

EMI TEST REPORT

Test Report No. : 22LE0044-YW-1

Applicant: Matsushita Electric Industrial Co., Ltd.
Type of Equipment: Wireless LAN built in
Notebook Personal Computer
Model No.: CF-50
FCC ID: ACJ9TGCF-501
Test standard: FCC Part15 Subpart C, Section 15.247
Test Result: Complied

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

Date of test: November 6 and 7 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.

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1 GENERAL INFORMATION

APPLICANT : Matsushita Electric Industrial Co.,Ltd.
AVC Company Personal Computer Division.

ADDRESS : 1-10-12 Yaquomohigashi-machi, Moriguchi City
Osaka Japan
Tel: +81-6-6907-4050
Fax: +81-6-6907-4041

REGULATION(S) : FCC Part15 Subpart C, Section 15.247

MODEL NUMBER : CF-50

SERIAL NUMBER : QC#1

KIND OF EQUIPMENT : Wireless LAN built in Notebook personal computer

RECEIPT DATE OF SAMPLE : November 6, 2002

REPORT FILE NUMBER : 22LE0044-YW-1

TEST SITE : A-PEX Yokowa No.3 Open Test Sites

1.1 Tested Methodology

The measurement was performed according to the procedures in FCC97114

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.

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2 PRODUCT DESCRIPTION

Matsushita Electric Industrial Co., Ltd. Model CF-50 (referred to as the EUT in this report) is a Wireless LAN built-in Notebook Personal Computer.

The specification is as following :

Wireless LAN Module

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

*FccPart15.31(e)

The host device CF-50 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-50 when they are put up for sale and they are used with a unique antenna connector.

2.1 Test System Details

Model	FCC ID	Description
(1) Matsushita Electric M/N: CF-50 S/N: QC#1	ACJ9TGCF-501	Wireless LAN built-in PC
*FccPart15 Subpart B Class B Digital Device DOC		
(2) Matsushita Electric M/N: CF-AA1653A S/N: 02800039A	DOC	AC Adapter

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Test report**FCC ID** : ACJ9TGCF-501**Our reference** : 22LE0044-YW-1**Page** : 6 of 13**Issued date** : November 20, 2002

3 SYSTEM TEST CONFIGURATION

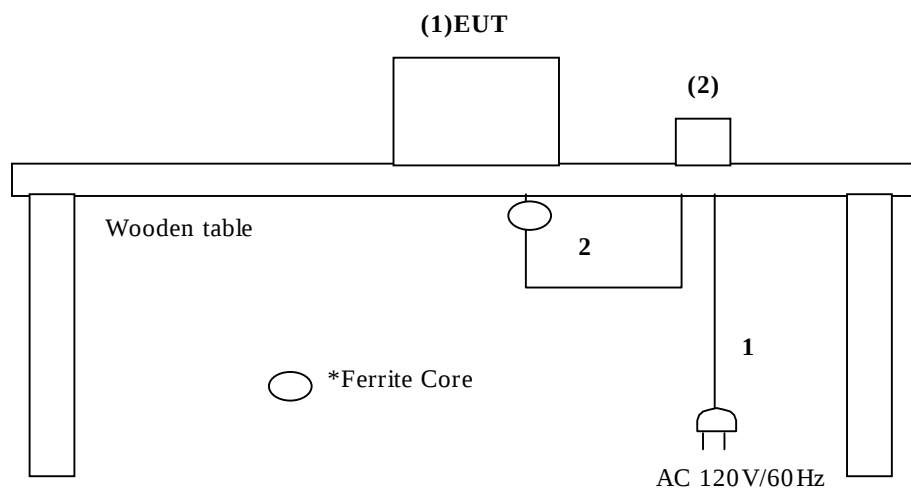
3.1 Justification

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	1.8	N	Polyvinyl chloride
2	DC Power Cable	2.0	N	Polyvinyl chloride

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4 Measurement Uncertainty

Conducted Emission Test

The measurement uncertainty (with a 95% confidence level) for this test was $\pm 2.0\text{dB}$.

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 $\pm 4.4\text{dB}$.

The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna is $\pm 4.8\text{dB}$.

The measurement uncertainty (with a 95% confidence level) for this test using Horn antenna is $\pm 5.8\text{dB}$.

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 A10
Photographs of test setup	: Page 11(1)
Test result	: Pass
Test instruments	: LS-04, SA-06, TR-05

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.

Antenna 1

- | | | |
|----|---------------|---------------------|
| 1. | 2412MHz(Low) | : 10.02MHz > 500kHz |
| 2. | 2437MHz(Mid) | : 10.05MHz > 500kHz |
| 3. | 2462MHz(High) | : 10.48MHz > 500kHz |

Antenna 2

- | | | |
|----|---------------|---------------------|
| 1. | 2412MHz(Low) | : 10.41MHz > 500kHz |
| 2. | 2437MHz(Mid) | : 10.04MHz > 500kHz |
| 3. | 2462MHz(High) | : 10.48MHz > 500kHz |

Test data	: APPENDIX A11 to A12
Test result	: Pass
Test instruments	: SA-06, AT-14

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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 A13
Test result : Pass
Test instruments : PS-03, PM-02, SA-06, AT-14

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 A14 to A21 (30- 1000MHz)
: APPENDIX A22 to A29 (1- 26GHz)
: APPENDIX A30 to A37 (2390MHz/2483.5MHz: Restricted band Charts)
Photographs of test setup : Page12(2)
Test result : Pass
Test instruments : AF-01, AF-06, AT-06, AT-14, HF-04, BA-03, LA-06, HA-02, HA-03,
SA-06, TR-06

Test report

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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 A38 to A49

Test result : Pass

Test instruments : SA-06, AT-14

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 A50 to A52

Test result : Pass

Test instruments : SA-06, AT-14

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Photographs of test setup(1)



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Photographs of test setup(2)



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APPENDIX

Test Data

1. Conducted Emission (6.1)

A1 to A5(Antenna 1)
A6 to A10(Antenna 2)

2. 6dB Bandwidth (Antenna Port Conducted) (6.2)

A11 to A12

3. Maximum peak output power (Antenna Port Conducted) (6.3)

A13

4. Out of band emissions (Radiated) (6.4)

A14 to A17(Antenna1:30to 1000MHz)
A18 to A21(Antenna2:30to 1000MHz)
A22 to A25(Antenna1:1 to 26GHz)
A26 to A29(Antenna2:1 to 26GHz)
A30 to A33(Antenna1:Band edges)
A34 to A37(Antenna2:Band edges)

5. Out of band emissions (Antenna Port Conducted) (6.5)

A38 to A43(Antenna 1)
A44 to A49(Antenna 2)

6. Power density (Antenna Port Conducted) (6.6)

A50 to A52

Test Instruments

A53

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DATA OF CONDUCTION TEST

A-PEX INTERNATIONAL CO., LTD.
YOKOWA No.3 OPEN TEST SITE
Report No. : 22LE0044-YW-1

Applicant : Matsushita Electric Industrial Co., Ltd.
Kind of Equipment : Personal Computer
Model No. : CF-50
Serial No. :
Power : AC120V/60Hz
Mode : Transmitting (2437MHz)
Remarks : ANT1
Date : 11/7/2002
Phase : Single Phase
Temperature : 25 °C
Humidity : 65 %
Regulation : FCC Part15.207 (02-157)

Engineer : Naoki Sakamoto

No.	FREQ. [MHz]	READING (N)		READING (L1)		LISN FACTOR [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS		MARGIN	
		QP [dBuV]	AV	QP [dBuV]	AV				QP [dBuV]	AV	QP [dBuV]	AV	QP [dB]	AV
1.	0.1500	52.6	-	44.8	-	0.2	0.3	0.0	53.1	-	66.0	56.0	12.9	-
2.	0.2079	49.9	-	42.5	-	0.1	0.3	0.0	50.3	-	63.3	53.3	13.0	-
3.	0.6251	37.7	-	38.0	-	0.1	0.4	0.0	38.5	-	56.0	46.0	17.5	-
4.	1.0370	32.2	-	32.7	-	0.1	0.4	0.0	33.2	-	56.0	46.0	22.8	-
5.	4.2465	31.9	-	30.5	-	0.2	0.5	0.0	32.6	-	56.0	46.0	23.4	-
6.	8.0603	33.1	-	31.4	-	0.2	0.6	0.0	33.9	-	60.0	50.0	26.1	-
7.	11.5661	31.1	-	30.4	-	0.4	0.6	0.0	32.1	-	60.0	50.0	27.9	-
8.	29.8947	38.5	-	39.5	-	1.0	0.9	0.0	41.4	-	60.0	50.0	18.6	-

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

Except for the above table: adequate margin data below the limits.

DATA OF CONDUCTION TEST CHART

A-PEX INTERNATIONAL CO., LTD.

YOKOWA No.3 OPEN TEST SITE

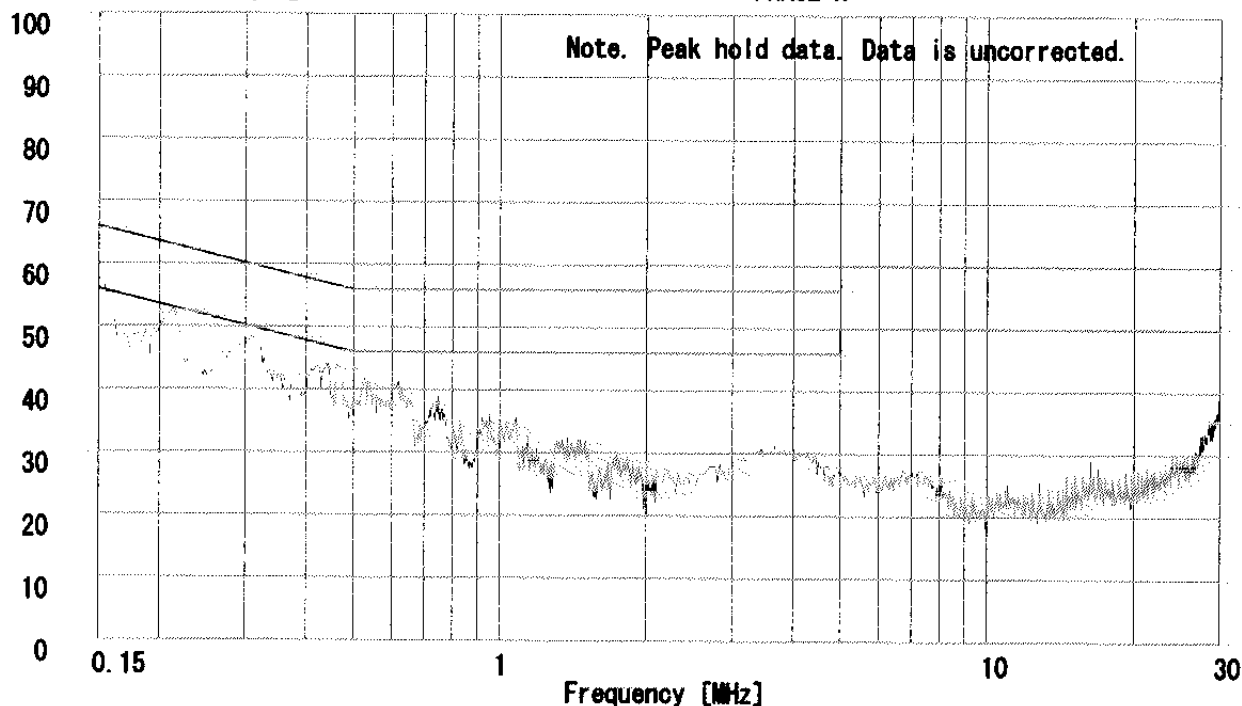
Report No. : 22LE0044-YW-1

Applicant : Matsushita Electric Industrial Co., Ltd.
Kind of Equipment : Personal Computer
Model No. : CF-50
Serial No. :
Power : AC120V/60Hz
Mode : Transmitting (2412MHz)
Remarks : ANT1
Date : 11/7/2002
Phase : Single Phase
Temperature : 25 °C
Humidity : 65 %
Regulation 1 : FCC Part15.207 (02-157)
Regulation 2 : None

Engineer : Naoki Sakamoto

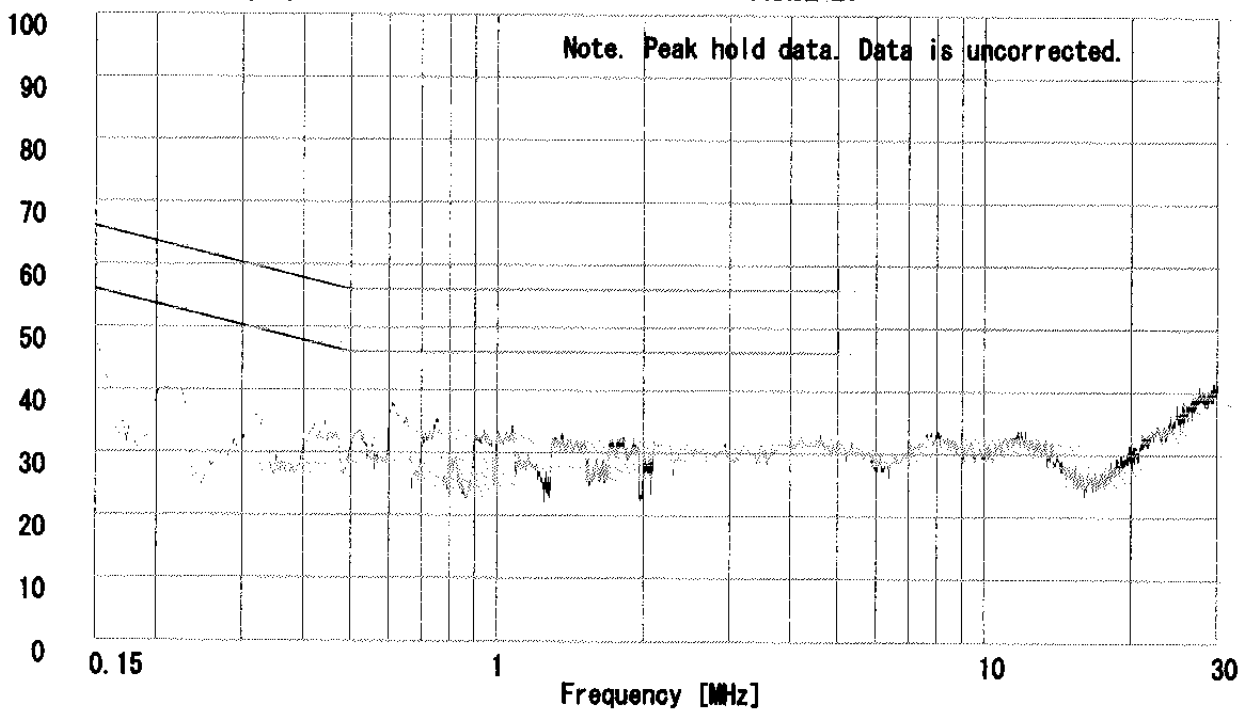
Emission Level [dB μ V]

PHASE:N



Emission Level [dB μ V]

PHASE:L1



DATA OF CONDUCTION TEST CHART

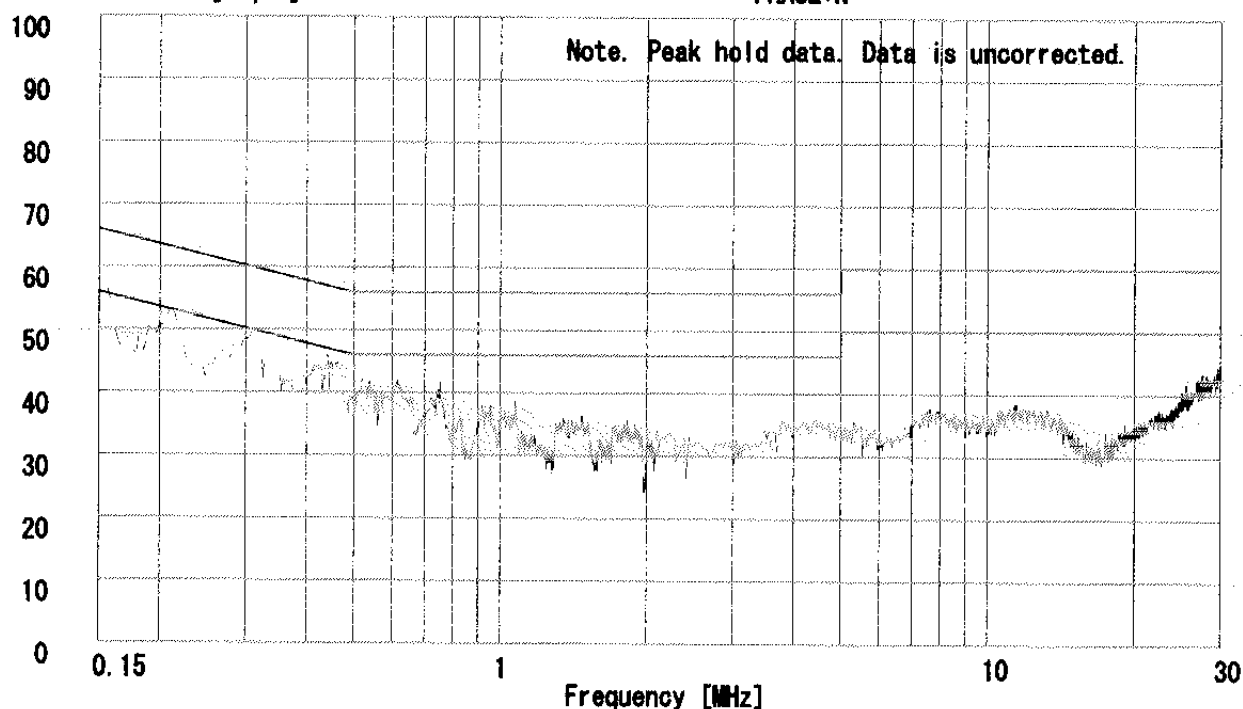
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YOKOWA No.3 OPEN TEST SITE
Report No. : 22LE0044-YW-1

Applicant : Matsushita Electric Industrial Co., Ltd.
Kind of Equipment : Personal Computer
Model No. : CF-50
Serial No. :
Power : AC120V/60Hz
Mode : Transmitting (2437MHz)
Remarks : ANT1
Date : 11/7/2002
Phase : Single Phase
Temperature : 25 °C
Humidity : 65 %
Regulation 1 : FCC Part15.207 (02-157)
Regulation 2 : None

Engineer : Naoki Sakamoto

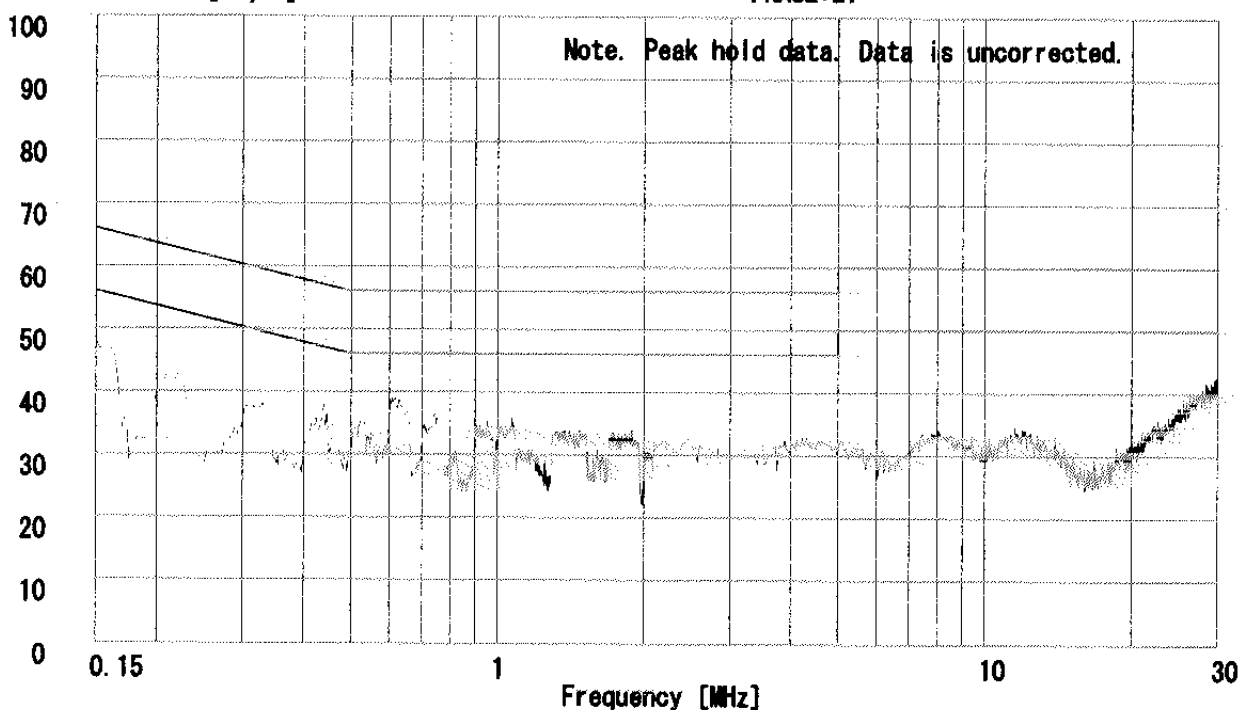
Emission Level [dB μ V]

PHASE:N



Emission Level [dB μ V]

PHASE:L1



DATA OF CONDUCTION TEST CHART

A-PEX INTERNATIONAL CO., LTD.

YOKOWA No.3 OPEN TEST SITE

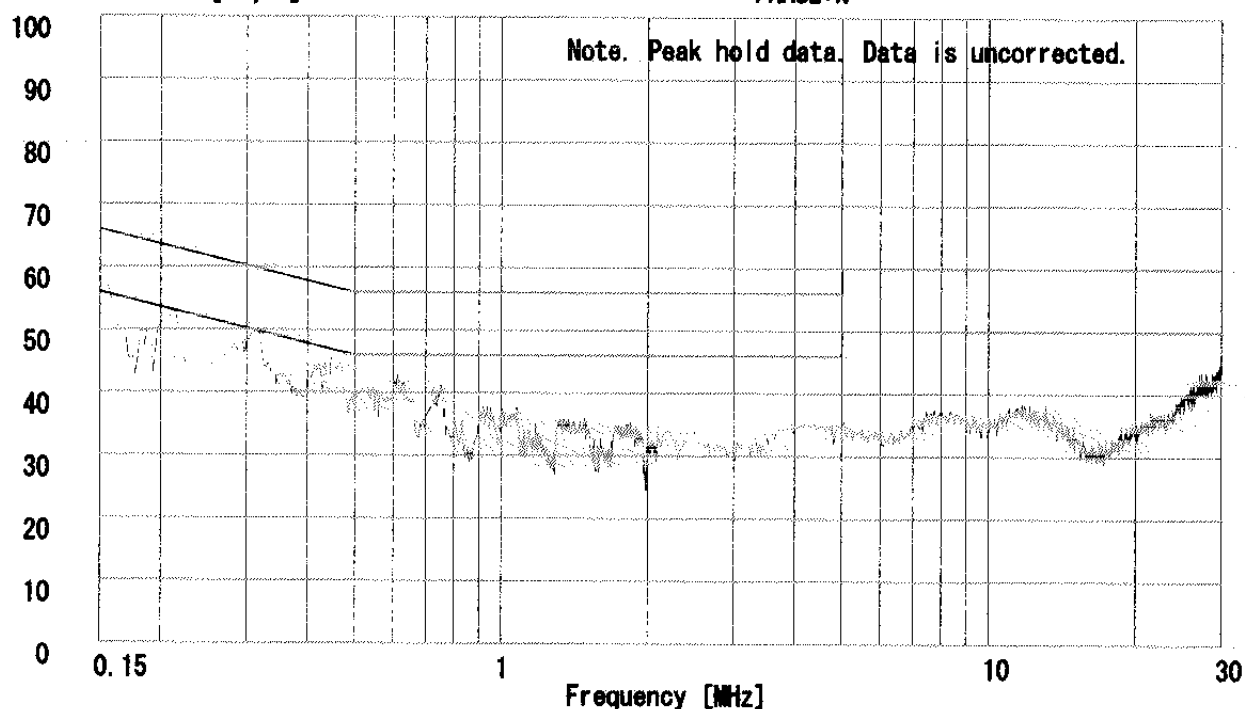
Report No. : 22LE0044-YW-1

Applicant : Matsushita Electric Industrial Co., Ltd.
Kind of Equipment : Personal Computer
Model No. : CF-50
Serial No. :
Power : AC120V/60Hz
Mode : Transmitting (2462MHz)
Remarks : ANT1
Date : 11/7/2002
Phase : Single Phase
Temperature : 25 °C
Humidity : 65 %
Regulation 1 : FCC Part15.207 (02-157)
Regulation 2 : None

Engineer : Naoki Sakamoto

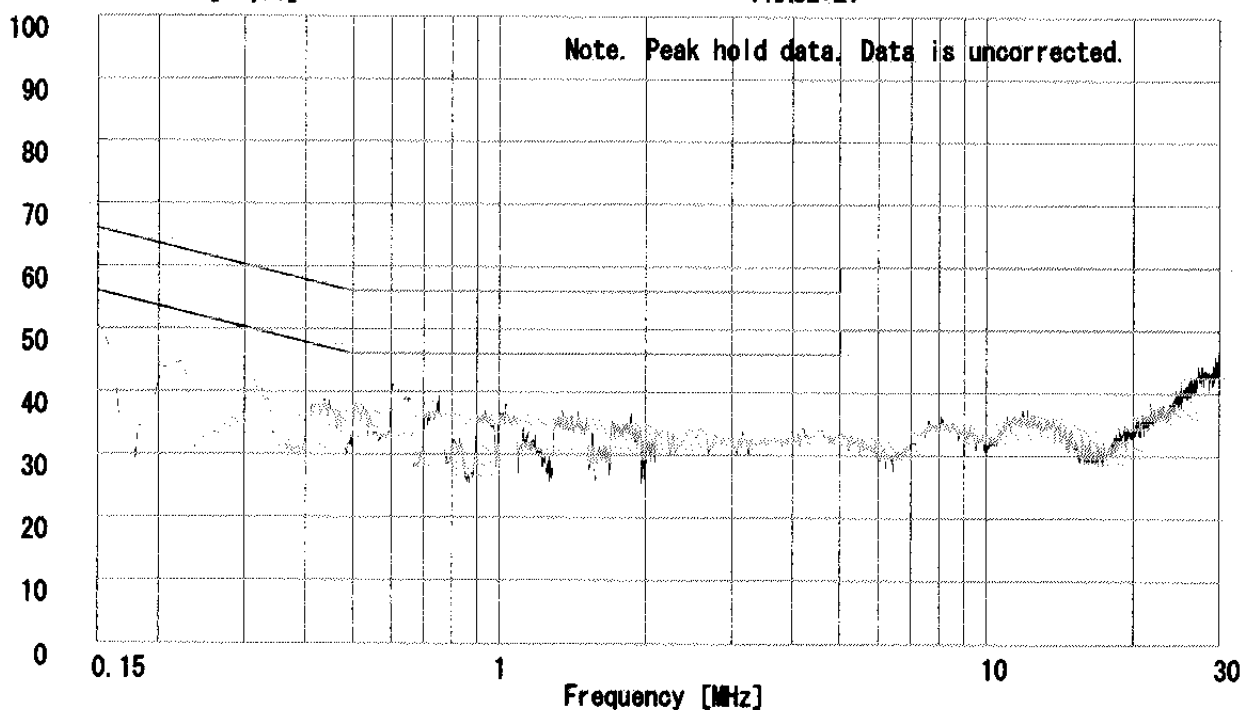
Emission Level [dB μ V]

PHASE:N



Emission Level [dB μ V]

PHASE:L1



DATA OF CONDUCTION TEST CHART

A-PEX INTERNATIONAL CO., LTD.

YOKOWA No.3 OPEN TEST SITE

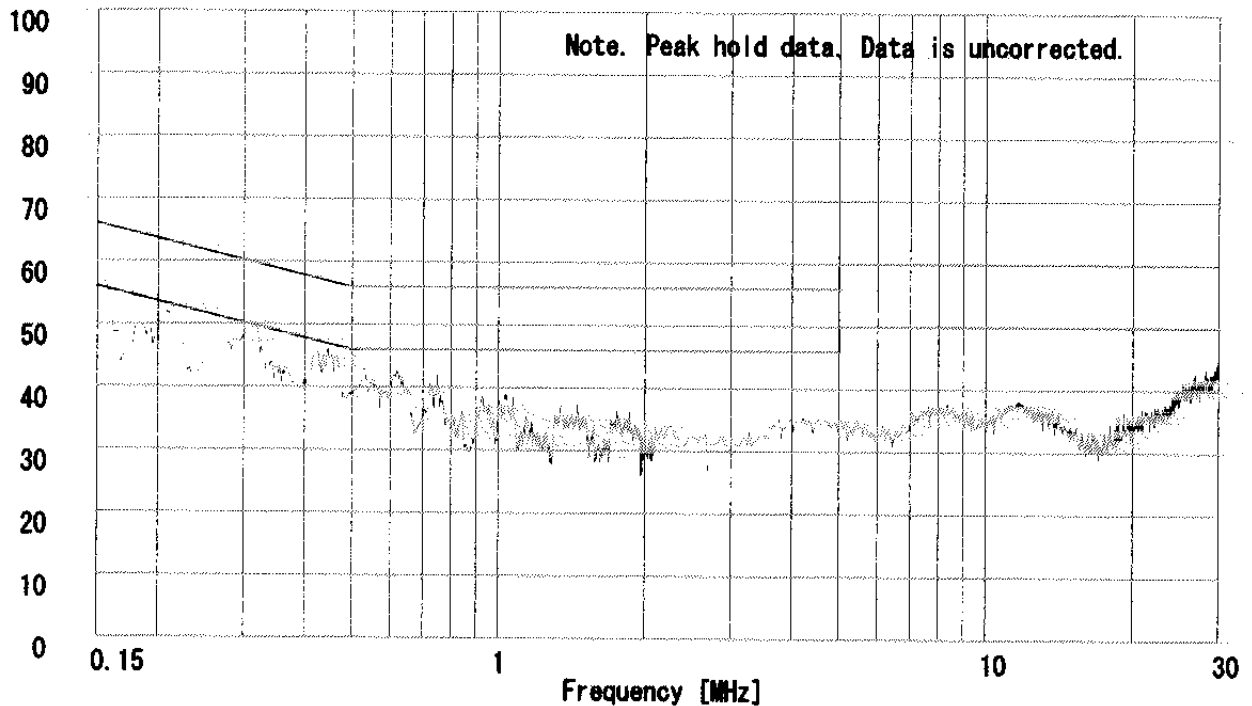
Report No. : 22LE0044-YW-1

Applicant : Matsushita Electric Industrial Co., Ltd.
Kind of Equipment : Personal Computer
Model No. : CF-50
Serial No. :
Power : AC120V/60Hz
Mode : Receiving
Remarks : ANT1
Date : 11/7/2002
Phase : Single Phase
Temperature : 25 °C
Humidity : 65 %
Regulation 1 : FCC Part15.207 (02-157)
Regulation 2 : None

Engineer : Naoki Sakamoto

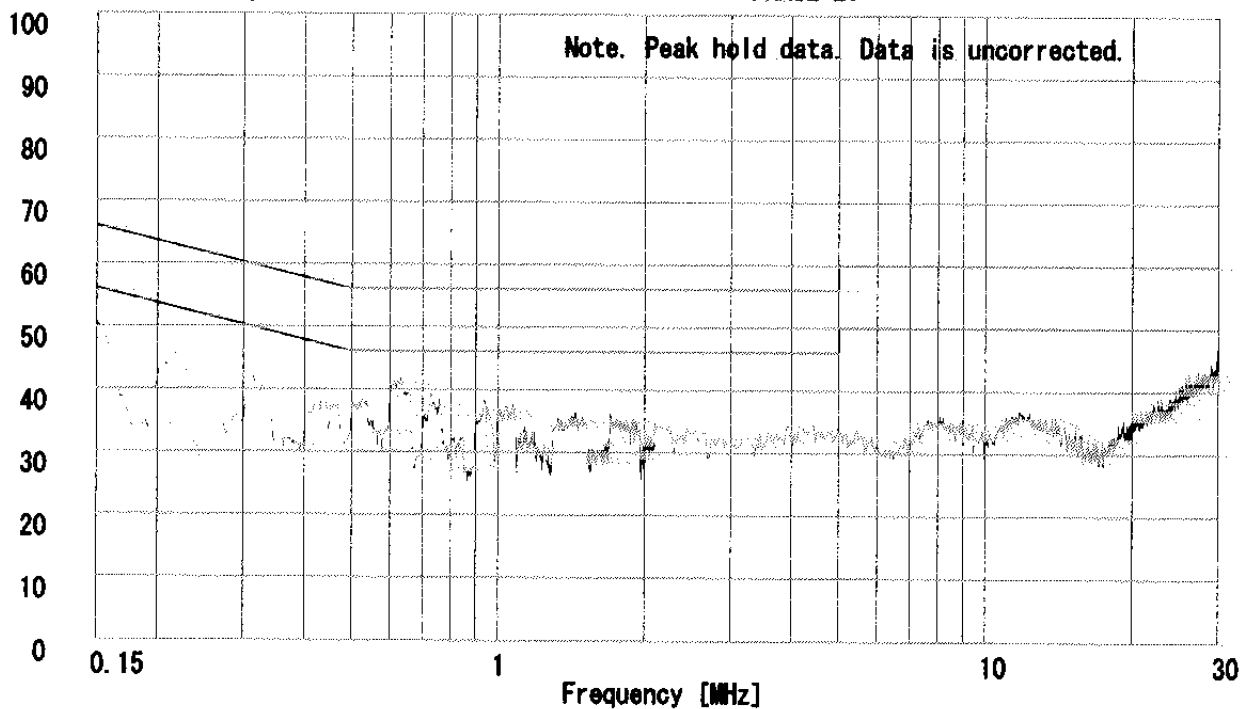
Emission Level [dB μ V]

PHASE:N



Emission Level [dB μ V]

PHASE:L1



DATA OF CONDUCTION TEST

A-PEX INTERNATIONAL CO., LTD.
YOKOWA No.3 OPEN TEST SITE
Report No. : 22LE0044-YW-1

Applicant : Matsushita Electric Industrial Co., Ltd.
Kind of Equipment : Personal Computer
Model No. : CF-50
Serial No. :
Power : AC120V/60Hz
Mode : Transmitting (2437MHz)
Remarks : ANT2
Date : 11/7/2002
Phase : Single Phase
Temperature : 25 °C
Humidity : 65 %
Regulation : FCC Part15.207 (02-157)

Engineer : Naoki Sakamoto

No.	FREQ. [MHz]	READING (N)		READING (L1)		LISN FACTOR [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS		MARGIN	
		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]				QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]
1.	0.1500	53.8	-	44.9	-	0.2	0.3	0.0	54.3	-	66.0	56.0	11.7	-
2.	0.2180	49.7	-	42.9	-	0.1	0.3	0.0	50.1	-	62.9	52.9	12.8	-
3.	0.6033	38.5	-	38.8	-	0.1	0.4	0.0	39.3	-	56.0	46.0	16.7	-
4.	1.0381	33.8	-	32.2	-	0.1	0.4	0.0	34.3	-	56.0	46.0	21.7	-
5.	4.6142	31.6	-	32.0	-	0.2	0.5	0.0	32.7	-	56.0	46.0	23.3	-
6.	8.4710	32.5	-	31.1	-	0.2	0.6	0.0	33.3	-	60.0	50.0	26.7	-
7.	11.6351	33.9	-	31.5	-	0.4	0.6	0.0	34.9	-	60.0	50.0	25.1	-
8.	29.8915	38.6	-	38.4	-	1.0	0.9	0.0	40.5	-	60.0	50.0	19.5	-

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

DATA OF CONDUCTION TEST CHART

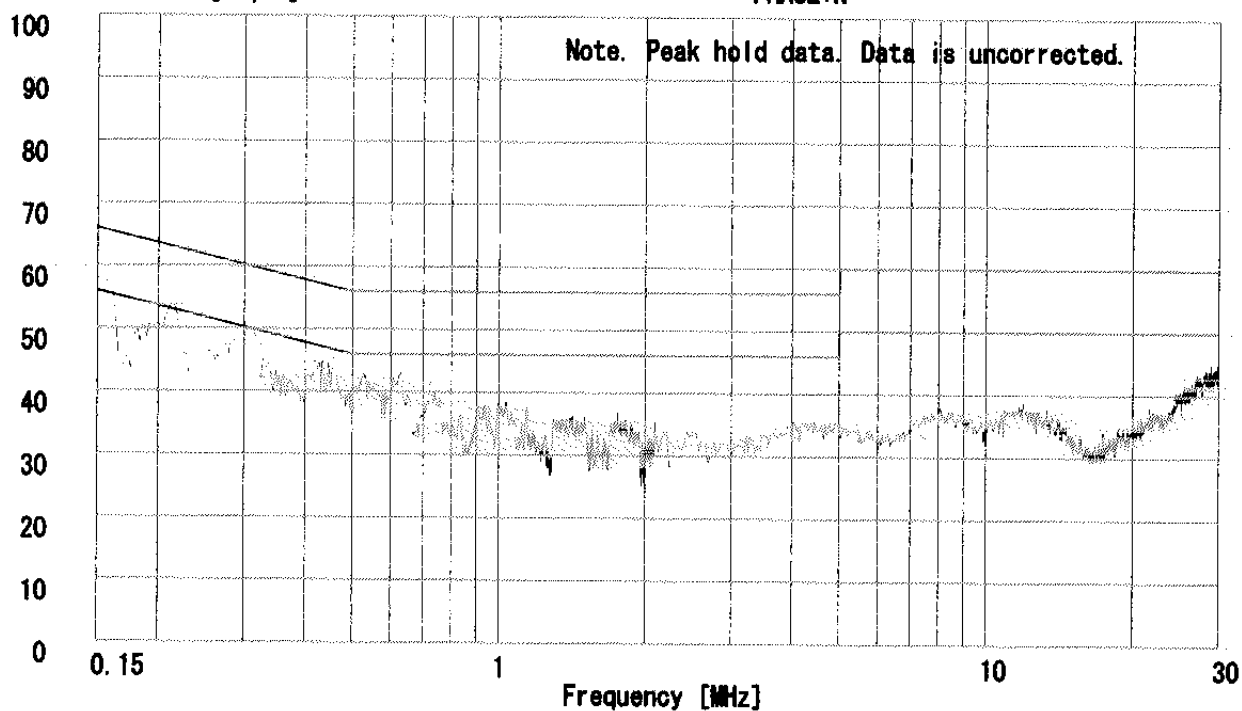
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Report No. : 22LE0044-YW-1

Applicant : Matsushita Electric Industrial Co., Ltd.
Kind of Equipment : Personal Computer
Model No. : CF-50
Serial No. :
Power : AC120V/60Hz
Mode : Transmitting (2412MHz)
Remarks : ANT2
Date : 11/7/2002
Phase : Single Phase
Temperature : 25 °C
Humidity : 65 %
Regulation 1 : FCC Part15.207 (02-157)
Regulation 2 : None

Engineer : Naoki Sakamoto

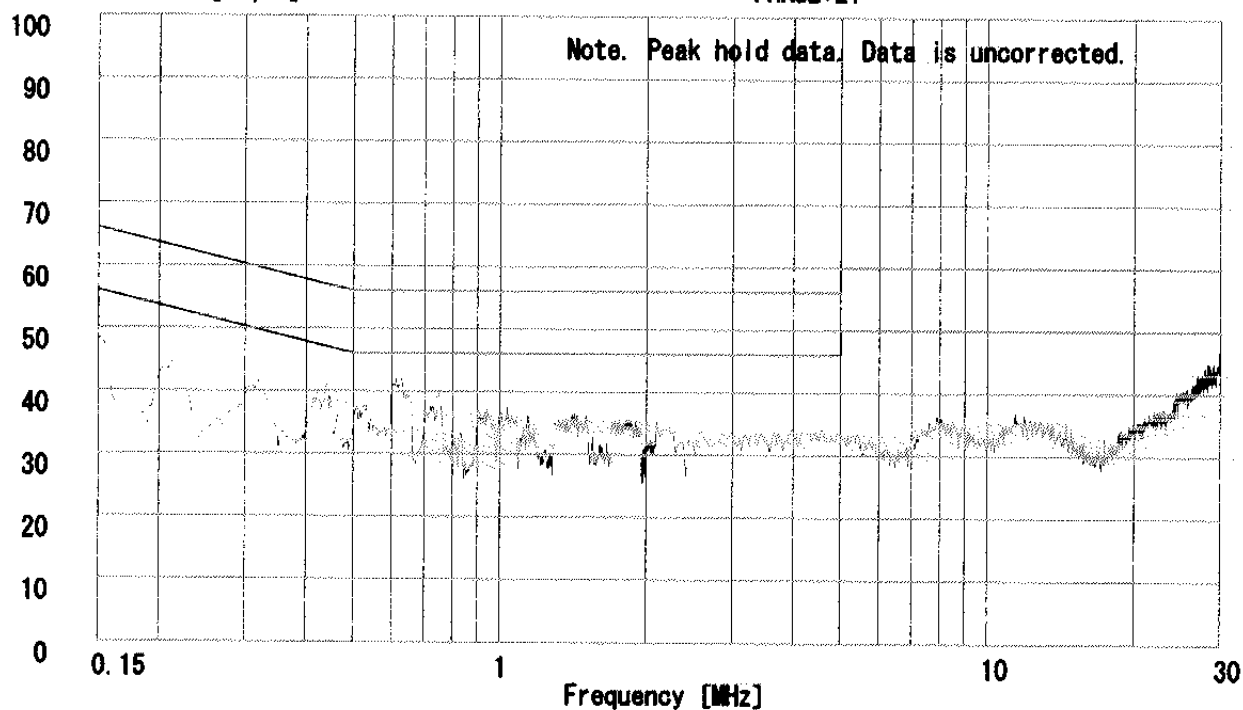
Emission Level [dB μ V]

PHASE:N



Emission Level [dB μ V]

PHASE:L1



DATA OF CONDUCTION TEST CHART

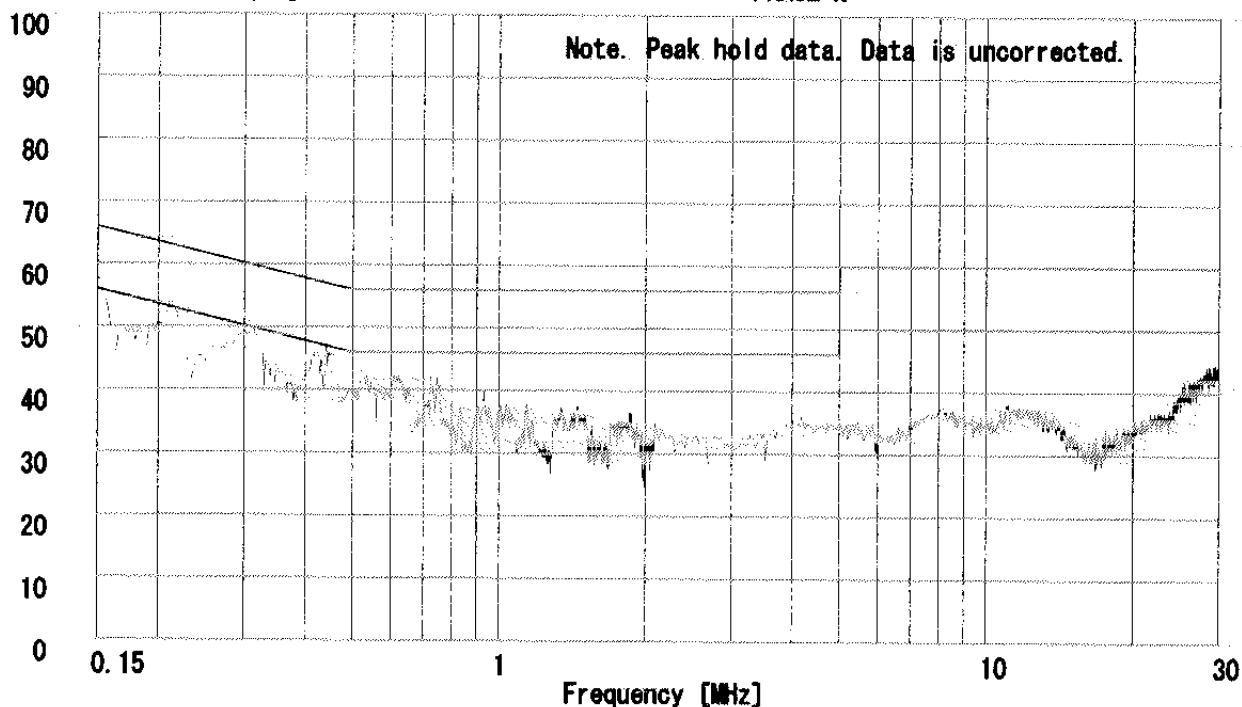
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Model No. : CF-50
Serial No. :
Power : AC120V/60Hz
Mode : Transmitting (2437MHz)
Remarks : ANT2
Date : 11/7/2002
Phase : Single Phase
Temperature : 25 °C
Humidity : 65 %
Regulation 1 : FCC Part15.207 (02-157)
Regulation 2 : None

Engineer : Naoki Sakamoto

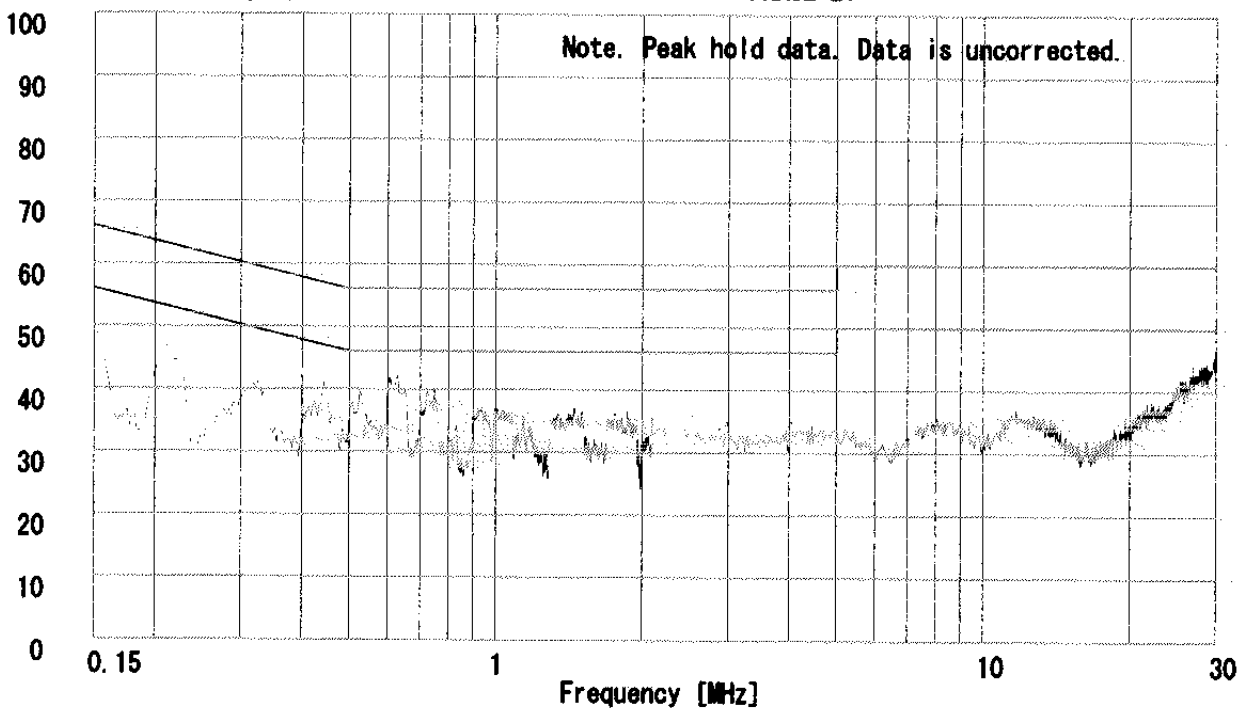
Emission Level [dB μ V]

PHASE:N



Emission Level [dB μ V]

PHASE:L1



DATA OF CONDUCTION TEST CHART

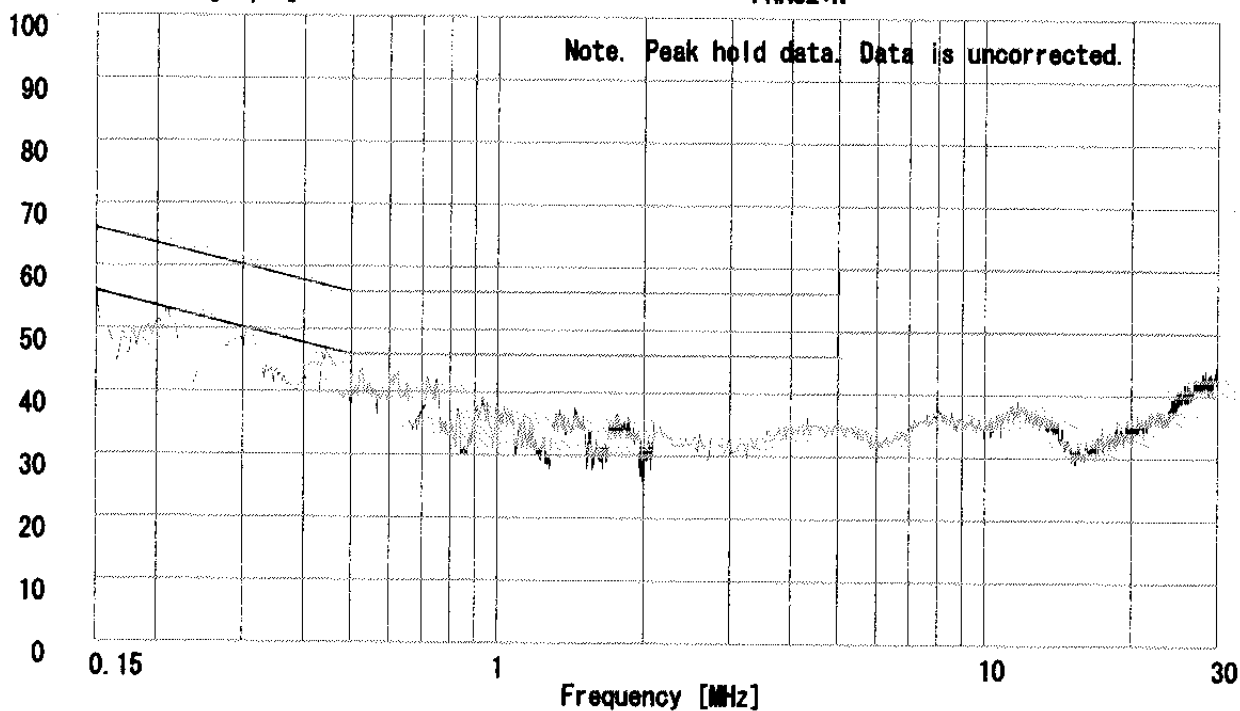
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Applicant : Matsushita Electric Industrial Co., Ltd.
Kind of Equipment : Personal Computer
Model No. : CF-50
Serial No. :
Power : AC120V/60Hz
Mode : Transmitting (2462MHz)
Remarks : ANT2
Date : 11/7/2002
Phase : Single Phase
Temperature : 25 °C
Humidity : 65 %
Regulation 1 : FCC Part15.207 (02-157)
Regulation 2 : None

Engineer : Naoki Sakamoto

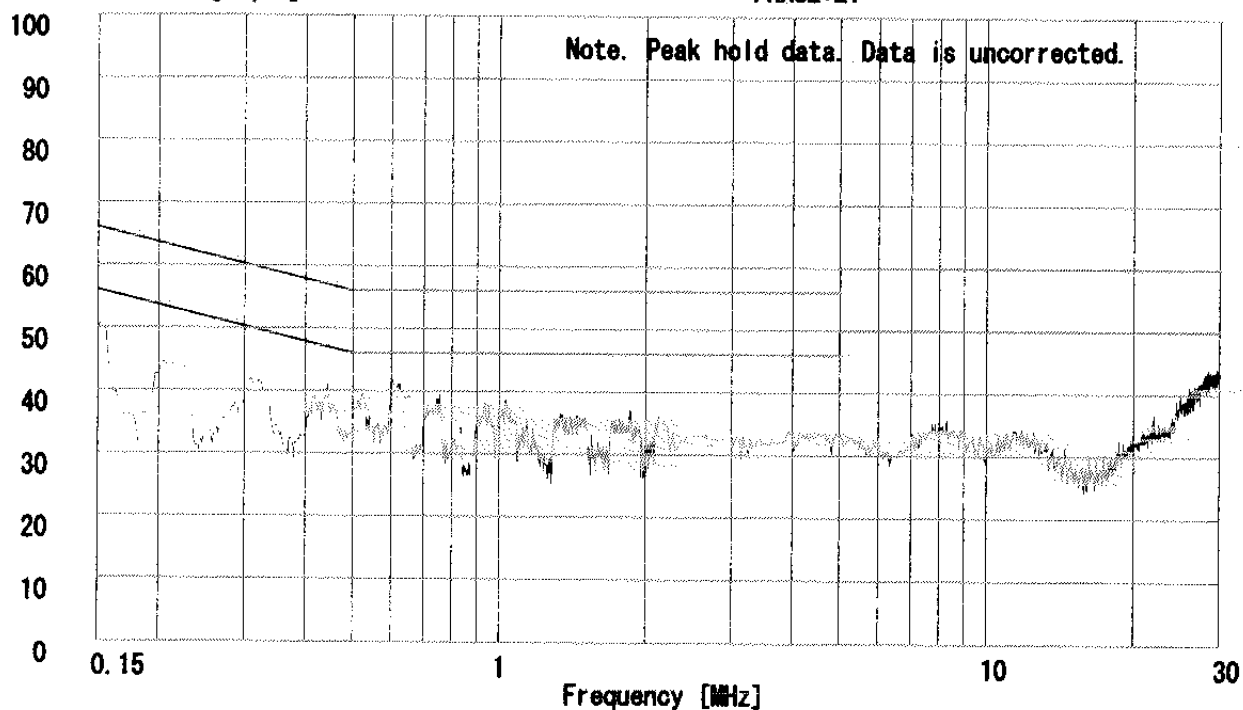
Emission Level [dB μ V]

PHASE:N



Emission Level [dB μ V]

PHASE:L1



DATA OF CONDUCTION TEST CHART

A-PEX INTERNATIONAL CO., LTD.

YOKOWA No.3 OPEN TEST SITE

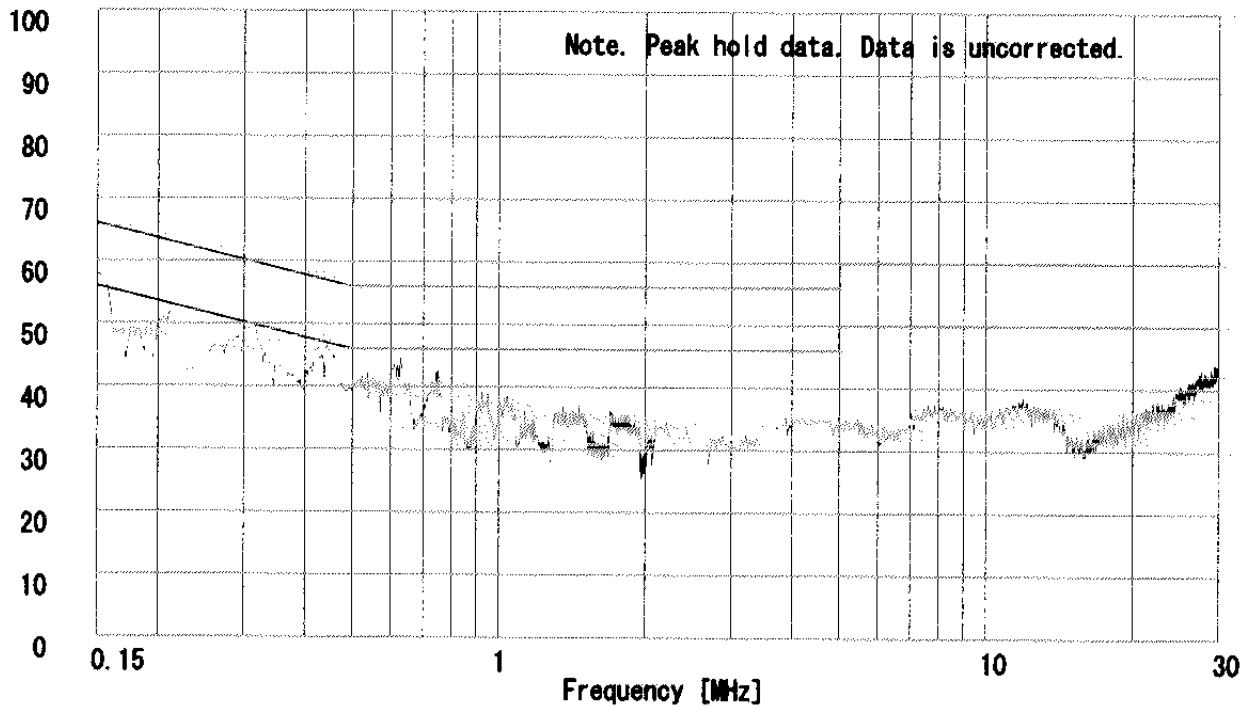
Report No. : 22LE0044-YW-1

Applicant : Matsushita Electric Industrial Co., Ltd.
Kind of Equipment : Personal Computer
Model No. : CF-50
Serial No. :
Power : AC120V/60Hz
Mode : Receiving
Remarks : ANT2
Date : 11/7/2002
Phase : Single Phase
Temperature : 25 °C
Humidity : 65 %
Regulation 1 : FCC Part15.207 (02-157)
Regulation 2 : None

Engineer : Naoki Sakamoto

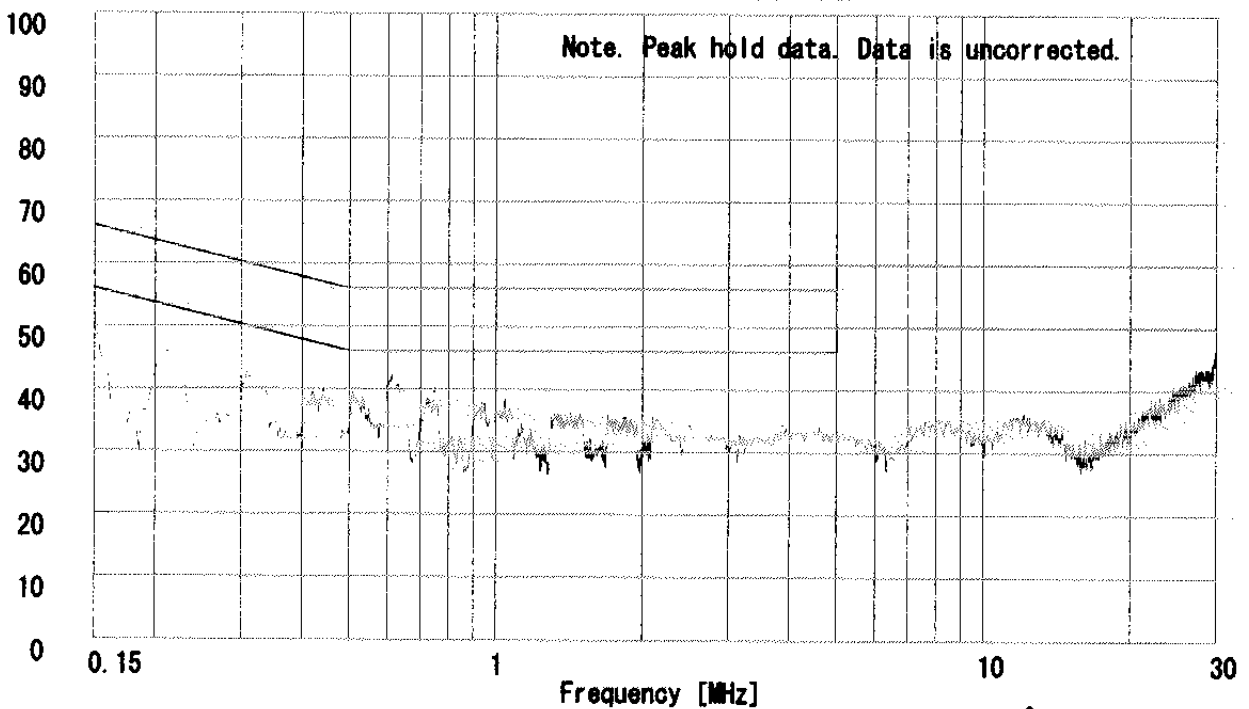
Emission Level [dB μ V]

PHASE:N

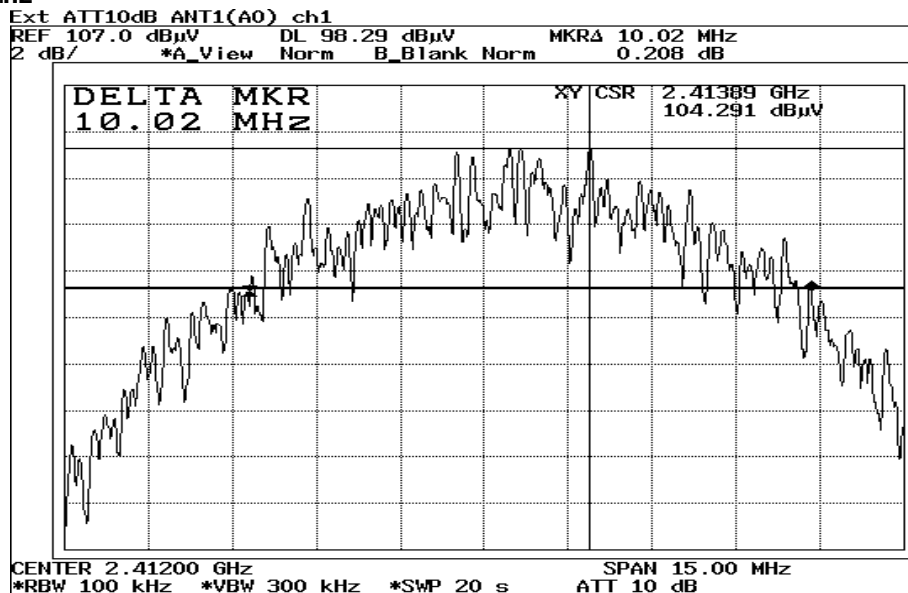


Emission Level [dB μ V]

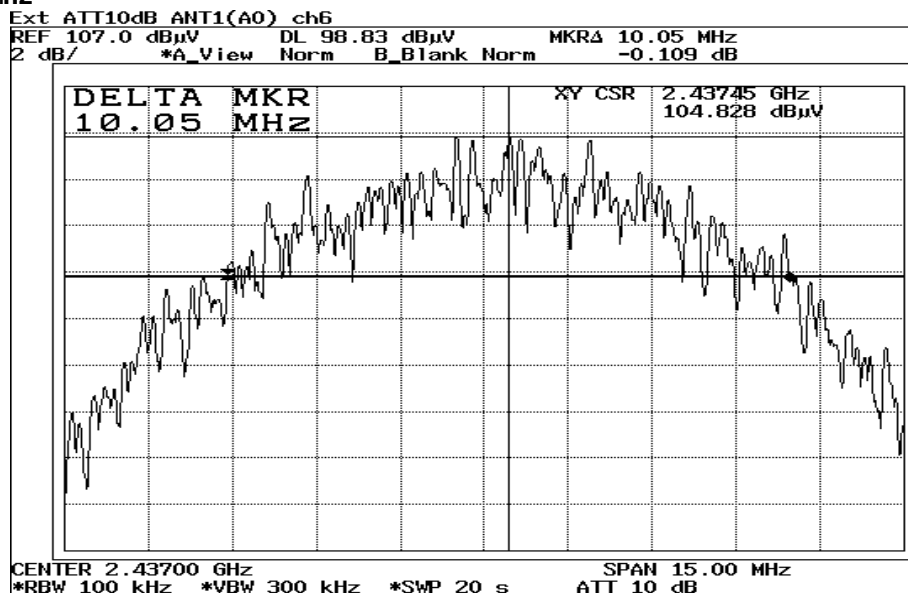
PHASE:L1



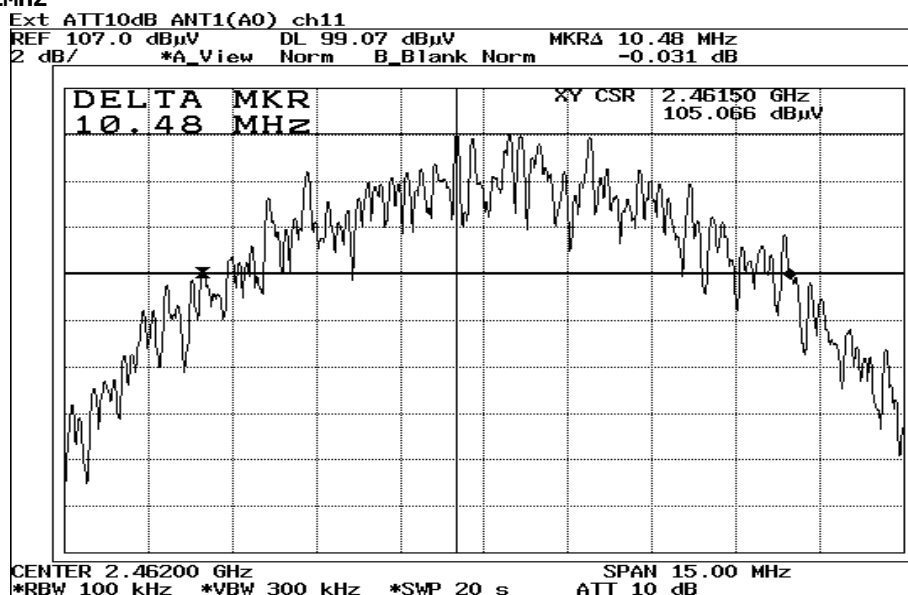
1. ch 1: 2412MHz



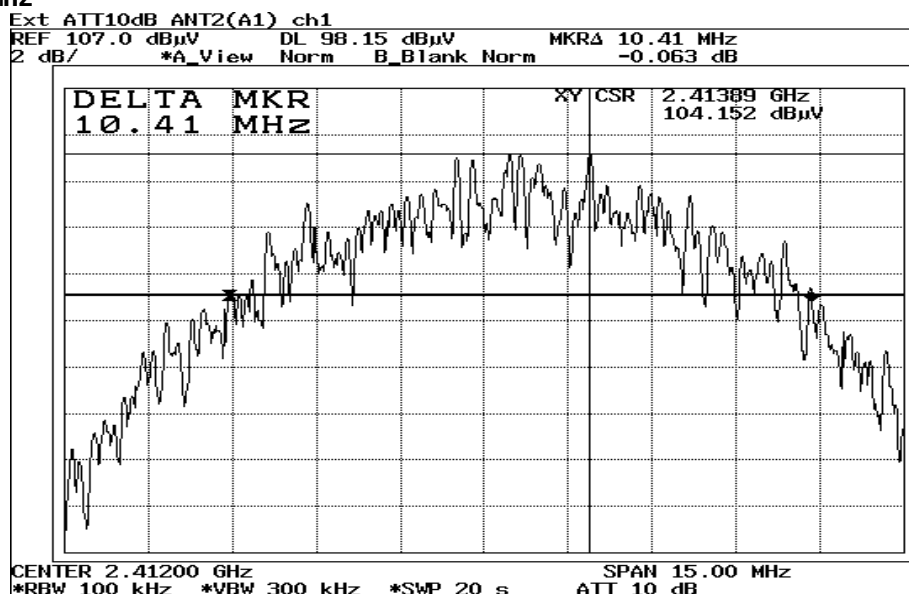
2. ch 6: 2437MHz



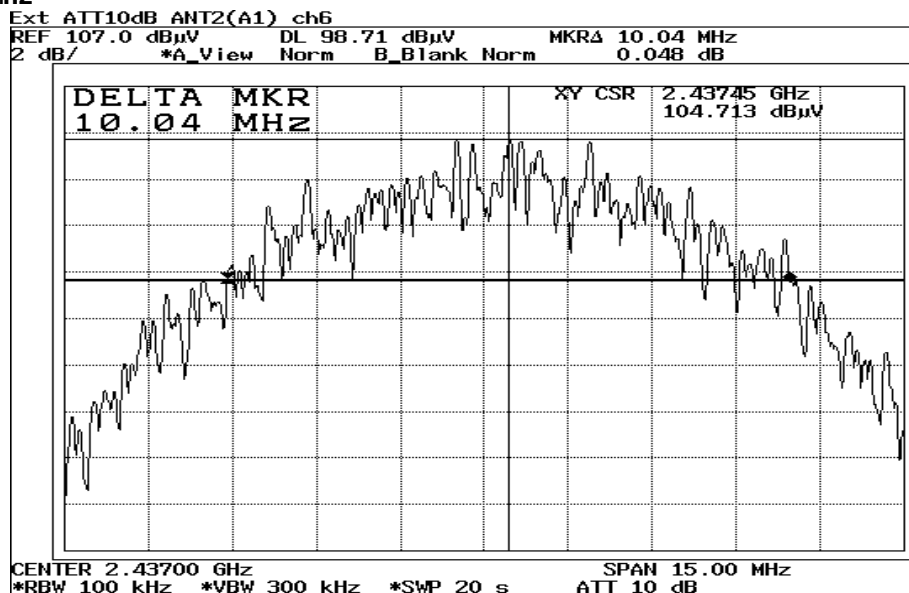
3. ch 11: 2462MHz



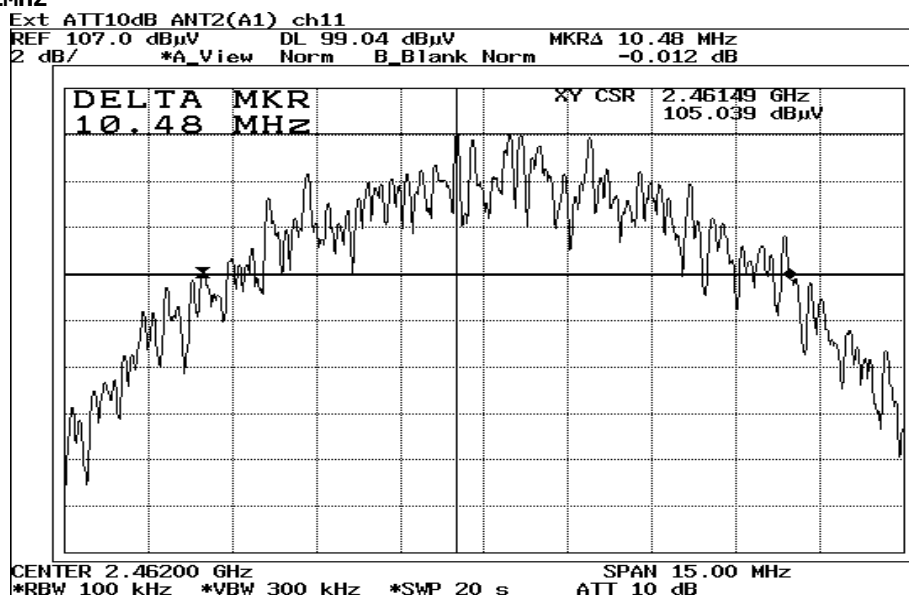
1. ch 1: 2412MHz



2. ch 6: 2437MHz



3. ch 11: 2462MHz



Maximum Peak Output 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-50
Sample No. :
FCC ID : ACJ9TGCF-501
Power : AC 120V/60Hz
Mode : Transmitting (ch1, 6, 11)

Report No. : 22LE0044-YW-1
Regulation : FCC Part15C 247(b)(1)
Date : 2002/11/07
Temperatur : 25deg.C
Humidity : 65%


ENGINEER : Naoki Sakamoto

Antenna 1

ch	FREQ [MHz]	P/M Reading [dBm]	ATTEN. [dB]	RESULT [dBm]	convert [mW]	Limit (1W) [dBm]	Margin [dB]
ch1	2412.0	10.10	10.0	20.10	102.33	30.0	9.90
ch6	2437.0	10.70	10.0	20.70	117.49	30.0	9.30
ch11	2462.0	10.70	10.0	20.70	117.49	30.0	9.30

Antenna 2

ch	FREQ [MHz]	P/M Reading [dBm]	ATTEN. [dB]	RESULT [dBm]	convert [mW]	Limit (1W) [dBm]	Margin [dB]
ch1	2412.0	9.90	10.0	19.90	97.72	30.0	10.10
ch6	2437.0	10.50	10.0	20.50	112.20	30.0	9.50
ch11	2462.0	10.50	10.0	20.50	112.20	30.0	9.50

REMARKS:

CALCULATION : Result = Peak Power Meter Reading + ATTEN

DATA OF RADIATION TEST

A-PEX INTERNATIONAL CO., LTD.
YOKOWA No.3 OPEN TEST SITE
Report No. : 22LE0044-YW-1

Applicant : Matsushita Electric Industrial Co., Ltd.
Kind of Equipment : Personal Computer
Model No. : CF-50
Serial No. :
Power : AC120V/60Hz
Mode : Transmitting (2412MHz)
Remarks : ANT1
Date : 11/7/2002
Test Distance : 3 m
Temperature : 20 °C
Humidity : 46 %
Regulation : Fcc 15C § 15.209(a)

Engineer : Naoki Sakamoto

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR	AMP GAIN	CABLE LOSS	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB/m]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	31.77	BB	24.8	33.9	17.1	28.0	1.4	6.1	21.4	30.5	40.0	18.6	9.5
2.	83.02	BB	35.5	42.7	6.6	27.9	1.9	6.0	22.1	29.3	40.0	17.9	10.7
3.	89.90	BB	38.4	42.0	8.0	27.9	2.0	5.9	26.4	30.0	43.5	17.1	13.5
4.	232.61	BB	43.9	39.2	16.7	27.7	3.2	6.0	42.1	37.4	46.0	3.9	8.6
5.	264.00	BB	34.2	29.3	17.8	27.6	3.4	6.1	33.9	29.0	46.0	12.1	17.0
6.	307.98	BB	37.0	28.0	16.8	27.9	3.9	6.1	35.9	26.9	46.0	10.1	19.1
7.	352.00	BB	35.8	31.2	17.6	27.9	4.7	6.0	36.2	31.6	46.0	9.8	14.4
8.	721.46	BB	28.8	34.5	22.7	27.1	6.5	6.1	37.0	42.7	46.0	9.0	3.3

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

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

DATA OF RADIATION TEST

A-PEX INTERNATIONAL CO., LTD.
YOKOWA No.3 OPEN TEST SITE
Report No. : 22LE0044-YW-1

Applicant : Matsushita Electric Industrial Co., Ltd.
Kind of Equipment : Personal Computer
Model No. : CF-50
Serial No. :
Power : AC120V/60Hz
Mode : Transmitting (2437MHz)
Remarks : ANT1
Date : 11/7/2002
Test Distance : 3 m
Temperature : 20 °C
Humidity : 46 %
Regulation : Fcc 15C § 15.209(a)

Engineer : Naoki Sakamoto

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μ V/m]	MARGIN	
			HOR [dB μ V]	VER [dB μ V]					HOR [dB μ V/m]	VER [dB μ V/m]		HOR [dB]	VER [dB]
1.	31.77	BB	24.9	34.2	17.1	28.0	1.4	6.1	21.5	30.8	40.0	18.5	9.2
2.	83.02	BB	35.2	42.9	6.6	27.9	1.9	6.0	21.8	29.5	40.0	18.2	10.5
3.	89.90	BB	38.0	42.3	8.0	27.9	2.0	5.9	26.0	30.3	43.5	17.5	13.2
4.	232.61	BB	44.0	39.0	16.7	27.7	3.2	6.0	42.2	37.2	46.0	3.8	8.8
5.	264.00	BB	34.0	29.8	17.8	27.6	3.4	6.1	33.7	29.5	46.0	12.3	16.5
6.	307.98	BB	36.9	29.8	16.8	27.9	3.9	6.1	35.8	28.7	46.0	10.2	17.3
7.	352.00	BB	35.5	31.0	17.6	27.9	4.7	6.0	35.9	31.4	46.0	10.1	14.6
8.	721.46	BB	29.0	33.7	22.7	27.1	6.5	6.1	37.2	41.9	46.0	8.8	4.1

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

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

DATA OF RADIATION TEST

A-PEX INTERNATIONAL CO., LTD.
YOKOWA No.3 OPEN TEST SITE
Report No. : 22LE0044-YW-1

Applicant : Matsushita Electric Industrial Co., Ltd.
Kind of Equipment : Personal Computer
Model No. : CF-50
Serial No. :
Power : AC120V/60Hz
Mode : Transmitting (2462MHz)
Remarks : ANT1
Date : 11/7/2002
Test Distance : 3 m
Temperature : 20 °C
Humidity : 46 %
Regulation : Fcc 15C § 15.209(a)

Engineer : Naoki Sakamoto

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μ V/m]	MARGIN	
			HOR [dB μ V]	VER [dB μ V]					HOR [dB μ V/m]	VER [dB μ V/m]		HOR [dB]	VER [dB]
1.	31.77	BB	25.3	34.1	17.1	28.0	1.4	6.1	21.9	30.7	40.0	18.1	9.3
2.	83.02	BB	35.0	43.0	6.6	27.9	1.9	6.0	21.6	29.6	40.0	18.4	10.4
3.	89.90	BB	38.5	42.5	8.0	27.9	2.0	5.9	26.5	30.5	43.5	17.0	13.0
4.	232.61	BB	44.3	38.8	16.7	27.7	3.2	6.0	42.5	37.0	46.0	3.5	9.0
5.	264.00	BB	34.2	30.3	17.8	27.6	3.4	6.1	33.9	30.0	46.0	12.1	16.0
6.	307.98	BB	36.7	30.1	16.8	27.9	3.9	6.1	35.6	29.0	46.0	10.4	17.0
7.	352.00	BB	35.7	31.0	17.6	27.9	4.7	6.0	36.1	31.4	46.0	9.9	14.6
8.	721.46	BB	28.8	33.5	22.7	27.1	6.5	6.1	37.0	41.7	46.0	9.0	4.3

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

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

DATA OF RADIATION TEST

A-PEX INTERNATIONAL CO., LTD.
YOKOWA No.3 OPEN TEST SITE
Report No. : 22LE0044-YW-1

Applicant : Matsushita Electric Industrial Co., Ltd.
Kind of Equipment : Personal Computer
Model No. : CF-50
Serial No. :
Power : AC120V/60Hz
Mode : Receiving
Remarks : ANT1
Date : 11/7/2002
Test Distance : 3 m
Temperature : 20 °C
Humidity : 46 %
Regulation : Fcc 15C § 15.209(a)

Engineer : Naoki Sakamoto

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	31.77	BB	25.0	34.0	17.1	28.0	1.4	6.1	21.6	30.6	40.0	18.4	9.4
2.	83.02	BB	34.8	43.3	6.6	27.9	1.9	6.0	21.4	29.9	40.0	18.6	10.1
3.	89.90	BB	38.9	43.0	8.0	27.9	2.0	5.9	26.9	31.0	43.5	16.6	12.5
4.	232.61	BB	44.6	39.0	16.7	27.7	3.2	6.0	42.8	37.2	46.0	3.2	8.8
5.	264.00	BB	34.5	31.2	17.8	27.6	3.4	6.1	34.2	30.9	46.0	11.8	15.1
6.	307.98	BB	36.4	29.9	16.8	27.9	3.9	6.1	35.3	28.8	46.0	10.7	17.2
7.	352.00	BB	36.0	30.0	17.6	27.9	4.7	6.0	36.4	30.4	46.0	9.6	15.6
8.	721.46	BB	28.7	34.0	22.7	27.1	6.5	6.1	36.9	42.2	46.0	9.1	3.8

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

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

DATA OF RADIATION TEST

A-PEX INTERNATIONAL CO., LTD.
YOKOWA No.3 OPEN TEST SITE
Report No. : 22LE0044-YW-1

Applicant : Matsushita Electric Industrial Co., Ltd.
Kind of Equipment : Personal Computer
Model No. : CF-50
Serial No. :
Power : AC120V/60Hz
Mode : Transmitting (2412MHz)
Remarks : ANT2
Date : 11/7/2002
Test Distance : 3 m
Temperature : 20 °C
Humidity : 46 %
Regulation : Fcc 15C § 15.209(a)

Engineer : Naoki Sakamoto

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μ V/m]	MARGIN	
			HOR [dB μ V]	VER [dB μ V]					HOR [dB μ V/m]	VER [dB μ V/m]		HOR [dB]	VER [dB]
1.	31.77	BB	25.5	33.7	17.1	28.0	1.4	6.1	22.1	30.3	40.0	17.9	9.7
2.	83.02	BB	35.0	42.9	6.6	27.9	1.9	6.0	21.6	29.5	40.0	18.4	10.5
3.	89.90	BB	38.6	42.2	8.0	27.9	2.0	5.9	26.6	30.2	43.5	16.9	13.3
4.	232.61	BB	44.1	37.6	16.7	27.7	3.2	6.0	42.3	35.8	46.0	3.7	10.2
5.	264.00	BB	35.2	32.3	17.8	27.6	3.4	6.1	34.9	32.0	46.0	11.1	14.0
6.	307.98	BB	36.6	32.0	16.8	27.9	3.9	6.1	35.5	30.9	46.0	10.5	15.1
7.	352.00	BB	36.0	30.3	17.6	27.9	4.7	6.0	36.4	30.7	46.0	9.6	15.3
8.	721.46	BB	28.8	34.8	22.7	27.1	6.5	6.1	37.0	43.0	46.0	9.0	3.0

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

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

DATA OF RADIATION TEST

A-PEX INTERNATIONAL CO., LTD.
YOKOWA No.3 OPEN TEST SITE
Report No. : 22LE0044-YW-1

Applicant : Matsushita Electric Industrial Co., Ltd.
Kind of Equipment : Personal Computer
Model No. : CF-50
Serial No. :
Power : AC120V/60Hz
Mode : Transmitting(2437MHz)
Remarks : ANT2
Date : 11/7/2002
Test Distance : 3 m
Temperature : 20 °C
Humidity : 46 %
Regulation : Fcc 15C § 15.209(a)

Engineer : Naoki Sakamoto

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	31.77	BB	25.2	34.0	17.1	28.0	1.4	6.1	21.8	30.6	40.0	18.2	9.4
2.	83.02	BB	34.8	42.2	6.6	27.9	1.9	6.0	21.4	28.8	40.0	18.6	11.2
3.	89.90	BB	38.5	41.9	8.0	27.9	2.0	5.9	26.5	29.9	43.5	17.0	13.6
4.	232.61	BB	44.2	37.0	16.7	27.7	3.2	6.0	42.4	35.2	46.0	3.6	10.8
5.	264.00	BB	35.4	32.1	17.8	27.6	3.4	6.1	35.1	31.8	46.0	10.9	14.2
6.	307.98	BB	36.0	31.8	16.8	27.9	3.9	6.1	34.9	30.7	46.0	11.1	15.3
7.	352.00	BB	36.3	30.1	17.6	27.9	4.7	6.0	36.7	30.5	46.0	9.3	15.5
8.	721.46	BB	28.6	33.9	22.7	27.1	6.5	6.1	36.8	42.1	46.0	9.2	3.9

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

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

DATA OF RADIATION TEST

A-PEX INTERNATIONAL CO., LTD.
YOKOWA No.3 OPEN TEST SITE
Report No. : 22LE0044-YW-1

Applicant : Matsushita Electric Industrial Co., Ltd.
Kind of Equipment : Personal Computer
Model No. : CF-50
Serial No. :
Power : AC120V/60Hz
Mode : Transmitting (2462MHz)
Remarks : ANT2
Date : 11/7/2002
Test Distance : 3 m
Temperature : 20 °C
Humidity : 46 %
Regulation : Fcc 15C § 15.209(a)

Engineer : Naoki Sakamoto

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	31.77	BB	25.4	34.5	17.1	28.0	1.4	6.1	22.0	31.1	40.0	18.0	8.9
2.	83.02	BB	34.4	43.0	6.6	27.9	1.9	6.0	21.0	29.6	40.0	19.0	10.4
3.	89.90	BB	38.0	41.7	8.0	27.9	2.0	5.9	26.0	29.7	43.5	17.5	13.8
4.	232.61	BB	43.9	36.8	16.7	27.7	3.2	6.0	42.1	35.0	46.0	3.9	11.0
5.	264.00	BB	34.9	31.7	17.8	27.6	3.4	6.1	34.6	31.4	46.0	11.4	14.6
6.	307.98	BB	36.5	31.8	16.8	27.9	3.9	6.1	35.4	30.7	46.0	10.6	15.3
7.	352.00	BB	35.5	30.5	17.6	27.9	4.7	6.0	35.9	30.9	46.0	10.1	15.1
8.	721.46	BB	29.1	34.6	22.7	27.1	6.5	6.1	37.3	42.8	46.0	8.7	3.2

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

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

DATA OF RADIATION TEST

A-PEX INTERNATIONAL CO., LTD.
YOKOWA No.3 OPEN TEST SITE
Report No. : 22LE0044-YW-1

Applicant : Matsushita Electric Industrial Co., Ltd.
Kind of Equipment : Personal Computer
Model No. : CF-50
Serial No. :
Power : AC120V/60Hz
Mode : Receiving
Remarks : ANT2
Date : 11/7/2002
Test Distance : 3 m
Temperature : 20 °C
Humidity : 46 %
Regulation : Fcc 15C § 15. 209 (a)

Engineer : Naoki Sakamoto

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μ V/m]	MARGIN	
			HOR [dB μ V]	VER [dB μ V]					HOR [dB μ V/m]	VER [dB μ V/m]		HOR [dB]	VER [dB]
1.	31.77	BB	24.9	33.9	17.1	28.0	1.4	6.1	21.5	30.5	40.0	18.5	9.5
2.	83.02	BB	34.6	43.4	6.6	27.9	1.9	6.0	21.2	30.0	40.0	18.8	10.0
3.	89.90	BB	39.0	43.8	8.0	27.9	2.0	5.9	27.0	31.8	43.5	16.5	11.7
4.	232.61	BB	44.2	38.6	16.7	27.7	3.2	6.0	42.4	36.8	46.0	3.6	9.2
5.	264.00	BB	34.9	33.0	17.8	27.6	3.4	6.1	34.6	32.7	46.0	11.4	13.3
6.	307.98	BB	36.3	32.1	16.8	27.9	3.9	6.1	35.2	31.0	46.0	10.8	15.0
7.	352.00	BB	35.8	31.5	17.6	27.9	4.7	6.0	36.2	31.9	46.0	9.8	14.1
8.	721.46	BB	29.0	34.4	22.7	27.1	6.5	6.1	37.2	42.6	46.0	8.8	3.4

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

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

DATA OF SUPURIOUS EMISSIONS(1GHz to 26GHz)

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

Company : Matsushita Electric Industrial Co.,Ltd.
Equipment : Notebook Personal Computer
Model : CF-50(Antenna 1)
Sample No. :
FCC ID : ACJ9TGCF-501
Power : AC 120V/60Hz
Mode : Transmitting (ch1: 2412MHz / 11Mbps)

Report No. : 22LE0044-YW
Regulation : FCC Part15C 247 / 205 & 209
Test Distance : 3m and 1m
Date : 2002/11/06
Temperature : 24deg.C
Humidity : 68%

ENGINEER : Naoki Sakamoto

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

No.	FREQ [GHz]	S/A READING		ANT Factor [dB]	AMP GAIN [dB]	CABLE LOSS [dB]	H-Pass Filter [dB]	ATTN [dB]	Duty Factor [dB]	D-fac [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER								HOR	VER		HOR	VER
		[dBuV]									[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN)															
1	1.0828	38.3	38.9	24.9	39.0	1.7	0.0	10.0	-	0.0	35.9	36.5	54.0	18.1	17.5
2	1.4510	36.6	36.8	26.2	38.6	2.0	0.0	10.0	-	0.0	36.2	36.4	54.0	17.8	17.6
3	2.3900	36.8	36.6	31.3	38.0	2.9	0.0	10.0	-	0.0	43.0	42.8	54.0	11.0	11.2
4	4.8258	34.1	35.8	35.4	38.0	4.4	1.1	0.0	-	0.0	37.0	38.7	54.0	17.0	15.3
5	7.2392	33.0	35.3	39.1	38.2	5.5	0.5	0.0	-	0.0	39.9	42.2	54.0	14.1	11.8
6	9.6522	33.8	33.4	39.2	38.5	6.5	0.5	0.0	-	0.0	41.5	41.1	54.0	12.5	12.9
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + High Pass - Dfac															
7	12.0600	32.8	33.3	43.5	38.5	7.5	0.5	0.0	-	9.5	36.3	36.8	54.0	17.7	17.2
8	14.4720	33.4	33.2	42.2	38.5	8.1	0.5	0.0	-	9.5	36.2	36.0	54.0	17.8	18.0
9	16.8840	33.5	33.1	39.0	38.5	8.5	0.6	0.0	-	9.5	33.6	33.2	54.0	20.4	20.8
10	19.2960	33.3	33.5	38.1	38.5	10.6	1.1	0.0	-	9.5	35.1	35.3	54.0	18.9	18.7
11	21.7080	33.0	33.3	39.2	38.5	11.0	0.5	0.0	-	9.5	35.7	36.0	54.0	18.3	18.0
12	24.1200	33.1	32.4	39.2	38.5	11.6	0.7	0.0	-	9.5	36.6	35.9	54.0	17.4	18.1

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

No.	FREQ [GHz]	S/A READING		ANT Factor [dB]	AMP GAIN [dB]	CABLE LOSS [dB]	H-Pass Filter [dB]	ATTN [dB]	Duty Factor [dB]	D-fac [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER								HOR	VER		HOR	VER
		[dBuV]									[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN)															
1	1.0820	52.7	55.0	24.9	39.0	1.7	0.0	10.0	-	0.0	50.3	52.6	74.0	23.7	21.4
2	1.4510	49.9	51.0	26.2	38.6	2.0	0.0	10.0	-	0.0	49.5	50.6	74.0	24.5	23.4
3	2.3900	47.3	47.9	31.3	38.0	2.9	0.0	10.0	-	0.0	53.5	54.1	74.0	20.5	19.9
4	4.8258	46.6	47.0	35.4	38.0	4.4	1.1	0.0	-	0.0	49.5	49.9	74.0	24.5	24.1
5	7.2392	45.0	46.5	39.1	38.2	5.5	0.5	0.0	-	0.0	51.9	53.4	74.0	22.1	20.6
6	9.6522	44.4	45.3	39.2	38.5	6.5	0.5	0.0	-	0.0	52.1	53.0	74.0	21.9	21.0
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + High Pass - Dfac															
7	12.0600	43.8	44.0	43.5	38.5	7.5	0.5	0.0	-	9.5	47.3	47.5	74.0	26.7	26.5
8	14.4720	43.3	43.1	42.2	38.5	8.1	0.5	0.0	-	9.5	46.1	45.9	74.0	27.9	28.1
9	16.8840	44.2	44.4	39.0	38.5	8.5	0.6	0.0	-	9.5	44.3	44.5	74.0	29.7	29.5
10	19.2960	44.8	45.3	38.1	38.5	10.6	1.1	0.0	-	9.5	46.6	47.1	74.0	27.4	26.9
11	21.7080	45.0	46.6	39.2	38.5	11.0	0.5	0.0	-	9.5	47.7	49.3	74.0	26.3	24.7
12	24.1200	46.1	46.2	39.2	38.5	11.6	0.7	0.0	-	9.5	49.6	49.7	74.0	24.4	24.3

REMARKS

*Test Distance 1.0m : Distance Factor(D-fac) = 20log(3/1) = 9.5dB

*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 : Notebook Personal Computer
Model : CF-50(Antenna 1)
Sample No. :
FCC ID : ACJ9TGCF-501
Power : AC 120V/60Hz
Mode : Transmitting (ch6: 2437MHz / 11Mbps)

Report No. : 22LE0044-YW
Regulation : FCC Part15C 247 / 205 & 209
Test Distance : 3m and 1m
Date : 2002/11/06
Temperature : 24deg.C
Humidity : 68%

ENGINEER : Naoki Sakamoto

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

No.	FREQ	S/A READING		ANT Factor [dB]	AMP GAIN [dB]	CABLE LOSS [dB]	H-Pass Filter [dB]	ATTN [dB]	Duty Factor [dB]	D-fac [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER								HOR	VER		HOR	VER
	[GHz]	[dBuV]		[dBuV/m]		[dB]									
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTN)															
1	1.0871	37.5	38.8	24.9	39.0	1.7	0.0	10.0	-	0.0	35.1	36.4	54.0	18.9	17.6
2	1.4426	36.6	36.5	26.2	38.6	2.0	0.0	10.0	-	0.0	36.2	36.1	54.0	17.8	17.9
3	4.8740	35.0	36.4	35.6	37.9	4.5	1.1	0.0	-	0.0	38.3	39.7	54.0	15.7	14.3
4	7.3110	35.1	36.5	39.2	38.2	5.5	0.5	0.0	-	0.0	42.1	43.5	54.0	11.9	10.5
5	9.7480	34.2	34.0	39.2	38.5	6.6	0.5	0.0	-	0.0	42.0	41.8	54.0	12.0	12.2
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + High Pass - Dfac															
6	12.1850	32.8	33.0	43.4	38.5	7.5	0.5	0.0	-	9.5	36.2	36.4	54.0	17.8	17.6
7	14.6220	33.0	32.4	42.6	38.5	8.2	0.5	0.0	-	9.5	36.3	35.7	54.0	17.7	18.3
8	17.0590	32.5	32.8	39.1	38.5	8.5	0.6	0.0	-	9.5	32.7	33.0	54.0	21.3	21.0
9	19.4960	33.3	33.5	37.9	38.5	10.5	1.3	0.0	-	9.5	35.0	35.2	54.0	19.0	18.8
10	21.9330	34.9	34.5	39.4	38.5	11.4	0.3	0.0	-	9.5	38.0	37.6	54.0	16.0	16.4
11	24.3700	34.8	34.8	39.1	38.5	11.9	0.8	0.0	-	9.5	38.6	38.6	54.0	15.4	15.4

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

No.	FREQ [GHz]	S/A READING		ANT Factor [dB]	AMP GAIN [dB]	CABLE LOSS [dB]	H-Pass Filter [dB]	ATTN [dB]	Duty Factor [dB]	D-fac [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER								HOR	VER		HOR	VER
		[dBuV]									[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTN)															
1	1.0871	51.7	55.1	24.9	39.0	1.7	0.0	10.0	-	0.0	49.3	52.7	74.0	24.7	21.3
2	1.4426	51.0	52.1	26.2	38.6	2.0	0.0	10.0	-	0.0	50.6	51.7	74.0	23.4	22.3
3	4.8740	46.6	47.3	35.6	37.9	4.5	1.1	0.0	-	0.0	49.9	50.6	74.0	24.1	23.4
4	7.3110	46.2	45.5	39.2	38.2	5.5	0.5	0.0	-	0.0	53.2	52.5	74.0	20.8	21.5
5	9.7480	46.3	45.6	39.2	38.5	6.6	0.5	0.0	-	0.0	54.1	53.4	74.0	19.9	20.6
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + High Pass - Dfac															
6	12.1850	44.9	45.2	43.4	38.5	7.5	0.5	0.0	-	9.5	48.3	48.6	74.0	25.7	25.4
7	14.6220	44.8	44.9	42.6	38.5	8.2	0.5	0.0	-	9.5	48.1	48.2	74.0	25.9	25.8
8	17.0590	45.1	45.3	39.1	38.5	8.5	0.6	0.0	-	9.5	45.3	45.5	74.0	28.7	28.5
9	19.4960	46.2	45.5	37.9	38.5	10.5	1.3	0.0	-	9.5	47.9	47.2	74.0	26.1	26.8
10	21.9330	46.9	46.0	39.4	38.5	11.4	0.3	0.0	-	9.5	50.0	49.1	74.0	24.0	24.9
11	24.3700	47.0	46.6	39.1	38.5	11.9	0.8	0.0	-	9.5	50.8	50.4	74.0	23.2	23.6

REMARKS

*Test Distance 1.0m : Distance Factor(D-fac) = $20\log(3/1) = 9.5\text{dB}$

*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 : Notebook Personal Computer
Model : CF-50(Antenna 1)
Sample No. :
FCC ID : ACJ9TGCF-501
Power : AC 120V/60Hz
Mode : Transmitting (ch11: 2462MHz / 11Mbps)

Report No. : 22LE0044-YW
Regulation : FCC Part15C 247 / 205 & 209
Test Distance : 3m and 1m
Date : 2002/11/06
Temperature : 24deg.C
Humidity : 68%

ENGINEER : Naoki Sakamoto

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

No.	FREQ [GHz]	S/A READING		ANT Factor [dB]	AMP GAIN [dB]	CABLE LOSS [dB]	H-Pass Filter [dB]	ATTN [dB]	Duty Factor [dB]	D-fac [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER								HOR	VER		HOR	VER
		[dBuV]									[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN)															
1	1.0822	37.7	38.7	24.9	39.0	1.7	0.0	10.0	-	0.0	35.3	36.3	54.0	18.7	17.7
2	1.4510	37.2	37.0	26.2	38.6	2.0	0.0	10.0	-	0.0	36.8	36.6	54.0	17.2	17.4
3	2.4835	40.2	38.5	31.6	38.0	3.0	0.0	10.0	-	0.0	46.8	45.1	54.0	7.2	8.9
4	4.9236	34.1	36.2	35.8	37.9	4.5	1.1	0.0	-	0.0	37.6	39.7	54.0	16.4	14.3
5	7.3867	33.5	35.2	39.2	38.3	5.6	0.5	0.0	-	0.0	40.5	42.2	54.0	13.5	11.8
6	9.8480	33.8	34.1	39.2	38.5	6.7	0.5	0.0	-	0.0	41.7	42.0	54.0	12.3	12.0
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + High Pass - Dfac															
7	12.3100	33.2	33.3	43.3	38.5	7.5	0.5	0.0	-	9.5	36.5	36.6	54.0	17.5	17.4
8	14.7720	33.5	33.1	42.9	38.5	8.3	0.5	0.0	-	9.5	37.2	36.8	54.0	16.8	17.2
9	17.2340	34.0	33.5	38.7	38.5	8.6	0.6	0.0	-	9.5	33.9	33.4	54.0	20.1	20.6
10	19.6960	34.3	34.0	38.0	38.5	10.3	1.5	0.0	-	9.5	36.1	35.8	54.0	17.9	18.2
11	22.1580	34.5	34.3	39.4	38.5	11.3	0.3	0.0	-	9.5	37.5	37.3	54.0	16.5	16.7
12	24.6200	34.2	34.5	39.1	38.6	12.3	0.9	0.0	-	9.5	38.4	38.7	54.0	15.6	15.3

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

No.	FREQ [GHz]	S/A READING		ANT Factor [dB]	AMP GAIN [dB]	CABLE LOSS [dB]	H-Pass Filter [dB]	ATTN [dB]	Duty Factor [dB]	D-fac [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER								HOR	VER		HOR	VER
		[dBuV]									[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN)															
1	1.0822	51.5	55.4	24.9	39.0	1.7	0.0	10.0	-	0.0	49.1	53.0	74.0	24.9	21.0
2	1.4510	51.2	50.8	26.2	38.6	2.0	0.0	10.0	-	0.0	50.8	50.4	74.0	23.2	23.6
3	2.4835	50.9	49.1	31.6	38.0	3.0	0.0	10.0	-	0.0	57.5	55.7	74.0	16.5	18.3
4	4.9236	45.9	48.5	35.8	37.9	4.5	1.1	0.0	-	0.0	49.4	52.0	74.0	24.6	22.0
5	7.3867	45.1	46.1	39.2	38.3	5.6	0.5	0.0	-	0.0	52.1	53.1	74.0	21.9	20.9
6	9.8480	44.4	45.3	39.2	38.5	6.7	0.5	0.0	-	0.0	52.3	53.2	74.0	21.7	20.8
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + High Pass - Dfac															
7	12.3100	45.2	44.9	43.3	38.5	7.5	0.5	0.0	-	9.5	48.5	48.2	74.0	25.5	25.8
8	14.7720	44.9	45.5	42.9	38.5	8.3	0.5	0.0	-	9.5	48.6	49.2	74.0	25.4	24.8
9	17.2340	45.0	44.4	38.7	38.5	8.6	0.6	0.0	-	9.5	44.9	44.3	74.0	29.1	29.7
10	19.6960	45.5	46.0	38.0	38.5	10.3	1.5	0.0	-	9.5	47.3	47.8	74.0	26.7	26.2
11	22.1580	45.6	45.4	39.4	38.5	11.3	0.3	0.0	-	9.5	48.6	48.4	74.0	25.4	25.6
12	24.6200	46.8	45.8	39.1	38.6	12.3	0.9	0.0	-	9.5	51.0	50.0	74.0	23.0	24.0

REMARKS

*Test Distance 1.0m : Distance Factor(D-fac) = 20log(3/1) = 9.5dB

*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 : Notebook Personal Computer
Model : CF-50(Antenna 1)
Sample No. :
FCC ID : ACJ9TGCF-501
Power : AC 120V/60Hz
Mode : Receiving

Report No. : 22LE0044-YW
Regulation : FCC Part15C 247 / 205 & 209
Test Distance : 3m and 1m
Date : 2002/11/06
Temperature : 24deg.C
Humidity : 68%



ENGINEER : Naoki Sakamoto

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

No.	FREQ	S/A READING		ANT Factor [dB]	AMP GAIN [dB]	CABLE LOSS [dB]	H-Pass Filter [dB]	ATTN [dB]	Duty Factor [dB]	D-fac [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER								HOR	VER		HOR	VER
	[GHz]	[dBuV]		[dBuV/m]		[dB]									
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN)															
1	1.0823	37.3	38.0	24.9	39.0	1.7	0.0	10.0	-	0.0	34.9	35.6	54.0	19.1	18.4
2	1.4550	37.4	37.4	26.2	38.6	2.0	0.0	10.0	-	0.0	37.0	37.0	54.0	17.0	17.0

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

No.	FREQ [GHz]	S/A READING		ANT Factor [dB]	AMP GAIN [dB]	CABLE LOSS [dB]	H-Pass Filter [dB]	ATTN [dB]	Duty Factor [dB]	D-fac [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER								HOR	VER		HOR	VER
		[dBuV]									[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN)															
1	1.0823	48.2	52.5	24.9	39.0	1.7	0.0	10.0	-	0.0	45.8	50.1	74.0	28.2	23.9
2	1.4550	51.6	52.2	26.2	38.6	2.0	0.0	10.0	-	0.0	51.2	51.8	74.0	22.8	22.2

REMARKS

*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 : Notebook Personal Computer
Model : CF-50(Antenna 2)
Sample No. :
FCC ID : ACJ9TGCF-501
Power : AC 120V/60Hz
Mode : Transmitting (ch1: 2412MHz / 11Mbps)

Report No. : 22LE0044-YW
Regulation : FCC Part15C 247 / 205 & 209
Test Distance : 3m and 1m
Date : 2002/11/06
Temperature : 24deg.C
Humidity : 68%

ENGINEER : Naoki Sakamoto

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

No.	FREQ [GHz]	S/A READING		ANT Factor [dB]	AMP GAIN [dB]	CABLE LOSS [dB]	H-Pass Filter [dB]	ATTN [dB]	Duty Factor [dB]	D-fac [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER								HOR	VER		HOR	VER
		[dBuV]									[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN)															
1	1.0821	37.8	38.5	24.9	39.0	1.7	0.0	10.0	-	0.0	35.4	36.1	54.0	18.6	17.9
2	1.4510	37.5	36.6	26.2	38.6	2.0	0.0	10.0	-	0.0	37.1	36.2	54.0	16.9	17.8
3	2.3900	35.4	36.3	31.3	38.0	2.9	0.0	10.0	-	0.0	41.6	42.5	54.0	12.4	11.5
4	4.8258	37.9	39.8	35.4	38.0	4.4	1.1	0.0	-	0.0	40.8	42.7	54.0	13.2	11.3
5	7.2392	35.2	33.4	39.1	38.2	5.5	0.5	0.0	-	0.0	42.1	40.3	54.0	11.9	13.7
6	9.6522	33.8	33.7	39.2	38.5	6.5	0.5	0.0	-	0.0	41.5	41.4	54.0	12.5	12.6
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + High Pass - Dfac															
7	12.0600	33.4	33.6	43.5	38.5	7.5	0.5	0.0	-	9.5	36.9	37.1	54.0	17.1	16.9
8	14.4720	33.5	33.4	42.2	38.5	8.1	0.5	0.0	-	9.5	36.3	36.2	54.0	17.7	17.8
9	16.8840	33.6	33.8	39.0	38.5	8.5	0.6	0.0	-	9.5	33.7	33.9	54.0	20.3	20.1
10	19.2960	33.3	33.5	38.1	38.5	10.6	1.1	0.0	-	9.5	35.1	35.3	54.0	18.9	18.7
11	21.7080	33.6	33.3	39.2	38.5	11.0	0.5	0.0	-	9.5	36.3	36.0	54.0	17.7	18.0
12	24.1200	33.5	33.4	39.2	38.5	11.6	0.7	0.0	-	9.5	37.0	36.9	54.0	17.0	17.1

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

No.	FREQ [GHz]	S/A READING		ANT Factor [dB]	AMP GAIN [dB]	CABLE LOSS [dB]	H-Pass Filter [dB]	ATTN [dB]	Duty Factor [dB]	D-fac [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER								HOR	VER		HOR	VER
		[dBuV]									[dBuV/m]		[dB]		
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN)															
1	1.0821	51.2	55.4	24.9	39.0	1.7	0.0	10.0	-	0.0	48.8	53.0	74.0	25.2	21.0
2	1.4500	51.0	51.2	26.2	38.6	2.0	0.0	10.0	-	0.0	50.6	50.8	74.0	23.4	23.2
3	2.3900	46.3	46.2	31.3	38.0	2.9	0.0	10.0	-	0.0	52.5	52.4	74.0	21.5	21.6
4	4.8258	48.8	50.8	35.4	38.0	4.4	1.1	0.0	-	0.0	51.7	53.7	74.0	22.3	20.3
5	7.2392	44.1	44.6	39.1	38.2	5.5	0.5	0.0	-	0.0	51.0	51.5	74.0	23.0	22.5
6	9.6522	44.2	45.0	39.2	38.5	6.5	0.5	0.0	-	0.0	51.9	52.7	74.0	22.1	21.3
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + High Pass - Dfac															
7	12.0600	44.8	44.0	43.5	38.5	7.5	0.5	0.0	-	9.5	48.3	47.5	74.0	25.7	26.5
8	14.4720	44.2	44.8	42.2	38.5	8.1	0.5	0.0	-	9.5	47.0	47.6	74.0	27.0	26.4
9	16.8840	45.3	45.2	39.0	38.5	8.5	0.6	0.0	-	9.5	45.4	45.3	74.0	28.6	28.7
10	19.2960	45.8	45.9	38.1	38.5	10.6	1.1	0.0	-	9.5	47.6	47.7	74.0	26.4	26.3
11	21.7080	45.4	46.0	39.2	38.5	11.0	0.5	0.0	-	9.5	48.1	48.7	74.0	25.9	25.3
12	24.1200	46.0	46.2	39.2	38.5	11.6	0.7	0.0	-	9.5	49.5	49.7	74.0	24.5	24.3

REMARKS

*Test Distance 1.0m : Distance Factor(D-fac) = 20log(3/1) = 9.5dB

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

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DATA OF SUPURIOUS EMISSIONS(1GHz to 26GHz)

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

Company : Matsushita Electric Industrial Co.,Ltd.
Equipment : Notebook Personal Computer
Model : CF-50(Antenna 2)
Sample No. :
FCC ID : ACJ9TGCF-501
Power : AC 120V/60Hz
Mode : Transmitting (ch6: 2437MHz / 11Mbps)

Report No. : 22LE0044-YW
Regulation : FCC Part15C 247 / 205 & 209
Test Distance : 3m and 1m
Date : 2002/11/06
Temperature : 24deg.C
Humidity : 68%

ENGINEER : Naoki Sakamoto

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

No.	FREQ	S/A READING		ANT Factor	AMP GAIN	CABLE LOSS	H-Pass Filter	ATTN	Duty Factor	D-fac	RESULT		Limit AV	MARGIN	
		HOR	VER								HOR	VER		HOR	VER
	[GHz]	[dBuV]		[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]		
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN)															
1	1.0880	37.3	39.1	24.9	39.0	1.7	0.0	10.0	-	0.0	34.9	36.7	54.0	19.1	17.3
2	1.4428	37.1	37.0	26.2	38.6	2.0	0.0	10.0	-	0.0	36.7	36.6	54.0	17.3	17.4
3	4.8740	37.2	38.5	35.6	37.9	4.5	1.1	0.0	-	0.0	40.5	41.8	54.0	13.5	12.2
4	7.3110	35.8	36.0	39.2	38.2	5.5	0.5	0.0	-	0.0	42.8	43.0	54.0	11.2	11.0
5	9.7480	35.2	34.0	39.2	38.5	6.6	0.5	0.0	-	0.0	43.0	41.8	54.0	11.0	12.2
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + High Pass - Dfac															
6	12.1850	33.2	33.2	43.4	38.5	7.5	0.5	0.0	-	9.5	36.6	36.6	54.0	17.4	17.4
7	14.6220	33.3	33.1	42.6	38.5	8.2	0.5	0.0	-	9.5	36.6	36.4	54.0	17.4	17.6
8	17.0590	32.9	33.2	39.1	38.5	8.5	0.6	0.0	-	9.5	33.1	33.4	54.0	20.9	20.6
9	19.4960	33.5	33.5	37.9	38.5	10.5	1.3	0.0	-	9.5	35.2	35.2	54.0	18.8	18.8
10	21.9330	34.5	34.4	39.4	38.5	11.4	0.3	0.0	-	9.5	37.6	37.5	54.0	16.4	16.5
11	24.3700	34.8	34.3	39.1	38.5	11.9	0.8	0.0	-	9.5	38.6	38.1	54.0	15.4	15.9

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

No.	FREQ [GHz]	S/A READING		ANT Factor [dB]	AMP GAIN [dB]	CABLE LOSS [dB]	H-Pass Filter [dB]	ATTN [dB]	Duty Factor [dB]	D-fac [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER								HOR	VER		HOR	VER
		[dBuV]									[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN)															
1	1.0880	51.4	54.8	24.9	39.0	1.7	0.0	10.0	-	0.0	49.0	52.4	74.0	25.0	21.6
2	1.4428	51.3	51.5	26.2	38.6	2.0	0.0	10.0	-	0.0	50.9	51.1	74.0	23.1	22.9
3	4.8740	48.8	49.5	35.6	37.9	4.5	1.1	0.0	-	0.0	52.1	52.8	74.0	21.9	21.2
4	7.3110	46.5	46.0	39.2	38.2	5.5	0.5	0.0	-	0.0	53.5	53.0	74.0	20.5	21.0
5	9.7480	46.1	45.2	39.2	38.5	6.6	0.5	0.0	-	0.0	53.9	53.0	74.0	20.1	21.0
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + High Pass - Dfac															
6	12.1850	44.5	44.7	43.4	38.5	7.5	0.5	0.0	-	9.5	47.9	48.1	74.0	26.1	25.9
7	14.6220	44.6	44.6	42.6	38.5	8.2	0.5	0.0	-	9.5	47.9	47.9	74.0	26.1	26.1
8	17.0590	45.2	45.0	39.1	38.5	8.5	0.6	0.0	-	9.5	45.4	45.2	74.0	28.6	28.8
9	19.4960	46.2	45.1	37.9	38.5	10.5	1.3	0.0	-	9.5	47.9	46.8	74.0	26.1	27.2
10	21.9330	46.5	45.5	39.4	38.5	11.4	0.3	0.0	-	9.5	49.6	48.6	74.0	24.4	25.4
11	24.3700	46.9	46.2	39.1	38.5	11.9	0.8	0.0	-	9.5	50.7	50.0	74.0	23.3	24.0

REMARKS

*Test Distance 1.0m : Distance Factor(D-fac) = $20\log(3/1) = 9.5\text{dB}$

*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 : Notebook Personal Computer
Model : CF-50(Antenna 2)
Sample No. :
FCC ID : ACJ9TGCF-501
Power : AC 120V/60Hz
Mode : Transmitting (ch11: 2462MHz / 11Mbps)

Report No. : 22LE0044-YW
Regulation : FCC Part15C 247 / 205 & 209
Test Distance : 3m and 1m
Date : 2002/11/06
Temperature : 24deg.C
Humidity : 68%

ENGINEER : Naoki Sakamoto

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

No.	FREQ [GHz]	S/A READING		ANT Factor [dB]	AMP GAIN [dB]	CABLE LOSS [dB]	H-Pass Filter [dB]	ATTN [dB]	Duty Factor [dB]	D-fac [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER								HOR	VER		HOR	VER
		[dBuV]									[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN)															
1	1.0822	38.1	39.0	24.9	39.0	1.7	0.0	10.0	-	0.0	35.7	36.6	54.0	18.3	17.4
2	1.4510	37.3	37.5	26.2	38.6	2.0	0.0	10.0	-	0.0	36.9	37.1	54.0	17.1	16.9
3	2.4835	46.7	44.6	31.6	38.0	3.0	0.0	10.0	-	0.0	53.3	51.2	54.0	0.7	2.8
4	4.9236	34.1	36.5	35.8	37.9	4.5	1.1	0.0	-	0.0	37.6	40.0	54.0	16.4	14.0
5	7.3867	34.3	34.4	39.2	38.3	5.6	0.5	0.0	-	0.0	41.3	41.4	54.0	12.7	12.6
6	9.8480	34.2	34.5	39.2	38.5	6.7	0.5	0.0	-	0.0	42.1	42.4	54.0	11.9	11.6
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + High Pass - Dfac															
7	12.3100	33.5	33.4	43.3	38.5	7.5	0.5	0.0	-	9.5	36.8	36.7	54.0	17.2	17.3
8	14.7720	33.6	33.6	42.9	38.5	8.3	0.5	0.0	-	9.5	37.3	37.3	54.0	16.7	16.7
9	17.2340	33.8	33.5	38.7	38.5	8.6	0.6	0.0	-	9.5	33.7	33.4	54.0	20.3	20.6
10	19.6960	34.0	34.2	38.0	38.5	10.3	1.5	0.0	-	9.5	35.8	36.0	54.0	18.2	18.0
11	22.1580	34.8	34.6	39.4	38.5	11.3	0.3	0.0	-	9.5	37.8	37.6	54.0	16.2	16.4
12	24.6200	34.7	34.5	39.1	38.6	12.3	0.9	0.0	-	9.5	38.9	38.7	54.0	15.1	15.3

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

No.	FREQ [GHz]	S/A READING		ANT Factor [dB]	AMP GAIN [dB]	CABLE LOSS [dB]	H-Pass Filter [dB]	ATTN [dB]	Duty Factor [dB]	D-fac [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER								HOR	VER		HOR	VER
		[dBuV]									[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN)															
1	1.0822	51.3	53.9	24.9	39.0	1.7	0.0	10.0	-	0.0	48.9	51.5	74.0	25.1	22.5
2	1.4510	50.9	52.6	26.2	38.6	2.0	0.0	10.0	-	0.0	50.5	52.2	74.0	23.5	21.8
3	2.4835	56.5	53.8	31.6	38.0	3.0	0.0	10.0	-	0.0	63.1	60.4	74.0	10.9	13.6
4	4.9236	48.0	48.8	35.8	37.9	4.5	1.1	0.0	-	0.0	51.5	52.3	74.0	22.5	21.7
5	7.3867	45.5	46.2	39.2	38.3	5.6	0.5	0.0	-	0.0	52.5	53.2	74.0	21.5	20.8
6	9.8480	45.1	45.5	39.2	38.5	6.7	0.5	0.0	-	0.0	53.0	53.4	74.0	21.0	20.6
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + High Pass - Dfac															
7	12.3100	44.9	45.0	43.3	38.5	7.5	0.5	0.0	-	9.5	48.2	48.3	74.0	25.8	25.7
8	14.7720	44.3	44.4	42.9	38.5	8.3	0.5	0.0	-	9.5	48.0	48.1	74.0	26.0	25.9
9	17.2340	44.4	44.6	38.7	38.5	8.6	0.6	0.0	-	9.5	44.3	44.5	74.0	29.7	29.5
10	19.6960	45.0	45.0	38.0	38.5	10.3	1.5	0.0	-	9.5	46.8	46.8	74.0	27.2	27.2
11	22.1580	45.8	45.3	39.4	38.5	11.3	0.3	0.0	-	9.5	48.8	48.3	74.0	25.2	25.7
12	24.6200	46.0	45.8	39.1	38.6	12.3	0.9	0.0	-	9.5	50.2	50.0	74.0	23.8	24.0

REMARKS

*Test Distance 1.0m : Distance Factor(D-fac) = 20log(3/1) = 9.5dB

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

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DATA OF SUPURIOUS EMISSIONS(1GHz to 26GHz)

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

Company : Matsushita Electric Industrial Co.,Ltd.
Equipment : Notebook Personal Computer
Model : CF-50(Antenna 2)
Sample No. :
FCC ID : ACJ9TGCF-501
Power : AC 120V/60Hz
Mode : Receiving

Report No. : 22LE0044-YW
Regulation : FCC Part15C 247 / 205 & 209
Test Distance : 3m and 1m
Date : 2002/11/06
Temperature : 24deg.C
Humidity : 68%



ENGINEER : Naoki Sakamoto

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

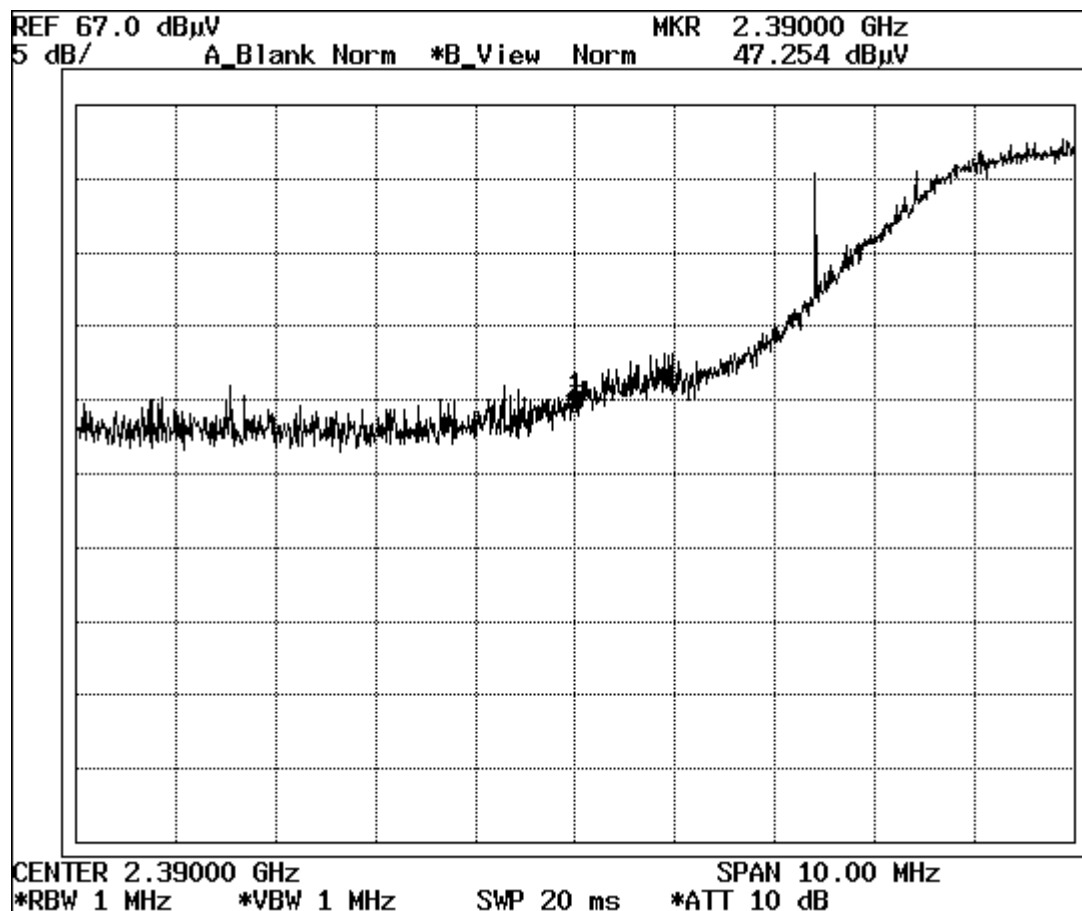
No.	FREQ [GHz]	S/A READING		ANT Factor [dB]	AMP GAIN [dB]	CABLE LOSS [dB]	H-Pass Filter [dB]	ATTN [dB]	Duty Factor [dB]	D-fac [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER								HOR	VER		HOR	VER
		[dBuV]									[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN)															
1	1.0823	37.4	38.4	24.9	39.0	1.7	0.0	10.0	-	0.0	35.0	36.0	54.0	19.0	18.0
2	1.4550	37.1	37.1	26.2	38.6	2.0	0.0	10.0	-	0.0	36.7	36.7	54.0	17.3	17.3

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

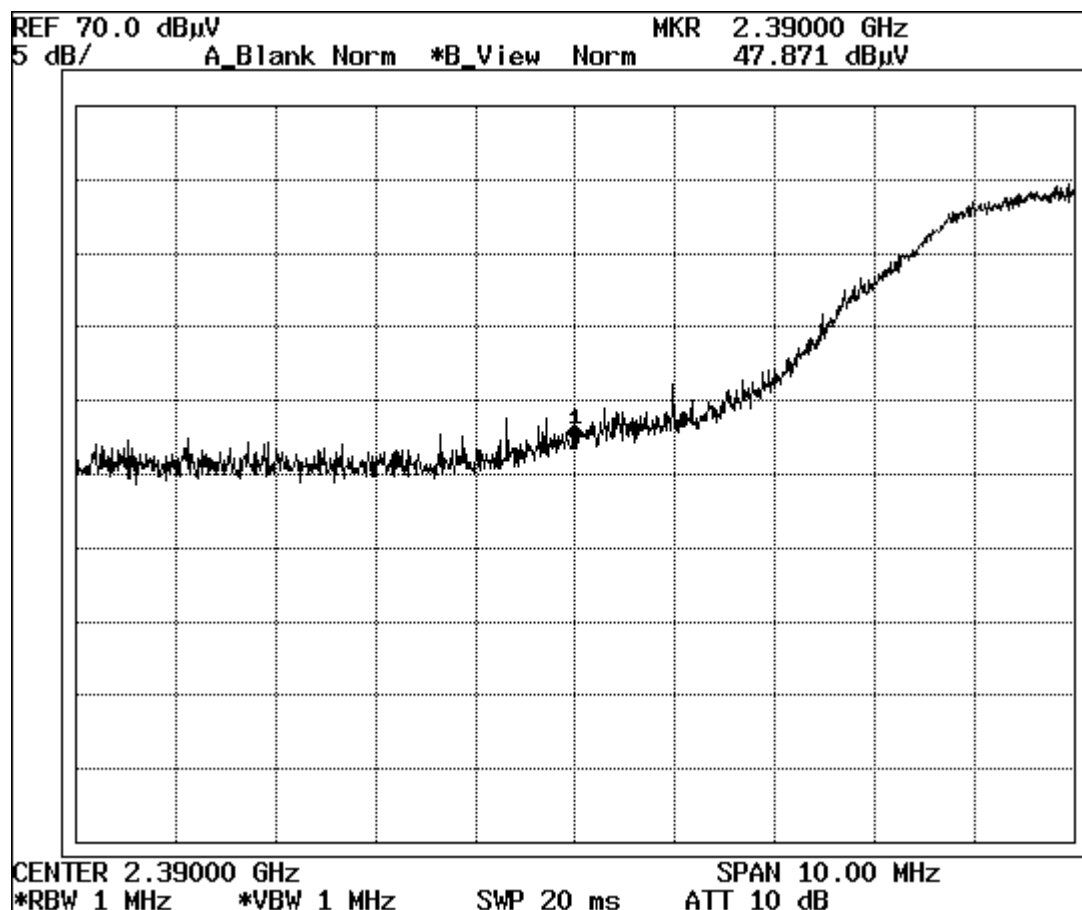
No.	FREQ [GHz]	S/A READING		ANT Factor [dB]	AMP GAIN [dB]	CABLE LOSS [dB]	H-Pass Filter [dB]	ATTN [dB]	Duty Factor [dB]	D-fac [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER								HOR	VER		HOR	VER
		[dBuV]									[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + (High Pass or ATTEN)															
1	1.0823	48.3	52.8	24.9	39.0	1.7	0.0	10.0	-	0.0	45.9	50.4	74.0	28.1	23.6
2	1.4550	52.0	51.5	26.2	38.6	2.0	0.0	10.0	-	0.0	51.6	51.1	74.0	22.4	22.9

REMARKS

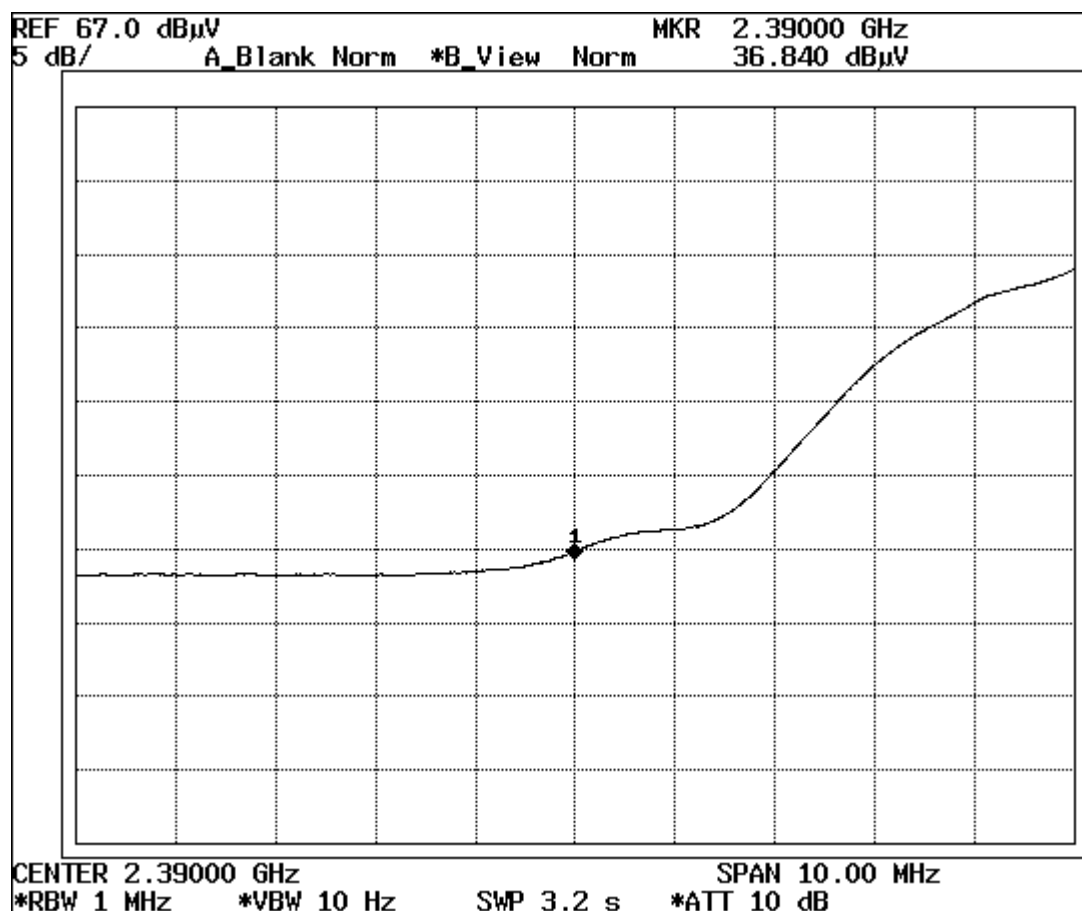
*Except for the above table : All other spurious emissions were less than 20dB for the limit.



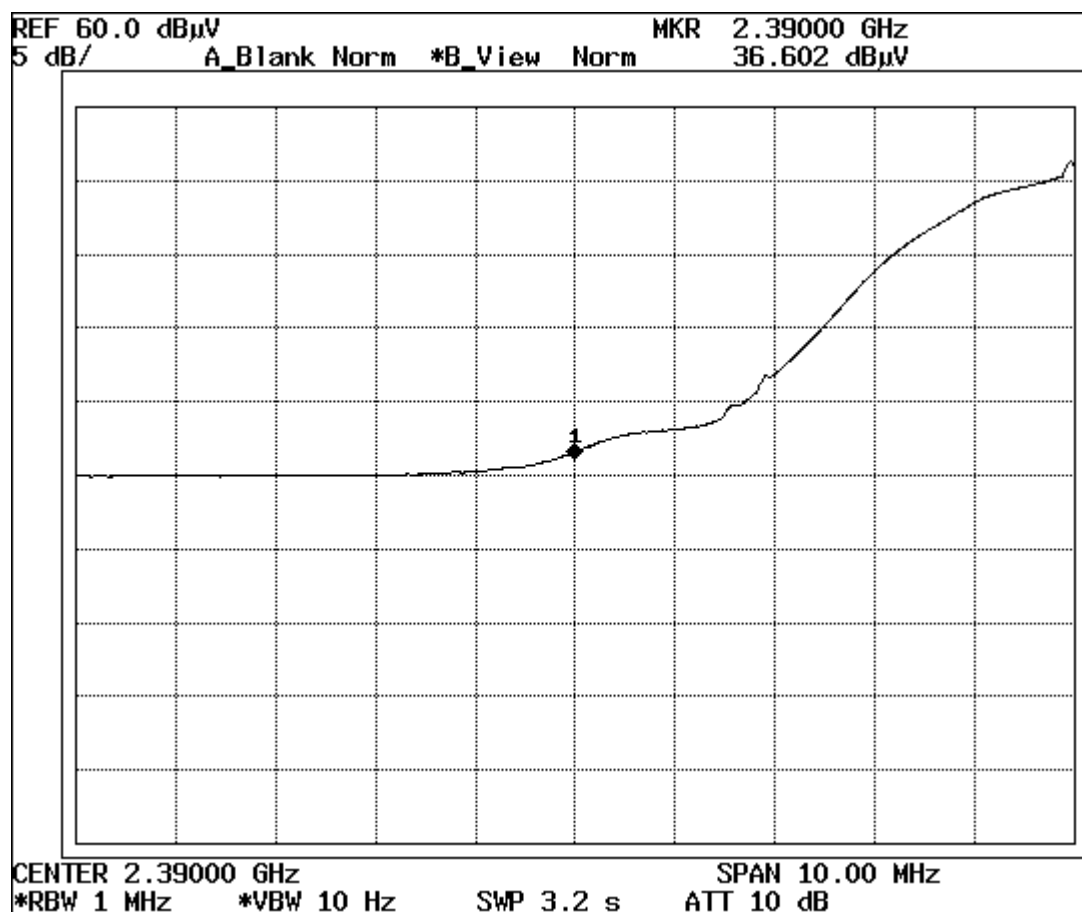
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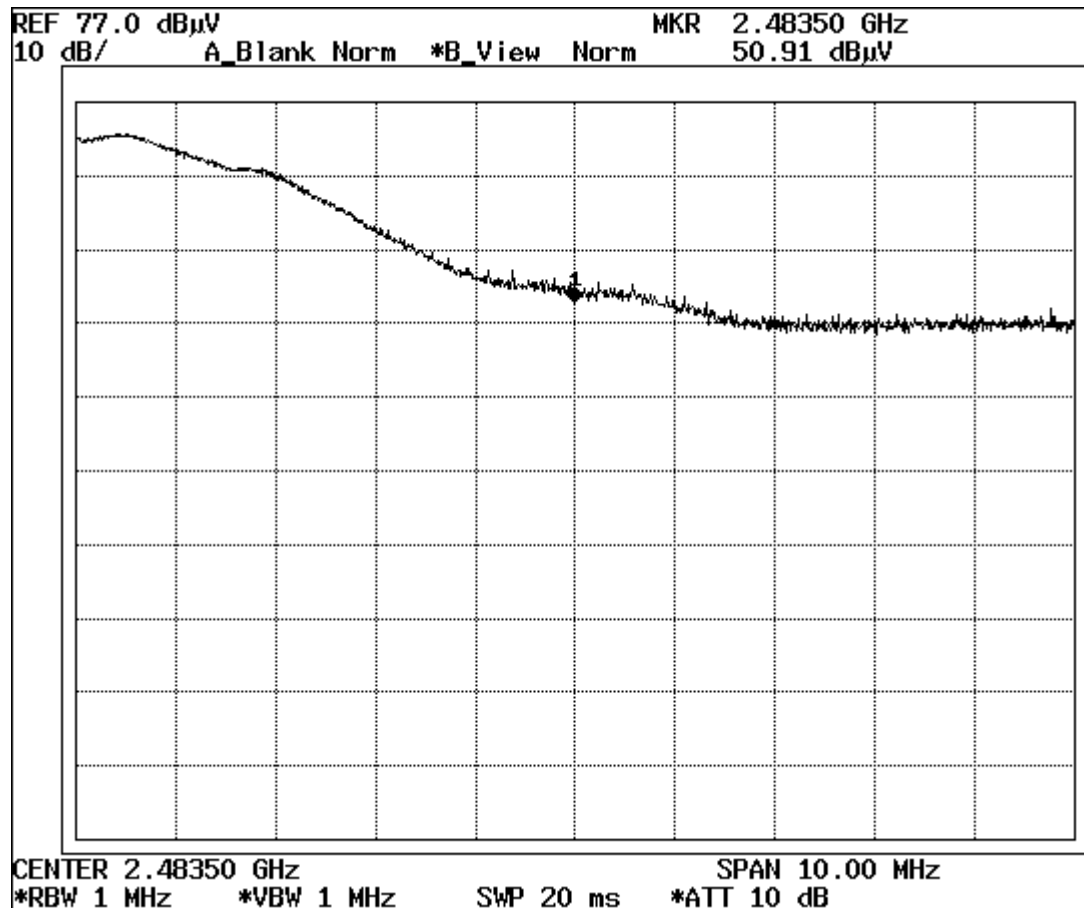


3. Horizontal/ AV

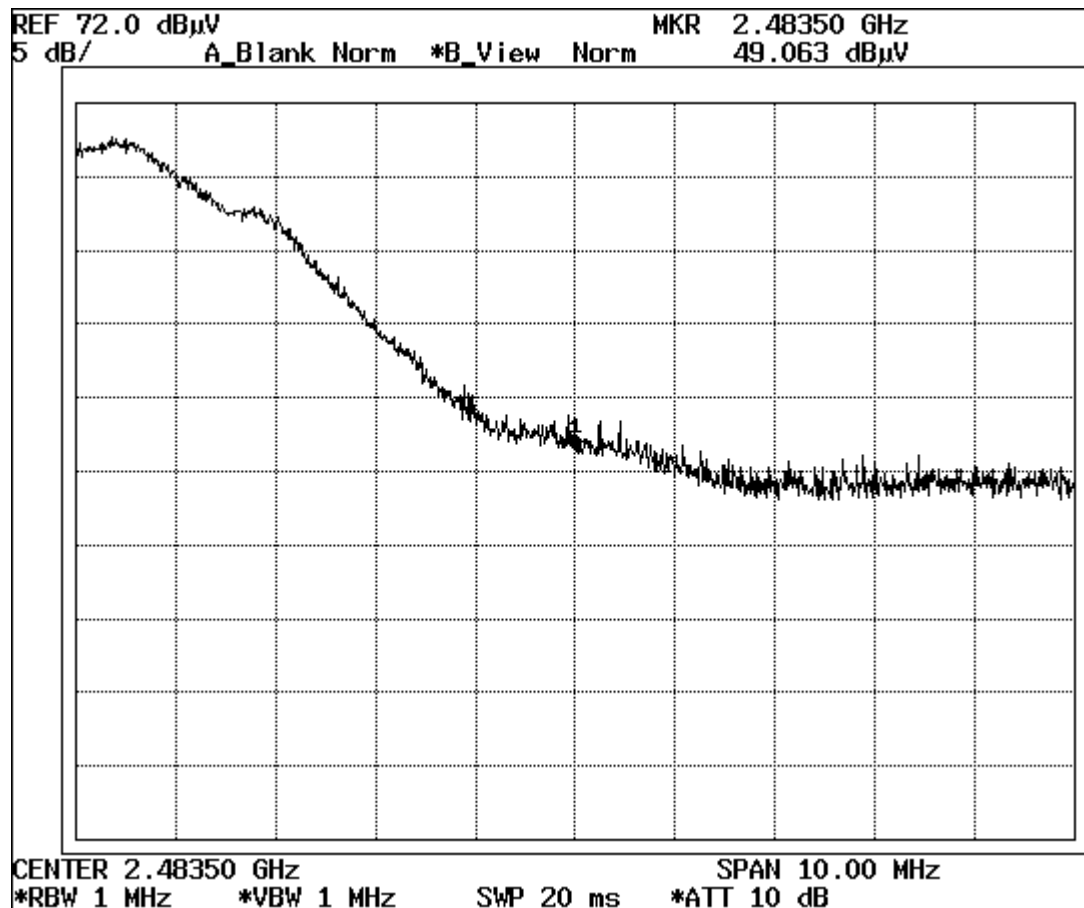


4. Vertical/ AV

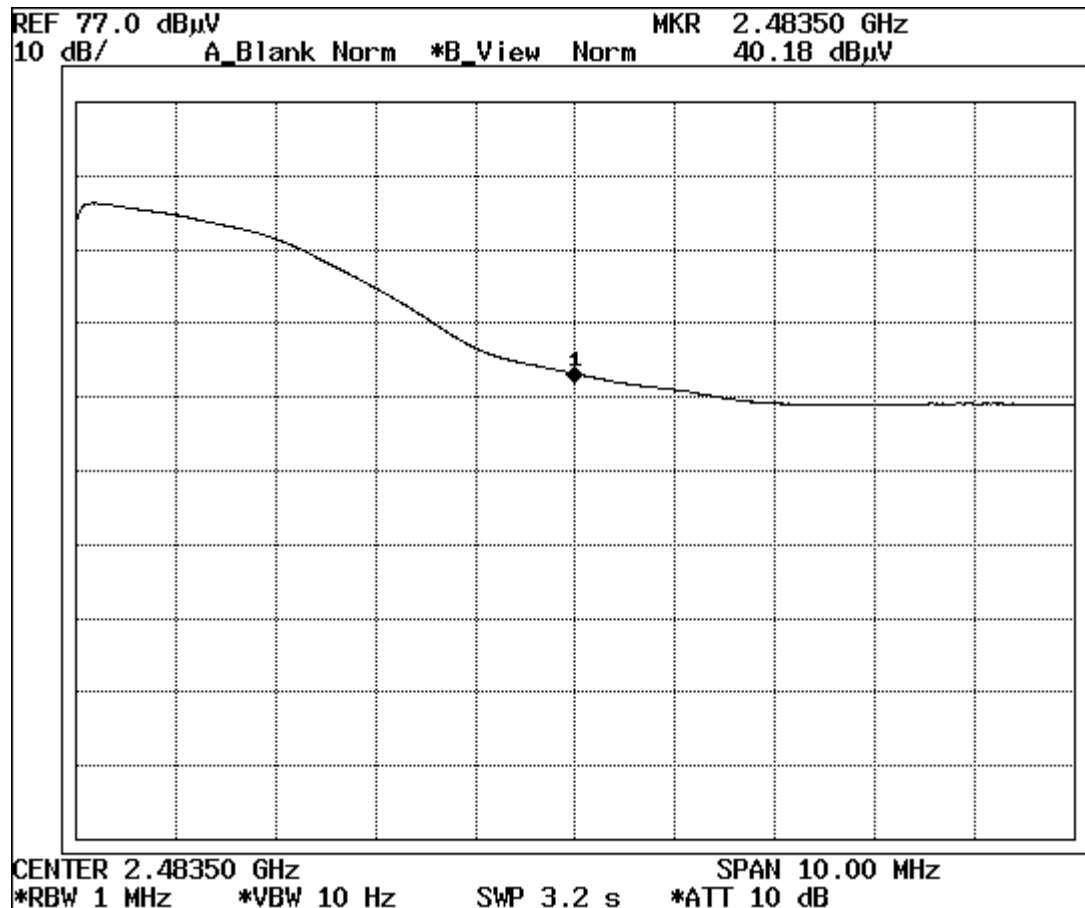




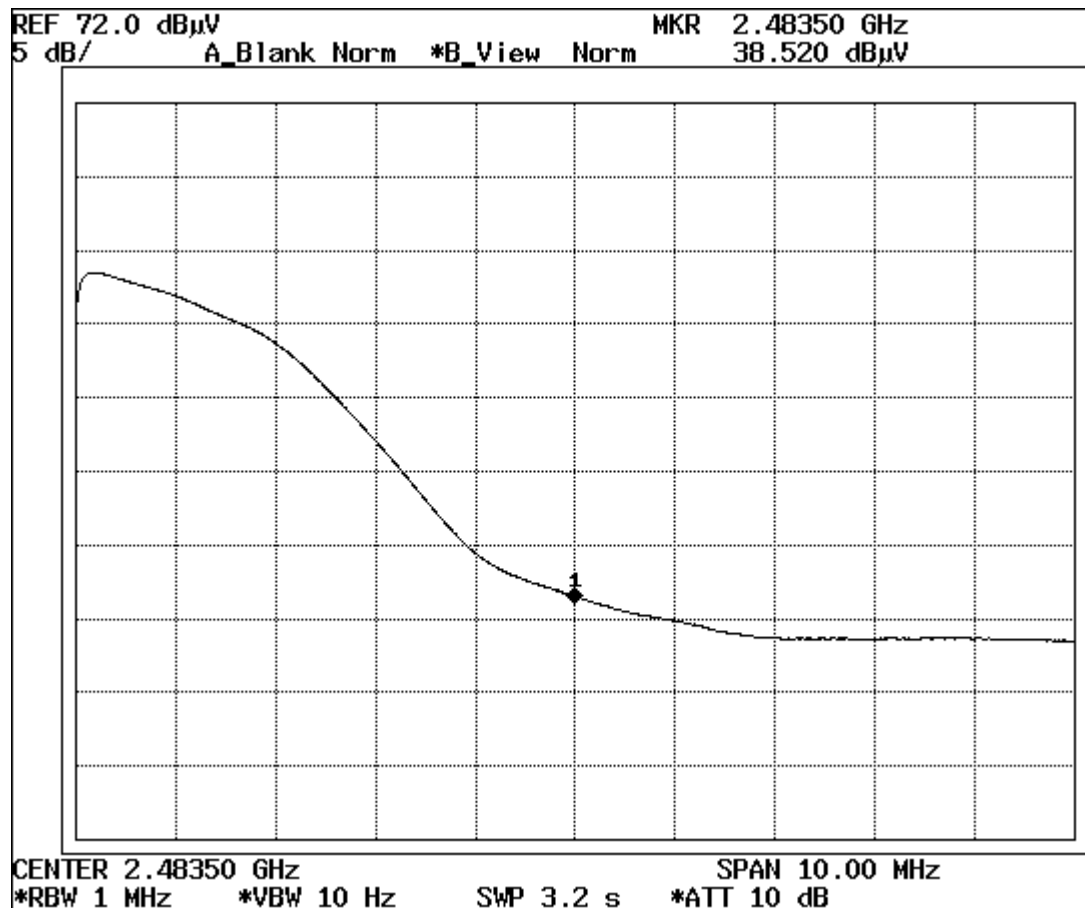
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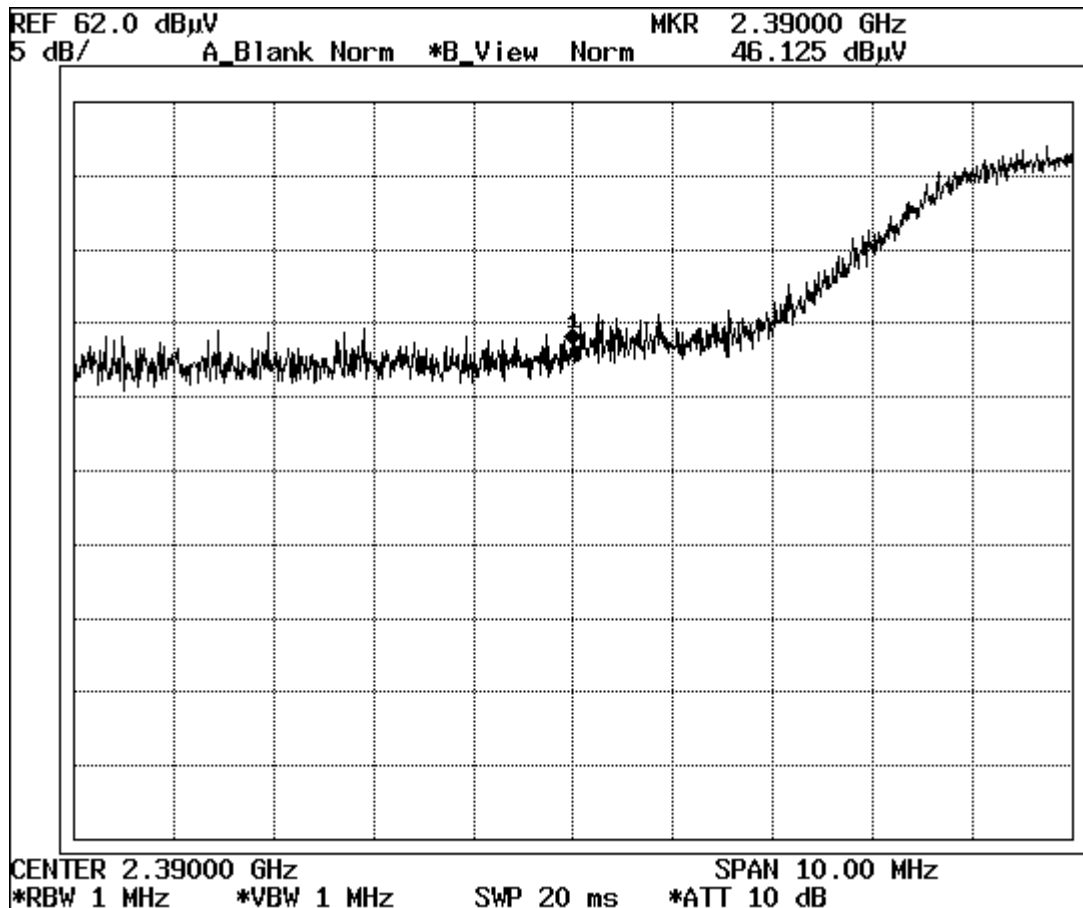


3. Horizontal/ AV

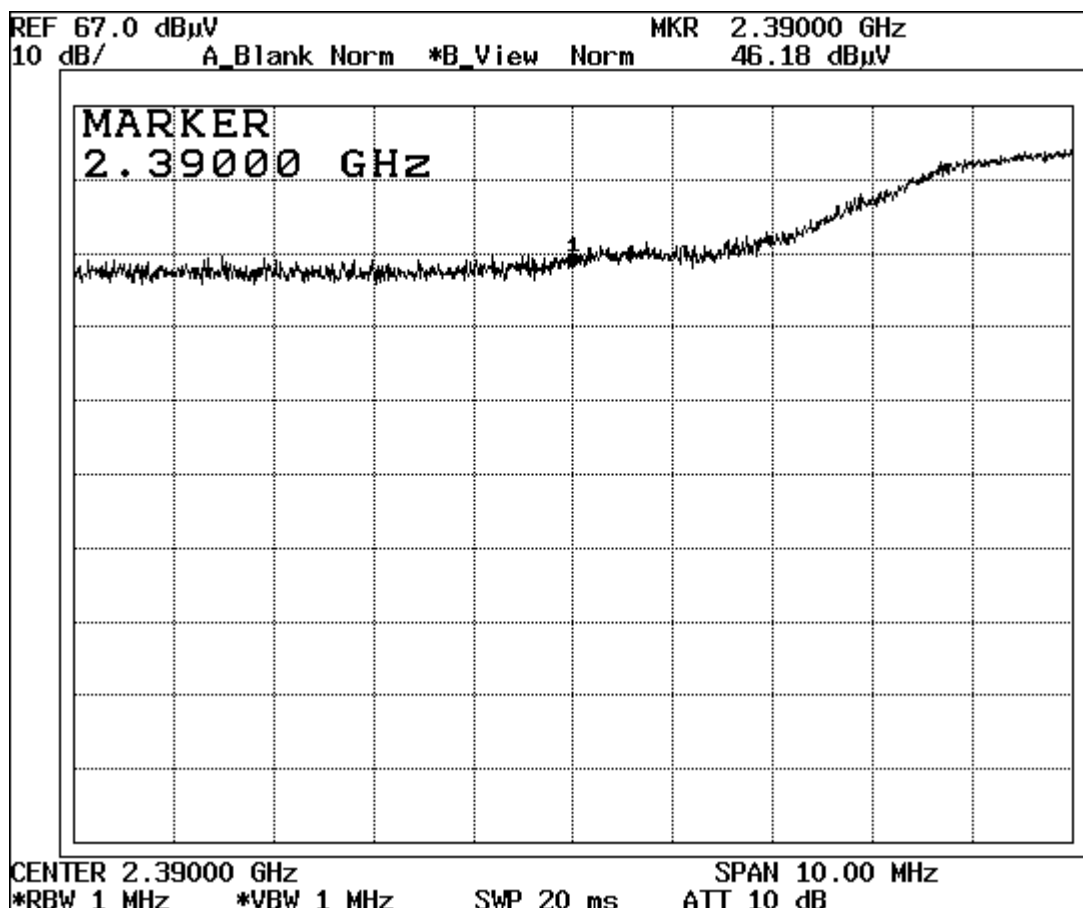


4. Vertical/ AV

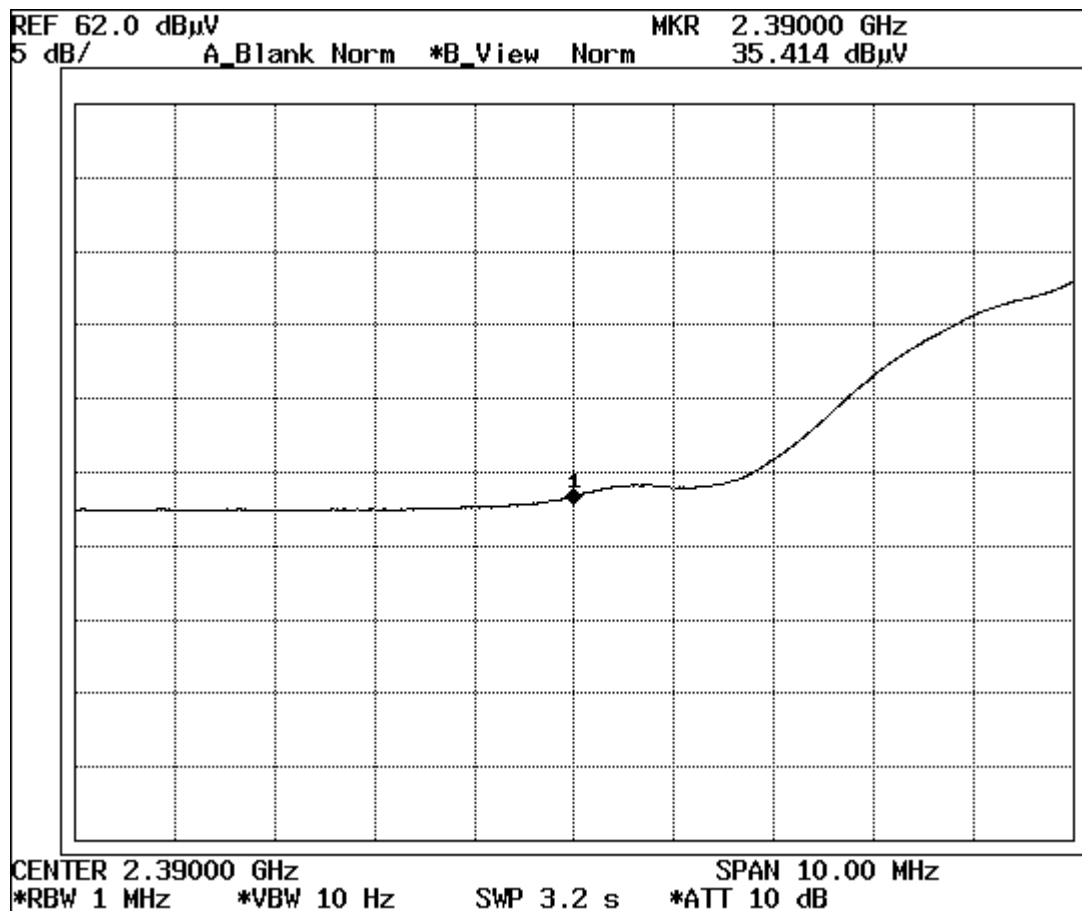




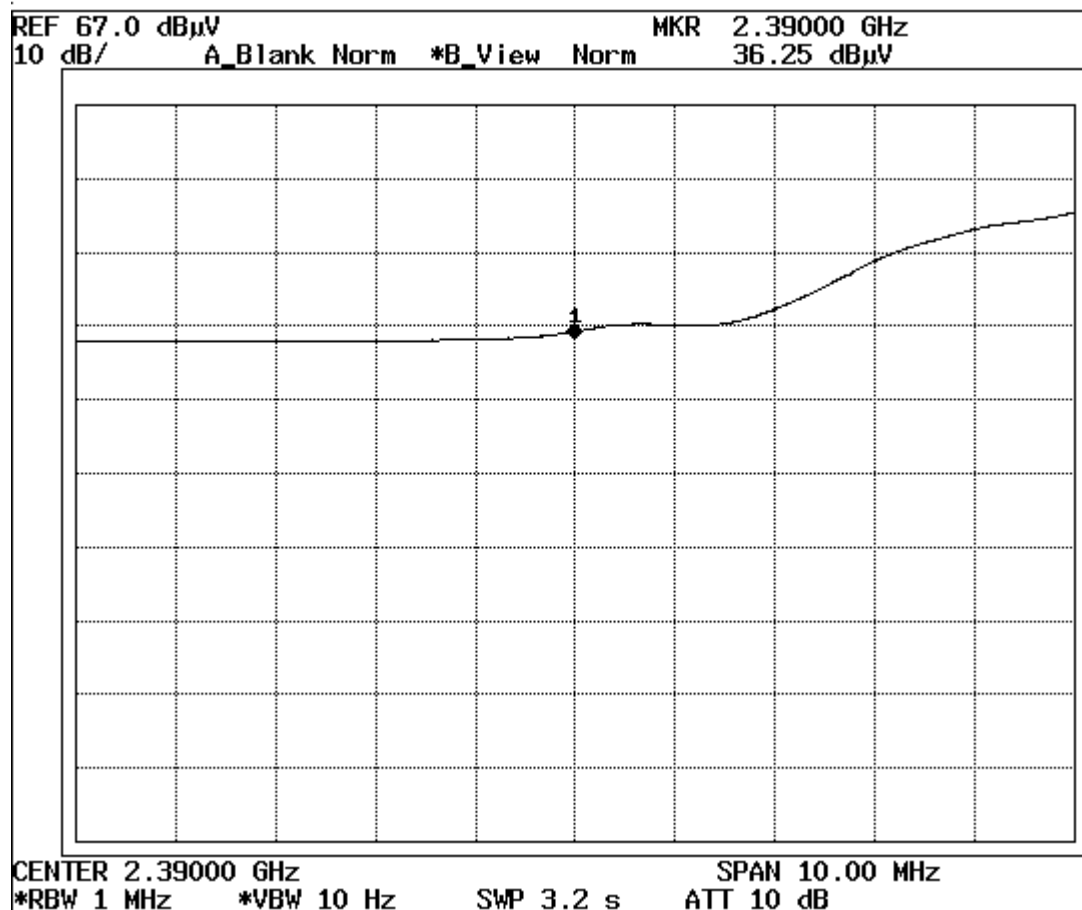
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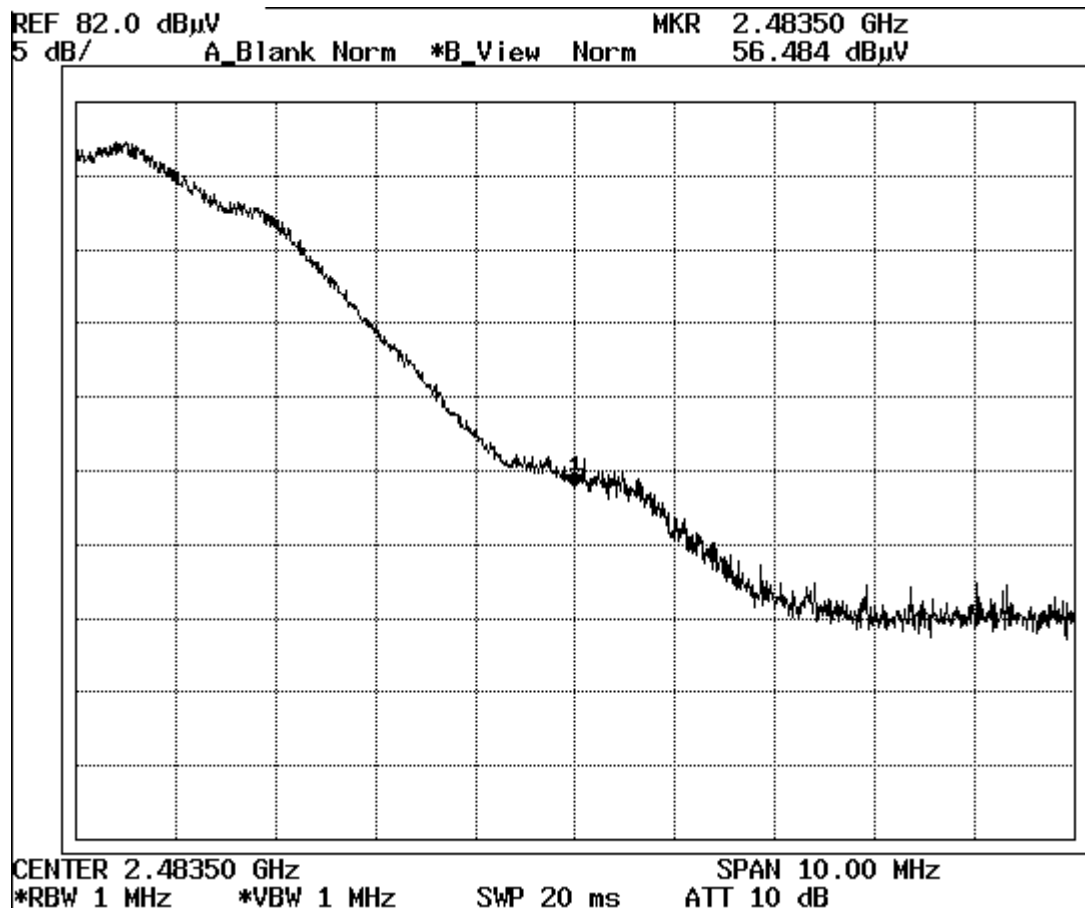


3. Horizontal/ AV

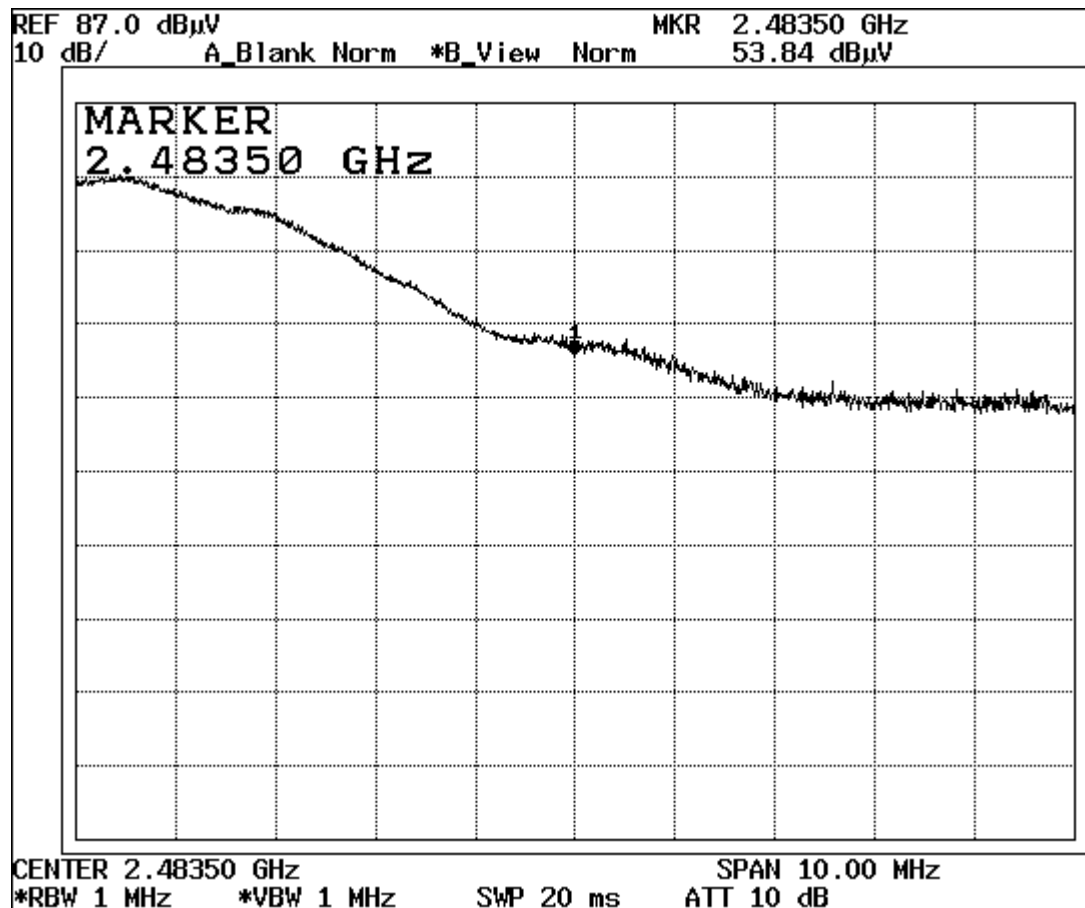


4. Vertical/ AV

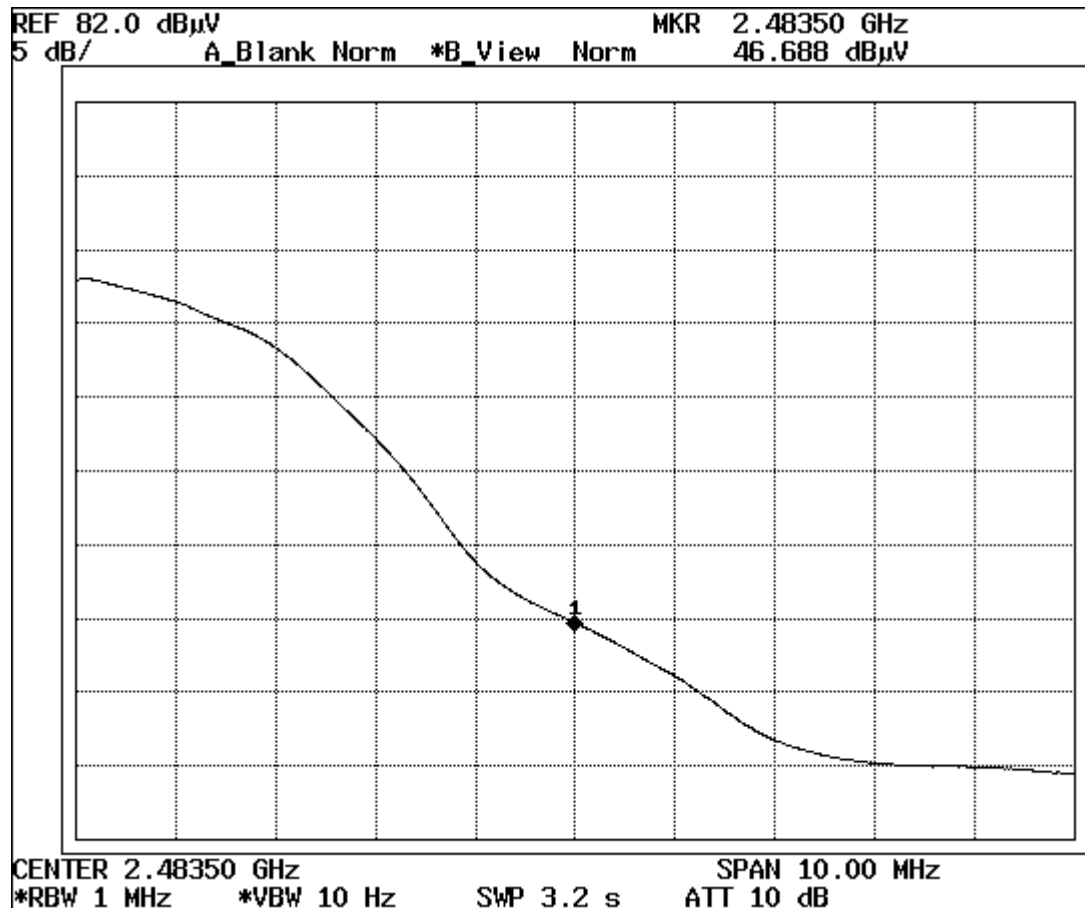




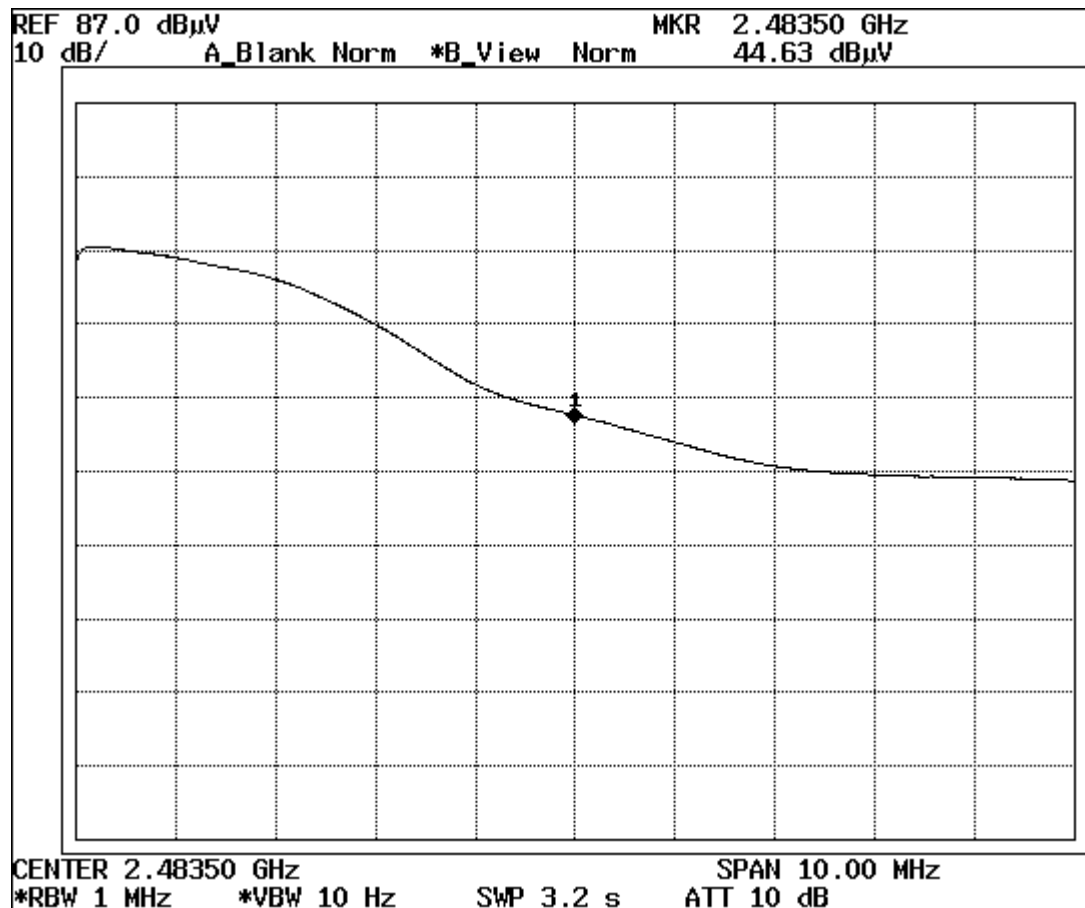
2. Vertical/ PK



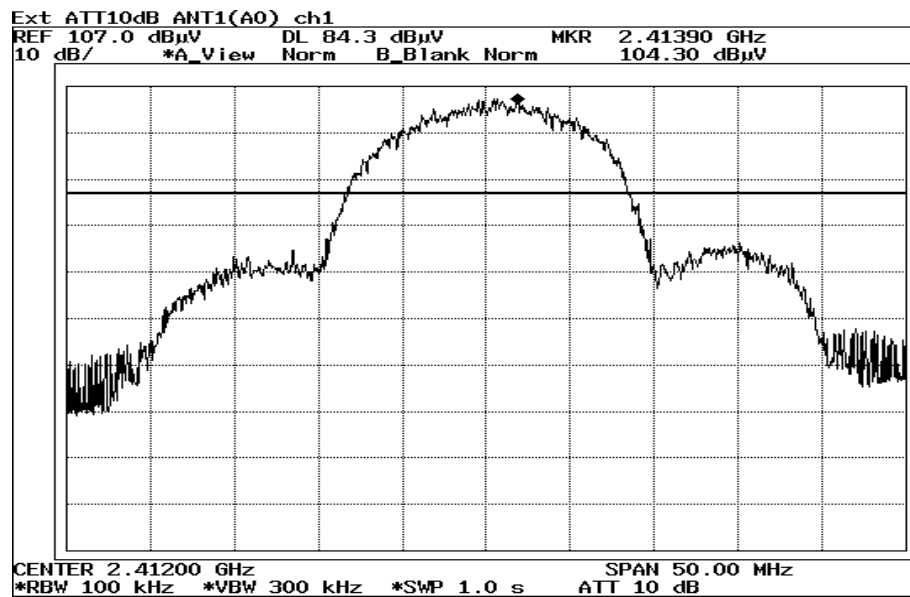
3. Horizontal/ AV



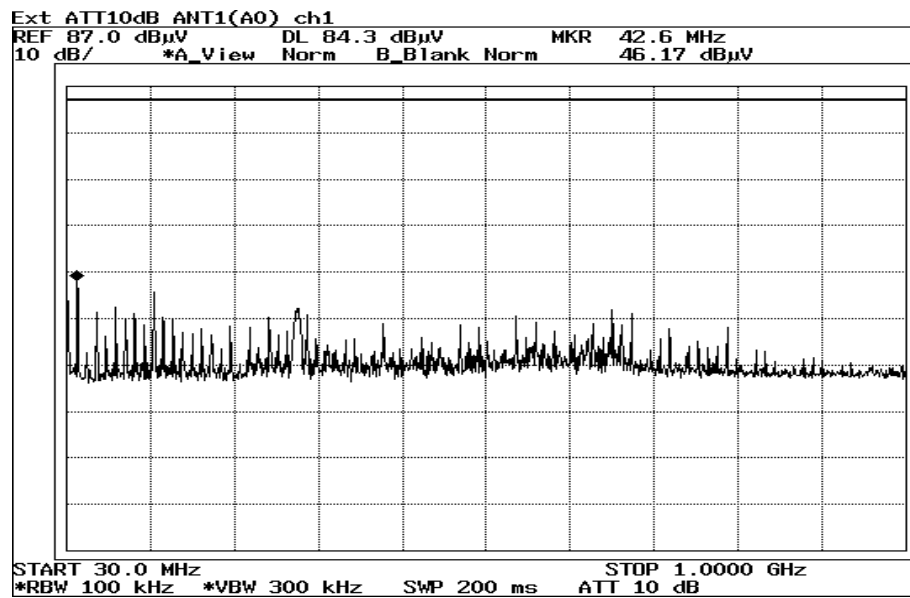
4. Vertical/ AV



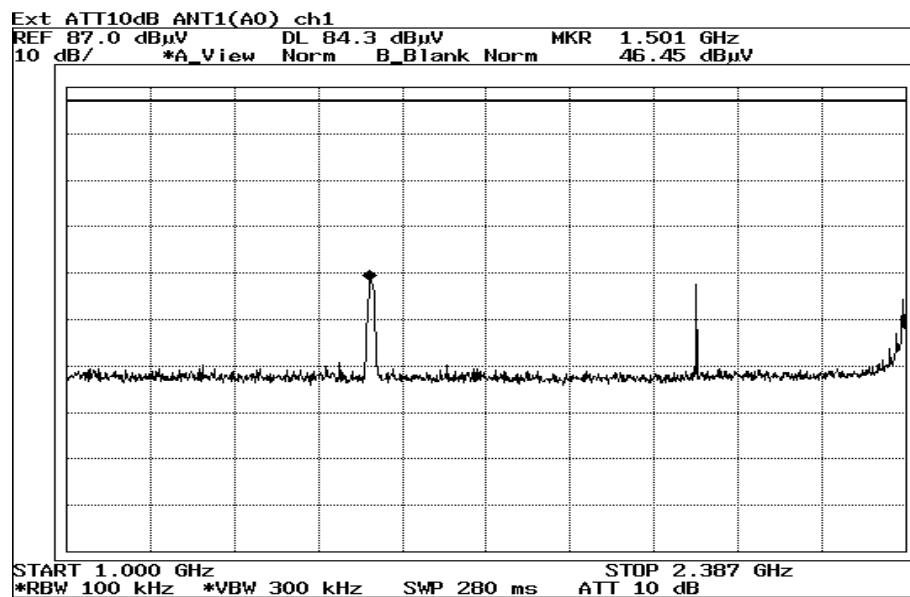
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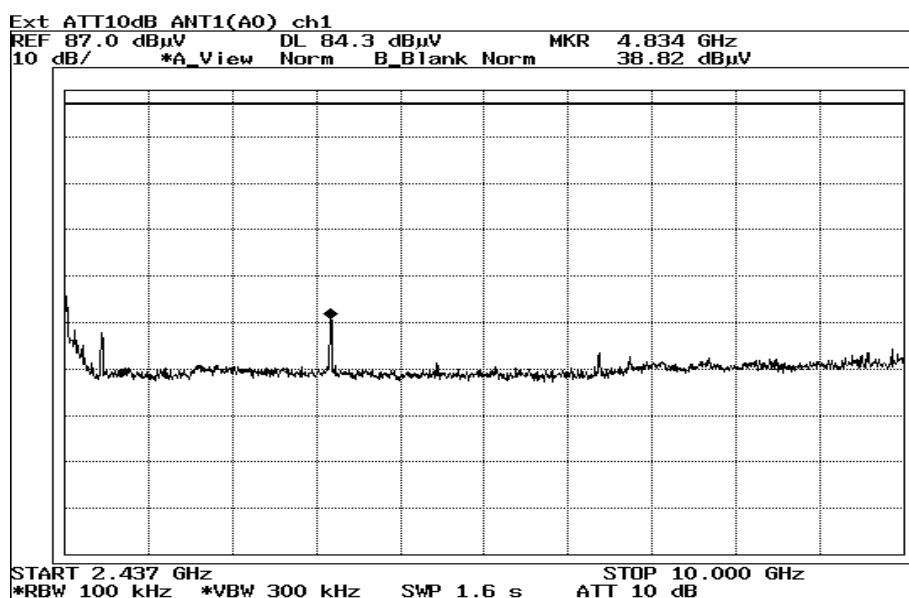
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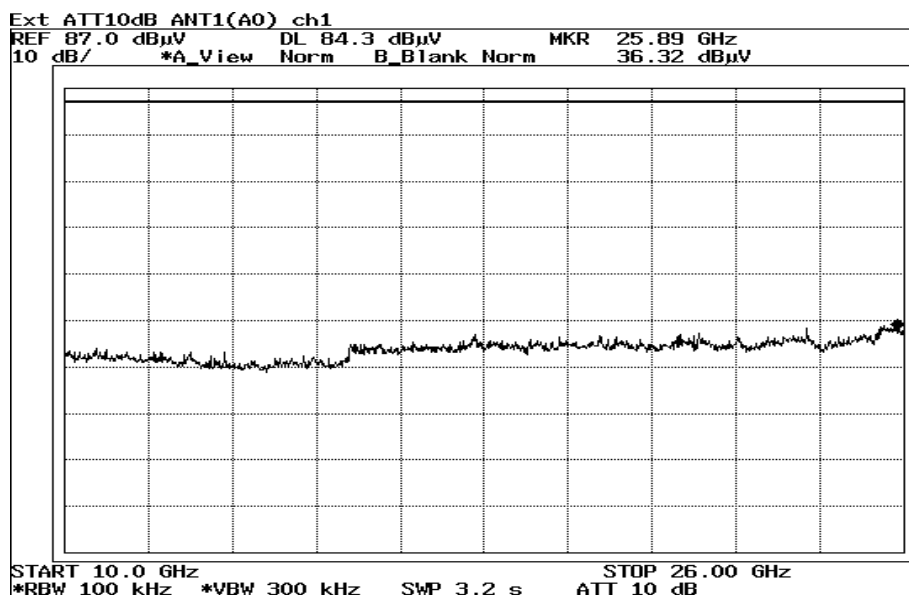
3.



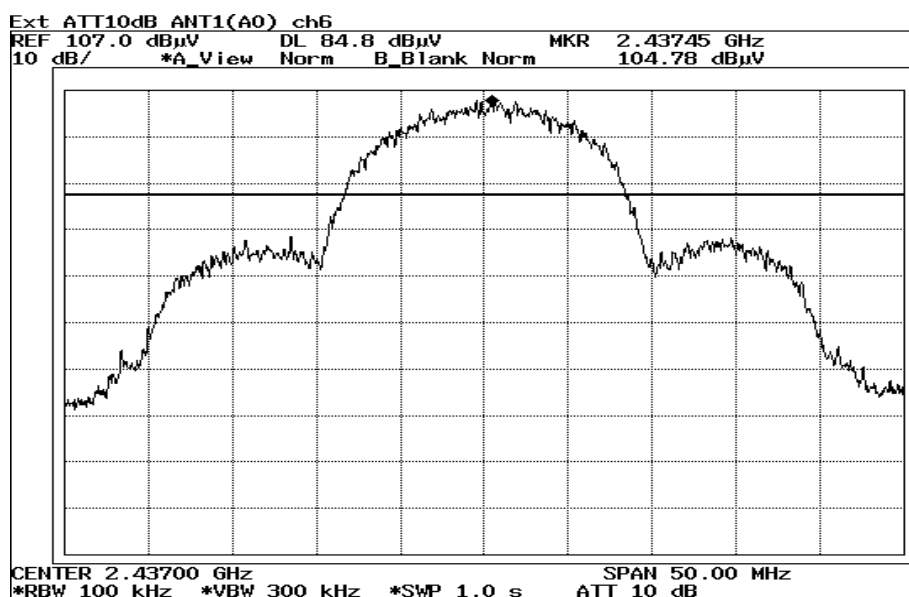
4.



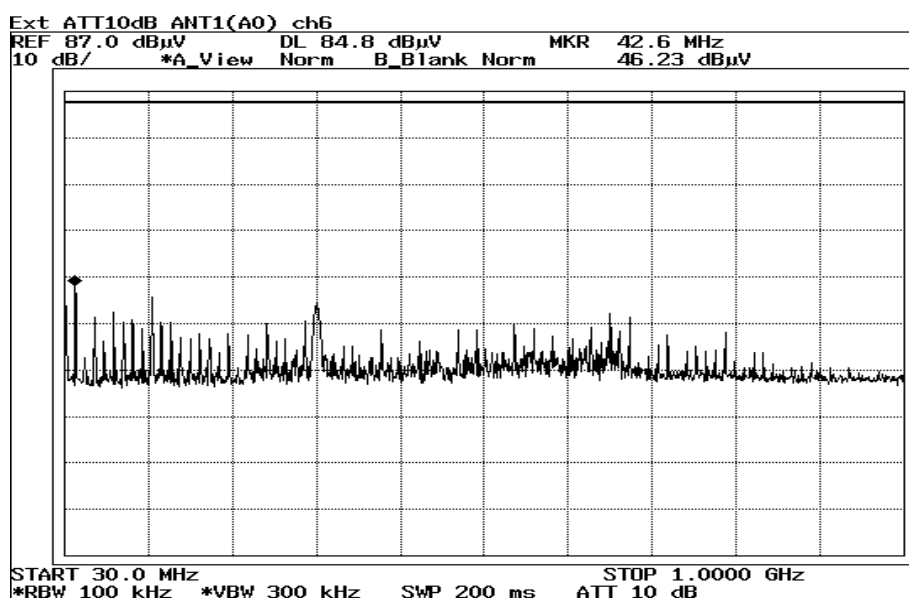
5.



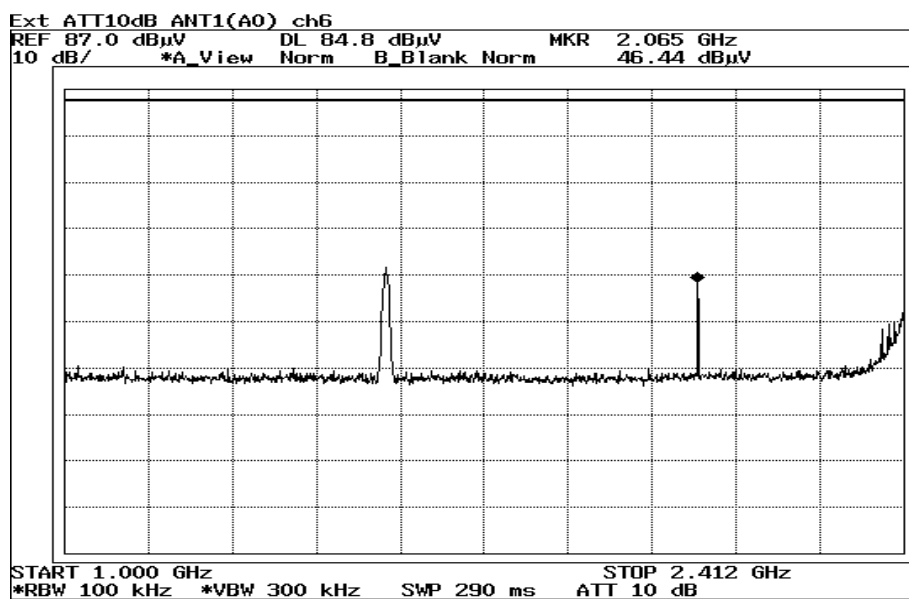
1.



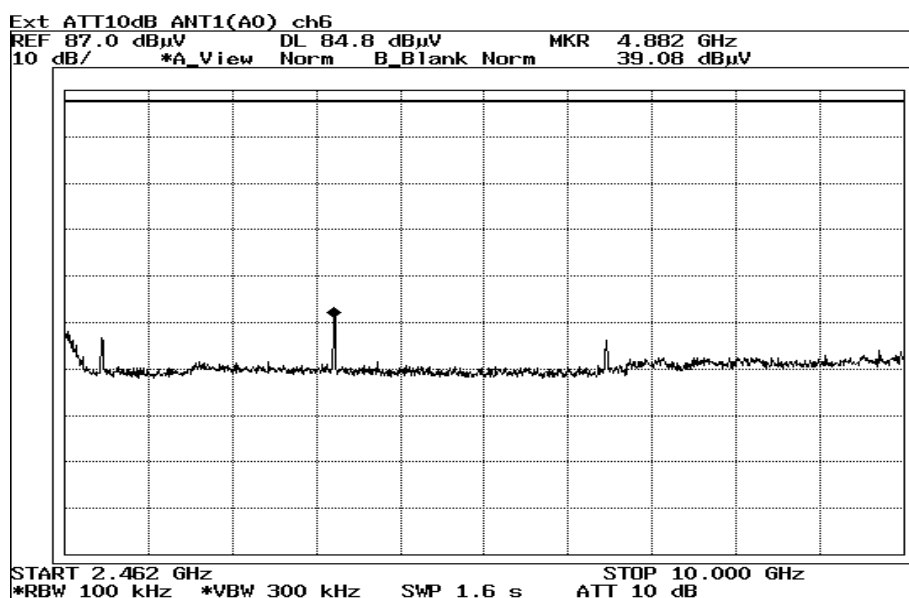
2.



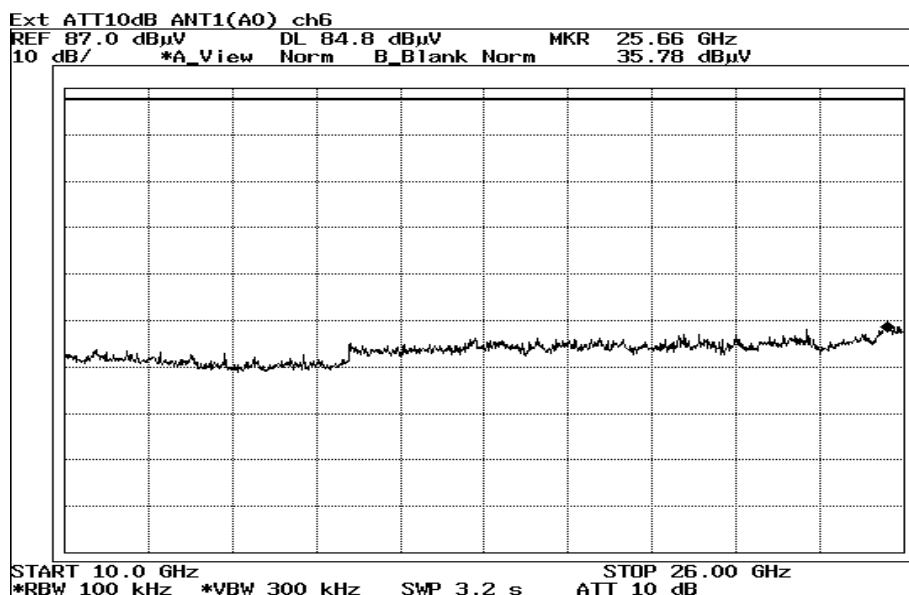
3.



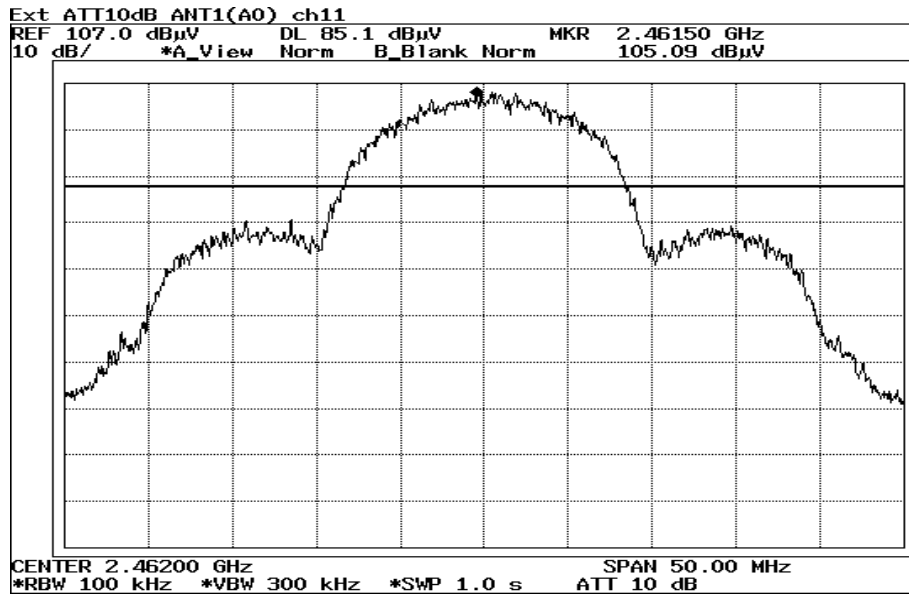
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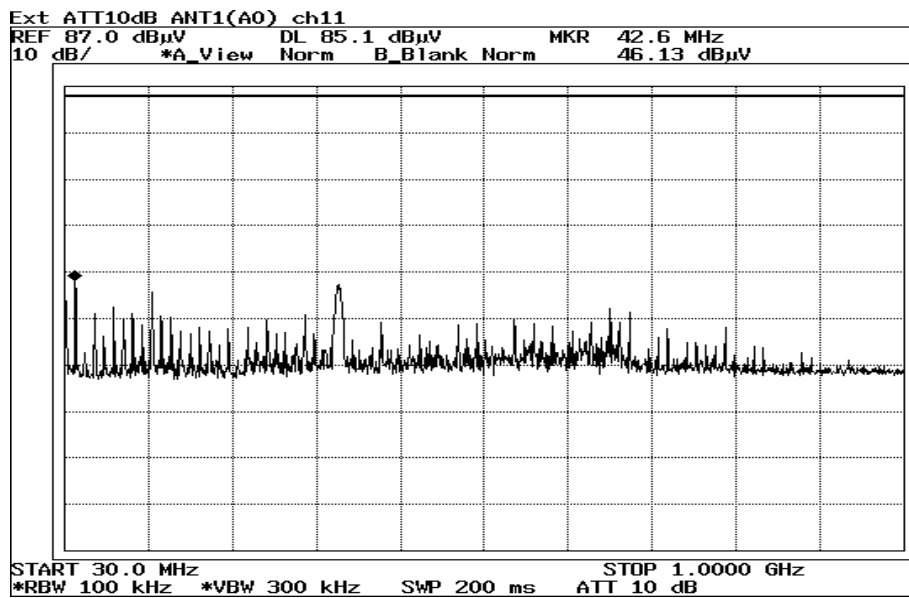
5.



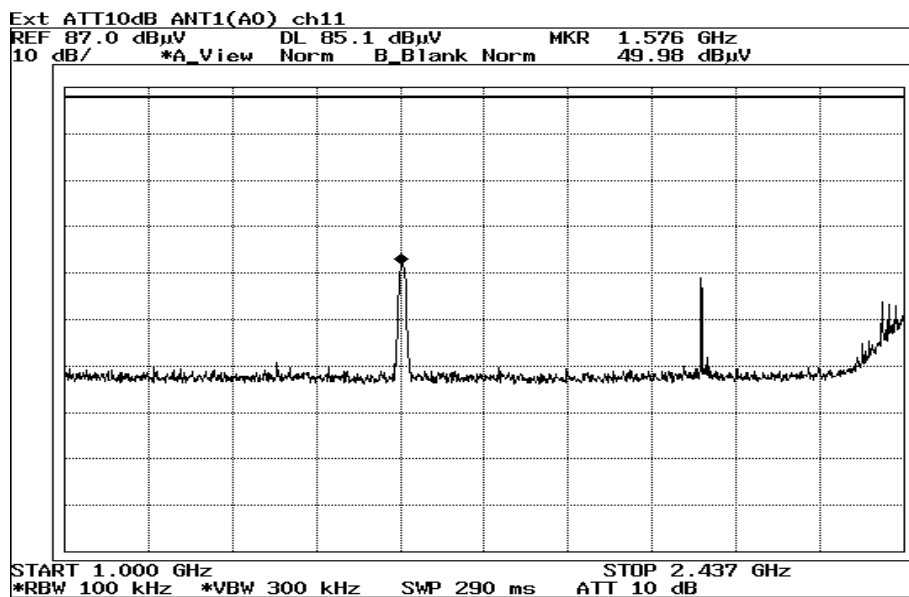
1.



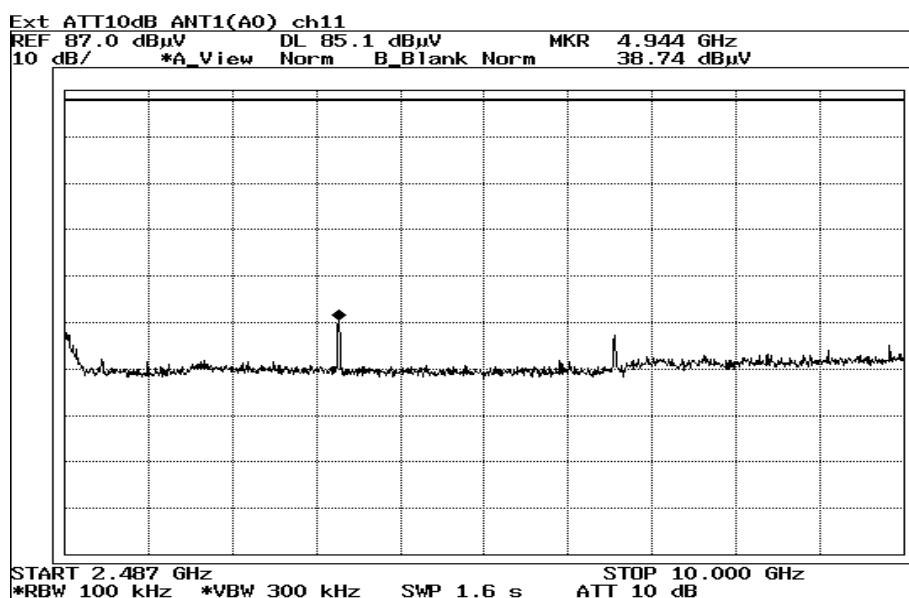
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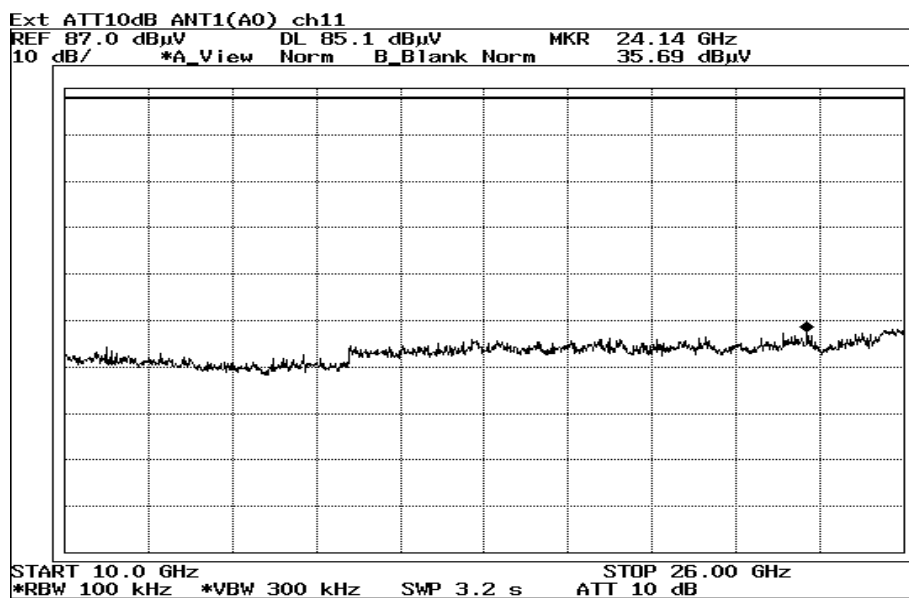
3.



4.

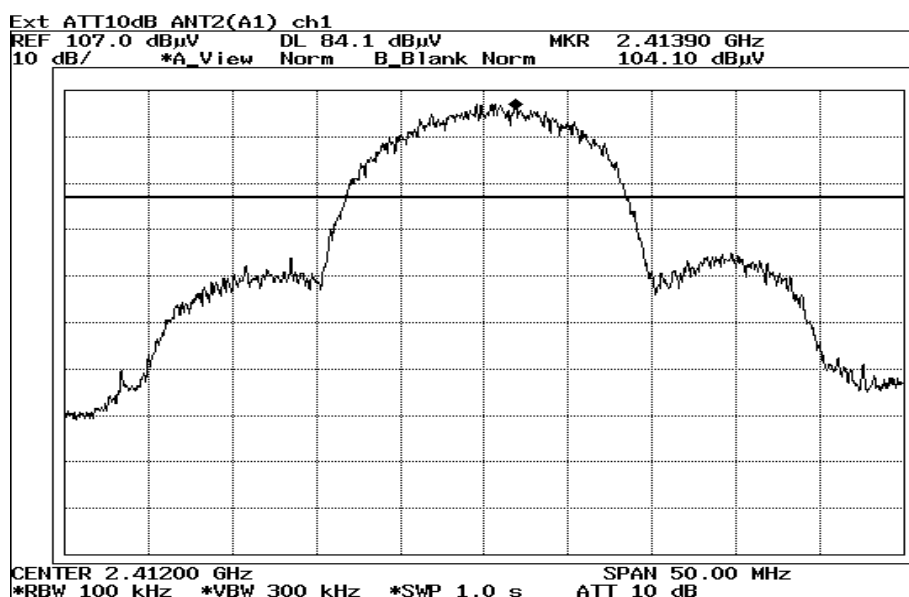


5.

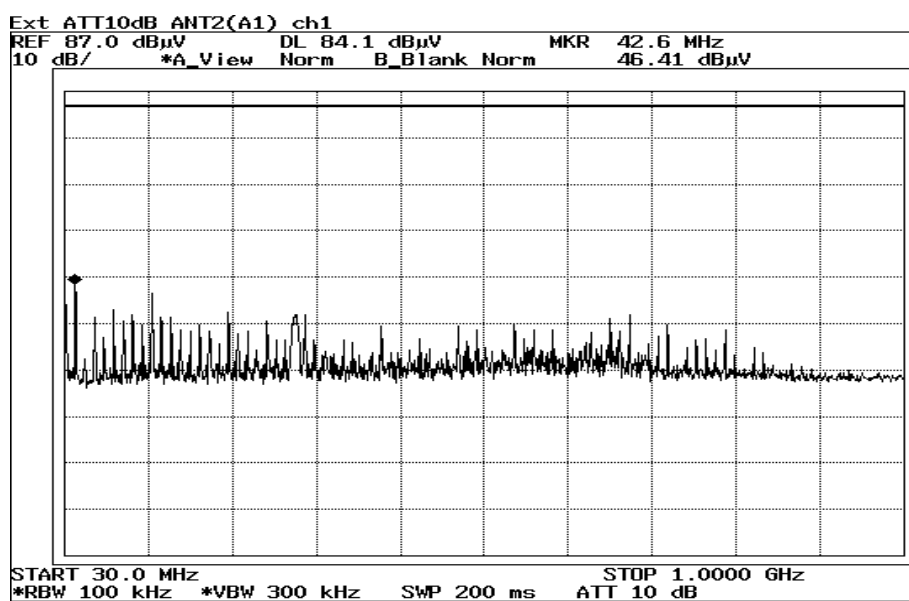


Ch 1: 2412MHz

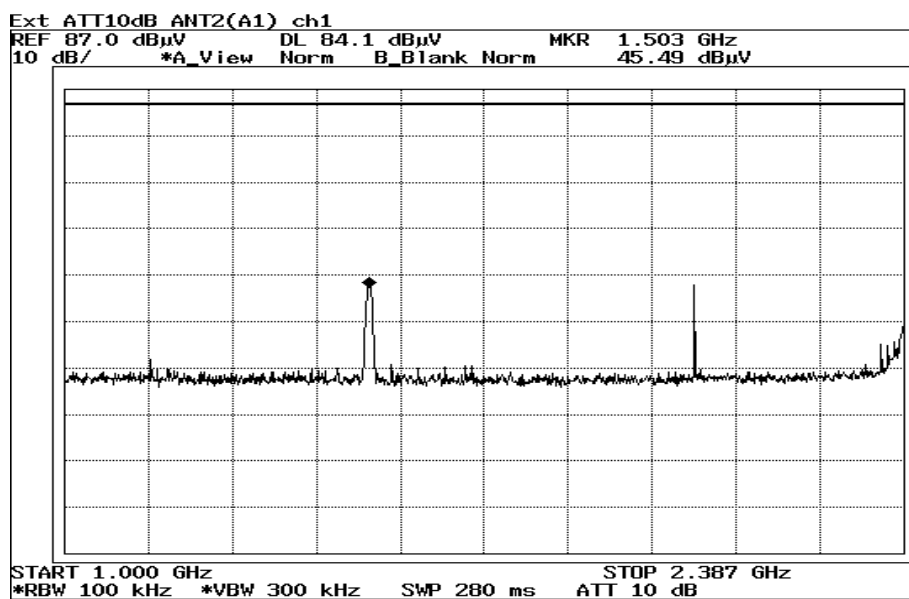
1.



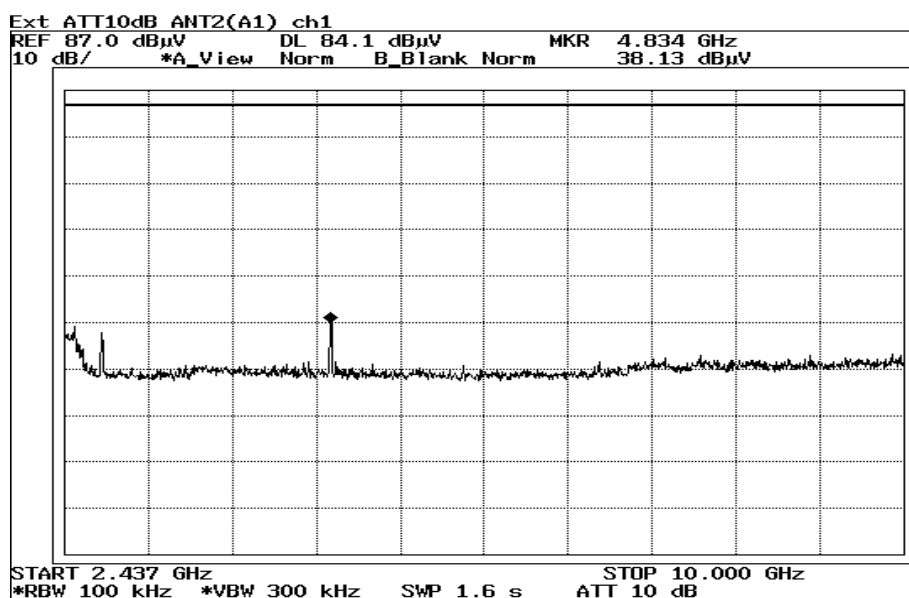
2.



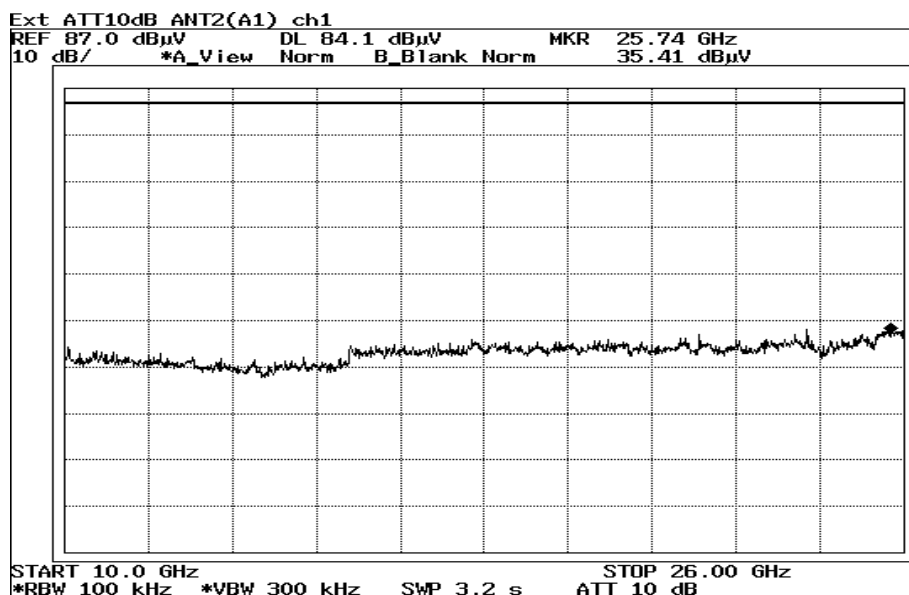
3.



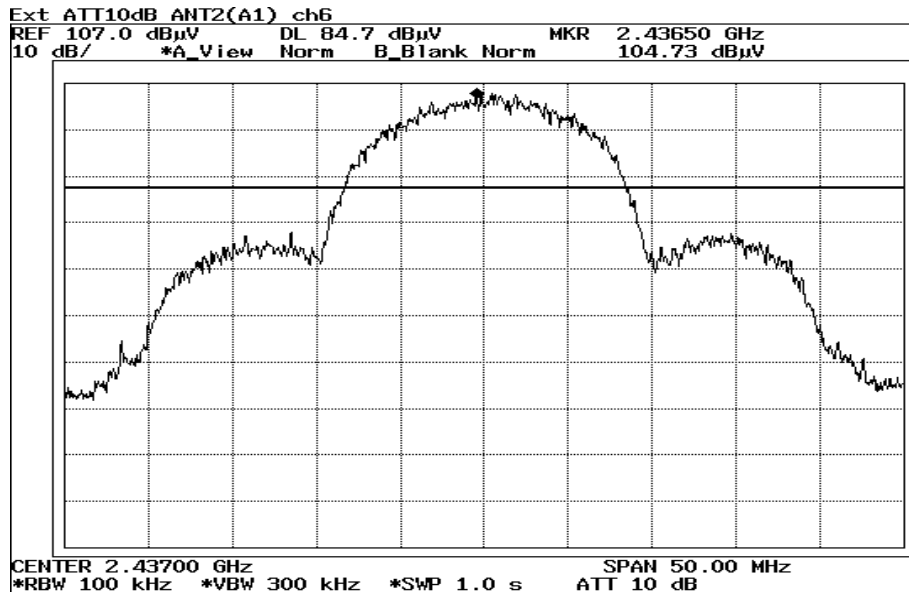
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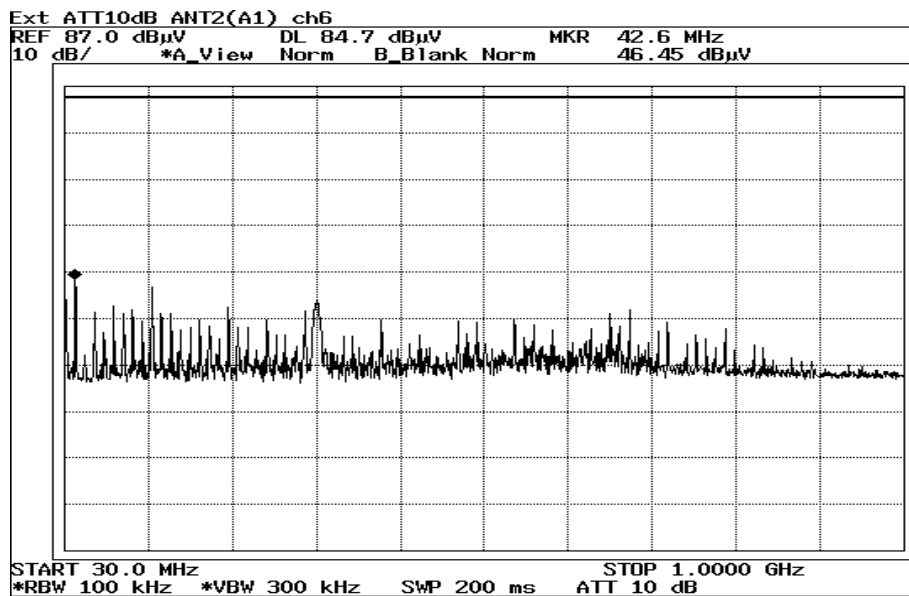
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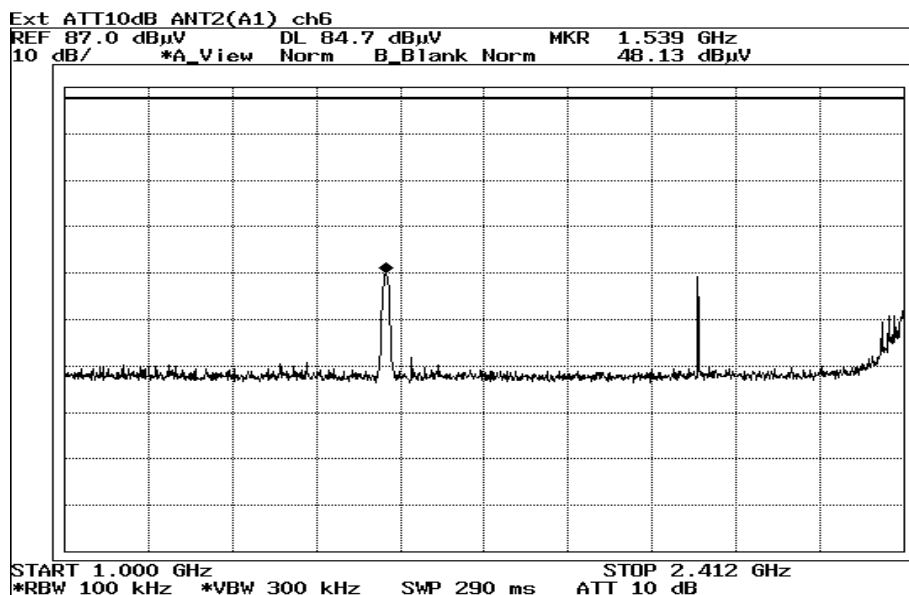
1.



2.



3.



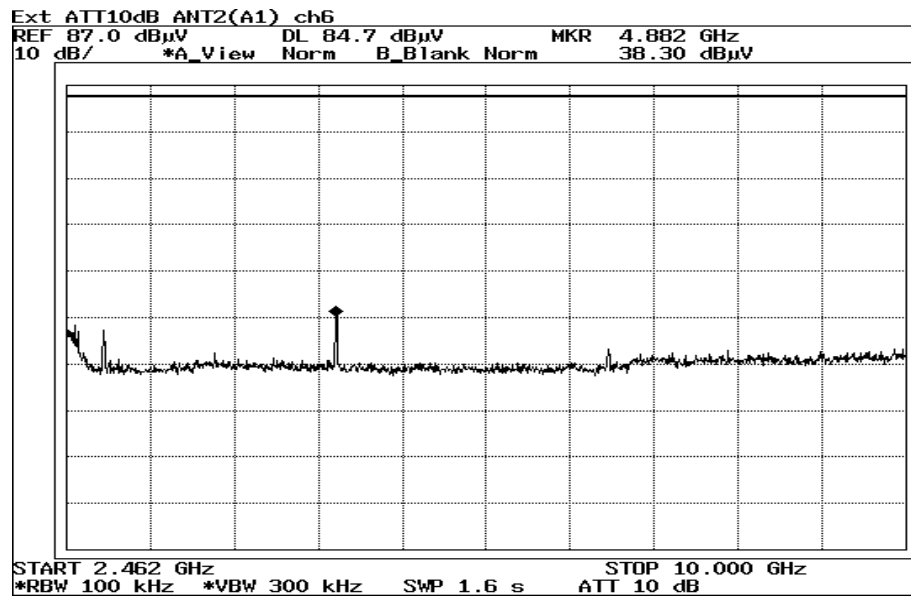
Out of Band Emissions (Conducted): FCC 15.247(c)

FCC ID: ACJ9TGCF-501

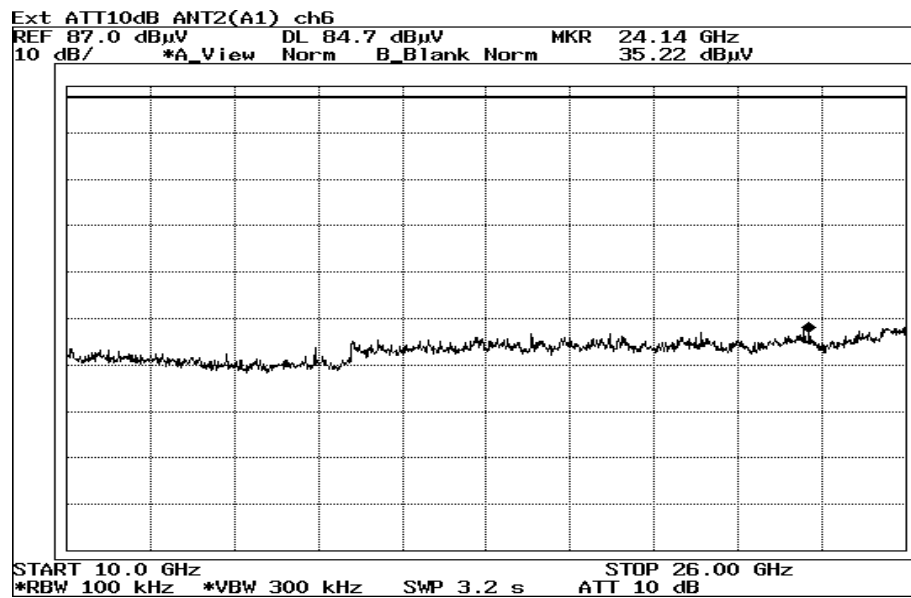
Antenna 2

Job No: 22LE0044-YW-1

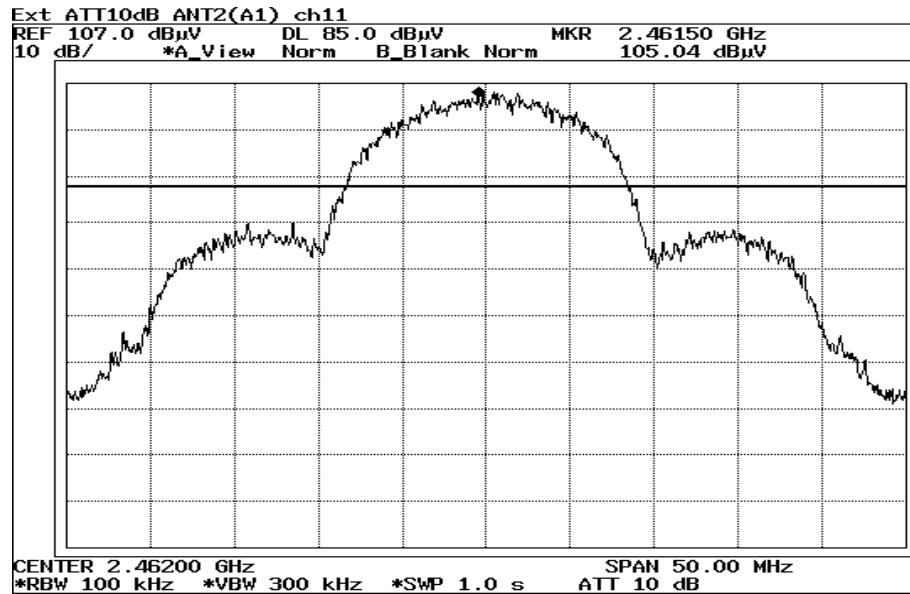
4.



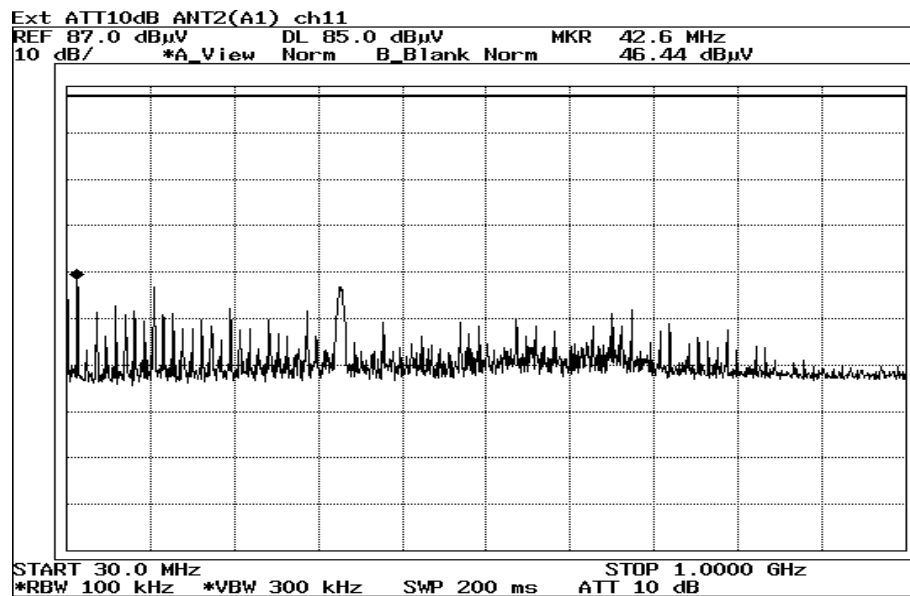
5.



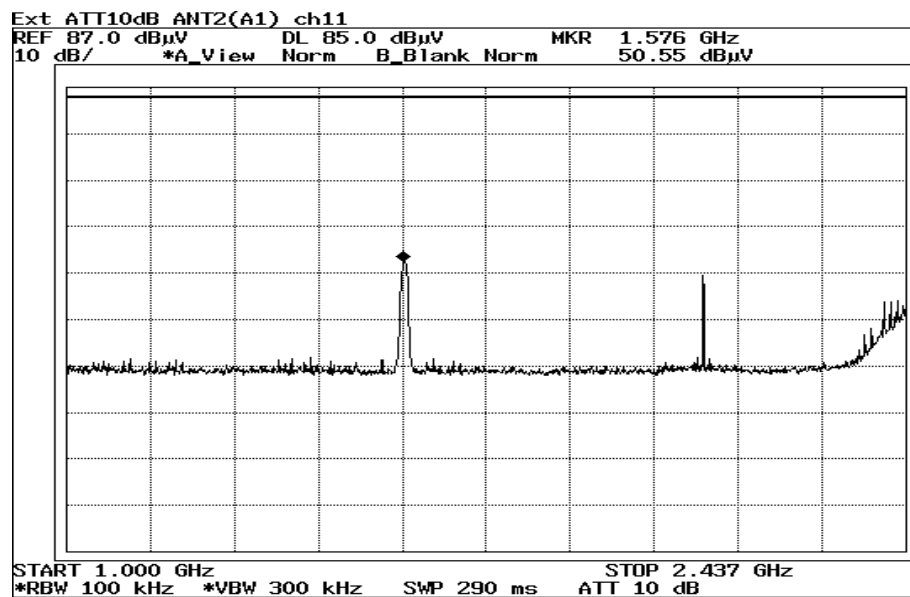
1.



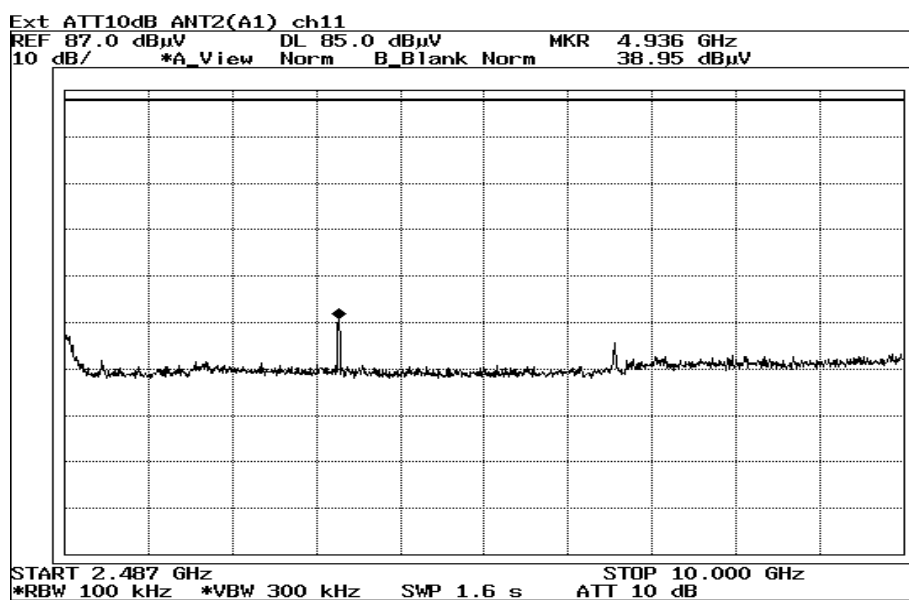
2.



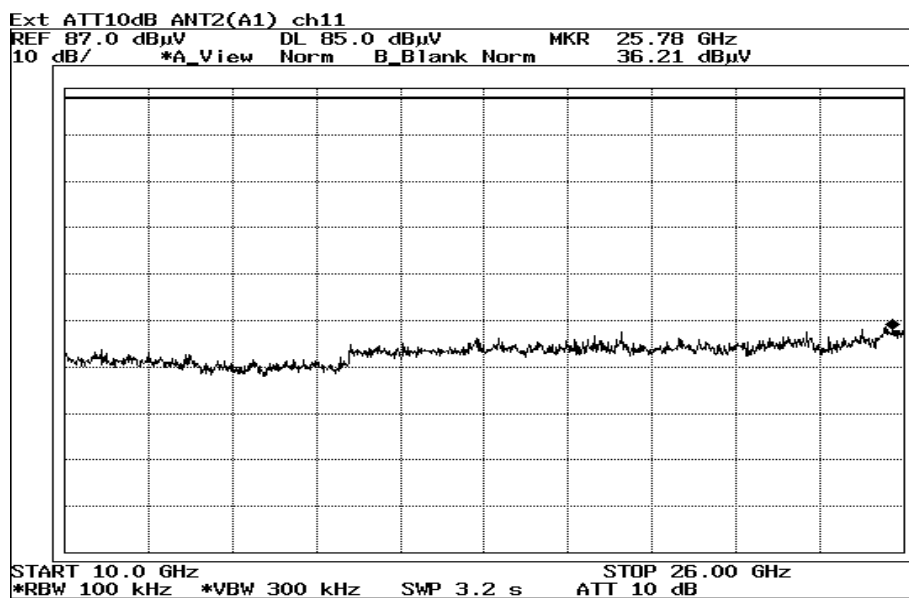
3.



4.



5.



Peak Power Density(Conducted)

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

Company	: Matsushita Electric Industrial Co., Ltd.	Report No.	: 22LE0044-YW-1
Equipment	: Wireless LAN builtin PC(Cisco LAN Card)	Regulation	: FCC Part15C 247(d)
Model	: CF-50	Date	: 2002/11/06
Sample No.	:	Temperature	: 25deg.C
FCC ID	: ACJ9TGCF-M342	Humidity	: 34%
Power	: AC 120V/60Hz		
Mode	: Transmitting (ch1, 6, 11)		


ENGINEER : Naoki Sakamoto

Antenna 1

Spectrum Analyzer Setting: RBW 3kHz / VBW 10kHz / SWP 500s / Span 1.5MHz)

ch	FREQ [GHz]	S/A Reading [dBm]	ATTEN. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
ch1 : 2412.0MHz	2.413405	-15.3	10.0	-5.3	8.0	13.3
ch6: 2437.0MHz	2.438404	-14.6	10.0	-4.6	8.0	12.6
ch11: 2462.0MHz	2.463405	-14.4	10.0	-4.4	8.0	12.4

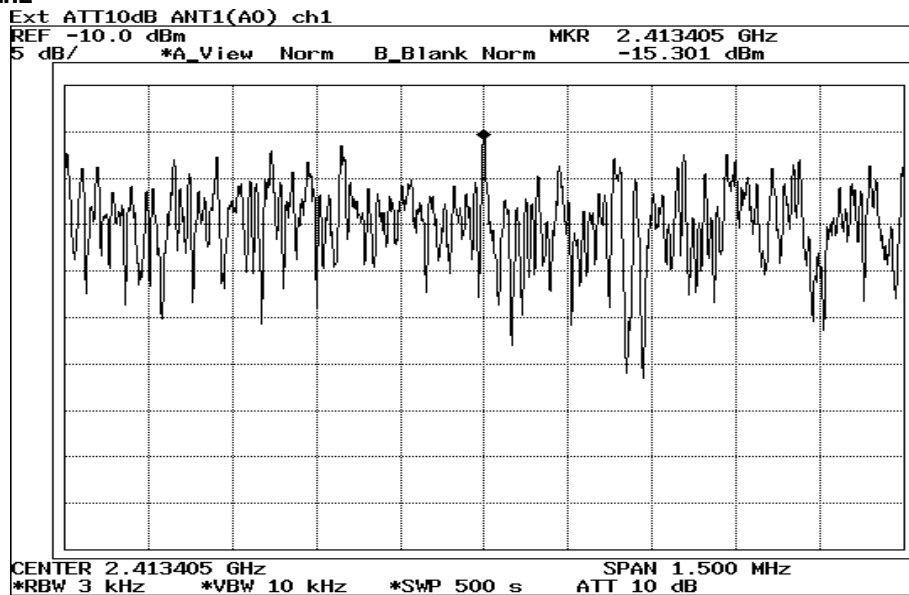
Antenna 2

Spectrum Analyzer Setting: RBW 3kHz / VBW 10kHz / SWP 500s / Span 1.5MHz)

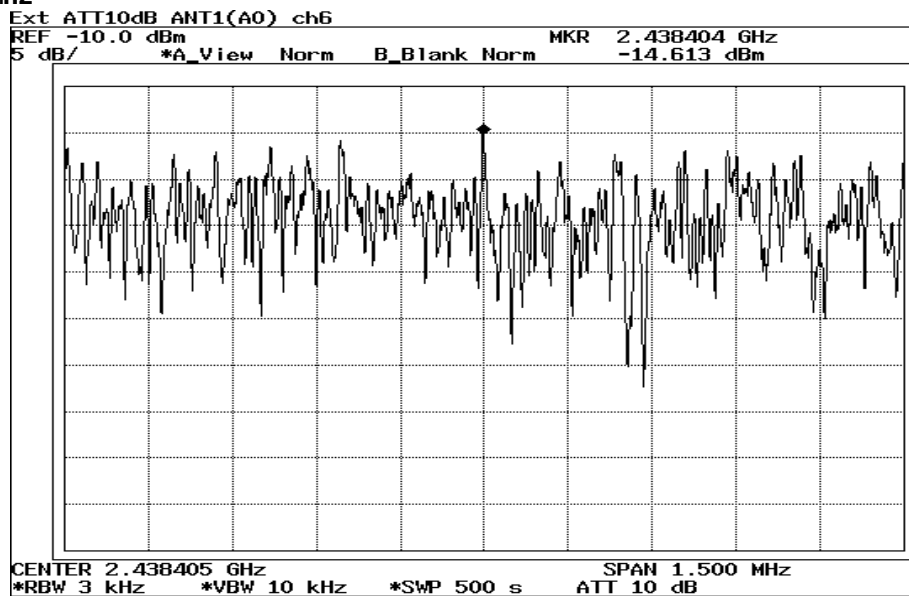
ch	FREQ [GHz]	S/A Reading [dBm]	ATTEN. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
ch1 : 2412.0MHz	2.413403	-15.1	10.0	-5.1	8.0	13.1
ch6: 2437.0MHz	2.438404	-14.7	10.0	-4.7	8.0	12.7
ch11: 2462.0MHz	2.463404	-14.4	10.0	-4.4	8.0	12.4

Sample Calculation :
RESULT=Reading + ATTEN.

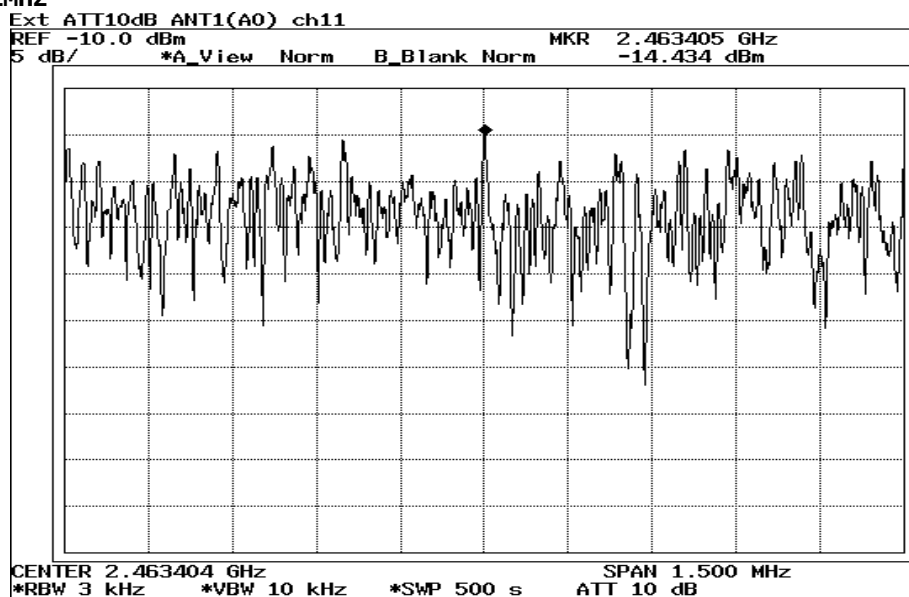
1. ch 1: 2412MHz



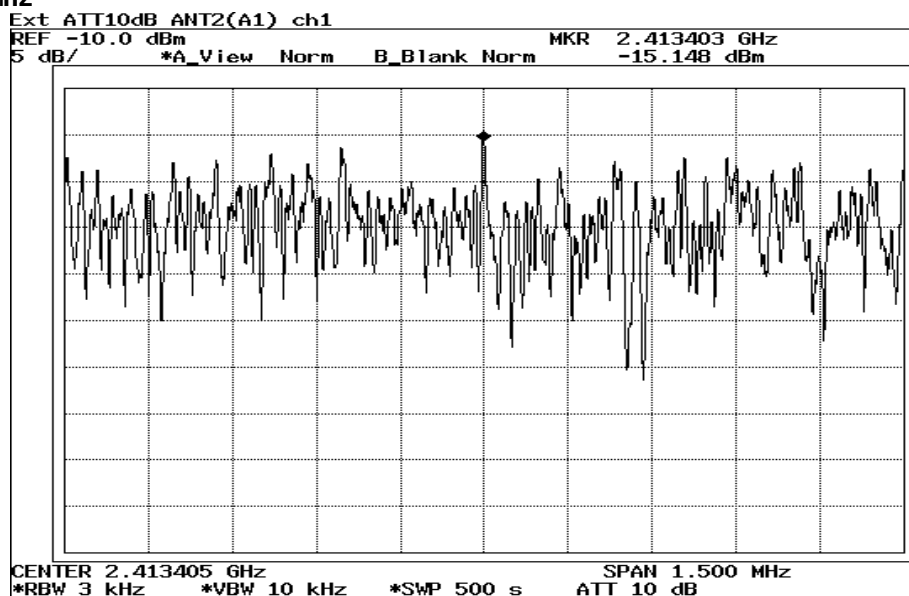
2. ch 6: 2437MHz



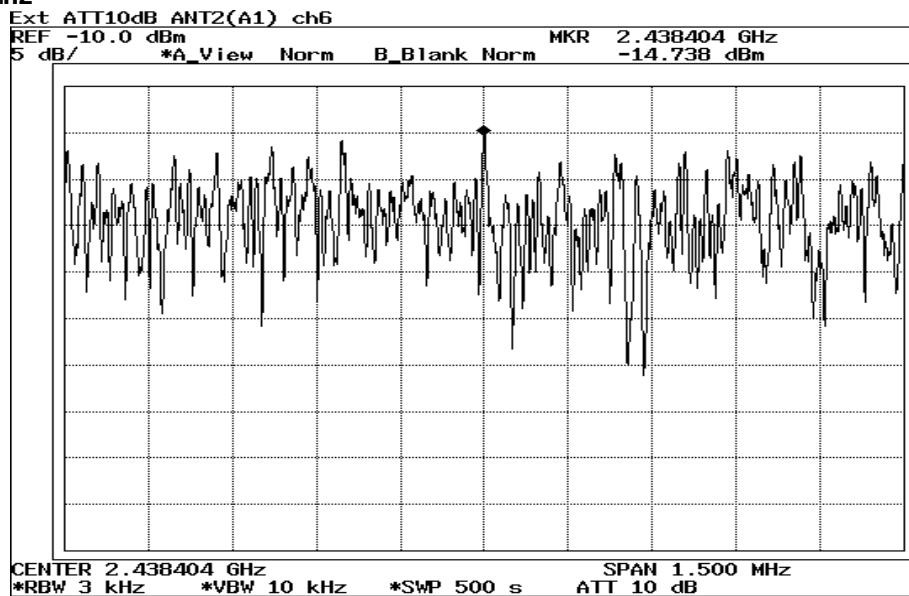
3. ch 11: 2462MHz



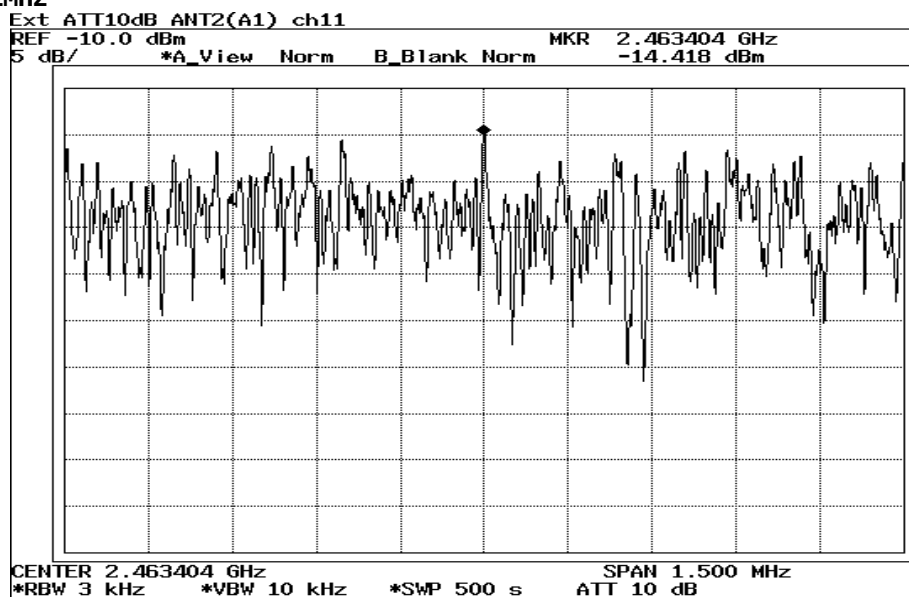
1. ch 1: 2412MHz



2. ch 6: 2437MHz



3. ch 11: 2462MHz



Test Report No : 22LE0044-YW-1

A 53 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-14	Attenuator	Weinschel	2	RE	2002/04/23 * 12
HF-04	High Pass Filter	Tokimec	TF323DCA	RE	2002/09/20 * 12
BA-03	Biconical Antenna	Schwarzbeck	BBA9106	RE	
LA-06	Logperiodic Antenna	Schwarzbeck	UHALP9108-A	RE	2002/05/02 * 12
HA-02	Horn Antenna	A.H.Systems	SAS-200/571	RE	2002/05/07 * 12
HA-03	Horn Antenna	Schwarzbeck	BBHA9170	RE	2002/04/27 * 12
SA-06	Spectrum Analyzer	Advantest	R3273	RE / CE	2002/11/19 * 12
TR-05	Test Receiver	Rohde & Schwarz	ESHS10	CE	2002/08/22 * 12
TR-06	Test Receiver	Rohde & Schwarz	ESVS10	RE	2001/11/22 * 12
LS-04	LISN	Rohde & Schwarz	ESH3-Z5	CE	2002/11/01 * 12
PM-02	Power Meter	Agilent	E4416A	CE	2002/03/22 * 12
PS-03	Power sensor	Agilent	E9327A	CE	2002/03/12 * 12

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

Test Item:

- CE: Conducted emission,
- RE: Radiated emission,
- H/F: Harmonics and voltage fluctuation
- RFI: RFI Power test,
- AT: Antenna terminal disturbance voltage