
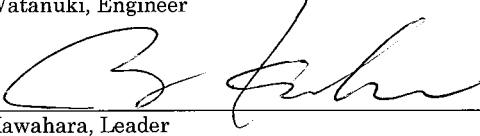


MEASUREMENT/TECHNICAL REPORT
FCC Part 15 Subpart C

Issued: July 5th, 2007

Name and Address of the Applicant:	Konami Digital Entertainment Co., Ltd. 6-3, Takatsukadai, Nishi-ku, Kobe-shi, Hyogo-ken 651-2271 Japan
Test Item:	RFID Reader / Writer Unit
Identification:	KJ111703250000
Serial No.:	5B203533
FCC ID:	VCTKJ111703250000
Sample Receipt Date:	April 24 th , 2007
Test Specification:	FCC Part 15 Subpart C, 15.225
Date of Testing:	May 14 th , July 5 th 2007
Test Result:	PASS

Report Prepared by:	Cosmos Corporation 2-3571 Ohnogi, Watarai-cho, Watarai-gun, Mie, Japan 516-2102 Phone: +81-596-63-0707 Fax: +81-596-63-0777
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Tested by:	 D. Watanuki, Engineer	July 5th, 2007 Date
Reviewed by:	 Y. Kawahara, Leader	July 5th, 2007 Date

Notes:	<ol style="list-style-type: none"> 1. This report should not be reproduced except in full, without the written approval of Cosmos Corporation. 2. All measurement data contained in this report may have uncertainty. A judgment for the limitation should be taken into the count. 3. The report in this report apply only to the sample tested.
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List of Contents

Page

1. Description of Equipment Under Test4
 1.1 Product Description4
 1.2 Antenna Description.....4
 1.3 Accompanied Peripherals Description.....4
 2. General Information5
 2.1 Test Methodology.....5
 2.2 Test Facility5
 2.3 Tractability.....5
 3. Summary of Test Results5
 4. Test Configuration6
 4.1 Conducted Emission Measurement6
 4.2 Radiated Measurement in 3m Anechoic Chamber.....6
 4.3 Test Mode.....7
 5. Measurement Result.....8
5.1 15. 207 AC Power Conducted Emission.....8
 5.1.1 Setting Remarks.....8
 5.1.2 Minimum Standard8
 5.1.3 Result8
 5.1.4 Measured Data9
5.2 15. 209 Transmitter Radiated Emissions.....11
 5.2.1 Setting Remarks.....11
 5.2.2 Minimum Standard12
 5.2.3 Result12
 5.2.4 Measured Data13
5.3 Maximum Carrier Output Power15
 5.3.1 Setting Remarks.....15
 5.3.2 Minimum Standard15
 5.3.3 Result15
 5.3.4 Measured Data (3m distance)16
5.4 Frequency Tolerance18
 5.4.1 Setting Remarks.....18
 5.4.2 Minimum Standard18
 5.4.3 Result18
 5.4.4 Measured Data18
 6. Photos19
 6.1 Setup Photo (Conducted Emission).....19
 6.2 Setup Photo (Radiated Emission)20

7. List of Test Measurement Instruments22
 7.1 Conducted Emission Measurement22
 7.2 Radiated Emission Measurement.....22

2. General Information

2.1 Test Methodology

All measurement subject to the present test report is carried out according to the procedures in ANSI C63.4:2003.

2.2 Test Facility

All measurement was performed in the following facility;

Cosmos Corporation EMC Lab. Ohnogi

(2-3571 Ohaza-iwatachi, Ohnogi, Watarai-cho, Watarai-gun, Mie-ken 516-2102, Japan) This site has been accepted in a letter dated November 2, 2004 from FCC.

2.3 Tractability

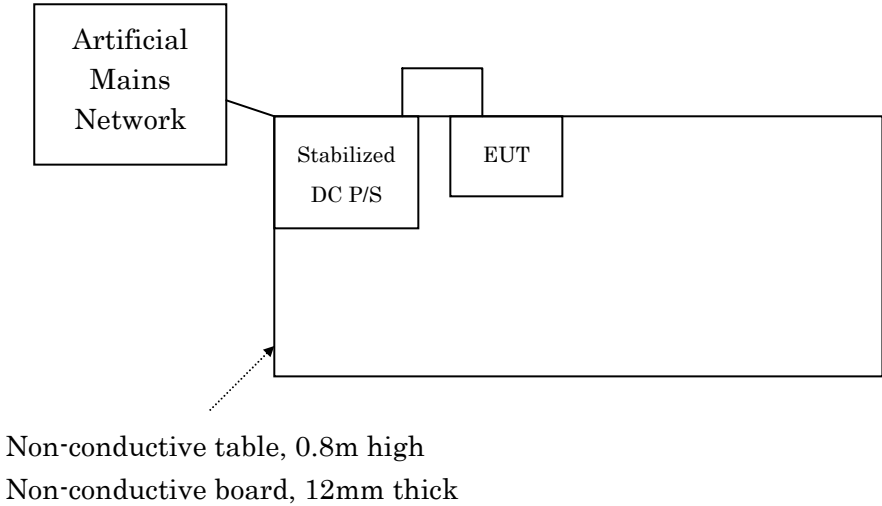
The calibration of measurement equipment used in the test subject to the present report is designed and operated to ensure that the measurement is traceable to national standards of measurement or equivalent abroad.

3. Summary of Test Results

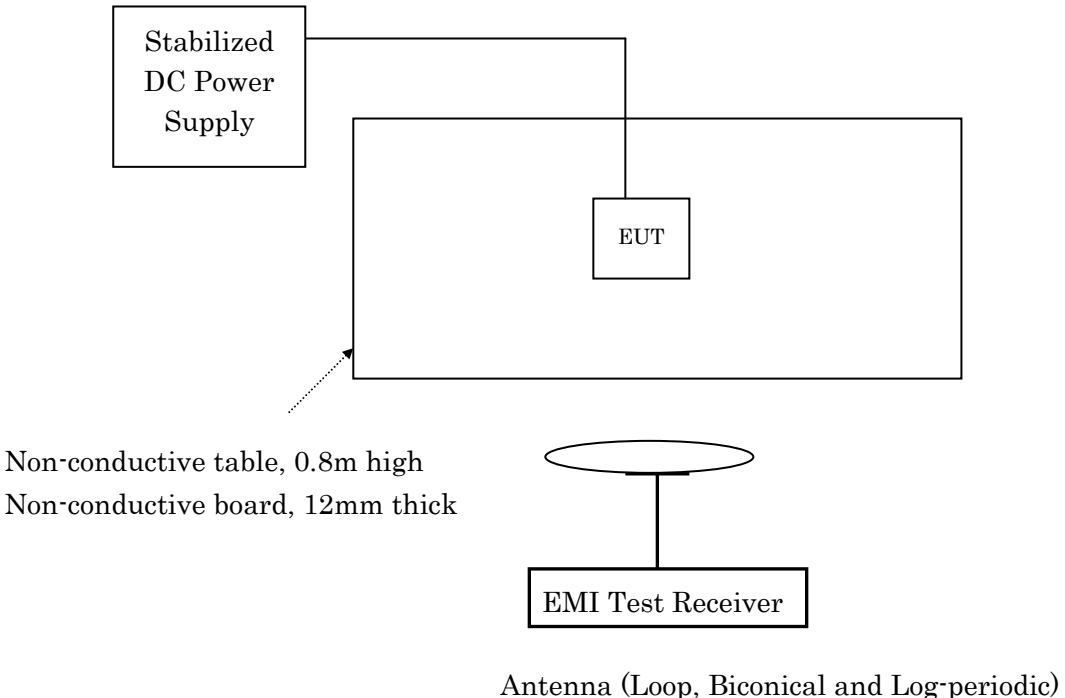
Section	Test Item	Limit	Result
15. 207	AC Power Conducted Emission	Limit: min.48dBuV	Pass
15. 209	Field Strength of Spurious Emission	Refer to 15. 209	Pass
15. 225	Maximum Output Power	15,848 uV/m @ 30 m	Pass
15. 225	Frequency Tolerance	± 0.01 %	Pass

4. Test Configuration

4.1 Conducted Emission Measurement



4.2 Radiated Measurement in 3m Anechoic Chamber



4.3 Test Mode

In all test configurations above, EUT makes communication link between the integrated RFID module and a RFID tag in a dedicated ink ribbon with the maximum RF power by a special test program.

Maximum Output Power and Frequency Tolerance measurement were performed with an external stabilized DC power supply voltage varied between 85% and 115% of the nominal rated supply voltage 12 VDC.

Frequency Tolerance measurement is performed under the following extreme condition:

Temperature: - 20°C to +50°C

Voltage: 10.2 to 13.8 VDC

5. Measurement Result

5.1 15. 207 AC Power Conducted Emission

5.1.1 Setting Remarks

- Configure the EUT System in accordance with ANSI C63.4-2003.
- A wooden test table (1.5m×1.0m, height 0.8m) was used.
- EUT's dedicated AC adapter connected to Artificial Mains Network (AMN).
- Other power cord of support equipment is connected to another AMN to isolate its emission from the measured emission of EUT.
- The measuring port of AMN for support equipment was terminated by the 50Ω
- Activate the EUT System and run the software prepared for the test, if necessary.
- Refer to test configuration figure 4.1.

5.1.2 Minimum Standard

(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.

5.1.3 Result

EUT complies with the requirement.

Uncertainty of measurement : ± 2.26 dB
 Temperature, Humidity : N/A

5.1.4 Measured Data

Measured Value Table

Model Name : KJ111703250000 (RFID Module) Job No : CJ07-060365E
 Serial No. : N/A Temp/Humi : 19°C/37%
 Operator : D. Watanuki Condition : Operated
 Power Supply : AC100V, 60Hz Remark :

Memo :

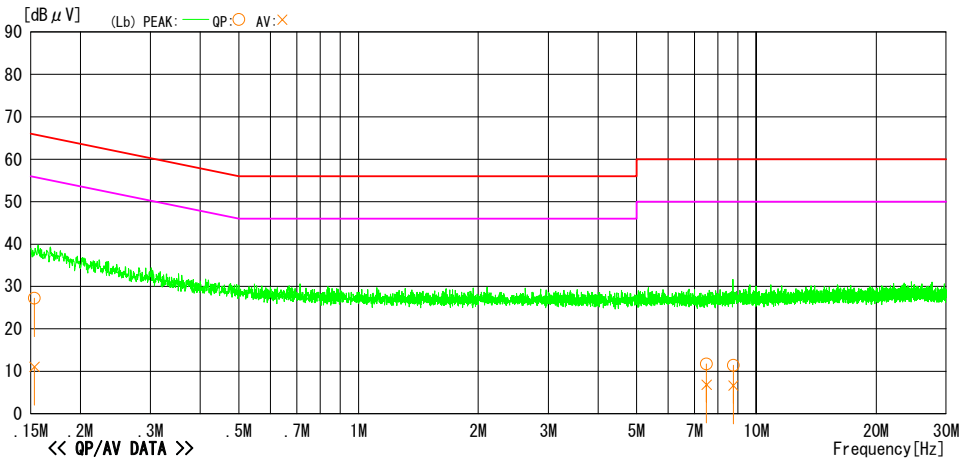
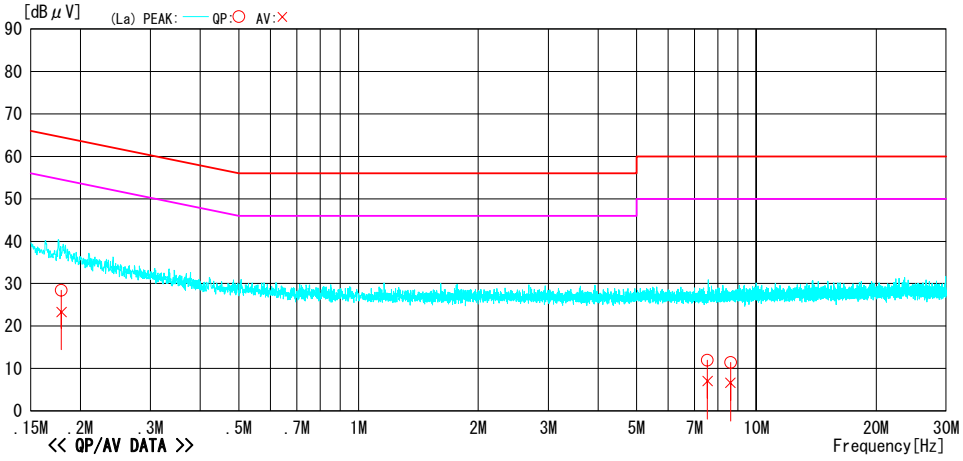
LIMIT : FCC Part. 15 Class B QP
 FCC Part. 15 Class B AV

No	Freq. [MHz]	Reading		C. Fac [dB]	Results			Limit		Margin		Phase	Comment
		Level [dBuV]			PK [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]				
1	0.16300	29.5	10.7		40.2	65.3	55.3	25.1	15.1	La			
2	7.57200	20.1	10.8		30.9	60.0	50.0	29.1	19.1	La			
3	8.72900	15.9	10.8		26.7	60.0	50.0	33.3	23.3	La			
4	0.16300	26.9	10.7		37.6	65.3	55.3	27.7	17.7	Lb			
5	7.57200	16.8	10.8		27.6	60.0	50.0	32.4	22.4	Lb			
6	8.72900	20.8	10.8		31.6	60.0	50.0	28.4	18.4	Lb			

Peak Hold Wave Form

Model Name	: KJ111703250000 (RFID Module)	Job No	: CJ07-060365E
Serial No.	: N/A	Temp/Humi	: 19°C/37%
Operator	: D.Watanuki	Condition	: Operated
Power Supply	: AC100V, 60Hz	Remark	:
Memo	:		

LIMIT : FCC Part. 15 Class B QP
 FCC Part. 15 Class B AV



5.2 15. 209 Transmitter Radiated Emissions

5.2.1 Setting Remarks

- The data lists in “5.2.4 Measured Data “ list the significant emission frequencies, measured levels, correction factor (includes cable and antenna corrections), the corrected reading, plus the limit.
- In the frequency range between 9kHz to 1 GHz, the Electric Field Strength was measured in accordance with ANSI C63.4: 2003 and CISPR22: 1997.
- The test setup was made in accordance with ANSI C63.4: 2003.
- The antenna was measured at 1-4m height for 30MHz to 1GHz.
- The EUT was placed on the non-conductive table in the center of turntable. The height of this table was 0.8m.
- The measurement was carried out with both horizontal and vertical antenna polarization.
- The highest radiation from the equipment was recorded.
- Below 30MHz, a loop antenna was used at 1m height.
- By varying the configuration of the test sample and the cable routing, it was attempted to maximize the emission.
- The test receiver with Quasi Peak and Average detector is in compliance with CISPR 16-1:1993.
- 9-90 kHz, 110-490 kHz are based on measurements employing an average detector.
- The spectrum analyzer was set-up as following;

(Frequency range : 9kHz - 30 MHz)

- ✓ Resolution bandwidth : 10 kHz
- ✓ Video bandwidth : 100 kHz
- ✓ Detector function : Peak
- ✓ Trace Mode : Max Hold

(Frequency range : 30 - 1000 MHz)

- ✓ Resolution bandwidth : 100 kHz
- ✓ Video bandwidth : 300 kHz
- ✓ Detector function : Peak
- ✓ Trace Mode : Max Hold

- EMI Test Receiver analyzer was set-up as following (Quasi-Peak Detector);
 - ✓ IF bandwidth : 200 Hz (9kHz - 150kHz)
 - ✓ IF bandwidth : 9 kHz (150kHz - 30MHz)
 - ✓ IF bandwidth : 120 kHz (30MHz - 1GHz)
- Refer to test configuration figure 4.2.

5.2.2 Minimum Standard

(d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in § 15.209.

5.2.3 Result

EUT complies with the requirement.

Uncertainty of measurement result: ± 3.64 dB

Temperature, Humidity : Refer to each data table

5.2.4 Measured Data

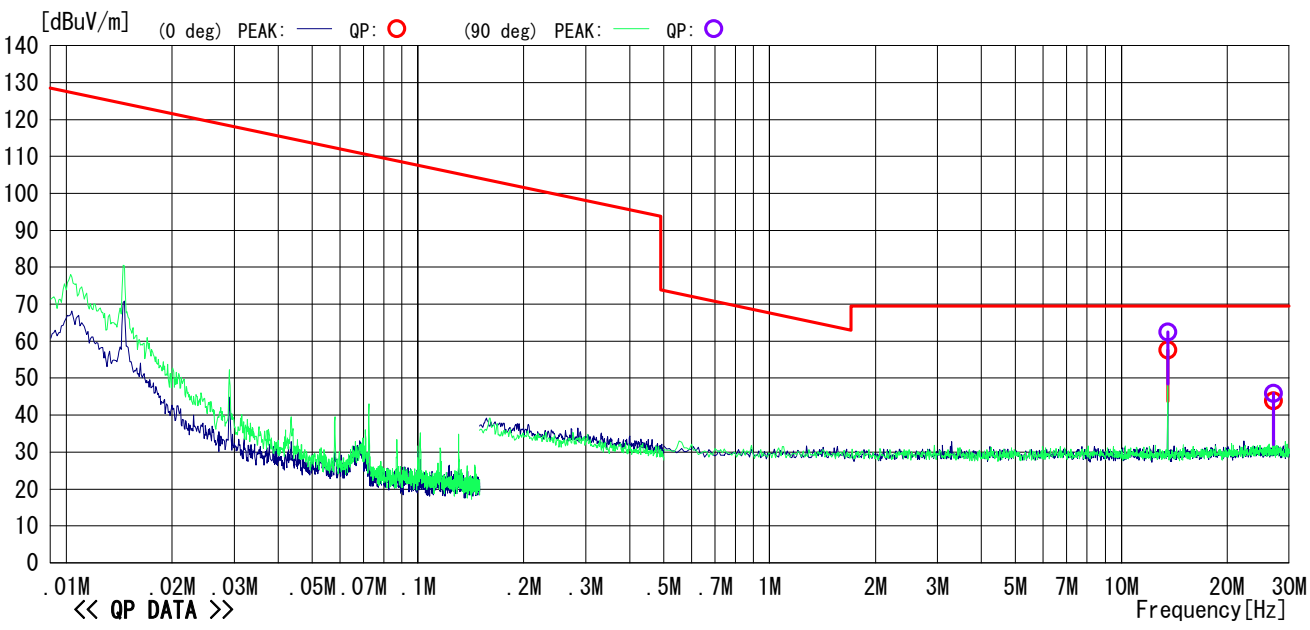
9kHz to 30MHz

Model Name : RFID Module
 Serial No. : 5B203533
 Operator : M. Yamanaka
 Power Supply : 12 VDC

Job No. : CJ07-060365EZ
 Temp./Humi. : 22°C/39%
 Condition : Operated
 Remark : 3m distance

Memo : RFID operation mode

LIMIT : FCC Part15 SubpartC 15.209 9KHz-30MHz



No	Freq.	Reading	Ant. Fac	Loss	Result	Limit	Margin	Antenna	Angle
	[MHz]	[dBuV]	[dB/m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]		[deg]
1	13.56114	38.4	18.4	0.8	57.6	69.5	11.9	0deg	193
2	27.12062	23.7	19.1	1.1	43.9	69.5	25.6	0deg	296
3	13.56035	43.2	18.4	0.8	62.4	69.5	7.1	90deg	235
4	27.12189	25.7	19.1	1.1	45.9	69.5	23.6	90deg	327

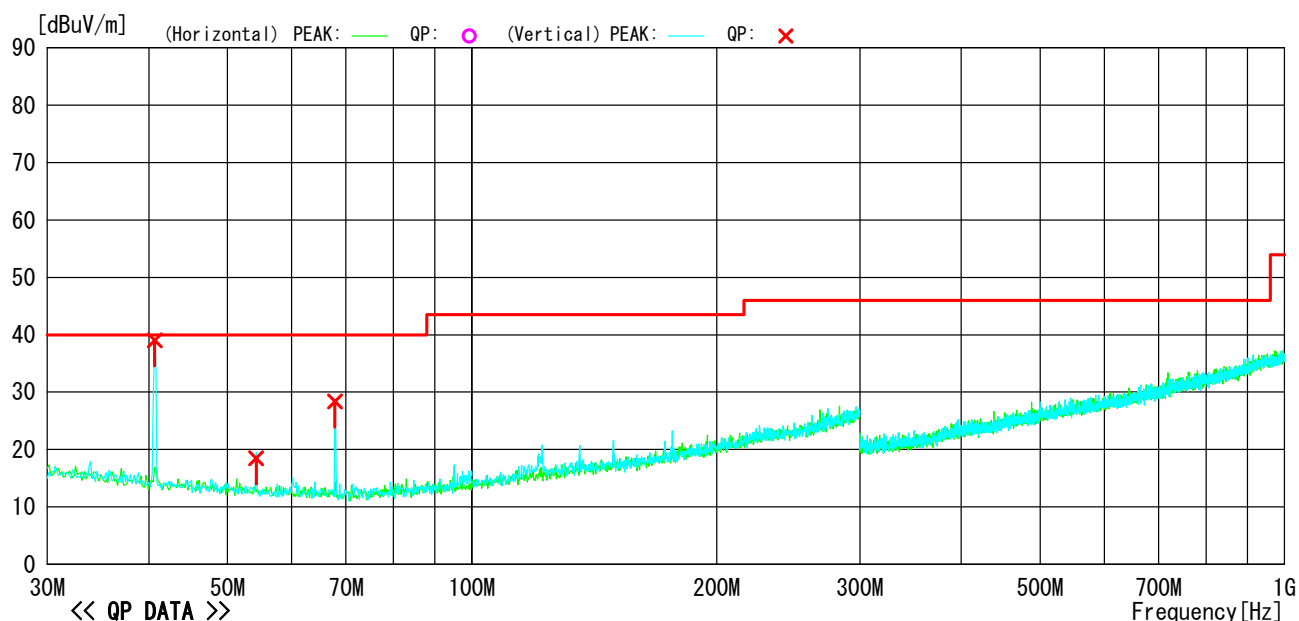
30MHz to 1GHz

Model Name : RFID Module
 Serial No. : 5B203533
 Operator : M. Yamanaka
 Power Supply : 12 VDC

Job No : CJ07-060365EZ
 Temp./Humi. : 25°C/39%
 Condition : Operated
 Remark : 3m distance

Memo : RFID Operation Mode

LIMIT : FCC 15.209 3m



No	Freq.	Reading	C. Fac	Result	Limit	Margin	Pola.	Height	Angle	Ant	Comment
	[MHz]	[dBuV]	[dB/m]	[dBuV/m]	[dBuV/m]	[dB]	[H/V]	[cm]	[deg]	Type	
1	40.682	52.2	-13.2	39.0	40.0	1.0	Vert.	100	0	BC	
2	54.242	33.2	-14.7	18.5	40.0	21.5	Vert.	100	113	BC	
3	67.803	43.7	-15.3	28.4	40.0	11.6	Vert.	100	78	BC	

5.3 Maximum Carrier Output Power

5.3.1 Setting Remarks

- Refer to 5.2.1
- The EUT was placed on the non-conductive table in the center of turntable. The height of this table was 1m.
- The measurement was carried out with both horizontal and vertical antenna polarization.
- The highest radiation from the equipment was recorded.
- The test receiver with Quasi Peak and Average detector is in compliance with CISPR 16-1:1993.
- The spectrum analyzer was set-up as following;
 - ✓ Frequency Span : Appropriate to determine carrier frequency.
 - ✓ Resolution bandwidth : Appropriate to determine carrier frequency.
 - ✓ Video bandwidth : Appropriate to determine carrier frequency.
 - ✓ Sweep : Auto
 - ✓ Detector function : Peak
 - ✓ Trace Mode : Max Hold
- EMI Test Receiver analyzer was set-up as following (Quasi-Peak Detector);
 - ✓ IF bandwidth : 9 kHz
- Refer to test configuration figure 4.2.

5.3.2 Minimum Standard

- (a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.
- (b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.
- (c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

5.3.3 Result

EUT complies with the requirement.

Uncertainty of measurement result: ± 3.64 dB
 Temperature, Humidity : 23 °C, 35%

5.3.4 Measured Data (3m distance)

(10.2 VDC)

Frequency (MHz)	Polarization (°)	Correction Factor (dB)	Reading (dBuV)	Peak Power (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Angle(°)
13.11	90	18.5	19.4	37.9	80.5	42.6	331
13.41	90	18.4	28.24	46.64	80.5	33.86	324
13.553	90	18.4	50.42	68.82	90.47	21.65	318
13.560	90	18.4	50.6	69	124	55	319
13.567	90	18.4	50.48	68.88	90.47	21.59	311
13.71	90	18.4	28.89	47.29	80.5	33.21	309
14.01	90	18.4	19.4	37.8	80.5	42.7	328

(12 VDC)

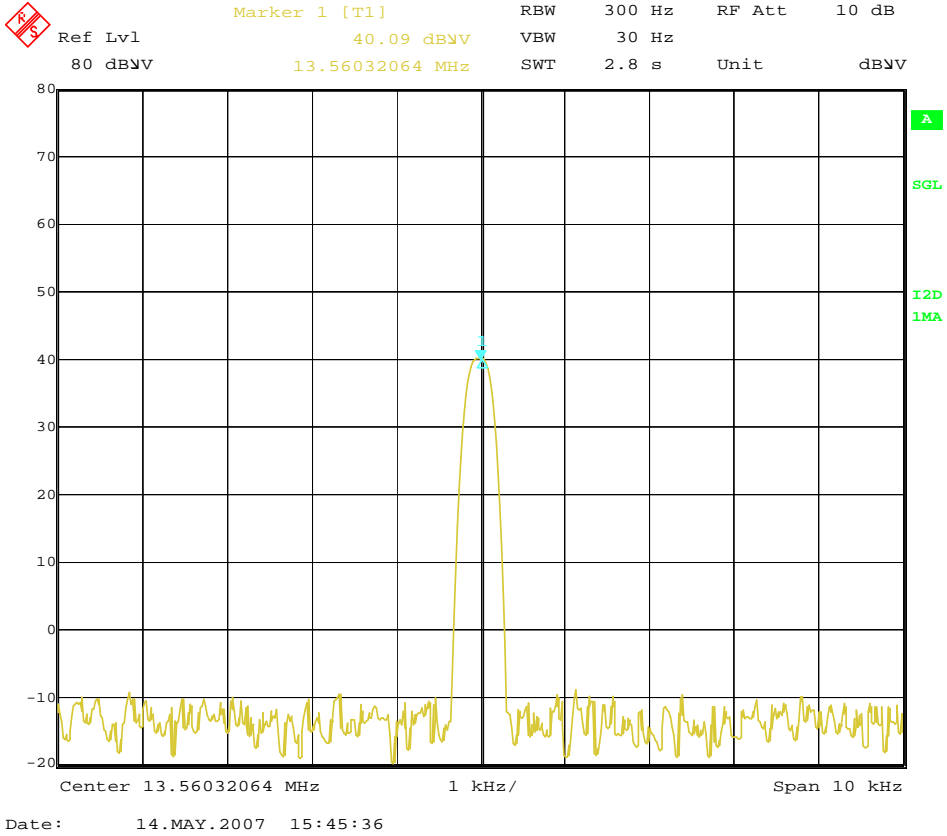
Frequency (MHz)	Polarization (°)	Correction Factor (dB)	Reading (dBuV)	Peak Power (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Angle (°)
13.11	90	18.5	19.4	37.9	80.5	42.6	340
13.41	90	18.4	28.24	46.64	80.5	33.86	339
13.553	90	18.4	50.31	68.71	90.47	21.76	341
13.560	90	18.4	50.6	69	124	55	329
13.567	90	18.4	50.52	68.92	90.47	21.55	333
13.71	90	18.4	28.99	47.39	80.5	33.11	334
14.01	90	18.4	19.4	37.8	80.5	42.7	342

(13.8 VDC)

Frequency (MHz)	Polarization (°)	Correction Factor (dB)	Reading (dBuV)	Peak Power (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Angle (°)
13.11	90	18.5	19.4	37.9	80.5	42.6	330
13.41	90	18.4	27.11	45.51	80.5	34.99	330
13.553	90	18.4	49.05	67.45	90.47	23.02	336
13.560	90	18.4	49.18	67.58	124	56.42	335
13.567	90	18.4	49.14	67.54	90.47	22.93	334
13.71	90	18.4	27.9	46.3	80.5	34.2	332
14.01	90	18.4	19.4	37.8	80.5	42.7	329

* Correction Factor = Cable Loss (dB) + Antenna Factor (dB)

Carrier Spectrum



5.4 Frequency Tolerance

5.4.1 Setting Remarks

- Refer to setting remarks 5.3.1.
- Refer to test configuration figure 4.2.
- With an environmental test chamber, EUT is exposed in extreme temperatures until its temperature is stabilized. (Approximately 30 minutes) Then EUT is on with nominal AC voltage, or installed a fully charged battery.

5.4.2 Minimum Standard

(e) The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

5.4.3 Result

EUT complies with the requirement.

Uncertainty of measurement result: ± 1 Hz

5.4.4 Measured Data

Temp. (°C)	P/S Voltage (VAC)	Frequency (Hz)	Limit (±Hz)	Offset from the CF (Hz)	Limit (%)	Error (%)
Center Freq.		13,560,000				
25	10.20	13,560,270	1356.00	270	0.01	0.002
25	12.00	13,560,270	1356.00	270	0.01	0.002
25	13.80	13,560,270	1356.00	270	0.01	0.002
-20	10.20	13,560,290	1356.00	290	0.01	0.002
-20	12.00	13,560,320	1356.00	320	0.01	0.002
-20	13.80	13,560,330	1356.00	330	0.01	0.002
50	10.20	13,560,270	1356.00	270	0.01	0.002
50	12.00	13,560,270	1356.00	270	0.01	0.002
50	13.80	13,560,270	1356.00	270	0.01	0.002

6. Photos

6.1 Setup Photo (Conducted Emission)

Front View

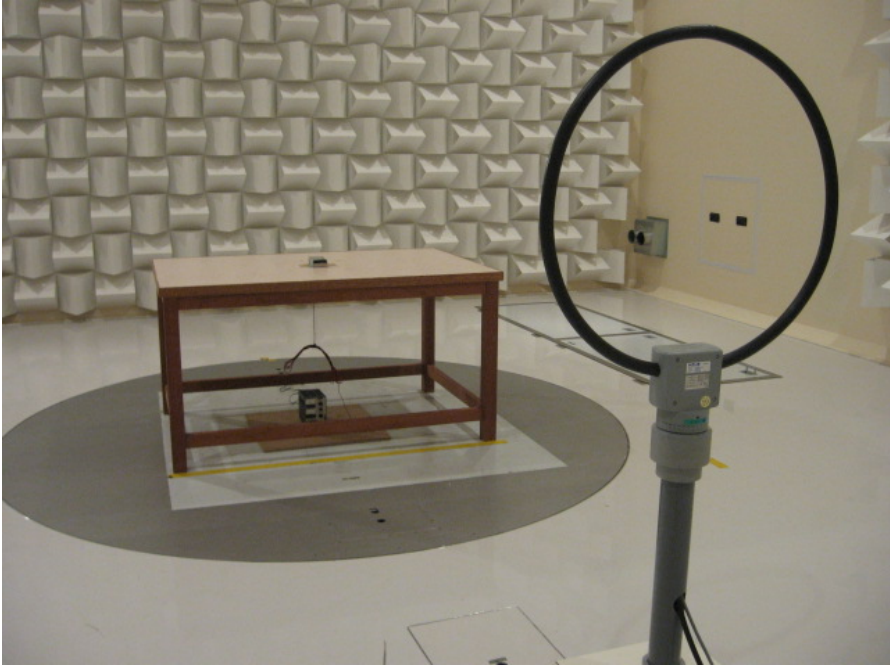


Side View

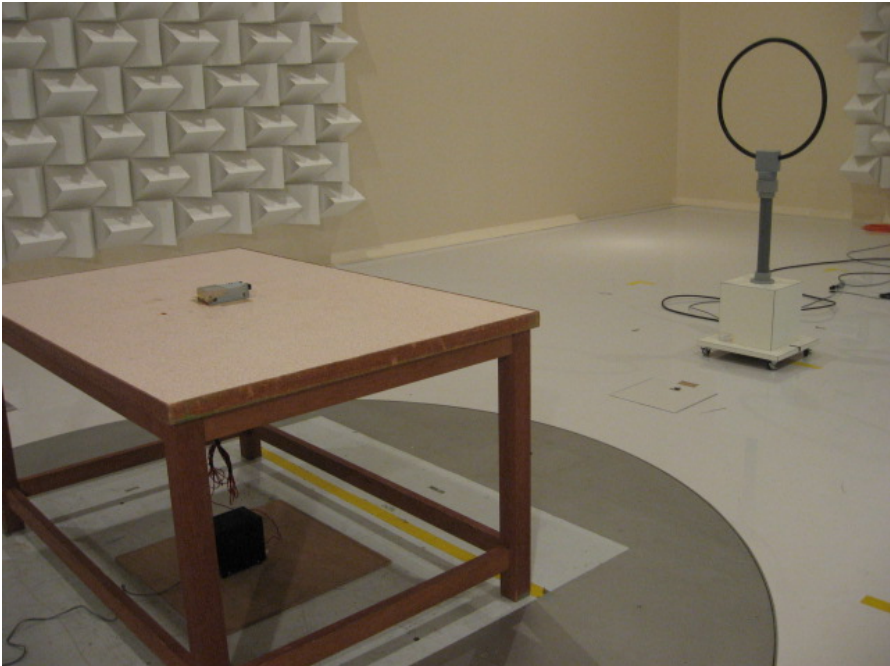


6.2 Setup Photo (Radiated Emission)

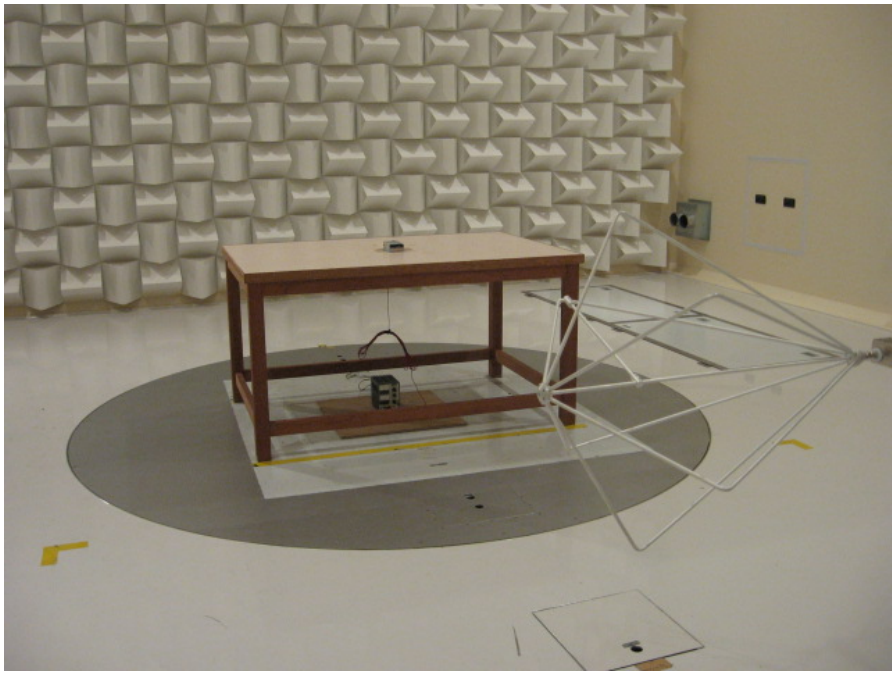
Front View (9kHz - 30MHz)



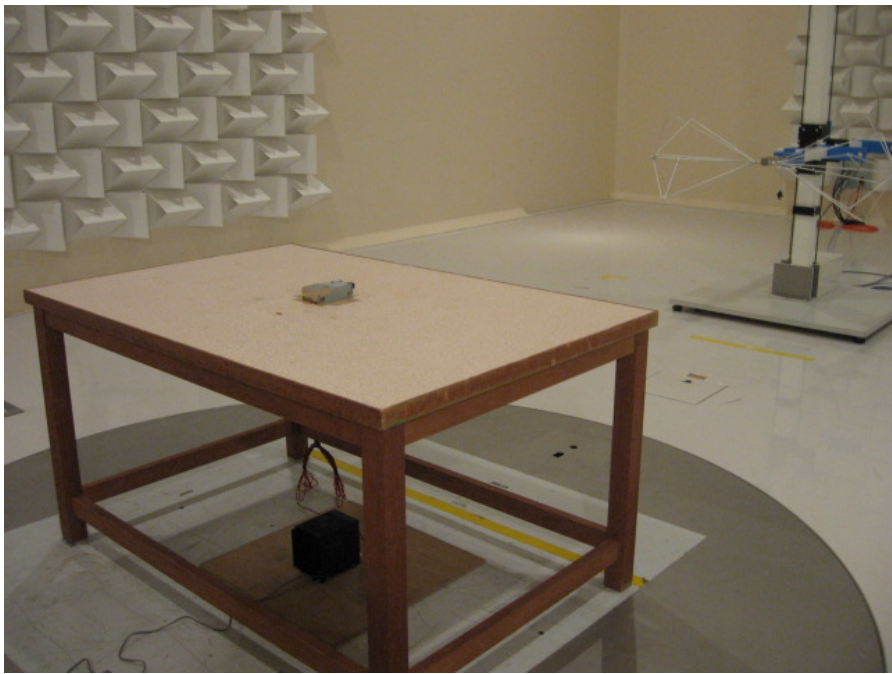
Rear View (9kHz - 30MHz)



Front View (Above 30MHz)



Rear View (Above 30MHz)



7. List of Test Measurement Instruments

7.1 Conducted Emission Measurement

Instruments	Manufacturer	Model / Type	Serial No.	Calibration Date Next Calibration
Spectrum Analyzer	ADVANTEST CORPORATION	R3132	140501174	July, 2006 July, 2007
EMI Test Receiver	ROHDE & SCHWARZ	ESCS30	100335	May, 2007 May, 2008
Artificial-Mains Network	KYORITSU CORPORATION	KNW-341C (for EUT)	8-1659-1	September, 2006 September, 2007
Artificial-Mains Network	KYORITSU CORPORATION	KNW-244C (for Peripheral)	8-1657-1	September, 2006 September, 2007
Transient Limiter	AGILENT TECHNOLOGIES	11947A	3107A03745	July, 2006 July, 2007
RF Selector	Techno Science Japan Corp.	RFM-E221	3148	---
Spectrum Analyzer	ADVANTEST CORPORATION	R3132	140501174	July, 2006 July, 2007
Stabilized Power Supply	Kikusui Electronics	PAN 55-6A	ED000019	---

7.2 Radiated Emission Measurement

Instruments	Manufacturer	Model / Type	Serial No.	Calibration Date Next Calibration
Programmable AC/DC Power Source	NF Corporation	ES18000W	425779	---
EMI Test Receiver	ROHDE & SCHWARZ	ESIB40	100211	April, 2007 April, 2008
Biconical Antenna (30 to 300MHz)	SCHWARZBECK	VHBB9124(Balun) BBA9106(Elements)	311	September, 2006 September, 2007
Log.-Periodic Antenna (300 MHz to 1 GHz)	SCHWARZBECK	UHALP 9108 A	645	September, 2006 September, 2007
Loop Antenna (0.15 to 30 MHz)	ROHDE & SCHWARZ	HFH2-Z2	131	August, 2006 August, 2007
Environment Chamber	ISUZU	HPAV-48-40	0092986-0 1	---
Stabilized Power Supply	Kikusui Electronics	PAB	1210078	---