FCC CFR47 PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 7

CLASS II PERMISSIVE CHANGE TEST REPORT

FOR

60 GHz WirelessHD (HIGH DEFINITION) SINK

MODEL NUMBER: WHLD-R002

FCC ID: XCSWHLD-R002

IC: 8343A-WHLDR002

REPORT NUMBER: 09J12669-1, Revision A

ISSUE DATE: JULY 20, 2009

Prepared for
MURATA MANUFACTURING CO., LTD.
1-18-1 HAKSAN MIDORI-KU
YOKOHAMA-SHI 226-0006, JAPAN

Prepared by
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	07/16/2009	Initial Issue	M. Heckrotte
A	07/20/2009	Revised model number	A. Zaffar

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: MURATA MANUFACTURING CO., LTD.
1-18-1 HAKSAN MIDORI-KU
YOKOHAMA-SHI 226-0006, JAPAN

EUT DESCRIPTION: 60 GHz WiirelessHD (HIGH DEFINITION) SINK

MODEL: WHLD-R002

SERIAL NUMBER: ML_ES4-1_SR#6

DATE TESTED: JULY 6, 2009

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 15 SUBPART C	Pass
INDUSTRY CANADA RSS-210 Issue 7 Annex 13	Pass
INDUSTRY CANADA RSS-GEN Issue 2	Pass

Compliance Certification Services, Inc. (CCS) 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 CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. 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 CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by CCS will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For CCS By:

MICHAEL HECKROTTE
DIRECTOR OF ENGINEERING
COMPLIANCE CERTIFICATION SERVICES

Tested By:

MENGISTU MEKURIA
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

All tests were performed in accordance with the procedures documented in ANSI C63.4-2003, FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC KDB 200443 Millimeter Wave Test Procedure, RSS-GEN Issue 2, and RSS-210 Issue 7.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://www.ccsemc.com.

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:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a WirelessHD Sink radio module. It is designed to operate as part of a Wireless Video Audio Network (WVAN) in the 57 to 64 GHz band. The EUT receives High Definition Audio/Video from a WirelessHD Source radio module.

Prior to the component changes documented below, a change in identification was filed for this device, based on original grants issued under FCC ID: XCSSUX-1278 and IC: 8343A-SUX1278.

5.2. DESCRIPTION OF CHANGES

Replace two Inductors in the power supply to improve the stability of the regulated DC voltage

6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
TELEVISION SET	BENQ	ET-0019-N	ETH2902836026	N/A
DVD PLAYER	SONY	DVP-NS700H	4148414	N/A
IF BOARD (SOURCE)		P2QPS410_1		N/A
IF BOARD (SINK)		P2QPS410_2		N/A
HDMI BOARD (SOURCE)		SMT042237-0062		N/A
HDMI BOARD (SINK)		SMT042237-0175		N/A
AC/DC	MAISTO	80002	3197	N/A
AC/DC (2)	GME	GFP151U-1212		N/A
AC/DC	CINCON ELEC. CO.	TR20B033X01E03	20033-000959	N/A
AC/DC	CINCON ELEC. CO.	TR20B033X01E03	20033-001255	N/A
AC/DC	ANOMA E.C.	AD-7875	2997	N/A

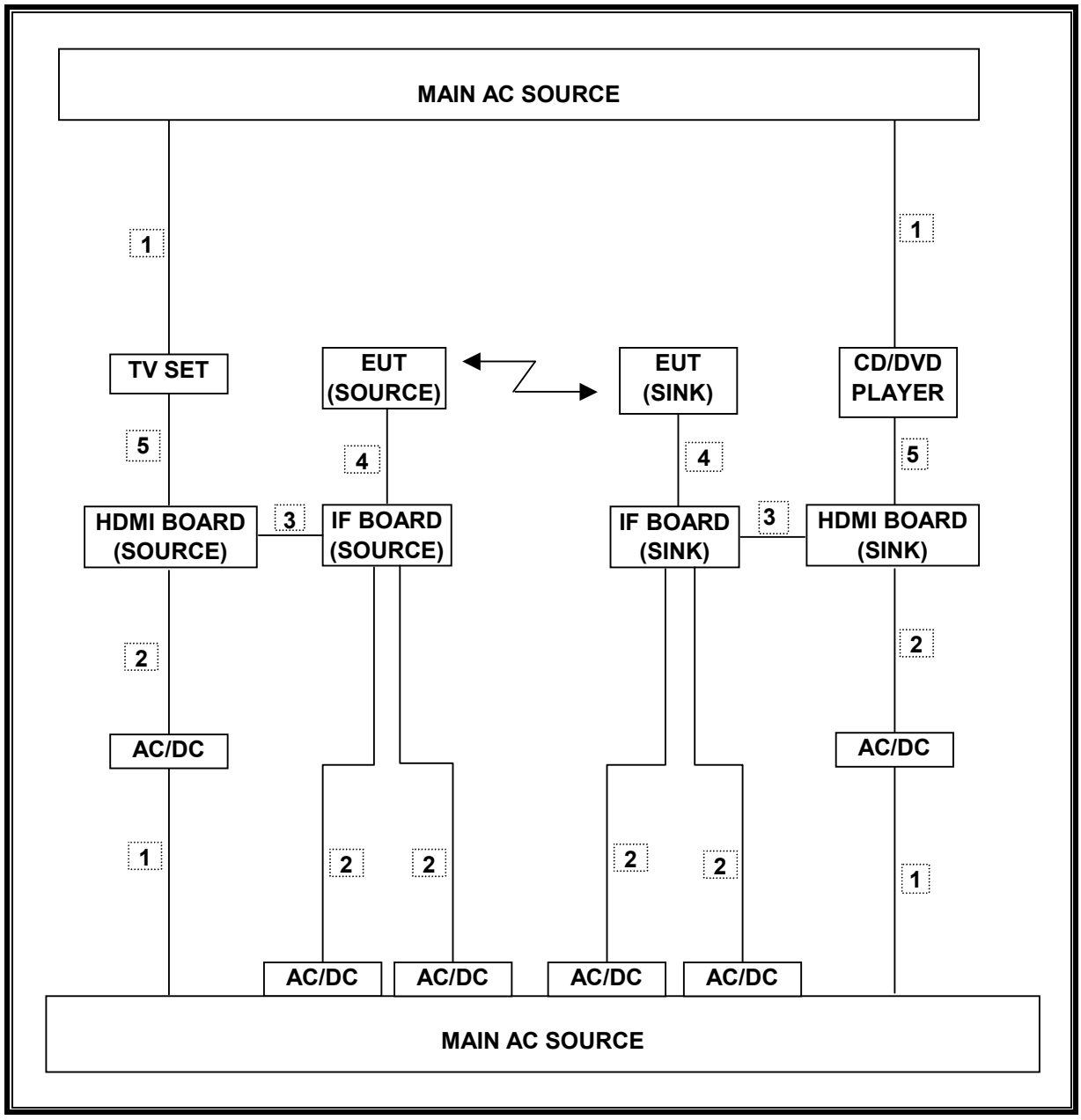
I/O CABLES

I/O CABLE LIST						
Cable No.	**Port**	**# of Identica Ports**	**Connector Type**	**Cable Type**	**Cable Length**	**Remarks**
1	AC	4	AC	Un-Shielded	2.0 m	N/A
2	DC	6	DC	Un-Shielded	2.0 m	N/A
3	DATA	2	AC	Shielded	0.1 m	N/A
4	DATA	2	Mulit-Pin Slot	Shielded	0.8 M	N/A
5	HDMI	1	HDMI	Shielded	2.0 m	N/A

TEST SETUP

High Definition Audio / Video in the 1080p format was sent from the Source to the Sink via the wireless link. A DVD player furnished HD A/V to the Source. The Sink furnished HD A/V to the television. All support equipment was placed inside a shielding box for radiated measurements. A laptop computer with test software was utilized to vary the radio configuration and antenna.

SETUP DIAGRAM FOR TESTS



7. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Asset**	**Cal Due**
Receiver, 30 MHz	R&S	ESHS20	N02396	8/6/2009
LISN	FCC	LISN-50/250-25-2	N02625	10/29/2009
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C00986	2/3/20010
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01016	1/14/2010
Preamp, 1000 MHz	Sonoma	310N	N02891	12/16/2009

8. APPLICABLE LIMITS AND TEST RESULTS

8.1. SUMMARY OF RESULTS AND CONCLUSIONS

Some emissions are higher than originally reported, however all emissions are under the limit, therefore this qualifies as a Class II Permissive Change.

8.2. SPURIOUS EMISSIONS

LIMITS

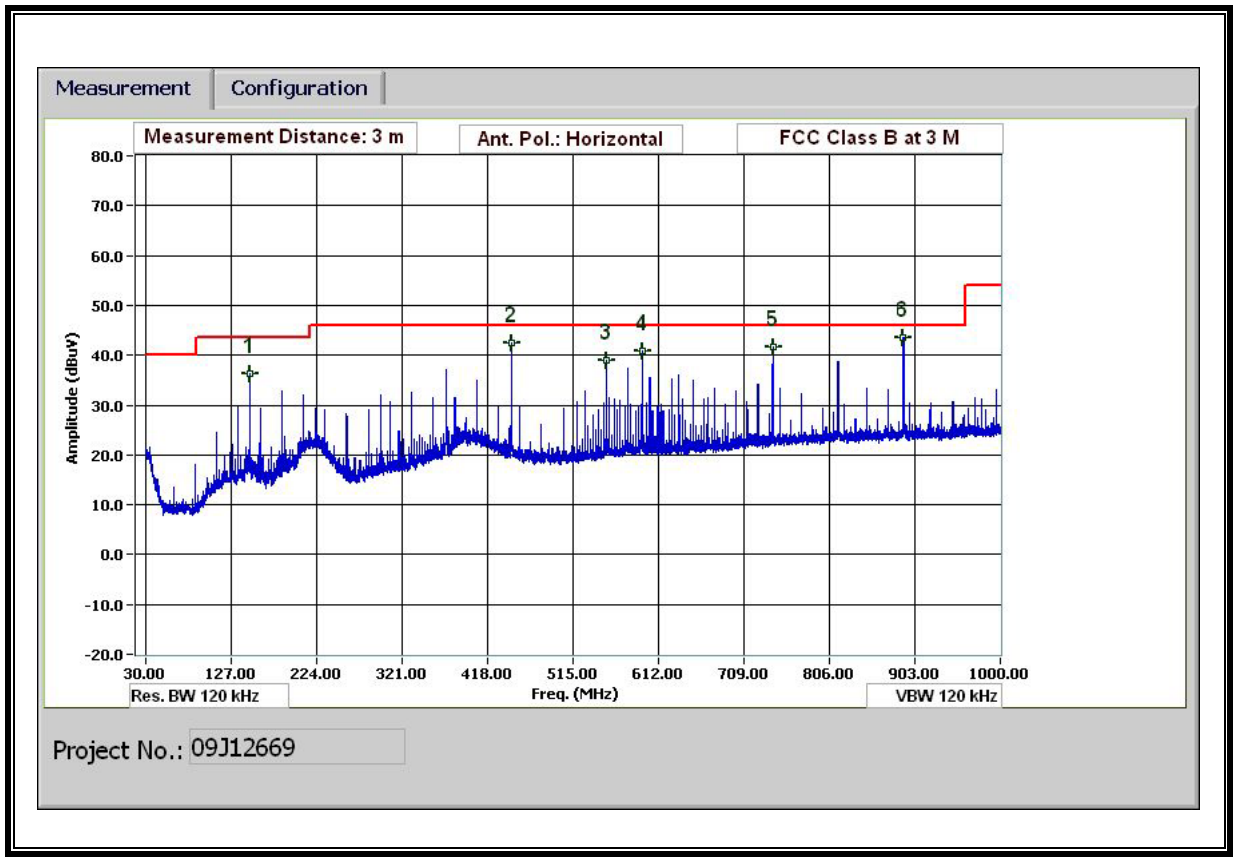
The component changes are in the power supply therefore radiated emissions from 30 to 1000 MHz were measured.

§15.255 (c) (2) Radiated emissions below 40 GHz shall not exceed the general limits in §15.209.

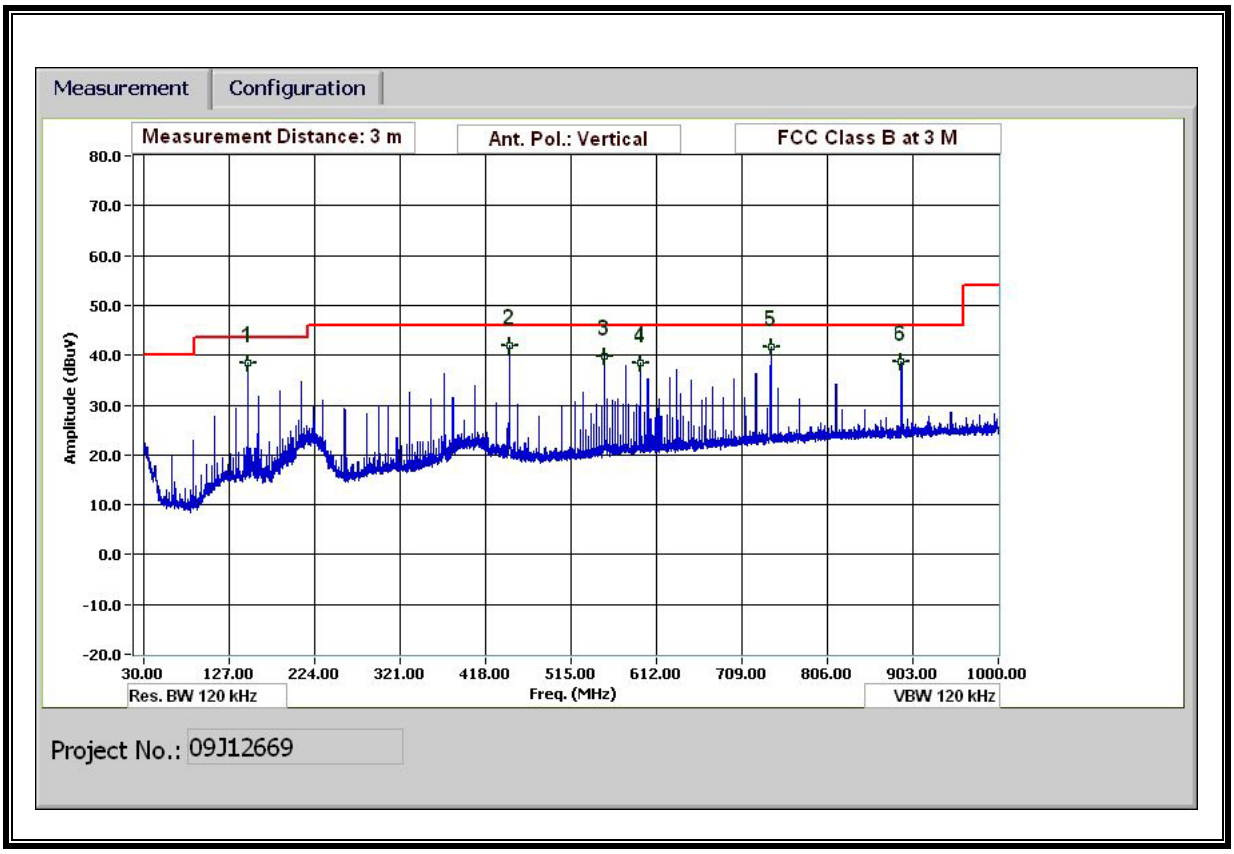
PROCEDURE

ANSI C63.4

SPURIOUS EMISSION 30 TO 1000 MHz (HORIZONTAL PLOT)



SPURIOUS EMISSION 30 TO 1000 MHz (VERTICAL PLOT)



SPURIOUS EMISSION 30 TO 1000 MHz VERTICAL AND HORIZONTAL DATA

30-1000MHz Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: MENGISTU MEKURIA
Date: 07/06/09
Project #: 09J12669
Company: MURATA
EUT Description: WIHD
EUT M/N: SOURCE (2) AND SINK (6)
Test Target: FCC CLASS B
Mode Oper: AUDIO VIDIO TX AND RX

f	Measurement Frequency	Amp	Preamp Gain	Margin	Margin vs. Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters		
Read	Analyzer Reading	Filter	Filter Insert Loss		
AF	Antenna Factor	Corr.	Calculated Field Strength		
CL	Cable Loss	Limit	Field Strength Limit		

f MHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filter dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
148.325	3.0	50.8	12.7	1.1	28.3	0.0	0.0	36.4	43.5	-7.1	H	P	
445.097	3.0	52.7	15.7	1.9	28.0	0.0	0.0	42.3	46.0	-3.7	H	P	
552.982	3.0	46.9	17.6	2.1	27.7	0.0	0.0	39.0	46.0	-7.0	H	P	
593.423	3.0	47.7	18.3	2.2	27.5	0.0	0.0	40.7	46.0	-5.3	H	P	
741.749	3.0	46.4	20.2	2.5	27.3	0.0	0.0	41.7	46.0	-4.3	H	P	
890.075	3.0	46.8	21.8	2.8	27.7	0.0	0.0	43.6	46.0	-2.4	H	P	
148.325	3.0	53.0	12.7	1.1	28.3	0.0	0.0	38.6	43.5	-5.0	V	P	
445.097	3.0	52.1	15.7	1.9	28.0	0.0	0.0	41.8	46.0	-4.2	V	P	
552.982	3.0	47.6	17.6	2.1	27.7	0.0	0.0	39.7	46.0	-6.3	V	P	
593.423	3.0	45.5	18.3	2.2	27.5	0.0	0.0	38.5	46.0	-7.5	V	P	
741.749	3.0	46.3	20.2	2.5	27.3	0.0	0.0	41.6	46.0	-4.4	V	P	
890.075	3.0	41.8	21.8	2.8	27.7	0.0	0.0	38.6	46.0	-7.4	V	P	

Rev. 1.27.09
Note: No other emissions were detected above the system noise floor.

8.3. AC MAINS LINE CONDUCTED EMISSIONS

LIMITS

The component changes are in the power supply therefore conducted emissions from 0.15 to 30 MHz were measured.

§15.207

Frequency range (MHz)	Limits (dBµV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Notes: 1. The lower limit shall apply at the transition frequencies 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

TEST PROCEDURE

ANSI C63.4

6 WORST EMISSIONS

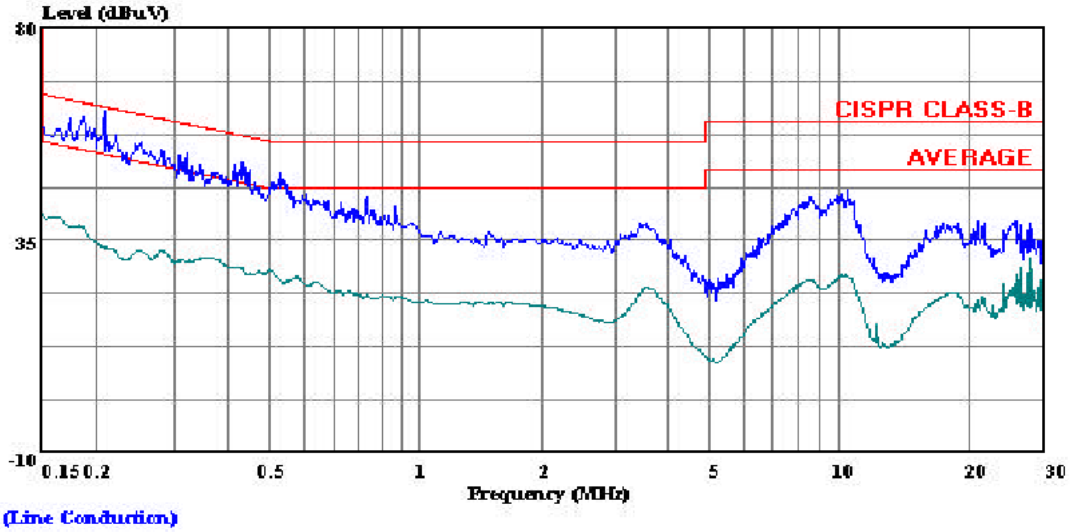
CONDUCTED EMISSIONS DATA (115VAC 60Hz)

Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.21	62.32	55.90	38.14	0.00	63.28	53.28	-7.38	-15.14	L1
0.32	53.45	48.60	32.96	0.00	59.66	49.66	-11.06	-16.70	L1
0.43	51.75	45.60	29.31	0.00	57.19	47.19	-11.59	-17.88	L1
0.21	60.48	54.30	44.21	0.00	63.13	53.13	-8.83	-8.92	L2
0.41	53.79	46.70	37.85	0.00	57.73	47.73	-11.03	-9.88	L2
10.23	50.41	42.80	33.50	0.00	60.00	50.00	-17.20	-16.50	L2
6 Worst Data									

LINE 1 RESULTS

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 14 File#: 09J12669 LC.EMI Date: 07-06-2009 Time: 22:33:00



(Line Conduction)

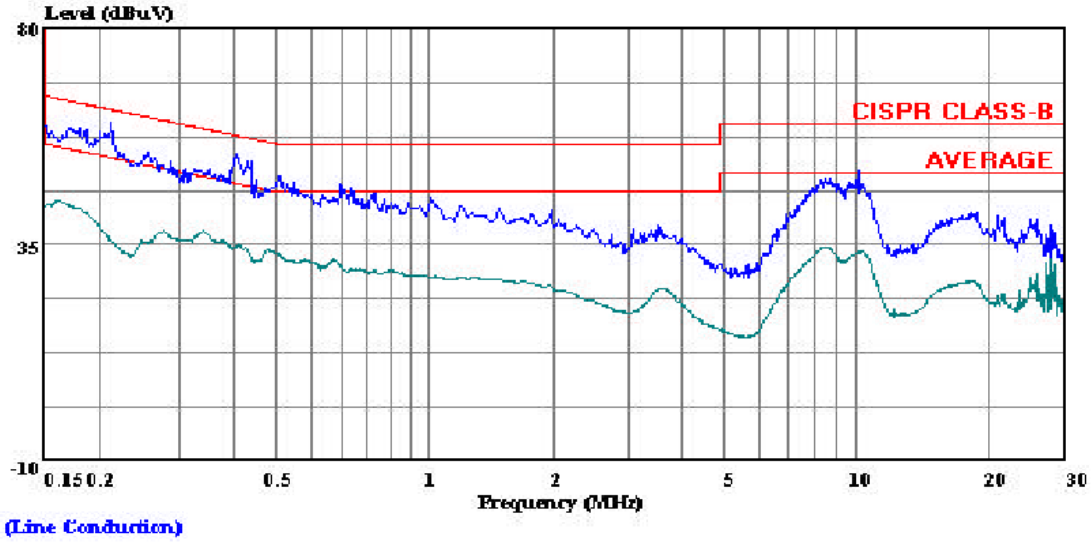
Trace: 12 Ref Trace:

Condition: CISPR CLASS-B
Test Operator: : Mengistu Meku
Project #: : 09U12669
Company: : Murata
EUT Description:: WIHD
Mode: : Audio and Vidio Tx/Rx
Target: : FCC Class B
Voltage: : 115VAC, 60Hz
: L1: Peak (Blue) , Average (Green)

LINE 2 RESULTS

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 7 File#: 09J12669 LC.EMI Date: 07-06-2009 Time: 22:23:58



(Line Conduction)

Trace: 5 Ref Trace:

Condition: CISPR CLASS-B
Test Operator: : Mengistu Meku
Project #: : 09U12669
Company: : Murata
EUT Description:: WIHD
Mode: : Audio and Vidio Tx/Rx
Target: : FCC Class B
Voltage: : 115VAC, 60Hz
: L2: Peak (Blue) , Average (Green)