




# RADIO TEST REPORT

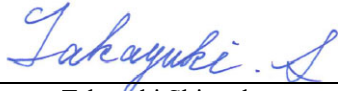
**Test Report No. : 14118411H-G**

**Applicant** : ICOM Incorporated  
**Type of EUT** : WLAN TRANSCEIVER  
**Model Number of EUT** : IP110H  
**FCC ID** : AFJ399500  
**Test regulation** : FCC Part 15 Subpart E: 2021  
(DFS test only)  
\*Client without radar detection  
**Test Result** : Complied (Refer to SECTION 3)

1. This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the limits of the above standard.
4. The test results in this test report are traceable to the national or international standards.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by the A2LA accreditation body.
6. This test report covers Radio technical requirements.  
It does not cover administrative issues such as Manual or non-Radio test related Requirements. (if applicable)
7. The all test items in this test report are conducted by UL Japan, Inc. Ise EMC Lab.
8. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan, Inc. has been accredited.
9. The information provided from the customer for this report is identified in Section 1.

**Date of test:** December 22, 2021

**Representative test engineer:**   
Yuta Moriya  
Engineer

**Approved by:**   
Takayuki Shimada  
Leader



CERTIFICATE 5107.02

- The testing in which "Non-accreditation" is displayed is outside the accreditation scopes in UL Japan, Inc.  
 There is no testing item of "Non-accreditation".

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## REVISION HISTORY

**Original Test Report No.: 14118411H-G**

Revision	Test report No.	Date	Page revised	Contents
- (Original)	14118411H-G	February 14, 2022	-	-

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## Reference: Abbreviations (Including words undescribed in this report)

A2LA	The American Association for Laboratory Accreditation	LIMS	Laboratory Information Management System
AC	Alternating Current	MCS	Modulation and Coding Scheme
AFH	Adaptive Frequency Hopping	MRA	Mutual Recognition Arrangement
AM	Amplitude Modulation	N/A	Not Applicable
Amp, AMP	Amplifier	NIST	National Institute of Standards and Technology
ANSI	American National Standards Institute	NS	No signal detect.
Ant, ANT	Antenna	NSA	Normalized Site Attenuation
AP	Access Point	OBW	Occupied BandWidth
ASK	Amplitude Shift Keying	OFDM	Orthogonal Frequency Division Multiplexing
Atten., ATT	Attenuator	P/M	Power meter
AV	Average	PCB	Printed Circuit Board
BPSK	Binary Phase-Shift Keying	PER	Packet Error Rate
BR	Bluetooth Basic Rate	PHY	Physical Layer
BT	Bluetooth	PK	Peak
BT LE	Bluetooth Low Energy	PN	Pseudo random Noise
BW	BandWidth	PRBS	Pseudo-Random Bit Sequence
Cal Int	Calibration Interval	PSD	Power Spectral Density
CCK	Complementary Code Keying	QAM	Quadrature Amplitude Modulation
Ch., CH	Channel	QP	Quasi-Peak
CISPR	Comite International Special des Perturbations Radioelectriques	QPSK	Quadrature Phase Shift Keying
CW	Continuous Wave	RBW	Resolution BandWidth
DBPSK	Differential BPSK	RDS	Radio Data System
DC	Direct Current	RE	Radio Equipment
D-factor	Distance factor	RF	Radio Frequency
DFS	Dynamic Frequency Selection	RMS	Root Mean Square
DQPSK	Differential QPSK	RNSS	Radio Navigation Satellite Service
DSSS	Direct Sequence Spread Spectrum	RSS	Radio Standards Specifications
DUT	Device Under Test	Rx	Receiving
EDR	Enhanced Data Rate	SA, S/A	Spectrum Analyzer
EIRP, e.i.r.p.	Equivalent Isotropically Radiated Power	SG	Signal Generator
EMC	ElectroMagnetic Compatibility	SVSWR	Site-Voltage Standing Wave Ratio
EMI	ElectroMagnetic Interference	TR, T/R	Test Receiver
EN	European Norm	Tx	Transmitting
ERP, e.r.p.	Effective Radiated Power	VBW	Video BandWidth
ETSI	European Telecommunications Standards Institute	Vert.	Vertical
EU	European Union	WLAN	Wireless LAN
EUT	Equipment Under Test		
Fac.	Factor		
FCC	Federal Communications Commission		
FHSS	Frequency Hopping Spread Spectrum		
FM	Frequency Modulation		
Freq.	Frequency		
FSK	Frequency Shift Keying		
GFSK	Gaussian Frequency-Shift Keying		
GNSS	Global Navigation Satellite System		
GPS	Global Positioning System		
Hori.	Horizontal		
ICES	Interference-Causing Equipment Standard		
IEC	International Electrotechnical Commission		
IEEE	Institute of Electrical and Electronics Engineers		
IF	Intermediate Frequency		
ILAC	International Laboratory Accreditation Conference		
ISED	Innovation, Science and Economic Development Canada		
ISO	International Organization for Standardization		
JAB	Japan Accreditation Board		
LAN	Local Area Network		

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## **SECTION 1: Customer information**

Company Name : ICOM Incorporated  
Address : 1-1-32, Kamiminami, Hirano-Ku, Osaka, 547-0003, Japan  
Telephone Number : +81-6-6794-7783  
Contact Person : Atushi Tomiyama

The information provided from the customer is as follows;

- Applicant, Type of EUT, Model Number of EUT, FCC ID on the cover and other relevant pages
- Operating/Test Mode(s) (Mode(s)) on all the relevant pages
- SECTION 1: Customer information
- SECTION 2: Equipment under test (EUT) other than the Receipt Date
- SECTION 4: Operation of EUT during testing

\* The laboratory is exempted from liability of any test results affected from the above information in SECTION 2 and 4.

## **SECTION 2: Equipment under test (EUT)**

### **2.1 Identification of EUT**

Type : WLAN TRANSCEIVER  
Model Number : IP110H  
Serial Number : Refer to SECTION 4.2  
Receipt Date : November 26, 2021  
Condition : Engineering prototype  
(Not for Sale: This sample is equivalent to mass-produced items.)  
Modification : No Modification by the test lab

### **2.2 Product Description**

Model: IP110H (referred to as the EUT in this report) is a WLAN TRANSCEIVER.

### **General Specification**

Rating : DC 3.75 V (Internal battery)

**Radio Specification**

**WLAN (IEEE802.11b/g/n-20/n-40)**

Radio Type	Transceiver
Frequency of Operation	[20 MHz Band] 2412 MHz to 2462 MHz [40 MHz Band] 2422 MHz to 2452 MHz
Modulation	DSSS, OFDM
Antenna type	Split ring (internal)
Antenna Gain	1.15 dBi

**WLAN (IEEE802.11a/n-20/n-40/ac-20/ac-40/ac-80)**

Radio Type	Transceiver
Frequency of Operation	[20 MHz Band] 5180 MHz to 5240 MHz 5260 MHz to 5320 MHz 5500 MHz to 5580 MHz, 5660 MHz to 5700 MHz 5745 MHz to 5825 MHz [40 MHz Band] 5190 MHz, 5230 MHz 5270 MHz, 5310 MHz 5510 MHz, 5550 MHz, 5670 MHz 5755 MHz, 5795 MHz [80 MHz Band] 5210 MHz 5290 MHz 5530 MHz 5775 MHz
Modulation	OFDM
Antenna type	Split ring (internal)
Antenna Gain	0.15 dBi (5180 MHz to 5320 MHz) 0.62 dBi (5500 MHz to 5825 MHz)

**Bluetooth (BR / EDR function)**

Radio Type	Transceiver
Frequency of Operation	2402 MHz - 2480 MHz
Modulation	FHSS
Antenna type	$\lambda/4$ printed inverted F antenna
Antenna Gain	-1.5 dBi

\*This report applies to WLAN (5 GHz band) part.

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### **SECTION 3: Scope of Report**

This report only covers DFS requirement, as specified by the following referenced procedures.

### **SECTION 4: Test specification, procedures & results**

#### **4.1 Test Specification**

Test Specification	:	FCC Part 15 Subpart E FCC Part 15 final revised on May 3, 2021 and effective July 2, 2021
Title	:	FCC 47CFR Part15 Radio Frequency Device Subpart E Unlicensed National Information Infrastructure Devices Section 15.407 General technical requirements
Test Specification	:	KDB905462 D02 UNII DFS Compliance Procedures New Rules v02
Title	:	COMPLIANCE MEASUREMENT PROCEDURES FOR UNLICENSED- NATIONAL INFORMATION INFRASTRUCTURE DEVICES OPERATING IN THE 5250-5350MHz AND 5470-5725MHz BANDS INCORPORATING DYNAMIC FREQUENCY SELECTION
Test Specification	:	KDB905462 D03 Client Without DFS New Rules v01r02
Title	:	U-NII CLIENT DEVICES WITHOUT RADAR DETECTION CAPABILITY

#### **FCC Part 15.31 (e)**

The EUT is a battery-operated device and test was performed with the full-charged battery. Therefore, this EUT complies with the requirement.

#### **FCC Part 15.203 Antenna requirement**

It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT. Therefore, the equipment complies with the antenna requirement of Section 15.203.

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## 4.2 Procedures and results

**Table 1: Applicability of DFS Requirements**

Requirement	Operating Mode	Test Procedures & Limits	Deviation	Results
	Client without Radar Detection			
U-NII Detection Bandwidth	Not required	KDB905462 D02 UNII DFS Compliance Procedures New Rules v02	N/A	N/A
Initial Channel Availability Check Time	Not required	FCC15.407 (h)	N/A	N/A
		KDB905462 D02 UNII DFS Compliance Procedures New Rules v02		
		RSS-247 6.3		
Radar Burst at the Beginning of the Channel Availability Check Time	Not required	FCC15.407 (h)	N/A	N/A
		KDB905462 D02 UNII DFS Compliance Procedures New Rules v02		
		RSS-247 6.3		
Radar Burst at the End of the Channel Availability Check Time	Not required	FCC15.407 (h)	N/A	N/A
		KDB905462 D02 UNII DFS Compliance Procedures New Rules v02		
		RSS-247 6.3		
In-Service Monitoring for Channel Move Time, Channel Closing Transmission Time	Yes	FCC15.407 (h)	N/A	Complied a)
		KDB905462 D02 UNII DFS Compliance Procedures New Rules v02		
		RSS-247 6.3		
In-Service Monitoring for Non-Occupancy period	Yes *1)	FCC15.407 (h)	N/A	Complied b)
		KDB905462 D02 UNII DFS Compliance Procedures New Rules v02		
		RSS-247 6.3		
Statistical Performance Check	Not required	FCC15.407 (h)	N/A	N/A
		KDB905462 D02 UNII DFS Compliance Procedures New Rules v02		
Note: UL Japan, Inc.'s EMI Work Procedures No. 13-EM-W0422.				
*1) Although this test was not required in FCC, KDB 905462 D02, it was performed as additional test.				
a) Refer to SECTION 6, clause 6.3				
b) Refer to SECTION 7, clause 7.3				
Symbols:				
Complied The data of this test item has enough margin, more than the measurement uncertainty.				
Complied# The data of this test item meets the limits unless the measurement uncertainty is taken into consideration.				

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**Table 2 DFS Detection Thresholds for Master Devices and Client Devices With Radar Detection**

Maximum Transmit Power	Value (See Notes 1,2, and 3)
≥ 200 milliwatt	-64 dBm
< 200 milliwatt and power spectral density < 10dBm/MHz	-62 dBm
< 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>Note 3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.</p>	

**Table 3 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 60 milliseconds over remaining 10 second period. See Notes 1 and 2
U-NII Detection Bandwidth	Minimum 100 % of the U-NII 99 % transmission power bandwidth See Note 3
<p><b>Note 1:</b> 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><b>Note 2:</b> 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 signal will not count quiet periods in between transmissions.</p> <p><b>Note 3:</b> 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>	

**Table 4 Short Pulse Radar Test Waveform**

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  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{(1/360)* (19*10 <sup>6</sup> /PRI μsec)}	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 (Rader 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 5 Long Pulse Radar Test Waveform**

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

**Table 6 Frequency Hopping Radar Test Waveform**

Radar Type	Pulse Width (μsec)	PRI (μsec)	Pulse per Hop (kHz)	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

#### 4.3 Addition to standard

No addition, exclusion nor deviation has been made from the standard.

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#### 4.4 Test Location

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\*A2LA Certificate Number: 5107.02 / FCC Test Firm Registration Number: 884919

ISED Lab Company Number: 2973C / CAB identifier: JP0002

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Test site	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms	Maximum measurement distance
No.1 semi-anechoic chamber	19.2 x 11.2 x 7.7	7.0 x 6.0	No.1 Power source room	10 m
No.2 semi-anechoic chamber	7.5 x 5.8 x 5.2	4.0 x 4.0	-	3 m
No.3 semi-anechoic chamber	12.0 x 8.5 x 5.9	6.8 x 5.75	No.3 Preparation room	3 m
No.3 shielded room	4.0 x 6.0 x 2.7	N/A	-	-
No.4 semi-anechoic chamber	12.0 x 8.5 x 5.9	6.8 x 5.75	No.4 Preparation room	3 m
No.4 shielded room	4.0 x 6.0 x 2.7	N/A	-	-
No.5 semi-anechoic chamber	6.0 x 6.0 x 3.9	6.0 x 6.0	-	-
No.5 measurement room	6.4 x 6.4 x 3.0	6.4 x 6.4	-	-
No.6 shielded room	4.0 x 4.5 x 2.7	4.0 x 4.5	-	-
No.6 measurement room	4.75 x 5.4 x 3.0	4.75 x 4.15	-	-
No.7 shielded room	4.7 x 7.5 x 2.7	4.7 x 7.5	-	-
No.8 measurement room	3.1 x 5.0 x 2.7	3.1 x 5.0	-	-
No.9 measurement room	8.8 x 4.6 x 2.8	2.4 x 2.4	-	-
No.10 shielded room	3.8 x 2.8 x 2.8	3.8 x 2.8	-	-
No.11 measurement room	4.0 x 3.4 x 2.5	N/A	-	-
No.12 measurement room	2.6 x 3.4 x 2.5	N/A	-	-

#### 4.5 Uncertainty

The following uncertainties have been calculated to provide a confidence level of 95% using a coverage factor k=2. Time Measurement uncertainty for this test was: ( $\pm$ ) 0.012%

#### 4.6 Test instruments of DFS and Test set up

Refer to APPENDIX.

## **SECTION 5: Operation of EUT during testing**

### **5.1 Operating Modes**

The EUT, which is a Client Device without Radar detection capability, operates over the U-NII-2A (W53) and U-NII-2C (W56).

The channel-loading of approximately 17% or greater was used for testing, and its test data was transferred from the Master Device to the Client Device for all test configurations.

The EUT utilizes the 802.11a/n/ac architecture, with a 20MHz, 40MHz and 80MHz channel bandwidth.

The FCC ID for the Master Device used with EUT for DFS testing is LDK102087.

The rated output power of the Master unit is >200mW(23dBm). Therefore the required interference threshold level is -64 dBm. After correction for antenna gain and procedural adjustments, the required conducted threshold at the antenna port is  $-64 + 1 + 0 = -63.0$  dBm (threshold level + additional 1dB + antenna gain).

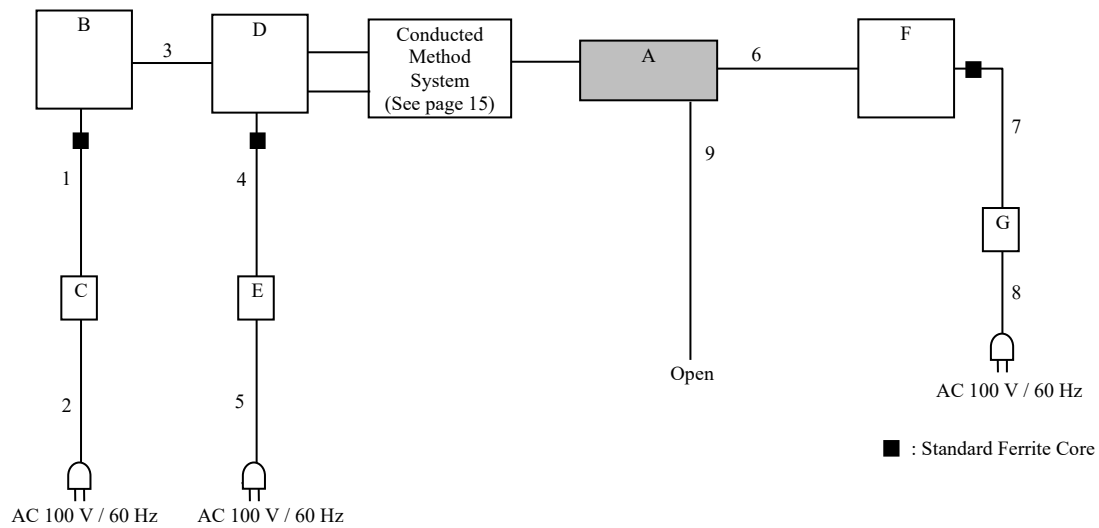
It is impossible for users to change DFS control, because the DFS function is written on the firmware and users cannot access it.

The EUT was set by the software as follows:

Software name & version: HW: RS-WT5U, SW: 3.05.0.10889

(Date: December 22, 2021, Storage location: Driven by connected PC)

## 5.2 Configuration and peripherals



\* Cabling and setup(s) were taken into consideration and test data was taken under worse case conditions.

### Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	WLAN TRANSCEIVER	IP110H	12	ICOM Incorporated	EUT
B	Laptop PC	20AV-A04TJP	R9-00CAWA 14/02	Lenovo	-
C	AC Adaptor	ADLX65NCC2A	11S36200284ZZ200 56AESE	Lenovo	-
D	WLAN access point	AIR-CAP3702E-A-K9	FTX182276QC	Cisco Systems	-
E	AC Adaptor	AA25480L	ALD030406GR	Cisco Systems	-
F	Laptop PC	X1 Carbon	R9-OH8OBW 15/9	Lenovo	-
G	AC Adaptor	ADLX45NCC2A	8SSA10E75794C1S G59R0GHF	Lenovo	-

### List of cables used

No.	Name	Length (m)	Shield		
			Cable	Connector	
1	DC Cable	1.8	Shielded	Shielded	-
2	AC Cable	1.8	Unshielded	Unshielded	-
3	LAN Cable	3.0	Unshielded	Unshielded	-
4	DC Cable	1.9	Shielded	Shielded	-
5	AC Cable	2.1	Unshielded	Unshielded	-
6	USB Cable	1.0	Shielded	Shielded	-
7	DC Cable	1.8	Shielded	Shielded	-
8	AC Cable	1.8	Unshielded	Unshielded	-
9	DC Cable	1.5	Unshielded	Unshielded	-

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### 5.3 Test and Measurement System

#### SYSTEM OVERVIEW

The measurement system is based on a conducted test method.

The software selects waveform parameters from within the bounds of the signal type on a random basis using uniform distribution. The short pulse types 1, 2, 3, and 4, the long pulse type 5, and the frequency hopping type 6 parameters are randomized at run-time.

The signal monitoring equipment consists of a spectrum analyzer with the capacity to display 8001 bins on the horizontal axis. A time-domain resolution of 2 msec/bin is achievable with a 16 second sweep time, meeting the 10 seconds short pulse reporting criteria. The aggregate ON time is calculated by multiplying the number of bins above a threshold during a particular observation period by the dwell time per bin, with the analyzer set to peak detection.

#### FREQUENCY HOPPING RADAR WAVEFORM GENERATING SUBSYSTEM

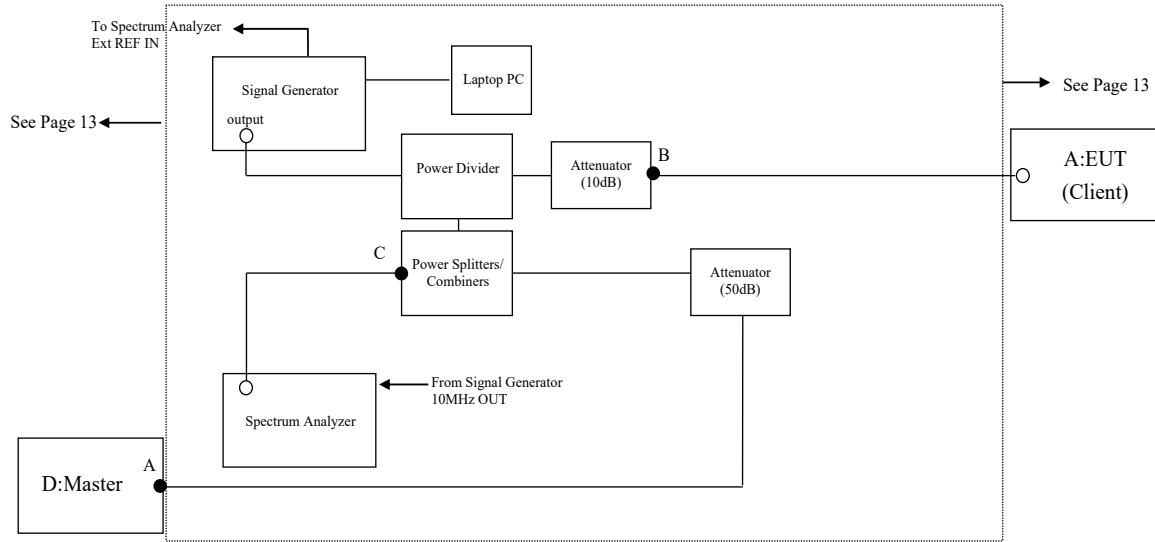
The first 100 frequencies are selected out of the hopping sequence of the randomized 475 hop frequencies.

Only a *Burst* that has the frequency falling within the receiver bandwidth of the tested U-NII device is selected among those frequencies. (Frequency-domain simulation). The radar waveform generated at the start time of the selected *Burst* (Time-domain simulation) is download to the Signal Generator.

If all of the randomly selected 100 frequencies do not fall within the receiver bandwidth of the U-NII device, the radar waveform is not used for the test.

**CONDUCTED METHODS SYSTEM BLOCK DIAGRAM**

<Client mode>



**MEASUREMENT SYSTEM FREQUENCY REFERENCE**

Lock the signal generator and the spectrum analyzer to the same reference sources as follows: Connect the 10 MHz OUT on the signal generator to the EXT REF IN on the spectrum analyzer and set the spectrum analyzer Ext to On.

## **SYSTEM CALIBRATION**

**Step 1:** Set the system as shown in Figure 3 of KDB905462 D02 7.2.2.

**Step 2:** Adjust each attenuator to fulfill the following three conditions:

- WLAN can be communicated, and
- Rader detection threshold level is bigger than Client Device traffic level on the spectrum analyzer, and
- Master Device traffic level is not displayed on the spectrum analyzer.

**Step 3:** Terminate 50 ohm at B and C points, and connect the spectrum analyzer to the point A. (See the figure on page 15)  
At the point A, adjust the signal generator and spectrum analyzer to the center frequency of the channel to be measured.

Download the applicable radar waveforms to the signal generator. Select the radar waveform, trigger a burst manually and measure the amplitude 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.

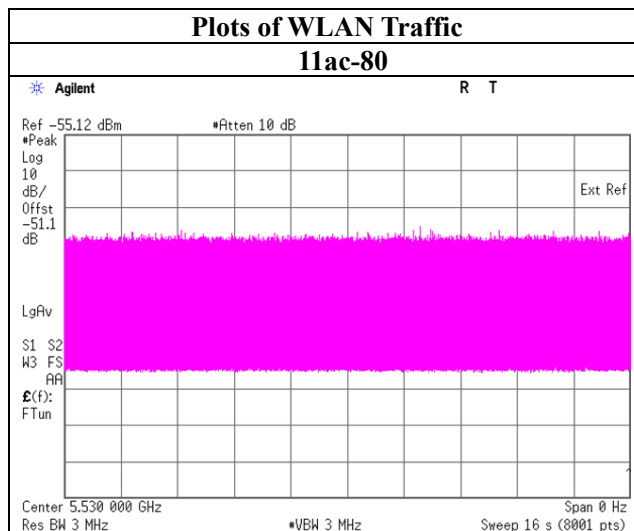
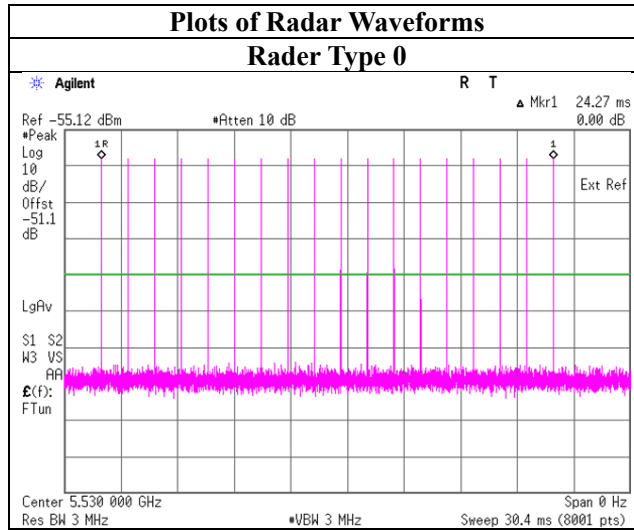
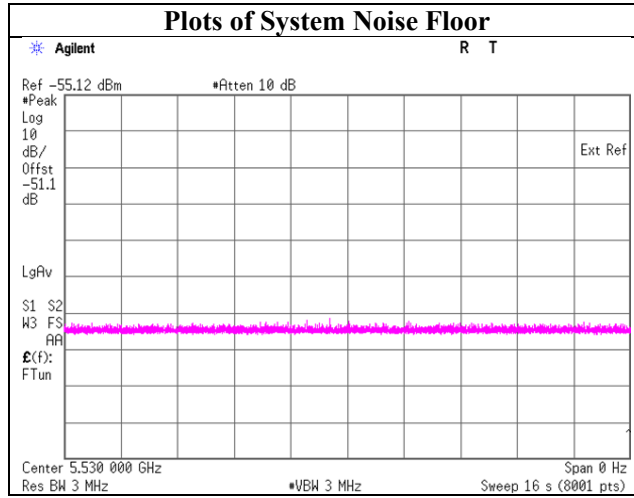
**Step 4:** Without changing any of the instrument settings, restore the system setting to Step 2 and adjust the Reference Level Offset of the spectrum analyzer to the level at Step 3.

By taking the above steps 1 to 4, the spectrum analyzer displays the level of the signal generator as received at the antenna ports of the Master Device.

See Clause 5.4 for Plots of Noise, Rader Waveforms, and WLAN signals.



5.4 Plots of Noise, Rader Waveforms, and WLAN signals



## **SECTION 6: Channel Move Time, Channel Closing Transmission Time**

### **6.1 Operating environment**

Test place Ise EMC Lab.No.6 Measurement Room  
Date 12/22/2021  
Temperature/ Humidity 24 deg. C / 30 % RH  
Engineer Yuta Moriya  
Mode 11ac-80

### **6.2 Test Procedure**

Transmit the data from the Master Device to the Client Device on the test Channel for the entire period of the test. The Radar Waveform generator sends a Burst of pulses for one of the Short Pulse Radar Types 0 at levels defined , 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.

Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel for duration greater than 10 seconds.

### **6.3 Test data**

#### **11ac-80**

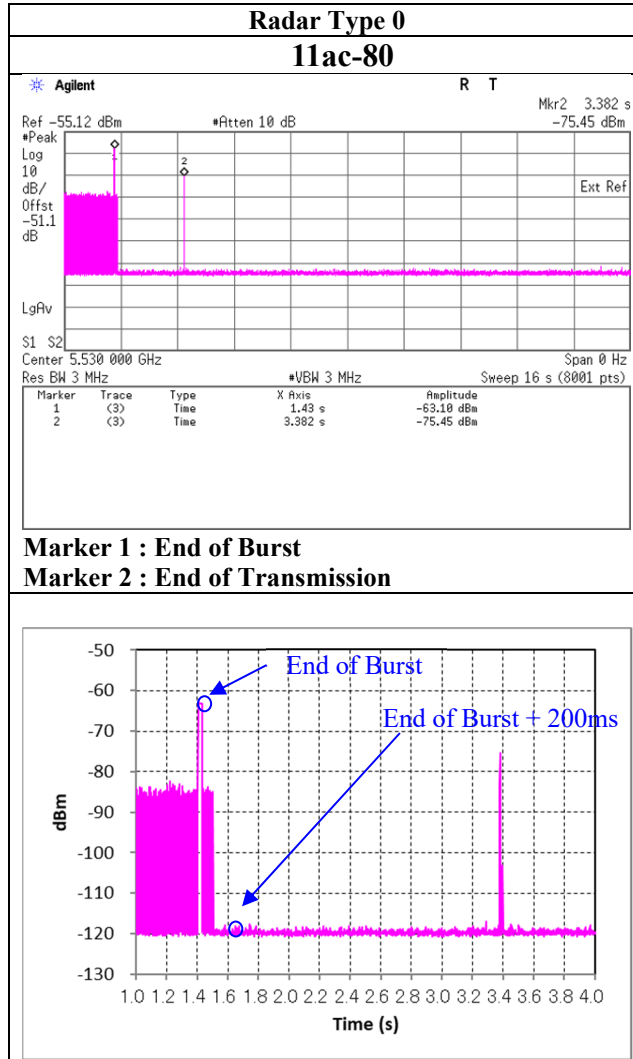
Test Item	Unit	Measurement Time	Limit	Results
Channel Move Time *1)	[sec]	1.952	10.000	Pass
Channel Closing Transmission Time *2)	[msec]	6	60	Pass

\*1) Channel Move Time is calculated as follows:

$$(\text{Channel Move Time}) = (\text{End of Transmission}) - (\text{End of Burst}) = 3.382 - 1.43$$

\*2) Channel Closing Transmission Time is calculated from (End of Burst + 200msec) to (End of Burst + 10sec )

$$(\text{Channel Closing Transmission Time}) = (\text{Number of analyzer bins showing transmission}) \times (\text{dwell time per bin}) \\ = 3 \times 2 \text{ [msec]}$$



**6.4 Test result**

Test result: Pass

## **SECTION 7: Non-Occupancy Period**

### **7.1 Operating environment**

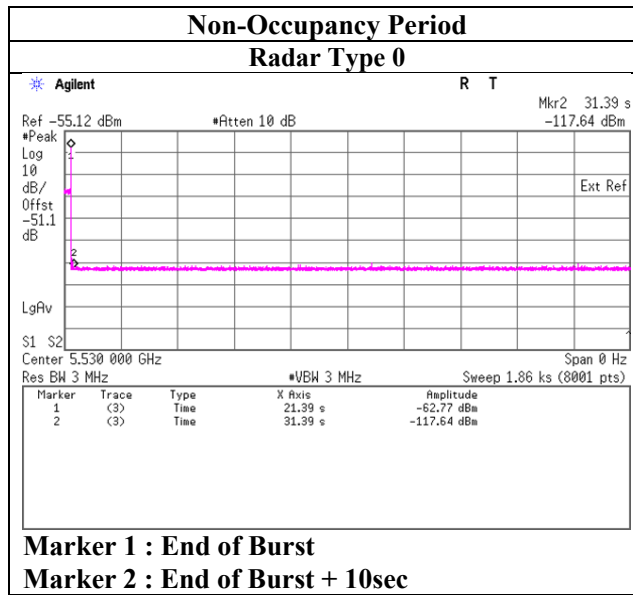
Test place	Ise EMC Lab.No.6 Measurement Room
Date	12/22/2021
Temperature/ Humidity	24 deg. C / 30 % RH
Engineer	Yuta Moriya
Mode	11ac-80

### **7.2 Test Procedure**

The following two tests are performed:

1). Transmit the data from the Master Device to the Client Device on the test Channel for the entire period of the test. The Radar Waveform generator sends a Burst of pulses for the Radar Types 0 at levels defined 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. Observe the transmissions of the EUT after the Channel Move Time on the Operating Channel for duration greater than 30 minutes.

7.3 Test data



7.4 Test result

Test result: Pass

## **APPENDIX 1: Test instruments**

### **Test equipment**

<b>Test Item</b>	<b>Local ID</b>	<b>LIMS ID</b>	<b>Description</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Serial</b>	<b>Last Calibration Date</b>	<b>Cal Int</b>
DFS	MOS-14	141561	Thermo-Hygrometer	CUSTOM. Inc	CTH-201	1401	01/15/2021	12
DFS	MMM-18	141558	Digital Tester(TRUE RMS MULTIMETER)	Fluke Corporation	115	17930030	05/24/2021	12
DFS	MSA-13	141900	Spectrum Analyzer	Keysight Technologies Inc	E4440A	MY46185823	09/30/2021	12
DFS *1)	MSG-18	141898	Signal Generator	Keysight Technologies Inc	N5182B	MY56200177	11/04/2021	12
DFS	COTS-MDFS-03	170949	Signal Studio for DFS Radar Profiles	EMC Instruments Corporation	N7607B	-	-	-
DFS	MCC-244	197219	Microwave cable	Huber+Suhner	SF126E/11PC35/11PC35/2000MM	536999/126E	03/04/2021	12
DFS	MCC-192	142379	Microwave Cable	Junkosha	MWX-221-02000DMSDMS	1507S111	-	-
DFS	MCC-144	141414	Microwave Cable	Junkosha	MWX221	1207S407	08/11/2021	12
DFS	MCC-151	142345	Microwave Cable	Junkosha	MWX221-01000AMSAMS	1304S248	-	-
DFS	MPSC-04	141821	Power Splitters/Combiners	Mini-Circuits	ZFSC-2-10G	0326	09/30/2021	12
DFS	MPSC-06	142735	Power Splitters/Combiners	Pasternack Enterprises	ZFRSC-123-S+	ZFRSC-123-00231	-	-
DFS	MAT-90	141223	Attenuator	Weinschel Associates	WA56-10	56100306	05/14/2021	12
DFS	MAT-101	194879	Attenuator	Keysight Technologies Inc	8495A / 8495B	MY42150956 / MY42147424	-	-

**\*Hyphens for Last Calibration Date and Cal Int (month) are instruments that Calibration is not required (e.g. software), or instruments checked in advance before use.**

**\*1) Signal generator is only used to generate radar test signal, and the wave form is confirmed with spectrum analyzer every time before the test.**

**The expiration date of the calibration is the end of the expired month.**

**As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.**

**All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or international standards.**

**Test item:**

**DFS: Dynamic Frequency Selection**

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