



TEST REPORT

Report No. SST240429004EF06

Applicant: Shenzhen Jiuzhou Yunhai Technology Co., Ltd

Address of Applicant: 701, 602, Building 3, Shanglilang park, No. 61 Pingji Avenue,
Shanglilang Community, Longgang, Shenzhen(518100),
China.

Product Name: Laptop

Trade Mark: /

Standard(s): FCC CFR Title 47 Part 15 Subpart E Section 15.407

FCC ID: 2BFMN-TU156

Test Report Form No: SST-RD-7.5-02-E01(A/0)

Date of sample receipt: 2024/10/17

Date of Test: 2024/10/17 - 2024/12/27

Date of report issued: 2024/12/30

*The equipment complies with the requirements according to the standard(s) or Specification above, it is applicable only to the tested sample identified in the report.

Prepared by:

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Reviewed by:

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Approved by:

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

Revision History

| Version | Description | Date of Issue |
|---------|-------------|---------------|
| V1.0 | Original | 2024/12/30 |
| | | |
| | | |

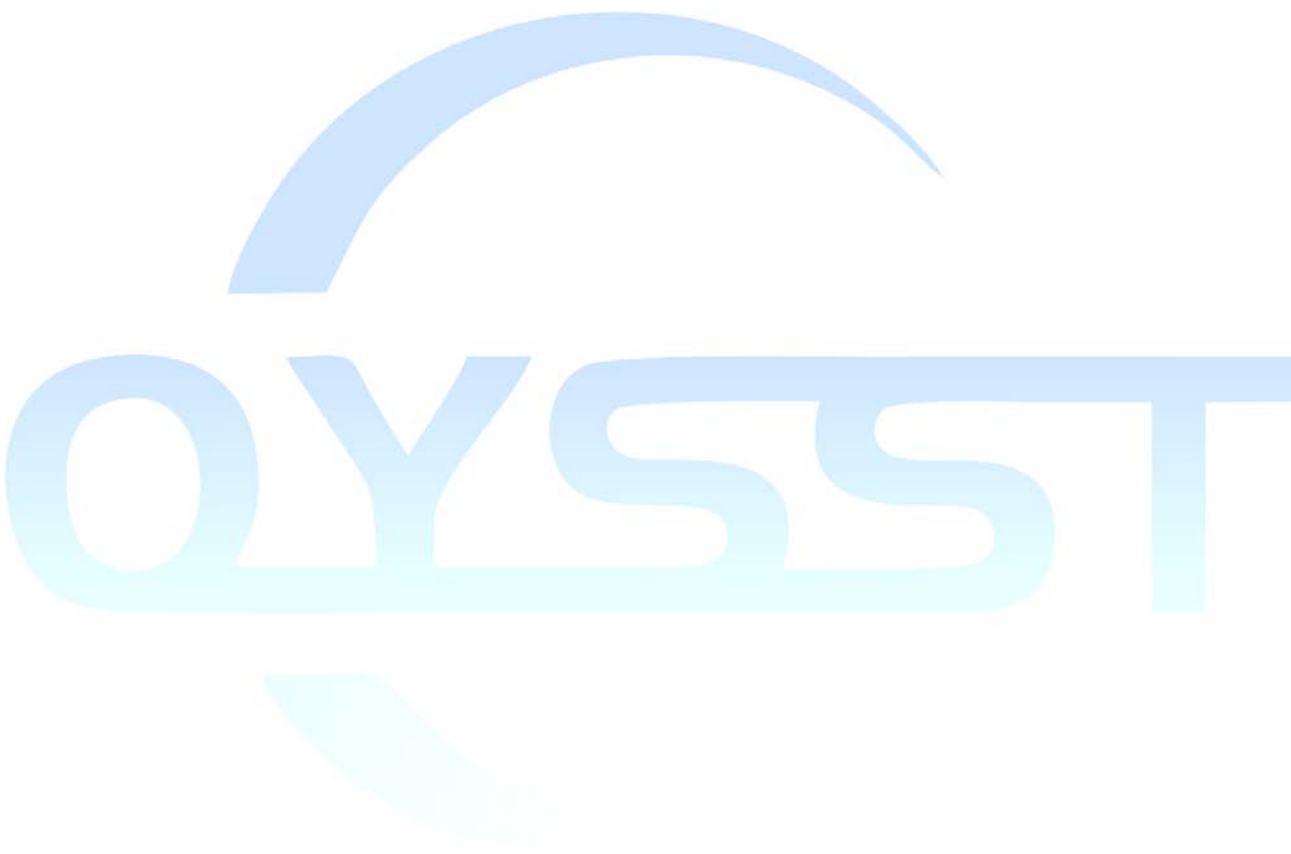


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3 Test Summary

| Test items | Basics standards | Operational Mode | |
|-----------------------------------|-------------------------------------|--|--------------------------------|
| | | Master Device or Client with Radar Detection | Client Without Radar Detection |
| DFS Detection Threshold | 47 CFR Part 15.407(h) KDB 905462 | Y | N |
| Channel Closing Transmission Time | | Y | Y |
| Channel Move Time | | Y | Y |
| U-NII Detection Bandwidth | | Y | N |



4 General Information

4.1 Client Information

Applicant: Shenzhen Jiuzhou Yunhai Technology Co., Ltd
Address of applicant: 701, 602, Building 3, Shanglilang park, No. 61 Pingji Avenue, Shanglilang Community, Longgang, Shenzhen(518100), China.
Manufacturer: Same as applicant
Address of Manufacturer: Same as applicant
Factory: Same as applicant
Address of Factory: Same as applicant

4.2 General Description of EUT

| | | |
|------------------------|--|---|
| Product Name: | Laptop | |
| Model No.: | TU156 i7-1195G7, TU*****, DH*****, A1("*" stands for 0-9, a-z, A-Z,"-", space or blank, indicating different sales channels or different colors, without affecting product safety and Electromagnetic compatibility) | |
| Test Model: | TU156 i7-1195G7 | |
| Sample(s) Status: | Normal firmware | |
| S/N: | / | |
| Hardware version: | / | |
| Software version: | / | |
| Operation Frequency: | 5260MHz ~ 5320MHz 5500MHz ~ 5700MHz | |
| Technical specific: | 802.11a, 802.11n, 802.11ac | |
| Channel Bandwidth | 20/40/80MHz operating channel bandwidth | |
| Modulation technology: | OFDM | |
| Operating Mode | <input type="checkbox"/> Master | |
| | <input type="checkbox"/> Client with radar detection | |
| | <input checked="" type="checkbox"/> Client without radar detection | |
| TPC Function | <input type="checkbox"/> With TPC | <input checked="" type="checkbox"/> Without TPC |
| Antenna gain: | Refer to section 4.7 for details | |
| Power supply: | AC/DC ADAPTOR Model: QL065GaN-1903420C Input: AC 100~240V, 50/60Hz, 1.5A Output: DC 19V, 3.42A Or DC 7.7V 5000mAh/38.5Wh Rechargeable li-ion battery | |

| Channel list for 802.11 @20m | | | | | | | |
|------------------------------|-----------|---------|-----------|---------|-----------|---------|-----------|
| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 36 | 5180MHz | 40 | 5200MHz | 44 | 5220MHz | 48 | 5240MHz |
| 52 | 5260MHz | 56 | 5280MHz | 60 | 5300MHz | 64 | 5320MHz |
| 100 | 5500MHz | 104 | 5520MHz | 108 | 5540MHz | 112 | 5560MHz |
| 116 | 5580MHz | 120 | 5600MHz | 124 | 5620MHz | 128 | 5640MHz |
| 132 | 5660MHz | 136 | 5680MHz | 140 | 5700MHz | | |

| Channel list for 802.11 @40m | | | | | | | |
|------------------------------|-----------|---------|-----------|---------|-----------|---------|-----------|
| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 38 | 5190MHz | 46 | 5230MHz | 54 | 5270MHz | 62 | 5310MHz |
| 102 | 5510MHz | 110 | 5550MHz | 118 | 5590MHz | 126 | 5630MHz |
| 134 | 5670MHz | | | | | | |

| Channel list for 802.11 @80m | | | | | | | |
|------------------------------|-----------|---------|-----------|---------|-----------|---------|-----------|
| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 42 | 5210MHz | 58 | 5290MHz | 106 | 5530MHz | 122 | 5610MHz |

4.3 Test mode(s)

| | |
|---------|------------------|
| Mode 1: | Normal operation |
| Mode 2: | |
| Mode 3: | |
| | |
| | |
| | |

4.4 Test Facility

| | |
|---|--|
| The test facility is recognized, certified, or accredited by these organizations: | FCC Accredited Lab Test Firm Registration Number: 638130 Designation Number: CN1359 |
| | IC Registration Lab CAB Identifier No. CN0154 |
| | A2LA Accreditation Lab Certificate No.:7057.01 |

| | |
|--------------------|---|
| Test Performed at: | Name GuangDong Set Sail Testing Co., Ltd. |
| | Address 101, No.19, Tianxin Hudie 1st Road, Huangjiang Town, Dongguan, Guangdong, China |

4.5 Description of Support Units

| Device Type | Brand | Model | Series No. | Note |
|-------------|-------|----------|------------|--------------------|
| Notebook PC | HP | ZHAN 66P | --- | --- |
| Router | ASUS | RT-AC88U | --- | FCC ID: MSQ-RTGW00 |

4.6 Additional Instructions

| | |
|-------------------|-----------|
| Test Software | Normal SW |
| Power level setup | Default |

4.7 Antenna Information

| Ant | Manufacturer | Model | Antenna Type | Antenna Gain (dBi) |
|-----|--------------|-------|--------------|----------------------------|
| 1 | / | / | PIFA | 3.83 @5.3G; 3.84 @5.5G; |

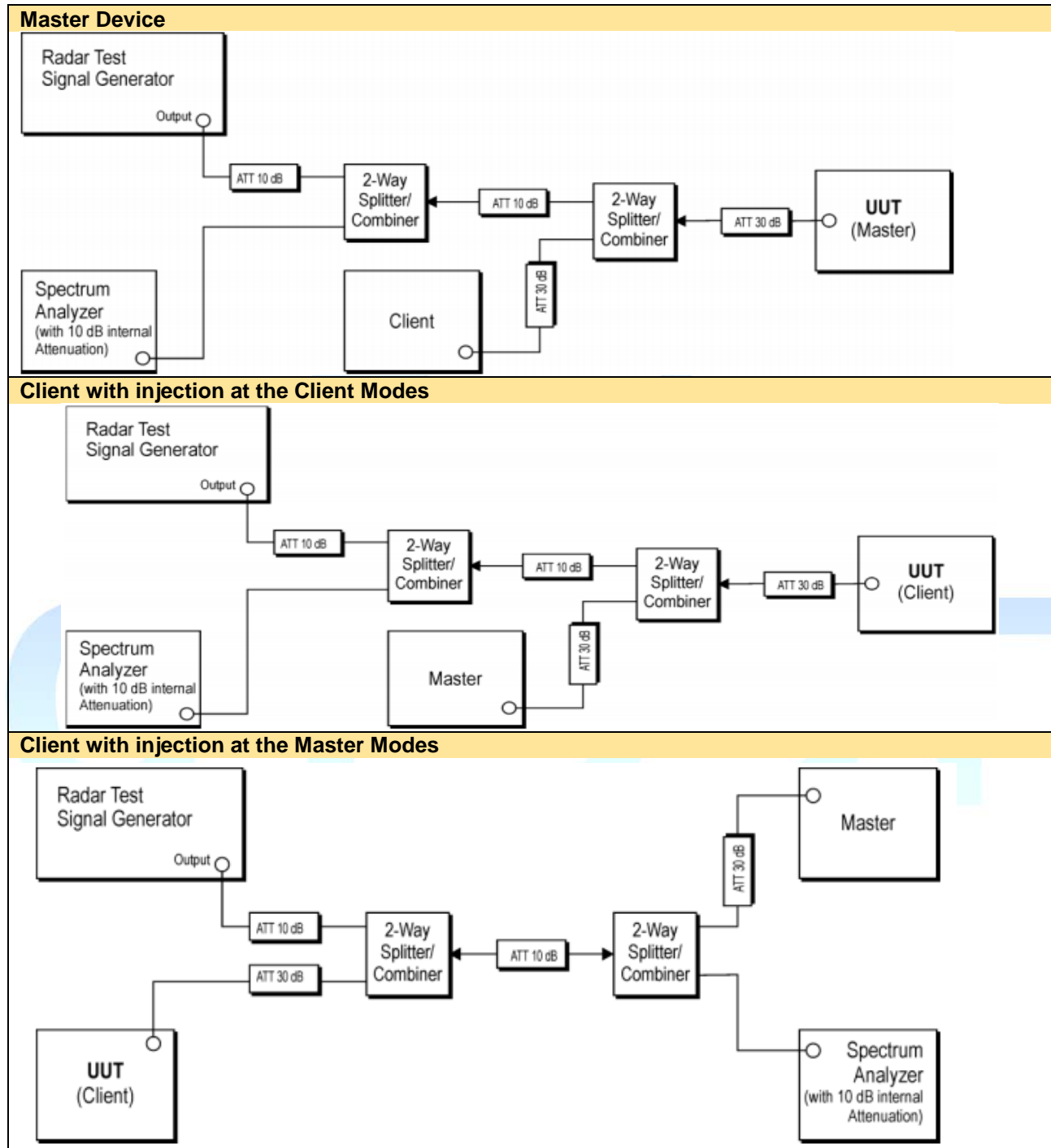
All above information provided by the applicant which is fully responsible for those information.

4.8 Others

| |
|---|
| <p>The laboratory responsible for all the information provided in the report, except those information provided by the applicant.</p> <p>The applicant shall fully responsible for the information they provided.</p> <p>The report would be invalid without a stamp of test laboratory and the signatures of compiler and approver.</p> <p>The laboratory has not been responsible for the sampling stage; the test report merely corresponds to the test sample received.</p> <p>Any objection to the test report shall submitted to the test laboratory within 15 days from the date of receipt of the report.</p> <p>It is not permitted to copy extracts of these test result without the written permission of the test laboratory.</p> |
|---|

5 Technical Requirement

5.1 Test configuration diagram



5.2 DFS Detection Thresholds

| DFS Detection Thresholds for Master Devices and Client Devices with Radar Detection | |
|---|----------------------------------|
| Maximum Transmit Power | Value (See Notes 1, 2, and 3) |
| EIRP \geq 200 milliwatt | -64 dBm |
| EIRP $<$ 200 milliwatt and power spectral density $<$ 10 dBm/MHz | -62 dBm |
| EIRP $<$ 200 milliwatt 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>Note3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.</p> | |

5.3 Response Requirements

| DFS Response Requirement Values | |
|--|---|
| Parameter | Value |
| <i>Non-occupancy period</i> | Minimum 30 minutes |
| <i>Channel Availability Check Time</i> | 60 seconds |
| <i>Channel Move Time</i> | 10 seconds See Note 1. |
| <i>Channel Closing Transmission Time</i> | 200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2. |
| <i>U-NII Detection Bandwidth</i> | Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3. |
| <p>Note 1: <i>Channel Move Time</i> and the <i>Channel Closing Transmission Time</i> 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 <i>Channel Closing Transmission Time</i> is comprised of 200 milliseconds starting at the beginning of the <i>Channel Move Time</i> plus any additional intermittent control signals required to facilitate a <i>Channel</i> 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 <i>U-NII Detection Bandwidth</i> 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> | |

5.4 RADAR 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 | Roundup $\left\{ \left(\frac{1}{360} \right) \cdot \left(\frac{19 \cdot 10^6}{\text{PRI}_{\mu\text{sec}}} \right) \right\}$ | 60% | 30 |
| | | 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 | | | |
| 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. | | | | | |

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.

| 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 |

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.

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:

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.

6 Test Procedures

6.1 Radar Calibration

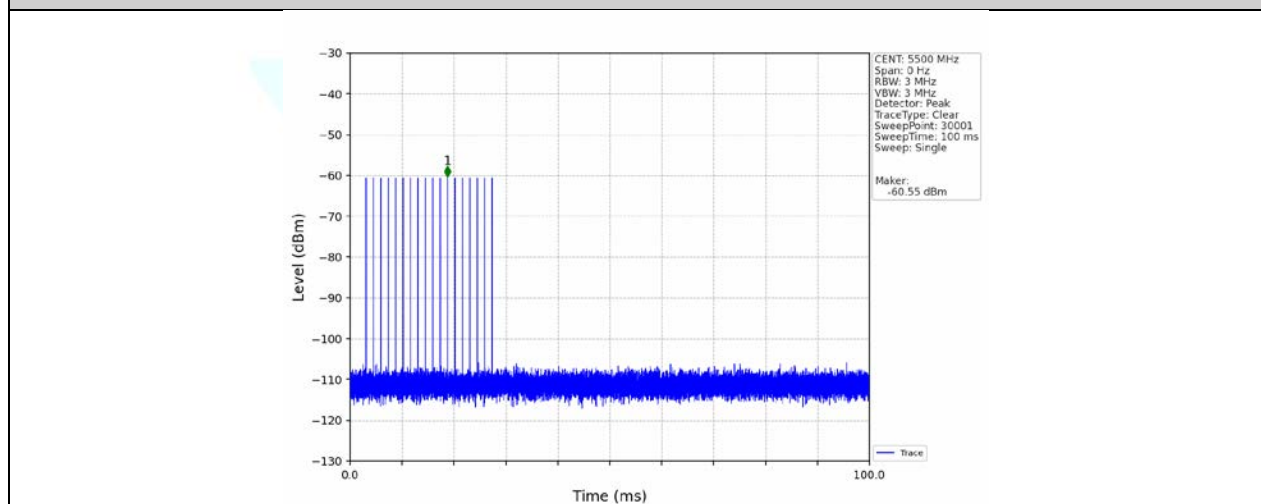
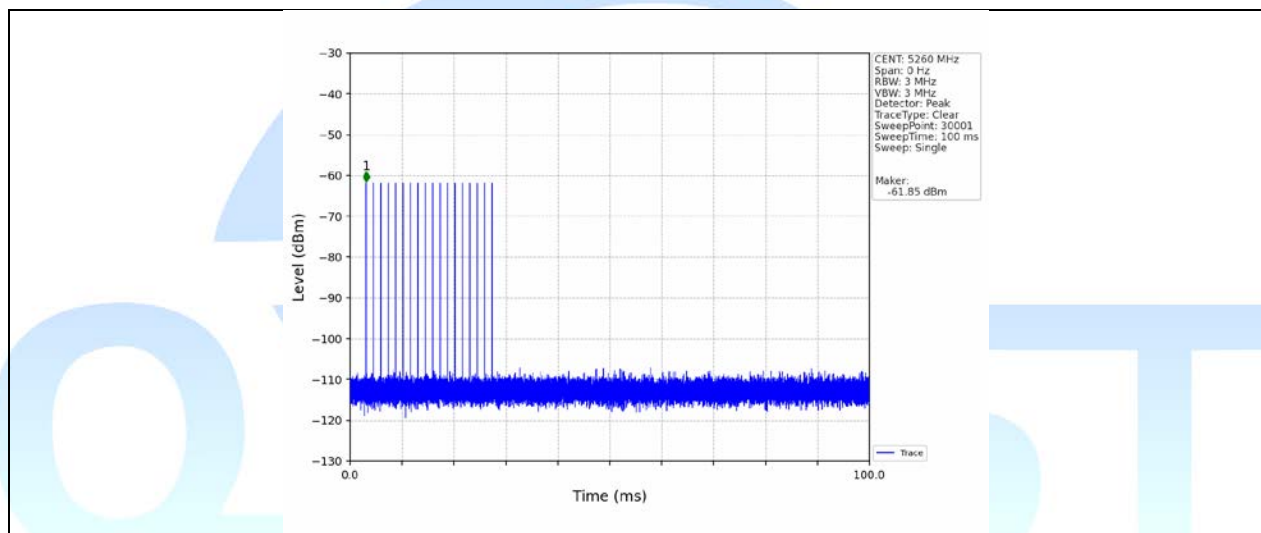
DFS Threshold Level

-61dBm

Test Result

| Band: 2A | | | | | | | |
|----------|-----------------|-----------------|--------------|----------|---------------------|-------|---------|
| Mode | Bandwidth (MHz) | Frequency (MHz) | Radar Signal | | Signal Calibration | | Verdict |
| | | | Type | Trial Id | Result | Limit | |
| 802.11a | 20 | 5260 | 0 | 0 | Refer To Test Graph | | Pass |
| | | 5500 | 0 | 0 | Refer To Test Graph | | Pass |

Test Graphs



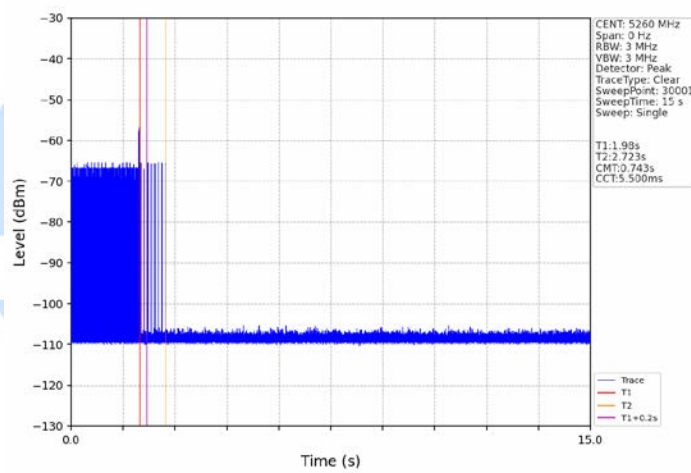
11A-5260

11A-5500

6.2 Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period

| Limit | | | | | | |
|-----------------------------------|----------------|----------|-----------|---------|-----------|---------|
| Channel Move Time | <10s | | | | | |
| Channel Closing Transmission Time | <260ms | | | | | |
| Non-Occupancy Period | >30min | | | | | |
| Test Result | | | | | | |
| Test Mode | Frequency[MHz] | CCTT[ms] | Limit[ms] | CMT[ms] | Limit[ms] | Verdict |
| 11A | 5260 | 5.5 | 200+60 | 743 | 10000 | PASS |
| 11A | 5500 | 7.5 | 200+60 | 93 | 10000 | PASS |

Test Graphs



Level (dBm)

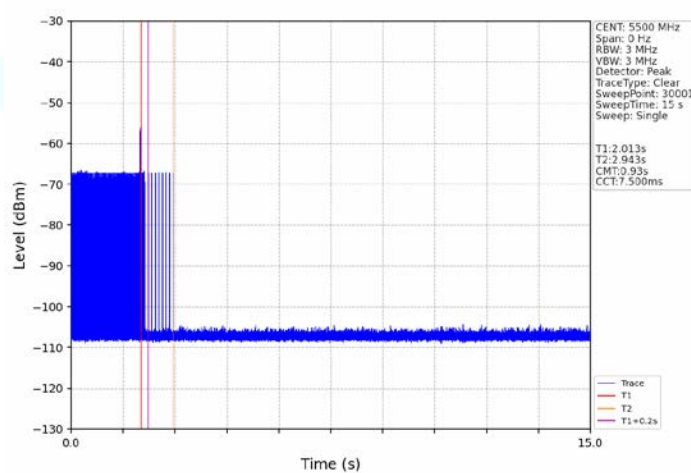
Time (s)

CENT: 5260 MHz
Span: 0 Hz
RBW: 3 MHz
YBW: 3 MHz
Detector: Peak
TraceType: Clear
SweepPoint: 30001
SweepTime: 15 s
Sweep: Single

T1: 1.99s
T2: 2.723s
CMT: 0.743s
CCT: 5.500ms

Trace
T1
T2
T1+0.2s

11A-5260



Level (dBm)

Time (s)

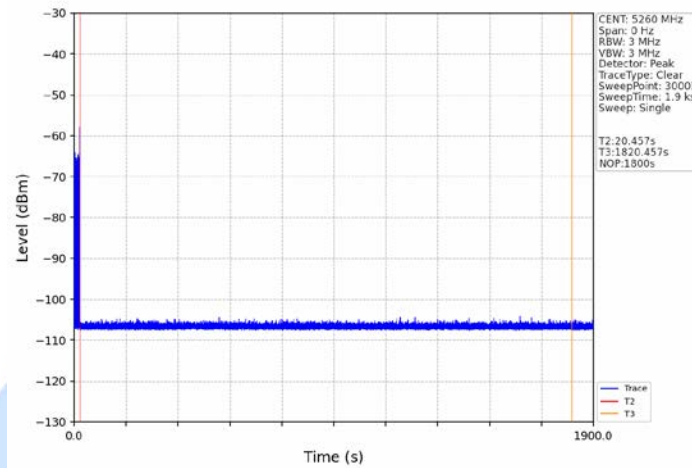
CENT: 5500 MHz
Span: 0 Hz
RBW: 3 MHz
YBW: 3 MHz
Detector: Peak
TraceType: Clear
SweepPoint: 30001
SweepTime: 15 s
Sweep: Single

T1: 2.013s
T2: 2.943s
CMT: 0.93s
CCT: 7.500ms

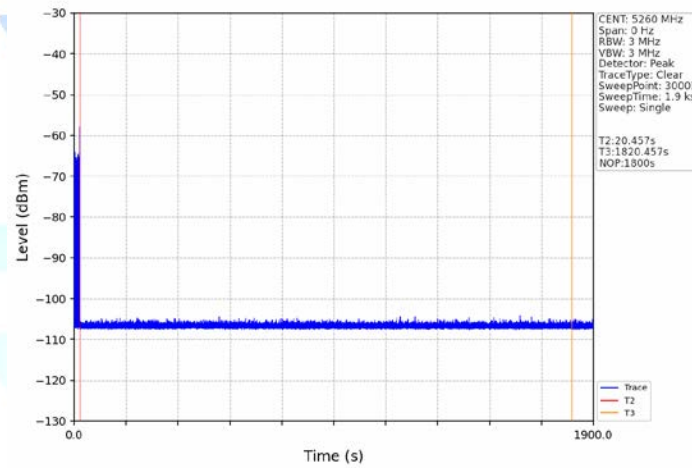
Trace
T1
T2
T1+0.2s

11A-5500

| Non-Occupancy Period | | | | |
|----------------------|----------------|----------------|----------|---------|
| Test Mode | Frequency[MHz] | Result | Limit[s] | Verdict |
| 11A | 5260 | see test graph | ≥1800 | PASS |
| 11A | 5500 | see test graph | ≥1800 | PASS |



11A-5260



11A-5500

7 Test Setup Photo

Reference to the **appendix I** for details.

8 EUT Constructional Details

Reference to the **appendix II** for details.



Annex A --Test Instruments list

| RF conducted | | | | | | |
|----------------|----------------------|--------------|-----------|------------|------------|------------|
| Equipment No. | Test Equipment | Manufacturer | Model No. | Serial No. | Cal. cycle | Cal.Date |
| SST-E-RSC001 | Shielding Room | BOST | 543 | / | 3 year | 2023.01.07 |
| SST-E-RSC007 | Spectrum analyzer | keysight | N9020A | MY51280659 | 1 year | 2024.04.16 |
| SST-E-RSC008 | Analog signal source | Agilent | N5181A | MY48180054 | 1 year | 2024.04.16 |
| SST-E-RSC009 | Vector signal source | keysight | N5172B | MY57281610 | 1 year | 2024.04.16 |
| SST-E-EMC007 | Thermohygrometer | KTJ | TA218A | 879032 | 1 year | 2024.04.18 |
| SST-E-RSC010 | Spectrum analyzer | R&S | FSV40-N | / | 1 year | 2024.04.16 |
| SST-E-RSC015-1 | Power meter 1 | TST | TST V2 | / | 1 year | 2024.04.16 |
| / | Test Software | TST PASS | TST PASS | V2.0 | / | / |

▶▶▶ END OF REPORT ◀◀◀

