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SUNWAY PRODUCTS (HONG KONG) COMPANY LIMITED

TEST REPORT

SCOPE OF WORK
FCC TESTING–SPC-018L

REPORT NUMBER
240910042SZN-001

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RF
TEST REPORT

Report No.	: **240910042SZN-001**	
Product	: Pressure Cooker	
Model No.	: **SPC-018L**	
FCC ID	: **2ATAD-SPC-018L**	

Applicant: **SUNWAY PRODUCTS (HONG KONG) COMPANY LIMITED ROOM 1013, NEW COMMERCE CENTRE, NO.19 ON SUM STREET, SHATIN, NT, HONG KONG China**

Test Method/ Standard: **FCC Part 15 Subpart E; KDB 789033 D02 v02r01; KDB 662911 D01 v02r01; KDB 905462 D02 v02; ANSI C63.10-2013**

Test By: **Intertek Testing Services Shenzhen Ltd. Longhua Branch 101, 201, Building B, No. 308 Wuhe Avenue, Zhangkengjing Community, GuanHu Subdistrict, LongHua District, Shenzhen, P.R. China.**

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Table of Contents

Summary of Tests

FCC Parts	Test	Section	Results
15.407 h	DFS: Channel Closing Transmission Time	3.3	Pass
15.407 h	DFS: Channel Move Time	3.3	Pass
15.407 h	DFS: Non-Occupancy Period	3.3	Pass

1. General information

1.1 Identification of the EUT

Product:	Pressure Cooker
Model No.:	SPC-018L
Type of Device:	Slave device
Nominal Channel Bandwidth:	802.11a/n-HT20(20MHz), 802.11n-HT40(40MHz), 802.11ac(20/40/80MHz)
Frequency range:	5150MHz~5250 MHz, 5250MHz~5350MHz, 5470MHz-5725MHZ, 5725MHz~5850MHz
Channel Number and Operating Frequency:	4 channels for 5180 MHz ~ 5240 MHz (802.11 a/n20/ac-HT20); 2 channels for 5190 MHz ~ 5230 MHz (802.11 n40/ac-HT40); 1 channels for 5210 MHz (802.11ac-HT80); 4 channels for 5260 MHz ~ 5320 MHz (802.11 a/n20/ac-HT20); 2 channels for 5270 MHz ~ 5310 MHz (802.11 n40/ac-HT40); 1 channels for 5290 MHz (802.11ac-HT80); 8 channels for 5500 MHz ~ 5580 & 5660MHz ~ 5700 MHz (802.11a/n20/ac-HT20); 3 channels for 5510 MHz ~ 5550MHz & 5670 MHz (802.11n40/ac-HT40); 1 channels for 5530 MHz (802.11ac-HT80); 5 channels for 5745 MHz ~ 5825 MHz (802.11a/n20/ac-HT20); 2 channels for 5755 MHz ~ 5795 MHz (802.11n40/ac-HT40); 1 channels for 5775 MHz (802.11ac-HT80);
Modulation:	802.11a: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Rated Power:	120VAC 50/60Hz 1200W
Test Date(s):	10 September 2024 to 12 September 2024
Note 1:	This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.
Note 2:	When determining the test conclusion, the Measurement Uncertainty of test has been considered.

1.2 Additional information about the EUT

The equipment under test (EUT) is a Pressure Cooker with 2.4G WIFI function operating in 2412-2462MHz and 5G WIFI function operating in 5150MHz~5250 MHz, 5250MHz~5350MHz, 5470MHz- 5725MHz, 5725MHz~5850MHz. For more detail information pls. refer to the user manual.

For more detail features, please refer to User's description as file name "descri.pdf".

1.3 Antenna description (15.203)

The EUT uses Integral Antenna which in accordance to Section 15.203 is considered sufficient to comply with the provisions of this section.

Antenna1 Gain: 4.36 dBi Max for 5G WIFI.
Antenna2 Gain: 4.17 dBi Max for 5G WIFI.
MIMO Gain: 7.27 dBi Max for 5G WIFI.

1.4 Peripherals equipment

Description	Manufacturer	Remark
Wireless Router (Provided by Intertek)	NETGEAR	Model: R7800
Remote control (Provided by applicant)	N/A	N/A

2. Test specifications

2.1 Test standard

The EUT was performed according to the procedures in FCC Part 15 E, Section15.203, 15.207, 15.209, 15.407 and ANSI C63.10/2013, method of measurement: KDB 789033.

The test of radiated measurements according to FCC Part15 Section 15.33(a) had been conducted and the field strength of this frequency band was all meet limit requirement, thus we evaluate the EUT pass the specified test.

2.2 Operation mode

The EUT was supplied by and it was run in TX mode that was controlled by client provided RF testing program.

The EUT was transmitted continuously during the test. The worst case test result was showed in the report.

With individual verifying, the maximum output power was found at 6 Mbps data rate for 802.11a mode, 6.5 Mbps data rate for 802.11n-HT20 mode, 13.5 Mbps data rate for 802.11n-HT40 mode, 29.3Mbps data rate for 802.11ac. The final tests were executed under these conditions and recorded in this report individually.

2.3 EUT Exercising Software

The EUT exercise program (provided by client) used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The worst case configuration is used in all specified testing.

Table for Parameters of Test Software Setting
During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Test software: CMD

3. Dynamic Frequency Selection (DFS) (FCC 15.407)

3.1 Requirement

Applicability of DFS Requirements Prior to Use of a Channel

Requirement	Operational Mode Mode		
	Master	Client Without Radar Detection	Client with Radar Detection
Non-Occupancy Period	Yes	Not Required	Yes
DFS Detection Threshold	Yes	Not Required	Yes
Channel Availability Check Time	Yes	Not Required	Not Required
U-NII Detection Bandwidth	Yes	Not Required	Yes

Applicability of DFS requirements during normal operation

Requirement	Operational Mode	
	Master Device or Client with Radar Detection	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	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 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.		

Note: EUT is a client without Radar detection capabilities.

3.1.1 DFS Detection Thresholds for Master or Client Devices with DFS Detection

Maximum Transmit Power	Values (See Notes 1, 2, and 3)
EIRP ≥ 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

Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna.
Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.
**Note3:** EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.

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 60 ms over remaining 10 Second period. (see note 1 and 2)
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. (see note 3)

Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.
Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.
Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.
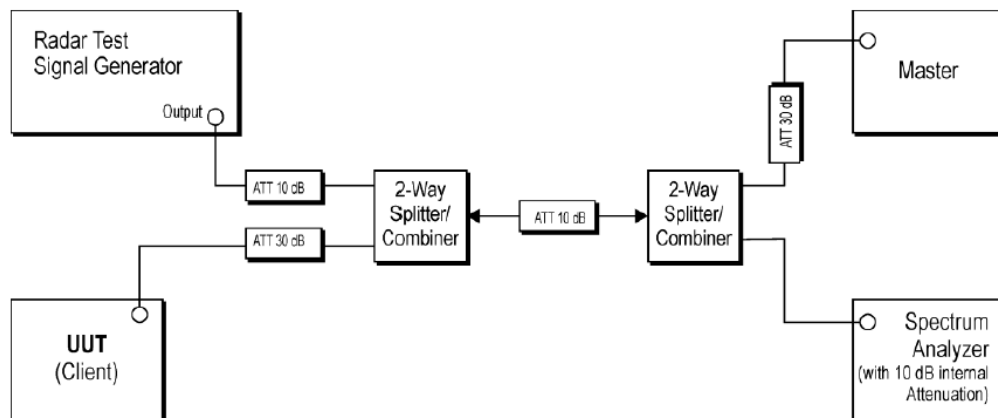
3.1.2 Radar Test Waveforms

Test procedures were made in accordance to KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02, for more radar test waveform details please refer section 6 of KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02.
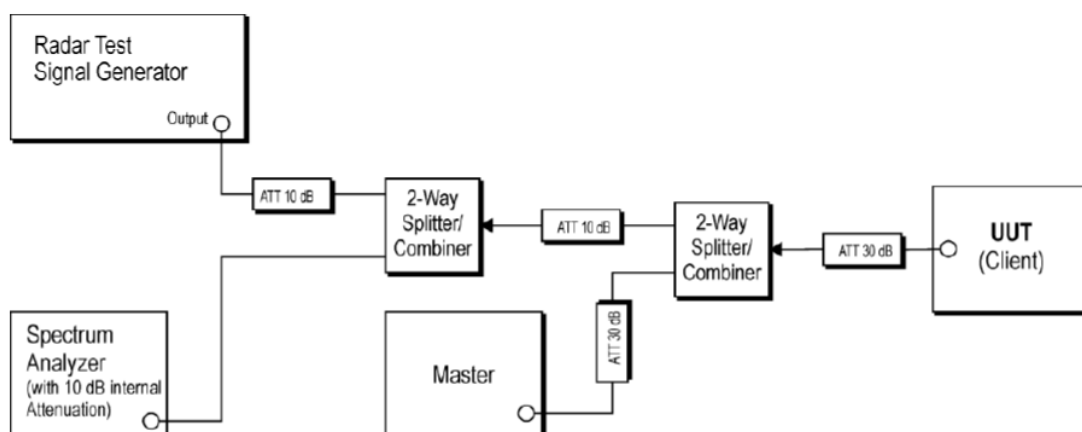
3.2 Test setup
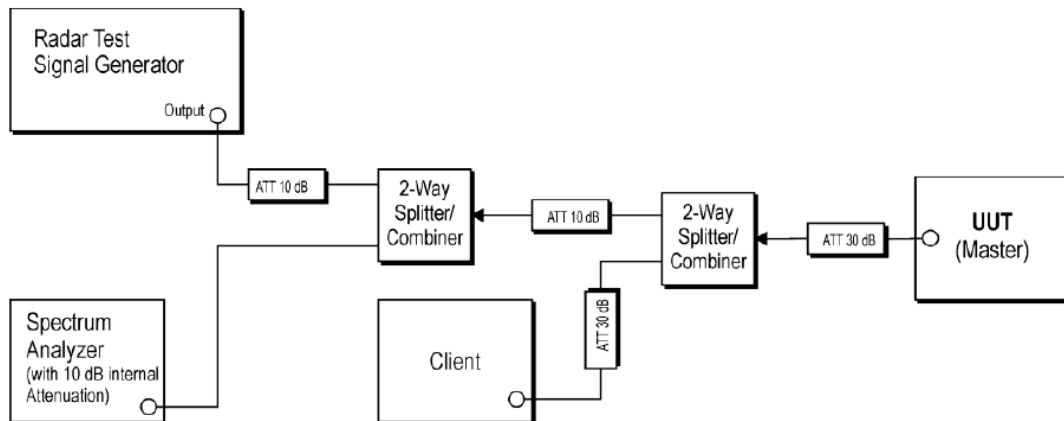
Setup for Master with injection at the Master

Setup for Client with injection at the Master

Setup for Client with injection at the Client

Note: EUT is a client without DFS detection capabilities. Test procedures were made in accordance to KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02. DFS testing was setup as a client with injection into the master.

3.3 In-Service Monitoring for Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period

3.3.1 Test Procedure

The EUT was configured to communicate with a master device. The test file was streamed from the Master to the Client (EUT) on the selected test channel. Measurements were made while utilizing the widest bandwidth of the EUT.

Channel closing transmission time and channel move time were measured by applying a radar type 0 at threshold + 1dB to the EUT. The EUT transmissions were observed on the EUT center channel. The time between the end of the applied radar waveform and the final transmission on the channel is the channel move time. The channel closing transmission time comprises only those fragments of the channel move time during which the EUT transmits.

The channel loading of approximately 19%.

The Channel Move time shall be less than 10 seconds
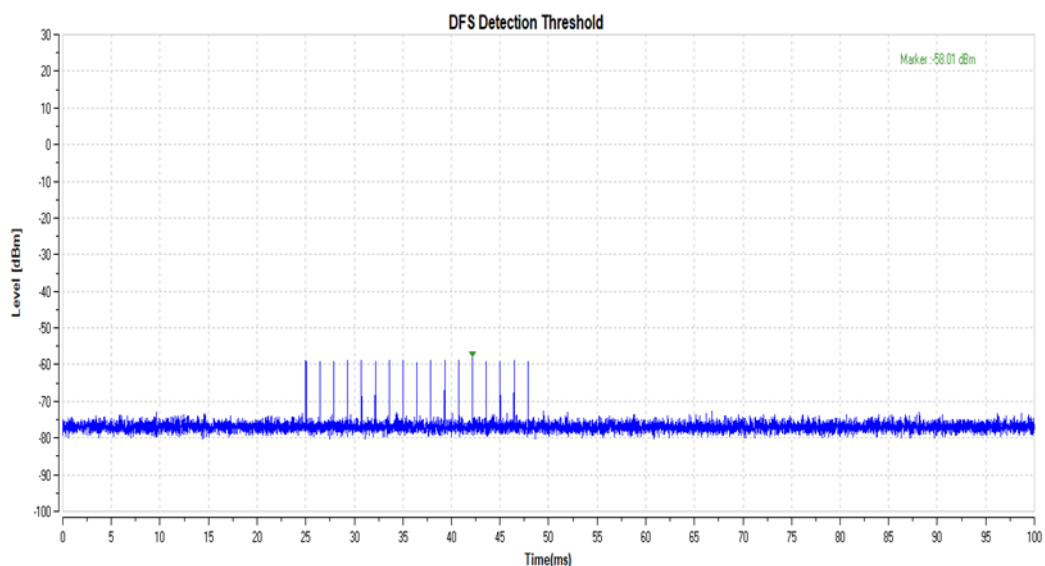The Channel Close time shall be 200ms +60ms of aggregate time.
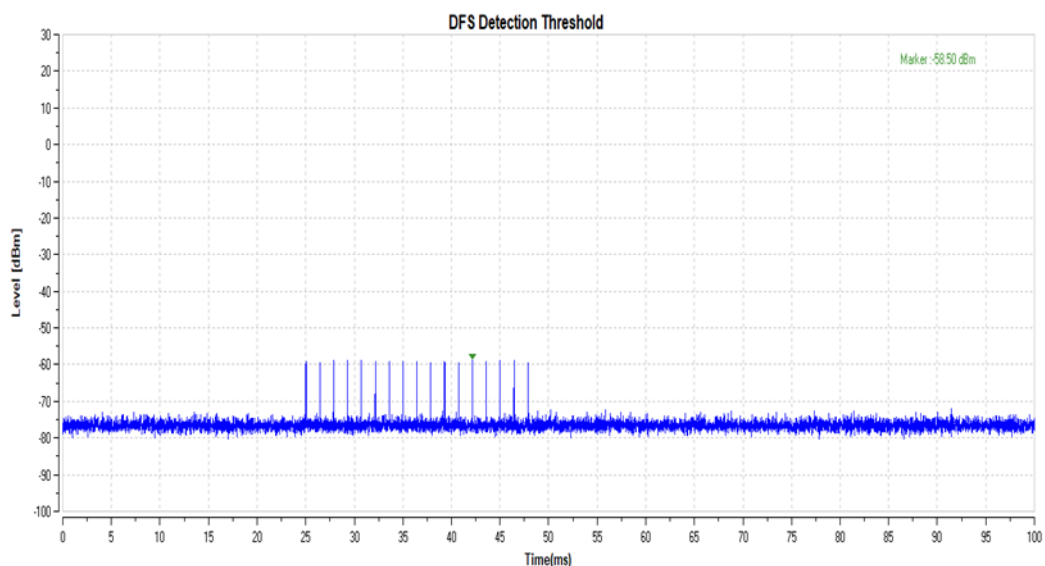The Non-occupancy time shall 30 minutes or greater.

3.3.2 Calibration Results

Ant1:

Radar Type 0 Calibration:

Frequency	Radar Waveform Length:	Detection Threshold level
5290MHz	0.025704s	-58.01 dBm

Frequency	Radar Waveform Length:	Detection Threshold level
5530MHz	0.025704s	-58.50 dBm

3.3.3 Channel Move time and Channel Closing Transmission Time Test Results

Frequency	Bandwidth	Channel Move Time [ms]	Limit [ms]	Channel Closing Transmission [ms]	Limit [ms]	Verdict
5290MHz	80 MHz	539.5	10000	200+24.7	200+60	PASS
5530MHz	80 MHz	3450.2	10000	200+55.9	200+60	PASS

Test Graph:
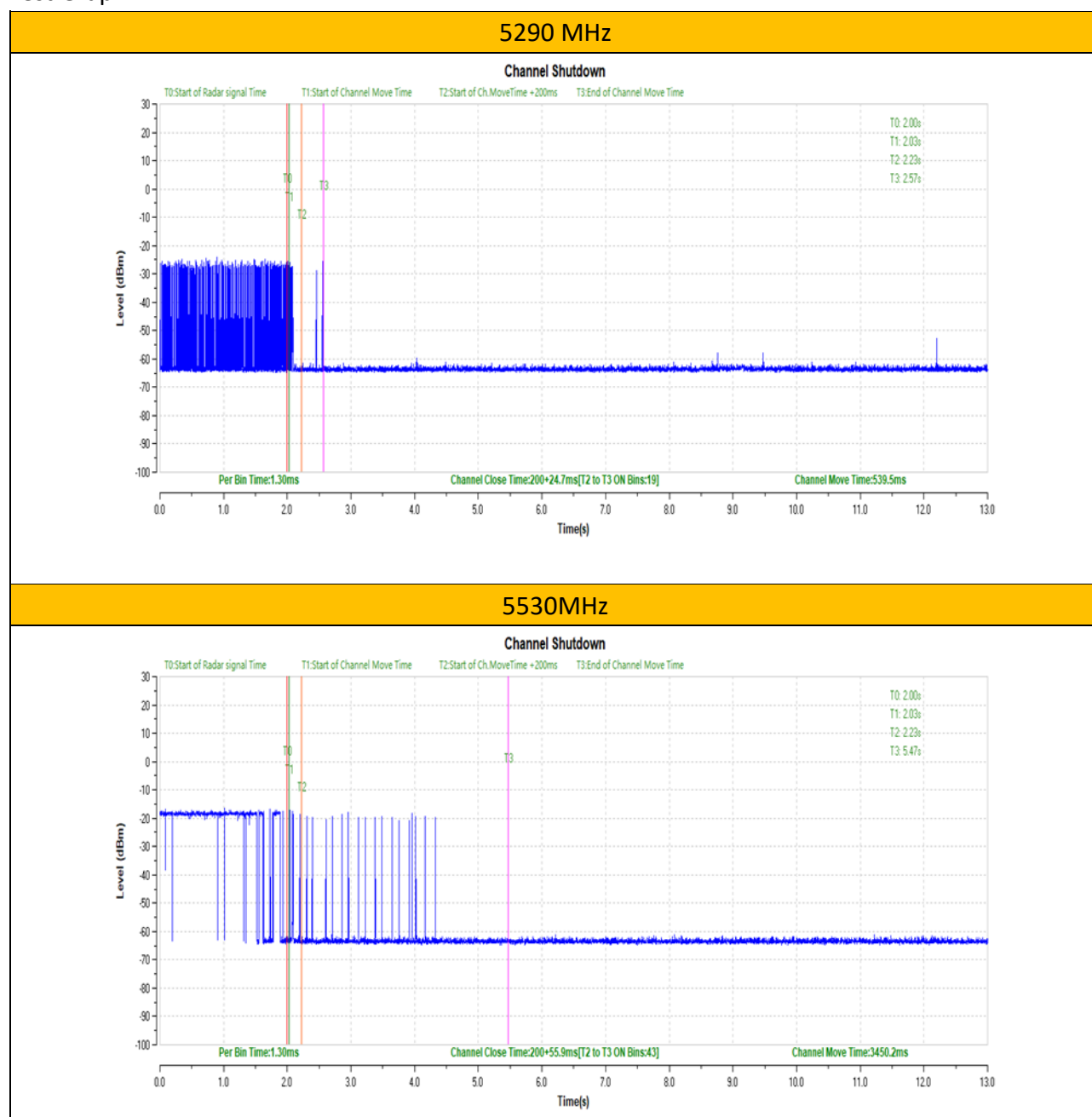
5290 MHz

5530MHz

9.3.4 Non-Occupancy Period Test Results

Frequency	Bandwidth	Measured Value	Limit Requirements	Verdict
5290MHz	80 MHz	> 30min	30min	Pass
5530MHz	80 MHz	> 30min	30min	Pass

Test Graph:
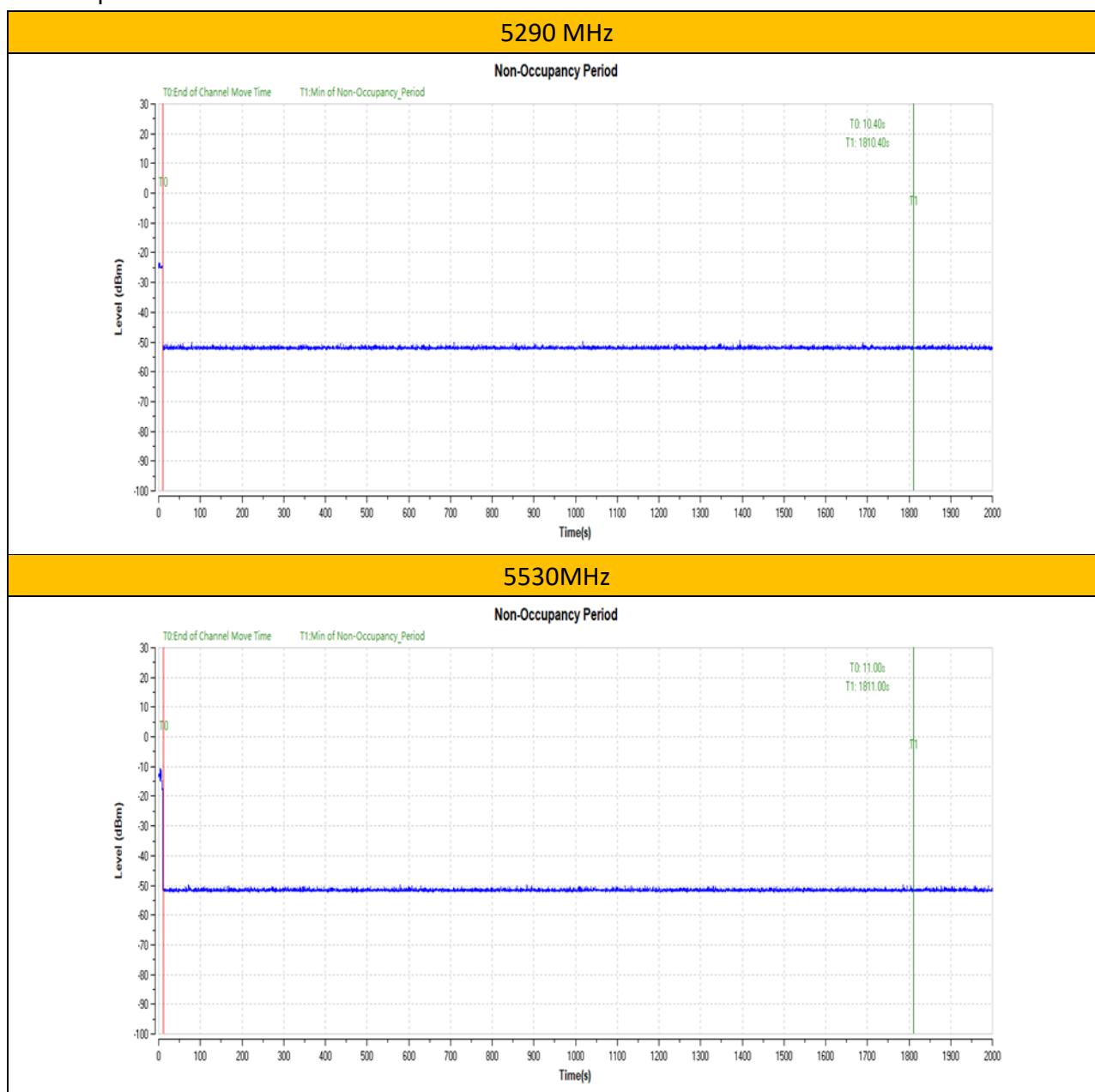
Appendix A: Test equipment list

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ070-20	Combiner	Mini-Circuits	ZN2PD-63-S+	---	2024-04-23	2025-04-23
SZ070-21	Combiner	Mini-Circuits	ZN2PD-63-S+	---	2024-04-23	2025-04-23
SZ056-05	Spectrum Analyzer	Agilent	E4407B	US40522113	2023-12-13	2024-12-13
SZ180-13	MXG Vector Signal Generator	Keysight	N5182B	MY53051328	2023-09-25	2024-09-25

Expanded uncertainty of radiated emission measurement is ±4.9 dB.

Expanded uncertainty of conducted emission measurement is ±3.6 dB.

******************************** End of Report*****************************