# Radio Test Report

| | | |
|---|---|---|
| **Equipment** | **:** | **WiFi 6E mini PCIe module** |
| **Brand Name** | **:** | **AsiaRF Co., Ltd.** |
| **Model Name** | **:** | **AW7916-NPD, AW7916-AED** |
| **Applicant** | **:** | **AsiaRF Co., Ltd.<br>1F, 7, Houde Street, Yonghe Dist. New Taipei City Taiwan 23455** |
| **Manufacturer** | **:** | **AsiaRF Co., Ltd.<br>1F, 7, Houde Street, Yonghe Dist. New Taipei City Taiwan 23455** |
| **Standard** | **:** | **EN 301 893 V2.1.1 (2017-05)** |

**The product was received on Apr. 07, 2023, and testing was started from Jun. 07, 2023 and completed on Nov. 13, 2023. We, SPORTON INTERNATIONAL INC. Hsinhua Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in EN 301 893 V2.1.1 (2017-05) and shown compliance with the applicable technical standards.**

**The test results in this variant report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. Hsinhua Laboratory, the test report shall not be reproduced except in full.**

Jordan Hsiao

**Approved by: Jordan Hsiao**

***SPORTON INTERNATIONAL INC. Hsinhua Laboratory***

*No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)*

# Table of Contents

# History of this test report

| Report No. | Version | Description | Issued Date |
|---|---|---|---|
| ER2D0804-01AN | 01 | Initial issue of report | Apr. 29, 2024 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

# Summary of Test Result

| Report Clause | Ref Std. Clause | Test Items | Result (PASS/FAIL) | Remark |
|---|---|---|---|---|
| 3.1 | 4.2.1 | Nominal Centre Frequency | PASS | - |
| 3.2 | 4.2.2 | Nominal Channel Bandwidth (NCB) and Occupied Channel Bandwidth (OCB) | PASS | - |
| 3.3 | 4.2.3 | RF Output Power | PASS | - |
| 3.4 | 4.2.3 | Power Density | PASS | - |
| 3.6 | 4.2.4 | Transmitter Unwanted Emissions outside the 5 GHz RLAN Bands | PASS | - |
| 3.5 | 4.2.4 | Transmitter Unwanted Emissions within the 5 GHz RLAN Bands | PASS | - |
| 4.1 | 4.2.5 | Receiver Spurious Emissions | PASS | - |
| 5.1 | 4.2.7 | Adaptivity (Channel Access Mechanism) | PASS | - |
| 6.1 | 4.2.8 | Receiver Blocking | PASS | - |
| 1.1.8 | 4.2.10 | Geo-location capability | N/A | - |

| **Declaration of Conformity:** |
|---|
| The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers. |
| **Comments and explanations:** |
| The EUT supports beamforming and CDD modes, and the CDD mode is the worst case. Therefore, all test items are evaluated in the report. The beamforming mode only evaluates the output power. |

**Reviewed by: Barry Hsiao**

**Report Producer: Amber Chiu**

# 1 General Description

## 1.1 Information

### 1.1.1 RF General Information

| Frequency Range (MHz) | IEEE Std. 802.11 | Ch. Frequency (MHz) | Channel Number |
|---|---|---|---|
| 5150-5250 | a, n (HT20), ac (VHT20), ax (HEW20) | 5180-5240 | 36-48 [4] |
| 5150-5250 | n (HT40), ac (VHT40), ax (HEW40) | 5190-5230 | 38-46 [2] |
| 5150-5250 | ac (VHT80),ax (HEW80) | 5210 | 42 [1] |

**<Non-Beamforming>**

| Band | Mode | BWch (MHz) | Nant |
|---|---|---|---|
| 5.15-5.25GHz | 802.11a | 20 | 2TX |
| 5.15-5.25GHz | 802.11ax HEW20 | 20 | 2TX |
| 5.15-5.25GHz | 802.11ax HEW40 | 40 | 2TX |
| 5.15-5.25GHz | 802.11ax HEW80 | 80 | 2TX |

**<Beamforming>**

| Band | Mode | BWch (MHz) | Nant |
|---|---|---|---|
| 5.15-5.25GHz | 802.11ax HEW20-BF | 20 | 2TX |
| 5.15-5.25GHz | 802.11ax HEW40-BF | 40 | 2TX |
| 5.15-5.25GHz | 802.11ax HEW80-BF | 80 | 2TX |

Note:
- 11a, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- VHT20, VHT40, VHT80 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.
- HEW20, HEW40, HEW80 use a combination of OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation.
- BWch is the nominal channel bandwidth.

### 1.1.2 Antenna Information

| Ant. | Brand | Model Name | Antenna Type | Connector |
|---|---|---|---|---|
| 1 | AsiaRF Co., Ltd. | ANTS0WF602M02001 | Dipole antenna | I-PEX |
| 2 | AsiaRF Co., Ltd. | ANTS0WF602M02001 | Dipole antenna | I-PEX |
| 3 | AsiaRF Co., Ltd. | ANTS0WF602M02001 | Dipole antenna | I-PEX |

| Ant. | Port | Gain (dBi) | | |
|---|---|---|---|---|
| | | 2.4G | 5G | 6G |
| 1 | 1 | 5 | 5 | 5 |
| 2 | 2 | 5 | 5 | 5 |
| 3 | 3 | - | 5 | 5 |

Note 1: The EUT has three antennas.

Note 2: The Ant. 3 is only for DFS RX and MRC function.

**For 2.4GHz function:**

For IEEE 802.11 b/g/n/VHT/ax mode (2TX/2RX)

Ant. 1 (port 1) and Ant. 2 (port 2) could transmit/receive simultaneously.

**For 5GHz function:**

For IEEE 802.11 a/n/ac/ax mode (2TX/3RX)

Ant. 1 (port 1) and Ant. 2 (port 2) could transmit simultaneously.

Ant. 1 (port 1) and Ant. 2 (port 2) and Ant.3 (port 3) could receive simultaneously.

**For 6GHz function:**

For IEEE 802.11 ax mode (2TX/3RX)

Ant. 1 (port 1) and Ant. 2 (port 2) could transmit simultaneously.

Ant. 1 (port 1) and Ant. 2 (port 2) and Ant.3 (port 3) could receive simultaneously.

### 1.1.3 Duty Cycle

**<Non-Beamforming>**

| Mode | DC | DCF (dB) |
|---|---|---|
| 802.11a_Nss1,(6Mbps)_2TX | 0.96 | 0.18 |
| 802.11ax HEW20_Nss1,(MCS0)_2TX | 0.944 | 0.25 |
| 802.11ax HEW40_Nss1,(MCS0)_2TX | 0.921 | 0.36 |
| 802.11ax HEW80_Nss1,(MCS0)_2TX | 0.841 | 0.75 |

**<Beamforming>**

| Mode | DC | DCF (dB) |
|---|---|---|
| 802.11ax HEW20-BF_Nss1,(MCS0)_2TX | 0.944 | 0.25 |
| 802.11ax HEW40-BF_Nss1,(MCS0)_2TX | 0.921 | 0.36 |
| 802.11ax HEW80-BF_Nss1,(MCS0)_2TX | 0.841 | 0.75 |

### 1.1.4 EUT Information

| | | | | | |
|---|---|---|---|---|---|
| **EUT Power Type** | From Test fixture | | | | |
| **DFS Operating Mode** | ☐ | Master | | | |
| | ☐ | Slave with radar detection | | | |
| | ☒ | Slave without radar detection | | | |
| **Device Types (Adaptivity)** | ☒ | Initiating Device | | | |
| | ☒ | Responding Device | | | |
| | ☒ | Supervised Device, which implements: | | | |
| | ☒ | Priority class 1 | ☒ | Priority class 2 | |
| | ☐ | Priority class 1 implements EN 301 893 Table 7 Note1 | | | |
| | ☐ | Priority class 2 implements EN 301 893 Table 7 Note1 | | | |
| | ☒ | Priority class 3 | ☒ | Priority class 4 | |
| | ☐ | Supervising Device, which implements: | | | |
| | ☐ | Priority class 1 | ☐ | Priority class 2 | |
| | ☐ | Priority class 1 implements EN 301 893 Table 8 Note1 | | | |
| | ☐ | Priority class 2 implements EN 301 893 Table 8 Note1 | | | |
| | ☐ | Priority class 2 implements EN 301 893 Table 8 Note2 | | | |
| | ☐ | Priority class 3 | ☐ | Priority class 4 | |
| **Communication Mode** | ☒ | IP Based (Load Based) | ☐ | Frame Based | |
| **EUT Function** | ☐ | Outdoor | ☒ | Indoor | |
| **Beamforming Function** | ☒ | With beamforming | ☐ | Without beamforming | |
| **Resource Unit(802.11ax)** | ☒ | Full RU | ☐ | Partial RU | |
| **Software / Firmware Version for Adaptivity & Receiver Blocking** | | | OpenWrt 21.02-SNAPSHOT r16859-7576fe5669 / LuCI Master git-23.139.28955-5d7f46c | | |

### 1.1.5 Table for Multiple Listing

The model names in the following table are all refer to the identical product.

| Model Name | Description |
|---|---|
| AW7916-NPD, AW7916-AED | AW7916-AED is M.2 AE key interface module and AW7619-NPD is Mini PCIe interface module. |

### 1.1.6 Table for Permissive Change

This product is an extension of original one reported under Sporton project number: ER2D0804AN.

Below is the table for the change of the product with respect to the original one.

| Modifications | Performance Checking |
|---|---|
| 1. Add Model Name. (AW7916-AED)<br>2. Photographs Of EUT was update. | The worst case of Radiated Unwanted Emissions was evaluated, and the test result of original report was found to be the worst case scenario. |

### 1.1.7 Adaptive Equipment

| Adaptive Equipment | | |
|---|---|---|
| Medium Access Mechanism: | | |
| ☐ | Option A: Procedure to verify the Medium Access Mechanism<br>The test procedure which defined in clause 5.4.9.3.2.4.1 should be verified. | |
| ☒ | Option B: Compliance by declaration for the Medium Access Mechanism.<br>The requirements contained in clause 4.2.7.3.2.6 and 4.2.7.3.2.7 should be declared compliance with by the manufacturer. | |
| | ☒ | The related parameters are identical to EN 301 893 Table 7 for Supervised Device |
| | ☐ | The related parameters are identical to EN 301 893 Table 8 for Supervising Device |
| | ☐ | Other parameters |
| Maximum Channel Occupancy Time(s): | | |
| ☒ | Option A: Procedure to verify the maximum Channel Occupancy Time(s)<br>The test procedure which defined in clause 5.4.9.3.2.5.1 should be verified. | |
| ☐ | Option B: Compliance by declaration for the maximum Channel Occupancy Time(s)<br>The maximum Channel Occupancy Times which defined in clause 4.2.7.3.2.4 should be declared by the manufacturer. | |
| | ☐ | The related parameters are identical to EN 301 893 Table 7 for Supervised Device |
| | ☐ | The related parameters are identical to EN 301 893 Table 8 for Supervising Device |
| | ☐ | Other parameters |
| Channel Operation Mode: | | |
| ☒ | Single Channel Operation | |
| ☒ | Multi-channel Operation | |
| | ☐ | Option 1: Load Based Equipment may use any combination/grouping of 20 MHz Operating Channels out of the list of channels (Nominal Centre Frequencies) provided in clause 4.2.1, if it satisfies the channel access requirements (Channel Access Mechanism) for an Initiating Device as described in clause 4.2.7.3.2.6 on each such 20 MHz Operating Channel. |
| | ☒ | Option 2: EN 301 893 figure 3 defines bonded 40 MHz, 80 MHz or 160 MHz channels. Load Based Equipment that uses a combination/grouping of 20 MHz Operating Channels that is a subset of bonded 40 MHz, 80 MHz or 160 MHz channels, may transmit on any of the 20 MHz Operating Channels. |

### 1.1.8 Geo-location capability supported by the equipment

| Geo-location capability supported by the equipment | | |
|---|---|---|
| ☐ | Yes | |
| | ☐ | The geographical location determined by the equipment as defined in EN 301 893, clause 4.2.10.3 is not accessible to the user. |
| ☒ | No | |

## 1.2 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- EN 301 893 V2.1.1 (2017-05)

## 1.3 Testing Location Information

| Test Lab.：Sporton International Inc. Hsinhua Laboratory | | | | |
|---|---|---|---|---|
| ☒ Hsinhua (TAF: 3785) | ADD: No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.) | | | |
| | TEL: 886-3-327-3456 | | FAX: 886-3-327-0973 | |
| **Test Condition** | **Test Site No.** | **Test Engineer** | **Test Environment** | **Test Date** |
| RF Conducted | TH01-HY | Johnny Yu | 22.5~22.9°C / 56~59% | 12/Jun/2023~13/Jun/2023 |
| Radiated | 05CH01-HY | Wayne Chiu | 22.5~23.6°C / 53~57% | 07/Jun/2023~08/Jun/2023 |
| Adaptivity | DFS01-HY | Wayne Lin | 21.8~24.5°C / 50~61 % | 30/Jun/2023~13/Nov/2023 |
| Receiver Blocking | DFS03-HY | CHUN-YI WU | 22.7~24.6°C / 51~54% | 11/Aug/2023~12/Aug/2023 |
| ☐ Wen 33rd.St. (TAF: 3785) | ADD: No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) | | | |
| | TEL: 886-3-318-0787 | | FAX: 886-3-318-0287 | |

Note：The tested sample of the new test item was received on 21/Mar/2024.

## 1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

| Parameter | Uncertainty | Remark |
|---|---|---|
| Occupied Channel Bandwidth | 0.3 MHz | Confidence levels of 95% |
| RF Output Power | 1.2 dB | Confidence levels of 95% |
| Power Spectral Density | 1.2 dB | Confidence levels of 95% |
| Adaptivity | 1 % | Confidence levels of 95% |
| Receiver Blocking | 1 % | Confidence levels of 95% |
| Radiated Spurious Emissions | 4.8 dB | Confidence levels of 95% |

# 2 Test Configuration of EUT

## 2.1 Test Condition

| Condition Item | Abbreviation/Remark | Remark |
|---|---|---|
| Tnom | Tnom | 20°C |
| Tmin | Tmin | 0°C |
| Tmax | Tmax | 70°C |
| - | Vnom | 230V |

## 2.2 Test Channel Mode

| Test Software Version | QATool_Dbg V 0.0.2.73 |
|---|---|

**<Non-Beamforming>**

| Mode | PowerSetting |
|---|---|
| 802.11a_Nss1,(6Mbps)_2TX | - |
| 5180MHz | 15 |
| 5240MHz | 15 |
| 802.11ax HEW20_Nss1,(MCS0)_2TX | - |
| 5180MHz | 16 |
| 5240MHz | 15.5 |
| 802.11ax HEW40_Nss1,(MCS0)_2TX | - |
| 5190MHz | 15.5 |
| 5230MHz | 15.5 |
| 802.11ax HEW80_Nss1,(MCS0)_2TX | - |
| 5210MHz | 16.5 |

**<Beamforming>**

| Mode | PowerSetting |
|---|---|
| 802.11ax HEW20-BF_Nss1,(MCS0)_2TX | - |
| 5180MHz | 13 |
| 5240MHz | 12.5 |
| 802.11ax HEW40-BF_Nss1,(MCS0)_2TX | - |
| 5190MHz | 12.5 |
| 5230MHz | 12.5 |
| 802.11ax HEW80-BF_Nss1,(MCS0)_2TX | - |
| 5210MHz | 13.5 |

## 2.3 The Worst Case Measurement Configuration

| The Worst Case Mode for Following Conformance Tests | |
|---|---|
| **Test Item** | Nominal Centre Frequencies |
| **Test Condition** | Conducted measurement at transmit chains.<br>One channel out of the declared channels for each sub-band.<br>In case of more than 1 channel plan has been declared, testing of these specific requirements need only be performed using one of the declared channel plans. |

| The Worst Case Mode for Following Conformance Tests | |
|---|---|
| **Test Item** | Nominal Channel Bandwidth (NCB) and Occupied Channel Bandwidth (OCB) |
| **Test Condition** | Conducted measurement at transmit chains.<br>One channel out of the declared channels for each sub-band.<br>For Occupied Channel Bandwidth, testing has been repeated for every declared nominal channel bandwidth within this sub-band. |

| The Worst Case Mode for Following Conformance Tests | |
|---|---|
| **Test Items** | RF Output Power<br>Power Density<br>Transmitter Unwanted Emissions within the 5 GHz RLAN Bands |
| **Test Condition** | Conducted measurement at transmit chains. |

| The Worst Case Mode for Following Conformance Tests | | | |
|---|---|---|---|
| **Test Item** | Transmitter Unwanted Emissions outside the 5 GHz RLAN Bands<br>Receiver Spurious Emissions | | |
| **Test Condition** | Radiated measurement<br>One channel out of the declared channels for each sub-band.<br>In case of more than 1 channel plan has been declared, testing of these specific requirements need only be performed using one of the declared channel plans.<br>If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type. | | |
| **Operating Mode** | Transmit / Receive | | |
| **1** | Adapter Mode | | |
| **Orthogonal Planes of EUT** | **X Plane** | **Y Plane** | **Z Plane** |
| |  |  |  |
| **Worst Planes of EUT** | | | V |

| The Worst Case Mode for Following Conformance Tests | |
|---|---|
| **Test Item** | Adaptivity |
| **Test Condition** | Conducted measurement at transmit chains.<br>One channel out of the declared channels |

| The Worst Case Mode for Following Conformance Tests | |
|---|---|
| **Test Item** | Receiver Blocking |
| **Test Condition** | Conducted measurement at one receiver chain.<br>One channel with the lowest data rate out of the declared channels for each sub-band. |

## 2.4 Support Equipment

| Support Equipment - RF Conducted | | | | |
|---|---|---|---|---|
| **No.** | **Equipment** | **Brand Name** | **Model Name** | **Remark** |
| 1 | Notebook | DELL | E5410 | - |
| 2 | Adapter for NB | DELL | HA65NM130 | - |
| 3 | Adapter | iDRC | CW1201000 | Provided by Customer |
| 4 | PCB fixture | N/A | N/A | Provided by Customer |

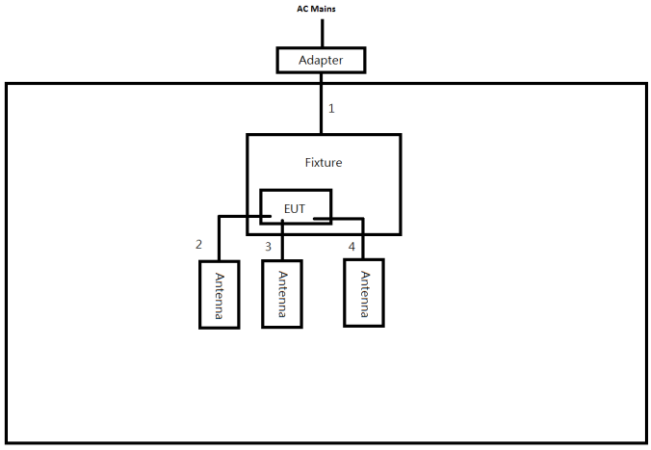
| Support Equipment - Radiated Emission | | | | |
|---|---|---|---|---|
| **No.** | **Equipment** | **Brand Name** | **Model Name** | **Remark** |
| 1 | Adapter | iDRC | CW1201000 | Provided by Customer |
| 2 | PCB fixture | N/A | N/A | Provided by Customer |
| 3 | Antenna*3 | AsiaRF Co., Ltd. | ANTS0WF602M02001 | Provided by Customer |

| Support Equipment - Adaptivity | | | | |
|---|---|---|---|---|
| **No.** | **Equipment** | **Brand Name** | **Model Name** | **Remark** |
| 1 | AP (Master) | NETGEAR | RAXE500 | - |
| 2 | Notebook | DELL | Latitude E5550 | - |
| 3 | Notebook | DELL | Latitude E5560 | - |
| 4 | Adapter | iDRC | CW1201000 | Provided by Customer |
| 5 | Adapter | NETGEAR | 2ABS060K | - |

| Support Equipment - Receiver Blocking | | | | |
|---|---|---|---|---|
| **No.** | **Equipment** | **Brand Name** | **Model Name** | **Remark** |
| 1 | Notebook | Lenovo | ThinkBook15 G4 IAP | - |
| 2 | Sheilding Box | EMEC | EM-SHB-650550250-M | - |
| 3 | Adapter | iDRC | CW1201000 | Provided by Customer |

## 2.5 Test Setup Diagram

**Test Setup Diagram - Radiated Test**




| Item | Connection | Shielded | Length(m) | Remark |
|---|---|---|---|---|
| 1 | ADC Power cable | No | 2.0 | - |
| 2 | DC Power cable | No | 1.5 | - |
| 3 | Antenna Cable | No | 0.1 | - |
| 4 | Antenna Cable | No | 0.1 | - |
| 5 | Antenna Cable | No | 0.1 | - |

# 3 Transmitter Test Result

## 3.1 Nominal Centre Frequency

### 3.1.1 Nominal Centre Frequencies Limit

| Nominal Centre Frequency Limit |
|---|
| The actual centre frequency for any given channel declared by the manufacturer shall be maintained within the range $f_c$ ± 20 ppm. |

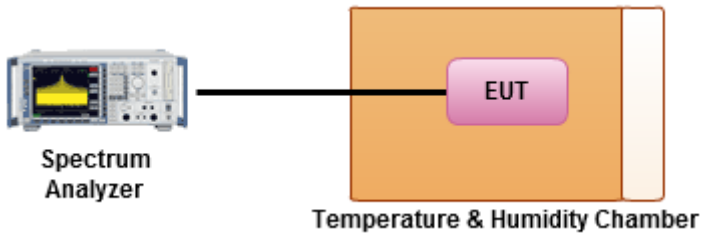
### 3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

### 3.1.3 Test Procedures

| Test Method | |
|---|---|
| ☒ | Refer as EN 301 893, clause 5.3.2 for test channel. In case of more than 1 channel plan has been declared, testing of these specific requirements need only be performed using one of the declared channel plans. |
| ☒ | Refer as EN 301 893, clause 5.4.2 for the carrier frequencies shall be measured using one of the options below. |
| | ☒ Refer as EN 301 893, clause 5.4.2.2.1.1 for equipment operating without modulation method |
| | ☐ Refer as EN 301 893, clause 5.4.2.2.1.2 for equipment operating with modulation method |
| ☒ | Refer as EN 301 893, clause 5.4.2.2.1 for conducted measurement. |
| | ☒ Refer as EN 301 893, clause 5.4.2.1 for conducted measurements on smart antenna systems (equipment with multiple transmit chains) measurements need only to be performed on one of the active transmit chains (antenna outputs). |
| ☐ | Refer as EN 301 893, clause 5.4.2.2.2 for radiated measurement. |

### 3.1.4 Test Setup

| Nominal Centre Frequency |
|---|
|   |

### 3.1.5 Test Result of Nominal Centre Frequency

Refer as Appendix A

# 3.2 Nominal Channel Bandwidth and Occupied Channel Bandwidth

## 3.2.1 Nominal Channel Bandwidth and Occupied Channel Bandwidth Limit

| Nominal Channel Bandwidth and Occupied Channel Bandwidth Limit | |
|---|---|
| The Nominal Channel Bandwidth for a single Operating Channel shall be 20 MHz.<br>Alternatively, equipment may implement a lower Nominal Channel Bandwidth with a minimum of 5 MHz, providing they still comply with the Nominal Centre Frequencies. The Occupied Channel Bandwidth shall be between 80 % and 100 % of the declared Nominal Channel Bandwidth. During an established communication, the device is allowed to operate temporarily with an Occupied Channel Bandwidth below 80 % of its Nominal Channel Bandwidth with a minimum of 2 MHz. | |
| **Nominal Channel Bandwidth (MHz)** | **Occupied Channel Bandwidth (MHz)** |
| 20 | 16 – 20 |
| 40 | 32 – 40 |
| 80 | 64 – 80 |
| 160 | 128 – 160 |

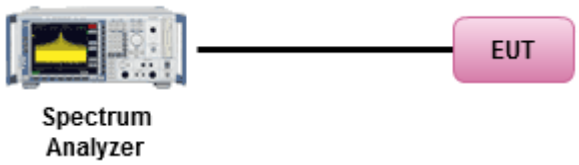
## 3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

## 3.2.3 Test Procedures

| Test Method | |
|---|---|
| ☒ | Refer as EN 301 893, clause 5.3.2 for test channel. One channel out of the declared channels for each sub-band. For Occupied Channel Bandwidth, testing shall be repeated for every declared nominal channel bandwidth within this sub-band. |
| ☒ | Refer as EN 301 893, clause 5.4.3.2.1 for conducted measurement. |
| | ☒ Refer as EN 301 893, clause 5.4.3.2.1 for conducted measurements on smart antenna systems (equipment with multiple transmit chains) measurements need only to be performed on one of the active transmit chains (antenna outputs). |
| ☐ | Refer as EN 301 893, clause 5.4.3.2.2 for radiated measurement. |

## 3.2.4 Test Setup

| Nominal Channel Bandwidth and Occupied Channel Bandwidth |
|---|
|  |

## 3.2.5 Test Result of NCB and OCB

Refer as Appendix B

# 3.3 RF Output Power

## 3.3.1 RF Output Power Limit

| Frequency Range (MHz) | Mean e.i.r.p. Limit (dBm) | |
|---|---|---|
| | with TPC | w/o TPC |
| 5150-5350 | 23 | 20/23 (note1) |
| 5470-5725 | 30 (note2) | 27 (note2) |

Note 1: The applicable limit is 20 dBm, except for transmissions whose nominal bandwidth falls completely within the band 5150 MHz to 5250 MHz, in which case the applicable limit is 23 dBm.
Note 2: Slave devices without a Radar Interference Detection function shall comply with limits for frequency range 5250 MHz to 5350 MHz.
Note 3: TPC is not required for channels whose nominal bandwidth falls completely within the band 5150 MHz to 5250 MHz.

## 3.3.2 Measuring Instruments

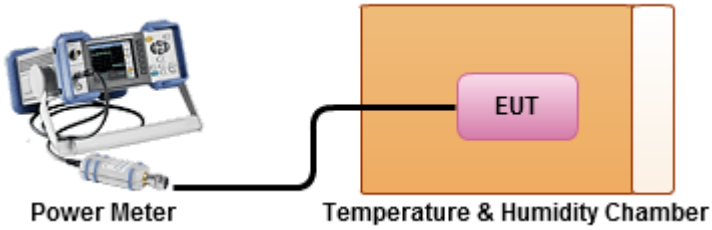
Refer a test equipment and calibration data table in this test report.

## 3.3.3 Test Procedures

| Test Method | |
|---|---|
| ☒ | The measurements shall be performed at both normal environmental conditions and at the extremes of the operating temperature range. |
| ☒ | The EUT shall be configured to operate at the maximum stated transmitter output power level. |
| ☒ | Refer as EN 301 893, clause 5.4.4 for the RF output power shall be measured using below options: |
| ☒ | Option 1: For equipment with continuous transmission capability or for equipment operating (or with the capability to operate) with a constant duty cycle (e.g. Frame Based equipment). Refer as EN 301 893, clause 5.4.4.2.1.1.2. |
| ☐ | Option 2: For equipment without continuous transmission capability and operating (or with the capability to operate) in only one sub-band. Refer as EN 301 893, clause 5.4.4.2.1.1.3. |
| ☐ | Option 3: For equipment without continuous transmission capability and having simultaneous transmissions in both sub-bands. Refer as EN 301 893, clause 5.4.4.2.1.1.4. |
| ☒ | Refer as EN 301 893, clause 5.4.4.2.1 for conducted measurement. |
| ☒ | In case of conducted measurements on smart antenna systems operating in a mode with multiple transmit chains active simultaneously, the output power of each transmit chain shall be measured separately to calculate the total power (value "A" in dBm) for the EUT. |
| ☒ | If multiple transmit chains, EIRP calculation could be following as methods: |
| ☒ | $EIRP_{total} = P_{total} + G$<br>If more than one antenna assembly is intended for this power setting, the maximum overall antenna gain (G or G + Y) shall be used for EIRP. |
| ☐ | Refer as EN 301 893, clause 5.4.4.2.2 for radiated measurement. |

### 3.3.4 Test Setup

**RF Output Power**




### 3.3.5 Test Result of RF Output Power

Refer as Appendix C

# 3.4 Power Density

## 3.4.1 Power Density Limit

| Frequency Range (MHz) | Mean e.i.r.p. Density Limit (dBm/MHz) | |
|---|---|---|
| | with TPC | w/o TPC |
| 5150-5350 | 10 | 7/10 (note1) |
| 5470-5725 | 17 (note2) | 14 (note2) |

Note 1: The applicable limit is 7 dBm/MHz, except for transmissions whose nominal bandwidth falls completely within the band 5150 MHz to 5250 MHz, in which case the applicable limit is 10 dBm/MHz.
Note 2: Slave devices without a Radar Interference Detection function shall comply with limits for frequency range 5250 MHz to 5350 MHz.

## 3.4.2 Measuring Instruments

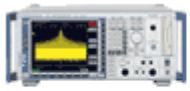
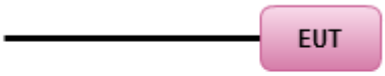
Refer a test equipment and calibration data table in this test report.

## 3.4.3 Test Procedures

| Test Method | |
|---|---|
| ☒ | The measurements shall be performed at normal environmental conditions. |
| ☒ | The EUT shall be configured to operate at the maximum stated transmitter output power level. |
| ☒ | Power density shall be measured using one of the options below. |
| ☒ | Option 1: For equipment with continuous transmission capability or for equipment operating (or with the capability to operate) with a constant duty cycle (e.g. Frame Based equipment). Refer as EN 301 893, clause 5.4.4.2.1.3.2. |
| ☐ | Option 2: For equipment without continuous transmission capability and without the capability to transmit with a constant duty cycle. Refer as EN 301 893, clause 5.4.4.2.1.3.3. |
| ☒ | Refer as EN 301 893, clause 5.4.4.2.1 for conducted measurement. |
| ☒ | The EUT supports multiple transmit chains using options given below: |
| ☒ | Option 1: connect the UUT to the spectrum analyzer and use the following 5.4.4.2.1.3.2 settings, find the peak value of the trace and place the analyzer marker on this peak. This level is recorded as the highest mean power (power density) D in a 1 MHz band.<br>In case of conducted measurements on smart antenna systems operating in a mode with multiple transmit chains active simultaneously, the power density of each transmit chain shall be measured separately to calculate the total power density (value "D" in dBm/MHz) for the UUT.<br>The maximum spectral power density is calculated from the measured power density (D), the observed duty cycle x , the applicable antenna assembly gain "G" in dBi and if applicable the beamforming gain "Y" in dB, according to the formula below.<br>PD = D + G + Y + 10 log (1/x) (dBm/MHz). |

| | | |
|---|---|---|
| | | ☐ Option 2: connect the UUT to the spectrum analyzer and use the 5.4.4.2.1.3.3 settings, Add up the values of power for all the samples in the file using the formula below.<br>$P_{Sum} = \sum_{n=1}^{k} P_{sample}(n)$<br>Normalize the individual values for power (in dBm) so that the sum is equal to the EIRP(PH) measuredfor this sub-band. The following formulas can be used:<br>$C_{Corr} = P_{Sum} - P_{H\,e.i.r.p}$<br>$P_{Samplecorr}(n) = P_{Sample}(n) - C_{Corr}$<br>with 'n' being the actual sample number<br>Starting from the first sample $P_{Samplecorr}(n)$ in the file, add up the power (in mW) of the following samples representing a 1 MHz segment and record the results for power and position (i.e. sample #1 to sample #100). This is the Power Density (e.i.r.p.) for the first 1 MHz segment which shall be saved.<br>Shift the start point of the samples added up in step (i.e. sample #2 to sample #101).<br>Repeat step until the end of the data set and save the radiated power density values for each of the 1 MHz segments.<br>From all the saved results, the highest value is the maximum Power Density (e.i.r.p.) for the UUT. |
| | | ☒ If more than one antenna assembly is intended for this power setting, the maximum overall antenna gain (G or G + Y) shall be used for EIRP PSD. |
| ☐ Refer as EN 301 893, clause 5.4.4.2.2 for radiated measurement. | | |

### 3.4.4 Test Setup

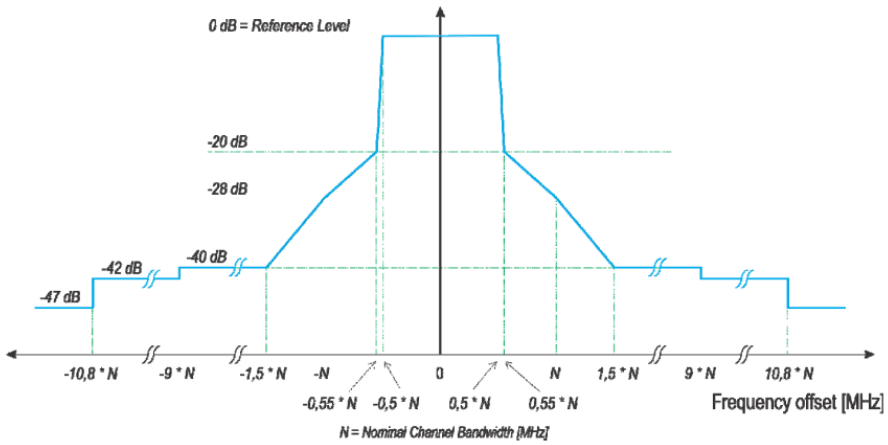
| Power Density |
| --- |
|    Spectrum Analyzer |

### 3.4.5 Test Result of Power Density

Refer as Appendix D

# 3.5 Transmitter Unwanted Emissions within the 5 GHz RLAN Band

## 3.5.1 Transmitter Unwanted Emissions within the 5 GHz RLAN Band Limit

| Transmit Spectral Power Mask Limit |
|---|
|  <br>The average level of transmitter unwanted emissions within the 5 GHz RLAN bands shall not exceed the limit of the mask or an absolute level of -30 dBm with a 1 MHz measurement bandwidth, whichever is the greater.<br>For transmitter unwanted emissions within the 5 GHz RLAN bands, simultaneous transmissions in adjacent channels may be considered as one signal with an actual Nominal Channel Bandwidth of "n" times the individual Nominal Channel Bandwidth where "n" is the number of adjacent channels used simultaneously.<br>For simultaneous transmissions in multiple non-adjacent channels, the overall transmit spectral power mask is constructed in the following manner. First, a mask is applied to each of the channels. Then, for each frequency point, the highest value from the spectral masks of all the channels assessed shall be taken as the overall spectral mask requirement at that frequency. |

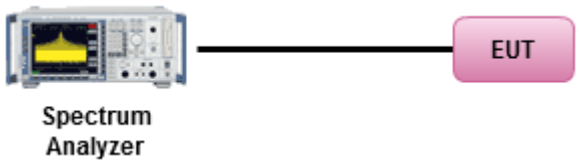
## 3.5.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

## 3.5.3 Test Procedures

| Test Method | |
|---|---|
| ☒ | The measurements shall be performed at both normal environmental conditions. |
| ☒ | Refer as EN 301 893, clause 5.4.6 for the transmit spectral power mask shall be measured using one of the options below: |
| | ☐ Option 1: For equipment with continuous transmission capability (duty cycle equal to 100 %) |
| | ☒ Option 2: For equipment without continuous transmission capability (duty cycle < 100 %) |
| ☒ | Refer as EN 301 893, clause 5.4.6.2.1 for conducted measurement. |
| | ☒ Refer as EN 301 893, clause 5.4.6.1 for conducted measurements on smart antenna systems (equipment with multiple transmit chains) measurements need only to be performed on one of the active transmit chains (antenna outputs). |
| ☐ | Refer as EN 301 893, clause 5.4.6.2.2 for radiated measurement. |

### 3.5.4 Test Setup

| Transmitter Unwanted Emissions within the 5 GHz RLAN Band |
| --- |
|  |

### 3.5.5 Test Result of Transmitter Unwanted Emissions within the 5 GHz RLAN Band

Refer as Appendix E

# 3.6 Transmitter Unwanted Emissions outside the 5 GHz RLAN Bands

## 3.6.1 Transmitter Unwanted Emissions outside the 5 GHz RLAN Bands Limit

| Frequency Range | Maximum Power | Bandwidth |
|---|---|---|
| 30 MHz to 47 MHz | -36 dBm | 100 kHz |
| 47 MHz to 74 MHz | -54 dBm | 100 kHz |
| 74 MHz to 87,5 MHz | -36 dBm | 100 kHz |
| 87,5 MHz to 118 MHz | -54 dBm | 100 kHz |
| 118 MHz to 174 MHz | -36 dBm | 100 kHz |
| 174 MHz to 230 MHz | -54 dBm | 100 kHz |
| 230 MHz to 470 MHz | -36 dBm | 100 kHz |
| 470 MHz to 862 MHz | -54 dBm | 100 kHz |
| 862 MHz to 1 GHz | -36 dBm | 100 kHz |
| 1 GHz to 26 GHz | -30 dBm | 1 MHz |

## 3.6.2 Measuring Instruments

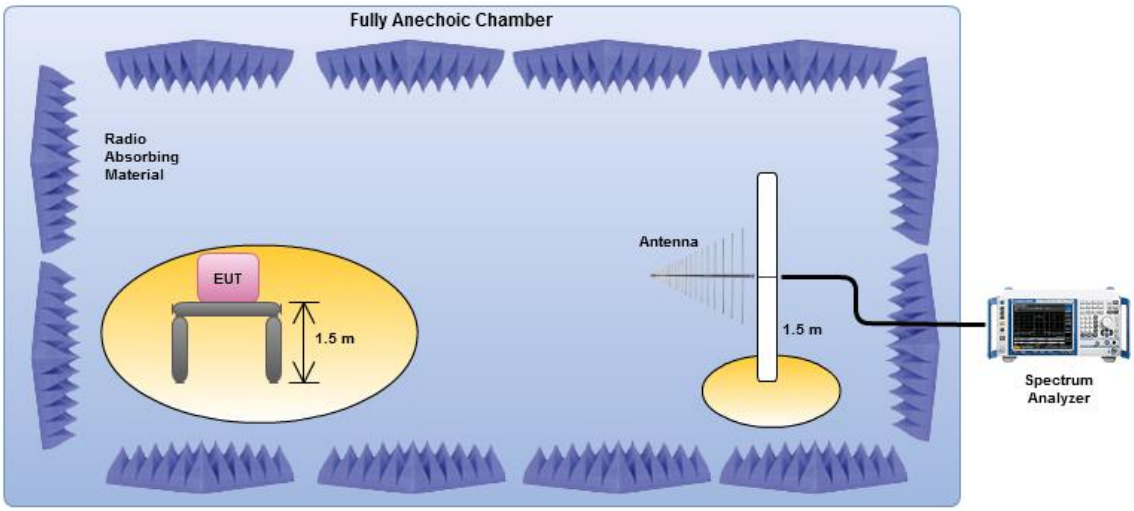
Refer a test equipment and calibration data table in this test report.

## 3.6.3 Test Procedures

| Test Method | |
|---|---|
| ☒ | Refer as EN 301 893, clause 5.3.2 for test channel. One channel out of the declared channels for each sub-band. In case of more than 1 channel plan has been declared, testing of these specific requirements need only be performed using one of the declared channel plans. |
| ☐ | Refer as EN 301 893, clause 5.4.5.2.1 for conducted measurement. Conducted spurious emissions and radiated by the cabinet with the antenna connector(s) terminated by a specified load (cabinet radiation). |
| | ☐ The EUT supports multiple transmit chains using options given below: |
| | ☐ Option 1: The results for each of the transmit chains for the corresponding 1 MHz segments shall be added and compared with the transmitter spurious emissions limit. |
| | ☐ Option 2: the results for each of the transmit chains shall be individually compared with the transmitter spurious emissions limit. After that these limits have been reduced with 10 x $\log_{10}$ ($T_{ch}$). (Number of active transmit chains). |
| ☒ | Refer as EN 301 893, clause 5.4.5.2.2 for radiated measurement. |

### 3.6.4 Test Setup

**Transmitter Unwanted Emissions in the Spurious Domain**




A measuring distance of at least 3 m shall be used for measurements at frequencies up to 1 GHz. For frequencies above 1 GHz, any suitable measuring far field distance may be used, depending on the test system noise floor for detecting spurious emission signals. The equipment size (excluding the antenna) shall be less than 20 % of the measuring distance. The height of the equipment or of the substitution antenna shall be 1.5 m.

### 3.6.5 Transmitter Radiated Unwanted Emissions

Refer as Appendix F

# 4 Receiver Test Result

## 4.1 Receiver Spurious Emissions

### 4.1.1 Receiver Spurious Emissions Limit

| Frequency Range | Maximum Power | Measurement Bandwidth |
|---|---|---|
| 30 MHz to 1 GHz | -57 dBm | 100 kHz |
| 1 GHz to 26 GHz | -47 dBm | 1 MHz |

### 4.1.2 Measuring Instruments

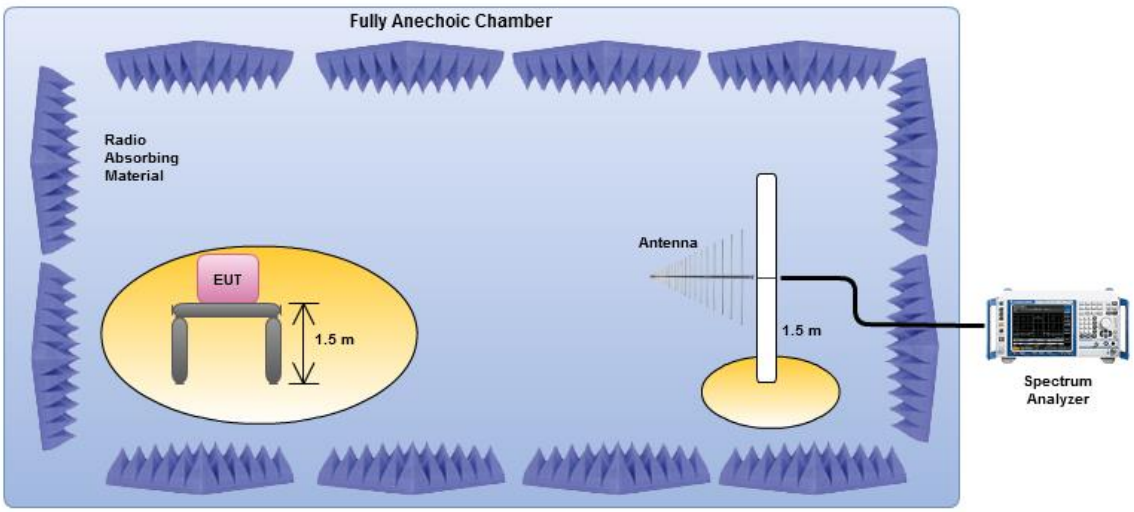
Refer a test equipment and calibration data table in this test report.

### 4.1.3 Test Procedures

| Test Method | |
|---|---|
| ☒ | Refer as EN 301 893, clause 5.3.2 for test channel. One channel out of the declared channels for each sub-band. In case of more than 1 channel plan has been declared, testing of these specific requirements need only be performed using one of the declared channel plans. |
| ☐ | Refer as EN 301 893, clause 5.4.7.2.1 for conducted measurement. Conducted spurious emissions and radiated by the cabinet with the antenna connector(s) terminated by a specified load (cabinet radiation). |
| | ☐ The EUT supports multiple receive chains, EN 301 893 clause 5.4.7.2.1 step 2 shall be repeated for each of the active receive chains, then sum the measured power (within the observed window) for each of the active receive chains. |
| ☒ | Refer as EN 301 893, clause 5.4.7.2.2 for radiated measurement. |

### 4.1.4 Test Setup

**Receiver Spurious Emissions**




A measuring distance of at least 3 m shall be used for measurements at frequencies up to 1 GHz. For frequencies above 1 GHz, any suitable measuring far field distance may be used, depending on the test system noise floor for detecting spurious emission signals. The equipment size (excluding the antenna) shall be less than 20 % of the measuring distance. The height of the equipment or of the substitution antenna shall be 1.5 m.

### 4.1.5 Receiver Radiated Spurious Emissions

Refer as Appendix G

# 5 Adaptivity Test Result

## 5.1 Adaptivity

### 5.1.1 Adaptivity Limit

**Adaptivity Limit**

☒ Priority Class dependent Channel Access parameters for Supervised Devices:

| Class # | $p_0$ | $CW_{min}$ | $CW_{max}$ | Maximum Channel Occupancy Time (COT) |
|---|---|---|---|---|
| ☒ 4 | 2 | 3 | 7 | 2 ms |
| ☒ 3 | 2 | 7 | 15 | 4 ms |
| ☒ 2 | 3 | 15 | 1 023 | 6 ms (see note 1) |
| ☒ 1 | 7 | 15 | 1 023 | 6 ms (see note 1) |

NOTE 1: The maximum *Channel Occupancy Time* (COT) of 6 ms may be increased to 8 ms by inserting one or more pauses. The minimum duration of a pause shall be 100 µs. The maximum duration (Channel Occupancy) before including any such pause shall be 6 ms. Pause duration is not included in the channel occupancy time.
NOTE 2: the values for $p_0$, $CW_{min}$, $CW_{max}$ are minimum values. Greater values are allowed.

☐ Priority Class dependent Channel Access parameters for Supervising Devices:

| Class # | $p_0$ | $CW_{min}$ | $CW_{max}$ | maximum Channel Occupancy Time (COT) |
|---|---|---|---|---|
| ☐ 4 | 1 | 3 | 7 | 2 ms |
| ☐ 3 | 1 | 7 | 15 | 4 ms |
| ☐ 2 | 3 | 15 | 63 | 6 ms (see note 1 and note 2) |
| ☐ 1 | 7 | 15 | 1 023 | 6 ms (see note 1) |

NOTE 1: The maximum *Channel Occupancy Time* (COT) of 6 ms may be increased to 8 ms by inserting one or more pauses. The minimum duration of a pause shall be 100 µs. The maximum duration (Channel Occupancy) before including any such pause shall be 6 ms. Pause duration is not included in the channel occupancy time.
NOTE 2: The maximum Channel Occupancy Time (COT) of 6 ms may be increased to 10 ms by extending CW to CW × 2 + 1 when selecting the random number q for any backoff(s) that precede the Channel Occupancy that may exceed 6 ms or which follow the Channel Occupancy that exceeded 6 ms. The choice between preceding or following a Channel Occupancy shall remain unchanged during the operation time of the device.
NOTE 3: The values for $p_0$, $CW_{min}$, $CW_{max}$ are minimum values. Greater values are allowed.

Energy Detect Threshold (ED Threshold):

☒ Option 1: For equipment that for its operation in the 5 GHz bands is conforming to IEEE 802.11™-2016 [9], clause 17, clause 19 or clause 21, or any combination of these clauses, the ED Threshold Level (TL) is independent of the equipment's maximum transmit power ($P_H$). Assuming a 0 dBi receive antenna the ED Threshold Level (TL) shall be:

$$TL = -75 \text{ dBm/MHz}$$

☐ Option 2: For equipment conforming to one or more of the clauses listed in Option 1, and to at least one other operating mode, and for equipment conforming to none of the clauses listed in Option 1, the Energy Detect Threshold (ED Threshold) shall be proportional to the equipment's maximum transmit power ($P_H$). Assuming a 0 dBi receive antenna the Energy Detect Threshold (ED Threshold) shall be:

For PH ≦13 dBm: TL= -75 dBm/MHz
For 13 dBm < PH < 23 dBm: TL= -85 dBm/MHz + (23 dBm - PH)
For PH ≧ 23 dBm: TL= -85 dBm/MHz

☒ Short Control Signalling Transmissions:

| |
|---|
| ◆ Within an observation period of 50 ms, the number of Short Control Signalling Transmissions by the equipment shall be equal to or less than 50.<br><br>◆ The total duration of the equipment's Short Control Signalling Transmissions shall be less than 2 500 µs within said observation period. |

### 5.1.2 Measuring Instruments

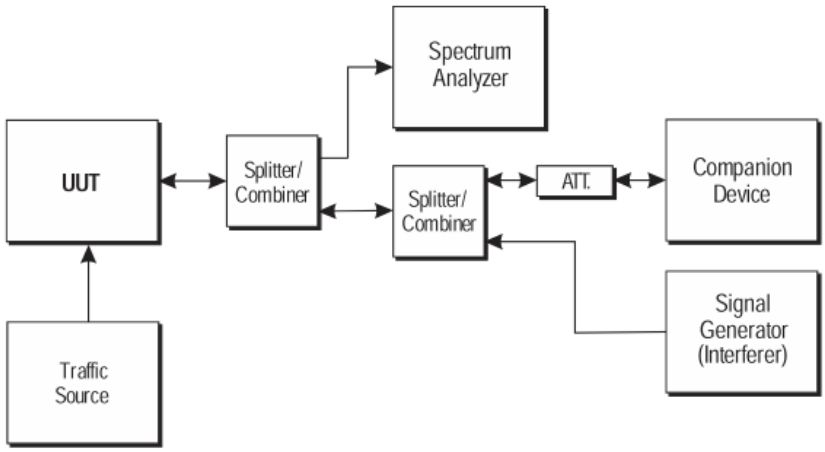
Refer a test equipment and calibration data table in this test report.

### 5.1.3 Test Procedures

| Test Method | |
|---|---|
| ☒ | Refer as EN 301 893, clause 5.3.2 for test channel: One channel out of the declared channels. |
| ☒ | Refer as EN 301 893, clause 5.4.9.3.2 for conducted measurement. |
| | ☒ For conducted measurements on devices with multiple transmit chains and receive chains. The power splitter/combiner shall be used to combine all the transmit/receive chains (antenna outputs) into a single test point. The insertion loss of the power splitter/combiner shall be taken into account. |
| ☐ | Refer as EN 301 893, clause 5.4.9.3.4 for radiated measurement. |

### 5.1.4 Test Setup

**Adaptivity**




### 5.1.5 Test Result of Adaptivity

Refer as Appendix H

# 6 Receiver Blocking Test Result

## 6.1 Receiver Blocking

### 6.1.1 Receiver Blocking Limit

| Receiver Blocking Limit | | | | |
|---|---|---|---|---|
| **Receiver Blocking Parameters** | | | | |
| **Wanted signal mean power from companion device (dBm)** | **Blocking signal frequency (MHz)** | **Blocking signal power (dBm) (see note2)** | | **Type of blocking signal** |
| | | **Master or Slave with radar detection** | **Slave without radar detection** | |
| $P_{min}$ + 6 dB | 5 100 | -53 | -59 | CW |
| $P_{min}$ + 6 dB | 4 900<br>5 000<br>5 975 | -47 | -53 | CW |
| NOTE 1: $P_{min}$ is the minimum level of the wanted signal (in dBm) required to meet the minimum performance criteria as defined clause 4.2.8.3 in the absence of any blocking signal.<br><br>NOTE 2: The levels specified are levels in front of the UUT antenna. In case of conducted measurements, the same levels should be used at the antenna connector irrespective of antenna gain. | | | | |

### 6.1.2 Measuring Instruments

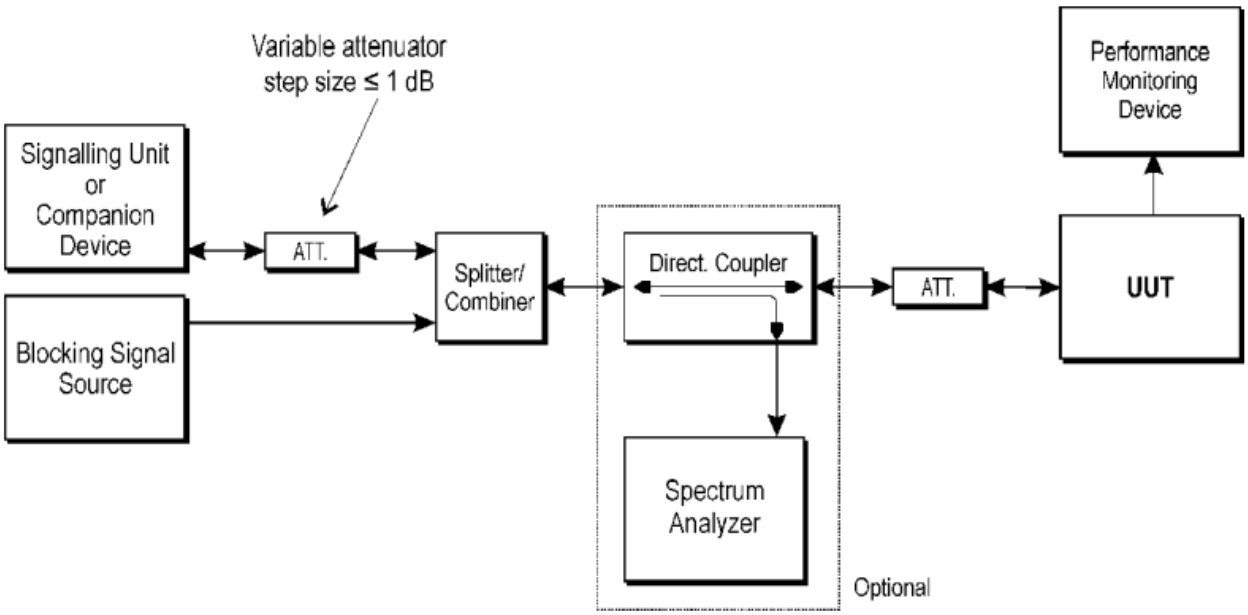
Refer a test equipment and calibration data table in this test report.

### 6.1.3 Test Procedures

| Test Method | |
|---|---|
| ☒ | Refer as EN 301 893, clause 5.4.10.2.1 for conducted measurement. |
| | ☒ For systems using multiple receive chains only one chain (antenna port) need to be tested. All other receiver inputs shall be terminated. |
| ☐ | Refer as EN 301 893, clause 5.4.10.2.2 for radiated measurement. |

### 6.1.4 Test Setup

**Receiver Blocking**




### 6.1.5 Test Result of Receiver Blocking

Refer as Appendix I

# 7 Test Equipment and Calibration Data

**Instrument for Conducted Test**

| Instrument | Manufacturer /Brand | Model No. | Serial No. | Spec. | Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|---|
| Signal Analyzer | R&S | FSV 40 | 101013 | 10Hz~40GHz | 10/Apr/2023 | 09/Apr/2024 |
| Programmable Temp. & Humi. Chamber | Giant Force | GTH-225-20-SP-SD | MAA1112-007 | -20~100℃ | 17/May/2023 | 16/May/2024 |
| SMB100A Signal Generator | R&S | SMB100A | 181147 | 100kHz~40GHz | 21/Oct/2022 | 20/Oct/2023 |
| USB Wideband Power Sensor | Agilent | U2021XA | MY54320011 | 50MHz~18GHz | 17/Aug/2022 | 16/Aug/2023 |
| USB Wideband Power Sensor | Agilent | U2021XA | MY54320013 | 50MHz~18GHz | 17/Aug/2022 | 16/Aug/2023 |
| SENSE-301893_NII | Sporton | V5.11.3 | N/A | N/A | N/A | N/A |

**Instrument for Radiated Test**

| Instrument | Manufacturer /Brand | Model No. | Serial No. | Spec. | Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|---|
| Signal Analyzer | R&S | FSV40 | 101514 | 10Hz~40GHz | 26/Apr/2023 | 25/Apr/2024 |
| Amplifier | Agilent | 8447D | 2944A11146 | 100kHz~1.3GHz | 01/Sep/2022 | 31/Aug/2023 |
| Microwave Preamplifier | EMC INSTRUMENT | EMC051845BE | 980241 | 1GHz~18GHz | 12/Dec/2022 | 11/Dec/2023 |
| Bilog Antenna & 6dB Attenuator | SCHAFFNER | CBL6111C & N-6-06 | 2737 & AT-N0603 | 30MHz~1GHz | 28/Aug/2022 | 27/Aug/2023 |
| Double Ridged Guide Horn Antenna | ETS・LINDGREN | 3117 | 00091920 | 1GHz~18GHz | 15/Dec/2022 | 14/Dec/2023 |
| RF Cable | HUBER+SUHNER | SUOFLEX 104 | 05CH01-cable-01 | 1GHz ~ 40GHz | 17/Jan/2023 | 16/Jan/2024 |
| RF Cable | Jye Bao | SUOFLEX 104 | 05CH01-cable-02 | 25MHz ~ 1GHz | 06/Sep/2022 | 05/Sep/2023 |
| Broadband Horn Antenna | SCHWARZBECK | BBHA 9170 | BBHA 9170221 | 18GHz~40GHz | 25/Mar/2023 | 24/Mar/2024 |
| Microwave Premplifier | EMC INSTRUMENTS | EM18G40G | 060604 | 18GHz ~ 40GHz | 25/Mar/2023 | 24/Mar/2024 |
| SENSE-301893_NII | Sporton | V5.11.4 | N/A | N/A | N/A | N/A |

**Instrument for Adaptivity**

| Instrument | Manufacturer /Brand | Model No. | Serial No. | Spec. | Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|---|
| Vector Signal Generator | Keysight | N5182B | MY53051912 | 9kHz~6GHz | 18/Mar/2023 | 17/Mar/2024 |
| Spectrum Analyzer | R&S | FSP30 | 100793 | 9 kHz ~ 30GHz | 14/Jun/2023 | 13/Jun/2024 |
| DFS-Adaptivity | Sporton | Ver 2.7 | N/A | N/A | N/A | N/A |
| Adaptivity Analysis-5G | Sporton | Ver 2.8 | N/A | N/A | N/A | N/A |

**Instrument for Receiver Blocking**

| Instrument | Manufacturer /Brand | Model No. | Serial No. | Spec. | Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|---|
| SMB100A Signal Generator | R&S | SMB100A | 181147 | 100kHz~40GHz | 21/Oct/2022 | 20/Oct/2023 |
| Wireless connectivity tester | R&S | CMW270+CMW-Z800A | 102633+100394 | 70MHz ~7.125GHz | 22/Mar/2022 | 21/Mar/2024 |

**Summary**

| Mode | Result | Ch (Hz) | Center (Hz) | ppm | Limit (ppm) | Port |
|---|---|---|---|---|---|---|
| 5.15-5.25GHz | - | - | - | - | - | - |
| 802.11a_Nss1,(6Mbps)_2TX | Pass | 5.18G | 5.180049G | 9.41 | 20 | 1 |

**Result**

| Mode | Result | Ch (Hz) | Center (Hz) | ppm | Limit (ppm) | Port |
|---|---|---|---|---|---|---|
| 802.11a_Nss1,(6Mbps)_2TX | - | - | - | - | - | - |
| 5180MHz_Tnom | Pass | 5.18G | 5.180026G | 5.0669 | 20 | 1 |
| 5180MHz_Tmin | Pass | 5.18G | 5.180049G | 9.41 | 20 | 1 |
| 5180MHz_Tmax | Pass | 5.18G | 5.180026G | 5.0669 | 20 | 1 |

**Summary**

| Mode | OBW (Hz) | ITU-Code |
|---|---|---|
| 5.15-5.25GHz | - | - |
| 802.11a_Nss1,(6Mbps)_2TX | 16.446M | 16M4D1D |
| 802.11ax HEW20_Nss1,(MCS0)_2TX | 18.955M | 19M0D1D |
| 802.11ax HEW40_Nss1,(MCS0)_2TX | 37.631M | 37M6D1D |
| 802.11ax HEW80_Nss1,(MCS0)_2TX | 76.981M | 77M0D1D |

OBW = 99% occupied bandwidth

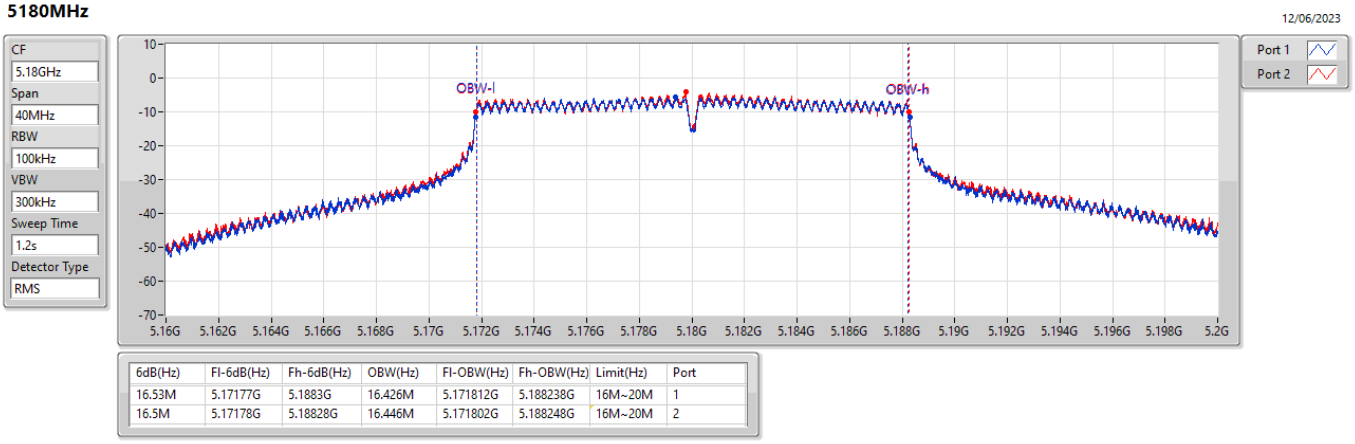
**Result**

| Mode | Result | Limit (Hz) | fl-OBW (Hz) | fh-OBW (Hz) | OBW (Hz) |
|---|---|---|---|---|---|
| 802.11a_Nss1,(6Mbps)_2TX | - | - | - | - | - |
| 5180MHz_Tnom | Pass | 16M~20M | 5.171802G | 5.188248G | 16.446M |
| 802.11ax HEW20_Nss1,(MCS0)_2TX | - | - | - | - | - |
| 5180MHz_Tnom | Pass | 16M~20M | 5.170562G | 5.189518G | 18.955M |
| 802.11ax HEW40_Nss1,(MCS0)_2TX | - | - | - | - | - |
| 5190MHz_Tnom | Pass | 32M~40M | 5.171205G | 5.208875G | 37.631M |
| 802.11ax HEW80_Nss1,(MCS0)_2TX | - | - | - | - | - |
| 5210MHz_Tnom | Pass | 64M~80M | 5.17153G | 5.24851G | 76.981M |

fl-OBW = fl lower edge 99% occupied bandwidth; fh-OBW = fh higher edge 99% occupied bandwidth; OBW = 99% occupied bandwidth;
N dB = 6dB down bandwidth

**5.15-5.25GHz_802.11a_Nss1,(6Mbps)_2TX** **EBW**

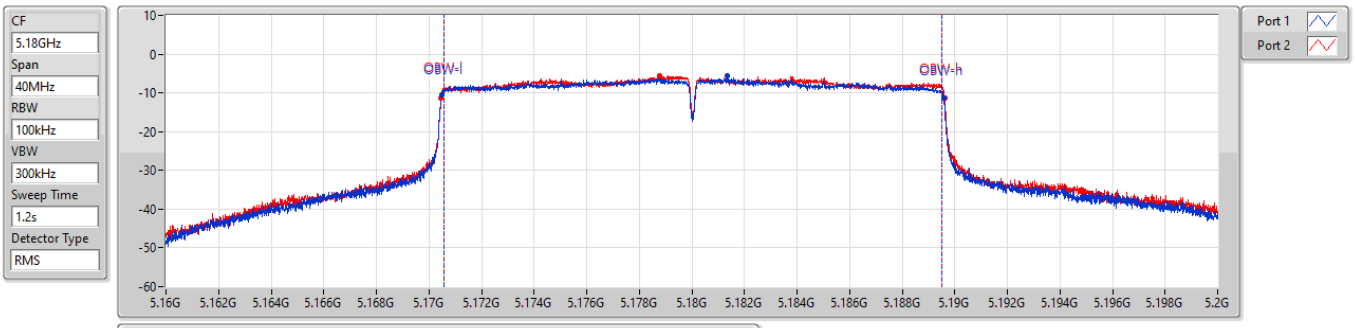
**5180MHz**




| 6dB(Hz) | Fl-6dB(Hz) | Fh-6dB(Hz) | OBW(Hz) | Fl-OBW(Hz) | Fh-OBW(Hz) | Limit(Hz) | Port |
|---|---|---|---|---|---|---|---|
| 16.53M | 5.17177G | 5.1883G | 16.426M | 5.171812G | 5.188238G | 16M~20M | 1 |
| 16.5M | 5.17178G | 5.18828G | 16.446M | 5.171802G | 5.188248G | 16M~20M | 2 |

**5.15-5.25GHz_802.11ax HEW20_Nss1,(MCS0)_2TX** **EBW**

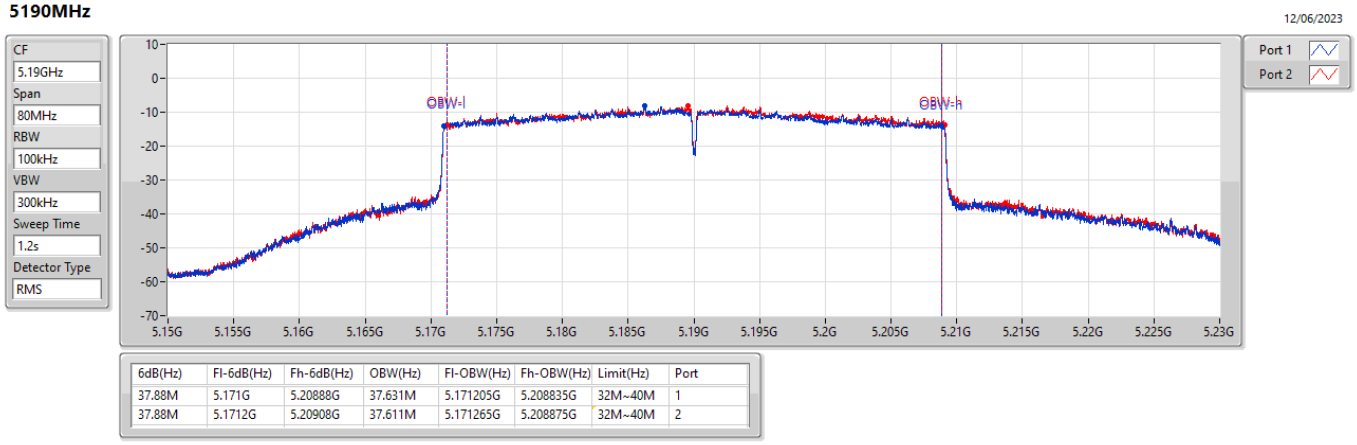
**5180MHz**




| 6dB(Hz) | Fl-6dB(Hz) | Fh-6dB(Hz) | OBW(Hz) | Fl-OBW(Hz) | Fh-OBW(Hz) | Limit(Hz) | Port |
|---|---|---|---|---|---|---|---|
| 19.1M | 5.17048G | 5.18958G | 18.925M | 5.170562G | 5.189488G | 16M~20M | 1 |
| 19.15M | 5.17046G | 5.18961G | 18.955M | 5.170562G | 5.189518G | 16M~20M | 2 |

**5.15-5.25GHz_802.11ax HEW40_Nss1,(MCS0)_2TX** **EBW**

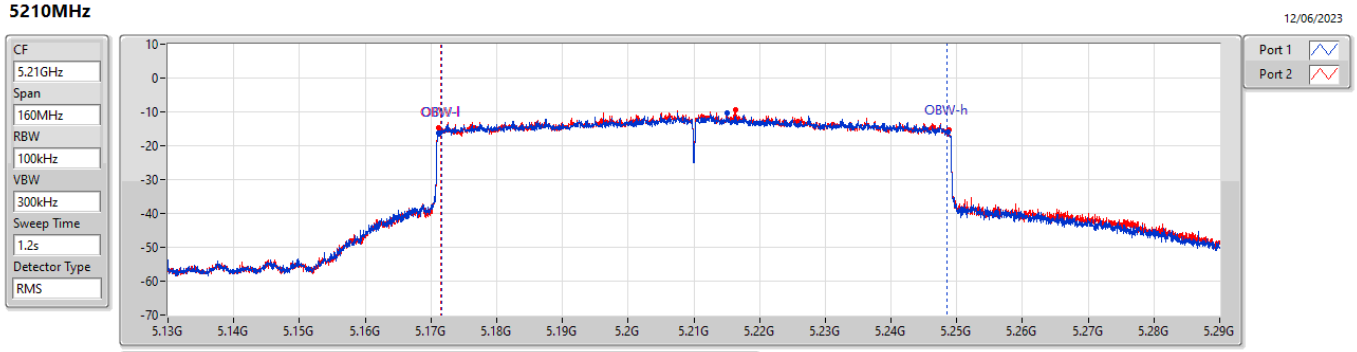
**5190MHz**




| 6dB(Hz) | Fl-6dB(Hz) | Fh-6dB(Hz) | OBW(Hz) | Fl-OBW(Hz) | Fh-OBW(Hz) | Limit(Hz) | Port |
|---|---|---|---|---|---|---|---|
| 37.88M | 5.171G | 5.20888G | 37.631M | 5.171205G | 5.208835G | 32M~40M | 1 |
| 37.88M | 5.1712G | 5.20908G | 37.611M | 5.171265G | 5.208875G | 32M~40M | 2 |

**5.15-5.25GHz_802.11ax HEW80_Nss1,(MCS0)_2TX** **EBW**

**5210MHz**




| 6dB(Hz) | Fl-6dB(Hz) | Fh-6dB(Hz) | OBW(Hz) | Fl-OBW(Hz) | Fh-OBW(Hz) | Limit(Hz) | Port |
|---|---|---|---|---|---|---|---|
| 77.36M | 5.17124G | 5.2486G | 76.941M | 5.17157G | 5.24851G | 64M~80M | 1 |
| 77.56M | 5.17124G | 5.2488G | 76.981M | 5.17153G | 5.24851G | 64M~80M | 2 |

**Summary**

| Mode | EIRP (dBm) | EIRP (W) |
|---|---|---|
| 5.15-5.25GHz | - | - |
| 802.11a_Nss1,(6Mbps)_2TX | 22.85 | 0.19275 |
| 802.11ax HEW20_Nss1,(MCS0)_2TX | 22.87 | 0.19364 |
| 802.11ax HEW40_Nss1,(MCS0)_2TX | 22.66 | 0.18450 |
| 802.11ax HEW80_Nss1,(MCS0)_2TX | 22.99 | 0.19907 |

## Result

| Mode | Result | Gain (dBi) | Port 1 (dBm) | Port 2 (dBm) | Total Power (dBm) | EIRP (dBm) | EIRP Limit (dBm) |
|---|---|---|---|---|---|---|---|
| 802.11a_Nss1,(6Mbps)_2TX | - | - | - | - | - | - | - |
| 5180MHz_Tnom | Pass | 5.00 | 13.78 | 14.07 | 16.94 | 21.94 | 23.00 |
| 5180MHz_Tmin | Pass | 5.00 | 13.53 | 13.89 | 16.72 | 21.72 | 23.00 |
| 5180MHz_Tmax | Pass | 5.00 | 14.25 | 14.30 | 17.29 | 22.29 | 23.00 |
| 5240MHz_Tnom | Pass | 5.00 | 14.69 | 14.98 | 17.85 | 22.85 | 23.00 |
| 5240MHz_Tmin | Pass | 5.00 | 13.76 | 14.12 | 16.95 | 21.95 | 23.00 |
| 5240MHz_Tmax | Pass | 5.00 | 14.41 | 14.70 | 17.57 | 22.57 | 23.00 |
| 802.11ax HEW20_Nss1,(MCS0)_2TX | - | - | - | - | - | - | - |
| 5180MHz_Tnom | Pass | 5.00 | 14.43 | 14.81 | 17.63 | 22.63 | 23.00 |
| 5180MHz_Tmin | Pass | 5.00 | 14.10 | 14.45 | 17.29 | 22.29 | 23.00 |
| 5180MHz_Tmax | Pass | 5.00 | 14.72 | 15.00 | 17.87 | 22.87 | 23.00 |
| 5240MHz_Tnom | Pass | 5.00 | 14.18 | 14.42 | 17.31 | 22.31 | 23.00 |
| 5240MHz_Tmin | Pass | 5.00 | 13.82 | 14.33 | 17.09 | 22.09 | 23.00 |
| 5240MHz_Tmax | Pass | 5.00 | 14.66 | 14.87 | 17.78 | 22.78 | 23.00 |
| 802.11ax HEW40_Nss1,(MCS0)_2TX | - | - | - | - | - | - | - |
| 5190MHz_Tnom | Pass | 5.00 | 14.09 | 14.45 | 17.28 | 22.28 | 23.00 |
| 5190MHz_Tmin | Pass | 5.00 | 13.62 | 14.08 | 16.87 | 21.87 | 23.00 |
| 5190MHz_Tmax | Pass | 5.00 | 14.56 | 14.71 | 17.65 | 22.65 | 23.00 |
| 5230MHz_Tnom | Pass | 5.00 | 14.20 | 14.56 | 17.39 | 22.39 | 23.00 |
| 5230MHz_Tmin | Pass | 5.00 | 13.87 | 14.30 | 17.10 | 22.10 | 23.00 |
| 5230MHz_Tmax | Pass | 5.00 | 14.59 | 14.71 | 17.66 | 22.66 | 23.00 |
| 802.11ax HEW80_Nss1,(MCS0)_2TX | - | - | - | - | - | - | - |
| 5210MHz_Tnom | Pass | 5.00 | 14.61 | 14.81 | 17.72 | 22.72 | 23.00 |
| 5210MHz_Tmin | Pass | 5.00 | 14.06 | 14.43 | 17.26 | 22.26 | 23.00 |
| 5210MHz_Tmax | Pass | 5.00 | 14.85 | 15.10 | 17.99 | 22.99 | 23.00 |

Port X = Port X output power; Total Power = Total power measure all transmit ports simultaneously.

**Summary**

| Mode | EIRP (dBm) | EIRP (W) |
|---|---|---|
| 5.15-5.25GHz | - | - |
| 802.11ax HEW20-BF_Nss1,(MCS0)_2TX | 22.82 | 0.19143 |
| 802.11ax HEW40-BF_Nss1,(MCS0)_2TX | 22.58 | 0.18113 |
| 802.11ax HEW80-BF_Nss1,(MCS0)_2TX | 22.98 | 0.19861 |

## Result

| Mode | Result | Gain (dBi) | Port 1 (dBm) | Port 2 (dBm) | Total Power (dBm) | EIRP (dBm) | EIRP Limit (dBm) |
|---|---|---|---|---|---|---|---|
| 802.11ax HEW20-BF_Nss1,(MCS0)_2TX | - | - | - | - | - | - | - |
| 5180MHz_Tnom | Pass | 8.01 | 11.38 | 11.76 | 14.58 | 22.59 | 23.00 |
| 5180MHz_Tmin | Pass | 8.01 | 11.02 | 11.37 | 14.21 | 22.22 | 23.00 |
| 5180MHz_Tmax | Pass | 8.01 | 11.66 | 11.94 | 14.81 | 22.82 | 23.00 |
| 5240MHz_Tnom | Pass | 8.01 | 11.09 | 11.33 | 14.22 | 22.23 | 23.00 |
| 5240MHz_Tmin | Pass | 8.01 | 10.78 | 11.29 | 14.05 | 22.06 | 23.00 |
| 5240MHz_Tmax | Pass | 8.01 | 11.56 | 11.77 | 14.68 | 22.69 | 23.00 |
| 802.11ax HEW40-BF_Nss1,(MCS0)_2TX | - | - | - | - | - | - | - |
| 5190MHz_Tnom | Pass | 8.01 | 11.01 | 11.37 | 14.20 | 22.21 | 23.00 |
| 5190MHz_Tmin | Pass | 8.01 | 10.58 | 11.04 | 13.83 | 21.84 | 23.00 |
| 5190MHz_Tmax | Pass | 8.01 | 11.48 | 11.63 | 14.57 | 22.58 | 23.00 |
| 5230MHz_Tnom | Pass | 8.01 | 11.12 | 11.48 | 14.31 | 22.32 | 23.00 |
| 5230MHz_Tmin | Pass | 8.01 | 10.81 | 11.24 | 14.04 | 22.05 | 23.00 |
| 5230MHz_Tmax | Pass | 8.01 | 11.49 | 11.61 | 14.56 | 22.57 | 23.00 |
| 802.11ax HEW80-BF_Nss1,(MCS0)_2TX | - | - | - | - | - | - | - |
| 5210MHz_Tnom | Pass | 8.01 | 11.58 | 11.78 | 14.69 | 22.70 | 23.00 |
| 5210MHz_Tmin | Pass | 8.01 | 11.04 | 11.41 | 14.24 | 22.25 | 23.00 |
| 5210MHz_Tmax | Pass | 8.01 | 11.83 | 12.08 | 14.97 | 22.98 | 23.00 |

Port X = Port X output power; Total Power = Total power measure all transmit ports simultaneously.

**Summary**

| Mode | EIRP PD (dBm/MHz) |
|---|---|
| 5.15-5.25GHz | - |
| 802.11a_Nss1,(6Mbps)_2TX | 9.76 |
| 802.11ax HEW20_Nss1,(MCS0)_2TX | 9.23 |

RBW=1MHz

## Result

| Mode | Result | Gain (dBi) | PD (dBm/MHz) | EIRP PD (dBm/MHz) | EIRP PD Limit (dBm/MHz) |
|---|---|---|---|---|---|
| 802.11a_Nss1,(6Mbps)_2TX | - | - | - | - | - |
| 5180MHz_Tnom | Pass | 5.00 | 4.49 | 9.49 | 10.00 |
| 5240MHz_Tnom | Pass | 5.00 | 4.76 | 9.76 | 10.00 |
| 802.11ax HEW20_Nss1,(MCS0)_2TX | - | - | - | - | - |
| 5180MHz_Tnom | Pass | 5.00 | 4.23 | 9.23 | 10.00 |
| 5240MHz_Tnom | Pass | 5.00 | 3.81 | 8.81 | 10.00 |

RBW=1MHz;
Port X = Port X power density;

**Summary**

| Mode | Result | Ref (Hz) | Ref (dBm) | Freq (Hz) | Level (dBm) | Limit (dBm) | Margin (dB) | Port |
|---|---|---|---|---|---|---|---|---|
| 5.15-5.25GHz | - | - | - | - | - | - | - | - |
| 802.11a_Nss1,(6Mbps)_2TX | Pass | 5.181384G | 3.25 | 5.19115G | -23.24 | -16.88 | -6.36 | 2 |
| 802.11ax HEW20_Nss1,(MCS0)_2TX | Pass | 5.178984G | 3.24 | 5.198125G | -28.73 | -23.09 | -5.64 | 2 |
| 802.11ax HEW40_Nss1,(MCS0)_2TX | Pass | 5.188808G | 0.35 | 5.219625G | -30.43 | -23.04 | -7.39 | 2 |
| 802.11ax HEW80_Nss1,(MCS0)_2TX | Pass | 5.21138G | -1.67 | 5.2707G | -32.11 | -25.38 | -6.73 | 2 |

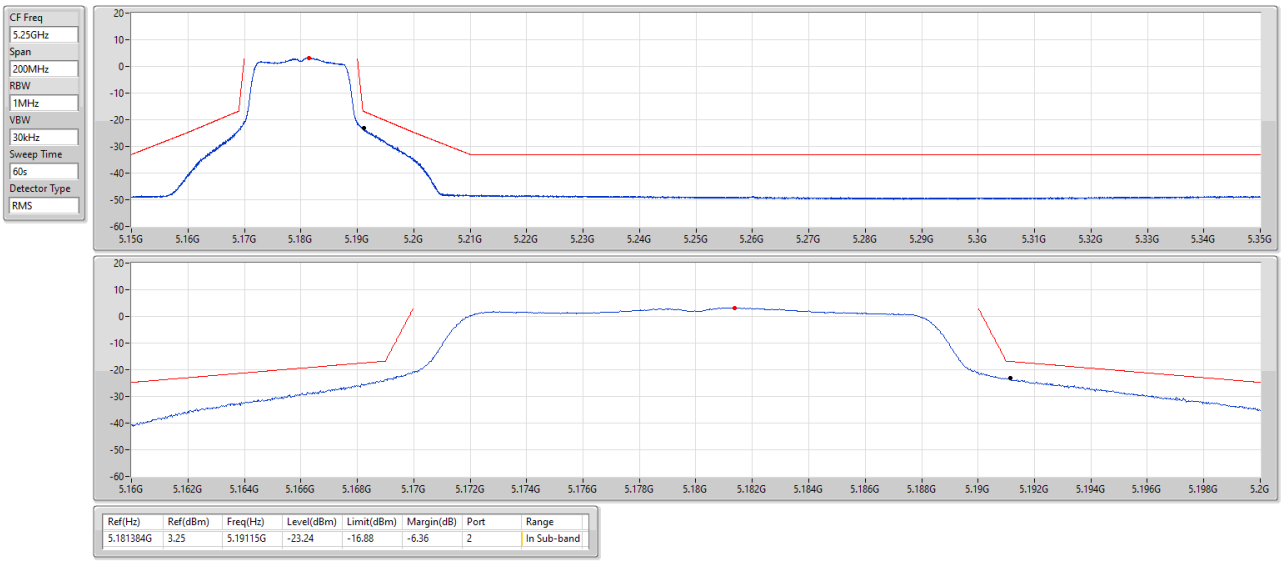
**Result**

| Mode | Result | Ref (Hz) | Ref (dBm) | Freq (Hz) | Level (dBm) | Limit (dBm) | Margin (dB) | Port |
|---|---|---|---|---|---|---|---|---|
| 802.11a_Nss1,(6Mbps)_2TX | - | - | - | - | - | - | - | - |
| 5180MHz_Tnom | Pass | 5.181384G | 3.25 | 5.19115G | -23.24 | -16.88 | -6.36 | 2 |
| 5240MHz_Tnom | Pass | 5.241276G | 3.76 | 5.209925G | -47.58 | -33.01 | -14.57 | 2 |
| 802.11ax HEW20_Nss1,(MCS0)_2TX | - | - | - | - | - | - | - | - |
| 5180MHz_Tnom | Pass | 5.178984G | 3.24 | 5.198125G | -28.73 | -23.09 | -5.64 | 2 |
| 5240MHz_Tnom | Pass | 5.238776G | 2.58 | 5.2503G | -12.40 | -3.42 | -8.98 | 2 |
| 802.11ax HEW40_Nss1,(MCS0)_2TX | - | - | - | - | - | - | - | - |
| 5190MHz_Tnom | Pass | 5.188808G | 0.35 | 5.219625G | -30.43 | -23.04 | -7.39 | 2 |
| 5230MHz_Tnom | Pass | 5.228603G | 0.38 | 5.17015G | -48.44 | -32.97 | -15.47 | 2 |
| 802.11ax HEW80_Nss1,(MCS0)_2TX | - | - | - | - | - | - | - | - |
| 5210MHz_Tnom | Pass | 5.21138G | -1.67 | 5.2707G | -32.11 | -25.38 | -6.73 | 2 |

**5.15-5.25GHz_802.11a_Nss1,(6Mbps)_2TX** **MASK**

**5180MHz_Tnom**

12/06/2023

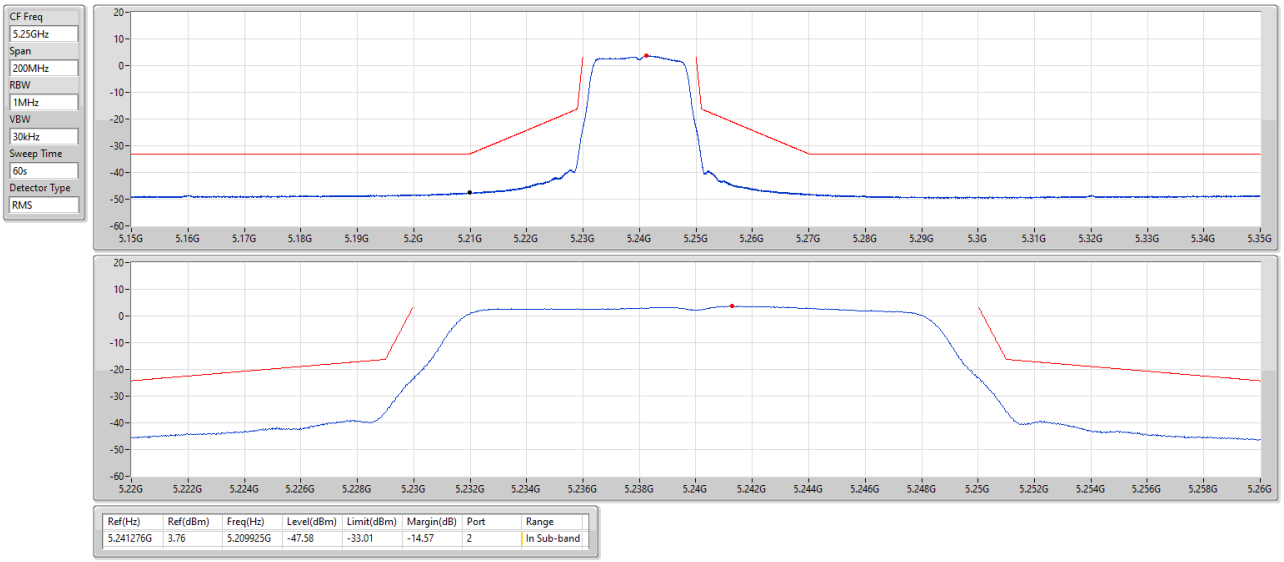



| Ref(Hz) | Ref(dBm) | Freq(Hz) | Level(dBm) | Limit(dBm) | Margin(dB) | Port | Range |
|---|---|---|---|---|---|---|---|
| 5.181384G | 3.25 | 5.19115G | -23.24 | -16.88 | -6.36 | 2 | In Sub-band |

**5.15-5.25GHz_802.11a_Nss1,(6Mbps)_2TX** **MASK**

**5240MHz_Tnom**

12/06/2023

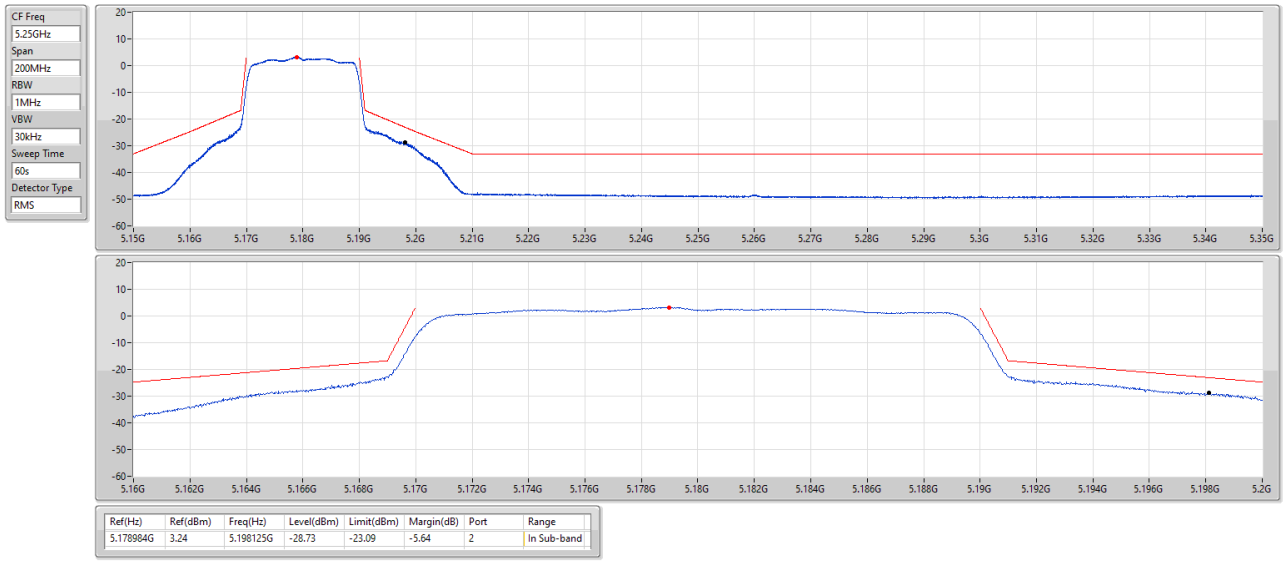



| Ref(Hz) | Ref(dBm) | Freq(Hz) | Level(dBm) | Limit(dBm) | Margin(dB) | Port | Range |
|---|---|---|---|---|---|---|---|
| 5.241276G | 3.76 | 5.209925G | -47.58 | -33.01 | -14.57 | 2 | In Sub-band |

**5.15-5.25GHz_802.11ax HEW20_Nss1,(MCS0)_2TX** **MASK**

**5180MHz_Tnom**

12/06/2023

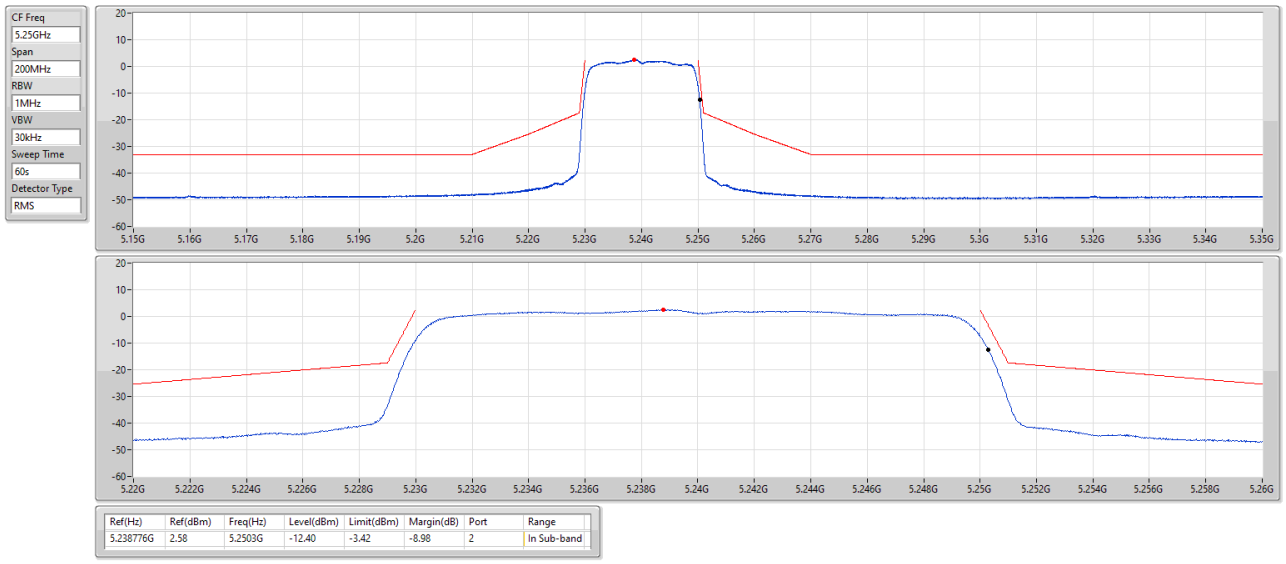



| Ref(Hz) | Ref(dBm) | Freq(Hz) | Level(dBm) | Limit(dBm) | Margin(dB) | Port | Range |
|---|---|---|---|---|---|---|---|
| 5.178984G | 3.24 | 5.198125G | -28.73 | -23.09 | -5.64 | 2 | In Sub-band |

**5.15-5.25GHz_802.11ax HEW20_Nss1,(MCS0)_2TX** **MASK**

**5240MHz_Tnom**

12/06/2023

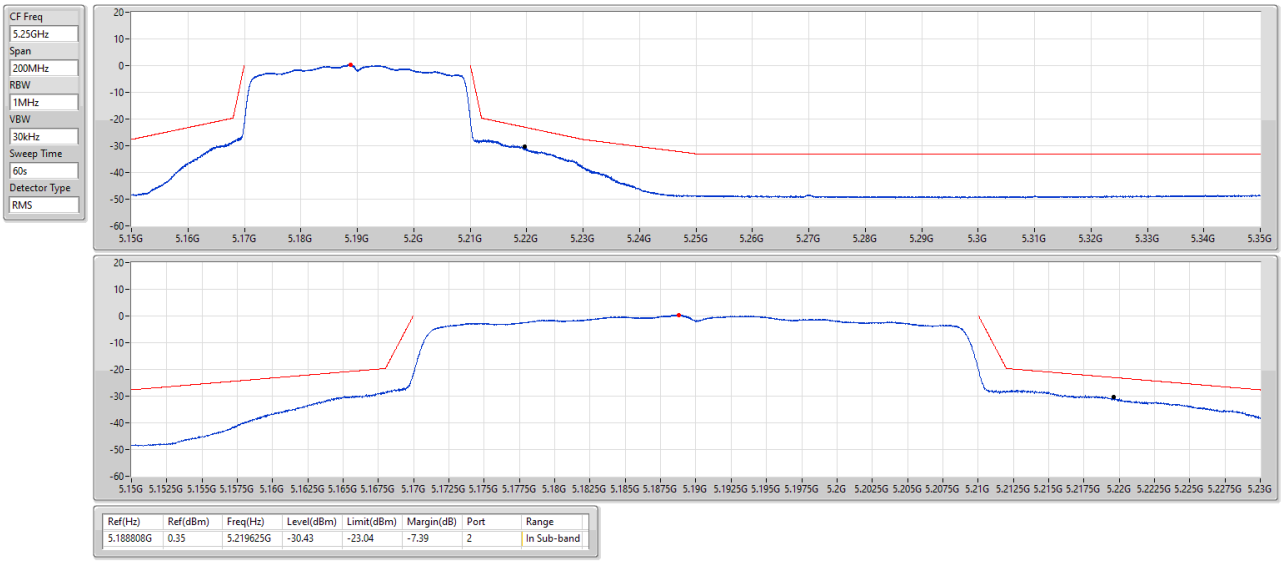



| Ref(Hz) | Ref(dBm) | Freq(Hz) | Level(dBm) | Limit(dBm) | Margin(dB) | Port | Range |
|---|---|---|---|---|---|---|---|
| 5.238776G | 2.58 | 5.2503G | -12.40 | -3.42 | -8.98 | 2 | In Sub-band |

**5.15-5.25GHz_802.11ax HEW40_Nss1,(MCS0)_2TX** **MASK**

**5190MHz_Tnom**

12/06/2023

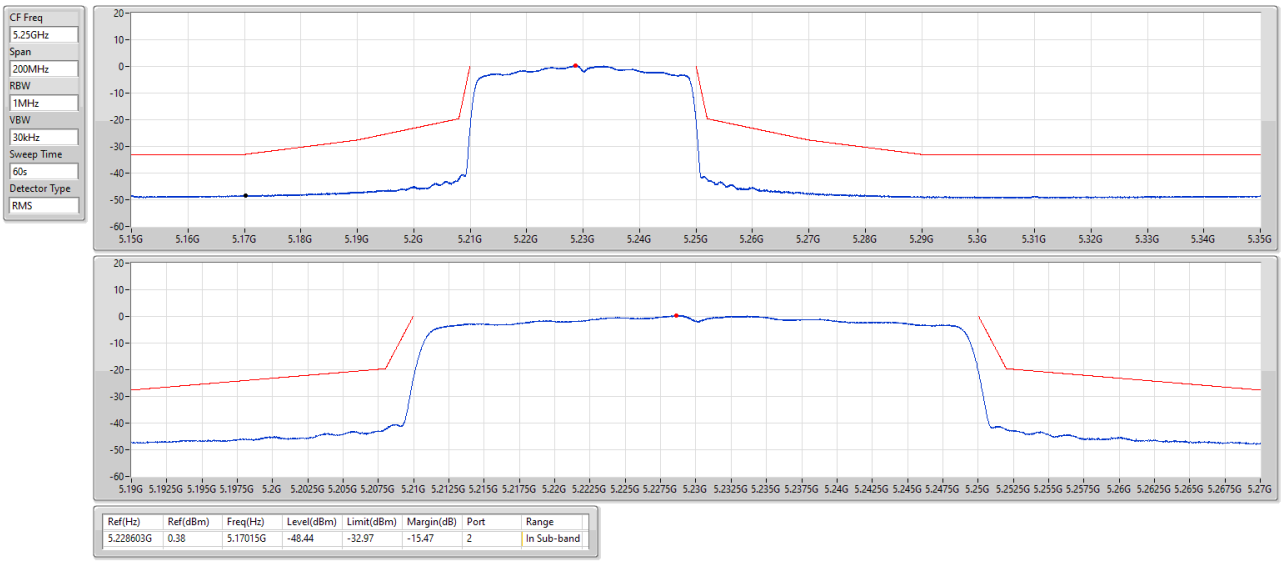



| Ref(Hz) | Ref(dBm) | Freq(Hz) | Level(dBm) | Limit(dBm) | Margin(dB) | Port | Range |
|---|---|---|---|---|---|---|---|
| 5.188808G | 0.35 | 5.219625G | -30.43 | -23.04 | -7.39 | 2 | In Sub-band |

**5.15-5.25GHz_802.11ax HEW40_Nss1,(MCS0)_2TX** **MASK**

**5230MHz_Tnom**

12/06/2023

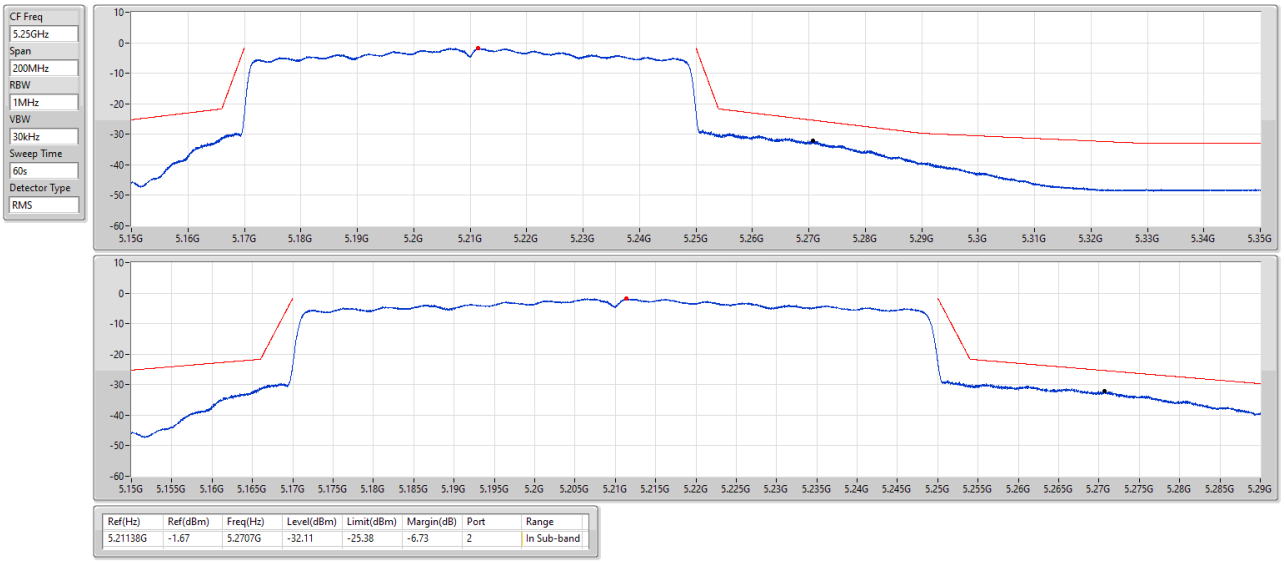



| Ref(Hz) | Ref(dBm) | Freq(Hz) | Level(dBm) | Limit(dBm) | Margin(dB) | Port | Range |
|---|---|---|---|---|---|---|---|
| 5.228603G | 0.38 | 5.17015G | -48.44 | -32.97 | -15.47 | 2 | In Sub-band |

**5.15-5.25GHz_802.11ax HEW80_Nss1,(MCS0)_2TX** **MASK**

**5210MHz_Tnom**

12/06/2023




| Ref(Hz) | Ref(dBm) | Freq(Hz) | Level(dBm) | Limit(dBm) | Margin(dB) | Port | Range |
|---|---|---|---|---|---|---|---|
| 5.21138G | -1.67 | 5.2707G | -32.11 | -25.38 | -6.73 | 2 | In Sub-band |

**Summary**

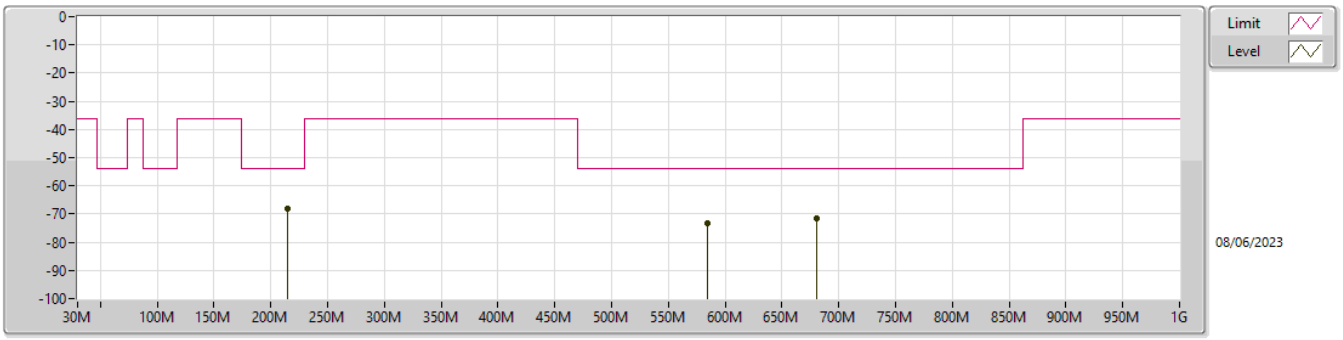
| Mode | Result | Type | Freq (Hz) | Level (dBm) | Limit (dBm) | Margin (dB) | Factor (dB) | Dist (m) | Condition | Azimuth (°) | Height (m) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.15-5.35GHz | - | - | - | - | - | - | - | - | - | - | - | - |
| 802.11ax HEW80_Nss1,(MCS0)_2TX | Pass | AV | 220.72M | -66.04 | -54.00 | -12.04 | 0.43 | 3 | Horizontal | 0 | 1.5 | - |

## Result

| Mode | Result | Type | Freq (Hz) | Level (dBm) | Limit (dBm) | Margin (dB) | Factor (dB) | Dist (m) | Condition | Azimuth (°) | Height (m) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 802.11ax HEW80_Nss1,(MCS0)_2TX | - | - | - | - | - | - | - | - | - | - | - | - |
| 5210MHz_TX | Pass | AV | 214.52M | -67.97 | -54.00 | -13.97 | -0.78 | 3 | Vertical | 360 | 1.5 | - |
| 5210MHz_TX | Pass | AV | 584.56M | -73.29 | -54.00 | -19.29 | 7.74 | 3 | Vertical | 360 | 1.5 | - |
| 5210MHz_TX | Pass | AV | 680.57M | -71.73 | -54.00 | -17.73 | 9.03 | 3 | Vertical | 360 | 1.5 | - |
| 5210MHz_TX | Pass | AV | 108.31M | -72.09 | -54.00 | -18.09 | 1.14 | 3 | Horizontal | 0 | 1.5 | - |
| 5210MHz_TX | Pass | AV | 220.72M | -66.04 | -54.00 | -12.04 | 0.43 | 3 | Horizontal | 0 | 1.5 | - |
| 5210MHz_TX | Pass | AV | 700.07M | -69.75 | -54.00 | -15.75 | 10.51 | 3 | Horizontal | 0 | 1.5 | - |

**5.15-5.35GHz_802.11ax HEW80_Nss1,(MCS0)_2TX**

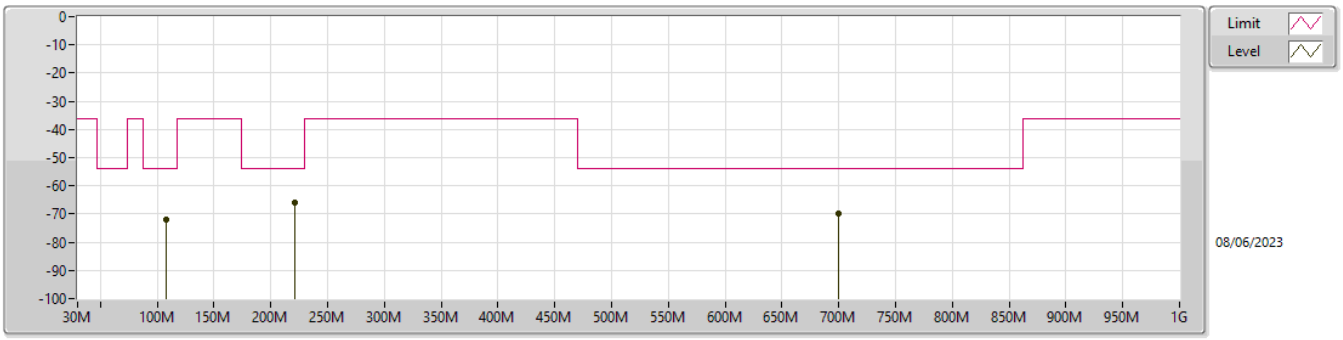
**5210MHz_TX**




| Freq | Level | Limit | Margin | Factor | Condition | Raw |
|---|---|---|---|---|---|---|
| (Hz) | (dBm) | (dBm) | (dB) | (dB) | | (dBm) |
| 214.52M | -67.97 | -54.00 | -13.97 | -0.78 | Vertical | -67.19 |
| 584.56M | -73.29 | -54.00 | -19.29 | 7.74 | Vertical | -81.03 |
| 680.57M | -71.73 | -54.00 | -17.73 | 9.03 | Vertical | -80.76 |

**5.15-5.35GHz_802.11ax HEW80_Nss1,(MCS0)_2TX**

**5210MHz_TX**




| Freq | Level | Limit | Margin | Factor | Condition | Raw |
|---|---|---|---|---|---|---|
| (Hz) | (dBm) | (dBm) | (dB) | (dB) | | (dBm) |
| 108.31M | -72.09 | -54.00 | -18.09 | 1.14 | Horizontal | -73.23 |
| 220.72M | -66.04 | -54.00 | -12.04 | 0.43 | Horizontal | -66.47 |
| 700.07M | -69.75 | -54.00 | -15.75 | 10.51 | Horizontal | -80.26 |

## Summary

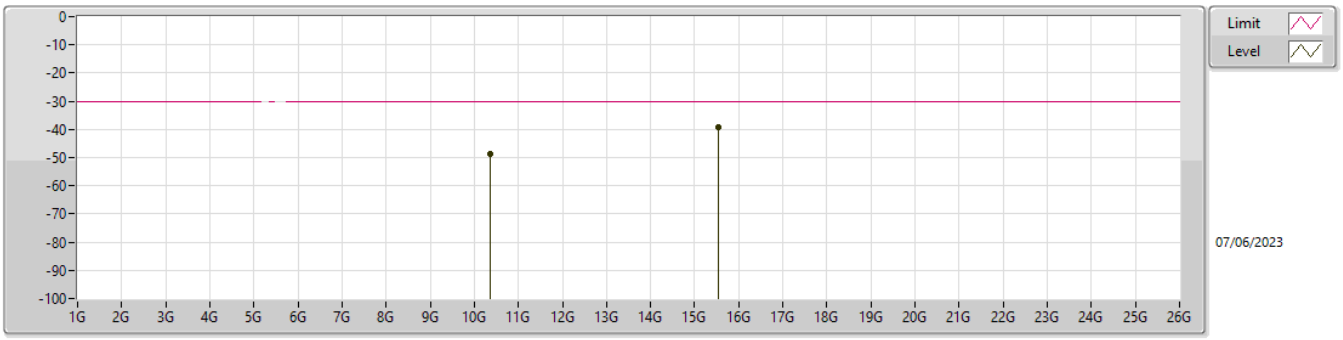
| Mode | Result | Type | Freq (Hz) | Level (dBm) | Limit (dBm) | Margin (dB) | Factor (dB) | Dist (m) | Condition | Azimuth (°) | Height (m) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.15-5.35GHz | - | - | - | - | - | - | - | - | - | - | - | - |
| 802.11a_Nss1,(6Mbps)_2TX | Pass | AV | 15.54149G | -34.14 | -30.00 | -4.14 | 14.47 | 3 | Horizontal | 352 | 1.5 | TDP |
| 802.11ax HEW20_Nss1,(MCS0)_2TX | Pass | AV | 15.5475G | -36.81 | -30.00 | -6.81 | 14.48 | 3 | Horizontal | 0 | 1.5 | - |
| 802.11ax HEW40_Nss1,(MCS0)_2TX | Pass | AV | 15.56303G | -39.69 | -30.00 | -9.69 | 14.53 | 3 | Horizontal | 0 | 1.5 | - |
| 802.11ax HEW80_Nss1,(MCS0)_2TX | Pass | AV | 15.59086G | -46.83 | -30.00 | -16.83 | 14.60 | 3 | Horizontal | 360 | 1.5 | - |

## Result

| Mode | Result | Type | Freq (Hz) | Level (dBm) | Limit (dBm) | Margin (dB) | Factor (dB) | Dist (m) | Condition | Azimuth (°) | Height (m) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 802.11a_Nss1,(6Mbps)_2TX | - | - | - | - | - | - | - | - | - | - | - | - |
| 5180MHz_TX | Pass | AV | 10.36037G | -48.86 | -30.00 | -18.86 | 3.54 | 3 | Vertical | 0 | 1.5 | - |
| 5180MHz_TX | Pass | AV | 15.54427G | -39.10 | -30.00 | -9.10 | 14.48 | 3 | Vertical | 0 | 1.5 | - |
| 5180MHz_TX | Pass | AV | 10.36102G | -48.14 | -30.00 | -18.14 | 3.54 | 3 | Horizontal | 360 | 1.5 | - |
| 5180MHz_TX | Pass | AV | 15.54149G | -34.14 | -30.00 | -4.14 | 14.47 | 3 | Horizontal | 352 | 1.5 | TDP |
| 802.11ax HEW20_Nss1,(MCS0)_2TX | - | - | - | - | - | - | - | - | - | - | - | - |
| 5180MHz_TX | Pass | AV | 10.36232G | -48.14 | -30.00 | -18.14 | 3.54 | 3 | Vertical | 360 | 1.5 | - |
| 5180MHz_TX | Pass | AV | 15.54103G | -41.77 | -30.00 | -11.77 | 14.47 | 3 | Vertical | 360 | 1.5 | - |
| 5180MHz_TX | Pass | AV | 10.36102G | -51.06 | -30.00 | -21.06 | 3.54 | 3 | Horizontal | 0 | 1.5 | - |
| 5180MHz_TX | Pass | AV | 15.5475G | -36.81 | -30.00 | -6.81 | 14.48 | 3 | Horizontal | 0 | 1.5 | - |
| 802.11ax HEW40_Nss1,(MCS0)_2TX | - | - | - | - | - | - | - | - | - | - | - | - |
| 5190MHz_TX | Pass | AV | 10.38108G | -51.30 | -30.00 | -21.30 | 3.53 | 3 | Vertical | 360 | 1.5 | - |
| 5190MHz_TX | Pass | AV | 15.5805G | -44.57 | -30.00 | -14.57 | 14.57 | 3 | Vertical | 360 | 1.5 | - |
| 5190MHz_TX | Pass | AV | 10.37914G | -52.47 | -30.00 | -22.47 | 3.53 | 3 | Horizontal | 0 | 1.5 | - |
| 5190MHz_TX | Pass | AV | 15.56303G | -39.69 | -30.00 | -9.69 | 14.53 | 3 | Horizontal | 0 | 1.5 | - |
| 802.11ax HEW80_Nss1,(MCS0)_2TX | - | - | - | - | - | - | - | - | - | - | - | - |
| 5210MHz_TX | Pass | AV | 10.44126G | -53.06 | -30.00 | -23.06 | 3.49 | 3 | Vertical | 0 | 1.5 | - |
| 5210MHz_TX | Pass | AV | 15.59539G | -48.02 | -30.00 | -18.02 | 14.61 | 3 | Vertical | 0 | 1.5 | - |
| 5210MHz_TX | Pass | AV | 10.45097G | -54.97 | -30.00 | -24.97 | 3.49 | 3 | Horizontal | 360 | 1.5 | - |
| 5210MHz_TX | Pass | AV | 15.59086G | -46.83 | -30.00 | -16.83 | 14.60 | 3 | Horizontal | 360 | 1.5 | - |

**5.15-5.35GHz_802.11a_Nss1,(6Mbps)_2TX**

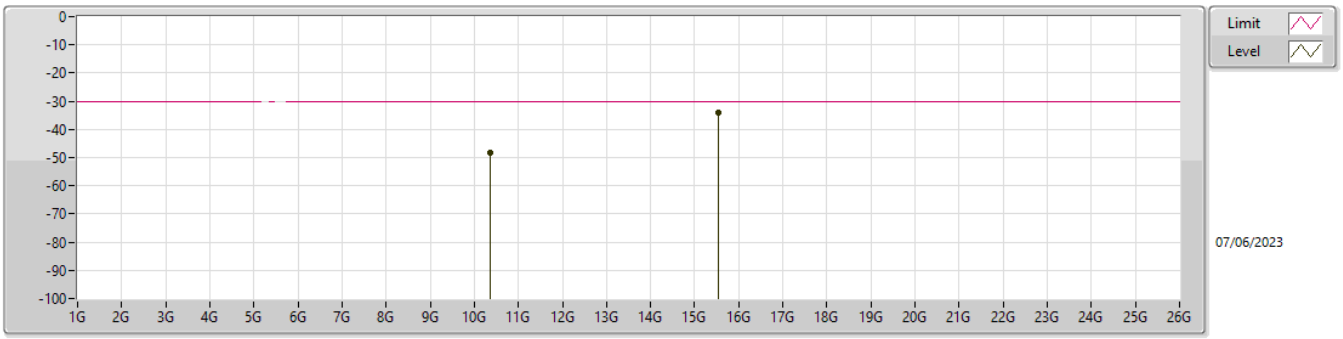
**5180MHz_TX**




| Freq | Level | Limit | Margin | Factor | Condition | Raw |
|---|---|---|---|---|---|---|
| (Hz) | (dBm) | (dBm) | (dB) | (dB) | | (dBm) |
| 10.36037G | -48.86 | -30.00 | -18.86 | 3.54 | Vertical | -52.40 |
| 15.54427G | -39.10 | -30.00 | -9.10 | 14.48 | Vertical | -53.58 |

**5.15-5.35GHz_802.11a_Nss1,(6Mbps)_2TX**

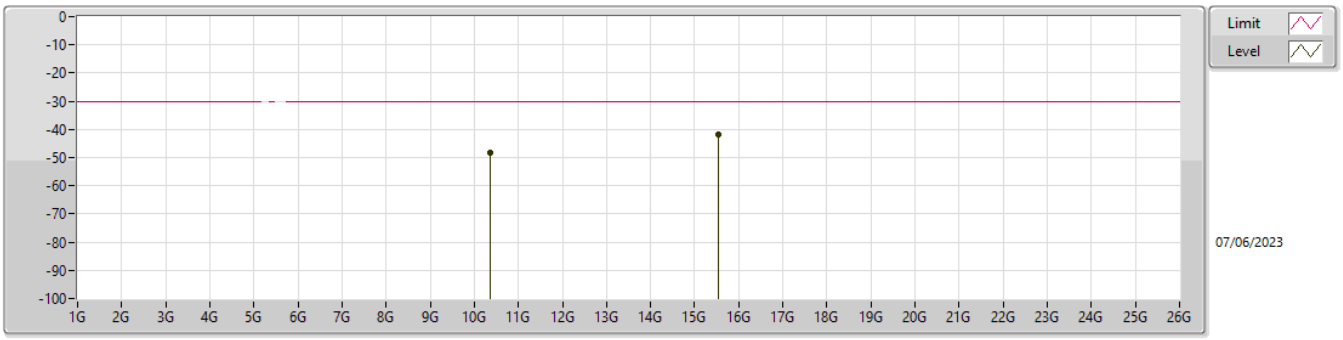
**5180MHz_TX**




| Freq | Level | Limit | Margin | Factor | Condition | Raw |
|---|---|---|---|---|---|---|
| (Hz) | (dBm) | (dBm) | (dB) | (dB) | | (dBm) |
| 10.36102G | -48.14 | -30.00 | -18.14 | 3.54 | Horizontal | -51.68 |
| 15.54149G | -34.14 | -30.00 | -4.14 | 14.47 | Horizontal | -48.61 |

**5.15-5.35GHz_802.11ax HEW20_Nss1,(MCS0)_2TX**

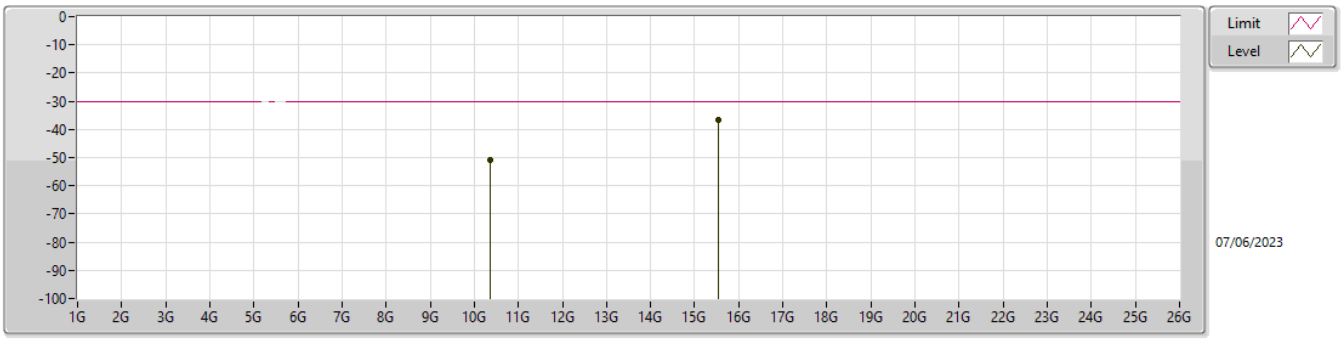
**5180MHz_TX**




| Freq | Level | Limit | Margin | Factor | Condition | Raw |
|---|---|---|---|---|---|---|
| (Hz) | (dBm) | (dBm) | (dB) | (dB) | | (dBm) |
| 10.36232G | -48.14 | -30.00 | -18.14 | 3.54 | Vertical | -51.68 |
| 15.54103G | -41.77 | -30.00 | -11.77 | 14.47 | Vertical | -56.24 |

**5.15-5.35GHz_802.11ax HEW20_Nss1,(MCS0)_2TX**

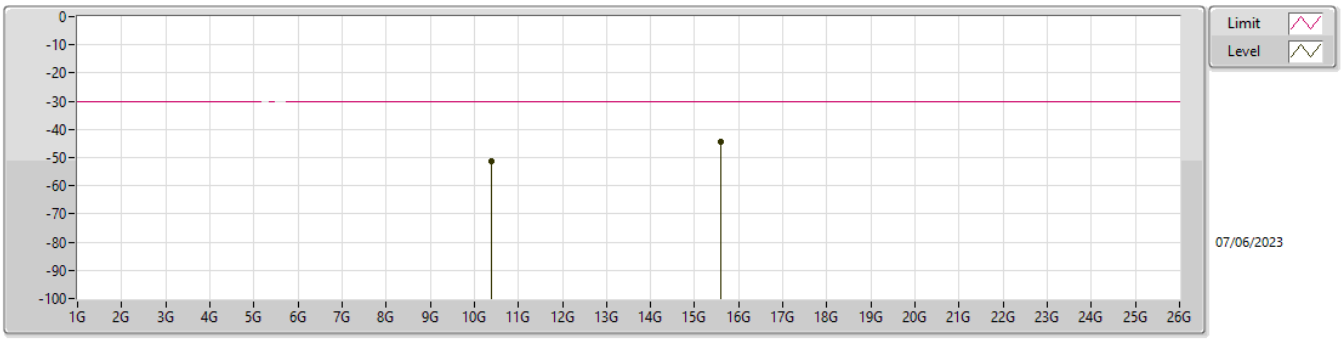
**5180MHz_TX**




| Freq | Level | Limit | Margin | Factor | Condition | Raw |
|---|---|---|---|---|---|---|
| (Hz) | (dBm) | (dBm) | (dB) | (dB) | | (dBm) |
| 10.36102G | -51.06 | -30.00 | -21.06 | 3.54 | Horizontal | -54.60 |
| 15.5475G | -36.81 | -30.00 | -6.81 | 14.48 | Horizontal | -51.29 |

**5.15-5.35GHz_802.11ax HEW40_Nss1,(MCS0)_2TX**

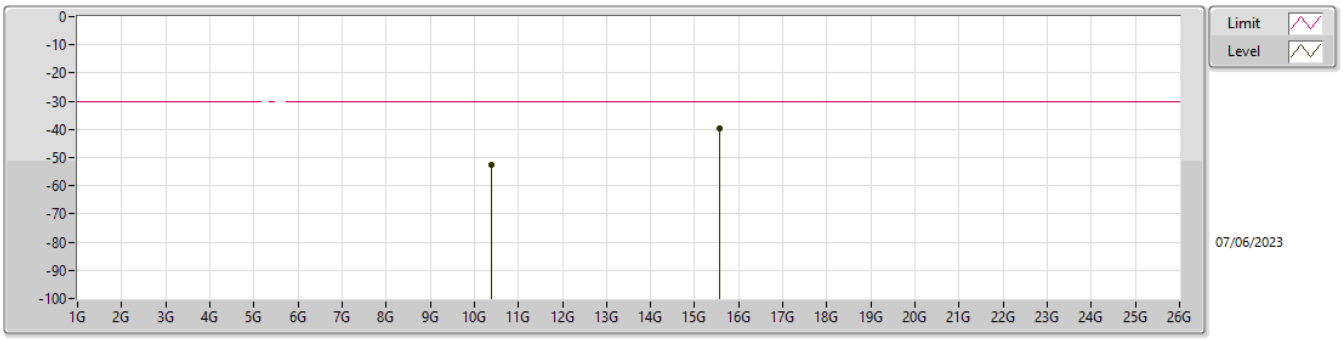
**5190MHz_TX**




| Freq | Level | Limit | Margin | Factor | Condition | Raw |
|---|---|---|---|---|---|---|
| (Hz) | (dBm) | (dBm) | (dB) | (dB) | | (dBm) |
| 10.38108G | -51.30 | -30.00 | -21.30 | 3.53 | Vertical | -54.83 |
| 15.5805G | -44.57 | -30.00 | -14.57 | 14.57 | Vertical | -59.14 |

**5.15-5.35GHz_802.11ax HEW40_Nss1,(MCS0)_2TX**

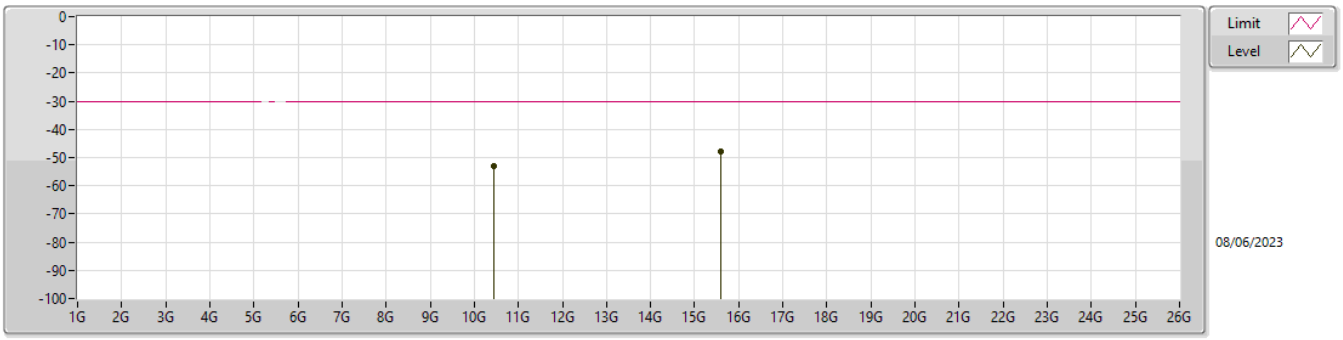
**5190MHz_TX**




| Freq | Level | Limit | Margin | Factor | Condition | Raw |
|---|---|---|---|---|---|---|
| (Hz) | (dBm) | (dBm) | (dB) | (dB) | | (dBm) |
| 10.37914G | -52.47 | -30.00 | -22.47 | 3.53 | Horizontal | -56.00 |
| 15.56303G | -39.69 | -30.00 | -9.69 | 14.53 | Horizontal | -54.22 |

**5.15-5.35GHz_802.11ax HEW80_Nss1,(MCS0)_2TX**

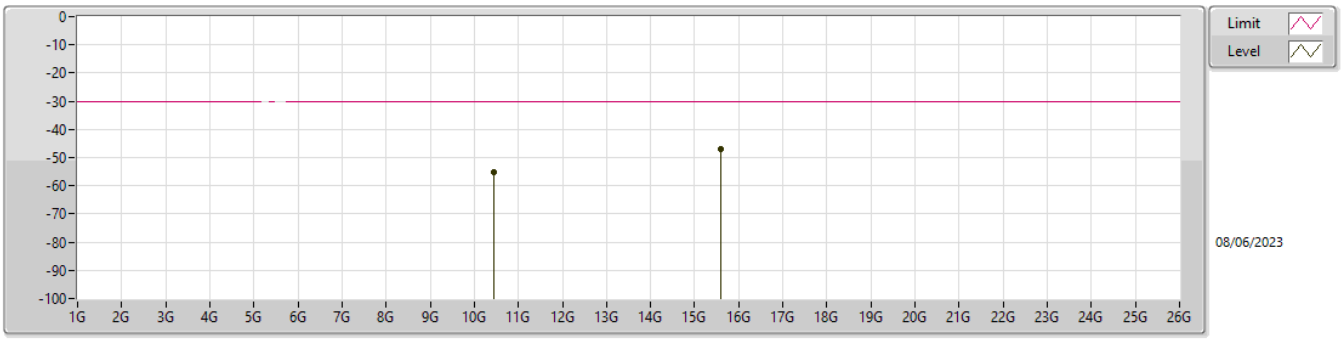
**5210MHz_TX**




| Freq | Level | Limit | Margin | Factor | Condition | Raw |
|---|---|---|---|---|---|---|
| (Hz) | (dBm) | (dBm) | (dB) | (dB) | | (dBm) |
| 10.44126G | -53.06 | -30.00 | -23.06 | 3.49 | Vertical | -56.55 |
| 15.59539G | -48.02 | -30.00 | -18.02 | 14.61 | Vertical | -62.63 |

**5.15-5.35GHz_802.11ax HEW80_Nss1,(MCS0)_2TX**

**5210MHz_TX**




| Freq | Level | Limit | Margin | Factor | Condition | Raw |
|---|---|---|---|---|---|---|
| (Hz) | (dBm) | (dBm) | (dB) | (dB) | | (dBm) |
| 10.45097G | -54.97 | -30.00 | -24.97 | 3.49 | Horizontal | -58.46 |
| 15.59086G | -46.83 | -30.00 | -16.83 | 14.60 | Horizontal | -61.43 |

**Summary**

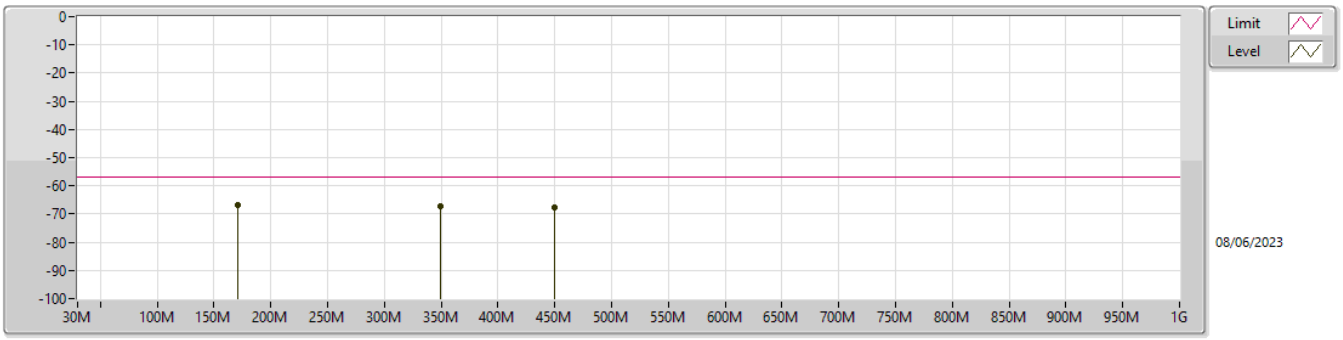
| Mode | Result | Type | Freq (Hz) | Level (dBm) | Limit (dBm) | Margin (dB) | Factor (dB) | Dist (m) | Condition | Azimuth (°) | Height (m) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.15-5.35GHz | - | - | - | - | - | - | - | - | - | - | - | - |
| 802.11ax HEW80_(MCS0)_RX | Pass | AV | 219.02M | -63.62 | -57.00 | -6.62 | 0.36 | 3 | Horizontal | 360 | 1.5 | - |

## Result

| Mode | Result | Type | Freq (Hz) | Level (dBm) | Limit (dBm) | Margin (dB) | Factor (dB) | Dist (m) | Condition | Azimuth (°) | Height (m) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 802.11ax HEW80_(MCS0)_RX | - | - | - | - | - | - | - | - | - | - | - | - |
| 5210MHz_RX | Pass | AV | 170.81M | -66.97 | -57.00 | -9.97 | -0.59 | 3 | Vertical | 0 | 1.5 | - |
| 5210MHz_RX | Pass | AV | 349.93M | -67.18 | -57.00 | -10.18 | 3.73 | 3 | Vertical | 0 | 1.5 | - |
| 5210MHz_RX | Pass | AV | 449.94M | -67.85 | -57.00 | -10.85 | 5.39 | 3 | Vertical | 0 | 1.5 | - |
| 5210MHz_RX | Pass | AV | 219.02M | -63.62 | -57.00 | -6.62 | 0.36 | 3 | Horizontal | 360 | 1.5 | - |
| 5210MHz_RX | Pass | AV | 341.83M | -64.04 | -57.00 | -7.04 | 4.12 | 3 | Horizontal | 360 | 1.5 | - |
| 5210MHz_RX | Pass | AV | 449.94M | -67.28 | -57.00 | -10.28 | 6.15 | 3 | Horizontal | 360 | 1.5 | - |

**5.15-5.35GHz_802.11ax HEW80_(MCS0)_RX**

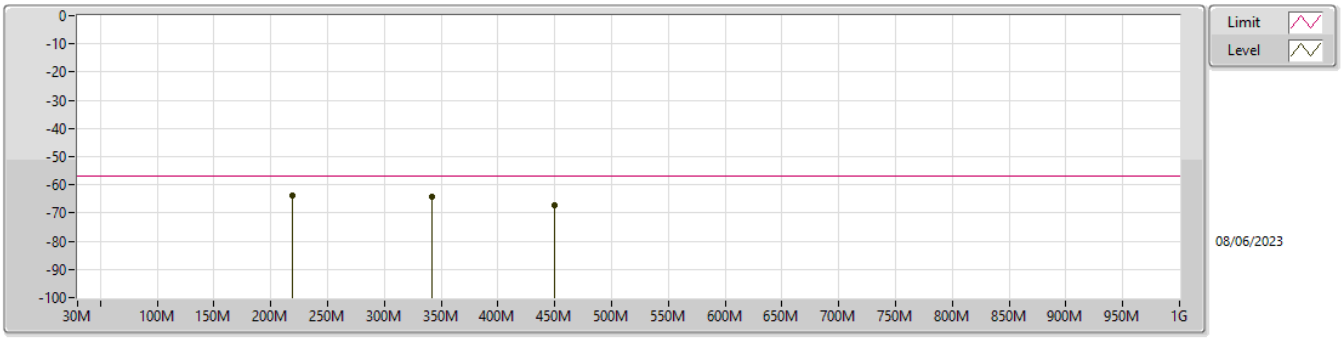
**5210MHz_RX**




| Freq | Level | Limit | Margin | Factor | Condition | Raw |
|---|---|---|---|---|---|---|
| (Hz) | (dBm) | (dBm) | (dB) | (dB) | | (dBm) |
| 170.81M | -66.97 | -57.00 | -9.97 | -0.59 | Vertical | -66.38 |
| 349.93M | -67.18 | -57.00 | -10.18 | 3.73 | Vertical | -70.91 |
| 449.94M | -67.85 | -57.00 | -10.85 | 5.39 | Vertical | -73.24 |

**5.15-5.35GHz_802.11ax HEW80_(MCS0)_RX**

**5210MHz_RX**




| Freq | Level | Limit | Margin | Factor | Condition | Raw |
|---|---|---|---|---|---|---|
| (Hz) | (dBm) | (dBm) | (dB) | (dB) | | (dBm) |
| 219.02M | -63.62 | -57.00 | -6.62 | 0.36 | Horizontal | -63.98 |
| 341.83M | -64.04 | -57.00 | -7.04 | 4.12 | Horizontal | -68.16 |
| 449.94M | -67.28 | -57.00 | -10.28 | 6.15 | Horizontal | -73.43 |

**Summary**

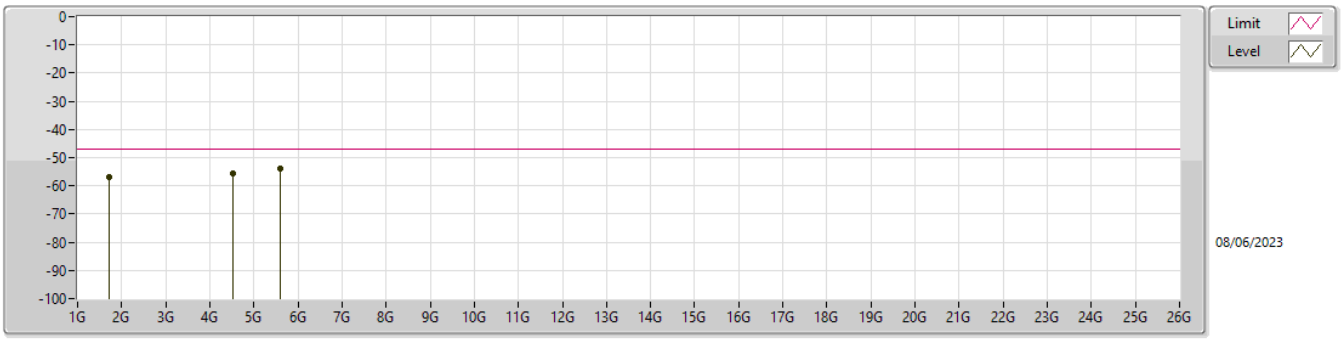
| Mode | Result | Type | Freq (Hz) | Level (dBm) | Limit (dBm) | Margin (dB) | Factor (dB) | Dist (m) | Condition | Azimuth (°) | Height (m) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.15-5.35GHz | - | - | - | - | - | - | - | - | - | - | - | - |
| 802.11ax HEW20_(MCS0)_RX | Pass | AV | 5.59963G | -54.02 | -47.00 | -7.02 | 4.00 | 3 | Vertical | 14 | 1.5 | TDP |
| 802.11ax HEW80_(MCS0)_RX | Pass | AV | 5.59986G | -53.85 | -47.00 | -6.85 | 4.00 | 3 | Vertical | 11 | 1.5 | TDP |

## Result

| Mode | Result | Type | Freq (Hz) | Level (dBm) | Limit (dBm) | Margin (dB) | Factor (dB) | Dist (m) | Condition | Azimuth (°) | Height (m) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 802.11ax HEW20_(MCS0)_RX | - | - | - | - | - | - | - | - | - | - | - | - |
| 5180MHz_RX | Pass | AV | 1.718G | -56.85 | -47.00 | -9.85 | -5.21 | 3 | Vertical | 0 | 1.5 | - |
| 5180MHz_RX | Pass | AV | 4.531G | -55.53 | -47.00 | -8.53 | 2.76 | 3 | Vertical | 0 | 1.5 | - |
| 5180MHz_RX | Pass | AV | 5.59963G | -54.02 | -47.00 | -7.02 | 4.00 | 3 | Vertical | 14 | 1.5 | TDP |
| 5180MHz_RX | Pass | AV | 1.718G | -60.43 | -47.00 | -13.43 | -5.21 | 3 | Horizontal | 360 | 1.5 | - |
| 5180MHz_RX | Pass | AV | 6.17G | -56.32 | -47.00 | -9.32 | 4.29 | 3 | Horizontal | 360 | 1.5 | - |
| 5180MHz_RX | Pass | AV | 8.278G | -56.11 | -47.00 | -9.11 | 2.53 | 3 | Horizontal | 360 | 1.5 | - |
| 802.11ax HEW80_(MCS0)_RX | - | - | - | - | - | - | - | - | - | - | - | - |
| 5210MHz_RX | Pass | AV | 1.718G | -57.15 | -47.00 | -10.15 | -5.21 | 3 | Vertical | 360 | 1.5 | - |
| 5210MHz_RX | Pass | AV | 4.997G | -55.74 | -47.00 | -8.74 | 2.96 | 3 | Vertical | 360 | 1.5 | - |
| 5210MHz_RX | Pass | AV | 5.59986G | -53.85 | -47.00 | -6.85 | 4.00 | 3 | Vertical | 11 | 1.5 | TDP |
| 5210MHz_RX | Pass | AV | 1.718G | -59.00 | -47.00 | -12.00 | -5.21 | 3 | Horizontal | 0 | 1.5 | - |
| 5210MHz_RX | Pass | AV | 6.121G | -56.87 | -47.00 | -9.87 | 4.29 | 3 | Horizontal | 0 | 1.5 | - |
| 5210MHz_RX | Pass | AV | 9.736G | -55.99 | -47.00 | -8.99 | 3.49 | 3 | Horizontal | 0 | 1.5 | - |

**5.15-5.35GHz_802.11ax HEW20_(MCS0)_RX**

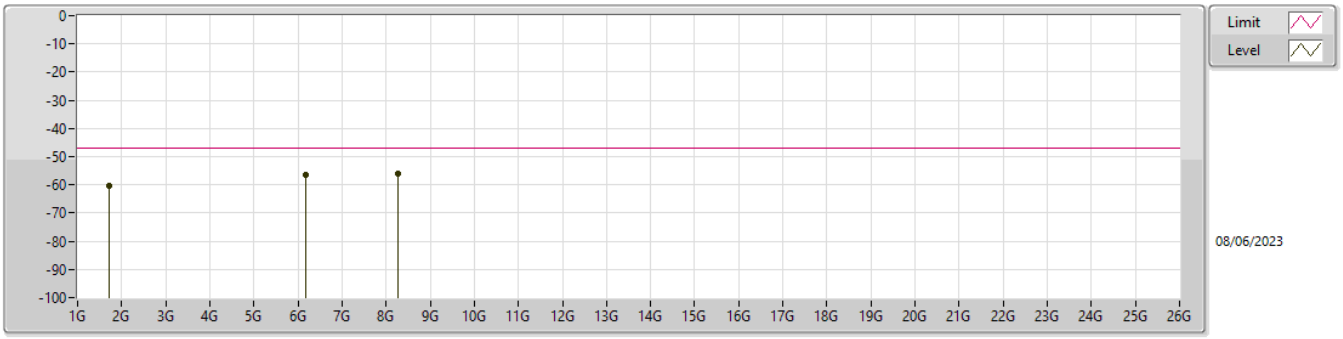
**5180MHz_RX**




| Freq | Level | Limit | Margin | Factor | Condition | Raw |
|---|---|---|---|---|---|---|
| (Hz) | (dBm) | (dBm) | (dB) | (dB) | | (dBm) |
| 1.718G | -56.85 | -47.00 | -9.85 | -5.21 | Vertical | -51.64 |
| 4.531G | -55.53 | -47.00 | -8.53 | 2.76 | Vertical | -58.29 |
| 5.59963G | -54.02 | -47.00 | -7.02 | 4.00 | Vertical | -58.02 |

**5.15-5.35GHz_802.11ax HEW20_(MCS0)_RX**

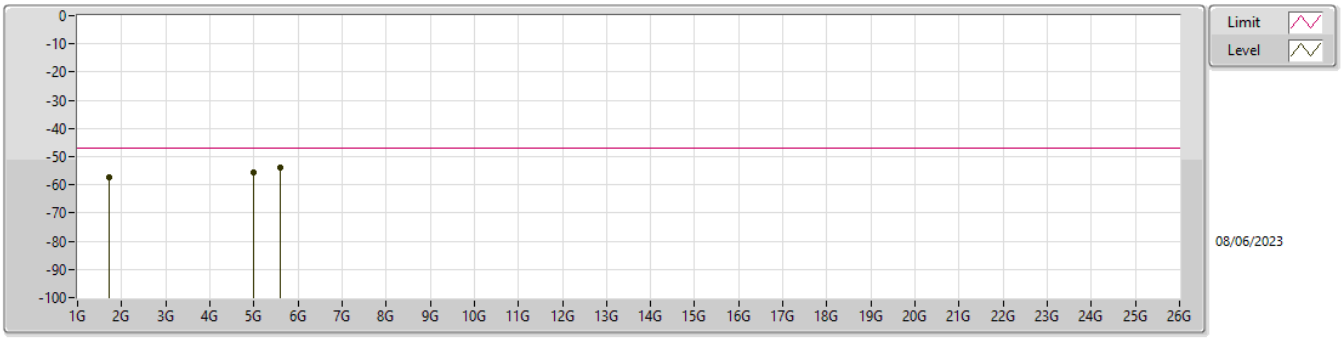
**5180MHz_RX**




| Freq | Level | Limit | Margin | Factor | Condition | Raw |
|---|---|---|---|---|---|---|
| (Hz) | (dBm) | (dBm) | (dB) | (dB) | | (dBm) |
| 1.718G | -60.43 | -47.00 | -13.43 | -5.21 | Horizontal | -55.22 |
| 6.17G | -56.32 | -47.00 | -9.32 | 4.29 | Horizontal | -60.61 |
| 8.278G | -56.11 | -47.00 | -9.11 | 2.53 | Horizontal | -58.64 |

**5.15-5.35GHz_802.11ax HEW80_(MCS0)_RX**

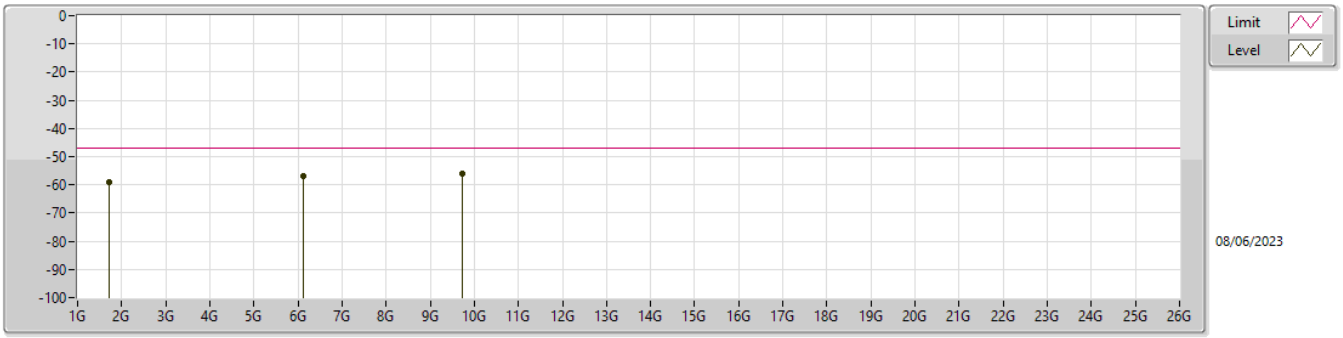
**5210MHz_RX**




| Freq | Level | Limit | Margin | Factor | Condition | Raw |
|---|---|---|---|---|---|---|
| (Hz) | (dBm) | (dBm) | (dB) | (dB) | | (dBm) |
| 1.718G | -57.15 | -47.00 | -10.15 | -5.21 | Vertical | -51.94 |
| 4.997G | -55.74 | -47.00 | -8.74 | 2.96 | Vertical | -58.70 |
| 5.59986G | -53.85 | -47.00 | -6.85 | 4.00 | Vertical | -57.85 |

**5.15-5.35GHz_802.11ax HEW80_(MCS0)_RX**

**5210MHz_RX**

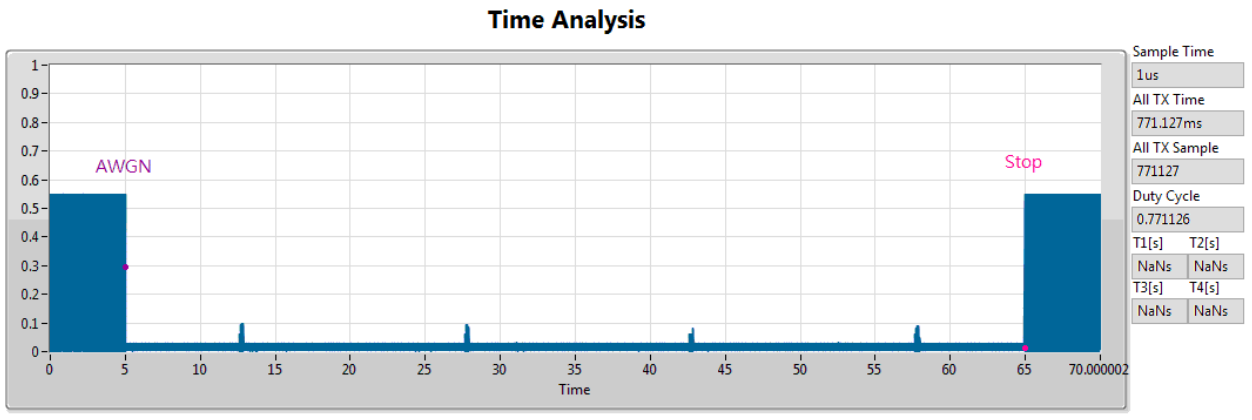



| Freq | Level | Limit | Margin | Factor | Condition | Raw |
|---|---|---|---|---|---|---|
| (Hz) | (dBm) | (dBm) | (dB) | (dB) | | (dBm) |
| 1.718G | -59.00 | -47.00 | -12.00 | -5.21 | Horizontal | -53.79 |
| 6.121G | -56.87 | -47.00 | -9.87 | 4.29 | Horizontal | -61.16 |
| 9.736G | -55.99 | -47.00 | -8.99 | 3.49 | Horizontal | -59.48 |

| Adaptivity Result | | | | |
|---|---|---|---|---|
| **Detection Threshold Level** | | **-75 dBm/MHz** | | |
| **Modulation Mode** | **Freq. (MHz)** | **Adaptivity Interference Signals** | | |
| | | **AWGN** | **LTE** | **OFDM** |
| 802.11ax 20M | 5180 | Pass | Pass | Pass |
| 802.11ax 40M | 5190 | Pass | - | - |
| **Result** | **Complied** | | | |

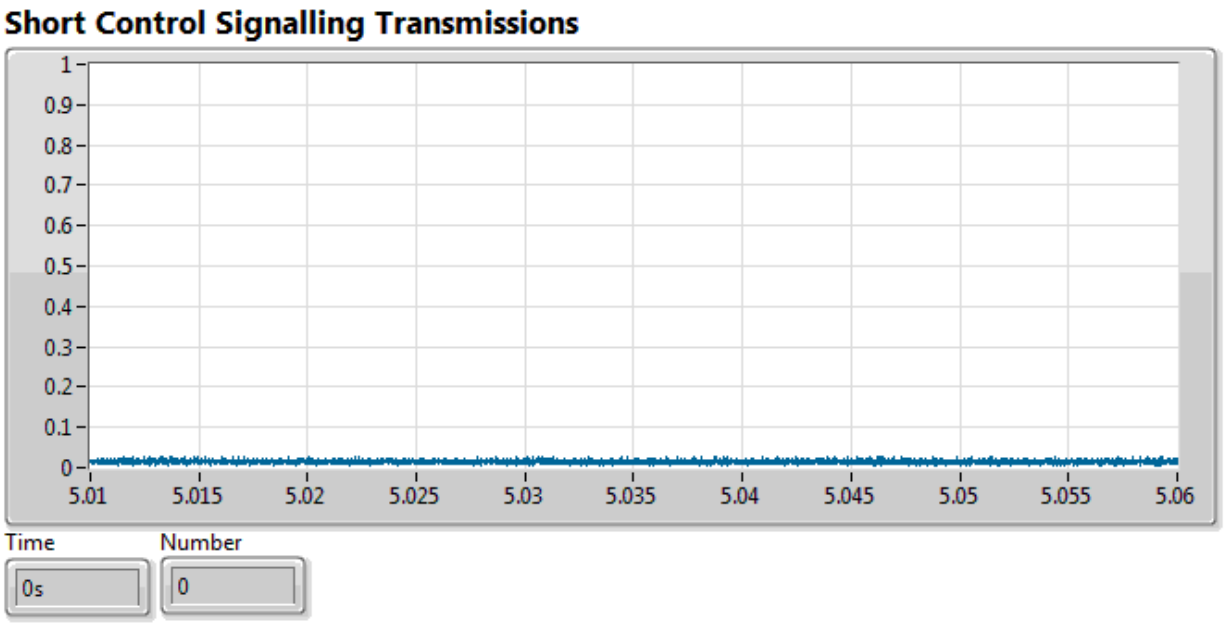
| Short Control Signal Transmissions Result | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Modulation Mode** | **Freq. (MHz)** | **Adaptivity Interference Signals** | | | | | | | |
| | | **AWGN** | **LTE** | **OFDM** | **Limit (ms)** | **AWGN** | **LTE** | **OFDM** | **Limit** |
| | | **SCST (ms)** | | | | **Number of SCST** | | | |
| 802.11ax 20M | 5180 | 0.000 | 0.000 | 0.045 | 2.5 | 0 | 0 | 1 | 50 |
| 802.11ax 40M | 5190 | 0.000 | - | - | 2.5 | 0 | - | - | 50 |
| **Result** | **Complied** | | | | | | | | |

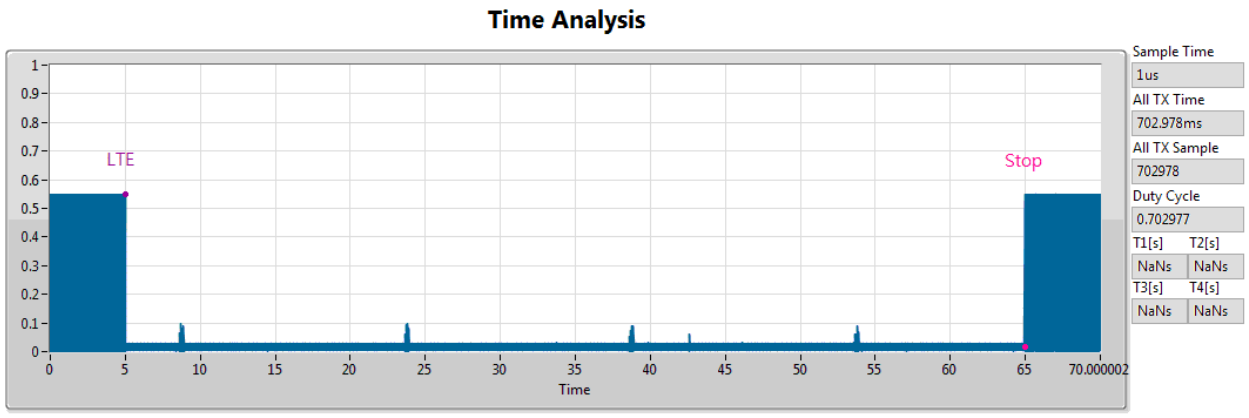
| 802.11ax 20M – 5180MHz |
|---|
| **Adaptivity Result - AWGN** |




AWGN: Adding the interference signal.

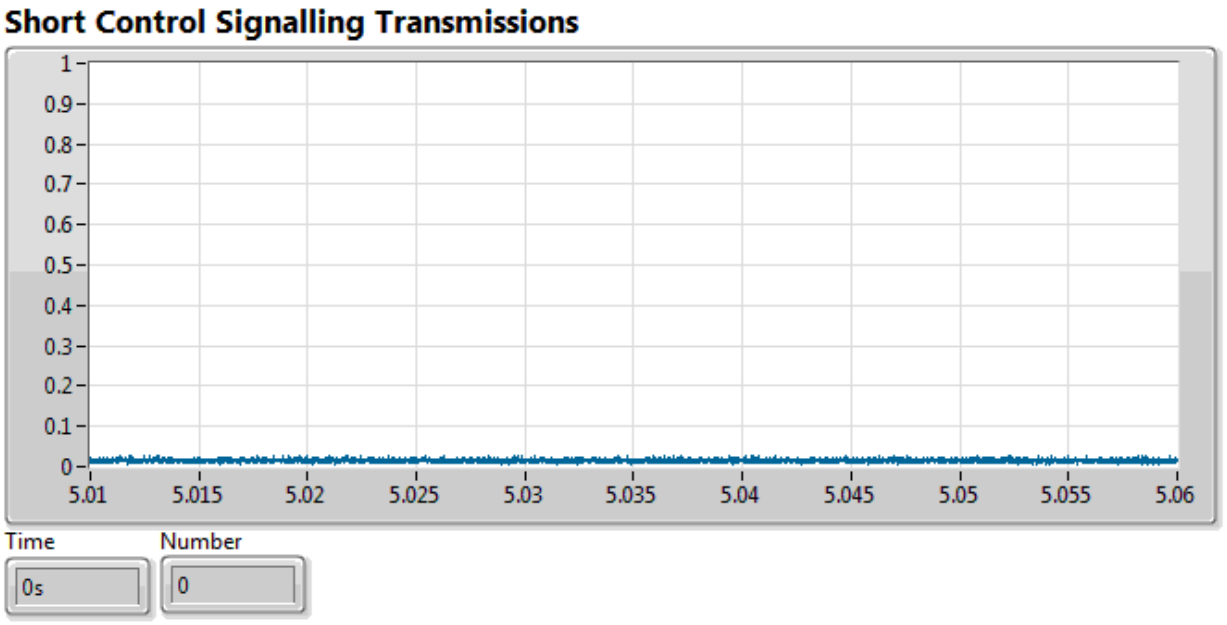
| **Short Control Signalling Transmissions - AWGN** |
|---|

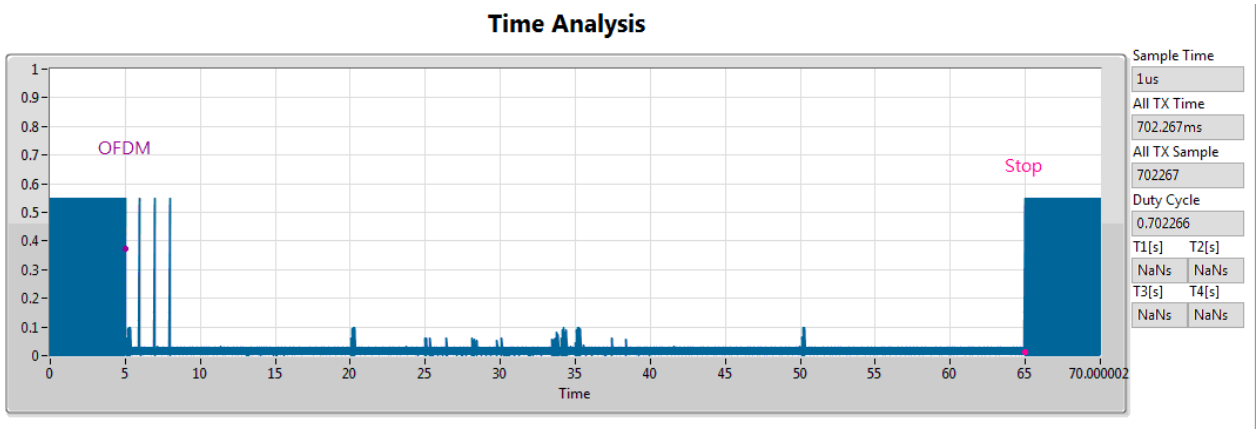


| Adaptivity Result - LTE |
|---|
|  |



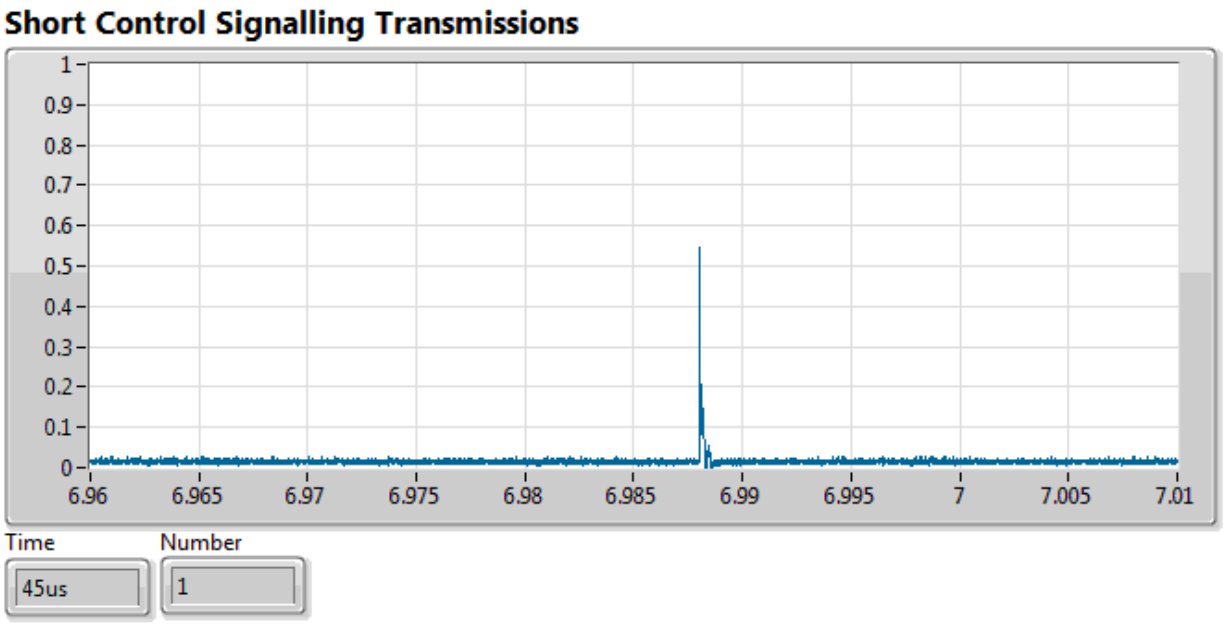
LTE: Adding the interference signal.

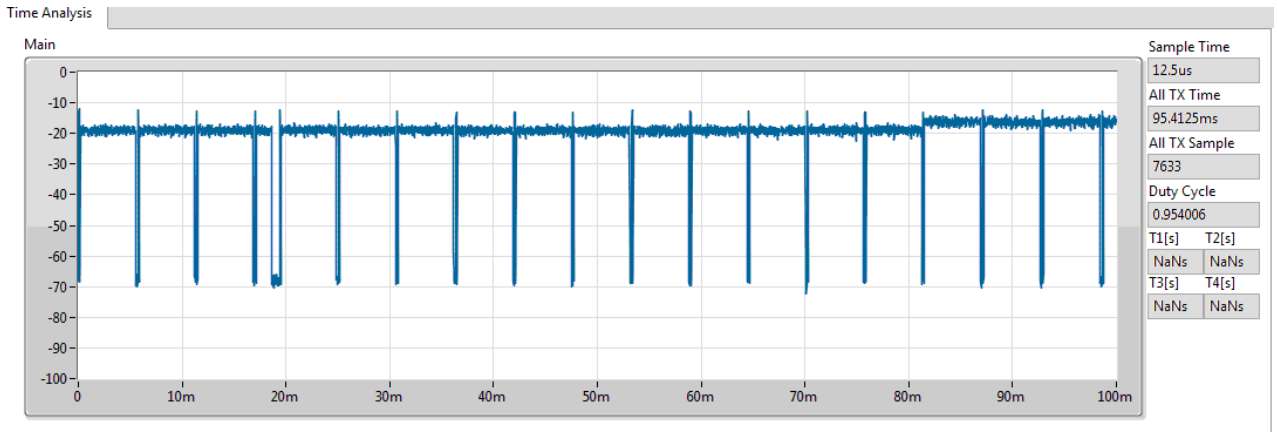
| Short Control Signalling Transmissions - LTE |
|---|
|  |

| Adaptivity Result - OFDM |
|---|
|  |

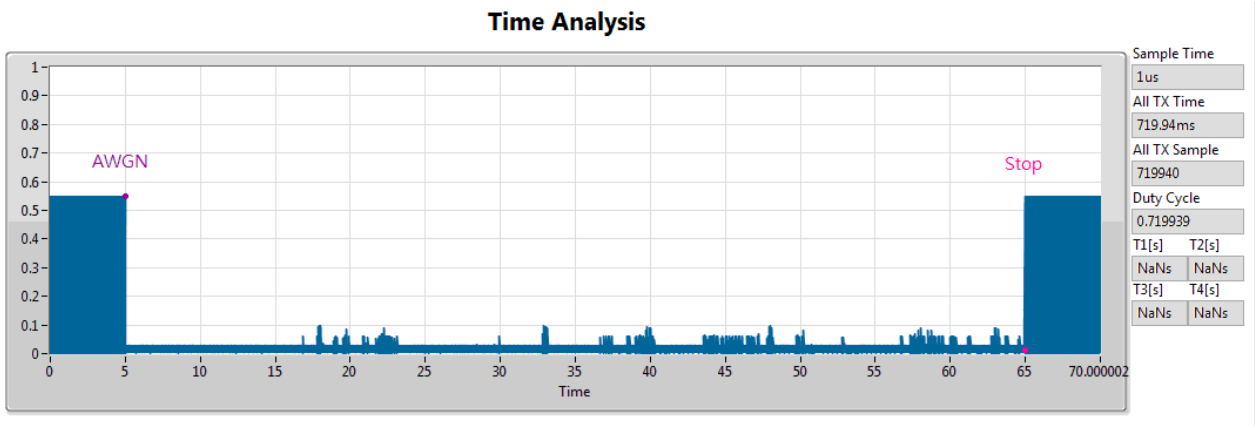


OFDM: Adding the interference signal.

| Short Control Signalling Transmissions - OFDM |
|---|
|  |

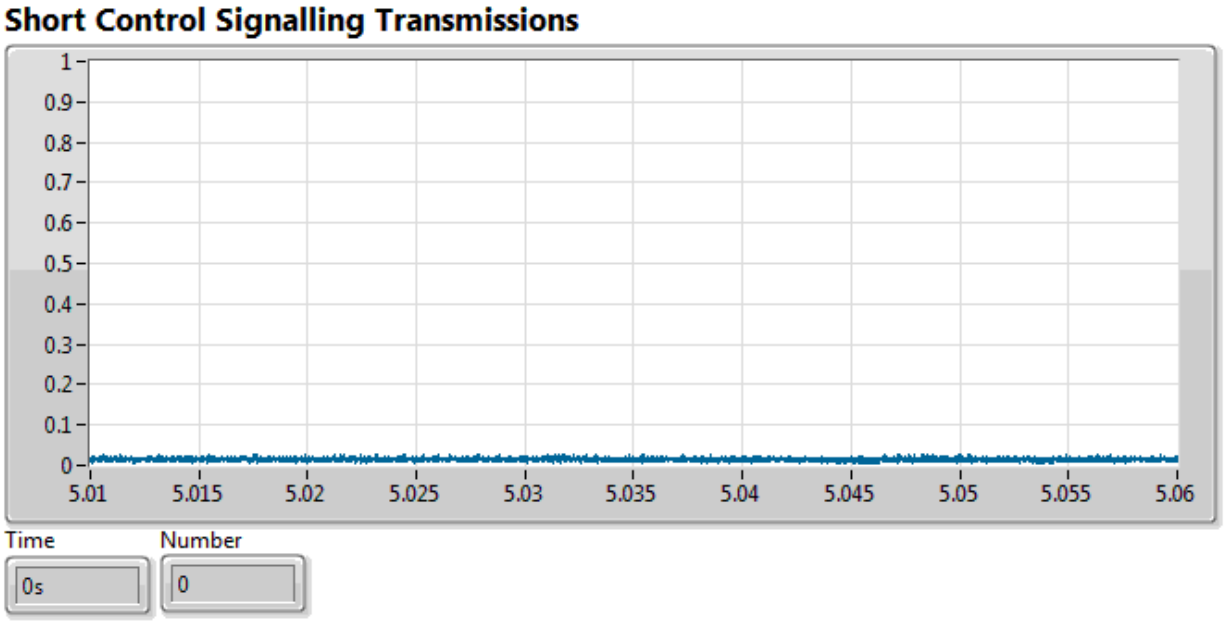
| Max. Channel Occupancy Time |
|---|
|  |

| 802.11ax 40M – 5190MHz |
|---|
| **Adaptivity Result - AWGN** |

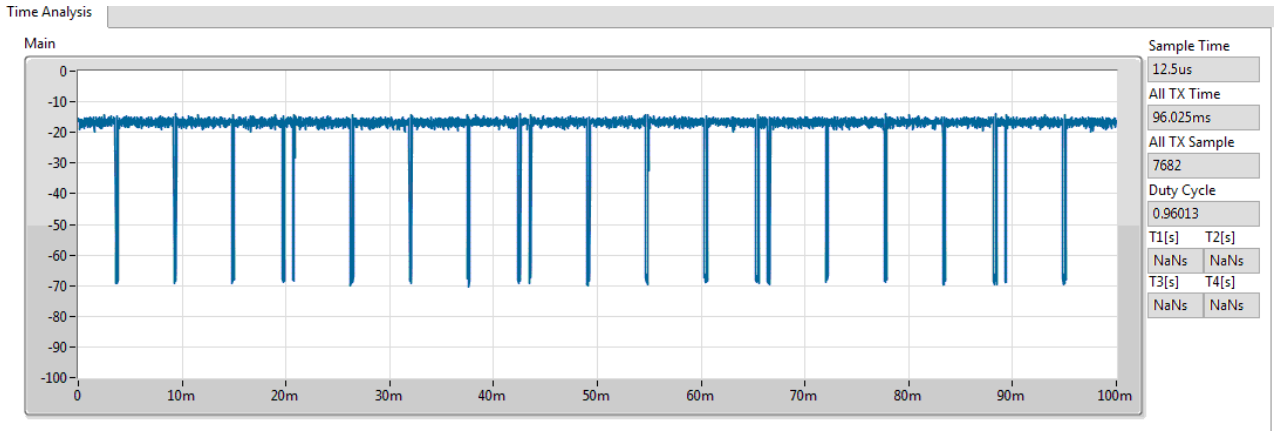



AWGN: Adding the interference signal.

| **Short Control Signalling Transmissions - AWGN** |
|---|



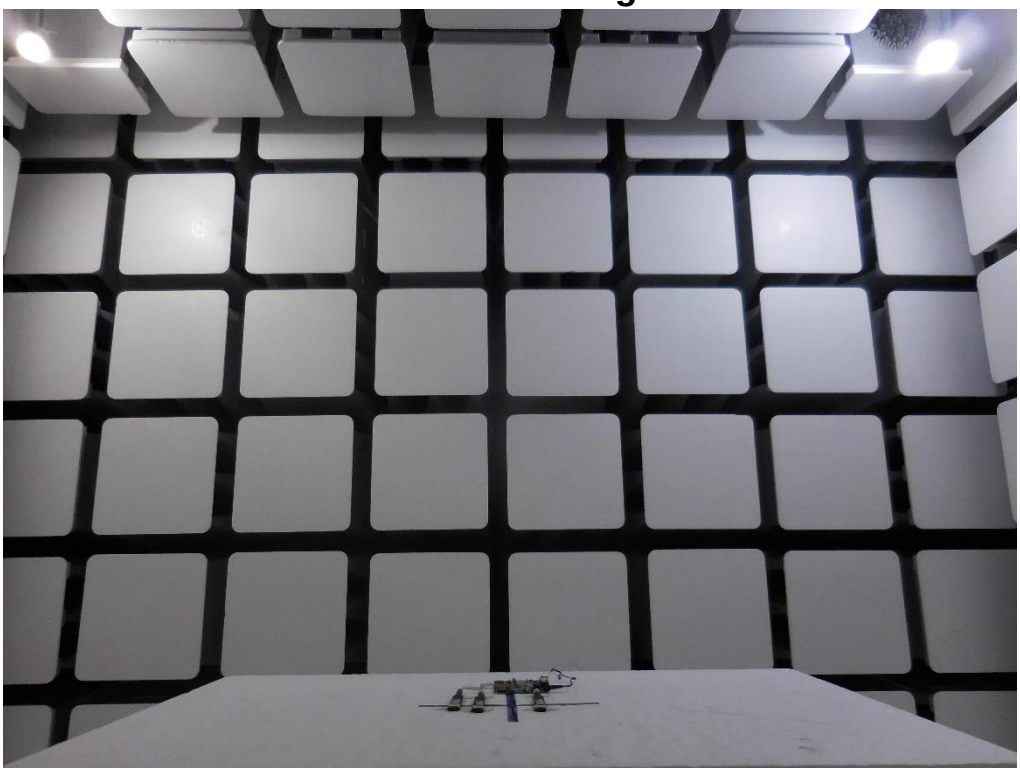
**Max. Channel Occupancy Time**



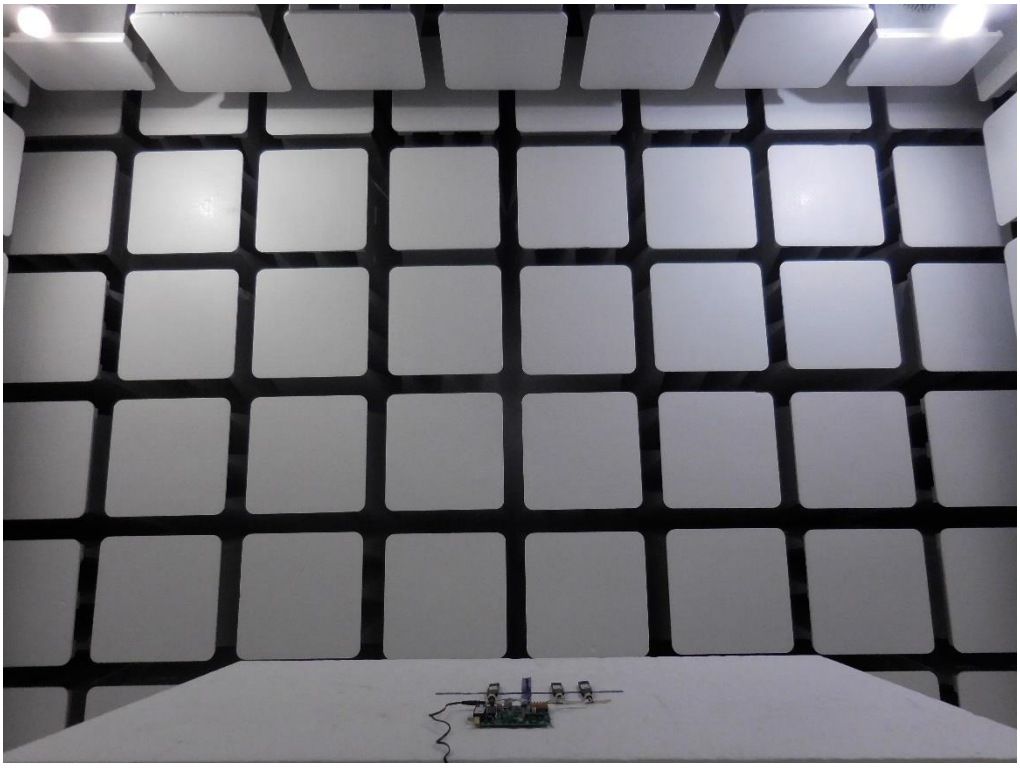
| Receiver Blocking Result | | | | | | | |
|---|---|---|---|---|---|---|---|
| **$P_{min}$(dBm)** | -91 | | | | | | |
| **Modulation Mode** | **Operation Frequency (MHz)** | **Wanted Signal Mean Power from Companion Device (dBm) Pmin + 6 dB** | **Receiver Blocking Power (dBm)** | **Blocking Signal Frequency (MHz)** | **Type of Blocking Signal** | **Test Result** | **Blocking Signal Level at which the Performance Criteria is no longer met (dBm)** |
| 802.11a | 5180 | -85 | -59 | 5100 | CW | Pass | -27 |
| | 5180 | -85 | -53 | 4900 | CW | Pass | -14 |
| | 5180 | -85 | -53 | 5000 | CW | Pass | -20 |
| | 5180 | -85 | -53 | 5975 | CW | Pass | -12 |
| **Limit** | PER(Packet Error Rate) ≦ 10% | | | | | | |
| **Result** | **Complied** | | | | | | |

# 1. Photographs of Radiated Emissions Test Configuration

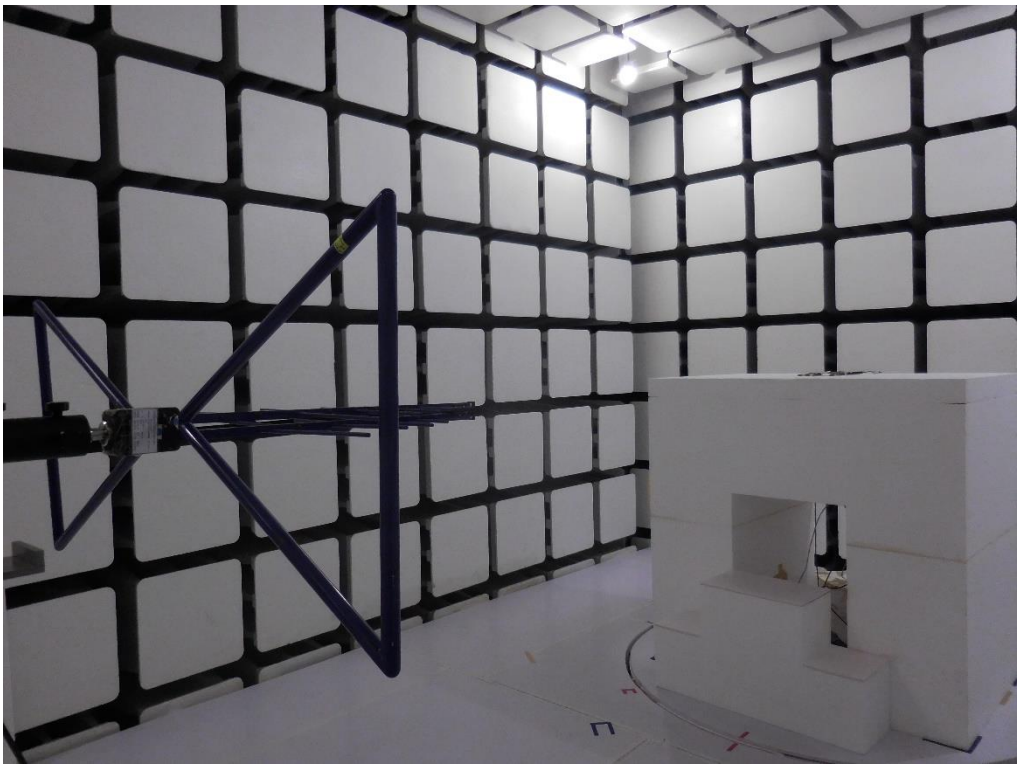
**Front view**



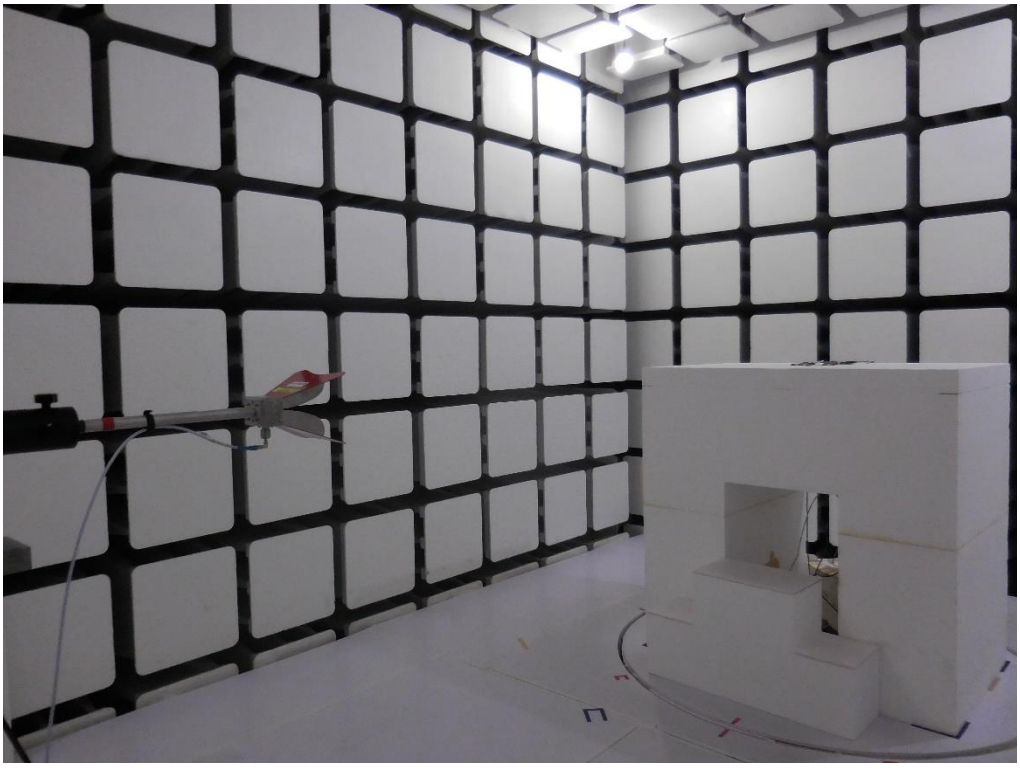
**Rear view**



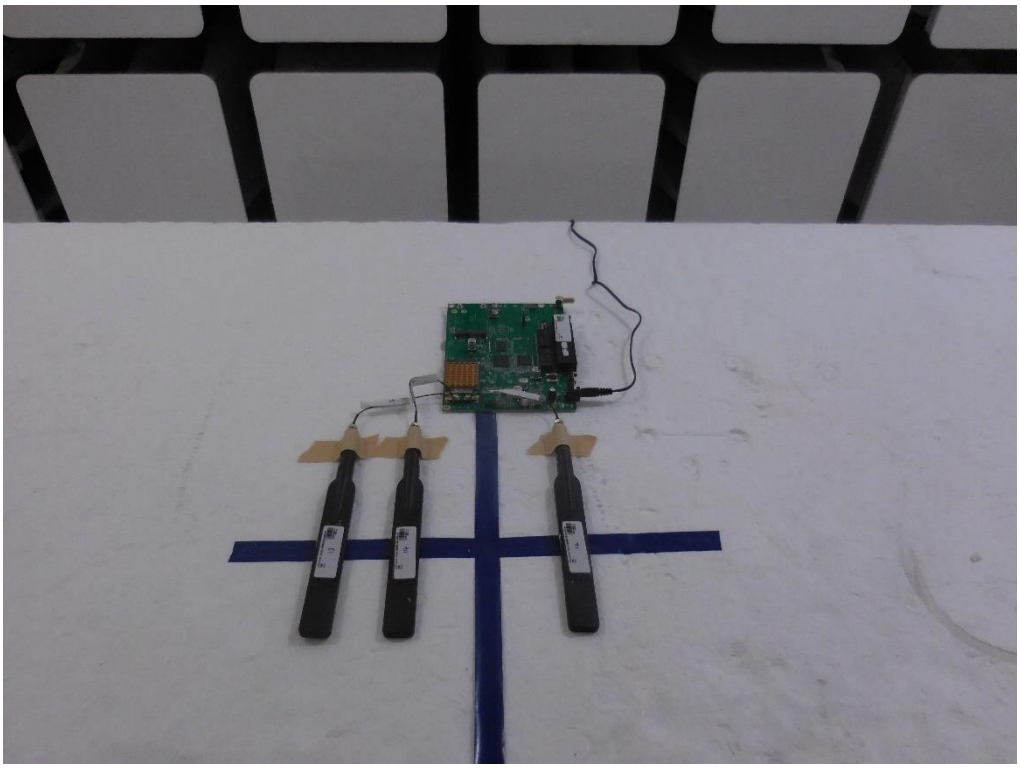
**Bilog Antenna**



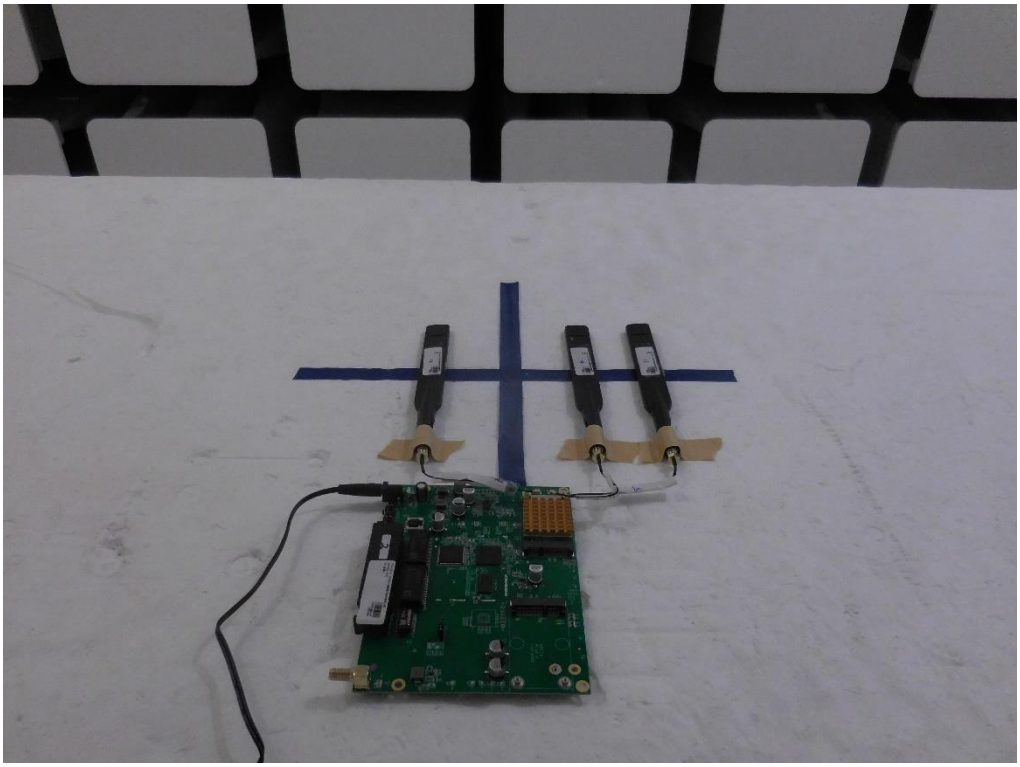
**Horn Antenna**



**EUT take a close-up**

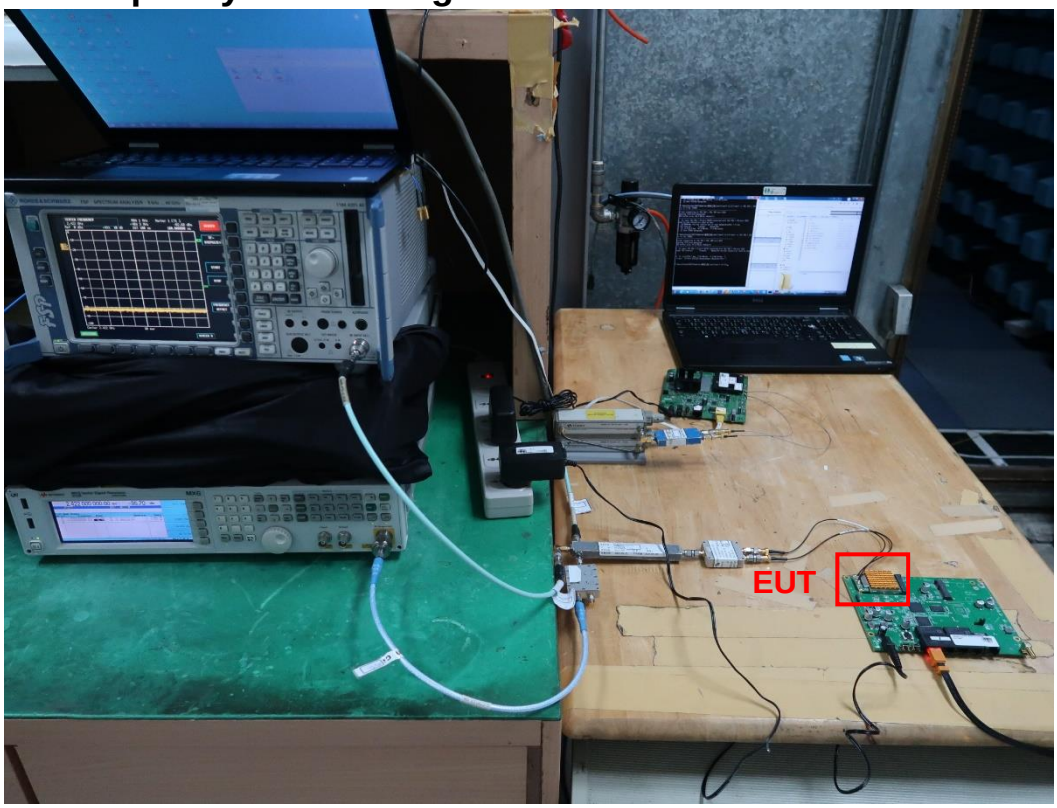


**EUT take a close-up**



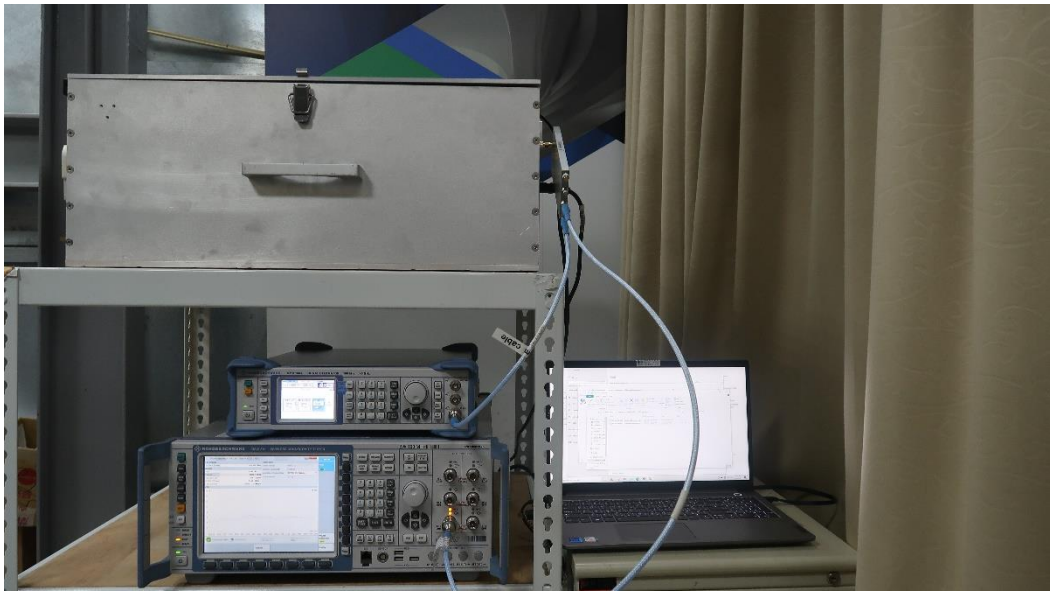
## 2. Photographs of Adaptivity Test Configuration

**Front view**

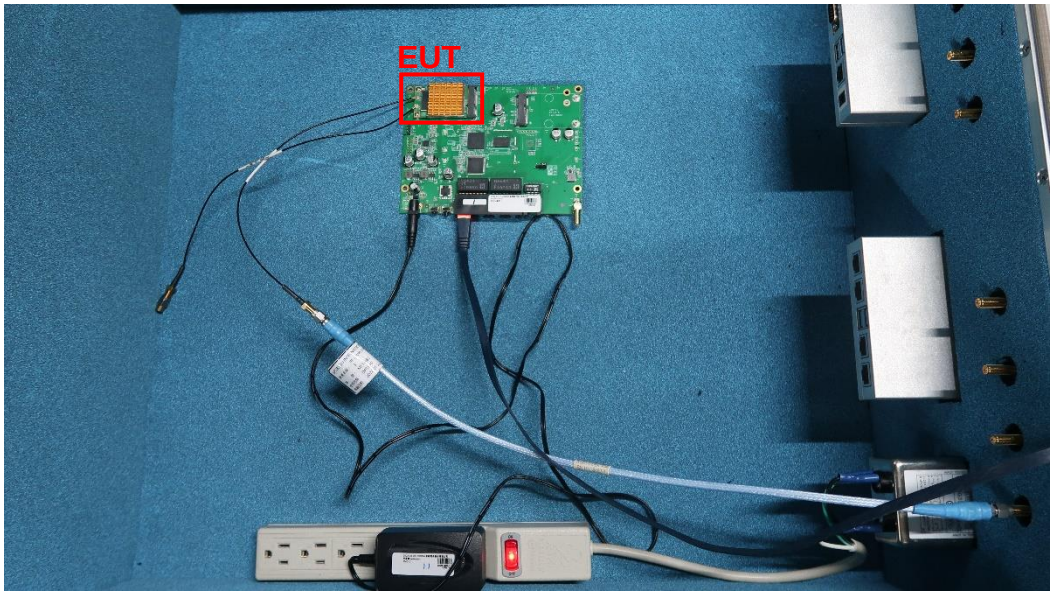


## 3. Photographs of Receiver Blocking Test Configuration

**Front view**



**EUT take a close-up**




THE END