

#### **FCC - DFS TEST REPORT**

Report Number : **4842025239900D** Date of Issue: 2025.04.27

Model : THP01-ZB-V5

Product Type : Dual Band Wireless Multi-mode Gateway

Applicant : Zhejiang Lingzhu Technology Co., Ltd.

Address : Room 302, No 1 Building Huace Center, Xihu District 310000,

Hangzhou City, Zhejiang Province, PEOPLE'S REPUBLIC OF

**CHINA** 

Manufacturer : Zhejiang Lingzhu Technology Co., Ltd.

25

Address : Room 302, No 1 Building Huace Center, Xihu District 310000,

Hangzhou City, Zhejiang Province, PEOPLE'S REPUBLIC OF

CHINA

Test Result : ■ Positive □ Negative

Total pages including Appendices

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## 2 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

| Issue | Description of Change | Date of Issue |
|-------|-----------------------|---------------|
| 1     | First Issue           | 2025.04.27    |

## 3 Details about the Test Laboratory

#### **Details about the Test Laboratory**

Test Site 1

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd.

Floor 1-4, Building B, No.37, Tuanjie Road(Middle), Xishan Economic

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No.:

571980

FCC Designation

Number:

CN1405

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## **Description of the Equipment under Test**



Product: **Dual Band Wireless Multi-mode Gateway** 

Model no.: THP01-ZB-V5

FCC ID: 2BEWX-THP01-ZB

Rating: Gateway Input: DC 5V, 1A

> Adapter Input:100-240V~,50/60Hz, 0.25A Adapter Output: DC 5.0V, 1.0A, 5.0W

RF Transmission 5G Wi-Fi: 5260~5320 MHz (U-NII-2A)

Frequency(DFS band): 5500~5700 MHz (U-NII-2C)

Modulation: 802.11a: BPSK, QPSK, 16QAM, 64QAM

802.11n: BPSK, QPSK, 16QAM, 64QAM

Hardware Version: V1.0.3

Software Version: V1.0.0

Antenna Type: Metal PCB Antenna

Antenna Gain: 2.14dBi

Max EIRP: 17.17dBm

Description of the EUT: The Equipment Under Test (EUT) is a Dual Band Wireless

> Multi-mode Gateway which supports 2.4GHz & 5GHz Wi-Fi, Low Energy Bluetooth (1Mbps & 2Mbps date rate) and

Zigbee functions.

WUX 0896895-002 Test sample no.:

The sample's mentioned in this report is/are submitted/ supplied/ manufactured by client. The laboratory therefore assumes no responsibility for accuracy of information on the brand name, model number, origin of manufacture, consignment, antenna gain or any information supplied

Road(Middle), Xishan Economic and Technological Development Zone, Wuxi, Jiangsu. Čhina

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## 5 Summary of Test Standards



| Test Standards  |  |  |
|---|--|--|
| FCC Part 15 Subpart E PART 15 - RADIO FREQUENCY DEVICES |  |  |
| 15.407(h)   | Subpart E - Unlicensed National Information Infrastructure Devices |  |

#### Test Method:

KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02 KDB 905462 D03 UNII Clients Without Radar Detection New Rules v01r02 ANSI C63.10-2020, American National Standard for Testing Unlicensed Wireless Devices Report Number: 4842025239900D Page 6 of 25

## 6 Summary of Test Results



| Technical Requirements                   |  |             |          |             |
|--|--|-------------|----------|-------------|
| FCC Part 15 Subpart E;<br>KDB 905462 D02 |  |             |          |             |
| Clause                                   | Test   | T           | est Resu | lt          |
|  |  | Pass        | Fail     | N/A         |
| 15.407(h)(2);<br>7.8.1                   | UNII Detection Bandwidth                         |             |          |             |
| 15.407(h)(2);                            | Initial Channel Availability<br>Check Time (CAC) |             |          | $\boxtimes$ |
| 7.8.2 Performance Requirement            | Radar Burst at the Beginning of the CAC          |             |          |             |
| Check                                    | Radar Burst at the End of the CAC                |             |          | $\boxtimes$ |
| 15.407(h)(2);                            | Channel Move Time                                |             |          |             |
| 7.8.3 In-Service Monitoring              | Channel Closing<br>Transmission Time             |             |          |             |
|  | Non-Occupancy Period                             | $\boxtimes$ |          |             |
| 15.407;<br>7.8.4                         | Statistical Performance<br>Check                 |             |          | $\boxtimes$ |

Remark: The EUT is Clients Device without Radar Detection.

#### **General Remarks**



#### Remarks

This submittal(s) (test report) is intended for FCC ID: 2BEWX-THP01-ZB, complies with DFS requirement in FCC Part 15 Subpart E.

#### SUMMARY:

All tests according to the regulations cited on page 5 were

- Performed
- ☐ **Not** Performed

The Equipment Under Test

- - **Fulfills** the general approval requirements.
- □ **Does not** fulfill the general approval requirements.

Sample Received Date: 2025.03.13

Testing Start Date: 2025.04.11

Testing End Date: 2025.04.15

- TÜV SÜD Certification and Testing (China) Co., Ltd.-

Reviewed by: Prepared by: Tested by:

Bo Dai

Reviewer Engineer

Xin Feng **Project Engineer** 

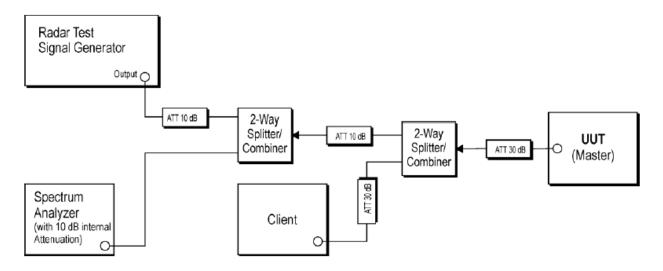
Zhihua Xia **Test Engineer** 

Zhi hua Xia

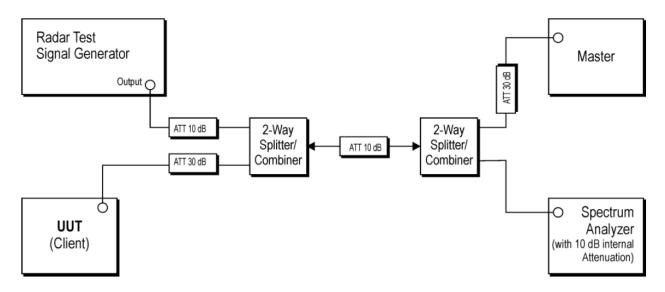
## 8 Test setups



## 8.1 Setup for Master with injection at the Master

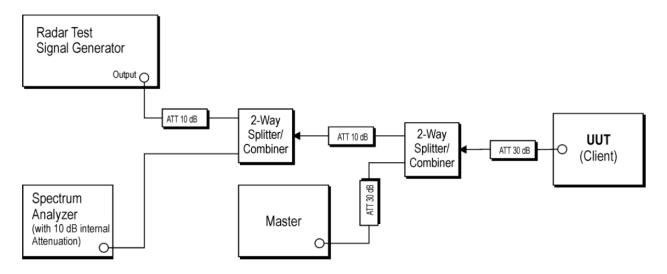


### 8.2 Setup for Client with injection at the Master





## 8.3 Setup for Client with injection at the Client







## 9.1 Auxiliary Equipment and software Used during Test:

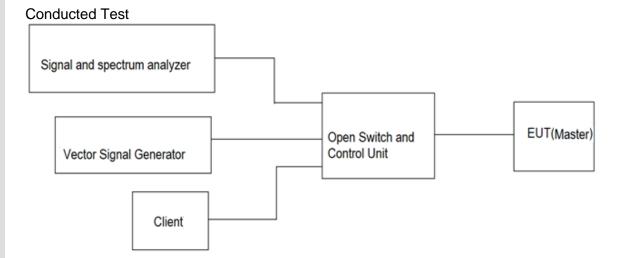
| DESCRIPTION                                      | MANUFACTURER | MODEL NO.(SHIELD) | S/N(LENGTH)  |
|--|--------------|-------------------|--------------|
| Notebook   | Huawei       | VLT-W50           | 2018AP1231   |
| Dual Band Wi-Fi Router<br>(FCC ID: MSQ-RTAXJ300) | ASUS         | RT-AX82U          | M7ICI4000151 |

Test software: MTS 8310

The system was configured to channel:

| Test Mode      | Channel (MHz)   |
|----------------|-----------------|
|                | 5G WIFI-Band 2  |
| 902.446        | CH64 (5320MHz)  |
| 802.11a        | 5G WIFI-Band 3  |
|                | CH100 (5500MHz) |
|                | 5G WIFI-Band 2  |
| 802.11n HT40   | CH62 (5310MHz)  |
| 602.1111 H 140 | 5G WIFI-Band 3  |
|                | CH102 (5510MHz) |

## 9.2 MWRF test system configuration

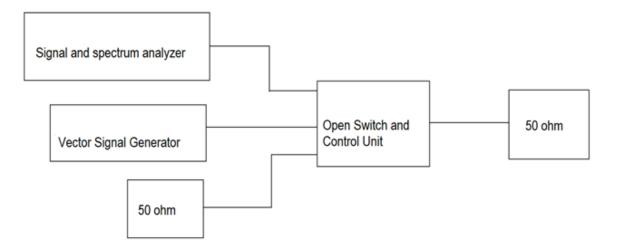


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#### Radar waveform calibration





## 9.3 Channel Loading

System testing will be performed with channel-loading using means appropriate to the data types that are used by the unlicensed device. The following requirements apply:

|             | a) The data file must be of a type that is typical for the device (i.e., MPEG-2, MPEG-4, WAV, MP3, MP4, AVI, etc.) and must generally be transmitting in a streaming mode.  |
|-------------|---|
| $\boxtimes$ | b) Software to ping the client is permitted to simulate data transfer but must have random ping intervals.  |
| $\boxtimes$ | c) Timing plots are required with calculations demonstrating a minimum channel loading of approximately 17% or greater. For example, channel loading can be estimated by setting the spectrum analyzer for zero span and approximate the Time On/ (Time On + Off Time). This can be done with any appropriate channel BW and modulation type. |
|             | d) Unicast or Multicast protocols are preferable but other protocols may be used. The appropriate protocol used must be described in the test procedures  |



## 10 Dynamic Frequency Selection (DFS) Requirement

#### 10.1 DFS Overview

The following table from KDB 905462 lists the applicable requirements for the DFS testing.

Table 1: Applicability of DFS Requirements Prior to Use of a Channel

| Requirement                     | Operational Mode |   |                                   |  |
|---------------------------------|------------------|---|-----------------------------------|--|
|                                 | Master           | Client<br>Without<br>Radar<br>Detection | Client With<br>Radar<br>Detection |  |
| Non-Occupancy Period            | Yes              | Not required                            | Yes                               |  |
| DFS Detection Threshold         | Yes              | Not required                            | Yes                               |  |
| Channel Availability Check Time | Yes              | Not required                            | Not required                      |  |
| U-NII Detection Bandwidth       | Yes              | Not required                            | Yes                               |  |

Table 2: Applicability of DFS requirements during normal operation

| Requirement Operational Mode      |  | Mode                              |
|-----------------------------------|--|-----------------------------------|
|                                   | Master Device or Client with Radar Detection | Client Without<br>Radar Detection |
| DFS Detection Threshold           | Yes  | Not required                      |
| Channel Closing Transmission Time | Yes  | Yes                               |
| Channel Move Time                 | Yes  | Yes                               |
| U-NII Detection Bandwidth         | Yes  | Not required                      |

| Additional requirements for devices with  | Master Device or Client with | Client Without Radar  |
|---|------------------------------|-----------------------|
| multiple bandwidth modes                  | Radar Detection              | Detection             |
| U-NII Detection Bandwidth and Statistical | All BW modes must be tested  | Not required          |
| Performance Check                         |                              |                       |
| Channel Move Time and Channel Closing     | Test using widest BW mode    | Test using the widest |
| Transmission Time                         | available                    | BW mode available for |
|   |                              | the link              |
| All other tests                           | Any single BW mode           | Not required          |

Note: Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.



#### 10.2 DFS Detection Thresholds

**Table 3** below provides the *DFS Detection Thresholds* for *Master Devices* as well as *Client Devices* incorporating *In-Service Monitoring* 

# Table 3: DFS Detection Thresholds for Master Devices and Client Devices with Radar Detection

| Maximum Transmit Power   | Value                   |
|--|-------------------------|
|  | (See Notes 1, 2, and 3) |
| EIRP ≥ 200 milliwatt   | -64 dBm                 |
| EIRP < 200 milliwatt and   | -62 dBm                 |
| power spectral density < 10 dBm/MHz                              |                         |
| EIRP < 200 milliwatt that do not meet the power spectral density | -64 dBm                 |
| requirement  |                         |

Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna.

**Note 2:** Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.

**Note3:** EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.

#### 10.3 Response Requirements

Table 4 provides the response requirements for Master and Client Devices incorporating DFS.

Table 4: DFS Response Requirement Values

| Parameter                         | Value                       |
|-----------------------------------|-----------------------------|
| Non-occupancy period              | Minimum 30 minutes          |
| Channel Availability Check Time   | 60 seconds                  |
| Channel Move Time                 | 10 seconds                  |
|                                   | See Note 1.                 |
| Channel Closing Transmission Time | 200 milliseconds + an       |
| _                                 | aggregate of 60             |
|                                   | milliseconds over remaining |
|                                   | 10 second period.           |
|                                   | See Notes 1 and 2.          |
| U-NII Detection Bandwidth         | Minimum 100% of the U-      |
|                                   | NII 99% transmission        |
|                                   | power bandwidth. See Note   |
|                                   | 3.                          |

Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.

Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions. Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each

**Note 3:** During the *U-NII Detection Bandwidth* detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.



#### **10.4 RADAR TEST WAVEFORMS**

This section provides the parameters for required test waveforms, minimum percentage of successful detections, and the minimum number of trials that must be used for determining DFS conformance. Step intervals of 0.1 microsecond for Pulse Width, 1 microsecond for PRI, 1 MHz for chirp width and 1 for the number of pulses will be utilized for the random determination of specific test waveforms.

Table 5 - Short Pulse Radar Test Waveforms

| Radar       | Pulse Width    | PRI   | Number of Pulses   | Minimum       | Minimum    |
|-------------|----------------|---|--|---------------|------------|
| Type        | (µsec)         | (µsec)  |  | Percentage of | Number of  |
| J.          |                |   |  | Successful    | Trials     |
|             |                |   |  | Detection     |            |
| 0           | 1              | 1428  | 18   | See Note 1    | See Note 1 |
| 1           | 1              | Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a Test B: 15 unique PRI values randomly selected within the range of 518-3066 µsec, with a minimum increment of 1 µsec, excluding PRI values selected in Test A | Roundup $ \left\{ \frac{\left(\frac{1}{360}\right)}{\left(\frac{19 \cdot 10^6}{\text{PRI}_{\mu \text{sec}}}\right)} \right\} $ | 60%           | 30         |
| 2           | 1-5            | 150-230   | 23-29  | 60%           | 30         |
| 3           | 6-10           | 200-500   | 16-18  | 60%           | 30         |
| 4           | 11-20          | 200-500   | 12-16  | 60%           | 30         |
| Aggregate ( | Radar Types 1- | 4)  |  | 80%           | 120        |
| NT 4 4 C1   | (D 1 D 1       |   | 1 C 1 1-4 1 1  |               | 1 1        |

Note 1: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.

A minimum of 30 unique waveforms are required for each of the Short Pulse Radar Types 2 through 4. If more than 30 waveforms are used for Short Pulse Radar Types 2 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms. If more than 30 waveforms are used for Short Pulse Radar Type 1, then each additional waveform is generated with Test B and must also be unique and not repeated from the previous waveforms in Tests A or B.

For example if in Short Pulse Radar Type 1 Test B a PRI of 3066  $\mu$ sec is selected, the number of pulses would be

Roundup 
$$\left\{ \left( \frac{1}{360} \right) \cdot \left( \frac{19 \cdot 10^6}{3066} \right) \right\} = \text{Round up } \{17.2\} = 18.$$



Table 5a - Pulse Repetition Intervals Values for Test A

| Pulse Repetition<br>Frequency | Pulse Repetition Frequency<br>(Pulses Per Second) | Pulse Repetition<br>Interval |
|-------------------------------|---|------------------------------|
| Number                        | (Tuises Fer Second)                               | (Microseconds)               |
|                               |   | (                            |
| 1                             | 1930.5  | 518                          |
| 2                             | 1858.7  | 538                          |
| 3                             | 1792.1  | 558                          |
| 4                             | 1730.1  | 578                          |
| 5                             | 1672.2  | 598                          |
| 6                             | 1618.1  | 618                          |
| 7                             | 1567.4  | 638                          |
| 8                             | 1519.8  | 658                          |
| 9                             | 1474.9  | 678                          |
| 10                            | 1432.7  | 698                          |
| 11                            | 1392.8  | 718                          |
| 12                            | 1355  | 738                          |
| 13                            | 1319.3  | 758                          |
| 14                            | 1285.3  | 778                          |
| 15                            | 1253.1  | 798                          |
| 16                            | 1222.5  | 818                          |
| 17                            | 1193.3  | 838                          |
| 18                            | 1165.6  | 858                          |
| 19                            | 1139  | 878                          |
| 20                            | 1113.6  | 898                          |
| 21                            | 1089.3  | 918                          |
| 22                            | 1066.1  | 938                          |
| 23                            | 326.2   | 3066                         |
|                               |   | •                            |

The aggregate is the average of the percentage of successful detections of Short Pulse Radar Types 1-4. For example, the following table indicates how to compute the aggregate of percentage of successful detections.

| Radar Type                                    | Number of Trials | Number of Successful<br>Detections | Minimum Percentage<br>of Successful |  |
|---|------------------|------------------------------------|-------------------------------------|--|
|   |                  |                                    | Detection                           |  |
| 1   | 35               | 29                                 | 82.9%                               |  |
| 2   | 30               | 18                                 | 60%                                 |  |
| 3   | 30               | 27                                 | 90%                                 |  |
| 4   | 50               | 44                                 | 88%                                 |  |
| Aggregate (82.9% + 60% + 90% + 88%)/4 = 80.2% |                  |                                    |                                     |  |

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Table 6 - Long Pulse Radar Test Waveform

|       |        |       |        | B                |           |               |           |
|-------|--------|-------|--------|------------------|-----------|---------------|-----------|
| Radar | Pulse  | Chirp | PRI    | Number           | Number    | Minimum       | Minimum   |
| Type  | Width  | Width | (µsec) | of Pulses        | of Bursts | Percentage of | Number of |
|       | (µsec) | (MHz) |        | per <i>Burst</i> |           | Successful    | Trials    |
|       |        |       |        | _                |           | Detection     |           |
| 5     | 50-100 | 5-20  | 1000-  | 1-3              | 8-20      | 80%           | 30        |
|       |        |       | 2000   |                  |           |               |           |

The parameters for this waveform are randomly chosen. Thirty unique waveforms are required for the Long Pulse Radar Type waveforms. If more than 30 waveforms are used for the Long Pulse Radar Type waveforms, then each additional waveform must also be unique and not repeated from the previous waveforms.

Each waveform is defined as follows:

- 1) The transmission period for the Long Pulse Radar test signal is 12 seconds.
- 2) There are a total of 8 to 20 *Bursts* in the 12 second period, with the number of *Bursts* being randomly chosen. This number is *Burst Count*.
- 3) Each *Burst* consists of 1 to 3 pulses, with the number of pulses being randomly chosen. Each *Burst* within the 12 second sequence may have a different number of pulses.
- 4) The pulse width is between 50 and 100 microseconds, with the pulse width being randomly chosen. Each pulse within a *Burst* will have the same pulse width. Pulses in different *Burst*s may have different pulse widths.
- 5) Each pulse has a linear frequency modulated chirp between 5 and 20 MHz, with the chirp width being randomly chosen. Each pulse within a *transmission period* will have the same chirp width. The chirp is centered on the pulse. For example, with a radar frequency of 5300 MHz and a 20 MHz chirped signal, the chirp starts at 5290 MHz and ends at 5310 MHz.
- 6) If more than one pulse is present in a *Burst*, the time between the pulses will be between 1000 and 2000 microseconds, with the time being randomly chosen. If three pulses are present in a *Burst*, the random time interval between the first and second pulses is chosen independently of the random time interval between the second and third pulses.
- 7) The 12 second transmission period is divided into even intervals. The number of intervals is equal to *Burst Count*. Each interval is of length (12,000,000 / *Burst Count*) microseconds. Each interval contains one *Burst*. The start time for the *Burst*, relative to the beginning of the interval, is between 1 and [(12,000,000 / *Burst Count*) (Total *Burst* Length) + (One Random PRI Interval)] microseconds, with the start time being randomly chosen. The step interval for the start time is 1 microsecond. The start time for each *Burst* is chosen randomly.

#### A representative example of a Long Pulse Radar Type waveform:

- 1) The total test waveform length is 12 seconds.
- 2) Eight (8) Bursts are randomly generated for the Burst Count.
- 3) Burst 1 has 2 randomly generated pulses.
- 4) The pulse width (for both pulses) is randomly selected to be 75 microseconds.
- 5) The PRI is randomly selected to be at 1213 microseconds.
- 6) Bursts 2 through 8 are generated using steps 3 5.
- 7) Each *Burst* is contained in even intervals of 1,500,000 microseconds. The starting location for Pulse 1, *Burst* 1 is randomly generated (1 to 1,500,000 minus the total *Burst* 1 length + 1 random PRI interval) at the 325,001 microsecond step. *Bursts* 2 through 8 randomly fall in successive 1,500,000 microsecond intervals (i.e. *Burst* 2 falls in the 1,500,001 3,000,000 microsecond range).

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Fable 7 – Frequency Hopping Radar Test Waveform

|       | Table / - Frequency Hopping Radar Test Wavelorin |        |        |         |          |               |           |
|-------|--|--------|--------|---------|----------|---------------|-----------|
| Radar | Pulse  | PRI    | Pulses | Hopping | Hopping  | Minimum       | Minimum   |
| Type  | Width  | (µsec) | per    | Rate    | Sequence | Percentage of | Number of |
|       | (µsec)   |        | Hop    | (kHz)   | Length   | Successful    | Trials    |
|       | ,  |        | _      |         | (msec)   | Detection     |           |
| 6     | 1  | 333    | 9      | 0.333   | 300      | 70%           | 30        |



For the Frequency Hopping Radar Type, the same *Burst* parameters are used for each waveform. The hopping sequence is different for each waveform and a 100-length segment is selected from the hopping sequence defined by the following algorithm:

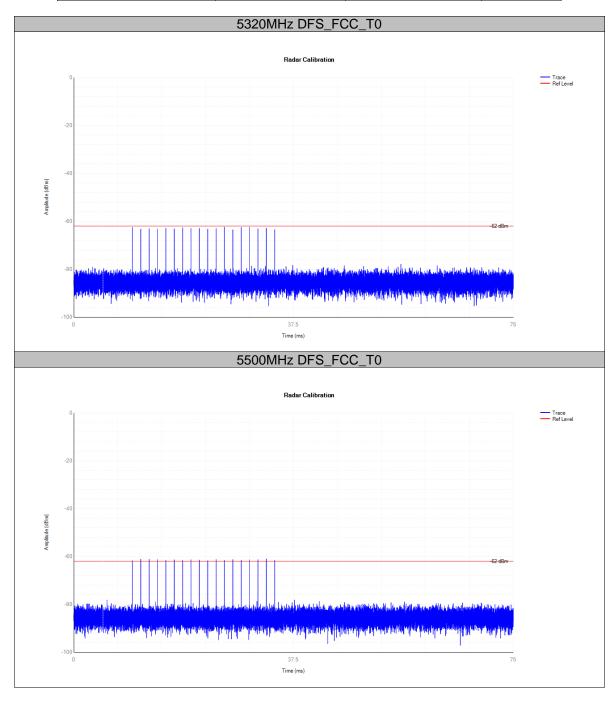
The first frequency in a hopping sequence is selected randomly from the group of 475 integer frequencies from 5250 – 5724 MHz. Next, the frequency that was just chosen is removed from the group and a frequency is randomly selected from the remaining 474 frequencies in the group. This process continues until all 475 frequencies are chosen for the set. For selection of a random frequency, the frequencies remaining within the group are always treated as equally likely.





## Calibration

| Frequency (MHz) | Туре       | Result         | Verdict |
|-----------------|------------|----------------|---------|
| 5320            | DFS_FCC_T0 | See test Graph | Pass    |
| 5500            | DFS_FCC_T0 | See test Graph | Pass    |
| 5310            | DFS_FCC_T0 | See test Graph | Pass    |
| 5510            | DFS_FCC_T0 | See test Graph | Pass    |



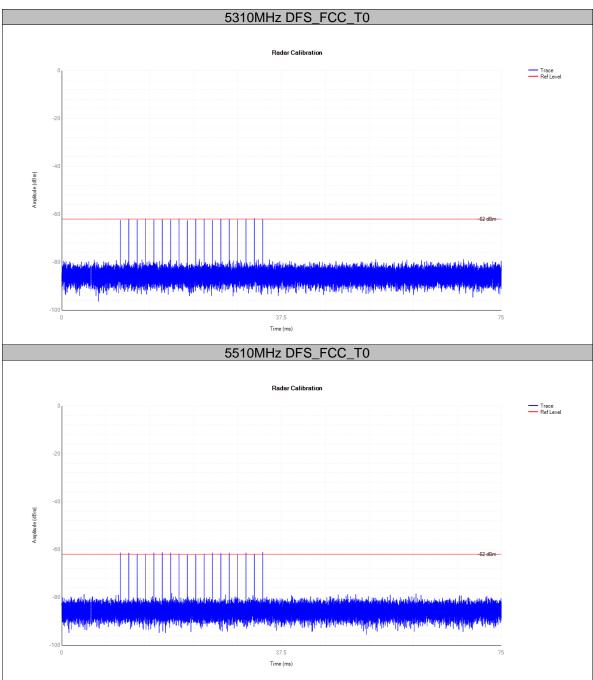
Title: DFS Test Report Revision: 02 Effective date: 2024-08-01 ID-Number: EMC\_WUX\_F\_25.35E

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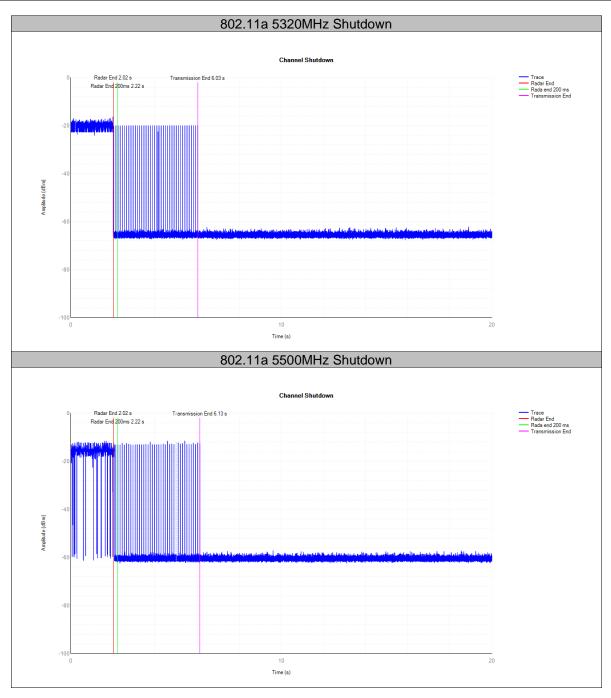








| Mode            | Frequency<br>(MHz) | Channel<br>Move<br>Time (s) | Limit<br>Channel<br>Move<br>Time (s) | Close<br>Transmission<br>Time (s) | Limit Close<br>Transmission<br>Time (s) | Close<br>Transmission<br>Time after<br>200ms(s) | Limit Close<br>Transmission<br>Time after<br>200ms (s) | Verdict |
|-----------------|--------------------|-----------------------------|--------------------------------------|-----------------------------------|---|---|--|---------|
| 802.11a         | 5320               | 4.01                        | 10                                   | 0.047                             | 0.26                                    | 0.045   | 0.06   | Pass    |
| 802.11a         | 5500               | 4.105                       | 10                                   | 0.099                             | 0.26                                    | 0.047   | 0.06   | Pass    |
| 802.11n<br>HT40 | 5310               | 4.056                       | 10                                   | 0.068                             | 0.26                                    | 0.046   | 0.06   | Pass    |
| 802.11n<br>HT40 | 5510               | 4.174                       | 10                                   | 0.143                             | 0.26                                    | 0.048   | 0.06   | Pass    |



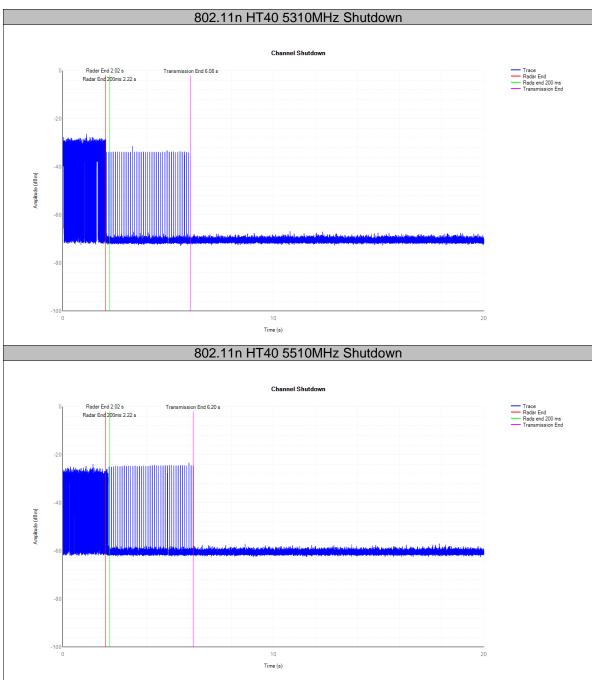
Title: DFS Test Report Revision: 02 Effective date: 2024-08-01 ID-Number: EMC\_WUX\_F\_25.35E

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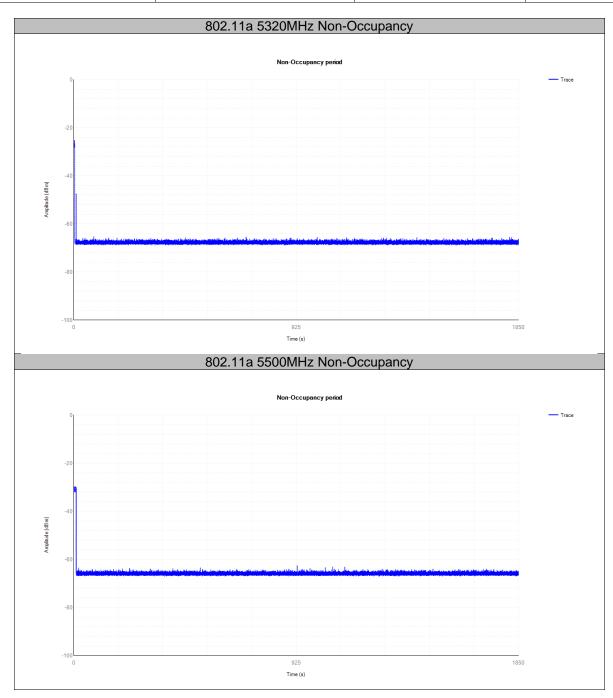


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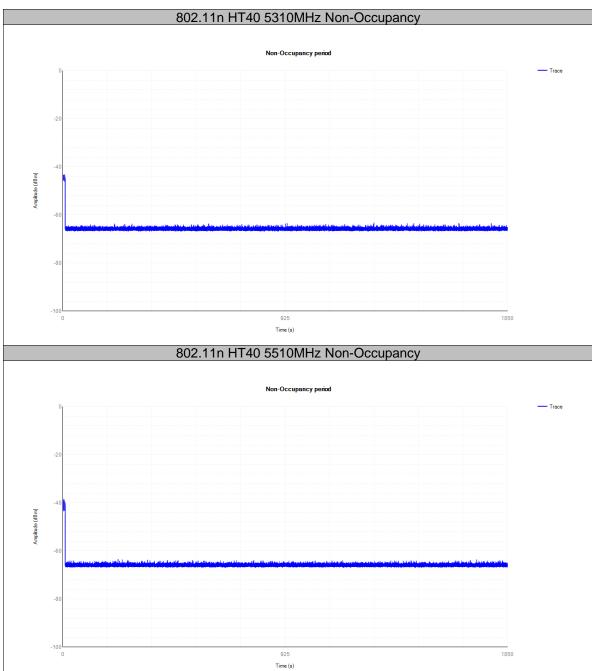


# Non-Occupancy

| Mode         | Frequency (MHz) | Result         | Verdict |
|--------------|-----------------|----------------|---------|
| 802.11a      | 5320            | See test Graph | Pass    |
| 802.11a      | 5500            | See test Graph | Pass    |
| 802.11n HT40 | 5310            | See test Graph | Pass    |
| 802.11n HT40 | 5510            | See test Graph | Pass    |







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# 12 Test Equipment List

| DESCRIPTION                      | MANUFACTURER    | MODEL NO.  | SERIAL NO.   | CAL. DATE  | CAL. DUE<br>DATE |
|----------------------------------|-----------------|------------|--------------|------------|------------------|
| Signal Analyzer                  | Rohde & Schwarz | FSV40      | 487/641405   | 2025-3-13  | 2026-3-12        |
| Open Switch and Control Platform | Rohde & Schwarz | OSP-B157W8 | 487/391835-2 | 2024-11-23 | 2025-11-22       |
| Signal generator                 | Rohde & Schwarz | SMB100A    | 487/391835-3 | 2024-11-23 | 2025-11-22       |
| Vector signal generator          | Rohde & Schwarz | SMBV100A   | 487/391835-4 | 2024-11-23 | 2025-11-22       |

| Measurement Software Information |              |         |  |
|----------------------------------|--------------|---------|--|
| Software                         | Manufacturer | Version |  |
| MTS 8310                         | MAXWELL      | 2.0.0.0 |  |

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## 13 System Measurement Uncertainly



For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

| System Measurement Uncertainty    |  |  |
|-----------------------------------|--|--|
| Test Items                        | Extended Uncertainty                                     |  |
| Uncertainty for Conducted RF test | RF Power Conducted: 1.32dB<br>Frequency test involved:1% |  |

| Measurement Uncertainty Decision Rule:  |
|---|
| Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115: 2023, clause 4.3.3. |
| End of Test Report  |
| according to IEC Guide 115: 2023, clause 4.3.3.   |