



EMI TEST REPORT

Test Report No. : 25GE0127-HO-1

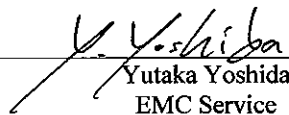
Applicant : SEGA Corporation
Type of Equipment : Reader / Writer Unit
Model No. : HW211R-SG
Test standard : FCC Part 15 Subpart C : 2005
Section 15.225, 15.209 and 15.207
FCC ID : FJ8GCB05411
Test Result : Complied

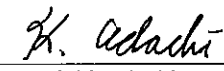
1. This test report shall not be reproduced in full or partial, without the written approval of UL Apex Co., Ltd.
2. The results in this report apply only to the sample tested.
3. This equipment is in compliance with the above regulation(s). We hereby certify that the data contain a true representation of the EMC profile.
4. The test results in this report are traceable to the national or international standards.

Date of test:

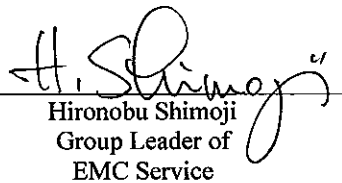
June 02 to September 14, 2005

Tested by:


Yutaka Yoshida
EMC Service


Kenichi Adachi
EMC Service

Approved by :


Hironobu Shimoji
Group Leader of
EMC Service

UL Apex Co., Ltd.

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

MF060b(01.06.05)

CONTENTS	PAGE
SECTION 1: Client information.....	3
SECTION 2: Equipment under test (E.U.T.)	3
SECTION 3: Test specification, procedures & results	4
SECTION 4: Operation of E.U.T. during testing.....	6
SECTION 5: Conducted emission	7
SECTION 6: Radiated emission (Fundamental and Spurious Emission)	8
SECTION 7: -20dB Bandwidth	9
SECTION 8: 99% Occupied Bandwidth	9
SECTION 9: Frequency Tolerance	9
APPENDIX 1: Photographs of test setup.....	10
Conducted Emission	10
Radiated emission	11
Worst Case Position (Y-axis: 45 deg.)	12
APPENDIX 2: Test instruments	13
APPENDIX 3: Data of EMI test	14
Conducted emission	14
Radiated Emission (Fundamental emission) (below 30MHz)	16
Radiated Emission (above 30MHz)	17
-20dB Bandwidth.....	18
Frequency Tolerance	19
99% Occuied Bandwidth.....	20

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part15 Subpart C : 2005
Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.207 : Conducted limits
Section 15.225 : Operation within the band 13.110-14.010MHz

3.2 Procedures and results

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	Conducted emission	ANSI C63.4:2003 7. AC powerline conducted emission measurements	Section 15.207	-	N/A	12.9dB 0.19793MHz AV, N	Complied
2	-20dB Bandwidth	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.215(c)	Radiated	N/A	-	Complied
3	Electric Field Strength of Fundamental Emission	ANSI C63.4:2003 13. Measurement of intentional radiators	Section 15.225(a)	Radiated	N/A	55.9dB 13.56MHz 45 deg. QP	Complied
4	Electric Field Strength of Band edges	ANSI C63.4:2003 13. Measurement of intentional radiators	Section 15.225(b)(c)	Radiated	N/A	N/A	Complied
5	Electric Field Strength of Spurious Emission	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.209, Section 15.225 (d)	Radiated	N/A	2.4dB 528.829MHz Horizontal, QP	Complied
6	Frequency Tolerance	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.225(e)	Radiated	N/A	N/A	Complied

Note: UL Apex's EMI Work Procedures No.QPM05 and QPM15.

Uncertainty:

Conducted Emission

The measurement uncertainty (with a 95% confidence level) for this test is ± 1.3 dB.

The data listed in this test report has enough margin, more than the site margin.

Spurious Emission (Radiated)

The measurement uncertainty (with a 95% confidence level) for this test using Loop antenna is ± 1.9 dB(3m)/ ± 1.8 dB(10m).

The measurement uncertainty (with a 95% confidence level) for this test using Biconical antenna is ± 4.5 dB(3m)/ ± 4.7 dB(10m).

The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna is ± 5.2 dB(3m)/ ± 3.8 dB(10m).

The measurement uncertainty (with a 95% confidence level) for this test using Horn antenna is ± 6.6 dB.

The data listed in this report meets the limits unless the uncertainty is taken into consideration.

Other test except Conducted Emission and Spurious Emission (Radiated)

The measurement uncertainty (with a 95% confidence level) for this test is ± 3.0 dB.

*These tests were performed without any deviations from test procedure except for additions or exclusions.

UL Apex Co., Ltd.

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

MF060b(01.06.05)

3.3 Addition to standards

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	99% Occupied Band Width	RSS210(issue 5): 2001 + Amendment:2002 + Amendment2:2003 + Amendment3:2004	RSS210(issue 5): 2001 + Amendment:2002 + Amendment2:2003 + Amendment3:2004	Radiated	N/A	N/A	Complied

3.4 Test Location

UL Apex Co., Ltd. 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	IC4247A	19.2 x 11.2 x 7.7m	7.0 x 6.0m	Preparation room
No.2 semi-anechoic chamber	846015	IC4247A-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 shielded room	-	-	4.7 x 7.5 x 2.7m	4.7 x 7.5m	-
No.4 measurement room	-	-	3.1 x 5.0 x 2.7m	N/A	-

* Size of vertical conducting plane (for Conducted Emission test) : 2.0 x 2.0m for No.1 and No.2 semi-anechoic and No.3 shielded room.

3.5 Test set up, Test instruments and Data of EMI

Refer to APPENDIX 1 to 3.

SECTION 4: Operation of E.U.T. during testing

4.1 Operating Modes

The mode is used : Continuous Card Reading Mode (Tx: 13.56MHz)

Justification: The system was configured in typical fashion (as a customer would normally use it) for testing.

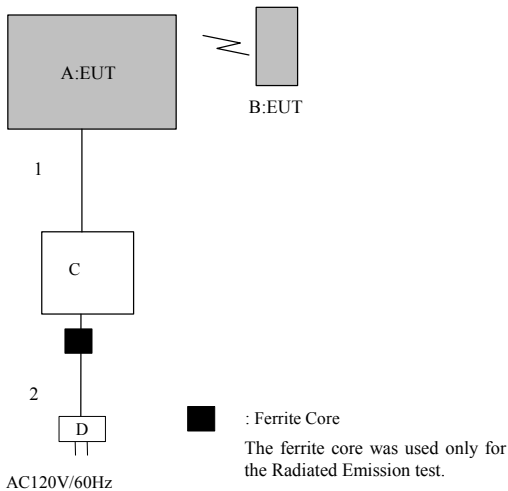
Frequency Tolerance:

Temperature for the extreme tests : -20 deg.C.(minimum) to + 50deg.C.(maximum)

Voltage for the extreme tests : N/A **

** This EUT provides stable voltage (DC3.3V) constantly to RF Module regardless of input voltage.

4.2 Configuration and peripherals



* Cabling was taken into consideration and test data was taken under worse case conditions.

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	FCC ID
A	Reader/Writer Unit	HW211R-SG	04Z000022 *1, 04Z000024 *2	SAXA, INC	FJ8GCB05411 (EUT)
B	IC Card	-	-	SAXA, INC	EUT
C	I/F (PCB)	ETR-1 I/F	-	SAXA, INC	-
D	AC ADAPTOR	S-8443	-	KAGA COMPONENTS	INPUT:AC100-120V 50/60Hz 24VA

*1: for Conducted and Radiated emission tests

*2: for the other tests

List of cables used

No.	Name	Length (m)	Shield	Backshell Material
1	I/F Cable	0.3	N	Polyvinyl chloride
2	DC Cable	2.0	N	Polyvinyl chloride

UL Apex Co., Ltd.

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

MF060b(01.06.05)

SECTION 5: Conducted emission

5.1 Operating environment

Test place	: No.2 semi anechoic chamber
Temperature	: See data
Humidity	: See data

5.2 Test configuration

EUT was placed on a platform of nominal size, 0.5m by 0.5m, raised 80cm above the conducting ground plane. The rear of tabletop was located 40cm to the vertical conducting plane. The rear of EUT and its peripherals was 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 LISN/AMN and excess AC cable was bundled in center. 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. Each EUT current-carrying power lead, except the ground (safety) lead, was individually connected through a LISN/AMN to the input power source. All unused 50 ohm connectors of the LISN/AMN were resistivity terminated in 50 ohm when not connected to the measuring equipment. The AC Mains Terminal Continuous disturbance Voltage has been measured in a semi Anechoic Chamber. A drawing of the set up is shown in the photos of APPENDIX 1.

5.3 Test conditions

Frequency range	: 0.15MHz – 30MHz
EUT position	: Top of polyurethane
EUT operation mode	: Continuous Transmitting

5.4 Test procedure

The AC Mains Terminal Continuous disturbance Voltage had been measured with the EUT in the semi Anechoic Chamber. The EUT was connected to a Line Impedance Stabilization Network (LISN)/ Artificial Mains Network (AMN). An overview sweep with peak detection has been performed. The measurements had been performed with a quasi-peak detector and if required, with an average detector. The conducted emission measurements were made with the following detector function of the test receiver.

Detector Type	: QP and AV
IF Bandwidth	: 9kHz

5.5 Test result

Summary of the test results : Pass

Date : September. 14, 2005 Test engineer : Yutaka Yoshida

SECTION 6: Radiated emission (Fundamental and Spurious Emission)

6.1 Operating environment

Test place : No.1 semi anechoic chamber.
Temperature : See data
Humidity : See data

Test Procedure

The Radiated Electric Field Strength intensity has been measured on No.1 semi anechoic chamber with a ground plane and at a distance of 10m.

Frequency : From 9kHz to 30MHz at distance 10m

The EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.

The measurements were performed for each antenna angle 0deg. , 45deg. and 90deg.

Frequency : From 30MHz to 1GHz at distance 3m

The measuring antenna height was varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.

The measurements were performed for both vertical and horizontal antenna polarization.

Measurements were performed with a QP, PK, and AV detector.

The radiated emission measurements were made with the following detector function of the test receiver.

	From 9kHz to 90kHz and From 110kHz to 150kHz	From 90kHz to 110kHz	From 150kHz to 490kHz	From 490kHz to 30MHz	From 30MHz to 1GHz
Detector Type	PK/AV	QP	PK/AV	QP	QP
IF Bandwidth	200Hz	200Hz	9kHz	9kHz	120kHz

- The carrier level and noise levels were confirmed at each position of X, Y and Z axis of EUT to see the position of maximum noise, and the test was made at the position that has the maximum noise.

* Part 15 Section 15.31 (f)(2) (9kHz-30MHz)

9kHz – 490kHz [Limit at 10m]=[Limit at 300m]-40log (10[m]/300[m])

490kHz – 30MHz[Limit at 10m]=[Limit at 30m]-40log (10[m]/30[m])

UL Apex Co., Ltd.

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

MF060b(01.06.05)

SECTION 7: -20dB Bandwidth

Test Procedure

The measurement was performed in the antenna height to gain the maximum of Electric field strength.

Test data	: APPENDIX 3
Test result	: Pass

SECTION 8: 99% Occupied Bandwidth

Test Procedure

The measurement was performed in the antenna height to gain the maximum of Electric field strength.

Test data	: APPENDIX 3
Test result	: Pass

SECTION 9: Frequency Tolerance

Test Procedure

The measurement was performed in the antenna height to gain the maximum of Electric field strength.

Test data	: APPENDIX 3
Test result	: Pass

APPENDIX 1: Photographs of test setup

Conducted Emission

Front



Rear



UL Apex Co., Ltd.

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

MF060b(01.06.05)

Radiated emission

Front



Rear



UL Apex Co., Ltd.

Head Office EMC Lab.

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

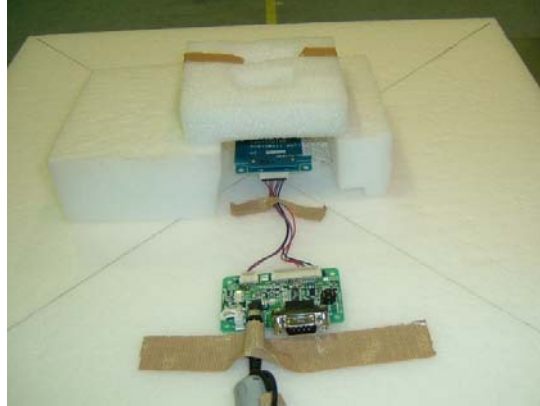
Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

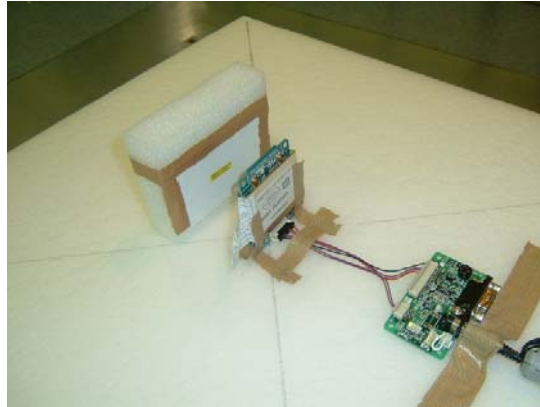
MF060b(01.06.05)

Worst Case Position (Y-axis: 45 deg.)

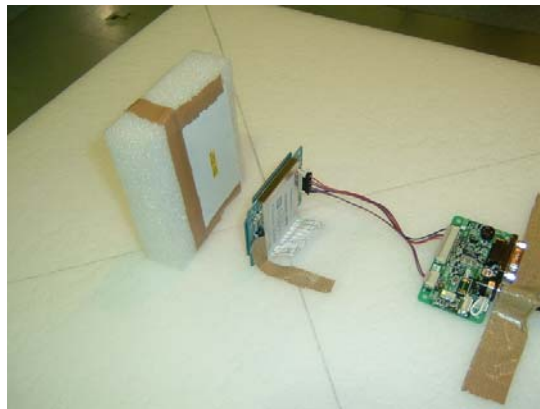
X-axis



Y-axis



Z-axis



APPENDIX 2: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-01	Anechoic Chamber	TDK	Semi Anechoic Chamber 10m	RE / ME	2004/11/13 * 12
MAEC-02	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	CE	2005/04/11 * 12
MTR-01	Test Receiver	Rohde & Schwarz	ESI40	RE / ME	2004/11/12 * 12
MCC-01	Coaxial Cable 0.1-3000MHz	Suhner/storm/Agilent/T SJ	-	RE	2004/12/19 * 12
MAT-06	Attenuator(6dB)	Weinschel Corp	2	RE	2004/12/16 * 12
MBA-01	Biconical Antenna	Schwarzbeck	BBA9106	RE	2004/10/14 * 12
MLA-01	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2004/10/14 * 12
MPA-04	Pre Amplifier	Agilent	8447D	RE / ME	2005/05/24 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	CE	2005/02/04 * 12
MCC-03	Coaxial Cable	Fujikura/Suhner/Agilent /TSJ	-	ME	2004/12/24 * 12
MCC-13	Coaxial Cable	Fujikura/Agilent	-	CE	2005/02/24 * 12
MCC-30	coaxial cable	ULApex	-	ME	2005/06/02 * 12
MLPA-02	Loop Antenna	Rohde & Schwarz	HFH2-Z2	ME	2004/12/10 * 12
MSA-04	Spectrum Analyzer	Agilent	E4448A	CE	2005/05/19 * 12
MTR-02	Test Receiver	Rohde & Schwarz	ESCS30	CE	2005/02/02 * 12
MBTR10	Spectrum Analyzer	Rohde & Schwarz	FSP30	FT	2004/11/02 * 12
MCH-01	Temperature and Humidity Chamber	Tabai Espec	PL-2KP	FT	2004/12/20 * 12

All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

Test Item:

**CE: Conducted emission,
RE: Radiated emission,
ME: Magnetic Radiated emission,
FT: Frequency Tolerance**

UL Apex Co., Ltd.

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

MF060b(01.06.05)

APPENDIX 3: Data of EMI test

Conducted emission

DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No. 2 Semi Anechoic Chamber
Date : 2005/09/14 19:19:30

Applicant : SEGA Corporation
Kind of EUT : Reader Writer Unit
Model No. : HW211R
Serial No. : 04Z000022
Report No. : 25GE0127-HO
Power : AC120V / 60Hz
Temp°C/Humi% : 24deg.C / 55%
Operator : Yutaka Yoshida

Mode / Remarks : Communication (Card Reading(13.56MHz Transmitting))

LIMIT : FCC15C § 15.207 (QP)
FCC15C § 15.207 (AV)

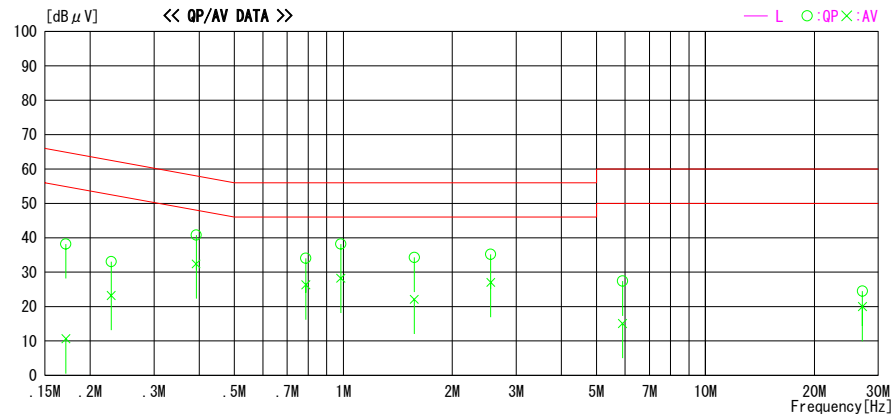
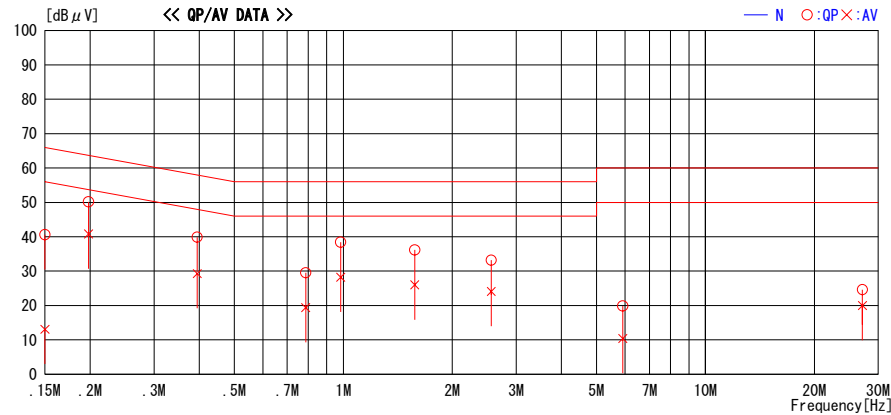


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F(LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

Conducted emission

DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2005/09/14 19:19:30

Applicant : SEGA Corporation
Kind of EUT : Reader Writer Unit
Model No. : HW211R
Serial No. : 04Z000022

Report No. : 25GE0127-HO
Power : AC120V / 60Hz
Temp°C/Humi% : 24deg. C / 55%
Operator : Yutaka Yoshida

Mode / Remarks : Communication (Card Reading(13.56MHz Transmitting))

LIMIT : FCC15C § 15.207 (QP)
FCC15C § 15.207 (AV)

Frequency [MHz]	Reading Level		Corr. Factor	Results		Limit		Margin		Phase
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
0.15000	40.5	13.0	0.1	40.6	13.1	66.0	56.0	25.4	42.9	N
0.17125	38.1	10.5	0.1	38.2	10.6	64.9	54.9	26.7	44.3	L
0.19793	50.1	40.7	0.1	50.2	40.8	63.7	53.7	13.5	12.9	N
0.22858	33.0	23.1	0.1	33.1	23.2	62.5	52.5	29.4	29.3	L
0.39225	40.7	32.3	0.1	40.8	32.4	58.0	48.0	17.2	15.6	L
0.39508	39.8	29.2	0.1	39.9	29.3	58.0	48.0	18.1	18.7	N
0.78791	33.8	26.0	0.3	34.1	26.3	56.0	46.0	21.9	19.7	L
0.78710	29.2	19.1	0.3	29.5	19.4	56.0	46.0	26.5	26.6	N
0.98354	38.1	27.9	0.3	38.4	28.2	56.0	46.0	17.6	17.8	N
0.98442	37.9	27.9	0.3	38.2	28.2	56.0	46.0	17.8	17.8	L
1.57449	35.8	25.6	0.4	36.2	26.0	56.0	46.0	19.8	20.0	N
1.57024	33.9	21.7	0.4	34.3	22.1	56.0	46.0	21.7	23.9	L
2.55400	34.7	26.5	0.5	35.2	27.0	56.0	46.0	20.8	19.0	L
2.56064	32.7	23.6	0.5	33.2	24.1	56.0	46.0	22.8	21.9	N
5.90400	26.5	14.2	0.9	27.4	15.1	60.0	50.0	32.6	34.9	L
5.91235	19.0	9.5	0.9	19.9	10.4	60.0	50.0	40.1	39.6	N
27.11993	22.4	17.9	2.1	24.5	20.0	60.0	50.0	35.5	30.0	L
27.12050	22.5	17.9	2.1	24.6	20.0	60.0	50.0	35.4	30.0	N

CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C. F(LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

Radiated Emission (Fundamental emission) (below 30MHz)

DATA OF MAGNETIC RADIATED EMISSION TEST

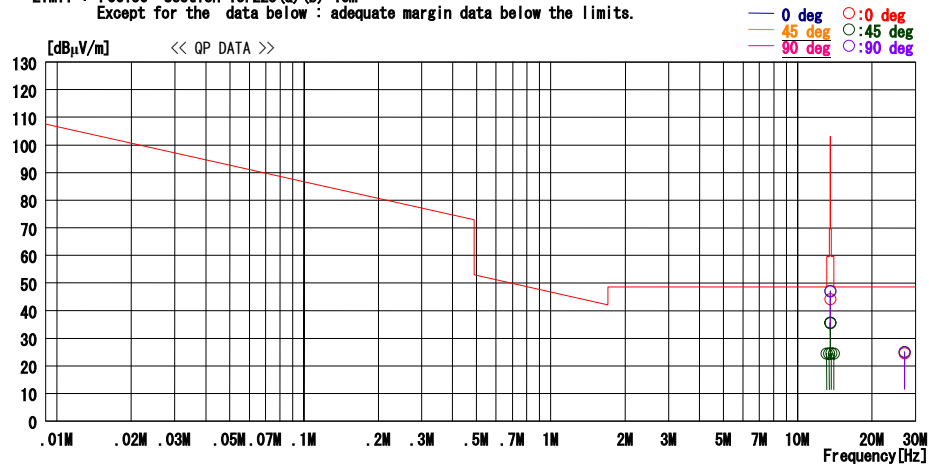
UL Apex Co., LTD. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2005/06/29 23:49:21

Applicant : SEGA Corporation
Kind of EUT : Reader/Writer Unit
Model No. : HW211R-S8
Serial No. : 04Z000022

Report No. : 25GE0127-HO
Power : DC 5V (EUT Input)
Temp./Humi. : 24deg. C / 62%
Operator : Yutaka Yoshida

Mode / Remarks : Communication / EUT max-axis(Y-axis)

LIMIT : FCC15C Section 15.225(a) (b) 10m
Except for the data below : adequate margin data below the limits.



Freq.	Reading	DET	Ant. Fac	Loss	Gain	Result	Limit	Margin	Antenna	Table	Comment
[MHz]	[dB μ V]		[dB/m]	[dB]	[dB]	[dB μ V/m]	[dB μ V/m]	[dB]	[deg]	[deg]	
13.11000	30.9	QP	20.0	1.3	27.8	24.4	48.6	24.2	45deg	180	
13.41000	30.9	QP	20.0	1.3	27.8	24.4	59.6	35.2	45deg	180	
13.56300	42.3	QP	20.0	1.3	27.8	35.8	69.6	33.8	45deg	180	
13.56000	50.6	QP	20.0	1.4	27.8	44.1	103.1	59.0	0deg	198	
13.56000	53.6	QP	20.0	1.4	27.8	47.2	103.1	55.9	45deg	180	
13.56000	53.3	QP	20.0	1.4	27.8	46.9	103.1	56.2	90deg	94	
13.56700	41.9	QP	20.0	1.4	27.8	35.5	69.6	34.1	45deg	180	
13.71000	30.9	QP	20.0	1.4	27.8	24.5	59.6	35.1	45deg	180	
14.01000	30.8	QP	20.0	1.4	27.8	24.4	48.6	24.2	45deg	180	
27.12000	30.6	QP	19.9	1.9	27.8	24.6	48.6	24.0	0deg	198	
27.12000	31.1	QP	19.9	1.9	27.8	25.1	48.6	23.6	45deg	180	
27.12000	31.0	QP	19.9	1.9	27.8	25.0	48.6	23.6	90deg	94	

CHART : WITH FACTOR ANT TYPE : LOOP
CALCULATION : READING + ANT FACTOR + LOSS (CABLE + ATTEN. -AMP.)

Page:

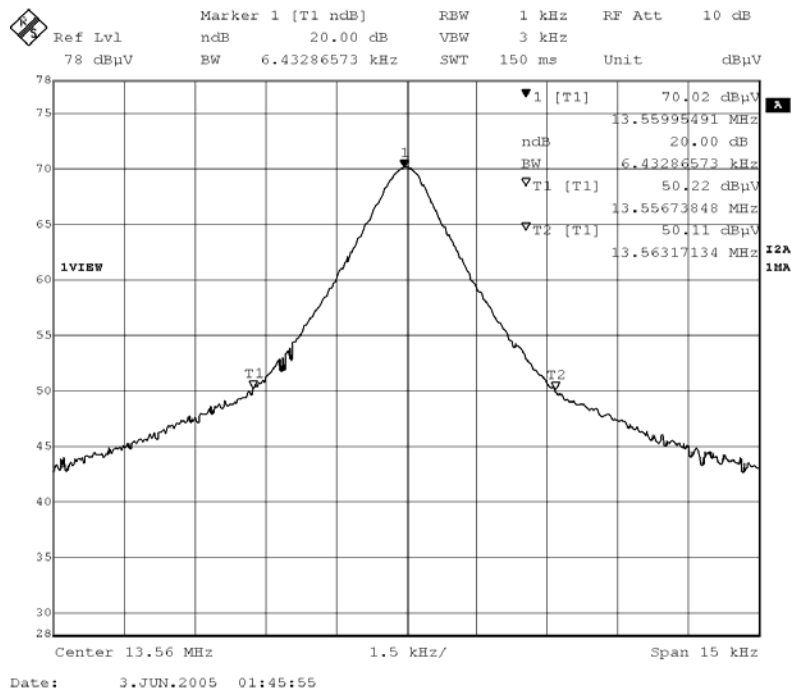
-20dB Bandwidth

UL Apex Co., Ltd.
Head Office EMC Lab. No1 Semi Anechoic Chamber

COMPANY : SEGA Corporation
EQUIPMENT : Reader/Writer Unit
MODEL : HW211R-SG
S/ N : 04Z00024
POWER : DC5V (EUT input)
MODE : Communication

REPORT NO. : 25GE0127-HO
REGULATION : FCC 15 Subpart C. Section 15.225
TEST DISTANCE : 3m
DATE : 06/02/2005
TEMPERATURE : 23 deg.C.
HUMIDITY : 49 %
ENGINEER : Kenichi Adachi

FREQ [MHz]	-20dB Bandwidth [kHz]
13.56	6.43



Frequency Tolerance

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement room

Company : SEGA Corporation
Equipment : Reader Writer Unit
Model : HW211R-SG
Serial No. : 04Z000024
Power : DC 5V (EUT input)
Mode : Communication

Report No. : 25GE0127-HO
Regulation : FCC Part15 Subpart C 15.225 (c)
Test Distance : -
Date : 06/10/2005
Temperature : 25deg.C
Humidity : 30%
Engineer : Kenichi Adachi

Limits

Operating frequency 13.56 MHz 0.01% $\pm$ 0.001356 MHz

	MHz
Lower Limit	13.558644
Upper Limit	13.561356

Frequency stability vs. temperature

Ambient temperature (deg.C)	Measured Frequency (MHz)				Result
	Start	2 minutes	5 minutes	10 minutes	
-20deg.C	13.559720	13.560040	13.560180	13.559780	Complied
Margin	0.001076	0.001316	0.001176	0.001136	
-10deg.C	13.559700	13.559860	13.560040	13.559980	Complied
Margin	0.001056	0.001216	0.001316	0.001336	
0deg.C	13.560480	13.559720	13.560400	13.560040	Complied
Margin	0.000876	0.001076	0.000956	0.001316	
+10deg.C	13.560040	13.559100	13.560040	13.560480	Complied
Margin	0.001316	0.000456	0.001316	0.000876	
+20deg.C	13.559700	13.559500	13.559720	13.560400	Complied
Margin	0.001056	0.000856	0.001076	0.000956	
+30deg.C	13.559600	13.559720	13.559720	13.560040	Complied
Margin	0.000956	0.001076	0.001076	0.001316	
+40deg.C	13.559700	13.559800	13.559720	13.560040	Complied
Margin	0.001056	0.001156	0.001076	0.001316	
+50deg.C	13.559820	13.560120	13.560480	13.559580	Complied
Margin	0.001176	0.001236	0.000876	0.000936	

*1 Frequency stability vs. input voltage

% of Rated Supply	Supply Voltage	Measured Frequency (MHz)				Result
		Start	2 minutes	5 minutes	10 minutes	
Nor	DC	-	-	-	-	-
Margin		-	-	-	-	
85%	DC	-	-	-	-	-
Margin		-	-	-	-	
115%	DC	-	-	-	-	-
Margin		-	-	-	-	

*1 Extreme test source voltages : This EUT provides stable voltage(DC 3.3V) constantly to RFID Module regardless of input voltage. Therefore, this EUT complies with the requirement.

UL Apex Co., Ltd.

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

MF060b(01.06.05)

99% Occuied Bandwidth

UL Apex Co., Ltd.
Head Office EMC Lab. No1 Semi Anechoic Chamber

COMPANY : SEGA Corporation
EQUIPMENT : Reader/Writer Unit
MODEL : HW211R-SG
S/N : 04Z00024
POWER : DC5V (EUT input)
MODE : Communication

REPORT NO. : 25GE0127-HO
REGULATION : RSS210
TEST DISTANCE : 3m
DATE : 06/02/2005
TEMPERATURE : 23 deg.C.
HUMIDITY : 49 %
ENGINEER : Kenichi Adachi

FREQ [MHz]	99% Occupied Bandwidth [kHz]
13.56	9.92

