JQA File No. : 400-80016
Issue Date : June 19, 2008

TEST REPORT

APPLICANT	:	Nokia Corporation
ADDRESS	:	Joensuunkatu 7E Salo, 24100, Finland
PRODUCTS	:	Nokia Wireless Stereo Headset
MODEL No.	:	HS-121W
SERIAL No.	:	None
FCC ID	:	PYAHS-121W
IC	:	661V-HS121W
TEST STANDARD	:	CFR 47 FCC Rules and Regulations Part 15 Subpart A, B and C
	:	Industry Canada RSS-210(Issue 7) and RSS-Gen(Issue 2)
TESTING LOCATION	:	Japan Quality Assurance Organization SAFETY & EMC CENTER EMC Engineering Department Testing Division 1-21-25, Kinuta, Setagaya-ku, Tokyo 157-8573, Japan
TEST RESULTS	:	**Passed**
DATE OF TEST	:	June 2, 2008 - June 16, 2008

Eiichi Saegusa
Manager
Japan Quality Assurance Organization
SAFETY & EMC CENTER
EMC Engineering Dept. Testing Division
1-21-25, Kinuta, Setagaya-ku, Tokyo 157-8573, Japan

Table of Contents

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, B and C
Industry Canada RSS-210(Issue 7) and RSS-Gen(Issue 2)

Test Procedure : The tests were performed with reference to the FCC Public Notice DA 00-705, released March 30, 2000. The test set-up was made in accordance to the general provisions of ANSI C63.4-2003.

2 Test Location

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

3 Recognition of Test Laboratory

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 : April 3, 2010)
NVLAP Lab Code : 200189-0 (Effective through : June 30, 2008)
VCCI Registration Number : R-002, R-003, C-002, C-966 (Effective through : April 3, 2010)
FCC Registration Number : 349652 (Date of Listing : April 1, 2010)
IC Registration Number : 2079-7, 2079-8 (Effective through : August 29, 2008)
Accredited as conformity assessment body for Japan electrical appliances and material law by METI. (Effective through : February 22, 2010)

4 Description of the Equipment Under Test

1	Manufacturer	:	Nokia Corporation Joensuunkatu 7E Salo, 24100, Finland
2	Products	:	Nokia Wireless Stereo Headset
3	Trade Name	:	NOKIA
4	Model No.	:	HS-121W
5	Serial No.	:	None
6	FCC ID	:	PYAHS-121W
7	IC	:	661V-HS121W
8	Product Type	:	Pre-production
9	Date of Manufacture	:	None
10	Power Rating	:	3.7VDC (rechargeable battery)

The EUT was also operated with AC Adaptor(Model:AC-3E, Input:100-240VAC 50/60Hz, Output:5.0VDC by NOKIA) and the DC Adaptor(Model:DC-4, Input:12/24VDC, Output:5.7VDC by NOKIA).
This operational condition is mentioned in specifications.

11	EUT Grounding	:	None
12	Category	:	Spread Spectrum Transmitter(FHSS)
13	Received Date of EUT	:	May 30, 2008
14	EUT Authorization	:	Certification
15	Operating Frequency Range	:	2402 MHz - 2480 MHz
16	EUT Highest Frequency Used/Generated	:	2480 MHz
17	RF Output Power	:	4.27 dBm(measured value)
18	Antenna Type	:	Integral Internal antenna (not accessible to the user)
19	Antenna Gain	:	-1.0 dBi

5 Test Condition

5.1 Channel Separation

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	3
Test Receiver	13
Spectrum Analyzer	--
Antenna	--
Cable	45
Attenuator	80
Thermo-Hygrometer	202

5.2 Minimum Hopping Channel

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	3
Test Receiver	13
Spectrum Analyzer	--
Antenna	--
Cable	45
Attenuator	80
Thermo-Hygrometer	202

5.3 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)
Test Site	3
Test Receiver	13
Spectrum Analyzer	--
Antenna	--
Cable	45
Attenuator	80
Thermo-Hygrometer	202

5.4 Dwell Time

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	3
Test Receiver	13
Spectrum Analyzer	--
Antenna	--
Cable	45
Attenuator	80
Thermo-Hygrometer	202

5.5 Peak Output Power (Conduction)

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	3
Test Receiver	13
Spectrum Analyzer	--
Cable	--
Attenuator	80
Peak Power Analyzer	86
Signal Generator	60
Thermo-Hygrometer	202

5.6 Peak Output Power (Radiation)

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	--
Test Receiver	--
Spectrum Analyzer	--
Antenna	--
Cable	--
Attenuator	--
Peak Power Analyzer	--
Signal Generator	--
Thermo-Hygrometer	--

5.7 Peak Power Density (Conduction)

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	3
Test Receiver	13
Spectrum Analyzer	--
Cable	45
Attenuator	80
Digitizing Oscilloscope	163
RF Detector	85
Signal Generator	60
Thermo-Hygrometer	202

5.8 Peak Power Density (Radiation)

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	--
Test Receiver	--
Spectrum Analyzer	--
Antenna	--
Cable	--
Attenuator	--
Digitizing Oscilloscope	--
RF Detector	--
Signal Generator	--
Thermo-Hygrometer	--

5.9 Spurious Emission (Conduction)

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	3
Test Receiver	13
Spectrum Analyzer	--
Cable	45
Attenuator	80
Thermo-Hygrometer	202

5.10 Spurious Emissions for Transmitter (Radiation)

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

Test site & instruments : (for 9 kHz – 30 MHz)

Type	Number of test site & instruments (Refer to Appendix C)
Test Site	1
Test Receiver	13
Spectrum Analyzer	--
Antenna	21
Cable	43
Thermo-Hygrometer	204

Test site & instruments : (for 30 MHz – 1000 MHz)

Type	Number of test site & instruments (Refer to Appendix C)
Test Site	1
Test Receiver	13
Spectrum Analyzer	--
Antenna	167 168
Cable	38
Thermo-Hygrometer	204

Test site & instruments : (for above 1 GHz)

Type	Number of test site & instruments (Refer to Appendix C)
Test Site	1
Test Receiver	13
Spectrum Analyzer	--
Antenna	31 32
Cable	48 50
RF Amplifier	57
Band Reject Filter	78
High Pass Filter	79
Thermo-Hygrometer	204

5.11 AC Power Line Conducted Emissions for Transmitter

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	3
Test Receiver	172
Spectrum Analyzer	19
Cable	40
AMN(for EUT)	33
AMN(for EUT)	--
Termination	--
Thermo-Hygrometer	202

5.12 RF Exposure Compliance

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)
--	--

5.13 Spurious Emissions for Receiver (Radiation)

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

Test site & instruments : (for 9 kHz – 30 MHz)

Type	Number of test site & instruments (Refer to Appendix C)
Test Site	1
Test Receiver	13
Spectrum Analyzer	--
Antenna	21
Cable	43
Thermo-Hygrometer	204

Test site & instruments : (for 30 MHz – 1000 MHz)

Type	Number of test site & instruments (Refer to Appendix C)
Test Site	1
Test Receiver	13
Spectrum Analyzer	--
Antenna	167 168
Cable	38
Thermo-Hygrometer	204

Test site & instruments : (for above 1 GHz)

Type	Number of test site & instruments (Refer to Appendix C)
Test Site	1
Test Receiver	13
Spectrum Analyzer	--
Antenna	31 32
Cable	48 50
RF Amplifier	57
Band Reject Filter	78
High Pass Filter	79
Thermo-Hygrometer	204

5.11 AC Power Line Conducted Emissions for Receiver

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

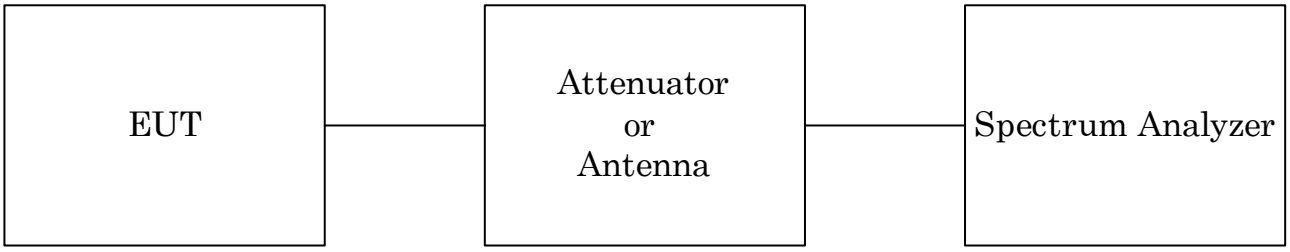
Test site & instruments :

Type	Number of test site & instruments (Refer to Appendix C)
Test Site	3
Test Receiver	172
Spectrum Analyzer	19
Cable	40
AMN(for EUT)	33
AMN(for EUT)	--
Termination	--
Thermo-Hygrometer	202

6 Preliminary Test and Test Setup

6.1 Channel Separation

The EUT have its hopping function enabled.
Use the following spectrum analyzer settings:
Span = wide enough to capture the peaks of two adjacent channels
Resolution (or IF) Bandwidth (RBW) ≥ 1% of the span
Video (or Average) Bandwidth (VBW) ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold
Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels.



6.2 Minimum Hopping Channel

The EUT have its hopping function enabled.
Use the following spectrum analyzer settings:
Span = the frequency band of operation
RBW ≥ 1% of the span
VBW ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold
Allow the trace to stabilize. It may prove necessary to break the span up to sections, in order to clearly show all of the hopping frequencies.

Measurement setup is same as sub-clause 6.1.

6.3 Occupied Bandwidth

Use the following spectrum analyzer settings:
Span = approximately 2 to 3 times the 6 dB or 20 dB bandwidth, centered on a channel
RBW ≥ 1% of the 6 dB or 20 dB bandwidth
VBW ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold
The EUT should be transmitting at its maximum data rate. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. Use the marker-delta function to measure 6 dB or 20 dB down one side of the emission. Reset the marker-delta function, and move the marker to the other side of the emission, until it is (as close as possible to) even with the reference marker level. The marker-delta reading at this point is the 6 dB or 20 dB bandwidth of the emission. If this value varies with different modes of operation (e.g., data rate, modulation format, etc.), repeat this test for each variation.

Measurement setup is same as sub-clause 6.1.

6.4 Dwell Time

The EUT must have its hopping function enabled.
Use the following spectrum analyzer settings:
Span = zero span, centered on a hopping channel
RBW ≤ Channel Separation
VBW ≥ RBW
Sweep = as necessary to capture the entire dwell time per hopping channel
Detector function = peak
Trace = max hold
If possible, use the marker-delta function to determine the dwell time. If this value varies with different modes of operation (e.g., data rate, modulation format, etc.), repeat this test for each variation.

Measurement setup is same as sub-clause 6.1.

6.5 Peak Output Power (Conduction)

In case of conducted measurements, the transmitter shall be connected to the measuring equipment via a suitable attenuator.
The measurement shall be performed using normal operation of the equipment with the test modulation applied.
It is measured the Peak Power Analyzer, that have had the RBW greater than 6 dB bandwidth of the emission.

The test procedure shall be as follows;
- using a suitable means, the output of the transmitter shall be connected to the peak power analyzer;
- the peak power analyzer is made into a suitable condition for the measurement;
- The observed value shall be recorded;

The measurement shall be repeated at the lowest, the middle, and the highest frequency of the stated frequency range.

6.6 Peak Power Density (Conduction)

Use the following spectrum analyzer settings:
Span = approximately 5 times the 20 dB bandwidth, centered on a channel
RBW = Specified Value
VBW ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold
Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission.

Measurement setup is same as sub-clause 6.1.

6.7 Peak Output Power and Peak Power Density (Radiation)

The radiated power output and the field strength of the transmitter radiation were measured at the distance at 3 meters away from the transmitter under test which was placed on a turntable 0.8 meter in height. The receiving antenna was oriented for vertical polarization and raised or lowered through 1 to 4 meters until the maximum signal level was detected on the measuring instrument. The transmitter under test was rotated through 360° until the maximum signal was received. The measurement was repeated with the receiving antenna in the horizontal polarization.

The transmitter was removed and replaced with the antenna. The center of the antenna was placed approximately at the same location as the center of the transmitter. The antenna was fed with a signal generator, and the output level of the signal generator was adjusted to obtain the previously recorded maximum reading at the particular frequency and recorded. This procedure was repeated with the receiving antenna and the antenna in the orthogonal polarization.

The input power into the antenna was measured using the power meter. The level of the emissions in dBm(EIRP) were calculated from the following formula:

Transmitter Power[dBm](EIRP)= (Meter Reading of Power Meter) + (Antenna Gain[dBi])

Use the following spectrum analyzer settings:
Span = approximately 5 times the 20 dB bandwidth, centered on a channel
RBW : Greater then the 20 dB bandwidth of the emission being measured or Specified Value
VBW ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold
Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission.

6.8 Spurious Emission (Conduction)

Band-edge Compliance of RF Conducted Emissions

Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products which fall outside of the authorized band of operation
RBW ≥ 1% of the span
VBW ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold
Allow the trace to stabilize. Set the marker on the emission at the band edge, or on the highest modulation product outside of the band, if this level is greater than that at the band edge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission.
Now, using the same instrument settings, enable the hopping function of the EUT. Allow the trace to stabilize. Follow the same procedure listed above to determine if any spurious emissions caused by the hopping function also comply with the specified limit.

Spurious RF Conducted Emissions

Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.
RBW = 100 kHz
VBW ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold
Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded. The level displayed must comply with the limit specified in this Section.

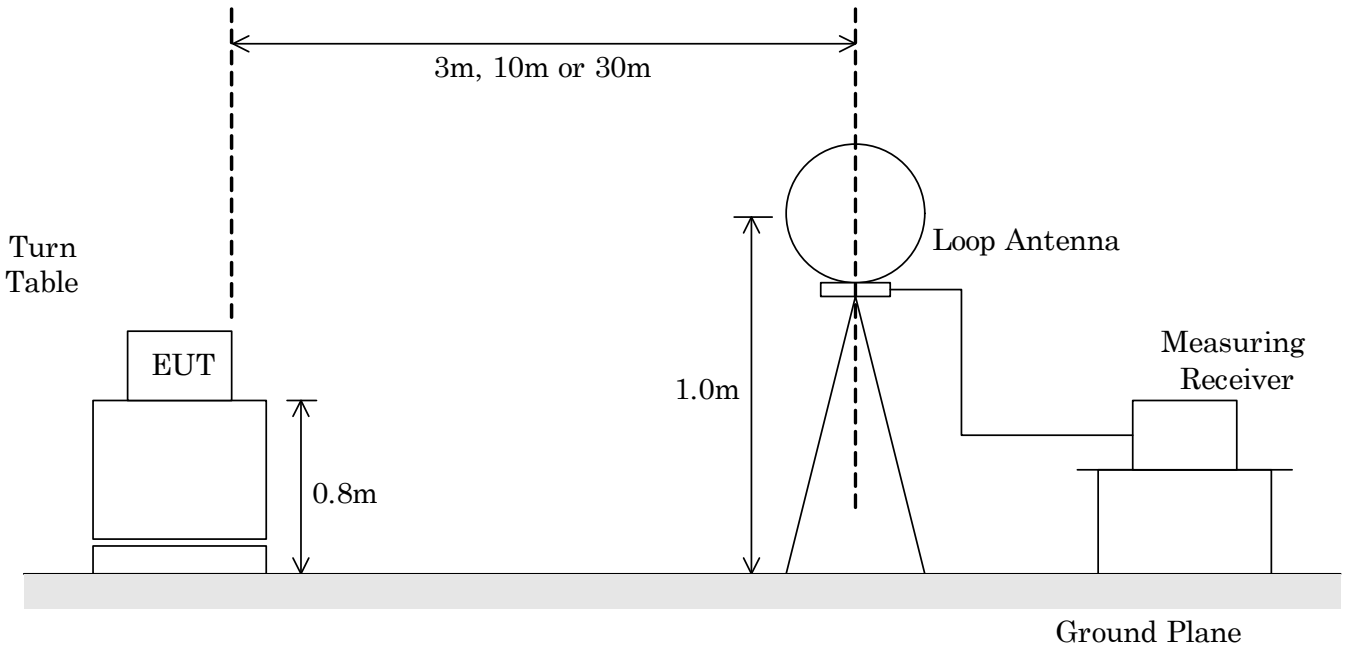
Measurement setup is same as sub-clause 6.1.

6.9 Spurious Emissions (Radiation)

6.9.1 Radiated Emission (9 kHz – 30 MHz)

According to description of ANSI C63.4-2003 sec.13.1.4, the preliminary radiated emissions measurement were carried out. The preliminary radiated 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. These configurations were used for the final radiated emissions measurements.

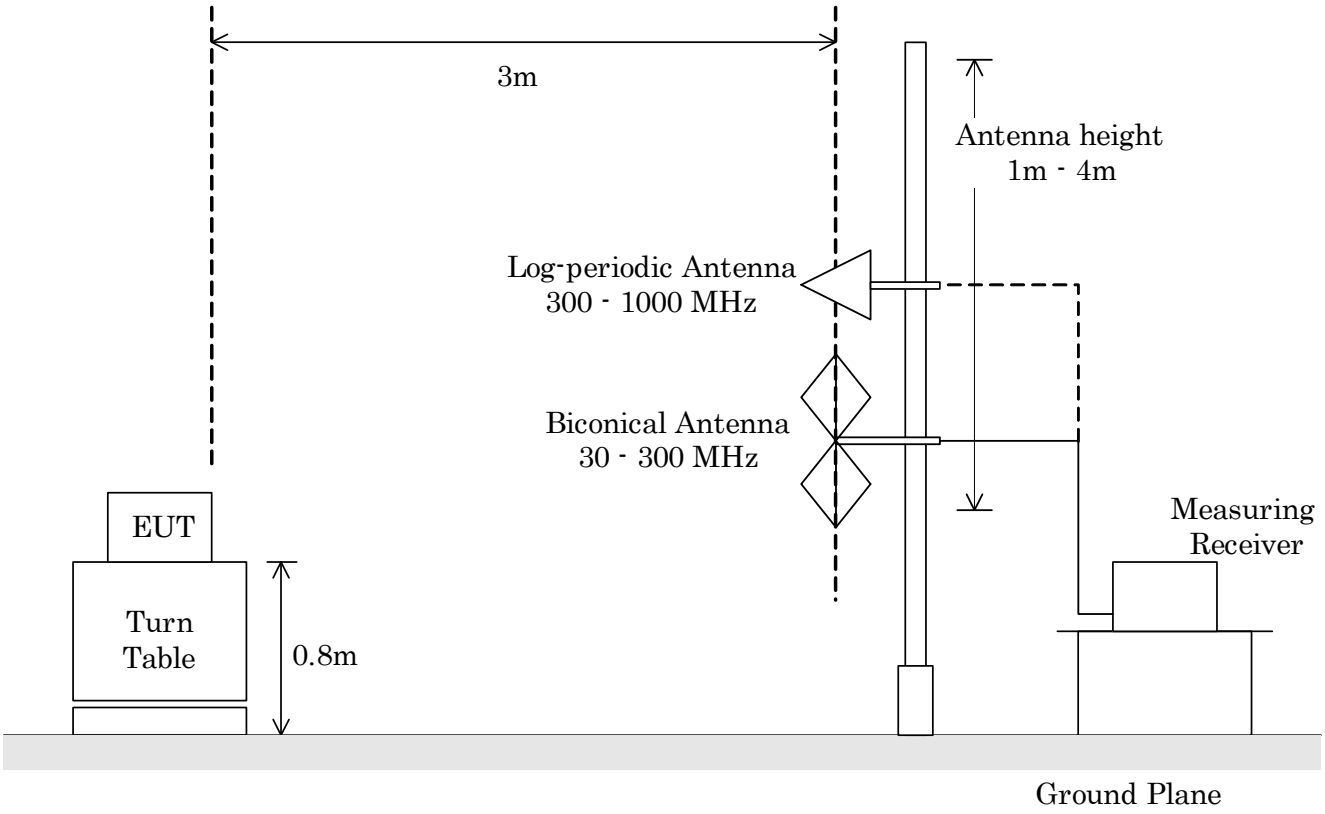
- Side View -



6.9.2 Radiated Emission (30 MHz – 1000 MHz)

According to description of ANSI C63.4-2003 sec.13.1.4, the preliminary radiated emissions measurement were carried out. The preliminary radiated measurements were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT.
The EUT configuration (in X, Y and Z axis), cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for the final radiated emissions measurements.

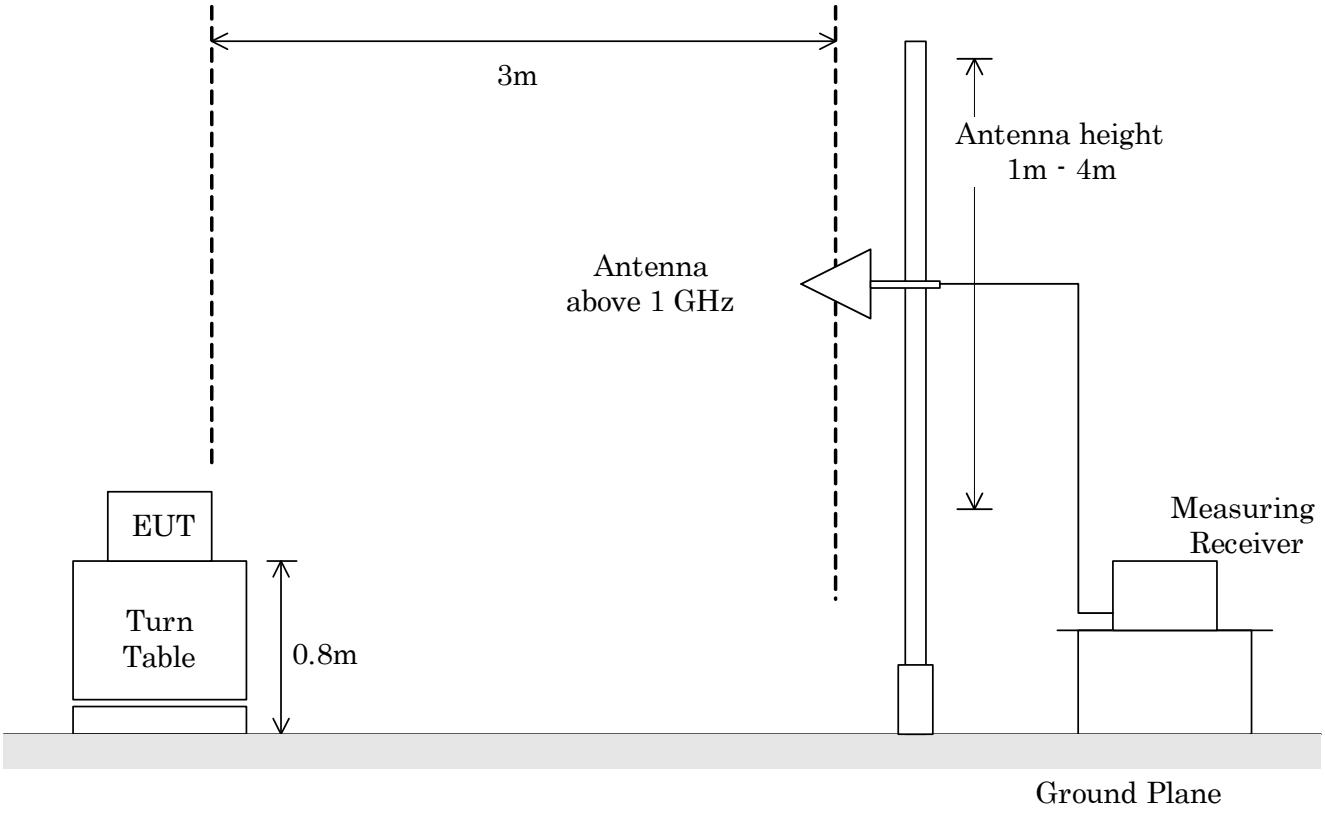
- Side View -



6.9.3 Radiated Emission (above 1 GHz)

According to description of ANSI C63.4-2003 sec.13.1.4, the preliminary radiated emissions measurement were carried out. The preliminary radiated measurements were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT.
The EUT configuration (in X, Y and Z axis), cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for the final radiated emissions measurements.

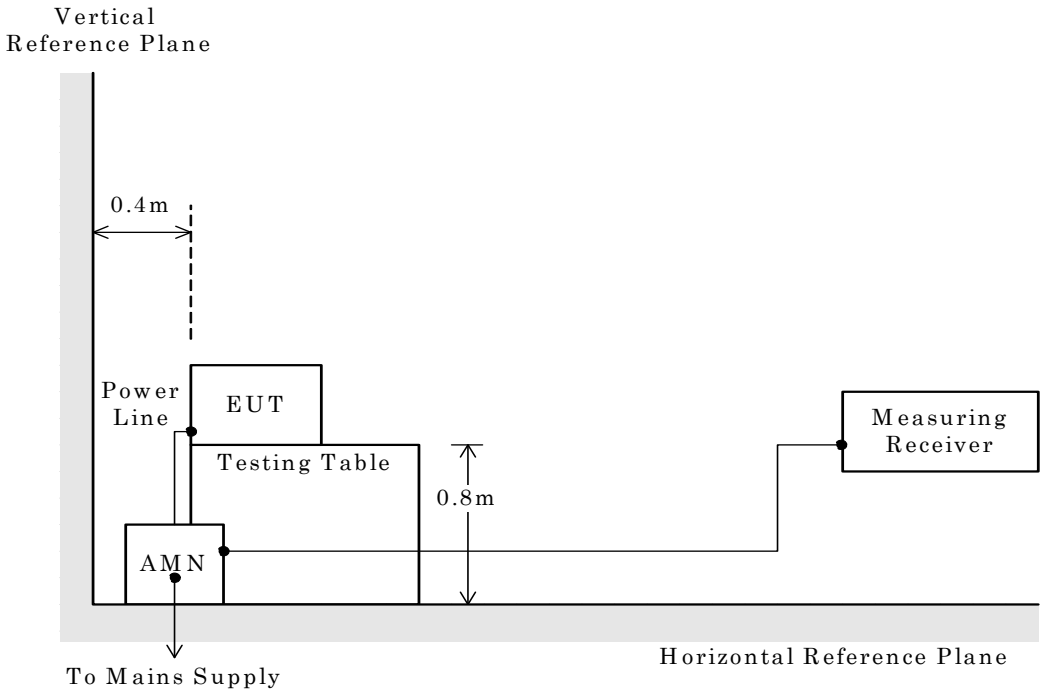
- Side View -



6.10 AC Power Line Conducted Emissions (150 kHz – 30 MHz)

According to description of ANSI C63.4-2003 sec.13.1.3, the AC power line preliminary conducted emissions measurements were carried out.
The preliminary conducted measurements were performed using the spectrum analyzer to observe the emission characteristics of the EUT.
The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for final AC power line conducted emissions measurements.

- Side View -



* AMN : Artificial Mains Network

5.11 RF Exposure Compliance

According to description of FCC/OET Bulletin 65 Supplement C (2001), the measurement of SAR were carried out.

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 Signatory : Not Applicable
Position : 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 Channel Separation [§15.247(a)(1), RSS-210 A8.1(b)]

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

☒-**Passed** ☐-**Failed** ☐-**Not judged**

Uncertainty of measurement results

± 0.6 %(2σ)

Remarks :

10.2 Minimum Hopping Channel [§15.247(a)(1)(iii), RSS-210 A8.1(d)]

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

☒-**Passed** ☐-**Failed** ☐-**Not judged**

Remarks :

10.3 Occupied Bandwidth [§15.247(a)(2), RSS-210 A8.2(a)]

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

☒-**Passed** ☐-**Failed** ☐-**Not judged**

Uncertainty of measurement results

± 0.6 %(2σ)

Remarks :

10.4 Dwell Time [§15.247(a)(1)(iii) / (g), RSS-210 A8.1(d)]

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

☒-**Passed** ☐-**Failed** ☐-**Not judged**

Uncertainty of measurement results

± 0.6 %(2σ)

Remarks :

10.5 Peak Output Power (Conduction) [§15.247(b)(3), RSS-210 A8.4(4)]

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

☒-**Passed** ☐-**Failed** ☐-**Not judged**

Uncertainty of measurement results

± 1.2 dB(2σ)

Remarks :

10.6 Peak Output Power (Radiation) [§15.247(b)(1), RSS-210 A8.4.(2)]

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

☐-**Passed** ☐-**Failed** ☐-**Not judged**

Uncertainty of measurement results

± 1.4 dB(2σ)

Remarks :

10.7 Peak Power Density (Conduction) [§15.247(d), RSS-210 A8.2(b)]

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

☒-**Passed** ☐-**Failed** ☐-**Not judged**

Uncertainty of measurement results

± 1.2 dB(2σ)

Remarks :

10.8 Peak Power Density (Radiation) [§15.247(d), RSS-210 A8.2(b)]

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

☐-**Passed** ☐-**Failed** ☐-**Not judged**

Uncertainty of measurement results

± 1.4 dB(2σ)

Remarks :

10.9 Spurious Emissions (Conduction) [§15.247(c), RSS-210 A8.5]

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

☒-**Passed** ☐-**Failed** ☐-**Not judged**

Uncertainty of measurement results

± 2.1 dB(2σ)

Remarks :

10.10 Spurious Emissions for Transmitter (Radiation) [§15.247(c) / §15.35(b) / §15.209(a), RSS-210 A8.5]

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

☒-Passed ☐-Failed ☐- Not judged

For the Frequency Range below 1000 MHz

Min. Limit Margin	9.9	dB	at	451.72 MHz
Max. Limit Excess	--	dB	at	-- MHz

For the Frequency Range above 1000 MHz

Min. Limit Margin(Average)	1.7	dB	at	4882.00 MHz
Min. Limit Margin(Peak)	14.9	dB	at	4882.00 MHz
Max. Limit Excess	--	dB	at	-- MHz

Uncertainty of measurement results

30-300	MHz	± 4.6 dB(2σ)
300-1000	MHz	± 4.5 dB(2σ)
1-18	GHz	± 5.0 dB(2σ)
18-40	GHz	± 5.3 dB(2σ)

Remarks : The measurement result is within the range of measurement uncertainty.

10.11 AC Power Line Conducted Emissions for Transmitter [§15.207(a), RSS-Gen 7.2.2]

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

☒-Passed ☐-Failed ☐- Not judged

Min. Limit Margin (QP)	17.5	dB	at	0.45	MHz
Min. Limit Margin (AVE)	--	dB	at	--	MHz
Max. Limit Exceeding (QP)	--	dB	at	--	MHz
Max. Limit Exceeding (AVE)	--	dB	at	--	MHz

Uncertainty of measurement results

± 2.9 dB(2σ)

Remarks :

10.12 RF Exposure Compliance [§15.247(b)(5), RSS-Gen 5.5]

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

☐-Passed ☐-Failed ☐-Not judged

Remarks :

10.13 Spurious Emissions for Receiver (Radiation) [§15.109(a), RSS-Gen 6(a)]

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

☒-Passed ☐-Failed ☐- Not judged

For the Frequency Range below 1000 MHz

Min. Limit Margin	9.9	dB	at	451.72	MHz
Max. Limit Excess	--	dB	at	--	MHz

For the Frequency Range above 1000 MHz

Min. Limit Margin(Average)	8.7	dB	at	1602.00	MHz
Min. Limit Margin(Peak)	26.0	dB	at	1602.00	MHz
Max. Limit Excess	--	dB	at	--	MHz

Uncertainty of measurement results

30-300	MHz	± 4.6 dB(2σ)
300-1000	MHz	± 4.5 dB(2σ)
1-18	GHz	± 5.0 dB(2σ)
18-40	GHz	± 5.3 dB(2σ)

Remarks :

10.14 AC Power Line Conducted Emissions for Receiver [15.107(a), RSS-Gen 7.2.2]

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

☒-Passed ☐-Failed ☐- Not judged

Min. Limit Margin (QP)	16.8	dB	at	0.48	MHz
Min. Limit Margin (AVE)	--	dB	at	--	MHz
Max. Limit Exceeding (QP)	--	dB	at	--	MHz
Max. Limit Exceeding (AVE)	--	dB	at	--	MHz

Uncertainty of measurement results

± 2.9 dB(2σ)

Remarks :

11 Summary

General Remarks

The EUT was tested according to the requirements of CFR 47 FCC Rules and Regulations Part 15 / Industry Canada RSS-210(Issue 7) and RSS-Gen(Issue 2) 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 result.

Test Result :

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:

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Tested by:

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12 Operating Condition

Power Supply Voltage : 3.7VDC operate with DC Adapter
120 VAC, 60 Hz operate with AC Adapter

Operation Mode

The EUT is set with the test mode, the specification of the test mode is as following.

(1) TX Mode (0ch : 2402MHz)
(2) TX Mode (39ch : 2441MHz)
(3) TX Mode (78ch : 2480MHz)
(4) TX Mode (Hopping)
(5) RX Mode

Used application to controlled : Blue Test (The detail is as follows.)
The setting other than a default setting is shown as follows.
Transport type : BCSP
Serial port : com1
Baud rate : 115200
Frequency : 2402 MHz, 2441 MHz, 2480 MHz and Hopping
Packet Setting : DH5, 2-DH5 and 3-DH5
Power set of TX mode : 53(DH5) and 55(2-DH5 and 3-DH5)

Fundamental Frequency : 26 MHz
Generated/used in the EUT

Highest Frequencies : 26 MHz (the part of Unintentional Radiators)
2.4 GHz (the part of Intentional Radiators)

13 Test Configuration

The equipment under test consists of :

Sign	Item	Manufacturer	Model No.	Serial No.	FCC ID / IC
A(*1)	Nokia Wireless Stereo Headset	Nokia Corporation	HS-121W	None	PYAHS-121W 661V-HS121W
B	Rechargeable Battery	--	--	None	None
C	AC Adapter	NOKIA(*2)	AC-3E	None	None
D	DC Adapter	NOKIA(*2)	DC-4	None	None

Note : (*1) The EUT was also operated with the AC Adaptor(Model:AC-3E, Input:100-240VAC 50/60Hz, Output:5.0VDC by NOKIA) and the DC Adaptor(Model:DC-4, Input:12/24VDC, Output:5.7VDC by NOKIA).
This operational condition is mentioned in specifications.
(*2) The brand name is printed on the product.

The auxiliary equipment used for testing :

Sign	Item	Manufacturer	Model No.	Serial No.	FCC ID
	Regulated DC Power Supply	KIKUSUI ELECTRONICS CORP.	PAN 35-20A	None	None

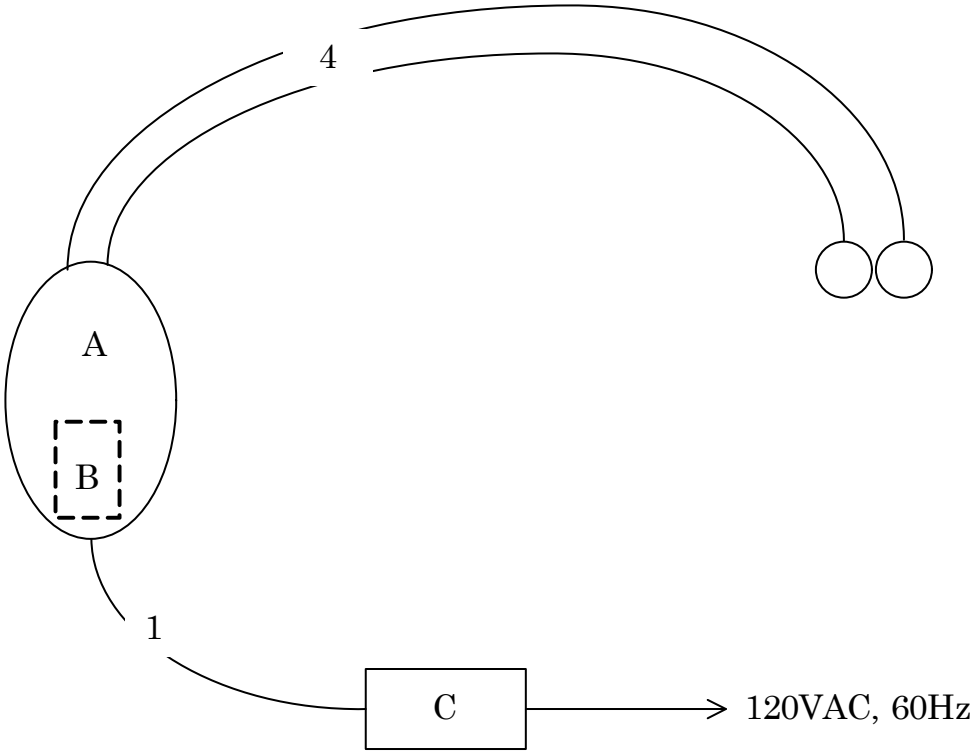
Type of Cable:

No.	Description	Identification (Manu. Etc.)	Connector Shielded	Cable Shielded	Ferrite Core	Length (m)
1	DC Cable(for AC Adapter)	-	No	No	No	1.80
2(*3)	DC Cable(for DC Adapter)	-	No	No	No	0.30
3	DC ext. Cable	-	No	No	No	0.93
4	Headphone Cable	-	No	No	No	0.60

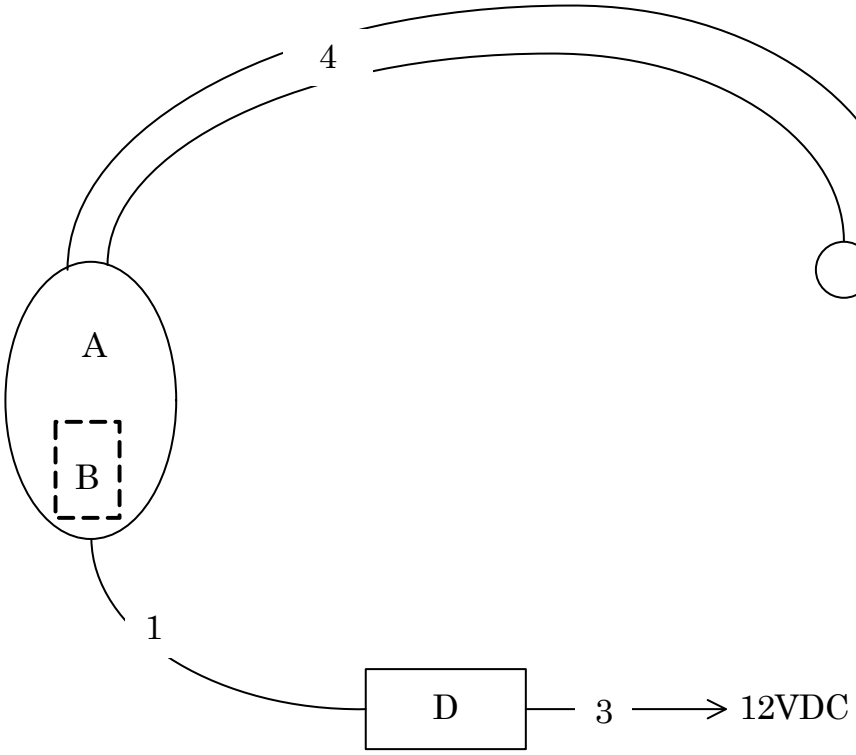
Note : (*3) The cable is curl type.

14 Equipment Under Test Arrangement (Drawings)

(1) AC Adapter used



(2) DC Adapter used



Appendix A : Test Data

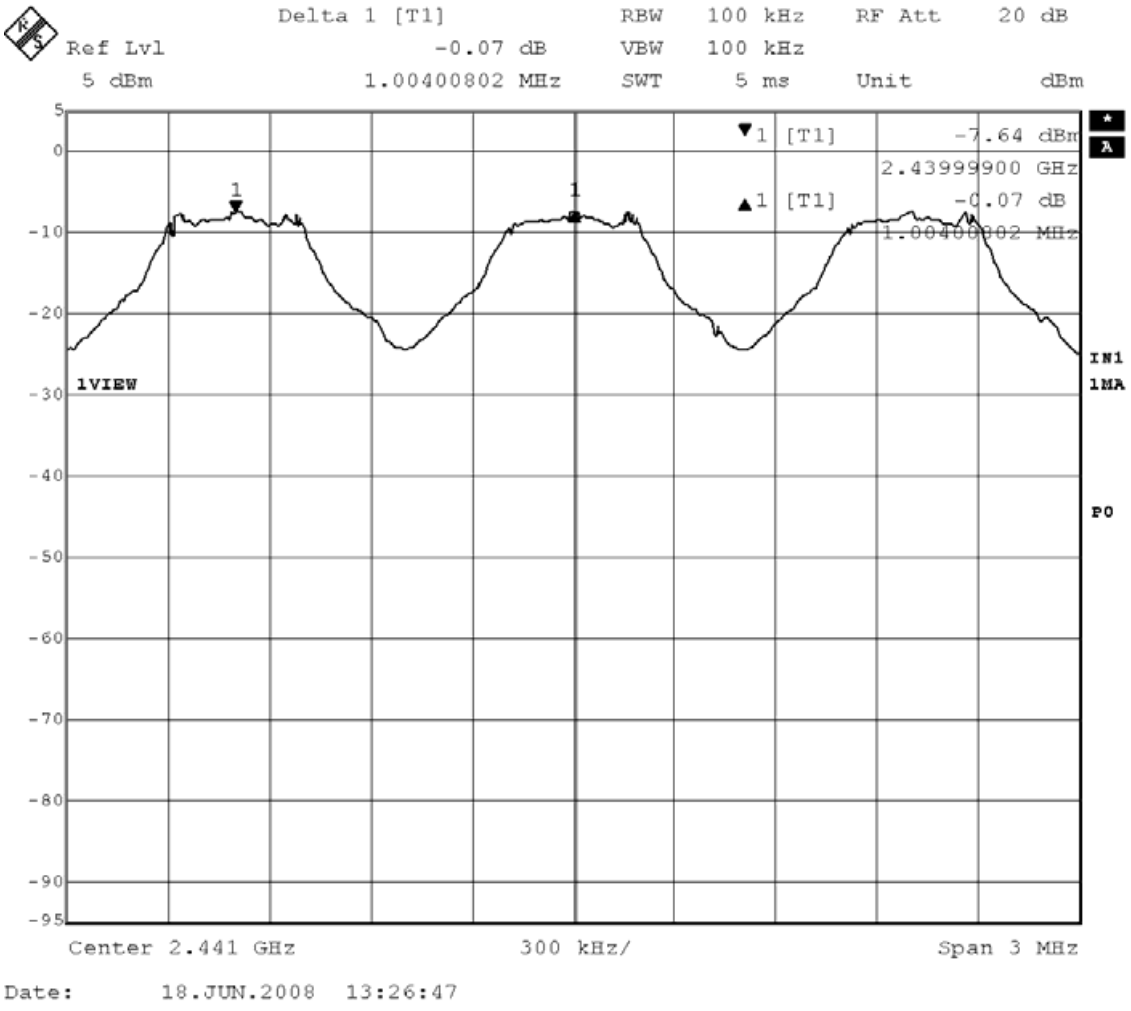
A.1 Channel Separation

Date : June 12, 2008
Temp. : 24 ºC Humi. : 45 %

Mode of EUT : TX Mode (Hopping)
Packet Condition : DH5
Test Port : Temporary antenna connector

Channel Separation (kHz)	Limit
1004.008	25 kHz or 20 dB bandwidth of hopping channel(*)

Note : (*) It means that there is an alternative limit, in the case of frequency hopping systems operating in the 2400 - 2483.5 MHz band with an output power no greater than 125mW.

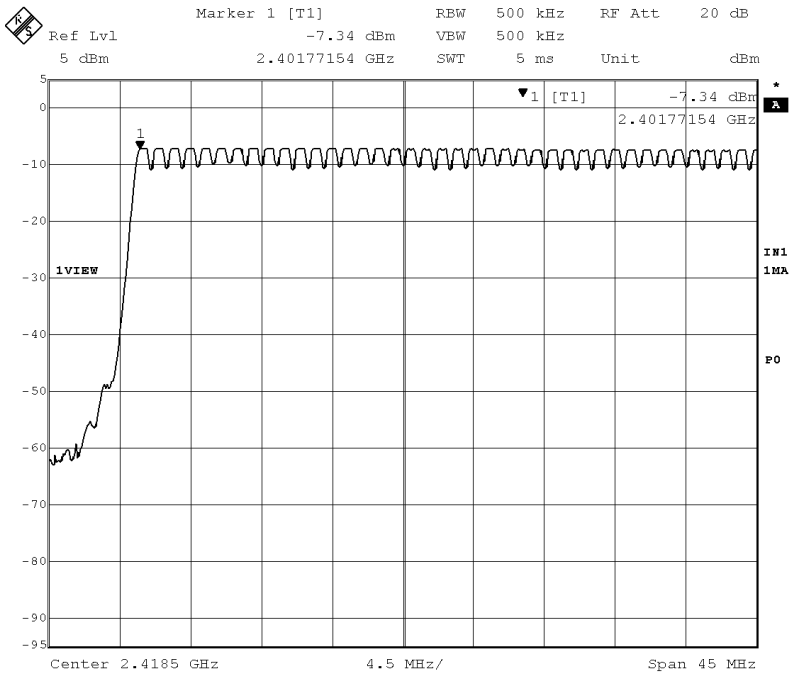


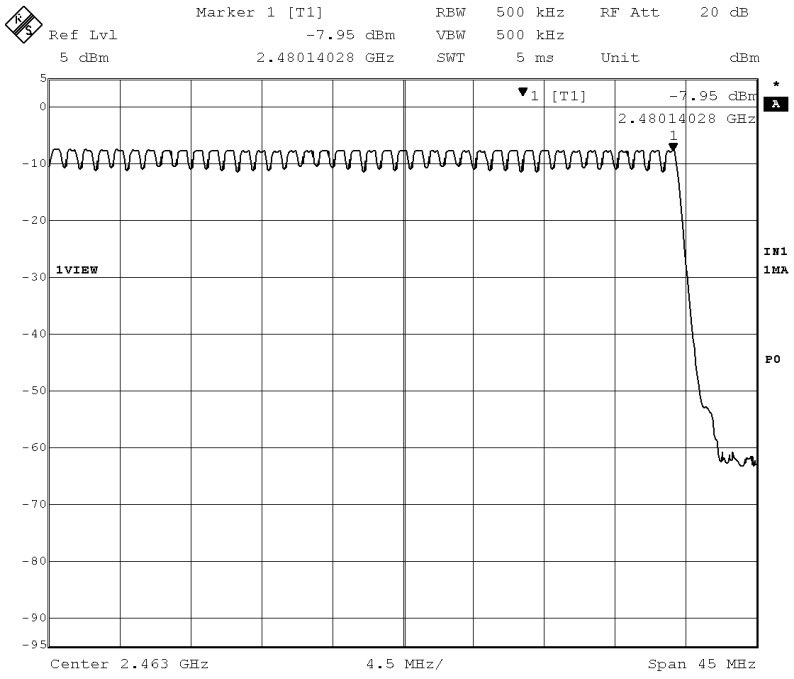
A.2 Minimum Hopping Channel

Date : June 12, 2008
Temp. : 24 ºC Humi. : 45 %

Mode of EUT : TX Mode (Hopping)
Packet Condition : DH5
Test Port : Temporary antenna connector

Hopping Channel	Limit
79	15





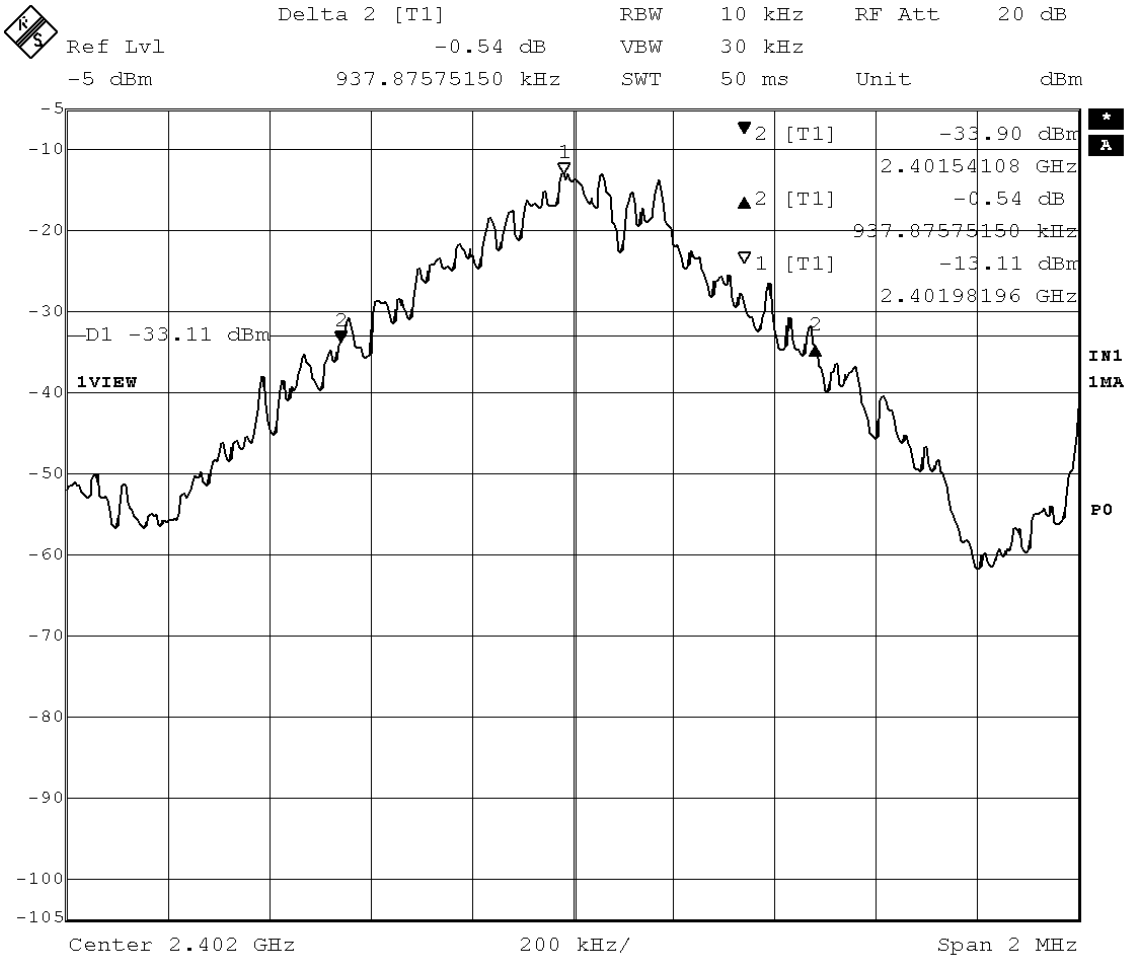
A.3 Occupied Bandwidth

Date : June 12, 2008
Temp. : 24 ºC Humi. : 45 %

(1) Packet Setting : DH5

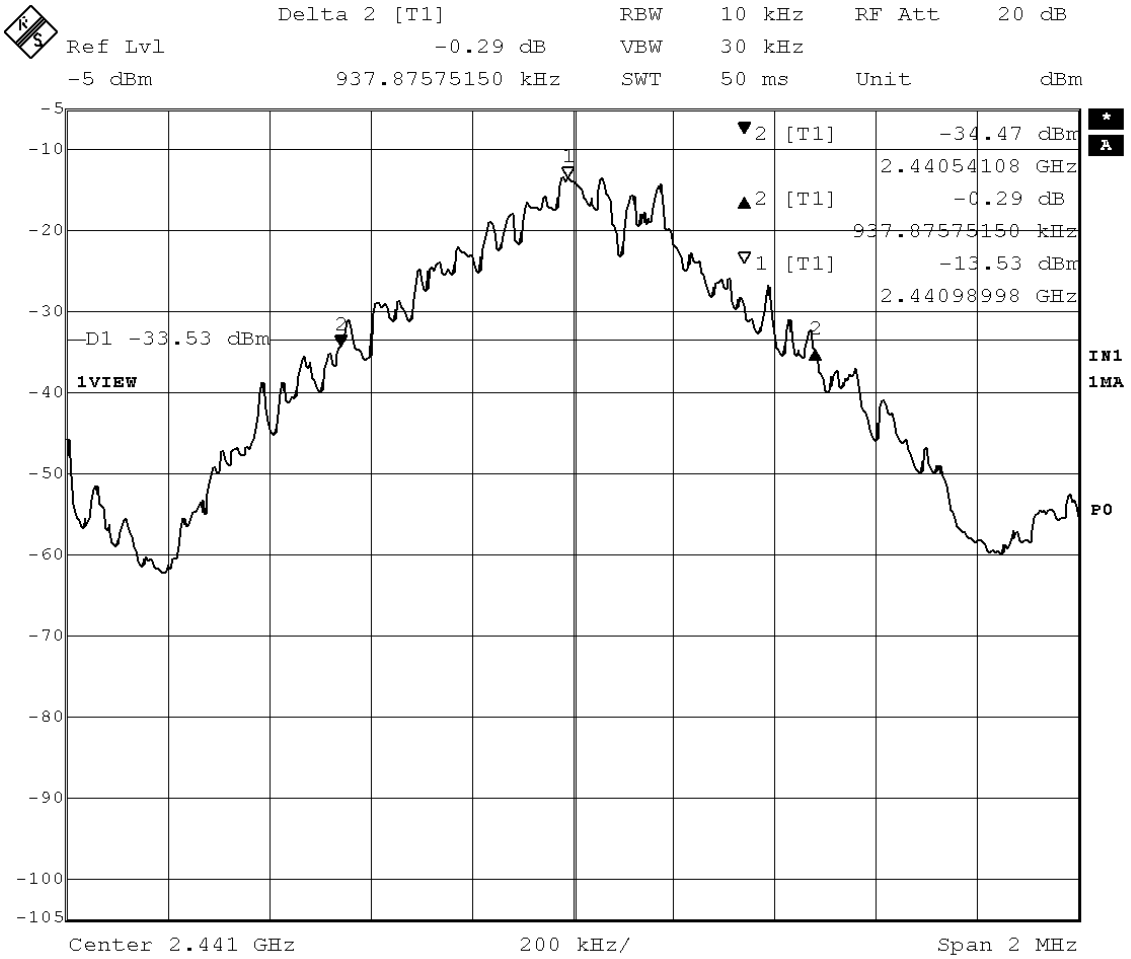
Mode of EUT : TX Mode (0ch : 2402MHz)
Test Port : Temporary antenna connector

Bandwidth (kHz)	Limit (kHz)
937.9	N/A



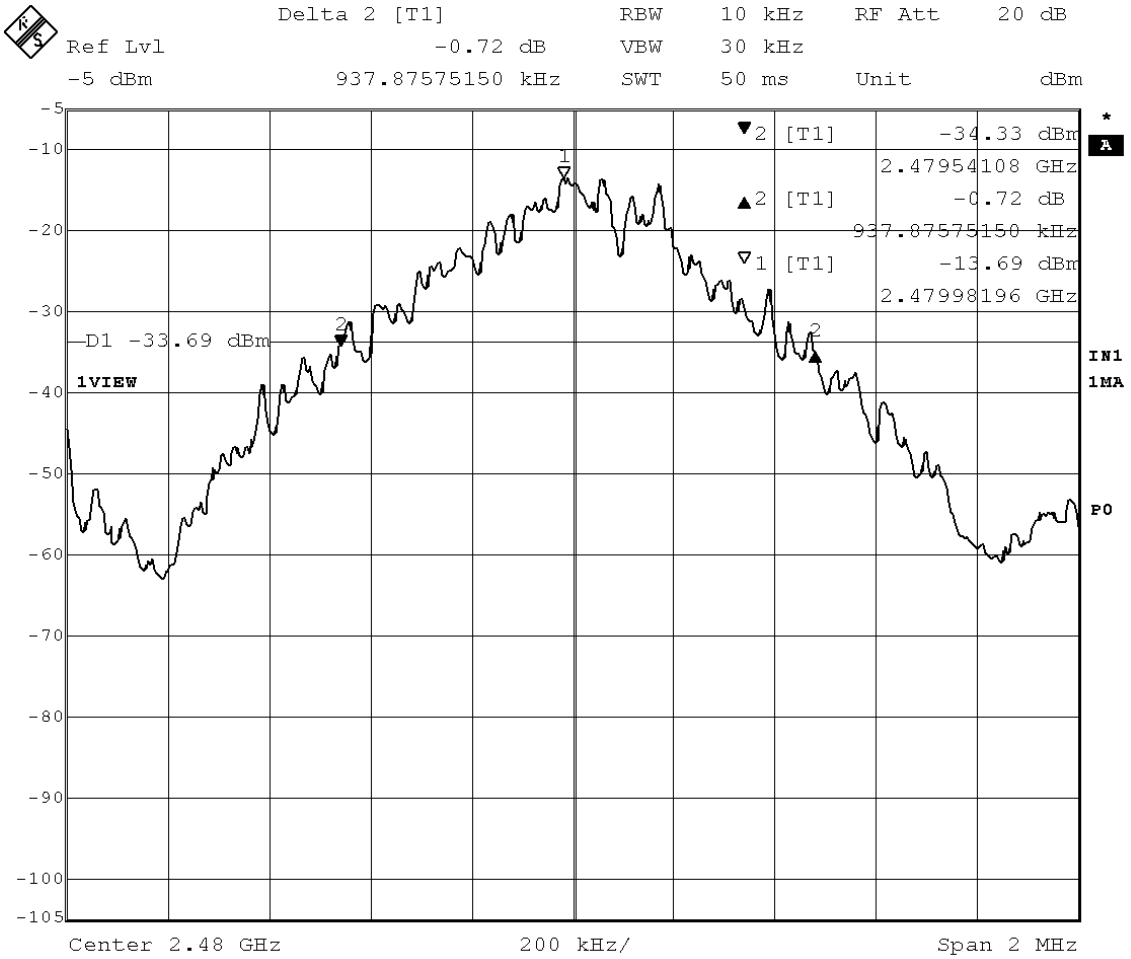
Mode of EUT : TX Mode (39ch : 2441MHz)
Test Port : Temporary antenna connector

Bandwidth (kHz)	Limit (kHz)
937.9	N/A



Mode of EUT : TX Mode (78ch : 2480MHz)
Test Port : Temporary antenna connector

Bandwidth (kHz)	Limit (kHz)
937.9	N/A

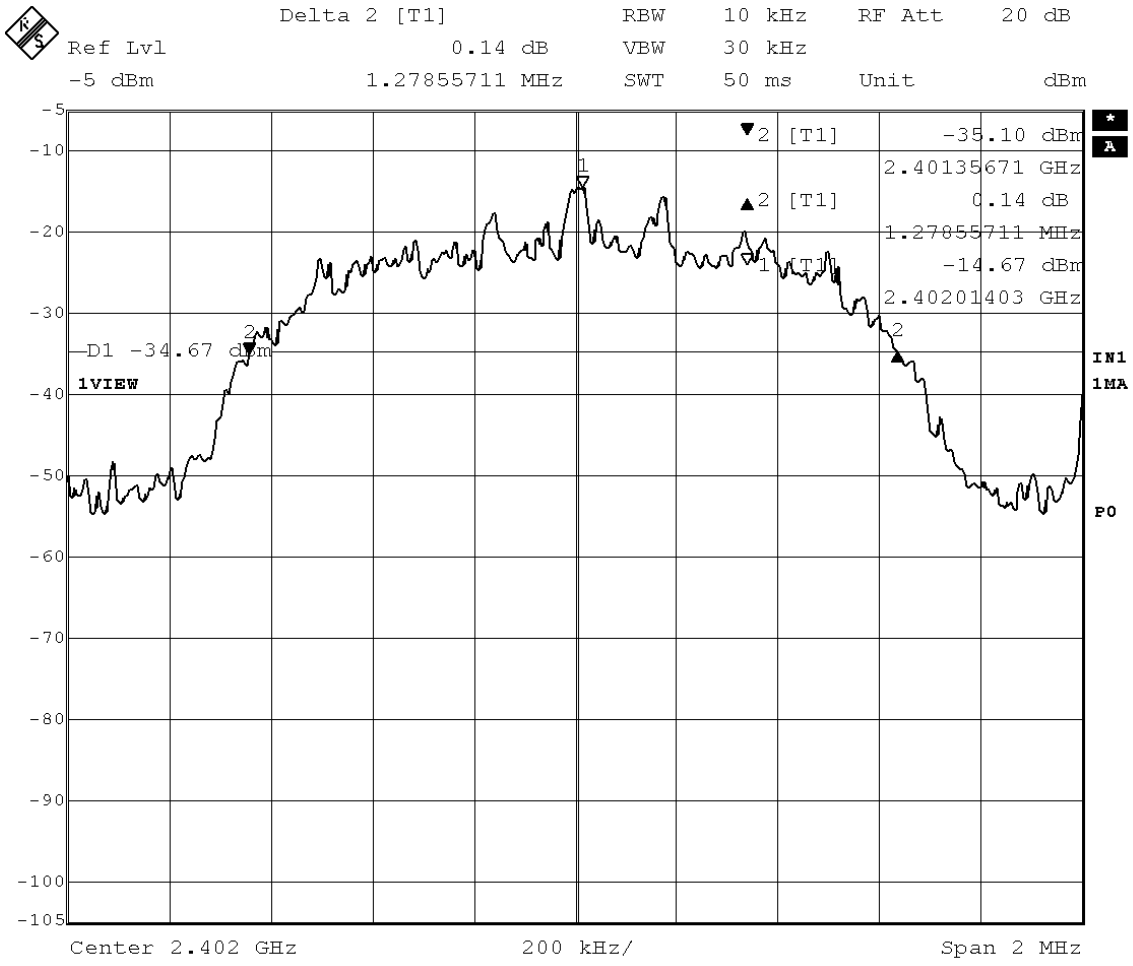


(2) Packet Setting : 3-DH5

Mode of EUT : TX Mode (0ch : 2402MHz)

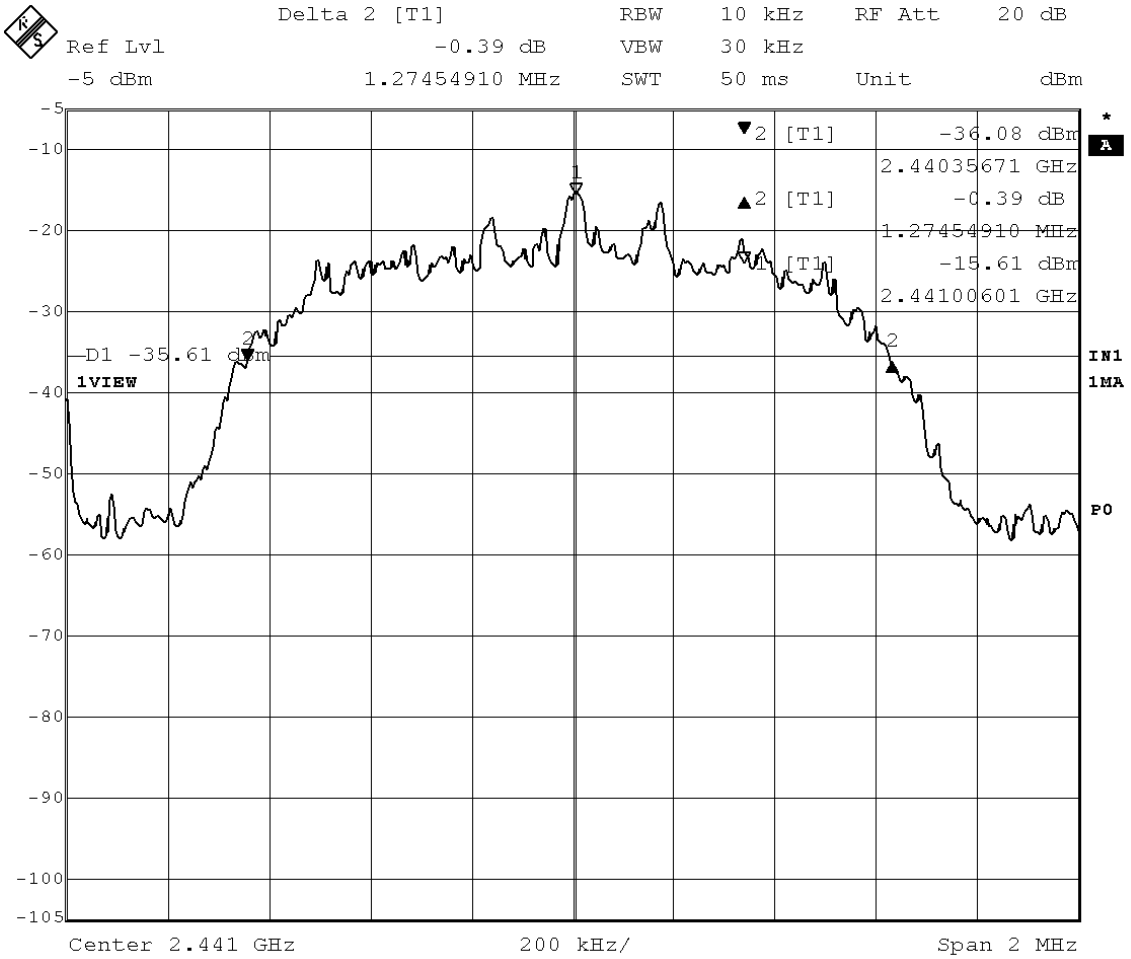
Test Port : Temporary antenna connector

Bandwidth (kHz)	Limit (kHz)
1278.6	N/A



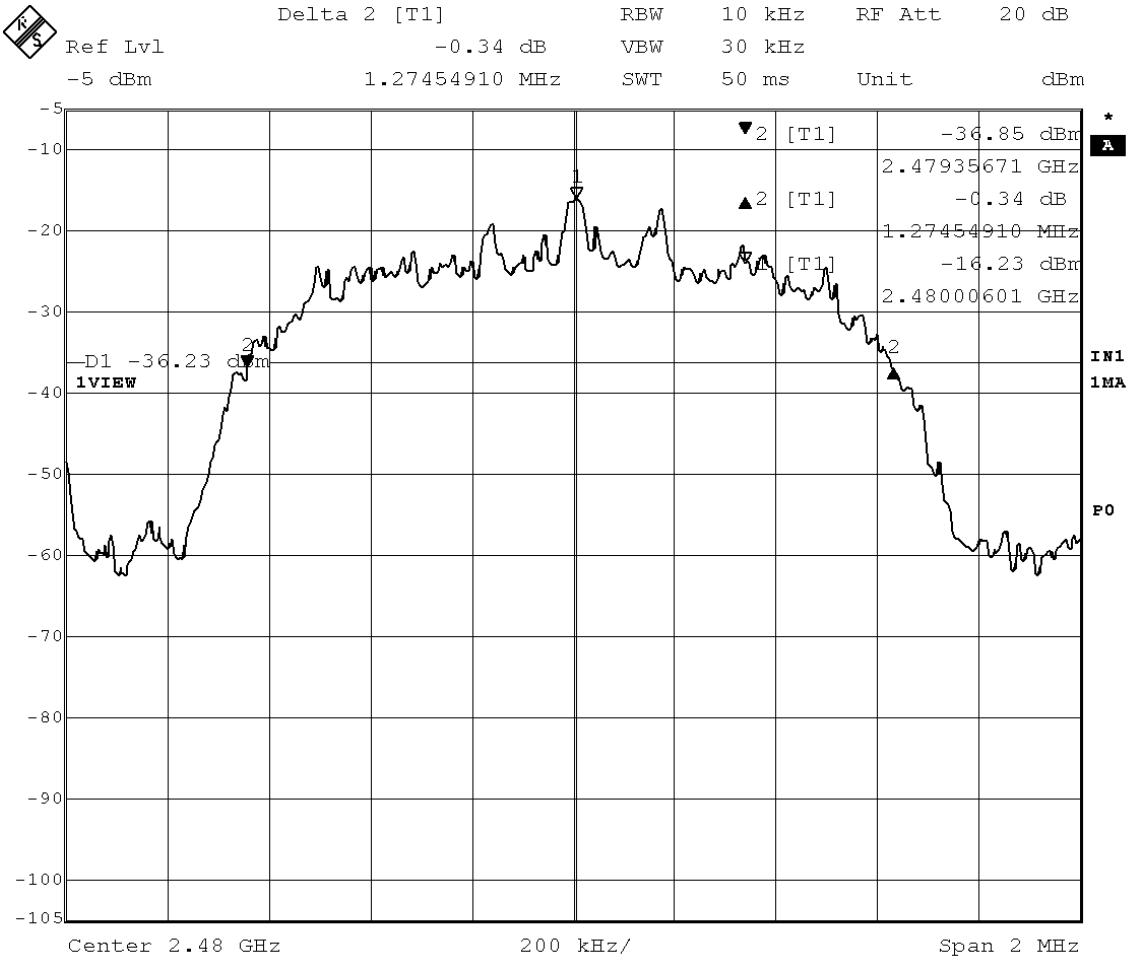
Mode of EUT : TX Mode (39ch : 2441MHz)
Test Port : Temporary antenna connector

Bandwidth (kHz)	Limit (kHz)
1274.5	N/A



Mode of EUT : TX Mode (78ch : 2480MHz)
Test Port : Temporary antenna connector

Bandwidth (kHz)	Limit (kHz)
1274.5	N/A



A.4 Dwell Time

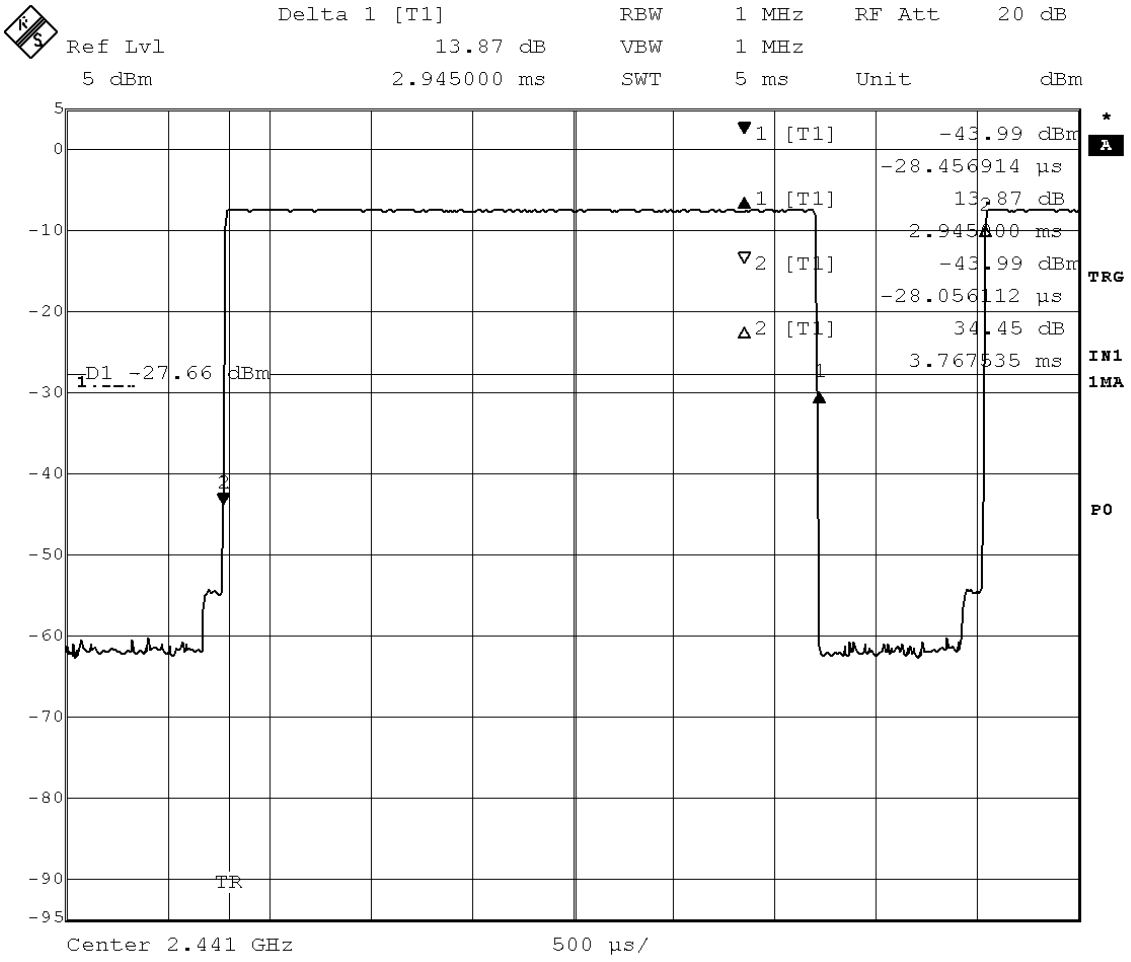
Date : June 12, 2008
Temp. : 24 ºC Humi. : 45 %

Mode of EUT : Hopping Mode
Packet Setting : DH5
Test Port : Temporary antenna connector

Dwell Time (ms)	Limit
314.2	400 ms per 31.6 seconds

Note : A DH5 Packet need 5 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 266.667 hops per second with 79 channels. So the system have each channel 3.3755 times per second and so for 31.6 seconds the system have 160.0 times of appearance.

Each tx-time per appearance is 2.945 ms.
Dwell time = 106.7 * 2.945 = 314.2 ms



A.5 Peak Output Power (Conduction)

Date : June 12, 2008
Temp. : 24 ºC Humi. : 45 %

Mode of EUT : TX Mode
Packet Setting : DH5
Test Port : Temporary antenna connector

Frequency (MHz)	Cable Loss (dB)	Attenuator Loss (dB)	Meter Reading (dBm)	Peak Power (dBm)	Limit (dBm)
2402	0.50	10.08	-7.05	4.27	30
2441	0.50	10.08	-6.80	4.18	30
2480	0.50	10.08	-7.30	3.68	30

Note : 1) Rated Supply Voltage : 120VAC, 60Hz (AC Adapter used)
2) A sample calculation was made at 2402 MHz.
CL + AL + MR = 0.50 + 10.08 + (-6.71) = 4.27 (dBm)
CL : Cable Loss AL : Attenuator Loss MR : Meter Reading

A.6 Peak Output Power (Radiation)

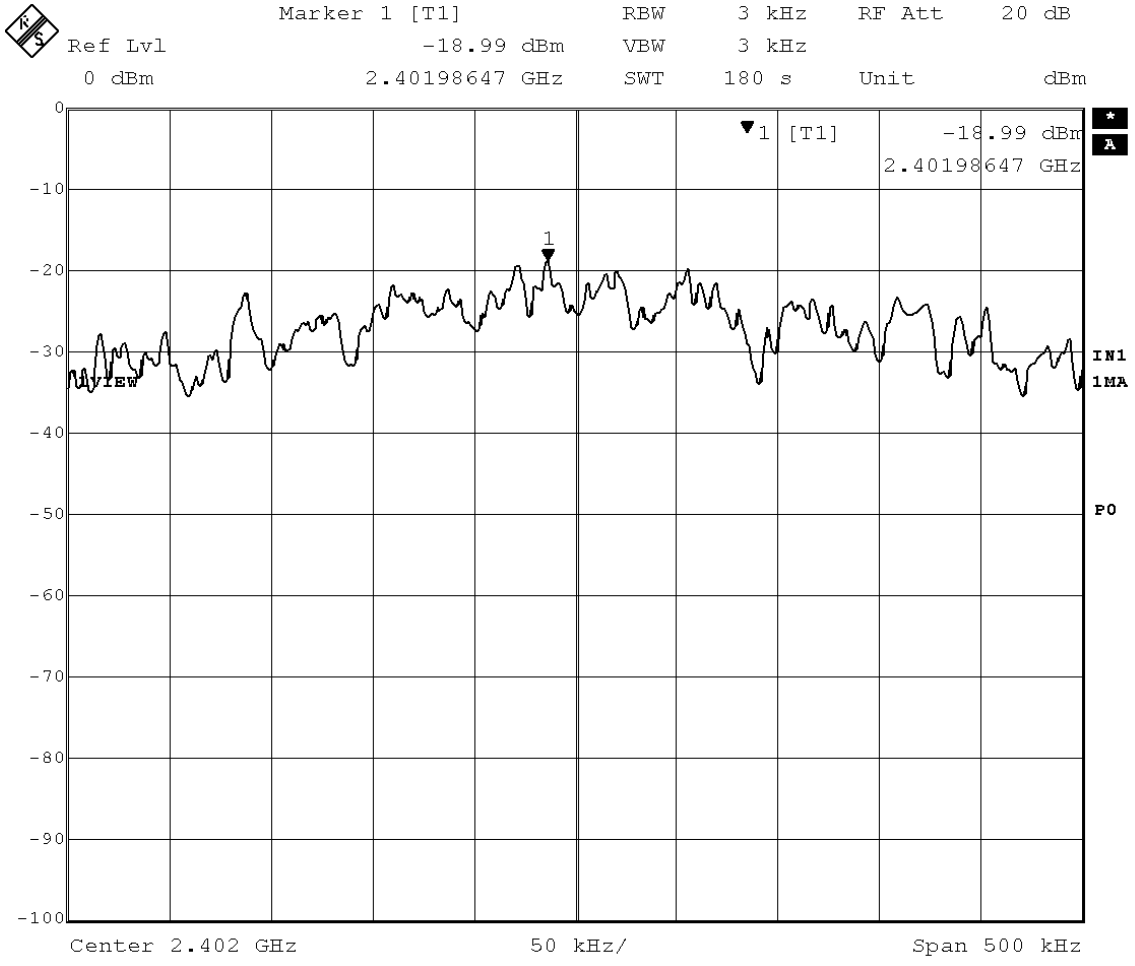
Not Applicable

A.7 Peak Power Density (Conduction)

Date : June 12, 2008
Temp. : 24 ºC Humi. : 45 %

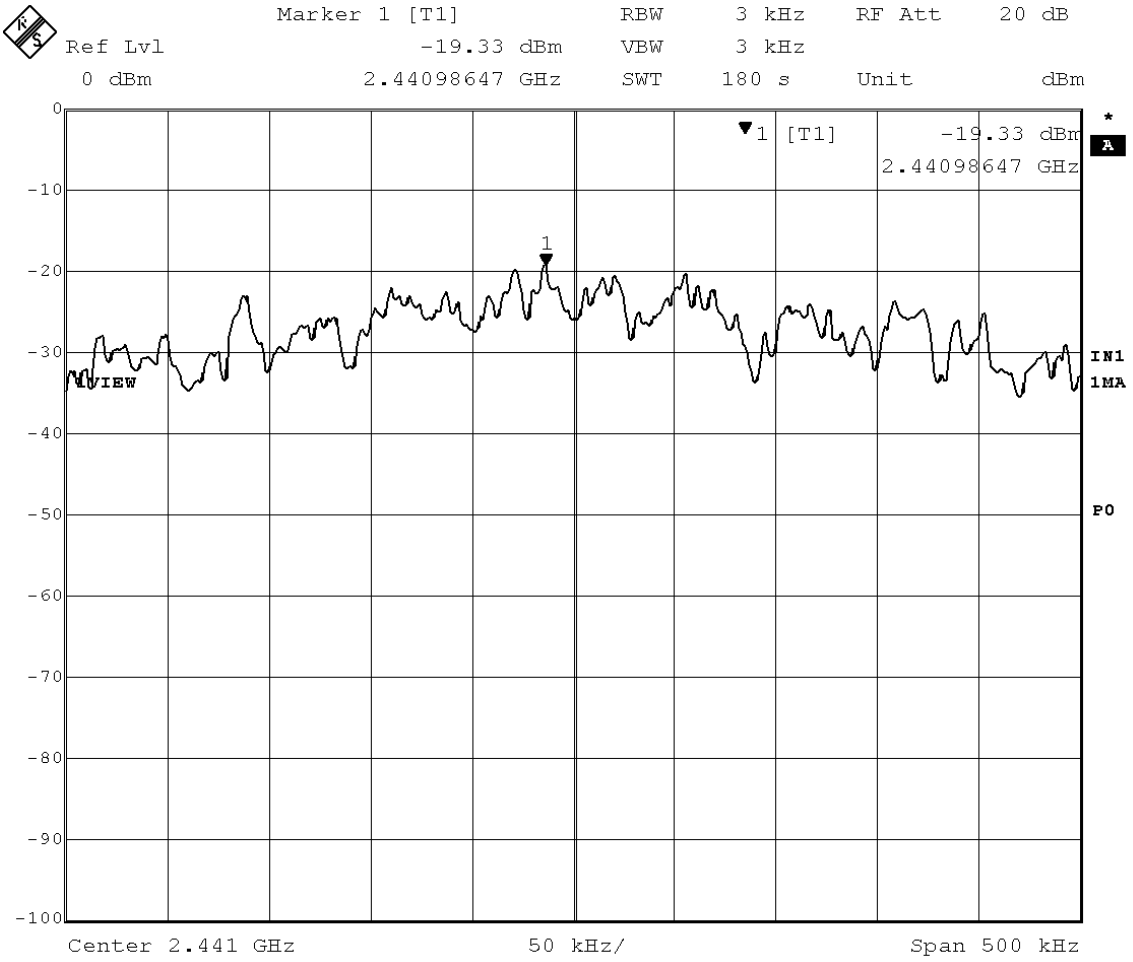
Mode of EUT : TX Mode (0ch : 2402MHz)
Packet Setting : DH5
Test Port : Temporary antenna connector

Cable Loss (dB)	Attenuator Loss (dB)	Meter Reading (dBm)	Peak Power (dBm)	Limit (dBm)
0.50	10.48	-18.99	-8.01	8



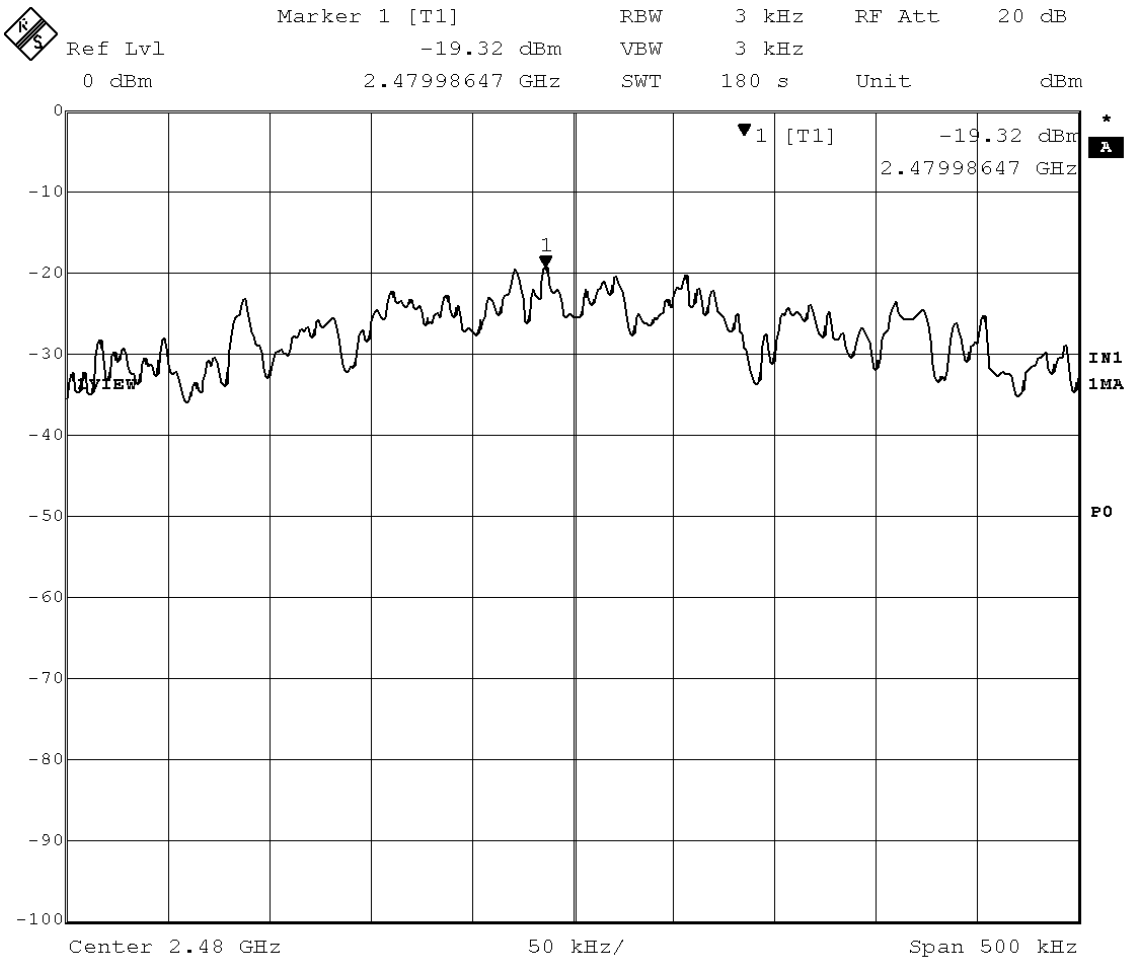
Mode of EUT : TX Mode (39ch : 2441MHz)
Packet Setting : DH5
Test Port : Temporary antenna connector

Cable Loss (dB)	Attenuator Loss (dB)	Meter Reading (dBm)	Peak Power (dBm)	Limit (dBm)
0.50	10.48	-19.33	-8.35	8



Mode of EUT : TX Mode (78ch : 2480MHz)
Packet Setting : DH5
Test Port : Temporary antenna connector

Cable Loss (dB)	Attenuator Loss (dB)	Meter Reading (dBm)	Peak Power (dBm)	Limit (dBm)
0.50	10.48	-19.32	-8.34	8



Note : 1) A sample calculation was made at 2402 MHz.
CL + AL + MR = 0.50 + 10.48 + (-18.99) = -8.01 (dBm)
CL : Cable Loss AL : Attenuator Loss MR : Meter Reading
2) Measuring Instruments Setting :

Detector Function	Resolution Bandwidth
Peak	3 kHz

A.8 Peak Power Density (Radiation)

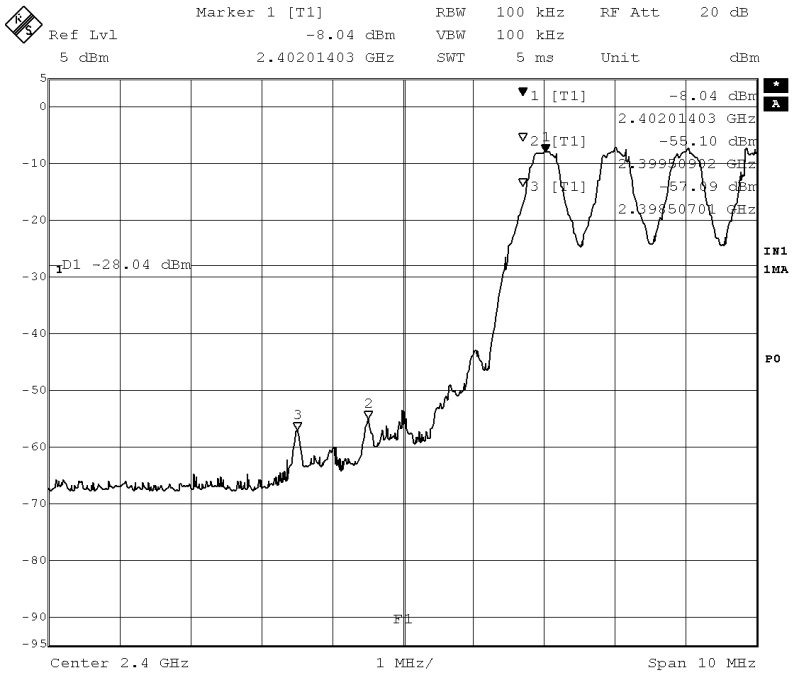
Not Applicable

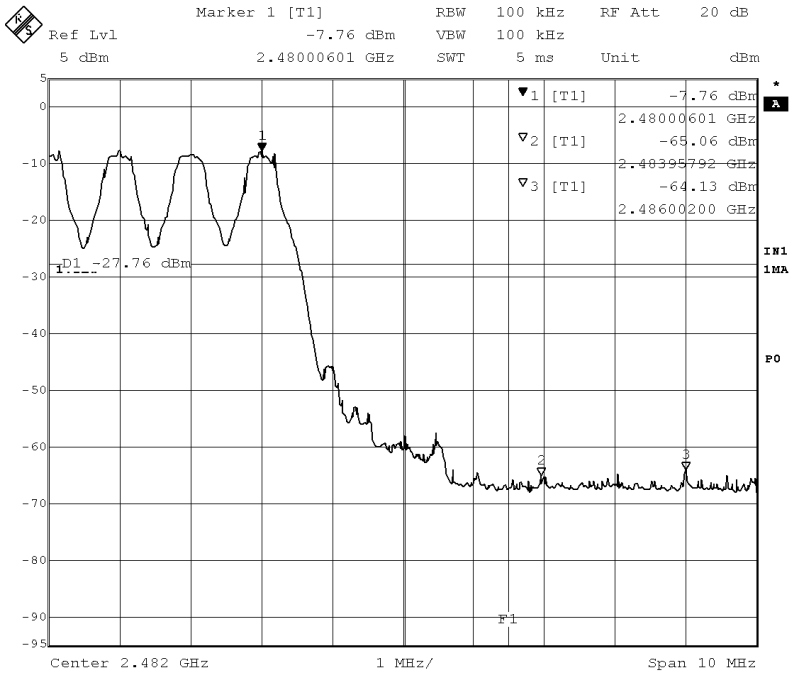
A.9 Spurious Emissions (Conduction)

A.9.1 Band Edge Compliance

Date : June 12, 2008
Temp. : 24 °C Humi. : 45 %

Mode of EUT : TX Mode (Hopping)
Packet Setting : DH5
Test Port : Temporary antenna connector





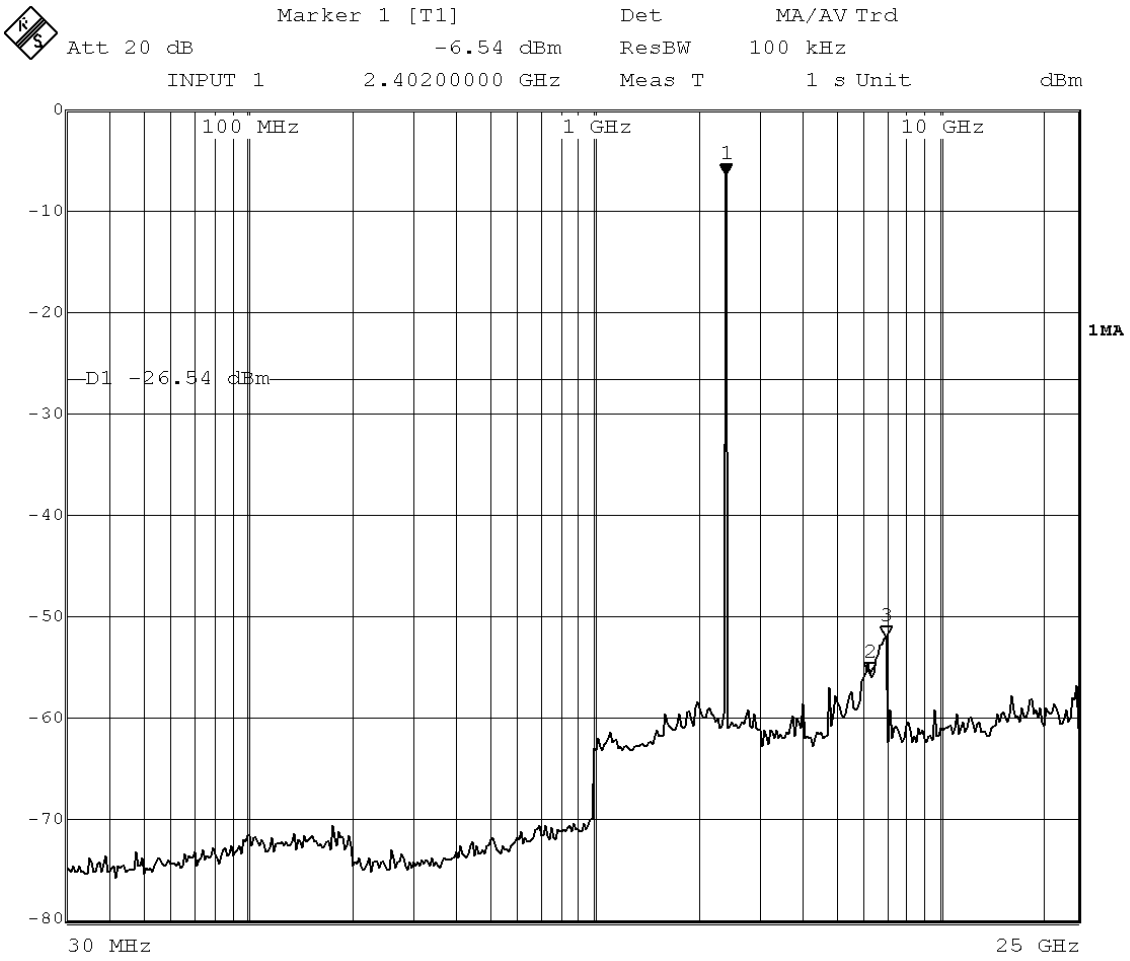
A.9.2 Other Spurious Emissions

Date : June 12, 2008
Temp. : 24 ºC Humi. : 45 %

Mode of EUT : TX Mode (0ch : 2402MHz)
Packet Setting : DH5
Test Port : Temporary antenna connector

Cable Loss (dB)	Attenuator Loss (dB)	Meter Reading (dBm)	Peak Power (dBm)	Limit (dBm)
0.50	10.48	-6.54	4.44	--

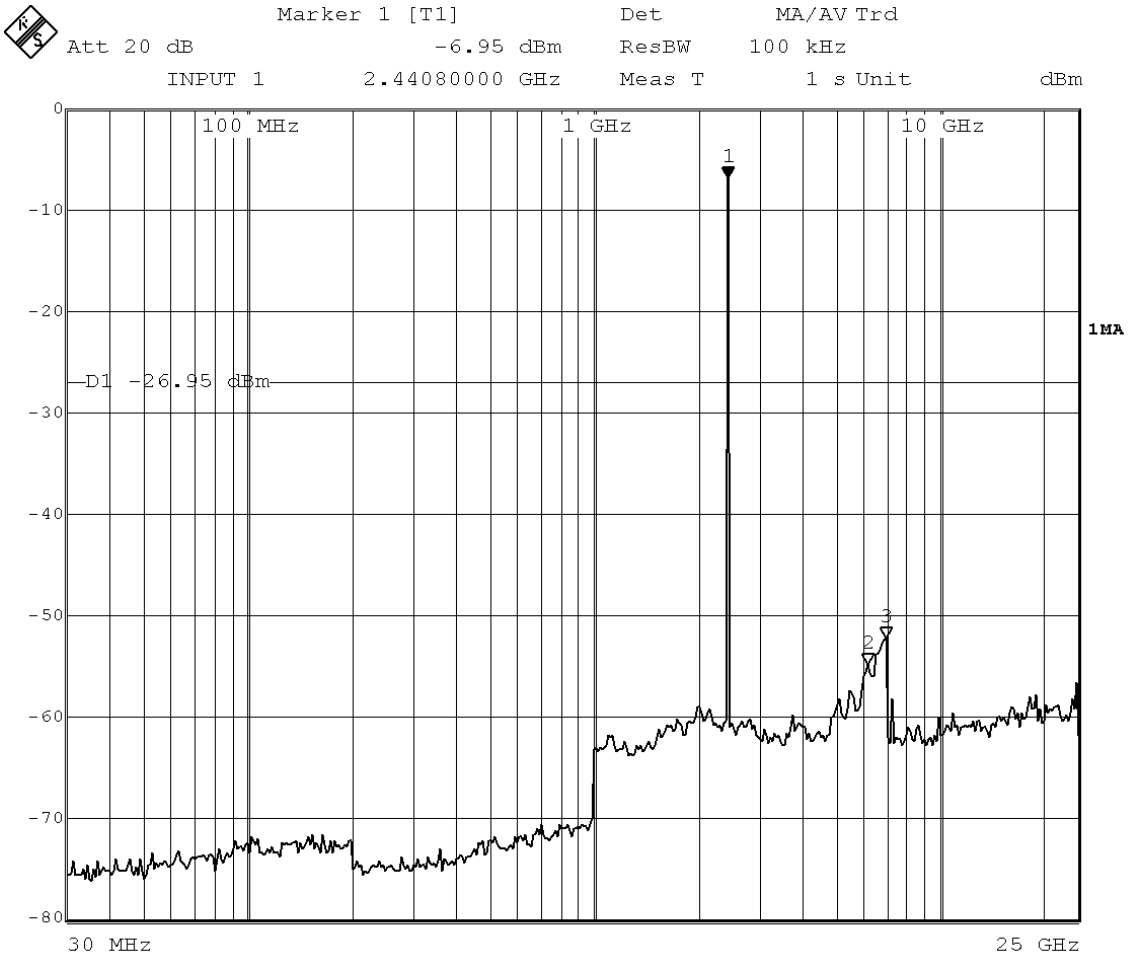
No spurious emissions of the EUT in the range 20 dB below the limit.



Mode of EUT : TX Mode (39ch : 2441MHz)
Packet Setting : DH5
Test Port : Temporary antenna connector

Cable Loss (dB)	Attenuator Loss (dB)	Meter Reading (dBm)	Peak Power (dBm)	Limit (dBm)
0.50	10.48	-6.95	4.03	--

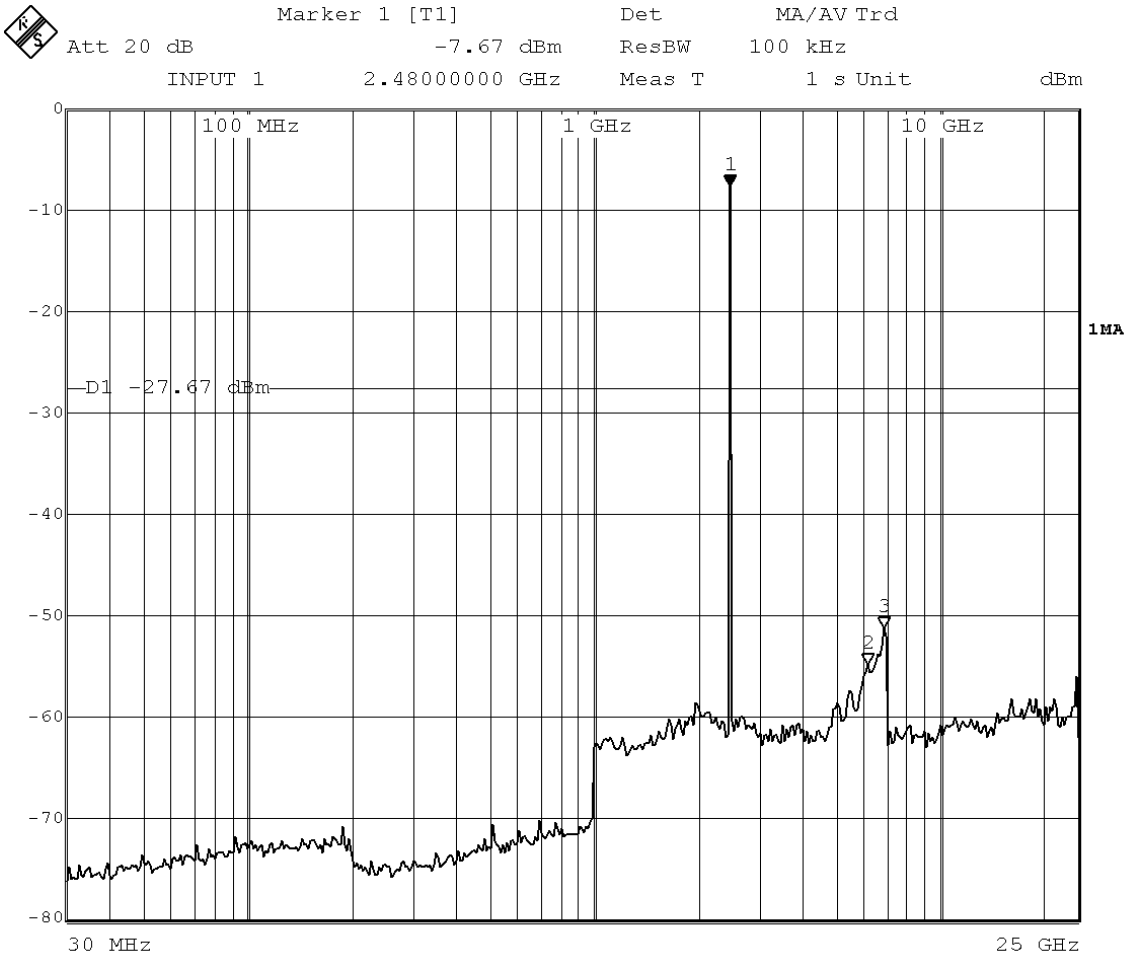
No spurious emissions of the EUT in the range 20 dB below the limit.



Mode of EUT : TX Mode (78ch : 2480MHz)
Packet Setting : DH5
Test Port : Temporary antenna connector

Cable Loss (dB)	Attenuator Loss (dB)	Meter Reading (dBm)	Peak Power (dBm)	Limit (dBm)
0.50	10.48	-7.67	3.31	--

No spurious emissions of the EUT in the range 20 dB below the limit.



Note : 1) A sample calculation was made at 2402 MHz.
CL + AL + MR = 0.50 + 10.48 + (-6.54) = 4.44 (dBm)
CL : Cable Loss AL : Attenuator Loss MR : Meter Reading
2) Measuring Instruments Setting :

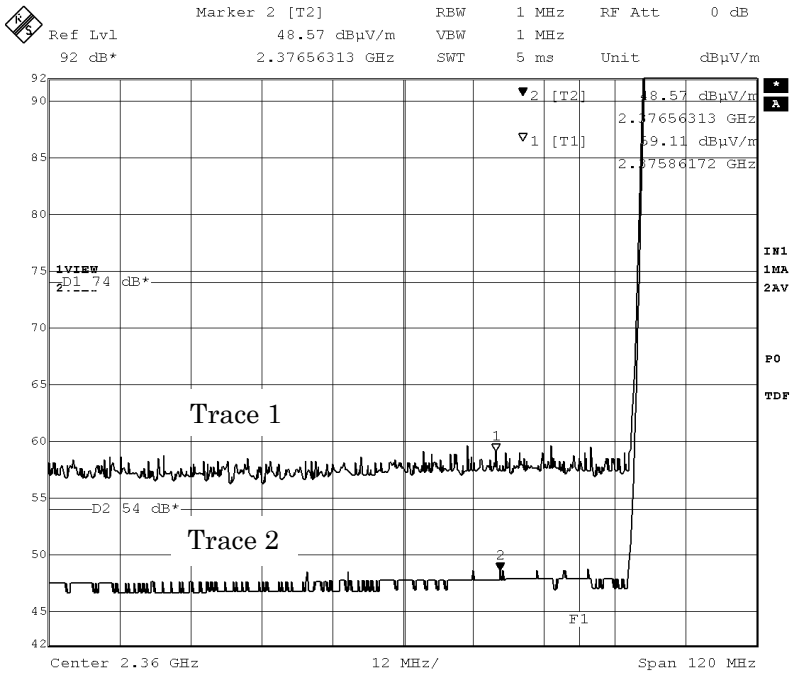
Detector Function	Resolution Bandwidth
Peak	100 kHz

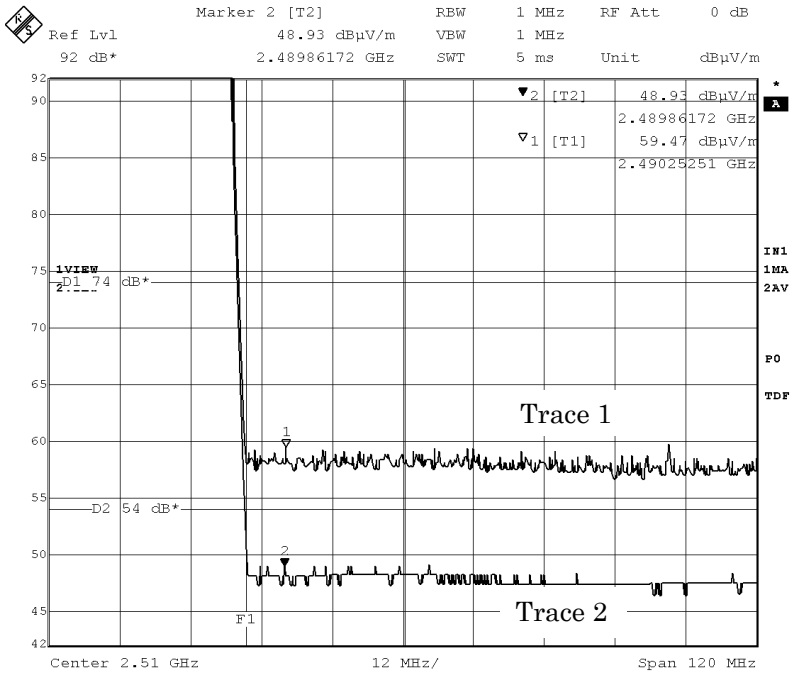
A.10 Spurious Emissions for Transmitter (Radiation)

A.10.1 Band Edge Compliance

Date : June 10, 2008
Temp. : 25 °C Humi. : 40 %

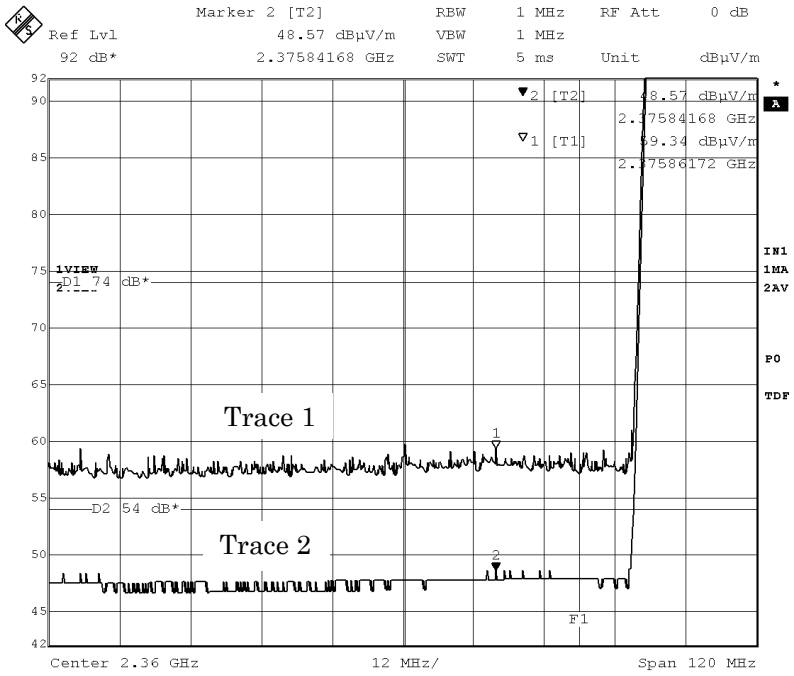
Mode of EUT : TX Mode (Hopping / AC Adapter used)
Test Port : Enclosure
Antenna Polarization : Horizontal

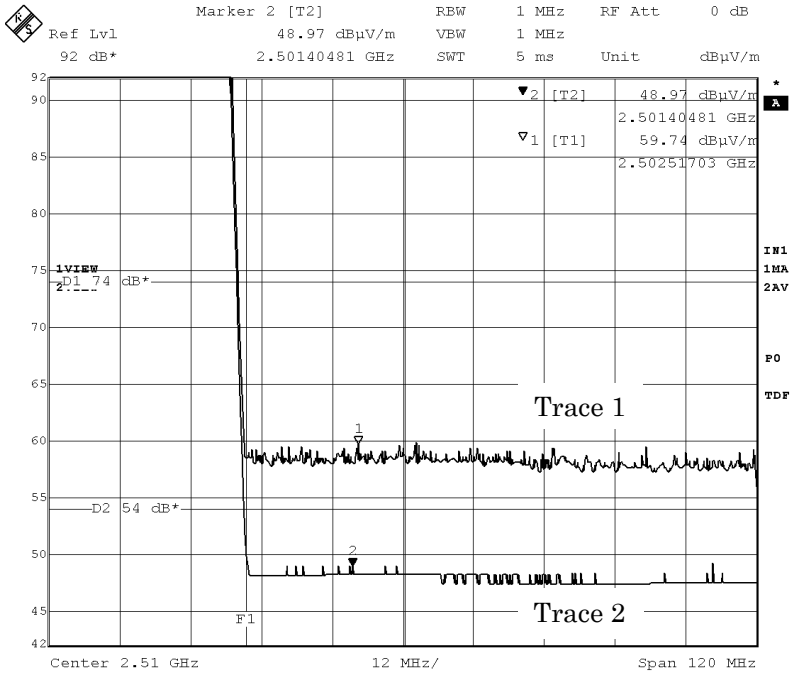




Note : The trace 1 is Peak detection. The Trace 2 is Average detection.

Mode of EUT : TX Mode (Hopping / AC Adapter used)
Test Port : Enclosure
Antenna Polarization : Vertical





Note : The trace 1 is Peak detection. The Trace 2 is Average detection.

A.10.2 Other Spurious Emissions

A.10.2.1 Spurious Emissions in the frequency range from 9 kHz to 30 MHz

Date : June 10, 2008
Temp. : 25 °C Humi. : 40 %

Mode of EUT : All modes have been investigated and worst case mode for Channel (0ch : 2402 MHz) has been listed. (AC Adapter used)
Test Port : Enclosure

No spurious emissions of the EUT in the range 20 dB below the limit.

A.10.2.2 Spurious Emissions in the frequency range from 30 MHz to 1000 MHz

Date : June 6, 2008
Temp. : 25 °C Humi. : 50 %

Mode of EUT : All modes have been investigated and worst case mode for Channel (0ch : 2402 MHz) has been listed. (AC Adapter used)
Test Port : Enclosure

Frequency (MHz)	P-A Factor (dB)	Correction Factor (dB)	Polarization	Meter Reading (dBuV) QP	AV	Peak	Limits (dBuV/m) QP/AV	Peak	Emission Levels (dBuV/m) QP/AV	Peak	Margins (dB) QP/AV	Peak
33.24	0.0	20.9	V	1.4	-	-	40.0	-	22.3	-	17.7	-
334.64	0.0	19.2	H	6.3	-	-	46.0	-	25.5	-	20.5	-
388.72	0.0	21.0	H	10.9	-	-	46.0	-	31.9	-	14.1	-
411.96	0.0	21.7	H	7.9	-	-	46.0	-	29.6	-	16.4	-
451.72	0.0	22.5	H	13.6	-	-	46.0	-	36.1	-	9.9	-
506.24	0.0	23.3	H	7.3	-	-	46.0	-	30.6	-	15.4	-

Note : 1) The spectrum was checked from 30 MHz to 1000 MHz.
2) The cable loss, amp. gain and antenna factor are included in the correction factor.
3) The symbol of "<" means "or loss".
4) The symbol of ">" means "or greater".
5) A sample calculation(QP/AV) was made at 33.24 MHz.
PA + CF + MR = 0 + 20.9 + 1.4 = 22.3 (dBuV/m)
PA : Peak to Average Factor (P-A Factor)
CF : Correction Factor
MR : Meter Reading
6) Measuring Instruments Setting :

Detector Function	Resolution Bandwidth	Video Bandwidth
Quasi-peak (QP)	120 kHz	--

A.10.2.3 Spurious Emissions in the frequency range above 1 GHz

Date : June 6, 2008
Temp. : 25 °C Humi. : 50 %

Mode of EUT : TX Mode (0ch : 2402MHz / AC Adapter used)
Test Port : Enclosure

Frequency (GHz)	P-A Factor (dB)	Correction Factor (dB)	Polarization	Meter Reading (dBuV) AV	Meter Reading (dBuV) Peak	Limits (dBuV/m) AV	Limits (dBuV/m) Peak	Emission Levels (dBuV/m) AV	Emission Levels (dBuV/m) Peak	Margins (dB) AV	Margins (dB) Peak
1.6020	0.0	-0.3	H	44.4	47.6	54.0	74.0	44.1	47.3	9.9	26.7
3.2040	0.0	5.2	H	< 28.0	< 41.0	54.0	74.0	< 33.2	< 46.2	> 20.8	> 27.8
4.8040	0.0	8.4	H	43.2	50.7	54.0	74.0	51.6	59.1	2.4	14.9
6.4080	0.0	10.9	H	< 28.0	< 41.0	54.0	74.0	< 38.9	< 51.9	> 15.1	> 22.1
7.2060	0.0	12.0	H	< 28.0	< 41.0	54.0	74.0	< 40.0	< 53.0	> 14.0	> 21.0
9.6080	0.0	14.8	H	< 28.0	< 41.0	54.0	74.0	< 42.8	< 55.8	> 11.2	> 18.2

Mode of EUT : TX Mode (39ch : 2441MHz / AC Adapter used)
Test Port : Enclosure

Frequency (GHz)	P-A Factor (dB)	Correction Factor (dB)	Polarization	Meter Reading (dBuV) AV	Meter Reading (dBuV) Peak	Limits (dBuV/m) AV	Limits (dBuV/m) Peak	Emission Levels (dBuV/m) AV	Emission Levels (dBuV/m) Peak	Margins (dB) AV	Margins (dB) Peak
1.6270	0.0	-0.2	H	46.9	49.6	54.0	74.0	46.7	49.4	7.3	24.6
3.2540	0.0	5.3	H	< 28.0	< 41.0	54.0	74.0	< 33.3	< 46.3	> 20.7	> 27.7
4.8820	0.0	8.5	H	43.8	50.6	54.0	74.0	52.3	59.1	1.7	14.9
6.5080	0.0	11.0	H	< 28.0	< 41.0	54.0	74.0	< 39.0	< 52.0	> 15.0	> 22.0
7.3230	0.0	12.1	H	< 28.0	< 41.0	54.0	74.0	< 40.1	< 53.1	> 13.9	> 20.9
9.7640	0.0	15.0	H	< 28.0	< 41.0	54.0	74.0	< 43.0	< 56.0	> 11.0	> 18.0

Mode of EUT : TX Mode (78ch : 2480MHz / AC Adapter used)
Test Port : Enclosure

Frequency (GHz)	P-A Factor (dB)	Correction Factor (dB)	Polarization	Meter Reading (dBuV) AV	Meter Reading (dBuV) Peak	Limits (dBuV/m) AV	Limits (dBuV/m) Peak	Emission Levels (dBuV/m) AV	Emission Levels (dBuV/m) Peak	Margins (dB) AV	Margins (dB) Peak
1.6520	0.0	-0.1	H	43.7	47.2	54.0	74.0	43.6	47.1	10.4	26.9
3.3050	0.0	5.4	H	< 28.0	< 41.0	54.0	74.0	< 33.4	< 46.4	> 20.6	> 27.6
4.9600	0.0	8.6	H	38.8	49.8	54.0	74.0	47.4	58.4	6.6	15.6
6.6100	0.0	11.2	H	< 28.0	< 41.0	54.0	74.0	< 39.2	< 52.2	> 14.8	> 21.8
7.4340	0.0	12.3	H	< 28.0	< 41.0	54.0	74.0	< 40.3	< 53.3	> 13.7	> 20.7
9.9200	0.0	15.2	H	< 28.0	< 41.0	54.0	74.0	< 43.2	< 56.2	> 10.8	> 17.8

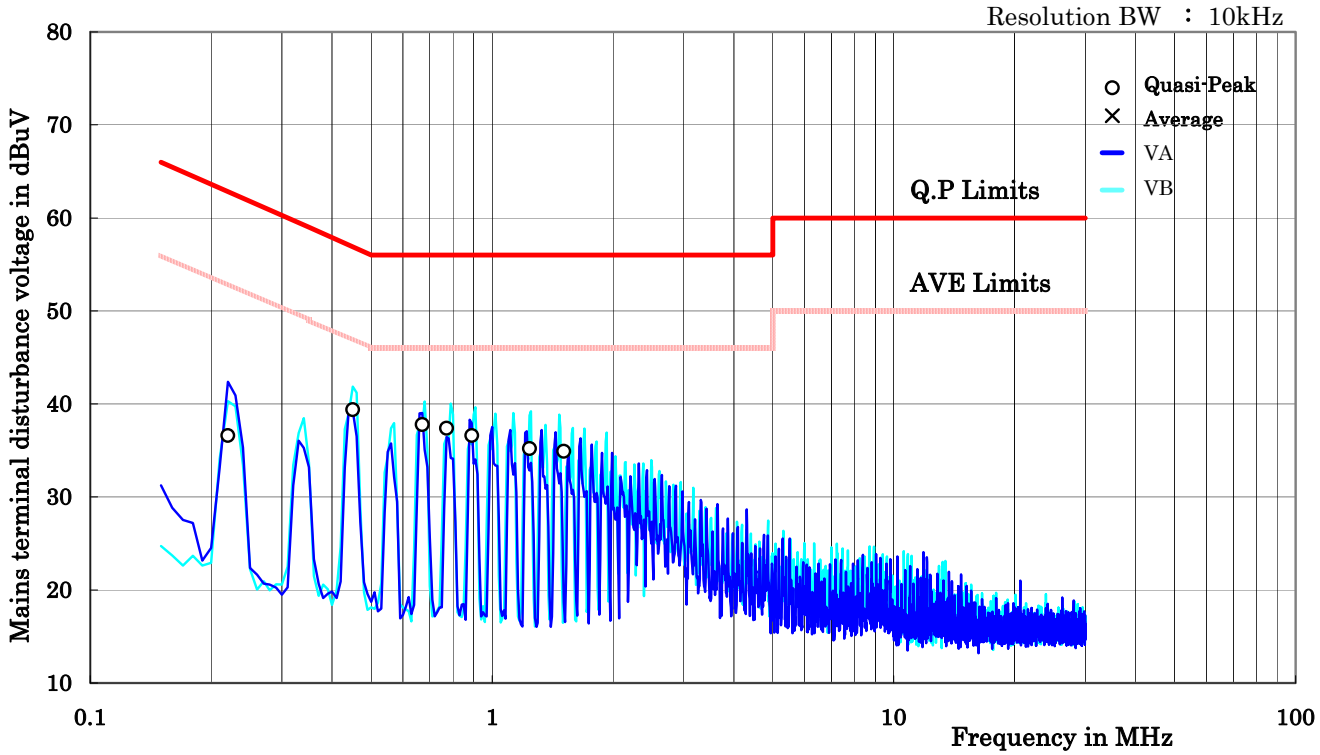
Note : 1) The spectrum was checked from 1.0 GHz to 26.5 GHz.
2) The cable loss, amp. gain and antenna factor are included in the correction factor.
3) The symbol of "<" means "or loss".
4) The symbol of ">" means "or greater".
5) A sample calculation(Average) was made at 1.6020 GHz.
PA + CF + MR = 0 + (-0.3) + 44.4 = 44.1 (dBuV/m)
PA : Peak to Average Factor (P-A Factor)
CF : Correction Factor
MR : Meter Reading
6) Measuring Instruments Setting :

Detector Function	Resolution Bandwidth	Video Bandwidth
Average (AV)	1 MHz	10 Hz
Peak	1 MHz	1 MHz

A.11 AC Power Line Conducted Emissions for Transmitter

Date : June 11, 2008
Temp. : 25 °C Humi. : 52 %

Mode of EUT : TX Mode (Hopping)
Packet Setting : DH5
Test Port : AC Power Line



Freq.	Correction Factor	Meter Reading [dBuV] VA		VB		Limit [dBuV]		Result [dBuV]		Margin [dB]	
[MHz]	[dB]	QP	AV	QP	AV	QP	AV	QP	AV	QP	AV
0.22	0.20	33.9	-	36.4	-	62.8	52.8	36.6	-	26.2	-
0.45	0.10	32.9	-	39.3	-	56.9	46.9	39.4	-	17.5	-
0.67	0.10	30.7	-	37.7	-	56.0	46.0	37.8	-	18.2	-
0.77	0.10	34.6	-	37.3	-	56.0	46.0	37.4	-	18.6	-
0.89	0.10	29.1	-	36.5	-	56.0	46.0	36.6	-	19.4	-
1.24	0.10	33.0	-	35.1	-	56.0	46.0	35.2	-	20.8	-
1.51	0.10	31.2	-	34.8	-	56.0	46.0	34.9	-	21.1	-

Note : 1) QP : CISPR Quasi-Peak ; AV : Average IF bandwidth : 9 kHz.
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 artificial mains network factor and a cable (4.0 m) loss.
7) A sample calculation was made at 0.22MHz
Factor + Meter Reading = 0.2 + 36.4 = 36.6

A.12 RF Exposure Compliance

Not Applicable

A.13 Spurious Emissions for Receiver (Radiation)

A.13.1 Spurious Emissions in the frequency range from 30 MHz to 1000 MHz

Date : June 6, 2008
Temp. : 25 °C Humi. : 50 %

Mode of EUT : All modes have been investigated and worst case mode for Channel (0ch : 2402 MHz) has been listed. (AC Adapter used)
Test Port : Enclosure

Frequency (MHz)	P-A Factor (dB)	Correction Factor (dB)	Polarization	Meter Reading (dBuV) QP	AV	Peak	Limits (dBuV/m) QP/AV	Peak	Emission Levels (dBuV/m) QP/AV	Peak	Margins (dB) QP/AV	Peak
33.24	0.0	20.9	V	1.4	-	-	40.0	-	22.3	-	17.7	-
334.64	0.0	19.2	H	6.3	-	-	46.0	-	25.5	-	20.5	-
388.72	0.0	21.0	H	10.9	-	-	46.0	-	31.9	-	14.1	-
411.96	0.0	21.7	H	7.9	-	-	46.0	-	29.6	-	16.4	-
451.72	0.0	22.5	H	13.6	-	-	46.0	-	36.1	-	9.9	-
506.24	0.0	23.3	H	7.3	-	-	46.0	-	30.6	-	15.4	-

Note : 1) The spectrum was checked from 30 MHz to 1000 MHz.
2) The cable loss, amp. gain and antenna factor are included in the correction factor.
3) The symbol of "<" means "or loss".
4) The symbol of ">" means "or greater".
5) A sample calculation(QP/AV) was made at 33.24 MHz.
PA + CF + MR = 0 + 20.9 + 1.4 = 22.3 (dBuV/m)
PA : Peak to Average Factor (P-A Factor)
CF : Correction Factor
MR : Meter Reading
6) Measuring Instruments Setting :

Detector Function	Resolution Bandwidth	Video Bandwidth
Quasi-peak (QP)	120 kHz	--

A.13.2 Spurious Emissions in the frequency range above 1 GHz

Date : June 9, 2008
Temp. : 25 °C Humi. : 45 %

Mode of EUT : RX Mode (0ch : 2402MHz / AC Adapter used)
Test Port : Enclosure

Frequency (GHz)	P-A Factor (dB)	Correction Factor (dB)	Polarization	Meter Reading (dBuV) AV	Meter Reading (dBuV) Peak	Limits (dBuV/m) AV	Limits (dBuV/m) Peak	Emission Levels (dBuV/m) AV	Emission Levels (dBuV/m) Peak	Margins (dB) AV	Margins (dB) Peak
1.6020	0.0	-1.1	H	46.4	49.1	54.0	74.0	45.3	48.0	8.7	26.0
2.4040	0.0	1.8	H	30.4 <	41.0	54.0	74.0	32.2 <	42.8	21.8 >	31.2
3.2048	0.0	4.1	H <	28.0 <	41.0	54.0	74.0 <	32.1 <	45.1 >	21.9 >	28.9

Mode of EUT : RX Mode (39ch : 2441MHz / AC Adapter used)
Test Port : Enclosure

Frequency (GHz)	P-A Factor (dB)	Correction Factor (dB)	Polarization	Meter Reading (dBuV) AV	Meter Reading (dBuV) Peak	Limits (dBuV/m) AV	Limits (dBuV/m) Peak	Emission Levels (dBuV/m) AV	Emission Levels (dBuV/m) Peak	Margins (dB) AV	Margins (dB) Peak
1.6280	0.0	-1.0	H	46.3	49.0	54.0	74.0	45.3	48.0	8.7	26.0
2.4420	0.0	1.9	H	31.8 <	41.0	54.0	74.0	33.7 <	42.9	20.3 >	31.1
3.2560	0.0	4.2	H <	28.0 <	41.0	54.0	74.0 <	32.2 <	45.2 >	21.8 >	28.8

Mode of EUT : RX Mode (78ch : 2480MHz)
Test Port : Enclosure

Frequency (GHz)	P-A Factor (dB)	Correction Factor (dB)	Polarization	Meter Reading (dBuV) AV	Meter Reading (dBuV) Peak	Limits (dBuV/m) AV	Limits (dBuV/m) Peak	Emission Levels (dBuV/m) AV	Emission Levels (dBuV/m) Peak	Margins (dB) AV	Margins (dB) Peak
1.6540	0.0	-0.8	H	45.2	48.5	54.0	74.0	44.4	47.7	9.6	26.3
2.4800	0.0	2.0	H	30.8 <	41.0	54.0	74.0	32.8 <	43.0	21.2 >	31.0
3.3080	0.0	4.3	H <	28.0 <	41.0	54.0	74.0 <	32.3 <	45.3 >	21.7 >	28.7

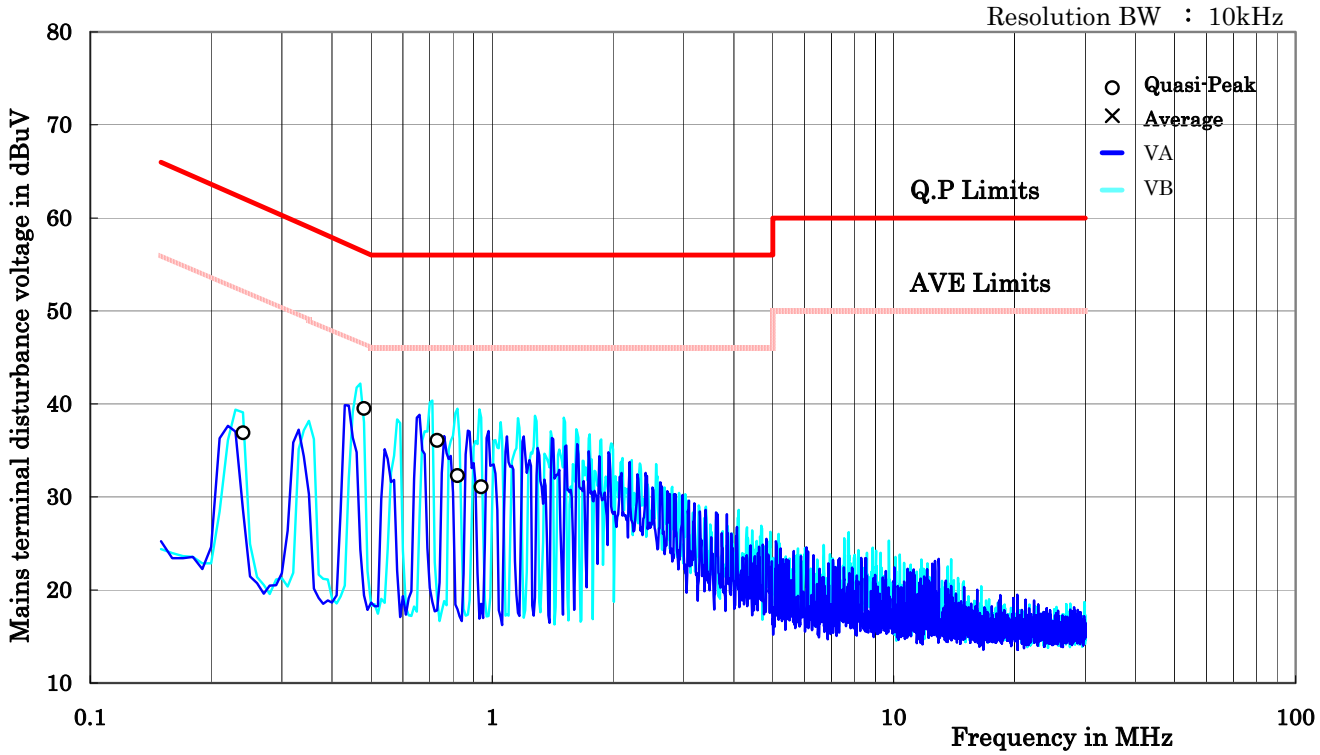
Note : 1) The spectrum was checked from 1.0 GHz to 26.5 GHz.
2) The cable loss, amp. gain and antenna factor are included in the correction factor.
3) The symbol of "<" means "or loss".
4) The symbol of ">" means "or greater".
5) A sample calculation(Average) was made at 1.6020 GHz.
PA + CF + MR = 0 + (-1.1) + 46.4 = 45.3 (dBuV/m)
PA : Peak to Average Factor (P-A Factor)
CF : Correction Factor
MR : Meter Reading
6) Measuring Instruments Setting :

Detector Function	Resolution Bandwidth	Video Bandwidth
Average (AV)	1 MHz	10 Hz
Peak	1 MHz	1 MHz

A.14 AC Power Line Conducted Emissions for Receiver

Date : June 11, 2008
Temp. : 25 °C Humi. : 52 %

Mode of EUT : RX Mode
Packet Setting : DH5
Test Port : AC Power Line



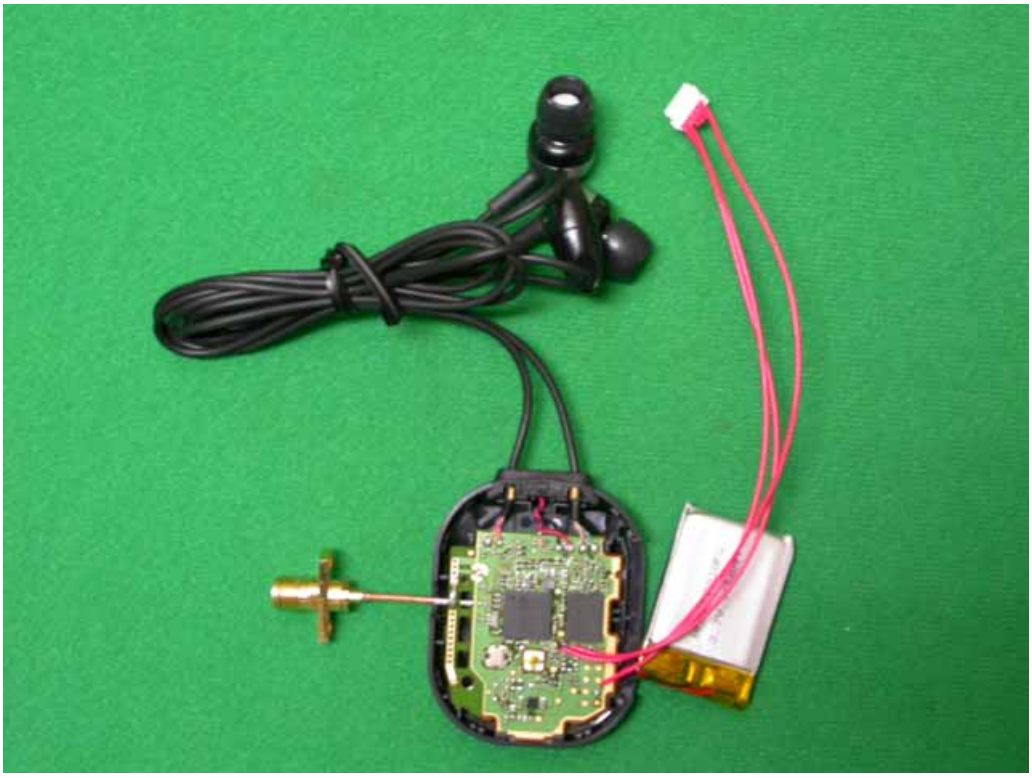
Freq. [MHz]	Correction Factor [dB]	Meter Reading [dBuV] VA QP	VA AV	VB QP	VB AV	Limit [dBuV] QP	Limit [dBuV] AV	Result [dBuV] QP	Result [dBuV] AV	Margin [dB] QP	Margin [dB] AV
0.24	0.20	33.9	-	36.7	-	62.1	52.1	36.9	-	25.2	-
0.48	0.10	36.5	-	39.4	-	56.3	46.3	39.5	-	16.8	-
0.73	0.10	34.6	-	36.0	-	56.0	46.0	36.1	-	19.9	-
0.82	0.10	30.1	-	32.2	-	56.0	46.0	32.3	-	23.7	-
0.94	0.10	29.0	-	31.0	-	56.0	46.0	31.1	-	24.9	-

Note : 1) QP : CISPR Quasi-Peak ; AV : Average IF bandwidth : 9 kHz.
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 artificial mains network factor and a cable (4.0 m) loss.
7) A sample calculation was made at 0.24MHz
Factor + Meter Reading = 0.2 + 36.7 = 36.9

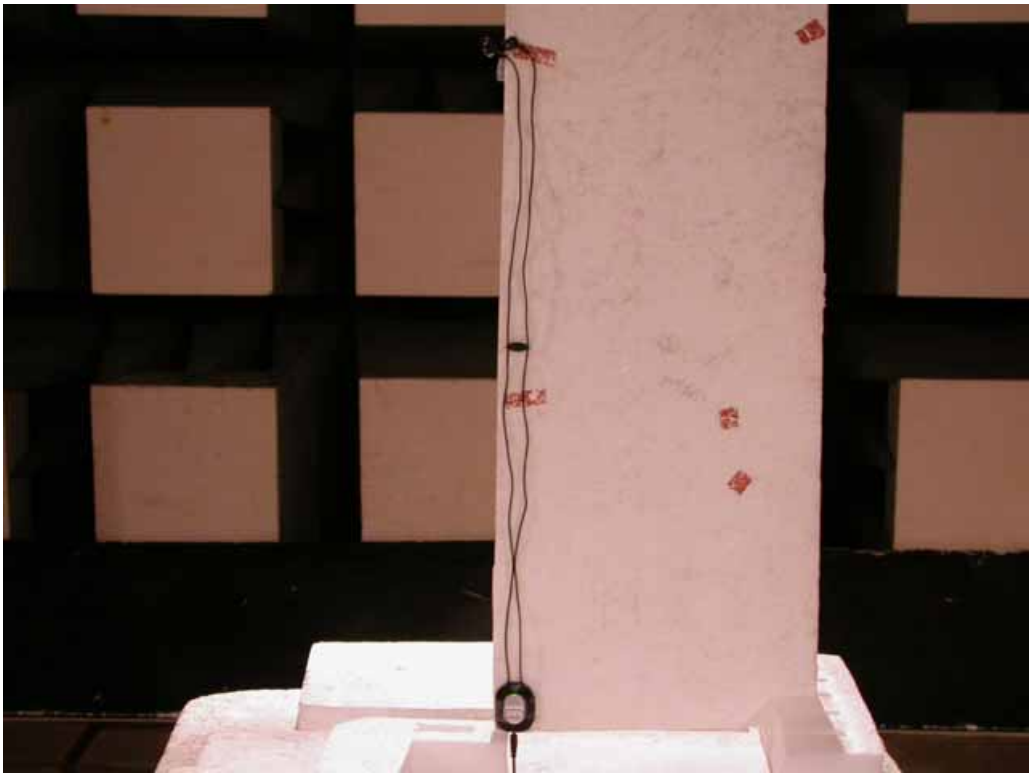
Appendix B : Test Arrangement (Photographs)

B.1.1 External

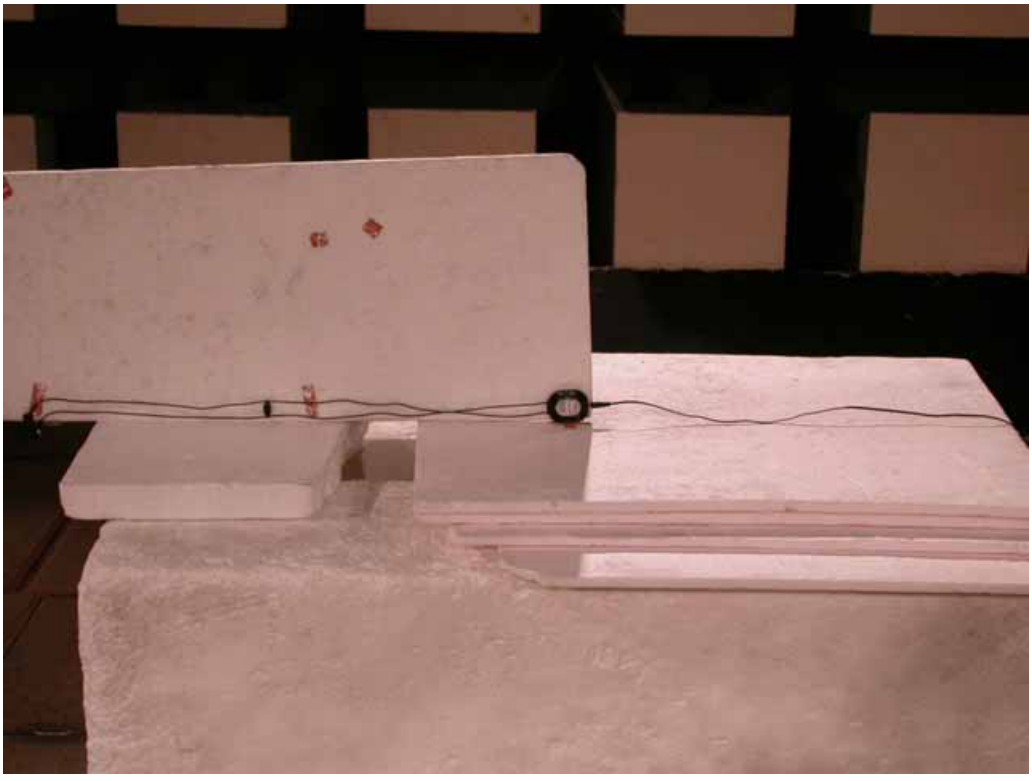
B.1.2 Conducted Test



B.1.3 Radiated Emissions

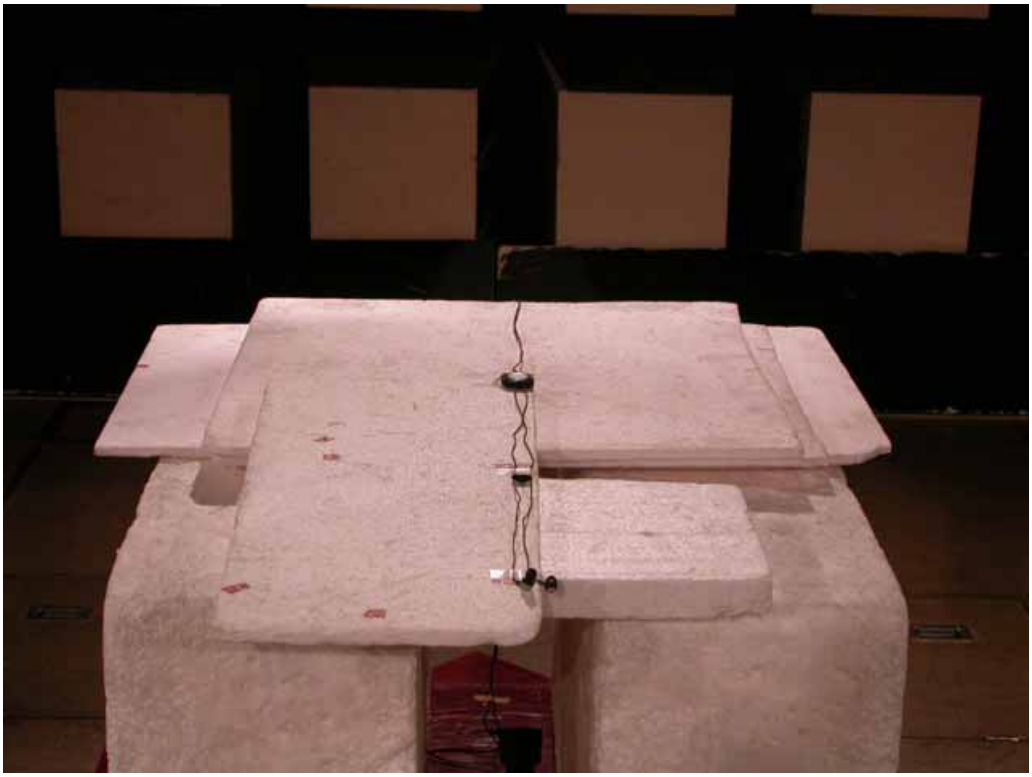


- X - axis -



- Y - axis -

Photograph present configuration with maximum emission

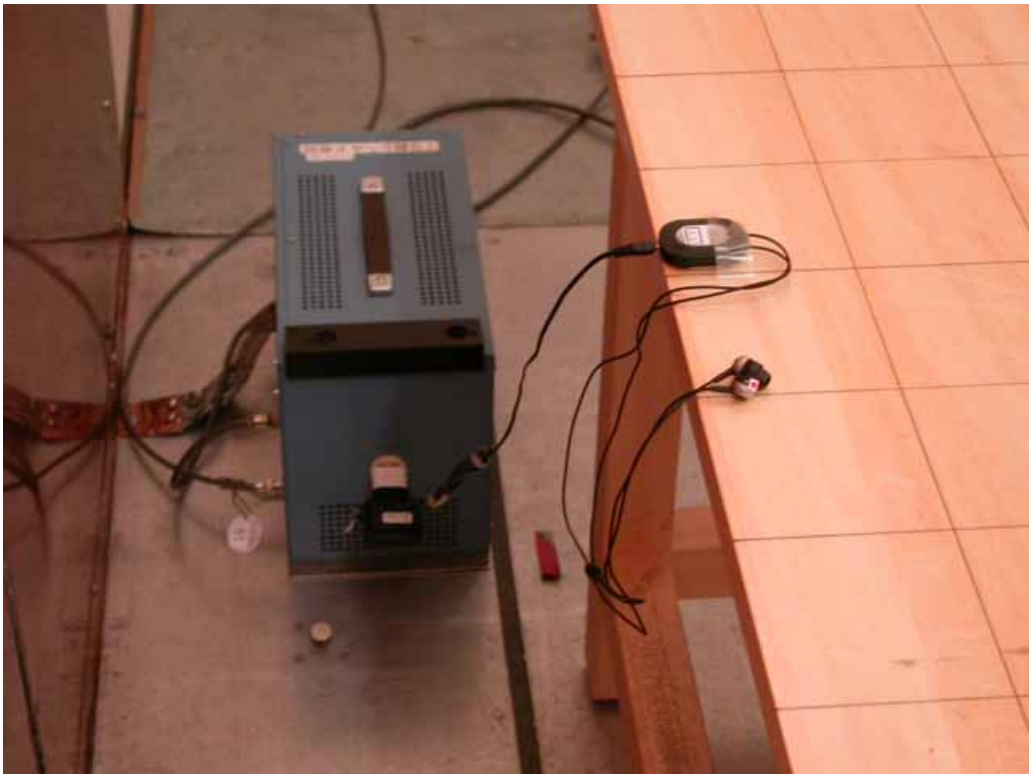


- Z - axis -

Photograph present configuration with maximum emission

B.1.4 AC Power Line Conducted Emissions

- Front View -



- Side View -

Photograph present configuration with maximum emission

Appendix C : Test Instruments

No	Type	Model	Manufacturer	Serial	ID	Last Cal. (30-May-2008)	Interval
Test Facilities:							
1	Anechoic Chamber A	-	TDK	-	800-01-502E0	Apr 2008	1 Year
2	Anechoic Chamber B	-	TDK	-	800-01-503E0	Apr 2008	1 Year
3	Shield Room A	-	TDK	-	800-01-501E0	-	-
4	Shield Room B	-	Ray Proof	-	800-01-010E0	-	-
5	Shield Room C	-	TDK	-	800-01-504E0	-	-
6	Shield Room D	-	Emerson	-	800-01-022E0	-	-
7	Shield Room E	-	TDK	-	800-01-505E0	-	-
Measuring Instruments:							
10	Test Receiver	ESHS10	Rohde & Schwarz	835871/004	119-01-505E0	Apr 2008	1 Year
11	Test Receiver	ESVS10	Rohde & Schwarz	826148/002	119-03-504E0	Apr 2008	1 Year
12	Test Receiver	ESVS10	Rohde & Schwarz	832699/001	119-03-506E0	Apr 2008	1 Year
13	Test Receiver	ESI26	Rohde & Schwarz	100043	119-04-511E0	Sep 2007	1 Year
14	Spectrum Analyzer	R3182	Advantest	120600581	122-02-521E0	Mar 2008	1 Year
19	Spectrum Analyzer	R3132	Advantest	120500072	122-02-520E0	Sep 2007	1 Year
20	Spectrum Analyzer	R3132	Advantest	150400998	122-02-523E0	Jul 2007	1 Year
65	Power Meter	436A	Hewlett Packard	1725A01930	100-02-501E0	Apr 2008	1 Year
66	Power Sensor	8482A	Hewlett Packard	1551A01013	100-02-501E0	Apr 2008	1 Year
67	Power Sensor	8485A	Hewlett Packard	2942A08969	100-04-021E0	Apr 2008	1 Year
68	FM Linear Detector	MS61A	Anritsu	M77486	123-02-008E0	Oct 2007	1 Year
69	Level Meter	ML422C	Anritsu	M87571	114-02-501E0	Jun 2007	1 Year
70	Measuring Amplifier	2636	B & K	1614851	082-01-502E0	May 2008	1 Year
75	Frequency Counter	53131A	Hewlett Packard	3546A11807	102-02-075E0	May 2008	1 Year
83	FFT Analyzer	R9211C	Advantest	02020253	122-02-506E0	Jun 2007	1 Year
84	Noise Meter	MN-446	Meguro	53030478	082-01-144E0	Apr 2008	1 Year
86	Peak Power Analyzer	8990A/84815A	Hewlett Packard	3220A00486/ 3227A00118	100-02-016E0	May 2008	1 Year
163	Digital Oscilloscope	54502A	Hewlett Packard	2934A05573	121-02-502E0	May 2008	1 Year
165	Multimeter	VOAC7413	Iwatsu Electric	0267973	114-02-502E0	Apr 2008	1 Year
172	Test Receiver	ESCI	Rohde & Schwarz	100408	119-04-512E0	Sep 2007	1 Year
Antennas:							
21	Loop Antenna	HFH2-Z2	Rohde & Schwarz	881058/62	119-05-033E0	Jun 2007	1 Year
22	Dipole Antenna	KBA-511	Kyoritsu	0-170-1	119-05-506E0	Oct 2007	1 Year
23	Dipole Antenna	KBA-511A	Kyoritsu	0-201-13	119-05-504E0	Oct 2007	1 Year
24	Dipole Antenna	KBA-611	Kyoritsu	0-147-14	119-05-507E0	Oct 2007	1 Year
25	Dipole Antenna	KBA-611	Kyoritsu	0-210-5	119-05-505E0	Oct 2007	1 Year
27	Biconical Antenna	BBA9106	Schwarzbeck	-	119-05-078E0	Nov 2007	1 Year
28	Log-periodic Antenna	UHALP9107	Schwarzbeck	-	119-05-079E0	Nov 2007	1 Year
31	Horn Antenna	3115	EMC Test Systems	6442	119-05-514E0	Jan 2008	2 Year
32	Horn Antenna	3116	EMC Test Systems	2547	119-05-515E0	May 2007	2 Year
167	Biconical Antenna	BBA9106	Schwarzbeck	VHA91032325	119-05-520E0	May 2008	1 Year
168	Log-periodic Antenna	UHALP9108A	Schwarzbeck	0666	119-05-521E0	May 2008	1 Year
169	Biconical Antenna	BBA9106	Schwarzbeck	VHA91032399	119-05-522E0	May 2008	1 Year
170	Log-periodic Antenna	UHALP9108A	Schwarzbeck	0724	119-05-523E0	May 2008	1 Year
198	Log-periodic Antenna	HL050	Rohde & Schwarz	100251	119-05-524E0	Jul 2007	1 Year

30-May-2008

No	Type	Model	Manufacturer	Serial	ID	Last Cal.	Interval
Cables:							
38	RF Cable	5D-2W	Fujikura	-	155-21-001E0	Feb 2008	1 Year
39	RF Cable	5D-2W	Fujikura	-	155-21-002E0	Feb 2008	1 Year
40	RF Cable	3D-2W	Fujikura	-	155-21-005E0	Apr 2008	1 Year
41	RF Cable	3D-2W	Fujikura	-	155-21-006E0	Apr 2008	1 Year
42	RF Cable	3D-2W	Fujikura	-	155-21-007E0	Apr 2008	1 Year
43	RF Cable	RG213/U	Rohde & Schwarz	-	155-21-010E0	Apr 2008	1 Year
44	RF Cable(10m)	S 04272B	Suhner	-	155-21-011E0	May 2008	1 Year
45	RF Cable(1.5m 18GHz)	S 04272B	Suhner	-	155-21-012E0	May 2008	1 Year
46	RF Cable(1m 18GHz)	SUCOFLEX	Suhner	-	155-21-013E0	May 2008	1 Year
47	RF Cable(1m N)	S 04272B	Suhner	-	155-21-015E0	Jun 2007	1 Year
48	RF Cable(1m 26GHz)	SUCOFLEX 104E	Suhner	14543/4E	155-21-016E0	Dec 2007	1 Year
49	RF Cable(4m 26GHz)	SUCOFLEX	Suhner	190630	155-21-017E0	Dec 2007	1 Year
50	RF Cable(10m)	F130-S1S1-394	MEGA PHASE	10510	155-21-018E0	Dec 2007	1 Year
51	RF Cable(5m)	3D-2W	Fujikura	-	155-21-009E0	Apr 2008	1 Year
52	RF Cable(7m)	RG223/U	Suhner	-	155-21-021E0	May 2008	1 Year
195	RF Cable(10m)	F130-S1S1-394	MEGA PHASE	20051	155-21-020E0	Apr 2008	1 Year
Networks:							
33	LISN	KNW-407	Kyoritsu	8-833-6	149-04-052E0	Nov 2007	1 Year
34	LISN	KNW-407	Kyoritsu	8-855-2	149-04-055E0	Apr 2008	1 Year
35	LISN	KNW-407	Kyoritsu	8-1130-6	149-04-062E0	Apr 2008	1 Year
36	LISN	KNW-242C	Kyoritsu	8-837-13	149-04-054E0	Apr 2008	1 Year
37	Absorbing Clamp	MDS21	Luthi	03293	119-06-506E0	Aug 2007	1 Year
164	LISN	KNW-403D	Kyoritsu	8-1474-3	149-04-059E0	Apr 2008	1 Year
173	Pulse Limiter	ESH3-Z2	Rohde & Schwarz	-	156-01-501E0	Apr 2008	1 Year
174	Pulse Limiter	ESH3-Z2	Rohde & Schwarz	-	156-01-502E0	Apr 2008	1 Year
175	Pulse Limiter	ESH3-Z2	Rohde & Schwarz	-	156-01-503E0	Apr 2008	1 Year
194	High Impedance Probe	HP-2	JQA	001	149-06-503E0	Oct 2007	1 Year
Amplifiers:							
53	AF Amplifier	P-500L	Accuphase	BOY806	127-01-501E0	Feb 2008	1 Year
54	RF Amplifier	WJ-6882-814	Watkins-Johnson	0414	127-04-017E0	Jun 2007	1 Year
55	RF Amplifier	WJ-5315-556	Watkins-Johnson	106	127-04-006E0	Jun 2007	1 Year
56	RF Amplifier	WJ-5320-307	Watkins-Johnson	645	127-04-005E0	Jun 2007	1 Year
57	RF Amplifier	JS4-00102600-28-5A	MITEQ	669167	127-04-502E0	Apr 2008	1 Year
Generators:							
58	Function Generator	3325B	Hewlett Packard	2847A03284	118-08-124E0	Jul 2007	1 Year
59	Function Generator	VP-7422A	Matsushita Communication	050351E122	118-08-503E0	Jul 2007	1 Year
60	Signal Generator	8664A	Hewlett Packard	3035A00140	118-03-014E0	May 2008	1 Year
61	Signal Generator	8664A	Hewlett Packard	3438A00756	118-04-502E0	May 2008	1 Year
62	Signal Generator	6061A	Gigatronics	5130593	118-04-024E0	Mar 2008	1 Year

30-May-2008

No	Type	Model	Manufacturer	Serial	ID	Last Cal.	Interval
Others:							
63	Termination(50)	-	Suhner	-	154-06-501E0	Jan 2008	1 Year
64	Termination(50)	-	Suhner	-	154-06-502E0	Jan 2008	1 Year
71	Microphone	4134	B & K	1253497	147-01-502E0	May 2008	1 Year
72	Preamplifier	2639	B & K	1268763	127-01-504E0	-	-
73	Pistonphone	4220	B & K	1165008	147-02-501E0	Mar 2008	1 Year
74	Artificial Mouth	4227	B & K	1274869	-	-	-
76	Oven	-	Ohnishi	-	023-02-018E0	-	-
77	DC Power Supply	6628A	Hewlett Packard	3224A00284	072-05-503E0	Jun 2007	1 Year
78	Band RejectFilter	BRM12294	Micro-tronics	003	149-01-501E0	Jan 2008	1 Year
79	High Pass Filter	F-100-4000-5-R	RLC Electronics	0149	149-01-502E0	Feb 2008	1 Year
80	Attenuator	43KC-10	Anritsu	-	148-03-506E0	Feb 2008	1 Year
81	Attenuator	43KC-20	Anritsu	-	148-03-507E0	Feb 2008	1 Year
82	Attenuator	355D	Hewlett Packard	219-10782	148-03-065E0	Apr 2008	1 Year
85	RF Detector	75KC-50	Anritsu	305002	100-02-506E0	Jul 2007	1 Year
200	Artificial Hand	AH-1	ES Factory	001	155-07-561E0	Jul 2007	1 Year
201	Barometer	TYPE6	Yanagi	16076	209-02-014E0	Feb 2008	2 Year
202	Thermo-Hygrometer	-	Empex	-	141-01-504E0	Mar 2008	2 Year
203	Thermo-Hygrometer	EX-2727	Empex	-	141-01-505E0	Mar 2008	2 Year
204	Thermo-Hygrometer	EX-2727	Empex	-	141-01-506E0	Mar 2008	2 Year
205	Thermo-Hygrometer	EX-2727	Empex	-	141-01-507E0	Mar 2008	2 Year
206	Low Pass Filter	LPM13323	Micro-tronics	001	149-01-505E0	Jul 2007	1 Year
207	High Pass Filter	HPM13321	Micro-tronics	001	149-01-506E0	Jul 2007	1 Year
208	High Pass Filter	HPM13322	Micro-tronics	001	149-01-507E0	Jul 2007	1 Year