

EMISSION -- TEST REPORT

TEST REPORT No.:

TR2-07212F

Date of Issue: May 11, 2007

KIND OF EQUIPMENT:

RF-ID Unit

MODEL:

KBB0007-001

APPLICANT:

Victor Company of Japan, Limited

FCC ID:

ASIK4V003

TEST STANDARD(S):

FCC Part 15 Subpart C, Section 15.225

TEST RESULT:

Complied

It is not allowed to copy this report even partly without the written allowance of the test laboratory. The test result only responds to the tested sample. The report must not be used to claim products endorsement by the accreditation or authorization body. The engineers of EMC Kashima Corporation were not involved in modification for the tested sample.

TEST DATE(S):

April 10, 11, 17, 2007

TEST ENGINEER(S):

Kazuhiro Ando
Manager

APPROVED BY:

Ken'ichi Suda
Director

TABLE OF CONTENTS

	Page
1 General Information	3
2 Summary of Test Result	4
3 Equipment Under Test (EUT)	5
4 Test Configuration	6
5 Test Facilities	8
6 Measurement Uncertainty	8
7 Test Conditions	9
8 Test Data	14
8.1 Conducted Emissions (Mains) 150 kHz - 30 MHz	14
8.2 Radiated Emissions 9 kHz - 30 MHz	15
8.3 Radiated Emissions 30 MHz - 1000 MHz	17
8.4 Frequency stability	20
8.5 20dB Bandwidth	21
9 The Photos of Test-Setup	22

1 GENERAL INFORMATION

1.1	APPLICANT	Victor Company of Japan, Limited
1.2	ADDRESS	2969-2, Ishikawa-cho, Hachioji-shi, Tokyo 192-8620, Japan
1.3	MANUFACTURER	UMC Electronics Ltd.
1.4	KIND OF EQUIPMENT	RF-ID Unit
1.5	MODEL	KBB0007-001
1.6	POWER RATING	DC5V $\pm$ 5%
1.7	PROTECTION CLASS	Class III
1.8	TESTING VOLTAGE	DC5V from Card Printer (AC120V, 60Hz)
1.9	CONDITION OF EUT	Production
1.10	OPETATING FREQUENCY	13.56MHz
1.11	TYPE OF MODURATION	ASK
1.12	OPETATING TEMPERATUR	0 °C to 50 °C
1.13	TEST STANDARD(S)	FCC Part 15 Subpart C, Section 15.225
1.14	TEST METHOD(S)	ANSI C63.4: 2003
1.15	TESTED DATE(S)	April 10, 11, 17, 2007
1.16	REMARK(S)	

2 SUMMARY OF TEST RESULT

FCC Part 15 Section	Test Item	Worst margin	Condition	Result
15.203	Antenna requirement	-	-	Pass ^{Note1}
15.207	Conducted emissions 9kHz - 30MHz	15.2dB at 0.2548MHz	-	Pass
15.225(a)(b)(c)	Radiated emissions 9kHz - 30MHz	60.8dB at 13.56MHz	Radiated	Pass
15.225(d)	Radiated emissions 9kHz - 30MHz	51.3dB at 27.12MHz	Radiated	Pass
15.225(d) 15.209	Radiated emissions 30MHz - 1GHz	5.1dB at 81.35MHz	Radiated	Pass
15.225(e)	Frequency stability	-0.00383%	Radiated	Pass
15.215(c)	20dB Bandwidth	6.32kHz	Radiated	Pass

Note 1: Users cannot replace the antenna since it is attached to the inside of the printer.

Note 2: "Pass" is only based on the measurement data and it does not include the measurement uncertainty.

Accordingly, the statement below is applied to the test result.

- It is possible to determine compliance at a level of confidence of 95% in case that the margin is not less than the measurement uncertainty in the Laboratory.
- It is not possible to determine compliance at a level of confidence of 95% in case that the margin is less than the measurement uncertainty in the Laboratory. However, the measured result indicates that the product tested complies with the specification limit.

3 EQUIPMENT UNDER TEST

3.1 Description of The EUT

Purpose of using the radio device

In this printer a special ink ribbon for sublimation type printing used. The ink ribbon bobbin has a RF-ID tag (passive type) built inside. The radio communication between the printer and the ink ribbon bobbin give the following functions, of which no user is informed.

1. Discerning the type of ink ribbon

This printer can automatically discern what type of ink ribbon is installed out of the various options, for example, both sides full color, one side full color rear side monochrome, and so on.

2. Managing the number of used picture frames in an ink ribbon. The information on the number of used/remained picture frames can be got by writing the number of used picture frame into the RF-ID tag, even when ink ribbons are exchanged.

3. By using the RF-ID tag, the printer could distinguish between a proper ink and inadequate one so the defective printing would be prevented.

3.2 Typically Used Frequencies

Frequency	Derived Frequency	Description of Use	Remarks
13.56 MHz	13.56 MHz	RF-ID	
20 MHz	20 MHz	RF-ID PWB CPU	Highest Frequency

3.2 Operation - mode of The EUT

The equipment under test was operated during the measurement under following conditions:

- Transmit mode

4 TEST CONFIGURATION

4.1 EUT(s) and Peripheral(s)

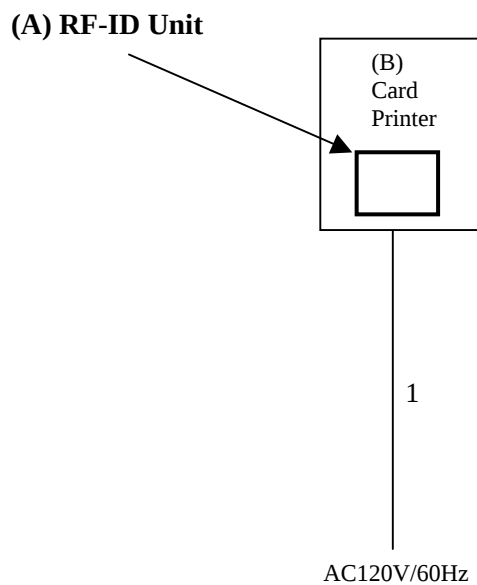
	Equipment Name	Model	Serial No.	Company	FCC ID
A	RF-ID Unit (EUT)	KBB0007-001	005491	JVC	ASIK4V003
B	Card Printer	CX-330	082J0014	JVC	DoC*
*Note: Declaration of Conformity					

4.2 Cable(s) Used

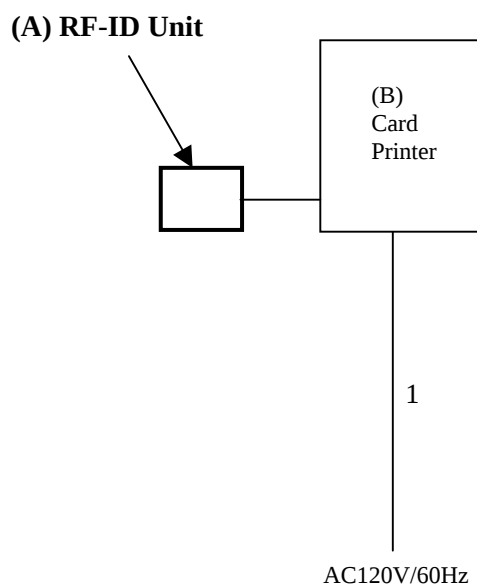
	Cable Name	Length	Shielded	Remarks (Model, Company, etc.)
1	AC Power	2.2 m	no	

4.3 Connection figure

Conducted Emissions



Radiated Emissions



5 TEST FACILITIES

All measurement facilities in EMC Kashima Corporation are located in 1614, Mushihata, Katori-shi, Chiba-ken, 289-0341 Japan.

Accredited by American Association for Laboratory Accreditation (A2LA) for the emission and immunity tests stated in the scope of the certificate under Certificate Number 1266-01.

Authorized by NEMKO for the emission and immunity tests stated in the scope of the authorization under Authorization Number ELA172.

Authorized by TUV Rheinland for the emission and immunity tests stated in the scope of the certificate under Certificate No. UA 50061520-0001.

Registered by Federal Communications Commission (FCC). Each registered facility number is as follows;

Test site No. 1 90558 / Test site No. 2 510504 / Test site No. 4 90557
Test site No. 5 99356 / Test site No. 6 372431

Registered by Industry Canada (IC). Each registered facility number is as follows;

Test site No. 1 IC 4659A-1 / Test site No. 2 IC 4659A-2 / Test site No.5 IC 4659A-5
Test site No. 6 IC 4659A-6

Approved by Saudi Arabian Standards Organization (SASO).

Registered by Voluntary Control Council for Interference by Information Technology Equipment (VCCI).

Each registered facility number is as follows;

Test site No. 1 R-188 · C-785 (Open site) / C-187 (Shielded room)
Test site No. 2 R-189 (Open site) / C-188 (Shielded room)
Test site No. 4 R-656 (Open site) / C-613 (Shielded room)
Test site No. 5 R-1227 · C-1290 (Open site) / C-1291 (Shielded room)
Test site No. 6 R-1895 · C-2042 (Anechoic chamber)

6 MEASUREMENT UNCERTAINTY

The treatment of uncertainty is based on the general matters on the definition of uncertainty in “Guide to the expression of uncertainty in measurement (GUM)” published by ISO. The Lab’s uncertainty is determined by referring UKAS Publication LAB34:2002 “The Expression of Uncertainty in EMC Testing” and CISPR16-4-2:2003 “Uncertainty in EMC Measurements”.

The uncertainty of the measurement result in the level of confidence of approximately 95% (k=2) is as follows;

Conducted Emissions	± 2.56 dB
Radiated emission test (9kHz - 30MHz)	± 3.25 dB
Radiated emission test (30MHz - 1000MHz)	± 4.32 dB

7 TEST CONDITIONS

7.1 Section 15.207 Conducted Emissions

7.1.1 Test Location

Test site No. 2 (Shielded room)

7.1.2 Used Test Instruments

Model	Name	Manufacturer	Code No.	Last Cal.	Remarks
ESHS10	Test Receiver	Rohde & Schwarz	RCH02	2007.03	
ESH3-Z5	AMN	Rohde & Schwarz	LSN06	2006.06	
8567A	Spectrum Analyzer	Hewlett Packard	SPR10	2006.11	
5D-2W	Coaxial cable	FUJIKURA	2CSR	2007.04	

All used test instruments are calibrated at least once a year.

7.1.3 Test Procedure

The test setup and measurements were implemented according to the test method of ANSI C63.4: 2003
7. AC power line conducted emission measurements.

Final measurements were made on the conditions described on this page, and the photos of test-setup indicate the final conducted emissions.

7.1.4 Limit

Frequency (MHz)	Quasi-peak (dBuV)	Average (dBuV)
0.15 - 0.5	66 - 56*	56 - 46*
0.5 - 5	56	46
5 - 30	60	50

* Decreases with the logarithm of the frequency.

7.2 Section 15.225(a)(b)(c)(d) Radiated Emissions (9kHz - 30MHz)

7.2.1 Test Location

Test site No. 2 (Open site) 3 meters distance

7.2.2 Used Test Instruments

Model	Name	Manufacturer	Code No.	Last Cal.	Remarks
ESH2	Test Receiver	Rohde & Schwarz	RCH01	2007.02	
HFH2-Z2	Loop Antenna	Rohde & Schwarz	LPA01	2006.04	
5D-2W	Coaxial cable	FUJIKURA	MG5m	2006.10	

All used test instruments are calibrated at least once a year.

7.2.3 Test Procedure

The test setup and measurements were implemented according to the test method of ANSI C63.4: 2003 8. Radiated emission measurements.

The test was performed at 3 meter distance and its result was converted into the one at specified 30 meter distance according to 15.31(f). The turntable was rotated and the center point of the loop antenna was fixed at 1 meter above ground level to investigate the maximum radiated emission, positioning the loop antenna in vertical and horizontal. Final measurements were made on the conditions described on this page, and the photos of test-setup indicate the final radiated emissions.

7.2.4 Limit

Frequency (MHz)	Field strength @30m (uV/m)	Field strength @30m (dBuV/m)	Field strength @3m (dBuV/m)
Below 13.110	30	29.5	69.5
13.110 - 13.410	106	40.5	80.5
13.410 - 13.553	334	50.5	90.5
13.553 - 13.567	15,848	84	124
13.567 - 13.710	334	50.5	90.5
13.710 - 14.010	106	40.5	80.5
Above 14.010	30	29.5	69.5

$\text{dBuV/m} = 20 \times \log(\text{uV/m})$

Distance factor = 40dB / decade (15.31(f))

7.3 Section 15.225(d) Radiated Emissions (30MHz - 1000MHz)

7.3.1 Test Location

Test site No. 2 (Open site) 3 meters distance

7.3.2 Used Test Instruments

Model	Name	Manufacturer	Code No.	Last Cal.	Remarks
ESVS10	Test Receiver	Rohde & Schwarz	RCV02	2006.04	
VULB 9168	Logbicon Antenna	Schwarzbeck	LGBC02	2006.04	
8567A	Spectrum Analyzer	Hewlett Packard	SPR10	2006.11	
8447D	Pre-Amplifier	Hewlett Packard	PRA02	2006.04	
12DSFA/5D-2W	Coaxial cable	FUJIKURA	2R10m	2006.04	

All used test instruments are calibrated at least once a year.

7.3.3 Test Procedure

The test setup and measurements were implemented according to the test method of ANSI C63.4: 2003
8. Radiated emission measurements.

They were performed at the measurement distance that specified for compliance to determine the frequency producing the maximum emissions. The turntable was rotated and the antenna height was varied 1 to 4 meters to investigate the maximum radiated emission for the horizontal and vertical polarization. Final measurements were made on the conditions described on this page, and the photos of test-setup indicate the final radiated emissions.

7.3.4 Limit

Frequency (MHz)	Field strength @3m (uV/m)	Field strength @3m (dBuV/m)
30 - 88	100	40
88 - 216	150	43.5
216 -960	200	46
Above 960	500	54

$\text{dBuV/m} = 20 \times \log (\text{uV/m})$

7.4 Section 15.225(e) Frequency Stability

7.4.1 Test Location

Test site No. 6

7.4.2 Used Test Instruments

Model	Name	Manufacturer	Code No.	Last Cal.	Remarks
R3162	Spectrum Analyzer	ADVANTEST	SPR11	2006.07	
7334-1	Loop Antenna	SOLAR	LPA03	2007.02	
PR-4KPH	Temperature Chamber	ESPEC	TMPC02	2006.12	
87-3	MULTIMETER	FLUKE	MTM13	2006.09	

All used test instruments are calibrated at least once a year.

7.4.3 Test Procedure

The test setup and measurements were implemented according to the test method of ANSI C63.4: 2003 Annex H5.

The EUT was measured with the condition that the measuring instrument was connected to the antenna through the coaxial cable, whose antenna was placed near the EUT. The measurement started with the Temperature chamber sufficiently stabilized.

7.4.4 Limit

Item	Variation	Limit (%)
Temperature variation	-20°C - +50°C	+/- 0.01
Voltage variation	85% - 115%	+/- 0.01

7.5 Section 15.215(c) 20dB Bandwidth

7.5.1 Test Location

Test site No. 6

7.5.2 Used Test Instruments

Model	Name	Manufacturer	Code No.	Last Cal.	Remarks
R3162	Spectrum Analyzer	ADVANTEST	SPR11	2006.07	
7334-1	Loop Antenna	SOLAR	LPA03	2007.02	
5D-2W	Coaxial cable	FUJIKURA	MG5m	2006.10	

All used test instruments are calibrated at least once a year.

7.5.3 Test Procedure

The test setup and measurements were implemented according to the test method of ANSI C63.4: 2003 Annex H6.

The spectrum analyzer RBW and VBW were set as follows. The marker-to-peak function of the spectrum analyzer was used to measure to peak level and the marker-delta function was used to measure the emission 20dB below the peak. It has been plotted.

Spectrum Analyzer Setup

RBW	VBW	Detector
1kHz	3kHz	Peak

8 TEST DATA

8.1 Section 15.207 Conducted Emissions

Company : Victor Company of Japan, Limited Tested Date : April 11, 2007
Equipment : RF-ID Unit Temperature : 24 °C
Model : KBB0007-001 Humidity : 50 %
Power : DC 5V from Printer (AC120V, 60Hz) Atmos. Press : 1020 hPa
Test Mode : Transmit

Engineer : Kazuhiro Ando

Freq. (MHz)	Phase	Reading (dBuV)		Corr. Factor (dB)	Result (dBuV)		Limit (dBuV)		Margin (dB)	
		QP	AV		QP	AV	QP	AV	QP	AV
0.1907	N	44.5	-	0.4	44.9	-	64.0	54.0	19.1	-
0.2548	N	45.3	-	0.4	45.7	-	61.6	51.6	15.9	-
0.3213	N	42.0	-	0.4	42.4	-	59.7	49.7	17.3	-
0.5109	N	34.0	-	0.4	34.4	-	56.0	46.0	21.6	-
2.2644	N	33.3	-	0.5	33.8	-	56.0	46.0	22.2	-
13.5581	N	38.0	-	1.3	39.3	-	60.0	50.0	20.7	-
22.7235	N	32.7	-	1.9	34.6	-	60.0	50.0	25.4	-
0.1907	L	45.3	-	0.4	45.7	-	64.0	54.0	18.3	-
0.2548	L	46.0	-	0.4	46.4	-	61.6	51.6	15.2	-
0.3213	L	42.0	-	0.4	42.4	-	59.7	49.7	17.3	-
0.5109	L	35.3	-	0.4	35.7	-	56.0	46.0	20.3	-
2.2644	L	33.5	-	0.5	34.0	-	56.0	46.0	22.0	-
13.5581	L	38.5	-	1.3	39.8	-	60.0	50.0	20.2	-
22.7235	L	32.0	-	1.9	33.9	-	60.0	50.0	26.1	-

Correction Factor(dB) = AMN Factor(dB) + Cable Loss(dB)
Result(dBuV) = Reading (dBuV) + Correction Factor(dB)

8.2 Section 15.225(a)(b)(c) Radiated Emissions (9kHz - 30MHz)

Company : Victor Company of Japan, Limited Tested Date : April 10, 2007
Equipment : RF-ID Unit Temperature : 24 °C
Model : KBB0007-001 Humidity : 54 %
Power : DC 5V from Printer (AC120V, 60Hz) Atmos. Press : 1021 hPa
Test Mode : Transmit
Test Distance : 3m

Engineer : Kazuhiro Ando

X-axis

Freq. (MHz)	Reading @3m (dBuV)	Detector (QP/Pk)	Corr. Factor (dB)	Result (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
13.56	53.0	QP	0.2	53.2	124.0	70.8

Y-axis

Freq. (MHz)	Reading @3m (dBuV)	Detector (QP/Pk)	Corr. Factor (dB)	Result (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
13.56	63.0	QP	0.2	63.2	124.0	60.8

Z-axis

Freq. (MHz)	Reading @3m (dBuV)	Detector (QP/Pk)	Corr. Factor (dB)	Result (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
13.56	62.5	QP	0.2	62.7	124.0	61.3

Correction Factor(dB) = Antenna Factor(dB/m) + Cable Loss(dB)
Result(dBuV/m) = Reading(dBuV) + Correction Factor(dB)

Section 15.225(d) Radiated Emissions (9kHz - 30MHz)

Company : Victor Company of Japan, Limited Tested Date : April 10, 2007
Equipment : RF-ID Unit Temperature : 24 °C
Model : KBB0007-001 Humidity : 54 %
Power : DC 5V from Printer (AC120V, 60Hz) Atmos. Press : 1021 hPa
Test Mode : Transmit
Test Distance : 3m

Engineer : Kazuhiro Ando

X-axis

Freq. (MHz)	Reading @3m (dBuV)	Detector (QP/Pk)	Corr. Factor (dB)	Result (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
27.12	18.0	QP	0.2	18.2	69.5	51.3

Y-axis

Freq. (MHz)	Reading @3m (dBuV)	Detector (QP/Pk)	Corr. Factor (dB)	Result (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
27.12	18.0	QP	0.2	18.2	69.5	51.3

Z-axis

Freq. (MHz)	Reading @3m (dBuV)	Detector (QP/Pk)	Corr. Factor (dB)	Result (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)
27.12	18.0	QP	0.2	18.2	69.5	51.3

Correction Factor(dB) = Antenna Factor(dB/m) + Cable Loss(dB)

Result(dBuV/m) = Reading(dBuV) + Correction Factor(dB)

8.3 Section 15.225(d) Radiated Emissions (30MHz - 1000MHz)

Company : Victor Company of Japan, Limited Tested Date : April 10, 2007
Equipment : RF-ID Unit Temperature : 24 °C
Model : KBB0007-001 Humidity : 54 %
Power : DC 5V from Printer (AC120V, 60Hz) Atmos. Press : 1021 hPa
Test Mode : Transmit (X-axis)
Test Distance : 3m

Engineer : Kazuhiro Ando

Freq. (MHz)	Pol. (H/V)	Reading (dBuV)	Detector (QP/Pk)	Corr. Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
54.25	V	40.3	QP	-12.1	28.2	40.0	11.8
67.81	V	41.0	QP	-12.1	28.9	40.0	11.1
81.35	H	46.5	QP	-15.4	31.1	40.0	8.9
81.35	V	48.5	QP	-15.4	33.1	40.0	6.9
94.92	H	48.3	QP	-15.4	32.9	43.5	10.6
94.92	V	49.3	QP	-15.4	33.9	43.5	9.6
108.49	H	48.0	QP	-14.1	33.9	43.5	9.6
108.49	V	46.0	QP	-14.1	31.9	43.5	11.6
122.05	H	44.5	QP	-12.9	31.6	43.5	11.9
135.60	H	45.3	QP	-11.7	33.6	43.5	9.9
135.60	V	42.7	QP	-11.7	31.0	43.5	12.5
162.73	H	42.0	QP	-9.5	32.5	43.5	11.0
162.73	V	41.7	QP	-9.5	32.2	43.5	11.3
189.85	H	43.0	QP	-11.3	31.7	43.5	11.8
249.87	H	46.5	QP	-8.8	37.7	46.0	8.3

Correction Factor(dB) = Antenna Factor(dB/m) + Cable Loss(dB) – Preamplifier Gain(dB)
Result(dBuV/m) = Reading(dBuV) + Correction Factor(dB)

Section 15.225(d) Radiated Emissions (30MHz - 1000MHz)

Company : Victor Company of Japan, Limited Tested Date : April 10, 2007
Equipment : RF-ID Unit Temperature : 24 °C
Model : KBB0007-001 Humidity : 54 %
Power : DC 5V from Printer (AC120V, 60Hz) Atmos. Press : 1021 hPa
Test Mode : Transmit (Y-axis)
Test Distance : 3m

Engineer : Kazuhiro Ando

Freq. (MHz)	Pol. (H/V)	Reading (dBuV)	Detector (QP/Pk)	Corr. Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
40.67	V	41.0	QP	-12.9	28.1	40.0	11.9
54.23	V	40.5	QP	-12.1	28.4	40.0	11.6
67.79	V	44.5	QP	-12.1	32.4	40.0	7.6
81.35	H	48.5	QP	-15.4	33.1	40.0	6.9
81.35	V	50.3	QP	-15.4	34.9	40.0	5.1
94.91	H	49.5	QP	-15.5	34.0	43.5	9.5
94.91	V	50.3	QP	-15.5	34.8	43.5	8.7
108.49	H	49.5	QP	-14.1	35.4	43.5	8.1
108.49	V	47.5	QP	-14.1	33.4	43.5	10.1
122.05	H	46.3	QP	-12.9	33.4	43.5	10.1
135.60	H	46.0	QP	-11.7	34.3	43.5	9.2
135.60	V	43.0	QP	-11.7	31.3	43.5	12.2
162.71	H	42.0	QP	-9.5	32.5	43.5	11.0
162.71	V	40.7	QP	-9.5	31.2	43.5	12.3
189.85	H	42.0	QP	-11.3	30.7	43.5	12.8
249.86	H	46.0	QP	-8.8	37.2	46.0	8.8

Correction Factor(dB) = Antenna Factor(dB/m) + Cable Loss(dB) – Preamplifier Gain(dB)
Result(dBuV/m) = Reading(dBuV) + Correction Factor(dB)

Section 15.225(d) Radiated Emissions (30MHz - 1000MHz)

Company : Victor Company of Japan, Limited Tested Date : April 10, 2007
Equipment : RF-ID Unit Temperature : 24 °C
Model : KBB0007-001 Humidity : 54 %
Power : DC 5V from Printer (AC120V, 60Hz) Atmos. Press : 1021 hPa
Test Mode : Transmit (Z-axis)
Test Distance : 3m

Engineer : Kazuhiro Ando

Freq. (MHz)	Pol. (H/V)	Reading (dBuV)	Detector (QP/Pk)	Corr. Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
67.79	V	40.3	QP	-12.1	28.2	40.0	11.8
81.35	H	47.3	QP	-15.4	31.9	40.0	8.1
81.35	V	48.5	QP	-15.4	33.1	40.0	6.9
94.91	H	48.0	QP	-15.5	32.5	43.5	11.0
94.91	V	48.7	QP	-15.5	33.2	43.5	10.3
108.49	H	48.7	QP	-14.1	34.6	43.5	8.9
108.49	V	45.5	QP	-14.1	31.4	43.5	12.1
122.05	H	45.0	QP	-12.9	32.1	43.5	11.4
135.60	H	46.0	QP	-11.7	34.3	43.5	9.2
135.60	V	42.0	QP	-11.7	30.3	43.5	13.2
162.71	H	42.5	QP	-9.5	33.0	43.5	10.5
162.71	V	40.0	QP	-9.5	30.5	43.5	13.0
189.85	H	44.0	QP	-11.3	32.7	43.5	10.8
249.86	H	45.3	QP	-8.8	36.5	46.0	9.5

Correction Factor(dB) = Antenna Factor(dB/m) + Cable Loss(dB) – Preamplifier Gain(dB)

Result(dBuV/m) = Reading(dBuV) + Correction Factor(dB)

8.4 Section 15.225(e) Frequency Stability

Company : Victor Company of Japan, Limited Tested Date : April 17, 2007
Equipment : RF-ID Unit Temperature : 21 °C
Model : KBB0007-001 Humidity : 55 %
Power : DC 5V Atmos. Press : 999 hPa
Test Mode : Transmit

Engineer : Kazuhiro Ando

Temperature Variations

Temp. (°C)	Voltage (V)	Measured Frequency (MHz)				Worst Deviation (%)	Limit (%)
		Start-up	2 min.	5 min.	10 min.		
50	5	13.55959	13.55960	13.55960	13.55960	- 0.00302	+/- 0.01
40	5	13.55959	13.55959	13.55958	13.55958	- 0.00310	+/- 0.01
30	5	13.55959	13.55958	13.55958	13.55959	- 0.00310	+/- 0.01
20	5	13.55958	13.55958	13.55958	13.55958	- 0.00310	+/- 0.01
10	5	13.55958	13.55958	13.55958	13.55959	- 0.00310	+/- 0.01
0	5	13.55956	13.55958	13.55959	13.55959	- 0.00324	+/- 0.01
-10	5	13.55955	13.55955	13.55955	13.55956	- 0.00332	+/- 0.01
-20	5	13.55948	13.55950	13.55951	13.55950	- 0.00383	+/- 0.01

Voltage Variations

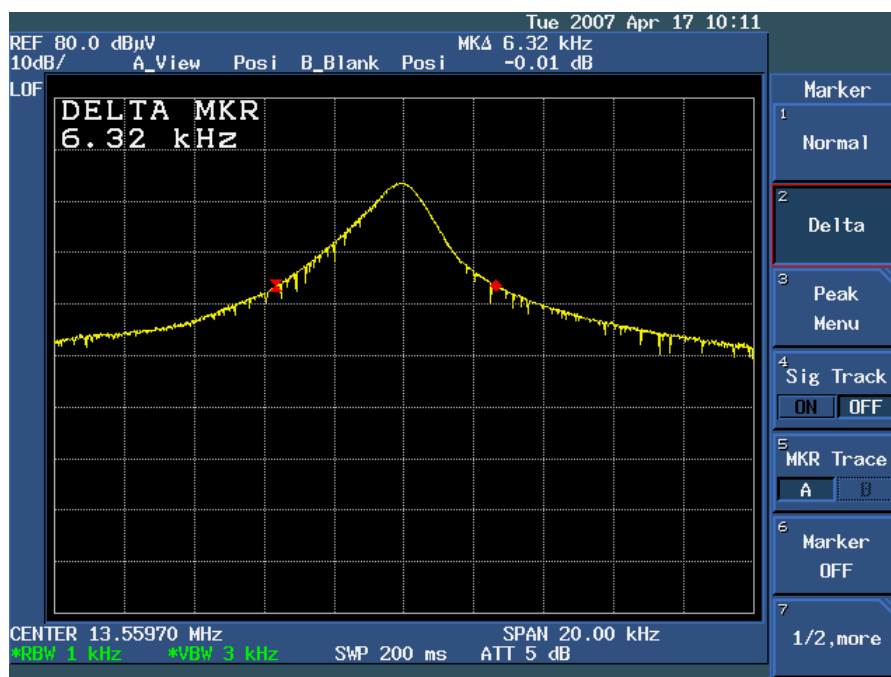
Temp. (°C)	Voltage (V)	Measured Frequency (MHz)				Worst Deviation (%)	Limit (%)
		Start-up	2 min.	5 min.	10 min.		
20	4.25	13.55958	13.55958	13.55957	13.55958	- 0.00317	+/- 0.01
20	5	13.55958	13.55958	13.55958	13.55958	- 0.00310	+/- 0.01
20	5.75	13.55959	13.55959	13.55960	13.55959	- 0.00302	+/- 0.01

8.5 Section 15.215(c) 20dB Bandwidth

Company	: Victor Company of Japan, Limited	Tested Date	: April 17, 2007
Equipment	: RF-ID Unit	Temperature	: 21 °C
Model	: KBB0007-001	Humidity	: 55 %
Power	: DC 5V	Atmos. Press	: 999 hPa
Test Mode	: Transmit		

Engineer : Kazuhiro Ando

Freq. (MHz)	20dB Bandwidth (kHz)
13.56	6.32

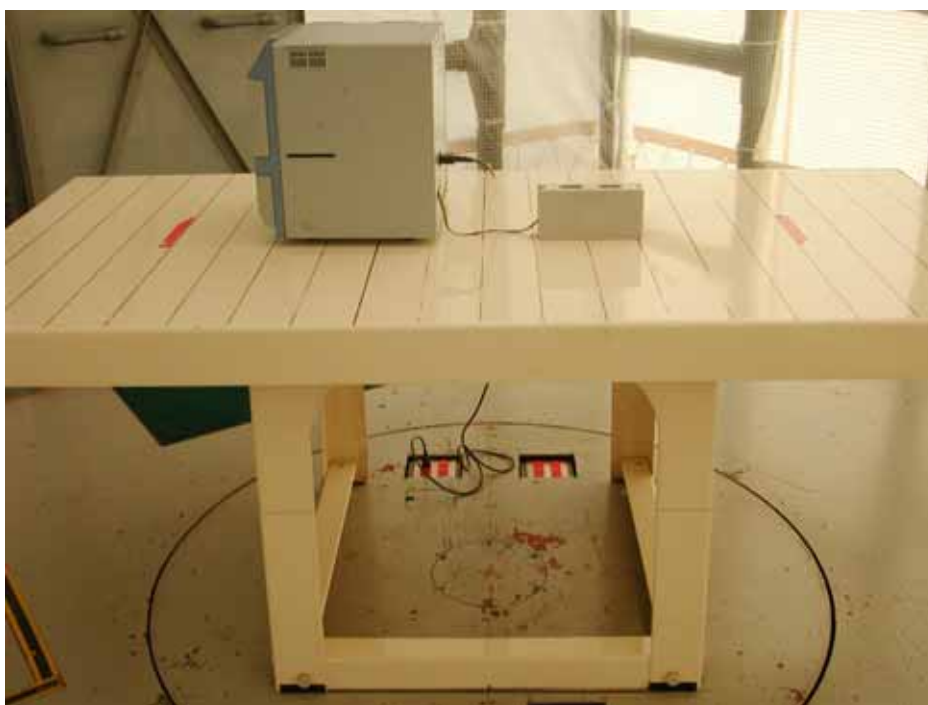
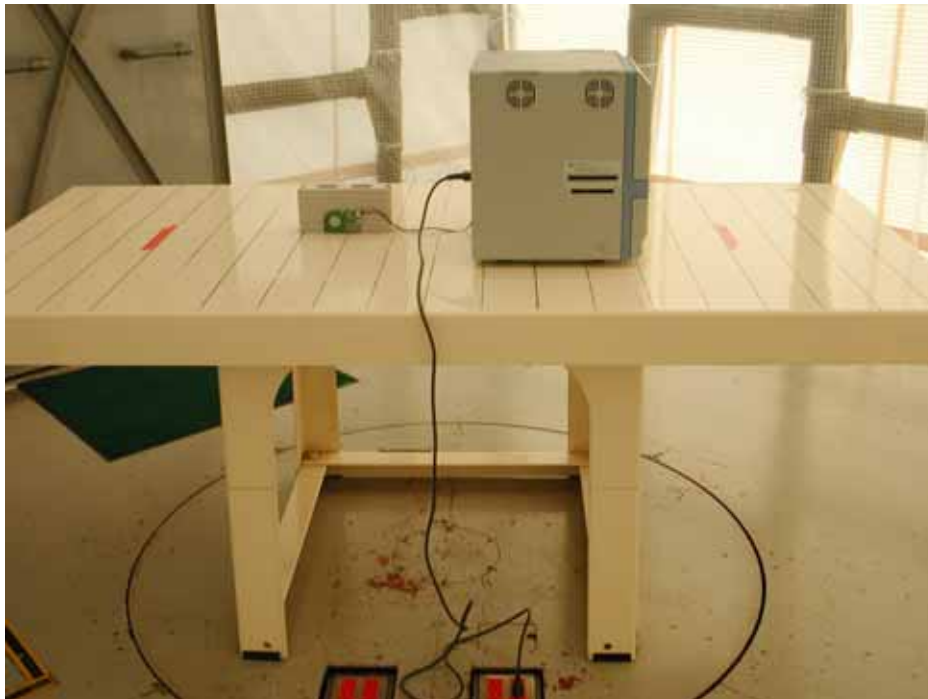


9 THE PHOTOS OF TEST-SETUP

9.1 Conducted Emissions 150 kHz - 30 MHz

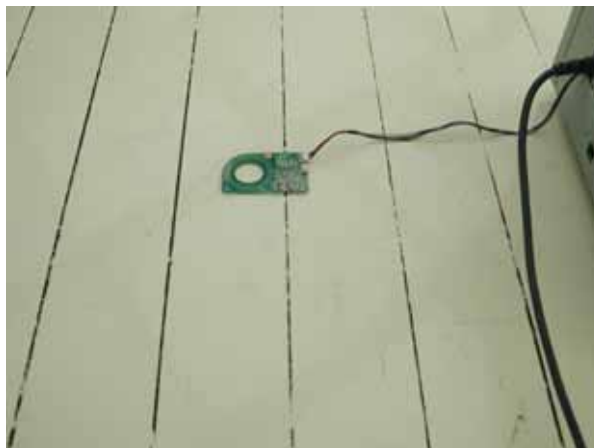


9.2 Radiated Emissions 9 kHz - 1000 MHz



Radiated Emissions 9 kHz - 1000 MHz

X-axis



Y-axis



Z-axis



9.3 Frequency Stability

