EMI TEST REPORT

Test Report No. : 25IE0108-HO-1

Applicant	:	**Panasonic Communications Co., Ltd.**
Type of Equipment	:	**Portable Unit**
Model No.	:	**KX-THA11**
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 the 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 17 to 23, 2005

Tested by:

Mitsuru Fujimura
EMC Service

Keiichi Aoki
EMC Service

Kenichi Adachi
EMC Service

Approved by :

Hironobu Shimoji
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UL Apex Co., Ltd.
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SECTION 1: Client information

Company Name	:	Panasonic Communications Co., Ltd.
Brand Name	:	Panasonic
Address	:	1-62, 4-chome, Minoshima, Hakata-ku, Fukuoka, 812-8531 Japan
Telephone Number	:	+81-92-477-1405
Facsimile Number	:	+81-92-477-1487
Contact Person	:	Kunihiko Nawata

SECTION 2: Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of Equipment	:	Portable Unit
Model No.	:	KX-THA11
Serial No.	:	0080F08011CA 0080F08011C9
Rating	:	DC3.6V (Battery)
Country of Manufacture	:	Japan
Receipt Date of Sample	:	May 16, 2005
Condition of EUT	:	Engineering prototype (Not for Sale: This sample is equivalent to mass-produced items.)

2.2 Product Description

Model No: KX-THA11 (referred to as the EUT in this report) is the 2.4GHz FHSS Cordless Telephone (Portable Unit).

Clock frequencies in the system	13.000MHz (standard clock) 117.000MHz (RFIC internal clock)
Feature of EUT	2.4GHz FHSS Cordless Telephone

Equipment Type	Transceiver
Frequency of Operation	2402MHz – 2480MHz
Type of Modulation	FHSS
Antenna Type	Whip Antenna = Mode1, Mode2 (Main antenna) Chip Antenna = Mode2 (Sub antenna)
Antenna Gain	Whip Antenna = 2.14 dBi Chip Antenna = 1 dBi
Mode of Operation	Duplex
ITU code	F1D
Power Supply (Inner)	DC2.5V

FCC 15.31 (e)
This EUT provides stable voltage(DC3.6V), and it is constantly converted into and provided with DC2.5V for the Operational voltage within RF Module. Therefore, this EUT complies with the requirement.

FCC Part 15.203 Antenna requirement
It is impossible for end users to replace the antenna, because the antenna is fixed inside of the EUT. Therefore, the equipment complies with the antenna requirement of Section 15.203.

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

[FHSS]

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	N/A*1)	N/A
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	Mode 1 9.9dB 2483.5MHz Horizontal, AV Mode 2 4.1dB 2483.5MHz Horizontal, AV	Complied

Note: UL Apex's EMI Work Procedures No.QPM05.
*0) The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.
*1) The test is not applicable since this EUT does not have AC mains.

Uncertainty:

Spurious Emission (Radiated)
The measurement uncertainty (with a 95% confidence level) for this test using Biconical antenna is ±4.5dB(3m)/ ±4.7dB(10m).
The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna is ±5.2dB(3m)/ ±3.8dB(10m).
The measurement uncertainty (with a 95% confidence level) for this test using Horn antenna is ±6.6dB.
*The data listed in this report meets the limits unless the uncertainty is taken into consideration.

Other test except Conducted Emission and Spurious Emission (Radiated)
The measurement uncertainty (with a 95% confidence level) for this test is ±3.0dB.
*The data listed in this test report has enough margin, more than the site margin.

*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.

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
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116 Facsimile : +81 596 24 8124

	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.1 and 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

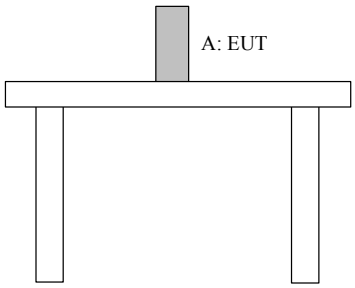
4.1 Operating Modes

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



Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	FCC ID
A	Portable Unit	KX-THA11	0080F08011CA *1) 0080F08011C9 *2)	Panasonic	ACJ96NKX-TH102

*1) Used for Radiated emission test
*2) Used for Antenna Port Conducted tests

SECTION 5: 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 IF Bandwidth	QP: BW 120kHz	20dBc : RBW: 100kHz VBW: 300kHz	PK: RBW:1MHz/VBW: 1MHz AV: RBW:1MHz/VBW:10Hz 20dBc : RBW:100kHz/VBW:300kHz

- The carrier level and noise levels were confirmed at each position of X, Y and Z axes of EUT 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

SECTION 6: Bandwidth

Test Procedure

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

Test data : **APPENDIX 3**
Test result : **Pass**

SECTION 7: 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 8: 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 9: 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 10: 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**

APPENDIX 1: Photographs of test setup

Spurious Emission (Radiated)

Front

Rear

Worst Case Position (Main Antenna X-axis:Horizontal / Y-axis:Vertical)
Worst Case Position (Sub Antenna X-axis:Horizontal / X-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	2005/04/11 * 12
MRENT-14	Spectrum Analyzer	Advantest	R3273	RE	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)(above1GHz)	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
MTR-02	Test Receiver	Rohde & Schwarz	ESCS30	RE	2005/02/02 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	RE	2005/02/24 * 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
MPA-06	Pre Amplifier	Hewlett Packard	8447D	RE	2004/08/29 * 12
MCC-06	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX 104	AT	2005/02/03 * 12
MAT-21	Attenuator(20dB)(above1GHz)	HIROSE ELECTRIC CO.,LTD.	AT-120	AT	2005/01/11 * 12
MSA-03	Spectrum Analyzer	Agilent	E4448A	AT	2004/06/12 * 12
MAEC-01	Anechoic Chamber	TDK	Semi Anechoic Chamber 10m	RE	2004/11/13 * 12
MTR-01	Test Receiver	Rohde & Schwarz	ESI40	RE	2004/11/12 * 12
MCC-26	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	RE	2004/08/26 * 12
MPA-05	Pre Amplifier	TSJ	TSJ 1-26.5GHz PreAmp	RE	2004/06/12 * 12
MAT-20	Attenuator(10dB)(above1GHz)	HIROSE ELECTRIC CO.,LTD.	AT-110	RE	2005/01/11 * 12
MHF-02	High Pass Filter	Tokimec	TF323DCA	RE	2004/09/18 * 12
MCC-11	Microwave cable 1G-26.5GHz	Suhner	SUCOFLEX 104	RE	2005/03/26 * 12
MBF-01	SHF Bandpass Filter	M-City	5GHz BPF	RE	2005/05/20 * 12
MBF-02	SHF Bandpass Filter	M-City	8GHz BPF	RE	2005/05/20 * 12
MCC-18	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX 104	RE	2005/02/03 * 12
MHA-05	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2005/01/10 * 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:

RE: Radiated emission,

AT: Antenna terminal disturbance voltage

APPENDIX 3: Data of EMI test

[Mode1]

Carrier Frequency Separation(Mode1)

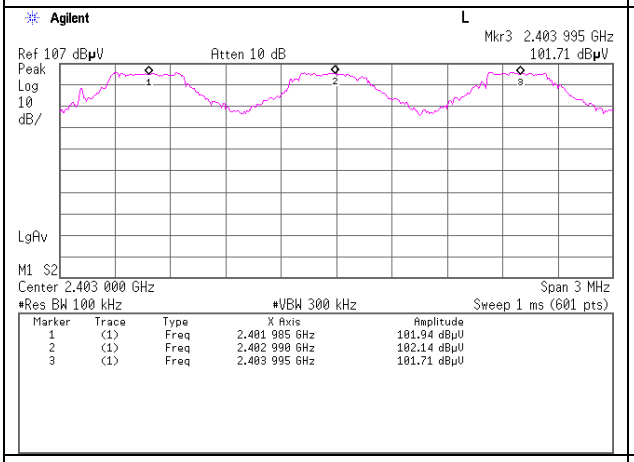
UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

COMPANY	: Panasonic Communications Co.,Ltd.	REGULATION	:	Fcc Part15 Subpart C 15.247(a)(1)
EQUIPMENT	: Portable Unit	TEST DISTANCE	:	-
MODEL	: KX-THA11	DATE	:	05/18/2005
S/ N	: 0080F08011C9	TEMPERATURE	:	23deg.C
POWER	: DC3.6V	HUMIDITY	:	41%
MODE	: Tx(Hopping on)/Inquiry	ENGINEER	:	Mitsuru Fujimura

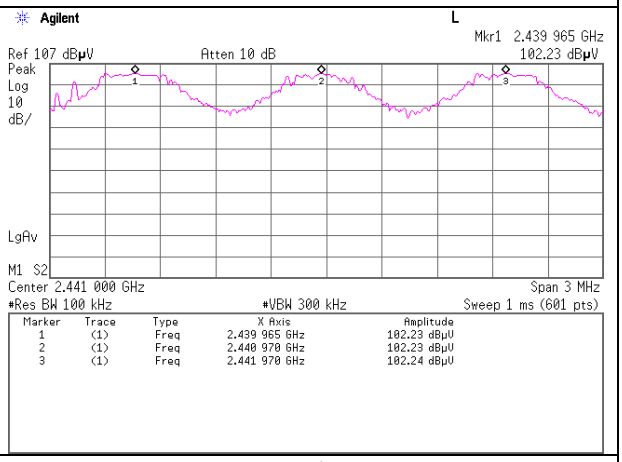
Ch	Freq. [MHz]	Channel separation [MHz]	Limit
Low	2402.0	1.005	>two-thirds of 20dB Bandwidth or 25[kHz]
Mid	2441.0	1.000	>two-thirds of 20dB Bandwidth or 25[kHz]
High	2480.0	0.970	>two-thirds of 20dB Bandwidth or 25[kHz]
Inquiry	2441.0	1.990	>two-thirds of 20dB Bandwidth or 25[kHz]

Carrier Frequency Separation(Mode1)

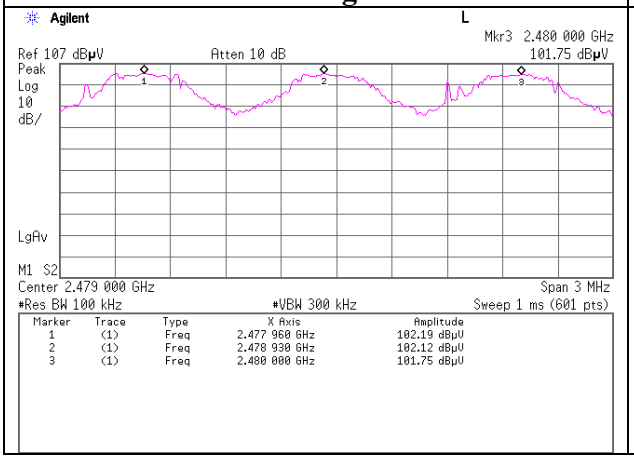
Ch:Low



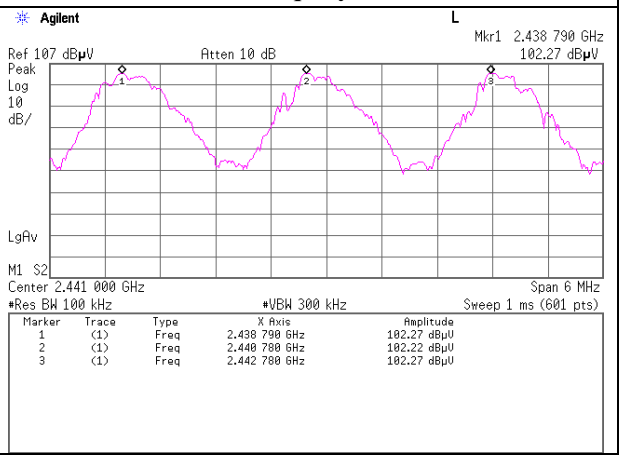
Ch:Mid



Ch:High



Inquiry



20dB Bandwidth(Mode1)

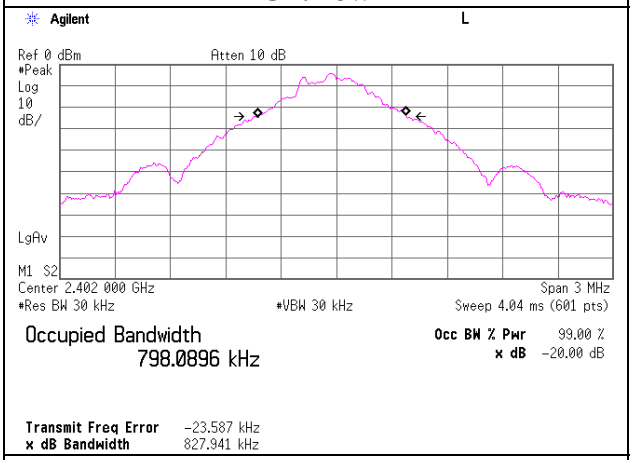
UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

COMPANY	: Panasonic Communications Co.,Ltd.	REGULATION	: Fcc Part15 Subpart C 15.247(a)(1)
EQUIPMENT	: Portable Unit	TEST DISTANCE	: -
MODEL	: KX-THA11	DATE	: 05/18/2005
S/ N	: 0080F08011C9	TEMPERATURE	: 23deg.C
POWER	: DC3.6V	HUMIDITY	: 41%
MODE	: Tx (Hopping off) /Inquiry	ENGINEER	: Mitsuru Fujimura

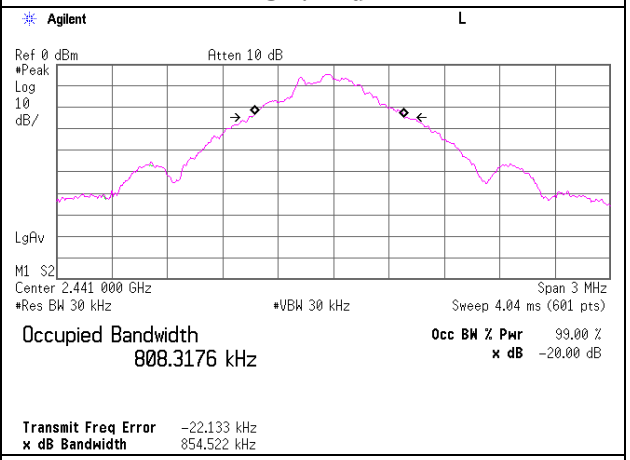
Ch	Freq. [MHz]	20dB Bandwidth [MHz]	Limit [MHz]
Low	2402.0	0.828	-
Mid	2441.0	0.855	-
High	2480.0	0.837	-
Inquiry	2441.0	0.825	-

20dB Bandwidth(Mode1)

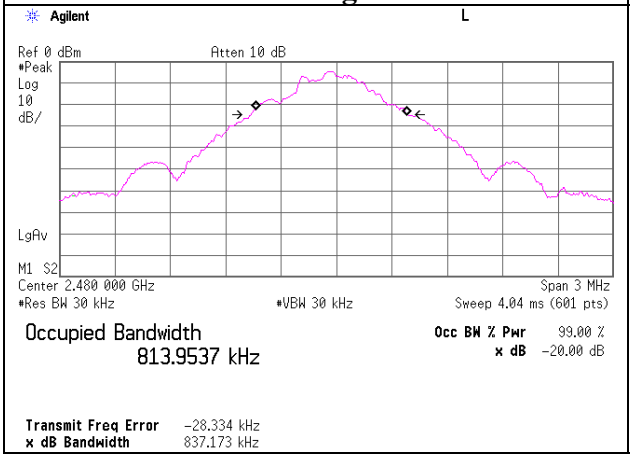
Ch:Low



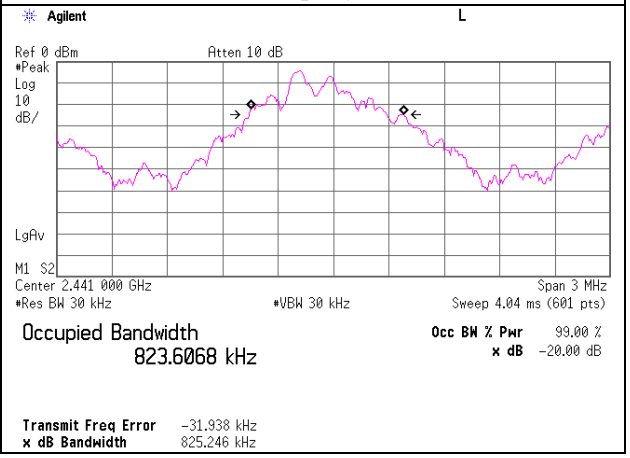
Ch:Mid



Ch:High



Inquiry



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	: Portable Unit	TEST DISTANCE	: -
MODEL	: KX-THA11	DATE	: 05/18/2005
S/ N	: 0080F08011C9	TEMPERATURE	: 23deg.C
POWER	: DC3.6V	HUMIDITY	: 41%
MODE	: Tx (Hopping on) /Inquiry	ENGINEER	: Mitsuru Fujimura

Mode 1, AFH off

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

Mode 1, AFH off

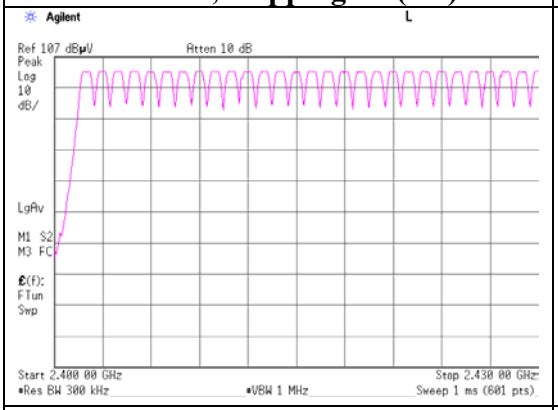
Mode	Number of channel [time]	Limit [time]
Inquiry	32	≧15

Mode 1, AFH on

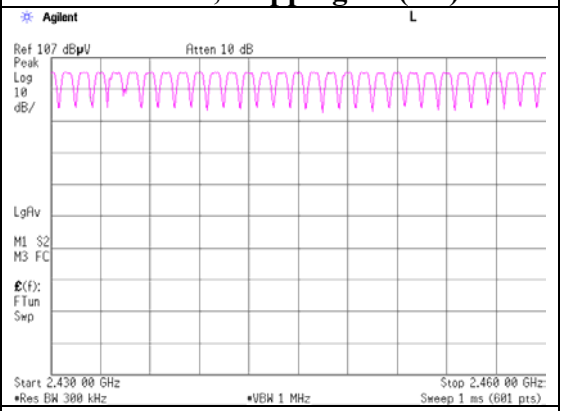
Mode	Number of channel [time]	Limit [time]
Tx(Hopping on)	20	≧15

Number of Hopping Frequency(Mode1)

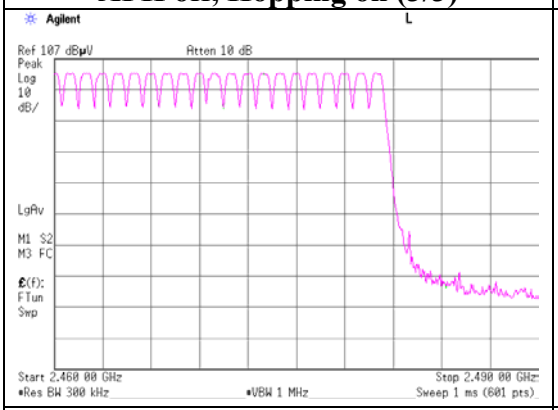
AFH off, Hopping on (1/3)



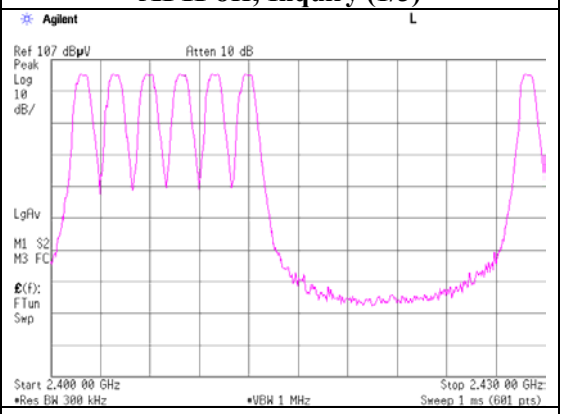
AFH off, Hopping on (2/3)



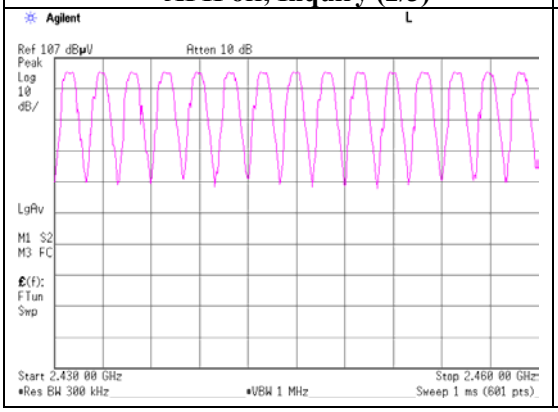
AFH off, Hopping on (3/3)



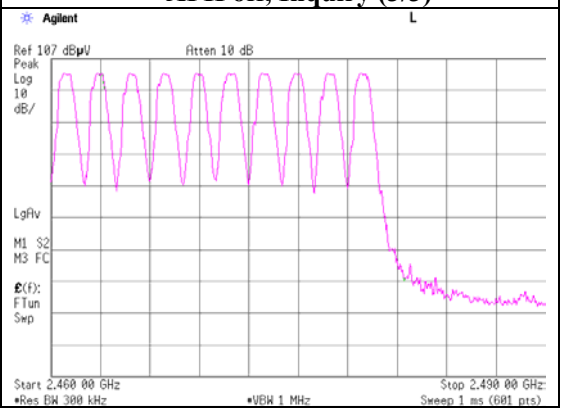
AFH off, Inquiry (1/3)



AFH off, Inquiry (2/3)

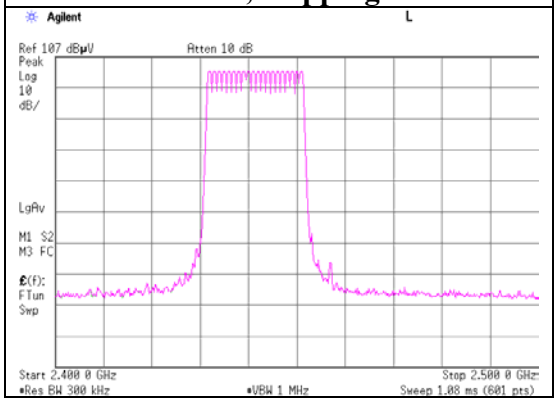


AFH off, Inquiry (3/3)



Number of Hopping Frequency(Mode1)

AFH on, Hopping on



Dwell Time(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	:	Portable Unit	TEST DISTANCE	:	-
MODEL	:	KX-THA11	DATE	:	05/18/2005
S/ N	:	0080F08011C9	TEMPERATURE	:	23deg.C
POWER	:	DC3.6V	HUMIDITY	:	41%
MODE	:	Tx (Hopping on) /Inquiry	ENGINEER	:	Mitsuru Fujimura

Mode1, 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	0.578	194	400
DH5	19 times / 5 sec. x 31.6 = 120.08 times	3.117	374	400
Inquiry	10 times / 0.1sec. x 12.8 = 1280 times	0.230	294	400

Mode1, AFH on

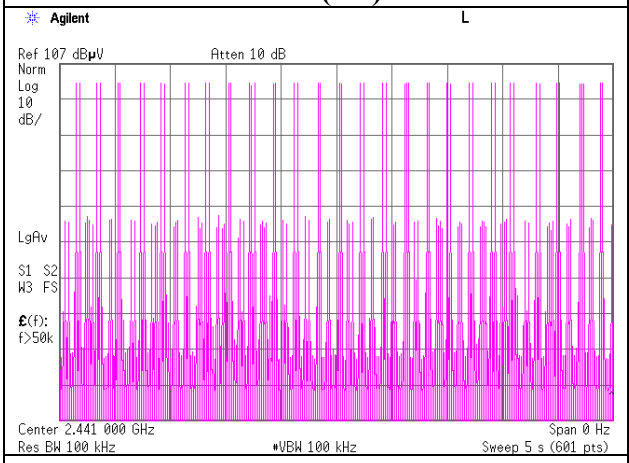
Mode	Number of transmission in a 8(20 Hopping x 0.4) second period	Length of transmission time [msec]	Result [msec]	Limit [msec]
DH1	30 times /1sec. x 8 = 240.0 times	0.567	136	400
DH5	63 times / 5sec. x 8 = 100.8 times	3.083	311	400

*Dwell Factor caliculation for Spurious emissions : = 20 x log ((3.083 [ms] x (63 / (5[s] /0.100 [s]))) / 100 [ms]) = -28.2 dB

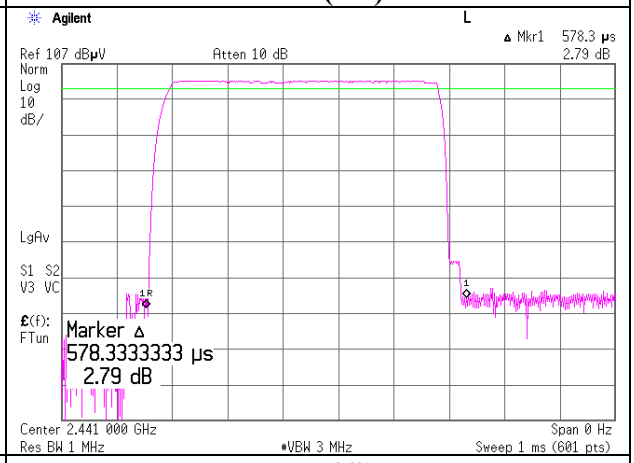
Dwell Time(Mode1)

AFH off

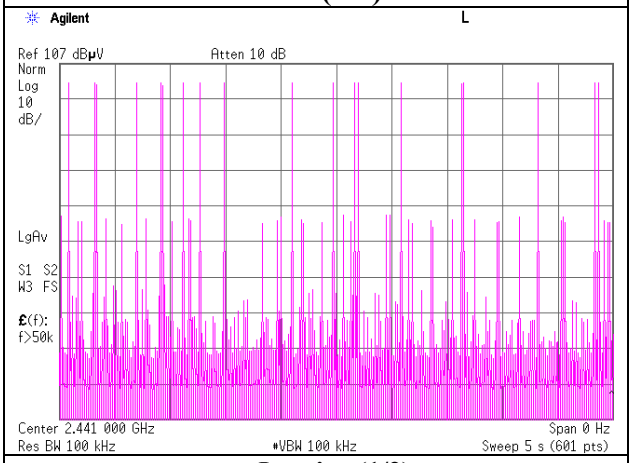
DH1 (1/2)



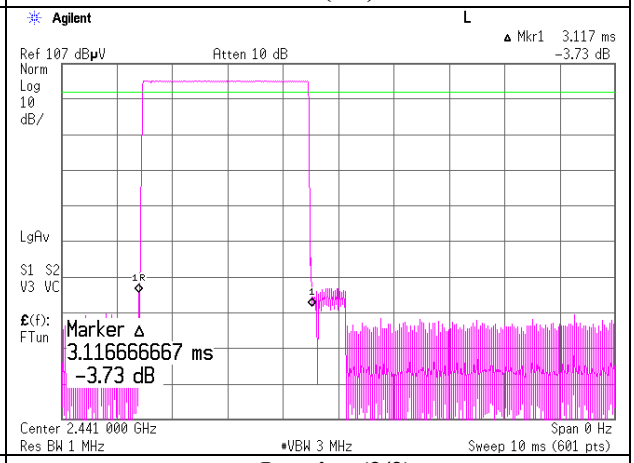
DH1 (2/2)



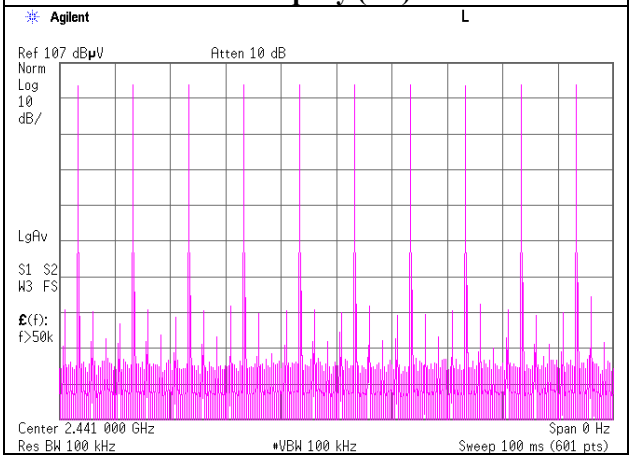
DH5 (1/2)



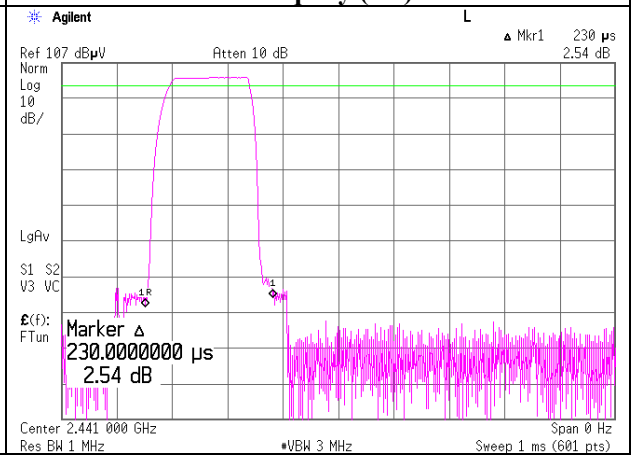
DH5 (2/2)



Inquiry (1/2)

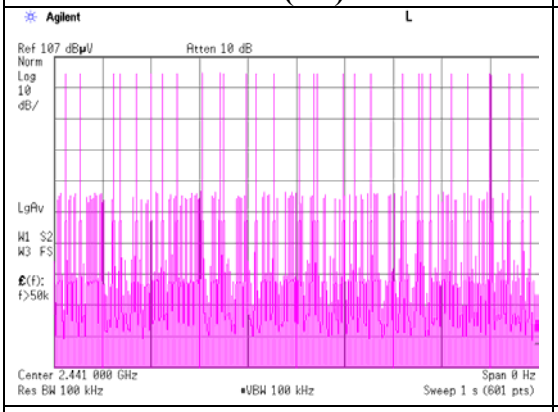
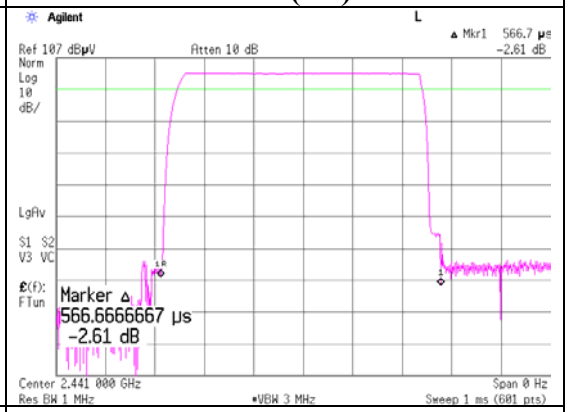
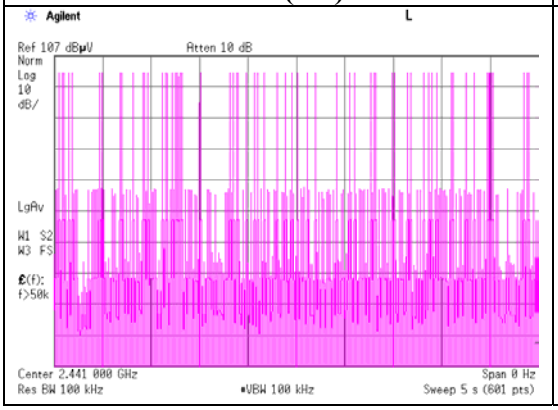
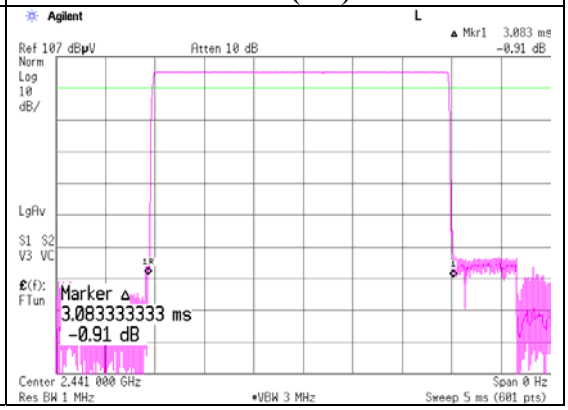


Inquiry (2/2)



Dwell Time(Mode1)

AFH on

DH1 (1/2)	DH1 (2/2)
	
DH5 (1/2)	**DH5 (2/2)**
	

Maximum Peak Output Power(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(b)(1)
EQUIPMENT	:	Portable Unit	TEST DISTANCE	:	-
MODEL	:	KX-THA11	DATE	:	05/18/2005
S/ N	:	0080F08011C9	TEMPERATURE	:	23deg.C
POWER	:	DC3.6V	HUMIDITY	:	41%
MODE	:	Tx(Hopping off)/Inquiry	ENGINEER	:	Mitsuru Fujimura

AFH off (Low/Mid/High : 79 hopping , Inquiry : 32 hopping)

Ch	Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
Low	2402.0	-3.25	0.00	20.00	16.75	20.96	4.21
Mid	2441.0	-3.33	0.00	20.00	16.67	20.96	4.29
High	2480.0	-3.36	0.00	20.00	16.64	20.96	4.32
Inquiry	2441.0	-3.30	0.00	20.00	16.70	20.96	4.26

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.

Maximum Peak Output Power(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(b)(1)
EQUIPMENT	:	Portable Unit	TEST DISTANCE	:	-
MODEL	:	KX-THA11	DATE	:	05/17/2005
S/ N	:	0080F08011CA	TEMPERATURE	:	25deg.C
POWER	:	DC3.6	HUMIDITY	:	35%
MODE	:	Tx(Hopping off)	ENGINEER	:	Mitsuru Fujimura

Out power measurement method
The Output power has been measured in a Semi Anechoic Chamber with a ground plane and at a distance of 3m.
The highest of the measuring varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the output power.
The measurements were performed for both vertical and horizontal antenna polarization with the Spectrum Analyzer.

Spectrum Analyzer setting
Mode1: Resolution bandwidth set to 1MHz and Video bandwidth to 3MHz.
Mode2 : Resolution bandwidth set to 3MHz and Video bandwidth to 10MHz.

Calculation of result
E-field [dBμV/m]= Reading (S/A) + Factor (Measurement equipment)
E-field [dBμV/m] was converted into E[V/m]
EIRP[dBm] = $10\log[((E*d)^2/30G)*10^3]$; d= 3[m], G =1

[Mode1]			
Ch	Freq. [MHz]	E-field [dBμV/m]	EIRP [dBm]
Low	2402	110.6	15.4
Mid	2441	111.7	16.5
High	2480	111.8	16.6

Radiated Spurious Emission(Mode1)

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

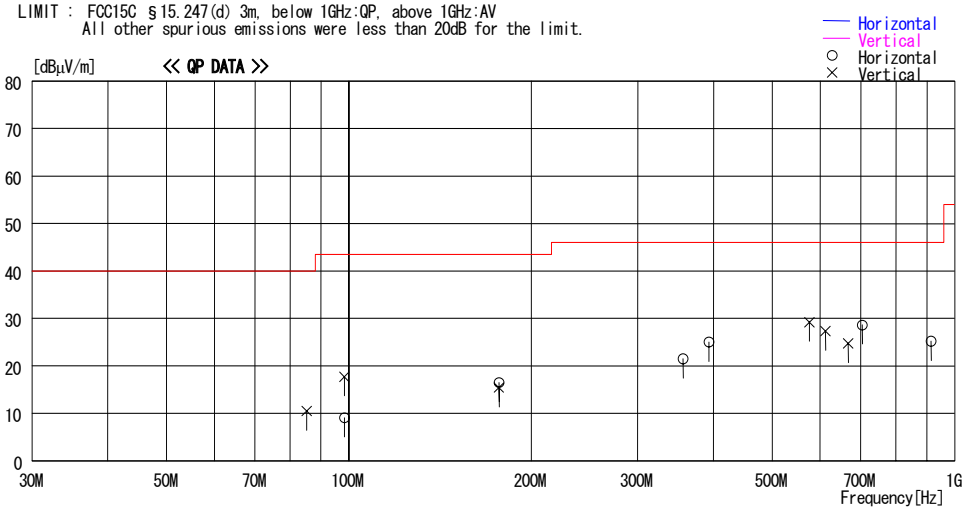
DATA OF RADIATED EMISSION TEST

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

Applicant	: Panasonic Communications Co.,Ltd.	Report No.	: 25IE0108-HO
Kind of EUT	: Portable Unit	Power	: DC3.6V
Model No.	: KX-THA11	Temp./Humi.	: 25deg.C / 32%
Serial No.	: 0080F08011CA	Operator	: Mitsuru Fujimura

Mode / Remarks : Mode1 Tx2441MHz /Main Antenna /EUT-Axis:Hor X-axis, Ver Y-axis (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	98.309	25.7	10.1	0.9	27.6	9.1	43.5	34.4	100	360
2	176.949	25.5	16.8	1.4	27.2	16.5	43.5	27.0	100	360
3	356.441	29.5	16.9	2.3	27.2	21.5	46.0	24.5	106	111
4	392.892	31.6	18.3	2.5	27.4	25.0	46.0	21.0	100	297
5	703.995	32.5	20.6	3.6	28.1	28.6	46.0	17.4	123	122
6	914.272	26.5	22.1	4.4	27.8	25.2	46.0	20.8	259	95
——— Vertical ———										
7	85.198	29.8	7.7	0.7	27.7	10.5	40.0	29.5	158	-1
8	98.313	34.3	10.1	0.9	27.6	17.7	43.5	25.8	139	-1
9	176.953	24.4	16.8	1.4	27.2	15.4	43.5	28.1	100	360
10	576.003	34.9	19.5	3.1	28.3	29.2	46.0	16.8	100	190
11	612.448	32.5	19.8	3.3	28.3	27.3	46.0	18.7	100	319
12	667.558	29.2	20.2	3.5	28.2	24.7	46.0	21.3	100	325

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 2441MHz only.

Radiated Spurious Emission (Mode1)

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

Company	: Panasonic Communications Co.,Ltd.	REPORT NO	: 25IE0108-HO
Equipment	: Portable Unit	REGULATION	: Fcc Part15 Subpart C 15.247(d)
Model	: KX-THA11	TEST DISTANCE	: 3/1m
Sample No.	: 0080F08011CA	DATE	: 05/19/2005
Power	: DC3.6V	TEMPERATURE	: 25deg.C
Mode	: Mode1, Tx 2402MHz	HUMIDITY	: 55%
Remarks	: Hor X-axis / Ver Y-axis Main Antenna	ENGINEER	: Mitsuru Fujimura

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	Dwell	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter or ATT	Factor	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1	2390.0	44.8	44.6	30.5	36.4	3.7	10.7	0.0	53.3	53.1	74.0	20.7	20.9
3	4804.0	46.1	46.7	35.1	36.0	5.3	1.0	0.0	51.5	52.1	74.0	22.5	21.9
4	7206.0	48.6	46.1	37.7	36.1	6.6	0.4	0.0	57.2	54.7	74.0	16.8	19.3
5	9608.0	45.4	43.9	37.0	36.4	7.9	0.1	0.0	54.0	52.5	74.0	20.0	21.5
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
6	12010.0	43.3	42.4	41.6	36.1	9.5	0.1	0.0	48.9	48.0	74.0	25.1	26.0
7	14412.0	41.4	41.5	41.7	34.6	9.7	0.2	0.0	48.9	49.0	74.0	25.1	25.0
8	16814.0	44.3	44.1	45.1	35.1	10.6	1.1	0.0	56.5	56.3	74.0	17.5	17.7
9	19216.0	43.5	43.0	40.1	34.1	12.0	2.0	0.0	54.0	53.5	74.0	20.0	20.5
10	21618.0	44.5	44.7	39.8	34.8	12.0	2.4	0.0	54.4	54.6	74.0	19.6	19.4
11	24020.0	45.0	44.5	40.4	35.5	13.9	0.1	0.0	54.4	53.9	74.0	19.6	20.1

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	Dwell	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter or ATT	Factor	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1	2390.0	32.0	31.7	30.5	36.4	3.7	10.7	-28.2	12.3	12.0	54.0	41.7	42.0
3	4804.0	37.1	38.3	35.1	36.0	5.3	1.0	-28.2	14.3	15.5	54.0	39.7	38.5
4	7206.0	40.5	35.7	37.7	36.1	6.6	0.4	-28.2	20.9	16.1	54.0	33.1	37.9
5	9608.0	34.8	30.7	37.0	36.4	7.9	0.1	-28.2	15.2	11.1	54.0	38.8	42.9
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
6	12010.0	31.3	32.1	41.6	36.1	9.5	0.1	-28.2	8.7	9.5	54.0	45.3	44.5
7	14412.0	30.2	30.4	41.7	34.6	9.7	0.2	-28.2	9.5	9.7	54.0	44.5	44.3
8	16814.0	31.7	31.8	45.1	35.1	10.6	1.1	-28.2	15.7	15.8	54.0	38.3	38.2
9	19216.0	30.9	30.9	40.1	34.1	12.0	2.0	-28.2	13.2	13.2	54.0	40.8	40.8
10	21618.0	32.2	32.2	39.8	34.8	12.0	2.4	-28.2	13.9	13.9	54.0	40.1	40.1
11	24020.0	32.5	32.5	40.4	35.5	13.9	0.1	-28.2	13.7	13.7	54.0	40.3	40.3

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	ATT	Dwell	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	LOSS	Factor	HOR	VER	20dBc	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
0	2402.0	107.3	104.6	30.5	36.4	3.7	10.7	0.0	115.8	113.1	-	-	-
2	2400.0	49.9	47.6	30.5	36.4	3.7	10.7	0.0	58.4	56.1	Funda-20dB	37.4	37.0

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 caliculation for Spurious emissions : = 20 x log ((3.083 [ms] x (63 / (5[s] /0.100 [s]))) / 100 [ms]) = -28.2 dB

Radiated Spurious Emission (Mode1)

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

Company	: Panasonic Communications Co.,Ltd.	REPORT NO	: 25IE0108-HO
Equipment	: Portable Unit	REGULATION	: Fcc Part15 Subpart C 15.247(d)
Model	: KX-THA11	TEST DISTANCE	: 3/1m
Sample No.	: 0080F08011CA	DATE	: 05/19/2005
Power	: DC3.6V	TEMPERATURE	: 25deg.C
Mode	: Mode1, Tx 2441MHz	HUMIDITY	: 55%
Remarks	: Hor X-axis / Ver Y-axis Main Antenna	ENGINEER	: Mitsuru Fujimura

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	Dwell	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter or ATT	Factor	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1	4882.0	46.9	48.0	35.6	36.0	5.3	1.0	0.0	52.8	53.9	74.0	21.2	20.1
2	7323.0	48.4	47.9	37.9	36.0	6.6	0.5	0.0	57.4	56.9	74.0	16.6	17.1
3	9764.1	49.6	45.3	36.8	36.4	8.1	0.2	0.0	58.3	54.0	74.0	15.7	20.0
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
4	12205.0	42.3	41.3	41.6	36.0	9.5	0.3	0.0	48.2	47.2	74.0	25.8	26.8
5	14646.0	42.4	41.8	42.2	35.2	9.8	0.2	0.0	49.9	49.3	74.0	24.1	24.7
6	17087.0	44.6	44.1	45.2	34.9	10.8	1.1	0.0	57.3	56.8	74.0	16.7	17.2
7	19528.0	44.6	44.0	40.3	34.3	12.1	2.2	0.0	55.4	54.8	74.0	18.6	19.2
8	21969.0	44.7	45.2	39.8	34.2	12.0	1.0	0.0	53.8	54.3	74.0	20.2	19.7
9	24410.0	43.5	42.9	40.4	35.8	14.0	0.6	0.0	53.2	52.6	74.0	20.8	21.4

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	Dwell	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter or ATT	Factor	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1	4882.0	39.5	40.5	35.6	36.0	5.3	1.0	-28.2	17.2	18.2	54.0	36.8	35.8
2	7323.0	40.6	40.1	37.9	36.0	6.6	0.5	-28.2	21.4	20.9	54.0	32.6	33.1
3	9764.1	40.3	35.0	36.8	36.4	8.1	0.2	-28.2	20.8	15.5	54.0	33.2	38.5
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
4	12205.0	30.7	30.9	41.6	36.0	9.5	0.3	-28.2	8.4	8.6	54.0	45.6	45.4
5	14646.0	31.6	32.6	42.2	35.2	9.8	0.2	-28.2	10.9	11.9	54.0	43.1	42.1
6	17087.0	32.7	32.3	45.2	34.9	10.8	1.1	-28.2	17.2	16.8	54.0	36.8	37.2
7	19528.0	31.4	31.3	40.3	34.3	12.1	2.2	-28.2	14.0	13.9	54.0	40.0	40.1
8	21969.0	32.3	32.2	39.8	34.2	12.0	1.0	-28.2	13.2	13.1	54.0	40.8	40.9
9	24410.0	30.9	30.9	40.4	35.8	14.0	0.6	-28.2	12.4	12.4	54.0	41.6	41.6

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 caliculation for Spurious emissions : = 20 x log ((3.083 [ms] x (63 / (5[s] /0.100 [s]))) / 100 [ms]) = -28.2 dB

Radiated Spurious Emission (Mode1)

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

Company	: Panasonic Communications Co.,Ltd.	REPORT NO	: 25IE0108-HO
Equipment	: Portable Unit	REGULATION	: Fcc Part15 Subpart C 15.247(d)
Model	: KX-THA11	TEST DISTANCE	: 3/1m
Sample No.	: 0080F08011CA	DATE	: 05/19/2005
Power	: DC3.6V	TEMPERATURE	: 25deg.C
Mode	: Mode1, Tx 2480MHz	HUMIDITY	: 55%
Remarks	: Hor X-axis / Ver Y-axis Main Antenna	ENGINEER	: Mitsuru Fujimura

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	Dwell	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter or ATT	Factor	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
2	4960.0	49.0	51.2	36.1	35.9	5.3	1.1	0.0	55.6	57.8	74.0	18.4	16.2
3	7439.9	49.7	48.1	38.1	35.9	6.7	0.7	0.0	59.3	57.7	74.0	14.7	16.3
4	9920.0	48.1	46.9	36.7	36.5	8.1	0.3	0.0	56.7	55.5	74.0	17.3	18.5
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
5	12400.0	43.8	42.7	41.7	35.9	9.5	0.4	0.0	50.0	48.9	74.0	24.0	25.1
6	14880.0	42.4	42.9	42.7	36.0	9.9	0.5	0.0	50.0	50.5	74.0	24.0	23.5
7	17360.0	44.9	44.3	44.7	35.1	11.0	0.9	0.0	56.9	56.3	74.0	17.1	17.7
8	19840.0	44.6	45.1	40.4	34.8	12.3	1.5	0.0	54.5	55.0	74.0	19.5	19.0
9	22320.0	44.6	44.5	39.8	34.1	12.3	1.0	0.0	54.1	54.0	74.0	19.9	20.0
10	24800.0	43.7	43.9	40.7	35.1	14.0	1.3	0.0	55.1	55.3	74.0	18.9	18.7

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	Dwell	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter or ATT	Factor	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
2	4960.0	42.4	44.7	36.1	35.9	5.3	1.1	-28.2	20.8	23.1	54.0	33.2	30.9
3	7439.9	42.3	40.3	38.1	35.9	6.7	0.7	-28.2	23.7	21.7	54.0	30.3	32.3
4	9920.0	38.3	36.5	36.7	36.5	8.1	0.3	-28.2	18.7	16.9	54.0	35.3	37.1
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
5	12400.0	30.2	30.8	41.7	35.9	9.5	0.4	-28.2	8.2	8.8	54.0	45.8	45.2
6	14880.0	30.1	31.6	42.7	36.0	9.9	0.5	-28.2	9.5	11.0	54.0	44.5	43.0
7	17360.0	31.7	31.5	44.7	35.1	11.0	0.9	-28.2	15.5	15.3	54.0	38.5	38.7
8	19840.0	31.6	31.4	40.4	34.8	12.3	1.5	-28.2	13.3	13.1	54.0	40.7	40.9
9	22320.0	32.1	32.1	39.8	34.1	12.3	1.0	-28.2	13.4	13.4	54.0	40.6	40.6
10	24800.0	31.0	31.0	40.7	35.1	14.0	1.3	-28.2	14.2	14.2	54.0	39.8	39.8

Marker-Delta Method (RBW:100kHz)

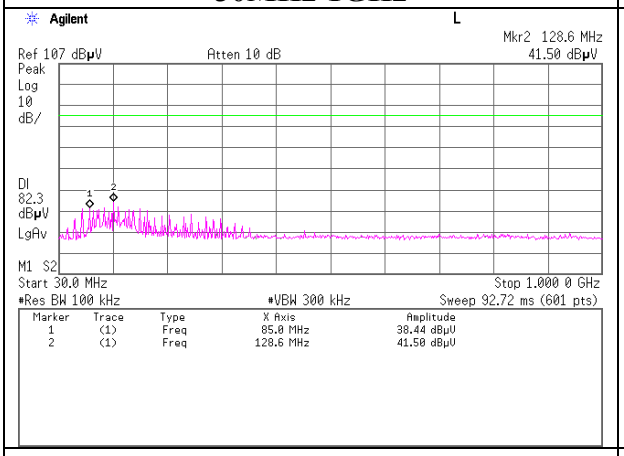
No.	FREQ	S/A READING		ANT	AMP	CABLE	ATT	Dwell	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	LOSS	Factor	HOR	VER		HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
PK DETECT													
1	2483.5	44.4	41.6	30.5	36.4	3.7	10.7	0.0	52.9	50.1	74.0	21.1	23.9
AV DETECT													
1	2483.5	35.6	33.8	30.5	36.4	3.7	10.7	0.0	44.1	42.3	54.0	9.9	11.7

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 caliculation for Spurious emissions : = 20 x log ((3.083 [ms] x (63 / (5[s] /0.100 [s]))) / 100 [ms]) = -28.2 dB

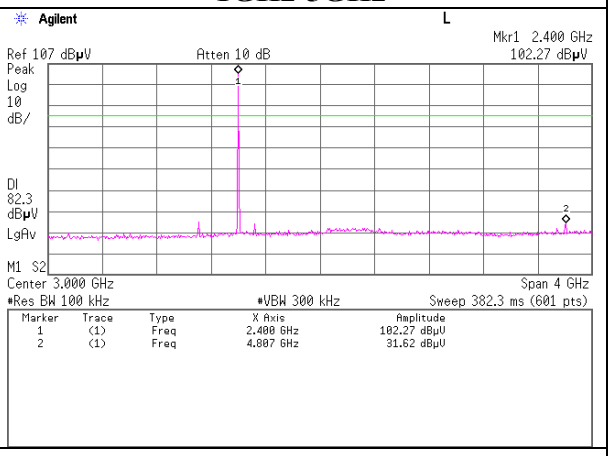
Conducted Spurious Emission (Mode1)

Ch:Low

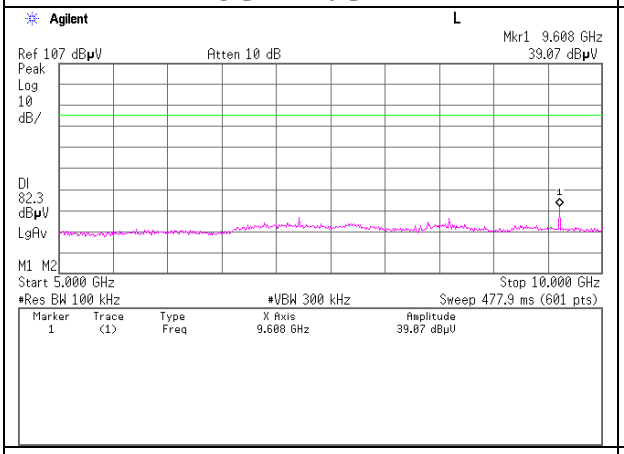
30MHz-1GHz



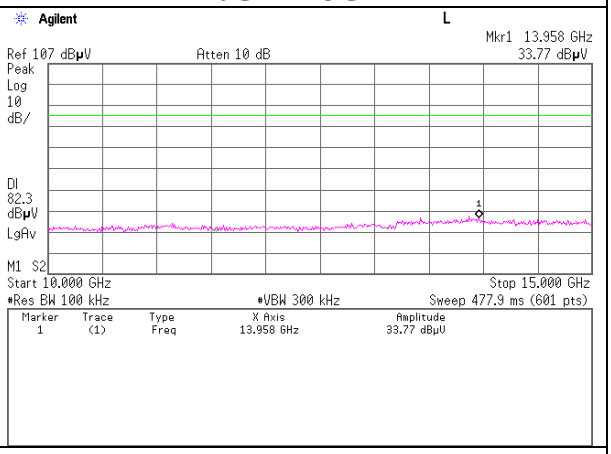
1GHz-5GHz



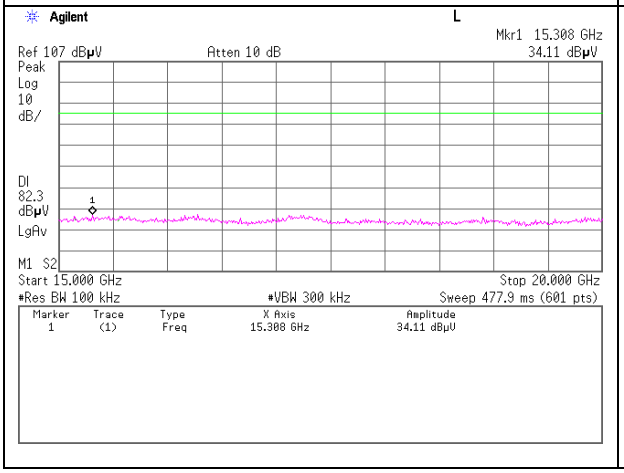
5GHz-10GHz



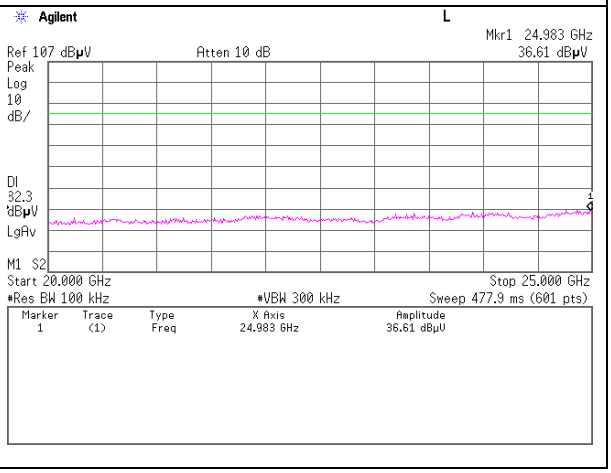
10GHz-15GHz



15GHz-20GHz



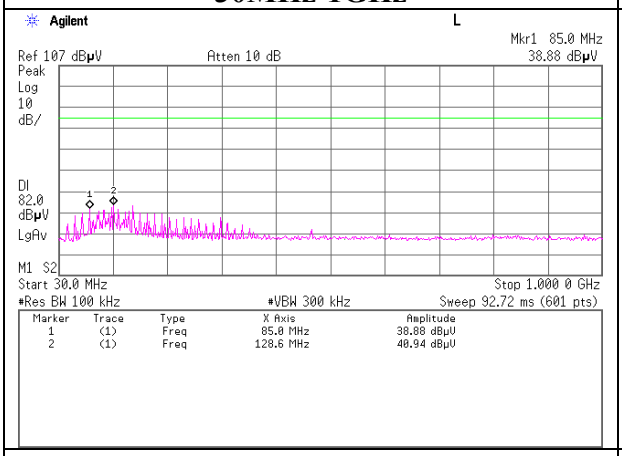
20GHz-25GHz



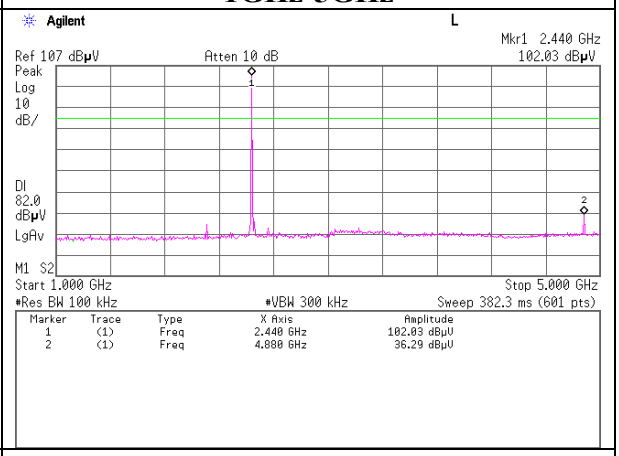
Conducted Spurious Emission (Mode1)

Ch:Mid

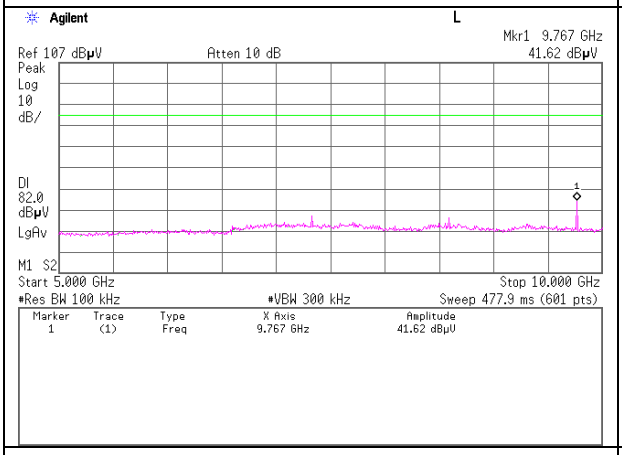
30MHz-1GHz



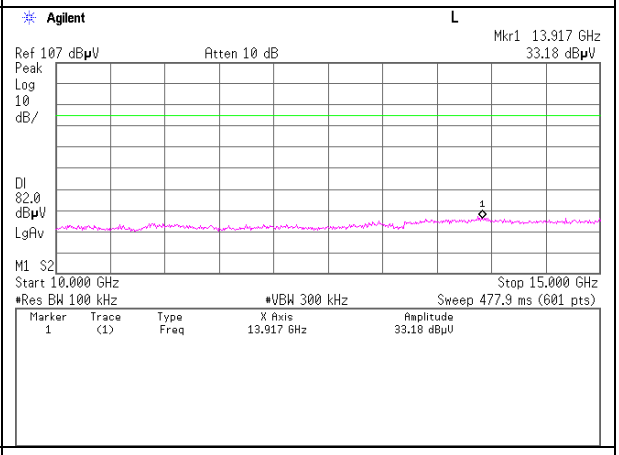
1GHz-5GHz



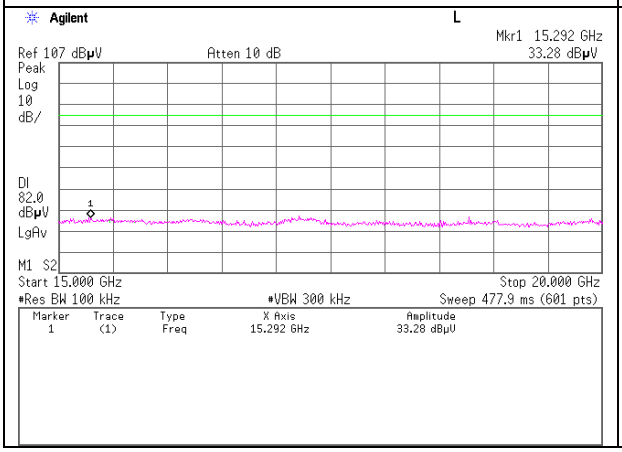
5GHz-10GHz



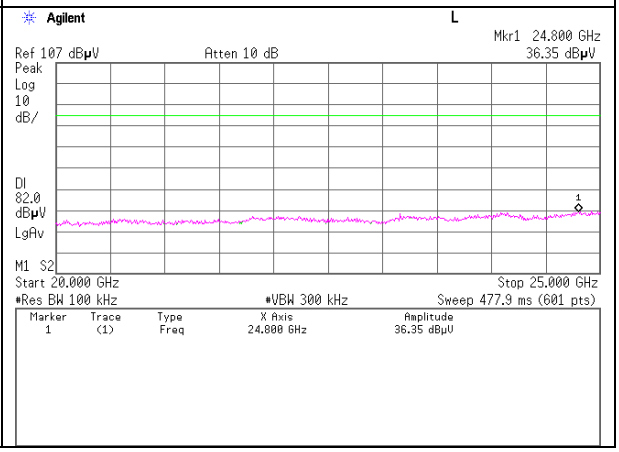
10GHz-15GHz



15GHz-20GHz



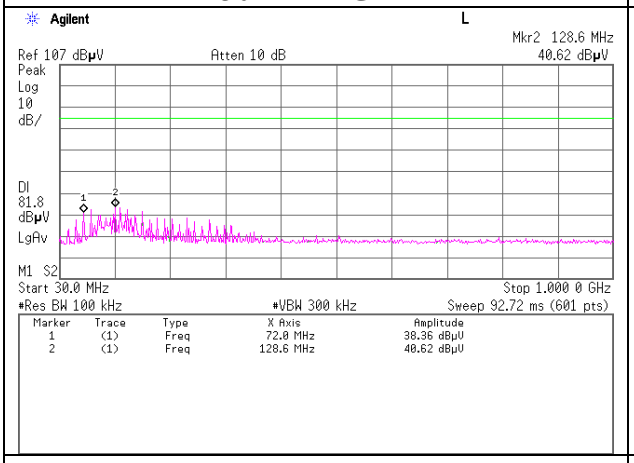
20GHz-25GHz



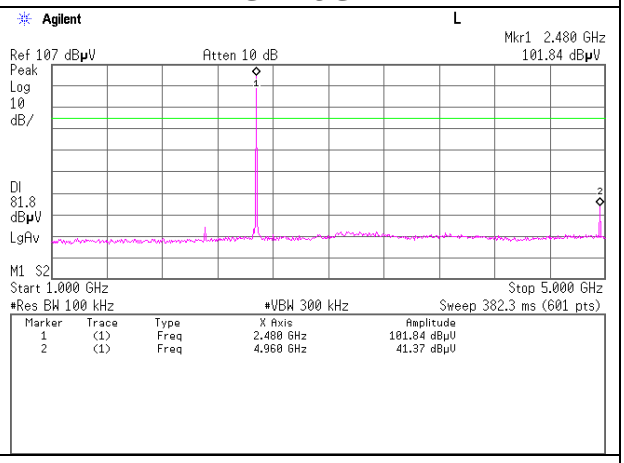
Conducted Spurious Emission (Mode1)

Ch:High

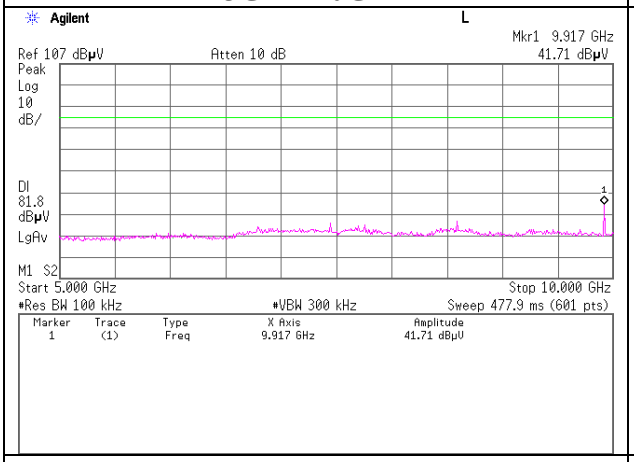
30MHz-1GHz



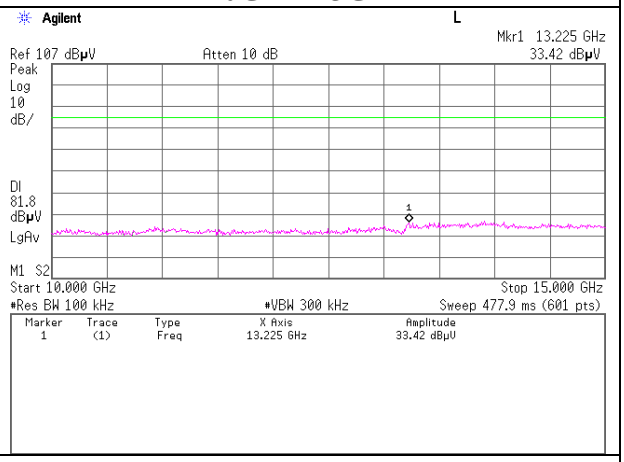
1GHz-5GHz



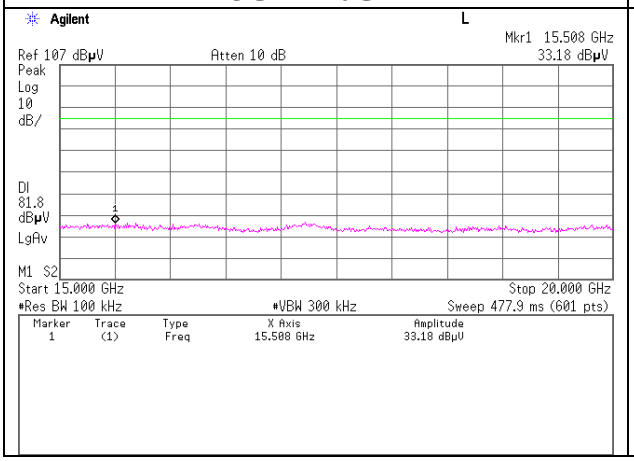
5GHz-10GHz



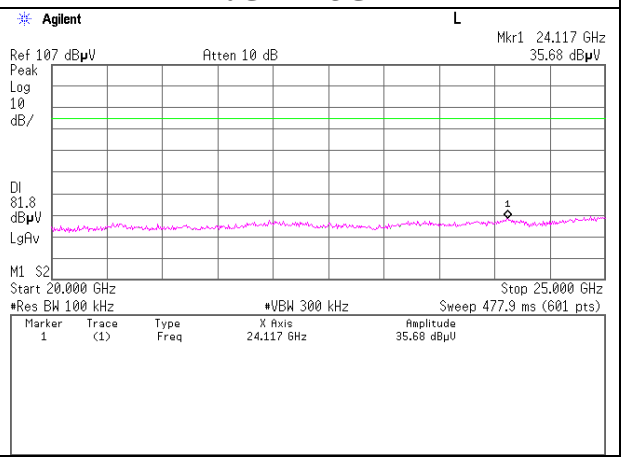
10GHz-15GHz



15GHz-20GHz



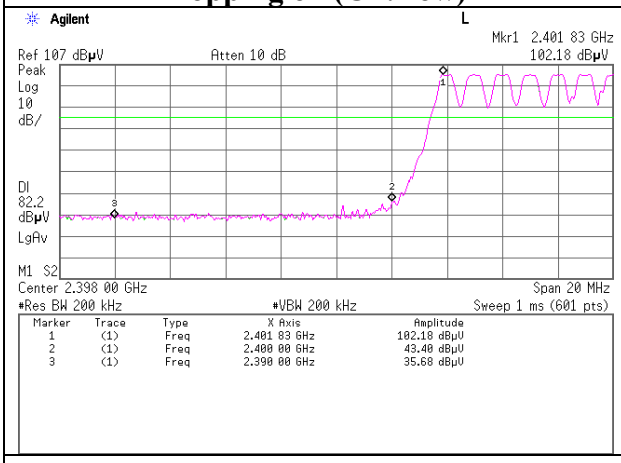
20GHz-25GHz



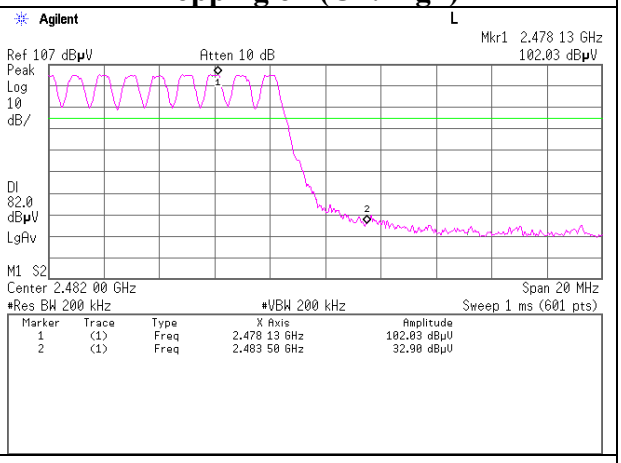
Conducted Spurious Emission (Mode1)

Band Edge compliance

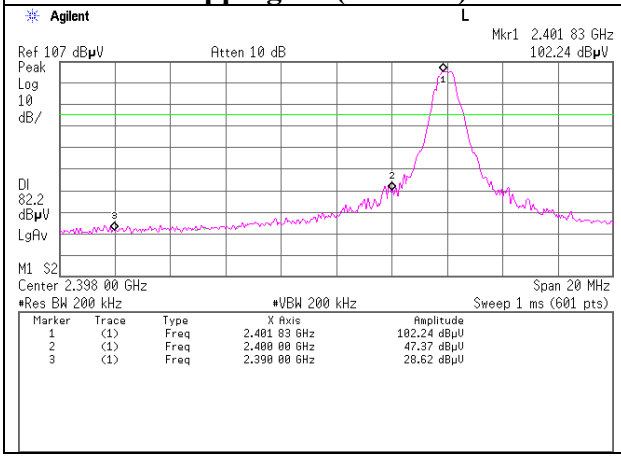
Hopping on (Ch:Low)



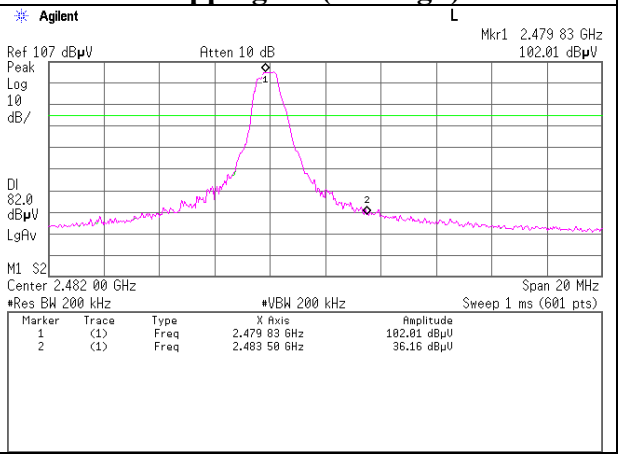
Hopping on (Ch:High)



Hopping off (Ch:Low)



Hopping off (Ch:High)



[Mode2]

Carrier Frequency Separation(Mode2)

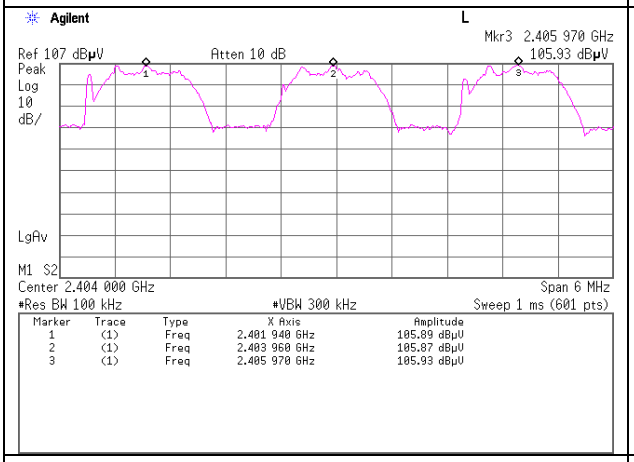
UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

COMPANY	: Panasonic Communications Co.,Ltd.	REGULATION	: Fcc Part15 Subpart C 15.247(a)(1)
EQUIPMENT	: Portable Unit	TEST DISTANCE	: -
MODEL	: KX-THA11	DATE	: 05/17/2005
S/ N	: 0080F08011C9	TEMPERATURE	: 25deg.C
POWER	: DC3.6	HUMIDITY	: 35%
MODE	: Tx(Hopping on)	ENGINEER	: Mitsuru Fujimura

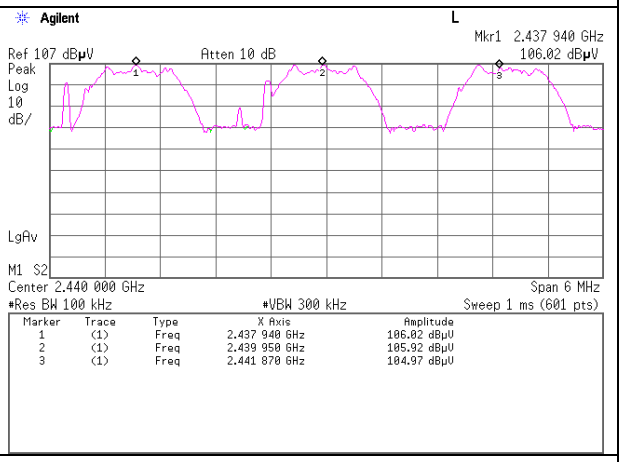
Ch	Freq. [MHz]	Channel separation [MHz]	Limit
Low	2402.0	2.010	>two-thirds of 20dB Bandwidth or 25[kHz]
Mid	2440.0	1.920	>two-thirds of 20dB Bandwidth or 25[kHz]
High	2480.0	1.910	>two-thirds of 20dB Bandwidth or 25[kHz]

Carrier Frequency Separation(Mode2)

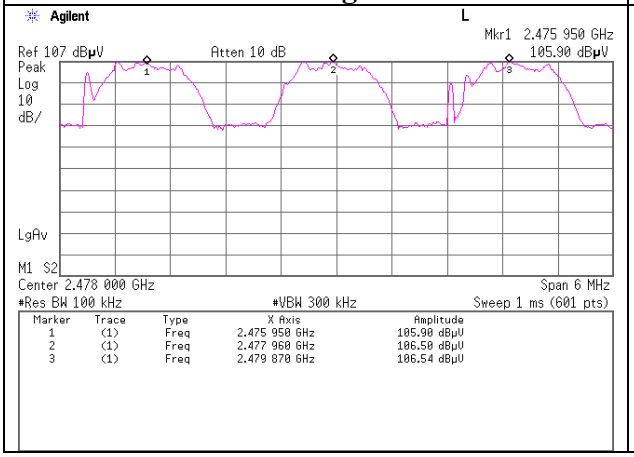
Ch:Low



Ch:Mid



Ch:High



20dB Bandwidth(Mode2)

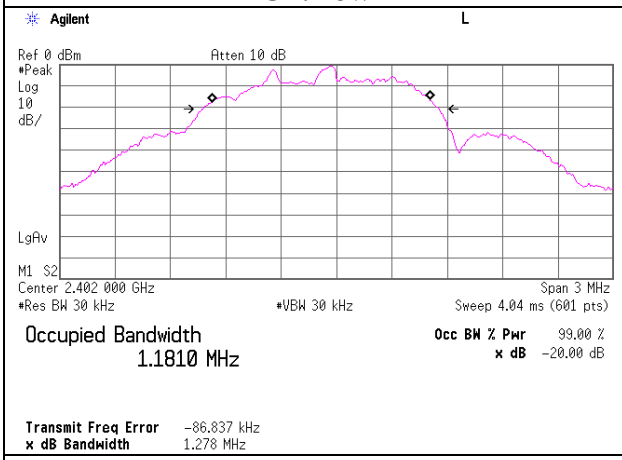
UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Measurement Room

COMPANY	: Panasonic Communications Co.,Ltd.	REGULATION	: Fcc Part15 Subpart C 15.247(a)(1)
EQUIPMENT	: Portable Unit	TEST DISTANCE	: -
MODEL	: KX-THA11	DATE	: 05/17/2005
S/ N	: 0080F08011C9	TEMPERATURE	: 25deg.C
POWER	: DC3.6	HUMIDITY	: 35%
MODE	: Tx (Hopping off)	ENGINEER	: Mitsuru Fujimura

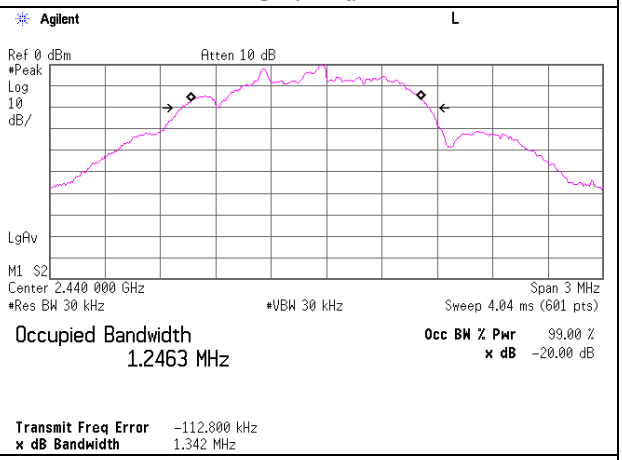
Ch	Freq. [MHz]	20dB Bandwidth [MHz]	Limit [MHz]
Low	2402.0	1.278	-
Mid	2440.0	1.342	-
High	2480.0	1.211	-

20dB Bandwidth(Mode2)

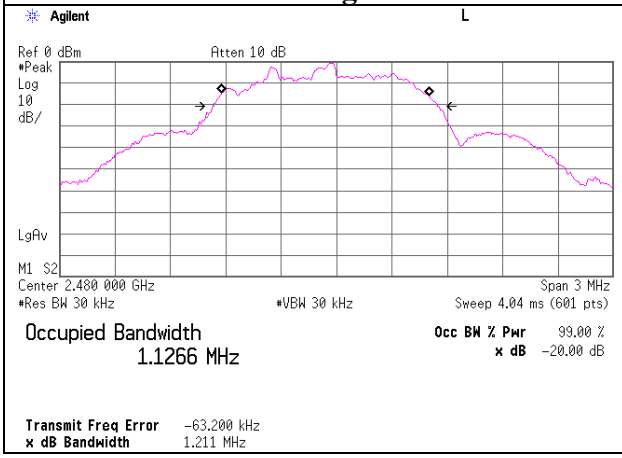
Ch:Low



Ch:Mid



Ch:High



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	:	Portable Unit	TEST DISTANCE	:	-
MODEL	:	KX-THA11	DATE	:	05/17/2005
S/ N	:	0080F08011C9	TEMPERATURE	:	25deg.C
POWER	:	DC3.6	HUMIDITY	:	35%
MODE	:	Tx (Hopping on)	ENGINEER	:	Mitsuru Fujimura

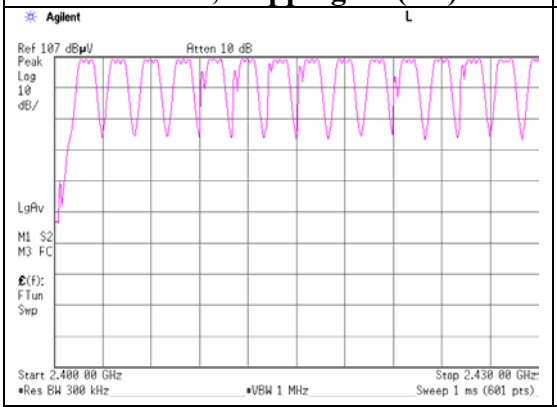
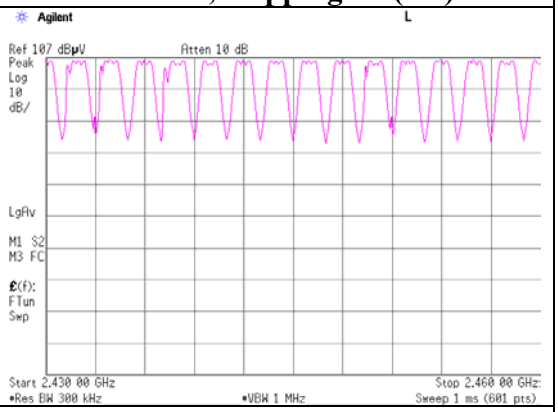
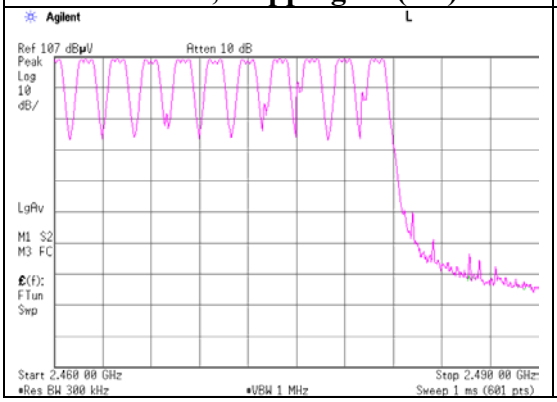
Mode 2, AFH off

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

Mode 2, AFH on

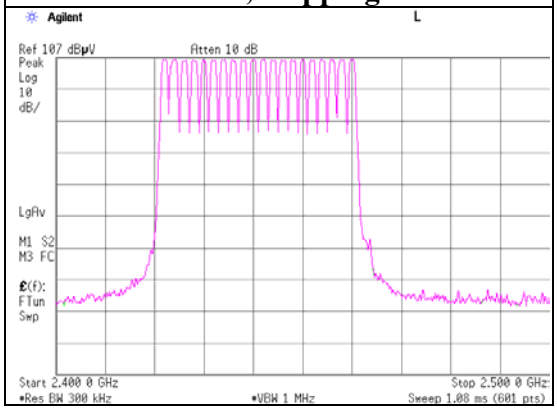
Mode	Number of channel [time]	Limit [time]
Tx(Hopping on)	20	≧15

Number of Hopping Frequency(Mode2)

AFH off, Hopping on (1/3)	AFH off, Hopping on (2/3)
	
AFH off, Hopping on (3/3)	
	

Number of Hopping Frequency(Mode2)

AFH on, Hopping on



Dwell Time(Mode2)

Head Office EMC Lab. No.3 Measurement Room

COMPANY	:	Panasonic Communications Co.,Ltd.	REGULATION	:	Fcc Part15 Subpart C 15.247(a)(1)(iii)
EQUIPMENT	:	Portable Unit	TEST DISTANCE	:	-
MODEL	:	KX-THA11	DATE	:	05/17/2005
S/ N	:	0080F08011C9	TEMPERATURE	:	25deg.C
POWER	:	DC3.6	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 = 307times	0.577	177	400
DH5	36 times /5 sec. x 16 = 115.2 times	3.117	359	400

Mode2, AFH on

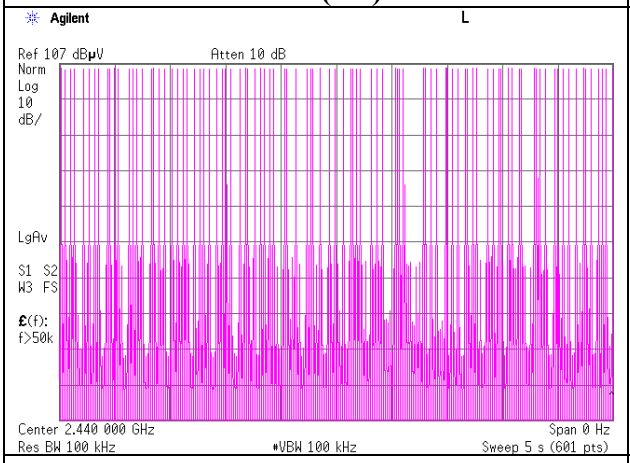
Mode	Number of transmission in a 8(20 Hopping x 0.4) second period	Length of transmission time [msec]	Result [msec]	Limit [msec]
DH1	48 times /1sec. x 8 = 384.0 times	0.573	220	400
DH5	71 times / 5sec. x 8 = 113.6times	3.083	350	400

*Dwell Factor caliculation for Spurious emissions : = 20 x log ((3.083 [ms] x (71 / (5[s] /0.100 [s]))) / 100 [ms]) = -27.2 dB

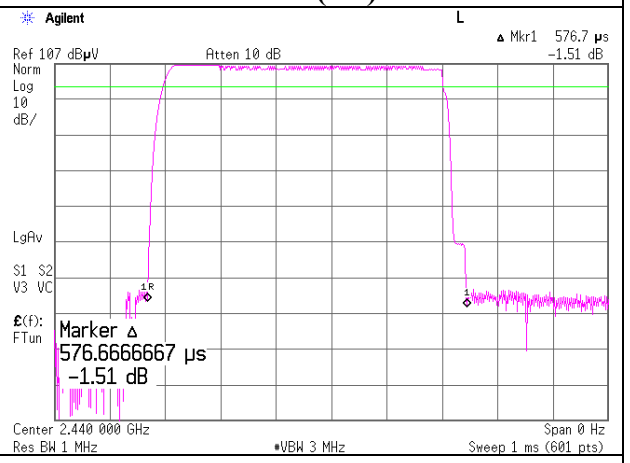
Dwell Time(Mode2)

AFH off

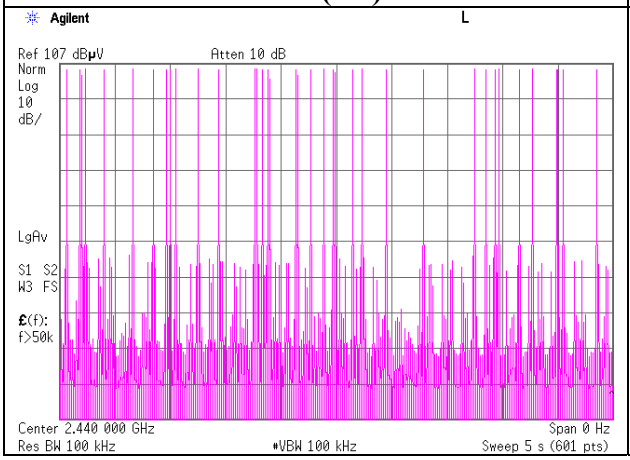
DH1 (1/2)



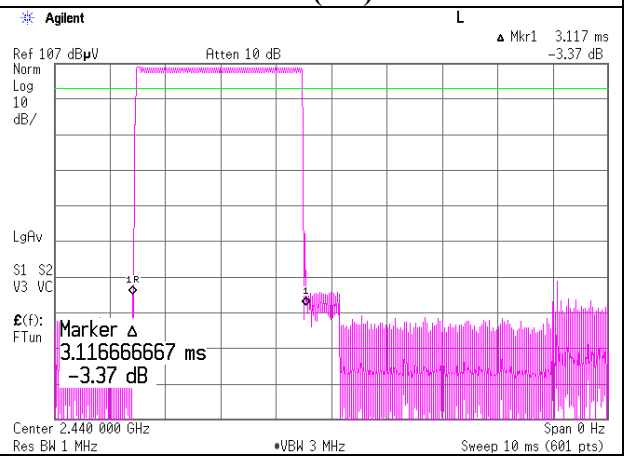
DH1 (2/2)



DH5 (1/2)

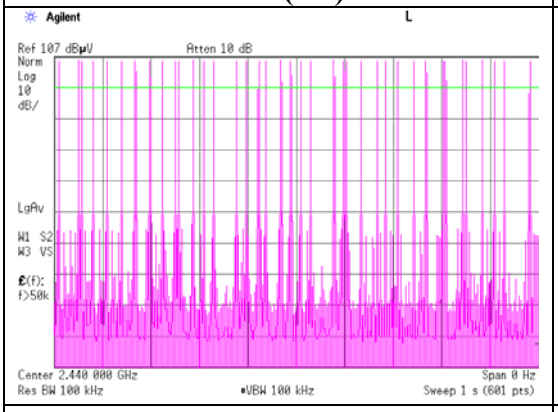
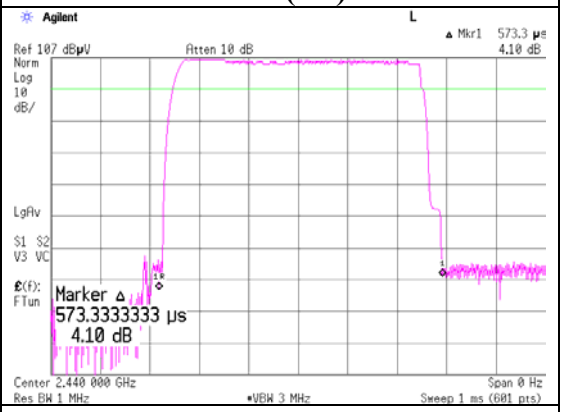
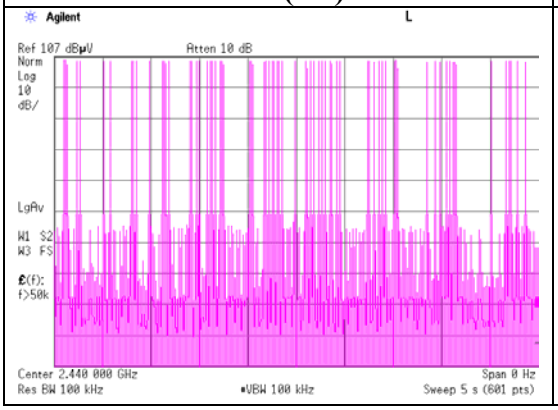
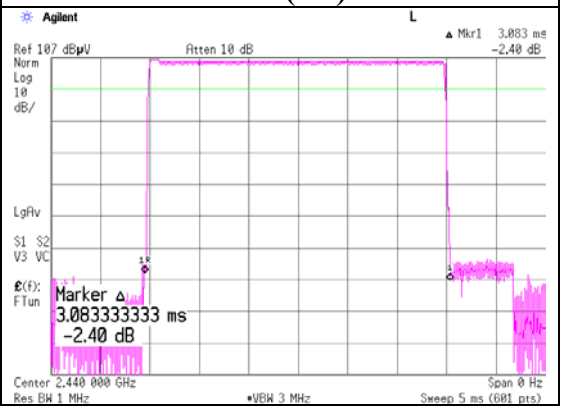


DH5(2/2)



Dwell Time(Mode2)

AFH on

DH1 (1/2)	DH1 (2/2)
	
DH5 (1/2)	**DH5 (2/2)**
	

Maximum Peak Output Power(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(b)(1)
EQUIPMENT	: Portable Unit	TEST DISTANCE	: -
MODEL	: KX-THA11	DATE	: 05/17/2005
S/ N	: 0080F08011C9	TEMPERATURE	: 25deg.C
POWER	: DC3.6	HUMIDITY	: 35%
MODE	: Tx(Hopping off)	ENGINEER	: Mitsuru Fujimura

AFH off

Ch	Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
Low	2402.0	0.72	0.00	20.00	20.72	20.96	0.24
Mid	2440.0	0.77	0.00	20.00	20.77	20.96	0.19
High	2480.0	0.87	0.00	20.00	20.87	20.96	0.09

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.

Maximum Peak Output Power(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(b)(1)
EQUIPMENT	:	Portable Unit	TEST DISTANCE	:	-
MODEL	:	KX-THA11	DATE	:	05/17/2005
S/ N	:	0080F08011CA	TEMPERATURE	:	25deg.C
POWER	:	DC3.6	HUMIDITY	:	35%
MODE	:	Tx(Hopping off)	ENGINEER	:	Mitsuru Fujimura

Out power measurement method
The Output power has been measured in a Semi Anechoic Chamber with a ground plane and at a distance of 3m.
The highest of the measuring varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the output power.
The measurements were performed for both vertical and horizontal antenna polarization with the Spectrum Analyzer.

Spectrum Analyzer setting
Mode1: Resolution bandwidth set to 1MHz and Video bandwidth to 3MHz.
Mode2 : Resolution bandwidth set to 3MHz and Video bandwidth to 10MHz.

Calculation of result
E-field [dBμV/m]= Reading (S/A) + Factor (Measurement equipment)
E-field [dBμV/m] was converted into E[V/m]
EIRP[dBm] = $10\log[((E*d)^2/30G)*10^3]$; d= 3[m], G =1

[Mode2] (Main Antenna *1))			
Ch	Freq. [MHz]	E-field [dBμV/m]	EIRP [dBm]
Low	2402	114.6	19.4
Mid	2440	115.7	20.5
High	2480	116.6	21.4

*1) The tested antenna was main antenna because its output power level is higher than that of sub antenna.

Radiated Spurious Emission(Mode2)

(Main antenna)

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

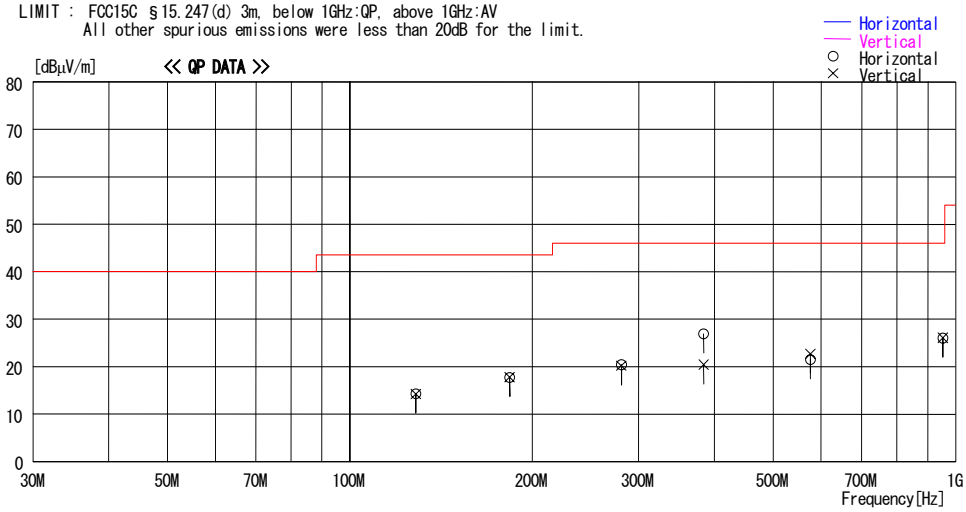
DATA OF RADIATED EMISSION TEST

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

Applicant	: Panasonic Communications Co.,Ltd.	Report No.	: 25IE0108-HO
Kind of EUT	: Portable Unit	Power	: DC 3.6 V
Model No.	: KX-THA11	Temp./Humi.	: 25deg.C / 55%
Serial No.	: 0080F08011CA	Operator	: Keiichi Aoki

Mode / Remarks : Mode2 Tx2440MHz /Main Antenna /EUT-Axis:Hor X-axis, Ver Y-axis (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	128.549	21.1	13.7	6.9	27.4	14.3	43.5	29.2	100	123
2	183.631	20.7	16.9	7.3	27.2	17.7	43.5	25.8	100	67
3	280.829	20.4	19.1	7.7	26.8	20.4	46.0	25.6	100	0
4	383.997	28.1	18.0	8.2	27.4	26.9	46.0	19.1	100	251
5	575.932	21.3	19.5	9.0	28.3	21.5	46.0	24.5	100	181
6	953.363	20.7	22.7	10.3	27.7	26.0	46.0	20.0	100	224
—— Vertical ——										
7	128.549	21.0	13.7	6.9	27.4	14.2	43.5	29.3	100	313
8	183.631	20.8	16.9	7.3	27.2	17.8	43.5	25.7	100	355
9	280.829	20.2	19.1	7.7	26.8	20.2	46.0	25.8	100	111
10	383.997	21.6	18.0	8.2	27.4	20.4	46.0	25.6	100	0
11	575.932	22.5	19.5	9.0	28.3	22.7	46.0	23.3	100	136
12	953.363	20.8	22.7	10.3	27.7	26.1	46.0	19.9	100	102

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.

Radiated Spurious Emission (Mode2)

(Main antenna)

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

Company	: Panasonic Communications Co.,Ltd.	REPORT NO	: 25IE0108-HO
Equipment	: Portable Unit	REGULATION	: Fcc Part15 Subpart C 15.247(d)
Model	: KX-THA11	TEST DISTANCE	: 3/1m
Sample No.	: 0080F08011CA	DATE	: 05/19/2005
Power	: DC3.6V	TEMPERATURE	: 25deg.C
Mode	: Mode2, Tx 2402MHz	HUMIDITY	: 55%
Remarks	: Hor X-axis / Ver Y-axis Main Antenna	ENGINEER	: Mitsuru Fujimura

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	Dwell	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter or ATT	Factor	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1	2390.0	46.2	44.9	30.5	36.4	3.7	10.7	0.0	54.7	53.4	74.0	19.3	20.6
3	4804.0	49.3	50.5	35.1	36.0	5.3	1.0	0.0	54.7	55.9	74.0	19.3	18.1
4	7206.0	51.7	51.1	37.7	36.1	6.6	0.4	0.0	60.3	59.7	74.0	13.7	14.3
5	9609.3	43.5	43.0	37.0	36.4	7.9	0.1	0.0	52.1	51.6	74.0	21.9	22.4
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
6	12010.0	42.8	42.0	41.6	36.1	9.5	0.1	0.0	48.4	47.6	74.0	25.6	26.4
7	14412.0	41.8	41.9	41.7	34.6	9.7	0.2	0.0	49.3	49.4	74.0	24.7	24.6
8	16814.0	44.3	43.1	45.1	35.1	10.6	1.1	0.0	56.5	55.3	74.0	17.5	18.7
9	19216.0	43.3	43.2	40.1	34.1	12.0	2.0	0.0	53.8	53.7	74.0	20.2	20.3
10	21618.0	44.6	44.5	39.8	34.8	12.0	2.4	0.0	54.5	54.4	74.0	19.5	19.6
11	24020.0	44.2	45.2	40.4	35.5	13.9	0.1	0.0	53.6	54.6	74.0	20.4	19.4

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	Dwell	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter or ATT	Factor	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1	2390.0	32.5	32.3	30.5	36.4	3.7	10.7	-27.2	13.8	13.6	54.0	40.2	40.4
3	4804.0	40.8	41.7	35.1	36.0	5.3	1.0	-27.2	19.0	19.9	54.0	35.1	34.1
4	7206.0	41.0	39.9	37.7	36.1	6.6	0.4	-27.2	22.4	21.3	54.0	31.6	32.7
5	9609.3	30.9	31.4	37.0	36.4	7.9	0.1	-27.2	12.3	12.8	54.0	41.7	41.2
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
6	12010.0	29.5	31.0	41.6	36.1	9.5	0.1	-27.2	7.9	9.4	54.0	46.1	44.6
7	14412.0	30.2	29.3	41.7	34.6	9.7	0.2	-27.2	10.5	9.6	54.0	43.5	44.4
8	16814.0	31.6	31.5	45.1	35.1	10.6	1.1	-27.2	16.6	16.5	54.0	37.4	37.5
9	19216.0	30.9	30.9	40.1	34.1	12.0	2.0	-27.2	14.2	14.2	54.0	39.8	39.8
10	21618.0	32.2	32.1	39.8	34.8	12.0	2.4	-27.2	14.9	14.8	54.0	39.1	39.2
11	24020.0	32.4	32.3	40.4	35.5	13.9	0.1	-27.2	14.6	14.5	54.0	39.4	39.5

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	ATT	Dwell	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	LOSS	Factor	HOR	VER	20dBc	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
0	2402.0	110.9	108.0	30.5	36.4	3.7	10.7	0.0	119.4	116.5	-	-	-
2	2400.0	58.1	55.6	30.5	36.4	3.7	10.7	0.0	66.6	64.1	Funda-20dB	32.8	32.5

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 caliculation for Spurious emissions : = 20 x log ((3.083 [ms] x (71 / (5[s] /0.100 [s]))) / 100 [ms]) = -27.2 dB

Radiated Spurious Emission (Mode2)

(Main antenna)

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

Company	: Panasonic Communications Co.,Ltd.	REPORT NO	: 25IE0108-HO
Equipment	: Portable Unit	REGULATION	: Fcc Part15 Subpart C 15.247(d)
Model	: KX-THA11	TEST DISTANCE	: 3/1m
Sample No.	: 0080F08011CA	DATE	: 05/19/2005
Power	: DC3.6V	TEMPERATURE	: 25deg.C
Mode	: Mode2, Tx 2440MHz	HUMIDITY	: 55%
Remarks	: Hor X-axis / Ver Y-axis Main Antenna	ENGINEER	: Mitsuru Fujimura

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	Dwell	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter or ATT	Factor	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1	1544.3	52.9	48.2	24.8	36.9	2.9	10.7	0.0	54.4	49.7	74.0	19.6	24.3
2	4880.0	49.6	51.9	35.6	36.0	5.3	1.0	0.0	55.5	57.8	74.0	18.5	16.2
3	7320.0	52.9	50.7	37.9	36.0	6.6	0.5	0.0	61.9	59.7	74.0	12.1	14.3
4	9760.0	48.7	47.6	36.8	36.4	8.1	0.2	0.0	57.4	56.3	74.0	16.6	17.7
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
5	12200.0	41.9	43.2	41.6	36.0	9.5	0.3	0.0	47.8	49.1	74.0	26.2	24.9
6	14640.0	43.1	42.1	42.2	35.1	9.8	0.2	0.0	50.7	49.7	74.0	23.3	24.3
7	17080.0	44.6	44.0	45.2	34.9	10.8	1.1	0.0	57.3	56.7	74.0	16.7	17.3
8	19520.0	43.7	44.4	40.3	34.3	12.1	2.3	0.0	54.6	55.3	74.0	19.4	18.7
9	21960.0	44.5	44.8	39.8	34.2	12.0	1.0	0.0	53.6	53.9	74.0	20.4	20.1
10	24400.0	43.4	42.9	40.4	35.8	14.0	0.6	0.0	53.1	52.6	74.0	20.9	21.4

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	Dwell	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter or ATT	Factor	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1	1544.3	41.6	36.4	24.8	36.9	2.9	10.7	-27.2	15.9	10.7	54.0	38.1	43.3
2	4880.0	41.0	43.8	35.6	36.0	5.3	1.0	-27.2	19.7	22.5	54.0	34.3	31.5
3	7320.0	41.9	39.8	37.9	36.0	6.6	0.5	-27.2	23.7	21.6	54.0	30.3	32.4
4	9760.0	36.6	35.5	36.8	36.4	8.1	0.2	-27.2	18.1	17.0	54.0	35.9	37.0
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
5	12200.0	30.5	32.4	41.6	36.0	9.5	0.3	-27.2	9.2	11.1	54.0	44.8	42.9
6	14640.0	29.8	30.3	42.2	35.1	9.8	0.2	-27.2	10.2	10.7	54.0	43.8	43.3
7	17080.0	32.0	32.1	45.2	34.9	10.8	1.1	-27.2	17.5	17.6	54.0	36.5	36.4
8	19520.0	31.4	31.5	40.3	34.3	12.1	2.3	-27.2	15.1	15.2	54.0	38.9	38.8
9	21960.0	32.3	32.3	39.8	34.2	12.0	1.0	-27.2	14.2	14.2	54.0	39.8	39.8
10	24400.0	31.1	31.0	40.4	35.8	14.0	0.6	-27.2	13.6	13.5	54.0	40.4	40.5

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 caliculation for Spurious emissions : = 20 x log ((3.083 [ms] x (71 / (5[s] /0.100 [s]))) / 100 [ms]) = -27.2 dB

Radiated Spurious Emission (Mode2)

(Main antenna)

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

Company	: Panasonic Communications Co.,Ltd.	REPORT NO	: 25IE0108-HO
Equipment	: Portable Unit	REGULATION	: Fcc Part15 Subpart C 15.247(d)
Model	: KX-THA11	TEST DISTANCE	: 3/1m
Sample No.	: 0080F08011CA	DATE	: 05/19/2005
Power	: DC3.6V	TEMPERATURE	: 25deg.C
Mode	: Mode2, Tx 2480MHz	HUMIDITY	: 55%
Remarks	: Hor X-axis / Ver Y-axis Main Antenna	ENGINEER	: Mitsuru Fujimura

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	Dwell	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter or ATT	Factor	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1	1604.7	54.1	47.9	25.6	36.8	3.0	10.7	0.0	56.6	50.4	74.0	17.4	23.6
3	4960.6	52.8	56.5	36.1	35.9	5.3	1.1	0.0	59.4	63.1	74.0	14.6	10.9
4	7440.0	51.8	52.9	38.1	35.9	6.7	0.7	0.0	61.4	62.5	74.0	12.6	11.5
5	9918.9	49.0	46.8	36.7	36.5	8.1	0.3	0.0	57.6	55.4	74.0	16.4	18.6
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
6	12400.0	45.4	45.6	41.7	35.9	9.5	0.4	0.0	51.6	51.8	74.0	22.4	22.2
7	14880.0	45.0	44.8	42.7	36.0	9.9	0.5	0.0	52.6	52.4	74.0	21.4	21.6
8	17360.0	44.3	44.2	44.7	35.1	11.0	0.9	0.0	56.3	56.2	74.0	17.7	17.8
9	19840.0	44.2	44.8	40.4	34.8	12.3	1.5	0.0	54.1	54.7	74.0	19.9	19.3
10	22320.0	45.1	44.9	39.8	34.1	12.3	1.0	0.0	54.6	54.4	74.0	19.4	19.6
11	24800.0	43.3	43.9	40.7	35.1	14.0	1.3	0.0	54.7	55.3	74.0	19.3	18.7

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	Dwell	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter or ATT	Factor	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1	1604.7	42.9	35.8	25.6	36.8	3.0	10.7	-27.2	18.2	11.1	54.0	35.8	42.9
3	4960.6	44.4	48.0	36.1	35.9	5.3	1.1	-27.2	23.8	27.4	54.0	30.2	26.6
4	7440.0	40.9	41.8	38.1	35.9	6.7	0.7	-27.2	23.3	24.2	54.0	30.7	29.8
5	9918.9	36.0	34.6	36.7	36.5	8.1	0.3	-27.2	17.4	16.0	54.0	36.6	38.0
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
6	12400.0	31.0	31.7	41.7	35.9	9.5	0.4	-27.2	10.0	10.7	54.0	44.0	43.3
7	14880.0	31.9	31.8	42.7	36.0	9.9	0.5	-27.2	12.3	12.2	54.0	41.7	41.8
8	17360.0	32.2	32.6	44.7	35.1	11.0	0.9	-27.2	17.0	17.4	54.0	37.0	36.6
9	19840.0	31.5	31.5	40.4	34.8	12.3	1.5	-27.2	14.2	14.2	54.0	39.8	39.8
10	22320.0	32.2	32.2	39.8	34.1	12.3	1.0	-27.2	14.5	14.5	54.0	39.5	39.5
11	24800.0	31.2	31.1	40.7	35.1	14.0	1.3	-27.2	15.4	15.3	54.0	38.6	38.7

Marker-Delta Method (RBW:100kHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	ATT	Dwell	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	LOSS	Factor	HOR	VER		HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
PK DETECT													
2	2483.5	49.3	47.4	30.5	36.4	3.7	10.7	0.0	57.8	55.9	74.0	16.2	18.1
AV DETECT													
2	2483.5	41.4	40.4	30.5	36.4	3.7	10.7	0.0	49.9	48.9	54.0	4.1	5.1

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 caliculation for Spurious emissions : = 20 x log ((3.083 [ms] x (71 / (5[s] /0.100 [s]))) / 100 [ms]) = -27.2 dB

Radiated Spurious Emission (Mode2)

(Sub Antenna)

* 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

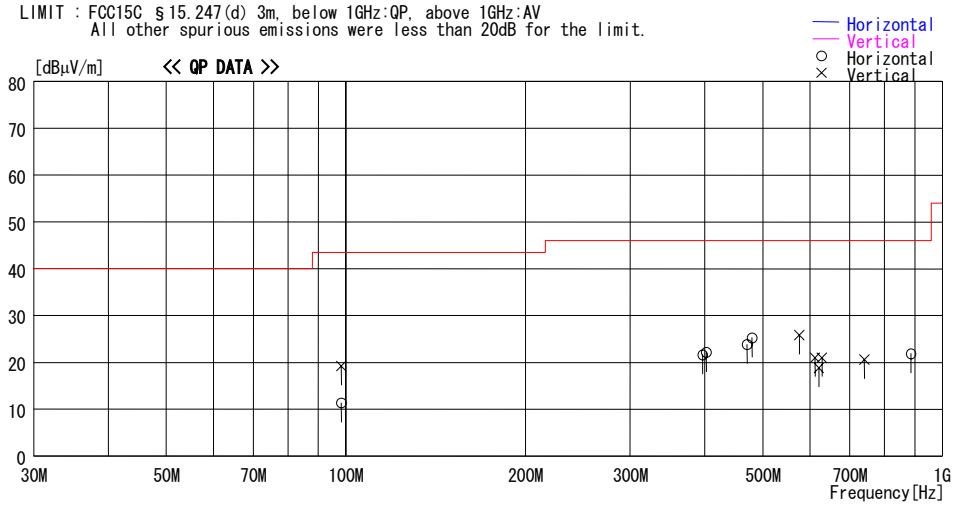
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber

Applicant : Panasonic Communications Co.,Ltd.
Kind of EUT : Portable Unit
Model No. : KX-THA11
Serial No. : 0080F08011CA

Report No. : 25IE0108-HO
Power : DC3.6V
Temp./Humi. : 27deg.C / 33%
Operator : Mitsuru Fujimura

Mode / Remarks : Mode2 Tx2440MHz /Sub Antenna /EUT-Axis:Hor X-axis, Ver X-axis (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	98.313	27.9	10.1	0.9	27.6	11.3	43.5	32.2	315	-1
2	396.602	28.1	18.5	2.5	27.5	21.6	46.0	24.4	231	277
3	402.299	28.5	18.6	2.5	27.5	22.1	46.0	23.9	112	125
4	471.138	30.3	18.8	2.7	28.0	23.8	46.0	22.2	222	259
5	480.029	31.7	18.8	2.7	28.0	25.2	46.0	20.8	225	259
6	887.310	23.5	21.9	4.2	27.8	21.8	46.0	24.2	100	135
----- Vertical ------										
7	98.312	35.8	10.1	0.9	27.6	19.2	43.5	24.3	128	360
8	576.001	31.5	19.5	3.1	28.3	25.8	46.0	20.2	100	185
9	612.467	26.2	19.8	3.3	28.3	21.0	46.0	25.0	100	128
10	621.326	23.6	19.9	3.5	28.2	18.8	46.0	27.2	100	-1
11	629.028	25.8	19.9	3.5	28.2	21.0	46.0	25.0	100	182
12	740.570	23.8	21.1	3.8	28.1	20.6	46.0	25.4	100	5

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.

Radiated Spurious Emission (Mode2)

(Sub Antenna)

UL Apex Co., Ltd.
Head Office EMC Lab. No.1 Semi Anechoic Chamber

Company	: Panasonic Communications Co.,Ltd.	REPORT NO	: 25IE0108-HO
Equipment	: Portable Unit	REGULATION	: Fcc Part15 Subpart C 15.247(d)
Model	: KX-THA11	TEST DISTANCE	: 3/1m
Sample No.	: 0080F08011CA	DATE	: 05/23/2005
Power	: DC3.6V	TEMPERATURE	: 24deg.C
Mode	: Mode2, Tx 2402MHz	HUMIDITY	: 57%
Remarks	: Hor X-axis / Ver X-axis Sub Antenna	ENGINEER	: Kenichi Adachi

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	Dwell	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter or ATT	Factor	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1	2106.0	51.9	53.9	31.4	39.4	2.4	0.0	0.0	46.3	48.3	74.0	27.7	25.7
2	2388.2	42.3	43.2	31.0	39.9	2.6	0.0	0.0	36.0	36.9	74.0	38.0	37.1
4	4804.3	64.6	60.6	34.9	41.2	3.9	1.0	0.0	63.2	59.2	74.0	10.8	14.8
5	7205.1	57.3	58.9	37.6	40.4	4.8	0.4	0.0	59.7	61.3	74.0	14.3	12.7
6	8508.1	50.3	51.5	37.6	40.4	5.2	0.1	0.0	52.8	54.0	74.0	21.2	20.0
7	9609.1	52.2	53.8	36.3	39.5	5.5	0.2	0.0	54.7	56.3	74.0	19.3	17.7
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
8	12010.0	49.5	49.8	41.4	39.6	6.6	0.1	0.0	48.5	48.8	74.0	25.5	25.2
9	14412.0	50.1	50.1	41.7	41.0	6.7	0.2	0.0	48.2	48.2	74.0	25.8	25.8
10	16814.0	49.6	49.5	44.7	41.7	7.1	1.1	0.0	51.3	51.2	74.0	22.7	22.8
11	19216.0	45.9	46.1	40.1	40.3	7.6	0.0	0.0	43.8	44.0	74.0	30.2	30.0
12	21618.0	47.0	46.9	39.8	35.4	8.2	0.0	0.0	50.1	50.0	74.0	23.9	24.0
13	24020.0	45.6	46.1	40.4	32.9	8.2	0.0	0.0	51.8	52.3	74.0	22.2	21.7

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	Dwell	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter or ATT	Factor	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1	2106.0	43.6	46.8	31.4	39.4	2.4	0.0	-27.2	10.8	14.0	54.0	43.2	40.0
2	2388.2	27.9	28.1	31.0	39.9	2.6	0.0	-27.2	-5.6	-5.4	54.0	59.6	59.4
4	4804.3	52.0	46.4	34.9	41.2	3.9	1.0	-27.2	23.4	17.8	54.0	30.6	36.2
5	7205.1	44.3	44.7	37.6	40.4	4.8	0.4	-27.2	19.5	19.9	54.0	34.5	34.1
6	8508.1	39.7	41.3	37.6	40.4	5.2	0.1	-27.2	15.0	16.6	54.0	39.0	37.4
7	9609.1	38.6	40.1	36.3	39.5	5.5	0.2	-27.2	13.9	15.4	54.0	40.1	38.6
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
8	12010.0	35.0	34.9	41.4	39.6	6.6	0.1	-27.2	6.8	6.7	54.0	47.2	47.3
9	14412.0	36.3	36.3	41.7	41.0	6.7	0.2	-27.2	7.2	7.2	54.0	46.8	46.8
10	16814.0	35.7	35.6	44.7	41.7	7.1	1.1	-27.2	10.2	10.1	54.0	43.8	43.9
11	19216.0	32.6	32.3	40.1	40.3	7.6	0.0	-27.2	3.3	3.0	54.0	50.7	51.0
12	21618.0	33.2	33.1	39.8	35.4	8.2	0.0	-27.2	9.1	9.0	54.0	44.9	45.0
13	24020.0	32.5	32.5	40.4	32.9	8.2	0.0	-27.2	11.5	11.5	54.0	42.5	42.5

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	ATT	Dwell	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	LOSS	Factor	HOR	VER	20dBc	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
0	2401.7	116.9	113.6	30.9	39.9	2.6	0.0	0.0	110.5	107.2	-	-	-
3	2400.0	68.1	64.1	30.9	39.9	2.6	0.0	0.0	61.7	57.7	Funda-20dB	28.8	29.5

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 caliculation for Spurious emissions : = 20 x log ((3.083 [ms] x (71 / (5[s] /0.100 [s]))) / 100 [ms]) = -27.2 dB

Radiated Spurious Emission (Mode2)

(Sub Antenna)

UL Apex Co., Ltd.
Head Office EMC Lab. No.1 Semi Anechoic Chamber

Company	: Panasonic Communications Co.,Ltd.	REPORT NO	: 25IE0108-HO
Equipment	: Portable Unit	REGULATION	: Fcc Part15 Subpart C 15.247(d)
Model	: KX-THA11	TEST DISTANCE	: 3/1m
Sample No.	: 0080F08011CA	DATE	: 05/23/2005
Power	: DC3.6V	TEMPERATURE	: 24deg.C
Mode	: Mode2, Tx 2440MHz	HUMIDITY	: 57%
Remarks	: Hor X-axis / Ver X-axis Sub Antenna	ENGINEER	: Kenichi Adachi

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	Dwell	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter or ATT	Factor	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1	2106.1	53.9	52.3	31.4	39.4	2.4	0.0	0.0	48.3	46.7	74.0	25.7	27.3
2	4880.5	62.0	64.2	35.3	41.2	3.9	1.0	0.0	61.0	63.2	74.0	13.0	10.8
3	7320.8	57.9	60.3	37.7	40.4	4.8	0.5	0.0	60.5	62.9	74.0	13.5	11.1
4	8521.6	48.5	47.3	36.9	39.5	5.2	0.1	0.0	51.2	50.0	74.0	22.8	24.0
5	9761.2	56.8	58.1	36.2	39.5	5.6	0.2	0.0	59.3	60.6	74.0	14.7	13.4
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
8	12200.0	49.9	51.5	41.5	39.8	6.6	0.3	0.0	49.0	50.6	74.0	25.0	23.4
9	14640.0	47.8	49.9	42.2	40.9	6.7	0.2	0.0	46.5	48.6	74.0	27.5	25.4
10	17080.0	50.3	50.0	44.6	41.8	7.1	1.1	0.0	51.8	51.5	74.0	22.2	22.5
11	19520.0	45.8	45.4	40.3	39.8	7.8	0.0	0.0	44.6	44.2	74.0	29.4	29.8
12	21960.0	47.8	47.7	39.8	35.9	8.2	0.0	0.0	50.4	50.3	74.0	23.6	23.7
13	24400.0	44.3	44.5	40.4	33.7	8.4	0.0	0.0	49.9	50.1	74.0	24.1	23.9

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	Dwell	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter or ATT	Factor	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1	2106.1	48.6	45.3	31.4	39.4	2.4	0.0		43.0	39.7	54.0	11.0	14.3
2	4880.5	55.4	52.7	35.3	41.2	3.9	1.0	-27.2	27.2	24.5	54.0	26.8	29.5
3	7320.8	44.8	46.2	37.7	40.4	4.8	0.5	-27.2	20.2	21.6	54.0	33.8	32.4
4	8521.6	36.2	33.5	36.9	39.5	5.2	0.1	-27.2	11.7	9.0	54.0	42.3	45.0
7	9761.2	42.1	42.9	36.2	39.5	5.6	0.2	-27.2	17.4	18.2	54.0	36.6	35.8
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
8	12200.0	36.2	37.3	41.5	39.8	6.6	0.3	-27.2	8.1	9.2	54.0	45.9	44.8
9	14640.0	35.2	35.8	42.2	40.9	6.7	0.2	-27.2	6.7	7.3	54.0	47.3	46.7
10	17080.0	36.2	35.7	44.6	41.8	7.1	1.1	-27.2	10.5	10.0	54.0	43.5	44.0
11	19520.0	32.3	32.5	40.3	39.8	7.8	0.0	-27.2	3.9	4.1	54.0	50.1	49.9
12	21960.0	34.5	34.4	39.8	35.9	8.2	0.0	-27.2	9.9	9.8	54.0	44.1	44.2
13	24400.0	31.9	31.9	40.4	33.7	8.4	0.0	-27.2	10.3	10.3	54.0	43.7	43.7

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 caliculation for Spurious emissions : = 20 x log ((3.083 [ms] x (71 / (5[s] /0.100 [s]))) / 100 [ms]) = -27.2 dB

Radiated Spurious Emission (Mode2)

(Sub Antenna)

UL Apex Co., Ltd.
Head Office EMC Lab. No.1 Semi Anechoic Chamber

Company	: Panasonic Communications Co.,Ltd.	REPORT NO	: 25IE0108-HO
Equipment	: Portable Unit	REGULATION	: Fcc Part15 Subpart C 15.247(d)
Model	: KX-THA11	TEST DISTANCE	: 3/1m
Sample No.	: 0080F08011CA	DATE	: 05/23/2005
Power	: DC3.6V	TEMPERATURE	: 24deg.C
Mode	: Mode2, Tx 2480MHz	HUMIDITY	: 57%
Remarks	: Hor X-axis / Ver X-axis Sub Antenna	ENGINEER	: Kenichi Adachi

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

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	Dwell	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter or ATT	Factor	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1	2483.6	72.0	69.9	30.8	40.0	2.5	0.0	0.0	65.3	63.2	74.0	8.7	10.8
2	4960.5	65.8	61.7	35.8	41.3	3.5	1.1	0.0	64.9	60.8	74.0	9.1	13.2
3	7439.0	60.2	60.4	37.9	40.3	4.7	0.7	0.0	63.2	63.4	74.0	10.8	10.6
4	8530.2	47.7	49.6	36.9	39.6	5.2	0.1	0.0	50.3	52.2	74.0	23.7	21.8
5	9919.9	58.9	54.5	36.2	39.6	5.8	0.3	0.0	61.6	57.2	74.0	12.4	16.8
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
6	12400.0	49.9	52.8	41.6	40.0	6.6	0.4	0.0	49.0	51.9	74.0	25.0	22.1
7	14880.0	47.9	50.2	42.6	40.9	6.9	0.5	0.0	47.5	49.8	74.0	26.5	24.2
8	17360.0	50.2	48.4	44.4	41.6	7.1	0.9	0.0	51.5	49.7	74.0	22.5	24.3
9	19840.0	45.8	45.5	40.4	39.4	8.0	0.0	0.0	45.3	45.0	74.0	28.7	29.0
10	22320.0	47.4	47.5	39.8	35.3	8.2	0.0	0.0	50.6	50.7	74.0	23.4	23.3
11	24800.0	46.8	46.3	40.7	34.6	8.6	0.0	0.0	52.0	51.5	74.0	22.0	22.5

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

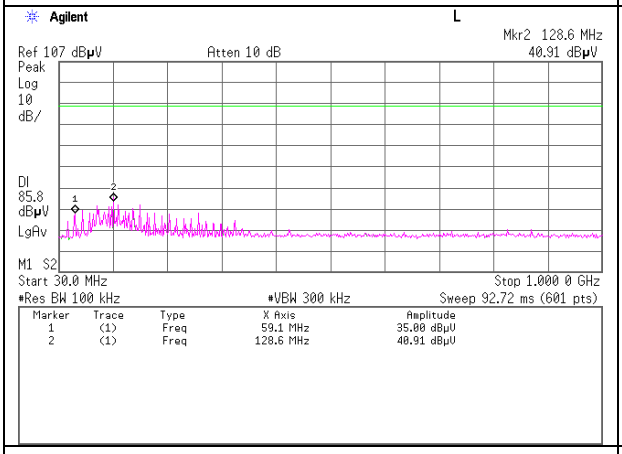
No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	Dwell	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter or ATT	Factor	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1	2483.6	48.6	47.0	30.8	40.0	2.5	0.0	-27.2	14.7	13.1	54.0	39.3	40.9
2	4960.5	54.5	50.7	35.8	41.3	3.5	1.1	-27.2	26.4	22.6	54.0	27.6	31.4
3	7439.0	46.2	45.8	37.9	40.3	4.7	0.7	-27.2	22.1	21.7	54.0	31.9	32.3
4	8530.2	33.9	37.3	36.9	39.6	5.2	0.1	-27.2	9.3	12.7	54.0	44.7	41.3
5	9919.9	43.3	38.7	36.2	39.6	5.8	0.3	-27.2	18.9	14.2	54.0	35.1	39.8
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
6	12400.0	36.5	38.6	41.6	40.0	6.6	0.4	-27.2	8.4	10.5	54.0	45.6	43.5
7	14880.0	35.0	37.2	42.6	40.9	6.9	0.5	-27.2	7.4	9.6	54.0	46.6	44.4
8	17360.0	36.4	35.1	44.4	41.6	7.1	0.9	-27.2	10.5	9.2	54.0	43.5	44.8
9	19840.0	32.4	32.3	40.4	39.4	8.0	0.0	-27.2	4.7	4.6	54.0	49.3	49.4
10	22320.0	34.3	34.3	39.8	35.3	8.2	0.0	-27.2	10.3	10.3	54.0	43.7	43.7
11	24800.0	33.5	33.6	40.7	34.6	8.6	0.0	-27.2	11.5	11.6	54.0	42.5	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 caliculation for Spurious emissions : = 20 x log ((3.083 [ms] x (71 / (5[s] /0.100 [s]))) / 100 [ms]) = -27.2 dB

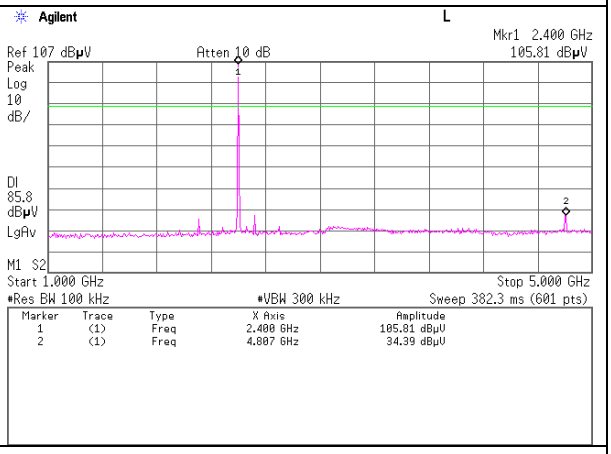
Conducted Spurious Emission (Mode2)

Ch:Low

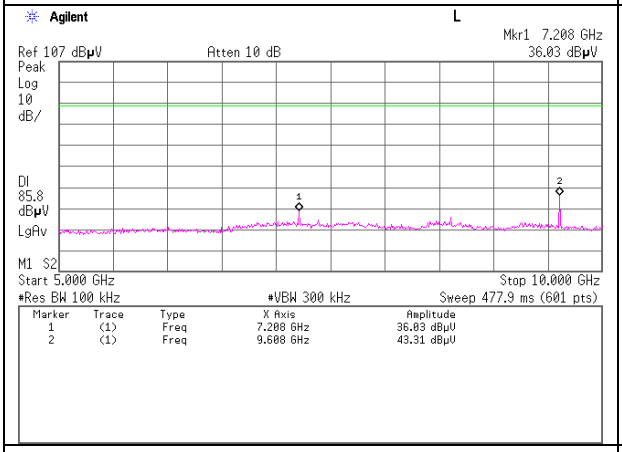
30MHz-1GHz



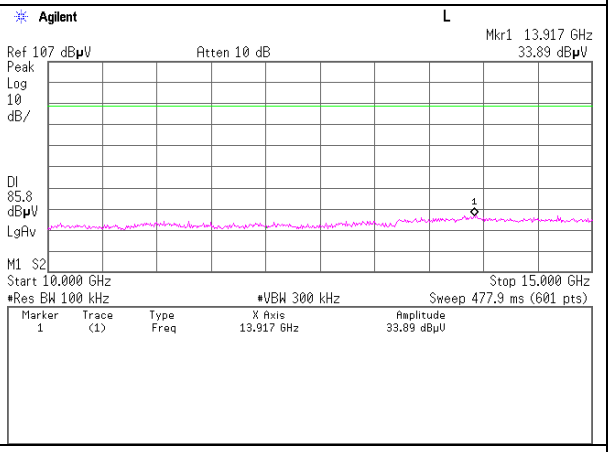
1GHz-5GHz



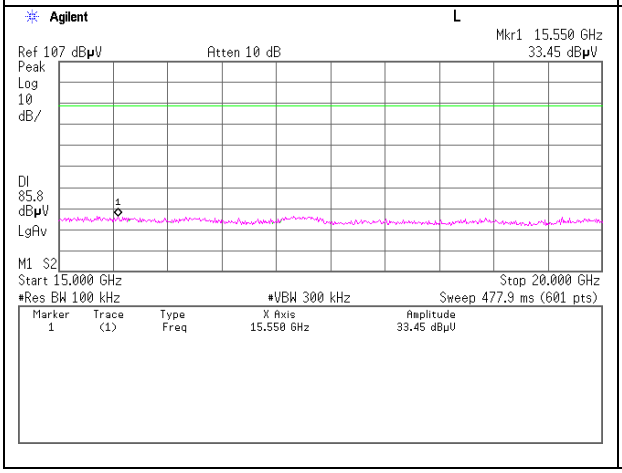
5GHz-10GHz



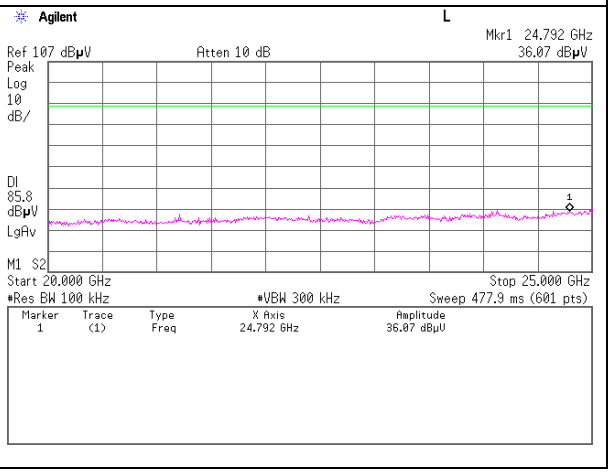
10GHz-15GHz



15GHz-20GHz



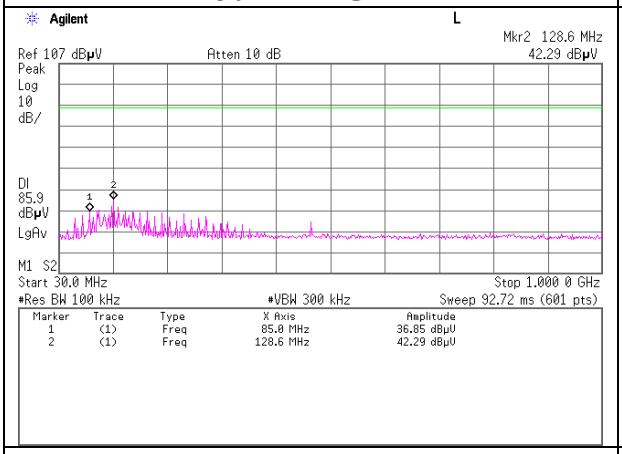
20GHz-25GHz



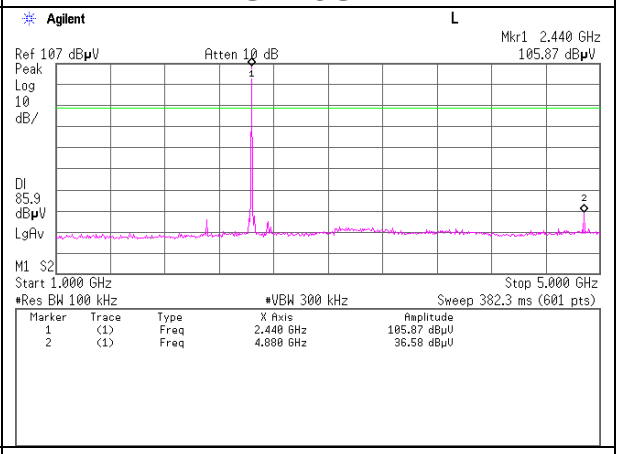
Conducted Spurious Emission (Mode2)

Ch:Mid

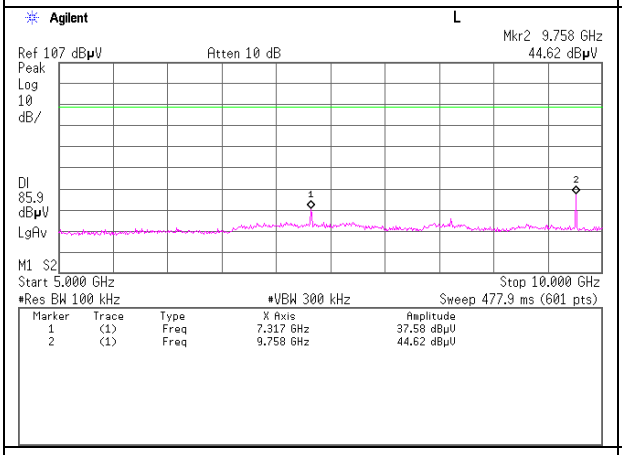
30MHz-1GHz



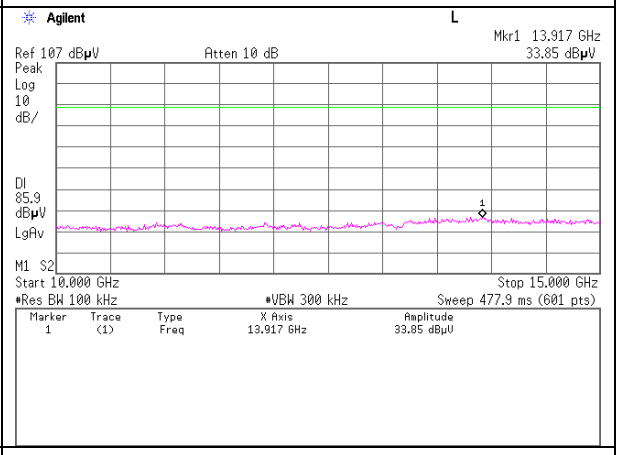
1GHz-5GHz



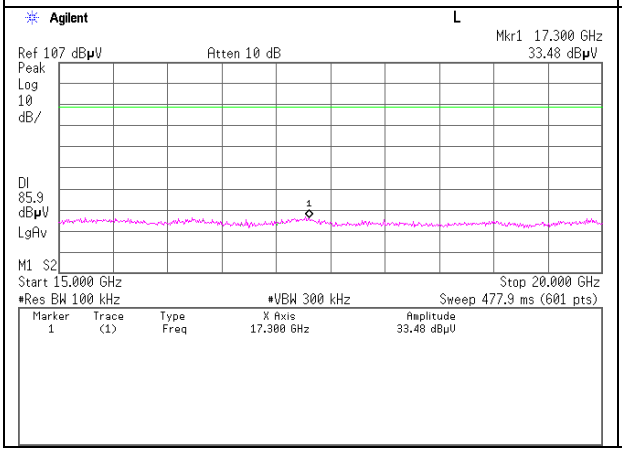
5GHz-10GHz



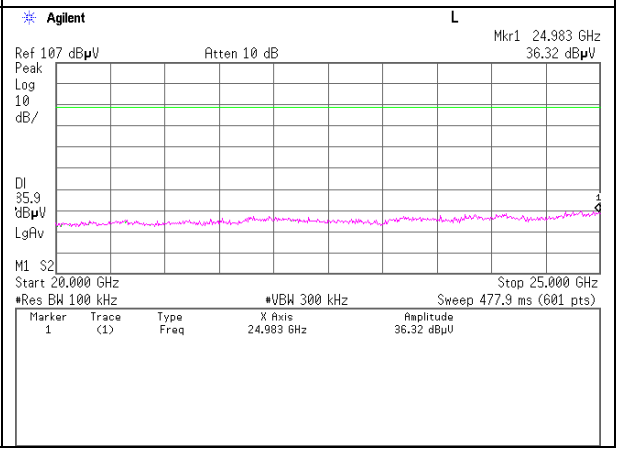
10GHz-15GHz



15GHz-20GHz



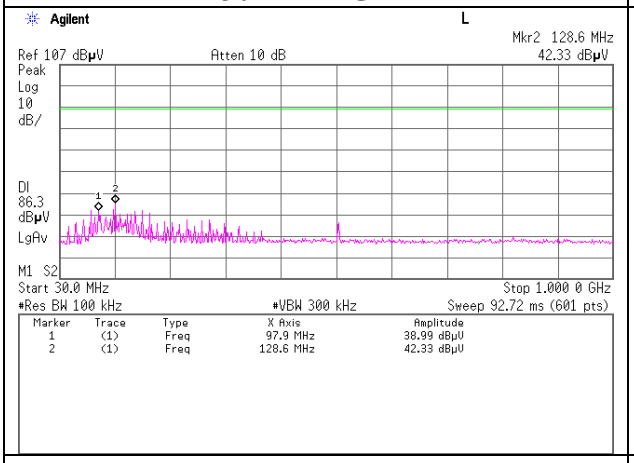
20GHz-25GHz



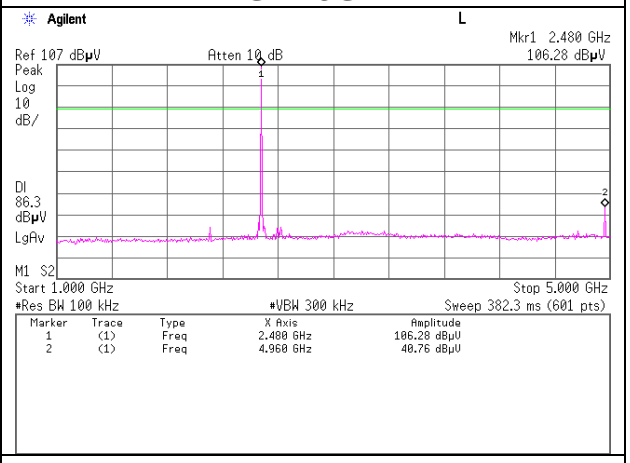
Conducted Spurious Emission (Mode2)

Ch:High

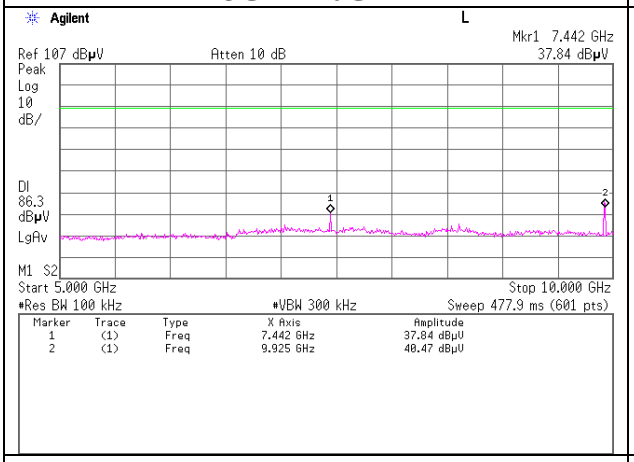
30MHz-1GHz



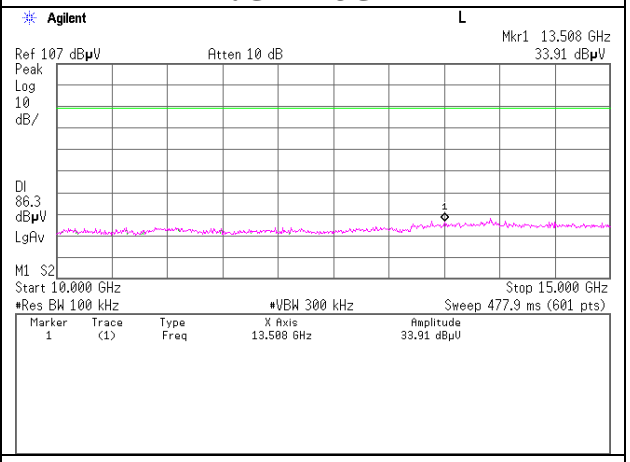
1GHz-5GHz



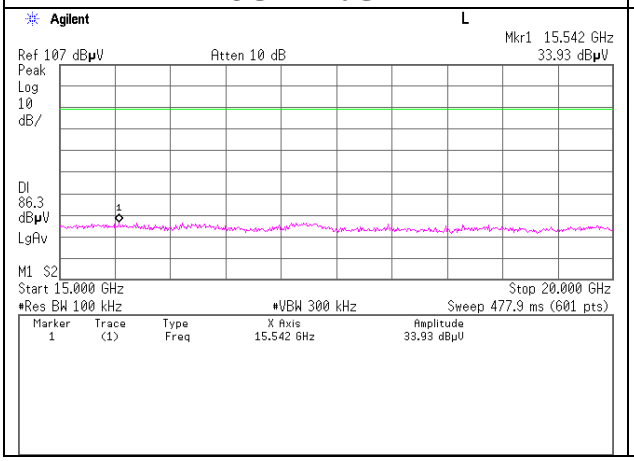
5GHz-10GHz



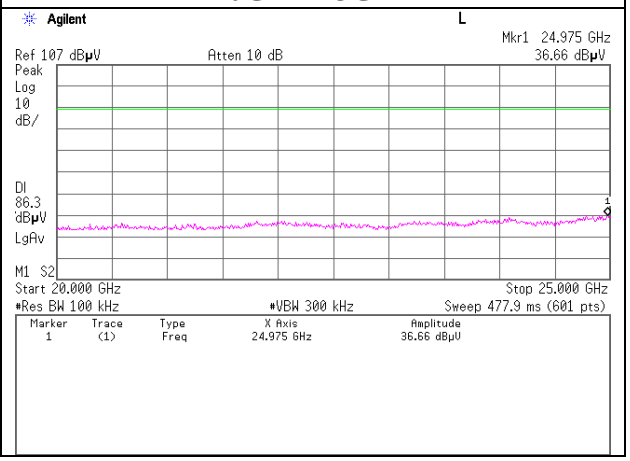
10GHz-15GHz



15GHz-20GHz



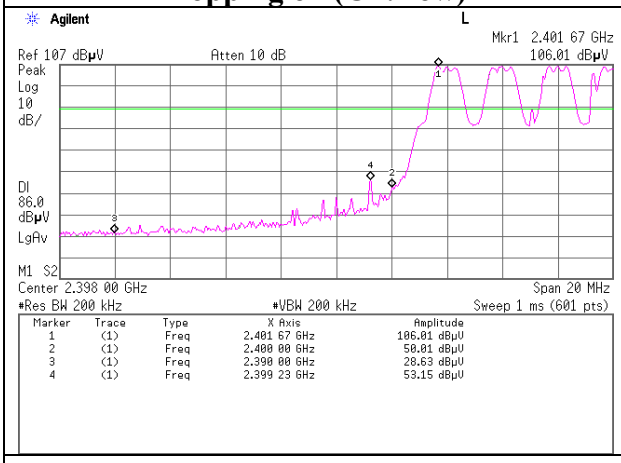
20GHz-25GHz



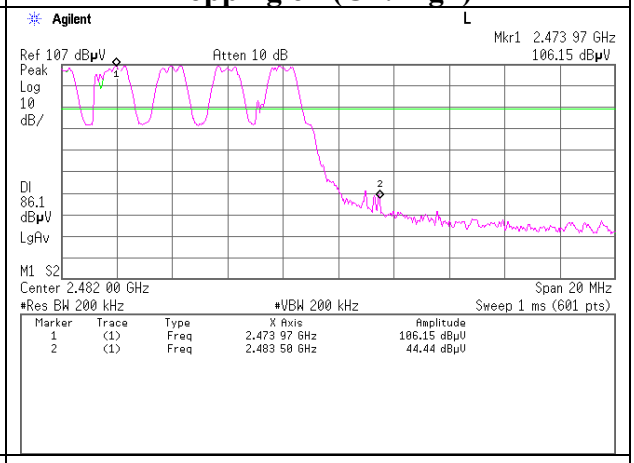
Conducted Spurious Emission (Mode2)

Band Edge compliance

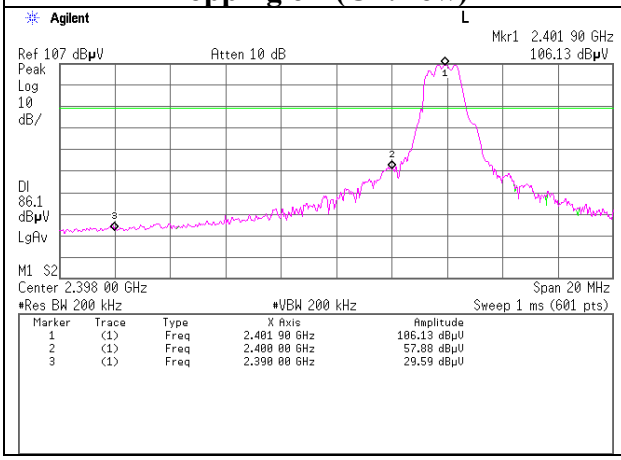
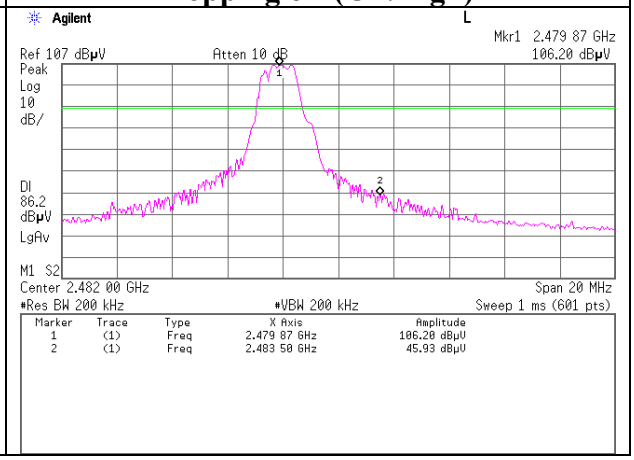
Hopping on (Ch:Low)



Hopping on (Ch:High)



Hopping off (Ch:Low)



Hopping off (Ch:High)