



EMI TEST REPORT

Test Report No. : 25HE0105-HO-2

Applicant : FUJITSU LIMITED
Type of Equipment : Personal Computer
Model No. : P1510
Test standard : FCC Part 15 Subpart E
Section 15.407: 2005
FCC ID : EJE-WL0033
Test Result : Complied

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

Date of test:

April 22 to June 2, 2005

Tested by :

Mitsuru Fujimura
EMC Service

Hiroka Umeyama
EMC Service

Norihisa Hashimoto
EMC Service

Keiichi Aoki
EMC Service

Approved by :

Hironobu Shimoji
Group Leader of
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Head Office EMC Lab.

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CONTENTS	PAGE
SECTION 1: Client information	3
SECTION 2: Equipment under test (E.U.T.).....	3
SECTION 3: Test specification, procedures & results	4
SECTION 4: Operation of E.U.T. during testing.....	6
SECTION 5: Conducted Emission.....	9
SECTION 6: Spurious Emission , Band Edge Compliance.....	10
SECTION 7: 26dB Emission Bandwidth.....	11
SECTION 8: Peak Transmit Power	11
SECTION 9: Peak Power Spectral Density	11
SECTION 10: Peak Excursion Ratio.....	11
APPENDIX 1: Photographs of test setup	12
Conducted Emission	12
Spurious Emission (Radiated)	13
Worst Case Position (Z-axis:Horizontal / X-axis:Vertical)	14
APPENDIX 2:Test instruments	15
APPENDIX 3: Data of EMI test.....	16
Conducted Emission	16
26dB Emission Bandwidth & 99%Occupied Bandwidth	22
Peak Transmit Power	24
IEEE802.11a (Low&Mid Band) 6Mbps Main Antenna	25
IEEE802.11a (Low&Mid Band) 54Mbps Main Antenna	26
Peak Transmit Power	27
IEEE802.11a (Low&Mid Band) 6Mbps AUX Antenna.....	28
IEEE802.11a (Low&Mid Band) 54Mbps AUX Antenna.....	29
Peak Transmit Power	30
Radiated Spurious Emission (below 1GHz)	31
Radiated Spurious Emission (above 1GHz)	35
Conducted Spurious Emission(DSSS and other forms of modulation).....	39
Conducted emission Band Edge compliance	43
Peak Power Spectral Density	44
Peak Excursion Ratio	47

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SECTION 1: Client information

Company Name : FUJITSU LIMITED
Address : 1405 Ohmaru, Inagi-shi, 206-8503 Tokyo Japan
Telephone Number : +81-42-370-7630
Facsimile Number : +81-42-370-7588
Contact Person : Tsuyoshi Uchihara

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

2.1 Identification of E.U.T.

Type of Equipment : Personal Computer
Model No. : P1510
Serial No. : R5100030
Rating : AC120V/60Hz (AC Adapter)
Country of Manufacture : Japan
Receipt Date of Sample : April 3, 2005
Condition of EUT : Engineering prototype
(Not for Sale: This sample is equivalent to mass-produced items.)

2.2 Product Description

Remarks : This Wireless Module consists of 1 chip each of 5GHz band.

Please refer to 25FE0105-HO-1 for IEEE802.11b/g, a High Band.

Equipment Type : Transceiver
Frequency of operation : 11bg: 2412-2462MHz
11a: 5150-5350MHz/5745 - 5825MHz
Channel Spacing : 5MHz(11bg), 20MHz (11a)
Duty Cycle : over 90%
Type of Modulation : DSSS, OFDM
Mode of operation : Duplex
Antenna Type : Monopole Antenna (M/N: YCE-5008)
Antenna Gain : IEEE802.11b/g: Main -4.78 dBi /AUX -1.49 dBi
IEEE802.11a: Main Antenna: 0.90dBi, AUX Antenna -0.97 dBi
(This antenna gain are values in which antenna was mounted to the PC)
Antenna Connector Type : U-FL
Operating voltage (inner) : DC3.3V
Operating temperature range : 0-+70 deg.C.

FCC 15.31 (e)

This EUT provides stable voltage(DC3.3V) constantly to RF Module regardless of input voltage. Therefore, this EUT complies with the requirement.

**As for Antenna requirement, please refer to the separate sheet.

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SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part15 Subpart E : 2005
Title : FCC 47CFR Part15 Radio Frequency Device
Subpart E Unlicensed National Information Infrastructure Devices
Section 15.407 General technical requirements

3.2 Procedures and results

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin*0)	Results
1	26dB Emission Bandwidth	ANSI C63.4:2003	Section 15.407(a)(1)(2)(3)	-	N/A	*See data	Complied
2	Peak Transmit Power	ANSI C63.4:2003	Section 15.407(a)(1)(2)(3)	Conducted	N/A		Complied
3	Peak Power Spectral Density	ANSI C63.4:2003	Section 15.407(a)(1)(2)(3)	Conducted	N/A		Complied
4	Peak Excursion Ratio	ANSI C63.4:2003	Section 15.407(a)(6)	Conducted	N/A		Complied
5	Spurious Emission	ANSI C63.4:2003	Section 15.407(b)(1)(2)(3)(4)	Conducted	N/A		Complied
6	Spurious Emission	ANSI C63.4:2003	(5)(6)(7) 15.205/15.209	Radiated	N/A	0.4dB 240.003MHz, Tx 5260MHz, Hor	Complied
7	AC Conducted Emission	ANSI C63.4:2003	Section 15.407(b)(6)/15.207	Tx5320MHz	N/A	8.8dB 0.4774MHz Phase L (AV) Tx 5320MHz	Complied
8	Band Edge Compliance	ANSI C63.4:2003	Section 15.407(b)(7)/15.205	Conducted Radiated	N/A	*See data	Complied

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

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

Uncertainty:

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

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

Conducted Emission

The measurement uncertainty (with a 95% confidence level) for this test is ± 1.3 dB.

Spurious Emission (Radiated)

The measurement uncertainty (with a 95% confidence level) for this test using Biconical antenna is ± 4.5 dB(3m)/ ± 4.7 dB(10m).

The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna is ± 5.2 dB(3m)/ ± 3.8 dB(10m).

The measurement uncertainty (with a 95% confidence level) for this test using Horn antenna is ± 6.6 dB.

Other test except Conducted Emission and Spurious Emission (Radiated)

The measurement uncertainty (with a 95% confidence level) for this test is ± 3.0 dB.

*These tests were also referred to FCC Public Notice DA 02-2138 "Measurement Procedure Updated for Peak Transmit Power in the Unlicensed National Information Infrastructure (U-NII) Bands".

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

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3.3 Addition to standards

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	99% Occupied Band Width	RSS210(issue 5): 2001 + Amendment:2002 + Amendment2:2003 + Amendment3:2004 + Amendment4:2004	RSS210(issue 5): 2001 + Amendment:2002 + Amendment2:2003 + Amendment3:2004 + Amendment4:2004	Conducted	N/A	N/A	N/A

3.4 Test Location

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

* Size of vertical conducting plane (for Conducted Emission test) : 2.0 x 2.0m for No.1 and No.2 semi-anechoic and No.3 shielded room.

3.5 Test set up, Test instruments and Data of EMI

Refer to APPENDIX 1 to 3.

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

4.1 Operating Modes

The EUT was operating in a manner similar to typical use during the tests.

Packet Type : Maximum
Payload : PN9
Operation : **Normal mode(IEEE802.11a)**
Channel 36: 5180MHz
Channel 52: 5260MHz
Channel 64: 5320MHz
Conditions :
1) Data Rate: IEEE802.11a (Normal):6,9,12,18,24,36,48,54 Mbps
2) AUX Antenna, Main Antenna (same type)
*We pre-confirmed the above conditions on EUT and performed the final test with the following conditions;

	IEEE802.11a (Normal/High Band)
Conducted emission test	1)Rate:54Mbps
	2)AUX Antenna
Radiated emission test	1)Rate:54 Mbps
	2)AUX Antenna
Other tests	1)Rate:6, 54 Mbps
	2)Main Antenna

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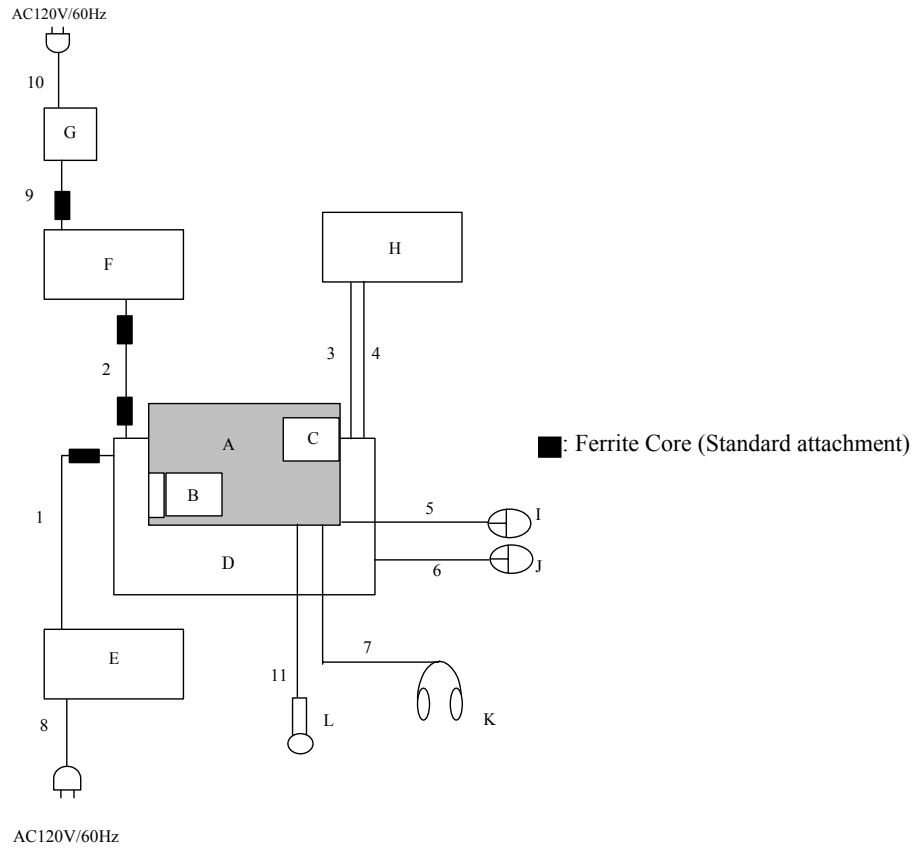
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4.2 Configuration and peripherals



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

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	FCC ID	Remarks
A	Personal Computer	P1510	R5100030	FUJITSU LIMITED	EJE-WL0033	EUT
B	PC Card	-	-	IO DATA	-	-
C	SD Card	-	-	IO DATA	-	-
D	Port Replicator	-	30	FUJITSU LIMITED	-	-
E	AC Adapter	CA01007-0730	01208879C	FUJITSU LIMITED	-	-
F	LCD Monitor	PLE430-B1S	05205G4538698	Iiyama	-	-
G	AC Adapter	ADPC12416BB	12416B042126921	Iiyama	-	-
H	Personal Computer	PGMJ140M	09632777	SHARP	-	-
I	Mouse	M-UB48	LZE02650788	Logitech	-	-
J	Mouse	M-UB48	LZE02601001	Logitech	-	-
K	Headset	LT-100	0010D	Panasonic	-	-
L	Microphone	-	-	Fujitsu	-	-

List of cables used

No.	Name	Length (m)	Shield	Backshell Material
1	DC Cable	1.8	N	Polyvinyl chloride
2	Monitor Cable	1.8	Y	Polyvinyl chloride
3	LAN Cable	2.9	N	Polyvinyl chloride
4	TEL Line	2.0	N	Polyvinyl chloride
5	Mouse Cable	0.7	N	Polyvinyl chloride
6	Mouse Cable	0.7	N	Polyvinyl chloride
7	Headset Cable	3.0	N	Polyvinyl chloride
8	AC Cable	2.0	N	Polyvinyl chloride
9	DC Cable	1.2	N	Polyvinyl chloride
10	AC Cable	1.8	N	Polyvinyl chloride
11	Microphone Cable	1.6	N	Polyvinyl chloride

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SECTION 5: Conducted Emission

Test Procedure

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

1) For the tests on EUT with other peripherals (as a whole system)

I/O cable 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.

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

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

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

The EUT was connected to a LISN (AMN).

An overview sweep with peak detection has been performed.

The measurements have been performed with a CISPR quasi-peak detector (IF BW 9 kHz).

Measurement range: 0.15-30MHz

Test data : APPENDIX 3

Test result : Pass

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SECTION 6: Spurious Emission , Band Edge Compliance

[Conducted]

Test Procedure

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

Test data : APPENDIX 3
Test result : Pass

[Radiated]

Test Procedure

EUT was placed on a platform of nominal size, 1.0m by 1.0m, raised 80cm above the conducting ground plane. The Radiated Electric Field Strength intensity has been measured in a Semi Anechoic Chamber with a ground plane and at a distance of 3m(Below 10GHz) , 1m(10-26.5GHz, Distance Factor : $20\log(3[m]/1[m])$) and 0.5m(Upper 26.5GHz, Distance Factor : $20\log(3[m]/0.5[m])$).

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

The measurements were performed for both vertical and horizontal antenna polarization with the Test Receiver or the Spectrum Analyzer.

Below 1GHz

The result also satisfied with the general limits specified in section 15.209(a).

Above 1GHz

Inside of the restricted bands (Section 15.205) : Apply to limit in the Section 15.209(a)

Outside of the restricted bands (Section 15.205) : Limit -27dBm EIRP

-17dBm EIRP (5.725-5.825GHz Band Edge)

Frequency	Below 1GHz	Above 1GHz (Inside of the restricted bands)	Above 1GHz (Outside of the restricted bands)
Instrument use	Test Receiver	Spectrum Analyzer	Spectrum Analyzer
Detector IF Bandwidth	QP: BW 120kHz	PK: RBW:1MHz/VBW: 1MHz AV: RBW:1MHz/VBW:10Hz	RBW:1MHz/VBW: 1MHz

Test data : APPENDIX 3
Test result : Pass

*The noise from the EUT was not seen in the above 18GHz. The measurement was made in the residual noise levels.

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SECTION 7: 26dB Emission Bandwidth

Test Procedure

The 26dB Emission Bandwidth was measured with a spectrum analyzer connected to the antenna port.

Test data : APPENDIX 3
Test result : Pass

SECTION 8: Peak Transmit Power

Test Procedure

The Peak Transmit Power was measured with a spectrum analyzer connected to the antenna port.
The test was made with the spectrum analyzer that has a function of channel-power measurement.
We followed the method 1 specified in DA-02-2138A1.

Test data : APPENDIX 3
Test result : Pass

SECTION 9: Peak Power Spectral Density

Test Procedure

The Peak Power Spectral Density was measured with a spectrum analyzer connected to the antenna port.
We followed the method 2 specified in DA-02-2138A1.

Test data : APPENDIX 3
Test result : Pass

SECTION 10: Peak Excursion Ratio

Test Procedure

The Peak Excursion Ratio was measured with a spectrum analyzer connected to the antenna port.
The second Sweep was measured based on Method 1 specified in DA-02-2138A1.

Test data : APPENDIX 3
Test result : Pass

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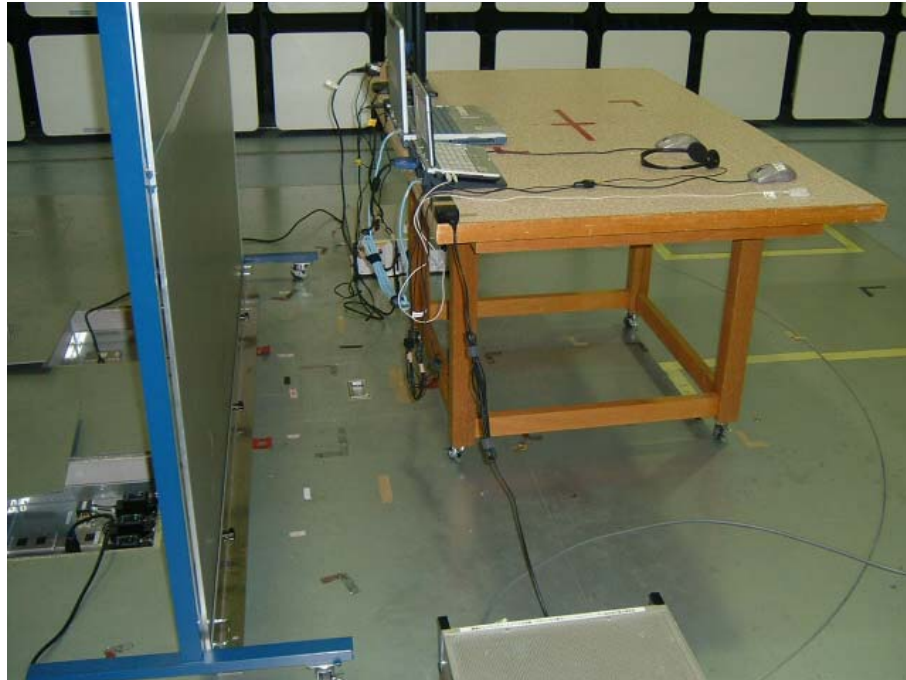
APPENDIX 1: Photographs of test setup

Conducted Emission

Front



Rear



Spurious Emission (Radiated)

Front



Rear



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

X-axis



Y-axis



Z-axis



APPENDIX 2:Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-01	Anechoic Chamber	TDK	Semi Anechoic Chamber 10m	RE	2004/11/13 * 12
MTR-01	Test Receiver	Rohde & Schwarz	ESI40	RE	2004/11/12 * 12
MCC-18	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX 104	RE	2005/02/03 * 12
MCC-26	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	RE	2004/08/26 * 12
MPA-05	Pre Amplifier	TSJ	TSJ 1-26.5GHz PreAmp	RE	2004/06/12 * 12
MHA-06	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2005/01/10 * 12
MAT-20	Attenuator(10dB)(above1GHz)	HIROSE ELECTRIC CO.,LTD.	AT-110	RE	2005/01/11 * 12
MHF-02	High Pass Filter	Tokimec	TF323DCA	RE	2004/09/18 * 12
MAEC-02	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE / CE	2005/04/11 * 12
MRENT-14	Spectrum Analyzer	Advantest	R3273	RE / CE	2005/02/21 * 12
MCC-04	Microwave Cable 1G-50GHz	Storm	421-011 (90-1394-079)	RE	2005/01/05 * 12
MCC-19	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX 104	RE	2005/02/03 * 12
MPA-01	Pre Amplifier	Agilent	8449B	RE	2005/02/05 * 12
MHA-06	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2005/01/10 * 12
MCC-05	Microwave Cable 1G-50GHz	Storm	421-011 (90-1394-079)	RE	2005/01/05 * 12
MBF-03	SHF Bandpass Filter	M-City	13GHz BPF	RE	2005/05/20 * 12
MHA-02	Horn Antenna	EMCO	3160-09	RE	2005/01/10 * 12
MTR-02	Test Receiver	Rohde & Schwarz	ESCS30	RE/CE	2005/02/02 * 12
MCC-13	Coaxial Cable	Fujikura/Agilent	-	CE	2005/02/24 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	CE(EUT)	2005/02/04 * 12
MLS-07	LISN(AMN)	Schwarzbeck	NSLK8127	CE	2005/02/04 * 12
MTA-04	Termination	MCL	NTRM-50	CE	2005/02/03 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	RE	2005/02/24 * 12
MPA-06	Pre Amplifier	Hewlett Packard	8447D	RE	2004/08/29 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	RE	2004/12/16 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	RE	2004/10/14 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2004/10/14 * 12
MHA-04	Horn Antenna	EMCO	3160-10	RE	2005/01/10 * 12
MPA-03	Microwave System Power Amplifier	Agilent	83050A	RE	2005/05/11 * 12
MCC-17	Microwave Cable 1G-50GHz	Suhner	SUCOFLEX 101	RE	2005/02/03 * 12
MCC-27	Microwave Cable 1G-50GHz	Suhner	SUCOFLEX101	RE	2004/08/26 * 12
MSA-03	Spectrum Analyzer	Agilent	E4448A	AT	2004/06/12 * 12
MCC-06	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX 104	AT	2005/02/03 * 12
MCC-36	Microwave Cable	Mitachi Co., Ltd.	U.FL-2LP-066-A-(200)	AT	2004/07/22 * 12
MAT-22	Attenuator(10dB)(above1GHz)	Orient Microwave	BX10-0476-00	AT	2005/03/16 * 12

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

CE: Conducted emission,

RE: Radiated emission,

AT: Antenna terminal conducted measurement

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APPENDIX 3: Data of EMI test

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

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

Applicant : Fujitsu Limited
Kind of EUT : Personal Computer
Model No. : P1510
Serial No. : R5100030

Report No. : 25HE0105-HO
Power : AC120V/60Hz
Temp°C/Humi% : 25deg. C / 46%
Operator : Norihisa Hashimoto

Mode / Remarks : 11a Low Band 5180MHz 6Mbps / Main Antenna

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

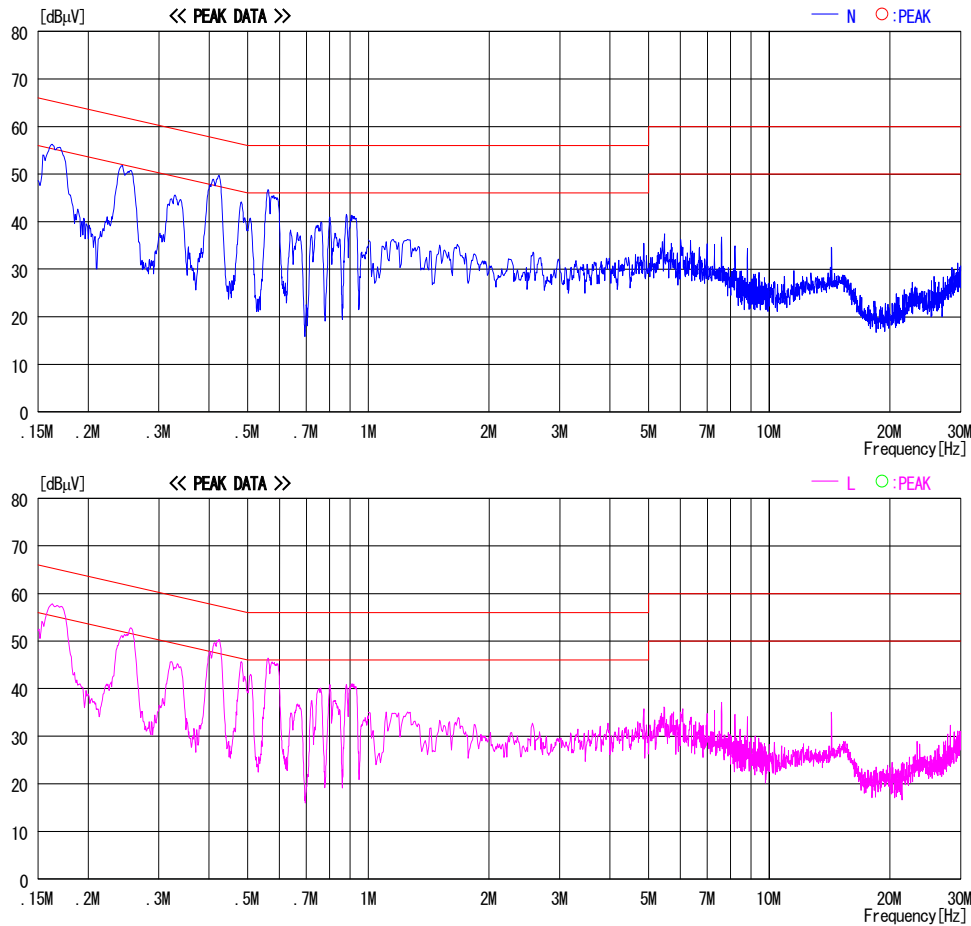


CHART:WITH FACTOR, Peak hold data. Data is uncorrected. CALCURATION: RESULT=READING+C. F (LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

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DATA OF CONDUCTED EMISSION TEST

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

Applicant : Fujitsu Limited
Kind of EUT : Personal Computer
Model No. : P1510
Serial No. : R5100030

Report No. : 25HE0105-HO
Power : AC120V/60Hz
Temp°C/Humi% : 25deg.C / 46%
Operator : Norihisa Hashimoto

Mode / Remarks: 11a Low Band 5240MHz 6Mbps / Main Antenna

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

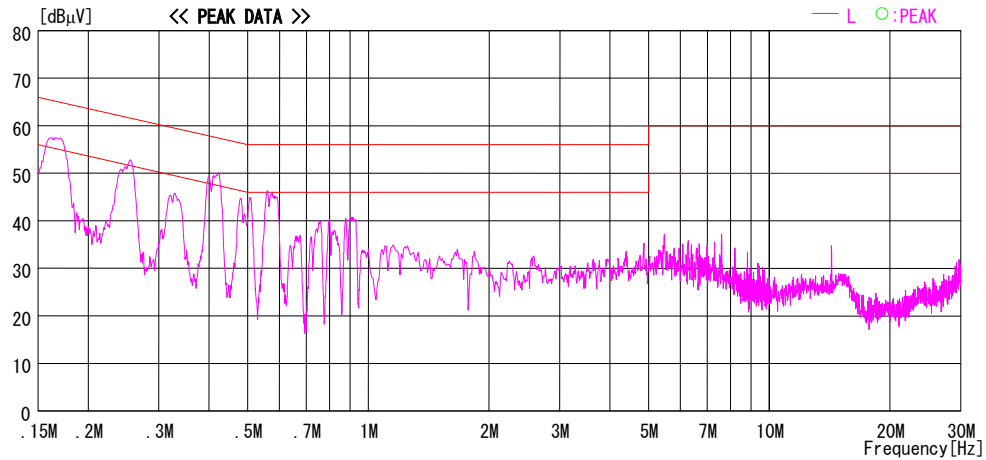
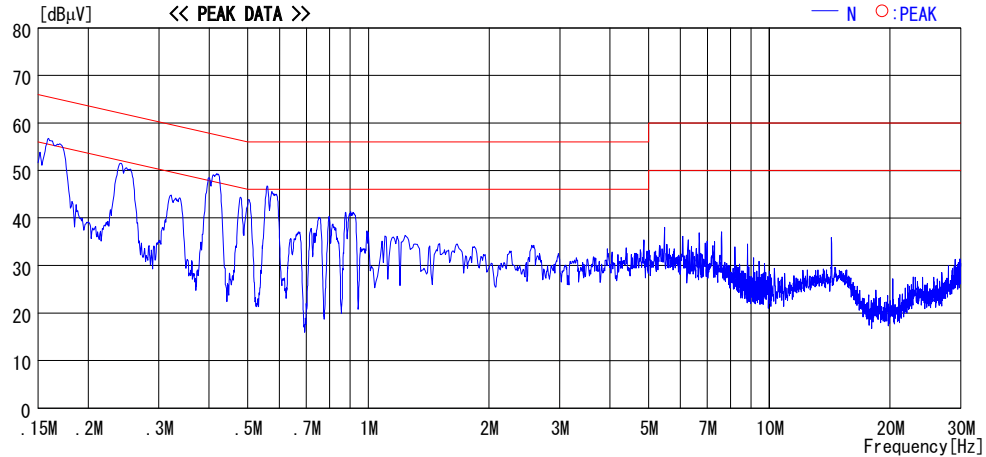


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F (LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

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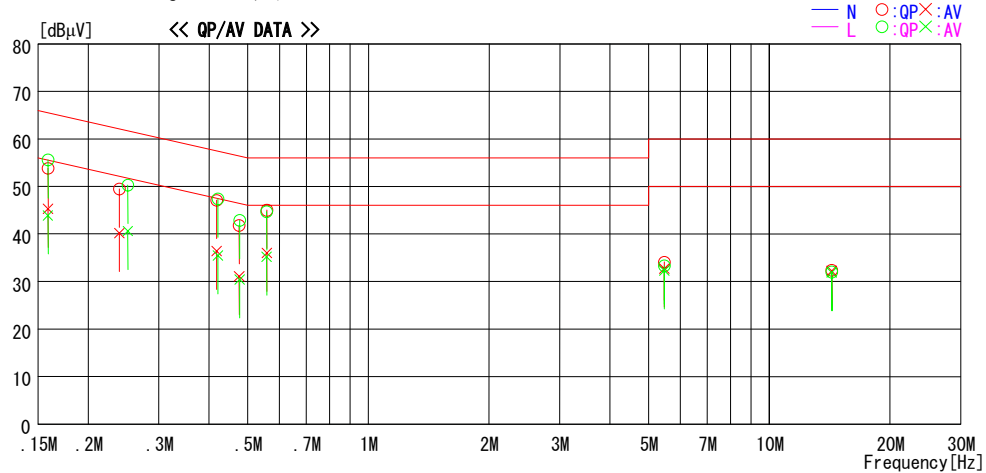
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Applicant : Fujitsu Limited
Kind of EUT : Personal Computer
Model No. : P1510
Serial No. : R5100030

Report No. : 25HE0105-HO
Power : AC120V/60Hz
Temp°C/Humi% : 25deg.C / 46%
Operator : Norihisa Hashimoto

Mode / Remarks : 11a Low Band 5240MHz 6Mbps / Main Antenna

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



NO	FREQ [MHz]	READING		C. F	RESULT		LIMIT		MARGIN		PHASE
		QP [dBμV]	AV [dBμV]		QP [dBμV]	AV [dBμV]	QP [dBμV]	AV [dBμV]	QP [dB]	AV [dB]	
1	0.1587	53.7	45.2	0.1	53.8	45.3	65.5	55.5	11.7	10.2	N
2	0.2391	49.4	40.1	0.1	49.5	40.2	62.1	52.1	12.6	11.9	N
3	0.4183	47.0	36.3	0.1	47.1	36.4	57.5	47.5	10.4	11.1	N
4	0.4761	41.7	31.0	0.1	41.8	31.1	56.4	46.4	14.6	15.3	N
5	0.5577	44.8	35.8	0.2	45.0	36.0	56.0	46.0	11.0	10.0	N
6	5.4694	33.3	31.9	0.8	34.1	32.7	60.0	50.0	25.9	17.3	N
7	14.3178	30.9	30.7	1.5	32.4	32.2	60.0	50.0	27.6	17.8	N
8	0.1587	55.5	43.8	0.1	55.6	43.9	65.5	55.5	9.9	11.6	L
9	0.2513	50.2	40.5	0.1	50.3	40.6	61.7	51.7	11.4	11.1	L
10	0.4209	47.3	35.4	0.1	47.4	35.5	57.4	47.4	10.0	11.9	L
11	0.4773	42.8	30.3	0.1	42.9	30.4	56.4	46.4	13.5	16.0	L
12	0.5568	44.5	35.0	0.2	44.7	35.2	56.0	46.0	11.3	10.8	L
13	5.4695	32.5	31.5	0.8	33.3	32.3	60.0	50.0	26.7	17.7	L
14	14.3184	30.5	30.4	1.5	32.0	31.9	60.0	50.0	28.0	18.1	L

CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F (LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

UL Apex Co., Ltd.

Head Office EMC Lab.

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MF060b(01.06.05)

DATA OF CONDUCTED EMISSION TEST

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

Applicant : Fujitsu Limited
Kind of EUT : Personal Computer
Model No. : P1510
Serial No. : R5100030

Report No. : 25HE0105-HO
Power : AC120V/60Hz
Temp°C/Humi% : 25deg.C / 46%
Operator : Norihisa Hashimoto

Mode / Remarks: 11a Mid Band 5260MHz 6Mbps / Main Antenna

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

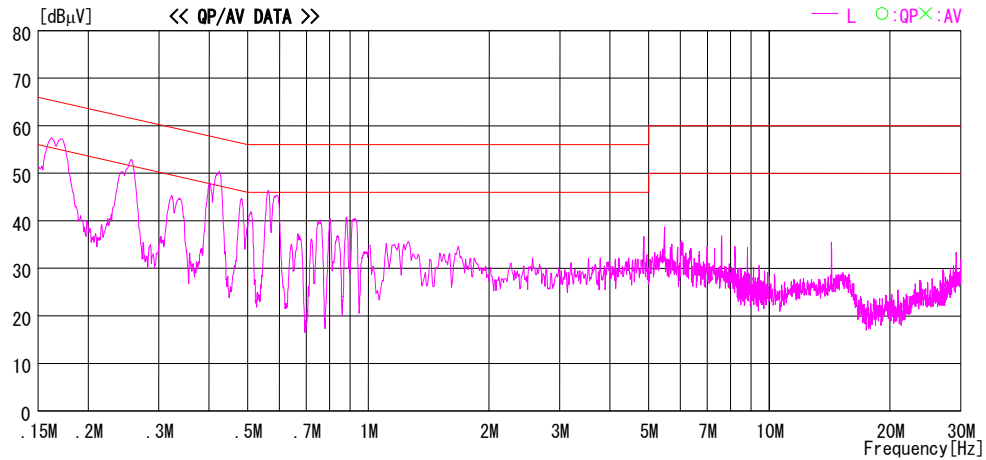
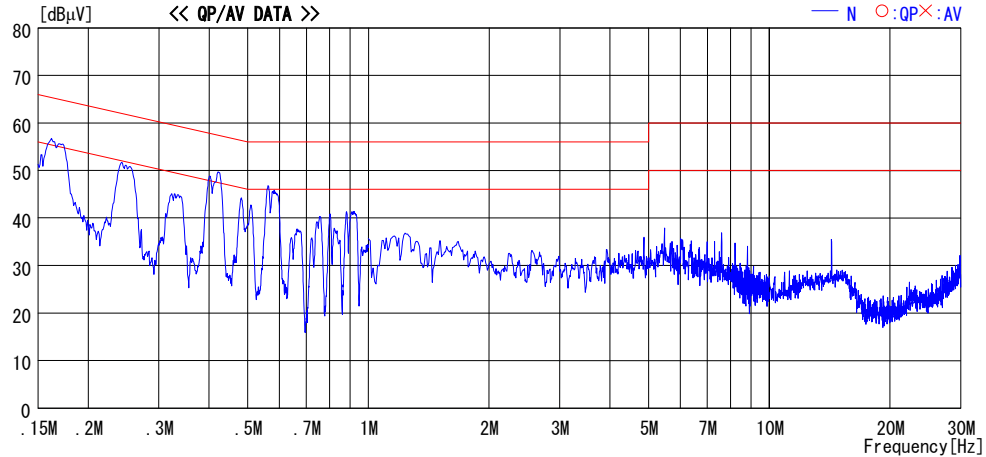


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F (LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

UL Apex Co., Ltd.

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MF060b(01.06.05)

DATA OF CONDUCTED EMISSION TEST

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

Applicant : Fujitsu Limited
Kind of EUT : Personal Computer
Model No. : P1510
Serial No. : R5100030

Report No. : 25HE0105-HO
Power : AC120V/60Hz
Temp°C/Humi% : 25deg.C / 46%
Operator : Norihisa Hashimoto

Mode / Remarks: 11a Mid Band 5320MHz 6Mbps / Main Antenna

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

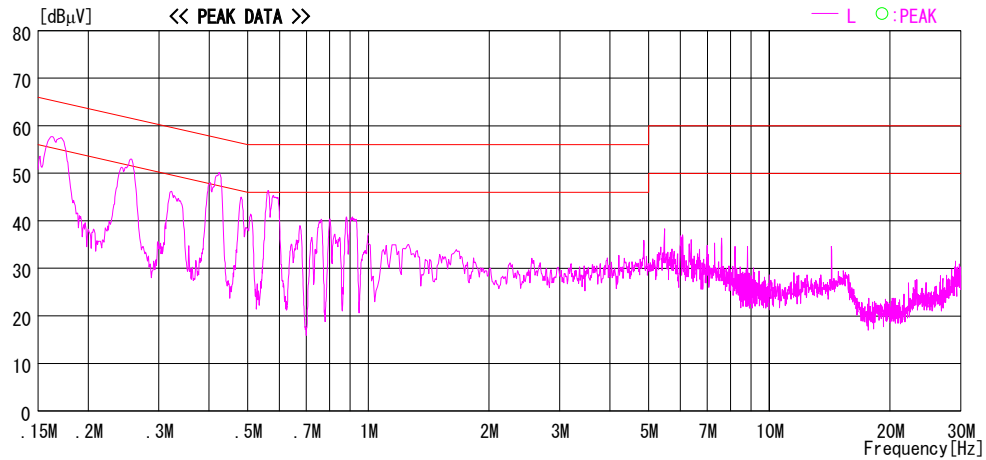
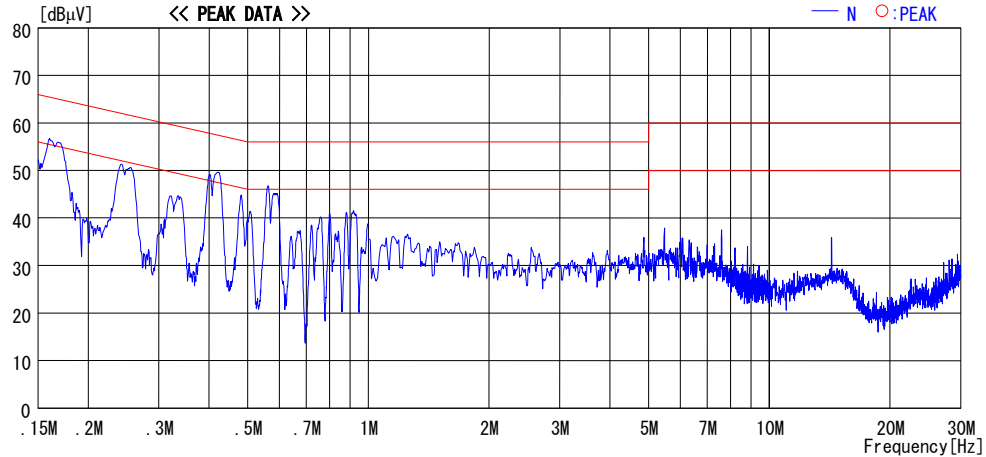


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F (LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

UL Apex Co., Ltd.

Head Office EMC Lab.

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MF060b(01.06.05)

DATA OF CONDUCTED EMISSION TEST

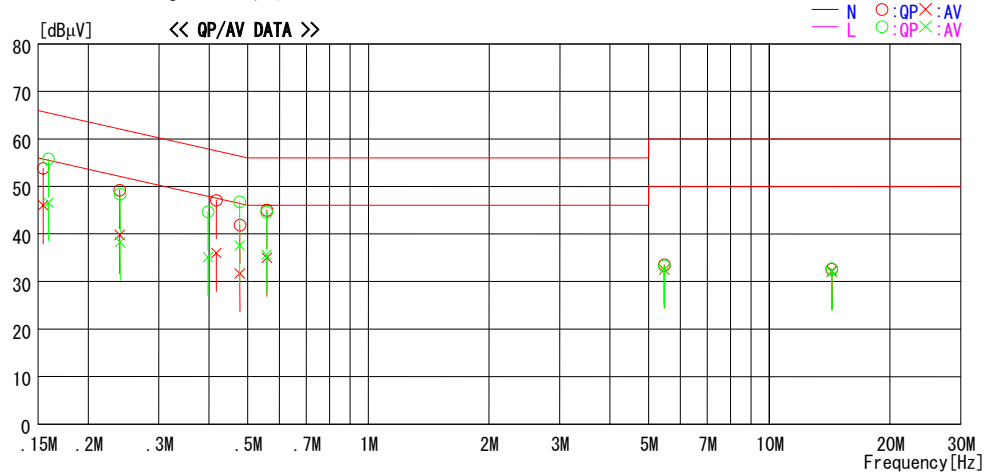
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber

Applicant : Fujitsu Limited
Kind of EUT : Personal Computer
Model No. : P1510
Serial No. : R5100030

Report No. : 25HE0105-HO
Power : AC120V/60Hz
Temp°C/Humi% : 25deg.C / 46%
Operator : Norihisa Hashimoto

Mode / Remarks : 11a Mid Band 5320MHz 6Mbps / Main Antenna

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



NO	FREQ [MHz]	QP [dBμV]	READING [dBμV]	AV [dBμV]	C. F [dB]	QP [dBμV]	RESULT [dBμV]	AV [dBμV]	QP [dBμV]	LIMIT [dBμV]	AV [dB]	QP [dB]	MARGIN [dB]	AV [dB]	PHASE
1	0.1545	53.7	45.9	0.1	53.8	46.0	65.8	55.8	12.0	9.8	N				N
2	0.2394	49.1	39.7	0.1	49.2	39.8	62.1	52.1	12.9	12.3	N				N
3	0.4170	47.0	35.9	0.1	47.1	36.0	57.5	47.5	10.4	11.5	N				N
4	0.4778	41.8	31.6	0.1	41.9	31.7	56.4	46.4	14.5	14.7	N				N
5	0.5579	44.8	34.8	0.2	45.0	35.0	56.0	46.0	11.0	11.0	N				N
6	5.4693	32.7	31.7	0.8	33.5	32.5	60.0	50.0	26.5	17.5	N				N
7	14.3189	31.1	30.7	1.5	32.6	32.2	60.0	50.0	27.4	17.8	N				N
8	0.1593	55.7	46.5	0.1	55.8	46.6	65.5	55.5	9.7	8.9	L				L
9	0.2402	48.3	38.2	0.1	48.4	38.3	62.1	52.1	13.7	13.8	L				L
10	0.3980	44.6	35.0	0.1	44.7	35.1	57.9	47.9	13.2	12.8	L				L
11	0.4774	46.7	37.5	0.1	46.8	37.6	56.4	46.4	9.6	8.8	L				L
12	0.5566	44.4	35.4	0.2	44.6	35.6	56.0	46.0	11.4	10.4	L				L
13	5.4680	32.5	31.7	0.8	33.3	32.5	60.0	50.0	26.7	17.5	L				L
14	14.3183	31.2	30.5	1.5	32.7	32.0	60.0	50.0	27.3	18.0	L				L

CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALCURATION:RESULT=READING+C.F (LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

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MF060b(01.06.05)

26dB Emission Bandwidth & 99%Occupied Bandwidth
6Mbps Main Antenna

UL Apex Co., Ltd.
Head Office EMC Lab. No.4 Measurement Room

COMPANY	: Fujitsu Limited	REPORT NO	: 25HE0105-HO
EQUIPMENT	: Personal Computer	REGULATION	: -
MODEL	: P1510	TEST DISTANCE	: -
SAMPLE NO.	: R5100030	DATE	: 05/11/2005
POWER	: AC120V/60Hz	TEMPERATURE	: 26deg.C
MODE	: Tx IEEE 802.11a	HUMIDITY	: 36%
	: Main Antenna , Continuous Transmitting	ENGINEER	: Mitsuru Fujimura

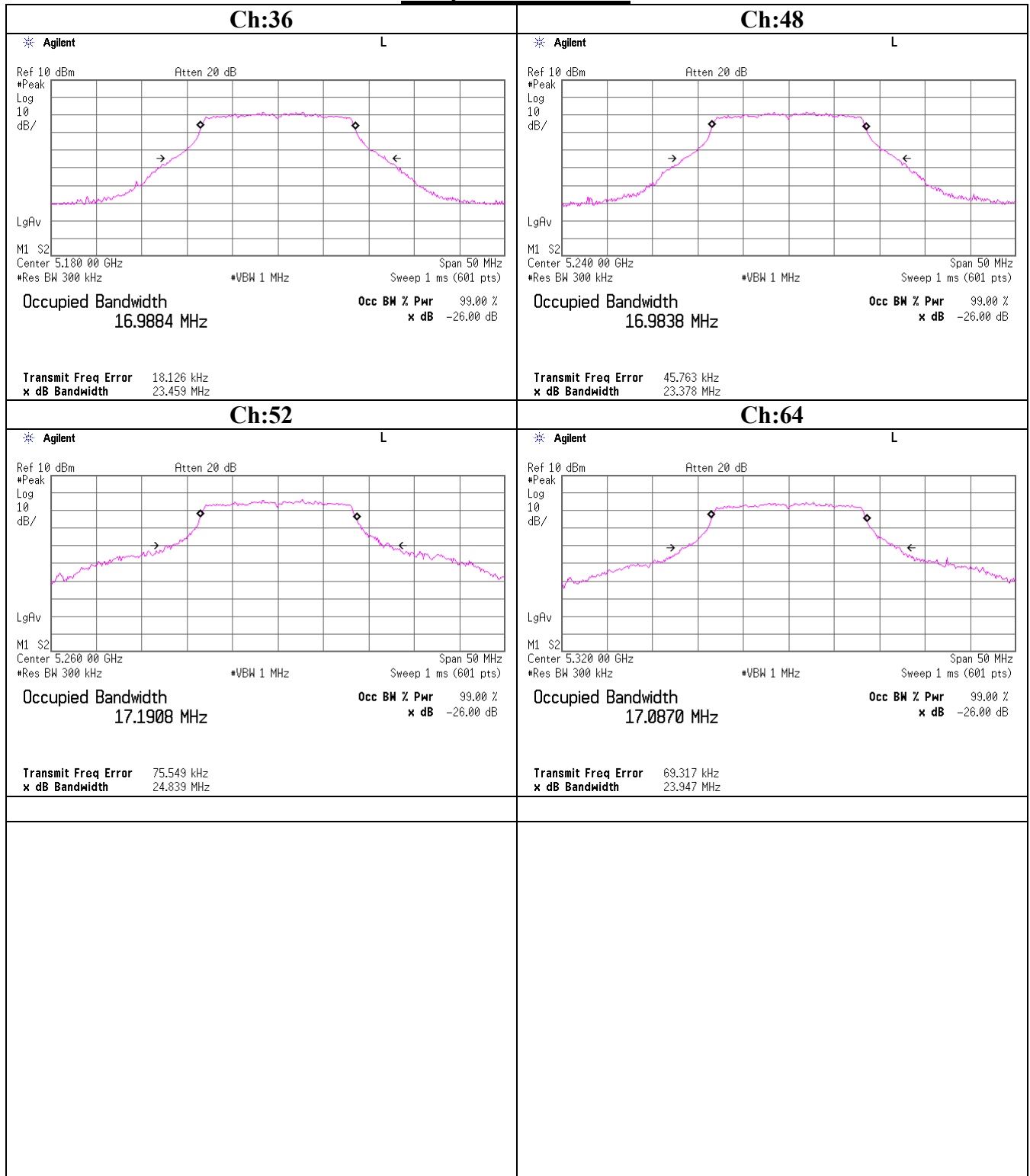
26dB Emission Bandwidth

Ch	Freq.	26dB Emission Bandwidth	Limit
	[MHz]	[MHz]	[MHz]
36	5180.0	23.459	-
48	5240.0	23.378	-
52	5260.0	24.839	-
64	5320.0	23.947	-

99% Occupied Bandwidth

Ch	Freq.	99% Occupied Bandwidth	Limit
	[MHz]	[MHz]	[MHz]
36	5180.0	16.988	-
48	5240.0	16.984	-
52	5260.0	17.191	-
64	5320.0	17.087	-

26dB Emission Bandwidth & 99%Occupied Bandwidth
6Mbps Main Antenna



Peak Transmit Power
Main Antenna

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

Company	: Fujitsu Limited	REPORT NO	: 25HE0105-HO
Equipment	: Personal Computer	REGULATION	: FCC 15.407(a)(1)(2)(3)
Model	: P1510	TEST DISTANCE	: -
Sample No.	: R5100030	DATE	: 27/04/2005
Power	: AC120V / 60Hz	TEMPERATURE	: 24deg.C
Mode	: Tx IEEE 802.11a (Low&Mid Band)	HUMIDITY	: 52%
	: Main Antenna, Continuous Transmitting	ENGINEER	: Mitsuru Fujimura

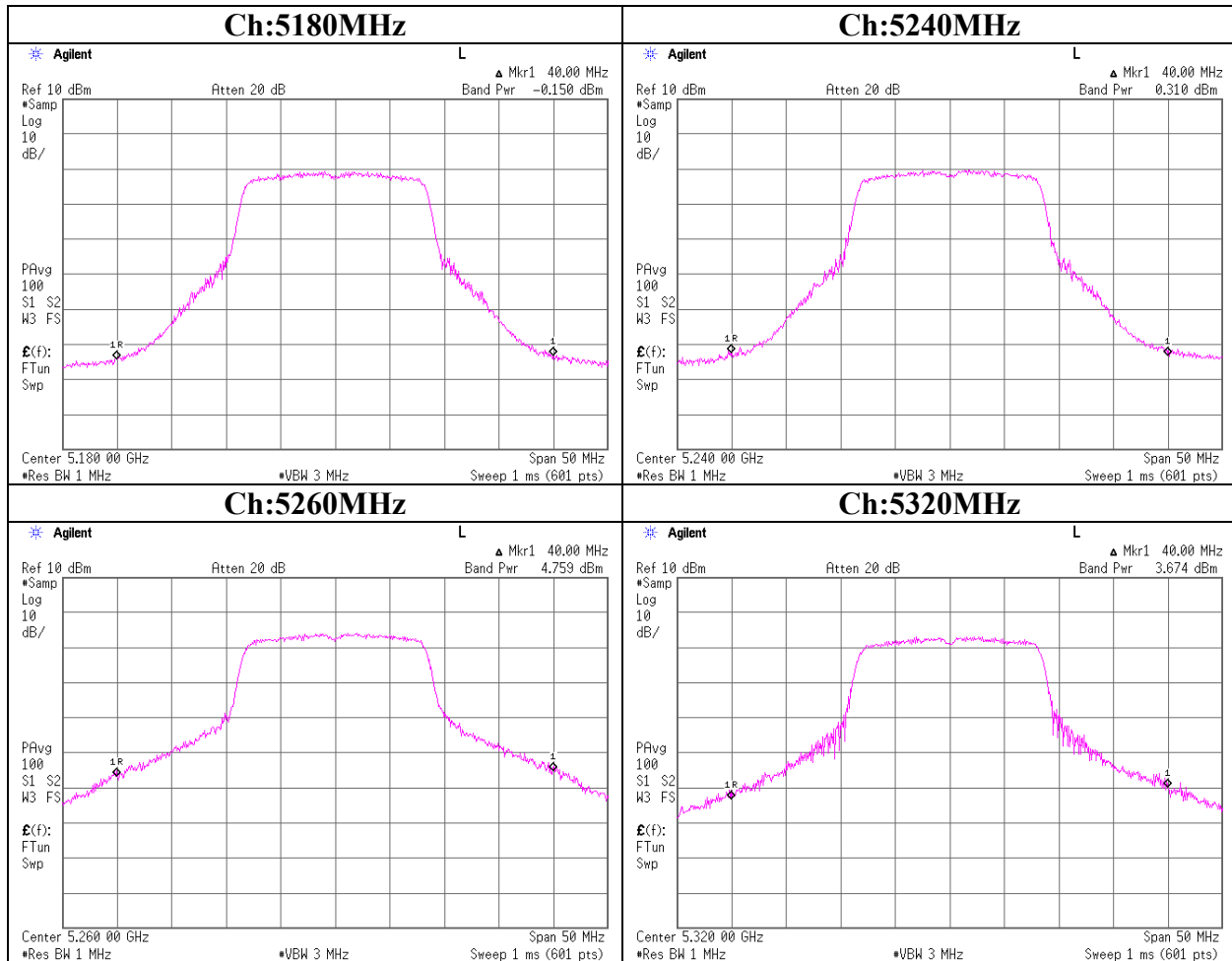
[IEEE802.11a 5150-5350MHz: Main Antenna(6Mbps)]							
Ch	Freq. [MHz]	S/A Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
36	5180.0	-0.15	0.94	10.00	10.79	17.00	6.21
48	5240.0	0.31	1.11	10.00	11.42	17.00	5.58
52	5260.0	4.76	1.11	10.00	15.87	17.00	1.13
64	5320.0	3.67	1.04	10.00	14.71	24.00	9.29

[IEEE802.11a 5150-5350MHz: Main Antenna(54Mbps)]							
Ch	Freq. [MHz]	S/A Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
36	5180.0	-0.35	0.94	10.00	10.59	17.00	6.41
48	5240.0	0.16	1.11	10.00	11.27	17.00	5.73
52	5260.0	1.66	1.11	10.00	12.77	17.00	4.23
64	5320.0	0.73	1.04	10.00	11.77	24.00	12.23

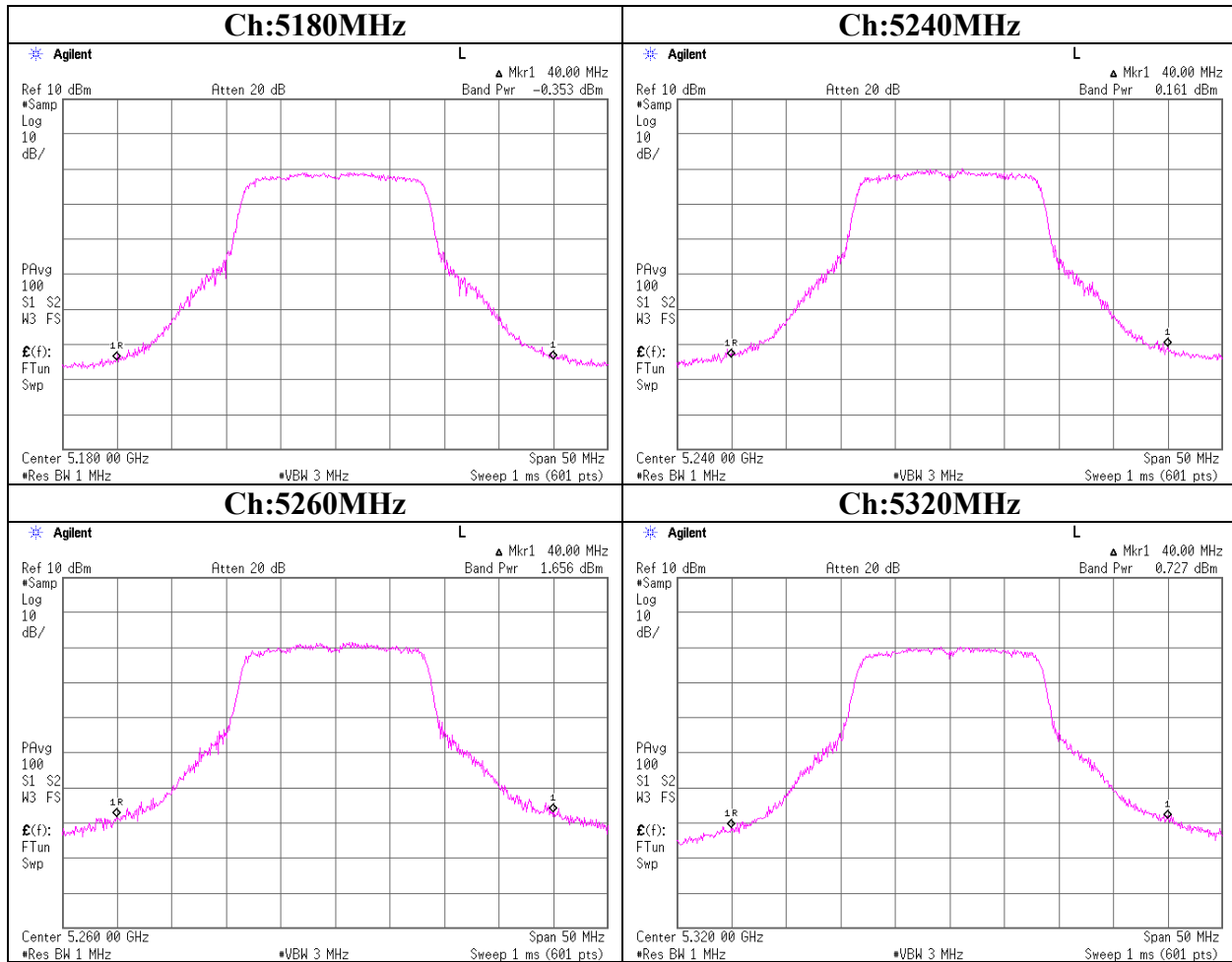
Sample Calculation:
Result = Reading + Cable Loss + Attenuator
* In the above table, factor 0.0dB represents no use of Atten. and/or Filter.

Peak Transmit Power

IEEE802.11a (Low&Mid Band) 6Mbps Main Antenna



IEEE802.11a (Low&Mid Band) 54Mbps Main Antenna



Peak Transmit Power
AUX Antenna

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

Company : Fujitsu Limited
Equipment : Personal Computer
Model : P1510
Sample No. : R5100030
Power : AC120V / 60Hz
Mode : Tx IEEE 802.11a (Low&Mid Band)
: Aux Antenna, Continuous Transmitting

REPORT NO : 25HE0105-HO
REGULATION : FCC 15.407(a)(1)(2)(3)
TEST DISTANCE : -
DATE : 27/04/2005
TEMPERATURE : 24deg.C
HUMIDITY : 52%
ENGINEER : Mitsuru Fujimura

[IEEE802.11a 5150-5350MHz: Aux Antenna(6Mbps)]							
Ch	Freq. [MHz]	S/A Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
36	5180.0	-1.49	0.94	10.00	9.45	17.00	7.55
48	5240.0	-0.29	1.11	10.00	10.82	17.00	6.18
52	5260.0	4.57	1.11	10.00	15.68	17.00	1.32
64	5320.0	4.34	1.04	10.00	15.38	24.00	8.62

[IEEE802.11a 5150-5350MHz: Aux Antenna(54Mbps)]							
Ch	Freq. [MHz]	S/A Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
36	5180.0	-1.68	0.94	10.00	9.26	17.00	7.74
48	5240.0	-0.46	1.11	10.00	10.65	17.00	6.35
52	5260.0	1.38	1.11	10.00	12.49	17.00	4.51
64	5320.0	1.43	1.04	10.00	12.47	24.00	11.53

Sample Calculation:

Result = Reading + Cable Loss + Attenuator

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

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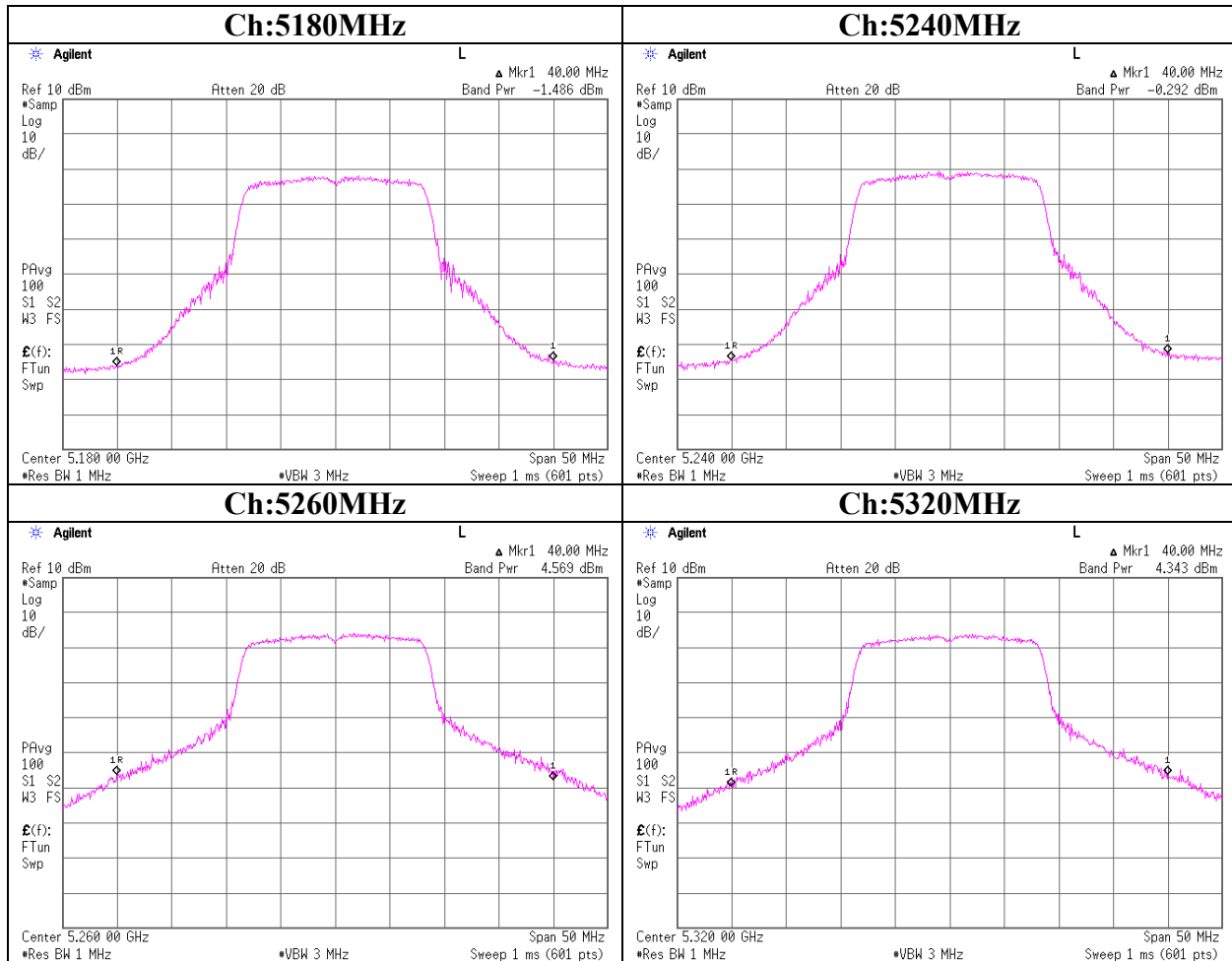
Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

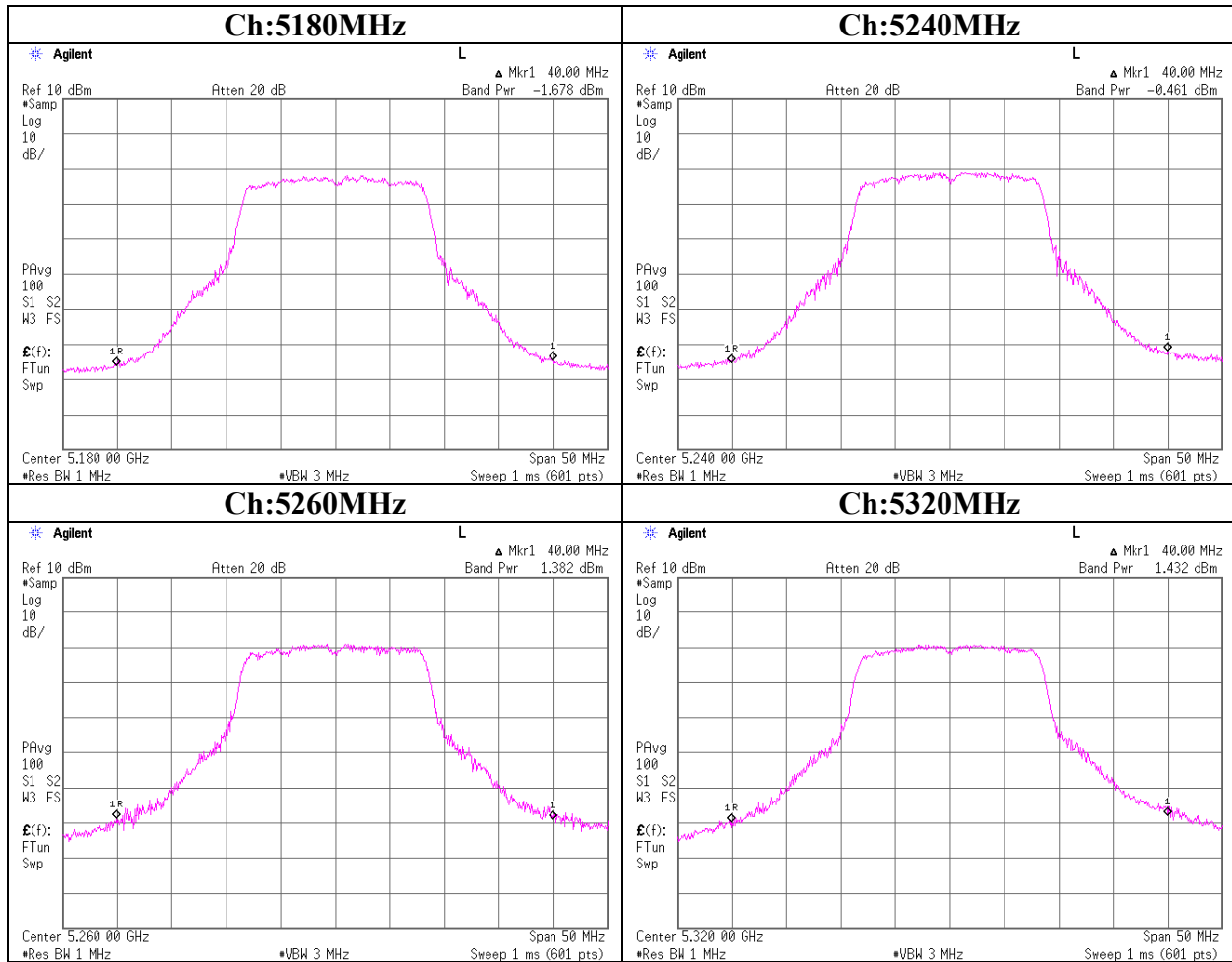
MF060b(01.06.05)

Peak Transmit Power

IEEE802.11a (Low&Mid Band) 6Mbps AUX Antenna



IEEE802.11a (Low&Mid Band) 54Mbps AUX Antenna



Peak Transmit Power

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

Company : Fujitsu Limited
Equipment : Personal computer
Model : P1510
Sample No. : R5100030
Power : AC120V / 60Hz
Mode : Tx IEEE 802.11a (Low & Mid Band)
: Continuous Transmitting

REPORT NO : 25HE0105-HO
REGULATION : FCC 15.407(a)(1)(2)(3)
TEST DISTANCE : -
DATE : 27/04/2005
TEMPERATURE : 24deg.C
HUMIDITY : 52%
ENGINEER : Mitsuru Fujimura

Reference DATA for SAR test

[IEEE802.11a : Main Antenna (AntennaA)]					
Ch	Data rate [Mbps]	S/A Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]
52	BPSK 6	4.76	1.11	10.00	15.87
52	BPSK 9	4.64	1.11	10.00	15.75
52	QPSK 12	4.67	1.11	10.00	15.78
52	QPSK 18	4.62	1.11	10.00	15.73
52	16QAM 24	4.60	1.11	10.00	15.71
52	16QAM 36	3.55	1.11	10.00	14.66
52	64QAM 48	3.49	1.11	10.00	14.60
52	64QAM 54	1.66	1.11	10.00	12.77

Reference DATA for SAR test

[IEEE802.11a : Aux Antenna (AntennaB)]					
Ch	Data rate [Mbps]	S/A Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]
52	BPSK 6	4.57	1.11	10.00	15.68
52	BPSK 9	4.51	1.11	10.00	15.62
52	QPSK 12	4.50	1.11	10.00	15.61
52	QPSK 18	4.47	1.11	10.00	15.58
52	16QAM 24	4.50	1.11	10.00	15.61
52	16QAM 36	3.36	1.11	10.00	14.47
52	64QAM 48	3.30	1.11	10.00	14.41
52	64QAM 54	1.38	1.11	10.00	12.49

Radiated Spurious Emission (below 1GHz)

DATA OF RADIATED EMISSION TEST

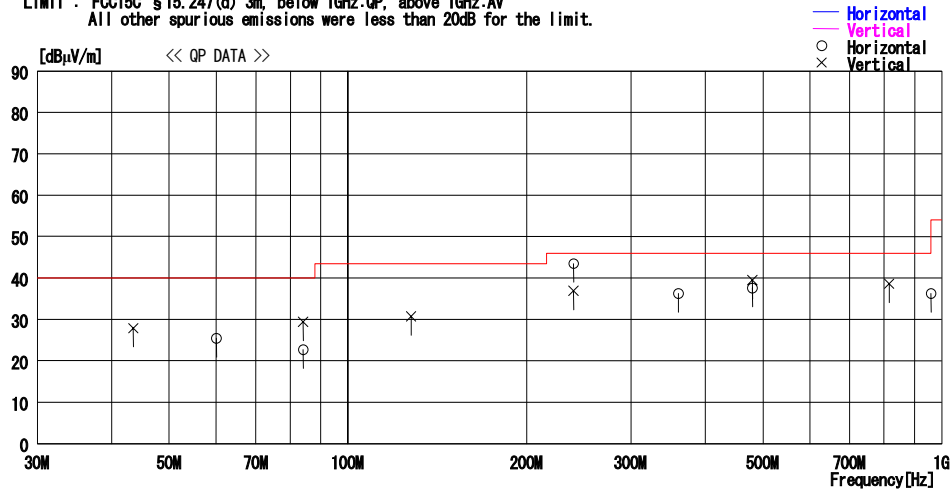
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2005/06/01 21:01:50

Applicant : Fujitsu Limited
Kind of EUT : Personal Computer
Model No. : P1510
Serial No. : R5100030

Report No. : 25HE0105-HO
Power : AC120V/60Hz (AC Adaptor)
Temp./Humi. : 26deg.C / 48%
Operator : Mitsuru Fujimura

Mode / Remarks : 11a 5180MHz 6Mbps/Main Antenna/Hor Y Ver X(MAXAxis)

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



No.	FREQ [MHz]	READING QP [dBμV]	ANT FACTOR [dB/m]	LOSS [dB]	GAIN [dB]	RESULT [dBμV/m]	LIMIT [dBμV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
Horizontal										
1	60.069	38.7	8.2	6.3	27.8	25.4	40.0	14.6	338	203
2	84.113	36.5	7.4	6.5	27.7	22.7	40.0	17.3	338	324
3	240.015	45.7	17.1	7.6	26.9	43.5	46.0	2.5	146	309
4	360.009	38.3	17.1	8.1	27.2	36.3	46.0	9.7	100	188
5	480.010	38.3	18.8	8.5	28.0	37.6	46.0	8.4	100	83
6	960.015	30.9	22.8	10.3	27.7	36.3	54.0	17.7	100	353
Vertical										
7	43.524	37.2	12.3	6.2	27.8	27.9	40.0	12.1	108	127
8	84.100	43.2	7.4	6.5	27.7	29.4	40.0	10.6	100	314
9	127.794	37.5	13.7	6.9	27.4	30.7	43.5	12.8	100	283
10	240.008	39.1	17.1	7.6	26.9	36.9	46.0	9.1	172	273
11	480.013	40.2	18.8	8.5	28.0	39.5	46.0	6.5	100	58
12	816.017	34.6	22.0	9.9	27.9	38.6	46.0	7.4	127	163

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

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DATA OF RADIATED EMISSION TEST

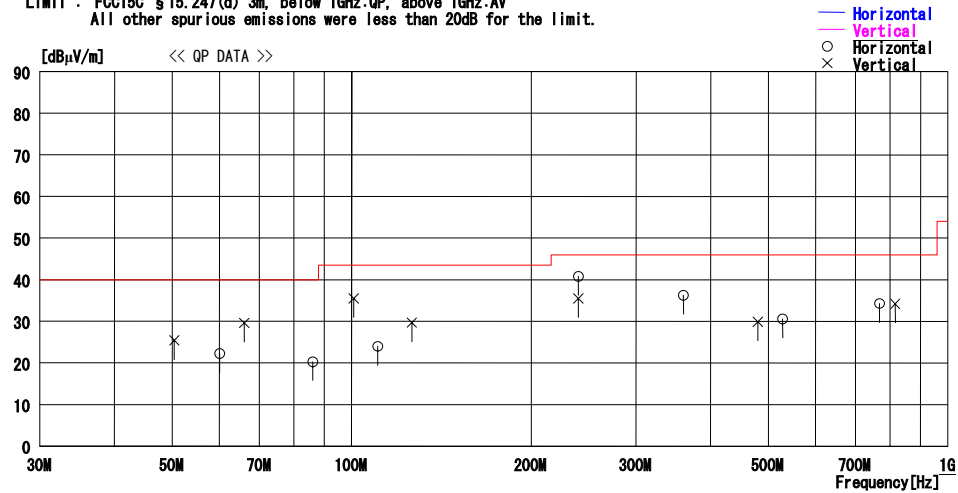
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2005/06/01 23:35:30

Applicant : Fujitsu Limited
Kind of EUT : Personal Computer
Model No. : P1510
Serial No. : R5100030

Report No. : 25HE0105-HO
Power : AC120V/60Hz (AC Adaptor)
Temp./Humi. : 26deg.C / 48%
Operator : Mitsuru Fujimura

Mode / Remarks : 11a 5240MHz 6Mbps/Main Antenna/Hor Y Ver X(MAX)Axis

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



No.	FREQ [MHz]	READING QP [dBμV]	ANT FACTOR [dB/m]	LOSS [dB]	GAIN [dB]	RESULT [dBμV/m]	LIMIT [dBμV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
Horizontal										
1	60.071	35.6	8.2	6.3	27.8	22.3	40.0	17.7	340	207
2	86.026	33.7	7.8	6.5	27.7	20.3	40.0	19.7	220	360
3	110.601	33.0	11.8	6.7	27.5	24.0	43.5	19.5	279	77
4	240.013	43.0	17.1	7.6	26.9	40.8	46.0	5.2	142	156
5	360.012	38.3	17.1	8.1	27.2	36.3	46.0	9.7	100	204
6	528.009	30.9	19.1	8.8	28.2	30.6	46.0	15.4	102	302
7	768.008	31.2	21.5	9.7	28.1	34.3	46.0	11.7	106	273
Vertical										
8	50.403	36.9	10.0	6.2	27.7	25.4	40.0	14.6	219	249
9	66.073	43.7	7.4	6.3	27.8	29.6	40.0	10.4	260	259
10	100.804	45.9	10.5	6.7	27.6	35.5	43.5	8.0	127	0
11	126.167	36.7	13.6	6.9	27.5	29.7	43.5	13.8	100	250
12	240.009	37.7	17.1	7.6	26.9	35.5	46.0	10.5	161	293
13	480.011	30.6	18.8	8.5	28.0	29.9	46.0	16.1	323	296
14	816.011	30.2	22.0	9.9	27.9	34.2	46.0	11.8	100	-1

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

UL Apex Co., Ltd.

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DATA OF RADIATED EMISSION TEST

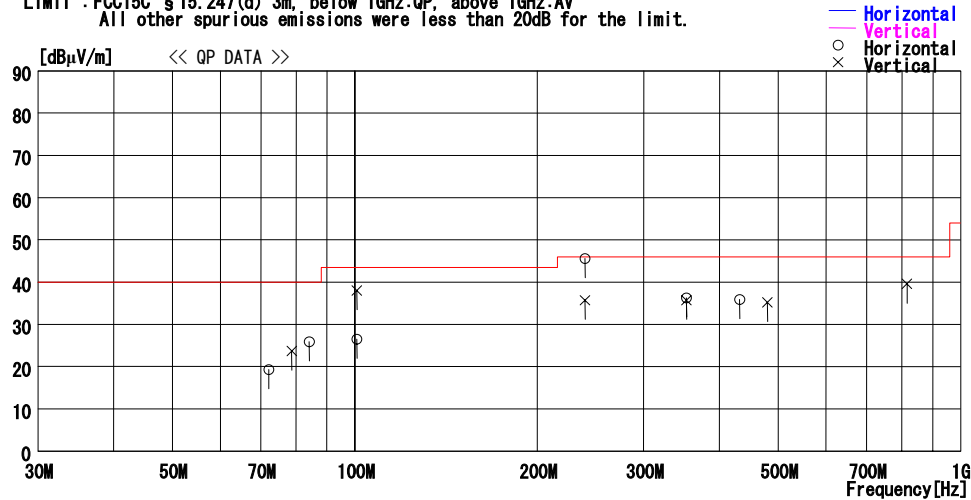
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2005/06/02 01:28:44

Applicant : Fujitsu Limited
Kind of EUT : Personal Computer
Model No. : P1510
Serial No. : R5100030

Report No. : 25HE0105-HO
Power : AC120V/60Hz (AC Adaptor)
Temp./Humi. : 26deg.C / 48%
Operator : Mitsuru Fujimura

Mode / Remarks: 11a 5260MHz 6Mbps/Main Antenna/Hor Y Ver X(MAXAxis)

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



No.	FREQ [MHz]	READING QP [dB μ V]	ANT FACTOR [dB/m]	LOSS [dB]	GAIN [dB]	RESULT [dB μ V/m]	LIMIT [dB μ V/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
Horizontal										
1	72.084	33.7	6.9	6.4	27.7	19.3	40.0	20.7	189	2
2	84.100	39.7	7.4	6.5	27.7	25.9	40.0	14.1	271	82
3	100.804	36.9	10.5	6.7	27.6	26.5	43.5	17.0	239	114
4	240.003	47.8	17.1	7.6	26.9	45.6	46.0	0.4	141	267
5	352.810	38.5	16.8	8.1	27.1	36.3	46.0	9.7	100	222
6	432.010	36.5	18.7	8.5	27.8	35.9	46.0	10.1	100	99
Vertical										
7	78.738	38.1	6.7	6.5	27.6	23.7	40.0	16.3	107	241
8	100.805	48.4	10.5	6.7	27.6	38.0	43.5	5.5	100	242
9	240.011	37.9	17.1	7.6	26.9	35.7	46.0	10.3	188	289
10	352.810	37.9	16.8	8.1	27.1	35.7	46.0	10.3	149	173
11	480.013	35.9	18.8	8.5	28.0	35.2	46.0	10.8	124	80
12	816.012	35.6	22.0	9.9	27.9	39.6	46.0	6.4	132	154

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

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MF060b(01.06.05)

DATA OF RADIATED EMISSION TEST

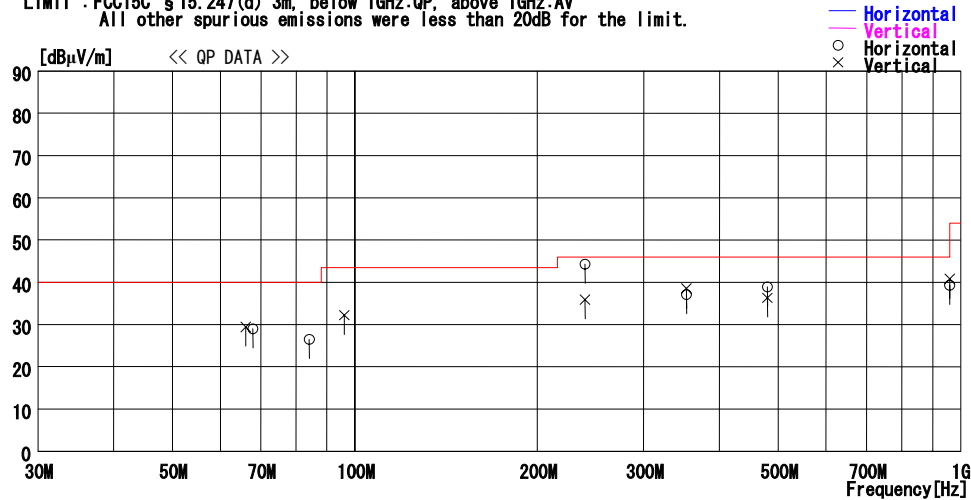
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2005/06/02 03:15:35

Applicant : Fujitsu Limited
Kind of EUT : Personal Computer
Model No. : P1510
Serial No. : R5100030

Report No. : 25HE0105-HO
Power : AC120V/60Hz (AC Adaptor)
Temp./Humi. : 26deg.C / 48%
Operator : Mitsuru Fujimura

Mode / Remarks: 11a 5320MHz 6Mbps/Main Antenna/Hor Y Ver X (MAX)Axis

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



No.	FREQ [MHz]	READING QP [dB μ V]	ANT FACTOR [dB/m]	LOSS [dB]	GAIN [dB]	RESULT [dB μ V/m]	LIMIT [dB μ V/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
Horizontal										
1	67.876	43.2	7.2	6.3	27.7	29.0	40.0	11.0	188	360
2	84.098	40.3	7.4	6.5	27.7	26.5	40.0	13.5	211	55
3	240.004	46.5	17.1	7.6	26.9	44.3	46.0	1.7	141	267
4	352.810	39.3	16.8	8.1	27.1	37.1	46.0	8.9	102	282
5	480.014	39.6	18.8	8.5	28.0	38.9	46.0	7.1	106	131
6	960.013	33.9	22.8	10.3	27.7	39.3	54.0	14.7	103	102
Vertical										
7	66.064	43.5	7.4	6.3	27.8	29.4	40.0	10.6	319	267
8	96.128	43.5	9.7	6.6	27.6	32.2	43.5	11.3	124	293
9	240.008	38.1	17.1	7.6	26.9	35.9	46.0	10.1	361	77
10	352.809	40.7	16.8	8.1	27.1	38.5	46.0	7.5	136	181
11	480.012	37.0	18.8	8.5	28.0	36.3	46.0	9.7	100	-1
12	960.014	35.4	22.8	10.3	27.7	40.8	54.0	13.2	117	217

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

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MF060b(01.06.05)

Radiated Spurious Emission (above 1GHz)

DATA OF SPURIOUS EMISSIONS(1GHz to 40GHz)

Company : Fujitsu Limited
Equipment : Personal Computer
Model : P1510
Sample No. : R5100030
Power : AC 120 V / 60 Hz
Mode : W-LAN IEEE802.11a, Tx 5180MHz
Remarks : Hor Y-axis, Ver X-axis
:Antenna Main, 6Mbps

UL Apex Co., Ltd.
Head Office EMC Lab. No.1/2 Semi Anechoic Chamber
REPORT NO : 25HE0105-HO
REGULATION : Fcc Part15 Subpart E 15.407(b)
TEST DISTANCE : 3/1m
DATE : 04/22/2005 : 05/29/2005 : 05/26/2005
TEMPERATURE : 25deg.C : 24deg.C : 22deg.C
HUMIDITY : 31% : 49% : 51%
ENGINEER : Keiichi Aoki : Mitsuru Fujimura

Inside of the frequency band

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

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	5150.0	50.6	50.4	36.2	41.4	8.4	0.0	53.8	53.6	74.0	20.2	20.4
2	6906.6	51.7	51.9	37.2	40.7	9.8	0.0	58.0	58.2	74.0	16.0	15.8
Test distance 1/0.5meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
3*	10351.0	44.7	45.1	37.1	39.6	12.8	0.0	45.5	45.9	74.0	28.5	28.1
4	15540.0	45.1	45.5	40.1	40.8	16.0	0.0	50.9	51.3	74.0	23.1	22.7
5	20720.0	44.4	44.5	40.4	35.8	8.1	0.0	47.6	47.7	74.0	26.4	26.3
6*	25900.0	47.8	48.0	40.7	38.1	9.4	0.0	50.3	50.5	74.0	23.7	23.5
7*	31080.0	43.8	44.4	42.1	25.0	1.2	0.0	52.6	53.2	74.0	21.4	20.8
8*	36260.0	51.5	52.9	42.5	23.9	-0.4	0.0	60.2	61.6	74.0	13.8	12.4

*

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

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	5150.0	37.9	37.9	36.2	41.4	8.4	0.0	41.1	41.1	54.0	12.9	12.9
2	6906.6	47.1	47.2	37.2	40.7	9.8	0.0	53.4	53.5	54.0	0.6	0.5
Test distance 1/0.5meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
3*	10351.0	33.0	33.3	37.1	39.6	12.8	0.0	33.8	34.1	54.0	20.2	19.9
4	15540.0	32.3	32.3	40.1	40.8	16.0	0.0	38.1	38.1	54.0	15.9	15.9
5	20720.0	31.4	31.4	40.4	35.8	8.1	0.0	34.6	34.6	54.0	19.4	19.4
6*	25900.0	34.8	34.8	40.7	38.1	9.4	0.0	37.3	37.3	54.0	16.7	16.7
7*	31080.0	33.3	33.2	42.1	25.0	1.2	0.0	42.1	42.0	54.0	11.9	12.0
8*	36260.0	40.9	41.8	42.5	23.9	-0.4	0.0	49.6	50.5	54.0	4.4	3.5

*

Outside of the frequency band

No.	Freq. [MHz]	Electric Field Strength [dBuV/m]		Result (EIRP) [dBm]		Limit dBm/MHz	Margin [dB]	
		HOR	VER	HOR	VER		HOR	VER
3	10351.00	45.5	45.9	-49.7	-49.3	-27.0	22.7	22.3
6	25900.00	50.3	50.5	-45.0	-44.7	-27.0	18.0	17.7
7	31080.00	52.6	53.2	-42.6	-42.0	-27.0	15.6	15.0
8	36260.00	60.2	61.6	-35.0	-33.6	-27.0	8.0	6.6

* Reference data

*Result(EIRP[dBm])=10*LOG({ (Electric Field Strength [V/m] * Distance:3[m]) ^ 2 } / 30)

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

*Test Distance 0.5m(above 26.5GHz) : Distance Factor(Dfac) = 20log(3/0.5) = 15.6dB

(This factor(Dfac) is subtracted from the cable loss.)

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

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

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

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MF060b(01.06.05)

Radiated Spurious Emission (above 1GHz)

DATA OF SPURIOUS EMISSIONS(1GHz to 40GHz)

		UL Apex Co., Ltd.	
		Head Office EMC Lab. No.1/2 Semi Anechoic Chamber	
Company	: Fujitsu Limited	REPORT NO	: 25HE0105-HO
Equipment	: Personal Computer	REGULATION	: Fcc Part15 Subpart E 15.407(b)
Model	: P1510	TEST DISTANCE	: 3/1m
Sample No.	: R5100030	DATE	: 04/22/2005 : 05/29/2005 : 05/13/2005 : 05/27/2005
Power	: AC 120 V / 60 Hz	TEMPERATURE	: 25deg.C : 24deg.C : 25deg.C : 23deg.C
Mode	: W-LAN IEEE802.11a, Tx 5240MHz	HUMIDITY	: 31% : 49% : 37% : 53%
Remarks	: Hor Y-axis, Ver X-axis	ENGINEER	: Keiichi Aoki : Mitsuru Fujimura
		:Antenna Main, 6Mbps	

Inside of the frequency band

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

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN		
		HOR	VER					HOR	VER		HOR	VER	
		[dBuV]						[dBuV/m]			[dB]		
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1*	5250.0	84.6	84.1	36.1	35.9	5.5	0.0	90.3	89.8	74.0	-16.3	-15.8	
2	6986.7	51.6	48.2	35.9	35.8	5.6	0.0	57.3	53.9	74.0	16.7	20.1	
Test distance 1/0.5meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
3	10483.7	43.4	43.3	37.3	39.6	13.1	0.0	44.7	44.6	74.0	29.3	29.4	
4	15720.0	45.7	45.1	40.7	40.7	16.1	0.0	52.3	51.7	74.0	21.7	22.3	
5	20960.0	45.3	45.2	40.2	34.6	8.1	0.0	49.5	49.4	74.0	24.5	24.6	
6*	26200.0	49.3	50.0	41.0	38.2	9.6	0.0	52.2	52.9	74.0	21.8	21.1	
7	31440.0	46.8	45.7	42.4	25.2	1.2	0.0	55.7	54.6	74.0	18.3	19.4	
8*	36680.0	53.2	52.9	42.5	23.6	0.4	0.0	63.0	62.7	74.0	11.0	11.3	

*

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

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN		
		HOR	VER					HOR	VER		HOR	VER	
		[dBuV]						[dBuV/m]			[dB]		
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss													
1*	5250.0	64.4	63.9	36.1	35.9	5.5	0.0	70.1	69.6	54.0	-16.1	-15.6	
2	6986.7	46.3	43.3	35.9	35.8	5.6	0.0	52.0	49.0	54.0	2.0	5.0	
Test distance 1/0.5meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
3	10483.7	31.2	31.1	37.3	39.6	13.1	0.0	32.5	32.4	54.0	21.5	21.6	
4	15720.0	33.1	32.9	40.7	40.7	16.1	0.0	39.7	39.5	54.0	14.3	14.5	
5	20960.0	32.4	32.7	40.2	34.6	8.1	0.0	36.6	36.9	54.0	17.4	17.1	
6*	26200.0	36.8	36.8	41.0	38.2	9.6	0.0	39.7	39.7	54.0	14.3	14.3	
7	31440.0	35.9	36.1	42.4	25.2	1.2	0.0	44.8	45.0	54.0	9.2	9.0	
8*	36680.0	40.1	41.2	42.5	23.6	0.4	0.0	49.9	51.0	54.0	4.1	3.0	

*

Outside of the frequency band

No.	Freq. [MHz]	Electric Field Strength [dBuV/m]		Result (EIRP) [dBm]		Lmit [dBm/MHz]	Margin [dB]	
		HOR	VER	HOR	VER		HOR	VER
1*	5250.00	90.3	89.8	-4.9	-5.4	-27.0	-22.1	-21.6
6	26200.00	52.2	52.9	-43.0	-42.4	-27.0	16.0	15.4
8	36680.00	63.0	62.7	-32.2	-32.5	-27.0	5.2	5.5

* Reference data

*Result(EIRP[dBm])=10*LOG({ (Electric Field Strength [V/m] * Distance:3[m]) ^ 2 } / 30)

*Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.54dB

*Test Distance 0.5m(above 26.5GHz) : Distance Factor(Dfac) = 20log(3/0.5) = 15.6dB

(This factor(Dfac) is subtracted from the cable loss.)

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

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

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

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

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MF060b(01.06.05)

Radiated Spurious Emission (above 1GHz)

Equipment : Personal Computer	REGULATION : Fcc Part15 Subpart E 15.407(b)
Model : P1510	TEST DISTANCE : 3/1m
Sample No. : R5100030	DATE : 04/22/2005 : 05/29/2005 : 05/13/2005 : 05/27/2005
Power : AC 120 V / 60 Hz	TEMPERATURE : 25deg.C : 24deg.C : 25deg.C : 23deg.C
Mode : W-LAN IEEE802.11a, Tx 5260MHz	HUMIDITY : 31% : 49% : 37% : 53%
Remarks : Hor Y-axis, Ver X-axis	ENGINEER : Keiichi Aoki : Mitsuru Fujimura
:Antenna Main, 6Mbps	

Inside of the frequency band

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

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1*	5250.0	88.0	88.4	22.7	40.0	3.8	0.0	74.5	74.9	74.0	-0.5	-0.9
Test distance 1/0.5meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
2*	10520.0	45.9	44.9	37.3	39.6	13.1	0.0	47.2	46.2	74.0	26.8	27.8
3	15780.0	45.7	45.0	40.9	40.7	16.1	0.0	52.5	51.8	74.0	21.5	22.2
4	21040.0	45.6	45.3	40.2	34.5	8.1	0.0	49.9	49.6	74.0	24.1	24.4
5*	26300.0	50.2	50.1	41.1	38.1	9.7	0.0	53.4	53.3	74.0	20.6	20.7
6	31560.0	46.1	45.2	42.3	25.2	1.2	0.0	54.9	54.0	74.0	19.1	20.0
7*	36820.0	52.3	51.6	42.5	23.5	0.7	0.0	62.5	61.8	74.0	11.5	12.2

*

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

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1*	5250.0	67.8	68.3	22.7	40.0	3.8	0.0	54.3	54.8	54.0	-0.3	-0.8
Test distance 1/0.5meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
2*	10520.0	33.6	33.5	37.3	39.6	13.1	0.0	34.9	34.8	54.0	19.1	19.2
3	15780.0	33.1	33.3	40.9	40.7	16.1	0.0	39.9	40.1	54.0	14.1	13.9
4	21040.0	32.3	32.4	40.2	34.5	8.1	0.0	36.6	36.7	54.0	17.4	17.4
5*	26300.0	36.9	36.9	41.1	38.1	9.7	0.0	40.1	40.1	54.0	13.9	13.9
6	31560.0	35.9	36.0	42.3	25.2	1.2	0.0	44.7	44.8	54.0	9.3	9.2
7*	36820.0	40.2	40.1	42.5	23.5	0.7	0.0	50.4	50.3	54.0	3.6	3.7

*

Outside of the frequency band

No.	Freq. [MHz]	Electric Field [dBuV/m]		Result (EIRP) [dBm]		Lmit [dBm/MHz]	Margin [dB]	
		HOR	VER	HOR	VER		HOR	VER
1*	5250.00	93.7	94.1	-1.5	-1.1	-27.0	-25.5	-25.9
2	10520.00	47.2	46.2	-48.0	-49.0	-27.0	21.0	22.0
5	26300.00	53.4	53.3	-41.8	-41.9	-27.0	14.8	14.9
7	36820.00	62.5	61.8	-32.7	-33.4	-27.0	5.7	6.4

*Reference data

*Result(EIRP[dBm])=10*LOG({ (Electric Field Strength [V/m] * Distance:3[m]) ^ 2 } / 30)

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

*Test Distance 0.5m(above 26.5GHz) : Distance Factor(Dfac) = 20log(3/0.5) = 15.6dB

(This factor(Dfac) is subtracted from the cable loss.)

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

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

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

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

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MF060b(01.06.05)

Radiated Spurious Emission (above 1GHz)

Company : Fujitsu Limited
Equipment : Personal Computer
Model : P1510
Sample No. : R5100030
Power : AC 120 V / 60 Hz
Mode : W-LAN IEEE802.11a, Tx 5320MHz
Remarks : Hor Y-axis, Ver X-axis
:Antenna Main, 6Mbps

UL Apex Co., Ltd.
Head Office EMC Lab. No.1/2 Semi Anechoic Chamber
REPORT NO : 25HE0105-HO
REGULATION : Fcc Part15 Subpart E 15.407(b)
TEST DISTANCE : 3/1m
DATE : 04/22/2005 : 05/29/2005 : 05/13/2005 : 05/27/2005
TEMPERATURE : 25deg.C : 24deg.C : 25deg.C : 23deg.C
HUMIDITY : 31 % : 49% : 37% : 53%
ENGINEER : Keiichi Aoki : Mitsuru Fujimura

Inside of the frequency band

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

No.	FREQ	S/A READING		ANT Factor	AMP GAIN	CABLE LOSS	Hi-Pass Filter	RESULT		Limit PK	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	5350.0	55.9	56.6	22.7	40.0	3.8	0.0	42.4	43.1	74.0	31.6	30.9
Test distance 1/0.5meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
2	10631.4	44.6	45.0	37.6	39.6	13.2	0.0	46.3	46.7	74.0	27.7	27.3
3	15960.0	45.4	45.9	41.5	40.7	16.2	0.0	52.9	53.4	74.0	21.1	20.6
4	21280.0	45.4	45.4	40.0	34.8	8.1	0.0	49.2	49.2	74.0	24.8	24.8
5*	26600.0	43.1	42.5	41.6	24.6	0.0	0.0	50.6	50.0	74.0	23.4	24.0
6*	31920.0	45.9	45.5	41.9	25.4	1.3	0.0	54.2	53.8	74.0	19.8	20.2
7*	37240.0	51.1	51.4	42.6	23.2	1.5	0.0	62.5	62.8	74.0	11.5	11.2

*

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

No.	FREQ	S/A READING		ANT Factor	AMP GAIN	CABLE LOSS	Hi-Pass Filter	RESULT		Limit AV	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
	[MHz]	[dBuV]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	5350.0	40.3	40.5	22.7	40.0	3.8	0.0	26.8	27.0	54.0	27.2	27.0
Test distance 1/0.5meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
2	10631.4	31.6	31.6	37.6	39.6	13.2	0.0	33.3	33.3	54.0	20.7	20.7
3	15960.0	33.0	33.5	41.5	40.7	16.2	0.0	40.5	41.0	54.0	13.5	13.0
4	21280.0	32.4	32.4	40.0	34.8	8.1	0.0	36.2	36.2	54.0	17.8	17.8
5*	26600.0	30.8	30.9	41.6	24.6	0.0	0.0	38.3	38.4	54.0	15.7	15.6
6*	31920.0	33.3	34.0	41.9	25.4	1.3	0.0	41.6	42.3	54.0	12.4	11.7
7*	37240.0	40.2	40.1	42.6	23.2	1.5	0.0	51.6	51.5	54.0	2.4	2.5

*

Outside of the frequency band

No.	Freq. [MHz]	Electric Field [dBuV/m]		Result (EIRP) [dBm]		Lmit dBm/MHz	Margin [dB]	
		HOR	VER	HOR	VER		HOR	VER
5	26600.00	50.6	50.0	-44.6	-45.2	-27.0	17.6	18.2
6	31920.00	54.2	53.8	-41.0	-41.4	-27.0	14.0	14.4
7	37240.00	62.5	62.8	-32.7	-32.4	-27.0	5.7	5.4

*Result(EIRP[dBm])=10*LOG{(Electric Field Strength [V/m] * Distance:3[m]) ^ 2 } / 30)

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

*Test Distance 0.5m(above 26.5GHz) : Distance Factor(Dfac) = 20log(3/0.5) = 15.6dB

(This factor(Dfac) is subtracted from the cable loss.)

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

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

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

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

UL Apex Co., Ltd.

Head Office EMC Lab.

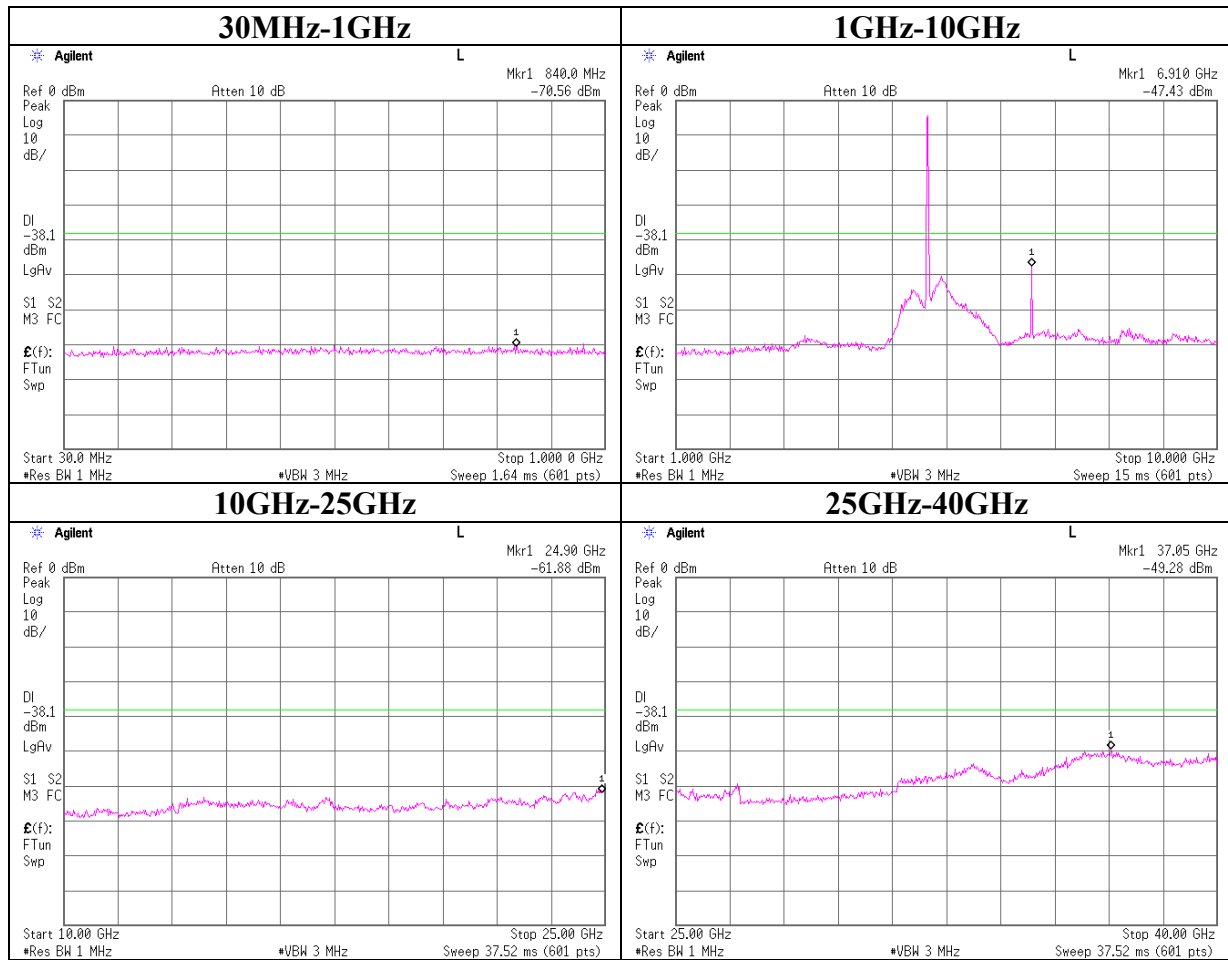
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

MF060b(01.06.05)

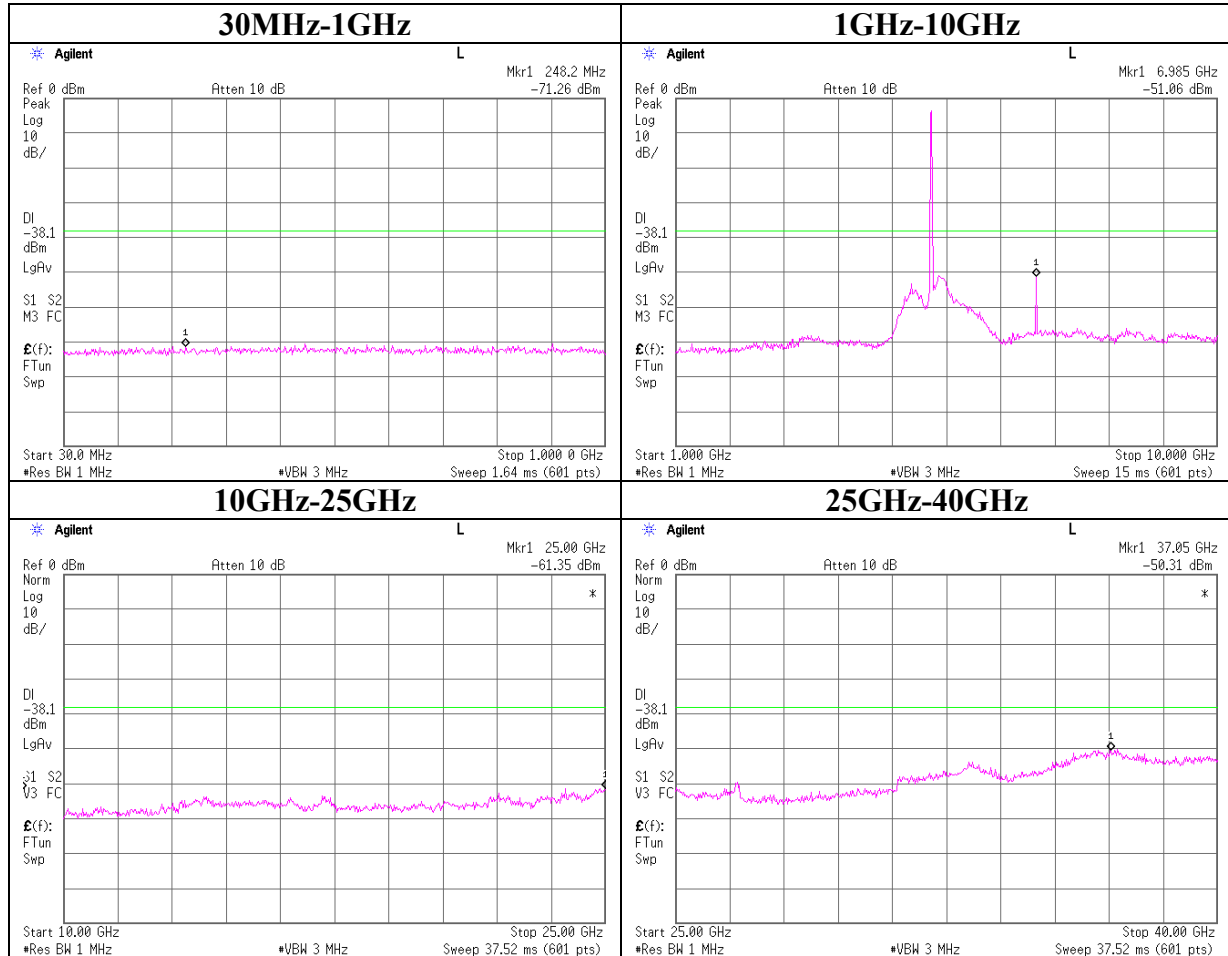
Conducted Spurious Emission(DSSS and other forms of modulation)
6Mbps Main Antenna
Ch : 36



Conducted Spurious Emission(DSSS and other forms of modulation)

6Mbps Main Antenna

Ch : 48



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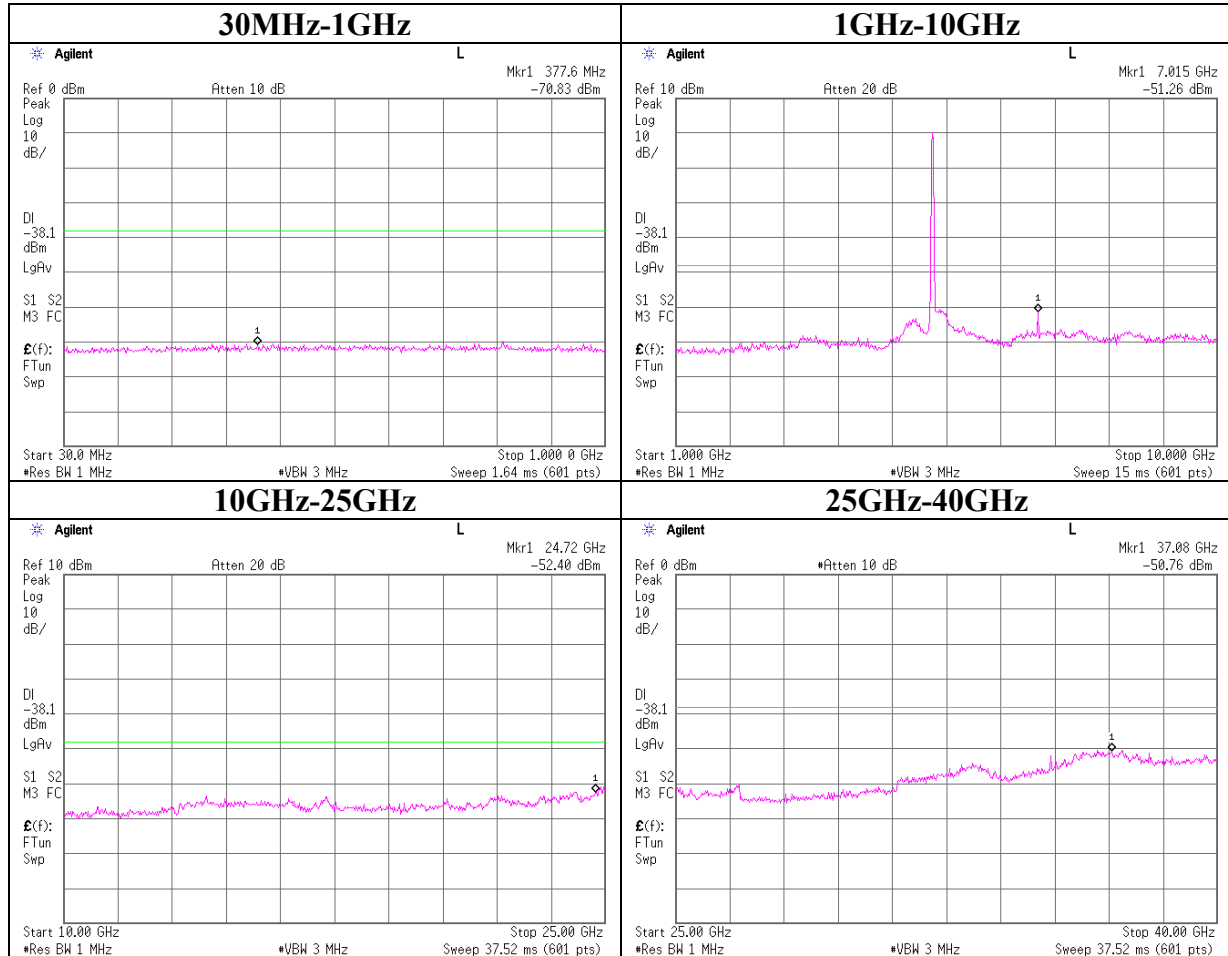
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Conducted Spurious Emission(DSSS and other forms of modulation)

6Mbps Main Antenna

Ch : 52



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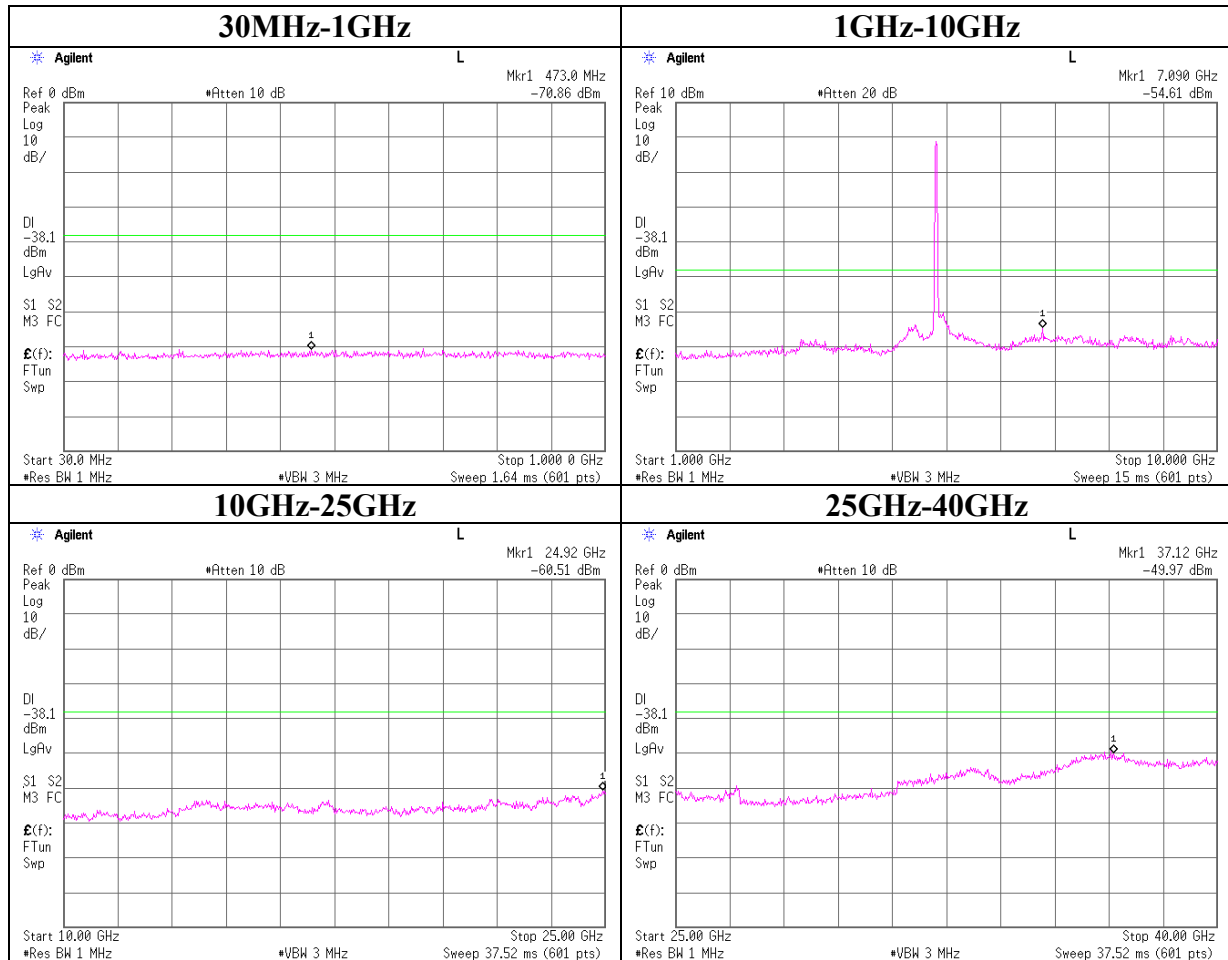
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Conducted Spurious Emission(DSSS and other forms of modulation)

6Mbps Main Antenna

Ch : 64



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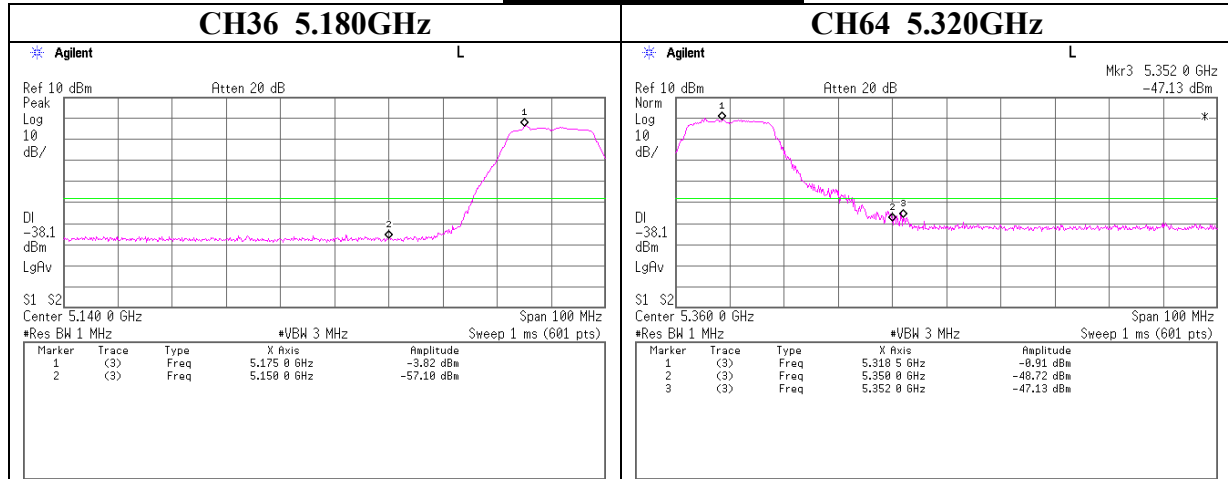
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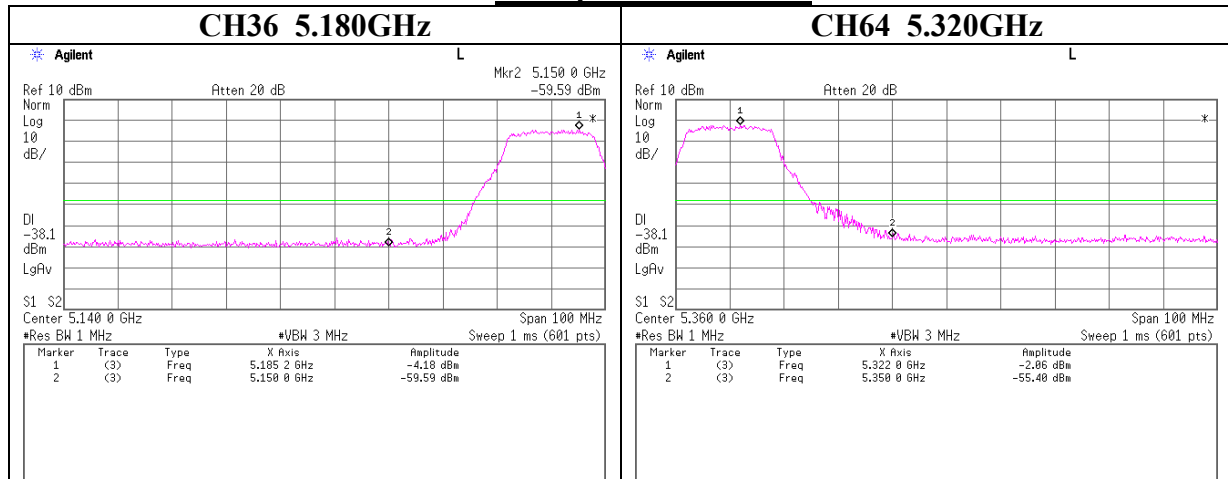
MF060b(01.06.05)

Conducted emission Band Edge compliance

6Mbps Main Antenna



54Mbps Main Antenna



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MF060b(01.06.05)

Peak Power Spectral Density

UL Apex Co., Ltd.
Head Office EMC Lab. No.4 Measurement Room

COMPANY	: Fujitsu Limited	REPORT NO	: 25HE0105-HO
EQUIPMENT	: Personal Computer	REGULATION	: FCC 15.407(a)(1)(2)(3)
MODEL	: P1510	TEST DISTANCE	: -
SAMPLE NC	: R5100030	DATE	: 05/11/2005
POWER	: AC120V/60Hz	TEMPERATURE	: 26deg.C
MODE	: Tx IEEE 802.11a	HUMIDITY	: 36%
	: Main Antenna , Continuous Transmitting	ENGINEER	: Mitsuru Fujimura

Data Rate 6Mbps

Ch	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
36	5180.0	-12.35	0.94	10.0	-1.4	4.0	5.4
48	5240.0	-12.45	1.04	10.0	-1.4	4.0	5.4
52	5260.0	-8.16	1.11	10.0	2.9	11.0	8.1
64	5320.0	-9.74	1.04	10.0	1.3	11.0	9.7

Data Rate 54Mbps

Ch	Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
36	5180.0	-12.42	0.94	10.0	-1.5	4.0	5.5
48	5240.0	-12.09	1.04	10.0	-1.1	4.0	5.1
52	5260.0	-11.13	1.11	10.0	0.0	11.0	11.0
64	5320.0	-12.16	1.04	10.0	-1.1	11.0	12.1

Sample Calculation:

Result = Reading + Cable Loss + Attenuator

* Atten. was not used for factor 0.0dB of the above table.

UL Apex Co., Ltd.

Head Office EMC Lab.

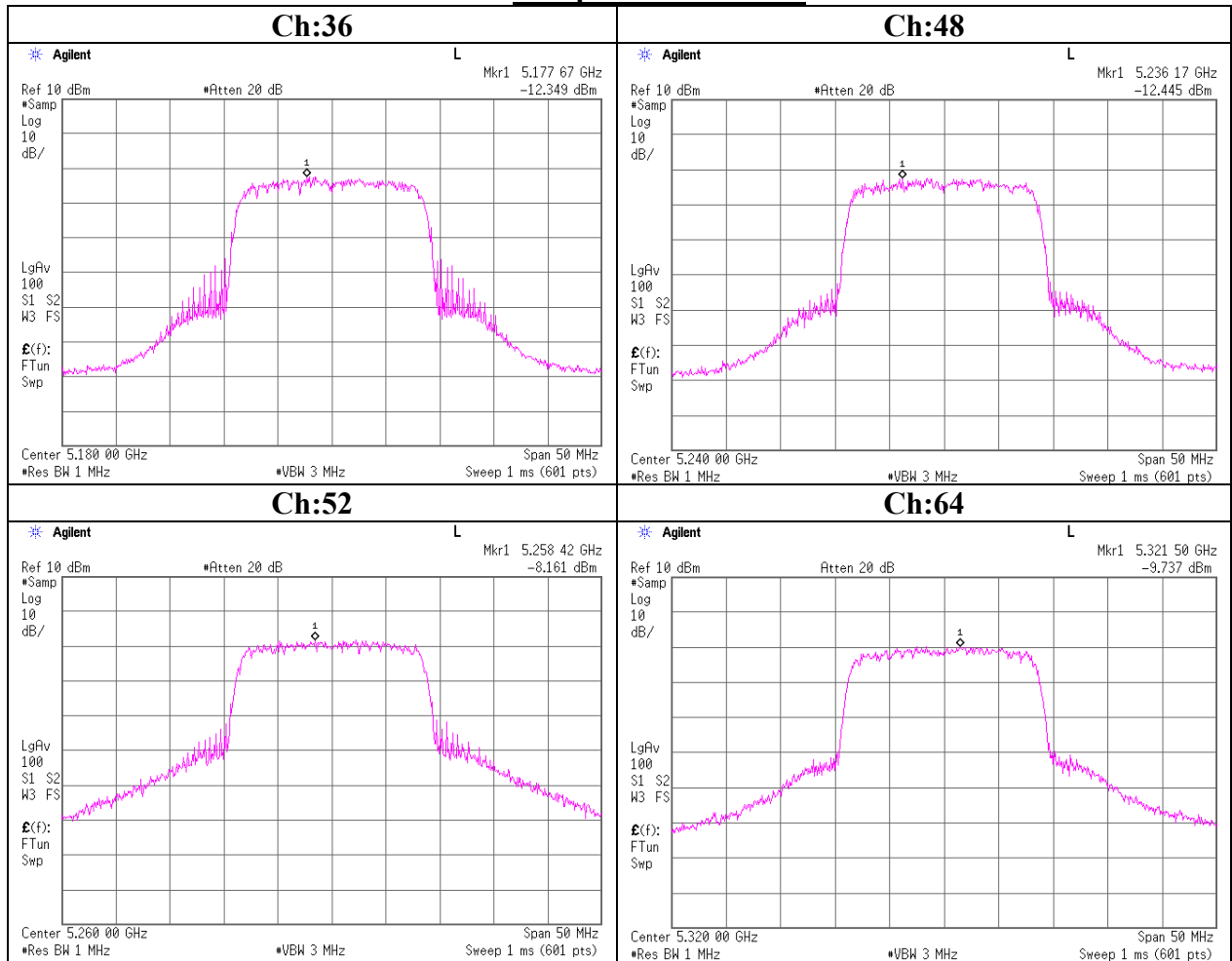
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

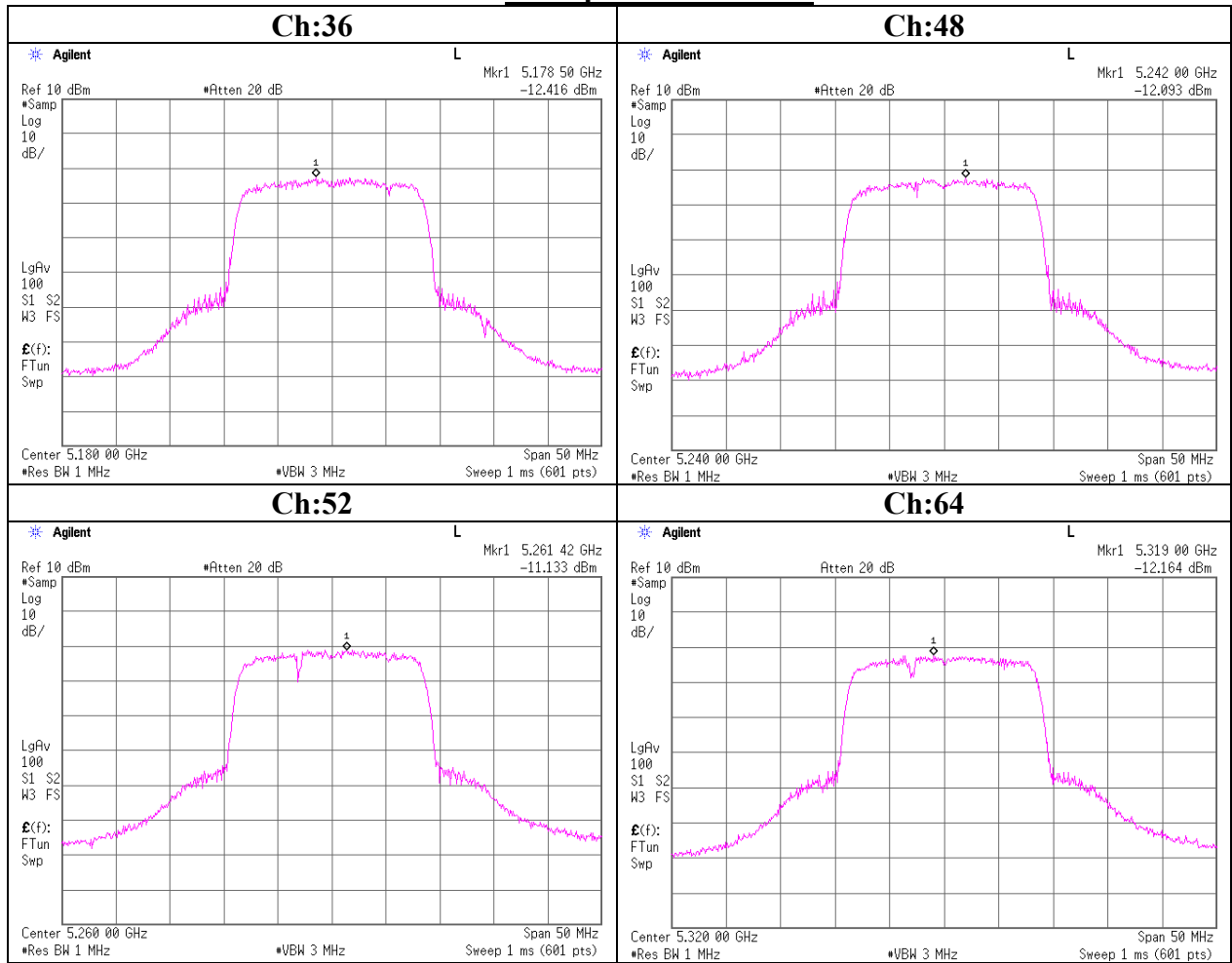
Facsimile : +81 596 24 8124

MF060b(01.06.05)

Peak Power Spectral Density
6Mbps Main Antenna



Peak Power Spectral Density
54Mbps Main Antenna



Peak Excursion Ratio

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

Company : Fujitsu Limited
Equipment : Personal Computer
Model : P1510
Sample No. : R5100030
Power : AC120V / 60Hz
Mode : Tx IEEE 802.11a (Low&Mid Ban
: Main Antenna, Continuous Transm

REPORT NO : 25HE0105-HO
REGULATION : FCC 15.407(a)(6)
TEST DISTANCE : -
DATE : 05/23/2005
TEMPERATURE : 25deg.C
HUMIDITY : 46%
ENGINEER : Hiroka Umeyama

Ch	Freq. [MHz]	Peak Power Excursion [dB]	Limit [dB]
36	5180.0	9.786	13.0
48	5240.0	9.878	13.0
52	5260.0	8.694	13.0
64	5320.0	8.421	13.0

Peak Excursion Ratio 6Mbps Main Antenna

