Ecom Sertech Corp.
Rm. 258, Bldg. 17, NO.195, Sec. 4 Chung Hsing Rd., ChuTung Chen, Hsinchu, Taiwan 310, R.O.C
TEL:886-3-5918012 FAX : 886-3-5825720

TEST REPORT

Product Name : Notebook PC
Model Number : ML900

Applicant : Motorola Inc.
Address : 1301 East Algonquin Rd. Schaumburg, IL 60196

Date Received : Jun 23, 2003
Date Tested : Jun 24 to 30, 2003

Notes :
1. This report will be invalid if duplicated or photocopied in part.
2. This report refers only to the specimen(s) submitted to testing, and be invalid as separately used.
3. This report is invalid without examination stamp and signature of this institute.
4. The tested specimen(s) will be preserved for thirty days from the data issued.
5. The report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

0240
ILAC MRA
NVLAP LAB CODE 200110-0

Test Report Certification

Product Name : Notebook PC
Model Number : ML900
Applicant : Motorola Inc.

Measurement Standard :

47 CFR Part 15, Subpart B and Subpart C
(Section 15.247)
ANSI C63.4-2001

Tested By : (Alan Fan) **Date :** Nov. 10, 2003

Reviewed By : (Roger Sheng) **Date :** Nov. 10, 2003

Approved By : (Chieh-De Tsai ,Manager) **Date :** Nov. 10, 2003

WE HEREBY CERTIFY THAT: The measurements shown in the attachment were made in accordance with the procedures indicated, and the energy emitted by the equipment was found to be within the limits applicable. We assume full responsibility for the accuracy and completeness of these measurements and vouch for the qualifications of all persons taking them.

CNLA 0240 ILAC MRA

NVLAP NVLAP LAB CODE 200110-0

TABLE OF CONTENTS

TITLE PAGE NO.

1. GENERAL INFORMATION 5
1.1 Description of EUT & Power 5
1.2 Description of Peripherals 6
1.3 EUT & Peripherals Setup Diagram 7
1.4 Description of Test Site 8
1.5 Summary of Test Results 9
2. CONDUCTED POWERLINE TEST 10
2.1 Test Equipments 10
2.2 Test Setup 10
2.3 Conducted Power Line Emission Limit 11
2.4 Test Procedure 11
2.5 Uncertainty of Conducted Emission 11
2.6 Test Results 12
2.6.1 Mode1, WLAN transmitting, Bluetooth Off 12
2.6.1 Mode2, WLAN Off, Bluetooth transmitting 13
2.6.1 Mode3, WLAN transmitting, Bluetooth transmitting 14
2.7 Photos of Conduction Test 15
3. 20dB BANDWIDTH MEASUREMENT for FHSS 16
3.1 Test Equipments 16
3.2 Test Setup 16
3.3 Limits of 20db Bandwidth Measurement 16
3.4 Test Procedure 16
3.5 Uncertainty of Conducted Emission 17
3.6 Test Results 17
3.7 Photo of 20db Bandwidth Measurement 18
4. 6dB BANDWIDTH MEASUREMENT for DSSS 19
4.1 Test Equipments 19
4.2 Test Setup 19
4.3 Limits of 6db Bandwidth Measurement 19
4.4 Test Procedure 19
4.5 Uncertainty of Conducted Emission 20
4.6 Test Results 20
4.7 Photo of 6db Bandwidth Measurement 21
5. MAXIMUM PEAK OUTPUT POWER 22
5.1 Test Equipments 22
5.2 Test Setup 22
5.3 Limits of Maximum Peak Output Power 22
5.4 Test Procedure 23
5.5 Uncertainty of Conducted Emission 23
5.6 Test Results 23
5.6.1 For Bluetooth Transmitter 23-24
5.6.2 For WLAN Transmitter 25
6. POWER SPECTRAL DENSITY MEASUREMENT for DSSS 26
6.1 Test Equipments 26
6.2 Test Setup 26
6.3 Limits of Power Spectral Density Measurement 26
6.4 Test Procedure 27
6.5 Uncertainty of Conducted Emission 27
6.6 Test Results 27
6.7 Photo of Power Spectral Density Measurement 28

TABLE OF CONTENTS

TITLE PAGE NO.

7. HOPPING CHANNEL SEPARATION for FHSS....29
7.1 Test Equipments....29
7.2 Test Setup....29
7.3 Limits of Hopping Channel Separation....29
7.4 Test Procedure....30
7.5 Uncertainty of Conducted Emission....30
7.6 Test Results....30
7.7 Photo of Hopping Channel Separation....30
8. NUMBER OF HOPPING FREQUENCY for FHSS....31
8.1 Test Equipments....31
8.2 Test Setup....31
8.3 Limits of Number of Hopping Frequency Used....31
8.4 Test Procedure....32
8.5 Uncertainty of Conducted Emission....32
8.6 Test Results....32
8.7 Photo of Number of Hopping Frequency Used....32
9. DWELL TIME ON EACH CHANNEL for FHSS....33
9.1 Test Equipments....33
9.2 Test Setup....33
9.3 Limits of Dwell Time On Each Channel....33
9.4 Test Procedure....34
9.5 Uncertainty of Conducted Emission....34
9.6 Test Results....34
9.7 Photo of Dwell Time On Each Channel....35
10. Out of Band Spurious Emissions -Conducted Measurements....36
10.1 Test Equipments....36
10.2 Test Setup....36
10.3 Limits of Out of Band Measurements....36
10.4 Test Procedure....37
10.5 Uncertainty of Conducted Emission....37
10.6 Test Results....38
10.6.1 For Bluetooth Transmitter:....38-40
10.6.2 For WLAN Transmitter....41
11. Out of Band Spurious Emissions -Radiated Measurements....42
11.1 Test Equipments....42
11.2 Test Setup....42
11.3 Radiation Limit....43
11.4 Test Procedures....44
11.5 Uncertainty of Radiated Emission....44
11.6 Radiated RF Noise Measurement....45
11.6.1 Mode1, WLAN transmitting, Bluetooth Off....45-54
11.6.2 Mode2, WLAN off, Bluetooth transmitting....55-64
11.6.3 Mode3, WLAN transmitting, Bluetooth transmitting....65-74
11.7 Photos of Open Site....75-76
12. ANTENNA REQUIREMENT....77
12.1 Standard Applicable....77
12.2 Antenna Connected Construction....77

1. GENERAL INFORMATION

1.1 Description of EUT & Power

MANUFACTURER	: Motorola Inc.
SAMPLE NAME	: Notebook PC
MODEL NO	: ML900
EUT DESCRIPTION	: A Combo Wireless Notebook PC with 2.4GHz FHSS(FREQUENCY HOPPING SPREAD SPECTRUM) Bluetooth Technology, DSSS(Direct Sequence Spread Spectrum) IEEE 802.11b WLAN Technology, and GPS(Global Positioning System)
FREQUENCY RANGE	: 2400 MHz to 2483.5MHz
CHANNEL SPACING	: 1MHz for Bluetooth, 5MHz for WLAN
AIR DATA RATE	: 723Kbps for Bluetooth, 11MBps for WLAN
TYPE OF MODULATION	: Frequency Hopping Spread Spectrum for Bluetooth Direct Sequence Spread Spectrum for WLAN
FEQUENCY SELECTION	: BY SOFTWARE
ANTENNA TYPE	: Ceramic Multilayer Antenna for Bluetooth PIFA Antenna for WLAN module
POWER SOURCE	: 19VDC FROM Power Adapter

POWER AC ADAPTER

MANUFACTURER	: MSL CORP.
MODEL NUMBER	: AD-C019M
INPUT POWER	: 100-240VAC, 50/60Hz, 1.5A
OUTPUT POWER	: 19VDC, 6.3A

1.2 Description of Peripherals

（1）Notebook PC

MANUFACTURER ：DELL CORP.
MODEL NUMBER ：PP01L
SERIAL NUMBER ：CN-09C748-48155-1AP-6081
F.C.C. ：DOC
POWER CORD ：Unshielded, Detachable, 1.8m

（2）MODEM

MANUFACTURER ：ZyXEL CORP.
MODEL NUMBER ：omni 56K
SERIAL NUMBER ：S1Z4107729
F.C.C. ID ：I880MNI56K
POWER CORD ：Unshielded , Detachable , 1.8m (9VAC from Power Adapter)

（3）Headset

MANUFACTURER ：Fujiei
MODEL NUMBER ：SBZ-33

（4）MOUSE

MANUFACTURER ：HP CORP.
MODEL NUMBER ：SK-2502C
SERIAL NUMBER ：M000303429
F.C.C. ID ：----------
POWER SOURCE ：5VDC (from Notebook PC)
SIGNAL CABLE ：Shielded , Undetachable , 1.8m

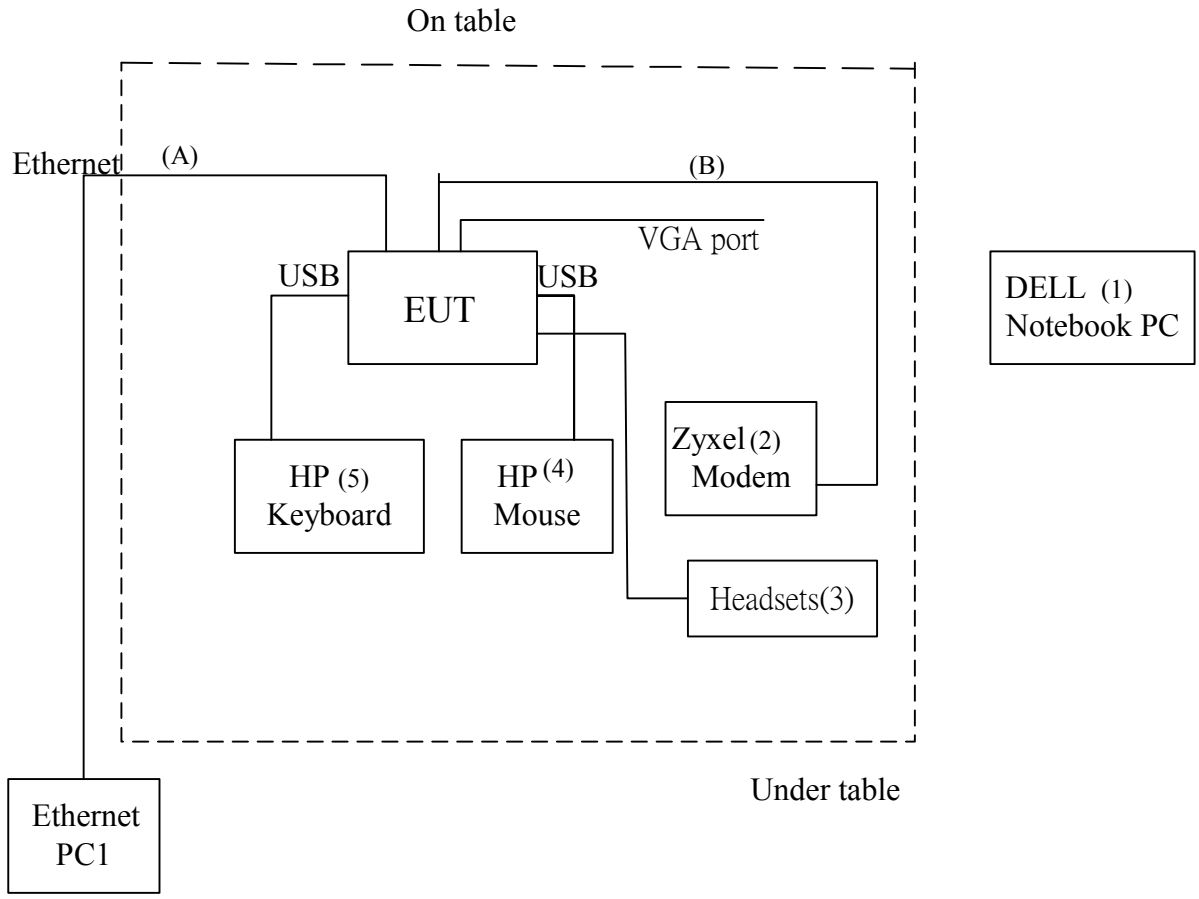
（5）KEYBOARD

MANUFACTURER ：HP CORP.
MODEL NUMBER ：SK-2502C
SERIAL NUMBER ：M000303429
F.C.C. ID ：----------
POWER SOURCE ：5VDC (from Notebook PC)
SIGNAL CABLE ：Shielded , Undetachable , 1.8m

(6) CABLE

	Type	Connector	shielded	Length
(A)	Cross-over Cat5 twisted-pair	RJ-45,Plastic	NO	15m
(B)	Telephone Line	RJ-11,Plastic	NO	10m

1.3 EUT & Peripherals Setup Diagram



The indicated numbers (1) (2)..., Please refer to item 1.3

1.4 Description of Test Site

SITE DESCRIPTION	:	FCC certificate NO. : 90585 BSMI certificate NO. : SL2-IN-E-0002 NVLAP Lab code : 200118-0 CNLA certificate NO. : CNLA-ZL97018 VCCI certificate NO. : R-1229, C-1250
NAME OF SITE	:	Ecom Sertech Corp. Hsinchu (Spin-off from ITRI / ERSO on Apr. 01, 2003)
SITE LOCATION	:	Rm.258, Bldg.17, NO.195 , Sec. 4, Chung Hsing Rd., Chu-Tung Chen. Hsin-Chu, Taiwan 310 R.O.C.

1.5 Summary of Test Results

The EUT has been tested according to the following specifications :

APPLIED STANDARD：47 CFR Part 15, Subpart B and Subpart C			
Standard Section	Test Type and Limit	Result	REMARK
For Bluetooth Transmitter			
15.107 15.207	AC Power Conducted Emission Limit : 48dBuV	PASS	Meet the requirement of limit
15.109 15.205 15.209	Transmitter Radiated Emissions Limit : Table 15.209	PASS	Meet the requirement of limit
15.247(a) 1(i)-(ii)	Transmitter 20dB Bandwidth Limit < 1MHz	PASS	Meet the requirement of limit
15.247(b)	Maximum Peak Output Power Limit : max. 30dBm	PASS	Meet the requirement of limit
15.247(a)1	Carrier Frequency Separation	PASS	Meet the requirement of limit
15.247(a) 1(ii)	Number of Hopping Frequency	PASS	Meet the requirement of limit
15.247(a) 1(ii)	Time of Occupancy (dwell time)	PASS	Meet the requirement of limit
15.247(c)	Band Edge Compliance	PASS	Meet the requirement of limit
15.247(c)	Out of Band Measurements	PASS	Meet the requirement of limit
For WLAN Transmitter			
15.107 15.207	AC Power Conducted Emission Limit : 48dBuV	PASS	Meet the requirement of limit
15.109 15.205 15.209	Transmitter Radiated Emissions Limit : Table 15.209	PASS	Meet the requirement of limit
15.247(a)2	Transmitter 6dB Bandwidth Limit >=500kHz	PASS	Meet the requirement of limit
15.247(b)2	Maximum Peak Output Power Limit : max. 30dBm	PASS	Meet the requirement of limit
15.247(c)	Band Edge Compliance	PASS	Meet the requirement of limit
15.247(d)	Peak Power Spectral Density	PASS	Meet the requirement of limit

2. CONDUCTED POWERLINE TEST

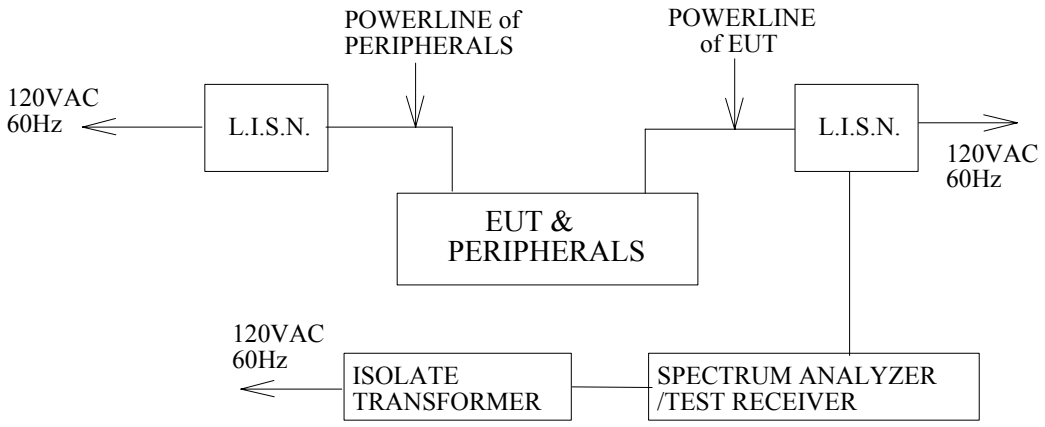
For DSSS and FHSS transmitter, this test item is required in FCC's Code of Regulation.
For intentional device, according to § 15.207(a) Line Conducted Emission Limit is required to verify the EUT.

2.1 Test Equipments

The following test equipments are used during the conducted power line tests：

Manufacturer or Type	Model No	Serial No.	Date of Calibration	Calibration Period	Remark
SPECTRUM ANALYZER & DISPLAY	HP 8568A	2235A02320	MAR. 29, 2003	1 Year	PRETEST
QUASI-PEAK ADAPTER	HP 85650 A	2341A00672	MAR. 29, 2003	1 Year	PRETEST
ISOLATION TRANSFORMER	SOLAR 7032-1	N/A	N/A	N/A	FINAL
L.I.S.N.	EMCO 3850/2	9311-1025 9401-1028	JAN. 08, 2003 For Characteristic impedance MAY 18, 2003 For Insertion loss	1 Year	FINAL
TEST RECEIVER	R/S ESHS30	838550/003	JAN. 14, 2003	1 Year	FINAL
SHIELDED ROOM	KEENE 5983	NO.1	N/A	N/A	FINAL
PULSE LIMIT	R/S EHS3Z2	357.8810.52	JUL. 10, 2003	1 Year	FINAL
N TYPE COAXIAL CABLE	----------	----------	JUL. 10, 2003	1 Year	FINAL
50Ω TERMINATOR	----------	----------	JUL. 10, 2003	1 Year	FINAL

2.2 Test Setup



2.3 Conducted Power Line Emission Limit

For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following：

Frequency	Maximum RF Line Voltage (dBμV)			
	CLASS A		CLASS B	
(MHz)	Q.P.	Ave.	Q.P.	Ave.
0.15 - 0.50	79	66	66-56	56-46
0.50 - 5.00	73	60	56	46
5.00 - 30.0	73	60	60	50

For intentional device, according to § 15.207(a) Line Conducted Emission Limit is same as above table.

2.4 Test Procedure

The test procedure is performed in a 12ft×12ft×8ft(L×W×H) shielded room.
the EUT along with its peripherals were placed on a 1.0m(W)× 1.5m(L) and 0.8m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane. The EUT was connected to power mains through a line impedance stabilization network (LISN) which provides 50 ohm coupling impedance for measuring instrument and the chasis ground was bounded to the horizontal ground plane of shielded room. All peripherals were connected to the second LISN and the chasis ground also bounded to the horizontal ground plane of shielded room. The excess power cable between the EUT and the LISN was bundled. The power cables of peripherals were unbundled. All connecting cables of EUT and peripherals were moved to find the maximum emission.

The test was performed in three modes.
Mode1: WLAN transmitting, Bluetooth Off
Mode2: WLAN Off, Bluetooth transmitting
Mode3: WLAN transmitting, Bluetooth transmitting

2.5 Uncertainty of Conducted Emission

The uncertainty of conducted emission is ±1.36dB.

2.6 Test Results

2.6.1 Mode1, WLAN transmitting, Bluetooth Off

The frequency spectrum from 0.15 MHz to 30 MHz was investigated. All emissions not reported below are more than 20 dB below the prescribed limits.

Temperature：26 ℃ Humidity：65 % RH

Frequency (MHz)	Loss(dB)		Measurement L1(dBμV)		Measurement L2(dBμV)		L1 Emission (dBμV)		L2 Emission (dBμV)		Limits (dBμV)	
	L1	L2	Q.P.	A.V.	Q.P.	A.V.	Q.P.	A.V.	Q.P.	A.V.	Q.P.	A.V.
0.150	0.1	0.2	*	*	*	*	*	*	*	*	66.00	56.00
0.189	0.1	0.2	*	*	42.50	*	*	*	42.70	*	64.08	54.08
0.195	0.1	0.2	54.90	*	*	*	55.00	*	*	*	63.82	53.82
0.330	0.1	0.2	43.70	*	*	*	43.80	*	*	*	59.45	49.45
0.333	0.1	0.2	*	*	40.80	*	*	*	41.00	*	59.38	49.38
0.633	0.1	0.2	*	*	13.40	*	*	*	13.60	*	56.00	46.00
0.660	0.1	0.2	26.30	*	*	*	26.40	*	*	*	56.00	46.00
1.125	0.1	0.2	*	*	21.80	*	*	*	22.00	*	56.00	46.00
1.389	0.1	0.2	22.10	*	*	*	22.20	*	*	*	56.00	46.00
2.514	0.15	0.2	*	*	24.50	*	*	*	24.70	*	56.00	46.00
3.438	0.2	0.2	20.20	*	*	*	20.40	*	*	*	56.00	46.00
4.434	0.2	0.2	*	*	20.20	*	*	*	20.40	*	56.00	46.00
4.764	0.2	0.2	20.40	*	*	*	20.60	*	*	*	56.00	46.00
14.571	0.56	0.6	*	*	27.30	*	*	*	27.90	*	60.00	50.00
14.580	0.56	0.6	23.60	*	*	*	24.16	*	*	*	60.00	50.00
16.473	0.7	0.7	*	*	29.00	*	*	*	29.70	*	60.00	50.00
16.479	0.7	0.7	28.70	*	*	*	29.40	*	*	*	60.00	50.00
30.000	1.4	1.8	*	*	*	*	*	*	*	*	60.00	50.00

REMARKS：

1. ＊ Undetectable or the Q.P.values is lower than the limits of Ave.
2. The WLAN module is in TX mode(2412MHz), Bluetooth module off.

2.6.1 Mode2, WLAN Off, Bluetooth transmitting

The frequency spectrum from 0.15 MHz to 30 MHz was investigated. All emissions not reported below are more than 20 dB below the prescribed limits.

Temperature：26 ℃ Humidity：65 % RH

Frequency (MHz)	Loss(dB)		Measurement L1(dBμV)		Measurement L2(dBμV)		L1 Emission (dBμV)		L2 Emission (dBμV)		Limits (dBμV)	
	L1	L2	Q.P.	A.V.	Q.P.	A.V.	Q.P.	A.V.	Q.P.	A.V.	Q.P.	A.V.
0.150	0.1	0.2	*	*	*	*	*	*	*	*	66.00	56.00
0.192	0.1	0.2	41.20	*	*	*	41.30	*	*	*	63.95	53.95
0.192	0.1	0.2	*	*	41.30	*	*	*	41.50	*	63.95	53.95
0.396	0.1	0.2	29.80	*	*	*	29.90	*	*	*	57.94	47.94
0.396	0.1	0.2	*	*	29.60	*	*	*	29.80	*	57.94	47.94
0.597	0.1	0.2	20.00	*	*	*	20.10	*	*	*	56.00	46.00
0.726	0.1	0.2	*	*	14.40	*	*	*	14.60	*	56.00	46.00
1.455	0.1	0.2	7.40	*	*	*	7.50	*	*	*	56.00	46.00
1.920	0.1	0.2	*	*	8.40	*	*	*	8.60	*	56.00	46.00
4.038	0.2	0.2	15.70	*	*	*	15.90	*	*	*	56.00	46.00
4.104	0.2	0.2	*	*	16.30	*	*	*	16.50	*	56.00	46.00
4.440	0.2	0.2	17.20	*	*	*	17.40	*	*	*	56.00	46.00
4.704	0.2	0.2	*	*	18.80	*	*	*	19.00	*	56.00	46.00
13.308	0.5	0.53	20.80	*	*	*	21.30	*	*	*	60.00	50.00
14.766	0.58	0.6	*	*	20.60	*	*	*	21.20	*	60.00	50.00
15.492	0.65	0.65	19.80	*	*	*	20.45	*	*	*	60.00	50.00
16.488	0.7	0.7	*	*	22.90	*	*	*	23.60	*	60.00	50.00
30.000	1.4	1.8	*	*	*	*	*	*	*	*	60.00	50.00

REMARKS：

1. Undetectable or the Q.P.values is lower than the limits of Ave.
2. The Bluetooth module is in TX mode (2402MHz), WLAN module off.

2.6.1 Mode3, WLAN transmitting, Bluetooth transmitting

The frequency spectrum from 0.15 MHz to 30 MHz was investigated. All emissions not reported below are more than 20 dB below the prescribed limits.

Temperature：26 ℃ Humidity：65 % RH

Frequency (MHz)	Loss(dB)		Measurement L1(dBμV)		Measurement L2(dBμV)		L1 Emission (dBμV)		L2 Emission (dBμV)		Limits (dBμV)	
	L1	L2	Q.P.	A.V.	Q.P.	A.V.	Q.P.	A.V.	Q.P.	A.V.	Q.P.	A.V.
0.150	0.1	0.2	*	*	*	*	*	*	*	*	66.00	56.00
0.195	0.1	0.2	44.30	*	*	*	44.40	*	*	*	63.82	53.82
0.198	0.1	0.2	*	*	45.40	*	*	*	45.60	*	63.69	53.69
0.324	0.1	0.2	*	*	28.70	*	*	*	28.90	*	59.60	49.60
0.396	0.1	0.2	30.30	*	*	*	30.40	*	*	*	57.94	47.94
0.582	0.1	0.2	5.50	*	*	*	5.60	*	*	*	56.00	46.00
0.660	0.1	0.2	*	*	17.70	*	*	*	17.90	*	56.00	46.00
1.920	0.1	0.2	*	*	9.20	*	*	*	9.40	*	56.00	46.00
2.049	0.1	0.2	6.70	*	*	*	6.80	*	*	*	56.00	46.00
3.774	0.2	0.2	*	*	14.50	*	*	*	14.70	*	56.00	46.00
4.104	0.2	0.2	15.50	*	*	*	15.70	*	*	*	56.00	46.00
4.434	0.2	0.2	16.90	*	*	*	17.10	*	*	*	56.00	46.00
4.635	0.2	0.2	*	*	19.10	*	*	*	19.30	*	56.00	46.00
13.305	0.5	0.53	18.70	*	*	*	19.20	*	*	*	60.00	50.00
14.43	0.54	0.6	*	*	20.90	*	*	*	21.50	*	60.00	50.00
15.492	0.65	0.65	*	*	21.20	*	*	*	21.85	*	60.00	50.00
16.479	0.7	0.7	22.10	*	*	*	22.80	*	*	*	60.00	50.00
30.000	1.4	1.8	*	*	*	*	*	*	*	*	60.00	50.00

REMARKS：

1. Undetectable or the Q.P.values is lower than the limits of Ave.
2. The Bluetooth module is in TX mode(2402MHz).
   The WLAN module is in TX mode(2412MHz).

2.7 Photos of Conduction Test

3. 20dB BANDWIDTH MEASUREMENT for FHSS

For FHSS transmitter, this test item is required in FCC's Code of Regulation.
Test Requirement: 15.247(a)(1)(ii)

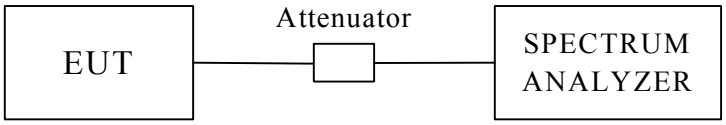
3.1 Test Equipments

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
HP Spectrum	8595E	3829U01362	Apr 3, 2003
HP ATTENUATOR	8496B	3247A18505	Cal. on use
HP PLOTTER	HP7750A	725A 852141	N/A

NOTE :

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

3.2 Test Setup



3.3 Limits of 20db Bandwidth Measurement

Limit: 20dB band width < 1MHz

3.4 Test Procedure

The 20dB bandwidth was measured with a spectrum analyzer connected to RF antenna connecter (conducted measurement) while EUT was operating in transmit mode at the appropriate frequencies.
The highest, middle, and lowest channel of the Bluetooth transmitter was verified in transmitting modes. The WLAN module was powered off while testing.
The analyzer center frequency was set to the EUT carrier frequency, using the analyzer. Display Line and Marker Delta functions, the 20dB bandwidth of the emission was determined.

3.5 Uncertainty of Conducted Emission

The uncertainty of conducted emission is ± 10KHz.

3.6 Test Results

EUT	Notebook PC	**MODEL**	ML900
INPUT POWER (SYSTEM)	19VDC(Form Adapter)	**ENVIRONMENTAL CONDITIONS**	27℃, 70%RH,
TESTED BY：Alan Fan			

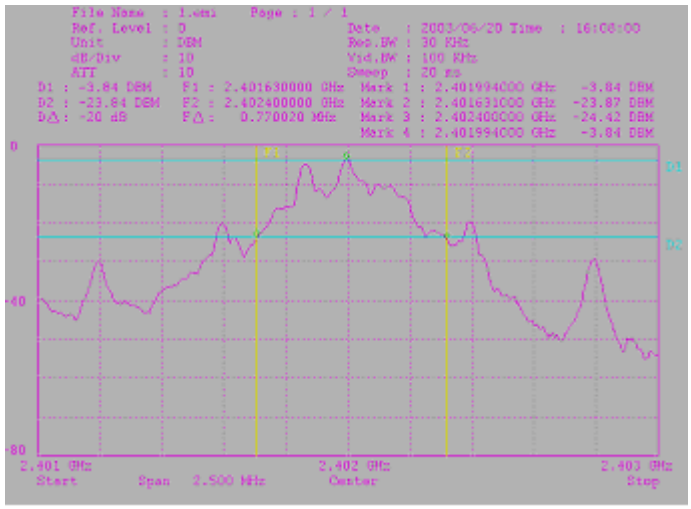
Refer to the attached spectrum analyzer data chart.

(1) 2402 MHz (Low) 770.02 kHz

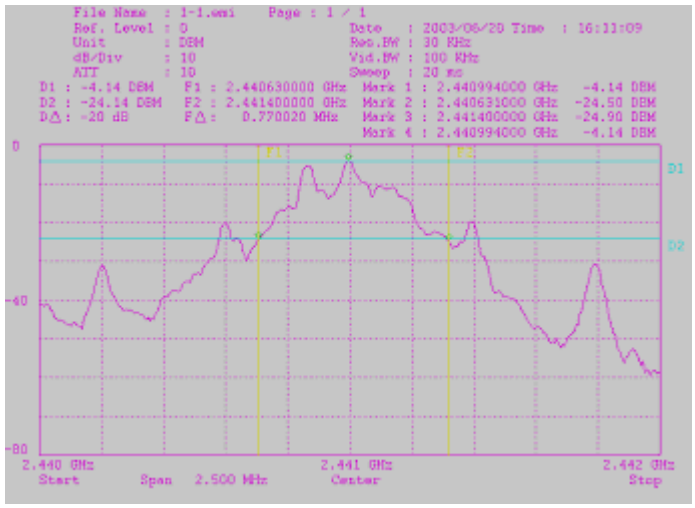
(2) 2441MHz (Mid) 770.02 kHz

(3) 2480MHz (High) 760.01 kHz

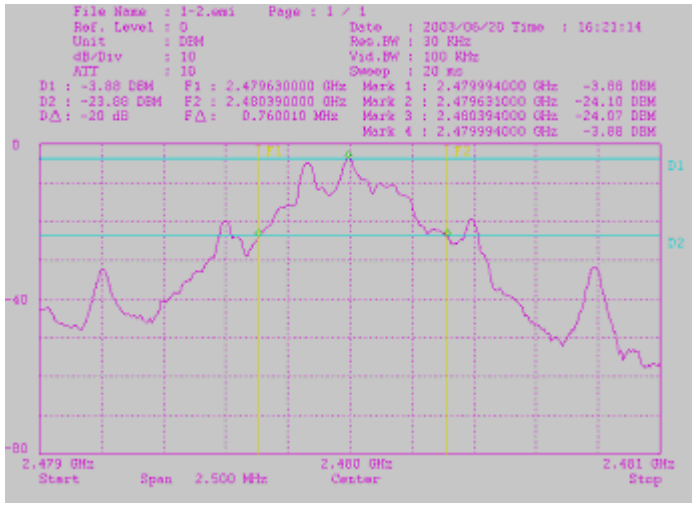
3.7 Photo of 20db Bandwidth Measurement



Channel Low



Channel middle



Channel high

4. 6dB BANDWIDTH MEASUREMENT for DSSS

For DSSS transmitter, this test item is required in FCC's Code of Regulation.

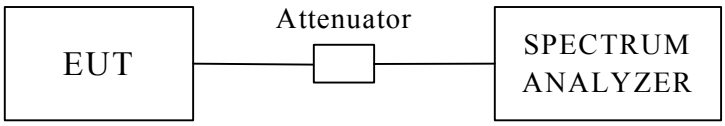
4.1 Test Equipments

Description & Manufacturer	Model No.	Serial No.	Date Of Calibration
ROHDE & SCHWARZ TEST RECEIVER	ESMI	842088/005 841978/008	SEPT. 3, 2002
HP ATTENUATOR	8496B	3247A18505	Cal. on use
HP PLOTTER	7750A	725A 852141	N/A

NOTE：

3. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
4. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.2 Test Setup



4.3 Limits of 6db Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is >500KHz

4.4 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 KHz RBW and 100 KHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.
The highest, middle, and lowest channel of the WLAN transmitter was verified in transmitting modes. The Bluetooth module was powered off while testing.

4.5 Uncertainty of Conducted Emission

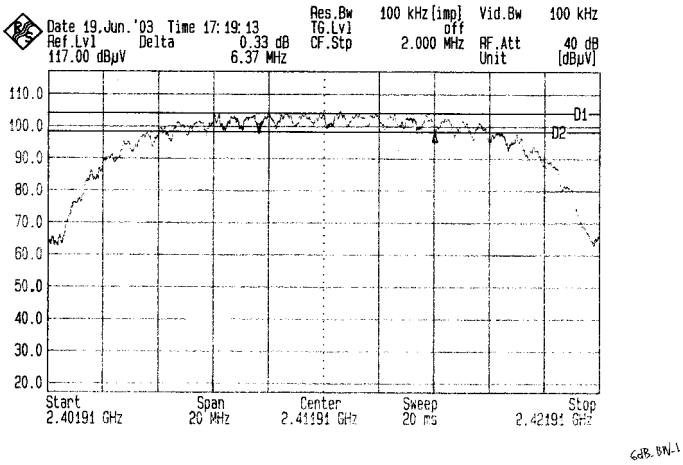
The uncertainty of conducted emission is ± 200KHz.

4.6 Test Results

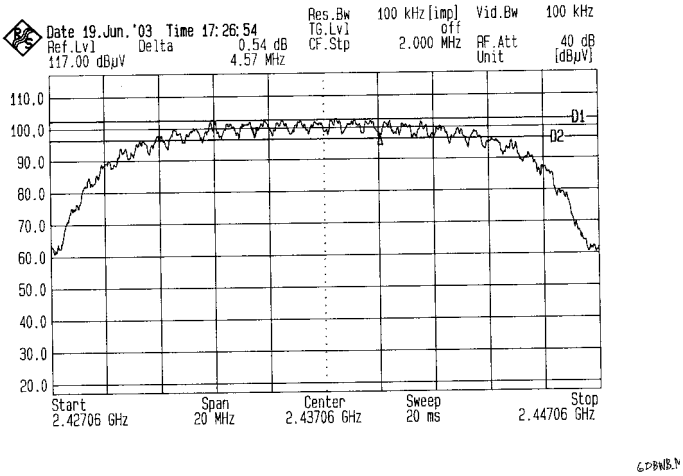
EUT	Notebook PC	**MODEL**	ML900
INPUT POWER (SYSTEM)	19VDC(Form Adapter)	**ENVIRONMENTAL CONDITIONS**	27℃, 70%RH,
TESTED BY：Alan Fan			

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	6.37	0.5	PASS
6	2437	4.58	0.5	PASS
11	2462	5.73	0.5	PASS

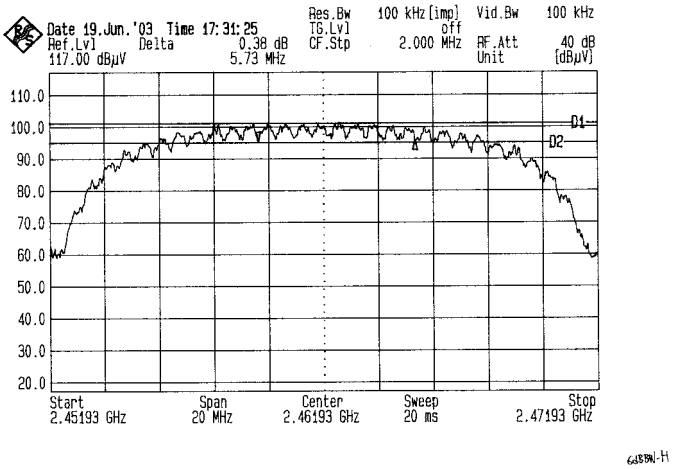
4.7 Photo of 6db Bandwidth Measurement



Channel 1



Channel 6



Channel 11

5. MAXIMUM PEAK OUTPUT POWER

For DSSS and FHSS transmitter, this test item is required in FCC's Code of Regulation.
Test Requirement: 15.247(b)(1) for FHSS
Test Requirement: 15.247(b)(3) for Digital Modulation

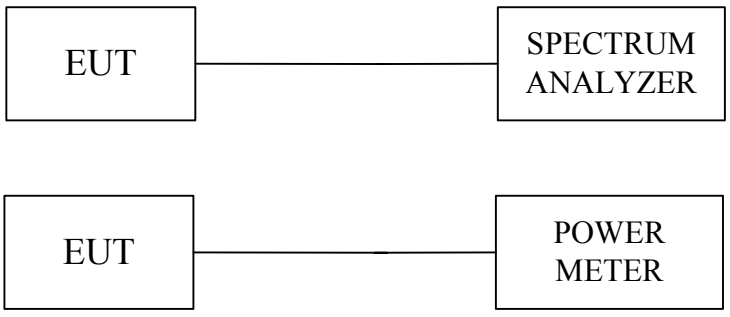
5.1 Test Equipments

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ TEST RECEIVER	ESMI	842088/005 841978/008	JUL. 18, 2003
HP ATTENUATOR	8496B	3247A18505	Cal. on use
HP PLOTTER	HP7750A	725A 852141	N/A
POWER METER GIGASTRONICS	8542	1828329	SEP. 07, 2003

NOTE：

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

5.2 Test Setup



5.3 Limits of Maximum Peak Output Power

The Maximum Peak Output Power Limit is 1W(30dBm) for Frequency Hopping Spread Spectrum System employing at least 75 hopping channels.

The Maximum Peak Output Power Limit is 1W (30dBm) for Direct Sequence Spread Spectrum System .

5.4 Test Procedure

The RF power output was measured with a Power meter connected to the RF Antenna connector (conducted measurement) while EUT was operating in transmit mode at the appropriate center frequency, A spectrum analyzer was used to record the shape of the transmit signal see 4.7 for the measurement set up.
According to FCC recommended DTS test procedure, a peak power meter is used to measure the peak conducted power.

5.5 Uncertainty of Conducted Emission

The uncertainty of conducted emission is ± 1.82dB.

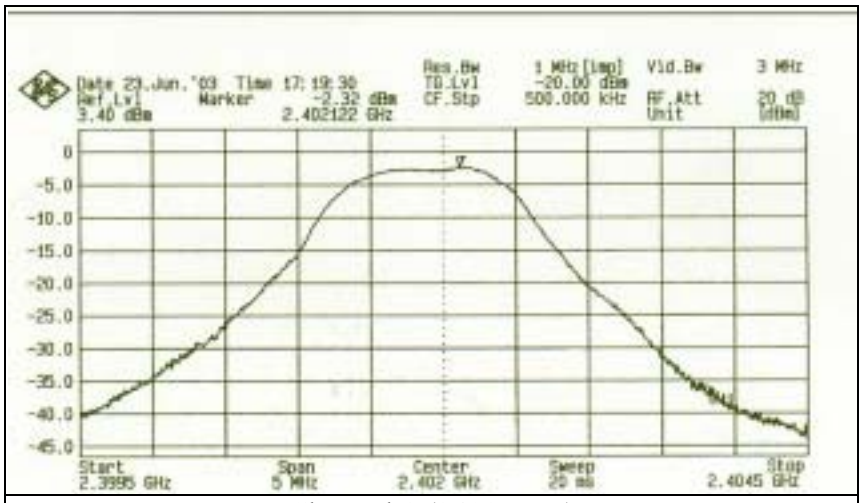
5.6 Test Results

5.6.1 For Bluetooth Transmitter

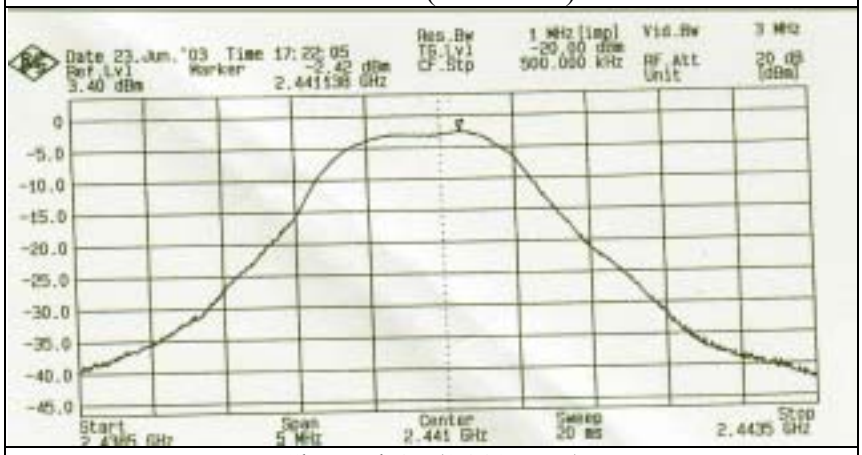
EUT	Notebook PC	**MODEL**	ML900
INPUT POWER (SYSTEM)	19VDC(Form Adapter)	**ENVIRONMENTAL CONDITIONS**	27℃, 70%RH,
Remark	Bluetooth Transmitter		
TESTED BY：Alan Fan			

TX Freq.(MHz)	**Power Output (dBm)**	**Limit (dBm)**
2402 (Low)	-1.32	30
2441 (Mid)	-1.42	30
2480 (High)	-3.15	30

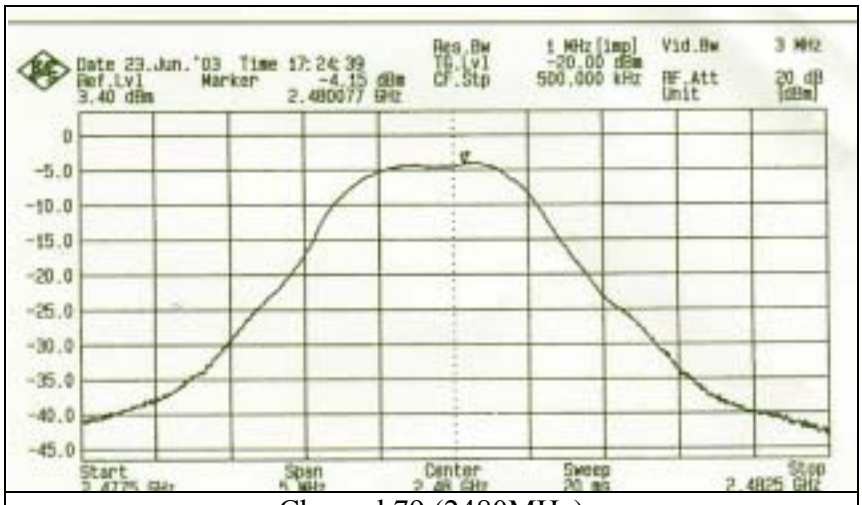
Note : 1. Peak Output power = Pout + Cable loss
2. Cable loss is 1dB, Pout is measured power



Channel 1 (2402MHz)



Channel 40 (2441MHz)



Channel 79 (2480MHz)

5.6.2 For WLAN Transmitter

EUT	Notebook PC	**MODEL**	ML900
INPUT POWER (SYSTEM)	19VDC(Form Adapter)	**ENVIRONMENTAL CONDITIONS**	27℃, 70%RH,
Remark	WLAN transmitter		
TESTED BY：Alan Fan			

TX Freq.(MHz)	Power Output (dBm)	Limit (dBm)
2412(channel 1)	17.85	30
2437(channel 6)	18.05	30
2462(channel 11)	16.92	30

Note : 1. Peak Output power = Pout + Cable loss
2. Cable loss is 1dB, Pout is measured power

6. POWER SPECTRAL DENSITY MEASUREMENT for DSSS

For DSSS, this test item is required in FCC's Code of Regulation.
Test Requirement: 15.247(d) for Digital Modulation

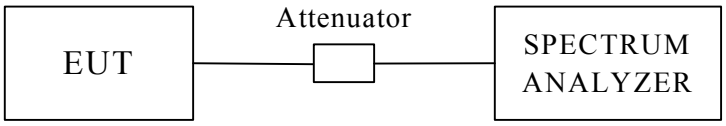
6.1 Test Equipments

Description & Manufacturer	Model No.	Serial No.	Date Of Calibration
ROHDE & SCHWARZ TEST RECEIVER	ESMI	842088/005 841978/008	JUL. 18, 2003
HP ATTENUATOR	8496B	3247A18505	Cal. on use
HP PLOTTER	7750A	725A 852141	N/A

NOTE：

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

6.2 Test Setup



6.3 Limits of Power Spectral Density Measurement

The Maximum Power Spectral Density Measurement is 8dBm/3kHz.

6.4 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3KHz RBW and 30KHz VBW, set sweep time=span / 3KHz.

The power spectral density was measured and recorded.

The sweep time is allowed to be longer than span / 3KHz for a full response of the mixer in the spectrum analyzer.

6.5 Uncertainty of Conducted Emission

The uncertainty of conducted emission is ± 1.82dB.

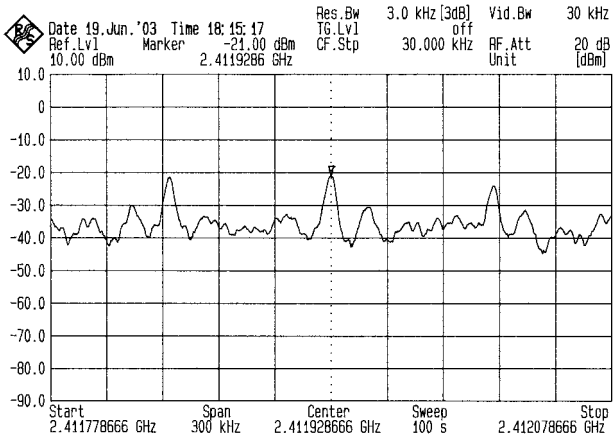
6.6 Test Results

EUT	Notebook PC	**MODEL**	ML900
INPUT POWER (SYSTEM)	19VDC(Form Adapter)	**ENVIRONMENTAL CONDITIONS**	27℃, 70%RH,
Remark	WLAN transmitter		
TESTED BY：Alan Fan			

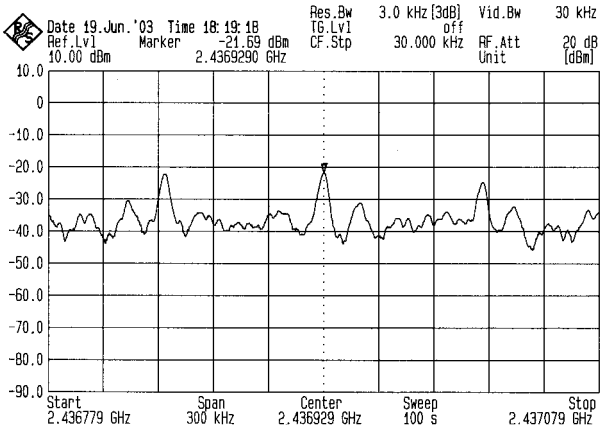
CHANNEL	CHANNEL FREQUENCY (MHz)	Final RF Power Level IN 3KHz BW (dBm)	MAXMUM LIMIT (dBm)	PASS / FAIL
1	2412	-11.00	8	PASS
6	2437	-11.69	8	PASS
11	2462	-13.72	8	PASS

Note:
1. The measurement value of RF Power Level + 10dB attenuator=Final RF Power Level.

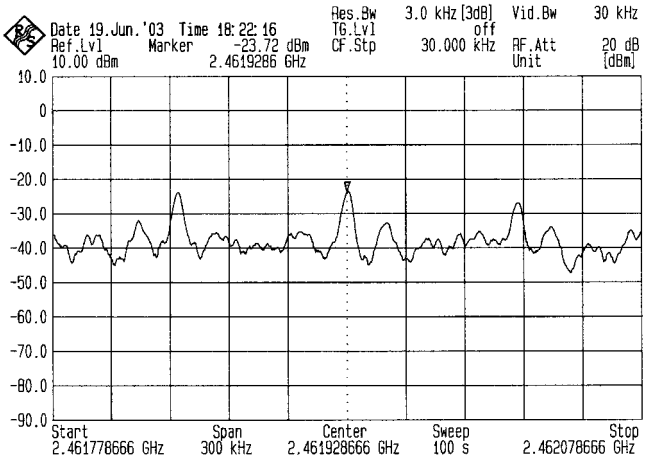
6.7 Photo of Power Spectral Density Measurement



Channel 1



Channel 6



Channel 11

7. HOPPING CHANNEL SEPARATION for FHSS

For FHSS transmitter, this test item is required in FCC's Code of Regulation.
Test Requirement: 15.247(a)(1)

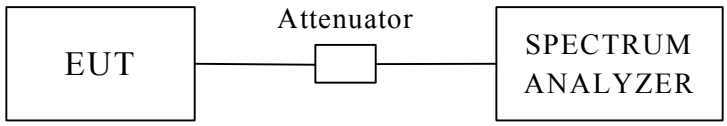
7.1 Test Equipments

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ TEST RECEIVER	ESMI	842088/005 841978/008	JUL. 18, 2003
HP ATTENUATOR	8496B	3247A18505	Cal. on use
HP PLOTTER	HP7750A	725A 852141	N/A

NOTE：

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

7.2 Test Setup



7.3 Limits of Hopping Channel Separation

According to 15.247(a)(1), frequency hopping system shall have, hopping channel carrier frequencies separated by a minimum of 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater.

7.4 Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in test setup without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range.
3. By using the Max Hold function record the separation of adjacent channels.
4. Measure the frequency difference of these two adjacent channels by spectrum analyzer MARK function. And then plot the result on spectrum analyzer screen.

Repeat above procedures until all frequencies measured were complete.

7.5 Uncertainty of Conducted Emission

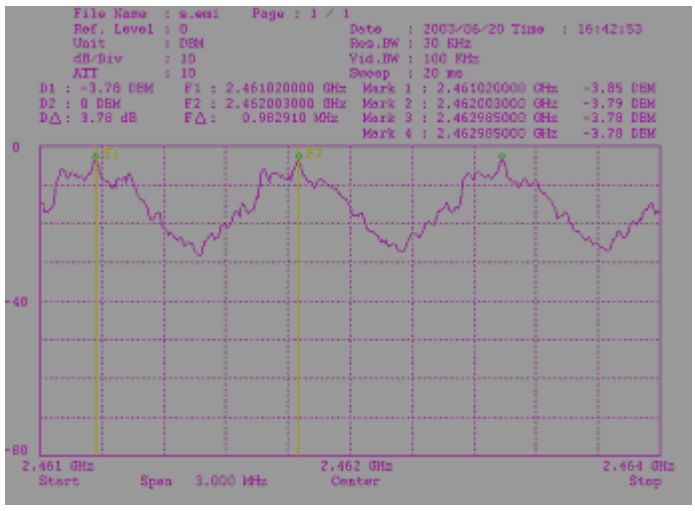
The uncertainty of conducted emission is ± 10KHz.

7.6 Test Results

Refer to section 3, 20dB bandwidth measurement:

	Adjacent Hopping Channel Separation (kHz)	20dB bandwidth (kHz)	Minimum Bandwidth Requirement	Result
2441MHz (Mid)	982.91kHz	770.02	25kHz	Pass

7.7 Photo of Hopping Channel Separation



Channel (Mid)

8. NUMBER OF HOPPING FREQUENCY for FHSS

For FHSS transmitter, this test item is required in FCC's Code of Regulation.
Test Requirement: 15.247(a)(1)(ii)

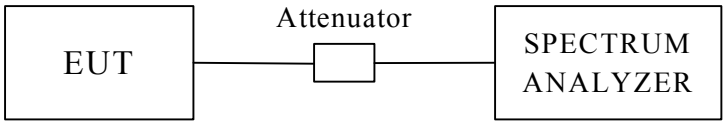
8.1 Test Equipments

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ TEST RECEIVER	ESMI	842088/005 841978/008	JUL. 18, 2003
HP ATTENUATOR	8496B	3247A18505	Cal. on use
HP PLOTTER	HP7750A	725A 852141	N/A

NOTE :

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

8.2 Test Setup



8.3 Limits of Number of Hopping Frequency Used

According to 15.247(a)(1)(ii), for frequency hopping system operating in the 2400-2483.5MHz and 5725-5850 MHz bands shall use at least 75 hopping frequencies

8.4 Test Procedure

1. Check the calibration of the measuring instrument (spectrum analyzer) using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in test setup without connection to measurement instrument.Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Set the spectrum analyzer on MaxHold Mode, and then keep the EUT in hopping mode. Record all the signals from each channel until each one has been recorded.
4. Set the spectrum analyzer on View mode and then plot the result on spectrum analyzer screen.
5. Repeat above procedures until all frequencies measured were complete.

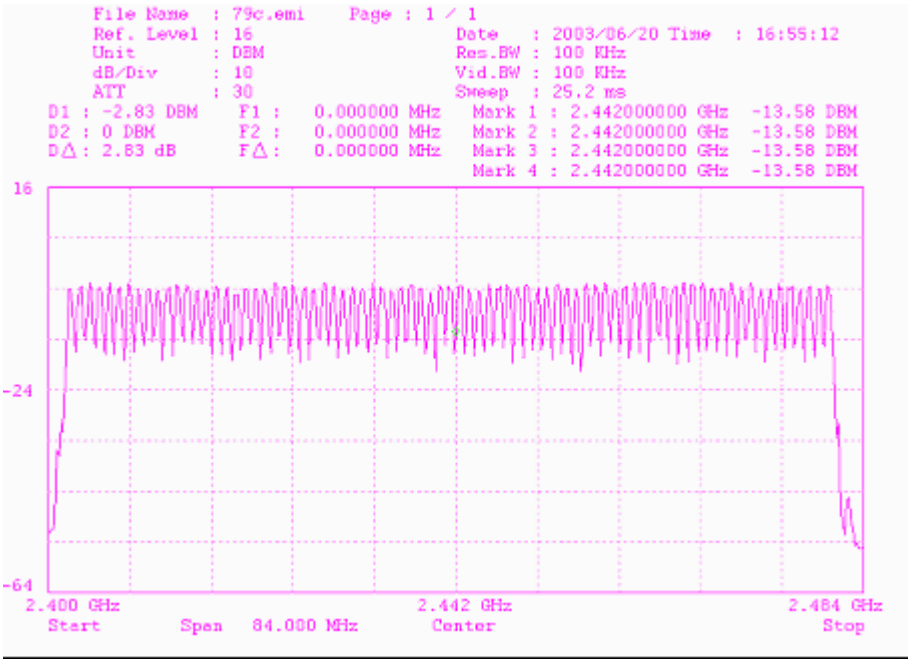
8.5 Uncertainty of Conducted Emission

The uncertainty is not applicable.

8.6 Test Results

Refer to attached graph.
There are 79 hopping frequencies in a hopping sequence.

8.7 Photo of Number of Hopping Frequency Used



9. DWELL TIME ON EACH CHANNEL for FHSS

For FHSS transmitter, this test item is required in FCC's Code of Regulation.
Test Requirement: 15.247(a)(1)(ii)

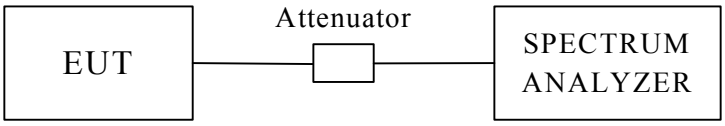
9.1 Test Equipments

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ TEST RECEIVER	ESMI	842088/005 841978/008	JUL. 18, 2003
HP ATTENUATOR	8496B	3247A18505	Cal. on use
HP PLOTTER	HP7750A	725A 852141	N/A

NOTE :

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

9.2 Test Setup



9.3 Limits of Dwell Time On Each Channel

According to 15.247(a)(1)(ii), for frequency hopping system operating in the 2400-2483.5MHz and 5725-5850 MHz band, the average time of occupancy on any frequency shall not be greater than **0.4** second within a 30-second period

9.4 Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in test setup without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Adjust the center frequency of spectrum analyzer on any frequency be measured and set spectrum analyzer to zero span mode. And then, set RBW and VBW of spectrum analyzer to proper value.
4. Measure the time duration of one transmission on the measured frequency. And then plot the result with time difference of this time duration.
5. Repeat above procedures until all frequencies measured were complete.
6. The Bluetooth USB dongle has 3 type of payload, DH1, DH3 and DH5. The hopping rates differ with different payloads. The longer the payload is, the slower the hopping rate is.

9.5 Uncertainty of Conducted Emission

The uncertainty of time is ± 5.25ms.

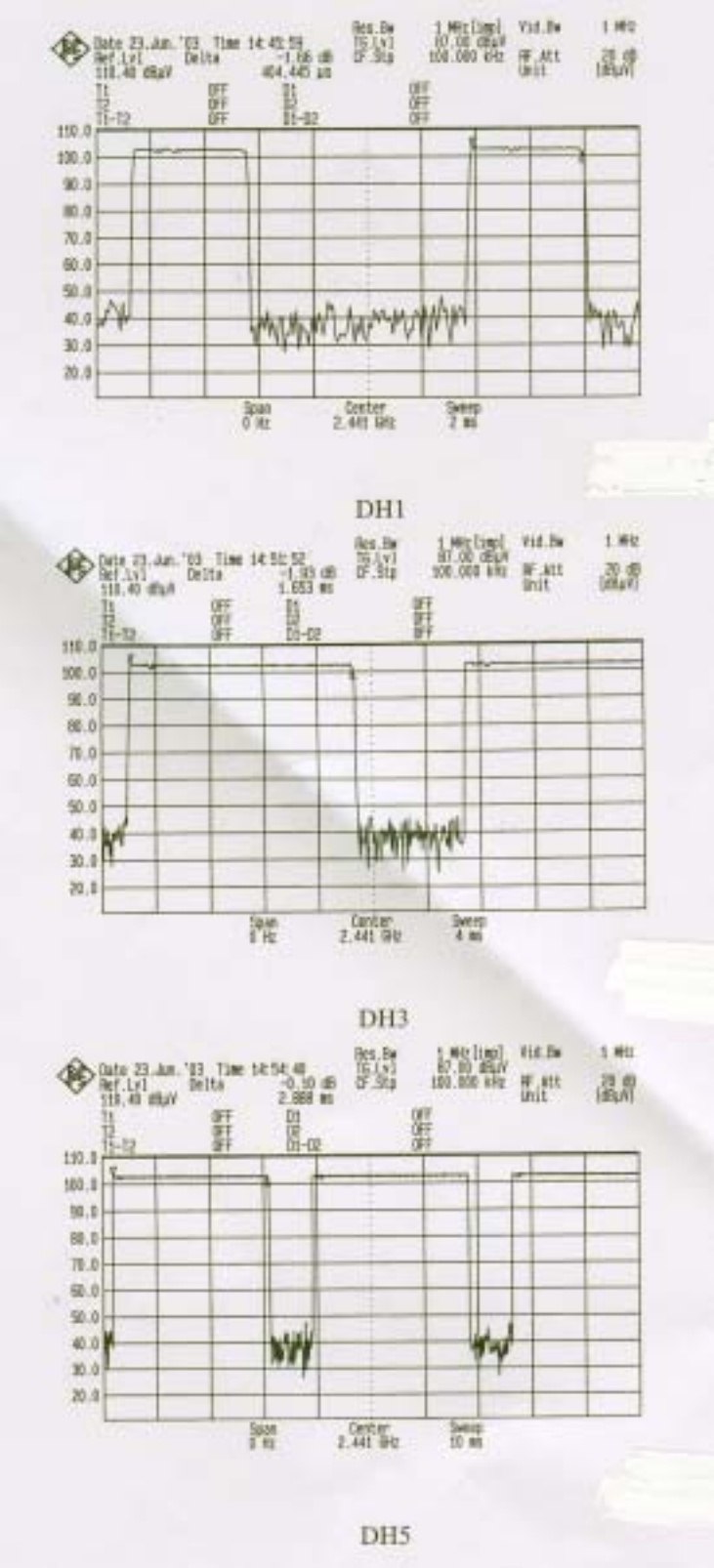
9.6 Test Results

Refer to attached graph.

Transmitting Frequency	Packet type	Hops/30sec	Dwell time (ms)	Time of occupancy on the TX channel in 30sec (ms)	Limit for Time of occupancy on the TX channel in 30sec (ms)	Results
2402MHz	DH1	310	0.404	125.24	400	Pass
2402MHz	DH3	154	1.653	254.562	400	Pass
2402MHz	DH5	102	2.888	294.576	400	Pass

Dwell time = time domain slot length × hop rate ÷ number of hop per channel × 30.
The hopping rate scenario is defined in Bluetooth core specification.

9.7 Photo of Dwell Time On Each Channel



DH1

DH3

DH5

10. Out of Band Spurious Emissions -Conducted Measurements

For DSSS and FHSS transmitter, this test item is required in FCC's Code of Regulation.
Test Requirement: 15.247(c)

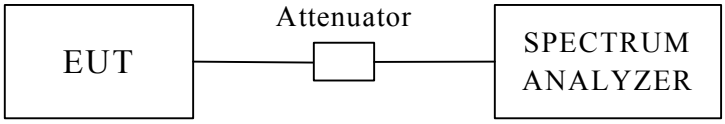
10.1 Test Equipments

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ TEST RECEIVER	ESMI	842088/005 841978/008	JUL. 18, 2003
HP ATTENUATOR	8496B	3247A18505	Cal. on use
HP PLOTTER	HP7750A	725A 852141	N/A

NOTE：

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

10.2 Test Setup



10.3 Limits of Out of Band Measurements

According to Section 15.247(c), all harmonic/spurious must be 20dB down from the highest emission level within the authorized band.

10.4 Test Procedure

Section 15.247(c): Spurious emissions. The following tests are required:
RF antenna conducted test: Set RBW= 100kHz, Video bandwidth (VBW) > RBW, scan up through 10^{th} harmonic. All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100kHz RBW.

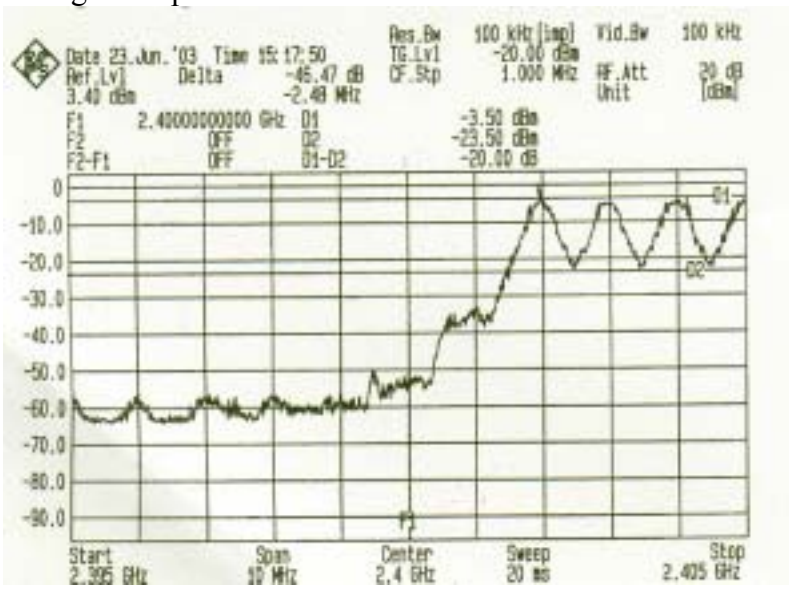
10.5 Uncertainty of Conducted Emission

The uncertainty of Frequency : ± 100kHz.
The uncertainty of Amplitude : ± 2dB.

10.6 Test Results

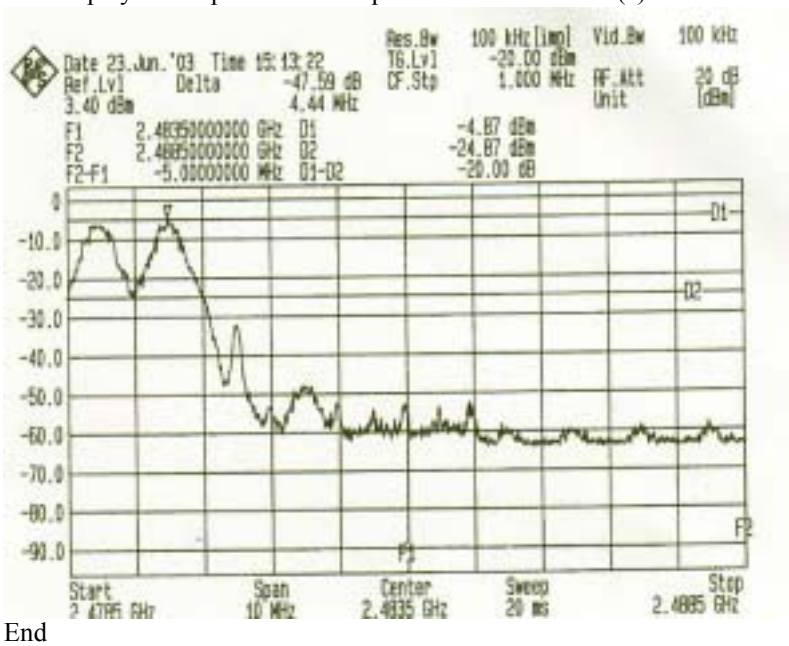
10.6.1 For Bluetooth Transmitter:

Band-edge Compliance of RF Conducted Emissions



Front

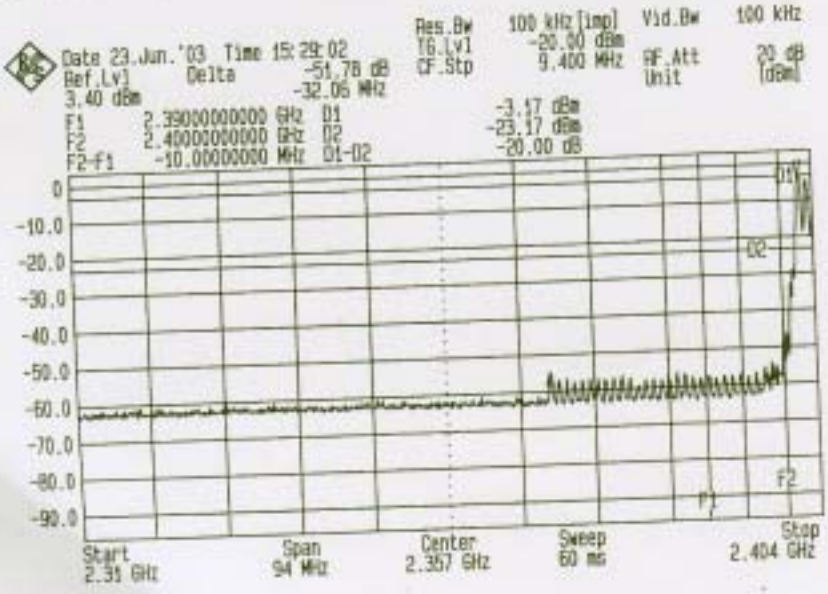
The marker-delta value between the peak power inside ISM band and the highest emission outside of the ISM band is 46.47dB. Line D2 is 20dB below the highest power inside the ISM band. The highest emission outside of the ISM band is below D2. The marker-delta value 46.47dB now displayed complies with the spurious limit in 15.247(c).



End

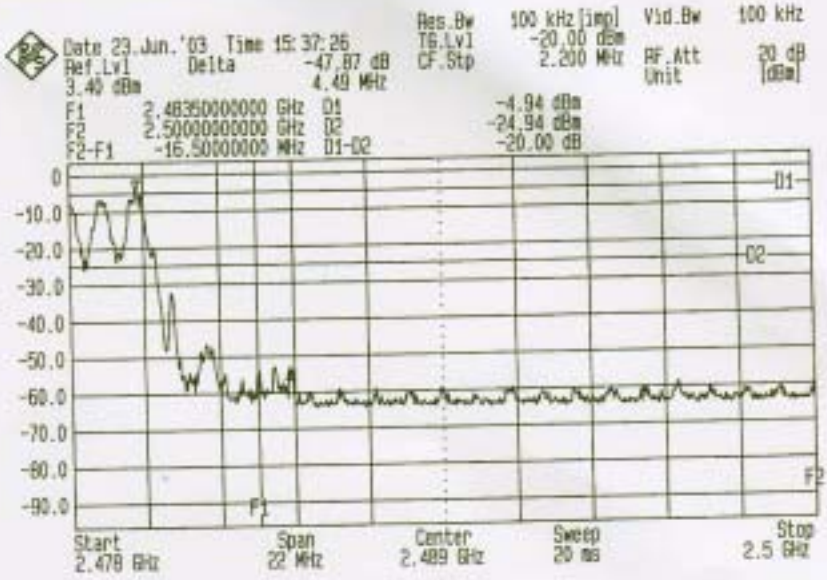
The marker-delta value between the peak power inside ISM band and the highest emission outside of the ISM band is 47.59dB. Line D2 is 20dB below the highest power inside the ISM band. The highest emission outside of the ISM band is below D2. The marker-delta value 47.59dB now displayed complies with the spurious limit in 15.247(c).

Spurious RF Conducted Emissions at Restricted Band



Front

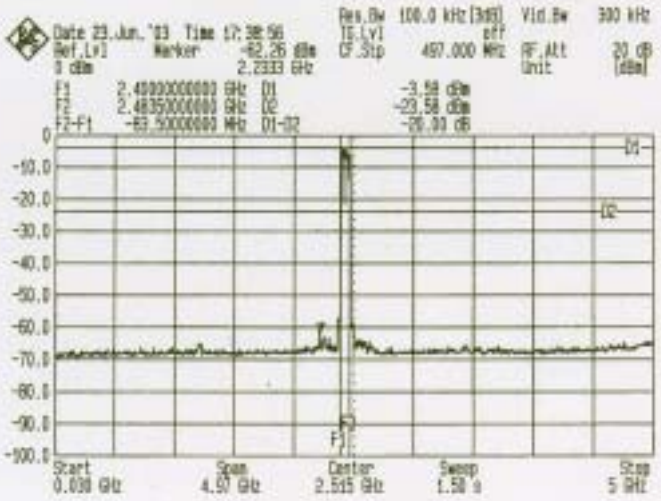
The conducted band-edge and restricted band emission plot shows the difference between carrier maximum power and maximum emission in restricted band. The difference, DELTA, is 51.78dB and is also used in calculating the radiated peak and average spurious power emission in restricted band in next section.

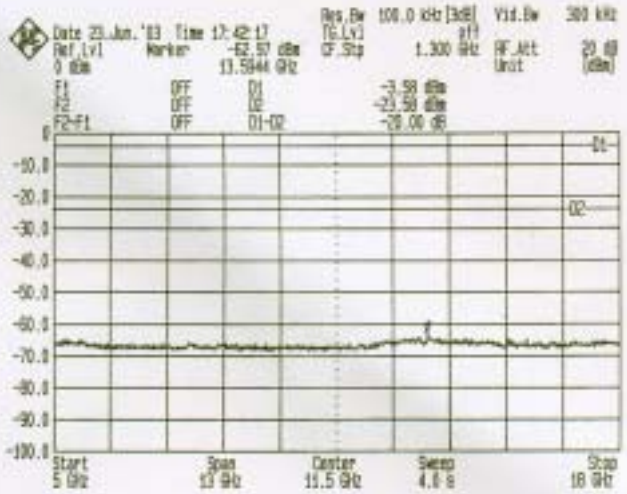


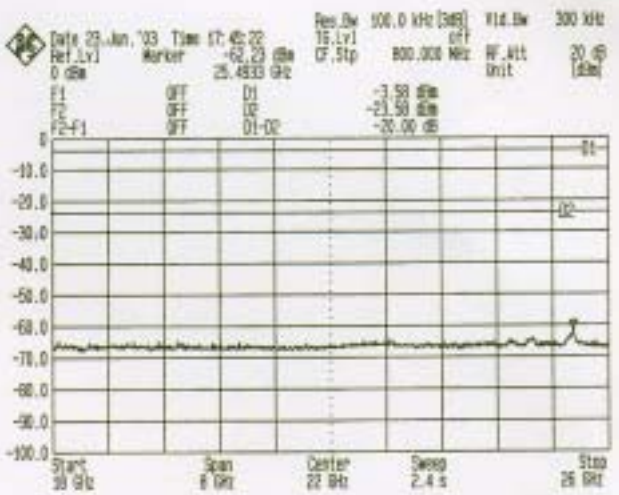
Back

The conducted band-edge and restricted band emission plot shows the difference between carrier maximum power and maximum emission out side the ISM band. The difference, DELTA, is 47.87dB and is also used in calculating the radiated peak and average spurious power emission in restricted band in next section.

Spurious Bluetooth Conducted Emissions

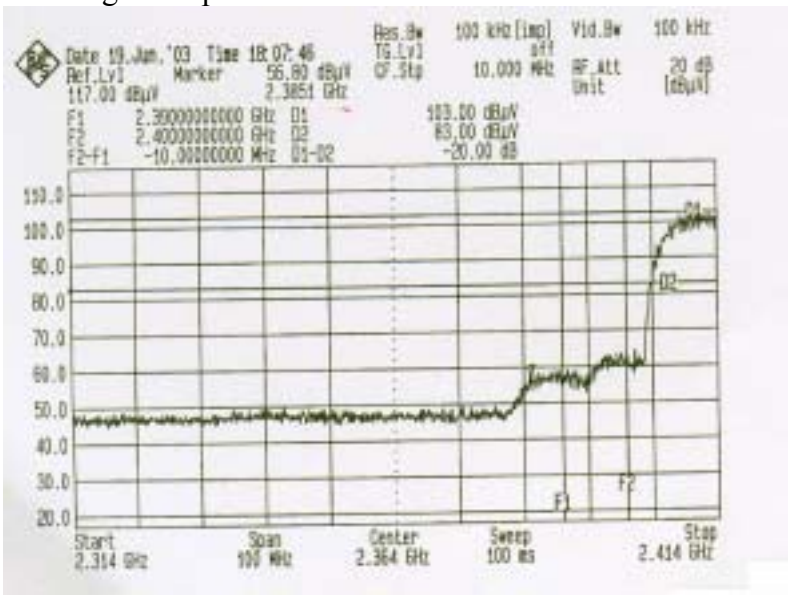






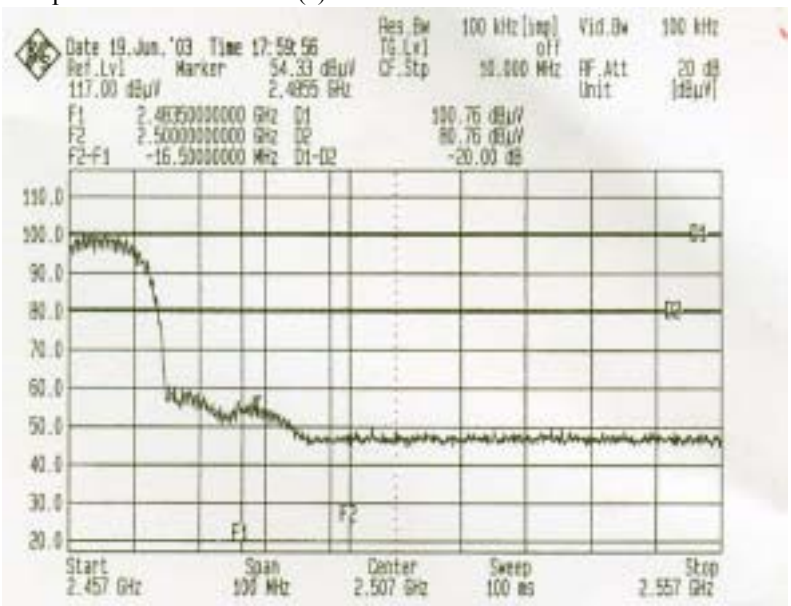
10.6.2 For WLAN Transmitter

Band-edge Compliance of RF Conducted Emissions



Front

The marker-delta value between the peak power inside ISM band and the highest emission outside of the ISM band is 103.00-56.80=46.20dB. Line D2 is 20dB below the highest power inside the ISM band. The highest emission outside of the ISM band is at 2.3851GHz and below Line D2. The marker-delta value 46.20dB now displayed complies with the spurious limit in 15.247(c).



End

The marker-delta value between the peak power inside ISM band and the highest emission outside of the ISM band is 100.76-54.33=46.43dB. Line D2 is 20dB below the highest power inside the ISM band. The highest emission outside of the ISM band is at 2.4855GHz and below Line D2. The marker-delta value 46.43dB now displayed complies with the spurious limit in 15.247(c).

11. Out of Band Spurious Emissions -Radiated Measurements

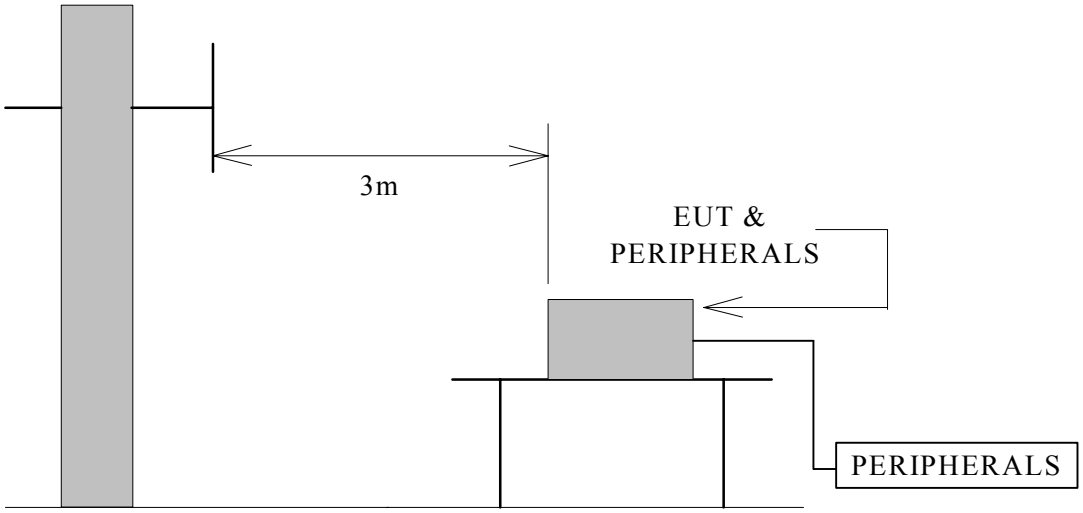
11.1 Test Equipments

The following test equipments are utilized in making the measurements contained in this report.

Manufacturer or Type	Model No	Serial No	Date of Calibration	Calibration Period	Remark
CHASE BI-LOG ANTENNA	CBL6112B	2421	MAY 07, 2003	1 Year	FINAL
R/S TEST RECEIVER	ESMI	842088/005 841978/008	JUL. 18, 2003	1 Year	FINAL
OPEN SITE	----------	No.1	JUL. 10~12, 2003	1 Year	FINAL
N TYPE COAXIAL CABLE	CHA9525	4	JUL. 13, 2003	1 Year	FINAL
Horn Antenna	AH-118	10089	FEB. 25, 2003	1 Year	FINAL
HP 8499B Amp	HP8449B	3008A01471	OCT. 11, 2003	1 Year	FINAL
High pass filter	84300/80038	011	cal. on use	1 Year	FINAL
Horn Antenna	AH-840	03077	FEB. 25, 2003	1 Year	FINAL

11.2 Test Setup

The diagram below shows the test setup which is utilized to make these measurements.
Antenna Elevation Variable



11.3 Radiation Limit

For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values：

FREQUENCY (MHz)	DISTANCE (METERS)	Radiated (dBμV/M)	Radiated (μV/M)
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

11.4 Test Procedures

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE：

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 KHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.

2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection and frequency above 1GHz.

3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.

11.5 Uncertainty of Radiated Emission

The uncertainty of radiated emission is ±2.72dB.

11.6 Radiated RF Noise Measurement

11.6.1 Mode1, WLAN transmitting, Bluetooth Off

Test Requirement: 15.109, 15.209
The frequency spectrum from 30 MHz to 1000 MHz was investigated. All emissions not reported below are more than 20 dB below the prescribed limits.
All readings are quasi-peak values.

Temperature：27 ℃ Humidity：68 % RH

FREQ-UENCY (MHz)	ANTENNA FACTOR (dB)	CABLE LOSS (dB)	METER READING AT3m(dB μ V/M) HORIZON-TAL	METER READING AT3m(dB μ V/M) VERTICAL	LIMITS (dB μ V/M)	EMISSION LEVEL AT3m(dB μ V/M) HORIZON-TAL	EMISSION LEVEL AT3m(dB μ V/M) VERTICAL
30.00	21.39	0.90	*	*	40.00	*	*
124.13	13.33	2.08	9.70	15.80	43.50	25.11	31.21
194.90	10.34	2.75	15.40	12.70	43.50	28.49	25.79
299.98	13.50	3.60	20.80	17.80	46.00	37.90	34.90
399.97	17.24	4.20	11.50	12.60	46.00	32.94	34.04
458.18	17.87	4.61	8.70	10.50	46.00	31.18	32.98
733.28	19.80	6.07	8.90	9.30	46.00	34.77	35.17
799.94	20.53	6.40	6.80	7.70	46.00	33.73	34.63
1000.00	21.58	7.00	*	*	54.00	*	*

REMARKS：

1. ＊Undetectable
2. Emission level (dBμV/M) =Antenna Factor (dB/m) + Cable loss (dB)+ Meter Reading (dBμV).
3. After the preliminary scan, we found the EUT in Transmitting mode produces the highest emission level. And the output power at channel 1 has the highest power. So the EUT was set to TX mode at channel 1 (2412 MHZ), the worst case, to generate the highest unwanted radiated emission in finial test.
4. WLAN on, Bluetooth off.

Test Requirement: 15.205
The frequency spectrum **above 1 GHz** was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN on, Bluetooth off	Test Date :	2003/6/25
Fundamental Frequency:	2412MHz (channel 1)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

CH1 TX

Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Cable (dB)	Pre-amp (dB)	Dist dB	Filter dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)	Height (Meter)
2413.38	105.12	31.79	2.36	35.31	9.5	0	94.46	Fundamental Frequency		P	H	1.0
2413.38	95.17	31.79	2.36	35.31	9.5	0	84.51			A	H	1.0
*4823.86	39.90	34.44	2.77	35.38	9.5	1	33.23	74	-40.77	P	H	1.0
*4823.86	28.81	34.44	2.77	35.38	9.5	1	22.14	54	-31.86	A	H	1.0
*7325.81	41.23	39.77	4.01	35.57	9.5	1	40.94	74	-33.06	P	H	1.0
*7325.81	30.71	39.77	4.01	35.57	9.5	1	30.42	54	-23.58	A	H	1.0
9647.89	40.68	38.54	4.10	35.67	9.5	1	39.14	74	-34.86	P	H	1.0
9647.89	27.89	38.54	4.10	35.67	9.5	1	26.35	54	-27.65	A	H	1.0
*12066.9	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*14480.28	------	------	------	------	9.5	1	------	------	------	------	------	1.0
16893.66	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*19307.04	------	------	------	------	9.5	1	------	------	------	------	------	1.0
21720.42	------	------	------	------	9.5	1	------	------	------	------	------	1.0
24133.80	------	------	------	------	9.5	1	------	------	------	------	------	1.0

Note :

1. Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4. The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit, Remark "*" means that Restricted band.
5. Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB
6. The conducted band-edge emission plots on the following figures show the difference between carrier maximum power and maximum emitting power in restrict band, **46.2dB at 2.3851GHz** (DELTA). The radiated peak and average spurious emission power next to the operating band is calculated by subtracting DELTA from the radiated average and peak carrier power individually. The peak and average horizontally radiated spurious emission at **2.3851GHz** are **94.46-46.2= 48.26 dBuV/m (PK)** and **84.51-46.2=38.31 dBuV/m (AV)**.

Test Requirement: 15.205
The frequency spectrum **above 1 GHz** was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN on, Bluetooth off	Test Date :	2003/6/25
Fundamental Frequency:	2412MHz (channel 1)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

CH1 TX

Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Cable (dB)	Pre-amp (dB)	Dist dB	Filter dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)	Height (Meter)
2411.83	97.12	31.79	2.36	35.31	9.5	0	86.45	Fundamental Frequency		P	V	1.0
2411.83	87.66	31.79	2.36	35.31	9.5	0	76.99			A	V	1.0
*4823.79	39.61	34.44	2.77	35.38	9.5	1	32.94	74	-41.06	P	V	1.0
*4823.79	27.95	34.44	2.77	35.38	9.5	1	21.28	54	-32.72	A	V	1.0
7235.72	40.05	39.81	3.94	35.56	9.5	1	39.74	74	-34.26	P	V	1.0
7235.72	28.67	39.81	3.94	35.56	9.5	1	28.36	54	-25.64	A	V	1.0
9647.85	40.18	38.54	4.10	35.67	9.5	1	38.64	74	-35.36	P	V	1.0
9647.85	29.35	38.54	4.10	35.67	9.5	1	27.81	54	-26.19	A	V	1.0
*12059.15	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*14470.98	------	------	------	------	9.5	1	------	------	------	------	------	1.0
16882.81	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*19294.64	------	------	------	------	9.5	1	------	------	------	------	------	1.0
21706.47	------	------	------	------	9.5	1	------	------	------	------	------	1.0
24118.30	------	------	------	------	9.5	1	------	------	------	------	------	1.0

Note :

1. Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4. The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit, Remark "*" means that Restricted band.
5. Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB
6. The conducted band-edge emission plots on the following figures show the difference between carrier maximum power and maximum emitting power in restrict band, **46.2dB at 2.3851GHz** (DELTA). The radiated peak and average spurious emission power next to the operating band is calculated by subtracting DELTA from the radiated average and peak carrier power individually. The peak and average vertically radiated spurious emission at **2.3851GHz** are **86.45-46.2=40.25 dBuV/m (PK)** and **76.99-46.2=30.79 dBuV/m (AV)**.

Test Requirement: 15.205
The frequency spectrum above 1 GHz was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN on, Bluetooth off	Test Date :	2003/6/25
Fundamental Frequency:	2437MHz (channel 6)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

CH6 TX

Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Cable (dB)	Pre-amp (dB)	Dist dB	Filter dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)	Height (Meter)
2436.89	104.71	31.76	2.42	35.32	9.5	0	94.08	Fundamental Frequency		P	H	1.0
2436.89	95.24	31.76	2.42	35.32	9.5	0	84.61			A	H	1.0
*4874.68	41.52	34.77	2.80	35.40	9.5	1	35.20	74	-38.80	P	H	1.0
*4874.68	28.94	34.77	2.80	35.40	9.5	1	22.62	54	-31.38	A	H	1.0
*7311.77	40.29	39.78	4.00	35.57	9.5	1	40.00	74	-34.00	P	H	1.0
*7311.77	28.21	39.78	4.00	35.57	9.5	1	27.92	54	-26.08	A	H	1.0
9747.61	40.58	38.53	4.02	35.72	9.5	1	38.90	74	-35.10	P	H	1.0
9747.61	29.25	38.53	4.02	35.72	9.5	1	27.57	54	-26.43	A	H	1.0
*12184.45	------	------	------	------	9.5	1	------	------	------	------	------	1.0
14621.34	------	------	------	------	9.5	1	------	------	------	------	------	1.0
17058.23	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*19495.12	------	------	------	------	9.5	1	------	------	------	------	------	1.0
21932.01	------	------	------	------	9.5	1	------	------	------	------	------	1.0
24368.90	------	------	------	------	9.5	1	------	------	------	------	------	1.0

Note :

1. Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4. The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit, Remark "*" means that Restricted band.
5. Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB

Test Requirement: 15.205
The frequency spectrum above 1 GHz was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN on, Bluetooth off	Test Date :	2003/6/25
Fundamental Frequency:	2437MHz (channel 6)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

CH6 TX

Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Cable (dB)	Pre-amp (dB)	Dist dB	Filter dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)	Height (Meter)
2436.83	96.67	31.76	2.42	35.32	9.5	0	86.04	Fundamental Frequency		P	V	1.0
2436.83	86.04	31.76	2.42	35.32	9.5	0	75.41			A	V	1.0
*4873.74	41.62	34.77	2.80	35.40	9.5	1	35.29	74	-38.71	P	V	1.0
*4873.74	30.17	34.77	2.80	35.40	9.5	1	23.84	54	-30.16	A	V	1.0
*7310.97	40.46	39.78	4.00	35.57	9.5	1	40.17	74	-33.83	P	V	1.0
*7310.97	29.57	39.78	4.00	35.57	9.5	1	29.28	54	-24.72	A	V	1.0
9747.69	41.60	38.53	4.02	35.72	9.5	1	39.92	74	-34.08	P	V	1.0
9747.69	29.56	38.53	4.02	35.72	9.5	1	27.88	54	-26.12	A	V	1.0
*12184.15	------	------	------	------	9.5	1	------	------	------	------	------	1.0
14620.98	------	------	------	------	9.5	1	------	------	------	------	------	1.0
17057.81	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*19494.64	------	------	------	------	9.5	1	------	------	------	------	------	1.0
21931.47	------	------	------	------	9.5	1	------	------	------	------	------	1.0
24368.30	------	------	------	------	9.5	1	------	------	------	------	------	1.0

Note :

1. Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4. The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit, Remark "*" means that Restricted band.
5. Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB

Test Requirement: 15.205
The frequency spectrum above 1 GHz was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN on, Bluetooth off	Test Date :	2003/6/25
Fundamental Frequency:	2462MHz (channel 11)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

CH11 TX

Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Cable (dB)	Pre-amp (dB)	Dist dB	Filter dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)	Height (Meter)
2461.77	103.78	31.74	2.49	35.32	9.5	0	93.18	Fundamental Frequency		P	H	1.0
2461.77	95.98	31.74	2.49	35.32	9.5	0	85.38			A	H	1.0
*4923.51	41.63	35.1	2.83	35.41	9.5	1	35.64	74	-38.36	P	H	1.0
*4923.51	30.26	35.1	2.83	35.41	9.5	1	24.27	54	-29.73	A	H	1.0
*7386.33	40.13	39.75	4.06	35.57	9.5	1	39.86	74	-34.14	P	H	1.0
*7386.33	28.13	39.75	4.06	35.57	9.5	1	27.86	54	-26.14	A	H	1.0
9847.68	40.31	38.52	3.93	35.77	9.5	1	38.49	74	-35.51	P	H	1.0
9847.68	29.74	38.52	3.93	35.77	9.5	1	27.92	54	-26.08	A	H	1.0
*12308.85	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*14770.62	------	------	------	------	9.5	1	------	------	------	------	------	1.0
17232.39	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*19694.16	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*22155.93	------	------	------	------	9.5	1	------	------	------	------	------	1.0
24617.70	------	------	------	------	9.5	1	------	------	------	------	------	1.0

Note :

1. Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4. The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit, Remark "*" means that Restricted band.
5. Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB
6. The conducted band-edge emission plots on the following figures show the difference between carrier maximum power and maximum emitting power in restrict band, **46.43dB at 2.4855GHz** (DELTA). The radiated peak and average spurious emission power next to the operating band is calculated by subtracting DELTA from the radiated average and peak carrier power individually. The peak and average horizontally radiated spurious emission at **2.4855GHz** are **93.18-46.43=46.75 dBuV/m (PK)** and **85.38-46.43=38.95 dBuV/m (AV)**.

Test Requirement: 15.205
The frequency spectrum above 1 GHz was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN on, Bluetooth off	Test Date :	2003/6/25
Fundamental Frequency:	2462MHz (channel 11)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

CH11 TX

Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Cable (dB)	Pre-amp (dB)	Dist dB	Filter dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)	Height (Meter)
2461.88	96.74	31.74	2.49	35.32	9.5	0	86.15	Fundamental Frequency		P	V	1.0
2461.88	86.47	31.74	2.49	35.32	9.5	0	75.88			A	V	1.0
*4923.78	39.74	35.10	2.83	35.41	9.5	1	33.76	74	-40.24	P	V	1.0
*4923.78	29.68	35.10	2.83	35.41	9.5	1	23.70	54	-30.30	A	V	1.0
*7386.05	40.41	39.75	4.06	35.57	9.5	1	40.14	74	-33.86	P	V	1.0
*7386.05	29.77	39.75	4.06	35.57	9.5	1	29.50	54	-24.50	A	V	1.0
9847.81	41.37	38.52	3.93	35.77	9.5	1	39.55	74	-34.45	P	V	1.0
9847.81	28.94	38.52	3.93	35.77	9.5	1	27.12	54	-26.88	A	V	1.0
*12309.40	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*14771.28	------	------	------	------	9.5	1	------	------	------	------	------	1.0
17233.16	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*19695.04	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*22156.92	------	------	------	------	9.5	1	------	------	------	------	------	1.0
24618.80	------	------	------	------	9.5	1	------	------	------	------	------	1.0

Note :

1. Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4. The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit, Remark "*" means that Restricted band.
5. Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB
6. The conducted band-edge emission plots on the following figures show the difference between carrier maximum power and maximum emitting power in restrict band, **46.43dB at 2.4855GHz** (DELTA). The radiated peak and average spurious emission power next to the operating band is calculated by subtracting DELTA from the radiated average and peak carrier power individually. The peak and average vertically radiated spurious emission at **2.4855GHz** are **86.15-46.43=39.72 dBuV/m (PK)** and **75.88-46.43=29.45 dBuV/m (AV)**.

Test Requirement: 15.205
The frequency spectrum above 1 GHz was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN on, Bluetooth off	Test Date :	2003/6/25
Fundamental Frequency:	2412MHz (channel 1)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

CH1 RX

Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Cable (dB)	Pre-amp (dB)	Dist dB	Filter dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)	Height (Meter)
4823.61	40.42	34.44	2.77	35.38	9.5	0	32.75	74	-41.25	P	H	1.0
4823.61	28.46	34.44	2.77	35.38	9.5	0	20.79	54	-33.21	A	H	1.0
7236.05	40.14	39.81	3.94	35.56	9.5	0	38.83	74	-35.17	P	H	1.0
7236.05	28.61	39.81	3.94	35.56	9.5	0	27.30	54	-26.70	A	H	1.0
9647.88	41.57	38.54	4.10	35.67	9.5	0	39.03	74	-34.97	P	H	1.0
9647.88	28.92	38.54	4.10	35.67	9.5	0	26.38	54	-27.62	A	H	1.0
4824.16	40.81	34.44	2.78	35.38	9.5	0	33.14	74	-40.86	P	V	1.0
4824.16	28.61	34.44	2.78	35.38	9.5	0	20.94	54	-33.06	A	V	1.0
7237.55	40.32	39.8	3.95	35.56	9.5	0	39.01	74	-34.99	P	V	1.0
7237.55	28.46	39.8	3.95	35.56	9.5	0	27.15	54	-26.85	A	V	1.0
9648.83	42.34	38.54	4.10	35.67	9.5	0	39.80	74	-34.20	P	V	1.0
9648.83	28.89	38.54	4.10	35.67	9.5	0	26.35	54	-27.65	A	V	1.0

Note :

1. Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4. The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit, Remark "*" means that Restricted band.
5. Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB

Test Requirement: 15.205
The frequency spectrum above 1 GHz was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN on, Bluetooth off	Test Date :	2003/6/25
Fundamental Frequency:	2437MHz (channel 6)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

CH6 RX

Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Cable (dB)	Pre-amp (dB)	Dist dB	Filter dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)	Height (Meter)
4873.83	41.54	34.77	2.80	35.40	9.5	0	34.21	74	-39.79	P	H	1.0
4873.83	29.68	34.77	2.80	35.40	9.5	0	22.35	54	-31.65	A	H	1.0
7312.22	41.44	39.78	4.00	35.57	9.5	0	40.15	74	-33.85	P	H	1.0
7312.22	29.22	39.78	4.00	35.57	9.5	0	27.93	54	-26.07	A	H	1.0
9747.94	41.57	38.53	4.02	35.72	9.5	0	38.89	74	-35.11	P	H	1.0
9747.94	29.12	38.53	4.02	35.72	9.5	0	26.44	54	-27.56	A	H	1.0
4873.16	41.73	34.76	2.80	35.40	9.5	0	34.40	74	-39.60	P	V	1.0
4873.16	29.75	34.76	2.80	35.40	9.5	0	22.42	54	-31.58	A	V	1.0
7311.55	40.83	39.78	4.00	35.57	9.5	0	39.54	74	-34.46	P	V	1.0
7311.55	28.46	39.78	4.00	35.57	9.5	0	27.17	54	-26.83	A	V	1.0
9747.61	40.47	38.53	4.02	35.72	9.5	0	37.79	74	-36.21	P	V	1.0
9747.61	29.14	38.53	4.02	35.72	9.5	0	26.46	54	-27.54	A	V	1.0

Note :

1. Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4. The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit
5. Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB

Test Requirement: 15.205
The frequency spectrum above 1 GHz was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN on, Bluetooth off	Test Date :	2003/6/25
Fundamental Frequency:	2462MHz (channel 11)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

CH11 RX												
Freq.	Reading	AF	Cable	Pre-amp	Dist	Filter	Level	Limit	Margin	Mark	Pol	Height
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	dB	dB	(dBuV/m)	FCC_B	(dB)	(P/Q/A)	(H/V)	(Meter)
4923.27	42.54	35.09	2.83	35.41	9.5	0	35.55	74	-38.45	P	H	1.0
4923.27	29.88	35.09	2.83	35.41	9.5	0	22.89	54	-31.11	A	H	1.0
7387.99	41.75	39.74	4.06	35.57	9.5	0	40.48	74	-33.52	P	H	1.0
7387.99	29.09	39.74	4.06	35.57	9.5	0	27.82	54	-26.18	A	H	1.0
9848.16	41.74	38.52	3.93	35.77	9.5	0	38.92	74	-35.08	P	H	1.0
9848.16	29.47	38.52	3.93	35.77	9.5	0	26.65	54	-27.35	A	H	1.0
4923.11	41.56	35.09	2.83	35.41	9.5	0	34.57	74	-39.43	P	V	1.0
4923.11	29.86	35.09	2.83	35.41	9.5	0	22.87	54	-31.13	A	V	1.0
7387.05	40.06	39.75	4.06	35.57	9.5	0	38.79	74	-35.21	P	V	1.0
7387.05	28.15	39.75	4.06	35.57	9.5	0	26.88	54	-27.12	A	V	1.0
9847.83	41.23	38.52	3.93	35.77	9.5	0	38.41	74	-35.59	P	V	1.0
9847.83	29.47	38.52	3.93	35.77	9.5	0	26.65	54	-27.35	A	V	1.0

Note :

1. Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4. The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit
5. Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB

11.6.2 Mode2, WLAN off, Bluetooth transmitting

Test Requirement: 15.109, 15.209
The frequency spectrum from 30 MHz to 1000 MHz was investigated. All emissions not reported below are more than 20 dB below the prescribed limits.
All readings are quasi-peak values.

Temperature：27 ℃ Humidity：68 % RH

FREQ-UENCY (MHz)	ANTENNA FACTOR (dB)	CABLE LOSS (dB)	METER READING AT3m(dB μ V/M) HORIZON-TAL	METER READING AT3m(dB μ V/M) VERTICAL	LIMITS (dB μ V/M)	EMISSION LEVEL AT3m(dB μ V/M) HORIZON-TAL	EMISSION LEVEL AT3m(dB μ V/M) VERTICAL
30.00	21.39	0.90	*	*	40.00	*	*
124.13	13.33	2.08	9.10	15.40	43.50	24.51	30.81
194.90	10.34	2.75	14.80	12.10	43.50	27.89	25.19
299.98	13.50	3.60	18.60	16.80	46.00	35.70	33.90
399.97	17.24	4.20	10.60	13.50	46.00	32.04	34.94
458.18	17.87	4.61	8.10	9.70	46.00	30.58	32.18
733.28	19.80	6.07	8.40	8.40	46.00	34.27	34.27
799.94	20.53	6.40	7.60	7.10	46.00	34.53	34.03
1000.00	21.58	7.00	*	*	54.00	*	*

REMARKS：

1. Undetectable
2. Emission level (dBμV/M) =Antenna Factor (dB/m) + Cable loss (dB)+ Meter Reading (dBμV).
3. After the preliminary scan, we found the EUT in Transmitting mode produces the highest emission level. And the output power at channel 1 has the highest power. So the EUT was set to TX mode at channel 1 (2402 MHZ), the worst case, to generate the highest unwanted radiated emission in finial test.
4. WLAN off, Bluetooth on.

Test Requirement: 15.205
The frequency spectrum **above 1 GHz** was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN off, Bluetooth on	Test Date :	2003/6/25
Fundamental Frequency:	2402MHz (channe l)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

CH1 TX

Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Cable (dB)	Pre-amp (dB)	Dist dB	Filter dB	Level (dBuV/m)	Limit FCC B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)	Height (Meter)
2399.52	46.47	(delta between carrier and local max emission)					40.05	74	-33.95	P	H	1.0
2399.52	46.47	(delta between carrier and local max emission)					30.38	54	-23.62	A	H	1.0
2402.02	97.20	31.8	2.33	35.31	9.5	0	86.52	Fundamental Frequency		P	H	1.0
2402.02	87.53	31.8	2.33	35.31	9.5	0	76.85			A	H	1.0
*4803.98	41.61	34.31	2.76	35.38	9.5	1	34.80	74	-39.20	P	H	1.0
*4803.98	29.65	34.31	2.76	35.38	9.5	1	22.84	54	-31.16	A	H	1.0
7206.24	39.40	39.82	3.92	35.56	9.5	1	39.08	74	-34.92	P	H	1.0
7206.24	27.85	39.82	3.92	35.56	9.5	1	27.53	54	-26.47	A	H	1.0
9608.18	40.52	38.54	4.13	35.65	9.5	1	39.04	74	-34.96	P	H	1.0
9608.18	29.25	38.54	4.13	35.65	9.5	1	27.77	54	-26.23	A	H	1.0
*12010.10	------	------	------	------	9.5	1	------	------	------	------	------	1.0
14412.10	------	------	------	------	9.5	1	------	------	------	------	------	1.0
16814.10	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*19216.20	------	------	------	------	9.5	1	------	------	------	------	------	1.0
21618.20	------	------	------	------	9.5	1	------	------	------	------	------	1.0
24020.20	------	------	------	------	9.5	1	------	------	------	------	------	1.0

Note :

1.	Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2.	AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3.	Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4.	The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit, Remark "*" means that Restricted band.
5.	Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB
6.	The conducted band-edge emission plots on the following figures show the difference between carrier maximum power and maximum emitting power in restrict band, **46.2dB at 2.3851GHz** (DELTA). The radiated peak and average spurious emission power next to the operating band is calculated by subtracting DELTA from the radiated average and peak carrier power individually. The peak and average horizontally radiated spurious emission at **2.3851GHz** are **94.46-46.2= 48.26 dBuV/m (PK)** and **84.51-46.2=38.31 dBuV/m (AV)**.

Test Requirement: 15.205
The frequency spectrum **above 1 GHz** was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN off, Bluetooth on	Test Date :	2003/6/25
Fundamental Frequency:	2402MHz (channe l)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

CH1 TX

Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Cable (dB)	Pre-amp (dB)	Dist dB	Filter dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)	Height (Meter)
2399.52	46.47	(delta between carrier and local max emission)					36.30	74	-37.70	P	V	1.0
2399.52	46.47	(delta between carrier and local max emission)					26.42	54	-27.58	A	V	1.0
2401.87	93.45	31.8	2.33	35.31	9.5	0	------	Fundamental Frequency		P	V	1.0
2401.87	83.57	31.8	2.33	35.31	9.5	0	------			A	V	1.0
*4804.13	42.02	34.31	2.76	35.38	9.5	1	------	74	-38.79	P	V	1.0
*4804.13	30.16	34.31	2.76	35.38	9.5	1	------	54	-30.65	A	V	1.0
7206.15	39.94	39.82	3.92	35.56	9.5	1	39.62	74	-34.38	P	V	1.0
7206.15	28.26	39.82	3.92	35.56	9.5	1	27.94	54	-26.06	A	V	1.0
9608.26	40.15	38.54	4.13	35.65	9.5	1	38.67	74	-35.33	P	V	1.0
9608.26	29.55	38.54	4.13	35.65	9.5	1	28.07	54	-25.93	A	V	1.0
*12009.40	------	------	------	------	9.5	1	------	------	------	------	------	1.0
14411.20	------	------	------	------	9.5	1	------	------	------	------	------	1.0
16813.10	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*19215.00	------	------	------	------	9.5	1	------	------	------	------	------	1.0
21616.80	------	------	------	------	9.5	1	------	------	------	------	------	1.0
24018.70	------	------	------	------	9.5	1	------	------	------	------	------	1.0

Note :

1. Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4. The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit, Remark "*" means that Restricted band.
5. Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB
6. The conducted band-edge emission plots on the following figures show the difference between carrier maximum power and maximum emitting power in restrict band, **46.2dB at 2.3851GHz** (DELTA). The radiated peak and average spurious emission power next to the operating band is calculated by subtracting DELTA from the radiated average and peak carrier power individually. The peak and average vertically radiated spurious emission at **2.3851GHz** are **86.45-46.2=40.25 dBuV/m (PK)** and **76.99-46.2=30.79 dBuV/m (AV)**.

Test Requirement: 15.205
The frequency spectrum above 1 GHz was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN off, Bluetooth on	Test Date :	2003/6/25
Fundamental Frequency:	2441MHz (channel 40)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

CH40 TX												
Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Cable (dB)	Pre-amp (dB)	Dist dB	Filter dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)	Height (Meter)
2440.94	82.74	31.76	2.43	35.32	9.5	0	72.11	Fundamental Frequency		P	H	1.0
2440.94	72.99	31.76	2.43	35.32	9.5	0	62.36			A	H	1.0
*4881.93	43.06	34.82	2.81	35.40	9.5	1	36.79	74	-37.21	P	H	1.0
*4881.93	31.33	34.82	2.81	35.40	9.5	1	25.06	54	-28.94	A	H	1.0
*7323.59	39.88	39.77	4.01	35.57	9.5	1	39.59	74	-34.41	P	H	1.0
*7323.59	28.69	39.77	4.01	35.57	9.5	1	28.40	54	-25.60	A	H	1.0
9764.23	40.26	38.52	4.00	35.73	9.5	1	38.55	74	-35.45	P	H	1.0
9764.23	29.17	38.52	4.00	35.73	9.5	1	27.46	54	-26.54	A	H	1.0
*12204.70	------	------	------	------	9.5	1	------	------	------	------	------	1.0
14645.60	------	------	------	------	9.5	1	------	------	------	------	------	1.0
17086.60	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*19527.50	------	------	------	------	9.5	1	------	------	------	------	------	1.0
21968.50	------	------	------	------	9.5	1	------	------	------	------	------	1.0
24409.40	------	------	------	------	9.5	1	------	------	------	------	------	1.0

Note :

1.	Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2.	AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3.	Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4.	The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit, Remark "*" means that Restricted band.
5.	Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB

Test Requirement: 15.205
The frequency spectrum above 1 GHz was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN off, Bluetooth on	Test Date :	2003/6/25
Fundamental Frequency:	2441MHz (channel 40)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

CH40 TX												
Freq.	Reading	AF	Cable	Pre-amp	Dist	Filter	Level	Limit	Margin	Mark	Pol	Height
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	dB	dB	(dBuV/m)	FCC_B	(dB)	(P/Q/A)	(H/V)	(Meter)
2440.79	88.40	31.76	2.43	35.32	9.5	0	77.77	Fundamental Frequency		P	V	1.0
2440.79	78.37	31.76	2.43	35.32	9.5	0	67.74			A	V	1.0
*4881.78	44.18	34.82	2.81	35.40	9.5	1	37.91	74	-36.09	P	V	1.0
*4881.78	31.96	34.82	2.81	35.40	9.5	1	25.69	54	-28.31	A	V	1.0
*7322.75	40.65	39.77	4.01	35.57	9.5	1	40.36	74	-33.64	P	V	1.0
*7322.75	29.08	39.77	4.01	35.57	9.5	1	28.79	54	-25.21	A	V	1.0
9764.34	39.86	38.52	4.00	35.73	9.5	1	38.15	74	-35.85	P	V	1.0
9764.34	29.77	38.52	4.00	35.73	9.5	1	28.06	54	-25.94	A	V	1.0
*12204.00	------	------	------	------	9.5	1	------	------	------	------	------	1.0
14644.70	------	------	------	------	9.5	1	------	------	------	------	------	1.0
17085.50	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*19526.30	------	------	------	------	9.5	1	------	------	------	------	------	1.0
21967.10	------	------	------	------	9.5	1	------	------	------	------	------	1.0
24407.90	------	------	------	------	9.5	1	------	------	------	------	------	1.0

Note :

1.	Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2.	AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3.	Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4.	The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit, Remark "*" means that Restricted band.
5.	Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB

Test Requirement: 15.205
The frequency spectrum above 1 GHz was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN off, Bluetooth on	Test Date :	2003/6/25
Fundamental Frequency:	2480MHz (channel 79)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

CH79 TX												
Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Cable (dB)	Pre-amp (dB)	Dist dB	Filter dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)	Height (Meter)
2479.91	95.18	31.72	2.54	35.33	9.5	0	84.61	Fundamental Frequency		P	H	1.0
2479.91	84.50	31.72	2.54	35.33	9.5	0	73.93			A	H	1.0
2484.44	47.59	(delta between carrier and local max emission)					37.02	74	-36.98	P	H	1.0
2484.44	47.59	(delta between carrier and local max emission)					26.34	54	-27.66	A	H	1.0
*4960.33	45.12	35.34	2.85	35.42	9.5	1	39.39	74	-34.61	P	H	1.0
*4960.33	33.41	35.34	2.85	35.42	9.5	1	27.68	54	-26.32	A	H	1.0
7439.92	40.58	39.72	4.10	35.58	9.5	1	40.33	74	-33.67	P	H	1.0
7439.92	29.56	39.72	4.10	35.58	9.5	1	29.31	54	-24.69	A	H	1.0
9920.26	40.13	38.51	3.88	35.81	9.5	1	38.20	74	-35.80	P	H	1.0
9920.26	29.67	38.51	3.88	35.81	9.5	1	27.74	54	-26.26	A	H	1.0
*12399.60	------	------	------	------	9.5	1	------	------	------	------	------	1.0
14879.50	------	------	------	------	9.5	1	------	------	------	------	------	1.0
17359.40	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*19839.30	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*22319.20	------	------	------	------	9.5	1	------	------	------	------	------	1.0
24799.10	------	------	------	------	9.5	1	------	------	------	------	------	1.0

Note :

1.	Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2.	AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3.	Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4.	The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit, Remark "*" means that Restricted band.
5.	Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB
6.	The conducted band-edge emission plots on the following figures show the difference between carrier maximum power and maximum emitting power in restrict band, **46.43dB at 2.4855GHz** (DELTA). The radiated peak and average spurious emission power next to the operating band is calculated by subtracting DELTA from the radiated average and peak carrier power individually. The peak and average horizontally radiated spurious emission at **2.4855GHz** are **93.18-46.43=46.75 dBuV/m (PK)** and **85.38-46.43=38.95 dBuV/m (AV)**.

Test Requirement: 15.205
The frequency spectrum above 1 GHz was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN off, Bluetooth on	Test Date :	2003/6/25
Fundamental Frequency:	2480MHz (channel 79)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

CH79 TX												
Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Cable (dB)	Pre-amp (dB)	Dist dB	Filter dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)	Height (Meter)
2479.95	92.23	31.72	2.54	35.33	9.5	0	81.66	Fundamental Frequency		P	V	1.0
2479.95	82.48	31.72	2.54	35.33	9.5	0	71.91			A	V	1.0
2484.44	47.59	(delta between carrier and local max emission)					34.07	74	-39.93	P	V	1.0
2484.44	47.59	(delta between carrier and local max emission)					24.32	54	-29.68	A	V	1.0
*4959.91	43.06	35.34	2.85	35.42	9.5	1	37.32	74	-36.68	P	V	1.0
*4959.91	31.10	35.34	2.85	35.42	9.5	1	25.36	54	-28.64	A	V	1.0
*7439.07	40.73	39.72	4.10	35.58	9.5	1	40.48	74	-33.52	P	V	1.0
*7439.07	28.36	39.72	4.10	35.58	9.5	1	28.11	54	-25.89	A	V	1.0
9919.89	40.69	38.51	3.88	35.81	9.5	1	38.76	74	-35.24	P	V	1.0
9919.89	29.47	38.51	3.88	35.81	9.5	1	27.54	54	-26.46	A	V	1.0
*12399.80	------	------	------	------	9.5	1	------	------	------	------	------	1.0
14879.70	------	------	------	------	9.5	1	------	------	------	------	------	1.0
17359.70	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*19839.60	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*22319.60	------	------	------	------	9.5	1	------	------	------	------	------	1.0
24799.50	------	------	------	------	9.5	1	------	------	------	------	------	1.0

Note :

1.	Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2.	AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3.	Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4.	The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit, Remark "*" means that Restricted band.
5.	Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB
6.	The conducted band-edge emission plots on the following figures show the difference between carrier maximum power and maximum emitting power in restrict band, **46.43dB at 2.4855GHz** (DELTA). The radiated peak and average spurious emission power next to the operating band is calculated by subtracting DELTA from the radiated average and peak carrier power individually. The peak and average vertically radiated spurious emission at **2.4855GHz** are **86.15-46.43=39.72 dBuV/m (PK)** and **75.88-46.43=29.45 dBuV/m (AV)**.

Test Requirement: 15.205
The frequency spectrum above 1 GHz was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN off, Bluetooth on	Test Date :	2003/6/25
Fundamental Frequency:	2402MHz (channel 1)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

CH1 RX

Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Cable (dB)	Pre-amp (dB)	Dist dB	Filter dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)	Height (Meter)
4803.83	41.19	34.31	2.76	35.38	9.5	0	33.28	74	-40.72	P	H	1.0
4803.83	29.16	34.31	2.76	35.38	9.5	0	21.75	54	-32.25	A	H	1.0
7205.91	40.67	39.82	3.92	35.56	9.5	0	38.72	74	-35.28	P	H	1.0
7205.91	29.65	39.82	3.92	35.56	9.5	0	27.61	54	-26.39	A	H	1.0
9607.56	41.33	38.54	4.13	35.65	9.5	0	38.74	74	-35.26	P	H	1.0
9607.56	28.04	38.54	4.13	35.65	9.5	0	25.83	54	-28.17	A	H	1.0
4804.11	41.09	34.31	2.76	35.38	9.5	0	33.38	74	-40.62	P	V	1.0
4804.11	29.56	34.31	2.76	35.38	9.5	0	21.35	54	-32.65	A	V	1.0
7206.35	40.04	39.82	3.92	35.56	9.5	0	39.35	74	-34.65	P	V	1.0
7206.35	28.93	39.82	3.92	35.56	9.5	0	28.33	54	-25.67	A	V	1.0
9608.18	41.22	38.54	4.13	35.65	9.5	0	38.85	74	-35.15	P	V	1.0
9608.18	28.31	38.54	4.13	35.65	9.5	0	25.56	54	-28.44	A	V	1.0

Note :

1. Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4. The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit
5. Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB

Test Requirement: 15.205
The frequency spectrum above 1 GHz was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN off, Bluetooth on	Test Date :	2003/6/25
Fundamental Frequency:	2441MHz (channel 40)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

CH40 RX												
Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Cable (dB)	Pre-amp (dB)	Dist dB	Filter dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)	Height (Meter)
4882.06	41.69	34.82	2.81	35.40	9.5	0	34.42	74	-39.58	P	H	1.0
4882.06	30.22	34.82	2.81	35.40	9.5	0	22.95	54	-31.05	A	H	1.0
7323.13	41.09	39.77	4.01	35.57	9.5	0	39.80	74	-34.20	P	H	1.0
7323.13	29.67	39.77	4.01	35.57	9.5	0	28.38	54	-25.62	A	H	1.0
9764.19	41.11	38.52	4.00	35.73	9.5	0	38.40	74	-35.60	P	H	1.0
9764.19	29.12	38.52	4.00	35.73	9.5	0	26.41	54	-27.59	A	H	1.0
4881.98	41.27	34.82	2.81	35.40	9.5	0	34.00	74	-40.00	P	V	1.0
4881.98	29.96	34.82	2.81	35.40	9.5	0	22.69	54	-31.31	A	V	1.0
7324.12	40.96	39.77	4.01	35.57	9.5	0	39.67	74	-34.33	P	V	1.0
7324.12	29.86	39.77	4.01	35.57	9.5	0	28.57	54	-25.43	A	V	1.0
9763.76	41.83	38.52	4.00	35.73	9.5	0	39.13	74	-34.87	P	V	1.0
9763.76	30.11	38.52	4.00	35.73	9.5	0	27.41	54	-26.59	A	V	1.0

Note :

1.	Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2.	AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3.	Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4.	The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit
5.	Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB

Test Requirement: 15.205
The frequency spectrum above 1 GHz was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN off, Bluetooth on	Test Date :	2003/6/25
Fundamental Frequency:	2480MHz (channel 79)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

CH79 RX												
Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Cable (dB)	Pre-amp (dB)	Dist dB	Filter dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)	Height (Meter)
4960.11	41.77	35.34	2.85	35.42	9.5	0	35.04	74	-38.96	P	H	1.0
4960.11	29.93	35.34	2.85	35.42	9.5	0	23.20	54	-30.80	A	H	1.0
7439.86	41.07	39.72	4.10	35.58	9.5	0	39.82	74	-34.18	P	H	1.0
7439.86	29.65	39.72	4.10	35.58	9.5	0	28.40	54	-25.60	A	H	1.0
9920.66	41.36	38.51	3.88	35.81	9.5	0	38.43	74	-35.57	P	H	1.0
9920.66	29.60	38.51	3.88	35.81	9.5	0	26.67	54	-27.33	A	H	1.0
4960.76	41.07	35.34	2.85	35.42	9.5	0	34.34	74	-39.66	P	V	1.0
4960.76	30.05	35.34	2.85	35.42	9.5	0	23.32	54	-30.68	A	V	1.0
7440.12	41.26	39.72	4.10	35.58	9.5	0	40.01	74	-33.99	P	V	1.0
7440.12	29.54	39.72	4.10	35.58	9.5	0	28.29	54	-25.71	A	V	1.0
9920.47	40.81	38.51	3.88	35.81	9.5	0	37.88	74	-36.12	P	V	1.0
9920.47	29.07	38.51	3.88	35.81	9.5	0	26.14	54	-27.86	A	V	1.0

Note :

1. Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4. The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit
5. Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB

11.6.3 Mode3, WLAN transmitting, Bluetooth transmitting

Test Requirement: 15.109, 15.209
The frequency spectrum from 30 MHz to 1000 MHz was investigated. All emissions not reported below are more than 20 dB below the prescribed limits.
All readings are quasi-peak values.

Temperature：27 ℃ Humidity：68 % RH

FREQ-UENCY (MHz)	ANTENNA FACTOR (dB)	CABLE LOSS (dB)	METER READING AT3m(dB μ V/M) HORIZON-TAL	METER READING AT3m(dB μ V/M) VERTICAL	LIMITS (dB μ V/M)	EMISSION LEVEL AT3m(dB μ V/M) HORIZON-TAL	EMISSION LEVEL AT3m(dB μ V/M) VERTICAL
30.00	21.39	0.90	*	*	40.00	*	*
124.13	13.33	2.08	10.40	14.90	43.50	25.81	30.31
194.90	10.34	2.75	16.20	11.80	43.50	29.29	24.89
299.98	13.50	3.60	21.10	17.80	46.00	38.20	34.90
399.97	17.24	4.20	12.40	12.40	46.00	33.84	33.84
458.18	17.87	4.61	9.40	11.10	46.00	31.88	33.58
733.28	19.80	6.07	9.50	10.60	46.00	35.37	36.47
799.94	20.53	6.40	7.60	8.10	46.00	34.53	35.03
1000.00	21.58	7.00	*	*	54.00	*	*

REMARKS：

1. Undetectable
2. Emission level (dBμV/M) =Antenna Factor (dB/m) + Cable loss (dB)+ Meter Reading (dBμV).
3. After the preliminary scan, we found the EUT in Transmitting mode produces the highest emission level. And the output power at channel 1 has the highest power. So the EUT was set to TX mode at channel 1 (2412/2402 MHZ), the worst case, to generate the highest unwanted radiated emission in finial test.
4. WLAN on, Bluetooth on.

Test Requirement: 15.205
The frequency spectrum **above 1 GHz** was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN on, Bluetooth on	Test Date :	2003/6/25
Fundamental Frequency:	WLAN 2412MHz (channel 1) Bluetooth 2402MHz (channel 1)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

Bluetooth CH1 TX				WLAN CH1 TX								
Freq.	Reading	AF	Cable	Pre-amp	Dist	Filter	Level	Limit	Margin	Mark	Pol	Height
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	dB	dB	(dBuV/m)	FCC_B	(dB)	(P/Q/A)	(H/V)	(Meter)
2402.02	88.13	31.8	2.33	35.31	9.5	0	77.45	Fundamental Frequency		P	H	1.0
2402.02	87.03	31.8	2.33	35.31	9.5	0	76.35			A	H	1.0
2413.75	98.03	31.79	2.36	35.31	9.5	0	87.37			P	H	1.0
2413.75	89.47	31.79	2.36	35.31	9.5	0	78.81			A	H	1.0
*4803.99	38.17	34.31	2.76	35.38	9.5	1	31.36	74	-42.64	P	H	1.0
*4803.99	26.05	34.31	2.76	35.38	9.5	1	19.24	54	-34.76	A	H	1.0
7206.03	34.23	39.82	3.92	35.56	9.5	1	33.91	74	-40.09	P	H	1.0
7206.24	22.75	39.82	3.92	35.56	9.5	1	22.43	54	-31.57	A	H	1.0
9608.18	40.55	38.54	4.13	35.65	9.5	1	39.07	74	-34.93	P	H	1.0
9608.18	29.07	38.54	4.13	35.65	9.5	1	27.59	54	-26.41	A	H	1.0
*4824.27	33.56	34.44	2.78	35.38	9.5	1	26.89	74	-47.11	P	H	1.0
*4824.27	21.32	34.44	2.78	35.38	9.5	1	14.65	54	-39.35	A	H	1.0
7236.43	37.34	39.81	3.94	35.56	9.5	1	37.03	74	-36.97	P	H	1.0
7236.43	25.29	39.81	3.94	35.56	9.5	1	24.98	54	-29.02	A	H	1.0
9647.49	41.23	38.54	4.10	35.67	9.5	1	39.69	74	-34.31	P	H	1.0
9647.49	29.07	38.54	4.10	35.67	9.5	1	27.53	54	-26.47	A	H	1.0
*12068.80	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*14482.50	------	------	------	------	9.5	1	------	------	------	------	------	1.0
16896.30	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*19310.00	------	------	------	------	9.5	1	------	------	------	------	------	1.0
21723.80	------	------	------	------	9.5	1	------	------	------	------	------	1.0
24137.50	------	------	------	------	9.5	1	------	------	------	------	------	1.0

Note :

1. Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4. The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit, Remark "*" means that Restricted band.
5. Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB

Test Requirement: 15.205
The frequency spectrum above 1 GHz was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN on, Bluetooth on	Test Date :	2003/6/25
Fundamental Frequency:	WLAN 2412MHz (channel 1) Bluetooth 2402MHz (channel 1)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

Bluetooth CH1 TX				WLAN CH1 TX								
Freq.	Reading	AF	Cable	Pre-amp	Dist	Filter	Level	Limit	Margin	Mark	Pol	Height
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	dB	dB	(dBuV/m)	FCC_B	(dB)	(P/Q/A)	(H/V)	(Meter)
2401.87	84.46	31.8	2.33	35.31	9.5	0	73.78	Fundamental Frequency		P	V	1.0
2401.87	83.19	31.8	2.33	35.31	9.5	0	72.51			A	V	1.0
2413.75	99.99	31.79	2.36	35.31	9.5	0	89.33			P	V	1.0
2413.75	91.12	31.79	2.36	35.31	9.5	0	80.46			A	V	1.0
*4804.15	38.66	34.31	2.76	35.38	9.5	1	31.85	74	-42.15	P	V	1.0
*4804.15	27.22	34.31	2.76	35.38	9.5	1	20.41	54	-33.59	A	V	1.0
7206.03	39.51	39.82	3.92	35.56	9.5	1	39.19	74	-34.81	P	V	1.0
7206.03	27.88	39.82	3.92	35.56	9.5	1	27.56	54	-26.44	A	V	1.0
9608.26	41.95	38.54	4.13	35.65	9.5	1	40.47	74	-33.53	P	V	1.0
9608.26	27.20	38.54	4.13	35.65	9.5	1	25.72	54	-28.28	A	V	1.0
*4823.88	39.01	34.44	2.77	35.38	9.5	1	32.34	74	-41.66	P	V	1.0
*4823.88	27.07	34.44	2.77	35.38	9.5	1	20.40	54	-33.60	A	V	1.0
7235.72	39.82	39.81	3.94	35.56	9.5	1	39.51	74	-34.49	P	V	1.0
7235.72	27.67	39.81	3.94	35.56	9.5	1	27.36	54	-26.64	A	V	1.0
9647.75	41.47	38.54	4.10	35.67	9.5	1	39.93	74	-34.07	P	V	1.0
9647.75	28.56	38.54	4.10	35.67	9.5	1	27.02	54	-26.98	A	V	1.0
*12068.80	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*14482.50	------	------	------	------	9.5	1	------	------	------	------	------	1.0
16896.30	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*19310.00	------	------	------	------	9.5	1	------	------	------	------	------	1.0
21723.80	------	------	------	------	9.5	1	------	------	------	------	------	1.0
24137.50	------	------	------	------	9.5	1	------	------	------	------	------	1.0

Note :

1. Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4. The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit, Remark "*" means that Restricted band.
5. Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB

Test Requirement: 15.205
The frequency spectrum above 1 GHz was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN on, Bluetooth on	Test Date :	2003/6/25
Fundamental Frequency:	WLAN 2437MHz (channel 6) Bluetooth 2441MHz (channel 40)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

Bluetooth CH40 TX				WLAN CH6 TX								
Freq.	Reading	AF	Cable	Pre-amp	Dist	Filter	Level	Limit	Margin	Mark	Pol	Height
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	dB	dB	(dBuV/m)	FCC_B	(dB)	(P/Q/A)	(H/V)	(Meter)
2440.88	84.90	31.76	2.43	35.32	9.5	0	74.27	Fundamental Frequency		P	H	1.0
2440.88	75.20	31.76	2.43	35.32	9.5	0	64.57			A	H	1.0
2436.78	103.92	31.76	2.42	35.32	9.5	0	93.29			P	H	1.0
2436.78	97.16	31.76	2.42	35.32	9.5	0	86.53			A	H	1.0
*4881.93	43.08	34.82	2.81	35.40	9.5	1	36.81	74	-37.19	P	H	1.0
*4881.93	31.36	34.82	2.81	35.40	9.5	1	25.09	54	-28.91	A	H	1.0
*7323.59	39.51	39.77	4.01	35.57	9.5	1	39.22	74	-34.78	P	H	1.0
*7323.59	27.55	39.77	4.01	35.57	9.5	1	27.26	54	-26.74	A	H	1.0
9764.23	40.26	38.52	4.00	35.73	9.5	1	38.55	74	-35.45	P	H	1.0
9764.23	29.17	38.52	4.00	35.73	9.5	1	27.46	54	-26.54	A	H	1.0
*4874.68	40.12	34.77	2.80	35.40	9.5	1	33.80	74	-40.20	P	H	1.0
*4874.68	28.21	34.77	2.80	35.40	9.5	1	21.89	54	-32.11	A	H	1.0
*7311.77	40.12	39.78	4.00	35.57	9.5	1	39.83	74	-34.17	P	H	1.0
*7311.77	27.93	39.78	4.00	35.57	9.5	1	27.64	54	-26.36	A	H	1.0
9747.61	39.89	38.53	4.02	35.72	9.5	1	38.21	74	-35.79	P	H	1.0
9747.61	28.67	38.53	4.02	35.72	9.5	1	26.99	54	-27.01	A	H	1.0
*12183.90	------	------	------	------	9.5	1	------	------	------	------	------	1.0
14620.70	------	------	------	------	9.5	1	------	------	------	------	------	1.0
17057.50	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*19494.20	------	------	------	------	9.5	1	------	------	------	------	------	1.0
21931.00	------	------	------	------	9.5	1	------	------	------	------	------	1.0
24367.80	------	------	------	------	9.5	1	------	------	------	------	------	1.0

Note :

1. Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4. The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit, Remark "*" means that Restricted band.
5. Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB

Test Requirement: 15.205
The frequency spectrum above 1 GHz was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN on, Bluetooth on	Test Date :	2003/6/25
Fundamental Frequency:	WLAN 2437MHz (channel 6) Bluetooth 2441MHz (channel 40)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

Bluetooth CH40 TX				WLAN CH6 TX								
Freq.	Reading	AF	Cable	Pre-amp	Dist	Filter	Level	Limit	Margin	Mark	Pol	Height
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	dB	dB	(dBuV/m)	FCC_B	(dB)	(P/Q/A)	(H/V)	(Meter)
2440.79	95.63	31.76	2.43	35.32	9.5	0	85.00	Fundamental Frequency		P	V	1.0
2440.79	85.10	31.76	2.43	35.32	9.5	0	74.47			A	V	1.0
2436.83	101.72	31.76	2.42	35.32	9.5	0	91.09			P	V	1.0
2436.83	91.47	31.76	2.42	35.32	9.5	0	80.84			A	V	1.0
*4881.78	40.22	34.82	2.81	35.40	9.5	1	33.95	74	-40.05	P	V	1.0
*4881.78	28.61	34.82	2.81	35.40	9.5	1	22.34	54	-31.66	A	V	1.0
*7322.75	39.49	39.77	4.01	35.57	9.5	1	39.20	74	-34.80	P	V	1.0
*7322.75	27.42	39.77	4.01	35.57	9.5	1	27.13	54	-26.87	A	V	1.0
9764.34	40.63	38.52	4.00	35.73	9.5	1	38.92	74	-35.08	P	V	1.0
9764.34	29.78	38.52	4.00	35.73	9.5	1	28.07	54	-25.93	A	V	1.0
*4873.74	40.52	34.77	2.80	35.40	9.5	1	34.19	74	-39.81	P	V	1.0
*4873.74	28.46	34.77	2.80	35.40	9.5	1	22.13	54	-31.87	A	V	1.0
*7310.97	40.11	39.78	4.00	35.57	9.5	1	39.82	74	-34.18	P	V	1.0
*7310.97	28.56	39.78	4.00	35.57	9.5	1	28.27	54	-25.73	A	V	1.0
9747.69	40.27	38.53	4.02	35.72	9.5	1	38.59	74	-35.41	P	V	1.0
9747.69	29.88	38.53	4.02	35.72	9.5	1	28.20	54	-25.80	A	V	1.0
*12184.20	------	------	------	------	9.5	1	------	------	------	------	------	1.0
14621.00	------	------	------	------	9.5	1	------	------	------	------	------	1.0
17057.80	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*19494.60	------	------	------	------	9.5	1	------	------	------	------	------	1.0
21931.50	------	------	------	------	9.5	1	------	------	------	------	------	1.0
24368.30	------	------	------	------	9.5	1	------	------	------	------	------	1.0

Note :

1. Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4. The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit, Remark "*" means that Restricted band.
5. Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB

Test Requirement: 15.205
The frequency spectrum above 1 GHz was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN on, Bluetooth on	Test Date :	2003/6/25
Fundamental Frequency:	WLAN 2480MHz (channel 79) Bluetooth 2462MHz (channel 11)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

Bluetooth CH79 TX				WLAN CH11 TX								
Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Cable (dB)	Pre-amp (dB)	Dist dB	Filter dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)	Height (Meter)
2479.91	95.68	31.72	2.54	35.33	9.5	0	85.11	Fundamental Frequency		P	H	1.0
2479.91	85.79	31.72	2.54	35.33	9.5	0	75.22			A	H	1.0
2461.44	103.42	31.74	2.49	35.32	9.5	0	92.82			P	H	1.0
2461.44	100.02	31.74	2.49	35.32	9.5	0	89.42			A	H	2.0
*4959.96	44.08	35.34	2.85	35.42	9.5	1	38.34	74	-35.66	P	H	1.0
*4959.96	32.47	35.34	2.85	35.42	9.5	1	26.73	54	-27.27	A	H	1.0
*7440.22	39.61	39.72	4.10	35.58	9.5	1	39.36	74	-34.64	P	H	1.0
*7440.22	27.62	39.72	4.10	35.58	9.5	1	27.37	54	-26.63	A	H	1.0
9920.26	40.26	38.51	3.88	35.81	9.5	1	38.33	74	-35.67	P	H	1.0
9920.26	29.67	38.51	3.88	35.81	9.5	1	27.74	54	-26.26	A	H	1.0
*4923.51	40.26	35.10	2.83	35.41	9.5	1	34.27	74	-39.73	P	H	1.0
*4923.51	28.65	35.10	2.83	35.41	9.5	1	22.66	54	-31.34	A	H	1.0
*7386.33	43.88	39.75	4.06	35.57	9.5	1	43.61	74	-30.39	P	H	1.0
*7386.33	32.42	39.75	4.06	35.57	9.5	1	32.15	54	-21.85	A	H	1.0
9847.68	40.29	38.52	3.93	35.77	9.5	1	38.47	74	-35.53	P	H	1.0
9847.68	28.97	38.52	3.93	35.77	9.5	1	27.15	54	-26.85	A	H	1.0
*12307.20	------	------	------	------	9.5	1	------	------	------	------	------	1.0
14768.60	------	------	------	------	9.5	1	------	------	------	------	------	1.0
17230.10	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*19691.50	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*22153.00	------	------	------	------	9.5	1	------	------	------	------	------	1.0
24614.40	------	------	------	------	9.5	1	------	------	------	------	------	1.0

Note :

1. Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4. The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit, Remark "*" means that Restricted band.
5. Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB

Test Requirement: 15.205
The frequency spectrum above 1 GHz was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN on, Bluetooth on	Test Date :	2003/6/25
Fundamental Frequency:	WLAN 2480MHz (channel 79) Bluetooth 2462MHz (channel 11)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

Bluetooth CH79 TX				WLAN CH11 TX								
Freq.	Reading	AF	Cable	Pre-amp	Dist	Filter	Level	Limit	Margin	Mark	Pol	Height
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	dB	dB	(dBuV/m)	FCC_B	(dB)	(P/Q/A)	(H/V)	(Meter)
2479.83	92.57	31.72	2.54	35.33	9.5	0	82.00	Fundamental Frequency		P	V	1.0
2479.83	82.79	31.72	2.54	35.33	9.5	0	72.22			A	V	1.0
2461.88	100.48	31.74	2.49	35.32	9.5	0	89.89			P	V	1.0
2461.88	89.87	31.74	2.49	35.32	9.5	0	79.28			A	V	1.0
*4960.03	42.73	35.34	2.85	35.42	9.5	1	37.00	74	-37.00	P	V	1.0
*4960.03	30.44	35.34	2.85	35.42	9.5	1	24.71	54	-29.29	A	V	1.0
*7440.32	39.76	39.72	4.10	35.58	9.5	1	39.51	74	-34.49	P	V	1.0
*7440.32	27.49	39.72	4.10	35.58	9.5	1	27.24	54	-26.76	A	V	1.0
9920.13	39.79	38.51	3.88	35.81	9.5	1	37.86	74	-36.14	P	V	1.0
9920.13	28.37	38.51	3.88	35.81	9.5	1	26.44	54	-27.56	A	V	1.0
*4923.78	40.16	35.10	2.83	35.41	9.5	1	34.18	74	-39.82	P	V	1.0
*4923.78	28.69	35.10	2.83	35.41	9.5	1	22.71	54	-31.29	A	V	1.0
*7386.05	39.57	39.75	4.06	35.57	9.5	1	39.30	74	-34.70	P	V	1.0
*7386.05	28.77	39.75	4.06	35.57	9.5	1	28.50	54	-25.50	A	V	1.0
9847.80	40.62	38.52	3.93	35.77	9.5	1	38.80	74	-35.20	P	V	1.0
9847.80	27.96	38.52	3.93	35.77	9.5	1	26.14	54	-27.86	A	V	1.0
*12309.40	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*14771.30	------	------	------	------	9.5	1	------	------	------	------	------	1.0
17233.20	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*19695.00	------	------	------	------	9.5	1	------	------	------	------	------	1.0
*22156.90	------	------	------	------	9.5	1	------	------	------	------	------	1.0
24618.80	------	------	------	------	9.5	1	------	------	------	------	------	1.0

Note :

1. Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4. The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit, Remark "*" means that Restricted band.
5. Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB

Test Requirement: 15.205
The frequency spectrum above 1 GHz was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN on, Bluetooth on	Test Date :	2003/6/25
Fundamental Frequency:	WLAN 2412MHz (channel 1) Bluetooth 2402MHz (channel 1)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

Bluetooth CH1 RX				WLAN CH1 RX								
Freq.	Reading	AF	Cable	Pre-amp	Dist	Filter	Level	Limit	Margin	Mark	Pol	Height
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	dB	dB	(dBuV/m)	FCC_B	(dB)	(P/Q/A)	(H/V)	(Meter)
*4804.11	40.19	34.31	2.76	35.38	9.5	0	32.87	74	-41.13	P	H	1.0
*4804.11	29.64	34.31	2.76	35.38	9.5	0	21.66	54	-32.34	A	H	1.0
7206.38	40.09	39.82	3.92	35.56	9.5	0	38.44	74	-35.56	P	H	1.0
7206.38	29.77	39.82	3.92	35.56	9.5	0	26.24	54	-27.76	A	H	1.0
9608.51	40.07	38.54	4.13	35.65	9.5	0	38.13	74	-35.87	P	H	1.0
9608.51	28.79	38.54	4.13	35.65	9.5	0	26.31	54	-27.69	A	H	1.0
*4824.39	39.67	34.44	2.78	35.38	9.5	0	32.00	74	-42.00	P	H	1.0
*4824.39	27.62	34.44	2.78	35.38	9.5	0	19.95	54	-34.05	A	H	1.0
7235.65	38.11	39.81	3.94	35.56	9.5	0	36.80	74	-37.20	P	H	1.0
7235.65	27.58	39.81	3.94	35.56	9.5	0	26.27	54	-27.73	A	H	1.0
9647.66	40.02	38.54	4.10	35.67	9.5	0	37.48	74	-36.52	P	H	1.0
9647.66	28.54	38.54	4.10	35.67	9.5	0	26.00	54	-28.00	A	H	1.0
*4804.11	40.68	34.31	2.76	35.38	9.5	0	32.38	74	-41.62	P	V	1.0
*4804.11	29.47	34.31	2.76	35.38	9.5	0	21.83	54	-32.17	A	V	1.0
7206.35	39.76	39.82	3.92	35.56	9.5	0	38.77	74	-35.23	P	V	1.0
7206.35	27.56	39.82	3.92	35.56	9.5	0	28.45	54	-25.55	A	V	1.0
9608.18	40.61	38.54	4.13	35.65	9.5	0	37.59	74	-36.41	P	V	1.0
9608.18	28.79	38.54	4.13	35.65	9.5	0	26.31	54	-27.69	A	V	1.0
*4824.16	39.92	34.44	2.78	35.38	9.5	0	32.25	74	-41.75	P	V	1.0
*4824.16	27.55	34.44	2.78	35.38	9.5	0	19.88	54	-34.12	A	V	1.0
7236.18	40.12	39.81	3.94	35.56	9.5	0	38.81	74	-35.19	P	V	1.0
7236.18	27.98	39.81	3.94	35.56	9.5	0	26.67	54	-27.33	A	V	1.0
9648.27	39.87	38.54	4.10	35.67	9.5	0	37.33	74	-36.67	P	V	1.0
9648.27	29.45	38.54	4.10	35.67	9.5	0	26.91	54	-27.09	A	V	1.0

Note :

1. Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4. The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit, Remark "*" means that Restricted band.
5. Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB

Test Requirement: 15.205
The frequency spectrum above 1 GHz was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	WLAN on, Bluetooth on	Test Date :	2003/6/25
Fundamental Frequency:	Bluetooth 2437MHz (channel 6) WLAN 2441MHz (channel 40)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

Bluetooth CH40 RX				WLAN CH6 RX								
Freq.	Reading	AF	Cable	Pre-amp	Dist	Filter	Level	Limit	Margin	Mark	Pol	Height
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	dB	dB	(dBuV/m)	FCC_B	(dB)	(P/Q/A)	(H/V)	(Meter)
*4882.09	39.46	34.82	2.81	35.40	9.5	0	32.19	74	-41.81	P	H	1.0
*4882.09	27.85	34.82	2.81	35.40	9.5	0	20.58	54	-33.42	A	H	1.0
*7323.44	40.39	39.77	4.01	35.57	9.5	0	39.10	74	-34.90	P	H	1.0
*7323.44	29.67	39.77	4.01	35.57	9.5	0	28.38	54	-25.62	A	H	1.0
9764.39	40.13	38.52	4.00	35.73	9.5	0	37.42	74	-36.58	P	H	1.0
9764.39	29.57	38.52	4.00	35.73	9.5	0	26.86	54	-27.14	A	H	1.0
*4874.16	40.17	34.77	2.80	35.40	9.5	0	32.84	74	-41.16	P	H	1.0
*4874.16	28.61	34.77	2.80	35.40	9.5	0	21.28	54	-32.72	A	H	1.0
*7311.97	40.36	39.78	4.00	35.57	9.5	0	39.07	74	-34.93	P	H	1.0
*7311.97	28.21	39.78	4.00	35.57	9.5	0	26.92	54	-27.08	A	H	1.0
9748.08	40.37	38.53	4.02	35.72	9.5	0	37.69	74	-36.31	P	H	1.0
9748.08	28.62	38.53	4.02	35.72	9.5	0	25.94	54	-28.06	A	H	1.0
*4881.91	40.74	34.82	2.81	35.40	9.5	0	33.47	74	-40.53	P	V	1.0
*4881.91	28.65	34.82	2.81	35.40	9.5	0	21.38	54	-32.62	A	V	1.0
*7322.58	40.72	39.77	4.01	35.57	9.5	0	39.43	74	-34.57	P	V	1.0
*7322.58	28.64	39.77	4.01	35.57	9.5	0	27.35	54	-26.65	A	V	1.0
9763.11	40.63	38.52	4.00	35.73	9.5	0	37.93	74	-36.07	P	V	1.0
9763.11	29.78	38.52	4.00	35.73	9.5	0	27.08	54	-26.92	A	V	1.0
*4874.09	40.23	34.77	2.80	35.40	9.5	0	32.90	74	-41.10	P	V	1.0
*4874.09	30.02	34.77	2.80	35.40	9.5	0	22.69	54	-31.31	A	V	1.0
*7311.06	39.86	39.78	4.00	35.57	9.5	0	38.57	74	-35.43	P	V	1.0
*7311.06	27.78	39.78	4.00	35.57	9.5	0	26.49	54	-27.51	A	V	1.0
9748.35	40.46	38.53	4.02	35.72	9.5	0	37.78	74	-36.22	P	V	1.0
9748.35	29.37	38.53	4.02	35.72	9.5	0	26.69	54	-27.31	A	V	1.0

Note :

1. Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4. The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit, Remark "*" means that Restricted band.
5. Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB

Test Requirement: 15.205
The frequency spectrum above 1 GHz was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

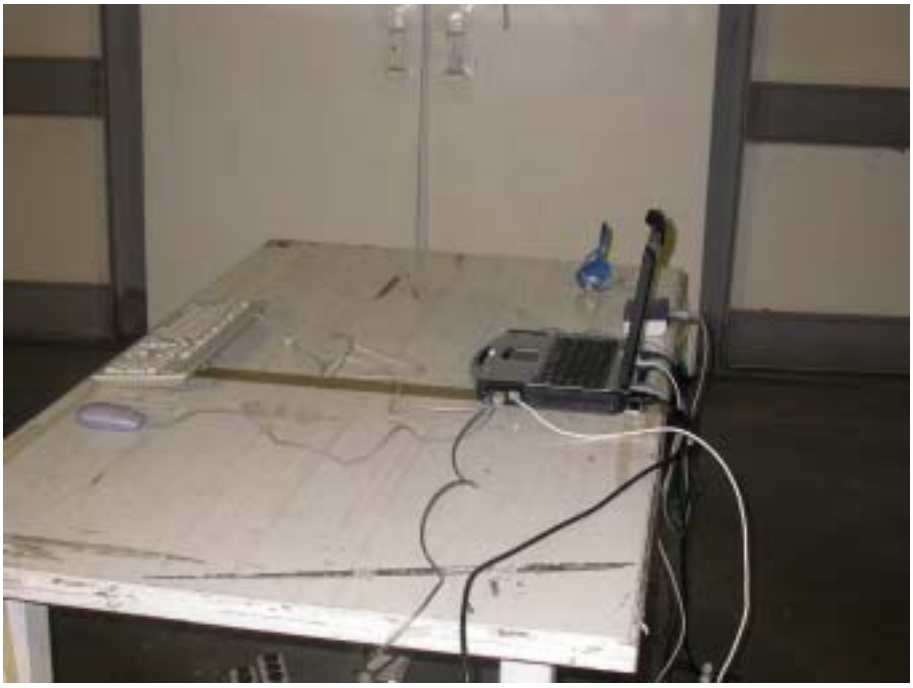
Operation Mode:	WLAN on, Bluetooth on	Test Date :	2003/6/25
Fundamental Frequency:	WLAN 2480MHz (channel 79) Bluetooth 2462MHz (channel 11)	Test By:	Alan Fan
Temperature :	26 ℃	Humidity :	65%

Bluetooth CH79 RX				WLAN CH11 RX								
Freq.	Reading	AF	Cable	Pre-amp	Dist	Filter	Level	Limit	Margin	Mark	Pol	Height
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	dB	dB	(dBuV/m)	FCC_B	(dB)	(P/Q/A)	(H/V)	(Meter)
*4959.82	40.85	35.33	2.85	35.42	9.5	0	34.11	74	-39.89	P	H	1.0
*4959.82	29.37	35.33	2.85	35.42	9.5	0	22.63	54	-31.37	A	H	1.0
*7440.23	40.39	39.72	4.10	35.58	9.5	0	39.14	74	-34.86	P	H	1.0
*7440.23	29.65	39.72	4.10	35.58	9.5	0	28.40	54	-25.60	A	H	1.0
9920.29	40.36	38.51	3.88	35.81	9.5	0	37.43	74	-36.57	P	H	1.0
9920.29	29.84	38.51	3.88	35.81	9.5	0	26.91	54	-27.09	A	H	1.0
*4924.16	41.73	35.10	2.83	35.41	9.5	0	34.75	74	-39.25	P	H	1.0
*4924.16	29.38	35.10	2.83	35.41	9.5	0	22.40	54	-31.60	A	H	1.0
*7386.86	40.25	39.75	4.06	35.57	9.5	0	38.98	74	-35.02	P	H	1.0
*7386.86	29.54	39.75	4.06	35.57	9.5	0	28.27	54	-25.73	A	H	1.0
9848.13	40.43	38.52	3.93	35.77	9.5	0	37.61	74	-36.39	P	H	1.0
9848.13	29.44	38.52	3.93	35.77	9.5	0	26.62	54	-27.38	A	H	1.0
*4960.11	41.64	35.34	2.85	35.42	9.5	0	34.91	74	-39.09	P	V	1.0
*4960.11	30.26	35.34	2.85	35.42	9.5	0	23.53	54	-30.47	A	V	1.0
*7440.12	40.01	39.72	4.10	35.58	9.5	0	38.76	74	-35.24	P	V	1.0
*7440.12	29.81	39.72	4.10	35.58	9.5	0	28.56	54	-25.44	A	V	1.0
9919.87	39.94	38.51	3.88	35.81	9.5	0	37.01	74	-36.99	P	V	1.0
9919.87	28.01	38.51	3.88	35.81	9.5	0	25.08	54	-28.92	A	V	1.0
*4924.01	41.67	35.1	2.83	35.41	9.5	0	34.69	74	-39.31	P	V	1.0
*4924.01	29.59	35.1	2.83	35.41	9.5	0	22.61	54	-31.39	A	V	1.0
*7386.55	39.87	39.75	4.06	35.57	9.5	0	38.60	74	-35.40	P	V	1.0
*7386.55	28.97	39.75	4.06	35.57	9.5	0	27.70	54	-26.30	A	V	1.0
9847.76	40.38	38.52	3.93	35.77	9.5	0	37.56	74	-36.44	P	V	1.0
9847.76	29.19	38.52	3.93	35.77	9.5	0	26.37	54	-27.63	A	V	1.0

Note :

1. Measurement was up to 10th harmonic,"---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Cable: Cable Loss, Filt : High pass Filter Insertion Loss (3.5GHz), pre-Amp : preamp gain
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz,VBW=10Hz
4. The result basic equation calculation in as follow : Level : Reading + AF + cable – preamp + Filter – Dist, Margin=Level – Limit, Remark "*" means that Restricted band.
5. Dist : correction factor (3m specification distance to 1m measurement distance) = 9.5dB

11.7 Photos of Open Site



12. ANTENNA REQUIREMENT

12.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.
And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

12.2 Antenna Connected Construction

There are two RF module integrated inside the EUT. One is WLAN module whose FCC ID is PD9WM3B2100. Another is Bluetooth Module.

The antenna, 802.11b PIFA Antenna 340, used for this WLAN module inside the EUT is PIFA antenna connected by a I-PEX connector to the RF module. And the Gain of this antenna is only 1.41dBi (ref).

The antenna, CABPB0715A, used for this Bluetooth module inside the EUT is a ceramic patch antenna directly mounted on the RF module. And the Gain of this antenna is only -3dBi (Max).