

## TEST REPORT

**APPLICANT** : Panasonic Communications Co., Ltd.  
**ADDRESS** : 1-62, 4-chome, Minoshima, Hakata-ku, Fukuoka, 812-8531, Japan

**PRODUCTS** : 5.8GHz Frequency Hopping Spectrum Cordless Telephone(Base)  
**MODEL NO.** : KX-TG4321B  
**SERIAL NO.** : 7LAQA001080  
**FCC ID** : ACJ96NKX-TG4321

**TEST STANDARD** : CFR 47 FCC Rules and Regulations Part 15

**TESTING LOCATION** : Japan Quality Assurance Organization  
KITA-KANSAI Testing Center  
1-7-7, Ishimaru, Minoh-shi, Osaka 562-0027, Japan

**TEST RESULTS** : **Passed**

**DATE OF TEST** : July 28, 2008 - July 29, 2008

This report must not be used by the client to claim product endorsement by NVLAP or NIST or any agency of the U.S. Government.



A handwritten signature in black ink, which appears to read "Y. Fukumoto", is written over a horizontal line.

Yuichi Fukumoto

Manager

Japan Quality Assurance Organization

KITA-KANSAI Testing Center

Testing Dept. EMC Division

1-7-7, Ishimaru, Minoh-shi, Osaka 562-0027, Japan

- 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.

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**DEFINITIONS FOR ABBREVIATION AND SYMBOLS USED IN THIS TEST REPORT****EUT** : Equipment Under Test**EMC** : Electromagnetic Compatibility**AE** : Associated Equipment**EMI** : Electromagnetic Interference**N/A** : Not Applicable**EMS** : Electromagnetic Susceptibility**N/T** : 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 C – Intentional Radiators

Test Requirements : §15.205, §15.207, §15.209 and §15.247

Test Procedure : ANSI C63.4–2003

Note) The test items requested by applicant are shown as follows:

- 1) AC Powerline Conducted Emission( § 15.207)
- 2) Radiated Emission( § 15.209)(30 – 1000MHz)

**2 Test Location**

KITA-KANSAI Testing Center  
1-7-7, Ishimaru, Minoh-shi, Osaka 562-0027, Japan  
KAMEOKA EMC Branch  
9-1, Ozaki, Inukanno, Nishibetsuin-cho, Kameoka-shi, Kyoto 621-0126, Japan

**3 Recognition of Test Laboratory**

JQA KITA-KANSAI Testing Center Testing Department EMC 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-001-2 (Effective through : April 3, 2010)  
NVLAP Lab Code : 200191-0 (Effective through : June 30, 2009)  
BSMI Recognition No. : SL2-IS-E-6006, SL2-IN-E-6006, SL2-AI-E-6006  
(Effective through : September 14, 2010)

VCCI Registration No. : R-008, R-1117, C-006, C-007, C-1674, C-2143, T-1418, T-1419  
(Effective through : April 3, 2010)

IC Registration No. : IC 4125-1, IC 6217-1, IC 6217-2 (Effective through : November 16, 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 : Panasonic Communications Co., Ltd.  
1-62, 4-chome, Minoshima, Hakata-ku, Fukuoka, 812-8531, Japan
2. Products : 5.8GHz Frequency Hopping Spectrum Cordless Telephone(Base)
3. Model No. : KX-TG4321B
4. Serial No. : 7LAQA001080
5. Product Type : Mass Production
6. Date of Manufacture : December, 2007
7. Transmitting Frequency : 5759.702 MHz (01ch) – 5838.187 MHz (89ch)
8. Receiving Frequency : 5759.702 MHz (01ch) – 5838.187 MHz (89ch)
9. Method/System : Frequency Hopping Spread Spectrum(FHSS)
10. Type of Antenna : Colliner- Antenna
11. Antenna Gain : 3Bi(Rated)
12. Power Rating : 100-120VAC 60Hz100mA(AC Adaptor : PQLV219)  
(Rated, Output DC6.5V500mA)
13. EUT Grounding : None
14. Category : Intentional Radiator
15. EUT Authorization : Certification
16. Received Date of EUT : July 1, 2008

## 5 Test Condition

### 5.1 AC Powerline Conducted Emission( § 15.207)

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

Test site : KITA-KANSAI  - Shielded room  - Anechoic chamber  
KAMEOKA  - Shielded room  - Conducted emission facility  
 - 1st open site

Test instruments : Refer to Appendix C.

### 5.2 Radiated Emission( § 15.209)

#### 5.2.1 Radiated Emission 30 MHz – 1000 MHz

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

Test site :  - KAMEOKA 1st open site  - 3 m  - 10 m  
 - KAMEOKA 2nd open site  - 3 m  - 10 m

Test instruments : Refer to Appendix C.

#### 5.2.2 Radiated Emission above 1 GHz

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

Test site :  - KAMEOKA 1st open site  - 3 m  - 10 m  
 - KAMEOKA 2nd open site  - 3 m  - 10 m

Test instruments : Refer to Appendix C.

**6 Preliminary Test and Test Setup**

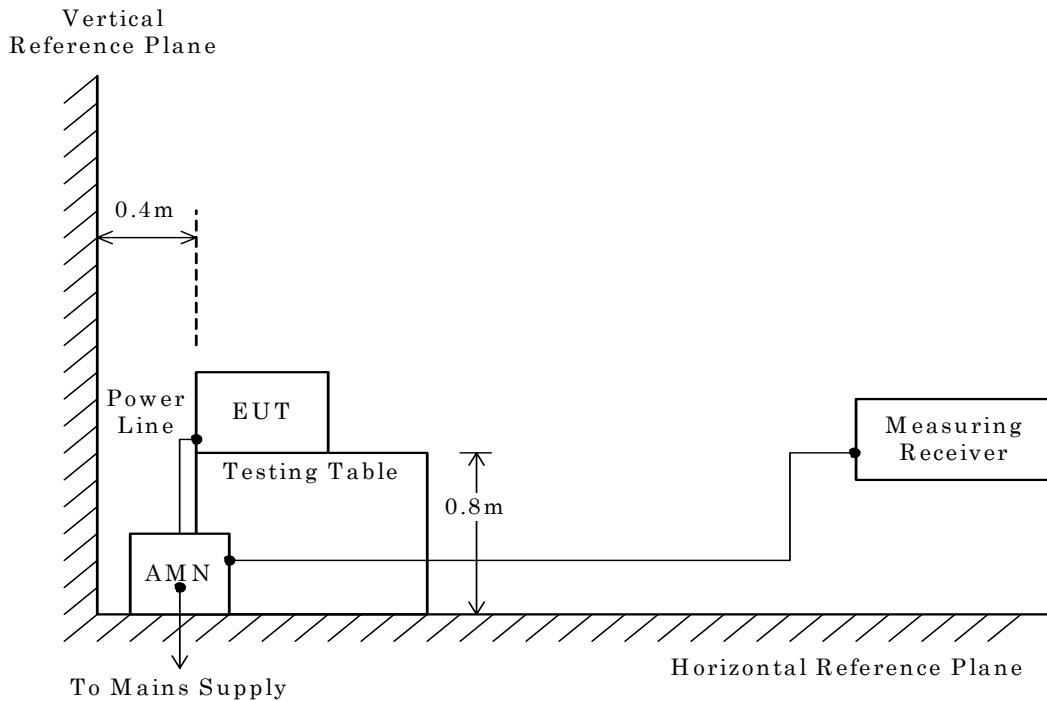
**6.1 AC Powerline Conducted Emission (§ 15.207)**

The preliminary tests were performed using the scan mode of test receiver or 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 tests.

– Side View –



NOTE

AMN : Artificial Mains Network

**6.2 Radiated Emission( § 15.209)**

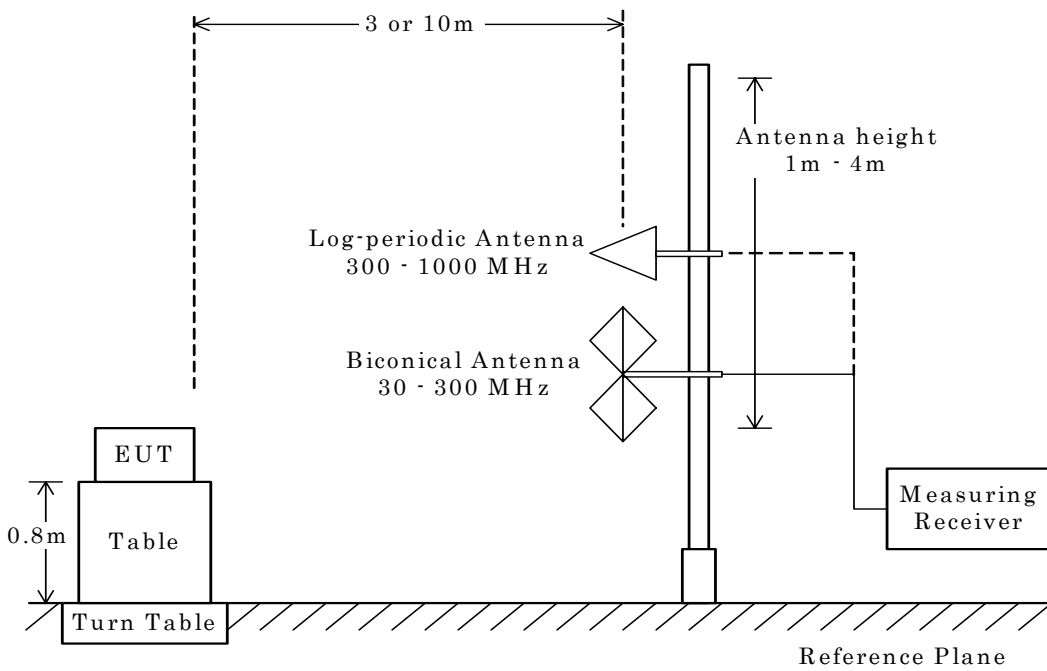
**6.2.1 Radiated Emission 30 MHz – 1000 MHz**

The preliminary tests 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 tests.

– Side View –



**6.2.2 Radiated Emission above 1 GHz**

Not tested by applicant request

**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 (Quasi-Peak) 18.7 dB at 1.40 MHz

Max. Limit Exceeding (Quasi-Peak) \_\_\_\_\_ dB at \_\_\_\_\_ MHz

Uncertainty of Measurement Results +/-2.9 dB(2 $\sigma$ )

Remarks : \_\_\_\_\_

**10.2 Radiated Emission**

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

- Passed  - Failed  - Not judged

Min. Limit Margin (Quasi-Peak) 12.6 dB at 37.5 MHz

Max. Limit Exceeding (Quasi-Peak) \_\_\_\_\_ dB at \_\_\_\_\_ MHz

Uncertainty of Measurement Results  
30 MHz – 300 MHz +/-4.3 dB(2 $\sigma$ )  
300 MHz – 1000 MHz +/-4.2 dB(2 $\sigma$ )  
above 1 GHz \_\_\_\_\_ dB(2 $\sigma$ )

Remarks : The measured frequency range is 30 - 1000MHz.

**11 Summary****General Remarks :**

The EUT was tested according to the requirements of the following standard.

CFR 47 FCC Rules and Regulations Part 15

The test configuration is 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:

Tested by:



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Shigeru Kinoshita  
Deputy Manager  
Testing Dept. EMC Div.  
JQA KITA-KANSAI Testing Center



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Akio Hosoda  
Manager  
Testing Dept. EMC Div.  
JQA KITA-KANSAI Testing Center

## 12 Operating Condition

Power Supply Voltage : 120VAC, 60Hz

Operation Mode

1. Hopping (Transmitting/Receiving)
2. Charging

The worst case was reported as the final test data.

## 13 Test Configuration

The equipment under test (EUT) consists of :

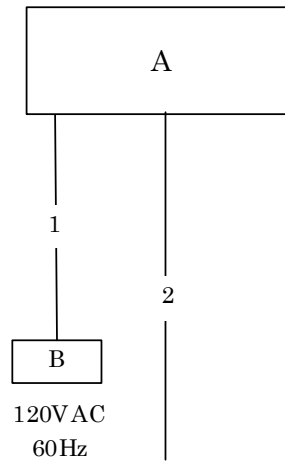
	Item	Manufacturer	Model No.	Serial No.	FCC ID
A	5.8GHz FHSS Cordless Telephone (Base)	Panasonic Communications Co., Ltd.	KX-TG4321B	7LAQA001 080	ACJ96NKX- TG4321
B	AC Adaptor	Panasonic Communications Co., Ltd.	PQLV219	--	N/A

The auxiliary equipment used for testing :

None

Type of Cable:

No.	Description	Identification (Manu. etc.)	Connector Shielded	Cable Shielded	Ferrite Core	Length (m)
1	DC Cable	--	--	NO	NO	1.8
2	Telephone Line	--	--	NO	NO	1.8

**14 Equipment Under Test Arrangement (Drawings)**

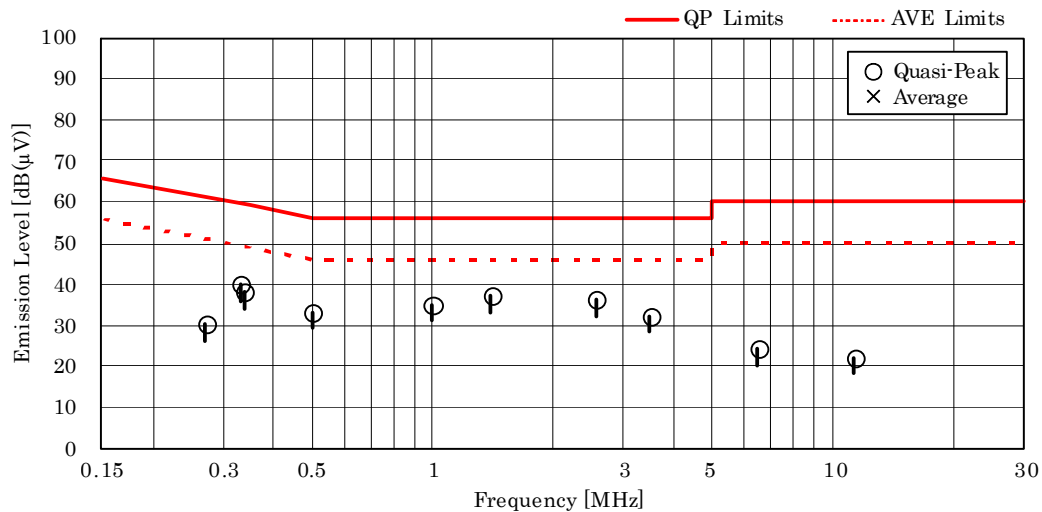
Appendix A: Test Data

A.1 AC Powerline Conducted Emission

Test Date: July 29, 2008  
Temp.: 25 °C, Humi: 60 %

Test condition : Charging

Frequency [MHz]	Corr. Factor [dB]	Meter Readings [dB(μV)]				Limits [dB(μV)]		Results [dB(μV)]		Margin [dB]	Remarks
		VA	AVE	QP	AVE	QP	AVE	QP	AVE		
0.27	0.3	26.0	--	30.0	--	61.1	51.1	30.3	--	+30.8	-
0.33	0.2	33.8	--	40.0	--	59.5	49.5	40.2	--	+19.3	-
0.34	0.2	33.0	--	38.0	--	59.2	49.2	38.2	--	+21.0	-
0.50	0.2	25.0	--	33.0	--	56.0	46.0	33.2	--	+22.8	-
1.00	0.3	30.0	--	35.0	--	56.0	46.0	35.3	--	+20.7	-
1.40	0.3	32.0	--	37.0	--	56.0	46.0	37.3	--	+18.7	-
2.56	0.4	32.0	--	36.0	--	56.0	46.0	36.4	--	+19.6	-
3.50	0.4	29.0	--	32.0	--	56.0	46.0	32.4	--	+23.6	-
6.50	0.5	21.0	--	24.0	--	60.0	50.0	24.5	--	+35.5	-
11.30	0.4	< 20.0	--	22.0	--	60.0	50.0	22.4	--	+37.6	-



NOTES

1. The spectrum was checked from 0.15 MHz to 30 MHz.
2. The correction factor includes the AMN insertion loss and the cable loss.
3. The symbol of "<" means "or less".
4. The symbol of ">" means "more than".
5. The symbol of "--" means "not applicable".
6. Calculated result at 1.40 MHz, as the worst point shown on underline:  
Correction Factor + Meter Reading = 0.3 + 37.0 = 37.3 dB(μV)
7. QP : Quasi-Peak Detector / AVE : Average Detector
8. Test receiver setting(s) : CISPR QP 9 kHz / Average 9 kHz

## A.2 Radiated Emission

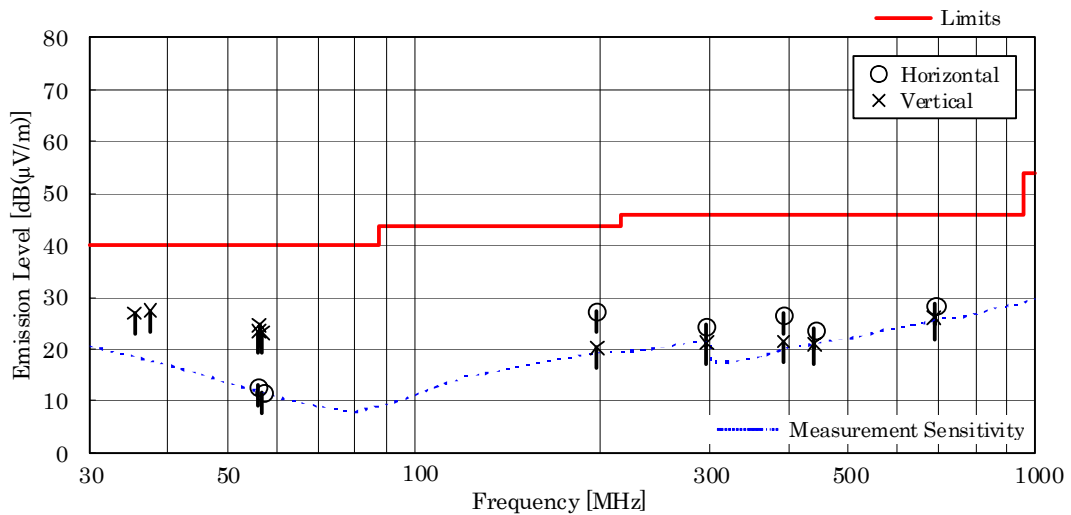
### A.2.1 Radiated Emission 30 MHz – 1000 MHz

Test condition : Hopping

Test Date: July 28, 2008

Temp.: 25 °C, Humi: 75 %

Frequency [MHz]	Antenna Factor [dB(1/m)]	Cable Loss [dB]	Meter Readings [dB(μV)]		Limits [dB(μV/m)]	Results [dB(μV/m)]		Margin [dB]	Remarks
			Hori.	Vert.		Hori.	Vert.		
35.5	17.5	1.0	< 0.0	8.5	40.0	< 18.5	27.0	+13.0	-
<u>37.5</u>	<u>16.8</u>	<u>1.1</u>	< 0.0	9.5	40.0	< 17.9	27.4	+12.6	-
56.0	10.7	1.3	1.0	11.5	40.0	13.0	23.5	+16.5	-
56.4	10.5	1.3	< 0.0	13.0	40.0	< 11.8	24.8	+15.2	-
57.0	10.4	1.3	0.0	11.5	40.0	11.7	23.2	+16.8	-
196.6	16.6	2.7	8.0	1.0	43.5	27.3	20.3	+16.2	-
294.9	17.9	3.3	3.5	0.0	46.0	24.7	21.2	+21.3	-
393.3	16.0	3.9	7.0	1.5	46.0	26.9	21.4	+19.1	-
442.0	16.7	4.2	3.0	0.0	46.0	23.9	20.9	+22.1	-
688.1	20.2	5.4	3.0	0.5	46.0	28.6	26.1	+17.4	-



#### NOTES

1. Test Distance : 3 m
2. The spectrum was checked from 30 MHz to 1000 MHz.
3. The symbol of "<" means "or less".
4. The symbol of ">" means "more than".
5. Calculated result at 37.5 MHz, as the worst point shown on underline:  
Antenna Factor + Cable Loss + Meter Reading = 16.8 + 1.1 + 9.5 = 27.4 dB(μV/m)
6. Test receiver setting(s) : CISPR QP 120 kHz (QP : Quasi-Peak)

#### **A.2.2 Radiated Emission above 1 GHz**

Not tested by applicant request.

**Appendix B: Test Arrangement (Photographs)****B.1 AC Powerline Conducted Emission**

– Front View –



– Side View –

Photograph present configuration with maximum emission

**B.2 Radiated Emission**

– Front View –



– Rear View –

Photograph present configuration with maximum emission

**Appendix C: Test Instruments****C.1 AC Powerline Conducted Emission**

Type	Model	Manufacturer	ID No.	Last Cal.	Interval
Test Receiver	ESCI	Rohde & Schwarz	A-42	2007/11	1 Year
AMN (main)	KNW-407	Kyoritsu	D-6	2007/10	1 Year
RF Cable	--	----	H-8	2007/9	1 Year

**C.2 Radiated Emission****C.2.1 Radiated Emission 30 MHz – 1000 MHz**

Type	Model	Manufacturer	ID No.	Last Cal.	Interval
Test Receiver	ESVS 10	Rohde & Schwarz	A-5	2007/8	1 Year
Biconical Antenna	VHA9103/FBAB9177	Schwarzbeck	C-25	2008/5	1 Year
Log-periodic Antenna	UHALP 9108-A1	Schwarzbeck	C-28	2008/5	1 Year
RF Cable	--	----	H-1	2008/5	1 Year
Site Attenuation	--	----	H-11	2007/11	1 Year

**C.2.2 Radiated Emission above 1 GHz**

Not tested by applicant request.