RADIO TEST REPORT

Test Report No. : 10512882H-C-R3

Applicant	:	**MITSUBISHI ELECTRIC CORPORATION SANDA WORKS**
Type of Equipment	:	**Blu-Ray Disc Player**
Model No.	:	**BD-1G**
FCC ID	:	**UJHBD1G**
Test regulation	:	**FCC Part 15 Subpart E: 2015**
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 above regulation.
4. The test results in this 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 NVLAP, NIST, or any agency of the Federal Government.
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. This report is a revised version of 10512882H-C-R2. 10512882H-C-R2 is replaced with this report.

Date of test: October 31 to November 11, 2014

Representative test engineer:
Kazuya Yoshioka
Engineer
Consumer Technology Division

Approved by:
Masanori Nishiyama
Manager
Consumer Technology Division

NVLAP LAB CODE: 200572-0

This laboratory is accredited by the NVLAP LAB CODE 200572-0, U.S.A. The tests reported herein have been performed in accordance with its terms of accreditation.
*As for the range of Accreditation in NVLAP, you may refer to the WEB address,
http://www.ul.com/japan/jpn/pages/services/emc/about/mark1/index.jsp#nvlap

UL Japan, Inc.
Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

REVISION HISTORY

Original Test Report No.: 10512882H-C

Revision	Test report No.	Date	Page revised	Contents
- (Original)	10512882H-C	December 11, 2014	-	-
1	10512882H-C-R1	March 9, 2015	P.1, 6	Update of FCC15 version
1	10512882H-C-R1	March 9, 2015	P.4	Addition of clock frequency (Radio part)
1	10512882H-C-R1	March 9, 2015	P.35, 36	Correction of note for test data
2	10512882H-C-R2	March 16, 2015	P.35, 36, 40, 41	Correction of test data
3	10512882H-C-R3	March 19, 2015	P.30	Correction of word “20dB Bandwidth” in test data

UL Japan, Inc.
Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

CONTENTS **PAGE**

SECTION 1: Customer information

Company Name	:	MITSUBISHI ELECTRIC CORPORATION SANDA WORKS
Address	:	2-3-33, Miwa, Sanda-city, Hyogo, 669-1513, Japan
Telephone Number	:	+81-79-559-3820
Facsimile Number	:	+81-79-559-3876
Contact Person	:	Yoshihisa Araki

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

2.1 Identification of E.U.T.

Type of Equipment	:	Blu-Ray Disc Player
Model No.	:	BD-1G
Serial No.	:	Refer to Clause 4.2
Rating	:	DC 12.0V
Receipt Date of Sample	:	October 11, 2014
Country of Mass-production	:	Thailand
Condition of EUT	:	Engineering prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT	:	No Modification by the test lab

2.2 Product description

General Specification

Clock frequency(ies) in the system	:	24.576MHz, 37.4MHz (Radio part)

Radio Specification

Radio Type : Transceiver
Power Supply (inner) : DC3.3V

Specification of Wireless LAN (IEEE802.11b/g/a/n-20/n-40/11ac-20/11ac-40/11ac-80)

Type of radio	**IEEE802.11b**	**IEEE802.11g**	**IEEE802.11a**	**IEEE802.11n (20 M band) / IEEE802.11ac (20 M band)**	**IEEE802.11n (40 M band) / IEEE802.11ac (40 M band)**	**IEEE802.11ac (80 M band)**
Frequency of operation	2412-2462MHz	2412-2462MHz	5180-5240MHz *1) 5745-5825MHz *1)	2412-2462MHz 5180-5240MHz *1) 5745-5825MHz *1)	5190-5230MHz *1) 5755-5795MHz *1)	5210MHz *1) 5775MHz *1)
Type of modulation	DSSS (CCK, DQPSK, DBPSK)	OFDM-CCK (64QAM, 16QAM, QPSK, BPSK)	OFDM (64QAM, 16QAM, QPSK, BPSK)			256QAM (MCS8, MCS9)
Channel spacing	5MHz		20MHz	2.4GHz band 5MHz 5GHz band 20MHz	40MHz	80MHz
Antenna type	Inverted F Antenna					
Antenna Gain	2.4GHz: -0.15dBi 5GHz: 5150-5350MHz :1.23dBi 5470-5875MHz :1.56dBi					
Antenna Connector type	U.FL-LP-066					

*1) 5180-5240MHz, 5190-5230MHz, 5210MHz, 5745-5825MHz, 5755-5795MHz, 5775MHz are applied for this test report.

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification	:	FCC Part 15 Subpart E: 2015, final revised on January 21, 2015
Title	:	FCC 47CFR Part15 Radio Frequency Device Subpart E Unlicensed National Information Infrastructure Devices Section 15.407 General technical requirements

* The revision on January 21, 2015 does not affect the test specification applied to the EUT.

3.2 Procedures and results

Item	Test Procedure	Specification	Worst margin	Results	Remarks
Conducted Emission	**FCC :**ANSI C63.4:2009	**FCC:** 15.407(b)(6) / 15.207	N/A	N/A *1)	-
	IC: RSS-Gen 8.8	**IC:** RSS-Gen 8.8			
26dB Emission Bandwidth	**FCC :**ANSI C63.4:2009, FCC KDB Publication Number 789033	**FCC :** 15.407(a)(1)(2)(3)	See data	N/A	Conducted
	IC: -	**IC:** -			
Maximum Conducted Output Power	**FCC :**ANSI C63.4:2009, FCC KDB Publication Number 789033	**FCC :** 15.407(a)(1)(2)(3)		Complied	Conducted
	IC: -	**IC:** RSS-210 A9.2(1)(2)(3)			
Maximum Power Spectral Density	**FCC :**ANSI C63.4:2009, FCC KDB Publication Number 789033	**FCC :** 15.407(a)(1)(2)(3)		Complied	Conducted
	IC: -	**IC:** RSS-210 A9.2(1)(2)(3)			
Spurious Emission Restricted Band Edge	**FCC:** ANSI C63.4:2009	**FCC :** 15.407(b), 15.205 and 15.209	0.1dB 5725.000MHz, PK, Vert.	Complied	Conducted / Radiated
	IC: -	**IC:** RSS-210 A.9.2(1)(2)(3)			
20dB Emission Bandwidth	**FCC :**ANSI C63.4:2009	**FCC :** 15.215(c)	See data	Complied	Conducted
6dB Emission Bandwidth	**FCC :**ANSI C63.4:2009	**FCC :** 15.407(e)	See data	Complied	Conducted

Note: UL Japan, Inc.'s EMI Work Procedures No. 13-EM-W0420 and 13-EM-W0422.
*DFS is not required in the W52 and W58 bands, and the EUT does not have DFS function.
99% Occupied Band Width is within intended transmission frequency band.
*1) The test is not applicable since the EUT is not the device that is designed to be connected to the public utility (AC) power line.

FCC 15.31 (e)
The EUT is a battery-operated device and test was performed with the full-charged battery voltage. 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.

3.3 Addition to standard

Item	Test Procedure	Specification	Worst margin	Results	Remarks
99% Occupied Band Width	RSS-Gen 6.6	RSS-210 A9.2 (1)(2)(3)	N/A	N/A	Conducted

Other than above, no addition, exclusion nor deviation has been made from the standard.

3.4 Uncertainty

EMI
The following uncertainties have been calculated to provide a confidence level of 95% using a coverage factor k=2.

Test room (semi-anechoic chamber)	Radiated emission						
	(3m*)(±dB)				(1m*)(±dB)		(0.5m*)(±dB)
	9kHz -30MHz	30MHz -300MHz	300MHz -1GHz	1GHz -10GHz	10GHz -18GHz	18GHz -26.5GHz	26.5GHz -40GHz
No.1	4.0dB	5.1dB	5.0dB	5.1dB	6.0dB	4.9dB	4.3dB
No.2	3.9dB	5.2dB	5.0dB	4.9dB	5.9dB	4.7dB	4.2dB
No.3	4.3dB	5.1dB	5.2dB	5.2dB	6.0dB	4.8dB	4.2dB
No.4	4.6dB	5.2dB	5.0dB	5.2dB	6.0dB	5.7dB	4.2dB

*3m/1m/0.5m = Measurement distance

Antenna terminal conducted emission and Power density (±dB)			Antenna terminal conducted emission (±dB)		Channel power (±dB)
Below 1GHz	1GHz-3GHz	3GHz-18GHz	18GHz-26.5GHz	26.5GHz-40GHz	
1.5dB	1.7dB	2.8dB	2.8dB	2.9dB	2.6dB

Radiated emission test(3m)
The data listed in this report meets the limits unless the uncertainty is taken into consideration.

3.5 Test Location

UL Japan, Inc. Ise EMC Lab. *NVLAP Lab. code: 200572-0
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999 Facsimile : +81 596 24 8124

	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms
No.1 semi-anechoic chamber	2973C-1	19.2 x 11.2 x 7.7m	7.0 x 6.0m	No.1 Power source room
No.2 semi-anechoic chamber	2973C-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 semi-anechoic chamber	2973C-3	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.3 Preparation room
No.3 shielded room	-	4.0 x 6.0 x 2.7m	N/A	-
No.4 semi-anechoic chamber	2973C-4	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.4 Preparation room
No.4 shielded room	-	4.0 x 6.0 x 2.7m	N/A	-
No.5 semi-anechoic chamber	-	6.0 x 6.0 x 3.9m	6.0 x 6.0m	-
No.6 shielded room	-	4.0 x 4.5 x 2.7m	4.0 x 4.5 m	-
No.6 measurement room	-	4.75 x 5.4 x 3.0m	4.75 x 4.15 m	-
No.7 shielded room	-	4.7 x 7.5 x 2.7m	4.7 x 7.5m	-
No.8 measurement room	-	3.1 x 5.0 x 2.7m	N/A	-
No.9 measurement room	-	8.8 x 4.6 x 2.8m	2.4 x 2.4m	-
No.11 measurement room	-	6.2 x 4.7 x 3.0m	4.8 x 4.6m	-

* Size of vertical conducting plane (for Conducted Emission test) : 2.0 x 2.0m for No.1, No.2, No.3, and No.4 semi-anechoic chambers and No.3 and No.4 shielded rooms.

3.6 Data of EMI, Test instruments, and Test set up

Refer to APPENDIX.

SECTION 4: Operation of E.U.T. during testing

4.1 Operating Modes

Test operating mode was determined as follows according to "Section 1 of 6 802.11 a/b/g/n testing- Managing Complex Regulatory Approvals - " of TCB Council Workshop October 2009 and also was judged the necessity of 802.11ac mode by the pre-test.

Operation channel was determined as follows according to "Section 11 of 13 New Rules Unlicensed National Information Infrastructure (U-NII) Bands" of TCB Council Workshop October 2014.

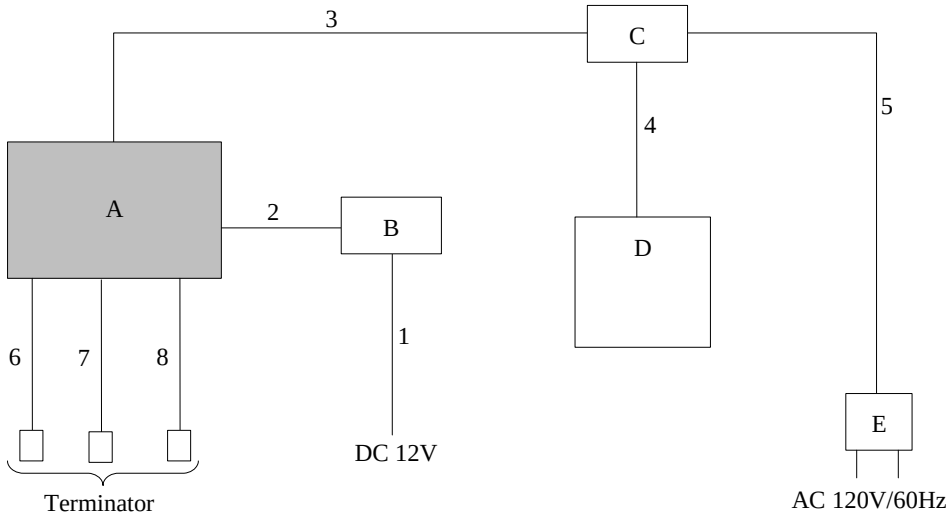
Mode	Remarks*
IEEE 802.11a (11a)	12Mbps, PN9
IEEE 802.11n 20MHz BW (11n-20)	MCS 1, PN9
IEEE 802.11ac 20MHz BW (11ac-20)	MCS 4, PN9
IEEE 802.11n 40MHz BW (11n-40)	MCS 1, PN9
IEEE 802.11ac 40MHz BW (11ac-40)	MCS 1, PN9
IEEE 802.11ac 80MHz BW (11ac-80)	MCS 0, PN9
*The worst condition was determined based on the test result of Maximum Conducted Output Power.	
*Power of the EUT was set by the software as follows; - Power Setting: default - Software: Same as production model *This setting of software is the worst case. Any conditions under the normal use do not exceed the condition of setting. In addition, end users cannot change the settings of the output power of the product.	

*The details of Operating mode(s)

Test Item	Operating Mode	Tested Frequency	
		Lower Band	Upper Band
26dB Emission Bandwidth, 99% Occupied Bandwidth, Maximum Conducted Output Power, Maximum Power Spectral Density	11a Tx 11n-20 Tx 11ac-20 Tx	5180MHz 5220MHz 5240MHz	5745MHz 5785MHz 5825MHz
	11n-40 Tx 11ac-40 Tx	5190MHz 5230MHz	5755MHz 5795MHz
	11ac-80 Tx	5210MHz	5775MHz
20dB Bandwidth	11a Tx 11n-20 Tx 11ac-20 Tx	5180MHz 5240MHz	5745MHz 5825MHz
	11n-40 Tx 11ac-40 Tx	5190MHz 5230MHz	5755MHz 5795MHz
	11ac-80 Tx	5210MHz	5775MHz
Radiated Spurious Emission	11n-20 Tx *1) 11ac-20 Tx	5180MHz 5220MHz 5240MHz	5745MHz 5785MHz 5825MHz
	11n-40 Tx 11ac-40 Tx	5190MHz 5230MHz	5755MHz 5795MHz
	11ac-80 Tx	5210MHz	5775MHz
Conducted Spurious Emission *2)	11ac-20 Tx	5240MHz	5825MHz
	11ac-40 Tx	5230MHz	5795MHz
	11ac-80 Tx	5210MHz	5775MHz
6dB Bandwidth	11a Tx 11n-20 Tx 11ac-20 Tx	-	5745MHz 5785MHz 5825MHz
	11n-40 Tx 11ac-40 Tx	-	5755MHz 5795MHz
	11ac-80 Tx	-	5775MHz

*1) Since 11a and 11n-20 have the same modulation method and no differences in transmitting specification, test was performed on the representative mode that had the highest peak output power.
*2) The test was performed on the mode as a representative, because it had the highest power at antenna terminal test.

4.2 Configuration and peripherals



* Cabling and setup 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	Blu-Ray Disc Player	BD-1G	6114155AE6100034 *1) 6114104AE6100012 *2)	MITSUBISHI ELECTRIC CORPORATION SANDA WORKS	EUT
B	Jig board	-	184	MITSUBISHI ELECTRIC CORPORATION SANDA WORKS	-
C	LVDS board	-	2	MITSUBISHI ELECTRIC CORPORATION SANDA WORKS	-
D	Display	HSD070PWW1	B0E010S2603414	HannStar	-
E	AC Adapter	STD-05030U	3	ADAPTER TEC	-

*1) Used for antenna terminal conducted tests
*2) Used for spurious emission test

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC Cable	3.0	Unshielded	Unshielded	-
2	Control and DC Cable	0.5	Unshielded	Unshielded	-
3	Control Cable	2.0	Shielded	Shielded	-
4	Flat Cable	0.15	Unshielded	Unshielded	-
5	DC Cable	1.8	Unshielded	Unshielded	-
6	USB Cable	1.7	Shielded	Shielded	-
7	HDMI Cable	1.0	Shielded	Shielded	-
8	Video Cable	1.0	Shielded	Shielded	-

SECTION 5: Radiated Spurious Emission and Band Edge Compliance

Test Procedure

EUT was placed on a urethane platform of nominal size, 1.0m by 1.5m, raised 0.8m above the conducting ground plane.
The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane.
The height of the measuring antenna varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field strength.
The measurements were made with the following detector function of the test receiver and the Spectrum analyzer (in linear mode).
The measurements were performed for both vertical and horizontal antenna polarization with the Test Receiver, or the Spectrum Analyzer.
The test was made with the detector (RBW/VBW) in the following table.
When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

Below 1GHz
The result also satisfied with the general limits specified in section 15.209(a).

Above 1GHz

Inside of restricted bands(Section 15.205):	Apply to limit in the Section 15.209(a).
Outside of the restricted bands:	Apply to limit 68.2dBuV/m(–27dBm e.i.r.p.*) in the Section 15.407(b)(1)(2)(3). Apply to limit 68.2dBuV/m(–27dBm e.i.r.p.*) or 78.2dBuV/m(-17dBm e.i.r.p.*) in the Section 15.407(b).
Restricted bandedge:	Apply to limit in the Section 15.209(a). Since this limit is severer than the limit of the inside of restricted bands.

*Electric Field Strength to e.i.r.p. Conversion

$$E = \frac{1000000\sqrt{30P}}{3} \text{ (uV/m)} \qquad \text{:P is the e.i.r.p. (Watts)}$$

Test Antennas are used as below;

Frequency	Below 30MHz	30MHz to 300MHz	300MHz to 1GHz	Above 1GHz
Antenna Type	Loop	Biconical	Logperiodic	Horn

Frequency	Below 1GHz	Above 1GHz	
Instrument used	Test Receiver	Spectrum Analyzer	
Detector	QP	PK	AV
IF Bandwidth	BW 120kHz(T/R)	RBW: 1MHz VBW: 3MHz	Method AD *1) RBW: 1MHz VBW: 3MHz Detector: Power Averaging (RMS)
Test Distance	3m	3m (below 10GHz), 1m*2) (above 10GHz), 0.5m*3) (above 26.5GHz)	

*1) The test method was also referred to KDB 789033 D02 General UNII Test Procedures New Rules v01 "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E (Issued on June 6, 2014)".
*2) Distance Factor: 20 x log (3.0m/1.0m) = 9.5dB
*3) Distance Factor: 20 x log (3.0m/0.5m) = 15.6dB

The test was made on EUT at the normal use position.

The test results and limit are rounded off to one decimal place, so some differences might be observed.

Measurement range : 30M-40GHz
Test data : APPENDIX
Test result : Pass

SECTION 6: Antenna Terminal Conducted Tests

Test Procedure

The tests were made with below setting connected to the antenna port with Spectrum Analyzer.

Test	Span	RBW	VBW	Sweep time	Detector	Trace	Instrument used and Test method
26dB Bandwidth	30MHz, 60MHz, 120MHz	Close to 1% of EBW	Greater than RBW	Auto	Peak	Max Hold	Spectrum Analyzer
99% Occupied Bandwidth	Enough width to display 20dB Bandwidth	Close to 1% of Span	Three times of RBW	Auto	Peak	Max Hold *1)	Spectrum Analyzer
20dB Bandwidth	40MHz, 80MHz, 160MHz	100kHz	300kHz	Auto	Peak	Max Hold	Spectrum Analyzer
6dB Bandwidth	40MHz, 80MHz, 160MHz	100kHz	300kHz	Auto	Peak	Max Hold	Spectrum Analyzer
Maximum Conducted Output Power	-	-	-	Auto	Averaging	-	Power Meter (Sensor: 80MHz BW) (Method PM-G)
Maximum Power Spectral Density	40MHz, 80MHz, 160MHz	1MHz 470kHz *2)	3MHz	Auto	Sample Power Averaging (200 times)	Clear Write	Spectrum Analyzer method 2
Conducted Spurious Emission*3)	9kHz-150kHz	200Hz	620Hz	Auto	Peak	Max Hold	Spectrum Analyzer
	150kHz-30MHz	9.1kHz	27kHz				

*The test method was also referred to KDB 789033 D02 General UNII Test Procedures New Rules v01 "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E (Issued on June 6, 2014)" and KDB644545 D03 Guidance for IEEE 802.11ac v01 "Guidelines for IEEE Std 802.11ac ™ DEVICES EMISSION TESTING (Issued on August 14, 2014)".

*1) The measurement was performed with Max Hold since the duty cycle was not 100%.
*2) FCC standard says that RBW is set to be 500kHz for 5.725-5850GHz, but it is not possible with spectrum analyzer, so 10log(500kHz/470kHz) was added to the test result.
*3) In the frequency range below 30MHz, RBW was narrowed to separate the noise contents. Then, wide-band noise near the limit was checked separately, however the noise was not detected as shown in the chart.(9kHz-150kHz:RBW=200Hz, 150kHz-30MHz:RBW=9.1kHz)

The test results and limit are rounded off to two decimals place, so some differences might be observed.

Test data : APPENDIX
Test result : Pass

APPENDIX 1: Data of EMI test

26dB Emission Bandwidth and 99% Occupied Bandwidth

Test place	Ise EMC Lab. No.3 Measurement Room
Report No.	10512882H
Date	10/31/2014
Temperature/ Humidity	24deg. C / 61% RH
Engineer	Satofumi Matsuyama
Mode	11a/n-20/n-40 Tx

11a

Frequency [MHz]	26dB Emission Bandwidth [MHz]	99% Occupied Bandwidth [MHz]	Limit [MHz]
5180	21.456	16.8700	-
5220	21.303	16.8588	-
5240	21.446	16.8961	-
5745	21.693	16.8534	-
5785	21.452	16.9544	-
5825	21.501	16.8995	-

11n20

Frequency [MHz]	26dB Emission Bandwidth [MHz]	99% Occupied Bandwidth [MHz]	Limit [MHz]
5180	21.611	17.9851	-
5220	21.416	17.9632	-
5240	21.491	18.0084	-
5745	21.476	18.0310	-
5785	21.703	17.9264	-
5825	21.505	17.9421	-

11n40

Frequency [MHz]	26dB Emission Bandwidth [MHz]	99% Occupied Bandwidth [MHz]	Limit [MHz]
5190	40.445	36.3521	-
5230	40.234	36.2991	-
5755	39.899	36.2909	-
5795	39.632	36.3000	-

26dB Emission Bandwidth and 99% Occupied Bandwidth

Test place	Ise EMC Lab. No.3 Measurement Room
Report No.	10512882H
Date	10/31/2014
Temperature/ Humidity	24deg. C / 61% RH
Engineer	Satofumi Matsuyama
Mode	11ac-20/ac-40/ac-80 Tx

11ac20

Frequency [MHz]	26dB Emission Bandwidth [MHz]	99% Occupied Bandwidth [MHz]	Limit [MHz]
5180	21.694	17.9097	-
5220	21.430	17.8980	-
5240	21.250	17.8879	-
5745	21.531	17.9827	-
5785	21.448	17.9072	-
5825	21.472	17.9752	-

11ac40

Frequency [MHz]	26dB Emission Bandwidth [MHz]	99% Occupied Bandwidth [MHz]	Limit [MHz]
5190	40.343	36.3423	-
5230	40.140	36.4127	-
5755	39.821	36.3155	-
5795	39.876	36.3568	-

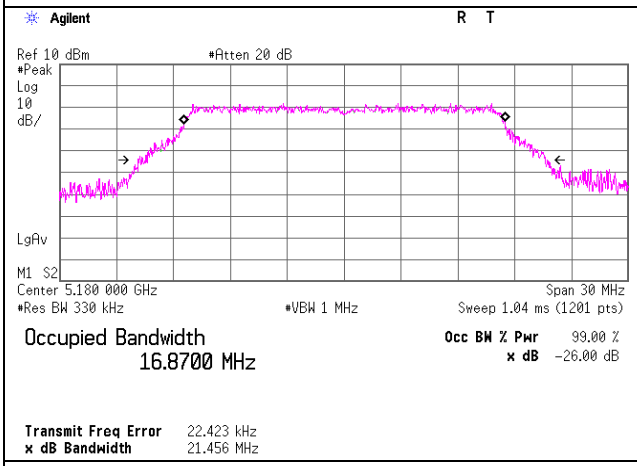
11ac80

Frequency [MHz]	26dB Emission Bandwidth [MHz]	99% Occupied Bandwidth [MHz]	Limit [MHz]
5210	81.541	75.7397	-
5775	81.374	75.8329	-

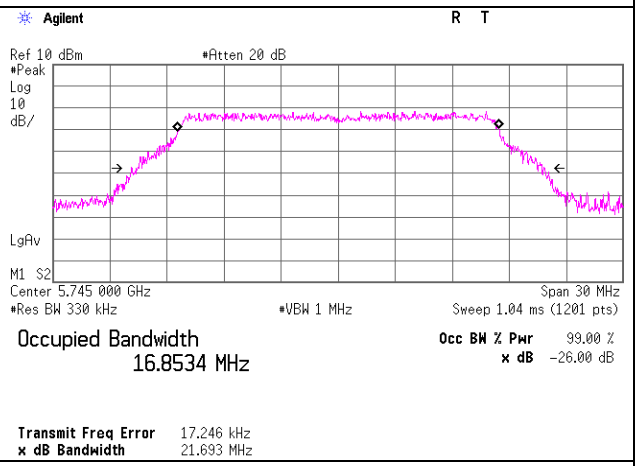
26dB Emission Bandwidth and 99% Occupied Bandwidth

11a

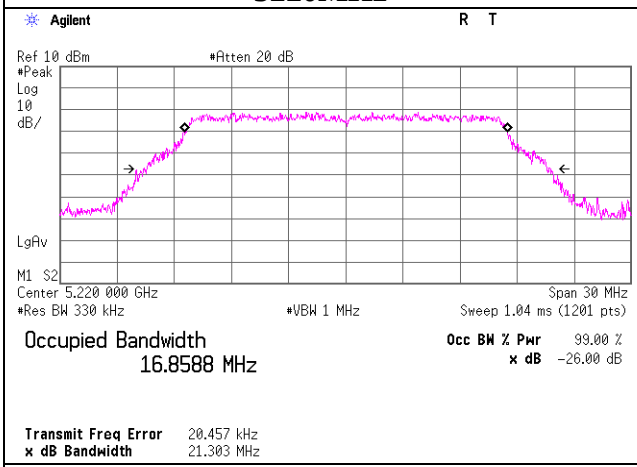
5180MHz



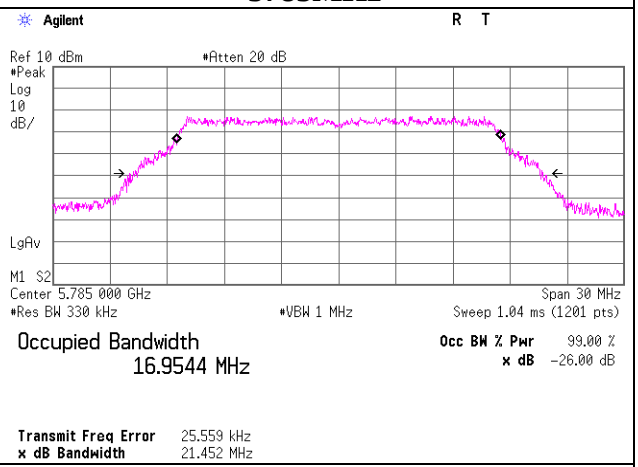
5745MHz



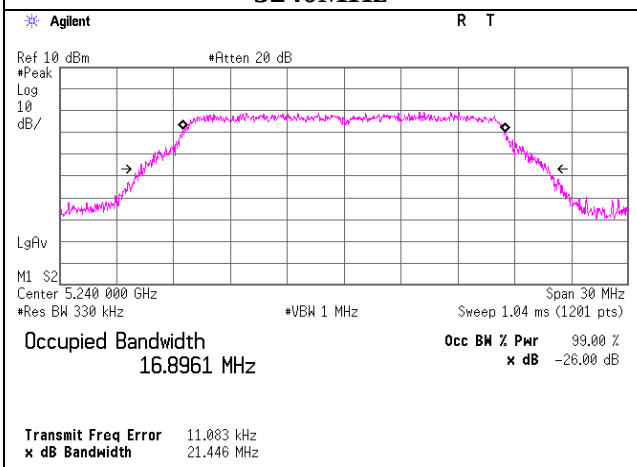
5220MHz



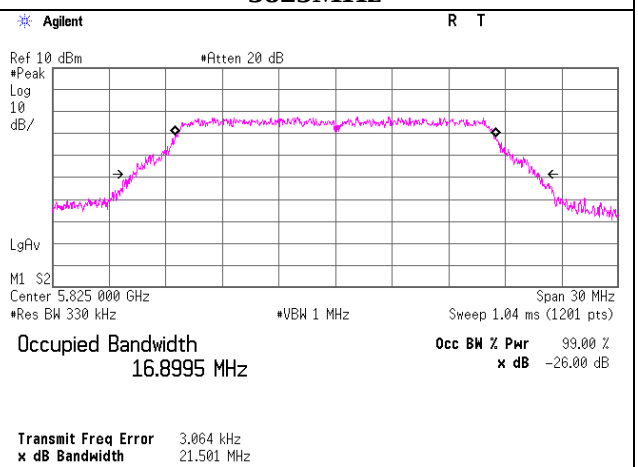
5785MHz



5240MHz



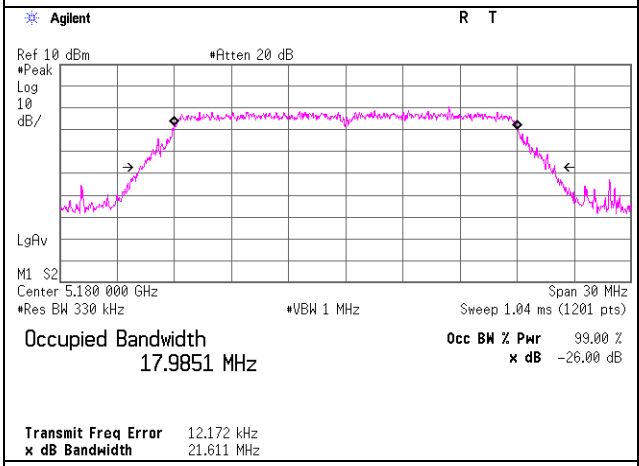
5825MHz



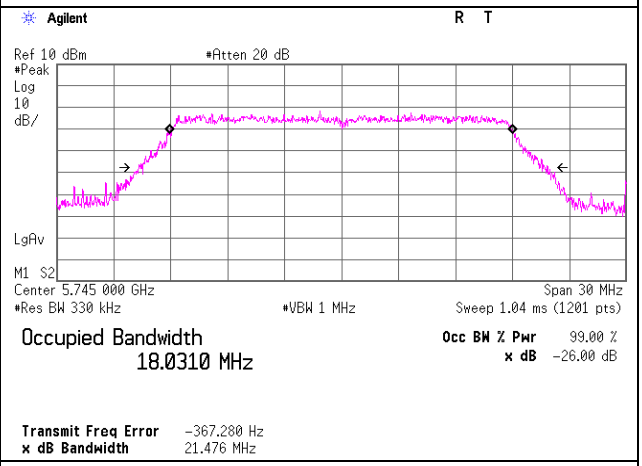
26dB Emission Bandwidth and 99% Occupied Bandwidth

11n-20

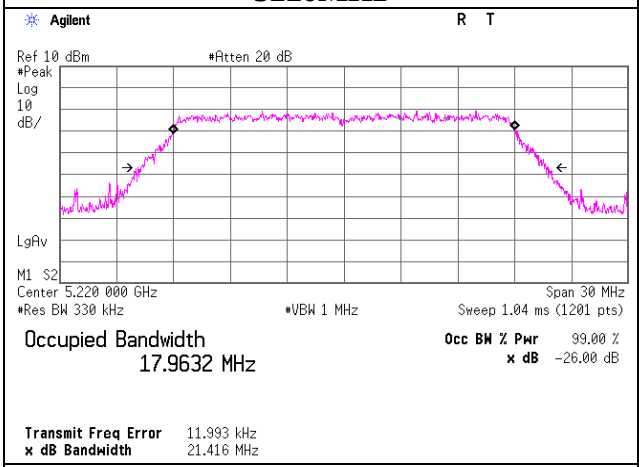
5180MHz



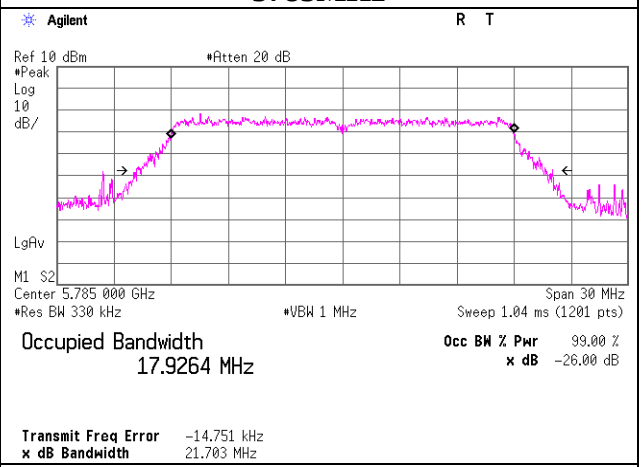
5745MHz



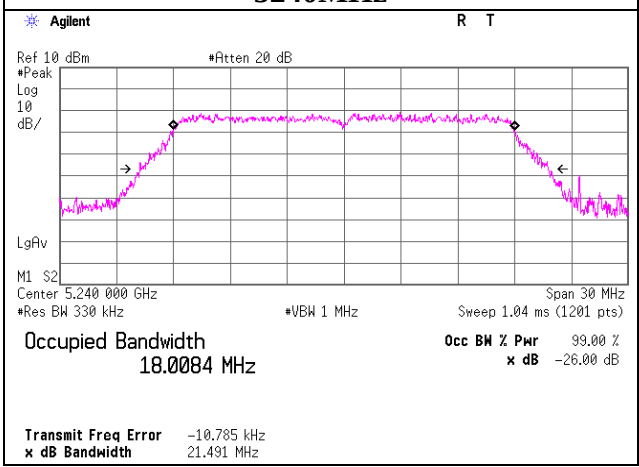
5220MHz



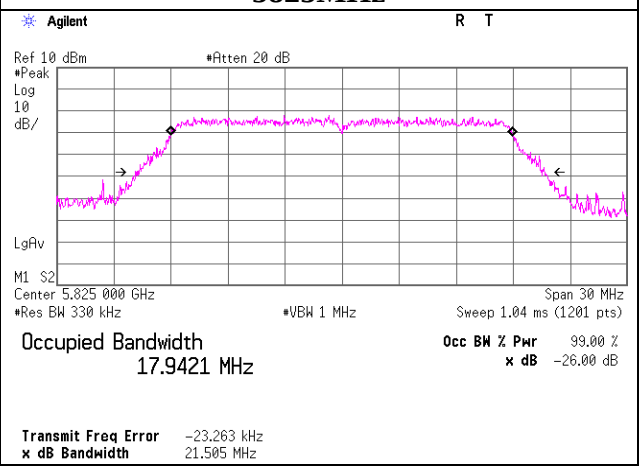
5785MHz



5240MHz



5825MHz

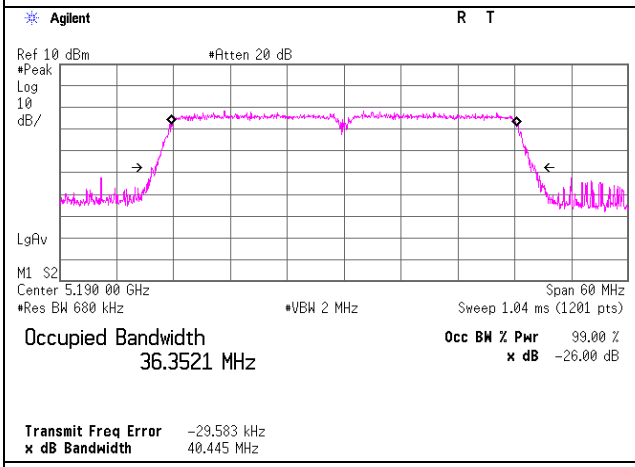


UL Japan, Inc.
Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

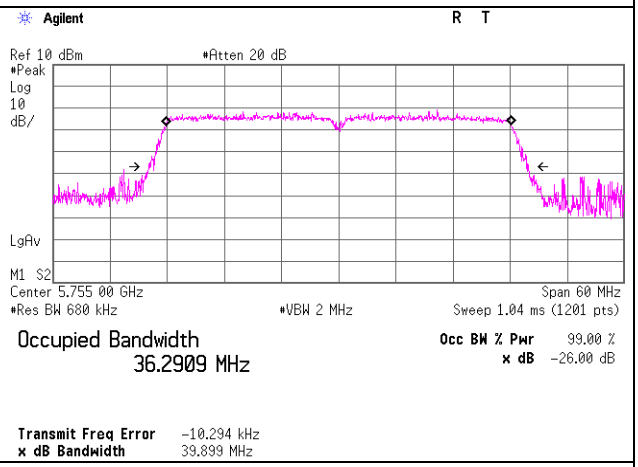
26dB Emission Bandwidth and 99% Occupied Bandwidth

11n-40

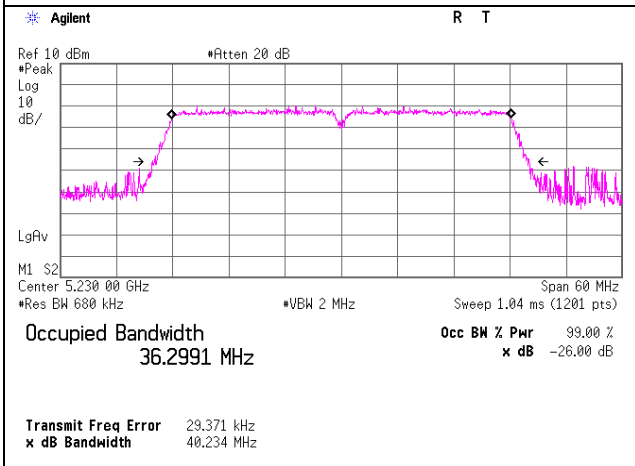
5190MHz



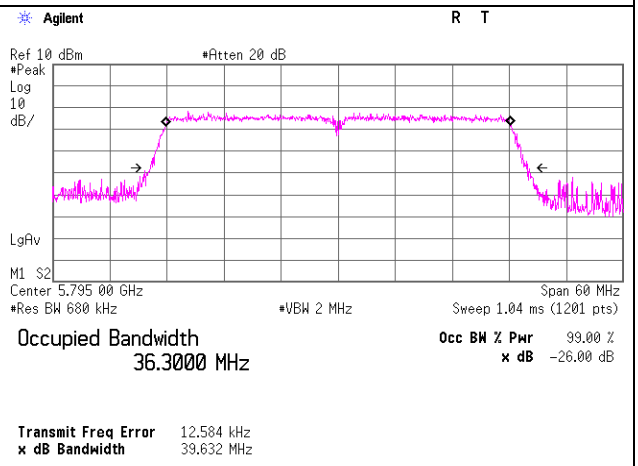
5755MHz



5230MHz



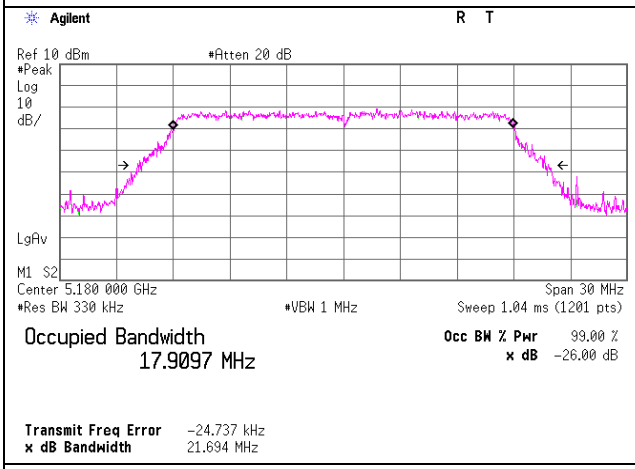
5795MHz



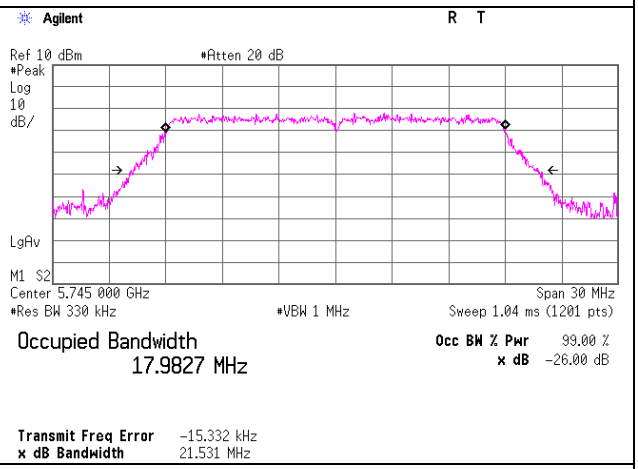
26dB Emission Bandwidth and 99% Occupied Bandwidth

11ac-20

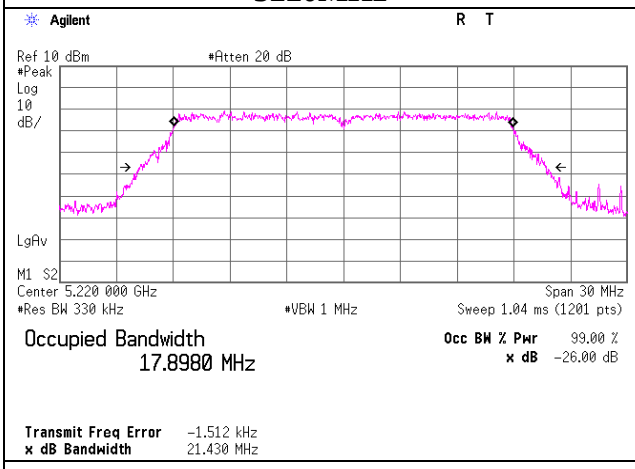
5180MHz



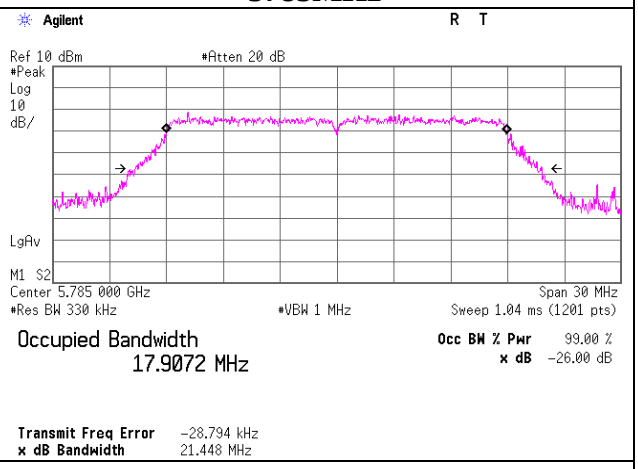
5745MHz



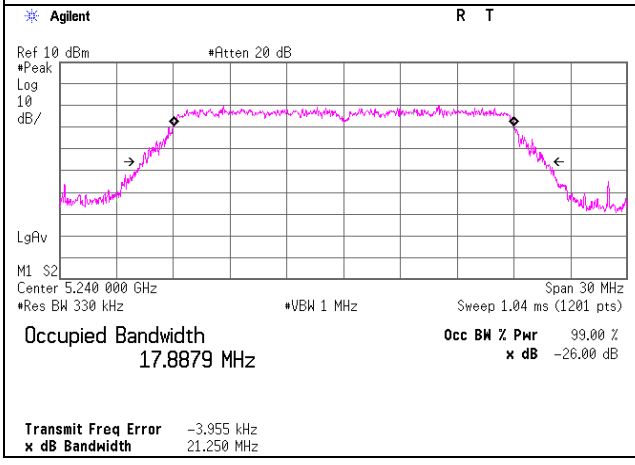
5220MHz



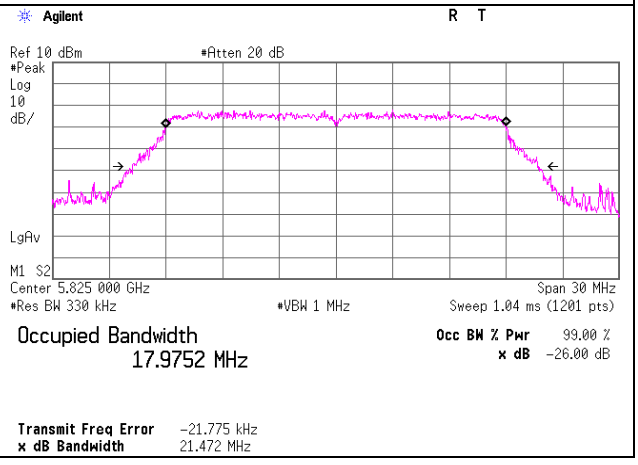
5785MHz



5240MHz



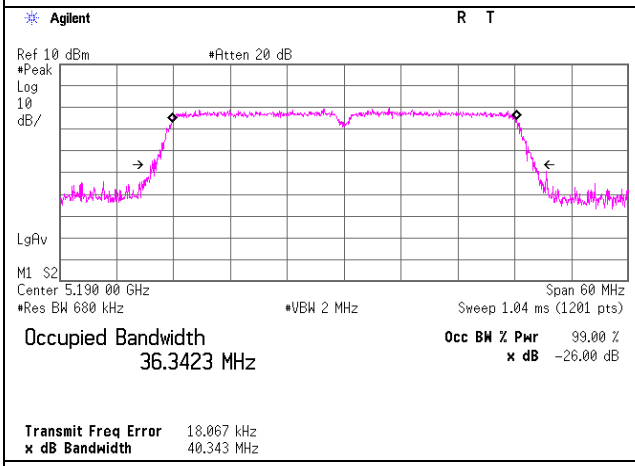
5825MHz



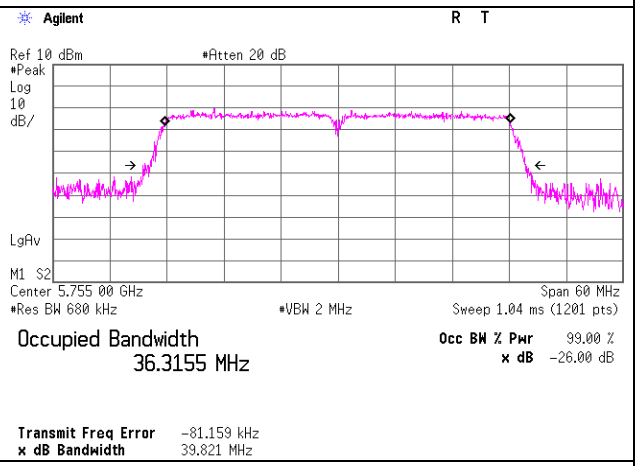
26dB Emission Bandwidth and 99% Occupied Bandwidth

11ac-40

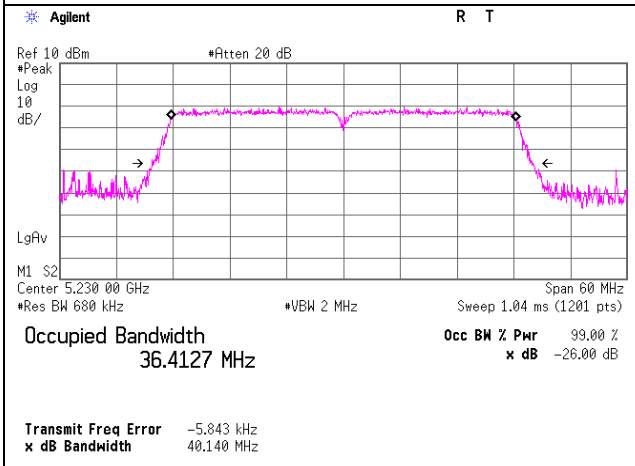
5190MHz



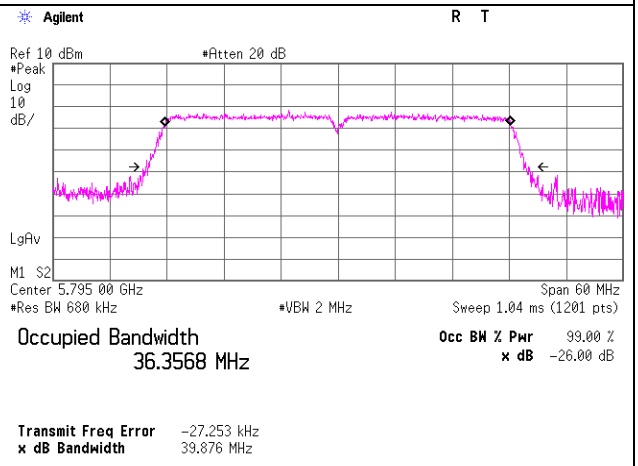
5755MHz



5230MHz



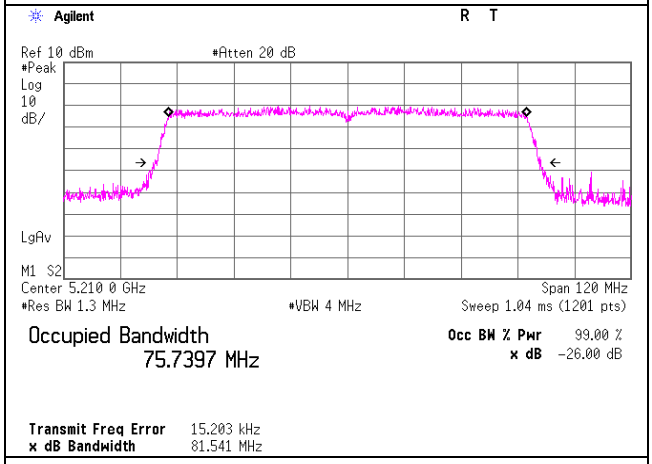
5795MHz



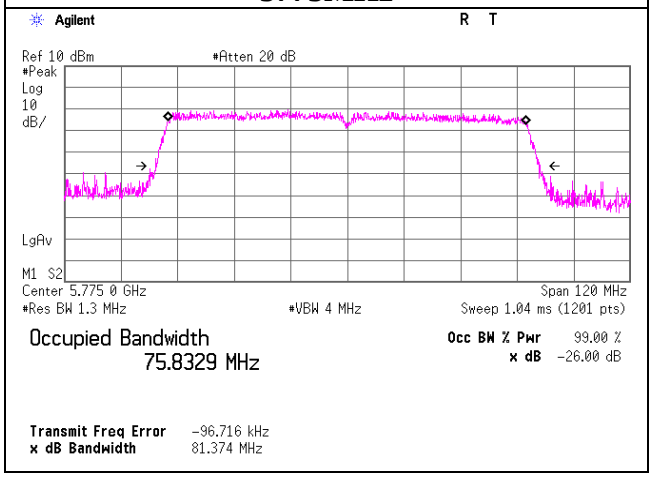
26dB Emission Bandwidth and 99% Occupied Bandwidth

11ac-80

5210MHz



5775MHz



20dB Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10512882H
Date	11/07/2014
Temperature/ Humidity	22deg. C / 45% RH
Engineer	Kazuya Yoshioka
Mode	Tx

11a

Frequency [MHz]	20dB Bandwidth [MHz]	Limit [MHz]
5180	17.831	-
5240	17.805	-
5745	17.786	-
5825	17.961	-

11n-20

Frequency [MHz]	20dB Bandwidth [MHz]	Limit [MHz]
5180	19.383	-
5240	18.844	-
5745	19.416	-
5825	19.123	-

11ac-20

Frequency [MHz]	20dB Bandwidth [MHz]	Limit [MHz]
5180	18.958	-
5240	19.310	-
5745	18.990	-
5825	19.292	-

11n-40

Frequency [MHz]	20dB Bandwidth [MHz]	Limit [MHz]
5190	37.519	-
5230	37.559	-
5755	37.496	-
5795	37.441	-

11ac-40

Frequency [MHz]	20dB Bandwidth [MHz]	Limit [MHz]
5190	37.638	-
5230	37.625	-
5755	37.694	-
5795	37.636	-

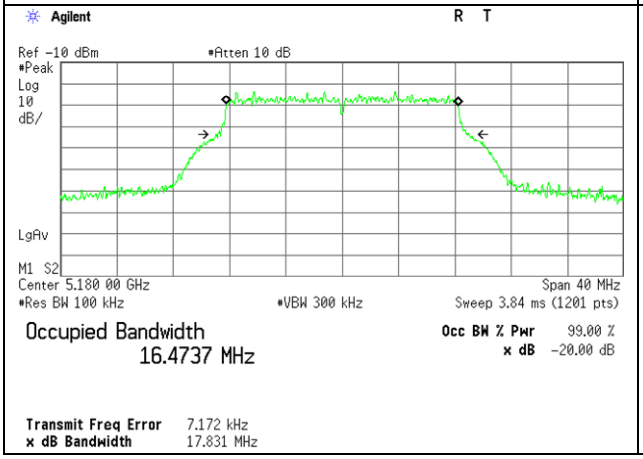
11ac-80

Frequency [MHz]	20dB Bandwidth [MHz]	Limit [MHz]
5210	77.475	-
5775	77.509	-

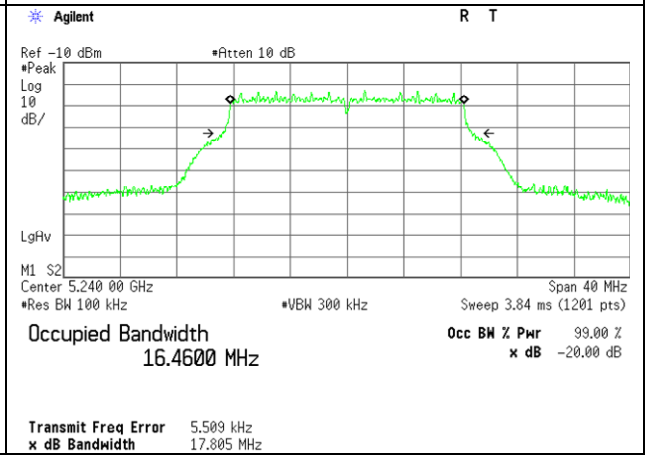
20dB Bandwidth

11a

5180MHz

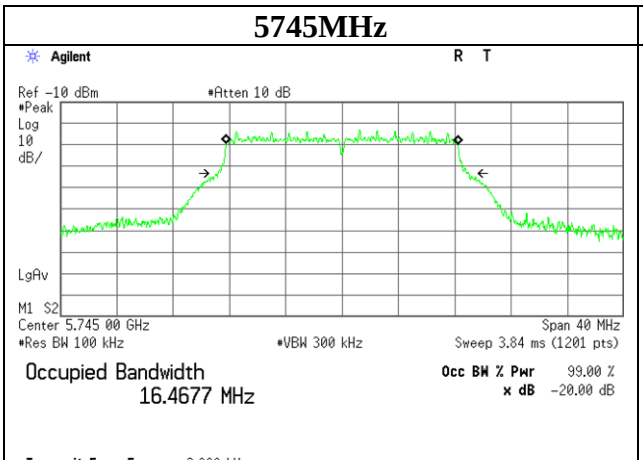


5240MHz

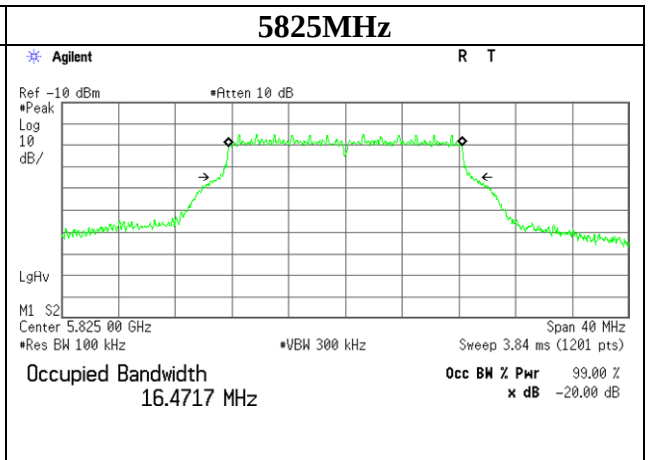


11a

5745MHz



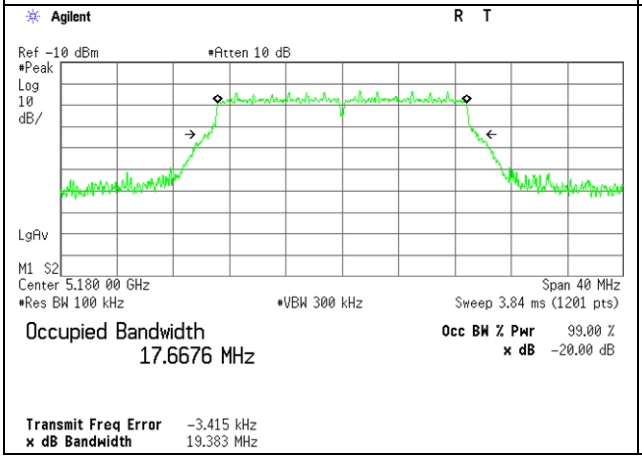
5825MHz



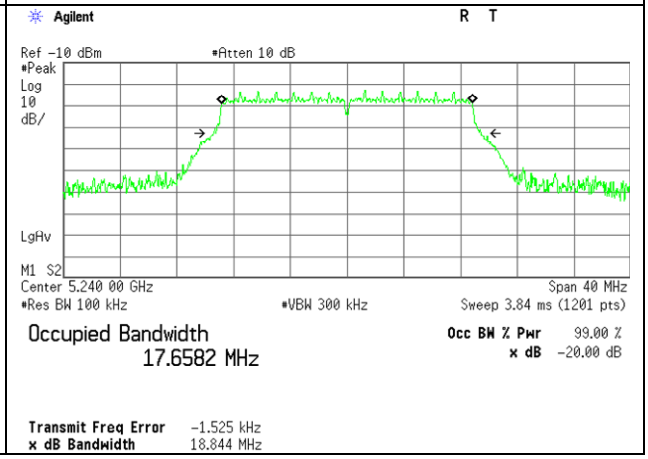
20dB Bandwidth

11n-20

5180MHz

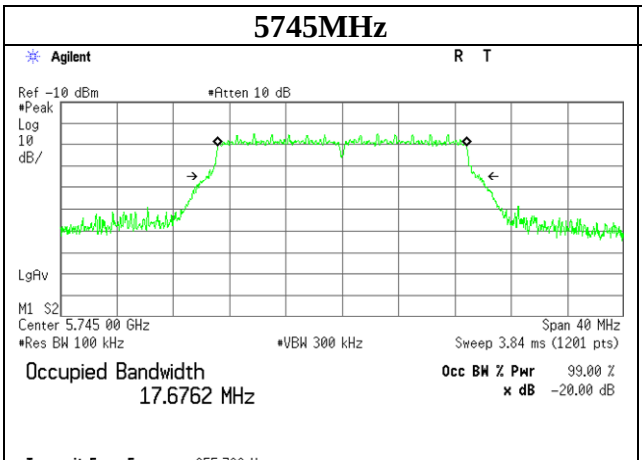


5240MHz

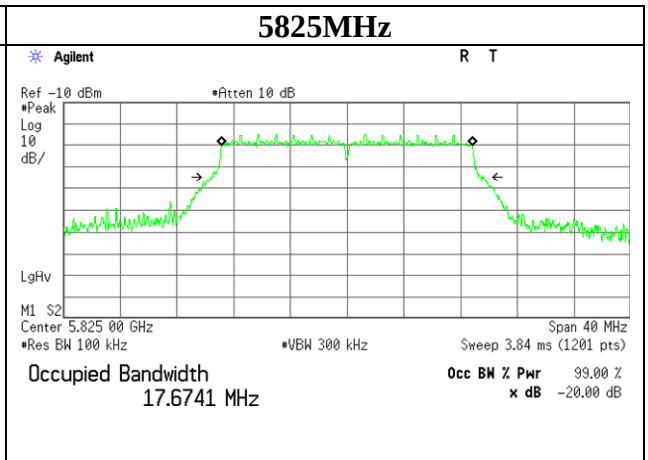


11n-20

5745MHz



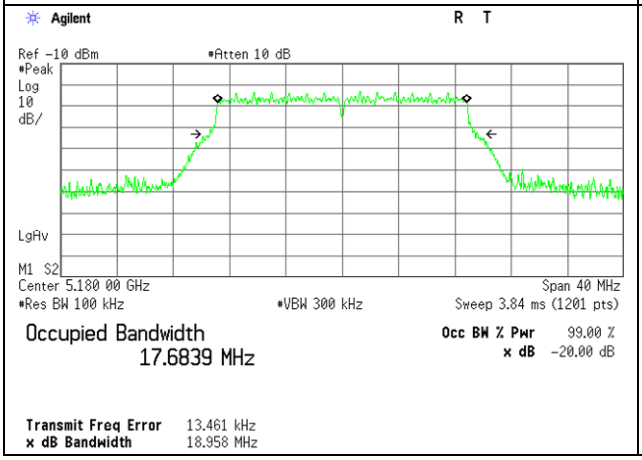
5825MHz



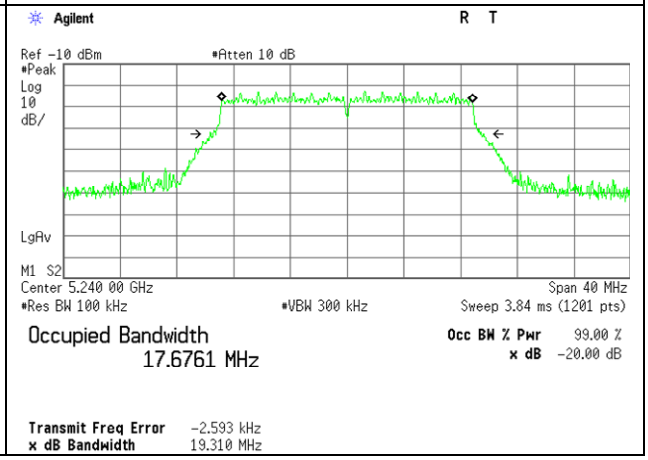
20dB Bandwidth

11ac-20

5180MHz

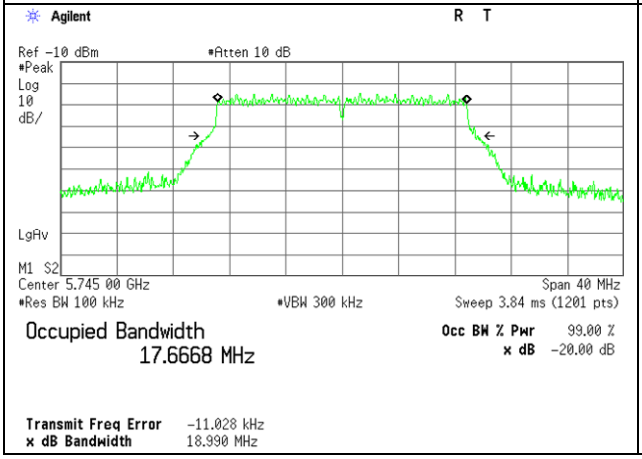


5240MHz

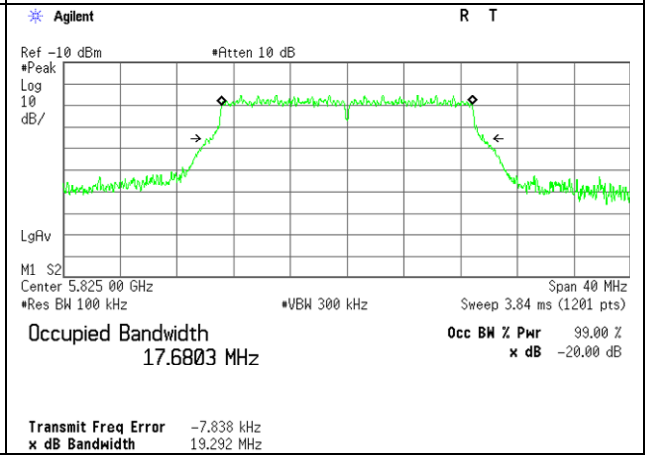


11ac-20

5745MHz



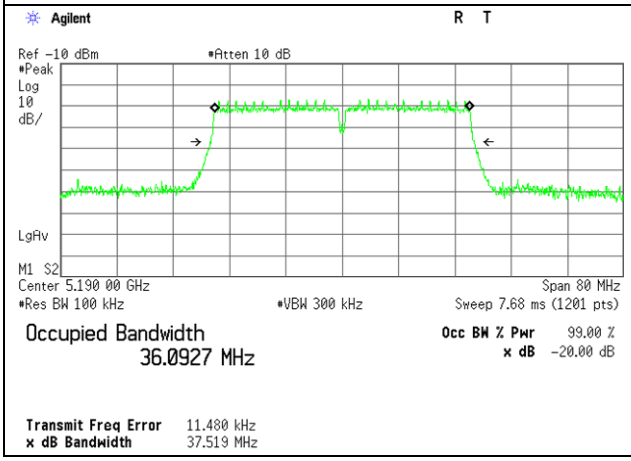
5825MHz



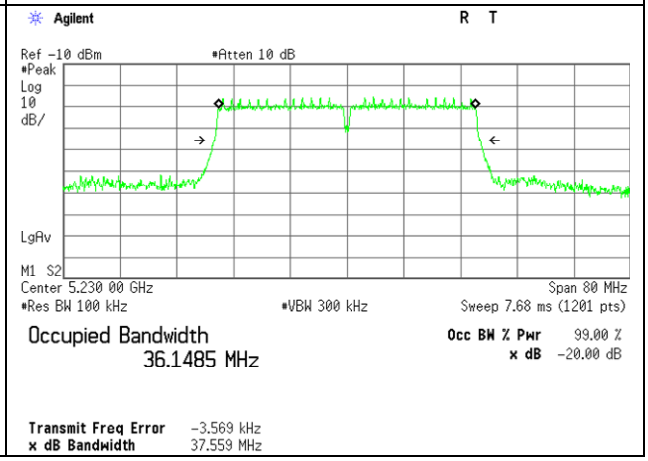
20dB Bandwidth

11n-40

5190MHz

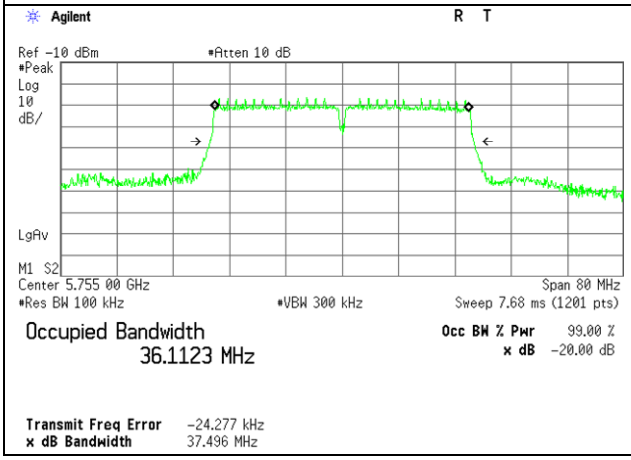


5230MHz

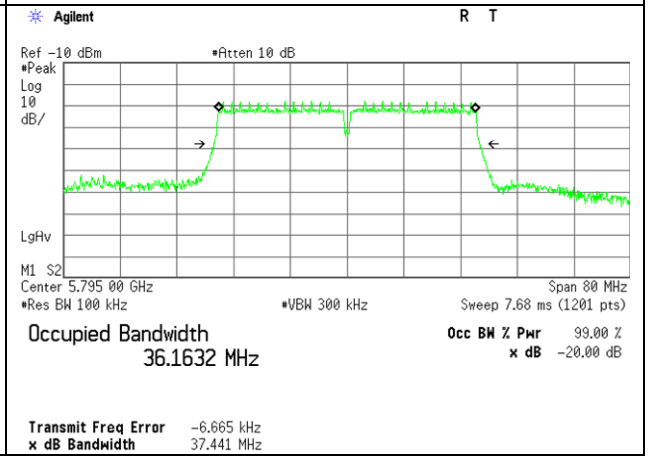


11n-40

5755MHz



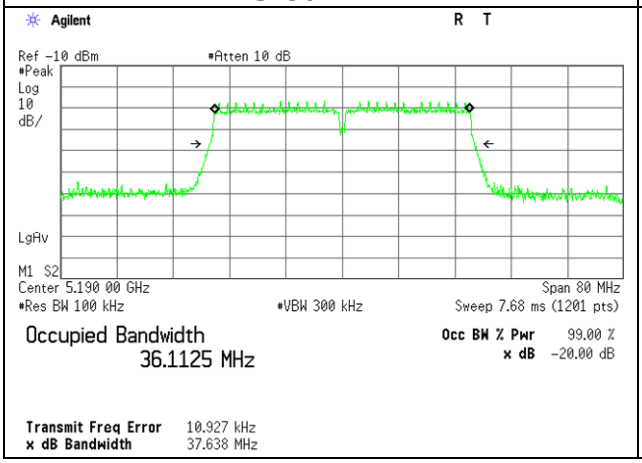
5795MHz



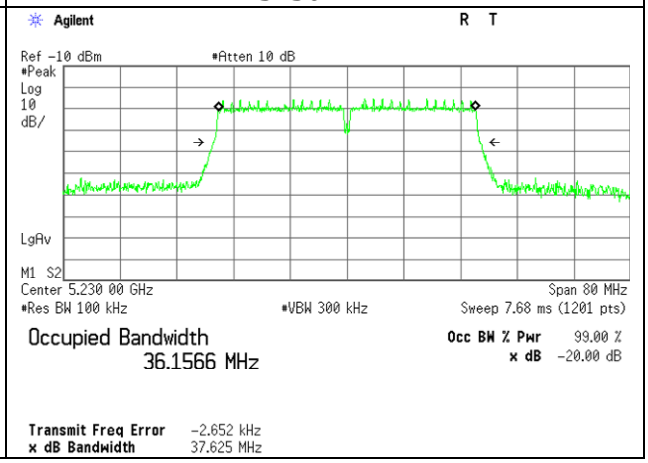
20dB Bandwidth

11ac-40

5190MHz

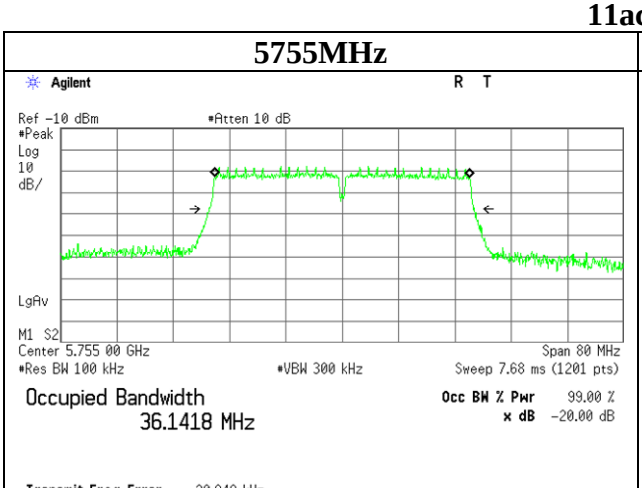


5230MHz

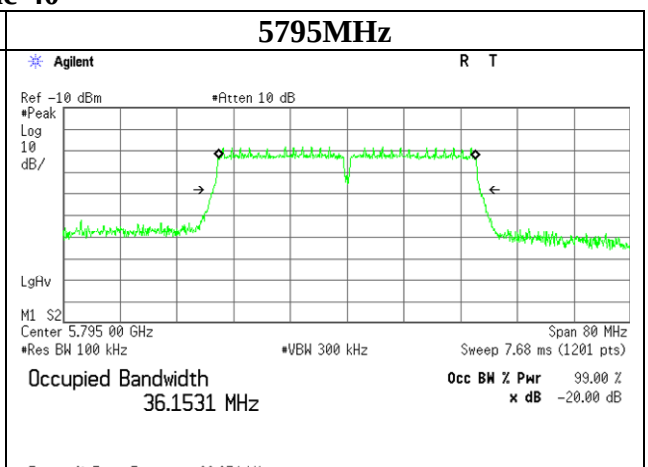


11ac-40

5755MHz

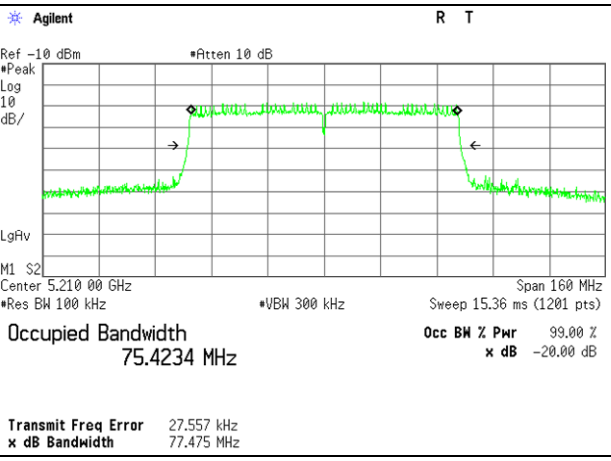
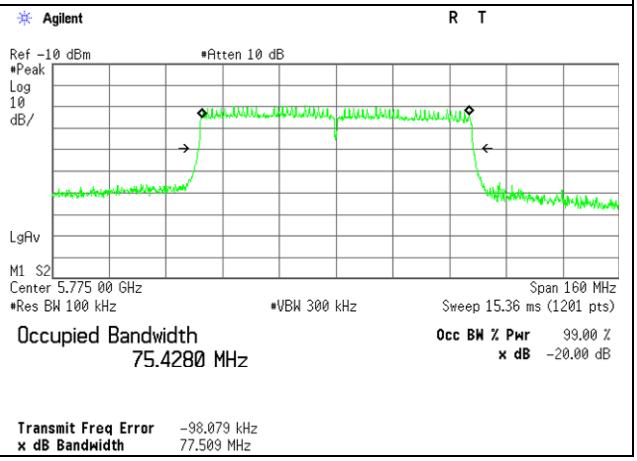


5795MHz



20dB Bandwidth

11ac-80

5210MHz	5775MHz
	

6dB Bandwidth

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10512882H
Date	11/07/2014
Temperature/ Humidity	22deg. C / 45% RH
Engineer	Kazuya Yoshioka
Mode	Tx

11a

Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
5745	16.439	> 500
5785	16.421	> 500
5825	16.438	> 500

11n-20

Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
5745	17.685	> 500
5785	17.677	> 500
5825	17.692	> 500

11ac-20

Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
5745	17.758	> 500
5785	17.716	> 500
5825	17.687	> 500

11n-40

Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
5755	36.382	> 500
5795	36.400	> 500

11ac-40

Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
5755	36.419	> 500
5795	36.449	> 500

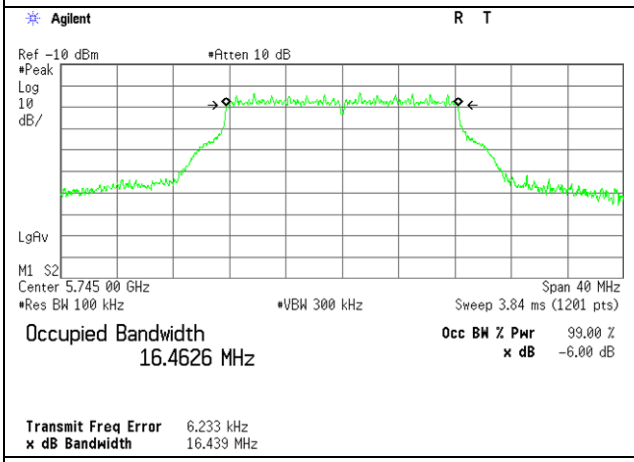
11ac-80

Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
5775	75.784	> 500

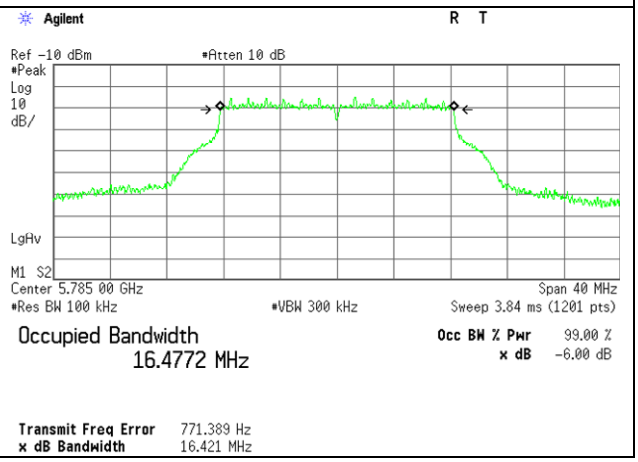
6dB Bandwidth

11a

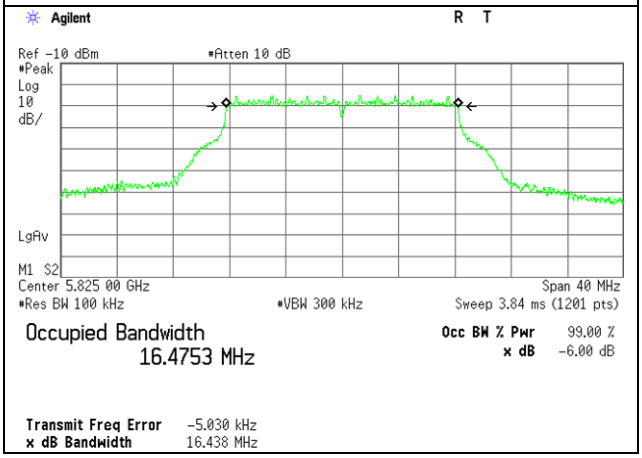
5745MHz



5785MHz



5825MHZ

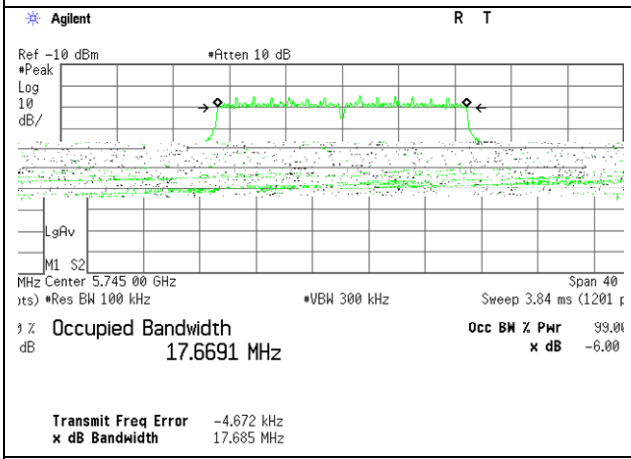


UL Japan, Inc.
Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

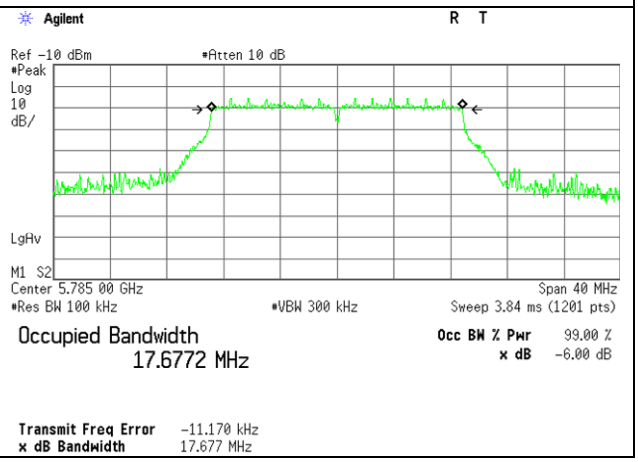
6dB Bandwidth

11n-20

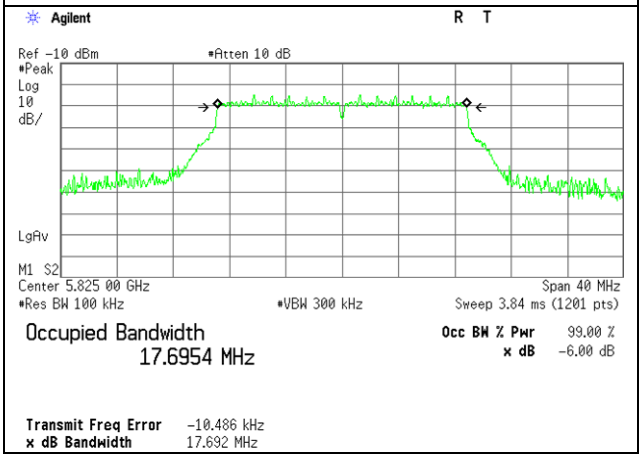
5745MHz



5785MHz



5825MHZ

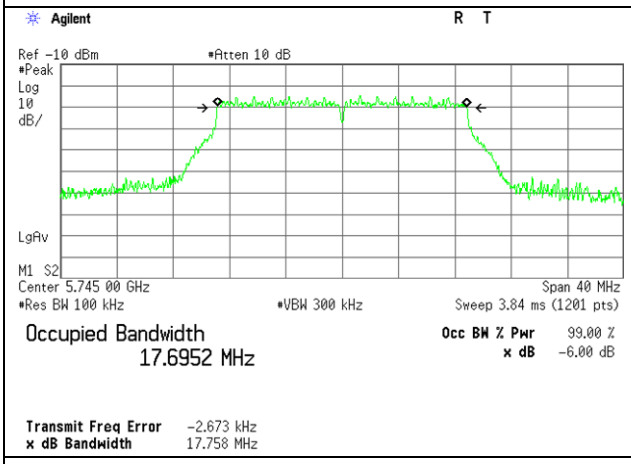


UL Japan, Inc.
Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

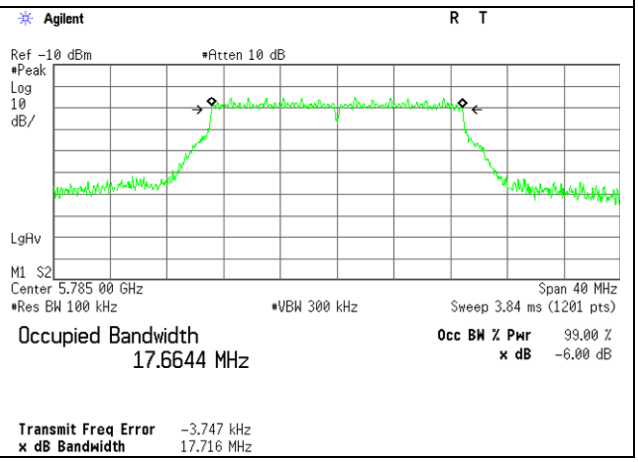
6dB Bandwidth

11ac-20

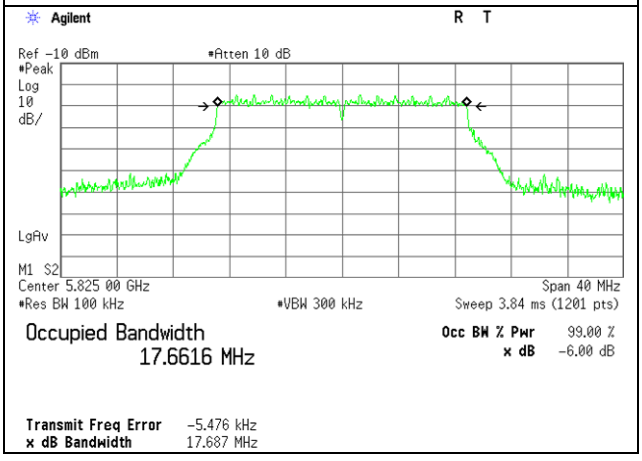
5745MHz



5785MHz



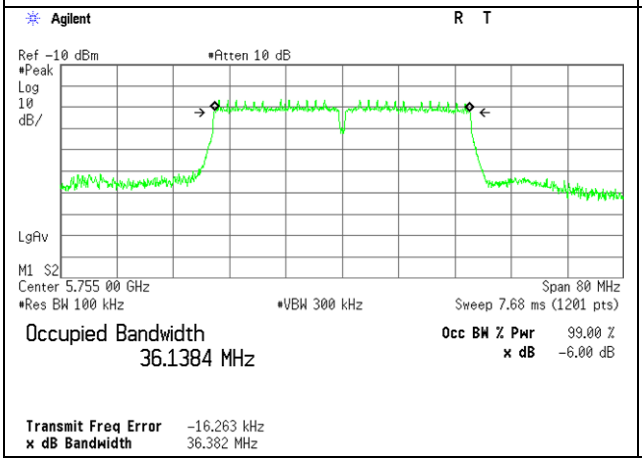
5825MHZ



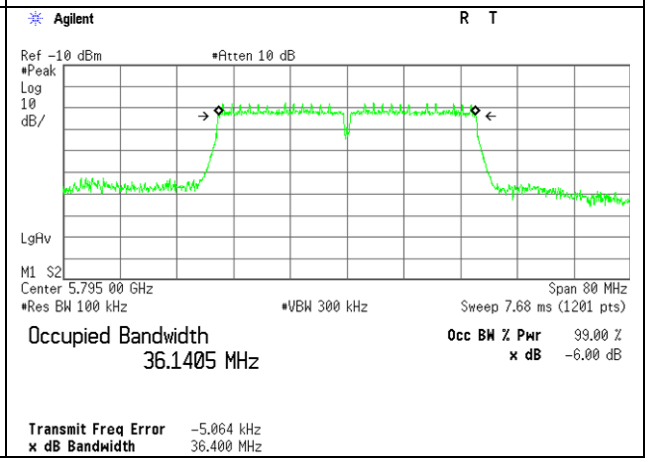
6dB Bandwidth

11n-40

5755MHz

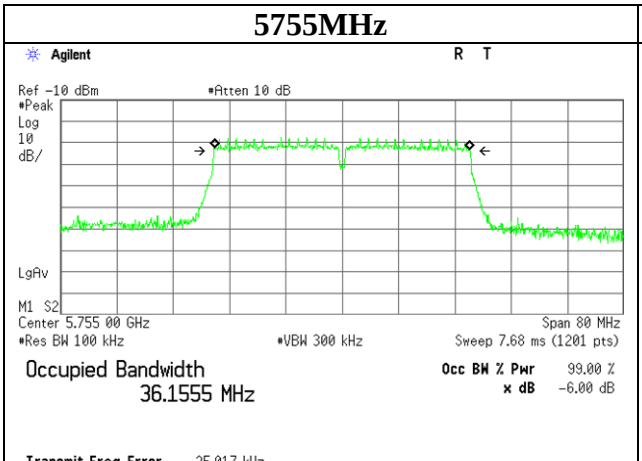


5795MHz

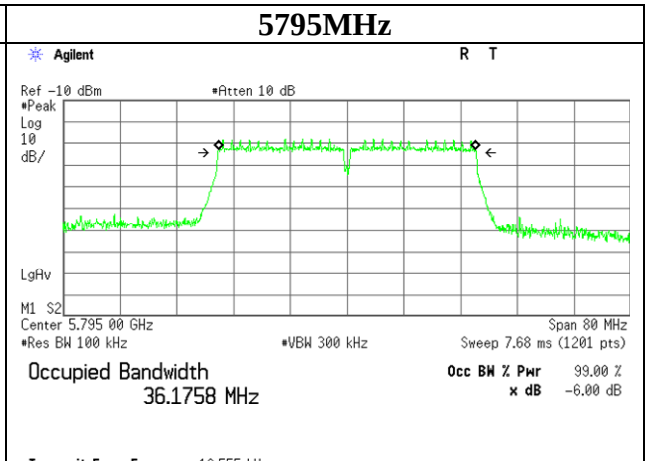


11ac-40

5755MHz

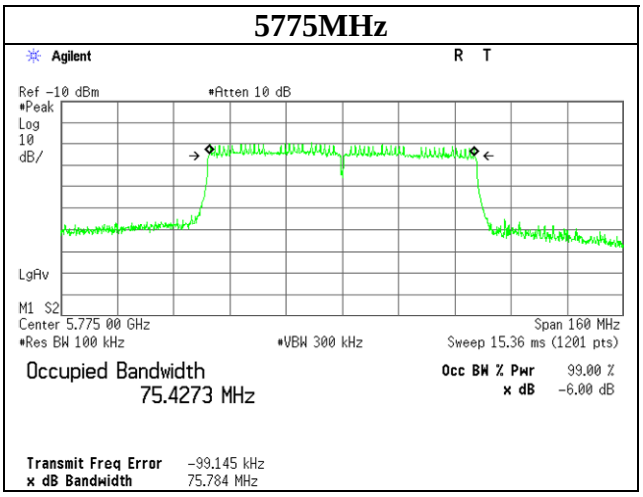


5795MHz



11ac-80

5775MHz



UL Japan, Inc.
Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

Maximum Conducted Output Power

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10512882H
Date	11/06/2014
Temperature/ Humidity	21deg. C / 41% RH
Engineer	Kazuya Yoshioka
Mode	11a/n-20/ac-20 Tx

11a

Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result (Cond.) [dBm]	Result (e.i.r.p.) [dBm]	Limit (Cond.) [dBm]	Limit (e.i.r.p.) [dBm]	Margin (Cond.) [dB]	Margin (e.i.r.p.) [dB]
5180.0	-10.43	1.00	19.99	1.23	10.56	11.79	23.97	-	13.41	-
5220.0	-10.60	1.00	19.99	1.23	10.39	11.62	23.97	-	13.58	-
5240.0	-10.54	1.00	19.99	1.23	10.45	11.68	23.97	-	13.52	-
5745.0	-11.28	1.00	19.99	1.56	9.71	11.27	30.00	-	20.29	-
5785.0	-11.42	1.00	19.99	1.56	9.57	11.13	30.00	-	20.43	-
5825.0	-11.40	1.00	19.99	1.56	9.59	11.15	30.00	-	20.41	-

Result(Cond.) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss
Result(e.i.r.p.) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss + Antenna Gain
15.407(a)(1)(ⅳ) Limit(Cond.) = 23.97dBm(250mW)
15.407(a)(3) Limit(Cond.) = 30dBm(1W)

11n-20

Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result (Cond.) [dBm]	Result (e.i.r.p.) [dBm]	Limit (Cond.) [dBm]	Limit (e.i.r.p.) [dBm]	Margin (Cond.) [dB]	Margin (e.i.r.p.) [dB]
5180.0	-10.92	1.00	19.99	1.23	10.07	11.30	23.97	-	13.90	-
5220.0	-10.87	1.00	19.99	1.23	10.12	11.35	23.97	-	13.85	-
5240.0	-10.13	1.00	19.99	1.23	10.86	12.09	23.97	-	13.11	-
5745.0	-11.49	1.00	19.99	1.56	9.50	11.06	30.00	-	20.50	-
5785.0	-11.46	1.00	19.99	1.56	9.53	11.09	30.00	-	20.47	-
5825.0	-11.21	1.00	19.99	1.56	9.78	11.34	30.00	-	20.22	-

Result(Cond.) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss
Result(e.i.r.p.) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss + Antenna Gain
15.407(a)(1)(ⅳ) Limit(Cond.) = 23.97dBm(250mW)
15.407(a)(3) Limit(Cond.) = 30dBm(1W)

11ac-20

Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result (Cond.) [dBm]	Result (e.i.r.p.) [dBm]	Limit (Cond.) [dBm]	Limit (e.i.r.p.) [dBm]	Margin (Cond.) [dB]	Margin (e.i.r.p.) [dB]
5180.0	-10.62	1.00	19.99	1.23	10.37	11.60	23.97	-	13.60	-
5220.0	-10.20	1.00	19.99	1.23	10.79	12.02	23.97	-	13.18	-
5240.0	-9.97	1.00	19.99	1.23	11.02	12.25	23.97	-	12.95	-
5745.0	-11.46	1.00	19.99	1.56	9.53	11.09	30.00	-	20.47	-
5785.0	-11.13	1.00	19.99	1.56	9.86	11.42	30.00	-	20.14	-
5825.0	-10.95	1.00	19.99	1.56	10.04	11.60	30.00	-	19.96	-

Result(Cond.) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss
Result(e.i.r.p.) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss + Antenna Gain
15.407(a)(1)(ⅳ) Limit(Cond.) = 23.97dBm(250mW)
15.407(a)(3) Limit(Cond.) = 30dBm(1W)

Maximum Conducted Output Power

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10512882H
Date	11/06/2014
Temperature/ Humidity	21deg. C / 41% RH
Engineer	Kazuya Yoshioka
Mode	11n-40/ac-40/ac-80 Tx

11n-40

Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result (Cond.) [dBm]	Result (e.i.r.p.) [dBm]	Limit (Cond.) [dBm]	Limit (e.i.r.p.) [dBm]	Margin (Cond.) [dB]	Margin (e.i.r.p.) [dB]
5190.0	-10.31	1.00	19.99	1.23	10.68	11.91	23.97	-	13.29	-
5230.0	-10.80	1.00	19.99	1.23	10.19	11.42	23.97	-	13.78	-
5755.0	-11.36	1.00	19.99	1.56	9.63	11.19	30.00	-	20.37	-
5795.0	-11.50	1.00	19.99	1.56	9.49	11.05	30.00	-	20.51	-

Result(Cond.) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss
Result(e.i.r.p.) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss + Antenna Gain
15.407(a)(1)(ⅳ) Limit(Cond.) = 23.97dBm(250mW)
15.407(a)(3) Limit(Cond.) = 30dBm(1W)

11ac-40

Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result (Cond.) [dBm]	Result (e.i.r.p.) [dBm]	Limit (Cond.) [dBm]	Limit (e.i.r.p.) [dBm]	Margin (Cond.) [dB]	Margin (e.i.r.p.) [dB]
5190.0	-9.63	1.00	19.99	1.23	11.36	12.59	23.97	-	12.61	-
5230.0	-9.48	1.00	19.99	1.23	11.51	12.74	23.97	-	12.46	-
5755.0	-11.31	1.00	19.99	1.56	9.68	11.24	30.00	-	20.32	-
5795.0	-11.26	1.00	19.99	1.56	9.73	11.29	30.00	-	20.27	-

Result(Cond.) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss
Result(e.i.r.p.) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss + Antenna Gain
15.407(a)(1)(ⅳ) Limit(Cond.) = 23.97dBm(250mW)
15.407(a)(3) Limit(Cond.) = 30dBm(1W)

11ac-80

Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result (Cond.) [dBm]	Result (e.i.r.p.) [dBm]	Limit (Cond.) [dBm]	Limit (e.i.r.p.) [dBm]	Margin (Cond.) [dB]	Margin (e.i.r.p.) [dB]
5210.0	-9.88	1.00	19.99	1.23	11.11	12.34	23.97	-	12.86	-
5775.0	-11.10	1.00	19.99	1.56	9.89	11.45	30.00	-	20.11	-

Result(Cond.) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss
Result(e.i.r.p.) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten.Loss + Antenna Gain
15.407(a)(1)(ⅳ) Limit(Cond.) = 23.97dBm(250mW)
15.407(a)(3) Limit(Cond.) = 30dBm(1W)

Maximum Conducted Output Power & Maximum Power Spectral Density
(Reference data)

Test place	Ise EMC Lab. No.3 Measurement Room
Report No.	10512882H
Date	10/31/2014
Temperature/ Humidity	24deg. C / 61% RH
Engineer	Satofumi Matsuyama
Mode	11a/n-20/ac-20 Tx

11a, 5220MHz

Data Rate [Mbps]	Reading [dBm]	Remark
6	-2.09	
9	-2.21	
12	-2.04	*
18	-2.19	
24	-2.11	
36	-2.20	
48	-2.09	
54	-2.40	

* Worst Rate
All comparisons were carried out on same frequency and measurement factors.

11n-20, 5220MHz

MCS Number	Reading [dBm]	Remark
0	-2.22	
1	-2.15	*
2	-2.18	
3	-2.26	
4	-2.20	
5	-2.19	
6	-2.25	
7	-2.33	

* Worst Rate
All comparisons were carried out on same frequency and measurement factors.

11ac-20, 5220MHz

MCS Number	Reading [dBm]	Remark
0	-2.12	
1	-2.12	
2	-2.15	
3	-2.11	
4	-2.09	*
5	-2.23	
6	-2.32	
7	-2.27	
8	-2.31	

* Worst Rate
All comparisons were carried out on same frequency and measurement factors.

Maximum Conducted Output Power & Maximum Power Spectral Density
(Reference data)

Test place	Ise EMC Lab. No.3 Measurement Room
Report No.	10512882H
Date	10/31/2014
Temperature/ Humidity	24deg. C / 61% RH
Engineer	Satofumi Matsuyama
Mode	11n-40/ac-40 Tx

11n-40, 5190MHz

MCS Number	Reading [dBm]	Remark
0	-1.92	
1	-1.89	*
2	-2.05	
3	-2.00	
4	-2.04	
5	-2.06	
6	-2.09	
7	-2.14	

* Worst Rate
All comparisons were carried out on same frequency and measurement factors.

11ac-40, 5190MHz

MCS Number	Reading [dBm]	Remark
0	-1.88	
1	-1.83	*
2	-2.00	
3	-2.10	
4	-1.98	
5	-2.13	
6	-2.03	
7	-1.99	
8	-1.95	
9	-4.97	

* Worst Rate
All comparisons were carried out on same frequency and measurement factors.

Maximum Conducted Output Power & Maximum Power Spectral Density
(Reference data)

Test place	Ise EMC Lab. No.3 Measurement Room
Report No.	10512882H
Date	10/31/2014
Temperature/ Humidity	24deg. C / 61% RH
Engineer	Satofumi Matsuyama
Mode	11ac-80 Tx

11ac-80, 5210MHz

MCS Number	Reading [dBm]	Remark
0	-2.02	*
1	-2.05	
2	-2.14	
3	-2.18	
4	-2.13	
5	-2.05	
6	-2.04	
7	-2.16	
8	-2.07	
9	-4.80	

* Worst Rate
All comparisons were carried out on same frequency and measurement factors.

Maximum Power Spectral Density

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10512882H
Date	11/07/2014
Temperature/ Humidity	22deg. C / 45% RH
Engineer	Kazuya Yoshioka
Mode	11a/n-20/ac-20 Tx

11a

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Correction factor [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
5180.0	-23.60	3.18	19.99	0.57	0.00	0.14	11.00	10.86
5220.0	-23.39	3.19	19.99	0.57	0.00	0.36	11.00	10.64
5240.0	-23.24	3.20	19.99	0.57	0.00	0.52	11.00	10.48
5745.0	-27.13	3.63	19.99	0.57	0.27	-2.67	30.00	32.67
5785.0	-28.36	3.63	19.99	0.57	0.27	-3.90	30.00	33.90
5825.0	-28.09	3.64	19.99	0.57	0.27	-3.62	30.00	33.62

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator + Duty factor + Correction factor

11n-20

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Correction factor [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
5180.0	-23.81	3.18	19.99	0.59	0.00	-0.05	11.00	11.05
5220.0	-23.88	3.19	19.99	0.59	0.00	-0.11	11.00	11.11
5240.0	-23.60	3.20	19.99	0.59	0.00	0.18	11.00	10.82
5745.0	-28.43	3.63	19.99	0.59	0.27	-3.95	30.00	33.95
5785.0	-28.82	3.63	19.99	0.59	0.27	-4.34	30.00	34.34
5825.0	-28.32	3.64	19.99	0.59	0.27	-3.83	30.00	33.83

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator + Duty factor + Correction factor

11ac-20

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Correction factor [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
5180.0	-24.54	3.18	19.99	1.43	0.00	0.06	11.00	10.94
5220.0	-24.49	3.19	19.99	1.43	0.00	0.12	11.00	10.88
5240.0	-24.35	3.20	19.99	1.43	0.00	0.27	11.00	10.73
5745.0	-28.75	3.63	19.99	1.43	0.27	-3.43	30.00	33.43
5785.0	-29.47	3.63	19.99	1.43	0.27	-4.15	30.00	34.15
5825.0	-29.10	3.64	19.99	1.43	0.27	-3.77	30.00	33.77

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator + Duty factor + Correction factor

Maximum Power Spectral Density

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10512882H
Date	11/07/2014
Temperature/ Humidity	22deg. C / 45% RH
Engineer	Kazuya Yoshioka
Mode	11n-40/ac-40/ac-80 Tx

11n-40

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Correction factor [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
5190.0	-28.15	3.19	19.99	1.10	0.00	-3.87	11.00	14.87
5230.0	-26.97	3.20	19.99	1.10	0.00	-2.68	11.00	13.68
5755.0	-30.77	3.63	19.99	1.10	0.27	-5.78	30.00	35.78
5795.0	-32.30	3.63	19.99	1.10	0.27	-7.32	30.00	37.32

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator + Duty factor + Correction factor

11ac-40

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Correction factor [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
5190.0	-27.70	3.19	19.99	1.08	0.00	-3.44	11.00	14.44
5230.0	-26.74	3.20	19.99	1.08	0.00	-2.47	11.00	13.47
5755.0	-31.80	3.63	19.99	1.08	0.27	-6.83	30.00	36.83
5795.0	-32.05	3.63	19.99	1.08	0.27	-7.08	30.00	37.08

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator + Duty factor + Correction factor

11ac-80

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Correction factor [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
5210.0	-29.84	3.19	19.99	1.15	0.00	-5.51	11.00	16.51
5775.0	-33.82	3.63	19.99	1.15	0.27	-8.78	30.00	38.78

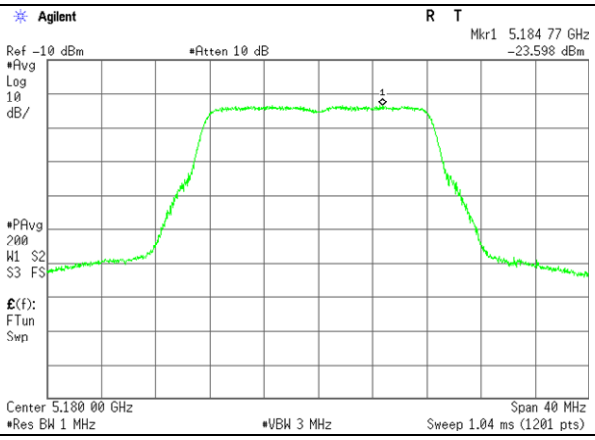
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator + Duty factor + Correction factor

Maximum Power Spectral Density

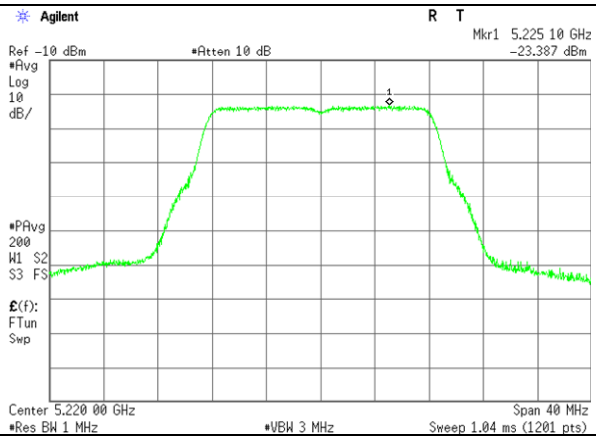
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10512882H
Date	11/07/2014
Temperature/ Humidity	22deg. C / 45% RH
Engineer	Kazuya Yoshioka
Mode	11a Tx

11a

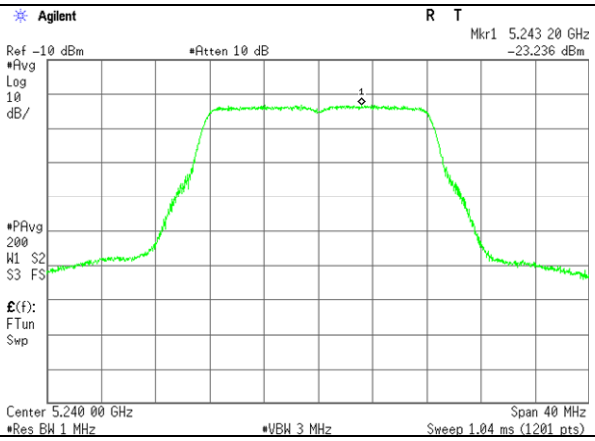
5180MHz



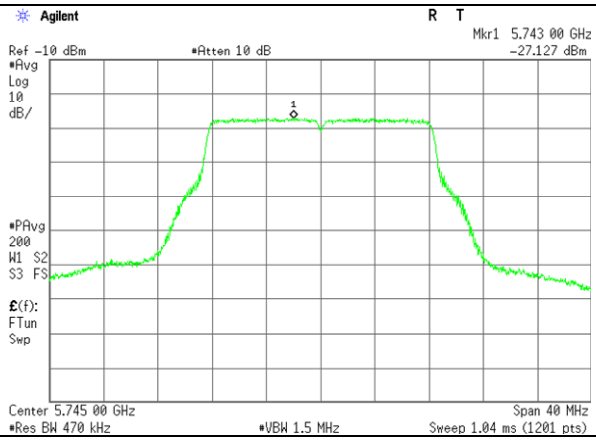
5220MHz



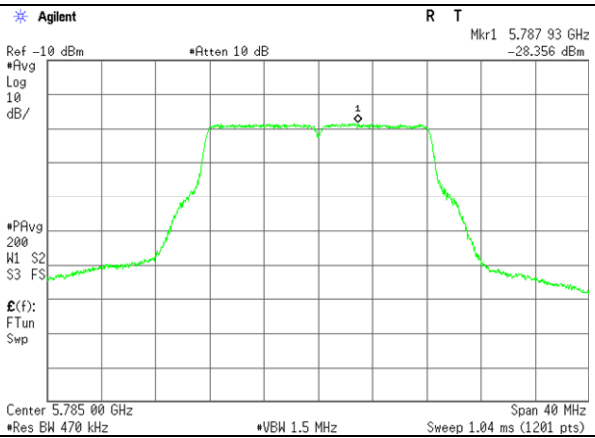
5240MHz



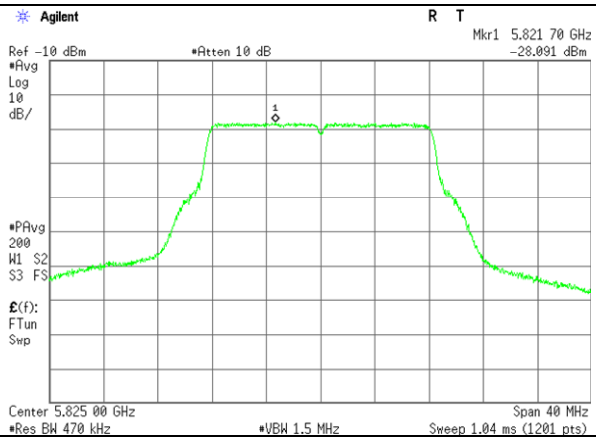
5745MHz



5785MHz



5825MHz

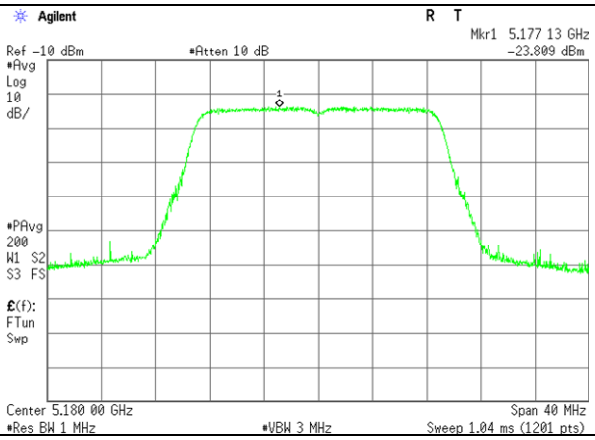


Maximum Power Spectral Density

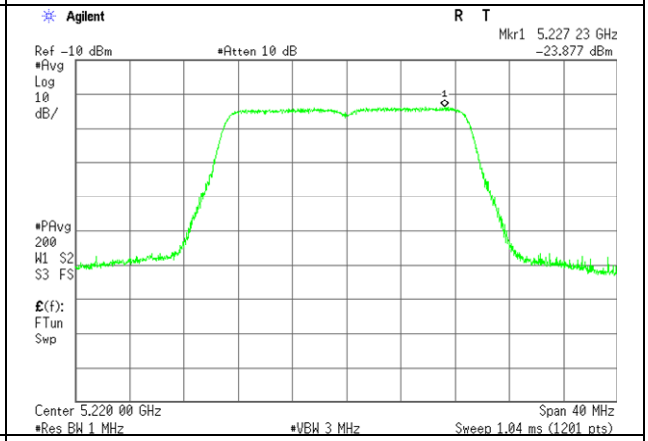
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10512882H
Date	11/07/2014
Temperature/ Humidity	22deg. C / 45% RH
Engineer	Kazuya Yoshioka
Mode	11n-20 Tx

11n-20

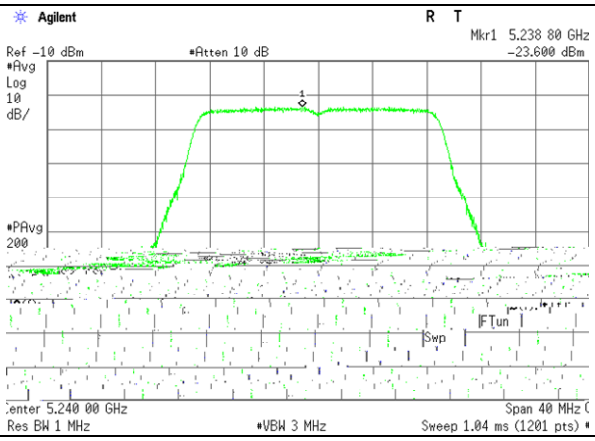
5180MHz



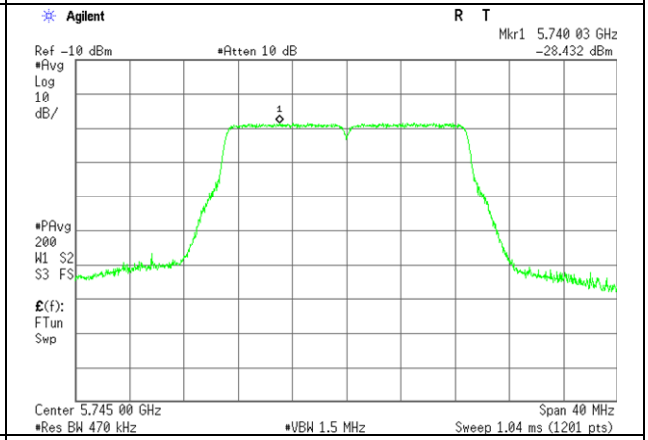
5220MHz



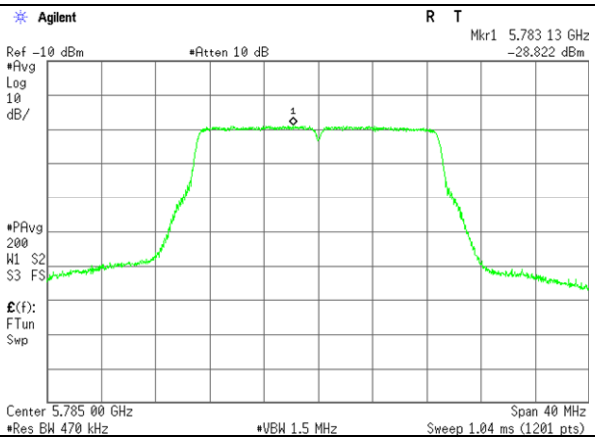
5240MHz



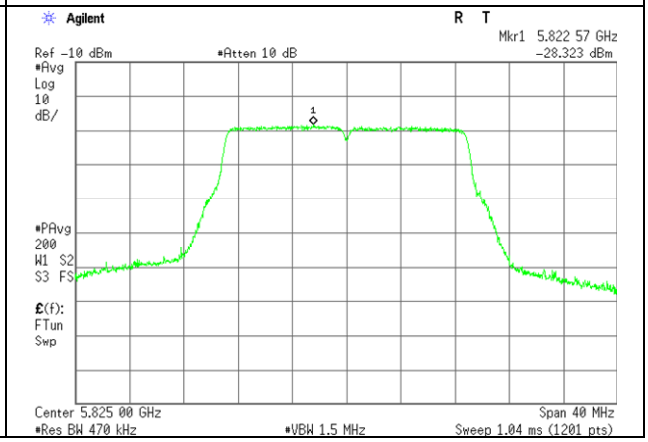
5745MHz



5785MHz



5825MHz

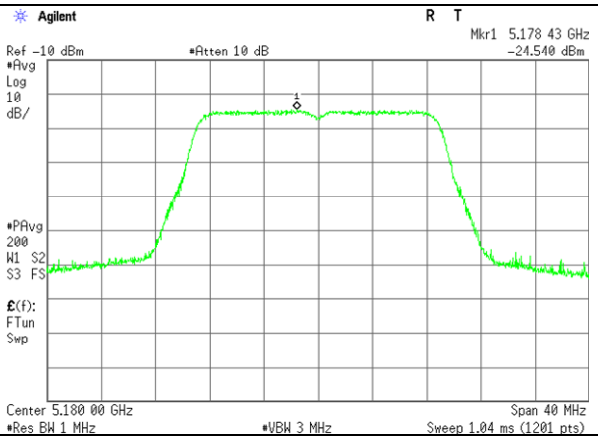


Maximum Power Spectral Density

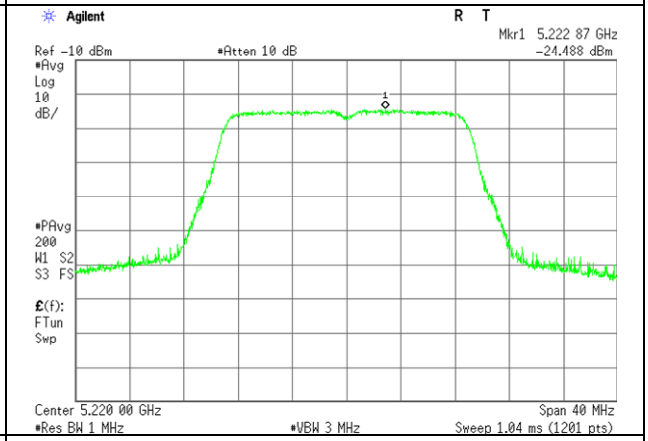
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10512882H
Date	11/07/2014
Temperature/ Humidity	22deg. C / 45% RH
Engineer	Kazuya Yoshioka
Mode	11ac-20 Tx

11ac-20

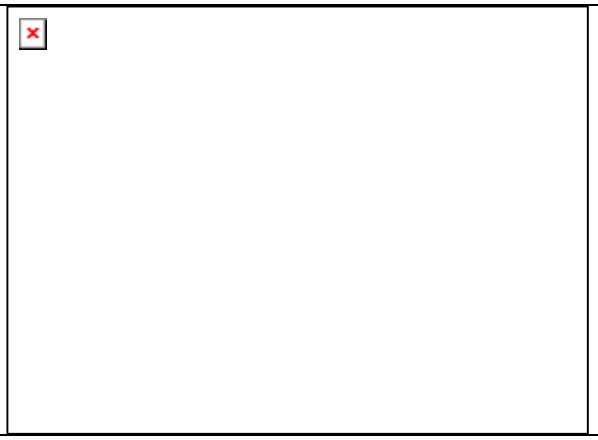
5180MHz



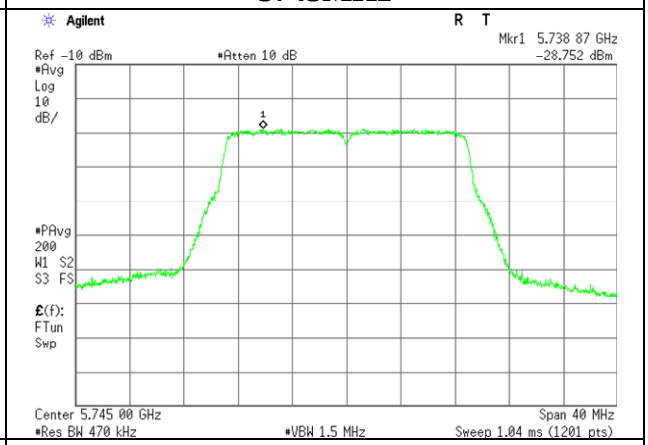
5220MHz



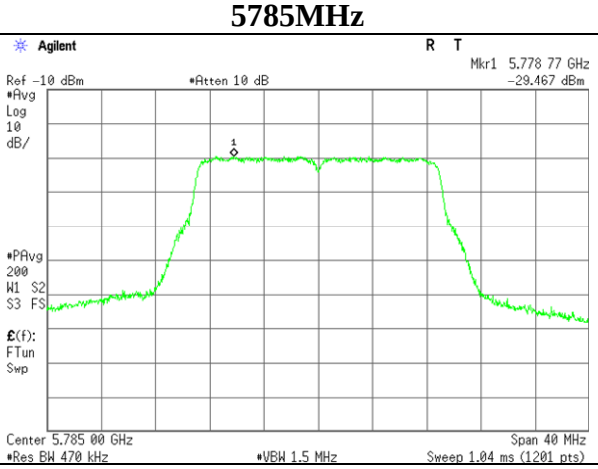
5240MHz



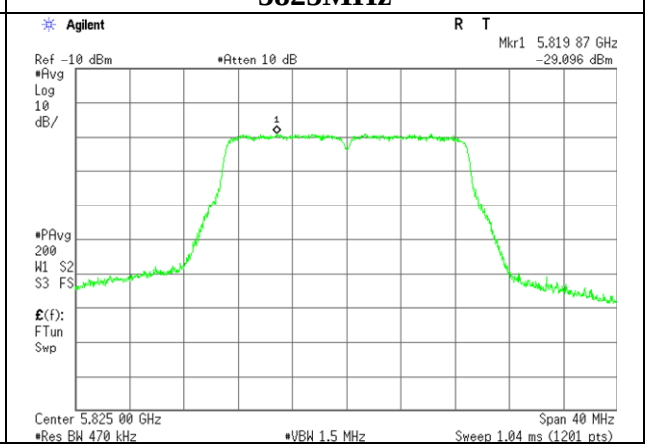
5745MHz



5785MHz



5825MHz

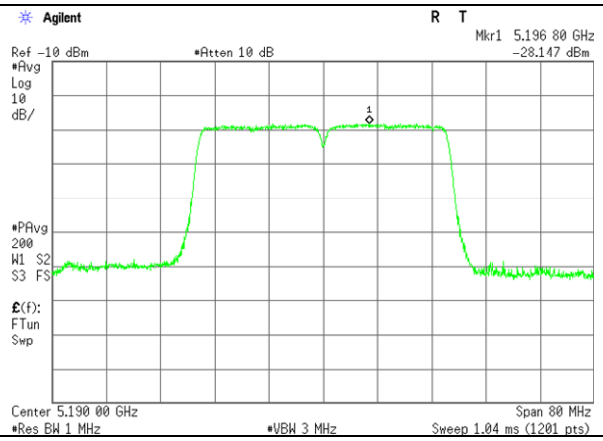


Maximum Power Spectral Density

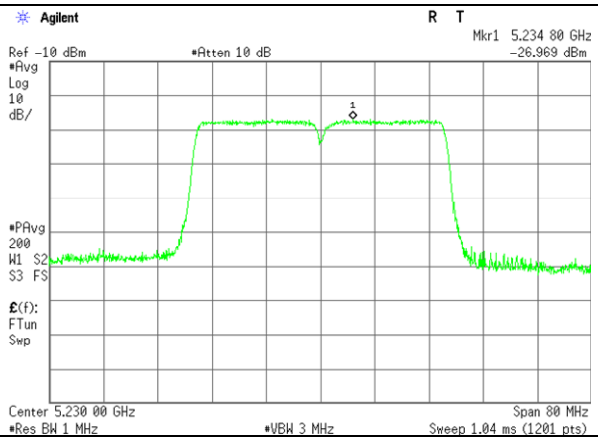
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10512882H
Date	11/07/2014
Temperature/ Humidity	22deg. C / 45% RH
Engineer	Kazuya Yoshioka
Mode	11n-40 Tx

11n-40

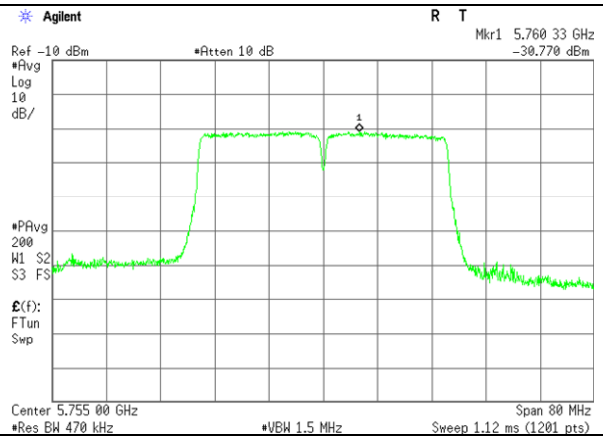
5190MHz



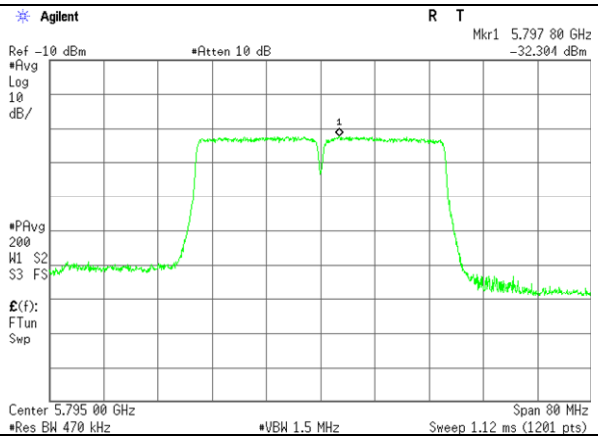
5230MHz



5775MHz



5795MHz

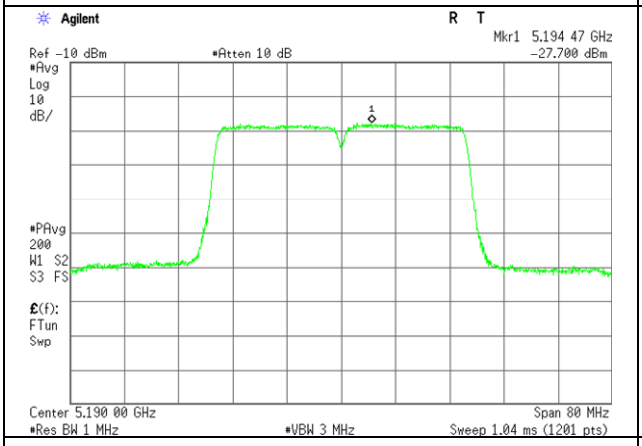


Maximum Power Spectral Density

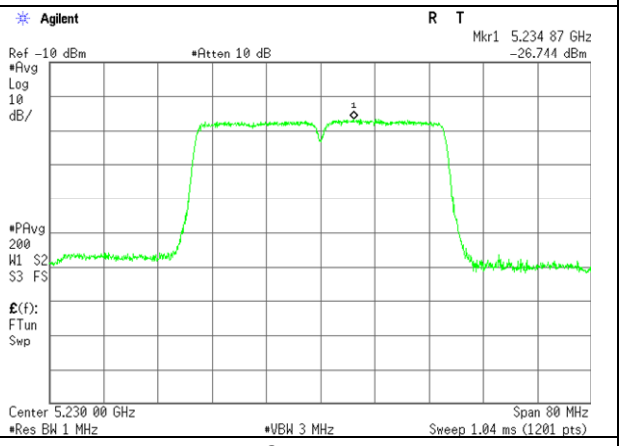
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10512882H
Date	11/07/2014
Temperature/ Humidity	22deg. C / 45% RH
Engineer	Kazuya Yoshioka
Mode	11ac-40 Tx

11ac-40

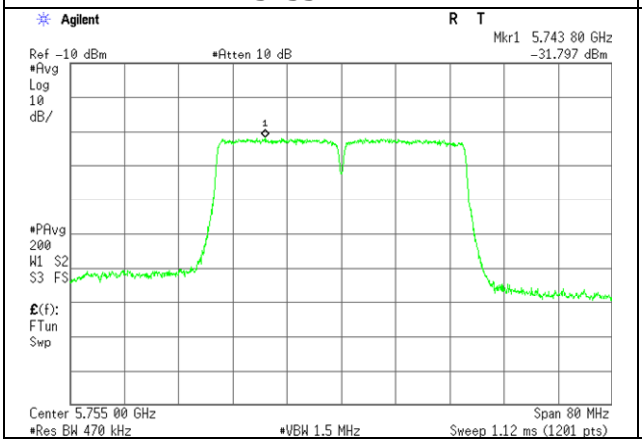
5190MHz



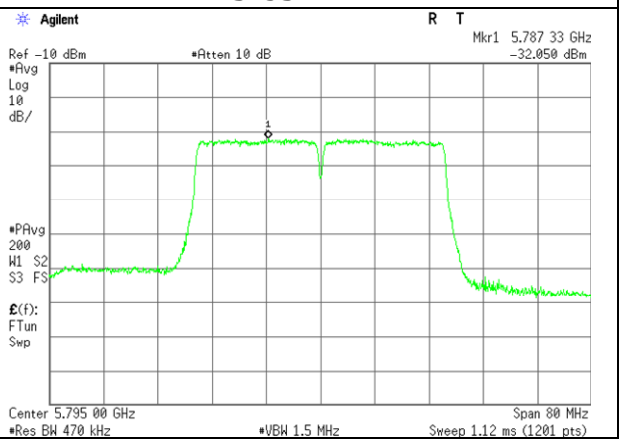
5230MHz



5755MHz



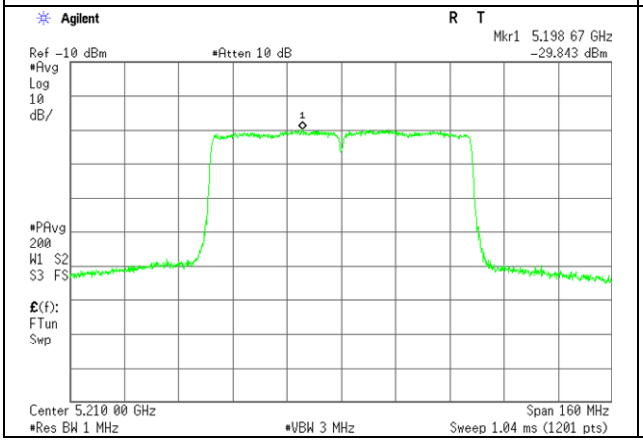
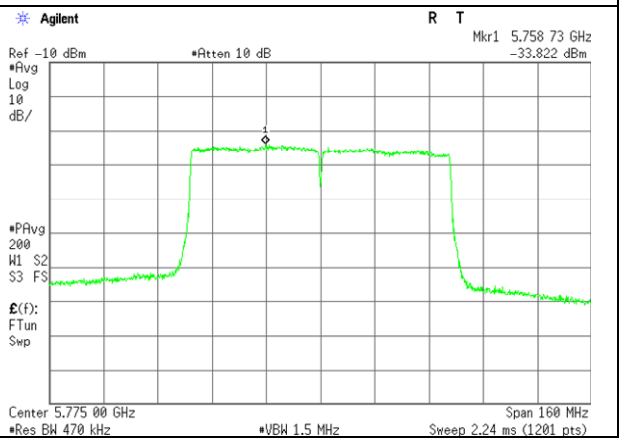
5795MHz



Maximum Power Spectral Density

Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10512882H
Date	11/07/2014
Temperature/ Humidity	22deg. C / 45% RH
Engineer	Kazuya Yoshioka
Mode	11ac-80 Tx

11ac-80

5210MHz	5775MHz
	

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3 Anechoic Chamber		
Report No.	10512882H		
Date	11/07/2014	11/10/2014	11/10/2014
Temperature/ Humidity	23deg. C / 42% RH	23deg. C / 54% RH	25deg. C / 40% RH
Engineer	Yuta Moriya (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (Above 18GHz)
Mode	11n-20 Tx 5180MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	1079.333	PK	57.9	24.2	1.7	35.1	-	48.7	73.9	25.2	Inside	
Hori	1146.911	PK	60.2	24.4	1.7	34.9	-	51.4	73.9	22.5	Inside	
Hori	1349.270	PK	61.0	25.0	1.9	34.3	-	53.6	73.9	20.3	Inside	
Hori	1416.710	PK	55.0	25.2	1.9	34.2	-	47.9	73.9	26.0	Inside	
Hori	4722.458	PK	48.9	30.4	3.5	31.8	-	51.0	73.9	22.9	Inside	
Hori	5150.000	PK	59.1	31.3	3.7	31.7	-	62.4	68.2	5.8	Bandedge	
Hori	10360.000	PK	42.7	38.8	-2.4	33.6	-	45.5	68.2	22.7	Outside	
Hori	15540.000	PK	43.5	39.1	-0.9	32.1	-	49.6	73.9	24.3	Inside	
Hori	1079.333	AV	53.9	24.2	1.7	35.1	-	44.7	53.9	9.2	Inside	
Hori	1146.911	AV	55.6	24.4	1.7	34.9	-	46.8	53.9	7.1	Inside	
Hori	1349.270	AV	55.9	25.0	1.9	34.3	-	48.5	53.9	5.4	Inside	
Hori	1416.710	AV	51.1	25.2	1.9	34.2	-	44.0	53.9	9.9	Inside	
Hori	4722.458	AV	45.1	30.4	3.5	31.8	-	47.2	53.9	6.7	Inside	
Hori	5150.000	AV	45.2	31.3	3.7	31.7	0.6	49.1	53.9	4.8	Bandedge	*1)
Hori	15540.000	AV	35.5	39.1	-0.9	32.1	0.6	42.2	53.9	11.7	Inside	
Vert	1079.333	PK	58.7	24.2	1.7	35.1	-	49.5	73.9	24.4	Inside	
Vert	1146.783	PK	60.3	24.4	1.7	34.9	-	51.5	73.9	22.4	Inside	
Vert	1349.270	PK	57.0	25.0	1.9	34.3	-	49.6	73.9	24.3	Inside	
Vert	1416.710	PK	57.1	25.2	1.9	34.2	-	50.0	73.9	23.9	Inside	
Vert	4722.458	PK	52.0	30.4	3.5	31.8	-	54.1	73.9	19.8	Inside	
Vert	5150.000	PK	58.4	31.3	3.7	31.7	-	61.7	68.2	6.5	Bandedge	
Vert	10360.000	PK	43.0	38.8	-2.4	33.6	-	45.8	68.2	22.4	Outside	
Vert	15540.000	PK	45.1	39.1	-0.9	32.1	-	51.2	73.9	22.7	Inside	
Vert	1079.333	AV	54.6	24.2	1.7	35.1	-	45.4	53.9	8.5	Inside	
Vert	1146.783	AV	56.9	24.4	1.7	34.9	-	48.1	53.9	5.8	Inside	
Vert	1349.270	AV	52.5	25.0	1.9	34.3	-	45.1	53.9	8.8	Inside	
Vert	1416.710	AV	52.6	25.2	1.9	34.2	-	45.5	53.9	8.4	Inside	
Vert	4722.458	AV	49.7	30.4	3.5	31.8	-	51.8	53.9	2.1	Inside	
Vert	5150.000	AV	43.1	31.3	3.7	31.7	0.6	47.0	53.9	6.9	Bandedge	*1)
Vert	15540.000	AV	35.5	39.1	-0.9	32.1	0.6	42.2	53.9	11.7	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty Factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

*1) Not Out of Band emission (Leakage Power)

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3 Anechoic Chamber		
Report No.	10512882H		
Date	11/07/2014	11/10/2014	11/10/2014
Temperature/ Humidity	23deg. C / 42% RH	23deg. C / 54% RH	25deg. C / 40% RH
Engineer	Yuta Moriya (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (Above 18GHz)
Mode	11n-20 Tx 5220MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	1079.385	PK	59.5	24.2	1.7	35.1	-	50.3	73.9	23.6	Inside	
Hori	1146.918	PK	58.4	24.4	1.7	34.9	-	49.6	73.9	24.3	Inside	
Hori	1349.417	PK	60.8	25.0	1.9	34.3	-	53.4	73.9	20.5	Inside	
Hori	1416.710	PK	57.0	25.2	1.9	34.2	-	49.9	73.9	24.0	Inside	
Hori	4722.273	PK	48.5	30.4	3.5	31.8	-	50.6	73.9	23.3	Inside	
Hori	10440.000	PK	41.7	38.8	-2.3	33.6	-	44.6	68.2	23.6	Outside	
Hori	15660.000	PK	43.4	38.7	-0.9	32.2	-	49.0	73.9	24.9	Inside	
Hori	1079.385	AV	55.7	24.2	1.7	35.1	-	46.5	53.9	7.4	Inside	
Hori	1146.918	AV	54.4	24.4	1.7	34.9	-	45.6	53.9	8.3	Inside	
Hori	1349.417	AV	57.1	25.0	1.9	34.3	-	49.7	53.9	4.2	Inside	
Hori	1416.710	AV	51.6	25.2	1.9	34.2	-	44.5	53.9	9.4	Inside	
Hori	4722.273	AV	44.9	30.4	3.5	31.8	-	47.0	53.9	6.9	Inside	
Hori	15660.000	AV	35.5	38.7	-0.9	32.2	0.6	41.7	53.9	12.2	Inside	
Vert	1079.465	PK	58.7	24.2	1.7	35.1	-	49.5	73.9	24.4	Inside	
Vert	1146.816	PK	62.1	24.4	1.7	34.9	-	53.3	73.9	20.6	Inside	
Vert	1349.417	PK	55.6	25.0	1.9	34.3	-	48.2	73.9	25.7	Inside	
Vert	1416.828	PK	57.6	25.2	1.9	34.2	-	50.5	73.9	23.4	Inside	
Vert	4722.273	PK	51.7	30.4	3.5	31.8	-	53.8	73.9	20.1	Inside	
Vert	10440.000	PK	41.9	38.8	-2.3	33.6	-	44.8	68.2	23.4	Outside	
Vert	15660.000	PK	43.8	38.7	-0.9	32.2	-	49.4	73.9	24.5	Inside	
Vert	1079.465	AV	55.2	24.2	1.7	35.1	-	46.0	53.9	7.9	Inside	
Vert	1146.816	AV	58.1	24.4	1.7	34.9	-	49.3	53.9	4.6	Inside	
Vert	1349.417	AV	51.3	25.0	1.9	34.3	-	43.9	53.9	10.0	Inside	
Vert	1416.828	AV	51.7	25.2	1.9	34.2	-	44.6	53.9	9.3	Inside	
Vert	4722.273	AV	48.7	30.4	3.5	31.8	-	50.8	53.9	3.1	Inside	
Vert	15660.000	AV	35.4	38.7	-0.9	32.2	0.6	41.6	53.9	12.3	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty Factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

UL Japan, Inc.
Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3 Anechoic Chamber		
Report No.	10512882H		
Date	11/07/2014	11/10/2014	11/10/2014
Temperature/ Humidity	23deg. C / 42% RH	23deg. C / 54% RH	25deg. C / 40% RH
Engineer	Yuta Moriya (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (Above 18GHz)
Mode	11n-20 Tx 5240MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	1079.384	PK	59.6	24.2	1.7	35.1	-	50.4	73.9	23.5	Inside	
Hori	1146.814	PK	58.6	24.4	1.7	34.9	-	49.8	73.9	24.1	Inside	
Hori	1349.414	PK	60.6	25.0	1.9	34.3	-	53.2	73.9	20.7	Inside	
Hori	1416.830	PK	57.1	25.2	1.9	34.2	-	50.0	73.9	23.9	Inside	
Hori	4722.271	PK	48.6	30.4	3.5	31.8	-	50.7	73.9	23.2	Inside	
Hori	5350.000	PK	42.6	31.6	3.8	31.7	-	46.3	68.2	21.9	Bandedge	
Hori	10480.000	PK	42.3	38.8	-2.3	33.6	-	45.2	68.2	23.0	Outside	
Hori	15720.000	PK	43.6	38.5	-0.9	32.2	-	49.0	73.9	24.9	Inside	
Hori	1079.384	AV	55.2	24.2	1.7	35.1	-	46.0	53.9	7.9	Inside	
Hori	1146.814	AV	54.6	24.4	1.7	34.9	-	45.8	53.9	8.1	Inside	
Hori	1349.414	AV	57.7	25.0	1.9	34.3	-	50.3	53.9	3.6	Inside	
Hori	1416.830	AV	51.7	25.2	1.9	34.2	-	44.6	53.9	9.3	Inside	
Hori	4722.271	AV	45.0	30.4	3.5	31.8	-	47.1	53.9	6.8	Inside	
Hori	5350.000	AV	33.4	31.6	3.8	31.7	-	37.1	53.9	16.8	Bandedge	
Hori	15720.000	AV	35.8	38.5	-0.9	32.2	0.6	41.8	53.9	12.1	Inside	
Vert	1079.455	PK	58.8	24.2	1.7	35.1	-	49.6	73.9	24.3	Inside	
Vert	1146.814	PK	62.3	24.4	1.7	34.9	-	53.5	73.9	20.4	Inside	
Vert	1349.414	PK	55.5	25.0	1.9	34.3	-	48.1	73.9	25.8	Inside	
Vert	1416.822	PK	57.5	25.2	1.9	34.2	-	50.4	73.9	23.5	Inside	
Vert	4722.271	PK	52.0	30.4	3.5	31.8	-	54.1	73.9	19.8	Inside	
Vert	5350.000	PK	43.5	31.6	3.8	31.7	-	47.2	68.2	21.0	Bandedge	
Vert	10480.000	PK	43.0	38.8	-2.3	33.6	-	45.9	68.2	22.3	Outside	
Vert	15720.000	PK	43.2	38.5	-0.9	32.2	-	48.6	73.9	25.3	Inside	
Vert	1079.455	AV	55.3	24.2	1.7	35.1	-	46.1	53.9	7.8	Inside	
Vert	1146.814	AV	58.2	24.4	1.7	34.9	-	49.4	53.9	4.5	Inside	
Vert	1349.414	AV	51.0	25.0	1.9	34.3	-	43.6	53.9	10.3	Inside	
Vert	1416.822	AV	51.6	25.2	1.9	34.2	-	44.5	53.9	9.4	Inside	
Vert	4722.271	AV	49.3	30.4	3.5	31.8	-	51.4	53.9	2.5	Inside	
Vert	5350.000	AV	34.0	31.6	3.8	31.7	-	37.7	53.9	16.2	Bandedge	
Vert	15720.000	AV	35.8	38.5	-0.9	32.2	0.6	41.8	53.9	12.1	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty Factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

UL Japan, Inc.
Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3 Anechoic Chamber		
Report No.	10512882H		
Date	11/08/2014	11/10/2014	11/10/2014
Temperature/ Humidity	23deg. C / 51% RH	23deg. C / 54% RH	25deg. C / 40% RH
Engineer	Masatoshi Nishiguchi (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (Above 18GHz)
Mode	11n-20 Tx 5745MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	1011.898	PK	58.7	24.0	1.6	35.3	-	49.0	73.9	24.9	Inside	
Hori	1214.299	PK	59.1	24.6	1.8	34.7	-	50.8	73.9	23.1	Inside	
Hori	1416.778	PK	57.0	25.2	1.9	34.2	-	49.9	73.9	24.0	Inside	
Hori	1619.052	PK	60.1	25.6	2.1	33.7	-	54.1	73.9	19.8	Inside	
Hori	4722.219	PK	51.2	30.4	3.5	31.8	-	53.3	73.9	20.6	Inside	
Hori	5725.000	PK	62.8	32.1	3.9	31.8	-	67.0	68.2	1.2	Outside	
Hori	11490.000	PK	41.4	39.6	-2.0	33.6	-	45.4	73.9	28.5	Inside	
Hori	17235.000	PK	47.2	42.1	-0.4	32.2	-	56.7	68.2	11.5	Outside	
Hori	1011.898	AV	54.3	24.0	1.6	35.3	-	44.6	53.9	9.3	Inside	
Hori	1214.299	AV	53.5	24.6	1.8	34.7	-	45.2	53.9	8.7	Inside	
Hori	1416.778	AV	50.2	25.2	1.9	34.2	-	43.1	53.9	10.8	Inside	
Hori	1619.052	AV	54.7	25.6	2.1	33.7	-	48.7	53.9	5.2	Inside	
Hori	4722.219	AV	47.3	30.4	3.5	31.8	-	49.4	53.9	4.5	Inside	
Hori	11490.000	AV	33.5	39.6	-2.0	33.6	0.6	38.1	53.9	15.8	Inside	
Vert	1011.898	PK	61.6	24.0	1.6	35.3	-	51.9	73.9	22.0	Inside	
Vert	1214.299	PK	60.1	24.6	1.8	34.7	-	51.8	73.9	22.1	Inside	
Vert	1416.778	PK	56.7	25.2	1.9	34.2	-	49.6	73.9	24.3	Inside	
Vert	1619.052	PK	57.1	25.6	2.1	33.7	-	51.1	73.9	22.8	Inside	
Vert	4722.219	PK	51.6	30.4	3.5	31.8	-	53.7	73.9	20.2	Inside	
Vert	5725.000	PK	63.9	32.1	3.9	31.8	-	68.1	68.2	0.1	Outside	
Vert	11490.000	PK	41.8	39.6	-2.0	33.6	-	45.8	73.9	28.1	Inside	
Vert	17235.000	PK	46.3	42.1	-0.4	32.2	-	55.8	68.2	12.4	Outside	
Vert	1011.898	AV	57.0	24.0	1.6	35.3	-	47.3	53.9	6.6	Inside	
Vert	1214.299	AV	55.1	24.6	1.8	34.7	-	46.8	53.9	7.1	Inside	
Vert	1416.778	AV	50.7	25.2	1.9	34.2	-	43.6	53.9	10.3	Inside	
Vert	1619.052	AV	51.0	25.6	2.1	33.7	-	45.0	53.9	8.9	Inside	
Vert	4722.219	AV	48.3	30.4	3.5	31.8	-	50.4	53.9	3.5	Inside	
Vert	11490.000	AV	33.4	39.6	-2.0	33.6	0.6	38.0	53.9	15.9	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty Factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3 Anechoic Chamber		
Report No.	10512882H		
Date	11/08/2014	11/10/2014	11/10/2014
Temperature/ Humidity	23deg. C / 51% RH	23deg. C / 54% RH	25deg. C / 40% RH
Engineer	Masatoshi Nishiguchi (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (Above 18GHz)
Mode	11n-20 Tx 5785MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	1011.898	PK	58.6	24.0	1.6	35.3	-	48.9	73.9	25.0	Inside	
Hori	1146.856	PK	56.7	24.4	1.7	34.9	-	47.9	73.9	26.0	Inside	
Hori	1416.778	PK	57.6	25.2	1.9	34.2	-	50.5	73.9	23.4	Inside	
Hori	1619.052	PK	59.5	25.6	2.1	33.7	-	53.5	73.9	20.4	Inside	
Hori	4722.219	PK	50.3	30.4	3.5	31.8	-	52.4	73.9	21.5	Inside	
Hori	11570.000	PK	41.9	39.6	-1.9	33.6	-	46.0	73.9	27.9	Inside	
Hori	17355.000	PK	47.2	43.0	-0.4	32.2	-	57.6	68.2	10.6	Outside	
Hori	1011.898	AV	54.3	24.0	1.6	35.3	-	44.6	53.9	9.3	Inside	
Hori	1146.856	AV	50.3	24.4	1.7	34.9	-	41.5	53.9	12.4	Inside	
Hori	1416.778	AV	50.0	25.2	1.9	34.2	-	42.9	53.9	11.0	Inside	
Hori	1619.052	AV	54.4	25.6	2.1	33.7	-	48.4	53.9	5.5	Inside	
Hori	4722.219	AV	46.2	30.4	3.5	31.8	-	48.3	53.9	5.6	Inside	
Hori	11570.000	AV	33.5	39.6	-1.9	33.6	0.6	38.2	53.9	15.7	Inside	
Vert	1011.898	PK	61.9	24.0	1.6	35.3	-	52.2	73.9	21.7	Inside	
Vert	1146.856	PK	59.4	24.4	1.7	34.9	-	50.6	73.9	23.3	Inside	
Vert	1416.778	PK	57.8	25.2	1.9	34.2	-	50.7	73.9	23.2	Inside	
Vert	1619.052	PK	53.1	25.6	2.1	33.7	-	47.1	73.9	26.8	Inside	
Vert	4722.219	PK	52.8	30.4	3.5	31.8	-	54.9	73.9	19.0	Inside	
Vert	11570.000	PK	41.7	39.6	-1.9	33.6	-	45.8	73.9	28.1	Inside	
Vert	17355.000	PK	45.5	43.0	-0.4	32.2	-	55.9	68.2	12.3	Outside	
Vert	1011.898	AV	56.3	24.0	1.6	35.3	-	46.6	53.9	7.3	Inside	
Vert	1146.856	AV	54.7	24.4	1.7	34.9	-	45.9	53.9	8.0	Inside	
Vert	1416.778	AV	51.7	25.2	1.9	34.2	-	44.6	53.9	9.3	Inside	
Vert	1619.052	AV	47.2	25.6	2.1	33.7	-	41.2	53.9	12.7	Inside	
Vert	4722.219	AV	50.2	30.4	3.5	31.8	-	52.3	53.9	1.6	Inside	
Vert	11570.000	AV	33.6	39.6	-1.9	33.6	0.6	38.3	53.9	15.6	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty Factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

UL Japan, Inc.
Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3 Anechoic Chamber		
Report No.	10512882H		
Date	11/08/2014	11/10/2014	11/10/2014
Temperature/ Humidity	23deg. C / 51% RH	23deg. C / 54% RH	25deg. C / 40% RH
Engineer	Masatoshi Nishiguchi (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (Above 18GHz)
Mode	11n-20 Tx 5825MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	1011.898	PK	58.6	24.0	1.6	35.3	-	48.9	73.9	25.0	Inside	
Hori	1146.856	PK	56.7	24.4	1.7	34.9	-	47.9	73.9	26.0	Inside	
Hori	1416.778	PK	57.5	25.2	1.9	34.2	-	50.4	73.9	23.5	Inside	
Hori	1619.052	PK	59.7	25.6	2.1	33.7	-	53.7	73.9	20.2	Inside	
Hori	4722.219	PK	50.5	30.4	3.5	31.8	-	52.6	73.9	21.3	Inside	
Hori	5850.000	PK	55.0	32.2	4.0	31.8	-	59.4	68.2	8.8	Outside	
Hori	11650.000	PK	42.0	39.6	-2.0	33.5	-	46.1	73.9	27.8	Inside	
Hori	17475.000	PK	45.2	44.0	-0.5	32.2	-	56.5	68.2	11.7	Outside	
Hori	1011.898	AV	54.7	24.0	1.6	35.3	-	45.0	53.9	8.9	Inside	
Hori	1146.856	AV	49.9	24.4	1.7	34.9	-	41.1	53.9	12.8	Inside	
Hori	1416.778	AV	50.1	25.2	1.9	34.2	-	43.0	53.9	10.9	Inside	
Hori	1619.052	AV	54.6	25.6	2.1	33.7	-	48.6	53.9	5.3	Inside	
Hori	4722.219	AV	46.7	30.4	3.5	31.8	-	48.8	53.9	5.1	Inside	
Hori	11650.000	AV	33.9	39.6	-2.0	33.5	0.6	38.6	53.9	15.3	Inside	
Vert	1011.898	PK	60.9	24.0	1.6	35.3	-	51.2	73.9	22.7	Inside	
Vert	1146.856	PK	58.9	24.4	1.7	34.9	-	50.1	73.9	23.8	Inside	
Vert	1416.778	PK	58.1	25.2	1.9	34.2	-	51.0	73.9	22.9	Inside	
Vert	1619.052	PK	53.5	25.6	2.1	33.7	-	47.5	73.9	26.4	Inside	
Vert	4722.219	PK	53.2	30.4	3.5	31.8	-	55.3	73.9	18.6	Inside	
Vert	5850.000	PK	60.1	32.2	4.0	31.8	-	64.5	68.2	3.7	Outside	
Vert	11650.000	PK	42.4	39.6	-2.0	33.5	-	46.5	73.9	27.4	Inside	
Vert	17475.000	PK	46.2	44.0	-0.5	32.2	-	57.5	68.2	10.7	Outside	
Vert	1011.898	AV	56.2	24.0	1.6	35.3	-	46.5	53.9	7.4	Inside	
Vert	1146.856	AV	54.8	24.4	1.7	34.9	-	46.0	53.9	7.9	Inside	
Vert	1416.778	AV	51.3	25.2	1.9	34.2	-	44.2	53.9	9.7	Inside	
Vert	1619.052	AV	46.7	25.6	2.1	33.7	-	40.7	53.9	13.2	Inside	
Vert	4722.219	AV	50.2	30.4	3.5	31.8	-	52.3	53.9	1.6	Inside	
Vert	11650.000	AV	33.9	39.6	-2.0	33.5	0.6	38.6	53.9	15.3	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty Factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3 Anechoic Chamber		
Report No.	10512882H		
Date	11/07/2014	11/10/2014	11/10/2014
Temperature/ Humidity	23deg. C / 42% RH	23deg. C / 54% RH	25deg. C / 40% RH
Engineer	Yuta Moriya (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (Above 18GHz)
Mode	11n-40 Tx 5190MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	1079.384	PK	59.3	24.2	1.7	35.1	-	50.1	73.9	23.8	Inside	
Hori	1146.799	PK	60.2	24.4	1.7	34.9	-	51.4	73.9	22.5	Inside	
Hori	1349.279	PK	61.5	25.0	1.9	34.3	-	54.1	73.9	19.8	Inside	
Hori	1416.830	PK	56.9	25.2	1.9	34.2	-	49.8	73.9	24.1	Inside	
Hori	4722.271	PK	49.4	30.4	3.5	31.8	-	51.5	73.9	22.4	Inside	
Hori	5150.000	PK	60.8	31.3	3.7	31.7	-	64.1	68.2	4.1	Bandedge	
Hori	10380.000	PK	42.4	38.8	-2.4	33.6	-	45.2	68.2	23.0	Outside	
Hori	15570.000	PK	43.4	39.0	-0.9	32.1	-	49.4	73.9	24.5	Inside	
Hori	1079.384	AV	56.0	24.2	1.7	35.1	-	46.8	53.9	7.1	Inside	
Hori	1146.799	AV	56.0	24.4	1.7	34.9	-	47.2	53.9	6.7	Inside	
Hori	1349.279	AV	56.6	25.0	1.9	34.3	-	49.2	53.9	4.7	Inside	
Hori	1416.830	AV	52.1	25.2	1.9	34.2	-	45.0	53.9	8.9	Inside	
Hori	4722.271	AV	45.5	30.4	3.5	31.8	-	47.6	53.9	6.3	Inside	
Hori	5150.000	AV	47.8	31.3	3.7	31.7	1.1	52.2	53.9	1.7	Bandedge	*1)
Hori	15570.000	AV	35.4	39.0	-0.9	32.1	1.1	42.5	53.9	11.4	Inside	
Vert	1079.382	PK	58.3	24.2	1.7	35.1	-	49.1	73.9	24.8	Inside	
Vert	1146.809	PK	61.5	24.4	1.7	34.9	-	52.7	73.9	21.2	Inside	
Vert	1349.121	PK	56.1	25.0	1.9	34.3	-	48.7	73.9	25.2	Inside	
Vert	1416.822	PK	57.6	25.2	1.9	34.2	-	50.5	73.9	23.4	Inside	
Vert	4722.414	PK	52.3	30.4	3.5	31.8	-	54.4	73.9	19.5	Inside	
Vert	5150.000	PK	61.4	31.3	3.7	31.7	-	64.7	68.2	3.5	Bandedge	
Vert	10380.000	PK	42.1	38.8	-2.4	33.6	-	44.9	68.2	23.3	Outside	
Vert	15570.000	PK	43.3	39.0	-0.9	32.1	-	49.3	73.9	24.6	Inside	
Vert	1079.382	AV	55.3	24.2	1.7	35.1	-	46.1	53.9	7.8	Inside	
Vert	1146.809	AV	58.5	24.4	1.7	34.9	-	49.7	53.9	4.2	Inside	
Vert	1349.121	AV	51.7	25.0	1.9	34.3	-	44.3	53.9	9.6	Inside	
Vert	1416.822	AV	52.5	25.2	1.9	34.2	-	45.4	53.9	8.5	Inside	
Vert	4722.414	AV	49.9	30.4	3.5	31.8	-	52.0	53.9	1.9	Inside	
Vert	5150.000	AV	48.3	31.3	3.7	31.7	1.1	52.7	53.9	1.2	Bandedge	*1)
Vert	15570.000	AV	35.3	39.0	-0.9	32.1	1.1	42.4	53.9	11.5	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty Factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

*1) Not Out of Band emission (Leakage Power)

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3 Anechoic Chamber		
Report No.	10512882H		
Date	11/07/2014	11/10/2014	11/10/2014
Temperature/ Humidity	23deg. C / 42% RH	23deg. C / 54% RH	25deg. C / 40% RH
Engineer	Yuta Moriya (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (Above 18GHz)
Mode	11n-40 Tx 5230MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	1079.384	PK	59.7	24.2	1.7	35.1	-	50.5	73.9	23.4	Inside	
Hori	1146.799	PK	60.3	24.4	1.7	34.9	-	51.5	73.9	22.4	Inside	
Hori	1349.279	PK	61.4	25.0	1.9	34.3	-	54.0	73.9	19.9	Inside	
Hori	1416.830	PK	57.0	25.2	1.9	34.2	-	49.9	73.9	24.0	Inside	
Hori	4722.364	PK	49.4	30.4	3.5	31.8	-	51.5	73.9	22.4	Inside	
Hori	5350.000	PK	41.9	31.6	3.8	31.7	-	45.6	68.2	22.6	Bandedge	
Hori	10460.000	PK	42.0	38.8	-2.3	33.6	-	44.9	68.2	23.3	Outside	
Hori	15690.000	PK	44.0	38.6	-0.9	32.2	-	49.5	73.9	24.4	Inside	
Hori	1079.384	AV	56.2	24.2	1.7	35.1	-	47.0	53.9	6.9	Inside	
Hori	1146.799	AV	56.1	24.4	1.7	34.9	-	47.3	53.9	6.6	Inside	
Hori	1349.279	AV	56.7	25.0	1.9	34.3	-	49.3	53.9	4.6	Inside	
Hori	1416.830	AV	52.3	25.2	1.9	34.2	-	45.2	53.9	8.7	Inside	
Hori	4722.364	AV	45.5	30.4	3.5	31.8	-	47.6	53.9	6.3	Inside	
Hori	5350.000	AV	34.6	31.6	3.8	31.7	-	38.3	53.9	15.6	Bandedge	
Hori	15690.000	AV	35.6	38.6	-0.9	32.2	1.1	42.2	53.9	11.7	Inside	
Vert	1079.382	PK	58.4	24.2	1.7	35.1	-	49.2	73.9	24.7	Inside	
Vert	1146.809	PK	61.6	24.4	1.7	34.9	-	52.8	73.9	21.1	Inside	
Vert	1349.121	PK	56.3	25.0	1.9	34.3	-	48.9	73.9	25.0	Inside	
Vert	1416.822	PK	57.5	25.2	1.9	34.2	-	50.4	73.9	23.5	Inside	
Vert	4722.364	PK	52.6	30.4	3.5	31.8	-	54.7	73.9	19.2	Inside	
Vert	5350.000	PK	42.4	31.6	3.8	31.7	-	46.1	68.2	22.1	Bandedge	
Vert	10460.000	PK	42.3	38.8	-2.3	33.6	-	45.2	68.2	23.0	Outside	
Vert	15690.000	PK	43.6	38.6	-0.9	32.2	-	49.1	73.9	24.8	Inside	
Vert	1079.382	AV	55.4	24.2	1.7	35.1	-	46.2	53.9	7.7	Inside	
Vert	1146.809	AV	58.2	24.4	1.7	34.9	-	49.4	53.9	4.5	Inside	
Vert	1349.121	AV	51.6	25.0	1.9	34.3	-	44.2	53.9	9.7	Inside	
Vert	1416.822	AV	52.2	25.2	1.9	34.2	-	45.1	53.9	8.8	Inside	
Vert	4722.364	AV	50.0	30.4	3.5	31.8	-	52.1	53.9	1.8	Inside	
Vert	5350.000	AV	33.7	31.6	3.8	31.7	-	37.4	53.9	16.5	Bandedge	
Vert	15690.000	AV	35.8	38.6	-0.9	32.2	1.1	42.4	53.9	11.5	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty Factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3 Anechoic Chamber		
Report No.	10512882H		
Date	11/07/2014	11/10/2014	11/10/2014
Temperature/ Humidity	23deg. C / 42% RH	23deg.C. / 54% RH	25deg.C. / 40% RH
Engineer	Yuta Moriya (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (Above 18GHz)
Mode	11n-40 Tx 5755MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	1079.383	PK	59.6	24.2	1.7	35.1	-	50.4	73.9	23.5	Inside	
Hori	1146.810	PK	60.2	24.4	1.7	34.9	-	51.4	73.9	22.5	Inside	
Hori	1349.279	PK	61.2	25.0	1.9	34.3	-	53.8	73.9	20.1	Inside	
Hori	1416.830	PK	57.0	25.2	1.9	34.2	-	49.9	73.9	24.0	Inside	
Hori	4722.365	PK	49.5	30.4	3.5	31.8	-	51.6	73.9	22.3	Inside	
Hori	5725.000	PK	63.0	32.1	3.9	31.8	-	67.2	68.2	1.0	Outside	
Hori	11510.000	PK	41.7	39.6	-2.0	33.6	-	45.7	73.9	28.2	Inside	
Hori	17265.000	PK	45.7	42.3	-0.4	32.2	-	55.4	68.2	12.8	Outside	
Hori	1079.383	AV	56.2	24.2	1.7	35.1	-	47.0	53.9	6.9	Inside	
Hori	1146.810	AV	56.3	24.4	1.7	34.9	-	47.5	53.9	6.4	Inside	
Hori	1349.279	AV	56.6	25.0	1.9	34.3	-	49.2	53.9	4.7	Inside	
Hori	1416.830	AV	52.3	25.2	1.9	34.2	-	45.2	53.9	8.7	Inside	
Hori	4722.365	AV	45.6	30.4	3.5	31.8	-	47.7	53.9	6.2	Inside	
Hori	11510.000	AV	33.6	39.6	-2.0	33.6	1.1	38.7	53.9	15.2	Inside	
Vert	1079.383	PK	58.3	24.2	1.7	35.1	-	49.1	73.9	24.8	Inside	
Vert	1146.809	PK	61.5	24.4	1.7	34.9	-	52.7	73.9	21.2	Inside	
Vert	1349.121	PK	56.7	25.0	1.9	34.3	-	49.3	73.9	24.6	Inside	
Vert	1416.822	PK	57.5	25.2	1.9	34.2	-	50.4	73.9	23.5	Inside	
Vert	4722.394	PK	52.6	30.4	3.5	31.8	-	54.7	73.9	19.2	Inside	
Vert	5725.000	PK	63.3	32.1	3.9	31.8	-	67.5	68.2	0.7	Outside	
Vert	11510.000	PK	42.8	39.6	-2.0	33.6	-	46.8	73.9	27.1	Inside	
Vert	17265.000	PK	45.9	42.3	-0.4	32.2	-	55.6	68.2	12.6	Outside	
Vert	1079.383	AV	55.4	24.2	1.7	35.1	-	46.2	53.9	7.7	Inside	
Vert	1146.809	AV	58.3	24.4	1.7	34.9	-	49.5	53.9	4.4	Inside	
Vert	1349.121	AV	51.7	25.0	1.9	34.3	-	44.3	53.9	9.6	Inside	
Vert	1416.822	AV	52.2	25.2	1.9	34.2	-	45.1	53.9	8.8	Inside	
Vert	4722.394	AV	50.1	30.4	3.5	31.8	-	52.2	53.9	1.7	Inside	
Vert	11510.000	AV	33.6	39.6	-2.0	33.6	1.1	38.7	53.9	15.2	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty Factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3 Anechoic Chamber		
Report No.	10512882H		
Date	11/07/2014	11/10/2014	11/10/2014
Temperature/ Humidity	23deg. C / 42% RH	23deg. C / 54% RH	25deg. C / 40% RH
Engineer	Yuta Moriya (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (Above 18GHz)
Mode	11n-40 Tx 5795MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	1079.383	PK	59.7	24.2	1.7	35.1	-	50.5	73.9	23.4	Inside	
Hori	1146.810	PK	60.3	24.4	1.7	34.9	-	51.5	73.9	22.4	Inside	
Hori	1349.279	PK	61.2	25.0	1.9	34.3	-	53.8	73.9	20.1	Inside	
Hori	1416.830	PK	57.0	25.2	1.9	34.2	-	49.9	73.9	24.0	Inside	
Hori	4722.304	PK	49.7	30.4	3.5	31.8	-	51.8	73.9	22.1	Inside	
Hori	5850.000	PK	42.4	32.2	4.0	31.8	-	46.8	68.2	21.4	Outside	
Hori	11590.000	PK	42.1	39.6	-1.9	33.5	-	46.3	73.9	27.6	Inside	
Hori	17385.000	PK	46.1	43.3	-0.5	32.2	-	56.7	68.2	11.5	Outside	
Hori	1079.383	AV	56.2	24.2	1.7	35.1	-	47.0	53.9	6.9	Inside	
Hori	1146.810	AV	56.4	24.4	1.7	34.9	-	47.6	53.9	6.3	Inside	
Hori	1349.279	AV	56.6	25.0	1.9	34.3	-	49.2	53.9	4.7	Inside	
Hori	1416.830	AV	52.3	25.2	1.9	34.2	-	45.2	53.9	8.7	Inside	
Hori	4722.304	AV	45.7	30.4	3.5	31.8	-	47.8	53.9	6.1	Inside	
Hori	11590.000	AV	33.6	39.6	-1.9	33.5	1.1	38.9	53.9	15.0	Inside	
Vert	1079.383	PK	58.2	24.2	1.7	35.1	-	49.0	73.9	24.9	Inside	
Vert	1146.809	PK	62.3	24.4	1.7	34.9	-	53.5	73.9	20.4	Inside	
Vert	1349.121	PK	56.7	25.0	1.9	34.3	-	49.3	73.9	24.6	Inside	
Vert	1416.822	PK	57.5	25.2	1.9	34.2	-	50.4	73.9	23.5	Inside	
Vert	4722.414	PK	52.3	30.4	3.5	31.8	-	54.4	73.9	19.5	Inside	
Vert	5850.000	PK	43.5	32.2	4.0	31.8	-	47.9	68.2	20.3	Outside	
Vert	11590.000	PK	41.9	39.6	-1.9	33.5	-	46.1	73.9	27.8	Inside	
Vert	17385.000	PK	44.9	43.3	-0.5	32.2	-	55.5	68.2	12.7	Outside	
Vert	1079.383	AV	55.5	24.2	1.7	35.1	-	46.3	53.9	7.6	Inside	
Vert	1146.809	AV	58.4	24.4	1.7	34.9	-	49.6	53.9	4.3	Inside	
Vert	1349.121	AV	51.7	25.0	1.9	34.3	-	44.3	53.9	9.6	Inside	
Vert	1416.822	AV	52.2	25.2	1.9	34.2	-	45.1	53.9	8.8	Inside	
Vert	4722.414	AV	50.1	30.4	3.5	31.8	-	52.2	53.9	1.7	Inside	
Vert	11590.000	AV	33.6	39.6	-1.9	33.5	1.1	38.9	53.9	15.0	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty Factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

UL Japan, Inc.
Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3 Anechoic Chamber			
Report No.	10512882H			
Date	11/08/2014	11/10/2014	11/10/2014	11/11/2014
Temperature/ Humidity	23deg. C / 51% RH	23deg. C / 54% RH	25deg. C / 40% RH	22deg. C / 42% RH
Engineer	Masatoshi Nishiguchi (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (18-26.5GHz)	Takumi Shimada (Above 26.5GHz)
Mode	11ac-20 Tx 5180MHz			

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	1011.898	PK	58.4	24.0	1.6	35.3	-	48.7	73.9	25.2	Inside	
Hori	1146.856	PK	56.5	24.4	1.7	34.9	-	47.7	73.9	26.2	Inside	
Hori	1416.778	PK	57.2	25.2	1.9	34.2	-	50.1	73.9	23.8	Inside	
Hori	1619.052	PK	60.2	25.6	2.1	33.7	-	54.2	73.9	19.7	Inside	
Hori	4722.219	PK	50.0	30.4	3.5	31.8	-	52.1	73.9	21.8	Inside	
Hori	5150.000	PK	53.6	31.3	3.7	31.7	-	56.9	68.2	11.3	Bandedge	
Hori	10360.000	PK	43.2	38.8	-2.4	33.6	-	46.0	68.2	22.2	Outside	
Hori	15540.000	PK	44.5	39.1	-0.9	32.1	-	50.6	73.9	23.3	Inside	
Hori	1011.898	AV	54.4	24.0	1.6	35.3	-	44.7	53.9	9.2	Inside	
Hori	1146.856	AV	49.8	24.4	1.7	34.9	-	41.0	53.9	12.9	Inside	
Hori	1416.778	AV	49.2	25.2	1.9	34.2	-	42.1	53.9	11.8	Inside	
Hori	1619.052	AV	54.6	25.6	2.1	33.7	-	48.6	53.9	5.3	Inside	
Hori	4722.219	AV	46.6	30.4	3.5	31.8	-	48.7	53.9	5.2	Inside	
Hori	5150.000	AV	37.1	31.3	3.7	31.7	1.4	41.8	53.9	12.1	Bandedge	*1)
Hori	15540.000	AV	35.6	39.1	-0.9	32.1	1.4	43.1	53.9	10.8	Inside	
Vert	1011.898	PK	61.2	24.0	1.6	35.3	-	51.5	73.9	22.4	Inside	
Vert	1146.856	PK	59.6	24.4	1.7	34.9	-	50.8	73.9	23.1	Inside	
Vert	1416.778	PK	58.6	25.2	1.9	34.2	-	51.5	73.9	22.4	Inside	
Vert	1619.052	PK	57.1	25.6	2.1	33.7	-	51.1	73.9	22.8	Inside	
Vert	4722.219	PK	53.1	30.4	3.5	31.8	-	55.2	73.9	18.7	Inside	
Vert	5150.000	PK	51.7	31.3	3.7	31.7	-	55.0	68.2	13.2	Bandedge	
Vert	10360.000	PK	41.8	38.8	-2.4	33.6	-	44.6	68.2	23.6	Outside	
Vert	15540.000	PK	44.7	39.1	-0.9	32.1	-	50.8	73.9	23.1	Inside	
Vert	1011.898	AV	56.3	24.0	1.6	35.3	-	46.6	53.9	7.3	Inside	
Vert	1146.856	AV	54.8	24.4	1.7	34.9	-	46.0	53.9	7.9	Inside	
Vert	1416.778	AV	51.7	25.2	1.9	34.2	-	44.6	53.9	9.3	Inside	
Vert	1619.052	AV	51.6	25.6	2.1	33.7	-	45.6	53.9	8.3	Inside	
Vert	4722.219	AV	50.2	30.4	3.5	31.8	-	52.3	53.9	1.6	Inside	
Vert	5150.000	AV	36.1	31.3	3.7	31.7	1.4	40.8	53.9	13.1	Bandedge	*1)
Vert	15540.000	AV	35.6	39.1	-0.9	32.1	1.4	43.1	53.9	10.8	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty Factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

*1) Not Out of Band emission (Leakage Power)

UL Japan, Inc.
Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3 Anechoic Chamber			
Report No.	10512882H			
Date	11/08/2014	11/10/2014	11/10/2014	11/11/2014
Temperature/ Humidity	23deg. C / 51% RH	23deg. C / 54% RH	25deg. C / 40% RH	22deg. C / 42% RH
Engineer	Masatoshi Nishiguchi (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (18-26.5GHz)	Takumi Shimada (Above 26.5GHz)
Mode	11ac-20 Tx 5220MHz			

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	1011.898	PK	58.5	24.0	1.6	35.3	-	48.8	73.9	25.1	Inside	
Hori	1146.856	PK	57.5	24.4	1.7	34.9	-	48.7	73.9	25.2	Inside	
Hori	1416.778	PK	57.7	25.2	1.9	34.2	-	50.6	73.9	23.3	Inside	
Hori	1619.052	PK	60.1	25.6	2.1	33.7	-	54.1	73.9	19.8	Inside	
Hori	4722.219	PK	50.2	30.4	3.5	31.8	-	52.3	73.9	21.6	Inside	
Hori	10440.000	PK	41.7	38.8	-2.3	33.6	-	44.6	68.2	23.6	Outside	
Hori	15660.000	PK	44.8	38.7	-0.9	32.2	-	50.4	73.9	23.5	Inside	
Hori	1011.898	AV	54.4	24.0	1.6	35.3	-	44.7	53.9	9.2	Inside	
Hori	1146.856	AV	50.9	24.4	1.7	34.9	-	42.1	53.9	11.8	Inside	
Hori	1416.778	AV	48.6	25.2	1.9	34.2	-	41.5	53.9	12.4	Inside	
Hori	1619.052	AV	54.2	25.6	2.1	33.7	-	48.2	53.9	5.7	Inside	
Hori	4722.219	AV	46.7	30.4	3.5	31.8	-	48.8	53.9	5.1	Inside	
Hori	15660.000	AV	35.6	38.7	-0.9	32.2	1.4	42.6	53.9	11.3	Inside	
Vert	1011.898	PK	61.0	24.0	1.6	35.3	-	51.3	73.9	22.6	Inside	
Vert	1146.856	PK	59.3	24.4	1.7	34.9	-	50.5	73.9	23.4	Inside	
Vert	1416.778	PK	58.5	25.2	1.9	34.2	-	51.4	73.9	22.5	Inside	
Vert	1619.052	PK	56.9	25.6	2.1	33.7	-	50.9	73.9	23.0	Inside	
Vert	4722.219	PK	52.6	30.4	3.5	31.8	-	54.7	73.9	19.2	Inside	
Vert	10440.000	PK	42.8	38.8	-2.3	33.6	-	45.7	68.2	22.5	Outside	
Vert	15660.000	PK	45.0	38.7	-0.9	32.2	-	50.6	73.9	23.3	Inside	
Vert	1011.898	AV	56.1	24.0	1.6	35.3	-	46.4	53.9	7.5	Inside	
Vert	1146.856	AV	54.7	24.4	1.7	34.9	-	45.9	53.9	8.0	Inside	
Vert	1416.778	AV	51.2	25.2	1.9	34.2	-	44.1	53.9	9.8	Inside	
Vert	1619.052	AV	51.3	25.6	2.1	33.7	-	45.3	53.9	8.6	Inside	
Vert	4722.219	AV	49.7	30.4	3.5	31.8	-	51.8	53.9	2.1	Inside	
Vert	15660.000	AV	35.5	38.7	-0.9	32.2	1.4	42.5	53.9	11.4	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty Factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3&No.1 Anechoic Chamber				
Report No.	10512882H				
Date	11/08/2014	11/10/2014	11/10/2014	11/11/2014	11/04/2014
Temperature/ Humidity	23deg. C / 51% RH	23deg. C / 54% RH	25deg. C / 40% RH	22deg. C / 42% RH	24deg. C / 50% RH
Engineer	Masatoshi Nishiguchi (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (18-26.5GHz)	Takumi Shimada (Above 26.5GHz)	Tsubasa Takayama (30-1000MHz)
Mode	11ac-20 Tx 5240MHz				

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	78.150	QP	44.5	6.8	8.1	38.8	-	20.6	40.0	19.4	Outside	
Hori	159.666	QP	41.2	15.5	9.1	38.9	-	26.9	43.5	16.6	Outside	
Hori	169.541	QP	44.5	15.8	9.2	39.0	-	30.5	43.5	13.0	Inside	
Hori	270.772	QP	45.5	18.4	10.2	38.7	-	35.4	46.0	10.6	Inside	
Hori	539.710	QP	47.5	18.7	12.2	38.3	-	40.1	46.0	5.9	Outside	
Hori	607.156	QP	46.1	19.5	12.5	38.1	-	40.0	46.0	6.0	Outside	
Hori	674.624	QP	45.1	20.0	12.9	38.1	-	39.9	46.0	6.1	Outside	
Hori	809.556	QP	42.0	22.0	13.7	38.2	-	39.5	46.0	6.5	Outside	
Hori	877.022	QP	41.0	22.0	14.0	38.0	-	39.0	46.0	7.0	Outside	
Hori	944.471	QP	42.4	22.7	14.4	37.8	-	41.7	46.0	4.3	Outside	
Hori	1011.898	PK	58.0	24.0	1.6	35.3	-	48.3	73.9	25.6	Inside	
Hori	1146.856	PK	56.2	24.4	1.7	34.9	-	47.4	73.9	26.5	Inside	
Hori	1416.778	PK	57.5	25.2	1.9	34.2	-	50.4	73.9	23.5	Inside	
Hori	1551.509	PK	57.3	25.5	2.0	33.8	-	51.0	73.9	22.9	Inside	
Hori	4722.219	PK	50.8	30.4	3.5	31.8	-	52.9	73.9	21.0	Inside	
Hori	5350.000	PK	34.8	31.6	3.8	31.7	-	38.5	68.2	29.7	Bandedge	
Hori	10480.000	PK	42.7	38.8	-2.3	33.6	-	45.6	68.2	22.6	Outside	
Hori	15720.000	PK	45.1	38.5	-0.9	32.2	-	50.5	73.9	23.4	Inside	
Hori	1011.898	AV	53.9	24.0	1.6	35.3	-	44.2	53.9	9.7	Inside	
Hori	1146.856	AV	49.7	24.4	1.7	34.9	-	40.9	53.9	13.0	Inside	
Hori	1416.778	AV	49.9	25.2	1.9	34.2	-	42.8	53.9	11.1	Inside	
Hori	1551.509	AV	51.8	25.5	2.0	33.8	-	45.5	53.9	8.4	Inside	
Hori	4722.219	AV	47.1	30.4	3.5	31.8	-	49.2	53.9	4.7	Inside	
Hori	5350.000	AV	33.6	31.6	3.8	31.7	-	37.3	53.9	16.6	Bandedge	
Hori	15720.000	AV	35.7	38.5	-0.9	32.2	1.4	42.5	53.9	11.4	Inside	
Vert	40.622	QP	50.5	14.2	7.5	38.7	-	33.5	40.0	6.5	Outside	
Vert	52.922	QP	49.2	9.9	7.7	38.7	-	28.1	40.0	11.9	Outside	
Vert	110.361	QP	44.3	11.6	8.6	38.8	-	25.7	43.5	17.8	Inside	
Vert	134.982	QP	50.0	14.1	8.9	38.9	-	34.1	43.5	9.4	Inside	
Vert	168.672	QP	47.1	15.8	9.2	39.0	-	33.1	43.5	10.4	Inside	
Vert	202.622	QP	47.6	16.4	9.6	39.1	-	34.5	43.5	9.0	Outside	
Vert	674.630	QP	46.3	20.0	12.9	38.1	-	41.1	46.0	4.9	Outside	
Vert	877.012	QP	40.0	22.0	14.0	38.0	-	38.0	46.0	8.0	Outside	
Vert	944.481	QP	39.8	22.7	14.4	37.8	-	39.1	46.0	6.9	Outside	
Vert	1011.898	PK	61.1	24.0	1.6	35.3	-	51.4	73.9	22.5	Inside	
Vert	1146.856	PK	59.2	24.4	1.7	34.9	-	50.4	73.9	23.5	Inside	
Vert	1416.778	PK	58.9	25.2	1.9	34.2	-	51.8	73.9	22.1	Inside	
Vert	1551.509	PK	59.3	25.5	2.0	33.8	-	53.0	73.9	20.9	Inside	
Vert	4722.219	PK	52.7	30.4	3.5	31.8	-	54.8	73.9	19.1	Inside	
Vert	5350.000	PK	44.2	31.6	3.8	31.7	-	47.9	68.2	20.3	Bandedge	
Vert	10480.000	PK	41.9	38.8	-2.3	33.6	-	44.8	68.2	23.4	Outside	
Vert	15720.000	PK	44.4	38.5	-0.9	32.2	-	49.8	73.9	24.1	Inside	
Vert	1011.898	AV	56.7	24.0	1.6	35.3	-	47.0	53.9	6.9	Inside	
Vert	1146.856	AV	54.9	24.4	1.7	34.9	-	46.1	53.9	7.8	Inside	
Vert	1416.778	AV	51.9	25.2	1.9	34.2	-	44.8	53.9	9.1	Inside	
Vert	1551.509	AV	54.2	25.5	2.0	33.8	-	47.9	53.9	6.0	Inside	
Vert	4722.219	AV	50.0	30.4	3.5	31.8	-	52.1	53.9	1.8	Inside	
Vert	5350.000	AV	34.3	31.6	3.8	31.7	-	38.0	53.9	15.9	Bandedge	
Vert	15720.000	AV	35.8	38.5	-0.9	32.2	1.4	42.6	53.9	11.3	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty Factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

UL Japan, Inc.
Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3 Anechoic Chamber			
Report No.	10512882H			
Date	11/08/2014	11/10/2014	11/10/2014	11/11/2014
Temperature/ Humidity	23deg. C / 51% RH	23deg. C / 54% RH	25deg. C / 40% RH	22deg. C / 42% RH
Engineer	Masatoshi Nishiguchi (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (18-26.5GHz)	Takumi Shimada (Above 26.5GHz)
Mode	11ac-20 Tx 5745MHz			

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	1011.898	PK	58.7	24.0	1.6	35.3	-	49.0	73.9	24.9	Inside	
Hori	1146.856	PK	56.6	24.4	1.7	34.9	-	47.8	73.9	26.1	Inside	
Hori	1416.778	PK	57.7	25.2	1.9	34.2	-	50.6	73.9	23.3	Inside	
Hori	1551.509	PK	56.5	25.5	2.0	33.8	-	50.2	73.9	23.7	Inside	
Hori	4722.219	PK	50.0	30.4	3.5	31.8	-	52.1	73.9	21.8	Inside	
Hori	5725.000	PK	60.7	32.1	3.9	31.8	-	64.9	68.2	3.3	Outside	
Hori	11490.000	PK	41.4	39.6	-2.0	33.6	-	45.4	73.9	28.5	Inside	
Hori	17235.000	PK	50.9	42.1	-0.4	32.2	-	60.4	68.2	7.8	Outside	
Hori	1011.898	AV	54.3	24.0	1.6	35.3	-	44.6	53.9	9.3	Inside	
Hori	1146.856	AV	49.3	24.4	1.7	34.9	-	40.5	53.9	13.4	Inside	
Hori	1416.778	AV	48.9	25.2	1.9	34.2	-	41.8	53.9	12.1	Inside	
Hori	1551.509	AV	51.0	25.5	2.0	33.8	-	44.7	53.9	9.2	Inside	
Hori	4722.219	AV	45.9	30.4	3.5	31.8	-	48.0	53.9	5.9	Inside	
Hori	11490.000	AV	32.8	39.6	-2.0	33.6	1.4	38.2	53.9	15.7	Inside	
Vert	1011.898	PK	61.5	24.0	1.6	35.3	-	51.8	73.9	22.1	Inside	
Vert	1146.856	PK	58.7	24.4	1.7	34.9	-	49.9	73.9	24.0	Inside	
Vert	1416.778	PK	58.2	25.2	1.9	34.2	-	51.1	73.9	22.8	Inside	
Vert	1551.509	PK	59.7	25.5	2.0	33.8	-	53.4	73.9	20.5	Inside	
Vert	4722.219	PK	52.9	30.4	3.5	31.8	-	55.0	73.9	18.9	Inside	
Vert	5725.000	PK	51.7	32.1	3.9	31.8	-	55.9	68.2	12.3	Outside	
Vert	11490.000	PK	41.7	39.6	-2.0	33.6	-	45.7	73.9	28.2	Inside	
Vert	17235.000	PK	47.2	42.1	-0.4	32.2	-	56.7	68.2	11.5	Outside	
Vert	1011.898	AV	56.2	24.0	1.6	35.3	-	46.5	53.9	7.4	Inside	
Vert	1146.856	AV	54.3	24.4	1.7	34.9	-	45.5	53.9	8.4	Inside	
Vert	1416.778	AV	51.6	25.2	1.9	34.2	-	44.5	53.9	9.4	Inside	
Vert	1551.509	AV	54.6	25.5	2.0	33.8	-	48.3	53.9	5.6	Inside	
Vert	4722.219	AV	50.1	30.4	3.5	31.8	-	52.2	53.9	1.7	Inside	
Vert	11490.000	AV	32.8	39.6	-2.0	33.6	1.4	38.2	53.9	15.7	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty Factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3 Anechoic Chamber			
Report No.	10512882H			
Date	11/08/2014	11/10/2014	11/10/2014	11/11/2014
Temperature/ Humidity	23deg. C / 51% RH	23deg. C / 54% RH	25deg. C / 40% RH	22deg. C / 42% RH
Engineer	Masatoshi Nishiguchi (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (18-26.5GHz)	Takumi Shimada (Above 26.5GHz)
Mode	11ac-20 Tx 5785MHz			

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	1011.898	PK	57.9	24.0	1.6	35.3	-	48.2	73.9	25.7	Inside	
Hori	1146.856	PK	56.9	24.4	1.7	34.9	-	48.1	73.9	25.8	Inside	
Hori	1416.778	PK	57.3	25.2	1.9	34.2	-	50.2	73.9	23.7	Inside	
Hori	1551.509	PK	58.6	25.5	2.0	33.8	-	52.3	73.9	21.6	Inside	
Hori	4722.219	PK	50.0	30.4	3.5	31.8	-	52.1	73.9	21.8	Inside	
Hori	11570.000	PK	42.7	39.6	-1.9	33.6	-	46.8	73.9	27.1	Inside	
Hori	17355.000	PK	46.5	43.0	-0.4	32.2	-	56.9	68.2	11.3	Outside	
Hori	1011.898	AV	54.1	24.0	1.6	35.3	-	44.4	53.9	9.5	Inside	
Hori	1146.856	AV	50.2	24.4	1.7	34.9	-	41.4	53.9	12.5	Inside	
Hori	1416.778	AV	49.8	25.2	1.9	34.2	-	42.7	53.9	11.2	Inside	
Hori	1551.509	AV	53.2	25.5	2.0	33.8	-	46.9	53.9	7.0	Inside	
Hori	4722.219	AV	46.9	30.4	3.5	31.8	-	49.0	53.9	4.9	Inside	
Hori	11570.000	AV	33.1	39.6	-1.9	33.6	1.4	38.6	53.9	15.3	Inside	
Vert	1011.898	PK	61.3	24.0	1.6	35.3	-	51.6	73.9	22.3	Inside	
Vert	1146.856	PK	58.9	24.4	1.7	34.9	-	50.1	73.9	23.8	Inside	
Vert	1416.778	PK	58.8	25.2	1.9	34.2	-	51.7	73.9	22.2	Inside	
Vert	1551.509	PK	59.9	25.5	2.0	33.8	-	53.6	73.9	20.3	Inside	
Vert	4722.219	PK	52.7	30.4	3.5	31.8	-	54.8	73.9	19.1	Inside	
Vert	11570.000	PK	42.1	39.6	-1.9	33.6	-	46.2	73.9	27.7	Inside	
Vert	17355.000	PK	46.8	43.0	-0.4	32.2	-	57.2	68.2	11.0	Outside	
Vert	1011.898	AV	56.5	24.0	1.6	35.3	-	46.8	53.9	7.1	Inside	
Vert	1146.856	AV	54.3	24.4	1.7	34.9	-	45.5	53.9	8.4	Inside	
Vert	1416.778	AV	51.7	25.2	1.9	34.2	-	44.6	53.9	9.3	Inside	
Vert	1551.509	AV	54.4	25.5	2.0	33.8	-	48.1	53.9	5.8	Inside	
Vert	4722.219	AV	49.8	30.4	3.5	31.8	-	51.9	53.9	2.0	Inside	
Vert	11570.000	AV	33.1	39.6	-1.9	33.6	1.4	38.6	53.9	15.3	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty Factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3&No.1 Anechoic Chamber				
Report No.	10512882H				
Date	11/08/2014	11/10/2014	11/10/2014	11/11/2014	11/04/2014
Temperature/ Humidity	23deg. C / 51% RH	23deg. C / 54% RH	21deg. C / 41% RH	22deg. C / 42% RH	24deg. C / 50% RH
Engineer	Masatoshi Nishiguchi (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (18-26.5GHz)	Takumi Shimada (Above 26.5GHz)	Tsubasa Takayama (30-1000MHz)
Mode	11ac-20 Tx 5825MHz				

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	78.272	QP	44.1	6.8	8.1	38.8	-	20.2	40.0	19.8	Outside	
Hori	159.628	QP	42.2	15.5	9.1	38.9	-	27.9	43.5	15.6	Outside	
Hori	169.529	QP	44.0	15.8	9.2	39.0	-	30.0	43.5	13.5	Inside	
Hori	270.778	QP	45.2	18.4	10.2	38.7	-	35.1	46.0	10.9	Inside	
Hori	539.766	QP	47.5	18.7	12.2	38.3	-	40.1	46.0	5.9	Outside	
Hori	607.149	QP	46.5	19.5	12.5	38.1	-	40.4	46.0	5.6	Outside	
Hori	674.682	QP	45.0	20.0	12.9	38.1	-	39.8	46.0	6.2	Outside	
Hori	809.549	QP	42.0	22.0	13.7	38.2	-	39.5	46.0	6.5	Outside	
Hori	877.028	QP	40.0	22.0	14.0	38.0	-	38.0	46.0	8.0	Outside	
Hori	919.516	QP	41.2	22.3	14.2	37.9	-	39.8	46.0	6.2	Outside	
Hori	944.459	QP	42.7	22.7	14.4	37.8	-	42.0	46.0	4.0	Outside	
Hori	1011.898	PK	58.3	24.0	1.6	35.3	-	48.6	73.9	25.3	Inside	
Hori	1146.856	PK	57.0	24.4	1.7	34.9	-	48.2	73.9	25.7	Inside	
Hori	1416.778	PK	57.4	25.2	1.9	34.2	-	50.3	73.9	23.6	Inside	
Hori	1551.509	PK	58.6	25.5	2.0	33.8	-	52.3	73.9	21.6	Inside	
Hori	4722.219	PK	50.4	30.4	3.5	31.8	-	52.5	73.9	21.4	Inside	
Hori	5850.000	PK	53.6	32.2	4.0	31.8	-	58.0	68.2	10.2	Outside	
Hori	11650.000	PK	43.1	39.6	-2.0	33.5	-	47.2	73.9	26.7	Inside	
Hori	17450.000	PK	45.5	43.8	-0.5	32.2	-	56.6	68.2	11.6	Outside	
Hori	1011.898	AV	54.4	24.0	1.6	35.3	-	44.7	53.9	9.2	Inside	
Hori	1146.856	AV	50.9	24.4	1.7	34.9	-	42.1	53.9	11.8	Inside	
Hori	1416.778	AV	49.8	25.2	1.9	34.2	-	42.7	53.9	11.2	Inside	
Hori	1551.509	AV	53.1	25.5	2.0	33.8	-	46.8	53.9	7.1	Inside	
Hori	4722.219	AV	47.0	30.4	3.5	31.8	-	49.1	53.9	4.8	Inside	
Hori	11650.000	AV	33.4	39.6	-2.0	33.5	1.4	38.9	53.9	15.0	Inside	
Vert	40.012	QP	50.0	14.5	7.5	38.7	-	33.3	40.0	6.7	Outside	
Vert	52.992	QP	48.6	9.9	7.7	38.7	-	27.5	40.0	12.5	Outside	
Vert	110.321	QP	44.1	11.6	8.6	38.8	-	25.5	43.5	18.0	Inside	
Vert	134.983	QP	48.7	14.1	8.9	38.9	-	32.8	43.5	10.7	Inside	
Vert	168.669	QP	47.9	15.8	9.2	39.0	-	33.9	43.5	9.6	Inside	
Vert	202.672	QP	47.8	16.4	9.6	39.1	-	34.7	43.5	8.8	Outside	
Vert	674.660	QP	45.2	20.0	12.9	38.1	-	40.0	46.0	6.0	Outside	
Vert	877.028	QP	40.5	22.0	14.0	38.0	-	38.5	46.0	7.5	Outside	
Vert	944.458	QP	39.2	22.7	14.4	37.8	-	38.5	46.0	7.5	Outside	
Vert	1011.898	PK	61.9	24.0	1.6	35.3	-	52.2	73.9	21.7	Inside	
Vert	1146.856	PK	58.7	24.4	1.7	34.9	-	49.9	73.9	24.0	Inside	
Vert	1416.778	PK	58.2	25.2	1.9	34.2	-	51.1	73.9	22.8	Inside	
Vert	1551.509	PK	59.5	25.5	2.0	33.8	-	53.2	73.9	20.7	Inside	
Vert	4722.219	PK	52.5	30.4	3.5	31.8	-	54.6	73.9	19.3	Inside	
Vert	5850.000	PK	59.0	32.2	4.0	31.8	-	63.4	68.2	4.8	Outside	
Vert	11650.000	PK	43.1	39.6	-2.0	33.5	-	47.2	73.9	26.7	Inside	
Vert	17450.000	PK	44.6	43.8	-0.5	32.2	-	55.7	68.2	12.5	Outside	
Vert	1011.898	AV	56.4	24.0	1.6	35.3	-	46.7	53.9	7.2	Inside	
Vert	1146.856	AV	54.5	24.4	1.7	34.9	-	45.7	53.9	8.2	Inside	
Vert	1416.778	AV	51.7	25.2	1.9	34.2	-	44.6	53.9	9.3	Inside	
Vert	1551.509	AV	54.4	25.5	2.0	33.8	-	48.1	53.9	5.8	Inside	
Vert	4722.219	AV	49.9	30.4	3.5	31.8	-	52.0	53.9	1.9	Inside	
Vert	11650.000	AV	33.5	39.6	-2.0	33.5	1.4	39.0	53.9	14.9	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty Factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

UL Japan, Inc.
Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3 Anechoic Chamber			
Report No.	10512882H			
Date	11/09/2014	11/10/2014	11/10/2014	11/11/2014
Temperature/ Humidity	24deg. C / 50% RH	23deg. C / 54% RH	25deg. C / 40% RH	22deg. C / 42% RH
Engineer	Yuta Moriya (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (18-26.5GHz)	Takumi Shimada (Above 26.5GHz)
Mode	11ac-40 Tx 5190MHz			

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	1079.410	PK	59.3	24.2	1.7	35.1	-	50.1	73.9	23.8	Inside	
Hori	1146.809	PK	60.2	24.4	1.7	34.9	-	51.4	73.9	22.5	Inside	
Hori	1349.121	PK	61.5	25.0	1.9	34.3	-	54.1	73.9	19.8	Inside	
Hori	1416.824	PK	56.9	25.2	1.9	34.2	-	49.8	73.9	24.1	Inside	
Hori	4722.316	PK	49.2	30.4	3.5	31.8	-	51.3	73.9	22.6	Inside	
Hori	5150.000	PK	59.5	31.3	3.7	31.7	-	62.8	68.2	5.4	Bandedge	
Hori	10380.000	PK	42.8	38.8	-2.4	33.6	-	45.6	68.2	22.6	Outside	
Hori	15570.000	PK	44.6	39.0	-0.9	32.1	-	50.6	73.9	23.3	Inside	
Hori	1079.410	AV	56.0	24.2	1.7	35.1	-	46.8	53.9	7.1	Inside	
Hori	1146.809	AV	56.0	24.4	1.7	34.9	-	47.2	53.9	6.7	Inside	
Hori	1349.121	AV	56.6	25.0	1.9	34.3	-	49.2	53.9	4.7	Inside	
Hori	1416.824	AV	52.1	25.2	1.9	34.2	-	45.0	53.9	8.9	Inside	
Hori	4722.316	AV	45.3	30.4	3.5	31.8	-	47.4	53.9	6.5	Inside	
Hori	5150.000	AV	46.6	31.3	3.7	31.7	1.1	51.0	53.9	2.9	Bandedge	*1)
Hori	15570.000	AV	35.0	39.0	-0.9	32.1	1.1	42.1	53.9	11.8	Inside	
Vert	1079.410	PK	59.2	24.2	1.7	35.1	-	50.0	73.9	23.9	Inside	
Vert	1146.809	PK	58.6	24.4	1.7	34.9	-	49.8	73.9	24.1	Inside	
Vert	1349.121	PK	55.8	25.0	1.9	34.3	-	48.4	73.9	25.5	Inside	
Vert	1416.824	PK	57.5	25.2	1.9	34.2	-	50.4	73.9	23.5	Inside	
Vert	4722.316	PK	52.1	30.4	3.5	31.8	-	54.2	73.9	19.7	Inside	
Vert	5150.000	PK	56.8	31.3	3.7	31.7	-	60.1	68.2	8.1	Bandedge	
Vert	10380.000	PK	42.3	38.8	-2.4	33.6	-	45.1	68.2	23.1	Outside	
Vert	15570.000	PK	43.9	39.0	-0.9	32.1	-	49.9	73.9	24.0	Inside	
Vert	1079.410	AV	53.0	24.2	1.7	35.1	-	43.8	53.9	10.1	Inside	
Vert	1146.809	AV	53.8	24.4	1.7	34.9	-	45.0	53.9	8.9	Inside	
Vert	1349.121	AV	51.3	25.0	1.9	34.3	-	43.9	53.9	10.0	Inside	
Vert	1416.824	AV	52.0	25.2	1.9	34.2	-	44.9	53.9	9.0	Inside	
Vert	4722.316	AV	49.1	30.4	3.5	31.8	-	51.2	53.9	2.7	Inside	
Vert	5150.000	AV	45.2	31.3	3.7	31.7	1.1	49.6	53.9	4.3	Bandedge	*1)
Vert	15570.000	AV	34.9	39.0	-0.9	32.1	1.1	42.0	53.9	11.9	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty Factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

*1) Not Out of Band emission (Leakage Power)

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3&No.1 Anechoic Chamber				
Report No.	10512882H				
Date	11/09/2014	11/10/2014	11/10/2014	11/11/2014	11/04/2014
Temperature/ Humidity	24deg. C / 50% RH	23deg. C / 54% RH	25deg. C / 40% RH	22deg. C / 42% RH	24deg. C / 50% RH
Engineer	Yuta Moriya	Takumi Shimada	Satofumi Matsuyama	Takumi Shimada	Tsubasa Takayama
	(1-10GHz)	(10-18GHz)	(18-26.5GHz)	(Above 26.5GHz)	(30-1000MHz)
Mode	11ac-40 Tx 5230MHz				

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	78.210	QP	44.3	6.8	8.1	38.8	-	20.4	40.0	19.6	Outside	
Hori	159.611	QP	41.2	15.5	9.1	38.9	-	26.9	43.5	16.6	Outside	
Hori	169.541	QP	44.2	15.8	9.2	39.0	-	30.2	43.5	13.3	Inside	
Hori	270.721	QP	45.5	18.4	10.2	38.7	-	35.4	46.0	10.6	Inside	
Hori	539.714	QP	47.5	18.7	12.2	38.3	-	40.1	46.0	5.9	Outside	
Hori	607.154	QP	46.0	19.5	12.5	38.1	-	39.9	46.0	6.1	Outside	
Hori	674.627	QP	45.3	20.0	12.9	38.1	-	40.1	46.0	5.9	Outside	
Hori	809.552	QP	42.1	22.0	13.7	38.2	-	39.6	46.0	6.4	Outside	
Hori	877.025	QP	40.7	22.0	14.0	38.0	-	38.7	46.0	7.3	Outside	
Hori	944.482	QP	42.1	22.7	14.4	37.8	-	41.4	46.0	4.6	Outside	
Hori	1079.411	PK	59.8	24.2	1.7	35.1	-	50.6	73.9	23.3	Inside	
Hori	1146.810	PK	60.2	24.4	1.7	34.9	-	51.4	73.9	22.5	Inside	
Hori	1349.124	PK	61.1	25.0	1.9	34.3	-	53.7	73.9	20.2	Inside	
Hori	1416.823	PK	56.9	25.2	1.9	34.2	-	49.8	73.9	24.1	Inside	
Hori	4722.322	PK	49.7	30.4	3.5	31.8	-	51.8	73.9	22.1	Inside	
Hori	5350.000	PK	41.8	31.6	3.8	31.7	-	45.5	68.2	22.7	Bandedge	
Hori	10460.000	PK	42.4	38.8	-2.3	33.6	-	45.3	68.2	22.9	Outside	
Hori	15690.000	PK	44.5	38.6	-0.9	32.2	-	50.0	73.9	23.9	Inside	
Hori	1079.411	AV	56.2	24.2	1.7	35.1	-	47.0	53.9	6.9	Inside	
Hori	1146.810	AV	56.0	24.4	1.7	34.9	-	47.2	53.9	6.7	Inside	
Hori	1349.124	AV	56.5	25.0	1.9	34.3	-	49.1	53.9	4.8	Inside	
Hori	1416.823	AV	52.0	25.2	1.9	34.2	-	44.9	53.9	9.0	Inside	
Hori	4722.322	AV	45.4	30.4	3.5	31.8	-	47.5	53.9	6.4	Inside	
Hori	5350.000	AV	33.8	31.6	3.8	31.7	-	37.5	53.9	16.4	Bandedge	
Hori	15690.000	AV	35.2	38.6	-0.9	32.2	1.1	41.8	53.9	12.1	Inside	
Vert	40.631	QP	50.0	14.2	7.5	38.7	-	33.0	40.0	7.0	Outside	
Vert	52.912	QP	49.1	9.9	7.7	38.7	-	28.0	40.0	12.0	Outside	
Vert	110.341	QP	44.0	11.6	8.6	38.8	-	25.4	43.5	18.1	Inside	
Vert	134.935	QP	49.8	14.1	8.9	38.9	-	33.9	43.5	9.6	Inside	
Vert	168.641	QP	47.3	15.8	9.2	39.0	-	33.3	43.5	10.2	Inside	
Vert	202.631	QP	47.5	16.4	9.6	39.1	-	34.4	43.5	9.1	Outside	
Vert	674.631	QP	46.3	20.0	12.9	38.1	-	41.1	46.0	4.9	Outside	
Vert	877.021	QP	40.0	22.0	14.0	38.0	-	38.0	46.0	8.0	Outside	
Vert	944.488	QP	39.8	22.7	14.4	37.8	-	39.1	46.0	6.9	Outside	
Vert	1079.411	PK	59.3	24.2	1.7	35.1	-	50.1	73.9	23.8	Inside	
Vert	1146.810	PK	58.6	24.4	1.7	34.9	-	49.8	73.9	24.1	Inside	
Vert	1349.124	PK	55.9	25.0	1.9	34.3	-	48.5	73.9	25.4	Inside	
Vert	1416.823	PK	57.5	25.2	1.9	34.2	-	50.4	73.9	23.5	Inside	
Vert	4722.322	PK	52.3	30.4	3.5	31.8	-	54.4	73.9	19.5	Inside	
Vert	5350.000	PK	41.7	31.6	3.8	31.7	-	45.4	68.2	22.8	Bandedge	
Vert	10460.000	PK	42.8	38.8	-2.3	33.6	-	45.7	68.2	22.5	Outside	
Vert	15690.000	PK	44.8	38.6	-0.9	32.2	-	50.3	73.9	23.6	Inside	
Vert	1079.411	AV	53.3	24.2	1.7	35.1	-	44.1	53.9	9.8	Inside	
Vert	1146.810	AV	53.8	24.4	1.7	34.9	-	45.0	53.9	8.9	Inside	
Vert	1349.124	AV	51.2	25.0	1.9	34.3	-	43.8	53.9	10.1	Inside	
Vert	1416.823	AV	52.1	25.2	1.9	34.2	-	45.0	53.9	8.9	Inside	
Vert	4722.322	AV	49.0	30.4	3.5	31.8	-	51.1	53.9	2.8	Inside	
Vert	5350.000	AV	33.8	31.6	3.8	31.7	-	37.5	53.9	16.4	Bandedge	
Vert	15690.000	AV	35.2	38.6	-0.9	32.2	1.1	41.8	53.9	12.1	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty Factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

UL Japan, Inc.
Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3 Anechoic Chamber		
Report No.	10512882H		
Date	11/09/2014	11/10/2014	11/11/2014
Temperature/ Humidity	24deg. C / 50% RH	25deg. C / 40% RH	22deg. C / 42% RH
Engineer	Yuta Moriya (1-10GHz)	Satofumi Matsuyama (10-26.5GHz)	Takumi Shimada (Above 26.5GHz)
Mode	11ac-40 Tx 5755MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	1079.422	PK	59.8	24.2	1.7	35.1	-	50.6	73.9	23.3	Inside	
Hori	1146.811	PK	60.2	24.4	1.7	34.9	-	51.4	73.9	22.5	Inside	
Hori	1349.124	PK	61.1	25.0	1.9	34.3	-	53.7	73.9	20.2	Inside	
Hori	1416.825	PK	56.9	25.2	1.9	34.2	-	49.8	73.9	24.1	Inside	
Hori	4722.322	PK	49.6	30.4	3.5	31.8	-	51.7	73.9	22.2	Inside	
Hori	5725.000	PK	63.0	32.1	3.9	31.8	-	67.2	68.2	1.0	Outside	
Hori	11510.000	PK	44.1	39.6	-2.0	33.6	-	48.1	73.9	25.8	Inside	
Hori	17265.000	PK	46.8	42.3	-0.4	32.2	-	56.5	68.2	11.7	Outside	
Hori	1079.422	AV	56.2	24.2	1.7	35.1	-	47.0	53.9	6.9	Inside	
Hori	1146.811	AV	56.0	24.4	1.7	34.9	-	47.2	53.9	6.7	Inside	
Hori	1349.124	AV	56.5	25.0	1.9	34.3	-	49.1	53.9	4.8	Inside	
Hori	1416.825	AV	52.0	25.2	1.9	34.2	-	44.9	53.9	9.0	Inside	
Hori	4722.322	AV	45.2	30.4	3.5	31.8	-	47.3	53.9	6.6	Inside	
Hori	11510.000	AV	33.2	39.6	-2.0	33.6	1.1	38.3	53.9	15.6	Inside	
Vert	1079.422	PK	59.3	24.2	1.7	35.1	-	50.1	73.9	23.8	Inside	
Vert	1146.811	PK	58.6	24.4	1.7	34.9	-	49.8	73.9	24.1	Inside	
Vert	1349.124	PK	55.9	25.0	1.9	34.3	-	48.5	73.9	25.4	Inside	
Vert	1416.825	PK	57.5	25.2	1.9	34.2	-	50.4	73.9	23.5	Inside	
Vert	4722.322	PK	49.9	30.4	3.5	31.8	-	52.0	73.9	21.9	Inside	
Vert	5725.000	PK	60.4	32.1	3.9	31.8	-	64.6	68.2	3.6	Outside	
Vert	11510.000	PK	43.6	39.6	-2.0	33.6	-	47.6	73.9	26.3	Inside	
Vert	17265.000	PK	46.6	42.3	-0.4	32.2	-	56.3	68.2	11.9	Outside	
Vert	1079.422	AV	53.3	24.2	1.7	35.1	-	44.1	53.9	9.8	Inside	
Vert	1146.811	AV	53.8	24.4	1.7	34.9	-	45.0	53.9	8.9	Inside	
Vert	1349.124	AV	51.2	25.0	1.9	34.3	-	43.8	53.9	10.1	Inside	
Vert	1416.825	AV	52.1	25.2	1.9	34.2	-	45.0	53.9	8.9	Inside	
Vert	4722.322	AV	46.8	30.4	3.5	31.8	-	48.9	53.9	5.0	Inside	
Vert	11510.000	AV	33.2	39.6	-2.0	33.6	1.1	38.3	53.9	15.6	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty Factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3 &No.1 Anechoic Chamber			
Report No.	10512882H			
Date	11/09/2014	11/10/2014	11/11/2014	11/04/2014
Temperature/ Humidity	24deg. C / 50% RH	25deg. C / 40% RH	22deg. C / 42% RH	24deg. C / 50% RH
Engineer	Yuta Moriya (1-10GHz)	Satofumi Matsuyama (10-26.5GHz)	Takumi Shimada (Above 26.5GHz)	Tsubasa Takayama (30-1000MHz)
Mode	11ac-40 Tx 5795MHz			

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	78.279	QP	44.0	6.8	8.1	38.8	-	20.1	40.0	19.9	Outside	
Hori	159.645	QP	41.2	15.5	9.1	38.9	-	26.9	43.5	16.6	Outside	
Hori	169.541	QP	44.2	15.8	9.2	39.0	-	30.2	43.5	13.3	Inside	
Hori	270.772	QP	45.0	18.4	10.2	38.7	-	34.9	46.0	11.1	Inside	
Hori	539.752	QP	47.5	18.7	12.2	38.3	-	40.1	46.0	5.9	Outside	
Hori	607.144	QP	46.3	19.5	12.5	38.1	-	40.2	46.0	5.8	Outside	
Hori	674.673	QP	45.6	20.0	12.9	38.1	-	40.4	46.0	5.6	Outside	
Hori	809.555	QP	42.1	22.0	13.7	38.2	-	39.6	46.0	6.4	Outside	
Hori	877.032	QP	40.2	22.0	14.0	38.0	-	38.2	46.0	7.8	Outside	
Hori	919.572	QP	41.2	22.3	14.2	37.9	-	39.8	46.0	6.2	Outside	
Hori	944.447	QP	42.5	22.7	14.4	37.8	-	41.8	46.0	4.2	Outside	
Hori	1079.423	PK	59.8	24.2	1.7	35.1	-	50.6	73.9	23.3	Inside	
Hori	1146.854	PK	60.2	24.4	1.7	34.9	-	51.4	73.9	22.5	Inside	
Hori	1349.122	PK	61.1	25.0	1.9	34.3	-	53.7	73.9	20.2	Inside	
Hori	1416.866	PK	56.9	25.2	1.9	34.2	-	49.8	73.9	24.1	Inside	
Hori	4722.323	PK	49.6	30.4	3.5	31.8	-	51.7	73.9	22.2	Inside	
Hori	5850.000	PK	44.3	32.2	4.0	31.8	-	48.7	68.2	19.5	Outside	
Hori	11590.000	PK	43.8	39.6	-1.9	33.5	-	48.0	73.9	25.9	Inside	
Hori	17385.000	PK	44.4	43.3	-0.5	32.2	-	55.0	68.2	13.2	Outside	
Hori	1079.423	AV	56.2	24.2	1.7	35.1	-	47.0	53.9	6.9	Inside	
Hori	1146.854	AV	56.0	24.4	1.7	34.9	-	47.2	53.9	6.7	Inside	
Hori	1349.122	AV	56.5	25.0	1.9	34.3	-	49.1	53.9	4.8	Inside	
Hori	1416.866	AV	52.0	25.2	1.9	34.2	-	44.9	53.9	9.0	Inside	
Hori	4722.323	AV	45.2	30.4	3.5	31.8	-	47.3	53.9	6.6	Inside	
Hori	11590.000	AV	32.9	39.6	-1.9	33.5	1.1	38.2	53.9	15.7	Inside	
Vert	40.328	QP	50.1	14.3	7.5	38.7	-	33.2	40.0	6.8	Outside	
Vert	52.922	QP	48.4	9.9	7.7	38.7	-	27.3	40.0	12.7	Outside	
Vert	110.348	QP	44.3	11.6	8.6	38.8	-	25.7	43.5	17.8	Inside	
Vert	134.941	QP	48.3	14.1	8.9	38.9	-	32.4	43.5	11.1	Inside	
Vert	168.668	QP	47.0	15.8	9.2	39.0	-	33.0	43.5	10.5	Inside	
Vert	202.672	QP	47.4	16.4	9.6	39.1	-	34.3	43.5	9.2	Outside	
Vert	674.672	QP	45.6	20.0	12.9	38.1	-	40.4	46.0	5.6	Outside	
Vert	877.028	QP	40.2	22.0	14.0	38.0	-	38.2	46.0	7.8	Outside	
Vert	944.452	QP	39.9	22.7	14.4	37.8	-	39.2	46.0	6.8	Outside	
Vert	1079.423	PK	59.4	24.2	1.7	35.1	-	50.2	73.9	23.7	Inside	
Vert	1146.854	PK	58.3	24.4	1.7	34.9	-	49.5	73.9	24.4	Inside	
Vert	1349.122	PK	56.4	25.0	1.9	34.3	-	49.0	73.9	24.9	Inside	
Vert	1416.866	PK	57.8	25.2	1.9	34.2	-	50.7	73.9	23.2	Inside	
Vert	4722.323	PK	50.0	30.4	3.5	31.8	-	52.1	73.9	21.8	Inside	
Vert	5850.000	PK	44.1	32.2	4.0	31.8	-	48.5	68.2	19.7	Outside	
Vert	11590.000	PK	44.3	39.6	-1.9	33.5	-	48.5	73.9	25.4	Inside	
Vert	17385.000	PK	44.1	43.3	-0.5	32.2	-	54.7	68.2	13.5	Outside	
Vert	1079.423	AV	53.6	24.2	1.7	35.1	-	44.4	53.9	9.5	Inside	
Vert	1146.854	AV	53.8	24.4	1.7	34.9	-	45.0	53.9	8.9	Inside	
Vert	1349.122	AV	51.5	25.0	1.9	34.3	-	44.1	53.9	9.8	Inside	
Vert	1416.866	AV	52.0	25.2	1.9	34.2	-	44.9	53.9	9.0	Inside	
Vert	4722.323	AV	46.8	30.4	3.5	31.8	-	48.9	53.9	5.0	Inside	
Vert	11590.000	AV	32.9	39.6	-1.9	33.5	1.1	38.2	53.9	15.7	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty Factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

UL Japan, Inc.
Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3&No.1 Anechoic Chamber			
Report No.	10512882H			
Date	11/09/2014	11/10/2014	11/11/2014	11/04/2014
Temperature/ Humidity	24deg. C / 50% RH	25deg. C / 40% RH	22deg. C / 42% RH	24deg. C / 50% RH
Engineer	Yuta Moriya (1-10GHz)	Satofumi Matsuyama (10-26.5GHz)	Takumi Shimada (Above 26.5GHz)	Tsubasa Takayama (30-1000MHz)
Mode	11ac-80 Tx 5210MHz			

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	78.241	QP	44.1	6.8	8.1	38.8	-	20.2	40.0	19.8	Outside	
Hori	159.641	QP	41.2	15.5	9.1	38.9	-	26.9	43.5	16.6	Outside	
Hori	169.562	QP	44.2	15.8	9.2	39.0	-	30.2	43.5	13.3	Inside	
Hori	270.783	QP	45.6	18.4	10.2	38.7	-	35.5	46.0	10.5	Inside	
Hori	539.725	QP	47.4	18.7	12.2	38.3	-	40.0	46.0	6.0	Outside	
Hori	607.159	QP	46.0	19.5	12.5	38.1	-	39.9	46.0	6.1	Outside	
Hori	674.643	QP	45.7	20.0	12.9	38.1	-	40.5	46.0	5.5	Outside	
Hori	809.572	QP	42.0	22.0	13.7	38.2	-	39.5	46.0	6.5	Outside	
Hori	877.022	QP	41.0	22.0	14.0	38.0	-	39.0	46.0	7.0	Outside	
Hori	919.570	QP	41.2	22.3	14.2	37.9	-	39.8	46.0	6.2	Outside	
Hori	944.441	QP	42.2	22.7	14.4	37.8	-	41.5	46.0	4.5	Outside	
Hori	1079.422	PK	59.5	24.2	1.7	35.1	-	50.3	73.9	23.6	Inside	
Hori	1146.852	PK	60.2	24.4	1.7	34.9	-	51.4	73.9	22.5	Inside	
Hori	1349.122	PK	61.2	25.0	1.9	34.3	-	53.8	73.9	20.1	Inside	
Hori	1416.866	PK	56.6	25.2	1.9	34.2	-	49.5	73.9	24.4	Inside	
Hori	4722.313	PK	49.2	30.4	3.5	31.8	-	51.3	73.9	22.6	Inside	
Hori	5150.000	PK	60.6	31.3	3.7	31.7	-	63.9	68.2	4.3	Bandedge	
Hori	5350.000	PK	43.0	31.6	3.8	31.7	-	46.7	68.2	21.5	Bandedge	
Hori	10420.000	PK	43.7	38.8	-2.3	33.6	-	46.6	68.2	21.6	Outside	
Hori	15630.000	PK	43.5	38.8	-0.9	32.1	-	49.3	73.9	24.6	Inside	
Hori	1079.422	AV	56.3	24.2	1.7	35.1	-	47.1	53.9	6.8	Inside	
Hori	1146.852	AV	56.0	24.4	1.7	34.9	-	47.2	53.9	6.7	Inside	
Hori	1349.122	AV	56.8	25.0	1.9	34.3	-	49.4	53.9	4.5	Inside	
Hori	1416.866	AV	52.1	25.2	1.9	34.2	-	45.0	53.9	8.9	Inside	
Hori	4722.313	AV	45.1	30.4	3.5	31.8	-	47.2	53.9	6.7	Inside	
Hori	5150.000	AV	44.7	31.3	3.7	31.7	1.2	49.2	53.9	4.8	Bandedge	*1)
Hori	5350.000	AV	34.9	31.6	3.8	31.7	-	38.6	53.9	15.3	Bandedge	
Hori	15630.000	AV	35.1	38.8	-0.9	32.1	1.2	42.1	53.9	11.9	Inside	
Vert	40.326	QP	50.2	14.3	7.5	38.7	-	33.3	40.0	6.7	Outside	
Vert	52.921	QP	49.0	9.9	7.7	38.7	-	27.9	40.0	12.1	Outside	
Vert	110.344	QP	44.3	11.6	8.6	38.8	-	25.7	43.5	17.8	Inside	
Vert	134.914	QP	49.2	14.1	8.9	38.9	-	33.3	43.5	10.2	Inside	
Vert	168.641	QP	47.8	15.8	9.2	39.0	-	33.8	43.5	9.7	Inside	
Vert	202.644	QP	47.1	16.4	9.6	39.1	-	34.0	43.5	9.5	Outside	
Vert	674.641	QP	46.7	20.0	12.9	38.1	-	41.5	46.0	4.5	Outside	
Vert	877.018	QP	40.3	22.0	14.0	38.0	-	38.3	46.0	7.7	Outside	
Vert	944.451	QP	39.9	22.7	14.4	37.8	-	39.2	46.0	6.8	Outside	
Vert	1079.422	PK	59.3	24.2	1.7	35.1	-	50.1	73.9	23.8	Inside	
Vert	1146.852	PK	58.7	24.4	1.7	34.9	-	49.9	73.9	24.0	Inside	
Vert	1349.122	PK	56.7	25.0	1.9	34.3	-	49.3	73.9	24.6	Inside	
Vert	1416.866	PK	57.7	25.2	1.9	34.2	-	50.6	73.9	23.3	Inside	
Vert	4722.313	PK	49.7	30.4	3.5	31.8	-	51.8	73.9	22.1	Inside	
Vert	5150.000	PK	61.9	31.3	3.7	31.7	-	65.2	68.2	3.0	Bandedge	
Vert	5350.000	PK	43.8	31.6	3.8	31.7	-	47.5	68.2	20.7	Bandedge	
Vert	10420.000	PK	43.9	38.8	-2.3	33.6	-	46.8	68.2	21.4	Outside	
Vert	15630.000	PK	44.4	38.8	-0.9	32.1	-	50.2	73.9	23.7	Inside	
Vert	1079.422	AV	53.7	24.2	1.7	35.1	-	44.5	53.9	9.4	Inside	
Vert	1146.852	AV	53.8	24.4	1.7	34.9	-	45.0	53.9	8.9	Inside	
Vert	1349.122	AV	51.4	25.0	1.9	34.3	-	44.0	53.9	9.9	Inside	
Vert	1416.866	AV	52.0	25.2	1.9	34.2	-	44.9	53.9	9.0	Inside	
Vert	4722.313	AV	46.6	30.4	3.5	31.8	-	48.7	53.9	5.2	Inside	
Vert	5150.000	AV	47.4	31.3	3.7	31.7	1.2	51.9	53.9	2.1	Bandedge	*1)
Vert	5350.000	AV	34.9	31.6	3.8	31.7	-	38.6	53.9	15.3	Bandedge	
Vert	15630.000	AV	35.0	38.8	-0.9	32.1	1.2	42.0	53.9	12.0	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty Factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

*1) Not Out of Band emission (Leakage Power)

Radiated Spurious Emission

Test place	Ise EMC Lab. No.3&No.1 Anechoic Chamber			
Report No.	10512882H			
Date	11/09/2014	11/10/2014	11/11/2014	11/04/2014
Temperature/ Humidity	24deg. C / 50% RH	21deg. C / 41% RH	22deg. C / 42% RH	24deg. C / 50% RH
Engineer	Yuta Moriya (1-10GHz)	Takumi Shimada (10-26.5GHz)	Takumi Shimada (Above 26.5GHz)	Tsubasa Takayama (30-1000MHz)
Mode	11ac-80 Tx 5775MHz			

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	78.272	QP	44.0	6.8	8.1	38.8	-	20.1	40.0	19.9	Outside	
Hori	159.667	QP	41.2	15.5	9.1	38.9	-	26.9	43.5	16.6	Outside	
Hori	169.583	QP	44.7	15.9	9.2	39.0	-	30.8	43.5	12.7	Inside	
Hori	270.777	QP	45.3	18.4	10.2	38.7	-	35.2	46.0	10.8	Inside	
Hori	539.766	QP	47.5	18.7	12.2	38.3	-	40.1	46.0	5.9	Outside	
Hori	607.154	QP	46.1	19.5	12.5	38.1	-	40.0	46.0	6.0	Outside	
Hori	674.659	QP	45.3	20.0	12.9	38.1	-	40.1	46.0	5.9	Outside	
Hori	809.568	QP	42.1	22.0	13.7	38.2	-	39.6	46.0	6.4	Outside	
Hori	877.027	QP	40.6	22.0	14.0	38.0	-	38.6	46.0	7.4	Outside	
Hori	919.573	QP	41.0	22.3	14.2	37.9	-	39.6	46.0	6.4	Outside	
Hori	944.444	QP	42.1	22.7	14.4	37.8	-	41.4	46.0	4.6	Outside	
Hori	1079.423	PK	59.6	24.2	1.7	35.1	-	50.4	73.9	23.5	Inside	
Hori	1146.853	PK	60.3	24.4	1.7	34.9	-	51.5	73.9	22.4	Inside	
Hori	1349.125	PK	61.2	25.0	1.9	34.3	-	53.8	73.9	20.1	Inside	
Hori	1416.862	PK	56.5	25.2	1.9	34.2	-	49.4	73.9	24.5	Inside	
Hori	4722.314	PK	49.4	30.4	3.5	31.8	-	51.5	73.9	22.4	Inside	
Hori	5725.000	PK	61.8	32.1	3.9	31.8	-	66.0	68.2	2.2	Outside	
Hori	5850.000	PK	48.7	32.2	4.0	31.8	-	53.1	68.2	15.1	Outside	
Hori	11550.000	PK	43.9	39.6	-2.0	33.6	-	47.9	73.9	26.0	Inside	
Hori	17325.000	PK	43.8	42.8	-0.4	32.2	-	54.0	68.2	14.2	Outside	
Hori	1079.423	AV	56.2	24.2	1.7	35.1	-	47.0	53.9	6.9	Inside	
Hori	1146.853	AV	56.5	24.4	1.7	34.9	-	47.7	53.9	6.2	Inside	
Hori	1349.125	AV	56.8	25.0	1.9	34.3	-	49.4	53.9	4.5	Inside	
Hori	1416.862	AV	52.4	25.2	1.9	34.2	-	45.3	53.9	8.6	Inside	
Hori	4722.314	AV	45.7	30.4	3.5	31.8	-	47.8	53.9	6.1	Inside	
Hori	11550.000	AV	33.1	39.6	-2.0	33.6	1.2	38.3	53.9	15.7	Inside	
Vert	40.331	QP	50.1	14.3	7.5	38.7	-	33.2	40.0	6.8	Outside	
Vert	52.925	QP	48.8	9.9	7.7	38.7	-	27.7	40.0	12.3	Outside	
Vert	110.351	QP	44.4	11.6	8.6	38.8	-	25.8	43.5	17.7	Inside	
Vert	134.963	QP	49.0	14.1	8.9	38.9	-	33.1	43.5	10.4	Inside	
Vert	168.665	QP	47.5	15.8	9.2	39.0	-	33.5	43.5	10.0	Inside	
Vert	202.626	QP	47.4	16.4	9.6	39.1	-	34.3	43.5	9.2	Outside	
Vert	674.631	QP	46.0	20.0	12.9	38.1	-	40.8	46.0	5.2	Outside	
Vert	877.026	QP	40.5	22.0	14.0	38.0	-	38.5	46.0	7.5	Outside	
Vert	944.451	QP	39.9	22.7	14.4	37.8	-	39.2	46.0	6.8	Outside	
Vert	1079.423	PK	59.3	24.2	1.7	35.1	-	50.1	73.9	23.8	Inside	
Vert	1146.853	PK	58.7	24.4	1.7	34.9	-	49.9	73.9	24.0	Inside	
Vert	1349.125	PK	56.7	25.0	1.9	34.3	-	49.3	73.9	24.6	Inside	
Vert	1416.862	PK	57.7	25.2	1.9	34.2	-	50.6	73.9	23.3	Inside	
Vert	4722.313	PK	51.4	30.4	3.5	31.8	-	53.5	73.9	20.4	Inside	
Vert	5725.000	PK	62.0	32.1	3.9	31.8	-	66.2	68.2	2.0	Outside	
Vert	5850.000	PK	49.3	32.2	4.0	31.8	-	53.7	68.2	14.5	Outside	
Vert	11550.000	PK	43.7	39.6	-2.0	33.6	-	47.7	73.9	26.2	Inside	
Vert	17325.000	PK	44.0	42.8	-0.4	32.2	-	54.2	68.2	14.0	Outside	
Vert	1079.423	AV	53.7	24.2	1.7	35.1	-	44.5	53.9	9.4	Inside	
Vert	1146.853	AV	53.8	24.4	1.7	34.9	-	45.0	53.9	8.9	Inside	
Vert	1349.125	AV	51.4	25.0	1.9	34.3	-	44.0	53.9	9.9	Inside	
Vert	1416.862	AV	52.0	25.2	1.9	34.2	-	44.9	53.9	9.0	Inside	
Vert	4722.313	AV	48.5	30.4	3.5	31.8	-	50.6	53.9	3.3	Inside	
Vert	11550.000	AV	33.1	39.6	-2.0	33.6	1.2	38.3	53.9	15.7	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier) + Duty Factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

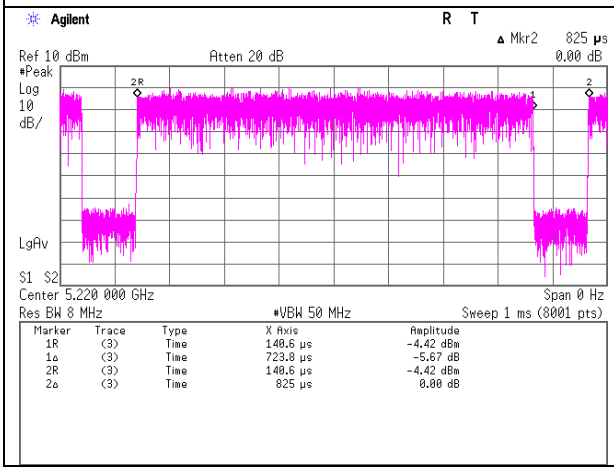
UL Japan, Inc.
Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999
Facsimile : +81 596 24 8124

Duty cycle

Test place	Ise EMC Lab. No.3 Anechoic Chamber
Report No.	10512882H
Date	11/04/2014
Temperature/ Humidity	21deg. C / 41% RH
Engineer	Takumi Shimada
Mode	11a/n-20/n-40/ac-20 Tx

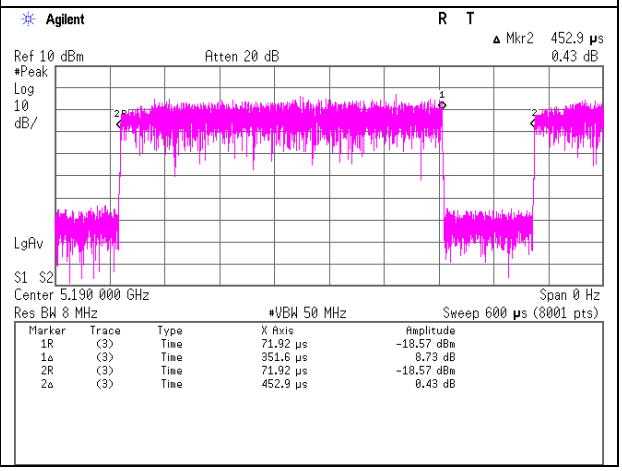
11a 12Mbps

Tx on / (Tx on + Tx off) = 0.877
Tx on / (Tx on + Tx off) * 100 = 87.7 %
Duty factor = 10 * log (825 / 723.8) = 0.57 dB



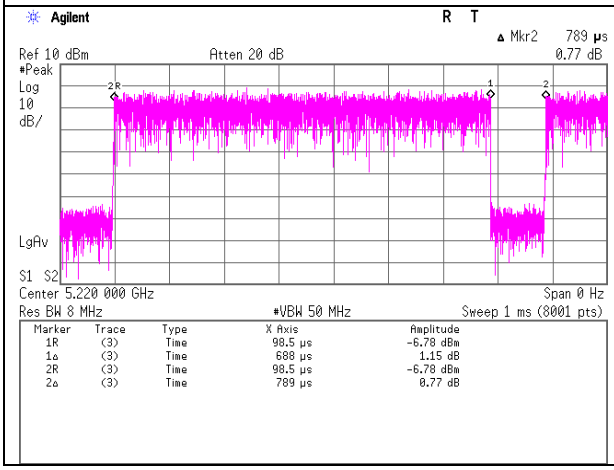
11n-40 MCS1

Tx on / (Tx on + Tx off) = 0.776
Tx on / (Tx on + Tx off) * 100 = 77.6 %
Duty factor = 10 * log (452.9 / 351.6) = 1.10 dB



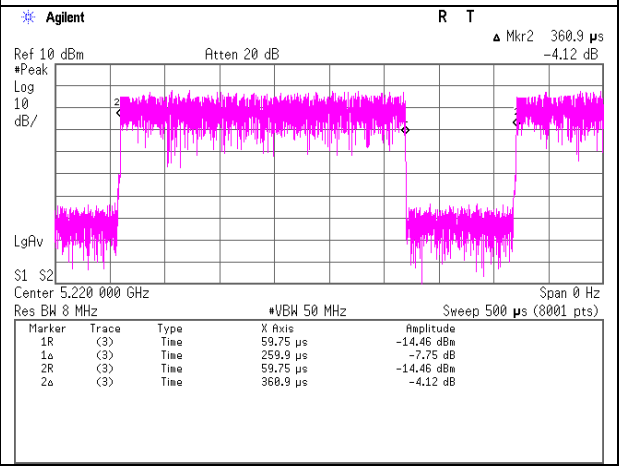
11n-20 MCS1

Tx on / (Tx on + Tx off) = 0.872
Tx on / (Tx on + Tx off) * 100 = 87.2 %
Duty factor = 10 * log (789 / 688) = 0.59 dB



11ac-20 MCS4

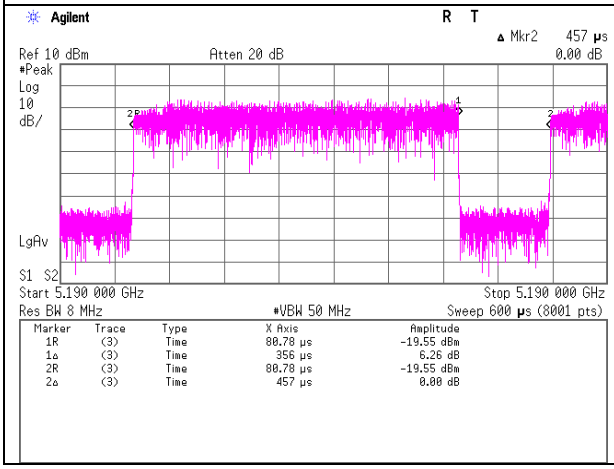
Tx on / (Tx on + Tx off) = 0.720
Tx on / (Tx on + Tx off) * 100 = 72.0 %
Duty factor = 10 * log (360.9 / 259.9) = 1.43 dB

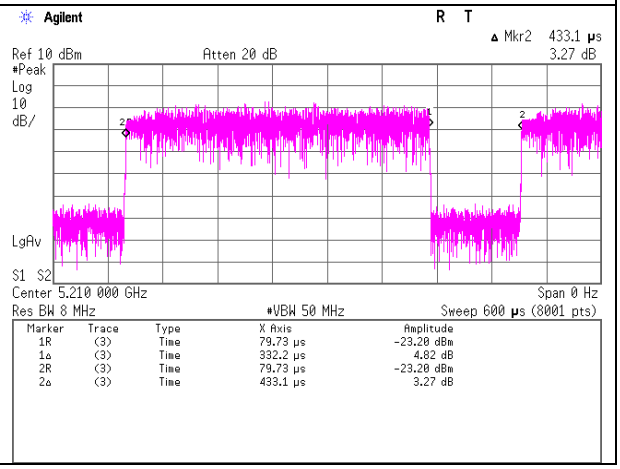


Duty cycle

Test place	Ise EMC Lab. No.3 Anechoic Chamber
Report No.	10512882H
Date	11/04/2014
Temperature/ Humidity	21deg. C / 41% RH
Engineer	Takumi Shimada
Mode	11ac-40/ac-80 Tx

11ac-40 MCS1 W52		11ac-80 MCS0 W52	
Tx on / (Tx on + Tx off) =	**0.779**	**Tx on / (Tx on + Tx off) =**	**0.767**
Tx on / (Tx on + Tx off) * 100 =	**77.9 %**	**Tx on / (Tx on + Tx off) * 100 =**	**76.7 %**
Duty factor = 10 * log (457 / 356) =	**1.08 dB**	**Duty factor = 10 * log (433.1 / 332.2) =**	**1.15 dB**



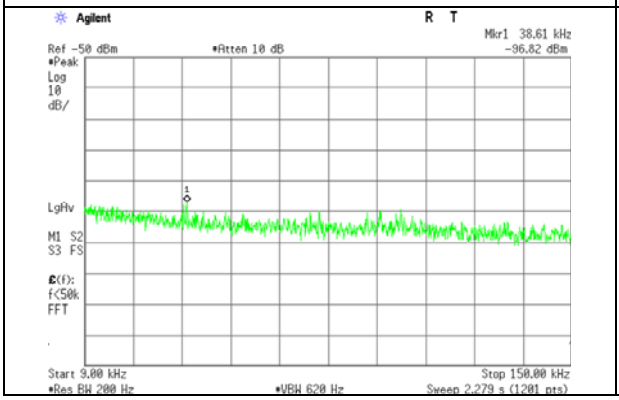


Conducted Spurious Emission

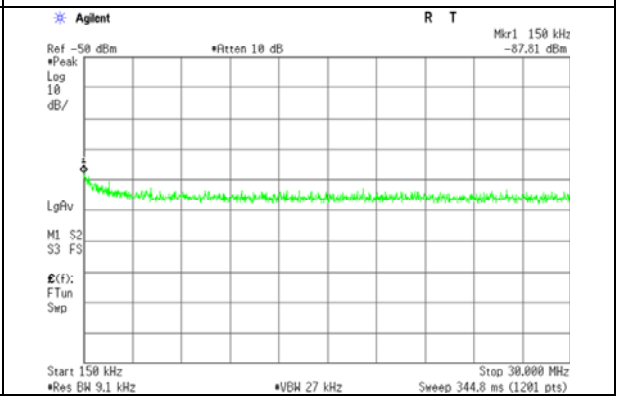
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10512882H
Date	11/07/2014
Temperature/ Humidity	22deg. C / 45% RH
Engineer	Kazuya Yoshioka
Mode	Tx

11ac-20 Tx 5240MHz

9kHz-150kHz



150kHz-30MHz



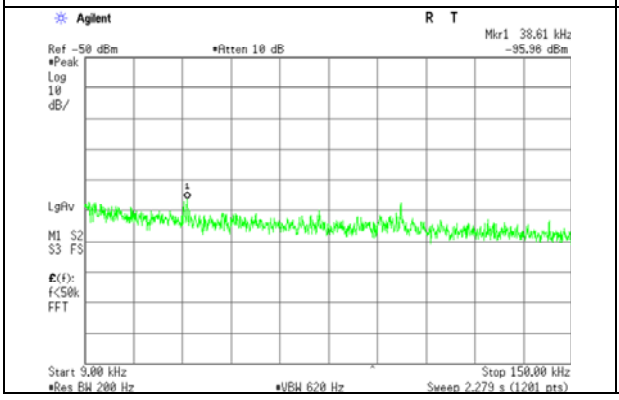
Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenator [dB]	Antenna Gain [dBi]	N (Number of Output	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
38.61	-96.8	0.01	9.9	2.0	1	-85.0	300	6.0	-23.7	55.8	79.5	
150.00	-87.8	0.01	9.9	2.0	1	-76.0	300	6.0	-14.7	44.0	58.7	

E=EIRP-20log(D)+Ground bounce +104.8[dBuV/m]

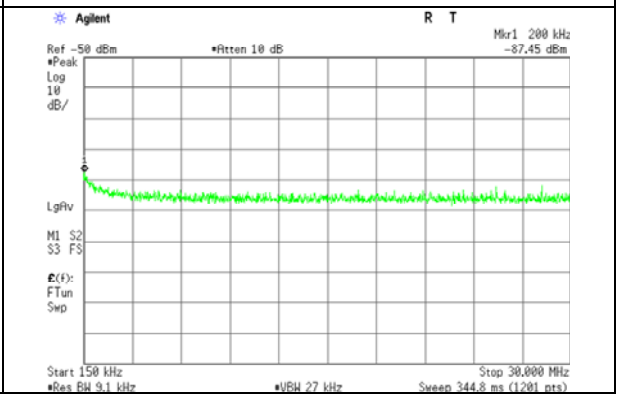
EIRP=Reading+Cable Loss+Attenator+Antenna Gain+10*log(N)

11ac-20 Tx 5825MHz

9kHz-150kHz



150kHz-30MHz



Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenator [dB]	Antenna Gain [dBi]	N (Number of Output	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
38.61	-96.0	0.01	9.9	2.0	1	-84.1	300	6.0	-22.8	55.8	78.6	
150.00	-87.4	0.01	9.9	2.0	1	-75.6	300	6.0	-14.3	44.0	58.3	

E=EIRP-20log(D)+Ground bounce +104.8[dBuV/m]

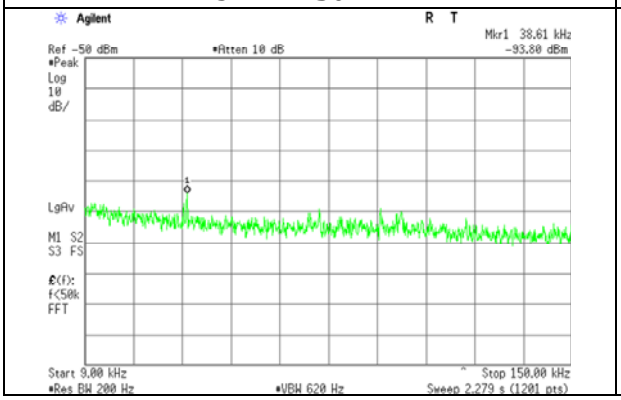
EIRP=Reading+Cable Loss+Attenator+Antenna Gain+10*log(N)

Conducted Spurious Emission

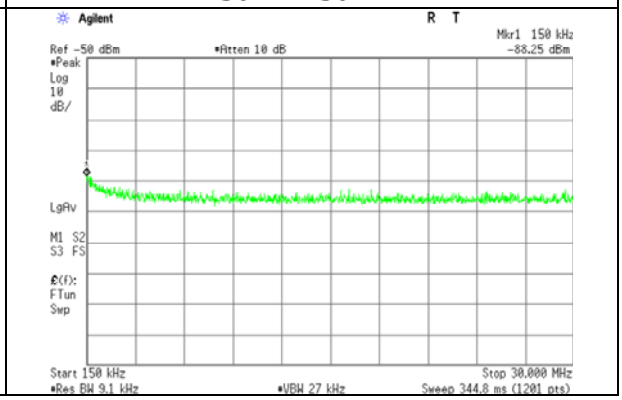
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10512882H
Date	11/07/2014
Temperature/ Humidity	22deg. C / 45% RH
Engineer	Kazuya Yoshioka
Mode	Tx

11ac-40 Tx 5230MHz

9kHz-150kHz



150kHz-30MHz



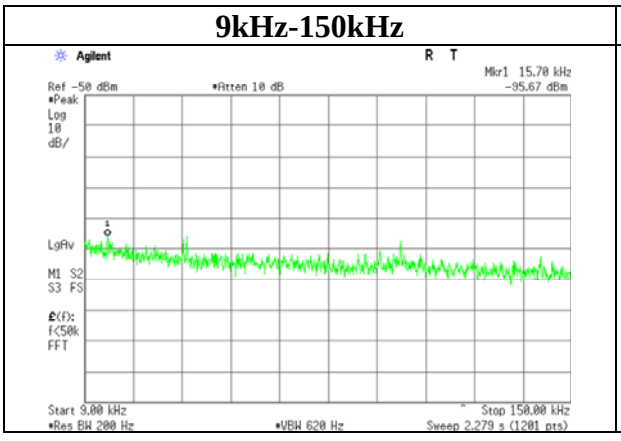
Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenator [dB]	Antenna Gain [dBi]	N (Number of Output	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
38.61	-93.8	0.01	9.9	2.0	1	-81.9	300	6.0	-20.7	55.8	76.5	
150.00	-88.3	0.01	9.9	2.0	1	-76.4	300	6.0	-15.1	44.0	59.1	

E=EIRP-20log(D)+Ground bounce +104.8[dBuV/m]

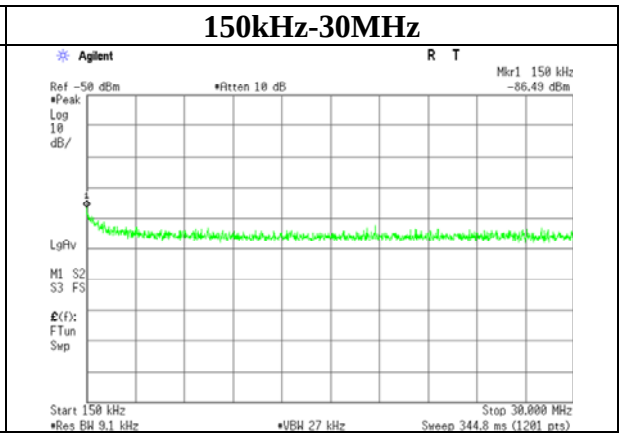
EIRP=Reading+Cable Loss+Attenator+Antenna Gain+10*log(N)

11ac-40 Tx 5795MHz

9kHz-150kHz



150kHz-30MHz



Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenator [dB]	Antenna Gain [dBi]	N (Number of Output	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
15.70	-95.7	0.01	9.9	2.0	1	-83.8	300	6.0	-22.5	63.6	86.1	
150.00	-86.5	0.01	9.9	2.0	1	-74.6	300	6.0	-13.4	44.0	57.4	

E=EIRP-20log(D)+Ground bounce +104.8[dBuV/m]

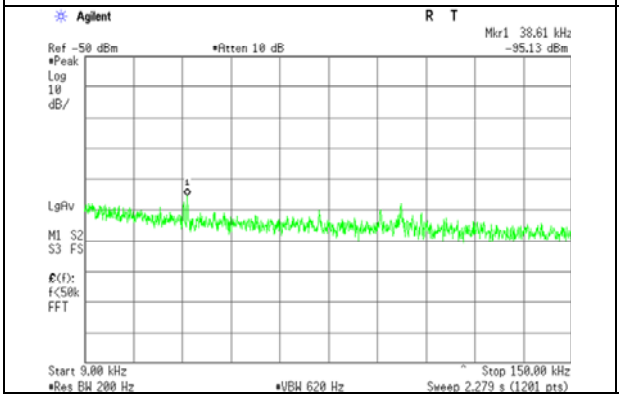
EIRP=Reading+Cable Loss+Attenator+Antenna Gain+10*log(N)

Conducted Spurious Emission

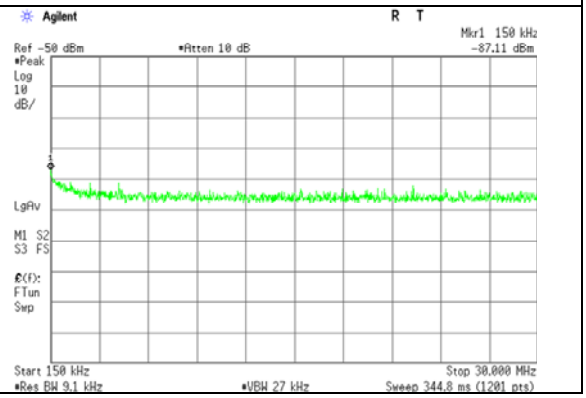
Test place	Ise EMC Lab. No.6 Measurement Room
Report No.	10512882H
Date	11/07/2014
Temperature/ Humidity	22deg. C / 45% RH
Engineer	Kazuya Yoshioka
Mode	Tx

11ac-80 Tx 5210MHz

9kHz-150kHz



150kHz-30MHz



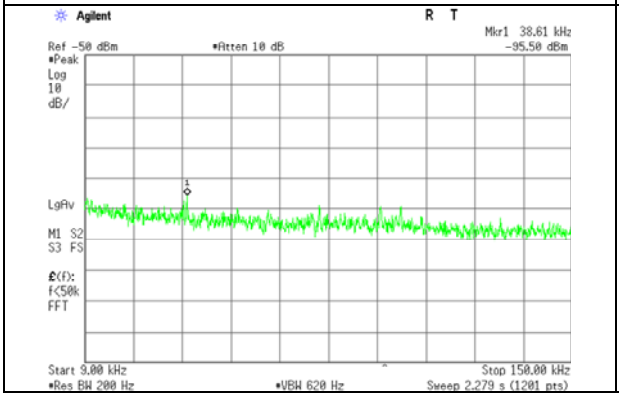
Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenator [dB]	Antenna Gain [dBi]	N (Number of Output	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
38.61	-95.1	0.01	9.9	2.0	1	-83.3	300	6.0	-22.0	55.8	77.8	
150.00	-87.1	0.01	9.9	2.0	1	-75.2	300	6.0	-14.0	44.0	58.0	

E=EIRP-20log(D)+Ground bounce +104.8[dBuV/m]

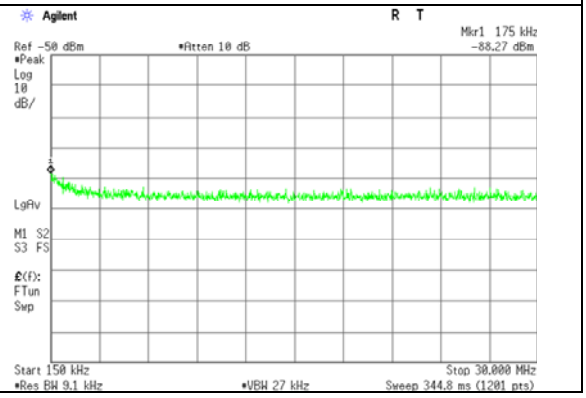
EIRP=Reading+Cable Loss+Attenator+Antenna Gain+10*log(N)

11ac-80 Tx 5775MHz

9kHz-150kHz



150kHz-30MHz



Frequency [kHz]	Reading [dBm]	Cable Loss [dB]	Attenator [dB]	Antenna Gain [dBi]	N (Number of Output	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
38.61	-95.5	0.01	9.9	2.0	1	-83.6	300	6.0	-22.4	55.8	78.2	
150.00	-88.3	0.01	9.9	2.0	1	-76.4	300	6.0	-15.2	44.0	59.2	

E=EIRP-20log(D)+Ground bounce +104.8[dBuV/m]

EIRP=Reading+Cable Loss+Attenator+Antenna Gain+10*log(N)

APPENDIX 2: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MCC-67	Microwave Cable 1G-40GHz	Suhner	SUCOFLEX102	28635/2	AT	2014/04/14 * 12
MAT-23	Attenuator(10dB) 1-18GHz	Orient Microwave	BX10-0476-00	-	AT	2014/03/13 * 12
MOS-12	Thermo-Hygrometer	Custom	CTH-180	1201	AT	2014/01/14 * 12
MAEC-03	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE	2014/02/27 * 12
MOS-13	Thermo-Hygrometer	Custom	CTH-180	1301	RE	2014/02/20 * 12
MJM-16	Measure	KOMELON	KMC-36	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MRENT-116	Spectrum Analyzer	Agilent	E4440A	MY46187620	RE	2014/03/05 * 12
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	258	RE	2014/05/26 * 12
MCC-167	Microwave Cable	Junkosha	MWX221	1404S374(1m) / 1405S074(5m)	RE	2014/05/26 * 12
MPA-11	MicroWave System Amplifier	Agilent	83017A	MY39500779	RE	2014/03/24 * 12
MAEC-01	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 10m	DA-06881	RE	2014/09/01 * 12
MOS-27	Thermo-Hygrometer	CUSTOM	CTH-201	A08Q26	RE	2014/02/20 * 12
MJM-21	Measure	KOMELON	KMC-36	-	RE	-
MTR-09	EMI Test Receiver	Rohde & Schwarz	ESU26	100412	RE	2014/06/06 * 12
KBA-05	Biconical Antenna	Schwarzbeck	BBA9106	2513	RE	2013/11/24 * 12
KLA-04	Logperiodic Antenna	Schwarzbeck	USLP9143	361	RE	2013/11/24 * 12
MAT-08	Attenuator(6dB)	Weinschel Corp	2	BK7971	RE	2013/11/26 * 12
MCC-02	Coaxial Cable	Suhner/storm/Agilent/TSJ	-	-	RE	2014/09/12 * 12
MPA-19	Pre Amplifier	MITEQ	MLA-10K01-B01-35	1237616	RE	2014/02/17 * 12
MOS-14	Thermo-Hygrometer	Custom	CTH-201	1401	AT	2014/02/20 * 12
MSA-03	Spectrum Analyzer	Agilent	E4448A	MY44020357	AT/RE	2014/04/08 * 12
MPM-16	Power Meter	Agilent	8990B	MY51000271	AT	2014/04/04 * 12
MPSE-22	Power sensor	Agilent	N1923A	MY54070003	AT	2014/04/04 * 12
MAT-21	Attenuator(20dB)(above 1GHz)	HIROSE ELECTRIC CO.,LTD.	AT-120	901247	AT	2014/01/15 * 12
MCC-66	Microwave Cable 1G-40GHz	Suhner	SUCOFLEX102	28636/2	AT	2014/04/09 * 12
MAT-10	Attenuator(10dB)	Weinschel Corp	2	BL1173	AT	2013/11/26 * 12
MCC-64	Coaxial Cable	UL Japan	-	-	AT	2014/03/28 * 12
MCC-76	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	278967/4	RE	2013/12/24 * 12
MHF-22	High Pass Filter 7-20GHz	TOKIMEC	TF37NCCB	602	RE	2014/01/16 * 12
MHA-16	Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170	BBHA9170306	RE	2014/05/26 * 12
MCC-54	Microwave Cable	Suhner	SUCOFLEX101	2873(1m) / 2876(5m)	RE	2014/03/11 * 12
MPA-03	Microwave System Power Amplifier	Agilent	83050A	3950M00205	RE	2014/06/30 * 12

The expiration date of the calibration is the end of the expired month.
All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or international standards.

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

Test Item: RE: Radiated Emission
AT: Antenna Terminal Conducted test