

## TEST REPORT

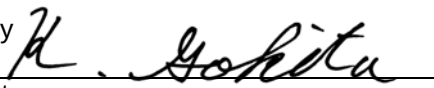
**STANDARD : FCC Part15B Class B -Scanning Receiver-  
Industry Canada RSS-215 Issue 2**

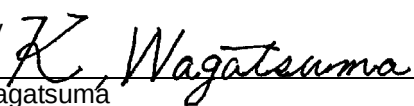
| Applicant                                                                                                                    | Testing Laboratory                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| JVC KENWOOD Corporation<br><br>1-16-2, Hakusan, Midori-ku, Yokohama-shi,<br>Kanagawa, 226-8525 Japan<br>Tel. +81 45 939 6254 | Intertek Japan K.K. Kashima Laboratory<br>URL: <a href="http://www.japan.intertek-etlsemko.com">http://www.japan.intertek-etlsemko.com</a><br>3-2 Sunayama, Kamisu, Ibaraki<br>314-0255 Japan<br>Tel. +81 479 40 1097<br>Intertek Japan K.K. Matsuda Laboratory<br>1283 Yadoriki, Matsuda-machi, Ashigarakami-gun,<br>Kanagawa-ken, 258-0001 Japan<br>Tel. +81 465 89 2316 Fax. +81 465 89 2160 |

|                                |                      |
|--------------------------------|----------------------|
| <b>Equipment Type</b>          | HF/50MHz TRANSCEIVER |
| <b>Trademark</b>               | KENWOOD              |
| <b>Model(s)</b>                | TS-990S              |
| <b>Serial No.</b>              | 82A90005             |
| <b>Equipment Authorization</b> | Certification        |
| <b>FCC ID</b>                  | K44412000            |
| <b>IC ID</b>                   | 282F-412000          |
| <b>Test Result</b>             | Complied             |
| <b>Report Number</b>           | JK12120003(R1)       |
| <b>Report Issue Date</b>       | December 27, 2012    |

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The test report JK12120003 has been superseded by this test report.

Approved by   
Kazuo Gokita  
[ Manager ]

Tested by   
Koichi Wagatsuma



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## SECTION 1. GENERAL INFORMATION

### Test Performed

|                                   |                                                                                                                         |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>EUT Received</b>               | December 3, 2012                                                                                                        |
| <b>Date of Test</b>               | From December 4, 2012 to December 18, 2012                                                                              |
| <b>Standard Applied</b>           | FCC Part15B -Scanning Receiver-<br>Industry Canada RSS-215 Issue 2*<br>* It is not covered by accredited scope of VLAC. |
| <b>Test methods</b>               | ANSI C63.4-2003 / RSS-GEN Issue 3-2010                                                                                  |
| <b>Deviation from Standard(s)</b> | None                                                                                                                    |

Note : As for the ICES-003 "Digital Apparatus", the EUT has been measured.

Refer to report No.JK12120002.

As for the FCC Part15B Class B "Peripherals", the EUT has been measured.

Refer to report No.JK12120001.

### Qualifications of Testing Laboratory

#### Kashima Laboratory

| 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  |
| <b>Filing</b> |             |                             |         |
| VCCI          | EMC Testing | A-0126                      | JAPAN   |
| FCC           | EMC Testing | Designation Number : JP0008 | USA     |
| IC            | EMC Testing | 2042K-1, 2042K-3, 2042Q-12  | CANADA  |
| CB-Scheme     | EMC Testing | TL222                       | IECEE   |
| SAUDI ARABIA  | EMC Testing | N/A                         |         |

#### Matsuda Laboratory

| Accreditation | Scope       | Lab. Code                          | Remarks |
|---------------|-------------|------------------------------------|---------|
| VLAC          | EMC Testing | VLAC-008-3                         | JAPAN   |
| BSMI          | EMC Testing | SL2-IN-E-6009                      | TAIWAN  |
| <b>Filing</b> |             |                                    |         |
| VCCI          | EMC Testing | A-0127                             | JAPAN   |
| FCC           | EMC Testing | Designation Number : JP0009        | USA     |
| IC            | EMC Testing | 2042S-1, 2042S-2, 2042S-3, 2042S-4 | Canada  |
| CB-Scheme     | EMC Testing | TL223                              | 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                 | HDMI | High-Definition Multimedia Interface |

## SECTION 2. SUMMARY OF TEST RESULTS

See Section9 for the detailed result.

### Emission Tests

| Standard Applied                            | FCC Part15B Class B -Scanning Receiver-<br>Industry Canada RSS-215 Issue 2 |         |
|---------------------------------------------|----------------------------------------------------------------------------|---------|
| Test Item                                   | Minimum margin                                                             | Remarks |
| Conducted disturbance<br>at mains terminals | 12.6 dB (0.1858 MHz) [Q-P] RX mode (59.99MHz)                              |         |
| Radiated disturbance                        | 1.9 dB (70.70 MHz) RX mode (59.99MHz)<br>RX mode (VFO SCAN (SUB))          |         |
| Conducted power<br>on antenna port          | 0.4 dB (51.7600 MHz) RX mode (VFO SCAN MAIN:Ant.RX)                        |         |

| Test Item                          | Results | Remarks  |
|------------------------------------|---------|----------|
| 38dB Rejection test<br>(15.121(b)) | Pass    | See Note |

Note : No frequency of response was detected.

## SECTION 3. EQUIPMENT UNDER TEST

The equipment under test (EUT) consisted of the following apparatus.

### 3.1 System Configuration

| Symbol                                                | Item                                                       | Model No. | Serial No. | Manufacturer |
|-------------------------------------------------------|------------------------------------------------------------|-----------|------------|--------------|
| A                                                     | HF/50MHz TRANSCEIVER                                       | TS-990S   | 82A90005   | JVC KENWOOD  |
| Rated Power : AC120 V, 60 Hz, $\pm 10\%$ , 1.0 A max. |                                                            |           |            |              |
| Supplied Power : AC120 V, 60 Hz                       |                                                            |           |            |              |
| Condition of Equipment                                | Prototype                                                  |           |            |              |
| Type                                                  | Tabletop                                                   |           |            |              |
| Suppression Devices                                   | No Modifications by the laboratory were made to the device |           |            |              |

### 3.2 Port(s)/Connector(s)

|                    |                              |
|--------------------|------------------------------|
| Frequency Ranges   | 0.030 – 60.000 MHz           |
| Receiver Type      | Double or Triple conversion  |
| Model of Operation | J3E, A1A, F1B, G1B, A3E, F3E |

### 3.3 Port(s)/Connector(s)

|     |                                     |
|-----|-------------------------------------|
| 1st | 8.248 MHz, 11.374 MHz or 73.095 MHz |
| 2nd | 24 kHz, 455 kHz or 10.695 MHz       |
| 3rd | 24 kHz or 455 kHz                   |

### 3.4 Port(s)/Connector(s)

| Port Name   | Connector Type     | Connector Pin | Remarks |
|-------------|--------------------|---------------|---------|
| PHONES      | φ 6.3 Phone Jack   | 3pin          |         |
| PADDLE      | φ 6.3 Phone Jack   | 3pin          |         |
| USB         | USB-A              | 4pin          | 2 ports |
| MIC         | Metal type         | 8pin          |         |
| ANT1        | M                  | 2pin          |         |
| ANT2        | M                  | 2pin          |         |
| ANT3        | M                  | 2pin          |         |
| ANT4        | M                  | 2pin          |         |
| REF I/O     | BNC                | 2pin          |         |
| AT          | Square shape       | 6pin          |         |
| KEYPAD      | φ 3.5 Phone Jack   | 3pin          |         |
| COM         | D-SUB              | 9pin          |         |
| AC IN       | AC INTLET          | 3pin          |         |
| GND         | Wing Nut type      | 1pin          |         |
| EXT SP1     | φ 3.5 Phone Jack   | 2pin          |         |
| EXT SP2     | φ 3.5 Phone Jack   | 2pin          |         |
| LAN         | RJ-45 Modular Jack | 8pin          |         |
| DISPLAY     | DVI-I              | 29pin         |         |
| USB         | USB-B              | 4pin          |         |
| OPTICAL OUT | EIAJ Optical       | 1pin          |         |
| OPTICAL IN  | EIAJ Optical       | 1pin          |         |
| DRV         | RCA                | 2pin          |         |
| METER       | φ 3.5 Phone Jack   | 3pin          |         |
| REMOTE      | DIN                | 7pin          |         |
| ACC 2       | DIN                | 13pin         |         |
| KEY         | φ 6.3 Phone Jack   | 3pin          |         |
| RX IN       | RCA                | 2pin          |         |
| RX OUT      | RCA                | 2pin          |         |

### 3.5 Highest Frequency Generated / Used

| Operating Frequency | Board Name   | Remarks |
|---------------------|--------------|---------|
| 598 MHz             | DIGITAL UNIT |         |

## SECTION 4. SUPPORT EQUIPMENT

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

| Symbol                 | Item           | Model No.       | Serial No.               | Manufacturer | FCC ID        |
|------------------------|----------------|-----------------|--------------------------|--------------|---------------|
| <b>B</b>               | Head Phones    | HS-6            | None                     | JVC KENWOOD  | N/A           |
| <b>C</b>               | USB Keyboard   | SK-8115         | CN-0J4637-71616-568-0NWW | DELL         | DoC           |
| <b>D</b>               | Microphone     | MC-47           | None                     | JVC KENWOOD  | N/A           |
| <b>E</b>               | 50Ω Terminator | 11593A          | 1250-0256                | HP           | N/A           |
| <b>F</b>               | 50Ω Terminator | 3204-BNCM       | None                     | AEROFLEX     | N/A           |
| <b>G</b>               | 50Ω Terminator | 3204-BNCM       | None                     | AEROFLEX     | N/A           |
| <b>H</b>               | 50Ω Terminator | 3204-BNCM       | None                     | AEROFLEX     | N/A           |
| <b>I</b>               | 50Ω Terminator | None            | None                     | None         | N/A           |
| <b>J</b>               | 50Ω Terminator | None            | None                     | JVC KENWOOD  | N/A           |
| <b>K</b>               | 50Ω Terminator | None            | None                     | JVC KENWOOD  | N/A           |
| <b>L</b>               | 50Ω Terminator | None            | None                     | JVC KENWOOD  | N/A           |
| <b>M</b>               | Speaker        | SP-990          | None                     | JVC KENWOOD  | N/A           |
| <b>N</b>               | Speaker        | SP-50B          | None                     | JVC KENWOOD  | N/A           |
| <b>O</b>               | Hub            | SF100D-05       | PSJ16070C36              | CISCO        | DoC           |
| <b>P</b>               | AC Adapter     | MU06-6120050-A1 | None                     | CISCO        | N/A           |
| <b>Q</b>               | LCD (DVI)      | 750B            | CL17HMEY908025           | SAMSUNG      | DoC           |
| <b>R</b>               | Computer       | DHP             | 85TBQ1X                  | DELL         | DoC           |
| <b>S</b>               | LCD (VGA)      | HSTND-2B07      | CNK6341VSH               | HP           | DoC           |
| <b>T</b>               | Printer        | BJS630          | None                     | CANON        | DoC           |
| <b>U</b>               | Keyboard       | RT7D00          | TH-054EXM-37171-12C-1216 | DELL         | AQ6-7D0080COB |
| <b>V</b>               | Mouse          | X05-90006       | 63618-0EM-5564852-0      | DELL         | DoC           |
| <b>Supplied Power:</b> |                |                 |                          |              |               |
| <b>O</b>               | DC12 V, 0.5 A  |                 |                          |              |               |
| <b>P, Q, R, S, T</b>   | AC120 V, 60 Hz |                 |                          |              |               |

## SECTION 5. USED CABLE(S)

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

| No. | Name                         | Length (m) | Shield | Metal Connector | Ferrite Core |
|-----|------------------------------|------------|--------|-----------------|--------------|
| 1   | PHONE cable                  | 1.50       | No     | No              |              |
| 2   | PADDLE cable                 | 1.00       | No     | No              |              |
| 3   | USB Keyboard cable           | 2.00       | Yes    | Yes             |              |
| 4   | USB cable                    | 1.10       | Yes    | Yes             |              |
| 5   | MIC cable                    | 0.45       | No     | Yes             |              |
| 6   | AT cable                     | 1.00       | No     | No              |              |
| 7   | KEYPAD cable                 | 1.00       | No     | No              |              |
| 8   | COM cable                    | 1.50       | No     | No              |              |
| 9   | GND cable                    | 1.20       | No     | No              |              |
| 10  | Speaker cable                | 1.00       | No     | No              |              |
| 11  | Speaker cable                | 2.50       | No     | No              |              |
| 12  | LAN cable                    | 1.00       | No     | No              |              |
| 13  | DVI-D cable                  | 1.10       | Yes    | Yes             |              |
| 14  | USB cable                    | 1.00       | Yes    | No              |              |
| 15  | OPTICAL cable                | 2.00       | No     | No              |              |
| 16  | OPTICAL cable                | 2.00       | No     | No              |              |
| 17  | METER cable                  | 1.00       | No     | No              |              |
| 18  | REMOTE cable                 | 1.00       | No     | No              |              |
| 19  | ACC cable                    | 1.00       | No     | No              |              |
| 20  | Power cable for EUT          | 2.00       | No     | No              |              |
| 21  | Power cable for Hub (DC)     | 1.50       | No     | No              |              |
| 22  | Keyboard cable               | 2.10       | Yes    | Yes             |              |
| 23  | Mouse cable                  | 2.00       | Yes    | Yes             |              |
| 24  | Centronics cable             | 2.00       | Yes    | Yes             |              |
| 25  | VGA cable                    | 2.00       | Yes    | Yes             | Fixed x 2    |
| 26  | Power cable for Computer     | 2.00       | No     | No              |              |
| 27  | Power cable for LCD(DVI) (I) | 2.50       | No     | No              |              |
| 28  | Power cable for LCD(VGA) (K) | 2.00       | No     | No              |              |
| 29  | Power cable for Printer      | 1.80       | No     | No              |              |

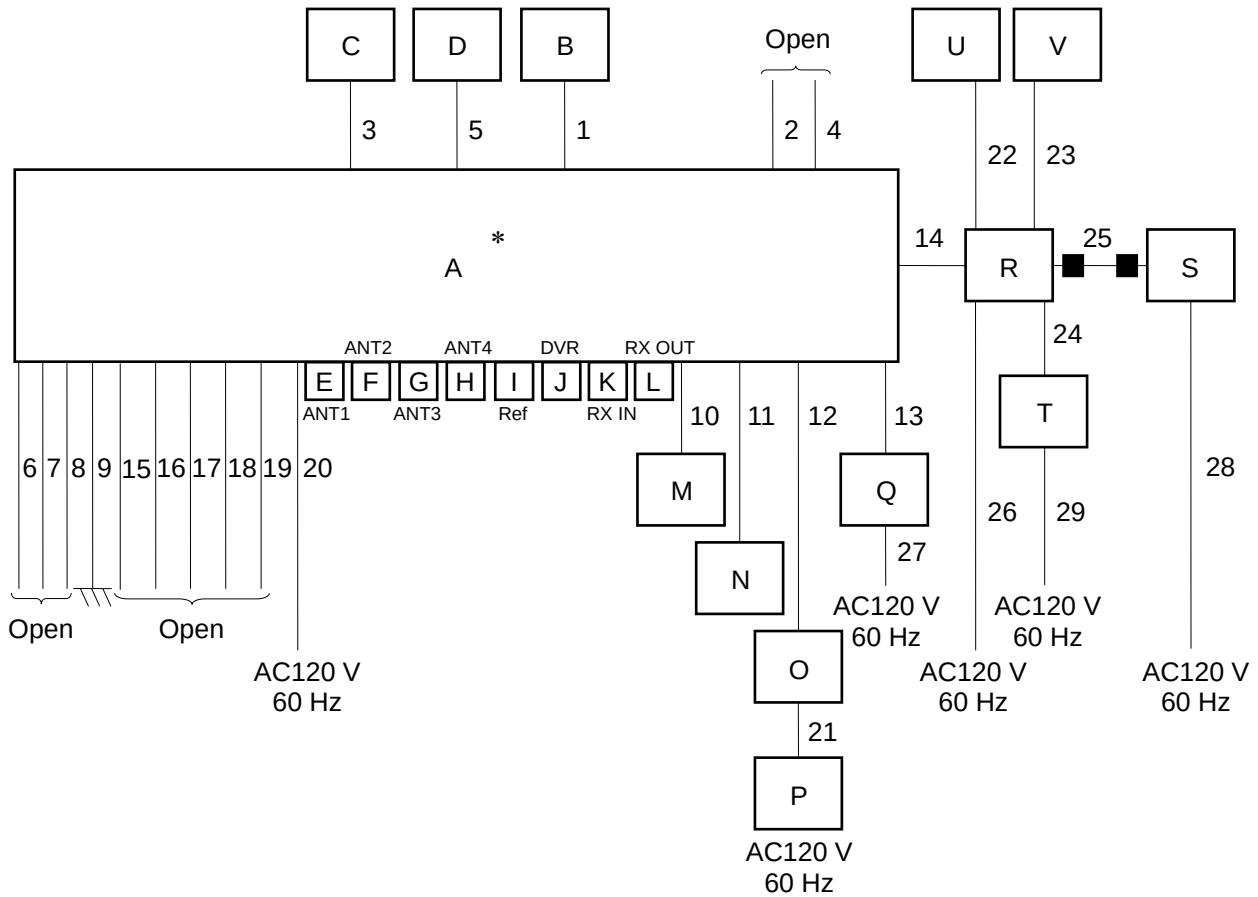
Note : Cable No.25 is supplied together with LCD(VGA) (S).



## SECTION 6. TEST CONFIGURATION

### 6.1 Conducted disturbance at mains port and Radiated disturbance

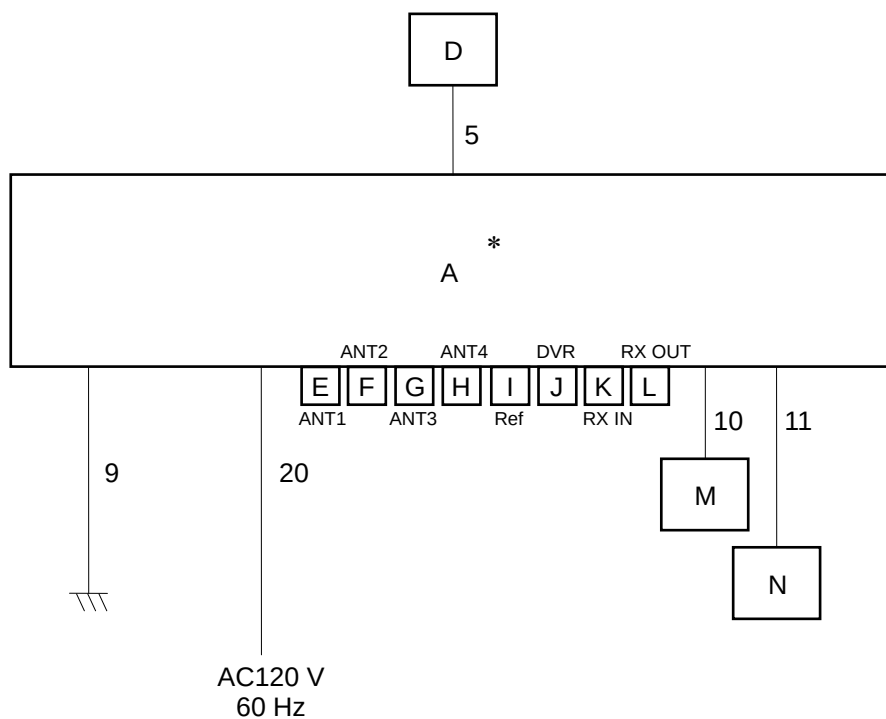
\* : EUT  
■ : Ferrite core



The symbols and numbers assigned to the equipments and cables on this diagram correspond to the ones in Sections 3 to 5.

## 6.2 Conducted power on antenna port

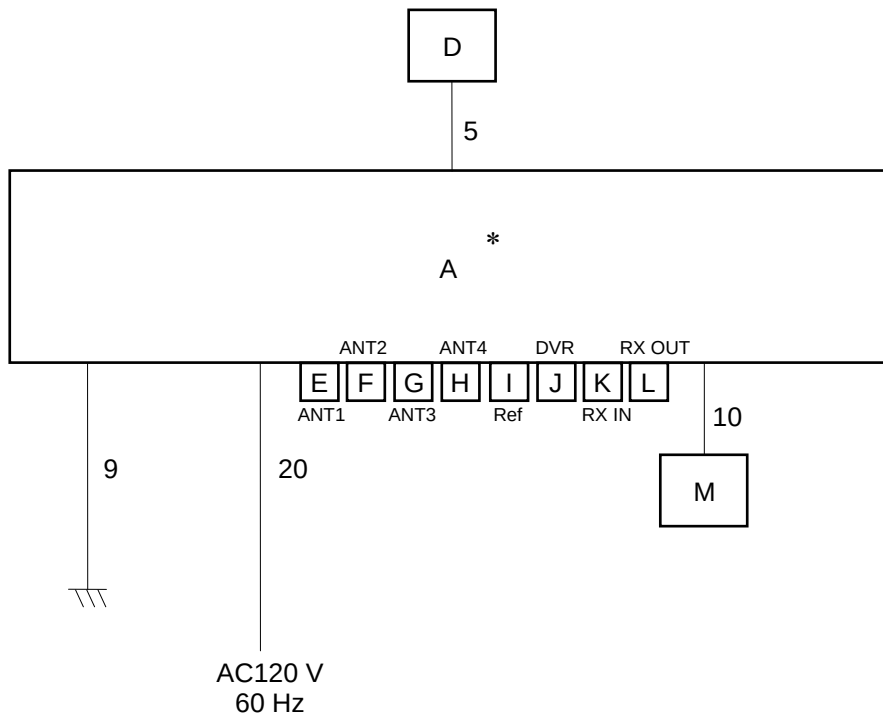
\* : EUT



The symbols and numbers assigned to the equipments and cables on this diagram correspond to the ones in Sections 3 to 5.

### 6.3 38dB Rejection test

\* : EUT



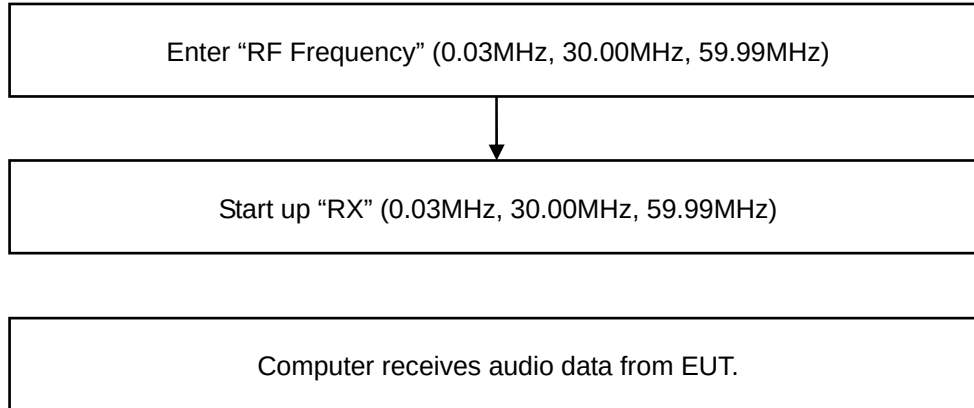
The symbols and numbers assigned to the equipments and cables on this diagram correspond to the ones in Sections 3 to 5.

## SECTION 7. OPERATING CONDITION

The test was carried out under the following mode.

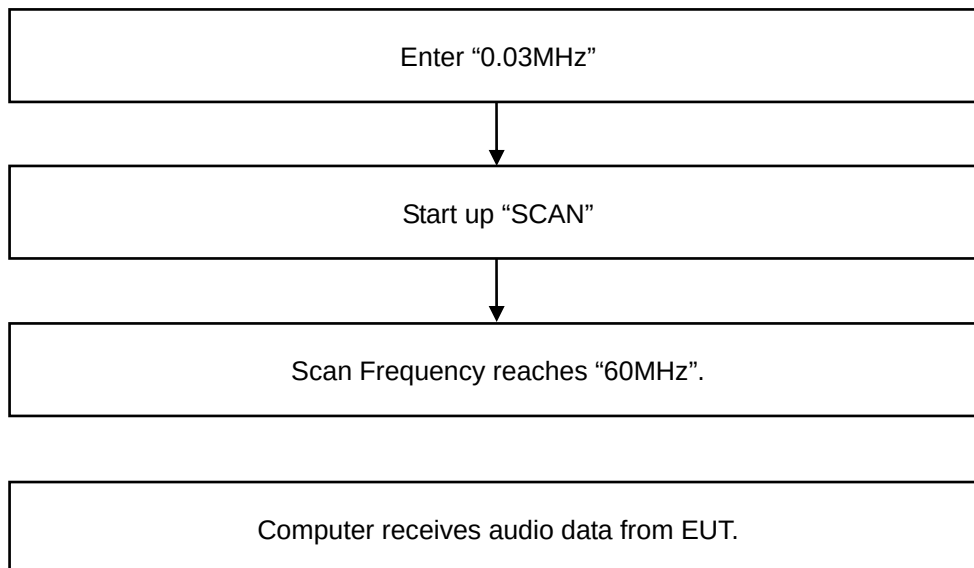
### 7.1 RX mode

Cycle time for operation: Continuity



### 7.2 VFO SCAN mode

Cycle time for operation: Continuity



## SECTION 8. UNCERTAINTY

Traceability to national standard in SI units is ensured with these values.  
Compliance with the limits in this standard are determined without in consideration of the measurement uncertainty of the measurement instrumentation.

| Radiated disturbance at 3m                                                  | U <sub>lab</sub> [k = 2] | U <sub>cispr</sub> |
|-----------------------------------------------------------------------------|--------------------------|--------------------|
| 30 MHz – 1000 MHz                                                           | +/- 4.03 dB              | 5.19 dB            |
| CISPR22                                                                     | +/- 3.84 dB              |                    |
| Above 1 GHz<br>ANSI 63.4                                                    | +/- 4.40 dB              |                    |
| Radiated disturbance at 10m                                                 |                          |                    |
| 30 MHz – 1000 MHz                                                           | +/- 4.44 dB              | 5.06 dB            |
| Above 1 GHz                                                                 | +/- 4.49 dB              |                    |
| Radiated disturbance at 30m                                                 |                          |                    |
|                                                                             | N/A                      | 5.02 dB            |
| Conducted disturbance at mains terminals                                    |                          |                    |
| 9 kHz – 150 kHz                                                             | +/- 1.63 dB              | 3.97 dB            |
| 150 kHz – 30 MHz                                                            |                          | 3.60 dB            |
| Conducted disturbance at telecommunication ports (ISN)                      |                          |                    |
| 150 kHz – 30 MHz                                                            | +/- 1.91 dB              | Nil                |
| Conducted disturbance at telecommunication ports (Capacitive Voltage Probe) |                          |                    |
| 150 kHz – 30 MHz                                                            | +/- 1.70 dB              | Nil                |
| Conducted disturbance at telecommunication ports (Current Probe)            |                          |                    |
| 150 kHz – 30 MHz                                                            | +/- 1.80 dB              | Nil                |
| Conducted disturbance at terminals                                          |                          |                    |
| 150 kHz – 30 MHz                                                            | +/- 1.69 dB              | Nil                |
| Disturbance power                                                           |                          |                    |
| 30 MHz – 300 MHz                                                            | +/- 2.75 dB              | 4.45 dB            |
| Conducted power on antenna port                                             |                          |                    |
| 30 MHz – 1000 MHz                                                           | +/- 2.90 dB              | Nil                |
| Above 1 GHz                                                                 | +/- 1.60 dB              |                    |
| 38dB Rejection                                                              |                          |                    |
| 30 kHz – 60 MHz                                                             | +/- 0.56 dB              | Nil                |

The above expanded instrumentation uncertainty,  $U_{lab}$ , is estimated in accordance with CISPR 16-4-2.

## SECTION 9. EVALUATION OF TEST RESULTS

|                      |                                                   |
|----------------------|---------------------------------------------------|
| <b>Location</b>      | Kashima No.3 Test Site and Matsuda No.1 Test Site |
| <b>Test Engineer</b> | Koichi Wagatsuma                                  |

### Frequency Range of Measurements

|                     | <b>Required Measurement Frequency Range</b> | <b>Measured Frequency Range</b> |
|---------------------|---------------------------------------------|---------------------------------|
| Conducted           | 0.15 – 30 MHz                               | 0.15 – 30 MHz                   |
| Radiated            | 30 – 5000 MHz                               | 30 – 5000 MHz                   |
| Antenna port        | 30 – 5000 MHz                               | 30 – 5000 MHz                   |
| 38dB Rejection test | 0.03 – 60 MHz                               | 0.03 – 60 MHz                   |

### Test Procedure

| <b>Item</b>                              | <b>Document number</b> |
|------------------------------------------|------------------------|
| Conducted disturbance at mains terminals | RJP-EM001              |
| Radiated disturbance                     | RJP-EM003              |
| Conducted power on antenna port          | RJP-TE101              |
| 38dB Rejection test                      | RJP-TE102              |

### Setting for the Measuring instruments

| <b>Frequency [MHz]</b> | <b>Instrument</b> | <b>Detector</b> | <b>Resolution Bandwidth</b> | <b>Video Bandwidth</b> |
|------------------------|-------------------|-----------------|-----------------------------|------------------------|
| 0.15 – 30              | Receiver          | Quasi Peak      | 10 kHz                      | N/A                    |
|                        |                   | Average         | 10 kHz                      | N/A                    |
| 30 – 1000              | Receiver          | Quasi Peak      | 120 kHz                     | N/A                    |
| Above 1000             | Spectrum Analyzer | Peak            | 1 MHz                       | 1 MHz                  |
|                        |                   | Average         | 1 MHz                       | 10 Hz                  |

### < Measurement data correction >

\* Conducted disturbance at mains terminals

Emission Level [dBμV] = Meter Reading [dBμV] + Factor [dB]

Margin [dB] = Limit [dBμV] - Emission Level [dBμV]

\* Factor = LISN Factor + Cable Loss + ATT

\* Radiated disturbance

Emission Level [dBμV/m] = Meter Reading [dBμV] + Factor [dB/m]

Margin [dB] = Limit [dBμV/m] - Emission Level [dBμV/m]

\* Factor = Antenna Factor + Cable Loss - Amplifier Gain + ATT  
( – Distance Conversion Factor)

\* Conducted power on antenna port

Emission Level [dBμV] = Meter Reading [dBμV] + Factor [dB]

Margin [dB] = Limit [dBμV] - Emission Level [dBμV]

\* Factor = Pad + Cable Loss – Amplifier Gain

## 9.1 Conducted disturbance at mains terminals

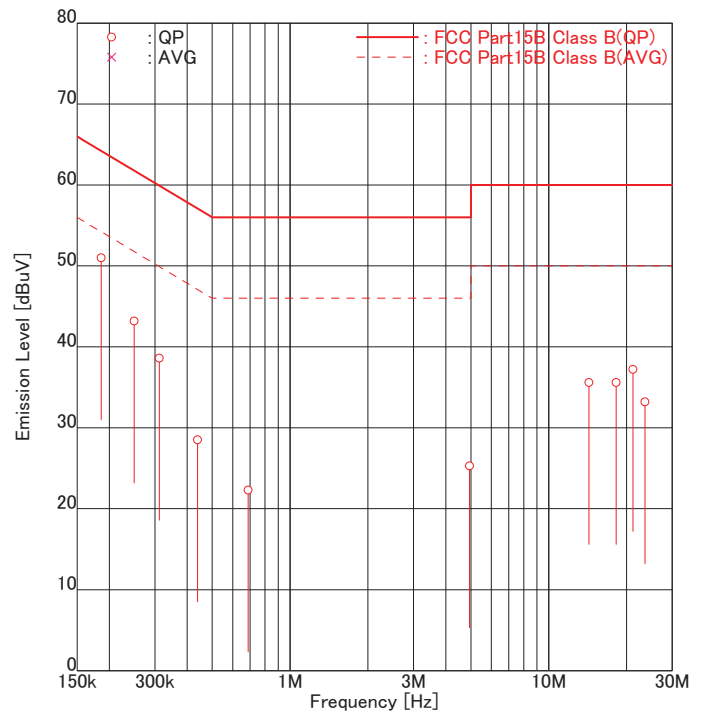
### 9.1.1 RX mode (0.03MHz)

Intertek Japan K.K.

Matsuda No.4 Test Site

Conducted Voltages on Mains Port

APPLICANT : JVC KENWOOD CORPORATION  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (0.03MHz)  
POWER SOURCE : AC 120 V, 60 Hz  
DATE TESTED : Dec 06 2012  
FILE NO. : -  
REGULATION : FCC Part15B Class B  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 22.2 [degC]  
HUMIDITY : 35.0 [%]  
NOTE : MAIN:ANT1,SUB:ANT2



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | MODE<br>[MHz] |    | READING<br>[dBuV] |             | FACTOR<br>[dB] |       | EMISSION<br>[dBuV] |             | LIMIT<br>[dBuV] | MARGIN<br>[dB] |             |
|-------------------|---------------|----|-------------------|-------------|----------------|-------|--------------------|-------------|-----------------|----------------|-------------|
|                   |               |    | Line1             | Line2       | Line1          | Line2 | Line1              | Line2       |                 | Line1          | Line2       |
| 1                 | 0.1858        | QP | <u>40.9</u>       | 40.9        | 10.1           | 10.1  | <u>51.0</u>        | 51.0        | 64.2            | <u>13.2</u>    | 13.2        |
| 2                 | 0.2496        | QP | 32.8              | <u>33.0</u> | 10.2           | 10.2  | 43.0               | <u>43.2</u> | 61.8            | 18.8           | <u>18.6</u> |
| 3                 | 0.3124        | QP | 28.3              | <u>28.4</u> | 10.2           | 10.2  | 38.5               | <u>38.6</u> | 59.9            | 21.4           | <u>21.3</u> |
| 4                 | 0.4386        | QP | 18.3              | 16.7        | 10.2           | 10.2  | 28.5               | 26.9        | 57.1            | 28.6           | 30.2        |
| 5                 | 0.6889        | QP | 11.4              | 12.1        | 10.2           | 10.2  | 21.6               | 22.3        | 56.0            | 34.4           | 33.7        |
| 6                 | 4.9357        | QP | 14.8              | 6.0         | 10.5           | 10.5  | 25.3               | 16.5        | 56.0            | 30.7           | 39.5        |
| 7                 | 14.3041       | QP | <u>24.7</u>       | 15.0        | 10.9           | 11.0  | <u>35.6</u>        | 26.0        | 60.0            | <u>24.4</u>    | 34.0        |
| 8                 | 18.2456       | QP | <u>24.5</u>       | 23.5        | 11.1           | 11.1  | <u>35.6</u>        | 34.6        | 60.0            | <u>24.4</u>    | 25.4        |
| 9                 | 21.1811       | QP | 21.1              | <u>26.1</u> | 11.1           | 11.1  | 32.2               | <u>37.2</u> | 60.0            | 27.8           | <u>22.8</u> |
| 10                | 23.5616       | QP | 22.2              | 20.0        | 11.0           | 11.0  | 33.2               | 31.0        | 60.0            | 26.8           | 29.0        |

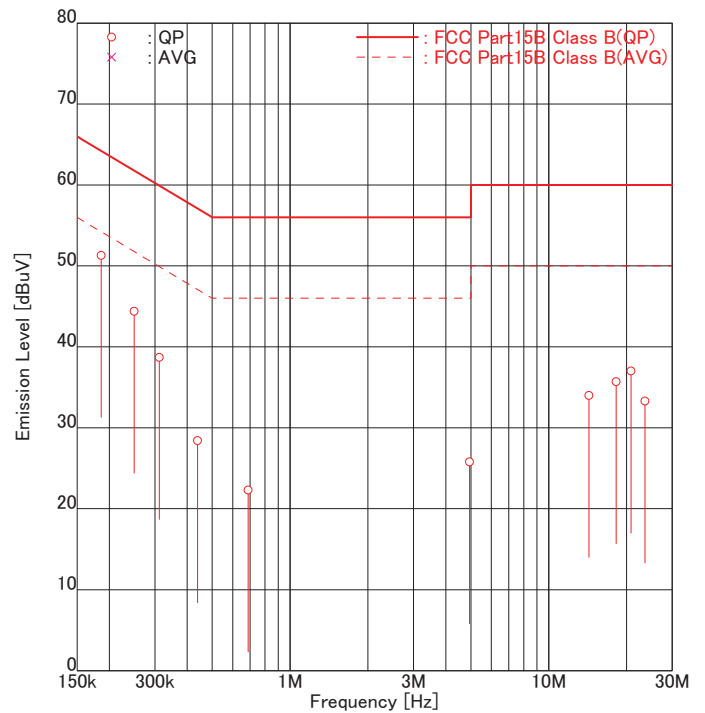
Higher six points are underlined.  
Other frequencies : Below the FCC Part15B Class B limit  
Emission Level = Read + Factor(LISN,Pad,Cable)

9.1.2 RX mode (30.00MHz)

Intertek Japan K.K.  
Matsuda No.4 Test Site

Conducted Voltages on Mains Port

APPLICANT : JVC KENWOOD CORPORATION  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (30.00MHz)  
POWER SOURCE : AC 120 V, 60 Hz  
DATE TESTED : Dec 06 2012  
FILE NO. : -  
REGULATION : FCC Part15B Class B  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 22.2 [degC]  
HUMIDITY : 35.0 [%]  
NOTE : MAIN:ANT1,SUB:ANT2



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | MODE<br>[MHz] |    | READING<br>[dBuV] |             | FACTOR<br>[dB] |       | EMISSION<br>[dBuV] |             | LIMIT<br>[dBuV] | MARGIN<br>[dB] |             |
|-------------------|---------------|----|-------------------|-------------|----------------|-------|--------------------|-------------|-----------------|----------------|-------------|
|                   |               |    | Line1             | Line2       | Line1          | Line2 | Line1              | Line2       |                 | Line1          | Line2       |
| 1                 | 0.1858        | QP | <u>41.2</u>       | 41.1        | 10.1           | 10.1  | <u>51.3</u>        | 51.2        | 64.2            | <u>12.9</u>    | 13.0        |
| 2                 | 0.2496        | QP | 34.0              | <u>34.2</u> | 10.2           | 10.2  | 44.2               | <u>44.4</u> | 61.8            | 17.6           | <u>17.4</u> |
| 3                 | 0.3124        | QP | <u>28.5</u>       | 28.5        | 10.2           | 10.2  | <u>38.7</u>        | 38.7        | 59.9            | <u>21.2</u>    | 21.2        |
| 4                 | 0.4386        | QP | 18.2              | 16.7        | 10.2           | 10.2  | 28.4               | 26.9        | 57.1            | 28.7           | 30.2        |
| 5                 | 0.6889        | QP | 11.6              | 12.1        | 10.2           | 10.2  | 21.8               | 22.3        | 56.0            | 34.2           | 33.7        |
| 6                 | 4.9357        | QP | 15.3              | 6.5         | 10.5           | 10.5  | 25.8               | 17.0        | 56.0            | 30.2           | 39.0        |
| 7                 | 14.3041       | QP | <u>23.1</u>       | 15.6        | 10.9           | 11.0  | <u>34.0</u>        | 26.6        | 60.0            | <u>26.0</u>    | 33.4        |
| 8                 | 18.2456       | QP | <u>24.6</u>       | 23.4        | 11.1           | 11.1  | <u>35.7</u>        | 34.5        | 60.0            | <u>24.3</u>    | 25.5        |
| 9                 | 20.8102       | QP | 23.6              | <u>25.9</u> | 11.1           | 11.1  | 34.7               | <u>37.0</u> | 60.0            | 25.3           | <u>23.0</u> |
| 10                | 23.5616       | QP | 22.3              | 20.3        | 11.0           | 11.0  | 33.3               | 31.3        | 60.0            | 26.7           | 28.7        |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B Class B limit  
Emission Level = Read + Factor(LISN,Pad,Cable)

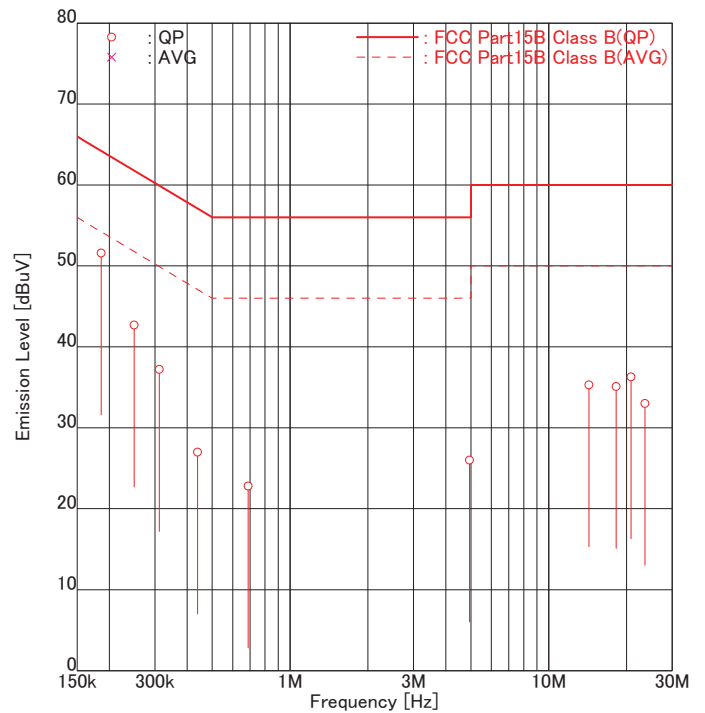


9.1.3 RX mode (59.99MHz)

Intertek Japan K.K.  
Matsuda No.4 Test Site

Conducted Voltages on Mains Port

APPLICANT : JVC KENWOOD CORPORATION  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (59.99MHz)  
POWER SOURCE : AC 120 V, 60 Hz  
DATE TESTED : Dec 06 2012  
FILE NO. : -  
REGULATION : FCC Part15B Class B  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 22.2 [degC]  
HUMIDITY : 35.0 [%]  
NOTE : MAIN:ANT1,SUB:ANT2



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | MODE<br>[MHz] |    | READING<br>[dBuV] |             | FACTOR<br>[dB] |       | EMISSION<br>[dBuV] |             | LIMIT<br>[dBuV] | MARGIN<br>[dB] |             |
|-------------------|---------------|----|-------------------|-------------|----------------|-------|--------------------|-------------|-----------------|----------------|-------------|
|                   |               |    | Line1             | Line2       | Line1          | Line2 | Line1              | Line2       |                 | Line1          | Line2       |
| 1                 | 0.1858        | QP | 41.3              | <u>41.5</u> | 10.1           | 10.1  | 51.4               | <u>51.6</u> | 64.2            | 12.8           | <u>12.6</u> |
| 2                 | 0.2496        | QP | <u>32.5</u>       | 32.4        | 10.2           | 10.2  | <u>42.7</u>        | 42.6        | 61.8            | <u>19.1</u>    | 19.2        |
| 3                 | 0.3124        | QP | <u>27.0</u>       | 27.0        | 10.2           | 10.2  | <u>37.2</u>        | 37.2        | 59.9            | <u>22.7</u>    | 22.7        |
| 4                 | 0.4386        | QP | 16.8              | 12.4        | 10.2           | 10.2  | 27.0               | 22.6        | 57.1            | 30.1           | 34.5        |
| 5                 | 0.6889        | QP | 12.0              | 12.6        | 10.2           | 10.2  | 22.2               | 22.8        | 56.0            | 33.8           | 33.2        |
| 6                 | 4.9357        | QP | 15.5              | 6.3         | 10.5           | 10.5  | 26.0               | 16.8        | 56.0            | 30.0           | 39.2        |
| 7                 | 14.3041       | QP | <u>24.4</u>       | 15.5        | 10.9           | 11.0  | <u>35.3</u>        | 26.5        | 60.0            | <u>24.7</u>    | 33.5        |
| 8                 | 18.2456       | QP | <u>24.0</u>       | 23.3        | 11.1           | 11.1  | <u>35.1</u>        | 34.4        | 60.0            | <u>24.9</u>    | 25.6        |
| 9                 | 20.8102       | QP | 23.3              | <u>25.2</u> | 11.1           | 11.1  | 34.4               | <u>36.3</u> | 60.0            | 25.6           | <u>23.7</u> |
| 10                | 23.5616       | QP | 22.0              | <u>20.2</u> | 11.0           | 11.0  | 33.0               | 31.2        | 60.0            | 27.0           | 28.8        |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B Class B limit  
Emission Level = Read + Factor(LISN,Pad,Cable)

## 9.2 Radiated disturbance

### 9.2.1 RX mode (0.03MHz)

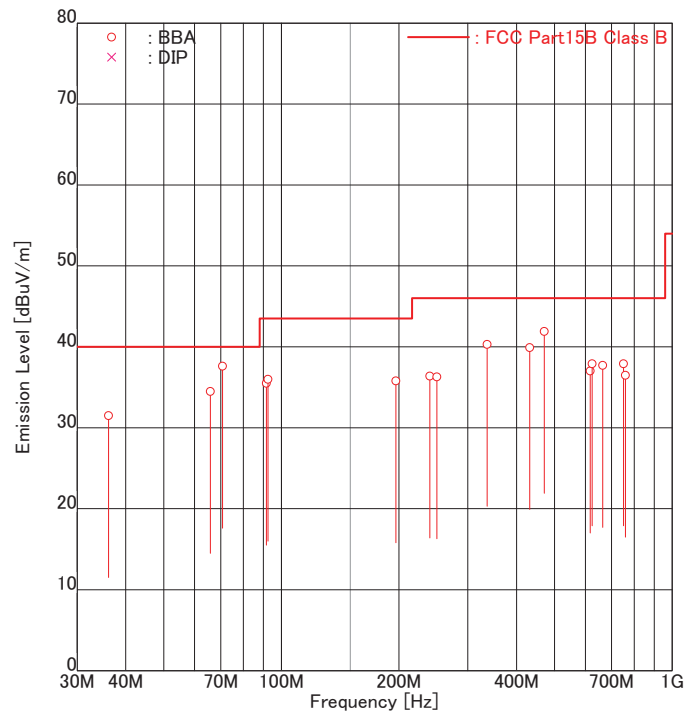
30 – 1000 MHz

## Intertek Japan K.K.

### Matsuda No.4 Test Site

#### Radiated Electric Field

APPLICANT : JVC KENWOOD CORPORATION  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (0.03MHz)  
POWER SOURCE : AC 120 V, 60 Hz  
DATE TESTED : Dec 04 2012  
FILE NO. : -  
REGULATION : FCC Part15B Class B  
TEST METHOD : ANSI C63.4-2003  
DISTANCE : 3.00 [m]  
TEMPERATURE : 20.5 [degC]  
HUMIDITY : 35.5 [%]  
NOTE : MAIN:ANT1,SUB:ANT2



ENGINEER : Koichi Wagatsuma

| [No] | FREQUENCY<br>[MHz] | ANT. | READING<br>[dBuV] |             | FACTOR<br>[dB/m] |       | EMISSION<br>[dBuV/m] |             | LIMIT<br>[dBuV/m] | MARGIN<br>[dB] |            |
|------|--------------------|------|-------------------|-------------|------------------|-------|----------------------|-------------|-------------------|----------------|------------|
|      |                    |      | Hori              | Vert        | Hori             | Vert  | Hori                 | Vert        |                   | Hori           | Vert       |
| 1    | 36.14              | BBA  | -                 | 38.9        | -7.4             | -7.4  | -                    | 31.5        | 40.0              | -              | 8.5        |
| 2    | 65.85              | BBA  | -                 | <u>42.1</u> | -7.6             | -7.6  | -                    | <u>34.5</u> | 40.0              | -              | <u>5.5</u> |
| 3    | 70.70              | BBA  | <u>45.9</u>       | 42.9        | -8.3             | -8.3  | <u>37.6</u>          | 34.6        | 40.0              | <u>2.4</u>     | 5.4        |
| 4    | 91.56              | BBA  | 47.1              | -           | -11.6            | -11.6 | 35.5                 | -           | 43.5              | 8.0            | -          |
| 5    | 92.40              | BBA  | -                 | <u>47.4</u> | -11.4            | -11.4 | -                    | <u>36.0</u> | 43.5              | -              | <u>7.5</u> |
| 6    | 196.38             | BBA  | 44.0              | 43.2        | -8.2             | -8.2  | 35.8                 | 35.0        | 43.5              | 7.7            | 8.5        |
| 7    | 240.05             | BBA  | 43.2              | -           | -6.8             | -6.8  | 36.4                 | -           | 46.0              | 9.6            | -          |
| 8    | 250.01             | BBA  | 42.7              | 41.1        | -6.4             | -6.4  | 36.3                 | 34.7        | 46.0              | 9.7            | 11.3       |
| 9    | 336.03             | BBA  | <u>43.6</u>       | -           | -3.3             | -3.3  | <u>40.3</u>          | -           | 46.0              | <u>5.7</u>     | -          |
| 10   | 432.09             | BBA  | <u>40.6</u>       | -           | -0.7             | -0.7  | <u>39.9</u>          | -           | 46.0              | <u>6.1</u>     | -          |
| 11   | 471.26             | BBA  | <u>41.4</u>       | 36.7        | 0.5              | 0.5   | <u>41.9</u>          | 37.2        | 46.0              | <u>4.1</u>     | 8.8        |
| 12   | 616.97             | BBA  | -                 | 32.6        | 4.4              | 4.4   | -                    | 37.0        | 46.0              | -              | 9.0        |
| 13   | 624.10             | BBA  | 32.2              | 33.4        | 4.5              | 4.5   | 36.7                 | 37.9        | 46.0              | 9.3            | 8.1        |
| 14   | 664.46             | BBA  | 32.6              | -           | 5.1              | 5.1   | 37.7                 | -           | 46.0              | 8.3            | -          |
| 15   | 750.95             | BBA  | -                 | 31.0        | 6.9              | 6.9   | -                    | 37.9        | 46.0              | -              | 8.1        |
| 16   | 759.36             | BBA  | -                 | 29.4        | 7.1              | 7.1   | -                    | 36.5        | 46.0              | -              | 9.5        |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B Class B limit  
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)  
ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

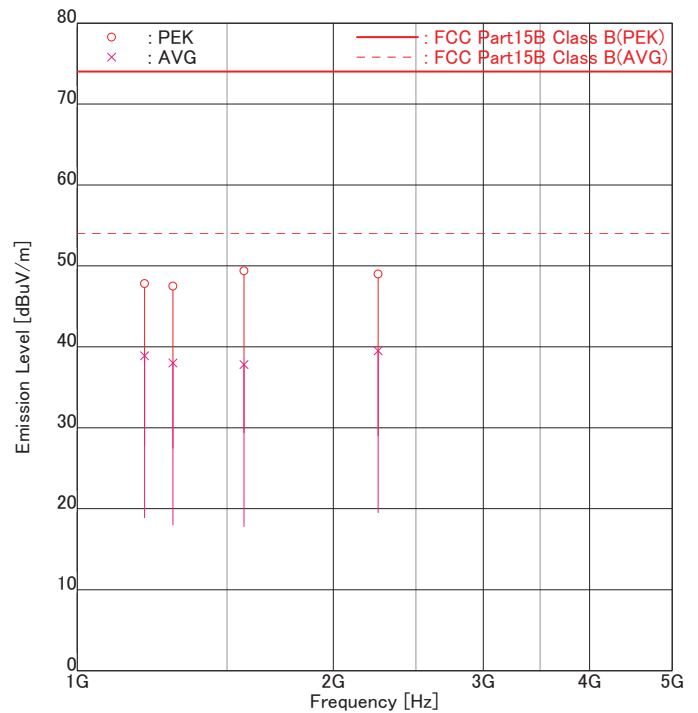
1000 – 5000 MHz

## Intertek Japan K.K.

### Matsuda No.4 Test Site

#### Radiated Electric Field

APPLICANT : JVC KENWOOD CORPORATION  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (0.03MHz)  
POWER SOURCE : AC 120 V, 60 Hz  
DATE TESTED : Dec 05 2012  
FILE NO. : -  
REGULATION : FCC Part15B Class B  
TEST METHOD : ANSI C63.4-2003  
DISTANCE : 3.00 [m]  
TEMPERATURE : 20.5 [degC]  
HUMIDITY : 35.5 [%]  
NOTE : MAIN:ANT1,SUB:ANT2



ENGINEER : Koichi Wagatsuma

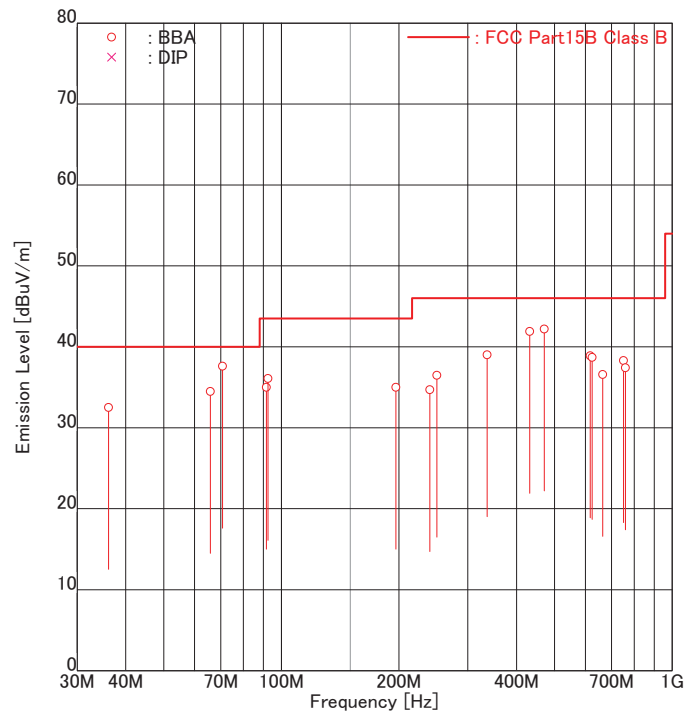
| FREQUENCY<br>[No] | MODE<br>[MHz] |     | READING<br>[dBuV] |             | FACTOR<br>[dB] |      | EMISSION<br>[dBuV/m] |             | LIMIT<br>[dBuV/m] | MARGIN<br>[dB] |             |
|-------------------|---------------|-----|-------------------|-------------|----------------|------|----------------------|-------------|-------------------|----------------|-------------|
|                   |               |     | Hori              | Vert        | Hori           | Vert | Hori                 | Vert        |                   | Hori           | Vert        |
| 1                 | 1200.23       | PEK | 50.4              | 53.3        | -5.5           | -5.5 | 44.9                 | 47.8        | 74.0              | 29.1           | 26.2        |
| 2                 | 1200.23       | AVG | 39.2              | <u>44.4</u> | -5.5           | -5.5 | 33.7                 | <u>38.9</u> | 54.0              | 20.3           | <u>15.1</u> |
| 3                 | 1296.20       | PEK | -                 | 52.5        | -5.0           | -5.0 | -                    | 47.5        | 74.0              | -              | 26.5        |
| 4                 | 1296.20       | AVG | -                 | <u>43.0</u> | -5.0           | -5.0 | -                    | <u>38.0</u> | 54.0              | -              | <u>16.0</u> |
| 5                 | 1571.08       | PEK | <u>52.9</u>       | 50.5        | -3.5           | -3.5 | <u>49.4</u>          | 47.0        | 74.0              | <u>24.6</u>    | 27.0        |
| 6                 | 1571.08       | AVG | 40.7              | <u>41.3</u> | -3.5           | -3.5 | 37.2                 | <u>37.8</u> | 54.0              | 16.8           | <u>16.2</u> |
| 7                 | 2256.75       | PEK | 48.4              | <u>48.5</u> | 0.5            | 0.5  | 48.9                 | <u>49.0</u> | 74.0              | 25.1           | <u>25.0</u> |
| 8                 | 2256.75       | AVG | 37.4              | <u>39.0</u> | 0.5            | 0.5  | 37.9                 | <u>39.5</u> | 54.0              | 16.1           | <u>14.5</u> |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B Class B limit  
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)  
ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

9.2.2 RX mode (30.00MHz)  
30 – 1000 MHz

Intertek Japan K.K.  
Matsuda No.4 Test Site  
Radiated Electric Field

APPLICANT : JVC KENWOOD CORPORATION  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (30.00MHz)  
POWER SOURCE : AC 120 V, 60 Hz  
DATE TESTED : Dec 04 2012  
FILE NO. : -  
REGULATION : FCC Part15B Class B  
TEST METHOD : ANSI C63.4-2003  
DISTANCE : 3.00 [m]  
TEMPERATURE : 20.5 [degC]  
HUMIDITY : 35.5 [%]  
NOTE : MAIN:ANT1,SUB:ANT2



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQ<br>[MHz] | ANT. | READING<br>[dBuV] |             | FACTOR<br>[dB/m] |       | EMISSION<br>[dBuV/m] |             | LIMIT<br>[dBuV/m] | MARGIN<br>[dB] |            |
|-------------------|---------------|------|-------------------|-------------|------------------|-------|----------------------|-------------|-------------------|----------------|------------|
|                   |               |      | Hori              | Vert        | Hori             | Vert  | Hori                 | Vert        |                   | Hori           | Vert       |
| 1                 | 36.14         | BBA  | -                 | 39.9        | -7.4             | -7.4  | -                    | 32.5        | 40.0              | -              | 7.5        |
| 2                 | 65.85         | BBA  | -                 | <u>42.1</u> | -7.6             | -7.6  | -                    | <u>34.5</u> | 40.0              | -              | <u>5.5</u> |
| 3                 | 70.70         | BBA  | <u>45.9</u>       | 42.9        | -8.3             | -8.3  | <u>37.6</u>          | 34.6        | 40.0              | <u>2.4</u>     | 5.4        |
| 4                 | 91.56         | BBA  | 46.6              | -           | -11.6            | -11.6 | 35.0                 | -           | 43.5              | 8.5            | -          |
| 5                 | 92.40         | BBA  | -                 | 47.5        | -11.4            | -11.4 | -                    | 36.1        | 43.5              | -              | 7.4        |
| 6                 | 196.38        | BBA  | 43.2              | 43.2        | -8.2             | -8.2  | 35.0                 | 35.0        | 43.5              | 8.5            | 8.5        |
| 7                 | 240.05        | BBA  | 41.5              | -           | -6.8             | -6.8  | 34.7                 | -           | 46.0              | 11.3           | -          |
| 8                 | 250.01        | BBA  | 42.9              | -           | -6.4             | -6.4  | 36.5                 | -           | 46.0              | 9.5            | -          |
| 9                 | 336.07        | BBA  | <u>42.3</u>       | -           | -3.3             | -3.3  | <u>39.0</u>          | -           | 46.0              | <u>7.0</u>     | -          |
| 10                | 432.09        | BBA  | <u>42.6</u>       | -           | -0.7             | -0.7  | <u>41.9</u>          | -           | 46.0              | <u>4.1</u>     | -          |
| 11                | 471.26        | BBA  | <u>41.7</u>       | 37.9        | 0.5              | 0.5   | <u>42.2</u>          | 38.4        | 46.0              | <u>3.8</u>     | 7.6        |
| 12                | 617.02        | BBA  | -                 | <u>34.5</u> | 4.4              | 4.4   | -                    | <u>38.9</u> | 46.0              | -              | <u>7.1</u> |
| 13                | 624.10        | BBA  | 32.2              | 34.2        | 4.5              | 4.5   | 36.7                 | 38.7        | 46.0              | 9.3            | 7.3        |
| 14                | 664.48        | BBA  | 31.5              | -           | 5.1              | 5.1   | 36.6                 | -           | 46.0              | 9.4            | -          |
| 15                | 750.91        | BBA  | -                 | 31.4        | 6.9              | 6.9   | -                    | 38.3        | 46.0              | -              | 7.7        |
| 16                | 759.40        | BBA  | -                 | 30.3        | 7.1              | 7.1   | -                    | 37.4        | 46.0              | -              | 8.6        |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B Class B limit  
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)  
ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

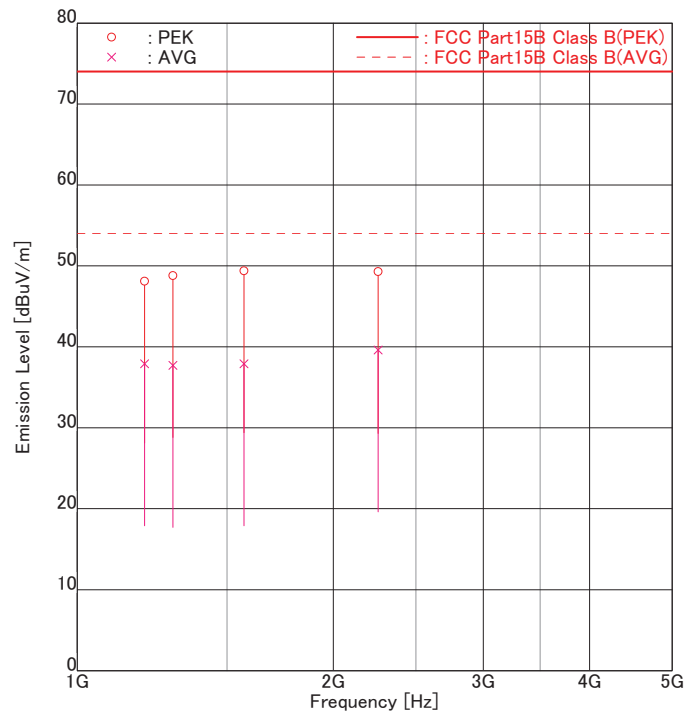
1000 – 5000 MHz

## Intertek Japan K.K.

### Matsuda No.4 Test Site

#### Radiated Electric Field

APPLICANT : JVC KENWOOD CORPORATION  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (30.00MHz)  
POWER SOURCE : AC 120 V, 60 Hz  
DATE TESTED : Dec 05 2012  
FILE NO. : -  
REGULATION : FCC Part15B Class B  
TEST METHOD : ANSI C63.4-2003  
DISTANCE : 3.00 [m]  
TEMPERATURE : 20.5 [degC]  
HUMIDITY : 35.5 [%]  
NOTE : MAIN:ANT1,SUB:ANT2



ENGINEER : Koichi Wagatsuma

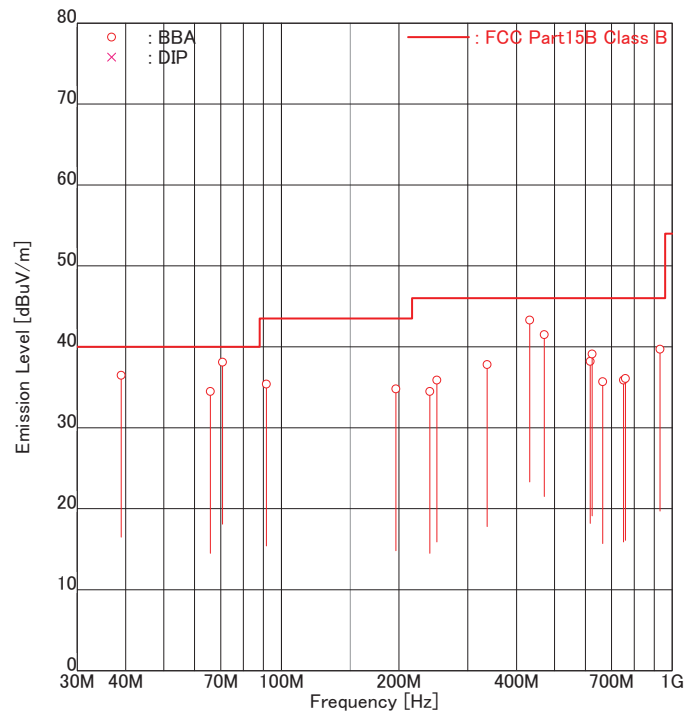
| FREQUENCY<br>[No] | MODE<br>[MHz] |     | READING<br>[dBuV] |             | FACTOR<br>[dB] |      | EMISSION<br>[dBuV/m] |             | LIMIT<br>[dBuV/m] | MARGIN<br>[dB] |             |
|-------------------|---------------|-----|-------------------|-------------|----------------|------|----------------------|-------------|-------------------|----------------|-------------|
|                   |               |     | Hori              | Vert        | Hori           | Vert | Hori                 | Vert        |                   | Hori           | Vert        |
| 1                 | 1200.23       | PEK | 49.9              | 53.6        | -5.5           | -5.5 | 44.4                 | 48.1        | 74.0              | 29.6           | 25.9        |
| 2                 | 1200.23       | AVG | 38.8              | <u>43.4</u> | -5.5           | -5.5 | 33.3                 | <u>37.9</u> | 54.0              | 20.7           | <u>16.1</u> |
| 3                 | 1296.20       | PEK | -                 | 53.8        | -5.0           | -5.0 | -                    | 48.8        | 74.0              | -              | 25.2        |
| 4                 | 1296.20       | AVG | -                 | <u>42.7</u> | -5.0           | -5.0 | -                    | <u>37.7</u> | 54.0              | -              | <u>16.3</u> |
| 5                 | 1571.08       | PEK | <u>52.9</u>       | 51.1        | -3.5           | -3.5 | <u>49.4</u>          | 47.6        | 74.0              | <u>24.6</u>    | 26.4        |
| 6                 | 1571.08       | AVG | <u>41.4</u>       | 41.0        | -3.5           | -3.5 | <u>37.9</u>          | 37.5        | 54.0              | <u>16.1</u>    | 16.5        |
| 7                 | 2256.75       | PEK | 48.3              | <u>48.8</u> | 0.5            | 0.5  | 48.8                 | <u>49.3</u> | 74.0              | 25.2           | <u>24.7</u> |
| 8                 | 2256.75       | AVG | 37.4              | <u>39.1</u> | 0.5            | 0.5  | 37.9                 | <u>39.6</u> | 54.0              | 16.1           | <u>14.4</u> |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B Class B limit  
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)  
ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

9.2.3 RX mode (59.99MHz)  
30 – 1000 MHz

Intertek Japan K.K.  
Matsuda No.4 Test Site  
Radiated Electric Field

APPLICANT : JVC KENWOOD CORPORATION  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (59.99MHz)  
POWER SOURCE : AC 120 V, 60 Hz  
DATE TESTED : Dec 04 2012  
FILE NO. : -  
REGULATION : FCC Part15B Class B  
TEST METHOD : ANSI C63.4-2003  
DISTANCE : 3.00 [m]  
TEMPERATURE : 20.5 [degC]  
HUMIDITY : 35.5 [%]  
NOTE : MAIN:ANT1,SUB:ANT2



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQ<br>[MHz] | ANT. | READING<br>[dBuV] |             | FACTOR<br>[dB/m] |       | EMISSION<br>[dBuV/m] |             | LIMIT<br>[dBuV/m] | MARGIN<br>[dB] |            |
|-------------------|---------------|------|-------------------|-------------|------------------|-------|----------------------|-------------|-------------------|----------------|------------|
|                   |               |      | Hori              | Vert        | Hori             | Vert  | Hori                 | Vert        |                   | Hori           | Vert       |
| 1                 | 38.93         | BBA  | -                 | <u>43.5</u> | -7.0             | -7.0  | -                    | <u>36.5</u> | 40.0              | -              | <u>3.5</u> |
| 2                 | 65.85         | BBA  | -                 | <u>42.1</u> | -7.6             | -7.6  | -                    | <u>34.5</u> | 40.0              | -              | <u>5.5</u> |
| 3                 | 70.70         | BBA  | <u>46.4</u>       | 42.9        | -8.3             | -8.3  | <u>38.1</u>          | 34.6        | 40.0              | <u>1.9</u>     | 5.4        |
| 4                 | 91.56         | BBA  | 47.0              | -           | -11.6            | -11.6 | 35.4                 | -           | 43.5              | 8.1            | -          |
| 5                 | 196.38        | BBA  | 41.0              | 43.0        | -8.2             | -8.2  | 32.8                 | 34.8        | 43.5              | 10.7           | 8.7        |
| 6                 | 240.05        | BBA  | 41.3              | -           | -6.8             | -6.8  | 34.5                 | -           | 46.0              | 11.5           | -          |
| 7                 | 250.01        | BBA  | 42.3              | -           | -6.4             | -6.4  | 35.9                 | -           | 46.0              | 10.1           | -          |
| 8                 | 336.07        | BBA  | 41.1              | -           | -3.3             | -3.3  | 37.8                 | -           | 46.0              | 8.2            | -          |
| 9                 | 432.09        | BBA  | <u>44.0</u>       | -           | -0.7             | -0.7  | <u>43.3</u>          | -           | 46.0              | <u>2.7</u>     | -          |
| 10                | 471.26        | BBA  | <u>41.0</u>       | 37.0        | 0.5              | 0.5   | <u>41.5</u>          | 37.5        | 46.0              | <u>4.5</u>     | 8.5        |
| 11                | 617.02        | BBA  | -                 | 33.8        | 4.4              | 4.4   | -                    | 38.2        | 46.0              | -              | 7.8        |
| 12                | 624.13        | BBA  | 33.4              | 34.6        | 4.5              | 4.5   | 37.9                 | 39.1        | 46.0              | 8.1            | 6.9        |
| 13                | 664.48        | BBA  | 30.6              | -           | 5.1              | 5.1   | 35.7                 | -           | 46.0              | 10.3           | -          |
| 14                | 750.96        | BBA  | -                 | 29.0        | 6.9              | 6.9   | -                    | 35.9        | 46.0              | -              | 10.1       |
| 15                | 759.43        | BBA  | -                 | 29.0        | 7.1              | 7.1   | -                    | 36.1        | 46.0              | -              | 9.9        |
| 16                | 931.54        | BBA  | -                 | <u>30.0</u> | 9.7              | 9.7   | -                    | <u>39.7</u> | 46.0              | -              | <u>6.3</u> |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B Class B limit  
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)  
ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

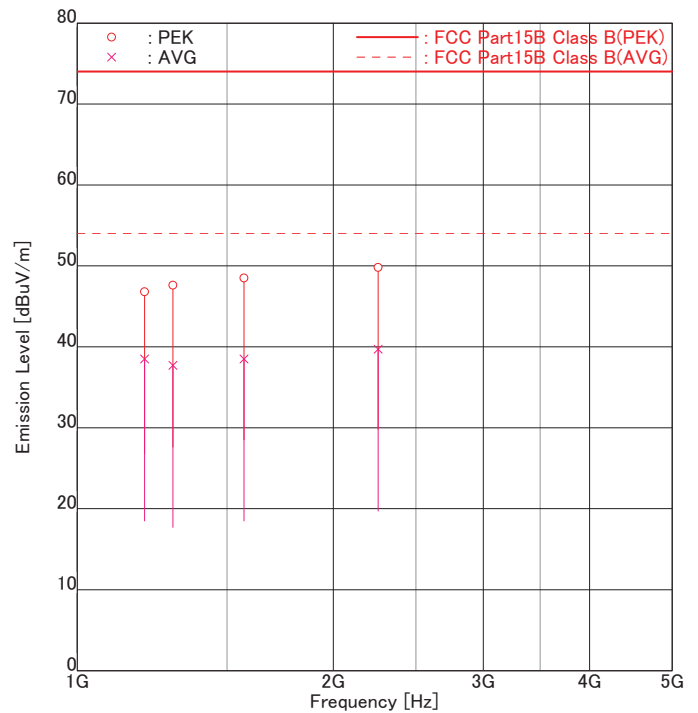
1000 – 5000 MHz

## Intertek Japan K.K.

### Matsuda No.4 Test Site

#### Radiated Electric Field

APPLICANT : JVC KENWOOD CORPORATION  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (59.99MHz)  
POWER SOURCE : AC 120 V, 60 Hz  
DATE TESTED : Dec 05 2012  
FILE NO. : -  
REGULATION : FCC Part15B Class B  
TEST METHOD : ANSI C63.4-2003  
DISTANCE : 3.00 [m]  
TEMPERATURE : 20.5 [degC]  
HUMIDITY : 35.5 [%]  
NOTE : MAIN:ANT1,SUB:ANT2



ENGINEER : Koichi Wagatsuma

| FREQUENCY MODE |         |     | READING     |             | FACTOR |      | EMISSION    |             | LIMIT    | MARGIN      |             |
|----------------|---------|-----|-------------|-------------|--------|------|-------------|-------------|----------|-------------|-------------|
| [No]           | [MHz]   |     | [dBuV]      |             | [dB]   |      | [dBuV/m]    |             | [dBuV/m] | [dB]        |             |
|                |         |     | Hori        | Vert        | Hori   | Vert | Hori        | Vert        |          | Hori        | Vert        |
| 1              | 1200.23 | PEK | 50.4        | 52.3        | -5.5   | -5.5 | 44.9        | 46.8        | 74.0     | 29.1        | 27.2        |
| 2              | 1200.23 | AVG | 38.6        | <u>44.0</u> | -5.5   | -5.5 | 33.1        | <u>38.5</u> | 54.0     | 20.9        | <u>15.5</u> |
| 3              | 1296.20 | PEK | -           | 52.6        | -5.0   | -5.0 | -           | 47.6        | 74.0     | -           | 26.4        |
| 4              | 1296.20 | AVG | -           | <u>42.7</u> | -5.0   | -5.0 | -           | <u>37.7</u> | 54.0     | -           | <u>16.3</u> |
| 5              | 1571.08 | PEK | <u>52.0</u> | 50.8        | -3.5   | -3.5 | <u>48.5</u> | 47.3        | 74.0     | <u>25.5</u> | 26.7        |
| 6              | 1571.08 | AVG | 40.3        | <u>42.0</u> | -3.5   | -3.5 | 36.8        | <u>38.5</u> | 54.0     | 17.2        | <u>15.5</u> |
| 7              | 2256.75 | PEK | <u>49.3</u> | 49.0        | 0.5    | 0.5  | <u>49.8</u> | 49.5        | 74.0     | <u>24.2</u> | 24.5        |
| 8              | 2256.75 | AVG | <u>39.2</u> | 38.8        | 0.5    | 0.5  | <u>39.7</u> | 39.3        | 54.0     | <u>14.3</u> | 14.7        |

Higher six points are underlined.

Other frequencies : Below the FCC Part15B Class B limit

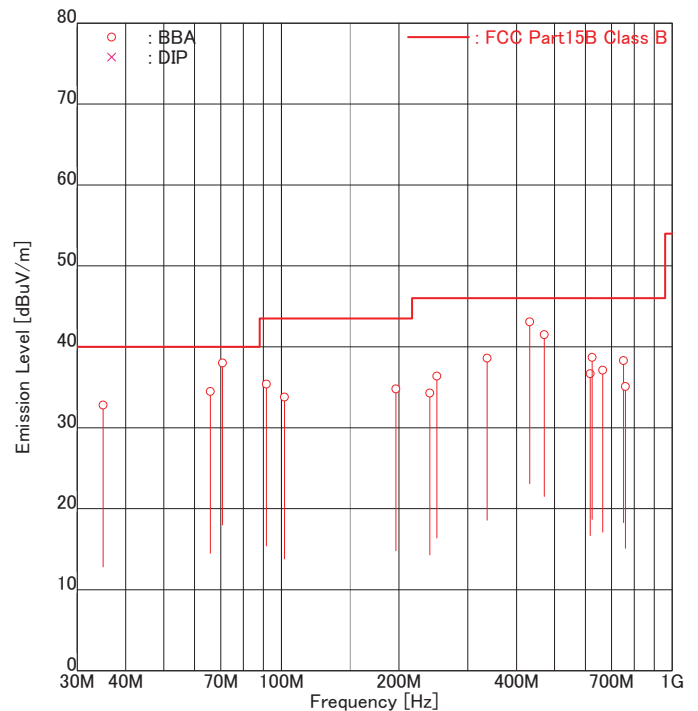
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)

ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

9.2.4 RX mode (VFO SCAN (MAIN))  
30 – 1000 MHz

Intertek Japan K.K.  
Matsuda No.4 Test Site  
Radiated Electric Field

APPLICANT : JVC KENWOOD CORPORATION  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (VFO SCAN (MAIN))  
POWER SOURCE : AC 120 V, 60 Hz  
DATE TESTED : Dec 04 2012  
FILE NO. : -  
REGULATION : FCC Part15B Class B  
TEST METHOD : ANSI C63.4-2003  
DISTANCE : 3.00 [m]  
TEMPERATURE : 20.5 [degC]  
HUMIDITY : 35.5 [%]  
NOTE : MAIN:ANT1



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQ<br>[MHz] | ANT. | READING<br>[dBuV] |             | FACTOR<br>[dB/m] |       | EMISSION<br>[dBuV/m] |             | LIMIT<br>[dBuV/m] | MARGIN<br>[dB] |            |
|-------------------|---------------|------|-------------------|-------------|------------------|-------|----------------------|-------------|-------------------|----------------|------------|
|                   |               |      | Hori              | Vert        | Hori             | Vert  | Hori                 | Vert        |                   | Hori           | Vert       |
| 1                 | 35.00         | BBA  | -                 | <u>40.4</u> | -7.6             | -7.6  | -                    | <u>32.8</u> | 40.0              | -              | <u>7.2</u> |
| 2                 | 65.85         | BBA  | -                 | <u>42.1</u> | -7.6             | -7.6  | -                    | <u>34.5</u> | 40.0              | -              | <u>5.5</u> |
| 3                 | 70.70         | BBA  | <u>46.3</u>       | 42.9        | -8.3             | -8.3  | <u>38.0</u>          | 34.6        | 40.0              | <u>2.0</u>     | 5.4        |
| 4                 | 91.56         | BBA  | 47.0              | -           | -11.6            | -11.6 | 35.4                 | -           | 43.5              | 8.1            | -          |
| 5                 | 101.88        | BBA  | -                 | 44.0        | -10.2            | -10.2 | -                    | 33.8        | 43.5              | -              | 9.7        |
| 6                 | 196.38        | BBA  | 41.2              | 43.0        | -8.2             | -8.2  | 33.0                 | 34.8        | 43.5              | 10.5           | 8.7        |
| 7                 | 240.05        | BBA  | 41.1              | -           | -6.8             | -6.8  | 34.3                 | -           | 46.0              | 11.7           | -          |
| 8                 | 250.01        | BBA  | 42.8              | -           | -6.4             | -6.4  | 36.4                 | -           | 46.0              | 9.6            | -          |
| 9                 | 336.07        | BBA  | 41.9              | -           | -3.3             | -3.3  | 38.6                 | -           | 46.0              | 7.4            | -          |
| 10                | 432.09        | BBA  | <u>43.8</u>       | -           | -0.7             | -0.7  | <u>43.1</u>          | -           | 46.0              | <u>2.9</u>     | -          |
| 11                | 471.26        | BBA  | <u>41.0</u>       | 36.4        | 0.5              | 0.5   | <u>41.5</u>          | 36.9        | 46.0              | <u>4.5</u>     | 9.1        |
| 12                | 617.02        | BBA  | -                 | 32.3        | 4.4              | 4.4   | -                    | 36.7        | 46.0              | -              | 9.3        |
| 13                | 624.13        | BBA  | <u>34.2</u>       | 33.9        | 4.5              | 4.5   | <u>38.7</u>          | 38.4        | 46.0              | <u>7.3</u>     | 7.6        |
| 14                | 664.48        | BBA  | 32.0              | -           | 5.1              | 5.1   | 37.1                 | -           | 46.0              | 8.9            | -          |
| 15                | 750.96        | BBA  | -                 | 31.4        | 6.9              | 6.9   | -                    | 38.3        | 46.0              | -              | 7.7        |
| 16                | 759.43        | BBA  | -                 | 28.0        | 7.1              | 7.1   | -                    | 35.1        | 46.0              | -              | 10.9       |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B Class B limit  
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)  
ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)



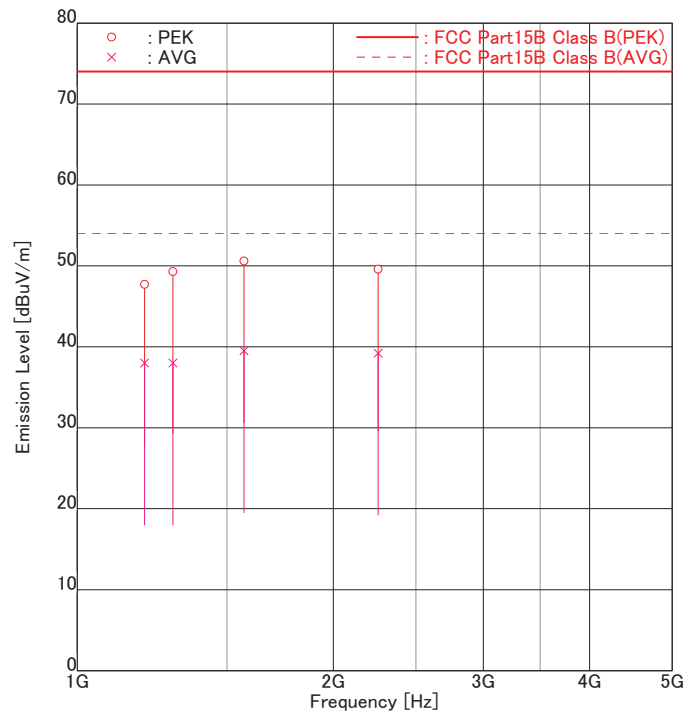
1000 – 5000 MHz

## Intertek Japan K.K.

### Matsuda No.4 Test Site

#### Radiated Electric Field

APPLICANT : JVC KENWOOD CORPORATION  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (VFO SCAN (MAIN))  
POWER SOURCE : AC 120 V, 60 Hz  
DATE TESTED : Dec 05 2012  
FILE NO. : -  
REGULATION : FCC Part15B Class B  
TEST METHOD : ANSI C63.4-2003  
DISTANCE : 3.00 [m]  
TEMPERATURE : 20.5 [degC]  
HUMIDITY : 35.5 [%]  
NOTE : MAIN:ANT1



ENGINEER : Koichi Wagatsuma

| FREQUENCY MODE |         |     | READING     |             | FACTOR |      | EMISSION    |             | LIMIT    | MARGIN      |             |
|----------------|---------|-----|-------------|-------------|--------|------|-------------|-------------|----------|-------------|-------------|
| [No]           | [MHz]   |     | [dBuV]      |             | [dB]   |      | [dBuV/m]    |             | [dBuV/m] | [dB]        |             |
|                |         |     | Hori        | Vert        | Hori   | Vert | Hori        | Vert        |          | Hori        | Vert        |
| 1              | 1200.23 | PEK | 50.5        | 53.2        | -5.5   | -5.5 | 45.0        | 47.7        | 74.0     | 29.0        | 26.3        |
| 2              | 1200.23 | AVG | 40.0        | <u>43.5</u> | -5.5   | -5.5 | 34.5        | <u>38.0</u> | 54.0     | 19.5        | <u>16.0</u> |
| 3              | 1296.20 | PEK | -           | 54.3        | -5.0   | -5.0 | -           | 49.3        | 74.0     | -           | 24.7        |
| 4              | 1296.20 | AVG | -           | <u>43.0</u> | -5.0   | -5.0 | -           | <u>38.0</u> | 54.0     | -           | <u>16.0</u> |
| 5              | 1571.08 | PEK | <u>54.1</u> | 51.3        | -3.5   | -3.5 | <u>50.6</u> | 47.8        | 74.0     | <u>23.4</u> | 26.2        |
| 6              | 1571.08 | AVG | <u>43.0</u> | 42.6        | -3.5   | -3.5 | <u>39.5</u> | 39.1        | 54.0     | <u>14.5</u> | 14.9        |
| 7              | 2256.75 | PEK | 48.2        | <u>49.1</u> | 0.5    | 0.5  | 48.7        | <u>49.6</u> | 74.0     | 25.3        | <u>24.4</u> |
| 8              | 2256.75 | AVG | 37.0        | <u>38.7</u> | 0.5    | 0.5  | 37.5        | <u>39.2</u> | 54.0     | 16.5        | <u>14.8</u> |

Higher six points are underlined.

Other frequencies : Below the FCC Part15B Class B limit

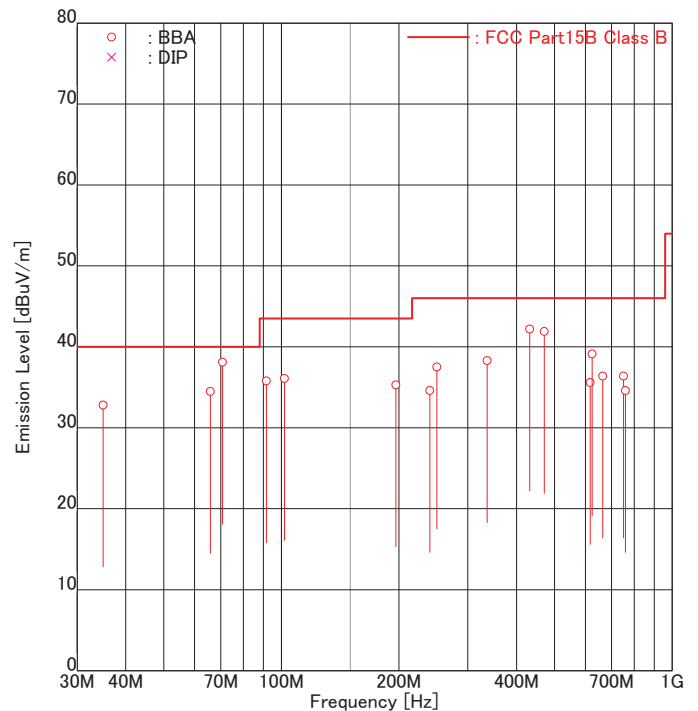
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)

ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

9.2.5 RX mode (VFO SCAN (SUB))  
30 – 1000 MHz

Intertek Japan K.K.  
Matsuda No.4 Test Site  
Radiated Electric Field

APPLICANT : JVC KENWOOD CORPORATION  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (VFO SCAN (SUB))  
POWER SOURCE : AC 120 V, 60 Hz  
DATE TESTED : Dec 05 2012  
FILE NO. : -  
REGULATION : FCC Part15B Class B  
TEST METHOD : ANSI C63.4-2003  
DISTANCE : 3.00 [m]  
TEMPERATURE : 19.5 [degC]  
HUMIDITY : 34.5 [%]  
NOTE : SUB:ANT2



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQ<br>[MHz] | ANT. | READING<br>[dBuV] |             | FACTOR<br>[dB/m] |       | EMISSION<br>[dBuV/m] |             | LIMIT<br>[dBuV/m] | MARGIN<br>[dB] |            |
|-------------------|---------------|------|-------------------|-------------|------------------|-------|----------------------|-------------|-------------------|----------------|------------|
|                   |               |      | Hori              | Vert        | Hori             | Vert  | Hori                 | Vert        |                   | Hori           | Vert       |
| 1                 | 35.00         | BBA  | -                 | <u>40.4</u> | -7.6             | -7.6  | -                    | <u>32.8</u> | 40.0              | -              | <u>7.2</u> |
| 2                 | 65.85         | BBA  | -                 | <u>42.1</u> | -7.6             | -7.6  | -                    | <u>34.5</u> | 40.0              | -              | <u>5.5</u> |
| 3                 | 70.70         | BBA  | <u>46.4</u>       | 42.9        | -8.3             | -8.3  | <u>38.1</u>          | 34.6        | 40.0              | <u>1.9</u>     | 5.4        |
| 4                 | 91.56         | BBA  | 47.4              | -           | -11.6            | -11.6 | 35.8                 | -           | 43.5              | 7.7            | -          |
| 5                 | 101.88        | BBA  | -                 | 46.3        | -10.2            | -10.2 | -                    | 36.1        | 43.5              | -              | 7.4        |
| 6                 | 196.38        | BBA  | 41.4              | 43.5        | -8.2             | -8.2  | 33.2                 | 35.3        | 43.5              | 10.3           | 8.2        |
| 7                 | 240.05        | BBA  | 41.4              | -           | -6.8             | -6.8  | 34.6                 | -           | 46.0              | 11.4           | -          |
| 8                 | 250.01        | BBA  | 43.9              | -           | -6.4             | -6.4  | 37.5                 | -           | 46.0              | 8.5            | -          |
| 9                 | 336.07        | BBA  | 41.6              | -           | -3.3             | -3.3  | 38.3                 | -           | 46.0              | 7.7            | -          |
| 10                | 432.09        | BBA  | <u>42.9</u>       | -           | -0.7             | -0.7  | <u>42.2</u>          | -           | 46.0              | <u>3.8</u>     | -          |
| 11                | 471.26        | BBA  | <u>41.4</u>       | 38.0        | 0.5              | 0.5   | <u>41.9</u>          | 38.5        | 46.0              | <u>4.1</u>     | 7.5        |
| 12                | 617.02        | BBA  | -                 | 31.2        | 4.4              | 4.4   | -                    | 35.6        | 46.0              | -              | 10.4       |
| 13                | 624.13        | BBA  | <u>34.6</u>       | 34.5        | 4.5              | 4.5   | <u>39.1</u>          | 39.0        | 46.0              | <u>6.9</u>     | 7.0        |
| 14                | 664.48        | BBA  | 31.3              | -           | 5.1              | 5.1   | 36.4                 | -           | 46.0              | 9.6            | -          |
| 15                | 750.96        | BBA  | -                 | 29.5        | 6.9              | 6.9   | -                    | 36.4        | 46.0              | -              | 9.6        |
| 16                | 759.43        | BBA  | -                 | 27.5        | 7.1              | 7.1   | -                    | 34.6        | 46.0              | -              | 11.4       |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B Class B limit  
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)  
ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

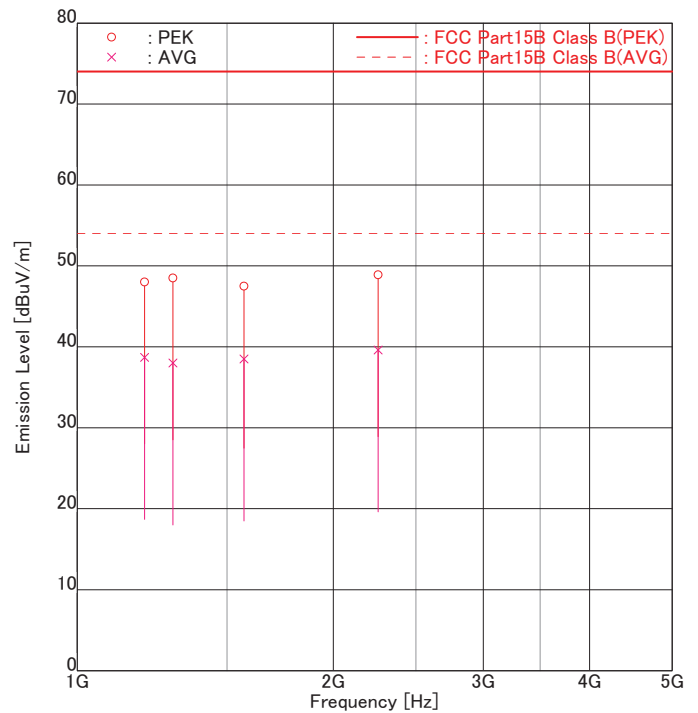
1000 – 5000 MHz

## Intertek Japan K.K.

### Matsuda No.4 Test Site

#### Radiated Electric Field

APPLICANT : JVC KENWOOD CORPORATION  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (VFO SCAN (SUB))  
POWER SOURCE : AC 120 V, 60 Hz  
DATE TESTED : Dec 05 2012  
FILE NO. : -  
REGULATION : FCC Part15B Class B  
TEST METHOD : ANSI C63.4-2003  
DISTANCE : 3.00 [m]  
TEMPERATURE : 20.5 [degC]  
HUMIDITY : 35.5 [%]  
NOTE : SUB:ANT2



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | MODE<br>[MHz] |     | READING<br>[dBuV] |             | FACTOR<br>[dB] |      | EMISSION<br>[dBuV/m] |             | LIMIT<br>[dBuV/m] | MARGIN<br>[dB] |             |
|-------------------|---------------|-----|-------------------|-------------|----------------|------|----------------------|-------------|-------------------|----------------|-------------|
|                   |               |     | Hori              | Vert        | Hori           | Vert | Hori                 | Vert        |                   | Hori           | Vert        |
| 1                 | 1200.23       | PEK | 51.0              | 53.5        | -5.5           | -5.5 | 45.5                 | 48.0        | 74.0              | 28.5           | 26.0        |
| 2                 | 1200.23       | AVG | 40.0              | <u>44.2</u> | -5.5           | -5.5 | 34.5                 | <u>38.7</u> | 54.0              | 19.5           | <u>15.3</u> |
| 3                 | 1296.20       | PEK | -                 | <u>53.5</u> | -5.0           | -5.0 | -                    | <u>48.5</u> | 74.0              | -              | <u>25.5</u> |
| 4                 | 1296.20       | AVG | -                 | <u>43.0</u> | -5.0           | -5.0 | -                    | <u>38.0</u> | 54.0              | -              | <u>16.0</u> |
| 5                 | 1571.08       | PEK | 51.0              | 50.6        | -3.5           | -3.5 | 47.5                 | 47.1        | 74.0              | 26.5           | 26.9        |
| 6                 | 1571.08       | AVG | 41.0              | <u>42.0</u> | -3.5           | -3.5 | 37.5                 | <u>38.5</u> | 54.0              | 16.5           | <u>15.5</u> |
| 7                 | 2256.75       | PEK | <u>48.4</u>       | 48.0        | 0.5            | 0.5  | <u>48.9</u>          | 48.5        | 74.0              | <u>25.1</u>    | 25.5        |
| 8                 | 2256.75       | AVG | 36.8              | <u>39.1</u> | 0.5            | 0.5  | 37.3                 | <u>39.6</u> | 54.0              | 16.7           | <u>14.4</u> |

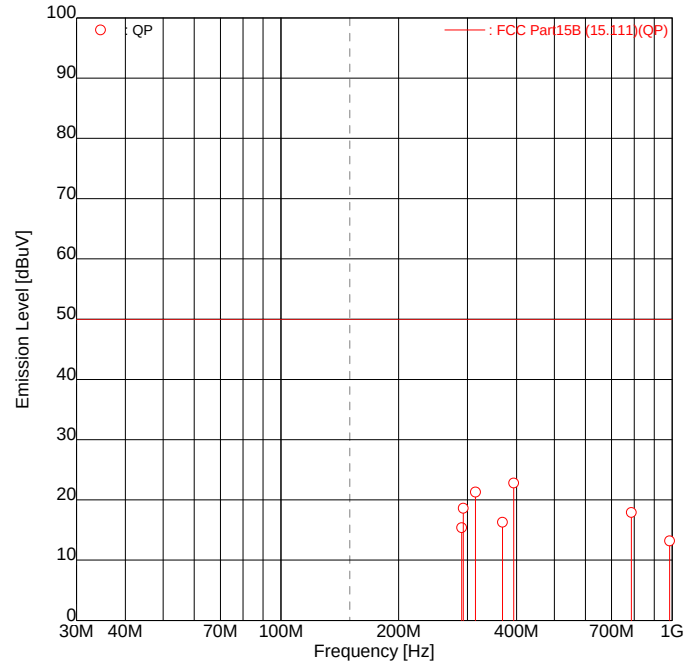
Higher six points are underlined.  
Other frequencies : Below the FCC Part15B Class B limit  
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)  
ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

### 9.3 Conducted power on antenna port

9.3.1 RX mode (0.03MHz MAIN:Ant.1)  
30 – 1000 MHz

## Intertek Japan K.K. Kashima No.3 Test Site Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (0.03MHz MAIN:Ant.1)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 17 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.2 [degC]  
HUMIDITY : 33.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 289.7836           | <u>24.7</u>       | -9.3           | <u>15.4</u>        | 50.0            | <u>34.6</u>    |
| 2                 | 292.5134           | <u>27.9</u>       | -9.3           | <u>18.6</u>        | 50.0            | <u>31.4</u>    |
| 3                 | 314.1908           | <u>30.4</u>       | -9.1           | <u>21.3</u>        | 50.0            | <u>28.7</u>    |
| 4                 | 368.6500           | <u>25.0</u>       | -8.7           | <u>16.3</u>        | 50.0            | <u>33.7</u>    |
| 5                 | 393.6061           | <u>31.3</u>       | -8.5           | <u>22.8</u>        | 50.0            | <u>27.2</u>    |
| 6                 | 787.1967           | <u>24.4</u>       | -6.5           | <u>17.9</u>        | 50.0            | <u>32.1</u>    |
| 7                 | 985.2525           | <u>18.5</u>       | -5.3           | <u>13.2</u>        | 50.0            | <u>36.8</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

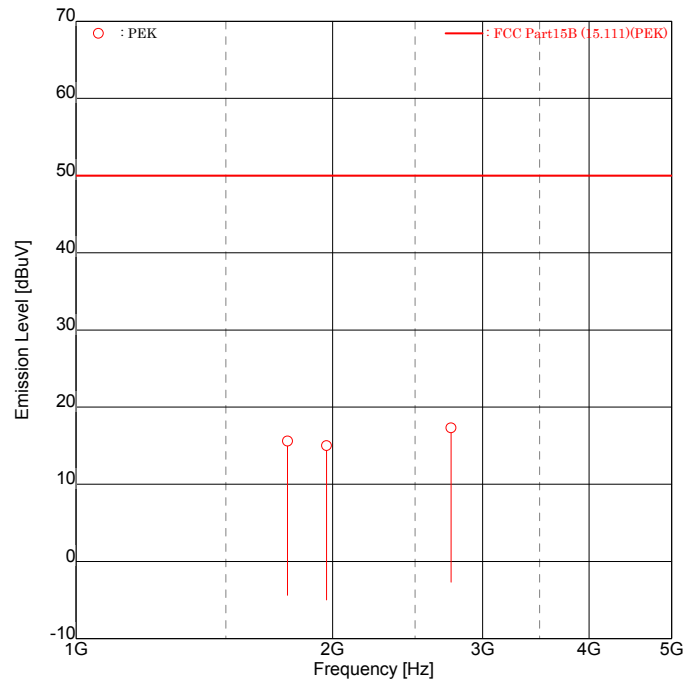
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (0.03MHz MAIN:ANT.1)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 10 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.0 [degC]  
HUMIDITY : 35.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1771.3070          | <u>45.2</u>       | -29.6          | <u>15.6</u>        | 50.0            | <u>34.4</u>    |
| 2                 | 1967.9610          | <u>44.4</u>       | -29.4          | <u>15.0</u>        | 50.0            | <u>35.0</u>    |
| 3                 | 2755.1550          | <u>46.9</u>       | -29.6          | <u>17.3</u>        | 50.0            | <u>32.7</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

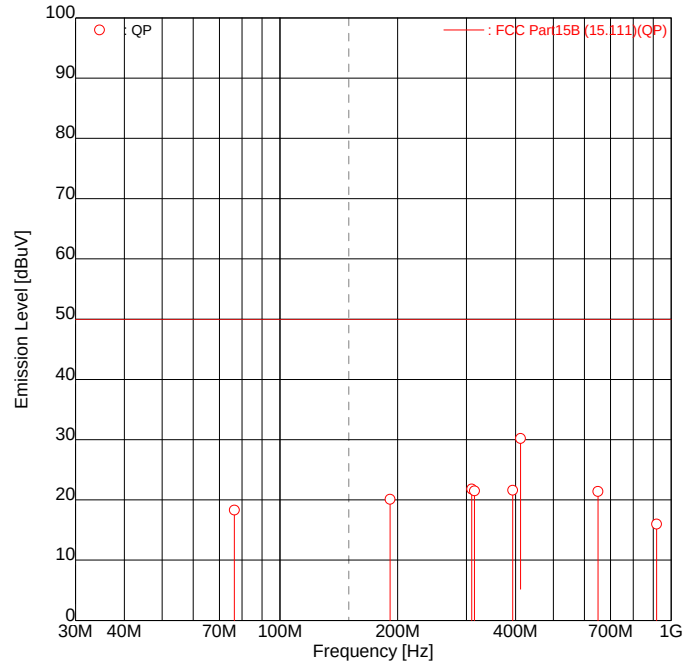
emiT 3, 0, 0, 0

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9.3.2 RX mode (30.00MHz MAIN:Ant.1)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (30.00MHz MAIN:Ant.1)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 17 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.2 [degC]  
HUMIDITY : 33.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 76.5007            | 29.0              | -10.7          | 18.3               | 50.0            | 31.7           |
| 2                 | 191.2426           | <u>30.1</u>       | -10.0          | <u>20.1</u>        | 50.0            | <u>29.9</u>    |
| 3                 | 309.2886           | <u>31.0</u>       | -9.2           | <u>21.8</u>        | 50.0            | <u>28.2</u>    |
| 4                 | 314.1752           | <u>30.6</u>       | -9.1           | <u>21.5</u>        | 50.0            | <u>28.5</u>    |
| 5                 | 393.5980           | <u>30.1</u>       | -8.5           | <u>21.6</u>        | 50.0            | <u>28.4</u>    |
| 6                 | 412.3853           | <u>38.5</u>       | -8.3           | <u>30.2</u>        | 50.0            | <u>19.8</u>    |
| 7                 | 650.2440           | <u>28.6</u>       | -7.2           | <u>21.4</u>        | 50.0            | <u>28.6</u>    |
| 8                 | 917.9939           | 21.7              | -5.7           | 16.0               | 50.0            | 34.0           |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

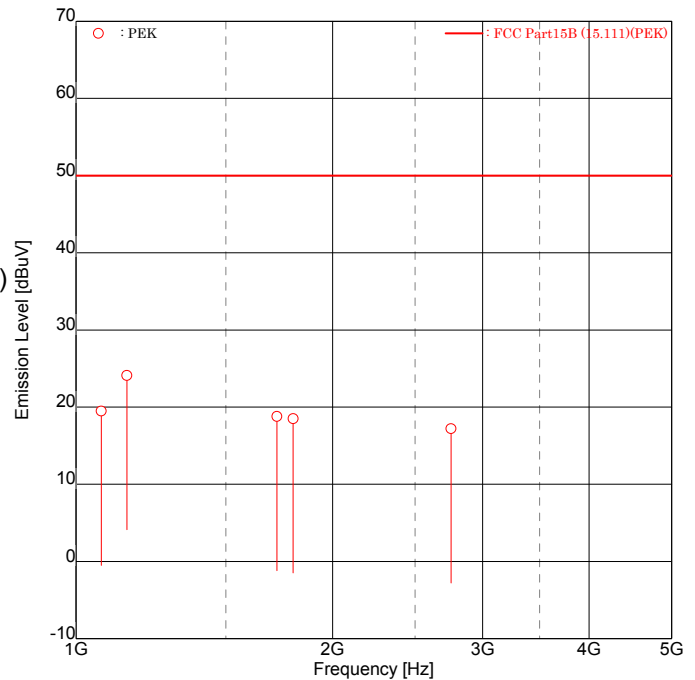
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (30.00MHz MAIN:ANT.1)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 10 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.0 [degC]  
HUMIDITY : 35.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1070.9950          | <u>50.0</u>       | -30.5          | <u>19.5</u>        | 50.0            | <u>30.5</u>    |
| 2                 | 1147.4700          | <u>54.5</u>       | -30.4          | <u>24.1</u>        | 50.0            | <u>25.9</u>    |
| 3                 | 1721.2330          | <u>48.5</u>       | -29.7          | <u>18.8</u>        | 50.0            | <u>31.2</u>    |
| 4                 | 1797.8610          | <u>48.1</u>       | -29.6          | <u>18.5</u>        | 50.0            | <u>31.5</u>    |
| 5                 | 2755.1230          | <u>46.8</u>       | -29.6          | <u>17.2</u>        | 50.0            | <u>32.8</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

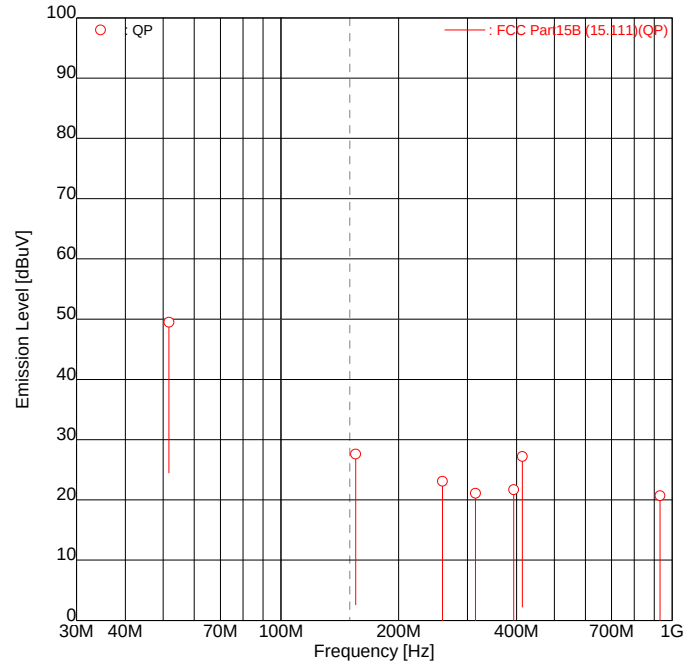
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9.3.3 RX mode (59.99MHz MAIN:Ant.1)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (59.99MHz MAIN:Ant.1)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 17 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.2 [degC]  
HUMIDITY : 33.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 51.7566            | <u>60.4</u>       | -10.9          | <u>49.5</u>        | 50.0            | <u>0.5</u>     |
| 2                 | 155.2630           | <u>37.9</u>       | -10.3          | <u>27.6</u>        | 50.0            | <u>22.4</u>    |
| 3                 | 258.7705           | <u>32.6</u>       | -9.5           | <u>23.1</u>        | 50.0            | <u>26.9</u>    |
| 4                 | 314.1856           | <u>30.2</u>       | -9.1           | <u>21.1</u>        | 50.0            | <u>28.9</u>    |
| 5                 | 393.5961           | <u>30.2</u>       | -8.5           | <u>21.7</u>        | 50.0            | <u>28.3</u>    |
| 6                 | 414.0192           | <u>35.5</u>       | -8.3           | <u>27.2</u>        | 50.0            | <u>22.8</u>    |
| 7                 | 931.5551           | 26.4              | -5.7           | 20.7               | 50.0            | 29.3           |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)



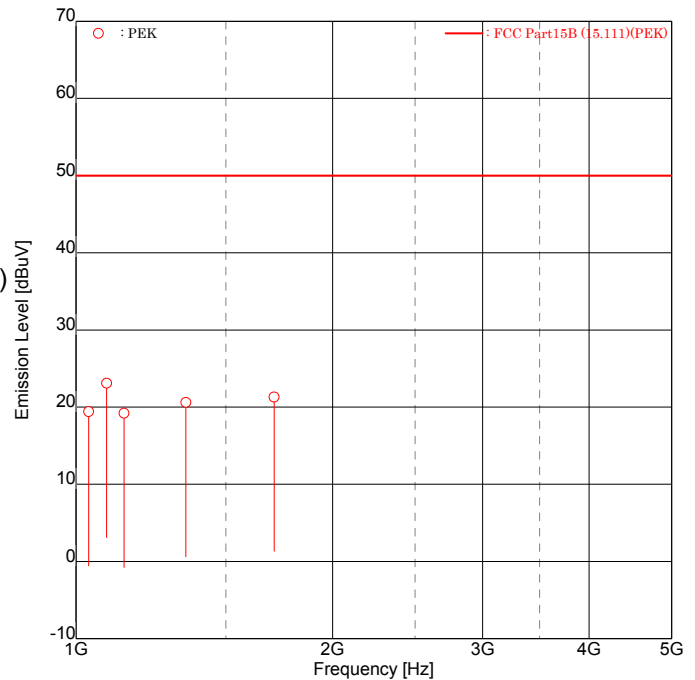
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (59.99MHz MAIN:ANT.1)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 10 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.0 [degC]  
HUMIDITY : 35.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1034.9820          | <u>49.9</u>       | -30.5          | <u>19.4</u>        | 50.0            | <u>30.6</u>    |
| 2                 | 1086.7750          | <u>53.6</u>       | -30.5          | <u>23.1</u>        | 50.0            | <u>26.9</u>    |
| 3                 | 1138.6170          | <u>49.6</u>       | -30.4          | <u>19.2</u>        | 50.0            | <u>30.8</u>    |
| 4                 | 1345.6310          | <u>50.7</u>       | -30.1          | <u>20.6</u>        | 50.0            | <u>29.4</u>    |
| 5                 | 1707.9120          | <u>51.0</u>       | -29.7          | <u>21.3</u>        | 50.0            | <u>28.7</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

emiT 3, 0, 0, 0

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9.3.4 RX mode (VFO SCAN MAIN:Ant.1)  
30 – 1000 MHz

< Graph number #1 >

SPECTRUM ANALYSIS

Kashima No.3 Test Site

Date tested : Dec 17 2012

Test mode : RX mode (VFO SCAN  
MAIN:Ant.1)

23.23C /33.0%

Company : JVC KENWOOD Corporation

EUT Name : HF/50MHz TRANSCEIVER

Model number : TS-990S

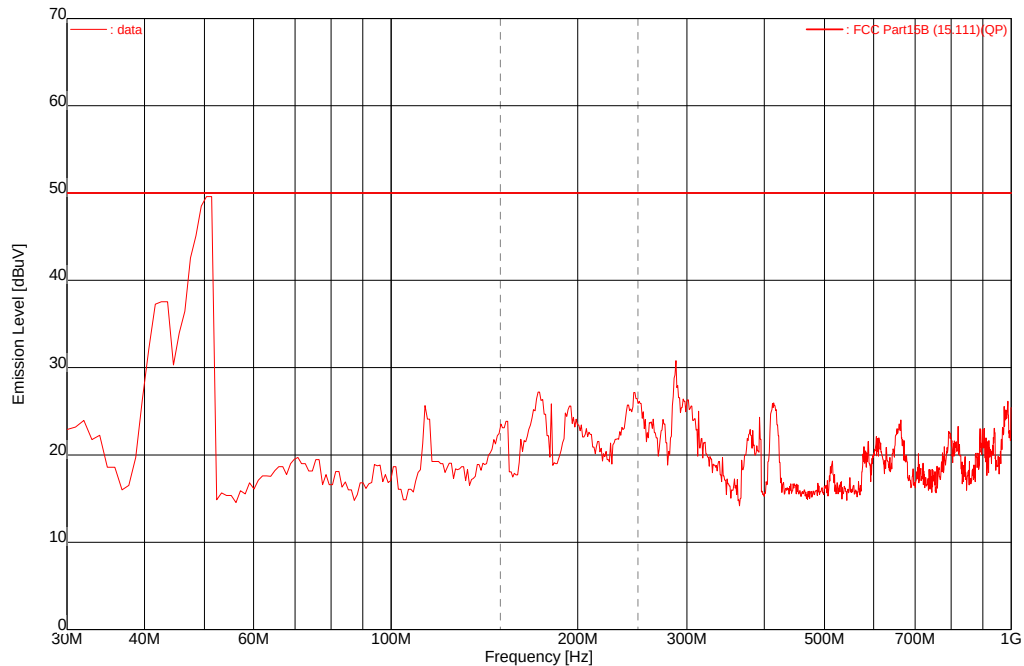
Serial number : 82A90005

Power source : AC 120V, 60Hz

File number : -

Engineer : Koichi Wagatsuma

Note :



| Frequency<br>[ MHz ] | Reading<br>[ dBuV ] | Factor<br>[ dB ] | Emission<br>[ dBuV ] | Limit<br>[ dBuV ] | Margin<br>[ dB ] |
|----------------------|---------------------|------------------|----------------------|-------------------|------------------|
| 43.2450              | <u>48.6</u>         | -10.9            | <u>37.7</u>          | 50.0              | <u>12.3</u>      |
| 50.7456              | <u>58.4</u>         | -10.9            | <u>47.5</u>          | 50.0              | <u>2.5</u>       |
| 51.7564              | <u>60.4</u>         | -10.9            | <u>49.5</u>          | 50.0              | <u>0.5</u>       |
| 172.6001             | <u>36.6</u>         | -10.2            | <u>26.4</u>          | 50.0              | <u>23.6</u>      |
| 289.3393             | <u>41.4</u>         | -9.3             | <u>32.1</u>          | 50.0              | <u>17.9</u>      |
| 414.0283             | <u>35.0</u>         | -8.3             | <u>26.7</u>          | 50.0              | <u>23.3</u>      |
| 978.7987             | 28.3                | -5.4             | 22.9                 | 50.0              | 27.1             |

emiT 3, 0, 0, 0

- 1 / 1 -

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Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

Emission Level = Read + Factor (Attenuator, Cable, Preamp)

Limit : 2nW = 50dBuV (50ohm impedance)

1000 – 5000 MHz

< Graph number #1 >

## SPECTRUM ANALYSIS

Kashima No.3 Test Site

Date tested : Dec 10 2012

23.0degC /35.0%

Test mode : RX mode (VFO SCAN  
MAIN:ANT.1)

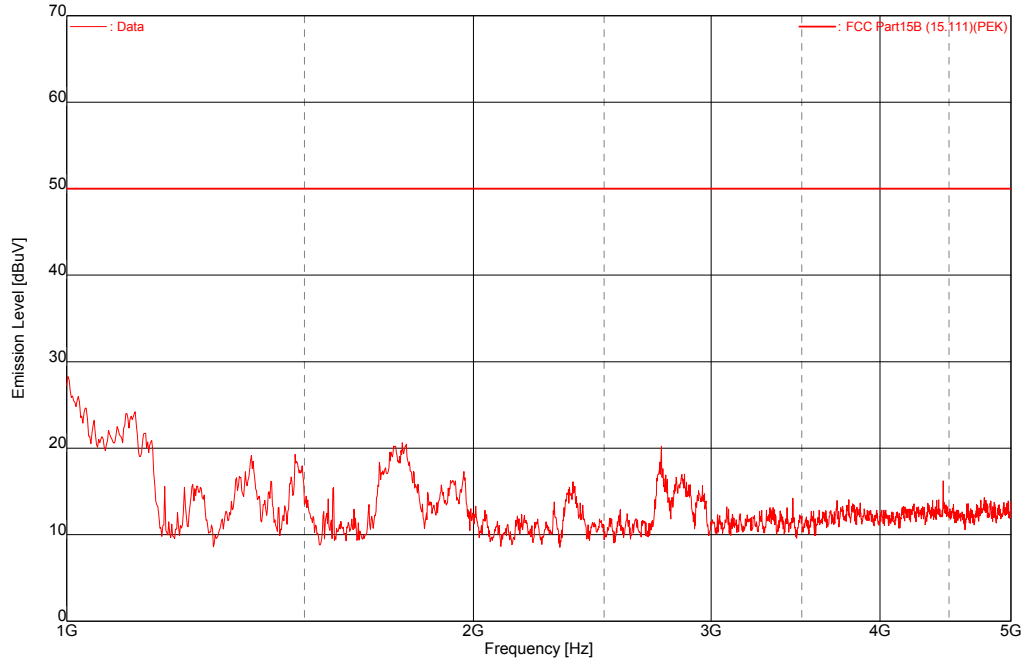
Company : JVC KENWOOD Corporation Power source : AC 120V, 60Hz

EUT Name : HF/50MHz TRANSCEIVER File number : -

Model number : TS-990S Engineer : Koichi Wagatsuma

Serial number : 82A90005

Note :



| Frequency<br>[ MHz ] | Reading<br>[ dBuV ] | Factor<br>[ dB ] | Emission<br>[ dBuV ] | Limit<br>[ dBuV ] | Margin<br>[ dB ] |
|----------------------|---------------------|------------------|----------------------|-------------------|------------------|
| 1002.1000            | <u>58.9</u>         | -30.6            | <u>28.3</u>          | 50.0              | <u>21.7</u>      |
| 1138.5430            | <u>54.7</u>         | -30.4            | <u>24.3</u>          | 50.0              | <u>25.7</u>      |
| 1759.5670            | <u>50.3</u>         | -29.7            | <u>20.6</u>          | 50.0              | <u>29.4</u>      |
| 2742.8550            | <u>49.9</u>         | -29.6            | <u>20.3</u>          | 50.0              | <u>29.7</u>      |

Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

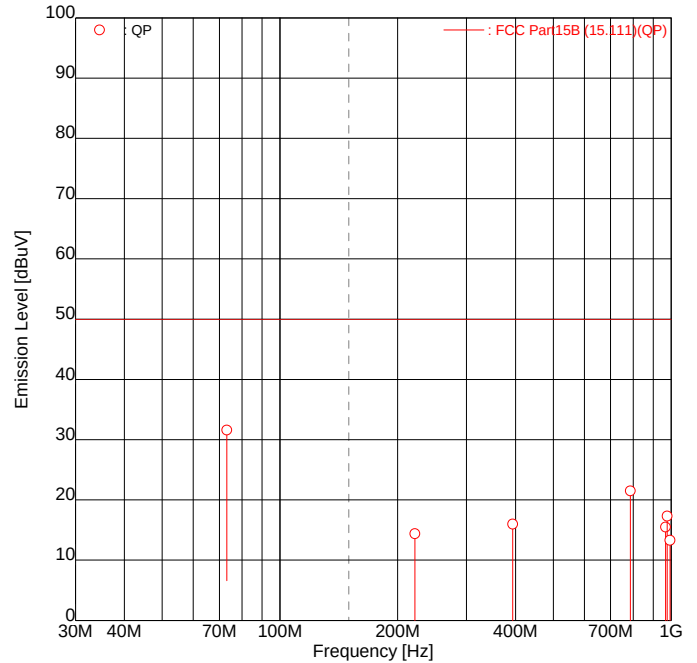
Emission Level = Read + Factor (Attenuator, Cable, Preamp)

Limit : 2nW = 50dBuV (50ohm impedance)

9.3.5 RX mode (0.03MHz SUB:Ant.1)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (0.03MHz SUB:Ant.1)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 18 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 21.5 [degC]  
HUMIDITY : 38.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 73.1461            | <u>42.3</u>       | -10.7          | <u>31.6</u>        | 50.0            | <u>18.4</u>    |
| 2                 | 221.1822           | <u>24.3</u>       | -9.9           | <u>14.4</u>        | 50.0            | <u>35.6</u>    |
| 3                 | 393.6065           | <u>24.5</u>       | -8.5           | <u>16.0</u>        | 50.0            | <u>34.0</u>    |
| 4                 | 787.2037           | <u>28.0</u>       | -6.5           | <u>21.5</u>        | 50.0            | <u>28.5</u>    |
| 5                 | 968.5271           | <u>21.0</u>       | -5.5           | <u>15.5</u>        | 50.0            | <u>34.5</u>    |
| 6                 | 976.8000           | <u>22.7</u>       | -5.4           | <u>17.3</u>        | 50.0            | <u>32.7</u>    |
| 7                 | 993.3538           | 18.6              | -5.3           | 13.3               | 50.0            | 36.7           |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

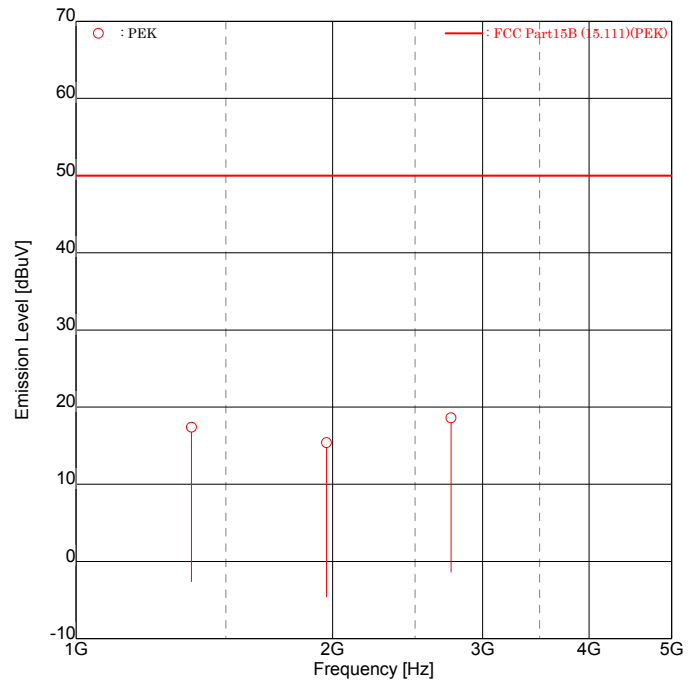
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (0.03MHz SUB:ANT.1)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 10 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.0 [degC]  
HUMIDITY : 35.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1366.1860          | <u>47.5</u>       | -30.1          | <u>17.4</u>        | 50.0            | <u>32.6</u>    |
| 2                 | 1967.8920          | <u>44.8</u>       | -29.4          | <u>15.4</u>        | 50.0            | <u>34.6</u>    |
| 3                 | 2755.1550          | <u>48.2</u>       | -29.6          | <u>18.6</u>        | 50.0            | <u>31.4</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

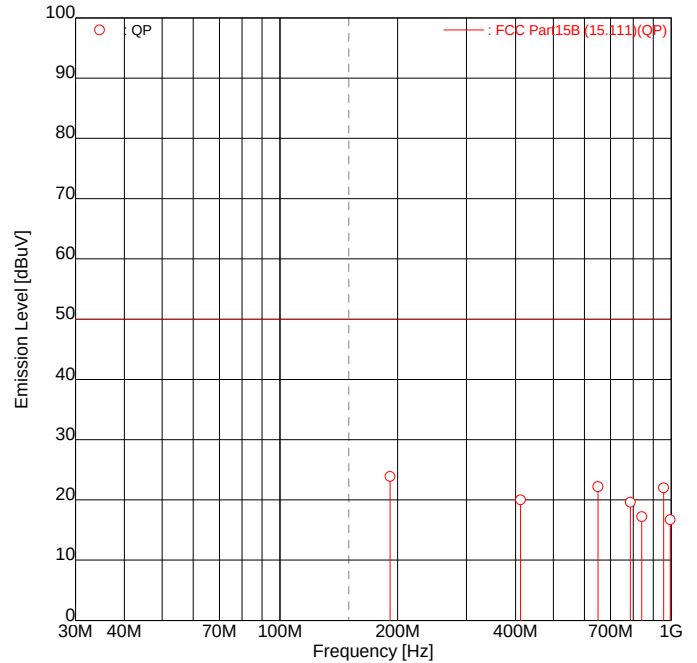
emiT 3, 0, 0, 0

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9.3.6 RX mode (30.00MHz SUB:Ant.1)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (30.00MHz SUB:Ant.1)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 18 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 21.5 [degC]  
HUMIDITY : 38.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 191.2495           | <u>33.9</u>       | -10.0          | <u>23.9</u>        | 50.0            | <u>26.1</u>    |
| 2                 | 412.3860           | <u>28.3</u>       | -8.3           | <u>20.0</u>        | 50.0            | <u>30.0</u>    |
| 3                 | 650.2488           | <u>29.4</u>       | -7.2           | <u>22.2</u>        | 50.0            | <u>27.8</u>    |
| 4                 | 787.2011           | <u>26.1</u>       | -6.5           | <u>19.6</u>        | 50.0            | <u>30.4</u>    |
| 5                 | 841.4885           | <u>23.4</u>       | -6.2           | <u>17.2</u>        | 50.0            | <u>32.8</u>    |
| 6                 | 956.2335           | <u>27.5</u>       | -5.5           | <u>22.0</u>        | 50.0            | <u>28.0</u>    |
| 7                 | 994.4940           | <u>22.0</u>       | -5.3           | <u>16.7</u>        | 50.0            | <u>33.3</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

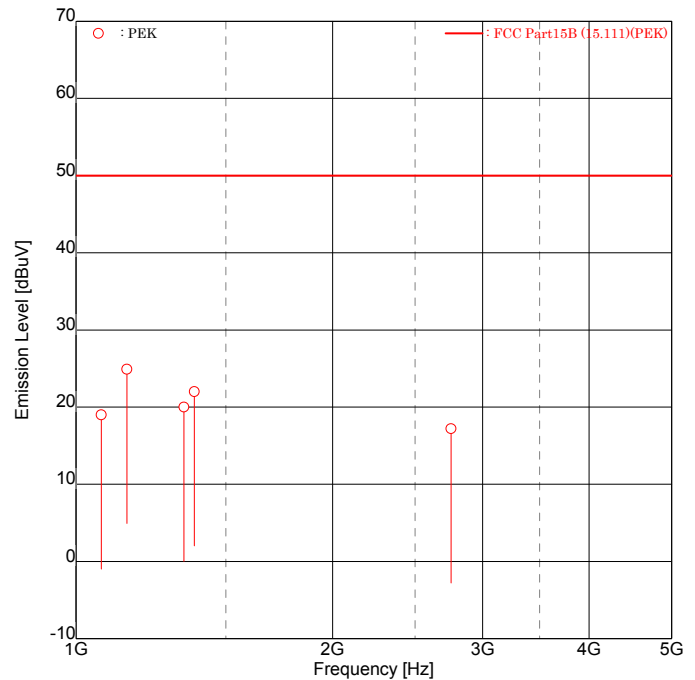
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (30.00MHz SUB:ANT.1)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 10 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.0 [degC]  
HUMIDITY : 35.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1071.0600          | <u>49.5</u>       | -30.5          | <u>19.0</u>        | 50.0            | <u>31.0</u>    |
| 2                 | 1147.5350          | <u>55.3</u>       | -30.4          | <u>24.9</u>        | 50.0            | <u>25.1</u>    |
| 3                 | 1338.7800          | <u>50.2</u>       | -30.2          | <u>20.0</u>        | 50.0            | <u>30.0</u>    |
| 4                 | 1377.0000          | <u>52.1</u>       | -30.1          | <u>22.0</u>        | 50.0            | <u>28.0</u>    |
| 5                 | 2755.1230          | <u>46.8</u>       | -29.6          | <u>17.2</u>        | 50.0            | <u>32.8</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

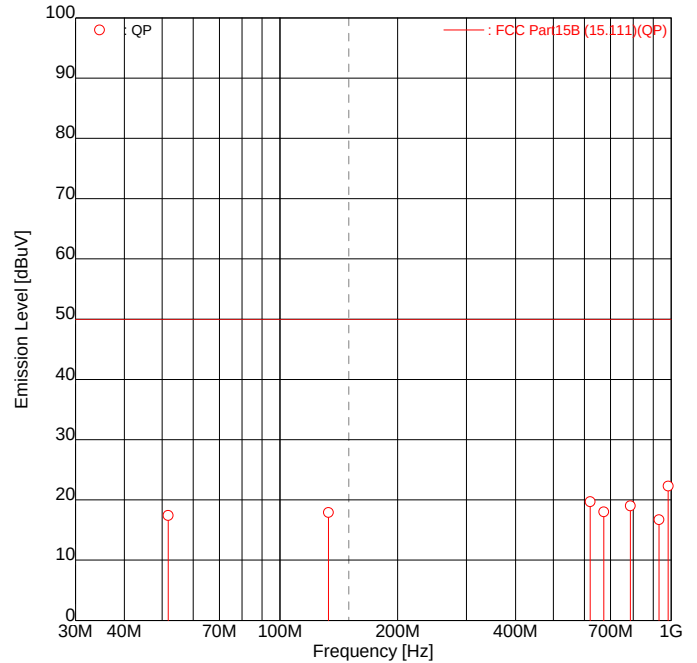
emiT 3, 0, 0, 0

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9.3.7 RX mode (59.99MHz SUB:Ant.1)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (59.99MHz SUB:Ant.1)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 18 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 21.5 [degC]  
HUMIDITY : 38.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 51.7589            | <u>28.3</u>       | -10.9          | <u>17.4</u>        | 50.0            | <u>32.6</u>    |
| 2                 | 133.0933           | <u>28.3</u>       | -10.4          | <u>17.9</u>        | 50.0            | <u>32.1</u>    |
| 3                 | 621.0229           | <u>27.1</u>       | -7.4           | <u>19.7</u>        | 50.0            | <u>30.3</u>    |
| 4                 | 672.7831           | <u>25.1</u>       | -7.1           | <u>18.0</u>        | 50.0            | <u>32.0</u>    |
| 5                 | 787.2011           | <u>25.5</u>       | -6.5           | <u>19.0</u>        | 50.0            | <u>31.0</u>    |
| 6                 | 931.5393           | 22.4              | -5.7           | 16.7               | 50.0            | 33.3           |
| 7                 | 983.2925           | <u>27.7</u>       | -5.4           | <u>22.3</u>        | 50.0            | <u>27.7</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)



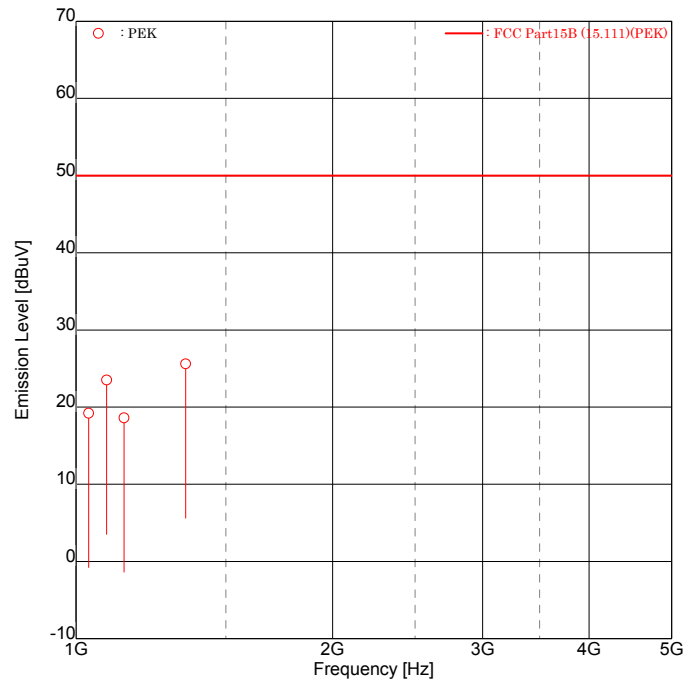
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (59.99MHz SUB:ANT.1)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 10 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.0 [degC]  
HUMIDITY : 35.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1035.0970          | <u>49.7</u>       | -30.5          | <u>19.2</u>        | 50.0            | <u>30.8</u>    |
| 2                 | 1086.8170          | <u>54.0</u>       | -30.5          | <u>23.5</u>        | 50.0            | <u>26.5</u>    |
| 3                 | 1138.6200          | <u>49.0</u>       | -30.4          | <u>18.6</u>        | 50.0            | <u>31.4</u>    |
| 4                 | 1345.5270          | <u>55.7</u>       | -30.1          | <u>25.6</u>        | 50.0            | <u>24.4</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

emiT 3, 0, 0, 0

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9.3.8 RX mode (VFO SCAN SUB:Ant.1)  
30 – 1000 MHz

< Graph number #1 >

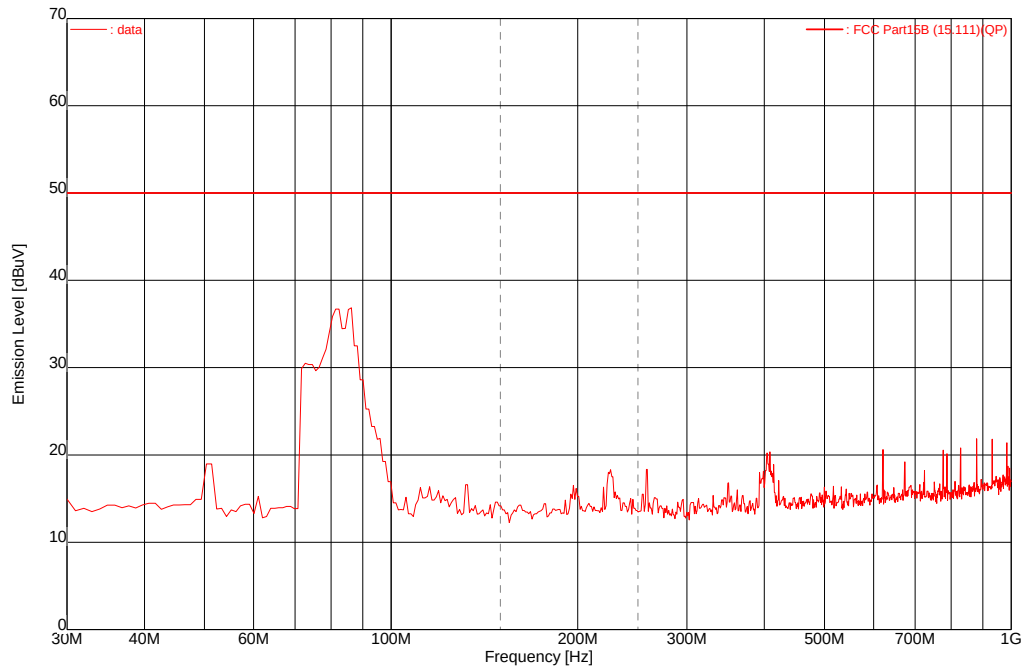
SPECTRUM ANALYSIS

Kashima No.3 Test Site

Date tested : Dec 18 2012

Test mode : RX mode (VFO SCAN  
SUB:Ant.1) 21.5degC /38.0%

Company : JVC KENWOOD Corporation Power source : AC 120V, 60Hz  
EUT Name : HF/50MHz TRANSCEIVER File number : -  
Model number : TS-990S Engineer : Koichi Wagatsuma  
Serial number : 82A90005 Note :



| Frequency<br>[ MHz ] | Reading<br>[ dBuV ] | Factor<br>[ dB ] | Emission<br>[ dBuV ] | Limit<br>[ dBuV ] | Margin<br>[ dB ] |
|----------------------|---------------------|------------------|----------------------|-------------------|------------------|
| 73.1292              | <u>41.8</u>         | -10.7            | <u>31.1</u>          | 50.0              | <u>18.9</u>      |
| 82.6799              | <u>47.8</u>         | -10.6            | <u>37.2</u>          | 50.0              | <u>12.8</u>      |
| 87.5019              | <u>48.3</u>         | -10.6            | <u>37.7</u>          | 50.0              | <u>12.3</u>      |
| 406.8394             | <u>28.4</u>         | -8.3             | <u>20.1</u>          | 50.0              | <u>29.9</u>      |
| 621.0229             | <u>27.1</u>         | -7.4             | <u>19.7</u>          | 50.0              | <u>30.3</u>      |
| 879.7888             | 24.9                | -6.0             | 18.9                 | 50.0              | 31.1             |
| 931.5370             | <u>27.0</u>         | -5.7             | <u>21.3</u>          | 50.0              | <u>28.7</u>      |

emiT 3, 0, 0, 0  
Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor (Attenuator, Cable, Preamp)  
Limit : 2nW = 50dBuV (50ohm impedance)

- 1 / 1 -

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1000 – 5000 MHz

< Graph number #1 >

## SPECTRUM ANALYSIS

Kashima No.3 Test Site

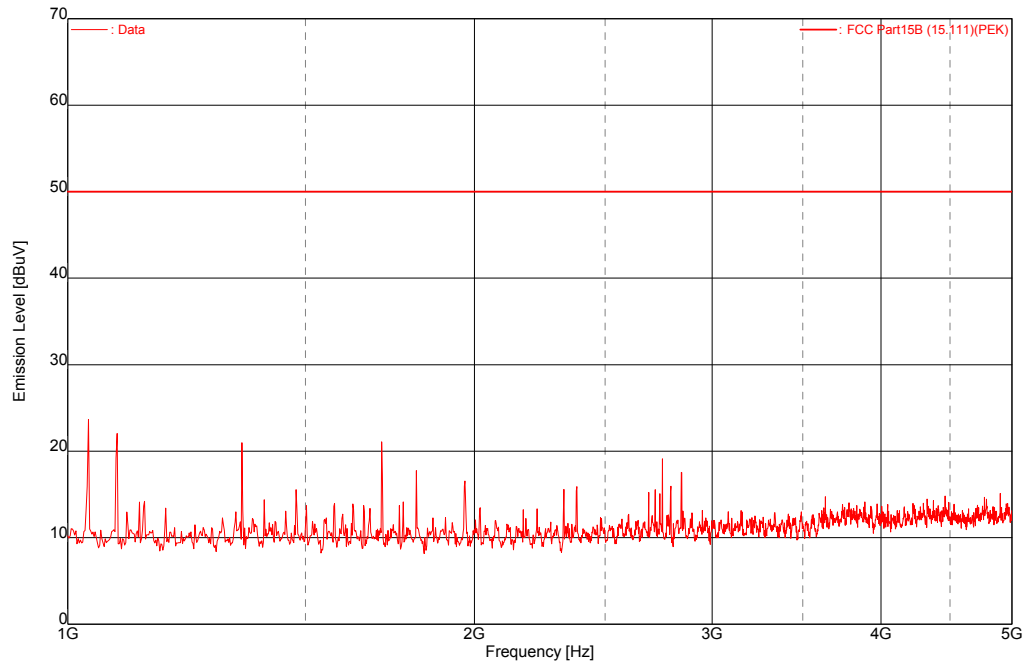
Date tested : Dec 10 2012

Test mode : RX mode (VFO SCAN)  
SUB:ANT.1)

23.0degC /35.0%

Company : JVC KENWOOD Corporation  
EUT Name : HF/50MHz TRANSCEIVER  
Model number : TS-990S  
Serial number : 82A90005

Power source : AC 120V, 60Hz  
File number : -  
Engineer : Koichi Wagatsuma  
Note :



| Frequency<br>[ MHz ] | Reading<br>[ dBuV ] | Factor<br>[ dB ] | Emission<br>[ dBuV ] | Limit<br>[ dBuV ] | Margin<br>[ dB ] |
|----------------------|---------------------|------------------|----------------------|-------------------|------------------|
| 1035.0390            | <u>54.6</u>         | -30.5            | <u>24.1</u>          | 50.0              | <u>25.9</u>      |
| 1086.7910            | <u>52.9</u>         | -30.5            | <u>22.4</u>          | 50.0              | <u>27.6</u>      |
| 1345.5510            | <u>51.1</u>         | -30.1            | <u>21.0</u>          | 50.0              | <u>29.0</u>      |
| 1070.8150            | <u>50.8</u>         | -30.5            | <u>20.3</u>          | 50.0              | <u>29.7</u>      |

Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

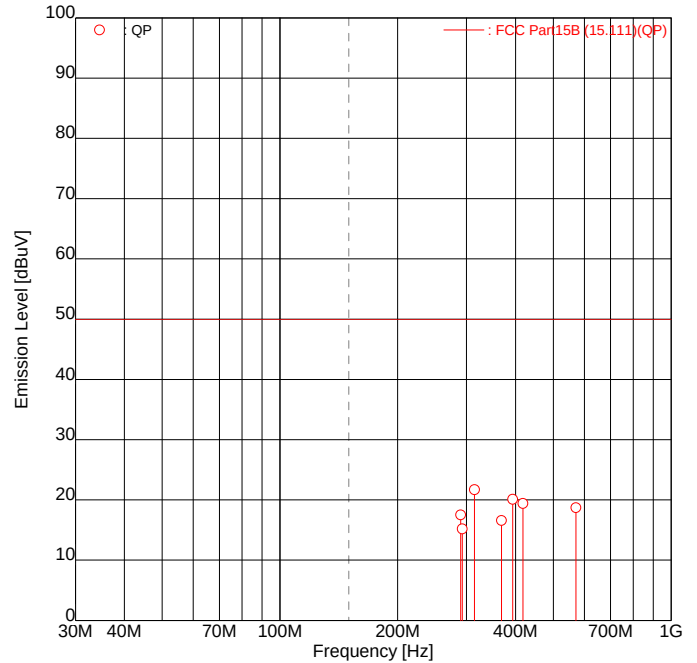
Emission Level = Read + Factor (Attenuator, Cable, Preamp)

Limit : 2nW = 50dBuV (50ohm impedance)

9.3.9 RX mode (0.03MHz MAIN:Ant.2)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (0.03MHz MAIN:Ant.2)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 17 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.2 [degC]  
HUMIDITY : 33.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 289.7840           | <u>26.8</u>       | -9.3           | <u>17.5</u>        | 50.0            | <u>32.5</u>    |
| 2                 | 292.5130           | <u>24.5</u>       | -9.3           | <u>15.2</u>        | 50.0            | <u>34.8</u>    |
| 3                 | 314.1910           | <u>30.8</u>       | -9.1           | <u>21.7</u>        | 50.0            | <u>28.3</u>    |
| 4                 | 368.6500           | <u>25.3</u>       | -8.7           | <u>16.6</u>        | 50.0            | <u>33.4</u>    |
| 5                 | 393.6060           | <u>28.6</u>       | -8.5           | <u>20.1</u>        | 50.0            | <u>29.9</u>    |
| 6                 | 417.7935           | <u>27.6</u>       | -8.2           | <u>19.4</u>        | 50.0            | <u>30.6</u>    |
| 7                 | 571.2848           | <u>26.3</u>       | -7.6           | <u>18.7</u>        | 50.0            | <u>31.3</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

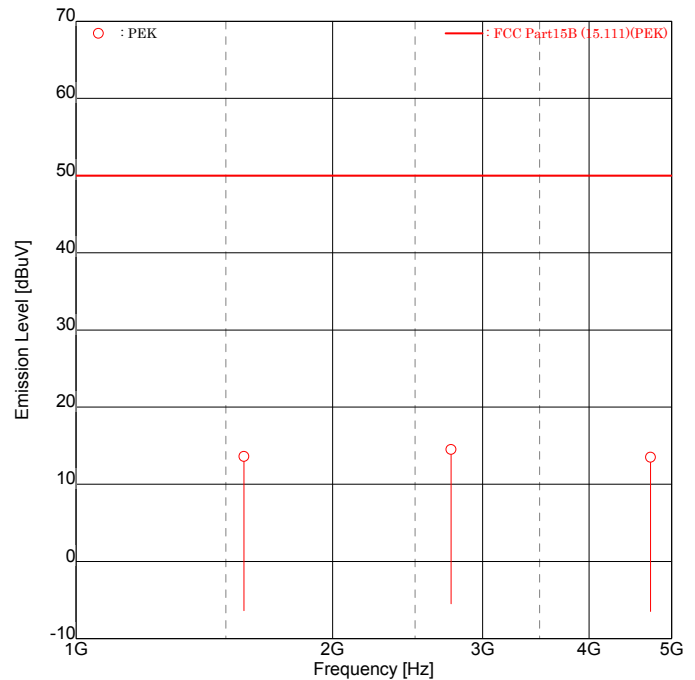
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (0.03MHz MAIN:ANT.2)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 10 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.0 [degC]  
HUMIDITY : 35.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1574.4430          | <u>43.5</u>       | -29.9          | <u>13.6</u>        | 50.0            | <u>36.4</u>    |
| 2                 | 2755.1400          | <u>44.1</u>       | -29.6          | <u>14.5</u>        | 50.0            | <u>35.5</u>    |
| 3                 | 4723.3500          | <u>40.0</u>       | -26.5          | <u>13.5</u>        | 50.0            | <u>36.5</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

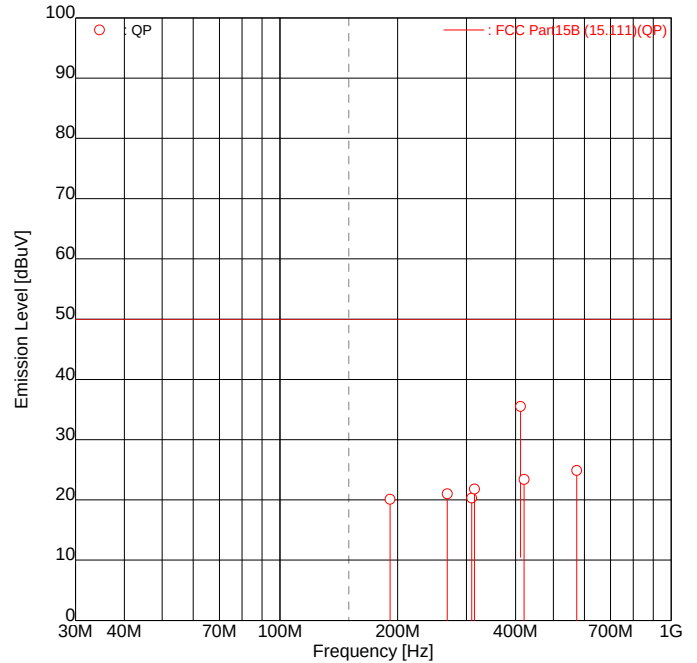
emiT 3, 0, 0, 0

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9.3.10 RX mode (30.00MHz MAIN:Ant.2)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (30.00MHz MAIN:Ant.2)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 17 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.2 [degC]  
HUMIDITY : 33.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 191.2477           | 30.1              | -10.0          | 20.1               | 50.0            | 29.9           |
| 2                 | 267.7521           | <u>30.4</u>       | -9.4           | <u>21.0</u>        | 50.0            | <u>29.0</u>    |
| 3                 | 309.2900           | <u>29.5</u>       | -9.2           | <u>20.3</u>        | 50.0            | <u>29.7</u>    |
| 4                 | 314.1837           | <u>30.9</u>       | -9.1           | <u>21.8</u>        | 50.0            | <u>28.2</u>    |
| 5                 | 412.3856           | <u>43.8</u>       | -8.3           | <u>35.5</u>        | 50.0            | <u>14.5</u>    |
| 6                 | 420.7530           | <u>31.6</u>       | -8.2           | <u>23.4</u>        | 50.0            | <u>26.6</u>    |
| 7                 | 573.7411           | <u>32.5</u>       | -7.6           | <u>24.9</u>        | 50.0            | <u>25.1</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

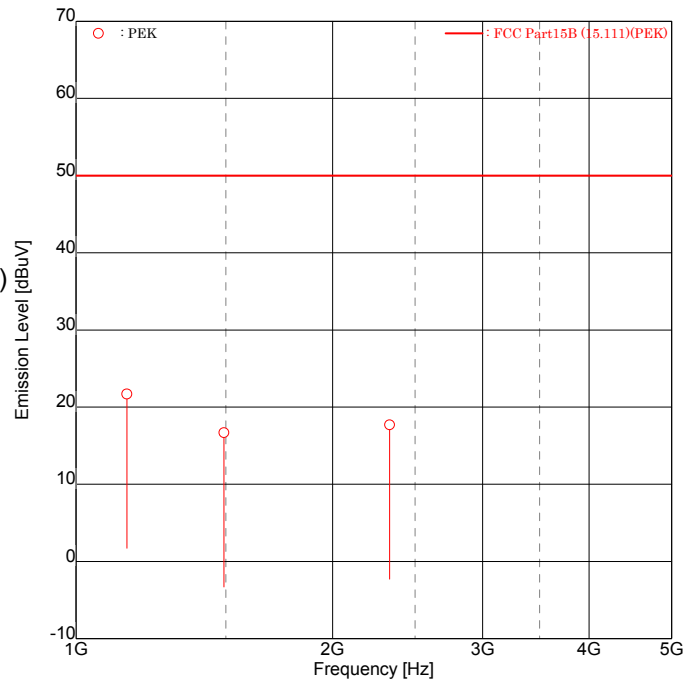
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (30.00MHz MAIN:ANT.2)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 10 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.0 [degC]  
HUMIDITY : 35.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1147.5500          | <u>52.1</u>       | -30.4          | <u>21.7</u>        | 50.0            | <u>28.3</u>    |
| 2                 | 1491.8000          | <u>46.7</u>       | -30.0          | <u>16.7</u>        | 50.0            | <u>33.3</u>    |
| 3                 | 2333.1570          | <u>47.3</u>       | -29.6          | <u>17.7</u>        | 50.0            | <u>32.3</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

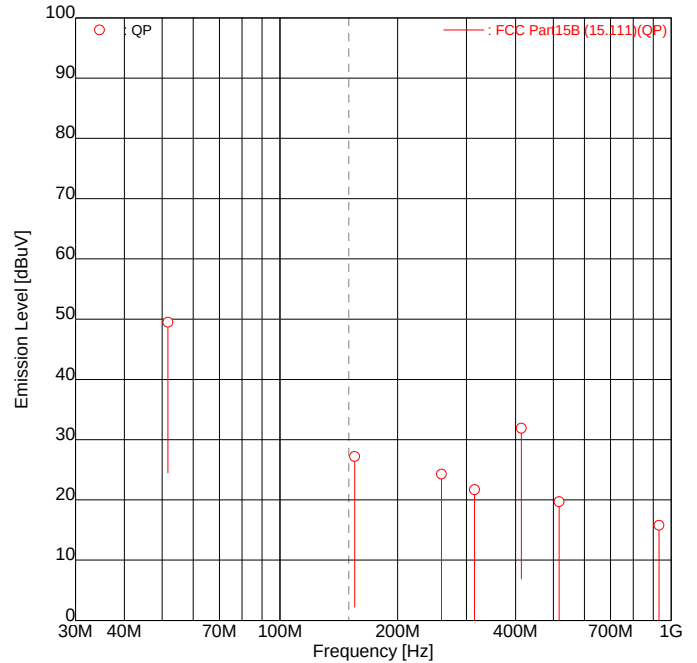
emiT 3, 0, 0, 0

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9.3.11 RX mode (59.99MHz MAIN:Ant.2)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (59.99MHz MAIN:Ant.2)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 17 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.2 [degC]  
HUMIDITY : 33.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 51.7566            | <u>60.4</u>       | -10.9          | <u>49.5</u>        | 50.0            | <u>0.5</u>     |
| 2                 | 155.2760           | <u>37.5</u>       | -10.3          | <u>27.2</u>        | 50.0            | <u>22.8</u>    |
| 3                 | 258.7710           | <u>33.8</u>       | -9.5           | <u>24.3</u>        | 50.0            | <u>25.7</u>    |
| 4                 | 314.1860           | <u>30.8</u>       | -9.1           | <u>21.7</u>        | 50.0            | <u>28.3</u>    |
| 5                 | 414.0190           | <u>40.2</u>       | -8.3           | <u>31.9</u>        | 50.0            | <u>18.1</u>    |
| 6                 | 517.5236           | <u>27.3</u>       | -7.6           | <u>19.7</u>        | 50.0            | <u>30.3</u>    |
| 7                 | 931.5380           | <u>21.5</u>       | -5.7           | <u>15.8</u>        | 50.0            | <u>34.2</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)



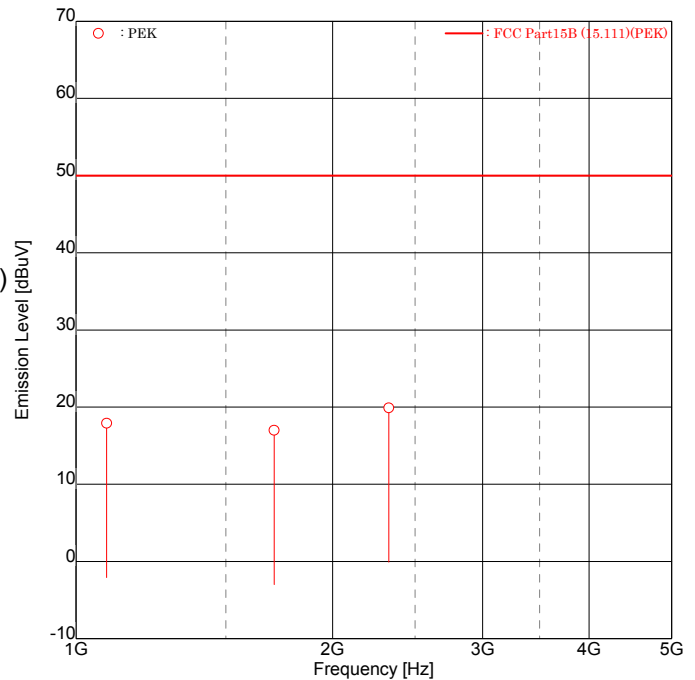
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (59.99MHz MAIN:ANT.2)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 10 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.0 [degC]  
HUMIDITY : 35.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1086.8100          | <u>48.4</u>       | -30.5          | <u>17.9</u>        | 50.0            | <u>32.1</u>    |
| 2                 | 1708.0350          | <u>46.7</u>       | -29.7          | <u>17.0</u>        | 50.0            | <u>33.0</u>    |
| 3                 | 2328.7670          | <u>49.5</u>       | -29.6          | <u>19.9</u>        | 50.0            | <u>30.1</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

emiT 3, 0, 0, 0

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9.3.12 RX mode (VFO SCAN MAIN:Ant.2)  
30 – 1000 MHz

< Graph number #1 >

SPECTRUM ANALYSIS

Kashima No.3 Test Site

Date tested : Dec 17 2012

Test mode : RX mode (VFO SCAN  
MAIN:Ant.2) 23.2degC /33.0%

Company : JVC KENWOOD Corporation

EUT Name : HF/50MHz TRANSCEIVER

Model number : TS-990S

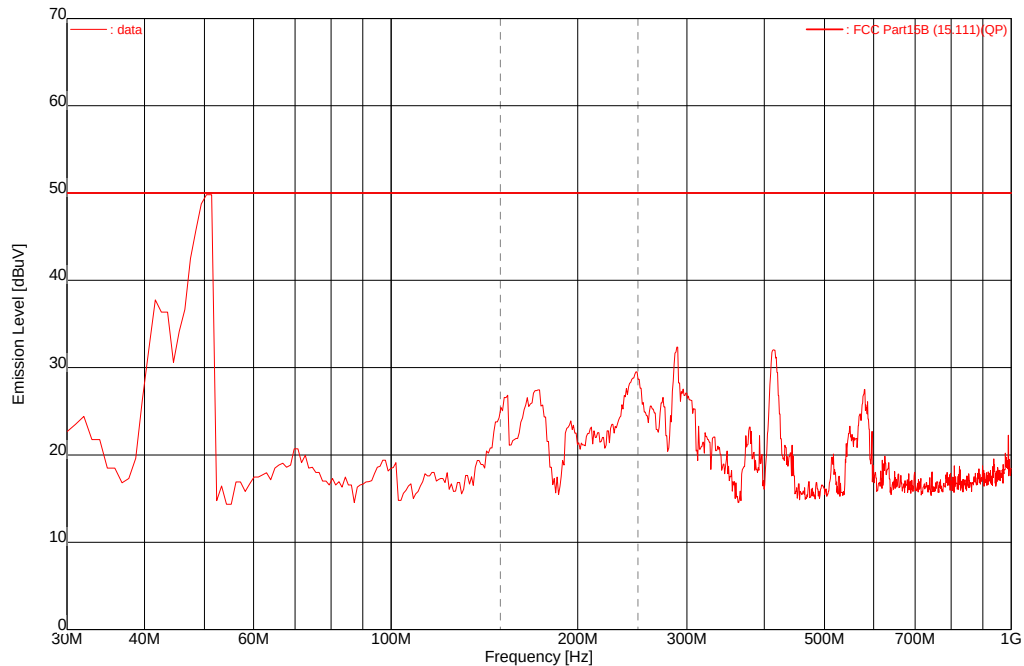
Serial number : 82A90005

Power source : AC 120V, 60Hz

File number : -

Engineer : Koichi Wagatsuma

Note :



| Frequency<br>[ MHz ] | Reading<br>[ dBuV ] | Factor<br>[ dB ] | Emission<br>[ dBuV ] | Limit<br>[ dBuV ] | Margin<br>[ dB ] |
|----------------------|---------------------|------------------|----------------------|-------------------|------------------|
| 43.2650              | <u>48.8</u>         | -10.9            | <u>37.9</u>          | 50.0              | <u>12.1</u>      |
| 50.7514              | <u>58.7</u>         | -10.9            | <u>47.8</u>          | 50.0              | <u>2.2</u>       |
| 51.7507              | <u>60.3</u>         | -10.9            | <u>49.4</u>          | 50.0              | <u>0.6</u>       |
| 247.3254             | <u>38.6</u>         | -9.5             | <u>29.1</u>          | 50.0              | <u>20.9</u>      |
| 289.3927             | <u>41.9</u>         | -9.3             | <u>32.6</u>          | 50.0              | <u>17.4</u>      |
| 414.0149             | <u>40.8</u>         | -8.3             | <u>32.5</u>          | 50.0              | <u>17.5</u>      |
| 580.2930             | 32.4                | -7.6             | 24.8                 | 50.0              | 25.2             |

emiT 3, 0, 0, 0

- 1 / 1 -

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Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

Emission Level = Read + Factor (Attenuator, Cable, Preamp)

Limit : 2nW = 50dBuV (50ohm impedance)

1000 – 5000 MHz

< Graph number #1 >

## SPECTRUM ANALYSIS

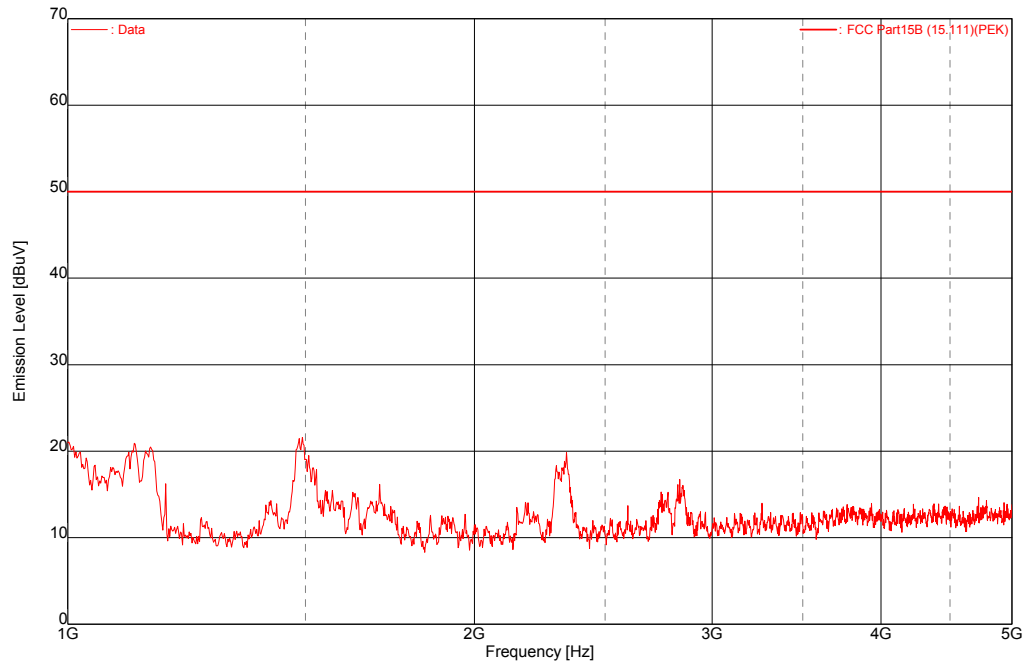
Kashima No.3 Test Site

Date tested : Dec 11 2012

Test mode : RX mode (VFO SCAN  
MAIN:ANT.2) 22.0degC /34.0%

Company : JVC KENWOOD Corporation  
EUT Name : HF/50MHz TRANSCEIVER  
Model number : TS-990S  
Serial number : 82A90005

Power source : AC 120V, 60Hz  
File number : -  
Engineer : Koichi Wagatsuma  
Note :



| Frequency<br>[ MHz ] | Reading<br>[ dBuV ] | Factor<br>[ dB ] | Emission<br>[ dBuV ] | Limit<br>[ dBuV ] | Margin<br>[ dB ] |
|----------------------|---------------------|------------------|----------------------|-------------------|------------------|
| 1001.1000            | <u>51.7</u>         | -30.6            | <u>21.1</u>          | 50.0              | <u>28.9</u>      |
| 1138.5430            | <u>51.4</u>         | -30.4            | <u>21.0</u>          | 50.0              | <u>29.0</u>      |
| 1500.8070            | <u>51.7</u>         | -29.9            | <u>21.8</u>          | 50.0              | <u>28.2</u>      |
| 2328.8390            | <u>49.7</u>         | -29.6            | <u>20.1</u>          | 50.0              | <u>29.9</u>      |

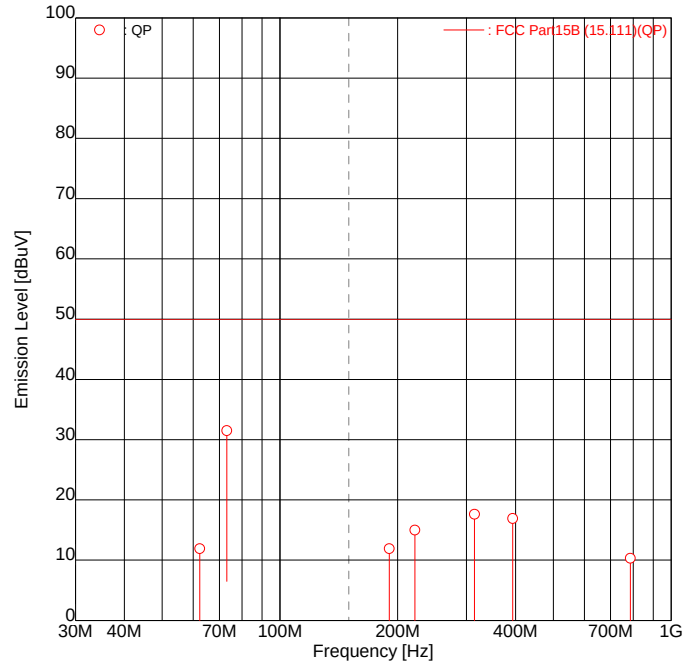
Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor (Attenuator, Cable, Preamp)  
Limit : 2nW = 50dBuV (50ohm impedance)

9.3.13 RX mode (0.03MHz SUB:Ant.2)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (0.03MHz SUB:Ant.2)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 18 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 21.5 [degC]  
HUMIDITY : 38.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 62.4033            | <u>22.7</u>       | -10.8          | <u>11.9</u>        | 50.0            | <u>38.1</u>    |
| 2                 | 73.1429            | <u>42.2</u>       | -10.7          | <u>31.5</u>        | 50.0            | <u>18.5</u>    |
| 3                 | 190.4275           | <u>21.9</u>       | -10.0          | <u>11.9</u>        | 50.0            | <u>38.1</u>    |
| 4                 | 221.2073           | <u>24.9</u>       | -9.9           | <u>15.0</u>        | 50.0            | <u>35.0</u>    |
| 5                 | 314.1849           | <u>26.7</u>       | -9.1           | <u>17.6</u>        | 50.0            | <u>32.4</u>    |
| 6                 | 393.6012           | <u>25.4</u>       | -8.5           | <u>16.9</u>        | 50.0            | <u>33.1</u>    |
| 7                 | 787.2068           | <u>16.8</u>       | -6.5           | <u>10.3</u>        | 50.0            | <u>39.7</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

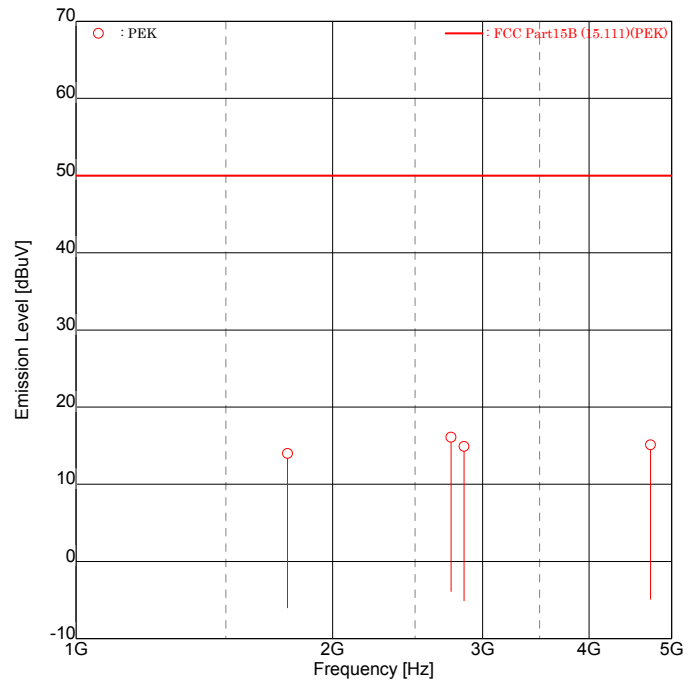
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (0.03MHz SUB:ANT.2)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 11 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 22.0 [degC]  
HUMIDITY : 34.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1771.4370          | <u>43.6</u>       | -29.6          | <u>14.0</u>        | 50.0            | <u>36.0</u>    |
| 2                 | 2755.3800          | <u>45.7</u>       | -29.6          | <u>16.1</u>        | 50.0            | <u>33.9</u>    |
| 3                 | 2853.5100          | <u>44.4</u>       | -29.5          | <u>14.9</u>        | 50.0            | <u>35.1</u>    |
| 4                 | 4723.1770          | <u>41.6</u>       | -26.5          | <u>15.1</u>        | 50.0            | <u>34.9</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

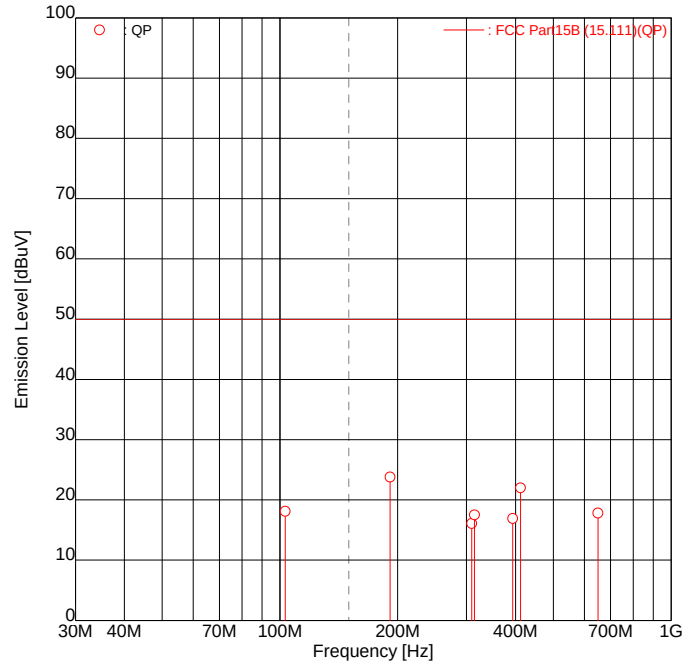
emiT 3, 0, 0, 0

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9.3.14 RX mode (30.00MHz SUB:Ant.2)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (30.00MHz SUB:Ant.2)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 18 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 21.5 [degC]  
HUMIDITY : 38.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 103.1061           | <u>28.7</u>       | -10.6          | <u>18.1</u>        | 50.0            | <u>31.9</u>    |
| 2                 | 191.2481           | <u>33.8</u>       | -10.0          | <u>23.8</u>        | 50.0            | <u>26.2</u>    |
| 3                 | 309.3013           | <u>25.3</u>       | -9.2           | <u>16.1</u>        | 50.0            | <u>33.9</u>    |
| 4                 | 314.1839           | <u>26.6</u>       | -9.1           | <u>17.5</u>        | 50.0            | <u>32.5</u>    |
| 5                 | 393.6026           | <u>25.4</u>       | -8.5           | <u>16.9</u>        | 50.0            | <u>33.1</u>    |
| 6                 | 412.3946           | <u>30.3</u>       | -8.3           | <u>22.0</u>        | 50.0            | <u>28.0</u>    |
| 7                 | 650.2449           | <u>25.0</u>       | -7.2           | <u>17.8</u>        | 50.0            | <u>32.2</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

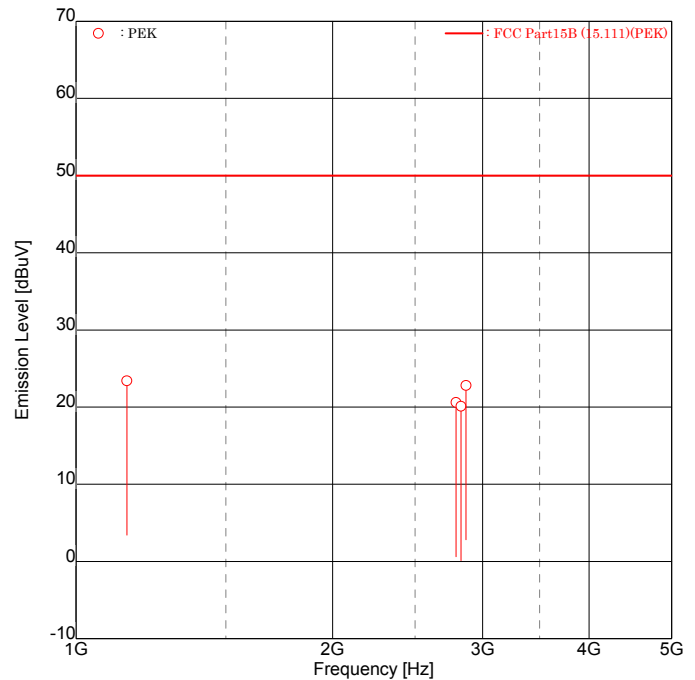
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (30.00MHz SUB:ANT.2)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 11 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 22.0 [degC]  
HUMIDITY : 34.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1147.5150          | <u>53.8</u>       | -30.4          | <u>23.4</u>        | 50.0            | <u>26.6</u>    |
| 2                 | 2792.3520          | <u>50.1</u>       | -29.5          | <u>20.6</u>        | 50.0            | <u>29.4</u>    |
| 3                 | 2830.0340          | <u>49.6</u>       | -29.5          | <u>20.1</u>        | 50.0            | <u>29.9</u>    |
| 4                 | 2868.6780          | <u>52.3</u>       | -29.5          | <u>22.8</u>        | 50.0            | <u>27.2</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

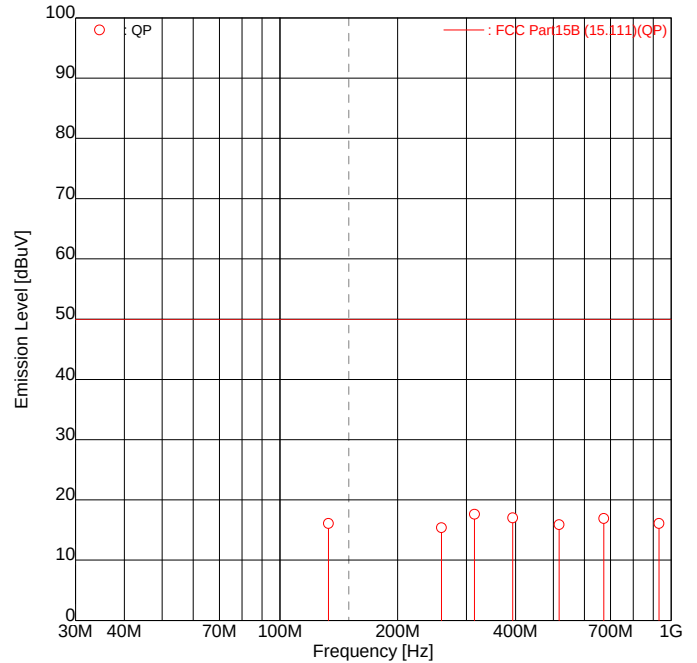
emiT 3, 0, 0, 0

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9.3.15 RX mode (59.99MHz SUB:Ant.2)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (59.99MHz SUB:Ant.2)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 18 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 21.5 [degC]  
HUMIDITY : 38.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 133.1007           | <u>26.5</u>       | -10.4          | <u>16.1</u>        | 50.0            | <u>33.9</u>    |
| 2                 | 258.7625           | 24.9              | -9.5           | 15.4               | 50.0            | 34.6           |
| 3                 | 314.1869           | <u>26.7</u>       | -9.1           | <u>17.6</u>        | 50.0            | <u>32.4</u>    |
| 4                 | 393.6020           | <u>25.5</u>       | -8.5           | <u>17.0</u>        | 50.0            | <u>33.0</u>    |
| 5                 | 517.5280           | <u>23.5</u>       | -7.6           | <u>15.9</u>        | 50.0            | <u>34.1</u>    |
| 6                 | 672.7796           | <u>24.0</u>       | -7.1           | <u>16.9</u>        | 50.0            | <u>33.1</u>    |
| 7                 | 931.5461           | <u>21.8</u>       | -5.7           | <u>16.1</u>        | 50.0            | <u>33.9</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)



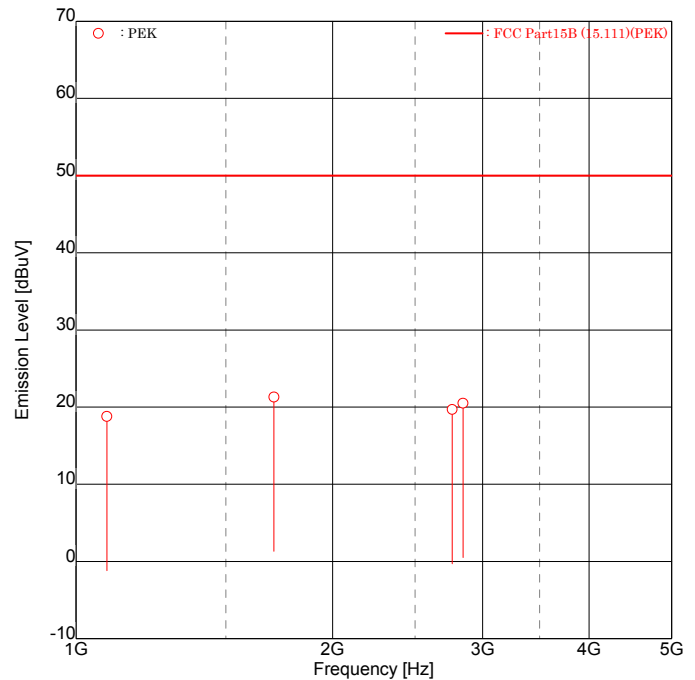
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (59.99MHz SUB:ANT.2)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 11 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 22.0 [degC]  
HUMIDITY : 34.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1086.8720          | <u>49.3</u>       | -30.5          | <u>18.8</u>        | 50.0            | <u>31.2</u>    |
| 2                 | 1707.7250          | <u>51.0</u>       | -29.7          | <u>21.3</u>        | 50.0            | <u>28.7</u>    |
| 3                 | 2764.5320          | <u>49.3</u>       | -29.6          | <u>19.7</u>        | 50.0            | <u>30.3</u>    |
| 4                 | 2846.3670          | <u>50.0</u>       | -29.5          | <u>20.5</u>        | 50.0            | <u>29.5</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

emiT 3, 0, 0, 0

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9.3.16 RX mode (VFO SCAN SUB:Ant.2)  
30 – 1000 MHz

< Graph number #1 >

SPECTRUM ANALYSIS

Kashima No.3 Test Site

Date tested : Dec 18 2012

Test mode : RX mode (VFO SCAN  
SUB:Ant.2) 21.5degC /38.0%

Company : JVC KENWOOD Corporation

EUT Name : HF/50MHz TRANSCEIVER

Model number : TS-990S

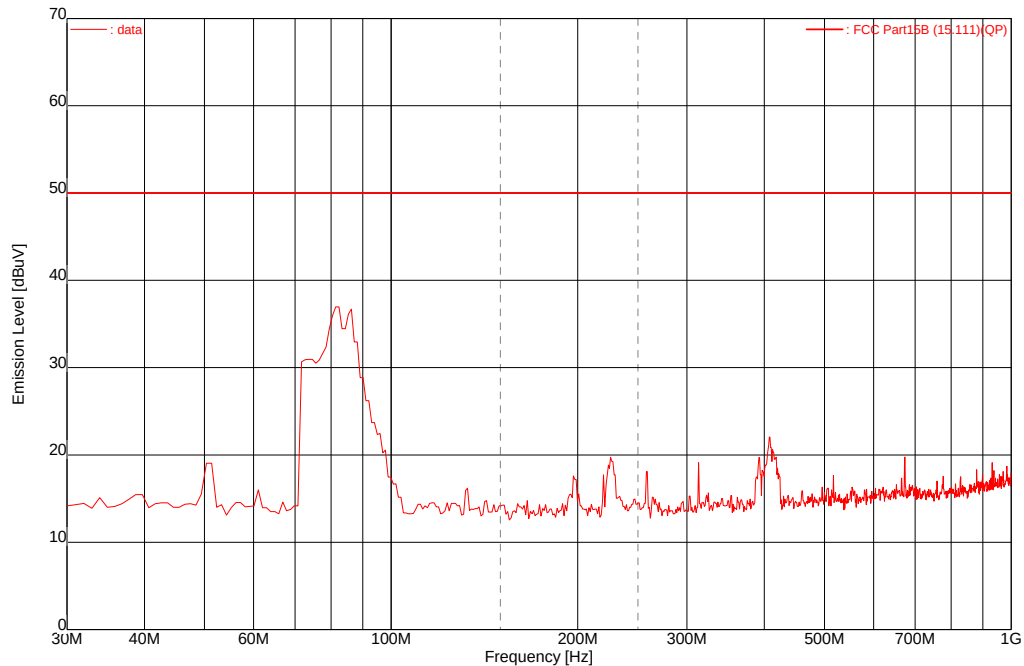
Serial number : 82A90005

Power source : AC 120V, 60Hz

File number : -

Engineer : Koichi Wagatsuma

Note :



| Frequency<br>[ MHz ] | Reading<br>[ dBuV ] | Factor<br>[ dB ] | Emission<br>[ dBuV ] | Limit<br>[ dBuV ] | Margin<br>[ dB ] |
|----------------------|---------------------|------------------|----------------------|-------------------|------------------|
| 73.5900              | <u>42.4</u>         | -10.7            | <u>31.7</u>          | 50.0              | <u>18.3</u>      |
| 83.0319              | <u>48.6</u>         | -10.6            | <u>38.0</u>          | 50.0              | <u>12.0</u>      |
| 87.2291              | <u>48.3</u>         | -10.6            | <u>37.7</u>          | 50.0              | <u>12.3</u>      |
| 225.4184             | <u>29.7</u>         | -9.8             | <u>19.9</u>          | 50.0              | <u>30.1</u>      |
| 314.1805             | 26.6                | -9.1             | 17.5                 | 50.0              | 32.5             |
| 393.5979             | <u>31.4</u>         | -8.5             | <u>22.9</u>          | 50.0              | <u>27.1</u>      |
| 407.1048             | <u>31.0</u>         | -8.3             | <u>22.7</u>          | 50.0              | <u>27.3</u>      |

emiT 3, 0, 0, 0

- 1 / 1 -

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Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

Emission Level = Read + Factor (Attenuator, Cable, Preamp)

Limit : 2nW = 50dBuV (50ohm impedance)

1000 – 5000 MHz

< Graph number #1 >

## SPECTRUM ANALYSIS

Kashima No.3 Test Site

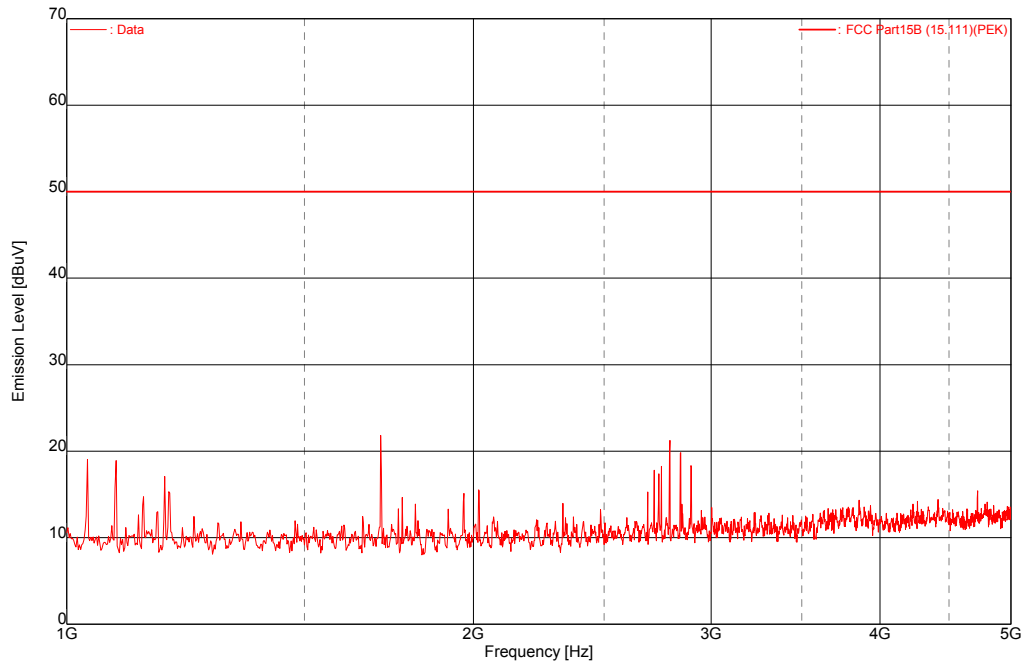
Date tested : Dec 11 2012

Test mode : RX mode (VFO SCAN)  
SUB:ANT.2)

22.0degC /34.0%

Company : JVC KENWOOD Corporation  
EUT Name : HF/50MHz TRANSCEIVER  
Model number : TS-990S  
Serial number : 82A90005

Power source : AC 120V, 60Hz  
File number : -  
Engineer : Koichi Wagatsuma  
Note :



| Frequency<br>[ MHz ] | Reading<br>[ dBuV ] | Factor<br>[ dB ] | Emission<br>[ dBuV ] | Limit<br>[ dBuV ] | Margin<br>[ dB ] |
|----------------------|---------------------|------------------|----------------------|-------------------|------------------|
| 1035.0390            | <u>49.6</u>         | -30.5            | <u>19.1</u>          | 50.0              | <u>30.9</u>      |
| 1086.7910            | <u>49.5</u>         | -30.5            | <u>19.0</u>          | 50.0              | <u>31.0</u>      |
| 1707.8150            | <u>51.6</u>         | -29.7            | <u>21.9</u>          | 50.0              | <u>28.1</u>      |
| 2794.6070            | <u>50.8</u>         | -29.5            | <u>21.3</u>          | 50.0              | <u>28.7</u>      |

Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

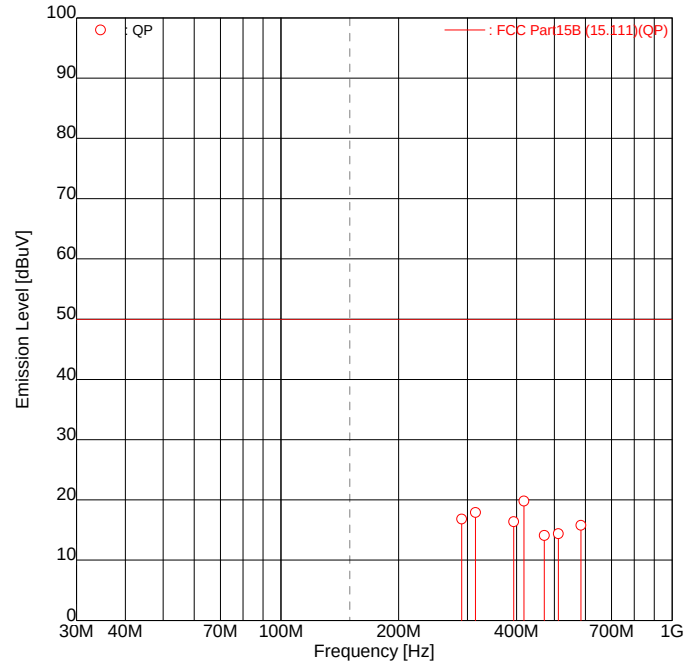
Emission Level = Read + Factor (Attenuator, Cable, Preamp)

Limit : 2nW = 50dBuV (50ohm impedance)

9.3.17 RX mode (0.03MHz MAIN:Ant.3)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (0.03MHz MAIN:Ant.3)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 17 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.2 [degC]  
HUMIDITY : 33.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 289.7813           | <u>26.1</u>       | -9.3           | <u>16.8</u>        | 50.0            | <u>33.2</u>    |
| 2                 | 314.1940           | <u>27.0</u>       | -9.1           | <u>17.9</u>        | 50.0            | <u>32.1</u>    |
| 3                 | 393.6149           | <u>24.9</u>       | -8.5           | <u>16.4</u>        | 50.0            | <u>33.6</u>    |
| 4                 | 417.7970           | <u>28.0</u>       | -8.2           | <u>19.8</u>        | 50.0            | <u>30.2</u>    |
| 5                 | 471.2690           | 22.0              | -7.9           | 14.1               | 50.0            | 35.9           |
| 6                 | 511.8973           | <u>22.1</u>       | -7.7           | <u>14.4</u>        | 50.0            | <u>35.6</u>    |
| 7                 | 585.0100           | <u>23.4</u>       | -7.6           | <u>15.8</u>        | 50.0            | <u>34.2</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

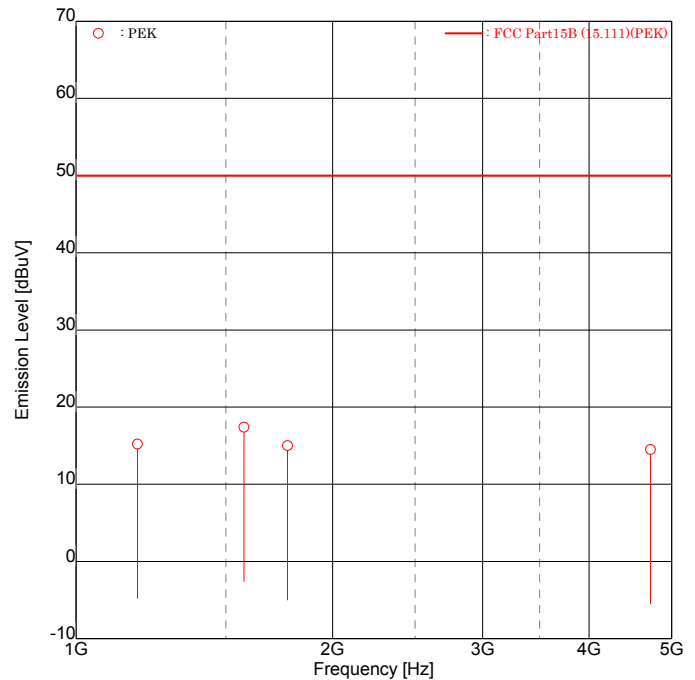
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (0.03MHz MAIN:ANT.3)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 11 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 22.0 [degC]  
HUMIDITY : 34.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1180.8800          | <u>45.6</u>       | -30.4          | <u>15.2</u>        | 50.0            | <u>34.8</u>    |
| 2                 | 1574.4770          | <u>47.3</u>       | -29.9          | <u>17.4</u>        | 50.0            | <u>32.6</u>    |
| 3                 | 1771.2950          | <u>44.6</u>       | -29.6          | <u>15.0</u>        | 50.0            | <u>35.0</u>    |
| 4                 | 4723.3870          | <u>41.0</u>       | -26.5          | <u>14.5</u>        | 50.0            | <u>35.5</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

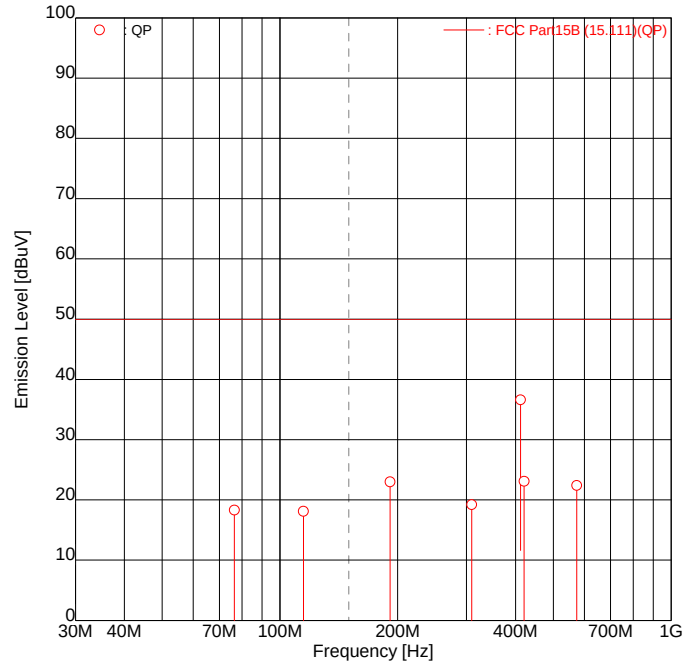
emiT 3, 0, 0, 0

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9.3.18 RX mode (30.00MHz MAIN:Ant.3)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (30.00MHz MAIN:Ant.3)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 17 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.2 [degC]  
HUMIDITY : 33.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 76.4947            | <u>29.0</u>       | -10.7          | <u>18.3</u>        | 50.0            | <u>31.7</u>    |
| 2                 | 114.7600           | <u>28.6</u>       | -10.5          | <u>18.1</u>        | 50.0            | <u>31.9</u>    |
| 3                 | 191.2514           | <u>33.0</u>       | -10.0          | <u>23.0</u>        | 50.0            | <u>27.0</u>    |
| 4                 | 309.2802           | <u>28.4</u>       | -9.2           | <u>19.2</u>        | 50.0            | <u>30.8</u>    |
| 5                 | 412.3821           | <u>44.9</u>       | -8.3           | <u>36.6</u>        | 50.0            | <u>13.4</u>    |
| 6                 | 420.7411           | <u>31.3</u>       | -8.2           | <u>23.1</u>        | 50.0            | <u>26.9</u>    |
| 7                 | 573.7434           | <u>30.0</u>       | -7.6           | <u>22.4</u>        | 50.0            | <u>27.6</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

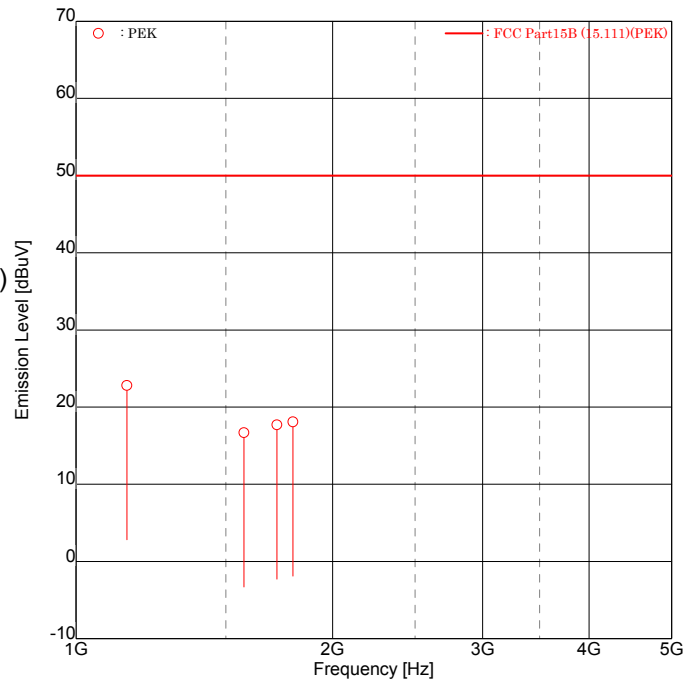
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (30.00MHz MAIN:ANT.3)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 11 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 22.0 [degC]  
HUMIDITY : 34.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1147.4800          | <u>53.2</u>       | -30.4          | <u>22.8</u>        | 50.0            | <u>27.2</u>    |
| 2                 | 1574.2500          | <u>46.6</u>       | -29.9          | <u>16.7</u>        | 50.0            | <u>33.3</u>    |
| 3                 | 1721.1470          | <u>47.4</u>       | -29.7          | <u>17.7</u>        | 50.0            | <u>32.3</u>    |
| 4                 | 1797.6100          | <u>47.7</u>       | -29.6          | <u>18.1</u>        | 50.0            | <u>31.9</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

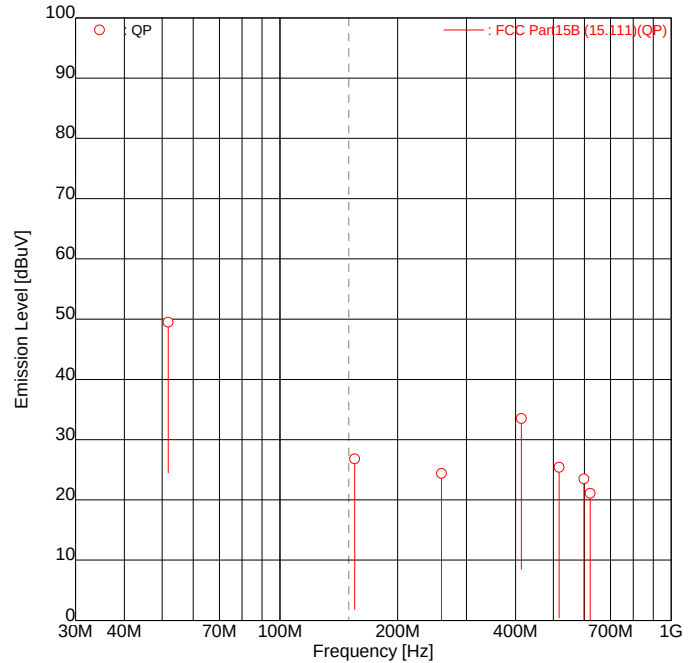
emiT 3, 0, 0, 0

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9.3.19 RX mode (59.99MHz MAIN:Ant.3)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (59.99MHz MAIN:Ant.3)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 17 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.2 [degC]  
HUMIDITY : 33.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 51.7600            | <u>60.4</u>       | -10.9          | <u>49.5</u>        | 50.0            | <u>0.5</u>     |
| 2                 | 155.2580           | <u>37.1</u>       | -10.3          | <u>26.8</u>        | 50.0            | <u>23.2</u>    |
| 3                 | 258.7560           | <u>33.9</u>       | -9.5           | <u>24.4</u>        | 50.0            | <u>25.6</u>    |
| 4                 | 414.0160           | <u>41.8</u>       | -8.3           | <u>33.5</u>        | 50.0            | <u>16.5</u>    |
| 5                 | 517.5234           | <u>33.0</u>       | -7.6           | <u>25.4</u>        | 50.0            | <u>24.6</u>    |
| 6                 | 598.9328           | <u>31.0</u>       | -7.5           | <u>23.5</u>        | 50.0            | <u>26.5</u>    |
| 7                 | 621.0275           | <u>28.5</u>       | -7.4           | <u>21.1</u>        | 50.0            | <u>28.9</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)



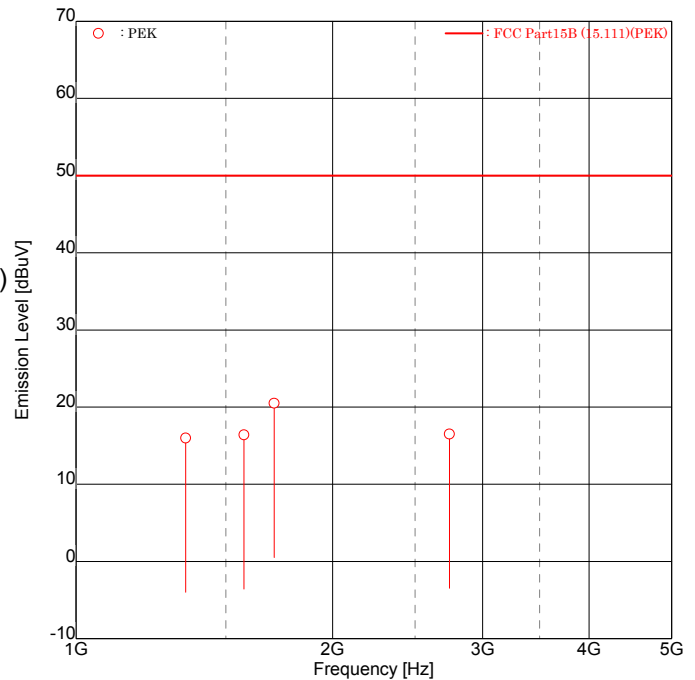
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (59.99MHz MAIN:ANT.3)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 11 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 22.0 [degC]  
HUMIDITY : 34.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1345.4900          | <u>46.1</u>       | -30.1          | <u>16.0</u>        | 50.0            | <u>34.0</u>    |
| 2                 | 1574.4050          | <u>46.3</u>       | -29.9          | <u>16.4</u>        | 50.0            | <u>33.6</u>    |
| 3                 | 1707.9120          | <u>50.2</u>       | -29.7          | <u>20.5</u>        | 50.0            | <u>29.5</u>    |
| 4                 | 2742.9300          | <u>46.1</u>       | -29.6          | <u>16.5</u>        | 50.0            | <u>33.5</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

emiT 3, 0, 0, 0

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9.3.20 RX mode (VFO SCAN MAIN:Ant.3)  
30 – 1000 MHz

< Graph number #1 >

SPECTRUM ANALYSIS

Kashima No.3 Test Site

Date tested : Dec 17 2012

Test mode : RX mode (VFO SCAN  
MAIN:Ant.3) 23.2degC /33.0%

Company : JVC KENWOOD Corporation

EUT Name : HF/50MHz TRANSCEIVER

Model number : TS-990S

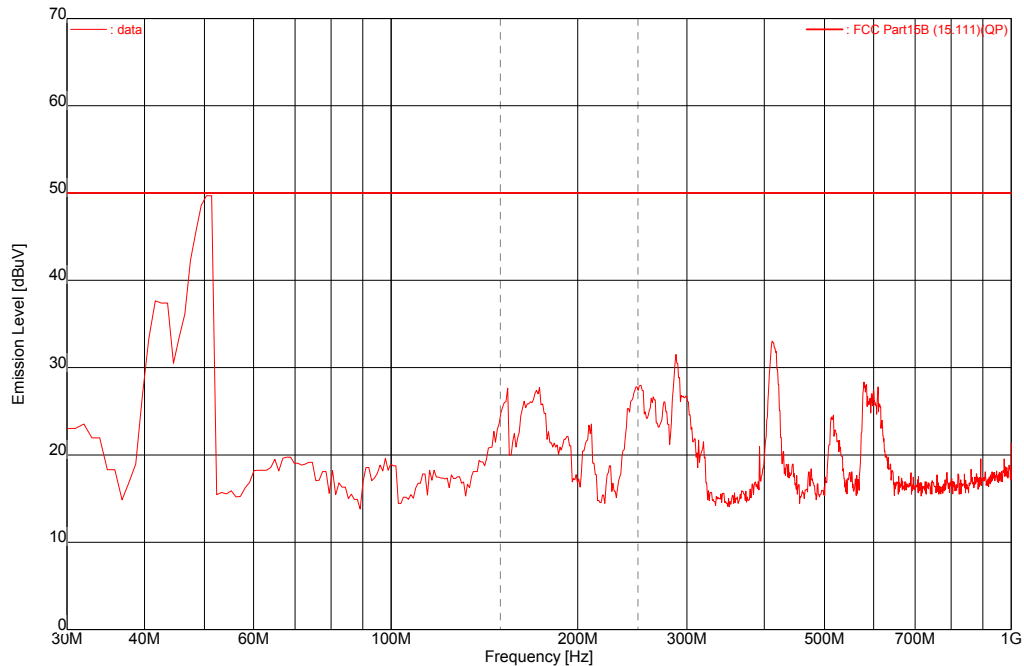
Serial number : 82A90005

Power source : AC 120V, 60Hz

File number : -

Engineer : Koichi Wagatsuma

Note :



| Frequency<br>[ MHz ] | Reading<br>[ dBuV ] | Factor<br>[ dB ] | Emission<br>[ dBuV ] | Limit<br>[ dBuV ] | Margin<br>[ dB ] |
|----------------------|---------------------|------------------|----------------------|-------------------|------------------|
| 43.2663              | <u>48.9</u>         | -10.9            | <u>38.0</u>          | 50.0              | <u>12.0</u>      |
| 50.7443              | <u>58.3</u>         | -10.9            | <u>47.4</u>          | 50.0              | <u>2.6</u>       |
| 51.7600              | <u>60.4</u>         | -10.9            | <u>49.5</u>          | 50.0              | <u>0.5</u>       |
| 248.3250             | <u>37.6</u>         | -9.5             | <u>28.1</u>          | 50.0              | <u>21.9</u>      |
| 289.3033             | <u>41.8</u>         | -9.3             | <u>32.5</u>          | 50.0              | <u>17.5</u>      |
| 414.0226             | <u>42.0</u>         | -8.3             | <u>33.7</u>          | 50.0              | <u>16.3</u>      |
| 580.2806             | 34.0                | -7.6             | 26.4                 | 50.0              | 23.6             |

emiT 3, 0, 0, 0

- 1 / 1 -

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Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

Emission Level = Read + Factor (Attenuator, Cable, Preamp)

Limit : 2nW = 50dBuV (50ohm impedance)

1000 – 5000 MHz

< Graph number #1 >

## SPECTRUM ANALYSIS

Kashima No.3 Test Site

Date tested : Dec 11 2012

22.0degC /34.0%

Test mode : RX mode (VFO SCAN  
MAIN:ANT.3)

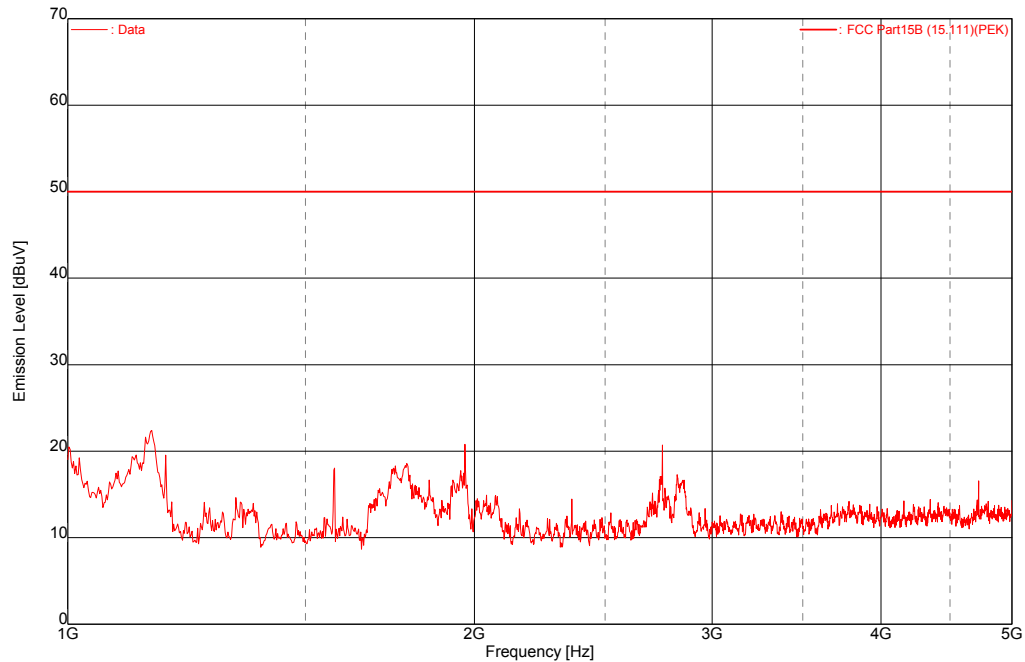
Company : JVC KENWOOD Corporation Power source : AC 120V, 60Hz

EUT Name : HF/50MHz TRANSCEIVER File number : -

Model number : TS-990S Engineer : Koichi Wagatsuma

Serial number : 82A90005

Note :



| Frequency<br>[ MHz ] | Reading<br>[ dBuV ] | Factor<br>[ dB ] | Emission<br>[ dBuV ] | Limit<br>[ dBuV ] | Margin<br>[ dB ] |
|----------------------|---------------------|------------------|----------------------|-------------------|------------------|
| 1025.5070            | <u>50.8</u>         | -30.6            | <u>20.2</u>          | 50.0              | <u>29.8</u>      |
| 1160.4410            | <u>52.9</u>         | -30.4            | <u>22.5</u>          | 50.0              | <u>27.5</u>      |
| 1968.0000            | <u>50.2</u>         | -29.4            | <u>20.8</u>          | 50.0              | <u>29.2</u>      |
| 2755.2000            | <u>50.4</u>         | -29.6            | <u>20.8</u>          | 50.0              | <u>29.2</u>      |

Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

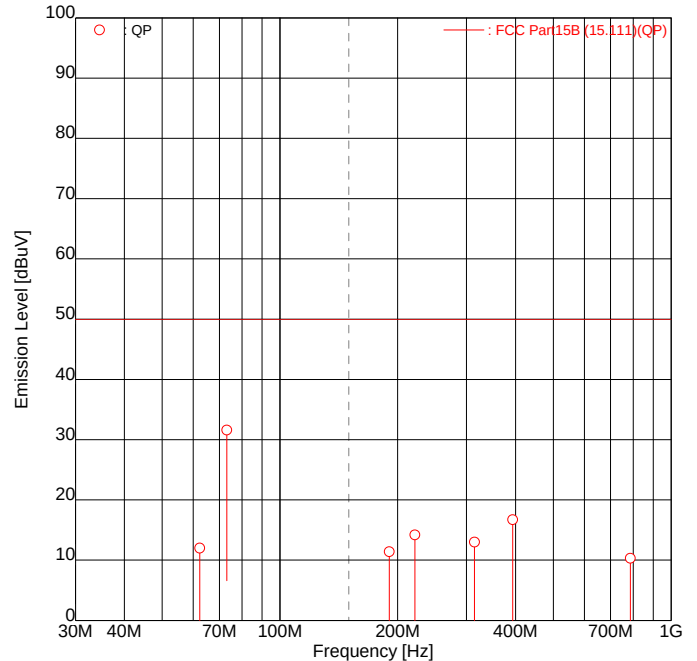
Emission Level = Read + Factor (Attenuator, Cable, Preamp)

Limit : 2nW = 50dBuV (50ohm impedance)

9.3.21 RX mode (0.03MHz SUB:Ant.3)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (0.03MHz SUB:Ant.3)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 18 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 21.5 [degC]  
HUMIDITY : 38.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 62.3952            | <u>22.8</u>       | -10.8          | <u>12.0</u>        | 50.0            | <u>38.0</u>    |
| 2                 | 73.1283            | <u>42.3</u>       | -10.7          | <u>31.6</u>        | 50.0            | <u>18.4</u>    |
| 3                 | 190.4280           | <u>21.4</u>       | -10.0          | <u>11.4</u>        | 50.0            | <u>38.6</u>    |
| 4                 | 221.1867           | <u>24.1</u>       | -9.9           | <u>14.2</u>        | 50.0            | <u>35.8</u>    |
| 5                 | 314.1852           | <u>22.1</u>       | -9.1           | <u>13.0</u>        | 50.0            | <u>37.0</u>    |
| 6                 | 393.5940           | <u>25.2</u>       | -8.5           | <u>16.7</u>        | 50.0            | <u>33.3</u>    |
| 7                 | 787.2053           | 16.8              | -6.5           | 10.3               | 50.0            | 39.7           |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

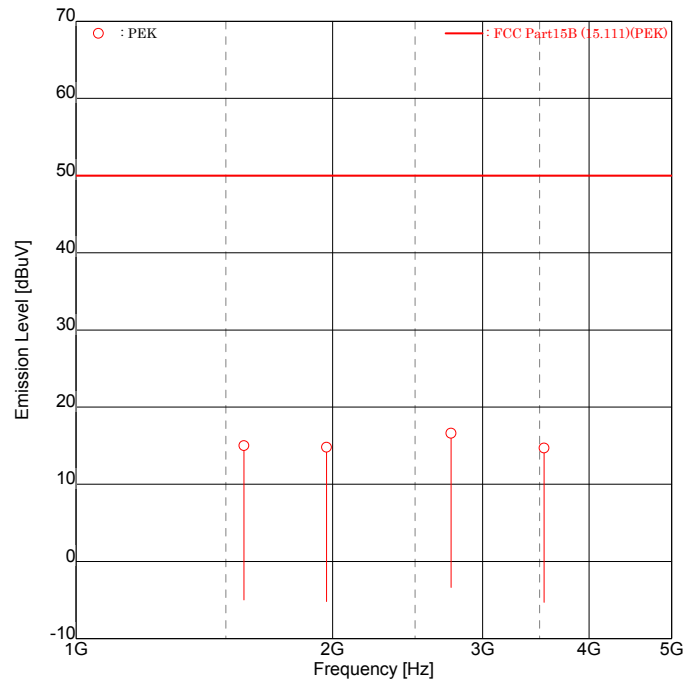
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (0.03MHz SUB:ANT.3)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 11 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 22.0 [degC]  
HUMIDITY : 34.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1574.4720          | <u>44.9</u>       | -29.9          | <u>15.0</u>        | 50.0            | <u>35.0</u>    |
| 2                 | 1968.0550          | <u>44.2</u>       | -29.4          | <u>14.8</u>        | 50.0            | <u>35.2</u>    |
| 3                 | 2755.1370          | <u>46.2</u>       | -29.6          | <u>16.6</u>        | 50.0            | <u>33.4</u>    |
| 4                 | 3542.5270          | <u>43.4</u>       | -28.7          | <u>14.7</u>        | 50.0            | <u>35.3</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

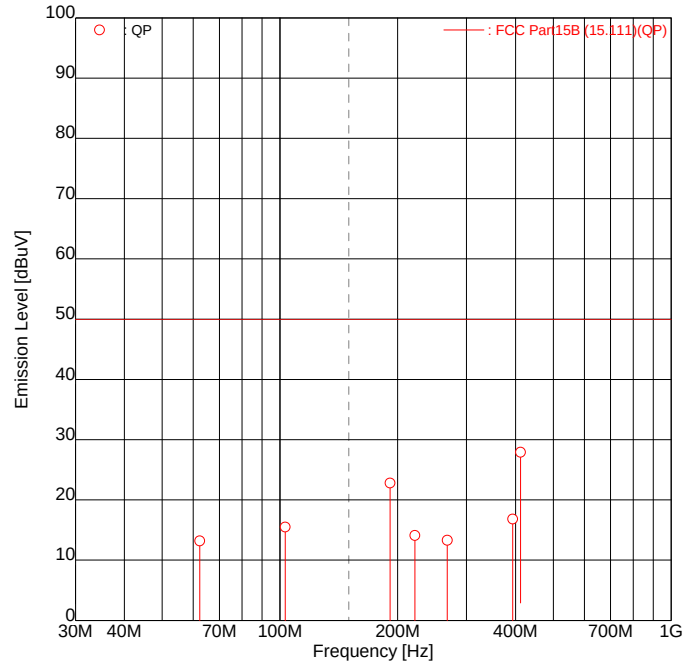
emiT 3, 0, 0, 0

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9.3.22 RX mode (30.00MHz SUB:Ant.3)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (30.00MHz SUB:Ant.3)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 18 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 21.5 [degC]  
HUMIDITY : 38.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 62.4135            | 24.0              | -10.8          | 13.2               | 50.0            | 36.8           |
| 2                 | 103.1042           | <u>26.1</u>       | -10.6          | <u>15.5</u>        | 50.0            | <u>34.5</u>    |
| 3                 | 191.2511           | <u>32.8</u>       | -10.0          | <u>22.8</u>        | 50.0            | <u>27.2</u>    |
| 4                 | 221.1824           | <u>24.0</u>       | -9.9           | <u>14.1</u>        | 50.0            | <u>35.9</u>    |
| 5                 | 267.7586           | <u>22.7</u>       | -9.4           | <u>13.3</u>        | 50.0            | <u>36.7</u>    |
| 6                 | 393.6108           | <u>25.3</u>       | -8.5           | <u>16.8</u>        | 50.0            | <u>33.2</u>    |
| 7                 | 412.3967           | <u>36.2</u>       | -8.3           | <u>27.9</u>        | 50.0            | <u>22.1</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

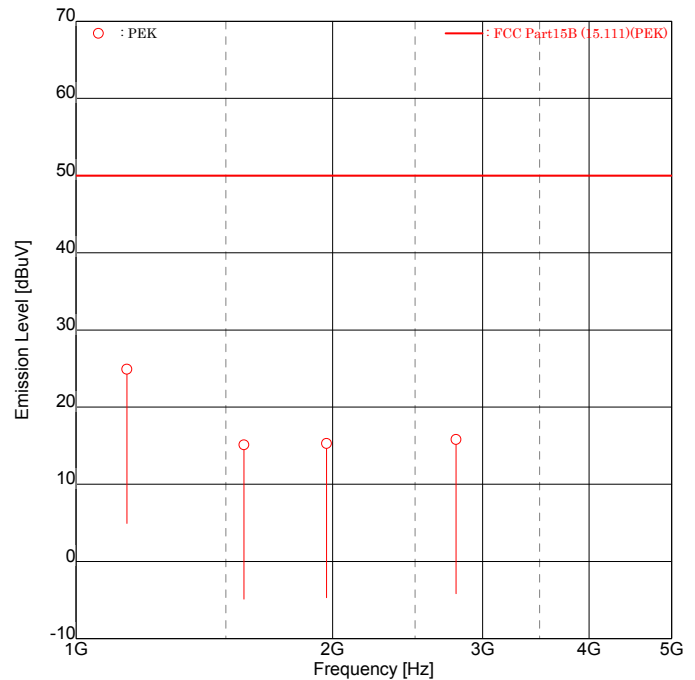
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (30.00MHz SUB:ANT.3)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 11 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 22.0 [degC]  
HUMIDITY : 34.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1147.5520          | <u>55.3</u>       | -30.4          | <u>24.9</u>        | 50.0            | <u>25.1</u>    |
| 2                 | 1574.1900          | <u>45.0</u>       | -29.9          | <u>15.1</u>        | 50.0            | <u>34.9</u>    |
| 3                 | 1967.9800          | <u>44.7</u>       | -29.4          | <u>15.3</u>        | 50.0            | <u>34.7</u>    |
| 4                 | 2792.2850          | <u>45.3</u>       | -29.5          | <u>15.8</u>        | 50.0            | <u>34.2</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

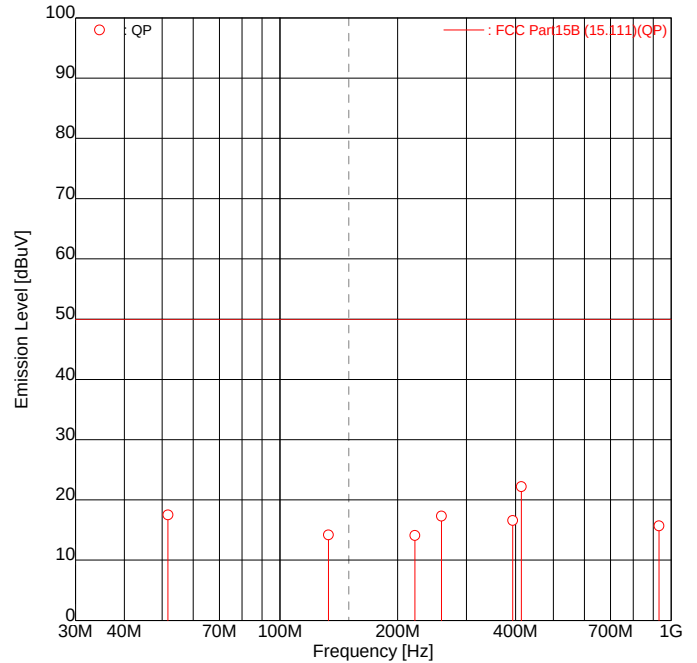
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9.3.23 RX mode (59.99MHz SUB:Ant.3)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (59.99MHz SUB:Ant.3)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 18 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 21.5 [degC]  
HUMIDITY : 38.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 51.7544            | <u>28.4</u>       | -10.9          | <u>17.5</u>        | 50.0            | <u>32.5</u>    |
| 2                 | 133.0999           | <u>24.6</u>       | -10.4          | <u>14.2</u>        | 50.0            | <u>35.8</u>    |
| 3                 | 221.1869           | 24.0              | -9.9           | 14.1               | 50.0            | 35.9           |
| 4                 | 258.7677           | <u>26.8</u>       | -9.5           | <u>17.3</u>        | 50.0            | <u>32.7</u>    |
| 5                 | 393.6022           | <u>25.1</u>       | -8.5           | <u>16.6</u>        | 50.0            | <u>33.4</u>    |
| 6                 | 414.0290           | <u>30.5</u>       | -8.3           | <u>22.2</u>        | 50.0            | <u>27.8</u>    |
| 7                 | 931.5395           | <u>21.4</u>       | -5.7           | <u>15.7</u>        | 50.0            | <u>34.3</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)



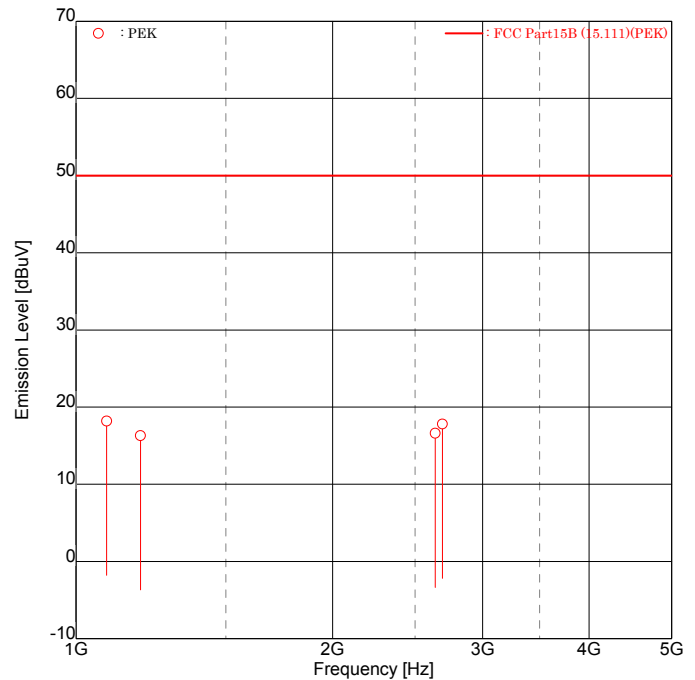
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (59.99MHz SUB:ANT.3)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 11 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 22.0 [degC]  
HUMIDITY : 34.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1086.7750          | <u>48.7</u>       | -30.5          | <u>18.2</u>        | 50.0            | <u>31.8</u>    |
| 2                 | 1190.4050          | <u>46.6</u>       | -30.3          | <u>16.3</u>        | 50.0            | <u>33.7</u>    |
| 3                 | 2639.4100          | <u>46.2</u>       | -29.6          | <u>16.6</u>        | 50.0            | <u>33.4</u>    |
| 4                 | 2691.2020          | <u>47.4</u>       | -29.6          | <u>17.8</u>        | 50.0            | <u>32.2</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

emiT 3, 0, 0, 0

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9.3.24 RX mode (VFO SCAN SUB:Ant.3)  
30 – 1000 MHz

< Graph number #1 >

SPECTRUM ANALYSIS

Kashima No.3 Test Site

Date tested : Dec 18 2012

Test mode : RX mode (VFO SCAN  
SUB:Ant.3) 21.5degC /38.0%

Company : JVC KENWOOD Corporation

EUT Name : HF/50MHz TRANSCEIVER

Model number : TS-990S

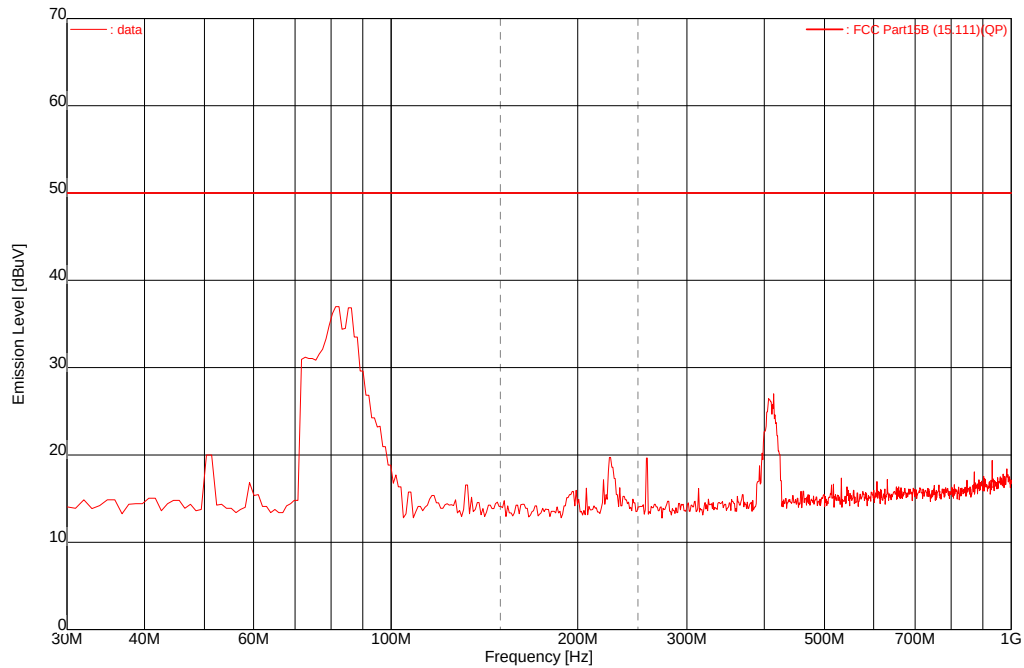
Serial number : 82A90005

Power source : AC 120V, 60Hz

File number : -

Engineer : Koichi Wagatsuma

Note :



| Frequency<br>[ MHz ] | Reading<br>[ dBuV ] | Factor<br>[ dB ] | Emission<br>[ dBuV ] | Limit<br>[ dBuV ] | Margin<br>[ dB ] |
|----------------------|---------------------|------------------|----------------------|-------------------|------------------|
| 51.7500              | 29.3                | -10.9            | 18.4                 | 50.0              | 31.6             |
| 73.6083              | <u>42.9</u>         | -10.7            | <u>32.2</u>          | 50.0              | <u>17.8</u>      |
| 83.0968              | <u>49.2</u>         | -10.6            | <u>38.6</u>          | 50.0              | <u>11.4</u>      |
| 87.1365              | <u>48.9</u>         | -10.6            | <u>38.3</u>          | 50.0              | <u>11.7</u>      |
| 226.4745             | <u>29.6</u>         | -9.8             | <u>19.8</u>          | 50.0              | <u>30.2</u>      |
| 258.7673             | <u>29.9</u>         | -9.5             | <u>20.4</u>          | 50.0              | <u>29.6</u>      |
| 414.0183             | <u>38.2</u>         | -8.3             | <u>29.9</u>          | 50.0              | <u>20.1</u>      |

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Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

Emission Level = Read + Factor (Attenuator, Cable, Preamp)

Limit : 2nW = 50dBuV (50ohm impedance)

1000 – 5000 MHz

< Graph number #1 >

## SPECTRUM ANALYSIS

Kashima No.3 Test Site

Date tested : Dec 11 2012

22.0degC /34.0%

Test mode : RX mode (VFO SCAN  
SUB:ANT.3)

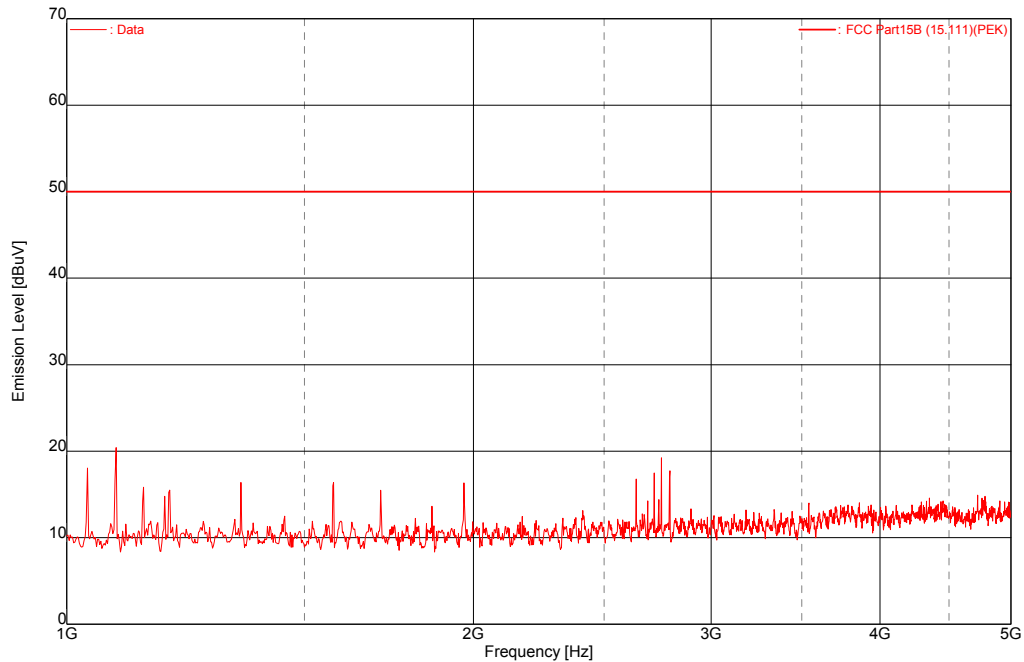
Company : JVC KENWOOD Corporation Power source : AC 120V, 60Hz

EUT Name : HF/50MHz TRANSCEIVER File number : -

Model number : TS-990S Engineer : Koichi Wagatsuma

Serial number : 82A90005

Note :



| Frequency<br>[ MHz ] | Reading<br>[ dBuV ] | Factor<br>[ dB ] | Emission<br>[ dBuV ] | Limit<br>[ dBuV ] | Margin<br>[ dB ] |
|----------------------|---------------------|------------------|----------------------|-------------------|------------------|
| 1035.0390            | <u>48.6</u>         | -30.5            | <u>18.1</u>          | 50.0              | <u>31.9</u>      |
| 1086.7910            | <u>51.0</u>         | -30.5            | <u>20.5</u>          | 50.0              | <u>29.5</u>      |
| 2755.2000            | <u>48.9</u>         | -29.6            | <u>19.3</u>          | 50.0              | <u>30.7</u>      |
| 2794.6070            | <u>47.3</u>         | -29.5            | <u>17.8</u>          | 50.0              | <u>32.2</u>      |

Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

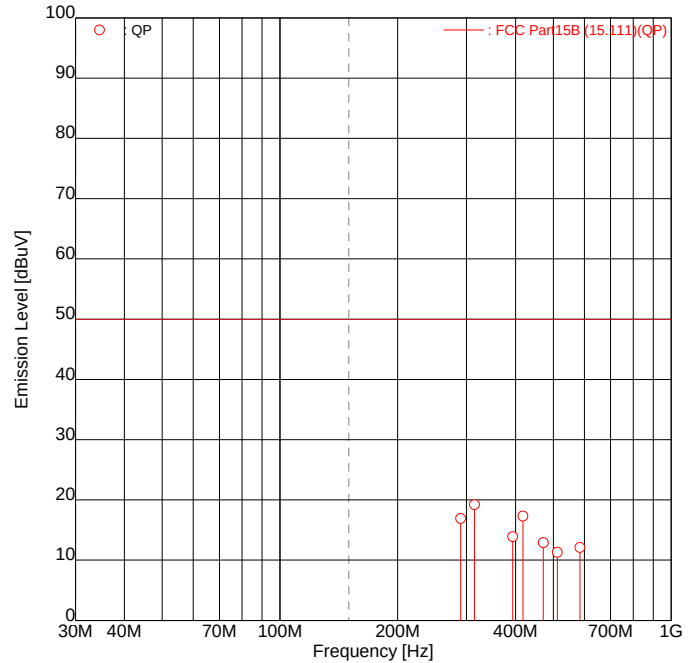
Emission Level = Read + Factor (Attenuator, Cable, Preamp)

Limit : 2nW = 50dBuV (50ohm impedance)

9.3.25 RX mode (0.03MHz MAIN:Ant.4)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (0.03MHz MAIN:Ant.4)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 17 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.2 [degC]  
HUMIDITY : 33.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 289.7810           | <u>26.2</u>       | -9.3           | <u>16.9</u>        | 50.0            | <u>33.1</u>    |
| 2                 | 314.1736           | <u>28.3</u>       | -9.1           | <u>19.2</u>        | 50.0            | <u>30.8</u>    |
| 3                 | 393.5956           | <u>22.4</u>       | -8.5           | <u>13.9</u>        | 50.0            | <u>36.1</u>    |
| 4                 | 417.7970           | <u>25.5</u>       | -8.2           | <u>17.3</u>        | 50.0            | <u>32.7</u>    |
| 5                 | 471.2690           | <u>20.8</u>       | -7.9           | <u>12.9</u>        | 50.0            | <u>37.1</u>    |
| 6                 | 511.8970           | 19.0              | -7.7           | 11.3               | 50.0            | 38.7           |
| 7                 | 585.0100           | <u>19.7</u>       | -7.6           | <u>12.1</u>        | 50.0            | <u>37.9</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

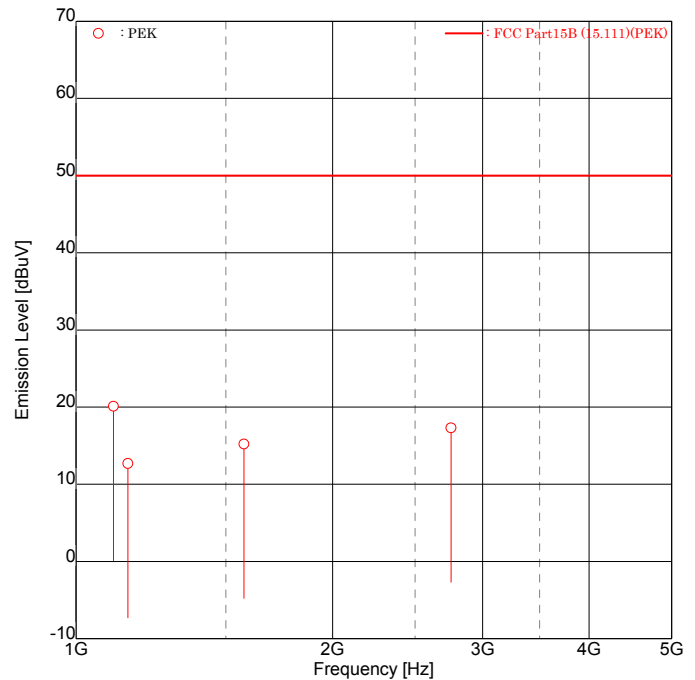
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (0.03MHz MAIN:ANT.4)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 10 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.0 [degC]  
HUMIDITY : 35.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1106.3900          | <u>50.6</u>       | -30.5          | <u>20.1</u>        | 50.0            | <u>29.9</u>    |
| 2                 | 1150.7600          | <u>43.1</u>       | -30.4          | <u>12.7</u>        | 50.0            | <u>37.3</u>    |
| 3                 | 1574.2870          | <u>45.1</u>       | -29.9          | <u>15.2</u>        | 50.0            | <u>34.8</u>    |
| 4                 | 2755.2020          | <u>46.9</u>       | -29.6          | <u>17.3</u>        | 50.0            | <u>32.7</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

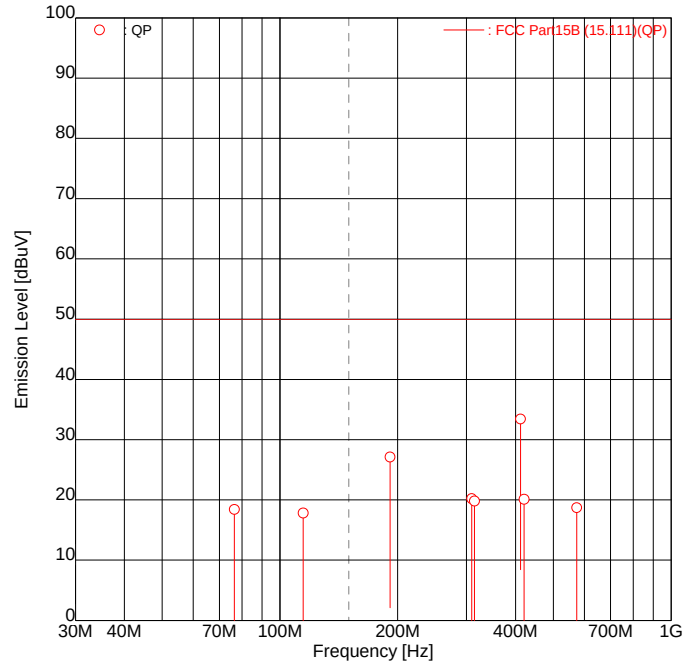
emiT 3, 0, 0, 0

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9.3.26 RX mode (30.00MHz MAIN:Ant.4)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (30.00MHz MAIN:Ant.4)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 17 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.2 [degC]  
HUMIDITY : 33.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 76.4947            | 29.1              | -10.7          | 18.4               | 50.0            | 31.6           |
| 2                 | 114.7499           | 28.3              | -10.5          | 17.8               | 50.0            | 32.2           |
| 3                 | 191.2489           | <u>37.1</u>       | -10.0          | <u>27.1</u>        | 50.0            | <u>22.9</u>    |
| 4                 | 309.2867           | <u>29.4</u>       | -9.2           | <u>20.2</u>        | 50.0            | <u>29.8</u>    |
| 5                 | 314.1859           | <u>28.9</u>       | -9.1           | <u>19.8</u>        | 50.0            | <u>30.2</u>    |
| 6                 | 412.3901           | <u>41.7</u>       | -8.3           | <u>33.4</u>        | 50.0            | <u>16.6</u>    |
| 7                 | 420.7410           | <u>28.3</u>       | -8.2           | <u>20.1</u>        | 50.0            | <u>29.9</u>    |
| 8                 | 573.7430           | <u>26.3</u>       | -7.6           | <u>18.7</u>        | 50.0            | <u>31.3</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

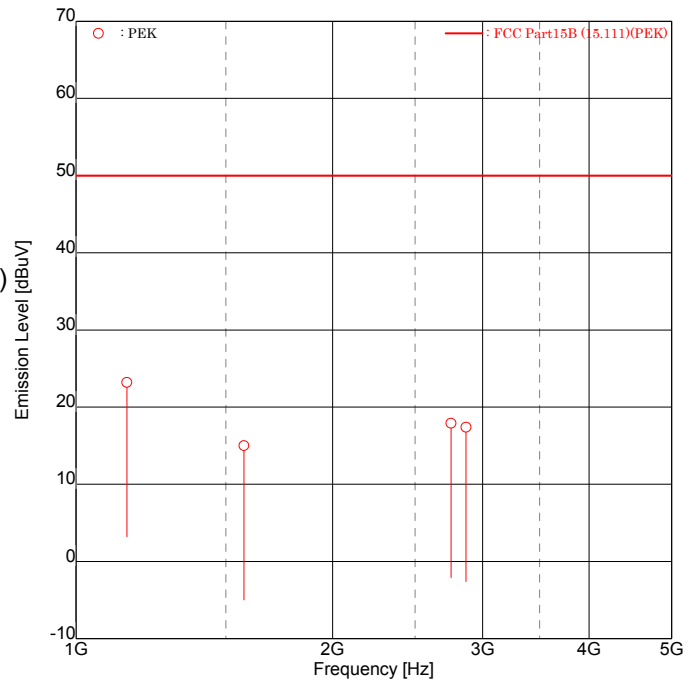
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (30.00MHz MAIN:ANT.4)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 10 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.0 [degC]  
HUMIDITY : 35.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1147.5800          | <u>53.6</u>       | -30.4          | <u>23.2</u>        | 50.0            | <u>26.8</u>    |
| 2                 | 1574.4500          | <u>44.9</u>       | -29.9          | <u>15.0</u>        | 50.0            | <u>35.0</u>    |
| 3                 | 2755.1950          | <u>47.5</u>       | -29.6          | <u>17.9</u>        | 50.0            | <u>32.1</u>    |
| 4                 | 2868.7750          | <u>46.9</u>       | -29.5          | <u>17.4</u>        | 50.0            | <u>32.6</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

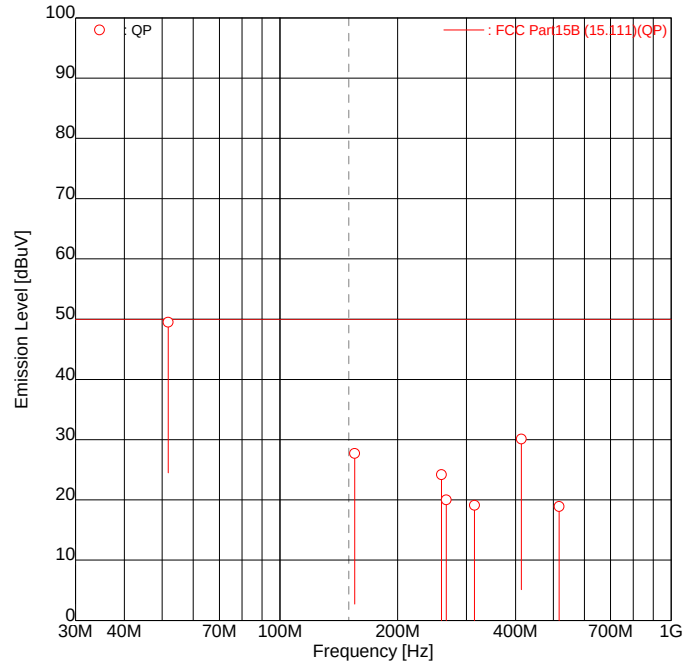
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9.3.27 RX mode (59.99MHz MAIN:Ant.4)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (59.99MHz MAIN:Ant.4)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 17 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.2 [degC]  
HUMIDITY : 33.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 51.7600            | <u>60.4</u>       | -10.9          | <u>49.5</u>        | 50.0            | <u>0.5</u>     |
| 2                 | 155.2580           | <u>38.0</u>       | -10.3          | <u>27.7</u>        | 50.0            | <u>22.3</u>    |
| 3                 | 258.7560           | <u>33.7</u>       | -9.5           | <u>24.2</u>        | 50.0            | <u>25.8</u>    |
| 4                 | 266.1901           | <u>29.4</u>       | -9.4           | <u>20.0</u>        | 50.0            | <u>30.0</u>    |
| 5                 | 314.1851           | <u>28.2</u>       | -9.1           | <u>19.1</u>        | 50.0            | <u>30.9</u>    |
| 6                 | 414.0160           | <u>38.4</u>       | -8.3           | <u>30.1</u>        | 50.0            | <u>19.9</u>    |
| 7                 | 517.5196           | <u>26.5</u>       | -7.6           | <u>18.9</u>        | 50.0            | <u>31.1</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)



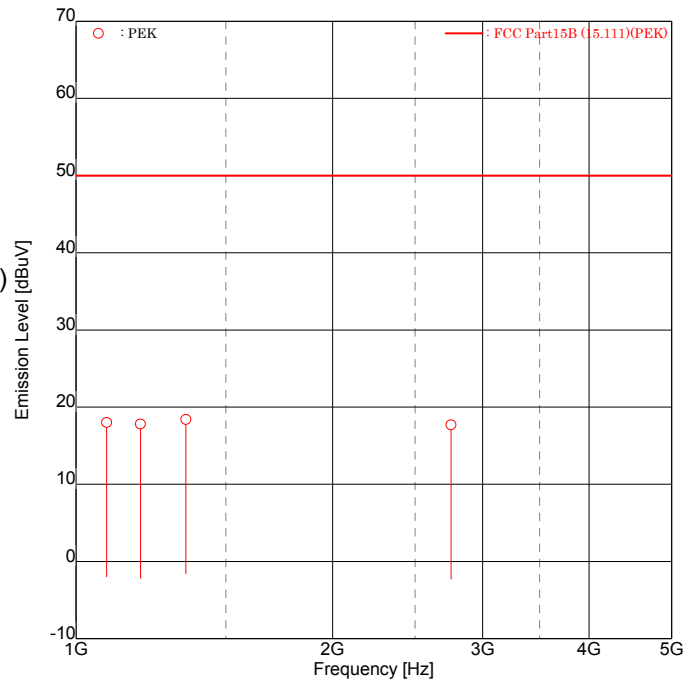
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (59.99MHz MAIN:ANT.4)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 10 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.0 [degC]  
HUMIDITY : 35.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1086.7150          | <u>48.5</u>       | -30.5          | <u>18.0</u>        | 50.0            | <u>32.0</u>    |
| 2                 | 1190.3320          | <u>48.1</u>       | -30.3          | <u>17.8</u>        | 50.0            | <u>32.2</u>    |
| 3                 | 1345.6470          | <u>48.5</u>       | -30.1          | <u>18.4</u>        | 50.0            | <u>31.6</u>    |
| 4                 | 2755.2050          | <u>47.3</u>       | -29.6          | <u>17.7</u>        | 50.0            | <u>32.3</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

emiT 3, 0, 0, 0

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9.3.28 RX mode (VFO SCAN MAIN:Ant.4)  
30 – 1000 MHz

< Graph number #1 >

SPECTRUM ANALYSIS

Kashima No.3 Test Site

Date tested : Dec 17 2012

Test mode : RX mode (VFO SCAN  
MAIN:Ant.4) 23.2degC /33.0%

Company : JVC KENWOOD Corporation

EUT Name : HF/50MHz TRANSCEIVER

Model number : TS-990S

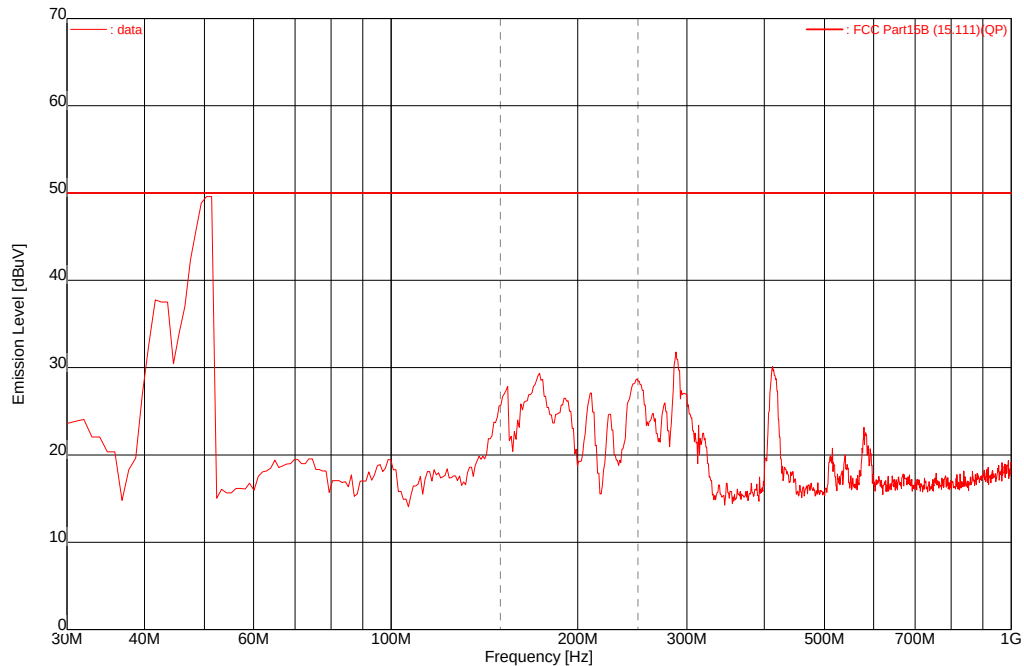
Serial number : 82A90005

Power source : AC 120V, 60Hz

File number : -

Engineer : Koichi Wagatsuma

Note :



| Frequency<br>[ MHz ] | Reading<br>[ dBuV ] | Factor<br>[ dB ] | Emission<br>[ dBuV ] | Limit<br>[ dBuV ] | Margin<br>[ dB ] |
|----------------------|---------------------|------------------|----------------------|-------------------|------------------|
| 43.2471              | <u>48.7</u>         | -10.9            | <u>37.8</u>          | 50.0              | <u>12.2</u>      |
| 50.7443              | <u>58.3</u>         | -10.9            | <u>47.4</u>          | 50.0              | <u>2.6</u>       |
| 51.7600              | <u>60.4</u>         | -10.9            | <u>49.5</u>          | 50.0              | <u>0.5</u>       |
| 174.2240             | <u>41.5</u>         | -10.2            | <u>31.3</u>          | 50.0              | <u>18.7</u>      |
| 247.4455             | 38.3                | -9.5             | 28.8                 | 50.0              | 21.2             |
| 289.0965             | <u>42.0</u>         | -9.3             | <u>32.7</u>          | 50.0              | <u>17.3</u>      |
| 414.0214             | <u>38.5</u>         | -8.3             | <u>30.2</u>          | 50.0              | <u>19.8</u>      |

emiT 3, 0, 0, 0

- 1 / 1 -

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Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

Emission Level = Read + Factor (Attenuator, Cable, Preamp)

Limit : 2nW = 50dBuV (50ohm impedance)

1000 – 5000 MHz

< Graph number #1 >

## SPECTRUM ANALYSIS

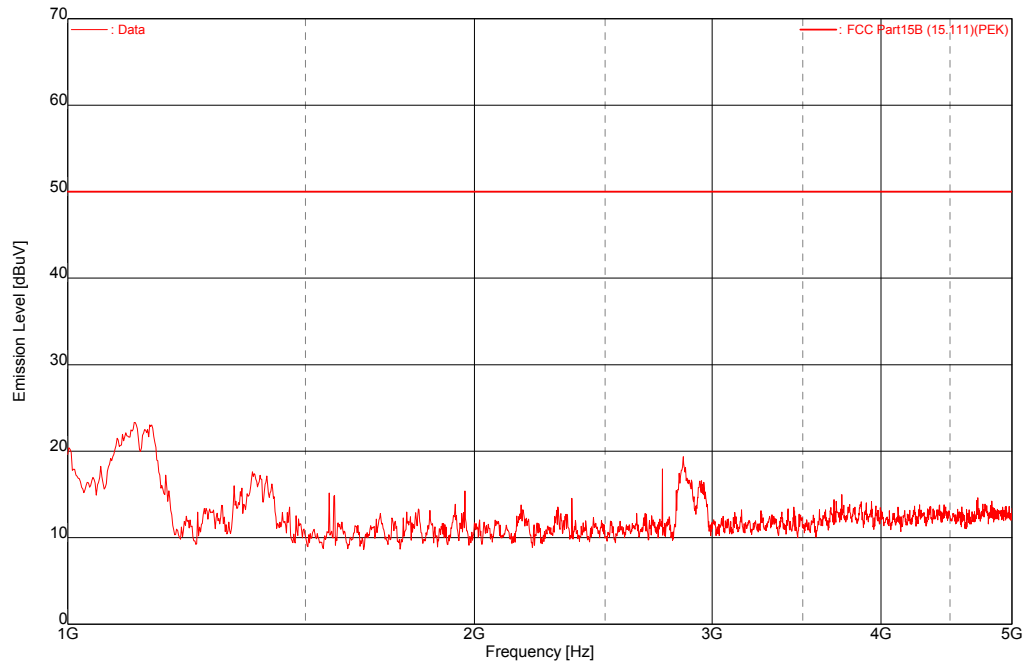
Kashima No.3 Test Site

Date tested : Dec 12 2012

Test mode : RX mode (VFO SCAN  
21.0degC /33.0%  
MAIN:ANT.4)

Company : JVC KENWOOD Corporation  
EUT Name : HF/50MHz TRANSCEIVER  
Model number : TS-990S  
Serial number : 82A90005

Power source : AC 120V, 60Hz  
File number : -  
Engineer : Koichi Wagatsuma  
Note :



| Frequency<br>[ MHz ] | Reading<br>[ dBuV ] | Factor<br>[ dB ] | Emission<br>[ dBuV ] | Limit<br>[ dBuV ] | Margin<br>[ dB ] |
|----------------------|---------------------|------------------|----------------------|-------------------|------------------|
| 1009.6450            | <u>51.0</u>         | -30.6            | <u>20.4</u>          | 50.0              | <u>29.6</u>      |
| 1125.0330            | <u>54.5</u>         | -30.4            | <u>24.1</u>          | 50.0              | <u>25.9</u>      |
| 1153.8800            | <u>53.5</u>         | -30.4            | <u>23.1</u>          | 50.0              | <u>26.9</u>      |
| 2855.8520            | <u>48.9</u>         | -29.5            | <u>19.4</u>          | 50.0              | <u>30.6</u>      |

Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

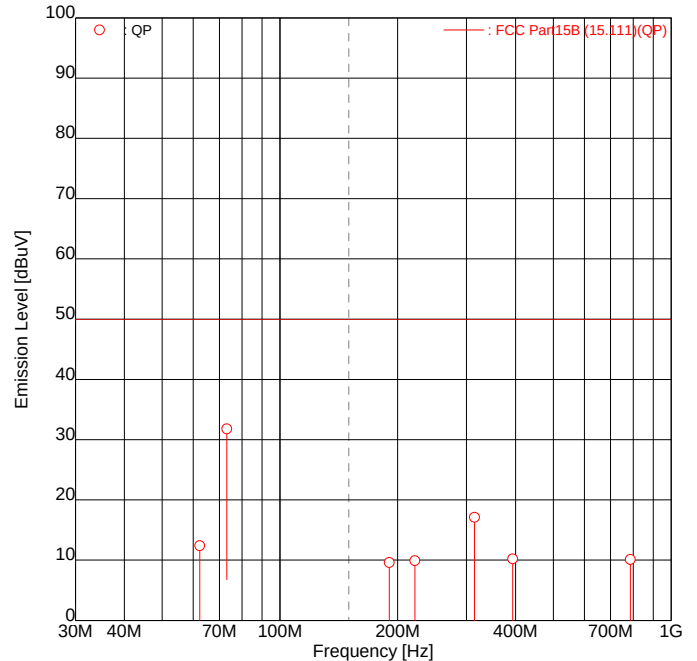
Emission Level = Read + Factor (Attenuator, Cable, Preamp)

Limit : 2nW = 50dBuV (50ohm impedance)

9.3.29 RX mode (0.03MHz SUB:Ant.4)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (0.03MHz SUB:Ant.4)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 18 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 21.5 [degC]  
HUMIDITY : 38.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 62.4056            | <u>23.2</u>       | -10.8          | <u>12.4</u>        | 50.0            | <u>37.6</u>    |
| 2                 | 73.1348            | <u>42.5</u>       | -10.7          | <u>31.8</u>        | 50.0            | <u>18.2</u>    |
| 3                 | 190.4280           | 19.6              | -10.0          | 9.6                | 50.0            | 40.4           |
| 4                 | 221.1870           | <u>19.8</u>       | -9.9           | <u>9.9</u>         | 50.0            | <u>40.1</u>    |
| 5                 | 314.1890           | <u>26.2</u>       | -9.1           | <u>17.1</u>        | 50.0            | <u>32.9</u>    |
| 6                 | 393.6068           | <u>18.7</u>       | -8.5           | <u>10.2</u>        | 50.0            | <u>39.8</u>    |
| 7                 | 787.2050           | <u>16.6</u>       | -6.5           | <u>10.1</u>        | 50.0            | <u>39.9</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

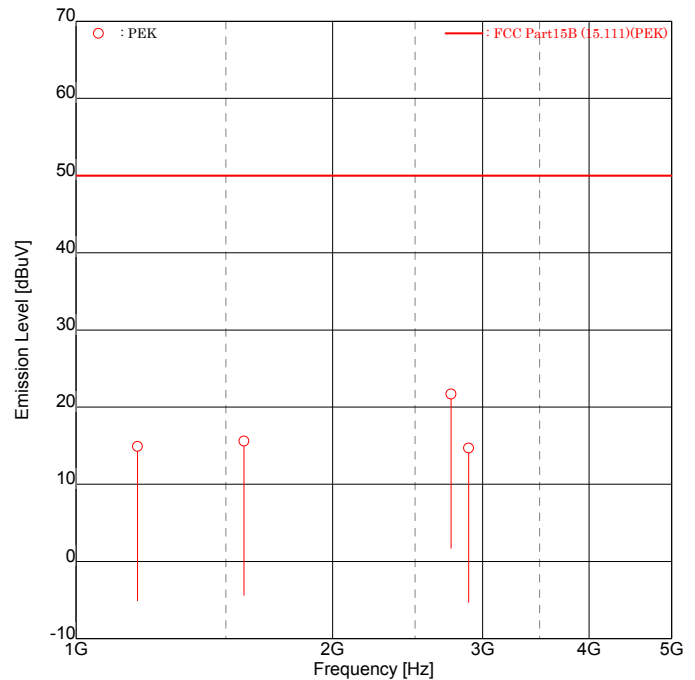
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (0.03MHz SUB:ANT.4)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 12 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 21.0 [degC]  
HUMIDITY : 33.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1180.9820          | <u>45.3</u>       | -30.4          | <u>14.9</u>        | 50.0            | <u>35.1</u>    |
| 2                 | 1574.5400          | <u>45.5</u>       | -29.9          | <u>15.6</u>        | 50.0            | <u>34.4</u>    |
| 3                 | 2755.2000          | <u>51.3</u>       | -29.6          | <u>21.7</u>        | 50.0            | <u>28.3</u>    |
| 4                 | 2889.6750          | <u>44.2</u>       | -29.5          | <u>14.7</u>        | 50.0            | <u>35.3</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

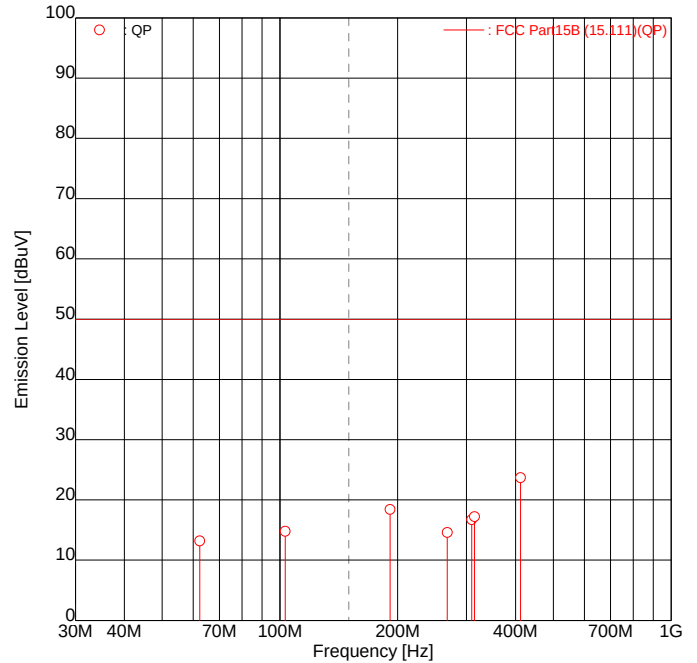
emiT 3, 0, 0, 0

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9.3.30 RX mode (30.00MHz SUB:Ant.4)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (30.00MHz SUB:Ant.4)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 18 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 21.5 [degC]  
HUMIDITY : 38.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 62.4086            | 24.0              | -10.8          | 13.2               | 50.0            | 36.8           |
| 2                 | 103.1000           | <u>25.4</u>       | -10.6          | <u>14.8</u>        | 50.0            | <u>35.2</u>    |
| 3                 | 191.2512           | <u>28.4</u>       | -10.0          | <u>18.4</u>        | 50.0            | <u>31.6</u>    |
| 4                 | 267.7565           | <u>24.0</u>       | -9.4           | <u>14.6</u>        | 50.0            | <u>35.4</u>    |
| 5                 | 309.2972           | <u>25.9</u>       | -9.2           | <u>16.7</u>        | 50.0            | <u>33.3</u>    |
| 6                 | 314.1878           | <u>26.3</u>       | -9.1           | <u>17.2</u>        | 50.0            | <u>32.8</u>    |
| 7                 | 412.3887           | <u>32.0</u>       | -8.3           | <u>23.7</u>        | 50.0            | <u>26.3</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

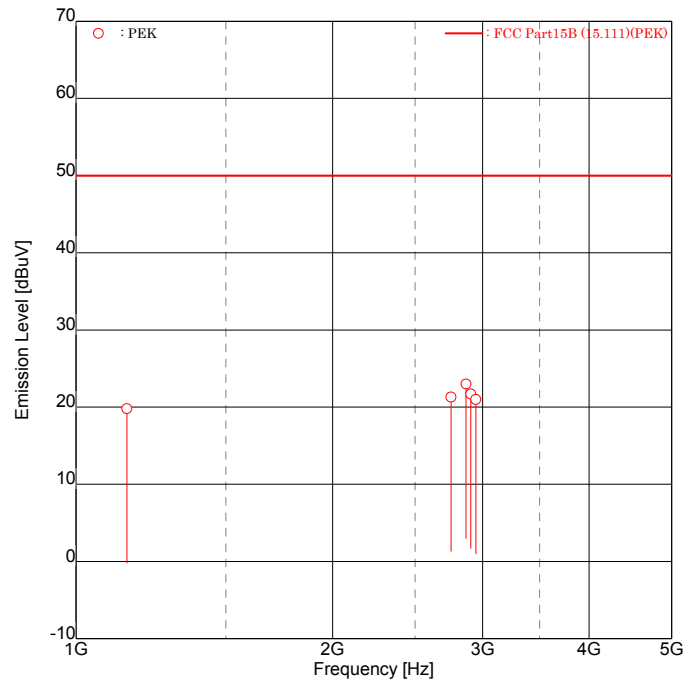
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (30.00MHz SUB:ANT.4)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 12 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 21.0 [degC]  
HUMIDITY : 33.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1147.5210          | <u>50.2</u>       | -30.4          | <u>19.8</u>        | 50.0            | <u>30.2</u>    |
| 2                 | 2755.1950          | <u>50.9</u>       | -29.6          | <u>21.3</u>        | 50.0            | <u>28.7</u>    |
| 3                 | 2868.6400          | <u>52.5</u>       | -29.5          | <u>23.0</u>        | 50.0            | <u>27.0</u>    |
| 4                 | 2907.0400          | <u>51.2</u>       | -29.5          | <u>21.7</u>        | 50.0            | <u>28.3</u>    |
| 5                 | 2945.2150          | <u>50.5</u>       | -29.5          | <u>21.0</u>        | 50.0            | <u>29.0</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

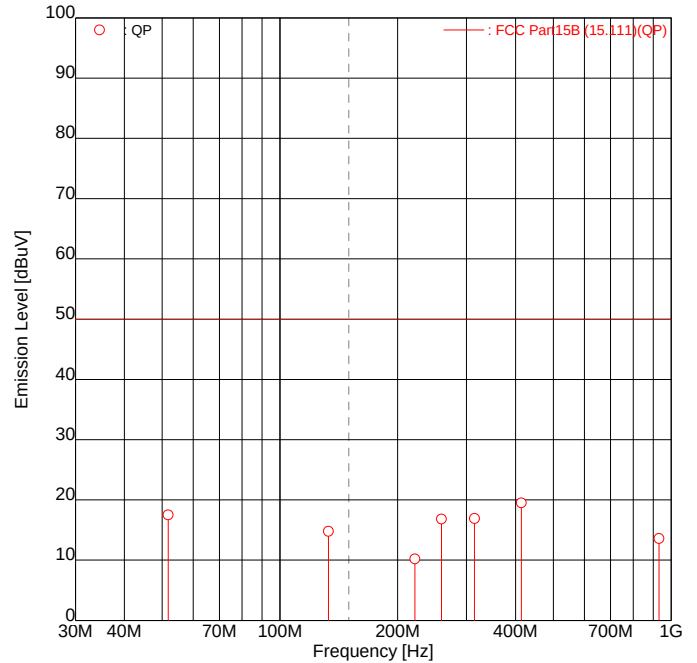
emiT 3, 0, 0, 0

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9.3.31 RX mode (59.99MHz SUB:Ant.4)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (59.99MHz SUB:Ant.4)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 18 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 21.5 [degC]  
HUMIDITY : 38.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 51.7604            | <u>28.4</u>       | -10.9          | <u>17.5</u>        | 50.0            | <u>32.5</u>    |
| 2                 | 133.1000           | <u>25.2</u>       | -10.4          | <u>14.8</u>        | 50.0            | <u>35.2</u>    |
| 3                 | 221.1870           | 20.1              | -9.9           | 10.2               | 50.0            | 39.8           |
| 4                 | 258.7689           | <u>26.3</u>       | -9.5           | <u>16.8</u>        | 50.0            | <u>33.2</u>    |
| 5                 | 314.1817           | <u>26.0</u>       | -9.1           | <u>16.9</u>        | 50.0            | <u>33.1</u>    |
| 6                 | 414.0205           | <u>27.8</u>       | -8.3           | <u>19.5</u>        | 50.0            | <u>30.5</u>    |
| 7                 | 931.5395           | <u>19.3</u>       | -5.7           | <u>13.6</u>        | 50.0            | <u>36.4</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)



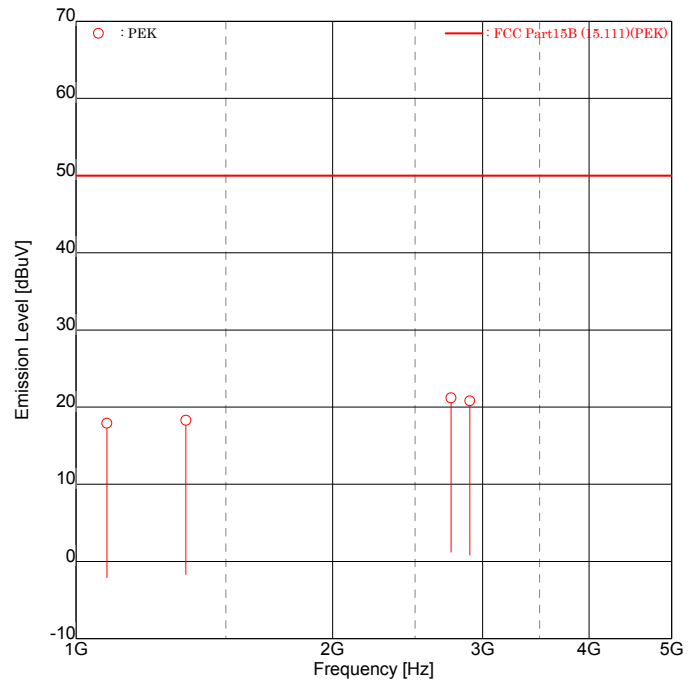
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (59.99MHz SUB:ANT.4)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 12 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 21.0 [degC]  
HUMIDITY : 33.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1086.8970          | <u>48.4</u>       | -30.5          | <u>17.9</u>        | 50.0            | <u>32.1</u>    |
| 2                 | 1345.6950          | <u>48.4</u>       | -30.1          | <u>18.3</u>        | 50.0            | <u>31.7</u>    |
| 3                 | 2755.1720          | <u>50.8</u>       | -29.6          | <u>21.2</u>        | 50.0            | <u>28.8</u>    |
| 4                 | 2898.0070          | <u>50.3</u>       | -29.5          | <u>20.8</u>        | 50.0            | <u>29.2</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

emiT 3, 0, 0, 0

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9.3.32 RX mode (VFO SCAN SUB:Ant.4)  
30 – 1000 MHz

< Graph number #1 >

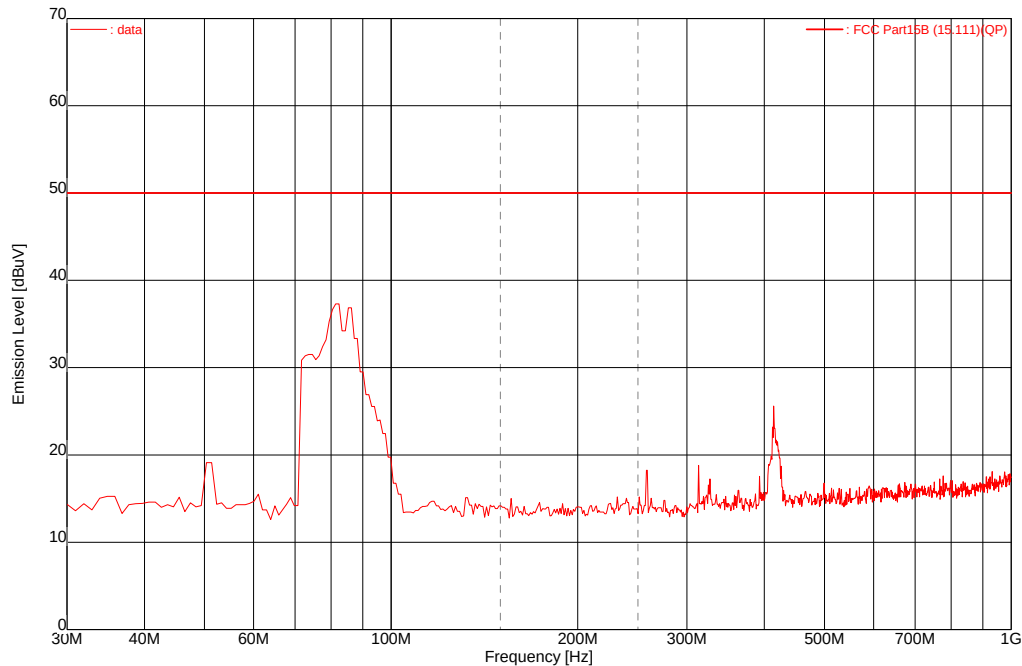
SPECTRUM ANALYSIS

Kashima No.3 Test Site

Date tested : Dec 18 2012

Test mode : RX mode (VFO SCAN  
SUB:Ant.4) 21.5degC /38.0%

Company : JVC KENWOOD Corporation Power source : AC 120V, 60Hz  
EUT Name : HF/50MHz TRANSCEIVER File number : -  
Model number : TS-990S Engineer : Koichi Wagatsuma  
Serial number : 82A90005 Note :



| Frequency<br>[ MHz ] | Reading<br>[ dBuV ] | Factor<br>[ dB ] | Emission<br>[ dBuV ] | Limit<br>[ dBuV ] | Margin<br>[ dB ] |
|----------------------|---------------------|------------------|----------------------|-------------------|------------------|
| 51.7500              | <u>29.6</u>         | -10.9            | <u>18.7</u>          | 50.0              | <u>31.3</u>      |
| 74.7174              | <u>43.2</u>         | -10.7            | <u>32.5</u>          | 50.0              | <u>17.5</u>      |
| 83.0839              | <u>49.4</u>         | -10.6            | <u>38.8</u>          | 50.0              | <u>11.2</u>      |
| 87.4836              | <u>48.5</u>         | -10.6            | <u>37.9</u>          | 50.0              | <u>12.1</u>      |
| 258.7673             | <u>28.9</u>         | -9.5             | <u>19.4</u>          | 50.0              | <u>30.6</u>      |
| 314.1822             | 26.0                | -9.1             | 16.9                 | 50.0              | 33.1             |
| 414.0203             | <u>35.2</u>         | -8.3             | <u>26.9</u>          | 50.0              | <u>23.1</u>      |

emiT 3, 0, 0, 0  
Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor (Attenuator, Cable, Preamp)  
Limit : 2nW = 50dBuV (50ohm impedance)

- 1 / 1 -

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1000 – 5000 MHz

< Graph number #1 >

## SPECTRUM ANALYSIS

Kashima No.3 Test Site

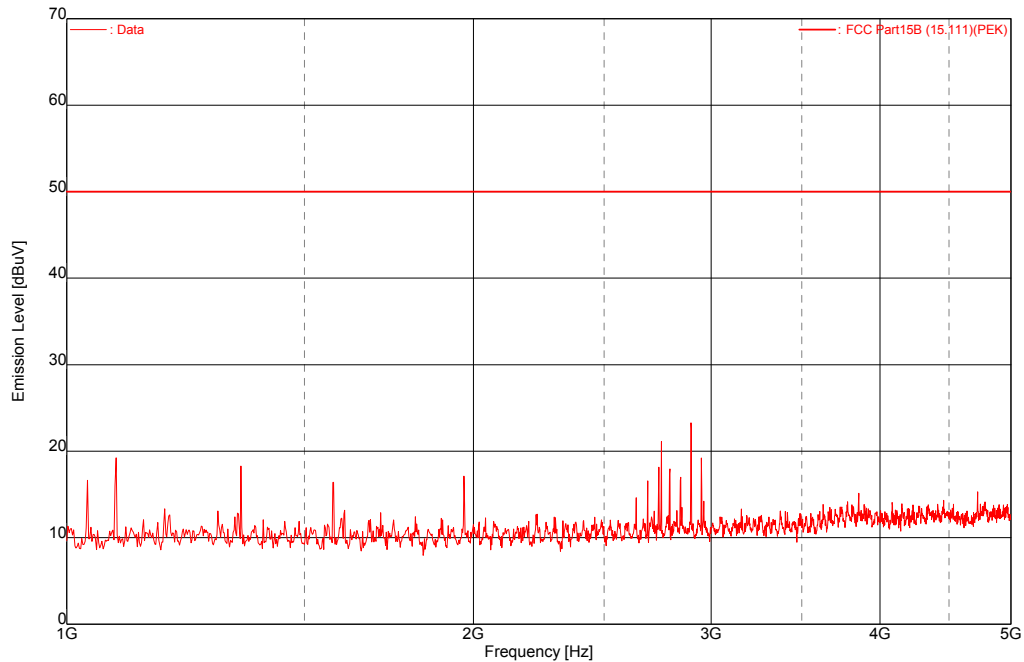
Date tested : Dec 12 2012

Test mode : RX mode (VFO SCAN)  
SUB:ANT.4)

21.0degC /33.0%

Company : JVC KENWOOD Corporation  
EUT Name : HF/50MHz TRANSCEIVER  
Model number : TS-990S  
Serial number : 82A90005

Power source : AC 120V, 60Hz  
File number : -  
Engineer : Koichi Wagatsuma  
Note :



| Frequency<br>[ MHz ] | Reading<br>[ dBuV ] | Factor<br>[ dB ] | Emission<br>[ dBuV ] | Limit<br>[ dBuV ] | Margin<br>[ dB ] |
|----------------------|---------------------|------------------|----------------------|-------------------|------------------|
| 1086.7910            | <u>49.8</u>         | -30.5            | <u>19.3</u>          | 50.0              | <u>30.7</u>      |
| 2755.2000            | <u>50.7</u>         | -29.6            | <u>21.1</u>          | 50.0              | <u>28.9</u>      |
| 2898.1110            | <u>52.8</u>         | -29.5            | <u>23.3</u>          | 50.0              | <u>26.7</u>      |
| 2949.8630            | <u>48.8</u>         | -29.5            | <u>19.3</u>          | 50.0              | <u>30.7</u>      |

Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

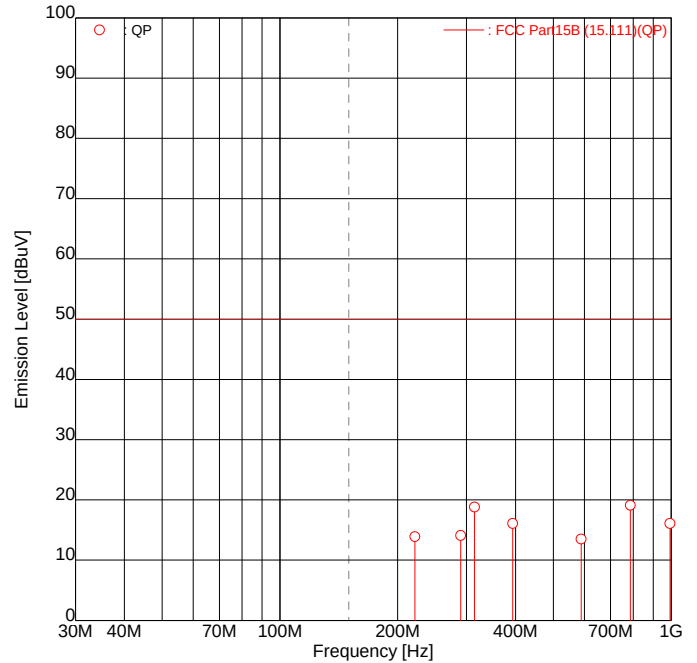
Emission Level = Read + Factor (Attenuator, Cable, Preamp)

Limit : 2nW = 50dBuV (50ohm impedance)

9.3.33 RX mode (0.03MHz MAIN:Ant.RX)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (0.03MHz MAIN:Ant.RX)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 17 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.2 [degC]  
HUMIDITY : 33.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 221.1815           | <u>23.8</u>       | -9.9           | <u>13.9</u>        | 50.0            | <u>36.1</u>    |
| 2                 | 289.7786           | <u>23.4</u>       | -9.3           | <u>14.1</u>        | 50.0            | <u>35.9</u>    |
| 3                 | 314.1775           | <u>27.9</u>       | -9.1           | <u>18.8</u>        | 50.0            | <u>31.2</u>    |
| 4                 | 393.5961           | <u>24.6</u>       | -8.5           | <u>16.1</u>        | 50.0            | <u>33.9</u>    |
| 5                 | 589.2314           | 21.0              | -7.5           | 13.5               | 50.0            | 36.5           |
| 6                 | 787.2029           | <u>25.6</u>       | -6.5           | <u>19.1</u>        | 50.0            | <u>30.9</u>    |
| 7                 | 993.5352           | <u>21.4</u>       | -5.3           | <u>16.1</u>        | 50.0            | <u>33.9</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

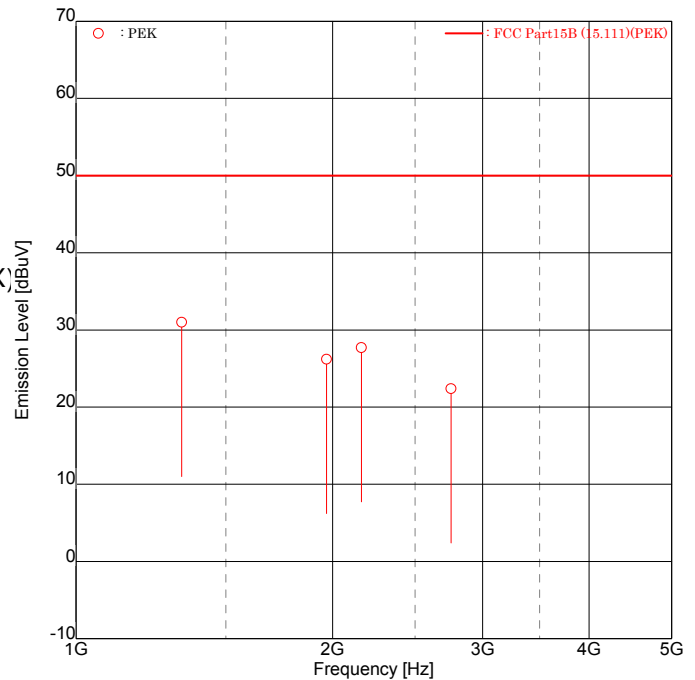
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (0.03MHz MAIN:ANT.RX)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 12 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 21.0 [degC]  
HUMIDITY : 33.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1330.5000          | <u>61.2</u>       | -30.2          | <u>31.0</u>        | 50.0            | <u>19.0</u>    |
| 2                 | 1968.0000          | <u>55.6</u>       | -29.4          | <u>26.2</u>        | 50.0            | <u>23.8</u>    |
| 3                 | 2162.0000          | <u>57.2</u>       | -29.5          | <u>27.7</u>        | 50.0            | <u>22.3</u>    |
| 4                 | 2755.0900          | <u>52.0</u>       | -29.6          | <u>22.4</u>        | 50.0            | <u>27.6</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

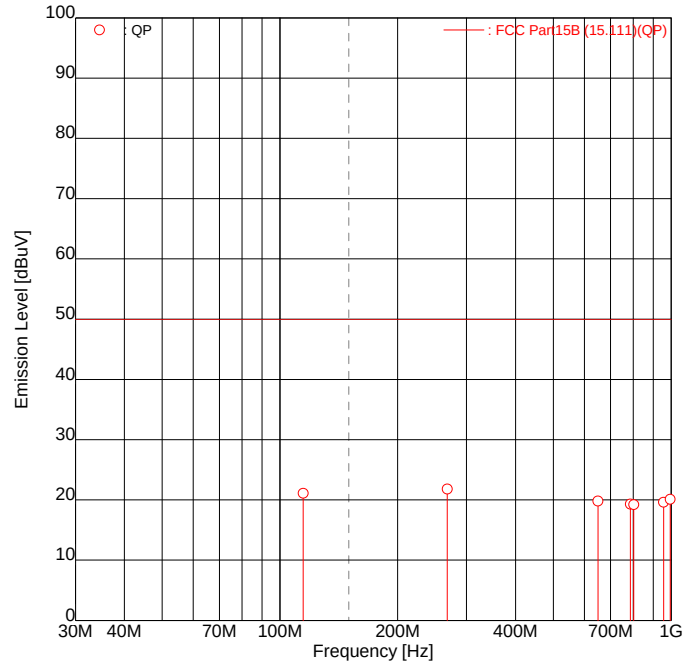
emiT 3, 0, 0, 0

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9.3.34 RX mode (30.00MHz MAIN:Ant.RX)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (30.00MHz MAIN:Ant.RX)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 17 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.2 [degC]  
HUMIDITY : 33.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 114.7450           | <u>31.6</u>       | -10.5          | <u>21.1</u>        | 50.0            | <u>28.9</u>    |
| 2                 | 267.7380           | <u>31.2</u>       | -9.4           | <u>21.8</u>        | 50.0            | <u>28.2</u>    |
| 3                 | 650.2395           | <u>27.0</u>       | -7.2           | <u>19.8</u>        | 50.0            | <u>30.2</u>    |
| 4                 | 787.1968           | <u>25.8</u>       | -6.5           | <u>19.3</u>        | 50.0            | <u>30.7</u>    |
| 5                 | 803.2374           | 25.6              | -6.4           | 19.2               | 50.0            | 30.8           |
| 6                 | 956.2340           | <u>25.1</u>       | -5.5           | <u>19.6</u>        | 50.0            | <u>30.4</u>    |
| 7                 | 994.4871           | <u>25.4</u>       | -5.3           | <u>20.1</u>        | 50.0            | <u>29.9</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

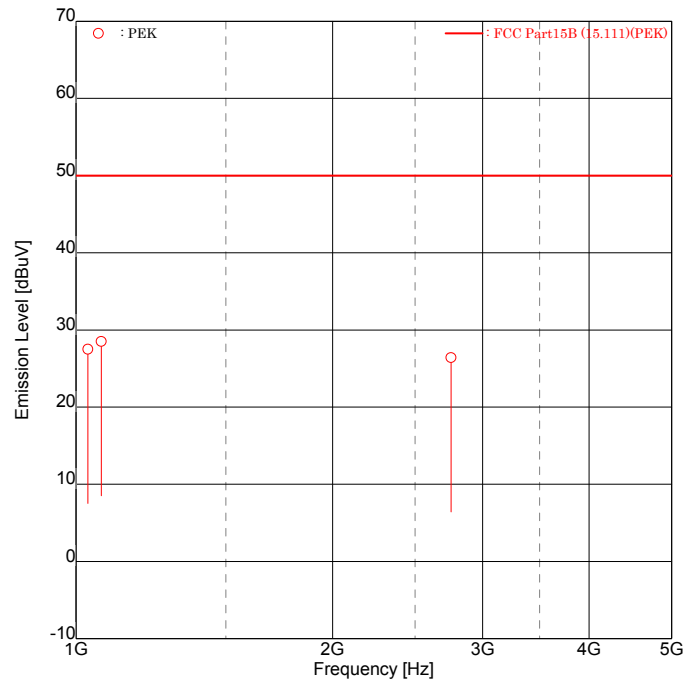
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (30.00MHz  
MAIN:ANT.RX)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 12 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 21.0 [degC]  
HUMIDITY : 33.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1032.9500          | <u>58.0</u>       | -30.5          | <u>27.5</u>        | 50.0            | <u>22.5</u>    |
| 2                 | 1071.0400          | <u>59.0</u>       | -30.5          | <u>28.5</u>        | 50.0            | <u>21.5</u>    |
| 3                 | 2755.2000          | <u>56.0</u>       | -29.6          | <u>26.4</u>        | 50.0            | <u>23.6</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

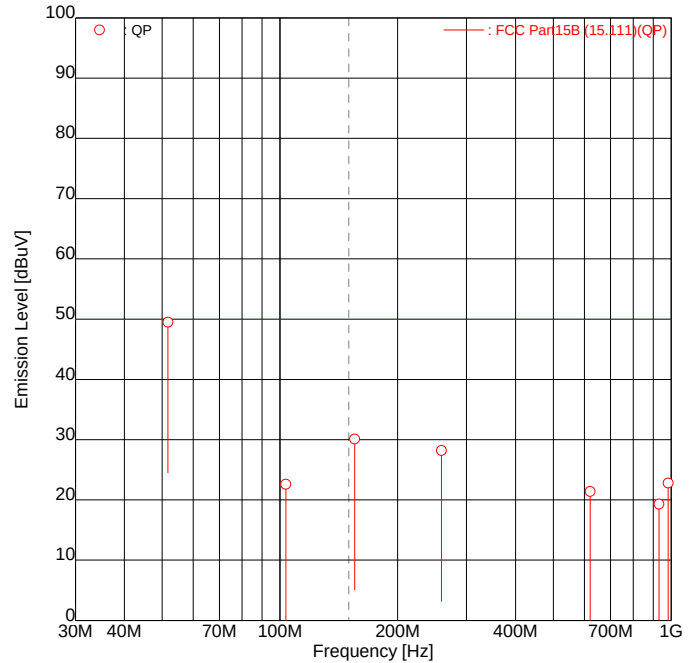
emiT 3, 0, 0, 0

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9.3.35 RX mode (59.99MHz MAIN:Ant.RX)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (59.99MHz MAIN:Ant.RX)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 17 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 23.2 [degC]  
HUMIDITY : 33.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 51.7420            | <u>60.4</u>       | -10.9          | <u>49.5</u>        | 50.0            | <u>0.5</u>     |
| 2                 | 103.4986           | <u>33.2</u>       | -10.6          | <u>22.6</u>        | 50.0            | <u>27.4</u>    |
| 3                 | 155.2552           | <u>40.4</u>       | -10.3          | <u>30.1</u>        | 50.0            | <u>19.9</u>    |
| 4                 | 258.7635           | <u>37.7</u>       | -9.5           | <u>28.2</u>        | 50.0            | <u>21.8</u>    |
| 5                 | 621.0279           | <u>28.8</u>       | -7.4           | <u>21.4</u>        | 50.0            | <u>28.6</u>    |
| 6                 | 931.5258           | 25.0              | -5.7           | 19.3               | 50.0            | 30.7           |
| 7                 | 983.2841           | <u>28.2</u>       | -5.4           | <u>22.8</u>        | 50.0            | <u>27.2</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)



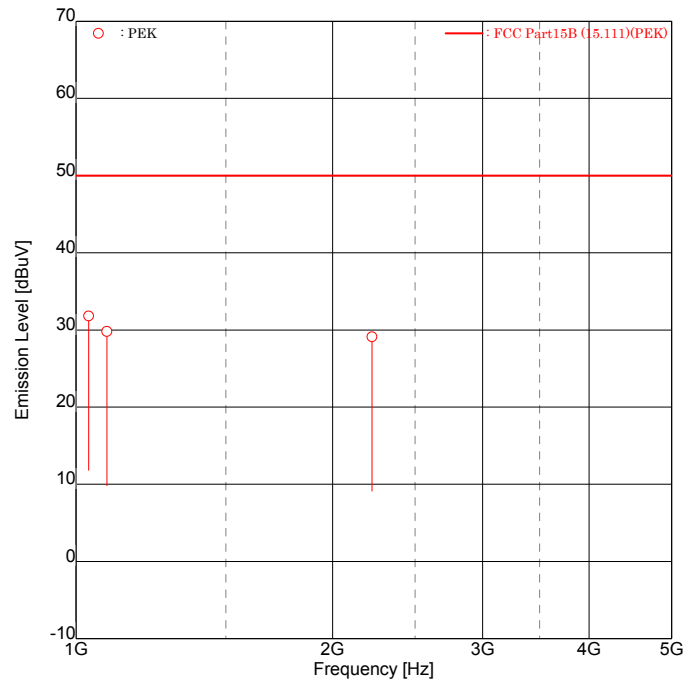
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (59.99MHz  
MAIN:ANT.RX)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 12 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 21.0 [degC]  
HUMIDITY : 33.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1035.1500          | <u>62.3</u>       | -30.5          | <u>31.8</u>        | 50.0            | <u>18.2</u>    |
| 2                 | 1086.8500          | <u>60.3</u>       | -30.5          | <u>29.8</u>        | 50.0            | <u>20.2</u>    |
| 3                 | 2225.3900          | <u>58.6</u>       | -29.5          | <u>29.1</u>        | 50.0            | <u>20.9</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

emiT 3, 0, 0, 0

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9.3.36 RX mode (VFO SCAN MAIN:Ant.RX)  
30 – 1000 MHz

< Graph number #1 >

SPECTRUM ANALYSIS

Kashima No.3 Test Site

Date tested : Dec 17 2012

Test mode : RX mode (VFO SCAN  
MAIN:Ant.RX)

23.2degC /33.0%

Company : JVC KENWOOD Corporation

EUT Name : HF/50MHz TRANSCEIVER

Model number : TS-990S

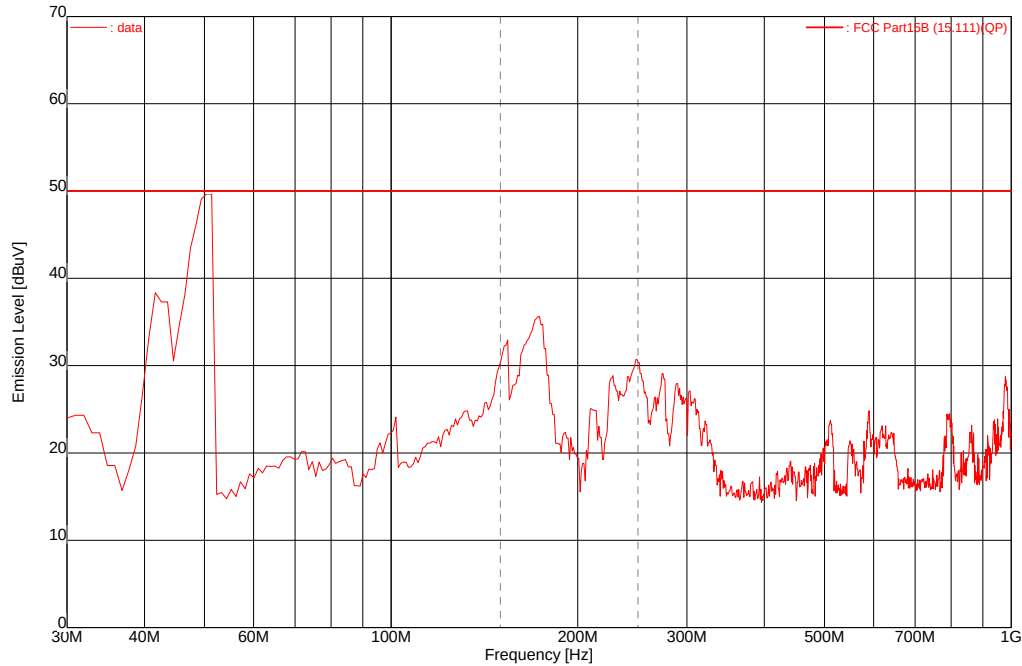
Serial number : 82A90005

Power source : AC 120V, 60Hz

File number : -

Engineer : Koichi Wagatsuma

Note :



| Frequency<br>[ MHz ] | Reading<br>[ dBuV ] | Factor<br>[ dB ] | Emission<br>[ dBuV ] | Limit<br>[ dBuV ] | Margin<br>[ dB ] |
|----------------------|---------------------|------------------|----------------------|-------------------|------------------|
| 43.2471              | <u>49.4</u>         | -10.9            | <u>38.5</u>          | 50.0              | <u>11.5</u>      |
| 50.7463              | <u>59.1</u>         | -10.9            | <u>48.2</u>          | 50.0              | <u>1.8</u>       |
| 51.7600              | <u>60.5</u>         | -10.9            | <u>49.6</u>          | 50.0              | <u>0.4</u>       |
| 155.2340             | <u>43.5</u>         | -10.3            | <u>33.2</u>          | 50.0              | <u>16.8</u>      |
| 172.4315             | <u>45.2</u>         | -10.2            | <u>35.0</u>          | 50.0              | <u>15.0</u>      |
| 247.8149             | <u>39.0</u>         | -9.5             | <u>29.5</u>          | 50.0              | <u>20.5</u>      |
| 982.9944             | 32.6                | -5.4             | 27.2                 | 50.0              | 22.8             |

Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

Emission Level = Read + Factor (Attenuator, Cable, Preamp)

Limit : 2nW = 50dBuV (50ohm impedance)

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1000 – 5000 MHz

< Graph number #1 >

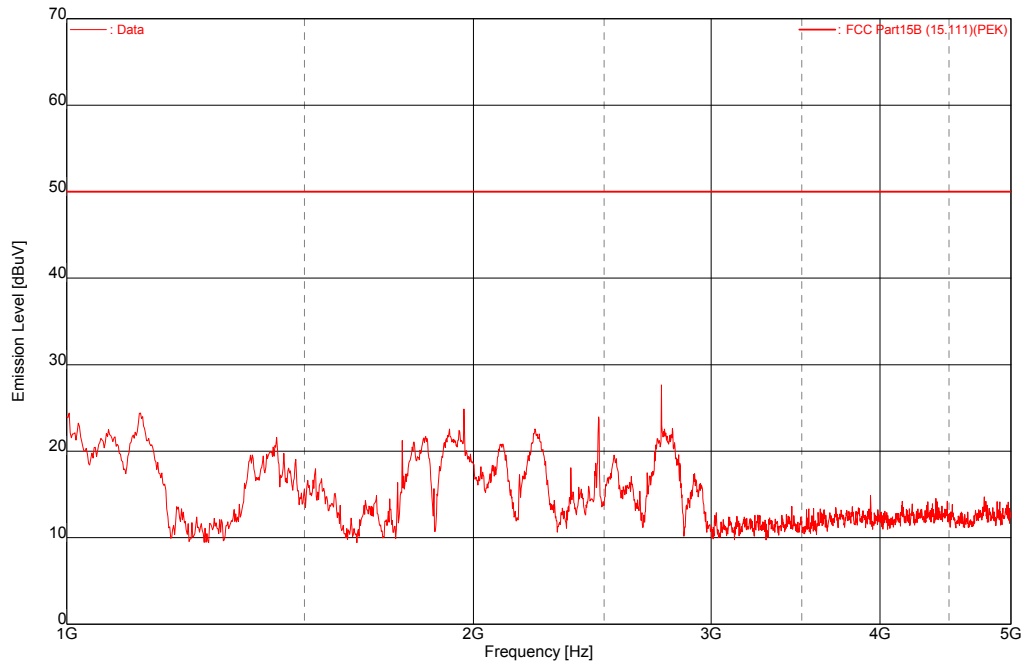
## SPECTRUM ANALYSIS

Kashima No.3 Test Site

Date tested : Dec 12 2012

Test mode : RX mode (VFO SCAN)  
21.0degC /33.0%  
MAIN:ANT.RX)

Company : JVC KENWOOD Corporation  
EUT Name : HF/50MHz TRANSCEIVER  
Model number : TS-990S  
Serial number : 82A90005  
Power source : AC 120V, 60Hz  
File number : -  
Engineer : Koichi Wagatsuma  
Note :



| Frequency<br>[ MHz ] | Reading<br>[ dBuV ] | Factor<br>[ dB ] | Emission<br>[ dBuV ] | Limit<br>[ dBuV ] | Margin<br>[ dB ] |
|----------------------|---------------------|------------------|----------------------|-------------------|------------------|
| 1129.9030            | <u>58.8</u>         | -30.4            | <u>28.4</u>          | 50.0              | <u>21.6</u>      |
| 1968.0000            | <u>60.4</u>         | -29.4            | <u>31.0</u>          | 50.0              | <u>19.0</u>      |
| 2463.5590            | <u>58.5</u>         | -29.6            | <u>28.9</u>          | 50.0              | <u>21.1</u>      |
| 2759.2000            | <u>61.3</u>         | -29.6            | <u>31.7</u>          | 50.0              | <u>18.3</u>      |

Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

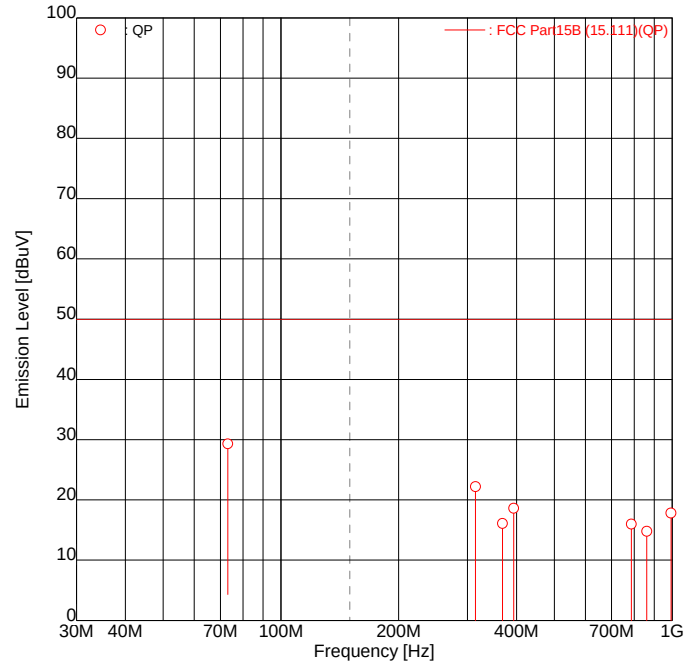
Emission Level = Read + Factor (Attenuator, Cable, Preamp)

Limit : 2nW = 50dBuV (50ohm impedance)

9.3.37 RX mode (0.03MHz SUB:Ant.RX)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (0.03MHz SUB:Ant.RX)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 18 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 21.5 [degC]  
HUMIDITY : 38.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 73.1309            | <u>40.0</u>       | -10.7          | <u>29.3</u>        | 50.0            | <u>20.7</u>    |
| 2                 | 314.1863           | <u>31.3</u>       | -9.1           | <u>22.2</u>        | 50.0            | <u>27.8</u>    |
| 3                 | 368.6532           | <u>24.8</u>       | -8.7           | <u>16.1</u>        | 50.0            | <u>33.9</u>    |
| 4                 | 393.6148           | <u>27.1</u>       | -8.5           | <u>18.6</u>        | 50.0            | <u>31.4</u>    |
| 5                 | 787.2042           | <u>22.5</u>       | -6.5           | <u>16.0</u>        | 50.0            | <u>34.0</u>    |
| 6                 | 861.0640           | 20.9              | -6.1           | 14.8               | 50.0            | 35.2           |
| 7                 | 993.5415           | <u>23.1</u>       | -5.3           | <u>17.8</u>        | 50.0            | <u>32.2</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

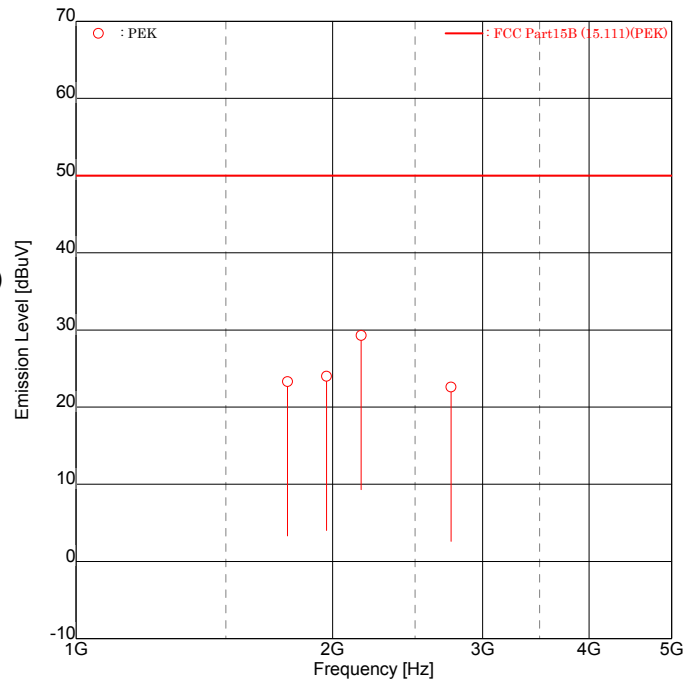
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (0.03MHz SUB:ANT.RX)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 12 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 21.0 [degC]  
HUMIDITY : 33.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1771.1450          | <u>52.9</u>       | -29.6          | <u>23.3</u>        | 50.0            | <u>26.7</u>    |
| 2                 | 1968.1850          | <u>53.4</u>       | -29.4          | <u>24.0</u>        | 50.0            | <u>26.0</u>    |
| 3                 | 2161.1500          | <u>58.8</u>       | -29.5          | <u>29.3</u>        | 50.0            | <u>20.7</u>    |
| 4                 | 2755.1350          | <u>52.2</u>       | -29.6          | <u>22.6</u>        | 50.0            | <u>27.4</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

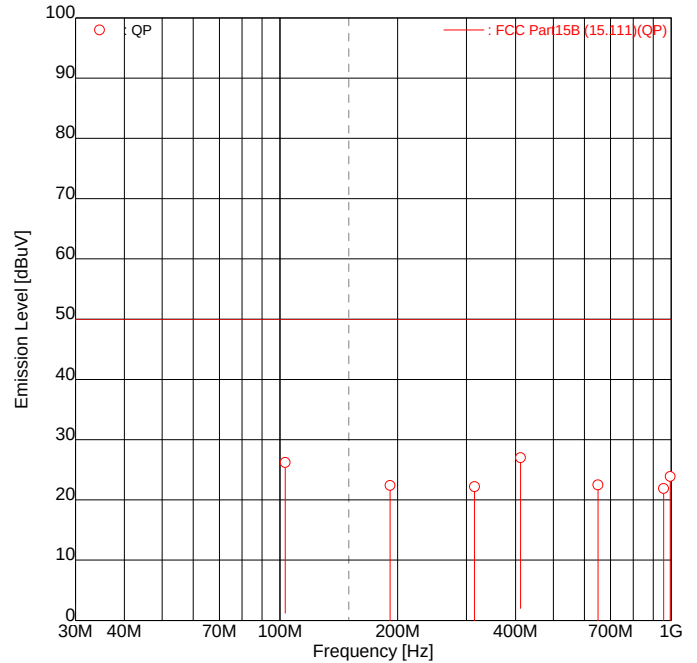
emiT 3, 0, 0, 0

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9.3.38 RX mode (30.00MHz SUB:Ant.RX)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (30.00MHz SUB:Ant.RX)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 18 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 21.5 [degC]  
HUMIDITY : 38.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 103.1024           | <u>36.8</u>       | -10.6          | <u>26.2</u>        | 50.0            | <u>23.8</u>    |
| 2                 | 191.2501           | <u>32.4</u>       | -10.0          | <u>22.4</u>        | 50.0            | <u>27.6</u>    |
| 3                 | 314.1823           | <u>31.3</u>       | -9.1           | <u>22.2</u>        | 50.0            | <u>27.8</u>    |
| 4                 | 412.3901           | <u>35.3</u>       | -8.3           | <u>27.0</u>        | 50.0            | <u>23.0</u>    |
| 5                 | 650.2442           | <u>29.7</u>       | -7.2           | <u>22.5</u>        | 50.0            | <u>27.5</u>    |
| 6                 | 956.2467           | 27.4              | -5.5           | 21.9               | 50.0            | 28.1           |
| 7                 | 994.4905           | <u>29.2</u>       | -5.3           | <u>23.9</u>        | 50.0            | <u>26.1</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

1000 – 5000 MHz

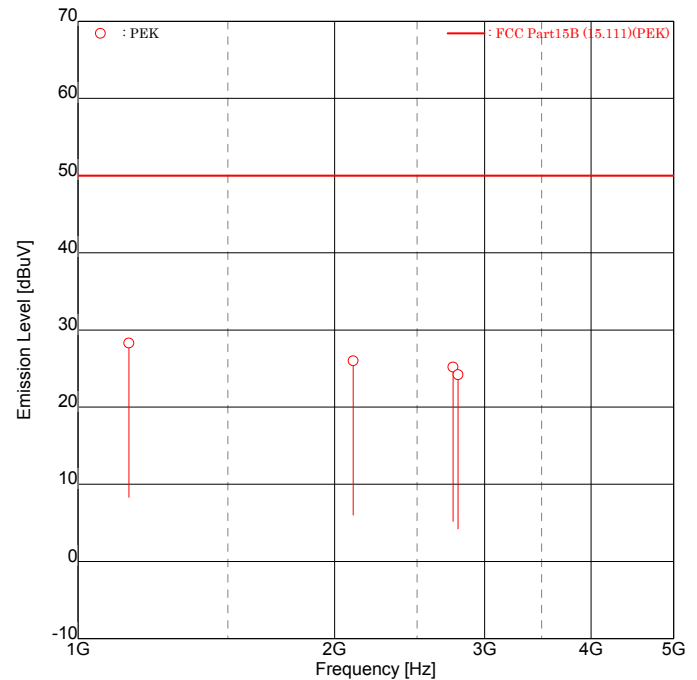
## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (30.00MHz  
SUB:ANT.RX)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 12 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 21.0 [degC]  
HUMIDITY : 33.0 [%]  
NOTE :

ENGINEER : Koichi Wagatsuma



| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1147.5200          | <u>58.7</u>       | -30.4          | <u>28.3</u>        | 50.0            | <u>21.7</u>    |
| 2                 | 2103.7850          | <u>55.4</u>       | -29.4          | <u>26.0</u>        | 50.0            | <u>24.0</u>    |
| 3                 | 2755.3200          | <u>54.8</u>       | -29.6          | <u>25.2</u>        | 50.0            | <u>24.8</u>    |
| 4                 | 2792.1800          | <u>53.7</u>       | -29.5          | <u>24.2</u>        | 50.0            | <u>25.8</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

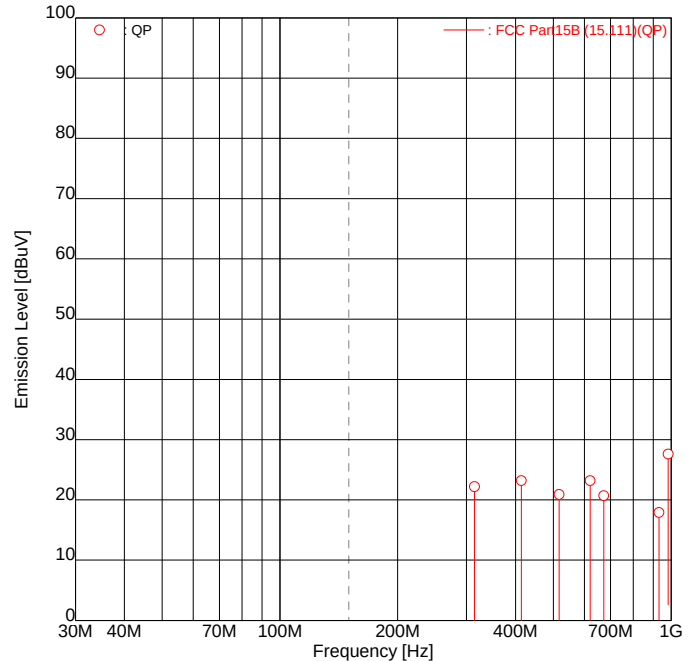
emiT 3, 0, 0, 0

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9.3.39 RX mode (59.99MHz SUB:Ant.RX)  
30 – 1000 MHz

Intertek Japan K.K.  
Kashima No.3 Test Site  
Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (59.99MHz SUB:Ant.RX)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 18 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 21.5 [degC]  
HUMIDITY : 38.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 314.1882           | <u>31.3</u>       | -9.1           | <u>22.2</u>        | 50.0            | <u>27.8</u>    |
| 2                 | 414.0259           | <u>31.5</u>       | -8.3           | <u>23.2</u>        | 50.0            | <u>26.8</u>    |
| 3                 | 517.5297           | <u>28.5</u>       | -7.6           | <u>20.9</u>        | 50.0            | <u>29.1</u>    |
| 4                 | 621.0268           | <u>30.6</u>       | -7.4           | <u>23.2</u>        | 50.0            | <u>26.8</u>    |
| 5                 | 672.7851           | <u>27.8</u>       | -7.1           | <u>20.7</u>        | 50.0            | <u>29.3</u>    |
| 6                 | 931.5442           | 23.6              | -5.7           | 17.9               | 50.0            | 32.1           |
| 7                 | 983.2959           | <u>33.0</u>       | -5.4           | <u>27.6</u>        | 50.0            | <u>22.4</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)



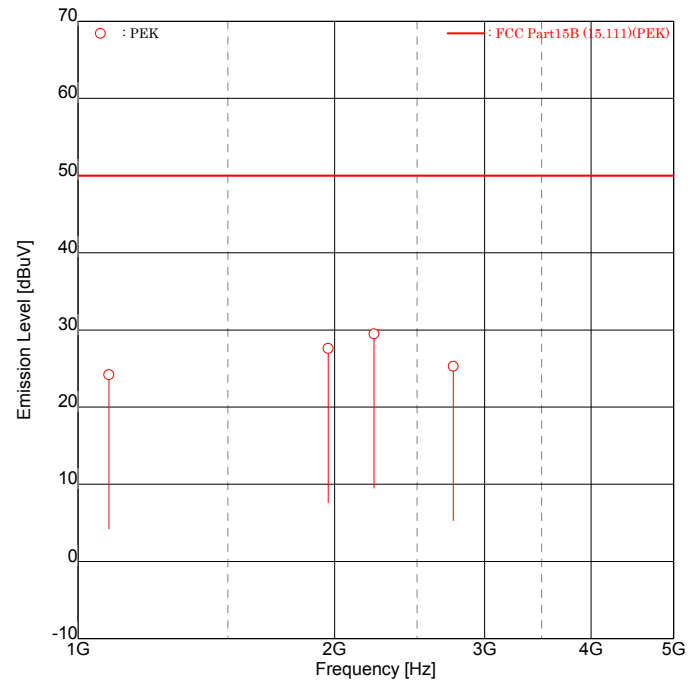
1000 – 5000 MHz

## Intertek Japan K.K.

### Kashima No.3 Test Site

Conducted Power on Antenna Port

APPLICANT : JVC KENWOOD Corporation  
EUT NAME : HF/50MHz TRANSCEIVER  
MODEL NO. : TS-990S  
SERIAL NO. : 82A90005  
TEST MODE : RX mode (59.99MHz  
SUB:ANT.RX)  
POWER SOURCE : AC 120V, 60Hz  
DATE TESTED : Dec 12 2012  
FILE NO. : -  
REGULATION : FCC Part15B (15.111)  
TEST METHOD : ANSI C63.4-2003  
TEMPERATURE : 21.0 [degC]  
HUMIDITY : 33.0 [%]  
NOTE :



ENGINEER : Koichi Wagatsuma

| FREQUENCY<br>[No] | FREQUENCY<br>[MHz] | READING<br>[dBuV] | FACTOR<br>[dB] | EMISSION<br>[dBuV] | LIMIT<br>[dBuV] | MARGIN<br>[dB] |
|-------------------|--------------------|-------------------|----------------|--------------------|-----------------|----------------|
| 1                 | 1086.8220          | <u>54.7</u>       | -30.5          | <u>24.2</u>        | 50.0            | <u>25.8</u>    |
| 2                 | 1966.5700          | <u>57.0</u>       | -29.4          | <u>27.6</u>        | 50.0            | <u>22.4</u>    |
| 3                 | 2225.4020          | <u>59.0</u>       | -29.5          | <u>29.5</u>        | 50.0            | <u>20.5</u>    |
| 4                 | 2755.8000          | <u>54.9</u>       | -29.6          | <u>25.3</u>        | 50.0            | <u>24.7</u>    |

Higher six points are underlined.  
Other frequencies : Below the FCC Part15B (15.111) limit  
Emission Level = Read + Factor(Pad, Cable, Preamp)  
Limit : 2nW = 50dBuV(50ohm impedance)

emiT 3, 0, 0, 0

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9.3.40 RX mode (VFO SCAN SUB:Ant.RX)  
30 – 1000 MHz

< Graph number #1 >

SPECTRUM ANALYSIS

Kashima No.3 Test Site

Date tested : Dec 18 2012

21.5degC /38.0%

Test mode : RX mode (VFO SCAN  
SUB:Ant.RX)

Company : JVC KENWOOD Corporation

Power source : AC 120V, 60Hz

EUT Name : HF/50MHz TRANSCEIVER

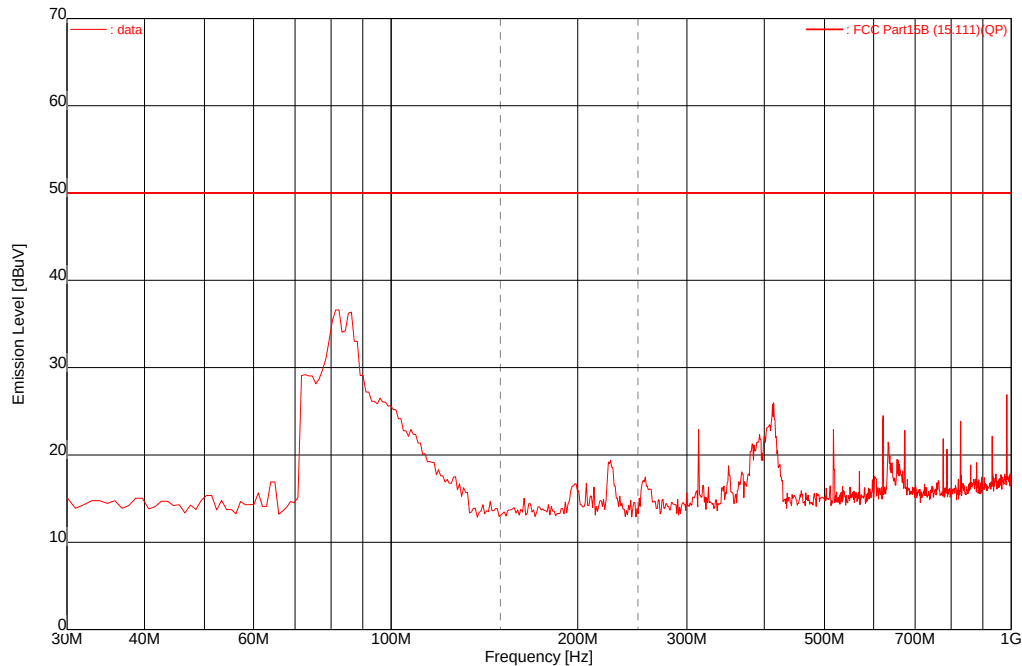
File number : -

Model number : TS-990S

Engineer : Koichi Wagatsuma

Serial number : 82A90005

Note :



| Frequency<br>[ MHz ] | Reading<br>[ dBuV ] | Factor<br>[ dB ] | Emission<br>[ dBuV ] | Limit<br>[ dBuV ] | Margin<br>[ dB ] |
|----------------------|---------------------|------------------|----------------------|-------------------|------------------|
| 74.7431              | <u>40.9</u>         | -10.7            | <u>30.2</u>          | 50.0              | <u>19.8</u>      |
| 83.0952              | <u>48.6</u>         | -10.6            | <u>38.0</u>          | 50.0              | <u>12.0</u>      |
| 87.5660              | <u>48.3</u>         | -10.6            | <u>37.7</u>          | 50.0              | <u>12.3</u>      |
| 414.0161             | <u>38.1</u>         | -8.3             | <u>29.8</u>          | 50.0              | <u>20.2</u>      |
| 621.0265             | <u>31.2</u>         | -7.4             | <u>23.8</u>          | 50.0              | <u>26.2</u>      |
| 828.0337             | 29.4                | -6.3             | 23.1                 | 50.0              | 26.9             |
| 983.2912             | <u>30.1</u>         | -5.4             | <u>24.7</u>          | 50.0              | <u>25.3</u>      |

Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

Emission Level = Read + Factor (Attenuator, Cable, Preamp)

Limit : 2nW = 50dBuV (50ohm impedance)

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1000 – 5000 MHz

< Graph number #1 >

## SPECTRUM ANALYSIS

Kashima No.3 Test Site

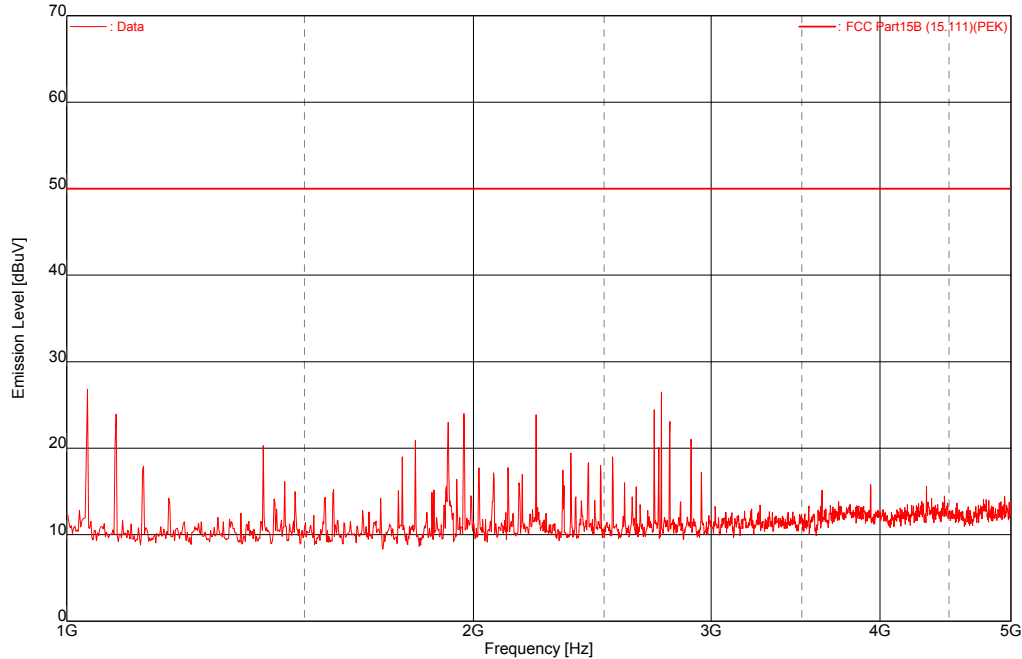
Date tested : Dec 12 2012

Test mode : RX mode (VFO SCAN)  
SUB:ANT.RX

21.0degC /33.0%

Company : JVC KENWOOD Corporation  
EUT Name : HF/50MHz TRANSCEIVER  
Model number : TS-990S  
Serial number : 82A90005

Power source : AC 120V, 60Hz  
File number : -  
Engineer : Koichi Wagatsuma  
Note :



| Frequency<br>[ MHz ] | Reading<br>[ dBuV ] | Factor<br>[ dB ] | Emission<br>[ dBuV ] | Limit<br>[ dBuV ] | Margin<br>[ dB ] |
|----------------------|---------------------|------------------|----------------------|-------------------|------------------|
| 1035.0390            | <u>61.0</u>         | -30.5            | <u>30.5</u>          | 50.0              | <u>19.5</u>      |
| 1086.7910            | <u>58.2</u>         | -30.5            | <u>27.7</u>          | 50.0              | <u>22.3</u>      |
| 2742.8550            | <u>58.0</u>         | -29.6            | <u>28.4</u>          | 50.0              | <u>21.6</u>      |
| 2755.2000            | <u>60.1</u>         | -29.6            | <u>30.5</u>          | 50.0              | <u>19.5</u>      |

Higher six points are underlined.

Other frequencies : Below the FCC Part15B (15.111) limit

Emission Level = Read + Factor (Attenuator, Cable, Preamp)

Limit : 2nW = 50dBuV (50ohm impedance)

#### 9.4 38dB Rejection Test

##### 9.4.1 VFO SCAN mode (MAIN:Ant.1)

|             |                        |
|-------------|------------------------|
| Location    | Kashima No.3 Test Site |
| Date Tested | December 13, 2012      |
| Temperature | 22 [degC]              |
| Humidity    | 36 [%]                 |
| Engineer    | Koichi Wagatsuma       |

| Injected Frequency [MHz] | Detected Frequency [MHz] | 12dB SINAD Reading Injected Frequency [dBm] | 12dB SINAD Reading Detected Frequency | Rejection Level [dB] | Margin [dB] |
|--------------------------|--------------------------|---------------------------------------------|---------------------------------------|----------------------|-------------|
| 824.040                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 836.505                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 848.970                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 869.040                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 881.505                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 893.970                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |

Note : There was no need to carry out the measurements because no point was detected.

SG Input Level = 66dBuV

SG Reference Level = 9.0dBuV (the worst case sensitivity)

9.4.2 VFO SCAN mode (MAIN:Ant.2)

|             |                        |
|-------------|------------------------|
| Location    | Kashima No.3 Test Site |
| Date Tested | December 13, 2012      |
| Temperature | 22 [degC]              |
| Humidity    | 36 [%]                 |
| Engineer    | Koichi Wagatsuma       |

| Injected Frequency [MHz] | Detected Frequency [MHz] | 12dB SINAD Reading Injected Frequency [dBm] | 12dB SINAD Reading Detected Frequency | Rejection Level [dB] | Margin [dB] |
|--------------------------|--------------------------|---------------------------------------------|---------------------------------------|----------------------|-------------|
| 824.040                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 836.505                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 848.970                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 869.040                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 881.505                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 893.970                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |

Note : There was no need to carry out the measurements because no point was detected.

SG Input Level = 66dBuV

SG Reference Level = 9.0dBuV (the worst case sensitivity)

9.4.3 VFO SCAN mode (MAIN:Ant.3)

|             |                        |
|-------------|------------------------|
| Location    | Kashima No.3 Test Site |
| Date Tested | December 13, 2012      |
| Temperature | 22 [degC]              |
| Humidity    | 36 [%]                 |
| Engineer    | Koichi Wagatsuma       |

| Injected Frequency [MHz] | Detected Frequency [MHz] | 12dB SINAD Reading Injected Frequency [dBm] | 12dB SINAD Reading Detected Frequency | Rejection Level [dB] | Margin [dB] |
|--------------------------|--------------------------|---------------------------------------------|---------------------------------------|----------------------|-------------|
| 824.040                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 836.505                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 848.970                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 869.040                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 881.505                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 893.970                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |

Note : There was no need to carry out the measurements because no point was detected.

SG Input Level = 66dBuV

SG Reference Level = 9.0dBuV (the worst case sensitivity)

9.4.4 VFO SCAN mode (MAIN:Ant.4)

|             |                        |
|-------------|------------------------|
| Location    | Kashima No.3 Test Site |
| Date Tested | December 13, 2012      |
| Temperature | 22 [degC]              |
| Humidity    | 36 [%]                 |
| Engineer    | Koichi Wagatsuma       |

| Injected Frequency [MHz] | Detected Frequency [MHz] | 12dB SINAD Reading Injected Frequency [dBm] | 12dB SINAD Reading Detected Frequency | Rejection Level [dB] | Margin [dB] |
|--------------------------|--------------------------|---------------------------------------------|---------------------------------------|----------------------|-------------|
| 824.040                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 836.505                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 848.970                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 869.040                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 881.505                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 893.970                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |

Note : There was no need to carry out the measurements because no point was detected.

SG Input Level = 66dBuV

SG Reference Level = 9.0dBuV (the worst case sensitivity)

9.4.5 VFO SCAN mode (MAIN:Ant.RX)

|             |                        |
|-------------|------------------------|
| Location    | Kashima No.3 Test Site |
| Date Tested | December 14, 2012      |
| Temperature | 21 [degC]              |
| Humidity    | 33 [%]                 |
| Engineer    | Koichi Wagatsuma       |

| Injected Frequency [MHz] | Detected Frequency [MHz] | 12dB SINAD Reading Injected Frequency [dBm] | 12dB SINAD Reading Detected Frequency | Rejection Level [dB] | Margin [dB] |
|--------------------------|--------------------------|---------------------------------------------|---------------------------------------|----------------------|-------------|
| 824.040                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 836.505                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 848.970                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 869.040                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 881.505                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 893.970                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |

Note : There was no need to carry out the measurements because no point was detected.

SG Input Level = 66dBuV

SG Reference Level = 9.0dBuV (the worst case sensitivity)



9.4.6 VFO SCAN mode (SUB:Ant.1)

|             |                        |
|-------------|------------------------|
| Location    | Kashima No.3 Test Site |
| Date Tested | December 14, 2012      |
| Temperature | 21 [degC]              |
| Humidity    | 33 [%]                 |
| Engineer    | Koichi Wagatsuma       |

| Injected Frequency [MHz] | Detected Frequency [MHz] | 12dB SINAD Reading Injected Frequency [dBm] | 12dB SINAD Reading Detected Frequency | Rejection Level [dB] | Margin [dB] |
|--------------------------|--------------------------|---------------------------------------------|---------------------------------------|----------------------|-------------|
| 824.040                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 836.505                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 848.970                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 869.040                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 881.505                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 893.970                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |

Note : There was no need to carry out the measurements because no point was detected.

SG Input Level = 66dBuV

SG Reference Level = 9.0dBuV (the worst case sensitivity)

9.4.7 VFO SCAN mode (SUB:Ant.2)

|             |                        |
|-------------|------------------------|
| Location    | Kashima No.3 Test Site |
| Date Tested | December 14, 2012      |
| Temperature | 21 [degC]              |
| Humidity    | 33 [%]                 |
| Engineer    | Koichi Wagatsuma       |

| Injected Frequency [MHz] | Detected Frequency [MHz] | 12dB SINAD Reading Injected Frequency [dBm] | 12dB SINAD Reading Detected Frequency | Rejection Level [dB] | Margin [dB] |
|--------------------------|--------------------------|---------------------------------------------|---------------------------------------|----------------------|-------------|
| 824.040                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 836.505                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 848.970                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 869.040                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 881.505                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 893.970                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |

Note : There was no need to carry out the measurements because no point was detected.

SG Input Level = 66dBuV

SG Reference Level = 9.0dBuV (the worst case sensitivity)

9.4.8 VFO SCAN mode (SUB:Ant.3)

|             |                        |
|-------------|------------------------|
| Location    | Kashima No.3 Test Site |
| Date Tested | December 14, 2012      |
| Temperature | 21 [degC]              |
| Humidity    | 33 [%]                 |
| Engineer    | Koichi Wagatsuma       |

| Injected Frequency [MHz] | Detected Frequency [MHz] | 12dB SINAD Reading Injected Frequency [dBm] | 12dB SINAD Reading Detected Frequency | Rejection Level [dB] | Margin [dB] |
|--------------------------|--------------------------|---------------------------------------------|---------------------------------------|----------------------|-------------|
| 824.040                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 836.505                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 848.970                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 869.040                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 881.505                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 893.970                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |

Note : There was no need to carry out the measurements because no point was detected.

SG Input Level = 66dBuV

SG Reference Level = 9.0dBuV (the worst case sensitivity)

9.4.9 VFO SCAN mode (SUB:Ant.4)

|             |                        |
|-------------|------------------------|
| Location    | Kashima No.3 Test Site |
| Date Tested | December 14, 2012      |
| Temperature | 21 [degC]              |
| Humidity    | 33 [%]                 |
| Engineer    | Koichi Wagatsuma       |

| Injected Frequency [MHz] | Detected Frequency [MHz] | 12dB SINAD Reading Injected Frequency [dBm] | 12dB SINAD Reading Detected Frequency | Rejection Level [dB] | Margin [dB] |
|--------------------------|--------------------------|---------------------------------------------|---------------------------------------|----------------------|-------------|
| 824.040                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 836.505                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 848.970                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 869.040                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 881.505                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 893.970                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |

Note : There was no need to carry out the measurements because no point was detected.

SG Input Level = 66dBuV

SG Reference Level = 9.0dBuV (the worst case sensitivity)

9.4.10 VFO SCAN mode (SUB:Ant.RX)

|             |                        |
|-------------|------------------------|
| Location    | Kashima No.3 Test Site |
| Date Tested | December 14, 2012      |
| Temperature | 21 [degC]              |
| Humidity    | 33 [%]                 |
| Engineer    | Koichi Wagatsuma       |

| Injected Frequency [MHz] | Detected Frequency [MHz] | 12dB SINAD Reading Injected Frequency [dBm] | 12dB SINAD Reading Detected Frequency | Rejection Level [dB] | Margin [dB] |
|--------------------------|--------------------------|---------------------------------------------|---------------------------------------|----------------------|-------------|
| 824.040                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 836.505                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 848.970                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 869.040                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 881.505                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |
| 893.970                  | No Point Detected        | See Note                                    | See Note                              | -                    | -           |

Note : There was no need to carry out the measurements because no point was detected.

SG Input Level = 66dBuV

SG Reference Level = 9.0dBuV (the worst case sensitivity)

## SECTION 10. LIST OF MEASURING INSTRUMENTS

Test instruments are calibrated according to Quality Manual and Calibration Rules of Intertek Japan K.K.

| Instrument                                      | Model No.                      | Serial No. | Manufacturer    | Cal. Interval | Effective period |
|-------------------------------------------------|--------------------------------|------------|-----------------|---------------|------------------|
| <b>Conducted disturbance at mains terminals</b> |                                |            |                 |               |                  |
| LISN(EUT)                                       | ESH2-Z5                        | 882395/019 | Rohde & Schwarz | 1 Y           | Jul.31, 2013     |
| LISN(Peripheral)                                | KNW-407                        | 8-1395-9   | Kyoritsu        | 1 Y           | Jul.31, 2013     |
| 10dB LISN Pad                                   | CFA-01                         | E04AT10B   | TAMAGAWA        | 1 Y           | Jul.31, 2013     |
| 50ohm Termination                               | 65BNC-50-0-2/133NE             | E04TRM50B  | SUHNER          | 1 Y           | Jul.31, 2013     |
| Coaxial Cable (C1)                              | 3D-2W(5.0m)                    | MTS04CSR-1 | Intertek        | 1 Y           | Aug.31, 2013     |
| Coaxial Cable (C2)                              | RG-5A/U(4.0m)                  | MTS04CSR-2 | Intertek        | 1 Y           | Aug.31, 2013     |
| Coaxial Cable (C3)                              | RG214HF(1.5m)                  | MTS04CSR-3 | SUHNER          | 1 Y           | Aug.31, 2013     |
| Coaxial Cable (C4)                              | RG214HF(1.5m)                  | MTS04CSR-4 | SUHNER          | 1 Y           | Aug.31, 2013     |
| Coaxial Cable (C5)                              | RG214HF(1.5m)                  | MTS04CSR-5 | SUHNER          | 1 Y           | Aug.31, 2013     |
| <b>Radiated disturbance</b>                     |                                |            |                 |               |                  |
| Broad Band Antenna                              | VULB9168                       | 331        | Schwarzbeck     | 1 Y           | Nov.30, 2013     |
| Amplifier                                       | 8447D                          | 1937A02669 | Hewlett Packard | 1 Y           | Aug.31, 2013     |
| 6dB Attenuator                                  | 6806.17.AC                     | None       | HUBER + SUHNER  | 1 Y           | Aug.31, 2013     |
| Step Attenuator                                 | 8494A                          | 1510A08521 | Hewlett Packard | 1 Y           | Aug.31, 2013     |
| Spectrum Analyzer                               | 8563E                          | 3337A01513 | Hewlett Packard | 1 Y           | Jul.31, 2013     |
| Double Ridged Antenna                           | 3115                           | 3024       | EMCO            | 1 Y           | Nov.30, 2013     |
| Amplifier                                       | 8449B                          | 3008A00615 | Hewlett Packard | 1 Y           | Jul.31, 2013     |
| 6dB Attenuator                                  | 6806.17.B                      | None       | SUHNER          | 1 Y           | Jul.31, 2013     |
| Coaxial Cable (R1)                              | RG214HF(9.0m)                  | MTS04R3-1  | SUHNER          | 1 Y           | Aug.31, 2013     |
| Coaxial Cable (R2)                              | 8D-2W(15.0m)                   | MTS04R3-2  | Intertek        | 1 Y           | Aug.31, 2013     |
| Coaxial Cable (R3)                              | RG214HF(2.0m)                  | MTS04R3-3  | SUHNER          | 1 Y           | Aug.31, 2013     |
| Coaxial Cable (R4)                              | RG214HF(0.4m)                  | MTS04R3-4  | SUHNER          | 1 Y           | Aug.31, 2013     |
| Coaxial Cable (R5)                              | RG214HF(0.4m)                  | MTS04R3-5  | SUHNER          | 1 Y           | Aug.31, 2013     |
| Coaxial Cable (R6)                              | RG214HF(1.5m)                  | MTS04R3-6  | SUHNER          | 1 Y           | Aug.31, 2013     |
| Coaxial Cable (R7)                              | RG214HF(1.5m)                  | MTS04R3-7  | SUHNER          | 1 Y           | Aug.31, 2013     |
| Coaxial Cable (R8)                              | RG214HF(1.5m)                  | MTS04R3-8  | SUHNER          | 1 Y           | Aug.31, 2013     |
| Coaxial Cable (R9)                              | RG214HF(6.0m)                  | MTS04R3-8  | SUHNER          | 1 Y           | Aug.31, 2013     |
| Coaxial Cable (R11)                             | SUCOFLEX 104(6.0m)             | 58440/4PE  | SUHNER          | 1 Y           | Jul.31, 2013     |
| Coaxial Cable (R12)                             | SUCOFLEX 104(1.0m)             | 58441/4PE  | SUHNER          | 1 Y           | Jul.31, 2013     |
| Site Attenuation                                |                                |            |                 | 1 Y           | May 31, 2013     |
| <b>Common</b>                                   |                                |            |                 |               |                  |
| Test receiver                                   | ESS<br>(Firmware Version 1.07) | 845637/001 | Rohde & Schwarz | 1 Y           | Dec.31, 2012     |
| RF Switch(1)                                    | MP59B                          | M21448     | ANRITSU         | 1 Y           | Aug.31, 2013     |
| RF Switch(2)                                    | ACX-150-1                      | E04301501  | Intertek        | 1 Y           | Aug.31, 2013     |
| Testing Software                                | emiT (Version 3,0,0,0)         |            |                 |               |                  |

| <b>Conducted power on antenna port</b> |                                |            |                 |     |              |
|----------------------------------------|--------------------------------|------------|-----------------|-----|--------------|
| 3dB Attenuator                         | 779                            | None       | narda           | 1 Y | Oct.31, 2013 |
| 10dB Attenuator                        | 6810.17.B                      | 5061       | SUHNER          | 1 Y | May 31, 2013 |
| Step Attenuator                        | 8494B                          | 2406A09036 | Hewlett Packard | 1 Y | Jun.30, 2013 |
| Amplifier                              | TPA0118-30                     | 0303       | TOYO            | 1 Y | Oct.31, 2013 |
| Amplifier                              | ZX60-3018G                     | 003        | Intertek        | 1 Y | Jun.30, 2013 |
| Spectrum Analyzer                      | N9030A (Rev.A,08,54)           | US51350220 | Agilent         | 1 Y | Feb.28, 2013 |
| Coaxial Cable (C1)                     | 5D-2W(7.0m)                    | None       | Intertek        | 1 Y | Jun.30, 2013 |
| Coaxial Cable (R9)                     | RG-5A/U(0.2m)                  | None       | Intertek        | 1 Y | Jun.30, 2013 |
| Coaxial Cable (R10)                    | RG-5A/U(0.4m)                  | None       | Intertek        | 1 Y | Jun.30, 2013 |
| Coaxial Cable (R11)                    | RG-5A/U(1.1m)                  | None       | Intertek        | 1 Y | Jun.30, 2013 |
| Coaxial Cable (R14)                    | SUCOFLEX104(1.0m)              | 229603/4   | SUHNER          | 1 Y | Oct.31, 2013 |
| Coaxial Cable (R15)                    | SUCOFLEX104(3.0m)              | 39677/4    | SUHNER          | 1 Y | Oct.31, 2013 |
| Test receiver                          | ESS<br>(Firmware Version 1.07) | 842123/005 | Rohde & Schwarz | 1 Y | Nov.30, 2013 |
| RF Switch                              | ACX-150                        | None       | Intertek        | 1 Y | Jun.30, 2013 |
| <b>38dB Rejection test</b>             |                                |            |                 |     |              |
| Signal Generator                       | SMB100A                        | 105709     | Rohde & Schwarz | 1 Y | Dec.31, 2012 |
| Audio Analyzer                         | 8903B                          | 2818A04372 | Hewlett Packard | 1 Y | May 31, 2013 |
| Coaxial Cable                          | SUCOFLEX 104(1.5m)             | 306309/4   | SUHNER          | 1 Y | May 31, 2013 |

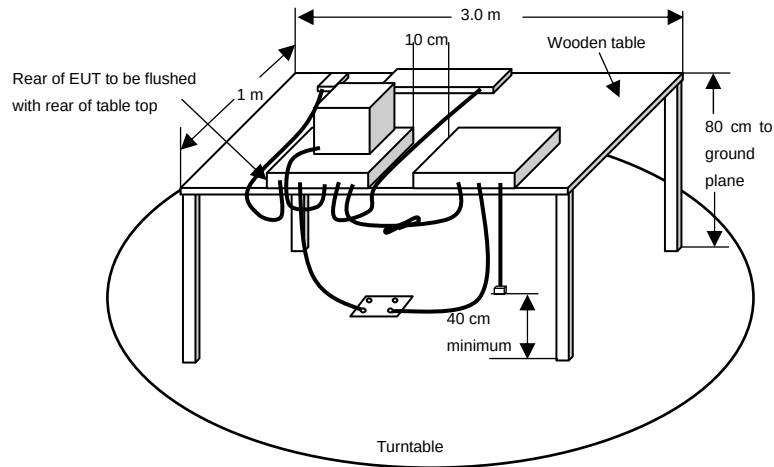
# **ANNEX**



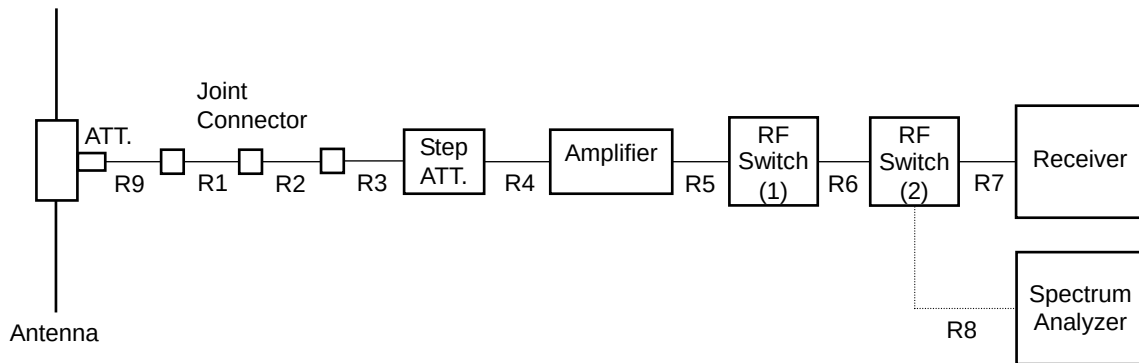


## Radiated disturbance

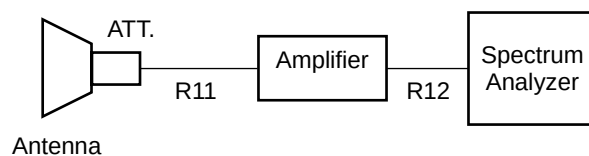
Test setup as per standard



## Diagram of the measuring instruments ( 30-1000MHz )



## Above 1GHz



### [ Preliminary Measurement ]

EUT is tested on all operating conditions.

The spectrum analyzer is set max-hold mode and swept during turntable was rotated 0 to 360 degree, And find the worst emission conditions in configuration, operating mode, or ambient noise notation.

### [ Final Measurement ]

The EUT operated in the worst emission condition found by the preliminary test.

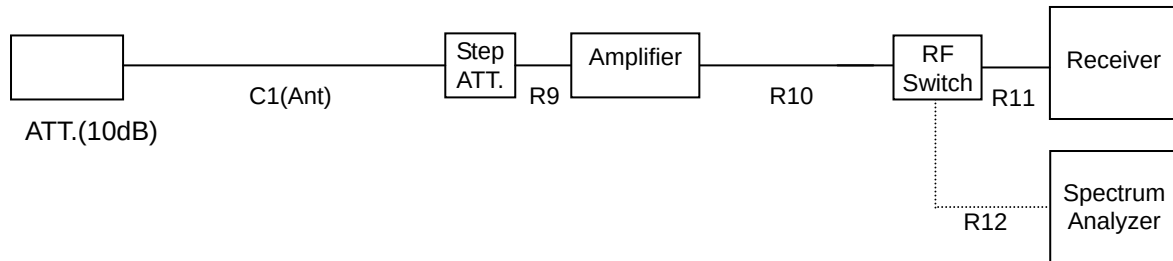
The turntable azimuth (EUT direction) and antenna height are adjusted the position so that maximum field strength is obtained for each frequency spectrum to be measured.

The equipment and cables are arranged or manipulated within the range of the test standard in the above condition. At least six highest spectrums are measured by the test receiver (quasi-peak) and spectrum analyzer (peak and average). When the uncertain result was obtained (30 – 1000 MHz), the measurement is retried by using the half wave dipole antenna instead of the broadband antenna.

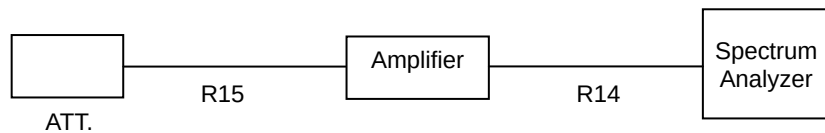
### Conducted Power on Antenna port (15.111)

Schema for the conducted power on antenna port measurement

Diagram of the measuring instruments ( 30 - 1000MHz )



Above 1GHz



#### [ Preliminary Measurement ]

EUT is tested on all operating conditions.

The spectrum analyzer is controlled by the computer program to sweep the frequency range to be measured, then spectrum chart are plotted out to find the worst emission conditions in operating mode and/or configuration decision for the final test.

#### [ Final Measurement ]

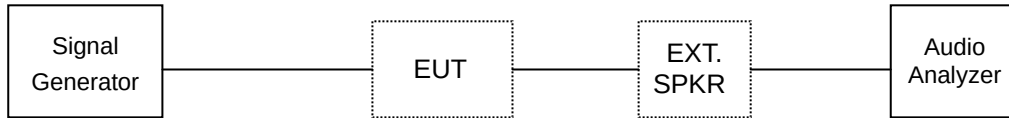
The EUT is operated in the worst emission condition found by the preliminary test.

The equipment and cables are arranged or manipulated within the range of the test standard in the above condition.

At least six highest spectrum are measured by the test receiver (quasi-peak) and spectrum analyzer (peak).

### **38dB Rejection test**

#### **Schema for the 38dB rejection measurement**



#### **[ Preliminary Measurement ]**

The Signal Generator conditions :

Output level = 66 dBuV.

Modulation = Frequency modulated to 1 kHz tone at 3 kHz peak deviation.

Frequency Points = 824.040 MHz, 836.505 MHz, 848.970 MHz

869.040 MHz, 881.505 MHz, 893.970 MHz

(The Cellular Radiotelephone Service mobile and base frequency bands)

The EUT condition :

Scanning Frequency = 0.030 MHz – 56.00 MHz (5 kHz Step).

Scan stopped point, was the detected frequency.

#### **[ Final Measurement ]**

Injected 12dB SINAD Reading (SG RF Output)

The EUT condition :

Frequency = Scan stopped point

The Signal Generator condition :

Frequency = Cellular point

Detected 12dB SINAD Reading (SG RF Output)

The EUT condition :

Frequency = Scan stopped point

The Signal Generator condition :

Frequency = Scan stopped point

Under the requirements of Section 15.121(b) of the Rule.

Injected 12dB SINAD Reading – Detected 12dB SINAD Reading = 38 dB or more.