EMI TEST REPORT

Test Report No. : 22HE0013-YW

Applicant:	**Matsushita Electric Industrial Co.,Ltd.**
Type of Equipment:	**Notebook Personal Computer (Wireless LAN built in PC)**
Model No.:	**CF-48**
FCC ID:	**ACJ9TGCF-481**
Test standard:	**FCC Part15 Subpart C, Section 15.247 *Except FCC 15.247(e) Processing Gain**
Test Result:	**Complied**

The results in this report apply only to the sample tested.

Date of test: April 1, 2 and 19 2002

Tested by: Naoki Sakamoto
Group Leader of EMC section

Approved by: Kazutoyo Nakanishi
Site Operation Manager of EMC section

A-pex International Co., Ltd.
YOKOWA LAB.
108 Yokowa-cho, Ise-shi, Mie-ken 516-1106 JAPAN
Telephone: int +81 596 39 1485
Facsimile: int +81 596 39 0232

Table of Contents Page

A-pex International Co., Ltd.
YOKOWA LAB.
108 Yokowa-cho, Ise-shi, Mie-ken 516-1106 JAPAN
Telephone: int +81 596 39 1485
Facsimile: int +81 596 39 0232

1 GENERAL INFORMATION

APPLICANT	: Matsushita Electric Industrial Co.,Ltd. AVC Company Personal Computer Division.
ADDRESS	: 1-10-12 Yaqumohigashi-machi, Moriguchi City Osaka Japan Tel: +81-6-6907-4050 Fax: +81-6-6907-4041
REGULATION(S)	: FCC Part15 Subpart C, Section 15.247 *Except FCC 15.247(e) Processing Gain
MODEL NUMBER	: CF-48
SERIAL NUMBER	: 000750d5741c
KIND OF EQUIPMENT	: Wireless LAN built in personal computer
TESTED DATE	: April 1, 2 and 19 2002
RECEIPT DATE OF SAMPLE	: April 1, 2002
REPORT FILE NUMBER	: 22HE0013-YW
TEST SITE	: A-PEX Yokowa No.3 Open Test Sites

1.1 Tested Methodology

The measurement was performed according to the procedures in ANSI C63.4(1992).

1.2 Test Facility

The open area site measurement facilities used to collect the radiated data are located at 108, Yokowa-cho, Ise-shi, Mie-ken, 516-1106 Japan.
These sites have been fully described in reports submitted to the FCC office.
No.3 test site has filed to the FCC on September 12, 2000 as number: 90412 and is accepted by Industry Canada on May 01, 2001 as number IC2973-3.

2 PRODUCT DESCRIPTION

Matsushita Electric Industrial Co., Ltd. Model CF-48 (referred to as the EUT in this report) is a Notebook Personal Computer.
The specification is as following :

LAN Module

Frequency characteristies	: 2412MHz through 2462MHz
No. of channels / channel spacing	: 11 channels / 5MHz channel spacing
Modulation	: DSSS:Direct sequence spread spectrum.(IEEE 802.11b)
Antenna type	: Planar inverted F-antenna The EUT has two kinds of the antennas, Antenna 1 and Antenna 2, which are electro-magnetically identical. (Refer to Antenna Photographs)
Antenna Gain	: 2.14dBi

*FccPart15.31(e)
The host device CF-48 provide the LAN Module with stable power supply (DC:3.3V), and the LAN Module complies power supply regulation.
*FccPart15.203 Antenna requirement
Wireless LAN Module and its antenna comply with this requirement since they are built in host device CF-48 when they are put up for sale and they are used with a particular antenna connector.

2.1 Test System Details

Model	FCC ID	Description
(1) Matsushita Electric M/N: CF-48 S/N: 000750d5741c	ACJ9TGCF-481	Notebook Personal Computer (Wireless LAN built in PC)
*FccPart15 Subpart B Class B Digital Device DOC		
(2) Matsushita Electric M/N: CF-AA1653 J1 S/N: 02200003A	DOC	AC Adapter

3 SYSTEM TEST CONFIGURATION

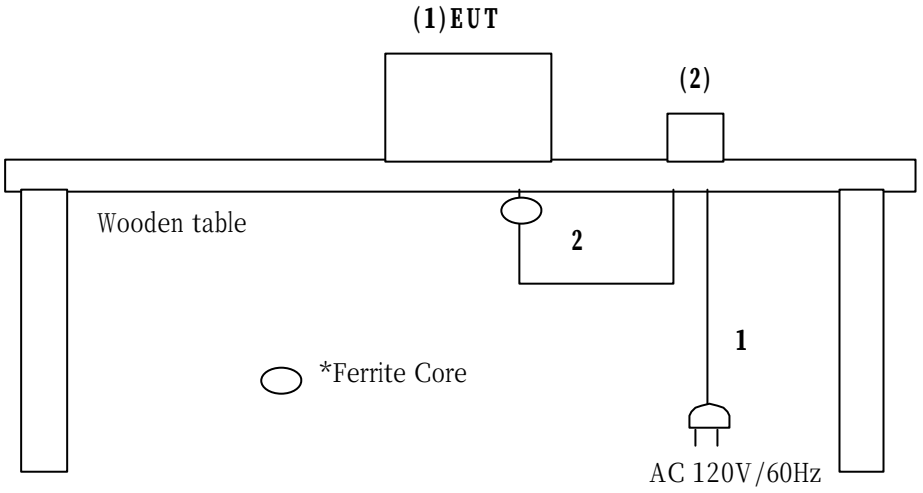
3.1 Justification

The system was configured in typical fashion (as a customer would normally use it) for testing.

Test mode : Transmitting mode (11Mbps)
Performed the test about channels 1(low), 6(mid) and 11(high) among 11 channels of all Carrier frequencies.

Receiving mode

3.2 Configuration of Tested System



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

List of cables used

No	Name	Length (m)	Shield	Remark
1	AC Power Cable	1.7	N	Polyvinyl chloride
2	DC Power Cable	1.8	N	Polyvinyl chloride

4 Measurement Uncertainty

Conducted Emission Test

The measurement uncertainty (with a 95% confidence level) for this test was ±2.0dB.

The data listed in this test report has enough margin, more than site margin.

Radiated Emission Test

The measurement uncertainty (with a 95% confidence level) for this test using Biconical antenna is±4.4dB.
The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna is±4.8dB.
The measurement uncertainty (with a 95% confidence level) for this test using Horn antenna is±5.8dB.

The data listed in this test report has enough margin, more than site margin.

5 SUMMARY OF TESTS

5.1 § 15.207 Conducted Emissions

Test Procedure

EUT was placed on a platform of nominal size, 1m 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 flushes with rear of tabletop. All other surfaces of tabletop was at least 80cm from any other grounded conducting surface. I/O cables and AC cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30cm to 40cm long and were hanged at a 40cm height to the ground plane. Each EUT current-carrying power lead, except the ground (safety) lead, were individually connected through a LISN to the input power source. All unused 50ohm connectors of the LISN were resistively terminated in 50ohm when not connected to the measuring equipment.
The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT on a shielded room.
The EUT was connected to a Line Impedance Stabilization Network (LISN).
An overview sweep with peak detection has been performed.
The measurements have been performed with a CISPR quasi-peak detector (IF BW 10kHz).
(Measurement range: 450kHz to 30MHz)

Test data : **APPENDIX A1 to A5**
Photographs of test setup : **Page 11(1)**
Test result : **Pass**
Test instruments : **LS-04, SA-04, TR-05, CC-3SC**

5.2 § 15.247(a)(2) 6dB Bandwidth (Antenna Port Conducted)

Test Procedure

The minimum 6dB bandwidth was measured with a spectrum analyzer connected to the antenna port.

1. 2412MHz(Low) : 10.02MHz > 500kHz
2. 2437MHz(Mid) : 10.23MHz > 500kHz
3. 2462MHz(High) : 10.39MHz > 500kHz

Test data : **APPENDIX A6**
Test result : **Pass**
Test instruments : **SA-06**

5.3 § 15.247(b) Maximum Peak Out Put Power (Antenna Port Conducted)

Test Procedure
The Maximum Peak Output power was measured with a power meter connected to the antenna port.
* Antenna Gain dose not exceed 6dBi.

Test data : APPENDIX A7
Test result : Pass
Test instruments : PS-03, PM-02, SA-06

5.4 § 15.247(c) Out of Band Emissions (Radiated)

Test Procedure
EUT was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane.
I/O cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30cm to 40cm long and were hanged 40cm height to the ground plane. Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.
The Radiated Electric Field Strength intensity has been measured on an open test site with a ground plane and at a distance of 3m.
The measuring antenna height was varied between 1 to 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.

Radiated Spurious emissions
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. The result was also satisfied the general limits specified in Sec.15.209(a).
Measurement range : 30MHz to 1000MHz CISPR QP Detector, IF BW 120kHz
: 1GHz to 26GHz PK and AV Detector

Test data : APPENDIX A8 to A14 (30- 1000MHz)
: APPENDIX A15 to A20 (1- 26GHz)
: APPENDIX A21 to A28 (2390MHz/2483.5MHz: Restricted band Charts)
Photographs of test setup : Page12(2)
Test result : Pass
Test instruments : AF-01, AF-06, AT-06, AT-21, BA-03, LA-06, HA-01, EST-10, SA-04, SA-06, TR-06, CC-3ORC, CC-C10, CC-C13, YOATS-03

5.5 § 15.247(c) Out of Band Emissions (Antenna Port Conducted)

Test Procedure

The Out of Band Emissions (Conducted) was measured with a spectrum analyzer connected to the antenna port.

Test data : APPENDIX A29 to A37
Test result : Pass
Test instruments : SA-06

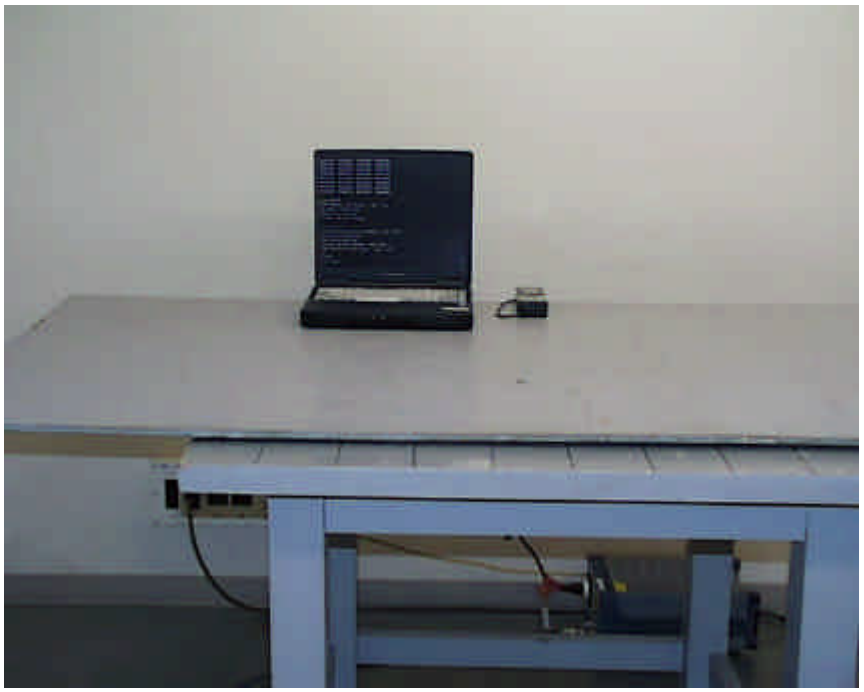
5.6 § 15.247(d) Power Density (Antenna Port Conducted)

Test Procedure

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

Test data : APPENDIX A38 to A39
Test result : Pass
Test instruments : SA-06

Photographs of test setup(1)



A-pex International Co., Ltd.
YOKOWA LAB.
108 Yokowa-cho, Ise-shi, Mie-ken 516-1106 JAPAN
Telephone: int +81 596 39 1485
Facsimile: int +81 596 39 0232

Photographs of test setup(2)

A-pex International Co., Ltd.
YOKOWA LAB.
108 Yokowa-cho, Ise-shi, Mie-ken 516-1106 JAPAN
Telephone: int +81 596 39 1485
Facsimile: int +81 596 39 0232

APPENDIX

Test Data

Test Instruments

A-pex International Co., Ltd.
YOKOWA LAB.
108 Yokowa-cho, Ise-shi, Mie-ken 516-1106 JAPAN
Telephone: int +81 596 39 1485
Facsimile: int +81 596 39 0232

DATA OF CONDUCTION TEST

A-PEX INTERNATIONAL CO., LTD.
YOKOWA No.3 OPEN TEST SITE
Report No. : 22HE0013-YW

Applicant : Matsushita Electric Industrial Co.,Ltd
Kind of Equipment : Wireless LAN builtin PC
Model No. : CF-48
Serial No. : 000750d5741c
Power : AC120V/60Hz
Mode : Transmitting(1ch)
Remarks : FCC ID : ACJ9TGCF-481
Date : 4/1/2002
Phase : Single Phase
Temperature : 26 ℃
Humidity : 35 %
Regulation : FCC Part15.207

Engineer : Naoki Sakamoto

No.	FREQ. [MHz]	READING(N) QP [dBuV]	READING(N) AV [dBuV]	READING(L1) QP [dBuV]	READING(L1) AV [dBuV]	LISN FACTOR [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT QP [dBuV]	RESULT AV [dBuV]	LIMITS QP [dBuV]	LIMITS AV [dBuV]	MARGIN QP [dB]	MARGIN AV [dB]
1.	0.4580	31.7	-	39.3	-	0.1	0.1	0.0	39.5	-	48.0	0.0	8.5	-
2.	0.7558	25.7	-	29.5	-	0.1	0.1	0.0	29.7	-	48.0	0.0	18.3	-
3.	1.0707	24.9	-	29.3	-	0.1	0.1	0.0	29.5	-	48.0	0.0	18.5	-
4.	3.9987	27.5	-	29.1	-	0.2	0.2	0.0	29.5	-	48.0	0.0	18.5	-
5.	7.5541	25.5	-	29.9	-	0.4	0.3	0.0	30.6	-	48.0	0.0	17.4	-
6.	11.3815	18.0	-	23.0	-	0.5	0.3	0.0	23.8	-	48.0	0.0	24.2	-
7.	28.0940	34.8	-	34.7	-	0.9	0.5	0.0	36.2	-	48.0	0.0	11.8	-

CALCULATION: READING + LISN FACTOR + CABLE LOSS + ATTEN.

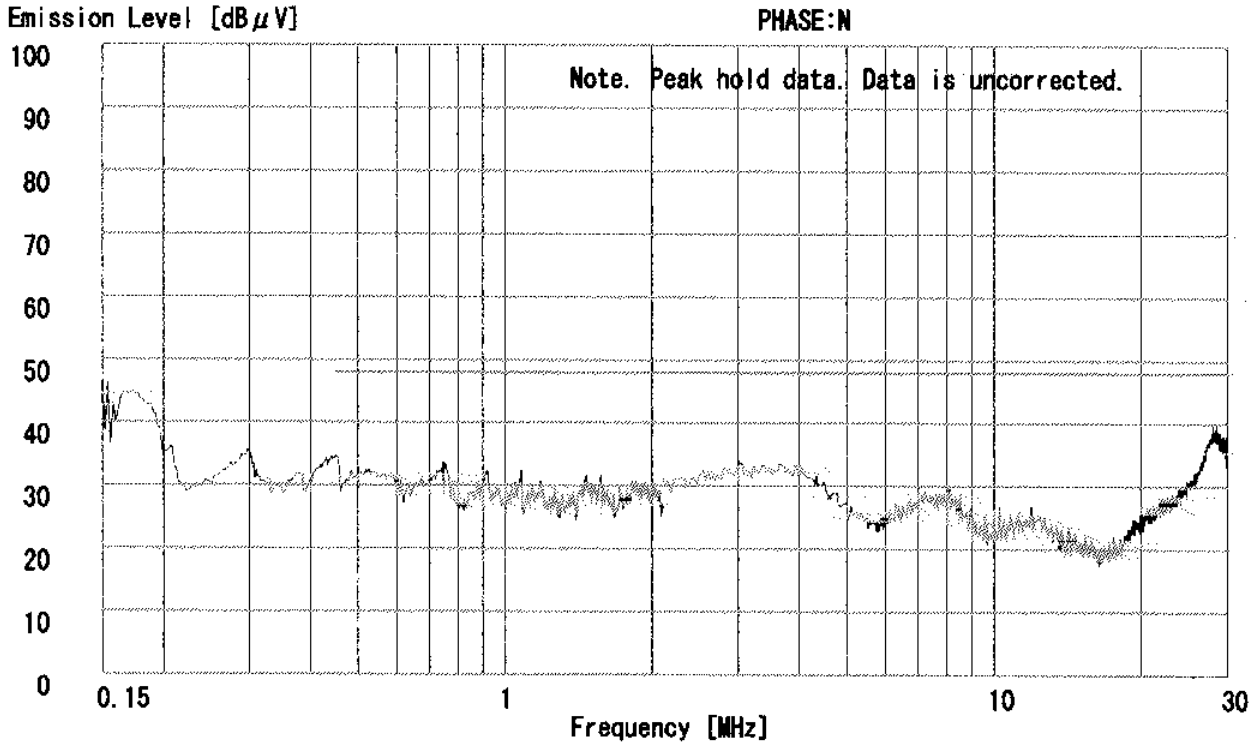
All other spurious emissions were less than 20dB for the limit.

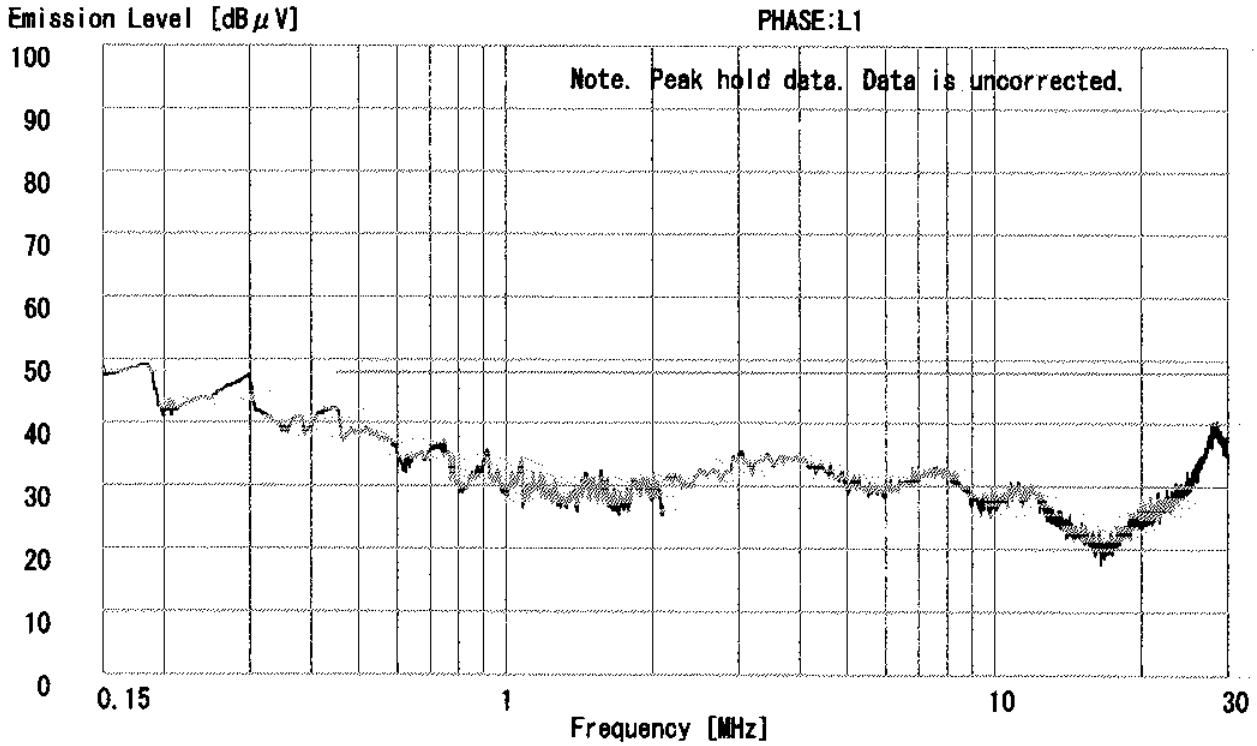
DATA OF CONDUCTION TEST CHART

A-PEX INTERNATIONAL CO., LTD.
YOKOWA No.3 OPEN TEST SITE
Report No. : 22HE0013-YW

Applicant	: Matsushita Electric Industrial Co.,Ltd
Kind of Equipment	: Wireless LAN builtin PC
Model No.	: CF-48
Serial No.	: 000750d5741c
Power	: AC120V/60Hz
Mode	: Transmitting(1ch)
Remarks	: FCC ID : ACJ9TGCF-481
Date	: 4/1/2002
Phase	: Single Phase
Temperature	: 26 ℃
Humidity	: 35 %
Regulation 1	: FCC Part15.207
Regulation 2	: FCC Part15.207

Engineer : Naoki Sakamoto



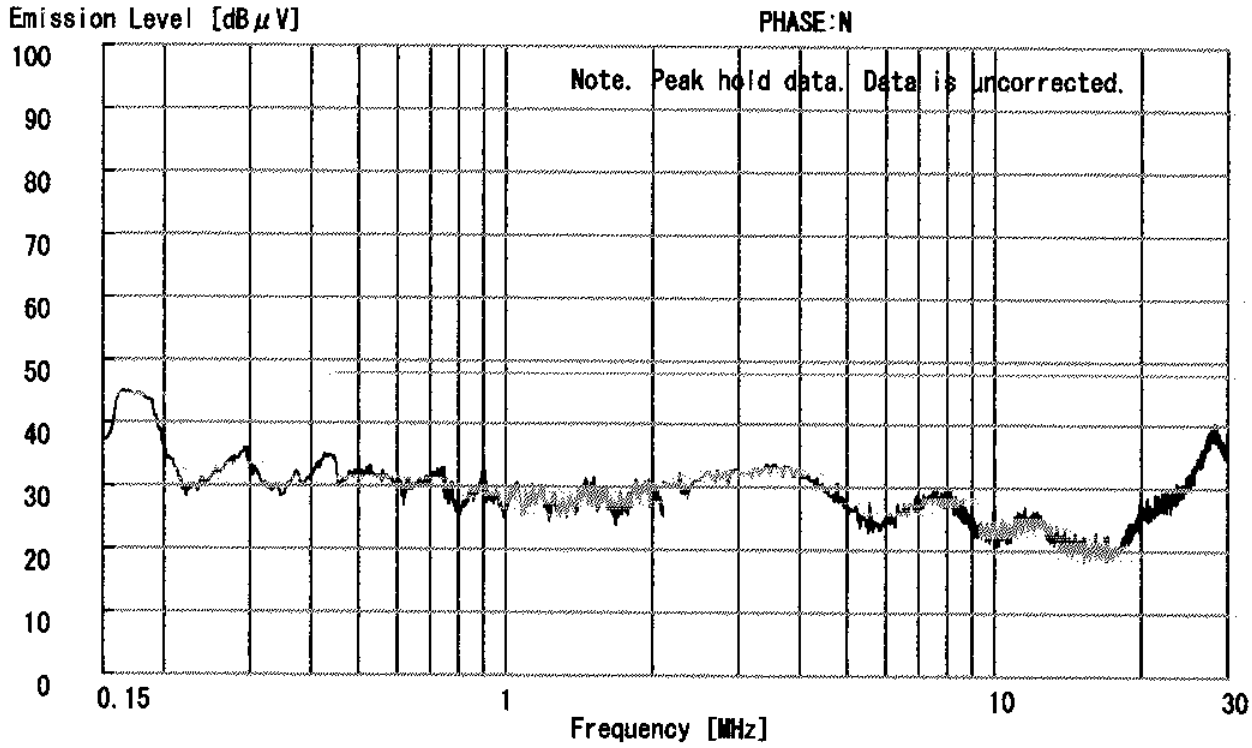


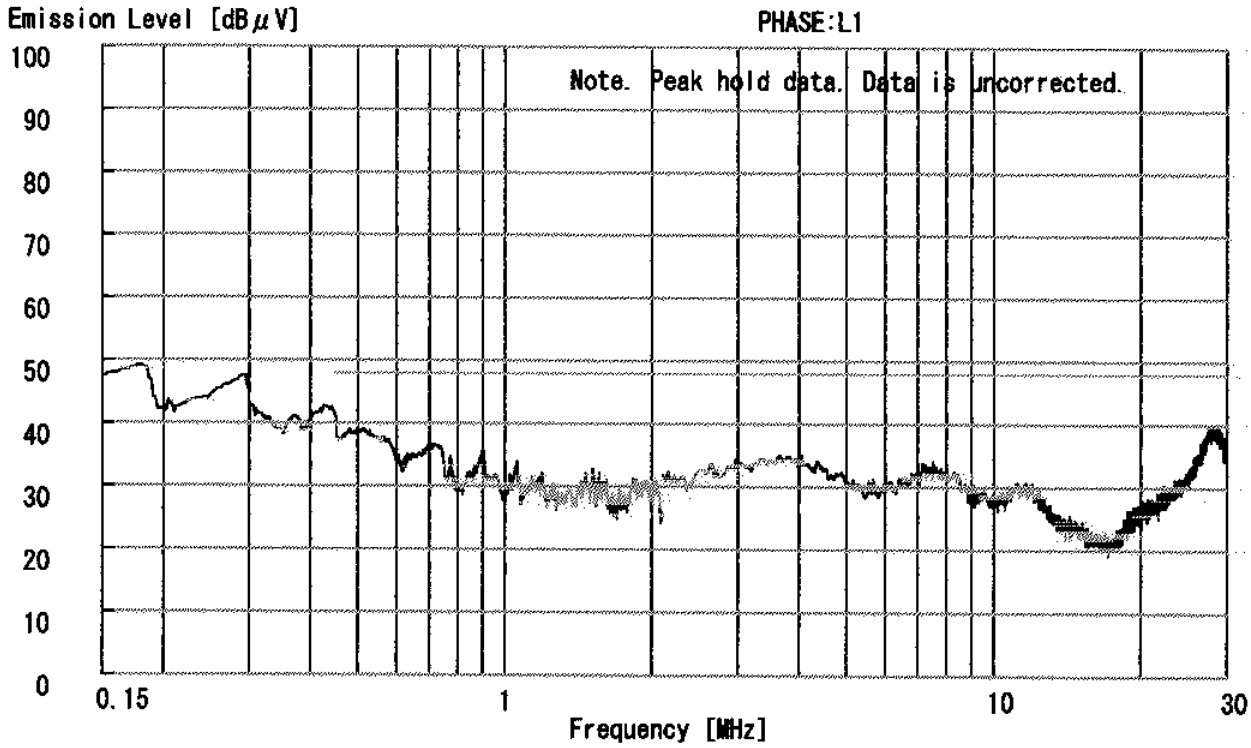
DATA OF CONDUCTION TEST CHART

A-PEX INTERNATIONAL CO., LTD.
YOKOWA No.3 OPEN TEST SITE
Report No.: 22HE0013-YW

Applicant	: Matsushita Electric Industrial Co.,Ltd
Kind of Equipment	: Wireless LAN builtin PC
Model No.	: CF-48
Serial No.	: 000750d5741c
Power	: AC120V/60Hz
Mode	: Transmitting(6ch)
Remarks	: FCC ID : ACJ9TGCF-481
Date	: 4/1/2002
Phase	: Single Phase
Temperature	: 26 ℃
Humidity	: 35 %
Regulation 1	: FCC Part15.207
Regulation 2	: FCC Part15.207

Engineer : Naoki Sakamoto



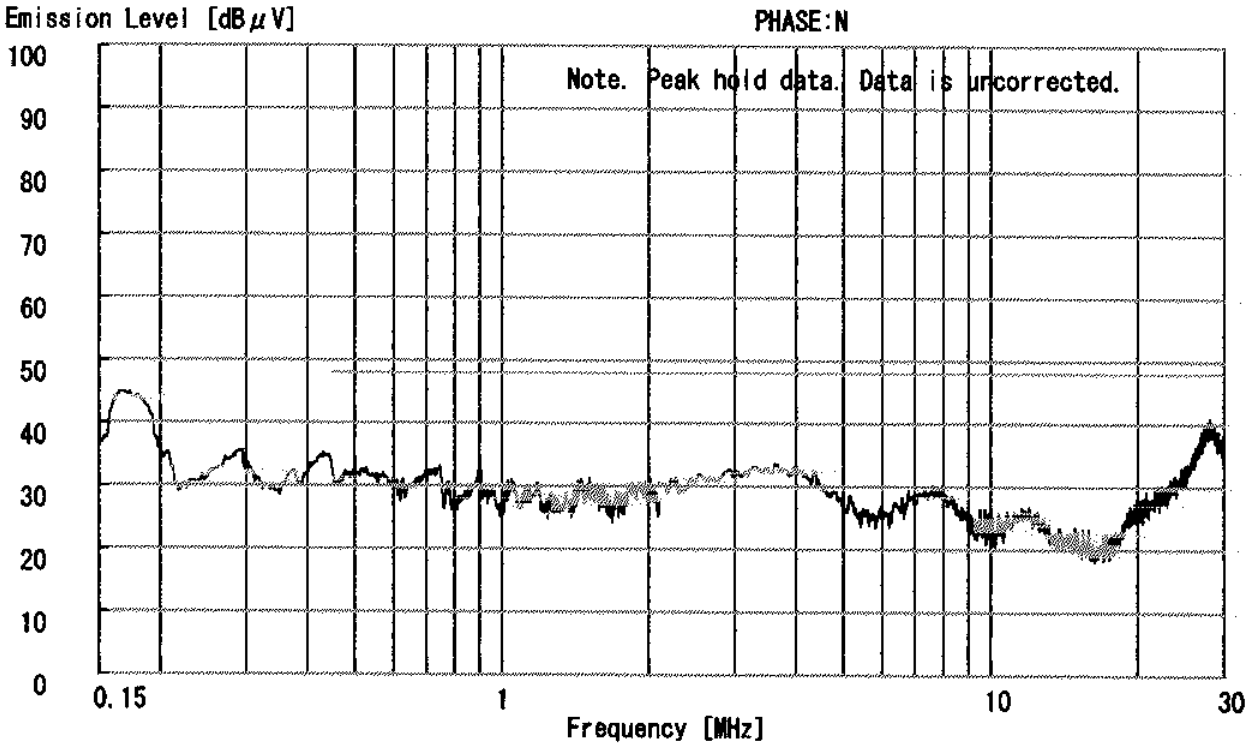


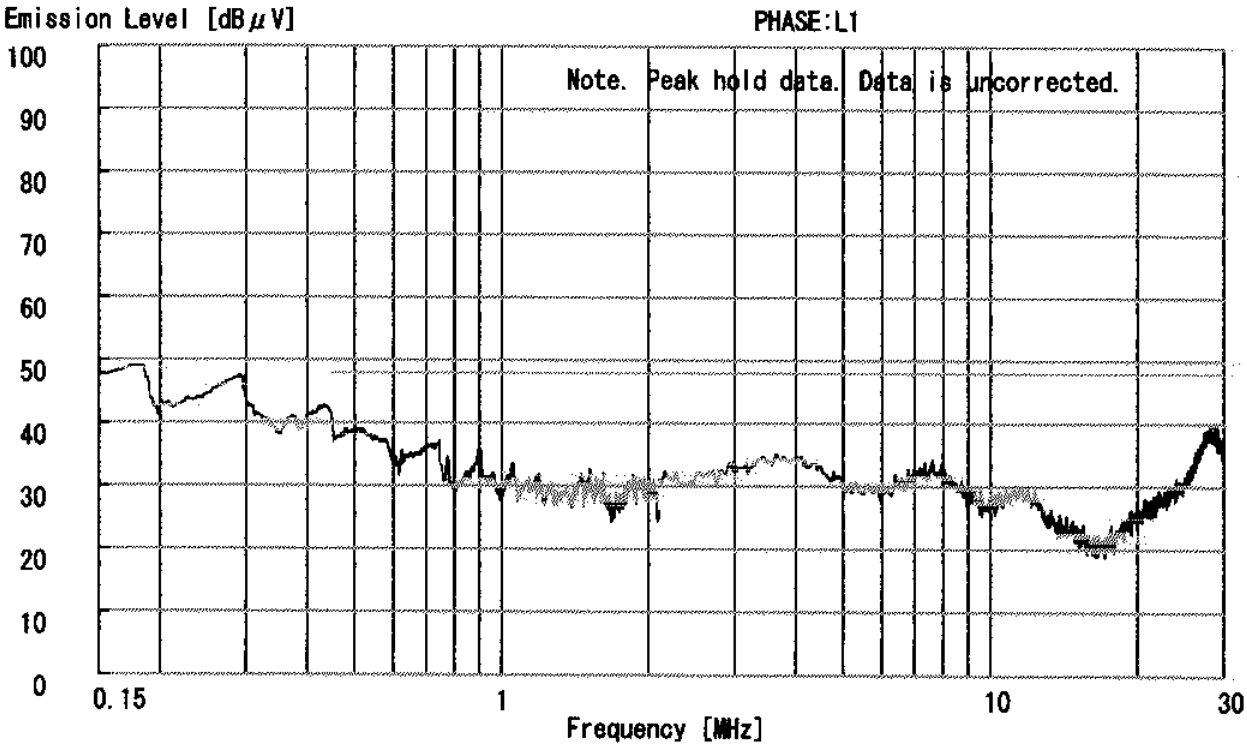
DATA OF CONDUCTION TEST CHART

A-PEX INTERNATIONAL CO., LTD.
YOKOWA No.3 OPEN TEST SITE
Report No. : 22HE0013-YW

Applicant	:	Matsushita Electric Industrial Co.,Ltd
Kind of Equipment	:	Wireless LAN builtin PC
Model No.	:	CF-48
Serial No.	:	000750d5741c
Power	:	AC120V/60Hz
Mode	:	Transmitting(11ch)
Remarks	:	FCC ID : ACJ9TGCF-481
Date	:	4/1/2002
Phase	:	Single Phase
Temperature	:	26 ℃
Humidity	:	35 %
Regulation 1	:	FCC Part15.207
Regulation 2	:	FCC Part15.207

Engineer : Naoki Sakamoto



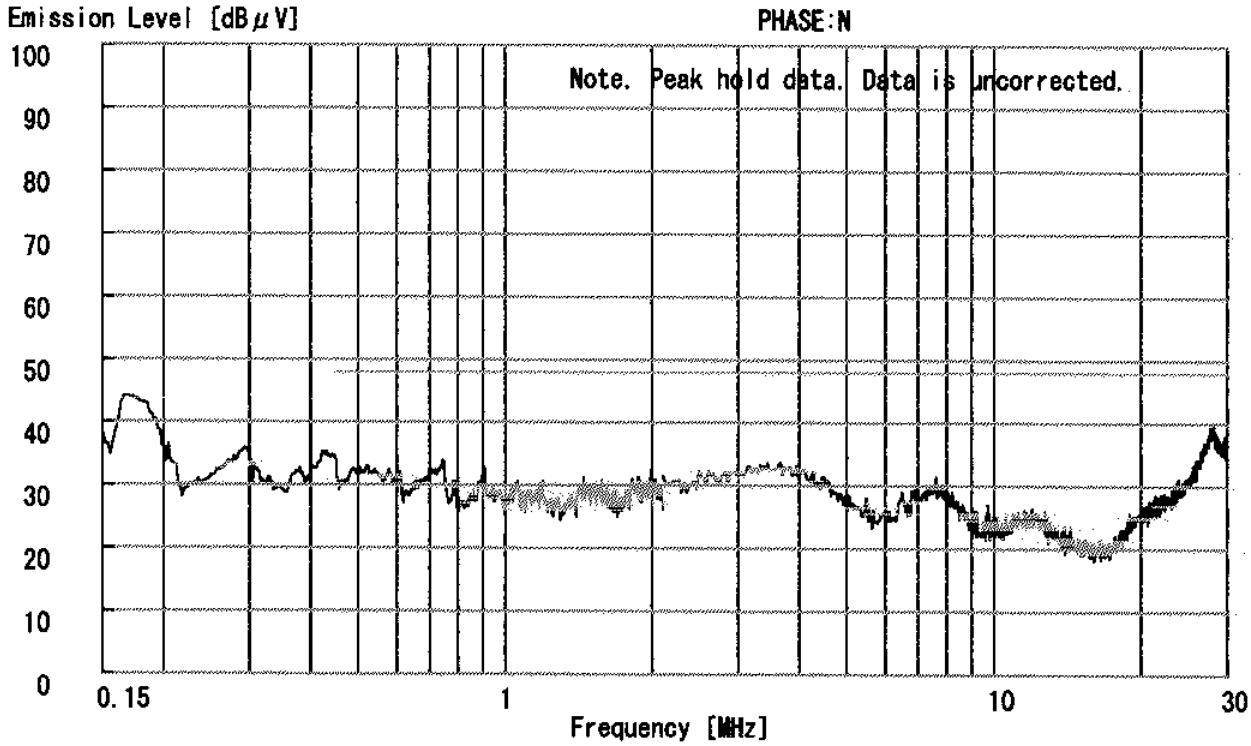


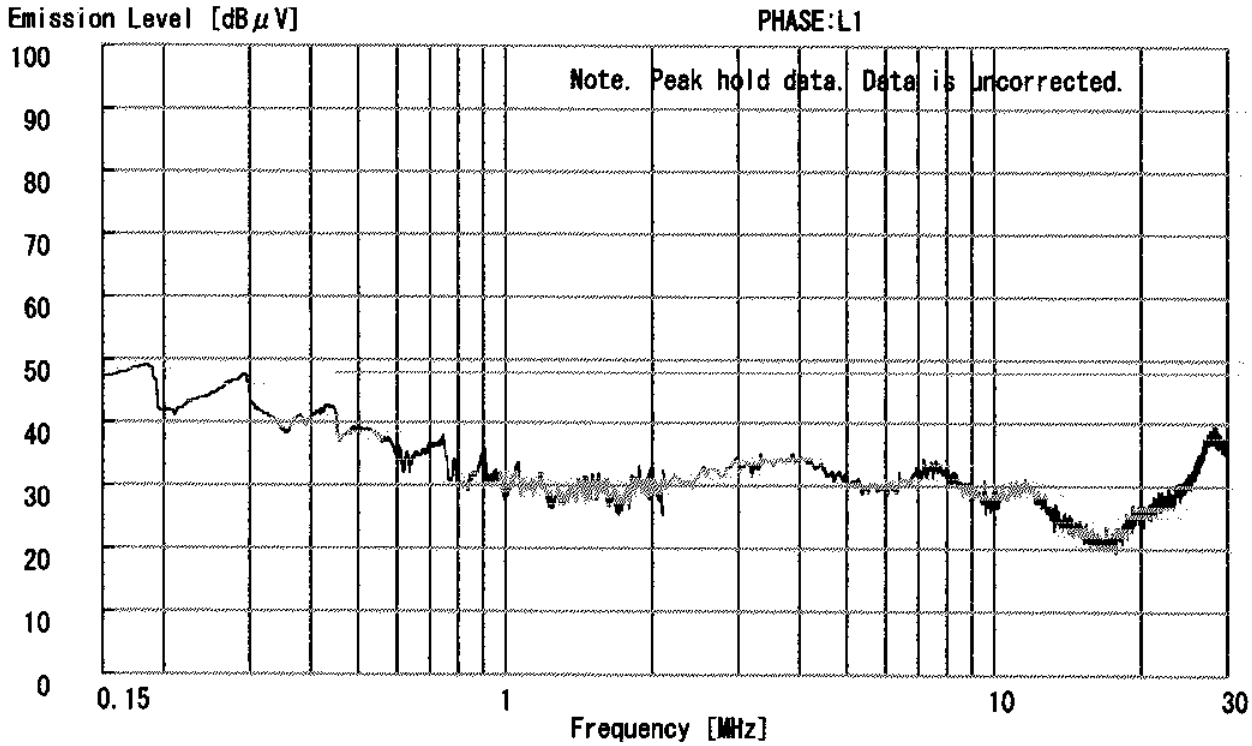
DATA OF CONDUCTION TEST CHART

A-PEX INTERNATIONAL CO., LTD.
YOKOWA No.3 OPEN TEST SITE
Report No. : 22HE0013-YW

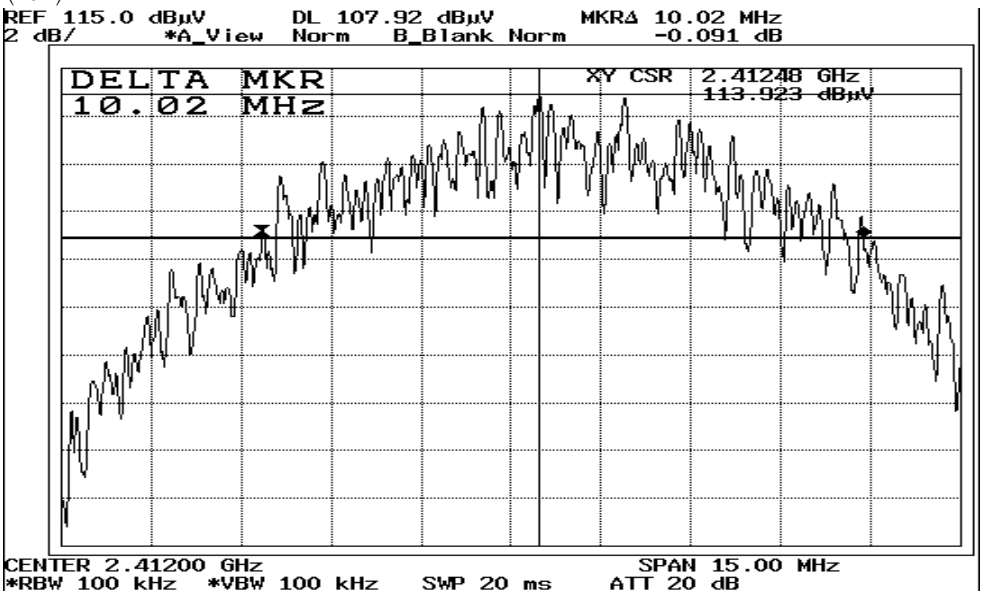
Applicant	:	Matsushita Electric Industrial Co.,Ltd
Kind of Equipment	:	Wireless LAN builtin PC
Model No.	:	CF-48
Serial No.	:	000750d5741c
Power	:	AC120V/60Hz
Mode	:	Receiving
Remarks	:	FCC ID : ACJ9TGCF-481
Date	:	4/1/2002
Phase	:	Single Phase
Temperature	:	26 ℃
Humidity	:	35 %
Regulation 1	:	FCC Part15.207
Regulation 2	:	FCC Part15.207

Engineer : Naoki Sakamoto

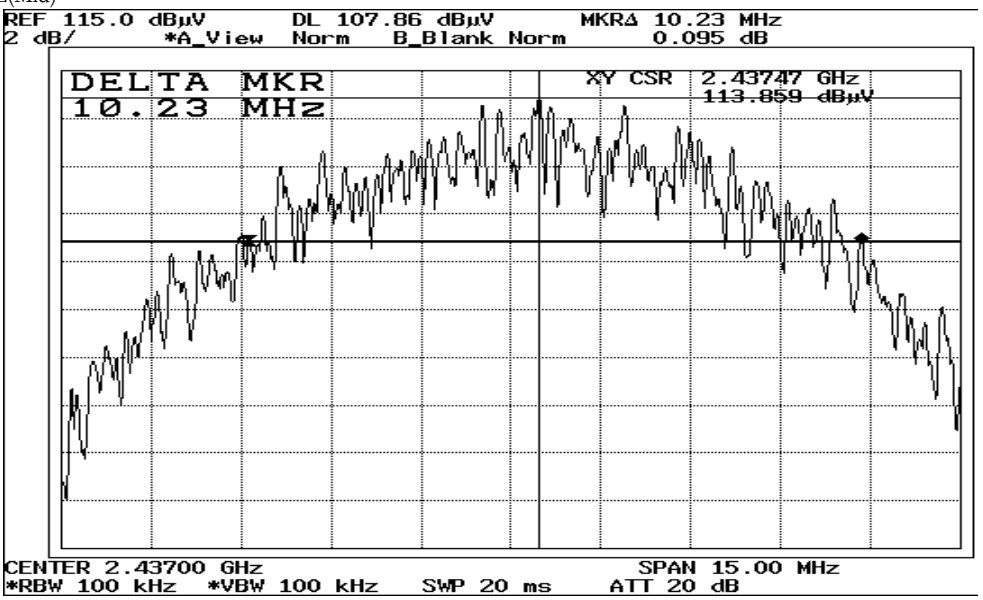




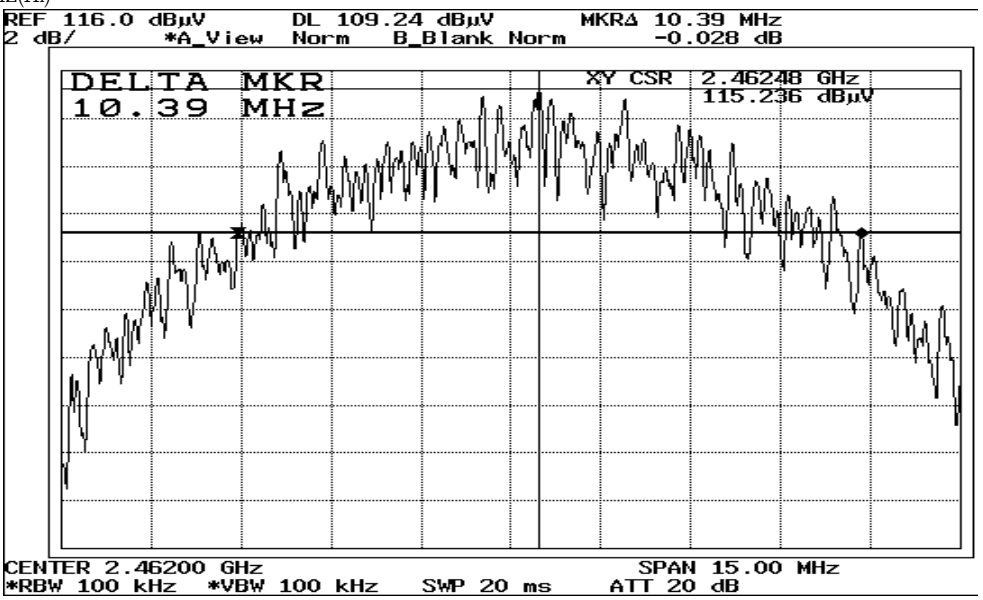
1. Ch1: 2412MHz(Low)



2. Ch6: 2437MHz(Mid)



3. Ch11: 2462MHz(Hi)



Peak Out Put Power(Conducted)

A-PEX INTERNATIONAL CO., LTD.
YOKOWA NO.3 OPEN SITE

COMPANY : Matsushita Electric Industrial Co.,Ltd
EQUIPMENT : Wireless LAN builtin PC
MODEL : CF-48
FCC ID : ACJ9TGCF-481
POWER : AC120V/60Hz
Mode : Transmitting

REPORT NO : 22FE0029-YW
REGULATION : Fcc Part15SubpartC 247(b)(1)
DATE : 2002/ 4/ 2
Temp./Humi. : 22°C/36%

ENGINEER : Naoki Sakamoto

CH	FREQ [GHz]	PM Reading [dBm]	Limit (1W) [dBm]	MARGIN [dB]
Low	2.41200	18.2	30.0	11.8
Mid	2.43700	18.7	30.0	11.3
High	2.46200	19.0	30.0	11.0

DATA OF RADIATION TEST

A-PEX INTERNATIONAL CO., LTD.
YOKOWA No.3 OPEN TEST SITE
Report No.: 22HE0013-YW

Applicant	: Matsushita Electric Industrial Co.,Ltd
Kind of Equipment	: Wireless LAN builtin PC
Model No.	: CF-48
Serial No.	: 000750d5741c
Power	: AC120V/60Hz
Mode	: Transmitting(1ch) Antenna 1
Remarks	: FCC ID : ACJ9TGCF-481
Date	: 4/19/2002
Test Distance	: 3 m
Temperature	: 21 ℃
Humidity	: 65 %
Regulation	: Fcc 15C §15.209(a)

Engineer : Naoki Sakamoto

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	76.45	BB	25.8	35.1	6.2	27.9	1.8	6.0	11.9	21.2	40.0	28.1	18.8
2.	83.28	BB	25.8	37.9	6.8	27.9	1.9	6.0	12.6	24.7	40.0	27.4	15.3
3.	90.69	BB	24.8	34.7	8.0	27.9	2.0	5.9	12.8	22.7	43.5	30.7	20.8
4.	100.24	BB	23.7	29.3	10.1	27.8	2.1	6.0	14.1	19.7	43.5	29.4	23.8
5.	370.94	BB	29.8	28.2	15.1	27.8	4.5	6.0	27.6	26.0	46.0	18.4	20.0

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

All other spurious emissions were less than 20dB for the limit.

DATA OF RADIATION TEST

A-PEX INTERNATIONAL CO., LTD.
YOKOWA No.3 OPEN TEST SITE
Report No.: 22HE0013-YW

Applicant	:	Matsushita Electric Industrial Co.,Ltd
Kind of Equipment	:	Wireless LAN builtin PC
Model No.	:	CF-48
Serial No.	:	000750d5741c
Power	:	AC120V/60Hz
Mode	:	Transmitting(6ch) Antenna 1
Remarks	:	FCC ID : ACJ9TGCF-481
Date	:	4/19/2002
Test Distance	:	3 m
Temperature	:	21 ℃
Humidity	:	65 %
Regulation	:	Fcc 15C §15.209(a)

Engineer : Naoki Sakamoto

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	76.45	BB	25.5	34.8	6.2	27.9	1.8	6.0	11.6	20.9	40.0	28.4	19.1
2.	83.27	BB	26.0	37.7	6.8	27.9	1.9	6.0	12.8	24.5	40.0	27.2	15.5
3.	90.70	BB	24.5	34.9	8.0	27.9	2.0	5.9	12.5	22.9	43.5	31.0	20.6
4.	100.24	BB	23.8	29.5	10.1	27.8	2.1	6.0	14.2	19.9	43.5	29.3	23.6
5.	370.93	BB	29.9	28.1	15.1	27.8	4.5	6.0	27.7	25.9	46.0	18.3	20.1

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

All other spurious emissions were less than 20dB for the limit.

DATA OF RADIATION TEST

A-PEX INTERNATIONAL CO., LTD.
YOKOWA No.3 OPEN TEST SITE
Report No. : 22HE0013-YW

Applicant	: Matsushita Electric Industrial Co.,Ltd
Kind of Equipment	: Wireless LAN builtin PC
Model No.	: CF-48
Serial No.	: 000750d5741c
Power	: AC120V/60Hz
Mode	: Transmitting(11ch) Antenna 1
Remarks	: FCC ID : ACJ9TGCF-481
Date	: 4/19/2002
Test Distance	: 3 m
Temperature	: 21 ℃
Humidity	: 65 %
Regulation	: Fcc 15C §15.209(a)

Engineer : Naoki Sakamoto

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	76.46	BB	26.0	35.0	6.2	27.9	1.8	6.0	12.1	21.1	40.0	27.9	18.9
2.	83.27	BB	25.8	38.0	6.8	27.9	1.9	6.0	12.6	24.8	40.0	27.4	15.2
3.	90.70	BB	24.3	35.2	8.0	27.9	2.0	5.9	12.3	23.2	43.5	31.2	20.3
4.	100.24	BB	23.5	29.9	10.1	27.8	2.1	6.0	13.9	20.3	43.5	29.6	23.2
5.	370.93	BB	30.3	27.7	15.1	27.8	4.5	6.0	28.1	25.5	46.0	17.9	20.5

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

All other spurious emissions were less than 20dB for the limit.

DATA OF RADIATION TEST

A-PEX INTERNATIONAL CO., LTD.
YOKOWA No.3 OPEN TEST SITE
Report No. : 22HE0013-YW

Applicant	:	Matsushita Electric Industrial Co.,Ltd
Kind of Equipment	:	Wireless LAN builtin PC
Model No.	:	CF-48
Serial No.	:	000750d5741c
Power	:	AC120V/60Hz
Mode	:	Transmitting(1ch) Antenna 2
Remarks	:	FCC ID : ACJ9TGCF-481
Date	:	4/1/2002
Test Distance	:	3 m
Temperature	:	27 ℃
Humidity	:	33 %
Regulation	:	Fcc 15C §15.209(a)

Engineer : Naoki Sakamoto

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	76.46	BB	25.5	34.7	6.2	27.9	1.8	6.0	11.6	20.8	40.0	28.4	19.2
2.	83.27	BB	25.1	37.9	6.8	27.9	1.9	6.0	11.9	24.7	40.0	28.1	15.3
3.	90.70	BB	23.8	35.1	8.0	27.9	2.0	5.9	11.8	23.1	43.5	31.7	20.4
4.	100.26	BB	23.8	29.5	10.1	27.8	2.1	6.0	14.2	19.9	43.5	29.3	23.6
5.	370.94	BB	29.7	26.8	15.1	27.8	4.5	6.0	27.5	24.6	46.0	18.5	21.4

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

All other spurious emissions were less than 20dB for the limit.

DATA OF RADIATION TEST

A-PEX INTERNATIONAL CO., LTD.
YOKOWA No.3 OPEN TEST SITE
Report No.: 22HE0013-YW

Applicant	:	Matsushita Electric Industrial Co.,Ltd
Kind of Equipment	:	Wireless LAN builtin PC
Model No.	:	CF-48
Serial No.	:	000750d5741c
Power	:	AC120V/60Hz
Mode	:	Transmitting(6ch) Antenna 2
Remarks	:	FCC ID : ACJ9TGCF-481
Date	:	4/1/2002
Test Distance	:	3 m
Temperature	:	27 ℃
Humidity	:	33 %
Regulation	:	Fcc 15C §15.209(a)

Engineer : Naoki Sakamoto

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	76.45	BB	25.5	34.8	6.2	27.9	1.8	6.0	11.6	20.9	40.0	28.4	19.1
2.	83.27	BB	25.8	38.0	6.8	27.9	1.9	6.0	12.6	24.8	40.0	27.4	15.2
3.	90.68	BB	24.0	35.1	8.0	27.9	2.0	5.9	12.0	23.1	43.5	31.5	20.4
4.	100.26	BB	23.5	29.2	10.1	27.8	2.1	6.0	13.9	19.6	43.5	29.6	23.9
5.	370.94	BB	29.8	26.9	15.1	27.8	4.5	6.0	27.6	24.7	46.0	18.4	21.3

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

All other spurious emissions were less than 20dB for the limit.

DATA OF RADIATION TEST

A-PEX INTERNATIONAL CO., LTD.
YOKOWA No.3 OPEN TEST SITE
Report No.: 22HE0013-YW

Applicant	:	Matsushita Electric Industrial Co.,Ltd
Kind of Equipment	:	Wireless LAN builtin PC
Model No.	:	CF-48
Serial No.	:	000750d5741c
Power	:	AC120V/60Hz
Mode	:	Transmitting(11ch) Antenna 2
Remarks	:	FCC ID : ACJ9TGCF-481
Date	:	4/1/2002
Test Distance	:	3 m
Temperature	:	27 ℃
Humidity	:	33 %
Regulation	:	Fcc 15C §15.209(a)

Engineer : Naoki Sakamoto

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	76.44	BB	25.3	34.7	6.2	27.9	1.8	6.0	11.4	20.8	40.0	28.6	19.2
2.	83.27	BB	25.5	37.7	6.8	27.9	1.9	6.0	12.3	24.5	40.0	27.7	15.5
3.	90.69	BB	24.0	35.4	8.0	27.9	2.0	5.9	12.0	23.4	43.5	31.5	20.1
4.	100.26	BB	23.4	28.9	10.1	27.8	2.1	6.0	13.8	19.3	43.5	29.7	24.2
5.	370.94	BB	29.7	26.7	15.1	27.8	4.5	6.0	27.5	24.5	46.0	18.5	21.5

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

All other spurious emissions were less than 20dB for the limit.

DATA OF RADIATION TEST

A-PEX INTERNATIONAL CO., LTD.
YOKOWA No.3 OPEN TEST SITE
Report No.: 22HE0013-YW

Applicant	: Matsushita Electric Industrial Co.,Ltd
Kind of Equipment	: Wireless LAN builtin PC
Model No.	: CF-48
Serial No.	: 000750d5741c
Power	: AC120V/60Hz
Mode	: Receiving
Remarks	: FCC ID : ACJ9TGCF-481
Date	: 4/1/2002
Test Distance	: 3 m
Temperature	: 27 ℃
Humidity	: 33 %
Regulation	: Fcc 15C §15.209(a)

Engineer : Naoki Sakamoto

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	76.46	BB	25.5	34.7	6.2	27.9	1.8	6.0	11.6	20.8	40.0	28.4	19.2
2.	83.27	BB	25.1	37.9	6.8	27.9	1.9	6.0	11.9	24.7	40.0	28.1	15.3
3.	90.70	BB	23.8	35.1	8.0	27.9	2.0	5.9	11.8	23.1	43.5	31.7	20.4
4.	100.26	BB	23.8	29.5	10.1	27.8	2.1	6.0	14.2	19.9	43.5	29.3	23.6
5.	370.94	BB	29.6	27.1	15.1	27.8	4.5	6.0	27.4	24.9	46.0	18.6	21.1

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

All other spurious emissions were less than 20dB for the limit.

DATA OF SUPURIOUS EMISSIONS(1GHz to 26GHz)

A-PEX INTERNATIONAL CO., LTD.
YOKOWA NO.3 OPEN SITE

COMPANY : Matsushita Electric Industrial Co., Ltd.
EQUIPMENT : Wireless LAN builtin PC
MODEL : CF-48(Antenna 1)
S/N : 000750d5741c
FCC ID : ACJ9TGCF-481
POWER : AC120V/60Hz
Mode : Transmitting (ch1: 2412MHz / 11Mbps)

REPORT NO : 22HE0013-YW
REGULATION : Fcc Part15SubpartC 247(b)(1)
TEST DISTANCE : 1m(10-26GHz)/3m(1-10GHz)
DATE : 2002/4/19
Temperature : 21℃
Humidity : 65%

ENGINEER : Naoki Sakamoto

PK DETECT(S/A : RBW 1MHz and VBW 1MHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	H-Pass	ATTEN	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter		HOR	VER	PK	HOR	VER
	[GHz]	[dBuV]		[dB]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN).													
1	2.39000	48.3	49.0	31.3	38.0	2.8	0.0	10.1	54.5	55.2	74.0	19.5	18.8
2	4.82400	47.4	46.9	35.4	38.0	4.2	1.1	0.0	50.1	49.6	74.0	23.9	24.4
3	7.23600	43.8	42.3	39.1	38.2	5.7	0.5	0.0	50.9	49.4	74.0	23.1	24.6
4	9.64800	44.7	45.1	39.2	38.5	6.2	0.5	0.0	52.1	52.5	74.0	21.9	21.5
Test distance 1.0meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + High Pass - Dfac													
5	12.0600	43.5	43.6	43.5	38.5	7.5	0.5	0.0	47.0	47.1	74.0	27.0	26.9
6	14.4720	43.3	42.4	42.2	38.5	8.0	0.6	0.0	46.1	45.2	74.0	27.9	28.8
7	16.8840	44.5	44.9	43.8	38.5	8.1	0.6	0.0	49.0	49.4	74.0	25.0	24.6
8	19.2960	45.5	44.6	37.5	38.5	8.8	1.1	0.0	44.9	44.0	74.0	29.1	30.0
9	21.7080	46.2	47.0	38.2	38.5	10.0	0.5	0.0	46.9	47.7	74.0	27.1	26.3
10	24.1200	46.2	45.5	38.6	38.5	12.6	0.7	0.0	50.1	49.4	74.0	23.9	24.6

AV DETECT(S/A : RBW 1MHz and VBW 10Hz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	H-Pass	ATTEN	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter		HOR	VER	AV	HOR	VER
	[GHz]	[dBuV]		[dB]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN).													
1	2.39000	37.6	38.3	31.3	38.0	2.8	0.0	10.1	43.8	44.5	54.0	10.2	9.5
2	4.82400	34.2	34.2	35.4	38.0	4.2	1.1	0.0	36.9	36.9	54.0	17.1	17.1
3	7.23600	32.3	32.3	39.1	38.2	5.7	0.5	0.0	39.4	39.4	54.0	14.6	14.6
4	9.64800	33.6	33.6	39.2	38.5	6.2	0.5	0.0	41.0	41.0	54.0	13.0	13.0
Test distance 1.0meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + High Pass - Dfac													
5	12.0600	32.5	33.1	43.5	38.5	7.5	0.5	0.0	36.0	36.6	54.0	18.0	17.4
6	14.4720	32.1	32.5	42.2	38.5	8.0	0.6	0.0	34.9	35.3	54.0	19.1	18.7
7	16.8840	33.6	34.3	43.8	38.5	8.1	0.6	0.0	38.1	38.8	54.0	15.9	15.2
8	19.2960	34.4	34.2	37.5	38.5	8.8	1.1	0.0	33.8	33.6	54.0	20.2	20.4
9	21.7080	35.4	35.0	38.2	38.5	10.0	0.5	0.0	36.1	35.7	54.0	17.9	18.3
10	24.1200	35.5	35.0	38.6	38.5	12.6	0.7	0.0	39.4	38.9	54.0	14.6	15.1

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5 dB
*Except for the above table : All other spurious emissions were less than 20dB for the limit.

DATA OF SUPURIOUS EMISSIONS(1GHz to 26GHz)

A-PEX INTERNATIONAL CO., LTD.
YOKOWA NO.3 OPEN SITE

COMPANY : Matsushita Electric Industrial Co., Ltd.
EQUIPMENT : Wireless LAN builtin PC
MODEL : CF-48(Antenna 1)
S/N : 000750d5741c
FCC ID : ACJ9TGCF-481
POWER : AC120V/60Hz
Mode : Transmitting (ch6: 2437MHz / 11Mbps)

REPORT NO : 22HE0013-YW
REGULATION : Fcc Part15SubpartC 247(b)(1)
TEST DISTANCE : 1m(10-26GHz)/3m(1-10GHz)
DATE : 2002/4/19
Temperature : 21℃
Humidity : 65%

ENGINEER : Naoki Sakamoto

PK DETECT(S/A : RBW 1MHz and VBW 1MHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	H-Pass	ATTEN	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter		HOR	VER	PK	HOR	VER
	[GHz]	[dBuV]		[dB]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN).													
1	4.87400	46.5	47.0	35.6	37.9	4.2	1.1	0.0	49.5	50.0	74.0	24.5	24.0
2	7.31100	44.9	44.2	39.2	38.2	5.7	0.5	0.0	52.1	51.4	74.0	21.9	22.6
3	9.74800	44.5	45.8	39.2	38.5	6.2	0.5	0.0	51.9	53.2	74.0	22.1	20.8
Test distance 1.0meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + High Pass - Dfac													
4	12.1850	44.2	43.7	43.4	38.5	7.5	0.5	0.0	47.6	47.1	74.0	26.4	26.9
5	14.6220	43.9	43.2	42.6	38.5	8.0	0.5	0.0	47.0	46.3	74.0	27.0	27.7
6	17.0590	44.6	43.7	43.8	38.5	8.1	0.6	0.0	49.1	48.2	74.0	24.9	25.8
7	19.4960	44.7	44.6	37.4	38.5	9.3	1.3	0.0	44.7	44.6	74.0	29.3	29.4
8	21.9330	46.2	45.7	38.2	38.5	9.6	0.3	0.0	46.3	45.8	74.0	27.7	28.2
9	24.3700	47.2	47.5	38.8	38.5	12.5	0.8	0.0	51.3	51.6	74.0	22.7	22.4

AV DETECT(S/A : RBW 1MHz and VBW 10Hz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	H-Pass	ATTEN	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter		HOR	VER	AV	HOR	VER
	[GHz]	[dBuV]		[dB]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN).													
1	4.87400	33.7	34.2	35.6	37.9	4.2	1.1	0.0	36.7	37.2	54.0	17.3	16.8
2	7.31100	32.3	32.2	39.2	38.2	5.7	0.5	0.0	39.5	39.4	54.0	14.5	14.6
3	9.74800	33.6	33.8	39.2	38.5	6.2	0.5	0.0	41.0	41.2	54.0	13.0	12.8
Test distance 1.0meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + High Pass - Dfac													
4	12.1850	33.5	33.5	43.4	38.5	7.5	0.5	0.0	36.9	36.9	54.0	17.1	17.1
5	14.6220	32.5	32.6	42.6	38.5	8.0	0.5	0.0	35.6	35.7	54.0	18.4	18.3
6	17.0590	33.5	33.5	43.8	38.5	8.1	0.6	0.0	38.0	38.0	54.0	16.0	16.0
7	19.4960	34.1	33.9	37.4	38.5	9.3	1.3	0.0	34.1	33.9	54.0	19.9	20.1
8	21.9330	35.3	35.0	38.2	38.5	9.6	0.3	0.0	35.4	35.1	54.0	18.6	18.9
9	24.3700	36.5	36.2	38.8	38.5	12.5	0.8	0.0	40.6	40.3	54.0	13.4	13.7

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5 dB
*Except for the above table : All other spurious emissions were less than 20dB for the limit.

DATA OF SUPURIOUS EMISSIONS(1GHz to 26GHz)

A-PEX INTERNATIONAL CO., LTD.
YOKOWA NO.3 OPEN SITE

COMPANY : Matsushita Electric Industrial Co., Ltd.
EQUIPMENT : Wireless LAN builtin PC
MODEL : CF-48(Antenna 1)
S/N : 000750d5741c
FCC ID : ACJ9TGCF-481
POWER : AC120V/60Hz
Mode : Transmitting (ch11: 2462MHz / 11Mbps)

REPORT NO : 22HE0013-YW
REGULATION : Fcc Part15SubpartC 247(b)(1)
TEST DISTANCE : 1m(10-26GHz)/3m(1-10GHz)
DATE : 2002/4/19
Temperature : 21℃
Humidity : 65%

ENGINEER : Naoki Sakamoto

PK DETECT(S/A : RBW 1MHz and VBW 1MHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	H-Pass	ATTEN	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter		HOR	VER	PK	HOR	VER
	[GHz]	[dBuV]		[dB]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN).													
1	2.48350	51.7	52.8	31.6	38.0	2.9	0.0	10.1	58.3	59.4	74.0	15.7	14.6
2	4.92400	47.0	46.7	35.8	37.9	4.3	1.1	0.0	50.3	50.0	74.0	23.7	24.0
3	7.38600	44.7	43.0	39.2	38.3	5.8	0.5	0.0	51.9	50.2	74.0	22.1	23.8
4	9.84800	44.4	44.6	39.2	38.5	6.2	0.5	0.0	51.8	52.0	74.0	22.2	22.0
Test distance 1.0meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + High Pass - Dfac													
5	12.3100	44.1	44.5	43.3	38.5	7.4	0.5	0.0	47.3	47.7	74.0	26.7	26.3
6	14.7720	43.6	43.3	42.9	38.5	8.1	0.5	0.0	47.1	46.8	74.0	26.9	27.2
7	17.2340	43.6	44.5	43.9	38.5	8.2	0.6	0.0	48.3	49.2	74.0	25.7	24.8
8	19.6960	45.5	45.5	37.5	38.5	9.9	1.5	0.0	46.4	46.4	74.0	27.6	27.6
9	22.1580	45.0	44.8	38.2	38.5	9.6	0.3	0.0	45.1	44.9	74.0	28.9	29.1
10	24.6200	46.6	46.8	38.8	38.5	12.5	0.9	0.0	50.8	51.0	74.0	23.2	23.0

AV DETECT(S/A : RBW 1MHz and VBW 10Hz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	H-Pass	ATTEN	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter		HOR	VER	AV	HOR	VER
	[GHz]	[dBuV]		[dB]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN).													
1	2.48350	40.5	43.7	31.6	38.0	2.9	0.0	10.1	47.1	50.3	54.0	6.9	3.7
2	4.92400	32.8	34.0	35.8	37.9	4.3	1.1	0.0	36.1	37.3	54.0	17.9	16.7
3	7.38600	32.5	32.6	39.2	38.3	5.8	0.5	0.0	39.7	39.8	54.0	14.3	14.2
4	9.84800	33.8	33.8	39.2	38.5	6.2	0.5	0.0	41.2	41.2	54.0	12.8	12.8
Test distance 1.0meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + High Pass - Dfac													
5	12.3100	33.6	33.5	43.3	38.5	7.4	0.5	0.0	36.8	36.7	54.0	17.2	17.3
6	14.7720	32.6	32.7	42.9	38.5	8.1	0.5	0.0	36.1	36.2	54.0	17.9	17.8
7	17.2340	33.7	33.5	43.9	38.5	8.2	0.6	0.0	38.4	38.2	54.0	15.6	15.8
8	19.6960	35.2	34.9	37.5	38.5	9.9	1.5	0.0	36.1	35.8	54.0	17.9	18.2
9	22.1580	34.4	34.2	38.2	38.5	9.6	0.3	0.0	34.5	34.3	54.0	19.5	19.7
10	24.6200	36.3	36.2	38.8	38.5	12.5	0.9	0.0	40.5	40.4	54.0	13.5	13.6

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5 dB
*Except for the above table : All other spurious emissions were less than 20dB for the limit.

DATA OF SUPURIOUS EMISSIONS(1GHz to 26GHz)

A-PEX INTERNATIONAL CO., LTD.
YOKOWA NO.3 OPEN SITE

COMPANY : Matsushita Electric Industrial Co., Ltd.
EQUIPMENT : Wireless LAN builtin PC
MODEL : CF-48(Antenna 2)
S/N : 000750d5741c
FCC ID : ACJ9TGCF-481
POWER : AC120V/60Hz
Mode : Transmitting (ch1: 2412MHz / 11Mbps)

REPORT NO : 22HE0013-YW
REGULATION : Fcc Part15SubpartC 247(b)(1)
TEST DISTANCE : 1m(10-26GHz)/3m(1-10GHz)
DATE : 2002/4/1
Temperature : 27℃
Humidity : 33%

ENGINEER : Naoki Sakamoto

PK DETECT(S/A : RBW 1MHz and VBW 1MHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	H-Pass	ATTEN	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter		HOR	VER	PK	HOR	VER
	[GHz]	[dBuV]		[dB]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN).													
1	2.39000	48.5	52.1	31.3	38.0	2.8	0.0	10.1	54.7	58.3	74.0	19.3	15.7
2	4.82400	44.1	45.5	35.4	38.0	4.2	1.1	0.0	46.8	48.2	74.0	27.2	25.8
3	7.23600	43.7	43.4	39.1	38.2	5.7	0.5	0.0	50.8	50.5	74.0	23.2	23.5
4	9.64800	45.2	44.4	39.2	38.5	6.2	0.5	0.0	52.6	51.8	74.0	21.4	22.2
Test distance 1.0meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + High Pass - Dfac													
5	12.0600	44.0	43.8	43.5	38.5	7.5	0.5	0.0	47.5	47.3	74.0	26.5	26.7
6	14.4720	42.7	43.1	42.2	38.5	8.0	0.6	0.0	45.5	45.9	74.0	28.5	28.1
7	16.8840	44.3	45.3	43.8	38.5	8.1	0.6	0.0	48.8	49.8	74.0	25.2	24.2
8	19.2960	44.0	43.9	37.5	38.5	8.8	1.1	0.0	43.4	43.3	74.0	30.6	30.7
9	21.7080	44.9	44.9	38.2	38.5	10.0	0.5	0.0	45.6	45.6	74.0	28.4	28.4
10	24.1200	46.0	45.0	38.6	38.5	12.6	0.7	0.0	49.9	48.9	74.0	24.1	25.1

AV DETECT(S/A : RBW 1MHz and VBW 10Hz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	H-Pass	ATTEN	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter		HOR	VER	AV	HOR	VER
	[GHz]	[dBuV]		[dB]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN).													
1	2.39000	38.2	39.6	31.3	38.0	2.8	0.0	10.1	44.4	45.8	54.0	9.6	8.2
2	4.82400	32.8	33.6	35.4	38.0	4.2	1.1	0.0	35.5	36.3	54.0	18.5	17.7
3	7.23600	32.5	32.6	39.1	38.2	5.7	0.5	0.0	39.6	39.7	54.0	14.4	14.3
4	9.64800	33.8	33.7	39.2	38.5	6.2	0.5	0.0	41.2	41.1	54.0	12.8	12.9
Test distance 1.0meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + High Pass - Dfac													
5	12.0600	33.5	33.2	43.5	38.5	7.5	0.5	0.0	37.0	36.7	54.0	17.0	17.3
6	14.4720	32.7	32.3	42.2	38.5	8.0	0.6	0.0	35.5	35.1	54.0	18.5	18.9
7	16.8840	34.1	33.5	43.8	38.5	8.1	0.6	0.0	38.6	38.0	54.0	15.4	16.0
8	19.2960	34.0	34.3	37.5	38.5	8.8	1.1	0.0	33.4	33.7	54.0	20.6	20.3
9	21.7080	34.6	35.3	38.2	38.5	10.0	0.5	0.0	35.3	36.0	54.0	18.7	18.0
10	24.1200	35.7	35.5	38.6	38.5	12.6	0.7	0.0	39.6	39.4	54.0	14.4	14.6

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

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

DATA OF SUPURIOUS EMISSIONS(1GHz to 26GHz)

A-PEX INTERNATIONAL CO., LTD.
YOKOWA NO.3 OPEN SITE

COMPANY : Matsushita Electric Industrial Co., Ltd.
EQUIPMENT : Wireless LAN builtin PC
MODEL : CF-48(Antenna 2)
S/N : 000750d5741c
FCC ID : ACJ9TGCF-481
POWER : AC120V/60Hz
Mode : Transmitting (ch6: 2437MHz / 11Mbps)

REPORT NO : 22HE0013-YW
REGULATION : Fcc Part15SubpartC 247(b)(1)
TEST DISTANCE : 1m(10-26GHz)/3m(1-10GHz)
DATE : 2002/4/1
Temperature : 27℃
Humidity : 33%

ENGINEER : Naoki Sakamoto

PK DETECT(S/A : RBW 1MHz and VBW 1MHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	H-Pass	ATTEN	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter		HOR	VER	PK	HOR	VER
	[GHz]	[dBuV]		[dB]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN).													
1	4.87400	49.5	51.9	35.6	37.9	4.2	1.1	0.0	52.5	54.9	74.0	21.5	19.1
2	7.31100	44.0	45.4	39.2	38.2	5.7	0.5	0.0	51.2	52.6	74.0	22.8	21.4
3	9.74800	44.8	44.3	39.2	38.5	6.2	0.5	0.0	52.2	51.7	74.0	21.8	22.3
Test distance 1.0meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + High Pass - Dfac													
4	12.1850	43.8	44.7	43.4	38.5	7.5	0.5	0.0	47.2	48.1	74.0	26.8	25.9
5	14.6220	42.0	43.8	42.6	38.5	8.0	0.5	0.0	45.1	46.9	74.0	28.9	27.1
6	17.0590	43.5	44.1	43.8	38.5	8.1	0.6	0.0	48.0	48.6	74.0	26.0	25.4
7	19.4960	44.6	44.0	37.4	38.5	9.3	1.3	0.0	44.6	44.0	74.0	29.4	30.0
8	21.9330	45.8	44.5	38.2	38.5	9.6	0.3	0.0	45.9	44.6	74.0	28.1	29.4
9	24.3700	45.9	46.3	38.8	38.5	12.5	0.8	0.0	50.0	50.4	74.0	24.0	23.6

AV DETECT(S/A : RBW 1MHz and VBW 10Hz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	H-Pass	ATTEN	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter		HOR	VER	AV	HOR	VER
	[GHz]	[dBuV]		[dB]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN).													
1	4.87400	35.9	38.1	35.6	37.9	4.2	1.1	0.0	38.9	41.1	54.0	15.1	12.9
2	7.31100	32.2	32.2	39.2	38.2	5.7	0.5	0.0	39.4	39.4	54.0	14.6	14.6
3	9.74800	33.5	33.5	39.2	38.5	6.2	0.5	0.0	40.9	40.9	54.0	13.1	13.1
Test distance 1.0meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + High Pass - Dfac													
4	12.1850	33.7	33.8	43.4	38.5	7.5	0.5	0.0	37.1	37.2	54.0	16.9	16.8
5	14.6220	32.7	32.7	42.6	38.5	8.0	0.5	0.0	35.8	35.8	54.0	18.2	18.2
6	17.0590	33.7	33.6	43.8	38.5	8.1	0.6	0.0	38.2	38.1	54.0	15.8	15.9
7	19.4960	33.9	33.9	37.4	38.5	9.3	1.3	0.0	33.9	33.9	54.0	20.1	20.1
8	21.9330	34.8	34.8	38.2	38.5	9.6	0.3	0.0	34.9	34.9	54.0	19.1	19.1
9	24.3700	35.8	35.9	38.8	38.5	12.5	0.8	0.0	39.9	40.0	54.0	14.1	14.0

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5 dB
*Except for the above table : All other spurious emissions were less than 20dB for the limit.

DATA OF SUPURIOUS EMISSIONS(1GHz to 26GHz)

A-PEX INTERNATIONAL CO., LTD.
YOKOWA NO.3 OPEN SITE

COMPANY : Matsushita Electric Industrial Co., Ltd.
EQUIPMENT : Wireless LAN builtin PC
MODEL : CF-48(Antenna 2)
S/N : 000750d5741c
FCC ID : ACJ9TGCF-481
POWER : AC120V/60Hz
Mode : Transmitting (ch11: 2462MHz / 11Mbps)

REPORT NO : 22HE0013-YW
REGULATION : Fcc Part15SubpartC 247(b)(1)
TEST DISTANCE : 1m(10-26GHz)/3m(1-10GHz)
DATE : 2002/4/1
Temperature : 27℃
Humidity : 33%

ENGINEER : Naoki Sakamoto

PK DETECT(S/A : RBW 1MHz and VBW 1MHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	H-Pass	ATTEN	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter		HOR	VER	PK	HOR	VER
	[GHz]	[dBuV]		[dB]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN).													
1	2.48350	46.8	48.6	31.6	38.0	2.9	0.0	10.1	53.4	55.2	74.0	20.6	18.8
2	4.92400	46.1	48.8	35.8	37.9	4.3	1.1	0.0	49.4	52.1	74.0	24.6	21.9
3	7.38600	44.3	43.7	39.2	38.3	5.8	0.5	0.0	51.5	50.9	74.0	22.5	23.1
4	9.84800	46.0	44.7	39.2	38.5	6.2	0.5	0.0	53.4	52.1	74.0	20.6	21.9
Test distance 1.0meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + High Pass - Dfac													
5	12.3100	43.2	44.1	43.3	38.5	7.4	0.5	0.0	46.4	47.3	74.0	27.6	26.7
6	14.7720	43.4	43.2	42.9	38.5	8.1	0.5	0.0	46.9	46.7	74.0	27.1	27.3
7	17.2340	44.1	43.9	43.9	38.5	8.2	0.6	0.0	48.8	48.6	74.0	25.2	25.4
8	19.6960	45.5	45.2	37.5	38.5	9.9	1.5	0.0	46.4	46.1	74.0	27.6	27.9
9	22.1580	44.7	44.4	38.2	38.5	9.6	0.3	0.0	44.8	44.5	74.0	29.2	29.5
10	24.6200	46.7	46.0	38.8	38.5	12.5	0.9	0.0	50.9	50.2	74.0	23.1	23.8

AV DETECT(S/A : RBW 1MHz and VBW 10Hz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	H-Pass	ATTEN	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter		HOR	VER	AV	HOR	VER
	[GHz]	[dBuV]		[dB]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN).													
1	2.48350	36.3	37.7	31.6	38.0	2.9	0.0	10.1	42.9	44.3	54.0	11.1	9.7
2	4.92400	34.5	35.7	35.8	37.9	4.3	1.1	0.0	37.8	39.0	54.0	16.2	15.0
3	7.38600	32.5	32.6	39.2	38.3	5.8	0.5	0.0	39.7	39.8	54.0	14.3	14.2
4	9.84800	33.9	33.9	39.2	38.5	6.2	0.5	0.0	41.3	41.3	54.0	12.7	12.7
Test distance 1.0meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + High Pass - Dfac													
5	12.3100	33.2	33.7	43.3	38.5	7.4	0.5	0.0	36.4	36.9	54.0	17.6	17.1
6	14.7720	32.1	32.6	42.9	38.5	8.1	0.5	0.0	35.6	36.1	54.0	18.4	17.9
7	17.2340	33.6	33.6	43.9	38.5	8.2	0.6	0.0	38.3	38.3	54.0	15.7	15.7
8	19.6960	35.6	35.2	37.5	38.5	9.9	1.5	0.0	36.5	36.1	54.0	17.5	17.9
9	22.1580	34.7	34.8	38.2	38.5	9.6	0.3	0.0	34.8	34.9	54.0	19.2	19.1
10	24.6200	36.7	36.3	38.8	38.5	12.5	0.9	0.0	40.9	40.5	54.0	13.1	13.5

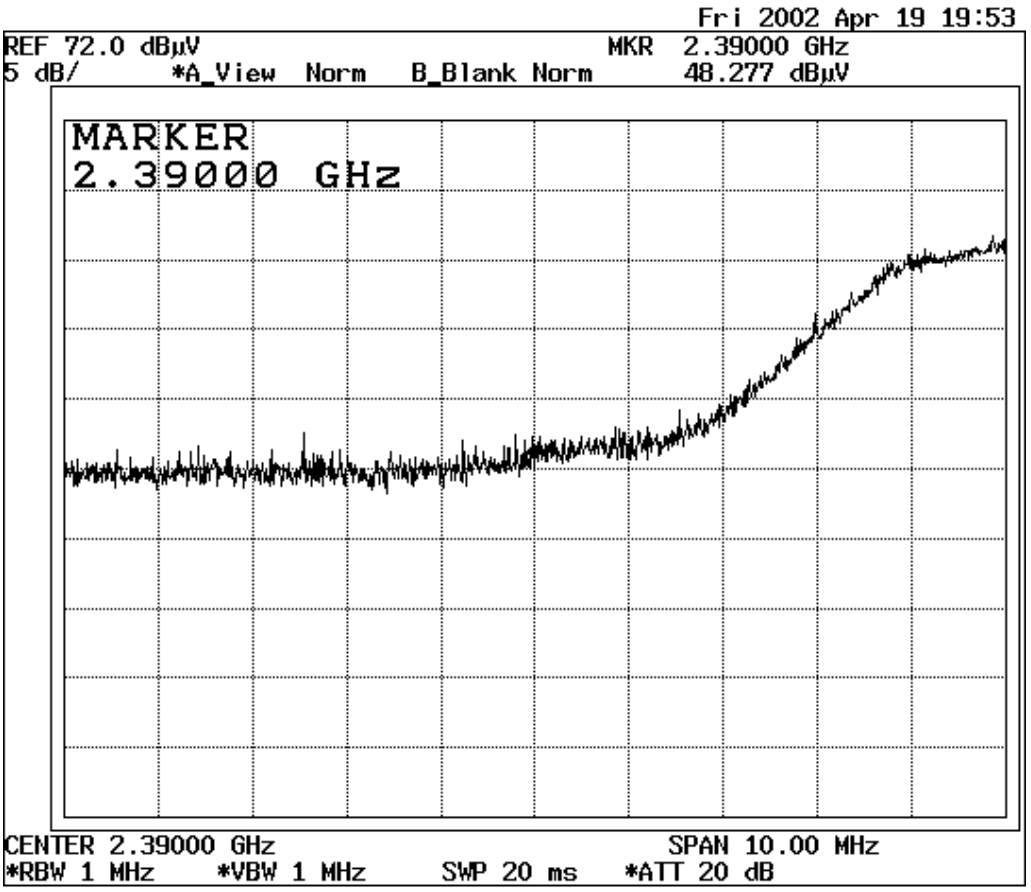
Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5 dB

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

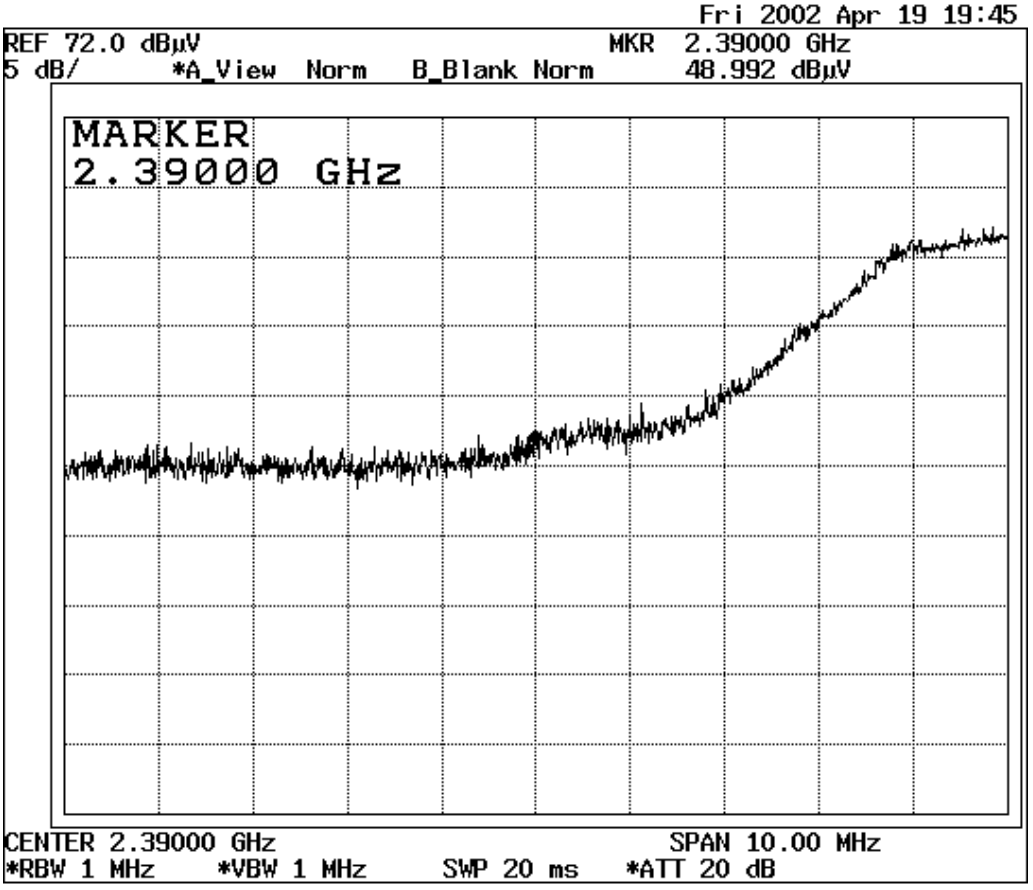
2.39GHz(Ch1)

PK Detector

1 . Horizontal



2 . Vertical



2.39GHz(Ch1)

AV Detector

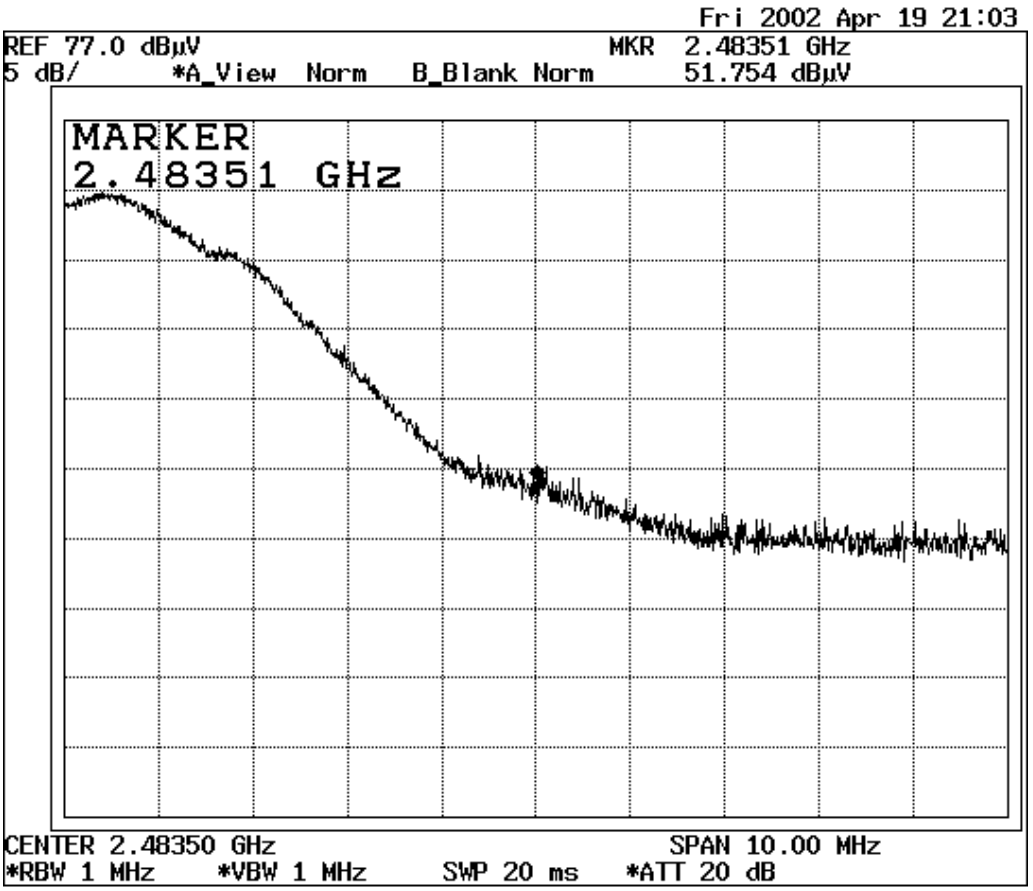
1. Horizontal

2. Vertical

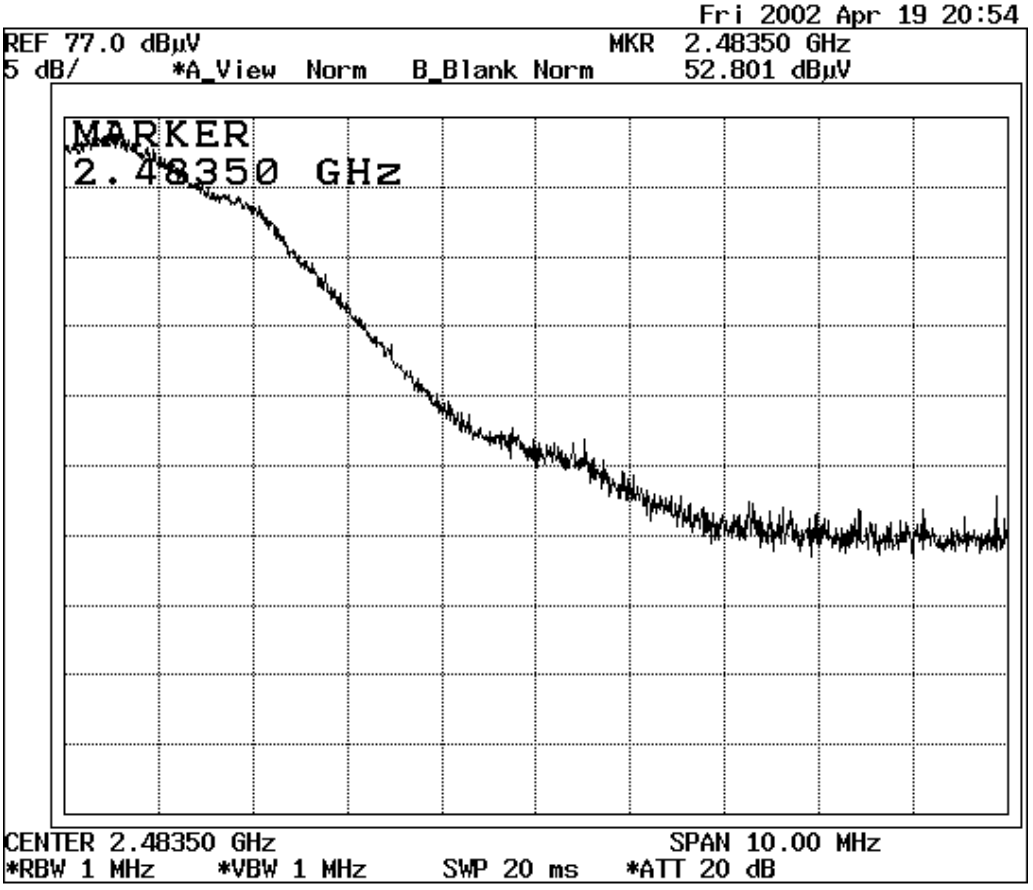
2.4835GHz(Ch11)

PK Detector

1. Horizontal



2. Vertical

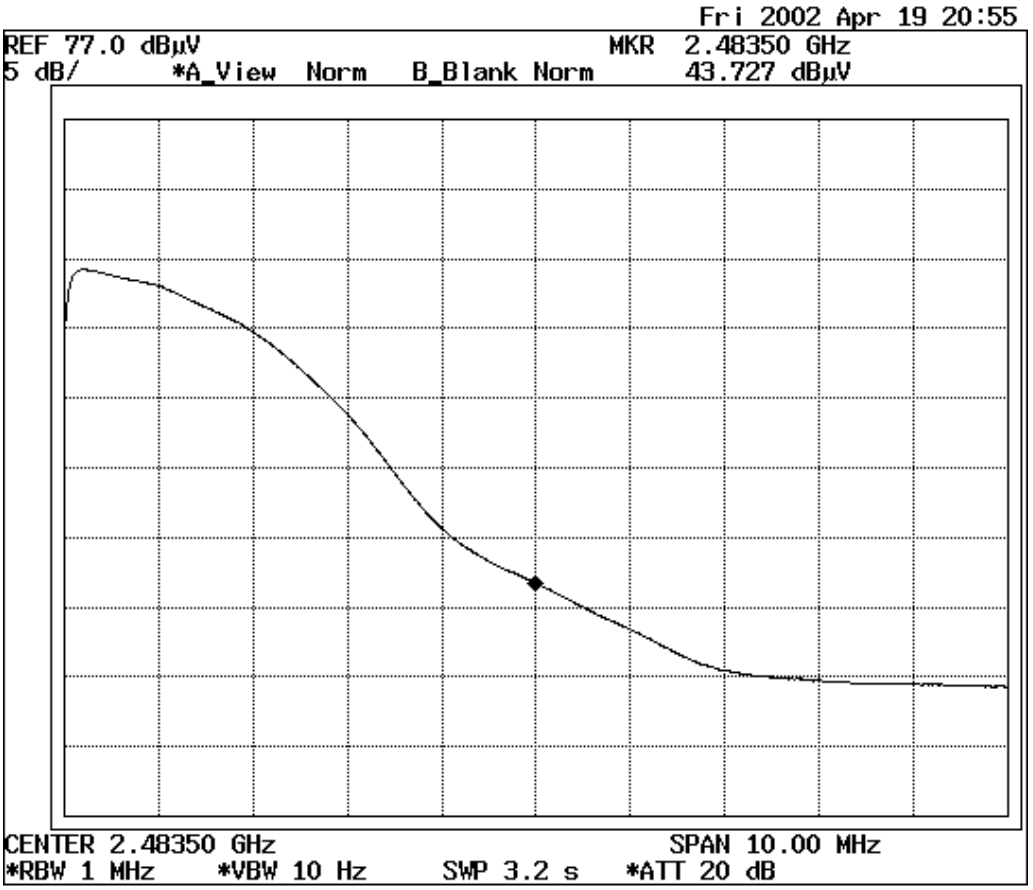


2.4835GHz(Ch11)

AV Detector

1. Horizontal

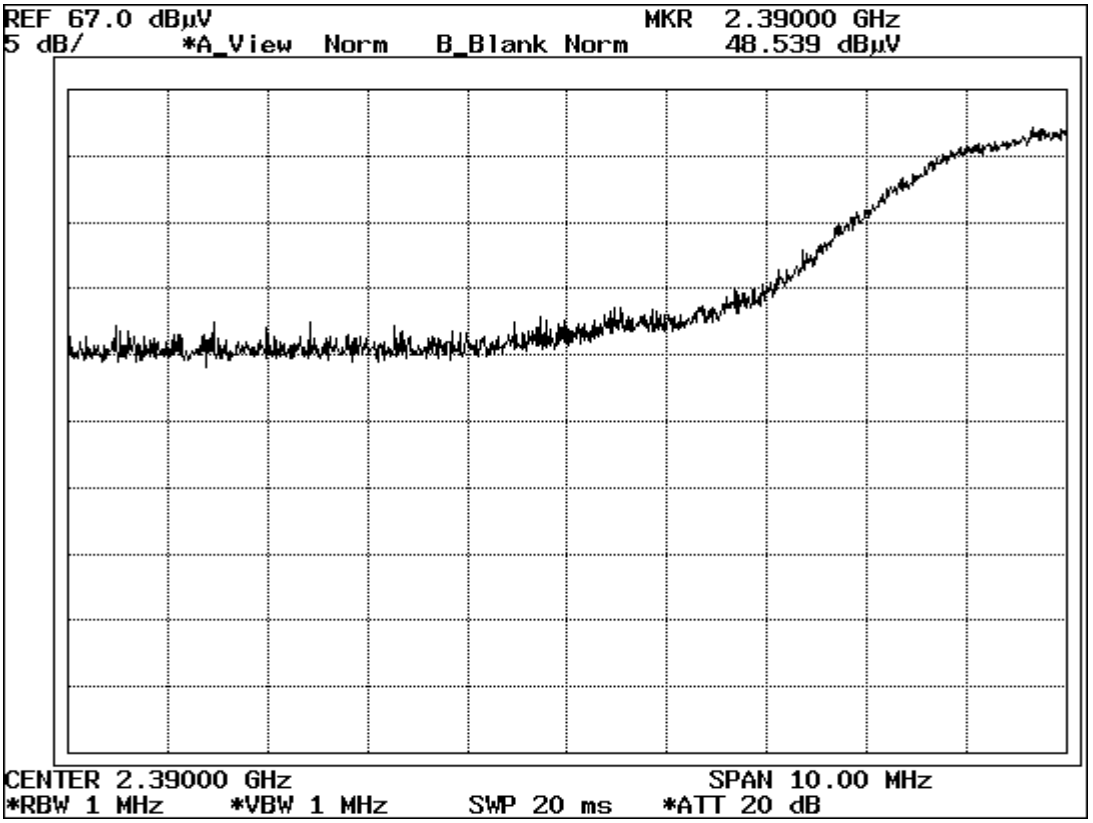
2. Vertical



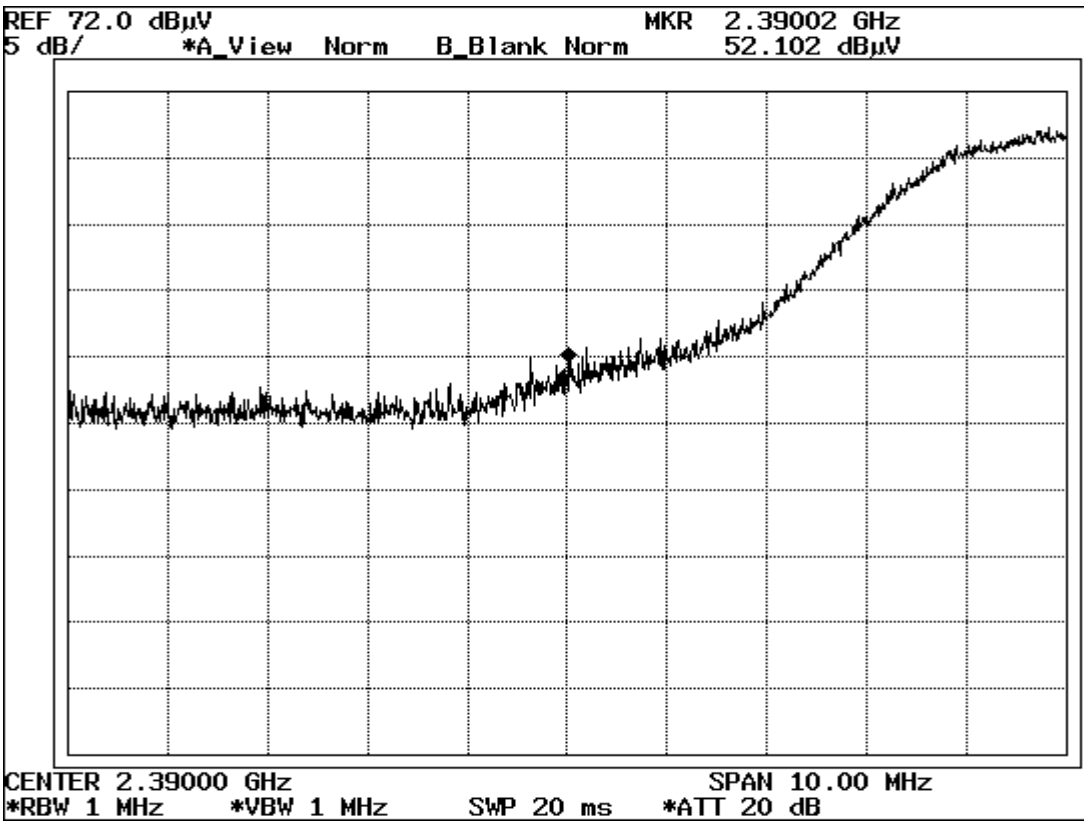
2.39GHz(Ch1)

PK Detector

1. Horizontal



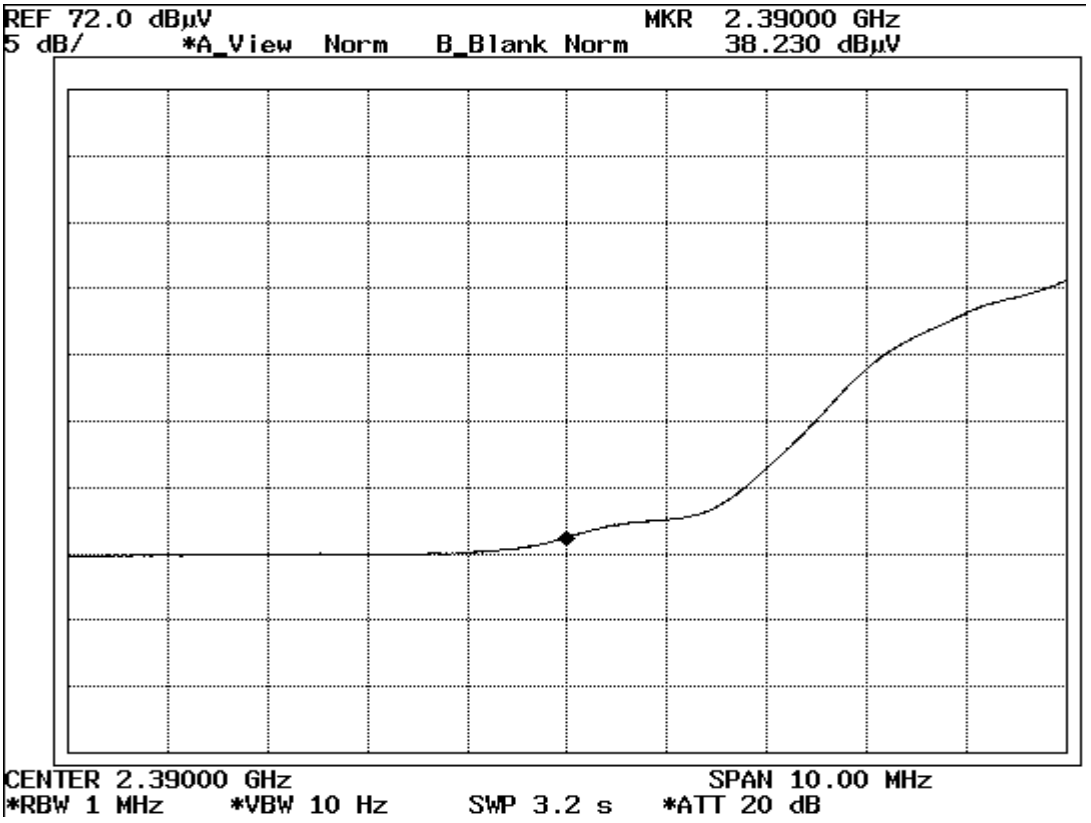
2. Vertical



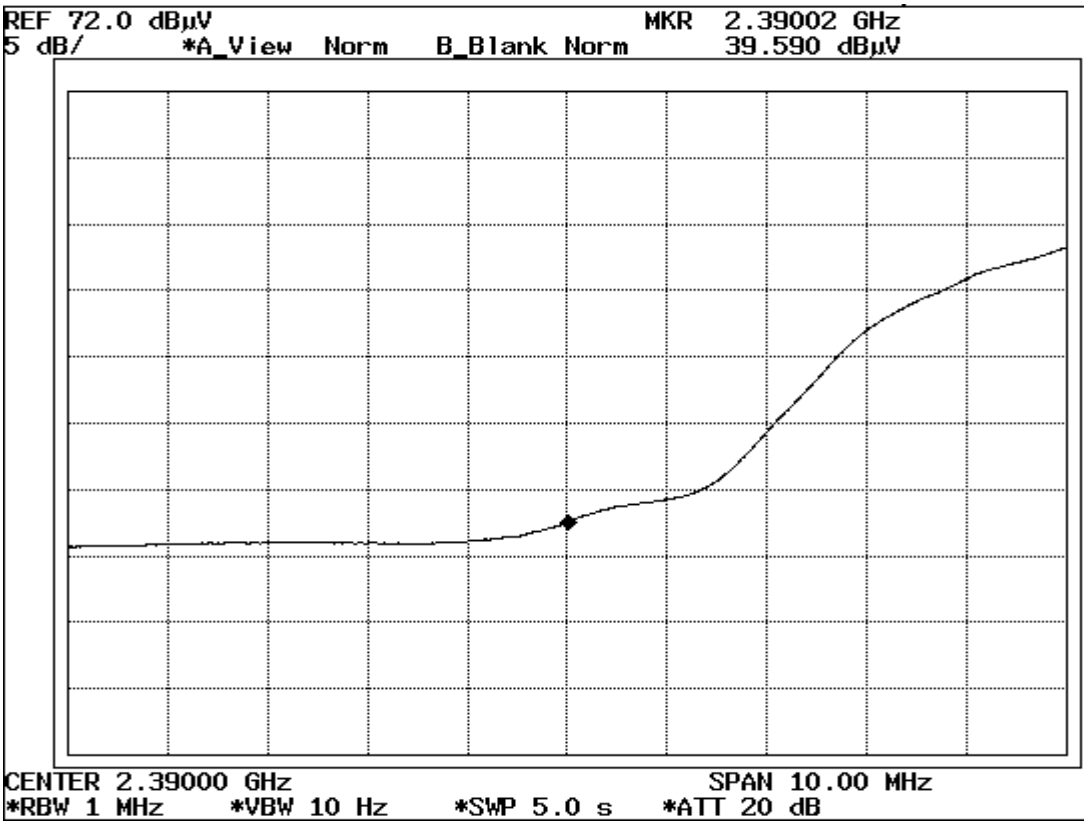
2.39GHz(Ch1)

AV Detector

1. Horizontal



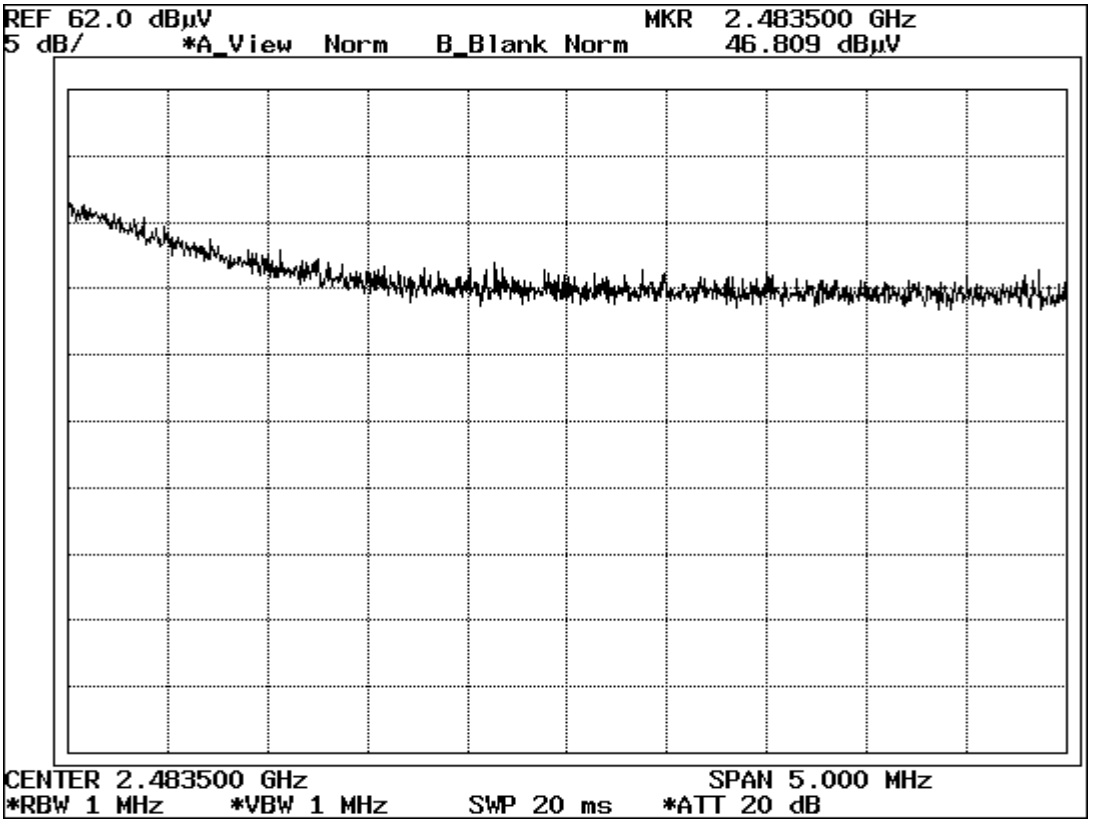
2. Vertical



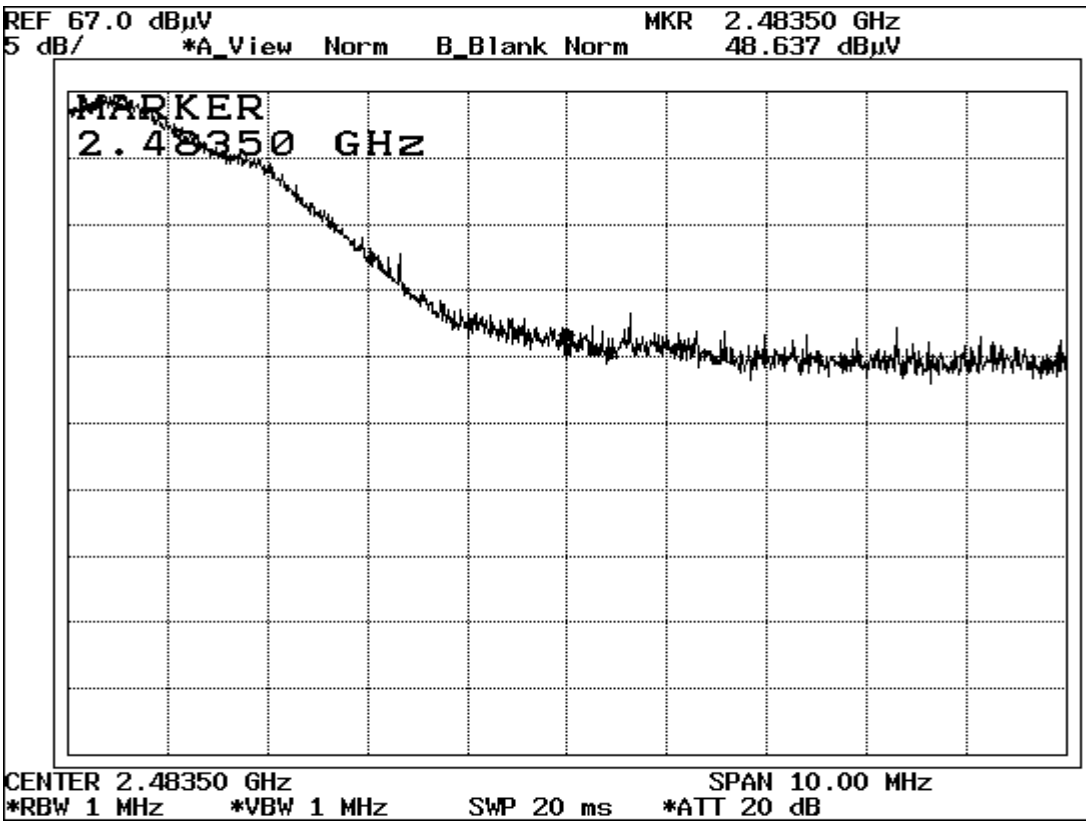
2.4835GHz(Ch11)

PK Detector

1. Horizontal



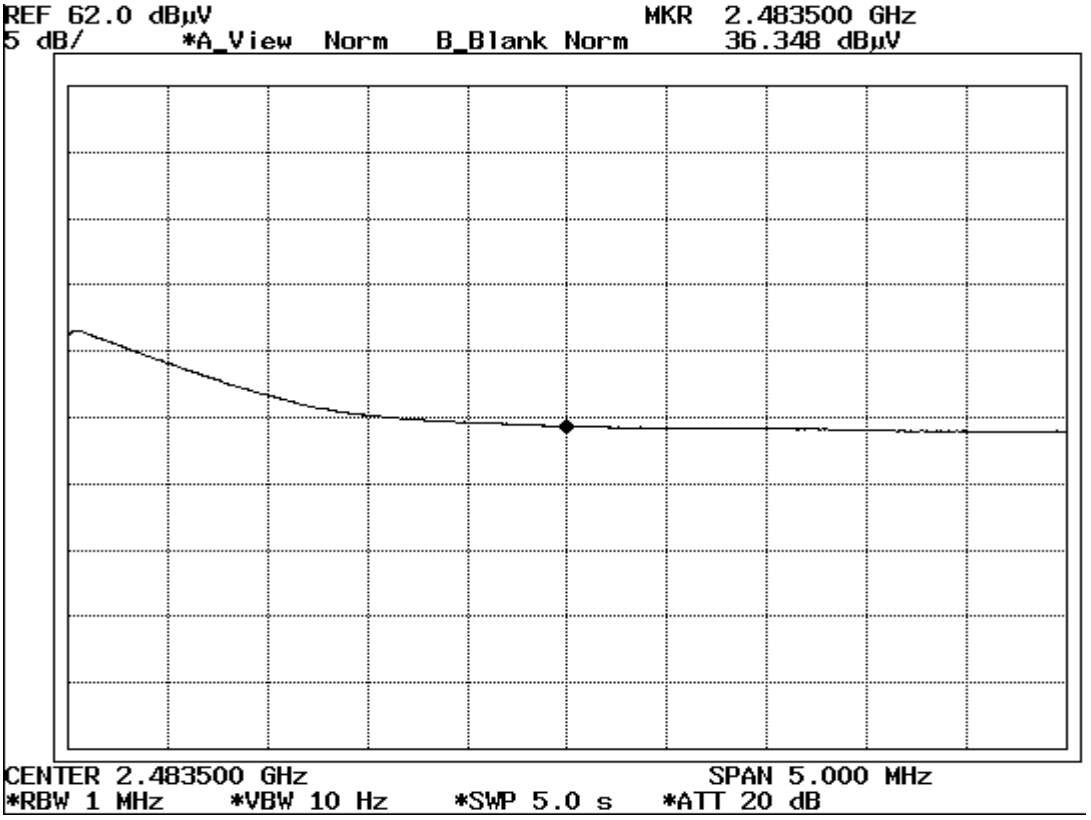
2. Vertical



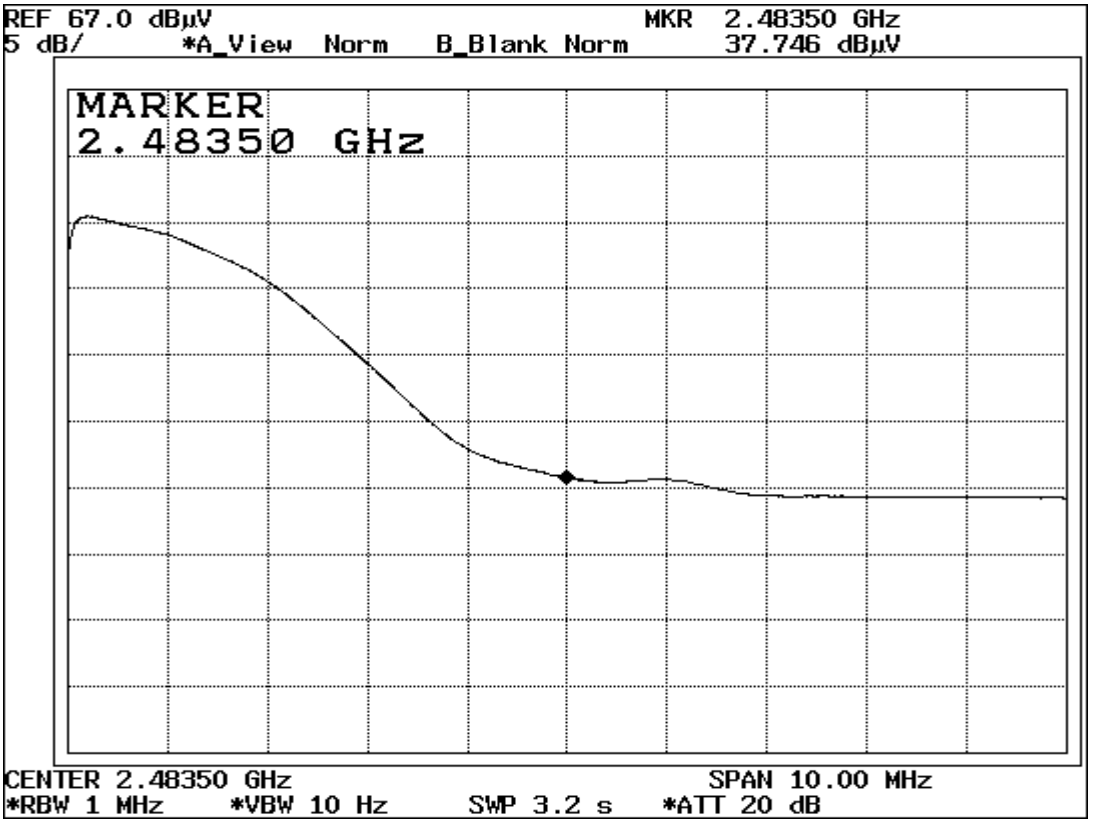
2.4835GHz(Ch11)

AV Detector

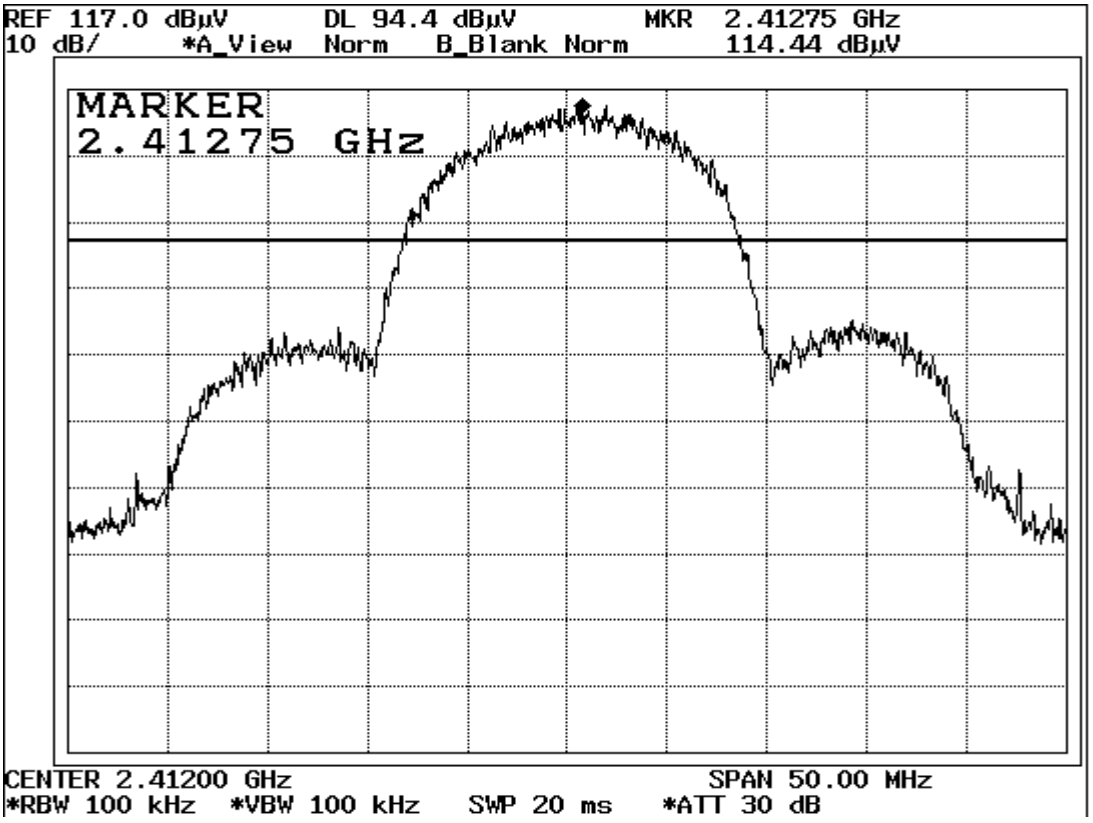
1. Horizontal

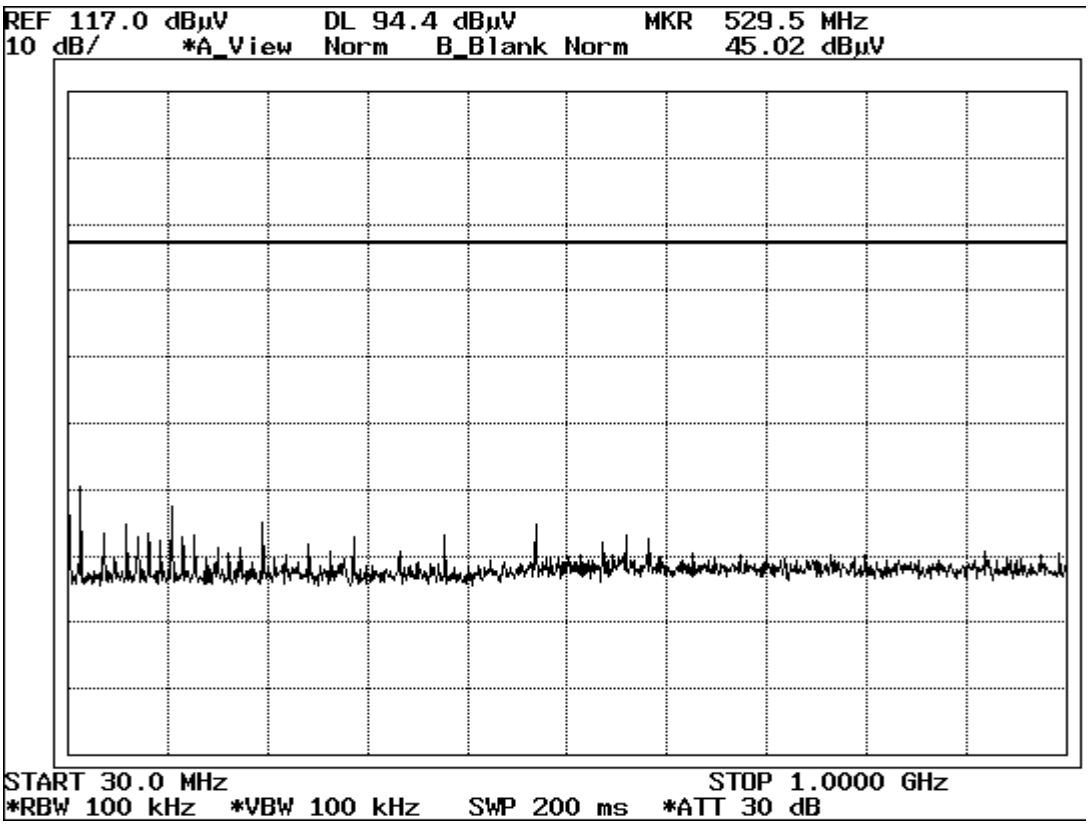


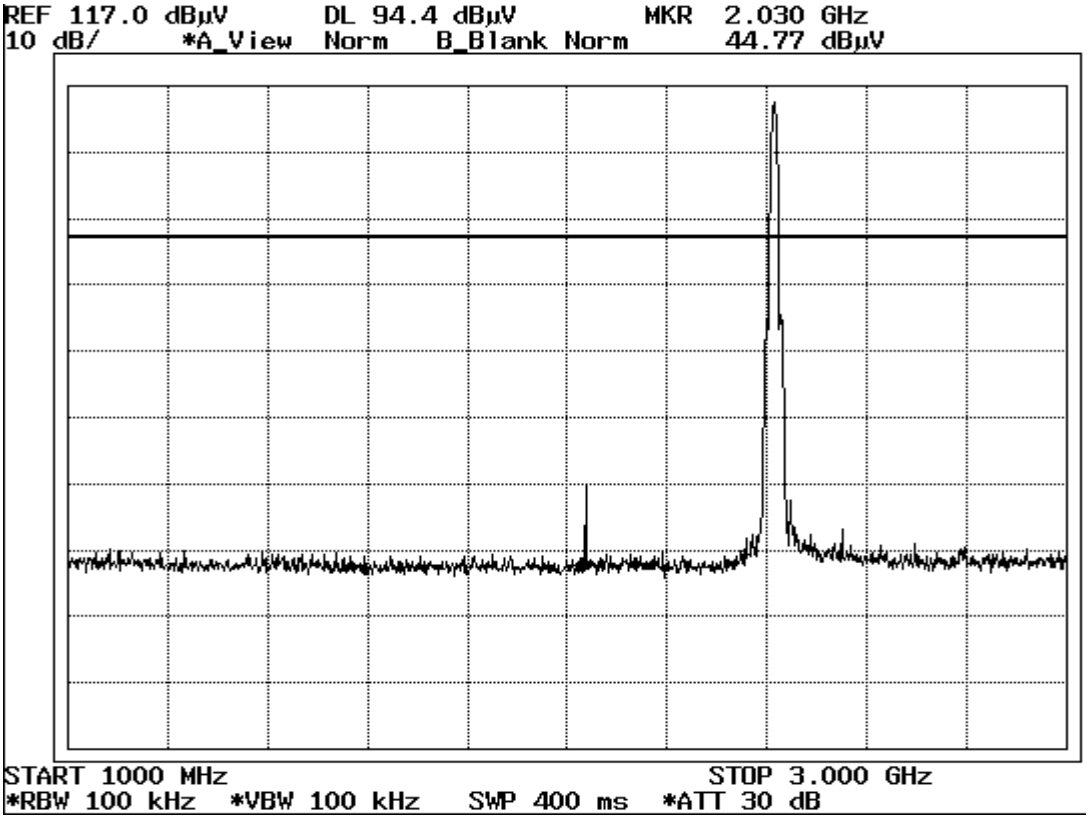
2. Vertical

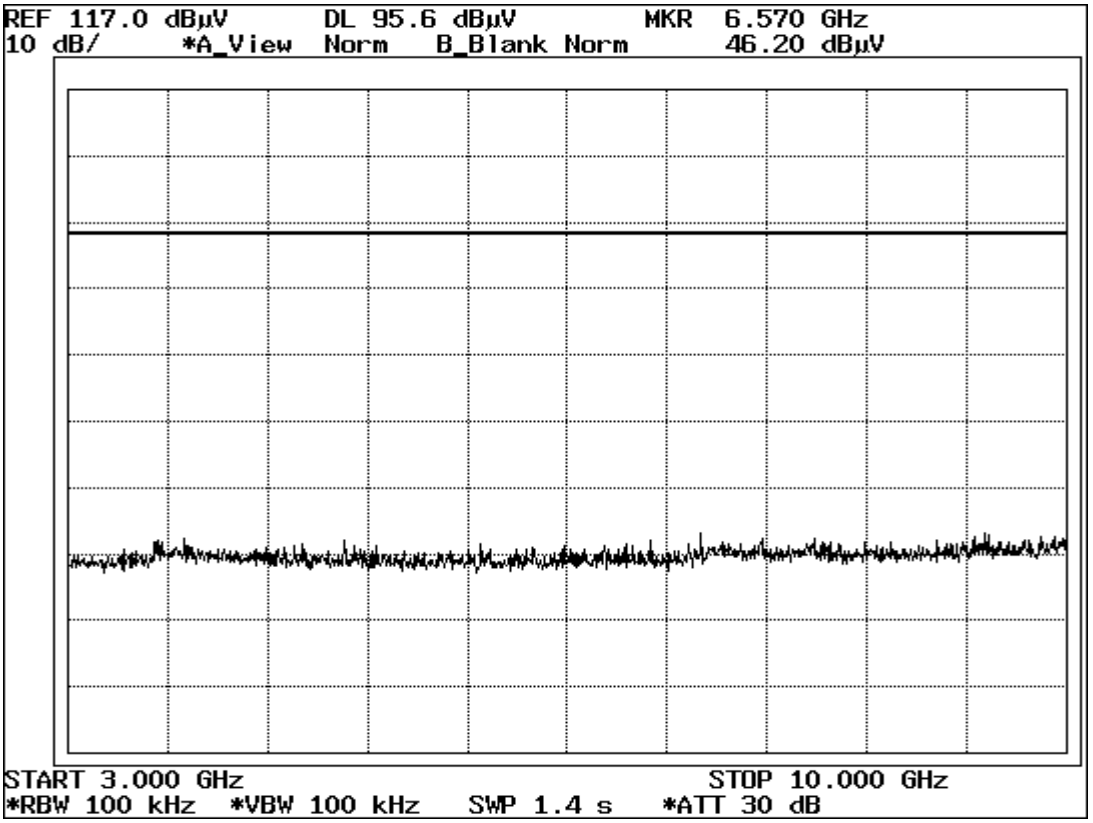


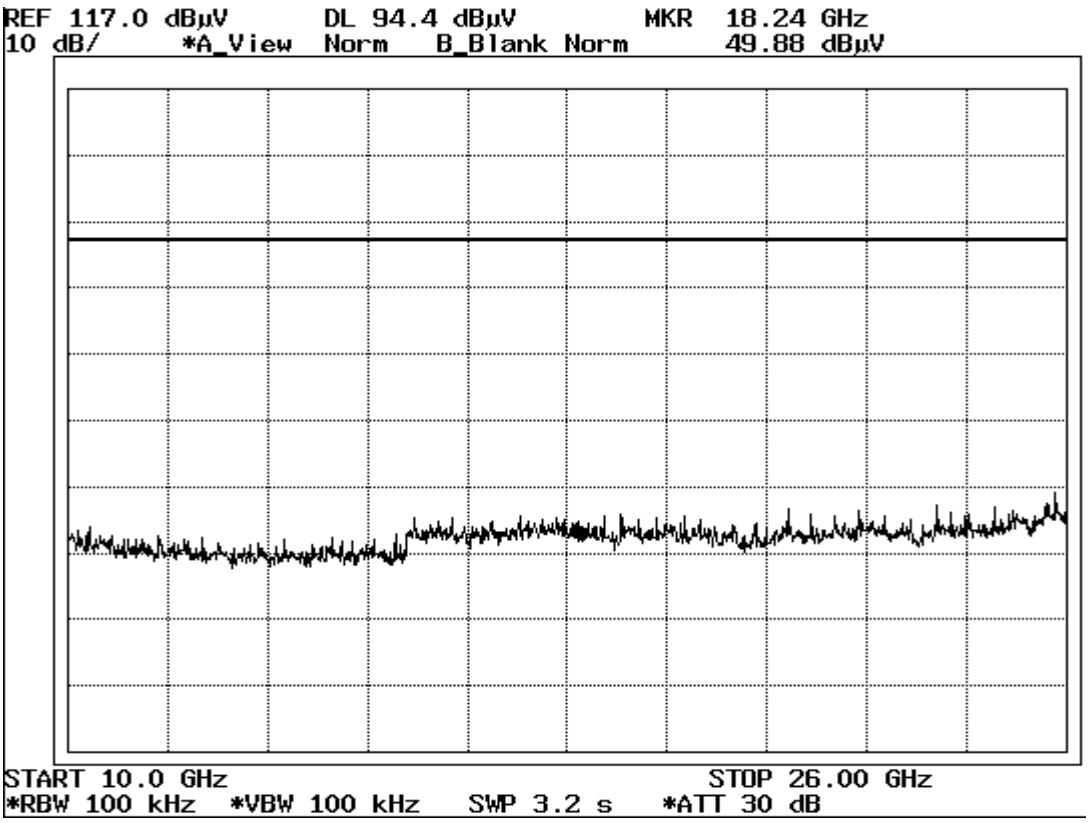
Ch1: 2412MHz(Low)



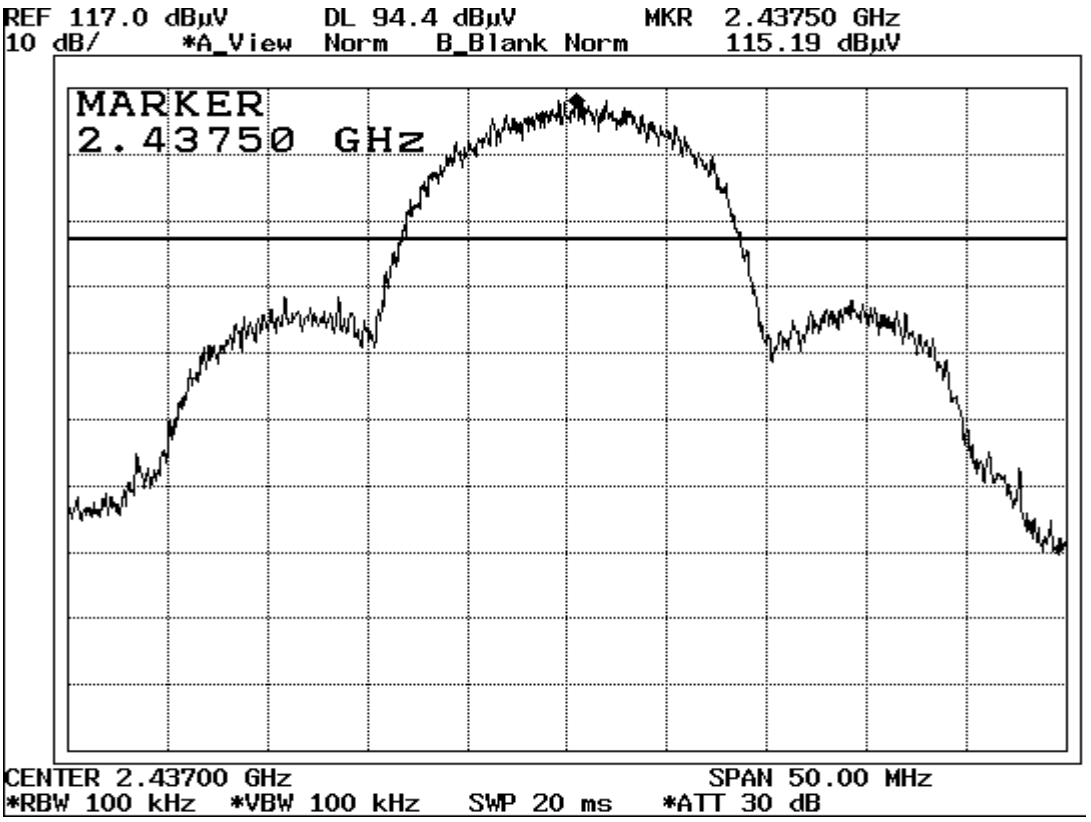


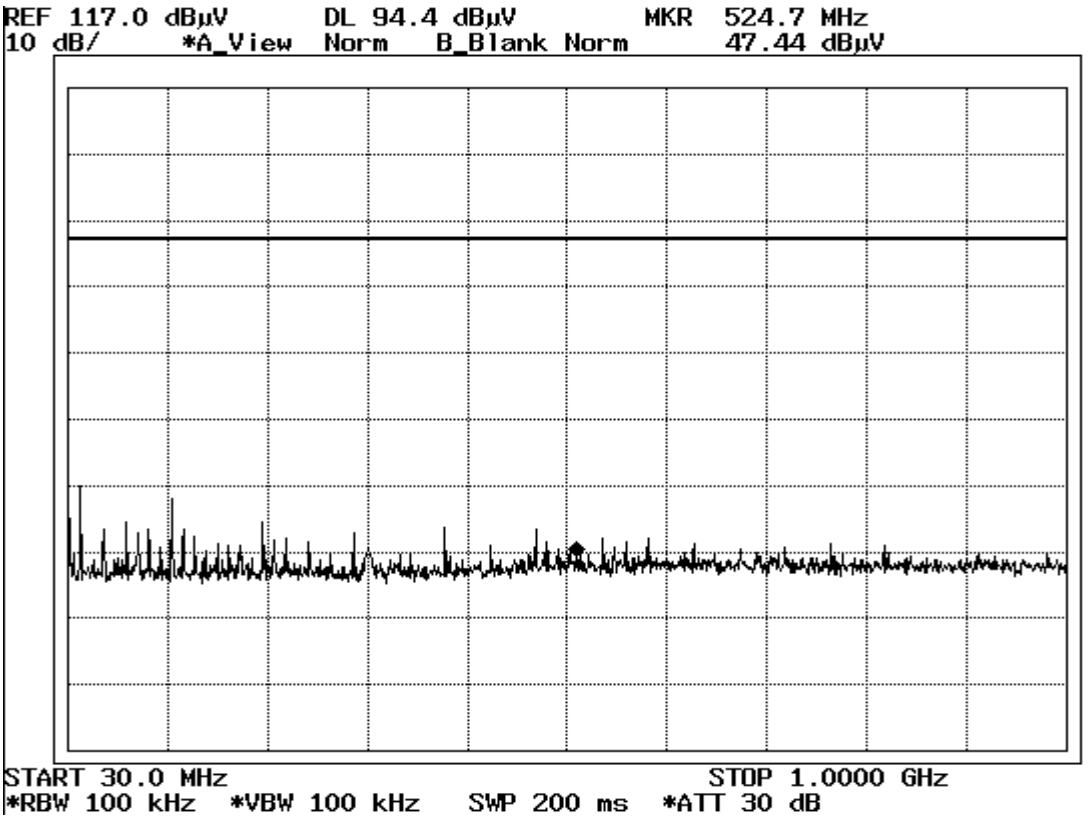

REF 117.0 dBµV
DL 94.4 dBµV
MKR 2.030 GHz
10 dB/
*A_View
Norm
B_Blank Norm
44.77 dBµV
START 1000 MHz
STOP 3.000 GHz
*RBW 100 kHz
*VBW 100 kHz
SWP 400 ms
*ATT 30 dB

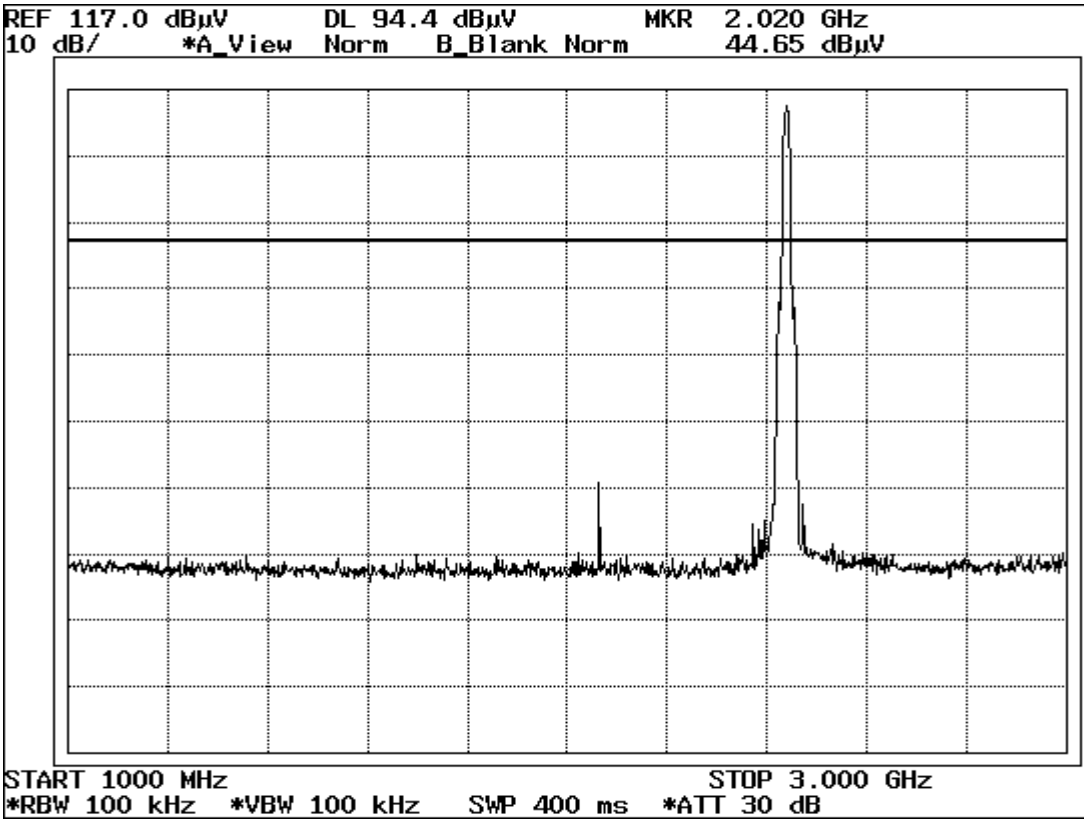

REF 117.0 dBµV
DL 95.6 dBµV
MKR 6.570 GHz
10 dB/
*A_View
Norm
B_Blank Norm
46.20 dBµV
START 3.000 GHz
STOP 10.000 GHz
*RBW 100 kHz
*VBW 100 kHz
SWP 1.4 s
*ATT 30 dB

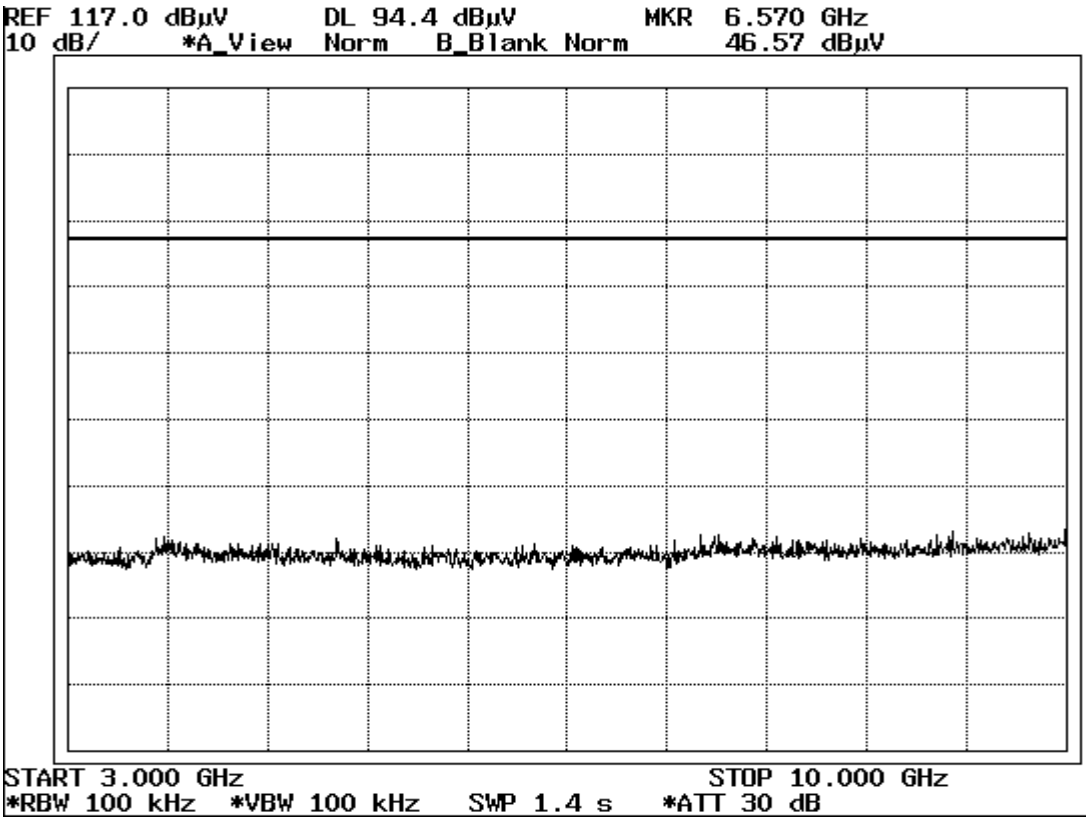

REF 117.0 dBµV
DL 94.4 dBµV
MKR 18.24 GHz
10 dB/
*A_View
Norm
B_Blank Norm
49.88 dBµV
START 10.0 GHz
STOP 26.00 GHz
*RBW 100 kHz
*VBW 100 kHz
SWP 3.2 s
*ATT 30 dB

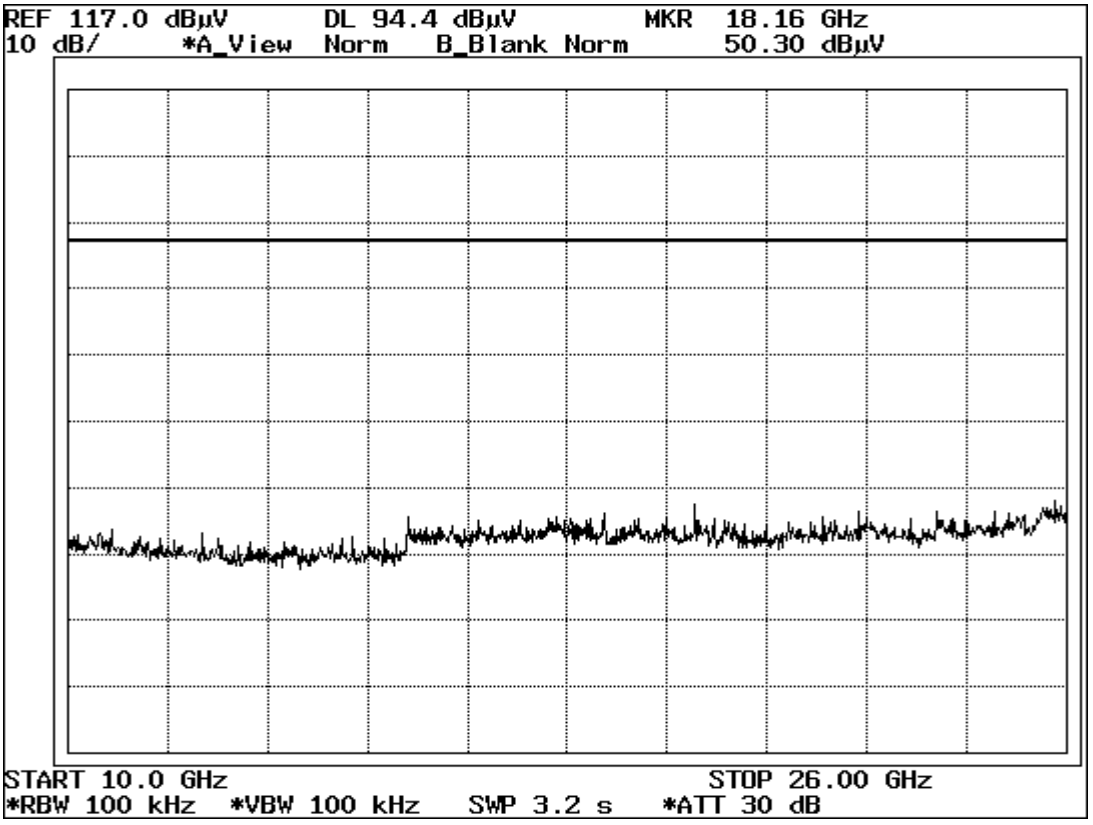
Ch6: 2437MHz(Mid)



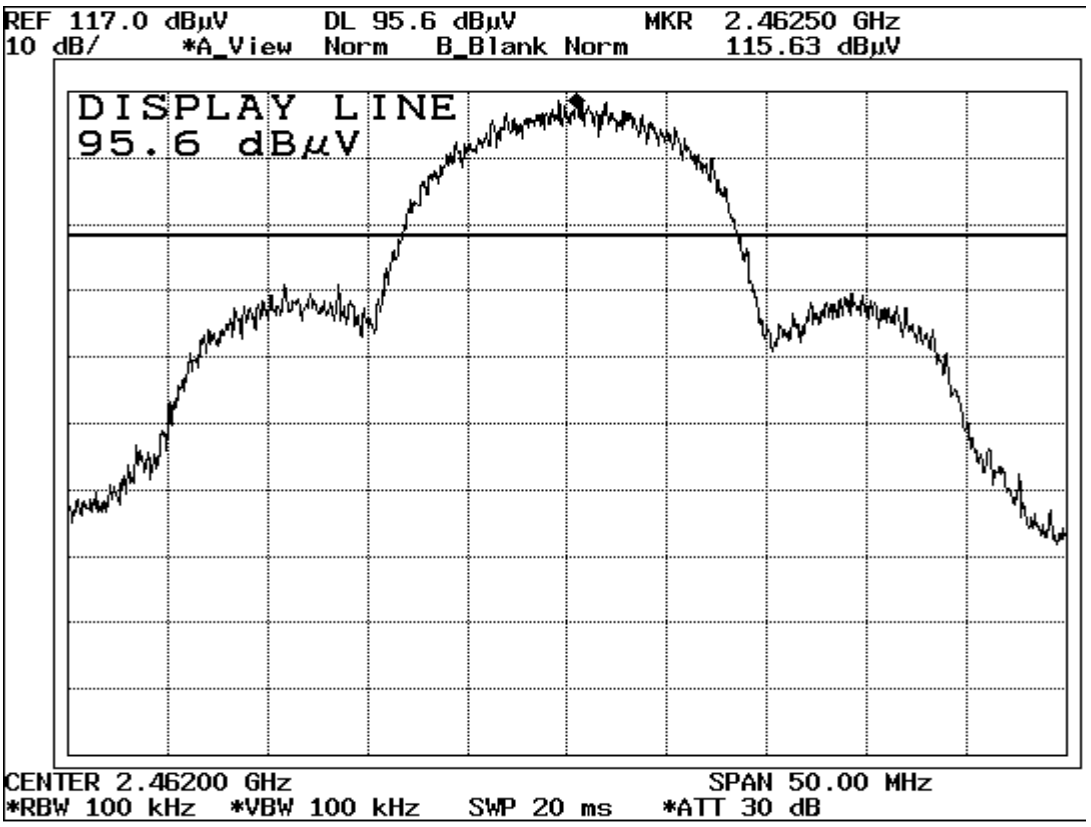


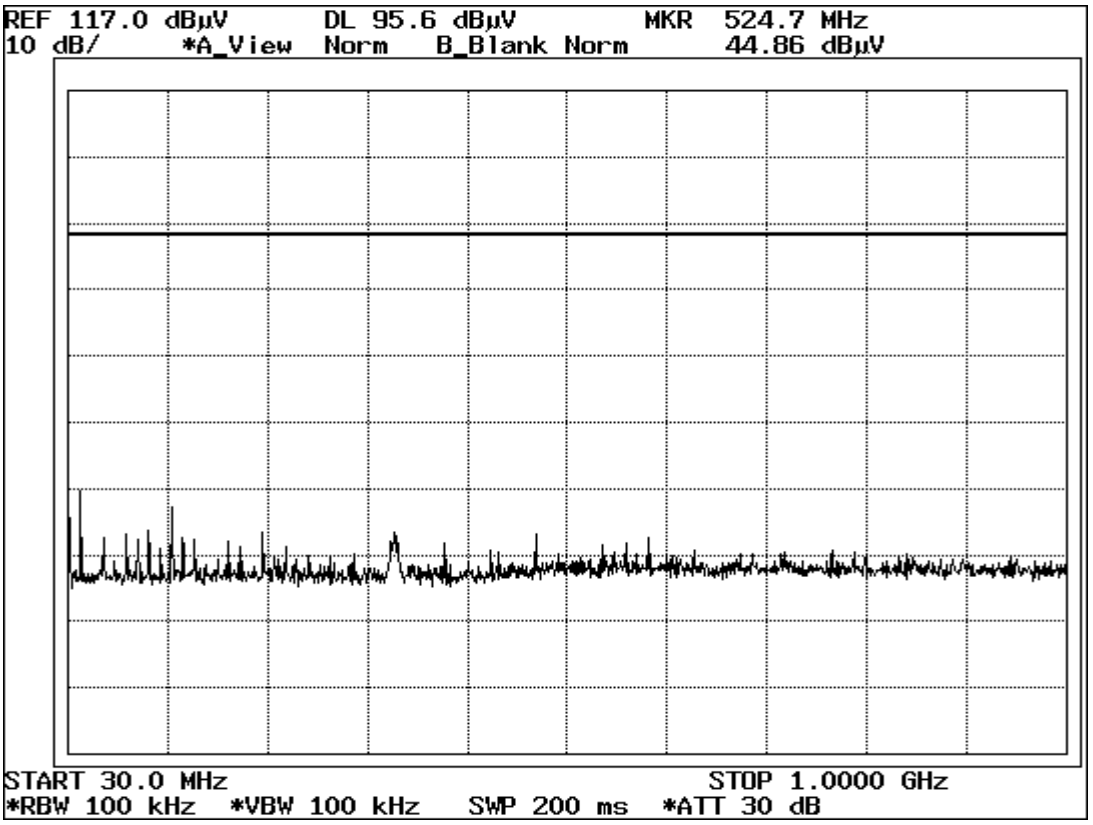

REF 117.0 dBµV
DL 94.4 dBµV
MKR 2.020 GHz
10 dB/
*A_View
Norm
B_Blank Norm
44.65 dBµV
START 1000 MHz
STOP 3.000 GHz
*RBW 100 kHz
*VBW 100 kHz
SWP 400 ms
*ATT 30 dB

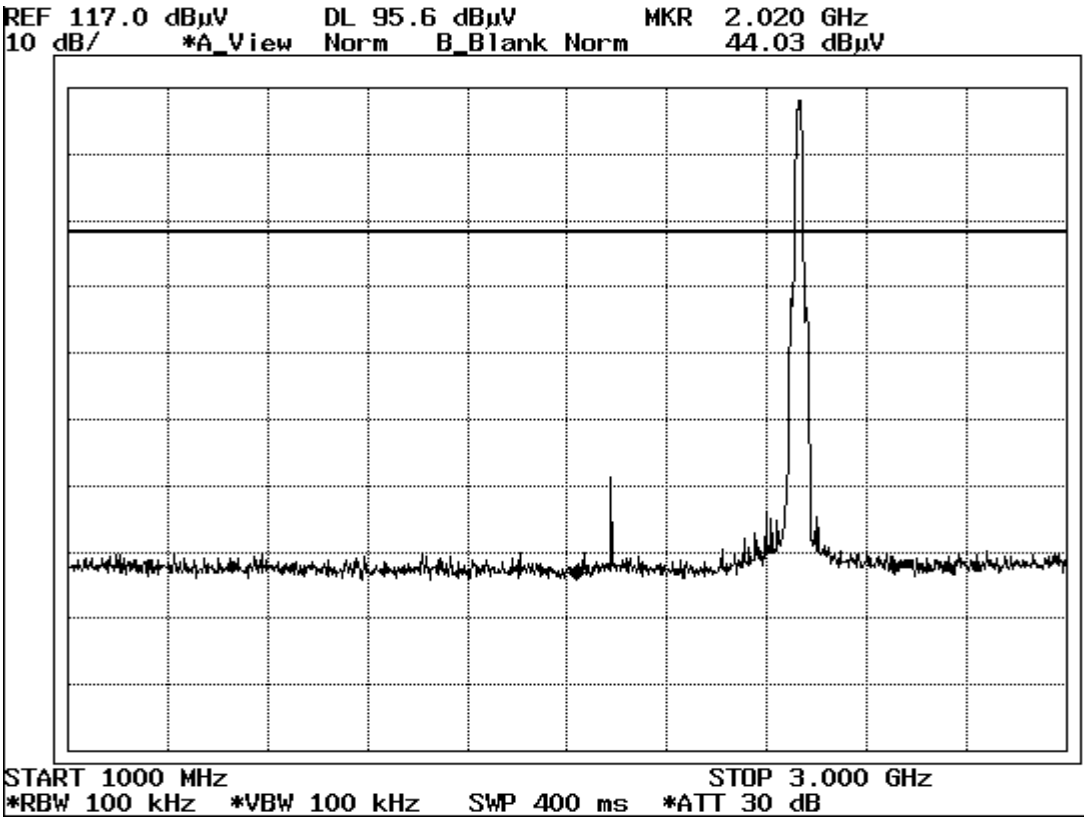

REF 117.0 dBµV
DL 94.4 dBµV
MKR 6.570 GHz
10 dB/
*A_View
Norm
B_Blank Norm
46.57 dBµV
START 3.000 GHz
STOP 10.000 GHz
*RBW 100 kHz
*VBW 100 kHz
SWP 1.4 s
*ATT 30 dB

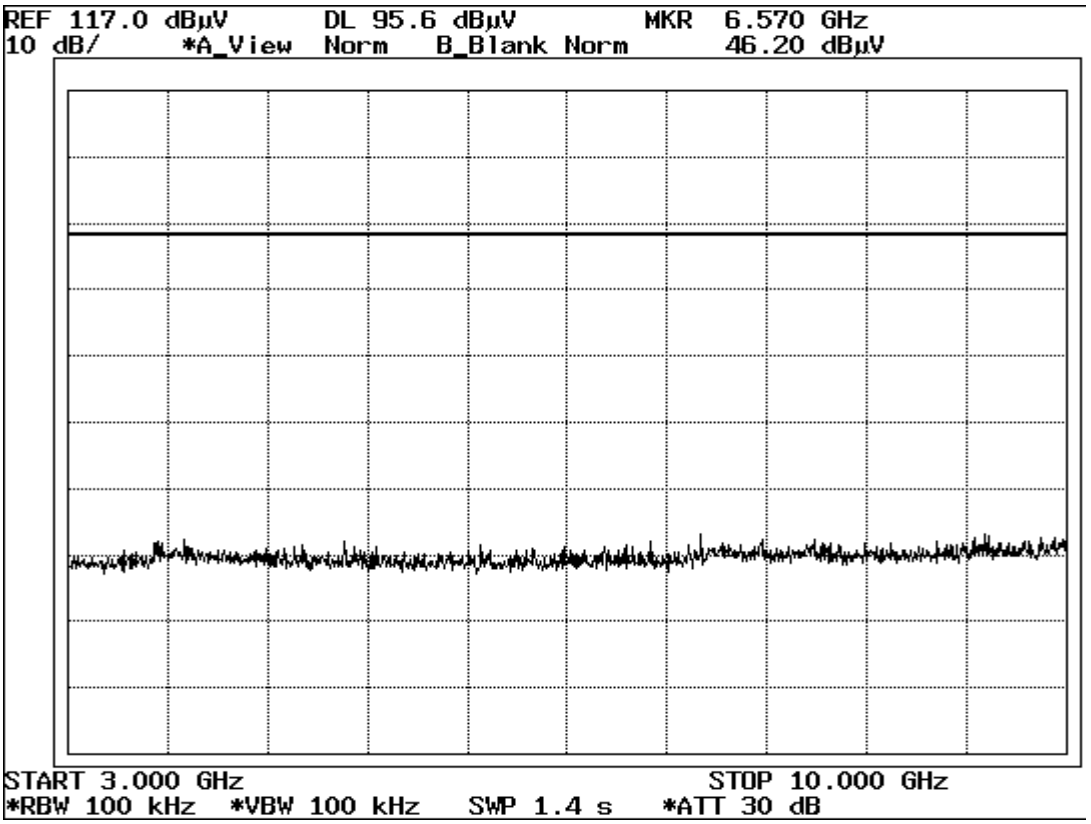

REF 117.0 dBµV
DL 94.4 dBµV
MKR 18.16 GHz
10 dB/
*A_View
Norm
B_Blank Norm
50.30 dBµV
START 10.0 GHz
STOP 26.00 GHz
*RBW 100 kHz
*VBW 100 kHz
SWP 3.2 s
*ATT 30 dB

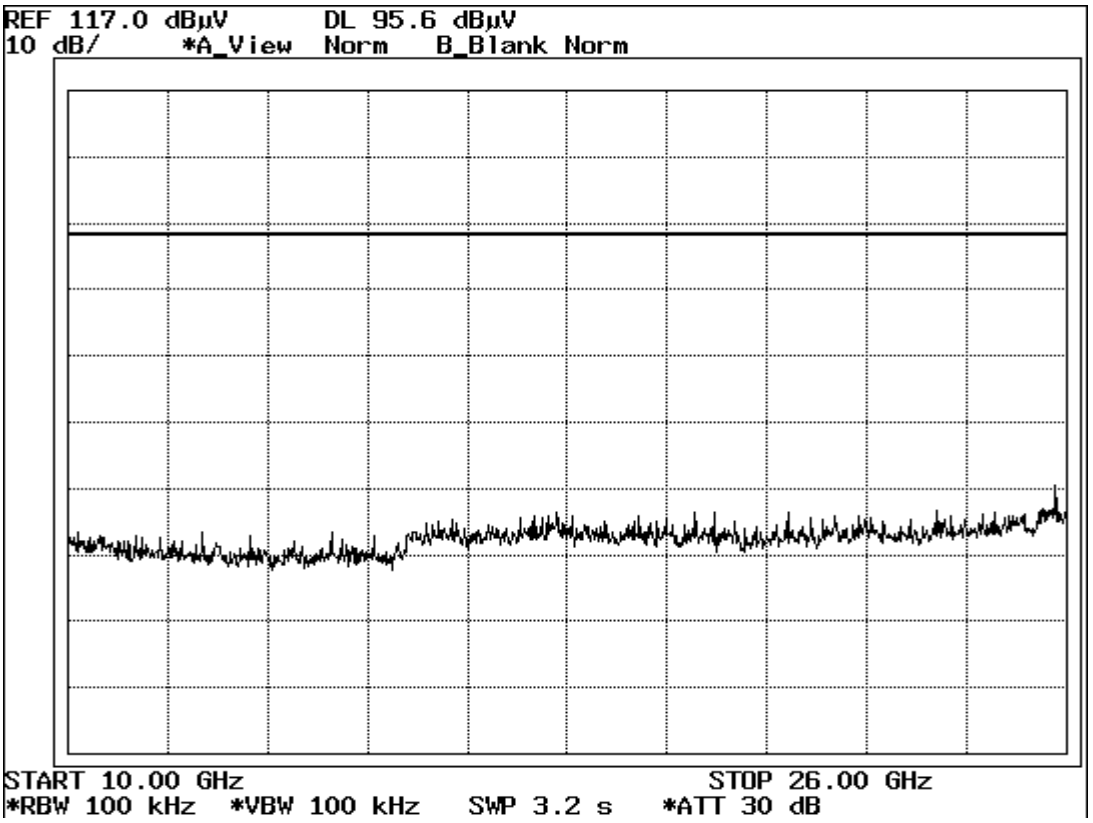
Ch11: 2462MHz(High)






REF 117.0 dBµV
DL 95.6 dBµV
MKR 2.020 GHz
10 dB/
*A_View
Norm
B_Blank Norm
44.03 dBµV
START 1000 MHz
STOP 3.000 GHz
*RBW 100 kHz
*VBW 100 kHz
SWP 400 ms
*ATT 30 dB


REF 117.0 dBµV
DL 95.6 dBµV
MKR 6.570 GHz
10 dB/
*A_View
Norm
B_Blank Norm
46.20 dBµV
START 3.000 GHz
STOP 10.000 GHz
*RBW 100 kHz
*VBW 100 kHz
SWP 1.4 s
*ATT 30 dB


REF 117.0 dBµV
DL 95.6 dBµV
10 dB/
*A_View
Norm
B_Blank Norm
START 10.00 GHz
STOP 26.00 GHz
*RBW 100 kHz
*VBW 100 kHz
SWP 3.2 s
*ATT 30 dB

Power Density(Conducted)

A-PEX INTERNATIONAL CO., LTD.
YOKOWA NO.3 OPEN SITE

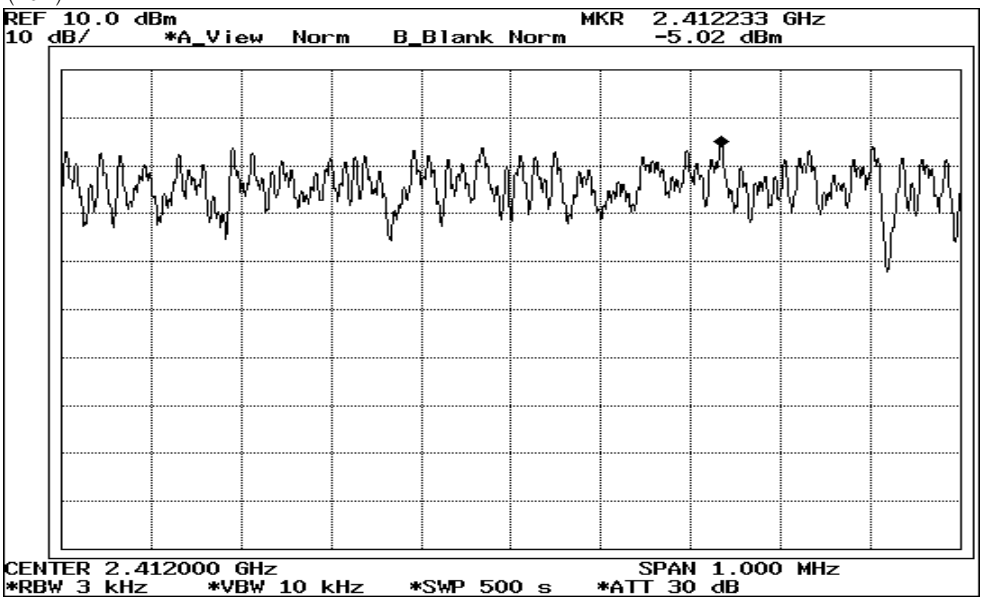
COMPANY : Matsushita Electric Industrial Co.,Ltd
EQUIPMENT : Wireless LAN builtin PC
MODEL : CF-48
S/N : 000750d5741c
FCC ID : ACJ9TGCF-481
POWER : AC120V/60Hz
Mode : Transmitting

REPORT NO : 22HE0013-YW
REGULATION : Fcc Part15SubpartC 247 (d)
DATE : 2002/ 4/ 2
Temp./Humi. : 22°C/36%

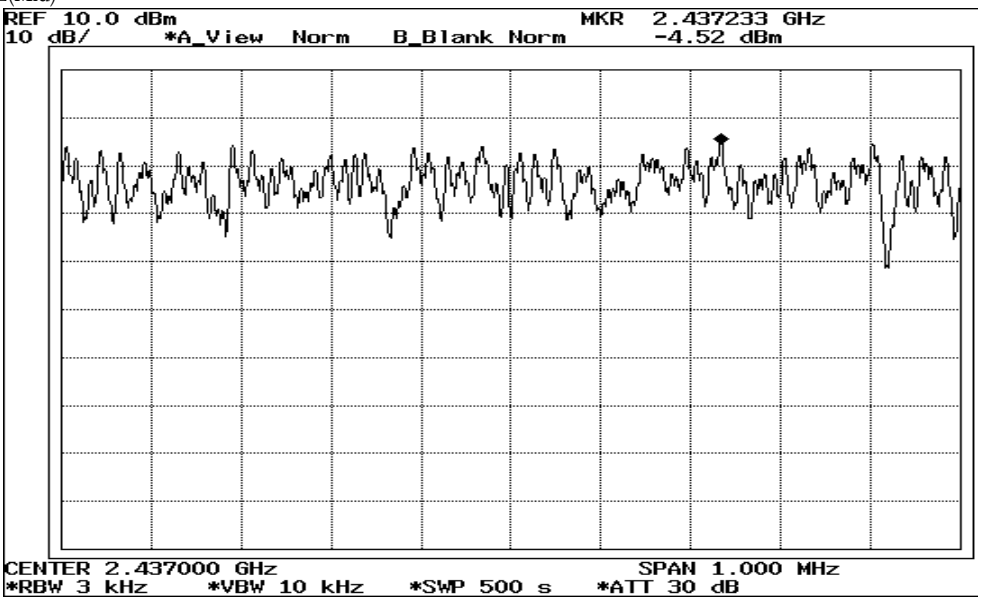
ENGINEER : Naoki Sakamoto

CH	FREQ [GHz]	S/A Reading [dBm]	Limit [dBm]	Margin [dB]
Low	2.4134	-5.0	8.0	13.0
Mid	2.4372	-4.5	8.0	12.5
High	2.4634	-4.4	8.0	12.4

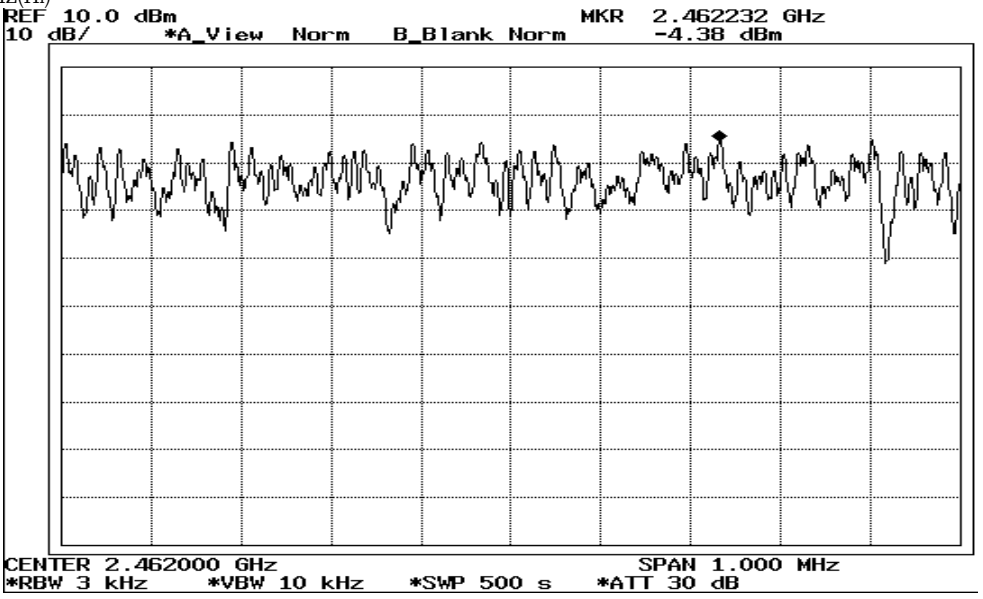
1. Ch1: 2412MHz(Low)



2. Ch6: 2437MHz(Mid)



3. Ch11: 2462MHz(Hi)



Test Report No :22HE0013-YW

APPENDIX
Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No.	Test Item	Calibration Date * Interval(month)
AF-01	Pre Amplifier	Hewlett Packard	8447D	RE	2002/04/01 * 12
AF-06	Pre Amplifier	Agilent	HP8449B	RE	2001/12/21 * 12
AT-06	Attenuator	Anritsu	MP721B	RE	2002/04/04 * 12
AT-21	Attenuator	Hirose Electric	ATT-110	RE	2001/12/04 * 12
BA-03	Biconical Antenna	Schwarzbeck	BBA9106	RE	2001/05/01 * 12
LA-06	Logperiodic Antenna	Schwarzbeck	UHALP9108-A	RE	2001/05/01 * 12
HA-01	Horn Antenna	A.H.Systems	SAS-200/571	RE	2001/05/20 * 12
SA-04	Spectrum Analyzer	Hewlett Packard	8567A	RE / CE	2002/04/03 * 12
SA-06	Spectrum Analyzer	Advantest	R3273	RE / CE	2001/11/20 * 12
TR-05	Test Receiver	Rohde & Schwarz	ESHS10	CE	2001/08/24 * 12
TR-06	Test Receiver	Rohde & Schwarz	ESVS10	RE	2001/11/22 * 12
CC-3ORC	Yokowa No.3 open coaxial(0.01-1000MHz)	A-PEX	CC-31,CC-32,CC-33,CC-34,CC-35,CC-36,CC-37,SW-31,SW-32	RE	2002/03/30 * 12
CC-3S	Yokowa No.3 shield coaxial(0.01-1000MHz)	A-PEX	CC-34,CC-35,CC-36,CC-38,SW-31,SW-32	CE	2002/03/30 * 12
YOATS-03	Open Test Site	JSE	10m	RE	2001/05/01 * 12
LS-04	LISN	Rohde & Schwarz	ESH3-Z5	CE	2001/11/06 * 12
PM-02	Power Meter	Agilent	E4416A	CE	2002/03/22 * 12
PS-03	Power sensor	Agilent	E9327A	CE	2002/03/12 * 12
CC-C10	Microwave Cable	Storm	421-014(7m)	RE	2001/12/22 * 12
CC-C13	Microwave Cable	Suhner	SUCOFLEX	RE	2002/01/13 * 12
HF-04	High Pass Filter	Tokimec	TF323DCA	RE	2001/10/15 * 12
EST-10	Horn Antenna	Schwarzbeck	BBHA9170	RE	2001/10/17 * 36

All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
CE: Conducted emission,
RE: Radiated emission.