

# DFS TEST REPORT

**Product Name** : Wi-Fi&BT module  
**Brand Mark** : N/A  
**Model No.** : RW8822-50B1  
**FCC ID** : VYV-RW8822-50B1  
**Report Number** : BLA-EMC-202210-A6206  
**Date of Sample Receipt** : 2022/10/31  
**Date of Test** : 2022/10/31 to 2022/12/22  
**Date of Issue** : 2022/12/22  
**Test standard** : FCC CFR Title 47 Part 15 Subpart  
E Section 15.407  
**Test result** : PASS

Prepared for:

**Iton Technology Corp.**

**7 Floor East, Building C, Shenzhen International Innovation Center,  
No.1006 Shennan Rd. Futian Dist Shenzhen China**

Prepared by:

**BlueAsia Technical Services(Shenzhen) Co.,Ltd.**

**No.41, South of Beihuan Road, Shangwu Community, Shiyan Subdistrict,  
Bao'an District, Shenzhen,Guangdong ,China  
TEL: +86-755-23059481**

Compiled by:

*Jozu*

Approved by:

*Blue Zheng*

Review by:

*Sueels*

Date:

2022/12/22



## 2 Version

| Version No. | Date       | Description |
|-------------|------------|-------------|
| 00          | 2022/12/22 | Original    |
|             |            |             |
|             |            |             |
|             |            |             |
|             |            |             |

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## 4 Test Summary

| Test Items                                                           | Limit                                                                                                    | Result |
|----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|--------|
| Channel Availability Check                                           | > 60 seconds                                                                                             | N/A    |
| UNII DetectionBandwidth                                              | > 100% of the UNII 99% transmission power bandwidth                                                      | N/A    |
| Statistical Performance Check                                        | Radar type 1,2,3,4 $\geq 60\%$<br>Aggregate Radar type 1~4 and 5 $\geq 80\%$<br>Radar type 6 $\geq 70\%$ | N/A    |
| Channel Move Time                                                    | < 10 seconds                                                                                             | Pass   |
| Channel Closing Transmission Time                                    | < 20ms + aggregate of 60ms over remaining 10 second period                                               | Pass   |
| Non-Occupancy Period                                                 | > 30 minutes                                                                                             | Pass   |
| Note: "Pass" means meet the requirements, "N/A" means not applicable |                                                                                                          |        |

Remark:

N/A: Not Applicable

## 5 General Information

### 5.1 Client Information

|              |                                                                                                                    |
|--------------|--------------------------------------------------------------------------------------------------------------------|
| Applicant:   | Iton Technology Corp.                                                                                              |
| Address:     | 7 Floor East, Building C, Shenzhen International Innovation Center, No.1006 Shennan Rd. Futian Dist Shenzhen China |
| Manufacturer | Iton Technology Corp.                                                                                              |
| Address:     | 7 Floor East, Building C, Shenzhen International Innovation Center, No.1006 Shennan Rd. Futian Dist Shenzhen China |

### 5.2 General Description of E.U.T.

|                              |                                                                                                                                                                                                      |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Name:                | Wi-Fi&BT module                                                                                                                                                                                      |
| Model No.:                   | RW8822-50B1                                                                                                                                                                                          |
| Transmitter frequency range: | 5150MHz~5250MHz, 5250MHz~5350MHz<br>5725MHz~5825MHz                                                                                                                                                  |
| Modulation type:             | OFDM                                                                                                                                                                                                 |
| WLAN Function:               | 802.11a/802.11n/802.11ac                                                                                                                                                                             |
| Bandwidth:                   | 20MHz/40MHz/80MHz                                                                                                                                                                                    |
| Antenna Type:                | External Antenna                                                                                                                                                                                     |
| Antenna Gain:                | 3.3 dBi                                                                                                                                                                                              |
| DFS Operation Type:          | <input type="checkbox"/> Master Device<br><input type="checkbox"/> Slaver Device with Radar detection function<br><input checked="" type="checkbox"/> Slaver Device without Radar detection function |
| Power supply:                | DC3.3V                                                                                                                                                                                               |

### 5.3 Description of Support Units

| Manufacturer | Description | Model       | Serial Number |
|--------------|-------------|-------------|---------------|
| LENOVO       | Laptop      | SL510       | 2847A65       |
| ASUS         | WiFi Router | GT-AXE11000 | M3IAJF201052  |

Information about the WiFi router is as follows :

Supported frequencies:

5150MHz~5250MHz, 5250MHz~5350MHz

5470MHz~5725MHz, 5725MHz~5825MHz

FCC ID:MSQ-RTAXJF00



## 5.4 Laboratory Facility

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

- FCC — Designation No.: CN1252

BlueAsia of Technical Services(Shenzhen) Co., Ltd has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Designation CN1252.

- ISED — CAB identifier No.: CN0028

BlueAsia of Technical Services(Shenzhen) Co., Ltd has been registered by Certification and Engineering Bureau of ISED for radio equipment testing with CAB identifier CN0028

## 5.5 Laboratory Location

All tests were performed at:

BlueAsia Technical Services(Shenzhen) Co.,Ltd.

No.41, South of Beihuan Road, Shangwu Community, Shiyan Subdistrict, Bao'an District, Shenzhen,Guangdong ,China

Telephone: TEL: +86-755-28682673 FAX: +86-755-28682673

## 5.6 Test Instruments list

| Test Equipment Of RF Conducted Test |              |           |                |            |            |
|-------------------------------------|--------------|-----------|----------------|------------|------------|
| Equipment                           | Manufacturer | Model     | S/N            | Cal.Date   | Cal.Due    |
| Spectrum                            | R&S          | FSP40     | 100817         | 2022/09/15 | 2023/09/14 |
| Spectrum                            | Agilent      | N9020A    | MY49100060     | 2022/09/07 | 2023/09/06 |
| Spectrum                            | KEYSIGHT     | N9030A    | MY52350152     | 2022/07/01 | 2023/06/30 |
| Spectrum                            | KEYSIGHT     | N9010A    | MY54330814     | 2022/07/01 | 2023/06/30 |
| Signal Generator                    | Agilent      | N5182A    | MY47420955     | 2022/09/07 | 2023/09/06 |
| Signal Generator                    | Agilent      | E8257D    | MY44320250     | 2022/07/01 | 2023/06/30 |
| Signal Generator                    | Agilent      | N5181A    | MY46240904     | 2022/08/02 | 2023/08/01 |
| Signal Generator                    | R&S          | CMW500    | 132429         | 2022/09/07 | 2023/09/06 |
| BluetoothTester                     | Anritsu      | MT8852B   | 06262047872    | 2022/09/07 | 2023/09/06 |
| Power probe                         | DARE         | RPR3006W  | 14I00889SN042  | 2022/09/07 | 2023/09/06 |
| DCPowersupply                       | zhaoxin      | KXN-305D  | 20K305D1221363 | 2022/09/14 | 2023/09/13 |
| DCPowersupply                       | zhaoxin      | RXN-1505D | 19R1505D050168 | 2022/09/14 | 2023/09/13 |

## 5.7 Test Environment

|                       |            |
|-----------------------|------------|
| Temperature:          | 20 ~ 25 °C |
| Humidity:             | 60% ~ 65%  |
| Atmospheric pressure: | 1012 kPa   |

## 6 DFS Technical Requirements

### 6.1 DFS Parameters

| Table D.1: Applicability of DFS Requirements Prior to Use of a Channel |                  |                                |                             |
|------------------------------------------------------------------------|------------------|--------------------------------|-----------------------------|
| Requirement                                                            | Operational Mode |                                |                             |
|                                                                        | Master           | Client Without Radar Detection | Client With Radar Detection |
| Non-Occupancy period                                                   | Yes              | Yes                            | 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 D.2: Applicability of DFS requirements during normal operation |                  |                                |
|----------------------------------------------------------------------|------------------|--------------------------------|
| Requirement                                                          | Operational Mode |                                |
|                                                                      | Master           | Client Without 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 multiple bandwidth modes                                                                                                                                                                                                                                                                                     | Operational Mode                             |                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                       | Master Device or Client with Radar Detection | Client Without Radar Detection                       |
| U-NII Detection Bandwidth and Statistical Performance Check                                                                                                                                                                                                                                                                                           | All BW modes must be tested                  | Not required                                         |
| Channel Move Time and Channel Closing Transmission Time                                                                                                                                                                                                                                                                                               | Test using widest BW mode available          | Test using the widest 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. |                                              |                                                      |

| Table D.3: DFS Detection Thresholds                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| Maximum Transmit Power                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Value (See Notes 1,2, and 3) |
| EIRP $\geq$ 200 mW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | -64 dBm                      |
| EIRP < 200 mW and power spectral density < 10 dBm/MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | -62 dBm                      |
| EIRP < 200 mW that do not meet the power spectral density requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                   | -64 dBm                      |
| <p>Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna.</p> <p>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.</p> <p>Note 3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.</p> |                              |

| Table D.4: DFS 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 ms + an aggregate of 60ms over remaining 10 second period (See Notes 1 and 2) |
| U-NII Detection Bandwidth         | Minimum 100% of the UNII 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.

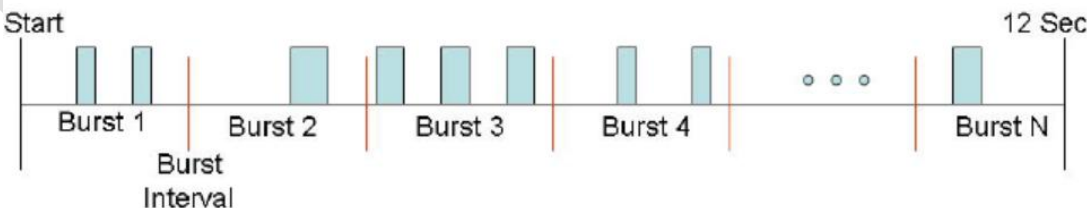
Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step, the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

| Table D.5: Short Pulse Radar Test Waveforms |                    |                  |                                                                                                                                                  |                                            |                          |
|---------------------------------------------|--------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|--------------------------|
| Radar Type                                  | Pulse Width (μsec) | PRI (μsec)       | Number of Pulses                                                                                                                                 | Minimum Percentage of Successful Detection | Minimum Number of Trials |
| 0                                           | 1                  | 1428             | 18                                                                                                                                               | See Note 1                                 | See Note 1               |
| 1                                           | 1                  | Test A<br>Test B | Roundup $\left\{ \begin{array}{l} \left( \frac{1}{360} \right) \cdot \\ \left( \frac{19 \cdot 10^6}{PRI_{\mu sec}} \right) \end{array} \right\}$ | 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                      |

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

| Table D.6: Long Pulse Radar Test Waveform |                    |                   |            |                            |                  |                                            |                          |
|-------------------------------------------|--------------------|-------------------|------------|----------------------------|------------------|--------------------------------------------|--------------------------|
| Radar Type                                | Pulse Width (μsec) | Chirp Width (MHz) | PRI (μsec) | Number of Pulses per Burst | Number of Bursts | Minimum Percentage of Successful Detection | Minimum Number of Trials |
| 5                                         | 50-100             | 5-20              | 1000-2000  | 1-3                        | 8-20             | 80%                                        | 30                       |

**Long Pulse Radar Test Signal Wave form 12 second transmission**



| Table D.7: Frequency Hopping Radar Test Waveform |                    |            |                |                    |                                |                                            |                          |
|--------------------------------------------------|--------------------|------------|----------------|--------------------|--------------------------------|--------------------------------------------|--------------------------|
| Radar Type                                       | Pulse Width (μsec) | PRI (μsec) | Pulses per Hop | Hopping Rate (kHz) | Hopping Sequence Length (msec) | Minimum Percentage of Successful Detection | Minimum Number of Trials |
| 6                                                | 1                  | 333        | 0              | 0.333              | 300                            | 70%                                        | 30                       |

## 6.2 DFS Technical Requirements

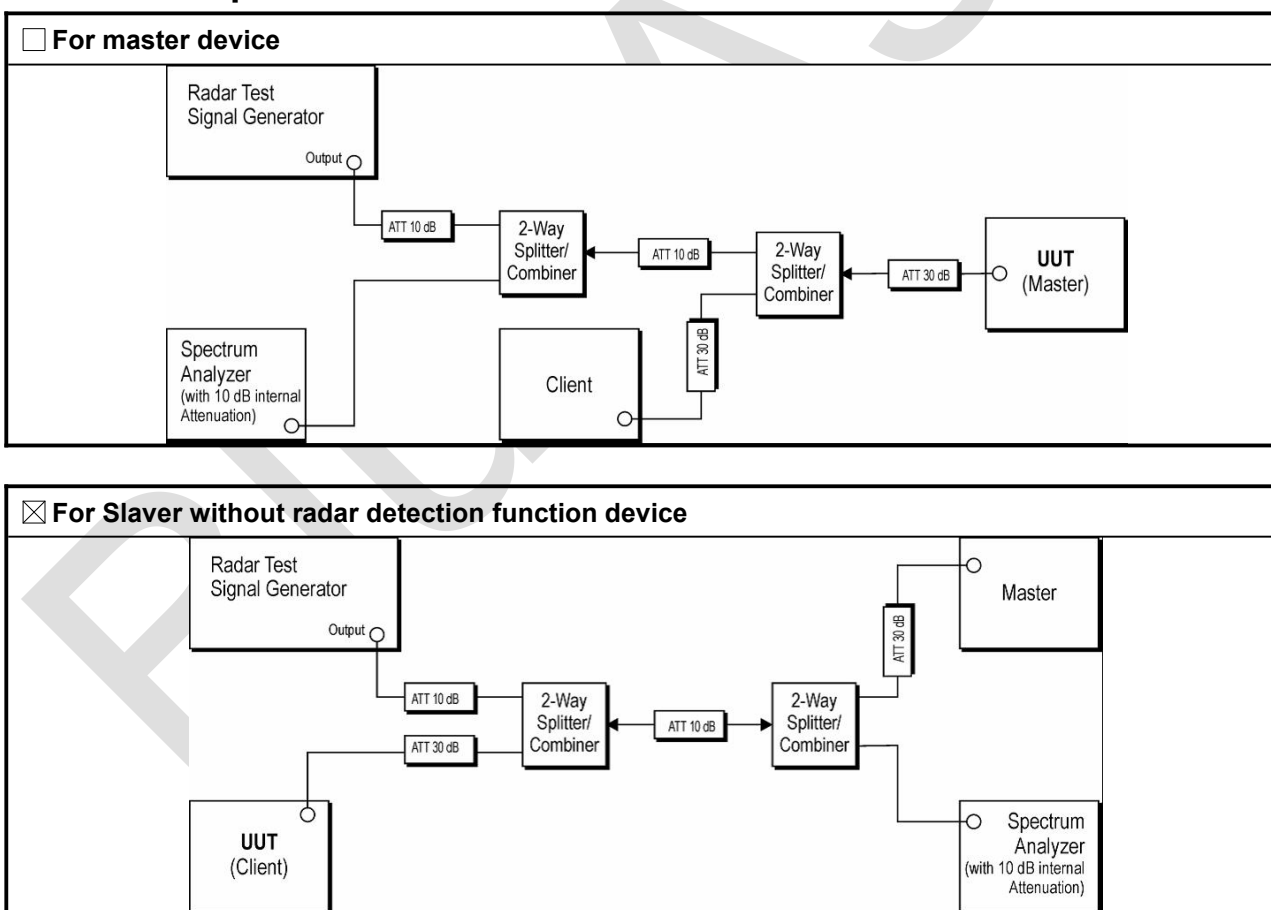
| Requirement                       | DFS Operational mode            |                                                                   |                                                     |
|-----------------------------------|---------------------------------|-------------------------------------------------------------------|-----------------------------------------------------|
|                                   | <input type="checkbox"/> Master | <input checked="" type="checkbox"/> Slave without Radar Detection | <input type="checkbox"/> Slave with Radar Detection |
| Channel Availability Check        | √                               | Not Required                                                      | Not Required                                        |
| UNII Detection Bandwidth          | √                               | Not Required                                                      | √                                                   |
| Statistical Performance Check     | √                               | Not Required                                                      | √                                                   |
| Channel Move Time                 | √                               | √                                                                 | √                                                   |
| Channel Closing Transmission Time | √                               | √                                                                 | √                                                   |
| Non-Occupancy Period              | √                               | √                                                                 | √                                                   |

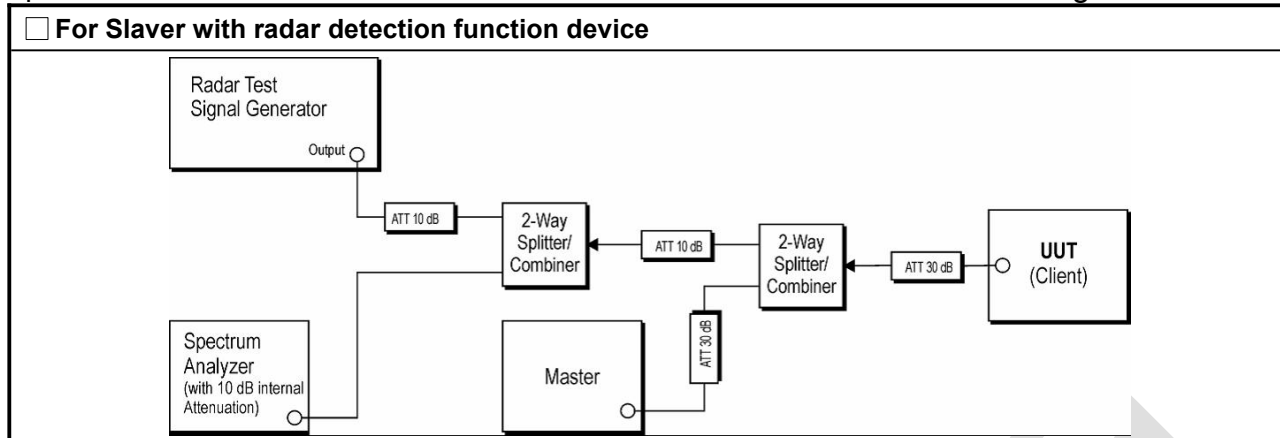
## 6.3 DFS Threshold Level

| DFS Threshold Level |                            |
|---------------------|----------------------------|
| 5250MHz ~ 5350MHz   | -62dBm @ antenna connector |
| 5470MHz~5725MHz     | -62dBm @ antenna connector |

Note: The worst case level was selected to perform the test.

## 6.4 Test Setup Block



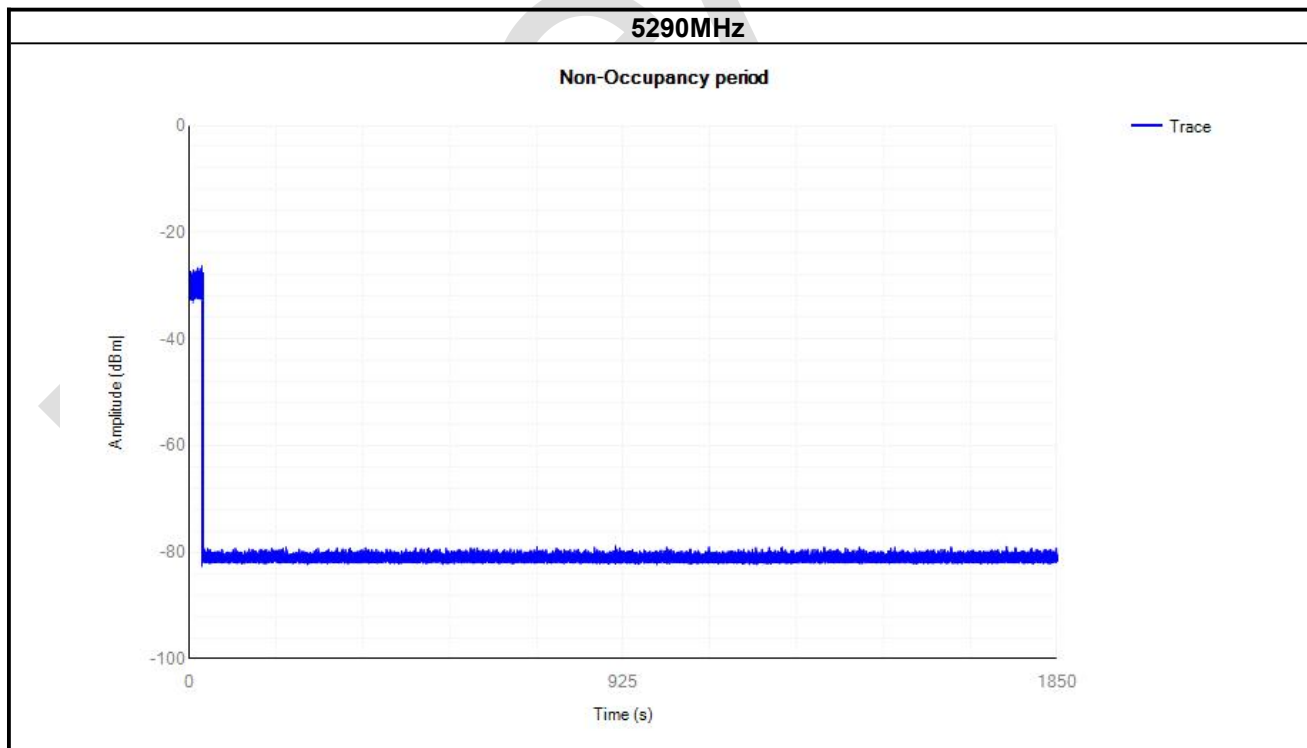
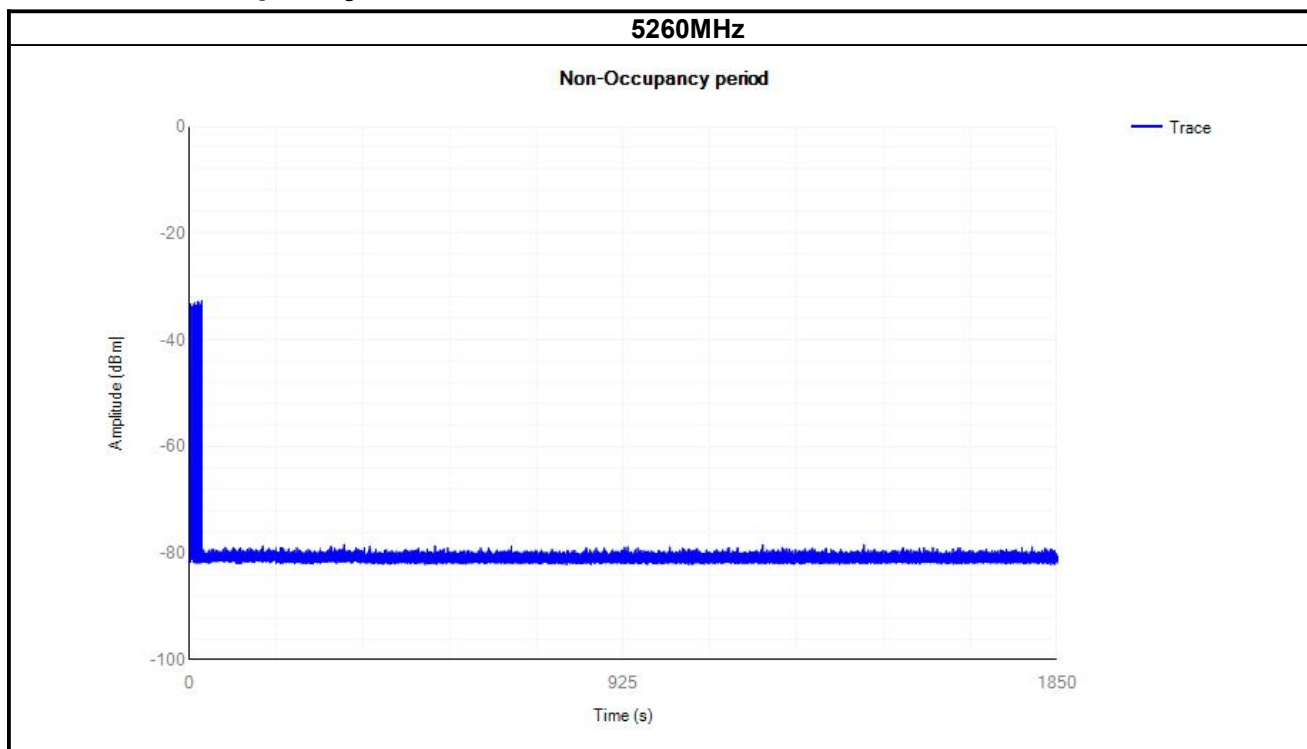


## 6.5 EUT Configuration for DFS Test

| Test Items                        | Channel Frequency |
|-----------------------------------|-------------------|
| Channel Move Time                 | 5260MHz, 5290MHz  |
| Channel Closing Transmission Time | 5260MHz, 5290MHz  |
| Non-Occupancy Period              | 5260MHz, 5290MHz  |

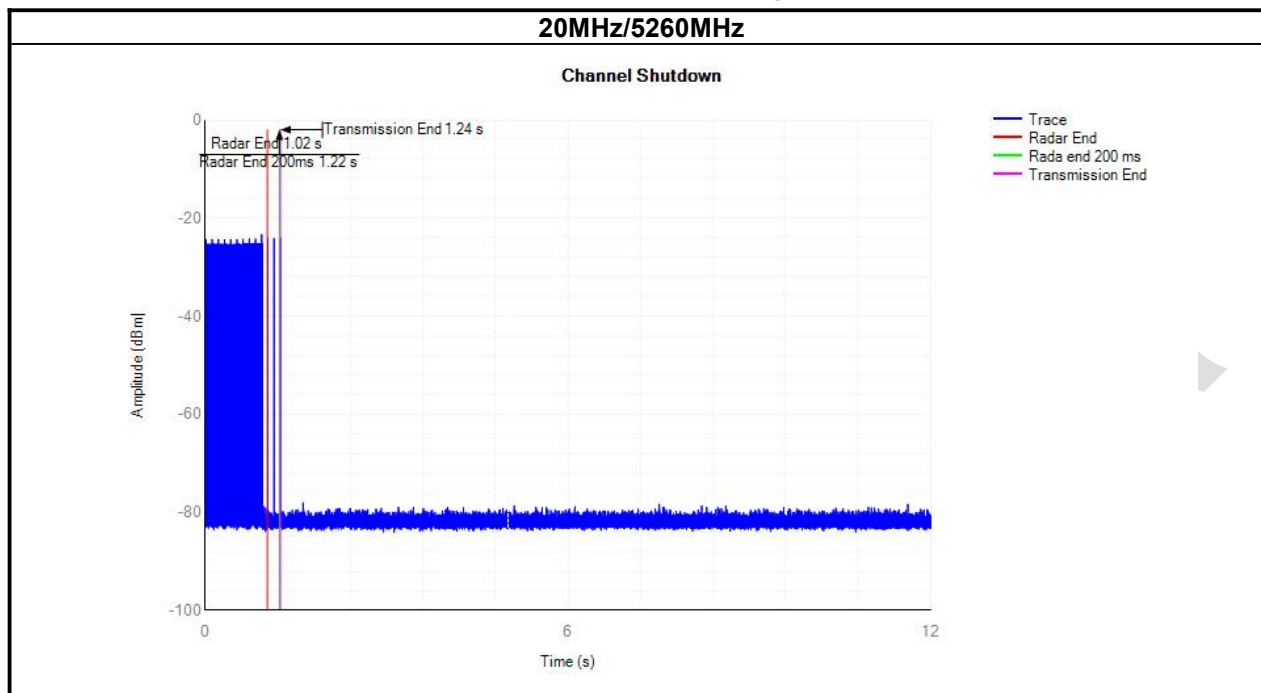
## 7 Test Result

### 7.1 Non-Occupancy Period

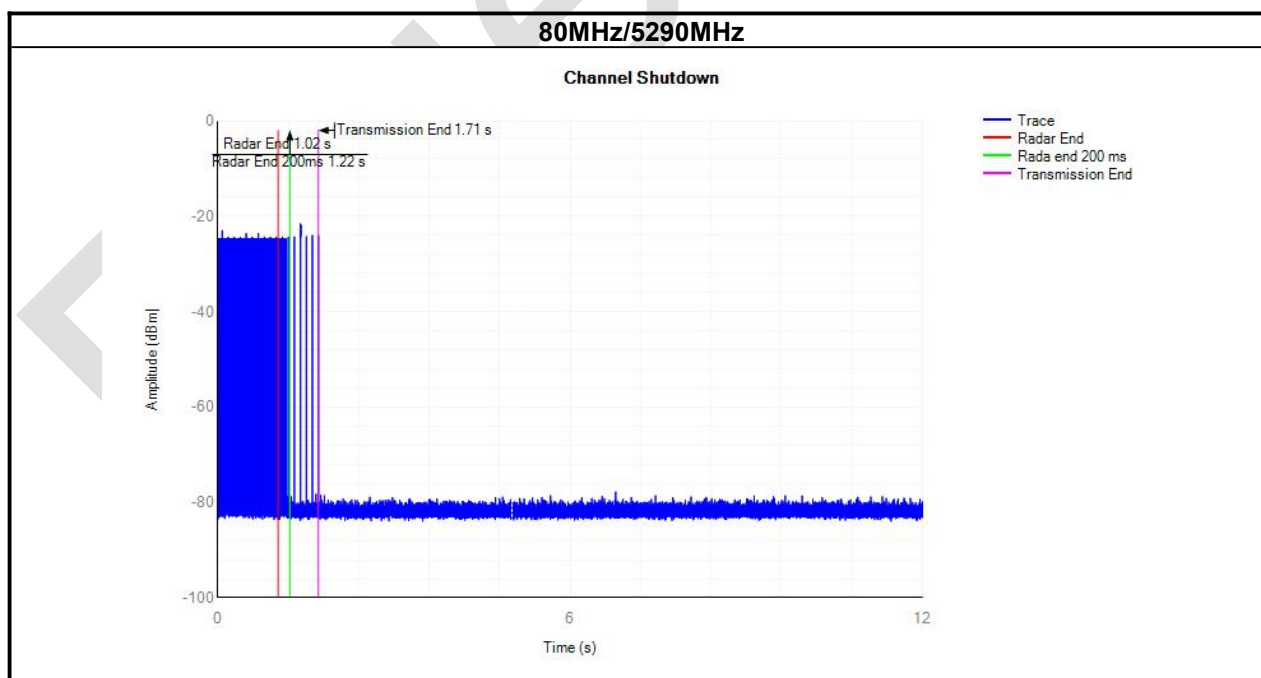


| Test Items           | Value        | Limit              | Result |
|----------------------|--------------|--------------------|--------|
| Non-Occupancy Period | > 30 minutes | Minimum 30 minutes | Pass   |

## 7.2 Channel Move Time and Channel Closing Transmission Time



| Test Items                        | Value   | Limit | Result |
|-----------------------------------|---------|-------|--------|
| Channel Closing Transmission Time | 0.0012s | 1s    | Pass   |
| Channel Move Time                 | 0.2133s | 10 s  | Pass   |



| Test Items                        | Value   | Limit | Result |
|-----------------------------------|---------|-------|--------|
| Channel Closing Transmission Time | 0.0948s | 1s    | Pass   |
| Channel Move Time                 | 0.6865s | 10 s  | Pass   |

## 8 Test photos



## 9 EUT Constructional Details

Reference to the test report No. BLA-EMC-202210-A6201

----- End of report -----