

RF Exposure / SAR Statement

No. : 25IE0107-HO-1

Applicant : **Panasonic Communications Co., Ltd.**
Type of Equipment : **2.4GHz FHSS Cordless Telephone (Base Unit)**
Model No. : **KX-TH102**
FCC ID : **ACJ96NKX-TH102**

Panasonic Communications Co., Ltd. declares that Model : 2.4GHz FHSS Cordless Telephone (Base Unit) complies with FCC radiation exposure requirement specified in the FCC Rules 2.1093.

The "KX-TH102" has 88.31 mW of conducted Peak Output power and 144.54 mW of EIRP.

This kind of equipment is below 60/frequency[GHz] mW (TCB Exclusion List)

so that SAR testing is excluded. The Following calculation is the reference data for 20cm distance.

RF Exposure Calculations:

The following information provides the minimum separation distance for the highest gain antenna provided with the "KX-TH102" as calculated from FCC OET Bulletin 65 Appendix A, Table (B) Limits for General Population / Uncontrolled Exposure. This calculation is based on the highest EIRP possible from the system, considering maximum power and antenna gain, and considering a 1.0mW/cm² uncontrolled exposure limit. The Friis formula used was:

$$S = (P * G) / (4 * \pi * r^2)$$

Where

P = 88.31 mW (Maximum peak output power)
G = 1.64 Numerical Antenna gain; equal 2.14 dBi
r = 20.0 cm

For: KX-TH102

$$S = 0.02876 \text{ mW/cm}^2$$

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EMI TEST REPORT

Test Report No. : 25IE0107-HO-1

Applicant : Panasonic Communications Co., Ltd.
Type of Equipment : 2.4GHz FHSS Cordless Telephone (Base Unit)
Model No. : KX-TH102
FCC ID : ACJ96NKX-TH102
Test standard : FCC Part 15 Subpart C
Section 15.207, Section 15.247 : 2005
Test Result : Complied

1. This test report shall not be reproduced in full or partial, without the written approval of UL Apex Co., Ltd.
2. The results in this report apply only to the sample tested.
3. This equipment is in compliance with above regulation. We hereby certify that the data contain a true representation of the EMC profile.
4. The test results in this report are traceable to the national or international standards.

Date of test:

May 16 and 17, 2005

Tested by:

Keiichi Aoki
EMC Service

Mitsuru Fujimura
EMC Service

Approved by :

Hironobu Shimoji
Group Leader of
EMC Service

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SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part15 Subpart C : 2005
Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.207 Conducted limits : 2005
Section 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz : 2005

3.2 Procedures and results

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst Margin*0)	Results
1	Conducted emission	ANSI C63.4:2003 7. AC powerline conducted emission measurements	Section 15.207	-	N/A	17.0dB 0.5297MHz QP, L	Complied
2	Carrier Frequency Separation	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247(a)(1)	Conducted	N/A	*See data.	Complied
3	20dB Bandwidth	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247(a)(1)	Conducted	N/A		Complied
4	Number of Hopping Frequency	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247(a)(1)(iii)	Conducted	N/A		Complied
5	Dwell time	ANSI C63.4:2003 13.Measurement of intentional radiators	Section15.247(a)(1)(iii)	Conducted	N/A		Complied
6	Maximum Peak Output Power	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247(b)(1)	Conducted	N/A		Complied
7	Band Edge Compliance	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247(d)	Conducted	N/A		Complied
8	Spurious Emission	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247(d)	Conducted/ Radiated	N/A	Mode1: 5.2dB 256.008 MHz Horizontal, QP Mode2: 1.6dB 2483.5MHz Horizontal, AV	Complied

Note: UL Apex's EMI Work Procedures No.QPM05 and QPM15.

*0) The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

Uncertainty:

*In case of the margin below the EMC Head Office's uncertainty.

The data listed in this report meets the limits unless the uncertainty is taken into consideration.

Conducted Emission

The measurement uncertainty (with a 95% confidence level) for this test is $\pm 1.3\text{dB}$.

Spurious Emission (Radiated)

The measurement uncertainty (with a 95% confidence level) for this test using Biconical antenna is $\pm 4.5\text{dB}(3\text{m})/\pm 4.7\text{dB}(10\text{m})$.

The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna is $\pm 5.2\text{dB}(3\text{m})/\pm 3.8\text{dB}(10\text{m})$.

The measurement uncertainty (with a 95% confidence level) for this test using Horn antenna is $\pm 6.6\text{dB}$.

Other test except Conducted Emission and Spurious Emission (Radiated)

The measurement uncertainty (with a 95% confidence level) for this test is $\pm 3.0\text{dB}$.

*These tests were also referred to FCC Public Notice DA 00-705 "Guidance on Measurement for Frequency Hopping Spread Spectrum Systems".

*These tests were performed without any deviations from test procedure except for additions or exclusions.

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3.3 Addition to standards

No addition, deviation, nor exclusion has been made from standards.

3.4 Test Location

UL Apex Co., Ltd. Head Office EMC Lab. *NVLAP Lab. code: 200572-0
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	FCC Registration Number	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms
No.1 semi-anechoic chamber	313583	IC4247	19.2 x 11.2 x 7.7m	7.0 x 6.0m	Preparation room
No.2 semi-anechoic chamber	846015	IC4247-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 shielded room	-	-	4.7 x 7.5 x 2.7m	4.7 x 7.5m	-
No.4 measurement room	-	-	3.1 x 5.0 x 2.7m	N/A	-

* Size of vertical conducting plane (for Conducted Emission test) : 2.0 x 2.0m for No.2 semi-anechoic and No.3 shielded room.

3.5 Test set up, Test instruments and Data of EMI

Refer to APPENDIX 1 to 3.

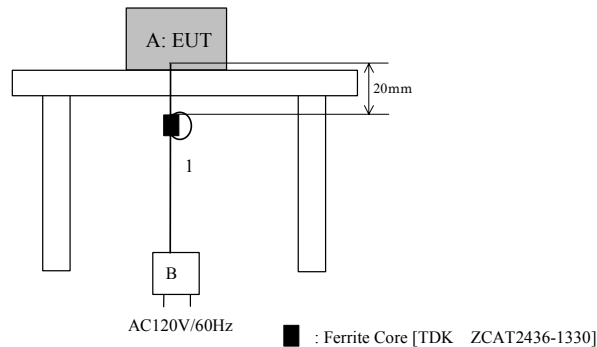
SECTION 4: Operation of E.U.T. during testing

4.1 Operating Modes

The mode is used : [Mode1]
Transmitting mode(Packet size DH1, DH5)
Low Channel :2402MHz
Mid Channel :2441MHz
High Channel :2480MHz
Inquiry
*Remarks: AFH OFF mode: 79ch, AFH ON mode 20ch

[Mode2]
Transmitting mode(Packet size DH1, DH5)
Low Channel :2402MHz
Mid Channel :2440MHz
High Channel :2480MHz
*Remarks: AFH OFF mode: 40ch, AFH ON mode 20ch

4.2 Configuration and peripherals



* Cabling was taken into consideration and test data was taken under worse case conditions.

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	FCC ID
A	2.4 GHz FHSS Cordless Telephone (Base Unit)	KX-TH102	0080F0801154 *1) 0080F080113A *2)	Panasonic	ACJ96NKX-TH102
B	AC Adaptor (AC120V, 60Hz)	PQLV205	0511 B091 *1) 0511 B120 *2)	Panasonic	-

*1) Used for Radiated emission and AC conducted emission test

*2) Used for Antenna Port Conducted tests

List of cables used

No.	Name	Length (m)	Shield	Backshell Material
1	DC Cable	1.8	N	Polyvinyl chloride

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SECTION 5: Conducted Emission

Test Procedure and conditions

EUT was placed on a platform of nominal size, 1.0m by 1.5m, raised 80cm above the conducting ground plane. The rear of tabletop was located 40cm to the vertical conducting plane. The rear of EUT, including peripherals aligned and flushed with rear of tabletop. All other surfaces of tabletop were at least 80cm from any other grounded conducting surface. EUT was located 80cm from a Line Impedance Stabilization Network (LISN)/ Artificial mains Network (AMN) and excess AC cable was bundled in center.

1) For the tests on EUT itself (as a stand alone equipment)

Each EUT current-carrying power lead, except the ground (safety) lead, was individually connected through a LISN/(AMN) to the input power source. All unused 50ohm connectors of the LISN(AMN) were resistivity terminated in 50ohm when not connected to the measuring equipment.

The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT in a Semi Anechoic Chamber or a Measurement Room.

The EUT was connected to a LISN (AMN).

An overview sweep with peak detection has been performed.

Detector	: CISPR quasi-peak and average detector (IF BW 9 kHz)
Measurement range	: 0.15-30MHz
Test data	: APPENDIX 3
Test result	: Pass

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SECTION 6: Spurious Emission

[Conducted]

Test Procedure

The Out of Band Emission was measured with a spectrum analyzer connected to the antenna port.

Test data : APPENDIX 3

Test result : Pass

[Radiated]

Test Procedure

EUT was placed on a platform of nominal size, 1.0m by 0.5m, raised 80cm above the conducting ground plane.

The Radiated Electric Field Strength intensity has been measured in a Semi Anechoic Chamber with a ground plane and at a distance of 3m(Below 10GHz) and 1m(Upper 10GHz).

The height of the measuring varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.

The measurements were performed for both vertical and horizontal antenna polarization with the Test Receiver, or the Spectrum Analyzer (in linear mode).

The test was made with the detector (RBW/VBW) in the following table.

When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

***Delta Marker Method (Measurement for Band-edge)**

STEP 1) Perform an in-band field strength measurement of the fundamental emission using the RBW table below.

STEP 2) Choose a spectrum analyzer span that encompasses both the peak of the fundamental emission and the band-edge emission under investigation. Set the analyzer RBW to 1% of the total span, and measure the amplitude delta between the peak of the fundamental and the peak of the band-edge emission.

STEP 3) Subtract the delta measured in STEP 2) from the field strengths measured in STEP 1). The result is the field strength of band-edge.

In any 100kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator confirmed 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on a radiated measurement.

20dBc was applied to the frequency over the limit of FCC 15.209 and outside the restricted band of 15.205.

Frequency	Below 1GHz		Above 1GHz
Instrument used	Test Receiver	Spectrum Analyzer	Spectrum Analyzer
Detector	QP: BW 120kHz	20dBc :	PK: RBW:1MHz/VBW: 1MHz
IF Bandwidth		RBW: 100kHz	AV: RBW:1MHz/VBW:10Hz
		VBW: 300kHz	20dBc : RBW:100kHz/VBW:300kHz

- The carrier level and noise levels were confirmed at each position of X, Y and Z axes of EUT and 0 deg. 90deg. and 180deg. of each axes (total 9 points) to see the position of maximum noise, and the test was made at the position that has the maximum noise.

Test data : APPENDIX 3

Test result : Pass

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SECTION 7: Bandwidth

Test Procedure

The bandwidth was measured with a spectrum analyzer connected to the antenna port.

Test data	: APPENDIX 3
Test result	: Pass

SECTION 8: Maximum Peak Output Power

Test Procedure

The Maximum Peak Output Power was measured with a power meter connected to the antenna port.

Test data	: APPENDIX 3
Test result	: Pass

SECTION 9: Carrier Frequency Separation

Test Procedure

The carrier frequency separation was measured with a spectrum analyzer connected to the antenna port.

Test data	: APPENDIX 3
Test result	: Pass

SECTION 10: Number of Hopping Frequency

Test Procedure

The Number of Hopping Frequency was measured with a spectrum analyzer connected to the antenna port.

Test data	: APPENDIX 3
Test result	: Pass

SECTION 11: Dwell time

Test Procedure

The Dwell time was measured with a spectrum analyzer connected to the antenna port.

Test data	: APPENDIX 3
Test result	: Pass

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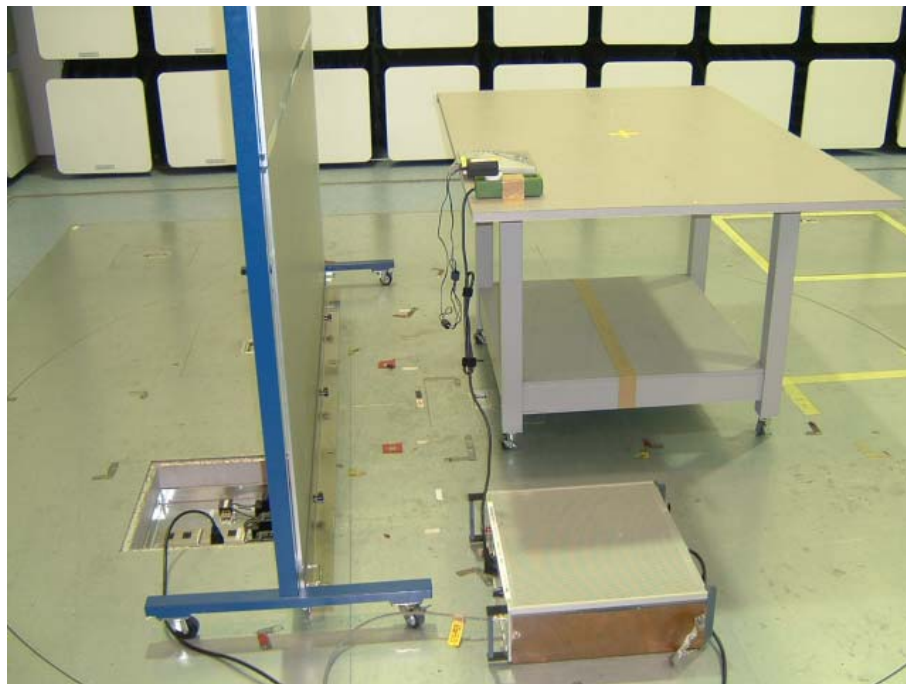
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APPENDIX 1: Photographs of test setup

Conducted Emission **Front**



Rear



Spurious Emission (Radiated)
Front



Rear



Worst Case Position (Antenna 0 degree)

0 degree



90 degree



180 degree



Worst Case Position (X-axis:Horizontal / Y-axis:Vertical)

X-axis



Y-axis



Z-axis



APPENDIX 2:Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-02	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE/CE	2005/04/11 * 12
MRENT-14	Spectrum Analyzer	Advantest	R3273	RE/CE	2005/02/21 * 12
MCC-04	Microwave Cable 1G-50GHz	Storm	421-011 (90-1394-079)	RE	2005/01/05 * 12
MCC-19	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX 104	RE	2005/02/03 * 12
MAT-23	Attenuator(10dB)(above 1 GHz)	Orient Microwave	BX10-0476-00	RE	2005/03/16 * 12
MHF-02	High Pass Filter	Tokimec	TF323DCA	RE	2004/09/18 * 12
MPA-01	Pre Amplifier	Agilent	8449B	RE	2005/02/05 * 12
MHA-06	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2005/01/10 * 12
MHA-02	Horn Antenna	EMCO	3160-09	RE	2005/01/10 * 12
MTR-02	Test Receiver	Rohde & Schwarz	ESCS30	RE/CE	2005/02/02 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	RE	2005/02/24 * 12
MPA-06	Pre Amplifier	Hewlett Packard	8447D	RE	2004/08/29 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	RE	2004/12/16 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	RE	2004/10/14 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2004/10/14 * 12
MCC-06	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX 104	AT	2005/02/03 * 12
MAT-21	Attenuator(20dB)(above 1 GHz)	HIROSE ELECTRIC CO.,LTD.	AT-120	AT	2005/01/11 * 12
MSA-03	Spectrum Analyzer	Agilent	E4448A	AT	2004/06/12 * 12
MCC-13	Coaxial Cable	Fujikura/Agilent	-	CE	2005/02/24 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	CE	2005/02/04 * 12
MST-03	Power Meter	Agilent	E4416A	AT	2005/03/16 * 12
MPSE-04	Power sensor	Agilent	E9327A	AT	2005/03/29 * 12

All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

Test Item:

CE: AC Main Conducted Emission

RE: Radiated Spurious Emission

AT: Antenna terminal conducted measurement

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APPENDIX 3: Data of EMI test

[Mode1]

Conducted Emission (Mode1)

DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber

Applicant : Panasonic Communications Co.,Ltd. Report No. : 25IE0107-HO
Kind of EUT : 2.4GHz FHSS Cordless Telephone(Base Unit) Power : AC120V / 60Hz (AC Adaptor)
Model No. : KX-TH102 Temp°C/Humi% : 28 / 35
Serial No. : 0080F0801154 Operator : Keiichi Aoki

Mode / Remarks : Mode1 Tx2402MHz /Main Antenna

LIMIT : FCC15C §15.207 (QP)
FCC15C §15.207 (AV)

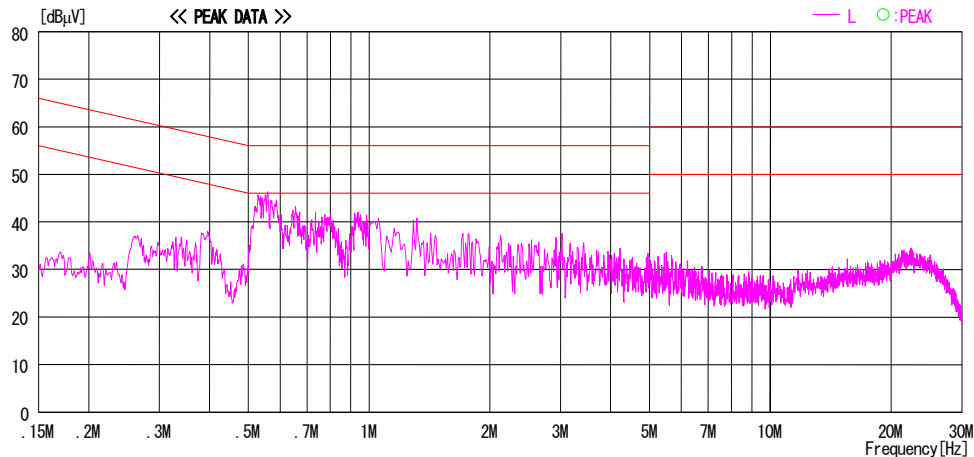
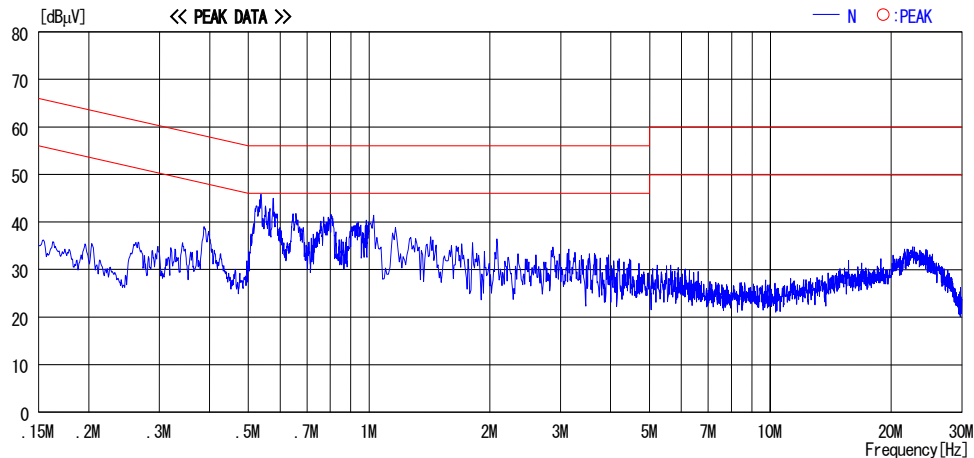


CHART:WITH FACTOR,Peak hold data.Data is uncorrected.
Except for the above table : adequate margin data below the limits.

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DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber

Applicant : Panasonic Communications Co., Ltd. Report No. : 251E0107-HO
Kind of EUT : 2.4GHz FHSS Cordless Telephone(Base Unit) Power : AC120V / 60Hz (AC Adaptor)
Model No. : KX-TH102 Temp°C/Humi% : 28 / 35
Serial No. : 0080F0801154 Operator : Keiichi Aoki

Mode / Remarks: Mode1 Tx2441MHz /Main Antenna

LIMIT : FCC15C § 15.207 (QP)
FCC15C § 15.207 (AV)

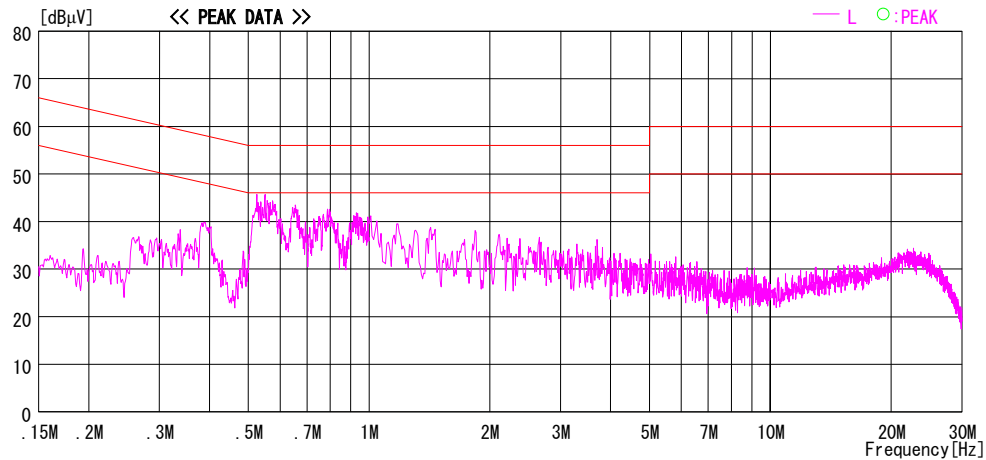
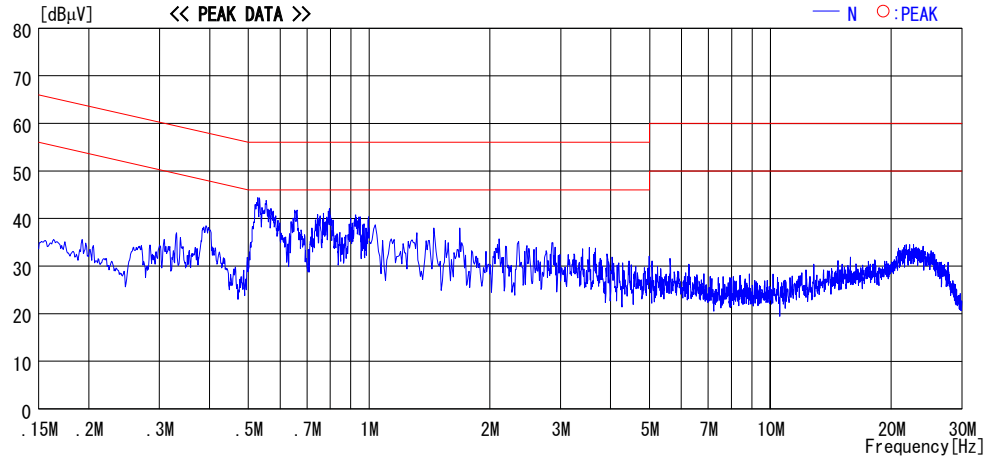


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Kind of EUT : 2.4GHz FHSS Cordless Telephone(Base Unit) Power : AC120V / 60Hz (AC Adaptor)
Model No. : KX-TH102 Temp°C/Humi% : 28 / 35
Serial No. : 0080F0801154 Operator : Keiichi Aoki

Mode / Remarks: Mode1 Tx2480MHz /Main Antenna

LIMIT : FCC15C § 15.207 (QP)
FCC15C § 15.207 (AV)

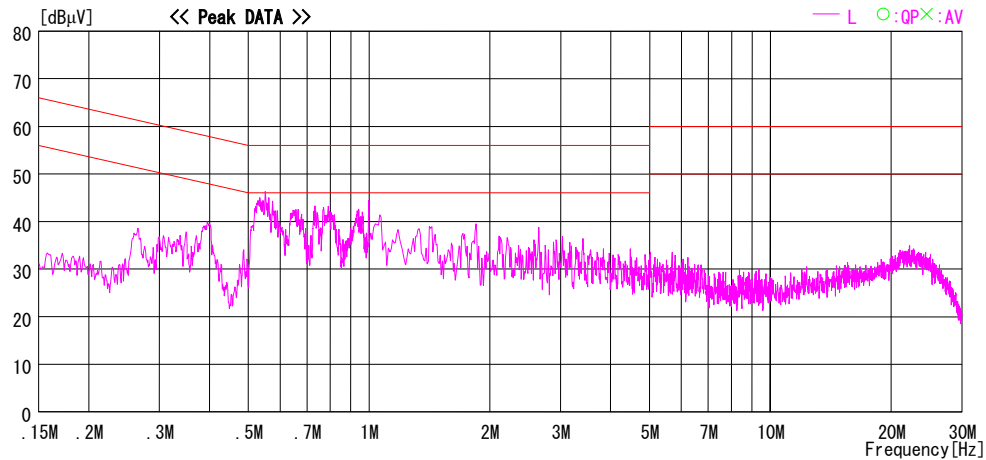
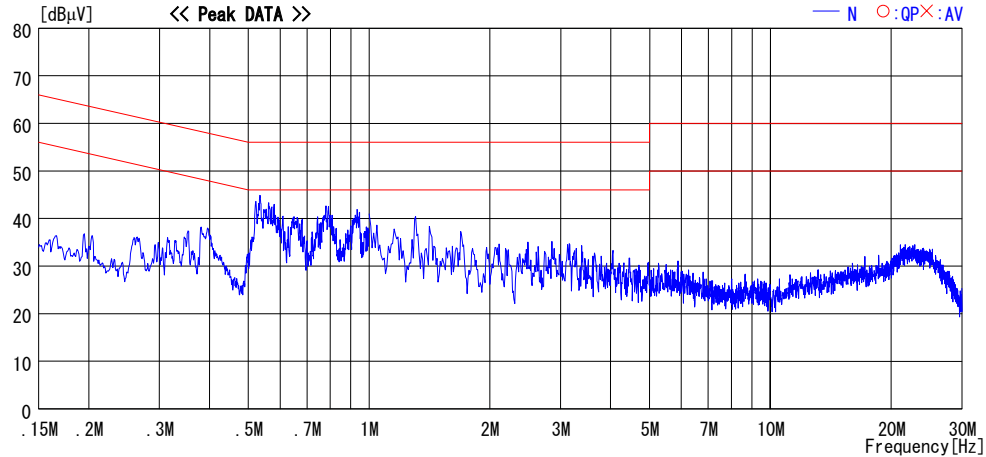


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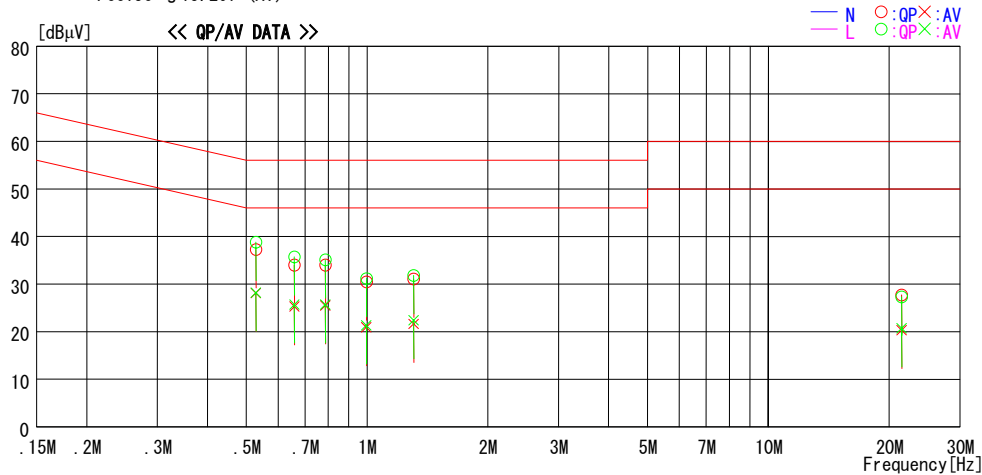
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Model No. : KX-TH102 Temp°C/Humi% : 28 / 35
Serial No. : 0080F0801154 Operator : Keiichi Aoki

Mode / Remarks: Mode1 Tx2480MHz /Main Antenna

LIMIT : FCC15C § 15.207 (QP)
FCC15C § 15.207 (AV)



NO	FREQ [MHz]	READING		C. F	RESULT		LIMIT		MARGIN		PHASE
		QP [dBμV]	AV [dBμV]		QP [dBμV]	AV [dBμV]	QP [dBμV]	AV [dBμV]	QP [dB]	AV [dB]	
1	0.5279	37.2	28.0	0.1	37.3	28.1	56.0	46.0	18.7	17.9	N
2	0.6591	33.9	25.2	0.1	34.0	25.3	56.0	46.0	22.0	20.7	N
3	0.7875	33.8	25.3	0.2	34.0	25.5	56.0	46.0	22.0	20.5	N
4	0.9955	30.3	20.7	0.2	30.5	20.9	56.0	46.0	25.5	25.1	N
5	1.3057	30.7	21.2	0.4	31.1	21.6	56.0	46.0	24.9	24.4	N
6	21.4987	26.1	18.7	1.6	27.7	20.3	60.0	50.0	32.3	29.7	N
7	0.5279	38.7	28.1	0.1	38.8	28.2	56.0	46.0	17.2	17.8	L
8	0.6591	35.6	25.6	0.1	35.7	25.7	56.0	46.0	20.3	20.3	L
9	0.7875	34.9	25.5	0.2	35.1	25.7	56.0	46.0	20.9	20.3	L
10	0.9955	31.0	21.1	0.2	31.2	21.3	56.0	46.0	24.8	24.7	L
11	1.3057	31.4	22.0	0.4	31.8	22.4	56.0	46.0	24.2	23.6	L
12	21.4987	25.7	19.1	1.6	27.3	20.7	60.0	50.0	32.7	29.3	L

CHART:WITH FACTOR,Peak hold data.Data is uncorrected.
Except for the above table : adequate margin data below the limits.

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MF060b(10.04.03)

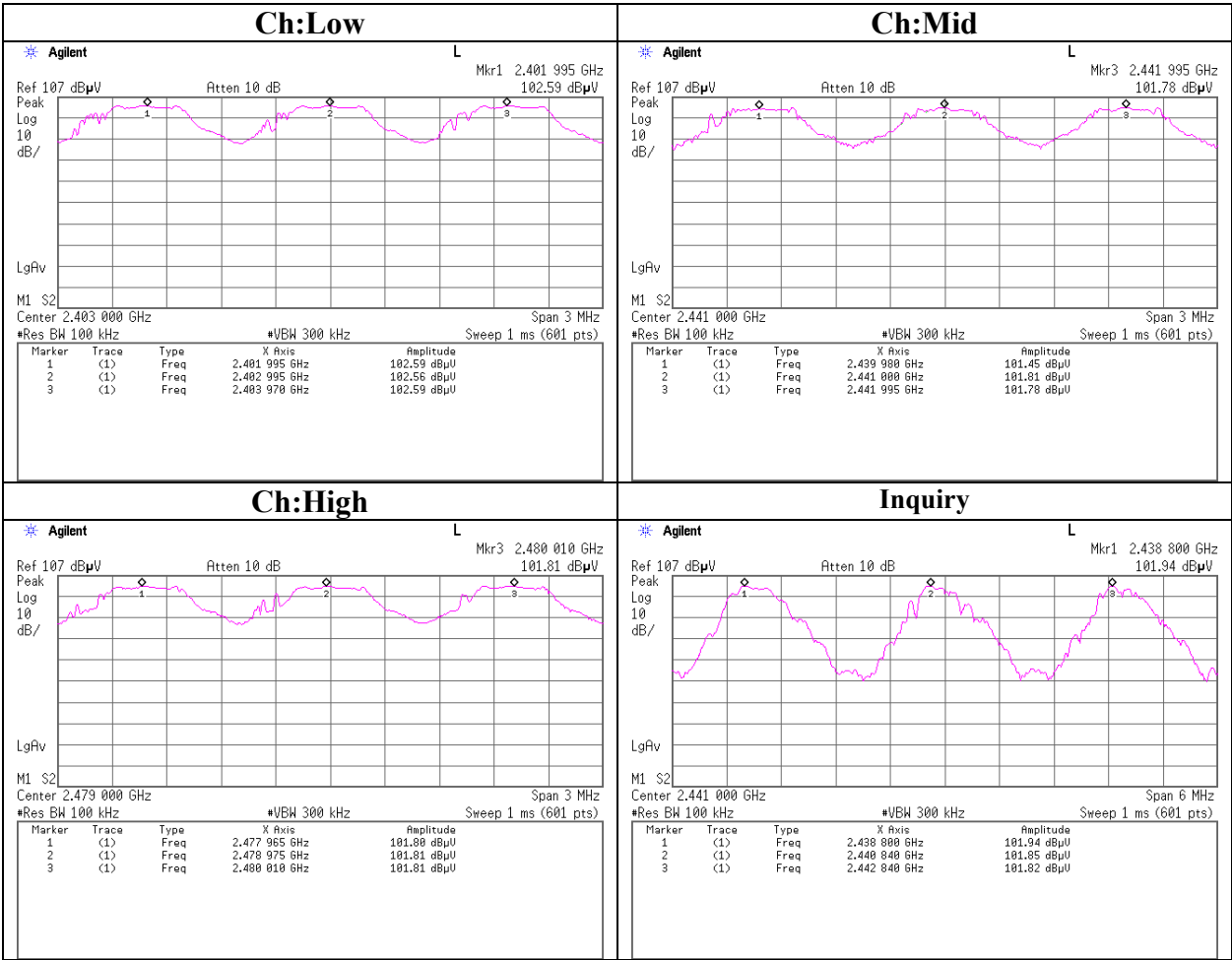
Carrier Frequency Separation(Model1)

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

COMPANY	: Panasonic Communications Co.,Ltd.	REGULATION	: Fcc Part15 Subpart C 15.247(a)(1)
EQUIPMENT	: 2.4GHz FHSS Cordless Telephone (Base Unit)	TEST DISTANCE	: -
MODEL	: KX-TH102	DATE	: 05/17/2005
S/ N	: 0080F080113A	TEMPERATURE	: 25deg.C
POWER	: AC120V / 60Hz	HUMIDITY	: 35%
MODE	: Tx(Hopping on)/Inquiry	ENGINEER	: Mitsuru Fujimura

Ch	Freq. [MHz]	Channel separation [MHz]	Limit
Low	2402.0	0.975	>two-thirds of 20dB Bandwidth or 25[kHz]
Mid	2441.0	0.995	>two-thirds of 20dB Bandwidth or 25[kHz]
High	2480.0	1.010	>two-thirds of 20dB Bandwidth or 25[kHz]
Inquiry	2441.0	2.000	>two-thirds of 20dB Bandwidth or 25[kHz]

Carrier Frequency Separation(Model1)



20dB Bandwidth(Mode1)

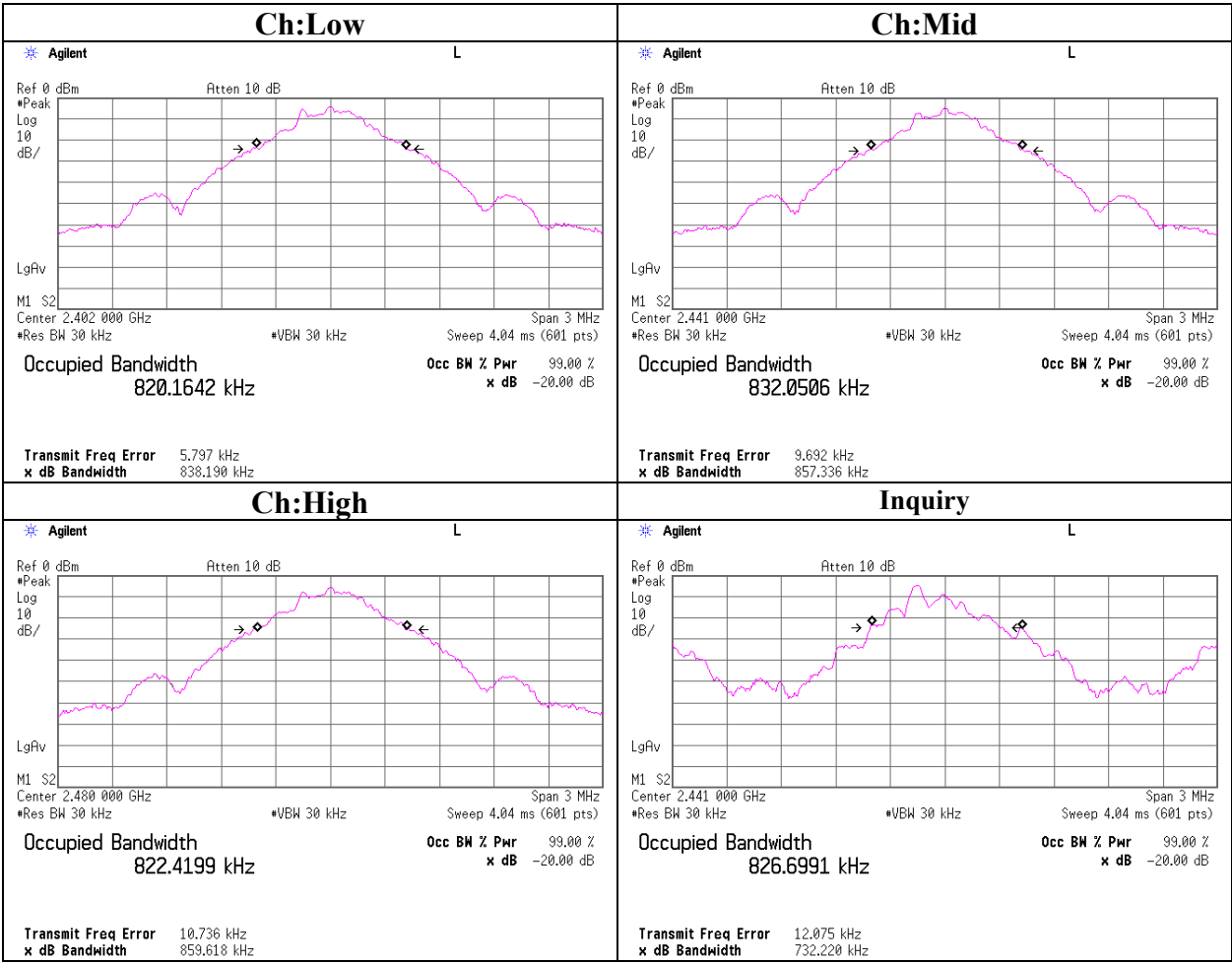
DATA OF 20dB BANDWIDTH

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

COMPANY	: Panasonic Communications Co.,Ltd.	REGULATION	: Fcc Part15 Subpart C 15.247(a)(1)
EQUIPMENT	: 2.4GHz FHSS Cordless Telephone (Base Unit)	TEST DISTANCE	: -
MODEL	: KX-TH102	DATE	: 05/17/2005
S/ N	: 0080F080113A	TEMPERATURE	: 25deg.C
POWER	: AC120V / 60Hz	HUMIDITY	: 35%
MODE	: Tx (Hopping off) /Inquiry	ENGINEER	: Mitsuru Fujimura

Ch	Freq.	20dB Bandwidth	Limit
	[MHz]	[MHz]	[MHz]
Low	2402.0	0.838	-
Mid	2441.0	0.857	-
High	2480.0	0.860	-
Inquiry	2441.0	0.732	-

20dB Bandwidth(Mode1)



Number of Hopping Frequency(Mode1)

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

COMPANY : Panasonic Communications Co.,Ltd. REGULATION : Fcc Part15 Subpart C 15.247(a)(1)(iii)
EQUIPMENT : 2.4GHz FHSS Cordless Telephone (Base Unit) TEST DISTANCE : -
MODEL : KX-TH102 DATE : 05/17/2005
S/ N : 0080F080113A TEMPERATURE : 25deg.C
POWER : AC120V / 60Hz HUMIDITY : 35%
MODE : Tx (Hopping on) /Inquiry ENGINEER : Mitsuru Fujimura

Mode 1, AFH off

Mode	Number of channel	Limit
	[time]	[time]
Tx(Hopping on)	79	≥ 15

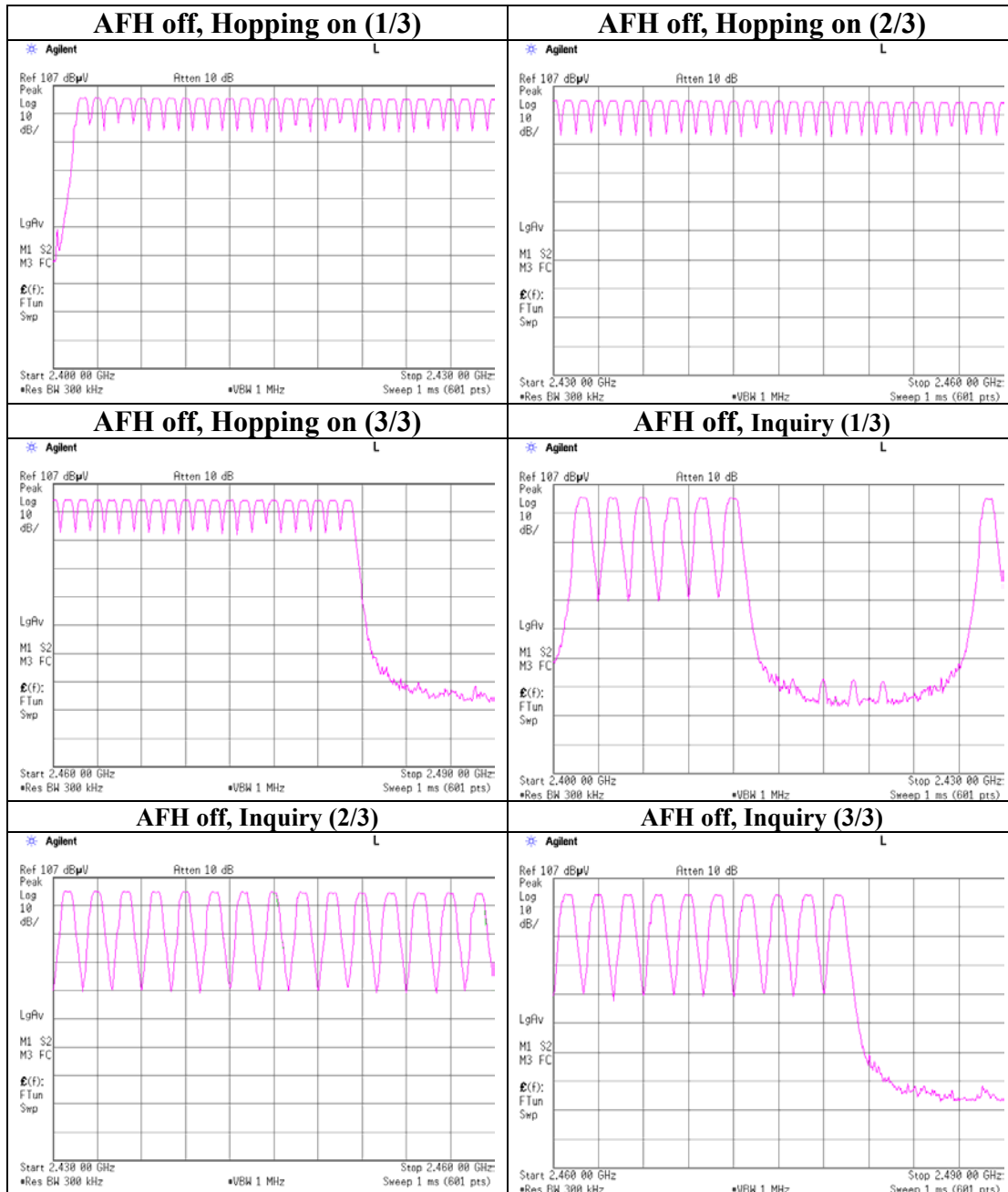
Mode 1, AFH off

Mode	Number of channel	Limit
	[time]	[time]
Inquiry	32	≥ 15

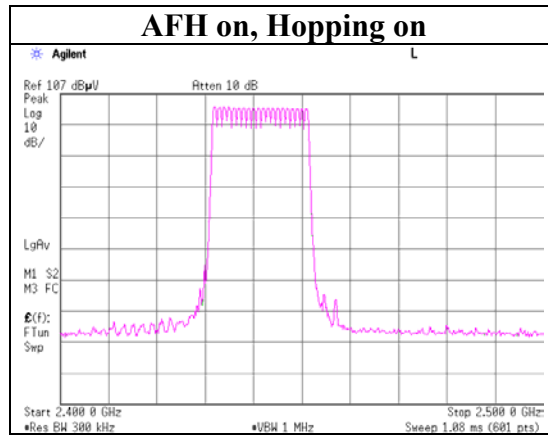
Mode 1, AFH on

Mode	Number of channel	Limit
	[time]	[time]
Tx(Hopping on)	20	≥ 15

Number of Hopping Frequency(Model)



Number of Hopping Frequency(Model)



Dwell Time(Model1)

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

COMPANY : Panasonic Communications Co.,Ltd.	REGULATION : Fcc Part15 Subpart C 15.247(a)(1)(iii)
EQUIPMENT : 2.4GHz FHSS Cordless Telephone (Base Unit)	TEST DISTANCE : -
MODEL : KX-TH102	DATE : 05/17/2005
S/N : 0080F080113A	TEMPERATURE : 25deg.C
POWER : AC120V / 60Hz	HUMIDITY : 35%
MODE : Tx (Hopping on) /Inquiry	ENGINEER : Mitsuru Fujimura

Model1, AFH off

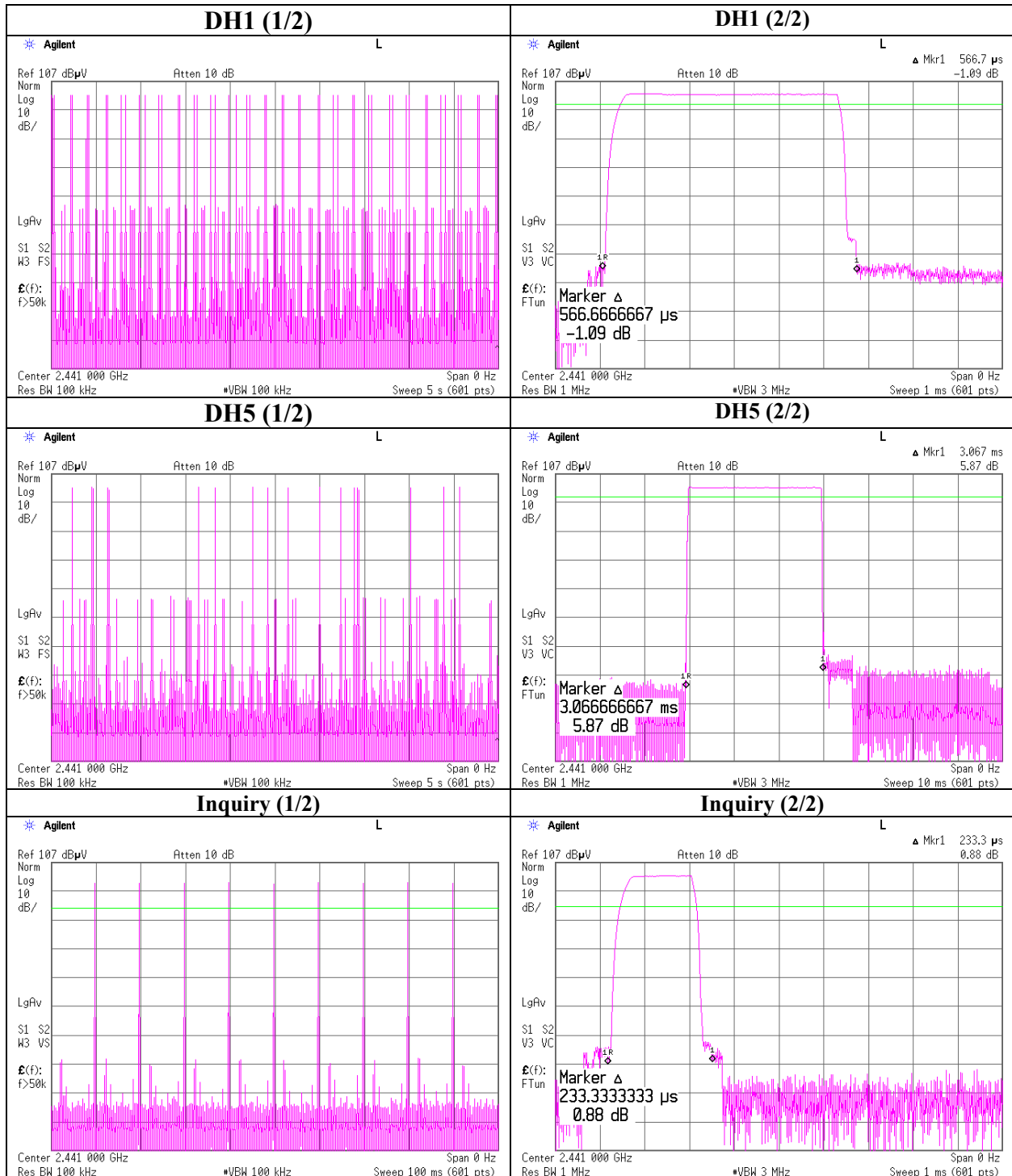
Mode	Number of transmission in a 31.6(79 Hopping x 0.4) / 12.8(32 Hopping x 0.4)second period	Length of transmission time [msec]	Result [msec]	Limit [msec]
DH1	53 times /5sec. x 31.6 = 334.96times	0.567	190	400
DH5	18 times / 5 sec. x 31.6 = 113.76 times	3.067	349	400
Inquiry	10 times / 0.1sec. x 12.8 = 1280 times	0.233	299	400

Model1, AFH on

Mode	Number of transmission in a 8(20 Hopping x 0.4) second period	Length of transmission time [msec]	Result [msec]	Limit [msec]
DH1	48 times /1sec. x 8 = 384.0 times	0.540	207	400
DH5	61 times / 5sec. x 8 = 97.6 times	3.067	299	400

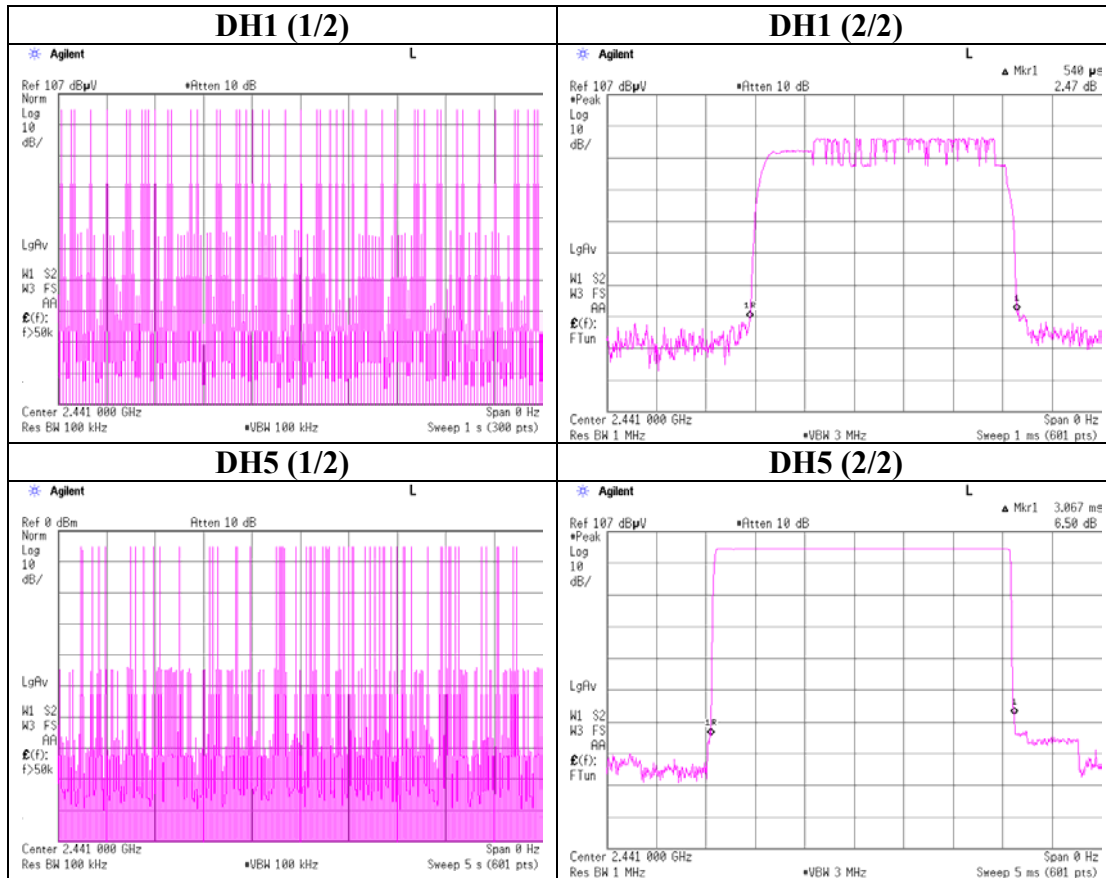
Dwell Factor calculation for Spurious emissions : $= 20 \times \log ((3.067 [\text{ms}] \times (61 / (5[\text{s}] / 0.100 [\text{s}]))) / 100 [\text{ms}]) = -28.5 \text{ dB}$

Dwell Time(Model) **AFH off**



Dwell Time(Model)

AFH on



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Maximum Peak Output Power(Model)

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

COMPANY	: Panasonic Communications Co.,Ltd.	REGULATION	: Fcc Part15 Subpart C 15.247(b)(1)
EQUIPMENT	: 2.4GHz FHSS Cordless Telephone (Base Unit)	TEST DISTANCE	: -
MODEL	: KX-TH102	DATE	: 05/17/2005
S/ N	: 0080F080113A	TEMPERATURE	: 25deg.C
POWER	: AC120V / 60Hz	HUMIDITY	: 35%
MODE	: Tx(Hopping off)/Inquiry	ENGINEER	: Mitsuru Fujimura

Ch	Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
Low	2402.0	-4.12	0.00	20.00	15.88	20.96	5.08
Mid	2441.0	-4.79	0.00	20.00	15.21	20.96	5.75
High	2480.0	-5.44	0.00	20.00	14.56	20.96	6.40
Inquiry	2441.0	-4.06	0.00	20.00	15.94	20.96	5.02

Sample Calculation:

Result = Reading + Cable Loss (supplied by customer)+ Attenuator

* In the above table, factor 0.0dB represents no use of Atten. and/or Filter.

Radiated Spurious Emission(Model1)

* The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

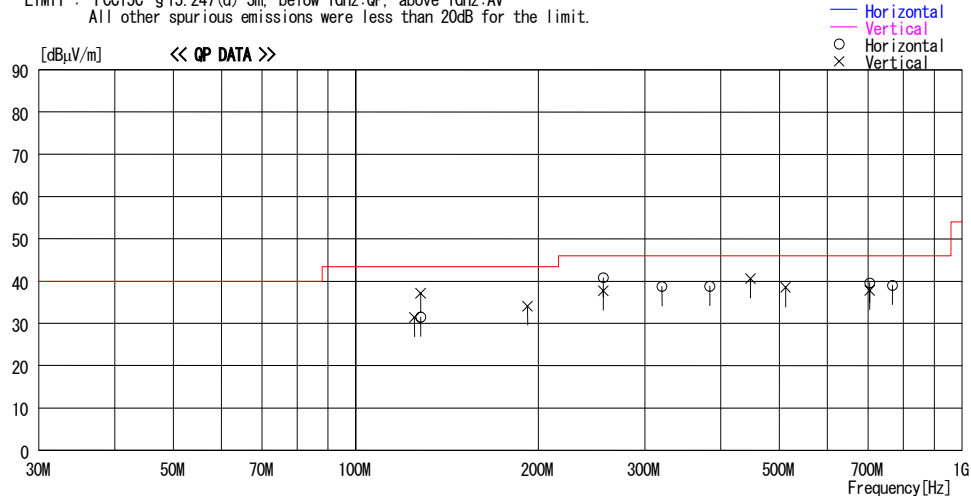
DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber

Applicant : Panasonic Communications Co., Ltd. Report No. : 251E0107-HO
Kind of EUT : 2.4GHz FHSS Cordless Telephone(Base Unit) Power : AC120V/60Hz (AC Adaptor)
Model No. : KX-TH102 Temp./Humi. : 25deg. C / 40%
Serial No. : 0080F0801154 Operator : Mitsuru Fujimura

Mode / Remarks : Mode1 Tx2441MHz /Main Antenna /EUT-Axis:Hor X-axis, Ver Y-axis Antenna0deg (Max-axis)

LIMIT : FCC15C §15.247(d) 3m, below 1GHz:QP, above 1GHz:AV
All other spurious emissions were less than 20dB for the limit.



No.	FREQ [MHz]	READING QP [dBμV]	ANT FACTOR [dB/m]	LOSS [dB]	GAIN [dB]	RESULT [dBμV/m]	LIMIT [dBμV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
Horizontal										
1	128.007	38.3	13.7	6.9	27.4	31.5	43.5	12.0	146	278
2	256.008	42.4	17.5	7.7	26.8	40.8	46.0	5.2	102	344
3	320.009	42.0	15.6	8.0	26.9	38.7	46.0	7.3	100	107
4	384.011	40.0	18.0	8.2	27.4	38.8	46.0	7.2	100	196
5	704.003	37.6	20.6	9.5	28.1	39.6	46.0	6.4	124	124
6	768.002	35.9	21.5	9.7	28.1	39.0	46.0	7.0	100	287
Vertical										
7	125.022	38.5	13.5	6.9	27.5	31.4	43.5	12.1	100	360
8	128.011	43.9	13.7	6.9	27.4	37.1	43.5	6.4	100	267
9	192.009	36.9	17.0	7.4	27.2	34.1	43.5	9.4	100	233
10	256.006	39.3	17.5	7.7	26.8	37.7	46.0	8.3	257	232
11	448.007	41.2	18.7	8.6	27.9	40.6	46.0	5.4	100	0
12	512.007	38.9	19.0	8.8	28.2	38.5	46.0	7.5	100	210
13	704.008	35.8	20.6	9.5	28.1	37.8	46.0	8.2	100	126

CHART:WITH FACTOR ANT TYPE : -30MHz LOOP, 30-300MHz BICONICAL, 300MHz-1000MHz LOGPERIODIC, 1000MHz- HORN
CALCULATION : READING + ANT. FACTOR + LOSS (CABLE+ATTEN.) - AMP. GAIN

*There was no difference in levels at low/mid/high channels between 30MHz and 1GHz, and thus test was conducted at Tx 2441MHz only.

UL Apex Co., Ltd.

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MF060b(10.04.03)

Radiated Spurious Emission(Model1)

UL Apex Co., Ltd.
Head Office EMC Lab. No.2 Semi Anechoic Chamber

Company : Panasonic Communications Co.,Ltd.
Equipment : 2.4GHz FHSS Cordless Telephone(Base Unit)
Model : KX-TH102
Sample No. : 0080F0801154
Power : AC 120 V / 60 Hz
Mode : Model, Tx 2402MHz
Remarks : Hor X-axis / Ver Y-axis

REPORT NO : 25IE0107-HO
REGULATION : Fcc Part15 Subpart C 15.247(d)
TEST DISTANCE : 3/1m
DATE : 05/16/2005
TEMPERATURE : 26deg.C
HUMIDITY : 30%
ENGINEER : Mitsuru Fujimura

PK DETECT (RBW: 1MHz, VBW: 1MHz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter or ATT [dB]	Dwell Factor [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER						HOR	VER		HOR	VER
		[dBuV]							[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1	2390.0	45.5	45.3	30.5	36.4	3.7	10.7	0.0	54.0	53.8	74.0	20.0	20.2
2	2400.0	85.8	84.8	30.5	36.4	3.7	10.7	0.0	94.3	93.3	74.0	-20.3	-19.3
3	4804.0	46.5	48.3	35.1	36.0	5.3	1.0	0.0	51.9	53.7	74.0	22.1	20.3
4	7206.0	46.2	47.9	37.7	36.1	6.6	0.4	0.0	54.8	56.5	74.0	19.2	17.5
5	9608.0	44.1	44.0	37.0	36.4	7.9	0.1	0.0	52.7	52.6	74.0	21.3	21.4
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
6	12010.0	42.1	42.5	41.6	36.1	9.5	0.0	0.0	47.6	48.0	74.0	26.4	26.0
7	14412.0	41.4	41.9	41.7	34.6	9.7	0.0	0.0	48.7	49.2	74.0	25.3	24.8
8	16814.0	43.9	45.3	45.1	35.1	10.6	0.0	0.0	55.0	56.4	74.0	19.0	17.6
9	19216.0	43.2	44.8	40.1	34.1	12.0	0.0	0.0	51.7	53.3	74.0	22.3	20.7
10	21618.0	44.6	44.8	39.8	34.8	12.0	0.0	0.0	52.1	52.3	74.0	21.9	21.7
11	24020.0	45.2	45.1	40.4	35.5	13.9	0.0	0.0	54.5	54.4	74.0	19.5	19.6

AV DETECT (RBW: 1MHz, VBW: 10Hz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter or ATT [dB]	Dwell Factor [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER						HOR	VER		HOR	VER
		[dBuV]							[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1	2390.0	32.7	32.5	30.5	36.4	3.7	10.7	-28.5	12.7	12.5	54.0	41.3	41.5
2	2400.0	73.4	72.6	30.5	36.4	3.7	10.7	-28.5	53.4	52.6	54.0	0.6	1.4
3	4804.0	37.4	40.0	35.1	36.0	5.3	1.0	-28.5	14.3	16.9	54.0	39.7	37.1
4	7206.0	34.7	39.0	37.7	36.1	6.6	0.4	-28.5	14.8	19.1	54.0	39.2	34.9
5	9608.0	32.5	31.9	37.0	36.4	7.9	0.1	-28.5	12.6	12.0	54.0	41.4	42.0
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
6	12010.0	29.3	29.6	41.6	36.1	9.5	0.0	-28.5	6.3	6.6	54.0	47.7	47.4
7	14412.0	28.7	28.8	41.7	34.6	9.7	0.0	-28.5	7.5	7.6	54.0	46.5	46.4
8	16814.0	31.6	31.5	45.1	35.1	10.6	0.0	-28.5	14.2	14.1	54.0	39.8	39.9
9	19216.0	30.8	30.8	40.1	34.1	12.0	0.0	-28.5	10.8	10.8	54.0	43.2	43.2
10	21618.0	32.1	32.1	39.8	34.8	12.0	0.0	-28.5	11.1	11.1	54.0	42.9	42.9
11	24020.0	32.1	32.3	40.4	35.5	13.9	0.0	-28.5	12.9	13.1	54.0	41.1	40.9

20dBc(Fundamental 2402MHz) (RBW: 100kHz, VBW: 300kHz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATT LOSS [dB]	Dwell Factor [dB]	RESULT		Limit 20dBc [dBuV/m]	MARGIN	
		HOR	VER						HOR [dBuV/m]	VER [dBuV/m]		HOR [dB]	VER [dB]
		[dBuV]											
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
0	2402.0	110.6	109.6	30.5	36.4	3.7	10.7	0.0	119.1	118.1	-	-	-
2	2400.0	53.8	52.9	30.5	36.4	3.7	10.7	0.0	62.3	61.4	Funda-20dB	36.8	36.7

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

*Except for the above table : All other spurious emissions were less than 20dB for the limit.

*In the frequency over the fifth harmonic, the noise from the EUT was not seen. The data above is its base noise.

*The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

*Hi-Pass Filter was not used for factor 0.0dB of the above table.

*Dwell Factor calculation for Spurious emissions : $= 20 \times \log \left(\left(3.067 \text{ [ms]} \times \left(61 / \left(5 \text{ [s]} / 0.100 \text{ [s]} \right) \right) \right) / 100 \text{ [ms]} \right) = -28.5 \text{ dB}$

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MF060b(10.04.03)

Radiated Spurious Emission(Model1)

UL Apex Co., Ltd.
Head Office EMC Lab. No.2 Semi Anechoic Chamber

Company : Panasonic Communications Co.,Ltd.
Equipment : 2.4GHz FHSS Cordless Telephone(Base Unit)
Model : KX-TH102
Sample No. : 0080F0801154
Power : AC 120 V / 60 Hz
Mode : Model, Tx 2441MHz
Remarks : Hor X-axis / Ver Y-axis

REPORT NO : 25IE0107-HO
REGULATION : Fcc Part15 Subpart C 15.247(d)
TEST DISTANCE : 3/1m
DATE : 05/16/2005
TEMPERATURE : 26deg.C
HUMIDITY : 30%
ENGINEER : Keiich Aoki

PK DETECT (RBW: 1MHz, VBW: 1MHz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter or ATT [dB]	Dwell Factor [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER						HOR	VER		HOR	VER
		[dBuV]							[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1	4881.9	48.5	49.5	35.6	36.0	5.3	1.0	0.0	54.4	55.4	74.0	19.6	18.6
2	7322.7	43.4	46.7	37.9	36.0	6.6	0.5	0.0	52.4	55.7	74.0	21.6	18.3
3	9764.1	44.8	44.3	36.8	36.4	8.1	0.2	0.0	53.5	53.0	74.0	20.5	21.0
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
4	12205.0	41.9	43.3	41.6	36.0	9.5	0.0	0.0	47.5	48.9	74.0	26.5	25.1
5	14646.0	42.0	42.2	42.2	35.2	9.8	0.0	0.0	49.3	49.5	74.0	24.7	24.5
6	17087.0	44.5	44.2	45.2	34.9	10.8	0.0	0.0	56.1	55.8	74.0	17.9	18.2
7	19528.0	44.3	44.9	40.3	34.3	12.1	0.0	0.0	52.9	53.5	74.0	21.1	20.5
8	21969.0	44.8	45.7	39.8	34.2	12.0	0.0	0.0	52.9	53.8	74.0	21.1	20.2
9	24410.0	43.7	44.8	40.4	35.8	14.0	0.0	0.0	52.8	53.9	74.0	21.2	20.1

AV DETECT (RBW: 1MHz, VBW: 10Hz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter or ATT [dB]	Dwell Factor [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER						HOR	VER		HOR	VER
		[dBuV]							[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1	4881.9	41.5	41.9	35.6	36.0	5.3	1.0	-28.5	18.9	19.3	54.0	35.1	34.7
2	7322.7	30.7	36.8	37.9	36.0	6.6	0.5	-28.5	11.2	17.3	54.0	42.8	36.7
3	9764.1	33.7	30.9	36.8	36.4	8.1	0.2	-28.5	13.9	11.1	54.0	40.1	42.9
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
4	12205.0	29.1	29.2	41.6	36.0	9.5	0.0	-28.5	6.2	6.3	54.0	47.8	47.7
5	14646.0	29.3	28.8	42.2	35.2	9.8	0.0	-28.5	8.1	7.6	54.0	45.9	46.4
6	17087.0	31.8	31.7	45.2	34.9	10.8	0.0	-28.5	14.9	14.8	54.0	39.1	39.2
7	19528.0	31.3	31.3	40.3	34.3	12.1	0.0	-28.5	11.4	11.4	54.0	42.6	42.6
8	21969.0	32.3	32.2	39.8	34.2	12.0	0.0	-28.5	11.9	11.8	54.0	42.1	42.2
9	24410.0	31.0	31.0	40.4	35.8	14.0	0.0	-28.5	11.6	11.6	54.0	42.4	42.4

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

*Except for the above table : All other spurious emissions were less than 20dB for the limit.

*In the frequency over the fifth harmonic, the noise from the EUT was not seen. The data above is its base noise.

*The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

*Hi-Pass Fiter was not used for factor 0.0dB of the above table.

*Dwell Factor calculation for Spurious emissions : $= 20 \times \log \left(\left(3.067 \text{ [ms]} \times \left(61 / \left(5 \text{ [s]} / 0.100 \text{ [s]} \right) \right) \right) / 100 \text{ [ms]} \right) = -28.5 \text{ dB}$

Radiated Spurious Emission (Mode1)

UL Apex Co., Ltd.
Head Office EMC Lab. No.2 Semi Anechoic Chamber

Company : Panasonic Communications Co.,Ltd. Equipment : 2.4GHz FHSS Cordless Telephone(Base Unit) Model : KX-TH102 Sample No. : 0080F0801154 Power : AC 120 V / 60 Hz Mode : Model1, Tx 2480MHz Remarks : Hor X-axis / Ver Y-axis	REPORT NO : 25IE0107-HO REGULATION : Fcc Part15 Subpart C 15.247(d) TEST DISTANCE : 3/1m DATE : 05/16/2005 TEMPERATURE : 26deg.C HUMIDITY : 30% ENGINEER : Mitsuru Fujimura
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PK DETECT (RBW: 1MHz, VBW: 1MHz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter or ATT [dB]	Dwell Factor [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER						HOR	VER		HOR	VER
		[dBuV]							[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
2	4960.0	44.8	46.6	36.1	35.9	5.3	1.1	0.0	51.4	53.2	74.0	22.6	20.8
3	7440.3	44.7	45.7	38.1	35.9	6.7	0.7	0.0	54.3	55.3	74.0	19.7	18.7
4	9920.4	46.0	45.7	36.7	36.5	8.1	0.3	0.0	54.6	54.3	74.0	19.4	19.7
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
5	12400.0	42.3	42.5	41.7	35.9	9.5	0.0	0.0	48.1	48.3	74.0	25.9	25.7
6	14880.0	42.5	41.8	42.7	36.0	9.9	0.0	0.0	49.6	48.9	74.0	24.4	25.1
7	17360.0	44.3	44.4	44.7	35.1	11.0	0.0	0.0	55.4	55.5	74.0	18.6	18.5
8	19840.0	43.6	44.0	40.4	34.8	12.3	0.0	0.0	52.0	52.4	74.0	22.0	21.6
9	22320.0	44.5	45.5	39.8	34.1	12.3	0.0	0.0	53.0	54.0	74.0	21.0	20.0
10	24800.0	43.7	43.7	40.7	35.1	14.0	0.0	0.0	53.8	53.8	74.0	20.2	20.2

AV DETECT (RBW: 1MHz, VBW: 10Hz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter or ATT [dB]	Dwell Factor [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER						HOR	VER		HOR	VER
		[dBuV]							[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
2	4960.0	35.2	36.3	36.1	35.9	5.3	1.1	-28.5	13.3	14.4	54.0	40.7	39.6
3	7440.3	32.7	35.4	38.1	35.9	6.7	0.7	-28.5	13.8	16.5	54.0	40.2	37.5
4	9920.4	33.8	33.4	36.7	36.5	8.1	0.3	-28.5	13.9	13.5	54.0	40.1	40.5
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
5	12400.0	29.5	29.6	41.7	35.9	9.5	0.0	-28.5	6.8	6.9	54.0	47.2	47.1
6	14880.0	29.2	29.1	42.7	36.0	9.9	0.0	-28.5	7.8	7.7	54.0	46.2	46.3
7	17360.0	31.6	31.5	44.7	35.1	11.0	0.0	-28.5	14.2	14.1	54.0	39.8	39.9
8	19840.0	31.5	31.4	40.4	34.8	12.3	0.0	-28.5	11.4	11.3	54.0	42.6	42.7
9	22320.0	32.2	32.1	39.8	34.1	12.3	0.0	-28.5	12.2	12.1	54.0	41.8	41.9
10	24800.0	31.0	30.9	40.7	35.1	14.0	0.0	-28.5	12.6	12.5	54.0	41.4	41.5

Marker-Delta Method (RBW:100kHz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATT LOSS [dB]	Dwell Factor [dB]	RESULT		Limit [dBuV/m]	MARGIN	
		HOR	VER						HOR	VER		HOR	VER
		[dBuV]							[dBuV/m]				[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
PK DETECT													
1	2483.5	47.9	48.5	30.5	36.4	3.7	10.7	0.0	56.4	57.0	74.0	17.6	17.0
AV DETECT													
1	2483.5	38.5	37.8	30.5	36.4	3.7	10.7	0.0	47.0	46.3	54.0	7.0	7.7

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

*Except for the above table : All other spurious emissions were less than 20dB for the limit.

*In the frequency over the fifth harmonic, the noise from the EUT was not seen. The data above is its base noise.

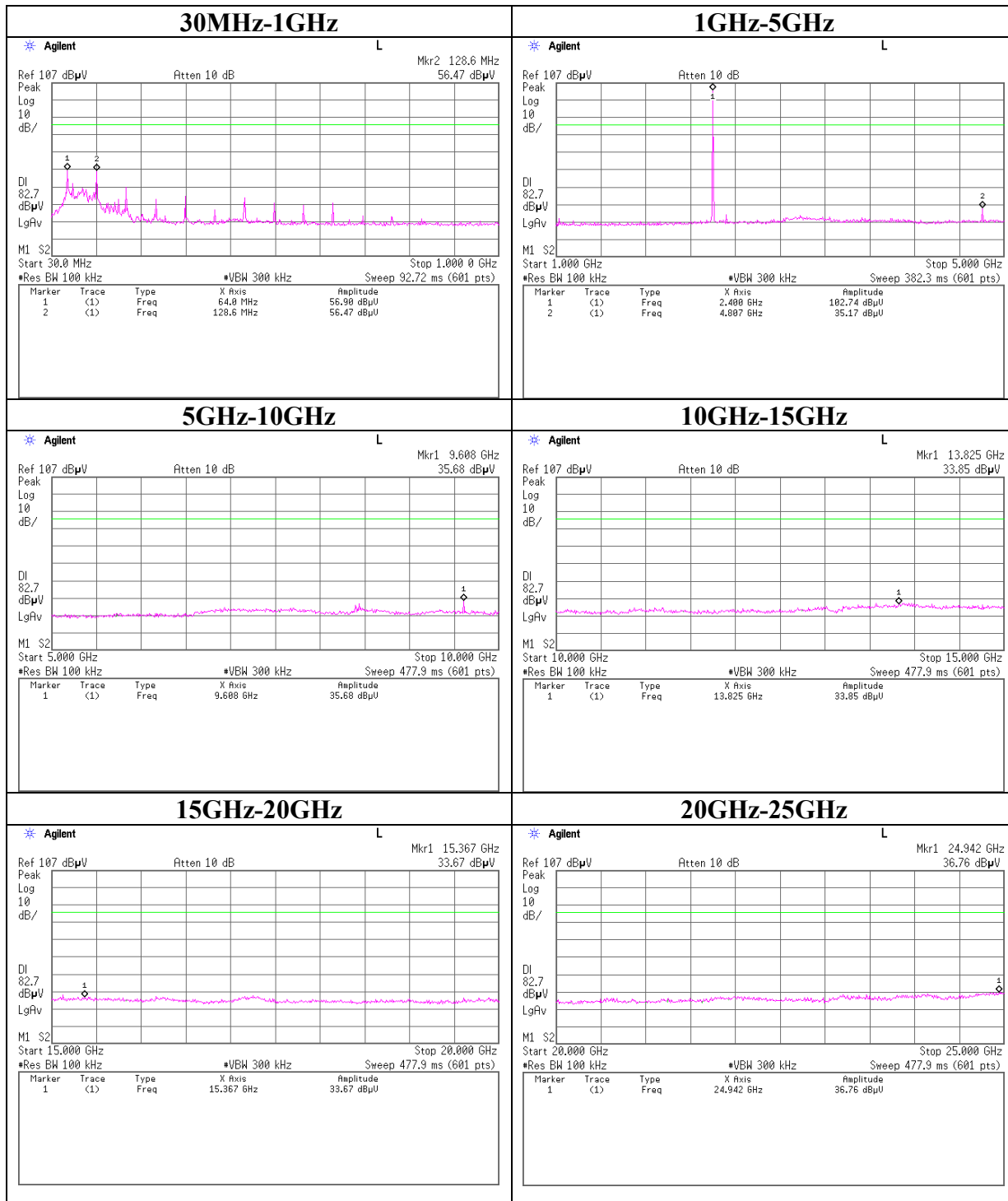
*The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

*Hi-Pass Fiter was not used for factor 0.0dB of the above table.

*Dwell Factor calculation for Spurious emissions : = 20 x log ((3.067 [ms] x (61 / (5[s] /0.100 [s]))) / 100 [ms]) = -28.5 dB

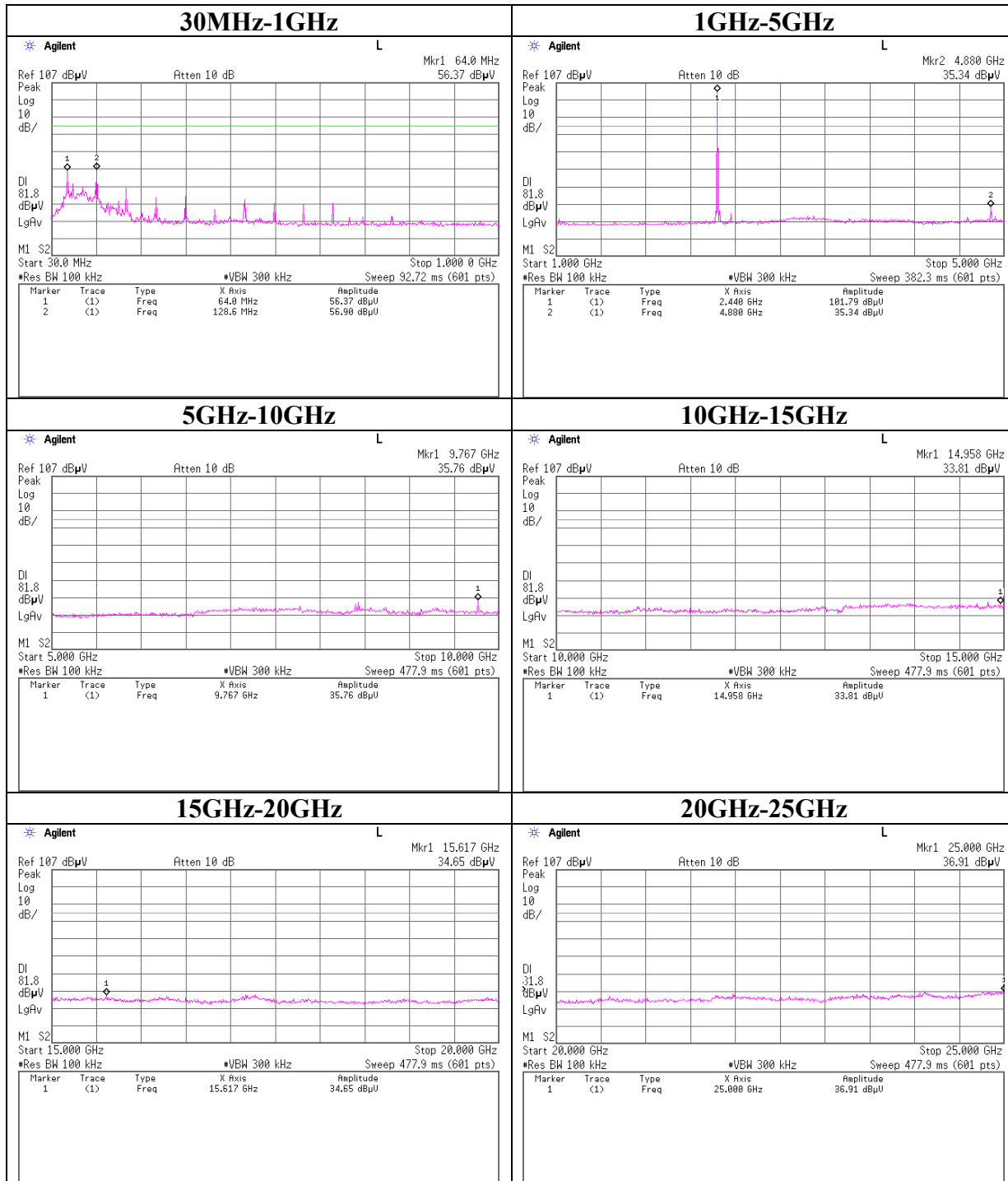
Conducted Spurious Emission (Mode1)

Ch:Low

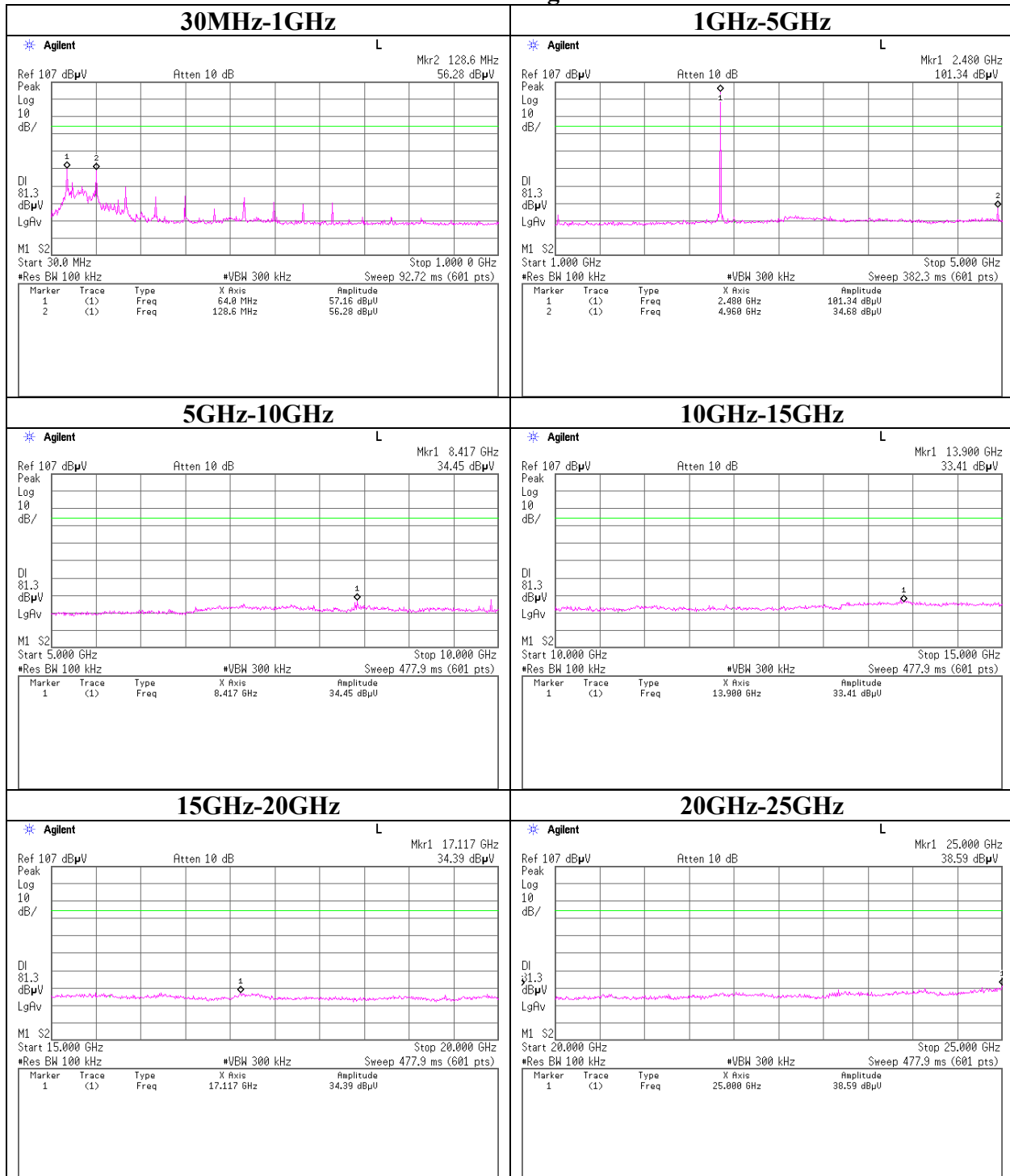


Conducted Spurious Emission (Mode1)

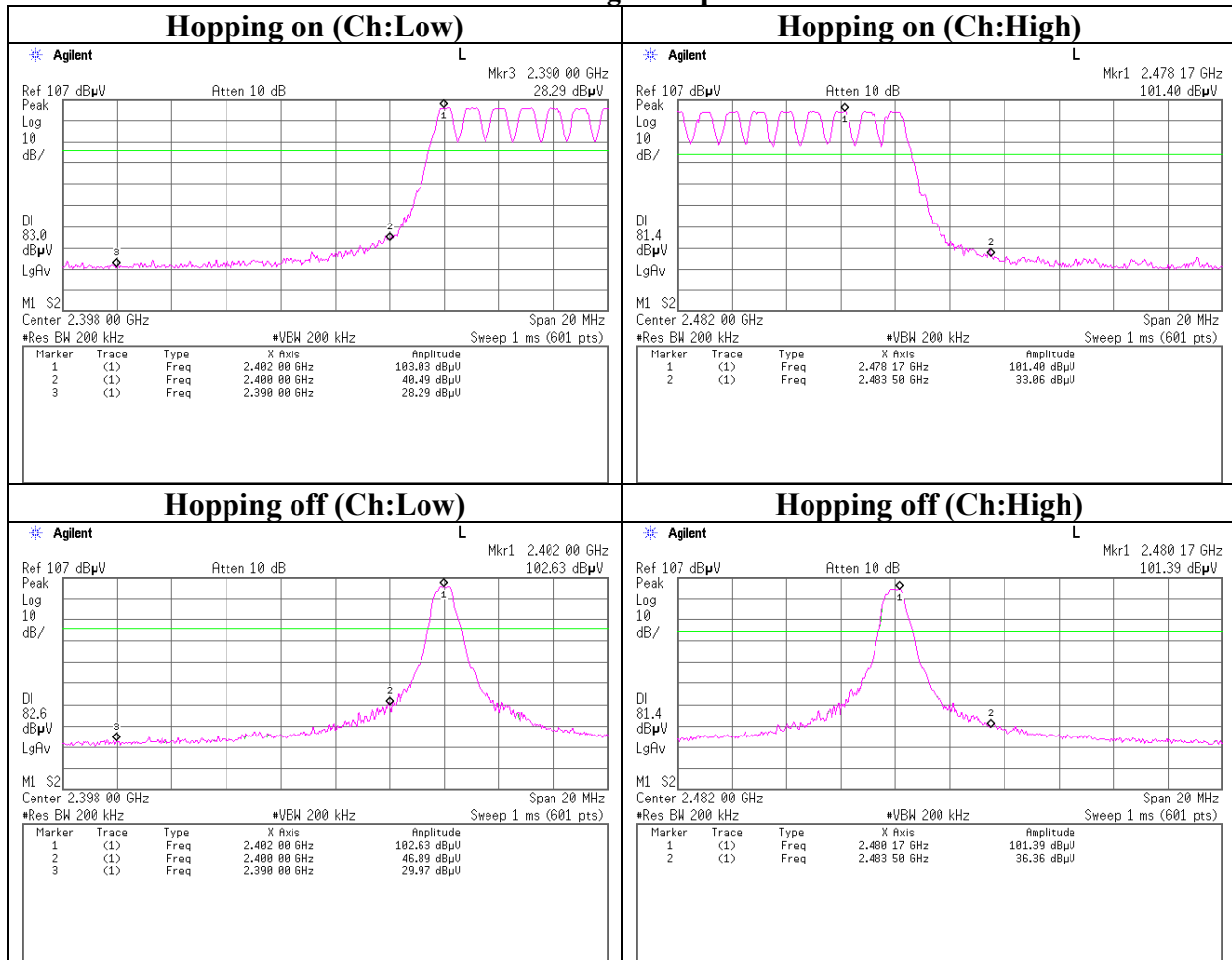
Ch:Mid



Conducted Spurious Emission (Model)
Ch:High



Conducted Spurious Emission (Model)
Band Edge compliance



[Mode2]

Conducted Emission (Mode2)

DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber

Applicant : Panasonic Communications Co.,Ltd. Report No. : 251E0107-HO
Kind of EUT : 2.4GHz FHSS Cordless Telephone(Base Unit) Power : AC120V / 60Hz (AC Adaptor)
Model No. : KX-TH102 Temp°C/Humi% : 28 / 35
Serial No. : 0080F0801154 Operator : Keiichi Aoki

Mode / Remarks: Mode2 Tx2402MHz /Main Antenna

LIMIT : FCC15C § 15.207 (QP)
FCC15C § 15.207 (AV)

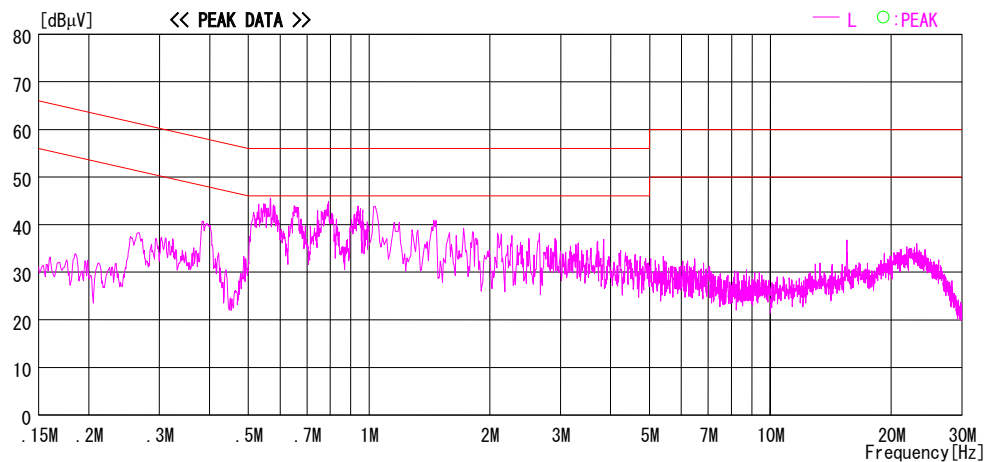
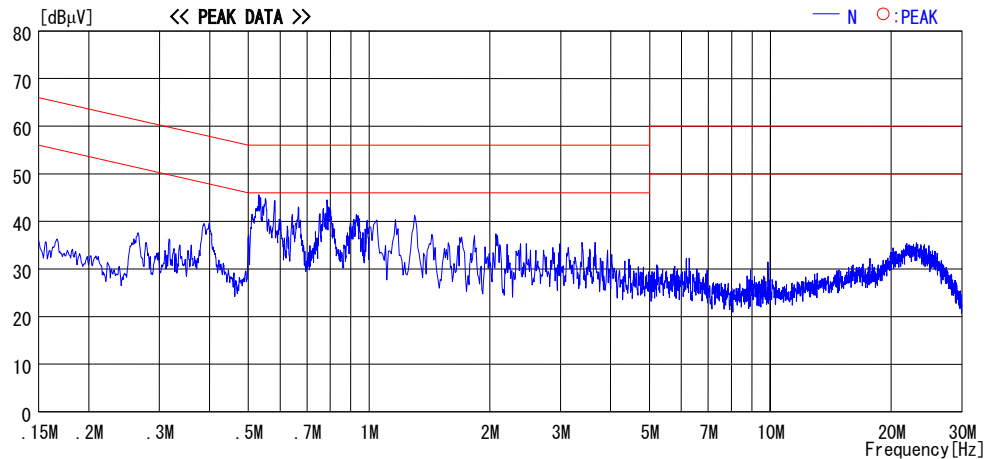


CHART:WITH FACTOR,Peak hold data.Data is uncorrected.
Except for the above table : adequate margin data below the limits.

UL Apex Co., Ltd.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

MF060b(10.04.03)

DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber

Applicant : Panasonic Communications Co., Ltd. Report No. : 251E0107-HO
Kind of EUT : 2.4GHz FHSS Cordless Telephone(Base Unit) Power : AC120V / 60Hz (AC Adaptor)
Model No. : KX-TH102 Temp°C/Humi% : 28 / 35
Serial No. : 0080F0801154 Operator : Keiichi Aoki

Mode / Remarks: Mode2 Tx2440MHz /Main Antenna

LIMIT : FCC15C § 15.207 (QP)
FCC15C § 15.207 (AV)

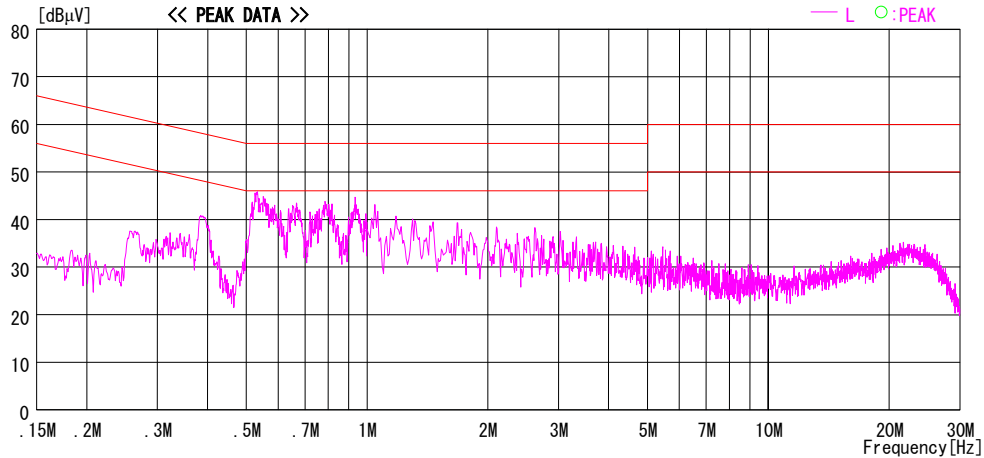
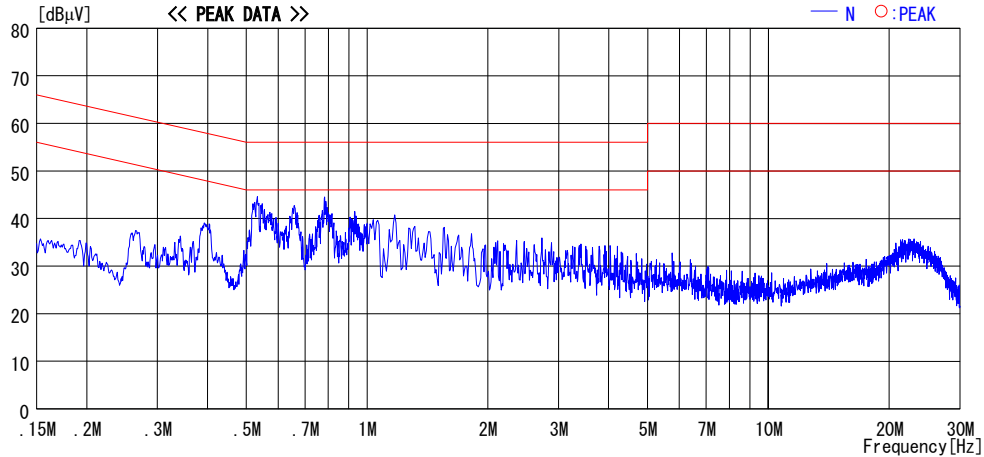


CHART:WITH FACTOR,Peak hold data.Data is uncorrected.
Except for the above table : adequate margin data below the limits.

UL Apex Co., Ltd.

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MF060b(10.04.03)

DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber

Applicant : Panasonic Communications Co., Ltd. Report No. : 251E0107-HO
Kind of EUT : 2.4GHz FHSS Cordless Telephone(Base Unit) Power : AC120V / 60Hz (AC Adaptor)
Model No. : KX-TH102 Temp°C/Humi% : 28 / 35
Serial No. : 0080F0801154 Operator : Keiichi Aoki

Mode / Remarks: Mode2 Tx2480MHz /Main Antenna

LIMIT : FCC15C § 15.207 (QP)
FCC15C § 15.207 (AV)

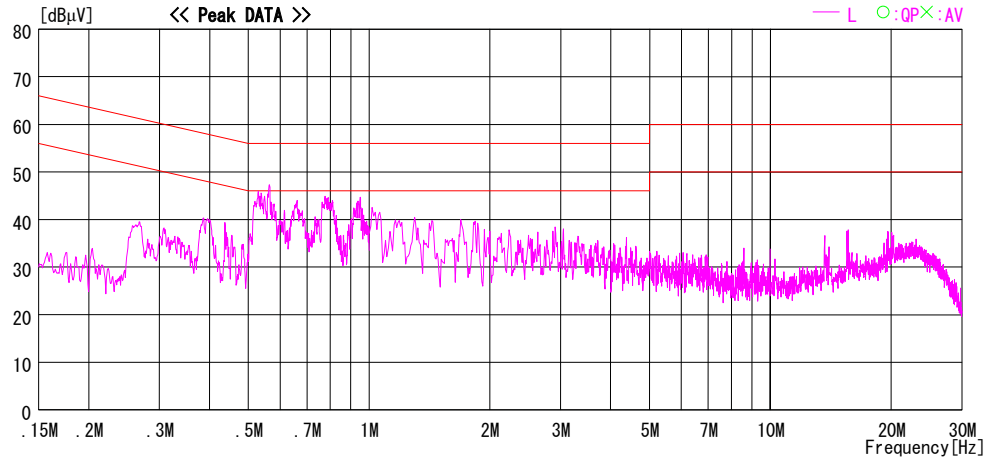
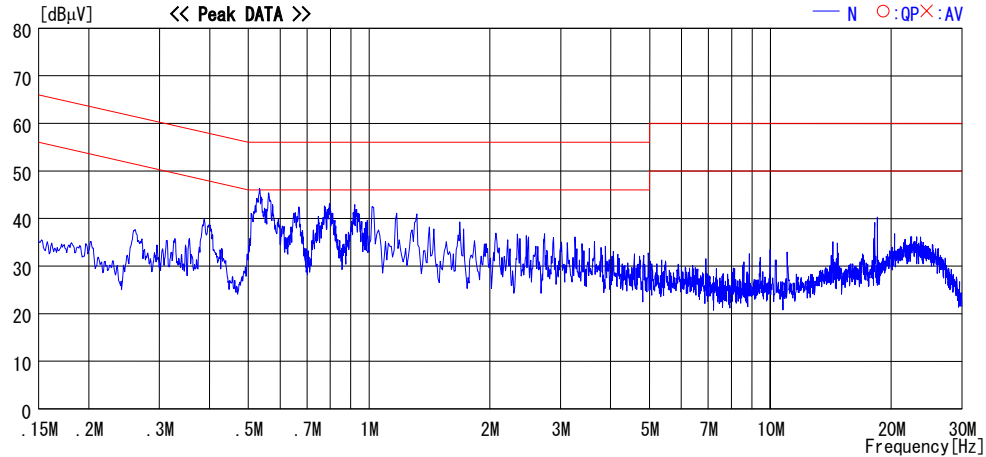


CHART:WITH FACTOR,Peak hold data.Data is uncorrected.
Except for the above table : adequate margin data below the limits.

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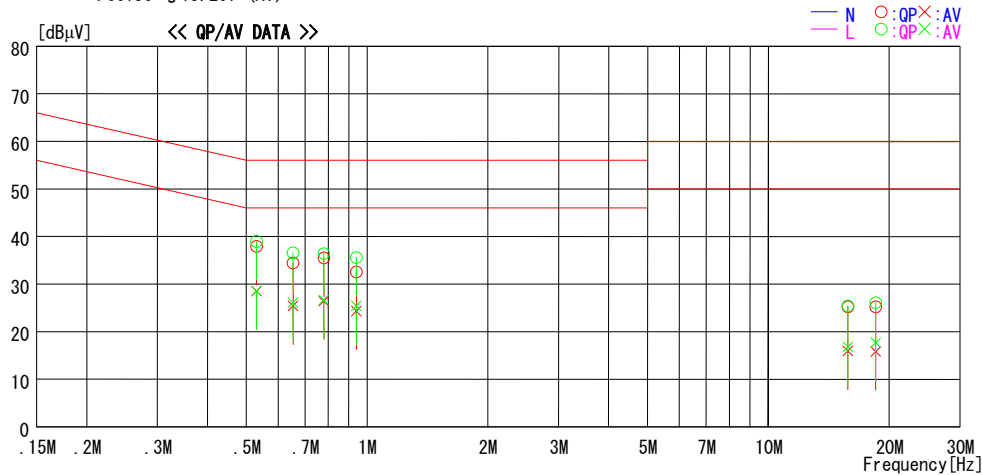
DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber

Applicant : Panasonic Communications Co., Ltd. Report No. : 251E0107-HO
Kind of EUT : 2.4GHz FHSS Cordless Telephone(Base Unit) Power : AC120V / 60Hz (AC Adaptor)
Model No. : KX-TH102 Temp°C/Humi% : 28 / 35
Serial No. : 0080F0801154 Operator : Keiichi Aoki

Mode / Remarks: Mode2 Tx2480MHz /Main Antenna

LIMIT : FCC15C § 15.207 (QP)
FCC15C § 15.207 (AV)



NO	FREQ [MHz]	READING		C. F	RESULT		LIMIT		MARGIN		PHASE
		QP [dBμV]	AV [dBμV]		QP [dBμV]	AV [dBμV]	QP [dBμV]	AV [dBμV]	QP [dB]	AV [dB]	
1	0.5297	37.8	28.4	0.1	37.9	28.5	56.0	46.0	18.1	17.5	N
2	0.6536	34.3	25.3	0.1	34.4	25.4	56.0	46.0	21.6	20.6	N
3	0.7795	35.3	26.2	0.2	35.5	26.4	56.0	46.0	20.5	19.6	N
4	0.9404	32.4	24.1	0.2	32.6	24.3	56.0	46.0	23.4	21.7	N
5	15.7862	23.9	14.6	1.3	25.2	15.9	60.0	50.0	34.8	34.1	N
6	18.5351	23.7	14.3	1.5	25.2	15.8	60.0	50.0	34.8	34.2	N
7	0.5297	38.9	28.4	0.1	39.0	28.5	56.0	46.0	17.0	17.5	L
8	0.6536	36.5	26.0	0.1	36.6	26.1	56.0	46.0	19.4	19.9	L
9	0.7795	36.2	26.4	0.2	36.4	26.6	56.0	46.0	19.6	19.4	L
10	0.9404	35.4	25.2	0.2	35.6	25.4	56.0	46.0	20.4	20.6	L
11	15.7862	24.1	15.5	1.3	25.4	16.8	60.0	50.0	34.6	33.2	L
12	18.5351	24.6	16.2	1.5	26.1	17.7	60.0	50.0	33.9	32.3	L

CHART:WITH FACTOR,Peak hold data,Data is uncorrected.
Except for the above table : adequate margin data below the limits.

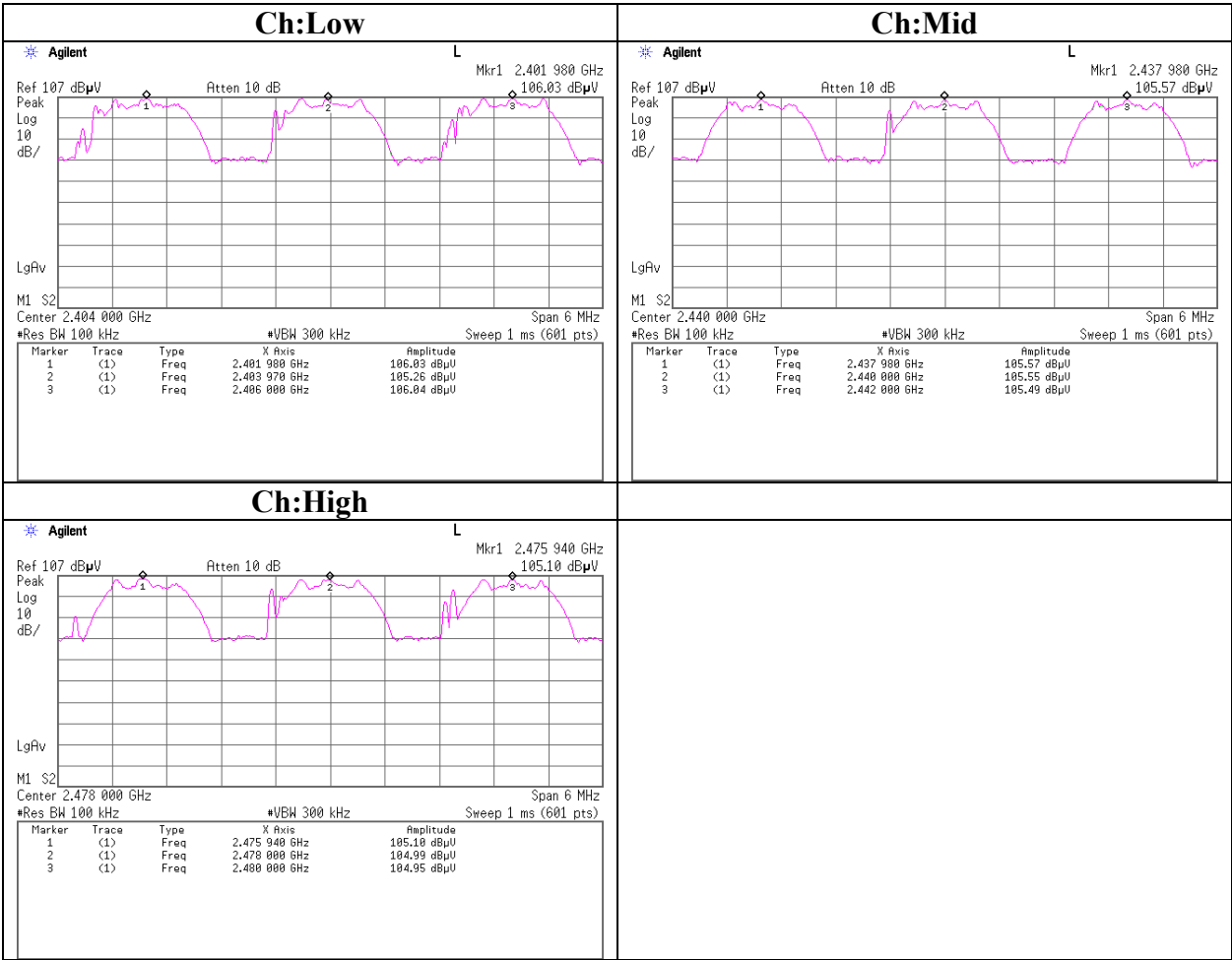
Carrier Frequency Separation (Mode2)

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

COMPANY	: Panasonic Communications Co.,Ltd.	REGULATION	: Fcc Part15 Subpart C 15.247(a)(1)
EQUIPMENT	: 2.4GHz FHSS Cordless Telephone (Base Unit)	TEST DISTANCE	: -
MODEL	: KX-TH102	DATE	: 05/17/2005
S/ N	: 0080F080113A	TEMPERATURE	: 25deg.C
POWER	: AC120V / 60Hz	HUMIDITY	: 35%
MODE	: Tx(Hopping on)	ENGINEER	: Mitsuru Fujimura

Ch	Freq. [MHz]	Channel separation [MHz]	Limit
Low	2402.0	1.990	>two-thirds of 20dB Bandwidth or 25[kHz]
Mid	2440.0	2.000	>two-thirds of 20dB Bandwidth or 25[kHz]
High	2480.0	2.000	>two-thirds of 20dB Bandwidth or 25[kHz]

Carrier Frequency Separation(Mode2)



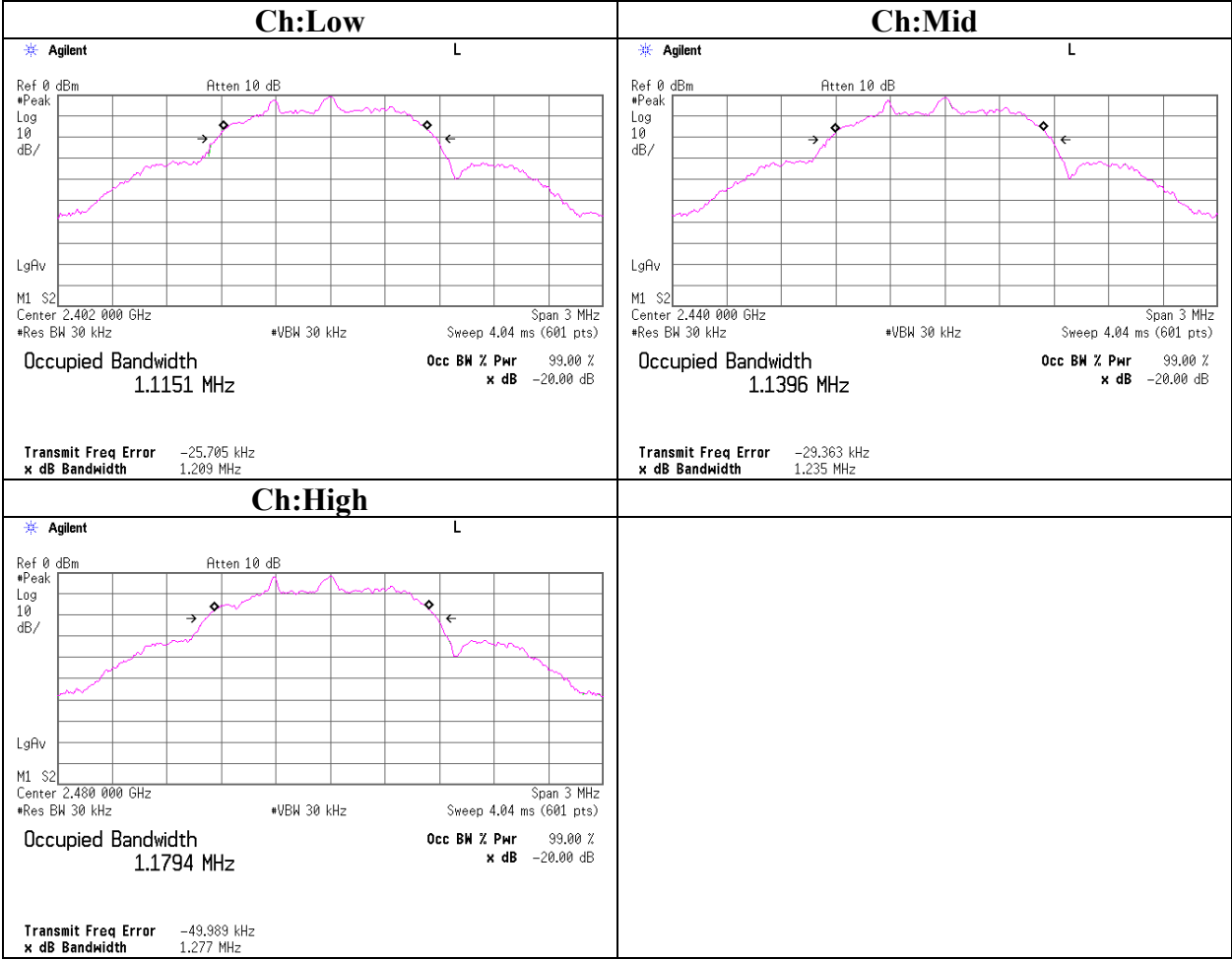
20dB Bandwidth(Mode2)

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

COMPANY	: Panasonic Communications Co.,Ltd.	REGULATION	: Fcc Part15 Subpart C 15.247(a)(1)
EQUIPMENT	: 2.4GHz FHSS Cordless Telephone (Base Unit)	TEST DISTANCE	: -
MODEL	: KX-TH102	DATE	: 05/17/2005
S/ N	: 0080F080113A	TEMPERATURE	: 25deg.C
POWER	: AC120V / 60Hz	HUMIDITY	: 35%
MODE	: Tx (Hopping off)	ENGINEER	: Mitsuru Fujimura

Ch	Freq.	20dB Bandwidth	Limit
	[MHz]	[MHz]	[MHz]
Low	2402.0	1.209	-
Mid	2440.0	1.235	-
High	2480.0	1.277	-

20dB Bandwidth(Mode2)



Number of Hopping Frequency(Mode2)

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

COMPANY	: Panasonic Communications Co.,Ltd.	REGULATION	: Fcc Part15 Subpart C 15.247(a)(1)(iii)
EQUIPMENT	: 2.4GHz FHSS Cordless Telephone (Base Unit)	TEST DISTANCE	: -
MODEL	: KX-TH102	DATE	: 05/17/2005
S/ N	: 0080F080113A	TEMPERATURE	: 25deg.C
POWER	: AC120V / 60Hz	HUMIDITY	: 35%
MODE	: Tx (Hopping on)	ENGINEER	: Mitsuru Fujimura

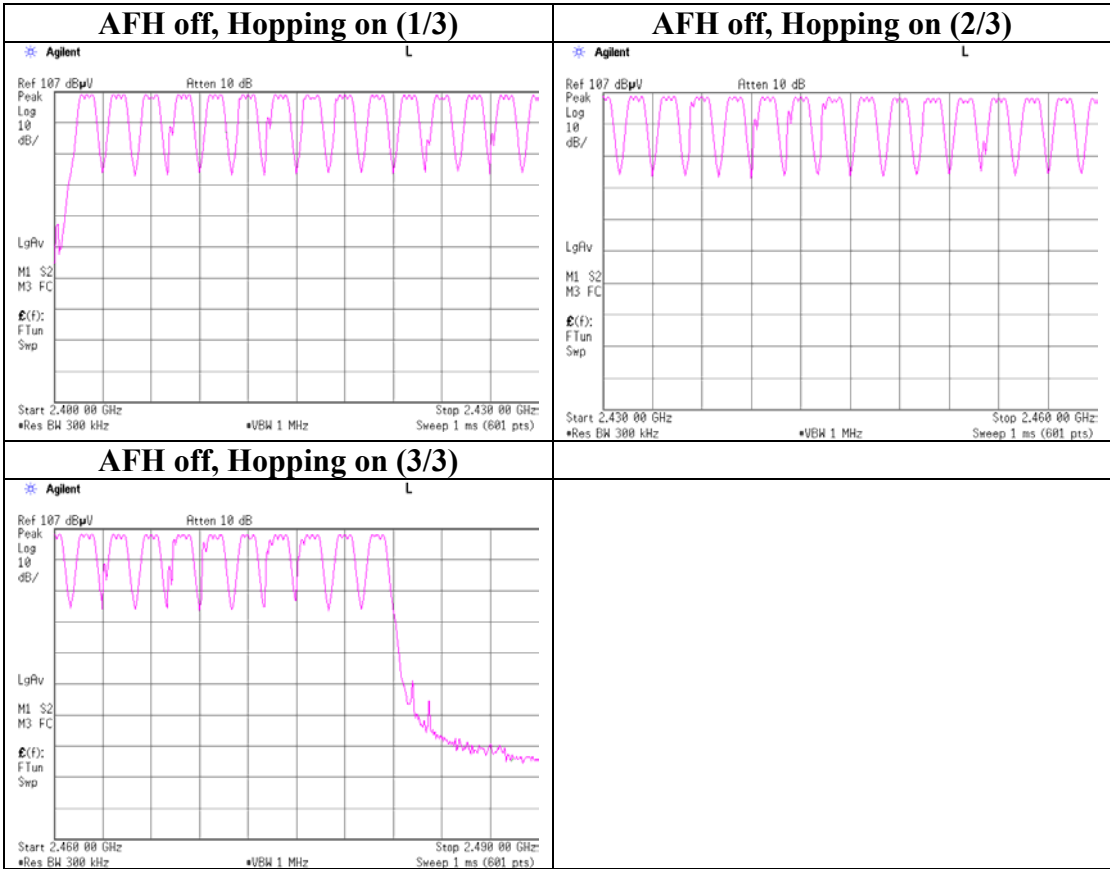
Mode 2, AFH off

Mode	Number of channel	Limit
	[time]	[time]
Tx(Hopping on)	40	≥ 15

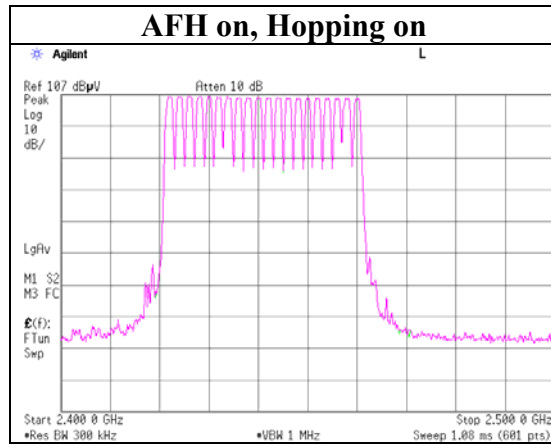
Mode 2, AFH on

Mode	Number of channel	Limit
	[time]	[time]
Tx(Hopping on)	20	≥ 15

Number of Hopping Frequency(Mode2)



Number of Hopping Frequency(Mode2)



Dwell Time(Mode2)

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

COMPANY : Panasonic Communications Co.,Ltd.	REGULATION : Fcc Part15 Subpart C 15.247(a)(1)(iii)
EQUIPMENT : 2.4GHz FHSS Cordless Telephone (Base Unit)	TEST DISTANCE : -
MODEL : KX-TH102	DATE : 05/17/2005
S/ N : 0080F080113A	TEMPERATURE : 25deg.C
POWER : AC120V / 60Hz	HUMIDITY : 35%
MODE : Tx (Hopping on)	ENGINEER : Mitsuru Fujimura

Mode2,AFH off

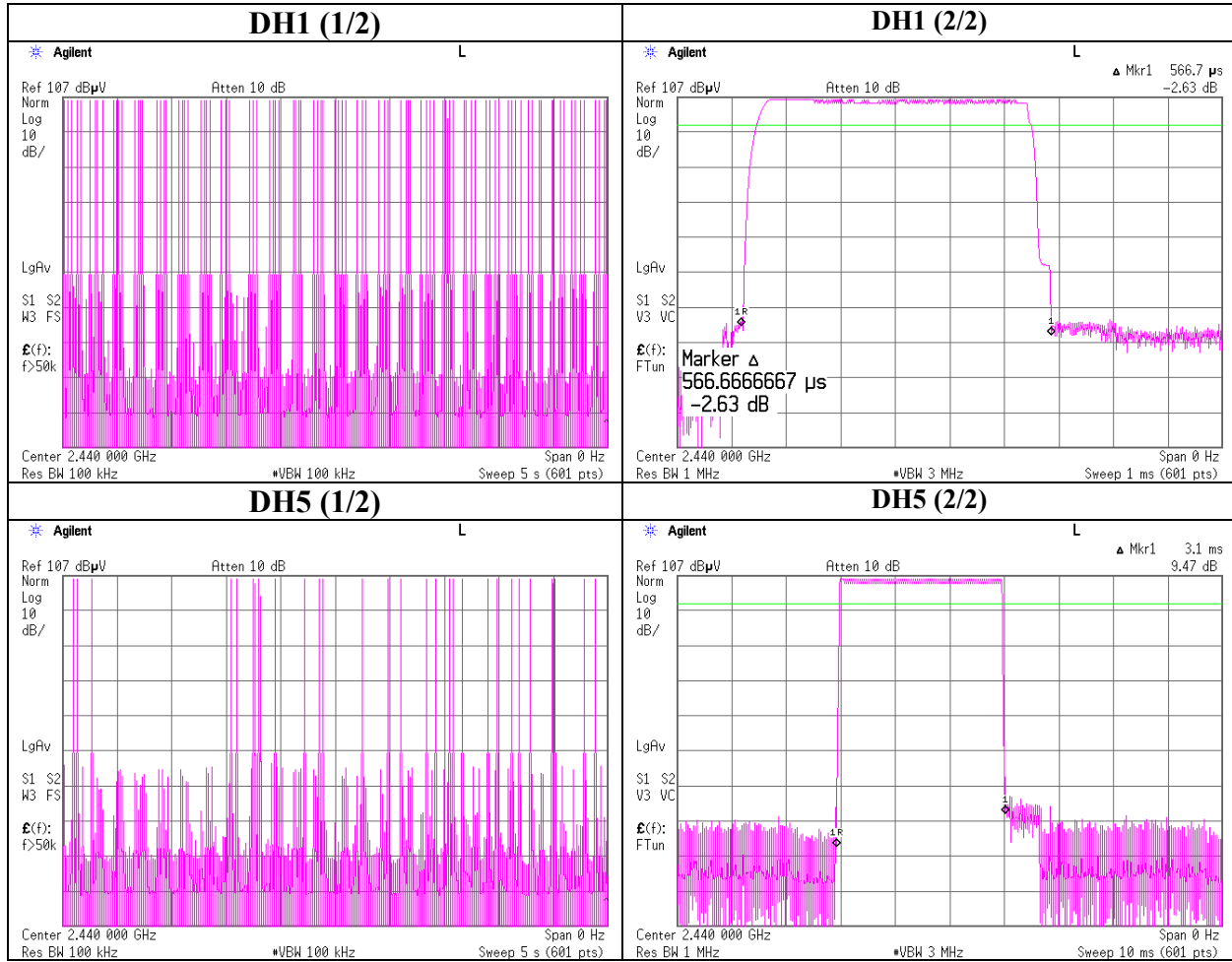
Mode	Number of transmission in a 16(40 Hopping x 0.4) second period	Length of transmission time [msec]	Result [msec]	Limit [msec]
DH1	96 times /5sec. x 16 = 307.2 times	0.567	174	400
DH5	30 times /5 sec. x 16 = 96 times	3.100	298	400

Mode2, AFH on

Mode	Number of transmission in a 8(20 Hopping x 0.4) second period	Length of transmission time [msec]	Result [msec]	Limit [msec]
DH1	40 times /1sec. x 8 = 320.0 times	0.563	180	400
DH5	74 times / 5sec. x 8 = 118.4 times	3.075	364	400

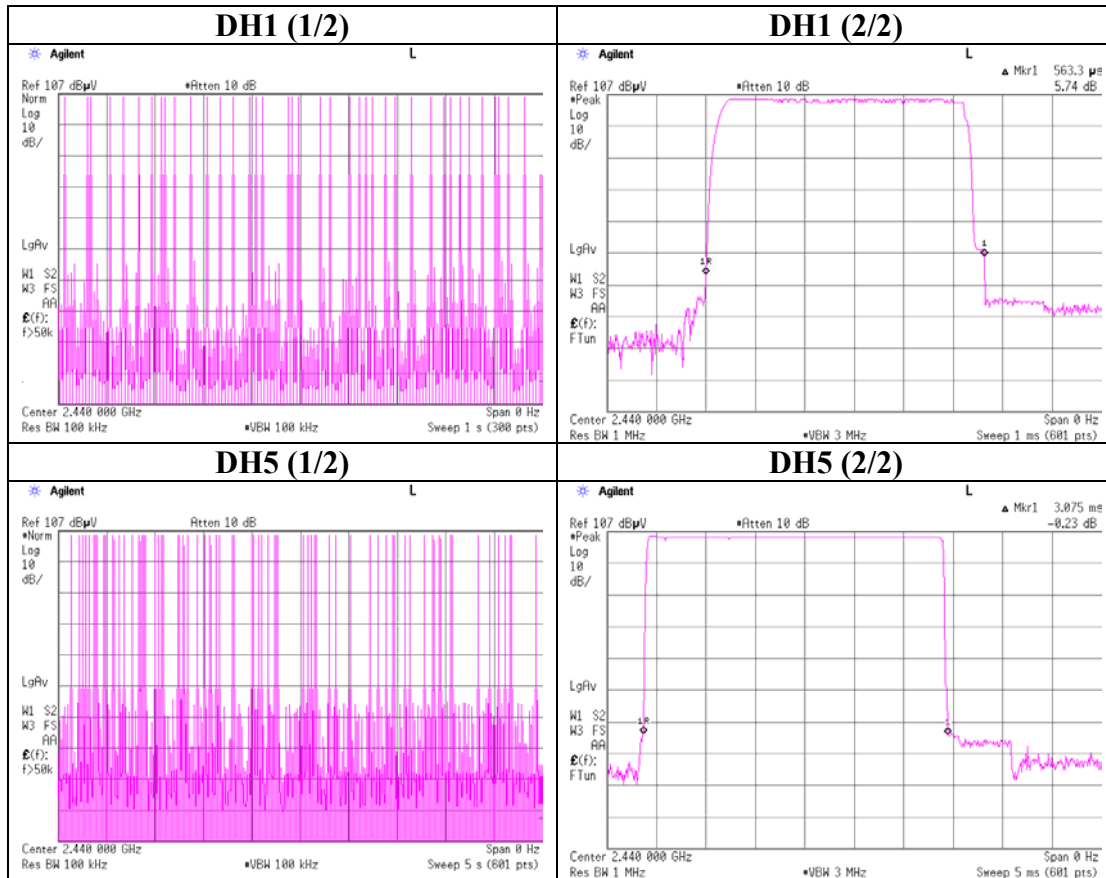
Dwell Factor calculation for Spurious emissions : $= 20 \times \log ((3.075 \text{ [ms]} \times (74 / (5 \text{ [s]} / 0.100 \text{ [s]}))) / 100 \text{ [ms]}) = -26.8 \text{ dB}$

Dwell time(Mode2)
AFH off



Dwell time(Mode2)

AFH on



Maximum Peak Output Power(Mode2)

UL Apex Co., Ltd.
Head Office EMC Lab. No.3Measurement Room

COMPANY	: Panasonic Communications Co.,Ltd.	REGULATION	: Fcc Part15 Subpart C 15.247(b)(1)
EQUIPMENT	: 2.4GHz FHSS Cordless Telephone (Base Unit)	TEST DISTANCE	: -
MODEL	: KX-TH102	DATE	: 05/17/2005
S/ N	: 0080F080113A	TEMPERATURE	: 25deg.C
POWER	: AC120V / 60Hz	HUMIDITY	: 35%
MODE	: Tx(Hopping off)	ENGINEER	: Mitsuru Fujimura

Ch	Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
Low	2402.0	-0.54	0.00	20.00	19.46	20.96	1.50
Mid	2440.0	-1.01	0.00	20.00	18.99	20.96	1.97
High	2480.0	-1.58	0.00	20.00	18.42	20.96	2.54

Sample Calculation:

Result = Reading + Cable Loss (supplied by customer)+ Attenuator

* In the above table, factor 0.0dB represents no use of Atten. and/or Filter.

Radiated Spurious Emission(Mode2)

* The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

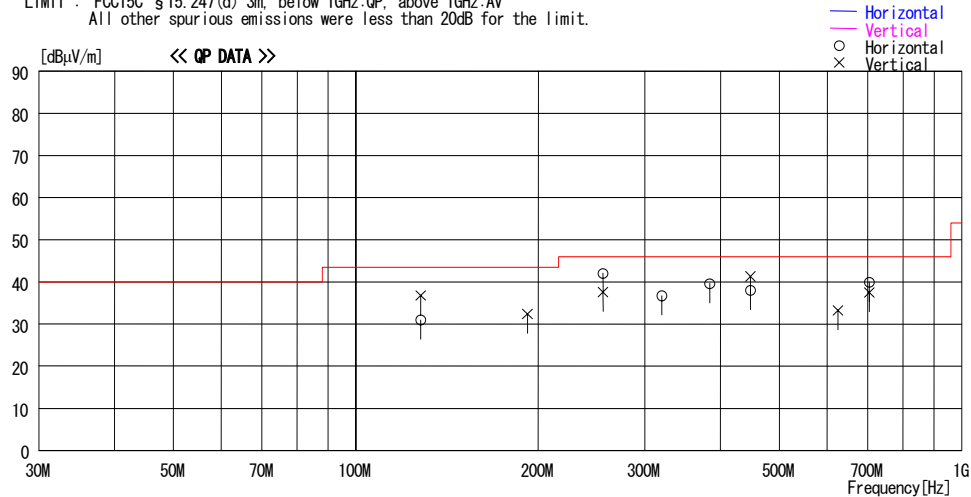
DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber

Applicant : Panasonic Communications Co.,Ltd. Report No. : 25IE0107-HO
Kind of EUT : 2.4GHz FHSS Cordless Telephone(Base Unit) Power : AC120V/60Hz (AC Adaptor)
Model No. : KX-TH102 Temp./Humi. : 25deg. C / 40%
Serial No. : 0080F0801154 Operator : Mitsuru Fujimura

Mode / Remarks : Mode2 Tx2440MHz /Main Antenna /EUT-Axis:Hor X-axis, Ver Y-axis Antenna0deg (Max-axis)

LIMIT : FCC15C §15.247(d) 3m, below 1GHz:QP, above 1GHz:AV
All other spurious emissions were less than 20dB for the limit.



No.	FREQ [MHz]	READING QP [dBμV]	ANT FACTOR [dB/m]	LOSS [dB]	GAIN [dB]	RESULT [dBμV/m]	LIMIT [dBμV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
Horizontal										
1	128.009	37.8	13.7	6.9	27.4	31.0	43.5	12.5	144	294
2	256.006	43.6	17.5	7.7	26.8	42.0	46.0	4.0	119	333
3	320.009	40.0	15.6	8.0	26.9	36.7	46.0	9.3	100	241
4	384.000	40.8	18.0	8.2	27.4	39.6	46.0	6.4	100	212
5	448.005	38.6	18.7	8.6	27.9	38.0	46.0	8.0	229	274
6	704.005	37.9	20.6	9.5	28.1	39.9	46.0	6.1	123	123
Vertical										
7	128.013	43.6	13.7	6.9	27.4	36.8	43.5	6.7	100	290
8	192.010	35.2	17.0	7.4	27.2	32.4	43.5	11.1	100	352
9	256.013	39.2	17.5	7.7	26.8	37.6	46.0	8.4	248	230
10	448.005	41.9	18.7	8.6	27.9	41.3	46.0	4.7	117	360
11	625.053	32.1	19.9	9.4	28.2	33.2	46.0	12.8	100	-1
12	704.005	35.5	20.6	9.5	28.1	37.5	46.0	8.5	100	129

CHART:WITH FACTOR ANT TYPE : -30MHz LOOP, 30-300MHz BICONICAL, 300MHz-1000MHz LOGPERIODIC, 1000MHz- HORN
CALCULATION : READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - AMP. GAIN Page:

*There was no difference in levels at low/mid/high channels between 30MHz and 1GHz, and thus test was conducted at Tx 2440MHz only.

UL Apex Co., Ltd.

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MF060b(10.04.03)

Radiated Spurious Emission(Mode2)

UL Apex Co., Ltd.
Head Office EMC Lab. No.2 Semi Anechoic Chamber

Company : Panasonic Communications Co.,Ltd.
Equipment : 2.4GHz FHSS Cordless Telephone(Base Unit)
Model : KX-TH102
Sample No. : 0080F0801154
Power : AC 120 V / 60 Hz
Mode : Mode2, Tx 2402MHz
Remarks : Hor X-axis / Ver Y-axis
PK DETECT (RBW: 1MHz, VBW: 1MHz)

REPORT NO : 25IE0107-HO
REGULATION : Fcc Part15 Subpart C 15.247(d)
TEST DISTANCE : 3/1m
DATE : 05/16/2005
TEMPERATURE : 26deg.C
HUMIDITY : 30%
ENGINEER : Mitsuru Fujimura

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter or ATT [dB]	Dwell Factor [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER						HOR	VER		HOR	VER
		[dBuV]							[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1	2390.0	49.7	49.7	30.5	36.4	3.7	10.7	0.0	58.2	58.2	74.0	15.8	15.8
3	4804.0	46.2	46.7	35.1	36.0	5.3	1.0	0.0	51.6	52.1	74.0	22.4	21.9
4	7205.1	45.6	46.9	37.7	36.1	6.6	0.4	0.0	54.2	55.5	74.0	19.8	18.5
5	9609.3	44.9	45.1	37.0	36.4	7.9	0.1	0.0	53.5	53.7	74.0	20.5	20.3
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
6	12010.0	42.3	41.9	41.6	36.1	9.5	0.0	0.0	47.8	47.4	74.0	26.2	26.6
7	14412.0	41.3	42.1	41.7	34.6	9.7	0.0	0.0	48.6	49.4	74.0	25.4	24.6
8	16814.0	44.1	44.3	45.1	35.1	10.6	0.0	0.0	55.2	55.4	74.0	18.8	18.6
9	19216.0	43.1	43.8	40.1	34.1	12.0	0.0	0.0	51.6	52.3	74.0	22.4	21.7
10	21618.0	44.3	44.6	39.8	34.8	12.0	0.0	0.0	51.8	52.1	74.0	22.2	21.9
11	24020.0	44.9	44.6	40.4	35.5	13.9	0.0	0.0	54.2	53.9	74.0	19.8	20.1

AV DETECT (RBW: 1MHz, VBW: 10Hz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter or ATT [dB]	Dwell Factor [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER						HOR	VER		HOR	VER
		[dBuV]							[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1	2390.0	34.0	33.7	30.5	36.4	3.7	10.7	-26.8	15.7	15.4	54.0	38.3	38.6
3	4804.0	36.0	37.2	35.1	36.0	5.3	1.0	-26.8	14.6	15.8	54.0	39.4	38.2
4	7205.1	32.7	35.1	37.7	36.1	6.6	0.4	-26.8	14.5	16.9	54.0	39.5	37.1
5	9609.3	30.6	31.7	37.0	36.4	7.9	0.1	-26.8	12.4	13.5	54.0	41.6	40.5
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
6	12010.0	29.2	29.3	41.6	36.1	9.5	0.0	-26.8	7.9	8.0	54.0	46.1	46.0
7	14412.0	28.7	28.8	41.7	34.6	9.7	0.0	-26.8	9.2	9.3	54.0	44.8	44.7
8	16814.0	31.5	31.4	45.1	35.1	10.6	0.0	-26.8	15.8	15.7	54.0	38.2	38.3
9	19216.0	30.8	30.8	40.1	34.1	12.0	0.0	-26.8	12.5	12.5	54.0	41.5	41.5
10	21618.0	32.1	32.1	39.8	34.8	12.0	0.0	-26.8	12.8	12.8	54.0	41.2	41.2
11	24020.0	32.4	32.4	40.4	35.5	13.9	0.0	-26.8	14.9	14.9	54.0	39.1	39.1

20dBc(Fundamental 2402MHz) (RBW: 100kHz, VBW: 300kHz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATT LOSS [dB]	Dwell Factor [dB]	RESULT		Limit 20dBc [dBuV/m]	MARGIN	
		HOR	VER						HOR [dBuV/m]	VER		HOR [dB]	VER [dB]
		[dBuV]											
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
0	2402.0	114.8	113.8	30.5	36.4	3.7	10.7	0.0	123.3	122.3	-	-	-
2	2400.0	62.5	62.0	30.5	36.4	3.7	10.7	0.0	71.0	70.5	Funda-20dB	32.4	31.8

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

*Except for the above table : All other spurious emissions were less than 20dB for the limit.

*In the frequency over the fifth harmonic, the noise from the EUT was not seen. The data above is its base noise.

*The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

*Hi-Pass Fiter was not used for factor 0.0dB of the above table.

**Dwell Factor calculation for Spurious emissions : = 20 x log ((3.075 [ms] x (74 / (5[s] / 0.100 [s]))) / 100 [ms]) = -26.8 dB

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MF060b(10.04.03)

Radiated Spurious Emission(Mode2)

UL Apex Co., Ltd.
Head Office EMC Lab. No.2 Semi Anechoic Chamber

Company : Panasonic Communications Co.,Ltd.	REPORT NO : 25IE0107-HO
Equipment : 2.4GHz FHSS Cordless Telephone(Base Unit)	REGULATION : Fcc Part15 Subpart C 15.247(d)
Model : KX-TH102	TEST DISTANCE : 3/1m
Sample No. : 0080F0801154	DATE : 05/16/2005
Power : AC 120 V / 60 Hz	TEMPERATURE : 26deg.C
Mode : Mode2, Tx 2440MHz	HUMIDITY : 30%
Remarks : Hor X-axis / Ver Y-axis	ENGINEER : Keiich Aoki

PK DETECT (RBW: 1MHz, VBW: 1MHz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter or ATT [dB]	Dwell Factor [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER						HOR	VER		HOR	VER
		[dBuV]							[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1	4879.5	47.3	47.5	35.6	36.0	5.3	1.0	0.0	53.2	53.4	74.0	20.8	20.6
2	7320.8	44.6	48.5	37.9	36.0	6.6	0.5	0.0	53.6	57.5	74.0	20.4	16.5
3	9759.0	47.2	45.3	36.8	36.4	8.1	0.2	0.0	55.9	54.0	74.0	18.1	20.0
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
4	12200.0	41.5	42.2	41.6	36.0	9.5	0.0	0.0	47.1	47.8	74.0	26.9	26.2
5	14640.0	41.1	41.9	42.2	35.1	9.8	0.0	0.0	48.5	49.3	74.0	25.5	24.7
6	17080.0	44.2	44.5	45.2	34.9	10.8	0.0	0.0	55.8	56.1	74.0	18.2	17.9
7	19520.0	43.5	44.3	40.3	34.3	12.1	0.0	0.0	52.1	52.9	74.0	21.9	21.1
8	22960.0	44.9	45.3	40.2	34.9	12.9	0.0	0.0	53.6	54.0	74.0	20.4	20.0
9	24400.0	43.0	43.5	40.4	35.8	14.0	0.0	0.0	52.1	52.6	74.0	21.9	21.4

AV DETECT (RBW: 1MHz, VBW: 10Hz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter or ATT [dB]	Dwell Factor [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER						HOR	VER		HOR	VER
		[dBuV]							[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1	4879.5	36.1	35.1	35.6	36.0	5.3	1.0	-26.8	15.2	14.2	54.0	38.8	39.8
2	7320.8	34.9	35.5	37.9	36.0	6.6	0.5	-26.8	17.1	17.7	54.0	36.9	36.3
3	9759.0	34.7	32.9	36.8	36.4	8.1	0.2	-26.8	16.6	14.8	54.0	37.4	39.2
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
4	12200.0	29.1	29.2	41.6	36.0	9.5	0.0	-26.8	7.9	8.0	54.0	46.1	46.0
5	14640.0	28.9	28.8	42.2	35.1	9.8	0.0	-26.8	9.5	9.4	54.0	44.5	44.6
6	17080.0	31.8	31.7	45.2	34.9	10.8	0.0	-26.8	16.6	16.5	54.0	37.4	37.5
7	19520.0	31.4	31.3	40.3	34.3	12.1	0.0	-26.8	13.2	13.1	54.0	40.8	40.9
8	22960.0	32.3	32.2	40.2	34.9	12.9	0.0	-26.8	14.2	14.1	54.0	39.8	39.9
9	24400.0	30.9	30.9	40.4	35.8	14.0	0.0	-26.8	13.2	13.2	54.0	40.8	40.8

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

*Except for the above table : All other spurious emissions were less than 20dB for the limit.

*In the frequency over the fifth harmonic, the noise from the EUT was not seen. The data above is its base noise.

*The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

*Hi-Pass Fiter was not used for factor 0.0dB of the above table.

**Dwell Factor calculation for Spurious emissions : $20 \times \log \left(\left(3.075 \text{ [ms]} \times \left(74 / \left(5 \text{ [s]} / 0.100 \text{ [s]} \right) \right) \right) / 100 \text{ [ms]} \right) = -26.8 \text{ dB}$

Radiated Spurious Emission (Mode2)

Company : Panasonic Communications Co.,Ltd. Equipment : 2.4GHz FHSS Cordless Telephone(Base Unit) Model : KX-TH102 Sample No. : 0080F0801154 Power : AC 120 V / 60 Hz Mode : Mode2, Tx 2480MHz Remarks : Hor X-axis / Ver Y-axis	UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber REPORT NO : 25IE0107-HO REGULATION : Fcc Part15 Subpart C 15.247(d) TEST DISTANCE : 3/1m DATE : 05/16/2005 TEMPERATURE : 26deg.C HUMIDITY : 30% ENGINEER : Mitsuru Fujimura
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PK DETECT (RBW: 1MHz, VBW: 1MHz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter or ATT [dB]	Dwell Factor [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER						HOR	VER		HOR	VER
		[dBuV]							[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
2	4960.7	45.9	47.7	36.1	35.9	5.3	1.1	0.0	52.5	54.3	74.0	21.5	19.7
3	7439.0	47.6	48.1	38.1	35.9	6.7	0.7	0.0	57.2	57.7	74.0	16.8	16.3
4	9921.0	47.2	47.1	36.7	36.5	8.1	0.3	0.0	55.8	55.7	74.0	18.2	18.3
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
5	12400.0	42.9	42.8	41.7	35.9	9.5	0.0	0.0	48.7	48.6	74.0	25.3	25.4
6	14880.0	42.5	41.9	42.7	36.0	9.9	0.0	0.0	49.6	49.0	74.0	24.4	25.0
7	17360.0	44.5	45.3	44.7	35.1	11.0	0.0	0.0	55.6	56.4	74.0	18.4	17.6
8	19840.0	44.2	44.2	40.4	34.8	12.3	0.0	0.0	52.6	52.6	74.0	21.4	21.4
9	22320.0	44.6	44.8	39.8	34.1	12.3	0.0	0.0	53.1	53.3	74.0	20.9	20.7
10	24800.0	44.2	43.3	40.7	35.1	14.0	0.0	0.0	54.3	53.4	74.0	19.7	20.6

AV DETECT (RBW: 1MHz, VBW: 10Hz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter or ATT [dB]	Dwell Factor [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER						HOR	VER		HOR	VER
		[dBuV]							[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - AMP Gain + Cable Loss + Filter Loss													
2	4960.7	34.6	35.5	36.1	35.9	5.3	1.1	-26.8	14.4	15.3	54.0	39.6	38.7
3	7439.0	34.7	35.7	38.1	35.9	6.7	0.7	-26.8	17.5	18.5	54.0	36.5	35.5
4	9921.0	34.4	34.3	36.7	36.5	8.1	0.3	-26.8	16.2	16.1	54.0	37.8	37.9
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
5	12400.0	29.3	29.3	41.7	35.9	9.5	0.0	-26.8	8.3	8.3	54.0	45.7	45.7
6	14880.0	28.4	28.8	42.7	36.0	9.9	0.0	-26.8	8.7	9.1	54.0	45.3	44.9
7	17360.0	31.3	31.2	44.7	35.1	11.0	0.0	-26.8	15.6	15.5	54.0	38.4	38.5
8	19840.0	31.9	31.3	40.4	34.8	12.3	0.0	-26.8	13.5	12.9	54.0	40.5	41.1
9	22320.0	32.1	31.9	39.8	34.1	12.3	0.0	-26.8	13.8	13.6	54.0	40.2	40.4
10	24800.0	30.9	30.8	40.7	35.1	14.0	0.0	-26.8	14.2	14.1	54.0	39.8	39.9

Marker-Delta Method (RBW:100kHz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATT LOSS [dB]	Dwell Factor [dB]	RESULT		Limit [dBuV/m]	MARGIN	
		HOR	VER						HOR	VER		HOR	VER
		[dBuV]							[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
PK DETECT													
1	2483.5	52.6	51.4	30.5	36.4	3.7	10.7	0.0	61.1	59.9	74.0	12.9	14.2
AV DETECT													
1	2483.5	44.0	41.8	30.5	36.4	3.7	10.7	0.0	52.5	50.3	54.0	1.6	3.7

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

*Except for the above table : All other spurious emissions were less than 20dB for the limit.

*In the frequency over the fifth harmonic, the noise from the EUT was not seen. The data above is its base noise.

*The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

*Hi-Pass Fiter was not used for factor 0.0dB of the above table.

**Dwell Factor calculation for Spurious emissions : = 20 x log ((3.075 [ms] x (74 / (5[s] /0.100 [s]))) / 100 [ms]) = -26.8 dB

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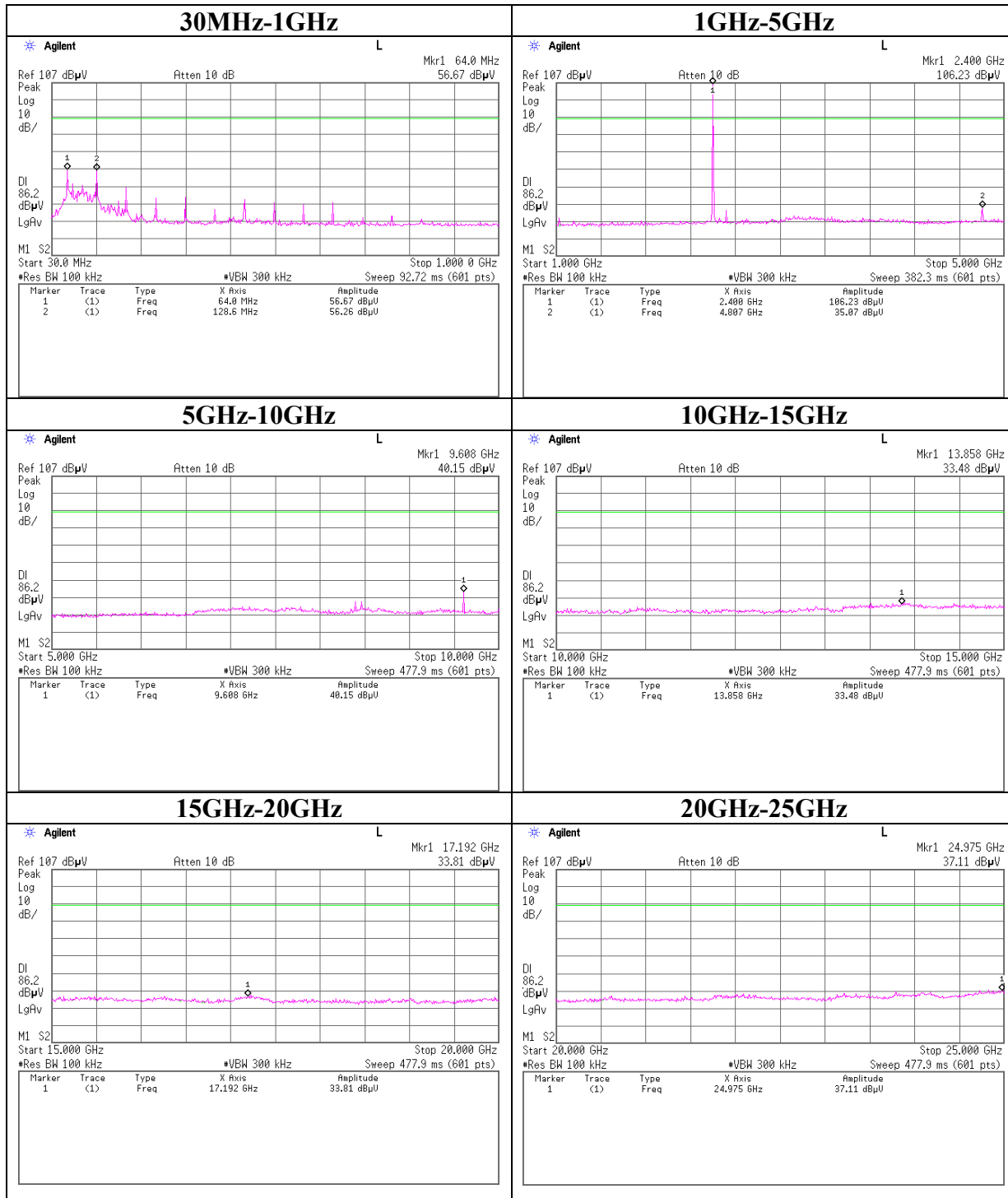
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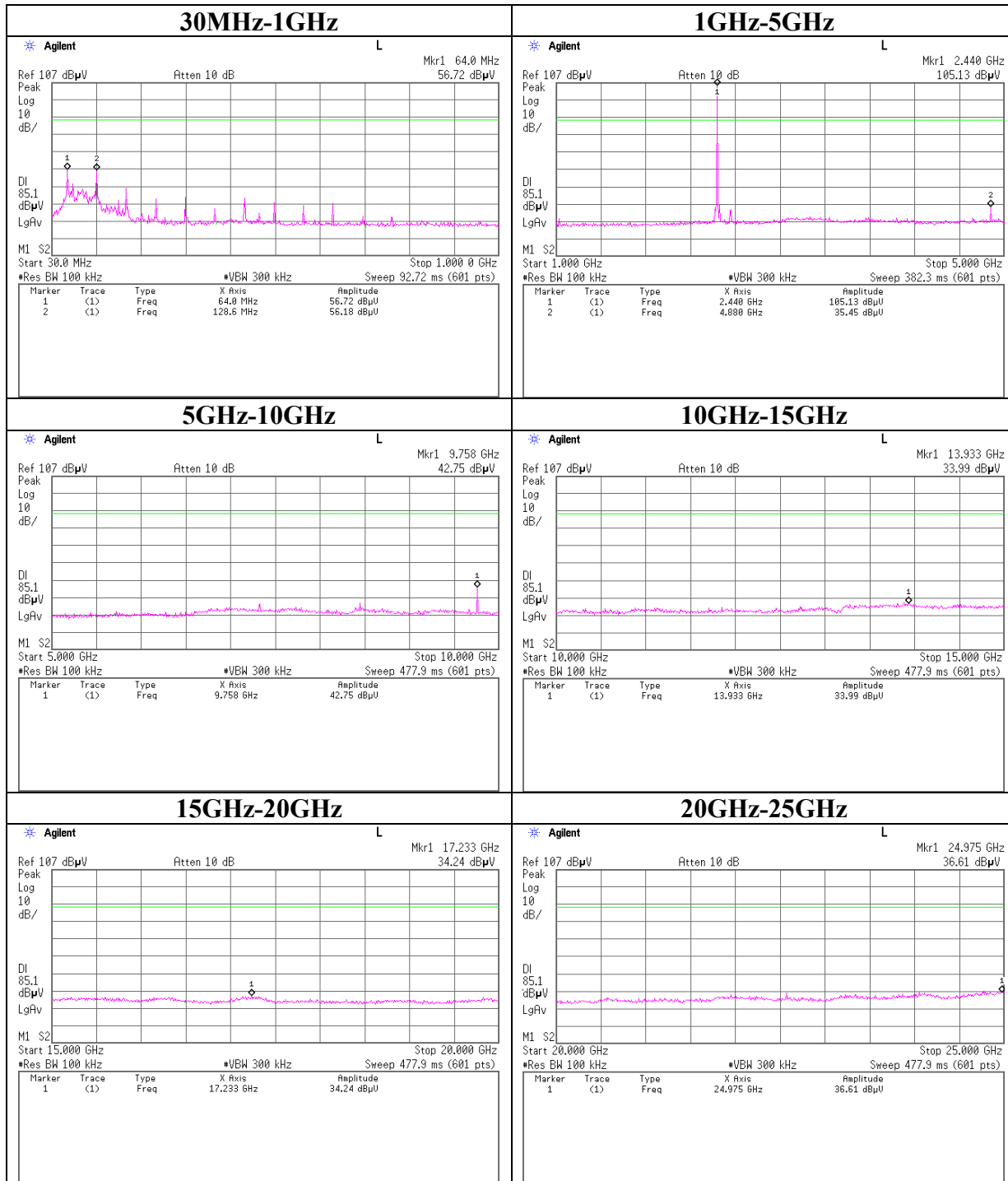
Conducted Spurious Emission (Mode2)

Ch:Low

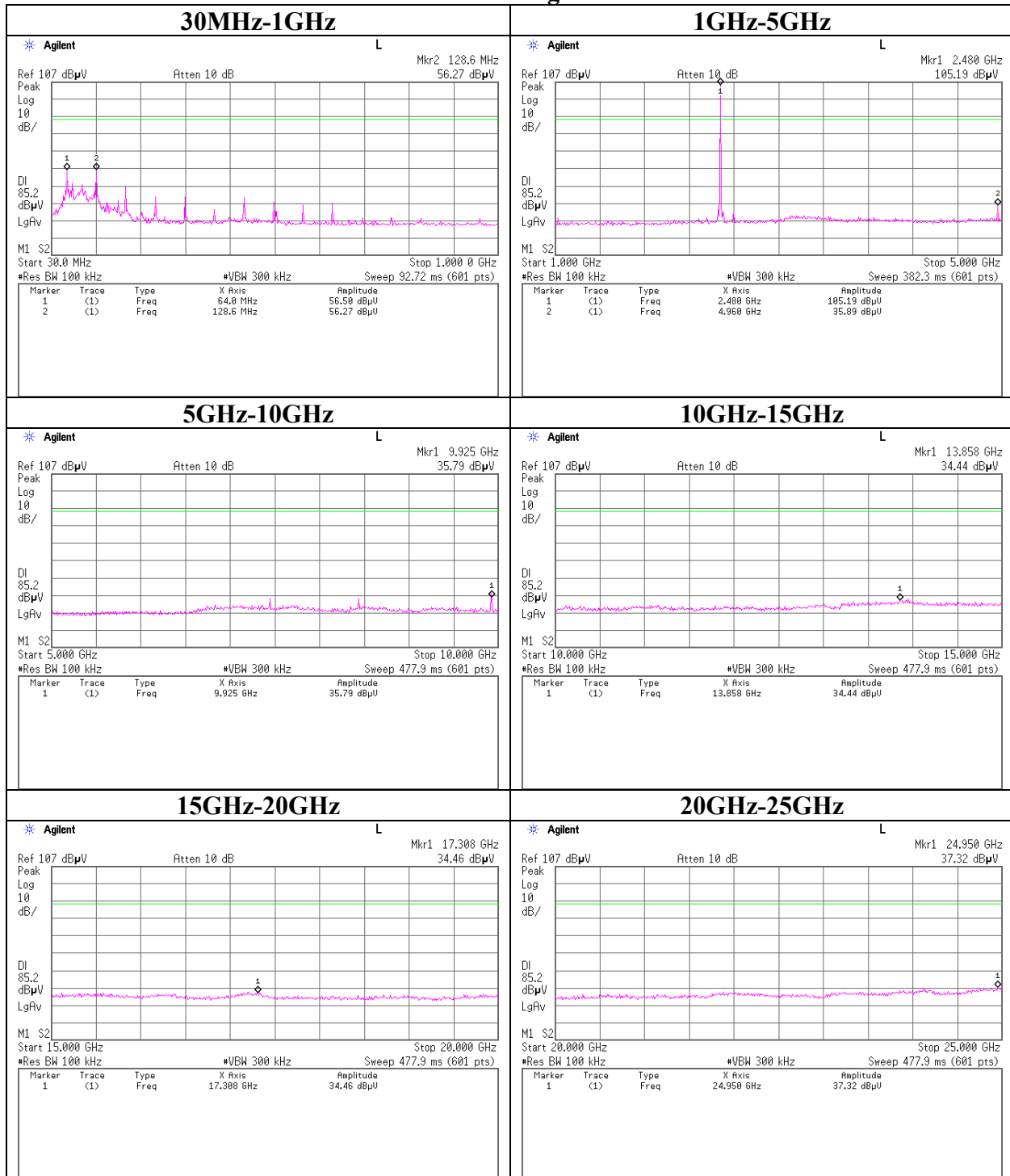


Conducted Spurious Emission (Mode2)

Ch:Mid



Conducted Spurious Emission (Mode2)
Ch:High



Conducted Spurious Emission (Mode2)

Band Edge compliance

