RADIO TEST REPORT

Test Report No. : 10243431S-E

Applicant	:	**Honda Engineering Co., Ltd.**
Type of Equipment	:	**WLAN CARD**
Model No.	:	**E3000-02-01**
FCC ID	:	**N43E30000201**
Test regulation	:	**FCC Part 15 Subpart E: 2014** **Section 15.407(DFS test only)**
Test Result	:	**Complied**

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 regulation.
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 any agency of the Federal Government.
6. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.

Date of test : May 9, 2014

Representative test engineer:

Kenichi Adachi
Engineer
Consumer Technology Division

Approved by :

Toyokazu Imamura
Leader
Consumer Technology Division

JAB Testing RTL02610

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

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN
Telephone: +81 463 50 6400
Facsimile: +81 463 50 6401

REVISION HISTORY

Original Test Report No.: 10243431S-E

Revision	Test report No.	Date	Page revised	Contents
- (Original)	10243431S-E	July 2, 2014	-	-
1	10243431S-E	July 31, 2014	p.1, 2, 9, 10	Details of WLAN traffic were adding described.

UL Japan, Inc.
Shonan EMC Lab.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN
Telephone: +81 463 50 6400
Facsimile: +81 463 50 6401

CONTENTS **PAGE**

SECTION 1: Customer information

Applicant:

Company Name	:	Honda Engineering Co., Ltd.
Address	:	6-1, Hagadai, Haga-Machi, Haga-Gun, Tochigi, 321-3395 Japan
Telephone Number	:	+81-28-677-6946
Facsimile Number	:	+81-28-677-6980
Contact Person	:	Tomokazu Takasaka

Manufacturer:

Company Name	:	NEC Engineering, Ltd.
Address	:	1753 Shimonumabe, Nakahara-ku, Kawasaki-shi, Kanagawa 211-8666 Japan
Telephone Number	:	+81-44-455-8765
Facsimile Number	:	+81-44-455-8927
Contact Person	:	Atsushi Suzuki

SECTION 2: Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of Equipment	:	WLAN CARD
Model Number	:	E3000-02-01
Serial Number	:	Refer to 4.2 in this report.
Rating	:	DC5V
Country of Mass-production	:	Japan
Condition of EUT	:	Production prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Receipt Date of Sample	:	March 7, 2014
Modification of EUT	:	No modification by the test lab.

2.2 Product description

Model: E3000-02-01 (referred to as the EUT in this report) is a WLAN CARD.

Clock frequency(ies) in the system : 32.768kHz, 26MHz

Radio specification:

Equipment type	:	Transceiver	
Frequency of operation *1)	:	2.4GHz:	2412-2462MHz (IEEE 802.11b, 11g, 11n-20HT)
		W52:	5180-5240MHz (IEEE 802.11a, 11n-20HT)
		W53:	5260-5320MHz (IEEE 802.11a, 11n-20HT)
		W56:	5500-5700MHz (IEEE 802.11a, 11n-20HT)
		W58:	5745-5825MHz (IEEE 802.11a, 11n-20HT)
Bandwidth	:	20MHz	
Channel spacing	:	5MHz (2.4GHz), 20MHz (IEEE 802.11a, 11n-20HT, 5GHz))	
Type of modulation	:	DSSS, OFDM	
Antenna type	:	2.4GHz band: λ/4 monopole, 5GHz band: λ/4 dipole	
Antenna gain with cable loss	:	2.4GHz band: 1.6dBi, 5GHz band: 4.1dBi	
Antenna connector type	:	SMD	
ITU code	:	D1D, G1D	
Operation temperature range	:	0 to +60 deg.C	

*1) Refer to the test reports: 10243431S-C for FCC 15.407 except DFS test.
*2) Refer to the test reports: 10243431S-A for FCC 15.247.
* The EUT does not perform simultaneous transmission of 2.4GHz and 5GHz Wireless LAN.

FCC 15.31 (e)
The RF Module has its own regulator. The RF Module is constantly provided voltage (DC1.8V and DC3.3V) through the regulator regardless of input voltage. Therefore, this EUT complies with the requirement.

FCC 15.203
The antenna is not removable from the EUT. Therefore the equipment complies with the requirement.

SECTION 3: Scope of Report

The EUT has the channels from 5180 to 5320MHz and 5500 to 5700MHz.
This report only covers DFS requirement subject to 5250-5350MHz and 5500 to 5700MHz bands, as specified by the following referenced procedures.

SECTION 4: Test specification, procedures & results

4.1 Test Specification

Test specification : FCC Part 15 Subpart E: 2014, final revised on May 1, 2014 and effective June 2, 2014

Title : FCC 47CFR Part15 Radio Frequency Device Subpart E Unlicensed National Information Infrastructure Devices
Section 15.407 General technical requirements

* The revision on May 1, 2014 does not affect the test specification applied to the EUT.

Test Specification	:	FCC 06-96 APPENDIX
Title	:	COMPLIANCE MEASUREMENT PROCEDURES FOR UNLICENSED-NATIONAL INFORMATION INFRASTRUCTURE DEVICES OPERATING IN THE 5250-5350 MHz AND 5470-5725MHz BANDS INCORPORATING DYNAMIC FREQUENCY SELECTION

4.2 Procedures and results

Table 1: Applicability of DFS Requirements

Requirement	Operating Mode Client without Radar Detection	Test Procedures & Limits	Deviation	Results
U-NII Detection Bandwidth	Not required	FCC 06-96 Appendix 7.8.1	N/A	N/A
Initial Channel Availability Check Time	Not required	FCC15.407 (h) FCC 06-96 Appendix 7.8.2.1 RSS-210 A9.3	N/A	N/A
Radar Burst at the Beginning of the Channel Availability Check Time	Not required	FCC15.407 (h) FCC 06-96 Appendix 7.8.2.2 RSS-210 A9.3	N/A	N/A
Radar Burst at the End of the Channel Availability Check Time	Not required	FCC15.407 (h) FCC 06-96 Appendix 7.8.2.3 RSS-210 A9.3	N/A	N/A
In-Service Monitoring for Channel Move Time, Channel Closing Transmission Time	Yes	FCC15.407 (h) FCC 06-96 Appendix 7.8.3 RSS-210 A9.3	N/A	Complied
In-Service Monitoring for Non-Occupancy period	Yes *	FCC15.407 (h) FCC 06-96 Appendix 7.8.3 RSS-210 A9.3	N/A	Complied
Statistical Performance Check	Not required	FCC15.407 (h) FCC 06-96 Appendix 7.8.4	N/A	N/A

*Although this test was not required in FCC 06-96, it was performed as additional test.

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

Maximum Transmit Power	Value (See Notes 1 and 2)
≥ 200 milliwatt	-64 dBm
< 200 milliwatt	-62 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.	

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 80% of the U-NII 99% transmission power bandwidth See Note 3

Note 1: The instant that the Channel Move Time and the Channel Closing Transmission Time begins is as follows:

- For the Short Pulse Radar Test Signals this instant is the end of the *Burst*.
- For the Frequency Hopping radar Test Signal, this instant is the end of the last radar *Burst* generated
- For the Long Pulse Radar Test Signal this instant is the end of the 12 second period defining the *Radar Waveform*.

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 signal will not count quiet periods in between transmissions.

Note 3: During the U-NII Detection Bandwidth detection test, radar type 1 is used and for each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

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 Traials
1	1	1428	18	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

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 Test Location

UL Japan, Inc. Shonan EMC Lab.
1-22-3, Megumigaoka, Hiratsuka-shi, Kanagawa-ken 259-1220 JAPAN
Telephone number : +81 463 50 6400
Facsimile number : +81 463 50 6401

IC Registration No. : 2973D-1 (No1 anechoic chamber)
2973D-2 (No2 anechoic chamber)
2973D-3 (No3 anechoic chamber)

	IC Registration No.	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
☐ No.1 Semi-anechoic chamber	2973D-1	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
☐ No.2 Semi-anechoic chamber	2973D-2	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
☐ No.3 Semi-anechoic chamber	2973D-3	12.7 x 7.7 x 5.35	12.7 x 7.7	5m
☐ No.4 Semi-anechoic chamber	-	8.1 x 5.1 x 3.55	8.1 x 5.1	-
☐ No.1 Shielded room	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
☐ No.2 Shielded room	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
☐ No.3 Shielded room	-	6.3 x 4.7 x 2.7	6.3 x 4.7	-
☐ No.4 Shielded room	-	4.4 x 4.7 x 2.7	4.4 x 4.7	-
☒ No.5 Shielded room	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
☐ No.6 Shielded room	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
☐ No.1 Measurement room	-	2.55 x 4.1 x 2.5	-	-

4.4 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: (±) 0.012%

4.5 Test set up, Data of DFS test, and Test instruments of DFS

Refer to APPENDIX.

SECTION 5: Operation of E.U.T. during testing

5.1 Operating Modes

The EUT, which is a Client Device without Radar detection capability, operates over the 5260-5320MHz and 5500-5700MHz.

[W53 Band]
The highest power level is 16.75dBm EIRP in the 5250-5350MHz band.
The lowest power level is 16.68dBm EIRP in the 5250-5350MHz band.

[W56 Band]
The highest power level is 17.62dBm EIRP in the 5500-5700MHz band.
The lowest power level is 17.42dBm EIRP in the 5500-5700MHz band.

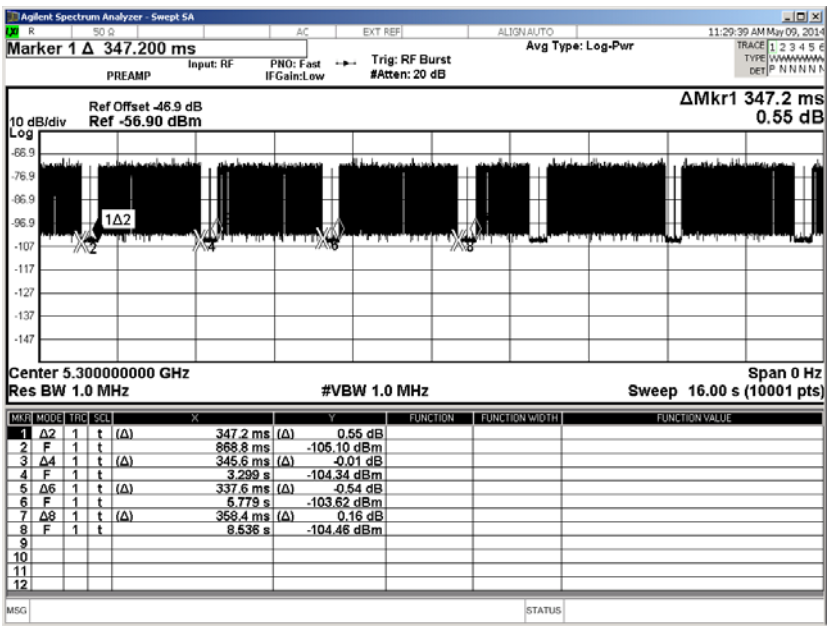
Power level of the EUT [dBm]

	Band	Antenna Gain [dBi]	Output Power (Min)	Output Power(Max)
	W53	4.10	12.58	12.65
	W56	4.10	13.32	13.52

*1) Refer to 10243431S-C FCC Part 15E (FCC 15.407) report for other parts than DFS.

The EUT uses one transmitter connected to a 50-ohm coaxial antenna ports. The antenna port is connected to the test system.

WLAN traffic is generated by transfer the MPEG Test file “6 ½ Magic Hours” from the Master to the Client using the test program "WlanCalib.exe".
(Refer to acceptance proposal method by KDB 205508.)



(on time 347.2ms,
1cycle ms 2430.2= 3299ms - 868.8ms)
duty = 0.143 = 347.2 / 2430.2

(on time 345.6ms,
1cycle ms 2480.0= 5779ms - 3299ms)
duty = 0.139 = 345.6 / 2480.0

(on time 358.4ms,
1cycle ms 2757.0= 8536ms - 5779ms)
duty = 0.130 = 358.4 / 2757.0

(Alternate method from FCC 06-96)
Since the operating system of handy terminal does not support the streaming of video files from master device to the client device, we propose that we execute the DFS test while the tool is executing the file transfer.
Transmit Data is sent from the personal computer to radio module (EUT) via a radio access point (AP) by Wireless Communication. And Handy terminal connected to radio module (EUT) receives it.
At this time, "WlanCalib.exe"(Software) is used.

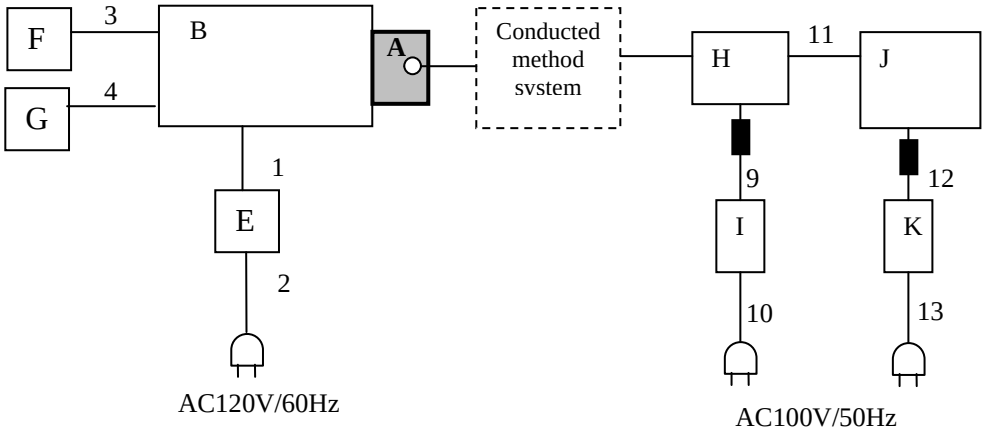
(General test setup procedure)
1) Radio module (EUT) is attached and then connected to Handy terminal.
Master AP is connected to PC via LAN cable. Master AP communicates with radio module (EUT) via radio waves.
2) “WlanCalib.exe” is started in the PC connected with master AP, selects the IP address (with the EUT module), and does connected operation and transfer data to AP by FTP tool.
As a result, the handy terminal keeps transmitting the data file ("Testfile.mpeg") to the EUT with the radio signal.
3) Record the data rate which sets the master AP on and the channel loading.
4) While the system is performing a file transfer using the settings from item 2), 3), above, perform the Channel Closing Transmission Time and Channel Move Time measurements as required by FCC 06-96 using a conducted test.

The EUT utilizes the 802.11a and 802.11n architecture, with a nominal channel bandwidth.

The FCC ID for the Master Device used with EUT for DFS testing is LDK102073.

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 + 3.5=-59.5 dBm (threshold level + additional 1dB + antenna gain).

5.2 Configuration and peripherals



* Test data was taken under worse case conditions.

■ : Standard Ferrite Core

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	WLAN CARD	E3000-02-01	2BE030022J	NEC Engineering	EUT
B	3.0G LET	E3000-01-PP2	4200119	Honda Engineering	-
E	AC Adapter	UIA336-12	705-0926329	UNIFIVE Technology	-
F	Keyboard	SK-8115	CN-0DJ319-7616-91K-0PHO	Dell	-
G	Mouse	1113	91705-492-7176734-91014	Microsoft	-
H	Wireless LAN access point (Master Device)	AIR-AP1262N-A-K9	FTX1619E5EZ	Cisco Systems	FCC ID: LDK102073
I	AC Adapter	EADP-18MB	DAB1528MANP	Cisco Systems	-
J	Notebook Computer	DELL Vostro V1510	29090510205	Dell	-
K	ACAdapter	LA65NS1-00	71615-93B-385D	Dell	-

List of cables used

No.	Cable Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC	1.8	Unshielded	Unshielded	-
2	AC	2.0	Unshielded	Unshielded	-
3	Keyboard	2.0	Shielded	Shielded	-
4	Mouse	1.8	Shielded	Shielded	-
9	Access Point DC Power	1.8	Unshielded	Unshielded	-
10	Access Point AC Power	2.0	Unshielded	Unshielded	-
11	LAN	3.0	Unshielded	Unshielded	-
12	DELL PC DC Power	1.8	Unshielded	Unshielded	-
13	DELL PC AC Power	0.7	Unshielded	Unshielded	-

5.3 Test and Measurement System

SYSTEM OVERVIEW

The measurement system is based on a conducted test method.

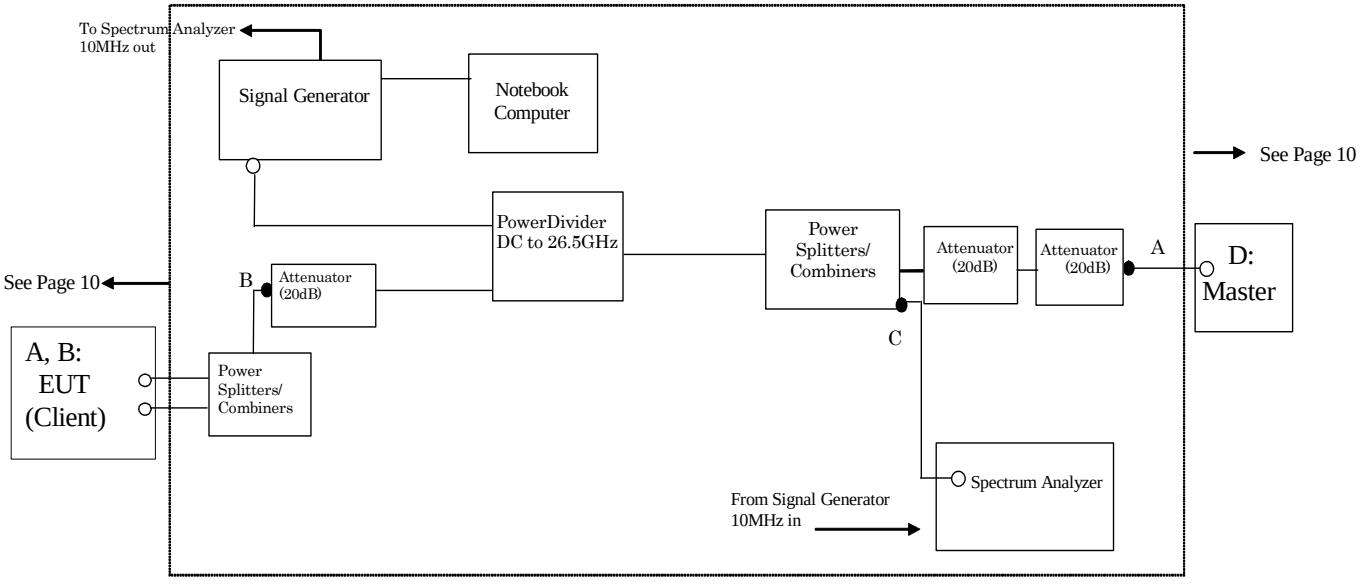
The software selects waveform parameters from within the bounds of the signal type on a random basis using uniform distribution. The short pulse types 2, 3, and 4, the long pulse type 5, and the frequency hopping type 6 parameters are randomized at run-time.

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. A time-domain resolution of 3 msec/bin is achievable with a 24 second sweep time, meeting the 22 second long pulse reporting criteria and allowing a minimum of 10 seconds after the end of the long pulse waveform.

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 DIAGRM



MEASUREMENT SYSTEM FREQUENCY REFERENCE

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

SYSTEM CALIBRATION

Step 1: Set the system as shown in Figure 3 of FCC 06-96 7.2.1.

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 11)
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.

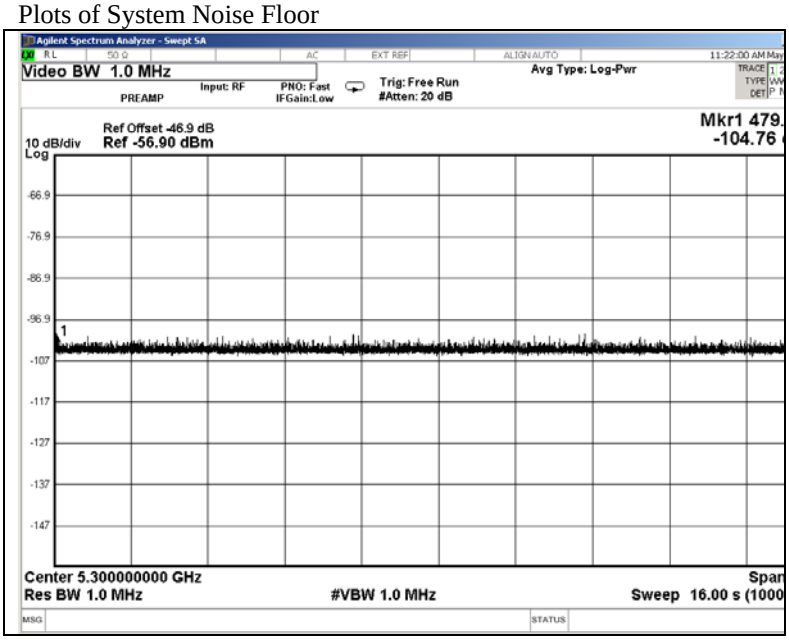
Step 4: Without changing any of the instrument settings, restore the system setting to Step 2 and adjust the Reference Level Offset of the spectrum analyzer to the level at Step 3.

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

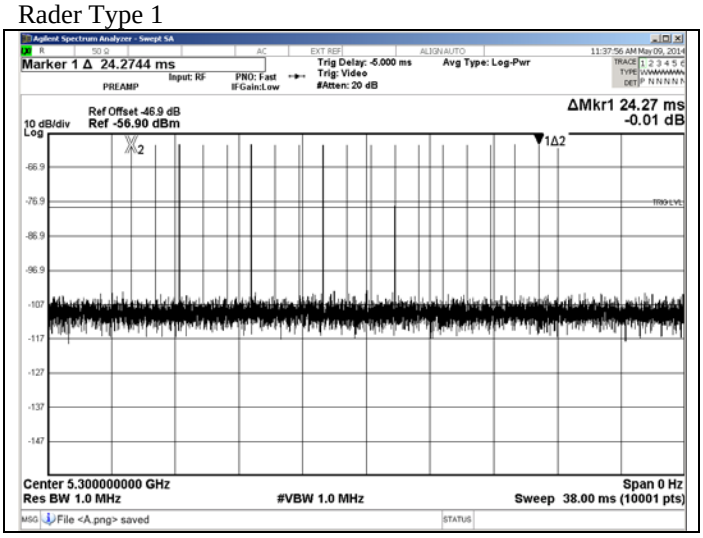
Plots of System Noise Floor



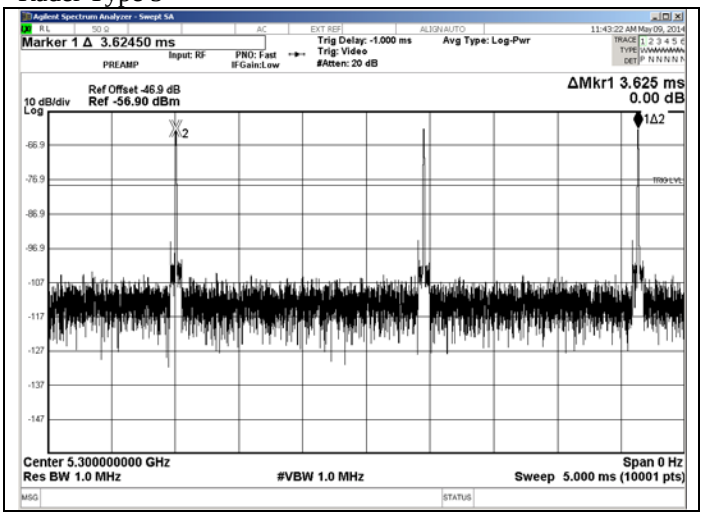
It was confirmed that the EUT did not transmit before having received appropriate control signals from a Master Device.

Plots of Radar Waveforms

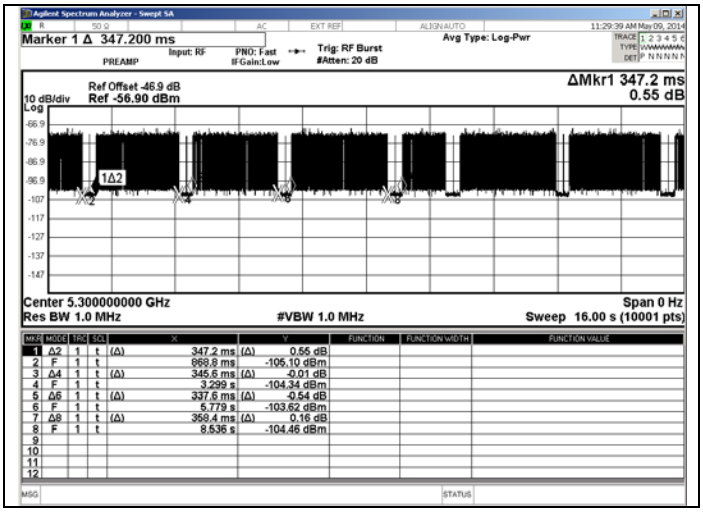
Rader Type 1



Rader Type 5



Plots of WLAN Traffic



SECTION 6: In-Service Monitoring for Channel Move Time, Channel Closing Transmission Time

6.1 Operating environment

Test place : No.5 Shielded room
Temperature : 25deg.C
Humidity : 41%RH

6.2 Test Procedure

Transfer files from the Master Device to the Client Device on the tested channel during the entire period of the test.
The Radar Waveform generator sends a Burst of pulses for one of the Short Pulse Radar Types 1-4 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.

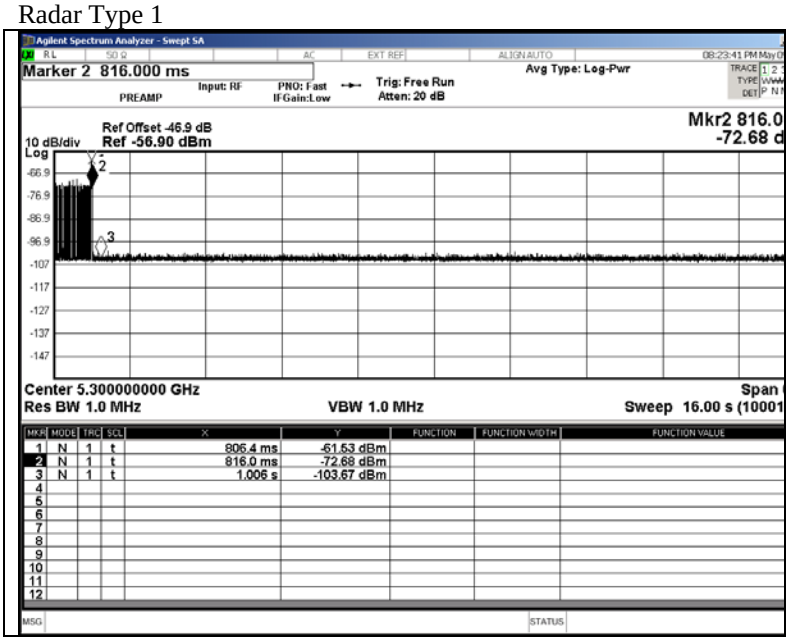
6.3 Test data

Test Item	Unit	Measurement Time	Limit	Results
Channel Move Time *1)	[sec]	0.0096	10.000	Pass
Channel Closing Transmission Time *2)	[msec]	9.6	60	Pass

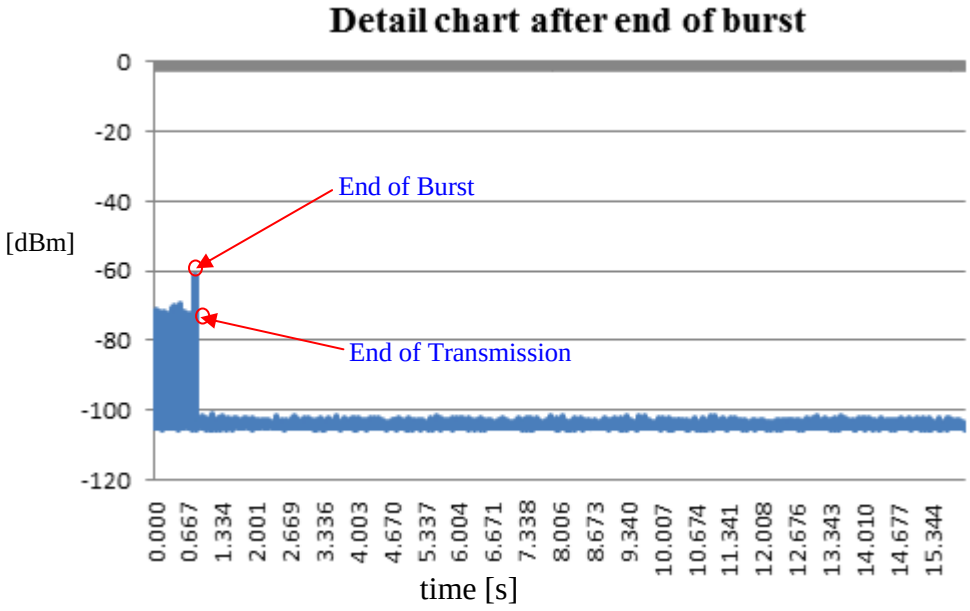
*1) Channel Move Time is calculated as follows:
(Channel Move Time) = (End of Transmission) - (End of Burst) = 0.816 – 0.8064 = 0.0096

*2) Channel Closing Transmission Time is calculated from (End of Burst + 200msec) to (End of Burst + 10sec)
(Channel Closing Transmission Time) = (Number of analyzer bins showing transmission)＊(dwell time per bin)
= 6 ＊1.6(msec)

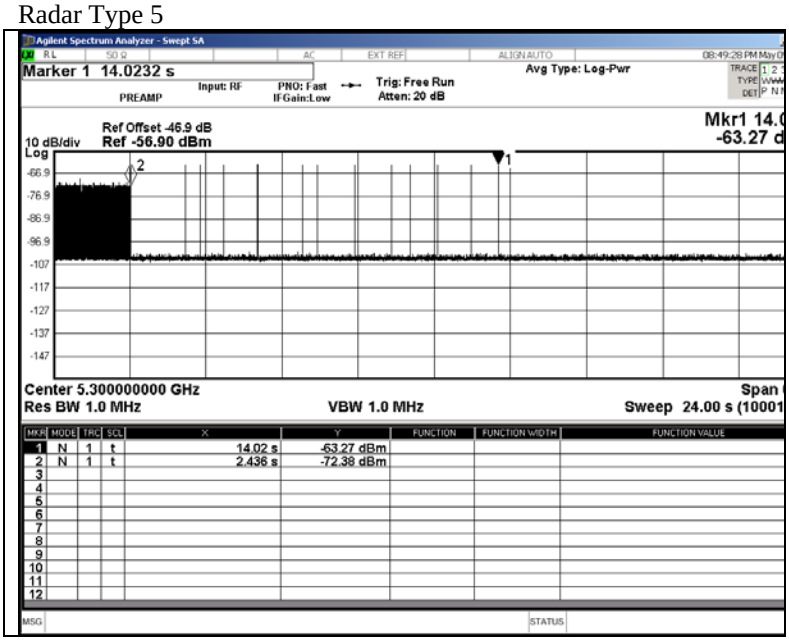
Radar Type 1



Marker 1: - End of Burst : 806.4 ms
Marker 2: - End of Transmission : 816.0 ms



Radar Type 5



Marker 1 : End of Burst **: 14200 ms**
Marker 2 : End of Transmission **: 2436ms**

6.4 Test result

Test result: Pass

Date : May 9, 2014 Test engineer : Kenichi Adachi

SECTION 7: In-Service Monitoring for Non-Occupancy Period

7.1 Operating environment

Test place : No.5 Shielded room
Temperature : 25deg.C
Humidity : 41%RH

7.2 Test Procedure

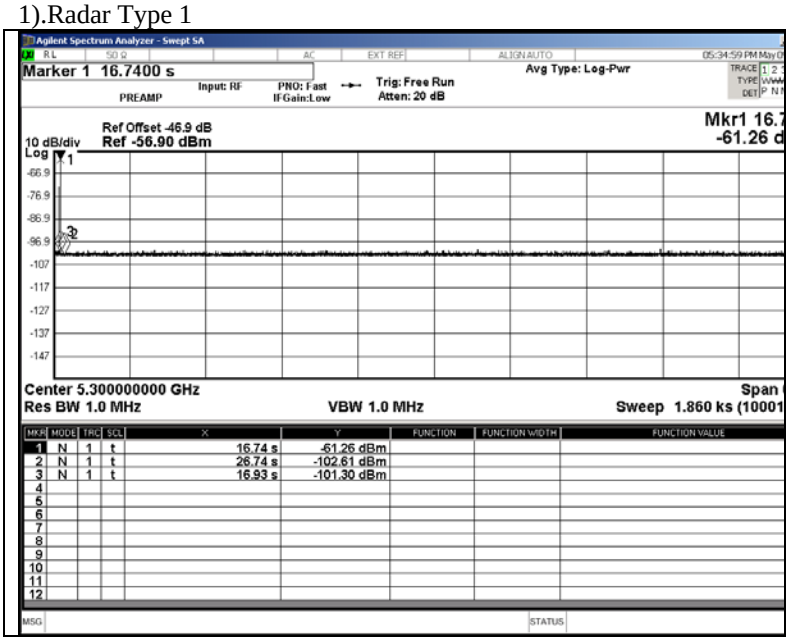
The following two tests are performed:

1). Transfer files from the Master Device to the Client Device on the tested channel during the entire period of the test. The Radar Waveform generator sends a Burst of pulses for one of the Radar Types 1-6 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.

2). Transfer files from the Master Device to the Client Device on the tested channel during the entire period of the test. Observe the transmissions of the EUT on the Operating Channel for duration greater than 30 minutes after the Master Device is shut off.

7.3 Test data

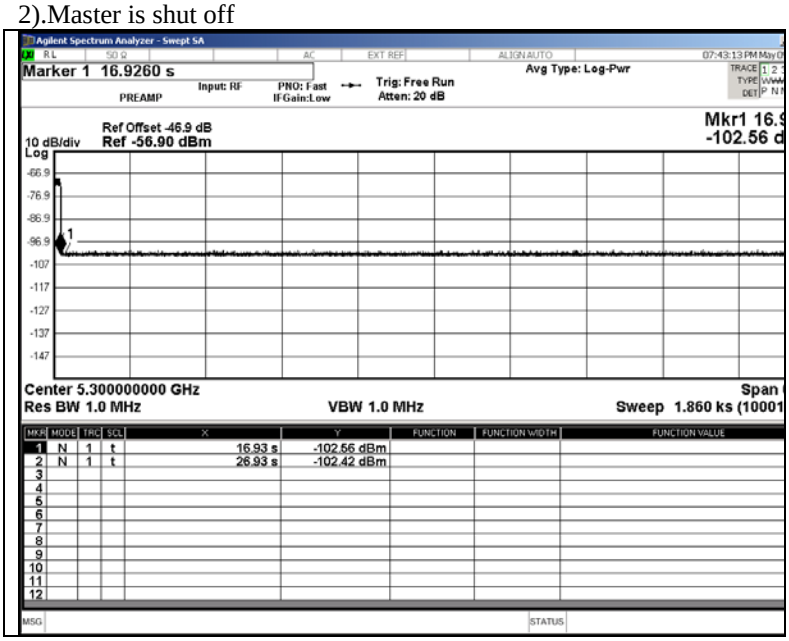
1).Radar Type 1



Marker 1 : End of Burst : 16.74 sec
Marker 2 : End of Burst +10sec : 26.74 sec

* Measurement non-occupancy period: 30.72 minutes or more (1860 [sec.]– 26.74 [sec.] = 1843.26[sec.] = 30.72 [min.])

2).Master is shut off



Marker 1 : End of Burst : 16.93 sec

* Measurement non-occupancy period: 30.72 minutes or more (1860 [sec.]– 16.93 [sec.] = 1843.07[sec.] = 30.72 [min.])

7.4 Test result

Test result: Pass

Date : May 9, 2014 Test engineer : Kenichi Adachi

APPENDIX 1: Data of DFS test

Parameter Data for Radar Type 5

Trial Number	Burst	Number of Pulses	Pulse Width (usec)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (usec)	Pulse 2-to-3 Spacing (usec)	Starting Location Within Interval (usec)
1	1	1	52	8			64
1	2	2	94	7	1535		680793
1	3	3	67	8	1851	1146	452538
1	4	1	50	18			791967
1	5	3	82	14	1511	1064	61930
1	6	2	98	12	1125		95345
1	7	1	76	6			434356
1	8	1	64	16			720311
1	9	1	79	13			728383
1	10	1	61	15			194181
1	11	3	73	16	1638	1497	569650
1	12	2	95	11	1811		434312
1	13	2	50	19	1491		613325
1	14	3	58	13	1254	1098	431579

APPENDIX 2: Test instruments

EMI Test Equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
SSA-01	Spectrum Analyzer	Agilent	N9010A-526	MY48031482	DFS	2014/04/07 * 12
SCC-G12	Coaxial Cable	Suhner	SUCOFLEX 102	30790/2	DFS	2014/03/13 * 12
SAT20-06	Attenuator	Weinschel Corp.	54A-20	31506	DFS	2014/04/22 * 12
SPD-01	Power Divider	Agilent	11636B	56998	DFS	2014/04/22 * 12
SCC-G32	Coaxial Cable	Junkosha	MWX241-02000KMSKMS	OCT-09-13-005	DFS	2013/10/21 * 12
SSG-01	Signal Generator	Agilent	E4438C	MY47271584	DFS	2014/03/03 * 12
SPSC-03	Power Splitters/Combiners	Mini-Circuits	ZFSC-2-10G+	-	DFS	2014/04/22 * 12
SAT20-02	Attenuator	Agilent	8493C-020	74891	DFS	2014/03/13 * 12
SAT20-05	Attenuator	Weinschel Corp.	54A-20	Y5649	DFS	2013/11/27 * 12
SCC-G11	Coaxial Cable	Suhner	SUCOFLEX 102	31595/2	DFS	2014/03/13 * 12
SPSS-04	Power sensor	Agilent	N1923A	MY5326009	DFS	2014/04/04 * 12
SCC-G24	Coaxial Cable	Suhner	141PE	-	DFS	2013/07/10 * 12
SCC-G25	Coaxial Cable	Suhner	141PE	-	DFS	2013/07/10 * 12
SCC-G26	Coaxial Cable	Suhner	141PE	-	DFS	2013/07/10 * 12
STM-G3	Terminator	Weinschel	M1459A	U6569	DFS	2013/07/31 * 12
SRE-104	Wireless LAN access point	Cisco Systems	AIR-AP1262N-A-K9	FTX1619E5EZ	DFS	
SOS-09	Humidity Indicator	A&D	AD-5681	4061484	DFS	2014/03/07 * 12

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