


RADIO TEST REPORT

Test Report No.: TR6-14375F

Applicant : JVC KENWOOD Corporation
Type of Equipment : CARD PRINTER
Model No. : CX-7000
FCC ID : ASIK9X004
Test regulation : FCC Part15 Subpart C: 2014
Test result : Complied

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the limits of the above regulation.
4. The test results in this test report are traceable to the national or international standards.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by any agency of the Federal Government.

Date of test(s): May 19, 22, 2014

Tested by: 
Hiromitsu Tanabe
Assist. Sect. Manager
of EMC Testing Sec.

Approved by : 
Kazuhiro Ando
Manager of EMC Testing Sec.

REVISION HISTORY

Original Test Report No.: TR6-14375F

Revision	Test report No.	Date	Page revised	Contents
- (Original)	TR6-14375F	June 6, 2014	-	-
1	TR6-14375F	June 13, 2014	2 - 11	Typo Correction (Issued date)
			5	Error Correction (3.2 Procedures & Results)
			13, 15	Addition of description of formula

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SECTION 1: Customer information

Company Name : JVC KENWOOD Corporation
Brand Name : JVC
Address : 3-12 Moriya-cho, Kanagawa-ku, Yokohama-shi, Kanagawa, 221-0022 Japan
Telephone Number : +81-45-939-7460
Facsimile Number : +81-45-939-7417
Contact Person : Makoto Hayase

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

2.1 Identification of E.U.T.

Type of Equipment : CARD PRINTER
Model Number : CX-7000
Serial Number : Refer to clause 4.2
Rating : AC100-120V, 50/60Hz, 3.5A
Country of Mass-production : Thailand
Condition of EUT : Production model
Receipt Date of Sample : May 16, 2014
Modification of EUT : No modification by the test lab.

2.2 Product description

Model: CX-7000 (referred to as the EUT in this report) is a Card Printer.

Clock frequency(ies) in the system : 25 MHz (LAN), 48 MHz (USB), 33.3 MHz (CPU), 30 MHz (USB)

<Radio part>

Equipment type : Transceiver
Frequency of operation : 13.56MHz
Type of modulation : ASK
Antenna type : Loop
Antenna connector type : U.FL
ITU code : A1D
Operation temperature range : +15 to +30 deg.C.

FCC 15.203

It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT.

2.3 Similar model and the difference from the base model

CX-7000.....Single-side printing type, Both-side printing type
XID 83XX Printer.....Single-side printing type, Both-side printing type
CX-D80.....Single-side printing type, Both-side printing type
SR200.....Single-side printing type
SR300.....Both-side printing type
SR300B.....Single-side printing type, Both-side printing type

Although CX-7000, XID 83XX Printer, CX-D80, SR300 and SR300B are different in model names. Those electrical structures are entirely same. In these models, only the plastic enclosure is different.

The difference between SR200 and SR300 is only their printing type (Single-side printing or Both-side printing).

SR300B is identical to Model CX-7000 except for brand name and model designation.

The test was performed with CX-7000 that is both-sides printing type.

SECTION 3: Test specification, procedures & results

3.1 Test specification

Test specification : FCC Part 15 Subpart C: 2014
Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.207 Conducted limits
Section 15.209 Radiated emission limits, general requirements
Section 15.215 Additional provisions to the general radiated emission limitations
Section 15.225 Operation within the band 13.110-14.010MHz

3.2 Procedures & Results

Item	Test Procedure	Specification	Remarks	Deviation	Worst Margin	Results
Conducted emission	ANSI C63.4:2003 7. AC powerline conducted emission measurements	FCC 15.207	-	N/A	10.0dB (against AV Limit) Freq.: 28.1660MHz Detector: QP Phase: L	Complied
Electric field strength of Fundamental emission	ANSI C63.4:2003 13. Measurement of intentional radiators	FCC 15.225 (a)	Radiated	N/A	73.3dB Polarization: Vertical	Complied
Electric field strength of Spurious emission (within the 13.110-14.010MHz band)	ANSI C63.4:2003 13. Measurement of intentional radiators	FCC 15.225 (b)(c)	Radiated	N/A	44.2dB Freq.: 13.110MHz Polarization: Vertical	Complied
Electric field strength of Spurious emission (outside of the 13.110-14.010MHz band)	ANSI C63.4:2003 13. Measurement of intentional radiators	FCC 15.209 FCC 15.225 (d)	Radiated	N/A	11.9dB Freq.: 71.83MHz Polarization: Vertical	Complied
20dB bandwidth	ANSI C63.4:2003 13. Measurement of intentional radiators	FCC 15.215 (c)	Radiated	N/A	-	-
Frequency tolerance	ANSI C63.4:2003 13. Measurement of intentional radiators	FCC 15.225 (e)	Radiated	N/A	-	Complied

Note: UL Kashima's Work Procedures No. TP-01, TP-02 and TP-04

3.3 Addition to standard

Item	Test Procedure	Specification	Remarks	Worst Margin	Results
Occupied Bandwidth (99%)	ANSI C63.4:2003 13. Measurement of intentional radiators, RSS-Gen 4.6.1	RSS-Gen 4.6.1	Radiated	-	-

* Other than above, no addition, exclusion nor deviation has been made from the standard.

3.4 Uncertainty

The following uncertainties have been calculated to provide a confidence level of 95% using a coverage factor k=2.

Test Items	Frequency range	Uncertainty
Conducted emission (AC Mains) AMN	0.15 MHz-30 MHz	2.8 dB
Radiated emission (Measurement distance: 3 m)	0.009 MHz-30 MHz	2.7 dB
	30 MHz-1000 MHz	5.9 dB

Conducted emission test

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

Radiated emission test

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

3.5 Test location

UL Kashima, Inc.
1614 Mushihata, Katori-shi, Chiba-ken, 289-0341 JAPAN
Telephone number : +81 478 82 0963
Facsimile number : +81 478 82 3373
A2LA Accreditation No. : 1266-01

	FCC Registration No.	IC Registration No.	Width x Depth x Height (m)	Size of reference ground plane/horizontal conducting plane (m)	Maximum measurement distance
No.1 Open site	90558	IC 4659A-1	6.0 x 5.5 x 2.5	20 x 40	10 m
No.2 Open site	510504	IC 4659A-2	4.4 x 4.4 x 2.15	18 x 20	10 m
No.5 Open site	99356	IC 4659A-5	8.6 x 7.1 x 2.4	18 x 23	10 m
No.1 Shielded room	90558	IC 4659A-1	5.4 x 4.5 x 2.3		-
No.2 Shielded room	510504	IC 4659A-2	3.6 x 2.7 x 2.3		-
No.3 Shielded room	-	-	5.4 x 3.6 x 2.3		-
No.4 Shielded Room	-	-	6.1 x 6.1 x 3.1		-
No.5 Shielded Room	99356	IC 4659A-5	4.2 x 3.1 x 2.5		-
No.3 Fully Anechoic Chamber	-	-	7.0 x 3.5 x 3.5		-
No.6 Semi-anechoic Chamber	372431	IC 4659A-6	8.5 x 5.5 x 5.2		3 m
No.10 Semi-anechoic Chamber	682397	IC 4659A-10	18.4 x 9.9 x 7.7		10 m
No.11 Semi-anechoic Chamber	718605	IC 4659A-7	9.0 x 6.5 x 5.2		3 m

3.6 Test setup, Data of test & Test instruments

Refer to APPENDIX 1 to 3.

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

4.1 Operating mode

The EUT exercise program used during testing was designed to exercise the various system components in a manner similar to typical use.

Test item	Operating mode	Tested frequency
All items except for Frequency tolerances	Transmitting ISO/IEC 15693-2 • Modulation ASK100% • Data transfer rate 6.62kbps	13.56MHz
Frequency tolerances	Transmitting (Unmodulated)	13.56MHz

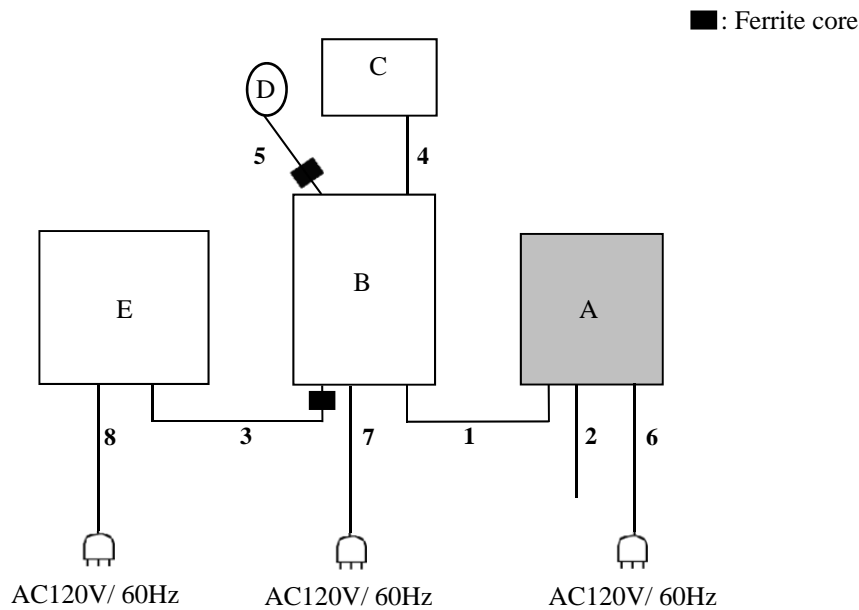
The EUT has the power settings by the software as follows;

Power settings: Setting is controlled by the firmware and cannot be changed.

Software: CX-7000 TEST TOOL

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

4.2 Configuration and peripherals



* Cabling and setup were 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	Remarks
A	Card Printer	CX-7000	135V2080	JVC KENWOOD	EUT
B	PC	DC5100SFF	JPA61108Z4	hp	-
C	Keyboard	KB-0316	B942A0AGASPOLT	hp	-
D	Mouse	MO19KCA	346C30433	Microsoft	-
E	LCD Monitor	Hp1502	CNC5030CMD	hp	-

List of cables used

No.	Item	Length(m)	Shield		Remarks
			Cable	Connector	
1	USB	2.0	Shielded	Shielded	-
2	Ethernet	1.0	Shielded	Shielded	Cat.5e
3	VGA	1.5	Shielded	Shielded	-
4	Keyboard	1.8	Shielded	Shielded	-
5	Mouse	1.6	Shielded	Shielded	-
6	AC	2.0	Unshielded	Unshielded	EUT
7	AC	2.0	Unshielded	Unshielded	PC
8	AC	1.8	Unshielded	Unshielded	LCD Monitor

SECTION 5: Conducted emission

5.1 Operating environment

The test was carried out in a semi-anechoic chamber.

Temperature : Refer to APPENDIX 1.
Humidity : Refer to APPENDIX 1.

5.2 Test configuration

EUT was placed on a platform of nominal size, 1.0m by 2.0m, raised 0.8m above the conducting ground plane. The rear of tabletop was located 40cm to the vertical conducting plane. The rear of EUT was aligned and was 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. I/O cables that were connected to the peripherals were bundled in center. They were folded back and for the forming a bundle 30cm to 40cm long and were hanged at a 40cm height to the ground plane.

Each EUT current-carrying power lead was individually connected through a LISN to the input power source. Photographs of the set up are shown in Appendix 3.

5.3 Test conditions

Frequency range : 0.15 - 30MHz
EUT position : Table top

5.4 Test procedure

The AC Mains Terminal Continuous disturbance Voltage had been measured with the EUT in a semi-anechoic chamber. The EUT was connected to a Line Impedance Stabilization Network (LISN).

An overview sweep with peak detection has been performed.

The measurements had been performed with a quasi-peak detector and if required, a CISPR average detector.

The conducted emission measurements were made with the following detection of the test receiver.

Detection Type : Quasi-Peak/ CISPR-Average
IF Bandwidth : 9kHz

5.5 Results

Summary of the test results : Pass

Refer to APPENDIX 1.

SECTION 6: Radiated emission (Fundamental and Spurious emission)

6.1 Operating environment

The test was carried out in a semi-anechoic chamber.

Temperature : Refer to APPENDIX 1.
 Humidity : Refer to APPENDIX 1.

6.2 Test configuration

EUT was placed on a platform of nominal size, 1.0m by 2.0m, raised 0.8m above the conducting ground plane. The table is made of polystyrene foam. That has very low permittivity. The rear of EUT, including its peripherals was aligned and flushed with rear of tabletop. I/O cables that were connected to the peripherals were bundled in center. They were folded back and for the forming a bundle 30cm to 40cm long and were hanged at a 40cm height to the ground plane. Photographs of the set up are shown in Appendix 3.

6.3 Test conditions

Frequency range : 9kHz - 1GHz
 Test distance : 3m
 EUT position : Table top

6.4 Test procedure

The Radiated Electric Field Strength intensity has been measured 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 vertical polarization (antenna angle: 0deg.to 360deg.) and horizontal polarization. Drawing of the antenna direction is shown in Figure 1.

Frequency: From 30MHz to 1GHz at distance 3m (Refer to Figure 2).

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 QP, PK, and AV detector.

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

	9kHz to 90kHz & 110kHz to 150kHz	90kHz to 110kHz	150kHz to 490kHz	490kHz to 30MHz	30MHz to 1GHz
Detector Type	PK/AV	QP	PK/AV	QP	QP
IF Bandwidth	200Hz	200Hz	9kHz	9kHz	120kHz
Measuring antenna	Loop antenna				Biconical (30-200MHz) Logperiodic (200MHz-1GHz)

* FCC 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])

6.5 Results

Summary of the test results : Pass

Refer to APPENDIX 1.

Figure 1. Direction of the Loop Antenna

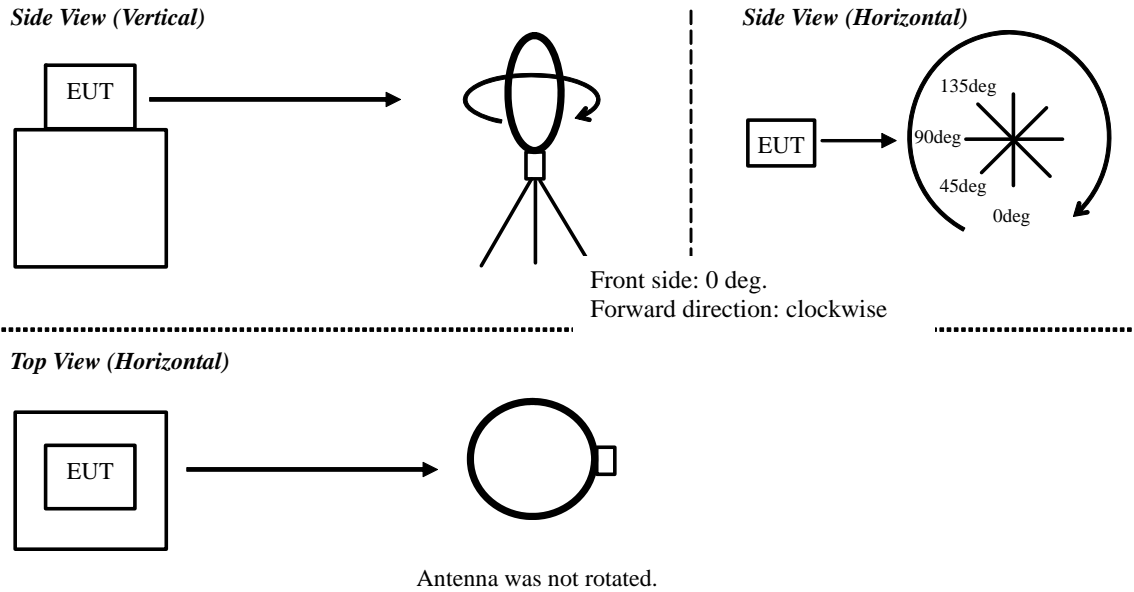
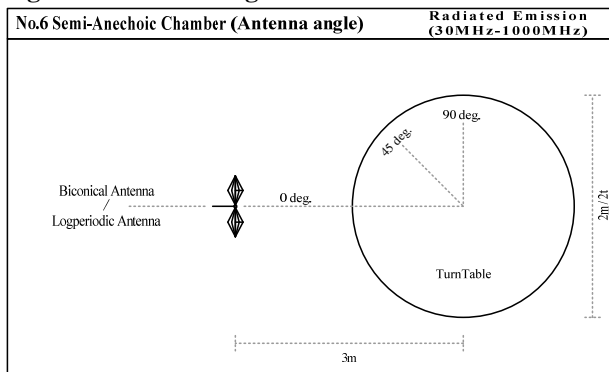


Figure 2. Antenna angle



SECTION 7: 20dB bandwidth & Occupied bandwidth (99%)

Test procedure

The test was measured with a spectrum analyzer using a test fixture.

Summary of the test results:Pass

Refer to APPENDIX 1.

SECTION 8: Frequency tolerances

Test procedure

The test was measured with a spectrum analyzer and frequency counter using a test fixture.

The temperature test was started after the temperature stabilization time of 30 minutes.

The test was begun from 50 deg.C and the temperature was lowered each 10 deg.C.

Summary of the test results:Pass

Refer to APPENDIX 1.

Contents of APPENDIXES

APPENDIX 1: Data of Radio tests

Conducted emission
Radiated emission
Frequency tolerance
Bandwidth

APPENDIX 2: Test instruments

Test instruments

APPENDIX 3: Photographs of test setup

Conducted emission
Radiated emission

APPENDIX 1: Data of radio tests

Conducted Emission Test

(0.15MHz - 30MHz at Mains Ports)

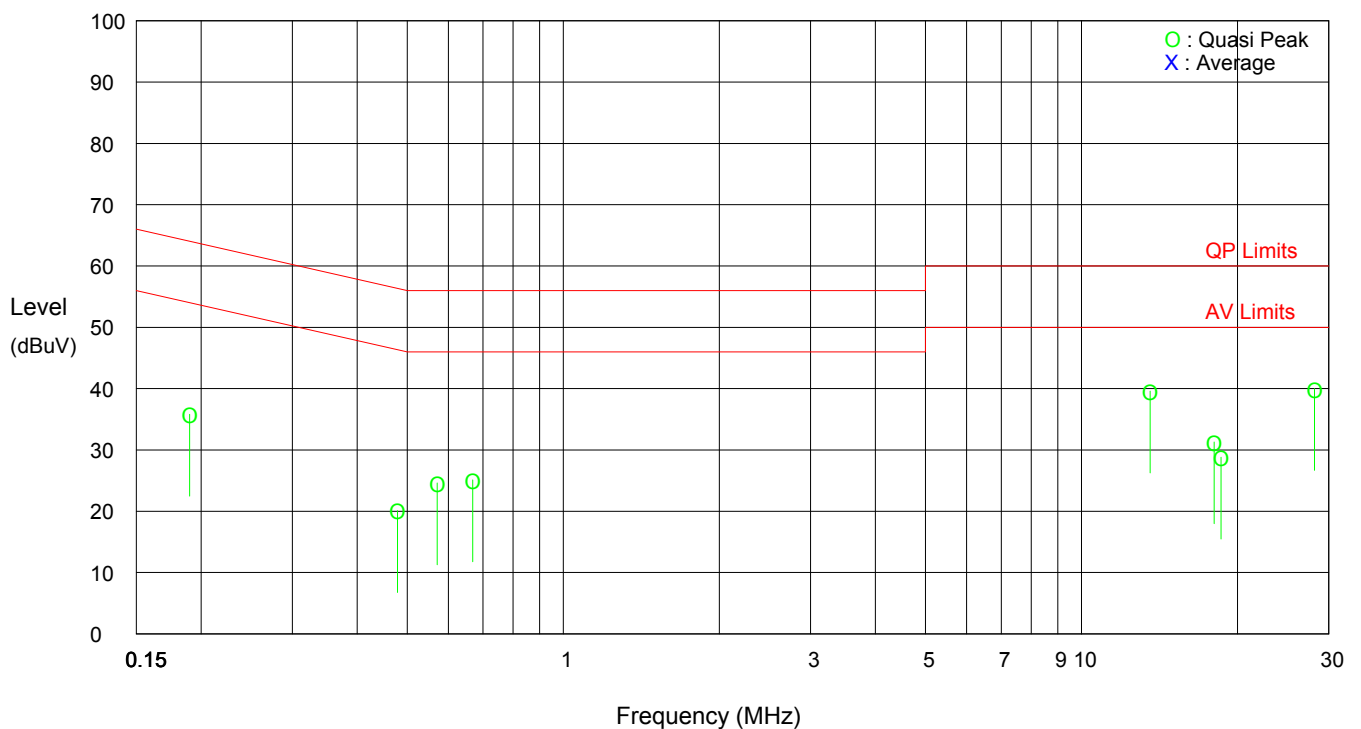
Company : JVC KENWOOD Corporation
 Equipment : Card Printer
 Model : CX-7000
 Power : AC120V/60Hz
 Test Mode : Transmitting
 Remarks :
 Standard : FCC Part15C (0.15MHz-30MHz)

Report No. : TR6-14375F
 Tested Date : 2014/05/19
 Temperature : 22
 Humidity : 46 %
 Atmos.Press. : 1012 hPa

Tested by : Hiromitsu Tanabe

No.	Frequency (MHz)	N		L		Correction Factor (dB)	Result		Limits		Margin	
		QP (dBuV)	AV	QP (dBuV)	AV		QP (dBuV)	AV	QP (dBuV)	AV	QP (dB)	AV
1	0.1901	25.7	-	25.3	-	10.1	35.8	-	64.0	54.0	28.2	-
2	0.4787	10.0	-	10.0	-	10.1	20.1	-	56.4	46.4	36.3	-
3	0.5711	14.5	-	13.9	-	10.1	24.6	-	56.0	46.0	31.4	-
4	0.6687	15.0	-	14.3	-	10.1	25.1	-	56.0	46.0	30.9	-
5	13.5600	28.5	-	27.3	-	11.1	39.6	-	60.0	50.0	20.4	-
6	18.0242	18.7	-	20.0	-	11.3	31.3	-	60.0	50.0	28.7	-
7	18.5858	17.5	-	17.3	-	11.3	28.8	-	60.0	50.0	31.2	-
8	28.1660	26.3	-	28.3	-	11.7	40.0	-	60.0	50.0	20.0	-

Result = Reading(higher data of N or L) + Correction Factor(AMN factor + cable loss)



Data of Electric field strength of Fundamental emission and Spurious emission within the band: FCC15.225(a)(b)(c)

UL Kashima, Inc.
No.6 Semi-Anechoic Chamber

Company: JVC KENWOOD Corporation
Equipment: Card Printer
Model: CX-7000
Sample No.: 135V2080
Power: AC120V/60Hz
Mode: Transmitting

Regulation: FCC Part15 SupartC 15.225
Test Distance: 3m
Date: May 19, 2014
Temperature: 22 deg.C
Humidity: 1012 %RH
Tested by: Hiromitsu Tanabe

Remarks:

Fundamental emission

No.	FREQ [MHz]	Test Receiver Reading		Antenna Factor [dB/m]	LOSS [dB]	AMP GAIN [dB]	Distance factor [dB]	RESULT		LIMIT (30m) [dBuV/m]	MARGIN	
		Hor [dBuV]	Ver [dBuV]					Hor [dBuV/m]	Ver [dBuV/m]		Hor [dB]	Ver [dB]
1	13.560	20.5	30.7	19.6	0.3	0.0	-40.0	0.4	10.6	83.9	83.5	73.3

Calculation: Result[dBuV/m]=Reading[dBuV]+Ant.Fac[dB/m]+Loss(Cable+ATT)[dB]-Gain(AMP)[dB]+Distance factor[dB]

Distance factor: $40 \times \log(3\text{m}/30\text{m}) = -40 \text{ dB}$

Limits (30m)

((reference) worst carrier @3m)

• 13.553MHz to 13.567MHz : 83.9dBuV/m (FCC 15.225(a))

50.6 dBuV/m

Spurious emission within the band

No.	FREQ [MHz]	Test Receiver Reading		Antenna Factor [dB/m]	LOSS [dB]	AMP GAIN [dB]	Distance factor [dB]	RESULT		LIMIT (30m) [dBuV/m]	MARGIN	
		Hor [dBuV]	Ver [dBuV]					Hor [dBuV/m]	Ver [dBuV/m]		Hor [dB]	Ver [dB]
1	13.110	-	5.4	19.6	0.3	0.0	-40.0	-	-14.7	29.5	-	44.2
2	13.410	-	5.4	19.6	0.3	0.0	-40.0	-	-14.7	40.5	-	55.2
3	13.553	8.2	14.3	19.6	0.3	0.0	-40.0	-11.9	-5.8	50.4	62.3	56.2
4	13.567	7.2	12.6	19.6	0.3	0.0	-40.0	-12.9	-7.5	50.4	63.3	57.9
5	13.710	-	5.4	19.6	0.3	0.0	-40.0	-	-14.7	40.5	-	55.2
6	14.010	-	5.4	19.6	0.3	0.0	-40.0	-	-14.7	29.5	-	44.2

Calculation: Result[dBuV/m]=Reading[dBuV]+Ant.Fac[dB/m]+Loss(Cable+ATT)[dB]-Gain(AMP)[dB]+Distance factor[dB]

Outside filed strength frequencies

- Fc±7kHz: 13.553MHz to 13.567MHz
- Fc±150kHz: 13.410MHz to 13.710MHz
- Fc±450kHz: 13.110MHz to 14.010MHz

Fc = 13.56MHz

Limits (30m)

- 13.410MHz to 13.553MHz and 13.567MHz to 13.710MHz : 50.4dBuV/m (FCC 15.225(b))
- 13.110MHz to 13.410MHz and 13.710MHz to 14.010MHz : 40.5dBuV/m (FCC 15.225(c))
- Below 13.110MHz and Above 14.010MHz : 29.5dBuV/m (FCC 15.225(d)and FCC 15.209)

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Radiated Emission

UL Kashima, Inc.
No.6 Semi-Anechoic Chamber

Company: JVC KENWOOD Corporation
Equipment: Card Printer
Model: CX-7000
Sample No.: 135V2080
Power: AC120V/60Hz
Mode: Transmitting

Regulation: FCC Part15 SupartC 15.225
Test Distance: 3m
Date: May 19, 2014
Temperature: 22 deg.C
Humidity: 1012 %RH
Tested by: Hiromitsu Tanabe

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	59.56	QP	32.1	8.9	4.3	28.4		16.9	40.0	23.1	250	255	at 3m
Hori.	71.83	QP	38.0	9.4	4.5	28.3		23.6	40.0	16.4	250	55	at 3m
Hori.	126.43	QP	30.0	10.5	5.0	28.1		17.4	43.5	26.1	200	200	at 3m
Hori.	250.01	QP	43.5	11.3	6.0	27.5		33.3	46.0	12.7	140	190	at 3m
Hori.	375.00	QP	34.0	14.5	6.9	27.9		27.5	46.0	18.5	100	350	at 3m
Hori.	465.00	QP	23.0	16.2	7.4	28.5		18.1	46.0	27.9	100	0	at 3m
Vert.	27.12	QP	1.5	22.8	0.4	0.0	-40.0	-15.3	29.5	44.8	100	0	at 30m
Vert.	30.00	QP	32.7	14.4	3.9	28.4		22.6	40.0	17.4	100	245	at 3m
Vert.	33.00	QP	30.3	13.1	4.0	28.4		19.0	40.0	21.0	100	180	at 3m
Vert.	59.56	QP	40.7	8.9	4.3	28.4		25.5	40.0	14.5	100	210	at 3m
Vert.	71.83	QP	42.5	9.4	4.5	28.3		28.1	40.0	11.9	100	0	at 3m
Vert.	81.36	QP	36.0	9.5	4.6	28.3		21.8	40.0	18.2	100	340	at 3m
Vert.	250.01	QP	39.7	11.3	6.0	27.5		29.5	46.0	16.5	100	30	at 3m
Vert.	375.00	QP	32.0	14.5	6.9	27.9		25.5	46.0	20.5	100	170	at 3m
Vert.	465.00	QP	24.3	16.2	7.4	28.5		19.4	46.0	26.6	100	243	at 3m

Result = Reading + Ant Factor + Loss (Cable+Attenuator) - Gain(Amplifier) + Distance Factor

*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

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Data of Frequency Tolerance: FCC 15.225(e)

UL Kashima, Inc.

No.6 site

Company: JVC KENWOOD Corporation
 Equipment: Card Printer
 Model: CX-7000
 Sample No.: 135V2080
 Power: AC120V/60Hz
 Mode: Transmitting

Regulation: FCC Part15 SupartC 15.225

Date: May 22, 2014

Temperature: 23 deg.C

Humidity: 30 %RH

Tested by: Hiromitsu Tanabe

Temperature Variation: 50deg.C

Test Conditions	Original Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (MHz)	Frequency Tolerance (%)	Limit (%)
startup	13.56	13.56000	0.00000	0.00000	0.01
after 2minutes	13.56	13.55998	-0.00002	-0.00015	0.01
after 5minutes	13.56	13.55997	-0.00003	-0.00022	0.01
after 10minutes	13.56	13.55996	-0.00004	-0.00029	0.01

Temperature Variation: 40deg.C

Test Conditions	Original Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (MHz)	Frequency Tolerance (%)	Limit (%)
startup	13.56	13.56002	0.00002	0.00015	0.01
after 2minutes	13.56	13.56001	0.00001	0.00007	0.01
after 5minutes	13.56	13.56001	0.00001	0.00007	0.01
after 10minutes	13.56	13.56000	0.00000	0.00000	0.01

Temperature Variation: 30deg.C

Test Conditions	Original Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (MHz)	Frequency Tolerance (%)	Limit (%)
startup	13.56	13.56007	0.00007	0.00052	0.01
after 2minutes	13.56	13.56006	0.00006	0.00044	0.01
after 5minutes	13.56	13.56006	0.00006	0.00044	0.01
after 10minutes	13.56	13.56005	0.00005	0.00037	0.01

Temperature Variation: 20deg.C

Test Conditions	Original Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (MHz)	Frequency Tolerance (%)	Limit (%)
startup	13.56	13.56011	0.00011	0.00081	0.01
after 2minutes	13.56	13.56011	0.00011	0.00081	0.01
after 5minutes	13.56	13.56011	0.00011	0.00081	0.01
after 10minutes	13.56	13.56011	0.00011	0.00081	0.01

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Data of Frequency Tolerance: FCC 15.225(e)

UL Kashima, Inc.

No.6 site

Company: JVC KENWOOD Corporation
 Equipment: Card Printer
 Model: CX-7000
 Sample No.: 135V2080
 Power: AC120V/60Hz
 Mode: Transmitting

Regulation: FCC Part15 SupartC 15.225
 Date: May 22, 2014
 Temperature: 23 deg.C
 Humidity: 30 %RH
 Tested by: Hiromitsu Tanabe

Temperature Variation: 10deg.C

Test Conditions	Original Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (MHz)	Frequency Tolerance (%)	Limit (%)
startup	13.56	13.56016	0.00016	0.00118	0.01
after 2minutes	13.56	13.56016	0.00016	0.00118	0.01
after 5minutes	13.56	13.56016	0.00016	0.00118	0.01
after 10minutes	13.56	13.56016	0.00016	0.00118	0.01

Temperature Variation: 0deg.C

Test Conditions	Original Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (MHz)	Frequency Tolerance (%)	Limit (%)
startup	13.56	13.56025	0.00025	0.00184	0.01
after 2minutes	13.56	13.56025	0.00025	0.00184	0.01
after 5minutes	13.56	13.56025	0.00025	0.00184	0.01
after 10minutes	13.56	13.56024	0.00024	0.00177	0.01

Temperature Variation: -10deg.C

Test Conditions	Original Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (MHz)	Frequency Tolerance (%)	Limit (%)
startup	13.56	13.56028	0.00028	0.00206	0.01
after 2minutes	13.56	13.56028	0.00028	0.00206	0.01
after 5minutes	13.56	13.56028	0.00028	0.00206	0.01
after 10minutes	13.56	13.56028	0.00028	0.00206	0.01

Temperature Variation: -20deg.C

Test Conditions	Original Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (MHz)	Frequency Tolerance (%)	Limit (%)
startup	13.56	13.56029	0.00029	0.00214	0.01
after 2minutes	13.56	13.56029	0.00029	0.00214	0.01
after 5minutes	13.56	13.56029	0.00029	0.00214	0.01
after 10minutes	13.56	13.56029	0.00029	0.00214	0.01

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Data of Frequency Tolerance: FCC 15.225(e)

UL Kashima, Inc.
No.6 site

Company: JVC KENWOOD Corporation
 Equipment: Card Printer
 Model: CX-7000
 Sample No.: 135V2080
 Power: AC120V/60Hz
 Mode: Transmitting

Regulation: FCC Part15 SupartC 15.225
 Date: May 22, 2014
 Temperature: 23 deg.C
 Humidity: 30 %RH
 Tested by: Hiromitsu Tanabe

Input Voltage:AC102V (85%)

Temperature Variation: 20deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency Tolerance (%)	Limit (%)
startup	13.56	13.56011	0.00011	0.00081	0.01
after 2minutes	13.56	13.56011	0.00011	0.00081	0.01
after 5minutes	13.56	13.56011	0.00011	0.00081	0.01
after 10minutes	13.56	13.56011	0.00011	0.00081	0.01

Input Voltage:AC138V (115%)

Temperature Variation: 20deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency Tolerance (%)	Limit (%)
startup	13.56	13.56011	0.00011	0.00081	0.01
after 2minutes	13.56	13.56011	0.00011	0.00081	0.01
after 5minutes	13.56	13.56011	0.00011	0.00081	0.01
after 10minutes	13.56	13.56011	0.00011	0.00081	0.01

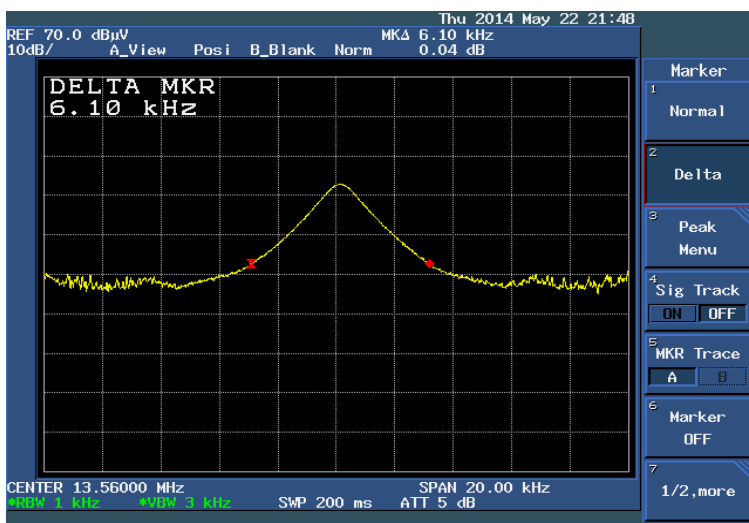
20dB bandwidth & 99% Occupied bandwidth: FCC 15.215 / RSS-Gen

UL Kashima, Inc.
 No.6 site

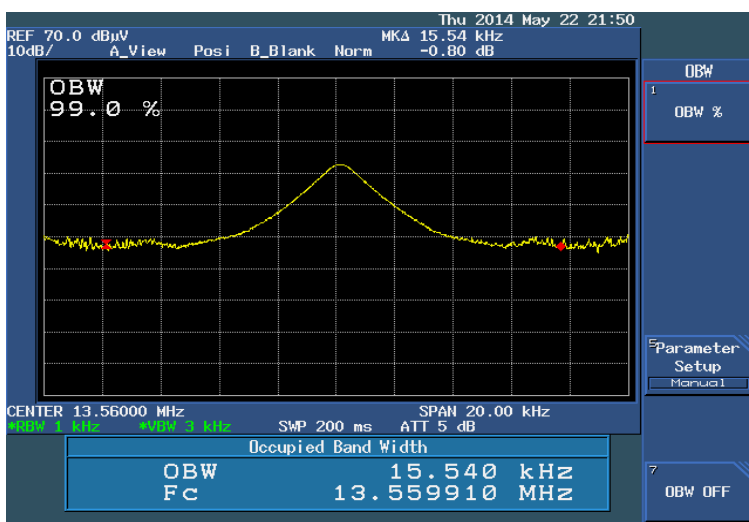
Company: JVC KENWOOD Corporation
 Equipment: Card Printer
 Model: CX-7000
 Sample No.: 135V2080
 Power: AC120V/60Hz
 Mode: Transmitting

Regulation: FCC Part15 Subpart C 15.215
 Date: May 22, 2014
 Temperature: 23 deg.C
 Humidity: 30 %RH
 Tested by: Hiromitsu Tanabe

20dB Bandwidth: 6.10 kHz



99% Occupied Bandwidth: 15.540 kHz



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APPENDIX 2: Test Instruments
No.6 Test site (Conducted Emission)

Instrument	Manufacturer	Model	Internal Code	Cal. Date	Due Date
Test Receiver	Rohde & Schwarz	ESCI	RCV06	2013/10/02	2014/10/31
AMN	Rohde & Schwarz	ESH3-Z5	LSN08	2013/07/19	2014/07/31
AMN (for EUT)	Rohde & Schwarz	ESH3-Z5	LSN11	2013/07/19	2014/07/31
Spectrum Analyzer	Hewlett Packard	8567A	SPR13	2013/10/14	2014/10/31
Coaxial Cable	Fujikura	5D-2W	6CSAC	2013/08/09	2014/08/31

No.6 Test site (Radiated Emission: 9kHz – 30MHz)

Instrument	Manufacturer	Model	Internal Code	Cal. Date	Due Date
Loop Antenna	Rohde & Schwarz	HFH2-Z2	LPA01	2013/06/25	2014/06/30
Coaxial Cable	Fujikura	3D-2W	MG5m	2013/05/10	2014/05/31
Test Receiver	Rohde & Schwarz	ESHS10	RCH02	2014/03/13	2015/03/31

No.6 Test site (Radiated Emission: 30MHz – 1000MHz)

Instrument	Manufacturer	Model	Internal Code	Cal. Date	Due Date
Test Receiver	Rohde & Schwarz	ESCI	RCV06	2013/10/02	2014/10/31
Biconical Antenna	Schwarzbeck	VHBB 9124	BCA07	2013/05/27	2014/05/31
Logperiodic Antenna	Schwarzbeck	VULP 9118-B	LGA07	2013/05/27	2014/05/31
Spectrum Analyzer	Hewlett Packard	8567A	SPR13	2013/10/14	2014/10/31
Pre-Amplifier	Hewlett Packard	8447D	PRA01	2013/08/08	2014/08/31
Coaxial Cable	SUHNER	RG 214/U	6R3m	2013/08/09	2014/08/31

No.6 Test site (Test Fixture tests)

Instrument	Manufacturer	Model	Internal Code	Cal. Date	Due Date
Spectrum Analyzer	ADVANTEST	R3162	SPTG02	2013/05/10	2014/05/31
Frequency Counter	Anritsu	MF2412B	FRC01	2013/07/29	2014/07/31
Temperature Chamber	ESPEC	PR-4KPH	TMPC02	2013/11/22	2015/11/30
MULTIMETER	FLUKE	FLK-83-V	MTM38	2013/10/09	2014/10/31
Coaxial Cable	SUHNER	SUCOFLEX104	MWC6m01	2013/07/08	2014/07/31
Search Coil	Langer	LF-R 400	EMP05	-	-

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