TEST REPORT

Product	:	H2S
Trade mark	:	bambulab
Model/Type reference	:	PF003-S, PF003-L
Serial Number	:	N/A
Report Number	:	EED32R804696603
FCC ID	:	2A6J8-PF003S
Date of Issue	:	Aug. 21, 2025
Test Standards	:	47 CFR Part 15 Subpart E
Test result	:	PASS

Prepared for:

Shenzhen Tuozhu Technology Co., Ltd.
903, West Zone, Hengchang Science and Technology Building, No. 2228 Linhai Avenue, Nanshan Street, Qianhai Shengang Cooperation Zone, Shenzhen

Prepared by:

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Approved by:	Aaron Ma	Date:	Aug. 21, 2025

Check No.:4841020425

1 Test Summary

Test Item	Clause in FCC rules	Result
DFS Detection Threshold	15.407/KDB 905462 5.2	PASS
U-NII Detection Bandwidth	15.407/KDB 905462 7.8.1	N/A
Channel Availability Check Time	15.407/KDB 905462 7.8.2	N/A
Channel Move Time	15.407/KDB 905462 7.8.3	PASS
Channel Closing Transmission Time	15.407/KDB 905462 7.8.3	PASS
Non-Occupancy Period	15.407/KDB 905462 7.8.3	PASS
Statistical Performance Check	15.407/KDB 905462 7.8.4	N/A

Remark:
N/A:In this whole report not application.

Model No.: PF003-S, PF003-L
All model was tested. They have same electrical, PCB and layout, only the model name are different.
PF003-S (model no.) is identical with the model PF003-L (model no.) on circuitry design,
PCB layout, electrical components used, internal wiring of main frame parts, and only different
are PF003-L can support below accessories to realize more functions than PF003-S:
1. One laser module (Bambu Lab Laser Module 10W/ SL001);
2. One cutting module (Bambu Lab Cutting Module/ SC001);
3. One pump module (Built-in Air Pump/ FAC124);
4. One emergency stop switch;
5. Different enclosure materials, PF003-L uses laser protection material while PF003-S
uses transparent glass.
So the report only presents the test data for model PF003-S.

2 Content

3 General Information

3.1 Client Information

Applicant:	Shenzhen Tuozhu Technology Co., Ltd.
Address of Applicant:	903, West Zone, Hengchang Science andTechnology Building, No. 2228 Linhai Avenue, Nanshan Street,Qianhai Shengang Cooperation Zone, Shenzhen
Manufacturer:	Shenzhen Tuozhu Technology Co., Ltd.
Address of Manufacturer:	903, West Zone, Hengchang Science andTechnology Building, No. 2228 Linhai Avenue, Nanshan Street,Qianhai Shengang Cooperation Zone, Shenzhen
Factory:	Shenzhen Zhuhe Technology Co.,Ltd.
Address of Factory:	Building M, No.28 Dayang Road, Rentian Community, Fuhai Street, Bao'an District, Shenzhen City, Guangdong Province

3.2 General Description of EUT

Product Name:	H2S
Model No. (EUT):	PF003-S, PF003-L
Test Model No.:	PF003-S
Trade Mark:	bambulab
Type of Modulation:	IEEE 802.11a: OFDM (BPSK, QPSK, 16QAM, 64QAM) IEEE 802.11n(HT20/HT40): OFDM (BPSK, QPSK, 16QAM, 64QAM)
Operating Frequency	U-NII-1: 5150-5250MHz U-NII-2A: 5250-5350MHz U-NII-2C:5500-5700MHz U-NII-3:5745-5825MHz
Operating Temperature:	10℃ to +30℃
Sample Type:	Fixed Location
Test Power Grade:	Default
Test Software of EUT:	ADB
Antenna Type:	Internal Antenna
Antenna Gain:	U-NII-1: 5150-5250MHz 0.3 dBi U-NII-2A: 5250-5350MHz 0.3 dBi U-NII-2C:5500-5700MHz -0.5 dBi U-NII-3:5745-5825MHz -0.5 dBi
Function	☒ SISO ☐ 2x2 MIMO ☐ 3x3 MIMO ☐ 4x4MIMO
Operating Mode	☐ Master ☐ Client with radar detection ☒ Client without radar detection
Power Supply:	Model: MS-TA460J240-350B0 INPUT: 100-240V~ 50/60Hz 5A max. OUTPUT: 350.4W 24.0V/14.6A
	Model: PMR-24V320W1AT INPUT: 100-240V~ 50/60Hz 4A OUTPUT: 24.0V/13.4A
	Model: A-350FKD-24P-B0 INPUT: 100-240V~ 50/60Hz 4.5A OUTPUT: 24.0V/14.6A
Test voltage:	AC 110V

Sample Received Date:	Jun. 4, 2025
Sample tested Date:	Jun. 10, 2025 to Aug. 13, 2025

Operation Frequency each of channel

802.11a/802.11n(20MHz) Frequency/Channel Operations:

U-NII-1		U-NII-2A		U-NII-2C		U-NII-3	
Channel	Frequency(MHz)	Channel	Frequency(MHz)	Channel	Frequency(MHz)	Channel	Frequency(MHz)
36	5180	52	5260	100	5500	149	5745
40	5200	56	5280	104	5520	153	5765
44	5220	60	5300	108	5540	157	5785
48	5240	64	5320	112	5560	161	5805
-	-	-	-	116	5580	165	5825
-	-	-	-	132	5660	-	-
-	-	-	-	136	5680	-	-
-	-	-	-	140	5700	-	-

802.11n(40MHz) Frequency/Channel Operations:

U-NII-1		U-NII-2A		U-NII-2C		U-NII-3	
Channel	Frequency(MHz)	Channel	Frequency(MHz)	Channel	Frequency(MHz)	Channel	Frequency(MHz)
38	5190	54	5270	102	5510	151	5755
46	5230	62	5310	110	5550	159	5795
-	-	-	-	134	5670	-	-
-	-	-	-	142	5710	-	-

3.3 Description of Support Units

The EUT has been tested with associated equipment below.

1) support equipment

Description	Manufacturer	Model No.	Certification	Supplied by
Netbook	Asus	FL8700JP1065-0D8GXYQ2X10	FCC&CE	CTI
Dual Band Wi-Fi Router	Asus	RT-AX82U	FCC&IC	CTI

3.4 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd
Hongwei Industrial Park, Zone 70, Bao'an District, Shenzhen, Guangdong, China
Telephone: +86 (0) 755 33683668 Fax:+86 (0) 755 33683385
No tests were sub-contracted.
FCC Designation No.: CN1164

3.5 Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:
FCC CFR47 Part 15E Unlicensed National Information Infrastructure Devices
FCC KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02
FCC KDB 905462 D03 Client Without DFS New Rules v01r02.

4 Equipment List

RF test system					
Equipment	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. Date (mm-dd-yyyy)**	**Cal. Due date (mm-dd-yyyy)**
Spectrum Analyzer	Keysight	N9010A	MY54510339	12-05-2024	12-04-2025
Signal Generator	Keysight	N5182B	MY53051549	11-30-2024	11-29-2025
DC Power	Keysight	E3642A	MY56376072	11-30-2024	11-29-2025
Communication test set	R&S	CMW500	169004	03-03-2025	03-02-2026
RF control unit(power unit)	JS Tonscend	JS0806-2	22G8060592	07-22-2024 07-21-2025	07-21-2025 07-20-2026
Wi-Fi 7GHz Band Extendder	JS Tonscend	TS-WF7U2	2206200002	05-12-2025	05-11-2026
High-low temperature test chamber	Dong Guang Qin Zhuo	LK-80GA	QZ20150611879	11-30-2024	11-29-2025
Temperature/ Humidity Indicator	biaozhi	HM10	1804186	05-26-2025	05-25-2026
BT&WI-FI Automatic test software	JS Tonscend	JS1120-3	V3.3.20	N/A	N/A
Spectrum Analyzer	R&S	FSV3044	101509	02-14-2025	02-13-2026

5 DFS Technical Requirements and Radar Test Waveforms

5.1 DFS Overview

Table 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 2 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 require
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 is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.		

5.2 DFS Detection Thresholds

Table 3 DFS Detection Thresholds for Master Devices and Client Devices With Radar Detection

Maximum Transmit Power	Value(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.	

Table 4 DFS Response Requirement Values

Parameter	Value
Non- occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds See Note 1
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60milliseconds over remaining 10 second period. See Notes 1 and 2
U-NII Detection Bandwidth	Minimum 100% of the UNII99% 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.	

5.3 Radar Test Waveforms

5.3.1 Short Pulse Radar Test Waveforms

Table 5 – Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (μsec)	PRI (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials
0	1	1428	18	See Note 1	See Note 1
1	1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a	$\text{Roundup}\left\{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot10^6}{\text{PRI}_{\mu\text{sec}}}\right)\right\}$	60%	30
		Test B: 15 unique PRI values randomly selected within the range of 518-3066 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.

For example if in Short Pulse Radar Type 1 Test B a PRI of 3066 μsec is selected, the number of pulses would be $\text{Roundup}\left\{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot 10^6}{3066}\right)\right\}$ = Round up {17.2} = 18.

Table 5a - 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. For example, the following table indicates how to compute the aggregate of percentage of successful detections.

Radar Type	Number of Trials	Number of Successful Detections	Minimum Percentage of Successful Detection
1	35	29	82.9%
2	30	18	60%
3	30	27	90%
4	50	44	88%
Aggregate (82.9% + 60% + 90% + 88%)/4 = 80.2%			

5.3.2 Long Pulse Radar Test Waveforms

Table 6 – Long Pulse Radar Test Waveform

Radar Type	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Number of Pulses per *Burst*	Number of *Bursts*	Minimum Percentage of Successful Detection	Minimum Number of Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

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.

Table 7 – Frequency Hopping Radar Test Waveform

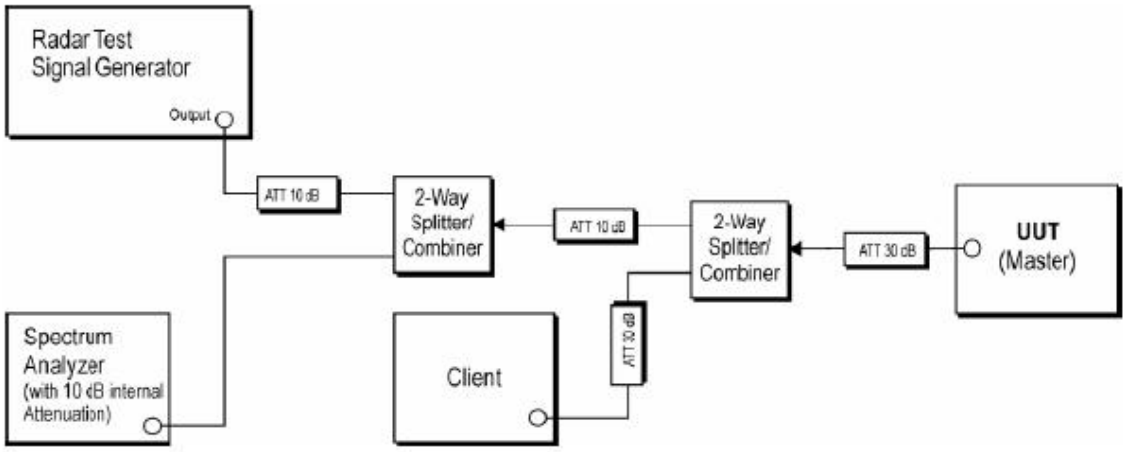
Radar Type	Pulse Width (µsec)	PRI (µsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Successful Detection	Minimum Number of Trials
6	1	333	9	0.333	300	70%	30

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.

错误!未找到引用源。

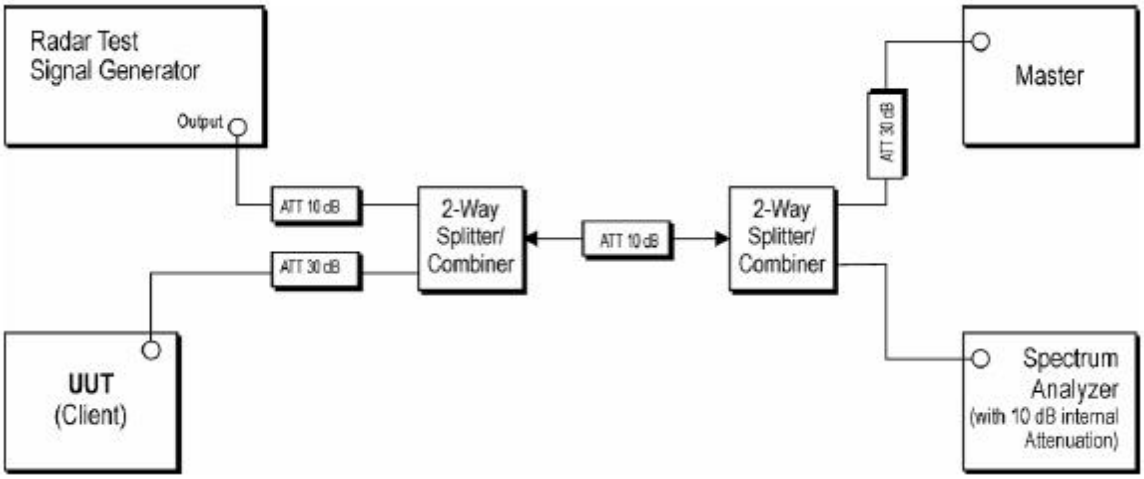
6 Test Requirement Test setup

Setup for Master with injection at the Master



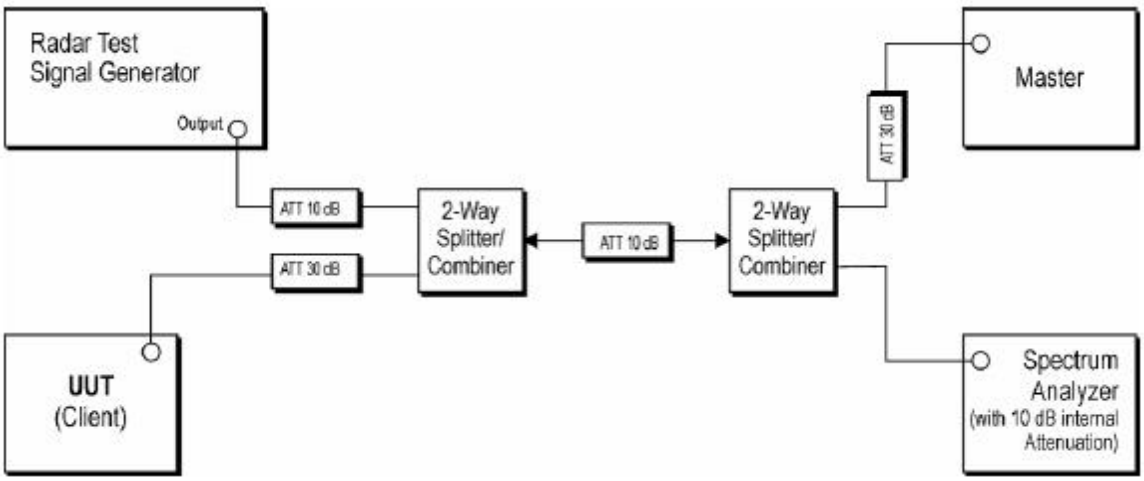
Example Conducted Setup where UUT is a Master and Radar Test Waveforms are injected into the Master.

Setup for Client with injection at the Master



Example Conducted Setup where UUT is a Client and Radar Test Waveforms are injected into the Master

Setup for Client with injection at the Client



Example Conducted Setup where UUT is a Client and Radar Test Waveforms are injected into the Client.

7 Test Case Results

7.1 DFS Detection Thresholds

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

Client with injection at the Master.

For a detection threshold level of -64dBm, the required signal strength at EUT antenna location is -64dBm, the tested level is lower than required level hence it provides margin to the limit.

Calibration Result

Refer to EED32R80469603 Appendix 5G Wi-Fi DFS.

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

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

These tests define how the following DFS parameters are verified during In-Service Monitoring;

- Channel Closing Transmission Time
- Channel Move Time
- Non-Occupancy Period

The steps below define the procedure to determine the above mentioned parameters when a radar Burst with a level equal to the DFS Detection Threshold + 1dB is generated on the Operating Channel of the U-NII device (In- Service Monitoring).

1. One frequency will be chosen from the Operating Channels of the EUT within the 5250-5350 MHz or 5470-5725 MHz bands. For 802.11 devices, the test frequency must contain control signals. This can be verified by disabling channel loading and monitoring the spectrum analyzer. If no control signals are detected, another frequency must be selected within the emission bandwidth where control signals are detected.

2. In case the EUT is a U-NII device operating as a Client Device (with or without DFS), a U-NII device operating as a Master Device will be used to allow the EUT (Client device) to Associate with the Master Device. In case the EUT is a Master Device, a U-NII device operating as a Client Device will be used and it is assumed that the Client will Associate with the EUT (Master). In both cases for conducted tests, the Radar Waveform generator will be connected to the Master Device. For radiated tests, the emissions of the Radar Waveform generator will be directed towards the Master Device. If the Master Device has antenna gain, the main beam of the antenna will be directed toward the radar emitter. Vertical polarization is used for testing.

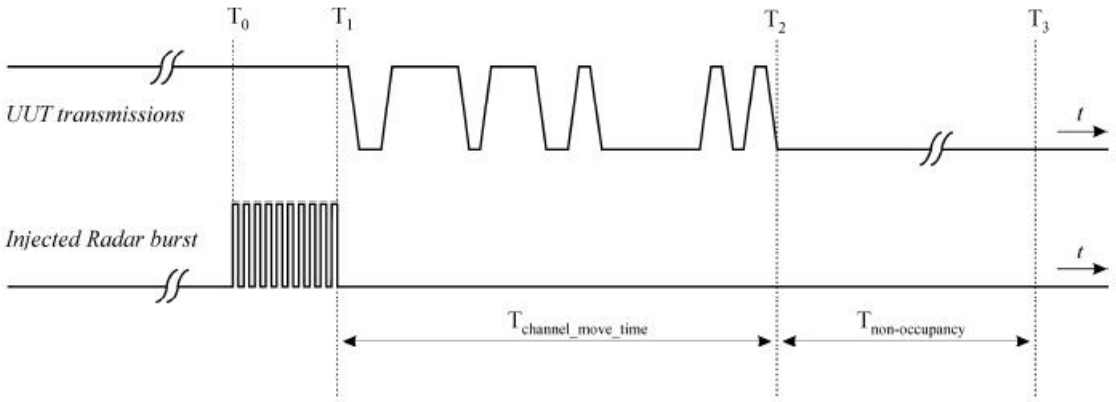
3. Stream the channel loading test file from the Master Device to the Client Device on the test Channel for the entire period of the test.

4. At time T0 the Radar Waveform generator sends a Burst of pulses for one of the Radar Type 0 in Table 5 at levels defined in Table 3, on the Operating Channel. An additional 1 dB is added to the radar test signal to ensure it is at or above the DFS Detection Threshold, accounting for equipment variations/errors.

5. Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel for duration greater than 10 seconds. Measure and record the transmissions from the EUT during the observation time (Channel Move Time). Measure and record the Channel Move Time and Channel Closing Transmission Time if radar detection occurs. Figure 17 illustrates Channel Closing Transmission Time.

6. When operating as a Master Device, monitor the EUT for more than 30 minutes following instant T2 to verify that the EUT does not resume any transmissions on this Channel. Perform this test once and record the measurement result.

7. In case the EUT is a U-NII device operating as a Client Device with In-Service Monitoring, perform steps 1 to 6.



Example of Channel Closing Transmission Time & Channel Closing Time

Limit

Channel Move Time	≤10s
Channel Closing Transmission Time	≤200ms + 60ms (over remaining 10s period)
Non-Occupancy Period	≥30min

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 facilitatea 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.

Test Result: Refer to Appendix 5G Wi-Fi DFS of EED32R80469603

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No.EED32R80469601 for EUT external and internal photos.

Statement

1. This report is considered invalid without approved signature, special seal and the seal on the perforation;

2. The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;

3. The result(s) shown in this report refer(s) only to the sample(s) tested;

4. Unless otherwise stated,the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule stated in ILAC-G8:09/2019/CNAS-GL015:2022;

5. Without written approval of CTI, this report can't be reproduced except in full;

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