RADIO TEST REPORT

Test Report No. : 32KE0041-HO-02-D-R1

Applicant	:	**Sony Corporation**
Type of Equipment	:	**Personal Computer**
Model No.	:	**SVD112A1WL**
FCC ID	:	**AK8SVD112A1WL**
Test regulation	:	**FCC Part 15 Subpart E: 2012**
Test Result	:	**Complied**

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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 report is a revised version of 32KE0041-HO-02-D. 32KE0041-HO-02-D is replaced with this report.

Date of test: July 20 to 27, 2012

Representative test engineer:
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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.
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http://www.ul.com/japan/jpn/pages/services/emc/about/mark1/index.jsp#nvlap

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SECTION 1: Customer information

Company Name	:	Sony Corporation
Address	:	1-7-1 Konan, Minato-ku, Tokyo, 399-8282 Japan
Telephone Number	:	+81-263-71-8272
Facsimile Number	:	+81-263-71-8984
Contact Person	:	Yuichi Kosaka

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

2.1 Identification of E.U.T.

Type of Equipment	:	Personal Computer
Model No.	:	SVD112A1WL
Serial No.	:	Refer to Section 4, Clause 4.2
Rating	:	DC 10.5V, 4.3A
Receipt Date of Sample	:	July 7, 2012
Country of Mass-production	:	Japan
Condition of EUT	:	Production 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

Feature of EUT	:	This model is co-located with Wireless LAN(IEEE802.11a/b/g/n)/ Bluetooth module, NFC Module and stylus. Each antenna is included in the Personal computer. This model can co-operate Wireless LAN(IEEE802.11a) + Bluetooth + NFC + stylus.
Clock frequency(ies) in the system	:	12MHz, 25MHz

Radio Specification

Specification of Wireless LAN (IEEE802.11a/b/g) and Bluetooth

Type of radio	Wireless LAN (IEEE802.11a)	Wireless LAN (IEEE802.11b/g)	Bluetooth (EDR/BDR/LE)
Equipment Type	Transceiver		
Frequency of Operation	**Low Band** Lower frequency=5180MHz Upper frequency=5320MHz **High Band** Lower frequency=5500MHz Upper frequency=5700MHz **Upper Band** Lower frequency=5745MHz Upper frequency=5825MHz	Lower frequency=2412MHz Upper frequency=2462MHz	Lower frequency=2402MHz Upper frequency=2480MHz
Bandwidth & Channel spacing	Bandwidth: 20MHz Ch spacing: 20MHz	Bandwidth: 20MHz Ch spacing: 5MHz	Bandwidth: 1MHz Ch spacing: 1MHz (EDR/BDR), 2MHz (LE)
Type of Modulation	OFDM	11b: DSSS 11g: OFDM	EDR/BDR: GFSK, π/4DQPSK, 8DPSK LE: GFSK
Antenna Type	PIFA (Internal)		
Antenna Connector Type	U.FL compatible connector		
Antenna Gain	Antenna 1: +1.95dBi (2.4GHz) +1.83dBi (5GHz) Antenna 2: +1.20dBi (2.4GHz) +2.33dBi (5GHz) (Including Cableloss)		+1.20dBi
Power Supply	DC 3.3V		
Operating temperature range	+5 to +35 deg. C.		

Specification of Wireless LAN (IEEE802.11n)

Type of radio	Wireless LAN (IEEE802.11n)			
	2.4G Band MISO / MIMO (20M Band)	2.4G Band MISO / MIMO (40M Band)	5G Band MISO / MIMO (20M Band)	5G Band MISO / MIMO (40M Band)
Equipment Type	Transceiver			
Frequency of Operation	Lower frequency =2412MHz Upper frequency =2462MHz	Lower frequency =2422MHz Upper frequency =2452MHz	**Low Band** Lower frequency=5180MHz Upper frequency=5320MHz **High Band** Lower frequency=5500MHz Upper frequency=5700MHz **Upper Band** Lower frequency=5745MHz Upper frequency=5825MHz	**Low Band** Lower frequency=5190MHz Upper frequency=5310MHz **High Band** Lower frequency=5510MHz Upper frequency=5670MHz **Upper Band** Lower frequency=5755MHz Upper frequency=5795MHz
Bandwidth & Channel spacing	Bandwidth: 20MHz Ch spacing: 5MHz	Bandwidth: 40MHz Ch spacing: 5MHz	Bandwidth: 20MHz Ch spacing: 20MHz	Bandwidth: 40MHz Ch spacing: 40MHz
Type of Modulation	OFDM			
Antenna Type	PIFA (Internal)			
Antenna Connector Type	U.FL compatible connector			
Antenna Gain	Antenna 1: +1.95dBi (2.4GHz) +1.83dBi (5GHz) Antenna 2: +1.20dBi (2.4GHz) +2.33dBi (5GHz) (Including Cableloss)			
Power Supply	DC 3.3V			
Operating temperature range	+5 to +35 deg. C.			

*This test report applies for Wireless LAN (IEEE802.11a/n-20/n-40).

*Wireless LAN (IEEE802.11a/n, 5G Band) and Bluetooth transmit simultaneously by Antenna 2. The co-location and co-operation are tested in this test report.

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification	:	FCC Part 15 Subpart E: 2012, final revised on July 23, 2012 and effective August 22, 2012
Title	:	FCC 47CFR Part15 Radio Frequency Device Subpart E Unlicensed National Information Infrastructure Devices Section 15.407 General technical requirements

* The revision on July 23, 2012 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 C63.4:2003	**FCC:** 15.407(b)(6) / 15.207	**QP** 10.3dB, 0.15000MHz, L **AV** 8.3dB, 0.50412MHz, N	Complied	-
	IC: RSS-Gen 7.2.4	**IC:** RSS-Gen 7.2.4			
26dB Emission Bandwidth	**FCC :**ANSI C63.4:2003 FCC Public Notice 789033	**FCC :** 15.407(a)(1)(2)(3)	See data	N/A	Conducted
	IC: -	**IC:** -			
Maximum Peak Output Power	**FCC :**ANSI C63.4:2003, FCC Public Notice 789033	**FCC :** 15.407(a)(1)(2)(3)		Complied	Conducted
	IC: -	**IC:** RSS-210 A9.2(1)(2)(3)			
Peak Power Spectral Density	**FCC :**ANSI C63.4:2003, FCC Public Notice 789033	**FCC :** 15.407(a)(1)(2)(3)		Complied	Conducted
	IC: -	**IC:** RSS-210 A9.2(1)(2)(3)			
Peak Excursion Ratio	**FCC :**ANSI C63.4:2003, FCC Public Notice 789033	**FCC :** 15.407(a)(6)		Complied	Conducted
	IC: -	**IC:** -			
Spurious Emission Restricted Band Edge	**FCC:** ANSI C63.4:2003	**FCC :** 15.407(b), 15.205 and 15.209	3.0dB, 5460.000MHz, Horizontal, AV	Complied	Conducted / Radiated
	IC: -	**IC:** RSS-210 A.9.2(1)(2)(3)			
Note: UL Japan, Inc.'s EMI Work Procedures No. 13-EM-W0420 and 13-EM-W0422. For DFS tests, please see the test report number 32KE0041-HO-02-E issued by UL Japan, Inc.					

FCC 15.31 (e)
This EUT provides stable voltage(DC3.3V) constantly to RF Part regardless of input 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 4.6.1	RSS-210 A9.2 (1)(2)(3)	N/A	N/A	Conducted
Co-location & Co-operation (Confirmation testing for Radiated Spurious Emission at simultaneous transmission)	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247(d) RSS-210 A8.5	1.6dB 5470.000MHz, Horizontal, PK	Complied	Radiated

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)	Conducted emission (±dB)
	150kHz-30MHz
No.1	3.5dB
No.2	3.6dB
No.3	3.6dB
No.4	3.6dB

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	4.3dB	5.0dB	5.1dB	4.9dB	5.8dB	4.4dB	4.3dB
No.2	4.3dB	5.2dB	5.1dB	5.0dB	5.7dB	4.3dB	4.2dB
No.3	4.6dB	5.0dB	5.1dB	5.0dB	5.7dB	4.5dB	4.2dB
No.4	4.8dB	5.2dB	5.0dB	5.0dB	5.7dB	5.2dB	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	
1.0dB	1.1dB	2.7dB	3.2dB	3.3dB	1.5dB

Conducted Emission test

The data listed in this test report has enough margin, more than the site margin.

Radiated emission test (3m)

The data listed in this report meets the limits unless the uncertainty is taken into consideration.

3.5 Test Location

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	FCC Registration Number	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	313583	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	655103	2973C-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 semi-anechoic chamber	148738	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	134570	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	4.75 x 5.4 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	-	-	8.0 x 4.5 x 2.8m	2.0 x 2.0m	-
No.10 measurement room	-	-	2.6 x 2.8 x 2.5m	2.4 x 2.4m	-
No.11 measurement room	-	-	3.1 x 3.4 x 3.0m	2.4 x 3.4m	-

* 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.

Mode	Remarks*
IEEE 802.11a (11a)	6Mbps, PN9
IEEE 802.11n MIMO 20MHz BW (11n-20)	MCS 12 (Long GI), PN9
IEEE 802.11n MIMO 40MHz BW (11n-40)	MCS 12 (Short GI), PN9

*The worst antenna(Ant: x) and condition was determined based on the test result of Maximum Peak Output Power.
*EUT has the power settings by the software as follows;
Software: DRTU Ver.1.5.3-0335
Power settings: Refer to the following table.
*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.

Power settings 5GHz (Tested power setting was tuned by software to produce a Target Power*.)

Operation	Band	Antenna	Frequency		Power Setting	Target Power*
11a	Low-Low	Port 2	MCS6	5180MHz	13.5	14
				5220MHz	14.5	14.5
				5240MHz	14.5	14.5
	Low-High	Port 2	MCS6	5260MHz	14.5	14.5
				5300MHz	14.5	14.5
				5320MHz	14.5	14.5
	High	Port 2	MCS6	5500MHz	13.5	14.5
				5580MHz	14	14.5
				5700MHz	14.5	14.5
	Upper	Port 2	MCS6	5745MHz	15	14.5
				5785MHz	15	14.5
				5825MHz	15.5	14.5
11n 20Mband MISO/MIMO	Low-Low	Port 2/ Port 1&2	MCS0/MCS8	5180MHz	13/11.5	13.5/11.5
				5220MHz	14.5/12.5	14.5/11.5
				5240MHz	14.5/12.5	14.5/11.5
	Low-High	Port 2/ Port 1&2	MCS0/MCS8	5260MHz	14.5/12	14.5/11.5
				5300MHz	14.5/13	14.5/12
				5320MHz	14/12.5	14/12
	High	Port 2/ Port 1&2	MCS0/MCS8	5500MHz	14/12.5	14.5/12
				5580MHz	14/12	14.5/11.5
				5700MHz	14.5/13	14.5/12
	Upper	Port 2/ Port 1&2	MCS0/MCS8	5745MHz	14.5/12	14.5/11.5
				5785MHz	15/12.5	14.5/11.5
				5825MHz	15.5/13	14.5/11.5
11n 40Mband MISO/MIMO	Low-Low	Port 2/ Port 1&2	MCS0/MCS8	5190MHz	10.5/9	10/8
				5230MHz	14.5/13.5	14/12
	Low-High	Port 2/ Port 1&2	MCS0/MCS8	5270MHz	14.5/13.5	14/12
				5310MHz	11.5/10	10.5/8.5
	High	Port 2/ Port 1&2	MCS0/MCS8	5510MHz	13/11.5	13/11
				5550MHz	14.5/12.5	14.5/11.5
				5670MHz	14.5/13	14.5/11.5
	Upper	Port 2/ Port 1&2	MCS0/MCS8	5755MHz	15.5/13	14.5/11.5
				5795MHz	15.5/13	14.5/11.5

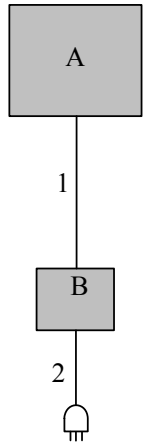
*Target Power (Target power = Maximum specification power (Average Power from Antenna terminal))
** The test was performed with the worst rate according to the customer's request.

*The details of Operating mode(s)

Test Item	Operating Mode	Tested Antenna	Tested Frequency		
			Low Band	High Band	Upper Band
Conducted emission	11n-40 Tx	Antenna 1&2	5230MHz *1)	-	-
Spurious Emission(Radiated)	11n-20 Tx	Antenna 1&2	5180MHz 5240MHz	5320MHz	5500MHz 5580MHz 5700MHz
	11n-40 Tx (Simultaneously)	Antenna 1&2	5190MHz 5230MHz *1)	5270MHz 5310MHz	5510MHz 5550MHz 5670MHz
26dB Emission Bandwidth, 99% Occupied Bandwidth	11a Tx	Antenna port 2	5180MHz 5220MHz 5240MHz	5260MHz 5300MHz 5320MHz	5500MHz 5580MHz 5700MHz
	11n-20 Tx	Antenna port 2	5180MHz 5220MHz 5240MHz	5260MHz 5300MHz 5320MHz	5500MHz 5580MHz 5700MHz
	11n-40 Tx	Antenna port 2	5190MHz 5230MHz	5270MHz 5310MHz	5510MHz 5550MHz 5670MHz
Maximum Peak Output Power, Peak Power Spectral Density	11a Tx	Antenna port 2	5180MHz 5220MHz 5240MHz	5260MHz 5300MHz 5320MHz	5500MHz 5580MHz 5700MHz
	11n-20 Tx	Antenna port 1&2	5180MHz 5220MHz 5240MHz	5260MHz 5300MHz 5320MHz	5500MHz 5580MHz 5700MHz
	11n-40 Tx	Antenna port 1&2	5190MHz 5230MHz	5270MHz 5310MHz	5510MHz 5550MHz 5670MHz
Peak Excursion Ratio	11a Tx	Antenna port 2	5180MHz 5220MHz 5240MHz	5260MHz 5300MHz 5320MHz	5500MHz 5580MHz 5700MHz
	11n-20 Tx	Antenna port 2	5180MHz 5220MHz 5240MHz	5260MHz 5300MHz 5320MHz	5500MHz 5580MHz 5700MHz
	11n-40 Tx	Antenna port 2	5190MHz 5230MHz	5270MHz 5310MHz	5510MHz 5550MHz 5670MHz

*1) Conducted emission and Radiated emission tests were performed on the worst mode and worst channel at Maximum Peak Output Power test.

4.2 Configuration and peripherals



AC 120V/60Hz

* 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	Remark
A	Personal Computer	SVD112A1WL	XTA2-1 3 *1) XTD2-2 12 *2)	Sony Corporation	EUT
B	AC Adapter	VGP-AC10V8	1490488110000393	Sony Corporation	EUT

*1) Used for Conducted emission and Radiated emission tests
*2) Used for Antenna terminal conducted test

List of cables used

No.	Name	Length (m)	Shield		Remark
			Cable	Connector	
1	DC Cable	1.7	Unshielded	Unshielded	-
2	AC Cable	1.5	Unshielded	Unshielded	-

SECTION 5: Conducted Emission

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 rear of tabletop was located 40cm to the vertical conducting plane. The rear of EUT, including peripherals aligned and flushed with rear of tabletop. All other surfaces of tabletop were at least 80cm from any other grounded conducting surface. EUT was located 80cm from a Line Impedance Stabilization Network (LISN)/ Artificial mains Network (AMN) and excess AC cable was bundled in center.

For the tests on EUT with other peripherals (as a whole system)
I/O cable and AC cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30cm to 40cm long and were hanged at a 40cm height to the ground plane. All unused 50ohm connectors of the LISN(AMN) were resistivity terminated in 50ohm when not connected to the measuring equipment.

The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT in a Semi Anechoic Chamber or a Measurement Room.
The EUT was connected to a LISN (AMN).
An overview sweep with peak detection has been performed.

Detector : QP and AV
Measurement range : 0.15-30MHz
Test data : APPENDIX
Test result : Pass

SECTION 6: Radiated Spurious Emission and Band Edge Compliance

Test Procedure

[Below 30MHz]

Frequency : From 9kHz to 30MHz at distance 3m

The EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.
The measurements were performed for vertical polarization (antenna angle: 90deg.) and horizontal polarization.
*Refer to Figure 1 about Direction of the Loop Antenna.

[Above 30MHz]

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).
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

$$E = \frac{1000000\sqrt{30P}}{3} \text{ (uV/m)}$$: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

	From 9kHz to 90kHz and From 110kHz to 150kHz	From 90kHz to 110kHz	From 150kHz to 490kHz	From 490kHz to 30MHz
Detector Type	PK/AV	QP	PK/AV	QP
IF Bandwidth	200Hz	200Hz	9kHz	9kHz
Test Distance	3m	3m	3m	3m

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	RBW: 1MHz VBW: 10Hz or RBW: 1MHz VBW: 5.1kHz *1) or RBW: 1MHz VBW: 9.1kHz *1)
Test Distance	3m	3m (below 10GHz), 1m*3) (above 10GHz), 0.5m*4) (above 26.5GHz)	

*1) Used for the band edge of the carrier and the harmonics that can be measured. The VBW is based on the inverse of the Tx on (see Appendix).
*2) Distance Factor: 20 x log (3.0m/1.0m) = 9.5dB
*3) Distance Factor: 20 x log (3.0m/0.5m) = 15.6dB

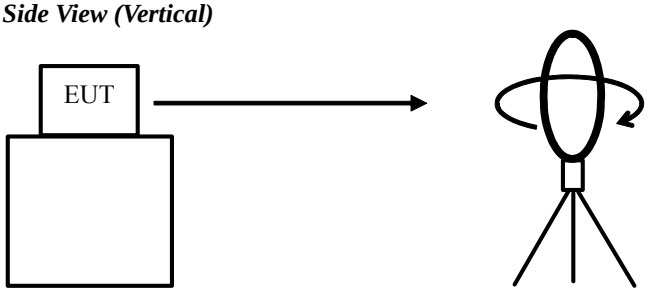
- The carrier level and noise levels were confirmed at each position of X, Y and Z axes of EUT to see the position of maximum noise, and the test was made at the position that has the maximum noise.

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

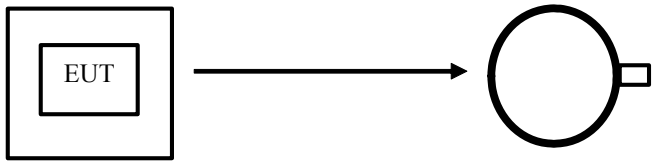
Measurement range : **9kHz-40GHz**
Test data : **APPENDIX**
Test result : **Pass**

Figure 1: Direction of the Loop Antenna

Side View (Vertical)

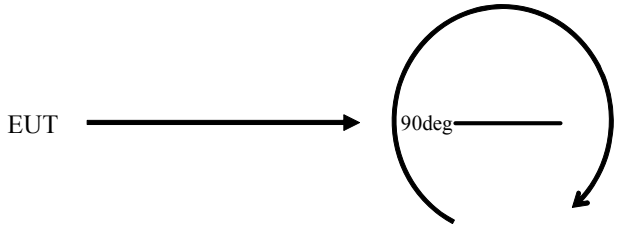


Top View (Horizontal)



Antenna was not rotated.

Top View (Vertical)



Front side: 0 deg.
Forward direction: clockwise

SECTION 7: 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	Close to 1% of EBW	Greater than RBW	Auto	Peak	Clear Write	Spectrum Analyzer
99% Occupied Bandwidth	Enough width to display 20dB Bandwidth	Close to 1% of Span	Three times of RBW	Auto	Peak	Max Hold	Spectrum Analyzer
Maximum Peak Output Power	50MHz	1MHz	3MHz	Auto	Sample Power Averaging (100 times)	Clear Write	Spectrum Analyzer method 1
Peak Power Spectral Density	50MHz	1MHz	3MHz	Auto	Sample Power Averaging (100 times)	Clear Write	Spectrum Analyzer method 2
Peak Excursion Ratio	50MHz	1MHz	3MHz	Auto	Peak Sample Power Averaging (100 times)	Max Hold Clear Write	Spectrum Analyzer method 1

*EBW: Enough width to display Bandwidth

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

Conducted Emission

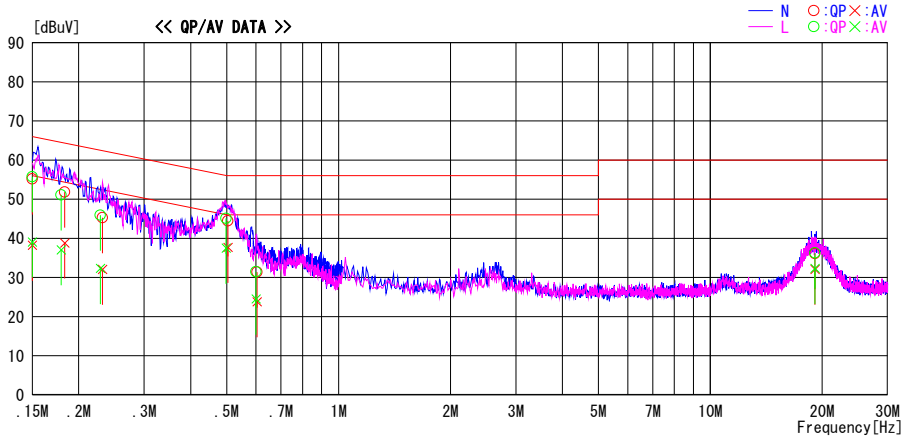
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2012/07/23

Report No. : 32KE0041-HO-02
Power : AC 120V / 60Hz
Temp./Humi. : 24 deg.C / 62% RH
Engineer : Takumi Shimada

Mode / Remarks : 11n-40 Tx (MIMO) 5230MHz MCS12

LIMIT : FCC15.207 QP
FCC15.207 AV



Frequency	Reading Level		Corr.	Results		Limit		Margin		Phase	Comment
	QP	AV	Factor	QP	AV	QP	AV	QP	AV		
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
0.15000	41.9	24.9	13.3	55.2	38.2	66.0	56.0	10.8	17.8	N	
0.18346	38.5	25.5	13.3	51.8	38.8	64.3	54.3	12.5	15.5	N	
0.23177	32.0	18.8	13.3	45.3	32.1	62.4	52.4	17.1	20.3	N	
0.50412	31.2	24.4	13.3	44.5	37.7	56.0	46.0	11.5	8.3	N	
0.60416	18.1	10.5	13.3	31.4	23.8	56.0	46.0	24.6	22.2	N	
19.12284	21.4	17.4	14.7	36.1	32.1	60.0	50.0	23.9	17.9	N	
0.15000	42.4	25.8	13.3	55.7	39.1	66.0	56.0	10.3	16.9	L	
0.17936	37.8	23.8	13.3	51.1	37.1	64.5	54.5	13.4	17.4	L	
0.22878	32.6	19.0	13.3	45.9	32.3	62.5	52.5	16.6	20.2	L	
0.49830	31.8	24.2	13.3	45.1	37.5	56.0	46.0	10.9	8.5	L	
0.60016	18.2	11.2	13.3	31.5	24.5	56.0	46.0	24.5	21.5	L	
19.12036	21.6	17.6	14.7	36.3	32.3	60.0	50.0	23.7	17.7	L	

CHART:WITH FACTOR,Peak hold data. CALCULATION:RESULT=READING+C.F(LISN LOSS+ATT LOSS +CABLE LOSS)
Except for the above table : adequate margin data below the limits.

26dB Emission Bandwidth and 99% Occupied Bandwidth

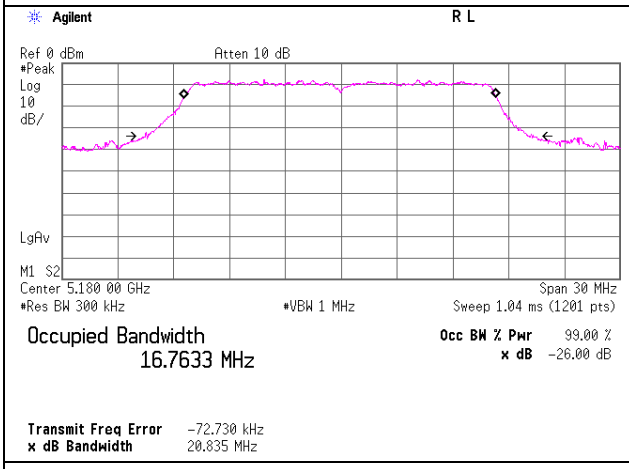
Test place	Head Office EMC Lab. No.6 Measurement Room
Report No.	32KE0041-HO-02
Date	07/27/2012
Temperature/ Humidity	24deg.C / 51% RH
Engineer	Satofumi Matsuyama
Mode	11a Tx

Antenna	Frequency [MHz]	26dB Emission Bandwidth [MHz]	99% Occupied Bandwidth [MHz]	Limit [MHz]
port 2	5180	20.835	16.763	-
	5220	21.067	16.758	-
	5240	20.968	16.675	-
	5260	21.782	16.671	-
	5300	20.978	16.684	-
	5320	20.996	16.696	-
	5500	21.134	16.685	-
	5580	20.936	16.688	-
	5700	20.982	16.725	-

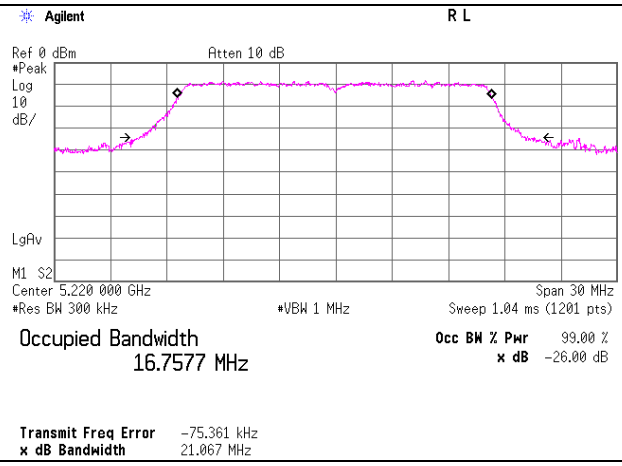
26dB Emission Bandwidth and 99% Occupied Bandwidth

11a Antenna port 2

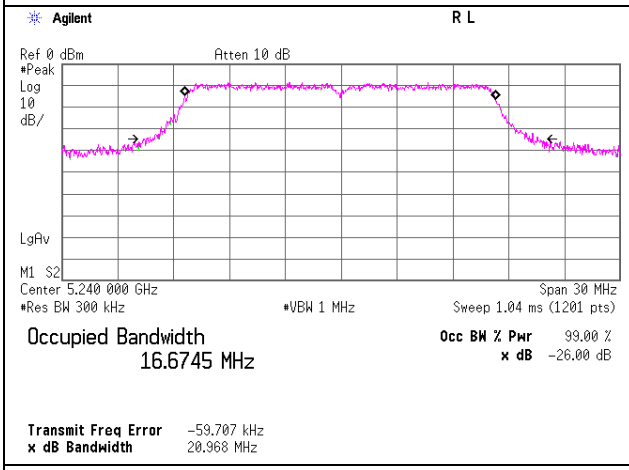
5180MHz



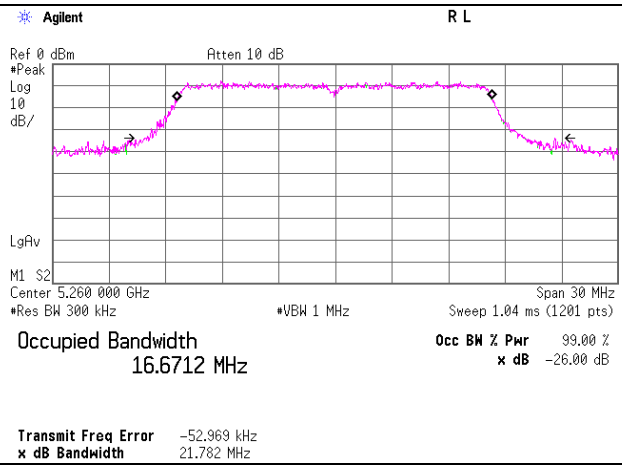
5220MHz



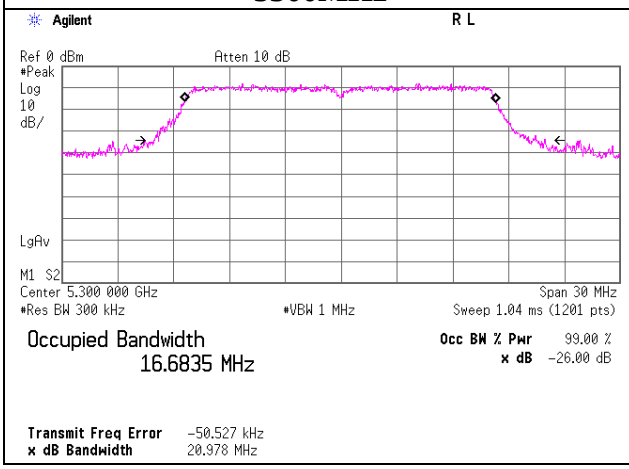
5240MHz



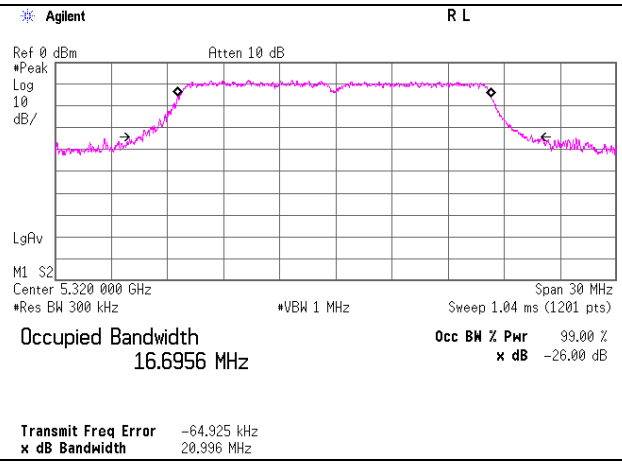
5260MHz



5300MHz



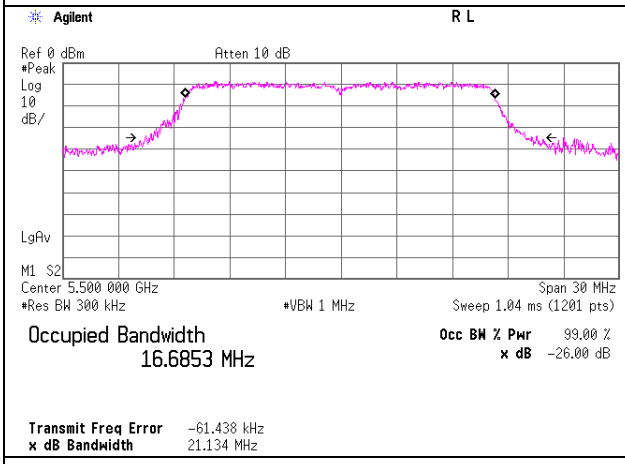
5320MHz



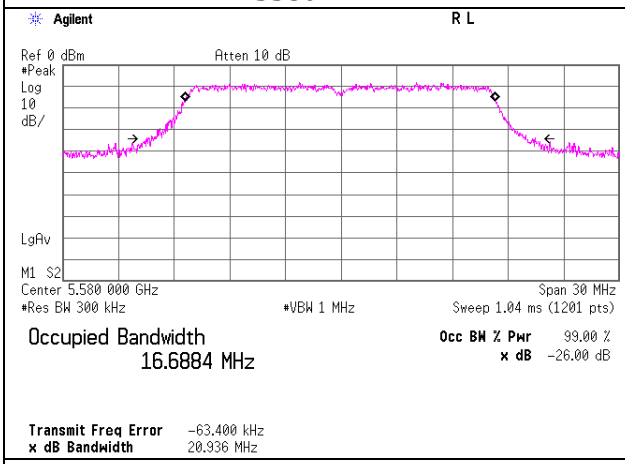
26dB Emission Bandwidth and 99% Occupied Bandwidth

11a Antenna port 2

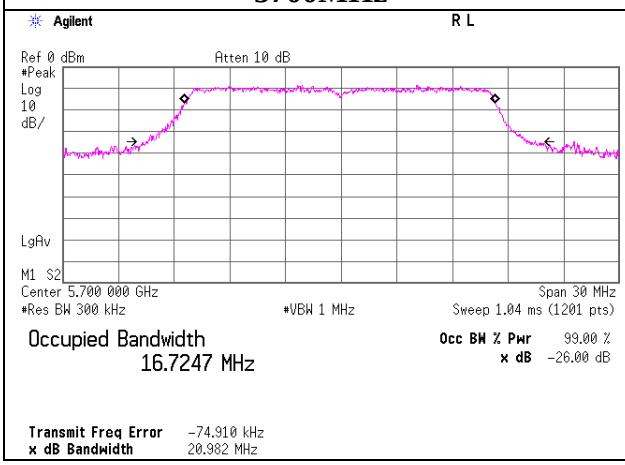
5500MHz



5580MHz



5700MHz



26dB Emission Bandwidth and 99% Occupied Bandwidth

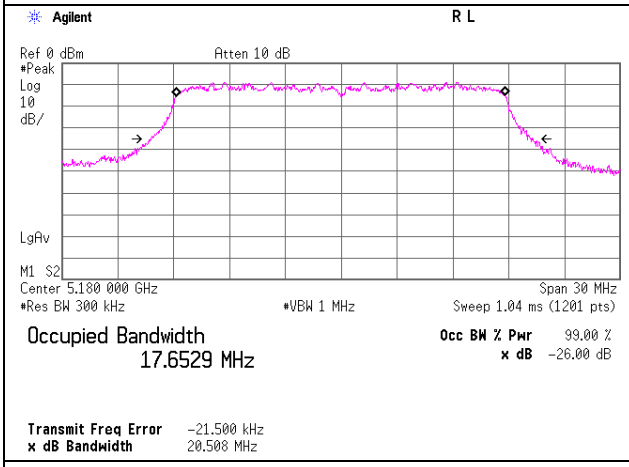
Test place	Head Office EMC Lab. No.6 Measurement Room
Report No.	32KE0041-HO-02
Date	07/27/2012
Temperature/ Humidity	24deg.C / 51% RH
Engineer	Satofumi Matsuyama
Mode	11n-20 Tx

Antenna	Frequency [MHz]	26dB Emission Bandwidth [MHz]	99% Occupied Bandwidth [MHz]	Limit [MHz]
port 2	5180	20.508	17.653	-
	5220	20.607	17.659	-
	5240	20.644	17.664	-
	5260	20.472	17.678	-
	5300	21.160	17.738	-
	5320	20.673	17.659	-
	5500	20.651	17.644	-
	5580	20.534	17.640	-
	5700	20.611	17.687	-

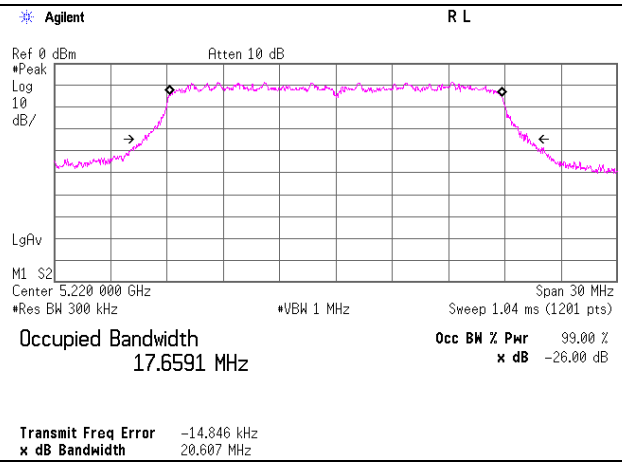
26dB Emission Bandwidth and 99% Occupied Bandwidth

11n-20 Antenna port 2

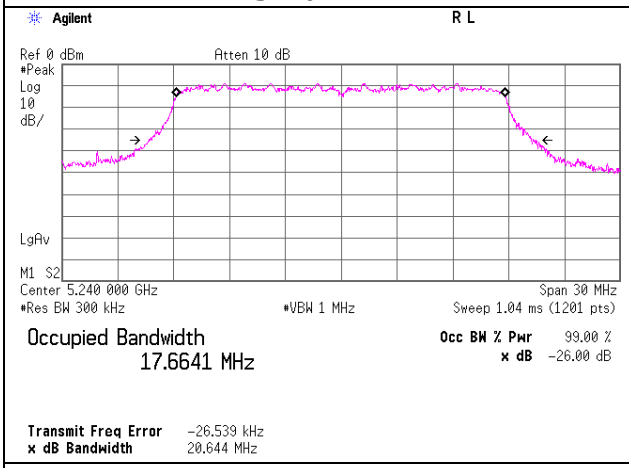
5180MHz



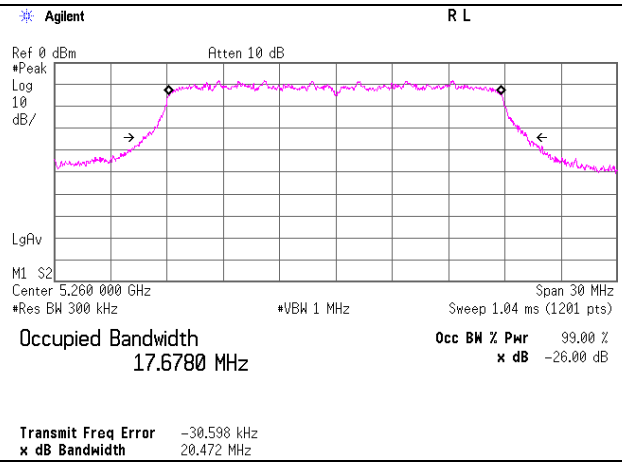
5220MHz



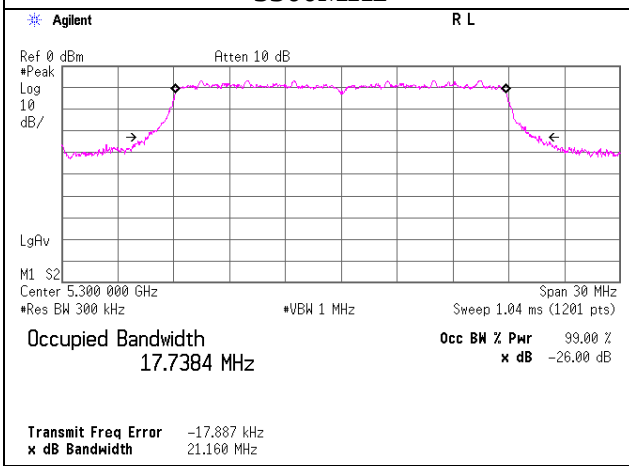
5240MHz



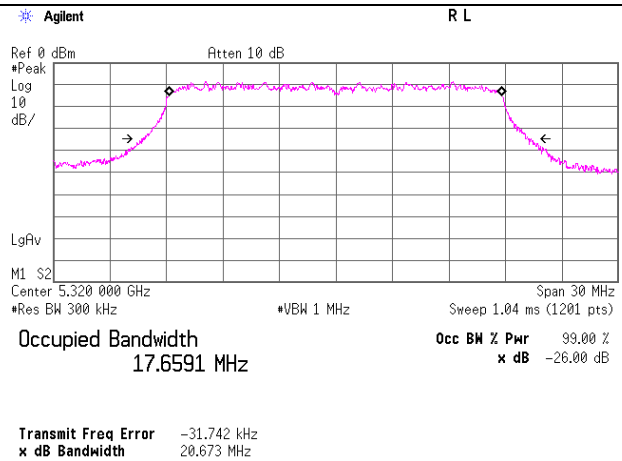
5260MHz



5300MHz



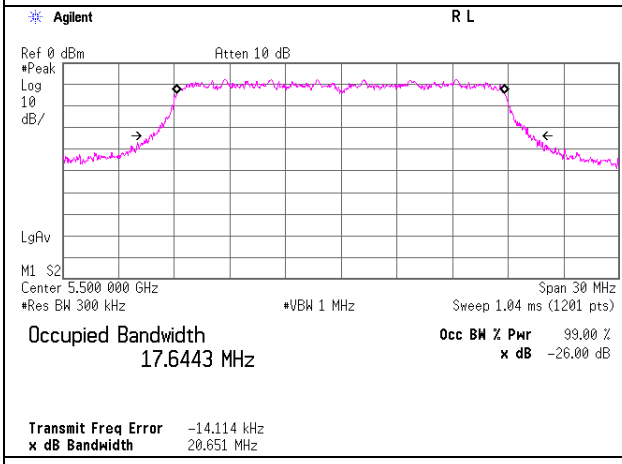
5320MHz



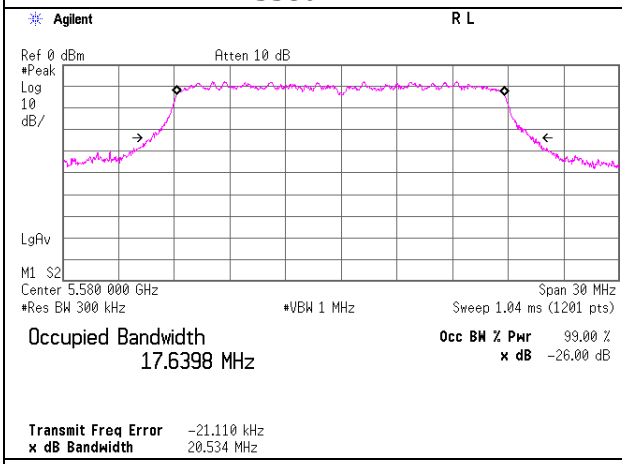
26dB Emission Bandwidth and 99% Occupied Bandwidth

11n-20 Antenna port 2

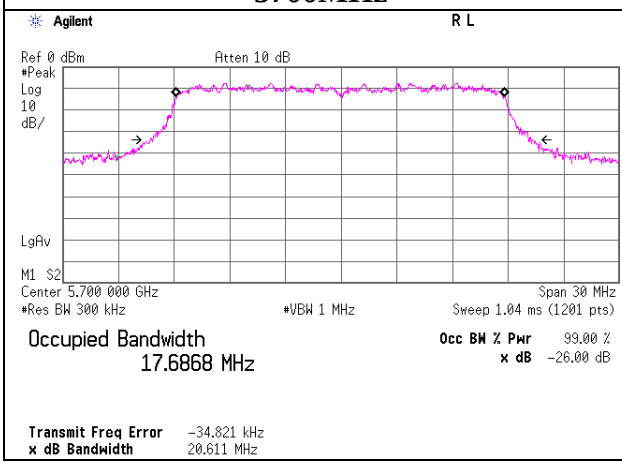
5500MHz



5580MHz



5700MHz



26dB Emission Bandwidth and 99% Occupied Bandwidth

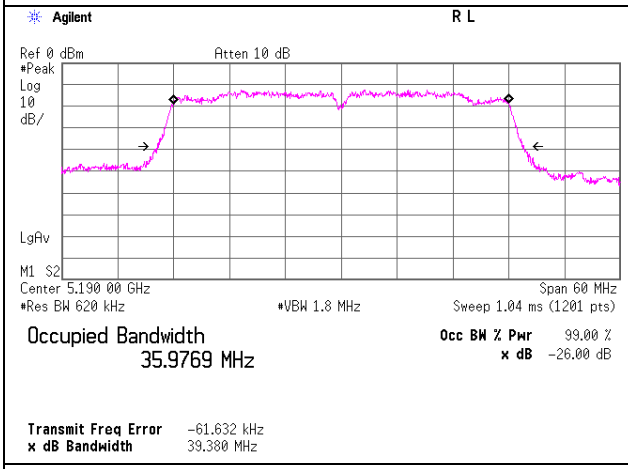
Test place	Head Office EMC Lab. No.6 Measurement Room
Report No.	32KE0041-HO-02
Date	07/27/2012
Temperature/ Humidity	24deg.C / 51% RH
Engineer	Satofumi Matsuyama
Mode	11n-40 Tx

Antenna	Frequency [MHz]	26dB Emission Bandwidth [MHz]	99% Occupied Bandwidth [MHz]	Limit [MHz]
port 2	5190	39.380	35.977	-
	5230	39.306	36.001	-
	5270	39.260	35.951	-
	5310	39.259	35.935	-
	5510	39.430	35.982	-
	5550	39.370	35.993	-
	5670	39.369	35.969	-

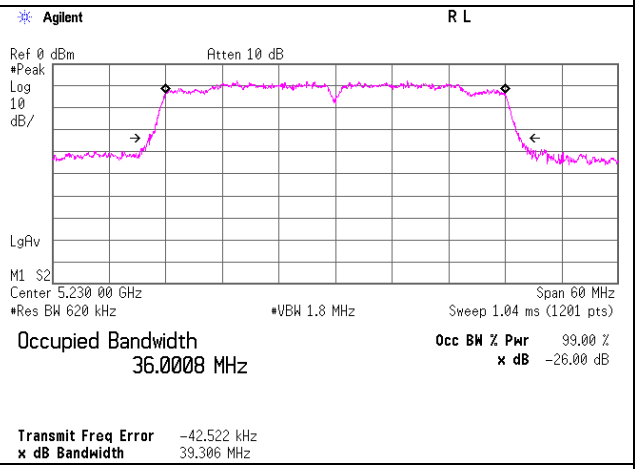
26dB Emission Bandwidth and 99% Occupied Bandwidth

11n-40 Antenna port 2

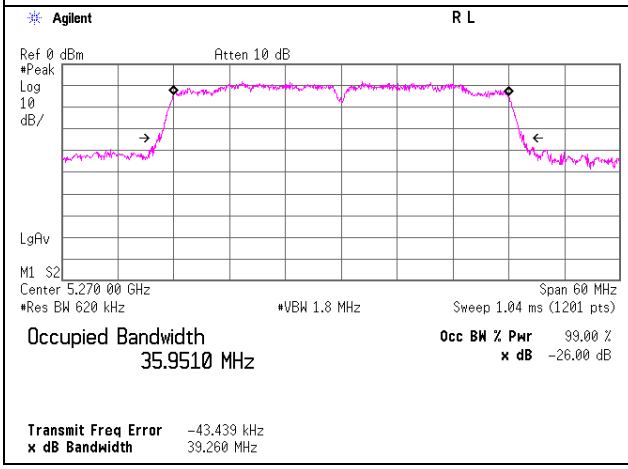
5190MHz



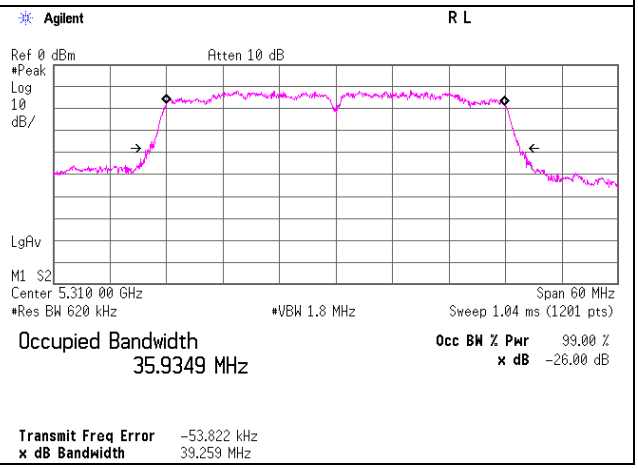
5230MHz



5270MHz



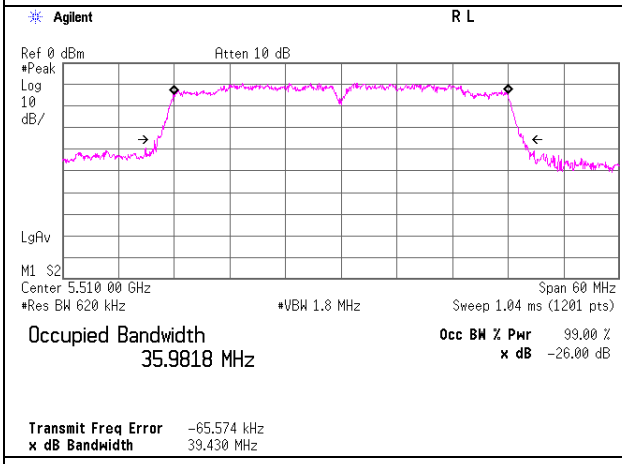
5310MHz



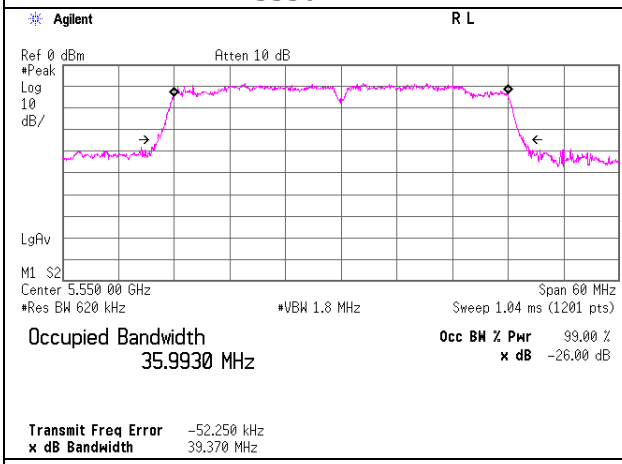
26dB Emission Bandwidth and 99% Occupied Bandwidth

11n-40 Antenna port 2

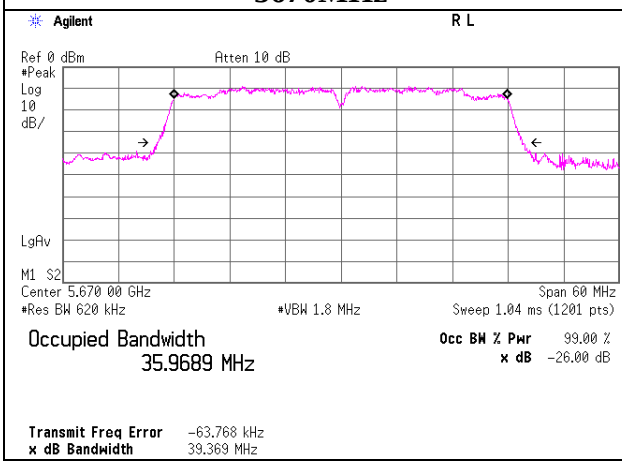
5510MHz



5550MHz



5670MHz



Maximum Peak Output Power

Test place	Head Office EMC Lab. No.6 measurement room
Report No.	32KE0041-HO-02
Date	07/23/2012
Temperature/ Humidity	26deg. C / 60% RH
Engineer	Takayuki Shimada
Mode	11a Tx, Antenna port 2

Antenna port 2

Freq. [MHz]	S/A 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	1.04	3.56	10.00	2.33	14.60	16.93	16.98	-	2.38	-
5220.0	1.80	3.49	10.00	2.33	15.29	17.62	16.98	-	1.69	-
5240.0	1.71	3.49	10.00	2.33	15.20	17.53	16.98	-	1.78	-
5260.0	1.49	3.54	9.99	2.33	15.02	17.35	23.97	-	8.95	-
5300.0	1.57	3.51	9.99	2.33	15.07	17.40	23.97	-	8.90	-
5320.0	1.44	3.51	9.99	2.33	14.94	17.27	23.97	-	9.03	-
5500.0	1.08	3.67	9.99	2.33	14.74	17.07	23.97	-	9.23	-
5580.0	1.46	3.61	9.99	2.33	15.06	17.39	23.97	-	8.91	-
5700.0	1.68	3.60	9.99	2.33	15.27	17.60	23.97	-	8.70	-

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
15.407(a)(1) Limit(Cond.) = 16.98dBm(50mW) or 4 + 10log(26dB BW) dBm
15.407(a)(2) Limit(Cond.) = 23.97dBm(250mW) or 11 + 10log(26dB BW) dBm

Maximum Peak Output Power

Test place	Head Office EMC Lab. No.6 measurement room
Report No.	32KE0041-HO-02
Date	07/23/2012
Temperature/ Humidity	26deg. C / 60% RH
Engineer	Takayuki Shimada
Mode	11n-20 Tx

Antenna port 1+2

Freq. [MHz]	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	15.12	17.21	16.98	-	1.86	-
5220.0	15.25	17.33	16.98	-	1.73	-
5240.0	15.27	17.35	16.98	-	1.71	-
5260.0	14.91	16.99	23.97	-	9.06	-
5300.0	15.68	17.75	23.97	-	8.29	-
5320.0	15.43	17.50	23.97	-	8.54	-
5500.0	15.77	17.87	23.97	-	8.20	-
5580.0	15.09	17.19	23.97	-	8.88	-
5700.0	15.66	17.76	23.97	-	8.31	-

Result [dBm] = 10 x log (10 ^ (Ant1 Result [dBm] / 10) + 10 ^ (Ant2 Result [dBm] / 10) + 10 ^ (Ant3 Result [dB

Antenna port 1

Freq. [MHz]	S/A 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	-1.51	3.51	10.14	1.83	12.14	13.97	16.98	-	4.84	-
5220.0	-1.17	3.42	10.14	1.83	12.39	14.22	16.98	-	4.59	-
5240.0	-1.21	3.46	10.15	1.83	12.40	14.23	16.98	-	4.58	-
5260.0	-1.64	3.50	10.15	1.83	12.01	13.84	23.97	-	11.96	-
5300.0	-0.67	3.44	10.15	1.83	12.92	14.75	23.97	-	11.05	-
5320.0	-0.92	3.47	10.15	1.83	12.70	14.53	23.97	-	11.27	-
5500.0	-1.26	3.62	10.16	1.83	12.52	14.35	23.97	-	11.45	-
5580.0	-1.86	3.56	10.16	1.83	11.86	13.69	23.97	-	12.11	-
5700.0	-1.32	3.57	10.15	1.83	12.40	14.23	23.97	-	11.57	-

Antenna port 2

Freq. [MHz]	S/A 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	-1.48	3.56	10.00	2.33	12.08	14.41	16.98	-	4.90	-
5220.0	-1.41	3.49	10.00	2.33	12.08	14.41	16.98	-	4.90	-
5240.0	-1.38	3.49	10.00	2.33	12.11	14.44	16.98	-	4.87	-
5260.0	-1.75	3.54	9.99	2.33	11.78	14.11	23.97	-	12.19	-
5300.0	-1.10	3.51	9.99	2.33	12.40	14.73	23.97	-	11.57	-
5320.0	-1.38	3.51	9.99	2.33	12.12	14.45	23.97	-	11.85	-
5500.0	-0.67	3.67	9.99	2.33	12.99	15.32	23.97	-	10.98	-
5580.0	-1.31	3.61	9.99	2.33	12.29	14.62	23.97	-	11.68	-
5700.0	-0.70	3.60	9.99	2.33	12.89	15.22	23.97	-	11.08	-

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) Limit(Cond.) = 16.98dBm(50mW) or 4 + 10log(26dB BW) dBm
15.407(a)(2) Limit(Cond.) = 23.97dBm(250mW) or 11 + 10log(26dB BW) dBm

Maximum Peak Output Power

Test place	Head Office EMC Lab. No.6 measurement room
Report No.	32KE0041-HO-02
Date	07/23/2012
Temperature/ Humidity	26deg. C / 60% RH
Engineer	Takayuki Shimada
Mode	11n-40 Tx

Antenna port 1+2

Freq. [MHz]	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	11.68	13.77	16.98	-	5.30	-
5230.0	15.80	17.88	16.98	-	1.18	-
5270.0	15.77	17.86	23.97	-	8.20	-
5310.0	12.13	14.20	23.97	-	11.84	-
5510.0	14.28	16.39	23.97	-	9.69	-
5550.0	14.91	17.01	23.97	-	9.06	-
5670.0	14.85	16.94	23.97	-	9.12	-

Result [dBm] = 10 x log (10 ^ (Ant1 Result [dBm] / 10) + 10 ^ (Ant2 Result [dBm] / 10) + 10 ^ (Ant3 Result [dB

Antenna port 1

Freq. [MHz]	S/A 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	-5.02	3.50	10.14	1.83	8.62	10.45	16.98	-	8.36	-
5230.0	-0.77	3.42	10.15	1.83	12.80	14.63	16.98	-	4.18	-
5270.0	-0.94	3.50	10.15	1.83	12.71	14.54	23.97	-	11.26	-
5310.0	-4.18	3.44	10.15	1.83	9.41	11.24	23.97	-	14.56	-
5510.0	-2.87	3.62	10.16	1.83	10.91	12.74	23.97	-	13.06	-
5550.0	-2.14	3.54	10.16	1.83	11.56	13.39	23.97	-	12.41	-
5670.0	-1.88	3.56	10.15	1.83	11.83	13.66	23.97	-	12.14	-

Antenna port 2

Freq. [MHz]	S/A 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	-4.82	3.53	10.00	2.33	8.71	11.04	16.98	-	8.27	-
5230.0	-0.71	3.48	10.00	2.33	12.77	15.10	16.98	-	4.21	-
5270.0	-0.73	3.55	9.99	2.33	12.81	15.14	23.97	-	11.16	-
5310.0	-4.68	3.49	9.99	2.33	8.80	11.13	23.97	-	15.17	-
5510.0	-2.07	3.68	9.99	2.33	11.60	13.93	23.97	-	12.37	-
5550.0	-1.37	3.59	9.99	2.33	12.21	14.54	23.97	-	11.76	-
5670.0	-1.74	3.60	9.99	2.33	11.85	14.18	23.97	-	12.12	-

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) Limit(Cond.) = 16.98dBm(50mW) or 4 + 10log(26dB BW) dBm
15.407(a)(2) Limit(Cond.) = 23.97dBm(250mW) or 11 + 10log(26dB BW) dBm

Maximum Average Output Power (Reference data for SAR testing)

Test place	Head Office EMC Lab. No.6 measurement room	
Report No.	32KE0041-HO-02	
Date	07/20/2012	07/21/2012
Temperature/ Humidity	25deg. C / 52% RH	24deg. C / 55% RH
Engineer	Yutaka Yoshida	Satofumi Matsuyama
Mode	11a Tx	

[IEEE802.11a Ant. port 1] 6Mbps

Ch	Frequency [MHz]	Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
36	5180	1.41	1.67	10.14	13.22	21.00
40	5200	2.94	1.61	10.14	14.69	29.44
44	5220	2.95	1.57	10.14	14.66	29.24
48	5240	3.01	1.60	10.15	14.76	29.92
52	5260	2.80	1.64	10.15	14.59	28.75
56	5280	2.92	1.62	10.15	14.69	29.46
60	5300	3.09	1.57	10.15	14.81	30.27
64	5320	3.20	1.59	10.15	14.94	31.22
100	5500	2.64	1.70	10.16	14.50	28.17
104	5520	2.71	1.67	10.16	14.54	28.44
108	5540	3.17	1.61	10.16	14.94	31.21
112	5560	2.78	1.62	10.16	14.56	28.60
116	5580	2.86	1.63	10.16	14.65	29.20
120	5600	2.81	1.60	10.16	14.57	28.66
124	5620	2.74	1.59	10.16	14.49	28.12
128	5640	2.83	1.59	10.16	14.58	28.71
132	5660	3.00	1.61	10.16	14.77	29.96
136	5680	2.92	1.62	10.16	14.70	29.52
140	5700	2.88	1.62	10.15	14.65	29.20

Sample Calculation:
Result = Reading + Cable Loss + Attenuator

Maximum Average Output Power (Reference data for SAR testing)

Test place	Head Office EMC Lab. No.6 measurement room	
Report No.	32KE0041-HO-02	
Date	07/20/2012	07/21/2012
Temperature/ Humidity	25deg. C / 52% RH	24deg. C / 55% RH
Engineer	Yutaka Yoshida	Satofumi Matsuyama
Mode	11a Tx	

[IEEE802.11a Ant. port 2] 6Mbps

Ch	Frequency [MHz]	Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
36	5180	2.44	1.72	10.00	14.16	26.05
40	5200	3.27	1.67	10.00	14.94	31.16
44	5220	2.86	1.64	10.00	14.50	28.20
48	5240	2.98	1.63	10.00	14.61	28.90
52	5260	2.94	1.68	9.99	14.61	28.90
56	5280	2.80	1.69	9.99	14.48	28.08
60	5300	3.03	1.64	9.99	14.66	29.24
64	5320	3.26	1.63	9.99	14.88	30.76
100	5500	3.02	1.75	9.99	14.76	29.96
104	5520	2.92	1.75	9.99	14.66	29.23
108	5540	2.92	1.66	9.99	14.57	28.65
112	5560	2.93	1.66	9.99	14.58	28.74
116	5580	2.83	1.68	9.99	14.50	28.19
120	5600	3.18	1.66	9.99	14.83	30.43
124	5620	3.06	1.63	9.99	14.68	29.37
128	5640	2.98	1.65	9.99	14.62	28.94
132	5660	2.88	1.67	9.99	14.54	28.44
136	5680	3.28	1.65	9.99	14.92	31.06
140	5700	3.08	1.65	9.99	14.72	29.68

Sample Calculation:
Result = Reading + Cable Loss + Attenuator

Maximum Average Output Power (Reference data for SAR testing)

Test place	Head Office EMC Lab. No.6 measurement room	
Report No.	32KE0041-HO-02	
Date	07/20/2012	07/21/2012
Temperature/ Humidity	25deg. C / 52% RH	24deg. C / 55% RH
Engineer	Yutaka Yoshida	Satofumi Matsuyama
Mode	11n-20 Tx(MISO)	

[IEEE802.11n 20M(5GHz) Ant. port 1 LongGI] MCS0

Ch	Frequency [MHz]	Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
36	5180	0.89	1.67	10.14	12.70	18.63
40	5200	3.18	1.61	10.14	14.93	31.12
44	5220	2.78	1.57	10.14	14.49	28.11
48	5240	3.11	1.60	10.15	14.86	30.61
52	5260	3.07	1.64	10.15	14.86	30.59
56	5280	3.01	1.62	10.15	14.78	30.07
60	5300	2.93	1.57	10.15	14.65	29.18
64	5320	2.41	1.59	10.15	14.15	26.03
100	5500	2.72	1.70	10.16	14.58	28.70
104	5520	2.66	1.67	10.16	14.49	28.11
108	5540	2.69	1.61	10.16	14.46	27.94
112	5560	2.69	1.62	10.16	14.47	28.01
116	5580	2.81	1.63	10.16	14.60	28.87
120	5600	2.81	1.60	10.16	14.57	28.66
124	5620	2.75	1.59	10.16	14.50	28.19
128	5640	2.74	1.59	10.16	14.49	28.12
132	5660	3.07	1.61	10.16	14.84	30.45
136	5680	3.15	1.62	10.16	14.93	31.13
140	5700	2.92	1.62	10.15	14.69	29.47

Sample Calculation:
Result = Reading + Cable Loss + Attenuator

Maximum Average Output Power (Reference data for SAR testing)

Test place	Head Office EMC Lab. No.6 measurement room	
Report No.	32KE0041-HO-02	
Date	07/20/2012	07/21/2012
Temperature/ Humidity	25deg. C / 52% RH	24deg. C / 55% RH
Engineer	Yutaka Yoshida	Satofumi Matsuyama
Mode	11n-20 Tx(MISO)	

[IEEE802.11n 20M Ant. port 2 LongGI] MCS0

Ch	Frequency [MHz]	Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
36	5180	2.01	1.72	10.00	13.73	23.59
40	5200	3.11	1.67	10.00	14.78	30.04
44	5220	3.15	1.64	10.00	14.79	30.15
48	5240	3.05	1.63	10.00	14.68	29.37
52	5260	2.97	1.68	9.99	14.64	29.10
56	5280	2.80	1.69	9.99	14.48	28.08
60	5300	2.98	1.64	9.99	14.61	28.91
64	5320	2.49	1.63	9.99	14.11	25.76
100	5500	3.17	1.75	9.99	14.91	31.01
104	5520	3.14	1.75	9.99	14.88	30.75
108	5540	3.15	1.66	9.99	14.80	30.21
112	5560	3.18	1.66	9.99	14.83	30.44
116	5580	3.02	1.68	9.99	14.69	29.45
120	5600	3.14	1.66	9.99	14.79	30.16
124	5620	3.03	1.63	9.99	14.65	29.17
128	5640	2.86	1.65	9.99	14.50	28.16
132	5660	2.88	1.67	9.99	14.54	28.44
136	5680	3.27	1.65	9.99	14.91	30.99
140	5700	3.24	1.65	9.99	14.88	30.80

Sample Calculation:
Result = Reading + Cable Loss + Attenuator

Maximum Average Output Power (Reference data for SAR testing)

Test place	Head Office EMC Lab. No.6 measurement room	
Report No.	32KE0041-HO-02	
Date	07/20/2012	07/21/2012
Temperature/ Humidity	25deg. C / 52% RH	24deg. C / 55% RH
Engineer	Yutaka Yoshida	Satofumi Matsuyama
Mode	11n-40 Tx(MISO)	

[IEEE802.11n 40M(5GHz) Ant. port 1 ShortGI] MCS0

Ch	Frequency [MHz]	Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
38	5190	-1.90	1.65	10.14	9.89	9.75
46	5230	2.60	1.57	10.15	14.32	27.04
54	5270	2.20	1.64	10.15	13.99	25.04
62	5310	-1.69	1.57	10.15	10.03	10.06
102	5510	1.34	1.70	10.16	13.20	20.87
110	5550	2.81	1.61	10.16	14.58	28.72
118	5590	2.72	1.62	10.16	14.50	28.20
126	5630	2.80	1.59	10.16	14.55	28.49
134	5670	2.65	1.61	10.16	14.42	27.67

[IEEE802.11n 40M(5GHz) Ant. port 2 ShortGI] MCS0

Ch	Frequency [MHz]	Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
38	5190	-1.79	1.68	10.00	9.89	9.74
46	5230	2.53	1.63	10.00	14.16	26.05
54	5270	2.55	1.69	9.99	14.23	26.48
62	5310	-1.13	1.62	9.99	10.48	11.17
102	5510	1.55	1.76	9.99	13.30	21.38
110	5550	3.01	1.66	9.99	14.66	29.24
118	5590	2.94	1.67	9.99	14.60	28.86
126	5630	2.78	1.63	9.99	14.40	27.56
134	5670	2.76	1.65	9.99	14.40	27.57

Sample Calculation:
Result = Reading + Cable Loss + Attenuator

Maximum Average Output Power (Reference data for SAR testing)

Test place	Head Office EMC Lab. No.6 measurement room	
Report No.	32KE0041-HO-02	
Date	07/20/2012	07/21/2012
Temperature/ Humidity	25deg. C / 52% RH	24deg. C / 55% RH
Engineer	Yutaka Yoshida	Satofumi Matsuyama
Mode	11n-20 Tx(MIMO)	

[IEEE802.11n 20M(5GHz) Ant. port 1+2 LongGI] MCS8

Ch	Frequency [MHz]	Antenna	Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result AVG [dBm]	Total [dBm]	Total [mW]
36	5180	1	-0.28	1.67	10.14	11.53	14.49	28.12
		2	-0.29	1.72	10.00	11.43		
40	5200	1	-0.45	1.61	10.14	11.30	14.46	27.93
		2	-0.07	1.67	10.00	11.60		
44	5220	1	0.04	1.57	10.14	11.75	14.81	30.28
		2	0.21	1.64	10.00	11.85		
48	5240	1	-0.11	1.60	10.15	11.64	14.54	28.42
		2	-0.22	1.63	10.00	11.41		
52	5260	1	0.06	1.64	10.15	11.85	14.50	28.18
		2	-0.57	1.68	9.99	11.10		
56	5280	1	0.25	1.62	10.15	12.02	14.74	29.77
		2	-0.27	1.69	9.99	11.41		
60	5300	1	0.72	1.57	10.15	12.44	15.31	33.95
		2	0.52	1.64	9.99	12.15		
64	5320	1	0.41	1.59	10.15	12.15	14.92	31.05
		2	0.03	1.63	9.99	11.65		
100	5500	1	-0.01	1.70	10.16	11.85	15.29	33.82
		2	0.93	1.75	9.99	12.67		
104	5520	1	-0.50	1.67	10.16	11.33	14.80	30.21
		2	0.47	1.75	9.99	12.21		
108	5540	1	-0.52	1.61	10.16	11.25	14.74	29.75
		2	0.50	1.66	9.99	12.15		
112	5560	1	-0.60	1.62	10.16	11.18	14.68	29.40
		2	0.46	1.66	9.99	12.11		
116	5580	1	-0.69	1.63	10.16	11.10	14.59	28.78
		2	0.34	1.68	9.99	12.01		
120	5600	1	-0.25	1.60	10.16	11.51	14.99	31.56
		2	0.75	1.66	9.99	12.40		
124	5620	1	-0.66	1.59	10.16	11.09	14.50	28.20
		2	0.24	1.63	9.99	11.86		
128	5640	1	-0.65	1.59	10.16	11.10	14.52	28.32
		2	0.25	1.65	9.99	11.89		
132	5660	1	-0.35	1.61	10.16	11.42	14.55	28.54
		2	0.01	1.67	9.99	11.67		
136	5680	1	-0.37	1.62	10.16	11.41	14.72	29.66
		2	0.35	1.65	9.99	11.99		
140	5700	1	0.05	1.62	10.15	11.82	15.12	32.53
		2	0.74	1.65	9.99	12.38		

Sample Calculation:
Result = Reading + Cable Loss + Attenuator

Maximum Average Output Power (Reference data for SAR testing)

Test place	Head Office EMC Lab. No.6 measurement room	
Report No.	32KE0041-HO-02	
Date	07/20/2012	07/21/2012
Temperature/ Humidity	25deg. C / 52% RH	24deg. C / 55% RH
Engineer	Yutaka Yoshida	Satofumi Matsuyama
Mode	11n-40 Tx(MIMO)	

[IEEE802.11n 40M(5GHz) Ant. port 1+2 ShortGI] MCS8

Ch	Frequency [MHz]	Antenna	Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result AVG [dBm]	Total [dBm]	Total [mW]
38	5190	1	-4.13	1.65	10.14	7.66	10.91	12.33
		2	-3.55	1.68	10.00	8.13		
46	5230	1	0.21	1.57	10.15	11.93	15.22	33.25
		2	0.84	1.63	10.00	12.47		
54	5270	1	0.34	1.64	10.15	12.13	15.09	32.31
		2	0.36	1.69	9.99	12.04		
62	5310	1	-3.11	1.57	10.15	8.61	11.40	13.80
		2	-3.45	1.62	9.99	8.16		
102	5510	1	-1.64	1.70	10.16	10.22	13.80	23.97
		2	-0.46	1.76	9.99	11.29		
110	5550	1	-1.01	1.61	10.16	10.76	14.31	26.95
		2	0.12	1.66	9.99	11.77		
118	5590	1	-0.96	1.62	10.16	10.82	14.35	27.23
		2	0.14	1.67	9.99	11.80		
126	5630	1	-0.75	1.59	10.16	11.00	14.46	27.90
		2	0.23	1.63	9.99	11.85		
134	5670	1	-0.59	1.61	10.16	11.18	14.32	27.04
		2	-0.21	1.65	9.99	11.43		

Sample Calculation:
Result = Reading + Cable Loss + Attenuator

Peak Power Spectral Density

Test place	Head Office EMC Lab. No.6 measurement room
Report No.	32KE0041-HO-02
Date	07/23/2012
Temperature/ Humidity	26deg. C / 60% RH
Engineer	Takayuki Shimada
Mode	11a Tx

Antenna port 2

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	ENBW [dB]	Antenna Gain [dBi]	Result [dBm]	Limit [dBm]	Margin [dB]
5180.0	-10.39	3.56	10.00	0.20	2.33	2.97	4.00	1.03
5220.0	-9.79	3.49	10.00	0.20	2.33	3.50	4.00	0.50
5240.0	-10.03	3.49	10.00	0.20	2.33	3.26	4.00	0.74
5260.0	-10.07	3.54	9.99	0.20	2.33	3.27	11.00	7.74
5300.0	-10.03	3.51	9.99	0.20	2.33	3.27	11.00	7.73
5320.0	-10.18	3.51	9.99	0.20	2.33	3.12	11.00	7.88
5500.0	-10.56	3.67	9.99	0.20	2.33	2.90	11.00	8.10
5600.0	-10.21	3.61	9.99	0.20	2.33	3.19	11.00	7.81
5700.0	-9.99	3.60	9.99	0.20	2.33	3.40	11.00	7.60

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator - ENBW
*ENBW: Equivalent Noise Band Width

Peak Power Spectral Density

Test place	Head Office EMC Lab. No.6 measurement room
Report No.	32KE0041-HO-02
Date	07/23/2012
Temperature/ Humidity	26deg. C / 60% RH
Engineer	Takayuki Shimada
Mode	11n-20 Tx

Antenna port 1+2

Freq. [MHz]	Result [dBm]	Limit [dBm]	Margin [dB]
5180.0	3.20	4.00	0.80
5220.0	3.30	4.00	0.70
5240.0	3.29	4.00	0.71
5260.0	2.94	11.00	8.06
5300.0	10.40	11.00	0.60
5320.0	4.12	11.00	6.88
5500.0	3.78	11.00	7.22
5600.0	3.15	11.00	7.85
5700.0	3.72	11.00	7.28

Result [dBm] = 10 x log (10 ^ (Ant1 Result [dBm] / 10) + 10 ^ (Ant2 Result [dBm] / 10) + 10 ^ (Ant3 Result [dBm] /

Antenna port 1

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	ENBW [dB]	Antenna Gain [dBi]	Result [dBm]	Limit [dBm]	Margin [dB]
5180.0	-13.23	3.51	10.14	0.20	1.83	0.22	4.00	3.78
5220.0	-12.91	3.42	10.14	0.20	1.83	0.46	4.00	3.55
5240.0	-12.94	3.46	10.15	0.20	1.83	0.47	4.00	3.53
5260.0	-13.40	3.50	10.15	0.20	1.83	0.06	11.00	10.95
5300.0	-12.45	3.44	19.15	0.20	1.83	9.94	11.00	1.06
5320.0	-12.68	3.47	10.15	0.20	1.83	0.74	11.00	10.26
5500.0	-13.06	3.62	10.16	0.20	1.83	0.52	11.00	10.48
5580.0	-13.59	3.56	10.16	0.20	1.83	-0.07	11.00	11.07
5700.0	-13.13	3.57	10.15	0.20	1.83	0.39	11.00	10.61

Antenna port 2

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	ENBW [dB]	Antenna Gain [dBi]	Result [dBm]	Limit [dBm]	Margin [dB]
5180.0	-13.20	3.56	10.00	0.20	2.33	0.16	4.00	3.84
5220.0	-13.17	3.49	10.00	0.20	2.33	0.12	4.00	3.88
5240.0	-13.21	3.49	10.00	0.20	2.33	0.09	4.00	3.92
5260.0	-13.53	3.54	9.99	0.20	2.33	-0.20	11.00	11.20
5300.0	-12.88	3.51	9.99	0.20	2.33	0.42	11.00	10.58
5320.0	-11.85	3.51	9.99	0.20	2.33	1.45	11.00	9.55
5500.0	-12.45	3.67	9.99	0.20	2.33	1.01	11.00	9.99
5580.0	-13.06	3.61	9.99	0.20	2.33	0.34	11.00	10.66
5700.0	-12.39	3.60	9.99	0.20	2.33	1.00	11.00	10.00

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator - ENBW
*ENBW: Equivalent Noise Band Width

Peak Power Spectral Density

Test place	Head Office EMC Lab. No.6 measurement room
Report No.	32KE0041-HO-02
Date	07/23/2012
Temperature/ Humidity	26deg. C / 60% RH
Engineer	Takayuki Shimada
Mode	11n-40 Tx

Antenna port 1+2

Freq. [MHz]	Result [dBm]	Limit [dBm]	Margin [dB]
5190.0	-2.37	4.00	6.37
5230.0	1.86	4.00	2.14
5270.0	1.86	11.00	9.14
5310.0	-1.88	11.00	12.88
5510.0	0.29	11.00	10.71
5550.0	0.90	11.00	10.10
5670.0	0.99	11.00	10.01

Result [dBm] = 10 x log (10 ^ (Ant1 Result [dBm] / 10) + 10 ^ (Ant2 Result [dBm] / 10) + 10 ^ (Ant3 Result [dBm] /

Antenna port 1

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	ENBW [dB]	Antenna Gain [dBi]	Result [dBm]	Limit [dBm]	Margin [dB]
5190.0	-18.78	3.50	10.14	0.20	1.83	-5.34	4.00	9.34
5230.0	-14.53	3.42	10.15	0.20	1.83	-1.16	4.00	5.16
5270.0	-14.65	3.50	10.15	0.20	1.83	-1.20	11.00	12.20
5310.0	-17.99	3.44	10.15	0.20	1.83	-4.60	11.00	15.60
5510.0	-16.67	3.62	10.16	0.20	1.83	-3.09	11.00	14.09
5550.0	-15.95	3.54	10.16	0.20	1.83	-2.45	11.00	13.45
5670.0	-15.55	3.56	10.15	0.20	1.83	-2.04	11.00	13.04

Antenna port 2

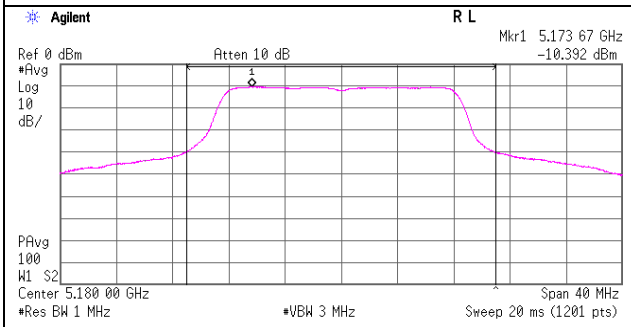
Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	ENBW [dB]	Antenna Gain [dBi]	Result [dBm]	Limit [dBm]	Margin [dB]
5190.0	-18.75	3.53	10.00	0.20	2.33	-5.42	4.00	9.42
5230.0	-14.43	3.48	10.00	0.20	2.33	-1.15	4.00	5.15
5270.0	-14.45	3.55	9.99	0.20	2.33	-1.11	11.00	12.11
5310.0	-18.48	3.49	9.99	0.20	2.33	-5.20	11.00	16.20
5510.0	-15.85	3.68	9.99	0.20	2.33	-2.38	11.00	13.38
5550.0	-15.17	3.59	9.99	0.20	2.33	-1.79	11.00	12.79
5670.0	-15.40	3.60	9.99	0.20	2.33	-2.01	11.00	13.01

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator - ENBW
*ENBW: Equivalent Noise Band Width

Maximum Peak Output Power & Peak Power Spectral Density

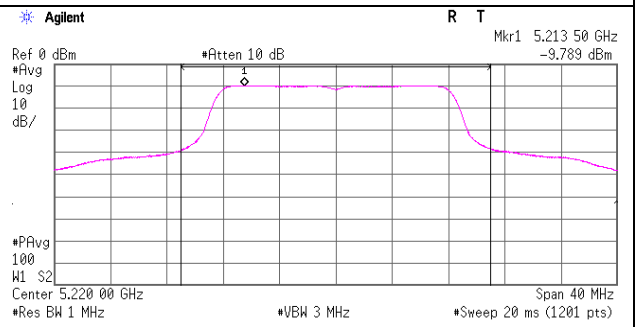
11a Antenna port 2

5180MHz



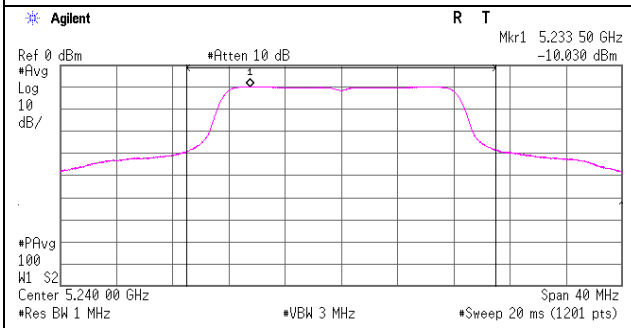
Channel Power	Power Spectral Density
1.04 dBm /22.0000 MHz	-72.38 dBm/Hz

5220MHz



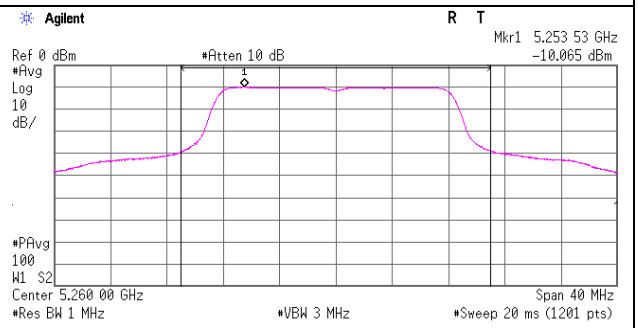
Channel Power	Power Spectral Density
1.80 dBm /22.0000 MHz	-71.62 dBm/Hz

5240MHz



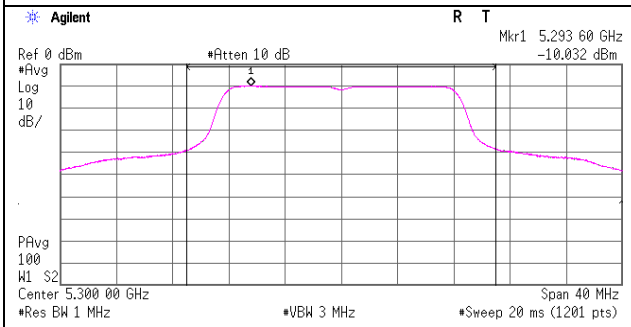
Channel Power	Power Spectral Density
1.71 dBm /22.0000 MHz	-71.71 dBm/Hz

5260MHz



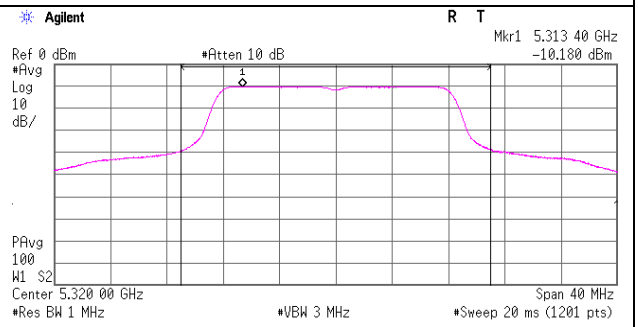
Channel Power	Power Spectral Density
1.49 dBm /22.0000 MHz	-71.93 dBm/Hz

5300MHz



Channel Power	Power Spectral Density
1.57 dBm /22.0000 MHz	-71.85 dBm/Hz

5320MHz

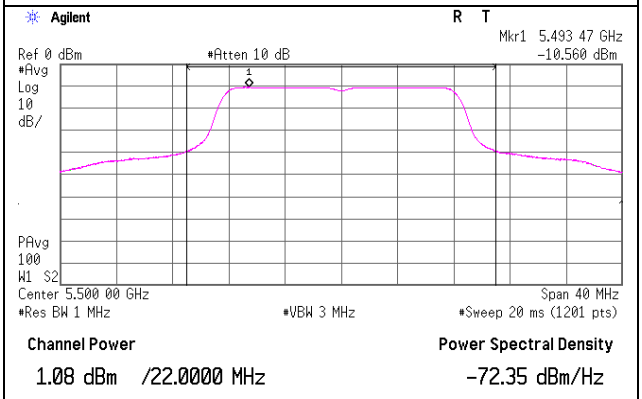


Channel Power	Power Spectral Density
1.44 dBm /22.0000 MHz	-71.98 dBm/Hz

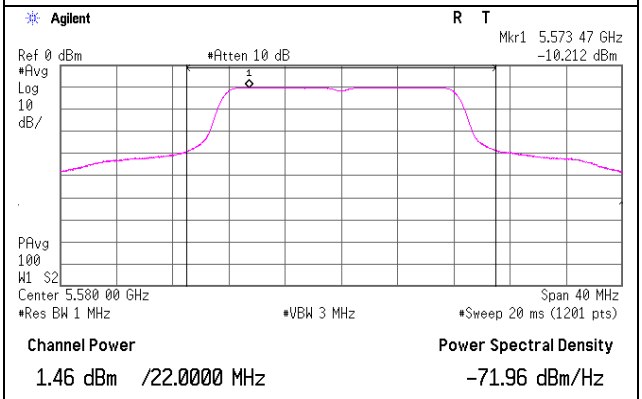
Maximum Peak Output Power & Peak Power Spectral Density

11a Antenna port 2

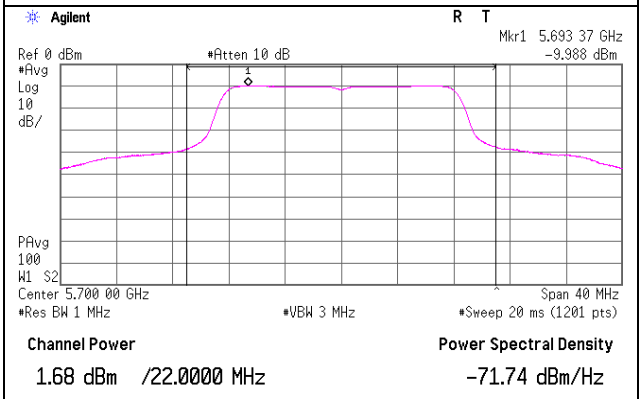
5500MHz



5580MHz



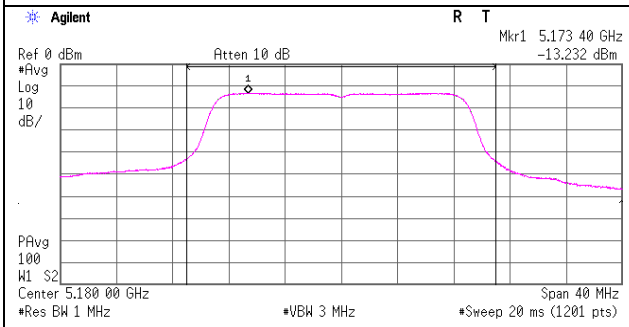
5700MHz



Maximum Peak Output Power & Peak Power Spectral Density

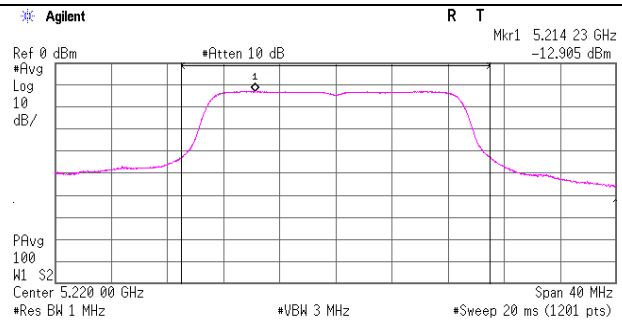
11n-20 Antenna port 1

5180MHz



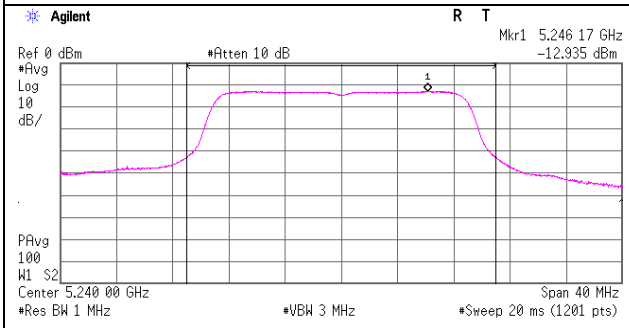
Channel Power	Power Spectral Density
-1.51 dBm /22.0000 MHz	-74.93 dBm/Hz

5220MHz



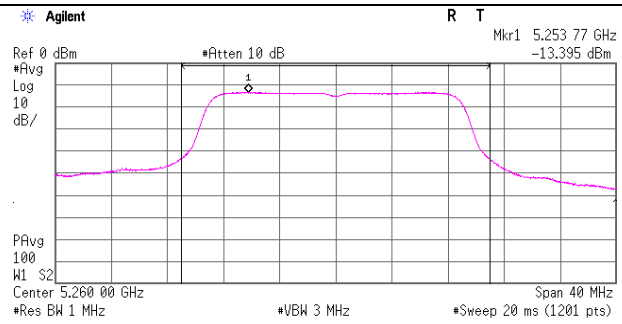
Channel Power	Power Spectral Density
-1.17 dBm /22.0000 MHz	-74.59 dBm/Hz

5240MHz



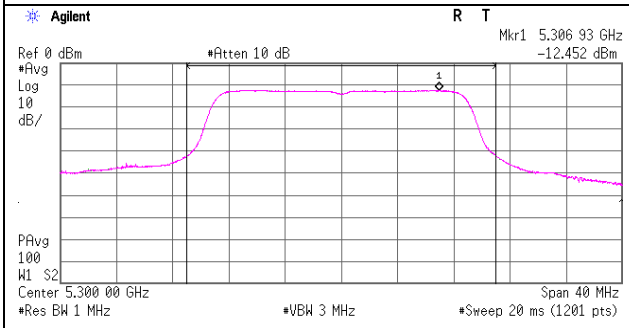
Channel Power	Power Spectral Density
-1.21 dBm /22.0000 MHz	-74.63 dBm/Hz

5260MHz



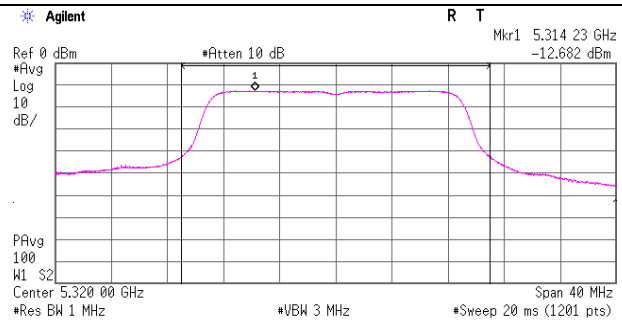
Channel Power	Power Spectral Density
-1.64 dBm /22.0000 MHz	-75.07 dBm/Hz

5300MHz



Channel Power	Power Spectral Density
-0.67 dBm /22.0000 MHz	-74.09 dBm/Hz

5320MHz

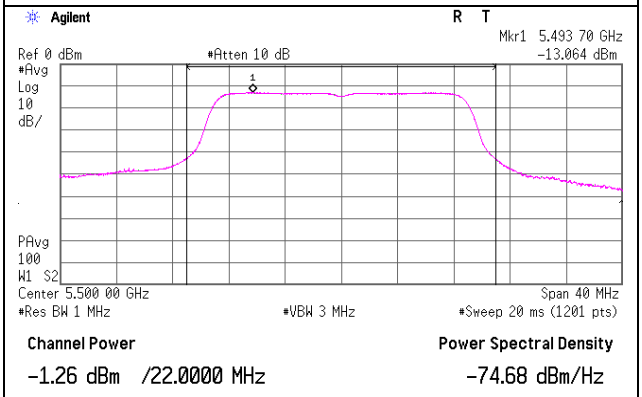


Channel Power	Power Spectral Density
-0.92 dBm /22.0000 MHz	-74.34 dBm/Hz

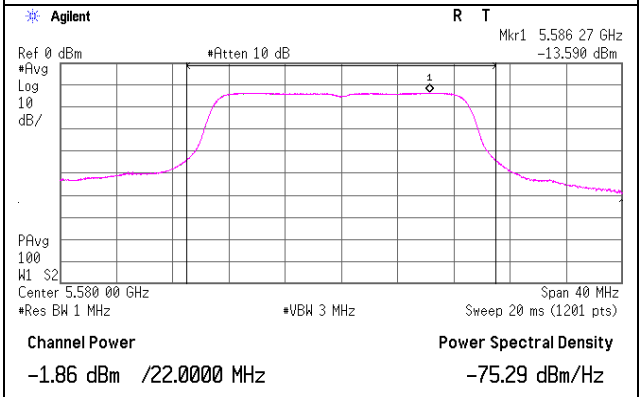
Maximum Peak Output Power & Peak Power Spectral Density

11n-20 Antenna port 1

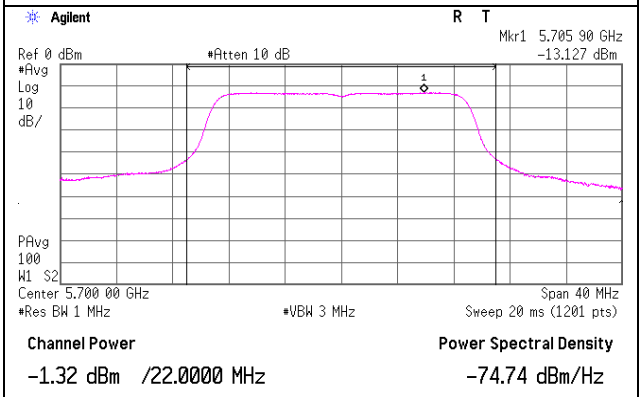
5500MHz



5580MHz



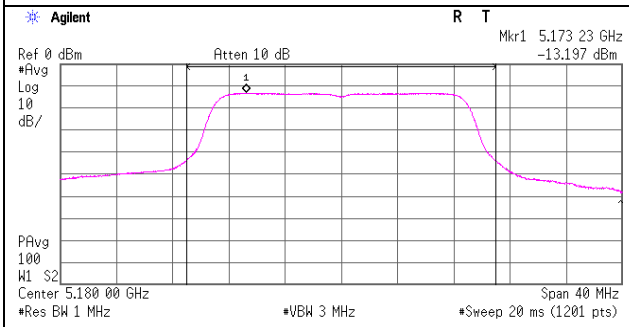
5700MHz



Maximum Peak Output Power & Peak Power Spectral Density

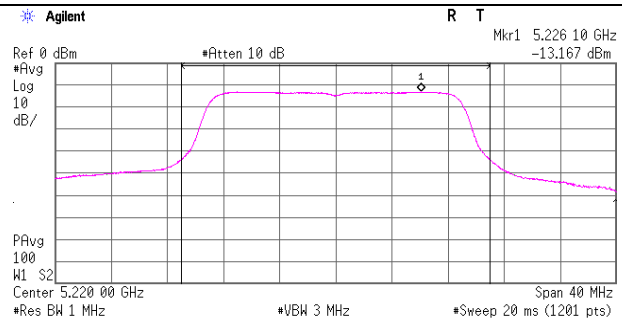
11n-20 Antenna port 2

5180MHz



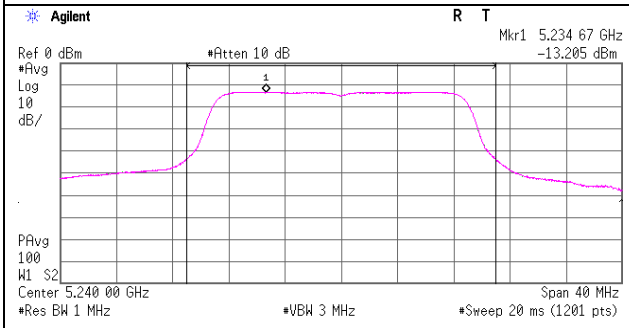
Channel Power	Power Spectral Density
-1.48 dBm /22.0000 MHz	-74.90 dBm/Hz

5220MHz



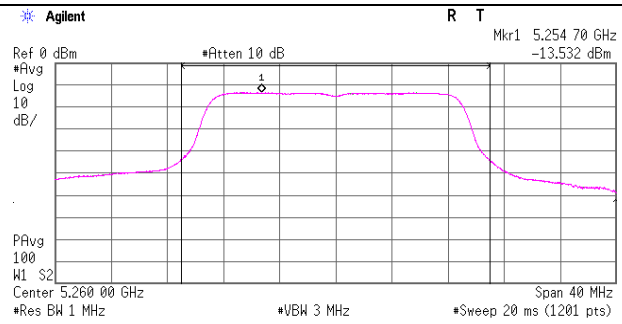
Channel Power	Power Spectral Density
-1.41 dBm /22.0000 MHz	-74.83 dBm/Hz

5240MHz



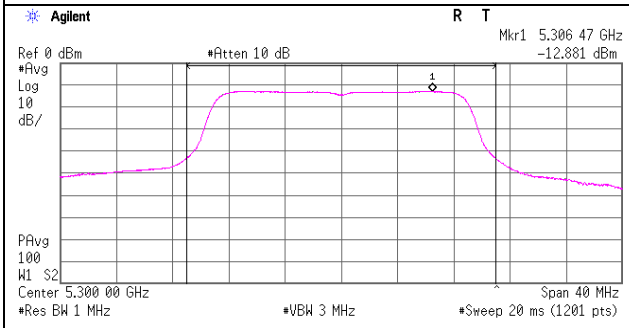
Channel Power	Power Spectral Density
-1.38 dBm /22.0000 MHz	-74.80 dBm/Hz

5260MHz



Channel Power	Power Spectral Density
-1.75 dBm /22.0000 MHz	-75.18 dBm/Hz

5300MHz



Channel Power	Power Spectral Density
-1.10 dBm /22.0000 MHz	-74.53 dBm/Hz

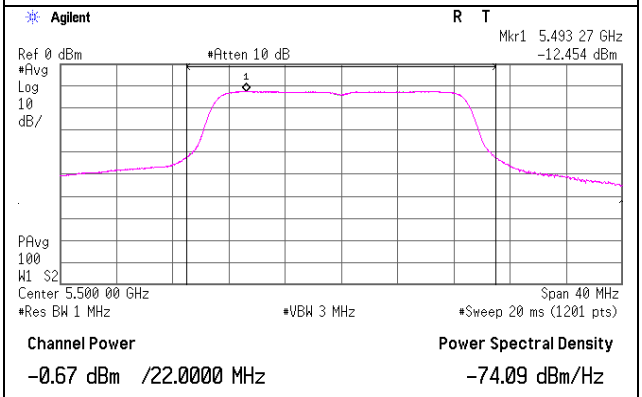
5320MHz

Channel Power	Power Spectral Density
-1.38 dBm /22.0000 MHz	-74.81 dBm/Hz

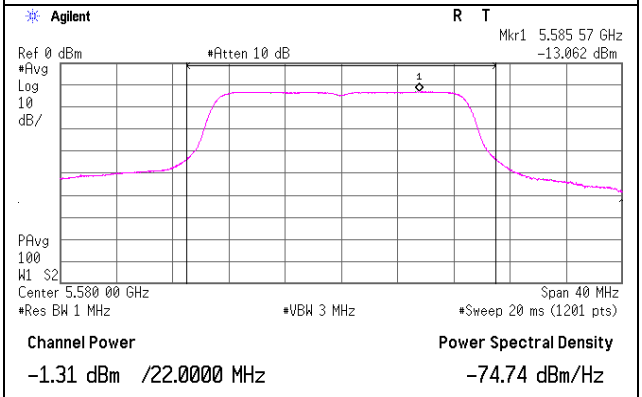
Maximum Peak Output Power & Peak Power Spectral Density

11n-20 Antenna port 2

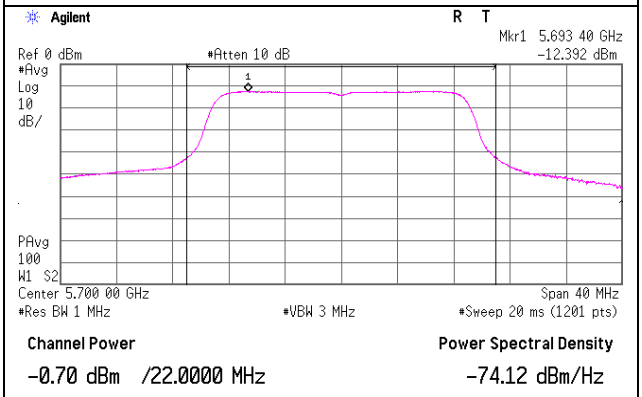
5500MHz



5580MHz



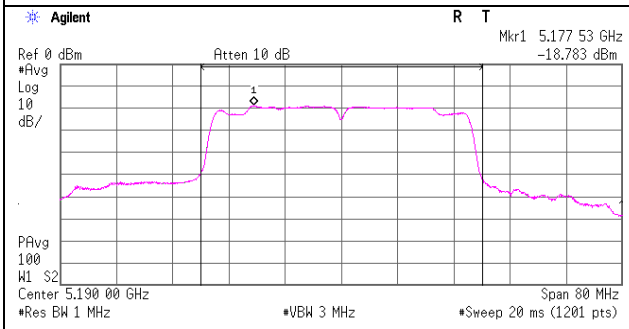
5700MHz



Maximum Peak Output Power & Peak Power Spectral Density

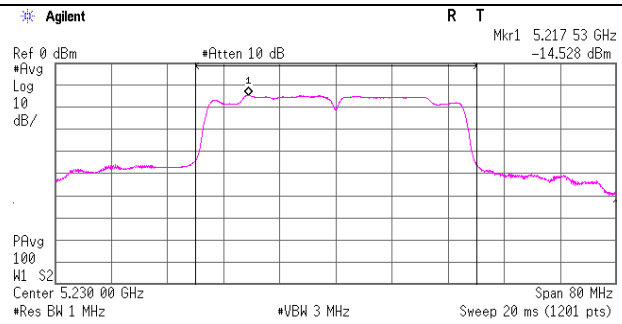
11n-40 Antenna port 1

5190MHz



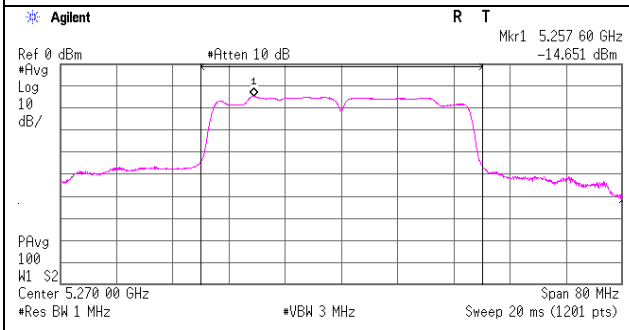
Channel Power	Power Spectral Density
-5.02 dBm /40.0000 MHz	-81.04 dBm/Hz

5230MHz



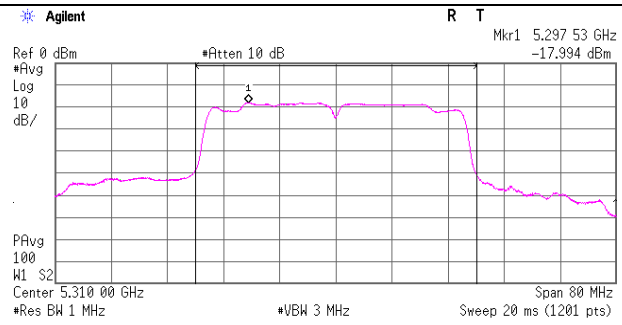
Channel Power	Power Spectral Density
-0.77 dBm /40.0000 MHz	-76.79 dBm/Hz

5270MHz



Channel Power	Power Spectral Density
-0.94 dBm /40.0000 MHz	-76.96 dBm/Hz

5310MHz

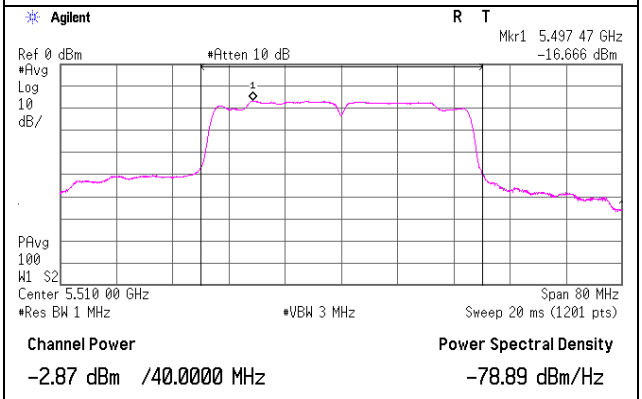


Channel Power	Power Spectral Density
-4.18 dBm /40.0000 MHz	-80.21 dBm/Hz

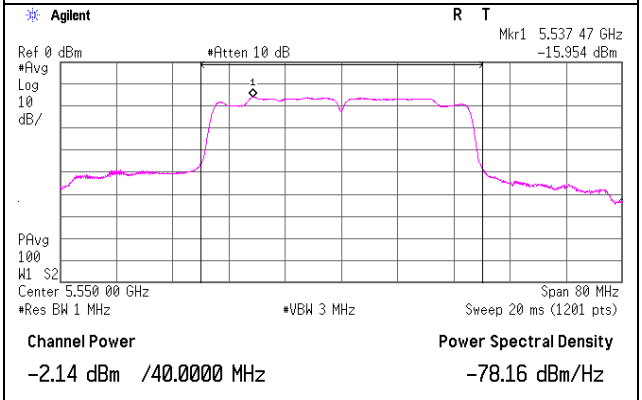
Maximum Peak Output Power & Peak Power Spectral Density

11n-40 Antenna port 1

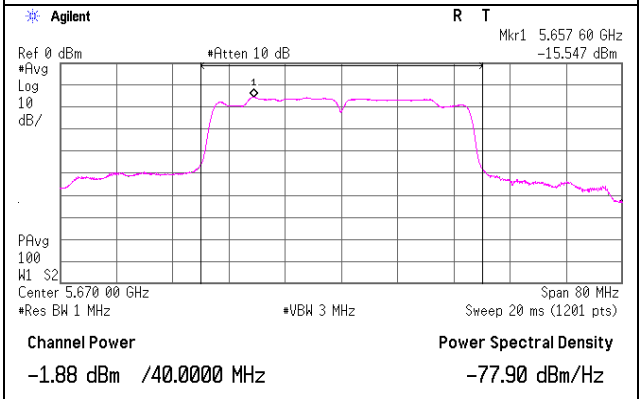
5510MHz



5550MHz



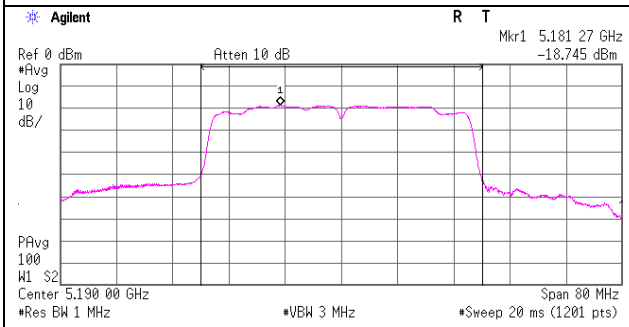
5670MHz



Maximum Peak Output Power & Peak Power Spectral Density

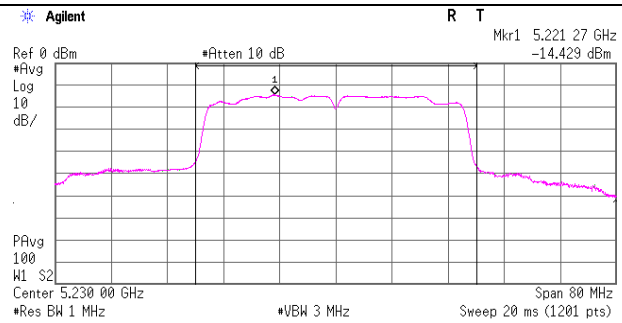
11n-40 Antenna port 2

5190MHz



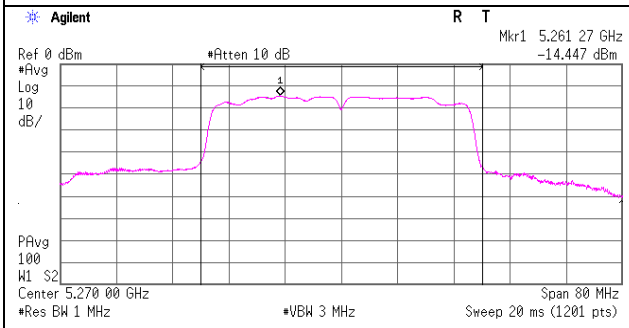
Channel Power	Power Spectral Density
-4.82 dBm /40.0000 MHz	-80.85 dBm/Hz

5230MHz



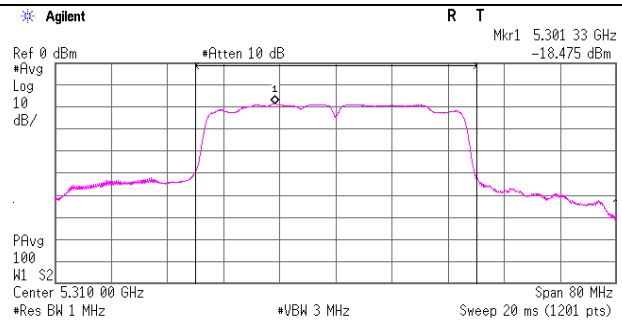
Channel Power	Power Spectral Density
-0.71 dBm /40.0000 MHz	-76.73 dBm/Hz

5270MHz



Channel Power	Power Spectral Density
-0.73 dBm /40.0000 MHz	-76.75 dBm/Hz

5310MHz

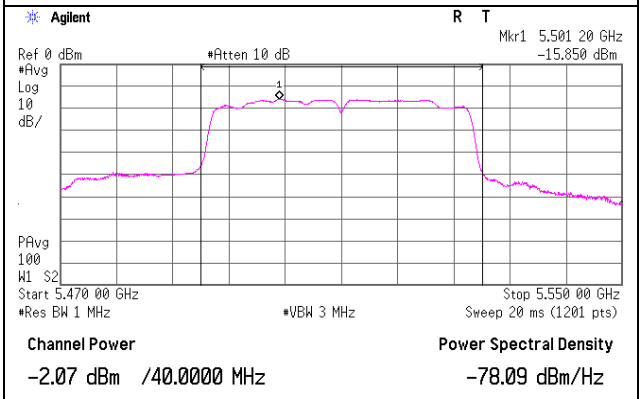


Channel Power	Power Spectral Density
-4.68 dBm /40.0000 MHz	-80.70 dBm/Hz

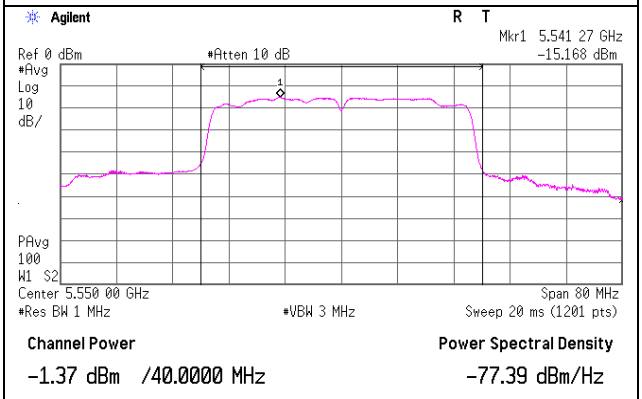
Maximum Peak Output Power & Peak Power Spectral Density

11n-40 Antenna port 2

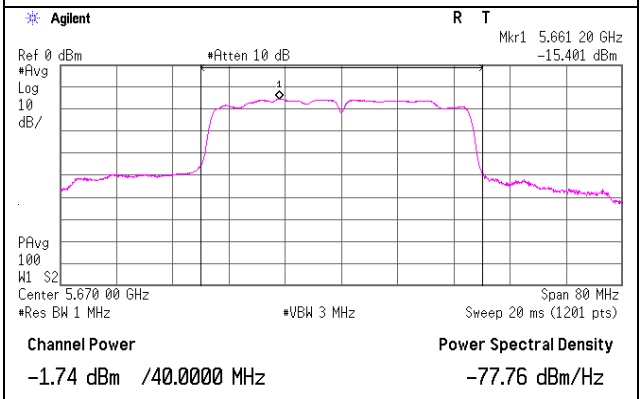
5510MHz



5550MHz



5670MHz



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

Test place	Head Office EMC Lab. No.6 measurement room
Report No.	32KE0041-HO-02
Date	07/22/2012
Temperature/ Humidity	24deg.C / 62% RH
Engineer	Satofumi Matsuyama
Mode	11a Tx

Antenna port 1, 5180MHz

Data Rate [Mbps]	Reading [dBm]	Remark
6	0.12	*
9	0.08	
12	0.07	
18	-0.03	
24	-0.04	
36	0.03	
48	0.05	
54	0.04	

Antenna port 2, 5180MHz

Data Rate [Mbps]	Reading [dBm]	Remark
6	1.04	*
9	1.00	
12	0.94	
18	1.01	
24	0.84	
36	0.86	
48	0.97	
54	0.91	

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

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

Test place	Head Office EMC Lab. No.6 measurement room	
Report No.	32KE0041-HO-02	
Date	07/22/2012	07/23/2012
Temperature/ Humidity	24deg.C / 62% RH	26deg. C / 60% RH
Engineer	Satofumi Matsuyama	Takayuki Shimada
Mode	11n-20 Tx	

11n-20 5180MHz

MCS Number	Reading Antena port 1		Reading Antenna port 2		Result Antenna port 1 + 2		Remark
	[dBm]	[mW]	[dBm]	[mW]	[dBm]	[mW]	
0	-0.35	0.92	**0.45**	1.11	-	-	*(MISO)
1	-0.47	0.90	0.39	1.09	-	-	
2	-0.38	0.92	0.30	1.07	-	-	
3	-0.43	0.91	0.29	1.07	-	-	
4	-0.44	0.90	0.28	1.07	-	-	
5	-0.40	0.91	0.31	1.07	-	-	
6	-0.36	0.92	0.28	1.07	-	-	
7	-0.36	0.92	0.33	1.08	-	-	
8	-1.51	0.71	-1.57	0.70	1.47	1.40	
9	-1.75	0.67	-1.58	0.70	1.35	1.36	
10	-1.71	0.67	-1.57	0.70	1.37	1.37	
11	-1.52	0.70	-1.60	0.69	1.45	1.40	
12	-1.51	0.71	-1.48	0.71	**1.52**	1.42	*(MIMO)
13	-1.60	0.69	-1.65	0.68	1.39	1.38	
14	-1.54	0.70	-1.59	0.69	1.45	1.39	
15	-1.52	0.70	-1.54	0.70	1.48	1.41	

*: Worst Rate
Sample Calculation:
Result Antenna port 1 + 2[dBm] = 10*LOG(Result Antenna port 1 + 2[mW])
Result Antenna port 1 + 2[mW] = Reading Antenna port 1[mW] + Reading Antenna port 2[mW]
All comparizon were carried out on same frequency and measurement factors.

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

Test place	Head Office EMC Lab. No.6 measurement room	
Report No.	32KE0041-HO-02	
Date	07/22/2012	07/23/2012
Temperature/ Humidity	24deg.C / 62% RH	26deg. C / 60% RH
Engineer	Satofumi Matsuyama	Takayuki Shimada
Mode	11n-40 Tx	

11n-40 5190MHz

MCS Number	Reading Antena port 1		Reading Antenna port 2		Result Antenna port 1 + 2		Remark
	[dBm]	[mW]	[dBm]	[mW]	[dBm]	[mW]	
0	**-3.22**	0.48	-3.74	0.42	-	-	*(MISO)
1	-3.24	0.47	-3.80	0.42	-	-	
2	-3.29	0.47	-3.97	0.40	-	-	
3	-3.41	0.46	-3.91	0.41	-	-	
4	-3.33	0.46	-4.02	0.40	-	-	
5	-3.43	0.45	-3.86	0.41	-	-	
6	-3.30	0.47	-3.95	0.40	-	-	
7	-3.24	0.47	-3.91	0.41	-	-	
8	-5.47	0.28	-5.15	0.31	-2.30	0.59	
9	-5.33	0.29	-5.03	0.31	-2.17	0.61	
10	-5.13	0.31	-4.84	0.33	-1.97	0.63	
11	-5.22	0.30	-4.88	0.33	-2.04	0.63	
12	-5.02	0.31	-4.82	0.33	**-1.91**	0.64	*(MIMO)
13	-5.34	0.29	-4.89	0.32	-2.10	0.62	
14	-5.69	0.27	-5.10	0.31	-2.37	0.58	
15	-5.72	0.27	-5.16	0.30	-2.42	0.57	

*: Worst Rate
Sample Calculation:
Result Antenna port 1 + 2[dBm] = 10*LOG(Result Antenna port 1 + 2[mW])
Result Antenna port 1 + 2[mW] = Reading Antenna port 1[mW] + Reading Antenna port 2[mW]
All comparizon were carried out on same frequency and measurement factors.

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.4 Anechoic Chamber		
Report No.	32KE0041-HO-02		
Date	07/23/2012	07/24/2012	07/24/2012
Temperature/ Humidity	22 deg.C / 59 % RH	24 deg.C / 59 % RH	23 deg.C / 55 % RH
Engineer	Tomohisa Nakagawa (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]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5150.000	PK	58.4	31.8	3.7	31.5	62.4	68.2	5.8	Bandedge	
Hori	10360.000	PK	42.7	39.4	-2.1	33.1	46.9	68.2	21.3	Outside	
Hori	15540.000	PK	43.5	39.5	-0.5	32.5	50.0	73.9	23.9	Inside	
Hori	5150.000	AV	45.8	31.8	3.7	31.5	49.8	53.9	4.1	Bandedge	
Hori	15540.000	AV	33.7	39.5	-0.5	32.5	40.2	53.9	13.7	Inside	
Vert	5150.000	PK	56.2	31.8	3.7	31.5	60.2	68.2	8.0	Bandedge	
Vert	10360.000	PK	43.4	39.4	-2.1	33.1	47.6	68.2	20.6	Outside	
Vert	15540.000	PK	44.6	39.5	-0.5	32.5	51.1	73.9	22.8	Inside	
Vert	5150.000	AV	44.4	31.8	3.7	31.5	48.4	53.9	5.5	Bandedge	
Vert	15540.000	AV	33.7	39.5	-0.5	32.5	40.2	53.9	13.7	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

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	Head Office EMC Lab. No.4 Anechoic Chamber		
Report No.	32KE0041-HO-02		
Date	07/23/2012	07/24/2012	07/24/2012
Temperature/ Humidity	22 deg.C / 59 % RH	24 deg.C / 59 % RH	23 deg.C / 55 % RH
Engineer	Tomohisa Nakagawa (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]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	10480.000	PK	43.7	39.7	-2.1	33.1	48.2	68.2	20.0	Outside	
Hori	15720.000	PK	43.6	38.7	-0.5	32.5	49.3	73.9	24.6	Inside	
Hori	15720.000	AV	34.2	38.7	-0.5	32.5	39.9	53.9	14.0	Inside	
Vert	10480.000	PK	41.4	39.7	-2.1	33.1	45.9	68.2	22.3	Outside	
Vert	15720.000	PK	43.3	38.7	-0.5	32.5	49.0	73.9	24.9	Inside	
Vert	15720.000	AV	34.2	38.7	-0.5	32.5	39.9	53.9	14.0	Inside	

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

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

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	Head Office EMC Lab. No.4 Anechoic Chamber		
Report No.	32KE0041-HO-02		
Date	07/23/2012	07/24/2012	07/24/2012
Temperature/ Humidity	22 deg.C / 59 % RH	24 deg.C / 59 % RH	23 deg.C / 55 % RH
Engineer	Tomohisa Nakagawa (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (Above 18GHz)
Mode	11n - 20 Tx 5320MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5350.000	PK	53.4	31.8	3.7	31.5	57.4	68.2	10.8	Bandedge	
Hori	10640.000	PK	41.8	39.9	-2.0	33.1	46.6	73.9	27.3	Inside	
Hori	15960.000	PK	44.7	37.7	-0.5	32.4	49.5	73.9	24.4	Inside	
Hori	5350.000	AV	43.2	31.8	3.7	31.5	47.2	53.9	6.7	Bandedge	
Hori	10640.000	AV	31.9	39.9	-2.0	33.1	36.7	53.9	17.2	Inside	
Hori	15960.000	AV	34.1	37.7	-0.5	32.4	39.8	53.9	14.1	Inside	
Vert	5350.000	PK	52.7	31.8	3.7	31.5	56.7	68.2	11.5	Bandedge	
Vert	10640.000	PK	42.0	39.9	-2.0	33.1	46.8	73.9	27.1	Inside	
Vert	15960.000	PK	43.3	37.7	-0.5	32.4	48.1	73.9	25.8	Inside	
Vert	5350.000	AV	42.2	31.8	3.7	31.5	46.2	53.9	7.7	Bandedge	
Vert	10640.000	AV	32.5	39.9	-2.0	33.1	37.3	53.9	16.6	Inside	
Vert	15960.000	AV	34.0	37.7	-0.5	32.4	38.8	53.9	15.1	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

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	Head Office EMC Lab. No.4 Anechoic Chamber		
Report No.	32KE0041-HO-02		
Date	07/23/2012	07/24/2012	07/24/2012
Temperature/ Humidity	22 deg.C / 59 % RH	24 deg.C / 59 % RH	23 deg.C / 55 % RH
Engineer	Tomohisa Nakagawa (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (Above 18GHz)
Mode	11n - 20 Tx 5500MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5460.000	PK	50.8	31.9	3.8	31.5	55.0	73.9	18.9	Inside	
Hori	5470.000	PK	55.6	31.9	3.8	31.5	59.8	68.2	8.4	Outside	
Hori	11000.000	PK	45.0	40.4	-2.0	33.2	50.2	73.9	23.7	Inside	
Hori	16500.000	PK	45.7	38.8	-0.6	32.4	51.5	68.2	16.7	Outside	
Hori	5460.000	AV	37.9	31.9	3.8	31.5	42.1	53.9	11.8	Inside	
Hori	11000.000	AV	34.2	40.4	-2.0	33.2	39.4	53.9	14.5	Inside	
Vert	5460.000	PK	47.3	31.9	3.8	31.5	51.5	73.9	22.4	Inside	
Vert	5470.000	PK	55.7	31.9	3.8	31.5	59.9	68.2	8.3	Outside	
Vert	11000.000	PK	43.0	40.4	-2.0	33.2	48.2	73.9	25.7	Inside	
Vert	16500.000	PK	45.5	38.8	-0.6	32.4	51.3	68.2	16.9	Outside	
Vert	5460.000	AV	35.0	31.9	3.8	31.5	39.2	53.9	14.7	Inside	
Vert	11000.000	AV	32.7	40.4	-2.0	33.2	37.9	53.9	16.0	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

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	Head Office EMC Lab. No.4 Anechoic Chamber		
Report No.	32KE0041-HO-02		
Date	07/23/2012	07/24/2012	07/24/2012
Temperature/ Humidity	22 deg.C / 59 % RH	24 deg.C / 59 % RH	23 deg.C / 55 % RH
Engineer	Tomohisa Nakagawa (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (Above 18GHz)
Mode	11n - 20 Tx 5580MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	11160.000	PK	43.9	40.2	-2.0	33.2	48.9	73.9	25.0	Inside	
Hori	16740.000	PK	44.0	39.4	-0.7	32.4	50.3	68.2	17.9	Outside	
Hori	11160.000	AV	34.1	40.2	-2.0	33.2	39.1	53.9	14.8	Inside	
Vert	11160.000	PK	44.3	40.2	-2.0	33.2	49.3	73.9	24.6	Inside	
Vert	16740.000	PK	43.5	39.4	-0.7	32.4	49.8	68.2	18.4	Outside	
Vert	11160.000	AV	34.7	40.2	-2.0	33.2	39.7	53.9	14.2	Inside	

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

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

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	Head Office EMC Lab. No.4 Anechoic Chamber		
Report No.	32KE0041-HO-02		
Date	07/23/2012	07/24/2012	07/24/2012
Temperature/ Humidity	22 deg.C / 59 % RH	24 deg.C / 59 % RH	23 deg.C / 55 % RH
Engineer	Tomohisa Nakagawa (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (Above 18GHz)
Mode	11n - 20 Tx 5700MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5725.000	PK	56.6	32.2	3.9	31.6	61.1	68.2	7.1	Outside	
Hori	11400.000	PK	43.1	39.8	-2.0	33.2	47.7	73.9	26.2	Inside	
Hori	17100.000	PK	44.4	40.8	-0.6	32.5	52.1	68.2	16.1	Outside	
Hori	11400.000	AV	33.9	39.8	-2.0	33.2	38.5	53.9	15.4	Inside	
Vert	5725.000	PK	50.4	32.2	3.9	31.6	54.9	68.2	13.3	Outside	
Vert	11400.000	PK	44.9	39.8	-2.0	33.2	49.5	73.9	24.4	Inside	
Vert	17100.000	PK	44.1	40.8	-0.6	32.5	51.8	68.2	16.4	Outside	
Vert	11400.000	AV	35.3	39.8	-2.0	33.2	39.9	53.9	14.0	Inside	

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

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

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	Head Office EMC Lab. No.4 Anechoic Chamber		
Report No.	32KE0041-HO-02		
Date	07/23/2012	07/24/2012	07/24/2012
Temperature/ Humidity	22 deg.C / 59 % RH	24 deg.C / 59 % RH	23 deg.C / 55 % RH
Engineer	Tomohisa Nakagawa (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]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5150.000	PK	55.5	31.8	3.7	31.5	59.5	68.2	8.7	Bandedge	
Hori	10380.000	PK	43.0	39.5	-2.1	33.1	47.3	68.2	20.9	Outside	
Hori	15570.000	PK	43.7	39.3	-0.5	32.5	50.0	73.9	23.9	Inside	
Hori	5150.000	AV	44.8	31.8	3.7	31.5	48.8	53.9	5.1	Bandedge	
Hori	15570.000	AV	35.2	39.3	-0.5	32.5	41.5	53.9	12.4	Inside	
Vert	5150.000	PK	51.7	31.8	3.7	31.5	55.7	68.2	12.5	Bandedge	
Vert	10380.000	PK	42.7	39.5	-2.1	33.1	47.0	68.2	21.2	Outside	
Vert	15570.000	PK	43.3	39.3	-0.5	32.5	49.6	73.9	24.3	Inside	
Vert	5150.000	AV	40.0	31.8	3.7	31.5	44.0	53.9	9.9	Bandedge	
Vert	15570.000	AV	35.0	39.3	-0.5	32.5	41.3	53.9	12.6	Inside	

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

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

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

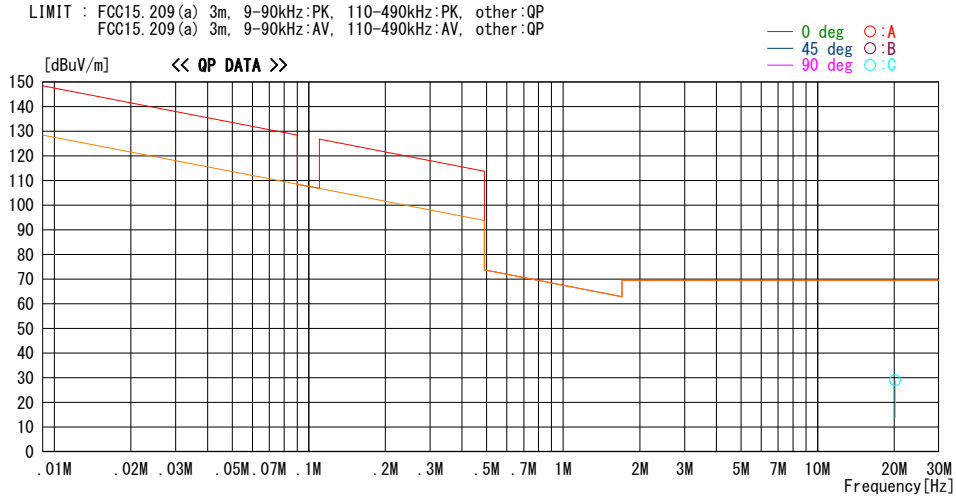
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2012/08/03

Report No. : 32KE0041-HO-02
Power : AC 120V / 60Hz
Temp./ Humi. : 24deg. C / 58% RH
Engineer : Keisuke Kawamura

Mode / Remarks : 11n40 MIMO 5230MHz MCS12(ShortGI) Worst-axis:Laptop Y

LIMIT : FCC15.209(a) 3m, 9-90kHz:PK, 110-490kHz:PK, other:QP
FCC15.209(a) 3m, 9-90kHz:AV, 110-490kHz:AV, other:QP



Freq. [MHz]	Reading [dBuV]	DET	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Antenna [deg]		Table [deg]	Comment
20.18957	34.2	QP	19.4	7.5	32.2	28.9	69.5	40.6	90	C	203	

CHART: WITH FACTOR , ANT TYPE: LOOP Except for the data below : adequate margin data below the limits.
CALCULATION : RESULT = READING + ANT FACTOR + LOSS(CABLE + ATTEN.) - GAIN(AMP.)

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.4 Anechoic Chamber
Report No.	32KE0041-HO-02
Date	07/24/2012
Temperature/ Humidity	23 deg.C / 55 % RH
Engineer	Satofumi Matsuyama (Below 1GHz)
Mode	11n - 40 Tx 5230MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	123.824	QP	26.7	13.3	8.4	32.0	16.4	43.5	27.1	Inside	
Hori	140.001	QP	27.8	14.6	8.4	32.0	18.8	43.5	24.7	Outside	
Hori	357.837	QP	35.4	17.0	10.0	32.0	30.4	46.0	15.6	Outside	
Hori	415.165	QP	36.8	17.8	10.4	32.0	33.0	46.0	13.0	Outside	
Hori	480.858	QP	38.5	18.7	10.8	31.9	36.1	46.0	9.9	Outside	
Hori	564.478	QP	31.9	20.0	11.2	32.0	31.1	46.0	14.9	Outside	
Vert	123.807	QP	39.5	13.3	8.4	32.0	29.2	43.5	14.3	Inside	
Vert	139.998	QP	46.9	14.6	8.4	32.0	37.9	43.5	5.6	Outside	
Vert	357.151	QP	32.8	17.0	10.0	32.0	27.8	46.0	18.2	Outside	
Vert	433.896	QP	40.2	18.1	10.5	31.9	36.9	46.0	9.1	Outside	
Vert	480.991	QP	39.9	18.7	10.8	31.9	37.5	46.0	8.5	Outside	
Vert	564.482	QP	33.4	20.0	11.2	32.0	32.6	46.0	13.4	Outside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.4 Anechoic Chamber		
Report No.	32KE0041-HO-02		
Date	07/23/2012	07/24/2012	07/24/2012
Temperature/ Humidity	22 deg.C / 59 % RH	24 deg.C / 59 % RH	23 deg.C / 55 % RH
Engineer	Tomohisa Nakagawa (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (Above 18GHz)
Mode	11n - 40 Tx 5270MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	10540.000	PK	44.2	39.8	-2.0	33.1	48.9	68.2	19.3	Outside	
Hori	15810.000	PK	45.3	38.3	-0.5	32.5	50.6	73.9	23.3	Inside	
Hori	15810.000	AV	35.9	38.3	-0.5	32.5	41.2	53.9	12.7	Inside	
Vert	10540.000	PK	44.4	39.8	-2.0	33.1	49.1	68.2	19.1	Outside	
Vert	15810.000	PK	45.6	38.3	-0.5	32.5	50.9	73.9	23.0	Inside	
Vert	15810.000	AV	36.5	38.3	-0.5	32.5	41.8	53.9	12.1	Inside	

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

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

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	Head Office EMC Lab. No.4 Anechoic Chamber		
Report No.	32KE0041-HO-02		
Date	07/23/2012	07/24/2012	07/24/2012
Temperature/ Humidity	22 deg.C / 59 % RH	24 deg.C / 59 % RH	23 deg.C / 55 % RH
Engineer	Tomohisa Nakagawa (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (Above 18GHz)
Mode	11n - 40 Tx 5310MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5350.000	PK	49.1	31.8	3.7	31.5	53.1	68.2	15.1	Bandedge	
Hori	10620.000	PK	43.4	39.9	-2.0	33.1	48.2	73.9	25.7	Inside	
Hori	15930.000	PK	43.7	37.9	-0.5	32.4	48.7	73.9	25.2	Inside	
Hori	5350.000	AV	39.1	31.8	3.7	31.5	43.1	53.9	10.8	Bandedge	
Hori	10620.000	AV	35.2	39.9	-2.0	33.1	40.0	53.9	13.9	Inside	
Hori	15930.000	AV	35.2	37.9	-0.5	32.4	40.2	53.9	13.7	Inside	
Vert	5350.000	PK	48.9	31.8	3.7	31.5	52.9	68.2	15.3	Bandedge	
Vert	10620.000	PK	42.2	39.9	-2.0	33.1	47.0	73.9	26.9	Inside	
Vert	15930.000	PK	44.0	37.9	-0.5	32.4	49.0	73.9	24.9	Inside	
Vert	5350.000	AV	39.1	31.8	3.7	31.5	43.1	53.9	10.8	Bandedge	
Vert	10620.000	AV	35.1	39.9	-2.0	33.1	39.9	53.9	14.0	Inside	
Vert	15930.000	AV	35.6	37.9	-0.5	32.4	40.6	53.9	13.3	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

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	Head Office EMC Lab. No.4 Anechoic Chamber		
Report No.	32KE0041-HO-02		
Date	07/23/2012	07/24/2012	07/24/2012
Temperature/ Humidity	22 deg.C / 59 % RH	24 deg.C / 59 % RH	23 deg.C / 55 % RH
Engineer	Tomohisa Nakagawa (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (Above 18GHz)
Mode	11n - 40 Tx 5510MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5460.000	PK	56.1	31.9	3.8	31.5	60.3	73.9	13.6	Inside	
Hori	5470.000	PK	60.4	31.9	3.8	31.5	64.6	68.2	3.6	Outside	
Hori	11020.000	PK	44.0	40.4	-2.0	33.2	49.2	73.9	24.7	Inside	
Hori	16530.000	PK	44.1	38.9	-0.6	32.4	50.0	68.2	18.2	Outside	
Hori	5460.000	AV	46.7	31.9	3.8	31.5	50.9	53.9	3.0	Inside	
Hori	11020.000	AV	35.0	40.4	-2.0	33.2	40.2	53.9	13.7	Inside	
Vert	5460.000	PK	53.1	31.9	3.8	31.5	57.3	73.9	16.6	Inside	
Vert	5470.000	PK	59.1	31.9	3.8	31.5	63.3	68.2	4.9	Outside	
Vert	11020.000	PK	44.0	40.4	-2.0	33.2	49.2	73.9	24.7	Inside	
Vert	16530.000	PK	44.1	38.9	-0.6	32.4	50.0	68.2	18.2	Outside	
Vert	5460.000	AV	42.7	31.9	3.8	31.5	46.9	53.9	7.0	Inside	
Vert	11020.000	AV	36.2	40.4	-2.0	33.2	41.4	53.9	12.5	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

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	Head Office EMC Lab. No.4 Anechoic Chamber		
Report No.	32KE0041-HO-02		
Date	07/23/2012	07/24/2012	07/24/2012
Temperature/ Humidity	22 deg.C / 59 % RH	24 deg.C / 59 % RH	23 deg.C / 55 % RH
Engineer	Tomohisa Nakagawa (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (Above 18GHz)
Mode	11n - 40 Tx 5550MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	11100.000	PK	44.8	40.2	-2.0	33.2	49.8	73.9	24.1	Inside	
Hori	16650.000	PK	43.7	39.2	-0.6	32.4	49.9	68.2	18.3	Outside	
Hori	11100.000	AV	35.5	40.2	-2.0	33.2	40.5	53.9	13.4	Inside	
Vert	11100.000	PK	44.8	40.2	-2.0	33.2	49.8	73.9	24.1	Inside	
Vert	16650.000	PK	45.8	39.2	-0.6	32.4	52.0	68.2	16.2	Outside	
Vert	11100.000	AV	36.1	40.2	-2.0	33.2	41.1	53.9	12.8	Inside	

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

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

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	Head Office EMC Lab. No.4 Anechoic Chamber		
Report No.	32KE0041-HO-02		
Date	07/23/2012	07/24/2012	07/24/2012
Temperature/ Humidity	22 deg.C / 59 % RH	24 deg.C / 59 % RH	23 deg.C / 55 % RH
Engineer	Tomohisa Nakagawa (1-10GHz)	Takumi Shimada (10-18GHz)	Satofumi Matsuyama (Above 18GHz)
Mode	11n - 40 Tx 5670MHz		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5725.000	PK	46.2	32.2	3.9	31.6	50.7	68.2	17.5	Outside	
Hori	11340.000	PK	45.8	39.9	-2.0	33.2	50.5	73.9	23.4	Inside	
Hori	17010.000	PK	44.1	40.1	-0.6	32.5	51.1	68.2	17.1	Outside	
Hori	11340.000	AV	36.1	39.9	-2.0	33.2	40.8	53.9	13.1	Inside	
Vert	5725.000	PK	50.2	32.2	3.9	31.6	54.7	68.2	13.5	Outside	
Vert	11340.000	PK	43.4	39.9	-2.0	33.2	48.1	73.9	25.8	Inside	
Vert	17010.000	PK	44.9	40.1	-0.6	32.5	51.9	68.2	16.3	Outside	
Vert	11340.000	AV	35.4	39.9	-2.0	33.2	40.1	53.9	13.8	Inside	

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

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

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	Head Office EMC Lab. No.3 Anechoic Chamber
Report No.	32KE0041-HO-02
Date	08/03/2012
Temperature/ Humidity	22 deg.C / 59 % RH
Engineer	Tomotaka Sasagawa
Mode	11n - 40 Tx 5190MHz + BT Hopping

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5150.000	PK	57.4	32.4	3.3	31.4	61.7	68.2	6.5	Bandedge	
Hori	5150.000	AV	42.2	32.4	3.3	31.4	46.5	53.9	7.4	Bandedge	
Vert	5150.000	PK	58.0	32.4	3.3	31.4	62.3	68.2	5.9	Bandedge	
Vert	5150.000	AV	43.3	32.4	3.3	31.4	47.6	53.9	6.3	Bandedge	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

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	Head Office EMC Lab. No.4 Anechoic Chamber
Report No.	32KE0041-HO-02
Date	08/03/2012
Temperature/ Humidity	22 deg.C / 59 % RH
Engineer	Tomotaka Sasagawa
	08/03/2012
Mode	11n - 40 Tx 5270MHz + BT Hopping

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	98.405	QP	36.5	9.6	8.3	38.9	15.5	43.5	28.0	Outside	
Hori	140.022	QP	45.1	14.4	8.8	38.9	29.4	43.5	14.1	Outside	
Hori	316.321	QP	38.9	14.9	10.5	38.6	25.7	46.0	20.3	Outside	
Hori	338.232	QP	41.9	15.7	10.7	38.5	29.8	46.0	16.2	Outside	
Hori	474.231	QP	43.2	18.0	11.7	38.2	34.7	46.0	11.3	Outside	
Hori	10540.000	PK	44.5	39.2	-4.1	33.1	46.5	68.2	21.7	Outside	
Hori	15810.000	PK	45.1	38.3	-2.7	32.5	48.2	73.9	25.7	Inside	
Hori	15810.000	AV	35.6	38.3	-2.7	32.5	38.7	53.9	15.2	Inside	
Vert	122.762	QP	44.8	13.1	8.6	38.9	27.6	43.5	15.9	Outside	
Vert	260.321	QP	33.2	17.9	10.0	38.7	22.4	46.0	23.6	Inside	
Vert	426.321	QP	47.2	17.8	11.4	38.3	38.1	46.0	7.9	Outside	
Vert	484.022	QP	47.2	18.1	11.8	38.2	38.9	46.0	7.1	Outside	
Vert	565.231	QP	32.1	19.0	12.2	38.1	25.2	46.0	20.8	Outside	
Vert	10540.000	PK	44.1	39.2	-4.1	33.1	46.1	68.2	22.1	Outside	
Vert	15810.000	PK	45.2	38.3	-2.7	32.5	48.3	73.9	25.6	Inside	
Vert	15810.000	AV	35.4	38.3	-2.7	32.5	38.5	53.9	15.4	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

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	Head Office EMC Lab. No.4 Anechoic Chamber
Report No.	32KE0041-HO-02
Date	08/03/2012
Temperature/ Humidity	22 deg.C / 59 % RH
Engineer	Tomotaka Sasagawa
Mode	11n - 40 Tx 5310MHz + BT Hopping

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5350.000	PK	58.6	32.5	3.4	31.4	63.1	68.2	5.1	Bandedge	
Hori	5350.000	AV	38.8	32.5	3.4	31.4	43.3	53.9	10.6	Bandedge	
Vert	5350.000	PK	58.2	32.5	3.4	31.4	62.7	68.2	5.5	Bandedge	
Vert	5350.000	AV	41.2	32.5	3.4	31.4	45.7	53.9	8.2	Bandedge	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

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	Head Office EMC Lab. No.4 Anechoic Chamber
Report No.	32KE0041-HO-02
Date	08/03/2012
Temperature/ Humidity	22 deg.C / 59 % RH
Engineer	Tomotaka Sasagawa
Mode	11n - 40 Tx 5510MHz + BT Hopping

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5460.000	PK	57.3	32.5	3.4	31.4	61.8	73.9	12.1	Inside	
Hori	5470.000	PK	62.1	32.5	3.4	31.4	66.6	68.2	1.6	Outside	
Hori	5460.000	AV	38.0	32.5	3.4	31.4	42.5	53.9	11.4	Inside	
Vert	5470.000	PK	60.1	32.5	3.4	31.4	64.6	68.2	3.6	Outside	
Vert	5460.000	AV	40.0	32.5	3.4	31.4	44.5	53.9	9.4	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

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	Head Office EMC Lab. No.4 Anechoic Chamber
Report No.	32KE0041-HO-02
Date	08/03/2012
Temperature/ Humidity	22 deg.C / 59 % RH
Engineer	Tomotaka Sasagawa
Mode	11n - 40 Tx 5550MHz BT Hopping

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	98.231	QP	36.5	9.6	8.3	38.9	15.5	43.5	28.0	Outside	
Hori	140.002	QP	45.5	14.4	8.8	38.9	29.8	43.5	13.7	Outside	
Hori	316.321	QP	40.2	14.9	10.5	38.6	27.0	46.0	19.0	Outside	
Hori	337.983	QP	41.9	15.7	10.7	38.5	29.8	46.0	16.2	Outside	
Hori	474.210	QP	44.0	18.0	11.7	38.2	35.5	46.0	10.5	Outside	
Hori	11100.000	PK	44.7	39.4	-4.0	33.2	46.9	73.9	27.0	Inside	
Hori	16650.000	PK	43.1	39.5	-2.6	32.4	47.6	68.2	20.6	Outside	
Hori	11100.000	AV	35.3	39.4	-4.0	33.2	37.5	53.9	16.4	Inside	
Vert	122.421	QP	45.3	13.1	8.6	38.9	28.1	43.5	15.4	Outside	
Vert	260.310	QP	32.1	17.9	10.0	38.7	21.3	46.0	24.7	Inside	
Vert	426.230	QP	47.8	17.8	11.4	38.3	38.7	46.0	7.3	Outside	
Vert	484.231	QP	47.2	18.1	11.8	38.2	38.9	46.0	7.1	Outside	
Vert	565.231	QP	33.2	19.0	12.2	38.1	26.3	46.0	19.7	Outside	
Vert	11100.000	PK	44.7	39.4	-4.0	33.2	46.9	73.9	27.0	Inside	
Vert	16650.000	PK	44.9	39.5	-2.6	32.4	49.4	68.2	18.8	Outside	
Vert	11100.000	AV	35.8	39.4	-4.0	33.2	38.0	53.9	15.9	Inside	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

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	Head Office EMC Lab. No.4 Anechoic Chamber
Report No.	32KE0041-HO-02
Date	08/03/2012
Temperature/ Humidity	22 deg.C / 59 % RH
Engineer	Tomotaka Sasagawa
	08/03/2012
Mode	11n - 40 Tx 5670MHz + BT Hopping

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Inside or Outside of Restricted Bands	Remark
Hori	5725.000	PK	50.8	32.8	3.5	31.5	55.6	68.2	12.6	Outside	
Vert	5725.000	PK	49.4	32.8	3.5	31.5	54.2	68.2	14.0	Outside	

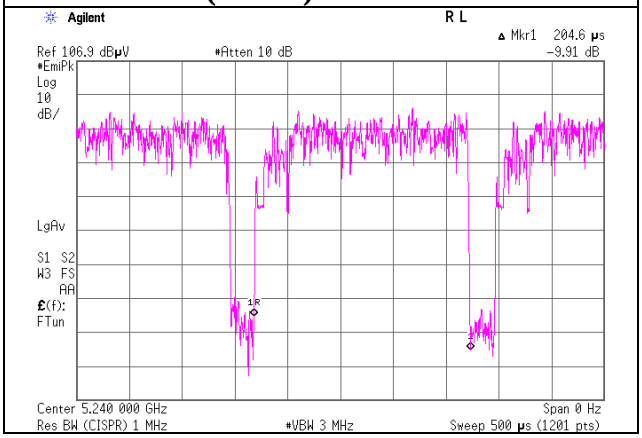
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

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

VBW (AV) Calculation

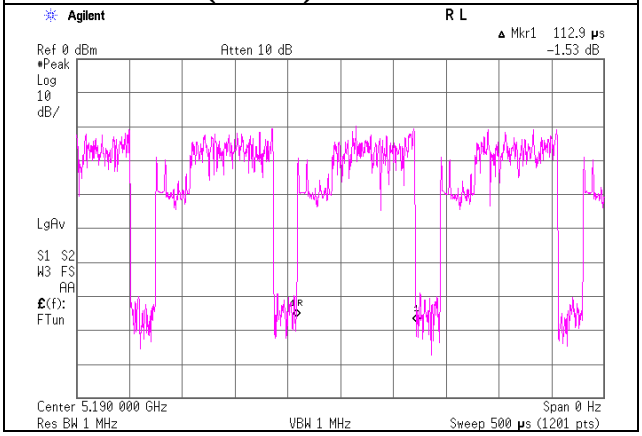
11n-20 MCS12

VBW: 1/x = 4887.5Hz<5.1kHz
x: (Tx on) =204.6usec



11n-40 MCS12

VBW: 1/x = 8857.4Hz<9.1kHz
x: (Tx on) =112.9usec



Peak Excursion Ratio

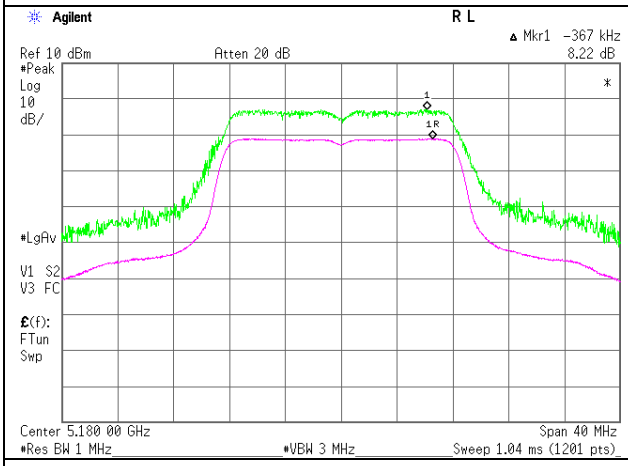
Test place	Head Office EMC Lab. No.6 Measurement Room
Report No.	32KE0041-HO-02
Date	07/27/2012
Temperature/ Humidity	24deg.C / 51% RH
Engineer	Satofumi Matsuyama
Mode	11a Tx

Antenna	Frequency [MHz]	Peak Power Excursion [dB]	Limit [dB]
port 2	5180	8.22	13.00
	5220	8.08	13.00
	5240	8.24	13.00
	5260	7.58	13.00
	5300	7.83	13.00
	5320	8.17	13.00
	5500	8.09	13.00
	5580	7.78	13.00
	5700	8.15	13.00

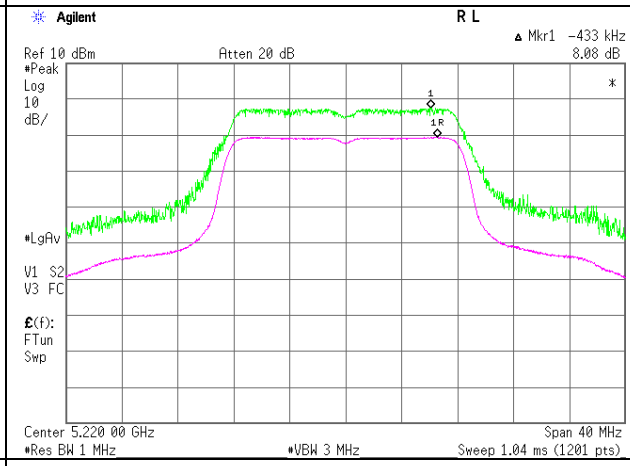
Peak Excursion Ratio

11a Antenna port 2

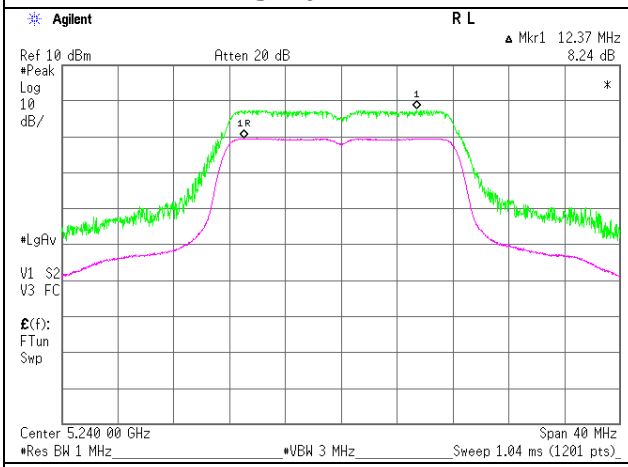
5180MHz



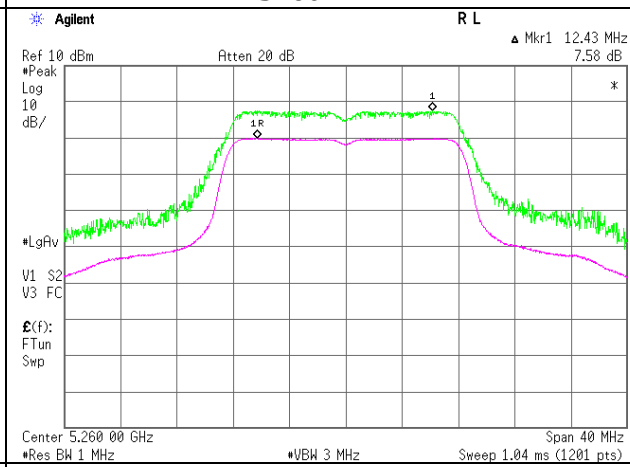
5220MHz



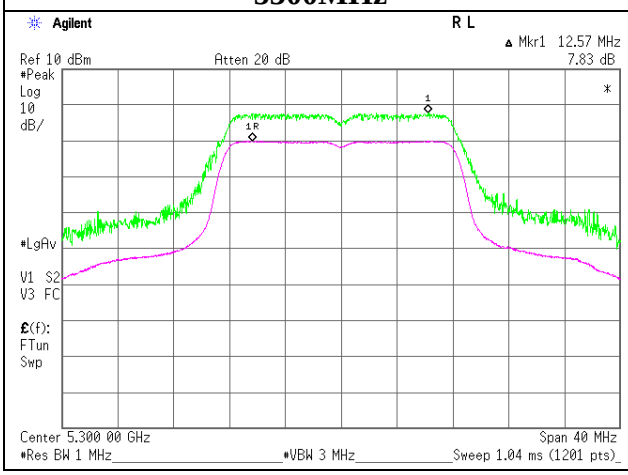
5240MHz



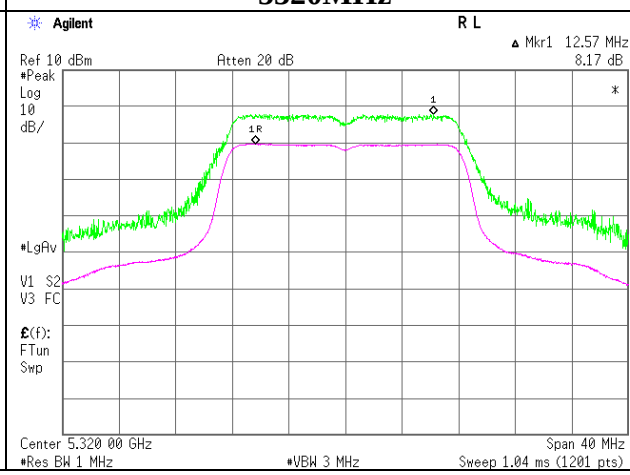
5260MHz



5300MHz



5320MHz



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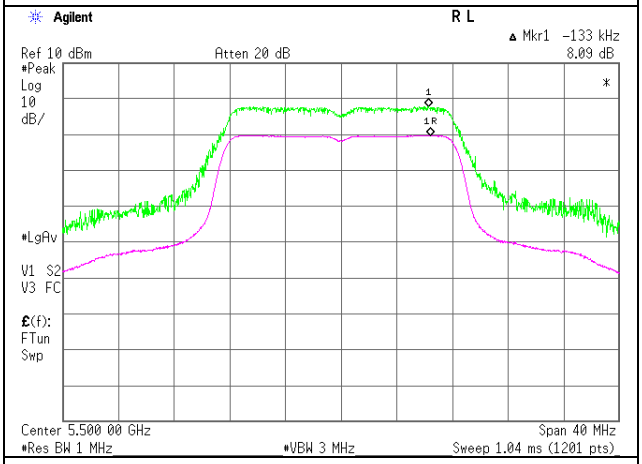
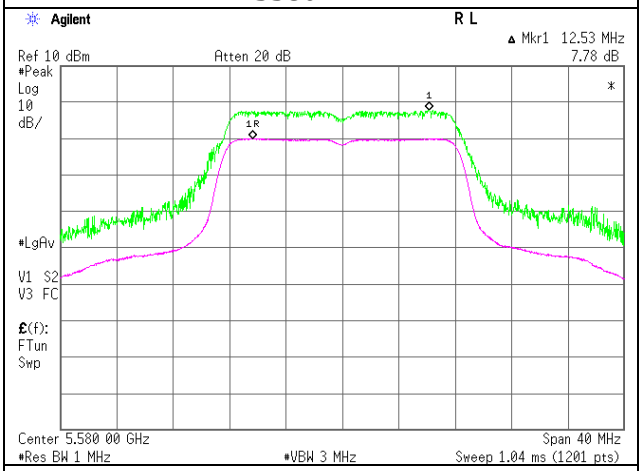
Peak Excursion Ratio

11a Antenna port 2

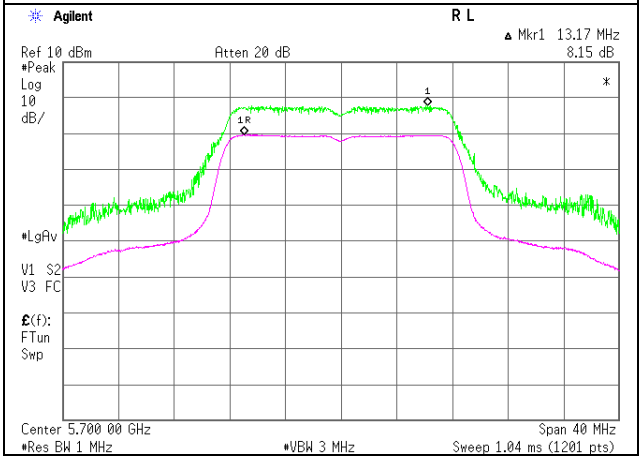
5500MHz



5580MHz



5700MHz



Peak Excursion Ratio

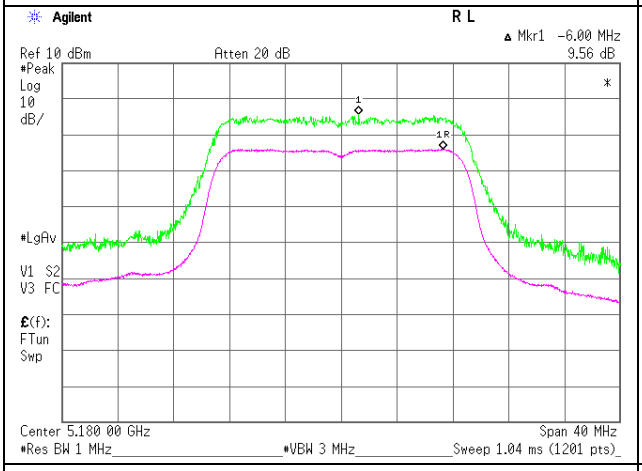
Test place	Head Office EMC Lab. No.6 Measurement Room
Report No.	32KE0041-HO-02
Date	07/27/2012
Temperature/ Humidity	24deg.C / 51% RH
Engineer	Satofumi Matsuyama
Mode	11n-20 Tx

Antenna	Frequency [MHz]	Peak Power Excursion [dB]	Limit [dB]
port 1	5180	9.56	13.00
	5220	9.65	13.00
	5240	9.36	13.00
	5260	9.43	13.00
	5300	9.52	13.00
	5320	9.24	13.00
	5500	9.15	13.00
	5580	9.35	13.00
	5700	9.24	13.00

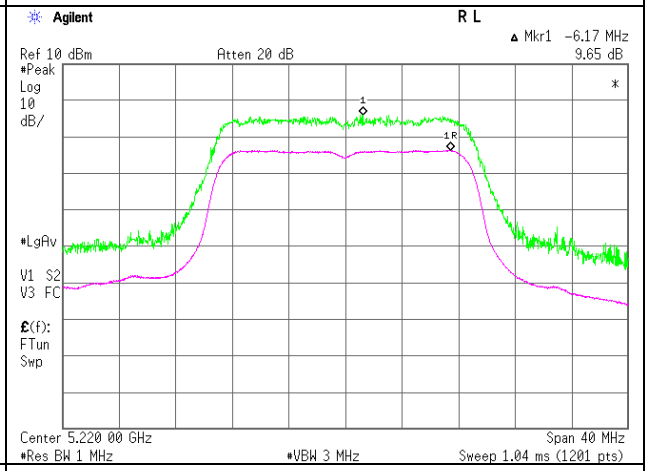
Peak Excursion Ratio

11n-20 Antenna port 1

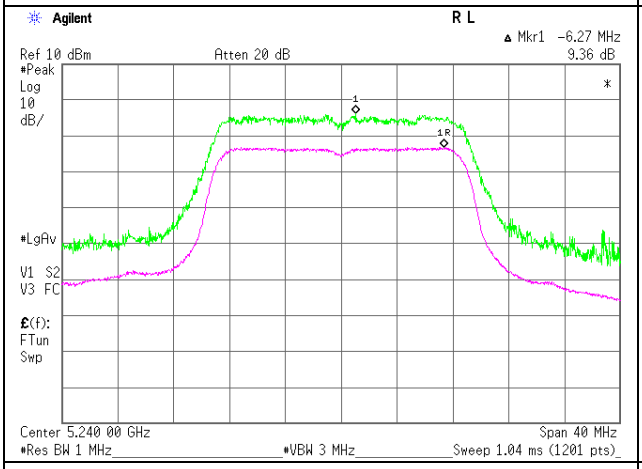
5180MHz



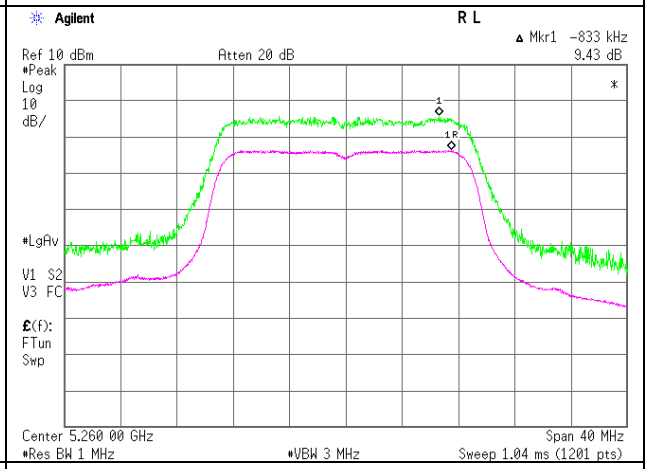
5220MHz



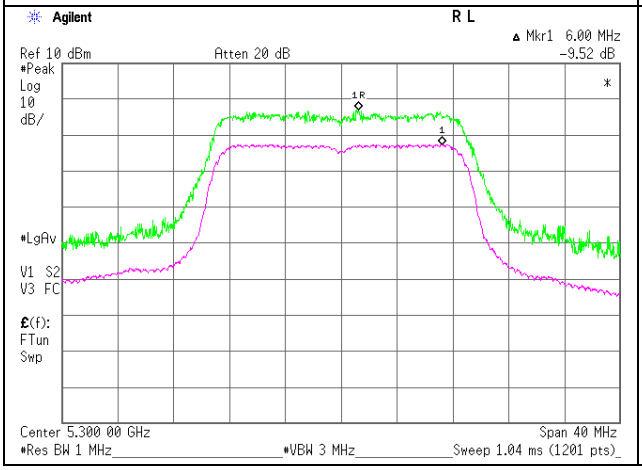
5240MHz



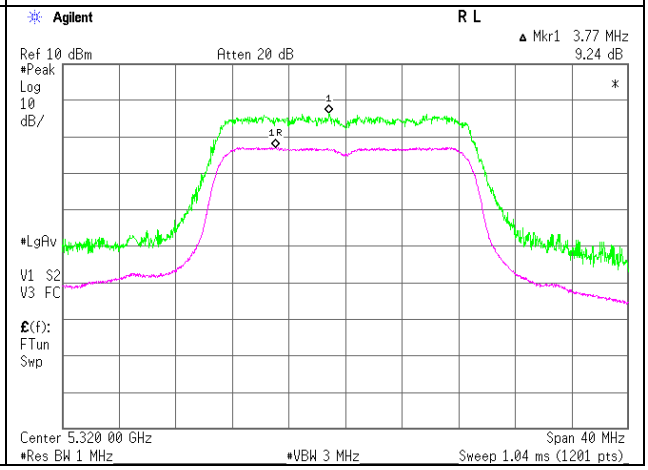
5260MHz



5300MHz



5320MHz



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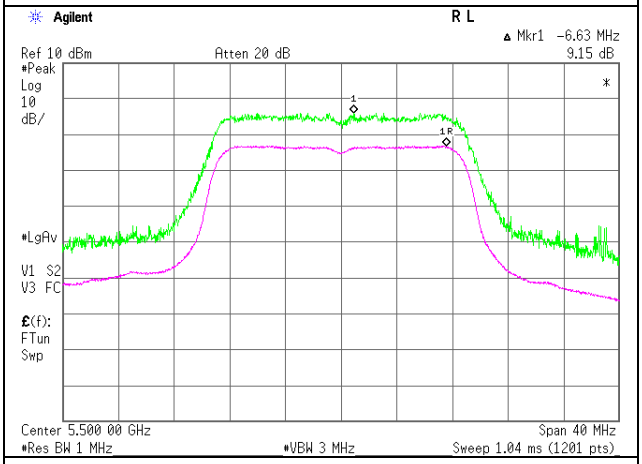
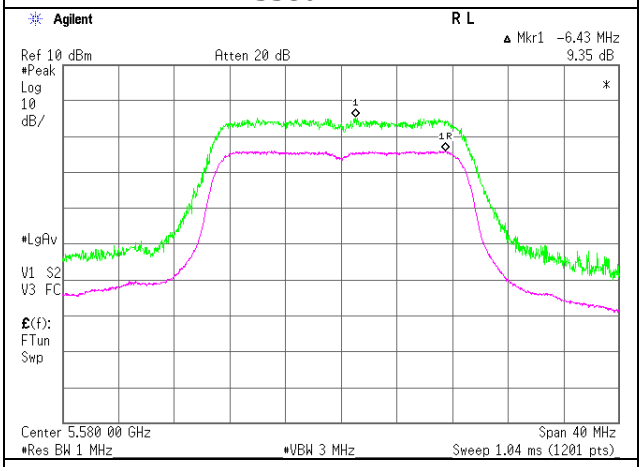
Peak Excursion Ratio

11n-20 Antenna port 1

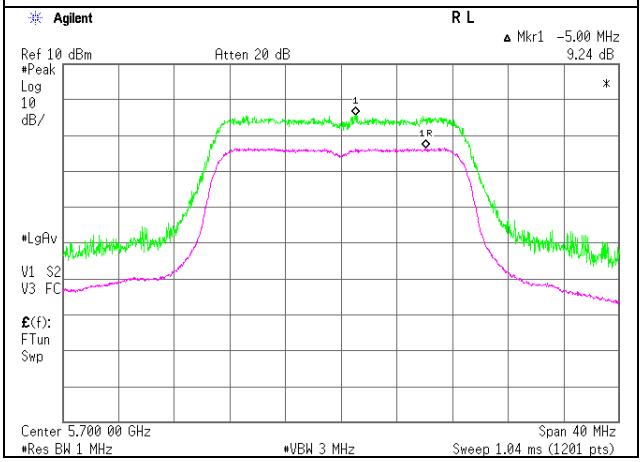
5500MHz



5580MHz



5700MHz



Peak Excursion Ratio

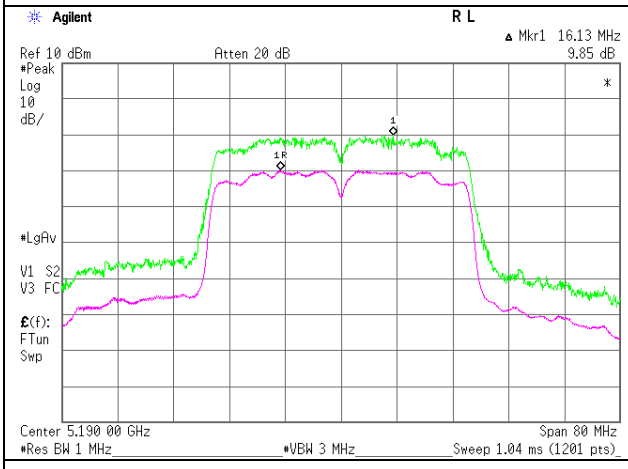
Test place	Head Office EMC Lab. No.6 Measurement Room
Report No.	32KE0041-HO-02
Date	07/27/2012
Temperature/ Humidity	24deg.C / 51% RH
Engineer	Satofumi Matsuyama
Mode	11n-40 Tx

Antenna	Frequency [MHz]	Peak Power Excursion [dB]	Limit [dB]
port 2	5190	9.85	13.00
	5230	10.15	13.00
	5270	9.35	13.00
	5310	10.37	13.00
	5510	9.87	13.00
	5590	10.06	13.00
	5670	9.89	13.00

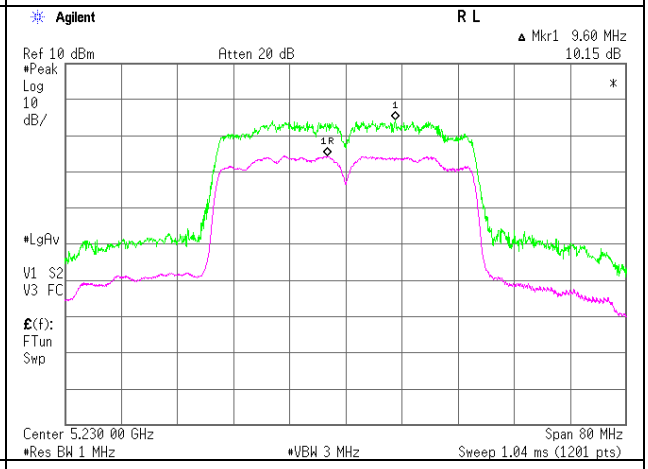
Peak Excursion Ratio

11n-40 Antenna port 2

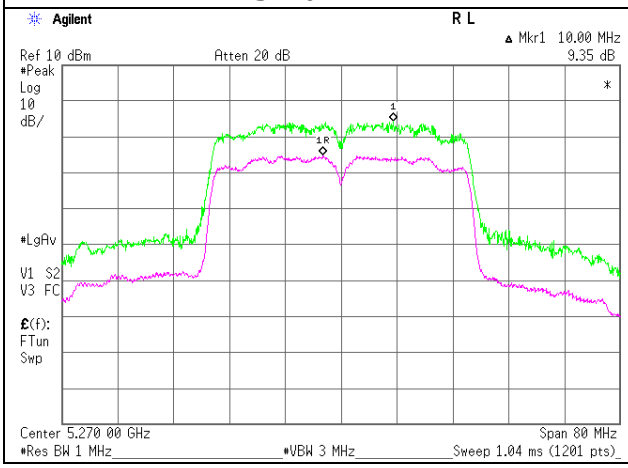
5190MHz



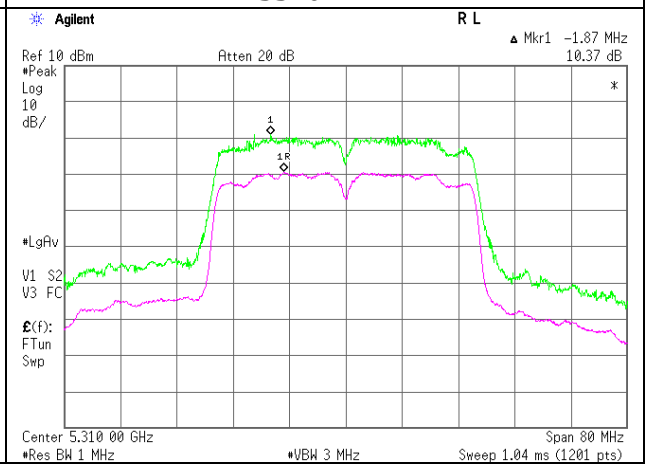
5230MHz



5270MHz



5310MHz



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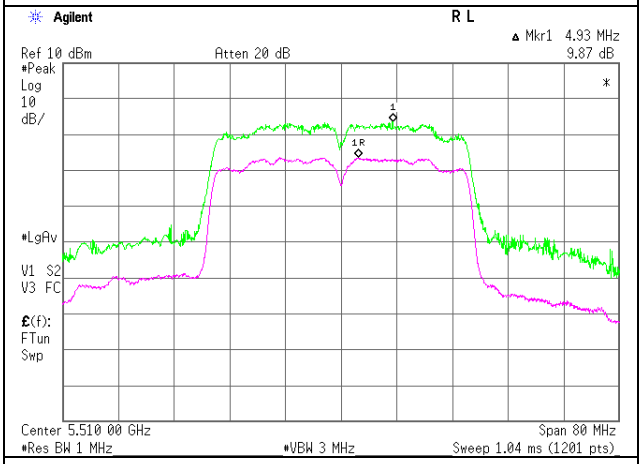
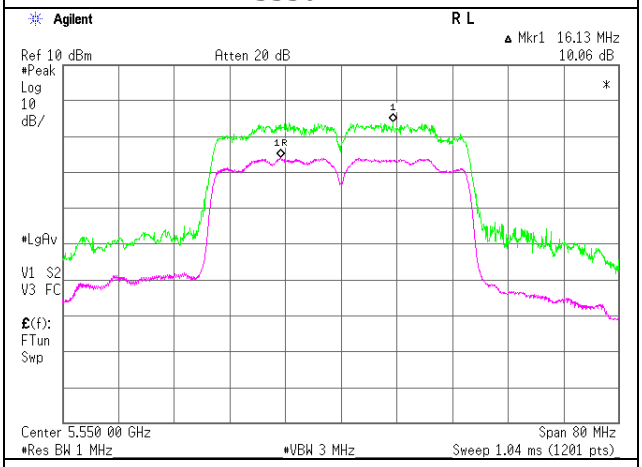
Peak Excursion Ratio

11n-40 Antenna port 2

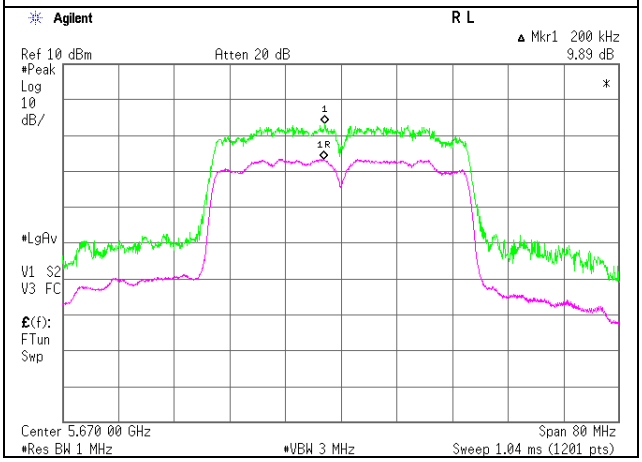
5510MHz



5550MHz



5670MHz



APPENDIX 2: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MOS-14	Thermo-Hygrometer	Custom	CTH-201	-	AT	2012/02/06 * 12
MSA-10	Spectrum Analyzer	Agilent	E4448A	MY46180655	AT	2012/02/03 * 12
MCC-138	Microwave cable	HUBER+SUHNER	SUCOFLEX 102	37953/2	AT	2011/10/28 * 12
MAT-20	Attenuator(10dB)(above1 GHz)	HIROSE ELECTRIC CO.,LTD.	AT-110	-	AT	2012/01/12 * 12
MAT-22	Attenuator(10dB) 1-18GHz	Orient Microwave	BX10-0476-00	-	AT	2012/03/27 * 12
MSA-04	Spectrum Analyzer	Agilent	E4448A	US44300523	AT	2012/04/06 * 12
MAEC-04	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE/CE	2012/02/29 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	-	RE/CE	2012/02/06 * 12
MJM-07	Measure	PROMART	SEN1955	-	RE/CE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE/CE	-
MSA-05	Spectrum Analyzer	Advantest	R3273	160400285	RE/CE	2011/11/23 * 12
MHA-21	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	9120D-557	RE	2011/08/11 * 12
MCC-141	Microwave Cable	Junkosha	MWX221	1203S212(1m) / 1204S062(5m)	RE	2012/04/23 * 12
MPA-12	MicroWave System Amplifier	Agilent	83017A	MY39500780	RE	2012/03/28 * 12
MHA-17	Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170	BBHA9170307	RE	2012/06/27 * 12
MHF-23	High Pass Filter 7-20GHz	TOKIMEC	TF37NCCC	603	RE	2012/01/12 * 12
MCC-79	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	278923/4	RE	2011/12/08 * 12
MCC-54	Microwave Cable	Suhner	SUCOFLEX101	2873(1m) / 2876(5m)	RE	2012/03/21 * 12
MPA-03	Microwave System Power Amplifier	Agilent	83050A	3950M00205	RE	2012/06/22 * 12
MTR-08	Test Receiver	Rohde & Schwarz	ESCI	100767	RE/CE	2011/08/11 * 12
MBA-05	Biconical Antenna	Schwarzbeck	BBA9106	1302	RE	2011/11/16 * 12
MLA-08	Logperiodic Antenna	Schwarzbeck	UKLP9140-A	N/A	RE	2011/11/16 * 12
MCC-50	Coaxial Cable	UL Japan	-	-	RE	2012/06/01 * 12
AT-38	Attenuator	Anritsu	MP721B	6200961025	RE	2011/12/08 * 12
MPA-14	Pre Amplifier	SONOMA INSTRUMENT	310	260833	RE	2012/03/05 * 12
MAEC-01	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 10m	DA-06881	RE	2012/08/01 * 12
MOS-27	Thermo-Hygrometer	CUSTOM	CTH-201	A08Q26	RE	2012/02/08 * 12
MJM-01	Measure	KDS	ES19-55	-	RE	-
MTR-09	EMI Test Reseiver	Rohde & Schwarz	ESU26	100412	RE	2012/06/14 * 12
MLPA-01	Loop Antenna	Rohde & Schwarz	HFH2-Z2	100017	RE	2011/10/19 * 12
MCC-143	Coaxial Cable	UL Japan	-	-	RE	2012/07/27 * 12
MCC-03	Coaxial Cable	Fujikura/Suhner/TSJ	5D-2W(20m)/3D-2W(7.5m)/RG400u(1.5m)/RFM-E421(Switcher)	-/01068(Switcher)	RE	2012/01/22 * 12
MPA-13	Pre Amplifier	SONOMA INSTRUMENT	310	260834	RE	2012/03/16 * 12
MAT-08	Attenuator(6dB)	Weinschel Corp	2	BK7971	RE	2011/11/02 * 12
MLS-07	LISN(AMN)	Schwarzbeck	NSLK8127	8127364	CE(EUT)	2012/02/09 * 12
MAT-67	Attenuator(13dB)	JFW Industries, Inc.	50FP-013H2 N	-	CE	2012/01/28 * 12
MCC-113	Coaxial cable	Fujikura/Suhner/TSJ	5D-2W(10m)/SFM141(5m)/421-010(1m)/sucoform141-PE(1m)/RFM-E121(Switcher)	-/04178	CE	2012/07/12 * 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: CE: Conducted Emission
RE: Radiated Emission
AT: Antenna Terminal Conducted test