TEST REPORT

Report Number	:	TZ0029250403FRF10
Product Name	:	LEARNING CAMERA
Model/Type reference	:	DEX-01
FCC ID	:	2BOSD-DEX-01
Prepared for	:	Worldex Lab, Inc. 201 Spear St, STE 1100, ROOM 11, San Francisco, CA 94105

Prepared By	:	Shenzhen Tongzhou Testing Co.,Ltd. 1st Floor, Building 1, Haomai High-tech Park, Huating Road 387, Dalang Street, Longhua, Shenzhen, China
Standards	:	FCC CFR Title 47 Part 15E, FCC KDB 905462 D02 (v02)
Date of Test	:	2025-04-17 ~ 2025-05-28
Date of Issue	:	2025-05-29

Prepared by	:	Lena Wen
Reviewed by	:	Allen Lai
Approved by	:	Max Zhang (Authorized Officer)

** Report Revise Record **

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	2025-05-29	Valid	Initial release

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1. GENERAL INFORMATION

1.1. Client Information

Applicant	:	Worldex Lab, Inc.
Address	:	201 Spear St, STE 1100, ROOM 11, San Francisco, CA 94105
Manufacturer	:	Worldex Lab, Inc.
Address	:	201 Spear St, STE 1100, ROOM 11, San Francisco, CA 94105

1.2. Description of Device (EUT)

Product Name	:	LEARNING CAMERA
Trade Mark	:	DEX
Model Number	:	DEX-01
Model Declaration	:	N/A
Test Model	:	DEX-01
Power Supply	:	Input: DC 3.7V by battery or DC 5V by adapter
Hardware version	:	DL01-V1.1-20241230
Software version	:	DL01_20250225142131_User

1.3. Wireless Function Tested in this Report

Wi-Fi		
WLAN	:	Supported IEEE 802.11a/n/ac
WLAN FCC Operation Frequency	:	U-NII 2A:5250MHz~5350MHz
Channel Bandwidth	:	20MHz, 40MHz, 80MHz
WLAN Modulation Technology	:	IEEE 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)
DFS Operational Mode		Client without radar detection
Antenna Type And Gain	:	Internal antenna, 0dBi

Note 1: Antenna position refer to EUT Photos.
Note 2: the above information was supplied by the applicant.

1.4. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:
●supplied by the manufacturer

○supplied by the lab

○	Adapter	Model:	MDY-10-EH
		Input:	Input 100-240V\AC 50/60Hz 0.7A
		Output:	Output 5V-3A

1.5. Description of Test Facility

FCC

Designation Number: CN1275
Test Firm Registration Number: 167722
Shenzhen Tongzhou Testing Co.,Ltd has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA

Certificate Number: 5463.01
Shenzhen Tongzhou Testing Co.,Ltd has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

IC

ISED#: 22033
CAB identifier: CN0099
Shenzhen Tongzhou Testing Co.,Ltd has been listed by Innovation, Science and Economic Development Canada to perform electromagnetic emission measurement.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.10 and CISPR 16-1-4:2010

1.6. Statement of the Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the Shenzhen Tongzhou Testing Co.,Ltd quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

1.7. Measurement Uncertainty

Test Item		Uncertainty	Note
DFS Signal Output Level	:	±1.5dB	(1)
Time	:	±1.0%	(1)

(1). This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

1.8. Description of Test Modes

The tests in this section are run sequentially and the UUT must pass all tests successfully. If the UUT fails any one of the tests it will count as a failure of compliance.
To show compliance, all tests must be performed with waveforms randomly generated as specified with test results meeting the required percentage of successful detection criteria.
One frequency will be chosen from the operating Channels of the UUT within the 5250-5350 MHz or 5470-5725 MHz bands.

2. TEST METHODOLOGY

All measurements contained in this report were conducted with FCC KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02.

2.1. Test Sample

Sample ID	Description
TZ0029250403–2#	Normal sample

2.2. Special Accessories

No.	Equipment	Manufacturer	Model No.	FCC ID
1	Wireless Router	NETGEAR	R7800	PY315100319

2.3. Summary of Test Result

Ref Std.Clause	Description of Test	Result
KDB 905462 7.8.1	DFS: UNII Detection BandwidthMeasurement	N/A
KDB 905462 7.8.2.1	DFS: Initial Channel AvailabilityCheck Time	N/A
KDB 905462 7.8.2.2	DFS: Radar Burst at the Beginning ofthe Channel Availability Check Time	N/A
KDB 905462 7.8.2.3	DFS: Radar Burst at the End of theChannel Availability Check Time	N/A
KDB 905462 7.8.3	DFS: In-Service Monitoring forChannel Move Time (CMT)	Pass
KDB 905462 7.8.3	DFS: In-Service Monitoring for Channel Closing Transmission Time(CCTT)	Pass
KDB 905462 7.8.3	DFS: In-Service Monitoring forNon-Occupancy Period (NOP)	Pass
Note: N/A means not applicable.		

3. TEST RESULT

3.1. Dynamic Frequency Selection (DFS) tests

3.1.1. Standard Applicable

The following table from FCC KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02 lists the applicable requirements for the DFS testing.

Table 3-1: 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	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes

Table 3-2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode	
	☐Master Device or Client with Radar Detection	☒Client with Radar Detection
Non-Occupancy Period	Yes	Not required
DFS Detection Threshold	Yes	Yes
Channel Availability Check 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.		

The following are the requirements for Client Devices:

a) A Client Device will not transmit before having received appropriate control signals from a Master Device.

b) A Client Device will stop all its transmissions whenever instructed by a Master Device to which it is associated and will meet the Channel Move Time and Channel Closing transmission time requirements. The Client Device will not resume any transmissions until it has again received control signals from a Master Device.

c) If a Client Device is performing In-Service Monitoring and detects a Radar Waveform above the DFS Detection Threshold, it will inform the Master Device. This is equivalent to the Master Device detecting

the Radar Waveform.

d) Irrespective of Client Device or Master Device detection the Channel Move Time and Channel Closing Transmission Time requirements remain the same.

e) The client test frequency must be monitored to ensure no transmission of any type has occurred for 30 minutes. Note: If the client moves with the master, the device is considered compliant if nothing appears in the client non-occupancy period test. For devices that shut down (rather than moving channels), no beacons should appear.

Table 3-3: DFS Response Requirements

Parameter	Value
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds See Note 1.
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
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 3-4: Detection Thresholds for Master Devices and Client Devices with Radar Detection

Maximum Transmit Power	Value (See Notes 1, 2, and 3)
Devices with an EIRP < 200mW and a Power Spectral Density < 10 dBm/MHz	-62 dBm
Devices with 200mW ≤ EIRP ≤ 1 W	-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	

Parameters of DFS Test Signals

Table 3-5: Parameters for Short Pulse Radar 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:15unique PRI values randomly selected from the list of 23 PRI values in Table 3-6	$\text{Roundup}\left\{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot10^6}{\text{PRI}_{\mu\text{sec}}}\right)\right\}$	60%	30
		Test B: 15 unique PRI values randomly selected within the range of 518-3066μsec, with a minimum increment of 1μsec, 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.					

Table 3-6: Parameters for Long Pulse Radar Waveforms

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

Table 3-7: Parameters for Long Pulse Radar Waveforms

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
6	1	333	9	0.333	300	70%	30

For the Client without Radar Detection, Only the Radar Type 0 Used

Trial Id	Radar Type	Pulse Width (us)	PRI (us)	Number of Pulses	Waveform Length (us)
0	Type 0	1.0	1428.0	18	25704.0
1	Type 0	1.0	1428.0	18	25704.0
2	Type 0	1.0	1428.0	18	25704.0
3	Type 0	1.0	1428.0	18	25704.0
4	Type 0	1.0	1428.0	18	25704.0
5	Type 0	1.0	1428.0	18	25704.0
6	Type 0	1.0	1428.0	18	25704.0
7	Type 0	1.0	1428.0	18	25704.0
8	Type 0	1.0	1428.0	18	25704.0
9	Type 0	1.0	1428.0	18	25704.0
10	Type 0	1.0	1428.0	18	25704.0
11	Type 0	1.0	1428.0	18	25704.0
12	Type 0	1.0	1428.0	18	25704.0
13	Type 0	1.0	1428.0	18	25704.0
14	Type 0	1.0	1428.0	18	25704.0
15	Type 0	1.0	1428.0	18	25704.0
16	Type 0	1.0	1428.0	18	25704.0
17	Type 0	1.0	1428.0	18	25704.0
18	Type 0	1.0	1428.0	18	25704.0
19	Type 0	1.0	1428.0	18	25704.0
20	Type 0	1.0	1428.0	18	25704.0
21	Type 0	1.0	1428.0	18	25704.0
22	Type 0	1.0	1428.0	18	25704.0
23	Type 0	1.0	1428.0	18	25704.0
24	Type 0	1.0	1428.0	18	25704.0
25	Type 0	1.0	1428.0	18	25704.0
26	Type 0	1.0	1428.0	18	25704.0
27	Type 0	1.0	1428.0	18	25704.0
28	Type 0	1.0	1428.0	18	25704.0
29	Type 0	1.0	1428.0	18	25704.0

3.1.2. Block Diagram of Test Setup

The FCC KDB 905462 D02 UNII DFS Compliance Procedures New Rules v01 describes a radiated test setup and a conducted test setup. The conducted test setup was used for this testing. Figure 3-1 shows the typical test setup.

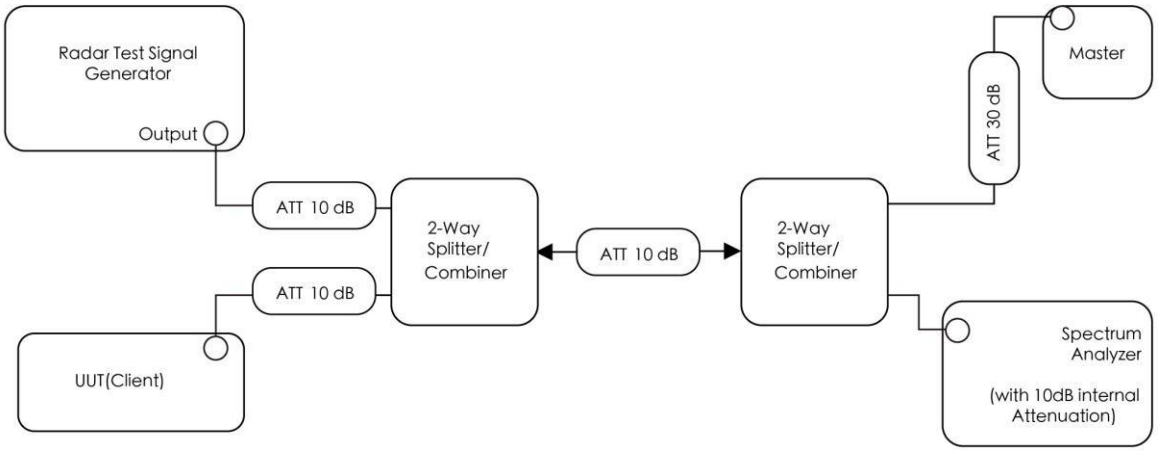


Figure 3-1: Conducted Test Setup where UUT is a Client and Radar Test Waveforms are injected into the Masters

The conducted test setup was used for this calibration testing. Figure 3-2 shows the typical test setup.

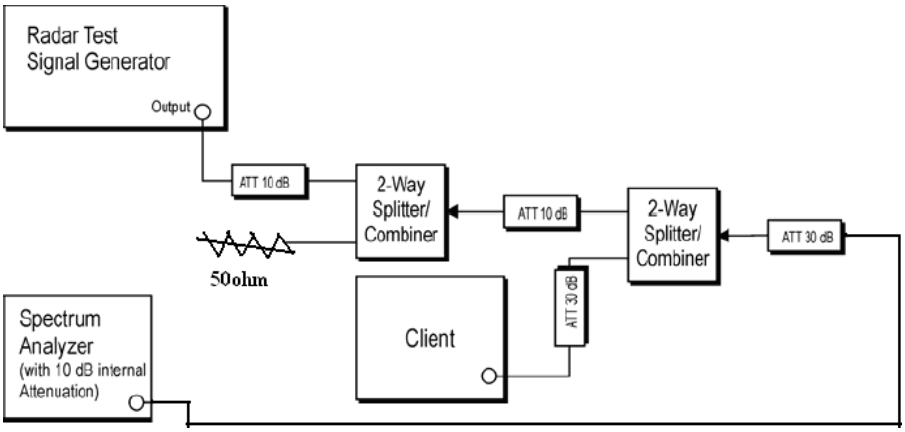


Figure 3-2: Radar Waveform Calibration Conducted Test Setup

3.1.3. Test Procedures

Radar Waveform Calibration Measurement

1) The Interference Radar Detection Threshold Level is (-64dBm) + (0) [dBi] + 1 dB= -63 dBm that had been taken into account the output power range and antenna gain.
2) The above equipment setup was used to calibrate the conducted Radar Waveform. A vector signal generator was utilized to establish the test signal level for each radar type.
3) During this process there were replace 50ohm terminal form Master and Client device and no transmissions by either the Master or Client Device.
4) The spectrum analyzer was switched to the zero span (Time Domain) at the frequency of the Radar Waveform generator. Peak detection was used.
5) The spectrum analyzer resolution bandwidth (RBW) and video bandwidth (VBW) were set to at least 3MHz. The vector signal generator amplitude was set so that the power level measured at the spectrum analyzer was (-64dBm) + (0) [dBi] + 1 dB= -63dBm.
6) Capture the spectrum analyzer plots on short pulse radar types, long pulse radar type and hopping radar waveform.

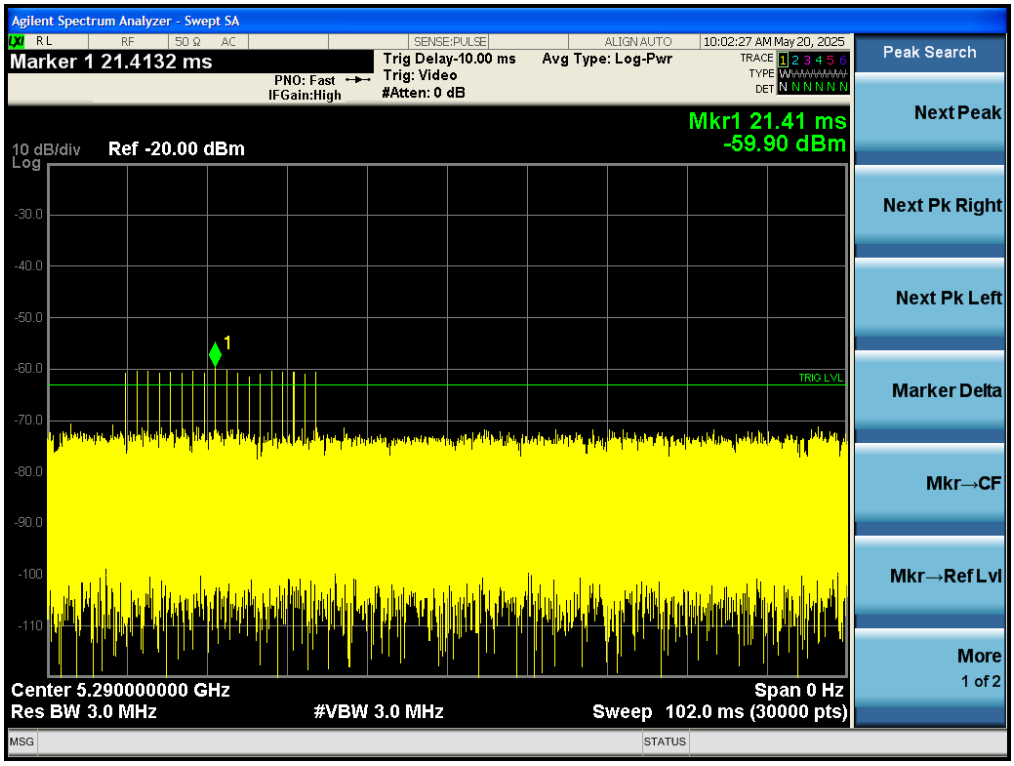
In-Service Monitoring Measurement

1) The test should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0.
2) When the radar burst with a level equal to the DFS Detection Threshold + 1dB is generated on the Operating Channel of the U-NII device. A U-NII device operating as a Master Device will associate with the Client Device at Channel. Stream the MPEG test file from the Master Device to the Client Device on the selected Channel for the entire period of the test. At time T0 the Radar Waveform generator sends a Burst of pulses for each of the radar types at Detection Threshold + 1dB.
3) Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel. Measure and record the transmissions from the EUT during the observation time (Channel Move Time).
4) Measurement of the aggregate duration of the Channel Closing Transmission Time method. with the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: Dwell (1.5ms) = S (12 sec) / B (8000); where Dwell is the dwell time per spectrum analyzer sampling bin, S is the sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: 80MHz: C = N X Dwell; where C is the Closing Time, N is the number of spectrum analyzer sampling bins showing a U-NII transmission and Dwell is the dwell time per bin.
5) Measure the UUT for more than 30 minutes following the channel close/move time to verify that the UUT does not resume any transmissions on this Channel.

3.1.4. Test result

Radar Waveform Calibration Plot

Test Frequency: 5290 MHz
Radar #0 DFS detection threshold level



Calibration:

U-NII-2A Band:

For a detection threshold level of -62dBm and the antenna gain is 2.1dBi, required detection threshold is -59.9dBm.

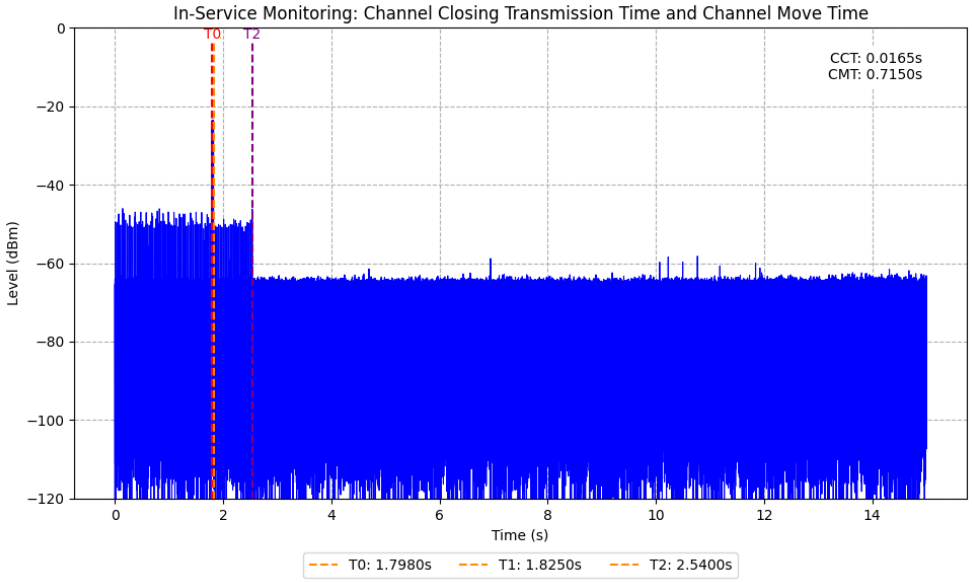
Note: Maximum Transmit Power is Less than 200 milliwatt in this report, so detection threshold level is -62dBm

In-Service Monitoring

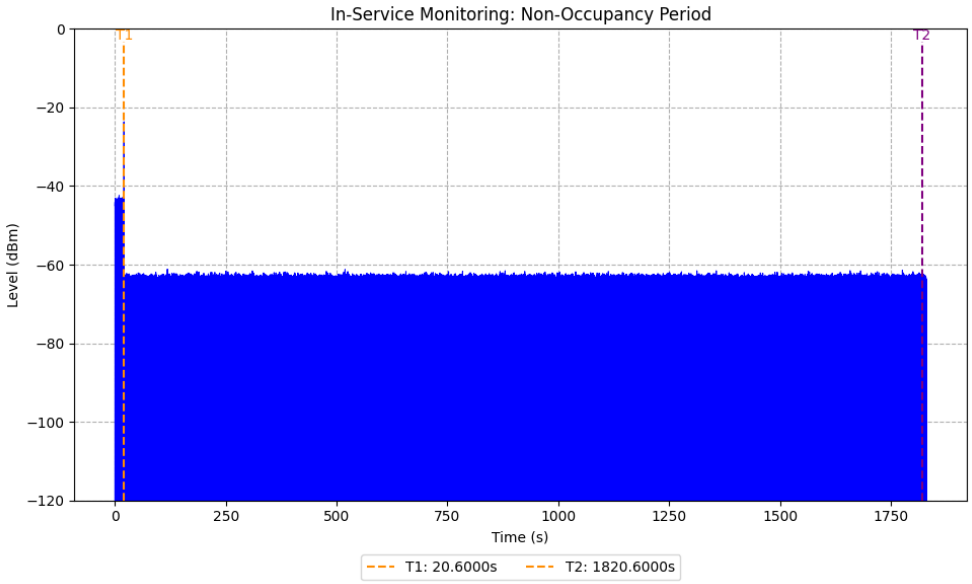
Test Mode	Requirement	Measurement Level	Limit	Result
802.11ac (VHT80) (5290MHz)	Channel Closing Transmission Time	0.0165s	≤0.26s	Pass
	Channel Move Time	0.7150s	≤10s	Pass
	Non-Occupancy Period (min)	≥ 30min	≥ 30 min	Pass

Modulation Mode	Freq. (MHz)	Radar Type Signal
802.11ac (VHT80)	5290MHz	0

Channel Move Time and Channel Closing Transmission Time



Non-occupancy Period-Elapse time 30minutes



Test Result	Complied

4. LIST OF MEASURING EQUIPMENT

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
1	MXA Signal Analyzer	Keysight	N9020A	MY52091623	2024-12-31	2025-12-30
2	Signal Generator	Keysight	N5182A	MY4620709	2024-12-31	2025-12-30
3	Fixed Attenuator	Mini circuits	BW-S10-2W263A+	N/A	2024-12-31	2025-12-30
4	RF Coupler	Anritsu	K241B	N/A	2024-12-31	2025-12-30
5	Test Software	Tonscend	JS1120-3	V3.2.22	--	--

Test software used:

Item	Test Software	Manufacturer	Name	Version
1	Test Software	Tonscend	JS1120-3	V3.2.22

5. TEST SETUP PHOTOGRAPHS OF EUT

Please refer to separated files for Test Setup Photos of the EUT.

6. EXTERIOR PHOTOGRAPHS OF THE EUT

Please refer to separated files for External Photos of the EUT.

7. INTERIOR PHOTOGRAPHS OF THE EUT

Please refer to separated files for Internal Photos of the EUT.

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