Emission Test Report
Standard: FCC Part 15 Subpart E / IC RSS-210
Class II Permissive Change

Document Number : FCC 19-0291-0

Model Number: AR5BMB-44

measured with **IBM ThinkPad X41 Tablet Series**

FCC ID: ANO20040600BTL
IC: 349E-AR5BMB44

February 17, 2005

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MEASUREMENT / TECHNICAL REPORT – Part 15 Subpart E
(Intentional Radiator)

Model: AR5BMB-44 (802.11a/b/g Wireless LAN Adapter)
with
IBM ThinkPad X41 Tablet Series
(Machine Type: 1866, 1867, 1868, 1869)

FCC ID : ANO20040600BTL

February 17, 2005

This report concerns: (check one) Original Grant _____ Class I change _____ Class II change ___✓___ Equipment type: Wireless LAN device
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The measurement results contained in this report relate only to the item which was tested.
Measurement procedure used is ANSI C63.4-2003 unless otherwise specified. Other test procedure: _____
The FCC has issued provisional acceptance of this test laboratory for Declaration of Conformity testing per letter dated 1997.
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A. General Information

APPLICANT	: IBM Japan, Ltd.
TEST SITE	: IBM Japan, Ltd., Yamato Semi-anechoic chamber #1
TEST SITE ADDRESS	: 1623 – 14 Shimotsuruma, Yamato-shi, Kanagawa 242-8502 Japan Tel: +81-46-215-4779, Fax: +81-46-273-7420
REGULATION	: FCC Part 15 Subpart E Industry Canada RSS-210 (Issue No.5)
MODEL NUMBER (Advertising Name)	: AR5BMB-44 (IBM 11a/b/g Wireless LAN Mini PCI Adapter II)
FCC ID IC Certification Number	: ANO20040600BTL : 349E-AR5BMB44
SERIAL NUMBER	: 00S0SIT005
PYSICAL CONDITION	: the applying card ; Production level, Host PC device; Preproduction
KIND OF EQUIPMENT	: Personal computer with a IEEE802.11a, 11b & 11g Wireless LAN Mini-PCI Combo Card (Composite application)
TESTED DATE	: January 19, 21, 25, 31, February 2, 4, 7, 8, 14 and 15, 2005

A.1 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4-2003. Radiated testing was performed at an antenna to EUT distance of 3 meters.

A.2 Test Facility / NVLAP Accreditation

The semi-anechoic chamber #1 and measurement facility used to collect the data are located in Yamato Laboratory, IBM Japan.

- This facility has been fully described in a report dated September 1998, submitted to the FCC office, and accepted in a letter, dated Nov. 2, 1998(31040/SIT).

1. IBM Yamato EMC Engineering is recognized under the National Voluntary Laboratory Accreditation Program for satisfactory compliance with Criteria established in Title 15, Part 285 Code of Federal Regulations. (**NVLAP Lab code: 200198-0,** effective through June 30, 2005)

- Theses facilities are accepted by **Industry Canada** as number **IC 4221** for chamber #1 (expiry date: December 22, 2007), and as number **IC 4221-1** for chamber #2 (expiry date: February 16, 2007).

A.3 EUT details

Table A EUT details

Model and S/N	**FCC ID** **IC Certification Number**	**Description**
AR5BMB-44 (s/n 00S0SIT005)	FCC ID: ANO20040600BTL IC: 349E-AR5BMB44	**Applying modular transmitter** Built-in type IEEE802.11a/b/g Wireless LAN Mini-PCI card without antenna
ThinkPad X41 Tablet Series M/T 1866-17U (s/n AA-GH1DP)	N/A	IBM Tablet type PC with built_in antennas CPU: Intel® Pentium M Processor, 1.2 GHz
J07M067 (s/n 05S5ARM4SIT023)	FCC ID: ANO20040700HER IC:349E-J07M067	Co-located built-in type Bluetooth modular transmitter device without antenna
P/N 02K6810	N/A	Universal AC adapter 56W, Unshielded power cord for ThinkPad X41 Tablet Series

B. Summary of Test Results

Table-B presents the list of the measurement items for U-NII devices under FCC Part 15 Subpart E, and for LELAN devices under Industry Canada RSS-210.
The section numbers of upper portion are showing FCC codes, and the lower ones are for IC RSS-210.

Table-B List of the measurements

Section(s)	Test Items Transmit mode (TX):		Condition	Result
15.407(a)(1), (2) **6.2.2 (q1)(i)(ii)**	Bandwidth at 26 dB below	26dB BW was also taken for IC instead of 99% BW, according to RSS-210 6.2.2q(iv)(b).	Conducted	Pass
	Conducted transmit output power or EIRP for IC	5150-5250MHz: FCC: 50mW or (4+10logB)dBm IC : 200mW* or (10+10logB)dBm* *: EIRP 5250-5350MHz: FCC: 250mW or (11+10logB)dBm IC : 250mW or (11+10logB)dBm IC : 1W* or (17+10logB)dBm* *: EIRP B: 26dB BW in MHz		Pass Pass
	Peak Power Spectral Density	5150-5250MHz: FCC: 4 dBm in any 1MHz IC : 10 dBm in any 1MHz (EIRP) 5250-5350MHz: FCC: 11 dBm in any 1MHz IC : 11 dBm in any 1MHz		Pass
N/A **6.2.2 (q1)(iv)(b)**	Peak Spectral Density	IC: 3 + 10logB dBm/MHz		Pass
15.407(a)(6) **N/A**	Peak Excursion	The ratio of the peak excursion of the modulation envelope to the peak transmit shall not exceed 13 dB across any 1 MHz .		Pass
15.207 / 407(b)(5) **6.2.2 (q1)(v) / 6.6**	AC Wireline Conducted Emissions 150kHz- 30MHz	Class B: Freq.(MHz) QP(dBµV) Ave.(dBµV) 0.15 - 0.5 66 - 56 56 - 46 0.5 - 5 56 46 5 - 30 60 50		Pass
15.205 & 209 / 407(b)(1)(2)(5)(6) **6.2.1 / 6.2.2(q1)(i)(ii)(v) / 6.3**	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Shall not exceed the limits specified in FCC 15.209 or RSS-210 Table3. Ave. 54dBµV/m, peak 74dBµV/m and FCC 15.407(b)(1)(2) or RSS-210 6.2.2(q1)(i)(ii) : EIRP –27dBm/MHz	Radiated (30MHz - 1GHz) Radiated (1G - 40GHz)	Pass Pass

	Receive mode (RX):			
15.207 / 407(b)(5) **6.2.2(q1)(v) / 7.4**	AC Wireline Conducted Emissions 150kHz - 30MHz	Class B: Freq.(MHz) QP(dBμV) Ave.(dBμV) 0.15 - 0.5 66 - 56 56 - 46 0.5 - 5 56 46 5 - 30 60 50	Conducted	Pass
15.205 & 209 / 407(b)(1)(2)(5)(6) **6.2.1 / 6.2.2(q1)(i)(ii)(v) / 7.3**	General Field Strength Limits (Radiated Emission Limits)	Shall not exceed the limits specified in FCC 15.209 or RSS-210 Table3. Ave. 54dBμV/m, peak 74dBμV/m and FCC 15.407(b)(1)(2) or RSS-210 6.2.2(q1)(i)(ii) : EIRP -27dBm/MHz	Radiated (30MHz - 1GHz)	Pass
			Radiated (1G - 25GHz)	Pass

	Other general requirements		Result
15.407(a)(1)(2) **–**	Antenna gain of the applying host device	Peak : 2.75 dBi in 5150-5350GHz band	N/A
– **5.2**	Supply Voltage	Main power source: Universal AC adapter 56W Mini-PCI PC bus to applying card : DC 3.3V ± 0.3V	N/A
– **6.2.2(q1)(iv)(a)**	Digital modulation	Applying equipment employs IEEE802.11a, 11g(OFDM) or 11b(CCK) digital modulation technology.	complies
15.407(c) **6.2.2(q1)(iv)(d)**	Automatic link disconnection in no transaction state	Refer to “Circuitry Description” document of the original submission.	complies
N/A **6.2.2(q1)(i)**	Integral antenna in the 5150M -5250MHz band	The device employs an unique electronic connector so called **Electronic Handshake.** Refer to “Confidential_e-Handshake” exhibit.	complies
15.407(e) **6.2.2(q1)(i)** **(q1)(iv)(g)**	Indoor use in the 5150M -5250MHz band, and interference from radar.	Refer to the manual (Regulatory Notice).	complies
15.407(f) **6.2.2(q1)(iv)(g)**	RF Exposure Requirement	Refer to “RF Exposure Evaluation” or “Exposure of Humans to Radio Frequency Fields“ documents.	complies
15.407(g) **6.2.2(q1)(iv)(e)**	Frequency stability	Refer to “Circuitry Description” document of the original submission.	complies

C. Operation Mode of EUT

1. All tests were performed using the “Atheros Radio Test” program. This tool supports to emit the continuous transmission mode for the testing purpose.
2. Three kinds of frequencies were chosen for the measurement. i.e. 5180MHz (lowest), 5260MHz(middle), and 5320MHz (highest).
3. As for the RF receiving test, the middle channel (5260MHz) was selected representatively.

Table-C Transmission mode of EUT

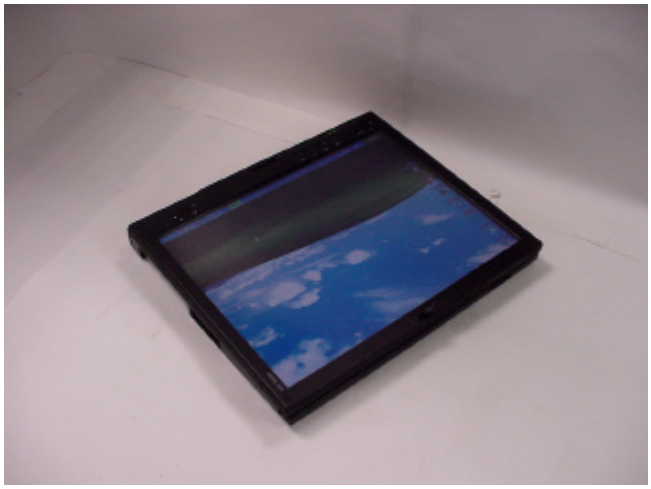
Note) The table shows the specification of **average** power for the applying device in ‘dBm’.

Operation Frequency [GHz]	Rated output power (conducted) [dBm]							
	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
5.180 (Ch. 36)	14	14	14	14	14	14	14	13
5.200 (Ch. 40)	15	15	15	15	15	15	14	13
5.220 (Ch. 44)	15	15	15	15	15	15	14	13
5.240 (Ch. 48)	15	15	15	15	15	15	14	13
5.260 (Ch. 52)	17	17	17	17	17	17	14	13
5.280 (Ch. 56)	17	17	17	17	17	17	14	13
5.300 (Ch. 60)	17	17	17	17	17	17	14	13
5.320 (Ch. 64)	14	14	14	14	14	14	14	13

4. The measurements were performed for EUT in both “Notebook” and “Tablet” operation modes.

“**Notebook**” operation mode

“**Tablet**” operation mode



D. Antenna Information

The Table-D indicates the applicable host antenna systems that are used for the applying modular transmitter.

Table-D EUT Information

*1: including cable loss, Omni directional
*2: Non-lead soldering antenna according to RoHS environmental direction (others are not applied yet or being withdrawn.)

[New antenna system in this Class II application]

IBM ThinkPad X41 Tablet	Antenna Designator	Manufacture	Antenna type	Cable type and length	Peak Gain+1		
Main antenna	91P6908 +2	Wistron NeWeb Corp. (R.O.C.)	Dual Band Meander Antenna	Coax 600 mm	5.15 - 5.35 GHz	Notebook	2.75 dBi
						Tablet	2.11 dBi
Auxiliary antenna	91P6909 +2			Coax 550 mm		Notebook	1.36 dBi
						Tablet	1.71 dBi

[Certified antenna systems] **Granted on 07/26/2004**

IBM ThinkPad T40 Series		Antenna Designator	Manufacture	Antenna type	Cable type and length	Peak Gain +1	
LCD **14** inch Model	Main	62P4204 91P6900 +2	Foxconn Electronics Inc. (R.O.C.)	Dual Band Meander Antenna	Coax 745 mm	5.15–5.35GHz	0.83 dBi
	Auxiliary	62P4203 91P6898 +2		Dual-Band Coupled Floating Element Meander Antenna	Coax 845 mm	5.15–5.35GHz	0.36 dBi
LCD **15** inch Model	Main	91P6841 +2	Hitachi Cable Ltd. (Japan)	Dual Band Meander Antenna	coax 755mm	5.15–5.35GHz	2.00 dBi
	Auxiliary	91P6840 +2			coax 580mm	5.15–5.35GHz	0.82 dBi

Granted on 07/26/2004

IBM ThinkPad R50 Series		Antenna Designator	Manufacture	Antenna type	Cable type and length	Peak Gain+1	
LCD **14** inch Model	Main	91P6810	Hitachi Cable Ltd. (Japan)	Dual Band Meander Antenna	Coax 750 mm	5.15–5.35GHz	2.66 dBi
	Auxiliary	91P6811			Coax 635 mm	5.15–5.35GHz	1.37 dBi
LCD **15** inch Model	Main	91P6812	Hitachi Cable Ltd. (Japan)	Dual Band Meander Antenna	coax 775mm	5.15–5.35GHz	1.68 dBi
	Auxiliary	91P6813			coax 670mm	5.15–5.35GHz	**2.84** dBi

Granted on 09/10/2004

IBM ThinkPad X30 Series	Antenna Designator	Manufacture	Antenna type	Cable type and length	Peak Gain+1	
Main antenna	08K4083	Nissei Electric Co. Ltd. (Japan)	Dual Band Meander Antenna	Coax 394 mm	5.15–5.35GHz	1.42 dBi
Auxiliary antenna	08K4084			Coax 534 mm	5.15–5.35GHz	0.19 dBi

Granted on 09/10/2004

IBM ThinkPad X40 Series	Antenna Designator	Manufacture	Antenna type	Cable type and length	Peak Gain+1	
Main antenna	13N5743	Nissei Electric Co. Ltd. (Japan)	Dual Band Meander Antenna	Coax 488 mm	5.15–5.35GHz	1.45 dBi
Auxiliary antenna	13N5742			Coax 449 mm	5.15–5.35GHz	2.15 dBi

Granted on 09/10/2004

IBM ThinkPad G40 Series		Antenna Designator	Manufacture	Antenna type	Cable type and length	Peak Gain +1	
Main	LCD **14** inch	R0222-099	SmartAnt Telecom Co., Ltd. (R.O.C.)	Dual Band Meander Antenna	Coax 570 mm	5.15–5.35GHz	1.32 dBi
	LCD **15**inch					5.15–5.35GHz	0.75 dBi
Auxiliary	LCD **14** inch	R0222-100		Dual Band Meander Antenna	coax 610mm	5.15–5.35GHz	2.03 dBi
	LCD **15** inch					5.15–5.35GHz	0.57 dBi

E. Justification

The full testing results were already performed with the highest antenna gain (ThinkPad R50 Series) as shown in the previous Table-D, then certified on July/26/2004.

The new antenna used for ThinkPad X41 Tablet PC is very similar meander type to the existing granted antenna systems and the gain of it does not exceed the certified values.
Therefore, the applying new antenna conforms with the FCC rule Part 15 Subpart E pursuant to the ET Docket 03–201; FCC 04–165, July 12/2004 and Federal Register / Vol. 69, No. 172, September 7/2004.

However, the new host PC (X41 Tablet) has the additional usage than the existing PC models. i.e. “Tablet” operation mode.
With the above back ground, this test report includes the following measurement items to prove the emissions conform to the limits for both “Notebook” and “Tablet” operation modes.

- Conducted power (note: There is no change on the other conducted measurements, since no hardware nor electrical modification was made to the applying modular transmitter itself.)
- Restricted Bands Radiation
- AC Wireline Conducted Emissions

The tests were performed with the higher gain antenna (i.e. Main antenna) for each operation mode as below.

IBM ThinkPad X41 Tablet	Peak Gain	
Notebook operation mode	Main antenna	**2.75 dBi**
	Auxiliary antenna	1.36 dBi
Tablet operation mode	Main antenna	**2.11 dBi**
	Auxiliary antenna	1.71 dBi

F. Test Instruments

Table-F List of Measuring Instruments

Description	**Model**	**Serial Number**	**Calibration Date**	**Calibration Interval**
Computer	IBM 6868-30J	97-901X3	N/A	N/A
Computer	IBM 6589-13J	97-15613	N/A	N/A
Spectrum Analyzer (100Hz-1.5GHz)	HP 85680B	2732A03651	07/21/04	1 year
Spectrum Analyzer (100Hz-1.5GHz)	HP 85680B	2841A04254	08/25/04	1 year
Spectrum Analyzer (100Hz-1.5GHz)	HP 85680B	3019A05156	08/05/04	1 year
Spectrum Analyzer Display	HP 85662A	2648A15255	07/21/04	1 year
Spectrum Analyzer Display	HP 85662A	2816A16831	08/25/04	1 year
Spectrum Analyzer Display	HP 85662A	3026A19366	08/05/04	1 year
Quasi-Peak Adapter	HP 85650A	2521A00968	07/20/04	1 year
Quasi-Peak Adapter	HP 85650A	2811A01156	08/25/04	1 year
Quasi-Peak Adapter	HP 85650A	2811A01433	08/05/04	1 year
Amplifier (100KHz - 1.3GHz)				
- for 30-200MHz	MITEQ AM-3A	898433	04/23/04	1 year
- for 200-1000MHz	MITEQ AM-3A	898432	04/23/04	1 year
Amplifier (1GHz - 18GHz)	HP 8449B	3008A00582	06/01/04	1 year
Amplifier (18 – 40GHz)	Agilent 83051A	3950M00193	01/18/05	1 year
Spectrum Analyzer EMI Test Receiver	R&S ESI26	836119/003	05/10/04	1 year
Spectrum Analyzer	HP 8563E	3416A02248	09/10/04	1 year
Harmonic Mixer	Agilent 11970A	011269-001	08/04/04	1 year
Receiver (9kHz-30MHz)	R&S ESH3	891806/012	11/04/04	1 year
Receiver (20MHz-1.3GHz)	R&S ESVP	892111/026	11/04/04	1 year
Biconical Antenna (30-200MHz)	EMCO 3108	2536	04/23/04	1 year
Log-Periodic Antenna (200-1000MHz)	EMCO 3146	2849	04/23/04	1 year
Horn Antenna (1- 18GHz)	EMCO 3115	9903-5774	07/20/04	1 year
Horn Antenna (3.95- 5.85GHz)	EMCO 3160-5	1099	07/20/04	1 year
Horn Antenna (5.85- 8.20GHz)	EMCO 3160-6	9712-1044	07/20/04	1 year
Horn Antenna (8.20- 12.4GHz)	EMCO 3160-7	1156	07/20/04	1 year
Horn Antenna (12.4- 18GHz)	EMCO 3160-8	1143	07/20/04	1 year
Horn Antenna (18- 26.5GHz)	EMCO 3160-9	0004-1202	07/20/04	1 year
Horn Antenna (26.5- 40GHz)	EMCO 3160-10	1175	07/20/04	1 year
LISN	EMCO 3810/2NM	00022007	06/15/04	1 year
Switch/control unit	HP 3488A	2719A17226	N/A	N/A
		2719A17228	N/A	N/A
Plotter	HP 7550A	2631A33619	N/A	N/A
Coaxial cables (1 – 18GHz):	Length:			
- Horn Ant <=> RF Amp.	6 m	- EM206SCO	03/25/04	1 year
- RF Amp.<=>Spectrum Analyzer(<12GHz)	16m	- GEM0101	03/25/04	1 year
- RF Amp.<=>Spectrum Analyzer(>12GHz)	3m	- SF102-20166	04/08/04	1 year
Coaxial cables (18 – 40GHz):				
- Horn Ant <=> RF Amp.	3m	- SF102-20167	04/08/04	1 year
- RF Amp.<=>Spectrum Analyzer	1m	- SF102-21105	04/08/04	1 year

N-Coax cables:				
- Bi-coni Ant <=> 10m Cable	9 m	- EM103L01	04/23/04	1 year
- 10m Cable <=> Shield Panel	10 m	- EM103L02	04/23/04	1 year
- Shield Panel <=> RF Amp	7 m	- EM103L03	04/23/04	1 year
- RF Amp <=> Power Splitter	0.5m	- EM103L04	04/23/04	1 year
- Log-peri Ant <=> 10m Cable	9 m	- EM103H01	04/23/04	1 year
- 10m Cable <=> Shield Panel	10 m	- EM103H02	04/23/04	1 year
- Shield Panel <=> RF Amp	7 m	- EM103H03	04/23/04	1 year
- RF Amp <=> Power Splitter	0.5m	- EM103H04	04/23/04	1 year
Coax cables:				
- Power Splitter <=> SW/Con.unit (SW110)	1 m	- EM103L05	04/23/04	1 year
- Power Splitter <=> SW/Con.unit (SW300)	1 m	- EM103L06	04/23/04	1 year
- Power Splitter <=> SW/Con.unit (SW100)	1 m	- EM103H05	04/23/04	1 year
- Power Splitter <=> SW/Con.unit (SW301)	1 m	- EM103H06	04/23/04	1 year
- SW/Con.unit <=> Receiver (Input)	2 m	- EM1RCV	04/23/04	1 year
- SW/Con.unit <=> Spe Ana.(Signal In) for 30- 200MHz	2 m	- EM1SPL	04/23/04	1 year
- SW/Con.unit <=> Spe Ana.(Signal In) for 200-1000MHz	2 m	- EM1SPH	04/23/04	1 year

Notes. - The above equipment calibration is traceable to National standards.
- HP: Hewlett Packard, R&S: Rohde & Schwarz

G. Measurement Uncertainty

Uncertainties of the both, the Yamato EMI radiated test facilities (EMI chambers, #1 and #2) and the Yamato EMI conducted test facility are derived with the NIS 81 " Treatment of uncertainty in EMC measurements" 1994.

Estimated site uncertainty values are as follows.

EMI chamber #1 : 4.39dB
EMI chamber #2 : 4.40dB
EMI conducted measurement system : 2.4dB

Detail should be referred to "Treatment of Uncertainty, Calculations and Policy" report, document number TCR 10-0015.

H. Temperature and Humidity

The temperature is controlled within range of 17° to 28°
The relative humidity is controlled within range of 40% to 70%.

I. Related Submittal(s)/Grant(s)/Notes

During the applying modular device stops RF transmission, the host unit with full peripheral devices including the applying modular device is classified as an unintentional radiator, Digital Device under the FCC Part 15 Subpart B or the Industry Canada Class B Emission Compliance (ICES-003), and subject to DoC.

1. Conducted Transmit Output Power

[5150-5250MHz: FCC 15.407(a)(1), RSS 6.2.2q1(i) / q1(iV)(b)]
[5250-5350MHz: FCC 15.407(a)(2), RSS 6.2.2q1(ii) / q1(iV)(b)]

1.1 Test Procedure

The test was performed with a spectrum analyzer in accordance with the Method #3 of the FCC Public Notice, DA 02-2138, August/30/2002.

The spectrum analyzer was connected to the antenna terminal, while EUT was operating in continuous transmission mode (shown in the Plot 1-0 below) at the appropriate center frequencies.

The spectrum analyzer was set to :

VBW= 30kHz (≥ 1/T, where T is transmission pulse duration. See Plot 1-0.), RBW=1MHz,
Span= 50MHz encompassing the entire 26dB emission bandwidth of the transmission signal,
Mode= sample detector, Trigger= free run

The band power measurement function was used to measure the peak power for each transmission mode (the lowest=6Mb/s, middle=18Mb/s and 24Mb/s, the highest=54Mb/s). The analyzer computed the peak power by integrating the spectrum across the 26 dB emission bandwidth given by the previous chapter.

Table 1-1: Test instruments of spectrum analyzer method

Description	**Model**	**Serial Number**
Spectrum Analyzer EMI Test Receiver	R&S ESI26	836119/003
Coax cables: - Spectrum Analyzer <=> EUT	Length: Loss: 110 cm 2.2 dB	

Notes: - R&S: Rohde & Schwarz

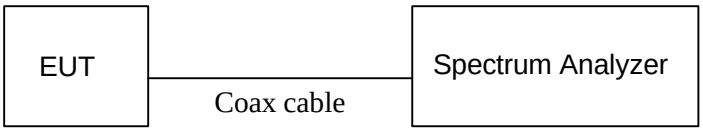


Figure 1-1 : Measurement setup of spectrum analyzer method

1.2 Measurement Results

Test Date: January 19, 21, 25 and February 2, 2005

Table 1-2 Measurement results of conducted transmit output power

Measured Frequency (MHz)	Tx Rate (Mb/s)	Analyzer reading (dBm)	Trace number	Cable Loss (dB)	**Results** (dBm)	Limit FCC (dBm)	Limit IC (dBm)	Peak antenna gain of EUT (dBi)	EIRP (dBm)	IC limit (dBm)
5180	6	12.15	omitted	2.2	14.35	17	N/A	2.75	17.10	23
	18	11.82	omitted	2.2	14.02	17	N/A		16.77	23
	24	12.27	Plot 1-1b	2.2	**14.47**	17	N/A		17.22	23
	54	11.30	omitted	2.2	13.50	17	N/A		16.25	23
5260	6	15.06	omitted	2.2	17.26	24	24		20.01	30
	18	14.75	omitted	2.2	16.95	24	24		19.70	30
	24	15.42	Plot 1-2b	2.2	**17.62**	24	24		20.37	30
	54	11.32	omitted	2.2	13.52	24	24		16.27	30
5320	6	12.20	omitted	2.2	14.40	24	24		17.15	30
	18	11.89	omitted	2.2	14.09	24	24		16.84	30
	24	12.23	Plot 1-3b	2.2	**14.43**	24	24		17.18	30
	54	11.14	omitted	2.2	13.34	24	24		16.09	30

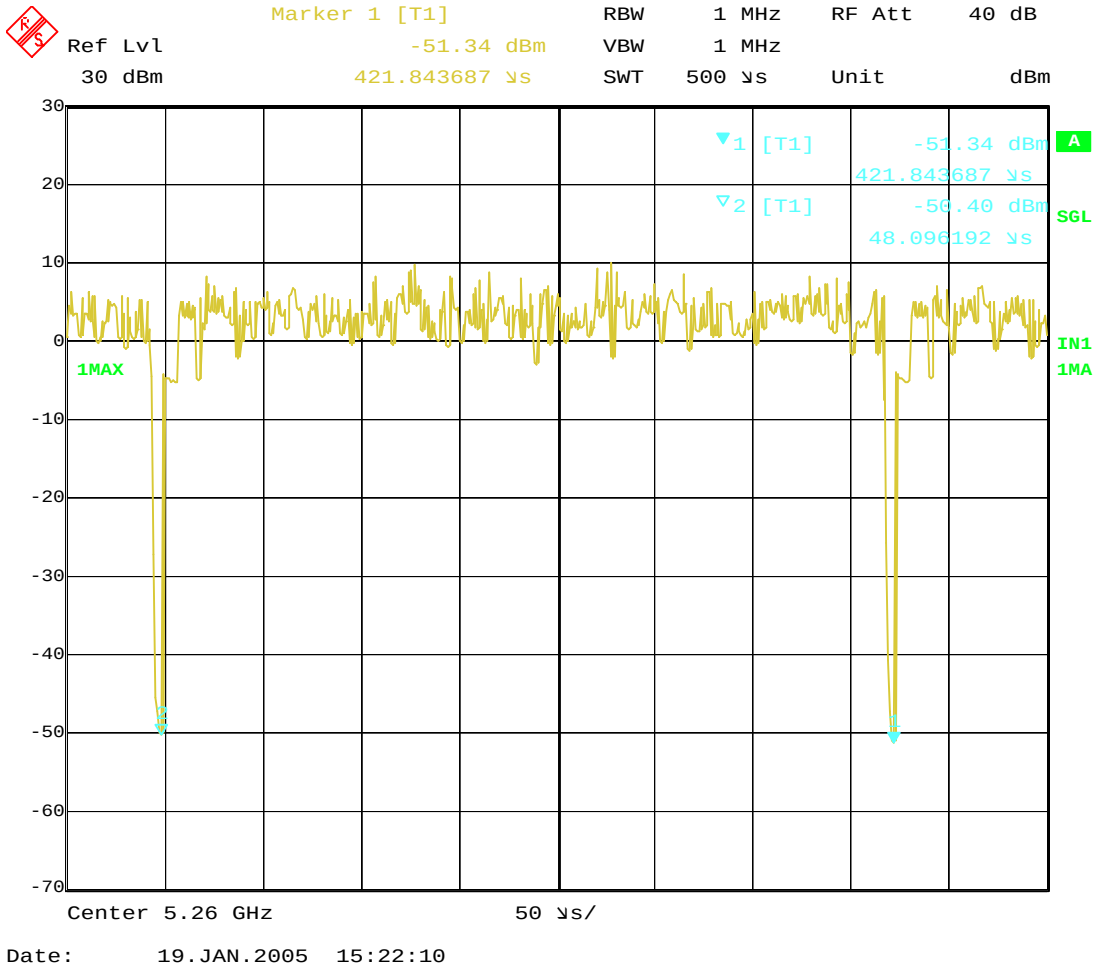
[Reference only]

( ) means the deviation of the results from the original grant.

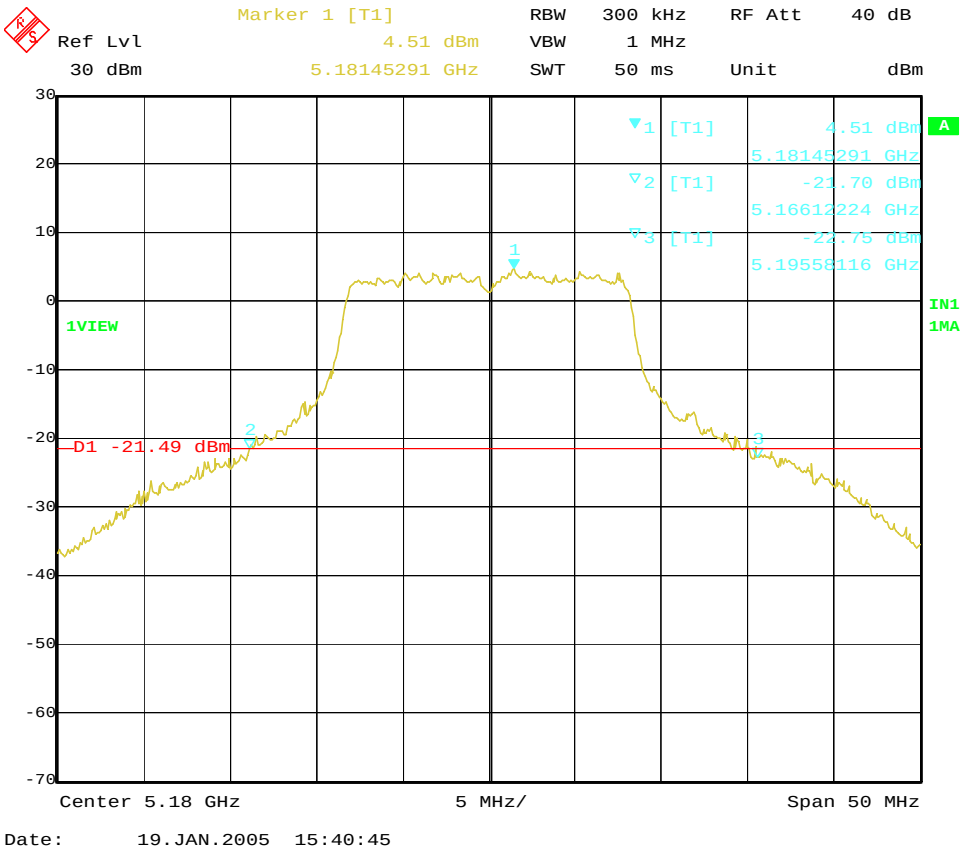
The highest measurement result of the **original grant**	17.77 dBm
The highest measurement result in this **Class II** application	17.62 dBm (−0.22 dB)
The highest measurement result in the separate **SAR** report	18.01 dBm (+0.24 dB)

1.3 Trace Data

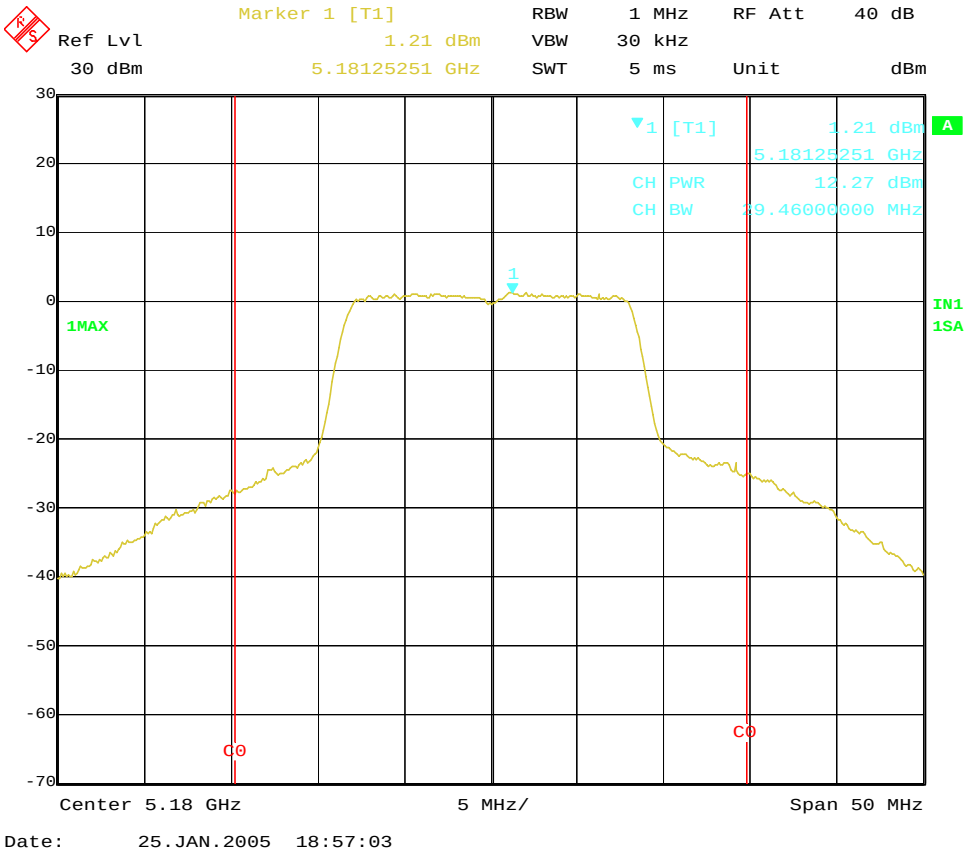
T (transmission pulse duration) = 421.8 – 48.1 = 373.7 mS



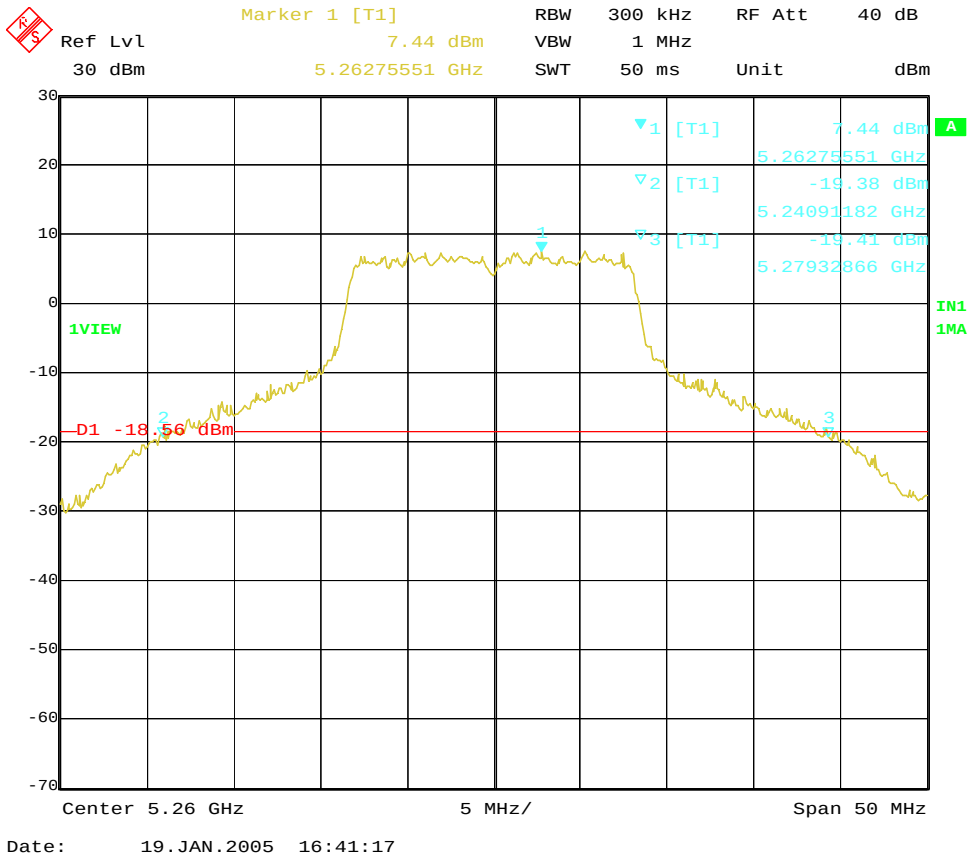
Plot 1-0 Transmission Pulse Duration



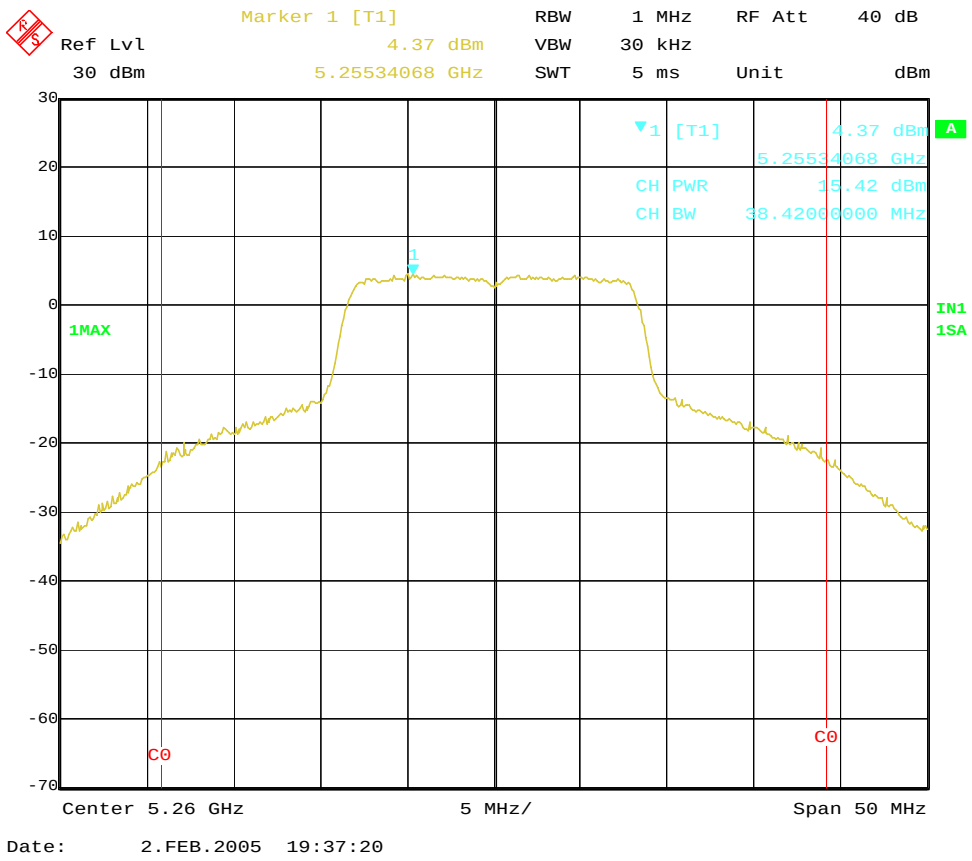
Plot 1-1a. 26dB Bandwidth of 5180MHz (OFDM, 24Mbps)



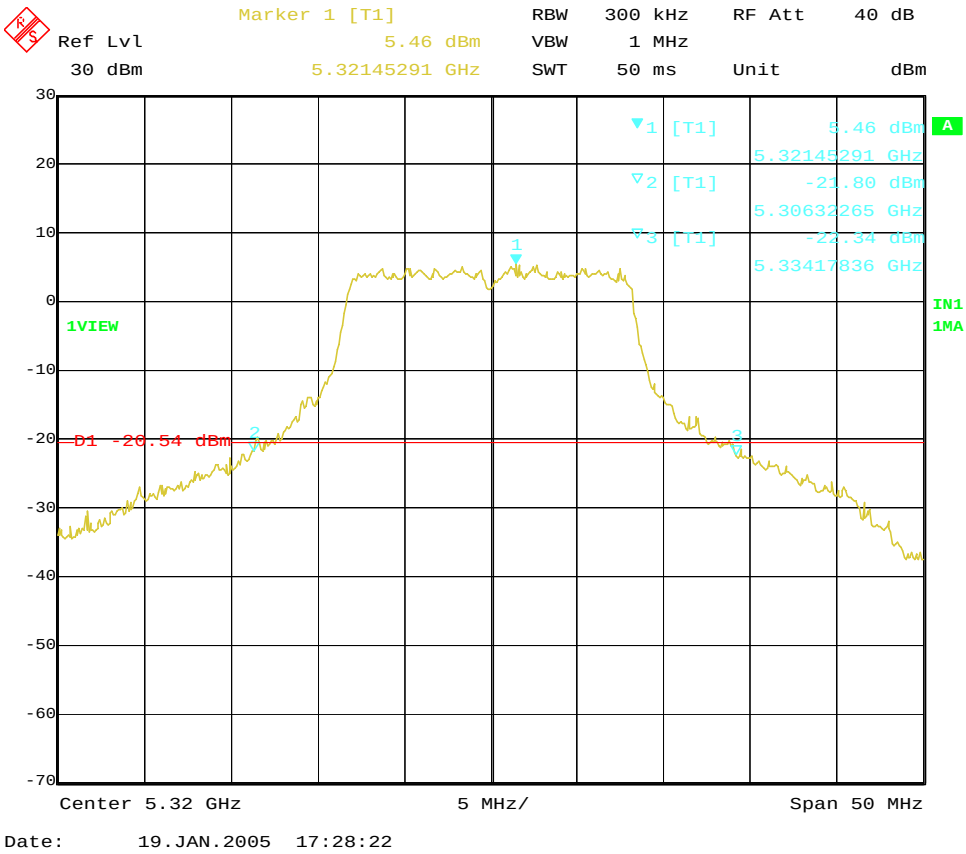
Plot 1-1b. Conducted Transmit Output Power of 5180MHz (OFDM, 24Mbps)



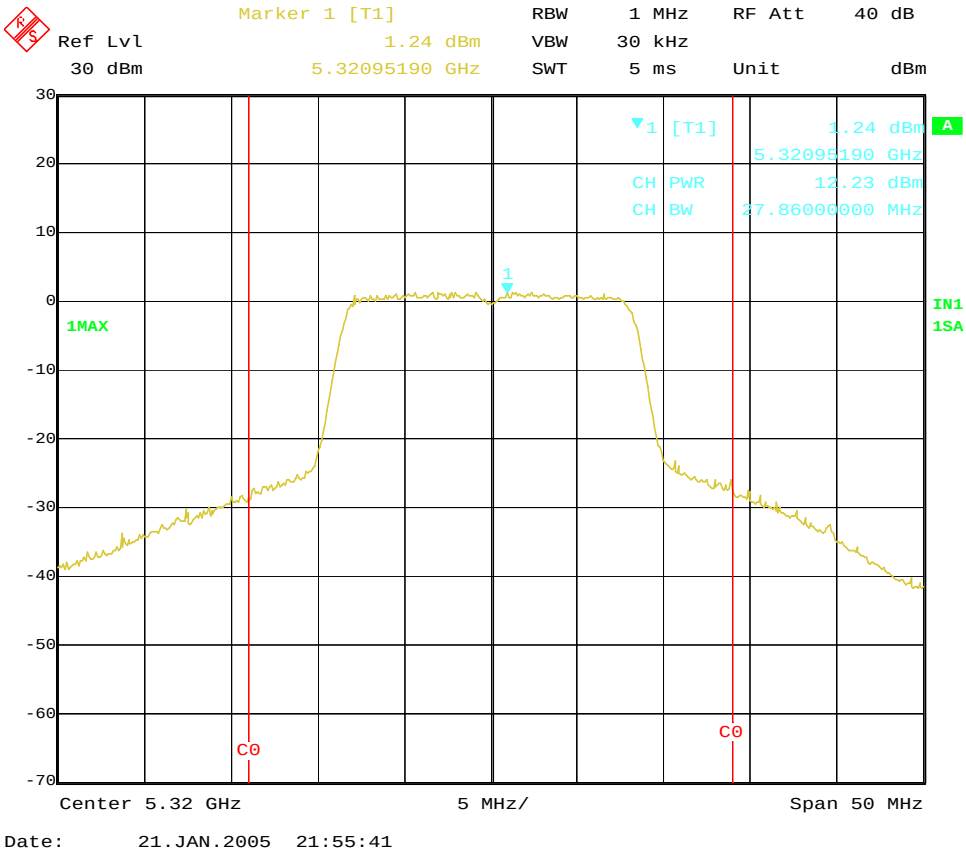
Plot 1-2a. 26dB Bandwidth of 5260MHz (OFDM, 24Mbps)



Plot 1-2b. Conducted Transmit Output Power of 5260MHz (OFDM, 24Mbps)



Plot 1-3a. 26dB Bandwidth of 5320MHz (OFDM, 24Mbps)



Plot 1-3b. Conducted Transmit Output Power of 5320MHz (OFDM, 24Mbps)

2. Restricted Bands Radiatio (1GHz – 40GHz)

[FCC 15.205&209 / 15.407(b)(1),(2),(5),(6)]
[RSS-210 6.2.1 / 6.2.2(q1)(i),(ii),(v) / 6.3 / 7.3]

2.1 Test Procedure

Radiated emissions were measured in the frequency range with 1 GHz to 40GHz in transmitting mode and 1 GHz to 25GHz in receiving mode. All tests were performed in the semi-anechoic chamber at a 3-meter distance (except for the frequency range with 18 GHz to 40 GHz where test distance was reduced to 1 meter) on both horizontal and vertical polarities. The antenna was also scanned in height. The emissions are recorded with a spectrum analyzer in peak hold mode. The identified emissions are further maximized as a function of cable manipulation, azimuth, and antenna height. The emissions closest to the limits are measured in the peak mode with the tuned spectrum analyzer using resolution bandwidth of 1MHz / video bandwidth of 1MHz, and the average setting mode with the tuned spectrum analyzer using resolution bandwidth of 1MHz / video bandwidth of 100Hz or 10Hz. The highest emissions relative to the limit are listed.

2.2 Test Instruments and Measurement Setup

Table 2-1 Radiated Emission Test Instrumentation (1GHz – 40GHz)

Description	**Model**	**Serial Number**
Spectrum Analyzer EMI Test Receiver	R&S ESI26	836119/003
Spectrum Analyzer	HP 8563E	3416A02248
Harmonic Mixer (26.5 – 40GHz)	Agilent 11970A	011269-001
Amplifier (1 - 18GHz)	HP 8449B	3008A00582
Amplifier (18 – 40GHz)	Agilent 83051A	3950M00193
Horn Antenna (1 - 18GHz)	EMCO 3115	9903-5774
Horn Antenna (3.95 – 5.85GHz)	EMCO 3160-5	1099
Horn Antenna (5.85 – 8.2GHz)	EMCO 3160-6	9712-1044
Horn Antenna (8.2 – 12.4GHz)	EMCO 3160-7	1156
Horn Antenna (12.4 – 18GHz)	EMCO 3160-8	1143
Horn Antenna (18 - 26.5GHz)	EMCO 3160-9	0004-1202
Horn Antenna (26.5 - 40GHz)	EMCO 3160-10	1175
Coaxial cables: - Horn Ant <=> RF Amp. (1-18GHz) - RF Amp.<=>Spectrum Analyzer (1-12.4GHz) - RF Amp.<=>Spectrum Analyzer (12.4-18GHz) - Horn Ant <=> RF Amp. (18-40GHz) - RF Amp.<=>Spectrum Analyzer (18-40GHz)	Length: 6 m 16 m 3m 3m 1m	 - EM206SCO - GEM0101 - SF102-20166 - SF102-20167 - SF102-21105

Notes: HP: Hewlett Packard, R&S: Rohde & Schwarz

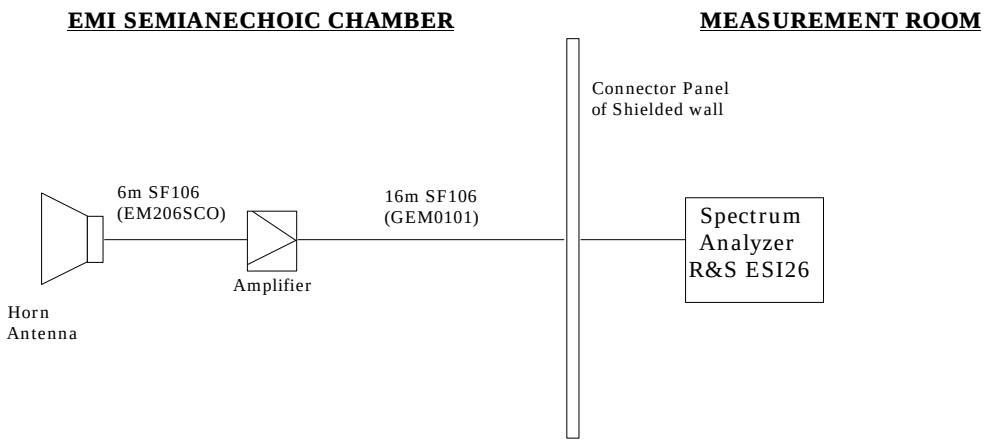


Figure 2-1. Cables for Radiated Emission Test (1 – 12.4 GHz)

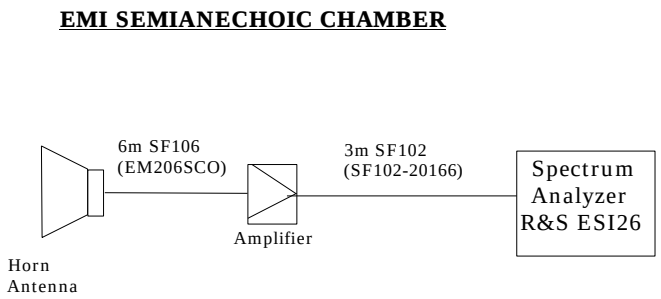


Figure 2-2. Cables for Radiated Emission Test (12.4 - 18GHz)

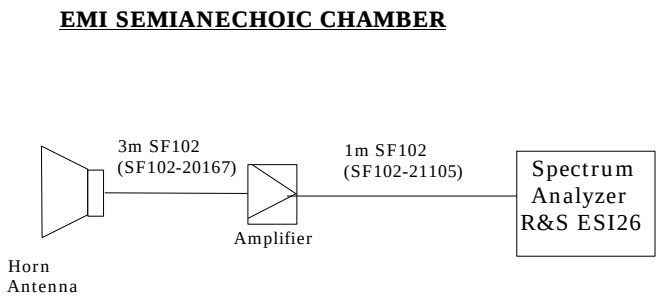


Figure 2-3. Cables for Radiated Emission Test (18 – 26.5GHz)

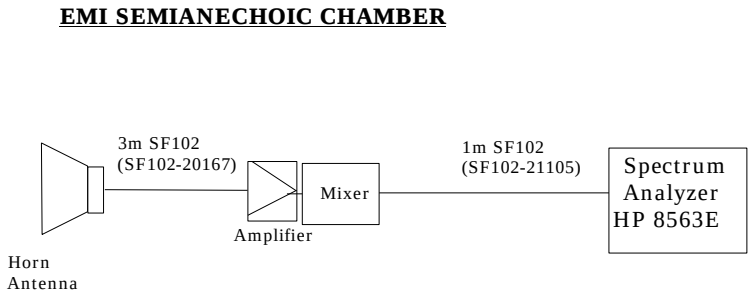


Figure 2-4. Cables for Radiated Emission Test (26.5 - 40GHz)

2.3 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. All factors are included in the reported data.

FS = R + AF + CORR - FO

where:

FS = Field Strength
R = Measured Spectrum analyzer Input Amplitude
AF = Antenna Factor
CORR = Correction Factor = CL-AG
CL = Cable Loss
AG = Amplifier Gain
FO = Distance Falloff Factor

For example:
Given a Spectrum Analyzer input reading of 51.5 dBμV; Antenna Factor of 8.5 dB/m; Cable Loss of 1.3 dB; Falloff Factor of 0 dB; and an Amplifier Gain of 26 dB. The Field Strength of the measured emission is:

FS = 51.5 + 8.5 + 1.3 – 26 – 0.0 = 35.6 dBμV/m

Conversions between dBμV/m (or dBμV) and μV/m (or μV) are done as :

Level(dBμV/m) = 20 × Log (Level(μV/m))
40 dBμV/m = 100 μV/m
48 dBμV/m = 250 μV/m

2.4 Limits

Table 2-2 Limits for EIRP emissions

Limit for emissions in restricted bands **FCC 15.205&209 / RSS-210 6.3&7.3**	54 dBμV/m (average)	74 dBμV/m (peak)
Limit for emissions in non_restricted bands **FCC 15.407(b)(1)&(2) / RSS-210 (q1)(i)&(ii)**	EIRP 68.2 dBμV/m (-27 dBm/MHz)	

2.5 Bandedge Measurement plots

The test was performed with the co-located Bluetooth device (FCC ID: ANO20040700HER) in active and transmitting simultaneously.

Test Date: January 31, 2005

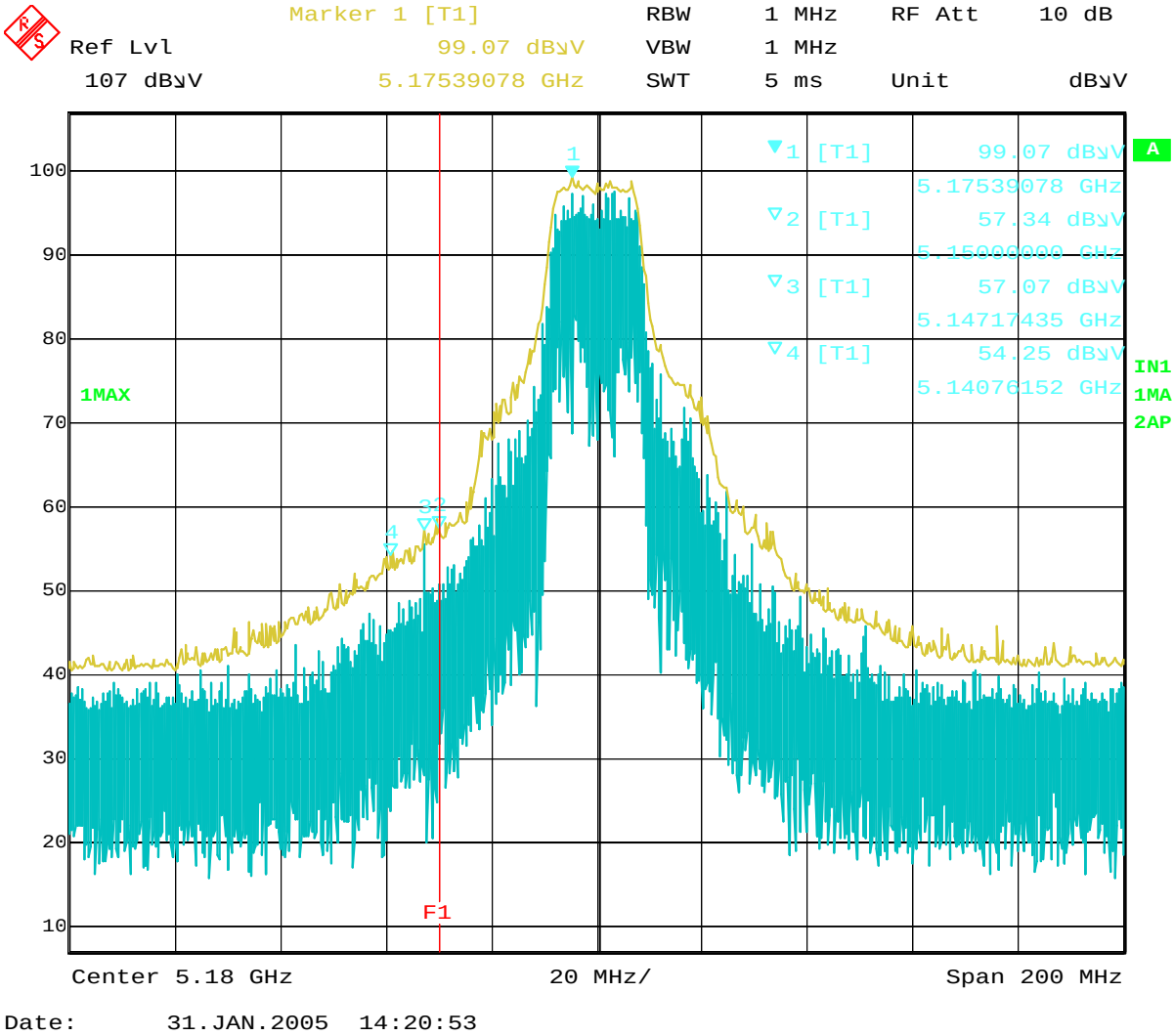
Table 2-3 EUT in "**Notebook**" operation mode

Ch.	Tx rate (Mb/s)	Frequency (GHz)	Polarity (H/V)	Reading (dBμV) *(peak)*	Rading (dBμV) *(average)*	Antenna Factor (dB/m)	Corr. Factor (dB)	Falloff Factor (dB)	Field Strength (dBμV/m) *(peak)*	Margin to Limit (dB) *(peak)*	Field Strength (dBμV/m) *(average)*	Margin to Limit (dB) *(average)*
36	6	5.150	H	57.3	41.7	33.6	-26.1	0.0	64.8	9.2	49.2	**4.8**
	18	5.150	H	55.4	41.6	33.6	-26.1	0.0	62.9	11.1	49.1	4.9
	24	5.150	H	56.0	41.4	33.6	-26.1	0.0	63.5	10.5	48.9	5.1
	54	5.150	H	53.9	40.3	33.6	-26.1	0.0	61.4	12.6	47.8	6.2
64	6	5.350	H	54.9	39.9	33.9	-25.6	0.0	63.2	10.8	48.2	5.8
	18	5.350	H	53.9	39.5	33.9	-25.6	0.0	62.2	11.8	47.8	6.2
	24	5.350	H	56.3	39.4	33.9	-25.6	0.0	64.6	9.4	47.7	6.3
	54	5.350	H	51.8	38.4	33.9	-25.6	0.0	60.1	13.9	46.7	7.3

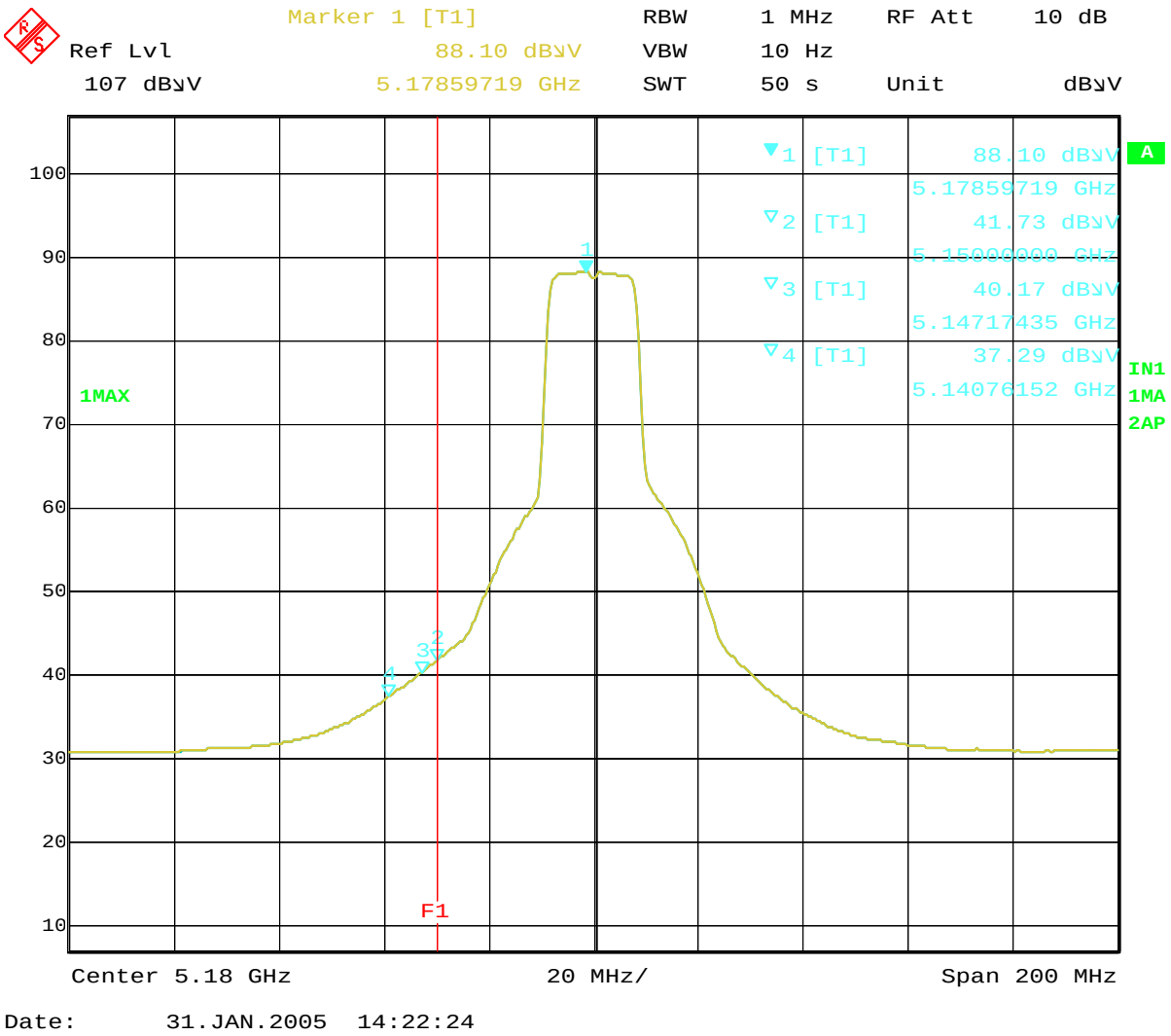
Table 2-4 EUT in "**Tablet**" operation mode

Ch.	Tx rate (Mb/s)	Frequency (GHz)	Polarity (H/V)	Reading (dBμV) *(peak)*	Rading (dBμV) *(average)*	Antenna Factor (dB/m)	Corr. Factor (dB)	Falloff Factor (dB)	Field Strength (dBμV/m) *(peak)*	Margin to Limit (dB) *(peak)*	Field Strength (dBμV/m) *(average)*	Margin to Limit (dB) *(average)*
36	6	5.150	V	52.2	38.4	33.6	-26.1	0.0	59.7	14.3	45.9	8.1
	18	5.150	V	51.0	37.8	33.6	-26.1	0.0	58.5	15.5	45.3	8.7
	24	5.150	V	51.3	38.3	33.6	-26.1	0.0	58.8	15.2	45.8	8.2
	54	5.150	V	50.2	36.9	33.6	-26.1	0.0	57.7	16.3	44.4	9.6
64	6	5.350	H	51.2	38.1	33.9	-25.6	0.0	59.5	14.5	46.4	**7.6**
	18	5.350	H	51.8	38.0	33.9	-25.6	0.0	60.1	13.9	46.3	7.7
	24	5.350	H	51.2	37.9	33.9	-25.6	0.0	59.5	14.5	46.2	7.8
	54	5.350	H	49.2	36.3	33.9	-25.6	0.0	57.5	16.5	44.6	9.4

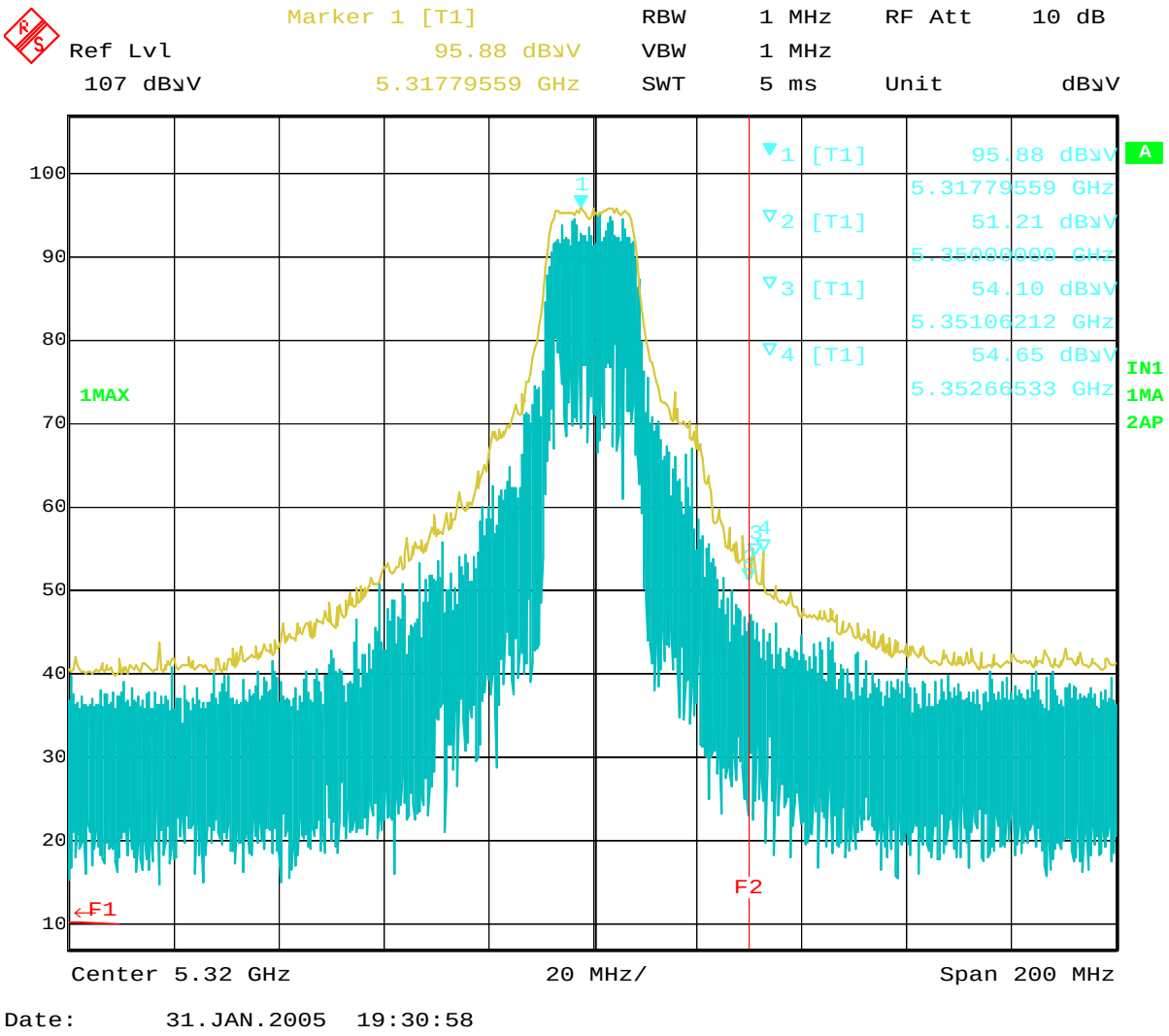
Note) The traces hereafter are the worst cases in each Table 2-3 or Table 2-4.



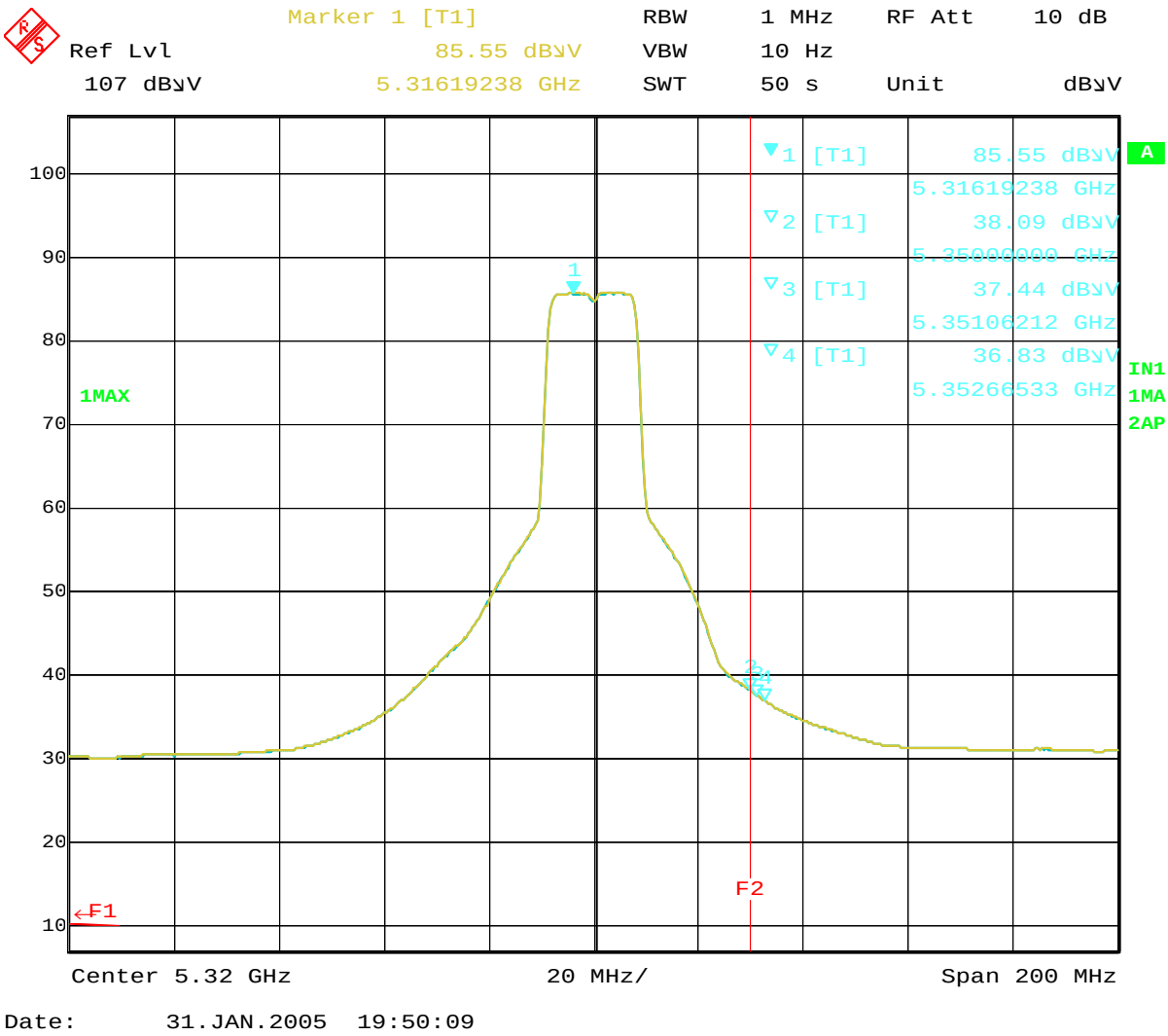
Plot-2-1 Ch.36 5180MHz TX, OFDM 6Mbps (Peak) in “Notebook” operation mode



Plot-2-2 Ch.36 5180MHz TX, OFDM 6Mbps (Average) in “Notebook” operation mode



Plot-2-3 Ch.64 5320MHz TX, OFDM 6Mbps (Peak) in "Tablet" operation mode



Plot-2-4 Ch.64 5320MHz TX, OFDM 6Mbps (Average) in “Tablet” operation mode

2.6 Radiated Emission Measurement Results (above 1GHz)

The EUT was found to comply to the limits of FCC Part 15 Subpart E and RSS-210 with a margin of 4.8 dB. The measurement was done for the frequency range of 1 GHz to 40GHz in TX mode and 1 GHz to 25GHz in RX mode.

Test Date: January 31, February 7, 8 and 15, 2005

2.6.1 EUT in "Notebook" operation mode

The representative worst case in previous Table-2-3 was selected and tested with the co-located Bluetooth device (FCC ID: ANO20040700HER) in active and transmitting simultaneously.

*Note1: OB means "operation band" (5150-5350MHz); in this case limit is 1W (measured conducted with power meter)

*Note2: NRB means "non restricted band": The limit of FCC Part 15.407(b)(1),(2) and RSS-210 6.2.2(q1)(I),(ii) apply.

Table 2-5 Ch.36 (5180MHz) OFDM 6Mbps **TX** mode

Frequency (GHz)	Polarity (H/V)	Measured (dBμV) *(peak)*	Measured (dBμV) *(average)*	Antenna Factor (dB/m)	Corr. Factor (dB)	Falloff Factor (dB)	Field Strength (dBμV/m)	FCC Limit (dBμV/m)	Margin to limit (dB)	Field Strength (dBμV/m)	FCC Limit (dBμV/m)	Margin to limit (dB)
							(peak)			*(average)*		
Inband												
5.175	H	99.1	88.1	33.7	-26.1	0.0	106.7	OB*1	-	95.7	OB*1	-
bandedge												
5.141	H	54.3	37.3	33.6	-26.1	0.0	61.8	74.0	12.2	44.8	54.0	9.2
5.147	H	57.1	40.2	33.6	-26.1	0.0	64.6	74.0	9.4	47.7	54.0	6.3
5.150	H	57.3	41.7	33.6	-26.1	0.0	64.8	74.0	9.2	49.2	54.0	4.8
1.198	V	48.3	-	25.2	-31.3	0.0	42.2	74.0	31.8	-	54.0	-
1.371	V	51.5	-	25.5	-30.8	0.0	46.2	74.0	27.8	-	54.0	-
1.595	V	55.4	-	25.6	-30.3	0.0	50.7	74.0	23.3	-	54.0	-
1.820	V	44.0	-	26.9	-29.9	0.0	41.0	68.2	27.2	-	NRB*2	-
2.096	H	52.1	-	27.9	-29.5	0.0	50.5	68.2	17.7	-	NRB*2	-
4.818	V	56.8	26.4	27.1	-26.6	0.0	57.3	74.0	16.7	26.9	54.0	27.1
4.904	V	59.6	26.6	27.0	-26.6	0.0	60.0	74.0	14.0	27.0	54.0	27.0
4.938	V	62.2	26.7	27.1	-26.4	0.0	62.9	74.0	11.1	27.4	54.0	26.6
4.962	V	61.7	26.8	27.1	-26.6	0.0	62.2	74.0	11.8	27.3	54.0	26.7
6.906	V	44.8	-	29.9	-24.9	0.0	49.8	68.2	18.4	-	NRB*2	-
7.279	V	41.1	-	29.9	-24.6	0.0	46.4	74.0	27.6	-	54.0	-
10.363	V	36.1	-	33.5	-21.1	0.0	48.5	68.2	19.7	-	NRB*2	-
15.521	V	40.5	-	37.2	-24.0	0.0	53.7	74.0	20.3	-	54.0	-

Table 2-6 Ch.52 (5260MHz) OFDM 6Mbps **TX** mode

Frequency (GHz)	Polarity (H/V)	Measured (dBμV) *(peak)*	Measured (dBμV) *(average)*	Antenna Factor (dB/m)	Corr. Factor (dB)	Falloff Factor (dB)	Field Strength (dBμV/m)	FCC Limit (dBμV/m)	Margin to limit (dB)	Field Strength (dBμV/m)	FCC Limit (dBμV/m)	Margin to limit (dB)
							(peak)			*(average)*		
Inband												
5.264	H	102.2	91.5	33.7	-26.0	0.0	109.9	OB*1	-	99.2	OB*1	-
bandedge												
5.150	H	41.1	-	33.6	-26.1	0.0	48.6	74.0	25.4	-	54.0	-
5.350	H	43.2	-	33.9	-25.6	0.0	51.5	74.0	22.5	-	54.0	-
5.361	H	43.4	-	33.9	-25.6	0.0	51.7	74.0	22.3	-	54.0	-
1.198	V	53.5	-	25.2	-31.3	0.0	47.4	74.0	26.6	-	54.0	-
1.291	V	49.3	-	25.9	-31.0	0.0	44.2	74.0	29.8	-	54.0	-
1.599	V	57.2	-	25.6	-30.3	0.0	52.5	74.0	21.5	-	54.0	-
2.114	V	53.9	-	27.9	-29.5	0.0	52.3	68.2	15.9	-	NRB*2	-
4.808	V	57.4	26.6	27.1	-26.7	0.0	57.8	74.0	16.2	27.0	54.0	27.0
4.902	V	59.5	26.7	27.0	-26.6	0.0	59.9	74.0	14.1	27.1	54.0	26.9
4.926	V	61.3	26.6	27.0	-26.4	0.0	61.9	74.0	12.1	27.2	54.0	26.8
4.948	V	61.7	26.6	27.1	-26.4	0.0	62.4	74.0	11.6	27.3	54.0	26.7
7.014	V	42.5	-	30.0	-24.5	0.0	48.0	68.2	20.2	-	NRB*2	-
7.246	V	41.3	-	30.0	-24.5	0.0	46.8	68.2	21.4	-	NRB*2	-
10.519	V	39.9	-	33.5	-20.8	0.0	52.6	68.2	15.6	-	NRB*2	-
15.780	V	41.5	30.4	37.2	-23.8	0.0	54.9	74.0	19.1	43.8	54.0	10.2

Table 2-7 Ch.64 (5320MHz) OFDM 6Mbps **TX** mode

Frequency (GHz)	Polarity (H/V)	Measured (dBμV) *(peak)*	Measured (dBμV) *(average)*	Antenna Factor (dB/m)	Corr. Factor (dB)	Falloff Factor (dB)	Field Strength (dBμV/m)	FCC Limit (dBμV/m)	Margin to limit (dB)	Field Strength (dBμV/m)	FCC Limit (dBμV/m)	Margin to limit (dB)
							(peak)			*(average)*		
Inband												
5.314	H	99.0	88.4	33.7	-25.7	0.0	107.0	OB*1	-	96.4	OB*1	-
bandedge												
5.350	H	54.9	39.9	33.9	-25.6	0.0	63.2	74.0	10.8	48.2	54.0	5.8
5.353	H	56.9	38.4	33.9	-25.6	0.0	65.2	74.0	8.8	46.7	54.0	7.3
5.358	H	51.8	36.4	33.9	-25.6	0.0	60.1	74.0	13.9	44.7	54.0	9.3
1.184	V	53.0	-	24.9	-31.3	0.0	46.6	74.0	27.4	-	54.0	-
1.198	V	46.7	-	25.2	-31.3	0.0	40.6	74.0	33.4	-	54.0	-
1.497	V	56.1	-	25.5	-30.5	0.0	51.1	74.0	22.9	-	54.0	-
1.599	V	56.5	-	25.6	-30.3	0.0	51.8	74.0	22.2	-	54.0	-
2.289	V	47.5	-	27.8	-29.3	0.0	46.0	74.0	28.0	-	54.0	-
4.830	V	58.1	26.5	27.1	-26.6	0.0	58.6	74.0	15.4	27.0	54.0	27.0
4.916	V	60.1	26.6	27.0	-26.4	0.0	60.7	74.0	13.3	27.2	54.0	26.8
4.940	V	61.9	26.5	27.1	-26.4	0.0	62.6	74.0	11.4	27.2	54.0	26.8
4.954	V	63.7	26.6	27.1	-26.6	0.0	64.2	74.0	9.8	27.1	54.0	26.9
7.094	V	43.6	-	30.0	-24.8	0.0	48.8	68.2	19.4	-	NRB*2	-
7.251	H	40.7	-	30.0	-24.5	0.0	46.2	74.0	27.8	-	54.0	-
10.643	V	38.8	-	33.5	-20.9	0.0	51.4	74.0	22.6	-	54.0	-
15.954	V	40.5	28.1	37.2	-23.2	0.0	54.5	74.0	19.5	42.1	54.0	11.9

Table 2-8 Ch.52 (5260MHz) OFDM **RX** mode

Frequency (GHz)	Polarity (H/V)	Measured (dBμV) *(peak)*	Measured (dBμV) *(average)*	Antenna Factor (dB/m)	Corr. Factor (dB)	Falloff Factor (dB)	Field Strength (dBμV/m)	FCC Limit (dBμV/m)	Margin to limit (dB)	Field Strength (dBμV/m)	FCC Limit (dBμV/m)	Margin to limit (dB)
							(peak)			*(average)*		
1.196	V	48.5	-	25.2	-31.3	0.0	42.4	74.0	31.6	-	54.0	-
1.437	H	48.7	-	25.1	-30.6	0.0	43.2	74.0	30.8	-	54.0	-
1.515	H	49.7	-	25.6	-30.3	0.0	45.0	74.0	29.0	-	54.0	-
1.595	V	50.4	-	25.6	-30.3	0.0	45.7	74.0	28.3	-	54.0	-

2.6.2 EUT in "Tablet" operation mode

The representative worst case in previous Table-2-4 was selected and tested with the co-located Bluetooth device (FCC ID: ANO20040700HER) in active and transmitting simultaneously.

*Note1: OB means "operation band" (5150-5350MHz); in this case limit is 1W (measured conducted with power meter)

*Note2: NRB means "non restricted band": The limit of FCC Part 15.407(b)(1),(2) and RSS-210 6.2.2(q1)(I),(ii) apply.

Table 2-9 Ch.36 (5180MHz) OFDM 6Mbps **TX** mode

Frequency (GHz)	Polarity (H/V)	Measured (dBμV) *(peak)*	Measured (dBμV) *(average)*	Antenna Factor (dB/m)	Corr. Factor (dB)	Falloff Factor (dB)	Field Strength (dBμV/m)	FCC Limit (dBμV/m)	Margin to limit (dB)	Field Strength (dBμV/m)	FCC Limit (dBμV/m)	Margin to limit (dB)
							(peak)			*(average)*		
Inband												
5.177	V	94.4	84.5	33.7	-26.1	0.0	102.0	OB*1	-	92.1	OB*1	-
bandedge												
5.144	V	52.0	36.3	33.6	-26.1	0.0	59.5	74.0	14.5	43.8	54.0	10.2
5.148	V	53.7	37.6	33.6	-26.1	0.0	61.2	74.0	12.8	45.1	54.0	8.9
5.150	V	52.2	38.4	33.6	-26.1	0.0	59.7	74.0	14.3	45.9	54.0	8.1
1.196	V	53.7	-	25.2	-31.3	0.0	47.6	74.0	26.4	-	54.0	-
1.411	V	55.6	-	25.5	-30.7	0.0	50.4	74.0	23.6	-	54.0	-
1.595	V	58.3	-	25.6	-30.3	0.0	53.6	74.0	20.4	-	54.0	-
4.816	H	50.1	-	27.1	-26.6	0.0	50.6	74.0	23.4	-	54.0	-
4.911	H	51.7	-	27.0	-26.4	0.0	52.3	74.0	21.7	-	54.0	-
4.944	H	56.6	26.3	27.1	-26.4	0.0	57.3	74.0	16.7	27.0	54.0	27.0
4.958	H	56.6	26.3	27.1	-26.6	0.0	57.1	74.0	16.9	26.8	54.0	27.2
6.906	V	42.6	-	29.9	-24.9	0.0	47.6	68.2	20.6	-	NRB*2	-
7.238	V	40.8	-	29.9	-24.6	0.0	46.1	68.2	22.1	-	NRB*2	-
10.366	V	34.7	-	33.5	-21.1	0.0	47.1	68.2	21.1	-	NRB*2	-

Table 2-10 Ch.52 (5260MHz) OFDM 6Mbps **TX** mode

Frequency (GHz)	Polarity (H/V)	Measured (dBμV) *(peak)*	Measured (dBμV) *(average)*	Antenna Factor (dB/m)	Corr. Factor (dB)	Falloff Factor (dB)	Field Strength (dBμV/m)	FCC Limit (dBμV/m)	Margin to limit (dB)	Field Strength (dBμV/m)	FCC Limit (dBμV/m)	Margin to limit (dB)
							(peak)			*(average)*		
Inband												
5.257	V	97.9	87.2	33.7	-26.0	0.0	105.6	OB*1	-	94.9	OB*1	-
bandedge												
5.150	V	41.5	-	33.6	-26.1	0.0	49.0	74.0	25.0	-	54.0	-
5.350	V	44.5	-	33.9	-25.6	0.0	52.8	74.0	21.2	-	54.0	-
5.374	V	44.6	-	33.9	-25.8	0.0	52.7	74.0	21.3	-	54.0	-
1.198	V	52.2	-	25.2	-31.3	0.0	46.1	74.0	27.9	-	54.0	-
1.573	V	52.6	-	25.5	-30.4	0.0	47.7	74.0	26.3	-	54.0	-
1.597	V	58.1	-	25.6	-30.3	0.0	53.4	74.0	20.6	-	54.0	-
1.798	V	46.0	-	26.4	-29.9	0.0	42.5	68.2	25.7	-	NRB*2	-
4.840	H	48.9	-	27.0	-26.5	0.0	49.4	74.0	24.6	-	54.0	-
4.918	H	53.4	26.3	27.0	-26.4	0.0	54.0	74.0	20.0	26.9	54.0	27.1
4.942	H	55.6	26.4	27.1	-26.4	0.0	56.3	74.0	17.7	27.1	54.0	26.9
4.958	H	56.5	26.4	27.1	-26.6	0.0	57.0	74.0	17.0	26.9	54.0	27.1
7.014	V	40.3	-	30.0	-24.5	0.0	45.8	68.2	22.4	-	NRB*2	-
10.520	V	38.0	-	33.5	-20.8	0.0	50.7	68.2	17.5	-	NRB*2	-
15.780	H	40.9	28.9	37.2	-23.8	0.0	54.3	74.0	19.7	42.3	54.0	11.7

Table 2-11 Ch.64 (5320MHz) OFDM 6Mbps **TX** mode

Frequency (GHz)	Polarity (H/V)	Measured (dBμV) *(peak)*	Measured (dBμV) *(average)*	Antenna Factor (dB/m)	Corr. Factor (dB)	Falloff Factor (dB)	Field Strength (dBμV/m)	FCC Limit (dBμV/m)	Margin to limit (dB)	Field Strength (dBμV/m)	FCC Limit (dBμV/m)	Margin to limit (dB)
							(peak)			*(average)*		
Inband												
5.318	H	95.9	85.6	33.7	-25.7	0.0	103.9	OB	-	93.6	OB	-
bandedge												
5.350	H	51.2	38.1	33.9	-25.6	0.0	59.5	74.0	14.5	46.4	54.0	7.6
5.351	H	54.1	37.4	33.9	-25.6	0.0	62.4	74.0	11.6	45.7	54.0	8.3
5.353	H	54.7	36.8	33.9	-25.6	0.0	63.0	74.0	11.0	45.1	54.0	8.9
1.200	V	51.4	-	25.2	-31.3	0.0	45.3	74.0	28.7	-	54.0	-
1.595	V	56.8	-	25.6	-30.3	0.0	52.1	74.0	21.9	-	54.0	-
1.613	V	56.5	-	25.6	-30.3	0.0	51.8	74.0	22.2	-	54.0	-
4.834	H	49.3	-	27.1	-26.6	0.0	49.8	74.0	24.2	-	54.0	-
4.902	H	52.0	-	27.0	-26.6	0.0	52.4	74.0	21.6	-	54.0	-
4.940	H	55.8	26.5	27.1	-26.4	0.0	56.5	74.0	17.5	27.2	54.0	26.8
4.962	H	57.7	26.5	27.1	-26.6	0.0	58.2	74.0	15.8	27.0	54.0	27.0
7.094	V	40.7	-	30.0	-24.8	0.0	45.9	68.2	22.3	-	NRB*2	-
10.641	V	36.8	-	33.5	-20.9	0.0	49.4	74.0	24.6	-	54.0	-

Table 2-12 Ch.52 (5260MHz) OFDM **RX** mode

Frequency (GHz)	Polarity (H/V)	Measured (dBμV) *(peak)*	Measured (dBμV) *(average)*	Antenna Factor (dB/m)	Corr. Factor (dB)	Falloff Factor (dB)	Field Strength (dBμV/m)	FCC Limit (dBμV/m)	Margin to limit (dB)	Field Strength (dBμV/m)	FCC Limit (dBμV/m)	Margin to limit (dB)
							(peak)			*(average)*		
1.200	V	46.3	-	25.2	-31.3	0.0	40.2	74.0	33.8	-	54.0	-
1.269	V	56.9	-	25.2	-31.1	0.0	51.0	74.0	23.0	-	54.0	-
1.597	V	49.2	-	25.6	-30.3	0.0	44.5	74.0	29.5	-	54.0	-
1.615	V	55.3	-	25.6	-30.3	0.0	50.6	74.0	23.4	-	54.0	-

3. Restricted Bands Radiation (30MHz – 1GHz)

[FCC 15.205&209 / 15.407(b)(1),(2),(5),(6)]
[RSS-210 6.2.1 / 6.2.2(q1)(i),(ii),(v) / 6.3 / 7.3]

3.1 Test Procedure

Preliminary radiated emissions are measured in the semi-anechoic chamber at a 3 meter distance on every azimuth in both horizontal and vertical polarity. The antennas are also scanned in height. The emissions are recorded with a spectrum analyzer in peak hold mode. The identified emissions are further maximized by a cable manipulation. Emissions closest to the limits are measured in the quasi-peak mode with the tuned receiver using a bandwidth of 120kHz. The highest emissions relative to the limit are listed.

3.2 Test Instruments and Measurement Setup

Table 3-1 Radiated Emission Test Instrumentation

Description	**Model**	**Serial Number**
Computer	IBM 6868-30J	97-901X3
Spectrum Analyzer (100Hz-1.5GHz) for 30-200MHz	HP 85680B	2732A03651
Spectrum Analyzer Display for 30-200MHz	HP 85662A	2648A15255
Quasi-Peak Adapter for 30-200MHz	HP 85650A	2521A00968
Spectrum Analyzer (100Hz-1.5GHz) for 200-1000MHz	HP 85680B	2841A04254
Spectrum Analyzer Display for 200-1000MHz	HP 85662A	2816A16831
Quasi-Peak Adapter for 200-1000MHz	HP 85650A	2811A01156
Amplifier (100KHz-1.3GHz)		
- for 30-200MHz	MITEQ AM-3A	898433
- for 200-1000MHz	MITEQ AM-3A	898432
Biconical Antenna (30-200MHz)	EMCO 3108	2536
Log-Periodic Antenna (200-1000MHz)	EMCO 3146	2849
Receiver (20MHz-1.3GHz)	R&S ESVP	892111/026
Switch/control unit	HP 3488A	2719A17226
N-Coax cables:	Length:	
- Bi-coni Ant <=> 10m Cable	9 m	- EM103L01
- 10m Cable <=> Shield Panel	10 m	- EM103L02
- Shield Panel <=> RF Amp	7 m	- EM103L03
- RF Amp <=> Power Splitter	0.5m	- EM103L04
- Log-peri Ant <=> 10m Cable	9 m	- EM103H01
- 10m Cable <=> Shield Panel	10 m	- EM103H02
- Shield Panel <=> RF Amp	7 m	- EM103H03
- RF Amp <=> Power Splitter	0.5m	- EM103H04
Coax cables:		
- Power Splitter <=> SW/Con.unit (SW110)	1 m	- EM103L05
- Power Splitter <=> SW/Con.unit (SW300)	1 m	- EM103L06
- Power Splitter <=> SW/Con.unit (SW100)	1 m	- EM103H05
- Power Splitter <=> SW/Con.unit (SW301)	1 m	- EM103H06
- SW/Con.unit <=> Receiver (Input)	2 m	- EM1RCV
- SW/Con.unit <=> Spe Ana.(Signal In) for 30- 200MHz	2 m	- EM1SPL
- SW/Con.unit <=> Spe Ana.(Signal In) for 200-1000MHz	2 m	- EM1SPH

Notes: HP: Hewlett Packard, R&S: Rohde & Schwarz

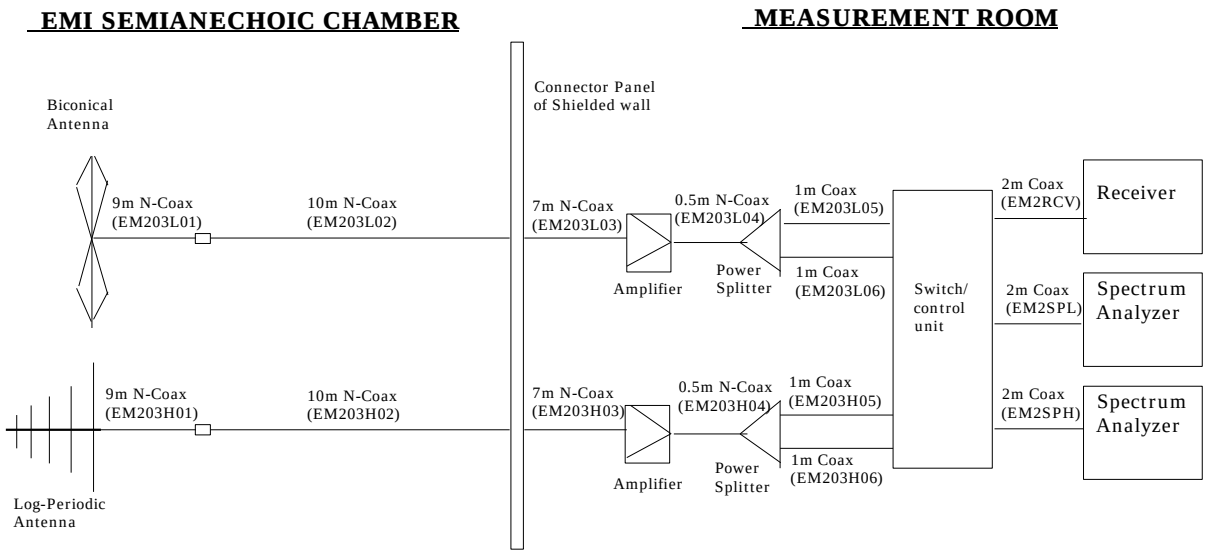


Figure 3 Cables for Radiated Emission Test

3.3 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. In this test facility, the Antenna Factor, Cable Loss, and Amplifier Gains are loaded into the Rohde & Schwarz Receiver and the corrected field strength can be read directly on the receiver. All factors are included in the reported data.

FS = R + AF + CORR

where:

FS	=	Field Strength
R	=	Measured Receiver Input Amplitude
AF	=	Antenna Factor
CORR	=	Correction Factor = CL - AG
CL	=	Cable Loss
AG	=	Amplifier Gain

For example:
Given a Receiver input reading of 51.5dBμV; Antenna Factor of 8.5dB/m; Cable Loss of 1.3dB; and an Amplifier Gain of 26dB. The Field Strength of the measured emission is:

FS = 51.5 + 8.5 + 1.3 - 26.0 = 35.3dBμV/m

Conversion between dBμV/m (or dBμV) and μV/m (or μV) are done as:

Level(dBμV/m) = 20 × Log(Level(μV/m))

40dBμV/m = 100μV/m
48dBμV/m = 250μV/m

3.4 Measurement Results

The same worst cases selected for the previous Chapter 2 were tested with the co-located Bluetooth device (FCC ID: ANO20040700HER) in active and transmitting simultaneously.

The EUT was found to comply to the limits of FCC Part 15 Subpart E and RSS-210 with a margin of 10.2dB at 30MHz - 1000MHz band.
The 6 highest emissions relative to the limits are reported.

Test Date: February 4, 2005

3.4.1 EUT in "Notebook" operation mode

Table 3-2 Ch.36 (5180MHz) OFDM 6Mbps **TX** mode

Frequency (MHz)	Polarity (H/V)	Measured (dBμV)	Antenna Factor (dB/m)	Corr. Factor (dB)	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin to limit (dB)	Field Strength (μV/m)	Limit (μV/m)
269.999	H	42.8	12.5	-23.9	31.4	46.0	14.6	37.2	200
291.913	H	37.4	13.5	-23.7	27.2	46.0	18.8	22.9	200
454.047	V	32.3	16.5	-21.6	27.2	46.0	18.8	22.9	200
509.998	V	30.4	18.6	-20.5	28.5	46.0	17.5	26.6	200
533.956	V	27.6	17.8	-20.0	25.4	46.0	20.6	18.6	200
797.635	H	32.5	21.1	-18.4	35.2	46.0	10.8	57.5	200

Table 3-3 Ch.52 (5260MHz) OFDM 6Mbps **TX** mode

Frequency (MHz)	Polarity (H/V)	Measured (dBμV)	Antenna Factor (dB/m)	Corr. Factor (dB)	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin to limit (dB)	Field Strength (μV/m)	Limit (μV/m)
257.999	H	40.2	12.0	-23.9	28.3	46.0	17.7	26.0	200
269.999	H	44.0	12.5	-23.9	32.6	46.0	13.4	42.7	200
356.598	V	35.7	14.4	-22.4	27.7	46.0	18.3	24.3	200
453.767	V	32.1	16.5	-21.6	27.0	46.0	19.0	22.4	200
509.998	V	29.5	18.6	-20.5	27.6	46.0	18.4	24.0	200
798.620	H	32.8	21.1	-18.5	35.4	46.0	10.6	58.9	200

Table 3-4 Ch.64 (5320MHz) OFDM 6Mbps **TX** mode

Frequency (MHz)	Polarity (H/V)	Measured (dBμV)	Antenna Factor (dB/m)	Corr. Factor (dB)	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin to limit (dB)	Field Strength (μV/m)	Limit (μV/m)
257.998	H	40.5	12.0	-23.9	28.6	46.0	17.4	26.9	200
269.999	H	43.3	12.5	-23.9	31.9	46.0	14.1	39.4	200
291.663	V	36.4	13.5	-23.7	26.2	46.0	19.8	20.4	200
356.505	V	35.3	14.4	-22.4	27.3	46.0	18.7	23.2	200
453.674	V	31.9	16.5	-21.6	26.8	46.0	19.2	21.9	200
797.783	H	33.1	21.1	-18.4	35.8	46.0	10.2	61.7	200

Table 3-5 Ch.52 (5260MHz) OFDM **RX** mode

Frequency (MHz)	Polarity (H/V)	Measured (dBμV)	Antenna Factor (dB/m)	Corr. Factor (dB)	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin to limit (dB)	Field Strength (μV/m)	Limit (μV/m)
174.000	V	39.3	12.6	-26.9	25.0	43.5	18.5	17.8	150
257.999	H	40.3	12.0	-23.9	28.4	46.0	17.6	26.3	200
269.999	H	42.8	12.5	-23.9	31.4	46.0	14.6	37.2	200
356.848	V	37.2	14.4	-22.3	29.3	46.0	16.7	29.2	200
509.997	V	30.2	18.6	-20.5	28.3	46.0	17.7	26.0	200
798.049	H	31.7	21.1	-18.4	34.4	46.0	11.6	52.5	200

3.4.2 EUT in "Tablet" operation mode

Table 3-6 Ch.36 (5180MHz) OFDM 6Mbps **TX** mode

Frequency (MHz)	Polarity (H/V)	Measured (dBμV)	Antenna Factor (dB/m)	Corr. Factor (dB)	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin to limit (dB)	Field Strength (μV/m)	Limit (μV/m)
466.665	H	29.6	16.9	-21.4	25.1	46.0	20.9	18.0	200
499.064	H	30.5	17.8	-20.8	27.5	46.0	18.5	23.7	200
564.773	H	28.8	18.2	-20.0	27.0	46.0	19.0	22.4	200
615.682	H	24.7	18.9	-19.5	24.1	46.0	21.9	16.0	200
630.001	V	26.3	19.1	-19.5	25.9	46.0	20.1	19.7	200
797.910	H	31.2	21.1	-18.4	33.9	46.0	12.1	49.5	200

Table 3-7 Ch.52 (5260MHz) OFDM 6Mbps **TX** mode

Frequency (MHz)	Polarity (H/V)	Measured (dBμV)	Antenna Factor (dB/m)	Corr. Factor (dB)	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin to limit (dB)	Field Strength (μV/m)	Limit (μV/m)
108.000	V	38.2	9.9	-27.9	20.2	43.5	23.3	10.2	150
449.307	H	29.5	16.4	-21.3	24.6	46.0	21.4	17.0	200
499.063	H	28.6	17.8	-20.8	25.6	46.0	20.4	19.1	200
565.700	H	28.9	18.2	-20.2	26.9	46.0	19.1	22.1	200
615.682	H	27.4	18.9	-19.5	26.8	46.0	19.2	21.9	200
798.623	H	30.3	21.1	-18.5	32.9	46.0	13.1	44.2	200

Table 3-8 Ch.64 (5320MHz) OFDM 6Mbps **TX** mode

Frequency (MHz)	Polarity (H/V)	Measured (dBμV)	Antenna Factor (dB/m)	Corr. Factor (dB)	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin to limit (dB)	Field Strength (μV/m)	Limit (μV/m)
448.715	H	27.8	16.4	-21.2	23.0	46.0	23.0	14.1	200
498.890	H	29.0	17.8	-20.8	26.0	46.0	20.0	20.0	200
564.759	H	29.9	18.2	-20.0	28.1	46.0	17.9	25.4	200
599.997	H	25.4	18.7	-19.8	24.3	46.0	21.7	16.4	200
630.000	H	23.5	19.1	-19.5	23.1	46.0	22.9	14.3	200
798.101	H	30.8	21.1	-18.4	33.5	46.0	12.5	47.3	200

Table 3-9 Ch.64 (5320MHz) OFDM **RX** mode

Frequency (MHz)	Polarity (H/V)	Measured (dBμV)	Antenna Factor (dB/m)	Corr. Factor (dB)	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin to limit (dB)	Field Strength (μV/m)	Limit (μV/m)
448.947	H	28.6	16.4	-21.3	23.7	46.0	22.3	15.3	200
499.064	H	30.3	17.8	-20.8	27.3	46.0	18.7	23.2	200
533.956	H	27.7	17.8	-20.0	25.5	46.0	20.5	18.8	200
565.510	V	25.2	18.2	-20.1	23.3	46.0	22.7	14.6	200
630.000	H	25.2	19.1	-19.5	24.8	46.0	21.2	17.4	200
797.740	H	29.2	21.1	-18.4	31.9	46.0	14.1	39.4	200

4. AC Wireline Conducted Emissions (150KHz – 30MHz)

[FCC 15.207/ 15.407(b)(5)]
[RSS-210 6.2.2(q1)(v) / 6.6 / 7.4]

4.1 Test Procedure

The conducted emissions are measured in the IBM shielded room with a spectrum analyzer in peak hold. Emissions closest to the limit are measured in the quasi-peak mode (QP) with the tuned receiver using a bandwidth of 9kHz. The emissions are maximized further by cable manipulation. The highest emissions relative to the limit are listed.

4.2 Test Instruments and Measurement Setup

Table 4-1. Conducted Emission Test Instrumentation

Description	**Model**	**Serial Number**
Computer	IBM 6589-13J	97-15613
Spectrum Analyzer (100Hz-1.5GHz)	HP 85680B	3019A05156
Spectrum Analyzer Display	HP 85662A	3026A19366
Quasi-Peak Adapter	HP 85650A	2811A01433
Receiver (9kHz-30MHz)	R&S ESH3	891806/012
LISN	EMCO 3810/2NM	00022007
Switch/control unit	HP 3488A	2719A17228
Plotter	HP 7550A	2631A33619
Coax cables: - Lisn-L <=> SW/Con.unit (SW100) - Lisn-N <=> SW/Con.unit (SW101) - SW/Con.unit <=> RCVR (Input) - SW/Con.unit<=> Spe Ana.(Signal In)	Length: 4 m 4 m 1 m 1 m	 - EMIC-L - EMIC-N - EMIC-R - EMIC-S

Notes: - HP: Hewlett Packard, R&S: Rohde & Schwarz

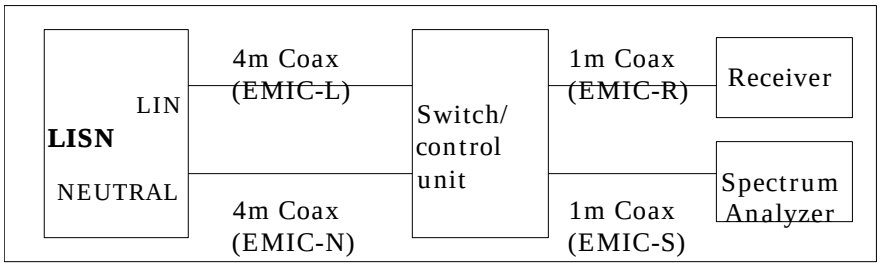


Figure 4. Cables for Conducted Emission Test

4.3 Powerline Voltage Calculation

The powerline voltage is calculated by adding insertion losses of LISN, Cable, Switch control unit and Pulse limiter to the measured reading. All factors are included in the reported data.

PV = R + CORR

where:

PV = Powerline Voltage (dBμV)

R = Measured Receiver Input Amplitude (dBμV)

CORR = Correction Factor (dB) = LL+CL+SWL+PLL

LL = Insertion loss of LISN (dB)

CL = Insertion loss of Cable (dB)

SWL = Insertion loss of Switch control unit (dB)

PLL = Insertion loss of Pulse Limiter (dB)

Given a Receiver input reading of 50.0 dBμV, LISN loss of 0.6 dB, Cable loss of 0.1dB, Switch control unit loss of 0.1dB and Pulse limiter loss of 0.2dB. The Powerline Voltage of the measured emission is:

CORR = 0.6 + 0.1 + 0.1 + 0.2 = 1.0 (dB)

PV = 50.0 + 1.0 = 51.0 (dBμV)

4.4 Measurement Results

The same worst cases selected for the previous Chapter 2 were tested with the co-located Bluetooth device (FCC ID: ANO20040700HER) in active and transmitting simultaneously.

The EUT was found to comply to the limits of FCC Part 15 Subpart E and RSS-210 with a margin of 10.0dB. The 6 highest emissions relative to the limits are reported.

Test Date: February 14, 2005

4.4.1 EUT in "Notebook" operation mode

Table 4-2 Ch.36 (5180MHz) OFDM 6Mbps **TX** mode

Frq. (MHz)	QP			AV			CISPR22 QP Limit (dBμV)	Margin to limit (dB)	CISPR22 AV Limit (dBμV)	Margin to limit (dB)	Phase
	Measured Reading (dBμV)	Corr. Factor (dB)	Powerline Voltage (dBμV)	Measured Reading (dBμV)	Corr. Factor (dB)	Powerline Voltage (dBμV)					
0.1930	52.2	0.5	52.7	43.4	0.5	43.9	63.9	11.2	53.9	10.0	Neutral
0.2562	43.3	0.6	43.9	35.2	0.6	35.8	61.6	17.7	51.6	15.8	Line
0.3202	36.9	0.6	37.5	28.8	0.6	29.4	59.7	22.2	49.7	20.3	Line
0.4417	34.4	0.6	35.0	31.9	0.6	32.5	57.0	22.0	47.0	14.5	Neutral
0.5080	32.3	0.6	32.9	28.7	0.6	29.3	56.0	23.1	46.0	16.7	Neutral
0.5742	29.6	0.6	30.2	27.1	0.6	27.7	56.0	25.8	46.0	18.3	Line

Table 4-3 Ch.52 (5260MHz) OFDM 6Mbps **TX** mode

Frq. (MHz)	QP			AV			CISPR22 QP Limit (dBμV)	Margin to limit (dB)	CISPR22 AV Limit (dBμV)	Margin to limit (dB)	Phase
	Measured Reading (dBμV)	Corr. Factor (dB)	Powerline Voltage (dBμV)	Measured Reading (dBμV)	Corr. Factor (dB)	Powerline Voltage (dBμV)					
0.1931	49.0	0.5	49.5	40.6	0.5	41.1	63.9	14.4	53.9	12.8	Neutral
0.2561	40.4	0.6	41.0	32.9	0.6	33.5	61.6	20.6	51.6	18.1	Line
0.3179	36.0	0.6	36.6	29.1	0.6	29.7	59.8	23.2	49.8	20.1	Line
0.4416	33.6	0.6	34.2	31.2	0.6	31.8	57.0	22.8	47.0	15.2	Line
0.5102	30.9	0.6	31.5	27.5	0.6	28.1	56.0	24.5	46.0	17.9	Neutral
0.5731	31.1	0.6	31.7	29.2	0.6	29.8	56.0	24.3	46.0	16.2	Line

Table 4-4 Ch.64 (5320MHz) OFDM 6Mbps **TX** mode

Frq. (MHz)	QP			AV			CISPR22 QP Limit (dBμV)	Margin to limit (dB)	CISPR22 AV Limit (dBμV)	Margin to limit (dB)	Phase
	Measured Reading (dBμV)	Corr. Factor (dB)	Powerline Voltage (dBμV)	Measured Reading (dBμV)	Corr. Factor (dB)	Powerline Voltage (dBμV)					
0.1922	49.4	0.5	49.9	40.9	0.5	41.4	63.9	14.0	53.9	12.5	Neutral
0.2554	40.1	0.6	40.7	32.9	0.6	33.5	61.6	20.9	51.6	18.1	Line
0.3823	30.9	0.6	31.5	24.8	0.6	25.4	58.2	26.7	48.2	22.8	Line
0.4459	33.3	0.6	33.9	31.2	0.6	31.8	57.0	23.1	47.0	15.2	Line
0.5052	31.9	0.6	32.5	28.9	0.6	29.5	56.0	23.5	46.0	16.5	Line
0.5709	32.9	0.6	33.5	30.1	0.6	30.7	56.0	22.5	46.0	15.3	Neutral

Table 4-5 Ch.52 (5260MHz) OFDM **RX** mode

Frq. (MHz)	QP			AV			CISPR22 QP Limit (dBμV)	Margin to limit (dB)	CISPR22 AV Limit (dBμV)	Margin to limit (dB)	Phase
	Measured Reading (dBμV)	Corr. Factor (dB)	Powerline Voltage (dBμV)	Measured Reading (dBμV)	Corr. Factor (dB)	Powerline Voltage (dBμV)					
0.1930	48.3	0.5	48.8	40.1	0.5	40.6	63.9	15.1	53.9	13.3	Neutral
0.3200	33.9	0.6	34.5	27.2	0.6	27.8	59.7	25.2	49.7	21.9	Line
0.4433	34.1	0.6	34.7	32.3	0.6	32.9	57.0	22.3	47.0	14.1	Line
0.5097	32.0	0.6	32.6	29.1	0.6	29.7	56.0	23.4	46.0	16.3	Line
0.5693	32.1	0.6	32.7	30.7	0.6	31.3	56.0	23.3	46.0	14.7	Line
1.9672	25.5	0.7	26.2	23.8	0.7	24.5	56.0	29.8	46.0	21.5	Line

4.4.2 EUT in "Tablet" operation mode

Table 4-6 Ch.36 (5180MHz) OFDM 6Mbps **TX** mode

Frq. (MHz)	QP			AV			CISPR22 QP Limit (dBμV)	Margin to limit (dB)	CISPR22 AV Limit (dBμV)	Margin to limit (dB)	Phase
	Measured Reading (dBμV)	Corr. Factor (dB)	Powerline Voltage (dBμV)	Measured Reading (dBμV)	Corr. Factor (dB)	Powerline Voltage (dBμV)					
0.1930	50.1	0.5	50.6	41.6	0.5	42.1	63.9	13.3	53.9	11.8	Neutral
0.2560	41.6	0.6	42.2	33.9	0.6	34.5	61.6	19.4	51.6	17.1	Line
0.3189	36.6	0.6	37.2	29.2	0.6	29.8	59.7	22.5	49.7	19.9	Line
0.4443	34.0	0.6	34.6	31.6	0.6	32.2	57.0	22.4	47.0	14.8	Line
0.5092	31.6	0.6	32.2	28.3	0.6	28.9	56.0	23.8	46.0	17.1	Neutral
0.5723	30.9	0.6	31.5	29.1	0.6	29.7	56.0	24.5	46.0	16.3	Line

Table 4-7 Ch.52 (5260MHz) OFDM 6Mbps **TX** mode

Frq. (MHz)	QP			AV			CISPR22 QP Limit (dBμV)	Margin to limit (dB)	CISPR22 AV Limit (dBμV)	Margin to limit (dB)	Phase
	Measured Reading (dBμV)	Corr. Factor (dB)	Powerline Voltage (dBμV)	Measured Reading (dBμV)	Corr. Factor (dB)	Powerline Voltage (dBμV)					
0.1951	42.4	0.5	42.9	33.8	0.5	34.3	63.8	20.9	53.8	19.5	Neutral
0.2564	39.9	0.6	40.5	32.3	0.6	32.9	61.5	21.0	51.5	18.6	Line
0.3190	34.5	0.6	35.1	27.2	0.6	27.8	59.7	24.6	49.7	21.9	Line
0.4461	32.9	0.6	33.5	30.5	0.6	31.1	56.9	23.4	46.9	15.8	Line
0.5081	31.9	0.6	32.5	28.9	0.6	29.5	56.0	23.5	46.0	16.5	Neutral
0.5701	32.5	0.6	33.1	29.6	0.6	30.2	56.0	22.9	46.0	15.8	Neutral

Table 4-8 Ch.64 (5320MHz) OFDM 6Mbps **TX** mode

Frq. (MHz)	QP			AV			CISPR22 QP Limit (dBμV)	Margin to limit (dB)	CISPR22 AV Limit (dBμV)	Margin to limit (dB)	Phase
	Measured Reading (dBμV)	Corr. Factor (dB)	Powerline Voltage (dBμV)	Measured Reading (dBμV)	Corr. Factor (dB)	Powerline Voltage (dBμV)					
0.2560	39.8	0.6	40.4	32.4	0.6	33.0	61.6	21.2	51.6	18.6	Line
0.3176	35.2	0.6	35.8	28.4	0.6	29.0	59.8	24.0	49.8	20.8	Line
0.3828	29.8	0.6	30.4	24.2	0.6	24.8	58.2	27.8	48.2	23.4	Neutral
0.4460	33.8	0.6	34.4	30.4	0.6	31.0	56.9	22.5	46.9	15.9	Neutral
0.5113	29.3	0.6	29.9	25.0	0.6	25.6	56.0	26.1	46.0	20.4	Neutral
0.5737	29.8	0.6	30.4	27.6	0.6	28.2	56.0	25.6	46.0	17.8	Neutral

Table 4-9 Ch.52 (5260MHz) OFDM **RX** mode

Frq. (MHz)	QP			AV			CISPR22 QP Limit (dBμV)	Margin to limit (dB)	CISPR22 AV Limit (dBμV)	Margin to limit (dB)	Phase
	Measured Reading (dBμV)	Corr. Factor (dB)	Powerline Voltage (dBμV)	Measured Reading (dBμV)	Corr. Factor (dB)	Powerline Voltage (dBμV)					
0.1929	48.2	0.5	48.7	39.8	0.5	40.3	63.9	15.2	53.9	13.6	Neutral
0.2542	40.5	0.6	41.1	33.3	0.6	33.9	61.6	20.5	51.6	17.7	Line
0.3182	34.4	0.6	35.0	27.7	0.6	28.3	59.8	24.8	49.8	21.5	Neutral
0.4470	31.9	0.6	32.5	30.0	0.6	30.6	56.9	24.4	46.9	16.3	Line
0.5092	32.6	0.6	33.2	29.2	0.6	29.8	56.0	22.8	46.0	16.2	Neutral
0.5694	33.0	0.6	33.6	30.4	0.6	31.0	56.0	22.4	46.0	15.0	Neutral