

# FCC Test Report

**Applicant** : GUANGGAN TECHNOLOGY (SHENZHEN) CO.,LTD

**Address** : 2307, Changhong Science and Technology Building, South 12 Road, Southern District in High-tech Zone, Nanshan District, Shenzhen, Guangdong, 518063 China

**Product Name** : Multimedia Projector

**Report Date** : Jan. 10, 2024

**Shenzhen Anbotek Compliance Laboratory Limited**



**Shenzhen Anbotek Compliance Laboratory Limited**

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# TEST REPORT

Applicant : GUANGGAN TECHNOLOGY (SHENZHEN) CO.,LTD  
Manufacturer : GUANGGAN TECHNOLOGY (SHENZHEN) CO.,LTD  
Product Name : Multimedia Projector  
Test Model No. : RD-809  
Reference Model No. : OSPJ-M1, OSPJ-M2, OSPJ-M3, OSPJ-M4, OSPJ-M5, OSPJ-M6, OSPJ-M7, OSPJ-M8, OSPJ-M9, OSPJ-M10, OSPJ-M11, OSPJ-M12, OSPJ-M13, OSPJ-M14, OSPJ-M15, OSPJ-M16, OSPJ-M17, OSPJ-M18, OSPJ-M19, OSPJ-M20  
Trade Mark : N/A  
Rating(s) : Input: AC 100-240V, 50/60Hz 140W  
Test Standard(s) : FCC Part15 Subpart E, Paragraph 15.407  
Test Method(s) : FCC KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 15 Subpart E requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Receipt

Nov. 21, 2023

Date of Test

Nov. 21~Dec. 26, 2023

Prepared By

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Approved & Authorized Signer

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Revision History

| Report Version | Description     | Issued Date   |
|----------------|-----------------|---------------|
| R00            | Original Issue. | Jan. 10, 2024 |
|                |                 |               |
|                |                 |               |



## 1. General Information

### 1.1. Client Information

|              |   |                                                                                                                                                    |
|--------------|---|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Applicant    | : | GUANGGAN TECHNOLOGY (SHENZHEN) CO.,LTD                                                                                                             |
| Address      | : | 2307, Changhong Science and Technology Building.South 12 Road,Southern District in High-tech Zone,Nanshan District,Shenzhen,Guangdong,518063 China |
| Manufacturer | : | GUANGGAN TECHNOLOGY (SHENZHEN) CO.,LTD                                                                                                             |
| Address      | : | 2307, Changhong Science and Technology Building.South 12 Road,Southern District in High-tech Zone,Nanshan District,Shenzhen,Guangdong,518063 China |
| Factory      | : | Guangzhou Rigal Electronics Co., Ltd.                                                                                                              |
| Address      | : | No.3-1, Ruixiang Road,Huadu District,Guangzhou,China                                                                                               |

### 1.2. Description of Device (EUT)

|                         |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Name            | : | Multimedia Projector                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Test Model No.          | : | RD-809                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Reference Model No.     | : | OSPJ-M1, OSPJ-M2, OSPJ-M3, OSPJ-M4, OSPJ-M5, OSPJ-M6, OSPJ-M7, OSPJ-M8, OSPJ-M9, OSPJ-M10, OSPJ-M11, OSPJ-M12, OSPJ-M13, OSPJ-M14, OSPJ-M15, OSPJ-M16, OSPJ-M17, OSPJ-M18, OSPJ-M19, OSPJ-M20<br>(Note: All samples are the same except the model number and appearance color, so we prepare "RD-809" for test only.)                                                                                                                                                     |
| Trade Mark              | : | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Test Power Supply       | : | AC 120V, 60Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Test Sample No.         | : | 1-2-1(Normal Sample), 1-2-2(Engineering Sample)                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Adapter                 | : | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>RF Specification</b> |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Operation Mode          | : | <input checked="" type="checkbox"/> a <input checked="" type="checkbox"/> n(HT20) <input checked="" type="checkbox"/> n(HT40) <input checked="" type="checkbox"/> ac(VHT20)<br><input checked="" type="checkbox"/> ac(VHT40) <input type="checkbox"/> ac(VHT80) <input type="checkbox"/> ac(VHT160) <input checked="" type="checkbox"/> ax(HEW20)<br><input checked="" type="checkbox"/> ax(HEW40) <input type="checkbox"/> ax(HEW80) <input type="checkbox"/> ax(HEW160) |
| Device Type             | : | <input type="checkbox"/> Outdoor AP <input type="checkbox"/> Indoor AP <input type="checkbox"/> Point-to-point AP<br><input checked="" type="checkbox"/> Client                                                                                                                                                                                                                                                                                                           |
| TPC Function            | : | <input type="checkbox"/> With TPC <input checked="" type="checkbox"/> Without TPC                                                                                                                                                                                                                                                                                                                                                                                         |
| DFS Type                | : | <input checked="" type="checkbox"/> Slave without radar detection <input type="checkbox"/> Slave with radar detection                                                                                                                                                                                                                                                                                                                                                     |



|                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                              | <input type="checkbox"/> Master                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Operation Frequency                                                                                                                                                                          | : <input checked="" type="checkbox"/> Wi-Fi 5.3G: 5250~5350MHz <input type="checkbox"/> Wi-Fi 5.6G: 5470~5725MHz                                                                                                                                                                                                                                                                                                                                                                                                         |
| Number of Channel                                                                                                                                                                            | :<br>Wi-Fi 5.3G:<br><input checked="" type="checkbox"/> 4 Channels for 20MHz bandwidth (5260-5320MHz)<br><input checked="" type="checkbox"/> 2 Channels for 40MHz bandwidth (5270-5310MHz)<br><input checked="" type="checkbox"/> 1 Channels for 80MHz bandwidth (5290MHz)<br>Wi-Fi 5.6G:<br><input type="checkbox"/> 11 Channels for 20MHz bandwidth (5500-5700MHz)<br><input type="checkbox"/> 5 Channels for 40MHz bandwidth (5510-5670MHz)<br><input type="checkbox"/> 2 Channels for 80MHz bandwidth (5530~5610MHz) |
| Modulation Type                                                                                                                                                                              | :<br><input checked="" type="checkbox"/> 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK)<br><input checked="" type="checkbox"/> 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM)<br><input checked="" type="checkbox"/> 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)<br><input type="checkbox"/> 802.11ax: OFDMA(BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)                                                                                                                                                                        |
| Antenna Type                                                                                                                                                                                 | : FPC antenna                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Antenna Gain(Peak)                                                                                                                                                                           | : Wi-Fi 5.3G: 1.59dBi                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Remark:</b> 1) All of the RF specification are provided by customer. 2) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |



### 1.3. Auxiliary Equipment Used During Test

| Description   | Rating(s)                                                                                                                                                |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Master device | Manufacturer: Micronet Union Technology(Chengdu) Co., Ltd<br>Equipment: AC1200 Gigabit Dual Band Wi-Fi Router<br>Model: T18-21A<br>FCC ID: 2A22E-WWYLT18 |

### 1.4. Description of Test Facility

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

#### FCC-Registration No.: 434132

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No. 434132.

#### ISED-Registration No.: 8058A

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A.

#### Test Location

Shenzhen Anbotek Compliance Laboratory Limited.

1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.

### 1.5. Disclaimer

1. The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
2. The test report is invalid if there is any evidence and/or falsification.
3. The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.
4. This document may not be altered or revised in any way unless done so by Anbotek and all revisions are duly noted in the revisions section.
5. Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
6. The authenticity of the information provided by the customer is the responsibility of the customer and the laboratory is not responsible for its authenticity.

The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.



**1.6. Channel List**

| Frequency Band | Mode                                            | Test channel | Frequency (MHz) |
|----------------|-------------------------------------------------|--------------|-----------------|
| 5.3GHz         | OFDM<br>802.11a/n(HT20)/ac(VHT20)/<br>ax(HEW20) | CH 52        | 5260            |
|                |                                                 | CH 56        | 5280            |
|                |                                                 | CH 60        | 5300            |
|                |                                                 | CH 64        | 5320            |
|                | OFDM<br>802.11n(HT40)/ac(VHT40)/<br>ax(HEW40)   | CH 54        | 5270            |
|                |                                                 | CH 62        | 5310            |

**1.7. Antenna Specification:**

| Ant. | Antenna Type | Connector | Gain (dBi) |
|------|--------------|-----------|------------|
| 1    | FPC          | N/A       | 1.59       |



**1.8. Table for Antenna Configuration:**

| Operating Mode  | TX  |
|-----------------|-----|
| Mode            | 1TX |
| 802.11a         | V   |
| 802.11n(HT20)   | V   |
| 802.11ac(VHT20) | V   |
| 802.11n(HT40)   | V   |
| 802.11ac(VHT40) | V   |
| 802.11ax(HEW20) | V   |
| 802.11ax(HEW40) | V   |

**1.9. Maximum Output Power And E.I.R.P.**

| Test Mode       | Frequency Band (MHz) | Max Average Output Power (dBm) | Gain (dBi) | Max. e.i.r.p. (dBm) | Max. e.i.r.p. (mW) |
|-----------------|----------------------|--------------------------------|------------|---------------------|--------------------|
| 802.11a         | 5250~5350            | 14.04                          | 1.59       | 15.63               | 36.56              |
| 802.11n(HT20)   | 5250~5350            | 13.96                          | 1.59       | 15.55               | 35.89              |
| 802.11ac(VHT20) | 5250~5350            | 13.81                          | 1.59       | 15.40               | 34.67              |
| 802.11n(HT40)   | 5250~5350            | 13.10                          | 1.59       | 14.69               | 29.44              |
| 802.11ac(VHT40) | 5250~5350            | 13.60                          | 1.59       | 15.19               | 33.04              |
| 802.11ax(HEW20) | 5250~5350            | 15.03                          | 1.59       | 16.62               | 45.92              |
| 802.11ax(HEW40) | 5250~5350            | 14.38                          | 1.59       | 15.97               | 39.54              |



### 1.10. Transmit Power Control (TPC)

U-NII devices operating in the 5.25-5.35 GHz band and the 5.47-5.725 GHz band shall employ a TPC mechanism. The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm. A TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW.

| Applicable                          | EIRP   | FCC 15.407 (h)(1)                                                       |
|-------------------------------------|--------|-------------------------------------------------------------------------|
| <input type="checkbox"/>            | >500mW | The TPC mechanism is required for system with an EIRP of above 500mW    |
| <input checked="" type="checkbox"/> | <500mW | The TPC mechanism is not required for system with an EIRP of less 500mW |

The UUT can adjust a transmitter's output power based on the signal level present at the receiver. TPC is auto controlled by software.



## 2. U-NII DFS Rule Requirements

### 2.1. Working Modes and Required Test Items

The manufacturer shall state whether the UUT is capable of operating as a Master and/or a Client. If the UUT is capable of operating in more than one operating mode then each operating mode shall be tested separately. See tables 6 and 7 for the applicability of DFS requirements for each of the operational modes.

Applicability of DFS Requirements Prior to Use a Channel

| Requirement                     | Operational Mode |                                |                             |
|---------------------------------|------------------|--------------------------------|-----------------------------|
|                                 | Master           | Client without radar detection | Client with radar detection |
| Non-Occupancy Period            | √                | Not required                   | √                           |
| DFS Detection Threshold         | √                | Not required                   | √                           |
| Channel Availability Check Time | √                | Not required                   | Not required                |
| U-NII Detection Bandwidth       | √                | Not required                   | √                           |

Applicability of DFS Requirements during Normal Operation

| Requirement                       | Operational Mode |                                |                             |
|-----------------------------------|------------------|--------------------------------|-----------------------------|
|                                   | Master           | Client without radar detection | Client with radar detection |
| DFS Detection Threshold           | √                | Not required                   | √                           |
| Channel Closing Transmission Time | √                | √                              | √                           |
| Channel Move Time                 | √                | √                              | √                           |
| U-NII Detection Bandwidth         | √                | Not required                   | √                           |

| Additional requirements for devices with multiple bandwidth modes | 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.



## 2.2. Test Limits and Radar Signal Parameters

### Detection Threshold Values:

DFS Detection Thresholds for Master Devices and Client Devices with Radar Detection

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

### Test Limit:

DFS Response Requirement Values

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



**Parameters of DFS Test Signals And Minimum Percentage of Successful Detections:**

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.

**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: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a<br><br>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 $\left\{ \left( \frac{1}{360} \right) \cdot \left( \frac{19 \cdot 10^6}{\text{PRI}_{\mu\text{sec}}} \right) \right\}$ | 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                      |
| <b>Note 1:</b> 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 μsec is selected, the number of

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



## Pulse Repetition Intervals Values for Test A

| Pulse Repetition Frequency Number | Pulse Repetition Frequency (Pulses Per Second) | Pulse Repetition Interval (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.

## 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          | 5-100              | 5-20              | 1000-2000  | 1-3                        | 8-20             | 80%                                        | 30                       |



## 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        | 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: If a segment does not contain at least 1 frequency within the U-NII Detection Bandwidth of the UUT, then that segment is not used.

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.



**3. Test Equipment List**

| Item | Equipment                      | Manufacturer | Model No. | Serial No. | Last Cal.     | Cal. Interval |
|------|--------------------------------|--------------|-----------|------------|---------------|---------------|
| 1.   | MAX Spectrum Analysis          | Agilent      | N9020A    | MY51170037 | Oct. 12, 2023 | 1 Year        |
| 2.   | MXA Spectrum Analysis          | KEYSIGHT     | N9020A    | MY53280032 | Oct. 12, 2023 | 1 Year        |
| 3.   | RF Control Unit                | Tonscend     | JS0806-2  | 21G8060455 | Oct. 12, 2023 | 1 Year        |
| 4.   | MXG RF Vector Signal Generator | Agilent      | N5182A    | MY48180656 | Oct. 12, 2023 | 1 Year        |



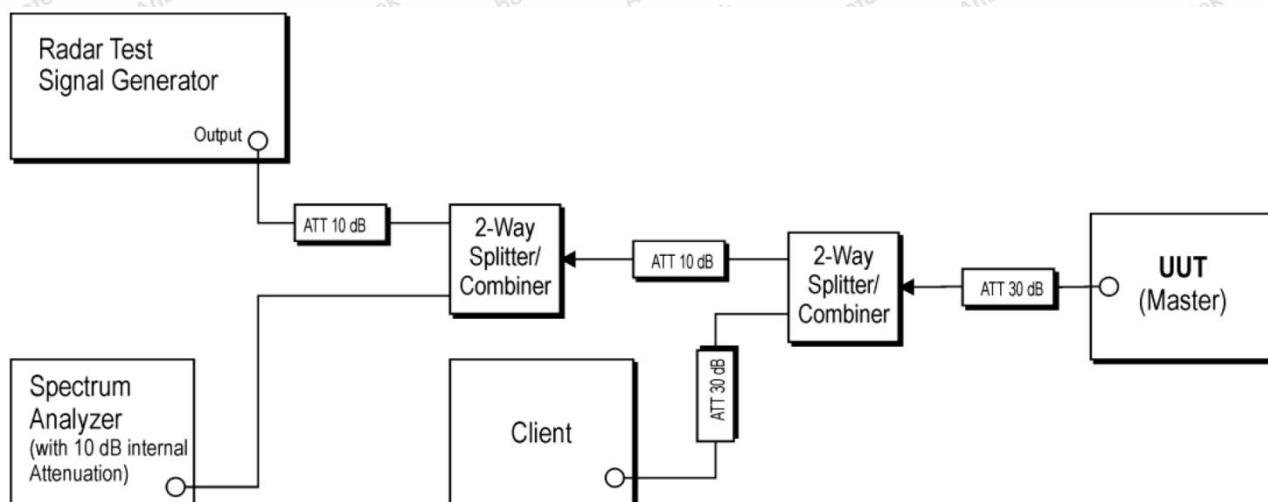
## 4. Dynamic Frequency Selection (DFS)

### 4.1. DFS Measurement System

Test Procedure:

1. Master device and client device are set up by conduction method as the following configuration.
2. The client device is connected to notebook and to access a IP address on wireless connection with the master device.
3. Then the master device is connected to another notebook to access a IP address.
4. Finally, let the two IP addresses run traffic with each other through the Run flow software "iPerf.exe" to reach 17% channel loading as below.
5. The time for the EUT to fully restart up is 65s.
6. The time for the master device to fully restart up is 65s.

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



Radar Test Waveforms are injected into the Master.



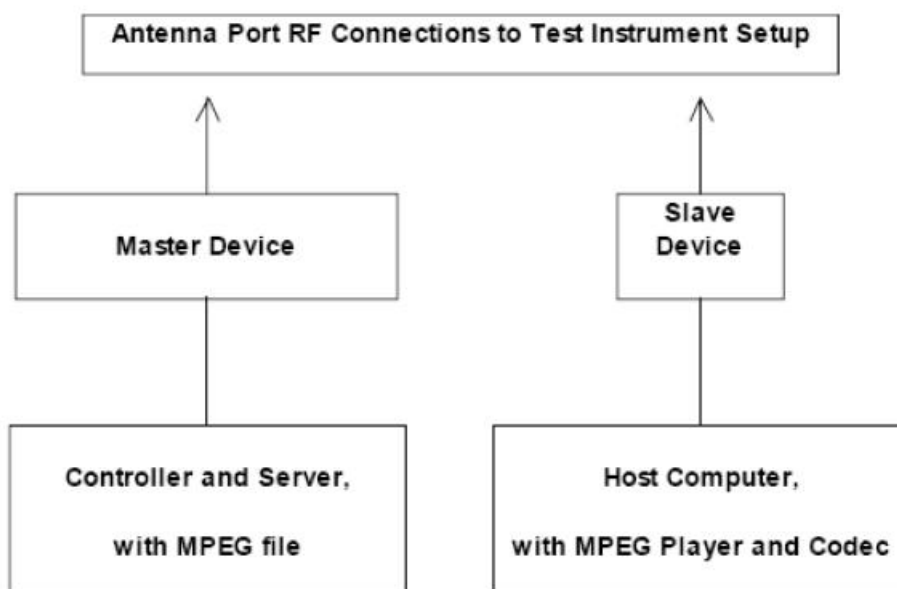
#### 4.2. Calibration of DFS Detection Threshold Level

A 50 ohm load is connected in place of the spectrum analyzer, and the spectrum analyzer is connected in place of the master device and the signal generator is set to CW mode. The amplitude of the signal generator is adjusted to yield a level of -64dBm as measured on the spectrum analyzer.

Without changing any of the instrument settings, the spectrum analyzer is reconnected to the Common port of the Spectrum Analyzer Combiner/Divider. Measure the amplitude and calculate the difference from -64 dBm. Adjust the Reference Level Offset of the spectrum analyzer to this difference.

The spectrum analyzer displays the level of the signal generator as received at the antenna ports of the Master Device. The interference detection threshold may be varied from the calibrated value of -64 dBm and the spectrum analyzer will still indicate the level as received by the Master Device.

Set the signal generator to produce a radar waveform, trigger a burst manually and measure the level on the spectrum analyzer. Readjust the amplitude of the signal generator as required so that the peak level of the waveform is at a displayed level equal to the required or desired interference detection threshold. Separate signal generator amplitude settings are determined as required for each radar type.



#### 4.3. Deviation from Test Standard

No deviation.



## 5. Test Results

### 5.1. Summary of Test Results

| Standard   | Test Type                         | Remarks    | Result |
|------------|-----------------------------------|------------|--------|
| FCC 15.407 | Channel Move Time                 | Applicable | PASS   |
| FCC 15.407 | Channel Closing Transmission Time | Applicable | PASS   |
| FCC 15.407 | Channel Loading                   | Applicable | PASS   |



## 5.2. DFS Detection Threshold

Calibration:

| DFS Threshold Level                             |                                                              |
|-------------------------------------------------|--------------------------------------------------------------|
| DFS Threshold Level (1.59dBi antenna):-59.41dBm | <input checked="" type="checkbox"/> At the antenna connector |
|                                                 | <input type="checkbox"/> In front of the antenna             |

Note: For SISO mode, the maximum EIRP is less than 200 milliwatt, the antenna gain is 1.59dBi. According to clause 2.2 of this report. The detection threshold level is -59.41dBm.

*Please refer to Appendix A of the Appendix Test Data.*

## 5.3. Channel Move Time And Channel Closing Transmission Time

*Please refer to Appendix C of the Appendix Test Data.*

## 5.4. Channel Loading

*Please refer to Appendix B of the Appendix Test Data.*



## **APPENDIX I -- TEST SETUP PHOTOGRAPH**

Please refer to separated files Appendix I -- Test Setup Photograph\_DFS

## **APPENDIX II -- EXTERNAL PHOTOGRAPH**

Please refer to separated files Appendix II -- External Photograph

## **APPENDIX III -- INTERNAL PHOTOGRAPH**

Please refer to separated files Appendix III -- Internal Photograph

----- End of Report -----

