FCC CFR47 PART 15 SUBPART C

Class 2 Permissive Change Test Report

2.4 GHz RFID Reader

Model Number: HSS-MUR-300

FCC ID: ES8-HSS-MUR-300

Report Number: 07PR15CL2PC REV 1.1

Issue Date: July 19, 2007

Prepared for

HITACHI AMERICA LTD.
Information Division
2000 Sierra Point Parkway
Brisbane CA 94005-1845

Prepared by

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El Granada CA 94018

REPORT REVISION HISTORY

Revision No.	Description	Revised By	Date
1.0	Original issue	T. Cokenias	7/12/2007
1.1	Correct company name	T. Cokenias	7/19/2007

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Hitachi America Ltd.
Information Division
2000 Sierra Point Parkway, M/S 570
Brisbane, CA 94005-1845

EUT DESCRIPTION: RFID Reader with new AC-DC power supply

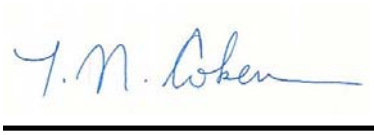
MODEL: HSS-MUR-300

DATE TESTED: 29 June 2007

A new AC-DC power supply will be provided for the referenced RFID reader. Testing was performed to support a class 2 permissive change certification application. AC line conducted testing was performed to the limits in 15.207 of the Rules, and radiated emissions tests 30-1000 MHz were performed to the limits in 15.107. No testing was performed above 1 GHz, as there has been no change to the RFID reader, other than the addition of the new power supply. The radiated emissions limits in 15.109 for an unintentional radiator in the 30-1000 MHz range are identical to those in 15.209, therefore one test configuration is suitable for both measurements.

Testing was performed following accepted test methodologies and practices, using equipment with calibrations traceable to NIST, and by properly trained personnel. All tests were performed at

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538



T.N. Cokenias
Agent for Hitachi America Ltd.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, FCC CFR 47 Part 2 and FCC CFR 47 Part 15.

3. EQUIPMENT UNDER TEST

3.1. DESCRIPTION OF EUT

The EUT is a previously certified frequency hopping spread spectrum RFID Reader. A new AC-DC external power supply will be used with this RFID reader. No other changes have been made to the originally certified product.

3.2. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was MPR version 2.0

3.3. WORST-CASE CONFIGURATION AND MODE

The EUT was set to the lowest channel at maximum allowed output power, with continuous transmission.

3.4. DESCRIPTION OF TEST SETUP

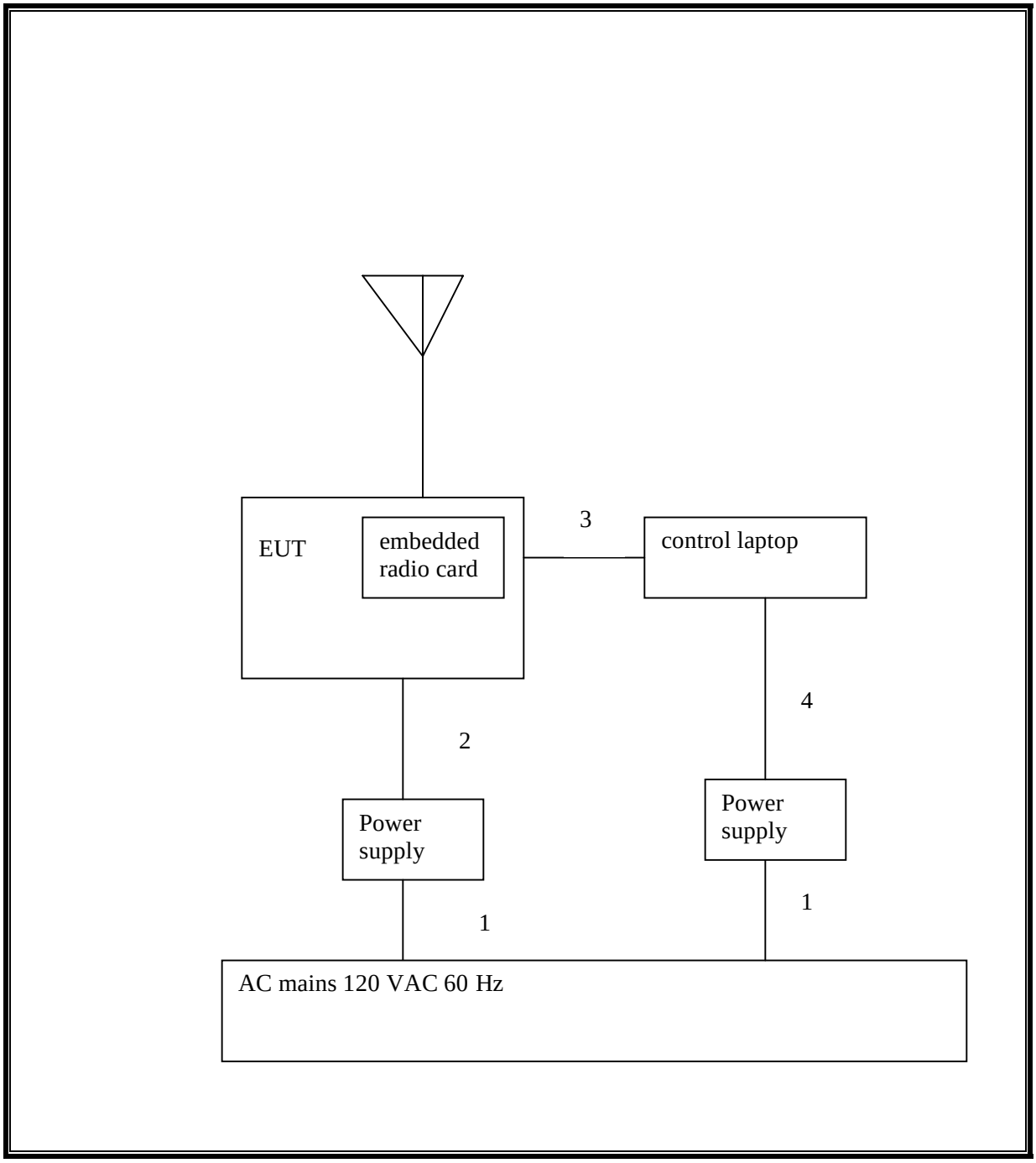
SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Part/Serial Number**	**FCC ID**
LAPTOP	IBM	390E	AF - 1B8BD	N/A
AC/DC ADAPTER	IBM	N/A	02K6555	N/A
DC POWER SUPPLY	CUI	3A-211DN06	ETS060330UTC-P5P-SZ	N/A

I/O CABLES

I/O CABLE LIST						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length**	**Remarks**
1	AC	2	AC	Un-shielded	0.5 m	N/A
2	DC	1	DC	Un-shielded	1m	N/A
3	SERIAL	1	RS-232	Un-shielded	1m	N/A
4	DC	1	DC	Un-shielded	0.5m	N/A

SETUP DIAGRAM FOR TESTS



4. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Name of Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Due Date**
RF Filter Section	**Agilent / HP**	**85420E**	**3705A00256**	**2/4/07**
Antenna, Bilog 30 MHz ~ 2 Ghz	**Sunol Sciences**	**JB1**	**A0022704**	**8/13/07**
EMI Receiver 9Khz~2.9GHz	**Agilent / HP**	**8542E**	**3942A00286**	**6/12/08**
EMI Test Receiver	**R & S**	**ESHS 20**	**827129/006**	**1/27/08**
LISN, 10 kHz ~ 30 MHz	**FCC**	**LISN-50/250-25-2**	**2023**	**9/15/07**

5. LIMITS AND RESULTS

5.1. RADIATED EMISSIONS

LIMITS

15.107(a) Except for Class a digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Field Strength (microvolts/meter)
30 - 88	100 **
88 - 216	150 **
216 - 960	200 **
Above 960	500

TEST PROCEDURE

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

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

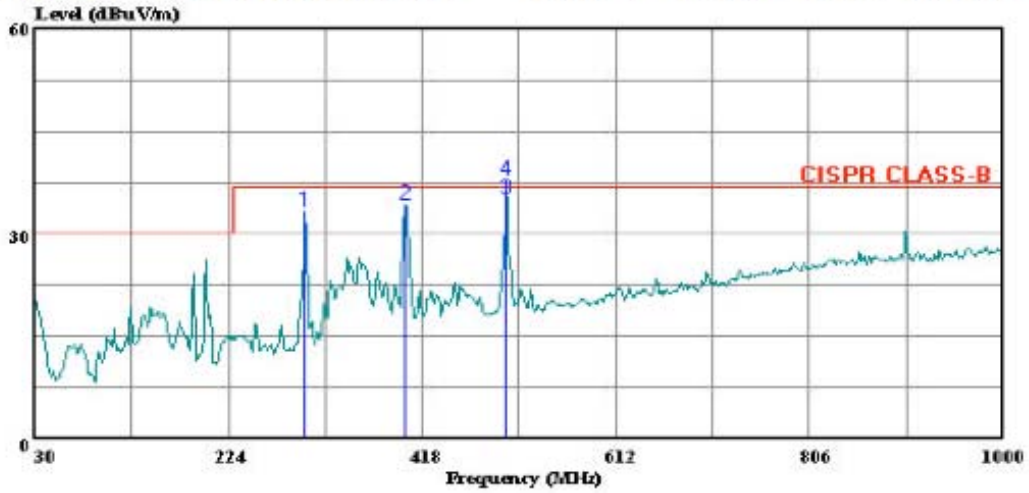
The frequency range of interest was monitored at a fixed antenna height and EUT azimuth. The EUT was rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements were made with the antenna polarized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

1. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

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

Data#: 18 File#: 07u10PPP.EMI Date: 06-29-2007 Time: 11:57:46



Trace: 15 Ref Trace:

Condition: CISPR CLASS-B HORIZONTAL
Test Operator:: Tom Chen
Project #: : 07U10PPP
Company: : Hitachi America
Configuration:: EUT with Peripheral (Origenal) (N_P)
Mode : : Low CH CW -3 on the FL
Target: : CISPR Class B

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		Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1		300.630	17.53	15.78	33.31	37.00	-3.69	Peak
2		401.510	16.08	18.18	34.26	37.00	-2.74	Peak
3		502.390	14.65	20.45	35.10	37.00	-1.90	QP
4	*	502.390	17.54	20.45	37.99	37.00	0.99	Peak

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

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

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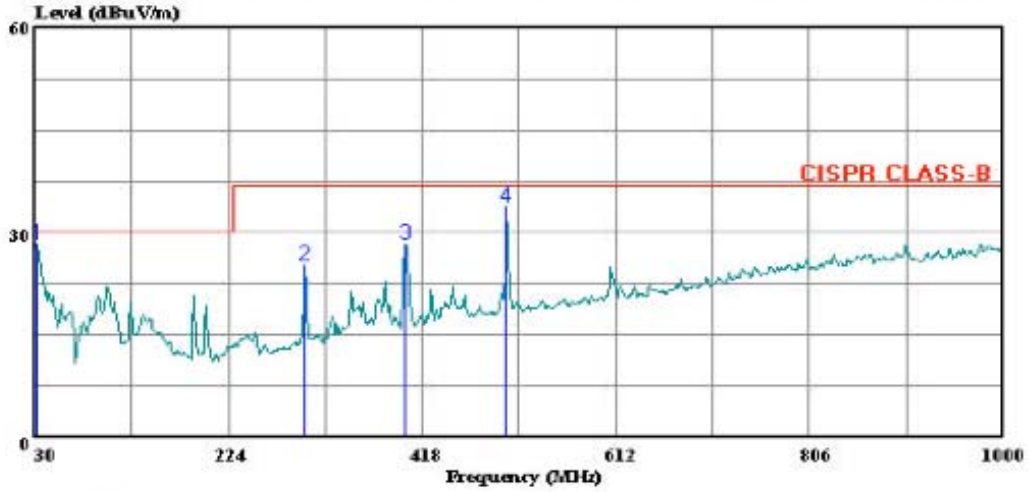

Trace: 13 Ref Trace:

Condition: CISPR CLASS-B VERTICAL
Test Operator:: Tom Chen
Project #: : 07U10PPP
Company: : Hitachi America
Configuration:: EUT with Peripheral (Origenal) (N_P)
Mode : : Low CH CW -3 on the FL
Target: : CISPR Class B

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	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	31.940	6.53	21.82	28.35	30.00	-1.65	Peak
2	300.630	9.38	15.78	25.16	37.00	-11.84	Peak
3	400.540	10.23	18.15	28.38	37.00	-8.62	Peak
4	502.390	13.26	20.45	33.71	37.00	-3.29	Peak

5.2. POWERLINE CONDUCTED EMISSIONS

LIMIT

§15.207 (a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

The lower limit applies at the boundary between the frequency ranges.

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

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The resolution bandwidth is set to 9 kHz for both peak detection and quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

No non-compliance noted:

LINE 1 RESULTS

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

Data#: 7 File#: 07U11PPP_115VAC_LC.EMI
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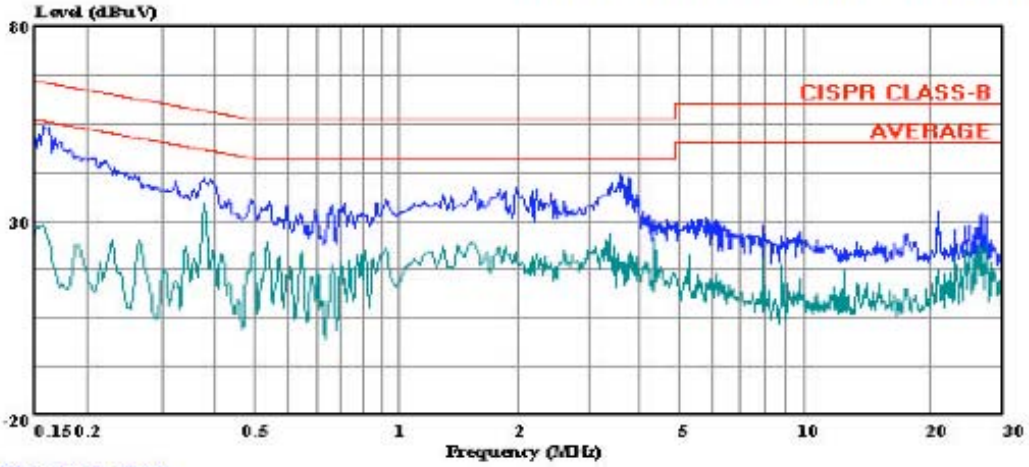

(Line Conduction)

Trace: 5 Ref Trace:

Condition: CISPR CLASS-B
Test Operator:: Tom Chen
Project #: : 07U11PPP
Company: : Hitachi America
Configuration:: EUT,with Peripherals
Mode: : Low CH CW
Target: : CISPR CLASS-B
Voltage: : 115VAC/60Hz
: L1:Peak(Blue),Avg(Green)

LINE 2 RESULTS

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

Data#: 14 File#: 07U11PPP_115VAC_LC.EMI
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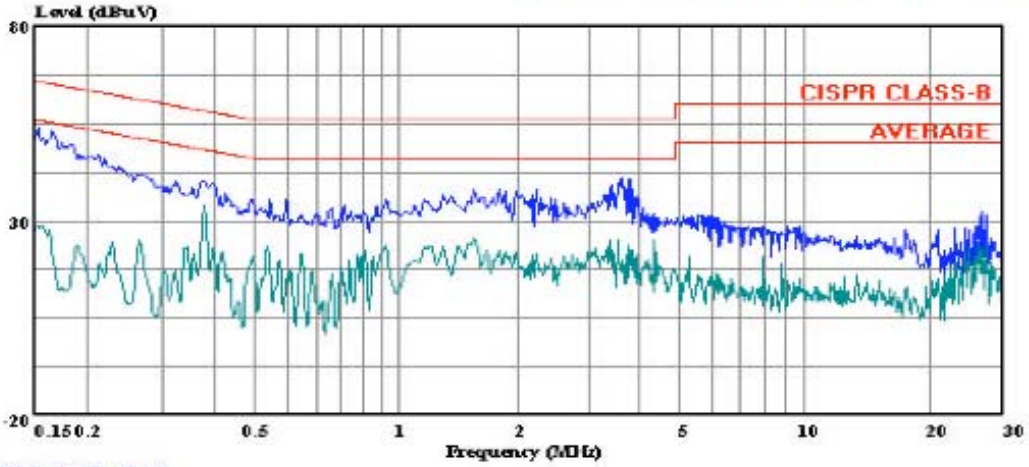


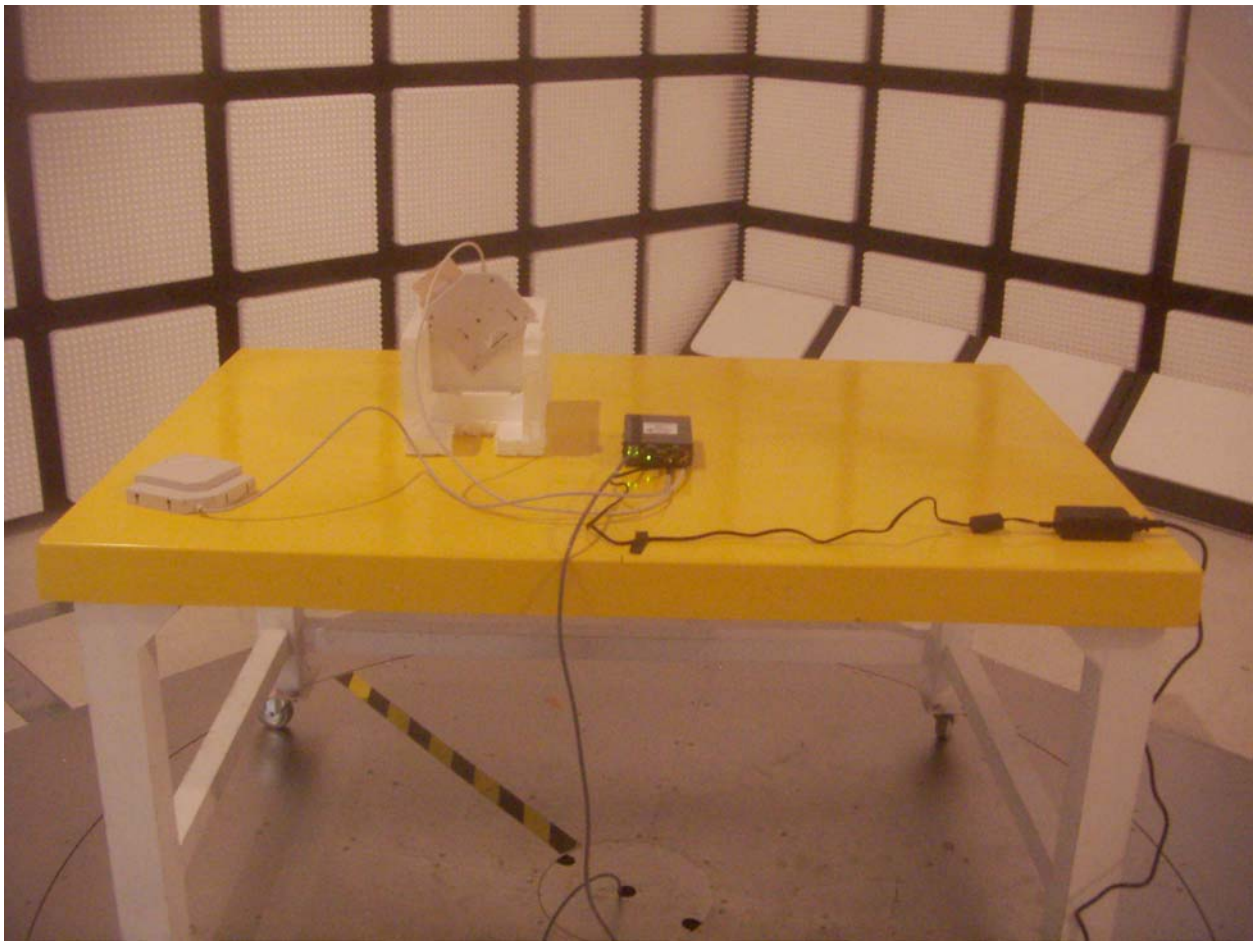
(Line Conduction)

Trace: 12 Ref Trace:

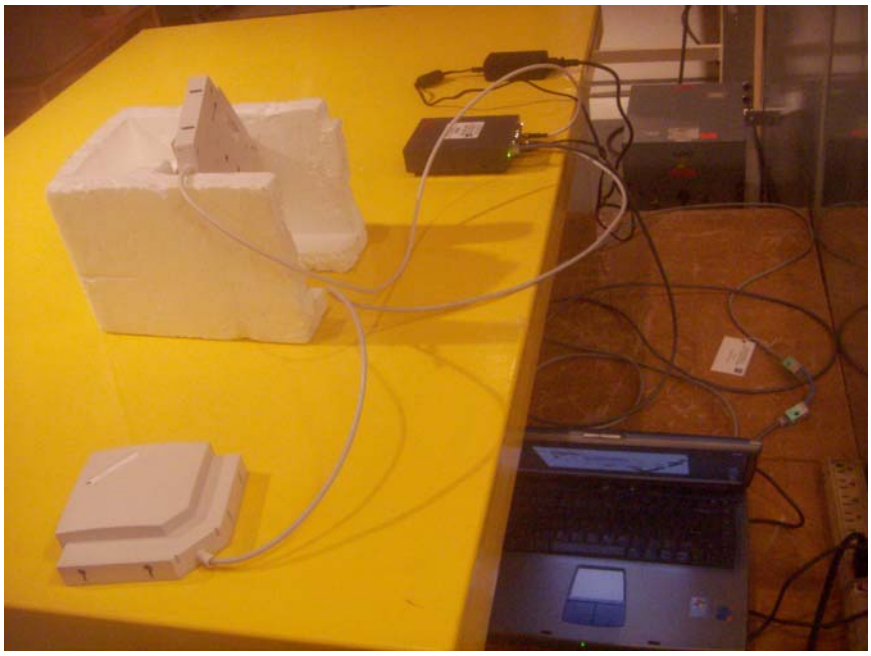
Condition: CISPR CLASS-B
Test Operator:: Tom Chen
Project #: : 07U11PPP
Company: : Hitachi America
Configuration:: EUT,with Peripherals
Mode: : Low CH CW
Target: : CISPR CLASS-B
Voltage: : 115VAC/60Hz
: L2:Peak(Blue),Avg(Green)

6. SETUP PHOTOS

RADIATED RF MEASUREMENT SETUP



POWERLINE CONDUCTED EMISSIONS MEASUREMENT SETUP



END OF REPORT