

TEST REPORT

APPLICANT : RISO KAGAKU CORPORATION

ADDRESS : 523 Karima, Tsukuba-shi, Ibaraki-ken 305-0822, Japan

PRODUCTS : RF-Module (RFID Tag-Reader/Writer)

MODEL No. : 444-59008

SERIAL No. : 303 21Z 11021, 303 21Z 11025

FCC ID : RPARFOM5A2

TEST STANDARD : CFR 47 FCC Rules and Regulations Part 15 Subpart A and C

TESTING LOCATION : Japan Quality Assurance Organization
Safety & EMC Center
EMC Engineering Department, TSURU EMC Branch
2096, Ohata, Tsuru-shi, Yamanashi-ken 402-0045, Japan

TEST RESULTS : **Passed**

DATE OF TEST : July 18, 2013 and August 6 and 14, 2013



A handwritten signature in blue ink, appearing to read "K. Abe", is written over a horizontal line.

Kazuhisa Abe
Manager
Japan Quality Assurance Organization
Safety & EMC Center
EMC Engineering Department, TSURU EMC Branch
2096, Ohata, Tsuru-shi, Yamanashi-ken 402-0045, Japan

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- The measurement values stated in Test Report was made with traceable to National Institute of Advanced Industrial Science and Technology (AIST) of Japan and National Institute of Information and Communications Technology (NICT) of Japan.
 - The applicable standard, testing condition and testing method which were used for the tests are based on the request of the applicant.
 - The test results presented in this report relate only to the offered test sample.
 - The contents of this test report cannot be used for the purposes, such as advertisement for consumers.
 - This test report shall not be reproduced except in full without the written approval of JQA.
 - VLAC does not approve, certify or warrant the product by this test report.

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Definitions for Abbreviation and Symbols Used In This Test Report

“EUT” means Equipment Under the Test.

“AE” means Associated Equipment.

“N/A” means that Not Applicable.

“N/T” means that Not Tested.

☒-indicates that the listed condition, standard or equipment is applicable for this report.

☐-indicates that the listed condition, standard or equipment is not applicable for this report.

Documentation

1 Test Regulation

Applied Standard : CFR 47 FCC Rules and Regulations Part 15 Subpart A and C

Test procedure : ANSI C63.4-2003

2 Test Location

2.1 Test Location 1

Japan Quality Assurance Organization
SAFETY & EMC CENTER
EMC Engineering Department Testing Division
1-21-25, Kinuta, Setagaya-ku, Tokyo 157-8573, Japan

2.2 Test Location 2

Japan Quality Assurance Organization
SAFETY & EMC CENTER
EMC Engineering Department TSURU EMC Branch
2096, Ohata, Tsuru-shi, Yamanashi-ken 402-0045, JAPAN

3 Recognition of Test Laboratory

3.1 Test Laboratory 1

Japan Quality Assurance Organization SAFETY & EMC CENTER, EMC Engineering Department Testing Division is accredited under ISO/IEC 17025 by following accreditation bodies and the test facility of Testing Division is registered by the following bodies .

VLAC Code : VLAC-001-1 (Effective through : March 30, 2014)
VCCI Registration Number : A-0001 (Effective through : March 30, 2014)
FCC Registration Number : 349652 (Effective through : March 30, 2014)
IC Registration Number : 2079A-1, 2079A-2 (Effective through : October 23, 2015)
Accredited as conformity assessment body for Japan electrical appliances and material law by METI. (Effective through : February 22, 2016)

3.2 Test Laboratory 2

Japan Quality Assurance Organization SAFETY & EMC CENTER EMC Engineering Department TSURU EMC Branch is accredited under ISO/IEC 17025 by following accreditation bodies and the test facility of Testing Division is registered by the following bodies .

VLAC Code : VLAC-001-4 (Effective through : March 30, 2014)
BSMI Recognition Number : SL2-IN-E-6004, SL2-IS-E-6004, SL2-A1-E-6004
(Effective through : September 14, 2013)
VCCI Registration Number: A-0004 (Effective through: March 30, 2014)
FCC Registration Number: 444763 (Effective through: March 30, 2014)
IC Registration Number: 2079D-1, 2079D-2, 2079D-3 (Effective through: December 16, 2013)

Accredited as conformity assessment body for Japan electrical appliances and material law by METI.
(Effective through: February 22, 2016)

4 Description of the Equipment Under Test

- | | | | |
|----|---|---|--|
| 1 | Manufacturer | : | RISO KAGAKU CORPORATION
R&D Center, 127-7 Taninosawa, Fukuda, Ami-machi, Inashiki-gun,
Ibaraki-ken 300-1156, Japan |
| 2 | Products | : | RF-Module (RFID Tag-Reader/Writer) |
| 3 | Model No. | : | 444-59008 |
| 4 | Serial No. | : | 303 21Z 11021, 303 21Z 11025 |
| 5 | Product Type | : | Prototype |
| 6 | Date of Manufacture | : | - |
| 7 | Power Rating | : | 5.0VDC
* The EUT was operated with the RFID Checker.
(Input: 120VAC 60Hz, Output: 5.0VDC) |
| 8 | EUT Grounding | : | None |
| 9 | Received Date of EUT | : | July 18, 2013 |
| 10 | EUT Authorization | : | Certification |
| 11 | EUT Highest Frequency
Used/Generated | : | 13.56MHz(Section 15.225)
Operation within the band 13.110 - 14.010 MHz |
| 12 | Modulation | : | AM(Digital) |
| 13 | Antenna type | : | Fixed using |
| 14 | Temperature Range | : | 0 ~ 40 degree |

5 Test Condition

5.1 AC Powerline Conducted Emission

The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]
☐-Not Applicable

Test site & instruments :

Name	Number of test site & instruments (Refer to Appendix A)
Test Site	3
Test Receiver	172
Spectrum Analyzer	20
Cable	42
AMN(for EUT)	34
AMN(for Peripheral)	-
Pulse-Limiter	175
Termination	-
High Pass Filter	246
Isolation Transformer	-
Signal Generator	-

5.2 Radiated Emission

5.2.1 Radiated Emission 0.009 MHz - 30 MHz

The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]
☐-Not Applicable

Test site & instruments :

Type	Number of test site & instruments (Refer to Appendix C)
Test Site	<input type="checkbox"/> OS-1 <input type="checkbox"/> OS-2 <input checked="" type="checkbox"/> AC-1
Test Receiver	<input type="checkbox"/> R-4 <input checked="" type="checkbox"/> R-5 <input type="checkbox"/> S-1
Cable	<input type="checkbox"/> CN-1 <input type="checkbox"/> CN-2 <input type="checkbox"/> CN-3
Antenna	<input type="checkbox"/> AB-1 <input type="checkbox"/> AB-2 <input type="checkbox"/> AB-3 <input type="checkbox"/> AD-1 <input type="checkbox"/> AD-2 <input type="checkbox"/> AD-3 <input type="checkbox"/> AL-1 <input type="checkbox"/> AL-2 <input type="checkbox"/> AL-3 <input type="checkbox"/> AL-4 <input type="checkbox"/> AL-5 <input type="checkbox"/> AD-4 <input checked="" type="checkbox"/> AL-0

5.2.2 Radiated Emission 30 MHz - 1000 MHz

The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]
☐-Not Applicable

Test site & instruments :

Type	Number of test site & instruments (Refer to Appendix C)
Test Site	<input type="checkbox"/> OS-1 <input type="checkbox"/> OS-2 <input checked="" type="checkbox"/> AC-1
Test Receiver	<input type="checkbox"/> R-1 <input type="checkbox"/> R-2 <input checked="" type="checkbox"/> R-6 <input type="checkbox"/> R-5 <input type="checkbox"/> S-1 <input type="checkbox"/> S-4
Cable	<input type="checkbox"/> CN-1 <input type="checkbox"/> CN-2 <input checked="" type="checkbox"/> CN-3
Antenna	<input type="checkbox"/> AB-1 <input type="checkbox"/> AB-2 <input checked="" type="checkbox"/> AB-3 <input type="checkbox"/> AD-1 <input type="checkbox"/> AD-2 <input type="checkbox"/> AD-3 <input type="checkbox"/> AL-1 <input type="checkbox"/> AL-2 <input checked="" type="checkbox"/> AL-3 <input type="checkbox"/> AL-4 <input type="checkbox"/> AL-5 <input type="checkbox"/> AD-4

5.2.3 Radiated Emission above 1 GHz

The requirements are ☐-Applicable ☐-Tested ☐-Not tested by applicant request.]
☒-Not Applicable

Test site & instruments :

Type	Number of test site & instruments (Refer to Appendix C)					
Test Site	<input type="checkbox"/> OS-1	<input type="checkbox"/> OS-2	<input type="checkbox"/> AC-1			
Test Receiver	<input type="checkbox"/> R-3	<input type="checkbox"/> R-5	<input type="checkbox"/> S-1	<input type="checkbox"/> S-3	<input type="checkbox"/> S-4	<input type="checkbox"/> S-5
Cable	<input type="checkbox"/> CS-1	<input type="checkbox"/> CS-2				
Antenna	<input type="checkbox"/> AL-1	<input type="checkbox"/> AL-2	<input type="checkbox"/> AL-3	<input type="checkbox"/> AL-4	<input type="checkbox"/> AL-5	<input type="checkbox"/> AL-6
Pre-Amplifier	<input type="checkbox"/> PA-1	<input type="checkbox"/> PA-2	<input type="checkbox"/> PA-3	<input type="checkbox"/> PA-5		

5.3 Frequency Stability

The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]
☐-Not Applicable

Test site & instruments :

Type	Number of test site & instruments (Refer to Appendix C)					
Test Receiver	<input type="checkbox"/> R-1	<input type="checkbox"/> R-2	<input type="checkbox"/> R-3	<input type="checkbox"/> R-4	<input type="checkbox"/> R-5	<input type="checkbox"/> S-1
	<input type="checkbox"/> S-3	<input checked="" type="checkbox"/> 13				
Cable	<input type="checkbox"/> CB-3	<input type="checkbox"/> CB-4	<input type="checkbox"/> CB-5	<input type="checkbox"/> CB-3	<input type="checkbox"/> CB-4	<input type="checkbox"/> CB-5
	<input type="checkbox"/> CS-1	<input type="checkbox"/> CS-2	<input type="checkbox"/> CS-3	<input type="checkbox"/> CS-4	<input type="checkbox"/> CS-5	<input checked="" type="checkbox"/> 45
Oven	<input checked="" type="checkbox"/> 76					
Frequency Counter	<input checked="" type="checkbox"/> 75					
Antenna	<input type="checkbox"/> AB-1	<input type="checkbox"/> AB-2	<input type="checkbox"/> AB-3	<input type="checkbox"/> AD-1	<input type="checkbox"/> AD-2	<input type="checkbox"/> AD-3
	<input type="checkbox"/> AL-1	<input type="checkbox"/> AL-2	<input type="checkbox"/> AL-3	<input type="checkbox"/> AL-4	<input type="checkbox"/> AL-5	<input type="checkbox"/> AD-4
	<input type="checkbox"/> AL-0					
Multimeter	<input checked="" type="checkbox"/> 165					

5.4 Occupied Bandwidth

The requirements are ☒-Applicable ☒-Tested ☐-Not tested by applicant request.]
☐-Not Applicable

Test site & instruments :

Type	Number of test site & instruments (Refer to Appendix C)					
Oven	<input type="checkbox"/> 76					
Test Receiver	<input type="checkbox"/> R-1	<input type="checkbox"/> R-2	<input type="checkbox"/> R-3	<input type="checkbox"/> R-4	<input type="checkbox"/> R-5	<input type="checkbox"/> S-1
	<input type="checkbox"/> S-3	<input checked="" type="checkbox"/> 13				
Cable	<input type="checkbox"/> CB-3	<input type="checkbox"/> CB-4	<input type="checkbox"/> CB-5	<input type="checkbox"/> CB-3	<input type="checkbox"/> CB-4	<input type="checkbox"/> CB-5
	<input type="checkbox"/> CS-1	<input type="checkbox"/> CS-2	<input type="checkbox"/> CB-3	<input type="checkbox"/> CB-4	<input type="checkbox"/> CB-5	<input checked="" type="checkbox"/> 45
Pre-Amplifier	<input type="checkbox"/> PA-1	<input type="checkbox"/> PA-2	<input type="checkbox"/> PA-3			
Antenna	<input type="checkbox"/> AB-1	<input type="checkbox"/> AB-2	<input type="checkbox"/> AB-3	<input type="checkbox"/> AD-1	<input type="checkbox"/> AD-2	<input type="checkbox"/> AD-3
	<input type="checkbox"/> AL-1	<input type="checkbox"/> AL-2	<input type="checkbox"/> AL-3	<input type="checkbox"/> AL-4	<input type="checkbox"/> AL-5	<input type="checkbox"/> AD-4
	<input type="checkbox"/> AL-0					

6 Preliminary Test and Test Setup

6.1 AC Powerline Conducted Emission

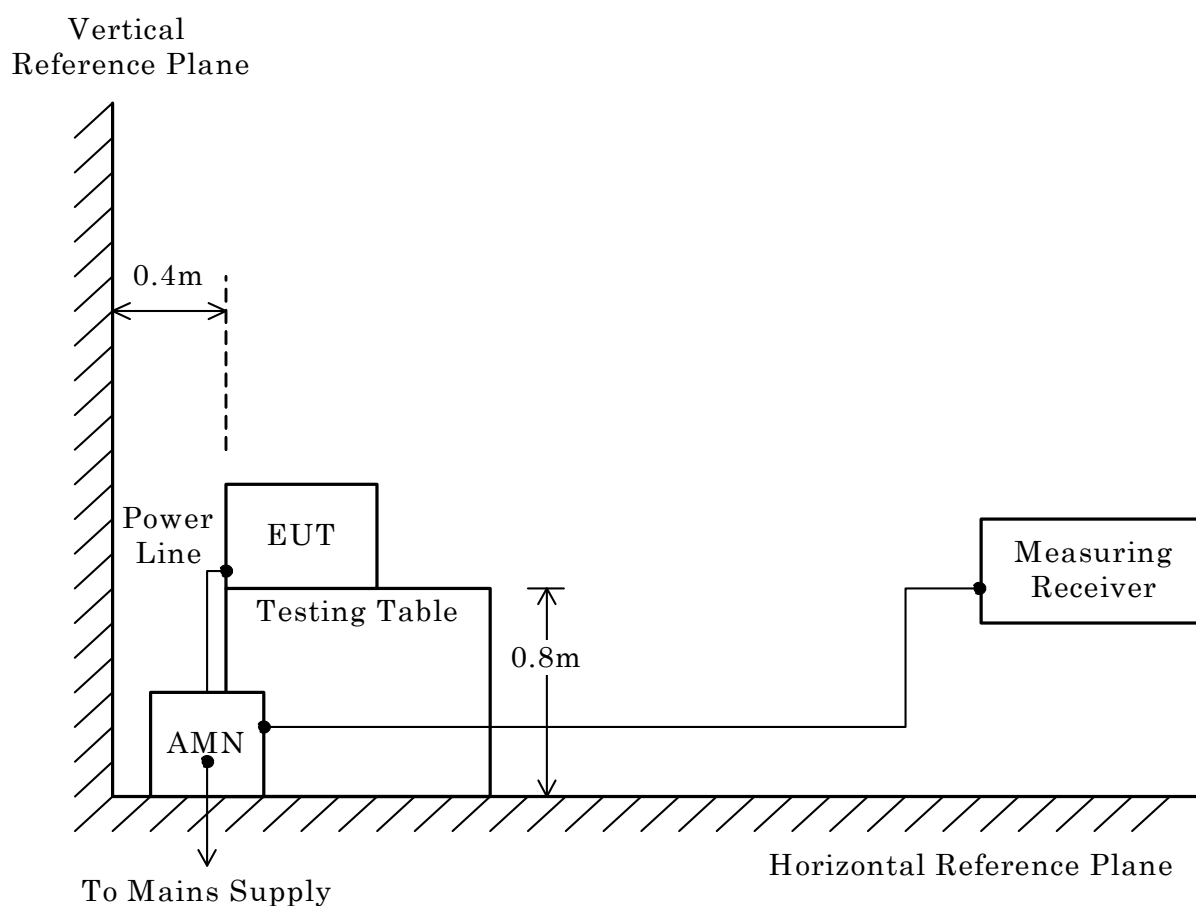
The preliminary conducted disturbance at the mains ports measurements were carried out.

The preliminary conducted disturbance at the mains ports were performed using the spectrum analyzer to observe the emissions characteristics of the EUT.

The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions. This configurations was used for final conducted disturbance at the mains ports measurements.

(referred documentation is No.G34364I in JQA Tsuru)

- Side View -



* AMN : Artificial Mains Network

6.2 Radiated Emission

6.2.1 Radiated Emission 0.009 MHz - 30 MHz

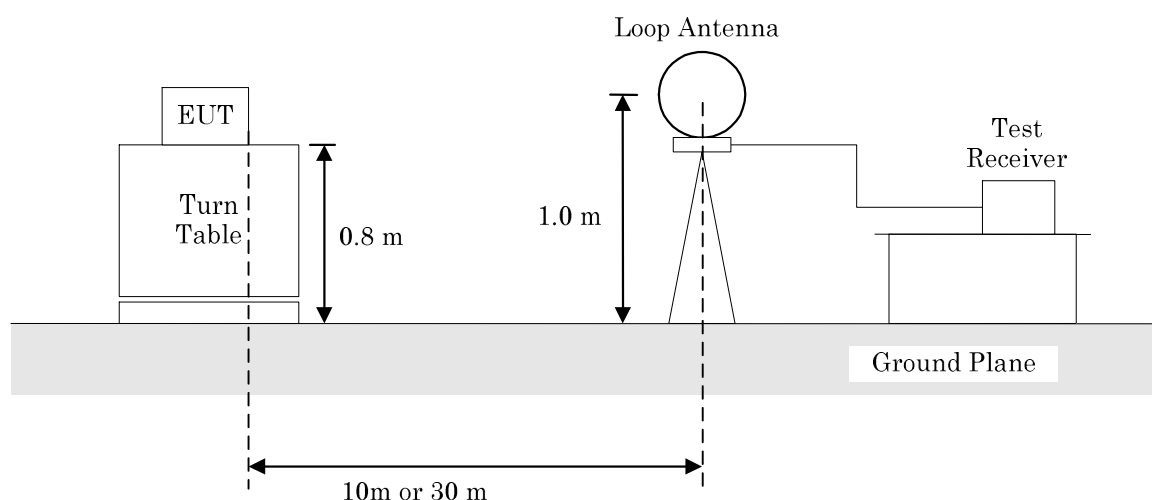
The preliminary radiated disturbance measurements were carried out.

The preliminary radiated disturbance measurements were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT.

The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions.

This configurations was used for the final radiated disturbance measurements.

(referred documentation is No.G34364I in JQA Tsuru)



6.2.2 Radiated Emission 30 MHz - 1000 MHz

The preliminary radiated disturbance measurements were carried out.

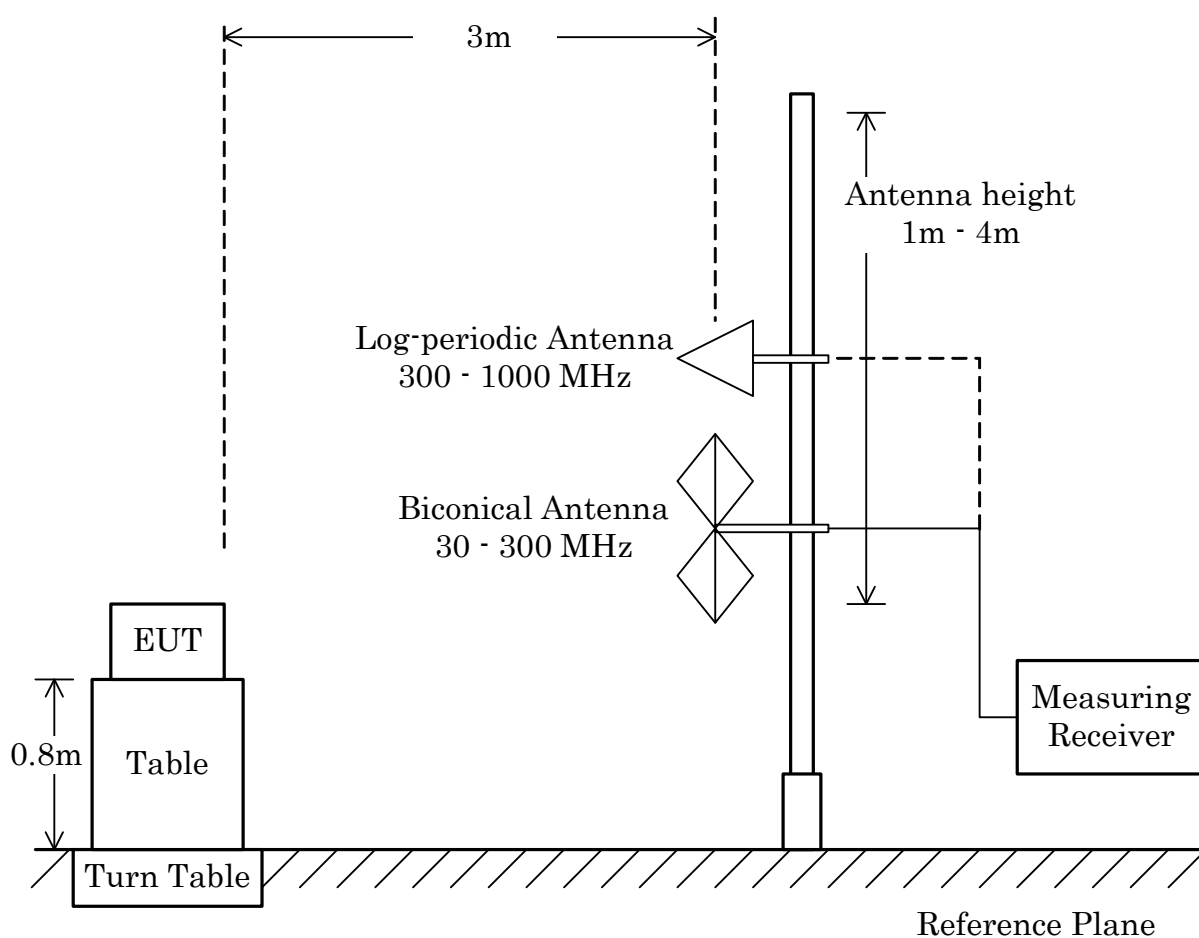
The preliminary radiated disturbance measurements were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT.

The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions.

This configurations was used for the final radiated disturbance measurements.

(referred documentation is No.G34364I in JQA Tsuru)

- Side View -



6.2.3 Radiated Emission above 1 GHz

The preliminary radiated disturbance measurements were carried out.

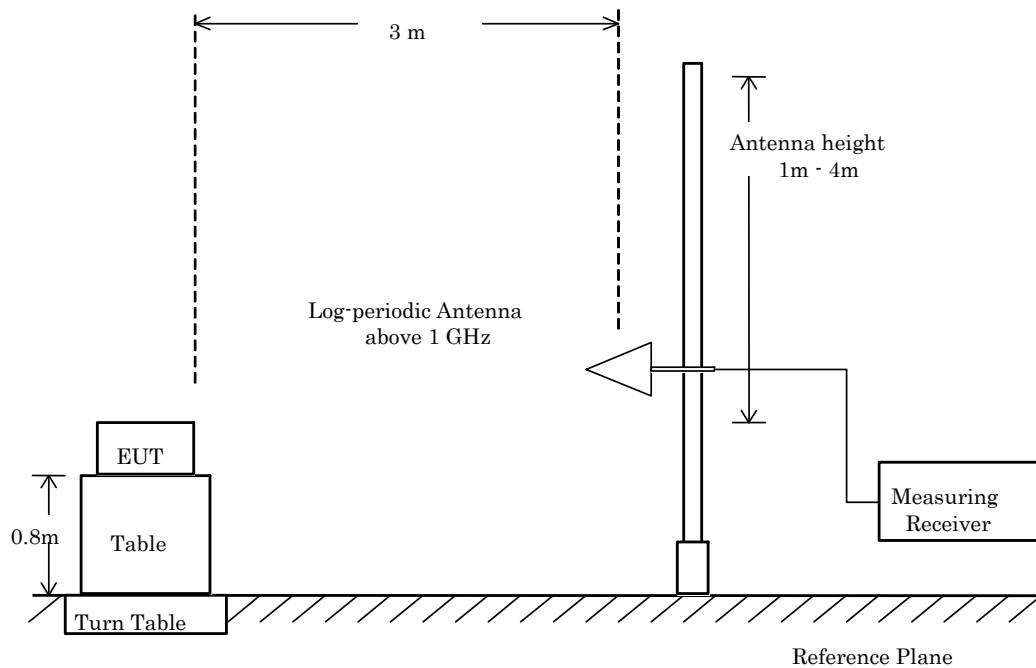
The preliminary radiated disturbance measurements were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT.

The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions.

This configurations was used for the final radiated disturbance measurements.

(referred documentation is No.G34364I in JQA Tsuru)

- Side View -

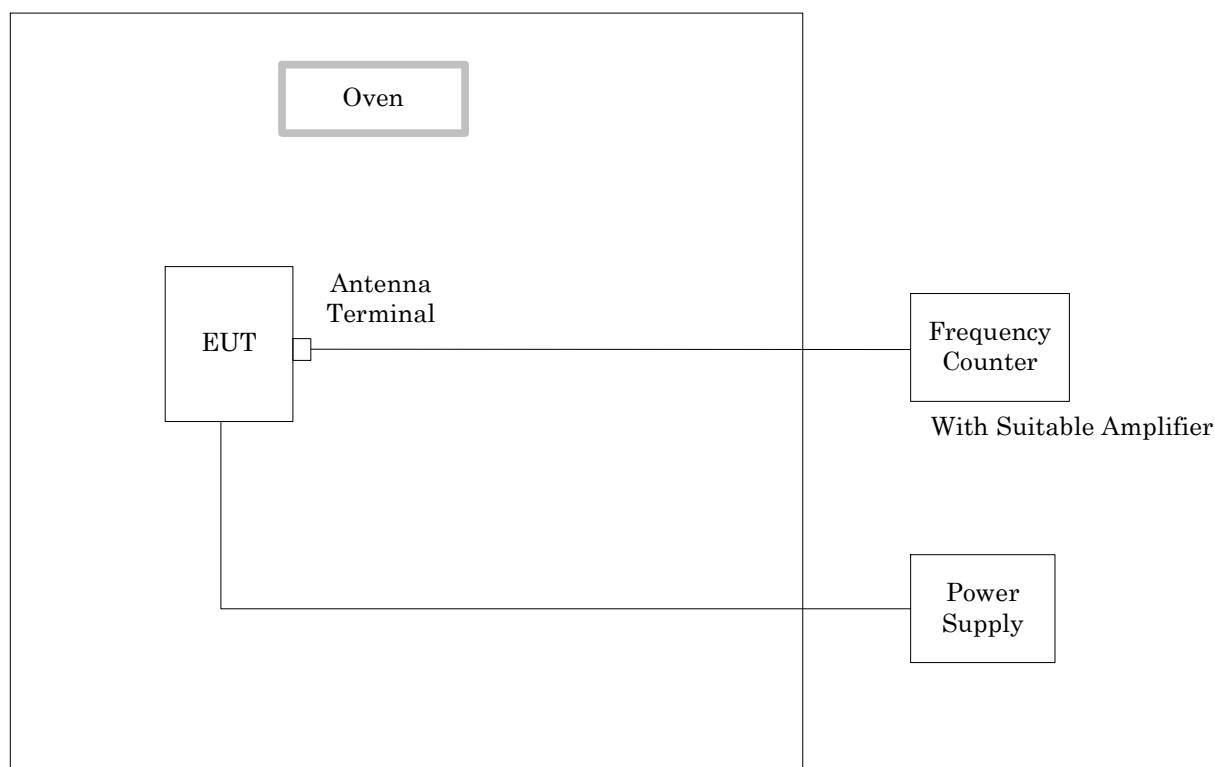


6.3 Frequency Stability

The frequency stability measurements were carried out. By using frequency counter with suitable RF amplifier, the carrier frequency of the transmitter under test was measured with a temperature variation of -20°C to $+50^{\circ}\text{C}$ at the normal supply voltage, and if required, with a variation in the primary voltage from 85% to 115% the rated supply voltage at the temperature of $+20^{\circ}\text{C}$.

These measurements were carried out after allow sufficient time (approximately 1 hour) for the temperature of the chamber to stabilize.

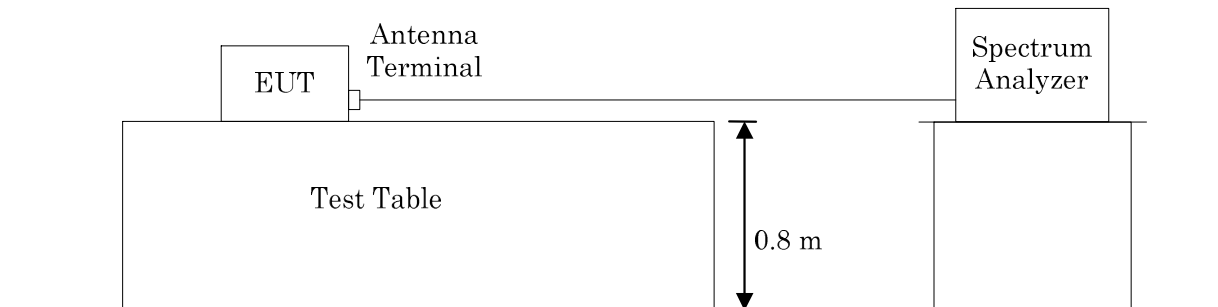
(referred documentation is No.G34366L in JQA Testing section)



6.4 Occupied Bandwidth

According to description of ANSI C63.4-2003 sec.13.1.7, the occupied bandwidth measurements were carried out. By using a spectrum analyzer with a vertical antenna for picking up the signal, the measurements of the emission were made under the transmitting modes of the EUT.

The resolution bandwidth of spectrum analyzer was set to the value specified in sec.13.1.7.
(referred documentation is No.G34366K in JQA Testing section)



7 Equipment Under Test Modification

- ☒ - No modifications were conducted by JQA to achieve compliance to the limitations.
☐ - To achieve compliance to the limitations, the following changes were made by JQA during the compliance test.

The modifications will be implemented in all production models of this equipment.

Applicant : Not Applicable

Date : Not Applicable

Typed Name : Not Applicable

Position : Not Applicable

Signatory: Not Applicable

8 Responsible Party**Responsible Party of Test Item (Product)**

Responsible Party :

Contact Person :

Signatory

9 Deviation from Standard

- ☒ - No deviations from the standard described in clause 1.
☐ - The following deviations were employed from the standard described in clause 1.

10 Test Results

10.1 AC Powerline Conducted Emission

The requirements are ☒-Applicable [☒-Tested ☐-Not tested by applicant request.]
☐-Not Applicable

☒-Passed ☐-Failed ☐-Not judged

Min. Limit Margin (QP) 25.7 dB at 13.56 MHz

Min. Limit Margin (AVE) - dB at - MHz

Max. Limit Exceeding N/A dB at N/A MHz

Uncertainty of measurement results ± 2.6 dB(2σ)

Remarks : _____

10.2 Radiated Emissions (Section 15.225(a)(b)(c))

The requirements are ☒-Applicable [☒-Tested ☐-Not tested by applicant request.]
☐-Not Applicable

☒-Passed ☐-Failed ☐-Not judged

Min. Limit Margin 69.9 dB at 13.56 MHz

Max. Limit Exceeding N/A dB at N/A MHz

Uncertainty of measurement results ± 1.9 dB(2σ)

Remarks : _____

10.3 Radiated Emissions (Section 15.225(d))

The requirements are ☒-Applicable [☒-Tested ☐-Not tested by applicant request.]
☐-Not Applicable

☒-Passed ☐-Failed ☐-Not judged

Min. Limit Margin 10.4 dB at 54.2 MHz

Max. Limit Exceeding N/A dB at N/A MHz

Uncertainty of measurement results

<input checked="" type="checkbox"/> - 3 meters	0.009-30 MHz	<u>± 1.9</u> dB(2σ)
	30- 300 MHz	<u>± 4.5</u> dB(2σ)
	300-1000 MHz	<u>± 4.6</u> dB(2σ)
	1 - 18 GHz	<u>± 3.7</u> dB(2σ)

Remarks : _____

10.4 Frequency Stability (Section 15.225(e))

The requirements are ☒-Applicable [☒-Tested ☐-Not tested by applicant request.]
☐-Not Applicable

☒-Passed ☐-Failed ☐-Not judged

Remarks : _____

10.5 Occupied Bandwidth

The requirements are ☒-Applicable [☒-Tested ☐-Not tested by applicant request.]
☐-Not Applicable

☒-Passed ☐-Failed ☐-Not judged

Remarks : _____

11 Summary

General Remarks :

The EUT was tested according to the requirements of CFR 47 FCC Rules and Regulations Part 15. under the test configuration, as shown in clause 12 to 14.

The conclusion for the test items of which are required by the applied regulation is indicated under the test results.

Determining compliance with the limits in this report was based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

Test Results :

The “as received” sample;

☒-fulfill the test requirements of the regulation mentioned on clause 1.

☐- doesn't fulfill the test requirements of the regulation mentioned on clause 1.

Reviewed by:



Takashi Koyama
Assistant Manager
TSURU EMC Branch
EMC Engineering Department

Tested by:



Kazuhisa Abe
Manager
TSURU EMC Branch
EMC Engineering Department

12 Operating Condition

Power Supply Voltage : 5.0VDC

* The EUT was operated with the RFID Checker. (Input: 120VAC 60Hz, Output: 5.0VDC)

Operation Mode

Transmitting : The Test have been carried out under continuous transmission/Reception Mode.

* The transceiver is used in combination with permanently co-located transmitter continuously transmitting, and it start to TX/RX at the time of the power is on simultaneously.
Therefore this requirement could not be measured under RX or Standby mode.

13 Test Configuration

The equipment under test consists of :

Sign	Item	Manufacturer	Model No.	Serial No.	IC No.
A	RF-Module (RFID Tag Reader/Writer)	RISO KAGAKU CORPORATION	444-59008	303 21Z 11021	RPARFOM5

The auxiliary equipment used for testing :

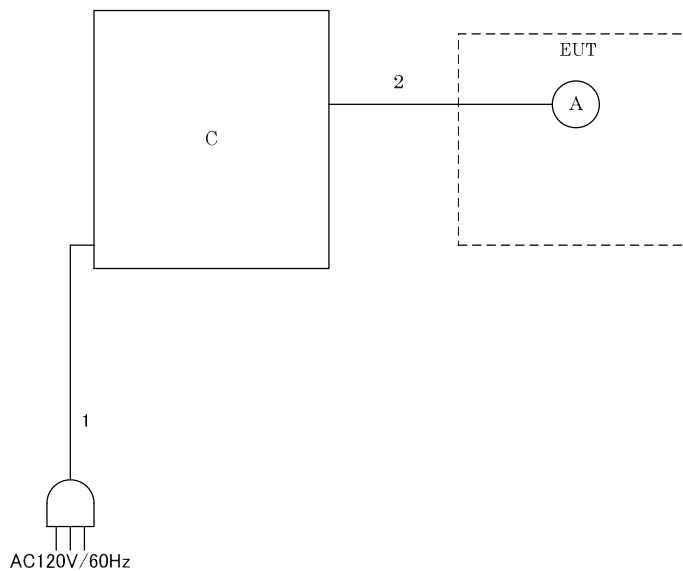
Sign	Item	Manufacturer	Model No.	Serial No.	FCC ID
B	RF Controller	RISO KAGAKU CORPORATION	N/A	N/A	N/A
C	Exclusive Controller	RISO KAGAKU CORPORATION	N/A	N/A	N/A

Type of Cable:

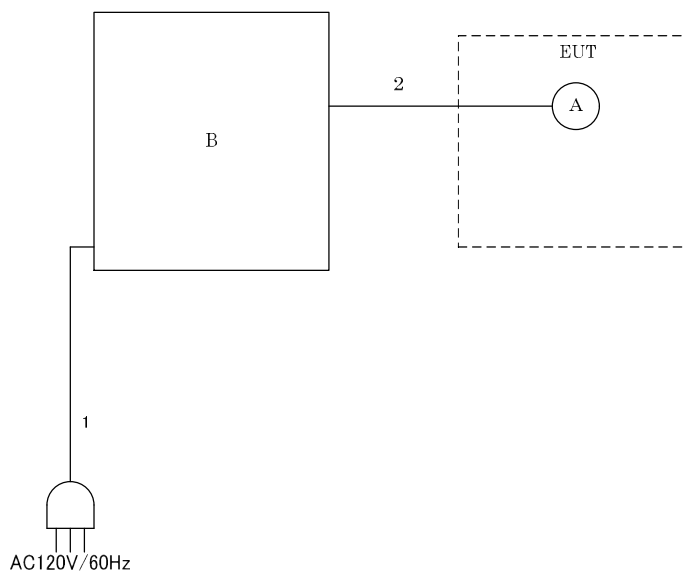
No.	Description	Identification (Manu. etc.)	Connector Shielded	Cable Shielded	Ferrite Core	Length (m)
1	AC Cable	None	No	No	No	3.0
2	Signal Cable	None	No	No	No	0.4

14 Equipment Under Test Arrangement (Drawings)

14.1. AC Powerline Conducted Emission



14.2. Radiated Emission



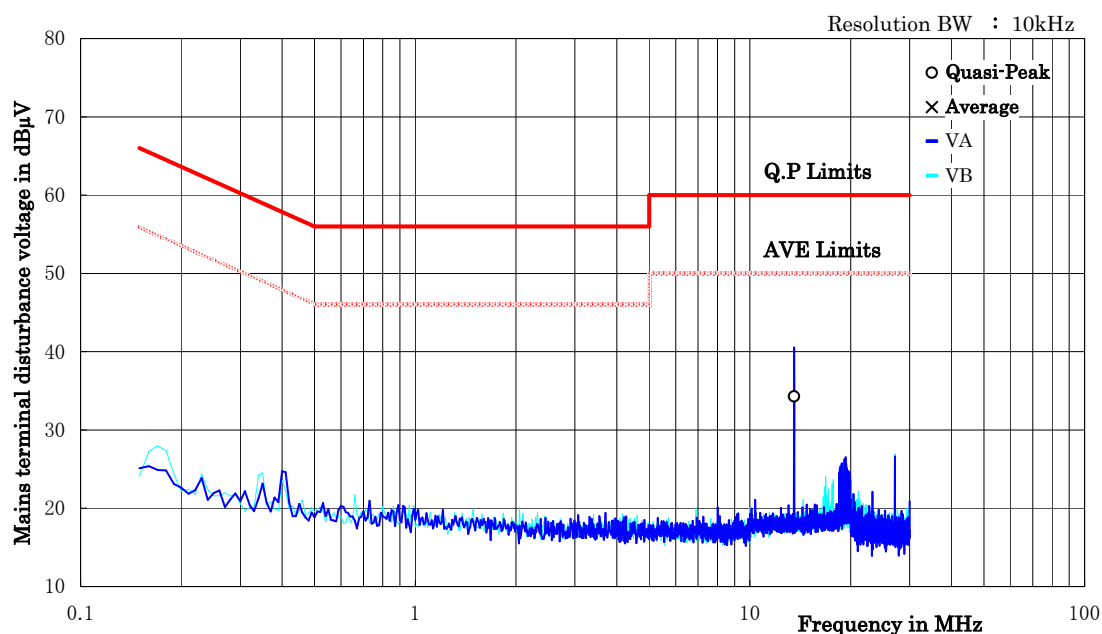
Appendix A: Test Data

A.1 AC Powerline Conducted Emission

Date : August 14, 2013

Temp. : 25°C Humi. : 38%

Resolution BW : 10kHz



Freq. [MHz]	Factor. [dB]	Meter Reading[dBμV]				Limit [dBμV]		Result. [dBμV]		Margin [dB]	
		VA	VB	VA	VB	QP	AV	QP	AV	QP	AV
13.56	20.4	13.9	13.8	-	-	60.0	50.0	34.3	-	25.7	-

Note : 1) QP : CISPR Quasi-Peak. ; AV : Average.

2) VA : One end & grounded ; VB : The other end & grounded

3) The symbol of '<' means 'or less' .

4) The symbol of '>' means 'or greater' .

5) The symbol of '-' means 'Not applicable' .

6) Factor includes an A. M. N. factor, Hi-Pass Filter loss, Pulse Limiter loss and a cable loss.

7) A sample calculation was made at 13.56MHz

Factor + Meter Reading = 20.4 + 13.9 = 34.3

A.2 Radiated Emissions

A.2.1 Radiated Emission (Section 15.225(a)(b)(c))

Date : July 18, 2013

Temp : 21°C Humi : 61% Atom : 948hPa

Frequency (MHz)	Antenna Factor (dB)	Meter Reading/ 10m (dBμV/m) Q.P	Limits/ 30m (dBμV/m) Q.P	Field Strength/ 30m (dBμV/m) Q.P	Margin (dB) Q.P
13.110	-	< 25.0	29.5	< 5.9	> 23.6
13.410	-	< 25.0	40.5	< 5.9	> 34.6
13.553	-	< 25.0	50.5	< 5.9	> 44.6
13.560	-	33.2	84.0	14.1	69.9
13.567	-	< 25.0	50.5	< 5.9	> 44.6
13.710	-	< 25.0	40.5	< 5.9	> 34.6
14.010	-	< 25.0	29.5	< 5.9	> 23.6

Notes: 1) The testing location : Anechoic Chamber No.1 Distance : 10 m

2) Q.P : Quasi-Peak Detector (IF Band width : 9 kHz)

3) The symbol of "<" means "or less".

4) The symbol of ">" means "more than".

5) The symbol of "-" means "Zero", because the used test receiver calculated and displayed in the Meter Reading including the Correction Factor(Antenna and cable loss) directly .

6) The testing loop antenna was rotated at the vertical and horizontal axis to maximize received emissions. The above Meter Reading was maximum emissions level.

7) Calculation :

For fundamental, the measured field strength was extrapolated to distance 30 meters, using the formula that field strength varies as the inverse distance square (40 dB per decade of distance).

Fundamental(13.560MHz): $28.3 \text{ dB}\mu\text{V/m} - 20\log_{10}((30/10)^2) = 28.3 - 19.1 = 9.2 \text{ dB}\mu\text{V/m}$ at 30 meters

Limits for 13.553-13.567MHz (§15.225(a)) = $20\log_{10}(15848) = 84.0 \text{ dB}\mu\text{V/m}$

Limits for 13.410-13.553, 13.567-13.710 MHz (§15.225(b)) = $20\log_{10}(334) = 50.5 \text{ dB}\mu\text{V/m}$

Limits for 13.110-13.410, 13.710-14.010MHz (§15.225(c)) = $20\log_{10}(106) = 40.5 \text{ dB}\mu\text{V/m}$

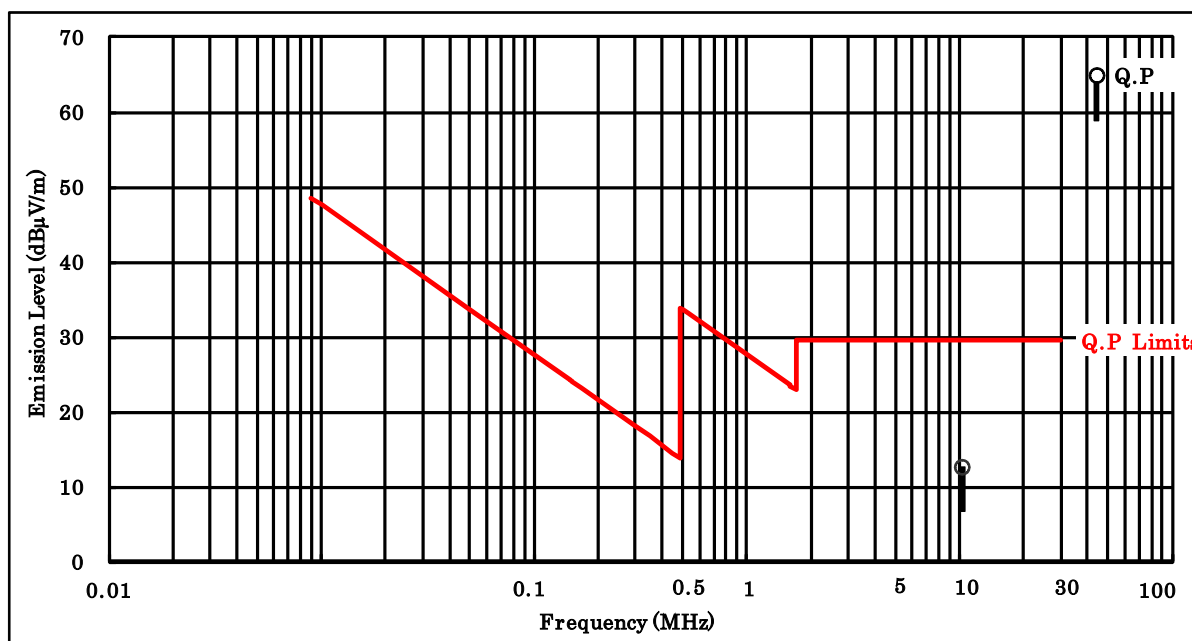
Limits for except for 13.110-14.010MHz(§15.225(d)) = $20\log_{10}(30) = 29.5 \text{ dB}\mu\text{V/m}$

A.2.2 Radiated Emission 0.009 MHz - 30 MHz

Date : July 18, 2013

Temp : 21°C Humi : 61% Atom : 948hPa

Frequency (MHz)	Antenna Factor (dB)	Meter Reading (dBμV/m) Q.P	Limits (dBμV/m) Q.P	Specified Distance (m)	Extrapolated Emission Level (dBμV/m) Q.P	Margin (dB) Q.P
0.009	-	< 60.0	48.5	300.0	< 0.9	> 47.6
0.01	-	< 60.0	47.6	300.0	< 0.9	> 46.7
0.02	-	< 60.0	41.6	300.0	< 0.9	> 40.7
0.03	-	< 60.0	38.1	300.0	< 0.9	> 37.1
0.05	-	< 60.0	33.6	300.0	< 0.9	> 32.7
0.07	-	< 60.0	30.7	300.0	< 0.9	> 29.8
0.10	-	< 60.0	27.6	300.0	< 0.9	> 26.7
0.20	-	< 60.0	21.6	300.0	< 0.9	> 20.7
0.30	-	< 60.0	18.1	300.0	< 0.9	> 17.1
0.50	-	< 30.0	33.6	30.0	< 10.9	> 22.7
1.00	-	< 30.0	27.6	30.0	< 10.9	> 16.7
2.00	-	< 30.0	29.5	30.0	< 10.9	> 18.6
3.00	-	< 30.0	29.5	30.0	< 10.9	> 18.6
5.00	-	< 30.0	29.5	30.0	< 10.9	> 18.6
10.22	-	31.8	29.5	30.0	12.7	16.8
25.00	-	< 30.0	29.5	30.0	< 10.9	> 18.6
30.00	-	< 30.0	29.5	30.0	< 10.9	> 18.6



Notes: 1) The testing location : Anechoic Chamber No.1 Distance : 10 m

2) The symbol of "<" means "or less".

3) The symbol of ">" means "more than".

4) The symbol of "-" means "Zero", because the used test receiver calculated and displayed in the Meter Reading including the Correction Factor(Antenna and cable loss) directly

5) A sample calculation was made at 0.009 MHz

$$60 \text{ dB}\mu\text{V/m (at 10m distance)} = 60 - 20\log_{10}((300/10)^2) = 0.9 \text{ dB}\mu\text{V/m (at 300m distance)}$$

6) Setting of measuring instrument :

Quasi-Peak Detector, IF Bandwidth: 9 kHz or 200Hz (9 kHz - 90 kHz, 110-490kHz)

Average Detector, IF Bandwidth: 9 kHz or 200Hz (except for 9 kHz - 90 kHz, 110-490kHz)

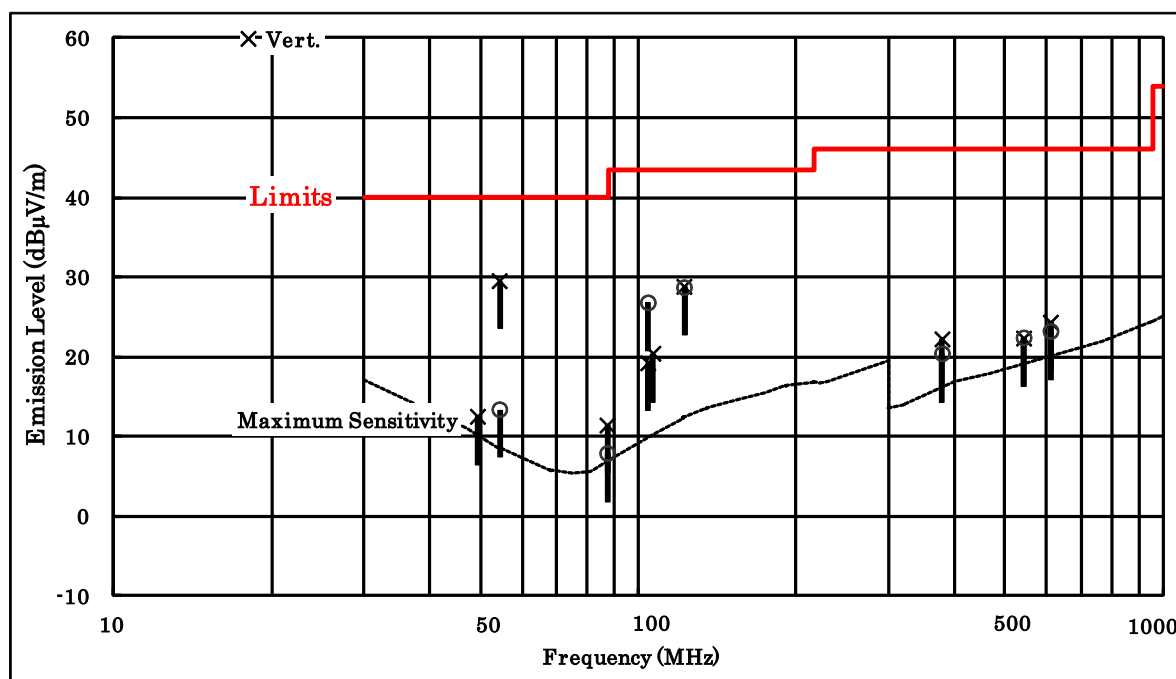
7) The spectrum was checked from 0.009 MHz to 30 MHz.

A.2.2 Radiated Emission 30 MHz - 1000 MHz

Date : July 18, 2013

Temp : 21°C Humi : 61% Atom : 948hPa

Frequency (MHz)	Antenna Factor (dB/m)	Meter Reading (dBμV)		Limits (dBμV/m) Q.P	Emission Level (dBμV/m)		Margin (dB)	
		Hori.	Vert.		Hori.	Vert.	Hori.	Vert.
30.0	19.2	< -2.0	< -2.0	40.0	< 17.2	< 17.2	> 22.8	> 22.8
49.3	12.2	< -2.0	0.4	40.0	< 10.2	12.6	> 29.8	27.4
54.2	10.6	2.9	19.0	40.0	13.5	29.6	26.5	10.4
87.1	8.9	-0.9	2.6	40.0	8.0	11.5	32.0	28.5
104.1	11.8	15.1	7.5	43.5	26.9	19.3	16.6	24.2
106.5	12.1	< -2.0	8.4	43.5	< 10.1	20.5	> 33.4	23.0
122.0	14.4	14.4	14.5	43.5	28.8	28.9	14.7	14.6
200.0	18.7	< -2.0	< -2.0	43.5	< 16.7	< 16.7	> 26.8	> 26.8
300.0	21.6	< -2.0	< -2.0	46.0	< 19.6	< 19.6	> 26.4	> 26.4
379.0	18.2	2.3	4.1	46.0	20.5	22.3	25.5	23.7
542.4	21.1	1.4	1.3	46.0	22.5	22.4	23.5	23.6
610.2	22.4	0.9	2.0	46.0	23.3	24.4	22.7	21.6
700.0	23.5	< -2.0	< -2.0	46.0	< 21.5	< 21.5	> 24.5	> 24.5
900.0	26.1	< -2.0	< -2.0	46.0	< 24.1	< 24.1	> 21.9	> 21.9
1000.0	27.0	< -2.0	< -2.0	54.0	< 25.0	< 25.0	> 29.0	> 29.0



- Notes:
- 1) The testing location : Anechoic Chamber No.1 Distance : 3 m
 - 2) The spectrum was checked from 30 MHz to 1000 MHz.
 - 3) Antenna factor includes the cable loss.
 - 4) Hori. : Horizontal polarization Vert. : Vertical polarization
 - 5) Q.P: Quasi-Peak Detector
 - 6) The symbol of "<" means "or less", ">" means "more than".
 - 7) A sample calculation was made at 30.0 MHz
 $(\text{Antenna Factor}) + (\text{Meter Reading}) = 19.2 + -2.0 = 17.2 \text{ dB}\mu\text{V}$

A.2.3 Radiated Emission above 1 GHz

-Not applicable-

A.3 Frequency Stability

Testing Date : August 6, 2013

Ambient Temperature : 25 (°C), Humidity : 45(%)

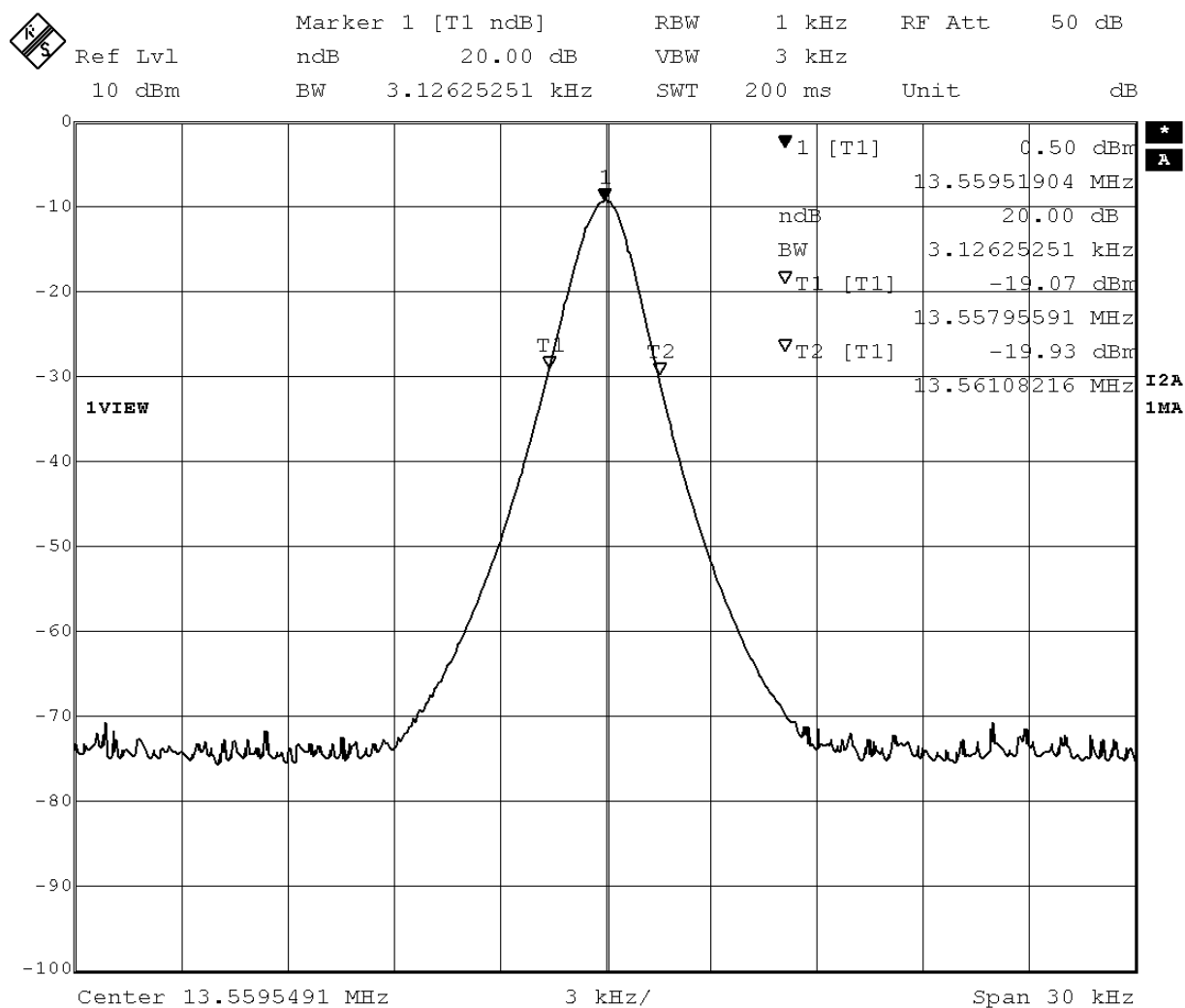
		Rated Frequency(MHz)			
		13.56			
Temperature (°C)	Supply Voltage (V)	Frequency(MHz)			
		0 min. later	2 min. later	5 min. later	10 min. later
-20	4.25	13.5593894	13.5594079	13.5594073	13.5593985
	5	13.5593721	13.5594089	13.5594077	13.5594139
	5.75	13.5593897	13.5594166	13.5594153	13.5594118
20	4.25	13.5594548	13.5594556	13.5594557	13.5594555
	5	13.5594530	13.5594562	13.5594557	13.5594553
	5.75	13.5594547	13.5594556	13.5594552	13.5594549
50	4.25	13.5594359	13.5594339	13.5594348	13.5594341
	5	13.5594343	13.5594361	13.5594349	13.5594337
	5.75	13.5594346	13.5594345	13.5594358	13.5594356

		Limit ±0.01%			
		Frequency deviation with time elapse(%)			
Temperature (°C)	Supply Voltage (V)	0 min. later	2 min. later	5 min. later	10 min. later
-20	102	-0.0045029	-0.0043664	-0.0043706	-0.0044361
	120	-0.0046305	-0.0043588	-0.0043681	-0.0043226
	138	-0.0045007	-0.0043027	-0.0043119	-0.0043377
20	102	-0.0040206	-0.0040145	-0.0040142	-0.0040154
	120	-0.0040339	-0.0040105	-0.0040140	-0.0040173
	138	-0.0040216	-0.0040150	-0.0040174	-0.0040196
50	102	-0.0041598	-0.0041751	-0.0041681	-0.0041735
	120	-0.0041718	-0.0041584	-0.0041673	-0.0041760
	138	-0.0041696	-0.0041704	-0.0041605	-0.0041625

A.4 Occupied Bandwidth

Testing Date : August 6, 2013

Ambient Temperature : 25 (°C), Humidity : 45(%)



Appendix B: Test Instruments

ID No.	Type	Model No.	Manufacturer	Serial No.	Last Cal.	Interval
1	Anechoic Chamber A	-	TDK	-	2012/09	1 Year
2	Anechoic Chamber B	-	TDK	-	2012/09	1 Year
3	Shield Room A	-	TDK	-	-	-
4	Shield Room B	-	Ray Proof	-	-	-
5	Shield Room C	-	TDK	-	-	-
6	Shield Room D	-	Emerson	-	-	-
7	Shield Room E	-	TDK	-	-	-
8	H/F Test Room	-	Shimizu Corporation-	-	-	-
13	Test Receiver	ESI26	Rohde & Schwarz	100043	2013/06	1 Year
172	Test Receiver	ESCI	Rohde & Schwarz	100408	2012/11	1 Year
11	Test Receiver	ESVS10	Rohde & Schwarz	826148/002	2012/07	1 Year
14	Spectrum Analyzer	R3182	Advantest	120600581	2012/07	1 Year
20	Spectrum Analyzer	R3132	Advantest	150400998	2012/07	1 Year
230	Spectrum Analyzer	U3751	Advantest	150800116	2013/04	1 Year
38	RF Cable	5D-2W	Fujikura	-	2013/02	1 Year
39	RF Cable	5D-2W	Fujikura	-	2013/02	1 Year
41	RF Cable	RG223/U	HUBER+SUHNER	-	2013/04	1 Year
42	RF Cable	RG223/U	HUBER+SUHNER	-	2013/04	1 Year
44	RF Cable	S 04272B	Suhner	-	2013/05	1 Year
45	RF Cable	S 04272B	Suhner	-	2013/05	1 Year
49	RF Cable	SUCOFLEX104	Suhner	190630	2012/12	1 Year
50	RF Cable	F130-S1S1-394	MEGA PHASE	10510	2012/12	1 Year
195	RF Cable	F130-S1S1-394	MEGA PHASE	20051	2013/04	1 Year
252	RF Cable	MWX315	Junkosha Inc.	J12J101305-00	2012/08	1 Year
253	RF Cable	MWX221	Junkosha Inc.	1004S138	2012/08	1 Year
57	RF Amplifier	JS4-00102600-28-5A	MITEQ	669167	2012/08	1 Year
33	LISN	KNW-407	Kyoritsu	8-833-6	2012/11	1 Year
34	LISN	KNW-407	Kyoritsu	8-855-2	2013/05	1 Year
35	LISN	KNW-407	Kyoritsu	8-1130-6	2013/05	1 Year
36	LISN	KNW-242C	Kyoritsu	8-837-13	2012/08	1 Year
164	LISN	KNW-403D	Kyoritsu	8-1474-3	2012/11	1 Year
247	LISN	KNW-243C	Kyoritsu	8-831-4	2012/08	1 Year
248	High Impedance Probe	KNW-411	Kyoritsu	8-2071-2	2013/05	1 Year
174	Pulse Limiter	ESH3-Z2	Rohde & Schwarz	-	2013/04	1 Year
175	Pulse Limiter	ESH3-Z2	Rohde & Schwarz	-	2013/04	1 Year
245	High Pass Filter	KFL-009	Kyoritsu	8-1996-1	2013/04	1 Year
246	High Pass Filter	KFL-009	Kyoritsu	8-2072-5	2013/04	1 Year
63	Termination(50)	-	Suhner	-	2013/01	1 Year
64	Termination(50)	-	Suhner	-	2013/01	1 Year
200	Artificial Hand	AH-1	ES Factory	001	2012/07	1 Year
224	RF Current Probe	KTC-2504	Kyoritsu	8S-2916-1	2013/05	2 Years
21	Loop Antenna	HFH2-Z2	Rohde & Schwarz	881058/62	2012/09	1 Year
31	Horn Antenna	3115	EMC Test Systems	6442	2012/10	2 Years
167	Biconical Antenna	BBA9106	Schwarzbeck	VHA91032325	2013/06	1 Year
168	Log-periodic Antenna	UHALP9108A	Schwarzbeck	0666	2013/06	1 Year
169	Biconical Antenna	BBA9106	Schwarzbeck	VHA91032399	2013/06	1 Year
170	Log-periodic Antenna	UHALP9108A	Schwarzbeck	0724	2013/06	1 Year
198	Log-periodic Antenna	HL050	Rohde & Schwarz	100251	2012/12	1 Year
250	Absorbing Clamp	MDS21	Luthi	3974	2012/09	1 Year
161	Isolation Transformer	KIT-5601	Kyoritsu	8-1520-2	2012/07	1 Year
162	Isolation Transformer	D-65396	Erika Fiedler	32	2012/07	1 Year
231	DTV Multi Channel Generator	3545A	Eiden Co., Ltd.	JC118285	2013/04	1 Year
58	Function Generator	3325B	Hewlett Packard	2847A03284	2012/08	1 Year
59	Function Generator	VP-7422A	Matsushita Communication	050351E122	2012/07	1 Year
266	RC Oscillator	VP-725A	Matsushita Communication	540015E122	2012/07	1 Year
227	Harmonic/Flicker Analyzer	KHA1000	Kikusui	MH002292	2013/01	1 Year
228	Reference Impedance Network	LIN40MA-PCR-L	Kikusui	NC003432	2012/10	1 Year

ID No.	Type	Model No.	Manufacturer	Serial No.	Last Cal.	Interval
100	ESD Tester	ESD-3000	EMC-PARTNER	069	2013/04	1 Year
270	Signal Generator	SMB100A	Rohde & Schwarz	105262	2013/10	1 Year
121	Log-periodic Antenna	VULP9118-E	Schwarzbeck	VULP9118-E-704	2013/07	1 Year
218	Horn Antenna	AT4002A	Amplifier Research	26532	2013/07	1 Year
216	RF Power Amplifier	2068-BBS2Q4AMP	RF Systems	1007 D/C 0633	2013/07	1 Year
217	RF Power Amplifier	50S1G4	Amplifier Research	24616	2013/07	1 Year
269	Field Probe	HI-6105USB-20	Laser Data Interface	00070435	2012/08	1 Year
214	Power Meter	NRVD	Rohde & Schwarz	101020	2013/07	1 Year
215	Insertion Unit	URV5-Z4	Rohde & Schwarz	100193	2013/07	1 Year
220	Dual Directional Coupler	DC6180A	AR	0328620	2013/07	1 Year
221	Dual Directional Coupler	CCS30-B26	Pulsar Microwave	0740	2013/07	1 Year
101	EFT/B Generator	PEFT-JUNIOR	Haefely	083818-14	2012/12	1 Year
177	Capacitive Clamp	IP4	Haefely	083926-07	2012/12	1 Year
166	Surge Generator	TRA2000	EMC-PARTNER	582	2012/08	1 Year
178	RF Amplifier	FLL-75	Frankonia	0040	2012/09	1 Year
179	Attenuator	8341-060	Bird Electronic	766	2012/09	1 Year
180	Coupling/Decoupling Network	FCC-801-M1-16	FCC	97-07	2012/07	1 Year
182	Coupling/Decoupling Network	FCC-801-M2-16	FCC	97-12	2012/07	1 Year
183	Coupling/Decoupling Network	TSCDN-M2-25A	TSJ(FCC)	06006	2012/07	1 Year
184	Coupling/Decoupling Network	FCC-801-M3-16	FCC	158	2012/07	1 Year
185	Coupling/Decoupling Network	TSCDN-M3-25A	TSJ(FCC)	06011	2012/07	1 Year
186	150-50 ohms Adaptor	FCC-150-50	FCC	380	2012/07	1 Year
187	150-50 ohms Adaptor	FCC-150-50	FCC	381	2012/07	1 Year
188	EM Clamp	EM101	Luthi	35196	2012/09	1 Year
196	BCI Probe	F-120-9A	FCC	509	2012/09	1 Year
260	Termination(50)	BNC-P-1.5 TDC	TDC	-	2013/01	1 Year
190	Loop Coil	MF1000-1	EMC-PARTNER	087	2012/08	1 Year
193	Dip/Interruption Tester	PLINE1610	Haefely	083732-14	2013/03	1 Year
259	GTEM Cell	EGT-250	ELENA Electronics	G280080	2012/11	1 Year
223	Helmholtz Coil	6400-X-H-6404	Electro-Mechanics Company	-	-	-
192	Magnetic Field Sensor	EFA-200	Wandel & Goltermann	H-0027	2012/01	2 Years
225	Loop Sensor/Radiating Loop	F55103-2-0.13M	FCC	03018	-	-
53	AF Amplifier	P-500L	Accuphase	BOY806	-	-
232	Digital Oscilloscope	TDS3052C	Tektronix, Inc.	C010708	2012/07	1 Year

ID No.	Type	Model No.	Manufacturer	Serial No.	Last Cal.	Interval
OS-2	Open Site	-	Toshiba	-	-	-
AC-1	Anechoic Chamber (L)	-	TDK	-	2013/05	1 Year
AC-2	Anechoic Chamber (S)	-	TDK	-	2012/11	1 Year
SR-A	Shielded Room	-	TDK	-	-	-
SR-B	Shielded Room	-	TDK	-	-	-
SR-C	Shielded Room	-	TDK	-	-	-
TR-1	Tested Room	-	-	-	-	-
R-1	Test Receiver	ESVS10	Rohde & Schwarz	849231/004	2013/02	1 Year
R-3	Test Receiver	ESI7	Rohde & Schwarz	100059/007	2012/10	1 Year
R-4	Test Receiver	ESHS30	Rohde & Schwarz	842053/001	2013/01	1 Year
R-5	Test Receiver	ESCS30	Rohde & Schwarz	100203	2013/04	1 Year
R-6	Test Receiver	ESU40	Rohde & Schwarz	100214	2013/01	1 Year
S-3	Spectrum Analyzer	U3751	Advantest	160100139	2013/03	1 Year
S-5	Spectrum Analyzer	U3751	Advantest	170500170	2013/06	1 Year
CB-3	RF Cable	3D-2W	Suhner	-	2013/05	1 Year
CB-4	RF Cable	3D-2W	Suhner	-	2013/05	1 Year
CB-5	RF Cable	3D-2W	Suhner	-	2013/05	1 Year
CN-2	RF Cable	20D/5D-2W	Fujikura	-	2012/10	1 Year
CN-3	RF Cable	20D/5D-2W	Fujikura	-	2012/09	1 Year
CS-1	RF Cable	SUCOFLEX 104P	Huber+Suhner	27290/4P	2012/11	1 Year
CS-2	RF Cable	SUCOFLEX 104P	Huber+Suhner	27289/4P	2012/11	1 Year
L-1	AMN	KNW-407	Kyoritsu Corp.	8-833-5	2013/07	1 Year
L-2	AMN	KNW-407	Kyoritsu Corp.	8-680-14	2012/09	1 Year
L-3	AMN	KNW-407	Kyoritsu Corp.	8-757-1	2013/06	1 Year
L-4	AMN	KNW-242	Kyoritsu Corp.	8-755-1	2013/06	1 Year
L-6	AMN	KNW-243C	Kyoritsu Corp.	8-692-5	2012/09	1 Year
L-7	AMN	KNW-243C	Kyoritsu Corp.	8-831-3	2013/06	1 Year
L-9	AMN	KNW-244C	Kyoritsu Corp.	8-1373-3	2013/07	1 Year
L-10	ISN	FCC-TLISN-T2-02	FCC	20234	2012/11	1 Year
L-11	ISN	FCC-TLISN-T4-02	FCC	20235	2012/11	1 Year
L-12	High Impedance Probe	KNW-410	Kyoritsu Corp.	8-876-3	2013/07	1 Year
L-13	Artificial Hand	K-9003	Kyoritsu Corp.	7-1639-4	2012/10	1 Year
L-14	Hi-pass Filter	KFL-009D	Kyoritsu Corp.	8-1996-8	2013/07	1 Year
L-15	ISN	F-070306-1057-1	FCC	20591	2013/07	1 Year
L-16	RF Current Probe	KCT-2504	Kyoritsu Corp	8S-3061-5	2013/04	1 Year
L-17	ISN	T8	TESEQ	30809	2013/03	1 Year
L-18	ISN	T8-Cat6	TESEQ	29713	2013/03	1 Year
PL-3	Pulse Limiter	ESH3-Z2	Rohde & Schwarz	-	2013/05	1 Year
PL-4	Pulse Limiter	ESH3-Z2	Rohde & Schwarz	-	2013/05	1 Year
TM-1	50ohm Termination	-	Y&R	-	2013/03	1 Year
TM-2	50ohm Termination	-	Y&R	-	2013/03	1 Year
AL-0	Loop Antenna	HFH2-Z2	Rohde & Schwarz	879284/14	2013/04	1 Year
AT-1	Triple Loop Antenna	HXYZ9170	Schwarzbeck	9170-138	2012/12	1 Year
AT-3	Bilog Antenna	CBL6111D	Teseq GmbH	27075	2013/05	1 Year
AB-1	Biconical Antenna	BBA9106	Schwarzbeck	91031741	2013/06	1 Year
AB-3	Biconical Antenna	BBA9106	Schwarzbeck	VHA11905516	2012/09	1 Year
AL-1	Log-Periodic Antenna	UHALP9108-A	Schwarzbeck	0678	2013/06	1 Year
AL-3	Log-Periodic Antenna	UHALP9108-A	Schwarzbeck	0278	2012/09	1 Year
AL-6	Log-Periodic Antenna	ESLP9145	Schwarzbeck	9145-216	2013/03	1 Year
AH-1	Horn Antenna	91888-2	EATON	563	2013/05	1 Year
AH-2	Horn Antenna	91889-2	EATON	569	2013/05	1 Year
AH-3	Horn Antenna	94613-1	EATON	575	2013/05	1 Year
AH-4	Horn Antenna	91891-2	EATON	583	2013/05	1 Year
AH-5	Horn Antenna	12-12	Scientific Atlanta	741	2013/05	1 Year
AH-12	Horn Antenna	3117	ETS LINDGREN	00051800	2013/07	1 Year
AD-1	Dipole Antenna	KBA-511A	Kyoritsu Corp.	0-195-5	2013/05	1 Year
AD-3	Dipole Antenna	KBA-611	Kyoritsu Corp.	0-196-8	2013/05	1 Year
CL-1	Absorbing Clamp	MDS21	Rohde & Schwarz	894245/002	2013/05	1 Year

ID No.	Type	Model No.	Manufacturer	Serial No.	Last Cal.	Interval
PA-1	Pre-Amplifier	WJ-6811-513	Watkins Johnson	0288	2013/03	1 Year
PA-2	Pre-Amplifier	WJ-6682-824	Watkins Johnson	0052	2013/03	1 Year
PA-3	Pre-Amplifier	WJ-6870-506	Watkins Johnson	0018	2013/03	1 Year
PA-5	Pre-Amplifier	AMF-4D-005080-18-13P	MITEQ, INC.	1218917	2012/11	1 Year
RN-1	Reference Impedance Network	ES4153	NF ELECTRONIC INSTRUMENTS	9099436	2013/03	1 Year
HF-1	Harmonic/Flicker Analyzer	KHA3000	KIKUSUI ELECTRONICS CORPORATION	NB001642	2013/04	1 Year
2-1	ESD Tester	ESD3000	EMC PARTNER	092	2013/06	1 Year
2-2	ESD Tester	ESD3000	EMC PARTNER	428	2013/05	1 Year
3-1	Signal Generator	SMT 02	Rohde & Schwarz	838616/021	2013/03	1 Year
3-2	Signal Generator	SML 03	Rohde & Schwarz	103413	2012/09	1 Year
3-3	Signal Generator	SMB100A	Rohde & Schwarz	103740	2013/07	1 Year
3-4	RF Power Amplifier	500A100M1	Amplifier Research	19671	2012/11	1 Year
3-5	RF Power Amplifier	200W1000M2A	Amplifier Research	19572	2012/11	1 Year
3-6	RF Power Amplifier	60S1G3M1	Amplifier Research	0325545	2012/11	1 Year
3-7	Biconical Antenna	3109	EMCO	9607-3014	2012/11	1 Year
3-8	Log-Periodic Antenna	3144	EMCO	9701-1032	2013/05	1 Year
3-9	Log-Periodic Antenna	AT5080	Amplifier Research	322092	2012/11	1 Year
3-10	Horn Antenna	AT4002A	Amplifier Research	0325039	2013/05	1 Year
3-11	Field Probe	EP 600	Narda S.T.S.	301WX90609	2013/03	1 Year
3-12	Field Probe	EP 601	Narda S.T.S.	301WX00125	2013/07	1 Year
3-13	Power Meter	4421	Bird	2919	2013/07	1 Year
3-14	Power Head	4022	Bird	6147	2013/07	1 Year
3-15	Power Meter	NRT	Rohde & Schwarz	103116	2012/09	1 Year
3-16	Power Head	NRT-Z44	Rohde & Schwarz	102682	2012/09	1 Year
4-1	Immunity Tester	TRA2000	EMC PARTNER	659	2012/12	1 Year
4-2	EFT/B Generator	PEFT-Junior	HAEFELY	083818-13	2013/05	1 Year
4-3	EFT/B Generator	FNS-AX3-B50B	Noise Laboratory	FNS12Y1197	2013/05	1 Year
4-4	Coupling Clamp	IP4	HAEFELY	-	2013/05	1 Year
4-5	Coupling Clamp	15-00009A	Noise Laboratory	FNS1210037	2013/05	1 Year
5-1	Surge Tester	PSURGE4.1	HAEFELY	083665-08	2012/11	1 Year
5-2	Coupling Filter	FP-SURGE 100M	HAEFELY	149163	2012/11	1 Year
5-3	Coupling Network	IP6.2	HAEFELY	083811-10	2012/11	1 Year
5-4	Decoupling Network	DEC1A	HAEFELY	083793-08	2012/11	1 Year
5-5	Pruefpistole	AP 300	HAEFELY	081 438	2012/11	1 Year
6-1	RF Power Amplifier	75A250	Amplifier Research	19502	2012/08	1 Year
6-2	RF Power Amplifier	75A250	Amplifier Research	26255	2012/08	1 Year
6-3	6dB Attenuator	8343-060	Bird	2054	2012/08	1 Year
6-4	6dB Attenuator	65-6-33	Weinschel	LW166	2012/08	1 Year
6-5	CDN	FCC-801-M1-16	FCC	50	2013/04	1 Year
6-6	CDN	FCC-801-M1-25A	FCC	04001	2013/05	1 Year
6-7	CDN	FCC-801-M2-25	FCC	59	2013/04	1 Year
6-8	CDN	FCC-801-M2-25A	FCC	03023	2013/05	1 Year
6-9	CDN	FCC-801-M2-25A	FCC	03024	2013/06	1 Year
6-10	CDN	FCC-801-M3-25	FCC	137	2013/04	1 Year
6-11	CDN	FCC-801-M3-25A	FCC	05021	2013/05	1 Year
6-12	CDN	FCC-801-M3-25A	FCC	99133	2013/06	1 Year
6-13	CDN	FCC-801-M3-25A	FCC	08008	2013/07	1 Year
6-14	CDN	FCC-801-M4-25	FCC	21	2013/04	1 Year
6-15	CDN	FCC-801-M4-50	FCC	9806	2013/04	1 Year
6-16	CDN	FCC-801-C1	FCC	79	2013/05	1 Year
6-17	CDN	FCC-801-T8	FCC	9956	2013/07	1 Year
6-18	150-50 Ohms Adaptor	FCC-801-150-50	FCC	638	2013/07	1 Year
6-19	150-50 Ohms Adaptor	FCC-801-150-50	FCC	639	2013/07	1 Year
6-20	EM Clamp	F-203I	FCC	220	2012/08	1 Year
6-21	Decoupling Clamp	F-203I-DCN	FCC	105	-	-

ID No.	Type	Model No.	Manufacturer	Serial No.	Last Cal.	Interval
6-22	Bulk Current Injection Clamp	F-120-2	FCC	53	2012/08	1 Year
8-1	Interference Tester	LFP6.1	HAEFELY	083374-03	2013/02	1 Year
8-2	Magnetic Field Tester	MFG100.1	HAEFELY	080136-06	2013/02	1 Year
11-1	Voltage Dip Tester	PLINE1610	HAEFELY	148709	2012/10	1 Year
11-2	External Variac Network	VAR-EXT1000	EMC PARTNER	046	2012/12	1 Year