



FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

BLUETOOTH MODULE

MODEL NUMBER: WML-C68

FCC ID: POOWML-C68

REPORT NUMBER: 32JE0251-AP-01-A

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Prepared for

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*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>

Revision History

Rev.	Issue Date	Revisions	Revised By
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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Mitsumi Electric Co., Ltd.
2-11-2, TSURUMAKI, TAMA-SHI, TOKYO, 206-8567
JAPAN

EUT DESCRIPTION: BLUETOOTH MODULE

MODEL: WML-C68

SERIAL NUMBER: No. 2 (Radiated and Conducted tests),
No. 3 (Antenna Terminal Conducted test)

DATE TESTED: June 5 to 24, 2012

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass

UL Japan, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Japan, Inc based on interpretations and/or observations of test results. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Japan, Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Japan, Inc. will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by any government agency.

Approved & Released For UL Japan, Inc. By:

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2009, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 3, and RSS-210 Issue 8.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN.

UL Japan, Inc. is accredited by NVLAP, Laboratory Code 200572-0
The full scope of accreditation can be viewed at
<http://www.ul.com/japan/jpn/pages/services/emc/about/mark1/index.jsp#nvlap>

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamplifier Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

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	3.1dB
No.2	3.3dB
No.3	3.7dB
No.4	3.2dB

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	4.7dB	5.7dB	4.4dB	4.3dB
No.2	4.1dB	5.2dB	5.1dB	4.8dB	5.6dB	4.3dB	4.2dB
No.3	4.5dB	5.0dB	5.2dB	4.8dB	5.6dB	4.5dB	4.2dB
No.4	4.7dB	5.2dB	5.2dB	4.8dB	5.6dB	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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Bluetooth 4.0 + LE Module.

The radio module is manufactured by Mitsumi.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2402-2480	Bluetooth Low Energy(LE)	1.66	1.47

Model No/: WML-C68

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an antenna with a maximum gain of 0.91dBi.

5.1. SOFTWARE AND FIRMWARE

The EUT driver software installed during testing was BT usb driver, v5.6.0.5301.

The test utility software used during testing were Broadcom Bluetool, Version 1.4.2.9.

5.2. WORST-CASE CONFIGURATIONS AND MODE

The worst-case data rate for each mode is determined to be as follows, based on preliminary tests of the chipset utilized in this radio.

All final tests in the LE mode were made at 1 Mb/s.

For radiated emissions below 1 GHz the worst-case configuration is determined to be the mode and channel with the highest output power.

The EUT was investigated in three different positions, X, Y, & Z and turned out the Z (Horizontal), Y (Vertical) were worst-position. This worst position will be set for all radiated emissions testing.

5.3 DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST					
No.	Description	Manufacturer	Model	Serial Number	FCC ID
A	Extension Board	Mitsumi	-	-	N/A
B	Conversion Board	Mitsumi	BTDB02	Z554T AG43T *1)	N/A
C	Laptop PC	IBM	2647	97-ALT8C	DoC
D	AC Adaptor	IBM	02K6750	11S02K6750Z1Z2UP29P0F5	N/A
E	DC Power Supply	Kikusui	PAK35-10A	LF002313	N/A
F	AC Adaptor	Mitsumi	R1305	-	N/A

*1) Used for Conducted emission test only

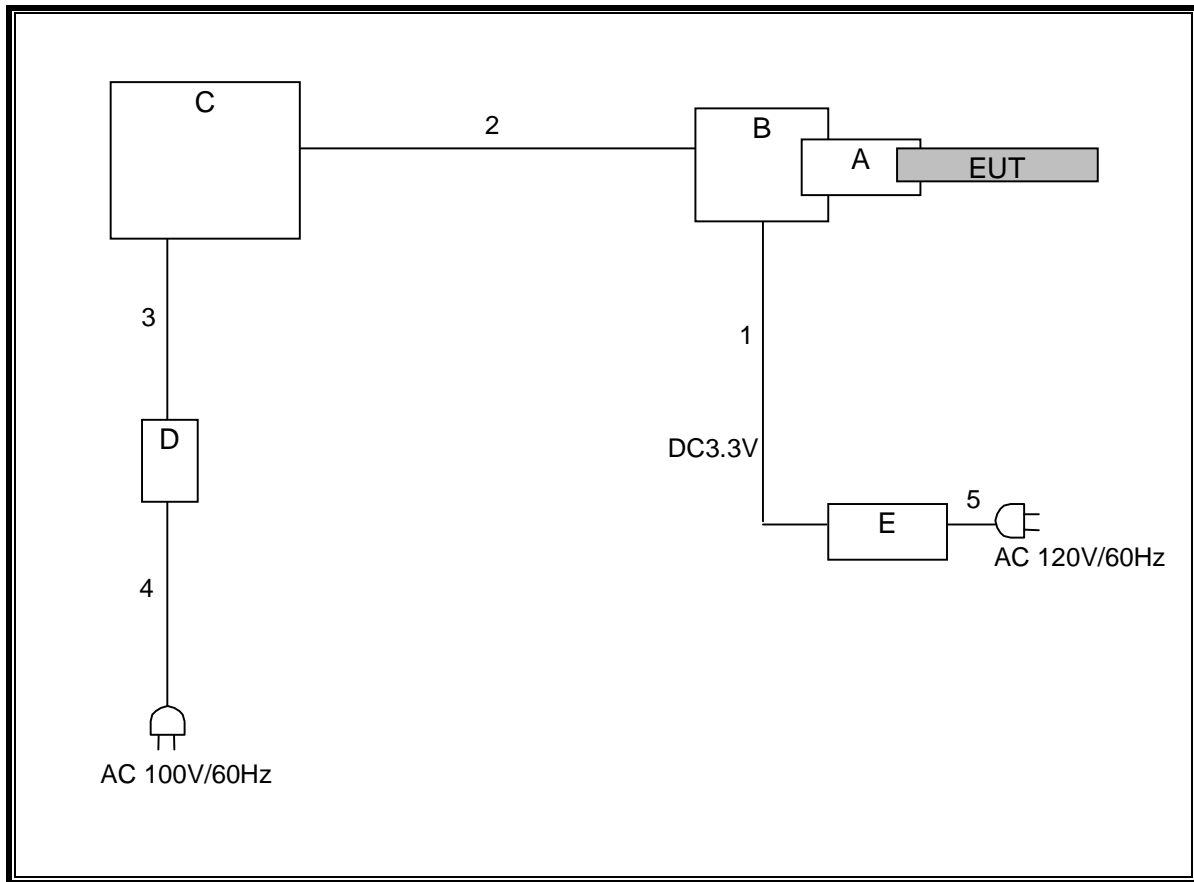
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical port	Connector Type	Cable Type	Cable Length	Remarks
1	DC	1	DC	Unshielded	3.0	-
2	USB	1	USB	Shielded	1.9	-
3	DC	1	DC	Unshielded	1.7	-
4	AC	1	AC	Unshielded	2.0	-
5	AC	1	AC	Unshielded	2.0	-
6	DC	1	DC	Unshielded	2.0	-
7	AC	1	AC	Unshielded	2.0	-

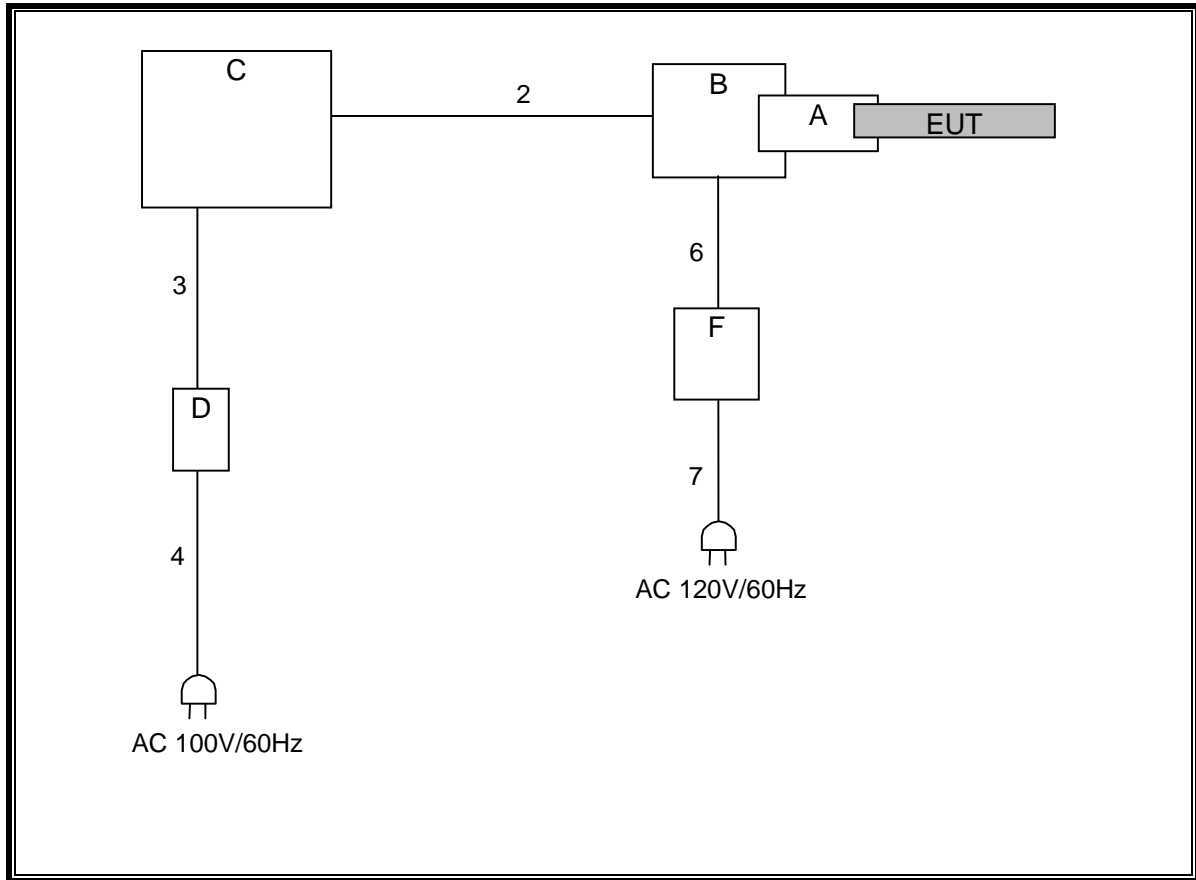
TEST SETUP

The EUT is connected to a Jig board and host laptop computer via a USB cable during the tests. Test software exercised the radio module. The Laptop PC is removed after the setup.

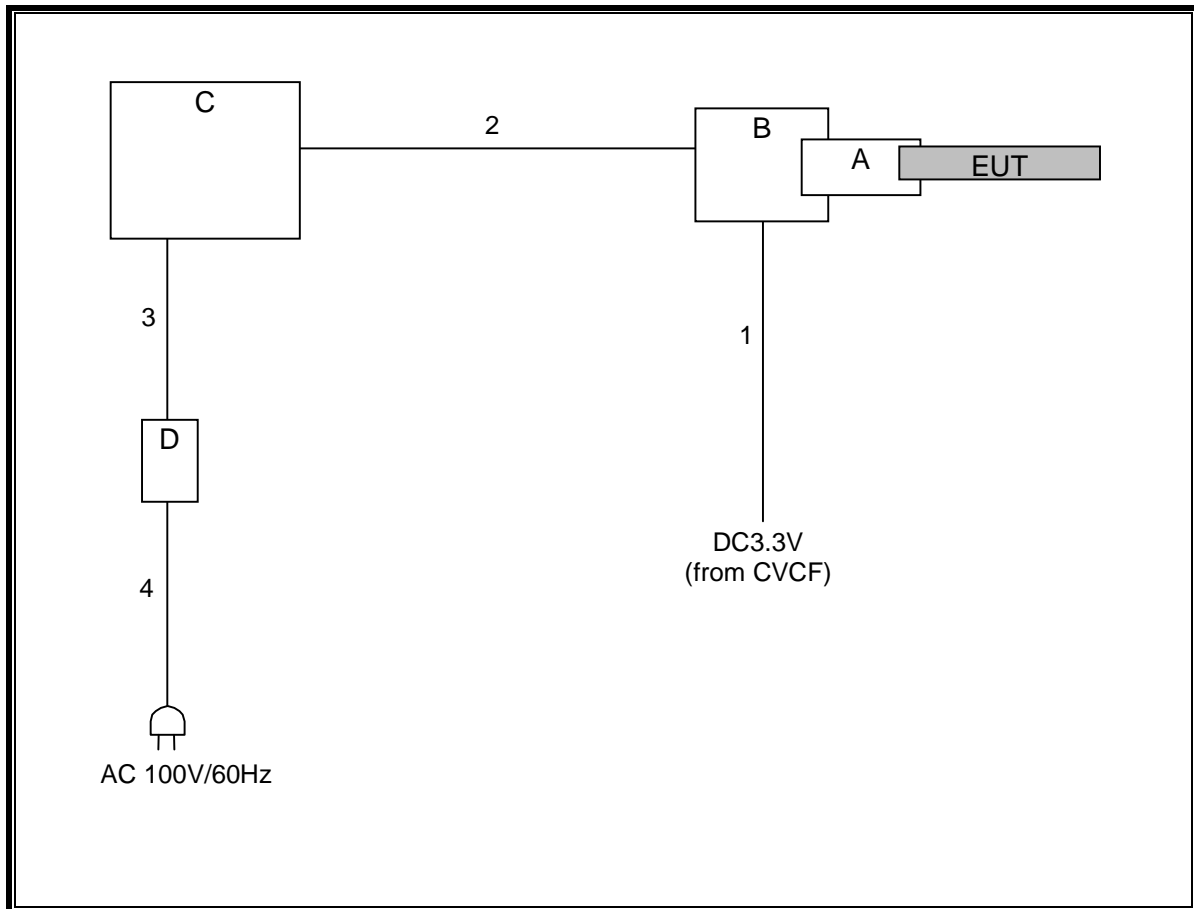
SETUP DIAGRAM FOR ANTENNA PORT TESTS



SETUP DIAGRAM FOR CONDUCTED EMISSION



SETUP DIAGRAM FOR RADIATED EMISSIONS TEST



TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:
(1/2)

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MSA-03	Spectrum Analyzer	Agilent	E4448A	MY44020357	AT	2011/11/23 * 12
MPM-08	Power Meter	Anritsu	ML2495A	6K00003338	AT	2011/09/13 * 12
MPSE-11	Power sensor	Anritsu	MA2411B	011737	AT	2011/09/13 * 12
MCC-138	Microwave cable	HUBER+SUHNER	SUCOFLEX 102	37953/2	AT	2011/10/28 * 12
MCC-105	Microwave Cable	Hirose Electric	U.FL-2LP-066J1-A(200)	-	AT	2011/06/24 * 12
MAT-19	Attenuator(6dB)(above 1GHz)	HIROSE ELECTRIC CO.,LTD.	AT-106	-	AT	2012/01/12 * 12
MOS-14	Thermo-Hygrometer	Custom	CTH-201	-	AT	2012/02/06 * 12
MAEC-04	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE	2012/02/29 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	-	RE	2012/02/06 * 12
MJM-07	Measure	PROMART	SEN1955	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE/CE	-
MSA-10	Spectrum Analyzer	Agilent	E4448A	MY46180655	RE	2012/02/03 * 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
MHF-20	High Pass Filter 3.5-18.0GHz	TOKIMEC	TF323DCC	607	RE	2011/09/08 * 12
MCC-79	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	278923/4	RE	2011/12/08 * 12
MAEC-01	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 10m	DA-06881	RE	2011/07/10 * 12
MOS-27	Thermo-Hygrometer	CUSTOM	CTH-201	A08Q26	RE	2012/02/08 * 12
MJM-01	Measure	KDS	ES19-55	-	RE	-
MTR-08	Test Receiver	Rohde & Schwarz	ESCI	100767	RE	2011/08/11 * 12
KBA-05	Biconical Antenna	Schwarzbeck	BBA9106	2513	RE	2011/11/23 * 12
KLA-04	Logperiodic Antenna	Schwarzbeck	USLP9143	361	RE	2011/11/23 * 12
MAT-08	Attenuator(6dB)	Weinschel Corp	2	BK7971	RE	2011/11/02 * 12
MCC-02	Coaxial Cable	Suhner/storm/Agilent/TSJ	-	-	RE	2011/09/17 * 12
MPA-19	Pre Amplifier	MITEQ	MLA-10K01-B01-35	1237616	RE	2012/02/20 * 12
MHA-05	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	253	RE	2011/06/19 * 12
MHA-01	Horn Antenna 18-26.5GHz	EMCO	3160-09	1266	RE	2011/06/20 * 12
MCC-134	Microwave Cable	HUBER+SUHNER	SUCOFLEX104	336167/4(1m) / 340641(5m)	RE	2011/09/07 * 12
MPA-01	Pre Amplifier	Agilent	8449B	3008A01671	RE	2012/02/28 * 12
MHF-17	High Pass Filter 3.5-18.0GHz	TOKIMEC	TF323DCA	7001	RE	2011/09/08 * 12

(2/2)

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MAEC-01	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 10m	DA-06881	CE	2011/07/10 * 12
MOS-27	Thermo-Hygrometer	CUSTOM	CTH-201	A08Q26	CE	2012/02/08 * 12
MJM-01	Measure	KDS	ES19-55	-	CE	-
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	100300	CE	2012/04/03 * 12
MLS-03	LISN(AMN)	Schwarzbeck	NSLK8127	8127384	CE(EUT)	2012/03/01 * 12
MCC-03	Coaxial Cable	Fujikura/Suhner/TSJ	5D-2W(20m)/3D-2W(7.5m)/RG400u(1.5m)/RFM-E421(Switcher)	- /01068(Switcher)	CE	2012/01/22 * 12
MAT-64	Attenuator(13dB)	JFW Industries, Inc.	50FP-013H2 N	-	CE	2012/01/28 * 12

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

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

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

Test Item:

RE: Radiated emission, CE: Conducted emission, AT: Antenna Terminal Conducted test

6. ANTENNA PORT TEST RESULTS

6.1. Bluetooth Low Energy (LE) MODE

6.1.1. 6dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

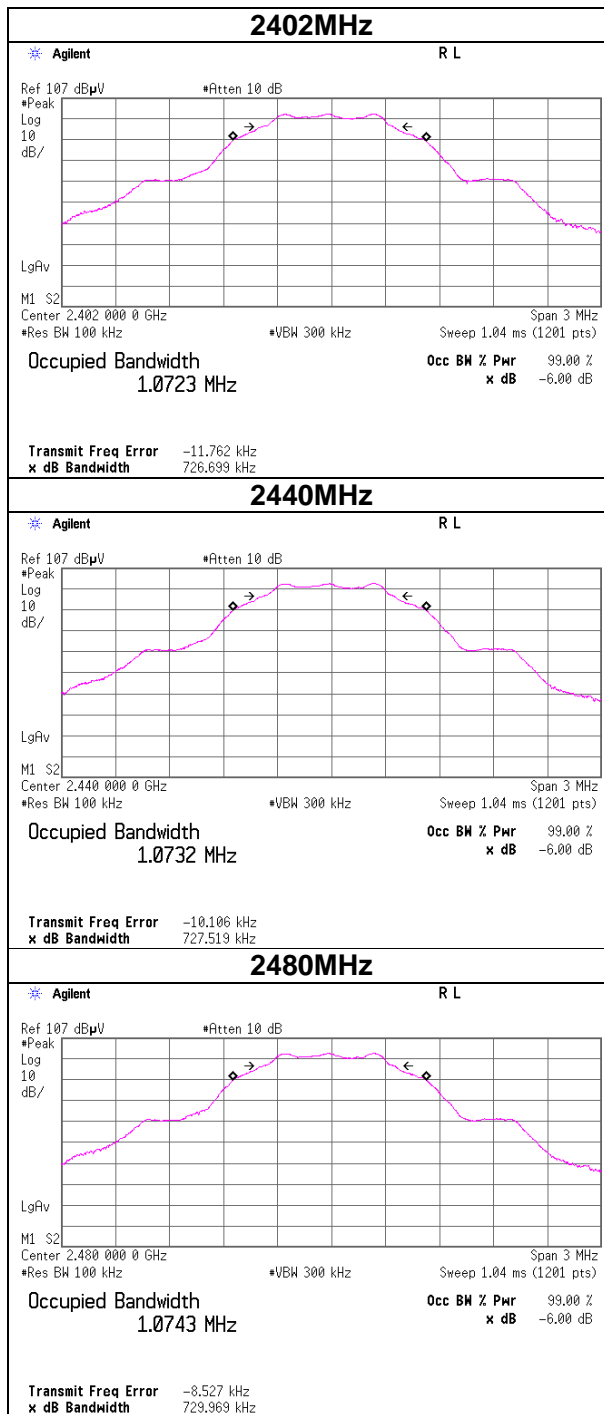
TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (kHz)	Minimum Limit (kHz)
Low	2402	726.699	500
Middle	2440	727.519	500
High	2480	729.969	500

6dB BANDWIDTH



6.1.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

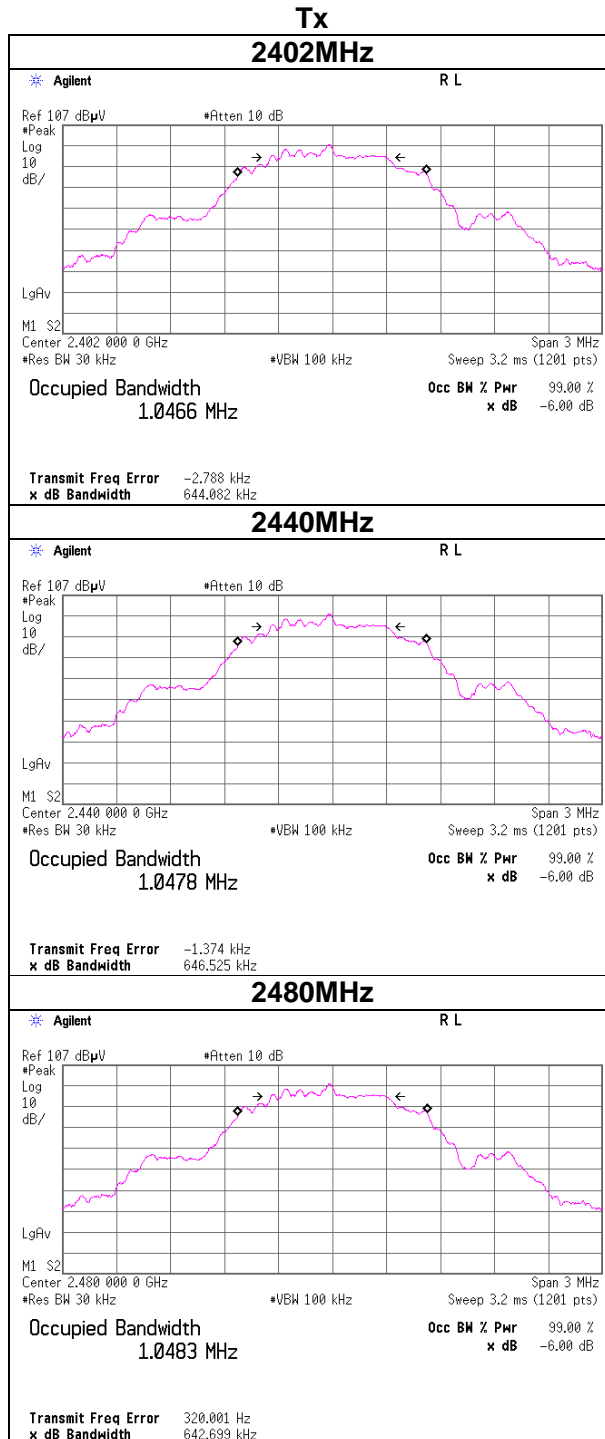
TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0466
Middle	2440	1.0478
High	2480	1.0483

99% BANDWIDTH



6.1.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

IC RSS-210 A8.4

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

Peak power is measured using a wide bandwidth Peak Power Meter.

RESULTS

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2402	-6.99	2.09	6.11	1.21	1.32	30.00	1000	28.79
2440	-6.63	2.11	6.11	1.59	1.44	30.00	1000	28.41
2480	-6.57	2.12	6.11	1.66	1.47	30.00	1000	28.34

Sample Calculation:

Result = Reading + Cable Loss + Attenuator

6.1.4. AVERAGE POWER

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

Freq. [MHz]	Reading Power Meter(AV) [dBm]	Cable Loss [dB]	Atten. [dB]	Result	
				[dBm]	[mW]
2402.0	-9.39	2.09	6.11	-1.19	0.76
2440.0	-9.08	2.11	6.11	-0.86	0.82
2480.0	-9.07	2.12	6.11	-0.84	0.82

Sample Calculation:

Result = Reading + Cable Loss + Attenuator

6.1.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST PROCEDURE

Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

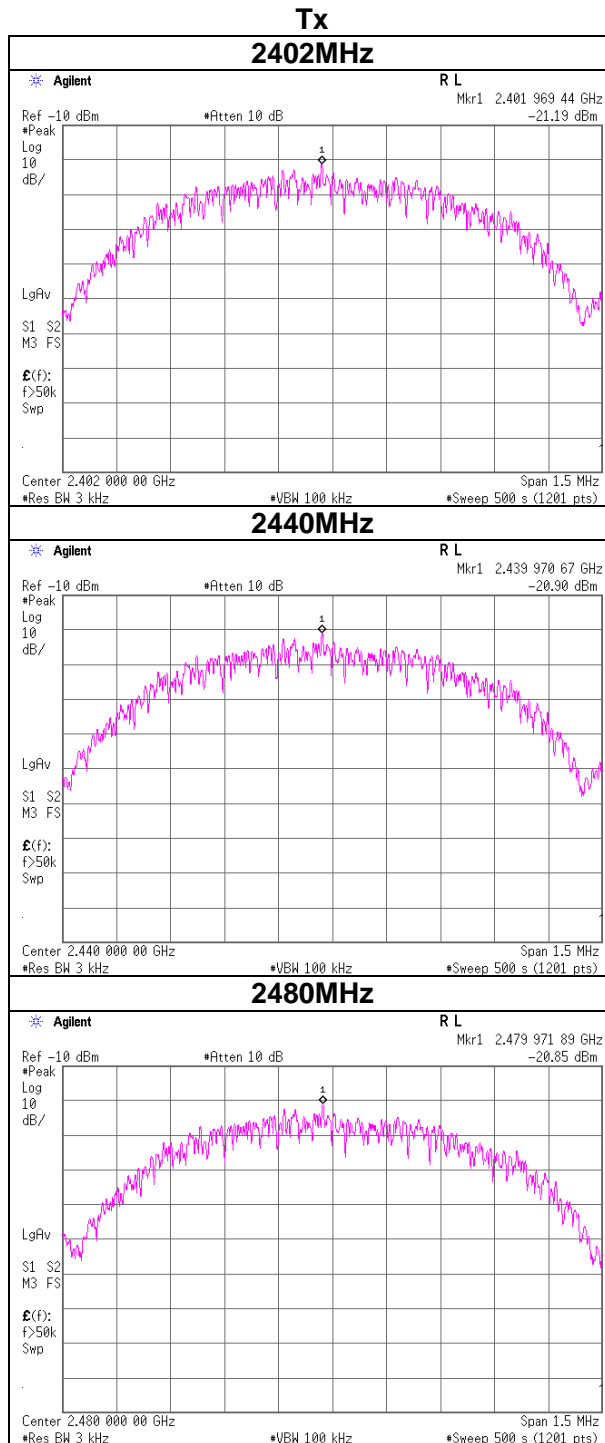
RESULTS

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
2402.00	-21.19	2.09	6.11	-12.99	8.00	20.99
2440.00	-20.90	2.11	6.11	-12.68	8.00	20.68
2480.00	-20.85	2.12	6.11	-12.62	8.00	20.62

Sample Calculation:

$$\text{Result} = \text{Reading} + \text{Cable Loss} + \text{Attenuator}$$

POWER SPECTRAL DENSITY



6.1.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

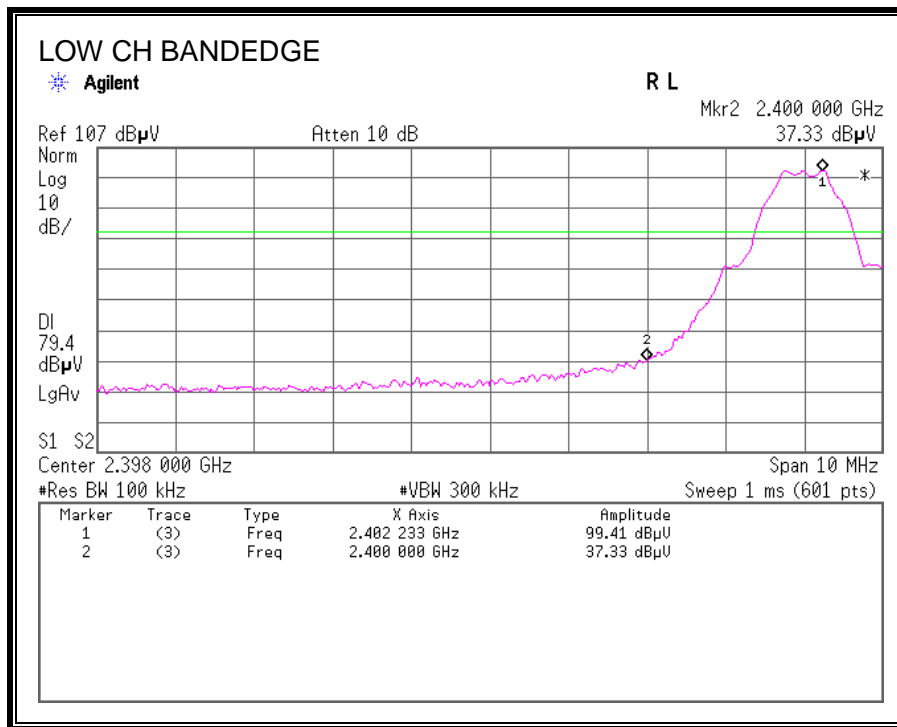
TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

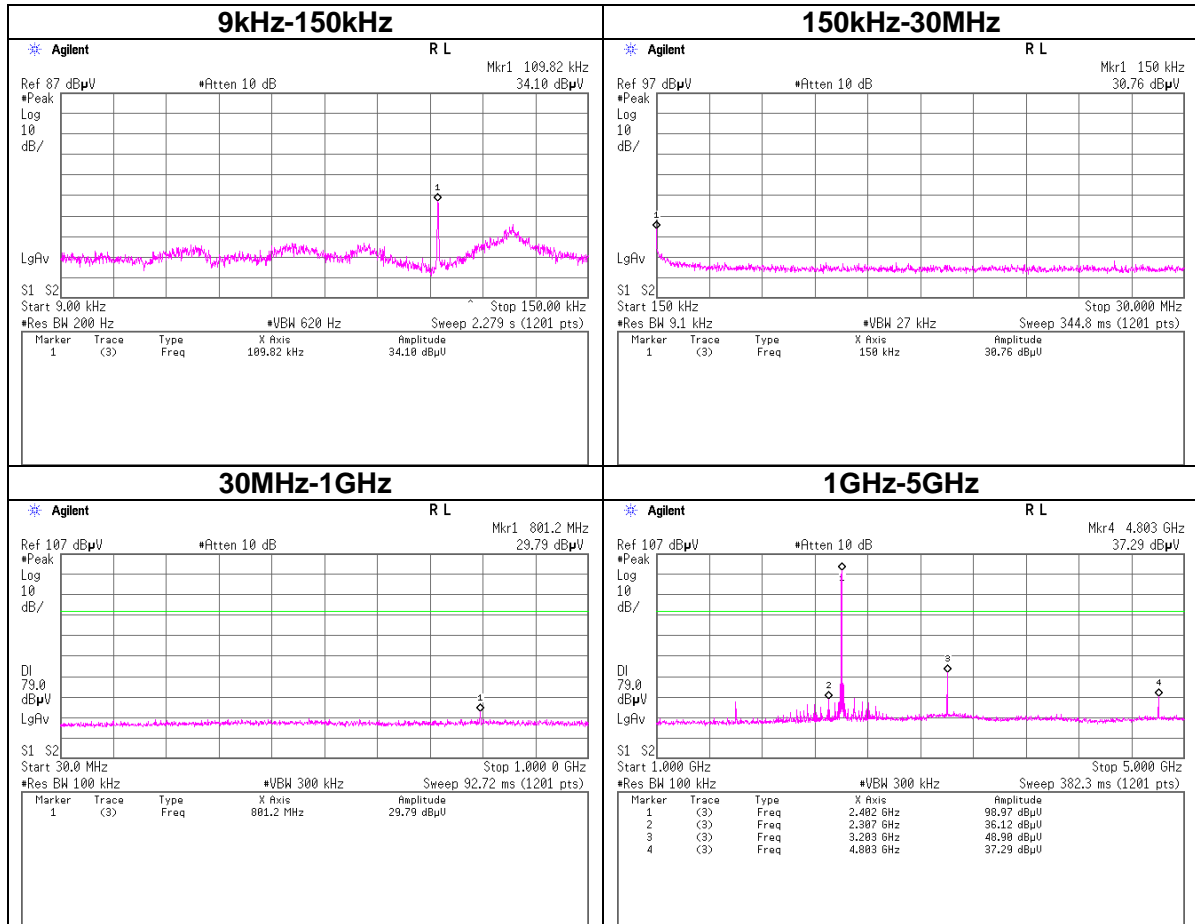
The spectrum from 9 kHz to 25 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

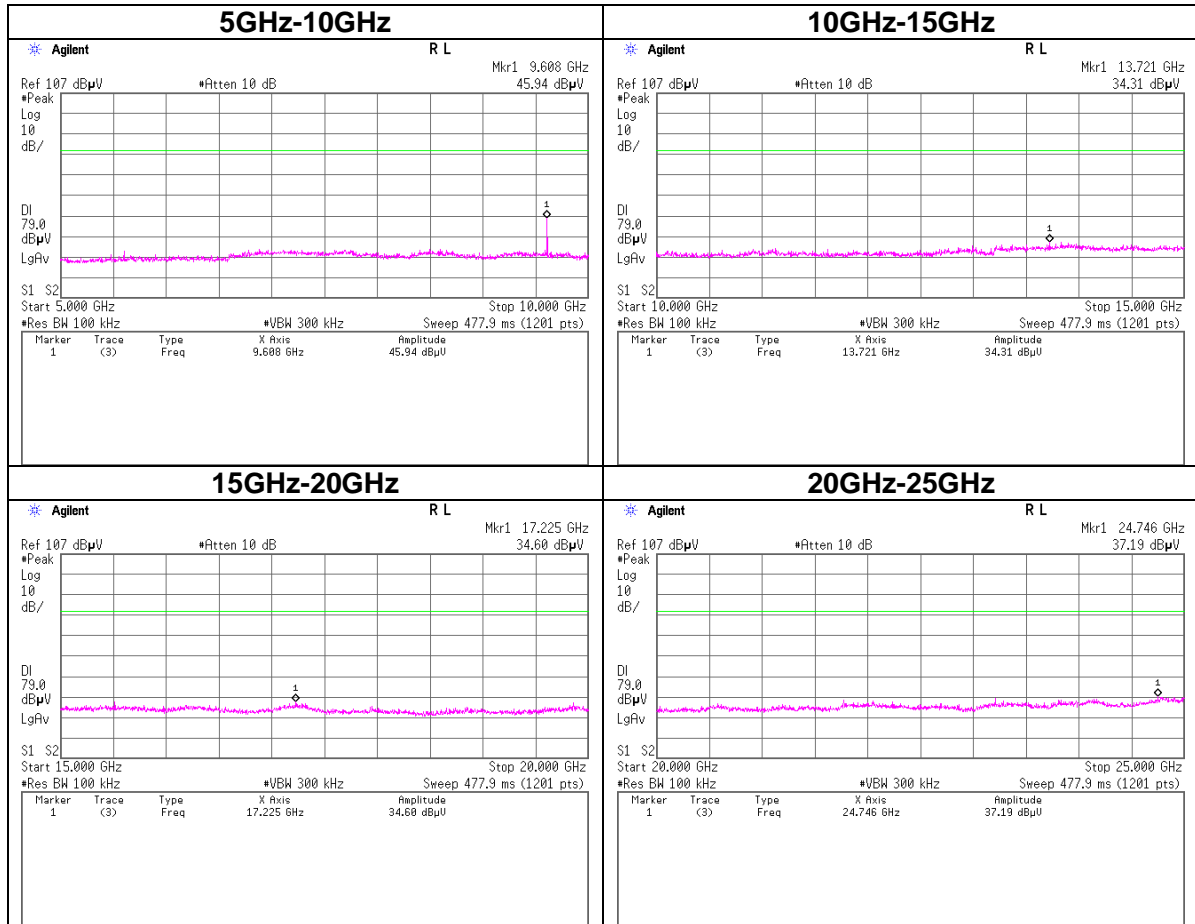
SPURIOUS EMISSIONS, LOW CHANNEL



Tx 2402MHz

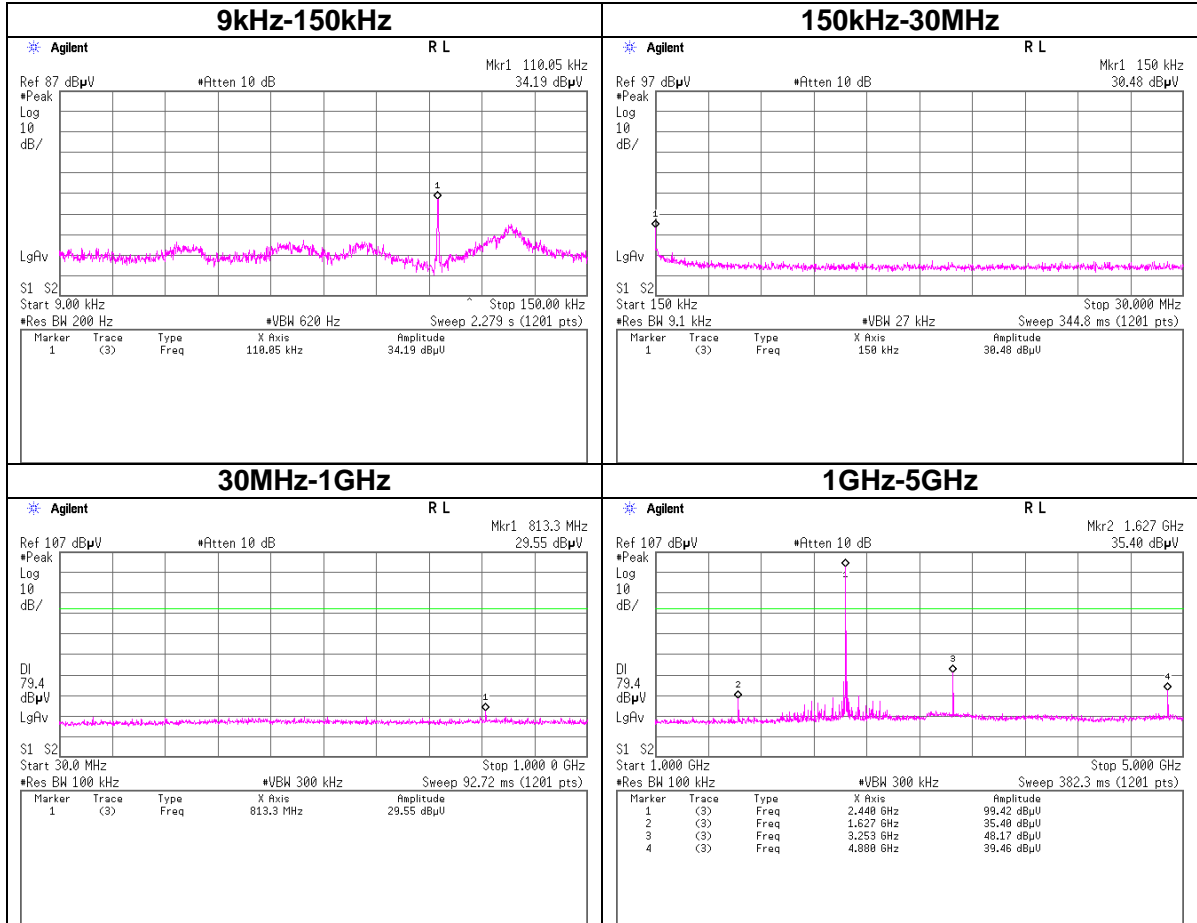


Tx 2402MHz

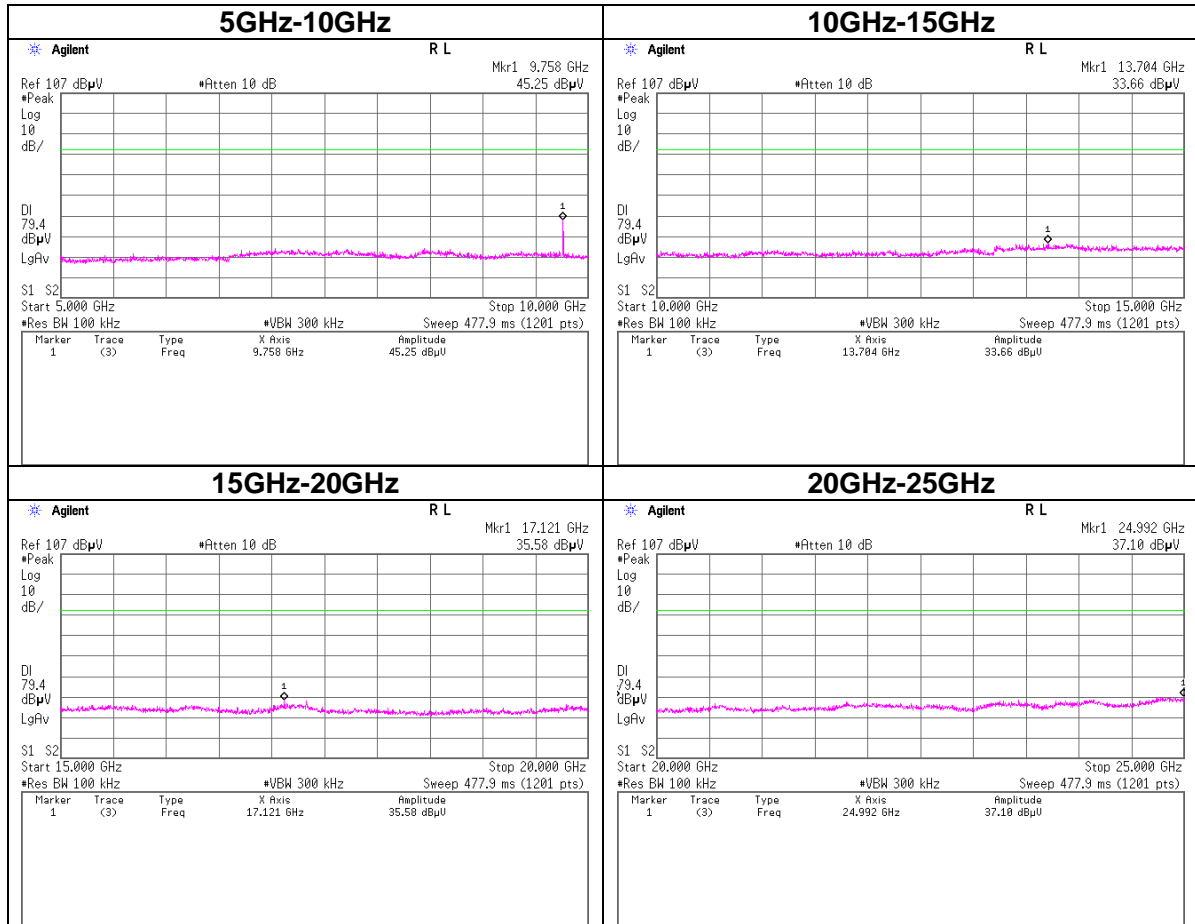


SPURIOUS EMISSIONS, MID CHANNEL

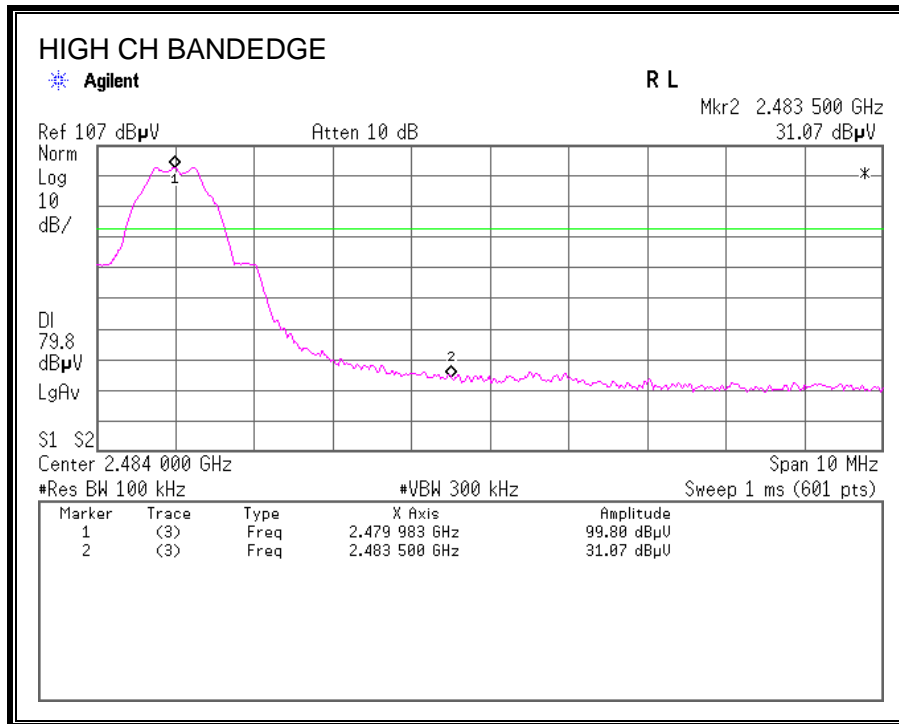
Tx 2440MHz



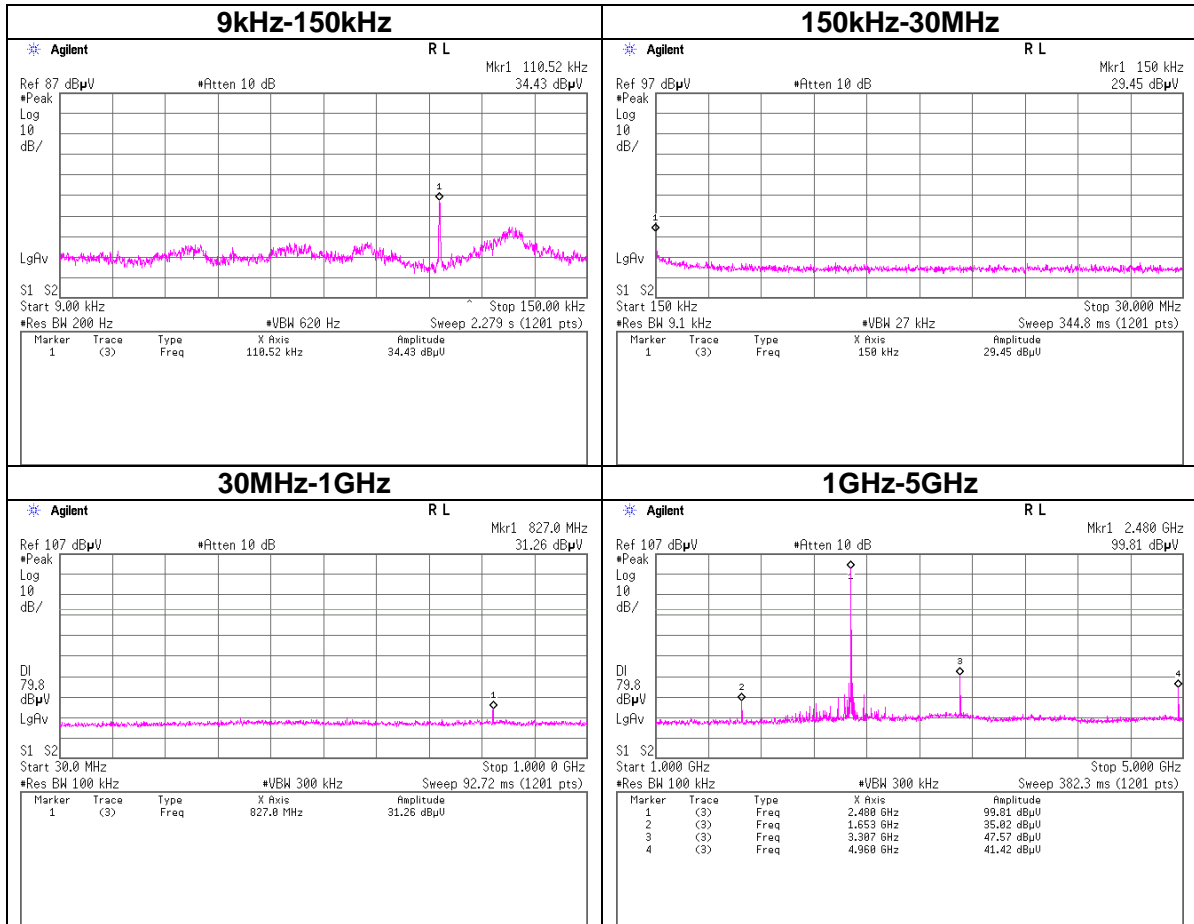
Tx 2440MHz



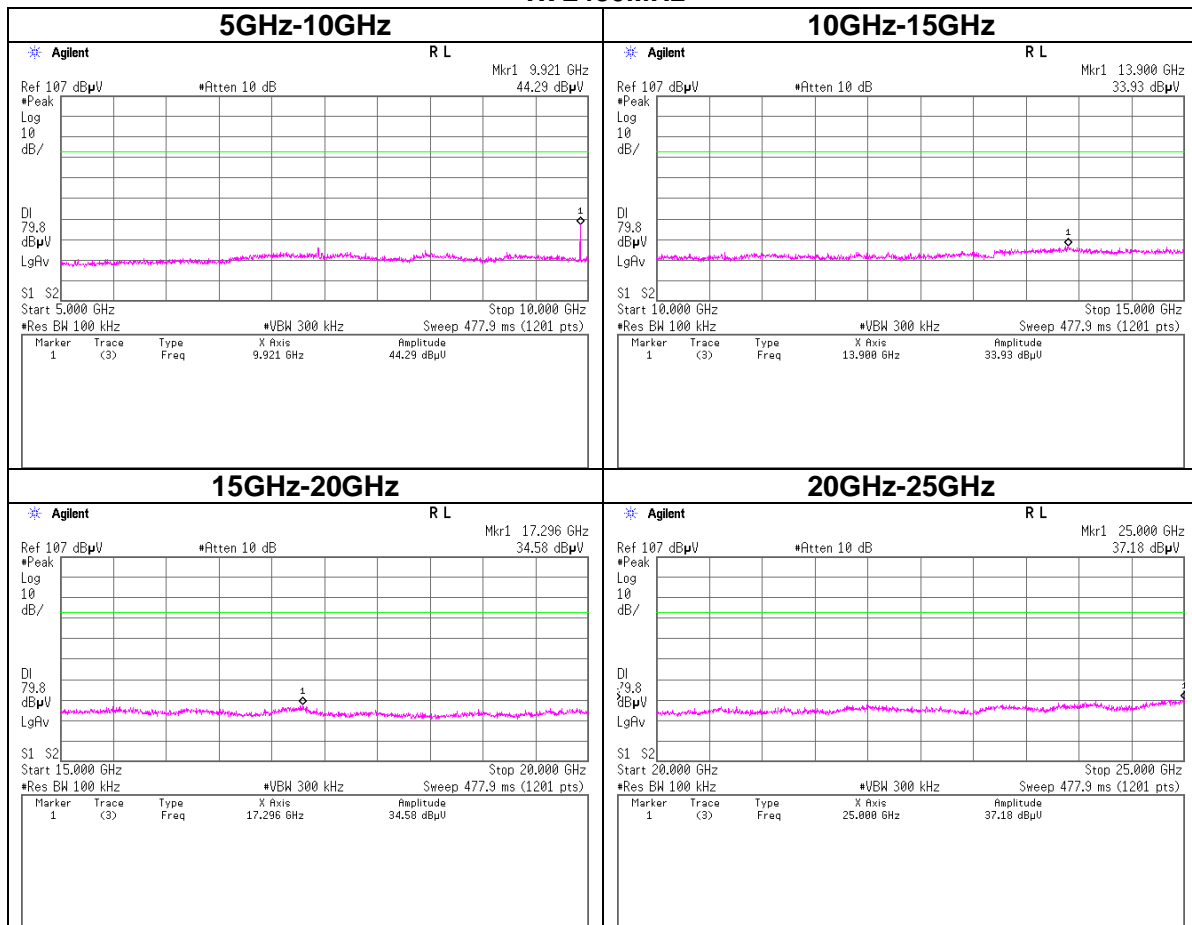
SPURIOUS EMISSIONS, HIGH CHANNEL



Tx 2480MHz



Tx 2480MHz



7. RADIATED TEST RESULTS

7.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.5 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

The spectrum from 30 MHz to 26.5 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

7.2. TRANSMITTER ABOVE 1GHz

Radiated Spurious Emission

Test place Head Office EMC Lab. No.1 and No.4 Semi Anechoic Chamber
 Report No. 32JE0251-AP-01
 Date 06/08/2012 06/13/2012
 Temperature/ Humidity 23 deg.C/ 64% RH 22 deg.C/ 61% RH
 Engineer Hiroshi Kukita Hiroshi Kukita
 (1-10GHz) (30-1000MHz,
 10GHz-26.5GHz)
 Mode BT Low Energy Tx 2402MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2390.000	PK	41.8	28.1	2.4	32.3	40.0	73.9	33.9	
Hori	9608.000	PK	44.6	38.3	7.1	32.9	57.1	73.9	16.8	
Hori	2390.000	AV	29.9	28.1	2.4	32.3	28.1	53.9	25.8	
Hori	9608.000	AV	35.6	38.3	7.1	32.9	48.1	53.9	5.8	
Vert	2390.000	PK	41.6	28.1	2.4	32.3	39.8	73.9	34.1	
Vert	9608.000	PK	43.9	38.3	7.1	32.9	56.4	73.9	17.5	
Vert	2390.000	AV	29.8	28.1	2.4	32.3	28.0	53.9	25.9	
Vert	9608.000	AV	34.0	38.3	7.1	32.9	46.5	53.9	7.4	

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

20dBc Data Sheet

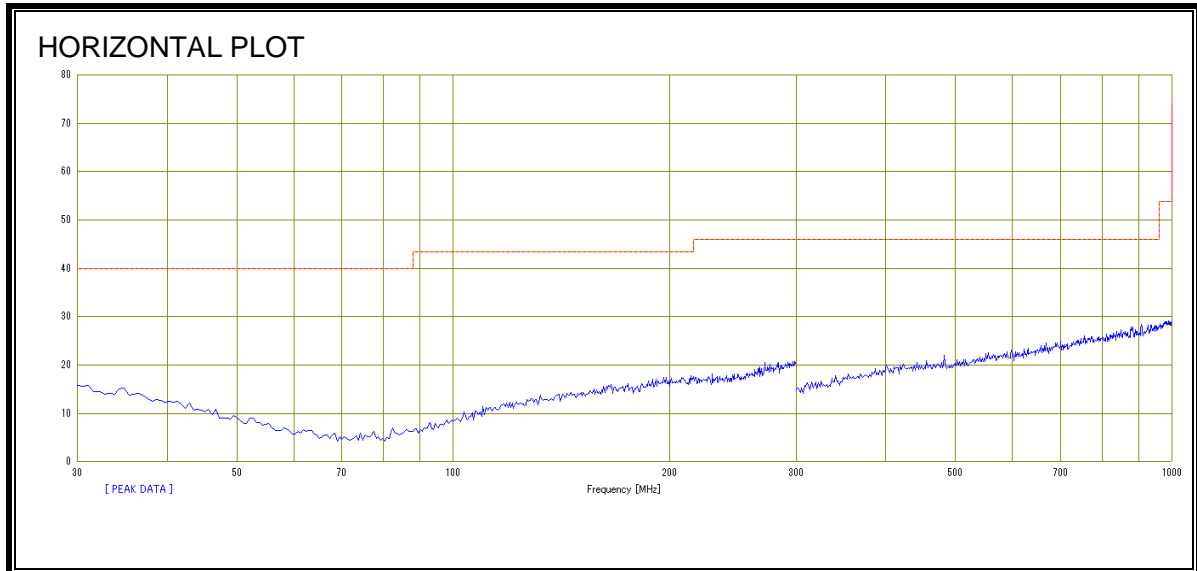
Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2402.000	PK	90.0	28.1	2.4	32.3	88.2	-	-	Carrier
Hori	2400.000	PK	34.8	28.1	2.4	32.3	33.0	68.2	35.2	
Vert	2402.000	PK	91.0	28.1	2.4	32.3	89.2	-	-	Carrier
Vert	2400.000	PK	33.6	28.1	2.4	32.3	31.8	69.2	37.4	

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

7.3. TRANSMITTER BELOW 1GHz

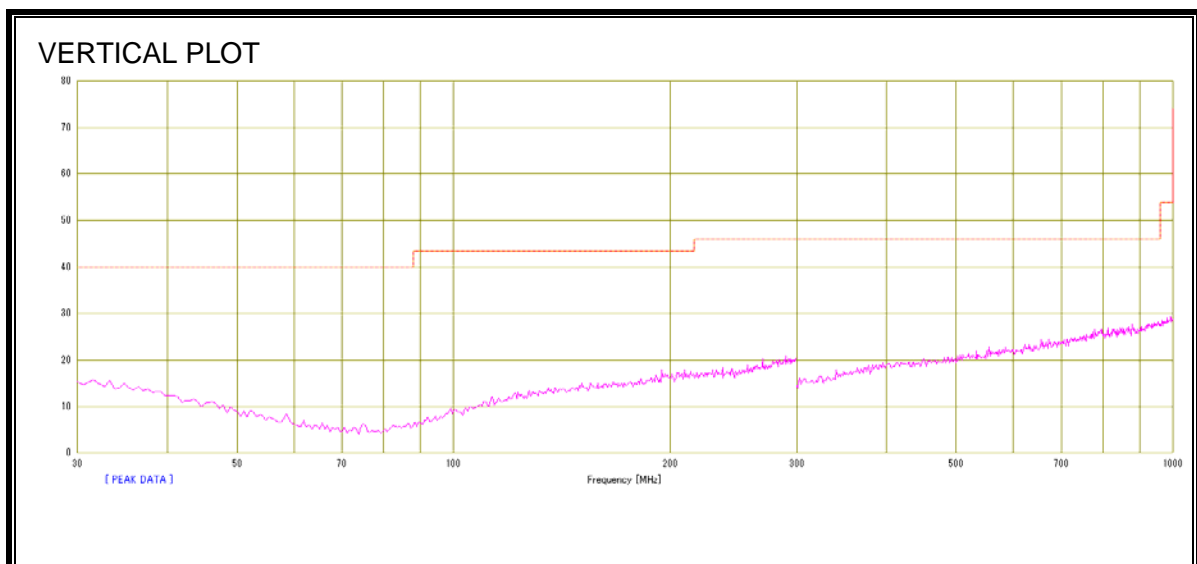
SPURIOUS EMISSIONS 30 TO 1000 MHz (HORIZONTAL)

[Tx 2402MHz]



No signal is detected.

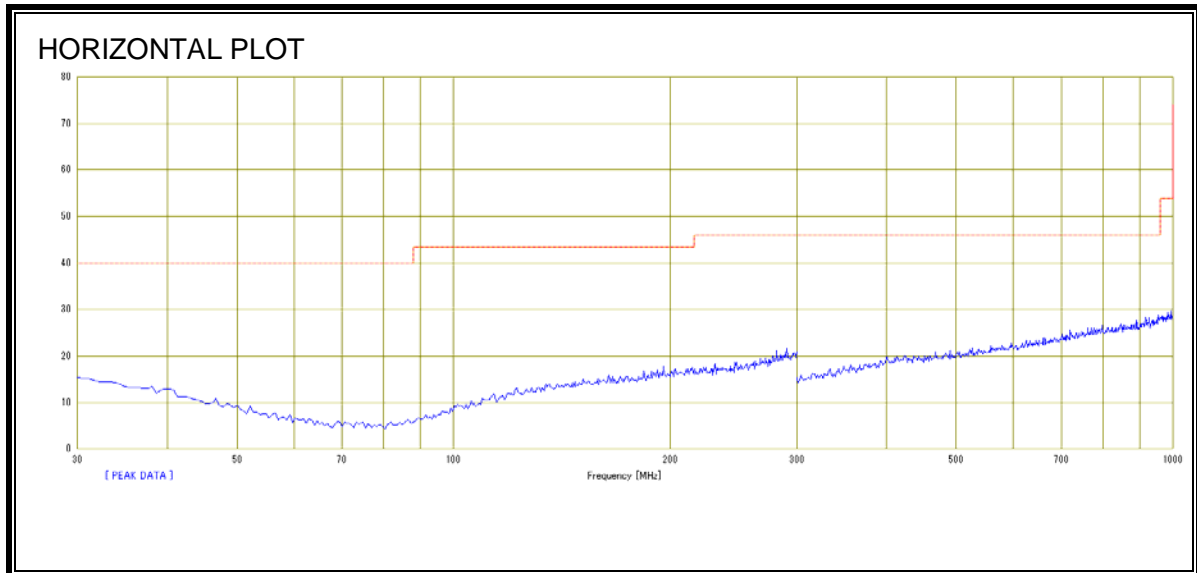
SPURIOUS EMISSIONS 30 TO 1000 MHz (VERTICAL)



No signal is detected.

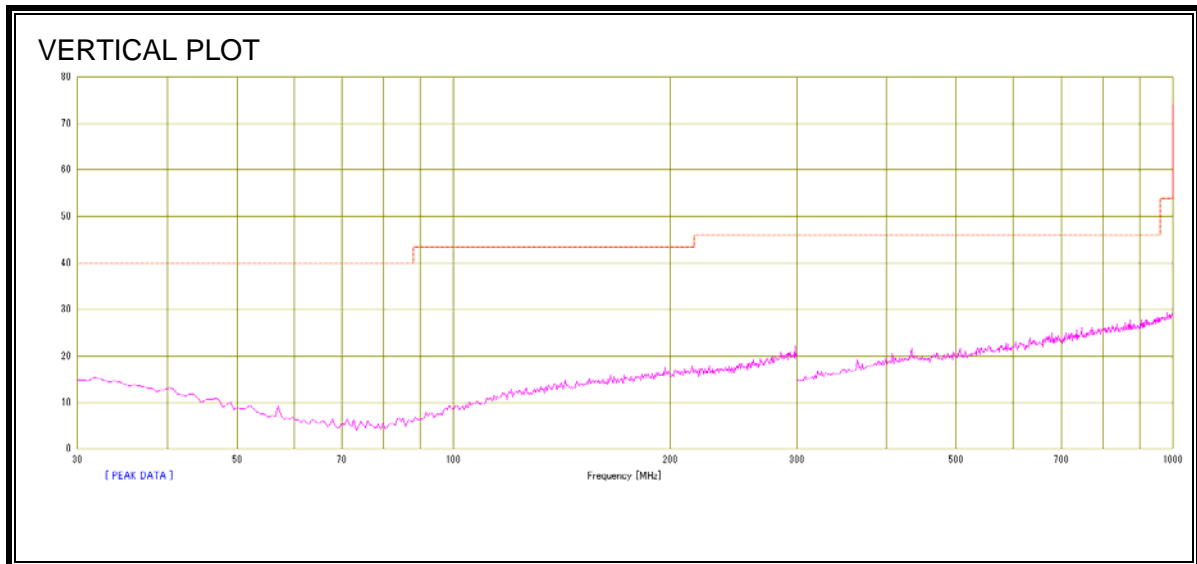
SPURIOUS EMISSIONS 30 TO 1000 MHz (HORIZONTAL)

[Tx 2440MHz]



No signal is detected.

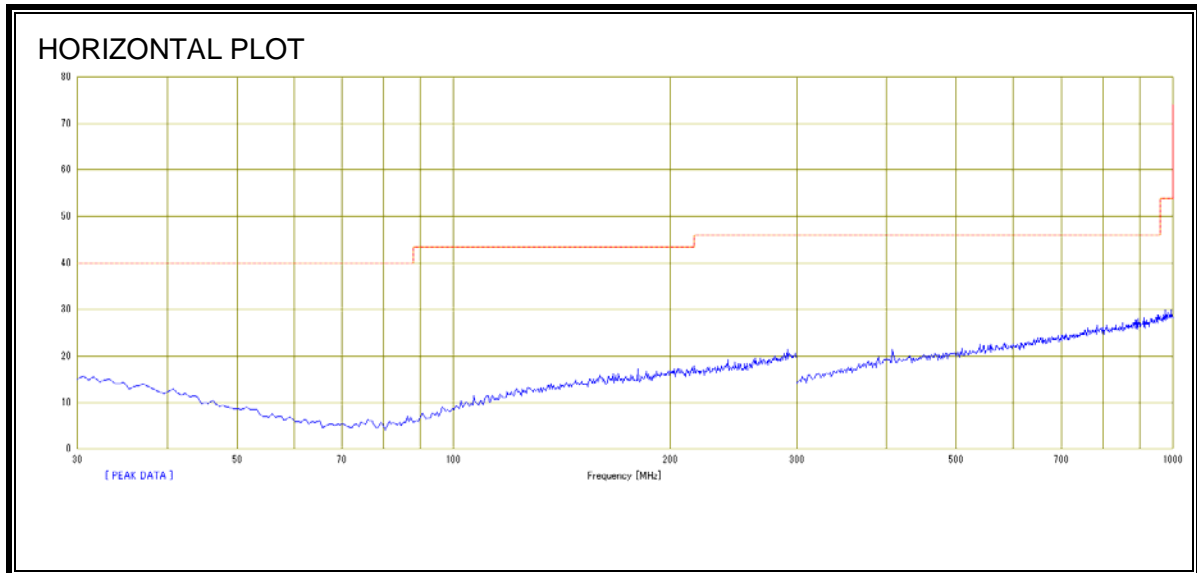
SPURIOUS EMISSIONS 30 TO 1000 MHz (VERTICAL)



No signal is detected.

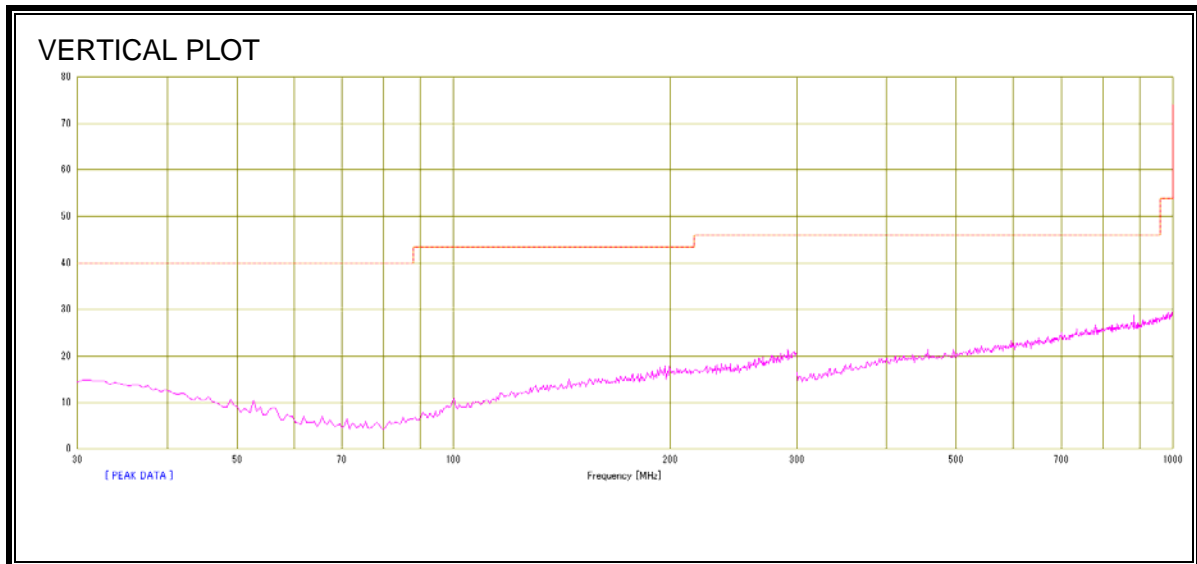
SPURIOUS EMISSIONS 30 TO 1000 MHz (HORIZONTAL)

[Tx 2480MHz]



No signal is detected.

SPURIOUS EMISSIONS 30 TO 1000 MHz (VERTICAL)



No signal is detected.

8. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

TEST PROCEDURE

ANSI C63.4

RESULTS

Conducted Emission

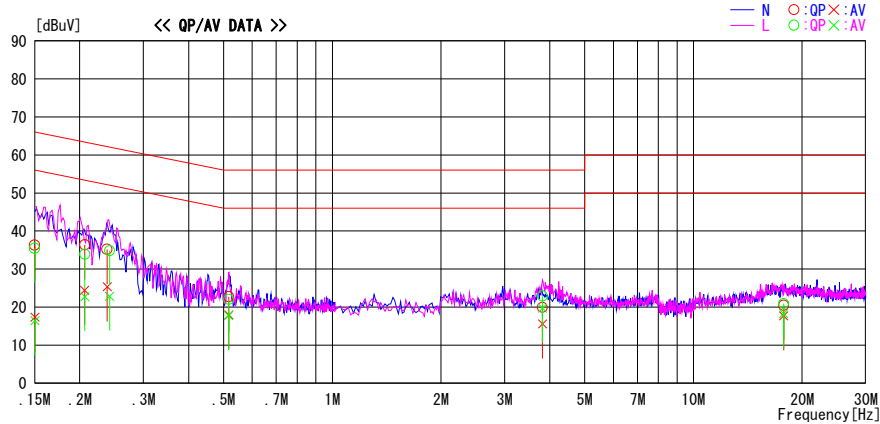
DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
 Date : 2012/06/24

Report No. : 32JE0251-AP-01
 Power : AC 120V / 60Hz
 Temp./Humi. : 21deg. C / 58% RH
 Engineer : Satofumi Matsuyama

Mode / Remarks : Tx LE 2402MHz

LIMIT : FCC15.207 QP
 FCC15.207 AV



Frequency [MHz]	Reading Level		Corr. Factor [dB]	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.15000	23.1	4.1	13.2	36.3	17.3	66.0	56.0	29.7	38.7	N	
0.20640	23.2	11.2	13.2	36.4	24.4	63.3	53.3	26.9	28.9	N	
0.23792	21.9	12.0	13.3	35.2	25.3	62.2	52.2	27.0	26.9	N	
0.51726	9.4	4.7	13.3	22.7	18.0	56.0	46.0	33.3	28.0	N	
3.82088	6.0	1.7	13.9	19.9	15.6	56.0	46.0	36.1	30.4	N	
17.76012	5.2	2.4	15.3	20.5	17.7	60.0	50.0	39.5	32.3	N	
0.15000	22.3	3.2	13.2	35.5	16.4	66.0	56.0	30.5	39.6	L	
0.20670	20.7	9.6	13.2	33.9	22.8	63.3	53.3	29.4	30.5	L	
0.24191	21.5	9.6	13.3	34.8	22.9	62.0	52.0	27.2	29.1	L	
0.51660	8.7	4.5	13.3	22.0	17.8	56.0	46.0	34.0	28.2	L	
3.82022	9.0	5.8	13.9	22.9	19.7	56.0	46.0	33.1	26.3	L	
17.75908	5.6	3.0	15.3	20.9	18.3	60.0	50.0	39.1	31.7	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.

Conducted Emission

Test place	Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date	06/24/2012
Temperature/ Humidity	21 deg. C/ 58% RH
Engineer	Satofumi Matsuyama
Mode	Tx LE

