



TEST REPORT

REPORT NUMBER : ANKK-103028
APPLICANT : Sony Corporation
MODEL NUMBER : PCWA-DE50
FCC ID : AK8PCWADE50
REGULATION : FCC Part15 Subpart E



NVLAP accreditation is valid for
FCC Part15 (Digital Devices),
CISPR22 and AS/NZS 3548.
NVLAP accreditation does not cover
ICES-003.

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ABBREVIATIONS

LISN = Line Impedance Stabilization Network

AMN = Artificial Mains Network

ANT = Antenna

BBA = Broad-band Antenna

DIP = Dipole Antenna

AMP = Amplifier

ATT = Attenuator

EUT = Equipment Under Test

Q-P = Quasi-peak

AVG = Average

Ch = Channel

OFDM = Orthogonal Frequency Division Multiplexing

EIRP = Effective Isotropic Radiated Power

SECTION 1. TEST CERTIFICATION**APPLICANT INFORMATION**

Company	: Sony Corporation
Address	: 6-7-35, Kitashinagawa, Shinagawa-ku, Tokyo, 141-0001 Japan
Telephone number	: +81 3 5795 8712
Fax number	: +81 3 5795 8981

DESCRIPTION OF TEST ITEM

Kind of equipment	: Wireless LAN Converter
Condition of equipment	: Pre-Production
Type	: Tabletop
Trademark	: SONY
FCC ID	: AK8PCWADE50
Model number	: PCWA-DE50
Serial number	: None

TEST PERFORMED

Location	: Kashima No. 1 Test Site (FCC Reg. No. : 90433)
	: Kashima No. 3 Test Site (FCC Reg. No. : 90433)
EUT received	: January 31, 2003
Test started	: February 7, 2003
Test completed	: February 13, 2003
Regulation	: FCC Part15 Subpart E Section 15.407 Intentional Radiators
Test setup	: ANSI C63.4-1992

Report issue date : February 14, 2003

Test engineer : Kazuhiro Ando



Test engineer : Yasuhiro Kase



Report approved by : Takeshi Yamanaka
[Site Manager]



On the basis of the measurements made, the equipment tested is capable of operation in compliance with the requirements of Part 15 of the FCC Rules under normal use and maintenance.

Note

- The test result of this report is effective for equipment under test itself and under the test configuration described on the report.
- This test report does not assure that whether the test result taken in other testing laboratory is compatible or reproducible to the test result on this report or not.
- This test report shall not be reproduced except in full, without issuer's permission.

SECTION 2. SUMMARY OF RESULTS

Test	Reference	Result
26dB Emission Bandwidth	15.407(a)(1) 15.407(a)(2)	N.A.
Maximum Peak Output Power	15.407(a)(1) 15.407(a)(2)	Pass
Peak Power Spectral Density	15.407(a)(1) 15.407(a)(2)	Pass
Peak Excursion Ratio	15.407(a)(6)	Pass
Spurious Emissions - RF Antenna Conducted	15.407(b)(1) 15.407(b)(2)	Pass
Spurious Emissions - Radiated Emissions (below 1 GHz)	15.407(b)(5) 15.209	Pass
Spurious Emissions - Radiated Emissions (above 1 GHz)	15.407(b)(6) 15.205	Pass
Spurious Emissions - Radiated Emissions (Band Edge)	15.407(b)(6) 15.205	Pass
AC Conducted Emissions	15.407(b)(5) 15.207	Pass
Automatic Discontinuance of Transmission	15.407(c)	Pass ^{Note 1}
Antenna Requirement	15.407(d)	Pass ^{Note 2}
Indoor Operation	15.407(e)	Pass ^{Note 3}
Frequency Stability	15.407(g)	Pass ^{Note 4}
Unintentional Radiators	15.107 15.109	- ^{Note 5}

Note 1 : Refer to the “Theory of Operations” in separate attachment.

Note 2 : The EUT uses Integral antenna.

Note 3 : Refer to page 1 of the user's manual in separate attachment for the statement regarding restriction of indoor operation.

Note 4 : Frequency Stability is ± 20 ppm. Refer to the data in separate attachment.

Note 5 : As for the FCC Part 15 Subpart B-Unintentional Radiators, the EUT has been measured and declared as DoC by Sony Corporation.

SECTION 3. EQUIPMENT UNDER TEST

The equipment under test (EUT) consisted of the following equipment.
Indication in the following left side column corresponds to Section 6.

Symbol	Item	Model No.	Serial No.	FCC ID / DoC	Manufacturer	Remarks
A)	Wireless Unit	PCWA-DE50	None	AK8PCWADE50	Sony Corporation	
B)	Power Unit	PCWA-AC04	None	AK8PCWADE50	Sony Corporation	

Power ratings of EUT : AC 100-240V, 50/60Hz 5W

DoC : Device for Declaration of Conformity

3.1 Overview of EUT

Operating Frequency Range	5.15 - 5.35 GHz	
Modulation Method	OFDM	
Number of Operating Channel	8	
Data Transfer Rate	6Mbps / 9Mbps / 12Mbps / 18Mbps / 24Mbps / 36Mbps / 48Mbps / 54Mbps	
Antenna Gain	Antenna 1	4.0 dBi
	Antenna 2	4.0 dBi
Output Power	43.7 mW	
EIRP	109.6 mW	

3.2 Operating channels and frequencies

Ch	Frequency (GHz)	Ch	Frequency (GHz)
36	5.18	52	5.26
40	5.20	56	5.28
44	5.22	60	5.30
48	5.24	64	5.32

Note:

1. This is for sure that all frequencies are in 5.18GHz to 5.32GHz.
2. Section 15.31(m): Measurements on intentional radiators or receivers shall be performed at three frequencies for operating frequency range over 10 MHz.
(The locations of these frequencies one near the low, one near the middle and one near the high.)
3. After test, the EUT operating frequencies are in 5.18GHz to 5.32GHz.
So all the items as followed in testing report are need to test these three frequencies:
low: ch 36, middle: ch 52, high: ch 64.

3.3 Port(s)/Connector(s) :

Port name	Connector type	Connector pin	Remarks
Network	RJ-45	8 pin	
Wireless LAN	Original	8 pin	

3.4 Oscillator(s)/Crystal(s) :

Oscillator	Operating frequency	Board name	Remarks
25 MHz	100 MHz	RT510W-D92	CPU clock SDRAM clock
25 MHz	125MHz	RT510W-D92	Ethernet PHY clock
	25MHz	RT510W-D92	Ethernet PHY clock
	20MHz	RT510W-D92	Ethernet PHY clock
32MHz	LO1=4.144-4.256GHz, 8MHz/step	RT510W-D92	Local OSC
	LO2=1.036-1.064GHz, 2MHz/step	RT510W-D92	Local OSC
32MHz	Fc=5.18-5.32GHz, 20MHz/step	RT510W-D92	Carrier Highest frequency
None	1.25MHz	RT510W-D92	SW regulator

SECTION 4. SUPPORT EQUIPMENT USED

The EUT was supported by the following equipment during the test.
Indication in the following left side column corresponds to Section 6.

Symbol	Item	Model No.	Serial No.	FCC ID / DoC	Manufacturer	Remarks
C)	Computer	PCG-N505VE	3211366	DoC	Sony Corporation	
D)	Port Replicator	PCGA-UPR5	1343479	DoC	Sony Corporation	
E)	10/100 LAN Card Bus PC Card	3CXFE575BT	LZB02254756	DoC	Logitech	
F)	Printer	930C	ES12R1G33N	DoC	HP	
G)	Modem	C202A	010058	BKM552C202A	EPSON	
H)	AC Adapter	PCGA-AC5N	0088416	N.A.	Sony Corporation	
I)	AC Adapter	H00CAA	019546	N.A.	EPSON	

DoC : Device was tested and authorized under a Declaration of Conformity to the applicable FCC rules.

SECTION 5. CABLE (S) USED

The following cable(s) was used for the test.

Indication number in the following left side column corresponds to Section 6.

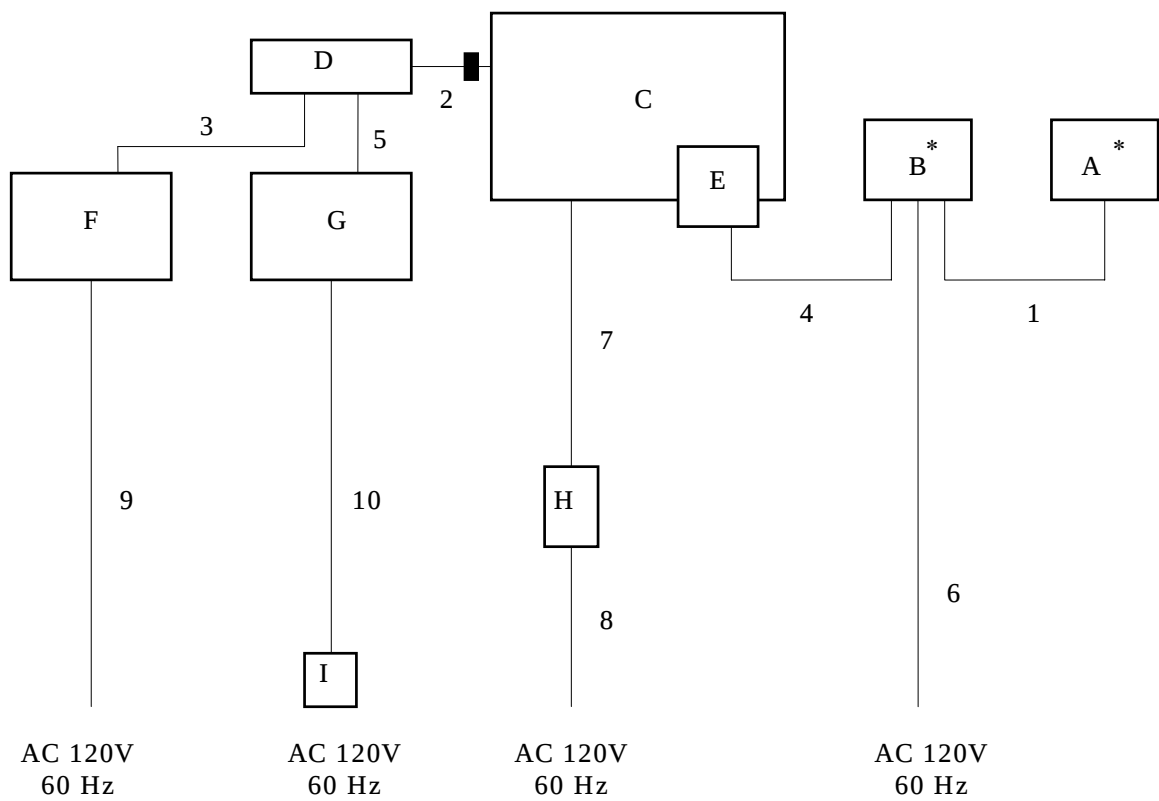
Number	Name	Length	Shield	Connector	Core
1)	Wireless LAN cable	2.50 m	Yes	Metal	
2)	Port Replicater cable	0.15 m	Yes	Metal	Fixed ×1
3)	Centronics cable	1.00 m	Yes	Metal	
4)	Ethernet cable	3.00 m	None	Plastic	
5)	RS-232C cable	2.30 m	Yes	Metal	
6)	Power cable for EUT	0.75 m	None		
7)	Power cable for Computer (DC)	1.70 m	None		
8)	Power cable for Computer (AC)	0.70 m	None		
9)	Power cable for Printer	1.80 m	None		
10)	Power cable for Modem	2.10 m	None		

SECTION 6. CONSTRUCTION OF EQUIPMENT

The construction of EUT during the test was as follows.

System configuration

* : EUT
■ : Ferrite core



Symbols or numbers assigned to equipment or cables on this diagram are corresponded to the symbols or numbers assigned to equipment or cables on tables in Sections 3 to 5.

SECTION 7. GENERAL TEST CONDITIONS

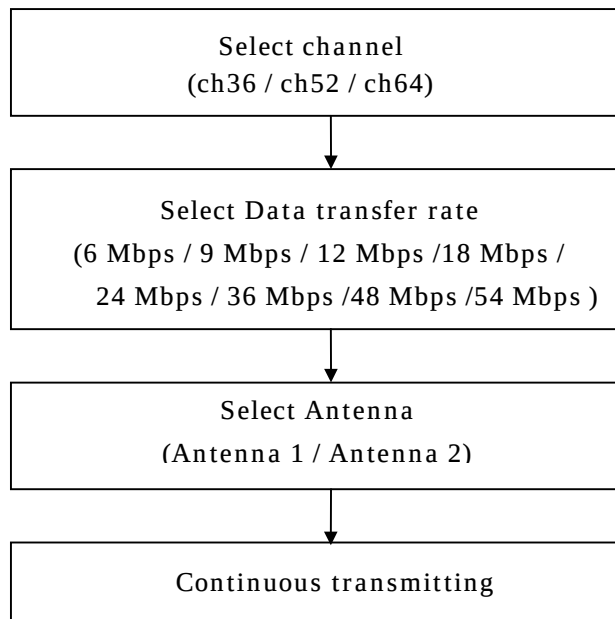
The EUT was operated under the following conditions during the test.

7.1 Operating condition

The test was carried out with the transmitter set at maximum power in Test mode.
EUT was examined in the operating conditions that had maximum emissions.

7.2 Operating flow

Following operations were performed continuously.



SECTION 8. TEST PROCEDURE(S)

Test was carried out under the following conditions.

Test was carried out with no deviations from standards and test methods.

8.1 Conducted Emission Test [15.207]

8.1.1 Equipment Setup

System configuration and Equipment setup are shown on Section 6 and Section 10.

8.1.1.1 Table-Top Equipment

EUT is placed on the wooden table raised 0.8meter above the metal ground plane.

8.1.1.2 Interconnecting Cables

Excess part of the interconnecting cables longer than 1 meter are bundled in the center. Cables that hang closer than 40 cm to the ground plane is folded back and forth forming bundle 30 to 40 cm long, hanging approx, in the middle between ground plane and table.

8.1.1.3 AC Power Cable

AC power cable for EUT is connected to one LISN which is placed on the ground plane. The LISN is placed in 80 cm from the nearest part of EUT chassis.

The excess power cable is bundled in the center, or shortened to appropriate length. AC cables except from the EUT are connected second LISN.

8.1.2 Measuring Instruments

Brief description of Measuring Instruments are as follows;

8.1.2.1 Spectrum Analyzer

The Spectrum analyzer is used for preliminary measurement.

8.1.2.2 EMI Test Receiver

The Quasi-peak detector (IF bandwidth : 10 kHz) and average detector (IF bandwidth : 10 kHz) built in test receiver is used for final measurement.

The test receiver is complied with the specification of the CISPR publication 16.

8.1.2.3 LISN

Two 50 μ H//50 Ω LISN are used. The chassis of the LISN is bonded to the ground plane by the copper blade.

One LISN is connected to the EUT. Other LISN (2nd LISN) is connected to the support equipment. The signal output of the 2nd LISN is terminated with a 50 Ω termination.

8.1.3 Test Procedure

8.1.3.1 Preliminary Measurement

EUT is tested on all operating conditions.

The spectrum analyzer is controlled by the computer program to sweep the frequency range to be measured, then spectrum chart are plotted out to find the worst emission conditions in operating mode and/or configuration decision for the final test.

All leads other than safety ground are tested.

8.1.3.2 Final Measurement

The EUT is operated in the worst emission condition found by the preliminary test. The equipment and cables are arranged or manipulated within the range of the test standard in the above condition.

At least six highest spectrum are measured in quasi-peak and average (if necessary) using the test receiver.

8.2 Radiated Emission Test [15.209]

8.2.1 Equipment Setup

System configuration and Equipment setup are shown on Section 6 and Section 10.

8.2.1.1 Table-Top Equipment

EUT is placed on the wooden table raised 0.8 meter above the metal ground plane (turntable).

8.2.1.2 Interconnecting Cables

Excess part of the interconnecting cables longer than 1 meter are bundled in the center. Cables that hang closer than 40 cm to the ground plane is folded back and forth forming bundle 30 to 40 cm long, hanging approx, in the middle between ground plane and table.

8.2.2 Measuring Instruments

Brief description of Measuring Instruments are as follows;

8.2.2.1 Antennas

The broadband Bi-cog antenna is used for measurement on the frequency range 30 – 1000 MHz.

The Double ridged guide antenna and the Standard gain horn antennas are used for frequency higher than 1000 MHz.

If uncertain result was obtained, the broadband antenna is replaced by the half wave length dipole, then measurement is carried out over again.

8.2.2.2 Pre-amplifier

The broadband pre-amplifier is used for radiated emission measurement.

The signal to noise ratio is improved by using pre-amplifier.

8.2.2.3 Spectrum Analyzer

The spectrum analyzer is used for preliminary measurement of frequency range 30 – 1000 MHz, and also used for final measurement of higher than 1000 MHz (Resolution bandwidth : 1 MHz).

8.2.2.4 EMI Test Receiver

The Quasi-peak detector (IF bandwidth : 120 kHz) built in test receiver is used for final measurement of the frequency 30 – 1000 MHz.

The test receiver is complied with the specification of the CISPR publication 16.

8.2.2.5 Turntable

The turntable is capable for EUT weight and rotatable 0 to 360 degree horizontally by remote control in the test room.

8.2.2.6 Antenna Mast

The antenna mast is attachable to all antennas described on clause 8.2.2.1 and antenna height is adjustable 1 to 4 meters continuously by remote control at the test room, and antenna polarization is also changed by the remote control.

8.2.3 Test Procedure

8.2.3.1 Preliminary Measurement

EUT is tested on all operating conditions.

The spectrum analyzer is set max-hold mode and swept during turntable was rotated 0 to 360 degree. Then spectrum chart are plotted out to detect the worst conditions in configuration, operating mode, or ambient noise notation.

8.2.3.2 Final Measurement

The EUT operated in the condition where maximum emission is detected in the preliminary test.

The turntable azimuth (EUT direction) and antenna height are adjusted the position so that maximum field strength is obtained for each frequency spectrum to be measured. The equipment and cables are arranged or manipulated within the range of the test standard in the above condition.

When the uncertain result was obtained, the measurement is retried by using the half wave dipole antenna instead of the broadband antenna.

SECTION 9. TEST DATA**9.1 26dB Emission Bandwidth [15.407(a)(1), 15.407(a)(2)]****MEASUREMENT PROCEDURE:**

1. The EUT was set to operate with following conditions.
 - Antenna 1 / Antenna 2
 - ch36 / ch52 / ch64
 - Data Transfer Rate (6 Mbps/9 Mbps/12 Mbps/18 Mbps/24 Mbps/36 Mbps/48 Mbps/54 Mbps)
2. The Spectrum Analyzer was connected directly to the transmitter output.
3. The test was carried out in accordance with Public Notice :Guidelines for Assessing U-NII Device - Part15, Subpart E (DA 02-2138, August 30, 2002)
4. The Spectrum Analyzer was set up using RBW = 300kHz, VBW = 1MHz.
5. Following data is the worst case.
6. As for the typical chart of the observed RF profiles, refer to page 18-19.

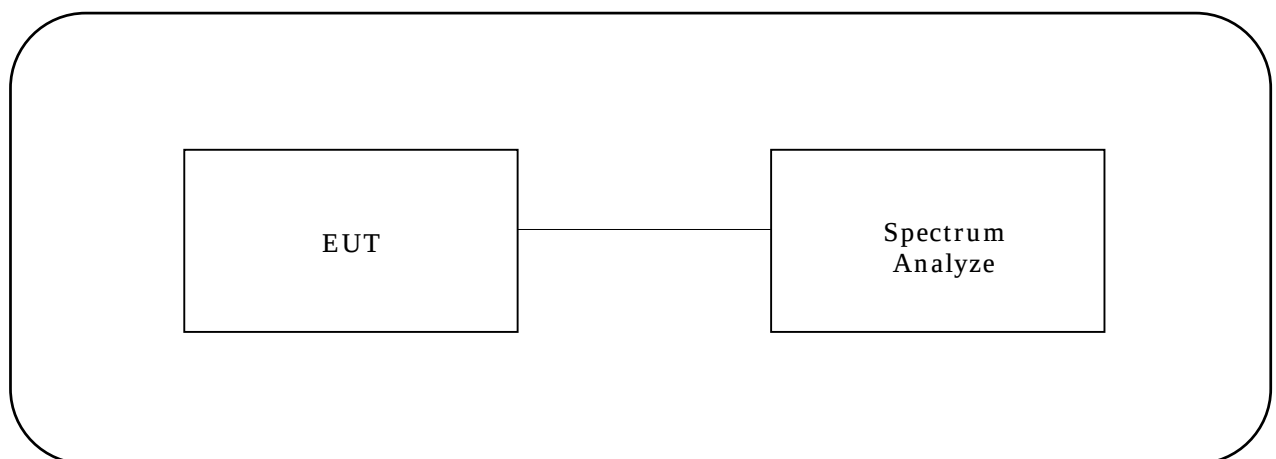
Test date : February 9, 2003
 Temperature variation : 22 °C
 Humidity variation : 38 %

[Antenna 1]

ch	Frequency (GHz)	Data Rate (Mbps)	26dB Emission Bandwidth (MHz)	Chart
36	5.18	6	25.6	-
		9	26.0	-
		12	25.0	-
		18	24.7	-
		24	24.4	Page 18
		36	24.4	-
		48	24.9	-
		54	24.7	-
52	5.26	6	27.2	-
		9	27.0	-
		12	26.8	-
		18	27.3	-
		24	27.5	-
		36	27.4	-
		48	25.4	Page 18
		54	25.9	-
64	5.32	6	26.3	-
		9	26.2	-
		12	25.6	-
		18	25.7	-
		24	25.5	-
		36	25.2	-
		48	25.9	-
		54	25.1	Page 19

[Antenna 2]

ch	Frequency (GHz)	Data Rate (Mbps)	26dB Emission Bandwidth (MHz)	Chart
36	5.18	6	26.3	-
		9	26.0	-
		12	25.3	-
		18	25.5	-
		24	25.3	-
		36	24.7	-
		48	25.4	-
		54	25.1	-
52	5.26	6	26.1	-
		9	26.4	-
		12	26.3	-
		18	27.3	-
		24	26.5	-
		36	26.1	-
		48	25.0	-
		54	24.8	-
64	5.32	6	26.0	-
		9	25.8	-
		12	25.8	-
		18	26.0	-
		24	26.3	-
		36	24.8	-
		48	25.0	-
		54	24.6	-

TEST INSTRUMENTS CONFIGURATION**TEST INSTRUMENTS**

Instrument	Model No.	Serial No.	Manufacturer	Last cal. date	Period
Spectrum analyzer	8564E	3643A00665	HEWLETT PACKARD	Jun. 28, 02	1 Year

Chart of CH36 with 24Mbps in Antenna 1

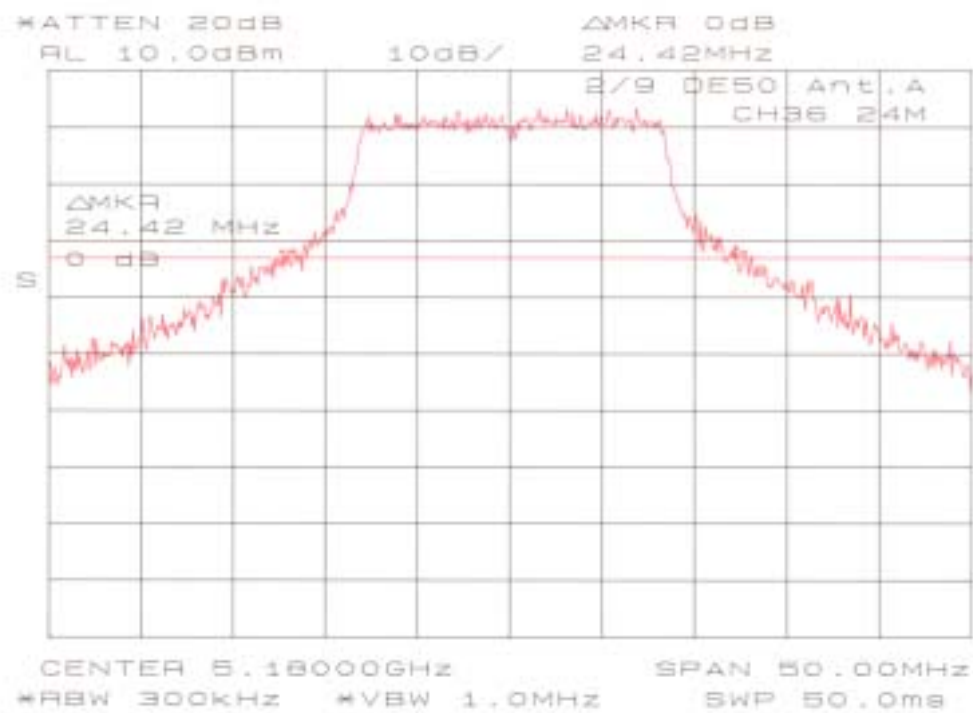
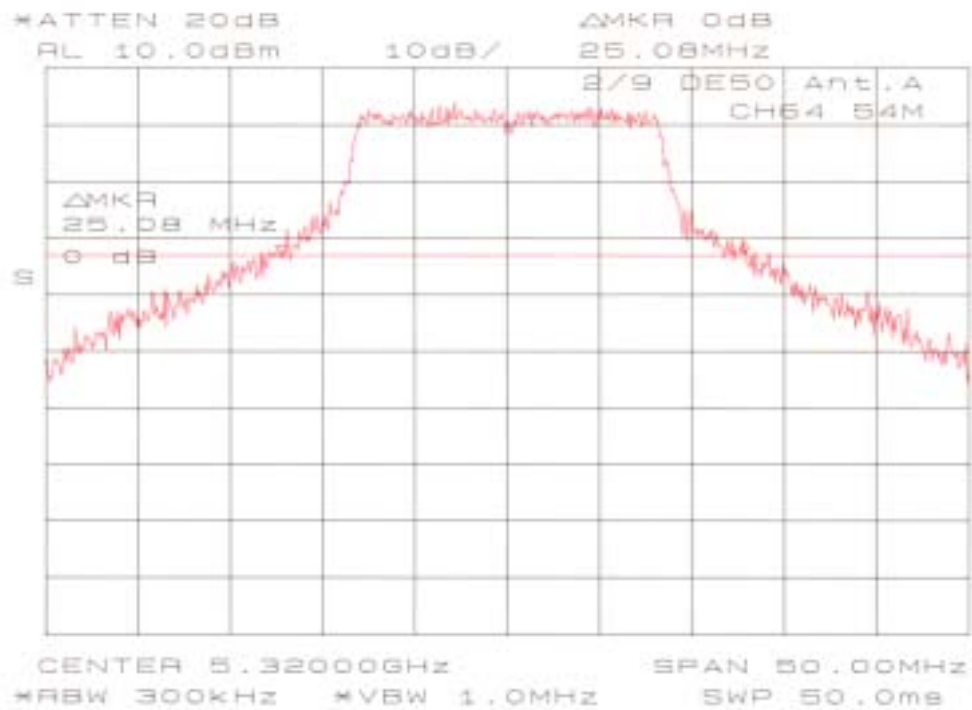


Chart of CH52 with 48Mbps in Antenna 1



Chart of CH64 with 54Mbps in Antenna 1



9.2 Maximum Peak Output Power [15.407(a)(1), 15.407(a)(2)]

MEASUREMENT PROCEDURE:

1. The EUT was set to operate with following conditions.
 - Antenna 1 / Antenna 2
 - ch36 / ch52 / ch64
 - Data Transfer Rate (6 Mbps/9 Mbps/12 Mbps/18 Mbps/24 Mbps/36 Mbps/48 Mbps/54 Mbps)
2. The Spectrum Analyzer was connected directly to the transmitter output.
3. The test was carried out in accordance with Public Notice :Guidelines for Assessing U-NII Device - Part15, Subpart E (DA 02-2138, August 30, 2002)
4. The Spectrum Analyzer was set up using Method #3.
5. Following limit was applied for the measurement.
 - 5.15-5.25 GHz : lessor of 17dBm or 4dBm+10logB, where B is the 26dB emission bandwidth
 - 5.25-5.35 GHz : lessor of 24dBm or 11dBm +10logB, where B is the 26dB emission bandwidth
6. Maximum Antenna Gain : Antenna 1 = 4.0 dBi
 Antenna 2 = 4.0 dBi
7. As for the typical chart of the observed RF profiles, refer to page 24-26.

Test date	: February 7, 2003 to February 10, 2003
Temperature variation	: 22 °C to 24 °C
Humidity variation	: 38 % to 40 %

[Pulse duration]

ch	Freq. (GHz)	Data Rate (Mbps)	Pulse duration T (ms)	1/T (kHz)	Chart
52	5.26	6	3.15	0.32	Page 24
		9	2.12	0.47	-
		12	1.59	0.63	-
		18	1.08	0.93	-
		24	0.81	1.23	-
		36	0.55	1.82	-
		48	0.42	2.38	-
		54	0.38	2.63	Page 24

[Maximum Peak Output Power, Antenna 1]

ch	Freq. (GHz)	Data Rate (Mbps)	Reading (dBm)	Cable Loss (dB)	Maximum Peak Output Power (dBm)	FCC Limit (dBm)	Chart
36	5.18	6	12.0	1.4	13.4	17	-
		9	11.9	1.4	13.3	17	-
		12	11.9	1.4	13.3	17	-
		18	11.8	1.4	13.2	17	-
		24	12.2	1.4	13.6	17	-
		36	12.4	1.4	13.8	17	-
		48	12.3	1.4	13.7	17	-
		54	12.5	1.4	13.9	17	Page 25
52	5.26	6	14.7	1.4	16.1	24	-
		9	14.8	1.4	16.2	24	-
		12	14.6	1.4	16.0	24	-
		18	14.7	1.4	16.1	24	-
		24	15.0	1.4	16.4	24	-
		36	15.0	1.4	16.4	24	Page 25
		48	13.0	1.4	14.4	24	-
		54	13.3	1.4	14.7	24	-
64	5.32	6	12.4	1.4	13.8	24	-
		9	12.4	1.4	13.8	24	-
		12	12.3	1.4	13.7	24	-
		18	12.4	1.4	13.8	24	-
		24	12.7	1.4	14.1	24	-
		36	12.7	1.4	14.1	24	-
		48	12.8	1.4	14.2	24	-
		54	12.8	1.4	14.2	24	Page 26

Note : Maximum peak output power was detected at ch52 with 36Mbps in Antenna 1.
= 16.4dBm (= 43.7mW)

Therefore, the Maximum EIRP = 16.4dBm + 4.0dBi = 20.4dBm (= 109.6mW)

[Maximum Peak Output Power, Antenna 2]

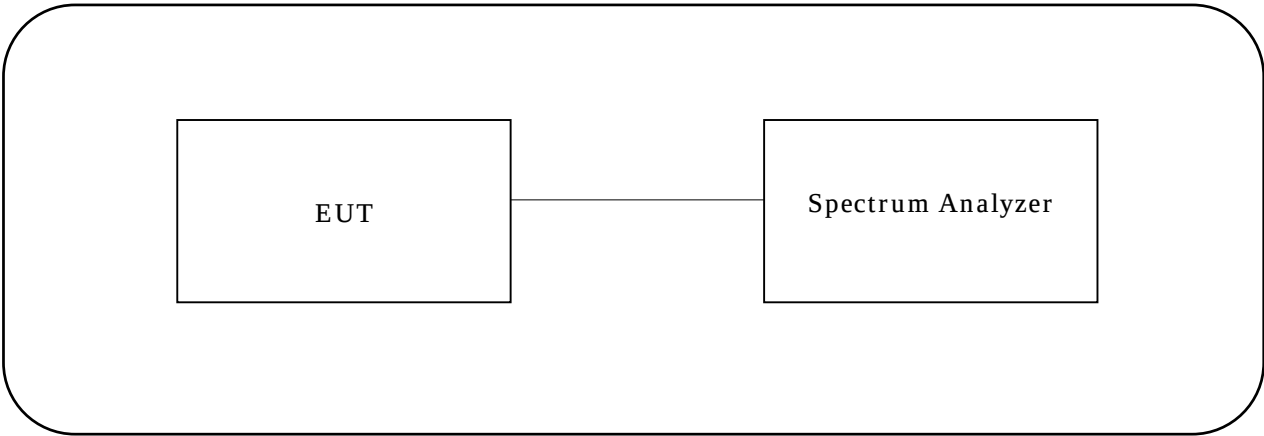
ch	Freq. (GHz)	Data Rate (Mbps)	Reading (dBm)	Cable Loss (dB)	Maximum Peak Output Power (dBm)	FCC Limit (dBm)	Chart
36	5.18	6	11.6	1.4	13.0	17	-
		9	11.6	1.4	13.0	17	-
		12	11.9	1.4	13.3	17	-
		18	11.8	1.4	13.2	17	-
		24	12.2	1.4	13.6	17	-
		36	12.1	1.4	13.5	17	-
		48	12.1	1.4	13.5	17	-
		54	12.1	1.4	13.5	17	-
52	5.26	6	14.5	1.4	15.9	24	-
		9	14.4	1.4	15.8	24	-
		12	14.3	1.4	15.7	24	-
		18	14.5	1.4	15.9	24	-
		24	14.7	1.4	16.1	24	-
		36	14.7	1.4	16.1	24	-
		48	12.7	1.4	14.1	24	-
		54	13.0	1.4	14.4	24	-
64	5.32	6	12.0	1.4	13.4	24	-
		9	12.0	1.4	13.4	24	-
		12	12.0	1.4	13.4	24	-
		18	12.0	1.4	13.4	24	-
		24	12.4	1.4	13.8	24	-
		36	12.5	1.4	13.9	24	-
		48	12.5	1.4	13.9	24	-
		54	12.5	1.4	13.9	24	-

Note : Maximum peak output power was detected at ch52 with 24Mbps in Antenna 2.

= 16.1dBm (= 40.7mW)

Therefore, the Maximum EIRP = 16.1dBm + 4.0dBi = 20.1dBm (= 102.3mW)

TEST INSTRUMENTS CONFIGURATION



TEST INSTRUMENTS

Instrument	Model No.	Serial No.	Manufacturer	Last cal. date	Period
Spectrum analyzer	8564E	3643A00665	HEWLETT PACKARD	Jun. 28, 02	1 Year
Spectrum analyzer	R3182	111100429	ADVANTEST	Apr. 02, 02	1 Year

Chart of CH52 with 6Mbps

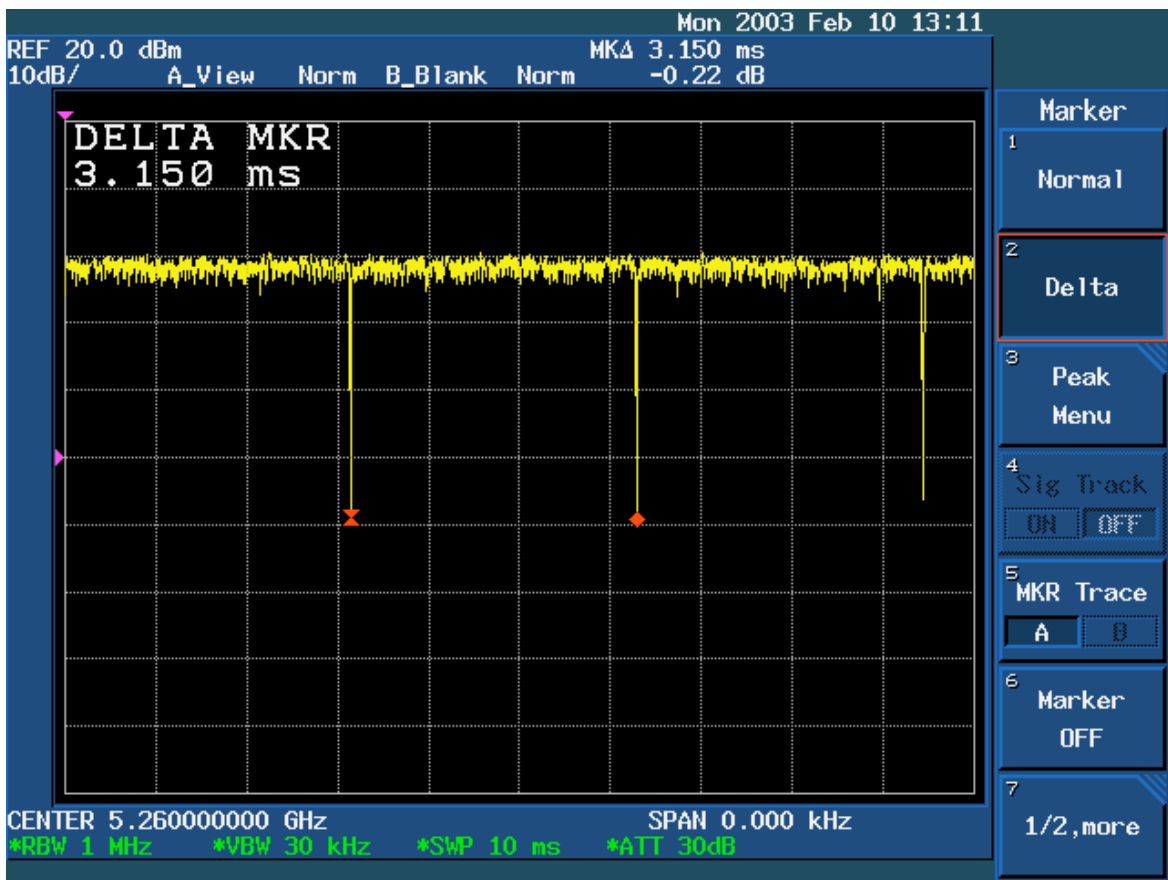


Chart of CH52 with 54Mbps

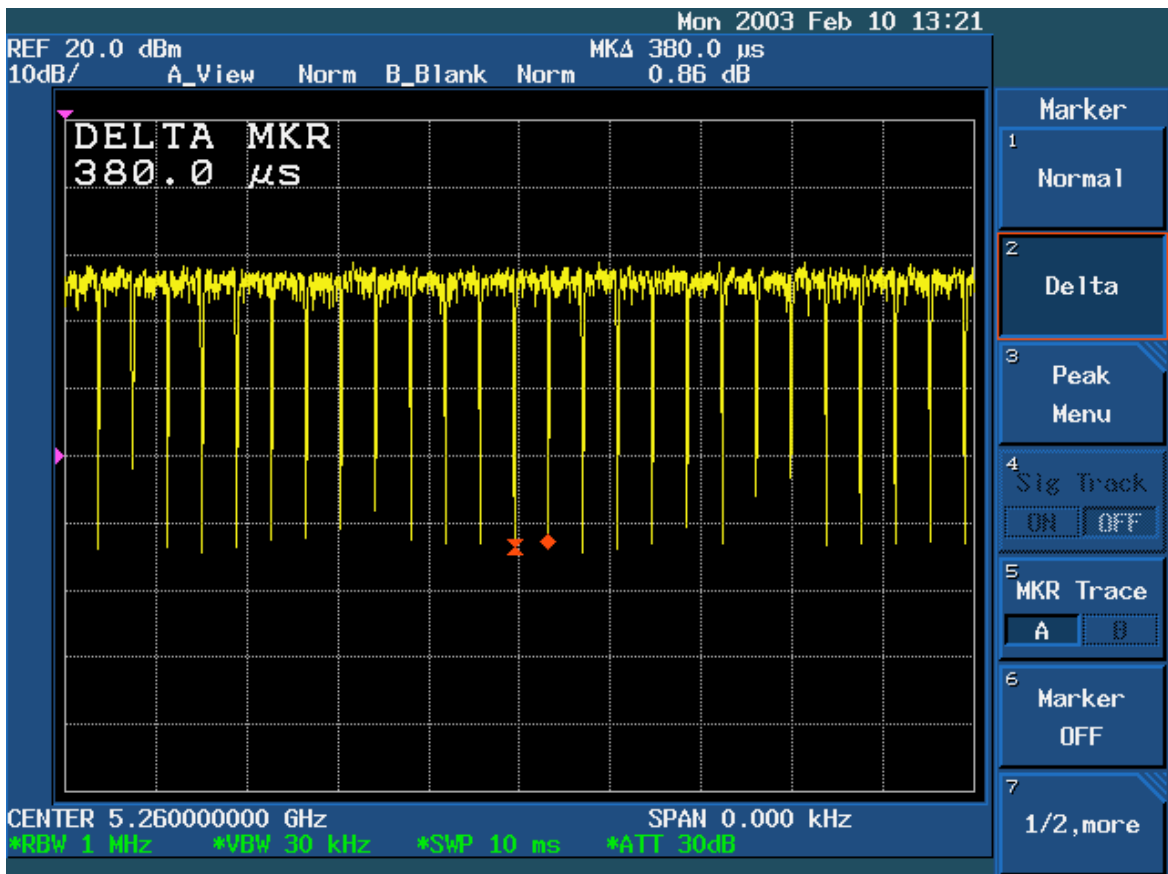


Chart of CH36 with 54Mbps in Antenna 1

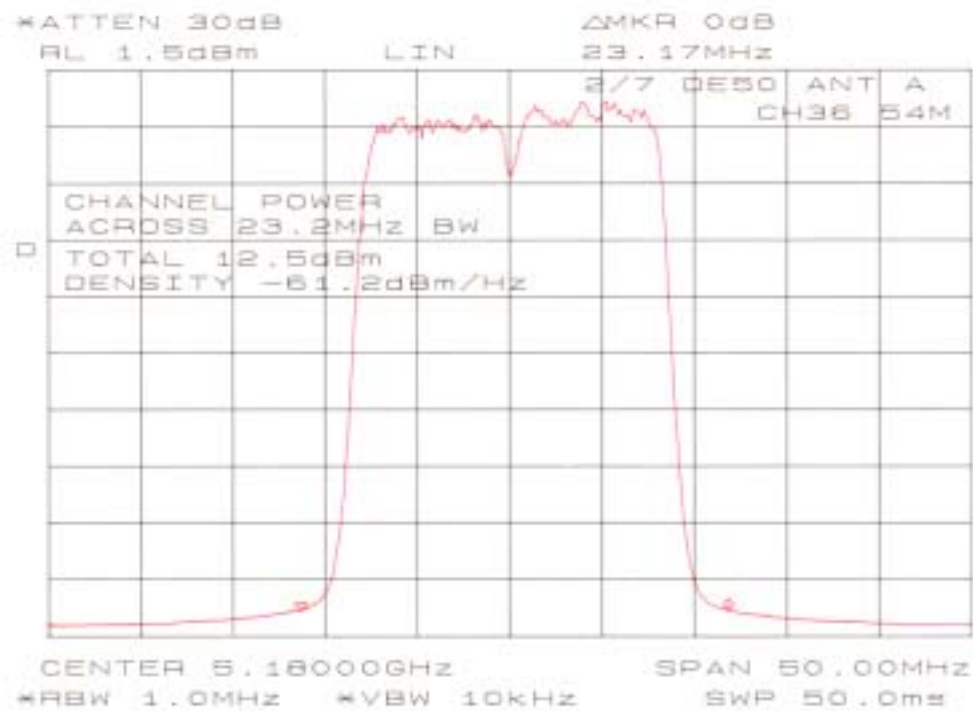


Chart of CH52 with 36Mbps in Antenna 1

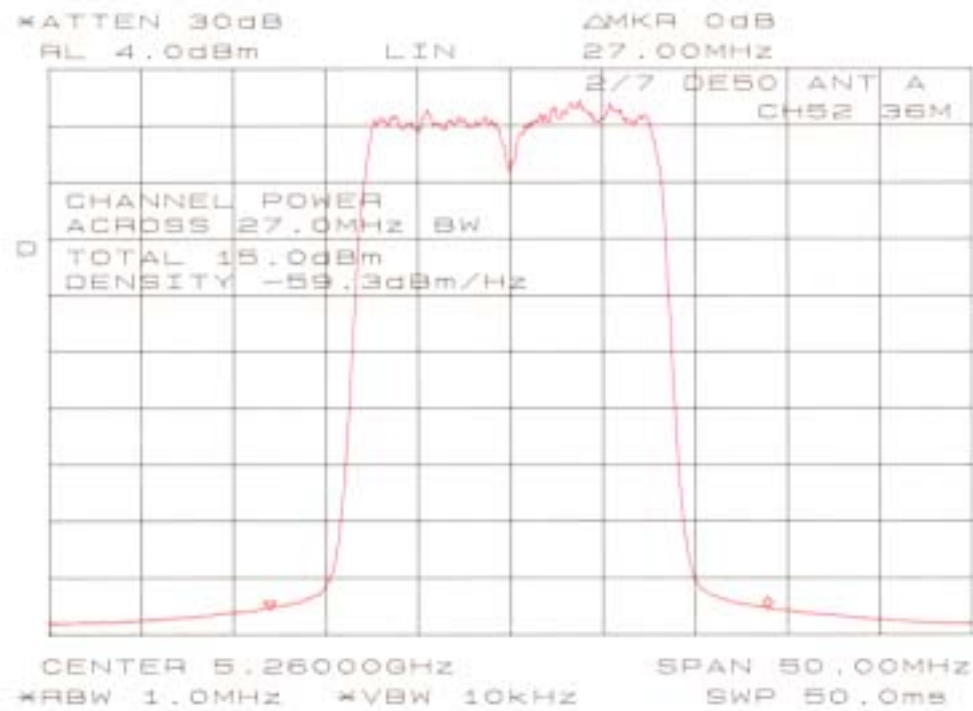
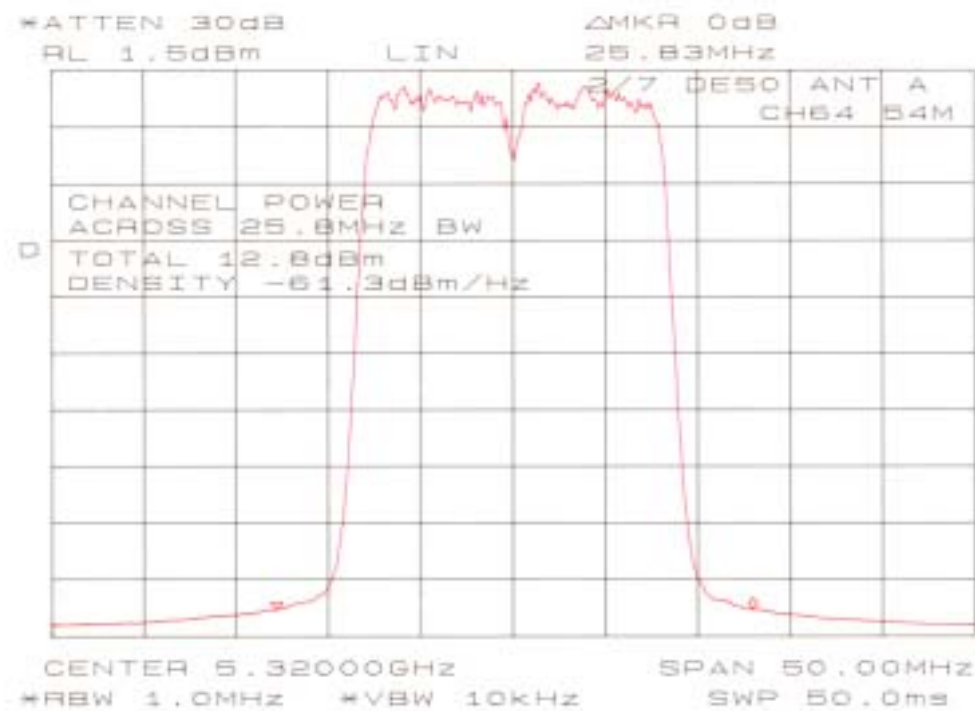


Chart of CH64 with 54Mbps in Antenna 1



9.3 Peak Power Spectral Density [15.407(a)(1), 15.407(a)(2)]

MEASUREMENT PROCEDURE:

1. The EUT was set to operate with following conditions.
 - Antenna 1 / Antenna 2
 - ch36 / ch52 / ch64
 - Data Transfer Rate (6 Mbps/9 Mbps/12 Mbps/18 Mbps/24 Mbps/36 Mbps/48 Mbps/54 Mbps)
2. Spectrum Analyzer was connected directly to the transmitter output.
3. The test was carried out in accordance with Public Notice :Guidelines for Assessing U-NII Device - Part15, Subpart E (DA 02-2138, August 30, 2002)
4. The Spectrum Analyzer was set up using Method 2.
5. Maximum Antenna Gain : Antenna 1 = 4.0 dBi
 Antenna 2 = 4.0 dBi
6. As for the typical chart of the observed RF profiles, refer to page 30-31.

Test date : February 7, 2003
Temperature variation : 22 °C
Humidity variation : 40 %

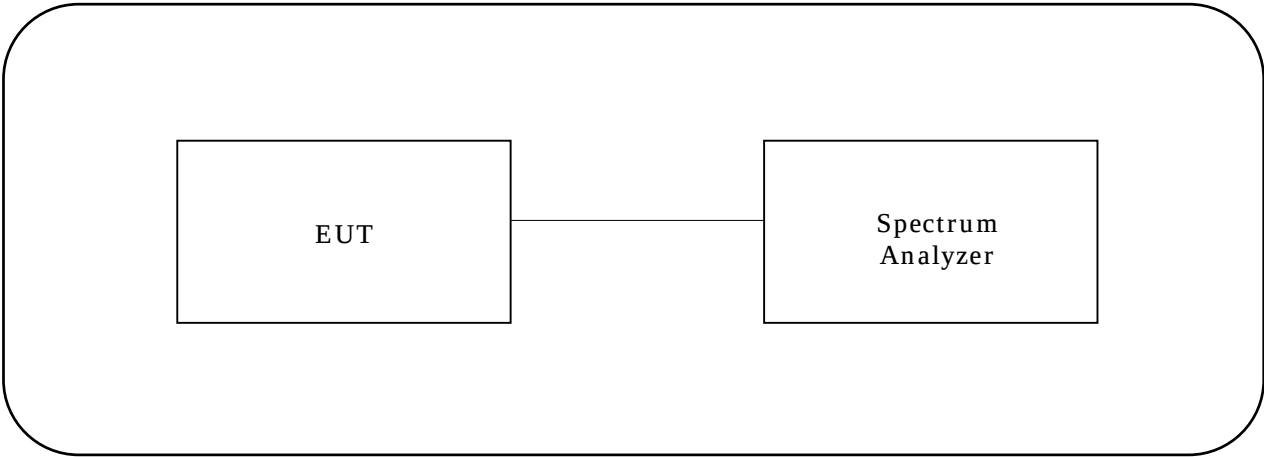
[Antenna 1]

ch	Frequency (GHz)	Data Rate (Mbps)	Reading (dBm)	Cable Loss (dB)	Peak Power Spectral Density (dBm)	FCC Limit (dBm)	Chart
36	5.18	6	0.45	1.4	1.85	4	-
		9	0.69	1.4	2.09	4	-
		12	0.52	1.4	1.92	4	-
		18	0.58	1.4	1.98	4	-
		24	0.68	1.4	2.08	4	-
		36	0.46	1.4	1.86	4	-
		48	0.57	1.4	1.97	4	-
		54	0.48	1.4	1.88	4	-
52	5.26	6	3.05	1.4	4.45	11	-
		9	3.39	1.4	4.79	11	-
		12	3.41	1.4	4.81	11	-
		18	3.34	1.4	4.74	11	-
		24	3.37	1.4	4.77	11	-
		36	3.40	1.4	4.80	11	-
		48	1.43	1.4	2.83	11	-
		54	1.37	1.4	2.77	11	-
64	5.32	6	1.41	1.4	2.81	11	-
		9	1.33	1.4	2.73	11	-
		12	1.44	1.4	2.84	11	-
		18	1.16	1.4	2.56	11	-
		24	1.34	1.4	2.74	11	-
		36	1.62	1.4	3.02	11	-
		48	1.16	1.4	2.56	11	-
		54	1.06	1.4	2.46	11	-

[Antenna 2]

ch	Frequency (GHz)	Data Rate (Mbps)	Reading (dBm)	Cable Loss (dB)	Peak Power Spectral Density (dBm)	FCC Limit (dBm)	Chart
36	5.18	6	0.38	1.4	1.78	4	-
		9	0.71	1.4	2.11	4	Page 30
		12	0.33	1.4	1.73	4	-
		18	0.38	1.4	1.78	4	-
		24	0.45	1.4	1.85	4	-
		36	0.45	1.4	1.85	4	-
		48	0.59	1.4	1.99	4	-
		54	0.41	1.4	1.81	4	-
52	5.26	6	3.42	1.4	4.82	11	-
		9	3.22	1.4	4.62	11	-
		12	3.43	1.4	4.83	11	-
		18	3.13	1.4	4.53	11	-
		24	3.41	1.4	4.81	11	-
		36	3.54	1.4	4.94	11	Page 30
		48	1.62	1.4	3.02	11	-
		54	1.28	1.4	2.68	11	-
64	5.32	6	1.16	1.4	2.56	11	-
		9	0.95	1.4	2.35	11	-
		12	1.10	1.4	2.50	11	-
		18	0.95	1.4	2.35	11	-
		24	1.10	1.4	2.50	11	-
		36	1.13	1.4	2.53	11	-
		48	0.79	1.4	2.19	11	-
		54	1.25	1.4	2.65	11	Page 31

TEST INSTRUMENTS CONFIGURATION



TEST INSTRUMENTS

Instrument	Model No.	Serial No.	Manufacturer	Last cal. date	Period
Spectrum analyzer	R3182	111100429	ADVANTEST	Apr. 02, 02	1 Year

Chart of CH36 with 9Mbps in Antenna 2

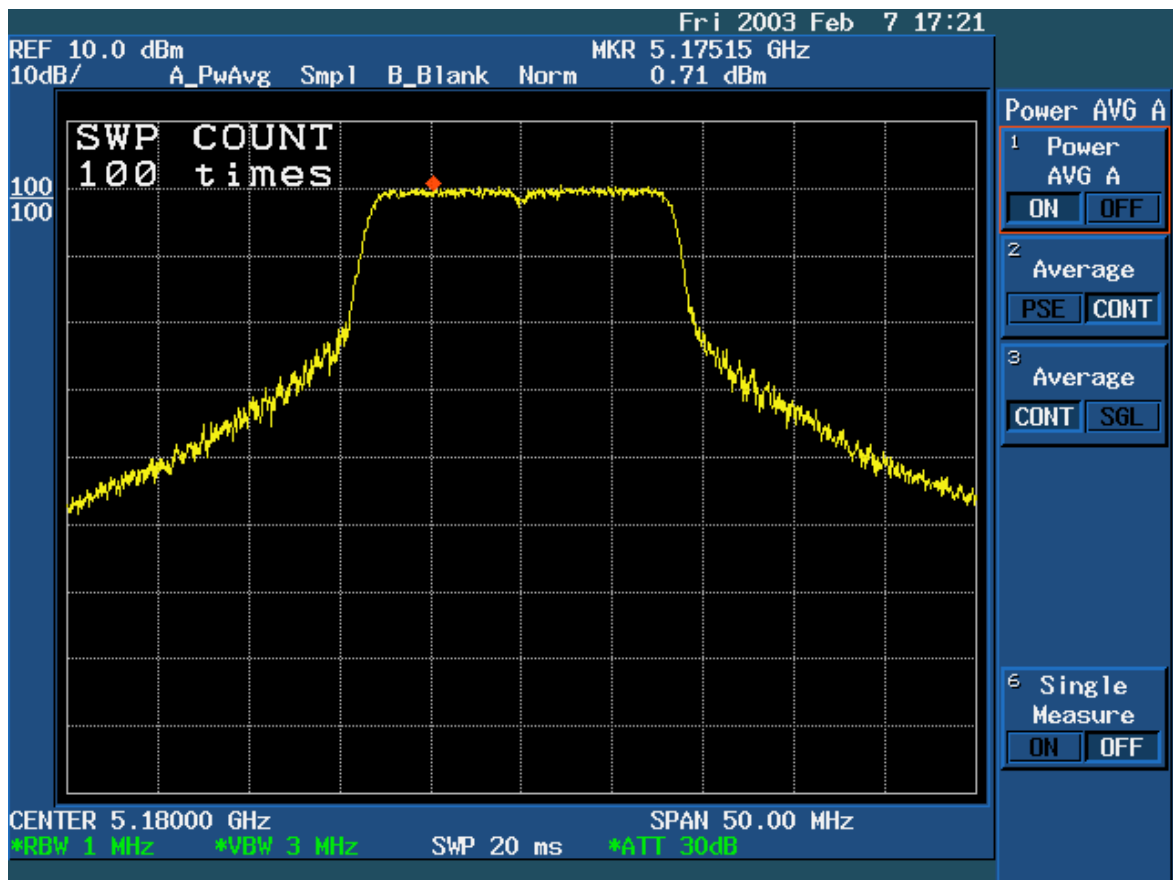


Chart of CH52 with 36Mbps in Antenna 2

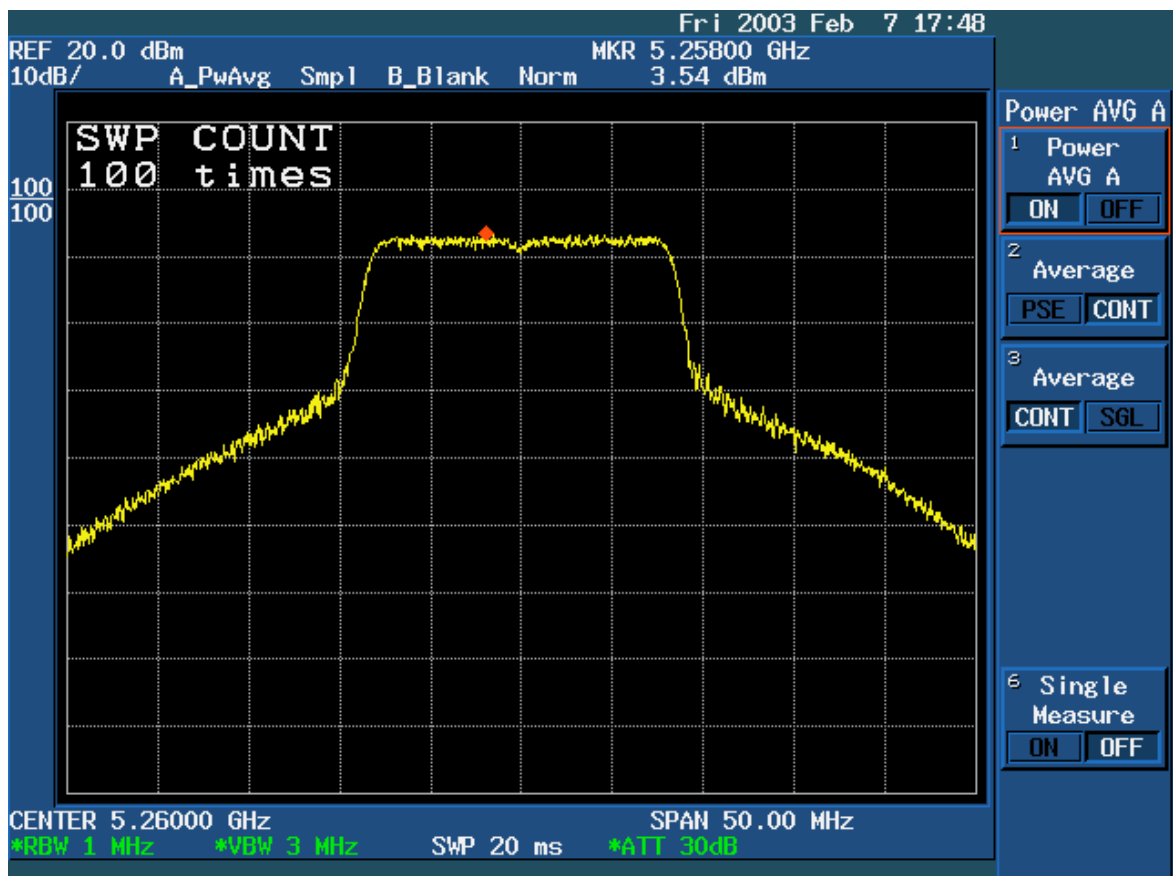


Chart of CH64 with 54Mbps in Antenna 2



9.4 Peak Excursion Ratio [15.407(a)(6)]

MEASUREMENT PROCEDURE:

- The EUT was set to operate with following conditions.
 - Antenna 1 / Antenna 2
 - ch36 / ch52 / ch64
 - Data Transfer Rate (6 Mbps/9 Mbps/12 Mbps/18 Mbps/24 Mbps/36 Mbps/48 Mbps/54 Mbps)
- Spectrum Analyzer was connected directly to the transmitter output.
- The test was carried out in accordance with Public Notice :Guidelines for Assessing U-NII Device - Part15, Subpart E (DA 02-2138, August 30, 2002)
- The Spectrum Analyzer was set up using
 - 1st Trace : RBW = 1MHz, VBW = 3MHz
 - 2nd Trace : RBW = 1MHz, VBW = 10kHz
- As for the typical chart of the observed RF profiles, refer to page 35-36.

Test date : February 12, 2003
 Temperature variation : 23 °C
 Humidity variation : 50 %

[Antenna 1]

ch	Frequency (GHz)	Data Rate (Mbps)	Peak Excursion (dB)	FCC Limit (dB)	Chart
36	5.18	6	10.5	13	-
		9	10.7	13	-
		12	10.8	13	-
		18	11.2	13	Page 35
		24	11.2	13	-
		36	11.2	13	-
		48	10.7	13	-
		54	10.5	13	-
52	5.26	6	10.3	13	-
		9	10.0	13	-
		12	10.8	13	-
		18	11.3	13	Page 35
		24	11.3	13	-
		36	11.0	13	-
		48	10.2	13	-
		54	11.2	13	-
64	5.32	6	10.3	13	-
		9	10.3	13	-
		12	11.0	13	-
		18	11.5	13	Page 36
		24	11.5	13	-
		36	11.2	13	-
		48	11.2	13	-
		54	10.8	13	-

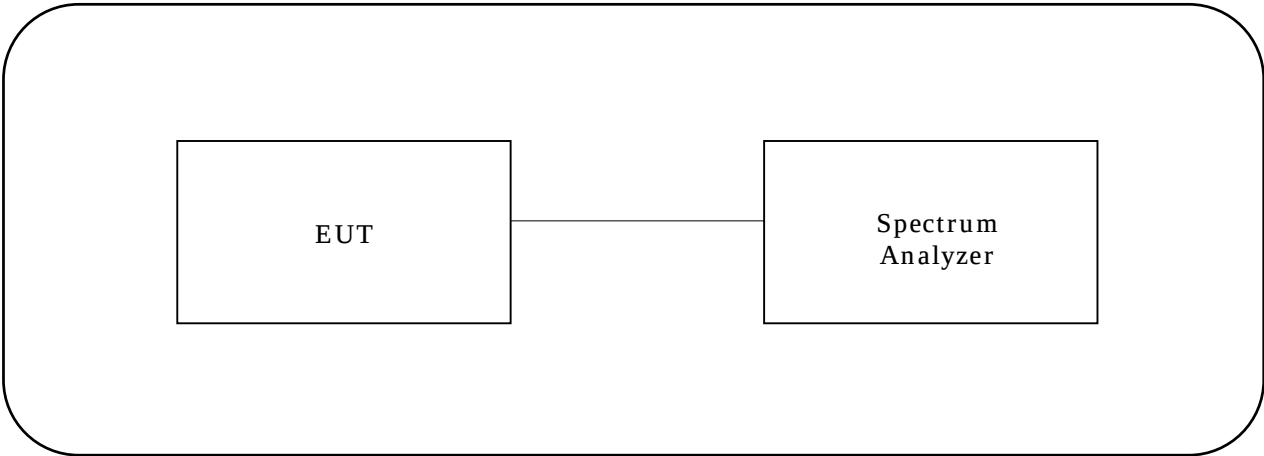
Note : Peak Excursion Ratio is the largest difference between two traces.

[Antenna 2]

ch	Frequency (GHz)	Data Rate (Mbps)	Peak Excursion (dB)	FCC Limit (dB)	Chart
36	5.18	6	10.5	13	-
		9	10.3	13	-
		12	11.2	13	-
		18	11.3	13	-
		24	11.0	13	-
		36	10.8	13	-
		48	10.7	13	-
		54	10.7	13	-
52	5.26	6	10.5	13	-
		9	10.5	13	-
		12	11.7	13	-
		18	11.2	13	-
		24	11.2	13	-
		36	10.7	13	-
		48	10.3	13	-
		54	10.7	13	-
64	5.32	6	10.5	13	-
		9	10.5	13	-
		12	11.3	13	-
		18	11.2	13	-
		24	11.2	13	-
		36	10.5	13	-
		48	10.5	13	-
		54	10.3	13	-

Note : Peak Excursion Ratio is the largest difference between two traces.

TEST INSTRUMENTS CONFIGURATION



TEST INSTRUMENTS

Instrument	Model No.	Serial No.	Manufacturer	Last cal. date	Period
Spectrum analyzer	8564E	3643A00665	HEWLETT PACKARD	Jun 28, 02	1 Year

Chart of CH36 with 18Mbps in Antenna 1

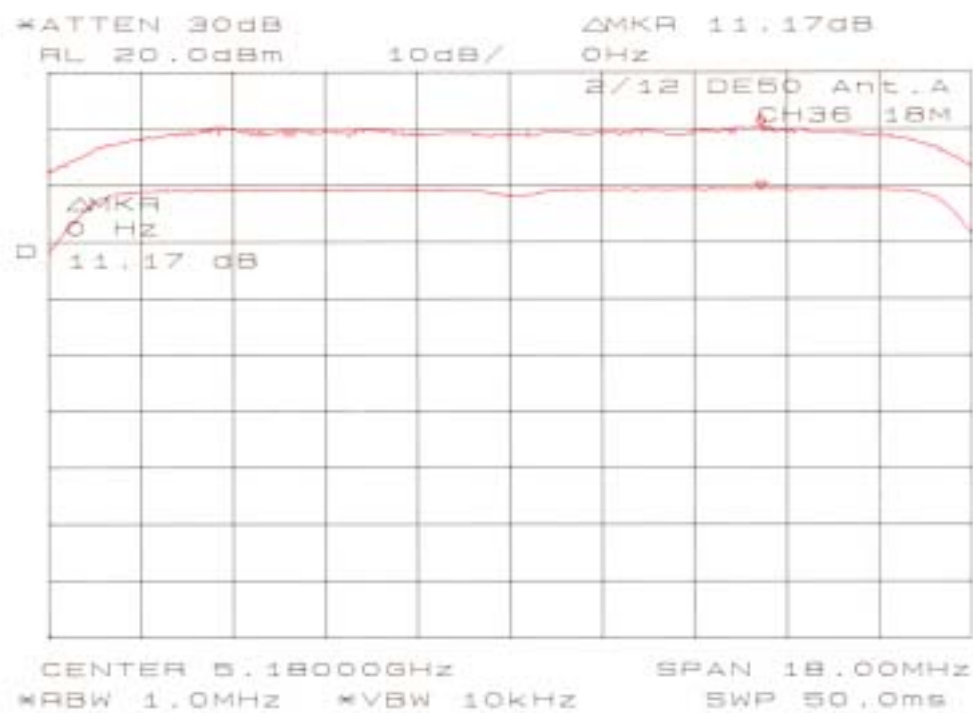
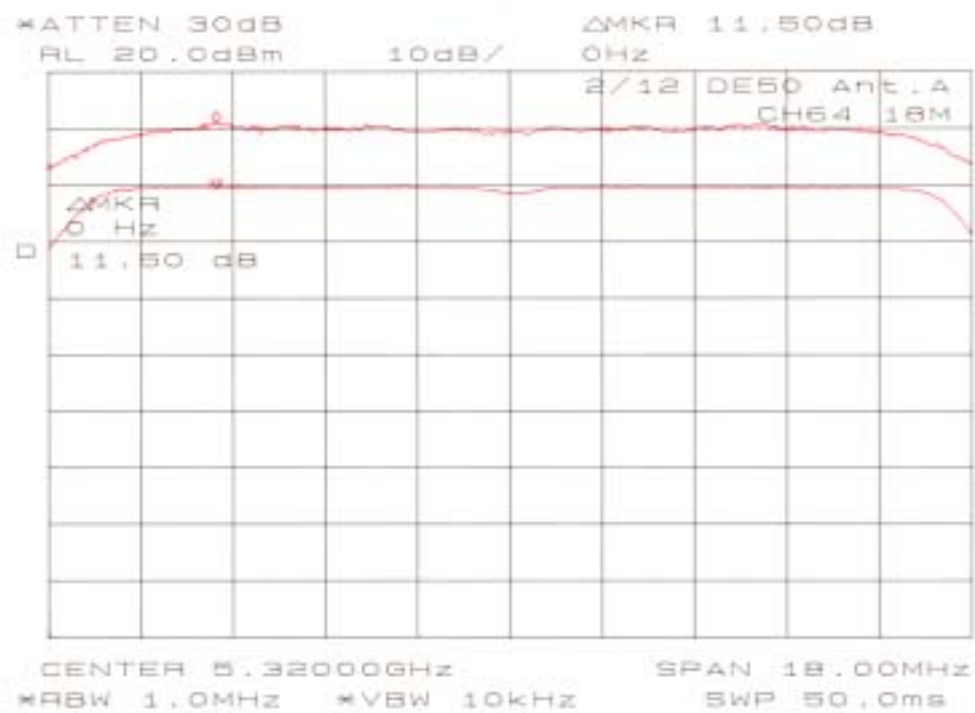


Chart of CH52 with 18Mbps in Antenna 1



Chart of CH64 with 18Mbps in Antenna 1



9.5 Spurious Emissions – RF Antenna Conducted [15.407(b)(1), 15.407(b)(2)]**MEASUREMENT PROCEDURE:**

1. The EUT was set to operate with following conditions.
 - Antenna 1 / Antenna 2
 - ch36 / ch52 / ch64
 - Data Transfer Rate (6 Mbps/9 Mbps/12 Mbps/18 Mbps/24 Mbps/36 Mbps/48 Mbps/54 Mbps)
2. The Spectrum Analyzer was connected directly to the transmitter output.
3. The Spectrum Analyzer was set up using RBW = 1MHz, VBW = 1MHz.
4. As for the typical chart of the observed RF profiles, refer to Annex A.

Test date : February 10, 2003
 Temperature variation : 24 °C
 Humidity variation : 38 %

[Antenna 1]

ch	Frequency (MHz)	Chart
36	5.18	Annex A page 2-3
52	5.26	Annex A page 4-5
64	5.32	Annex A page 6-7

Note:

1. All out-of-band conducted emissions were more than -27dB/MHz .

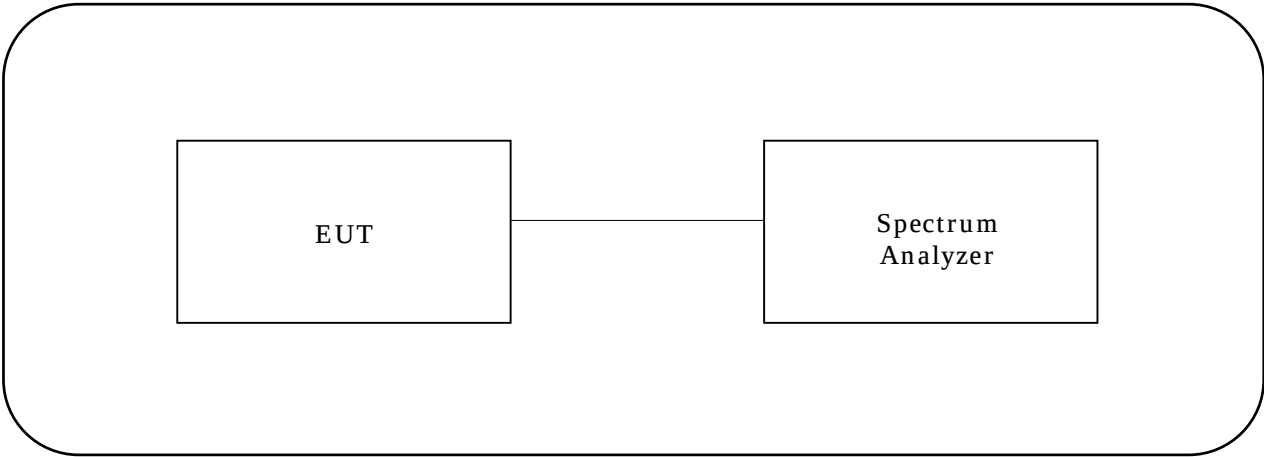
[Antenna 2]

ch	Frequency (MHz)	Chart
36	5.18	Annex A page 8-9
52	5.26	Annex A page 10-11
64	5.32	Annex A page 12-13

Note:

1. All out-of-band conducted emissions were more than -27dB/MHz .

TEST INSTRUMENTS CONFIGURATION



TEST INSTRUMENTS

Instrument	Model No.	Serial No.	Manufacturer	Last cal. date	Period
Spectrum analyzer	8564E	3643A00665	HEWLETT PACKARD	Jun. 28, 02	1 Year

9.6 Spurious Emissions – Radiated Emissions (below 1GHz) [15.407(b)(5), 15.209]**MEASUREMENT PROCEDURE:**

1. The EUT was set to operate with following conditions.
 - Antenna 1 / Antenna 2
 - ch36 / ch52 / ch64
 - Data Transfer Rate (6 Mbps/9 Mbps/12 Mbps/18 Mbps/24 Mbps/36 Mbps/48 Mbps/54 Mbps)
2. The Test Receiver is complied with the specification of the CISPR publication 16.
3. Measurement distance was 3 meters.
4. Following data is the worst case.

Data of CH36 with 54Mbps in Antenna 1**Akzo Nobel K. K.****Kashima No.1 Test Site****Spurious Emissions**

APPLICANT : Sony Corporation
 EUT NAME : Wireless LAN Converter
 MODEL NO. : PCWA-DE50
 SERIAL NO. : None
 TEST MODE : TX 5.18GHz 54Mbps Ant A
 POWER SOURCE : AC120V/60Hz
 DATE TESTED : Feb 08 2003

FILE NO. : ANKK-103028
 REGULATION : FCC 15.407(b)(5), 15.209
 TEST METHOD : ANSI C63.4-1992
 DISTANCE : 3.0 [m]
 TEMPERATURE : 22.0 [degC]
 HUMIDITY : 38.0 [%]
 NOTE :

ENGINEER : Yasuhiro Kase

FREQUENCY [No]	ANT. [MHz]		READING [dBuV]		FACTOR [dB/m]		EMISSION [dBuV/m]		LIMIT [dBuV/m]	MARGIN [dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	70.82	BBA	43.0	-	-11.3	-11.3	31.7	-	40.0	8.3	-
2	110.82	BBA	42.5	-	-7.6	-7.6	34.9	-	43.5	8.6	-
3	151.58	BBA	-	45.0	-9.5	-9.5	-	35.5	43.5	-	8.0
4	245.78	BBA	43.5	-	-5.5	-5.5	38.0	-	46.0	8.0	-
5	391.37	BBA	42.5	-	-1.0	-1.0	41.5	-	46.0	4.5	-
6	442.39	BBA	42.5	39.0	0.1	0.1	42.6	39.1	46.0	3.4	6.9
7	456.60	BBA	41.2	-	0.3	0.3	41.5	-	46.0	4.5	-
8	491.53	BBA	38.5	-	0.7	0.7	39.2	-	46.0	6.8	-
9	720.02	BBA	31.5	33.5	5.3	5.3	36.8	38.8	46.0	9.2	7.2
10	737.30	BBA	31.0	33.0	6.1	6.1	37.1	39.1	46.0	8.9	6.9
11	835.61	BBA	28.0	29.3	7.3	7.3	35.3	36.6	46.0	10.7	9.4

Other frequencies : Below the FCC 15.407(b)(5), 15.209 limit											
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)											
ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)											

Data of CH52 with 36Mbps in Antenna 1**Akzo Nobel K. K.****Kashima No.1 Test Site****Spurious Emissions**

APPLICANT : Sony Corporation
 EUT NAME : Wireless LAN Converter
 MODEL NO. : PCWA-DE50
 SERIAL NO. : None
 TEST MODE : TX 5.26GHz 36Mbps Ant A
 POWER SOURCE : AC120V/60Hz
 DATE TESTED : Feb 08 2003

FILE NO. : ANKK-103028
 REGULATION : FCC 15.407(b)(5), 15.209
 TEST METHOD : ANSI C63.4-1992
 DISTANCE : 3.0 [m]
 TEMPERATURE : 22.0 [degC]
 HUMIDITY : 38.0 [%]
 NOTE :

ENGINEER : Yasuhiro Kase

FREQUENCY [No]	ANT. [MHz]		READING [dBuV]		FACTOR [dB/m]		EMISSION [dBuV/m]		LIMIT [dBuV/m]	MARGIN [dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	70.82	BBA	42.3	-	-11.3	-11.3	31.0	-	40.0	9.0	-
2	106.73	BBA	-	42.0	-7.9	-7.9	-	34.1	43.5	-	9.4
3	111.62	BBA	45.0	-	-7.4	-7.4	37.6	-	43.5	5.9	-
4	151.58	BBA	-	45.5	-9.5	-9.5	-	36.0	43.5	-	7.5
5	279.90	BBA	41.0	-	-4.9	-4.9	36.1	-	46.0	9.9	-
6	391.40	BBA	41.0	-	-1.0	-1.0	40.0	-	46.0	6.0	-
7	442.40	BBA	42.0	39.5	0.1	0.1	42.1	39.6	46.0	3.9	6.4
8	456.62	BBA	40.8	-	0.3	0.3	41.1	-	46.0	4.9	-
9	491.53	BBA	39.4	-	0.7	0.7	40.1	-	46.0	5.9	-
10	720.02	BBA	32.0	32.5	5.3	5.3	37.3	37.8	46.0	8.7	8.2
11	737.30	BBA	30.0	32.5	6.1	6.1	36.1	38.6	46.0	9.9	7.4
12	835.61	BBA	29.0	28.7	7.3	7.3	36.3	36.0	46.0	9.7	10.0

Other frequencies : Below the FCC 15.407(b)(5), 15.209 limit											
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)											
ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)											

Data of CH64 with 54Mbps in Antenna 1**Akzo Nobel K. K.****Kashima No.1 Test Site****Spurious Emissions**

APPLICANT : Sony Corporation
 EUT NAME : Wireless LAN Converter
 MODEL NO. : PCWA-DE50
 SERIAL NO. : None
 TEST MODE : TX 5.32GHz 54Mbps Ant A
 POWER SOURCE : AC120V/60Hz
 DATE TESTED : Feb 10 2003

FILE NO. : ANKK-103028
 REGULATION : FCC 15.407(b)(5), 15.209
 TEST METHOD : ANSI C63.4-1992
 DISTANCE : 3.0 [m]
 TEMPERATURE : 23.0 [degC]
 HUMIDITY : 50.0 [%]
 NOTE :

ENGINEER : Yasuhiro Kase

FREQUENCY [No]	ANT. [MHz]		READING [dBuV]		FACTOR [dB/m]		EMISSION [dBuV/m]		LIMIT [dBuV/m]	MARGIN [dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	70.82	BBA	42.5	-	-11.3	-11.3	31.2	-	40.0	8.8	-
2	112.99	BBA	45.0	-	-7.2	-7.2	37.8	-	43.5	5.7	-
3	151.58	BBA	-	44.0	-9.5	-9.5	-	34.5	43.5	-	9.0
4	260.92	BBA	47.3	-	-5.3	-5.3	42.0	-	46.0	4.0	-
5	150.00	BBA	-	44.0	-9.5	-9.5	-	34.5	43.5	-	9.0
6	391.37	BBA	40.0	-	-1.0	-1.0	39.0	-	46.0	7.0	-
7	442.39	BBA	42.3	37.0	0.1	0.1	42.4	37.1	46.0	3.6	8.9
8	456.60	BBA	41.5	-	0.3	0.3	41.8	-	46.0	4.2	-
9	491.53	BBA	40.0	-	0.7	0.7	40.7	-	46.0	5.3	-
10	720.02	BBA	31.5	33.5	5.3	5.3	36.8	38.8	46.0	9.2	7.2
11	737.30	BBA	24.5	26.0	6.1	6.1	30.6	32.1	46.0	15.4	13.9
12	835.61	BBA	26.5	32.5	7.3	7.3	33.8	39.8	46.0	12.2	6.2

Other frequencies : Below the FCC 15.407(b)(5), 15.209 limit											
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)											
ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)											

Data of CH36 with 24Mbps in Antenna 2**Akzo Nobel K. K.****Kashima No.1 Test Site****Spurious Emissions**

APPLICANT : Sony Corporation
 EUT NAME : Wireless LAN Converter
 MODEL NO. : PCWA-DE50
 SERIAL NO. : None
 TEST MODE : TX 5.18GHz 24Mbps Ant B
 POWER SOURCE : AC120V/60Hz
 DATE TESTED : Feb 08 2003

FILE NO. : ANKK-103028
 REGULATION : FCC 15.407(b)(5), 15.209
 TEST METHOD : ANSI C63.4-1992
 DISTANCE : 3.0 [m]
 TEMPERATURE : 22.0 [degC]
 HUMIDITY : 38.0 [%]
 NOTE :

ENGINEER : Yasuhiro Kase

FREQUENCY [No]	ANT. [MHz]		READING [dBuV]		FACTOR [dB/m]		EMISSION [dBuV/m]		LIMIT [dBuV/m]	MARGIN [dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	70.82	BBA	43.0	-	-11.3	-11.3	31.7	-	40.0	8.3	-
2	110.82	BBA	42.5	-	-7.6	-7.6	34.9	-	43.5	8.6	-
3	151.58	BBA	-	45.2	-9.5	-9.5	-	35.7	43.5	-	7.8
4	245.78	BBA	43.5	-	-5.5	-5.5	38.0	-	46.0	8.0	-
5	391.37	BBA	42.2	-	-1.0	-1.0	41.2	-	46.0	4.8	-
6	442.39	BBA	42.5	37.0	0.1	0.1	42.6	37.1	46.0	3.4	8.9
7	456.60	BBA	41.2	-	0.3	0.3	41.5	-	46.0	4.5	-
8	491.53	BBA	38.2	-	0.7	0.7	38.9	-	46.0	7.1	-
9	720.02	BBA	31.0	33.5	5.3	5.3	36.3	38.8	46.0	9.7	7.2
10	737.30	BBA	31.5	30.3	6.1	6.1	37.6	36.4	46.0	8.4	9.6
11	835.61	BBA	28.0	29.3	7.3	7.3	35.3	36.6	46.0	10.7	9.4

Other frequencies : Below the FCC 15.407(b)(5), 15.209 limit											
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)											
ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)											

Data of CH52 with 24Mbps in Antenna 2**Akzo Nobel K. K.****Kashima No.1 Test Site****Spurious Emissions**

APPLICANT : Sony Corporation
 EUT NAME : Wireless LAN Converter
 MODEL NO. : PCWA-DE50
 SERIAL NO. : None
 TEST MODE : TX 5.26GHz 24Mbps Ant B
 POWER SOURCE : AC120V/60Hz
 DATE TESTED : Feb 08 2003

FILE NO. : ANKK-103028
 REGULATION : FCC 15.407(b)(5), 15.209
 TEST METHOD : ANSI C63.4-1992
 DISTANCE : 3.0 [m]
 TEMPERATURE : 22.0 [degC]
 HUMIDITY : 38.0 [%]
 NOTE :

ENGINEER : Yasuhiro Kase

FREQUENCY [No]	ANT. [MHz]		READING [dBuV]		FACTOR [dB/m]		EMISSION [dBuV/m]		LIMIT [dBuV/m]	MARGIN [dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	70.82	BBA	42.5	-	-11.3	-11.3	31.2	-	40.0	8.8	-
2	106.73	BBA	-	40.0	-7.9	-7.9	-	32.1	43.5	-	11.4
3	110.90	BBA	42.5	-	-7.6	-7.6	34.9	-	43.5	8.6	-
4	151.58	BBA	-	45.0	-9.5	-9.5	-	35.5	43.5	-	8.0
5	245.78	BBA	43.5	-	-5.5	-5.5	38.0	-	46.0	8.0	-
6	391.40	BBA	42.3	-	-1.0	-1.0	41.3	-	46.0	4.7	-
7	442.40	BBA	42.5	38.5	0.1	0.1	42.6	38.6	46.0	3.4	7.4
8	456.62	BBA	41.0	-	0.3	0.3	41.3	-	46.0	4.7	-
9	491.53	BBA	37.8	-	0.7	0.7	38.5	-	46.0	7.5	-
10	720.02	BBA	31.5	31.0	5.3	5.3	36.8	36.3	46.0	9.2	9.7
11	737.30	BBA	29.0	33.0	6.1	6.1	35.1	39.1	46.0	10.9	6.9
12	835.61	BBA	29.0	29.8	7.3	7.3	36.3	37.1	46.0	9.7	8.9

Other frequencies : Below the FCC 15.407(b)(5), 15.209 limit											
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)											
ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)											

Data of CH64 with 54Mbps in Antenna 2**Akzo Nobel K. K.****Kashima No.1 Test Site****Spurious Emissions**

APPLICANT	: Sony Corporation	FILE NO.	: ANKK-103028
EUT NAME	: Wireless LAN Converter	REGULATION	: FCC 15.407(b)(5), 15.209
MODEL NO.	: PCWA-DE50	TEST METHOD	: ANSI C63.4-1992
SERIAL NO.	: None	DISTANCE	: 3.0 [m]
TEST MODE	: TX 5.32GHz 54Mbps Ant B	TEMPERATURE	: 22.0 [degC]
POWER SOURCE	: AC120V/60Hz	HUMIDITY	: 38.0 [%]
DATE TESTED	: Feb 08 2003	NOTE	:

ENGINEER : Yasuhiro Kase

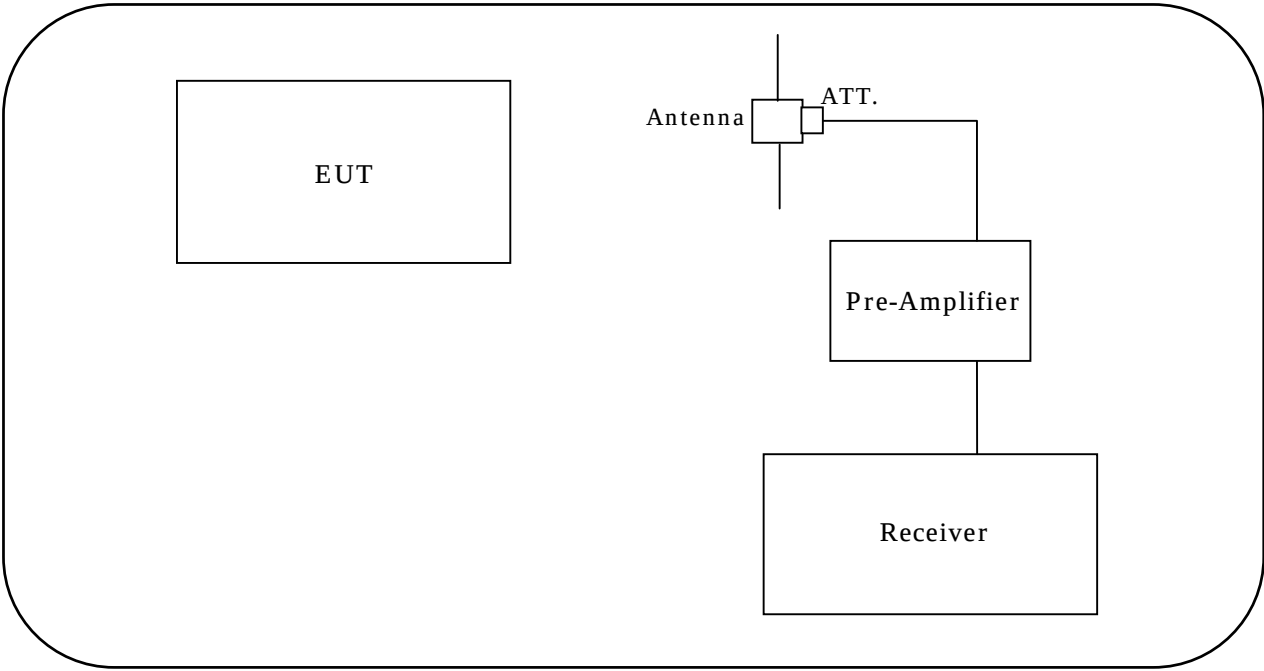
FREQUENCY [No]	ANT. [MHz]		READING [dBuV]		FACTOR [dB/m]		EMISSION [dBuV/m]		LIMIT [dBuV/m]	MARGIN [dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	70.82	BBA	43.0	-	-11.3	-11.3	31.7	-	40.0	8.3	-
2	110.82	BBA	42.5	-	-7.6	-7.6	34.9	-	43.5	8.6	-
3	151.58	BBA	-	45.0	-9.5	-9.5	-	35.5	43.5	-	8.0
4	245.78	BBA	44.0	-	-5.5	-5.5	38.5	-	46.0	7.5	-
5	391.37	BBA	41.0	-	-1.0	-1.0	40.0	-	46.0	6.0	-
6	442.39	BBA	42.5	37.2	0.1	0.1	42.6	37.3	46.0	3.4	8.7
7	456.60	BBA	41.0	-	0.3	0.3	41.3	-	46.0	4.7	-
8	491.53	BBA	38.3	-	0.7	0.7	39.0	-	46.0	7.0	-
9	720.02	BBA	31.0	33.5	5.3	5.3	36.3	38.8	46.0	9.7	7.2
10	737.30	BBA	31.7	33.0	6.1	6.1	37.8	39.1	46.0	8.2	6.9
11	835.61	BBA	28.3	30.0	7.3	7.3	35.6	37.3	46.0	10.4	8.7

Other frequencies : Below the FCC 15.407(b)(5), 15.209 limit

Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)

ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

TEST INSTRUMENTS CONFIGURATION



TEST INSTRUMENTS

Instrument	Model No.	Serial No.	Manufacturer	Last cal. date	Period
Test Receiver	ESV	893271/018	ROHDE & SCHWARZ	Aug. 06, 02	1 Year
Pre-Amplifier	8447D	1937A03130	HEWLETT PACKARD	Oct. 4, 02	1 Year
6dB Attenuator	MP721B	M57593	ANRITSU	Oct. 4, 02	1 Year
Bi-Cog Antenna	LPB-2513-A	1103	ARA	May 29, 02	1 Year

9.7 Spurious Emissions – Radiated Emissions (above 1 GHz) [15.407(b)(6), 15.205]

MEASUREMENT PROCEDURE:

1. The EUT was set to operate with following conditions.
 - Antenna 1 / Antenna 2
 - ch36 / ch52 / ch64
 - Data Transfer Rate (6 Mbps/9 Mbps/12 Mbps/18 Mbps/24 Mbps/36 Mbps/48 Mbps/54 Mbps)
2. For the measurements in restricted bands, the Spectrum Analyzer was set up using
 - Peak mode: RBW = 1MHz, VBW = 1MHz
 - Average mode: RBW = 1MHz, VBW = 10Hz
 And for the measurements out of restricted bands, the Spectrum Analyzer was set up using
 - RBW = 1MHz, VBW = 30kHz.
3. Limit for emissions outside of restricted bands : EIRP < -27dBm/MHz
 In case of 3 meter measurement distance, the limit was calculated as follows:

$$P = (E \cdot d)^2 / 30G$$

$$E = \frac{\sqrt{30 \cdot P \cdot G}}{d}$$

$$= 2.58 \times 10^{-3} \text{ V/m}$$

$$\text{Limit : } 20\log(2.58 \times 10^{-3}) = 68.2 \text{ dBuV/m}$$

where

P is the power, in Watts

E is the measured peak field strength, in Volts/meter

d is the distance at which the measurement was made, in meters

G is the numeric gain of the radiating element

4. Following data is the worst case.

Data of CH36 with 54Mbps in Antenna 1 (1 – 10GHz)**Akzo Nobel K. K.****Kashima No.1 Test Site****Spurious Emissions**

APPLICANT : Sony Corporation
 EUT NAME : Wireless LAN Converter
 MODEL NO. : PCWA-DE50
 SERIAL NO. : None
 TEST MODE : TX 5.18GHz 54Mbps Ant A
 POWER SOURCE : AC120V/60Hz
 DATE TESTED : Feb 12 2003

FILE NO. : ANKK-103028
 REGULATION : FCC 15.407(b)(6), 15.205, 15.209
 TEST METHOD : ANSI C63.4:1992
 DISTANCE : 3.0 [m]
 TEMPERATURE : 23.0 [degC]
 HUMIDITY : 50.0 [%]
 NOTE :

ENGINEER : Yasuhiro Kase

FREQUENCY MODE			READING		FACTOR		EMISSION		LIMIT	MARGIN	
[No]	[MHz]		[dBuV]		[dB/m]		[dBuV/m]		[dBuV/m]	[dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	1519.99	PEK	44.7	44.9	1.0	1.0	45.7	45.9	74.0	28.3	28.1
2	1519.99	AVG	36.3	38.6	1.0	1.0	37.3	39.6	54.0	16.7	14.4
3	5056.08	PEK	-	44.3	16.2	16.2	-	60.5	74.0	-	13.5
4	5056.08	AVG	-	34.9	16.2	16.2	-	51.1	54.0	-	2.9

Other frequencies : Below the FCC 15.407(b)(6), 15.205, 15.209 limit											
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)											

Data of CH36 with 54Mbps in Antenna 1 (10 – 40GHz)**Akzo Nobel K. K.****Kashima No.1 Test Site****Spurious Emissions**

APPLICANT : Sony Corporation
 EUT NAME : Wireless LAN Converter
 MODEL NO. : PCWA-DE50
 SERIAL NO. : None
 TEST MODE : TX 5.18GHz 54Mbps Ant A
 POWER SOURCE : AC120V/60Hz
 DATE TESTED : Feb 12 2003

FILE NO. : ANKK-103028
 REGULATION : FCC 15.407(b)(6), 15.205, 15.209
 TEST METHOD : ANSI C63.4:1992
 DISTANCE : 1.0 [m]
 TEMPERATURE : 23.0 [degC]
 HUMIDITY : 50.0 [%]
 NOTE :

ENGINEER : Yasuhiro Kase

FREQUENCY MODE			READING		FACTOR		EMISSION		LIMIT	MARGIN	
[No]	[MHz]		[dBuV]		[dB]		[dBuV/m]		[dBuV/m]	[dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	10358.80		44.0	42.9	10.1	10.1	54.1	53.0	68.3	14.2	15.3
2	15535.20	PEK	41.1	40.6	14.4	14.4	55.5	55.0	74.0	18.5	19.0
3	15535.20	AVG	27.2	27.3	14.4	14.4	41.6	41.7	54.0	12.4	12.3

Other frequencies : Below the FCC 15.407(b)(6), 15.205, 15.209 limit											
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)											

Data of CH52 with 36Mbps in Antenna 1 (1 – 10GHz)**Akzo Nobel K. K.****Kashima No.1 Test Site****Spurious Emissions**

APPLICANT : Sony Corporation
 EUT NAME : Wireless LAN Converter
 MODEL NO. : PCWA-DE50
 SERIAL NO. : None
 TEST MODE : TX 5.26GHz 36Mbps Ant A
 POWER SOURCE : AC120V/60Hz
 DATE TESTED : Feb 12 2003

FILE NO. : ANKK-103028
 REGULATION : FCC 15.407(b)(6), 15.205, 15.209
 TEST METHOD : ANSI C63.4:1992
 DISTANCE : 3.0 [m]
 TEMPERATURE : 23.0 [degC]
 HUMIDITY : 50.0 [%]
 NOTE :

ENGINEER : Yasuhiro Kase

FREQUENCY MODE			READING		FACTOR		EMISSION		LIMIT	MARGIN	
[No]	[MHz]		[dBuV]		[dB/m]		[dBuV/m]		[dBuV/m]	[dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	1520.06	PEK	45.5	46.2	1.0	1.0	46.5	47.2	74.0	27.5	26.8
2	1520.06	AVG	38.4	40.0	1.0	1.0	39.4	41.0	54.0	14.6	13.0
3	5056.17	PEK	-	44.7	16.2	16.2	-	60.9	74.0	-	13.1
4	5056.17	AVG	-	35.5	16.2	16.2	-	51.7	54.0	-	2.3
5	6737.80		30.3	33.7	20.6	20.6	50.9	54.3	68.3	17.4	14.0

Other frequencies : Below the FCC 15.407(b)(6), 15.205, 15.209 limit											
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)											

Data of CH52 with 36Mbps in Antenna 1 (10 – 40GHz)**Akzo Nobel K. K.****Kashima No.1 Test Site****Spurious Emissions**

APPLICANT : Sony Corporation
 EUT NAME : Wireless LAN Converter
 MODEL NO. : PCWA-DE50
 SERIAL NO. : None
 TEST MODE : TX 5.26GHz 36Mbps Ant A
 POWER SOURCE : AC120V/60Hz
 DATE TESTED : Feb 12 2003

FILE NO. : ANKK-103028
 REGULATION : FCC 15.407(b)(6), 15.205, 15.209
 TEST METHOD : ANSI C63.4:1992
 DISTANCE : 1.0 [m]
 TEMPERATURE : 23.0 [degC]
 HUMIDITY : 50.0 [%]
 NOTE :

ENGINEER : Yasuhiro Kase

FREQUENCY MODE			READING		FACTOR		EMISSION		LIMIT	MARGIN	
[No]	[MHz]		[dBuV]		[dB]		[dBuV/m]		[dBuV/m]	[dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	10522.50		47.4	47.6	10.3	10.3	57.7	57.9	68.3	10.6	10.4
2	15784.30	PEK	45.3	42.8	14.1	14.1	59.4	56.9	74.0	14.6	17.1
3	15784.30	AVG	31.3	29.3	14.1	14.1	45.4	43.4	54.0	8.6	10.6

Other frequencies : Below the FCC 15.407(b)(6), 15.205, 15.209 limit											
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)											

Data of CH64 with 54Mbps in Antenna 1 (1 – 10GHz)**Akzo Nobel K. K.****Kashima No.1 Test Site****Spurious Emissions**

APPLICANT : Sony Corporation
 EUT NAME : Wireless LAN Converter
 MODEL NO. : PCWA-DE50
 SERIAL NO. : None
 TEST MODE : TX 5.32GHz 54Mbps Ant A
 POWER SOURCE : AC120V/60Hz
 DATE TESTED : Feb 12 2003

FILE NO. : ANKK-103028
 REGULATION : FCC 15.407(b)(6), 15.205, 15.209
 TEST METHOD : ANSI C63.4:1992
 DISTANCE : 3.0 [m]
 TEMPERATURE : 23.0 [degC]
 HUMIDITY : 50.0 [%]
 NOTE :

ENGINEER : Yasuhiro Kase

FREQUENCY MODE			READING		FACTOR		EMISSION		LIMIT	MARGIN	
[No]	[MHz]		[dBuV]		[dB/m]		[dBuV/m]		[dBuV/m]	[dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	1520.18	PEK	44.8	46.1	1.0	1.0	45.8	47.1	74.0	28.2	26.9
2	1520.18	AVG	36.7	39.4	1.0	1.0	37.7	40.4	54.0	16.3	13.6
3	5024.03	PEK	-	44.0	15.9	15.9	-	59.9	74.0	-	14.1
4	5024.03	AVG	-	34.7	15.9	15.9	-	50.6	54.0	-	3.4
5	6807.00		30.3	32.8	21.1	21.1	51.4	53.9	68.3	16.9	14.4

Other frequencies : Below the FCC 15.407(b)(6), 15.205, 15.209 limit											
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)											

Data of CH64 with 54Mbps in Antenna 1 (10 – 40GHz)**Akzo Nobel K. K.****Kashima No.1 Test Site****Spurious Emissions**

APPLICANT : Sony Corporation
 EUT NAME : Wireless LAN Converter
 MODEL NO. : PCWA-DE50
 SERIAL NO. : None
 TEST MODE : TX 5.32GHz 54Mbps Ant A
 POWER SOURCE : AC120V/60Hz
 DATE TESTED : Feb 12 2003

FILE NO. : ANKK-103028
 REGULATION : FCC 15.407(b)(6), 15.205, 15.209
 TEST METHOD : ANSI C63.4:1992
 DISTANCE : 1.0 [m]
 TEMPERATURE : 23.0 [degC]
 HUMIDITY : 50.0 [%]
 NOTE :

ENGINEER : Yasuhiro Kase

FREQUENCY MODE			READING		FACTOR		EMISSION		LIMIT	MARGIN	
[No]	[MHz]		[dBuV]		[dB]		[dBuV/m]		[dBuV/m]	[dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	10638.80	PEK	52.3	53.4	10.4	10.4	62.7	63.8	74.0	11.3	10.2
2	10638.80	AVG	38.8	40.0	10.4	10.4	49.2	50.4	54.0	4.8	3.6
3	15962.20	PEK	43.5	43.3	14.3	14.3	57.8	57.6	74.0	16.2	16.4
4	15962.20	AVG	30.1	29.7	14.3	14.3	44.4	44.0	54.0	9.6	10.0

Other frequencies : Below the FCC 15.407(b)(6), 15.205, 15.209 limit											
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)											

Data of CH36 with 24Mbps in Antenna 2 (1 – 10GHz)**Akzo Nobel K. K.****Kashima No.1 Test Site****Spurious Emissions**

APPLICANT : Sony Corporation
 EUT NAME : Wireless LAN Converter
 MODEL NO. : PCWA-DE50
 SERIAL NO. : None
 TEST MODE : TX 5.18GHz 24Mbps Ant B
 POWER SOURCE : AC120V/60Hz
 DATE TESTED : Feb 12 2003

FILE NO. : ANKK-103028
 REGULATION : FCC 15.407(b)(6), 15.205, 15.209
 TEST METHOD : ANSI C63.4:1992
 DISTANCE : 3.0 [m]
 TEMPERATURE : 23.0 [degC]
 HUMIDITY : 50.0 [%]
 NOTE :

ENGINEER : Yasuhiro Kase

FREQUENCY [No]	MODE [MHz]		READING [dBuV]		FACTOR [dB/m]		EMISSION [dBuV/m]		LIMIT [dBuV/m]	MARGIN [dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	1520.01	PEK	45.1	45.4	1.0	1.0	46.1	46.4	74.0	27.9	27.6
2	1520.01	AVG	37.2	39.3	1.0	1.0	38.2	40.3	54.0	15.8	13.7
3	5024.00	PEK	-	44.8	15.9	15.9	-	60.7	74.0	-	13.3
4	5024.00	AVG	-	34.8	15.9	15.9	-	50.7	54.0	-	3.3

Other frequencies : Below the FCC 15.407(b)(6), 15.205, 15.209 limit
 Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)

Data of CH36 with 24Mbps in Antenna 2 (10 – 40GHz)**Akzo Nobel K. K.****Kashima No.1 Test Site****Spurious Emissions**

APPLICANT : Sony Corporation
 EUT NAME : Wireless LAN Converter
 MODEL NO. : PCWA-DE50
 SERIAL NO. : None
 TEST MODE : TX 5.18GHz 24Mbps Ant B
 POWER SOURCE : AC120V/60Hz
 DATE TESTED : Feb 12 2003

FILE NO. : ANKK-103028
 REGULATION : FCC 15.407(b)(6), 15.205, 15.209
 TEST METHOD : ANSI C63.4:1992
 DISTANCE : 1.0 [m]
 TEMPERATURE : 23.0 [degC]
 HUMIDITY : 50.0 [%]
 NOTE :

ENGINEER : Yasuhiro Kase

FREQUENCY MODE			READING		FACTOR		EMISSION		LIMIT	MARGIN	
[No]	[MHz]		[dBuV]		[dB]		[dBuV/m]		[dBuV/m]	[dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	10359.30		49.9	49.4	10.1	10.1	60.0	59.5	68.3	8.3	8.8
2	15561.70	PEK	40.1	41.1	14.4	14.4	54.5	55.5	74.0	19.5	18.5
3	15561.70	AVG	26.9	27.0	14.4	14.4	41.3	41.4	54.0	12.7	12.6

Other frequencies : Below the FCC 15.407(b)(6), 15.205, 15.209 limit											
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)											

Data of CH52 with 24Mbps in Antenna 2 (1 – 10GHz)**Akzo Nobel K. K.****Kashima No.1 Test Site****Spurious Emissions**

APPLICANT : Sony Corporation
 EUT NAME : Wireless LAN Converter
 MODEL NO. : PCWA-DE50
 SERIAL NO. : None
 TEST MODE : TX 5.26GHz 24Mbps Ant B
 POWER SOURCE : AC120V/60Hz
 DATE TESTED : Feb 12 2003

FILE NO. : ANKK-103028
 REGULATION : FCC 15.407(b)(6), 15.205, 15.209
 TEST METHOD : ANSI C63.4:1992
 DISTANCE : 3.0 [m]
 TEMPERATURE : 23.0 [degC]
 HUMIDITY : 50.0 [%]
 NOTE :

ENGINEER : Yasuhiro Kase

FREQUENCY MODE			READING		FACTOR		EMISSION		LIMIT	MARGIN	
[No]	[MHz]		[dBuV]		[dB/m]		[dBuV/m]		[dBuV/m]	[dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	1520.08	PEK	45.8	45.6	1.0	1.0	46.8	46.6	74.0	27.2	27.4
2	1520.08	AVG	39.2	39.6	1.0	1.0	40.2	40.6	54.0	13.8	13.4
3	4960.10	PEK	-	44.3	15.8	15.8	-	60.1	74.0	-	13.9
4	4960.10	AVG	-	34.8	15.8	15.8	-	50.6	54.0	-	3.4
5	6633.30		30.0	30.8	20.3	20.3	50.3	51.1	68.3	18.0	17.2

Other frequencies : Below the FCC 15.407(b)(6), 15.205, 15.209 limit											
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)											

Data of CH52 with 24Mbps in Antenna 2 (10 – 40GHz)**Akzo Nobel K. K.****Kashima No.1 Test Site****Spurious Emissions**

APPLICANT : Sony Corporation
 EUT NAME : Wireless LAN Converter
 MODEL NO. : PCWA-DE50
 SERIAL NO. : None
 TEST MODE : TX 5.26GHz 24Mbps Ant B
 POWER SOURCE : AC120V/60Hz
 DATE TESTED : Feb 12 2003

FILE NO. : ANKK-103028
 REGULATION : FCC 15.407(b)(6), 15.205, 15.209
 TEST METHOD : ANSI C63.4:1992
 DISTANCE : 1.0 [m]
 TEMPERATURE : 23.0 [degC]
 HUMIDITY : 50.0 [%]
 NOTE :

ENGINEER : Yasuhiro Kase

FREQUENCY MODE			READING		FACTOR		EMISSION		LIMIT	MARGIN	
[No]	[MHz]		[dBuV]		[dB]		[dBuV/m]		[dBuV/m]	[dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	10520.70		50.8	52.2	10.3	10.3	61.1	62.5	68.3	7.2	5.8
2	15785.50	PEK	45.6	42.6	14.1	14.1	59.7	56.7	74.0	14.3	17.3
3	15785.50	AVG	31.9	29.3	14.1	14.1	46.0	43.4	54.0	8.0	10.6

Other frequencies : Below the FCC 15.407(b)(6), 15.205, 15.209 limit											
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)											

Data of CH64 with 54Mbps in Antenna 2 (1 – 10GHz)**Akzo Nobel K. K.****Kashima No.1 Test Site****Spurious Emissions**

APPLICANT : Sony Corporation
 EUT NAME : Wireless LAN Converter
 MODEL NO. : PCWA-DE50
 SERIAL NO. : None
 TEST MODE : TX 5.32GHz 54Mbps Ant B
 POWER SOURCE : AC120V/60Hz
 DATE TESTED : Feb 12 2003

FILE NO. : ANKK-103028
 REGULATION : FCC 15.407(b)(6), 15.205, 15.209
 TEST METHOD : ANSI C63.4:1992
 DISTANCE : 3.0 [m]
 TEMPERATURE : 23.0 [degC]
 HUMIDITY : 50.0 [%]
 NOTE :

ENGINEER : Yasuhiro Kase

FREQUENCY MODE			READING		FACTOR		EMISSION		LIMIT	MARGIN	
[No]	[MHz]		[dBuV]		[dB/m]		[dBuV/m]		[dBuV/m]	[dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	1520.07	PEK	44.6	45.6	1.0	1.0	45.6	46.6	74.0	28.4	27.4
2	1520.07	AVG	36.8	39.5	1.0	1.0	37.8	40.5	54.0	16.2	13.5
3	4960.13	PEK	-	44.5	15.8	15.8	-	60.3	74.0	-	13.7
4	4960.13	AVG	-	34.7	15.8	15.8	-	50.5	54.0	-	3.5
5	6779.20		37.8	38.6	20.9	20.9	58.7	59.5	68.3	9.6	8.8

Other frequencies : Below the FCC 15.407(b)(6), 15.205, 15.209 limit											
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)											

Data of CH64 with 54Mbps in Antenna 2 (10 – 40GHz)**Akzo Nobel K. K.****Kashima No.1 Test Site****Spurious Emissions**

APPLICANT : Sony Corporation
 EUT NAME : Wireless LAN Converter
 MODEL NO. : PCWA-DE50
 SERIAL NO. : None
 TEST MODE : TX 5.32GHz 54Mbps Ant B
 POWER SOURCE : AC120V/60Hz
 DATE TESTED : Feb 12 2003

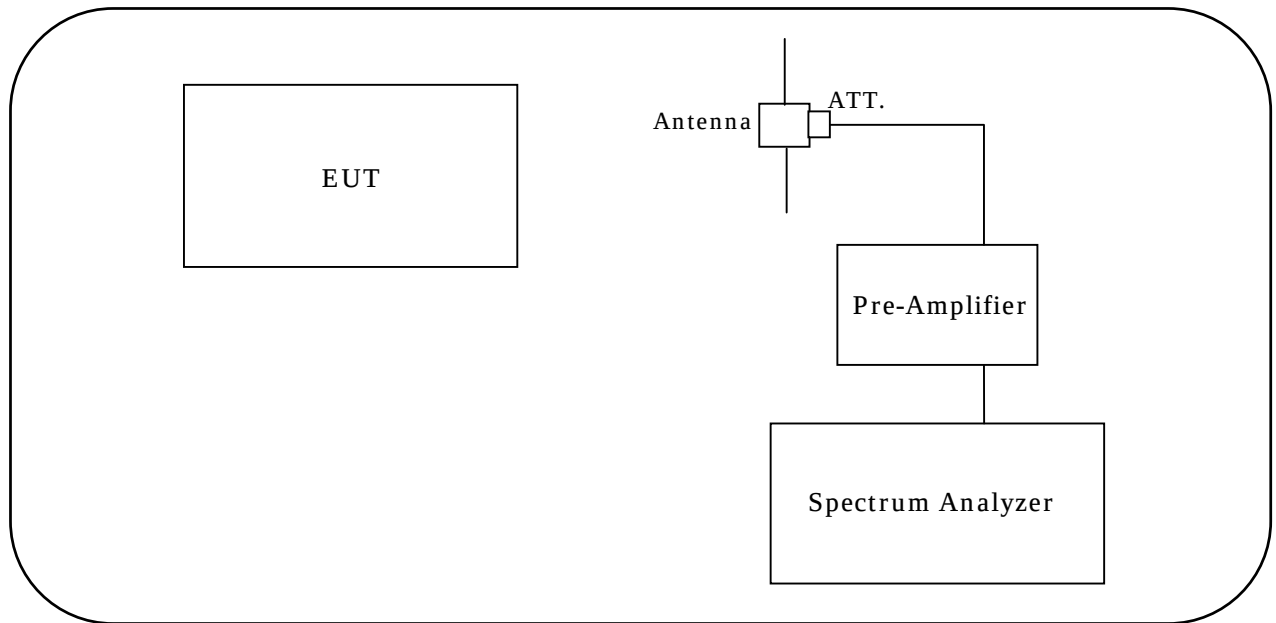
FILE NO. : ANKK-103028
 REGULATION : FCC 15.407(b)(6), 15.205, 15.209
 TEST METHOD : ANSI C63.4:1992
 DISTANCE : 1.0 [m]
 TEMPERATURE : 23.0 [degC]
 HUMIDITY : 50.0 [%]
 NOTE :

ENGINEER : Yasuhiro Kase

FREQUENCY [No]	MODE [MHz]		READING [dBuV]		FACTOR [dB]		EMISSION [dBuV/m]		LIMIT [dBuV/m]	MARGIN [dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	10641.20	PEK	54.3	56.5	10.5	10.5	64.8	67.0	74.0	9.2	7.0
2	10641.20	AVG	40.9	42.4	10.5	10.5	51.4	52.9	54.0	2.6	1.1
3	15962.70	PEK	43.8	43.5	14.3	14.3	58.1	57.8	74.0	15.9	16.2
4	15962.70	AVG	30.3	29.4	14.3	14.3	44.6	43.7	54.0	9.4	10.3

Other frequencies : Below the FCC 15.407(b)(6), 15.205, 15.209 limit
 Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)

TEST INSTRUMENTS CONFIGURATION



TEST INSTRUMENTS

Instrument	Model No.	Serial No.	Manufacturer	Last cal. date	Period
Spectrum Analyzer	8564E	3643A00665	HEWLETT PACKARD	Jun. 28, 02	1 Year
Pre-Amplifier	83051A	3332A00329	HEWLETT PACKARD	Jun. 02, 02	1 Year
3dB Attenuator	6803.17.B	None	SUHNER	Jun. 02, 02	1 Year
Double Ridged Antenna	3115	5044	EMCO	Jul. 09, 02	1 Year
Standard Gain Horn Antenna	3160-07	1160	EMCO	Jan. 15, 03	1 Year
	3160-08	1144	EMCO	Jan. 15, 03	1 Year
	3160-09	1262	EMCO	Jan. 15, 03	1 Year
	3160-10	1103	EMCO	Jan. 15, 03	1 Year

9.8 Spurious Emissions – Radiated Emissions (Band Edge) [15.407(b)(6), 15.205]**MEASUREMENT PROCEDURE:**

1. The EUT was set to operate with following conditions.
 - Antenna 1 / Antenna 2
 - ch36 / ch64
 - Data Transfer Rate (6 Mbps/9 Mbps/12 Mbps/18 Mbps/24 Mbps/36 Mbps/48 Mbps/54 Mbps)
2. The Spectrum Analyzer was setup using
 - Peak mode: RBW = 1MHz, VBW = 1MHz
 - Average mode: RBW = 1MHz, VBW = 10Hz
3. Following data is the worst case.
4. As for the typical chart of the observed RF profiles, refer to page 66-69.

Data of CH36 with 54Mbps in Antenna 1**Akzo Nobel K. K.****Kashima No.1 Test Site****Spurious Emissions - Band Edge**

APPLICANT : Sony Corporation
 EUT NAME : Wireless LAN Converter
 MODEL NO. : PCWA-DE50
 SERIAL NO. : None
 TEST MODE : TX 5.18GHz 54Mbps Ant A
 POWER SOURCE : AC120V/60Hz
 DATE TESTED : Feb 13 2003

FILE NO. : ANKK-103028
 REGULATION : FCC 15.407(b)(6), 15.205, 15.209
 TEST METHOD : ANSI C63.4:1992
 DISTANCE : 3.0 [m]
 TEMPERATURE : 20.0 [degC]
 HUMIDITY : 41.0 [%]
 NOTE :

ENGINEER : Yasuhiro Kase

FREQUENCY MODE			READING		FACTOR		EMISSION		LIMIT	MARGIN	
[No]	[MHz]		[dBuV]		[dB/m]		[dBuV/m]		[dBuV/m]	[dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	5150.00	PEK	41.7	46.8	16.5	16.5	58.2	63.3	74.0	15.8	10.7
2	5150.00	AVG	28.7	31.2	16.5	16.5	45.2	47.7	54.0	8.8	6.3

Other frequencies : Below the FCC 15.407(b)(6), 15.205, 15.209 limit											
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)											

Data of CH64 with 54Mbps in Antenna 1**Akzo Nobel K. K.****Kashima No.1 Test Site****Spurious Emissions - Band Edge**

APPLICANT : Sony Corporation
 EUT NAME : Wireless LAN Converter
 MODEL NO. : PCWA-DE50
 SERIAL NO. : None
 TEST MODE : TX 5.32GHz 54Mbps Ant A
 POWER SOURCE : AC120V/60Hz
 DATE TESTED : Feb 13 2003

FILE NO. : ANKK-103028
 REGULATION : FCC 15.407(b)(6), 15.205, 15.209
 TEST METHOD : ANSI C63.4:1992
 DISTANCE : 3.0 [m]
 TEMPERATURE : 20.0 [degC]
 HUMIDITY : 41.0 [%]
 NOTE :

ENGINEER : Yasuhiro Kase

FREQUENCY MODE			READING		FACTOR		EMISSION		LIMIT	MARGIN	
[No]	[MHz]		[dBuV]		[dB/m]		[dBuV/m]		[dBuV/m]	[dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	5350.00	PEK	43.8	46.5	17.2	17.2	61.0	63.7	74.0	13.0	10.3
2	5350.00	AVG	30.3	32.0	17.2	17.2	47.5	49.2	54.0	6.5	4.8

Other frequencies : Below the FCC 15.407(b)(6), 15.205, 15.209 limit											
Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)											

Data of CH36 with 24Mbps in Antenna 2**Akzo Nobel K. K.****Kashima No.1 Test Site****Spurious Emissions - Band Edge**

APPLICANT : Sony Corporation
 EUT NAME : Wireless LAN Converter
 MODEL NO. : PCWA-DE50
 SERIAL NO. : None
 TEST MODE : TX 5.18GHz 24Mbps Ant B
 POWER SOURCE : AC120V/60Hz
 DATE TESTED : Feb 13 2003

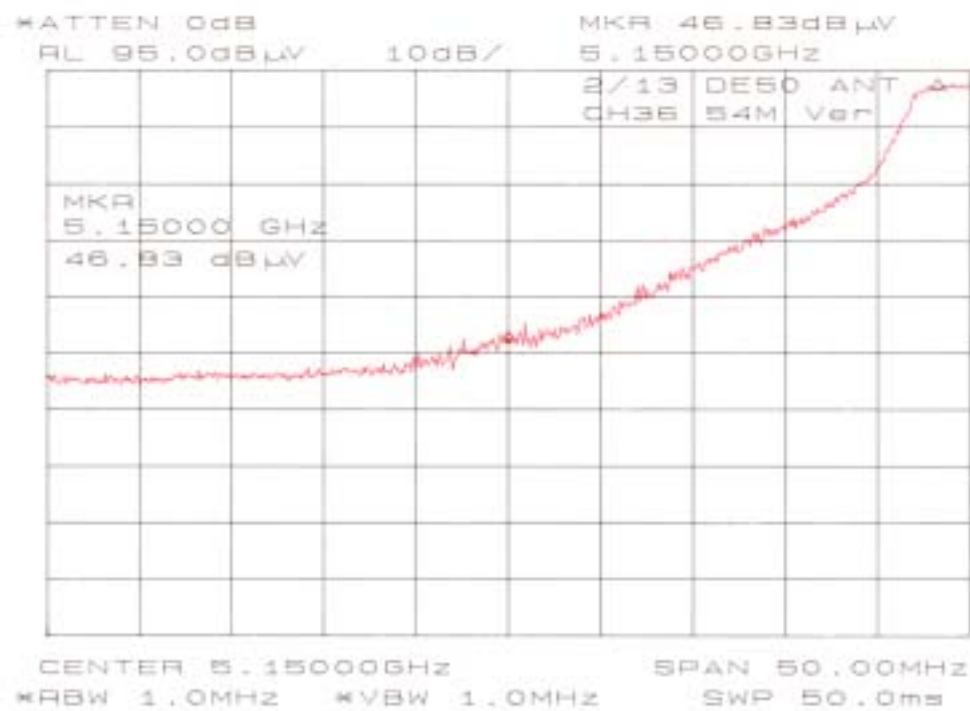
FILE NO. : ANKK-103028
 REGULATION : FCC 15.407(b)(6), 15.205, 15.209
 TEST METHOD : ANSI C63.4:1992
 DISTANCE : 3.0 [m]
 TEMPERATURE : 20.0 [degC]
 HUMIDITY : 41.0 [%]
 NOTE :

ENGINEER : Yasuhiro Kase

FREQUENCY MODE			READING		FACTOR		EMISSION		LIMIT	MARGIN	
[No]	[MHz]		[dBuV]		[dB/m]		[dBuV/m]		[dBuV/m]	[dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	5150.00	PEK	40.2	42.0	16.5	16.5	56.7	58.5	74.0	17.3	15.5
2	5150.00	AVG	27.7	28.7	16.5	16.5	44.2	45.2	54.0	9.8	8.8

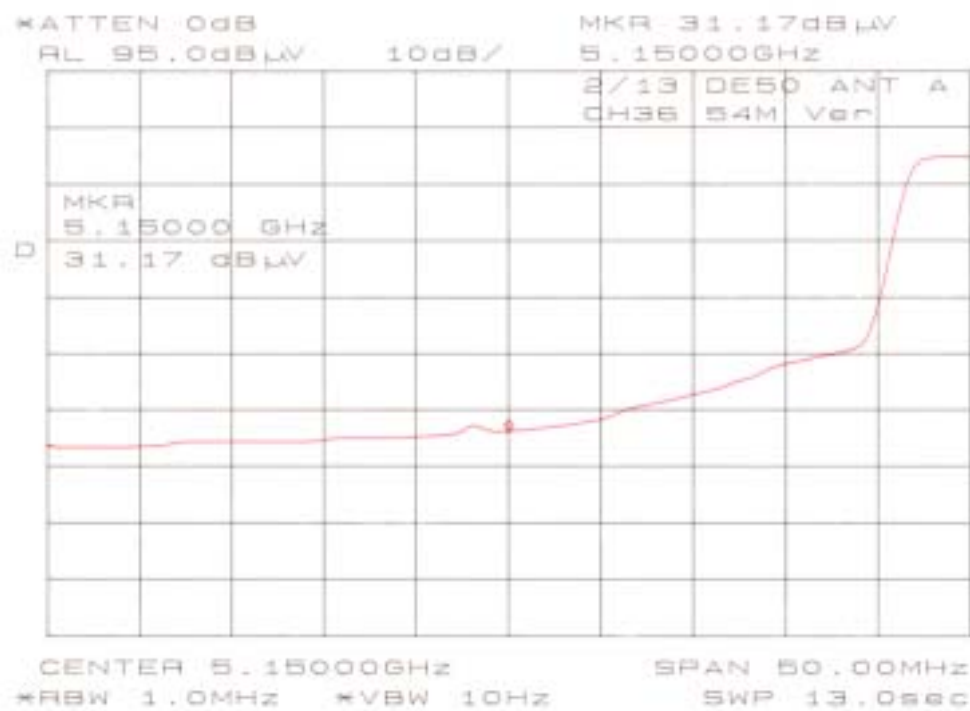
Other frequencies : Below the FCC 15.407(b)(6), 15.205, 15.209 limit
 Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)

Chart of CH36 with 54Mbps in Antenna 1



1

Chart of CH36 with 54Mbps in Antenna 1



1

Chart of CH64 with 54Mbps in Antenna 1

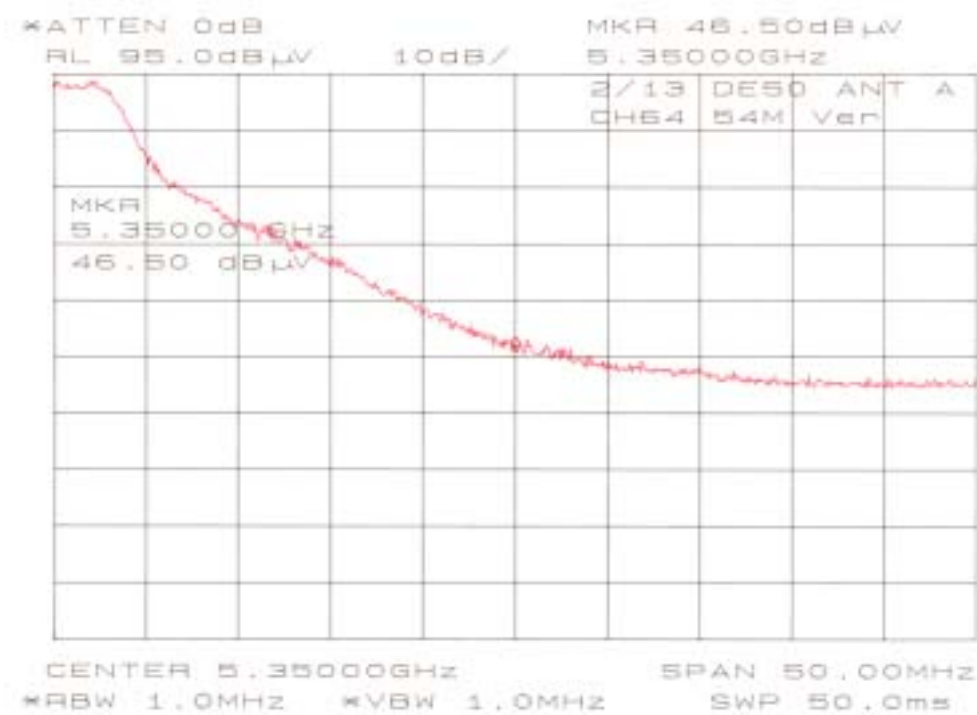


Chart of CH64 with 54Mbps in Antenna 1

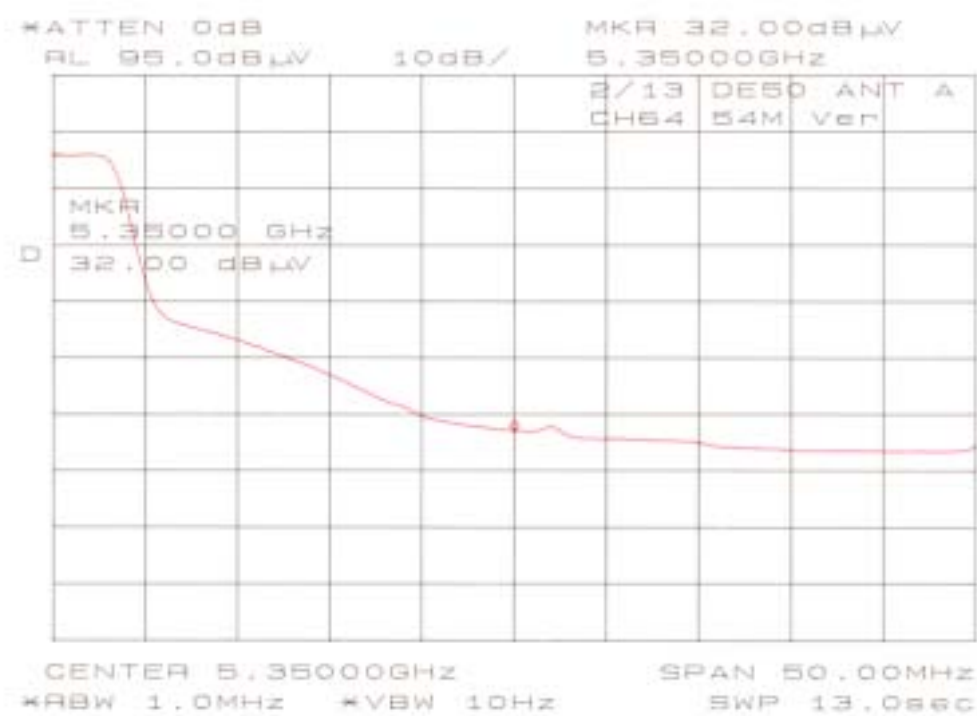
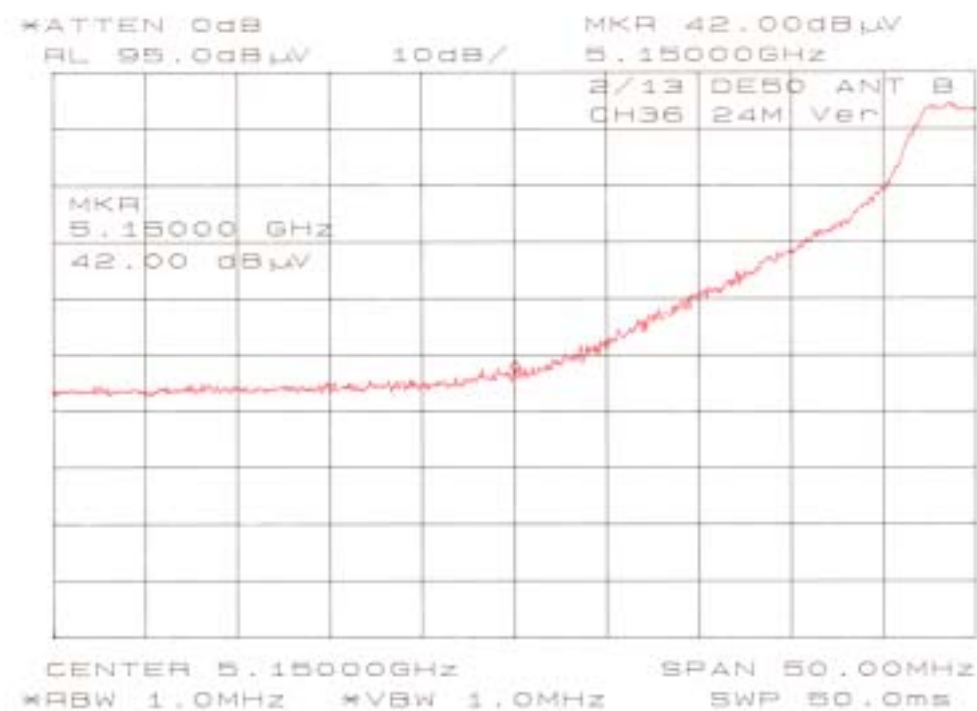
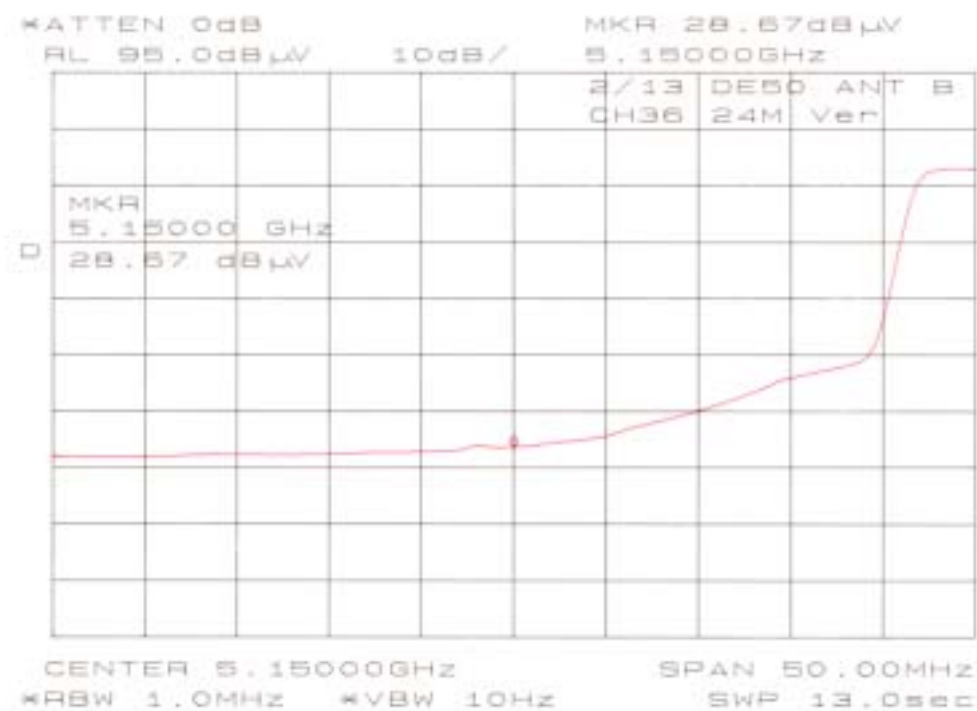


Chart of CH36 with 24Mbps in Antenna 2



1

Chart of CH36 with 24Mbps in Antenna 2



1

Chart of CH64 with 54Mbps in Antenna 2

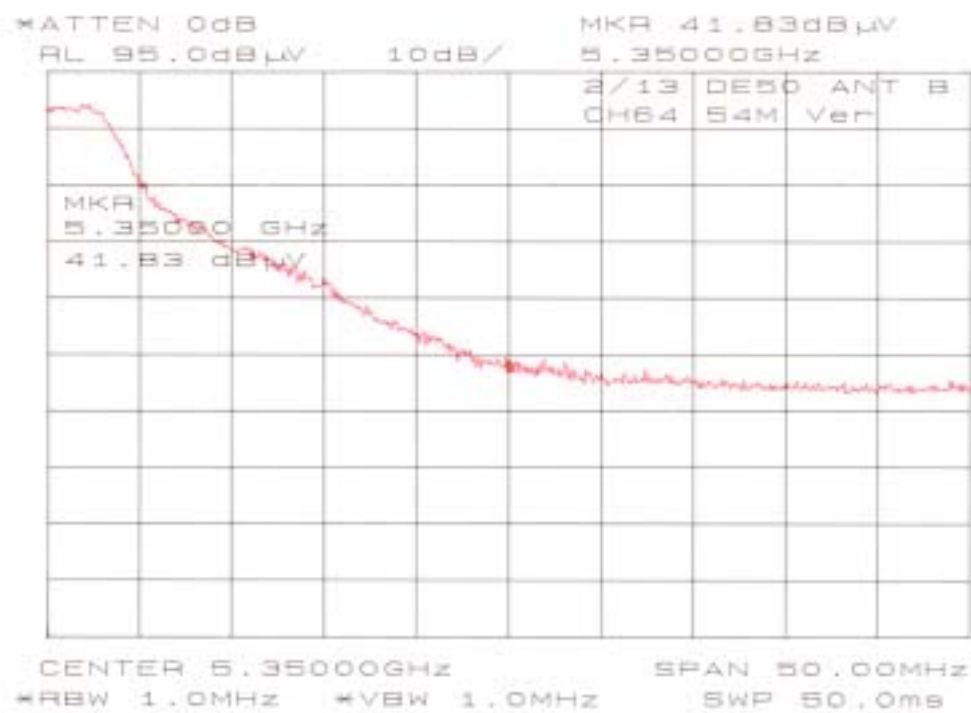
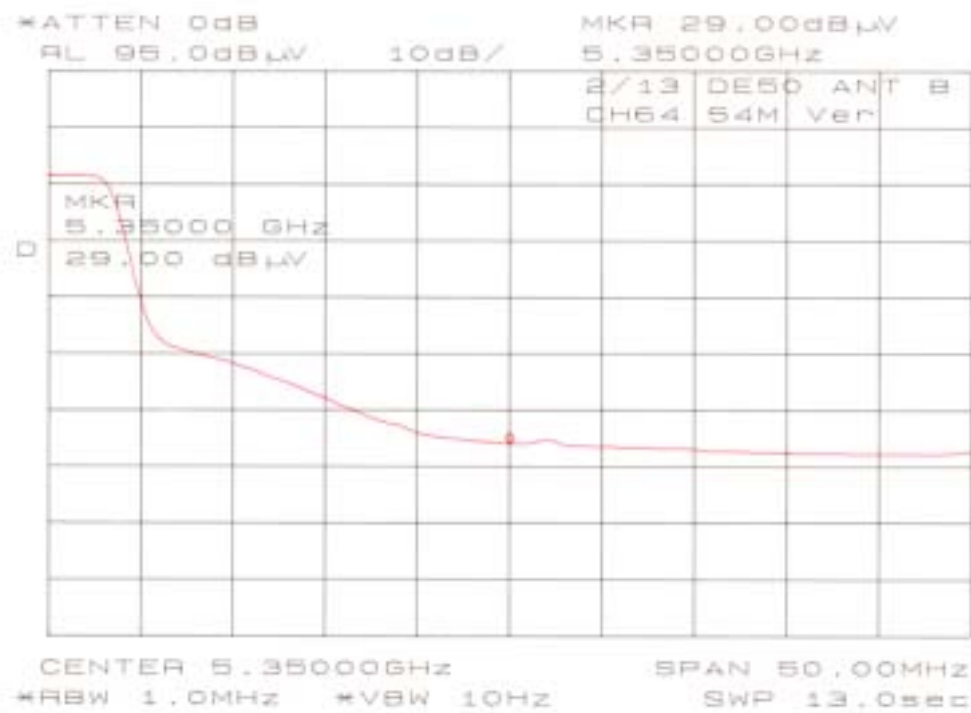
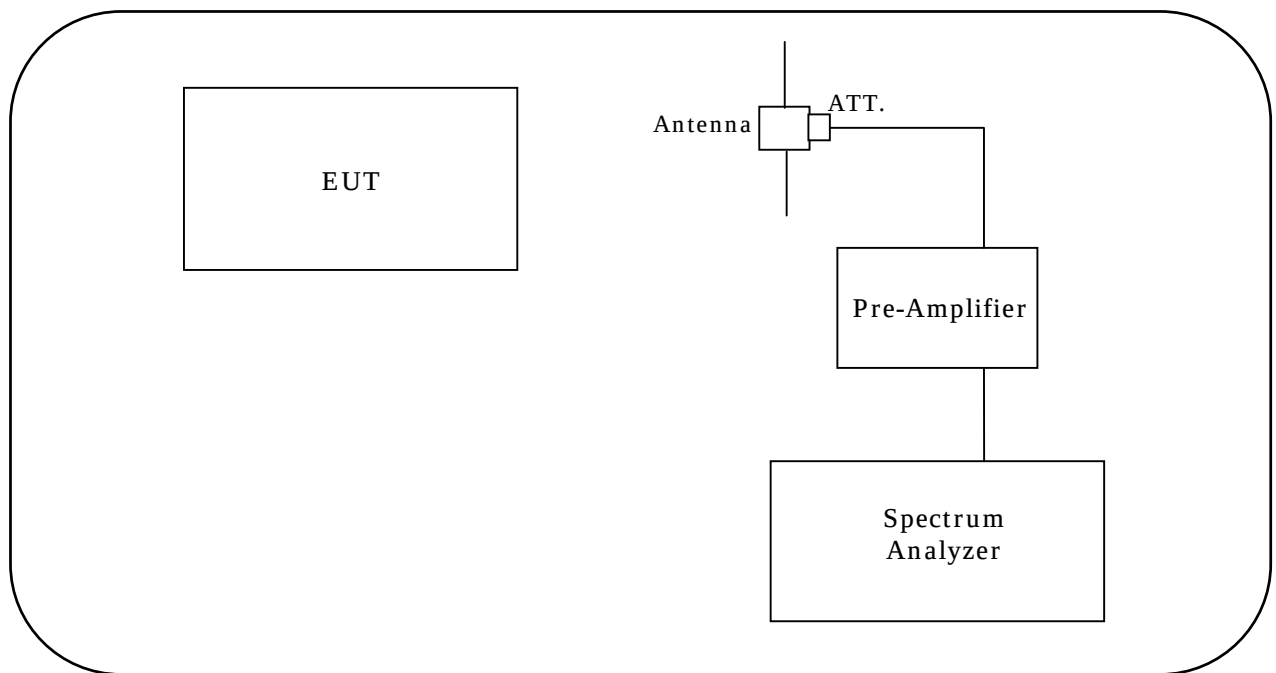


Chart of CH64 with 54Mbps in Antenna 2



TEST INSTRUMENTS CONFIGURATION**TEST INSTRUMENTS**

Instrument	Model No.	Serial No.	Manufacturer	Last cal. date	Period
Spectrum analyzer	8564E	3643A00665	HEWLETT PACKARD	Jun. 28, 02	1 Year
Pre-Amplifier	83051A	3332A00329	HEWLETT PACKARD	Jun. 02, 02	1 Year
3dB Attenuator	6803.17B	None	SUHNER	Jun. 02, 02	1 Year
Double Ridged Antenna	3115	5044	EMCO	Jul. 09, 02	1 Year

9.9 AC Conducted Emissions [15.407(b)(5),15.207]

MEASUREMENT PROCEDURE:

1. The EUT was set to operate with following conditions.
 - Antenna 1 / Antenna 2
 - ch36 / ch52 / ch64
 - Data Transfer Rate (6 Mbps/9 Mbps/12 Mbps/18 Mbps/24 Mbps/36 Mbps/48 Mbps/54 Mbps)
2. The Test Receiver is complied with the specification of the CISPR publication 16.
3. Following data is the worst case.

Data of CH36 with 54Mbps in Antenna 1**Akzo Nobel K. K.****Kashima No.3 Test Site****Conducted Voltages on Mains Port**

APPLICANT : Sony Corporation
 EUT NAME : Wireless LAN Converter
 MODEL NO. : PCWA-DE50
 SERIAL NO. : None
 TEST MODE : TX 5.18GHz 54Mbps Ant A
 POWER SOURCE : AC120V/60Hz
 DATE TESTED : Feb 07 2003

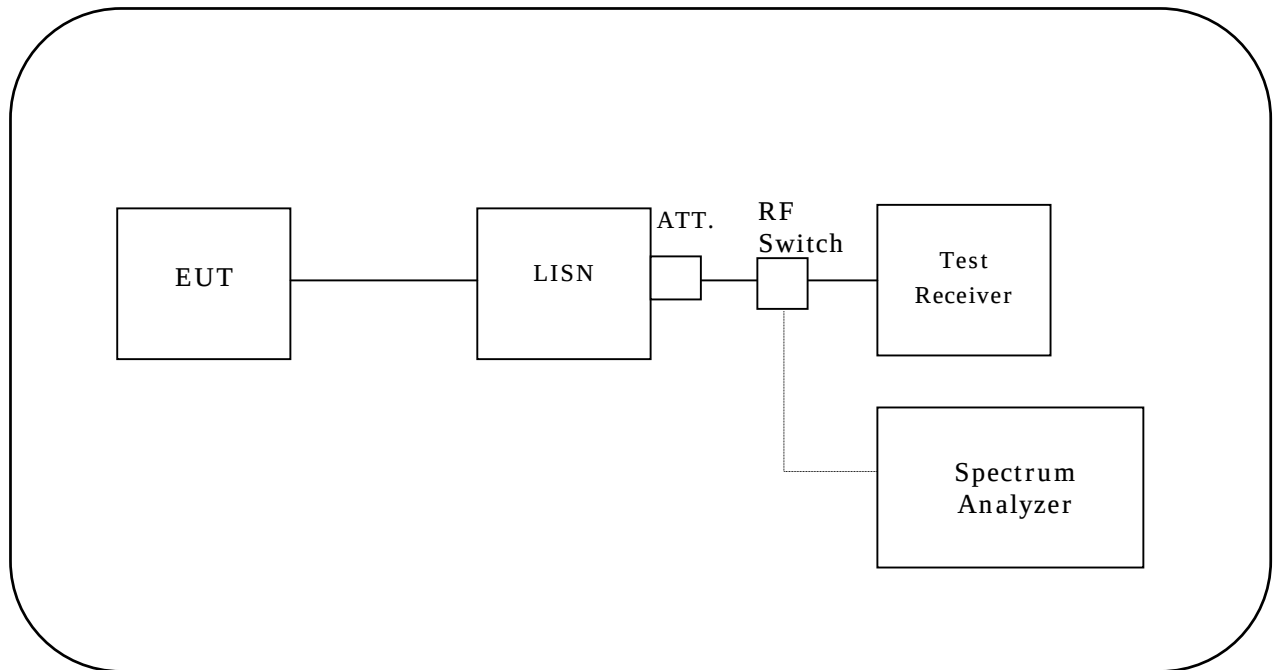
FILE NO. : ANKK-103028
 REGULATION : FCC 15.407(b)(5), 15.207
 TEST METHOD : ANSI C63.4-1992
 TEMPERATURE : 22.0 [degC]
 HUMIDITY : 40.0 [%]
 NOTE :

ENGINEER : Kazuhiro Ando

FREQUENCY [No]	MODE [MHz]		READING [dBuV]		FACTOR [dB]		EMISSION [dBuV]		LIMIT [dBuV]	MARGIN [dB]	
			Line1	Line2	Line1	Line2	Line1	Line2		Line1	Line2
1	0.2029	QP	39.5	39.1	6.7	6.7	46.2	45.8	63.5	17.3	17.7
2	0.9148	QP	33.0	32.5	6.7	6.8	39.7	39.3	56.0	16.3	16.7
3	1.9302	QP	34.9	34.6	6.7	6.8	41.6	41.4	56.0	14.4	14.6
4	2.6417	QP	37.4	38.3	6.9	6.9	44.3	45.2	56.0	11.7	10.8
5	2.6417	AVG	32.1	32.8	6.9	6.9	39.0	39.7	46.0	7.0	6.3
6	2.8465	QP	37.3	38.7	6.9	6.9	44.2	45.6	56.0	11.8	10.4
7	2.8465	AVG	30.3	30.7	6.9	6.9	37.2	37.6	46.0	8.8	8.4
8	2.9478	QP	39.6	41.4	6.9	6.9	46.5	48.3	56.0	9.5	7.7
9	2.9478	AVG	34.9	35.7	6.9	6.9	41.8	42.6	46.0	4.2	3.4
10	3.2522	QP	37.5	38.0	6.9	6.9	44.4	44.9	56.0	11.6	11.1
11	3.2522	AVG	33.9	35.4	6.9	6.9	40.8	42.3	46.0	5.2	3.7
12	4.2686	QP	33.5	36.3	6.9	6.9	40.4	43.2	56.0	15.6	12.8
13	4.2686	AVG	28.5	32.7	6.9	6.9	35.4	39.6	46.0	10.6	6.4

Other frequencies : Below the FCC 15.407(b)(5), 15.207 limit											
Emission Level = Read + Factor(LISN, Pad, Cable)											

TEST INSTRUMENTS CONFIGURATION



TEST INSTRUMENTS

Instrument	Model No.	Serial No.	Manufacturer	Last cal. date	Period
Test receiver	ESS	842886/011	ROHDE & SCHWARZ	Mar. 05, 02	1 Year
LISN (EUT)	ESH2-Z5	881492/014	ROHDE & SCHWARZ	Sep. 30, 02	1 Year
6dB Attenuator	CFA-01	None	TME	Jan. 15, 03	1 Year
LISN (Peripheral)	KNW-407	8-532-11	KYORITSU	Mar. 13, 02	1 Year
50Ω Termination	CT-01	A030CON50	TME	Jun. 26, 02	1 Year
RF Switch	ACX-150	None	AKZO NOBEL	Jan. 15, 03	1 Year

SECTION 10. MEASUREMENT UNCERTAINTY

26dB Emission Bandwidth	[15.407(a)(1),15.407(a)(2)]	
Above 1 GHz		+/- 46.7kHz
Maximum Peak Output Power (Spectrum Analyzer)	[15.407(a)(1),15.407(a)(2)]	
Above 1 GHz		+/- 3.9 dB
Peak Power Spectral Density	[15.407(a)(1),15.407(a)(2)]	
Above 1 GHz		+/- 2.9 dB
Spurious Emissions		
- RF Antenna Conducted Test	[15.407(b)(1),15.407(b)(2)]	
Above 1 GHz		+/- 2.9 dB
Spurious Emissions		
- Radiated Emission Test	[15.407(b)(5), 15.209]	
Below 1 GHz		+/- 3.9 dB
Spurious Emissions		
- Radiated Emission Test	[15.407(b)(6), 15.205]	
Above 1 GHz		+/- 3.9 dB
Spurious Emissions		
- Radiated Emission Test	[15.407(b)(6), 15.205]	
Band Edge		+/- 3.9 dB
AC Conducted Emission	[15.407(b)(5),15.207]	
9 kHz – 30 MHz		+/- 1.8 dB

Note on Radiated Emission measurement uncertainty

The following items are not included in the calculations in spite of their own uncertainty components because it is impracticable to find the value.

It is our problem awaiting solution in future.

(1)Repeatability of measurement

It is not possible to calculate repeatability since the measurement was carried out only one time.

(2)Antenna factor variation

The definition of measured (radiated electric field strength) is not completed on the referred standard(s).

(3)Loss of EUT radiation propagation

It is certainly one of the uncertainty components, however is not able to calculate.

Please note that these uncertainties are not reflected to the compliance judgement of the test results in this report.

SECTION 11. DESCRIPTION OF TEST LABORATORY

11.1 Outline of Akzo Nobel K. K. (formerly Akzo Kashima Limited), EMC Division

Akzo Nobel K. K., the country organization in Japan for Akzo Nobel NV, was established in 1968. The shares are owned by Akzo Nobel NV (100%). Akzo Nobel NV, headquartered in the Netherlands, is one of the world's leading companies in selected areas of chemicals, coatings, healthcare products and fibers with work force of approximately 70,000 people in over 50 countries.

In 1984, in order to respond to the growing testing demand, in particular, for FCC filing, Akzo Nobel K. K. started EMI testing business, installing the first open air test site in Kashima, Ibaraki prefecture. Further the business has been expanded by installing additional testing facilities not only in Ibaraki but also in other areas such as Shizuoka, Nagano, Kanagawa and Tochigi. As results, Akzo Nobel K. K. has now 16 open air test sites and 4 anechoic chambers for EMI/EMC testing. As the largest EMC testing laboratory in number of testing facilities and staffs, EMC Division has been organized separately in the company and independently operated in conformity with the requirements of ISO/IEC 17025 for its competency as a testing laboratory.

Akzo Nobel K. K. EMC Division is the first foreign private laboratory accredited by NVLAP, National Voluntary Laboratory Accreditation Program-NIST, USA. The division has been certified, authorized and/or filed as a competent testing laboratory by various testing organizations/authorities as described below.

11.2 Filing, certification, authorization and accreditation list

EMI/EMC testing

FCC	(USA)
NVLAP	(USA)
NEMKO	(Norway)
VCCI	(Japan)
ETL SEMKO	(Sweden)
TÜV PRODUCT SERVICE	(Germany)

Telecommunications terminal testing

FCC	(USA)
NVLAP	(USA)
NATA	(Australia)
IC	(Canada)

Note 1 : NVLAP accreditation does not constitute any product endorsement by NVLAP or any agent of the U.S. Government.

Annex A

Spurious Emissions – RF Antenna Conducted Test

Chart of ch 36 with 54 Mbps in Antenna 1

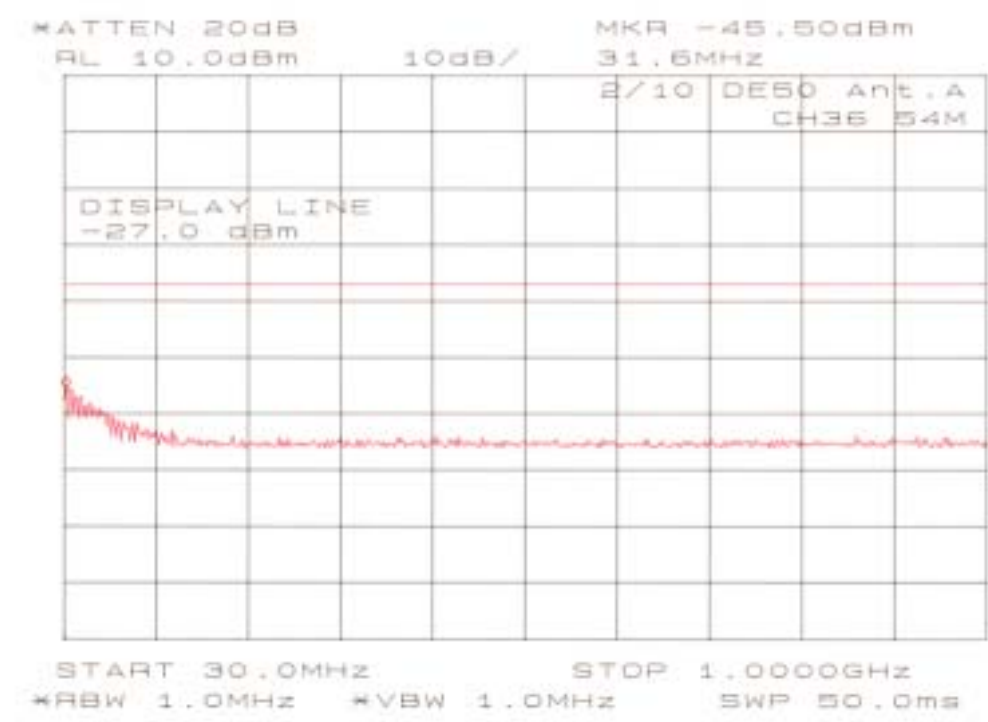


Chart of ch 36 with 54 Mbps in Antenna 1

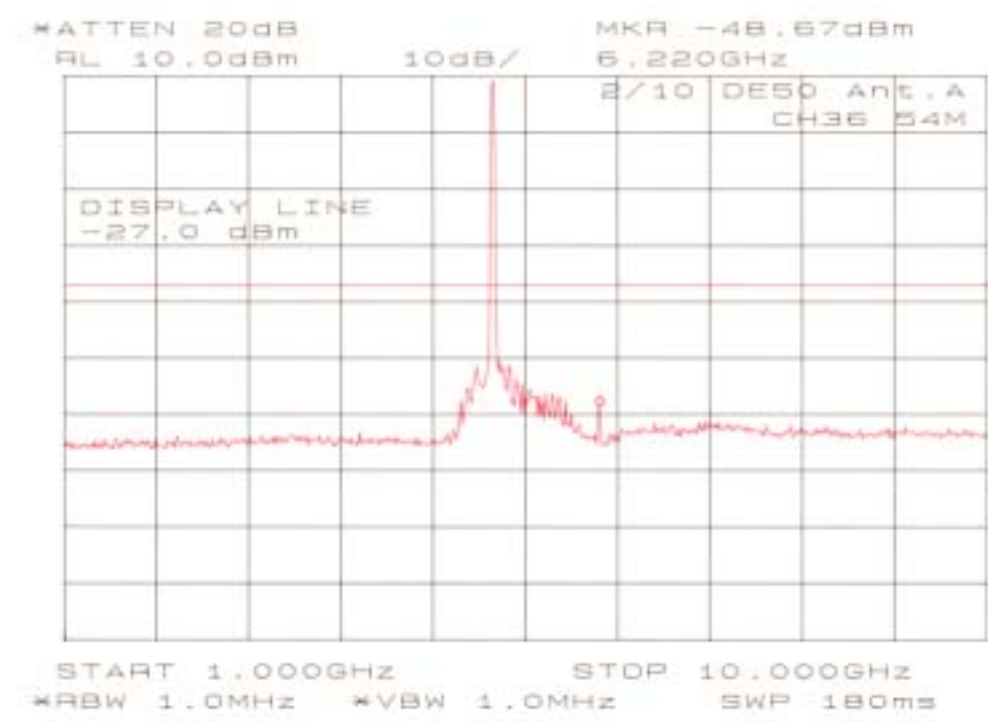


Chart of ch 36 with 54 Mbps in Antenna 1

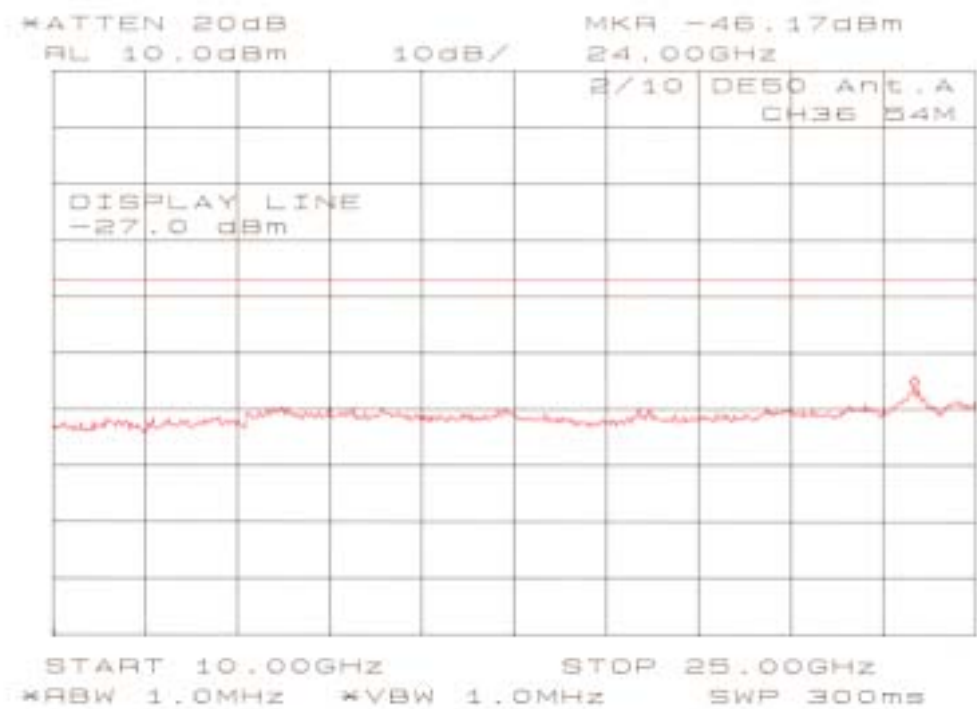


Chart of ch 36 with 54 Mbps in Antenna 1

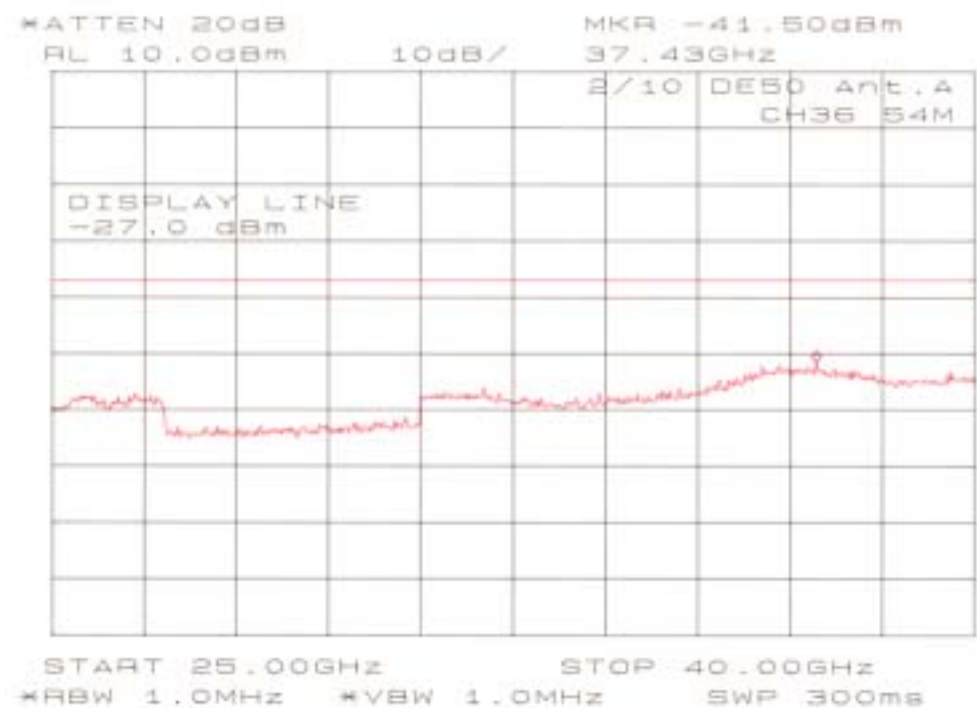


Chart of ch 52 with 36 Mbps in Antenna 1

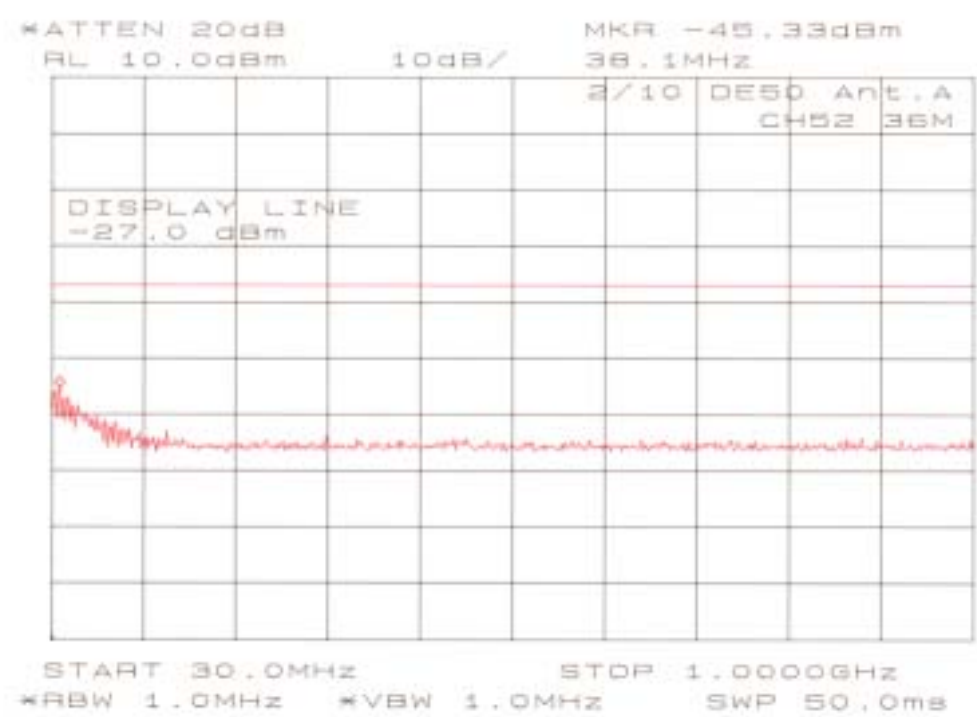


Chart of ch 52 with 36 Mbps in Antenna 1

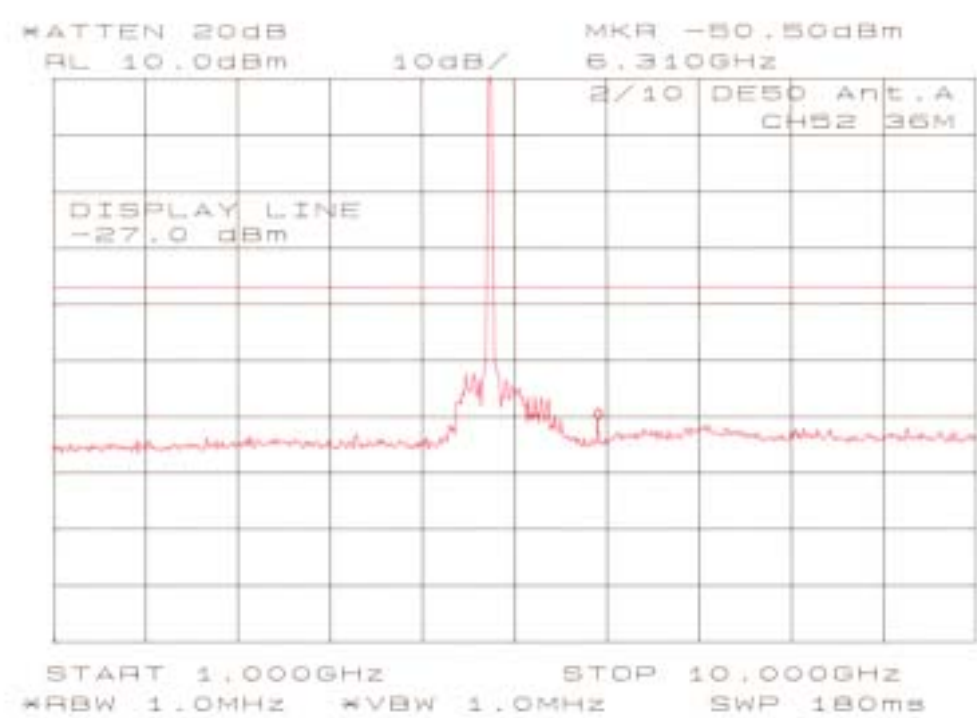


Chart of ch 52 with 36 Mbps in Antenna 1

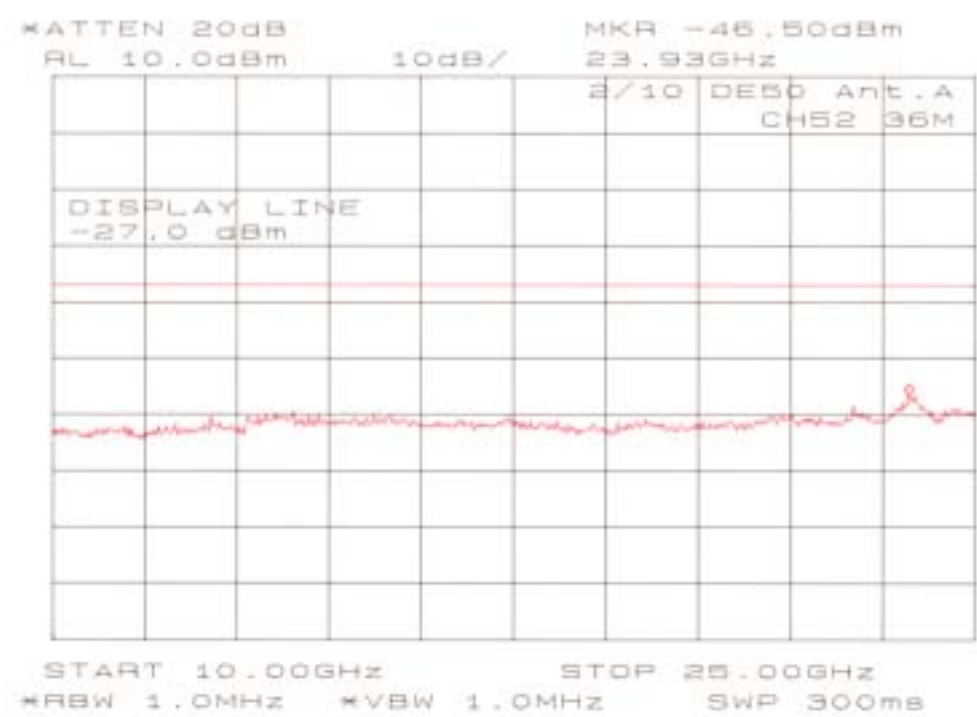


Chart of ch 52 with 36 Mbps in Antenna 1

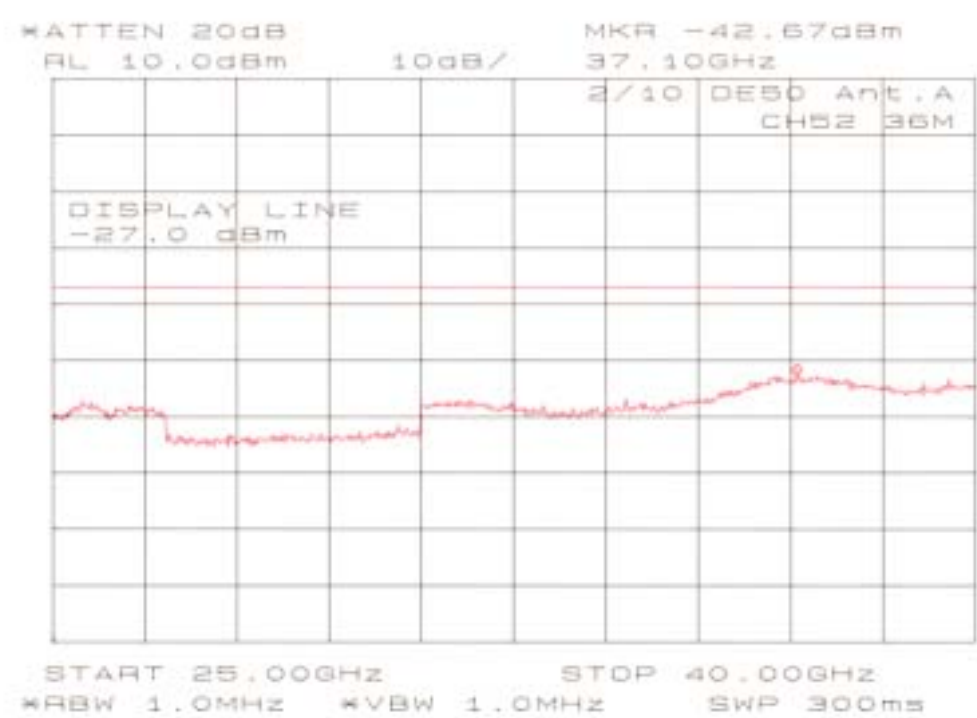


Chart of ch 64 with 54 Mbps in Antenna 1

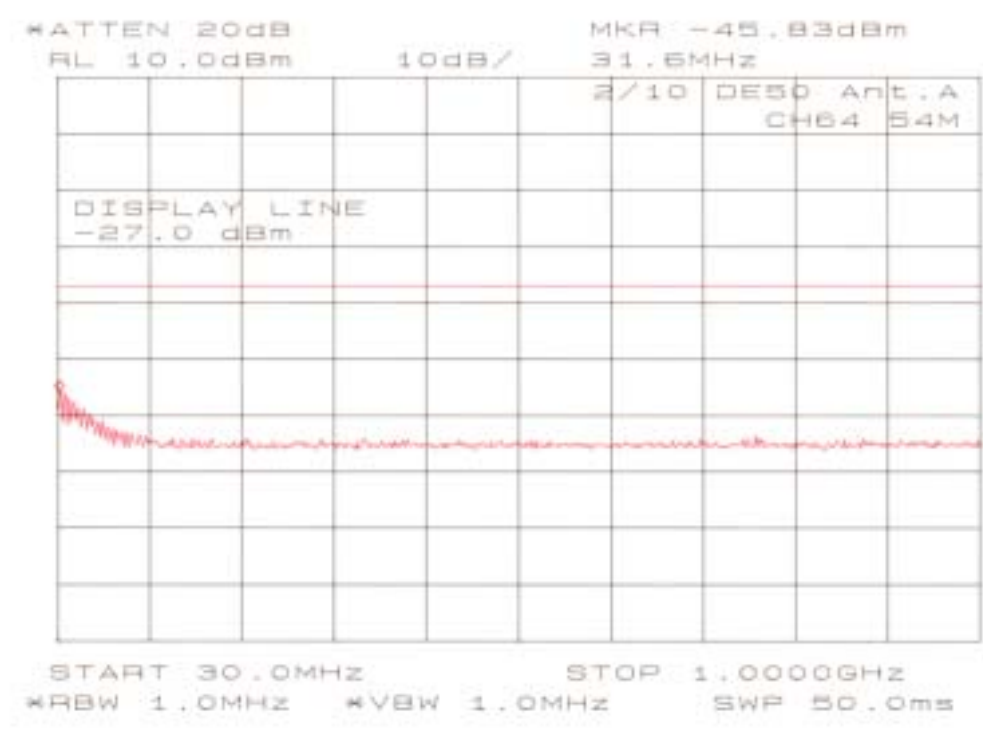


Chart of ch 64 with 54 Mbps in Antenna 1

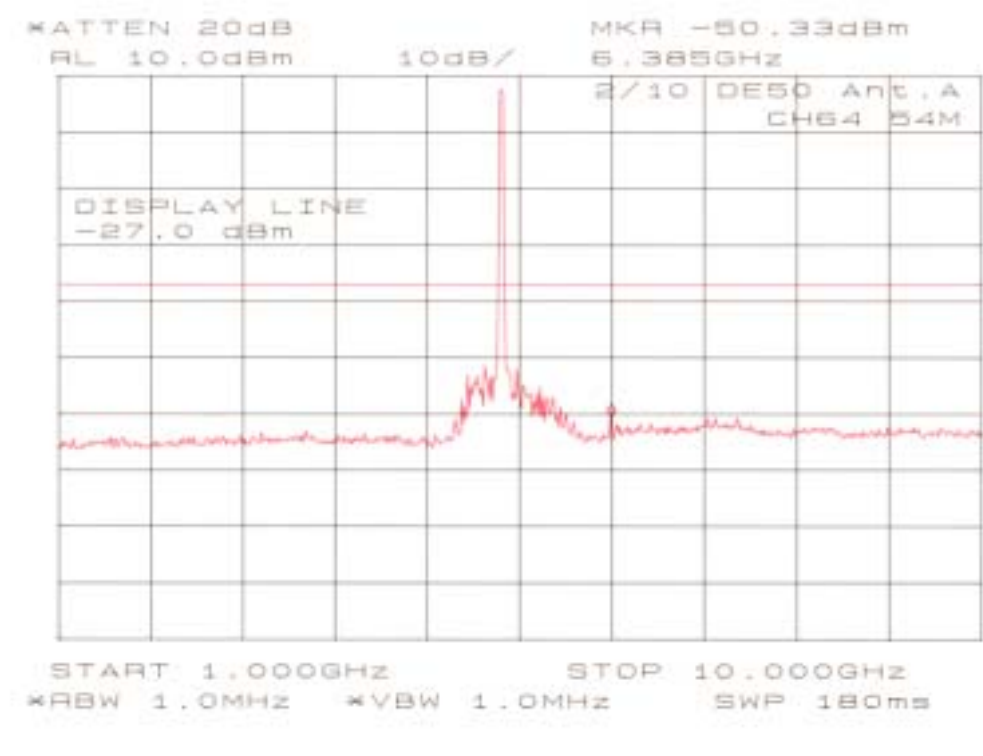


Chart of ch 64 with 54 Mbps in Antenna 1

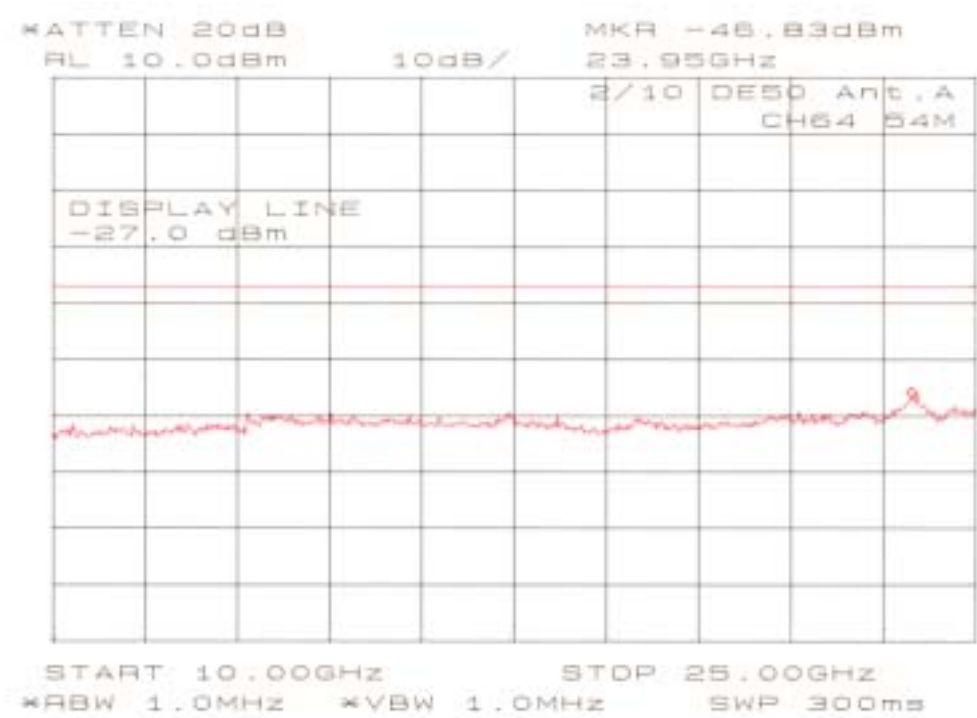


Chart of ch 64 with 54 Mbps in Antenna 1

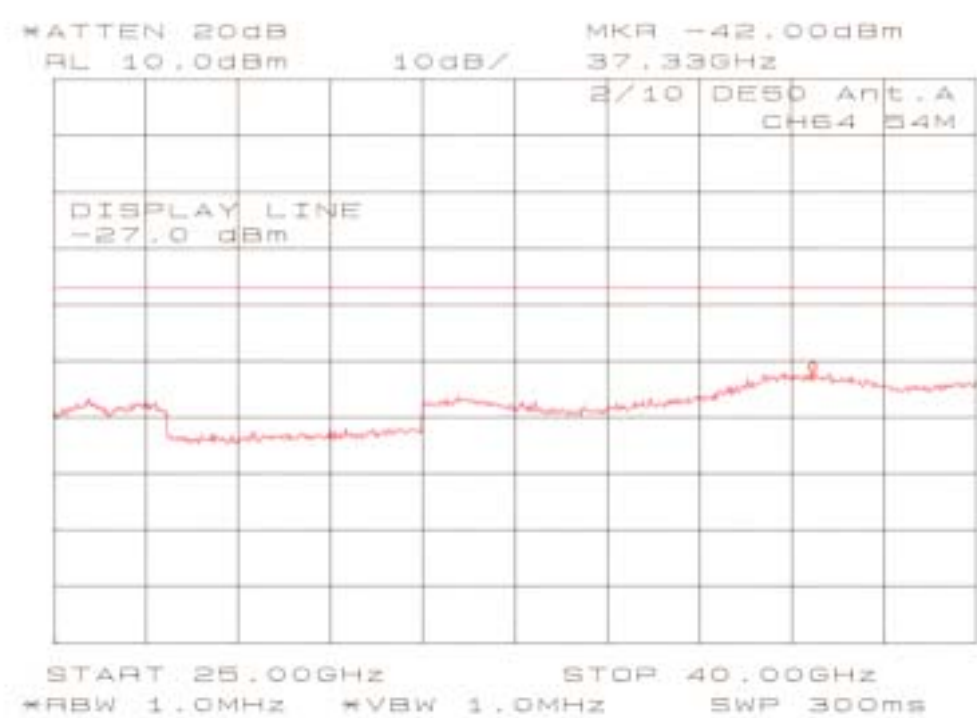


Chart of ch 36 with 24 Mbps in Antenna 2

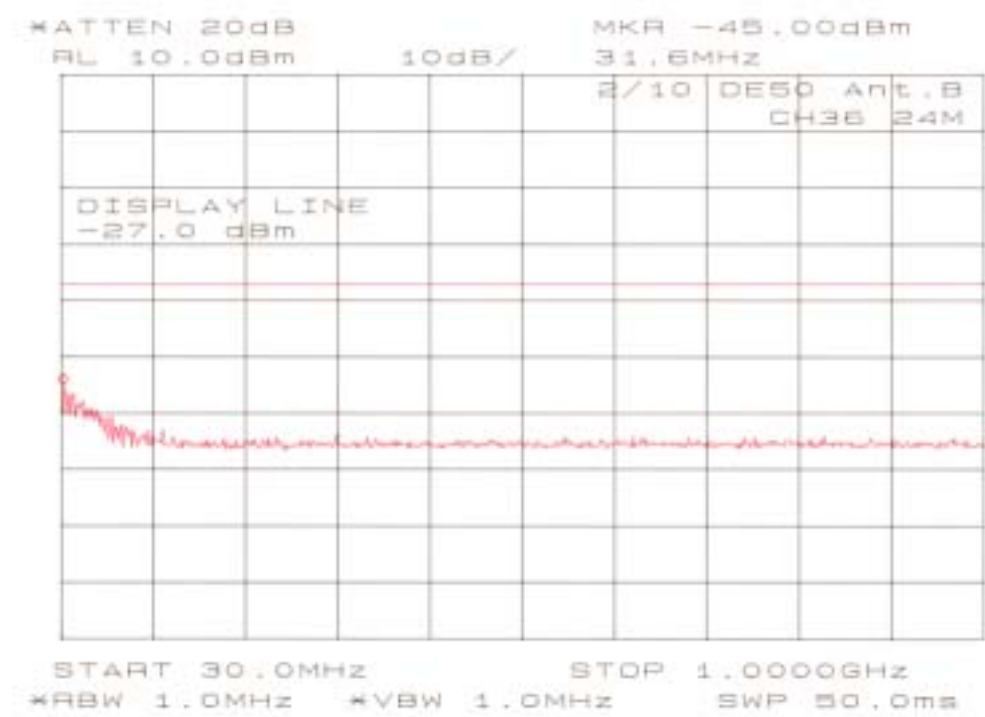


Chart of ch 36 with 24 Mbps in Antenna 2

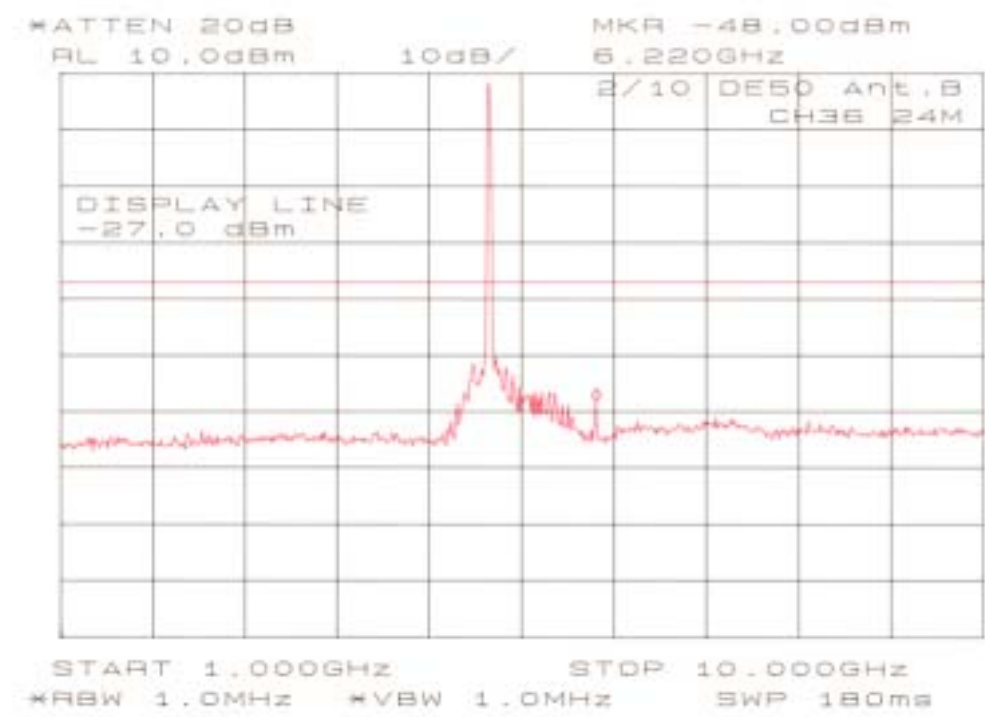


Chart of ch 36 with 24 Mbps in Antenna 2

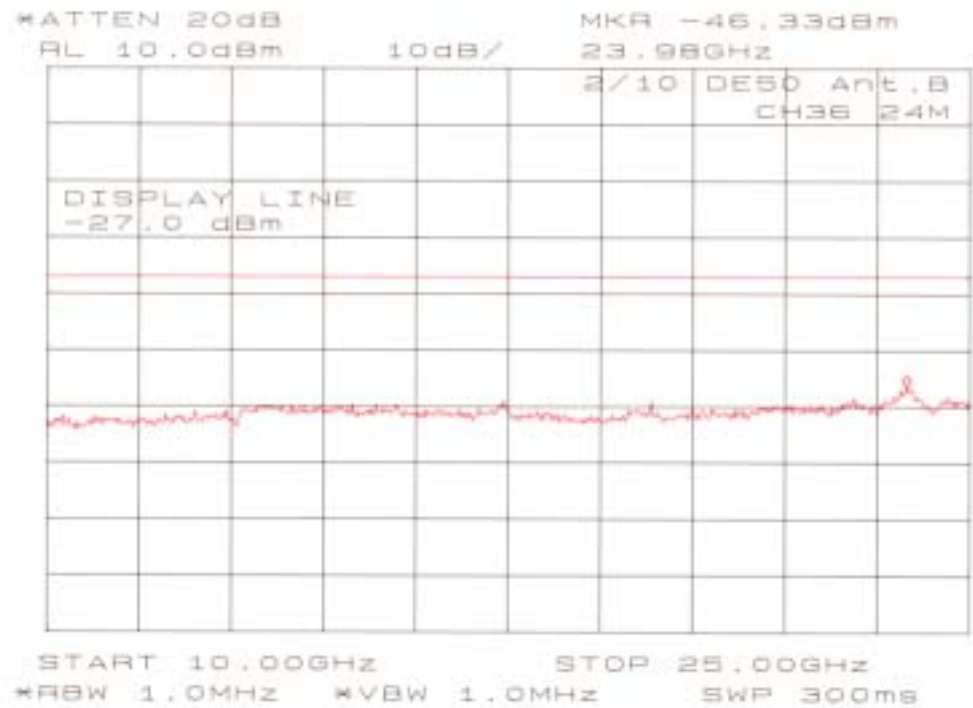


Chart of ch 36 with 24 Mbps in Antenna 2

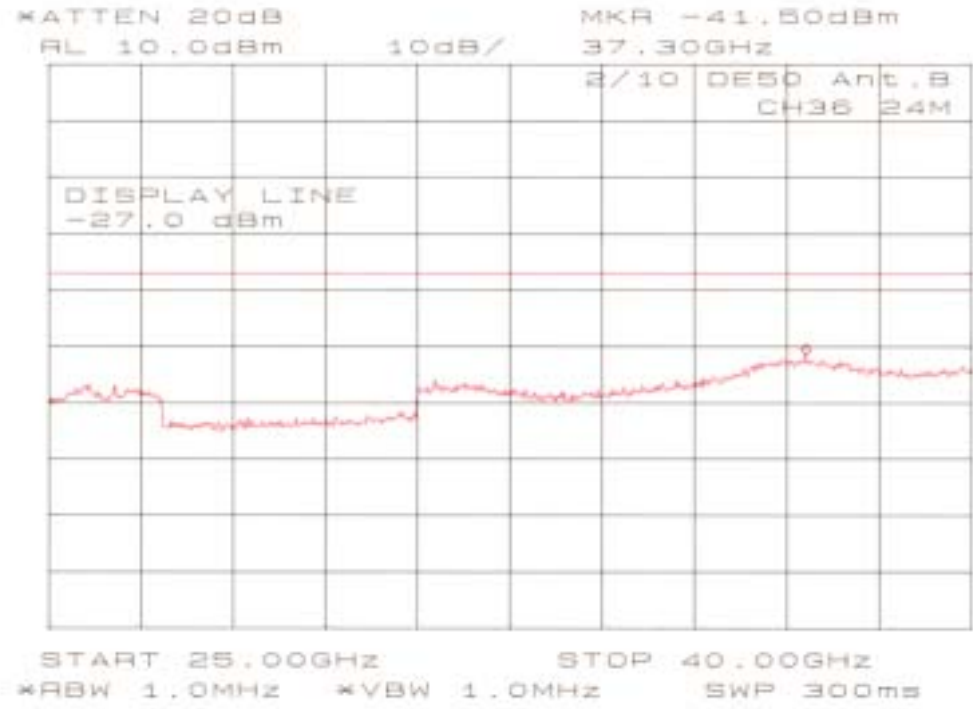


Chart of ch 52 with 24 Mbps in Antenna 2

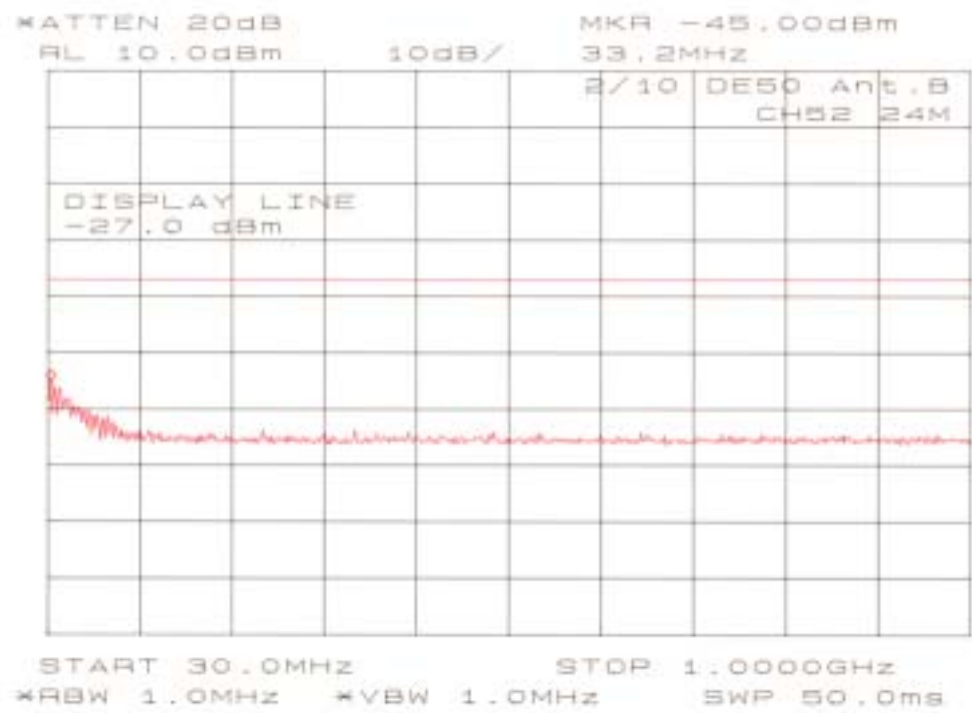


Chart of ch 52 with 24 Mbps in Antenna 2

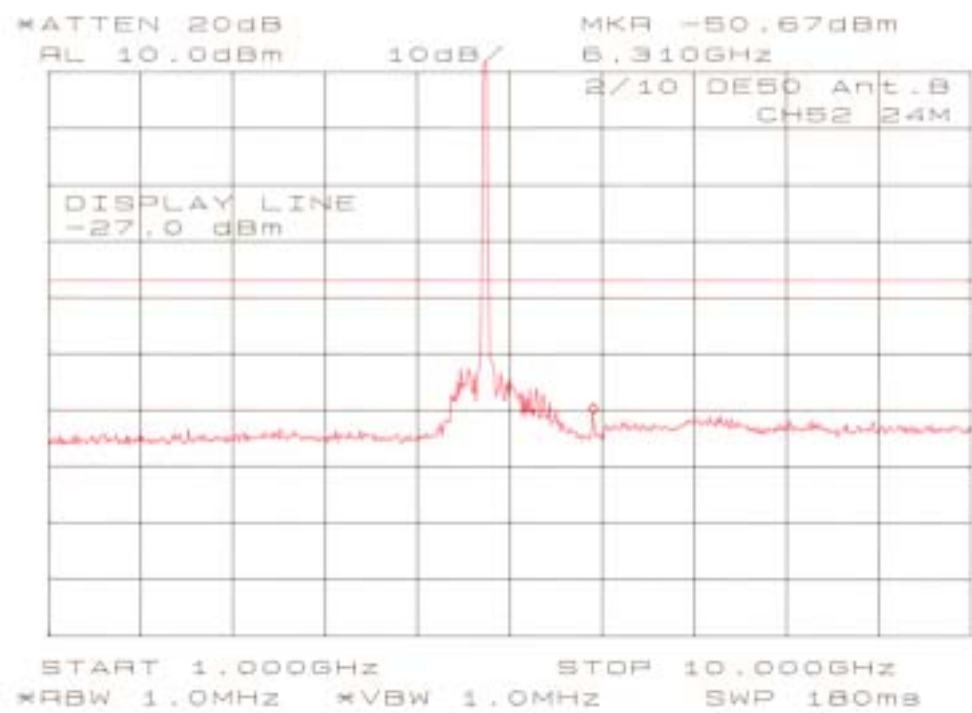


Chart of ch 52 with 24 Mbps in Antenna 2

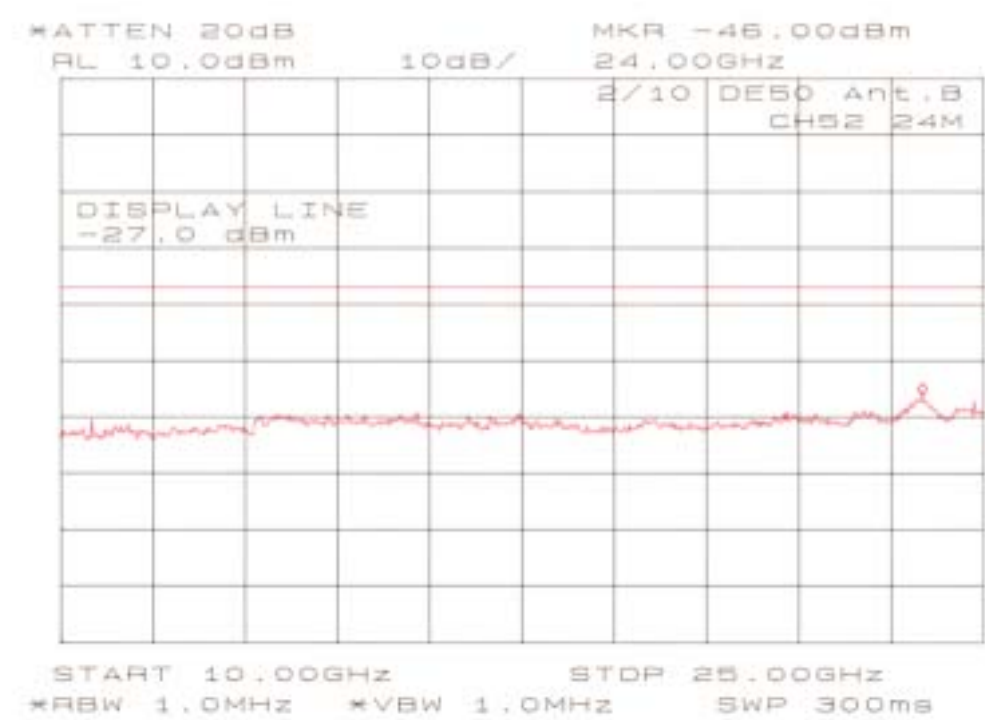


Chart of ch 52 with 24 Mbps in Antenna 2

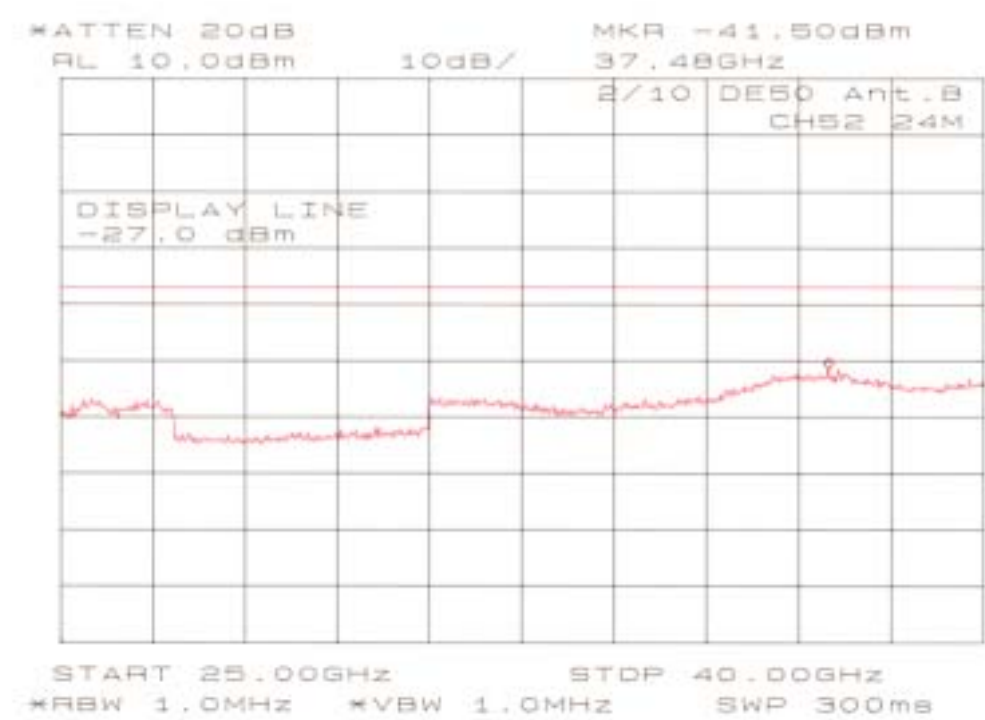


Chart of ch 64 with 54 Mbps in Antenna 2

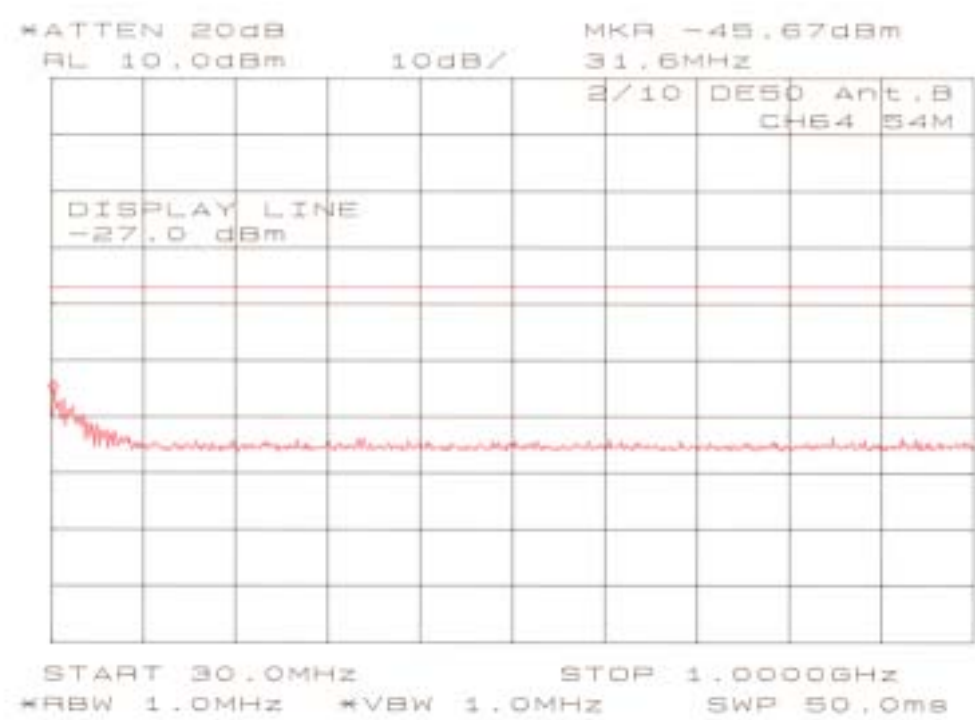


Chart of ch 64 with 54 Mbps in Antenna 2

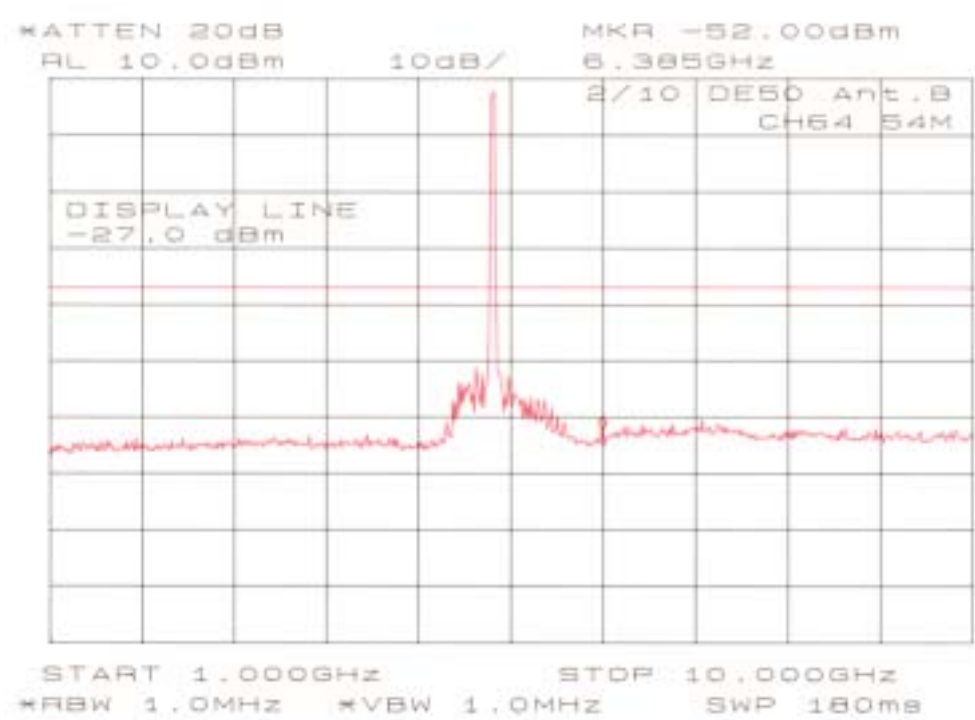


Chart of ch 64 with 54 Mbps in Antenna 2

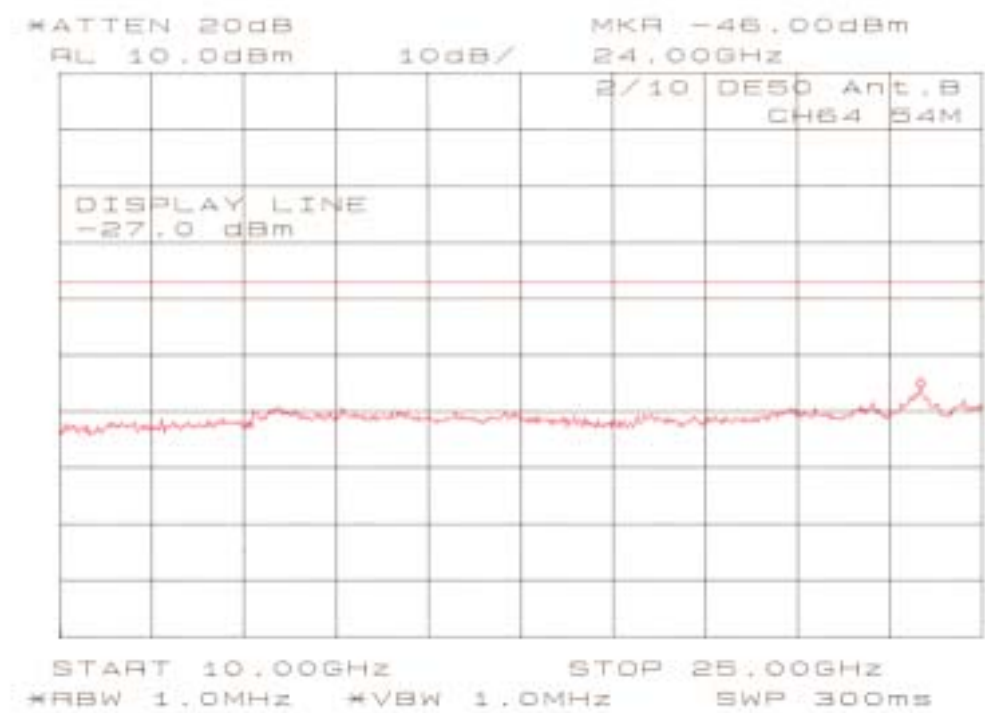
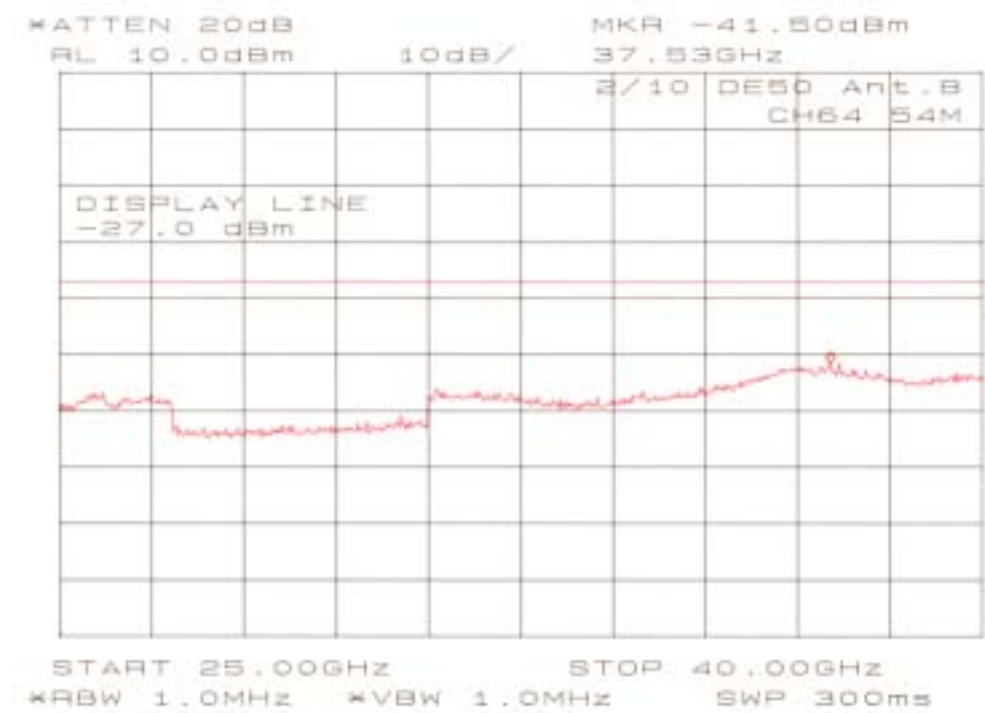
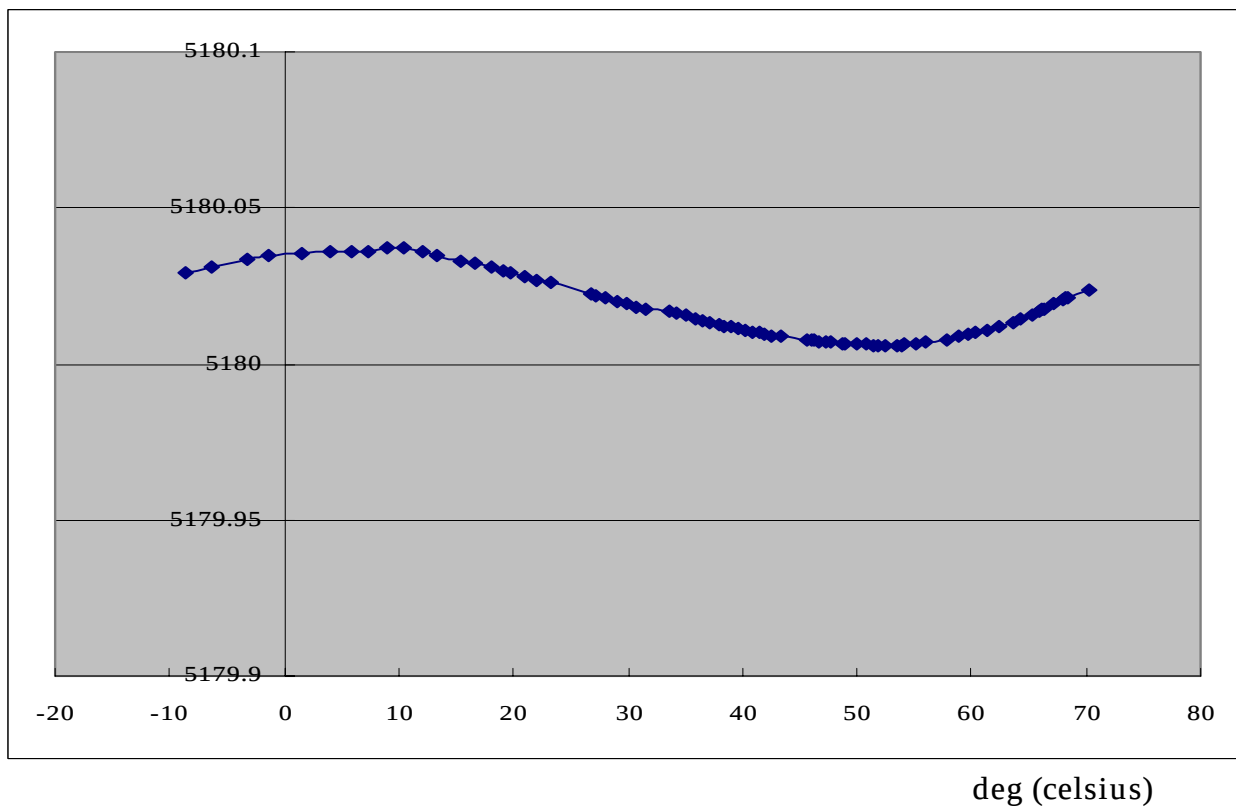


Chart of ch 64 with 54 Mbps in Antenna 2

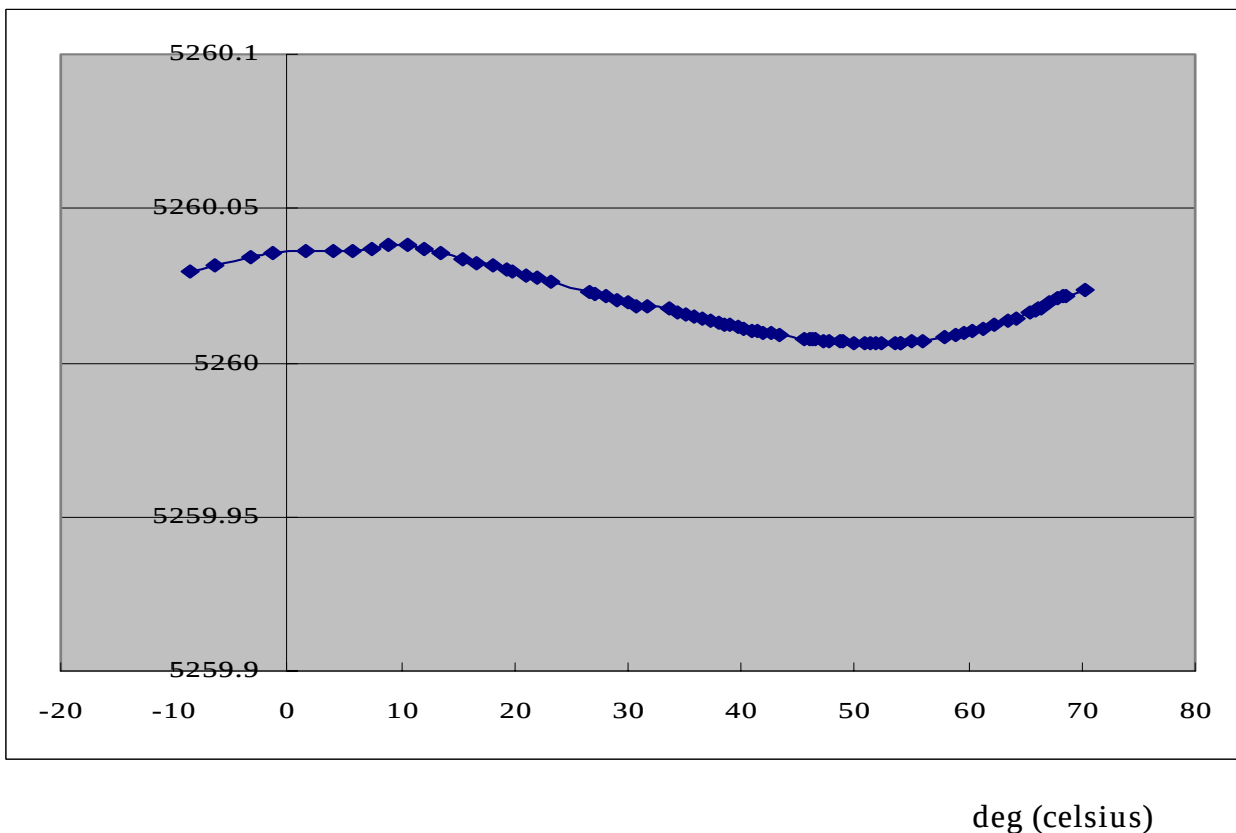


TEMPERATURE CHARACTERISTICS OF TRANSMISSION FREQUENCY

(1) 5180 MHz



(2) 5260 MHz



(1) 5320 MHz

