RADIO TEST REPORT

Test Report No.: 26EE0273-HO-A-1

Applicant	:	**SEGA CORPORATION**
Type of Equipment	:	**Personal Reader/Writer**
Model No.	:	**ME-PM01-RA-SG(BK)**
Test standard	:	**FCC Part 15 Subpart C: 2006 Section 15.207 and 15.225**
FCC ID	:	**FJ8DKT06214**
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 above regulation. 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:

March 9 to 29, 2006

Tested by:

Makoto Kosaka
EMC Services

Approved by :

Naoki Sakamoto
Group Leader of
EMC Services

UL Apex Co., Ltd.
Head Office EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116
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SECTION 1: Client information

Company Name	:	SEGA CORPORATION
Address	:	2-12-14 HIGASHIKOJIYA OHTA-KU TOKYO 144-8532 JAPAN
Telephone Number	:	+81-3-5736-7567
Facsimile Number	:	+81-3-5736-7968
Contact Person	:	Takashi Honma

SECTION 2: Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of Equipment	:	Personal Reader/Writer
Model No.	:	ME-PM01-RA-SG(BK)
Serial No.	:	1) 060113-1 for Frequency tolerance (Extreme temperature) 2) 060113-28 for Frequency tolerance (Extreme voltage) 3) 060113-3 for other tests
Country of Manufacture	:	Japan
Receipt Date of Sample	:	February 28,2006
Condition of EUT	:	Production prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT	:	No modification by the test lab

2.2 Product Description

Model No: ME-PM01-RA-SG(BK) is the Personal Reader/Writer.
The clock frequency of EUT is 6MHz (for CPU)

Equipment Type	:	Transceiver
Frequency band	:	13.5597288-13.5602712MHz
Frequency of Operation	:	13.56MHz
Type of modulation	:	Amplitude Modulation
Mode of operation	:	Simplex
Antenna Type	:	Loop Pattern Antenna
Method of Frequency Generation	:	Crystal
Operating voltage	:	DC5.0V +/- 0.25V

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part15 Subpart C : 2006

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

FCC 15.31 (e)
Testing of the variation of the input power (85% and 115% of DC5.0V) was performed. Please refer to the Page 21 for details.

FCC Part 15.203 Antenna requirement
It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT.
Therefore, the equipment complies with the antenna requirement of Section 15.203.

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	5.8dB 0.24609 AV, N	Complied
2	Electric Field Strength of Fundamental Emission	ANSI C63.4:2003 13. Measurement of intentional radiators	Section 15.225(a)	Radiated	N/A	45.6dB 14.0100MHz QP	Complied
3	Spectrum Mask	ANSI C63.4:2003 13. Measurement of intentional radiators	Section 15.225(b)(c)	Radiated	N/A		Complied
4	-20dB Bandwidth	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.215(c)	Radiated	N/A	See data	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	6.7dB 40.647MHz QP, Vert.	Complied
6	Frequency Tolerance	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.225(e)	Radiated	N/A	See data	Complied
Note: UL Apex's EMI Work Procedures No.QPM05 and QPM15							

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

3.3 Addition to standards

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	99% Occupied Band Width	RSS-Gen 4.4.1	RSS-Gen 4.4.1	Radiated	N/A	N/A	Complied

3.4 Uncertainty

Conducted Emission

The measurement uncertainty (with a 95% confidence level) for this test is ±2.6dB.
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 ±4.1dB(3m)/ ±4.39dB(10m).
The measurement uncertainty (with a 95% confidence level) for this test using Biconical antenna is ±4.59dB(3m)/ ±4.58dB(10m).
The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna is ±4.62dB(3m)/ ±4.60dB(10m).
The measurement uncertainty (with a 95% confidence level) for this test using Horn antenna is ±5.27dB.
The data listed in this test report has enough margin, more than the site margin.

Other test except Conducted Emission and Spurious Emission (Radiated)

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

3.5 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	655103	IC4247A-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 semi-anechoic chamber	148738	IC4247A-3	12.0 x 8.5 x 5.9m	6.8 x 5.75m	
No.3 shielded room	-	-	4.0 x 6.0 x 2.7m	N/A	-
No.4 semi-anechoic chamber	134570	IC4247A-4	12.0 x 8.5 x 5.9m	6.8 x 5.75m	-
No.4 shielded room	-	-	4.0 x 6.0 x 2.7m	N/A	-
No.5 shielded room	-	-	6.0 x 6.0 x 3.9m	N/A	-
No.6 shielded room	-	-	4.0 x 4.5 x 2.7m	N/A	-
No.6 measurement room	-	-	4.75 x 5.4 x 3.0m	N/A	-
No.7 shielded room	-	-	4.7 x 7.5 x 2.7m	4.7 x 7.5m	-
No.8 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.7 shielded room.

3.6 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

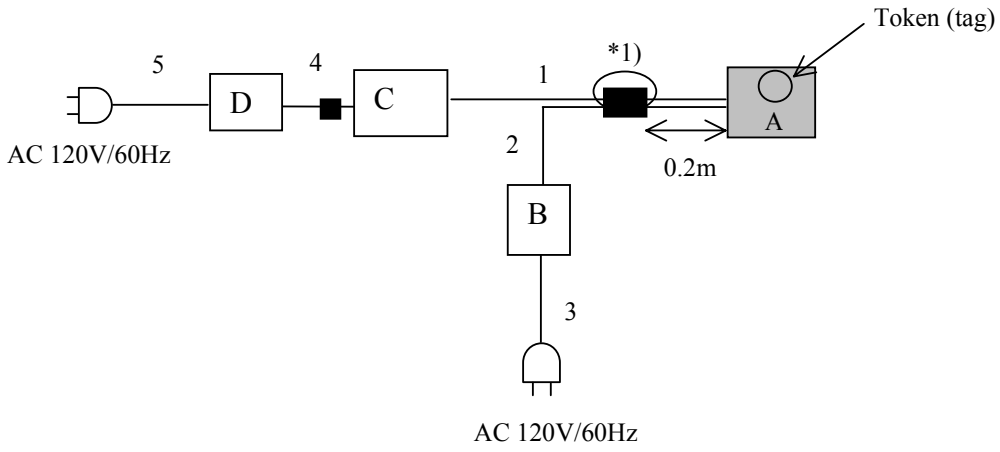
The EUT was operated in a manner similar to typical use during the tests.

The mode is used : Communication mode (Transmitting) with Token (tag)

Frequency Tolerance:
Temperature for the extreme tests : -20 deg.C.(minimum) to + 50deg.C.(maximum)
Voltage for the extreme tests : DV5.0V+/-15%

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

4.2 Configuration and peripherals



■: Ferrite Core (Standard attachment)

*1) Attach a ferrite core (Type: ZCAT2032-0930 made by TDK) to the Signal/DC cables (cables 1 and 2)

[Remarks]
* Cabling and setup were taken into consideration and test data was taken under worse case conditions.
* The EUT is supplied with the power from B (Jig of Power supply for EUT).

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Personal Reader/Writer	ME-PM01-RA-SG (BK)	1) 060113-1 2) 060113-28 3) 060113-3	SEGA	EUT With Token (tag) (model: ME-Y1001)
B	Jig of power supply for EUT	-	-	SEGA	-
C	PC	CF-L1EA	0DKSB09673	Panasonic	-
D	Adaptor	CF-AA1639M7	000451726A	Panasonic	-

1): Used for Frequency tolerance (Extreme temperature)
2): Used for Frequency tolerance (Extreme voltage)
3): Used for other tests

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	Signal Cable	1.2	Unshielded	Unshielded	With one ferrite core (Type: ZCAT2032-0930 made by TDK)
2	DC Cable	1.2	Unshielded	Unshielded	
3	AC Cable	2.2	Unshielded	Unshielded	-
4	DC Cable	1.8	Unshielded	Unshielded	With one standard ferrite core
5	AC Cable	1.8	Unshielded	Unshielded	-

SECTION 5: Conducted emission

5.1 Operating environment

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

5.2 Test configuration

EUT was placed on a urethane platform of nominal size, 1m 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/ an AMN to the input power source. All unused 50ohm connectors of the LISN/ AMN were resistively terminated in 50ohm when not connected to the measuring equipment.
The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT on a horizontal conducting plane 4.0 x 4.0m and a vertical conducting plane 2.0 x 2.0m in a No.2 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 : Table top
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 : March 10, 2006 Test engineer : Makoto Kosaka

SECTION 6: Radiated emission (Fundamental , Spurious Emission and Spectrum Mask)

6.1 Operating environment

The test was carried out in a 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 3m.

Frequency : From 9kHz to 30MHz at distance 3m
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 3m]=[Limit at 300m]-40log (3[m]/300[m])
490kHz – 30MHz[Limit at 3m]=[Limit at 30m]-40log (3[m]/30[m])

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.

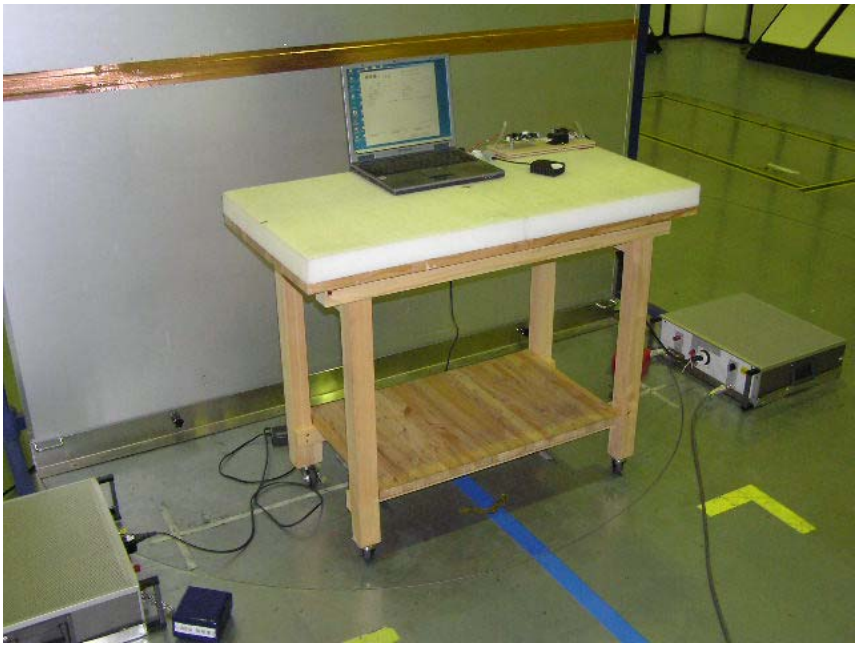
Test data : **APPENDIX 3**
Test result : **Pass**

APPENDIX 1: Photographs of test setup

Conducted emission

Front

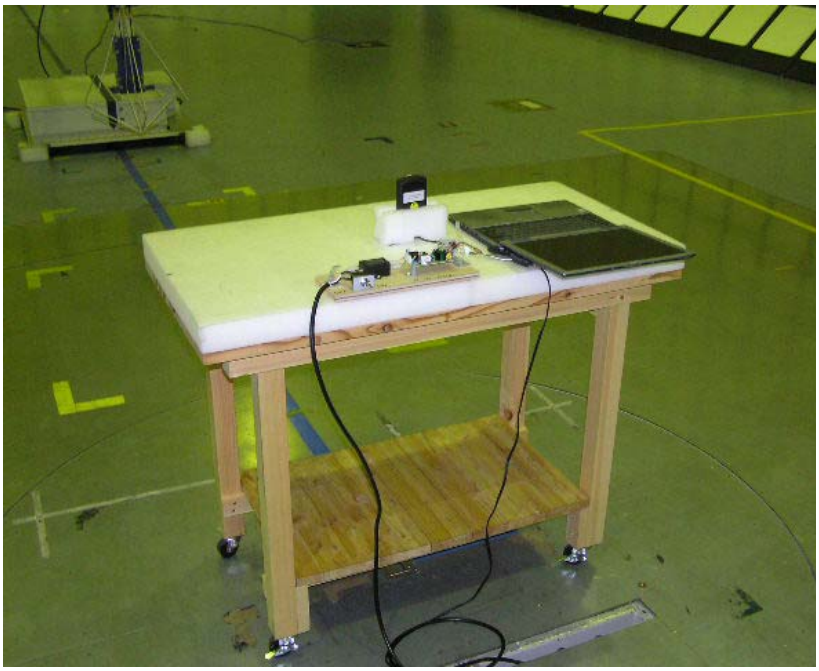
Rear



Radiated emission

Front

Rear



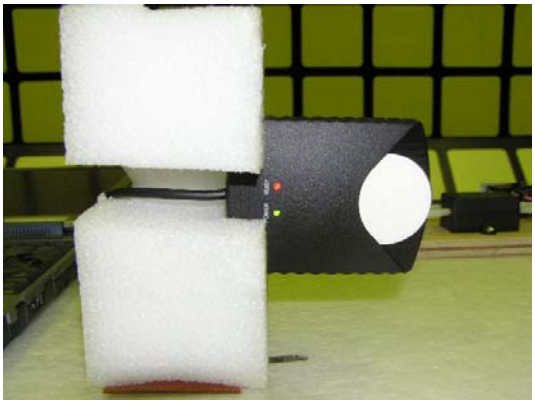
*The lid of PC was fully opened (to 180 degree) in order not to interfere with the radiated emission from the EUT.

Worst Case Position (Z-axis)

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 / CE	2005/11/14 * 12
MLPA-02	Loop Antenna	Rohde & Schwarz	HFH2-Z2	RE	2005/12/06 * 12
MPA-04	Pre Amplifier	Agilent	8447D	RE	2005/05/24 * 12
MCC-31	Coaxial Cable	ULApex	-	RE	2005/06/02 * 12
MCC-03	Coaxial Cable	Fujikura/Suhner/Agilent/TSJ	-	CE/RE	2005/12/18 * 12
MBA-01	Biconical Antenna	Schwarzbeck	BBA9106	RE	2005/10/10 * 12
MLA-01	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2005/10/14 * 12
MAT-06	Attenuator(6dB)	Weinschel Corp	2	RE	2005/12/16 * 12
MCC-01	Coaxial Cable 0.1-3000MHz	Suhner/storm/Agilent/TSJ	-	RE	2006/02/20 * 12
MLS-02	LISN(AMN)	Schwarzbeck	NSLK8127	CE(EUT)	2005/11/09 * 12
MLS-03	LISN(AMN)	Schwarzbeck	NSLK8127	CE(AE)	2005/11/09 * 12
MTA-05	Terminator	MCL	NTRM-50	CE	2006/02/06 * 12
MTR-01	Test Receiver	Rohde & Schwarz	ESI40	RE / CE	2005/11/10 * 12
MOS-01	Digital Humidity Indicator	N.T	NT-1800	RE/CE	2004/11/25 * 24
MSA-07	Spectrum Analyzer	Agilent	E4408B	FT	2006/03/24 * 12
MDPS-05	DC Power Supply	KENWOOD TMI	PW8-3ATP	FT	Pre Check
MCH-01	Temperature and Humidity Chamber	Tabai Espec	PL-2KP	FT	2005/12/19 * 12
MSTW-14	EMI Measurement software	TSJ	TEPTO-DV	CE/RE/FT	-

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,
FT: Frequency Tolerance

APPENDIX 3: Data of EMI test

Conducted emission

DATA OF CONDUCTED EMISSION TEST

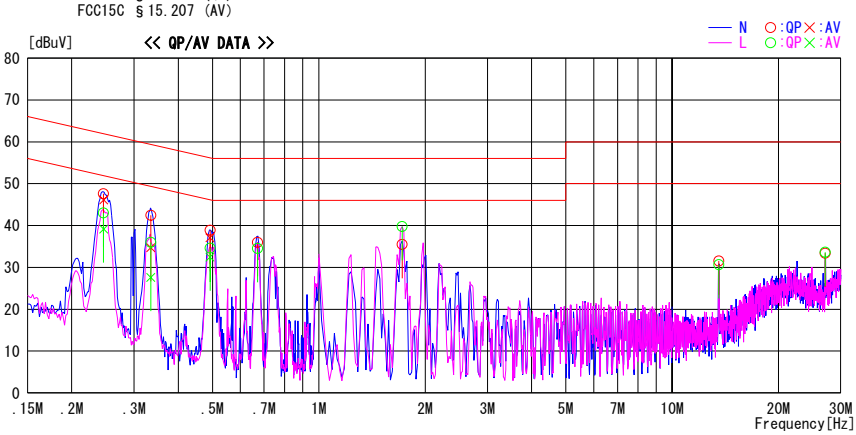
UL Apex Co., Ltd. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2006/03/10 02:48:15

Company : SEGA CORPORATION
Kind of EUT : Personal Reader/Writer
Model No. : ME-PM01-RA-SG(BK)
Serial No. : 060113-3

Report No. : 26EE0273-HO
Power : AC120V / 60Hz(EUT DC5.0V)
Temp./Humi. : 25deg.C. / 28%
Operator : Makoto Kosaka

Mode / Remarks : Tx 13.56MHz Tag Communications

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



Frequency	Reading Level		Corr.	Results		Limit		Margin		Phase
	QP	AV	Factor	QP	AV	QP	AV	QP	AV	
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]	
0.24609	47.5	46.0	0.1	47.6	46.1	61.9	51.9	14.3	5.8	N
0.33447	42.2	34.6	0.2	42.4	34.8	59.3	49.3	16.9	14.6	N
0.49228	38.6	36.8	0.3	38.9	37.1	56.1	46.1	17.2	9.0	N
0.67090	35.7	-----	0.3	36.0	-----	56.0	-----	20.0	-----	N
1.72000	35.0	-----	0.5	35.5	-----	56.0	-----	20.5	-----	N
13.56000	29.7	-----	1.8	31.5	-----	60.0	-----	28.5	-----	N
27.12000	30.9	-----	2.5	33.4	-----	60.0	-----	26.6	-----	N
0.24609	42.9	39.1	0.1	43.0	39.2	61.9	51.9	18.9	12.7	L
0.33447	35.7	27.4	0.2	35.9	27.6	59.3	49.3	23.4	21.7	L
0.49228	34.3	32.2	0.3	34.6	32.5	56.1	46.1	21.5	13.6	L
0.67090	34.2	-----	0.3	34.5	-----	56.0	-----	21.5	-----	L
1.72000	39.3	-----	0.5	39.8	-----	56.0	-----	16.2	-----	L
13.56000	28.8	-----	1.8	30.6	-----	60.0	-----	29.4	-----	L
27.12000	31.2	-----	2.5	33.7	-----	60.0	-----	26.4	-----	L

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 and Spectrum Mask)

DATA OF MAGNETIC RADIATED EMISSION TEST

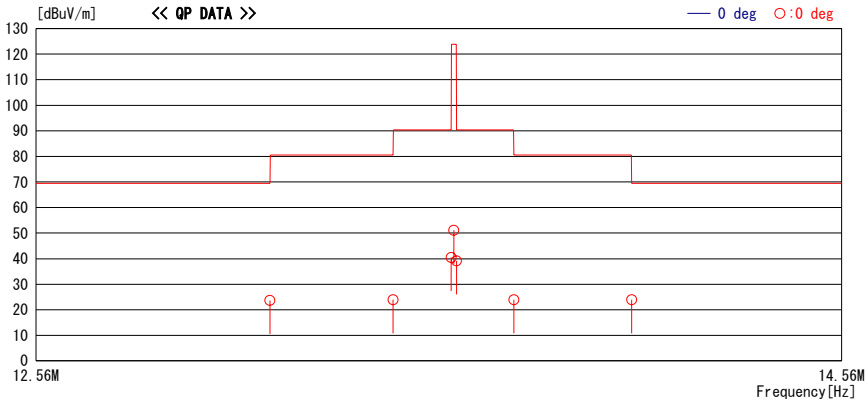
UL Apex Co.,LTD. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2006/03/10 00:10:07

Applicant : SEGA CORPORATION
Kind of EUT : Personal Reader/Writer
Model No. : ME-PM01-RA-SG(BK)
Serial No. : 060113-3

Report No. : 26EE0273-HO
Power : AC120V / 60Hz(EUT DC5.0V)
Temp./Humi. : 25deg.C / 29%
Operator : Makoto kosaka

Mode / Remarks : Tx 13.56MHz Tag Communications EUT Y-axis Loop 0deg(worst)

LIMIT : FCC15C §15.225, 3m
Except for the data below : adequate margin data below the limits.



Freq. [MHz]	Reading [dBuV]	DET	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Antenna	Table [deg]
13.11000	29.9	QP	20.4	1.2	27.9	23.6	69.5	45.9	0deg	1
13.41000	30.2	QP	20.4	1.2	27.9	23.9	80.5	56.6	0deg	1
13.55300	46.6	QP	20.5	1.2	27.9	40.4	90.4	50.0	0deg	1
13.56000	57.2	QP	20.5	1.3	27.9	51.1	123.9	72.8	0deg	1
13.56700	45.2	QP	20.5	1.3	27.9	39.1	90.4	51.3	0deg	1
13.71000	30.0	QP	20.5	1.3	27.9	23.9	80.5	56.6	0deg	1
14.01000	30.0	QP	20.5	1.3	27.9	23.9	69.5	45.6	0deg	1

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

Page:

Radiated emission (Spurious emission : below 30MHz)

DATA OF MAGNETIC RADIATED EMISSION TEST

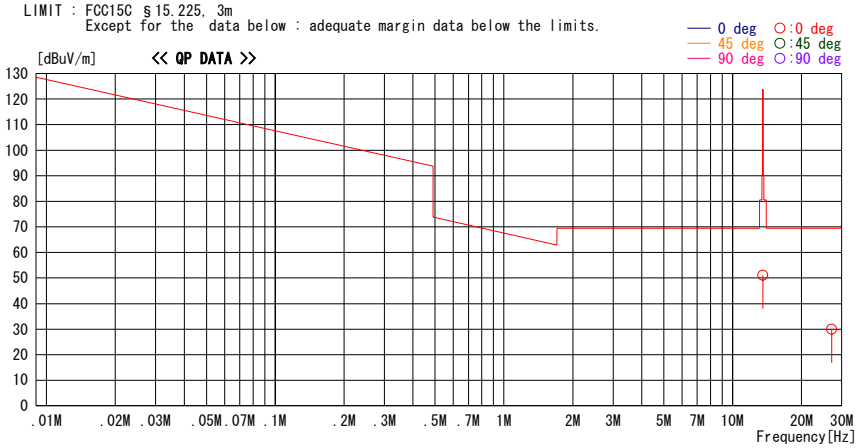
UL Apex Co.,LTD. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2006/03/09 23:22:35

Applicant : SEGA CORPORATION
Kind of EUT : Personal Reader/Writer
Model No. : ME-PM01-RA-SG(BK)
Serial No. : 060113-3

Report No. : 26EE0273-HO
Power : AC120V / 60Hz(EUT DC5.0V)
Temp./Humi. : 25deg.C / 29%
Operator : Makoto kosaka

Mode / Remarks : Tx 13.56MHz Tag Communications EUT Y-axis Loop Odeg(worst)

LIMIT : FCC15C §15.225, 3m
Except for the data below : adequate margin data below the limits.



Freq. [MHz]	Reading [dBuV]	DET	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Antenna	Table [deg]
13.56000	57.2	QP	20.5	1.3	27.9	51.1	123.9	72.8	0deg	1
27.12000	34.7	QP	21.3	1.9	28.0	29.9	69.5	39.6	0deg	1

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

Page:

Radiated emission (Spurious emission: above 30MHz)

DATA OF RADIATED EMISSION TEST

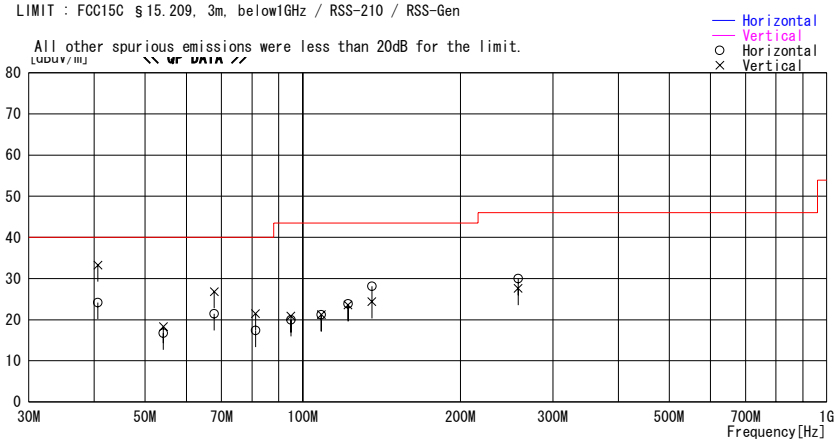
UL Apex Co., Ltd. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2006/03/09 20:32:53

Company	: SEGA CORPORATION	Report No.	: 26EE0273-HO
Kind of EUT	: Personal Reader/Writer	Power	: AC120V / 60Hz(EUT DC5.0V)
Model No.	: ME-PM01-RA-SG(BK)	Temp./Humi.	: 25deg.C. / 28%
Serial No.	: 060113-3	Operator	: Makoto Kosaka

Mode / Remarks : Tx 13.56MHz Tag Communications Y-axis(worst)

LIMIT : FCC15C §15.209, 3m, below1GHz / RSS-210 / RSS-Gen

All other spurious emissions were less than 20dB for the limit.



Frequency	Reading	DET	Antenna Factor	Loss& Gain	Level	Angle	Height	Polar.	Limit	Margin
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
40.647	30.9	QP	13.8	-20.5	24.2	140	293	Hori.	40.0	15.8
40.647	40.0	QP	13.8	-20.5	33.3	123	100	Vert.	40.0	6.7
54.207	27.1	QP	9.7	-20.1	16.7	1	300	Hori.	40.0	23.3
54.207	28.7	QP	9.7	-20.1	18.3	91	100	Vert.	40.0	21.7
67.767	34.0	QP	7.3	-19.8	21.5	91	282	Hori.	40.0	18.6
67.767	39.3	QP	7.3	-19.8	26.8	88	100	Vert.	40.0	13.2
81.327	29.9	QP	7.1	-19.6	17.4	116	293	Hori.	40.0	22.6
81.327	34.0	QP	7.1	-19.6	21.5	118	100	Vert.	40.0	18.5
94.887	29.5	QP	9.6	-19.2	19.9	21	297	Hori.	43.5	23.6
94.887	30.5	QP	9.6	-19.2	20.9	276	100	Vert.	43.5	22.6
108.447	28.6	QP	11.7	-19.1	21.2	99	279	Hori.	43.5	22.3
108.447	28.6	QP	11.7	-19.1	21.2	185	100	Vert.	43.5	22.3
122.007	29.3	QP	13.3	-18.8	23.8	44	244	Hori.	43.5	19.7
122.007	29.1	QP	13.3	-18.8	23.6	176	100	Vert.	43.5	19.9
135.570	32.3	QP	14.4	-18.6	28.1	30	230	Hori.	43.5	15.4
135.570	28.6	QP	14.4	-18.6	24.4	183	100	Vert.	43.5	19.1
257.685	29.0	QP	17.8	-16.8	30.0	73	135	Hori.	46.0	16.0
257.685	26.6	QP	17.8	-16.8	27.6	215	100	Vert.	46.0	18.4

CHART:WITH FACTOR ANT TYPE : -30MHz LOOP,30-300MHz BICONICAL,300MHz-1000MHz LOGPERIODIC,1000MHz- HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - GAIN(AMP)

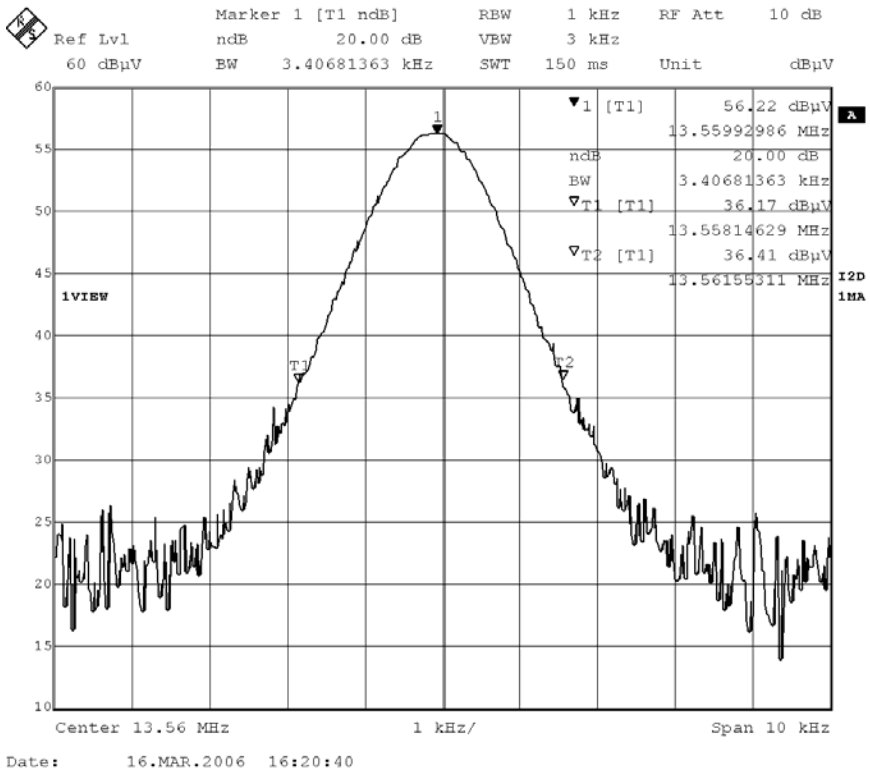
All other spurious emissions were less than 20dB for the limit.

–20dB Bandwidth

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

COMPANY	:	SEGA CORPORATION	REPORT NO.	:	26EE0273-HO
EQUIPMENT	:	Personal Reader/Writer	REGULATION	:	FCC 15.225
MODEL	:	ME-PM01-RA-SG(BK)	TEST DISTANCE	:	3m
S/ N	:	060113-3	DATE	:	03/09/2006
POWER	:	DC5V(AC120V/60Hz)	TEMPERATURE	:	25 deg.C.
MODE	:	Tx 13.56MHz	HUMIDITY	:	29 %
			ENGINEER	:	Makoto kosaka

FREQ [MHz]	-20dB Bandwidth [kHz]
13.56	3.41

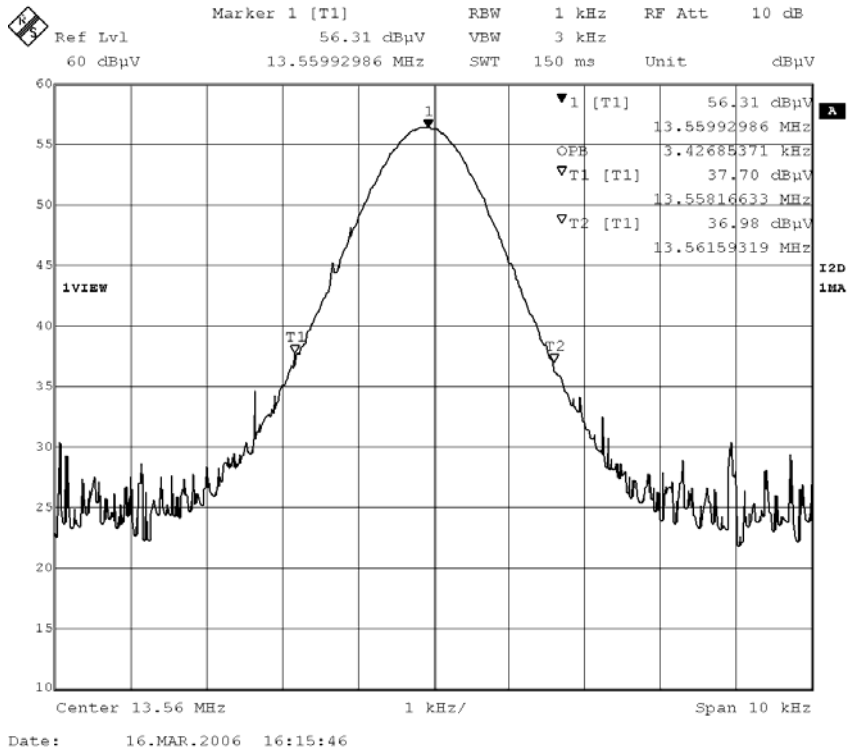


99% Occpied Bandwidth

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

COMPANY	:	SEGA CORPORATION	REPORT NO.	:	26EE0273-HO
EQUIPMENT	:	Personal Reader/Writer	REGULATION	:	RSS-Gen 4.4.1
MODEL	:	ME-PM01-RA-SG(BK)	TEST DISTANCE	:	3m
S/ N	:	060113-3	DATE	:	03/09/2006
POWER	:	DC5V(AC120V/60Hz)	TEMPERATURE	:	25 deg.C.
MODE	:	Tx 13.56MHz	HUMIDITY	:	29 %
			ENGINEER	:	Makoto kosaka

FREQ [MHz]	99% Occpied Bandwidth [kHz]
13.56	3.43



Frequency Tolerance

UL Apex Co., Ltd.
Head Office EMC Lab. No.1 Semi Anechoic Chamber

Company : SEGA CORPORATION
Equipment : Personal Reader/Writer
Model : ME-PM01-RA-SG(BK)
Serial No. : 060113-1, 060113-28
Power : DC5V (EUT input)
Mode : TX 13.56MHz

Report No. : 26EE0273-HO
Regulation : FCC Part15 Subpart C 15.225 (e)
Date : 11/03/2006 , 29/03/2006
Humidity : 36%, 32%
Temperature : 23deg.C , 20deg.C
Engineer : Makoto Kosaka

Limits

Operating frequecy 13.56 MHz ± 0.01% ± 0.001356 MHz

	MHz
Lower Limit	13.558644
Upper Limit	13.561356

Frequency stability vs. temperature [S/N 060113-1]

Ambient temperature (deg.C)	Measured Frequency (MHz) Start	2 minutes	5 minutes	10 minutes	Result
-30deg.C *	13.560141	13.560102	13.560086	13.560086	Complied
Margin	0.001215	0.001254	0.001270	0.001270	
-20deg.C	13.560070	13.560055	13.560055	13.560055	Complied
Margin	0.001286	0.001301	0.001301	0.001301	
-10deg.C	13.560039	13.560014	**13.560002**	13.559914	Complied
Margin	0.001317	0.001342	**0.001354**	0.001270	
0deg.C	13.560029	13.560098	13.559986	13.559951	Complied
Margin	0.001327	0.001258	0.001342	0.001307	
+10deg.C	13.559975	13.559967	13.559951	13.559947	Complied
Margin	0.001331	0.001323	0.001307	0.001303	
+20deg.C	13.559978	13.559959	13.559951	13.559947	Complied
Margin	0.001334	0.001315	0.001307	0.001303	
+30deg.C	13.559959	13.559951	13.559943	13.559939	Complied
Margin	0.001315	0.001307	0.001299	0.001295	
+40deg.C	13.559943	13.559935	13.559932	13.559928	Complied
Margin	0.001299	0.001291	0.001287	0.001284	
+50deg.C	13.559928	13.559924	13.559920	13.559916	Complied
Margin	0.001284	0.001280	0.001276	0.001272	

*Reference data

*1 Frequency stability vs. input voltage [S/N 060113-28]

% of Rated Supply		Supply Voltage	Measured Frequency (MHz) Start	2 minutes	5 minutes	10 minutes	Result
Nor	DC	5	13.559671	13.559901	13.559897	13.559891	Complied
Margin			0.001039	0.000981	0.001047	0.001072	
85%	DC	4.25	13.559896	13.559867	13.559867	13.559866	Complied
Margin			0.001152	0.001166	0.001113	0.001146	
115%	DC	5.75	13.559918	13.559908	13.559906	13.559900	Complied
Margin			0.000915	0.000815	0.000875	0.001236	

Note: Test Procedure ANSI C63.4-2003 Annex H.5.2 and H.5.3