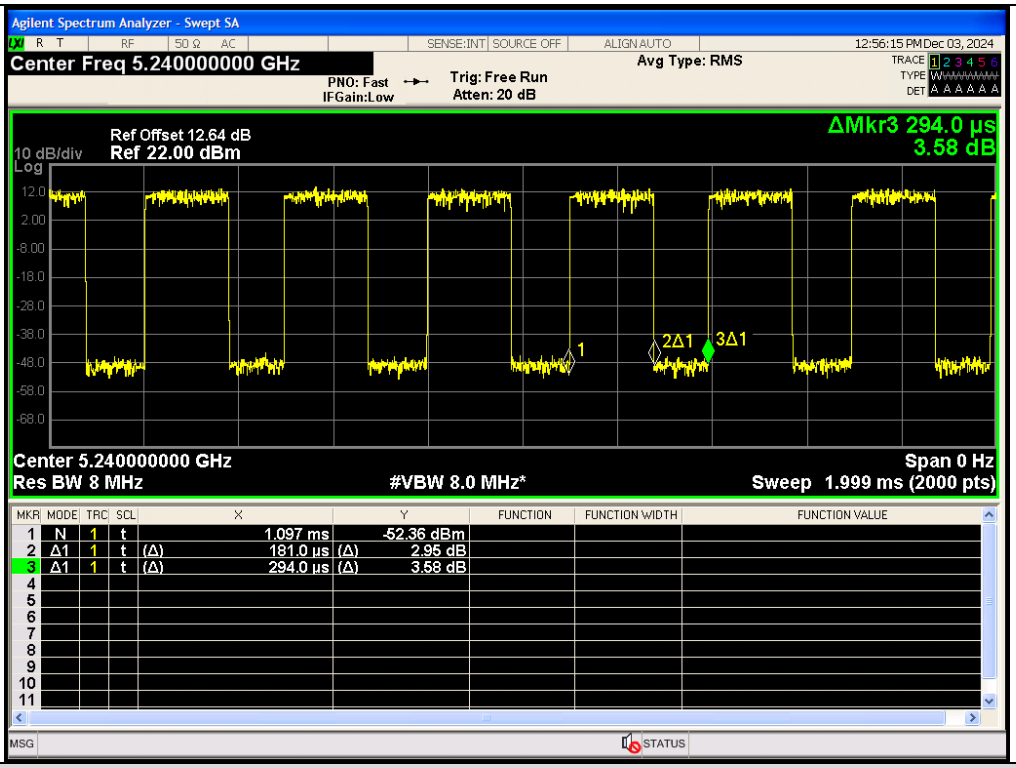
**Test Graphs**



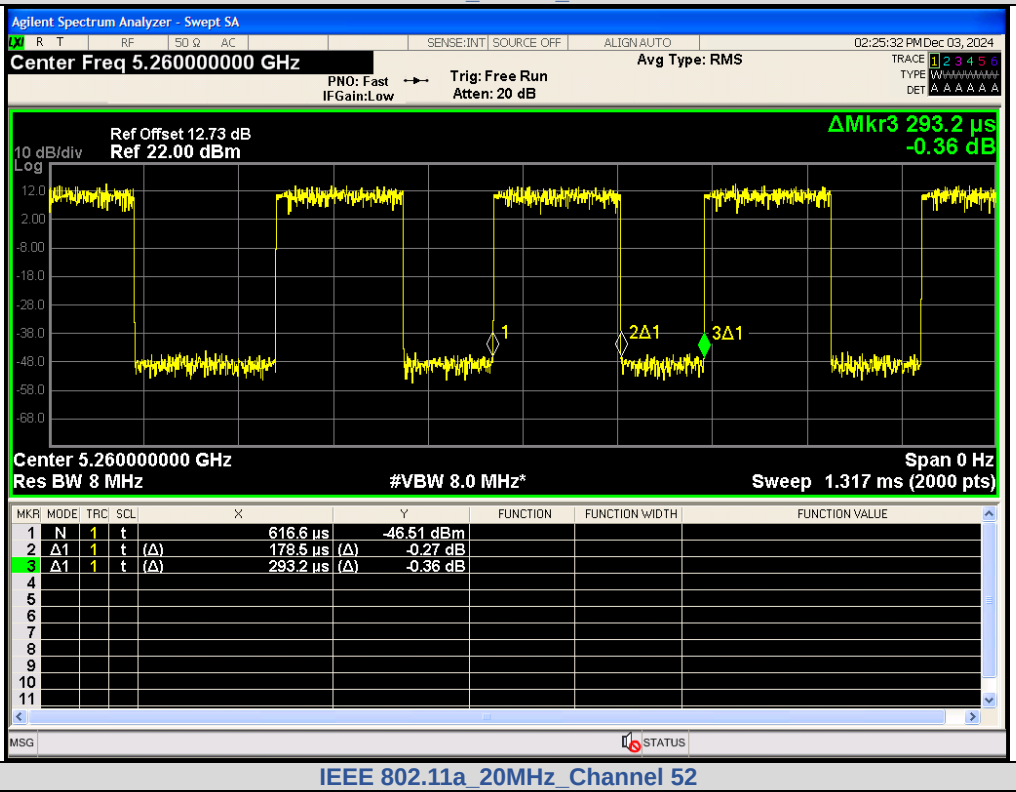

IEEE 802.11a_20MHz_Channel 36



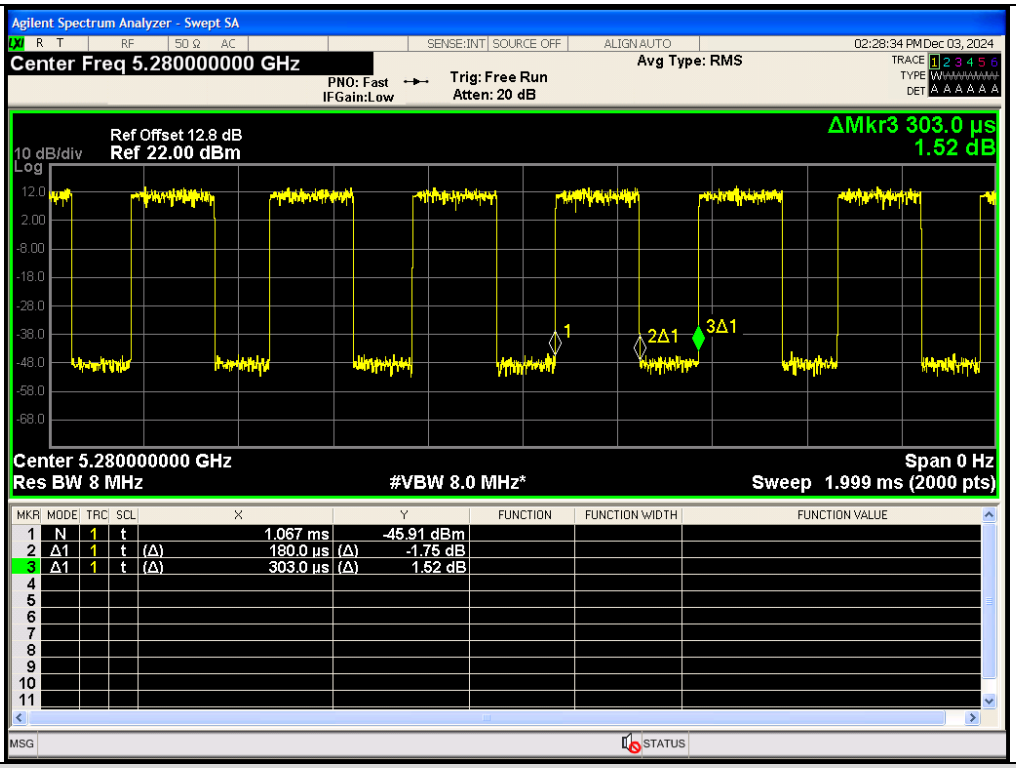

IEEE 802.11a_20MHz_Channel 40



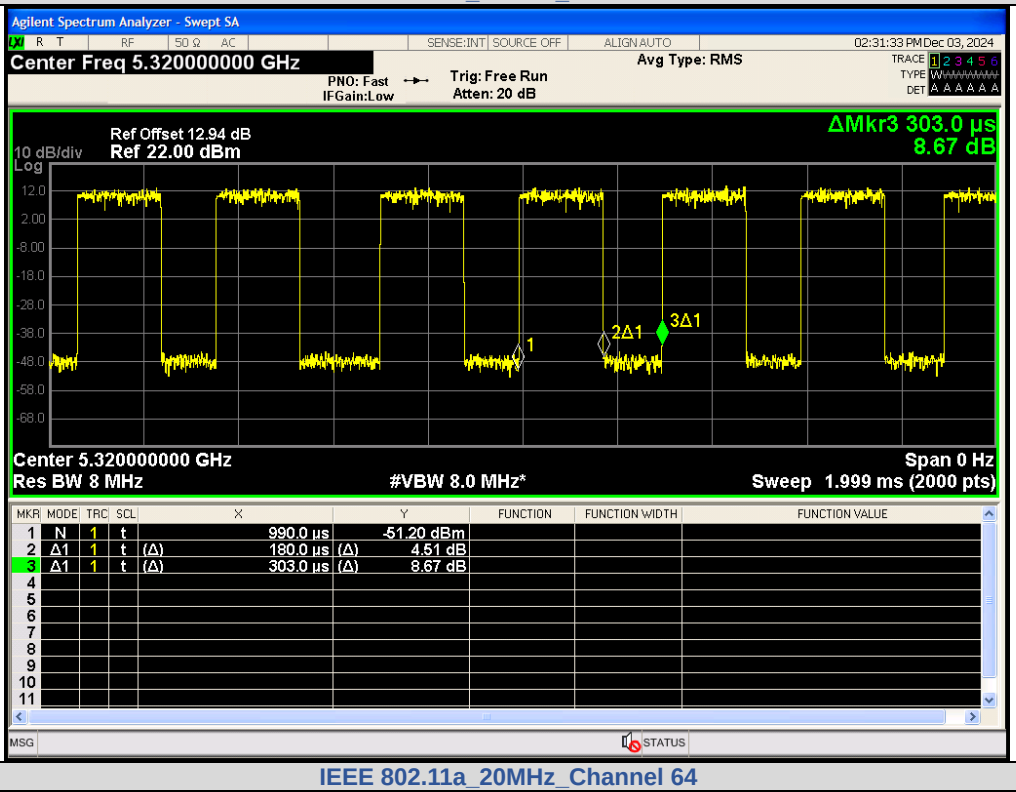

IEEE 802.11a_20MHz_Channel 48



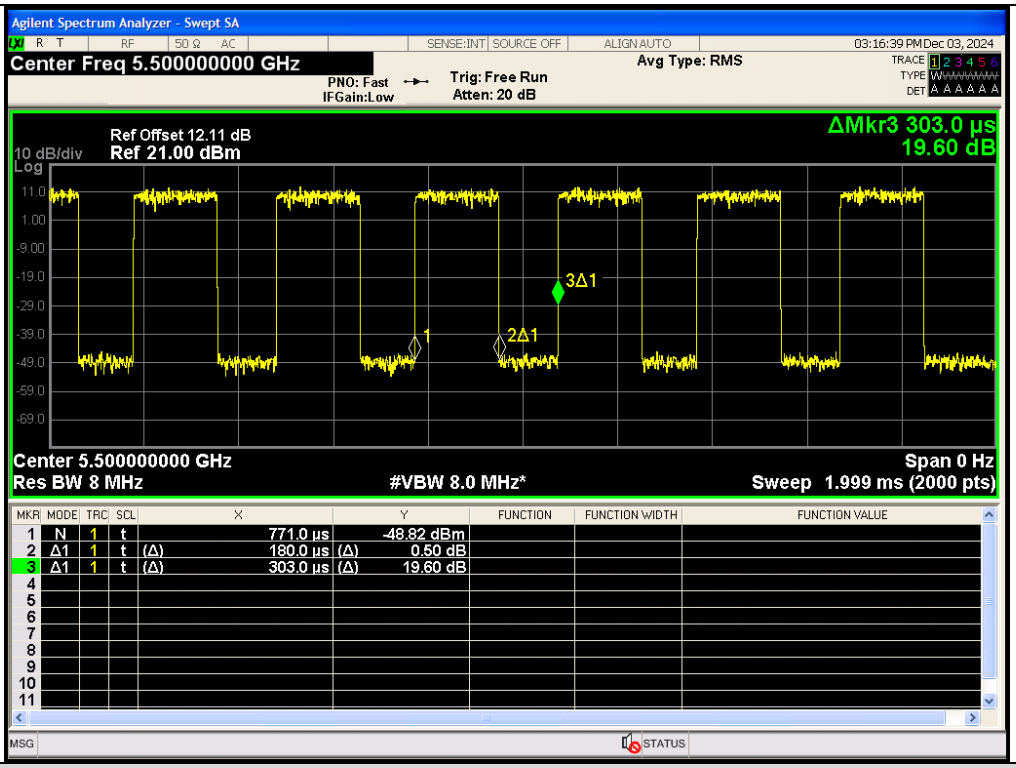

IEEE 802.11a_20MHz_Channel 52



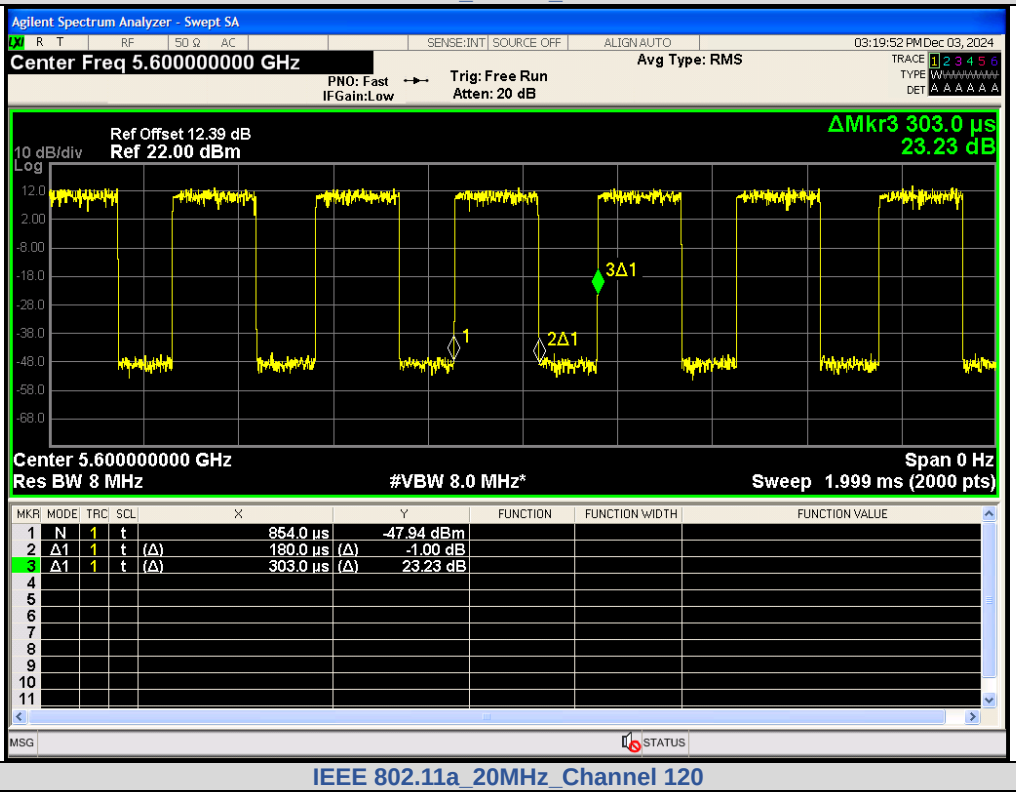

IEEE 802.11a_20MHz_Channel 56



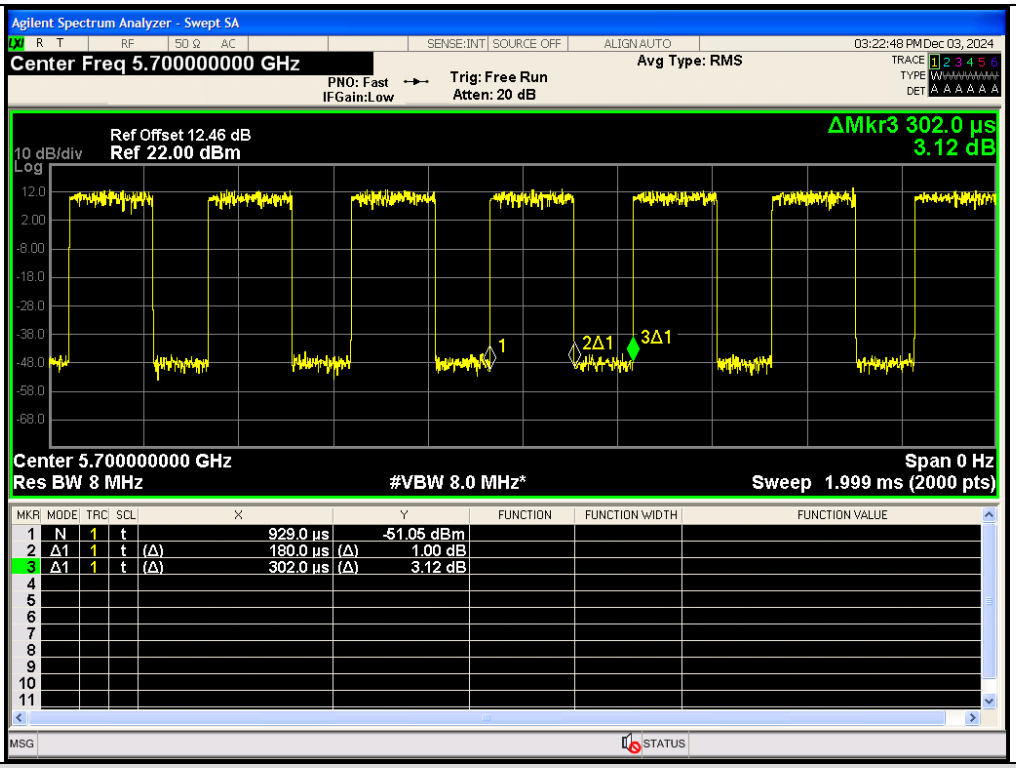

IEEE 802.11a_20MHz_Channel 64



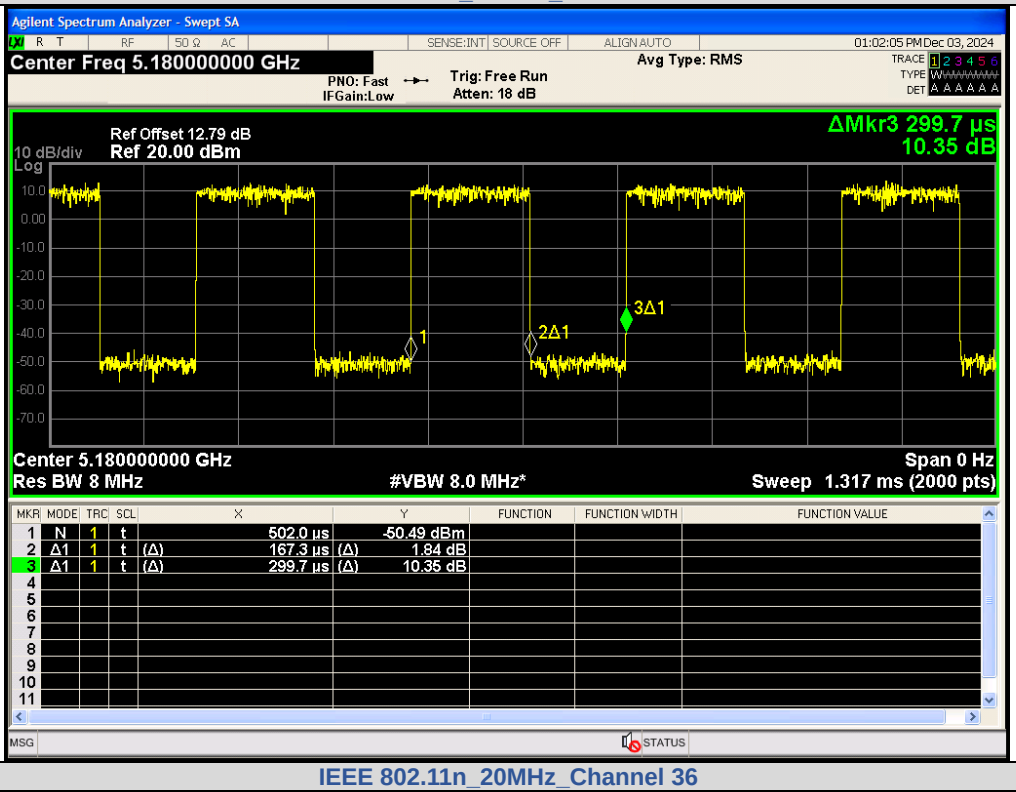

IEEE 802.11a_20MHz_Channel 100



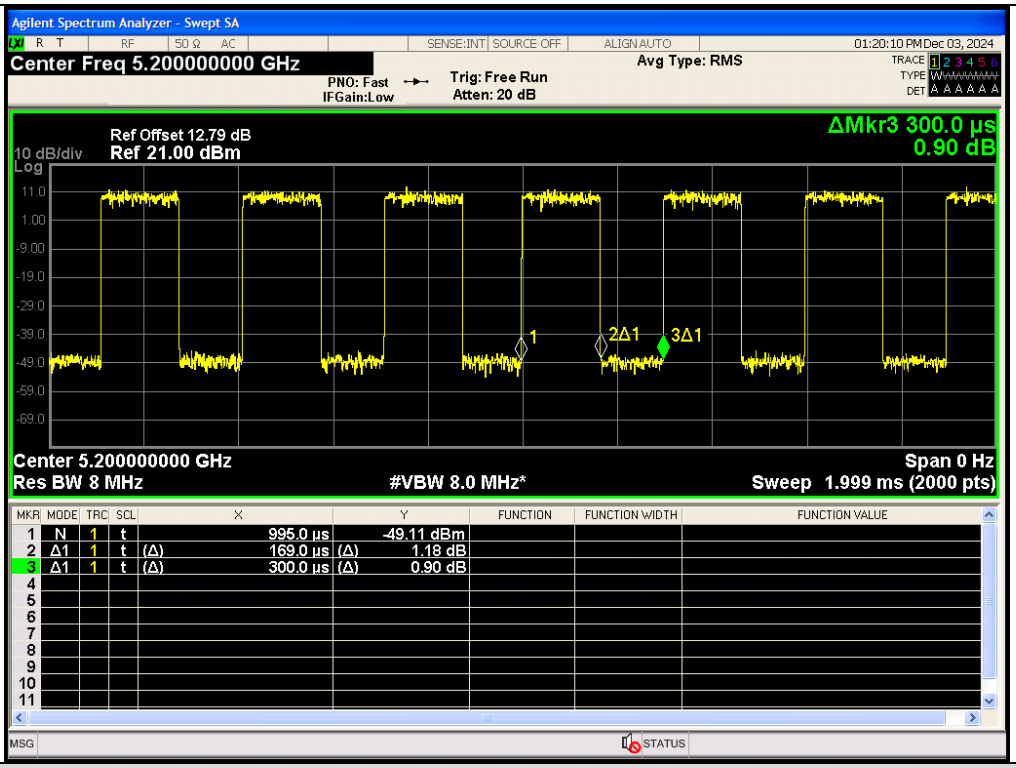

IEEE 802.11a_20MHz_Channel 120



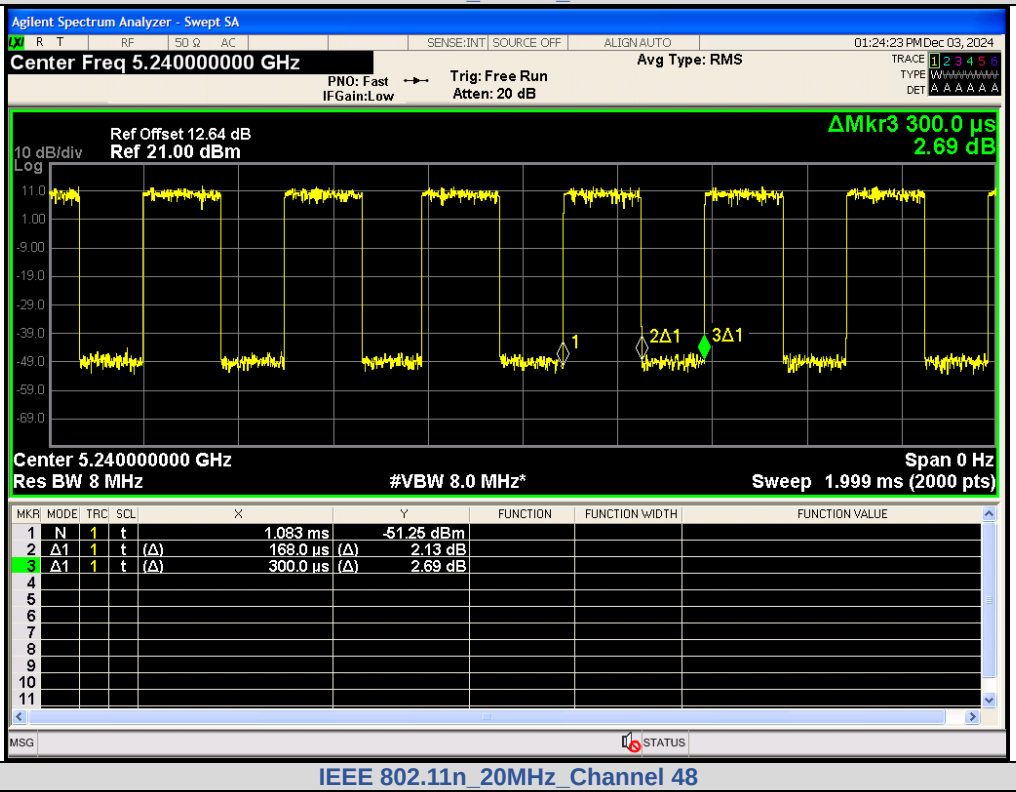

IEEE 802.11a_20MHz_Channel 140



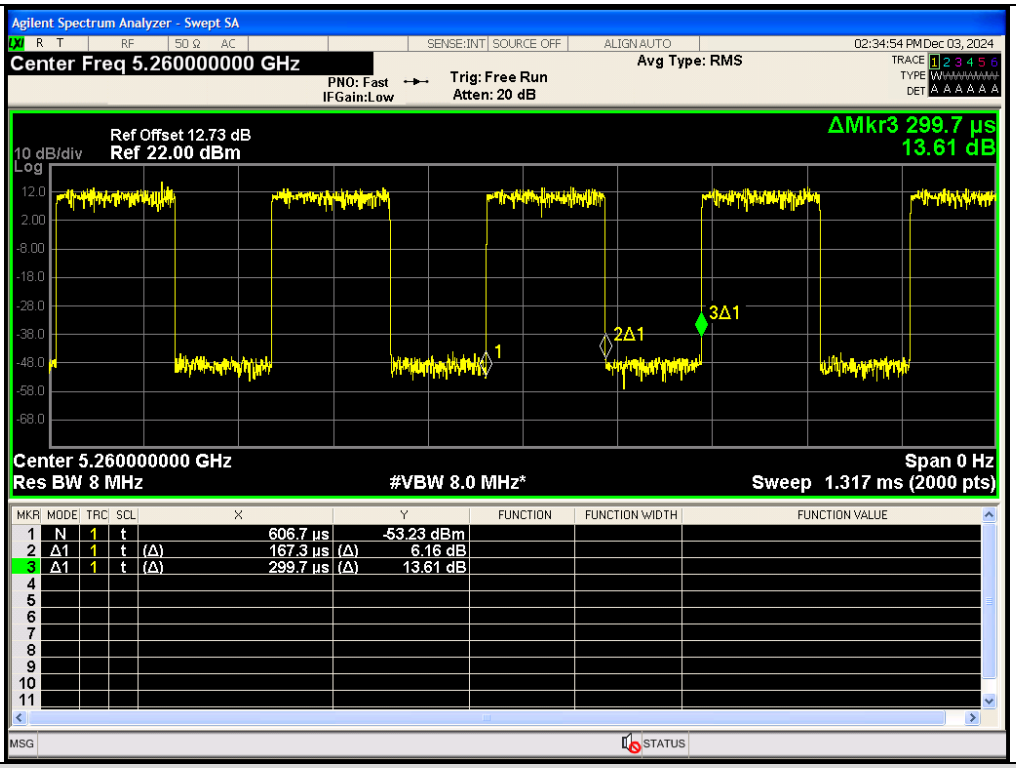

IEEE 802.11n_20MHz_Channel 36



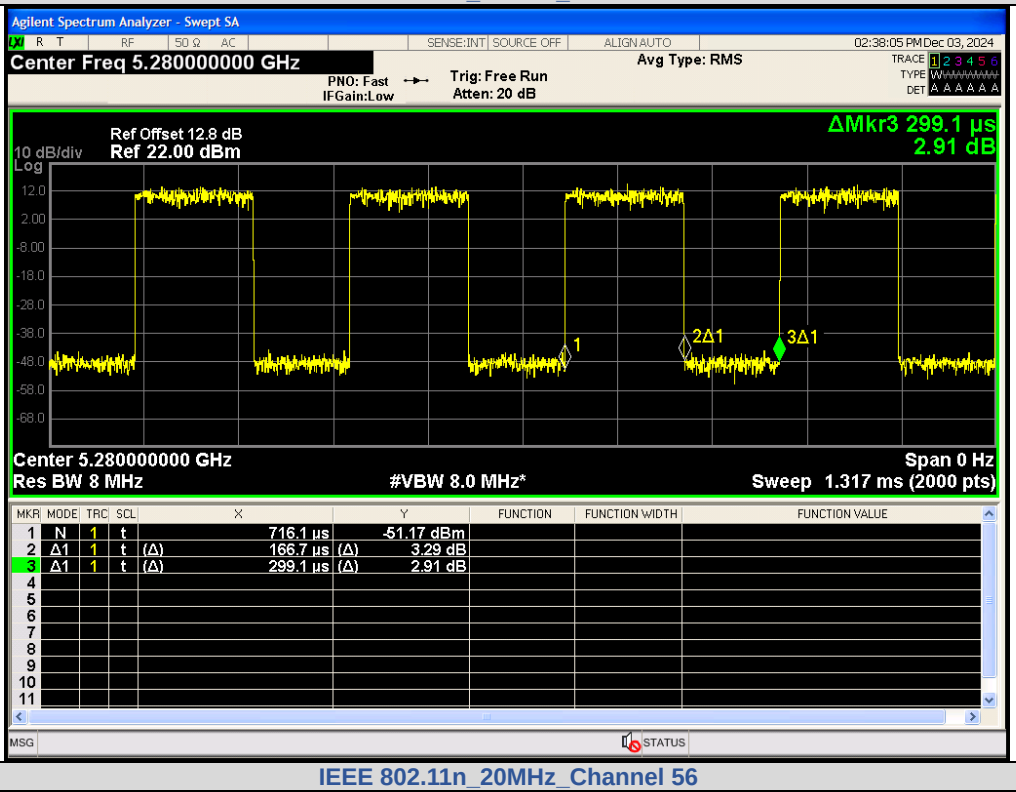

IEEE 802.11n_20MHz_Channel 40



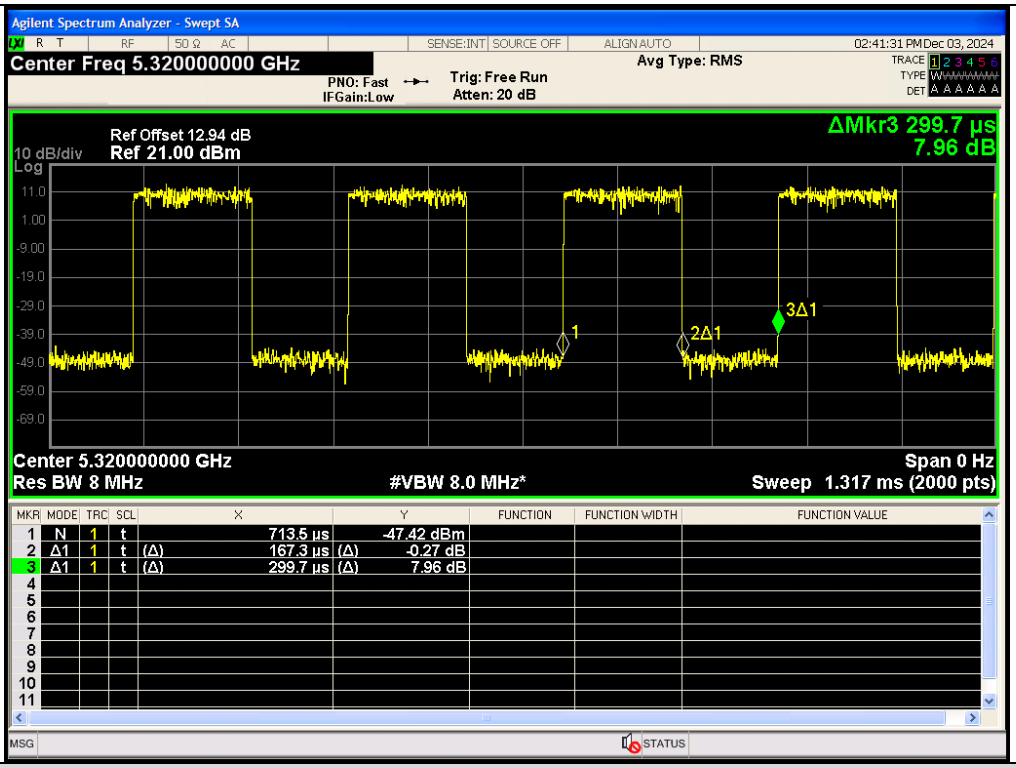

IEEE 802.11n_20MHz_Channel 48



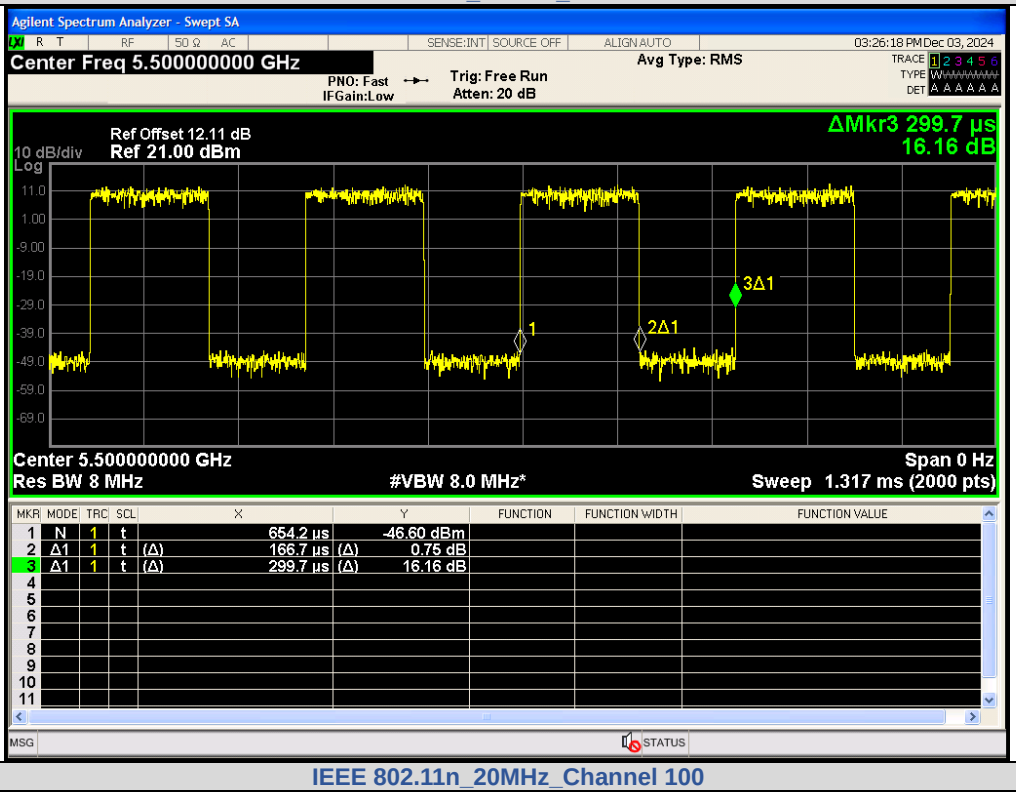

IEEE 802.11n_20MHz_Channel 52



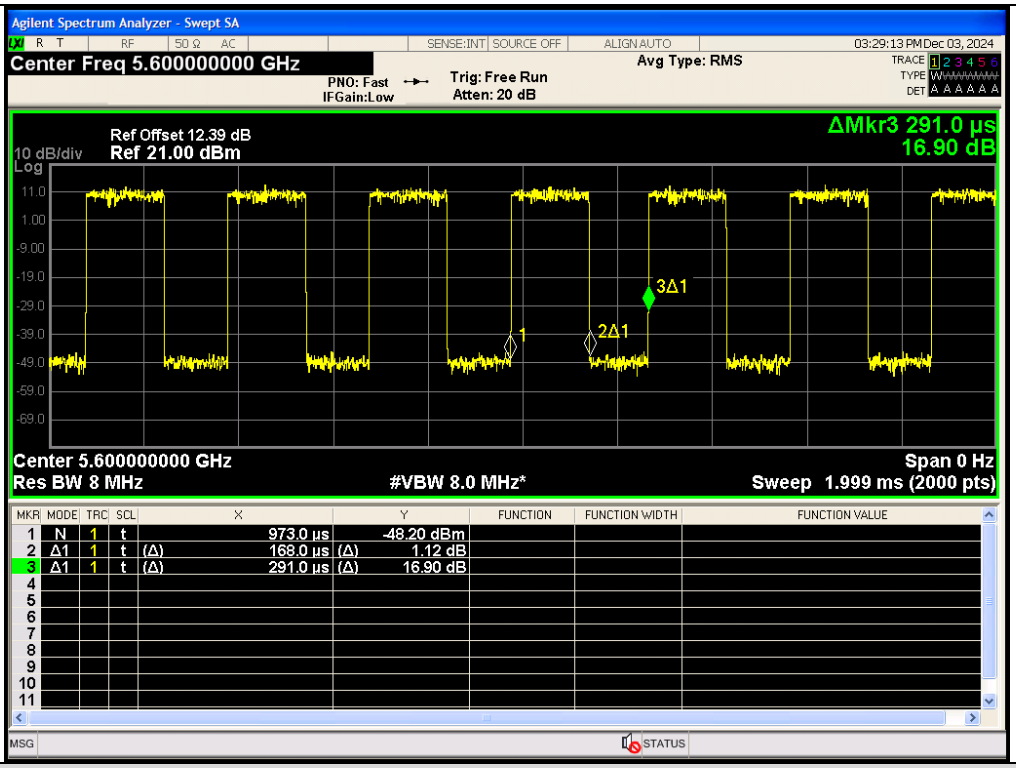

IEEE 802.11n_20MHz_Channel 56



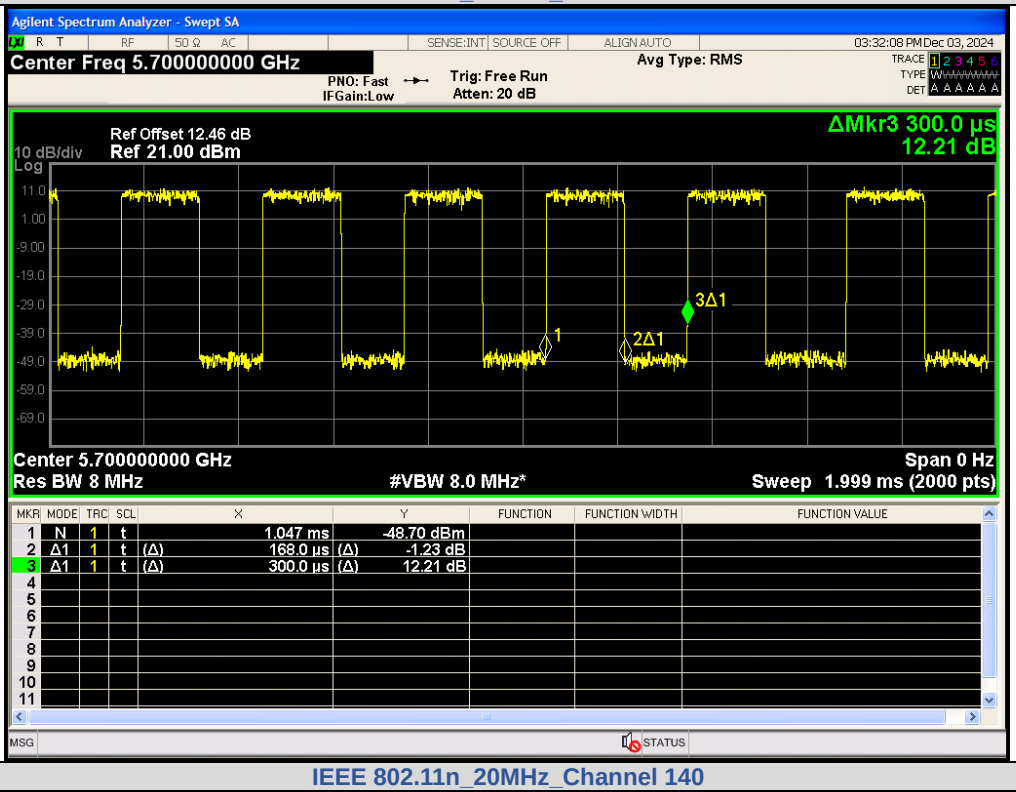

IEEE 802.11n_20MHz_Channel 64



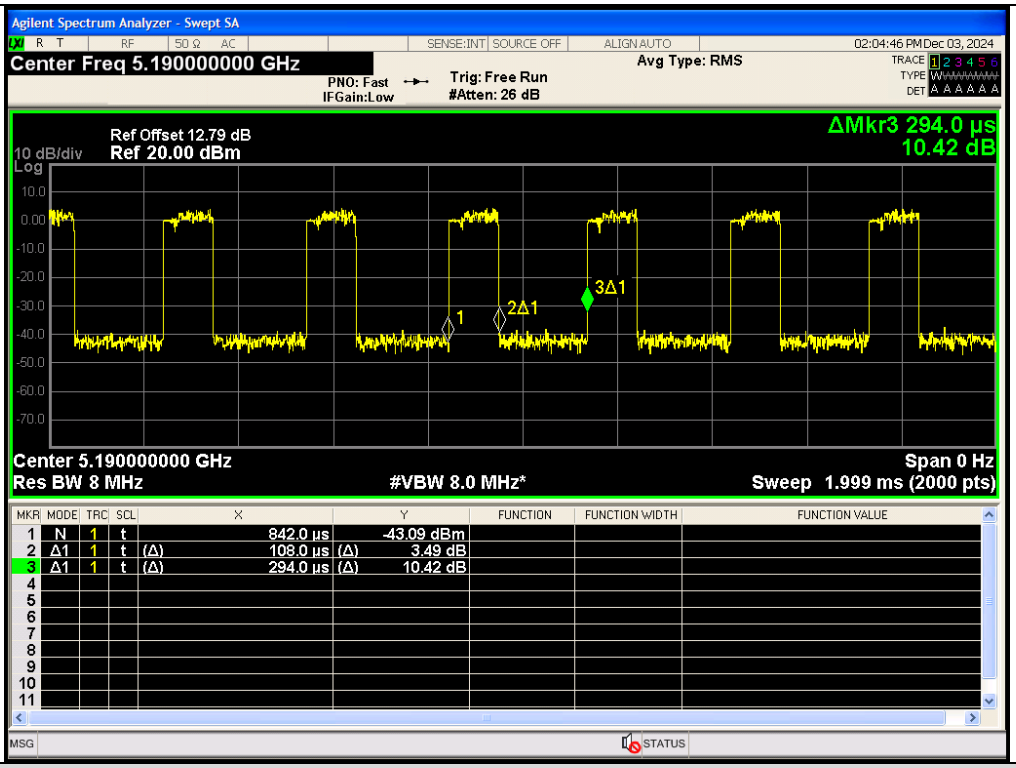

IEEE 802.11n_20MHz_Channel 100



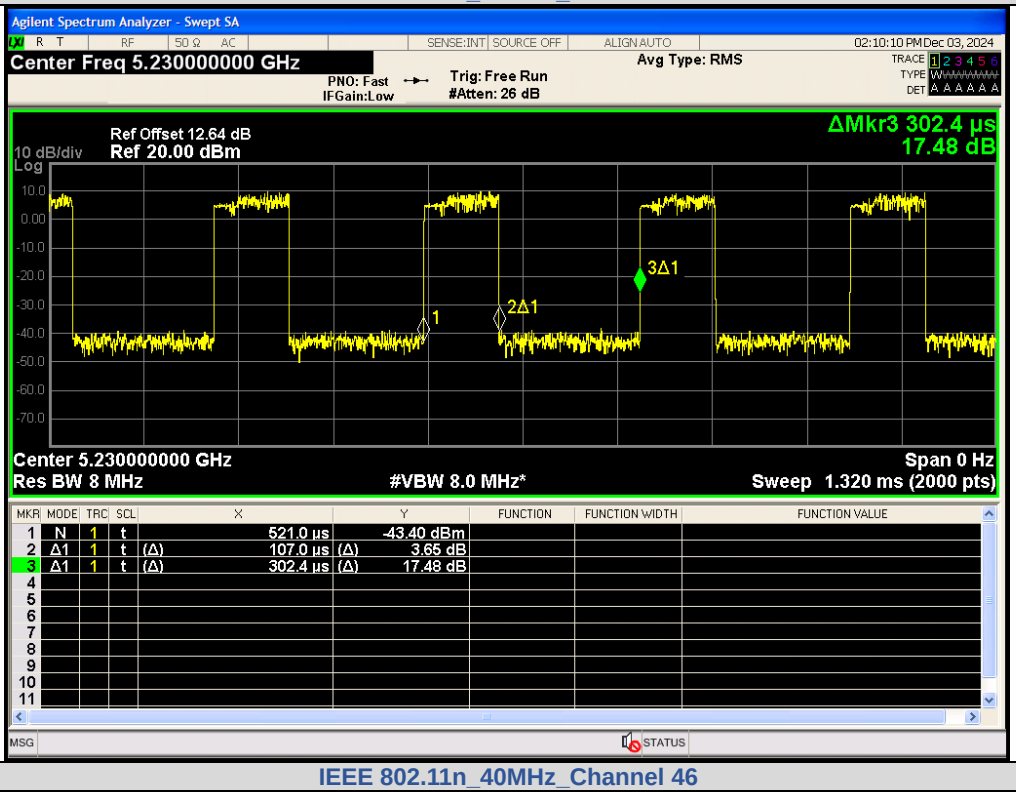

IEEE 802.11n_20MHz_Channel 120



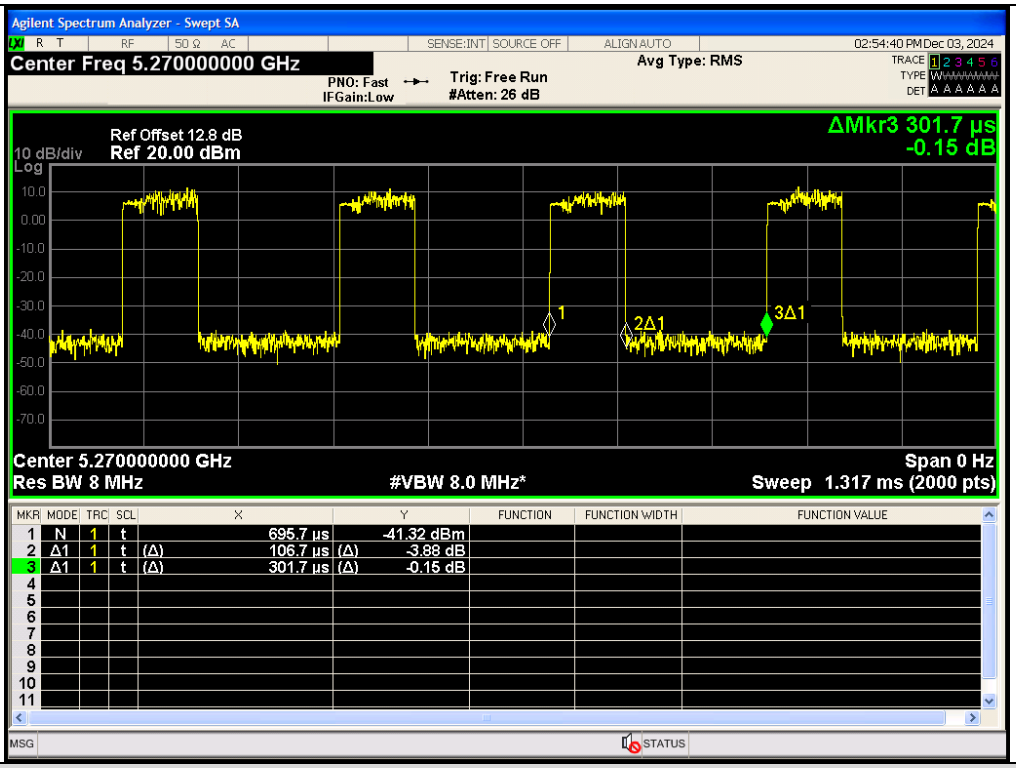

IEEE 802.11n_20MHz_Channel 140



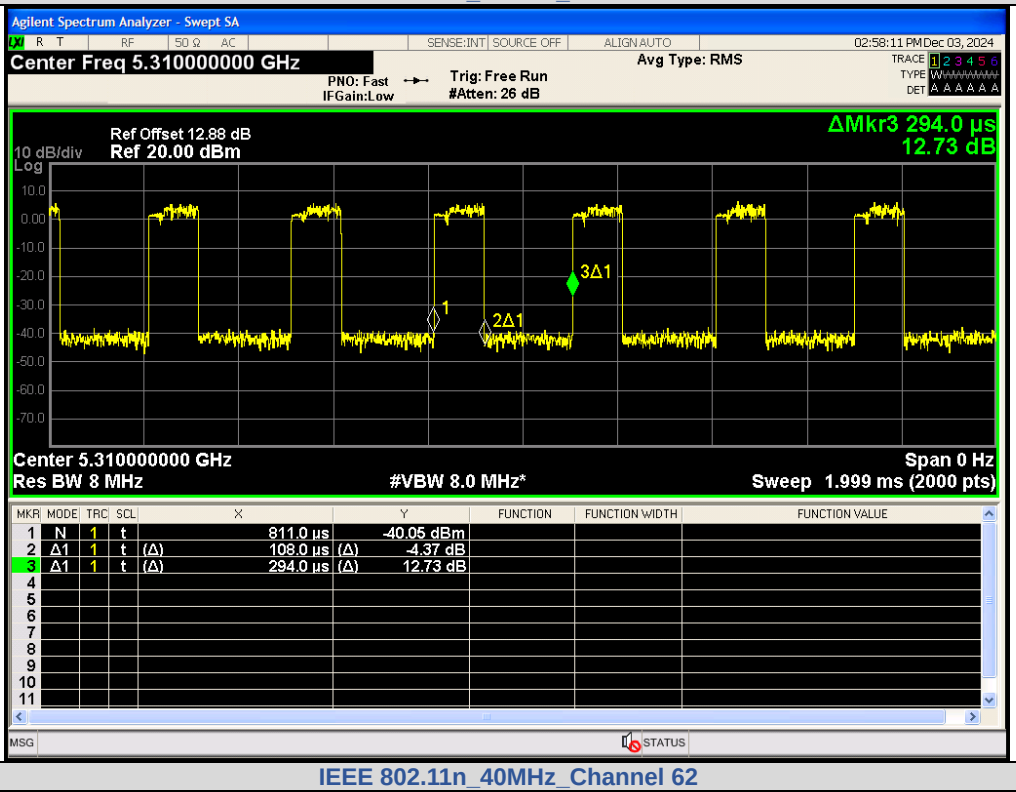

IEEE 802.11n_40MHz_Channel 38



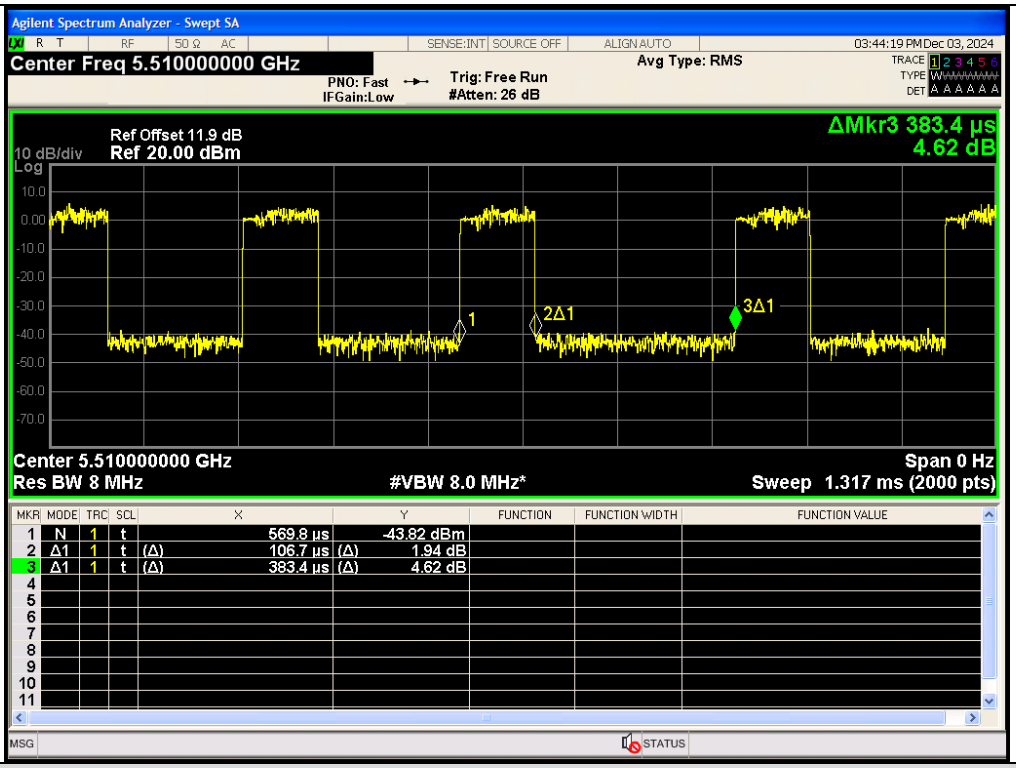

IEEE 802.11n_40MHz_Channel 46



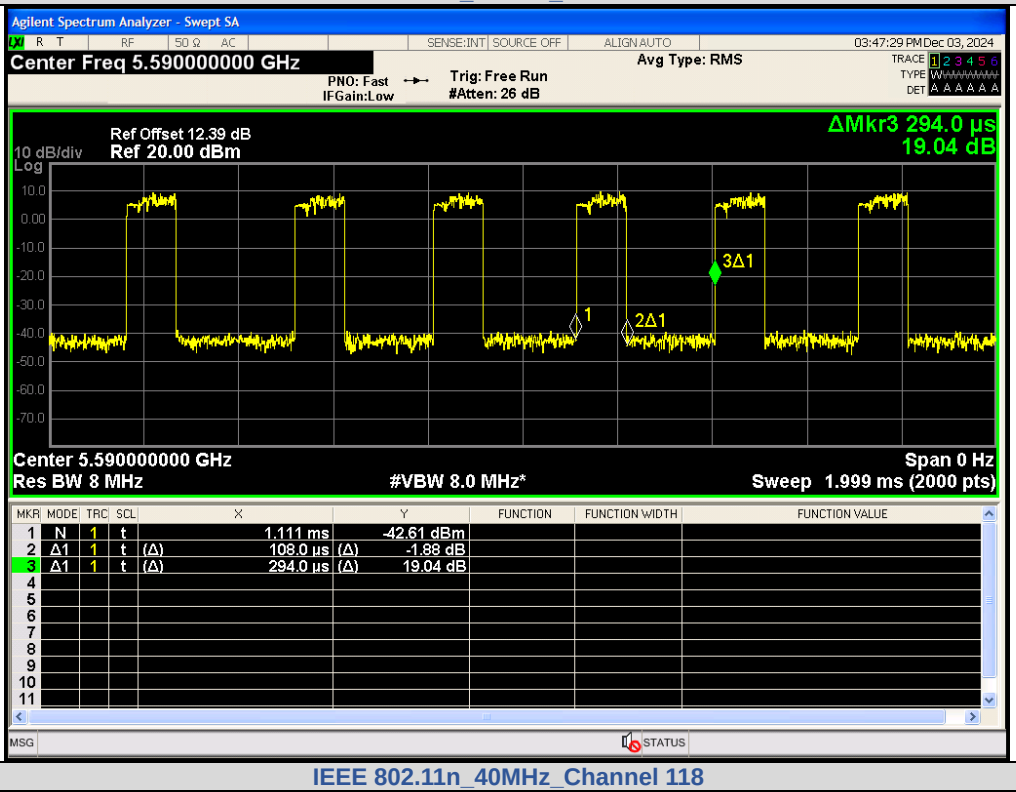

IEEE 802.11n_40MHz_Channel 54



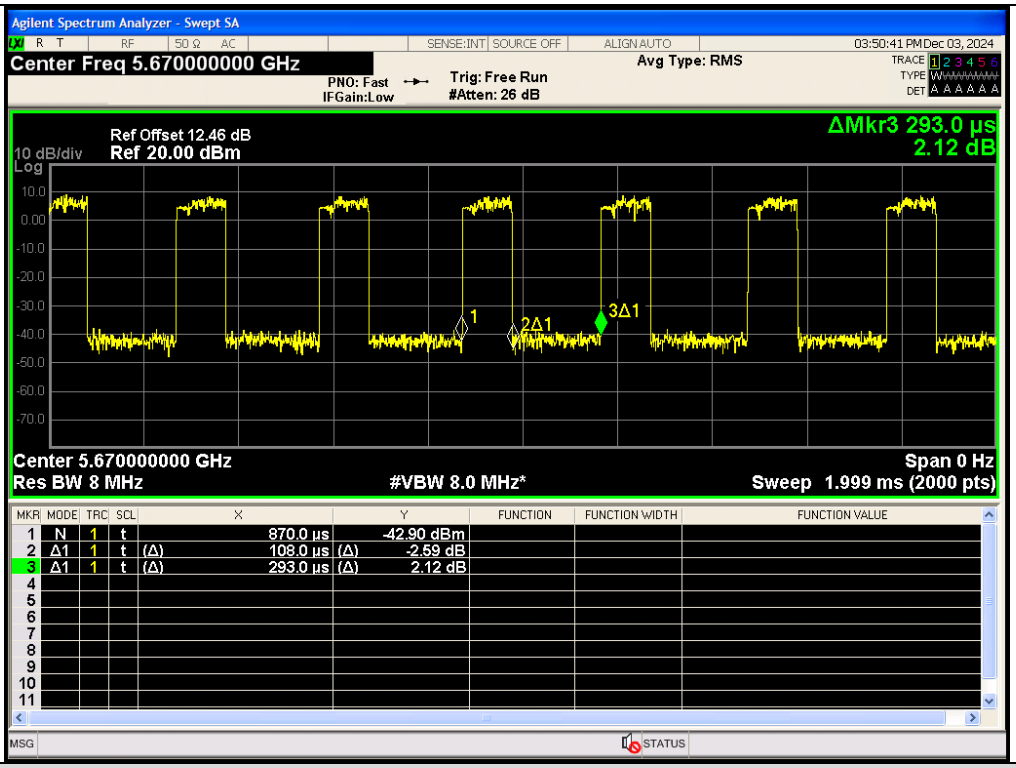

IEEE 802.11n_40MHz_Channel 62



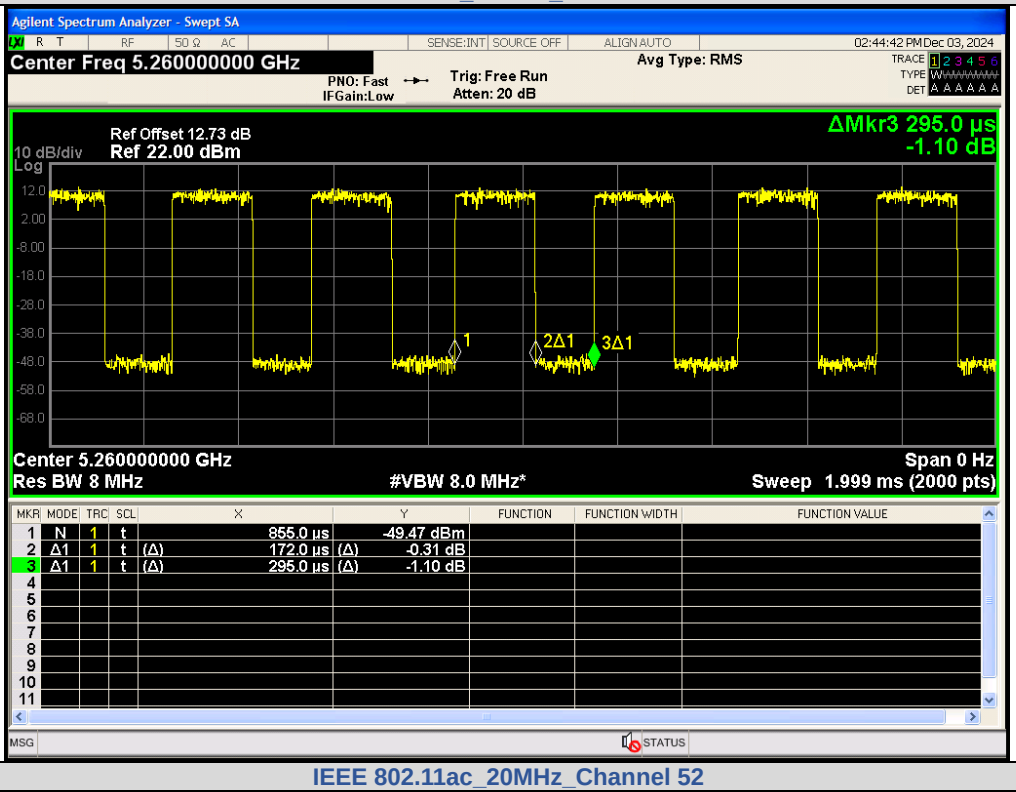

IEEE 802.11n_40MHz_Channel 102



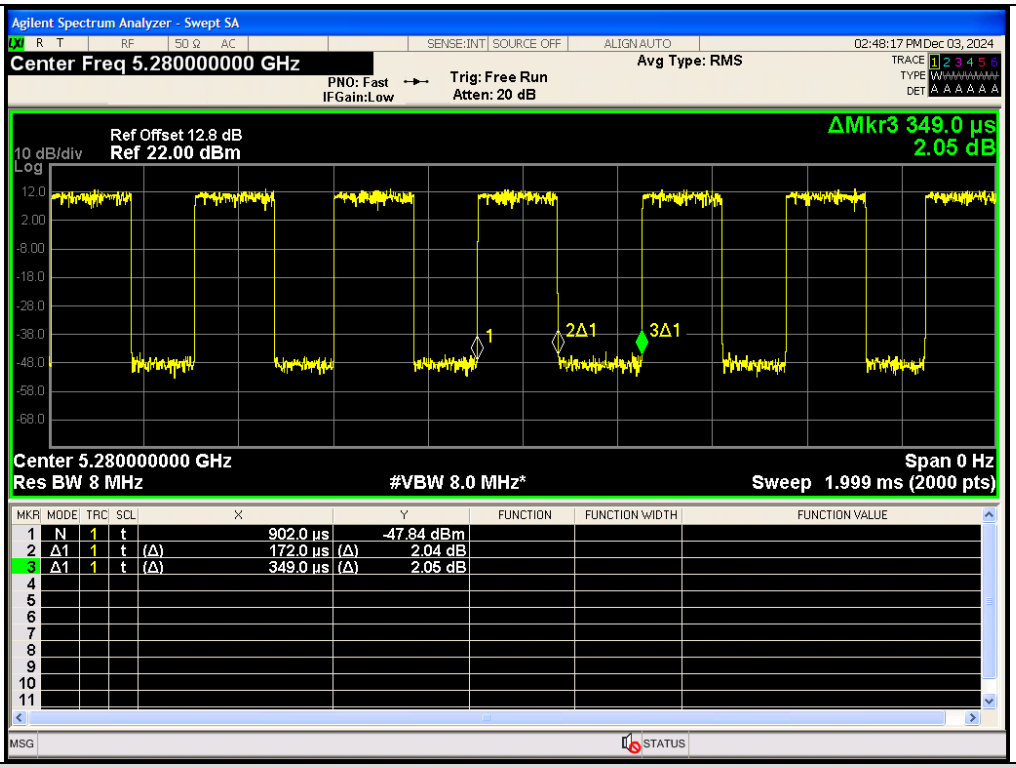

IEEE 802.11n_40MHz_Channel 118



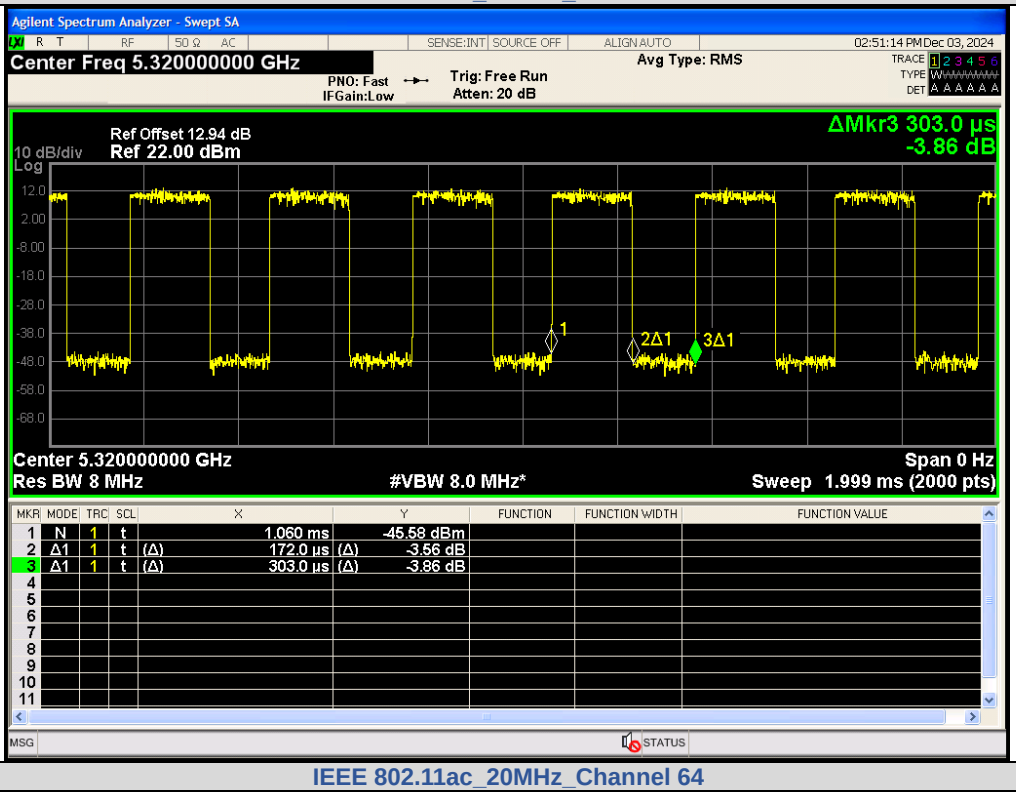

IEEE 802.11n_40MHz_Channel 134



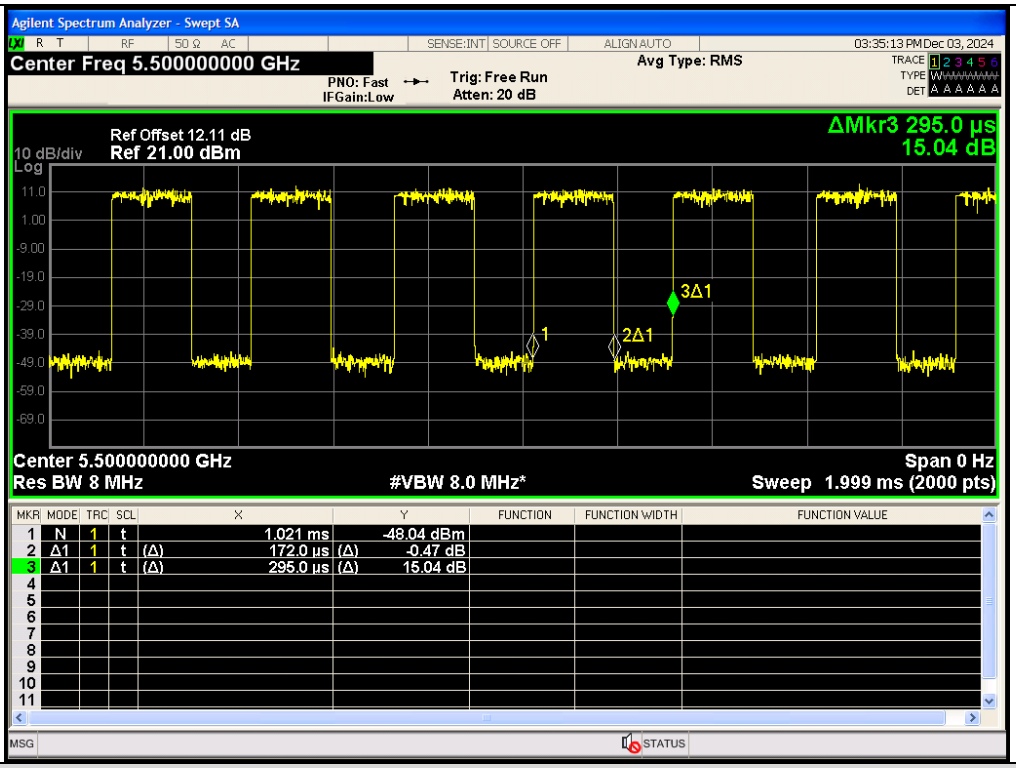

IEEE 802.11ac_20MHz_Channel 52



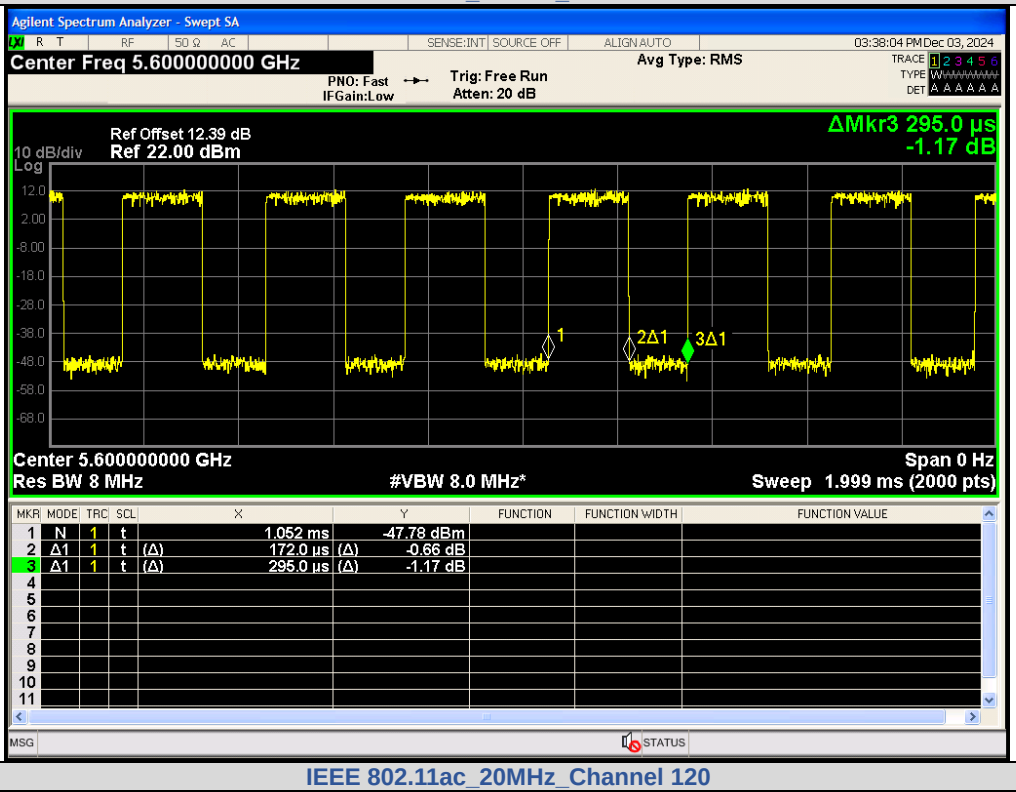

IEEE 802.11ac_20MHz_Channel 56



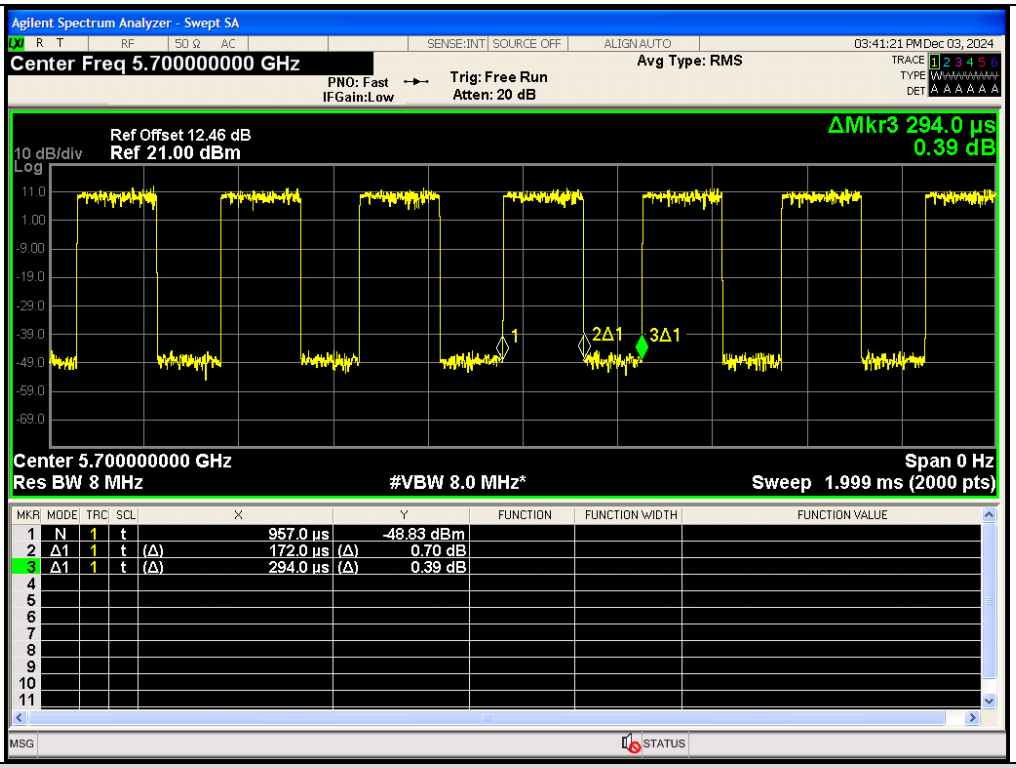

IEEE 802.11ac_20MHz_Channel 64



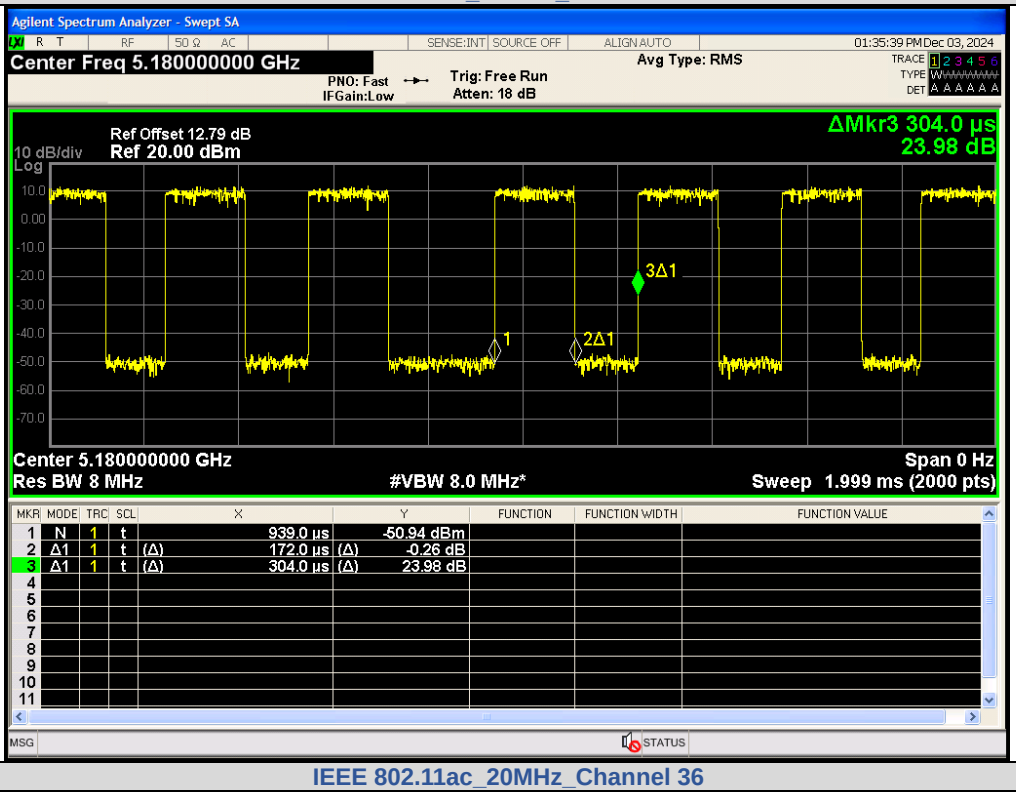

IEEE 802.11ac_20MHz_Channel 100



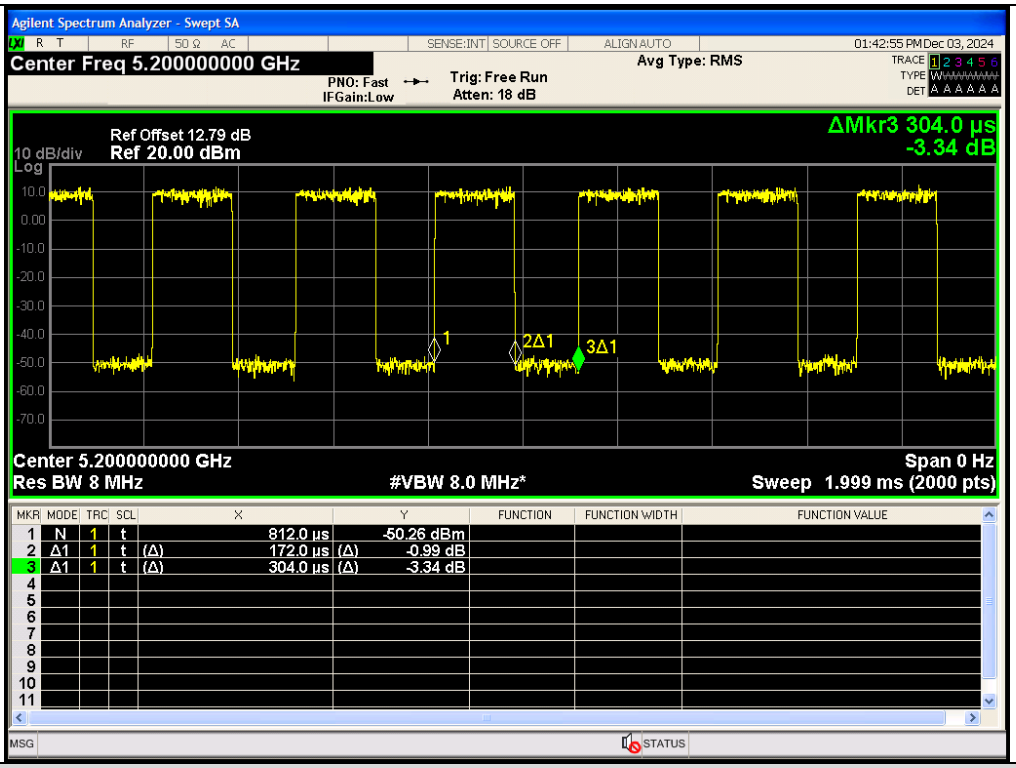

IEEE 802.11ac_20MHz_Channel 120



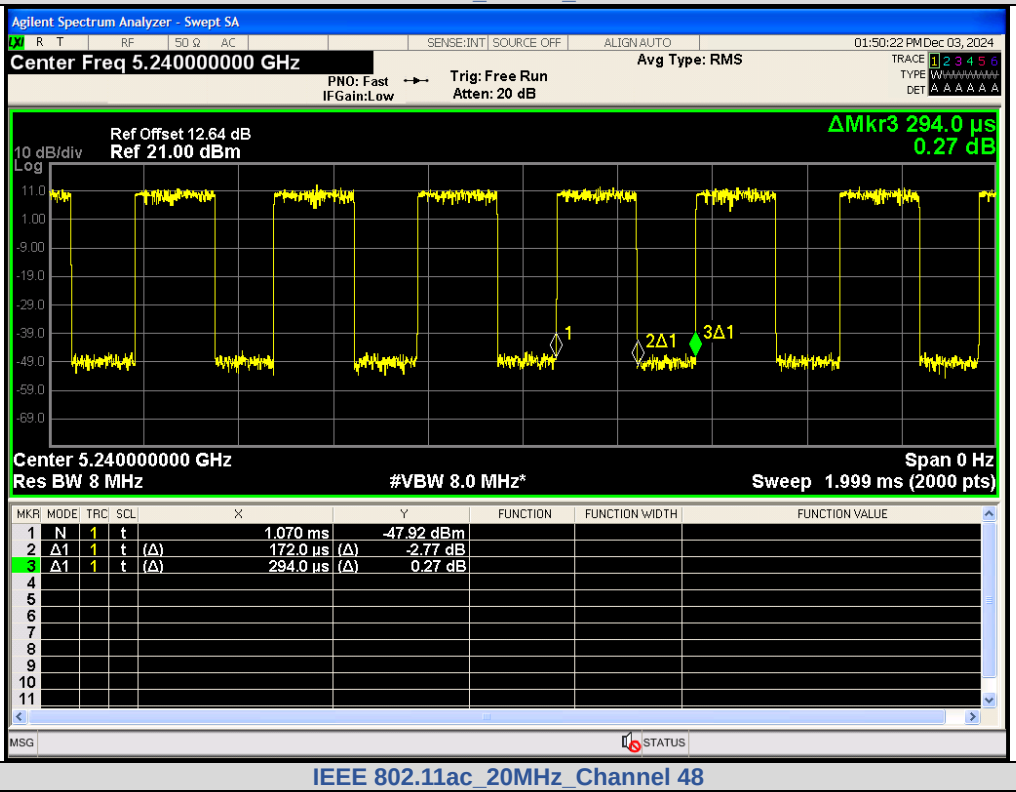

IEEE 802.11ac_20MHz_Channel 140



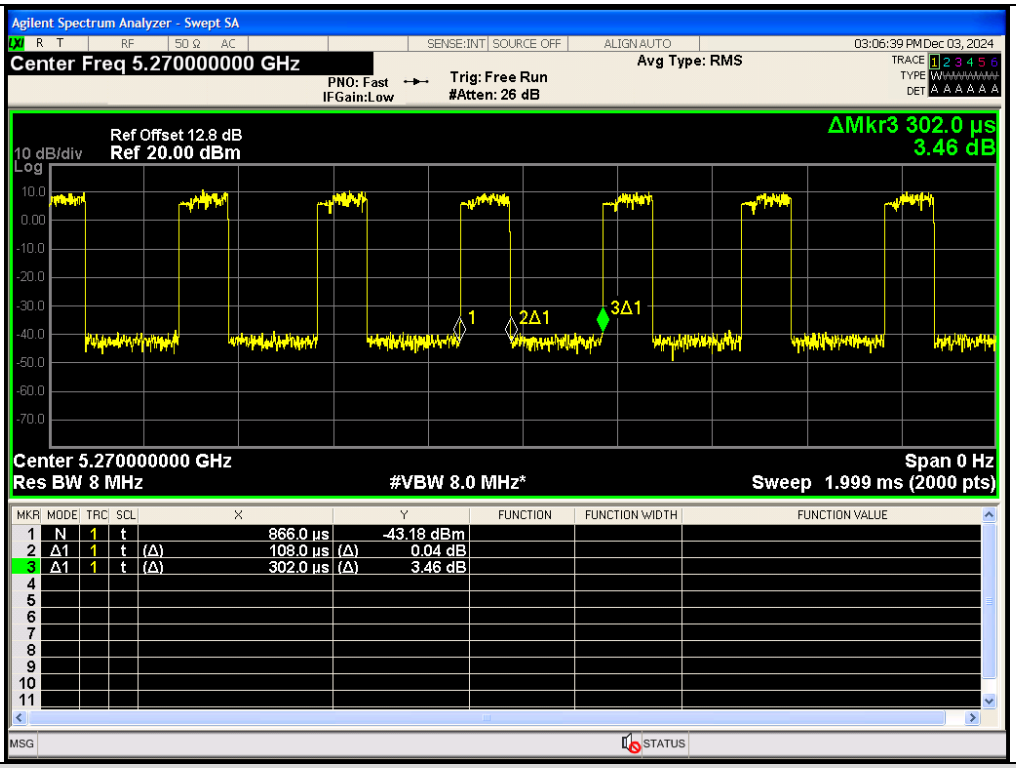

IEEE 802.11ac_20MHz_Channel 36



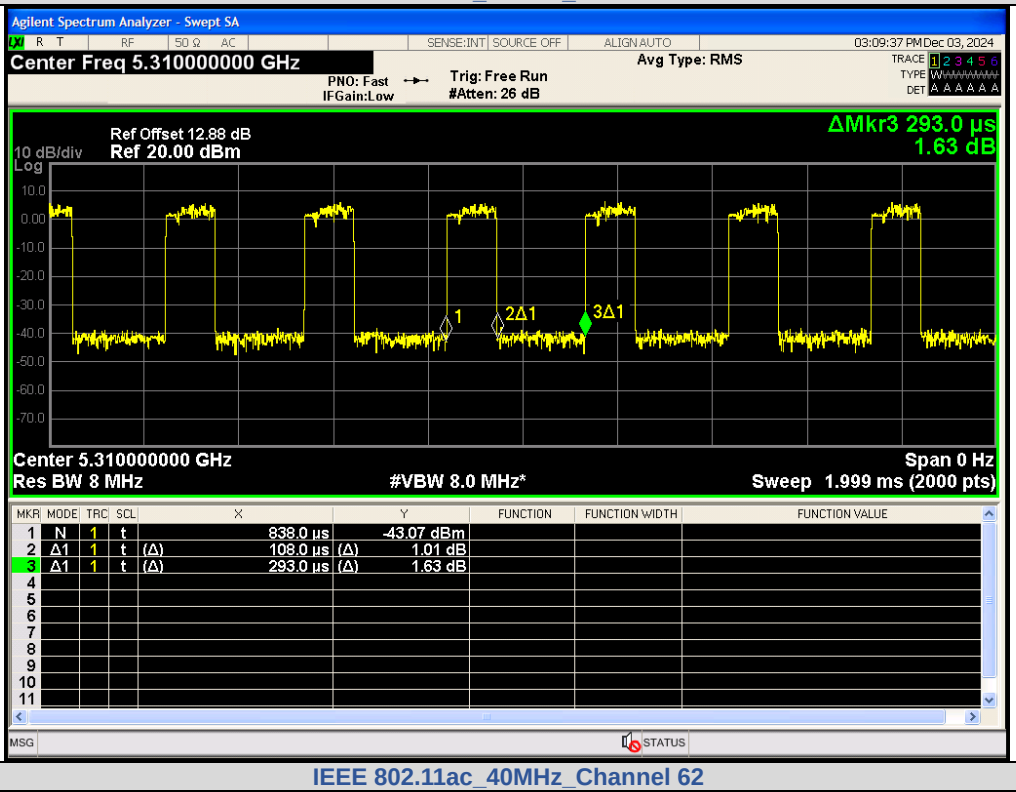

IEEE 802.11ac_20MHz_Channel 40



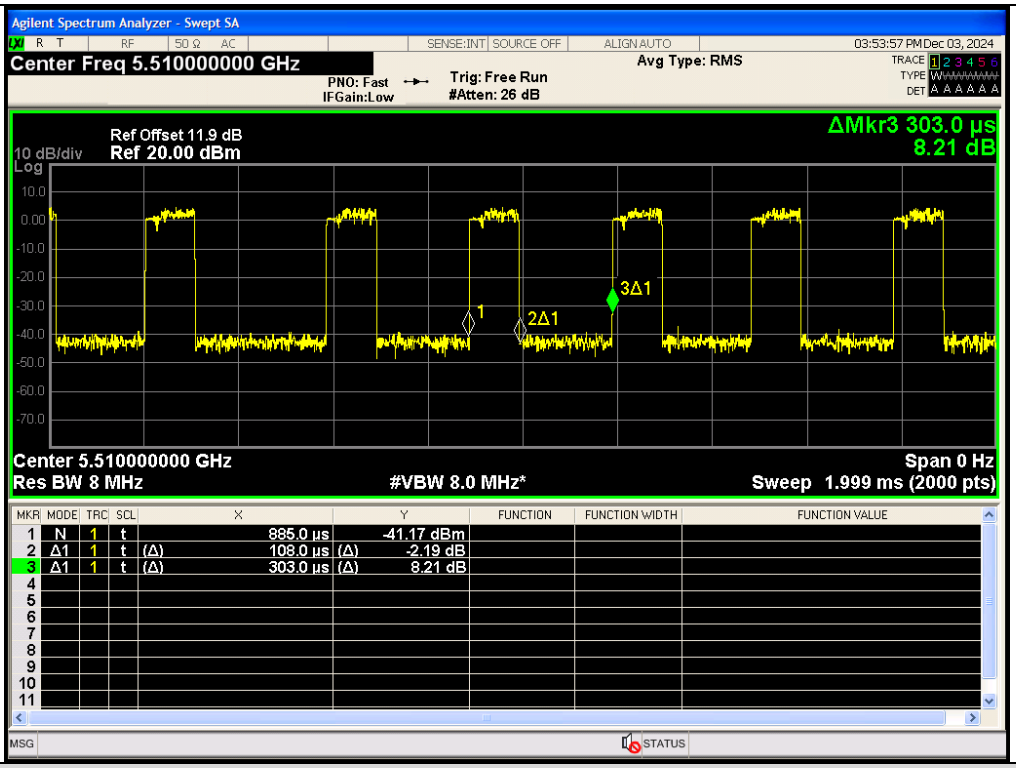

IEEE 802.11ac_20MHz_Channel 48



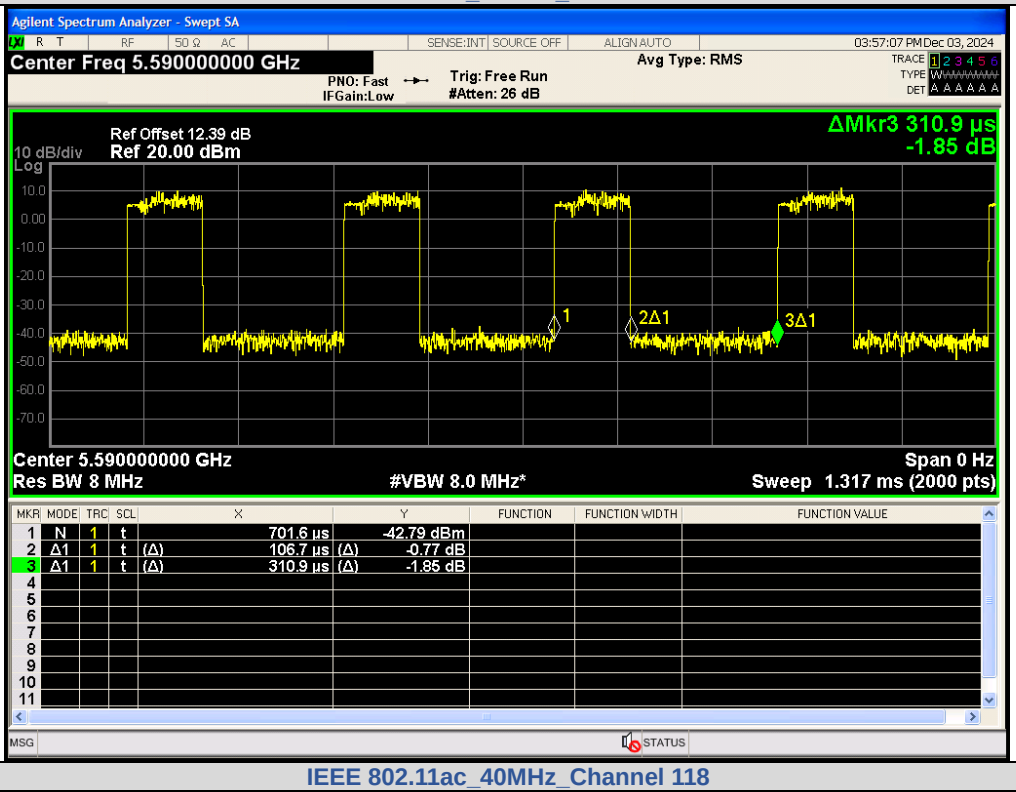

IEEE 802.11ac_40MHz_Channel 54



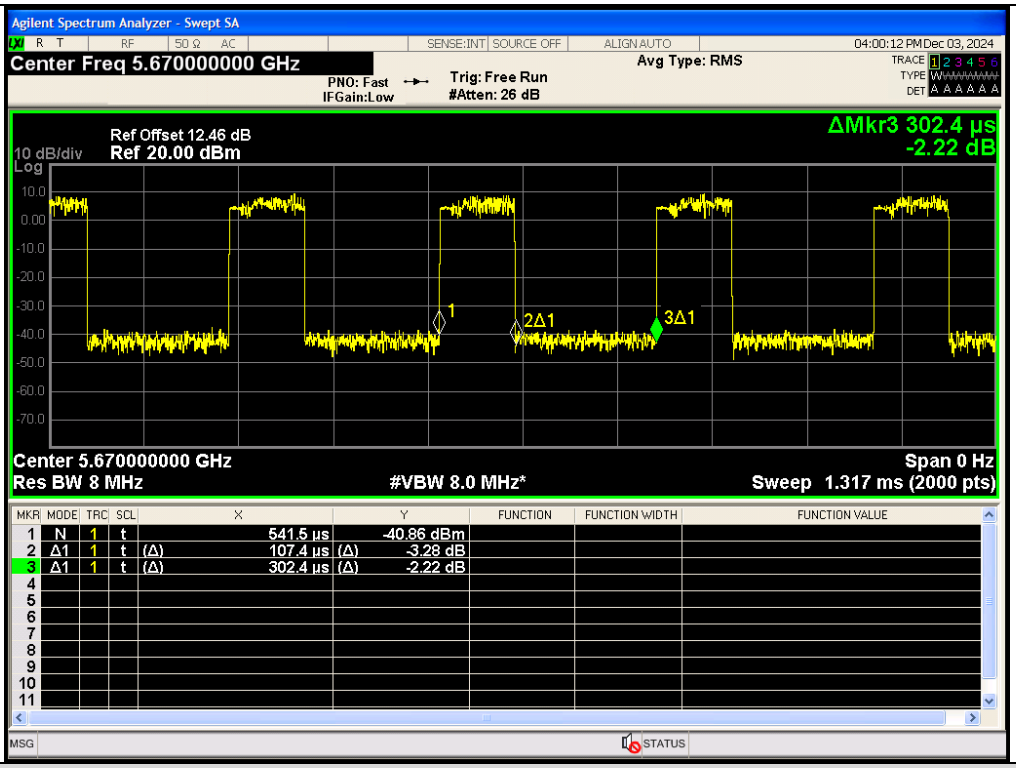

IEEE 802.11ac_40MHz_Channel 62



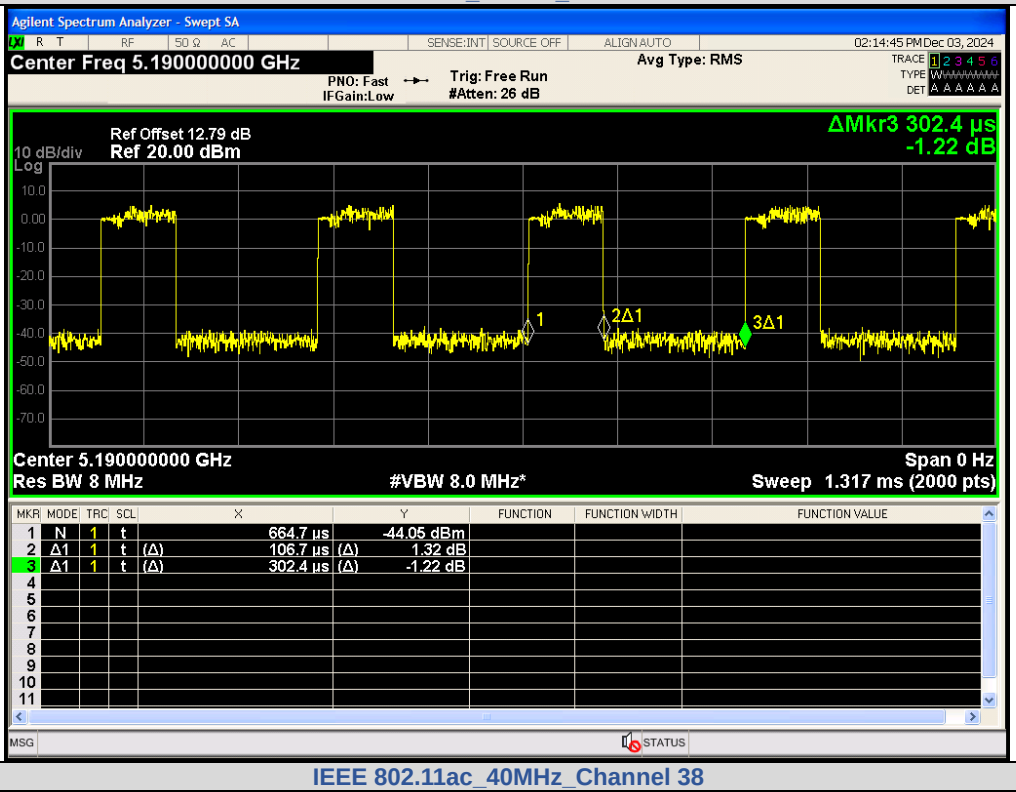

IEEE 802.11ac_40MHz_Channel 102



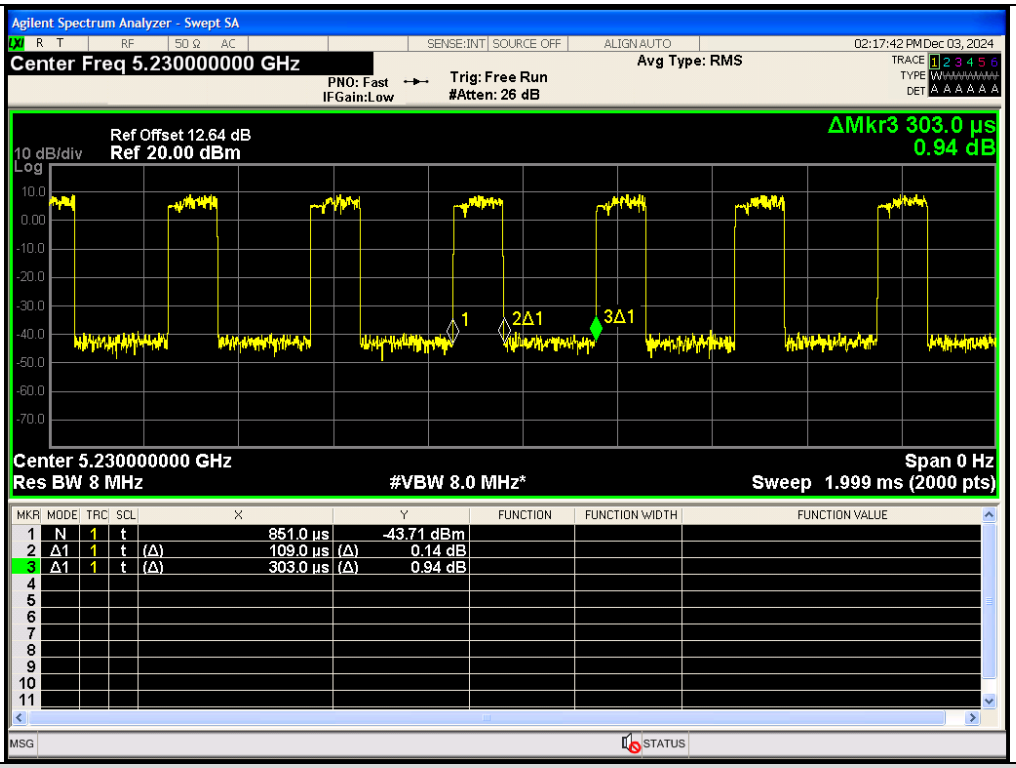

IEEE 802.11ac_40MHz_Channel 118



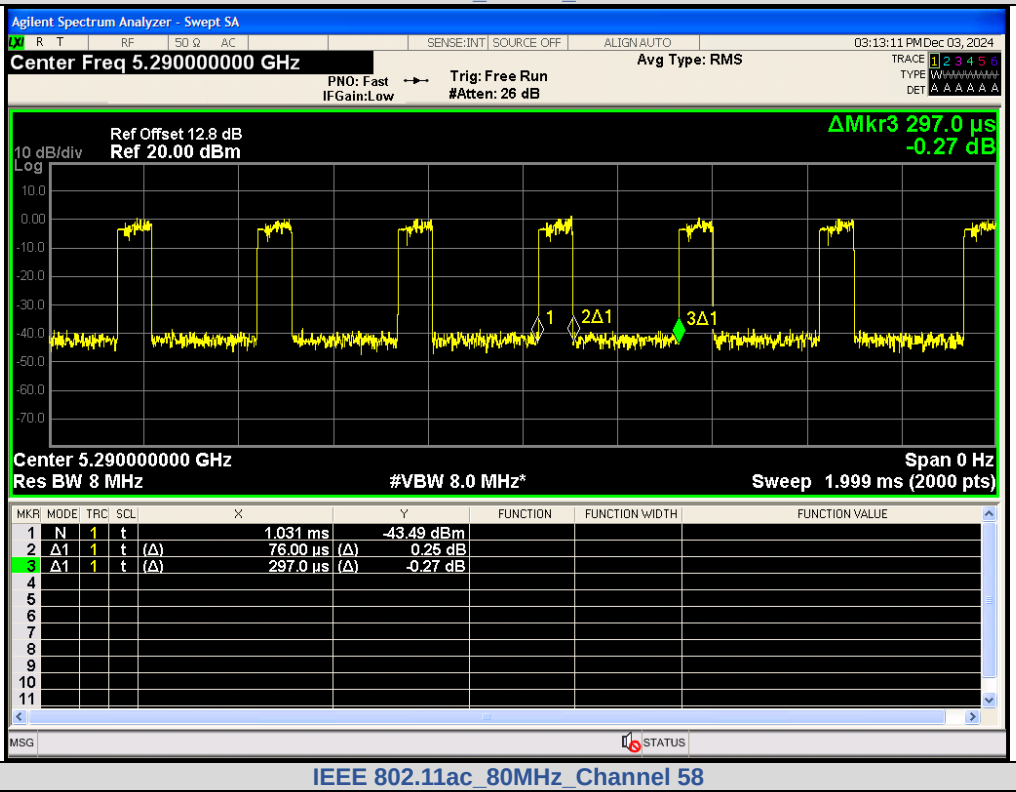

IEEE 802.11ac_40MHz_Channel 134



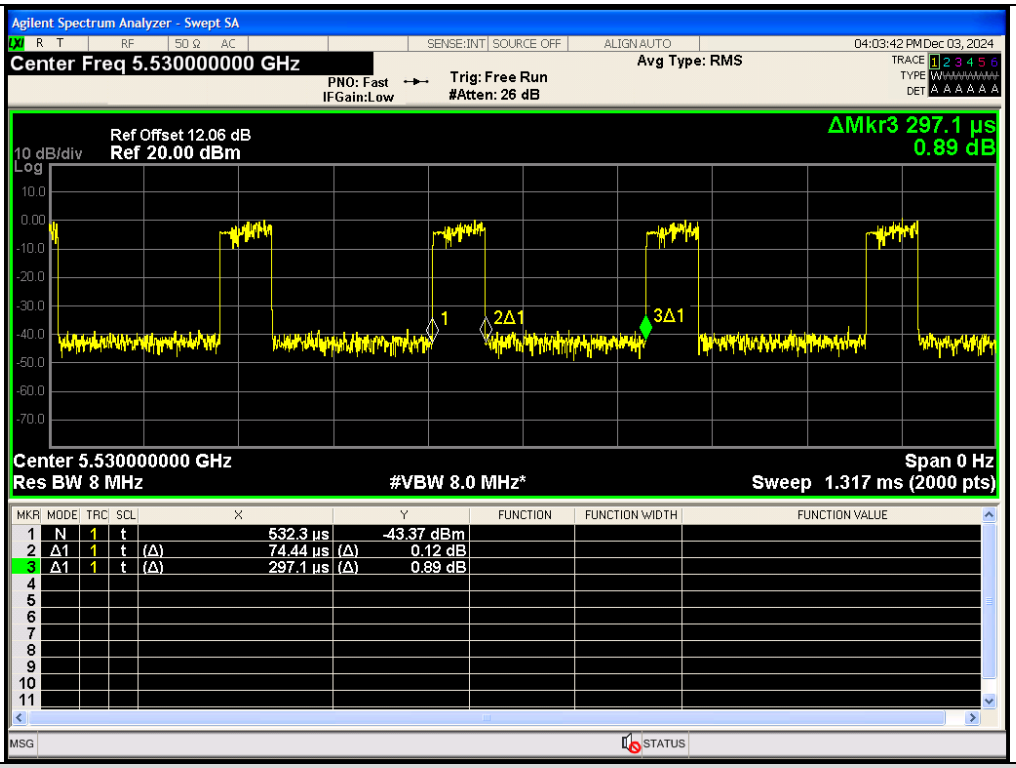

IEEE 802.11ac_40MHz_Channel 38



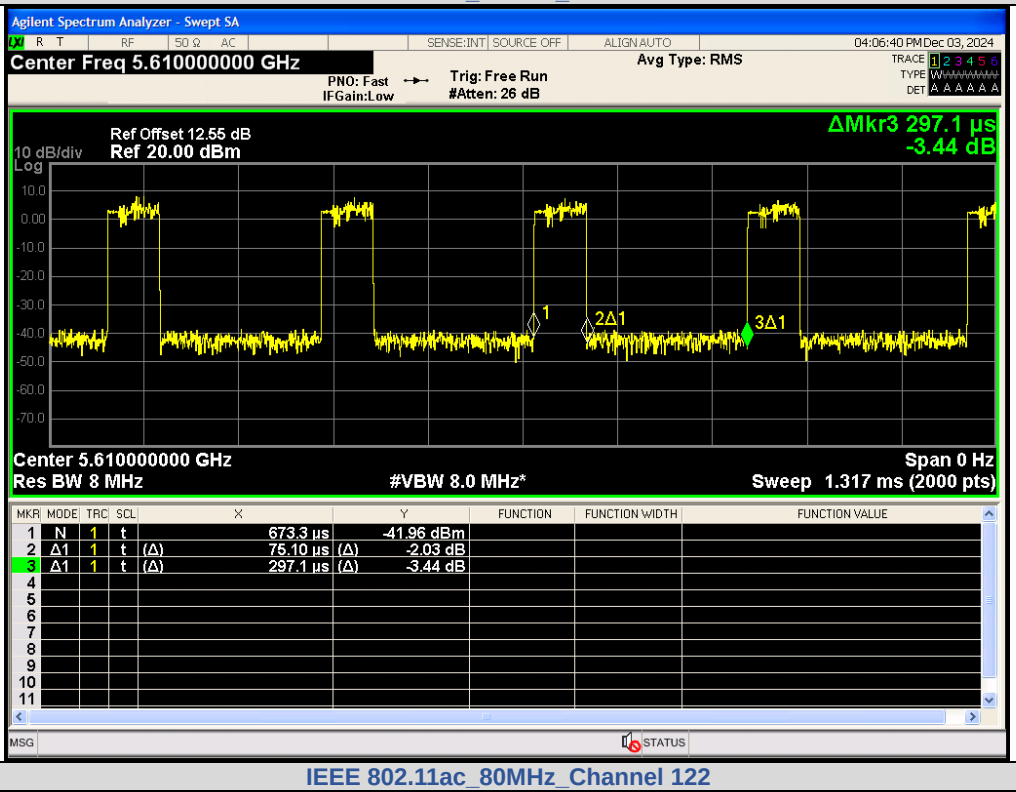

IEEE 802.11ac_40MHz_Channel 46



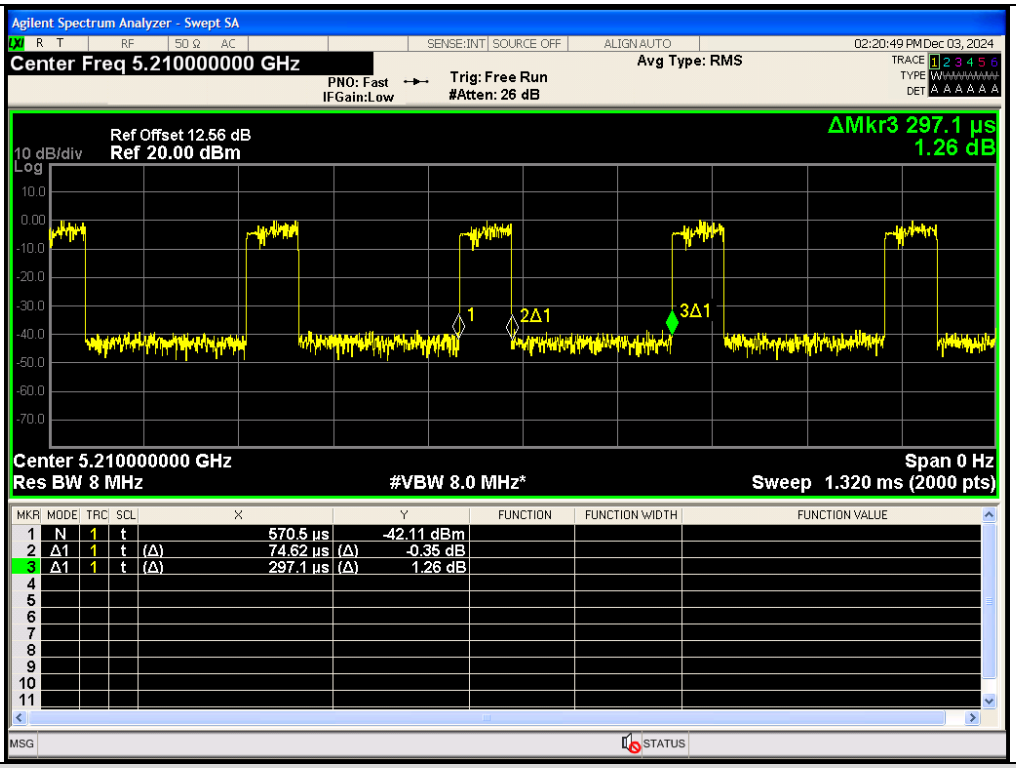

IEEE 802.11ac_80MHz_Channel 58




IEEE 802.11ac_80MHz_Channel 106




IEEE 802.11ac_80MHz_Channel 122

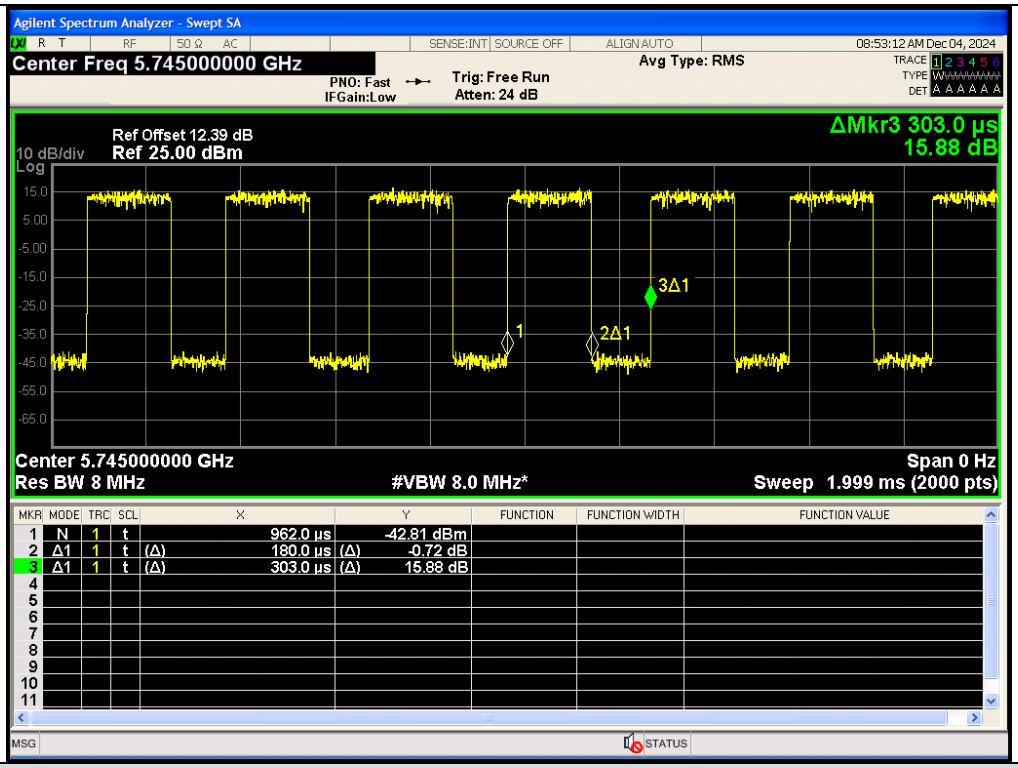



IEEE 802.11ac_80MHz_Channel 42

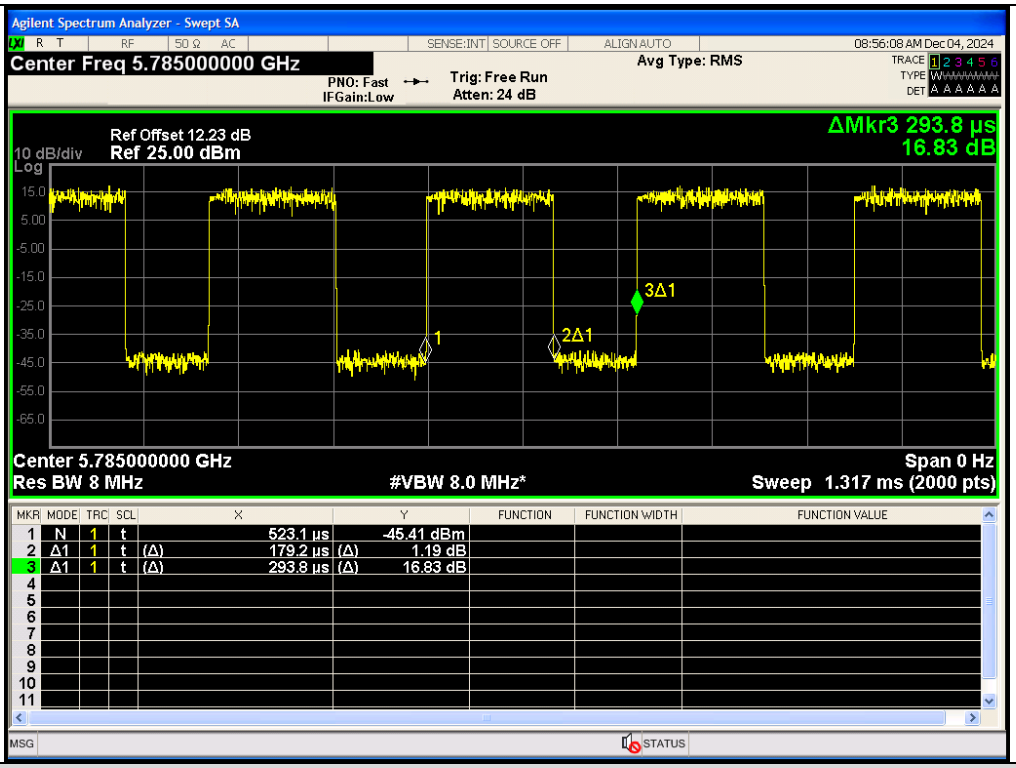
## Test Result

| Mode | Data rates | Channel | Antenna | On Time (ms) | Period (ms) | Duty Cycle (%) | Duty Cycle (linear) | Duty Cycle Factor (dB) |
|---|---|---|---|---|---|---|---|---|
| IEEE 802.11a | 54 | 149 | 1 | 0.180 | 0.303 | 59.41 | 0.5941 | 2.2614 |
| | | 157 | | 0.179 | 0.294 | 60.99 | 0.6099 | 2.1474 |
| | | 165 | | 0.180 | 0.302 | 59.60 | 0.5960 | 2.2475 |
| IEEE 802.11n_20 | MCS 7 | 149 | | 0.168 | 0.300 | 56.00 | 0.5600 | 2.5181 |
| | | 157 | | 0.168 | 0.300 | 56.00 | 0.5600 | 2.5181 |
| | | 165 | | 0.168 | 0.300 | 56.00 | 0.5600 | 2.5181 |
| IEEE 802.11n_40 | | 151 | | 0.104 | 0.379 | 27.44 | 0.2744 | 5.6162 |
| | | 159 | | 0.104 | 0.299 | 34.78 | 0.3478 | 4.5867 |
| IEEE 802.11ac_20 | | 149 | | 0.173 | 0.304 | 56.91 | 0.5691 | 2.4481 |
| | | 157 | | 0.172 | 0.295 | 58.31 | 0.5831 | 2.3426 |
| | | 165 | | 0.172 | 0.304 | 56.58 | 0.5658 | 2.4734 |
| IEEE 802.11ac_40 | | 151 | | 0.107 | 0.293 | 36.40 | 0.3640 | 4.389 |
| | | 159 | | 0.108 | 0.303 | 35.64 | 0.3564 | 4.4806 |
| IEEE 802.11ac_80 | | 155 | | 0.076 | 0.297 | 25.59 | 0.2559 | 5.9193 |

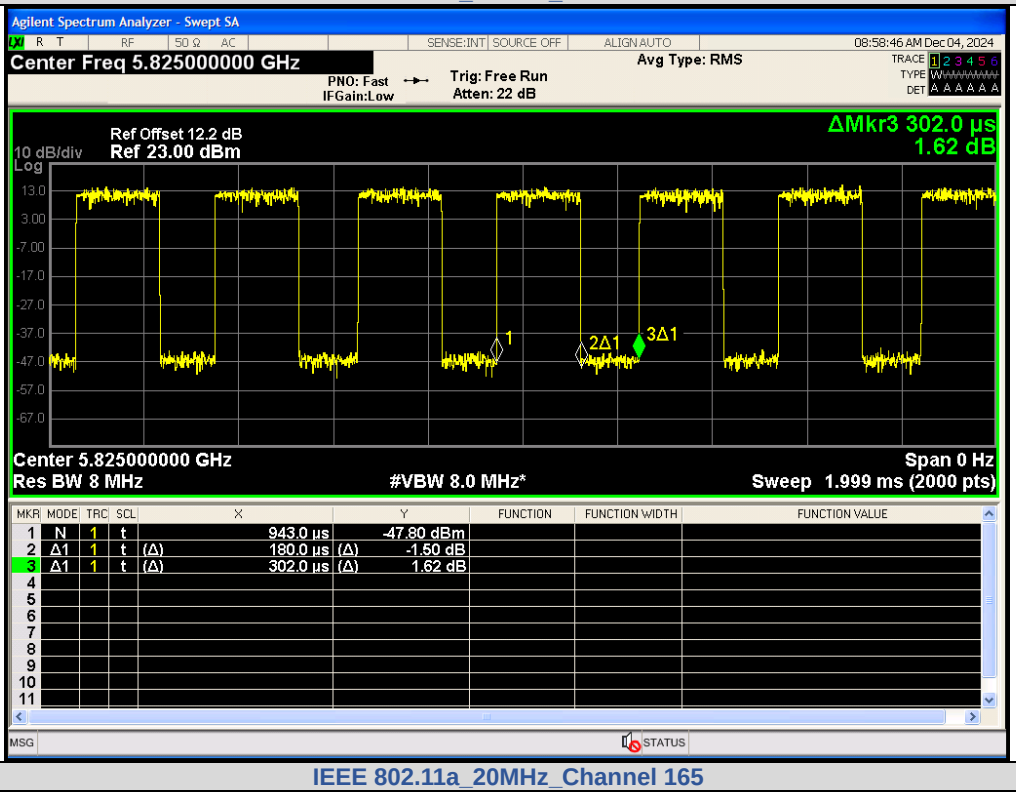
## Test Graphs



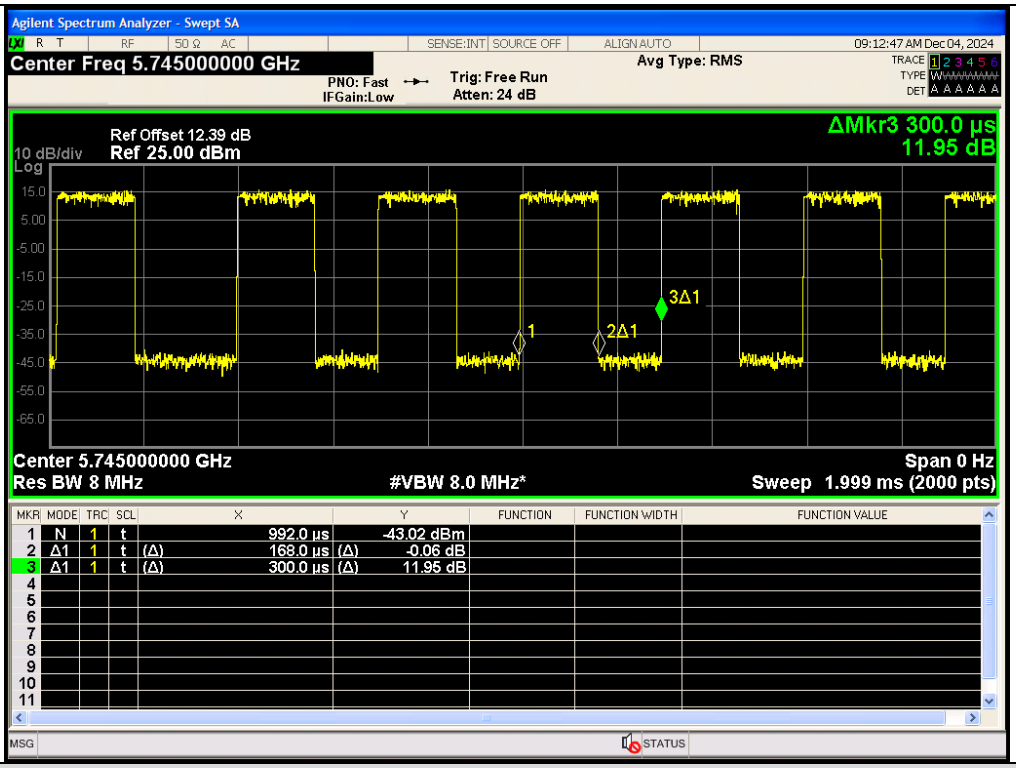

IEEE 802.11a_20MHz_Channel 149



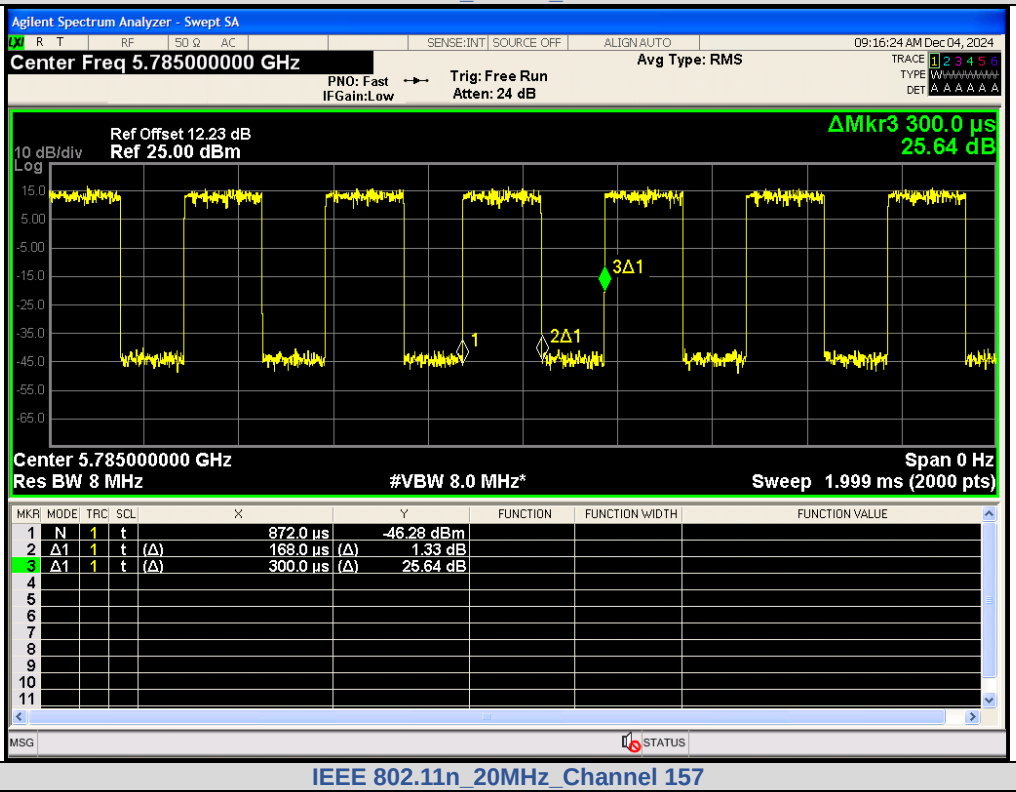

IEEE 802.11a_20MHz_Channel 157



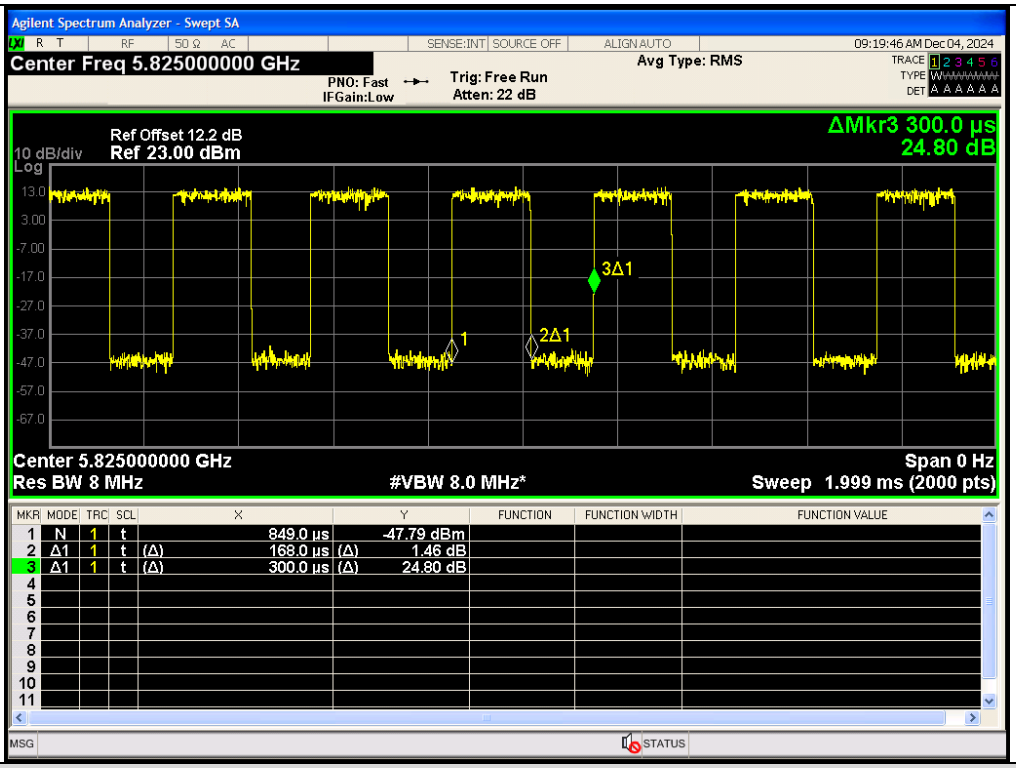

IEEE 802.11a_20MHz_Channel 165



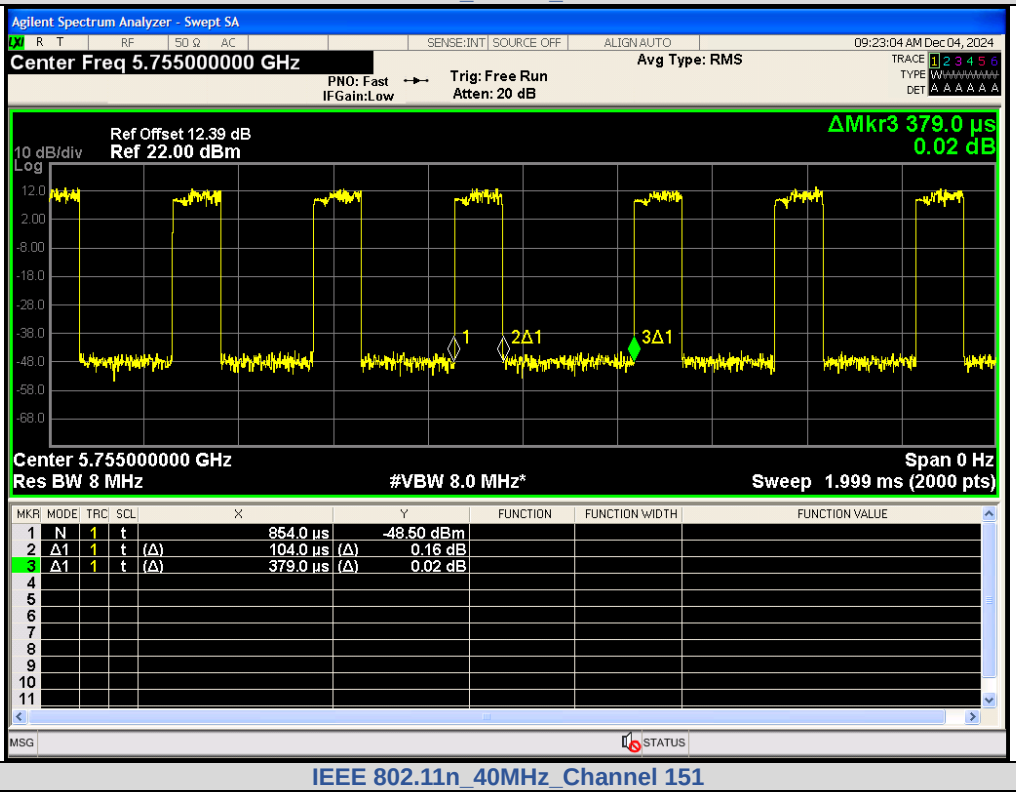

IEEE 802.11n_20MHz_Channel 149



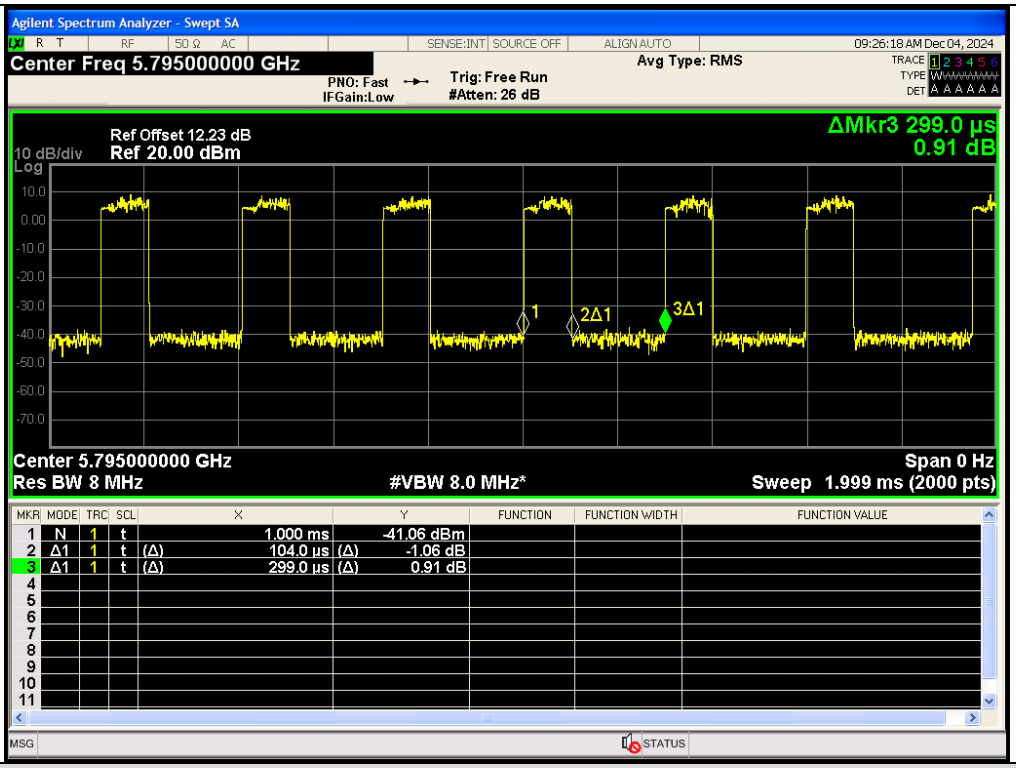

IEEE 802.11n_20MHz_Channel 157



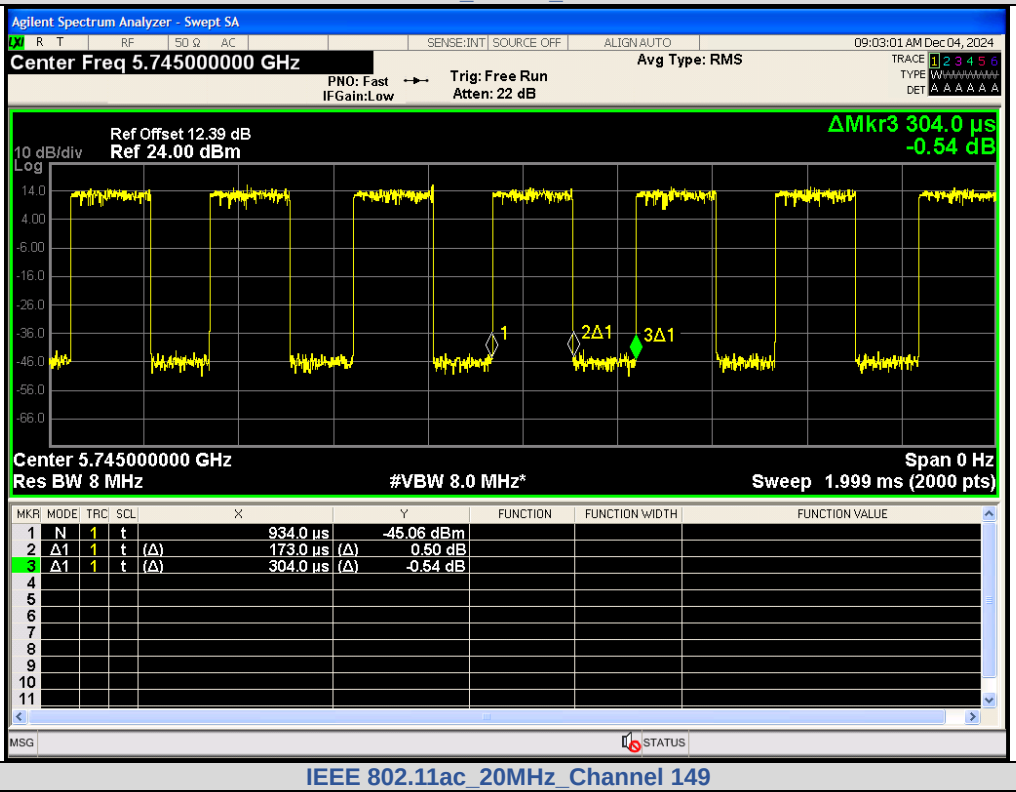

IEEE 802.11n_20MHz_Channel 165



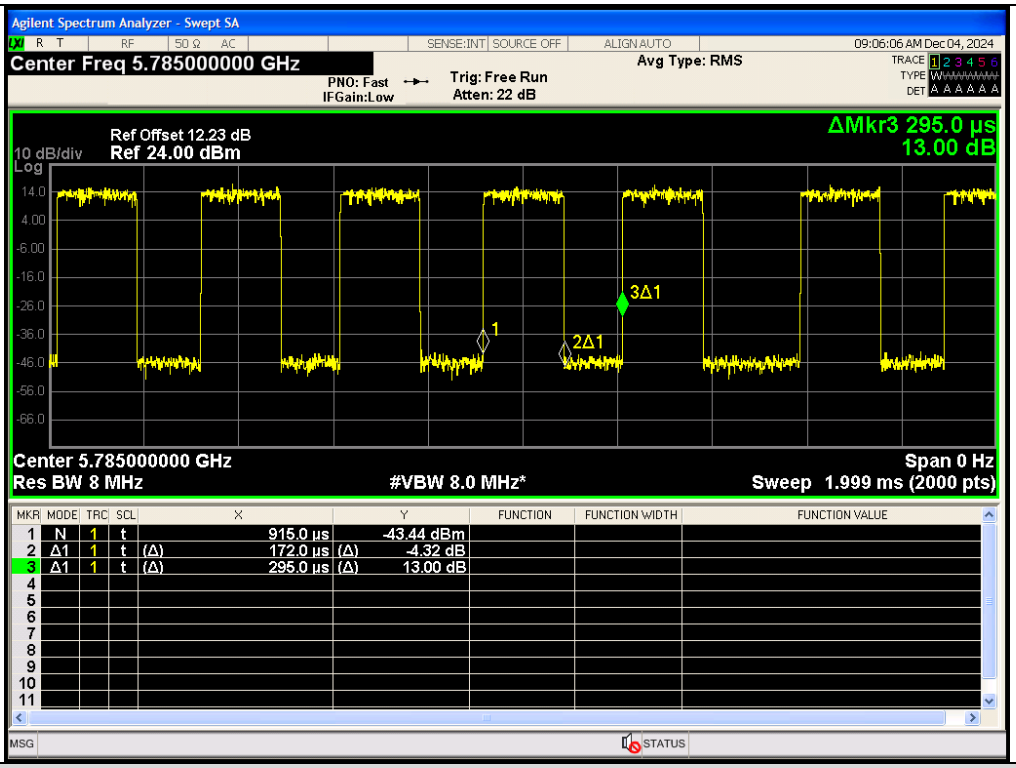

IEEE 802.11n_40MHz_Channel 151



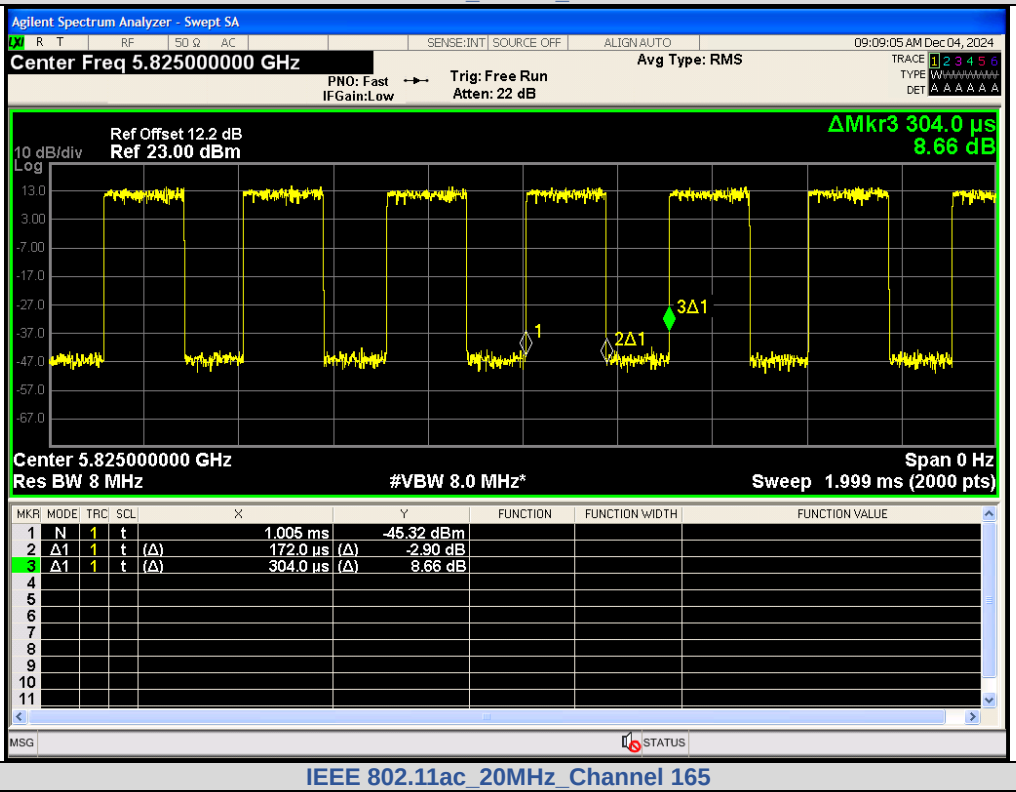

IEEE 802.11n_40MHz_Channel 159



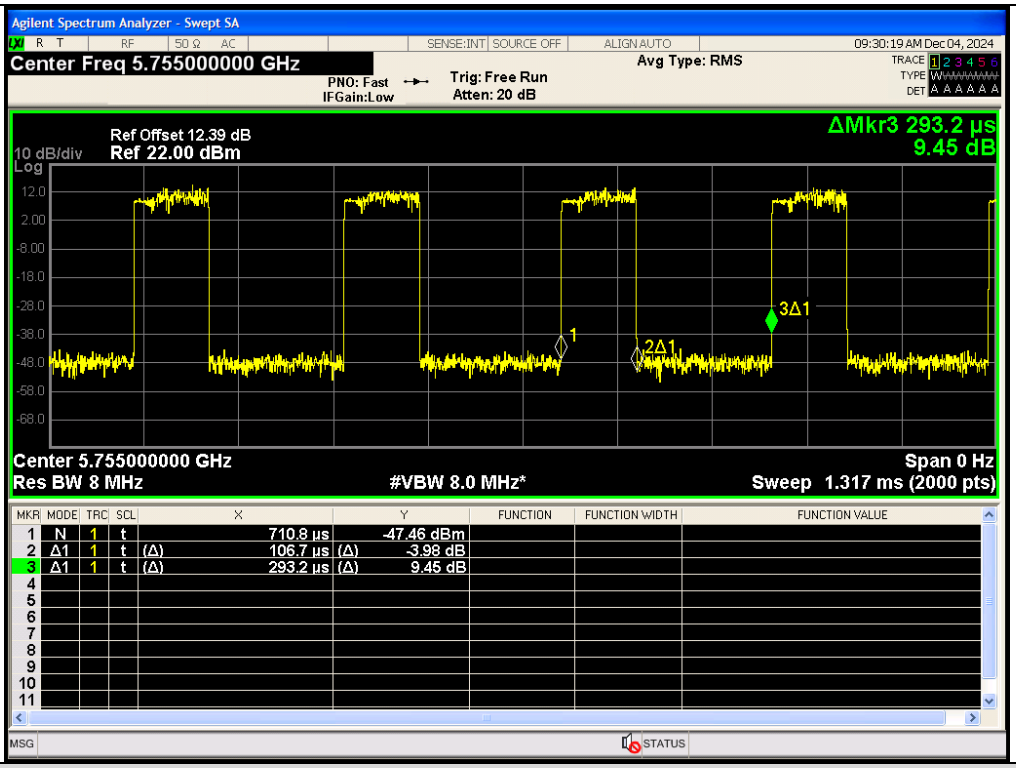

IEEE 802.11ac_20MHz_Channel 149



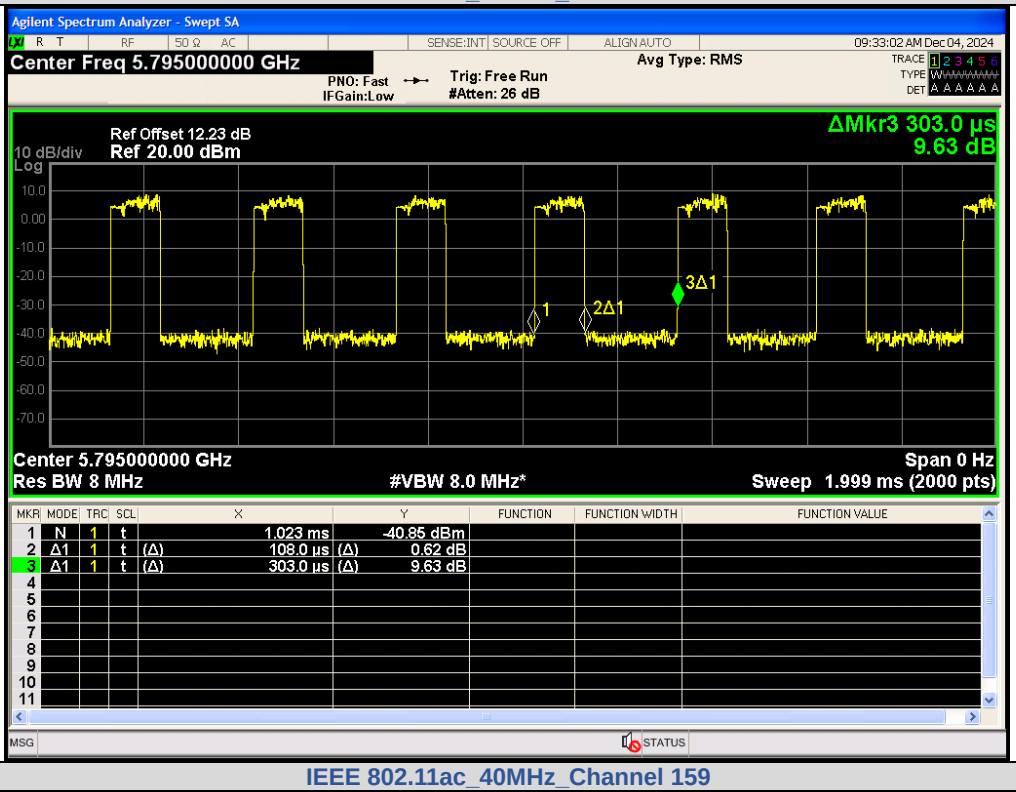

IEEE 802.11ac_20MHz_Channel 157



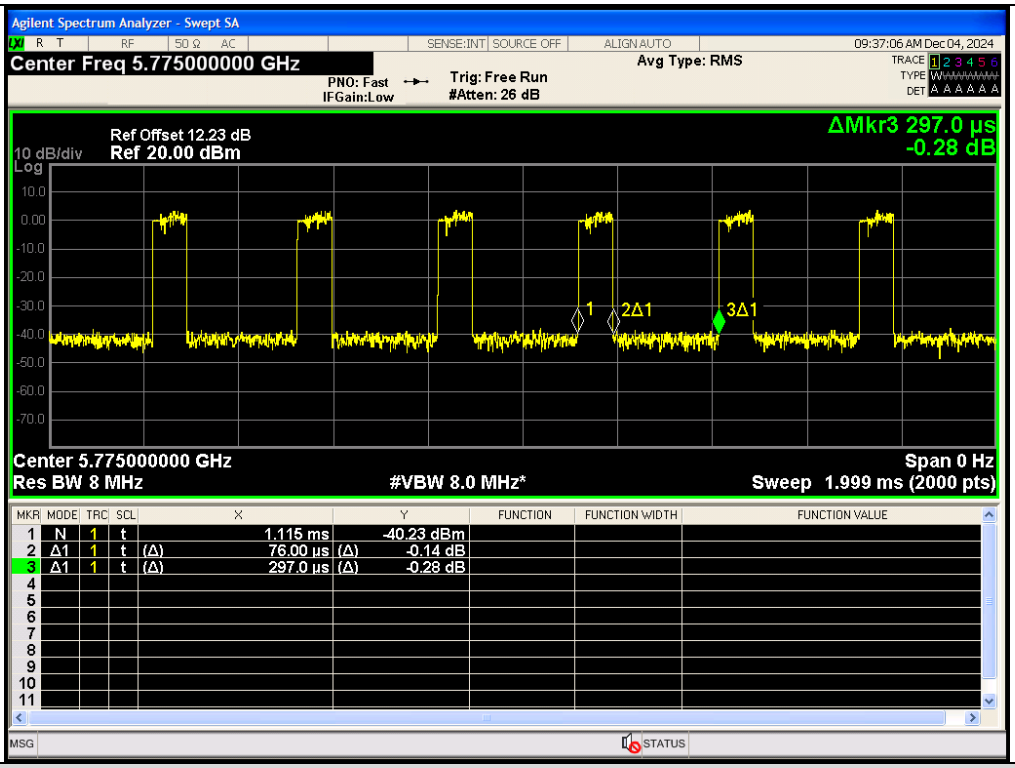

IEEE 802.11ac_20MHz_Channel 165




IEEE 802.11ac_40MHz_Channel 151




IEEE 802.11ac_40MHz_Channel 159




IEEE 802.11ac_80MHz_Channel 155

# Antenna B:

**Test Result**

| Mode | Data rates | Channel | Antenna | On Time (ms) | Period (ms) | Duty Cycle (%) | Duty Cycle (linear) | Duty Cycle Factor (dB) |
|---|---|---|---|---|---|---|---|---|
| IEEE 802.11a | 54 | 36 | 1 | 0.180 | 0.411 | 43.80 | 0.4380 | 3.5853 |
| | | 40 | | 0.180 | 0.375 | 48.00 | 0.4800 | 3.1876 |
| | | 48 | | 0.180 | 0.302 | 59.60 | 0.5960 | 2.2475 |
| | | 52 | | 0.180 | 0.293 | 61.43 | 0.6143 | 2.1162 |
| | | 56 | | 0.180 | 0.303 | 59.41 | 0.5941 | 2.2614 |
| | | 64 | | 0.180 | 0.303 | 59.41 | 0.5941 | 2.2614 |
| | | 100 | | 0.180 | 0.294 | 61.22 | 0.6122 | 2.1311 |
| | | 120 | | 0.180 | 0.303 | 59.41 | 0.5941 | 2.2614 |
| | | 140 | | 0.180 | 0.294 | 61.22 | 0.6122 | 2.1311 |
| IEEE 802.11n_20 | MCS 7 | 36 | | 0.168 | 0.300 | 56.00 | 0.5600 | 2.5181 |
| | | 40 | | 0.168 | 0.299 | 56.19 | 0.5619 | 2.5034 |
| | | 48 | | 0.168 | 0.300 | 56.00 | 0.5600 | 2.5181 |
| | | 52 | | 0.167 | 0.300 | 55.60 | 0.5560 | 2.5493 |
| | | 56 | | 0.168 | 0.299 | 56.19 | 0.5619 | 2.5034 |
| | | 64 | | 0.168 | 0.299 | 56.19 | 0.5619 | 2.5034 |
| | | 100 | | 0.168 | 0.299 | 56.19 | 0.5619 | 2.5034 |
| | | 120 | | 0.168 | 0.300 | 56.00 | 0.5600 | 2.5181 |
| | | 140 | | 0.168 | 0.300 | 56.00 | 0.5600 | 2.5181 |
| IEEE 802.11n_40 | | 38 | | 0.104 | 0.299 | 34.78 | 0.3478 | 4.5867 |
| | | 46 | | 0.104 | 0.380 | 27.37 | 0.2737 | 5.6273 |
| | | 54 | | 0.104 | 0.299 | 34.78 | 0.3478 | 4.5867 |
| | | 62 | | 0.104 | 0.299 | 34.78 | 0.3478 | 4.5867 |
| | | 102 | | 0.108 | 0.293 | 36.86 | 0.3686 | 4.3344 |
| | | 118 | | 0.104 | 0.298 | 34.90 | 0.3490 | 4.5717 |
| | | 134 | | 0.104 | 0.298 | 34.90 | 0.3490 | 4.5717 |
| IEEE 802.11ac_20 | | 52 | | 0.171 | 0.294 | 58.17 | 0.5817 | 2.353 |
| | | 56 | | 0.172 | 0.295 | 58.31 | 0.5831 | 2.3426 |
| | | 64 | | 0.172 | 0.295 | 58.31 | 0.5831 | 2.3426 |
| | | 100 | | 0.172 | 0.304 | 56.58 | 0.5658 | 2.4734 |
| | | 120 | | 0.173 | 0.295 | 58.64 | 0.5864 | 2.3181 |
| | | 140 | | 0.172 | 0.294 | 58.50 | 0.5850 | 2.3284 |
| | MCS 9 | 36 | | 0.172 | 0.304 | 56.58 | 0.5658 | 2.4734 |
| | | 40 | | 0.173 | 0.304 | 56.91 | 0.5691 | 2.4481 |
| | | 48 | | 0.171 | 0.303 | 56.30 | 0.5630 | 2.4949 |
| IEEE 802.11ac_40 | MCS 7 | 54 | | 0.107 | 0.293 | 36.40 | 0.3640 | 4.389 |
| | | 62 | | 0.108 | 0.302 | 35.76 | 0.3576 | 4.466 |
| | | 102 | | 0.108 | 0.302 | 35.76 | 0.3576 | 4.466 |
| | | 118 | | 0.108 | 0.303 | 35.64 | 0.3564 | 4.4806 |
| | | 134 | | 0.107 | 0.294 | 36.55 | 0.3655 | 4.3711 |
| | MCS 9 | 38 | | 0.107 | 0.302 | 35.37 | 0.3537 | 4.5136 |
| | | 46 | | 0.108 | 0.293 | 36.86 | 0.3686 | 4.3344 |
| IEEE 802.11ac_80 | MCS 7 | 58 | | 0.075 | 0.297 | 25.28 | 0.2528 | 5.9722 |
| | | 106 | | 0.076 | 0.298 | 25.50 | 0.2550 | 5.9346 |
| | | 122 | | 0.075 | 0.297 | 25.28 | 0.2528 | 5.9722 |
| | MCS 9 | 42 | | 0.076 | 0.297 | 25.59 | 0.2559 | 5.9193 |

**Test Graphs**