



RADIO TEST REPORT

Test Report No. : 32AE0238-HO-02-A-R2

Applicant : **Panasonic Corporation**
Type of Equipment : **Compact Stereo System**
Model No. : **SC-HC57**
FCC ID : **ACJ-SC-HC57**
Test regulation : **FCC Part 15 Subpart C: 2011**
Test Result : **Complied**

1. This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the 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 32AE0238-HO-02-A-R1. 32AE0238-HO-02-A-R1 is replaced with this report.

Date of test: November 24 to 29, 2011

Representative test engineer:

T. Choda

Takeshi Choda

Engineer of WiSE Japan,
UL Verification Service

Approved by:

M. Fujimura

Mitsuru Fujimura

Leader of WiSE Japan,
UL Verification Service



NVLAP LAB CODE: 200572-0

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

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

13-EM-F0429

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SECTION 1: Customer information

Company Name	:	Panasonic Corporation
Address	:	1-10-12 Yagumohigashi-machi Moriguchi Osaka 570-0021, Japan
Telephone Number	:	+81-50-3487-3469
Facsimile Number	:	+81-6-6906-8800
Contact Person	:	Kazuo Taniguchi

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

2.1 Identification of E.U.T.

Type of Equipment	:	Compact Stereo System
Model No.	:	SC-HC57
Serial No.	:	Refer to Section 4, Clause 4.2
Rating	:	AC 120V/60Hz
Receipt Date of Sample	:	November 22, 2011
Country of Mass-production	:	Malaysia
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

Clock frequency(ies) in the system	:	24MHz
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Radio Specification

Radio Type	:	Transceiver
Frequency of Operation	:	2412-2462MHz
Modulation	:	DSSS, OFDM
Power Supply (radio part input)	:	DC 3.3V, DC 1.2V, DC 1.9V
Antenna type	:	Pattern antenna (Antenna 1) or / and Sheet metal antenna (Antenna 2)
Antenna Gain	:	Antenna 1: 0.35dBi (Max), Antenna 2: 0.35dBi (Max)
Operating temperature range	:	0 deg. C to 40 deg. C

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SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part 15 Subpart C: 2011, final revised on July 8, 2011 and effective August 8, 2011

Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.207 Conducted limits
Section 15.247 Operation within the bands 902-928MHz,
2400-2483.5MHz, and 5725-5850MHz

* The EUT complies with FCC Part 15 Subpart B: 2011, final revised on July 8, 2011 and effective August 8, 2011.

3.2 Procedures and results

Item	Test Procedure	Specification	Worst margin	Results	Remarks
Conducted Emission	FCC: ANSI C63.4:2003 7. AC powerline Conducted Emission measurements ----- IC: RSS-Gen 7.2.4	FCC: Section 15.207 ----- IC: RSS-Gen 7.2.4	QP 18.0dB, 1.13605MHz, L AV 24.9dB, 1.13712MHz, L	Complied	-
6dB Bandwidth	FCC: "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247" ----- IC: RSS-Gen 4.6.2	FCC: Section 15.247(a)(2) ----- IC: RSS-210 A8.2(a)	See data.	Complied	Conducted
Maximum Peak Output Power	FCC: "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247" ----- IC: RSS-Gen 4.8	FCC: Section 15.247(b)(3) ----- IC: RSS-210 A8.4(4)		Complied	Conducted
Power Density	FCC: "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247" ----- IC: -	FCC: Section 15.247 (e) ----- IC: RSS-210 A8.2(b)		Complied	Conducted
Spurious Emission Restricted Band Edges	FCC: "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247" ----- IC: RSS-Gen 4.9	FCC: Section15.247(d) ----- IC: RSS-210 A8.5 RSS-Gen 7.2.3	2.1dB 719.996MHz, QP, Horizontal	Complied	Conducted/ Radiated

Note: UL Japan, Inc.'s EMI Work Procedures No. 13-EM-W0420 and 13-EM-W0422.

* In case any questions arise about test procedure, ANSI C63.4: 2003 is also referred.

FCC 15.31 (e)

This EUT provides stable voltage(DC 3.3V, DC 1.2V, DC 1.9V) 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 Bandwidth	IC: RSS-Gen 4.6.1	IC: RSS-Gen 4.6.1	N/A	-	Conducted
Receiver Spurious Emission	IC: RSS-Gen 4.10	IC: RSS-Gen 6	3.9dB 208.885MHz, QP, Horizontal	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	4.2dB	5.0dB	5.1dB	5.6dB	5.9dB	4.4dB	4.3dB
No.2	4.1dB	5.2dB	5.1dB	5.7dB	5.8dB	4.3dB	4.2dB
No.3	4.5dB	5.0dB	5.2dB	5.7dB	5.8dB	4.5dB	4.2dB
No.4	4.7dB	5.2dB	5.2dB	5.7dB	5.8dB	5.1dB	4.2dB

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

Power meter (+dB)	
Below 1GHz	Above 1GHz
1.0dB	1.0dB

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

UL Japan, Inc. Head Office EMC Lab. *NVLAP Lab. code: 200572-0
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116 Facsimile : +81 596 24 8124

	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 Mode(s)

Mode	Remarks*
IEEE 802.11b (11b)	2Mbps, PN9
IEEE 802.11g (11g)	36Mbps, PN9
*Transmitting duty was 100% on all tests. *The worst condition was determined based on the test result of Maximum Peak Output Power (Mid Channel)	
*Power of the EUT was set by the software as follows; Power settings: 11b: 10, 11g: 2 Software: Juke Blox, Ver. 2.2-MR1 *This setting of software is the worst case. Any conditions under the normal use do not exceed the condition of setting. In addition, end users cannot change the settings of the output power of the product.	

*The details of Operating mode(s)

Test Item	Operating Mode	Tested Antenna	Tested frequency
Conducted Emission	11b Tx 11g Tx	Antenna 1 (ANT 1), Antenna 2 (ANT 2)	2412MHz 2437MHz 2462MHz
	11b/g Rx	Antenna 1 (ANT 1), Antenna 2 (ANT 2)	2437MHz
Spurious Emission	11b Tx 11g Tx	Antenna 1 (ANT 1), Antenna 2 (ANT 2)	2412MHz 2437MHz 2462MHz
	11b/g Rx	Antenna 1 (ANT 1) and Antenna 2 (ANT 2)	2437MHz
6dB Bandwidth Maximum Peak Output Power Power Density 99% Occupied Bandwidth	11b Tx 11g Tx	Antenna 1 (ANT 1), Antenna 2 (ANT 2)	2412MHz 2437MHz 2462MHz

4.2 Configuration and peripherals

This page has been submitted for a separate exhibit.

SECTION 5: Conducted Emission

Test Procedure and conditions

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 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. The EUT was connected to a LISN (AMN).

An overview sweep with peak detection has been performed.

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

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

SECTION 6: Radiated Spurious Emission

Test Procedure

It was measured based on "2. Radiated emission test" of "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247".

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 performed for both vertical and horizontal antenna polarization with the Test Receiver, or the Spectrum Analyzer.

The measurements were made with the following detector function of the test receiver and the Spectrum analyzer (in linear mode).

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.

Test Antennas are used as below;

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

In any 100kHz bandwidth outside the restricted band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator confirmed 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on a radiated measurement.

20dBc was applied to the frequency over the limit of FCC 15.209 / Table 5 of RSS-Gen 7.2.5(IC) and outside the restricted band of FCC15.205 / Table 3 of RSS-Gen 7.2.2 (IC).

Frequency	Below 1GHz	Above 1GHz		20dBc
Instrument used	Test Receiver	Spectrum Analyzer		Spectrum Analyzer
Detector	QP	PK	AV	PK
IF Bandwidth	BW 120kHz(T/R)	RBW: 1MHz VBW: 3MHz	RBW: 1MHz VBW: 10Hz *1)	RBW: 100kHz VBW: 300kHz (S/A)
Test Distance	3m	3m (below 10GHz), 1m*2) (above 10GHz)		3m (below 10GHz), 1m*2) (above 10GHz)

*1) The test was performed with VBW 10Hz since the EUT had no intervals during which the transmitter was off.

*2) Distance Factor: $20 \times \log(3.0\text{m}/1.0\text{m}) = 9.5\text{dB}$

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

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

Measurement range : 30M-25GHz
 Test data : APPENDIX
 Test result : Pass

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

SECTION 7: Antenna Terminal Conducted Tests

Test Procedure

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

Test	Span	RBW	VBW	Sweep time	Detector	Trace	Instrument used
6dB Bandwidth	20MHz	100kHz	300kHz	Auto	Peak	Max Hold	Spectrum Analyzer
99% Occupied Bandwidth	Enough width to display 20dB Bandwidth	1 to 3% of Span	Three times of RBW	Auto	Peak	Max Hold	Spectrum Analyzer
Maximum Peak Output Power	-	-	-	Auto	Peak	-	Power Meter (Sensor: 50MHz BW)
Peak Power Density	18MHz	30kHz	100kHz	600sec	Peak	Max Hold	Spectrum Analyzer *1) *2)
Conducted Spurious Emission *3)	9kHz to 150kHz	200Hz	620Hz	Auto	Peak	Max Hold	Spectrum Analyzer
	150kHz to 30MHz	9.1kHz	27kHz				
	30MHz to 25GHz (Less or equal to 5GHz)	100kHz	300kHz				
*1) PSD Option 1 of "Guidance on Measurement of Digital Transmission Systems Operating under Section15.247 ".							
*2) The test was not performed at RBW:3kHz however the measurement is to be performed with RBW:3kHz in the regulation, because, the measurement value with RBW:3kHz is less than the value of RBW:30kHz and the test data met the limit with RBW:30kHz.							
*3) In the frequency range below 30MHz, RBW was narrowed to separate the noise contents.							
Then, wide-band noise near the limit was checked separately, however the noise was not detected as shown in the chart.(9kHz-150kHz:RBW=200Hz, 150kHz-30MHz:RBW=9.1kHz)							

Test data : APPENDIX
Test result : Pass

APPENDIX 1: Data of EMI test

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

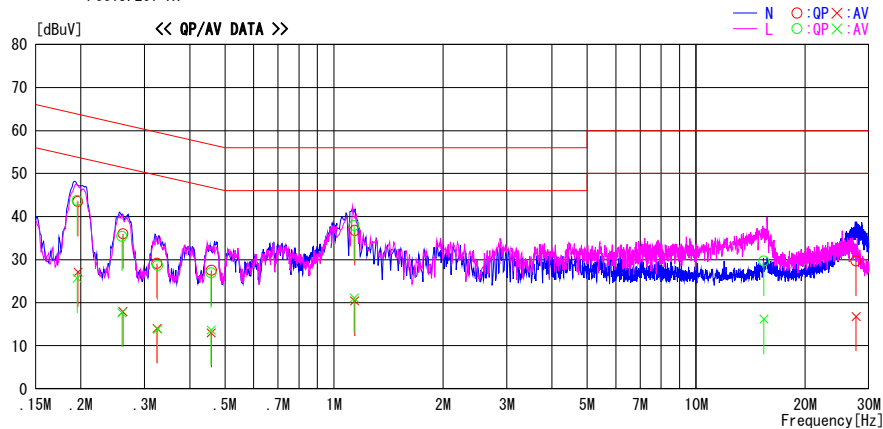
UL Japan, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
Date : 2011/11/29

Report No. : 32AE0238-HO-02

Temp./Humi. : 23deg. C / 43% RH
Engineer : Keisuke Kawamura

Mode / Remarks : Tx 11b 2Mbps ANT1 2437MHz

LIMIT : FCC15.207 QP
FCC15.207 AV

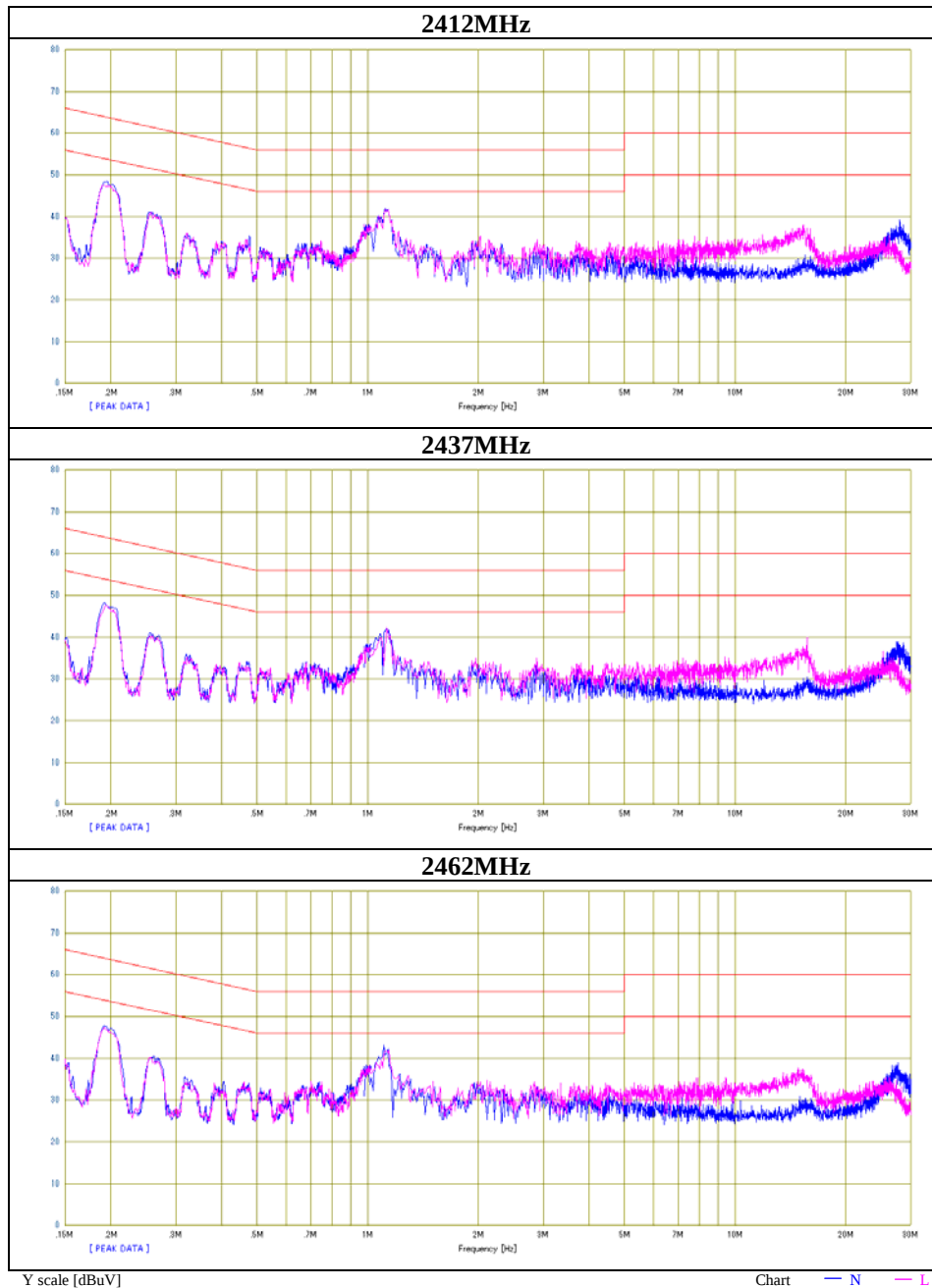


Frequency [MHz]	Reading Level		Corr. Factor	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.19638	30.2	13.8	13.3	43.5	27.1	63.8	53.8	20.3	26.7	N	
0.26148	22.7	4.6	13.3	36.0	17.9	61.4	51.4	25.4	33.5	N	
0.32489	15.8	0.7	13.3	29.1	14.0	59.6	49.6	30.5	35.6	N	
0.45886	14.2	-0.3	13.3	27.5	13.0	56.7	46.7	29.2	33.7	N	
1.14112	23.4	7.0	13.4	36.8	20.4	56.0	46.0	19.2	25.6	N	
27.65439	14.7	1.8	15.0	29.7	16.8	60.0	50.0	30.3	33.2	N	
0.19528	30.4	12.4	13.3	43.7	25.7	63.8	53.8	20.1	28.1	L	
0.25962	22.1	4.4	13.3	35.4	17.7	61.4	51.4	26.0	33.7	L	
0.32643	15.3	0.6	13.3	28.6	13.9	59.5	49.5	30.9	35.6	L	
0.45812	13.6	0.3	13.3	26.9	13.6	56.7	46.7	29.8	33.1	L	
1.13712	24.5	7.7	13.4	37.9	21.1	56.0	46.0	18.1	24.9	L	
15.38431	15.2	1.6	14.5	29.7	16.1	60.0	50.0	30.3	33.9	L	

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

Conducted Emission

Test place	Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No.	32AE0238-HO-02
Date	11/29/2011
Temperature/ Humidity	23 deg.C/ 43% RH
Engineer	Keisuke Kawamura
Mode	11b Ant1 Tx



Conducted Emission

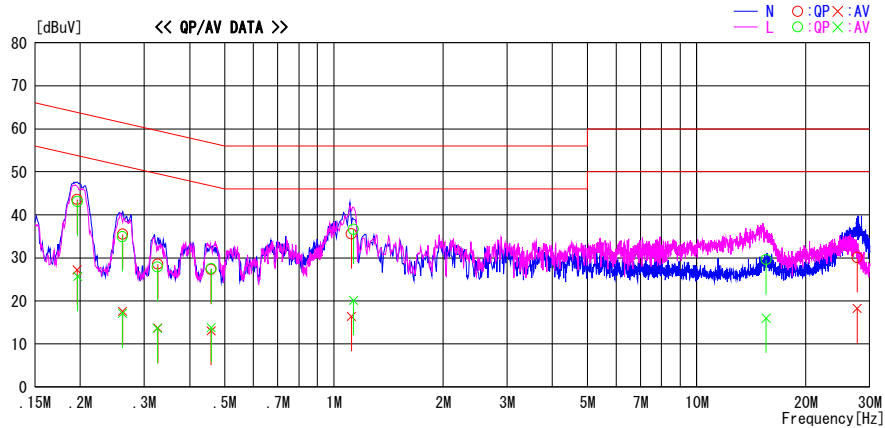
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2011/11/29

Report No. : 32AE0238-HO-02
Temp./Humi. : 23deg. C / 43% RH
Engineer : Keisuke Kawamura

Mode / Remarks : Tx 11b 2Mbps ANT2 2437MHz

LIMIT : FCC15.207 QP
FCC15.207 AV

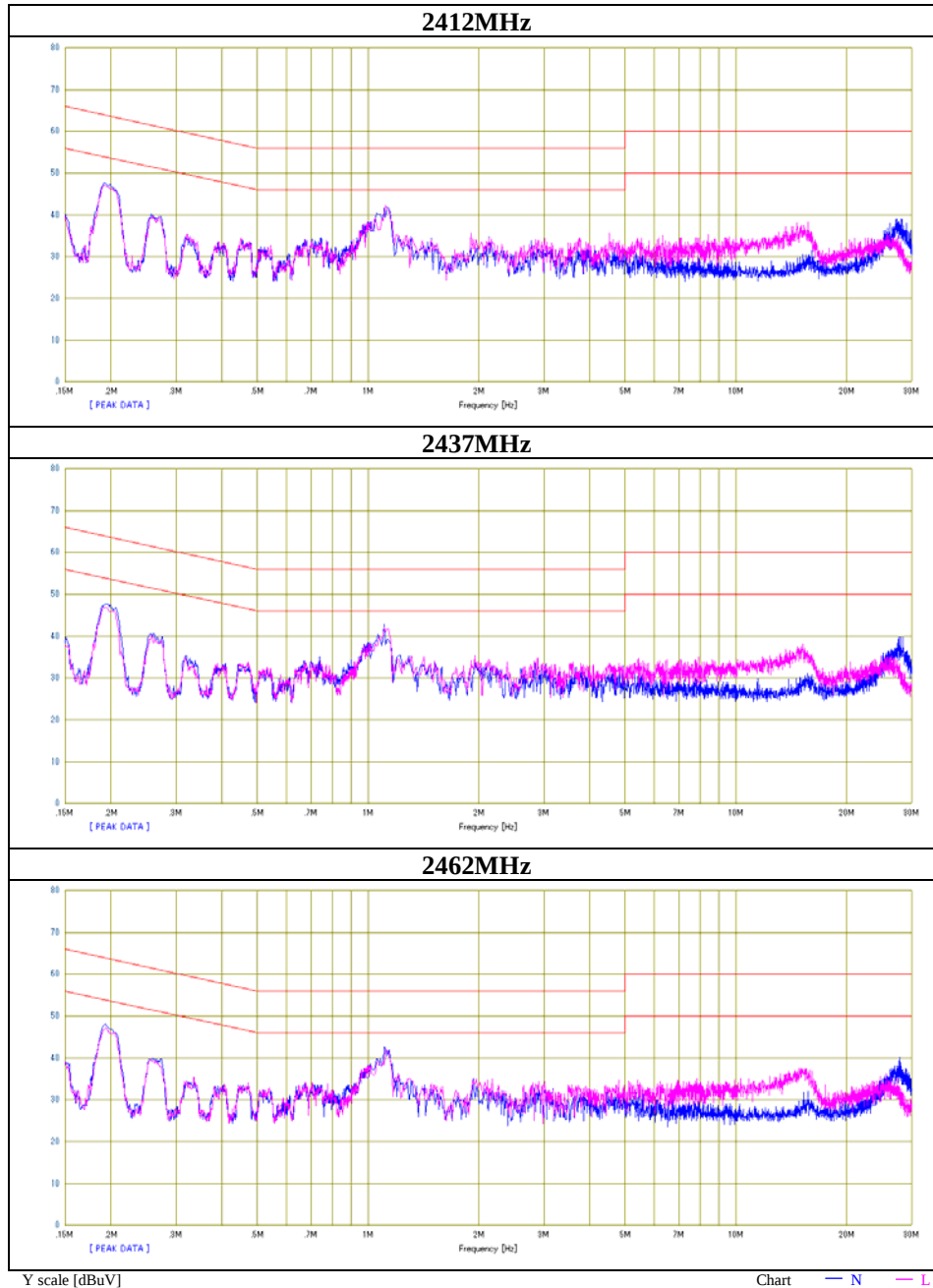


Frequency	Reading Level		Corr. Factor	Results		Limit		Margin		Phase	Comment
	QP	AV		QP	AV	QP	AV	QP	AV		
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
0.19579	30.3	13.9	13.3	43.6	27.2	63.8	53.8	20.2	26.6	N	
0.26131	22.2	4.3	13.3	35.5	17.6	61.4	51.4	25.9	33.8	N	
0.32656	15.2	0.4	13.3	28.5	13.7	59.5	49.5	31.0	35.8	N	
0.45839	14.0	-0.2	13.3	27.3	13.1	56.7	46.7	29.4	33.6	N	
1.11698	22.2	3.0	13.4	35.6	16.4	56.0	46.0	20.4	29.6	N	
27.69449	15.1	3.2	15.0	30.1	18.2	60.0	50.0	29.9	31.8	N	
0.19638	29.8	12.4	13.3	43.1	25.7	63.8	53.8	20.7	28.1	L	
0.26107	21.6	3.8	13.3	34.9	17.1	61.4	51.4	26.5	34.3	L	
0.32599	14.6	0.3	13.3	27.9	13.6	59.6	49.6	31.7	36.0	L	
0.45892	14.2	0.5	13.3	27.5	13.8	56.7	46.7	29.2	32.9	L	
1.13198	23.2	6.7	13.4	36.6	20.1	56.0	46.0	19.4	25.9	L	
15.54311	15.1	1.5	14.5	29.6	16.0	60.0	50.0	30.4	34.0	L	

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

Conducted Emission

Test place	Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No.	32AE0238-HO-02
Date	11/29/2011
Temperature/ Humidity	23 deg.C/ 43% RH
Engineer	Keisuke Kawamura
Mode	11b Ant2 Tx



Conducted Emission

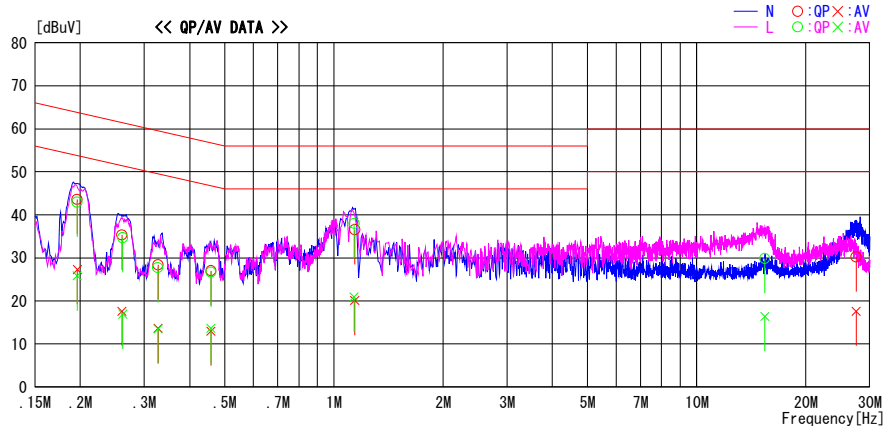
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2011/11/29

Report No. : 32AE0238-HO-02
Temp./Humi. : 23deg. C / 43% RH
Engineer : Keisuke Kawamura

Mode / Remarks : Tx 11g 36Mbps ANT1 2437MHz

LIMIT : FCC15.207 QP
FCC15.207 AV

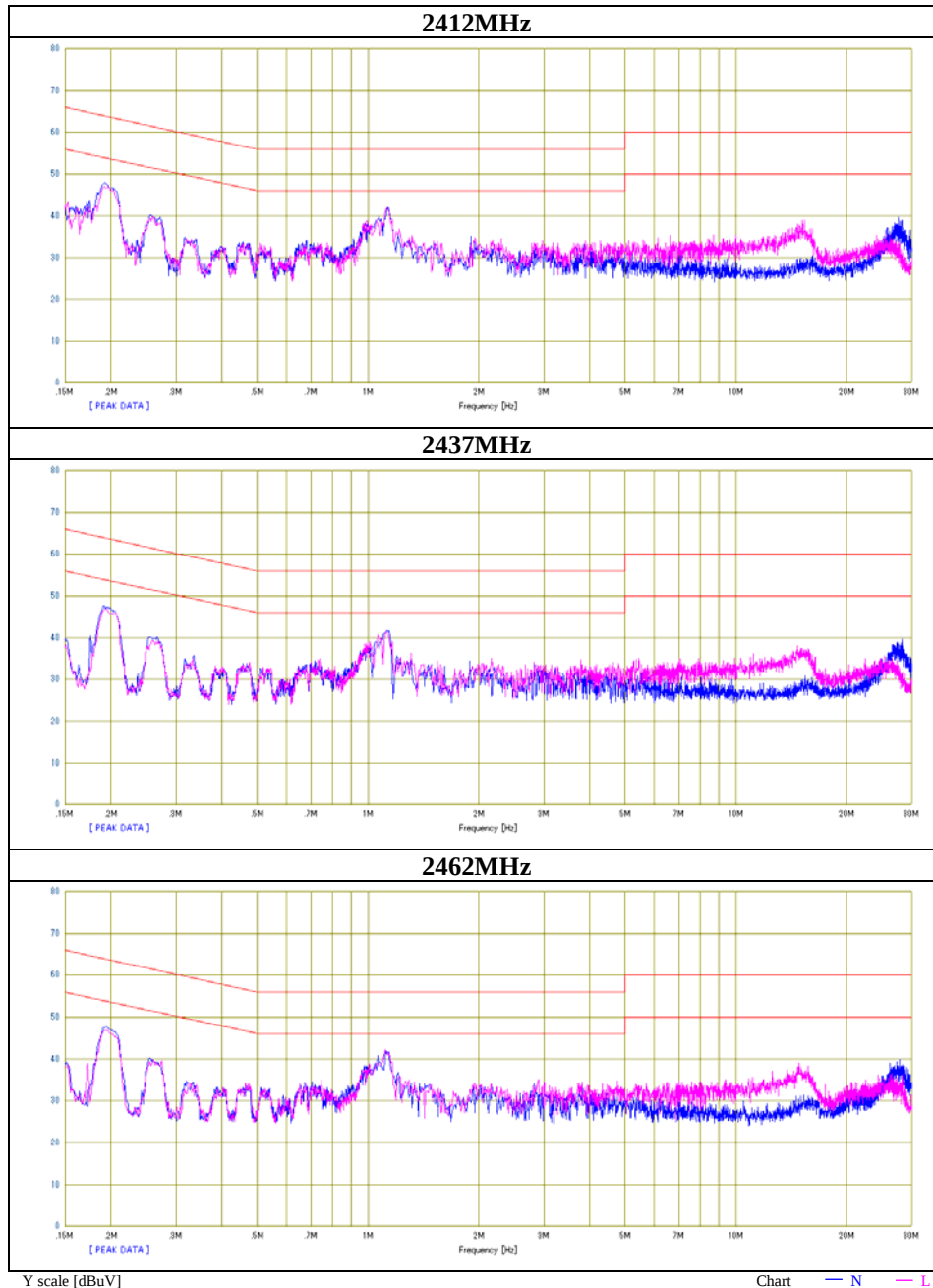


Frequency	Reading Level		Corr.	Results		Limit		Margin		Phase	Comment
	QP	AV		QP	AV	QP	AV	QP	AV		
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
0.19602	30.3	14.0	13.3	43.6	27.3	63.8	53.8	20.2	26.5	N	
0.26013	22.0	4.3	13.3	35.3	17.6	61.4	51.4	26.1	33.8	N	
0.32743	15.1	0.3	13.3	28.4	13.6	59.5	49.5	31.1	35.9	N	
0.45798	13.7	-0.3	13.3	27.0	13.0	56.7	46.7	29.7	33.7	N	
1.14112	23.1	6.7	13.4	36.5	20.1	56.0	46.0	19.5	25.9	N	
27.49409	15.2	2.6	15.0	30.2	17.6	60.0	50.0	29.8	32.4	N	
0.19579	29.6	12.5	13.3	42.9	25.8	63.8	53.8	20.9	28.0	L	
0.26163	21.4	3.6	13.3	34.7	16.9	61.4	51.4	26.7	34.5	L	
0.32683	14.4	0.2	13.3	27.7	13.5	59.5	49.5	31.8	36.0	L	
0.45798	13.4	0.3	13.3	26.7	13.6	56.7	46.7	30.0	33.1	L	
1.13605	24.6	7.5	13.4	38.0	20.9	56.0	46.0	18.0	25.1	L	
15.40361	15.3	1.9	14.5	29.8	16.4	60.0	50.0	30.2	33.6	L	

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

Conducted Emission

Test place	Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No.	32AE0238-HO-02
Date	11/29/2011
Temperature/ Humidity	23 deg.C/ 43% RH
Engineer	Keisuke Kawamura
Mode	11g Ant1 Tx



Conducted Emission

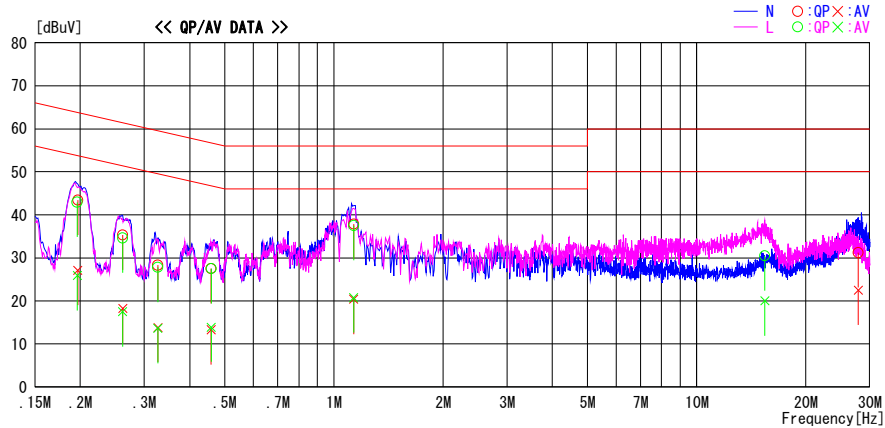
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2011/11/29

Report No. : 32AE0238-HO-02
Temp./Humi. : 23deg. C / 43% RH
Engineer : Keisuke Kawamura

Mode / Remarks : Tx 11g 36Mbps ANT2 2437MHz

LIMIT : FCC15.207 QP
FCC15.207 AV

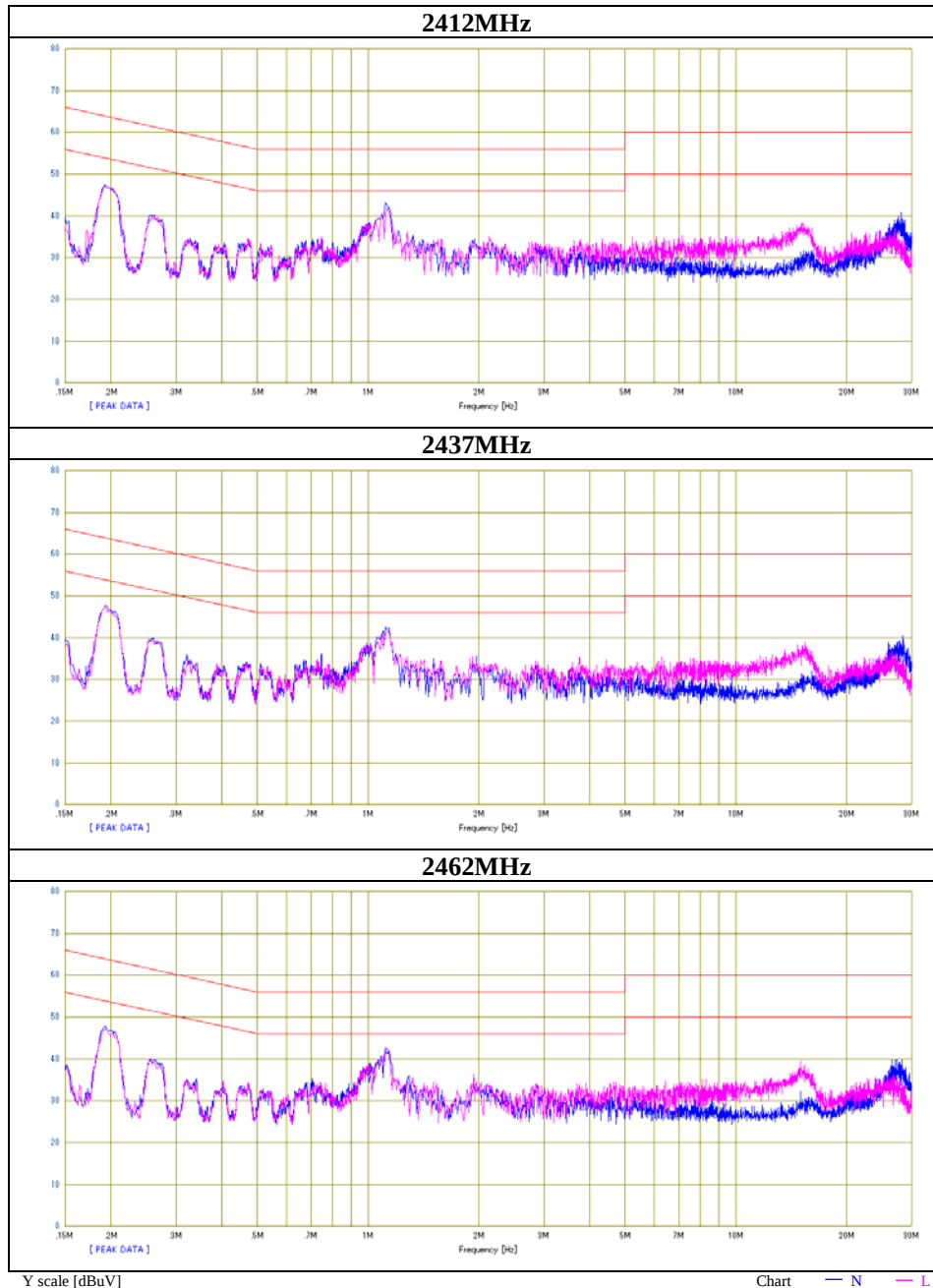


Frequency [MHz]	Reading Level		Corr. Factor	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.19666	30.1	13.8	13.3	43.4	27.1	63.8	53.8	20.4	26.7	N	
0.26163	22.0	4.9	13.3	35.3	18.2	61.4	51.4	26.1	33.2	N	
0.32709	15.0	0.5	13.3	28.3	13.8	59.5	49.5	31.2	35.7	N	
0.45841	14.2	0.0	13.3	27.5	13.3	56.7	46.7	29.2	33.4	N	
1.13405	24.4	7.0	13.4	37.8	20.4	56.0	46.0	18.2	25.6	N	
27.91484	16.2	7.5	15.0	31.2	22.5	60.0	50.0	28.8	27.5	N	
0.19602	29.6	12.6	13.3	42.9	25.9	63.8	53.8	20.9	27.9	L	
0.26137	21.3	4.2	13.3	34.6	17.5	61.4	51.4	26.8	33.9	L	
0.32655	14.5	0.3	13.3	27.8	13.6	59.5	49.5	31.7	35.9	L	
0.45881	14.2	0.6	13.3	27.5	13.9	56.7	46.7	29.2	32.8	L	
1.13419	24.1	7.3	13.4	37.5	20.7	56.0	46.0	18.5	25.3	L	
15.40361	16.0	5.5	14.5	30.5	20.0	60.0	50.0	29.5	30.0	L	

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

Conducted Emission

Test place	Head Office EMC Lab. No.4 Semi Anechoic Chamber
Report No.	32AE0238-HO-02
Date	11/29/2011
Temperature/ Humidity	23 deg.C/ 43% RH
Engineer	Keisuke Kawamura
Mode	11g Ant2 Tx



Conducted Emission

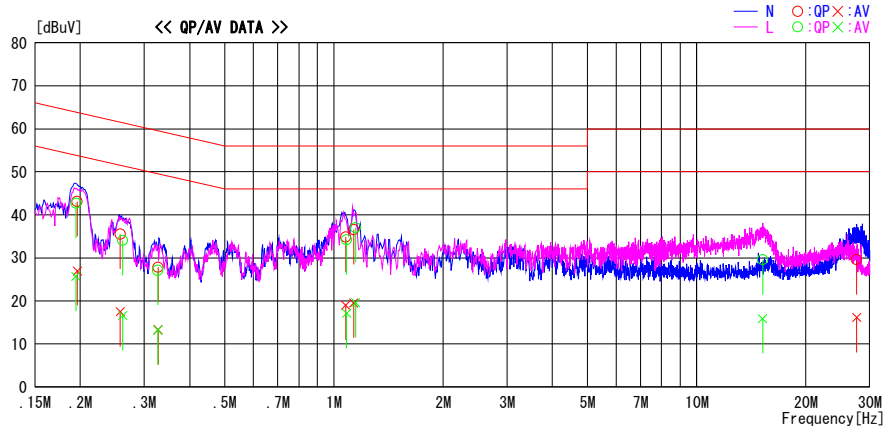
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2011/11/29

Report No. : 32AE0238-HO-02
Temp./Humi. : 23deg. C / 43% RH
Engineer : Keisuke Kawamura

Mode / Remarks : Rx 11bg 2437MHz

LIMIT : FCC15.207 QP
FCC15.207 AV



Frequency	Reading Level		Corr. Factor	Results		Limit		Margin		Phase	Comment
	QP	AV		QP	AV	QP	AV	QP	AV		
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
0.19598	29.8	13.7	13.3	43.1	27.0	63.8	53.8	20.7	26.8	N	
0.25771	22.2	4.2	13.3	35.5	17.5	61.5	51.5	26.0	34.0	N	
0.32722	14.5	0.0	13.3	27.8	13.3	59.5	49.5	31.7	36.2	N	
1.07819	21.4	5.6	13.4	34.8	19.0	56.0	46.0	21.2	27.0	N	
1.13419	23.1	6.1	13.4	36.5	19.5	56.0	46.0	19.5	26.5	N	
27.59404	14.6	1.1	15.0	29.6	16.1	60.0	50.0	30.4	33.9	N	
0.19446	29.4	12.4	13.3	42.7	25.7	63.8	53.8	21.1	28.1	L	
0.26177	20.7	3.3	13.3	34.0	16.6	61.4	51.4	27.4	34.8	L	
0.32669	13.8	-0.1	13.3	27.1	13.2	59.5	49.5	32.4	36.3	L	
1.08363	20.8	3.7	13.4	34.2	17.1	56.0	46.0	21.8	28.9	L	
1.14663	23.6	6.2	13.4	37.0	19.6	56.0	46.0	19.0	26.4	L	
15.18306	15.1	1.4	14.5	29.6	15.9	60.0	50.0	30.4	34.1	L	

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

6dB Bandwidth

Test place Head Office EMC Lab. No.11 Measurement Room
Report No. 32AE0238-HO-02
Date 11/24/2011
Temperature/ Humidity 21 deg.C/ 33% RH
Engineer Takeshi Choda
Mode Tx

11b Antenna 1

Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
2412	16.0802	>500
2437	16.0878	>500
2462	16.0750	>500

11b Antenna 2

Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
2412	16.0782	>500
2437	16.0743	>500
2462	16.0412	>500

11g Antenna 1

Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
2412	16.3998	>500
2437	16.3882	>500
2462	16.4069	>500

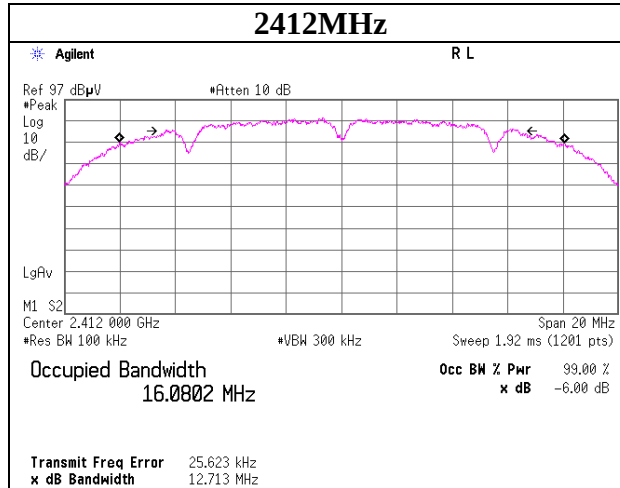
11g Antenna 2

Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
2412	16.3941	>500
2437	16.3899	>500
2462	16.3978	>500

6dB Bandwidth
11b

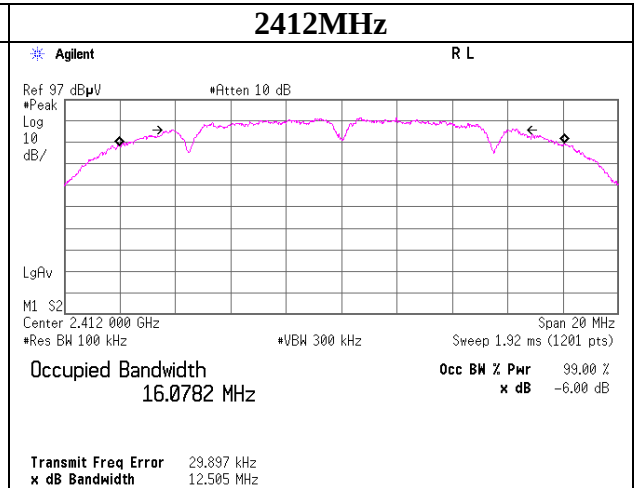
Antenna 1

2412MHz

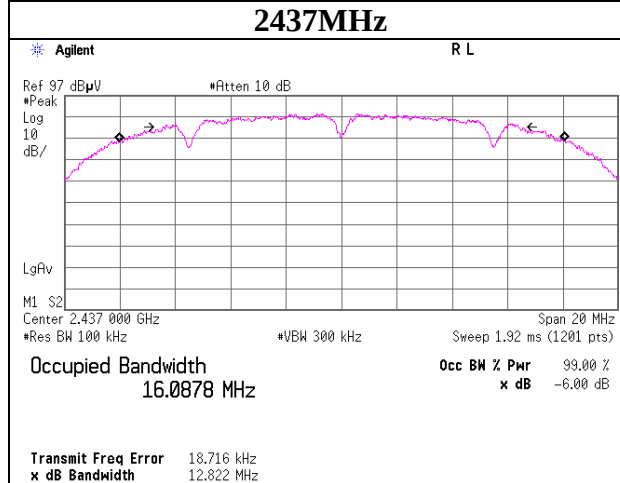


Antenna 2

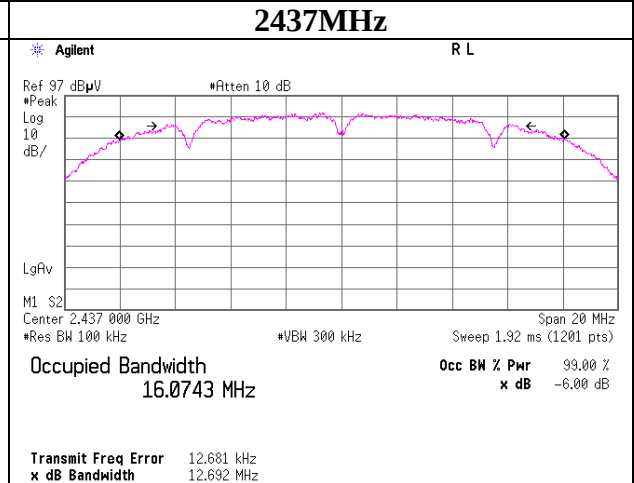
2412MHz



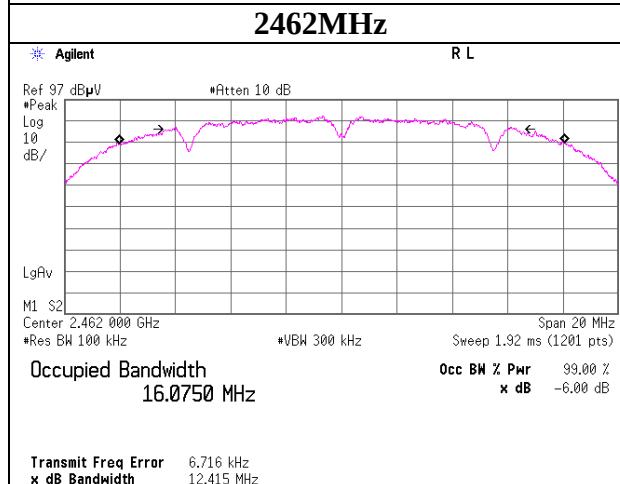
2437MHz



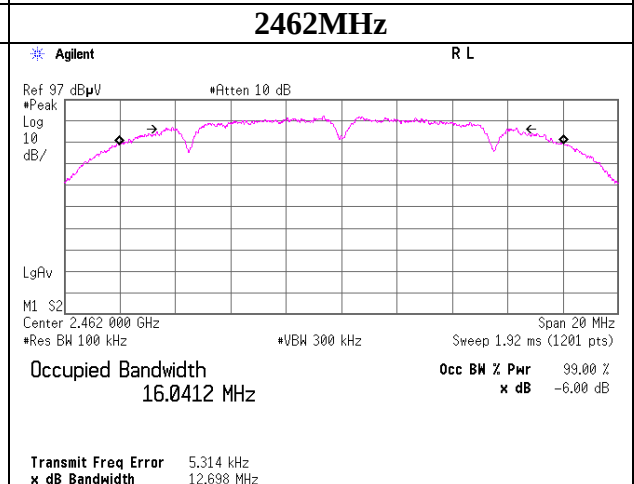
2437MHz



2462MHz



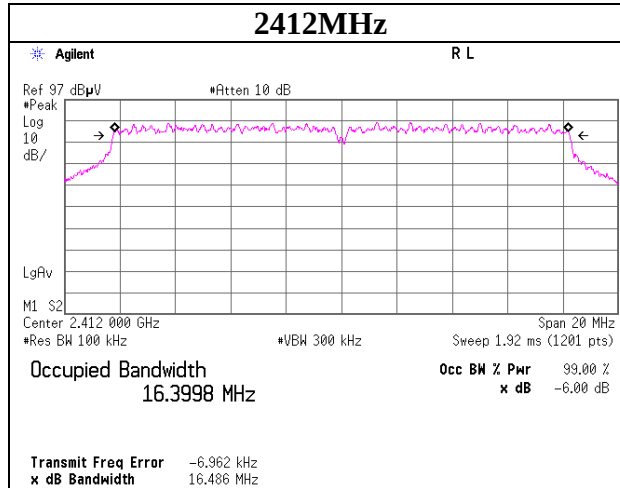
2462MHz



6dB Bandwidth
11g

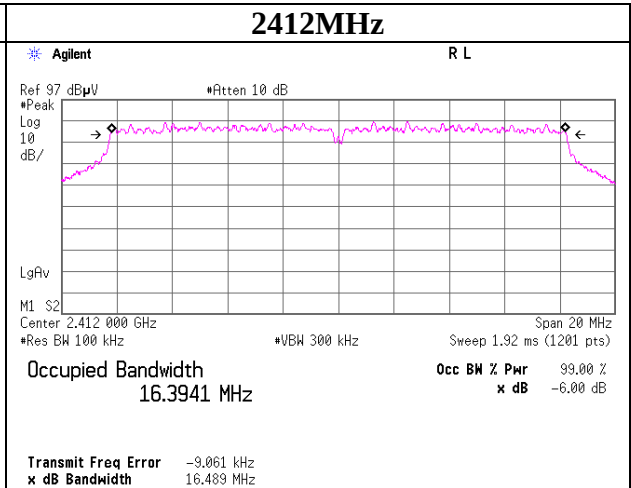
Antenna 1

2412MHz

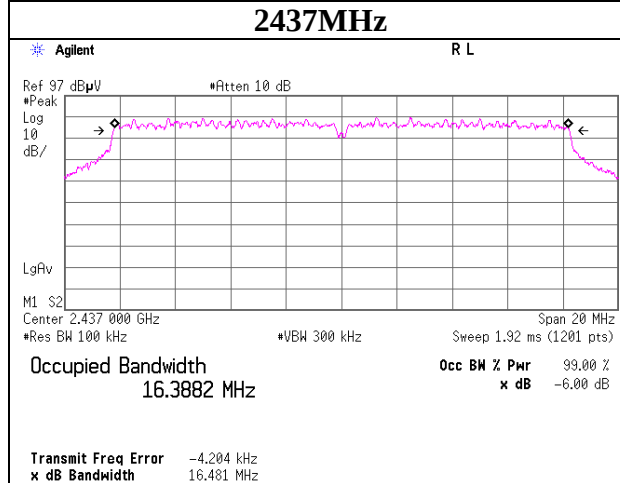


Antenna 2

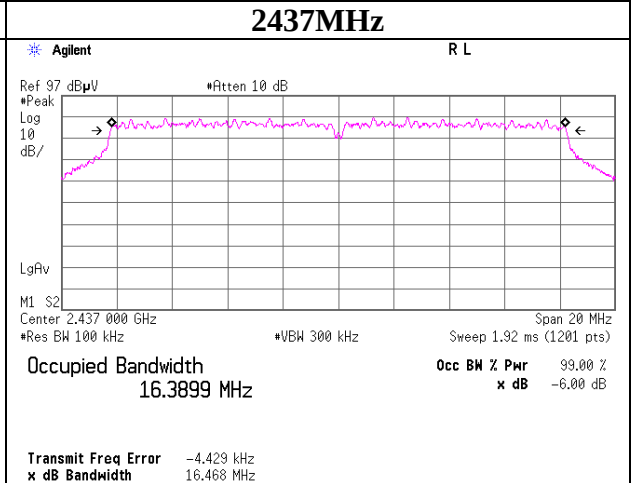
2412MHz



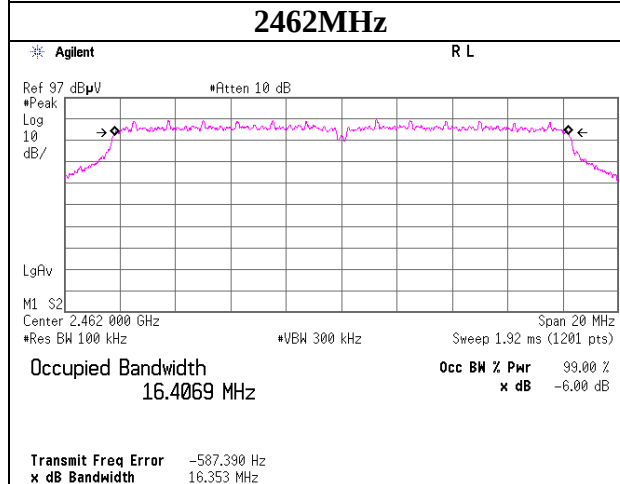
2437MHz



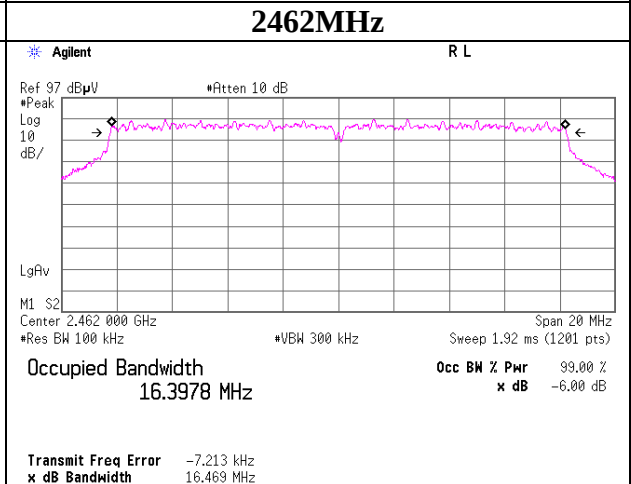
2437MHz



2462MHz



2462MHz



Maximum Peak Output Power

Test place	Head Office EMC Lab. No.11 Measurement Room
Report No.	32AE0238-HO-02
Date	11/24/2011
Temperature/ Humidity	21 deg.C/ 33% RH
Engineer	Takeshi Choda
Mode	11b Tx

Antenna 1

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2412	5.66	0.50	10.07	16.23	41.98	30.00	1000	13.77
2437	6.35	0.50	10.07	16.92	49.20	30.00	1000	13.08
2462	6.40	0.50	10.07	16.97	49.77	30.00	1000	13.03

Antenna 2

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2412	5.61	0.50	10.07	16.18	41.50	30.00	1000	13.82
2437	6.11	0.50	10.07	16.68	46.56	30.00	1000	13.32
2462	6.19	0.50	10.07	16.76	47.42	30.00	1000	13.24

Sample Calculation:

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

Antenna 1, 2437MHz

Rate [Mbps]	Reading [dBm]	Remark
1	6.28	
2	6.35	*
5.5	6.15	
11	6.26	

Antenna 2, 2437MHz

Rate [Mbps]	Reading [dBm]	Remark
1	5.99	
2	6.11	*
5.5	5.89	
11	6.01	

*: Worst Rate

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

Maximum Peak Output Power

Test place	Head Office EMC Lab. No.11 Measurement Room
Report No.	32AE0238-HO-02
Date	11/24/2011
Temperature/ Humidity	21 deg.C/ 33% RH
Engineer	Takeshi Choda
Mode	11g Tx

Antenna 1

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2412	12.29	0.50	10.07	22.86	193.20	30.00	1000	7.14
2437	12.27	0.50	10.07	22.84	192.31	30.00	1000	7.16
2462	12.25	0.50	10.07	22.82	191.43	30.00	1000	7.18

Antenna 2

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2412	12.05	0.50	10.07	22.62	182.81	30.00	1000	7.38
2437	11.98	0.50	10.07	22.55	179.89	30.00	1000	7.45
2462	11.95	0.50	10.07	22.52	178.65	30.00	1000	7.48

Sample Calculation:

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

Antenna 1, 2437MHz

Rate [Mbps]	Reading [dBm]	Remark
6	12.00	
9	11.89	
12	12.02	
18	12.20	
24	11.88	
36	12.27	*
48	11.94	
54	11.86	

*: Worst Rate

Antenna 2, 2437MHz

Rate [Mbps]	Reading [dBm]	Remark
6	11.62	
9	11.68	
12	11.61	
18	11.90	
24	11.59	
36	11.98	*
48	11.66	
54	11.65	

*: Worst Rate

All comparison were carried out on same frequency and measurement factors.

Radiated Spurious Emission

Test place : Head Office EMC Lab. No.2 Semi Anechoic Chamber
Report No. : 32AE0238-HO-02
Date : 11/26/2011 11/27/2011 11/28/2011
Temperature/ Humidity : 20deg. C/ 33% RH 22deg. C / 35% RH 22deg. C / 44% RH
Engineer : Takayuki Shimada Hisayoshi Sato Keisuke Kawamura
Mode : (1-10GHz) (Above 10GHz) (Below 1GHz)
11b Tx 2412MHz, Antenna 1

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	67.741	QP	45.2	7.1	7.2	28.5	30.6	40.0	9.4	
Hori	70.561	QP	46.2	6.7	7.2	28.5	31.4	40.0	8.6	
Hori	112.895	QP	43.8	11.6	7.6	28.3	34.5	43.5	9.0	
Hori	115.717	QP	40.4	12.0	7.6	28.3	31.5	43.5	12.0	
Hori	654.790	QP	34.7	20.3	10.4	28.6	36.8	46.0	9.2	
Hori	719.996	QP	38.4	21.0	10.6	28.3	41.7	46.0	4.3	
Hori	2390.000	PK	69.2	27.4	2.2	36.3	62.5	73.9	11.4	
Hori	2397.550	PK	73.2	27.4	2.2	36.3	66.5	-	-	See 20dBc Data Sheet
Hori	2400.000	PK	74.8	27.4	2.2	36.3	68.1	-	-	See 20dBc Data Sheet
Hori	4824.000	PK	44.0	31.4	3.8	35.8	43.4	73.9	30.5	
Hori	7236.000	PK	43.7	35.5	4.5	35.9	47.8	73.9	26.1	
Hori	9648.000	PK	45.6	38.4	5.3	36.5	52.8	73.9	21.1	
Hori	24120.000	PK	41.5	40.4	-1.7	35.4	44.8	73.9	29.1	
Hori	24120.000	PK	42.2	40.4	-1.7	35.4	45.5	73.9	28.4	
Hori	2390.000	AV	37.9	27.4	2.2	36.3	31.2	53.9	22.7	
Hori	2397.550	AV	60.0	27.4	2.2	36.3	53.3	-	-	See 20dBc Data Sheet
Hori	2400.000	AV	59.1	27.4	2.2	36.3	52.4	-	-	See 20dBc Data Sheet
Hori	4824.000	AV	31.4	31.4	3.8	35.8	30.8	53.9	23.1	
Hori	7236.000	AV	31.8	35.5	4.5	35.9	35.9	53.9	18.0	
Hori	9648.000	AV	33.0	38.4	5.3	36.5	40.2	53.9	13.7	
Hori	24120.000	AV	36.8	40.4	-1.7	35.4	40.1	53.9	13.8	
Vert	42.015	QP	34.6	13.6	6.9	28.6	26.5	40.0	13.5	
Vert	70.561	QP	44.1	6.7	7.2	28.5	29.3	40.0	10.7	
Vert	93.138	QP	44.8	8.2	7.4	28.4	32.3	43.5	11.2	
Vert	112.896	QP	43.2	11.6	7.6	28.3	33.9	43.5	9.6	
Vert	479.995	QP	37.5	18.1	9.7	28.7	36.6	46.0	9.4	
Vert	719.996	QP	32.2	21.0	10.6	28.3	35.5	46.0	10.5	
Vert	2390.000	PK	69.3	27.4	2.2	36.3	62.6	73.9	11.3	
Vert	2397.550	PK	73.0	27.4	2.2	36.3	66.3	-	-	See 20dBc Data Sheet
Vert	2400.000	PK	74.5	27.4	2.2	36.3	67.8	-	-	See 20dBc Data Sheet
Vert	4824.000	PK	44.1	31.4	3.8	35.8	43.5	73.9	30.4	
Vert	7236.000	PK	43.9	35.5	4.5	35.9	48.0	73.9	25.9	
Vert	9648.000	PK	45.6	38.4	5.3	36.5	52.8	73.9	21.1	
Vert	2390.000	AV	38.1	27.4	2.2	36.3	31.4	53.9	22.5	
Vert	2397.550	AV	60.5	27.4	2.2	36.3	53.8	-	-	See 20dBc Data Sheet
Vert	2400.000	AV	59.1	27.4	2.2	36.3	52.4	-	-	See 20dBc Data Sheet
Vert	4824.000	AV	31.4	31.4	3.8	35.8	30.8	53.9	23.1	
Vert	7236.000	AV	31.8	35.5	4.5	35.9	35.9	53.9	18.0	
Vert	9648.000	AV	33.0	38.4	5.3	36.5	40.2	53.9	13.7	
Vert	24120.000	AV	37.0	40.4	-1.7	35.4	40.3	53.9	13.6	

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

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

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

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

Radiated Spurious Emission

Test place : Head Office EMC Lab. No.2 Semi Anechoic Chamber
Report No. : 32AE0238-HO-02
Date : 11/26/2011
Temperature/ Humidity : 20deg. C / 33% RH
Engineer : Takayuki Shimada
(1-10GHz)
Mode : 11b Tx 2412MHz, Antenna 1

20dBc Data Sheet

Polarity	Frequency	Detector	Reading	Ant Factor	Loss	Gain	Result	Limit	Margin	Remark
	[MHz]		[dBuV]	[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
Hori	2412.000	PK	101.6	27.4	2.2	36.3	94.9	-	-	Carrier
Hori	2400.000	PK	62.9	27.4	2.2	36.3	56.2	74.9	18.7	
Hori	2397.550	PK	62.2	27.4	2.2	36.3	55.5	74.9	19.4	
Vert	2412.000	PK	101.5	27.4	2.2	36.3	94.8	-	-	Carrier
Vert	2400.000	PK	63.5	27.4	2.2	36.3	56.8	74.8	18.0	
Vert	2397.550	PK	61.6	27.4	2.2	36.3	54.9	74.8	19.9	

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

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

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

Radiated Spurious Emission

Test place : Head Office EMC Lab. No.2 Semi Anechoic Chamber
Report No. : 32AE0238-HO-02
Date : 11/26/2011 11/27/2011 11/28/2011
Temperature/ Humidity : 20deg. C / 33% RH 22deg. C / 35% RH 22deg. C / 44% RH
Engineer : Takayuki Shimada Hisayoshi Sato Keisuke Kawamura
Mode : (1-10GHz) (Above 10GHz) (Below 1GHz)
11b Tx 2437MHz, Antenna 1

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	67.739	QP	46.0	7.1	7.2	28.5	31.4	40.0	8.6	
Hori	70.559	QP	46.9	6.7	7.2	28.5	32.1	40.0	7.9	
Hori	112.895	QP	44.4	11.6	7.6	28.3	35.1	43.5	8.4	
Hori	479.995	QP	39.4	18.1	9.7	28.7	38.5	46.0	7.5	
Hori	699.948	QP	33.8	20.7	10.5	28.4	36.6	46.0	9.4	
Hori	719.996	QP	29.1	21.0	10.6	28.3	32.4	46.0	13.6	
Hori	4874.000	PK	44.5	31.5	3.8	35.8	44.0	73.9	29.9	
Hori	7311.000	PK	44.4	35.6	4.6	35.9	48.7	73.9	25.2	
Hori	9748.000	PK	45.6	38.5	5.3	36.5	52.9	73.9	21.0	
Hori	24370.000	PK	44.6	40.4	-1.7	35.4	47.9	73.9	26.0	
Hori	4874.000	AV	31.7	31.5	3.8	35.8	31.2	53.9	22.7	
Hori	7311.000	AV	31.8	35.6	4.6	35.9	36.1	53.9	17.8	
Hori	9748.000	AV	33.1	38.5	5.3	36.5	40.4	53.9	13.5	
Hori	24370.000	AV	36.6	40.4	-1.7	35.4	39.9	53.9	14.0	
Vert	42.531	QP	35.4	13.4	6.9	28.6	27.1	40.0	12.9	
Vert	70.559	QP	43.6	6.7	7.2	28.5	28.8	40.0	11.2	
Vert	93.137	QP	44.7	8.2	7.4	28.4	32.2	43.5	11.3	
Vert	112.895	QP	43.1	11.6	7.6	28.3	33.8	43.5	9.7	
Vert	479.995	QP	36.3	18.1	9.7	28.7	35.4	46.0	10.6	
Vert	699.948	QP	31.6	20.7	10.5	28.4	34.4	46.0	11.6	
Vert	4874.000	PK	44.6	31.5	3.8	35.8	44.1	73.9	29.8	
Vert	7311.000	PK	44.3	35.6	4.6	35.9	48.6	73.9	25.3	
Vert	9748.000	PK	45.5	38.5	5.3	36.5	52.8	73.9	21.1	
Vert	24370.000	PK	43.3	40.4	-1.7	35.4	46.6	73.9	27.3	
Vert	4874.000	AV	31.7	31.5	3.8	35.8	31.2	53.9	22.7	
Vert	7311.000	AV	31.8	35.6	4.6	35.9	36.1	53.9	17.8	
Vert	9748.000	AV	33.1	38.5	5.3	36.5	40.4	53.9	13.5	
Vert	24370.000	AV	36.5	40.4	-1.7	35.4	39.8	53.9	14.1	

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

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

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

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

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.2 Semi Anechoic Chamber		
Report No.	32AE0238-HO-02		
Date	11/26/2011	11/27/2011	11/28/2011
Temperature/ Humidity	20deg. C / 33% RH	22deg. C / 35% RH	22deg. C / 44% RH
Engineer	Takayuki Shimada (1-10GHz)	Hisayoshi Sato (Above 10GHz)	Keisuke Kawamura (Below 1GHz)
Mode	11b Tx 2462MHz, Antenna 1		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	67.739	QP	46.0	7.1	7.2	28.5	31.4	40.0	8.6	
Hori	70.559	QP	46.9	6.7	7.2	28.5	32.1	40.0	7.9	
Hori	112.895	QP	44.4	11.6	7.6	28.3	35.1	43.5	8.4	
Hori	479.995	QP	39.4	18.1	9.7	28.7	38.5	46.0	7.5	
Hori	699.948	QP	33.8	20.7	10.5	28.4	36.6	46.0	9.4	
Hori	719.996	QP	38.4	21.0	10.6	28.3	41.7	46.0	4.3	
Hori	2483.500	PK	68.6	27.6	2.3	36.3	62.2	73.9	11.7	
Hori	2490.100	PK	66.1	27.6	2.3	36.3	59.7	73.9	14.2	
Hori	4924.000	PK	46.0	31.6	3.9	35.8	45.7	73.9	28.2	
Hori	7386.000	PK	43.8	35.7	4.6	35.9	48.2	73.9	25.7	
Hori	9848.000	PK	44.7	38.6	5.4	36.5	52.2	73.9	21.7	
Hori	24620.000	PK	43.5	40.3	-1.6	35.5	46.7	73.9	27.2	
Hori	24620.000	PK	43.2	40.3	-1.6	35.5	46.4	73.9	27.5	
Hori	2483.500	AV	36.7	27.6	2.3	36.3	30.3	53.9	23.6	
Hori	2490.100	AV	38.9	27.6	2.3	36.3	32.5	53.9	21.4	
Hori	4924.000	AV	33.7	31.6	3.9	35.8	33.4	53.9	20.5	
Hori	7386.000	AV	31.6	35.7	4.6	35.9	36.0	53.9	17.9	
Hori	9848.000	AV	32.5	38.6	5.4	36.5	40.0	53.9	13.9	
Hori	24620.000	AV	37.2	40.3	-1.6	35.5	40.4	53.9	13.5	
Vert	42.531	QP	35.4	13.4	6.9	28.6	27.1	40.0	12.9	
Vert	70.559	QP	43.6	6.7	7.2	28.5	28.8	40.0	11.2	
Vert	93.137	QP	44.7	8.2	7.4	28.4	32.2	43.5	11.3	
Vert	112.895	QP	43.1	11.6	7.6	28.3	33.8	43.5	9.7	
Vert	479.995	QP	36.3	18.1	9.7	28.7	35.4	46.0	10.6	
Vert	699.948	QP	31.6	20.7	10.5	28.4	34.4	46.0	11.6	
Vert	2483.500	PK	67.9	27.6	2.3	36.3	61.5	73.9	12.4	
Vert	2490.100	PK	64.9	27.6	2.3	36.3	58.5	73.9	15.4	
Vert	4924.000	PK	46.2	31.6	3.9	35.8	45.9	73.9	28.0	
Vert	7386.000	PK	43.6	35.7	4.6	35.9	48.0	73.9	25.9	
Vert	9848.000	PK	44.6	38.6	5.4	36.5	52.1	73.9	21.8	
Vert	2483.500	AV	36.1	27.6	2.3	36.3	29.7	53.9	24.2	
Vert	2490.100	AV	38.2	27.6	2.3	36.3	31.8	53.9	22.1	
Vert	4924.000	AV	34.0	31.6	3.9	35.8	33.7	53.9	20.2	
Vert	7386.000	AV	31.6	35.7	4.6	35.9	36.0	53.9	17.9	
Vert	9848.000	AV	32.5	38.6	5.4	36.5	40.0	53.9	13.9	
Vert	24620.000	AV	37.1	40.3	-1.6	35.5	40.3	53.9	13.6	

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

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

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

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

Radiated Spurious Emission

Test place : Head Office EMC Lab. No.2 Semi Anechoic Chamber
Report No. : 32AE0238-HO-02
Date : 11/26/2011 11/27/2011 11/28/2011
Temperature/ Humidity : 20deg. C / 33% RH 22deg. C / 35% RH 22deg. C / 44% RH
Engineer : Takayuki Shimada Hisayoshi Sato Keisuke Kawamura
Mode : 11g Tx 2412MHz, Antenna 1

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	67.741	QP	45.9	7.1	7.2	28.5	31.3	40.0	8.7	
Hori	70.561	QP	46.6	6.7	7.2	28.5	31.8	40.0	8.2	
Hori	112.895	QP	44.6	11.6	7.6	28.3	35.3	43.5	8.2	
Hori	479.997	QP	39.0	18.1	9.7	28.7	38.1	46.0	7.9	
Hori	699.950	QP	34.6	20.7	10.5	28.4	37.4	46.0	8.6	
Hori	719.996	QP	40.1	21.0	10.6	28.3	43.4	46.0	2.6	
Hori	2390.000	PK	66.5	27.4	2.2	36.3	59.8	73.9	14.1	
Hori	2398.901	PK	73.6	27.4	2.2	36.3	66.9	-	-	- See 20dBc Data Sheet
Hori	2400.000	PK	74.1	27.4	2.2	36.3	67.4	-	-	- See 20dBc Data Sheet
Hori	4824.000	PK	44.5	31.4	3.8	35.8	43.9	73.9	30.0	
Hori	7236.000	PK	43.6	35.5	4.5	35.9	47.7	73.9	26.2	
Hori	9648.000	PK	45.6	38.4	5.3	36.5	52.8	73.9	21.1	
Hori	24120.000	PK	41.5	40.4	-1.7	35.4	44.8	73.9	29.1	
Hori	24120.000	PK	42.2	40.4	-1.7	35.4	45.5	73.9	28.4	
Hori	2390.000	AV	47.4	27.4	2.2	36.3	40.7	53.9	13.2	
Hori	2398.901	AV	55.3	27.4	2.2	36.3	48.6	-	-	- See 20dBc Data Sheet
Hori	2400.000	AV	56.4	27.4	2.2	36.3	49.7	-	-	- See 20dBc Data Sheet
Hori	4824.000	AV	31.4	31.4	3.8	35.8	30.8	53.9	23.1	
Hori	7236.000	AV	31.8	35.5	4.5	35.9	35.9	53.9	18.0	
Hori	9648.000	AV	33.0	38.4	5.3	36.5	40.2	53.9	13.7	
Hori	24120.000	AV	36.8	40.4	-1.7	35.4	40.1	53.9	13.8	
Vert	42.150	QP	34.9	13.6	6.9	28.6	26.8	40.0	13.2	
Vert	70.561	QP	44.1	6.7	7.2	28.5	29.3	40.0	10.7	
Vert	93.142	QP	44.6	8.2	7.4	28.4	32.1	43.5	11.4	
Vert	112.895	QP	43.3	11.6	7.6	28.3	34.0	43.5	9.5	
Vert	479.997	QP	36.4	18.1	9.7	28.7	35.5	46.0	10.5	
Vert	699.950	QP	32.3	20.7	10.5	28.4	35.1	46.0	10.9	
Vert	2390.000	PK	67.7	27.4	2.2	36.3	61.0	73.9	12.9	
Vert	2398.901	PK	74.6	27.4	2.2	36.3	67.9	-	-	- See 20dBc Data Sheet
Vert	2400.000	PK	73.7	27.4	2.2	36.3	67.0	-	-	- See 20dBc Data Sheet
Vert	4824.000	PK	44.3	31.4	3.8	35.8	43.7	73.9	30.2	
Vert	7236.000	PK	43.7	35.5	4.5	35.9	47.8	73.9	26.1	
Vert	9648.000	PK	45.7	38.4	5.3	36.5	52.9	73.9	21.0	
Vert	2390.000	AV	47.4	27.4	2.2	36.3	40.7	53.9	13.2	
Vert	2398.901	AV	55.0	27.4	2.2	36.3	48.3	-	-	- See 20dBc Data Sheet
Vert	2400.000	AV	56.2	27.4	2.2	36.3	49.5	-	-	- See 20dBc Data Sheet
Vert	4824.000	AV	31.4	31.4	3.8	35.8	30.8	53.9	23.1	
Vert	7236.000	AV	31.8	35.5	4.5	35.9	35.9	53.9	18.0	
Vert	9648.000	AV	33.0	38.4	5.3	36.5	40.2	53.9	13.7	
Vert	24120.000	AV	37.0	40.4	-1.7	35.4	40.3	53.9	13.6	

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

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

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

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

Radiated Spurious Emission

Test place : Head Office EMC Lab. No.2 Semi Anechoic Chamber
Report No. : 32AE0238-HO-02
Date : 11/26/2011
Temperature/ Humidity : 20deg. C / 33% RH
Engineer : Takayuki Shimada
(1-10GHz)
Mode : 11g Tx 2412MHz, Antenna 1

20dBc Data Sheet

Polarity	Frequency	Detector	Reading	Ant Factor	Loss	Gain	Result	Limit	Margin	Remark
	[MHz]		[dBuV]	[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
Hori	2412.000	PK	99.8	27.4	2.2	36.3	93.1	-	-	Carrier
Hori	2400.000	PK	62.9	27.4	2.2	36.3	56.2	73.1	16.9	
Hori	2398.901	PK	63.4	27.4	2.2	36.3	56.7	73.1	16.4	
Vert	2412.000	PK	99.6	27.4	2.2	36.3	92.9	-	-	Carrier
Vert	2400.000	PK	61.7	27.4	2.2	36.3	55.0	72.9	17.9	
Vert	2398.901	PK	63.2	27.4	2.2	36.3	56.5	72.9	16.4	

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

*Other frequency noises omitted in this report were not seen or had 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.2 Semi Anechoic Chamber		
Report No.	32AE0238-HO-02		
Date	11/26/2011	11/27/2011	11/28/2011
Temperature/ Humidity	20deg. C / 33% RH	22deg. C / 35% RH	22deg. C / 44% RH
Engineer	Takayuki Shimada	Hisayoshi Sato	Keisuke Kawamura
	(1-10GHz)	(Above 10GHz)	(Below 1GHz)
Mode	11g Tx 2437MHz, Antenna 1		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	67.741	QP	45.9	7.1	7.2	28.5	31.3	40.0	8.7	
Hori	70.561	QP	46.6	6.7	7.2	28.5	31.8	40.0	8.2	
Hori	112.895	QP	44.6	11.6	7.6	28.3	35.3	43.5	8.2	
Hori	479.997	QP	39.0	18.1	9.7	28.7	38.1	46.0	7.9	
Hori	699.950	QP	34.6	20.7	10.5	28.4	37.4	46.0	8.6	
Hori	719.996	QP	40.2	21.0	10.6	28.3	43.5	46.0	2.5	
Hori	4874.000	PK	44.7	31.5	3.8	35.8	44.2	73.9	29.7	
Hori	7311.000	PK	44.3	35.6	4.6	35.9	48.6	73.9	25.3	
Hori	9748.000	PK	45.4	38.5	5.3	36.5	52.7	73.9	21.2	
Hori	24370.000	PK	43.5	40.4	-1.7	35.4	46.8	73.9	27.1	
Hori	4874.000	AV	31.7	31.5	3.8	35.8	31.2	53.9	22.7	
Hori	7311.000	AV	31.8	35.6	4.6	35.9	36.1	53.9	17.8	
Hori	9748.000	AV	33.1	38.5	5.3	36.5	40.4	53.9	13.5	
Hori	24370.000	AV	36.7	40.4	-1.7	35.4	40.0	53.9	13.9	
Vert	42.150	QP	34.9	13.6	6.9	28.6	26.8	40.0	13.2	
Vert	70.561	QP	44.1	6.7	7.2	28.5	29.3	40.0	10.7	
Vert	93.142	QP	44.6	8.2	7.4	28.4	32.1	43.5	11.4	
Vert	112.895	QP	43.3	11.6	7.6	28.3	34.0	43.5	9.5	
Vert	479.997	QP	36.4	18.1	9.7	28.7	35.5	46.0	10.5	
Vert	699.950	QP	32.3	20.7	10.5	28.4	35.1	46.0	10.9	
Vert	4874.000	PK	44.5	31.5	3.8	35.8	44.0	73.9	29.9	
Vert	7311.000	PK	44.3	35.6	4.6	35.9	48.6	73.9	25.3	
Vert	9748.000	PK	45.6	38.5	5.3	36.5	52.9	73.9	21.0	
Vert	24370.000	PK	44.1	40.4	-1.7	35.4	47.4	73.9	26.5	
Vert	4874.000	AV	31.7	31.5	3.8	35.8	31.2	53.9	22.7	
Vert	7311.000	AV	31.8	35.6	4.6	35.9	36.1	53.9	17.8	
Vert	9748.000	AV	33.1	38.5	5.3	36.5	40.4	53.9	13.5	
Vert	24370.000	AV	36.8	40.4	-1.7	35.4	40.1	53.9	13.8	

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

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

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

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

Radiated Spurious Emission

Test place : Head Office EMC Lab. No.2 Semi Anechoic Chamber
Report No. : 32AE0238-HO-02
Date : 11/26/2011 11/27/2011 11/28/2011
Temperature/ Humidity : 20deg. C / 33% RH 22deg. C / 35% RH 22deg. C / 44% RH
Engineer : Takayuki Shimada Hisayoshi Sato Keisuke Kawamura
(1-10GHz) (Above 10GHz) (Below 1GHz)
Mode : 11g Tx 2462MHz, Antenna 1

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	67.741	QP	45.9	7.1	7.2	28.5	31.3	40.0	8.7	
Hori	70.561	QP	46.6	6.7	7.2	28.5	31.8	40.0	8.2	
Hori	112.895	QP	44.6	11.6	7.6	28.3	35.3	43.5	8.2	
Hori	479.997	QP	39.0	18.1	9.7	28.7	38.1	46.0	7.9	
Hori	699.950	QP	34.6	20.7	10.5	28.4	37.4	46.0	8.6	
Hori	719.996	QP	40.1	21.0	10.6	28.3	43.4	46.0	2.6	
Hori	2483.500	PK	62.5	27.6	2.3	36.3	56.1	73.9	17.8	
Hori	2483.670	PK	61.9	27.6	2.3	36.3	55.5	73.9	18.4	
Hori	4924.000	PK	44.1	31.6	3.9	35.8	43.8	73.9	30.1	
Hori	7386.000	PK	43.9	35.7	4.6	35.9	48.3	73.9	25.6	
Hori	9848.000	PK	44.7	38.6	5.4	36.5	52.2	73.9	21.7	
Hori	24620.000	PK	43.7	40.3	-1.6	35.5	46.9	73.9	27.0	
Hori	24620.000	PK	43.5	40.3	-1.6	35.5	46.7	73.9	27.2	
Hori	2483.500	AV	43.9	27.6	2.3	36.3	37.5	53.9	16.4	
Hori	2483.670	AV	43.9	27.6	2.3	36.3	37.5	53.9	16.4	
Hori	4924.000	AV	31.7	31.6	3.9	35.8	31.4	53.9	22.5	
Hori	7386.000	AV	31.6	35.7	4.6	35.9	36.0	53.9	17.9	
Hori	9848.000	AV	32.5	38.6	5.4	36.5	40.0	53.9	13.9	
Hori	24620.000	AV	37.1	40.3	-1.6	35.5	40.3	53.9	13.6	
Vert	42.150	QP	34.9	13.6	6.9	28.6	26.8	40.0	13.2	
Vert	70.561	QP	44.1	6.7	7.2	28.5	29.3	40.0	10.7	
Vert	93.142	QP	44.6	8.2	7.4	28.4	32.1	43.5	11.4	
Vert	112.895	QP	43.3	11.6	7.6	28.3	34.0	43.5	9.5	
Vert	479.997	QP	36.4	18.1	9.7	28.7	35.5	46.0	10.5	
Vert	699.950	QP	32.3	20.7	10.5	28.4	35.1	46.0	10.9	
Vert	2483.500	PK	61.5	27.6	2.3	36.3	55.1	73.9	18.8	
Vert	2483.670	PK	60.2	27.6	2.3	36.3	53.8	73.9	20.1	
Vert	4924.000	PK	43.8	31.6	3.9	35.8	43.5	73.9	30.4	
Vert	7386.000	PK	43.8	35.7	4.6	35.9	48.2	73.9	25.7	
Vert	9848.000	PK	44.7	38.6	5.4	36.5	52.2	73.9	21.7	
Vert	2483.500	AV	43.0	27.6	2.3	36.3	36.6	53.9	17.3	
Vert	2483.670	AV	43.0	27.6	2.3	36.3	36.6	53.9	17.3	
Vert	4924.000	AV	31.7	31.6	3.9	35.8	31.4	53.9	22.5	
Vert	7386.000	AV	31.6	35.7	4.6	35.9	36.0	53.9	17.9	
Vert	9848.000	AV	32.5	38.6	5.4	36.5	40.0	53.9	13.9	
Vert	24620.000	AV	37.3	40.3	-1.6	35.5	40.5	53.9	13.4	

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

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

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

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

Radiated Spurious Emission

Test place : Head Office EMC Lab. No.2 Semi Anechoic Chamber
Report No. : 32AE0238-HO-02
Date : 11/26/2011 11/27/2011 11/28/2011
Temperature/ Humidity : 20deg. C / 33% RH 22deg. C / 35% RH 22deg. C / 44% RH
Engineer : Takayuki Shimada Hisayoshi Sato Keisuke Kawamura
Mode : (1-10GHz) (Above 10GHz) (Below 1GHz)
11b Tx 2412MHz, Antenna 2

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	67.741	QP	45.9	7.1	7.2	28.5	31.3	40.0	8.7	
Hori	70.561	QP	46.6	6.7	7.2	28.5	31.8	40.0	8.2	
Hori	112.895	QP	44.6	11.6	7.6	28.3	35.3	43.5	8.2	
Hori	479.997	QP	39.0	18.1	9.7	28.7	38.1	46.0	7.9	
Hori	699.950	QP	34.6	20.7	10.5	28.4	37.4	46.0	8.6	
Hori	719.996	QP	38.1	21.0	10.6	28.3	41.4	46.0	4.6	
Hori	2390.000	PK	71.5	27.4	2.2	36.3	64.8	73.9	9.1	
Hori	2397.300	PK	75.2	27.4	2.2	36.3	68.5	-	-	See 20dBc Data Sheet
Hori	2400.000	PK	77.1	27.4	2.2	36.3	70.4	-	-	See 20dBc Data Sheet
Hori	4824.000	PK	44.6	31.4	3.8	35.8	44.0	73.9	29.9	
Hori	7236.000	PK	43.7	35.5	4.5	35.9	47.8	73.9	26.1	
Hori	9648.000	PK	45.6	38.4	5.3	36.5	52.8	73.9	21.1	
Hori	24120.000	PK	42.8	40.4	-1.7	35.4	46.1	73.9	27.8	
Hori	24120.000	PK	42.9	40.4	-1.7	35.4	46.2	73.9	27.7	
Hori	2390.000	AV	38.7	27.4	2.2	36.3	32.0	53.9	21.9	
Hori	2397.300	AV	60.9	27.4	2.2	36.3	54.2	-	-	See 20dBc Data Sheet
Hori	2400.000	AV	61.6	27.4	2.2	36.3	54.9	-	-	See 20dBc Data Sheet
Hori	4824.000	AV	32.6	31.4	3.8	35.8	32.0	53.9	21.9	
Hori	7236.000	AV	31.8	35.5	4.5	35.9	35.9	53.9	18.0	
Hori	9648.000	AV	33.0	38.4	5.3	36.5	40.2	53.9	13.7	
Hori	24120.000	AV	36.5	40.4	-1.7	35.4	39.8	53.9	14.1	
Vert	42.150	QP	34.9	13.6	6.9	28.6	26.8	40.0	13.2	
Vert	70.561	QP	44.1	6.7	7.2	28.5	29.3	40.0	10.7	
Vert	93.142	QP	44.6	8.2	7.4	28.4	32.1	43.5	11.4	
Vert	112.895	QP	43.3	11.6	7.6	28.3	34.0	43.5	9.5	
Vert	479.997	QP	36.4	18.1	9.7	28.7	35.5	46.0	10.5	
Vert	699.950	QP	32.3	20.7	10.5	28.4	35.1	46.0	10.9	
Vert	2390.000	PK	73.2	27.4	2.2	36.3	66.5	73.9	7.4	
Vert	2397.300	PK	76.7	27.4	2.2	36.3	70.0	-	-	See 20dBc Data Sheet
Vert	2400.000	PK	79.2	27.4	2.2	36.3	72.5	-	-	See 20dBc Data Sheet
Vert	4824.000	PK	44.4	31.4	3.8	35.8	43.8	73.9	30.1	
Vert	7236.000	PK	43.9	35.5	4.5	35.9	48.0	73.9	25.9	
Vert	9648.000	PK	45.6	38.4	5.3	36.5	52.8	73.9	21.1	
Vert	2390.000	AV	40.2	27.4	2.2	36.3	33.5	53.9	20.4	
Vert	2397.300	AV	63.0	27.4	2.2	36.3	56.3	-	-	See 20dBc Data Sheet
Vert	2400.000	AV	63.3	27.4	2.2	36.3	56.6	-	-	See 20dBc Data Sheet
Vert	4824.000	AV	31.9	31.4	3.8	35.8	31.3	53.9	22.6	
Vert	7236.000	AV	31.8	35.5	4.5	35.9	35.9	53.9	18.0	
Vert	9648.000	AV	33.0	38.4	5.3	36.5	40.2	53.9	13.7	
Vert	24120.000	AV	36.8	40.4	-1.7	35.4	40.1	53.9	13.8	

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

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

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

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

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.2 Semi Anechoic Chamber		
Report No.	32AE0238-HO-02		
Date	11/26/2011	11/27/2011	11/28/2011
Temperature/ Humidity	20deg. C / 33% RH	22deg. C / 35% RH	22deg. C / 44% RH
Engineer	Takayuki Shimada	Hisayoshi Sato	Keisuke Kawamura
	(1-10GHz)	(Above 10GHz)	(Below 1GHz)
Mode	11b Tx 2412MHz, Antenna 2		

20dBc Data Sheet

Polarity	Frequency	Detector	Reading	Ant Factor	Loss	Gain	Result	Limit	Margin	Remark
	[MHz]		[dBuV]	[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
Hori	2412.000	PK	104.4	27.4	2.2	36.3	97.7	-	-	Carrier
Hori	2400.000	PK	65.8	27.4	2.2	36.3	59.1	77.7	18.6	
Hori	2397.300	PK	63.4	27.4	2.2	36.3	56.7	77.7	21.0	
Vert	2412.000	PK	105.5	27.4	2.2	36.3	98.8	-	-	Carrier
Vert	2400.000	PK	68.1	27.4	2.2	36.3	61.4	78.8	17.4	
Vert	2397.300	PK	65.0	27.4	2.2	36.3	58.3	78.8	20.5	

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

*Other frequency noises omitted in this report were not seen or had 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.2 Semi Anechoic Chamber		
Report No.	32AE0238-HO-02		
Date	11/26/2011	11/27/2011	11/28/2011
Temperature/ Humidity	20deg. C / 33% RH	22deg. C / 35% RH	22deg. C / 44% RH
Engineer	Takayuki Shimada (1-10GHz)	Hisayoshi Sato (Above 10GHz)	Keisuke Kawamura (Below 1GHz)
Mode	11b Tx 2437MHz, Antenna 2		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	67.741	QP	45.9	7.1	7.2	28.5	31.3	40.0	8.7	
Hori	70.561	QP	46.6	6.7	7.2	28.5	31.8	40.0	8.2	
Hori	112.895	QP	44.6	11.6	7.6	28.3	35.3	43.5	8.2	
Hori	479.997	QP	39.0	18.1	9.7	28.7	38.1	46.0	7.9	
Hori	699.950	QP	34.6	20.7	10.5	28.4	37.4	46.0	8.6	
Hori	719.996	QP	37.8	21.0	10.6	28.3	41.1	46.0	4.9	
Hori	4874.000	PK	45.0	31.5	3.8	35.8	44.5	73.9	29.4	
Hori	7311.000	PK	44.5	35.6	4.6	35.9	48.8	73.9	25.1	
Hori	9748.000	PK	45.7	38.5	5.3	36.5	53.0	73.9	20.9	
Hori	24370.000	PK	44.5	40.4	-1.7	35.4	47.8	73.9	26.1	
Hori	4874.000	AV	33.1	31.5	3.8	35.8	32.6	53.9	21.3	
Hori	7311.000	AV	31.8	35.6	4.6	35.9	36.1	53.9	17.8	
Hori	9748.000	AV	33.1	38.5	5.3	36.5	40.4	53.9	13.5	
Hori	24370.000	AV	36.5	40.4	-1.7	35.4	39.8	53.9	14.1	
Vert	42.150	QP	34.9	13.6	6.9	28.6	26.8	40.0	13.2	
Vert	70.561	QP	44.1	6.7	7.2	28.5	29.3	40.0	10.7	
Vert	93.142	QP	44.6	8.2	7.4	28.4	32.1	43.5	11.4	
Vert	112.895	QP	43.3	11.6	7.6	28.3	34.0	43.5	9.5	
Vert	479.997	QP	36.4	18.1	9.7	28.7	35.5	46.0	10.5	
Vert	699.950	QP	32.3	20.7	10.5	28.4	35.1	46.0	10.9	
Vert	4874.000	PK	44.6	31.5	3.8	35.8	44.1	73.9	29.8	
Vert	7311.000	PK	44.2	35.6	4.6	35.9	48.5	73.9	25.4	
Vert	9748.000	PK	45.6	38.5	5.3	36.5	52.9	73.9	21.0	
Vert	24370.000	PK	44.2	40.4	-1.7	35.4	47.5	73.9	26.4	
Vert	4874.000	AV	32.0	31.5	3.8	35.8	31.5	53.9	22.4	
Vert	7311.000	AV	31.8	35.6	4.6	35.9	36.1	53.9	17.8	
Vert	9748.000	AV	33.1	38.5	5.3	36.5	40.4	53.9	13.5	
Vert	24370.000	AV	36.4	40.4	-1.7	35.4	39.7	53.9	14.2	

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

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

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

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

Radiated Spurious Emission

Test place : Head Office EMC Lab. No.2 Semi Anechoic Chamber
Report No. : 32AE0238-HO-02
Date : 11/26/2011 11/27/2011 11/28/2011
Temperature/ Humidity : 20deg. C / 33% RH 22deg. C / 35% RH 22deg. C / 44% RH
Engineer : Takayuki Shimada Hisayoshi Sato Keisuke Kawamura
(1-10GHz) (Above 10GHz) (Below 1GHz)
Mode : 11b Tx 2462MHz, Antenna 2

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	67.741	QP	45.9	7.1	7.2	28.5	31.3	40.0	8.7	
Hori	70.561	QP	46.6	6.7	7.2	28.5	31.8	40.0	8.2	
Hori	112.895	QP	44.6	11.6	7.6	28.3	35.3	43.5	8.2	
Hori	479.997	QP	39.0	18.1	9.7	28.7	38.1	46.0	7.9	
Hori	699.950	QP	34.6	20.7	10.5	28.4	37.4	46.0	8.6	
Hori	719.996	QP	38.1	21.0	10.6	28.3	41.4	46.0	4.6	
Hori	2483.500	PK	70.7	27.6	2.3	36.3	64.3	73.9	9.6	
Hori	2484.800	PK	70.2	27.6	2.3	36.3	63.8	73.9	10.1	
Hori	4924.000	PK	45.9	31.6	3.9	35.8	45.6	73.9	28.3	
Hori	7386.000	PK	44.0	35.7	4.6	35.9	48.4	73.9	25.5	
Hori	9848.000	PK	44.6	38.6	5.4	36.5	52.1	73.9	21.8	
Hori	24620.000	PK	44.7	40.3	-1.6	35.5	47.9	73.9	26.0	
Hori	24620.000	PK	44.9	40.3	-1.6	35.5	48.1	73.9	25.8	
Hori	2483.500	AV	40.6	27.6	2.3	36.3	34.2	53.9	19.7	
Hori	2484.800	AV	41.9	27.6	2.3	36.3	35.5	53.9	18.4	
Hori	4924.000	AV	33.5	31.6	3.9	35.8	33.2	53.9	20.7	
Hori	7386.000	AV	31.6	35.7	4.6	35.9	36.0	53.9	17.9	
Hori	9848.000	AV	32.5	38.6	5.4	36.5	40.0	53.9	13.9	
Hori	24620.000	AV	37.9	40.3	-1.6	35.5	41.1	53.9	12.8	
Vert	42.150	QP	34.9	13.6	6.9	28.6	26.8	40.0	13.2	
Vert	70.561	QP	44.1	6.7	7.2	28.5	29.3	40.0	10.7	
Vert	93.142	QP	44.6	8.2	7.4	28.4	32.1	43.5	11.4	
Vert	112.895	QP	43.3	11.6	7.6	28.3	34.0	43.5	9.5	
Vert	479.997	QP	36.4	18.1	9.7	28.7	35.5	46.0	10.5	
Vert	699.950	QP	32.3	20.7	10.5	28.4	35.1	46.0	10.9	
Vert	2483.500	PK	71.3	27.6	2.3	36.3	64.9	73.9	9.0	
Vert	2484.800	PK	70.5	27.6	2.3	36.3	64.1	73.9	9.8	
Vert	4924.000	PK	45.1	31.6	3.9	35.8	44.8	73.9	29.1	
Vert	7386.000	PK	43.8	35.7	4.6	35.9	48.2	73.9	25.7	
Vert	9848.000	PK	44.6	38.6	5.4	36.5	52.1	73.9	21.8	
Vert	2483.500	AV	41.4	27.6	2.3	36.3	35.0	53.9	18.9	
Vert	2484.800	AV	42.5	27.6	2.3	36.3	36.1	53.9	17.8	
Vert	4924.000	AV	33.1	31.6	3.9	35.8	32.8	53.9	21.1	
Vert	7386.000	AV	31.6	35.7	4.6	35.9	36.0	53.9	17.9	
Vert	9848.000	AV	32.5	38.6	5.4	36.5	40.0	53.9	13.9	
Vert	24620.000	AV	37.8	40.3	-1.6	35.5	41.0	53.9	12.9	

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

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

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

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

Radiated Spurious Emission

Test place Head Office EMC Lab. No.2 Semi Anechoic Chamber
Report No. 32AE0238-HO-02
Date 11/26/2011 11/27/2011 11/28/2011
Temperature/ Humidity 20deg. C / 33% RH 22deg. C / 35% RH 22deg. C / 44% RH
Engineer Takayuki Shimada Hisayoshi Sato Keisuke Kawamura
(1-10GHz) (Above 10GHz) (Below 1GHz)
Mode 11g Tx 2412MHz, Antenna 2

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	67.741	QP	45.9	7.1	7.2	28.5	31.3	40.0	8.7	
Hori	70.561	QP	46.6	6.7	7.2	28.5	31.8	40.0	8.2	
Hori	112.895	QP	44.6	11.6	7.6	28.3	35.3	43.5	8.2	
Hori	479.997	QP	39.0	18.1	9.7	28.7	38.1	46.0	7.9	
Hori	699.950	QP	34.6	20.7	10.5	28.4	37.4	46.0	8.6	
Hori	719.996	QP	40.2	21.0	10.6	28.3	43.5	46.0	2.5	
Hori	2390.000	PK	68.0	27.4	2.2	36.3	61.3	73.9	12.6	
Hori	2399.975	PK	77.0	27.4	2.2	36.3	70.3	-	-	See 20dBc Data Sheet
Hori	2400.000	PK	77.0	27.4	2.2	36.3	70.3	-	-	See 20dBc Data Sheet
Hori	4824.000	PK	44.0	31.4	3.8	35.8	43.4	73.9	30.5	
Hori	7236.000	PK	43.8	35.5	4.5	35.9	47.9	73.9	26.0	
Hori	9648.000	PK	45.6	38.4	5.3	36.5	52.8	73.9	21.1	
Hori	24120.000	PK	42.7	40.4	-1.7	35.4	46.0	73.9	27.9	
Hori	24120.000	PK	42.9	40.4	-1.7	35.4	46.2	73.9	27.7	
Hori	2390.000	AV	48.9	27.4	2.2	36.3	42.2	53.9	11.7	
Hori	2399.975	AV	56.1	27.4	2.2	36.3	49.4	-	-	See 20dBc Data Sheet
Hori	2400.000	AV	56.1	27.4	2.2	36.3	49.4	-	-	See 20dBc Data Sheet
Hori	4824.000	AV	31.4	31.4	3.8	35.8	30.8	53.9	23.1	
Hori	7236.000	AV	31.8	35.5	4.5	35.9	35.9	53.9	18.0	
Hori	9648.000	AV	33.0	38.4	5.3	36.5	40.2	53.9	13.7	
Hori	24120.000	AV	36.9	40.4	-1.7	35.4	40.2	53.9	13.7	
Vert	42.150	QP	34.9	13.6	6.9	28.6	26.8	40.0	13.2	
Vert	70.561	QP	44.1	6.7	7.2	28.5	29.3	40.0	10.7	
Vert	93.142	QP	44.6	8.2	7.4	28.4	32.1	43.5	11.4	
Vert	112.895	QP	43.3	11.6	7.6	28.3	34.0	43.5	9.5	
Vert	479.997	QP	36.4	18.1	9.7	28.7	35.5	46.0	10.5	
Vert	699.950	QP	32.3	20.7	10.5	28.4	35.1	46.0	10.9	
Vert	2390.000	PK	70.2	27.4	2.2	36.3	63.5	73.9	10.4	
Vert	2399.975	PK	79.1	27.4	2.2	36.3	72.4	-	-	See 20dBc Data Sheet
Vert	2400.000	PK	79.1	27.4	2.2	36.3	72.4	-	-	See 20dBc Data Sheet
Vert	4824.000	PK	44.2	31.4	3.8	35.8	43.6	73.9	30.3	
Vert	7236.000	PK	44.0	35.5	4.5	35.9	48.1	73.9	25.8	
Vert	9648.000	PK	45.5	38.4	5.3	36.5	52.7	73.9	21.2	
Vert	2390.000	AV	50.5	27.4	2.2	36.3	43.8	53.9	10.1	
Vert	2399.975	AV	58.2	27.4	2.2	36.3	51.5	-	-	See 20dBc Data Sheet
Vert	2400.000	AV	58.2	27.4	2.2	36.3	51.5	-	-	See 20dBc Data Sheet
Vert	4824.000	AV	31.4	31.4	3.8	35.8	30.8	53.9	23.1	
Vert	7236.000	AV	31.8	35.5	4.5	35.9	35.9	53.9	18.0	
Vert	9648.000	AV	33.0	38.4	5.3	36.5	40.2	53.9	13.7	
Vert	24120.000	AV	36.8	40.4	-1.7	35.4	40.1	53.9	13.8	

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

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

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

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

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.2 Semi Anechoic Chamber		
Report No.	32AE0238-HO-02		
Date	11/26/2011	11/27/2011	11/28/2011
Temperature/ Humidity	20deg. C / 33% RH	22deg. C / 35% RH	22deg. C / 44% RH
Engineer	Takayuki Shimada	Hisayoshi Sato	Keisuke Kawamura
	(1-10GHz)	(Above 10GHz)	(Below 1GHz)
Mode	11g Tx 2412MHz, Antenna 2		

20dBc Data Sheet

Polarity	Frequency	Detector	Reading	Ant Factor	Loss	Gain	Result	Limit	Margin	Remark
	[MHz]		[dBuV]	[dB/m]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
Hori	2412.000	PK	102.6	27.4	2.2	36.3	95.9	-	-	Carrier
Hori	2400.000	PK	62.6	27.4	2.2	36.3	55.9	75.9	20.0	
Hori	2399.975	PK	62.7	27.4	2.2	36.3	56.0	75.9	19.9	
Vert	2412.000	PK	103.6	27.4	2.2	36.3	96.9	-	-	Carrier
Vert	2400.000	PK	66.1	27.4	2.2	36.3	59.4	76.9	17.5	
Vert	2399.975	PK	66.1	27.4	2.2	36.3	59.4	76.9	17.5	

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

*Other frequency noises omitted in this report were not seen or had 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.2 Semi Anechoic Chamber
Report No. : 32AE0238-HO-02
Date : 11/26/2011 11/27/2011 11/28/2011
Temperature/ Humidity : 20deg. C / 33% RH 22deg. C / 35% RH 22deg. C / 44% RH
Engineer : Takayuki Shimada Hisayoshi Sato Keisuke Kawamura
(1-10GHz) (Above 10GHz) (Below 1GHz)
Mode : 11g Tx 2437MHz, Antenna 2

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	67.741	QP	45.9	7.1	7.2	28.5	31.3	40.0	8.7	
Hori	70.561	QP	46.6	6.7	7.2	28.5	31.8	40.0	8.2	
Hori	112.895	QP	44.6	11.6	7.6	28.3	35.3	43.5	8.2	
Hori	479.997	QP	39.0	18.1	9.7	28.7	38.1	46.0	7.9	
Hori	699.950	QP	34.6	20.7	10.5	28.4	37.4	46.0	8.6	
Hori	719.996	QP	40.3	21.0	10.6	28.3	43.6	46.0	2.4	
Hori	4874.000	PK	44.7	31.5	3.8	35.8	44.2	73.9	29.7	
Hori	7311.000	PK	44.4	35.6	4.6	35.9	48.7	73.9	25.2	
Hori	9748.000	PK	45.5	38.5	5.3	36.5	52.8	73.9	21.1	
Hori	24370.000	PK	43.7	40.4	-1.7	35.4	47.0	73.9	26.9	
Hori	4874.000	AV	31.7	31.5	3.8	35.8	31.2	53.9	22.7	
Hori	7311.000	AV	31.8	35.6	4.6	35.9	36.1	53.9	17.8	
Hori	9748.000	AV	33.1	38.5	5.3	36.5	40.4	53.9	13.5	
Hori	24370.000	AV	36.5	40.4	-1.7	35.4	39.8	53.9	14.1	
Vert	42.150	QP	34.9	13.6	6.9	28.6	26.8	40.0	13.2	
Vert	70.561	QP	44.1	6.7	7.2	28.5	29.3	40.0	10.7	
Vert	93.142	QP	44.6	8.2	7.4	28.4	32.1	43.5	11.4	
Vert	112.895	QP	43.3	11.6	7.6	28.3	34.0	43.5	9.5	
Vert	479.997	QP	36.4	18.1	9.7	28.7	35.5	46.0	10.5	
Vert	699.950	QP	32.3	20.7	10.5	28.4	35.1	46.0	10.9	
Vert	4874.000	PK	44.5	31.5	3.8	35.8	44.0	73.9	29.9	
Vert	7311.000	PK	44.3	35.6	4.6	35.9	48.6	73.9	25.3	
Vert	9748.000	PK	45.7	38.5	5.3	36.5	53.0	73.9	20.9	
Vert	24370.000	PK	43.9	40.4	-1.7	35.4	47.2	73.9	26.7	
Vert	4874.000	AV	31.7	31.5	3.8	35.8	31.2	53.9	22.7	
Vert	7311.000	AV	31.8	35.6	4.6	35.9	36.1	53.9	17.8	
Vert	9748.000	AV	33.1	38.5	5.3	36.5	40.4	53.9	13.5	
Vert	24370.000	AV	36.4	40.4	-1.7	35.4	39.7	53.9	14.2	

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

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

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

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

Radiated Spurious Emission

Test place	Head Office EMC Lab. No.2 Semi Anechoic Chamber		
Report No.	32AE0238-HO-02		
Date	11/26/2011	11/27/2011	11/28/2011
Temperature/ Humidity	20deg. C / 33% RH	22deg. C / 35% RH	22deg. C / 44% RH
Engineer	Takayuki Shimada	Hisayoshi Sato	Keisuke Kawamura
	(1-10GHz)	(Above 10GHz)	(Below 1GHz)
Mode	11g Tx 2462MHz, Antenna 2		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	67.741	QP	45.9	7.1	7.2	28.5	31.3	40.0	8.7	
Hori	70.561	QP	46.6	6.7	7.2	28.5	31.8	40.0	8.2	
Hori	112.895	QP	44.6	11.6	7.6	28.3	35.3	43.5	8.2	
Hori	479.997	QP	39.0	18.1	9.7	28.7	38.1	46.0	7.9	
Hori	699.950	QP	34.6	20.7	10.5	28.4	37.4	46.0	8.6	
Hori	719.996	QP	40.6	21.0	10.6	28.3	43.9	46.0	2.1	
Hori	2483.500	PK	68.3	27.6	2.3	36.3	61.9	73.9	12.0	
Hori	2483.670	PK	68.0	27.6	2.3	36.3	61.6	73.9	12.3	
Hori	4924.000	PK	43.8	31.6	3.9	35.8	43.5	73.9	30.4	
Hori	7386.000	PK	43.9	35.7	4.6	35.9	48.3	73.9	25.6	
Hori	9848.000	PK	44.7	38.6	5.4	36.5	52.2	73.9	21.7	
Hori	24620.000	PK	44.2	40.3	-1.6	35.5	47.4	73.9	26.5	
Hori	24620.000	PK	44.1	40.3	-1.6	35.5	47.3	73.9	26.6	
Hori	2483.500	AV	46.8	27.6	2.3	36.3	40.4	53.9	13.5	
Hori	2483.670	AV	46.8	27.6	2.3	36.3	40.4	53.9	13.5	
Hori	4924.000	AV	31.7	31.6	3.9	35.8	31.4	53.9	22.5	
Hori	7386.000	AV	31.6	35.7	4.6	35.9	36.0	53.9	17.9	
Hori	9848.000	AV	32.5	38.6	5.4	36.5	40.0	53.9	13.9	
Hori	24620.000	AV	37.3	40.3	-1.6	35.5	40.5	53.9	13.4	
Vert	42.150	QP	34.9	13.6	6.9	28.6	26.8	40.0	13.2	
Vert	70.561	QP	44.1	6.7	7.2	28.5	29.3	40.0	10.7	
Vert	93.142	QP	44.6	8.2	7.4	28.4	32.1	43.5	11.4	
Vert	112.895	QP	43.3	11.6	7.6	28.3	34.0	43.5	9.5	
Vert	479.997	QP	36.4	18.1	9.7	28.7	35.5	46.0	10.5	
Vert	699.950	QP	32.3	20.7	10.5	28.4	35.1	46.0	10.9	
Vert	2483.500	PK	69.0	27.6	2.3	36.3	62.6	73.9	11.3	
Vert	2483.670	PK	68.6	27.6	2.3	36.3	62.2	73.9	11.7	
Vert	4924.000	PK	43.8	31.6	3.9	35.8	43.5	73.9	30.4	
Vert	7386.000	PK	44.0	35.7	4.6	35.9	48.4	73.9	25.5	
Vert	9848.000	PK	44.6	38.6	5.4	36.5	52.1	73.9	21.8	
Vert	2483.500	AV	47.8	27.6	2.3	36.3	41.4	53.9	12.5	
Vert	2483.670	AV	47.7	27.6	2.3	36.3	41.3	53.9	12.6	
Vert	4924.000	AV	31.7	31.6	3.9	35.8	31.4	53.9	22.5	
Vert	7386.000	AV	31.6	35.7	4.6	35.9	36.0	53.9	17.9	
Vert	9848.000	AV	32.5	38.6	5.4	36.5	40.0	53.9	13.9	
Vert	24620.000	AV	37.6	40.3	-1.6	35.5	40.8	53.9	13.1	

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

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

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

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

Radiated Spurious Emission

Test place : Head Office EMC Lab. No.2 Semi Anechoic Chamber
Report No. : 32AE0238-HO-02
Date : 11/26/2011 11/28/2011
Temperature/ Humidity : 20deg. C / 33% RH 22deg. C / 44% RH
Engineer : Takayuki Shimada Keisuke Kawamura
(1-10GHz) (Below 1GHz)
Mode : 11b/g Rx 2437MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	168.020	QP	37.1	15.7	8.0	28.1	32.7	43.5	10.8	
Hori	208.885	QP	42.8	16.5	8.2	27.9	39.6	43.5	3.9	
Hori	336.003	QP	45.4	15.5	9.0	27.9	42.0	46.0	4.0	
Hori	528.051	QP	38.5	18.7	9.8	28.8	38.2	46.0	7.8	
Hori	564.473	QP	32.6	19.3	10.0	28.8	33.1	46.0	12.9	
Hori	745.107	QP	31.6	21.4	10.7	28.2	35.5	46.0	10.5	
Hori	790.269	QP	29.0	22.0	10.9	28.1	33.8	46.0	12.2	
Hori	2437.000	PK	45.5	27.5	2.2	36.3	38.9	73.9	35.0	
Hori	2560.000	PK	48.6	27.7	2.3	36.3	42.3	73.9	31.6	
Hori	4874.000	PK	44.5	31.5	3.2	35.8	43.4	73.9	30.5	
Hori	7311.000	PK	44.4	35.6	4.1	35.9	48.2	73.9	25.7	
Hori	2437.000	AV	32.9	27.5	2.2	36.3	26.3	53.9	27.6	
Hori	2560.000	AV	41.0	27.7	2.3	36.3	34.7	53.9	19.2	
Hori	4874.000	AV	31.7	31.5	3.2	35.8	30.6	53.9	23.3	
Hori	7311.000	AV	31.8	35.6	4.1	35.9	35.6	53.9	18.3	
Vert	168.012	QP	30.0	15.7	8.0	28.1	25.6	43.5	17.9	
Vert	208.895	QP	32.0	16.5	8.2	27.9	28.8	43.5	14.7	
Vert	335.986	QP	38.5	15.5	9.0	27.9	35.1	46.0	10.9	
Vert	527.994	QP	36.0	18.7	9.8	28.8	35.7	46.0	10.3	
Vert	564.474	QP	35.1	19.3	10.0	28.8	35.6	46.0	10.4	
Vert	745.107	QP	29.0	21.4	10.7	28.2	32.9	46.0	13.1	
Vert	790.269	QP	27.6	22.0	10.9	28.1	32.4	46.0	13.6	
Vert	2437.000	PK	45.5	27.5	2.2	36.3	38.9	73.9	35.0	
Vert	2560.000	PK	46.9	27.7	2.3	36.3	40.6	73.9	33.3	
Vert	4874.000	PK	44.3	31.5	3.2	35.8	43.2	73.9	30.7	
Vert	7311.000	PK	44.3	35.6	4.1	35.9	48.1	73.9	25.8	
Vert	2437.000	AV	32.9	27.5	2.2	36.3	26.3	53.9	27.6	
Vert	2560.000	AV	36.2	27.7	2.3	36.3	29.9	53.9	24.0	
Vert	4874.000	AV	31.7	31.5	3.2	35.8	30.6	53.9	23.3	
Vert	7311.000	AV	31.8	35.6	4.1	35.9	35.6	53.9	18.3	

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

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

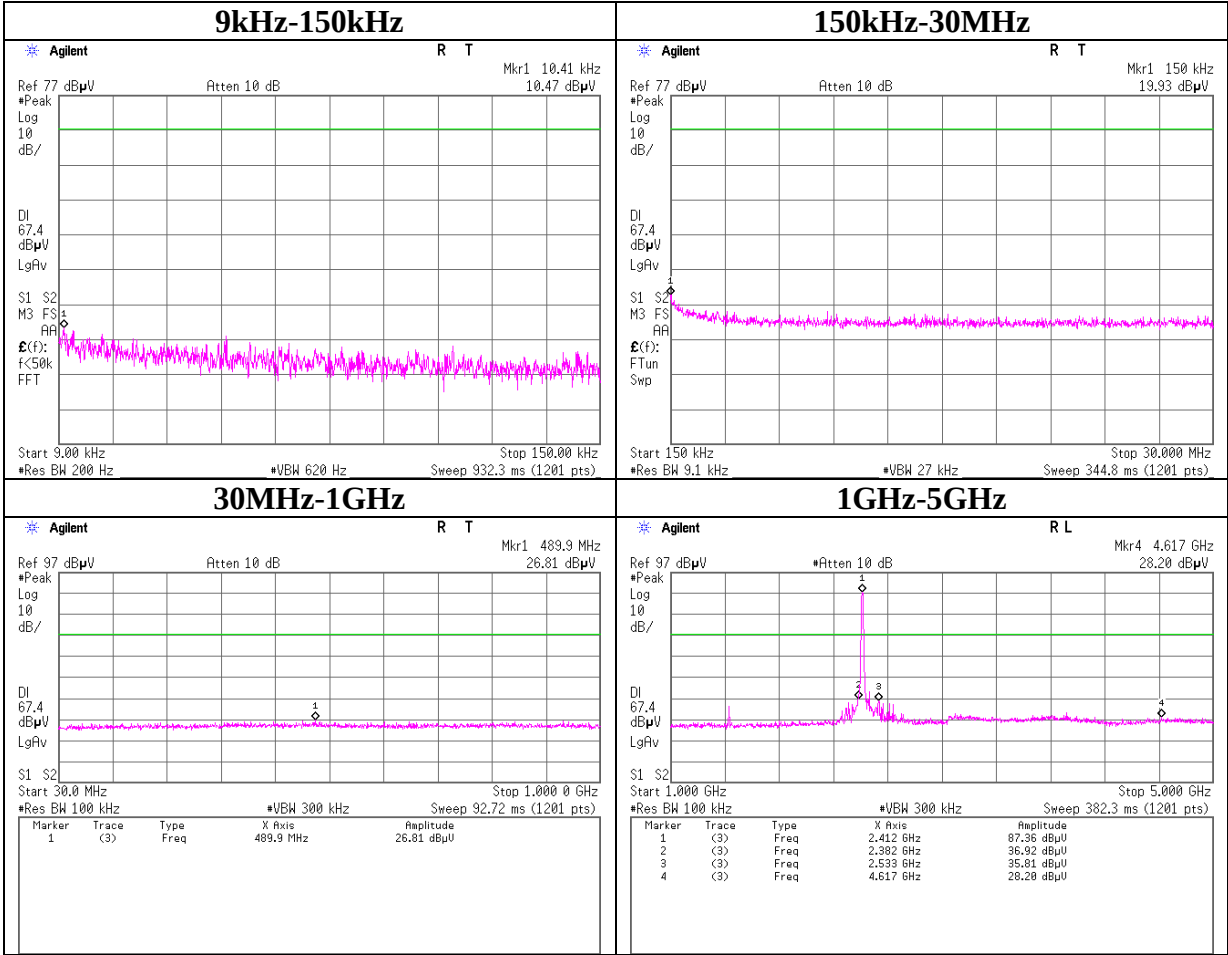
*The 10th harmonic was not seen so the result was its base noise level.

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

Conducted Spurious Emission

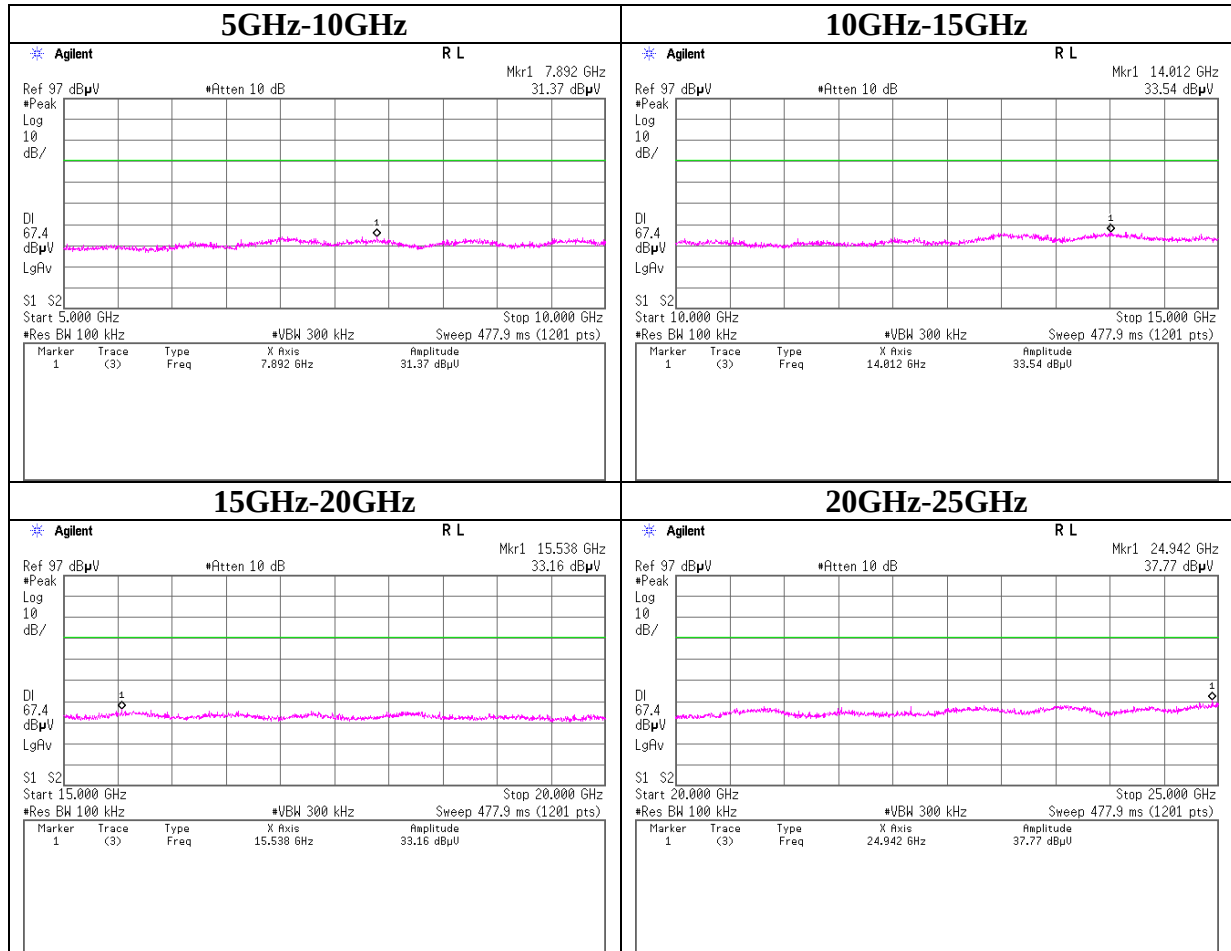
Antenna 1

11b Tx 2412MHz



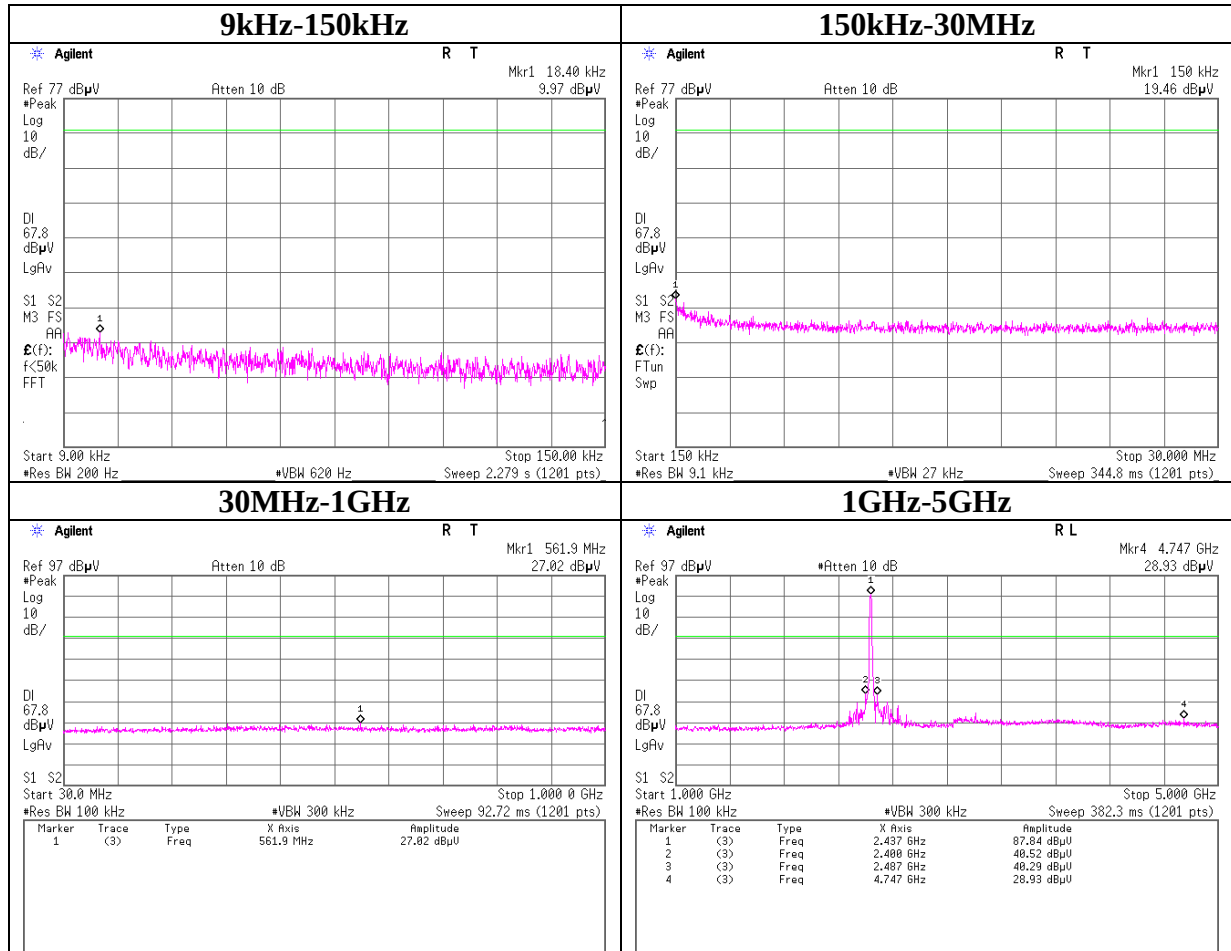
Conducted Spurious Emission
Antenna 1

11b Tx 2412MHz



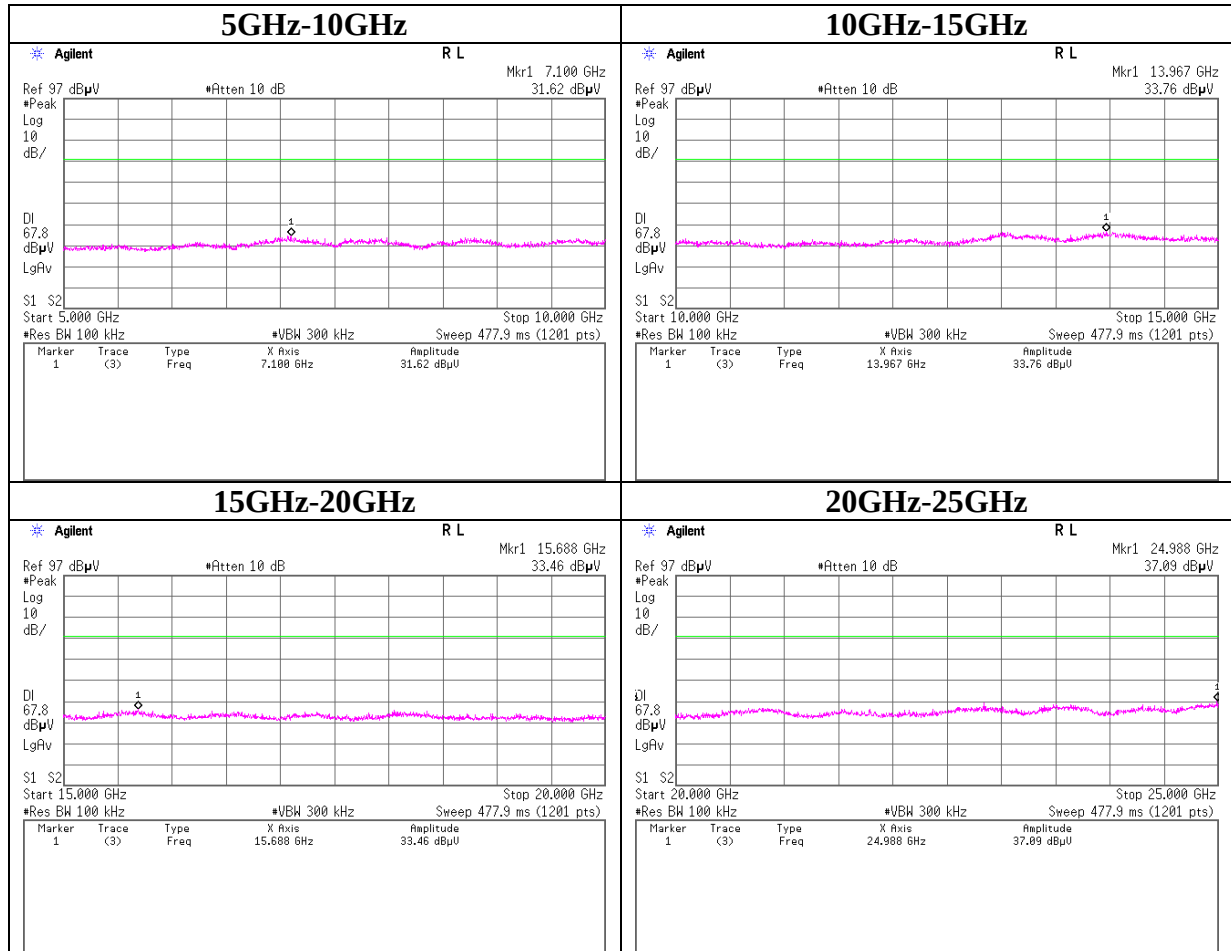
Conducted Spurious Emission
Antenna 1

11b Tx 2437MHz



Conducted Spurious Emission
Antenna 1

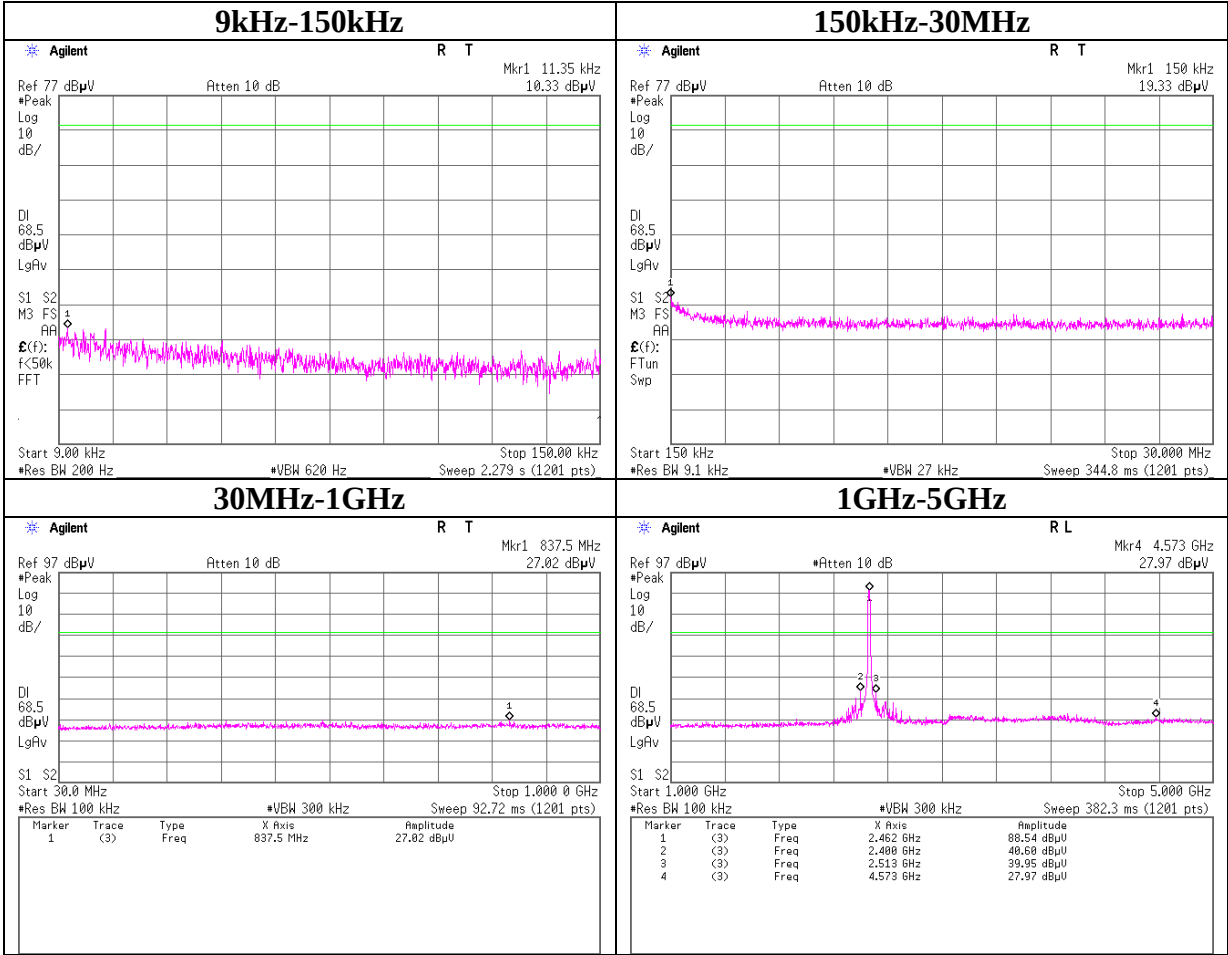
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Conducted Spurious Emission

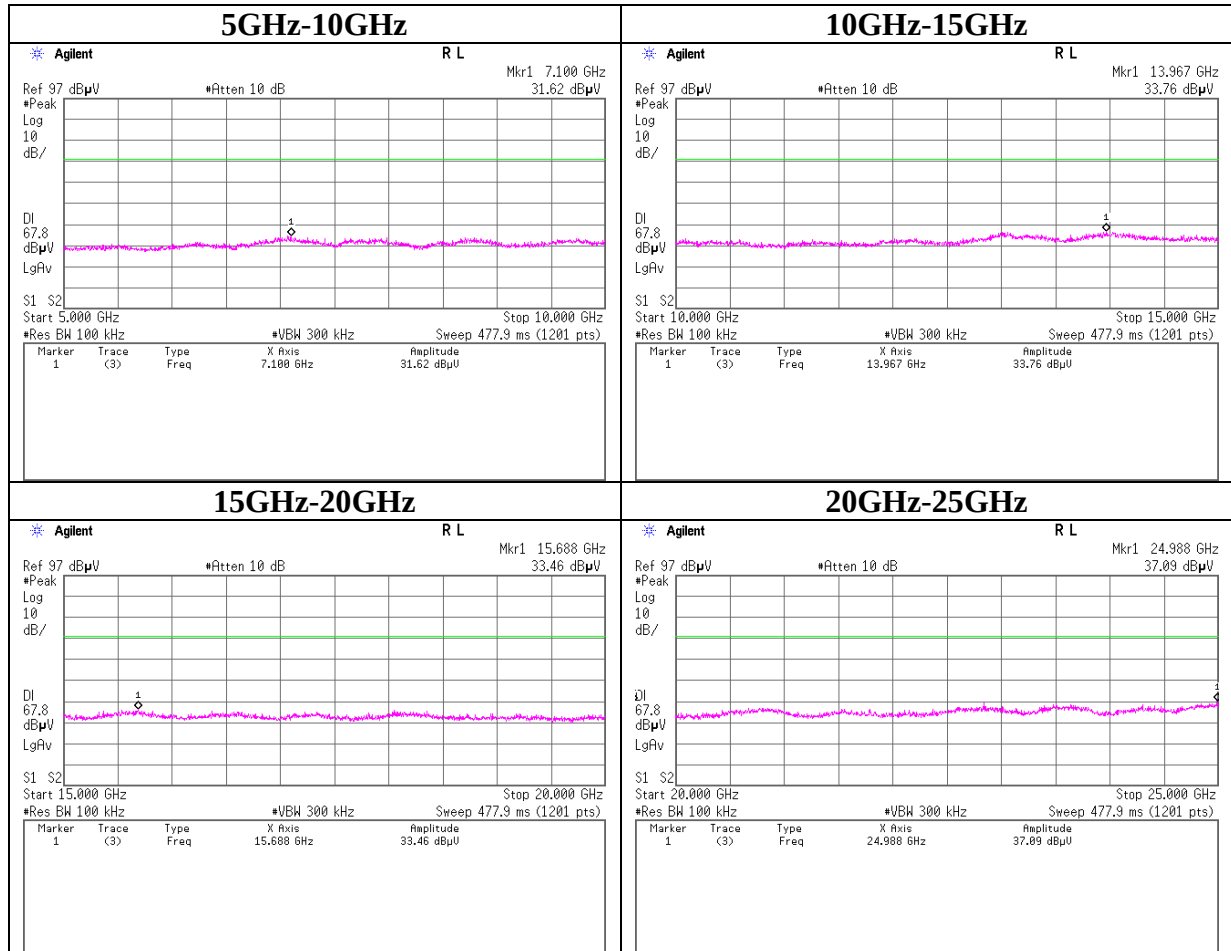
Antenna 1

11b Tx 2462MHz



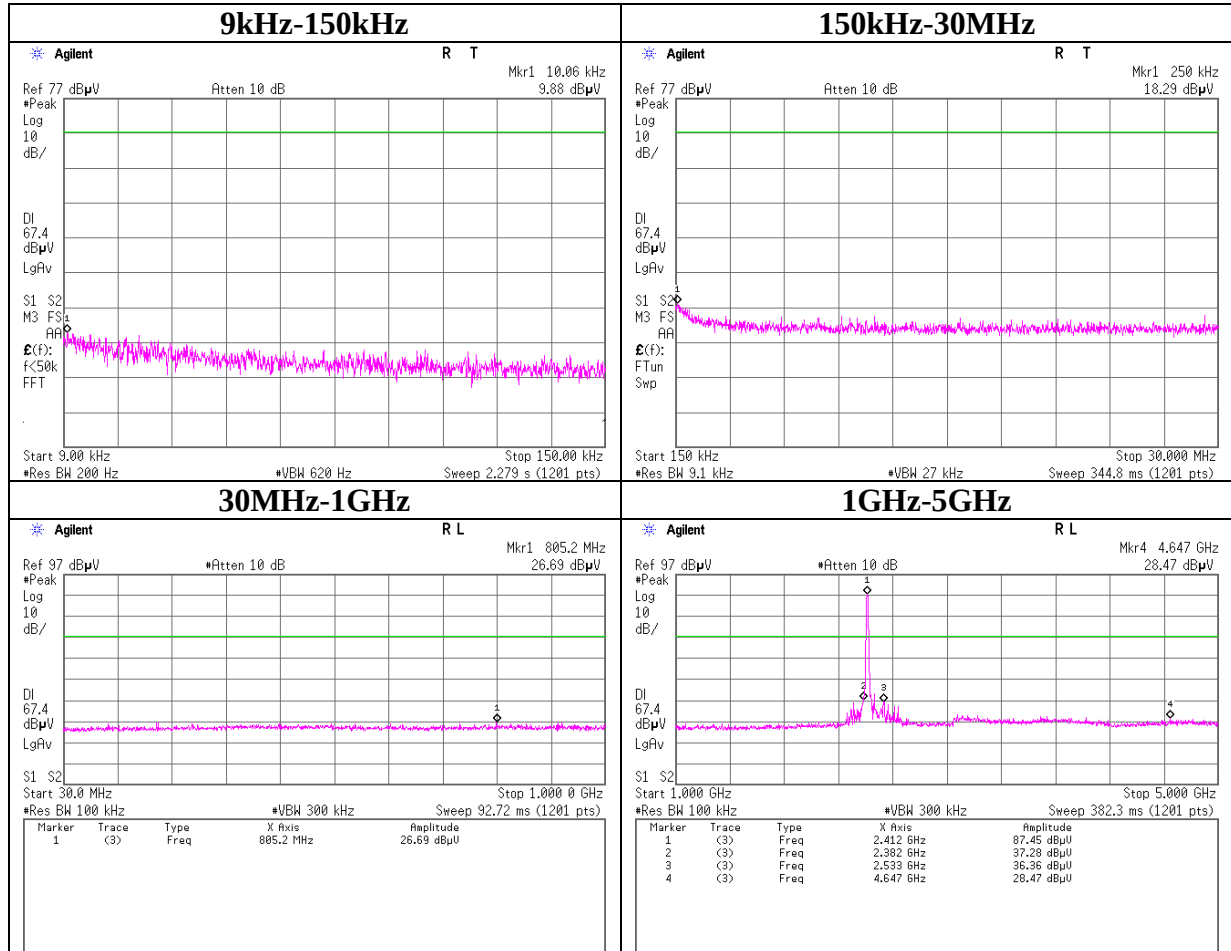
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Antenna 1

11b Tx 2462MHz



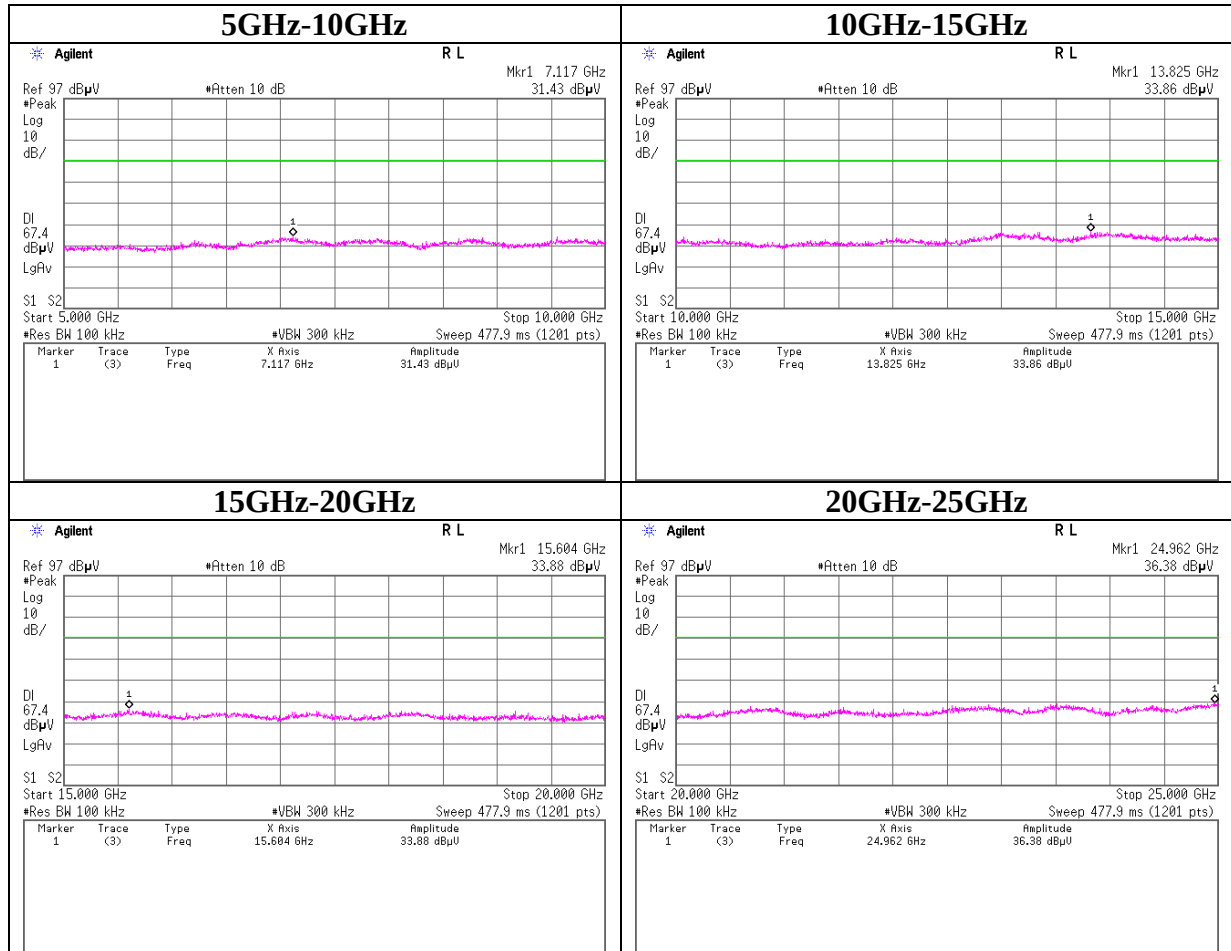
Conducted Spurious Emission
Antenna 2

11b Tx 2412MHz



Conducted Spurious Emission
Antenna 2

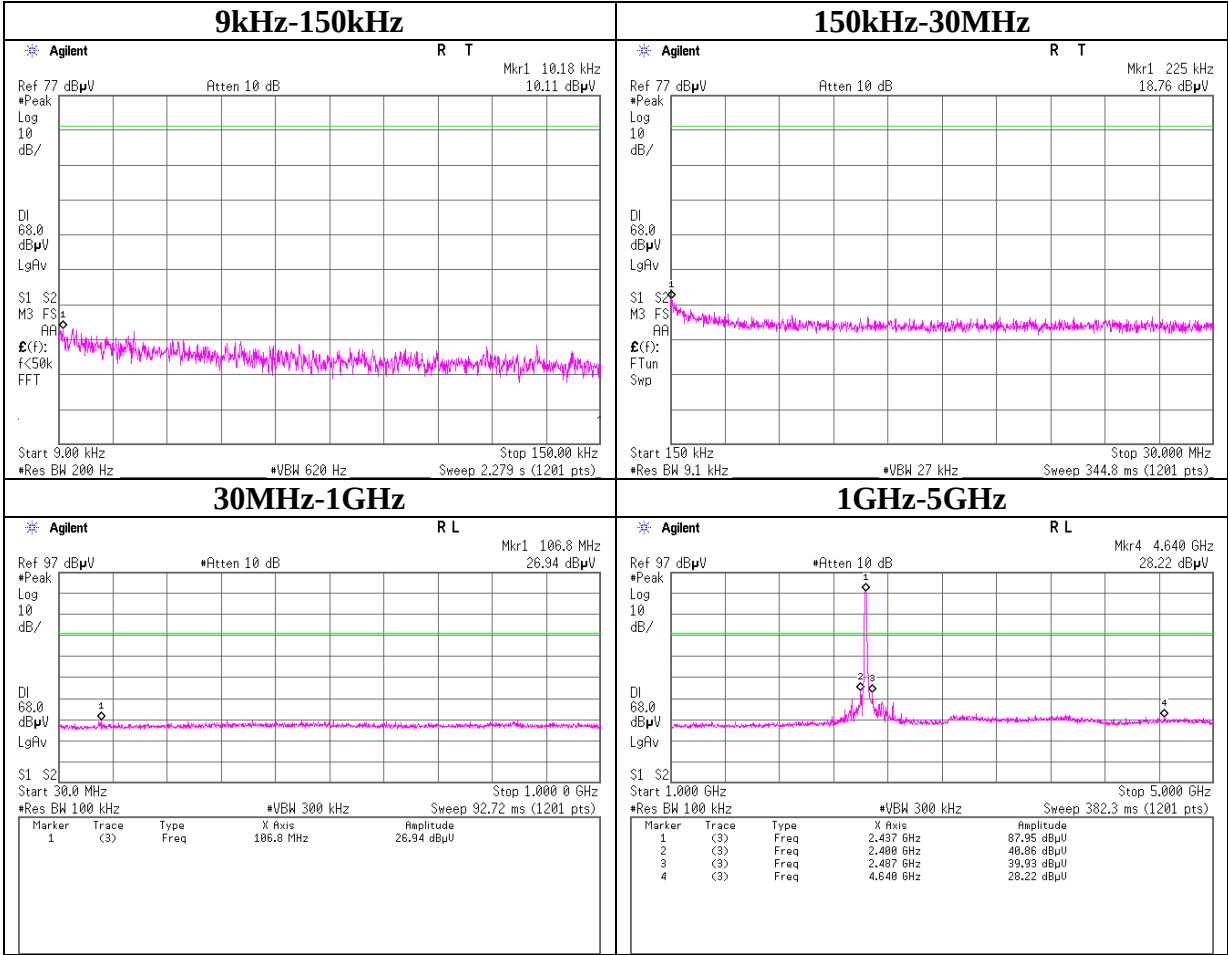
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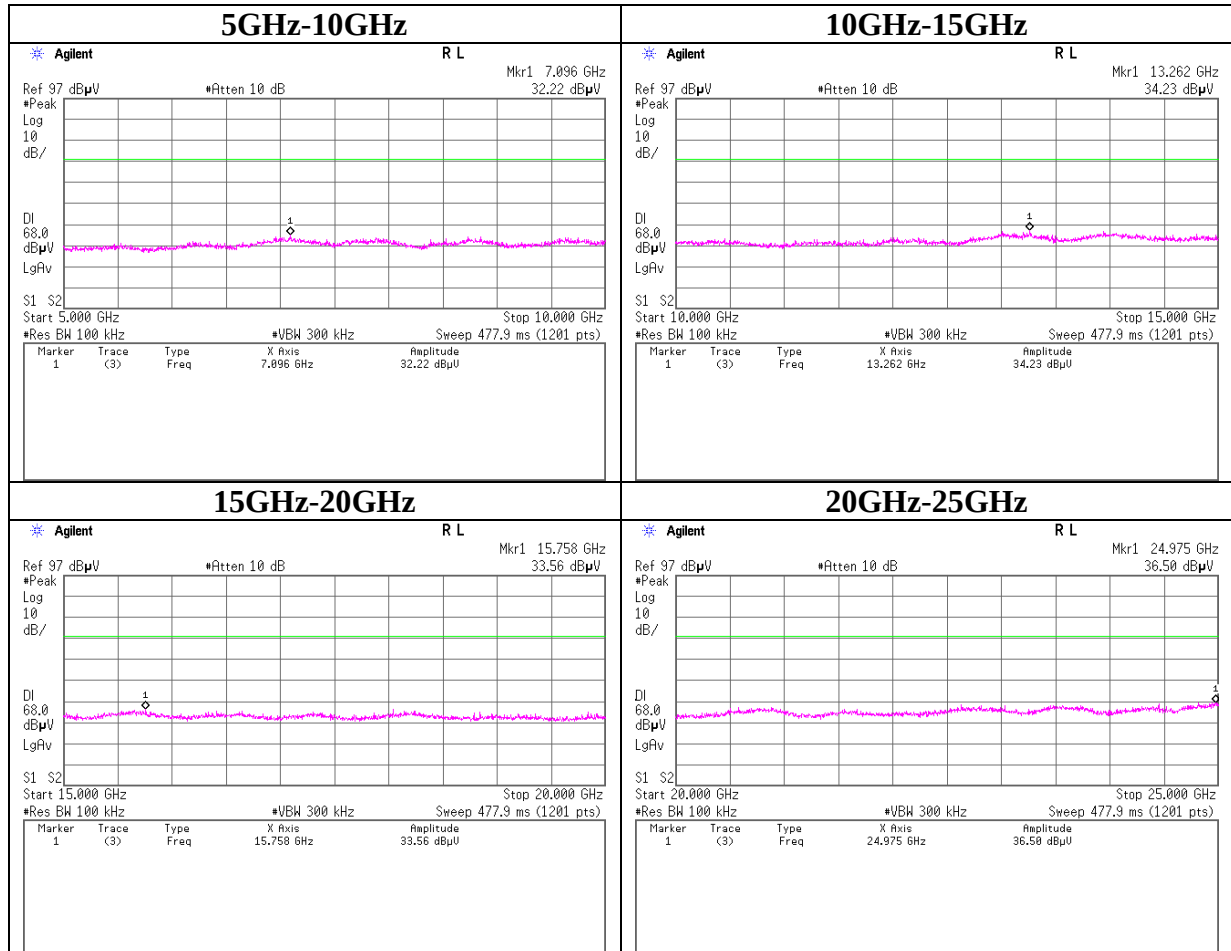
Antenna 2

11b Tx 2437MHz



Conducted Spurious Emission
Antenna 2

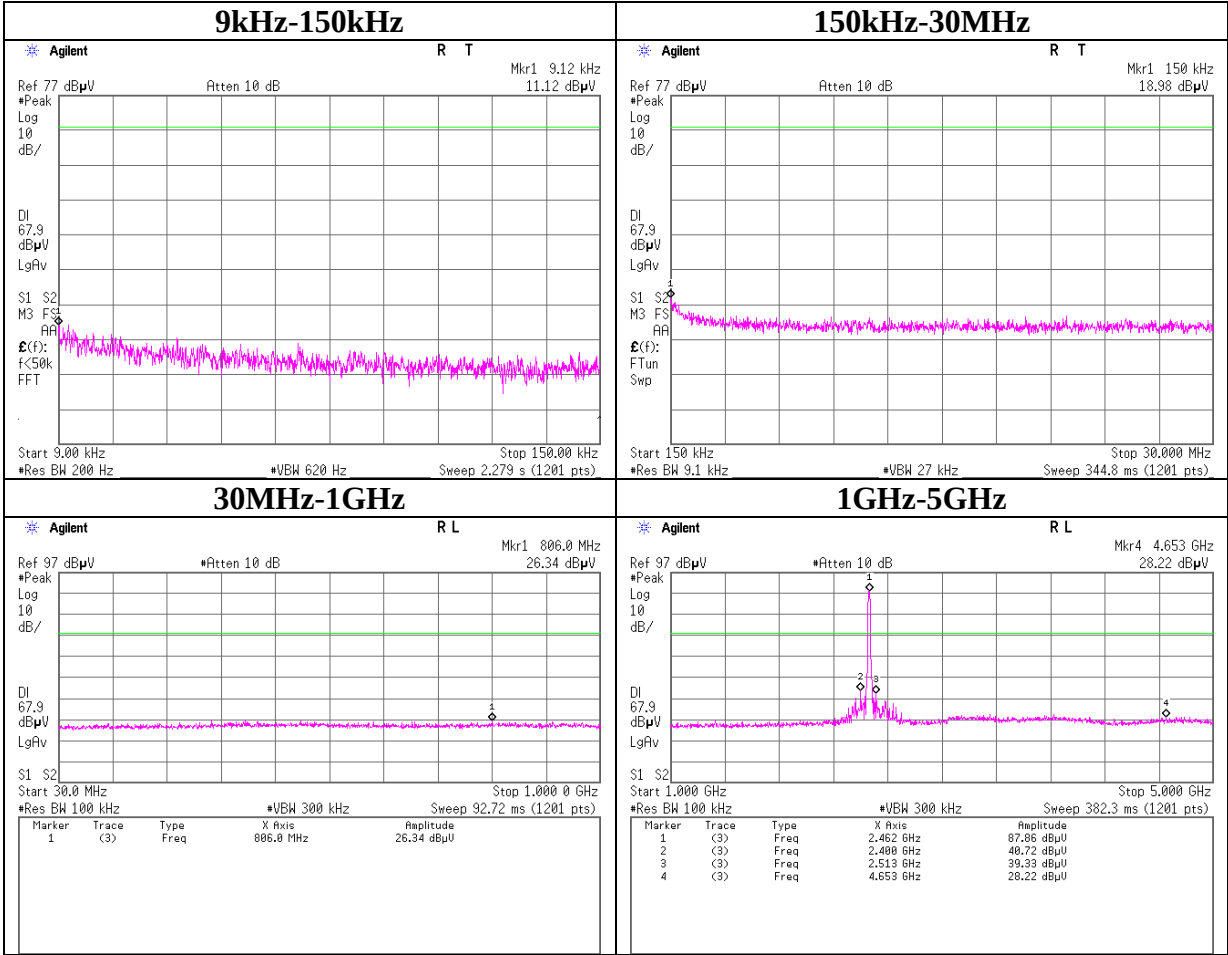
11b Tx 2437MHz



Conducted Spurious Emission

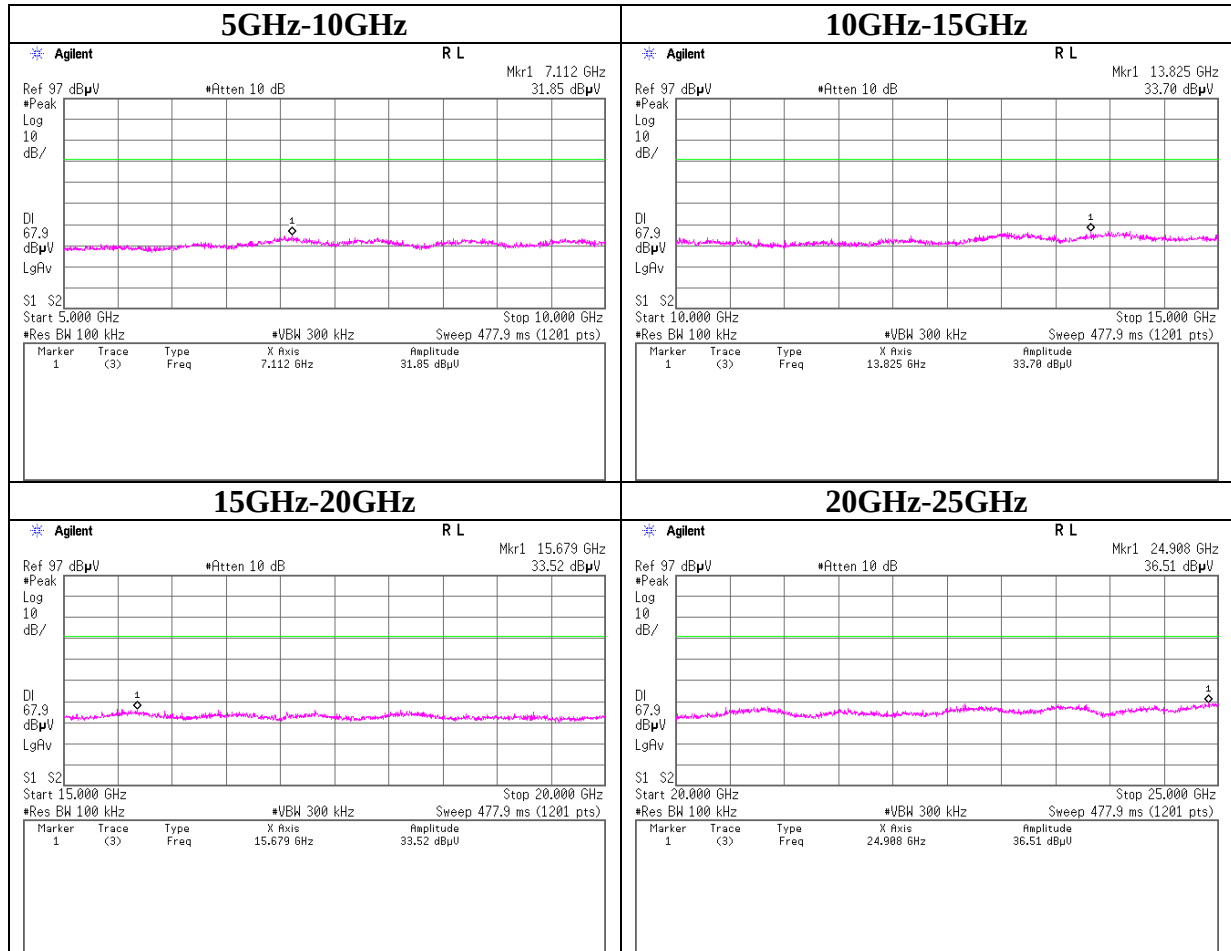
Antenna 2

11b Tx 2462MHz



Conducted Spurious Emission
Antenna 2

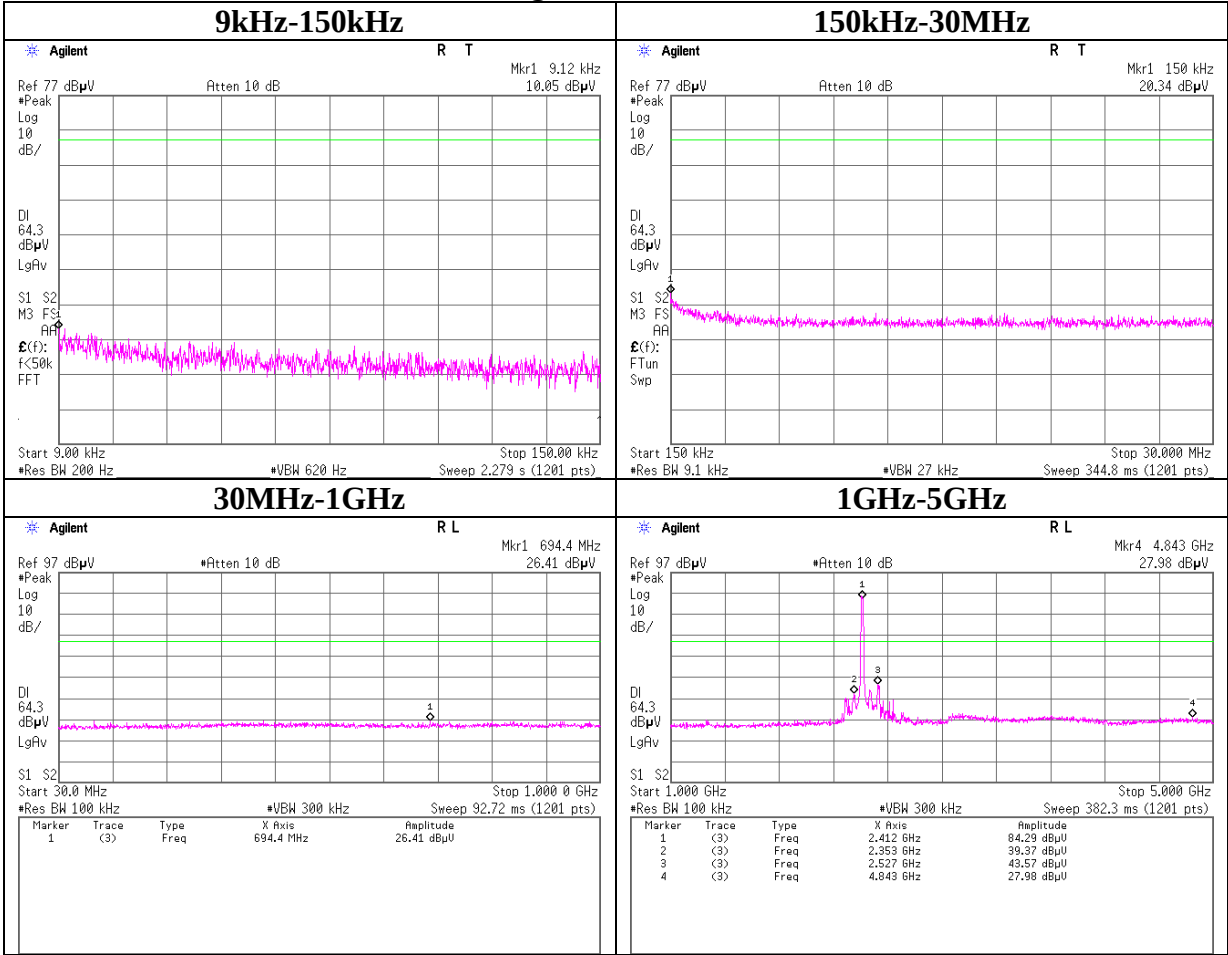
11b Tx 2462MHz



Conducted Spurious Emission

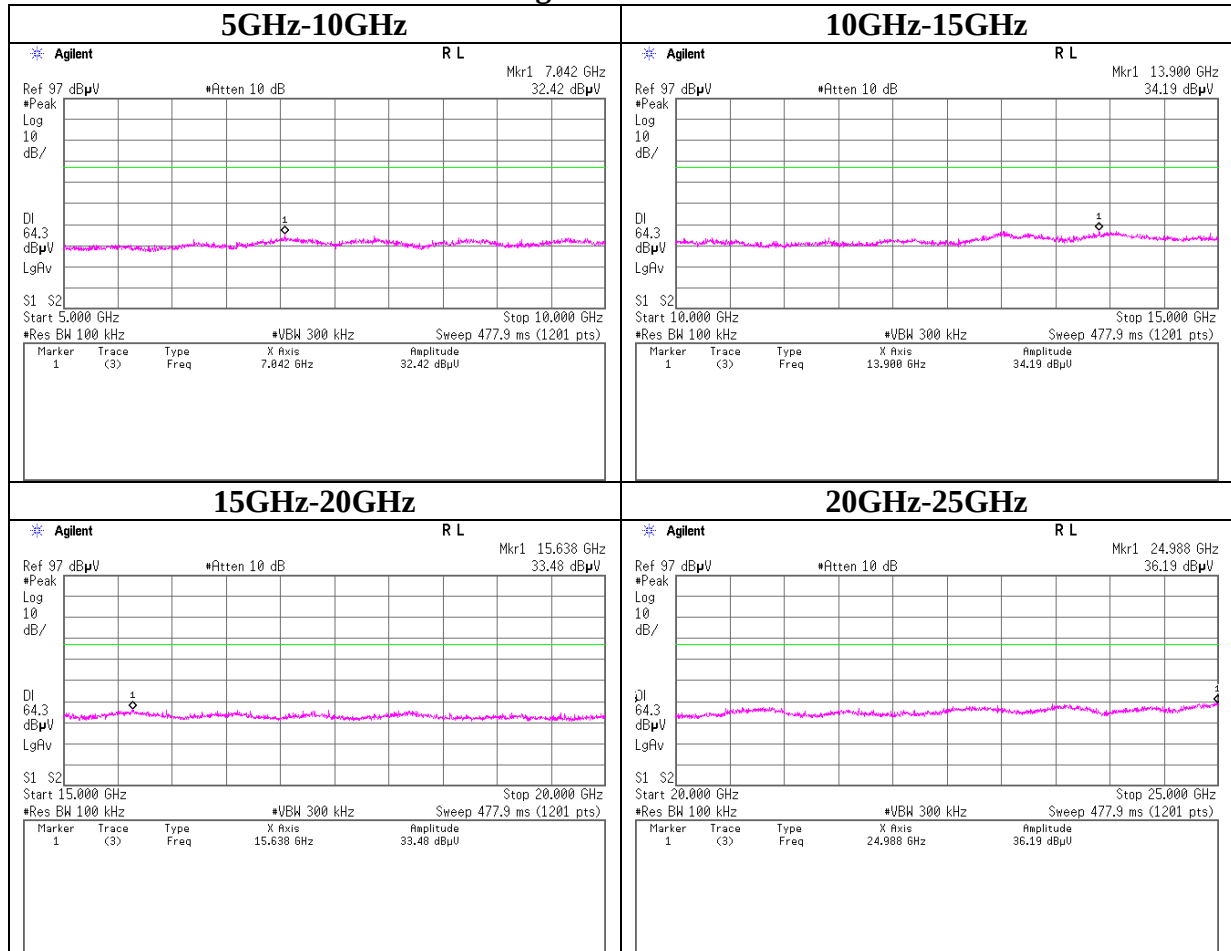
Antenna 1

11g Tx 2412MHz



Conducted Spurious Emission
Antenna 1

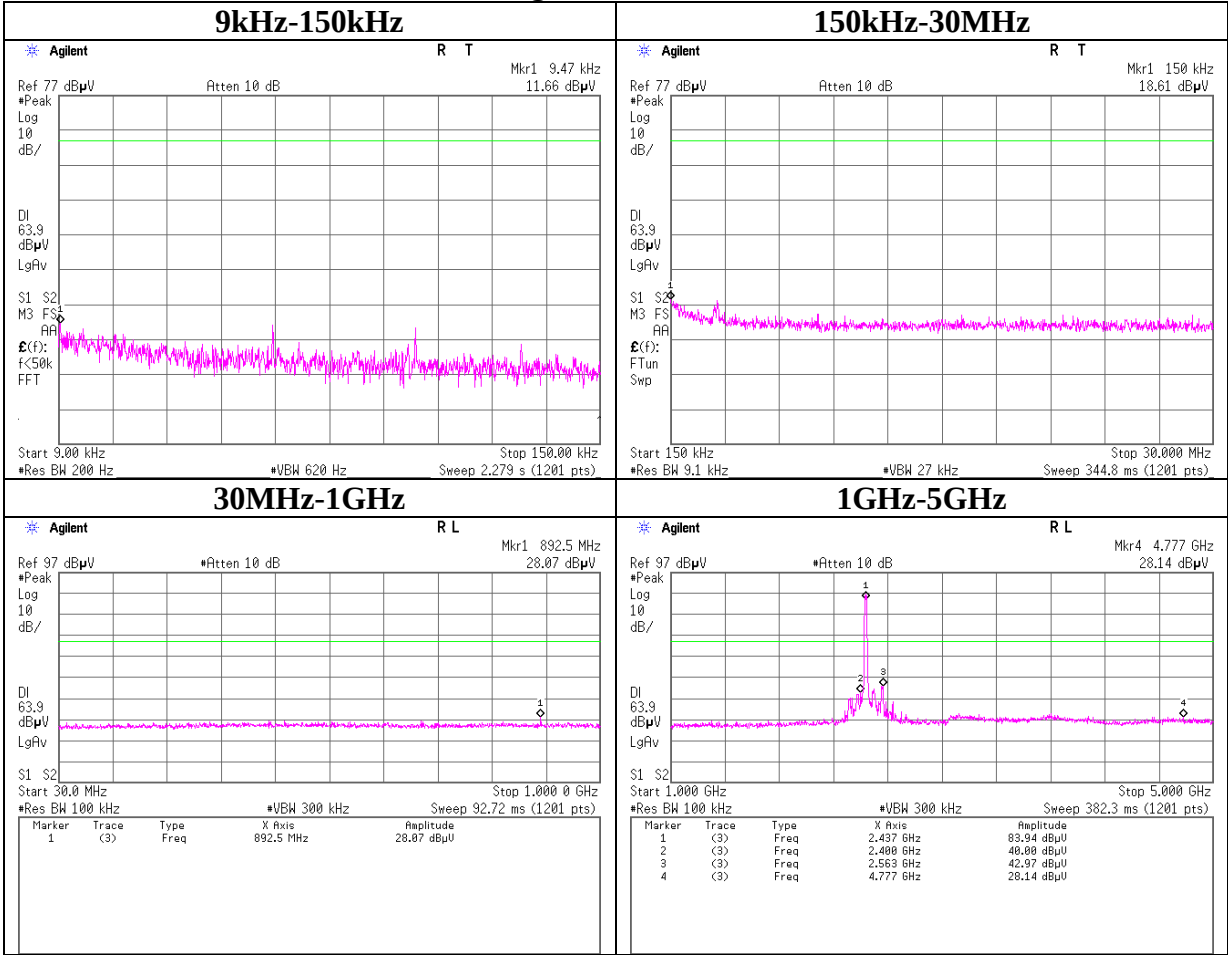
11g Tx 2412MHz



Conducted Spurious Emission

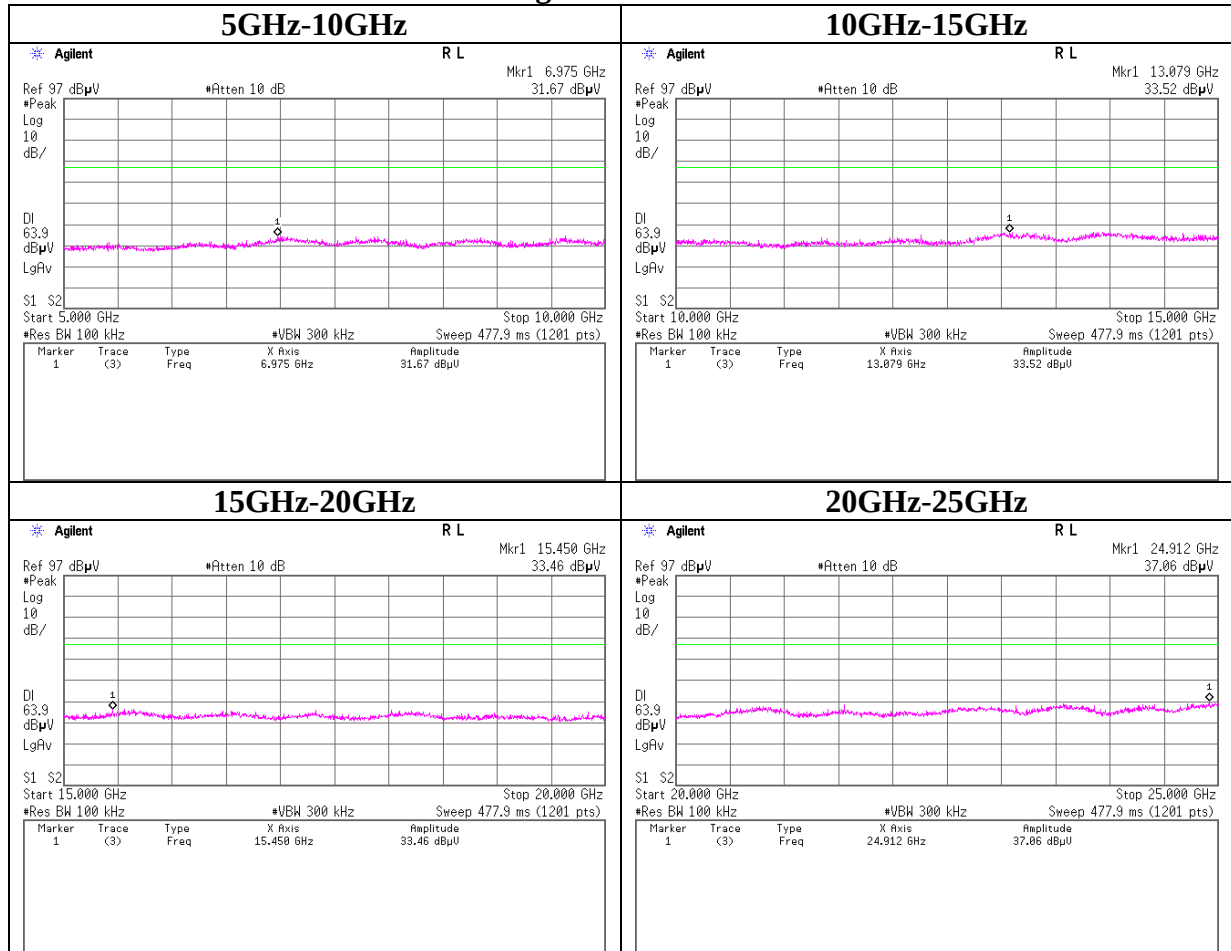
Antenna 1

11g Tx 2437MHz



Conducted Spurious Emission
Antenna 1

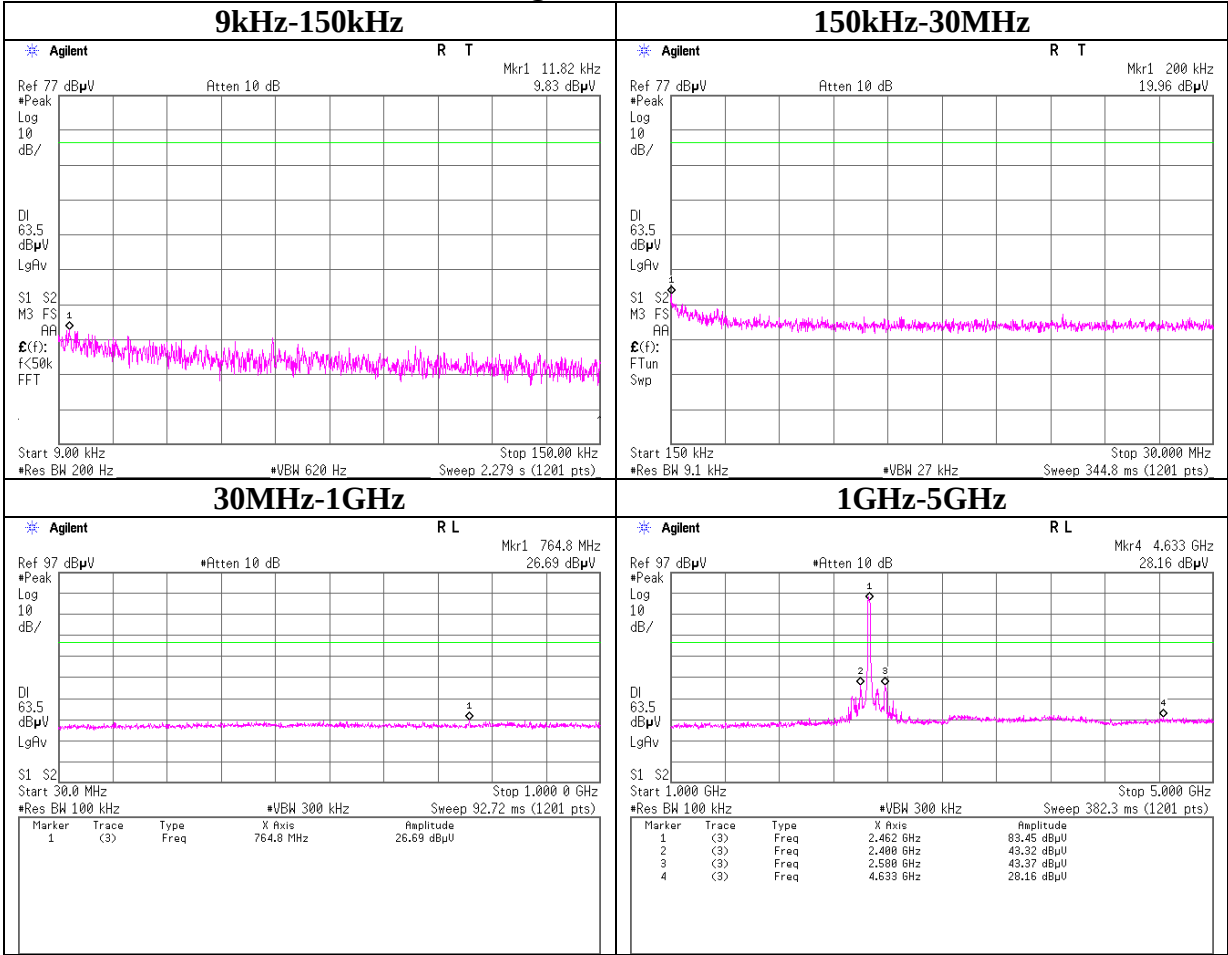
11g Tx 2437MHz



Conducted Spurious Emission

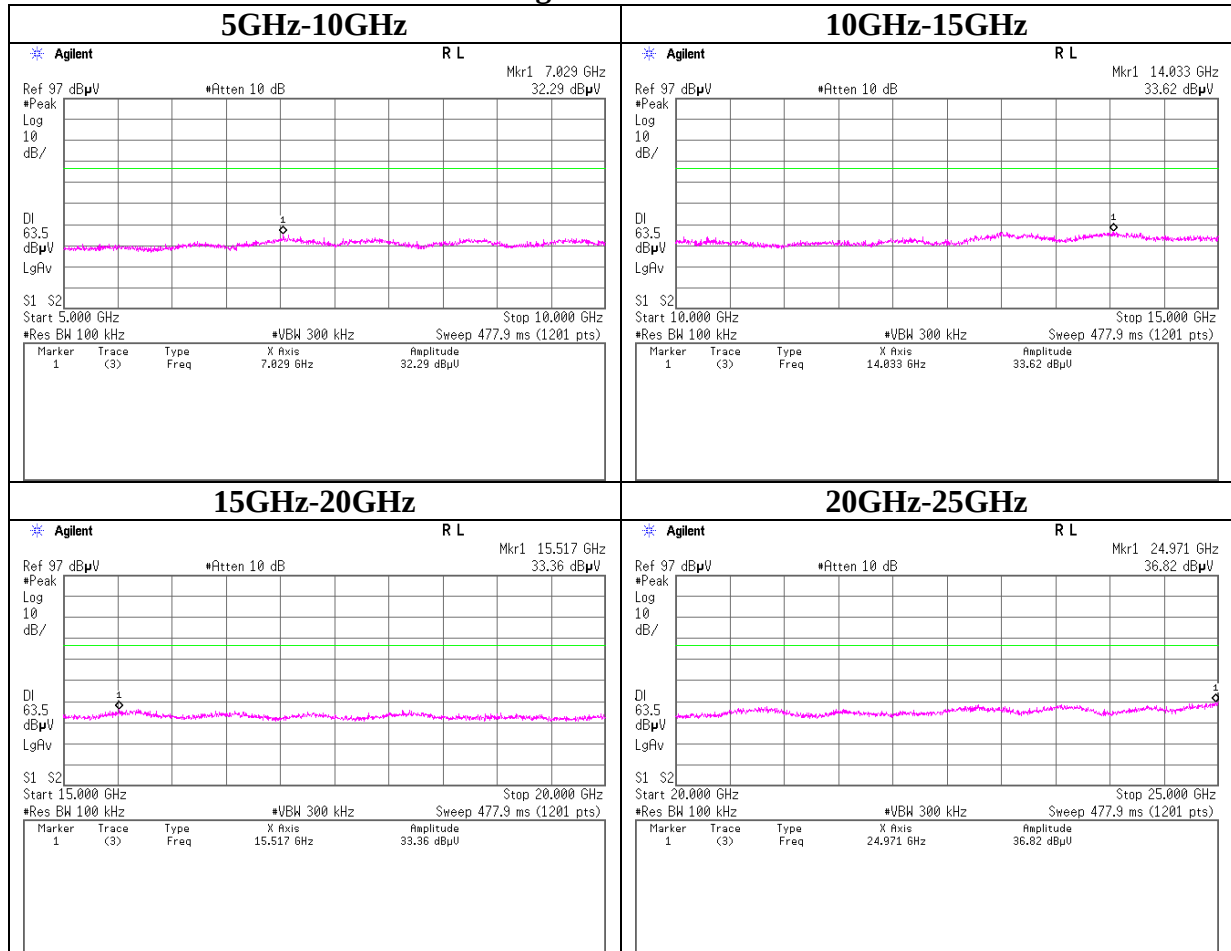
Antenna 1

11g Tx 2462MHz



Conducted Spurious Emission
Antenna 1

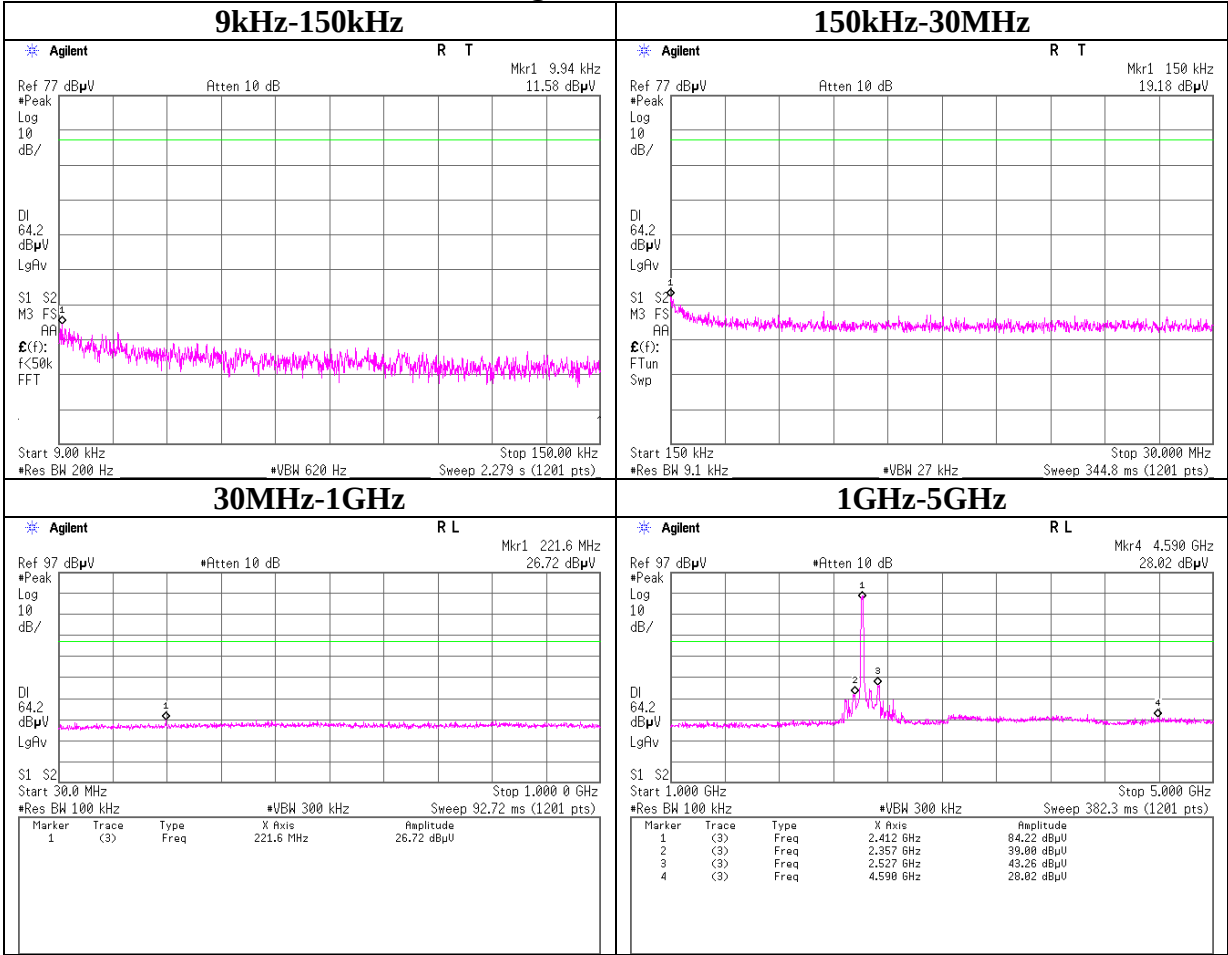
11g Tx 2462MHz



Conducted Spurious Emission

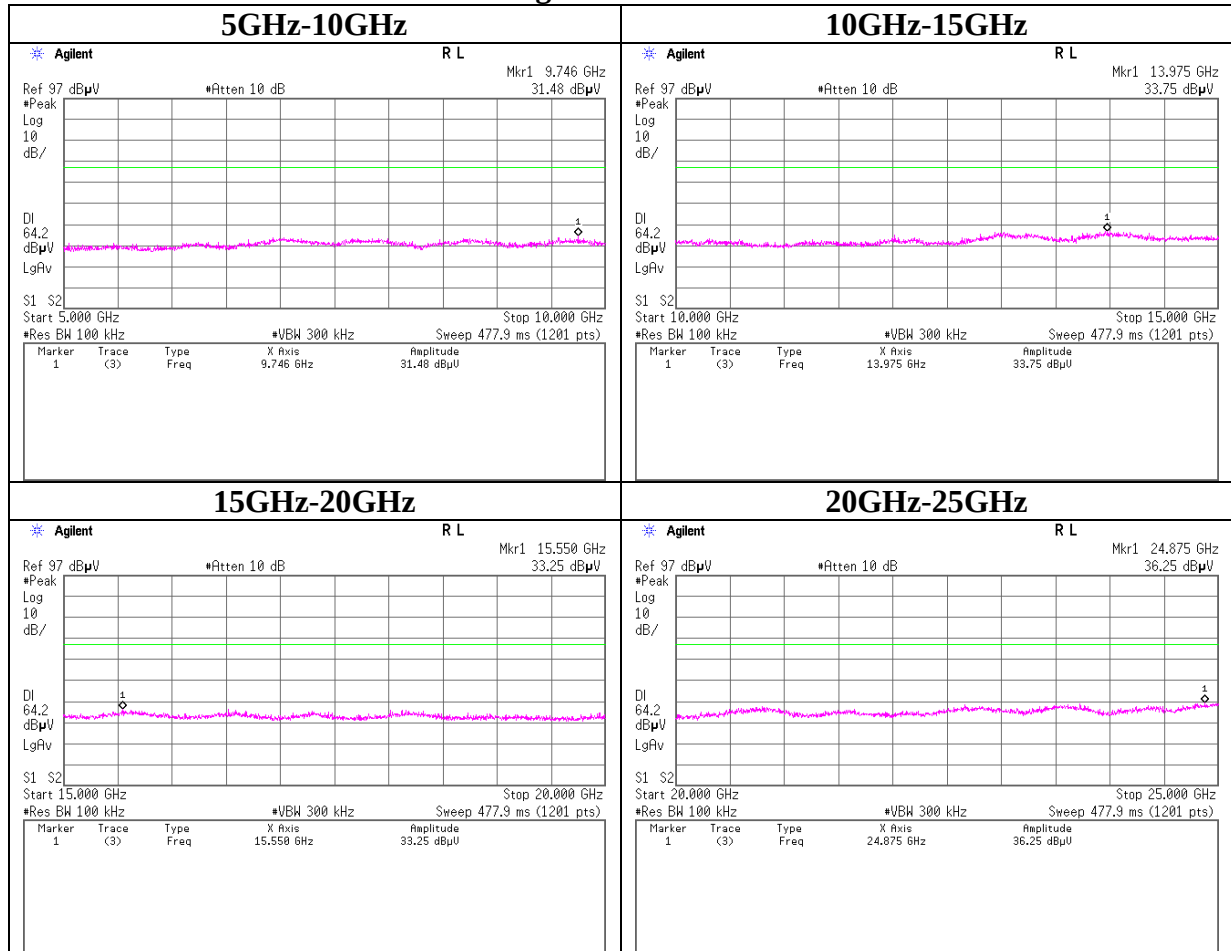
Antenna 2

11g Tx 2412MHz



Conducted Spurious Emission
Antenna 2

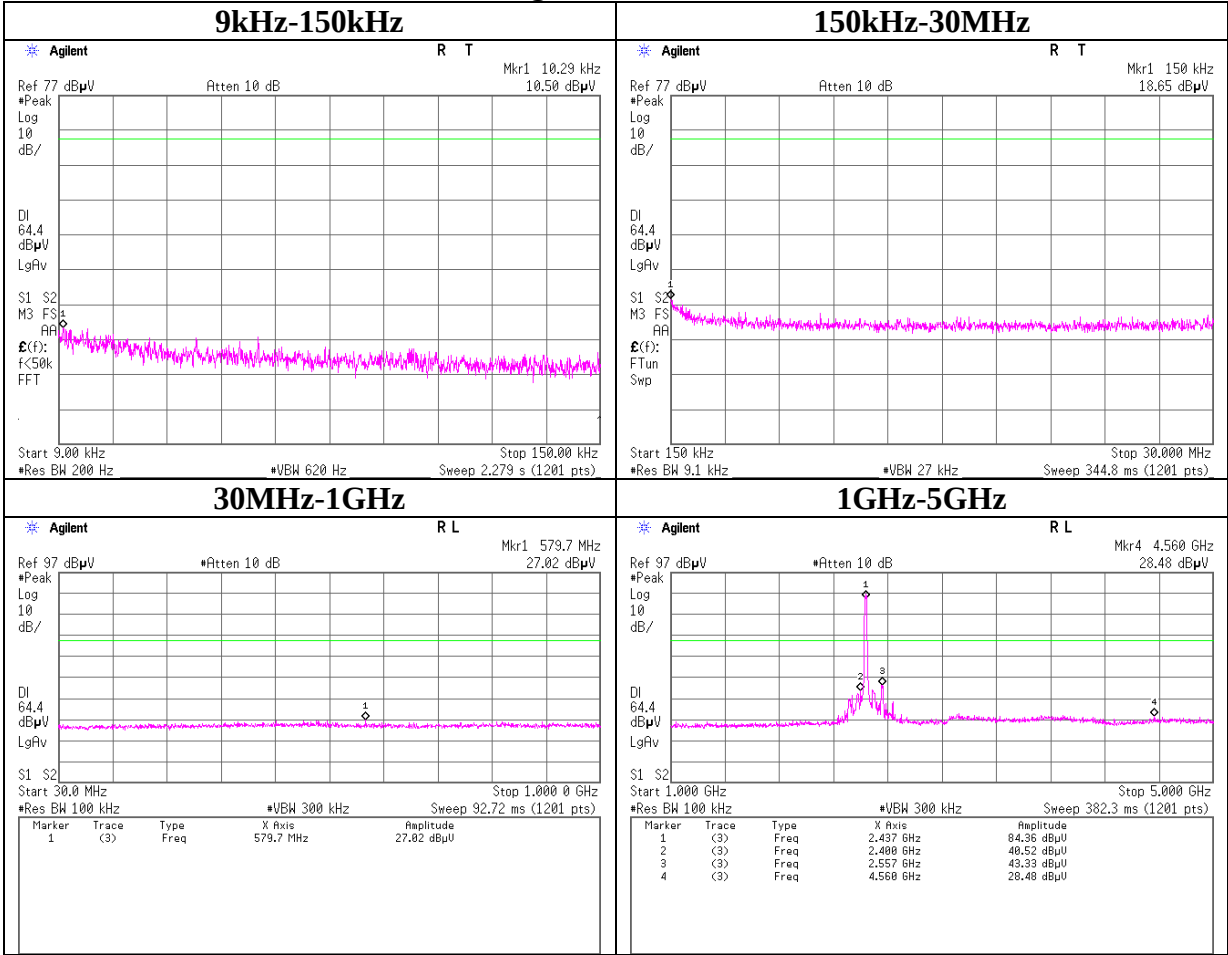
11g Tx 2412MHz



Conducted Spurious Emission

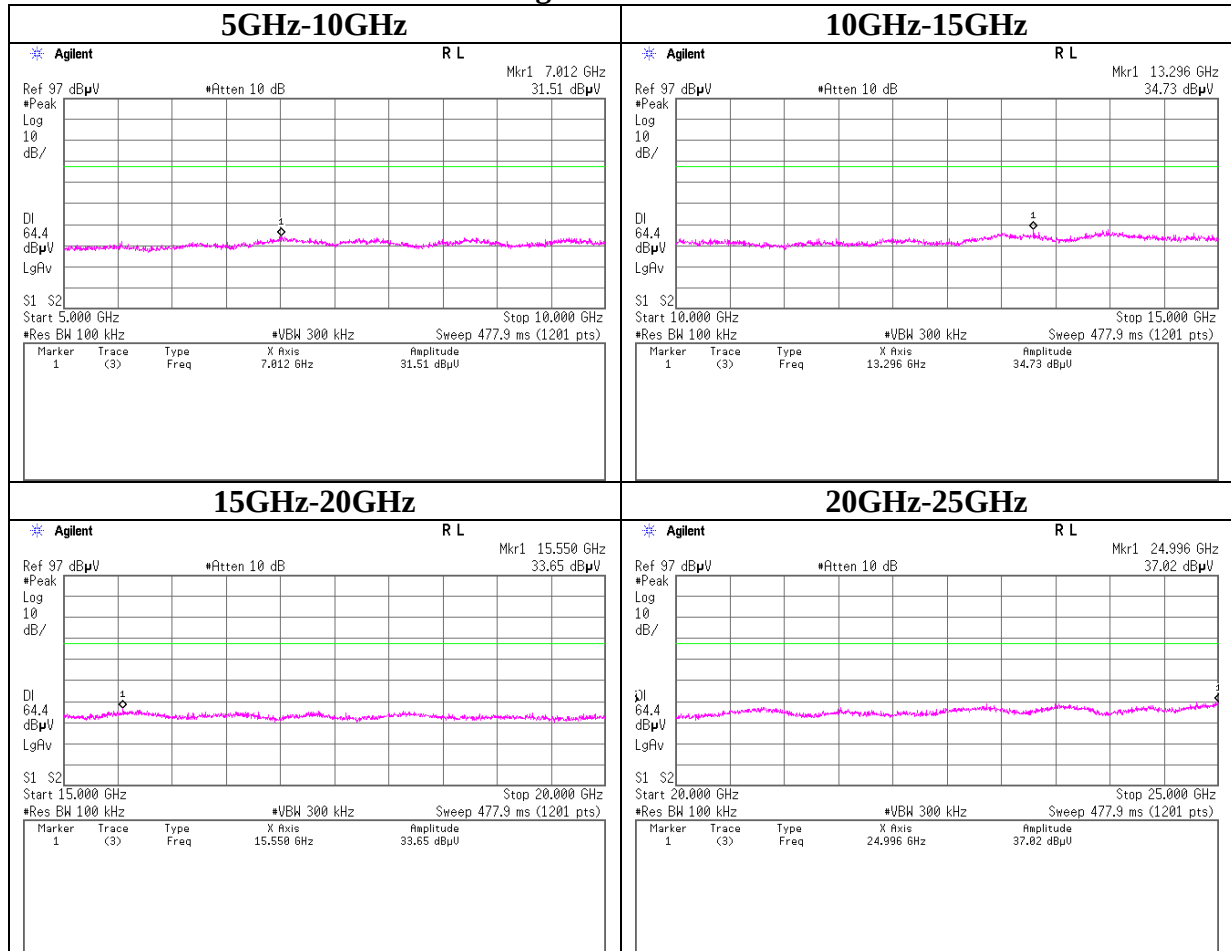
Antenna 2

11g Tx 2437MHz



Conducted Spurious Emission
Antenna 2

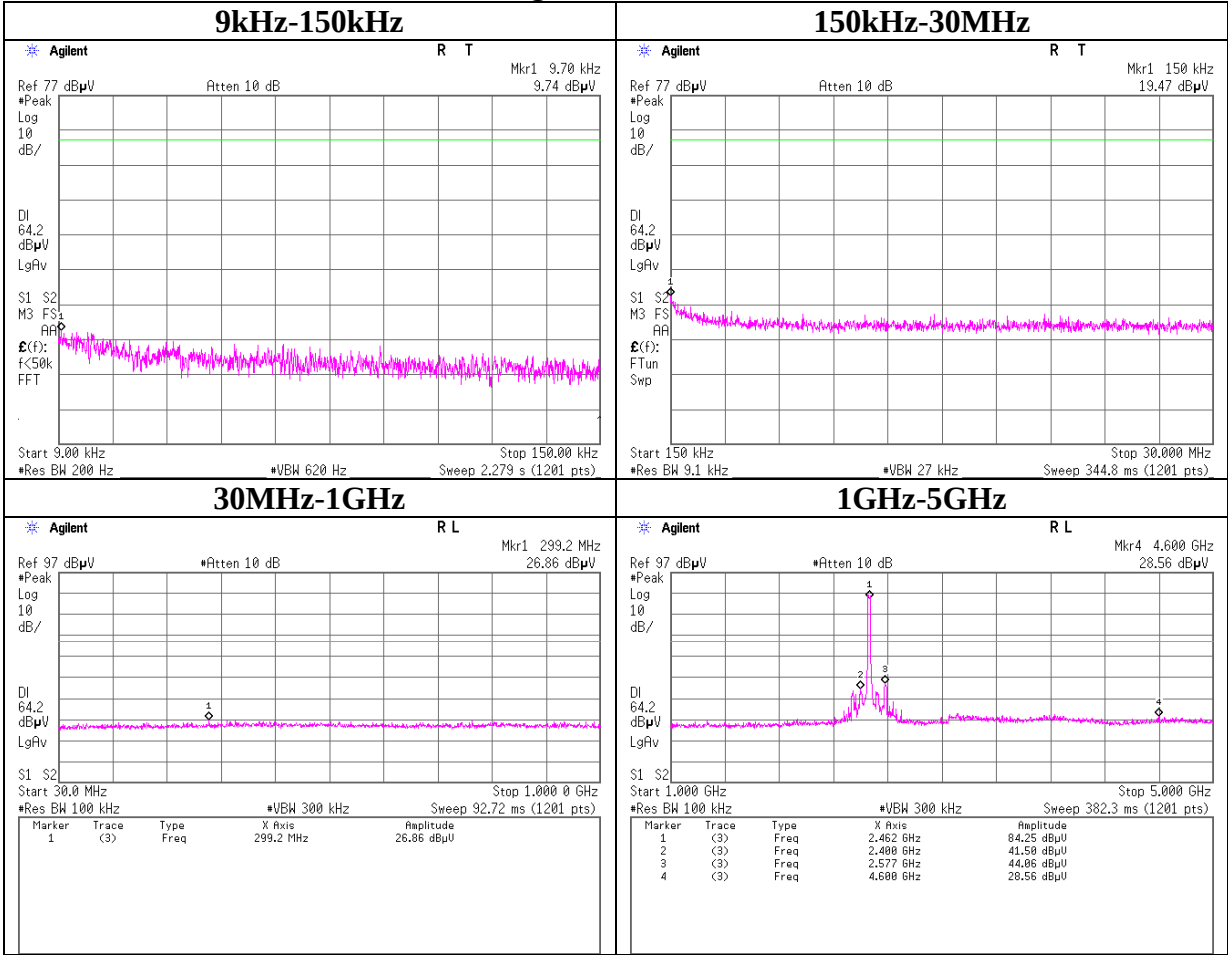
11g Tx 2437MHz



Conducted Spurious Emission

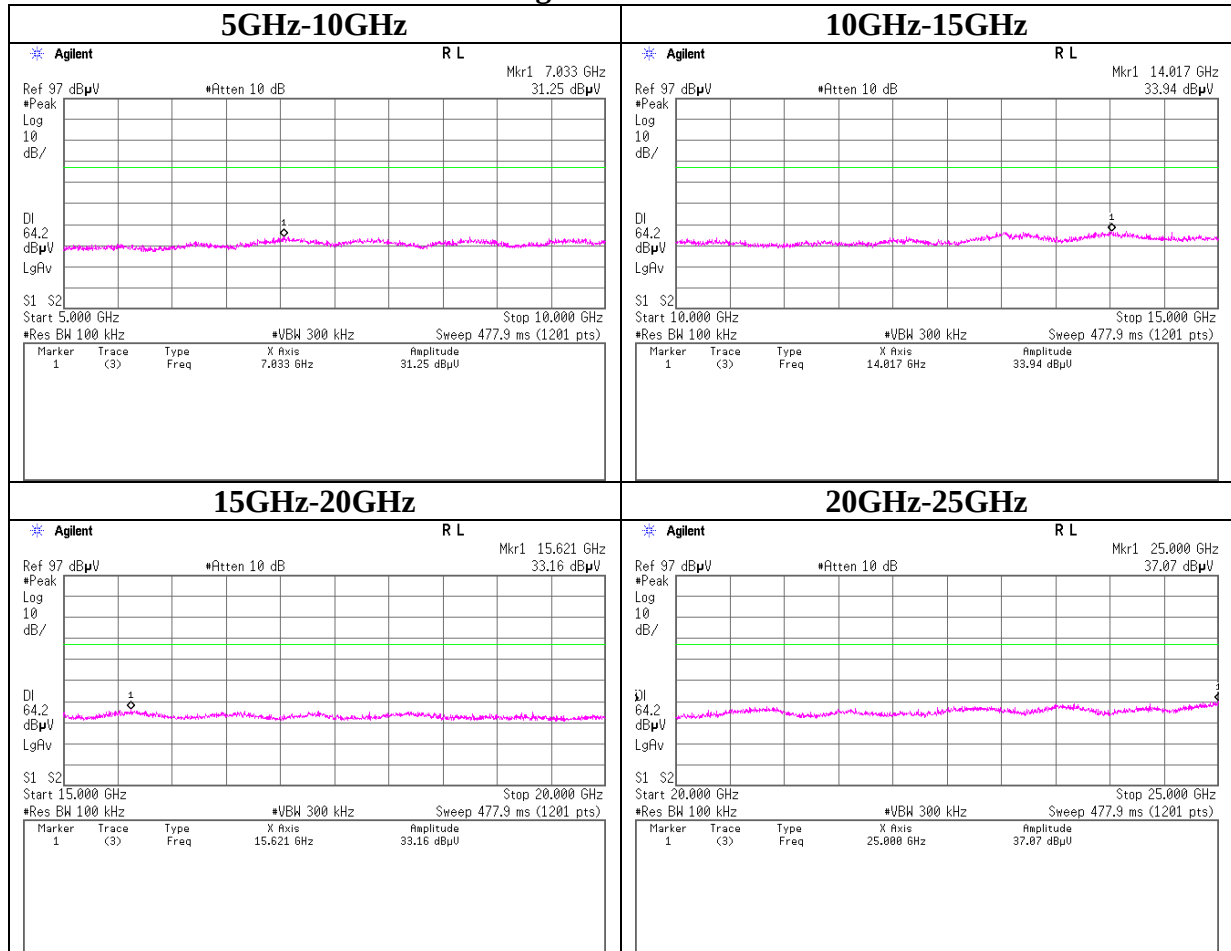
Antenna 2

11g Tx 2462MHz



Conducted Spurious Emission
Antenna 2

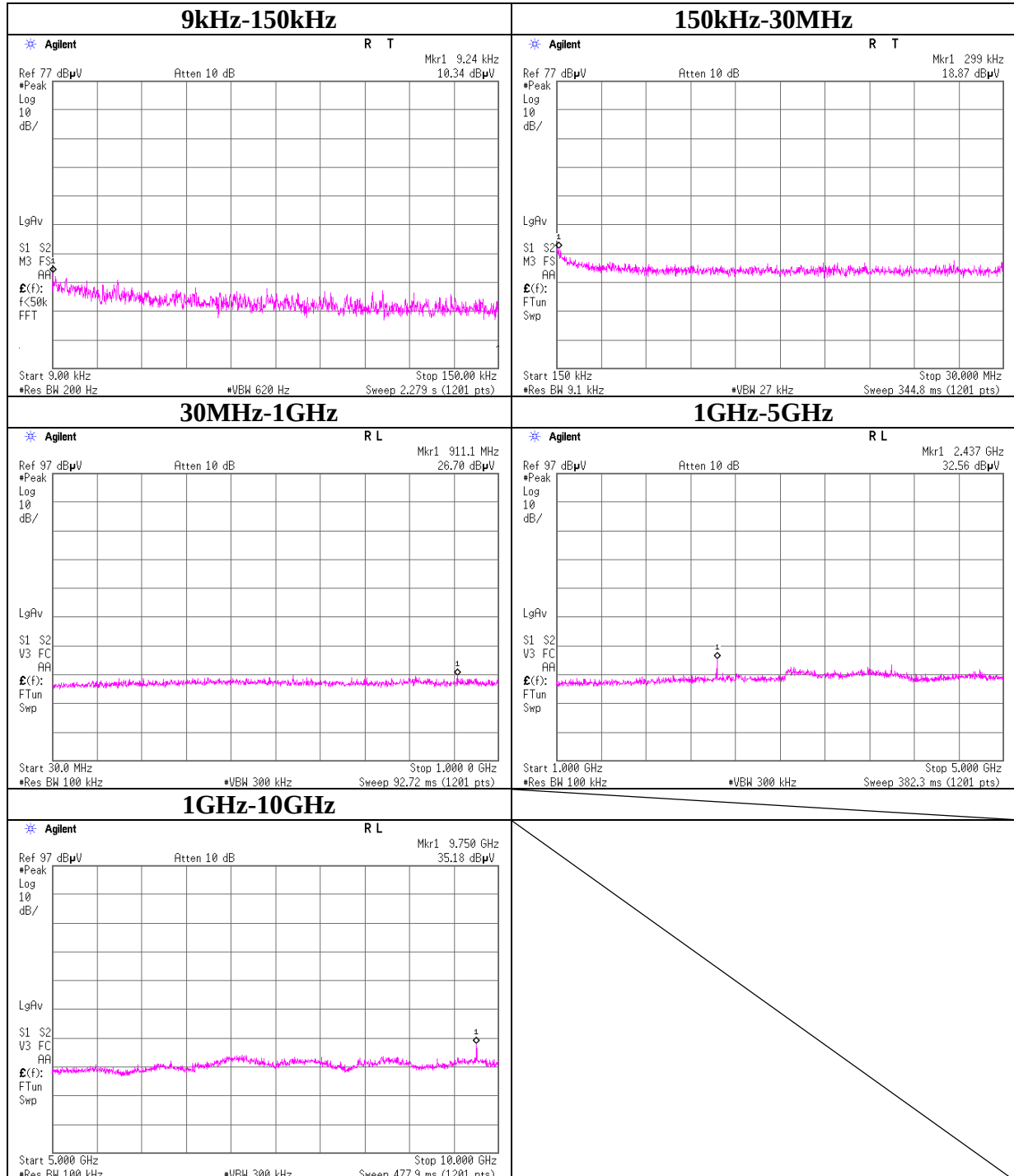
11g Tx 2462MHz



Conducted Spurious Emission

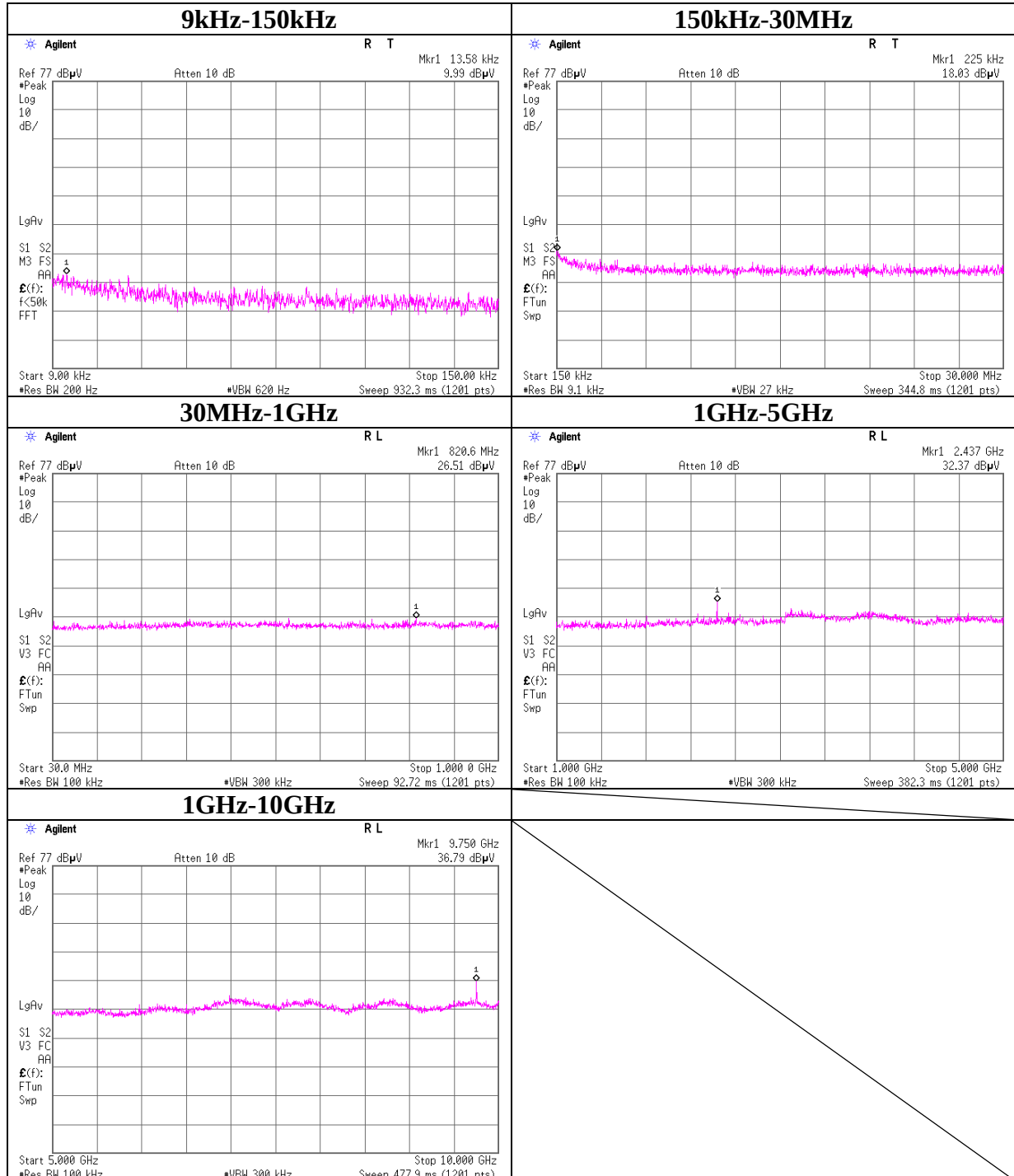
Antenna 1

Rx 2437MHz



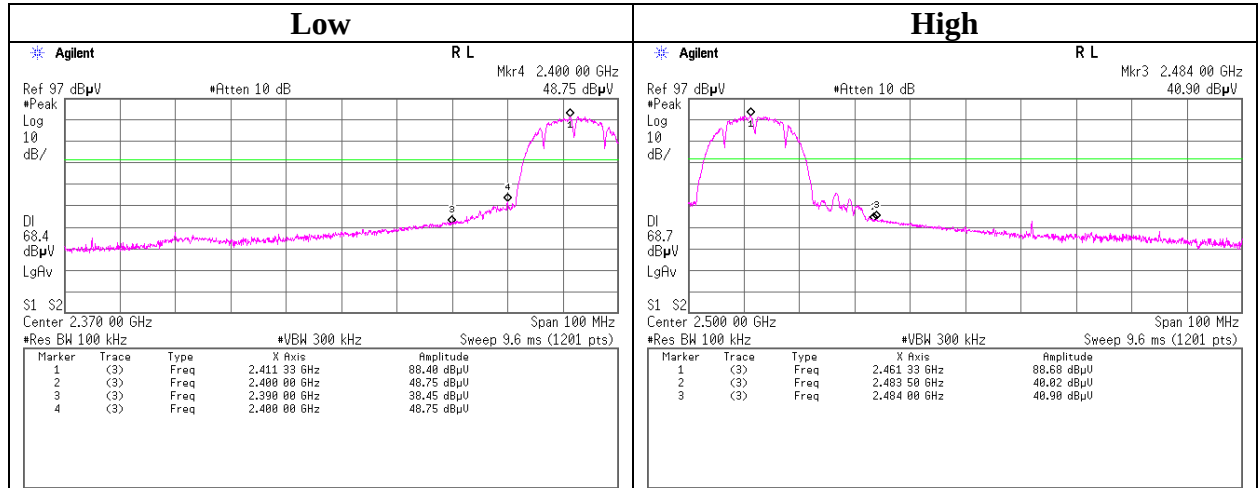
Conducted Spurious Emission
Antenna 2

Rx 2437MHz

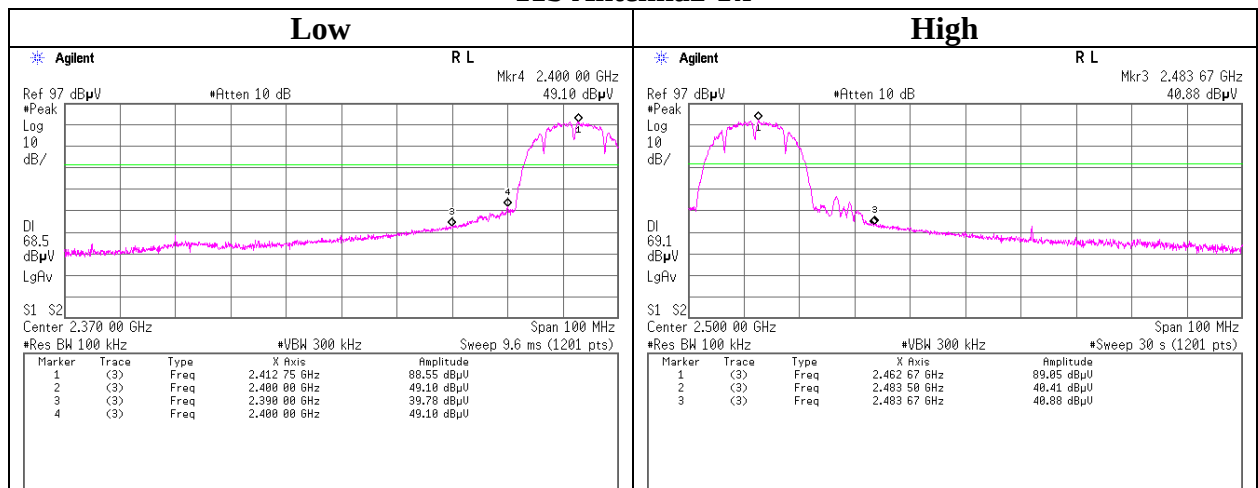


Conducted Emission Band Edge compliance

11b Antenna1 Tx

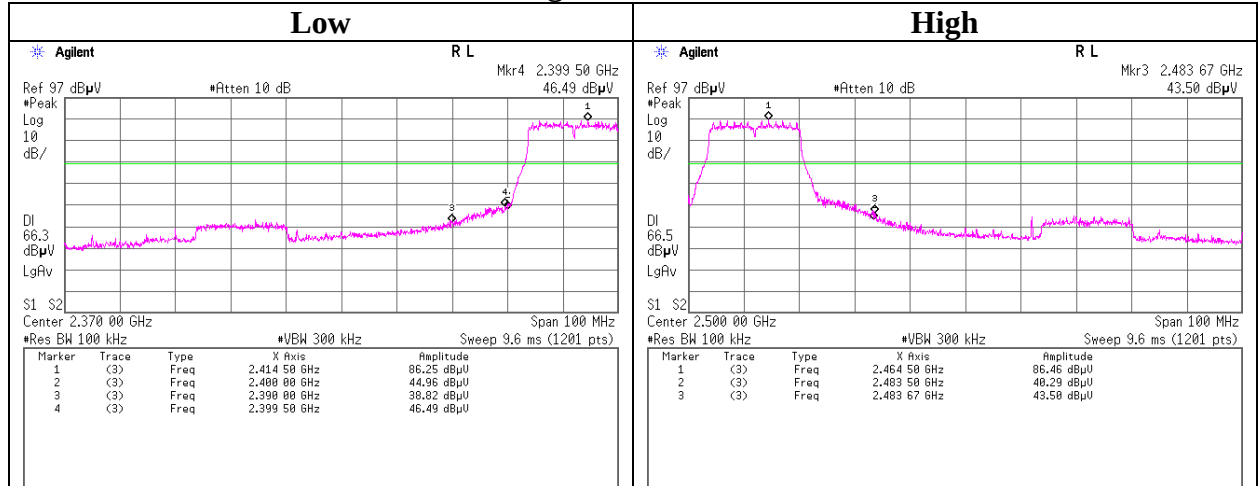


11b Antenna2 Tx

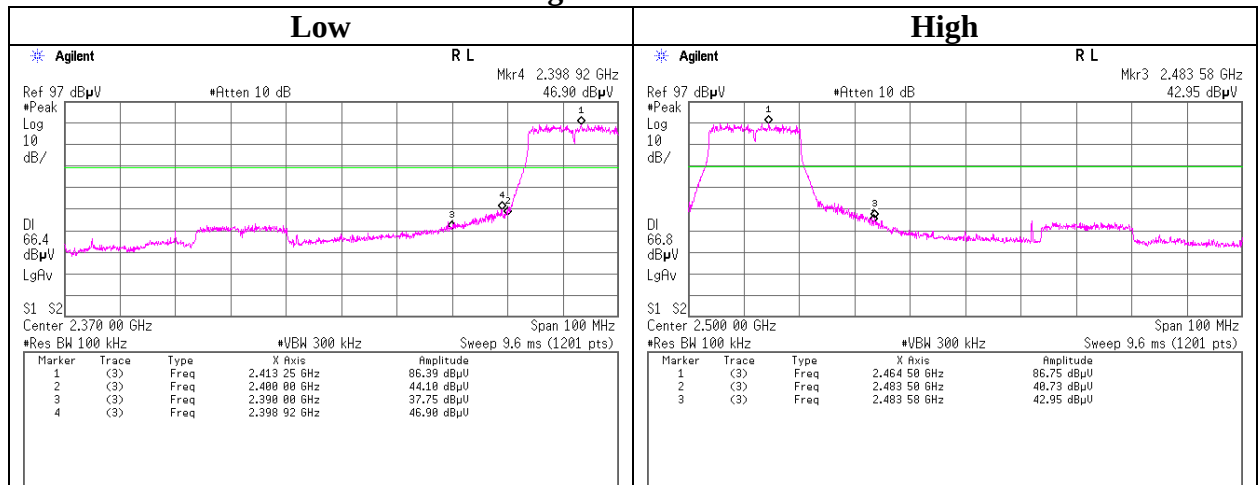


Conducted Emission Band Edge compliance

11g Antenna1 Tx



11g Antenna2 Tx



Power Density

Test place Head Office EMC Lab. No.11 Measurement Room
Report No. 32AE0238-HO
Date 11/24/2011
Temperature/ Humidity 21 deg.C/ 33% RH
Engineer Takeshi Choda
Mode 11b Tx, 11g Tx

11b Antenna 1

Freq.	Reading	Cable Loss	Atten.	Result	Limit	Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[dBm]	[dB]
2412.00	-19.35	1.83	20.14	2.62	8.00	5.38
2437.00	-18.85	1.83	20.14	3.12	8.00	4.88
2462.00	-18.63	1.84	20.14	3.35	8.00	4.65

11b Antenna 2

Freq.	Reading	Cable Loss	Atten.	Result	Limit	Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[dBm]	[dB]
2412.00	-19.33	1.83	20.14	2.64	8.00	5.36
2437.00	-18.83	1.83	20.14	3.14	8.00	4.86
2462.00	-18.58	1.84	20.14	3.40	8.00	4.60

Sample Calculation:

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

11g Antenna 1

Freq.	Reading	Cable Loss	Atten.	Result	Limit	Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[dBm]	[dB]
2412.00	-24.29	1.83	20.14	-2.32	8.00	10.32
2437.00	-22.22	1.83	20.14	-0.25	8.00	8.25
2462.00	-24.03	1.84	20.14	-2.05	8.00	10.05

11g Antenna 2

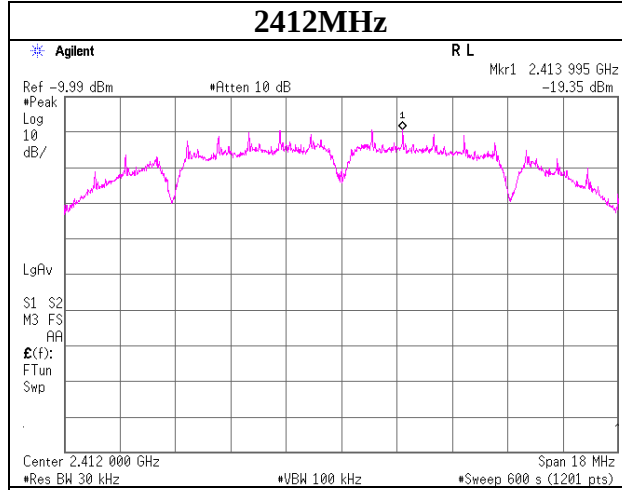
Freq.	Reading	Cable Loss	Atten.	Result	Limit	Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[dBm]	[dB]
2412.00	-23.31	1.83	20.14	-1.34	8.00	9.34
2437.00	-23.60	1.83	20.14	-1.63	8.00	9.63
2462.00	-21.24	1.84	20.14	0.74	8.00	7.26

Sample Calculation:

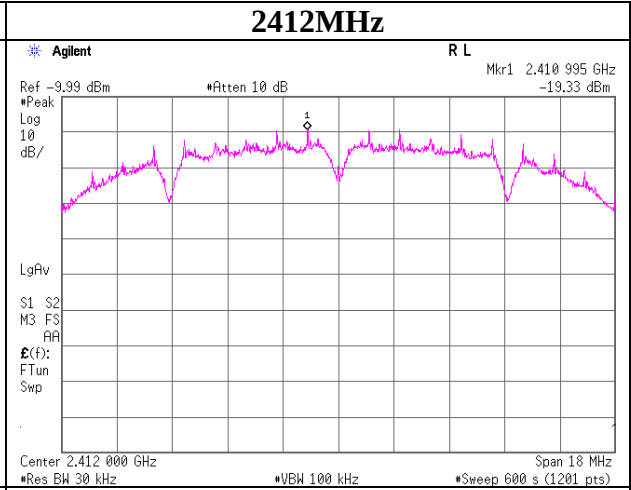
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator

Power Density 11b

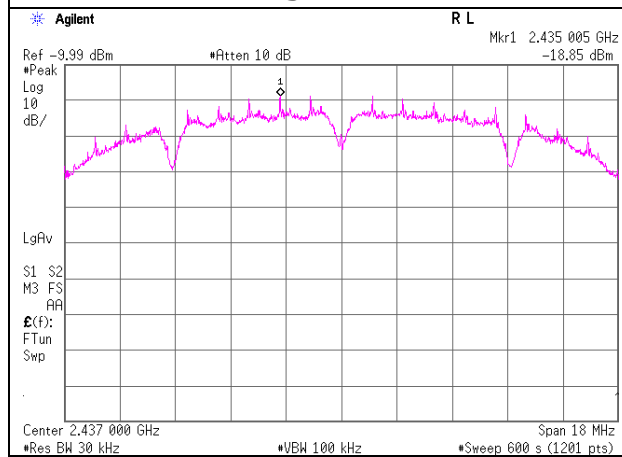
**Antenna 1
2412MHz**



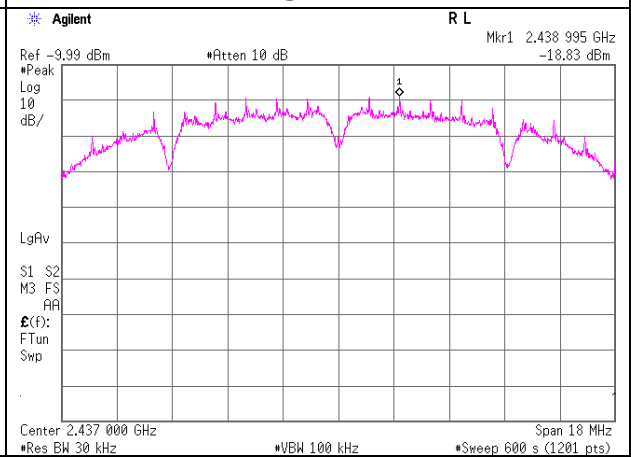
**Antenna 2
2412MHz**



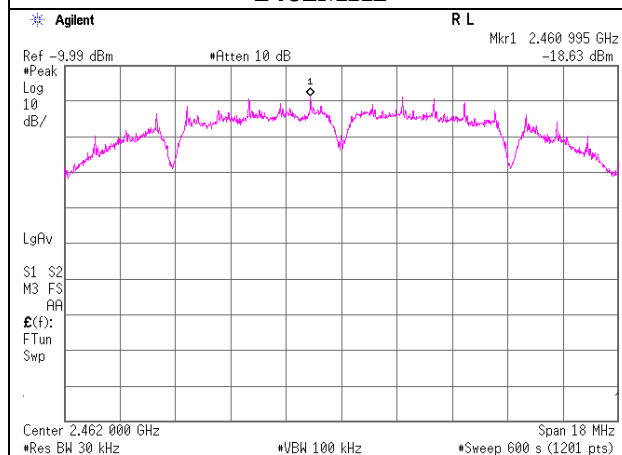
2437MHz



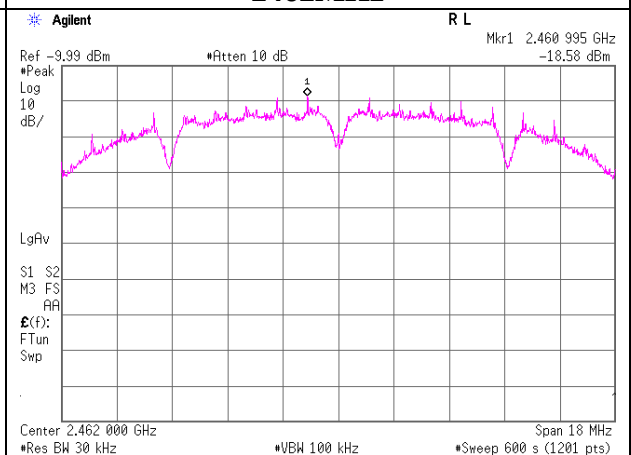
2437MHz



2462MHz

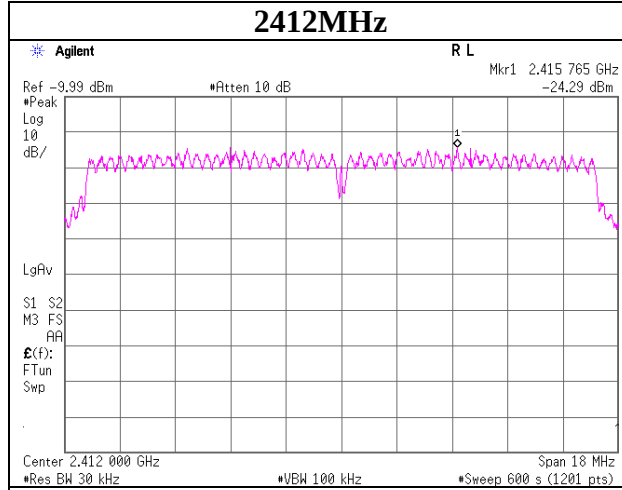


2462MHz

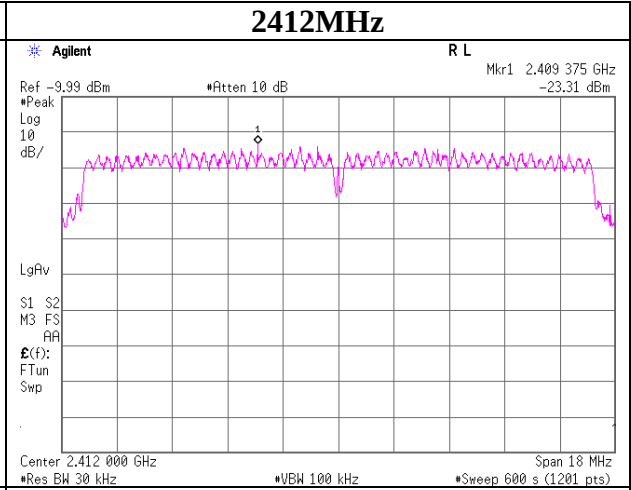


Power Density 11g

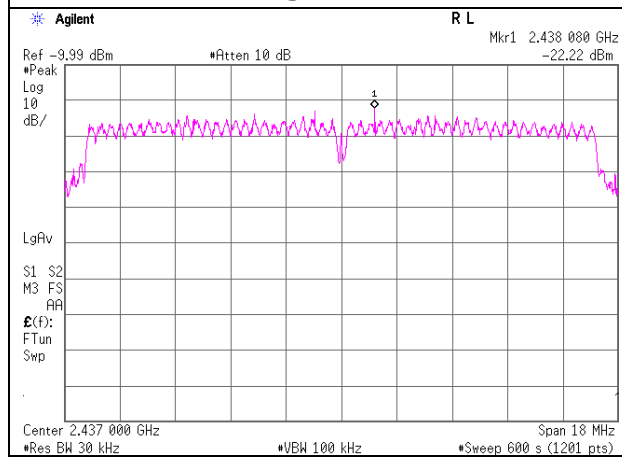
**Antenna 1
2412MHz**



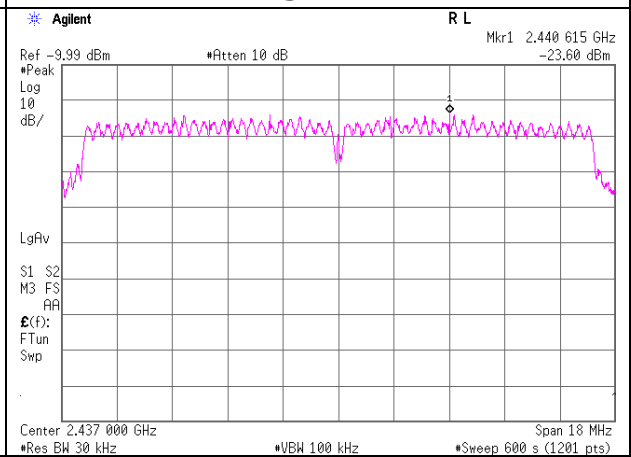
**Antenna 2
2412MHz**



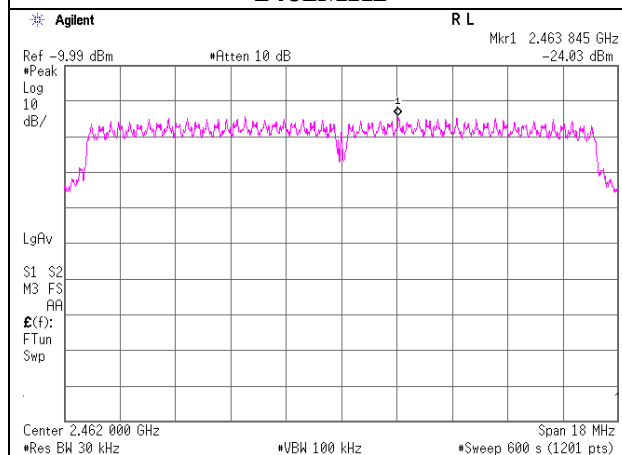
2437MHz



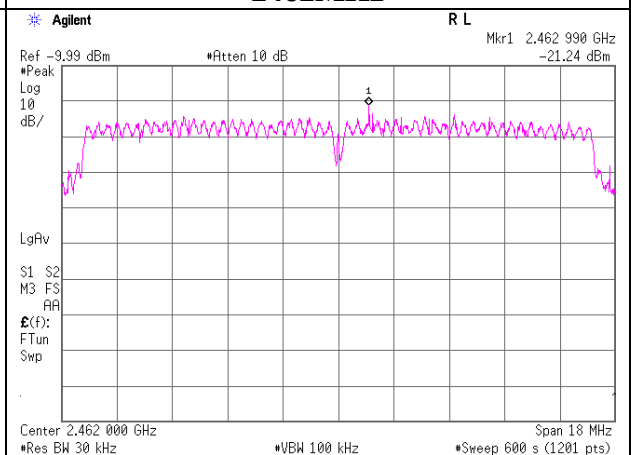
2437MHz



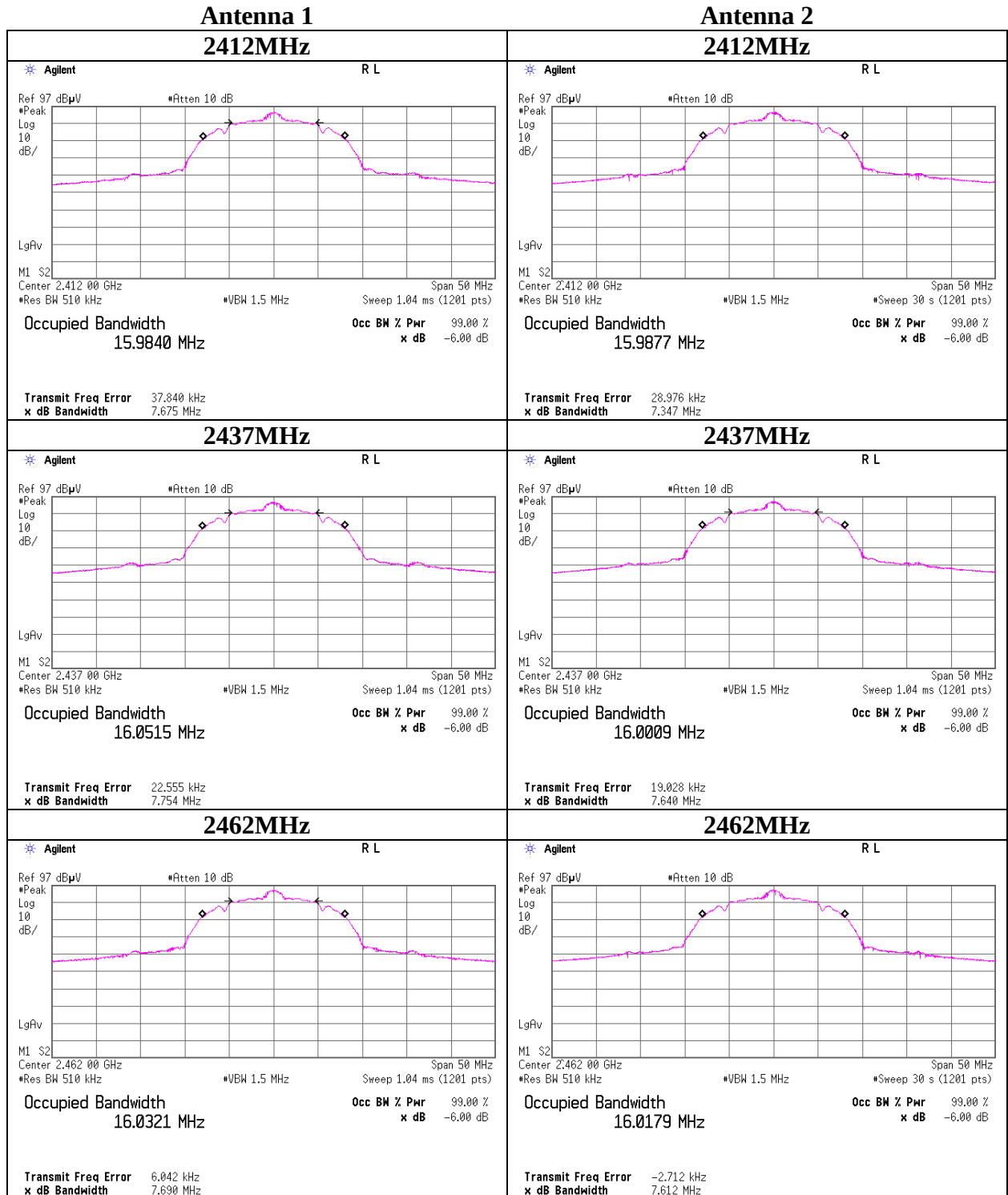
2462MHz



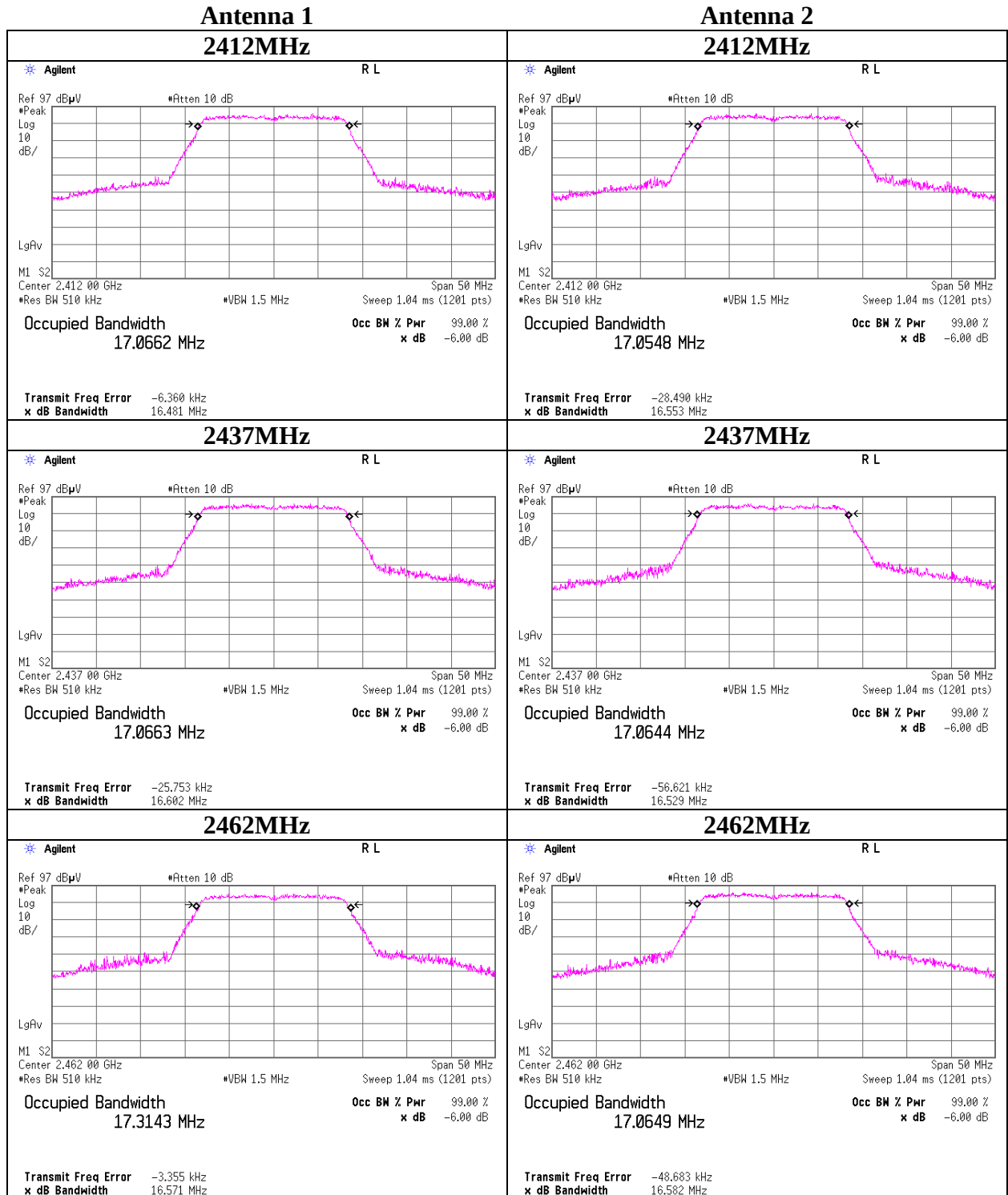
2462MHz



99% Occupied Bandwidth
11b



99% Occupied Bandwidth
11g



APPENDIX 2: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MOS-19	Thermo-Hygrometer	Custom	CTH-201	0001	AT	2010/12/13 * 12
MSA-04	Spectrum Analyzer	Agilent	E4448A	US44300523	AT/RE	2011/04/08 * 12
MPM-09	Power Meter	Anritsu	ML2495A	6K00003348	AT	2011/09/12 * 12
MPSE-12	Power sensor	Anritsu	MA2411B	011598	AT	2011/09/12 * 12
MAT-20	Attenuator(10dB)(above1 GHz)	HIROSE ELECTRIC CO.,LTD.	AT-110	-	AT	2011/01/06 * 12
MAT-23	Attenuator(10dB) 1-18GHz	Orient Microwave	BX10-0476-00	-	AT	2011/03/14 * 12
MCC-138	Microwave cable	HUBER+SUHNER	SUCOFLEX 102	37953/2	AT	2011/10/28 * 12
MAEC-02	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	RE	2011/06/21 * 12
MOS-22	Thermo-Hygrometer	Custom	CTH-201	0003	RE	2011/02/23 * 12
MJM-14	Measure	KOMELON	KMC-36	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE/CE	-
MHA-06	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	254	RE	2011/01/16 * 12
MCC-132	Microwave Cable	HUBER+SUHNER	SUCOFLEX104	336161/4(1m) / 340639(5m)	RE	2011/09/06 * 12
MPA-01	Pre Amplifier	Agilent	8449B	3008A01671	RE	2011/02/24 * 12
MHF-06	High Pass Filter 3.5-24GHz	TOKIMEC	TF323DCA	601	RE	2011/05/16 * 12
MHA-02	Horn Antenna 18-26.5GHz	EMCO	3160-09	1265	RE	2011/01/16 * 12
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	100300	RE	2011/04/15 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	VHA91032008	RE	2011/10/23 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	201	RE	2011/10/23 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	-	RE	2011/02/18 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	BK7970	RE	2011/11/02 * 12
MPA-09	Pre Amplifier	Agilent	8447D	2944A10845	RE	2011/09/26 * 12
MAEC-04	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	CE	2011/03/01 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	-	CE	2011/02/23 * 12
MJM-07	Measure	PROMART	SEN1955	-	CE	-
MSA-05	Spectrum Analyzer	Advantest	R3273	160400285	CE	2011/11/23 * 12
MTR-07	Test Receiver	Rohde & Schwarz	ESCI	100635	CE	2011/10/19 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	8127363	CE(EUT)	2011/02/20 * 12
MAT-67	Attenuator(13dB)	JFW Industries, Inc.	50FP-013H2 N	-	CE	2011/02/22 * 12
MCC-113	Coaxial cable	Fujikura/Suhner/TSJ	5D-2W(10m)/SFM141(5m)/421-010(1m)/suciform141-PE(1m)/RFM-E121(Switcher)	-/04178	CE	2011/07/04 * 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