



TEST REPORT

REGULATION : FCC Part 2, 22, 74, 90

Applicant	Testing Laboratory
JVC KENWOOD Corporation 1-16-2, Hakusan, Midori-ku, Yokohama-shi Kanagawa, 226-8525 Japan Tel.: +81 45 939 6254 Fax.: +81 45 939 6261	Intertek Japan K. K. Kashima Laboratory 3-2, Sunayama, Kamisu-shi, Ibaraki-ken 314-0255 Japan Tel.: +81 479 40 1097

Equipment type	VHF FM TRANSCEIVER
Trademark	KENWOOD
Model(s)	TK-7302V-1
Serial No.	None
FCC ID	K44407600
Test Result	Complied
Report Number	JK12100006
Report issue date	October 18, 2012

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

Approved by K. Gokita

Kazuo Gokita
 [Manager]

Tested by K. Wagatsuma

Koichi Wagatsuma

In Accordance with FCC Rules and Regulations, Volume II, Part 2 and 90

Sub-part 2.1033

(c)(1) Applicant and Manufacture Information	
APPLICANT	
Company	: JVC KENWOOD Corporation
Address	: 1-16-2, Hakusan, Midori-ku, Yokohama-shi Kanagawa, 226-8525 Japan
Contact Person	: Tamaki Shimamura Manager, Communications Equipment Division
MANUFACTURER	
Company	: JVC KENWOOD Corporation
Address	: 1-16-2, Hakusan, Midori-ku, Yokohama-shi Kanagawa, 226-8525 Japan
(c)(2) FCC ID	
FCC ID	: K44407600
Model number	: TK-7302V-1
Serial number	: None
(c)(3) Instruction Manual(S)	
Instruction manual(s)	: Please refer to attached Exhibits F
(c)(4) Type of Emission	
Emission Designation	: 16K0F3E(Wide) / 11K0F3E(Narrow)
(c)(5) Frequency range	
Frequency Range	: 150 to 174 MHz
(c)(6) Power Rating	
Output Power	: 5 to 25 W
Type	: Continuously Variable
(c)(7) Maximum Power Rating	
Output Power	: 25W
(c)(8): Voltages & currents in all elements in final RF stage, including final transistor or solid-state device	
Collector Current, A	: 10.0 amps (Maximum)
Collector Voltage, Vdc	: 13.6 Vdc
Supply Voltage, Vdc	: 13.6 Vdc
Other Information	
Number of Channel	: 16 channels
Maximum Deviation	: 5kHz , 2.5kHz
Frequency Stability	: 2.5 ppm
	:
Antenna Impedance	: 50 Ω Norminal
Note	

TABLE OF CONTENTS

	Page
SECTION 1. GENERAL INFORMATION	4
SECTION 2. SUMMARY OF TEST RESULT	5
SECTION 3. TEST AND MEASUREMENT DATA	6
SECTION 4. INFORMATION ABOUT EUT AND SUPPORT EQUIPMENT(S)	7
SECTION 5. SUPPORT EQUIPMENT	8
SECTION 6. USED CABLE(S)	9
SECTION 7. TEST CONFIGURATION	10
SECTION 8. OPERATING CONDITION	11
SECTION 9. MEASUREMENT UNCERTAINTY	12
SECTION 10. TEST DATA	
10.1 Carrier Output Power (Conducted)	13
10.2 Unwanted Emissions (Transmitter Conducted)	15
10.3 Field Strength of Spurious Radiation	18
10.4 Necessary Bandwidth and Emission Bandwidth	22
APPENDIX PHOTOGRAPHS	

SECTION 1. GENERAL INFORMATION

TEST PERFORMED

Location	Kashima No.1 Test Site, No.3 Test Site
EUT Received	September 18, 2012
Date of Test	October 09, 2012 to October 17, 2012
Standard Applied	FCC Part 2, 22, 74, 90
Measurement Method	ANSI/TIA-603-D-2010
Deviation from Standard(s)	Not applicable

QUALIFICATIONS OF TESTING LABORATORY (Kashima Lab.)

ACCREDITATION	SCOPE	LAB. CODE	Remarks
NVLAP	EMC Testing	100290-0	USA
VLAC	EMC Testing	VLAC-008-1	JAPAN
BSMI	EMC Testing	SL2-IN-E-6008	TAIWAN
FILING			
VCCI	EMC Testing	R-788, C-278, C-279, T-1716, T-1717, G-119, R-274, C-280, C-281, T-1718, T-1719, G-120, R-272, C-276, C-277, T-1720, T-1721, R-576, C-590, T-1722, G-121	JAPAN
FCC	EMC Testing	Designation Number:JP0008	
IC	EMC Testing	IC-2042K-1, IC-2042K-3, , IC-2042Q-12	CANADA
CB-Scheme	EMC Testing	TL222	IECEE
SAUDI ARABIA	EMC Testing	N/A	

ABBREVIATIONS

EUT	Equipment Under Test	DoC	Declaration of Conformity
AMN	Artificial Mains Network	ISN	Impedance Stabilization Network
LISN	Line Impedance Stabilization Network	Q-P	Quasi-peak
AMP	Amplifier	AVG	Average
ATT	Attenuator	PK	Peak
ANT	Antenna	Cal	Calibration
BBA	Broadband Antenna	N/A	Not applicable or Not available
DIP	Dipole Antenna	LCD	Liquid-Crystal Display
AE	Associated Equipment	4LEVEL FSK	4LEVEL Frequency Shift Key
GMSK	Gaussian Maximum Shift Key	CW ID	Continuously Repeating bit stream
FM	Frequency Modulation	C4FM	Constant envelope 4 Level FM
PTT	Push to Talk	AFC	Automatic frequency control

SECTION 2. SUMMARY OF TEST RESULT

FCC Part2	Part22	Part74	Part90	TEST ITEM	RESULTS
2.1046 (a)	-	74.461	-	Carrier Output Power (Conducted)	PASS
2.1051	-	-	90.210	Unwanted Emissions (Transmitter Conducted)	PASS
2.1053 (a)	-	-	90.210	Field Strength of Spurious Radiation	PASS
2.1049 (c) (1)	22.359, 357 (a)	74.462	90.210	Emission Masks (Occupied Bandwidth)	See Note 1
-	-	-	90.214	Transient Frequency Behavior	See Note 1
2.1047 (a)	-	-	-	Audio Low Pass Filter (Voice Input)	See Note 1
2.1047 (a)	-	-	-	Audio Frequency Response	See Note 1
2.1047 (b)	-	-	-	Modulation Limiting	See Note 1
2.1055 (a) (1)	22.355	74.464	90.213 (a)	Frequency Stability (Temperature Variation)	See Note 1
2.1055 (d) (1)	22.355	74.464	90.213 (a)	Frequency Stability (Voltage Variation)	See Note 1
-	-	-	90.203 (j)(3)	Certification required (FCC Part 90.203(j)(3))	Complied

Limitation on Results

The test result of this report is effective equipment under test itself and under the test configuration described on the report. This test report does not assure that whether the test result taken in other testing laboratory is compatible or reproducible to the test result on this report or not.

Note 1

There is no influence in the test results except for the 3 items tested (Carrier Output Power (Conducted), Unwanted Emissions (Transmitter Conducted), Field Strength of Spurious Radiation) as for only the RF power module differs from the original equipment. Therefore, This test report complies with FCC Part 22, 74 and 90 standards.

SECTION 3. TEST AND MEASUREMENT DATA

All test and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2, Sub-part J and Industry Canada as the following individual parts:

FCC Rule	Test Item	Tested
Part 21	Domestic Public Fixed radio Services	N.A.
Part 22	Non Cellular	YES
Part 22	Public Mobile Services	N.A.
Part 22	Subpart H - Cellular Radiotelephone Service	N.A.
Part 22	Alternative technologies and auxiliary service	N.A.
Part 23	International Fixed Public Radiocommunication service	N.A.
Part 24	Personal Communications Services	N.A.
Part 74	Experimental Radio Auxiliary , Special Broadcast and Other Program Distributional Services	YES
Part 80	Stations in the Maritime Services	N.A.
Part 80	Subpart E - general Technical Standards	N.A.
Part 80	Subpart F - Equipment Authorization for Compulsory Ships	N.A.
Part 80	Subpart K - Private Coast Stations and Marine Utility Stations	N.A.
Part 80	Subpart S - Compulsory radiotelephone Installations for Small Passenger Boats	N.A.
Part 80	Subpart T - Radiotelephone Installation Required for Vessels on the Great Lakes	N.A.
Part 80	Subpart U - Radiotelephone Installations Required by the Bridge-to-Bridge Act	N.A.
Part 80	Subpart V - Emergency Position Indicating Radiobeacons (EPIRB'S)	N.A.
Part 80	Subpart W - Global Maritime Distress and Safety System (GMDSS)	N.A.
Part 80	Subpart X - Voluntary Radio Installations	N.A.
Part 87	Aviation Services	N.A.
Part 90	Private Land Mobile radio Services	YES
Part 94	Private Operational - Fixed Microwave Service	N.A.
Part 95	Subpart A - General Mobile radio Service	N.A.
Part 95	Subpart C - Radio Control (R/C) radio Service	N.A.
Part 95	Subpart D - Citizens Band (CB) Radio Service	N.A.
Part 95	Subpart E -Family radio Service	N.A.
Part 95	Subpart F -Interactive Video and Data Service (IVDS)	N.A.
Part 97	Amateur Radio Service	N.A.
Part 101	Fixed Microwave Service	N.A.

IC Rule	Test Item	Tested
RSS-119	Radio Transmitters and Receivers Operating in the Land Mobile and Fixed Services in the Frequency Range 27.4-960 MHz	N.A.
RSS-134	900MHz Narrowband Personal Communication Service	N.A.
RSS-Gen	General Requirements and Information for the Certification of Radio Apparatus	N.A.

SECTION 4. INFORMATION ABOUT EUT AND SUPPORT EQUIPMENT(S)

4.1 List of System Configuration

Symbol	Item	Model No.	Serial No.	Manufacture	Remarks
A	VHF FM TRANSCEIVER	TK-7302V-1	None	JVC KENWOOD Corporation	EUT
Power Ratings of EUT :		DC 13.6 V +/- 15%		10.0 A Maximum	
Power Supply :		DC 13.6 V +/- 15%			
Condition of Equipment		Proto type			
Type		Mobile type			
Suppression Devices		No Modifications by the laboratory were made to the device			

4.2 Port(s)/Connector(s)

Port Name	Connector Type	Connector Pin	Remarks
ACC	D-sub	15 pin	
External Speaker	3.5φ	2 pin	
Antenna	M	2 pin	
Microphone	Kenwood Orginal	12 pin	

4.3 Highest Frequency Oscillator(s)/Crystal(s)

Base Clock	Operating Frequency	Board Name	Remarks
212.85 MHz	212.85 MHz	TXRX UNIT	

SECTION 5. SUPPORT EQUIPMENT

The EUT was supported by the following equipment during the test.

Symbol	Item	Model No.	Serial No.	Manufacture	FCC ID
B	DC Power Supply	GZV4000	90290931	Daiichi Denpa Kogyo	N/A
C	External Speaker	KES-3	None	JVC KENWOOD	N/A
D	Keypad Microphone	None	None	JVC KENWOOD	N/A
E	Dummy Load	CT-150NP	None	TME	N/A
Supplied Power:					
B	AC	100V,60Hz			

SECTION 6. USED CABLE(S)

The following cable(s) was used for the test.

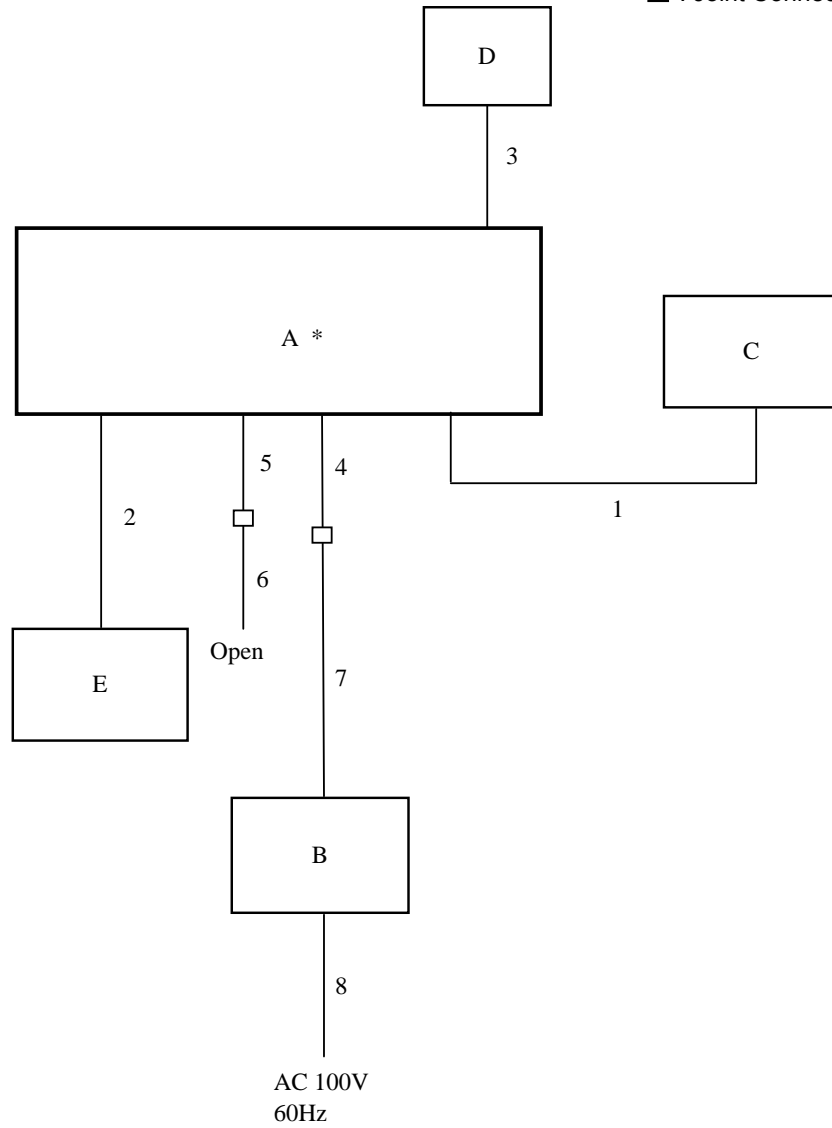
No.	Name	Length (m)	Shield	Connector	Ferrite core
1	Speaker cable	2.90	No	Plastic	
2	Coaxial cable	1.00	Yes	Metal	
3	Mic. Cable	0.55	No	Plastic	
4	DC cable	0.25	No	Plastic	
5	KCT-60 (Connection cable)	0.30	No	Plastic	
6	KCT-18 (Ignition sense cable)	3.15	No	Plastic	
7	DC cable	3.15	No	Plastic	
8	Power cable for DC Power Supply	1.80	No	-	

SECTION 7. TEST CONFIGURATION

Details of Configuration and Connection

Example: Case of Section 10.3Test

- * : EUT
- : Ferrite core
- : Joint Connector



SECTION 8. OPERATING CONDITION

The EUT was operated under the following condition during the test.

8.1 Operating Condition

The test was carried out under Transmit mode.

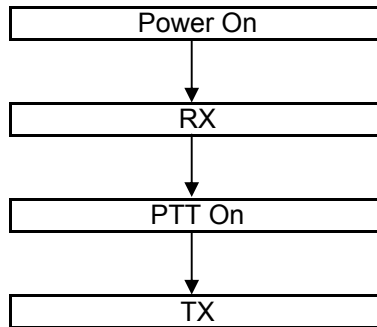
(150.05MHz, 162.05MHz, 173.95MHz)

(High Power : 25W, Low Power : 5 W)

EUT was examined in the operating conditions that had maximum emissions.

8.2 Operating Flow [Transmit mode]

Following operations were performed continuously.



SECTION 9. MEASUREMENT UNCERTAINTY

Carrier Output Power (Conducted)	U _{lab}	Utia-603-d
	+/- 0.29dB (k = 2)	+/- 0.59 dB
Unwanted Emissions (Transmitter Conducted)		
	+/- 2.19 dB (k = 2)	+/- 1.1 dB
Field Strength of Spurious Radiation		
	+/- 2.87dB (k = 2)	+/- 3.3 dB
Emission Masks (Occupied Bandwidth)		
	+/- 0.5dB (k = 2)	+/- 2.1 dB
Transient Frequency Behavior		
	+/- 1.10% (k = 2)	+/- 21.6 %
Audio Low Pass Filter (Voice Input)		
	+/- 0.1dB (k = 2)	+/- 1.2 dB
Audio Frequency Response		
	+/- 0.1dB (k = 2)	+/- 1.2 dB
Modulation Limiting		
	+/- 1% (k = 2)	+/- 1 %
Frequency Stability (Temperature Variation)		
	+/- 10.1Hz (k=2)	+/-34.2 Hz
Frequency Stability (Voltage Variation)		
	+/- 10.1Hz (k=2)	+/-34.2 Hz
Receiver Spurious Emissions	U _{lab}	Ucispr
30-1000MHz	+/- 4.48dB (k = 2)	+/- 5.2 dB
abobe 1GHz	+/- 4.88dB (k = 2)	

SECTION 10. TEST DATA

10.1 Carrier Output Power (Conducted)

REGULATIONS	: FCC Part 2 Section 1046 (a)
TEST METHOD/GUIDE	: ANSI/TIA-603-D Section 2.2.1.2

Test Procedure

- 1 The EUT and test equipment were set up as shown on the following page.
- 2 The EUT was conducted to a resistive coaxial attenuator of normal load impedance.
 $RF\ Power\ (dBm) = Power\ Meter\ reading\ (dBm) + Attenuator\ Loss\ (dB) + Cable\ Loss\ (dB)$
 $RF\ Power\ (W) = 10^{(RF\ Power\ (dBm)/10)}/1000$

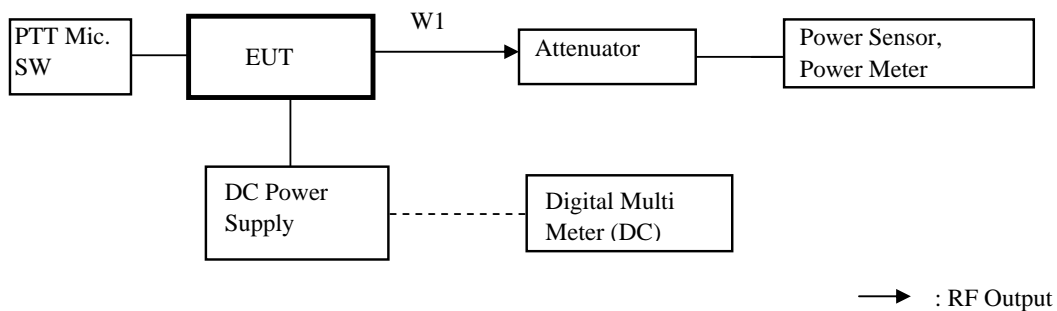
Measuring Equipments

No.	Equipment	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
1	Power Meter	Hewlett Packard	E4418B	GB38410265	May 10, 12	May 31, 13
2	Power Sensor	Hewlett Packard	8482A	US37292237	May 10, 12	May 31, 13
3	Attenuator (20dB)	Aeroflex/Wenshel	66-20-34	BY4357	May 09, 12	May 31, 13
4	Attenuator (30dB)	Weinschel	WA-29-30-34	8924	May 09, 12	May 31, 13
5	Digital Multi Meter	FLUKE	8846A	9642018	May. 11, 12	May. 31, 13
6	DC Power Supply	Daiichi denpa kogyo	GZV4000	90290931	None	None

Measuring Cables

No.	Cable	Manufacturer	Model No.	Serial No.	Cal Date	Cal Exp.
W1	Coaxial Cable	Suhner	SUCOFLEX100	KSR00042	May 09, 12	May 31, 13

Measuring Equipment Configuration



Test Results

Test date	Oct. 09, 2012	
Location	Kashima No.1 Test Site	
temperature	22.2	[degree C]
Humidity Variation	56.0	[%]
Atmospheric Pressure	101.5	[kPa]
Test Engineer	Koichi Wagatsuma	

Test was carried out for all the Authorized Bandwidth.
 State the worst case (below).

No.	Frequency (MHz)	Band	Setting	RF Power (W)
1	150.05	Low	High Power	25.00
2	162.05	Middle	High Power	25.00
3	173.95	High	High Power	25.00
6	150.05	Low	Low Power	5.00
7	162.05	Middle	Low Power	5.00
8	173.95	High	Low Power	5.00

RF Power: Peak reading

10.2 Unwanted Emissions (Transmitter Conducted)

REGULATIONS	: FCC Part 2 Section 1051, Part 90 Section 210
TEST METHOD/GUIDE	: ANSI/TIA-603-D Section 2.2.13.2

Test Procedure

- 1 The EUT and test equipment were set up as shown on the following page.
- 2 Modulate the transmitter with a 2.5 kHz sine wave at an input Level of 16 dB greater than that than that necessary to produce 50 % of rated system deviation.
- 3 Adjust the spectrum analyzer for the following setting:
 - a) RBW : 10 kHz (< 1 GHz), 1 MHz (> 1 GHz).
 - b) VBW : 30 kHz (< 1 GHz), 3 MHz (> 1 GHz).
 - c) Sweep Speed : 50 msec.
 - d) Detector mode : Average power (FM Modulation) , Positive peak with peak hold (Digital Modulation)
- 4 The emissions were measured for the worst case as follows:
 - a) : within a band of frequencies defined by the carrier frequency plus and minus one channel.
 - b) : from the lowest frequency generated in the EUT and to at least the 10th harmonic of the carrier frequency, or 40 GHz, whichever is lower.

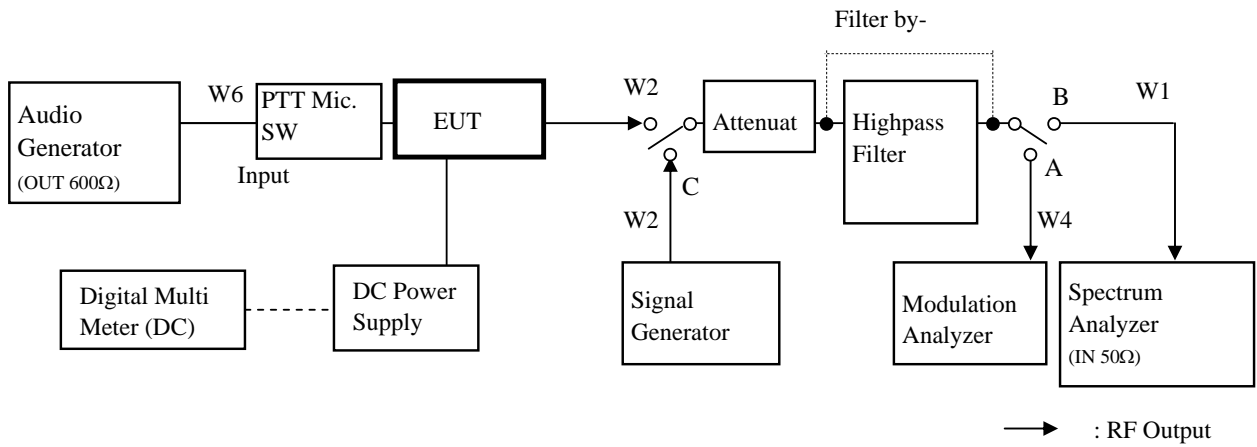
Measuring Equipments

No.	Equipment	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
1	Attenuator (10dB)	Aeroflex/Wenshel	66-10-34	BY2887	May 09, 12	May 31, 13
2	Attenuator (30dB)	Weinschel	WA-29-30-34	8924	May 09, 12	May 31, 13
3	Highpass Filter	Anritsu	MP526B	6200220636	Dec. 22, 11	Dec. 31, 12
4	Audio Generator	Anritsu	MG443B	M70150	Apr. 18, 12	Apr. 30, 13
5	Modulation Analyzer	Hewlett Packard	8901B	3403A04852	Aug 09, 12	Aug 31, 13
6	Signal Generator	Rohde&Schwarz	SMT03	841733/0010	Oct. 03, 12	Oct. 31, 13
7	Spectrum Analyzer	Agilent	E4407B	MY45102460	Apr 25, 12	Apr 30, 13
8	Digital Multi Meter	FLUKE	8846A	9642018	May 11, 12	May 31, 13
9	DC Power Supply	Daiichi denpa kogyo	GZV4000	90290931	None	None

Measuring Cables

No.	Cable	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
W1	Coaxial Cable	Suhner	SUCOFLEX104	KSR00091	May 09, 12	May 31, 13
W2	Coaxial Cable	Suhner	SUCOFLEX100	KSR00042	May 09, 12	May 31, 13
W4	Coaxial Cable	Pacific custom	RG-58 C/U	KSR00096	Nov. 17, 11	Nov. 30, 12
W6	Balance Cable	Nicoon	3D-2V	KSR00092	Oct. 28, 11	Oct. 31, 12

Measuring Equipment Configuration



Test Results

Test date	Oct. 10, 2012	
Location	Kashimai No.1 Test Site	
temperature	24.4	[degree C]
Humidity Variation	49.0	[%]
Atmospheric Pressure	101.4	[kPa]
Test Engineer	Koichi Wagatsuma	

Test was carried out for all the frequency band of section 10.1
 State the worst case (below).

State : High Power / Authorized Bandwidth 11.25 kHz

No.	Tuned Frequency (MHz)	Band	Spurious Frequency (MHz)	Correct Level (dBm)	Emission Level (dBc)	Mask D Limit (dBc)	Margin (dB)
1	150.05	Low	300.10	-51.70	-95.68	-64.0	31.7
2	162.05	Middle	324.10	-56.90	-100.88	-64.0	36.9
3	173.95	High	347.90	-49.70	-93.68	-64.0	29.7

There is the margin of 20dB over except for the above points.

Mask D Limit (dBc) = $-(50+10\log(P))$
 Correct Level (dBm) = Substitute SG Level (dBm)
 Emission Level (dBc) = Correct Level (dBm) - $10\log(P*1000)$
 P = Carrier Level (W)
 " - " = Measurement Limit

State : Low Power / Authorized Bandwidth 11.25 kHz

No.	Tuned Frequency (MHz)	Band	Spurious Frequency (MHz)	Correct Level (dBm)	Emission Level (dBc)	Mask D Limit (dBc)	Margin (dB)
1	150.05	Low	300.10	-45.70	-82.69	-57.0	25.7
2	162.05	Middle	324.10	-56.00	-92.99	-57.0	36.0
3	173.95	High	347.90	-57.50	-94.49	-57.0	37.5

There is the margin of 20dB over except for the above points.

Mask D Limit (dBc) = $-(50+10\log(P))$
 Correct Level (dBm) = Substitute SG Level (dBm)
 Emission Level (dBc) = Correct Level (dBm) - $10\log(P*1000)$
 P = Carrier Level (W)
 " - " = Measurement Limit

10.3 Field Strength of Spurious Radiation

REGULATIONS	:	FCC Part 2 Section 1053 (a), Part 90 Section 210
TEST METHOD/GUIDE	:	ANSI/TIA-603-D Section 2.2.12.2

Test Procedure

- 1 The EUT and test equipment were set up as shown on the following page.
- 2 Adjust the spectrum analyzer for the following setting:
 - a) RBW : 10 kHz (< 1 GHz), 1 MHz (> 1 GHz).
 - b) VBW : 300 kHz (< 1 GHz), 3 MHz (> 1 GHz).
 - c) Sweep Speed : 50ms.
 - d) Detector mode : Positive Peak
- 3 The transmitter was placed on a wooden turntable, and it was transmitting into non-radiating load which was also placed on the turntable.
- 4 The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
- 5 The frequency range up to tenth harmonic of the fundamental frequency was investigated.
- 6 Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.
- 7 Spurious emissions in dB = 10 Log (TX power in Watts/0.001) – the absolute level

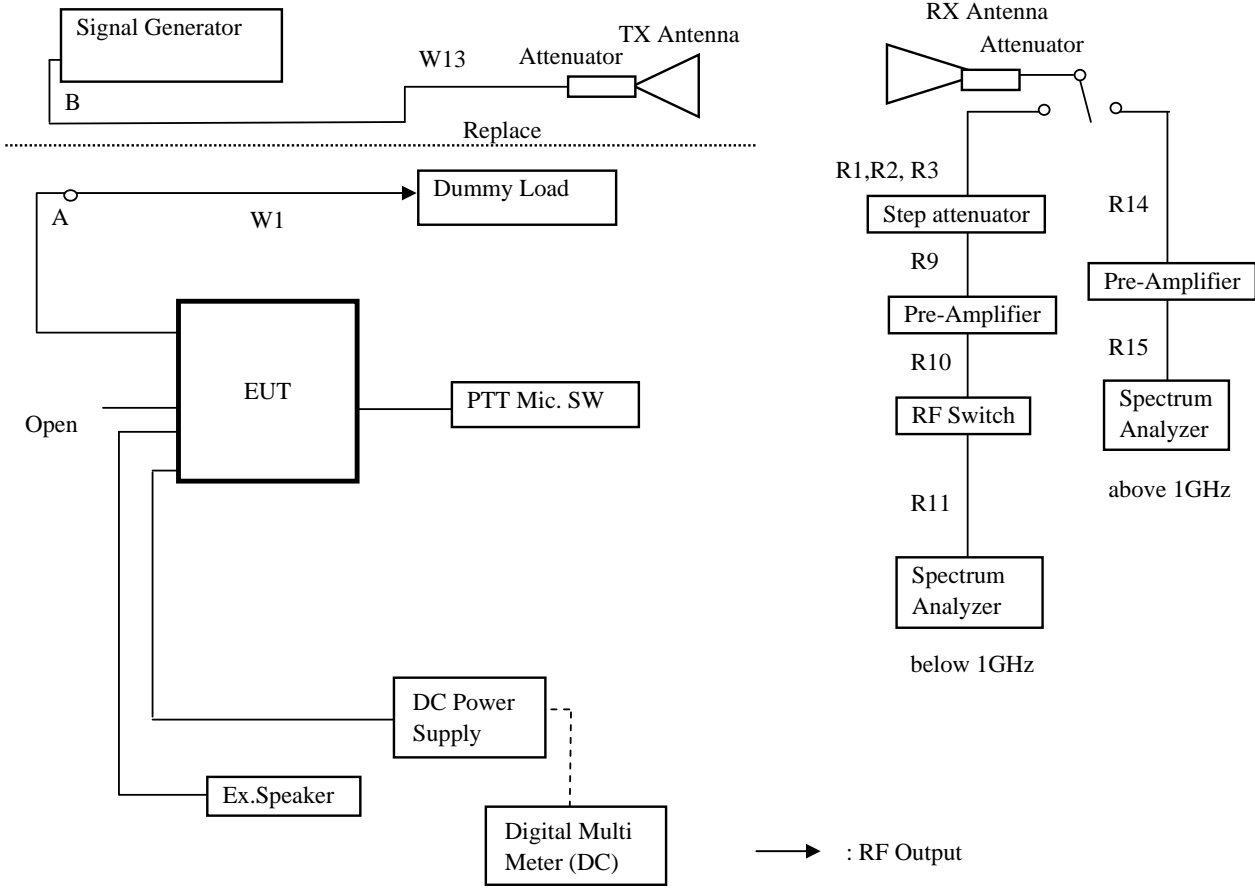
Measuring Equipments

No.	Equipment	Manufacture	Model No.	Serial No.	Cal Date	Cal Exp.
1	Dipole Antenna(TX)	Schwarzbeck	VHA9103	C01082007	Jun. 13, 12	Jun. 30, 13
2	Dipole Antenna(TX)	Schwarzbeck	UHA9105	AM0082002	Jun. 13, 12	Jun. 30, 13
3	D.R.G Antenna(TX)	EMCO	3115	5044	Jul. 03, 12	Jul. 31, 13
4	Broad Band Antenna(RX)	Schwarzbeck	VULB9168WP	126	Oct. 04, 12	Oct. 31, 13
5	D.R.G Antenna(RX)	EMCO	3115	5045	Mar. 08, 12	Mar. 31, 13
6	Attenuator	HUBER+SUHNER	6810.17B	KSR0044	Feb. 14, 12	Feb. 28, 13
7	Attenuator	Anritsu	MP721B	M56993	Mar. 13, 12	Mar. 31, 13
8	Attenuator	SUHNER	6803.2	None	Oct. 02, 12	Oct. 31, 13
9	Step Attenuator	Hewlett Packard	8494B	2406A09036	Mar. 13, 12	Mar. 31, 13
10	Amplifier	Intertek Japan	ZX60-3018G	003	Mar. 13, 12	Mar. 31, 13
11	Amplifier	TOYO	TPA0118-30	0402	Oct. 02, 12	Oct. 31, 13
12	RF Switch	Intertek Japan	ACX-150	None	Mar. 13, 12	Mar. 31, 13
13	Signal Generator	Rohde&Schwarz	SMB 100A	105709	Dec. 22, 11	Dec. 31, 12
14	Spectrum Analyzer	Agilent	E4407B	MY45102460	Apr. 25, 12	Apr. 30, 13
15	Dummy Load	TME	CT-150NP	1138693	Oct. 28, 11	Oct. 31, 12
16	Digital Multi Meter	FLUKE	8846A	9642018	May. 11, 12	May. 31, 13
17	DC Power Supply	Daiichi denpa kogyo	GZV4000	90290931	None	None

Measuring Cables

No.	Cable	Manufacturer	Model No.	Serial No.	Cal Date	Cal Exp.
W1	Coaxial Cable	Suhner	SUCOFLEX104	KSR00091	May. 09, 12	May 31, 13
W13	Coaxial Cable	Suhner	SUCOFLEX100	KSR00207	May. 09, 12	May. 31, 13
R1	Coaxial Cable	Intertek Japan	5D-2W	None	Mar. 13, 12	Mar. 31, 13
R2	Coaxial Cable	Intertek Japan	23D 4AF	None	Mar. 13, 12	Mar. 31, 13
R3	Coaxial Cable	Intertek Japan	RG-5A/U	None	Mar. 13, 12	Mar. 31, 13
R9	Coaxial Cable	Intertek Japan	RG-5A/U	None	Mar. 13, 12	Mar. 31, 13
R10	Coaxial Cable	Intertek Japan	RG-5A/U	None	Mar. 13, 12	Mar. 31, 13
R11	Coaxial Cable	Intertek Japan	RG-5A/U	None	Mar. 13, 12	Mar. 31, 13
R14	Coaxial Cable	RADIALL	R286401343	03 23 104	Oct. 02, 12	Oct. 31, 13
R15	Coaxial Cable	RADIALL	R286401344	03 23 72	Oct. 02, 12	Oct. 31, 13

Measuring Equipment Configuration



Test Results

Test date	Oct. 15, 2012 to Oct. 17, 2012
Location	Kashima No.3 Test Site
temperature	24.0 to 28.0 [degree C]
Humidity Variation	46 to 47 [%]
Atmospheric Pressure	101.8 to 102.5 [kPa]
Test Engineer	Koichi Wagatsuma

Test was carried out for all the frequency band of section 10.1
State the worst case (below).

State : High Power / Authorized Bandwidth 11.25kHz / 150.05MHz

No	Frequency (MHz)	Pol	Reading Level (dBm)	SG Out Level (dBm)	Antenna Gain (dBi)	Loss (dB)	Correct Level (dBm)	Emission Level (dBc)	MASK D Limit Level (dBc)	Margin (dB)
1	300.10	Hor.	-56.75	-37.00	2.15	11.33	-46.2	-90.2	-64.0	26.2
		Ver.	-53.04	-28.70	2.15	11.33	-37.9	-81.9	-64.0	17.9
2	450.15	Hor.	-54.29	-29.00	2.15	11.63	-38.5	-82.5	-64.0	18.5
		Ver.	-48.03	-21.96	2.15	11.63	-31.4	-75.4	-64.0	11.4
3	600.20	Hor.	-47.80	-18.10	2.15	11.89	-27.8	-71.8	-64.0	7.8
		Ver.	-43.50	-13.28	2.15	11.89	-23.0	-67.0	-64.0	3.0
4	750.25	Hor.	-61.18	-28.75	2.15	12.12	-38.7	-82.7	-64.0	18.7
		Ver.	-61.71	-27.50	2.15	12.12	-37.5	-81.4	-64.0	17.4
5	900.30	Hor.	-62.07	-27.55	2.15	12.31	-37.7	-81.7	-64.0	17.7
		Ver.	-59.36	-23.10	2.15	12.31	-33.3	-77.2	-64.0	13.2
6	1050.35	Hor.	-52.10	-43.80	5.67	12.51	-50.6	-94.6	-64.0	30.6
		Ver.	-	-	5.67	12.51	-	-	-64.0	-
7	1200.40	Hor.	-54.69	-45.30	5.70	12.69	-52.3	-96.3	-64.0	32.3
		Ver.	-	-	5.70	12.69	-	-	-64.0	-
8	1350.45	Hor.	-	-	7.31	12.87	-	-	-64.0	-
		Ver.	-	-	7.31	12.87	-	-	-64.0	-
9	1500.50	Hor.	-	-	7.98	13.04	-	-	-64.0	-
		Ver.	-	-	7.98	13.04	-	-	-64.0	-

There is the margin of 20dB over except for the above points.

Mask D Limit (dBc) = $-(50+10\log(P))$

Correct Level (dBm) = Substitute SG Level (dBm) + ANT Gain (dBi) - Loss (Cable, Attenuator) (dB)

Emission Level (dBc) = Correct Level (dBm) - $10\log(P*1000)$

P = Carrier Level (W)

" - " = Measurement Limit

State : Low Power / Authorized Bandwidth 11.25kHz / 150.05MHz

No	Frequency (MHz)	Pol	Reading Level (dBm)	SG Out Level (dBm)	Antenna Gain (dBi)	Loss (dB)	Correct Level (dBm)	Emission Level (dBc)	MASK D Limit Level (dBc)	Margin (dB)
1	300.10	Hor.	-53.74	-34.00	2.15	11.33	-43.2	-80.2	-57.0	23.2
		Ver.	-54.69	-30.40	2.15	11.33	-39.6	-76.6	-57.0	19.6
2	450.15	Hor.	-57.49	-32.20	2.15	11.63	-41.7	-78.7	-57.0	21.7
		Ver.	-52.51	-26.40	2.15	11.63	-35.9	-72.9	-57.0	15.9
3	600.20	Hor.	-58.59	-29.00	2.15	11.89	-38.7	-75.7	-57.0	18.7
		Ver.	-53.36	-23.10	2.15	11.89	-32.8	-69.8	-57.0	12.8
4	750.25	Hor.	-65.47	-33.10	2.15	12.12	-43.1	-80.1	-57.0	23.1
		Ver.	-62.94	-28.75	2.15	12.12	-38.7	-75.7	-57.0	18.7
5	900.30	Hor.	-	-	2.15	12.31	-	-	-57.0	-
		Ver.	-	-	2.15	12.31	-	-	-57.0	-
6	1050.35	Hor.	-55.90	-48.30	5.67	12.51	-55.1	-92.1	-57.0	35.1
		Ver.	-	-	5.67	12.51	-	-	-57.0	-
7	1200.40	Hor.	-	-	5.70	12.69	-	-	-57.0	-
		Ver.	-	-	5.70	12.69	-	-	-57.0	-
8	1350.45	Hor.	-	-	7.31	12.87	-	-	-57.0	-
		Ver.	-	-	7.31	12.87	-	-	-57.0	-
9	1500.50	Hor.	-	-	7.98	13.04	-	-	-57.0	-
		Ver.	-	-	7.98	13.04	-	-	-57.0	-

There is the margin of 20dB over except for the above points.

Mask D Limit (dBc) = $-(50+10\log(P))$

Correct Level (dBm) = Substitute SG Level (dBm) + ANT Gain (dBi) - Loss (Cable, Attenuator) (dB)

Emission Level (dBc) = Correct Level (dBm) - $10\log(P*1000)$

P = Carrier Level (W)

" - " = Measurement Limit

10.4 Necessary Bandwidth and Emission Bandwidth

REGULATIONS	: FCC Part 2 Section 202 (g) & Federal Register/ Vol.68, No236 TRC 43
-------------	--

Calculation Results

State : 16K0F3E (Authorized Bandwidth 20 kHz)

Item	Mark		
Maximum Modulation	(M)	3	kHz
Maximum Deviation	(D)	5	kHz
Constant Factor	(K)	1	
Necessary Bandwidth	(Bn)	16	kHz

$B_n = (2 \times M) + (2 \times D \times K)$

State : 11K0F3E (Authorized Bandwidth 11.25 kHz)

Item	Mark		
Maximum Modulation	(M)	3	kHz
Maximum Deviation	(D)	2.5	kHz
Constant Factor	(K)	1	
Necessary Bandwidth	(Bn)	11	kHz

$B_n = (2 \times M) + (2 \times D \times K)$