



ELECTROMAGNETIC COMPATIBILITY TEST REPORT

Company BroMax Communications, Inc.
Address 1F, No.66, Alley 35, Lane 91, Sec.1, NeiHu Road, Taipei,
Taiwan, R.O.C.
Sample Name Access Point
Model NO WA304-UF//WA301-UF
Date Received FEB. 29, 2002
Date Tested FEB. 29 TO MAR. 15 2002

MEASUREMENT REQUIREMENT USED

47 CFR Part 15, Subpart B and Subpart C (Section 15.247),
ANSI C63.4-1992

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.

	Name	Signature	Date
Testing Engineer	C.F. Wu/NVLAP	C. F. Wu	Mar. 22, 2002
Approving Manager	J. S. Song/NVLAP	J. S. Song	Mar. 22, 2002

Notes

1. This report will be invalid if duplicated or photocopied in part.
2. This report refers only to the specimen(s) submitted to test, and is 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.



The difference of the series model

Company : BroMax Communications, Inc.

Sample Name : Access Point

Different Item	Brand	Bromax	
	Model	WA304-UF	WA301-UF
External Feature color		with 4 Port hub connector	without hub connector
Operating Software		O	O
Circuits Design		With hub function	Without hub function
PCB Layout		With hub function	Without hub function
Model Module		O	O
Power Supply		O	O
Remark : 1.“ O ” means all the same. 2.To add the series model for business necessary. All of the products are the same			



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1. GENERAL INFORMATION

1.1 DESCRIPTION OF EUT & POWER

MANUFACTURER	BroMax Communications, Inc.
SAMPLE NAME	ACCESS POINT
MODEL NO	WA304-UF//WA301-UF
FREQUENCY RANGE	2412 MHz TO 2462MHz
CHANNEL NUMBER	11
AIR DATA RATE	11Mbps (Highest Mode)
TYPE OF MODULATION	DIRECT SEQUENCE SPREAD SPECTRUM
FREQUENCY SELECTION	BY SOFTWARE
ANTENNA TYPE	CONNECTOR*2 (PORT A & PORT B)
POWER SOURCE	12VDC (from power adapter 110VAC,DVE)
TEST MODE	
MODE 1:	WA304-UF
MODE 2:	WA301-UF

NOTE:

The Basic function and circuit of WA304-UF and WA 301-UF are the same. The deference of them is WA304-UF with hub function and WA301-UF without hub function.

The WA304-UF is worse case than WA301-UF so it didn't report the test data for WA301-UF except CONDUCTED POWERLINE TEST.



1.2 DESCRIPTION OF PERIPHERALS

1 NOTEBOOK PC

MODEL NUMBER PAT 800L P000
SERIAL NUMBER X8012670
MANUFACTURER TOSHIBA CORP.
F.C.C. ID -----
POWER SOURCE 15VDC (from power adapter)

2 MODEM

MODEL NUMBER Omni 56K
SERIAL NUMBER S1Z4107729
MANUFACTURER ZYXEL CORP.
F.C.C. ID I88MNI56K

3 PRINTER

MODEL NUMBER C6431D
SERIAL NUMBER CN19T6S011
MANUFACTURER HP CORP.
F.C.C. ID -----
POWER CORD Unshielded , Undetachable , 1.8m

4 MONITOR

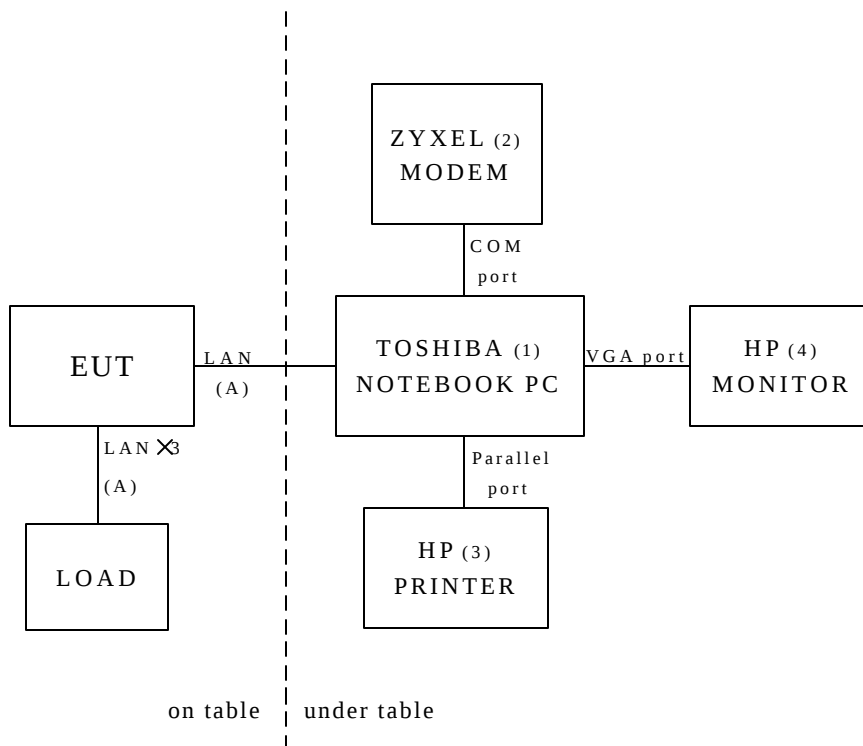
MODEL NUMBER D8894A
SERIAL NUMBER CN00905269
MANUFACTURER HP CORP.
F.C.C. ID ARSCM356N
POWER CORD Unshielded , Detachable , 1.8m

5 CABLE

	Type	Connector	Shielded	Length
(A)	Cross-over CAT5 twisted-pair	RJ-45, plastic	No	15m



1.3 EUT & PERIPHERALS SETUP DIAGRAM



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



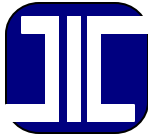
SITE DESCRIPTION	FCC certificate NO.	: 31040/PRV
	TUV certificate NO.	: I9664582-9911
	BSMI certificate NO.	: SL2-IN-E-0002
	NVLAP Lab code	: 200118-0
	CNLA certificate NO.	: CNLA-ZL97018
	VCCI certificate NO.	: R-1229, G-1250

NAME OF SITE Electronics Research & Service Organization
Industrial Technology Research Institute

SITE LOCATION R1500, 195-4 , sec. 4, Chung Hsing
Rd.,
31015 R.O.C. Chu-Tung Chen. Hsin-Chu, Taiwan

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
15.107 15.207	AC Power Conducted Emission Limit : 48dBuV	PASS	Meet the requirement of limit
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit : min. 500KHz	PASS	Meet the requirement of limit
15.247(b)	Maximum Peak Output Power Limit : max. 30dBm	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(d)	Power Spectral Density Limit : max. 8dBm	PASS	Meet the requirement of limit
15.247(c)	Band Edge Measurement Limit : 20 dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit



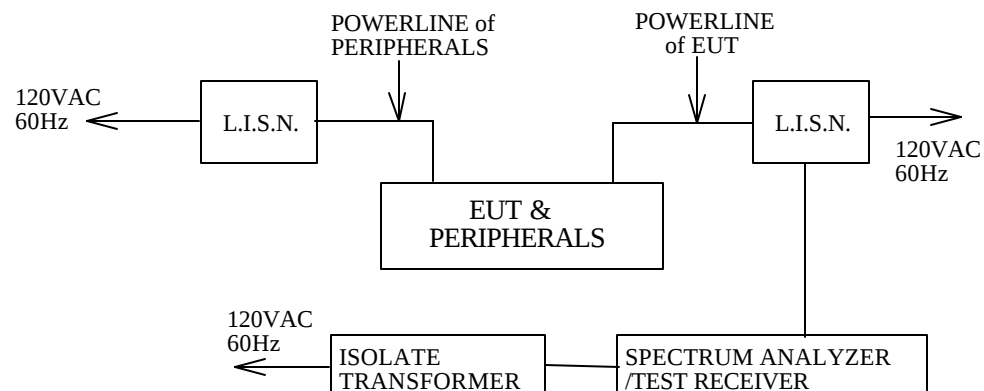
2. CONDUCTED POWERLINE TEST

2.1 TEST EQUIPMENTS

The following test equipments are used during the conducted powerline tests

MANUFACTURER OR TYPE	MODEL No	SERIAL NO.	DATE OF CALIBRATION	CALIBRATION PERIOD	REMARK
SPECTRUM ANALYZER & DISPLAY	HP 8568A	2235A02320	MAR. 29, 2001	1 Year	PRETEST
QUASI-PEAK ADAPTER	HP 85650 A	2341A00672	MAR. 29, 2001	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, 2002 For Characteristic impedance MAY 18, 2001 For Insertion loss	1 Year	FINAL
TEST RECEIVER	R/S ESHS30	838550/003	JAN. 14, 2002	1 Year	FINAL
SHIELDED ROOM	KEENE 5983	NO.1	N/A	N/A	FINAL
PULSE LIMIT	R/S EHS3Z2	357.8810.52	JUL. 10, 2001	1 Year	FINAL
N TYPE COAXIAL CABLE	-----	-----	JUL. 10, 2001	1 Year	FINAL
50 TERMINATOR	-----	-----	JUL. 10, 2001	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 (MHz)	Emissions (μ V)	Emissions (dB μ V)
0.45 – 30.0	250	48.0

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.

2.5 UNCERTAINTY OF CONDUCTED EMISSION

The uncertainty of conducted emission is 1.36dB.



2.6 LINE CONDUCTED RF VOLTAGE MEASUREMENT

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)	READING(dB V)		LIMITS (dB V)
	ONE END & GRD'D Q.P.	THE OTHER END & GRD'D Q.P.	
0.450			48.00
0.704		31.90	48.00
0.839	23.80		48.00
1.397	21.70	23.00	48.00
4.055	18.50		48.00
4.949		18.00	48.00
6.743	18.10		48.00
9.764	18.50		48.00
11.117		18.40	48.00
25.139	17.90		48.00
28.616		17.90	48.00
30.000			48.00

REMARKS 1. Undetectable or the Q.P.values is lower than the limits of Ave
2. For 10Mbps mode.
3. MODE 1 WA304-UF.



2.6 LINE CONDUCTED RF VOLTAGE MEASUREMENT

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)	READING(dB V)		LIMITS (dB V)
	ONE END & GRD'D Q.P.	THE OTHER END & GRD'D Q.P.	
0.450			48.00
0.539		36.10	48.00
0.758	23.20		48.00
1.103	21.50		48.00
1.172		26.70	48.00
3.191	17.60	17.80	48.00
4.949	18.40		48.00
5.846		18.40	48.00
10.001	18.40		48.00
15.434		28.70	48.00
23.129	32.70		48.00
27.161		32.70	48.00
30.000			48.00

REMARKS 1. Undetectable or the Q.P.values is lower than the limits of Ave
2. For 100Mbps mode.
3. MODE 1 WA304-UF.



2.6 LINE CONDUCTED RF VOLTAGE MEASUREMENT

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)	READING(dB V)		LIMITS (dB V)
	ONE END & GRD'D Q.P.	THE OTHER END & GRD'D Q.P.	
0.450			48.00
0.459	29.80		48.00
0.471		36.30	48.00
0.518	24.60		48.00
0.530		32.80	48.00
1.913	25.20	30.70	48.00
3.191	18.30	18.10	48.00
5.846	20.40	20.40	48.00
7.640		19.60	48.00
9.323	18.30		48.00
17.633	23.60	27.70	48.00
18.074	25.40	20.60	48.00
30.000			48.00

REMARKS 1. Undetectable or the Q.P.values is lower than the limits of Ave
2. MODE 2 WA301-UF.



2.7 PHOTOS OF CONDUCTION TEST





3. RADIATED EMISSION TEST

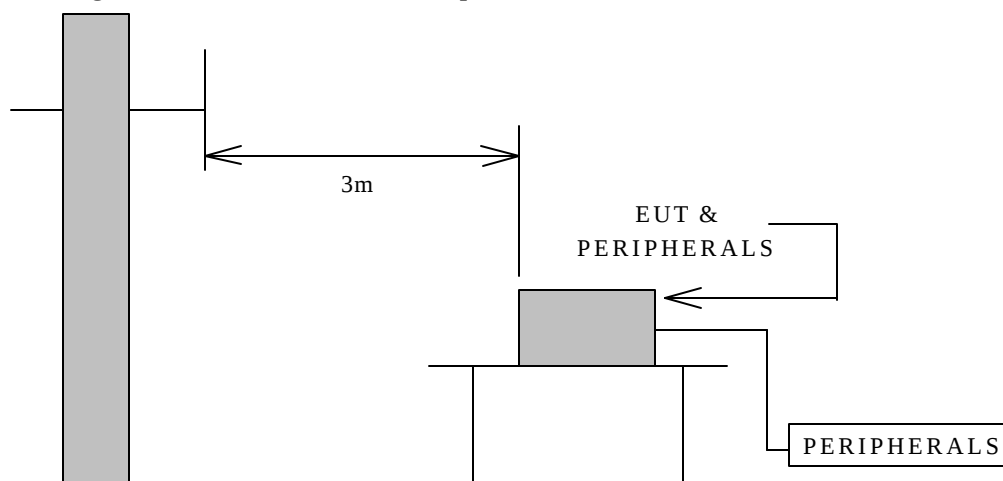
3.1 TEST EQUIPMENTS

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, 2001	1 Year	FINAL
R/S TEST RECEIVER	ESMI	842088/005 841978/008	JUL. 18, 2001	1 Year	FINAL
OPEN SITE	-----	No.1	JUL. 10~12, 2001	1 Year	FINAL
N TYPE COAXIAL CABLE	CHA9525	4	JUL. 13, 2001	1 Year	FINAL
Horn Antenna	AH-118	10089	FEB. 25, 2002	1 Year	FINAL
HP 8499B Amp	HP8449B	3008A01471	OCT. 11, 2001	1 Year	FINAL
High pass filter	84300/80038	011	cal. on use	1 Year	FINAL
Horn Antenna	AH-840	03077	FEB. 25, 2002	1 Year	FINAL

3.2 TEST SETUP

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



Antenna Elevation Variable



3.3 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 (dB V/M)	Radiated (V/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.



3.4 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.

3.5 UNCERTAINTY OF RADIATED EMISSION

The uncertainty of radiated emission is 2.72dB.



3.6 RADIATED RF NOISE MEASUREMENT

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 22			Humidity 72 RH				
FREQ- UENCY (MHz)	ANTENNA FACTOR (dB)	CABLE LOSS (dB)	METER READING AT3m(dB V/M)		LIMITS (dB V/M)	EMISSION LEVEL AT3m(dB V/M)	
			HORIZON- TAL	VERTICAL		HORIZON- TAL	VERTICAL
30.00	18.06	0.90			40.00		
175.97	10.07	2.60	22.30	21.60	43.50	34.97	34.27
199.97	10.05	2.60	24.40	29.60	43.00	37.05	42.25
219.97	11.14	2.80	25.32		46.00	39.26	
249.97	12.77	3.10	20.80	17.80	46.00	36.67	33.67
263.97	12.96	3.16	22.30	17.80	46.00	38.42	33.92
299.97	13.46	3.30	28.60	26.90	46.00	45.36	43.66
249.97	14.76	3.60	19.20	15.10	46.00	37.56	33.46
399.97	16.06	3.90	20.00	17.10	46.00	39.96	37.06
449.97	16.92	4.10	15.20	14.30	46.00	36.22	35.32
499.97	17.78	4.30	15.70	11.70	46.00	37.78	33.78
549.97	18.65	4.40	16.20	13.70	46.00	39.25	36.75
571.96	19.03	4.44	17.20	14.40	46.00	40.67	37.87
599.96	19.52	4.50	12.00	9.20	46.00	36.02	33.22
747.96	20.25	5.45	11.70	8.20	46.00	37.40	33.90
749.96	20.25	5.45	13.30	9.20	46.00	39.00	34.90
799.97	20.47	5.50	10.90	10.70	46.00	36.87	36.67
835.96	20.55	5.54	10.00	6.30	46.00	36.09	32.39
849.97	20.57	5.55	17.60	13.30	46.00	43.72	39.42
899.97	20.68	5.60	17.10	11.30	46.00	43.38	37.58
949.96	20.96	6.00	17.00	10.00	46.00	43.96	36.96
967.96	21.06	6.14	8.60	7.70	54.00	35.80	34.90
999.97	21.24	6.40	8.00	9.10	54.00	35.64	36.74
1000.00	21.24	6.40			54.00		

- REMARKS
1. Undetectable
 2. Emission level (dB V/M) = Antenna Factor (dB/m) + Cable loss (dB) + Meter Reading (dB V).
 3. For 10Mbps mode.



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 22			Humidity 72 RH				
FREQ- UENCY (MHz)	ANTENNA FACTOR (dB)	CABLE LOSS (dB)	METER READING AT3m(dB V/M)		LIMITS (dB V/M)	EMISSION LEVEL AT3m(dB V/M)	
			HORIZON- TAL	VERTICAL		HORIZON- TAL	VERTICAL
30.00	18.06	0.90			40.00		
175.97	10.07	2.60	20.90	21.10	43.50	33.57	33.77
199.97	10.05	2.60	24.00	26.80	43.50	36.65	39.45
219.97	11.14	2.80	25.36		46.00	39.30	
249.97	12.77	3.10	20.00	18.30	46.00	35.87	34.17
263.97	12.96	3.16	22.30	17.70	46.00	38.42	33.82
299.97	13.46	3.30	28.60	26.40	46.00	45.36	43.16
349.97	14.76	3.60	19.20	17.50	46.00	37.56	35.86
399.97	16.06	3.90	20.10	17.30	46.00	40.06	37.26
449.97	16.92	4.10	14.70	14.00	46.00	35.72	35.02
499.97	17.78	4.30	14.60	11.60	46.00	36.68	33.68
549.97	18.65	4.40	16.20	14.30	46.00	39.25	37.35
571.96	19.03	4.44	15.70	14.20	46.00	39.17	37.67
599.96	19.52	4.50	10.50	8.80	46.00	34.52	32.82
747.96	20.25	5.45	11.40	8.60	46.00	37.10	34.30
749.96	20.25	5.45	12.40	9.00	46.00	38.10	34.70
799.97	20.47	5.50	12.70	9.70	46.00	38.67	35.67
835.96	20.55	5.54	9.60	7.00	46.00	35.69	33.09
849.97	20.57	5.55	16.20	12.90	46.00	42.32	39.02
899.97	20.68	5.60	16.70	10.90	46.00	42.98	37.18
949.96	20.96	6.00	16.20	10.10	46.00	43.16	37.06
967.96	21.06	6.14	9.60	8.40	54.00	36.80	35.60
999.97	21.24	6.40	11.00	10.20	54.00	38.64	37.84
1000.00	21.24	6.40			54.00		

- REMARKS
1. Undetectable
 2. Emission level (dB V/M) = Antenna Factor (dB/m) + Cable loss (dB) + Meter Reading (dB V).
 3. For 100Mbps mode.



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:	Transmitting	Test Date :	2002/3/5
Fundamental Frequency:	2412MHz (CH 1)	Test By:	M.C. Huang
Temperature :	30	Humidity :	65%

Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Closs (dB)	Pre-amp (dB)	Filter dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)	Height (Meter)
4824.29*	42.86	36.5	8.82	35.4	1	53.78	74	-20.22	P	V	1.2
4824.29*	31.76	36.5	8.82	35.4	1	42.68	54	-11.32	A	V	1.2
7237.53	34.52	39.4	11.2	35.5	1	50.62	74	-23.38	P	V	1.2
7237.53	26.5	39.4	11.2	35.5	1	42.6	54	-11.4	A	V	1.2
9647.887	44.3	40.1	12.5	35.8	1	62.1	74	-11.9	P	V	1.3
9647.887	25.6	40.1	12.5	35.8	1	43.4	54	-10.6	A	V	1.3
12059.93*	---	42.6	15.2	35.3	1	---	74	---	---	---	---
12059.93*	---	42.6	15.2	35.3	1	---	54	---	---	---	---
14471.97*	---	43.4	16.8	34	1	---	74	---	---	---	---
14471.97*	---	43.4	16.8	34	1	---	54	---	---	---	---
16884.01	---	45.2	17.6	34.3	1	---	74	---	---	---	---
16884.01	---	45.2	17.6	34.3	1	---	54	---	---	---	---
19296.05*	---	36.3	18.5	34.3	1	---	74	---	---	---	---
19296.05*	---	36.3	18.5	34.3	1	---	54	---	---	---	---
21708.09	---	36.2	19.2	34.6	1	---	74	---	---	---	---
21708.09	---	36.2	19.2	34.6	1	---	54	---	---	---	---
24120.13	---	36.8	21	34.2	1	---	74	---	---	---	---
24120.13	---	36.8	21	34.2	1	---	54	---	---	---	---

Note :

1. Measurement was up to 10th harmonic, Remark “—” means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Closs: Cable Loss, Pre-Amp: Preamp gain, Filter: High Pass Filter Insertion Loss (3.5GHz)
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz
4. Remark “*” means that Restricted band.
5. LAN SPEED=100M(WORSE CASE)



Test Requirement: 15.205

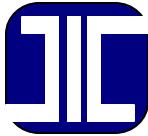
The frequency spectrum above 1 GHz was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	Transmitting	Test Date :	2002/3/5
Fundamental Frequency:	2412MHz (CH 1)	Test By:	M.C. Huang
Temperature :	30	Humidity :	65%

Freq.	Reading	AF	Closs	Pre-amp	Filter	Level	Limit	Margin	Mark	Pol	Height
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	dB	(dBuV/m)	FCC_B	(dB)	(P/Q/A)	(H/V)	(Meter)
4824.29*	46.44	36.5	8.82	35.4	1	57.36	74	-16.64	P	H	1.2
4824.29*	34.5	36.5	8.82	35.4	1	45.42	54	-8.58	A	H	1.2
7237.53	35.3	39.4	11.2	35.5	1	51.4	74	-22.6	P	H	1.2
7237.53	25.3	39.4	11.2	35.5	1	41.4	54	-12.6	A	H	1.2
9647.887	43.2	40.1	12.5	35.8	1	61	74	-13	P	H	1.3
9647.887	26.2	40.1	12.5	35.8	1	44	54	-10	A	H	1.3
12059.93*	---	42.6	15.2	35.3	1	---	74	---	---	---	---
12059.93*	---	42.6	15.2	35.3	1	---	54	---	---	---	---
14471.97*	---	43.4	16.8	34	1	---	74	---	---	---	---
14471.97*	---	43.4	16.8	34	1	---	54	---	---	---	---
16884.01	---	45.2	17.6	34.3	1	---	74	---	---	---	---
16884.01	---	45.2	17.6	34.3	1	---	54	---	---	---	---
19296.05*	---	36.3	18.5	34.3	1	---	74	---	---	---	---
19296.05*	---	36.3	18.5	34.3	1	---	54	---	---	---	---
21708.09	---	36.2	19.2	34.6	1	---	74	---	---	---	---
21708.09	---	36.2	19.2	34.6	1	---	54	---	---	---	---
24120.13	---	36.8	21	34.2	1	---	74	---	---	---	---
24120.13	---	36.8	21	34.2	1	---	54	---	---	---	---

Note :

1. Measurement was up to 10th harmonic, Remark "---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Closs: Cable Loss, Pre-Amp: Preamp gain, Filter: High Pass Filter Insertion Loss (3.5GHz)
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz
4. Remark "*" means that Restricted band.
5. LAN SPEED=100M(WORSE CASE)



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:	Transmitting	Test Date :	2002/3/5
Fundamental Frequency:	2437MHz (CH 6)	Test By:	M.C. Huang
Temperature :	30	Humidity :	65%

Freq.	Reading	AF	Closs	Pre-amp	Filter	Level	Limit	Margin	Mark	Pol	Height
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	dB	(dBuV/m)	FCC_B	(dB)	(P/Q/A)	(H/V)	(Meter)
4874.25*	43.44	36.6	8.9	35.4	1	54.54	74	-19.46	P	V	1.2
4874.25*	32.42	36.6	8.9	35.4	1	43.52	54	-10.48	A	V	1.2
7309.85	34.21	39.5	11.3	35.5	1	50.51	74	-23.49	P	V	1.2
7309.85	26.5	39.5	11.3	35.5	1	42.8	54	-11.2	A	V	1.2
9748.08	---	40.2	12.5	35.8	1	---	74	---	---	---	---
9748.08	---	40.2	12.5	35.8	1	---	54	---	---	---	---
12185.10*	---	42.6	15.2	35.3	1	---	74	---	---	---	---
12185.10*	---	42.6	15.2	35.3	1	---	54	---	---	---	---
14622.12	---	43.4	16.8	34	1	---	74	---	---	---	---
14622.12	---	43.4	16.8	34	1	---	54	---	---	---	---
17059.14	---	45.2	17.6	34.3	1	---	74	---	---	---	---
17059.14	---	45.2	17.6	34.3	1	---	54	---	---	---	---
19496.16*	---	36.3	18.5	34.3	1	---	74	---	---	---	---
19496.16*	---	36.3	18.5	34.3	1	---	54	---	---	---	---
21933.18	---	36.2	19.2	34.6	1	---	74	---	---	---	---
21933.18	---	36.2	19.2	34.6	1	---	54	---	---	---	---
24370.2	---	36.8	21	34.2	1	---	74	---	---	---	---
24370.2	---	36.8	21	34.2	1	---	54	---	---	---	---

Note :

1. Measurement was up to 10th harmonic, Remark "---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Closs: Cable Loss, Pre-Amp: Preamp gain, Filter: High Pass Filter Insertion Loss (3.5GHz)
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz
4. Remark "*" means that Restricted band.
5. LAN SPEED=100M(WORSE CASE)



Test Requirement: 15.205

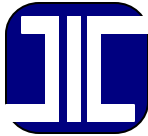
The frequency spectrum above 1 GHz was investigated. All emissions not reported below are more than 40 dB below the prescribed limits. Readings are both peak and average values.

Operation Mode:	Transmitting	Test Date :	2002/3/5
Fundamental Frequency:	2437MHz (CH 6)	Test By:	M.C. Huang
Temperature :	30	Humidity :	65%

Freq.	Reading	AF	Closs	Pre-amp	Filter	Level	Limit	Margin	Mark	Pol	Height
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	dB	(dBuV/m)	FCC_B	(dB)	(P/Q/A)	(H/V)	(Meter)
4874.25*	47.51	36.6	8.9	35.4	1	58.61	74	-15.39	P	H	1.2
4874.25*	35.16	36.6	8.9	35.4	1	46.26	54	-7.74	A	H	1.2
7309.85	35.2	39.5	11.3	35.5	1	51.5	74	-22.5	P	H	1.2
7309.85	26.5	39.5	11.3	35.5	1	42.8	54	-11.2	A	H	1.2
9748.08	---	40.2	12.5	35.8	1	---	74	---	---	---	---
9748.08	---	40.2	12.5	35.8	1	---	54	---	---	---	---
12185.10*	---	42.6	15.2	35.3	1	---	74	---	---	---	---
12185.10*	---	42.6	15.2	35.3	1	---	54	---	---	---	---
14622.12	---	43.4	16.8	34	1	---	74	---	---	---	---
14622.12	---	43.4	16.8	34	1	---	54	---	---	---	---
17059.14	---	45.2	17.6	34.3	1	---	74	---	---	---	---
17059.14	---	45.2	17.6	34.3	1	---	54	---	---	---	---
19496.16*	---	36.3	18.5	34.3	1	---	74	---	---	---	---
19496.16*	---	36.3	18.5	34.3	1	---	54	---	---	---	---
21933.18	---	36.2	19.2	34.6	1	---	74	---	---	---	---
21933.18	---	36.2	19.2	34.6	1	---	54	---	---	---	---
24370.2	---	36.8	21	34.2	1	---	74	---	---	---	---
24370.2	---	36.8	21	34.2	1	---	54	---	---	---	---

Note :

1. Measurement was up to 10th harmonic, Remark "---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Closs: Cable Loss, Pre-Amp: Preamp gain, Filter: High Pass Filter Insertion Loss (3.5GHz)
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz
4. Remark "*" means that Restricted band.
5. LAN SPEED=100M(WORSE CASE)



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:	Transmitting	Test Date :	2002/3/5
Fundamental Frequency:	2462MHz (CH 11)	Test By:	M.C. Huang
Temperature :	30	Humidity :	65%

Freq.	Reading	AF	Closs	Pre-amp	Filter	Level	Limit	Margin	Mark	Pol	Height
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	dB	(dBuV/m)	FCC_B	(dB)	(P/Q/A)	(H/V)	(Meter)
4924.05*	45.81	36.8	9.01	35.4	1	57.22	74	-16.78	P	V	1.2
4924.05*	35.22	36.8	9.01	35.4	1	46.63	54	-7.37	A	V	1.2
7386.0*	34.21	39.8	11.5	35.5	1	51.01	74	-22.99	P	V	1.2
7386.0*	28.5	39.8	11.5	35.5	1	45.3	54	-8.7	A	V	1.2
9848.02	---	40.3	12.6	35.8	1	---	74	---	---	---	---
9848.02	---	40.3	12.6	35.8	1	---	54	---	---	---	---
12310.04*	---	42.6	15.2	35.3	1	---	74	---	---	---	---
12310.04*	---	42.6	15.2	35.3	1	---	54	---	---	---	---
14772.06	---	43.4	16.8	34	1	---	74	---	---	---	---
14772.06	---	43.4	16.8	34	1	---	54	---	---	---	---
17234.08	---	45.2	17.6	34.3	1	---	74	---	---	---	---
17234.08	---	45.2	17.6	34.3	1	---	54	---	---	---	---
19696.1*	---	36.3	18.5	34.3	1	---	74	---	---	---	---
19696.1*	---	36.3	18.5	34.3	1	---	54	---	---	---	---
22158.12*	---	36.2	19.2	34.6	1	---	74	---	---	---	---
22158.12*	---	36.2	19.2	34.6	1	---	54	---	---	---	---
24620.14	---	36.8	21	34.2	1	---	74	---	---	---	---
24620.14	---	36.8	21	34.2	1	---	54	---	---	---	---

Note :

1. Measurement was up to 10th harmonic, Remark "---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Closs: Cable Loss, Pre-Amp: Preamp gain, Filter: High Pass Filter Insertion Loss (3.5GHz)
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz
4. Remark "*" means that Restricted band.
5. LAN SPEED=100M(WORSE CASE)



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:	Transmitting	Test Date :	2002/3/5
Fundamental Frequency:	2462MHz (CH 11)	Test By:	M.C. Huang
Temperature :	30	Humidity :	65%

Freq.	Reading	AF	Closs	Pre-amp	Filter	Level	Limit	Margin	Mark	Pol	Height
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	dB	(dBuV/m)	FCC_B	(dB)	(P/Q/A)	(H/V)	(Meter)
4924.05*	47.73	36.8	9.01	35.4	1	59.14	74	-14.86	P	H	1.2
4924.05*	35.4	36.8	9.01	35.4	1	46.81	54	-7.19	A	H	1.2
7386.0*	35.2	39.8	11.5	35.5	1	52	74	-22	P	H	1.2
7386.0*	26.5	39.8	11.5	35.5	1	43.3	54	-10.7	A	H	1.2
9848.02	---	40.3	12.6	35.8	1	---	74	---	---	---	---
9848.02	---	40.3	12.6	35.8	1	---	54	---	---	---	---
12310.04*	---	42.6	15.2	35.3	1	---	74	---	---	---	---
12310.04*	---	42.6	15.2	35.3	1	---	54	---	---	---	---
14772.06	---	43.4	16.8	34	1	---	74	---	---	---	---
14772.06	---	43.4	16.8	34	1	---	54	---	---	---	---
17234.08	---	45.2	17.6	34.3	1	---	74	---	---	---	---
17234.08	---	45.2	17.6	34.3	1	---	54	---	---	---	---
19696.1*	---	36.3	18.5	34.3	1	---	74	---	---	---	---
19696.1*	---	36.3	18.5	34.3	1	---	54	---	---	---	---
22158.12*	---	36.2	19.2	34.6	1	---	74	---	---	---	---
22158.12*	---	36.2	19.2	34.6	1	---	54	---	---	---	---
24620.14	---	36.8	21	34.2	1	---	74	---	---	---	---
24620.14	---	36.8	21	34.2	1	---	54	---	---	---	---

Note :

1. Measurement was up to 10th harmonic, Remark "---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Closs: Cable Loss, Pre-Amp: Preamp gain, Filter: High Pass Filter Insertion Loss (3.5GHz)
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz
4. Remark "*" means that Restricted band.
5. LAN SPEED=100M(WORSE CASE)



3.7 PHOTOS OF OPEN SITE





3.7 PHOTOS OF OPEN SITE





4. 6dB BANDWIDTH MEASUREMENT

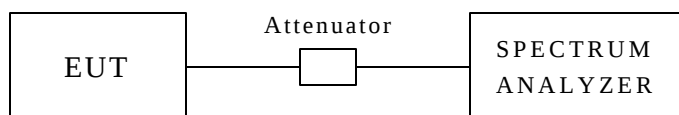
4.1 TEST EQUIPMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ TEST RECEIVER	ESMI	842088/005 841978/008	JUL. 18, 2001
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.

4.2 TEST SETUP



4.3 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

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.

4.5 UNCERTAINTY OF CONDUCTED EMISSION

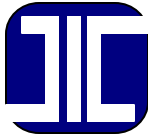
The uncertainty of conducted emission is ± 1.82 dB.



4.6 TEST RESULTS

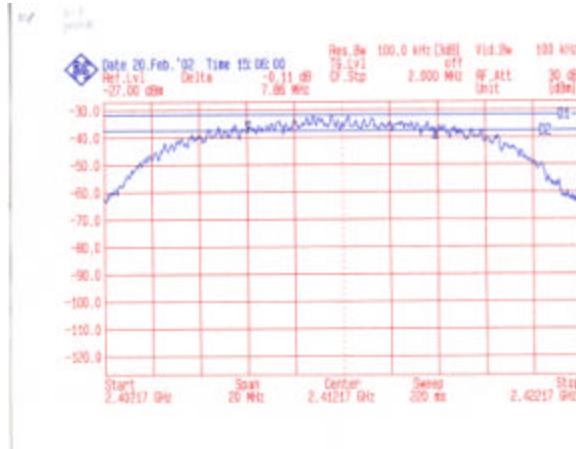
EUT	Access Point	MODEL	WA304-UF
INPUT POWER (SYSTEM)	120VAC, 60Hz	ENVIRONMENTAL CONDITIONS	27 , 70%RH,
TESTED BY M. C. Huang			

PORT	CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
A	1	2412	7.86	0.5	PASS
A	6	2437	7.66	0.5	PASS
A	11	2462	7.93	0.5	PASS
B	1	2412	8.51	0.5	PASS
B	6	2437	7.71	0.5	PASS
B	11	2462	7.51	0.5	PASS

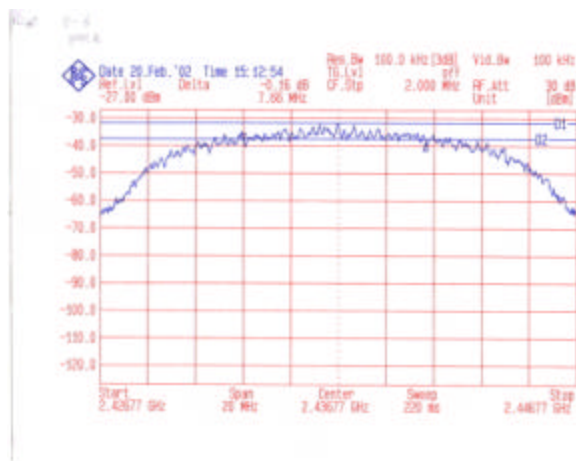


4.7 PHOTO OF 6DB BANDWIDTH MEASUREMENT

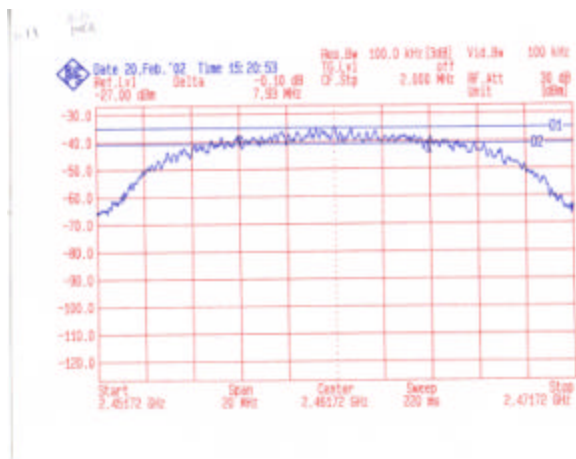
PORT A



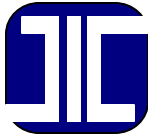
Channel 1



Channel 6

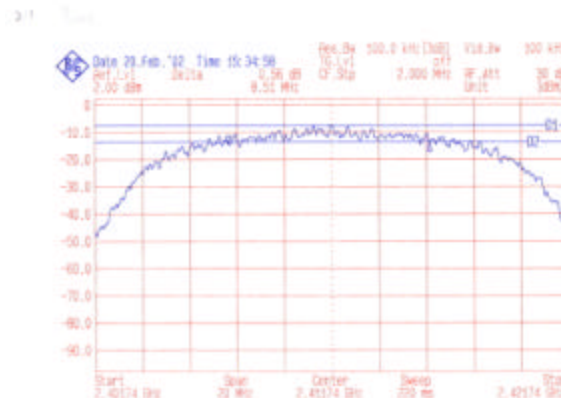


Channel 11

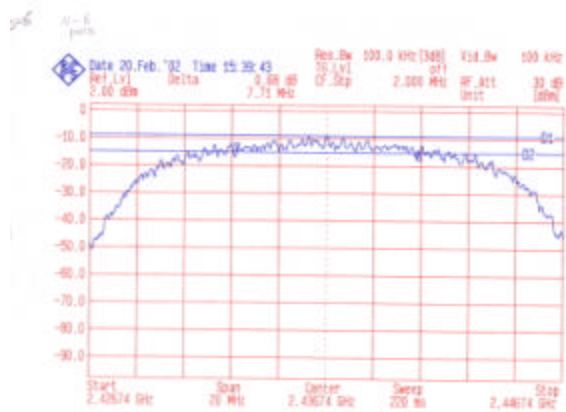


4.7 PHOTO OF 6DB BANDWIDTH MEASUREMENT

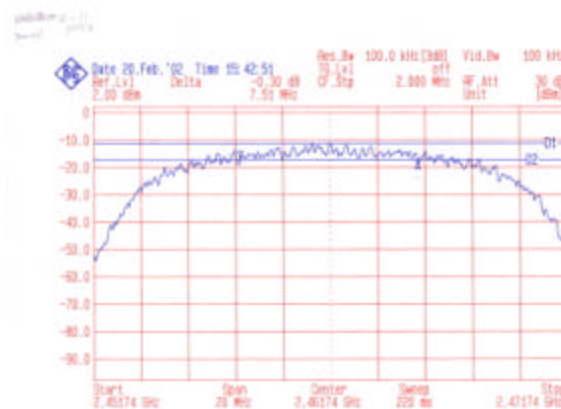
PORT B



Channel 1



Channel 6



Channel 11



5. MAXIMUM PEAK OUTPUT POWER

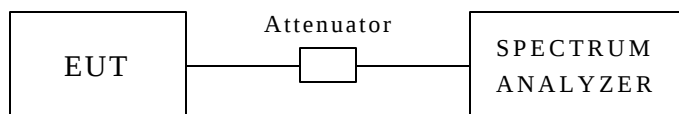
5.1 TEST EQUIPMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ TEST RECEIVER	ESMI	842088/005 841978/008	JUL. 18, 2001
HP ATTENUATOR	8496B	3247A18505	Cal. on use
HP PLOTTER	HP7750A	725A 852141	N/A

NOTE

1. The measurement uncertainty is less than $\pm 2.6\text{dB}$, 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 Measurement is 30dBm.



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 5.7 for the measurement set up.

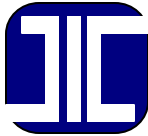
5.5 UNCERTAINTY OF CONDUCTED EMISSION

The uncertainty of conducted emission is $\pm 1.82\text{dB}$.

5.6 TEST RESULTS

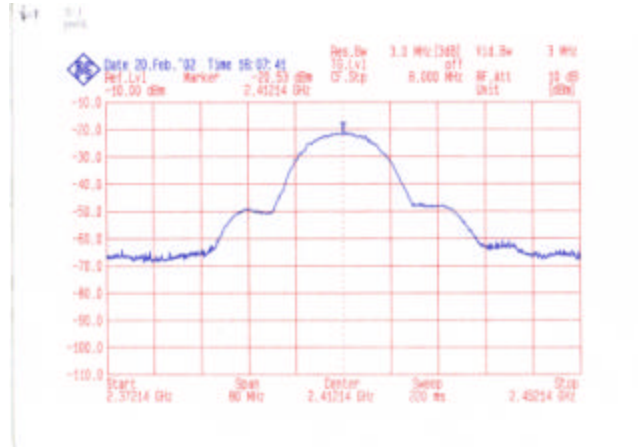
EUT	Access Point	MODEL	WA304-UF
INPUT POWER (SYSTEM)	120VAC, 60Hz	ENVIRONMENTAL CONDITIONS	27 , 70%RH,
TESTED BY M. C. Huang			

PORT	CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
A	1	2412	-20.53	30	PASS
A	6	2437	-20.86	30	PASS
A	11	2462	-23.28	30	PASS
B	1	2412	4.41	30	PASS
B	6	2437	2.74	30	PASS
B	11	2462	0.6	30	PASS

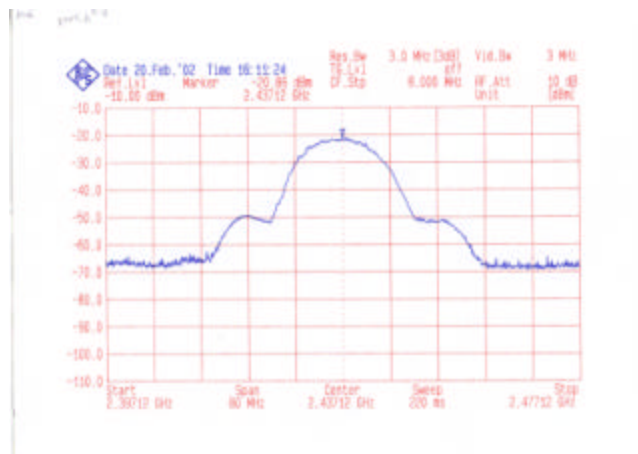


5.7 PHOTO OF MAXIMUM PEAK OUTPUT POWER

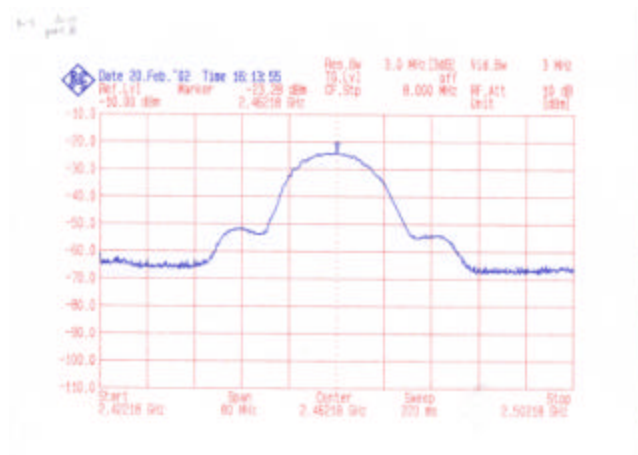
PORT A



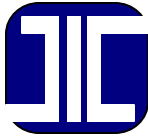
Channel 1



Channel 6

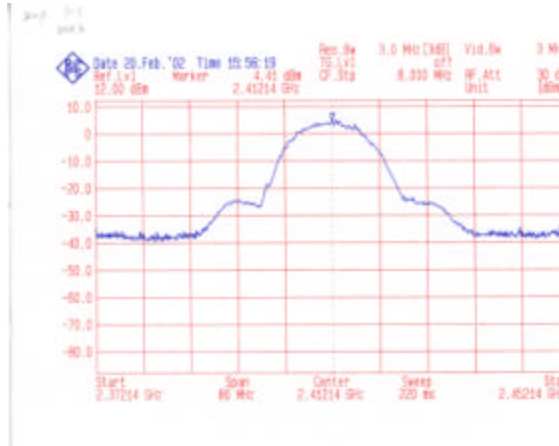


Channel 11

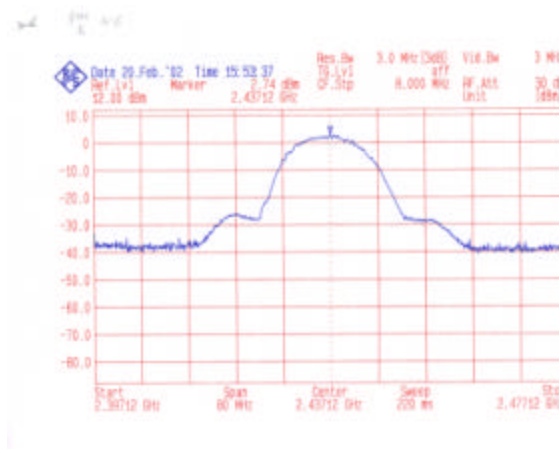


5.7 PHOTO OF MAXIMUM PEAK OUTPUT POWER

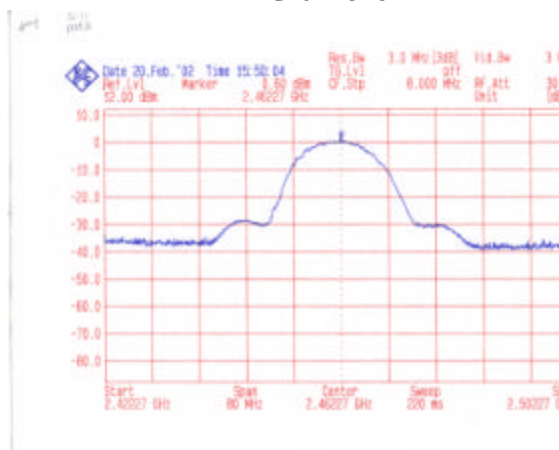
PORT B



Channel 1



Channel 6



Channel 11



6. POWER SPECTRAL DENSITY MEASUREMENT

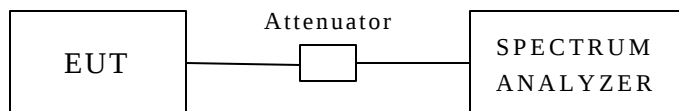
6.1 TEST EQUIPMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ TEST RECEIVER	ESMI	842088/005 841978/008	JUL. 18, 2001
HP ATTENUATOR	8496B	3247A18505	Cal. on use
HP PLOTTER	HP7750A	725A 852141	N/A

NOTE

1. The measurement uncertainty is less than $\pm 2.6\text{dB}$, 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.



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 $\pm 1.82\text{dB}$.

6.6 TEST RESULTS

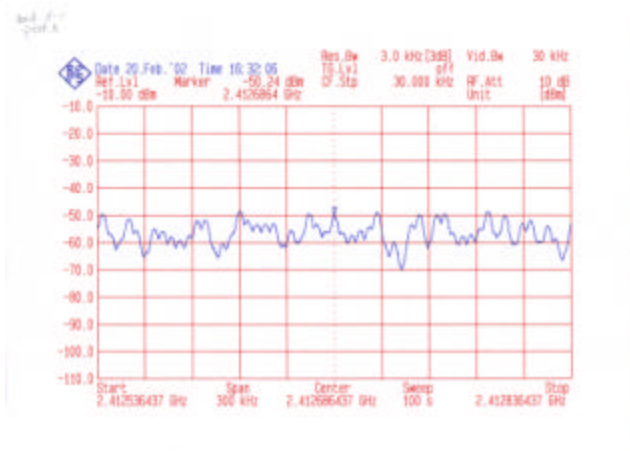
EUT	Access Point	MODEL	WA304-UF
INPUT POWER (SYSTEM)	120VAC, 60Hz	ENVIRONMENTAL CONDITIONS	27 °C, 70%RH,
TESTED BY M. C. Huang			

PORT	CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3KHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
A	1	2412	-50.24	8	PASS
A	6	2437	-49.58	8	PASS
A	11	2462	-53.00	8	PASS
B	1	2412	-21.73	8	PASS
B	6	2437	-23.33	8	PASS
B	11	2462	-22.34	8	PASS

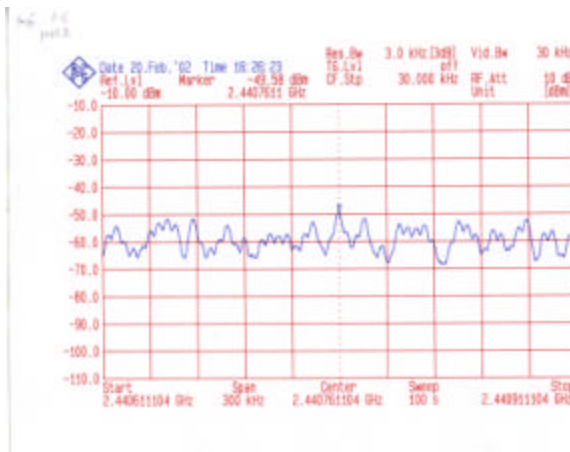


6.7 PHOTO OF POWER SPECTRAL DENSITY MEASURMENT

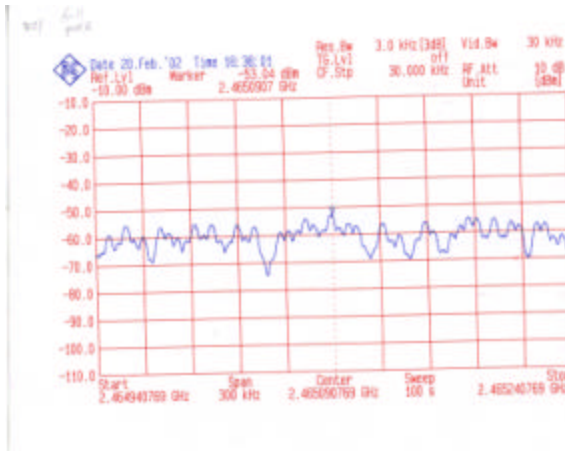
PORT A



Channel 1



Channel 6

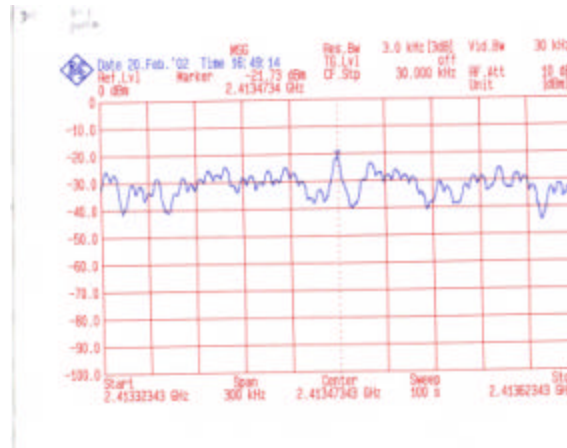


Channel 11

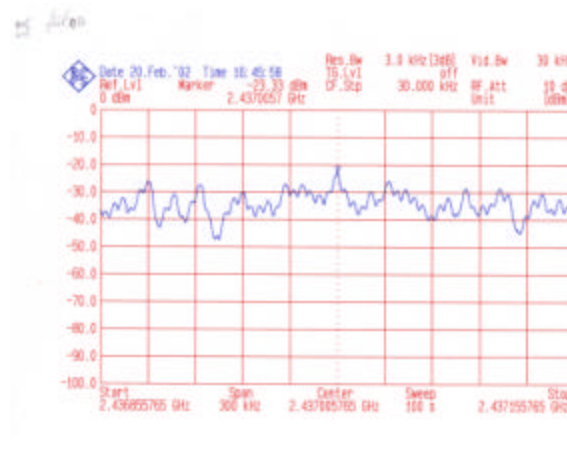


6.7 PHOTO OF POWER SPECTRAL DENSITY MEASURMENT

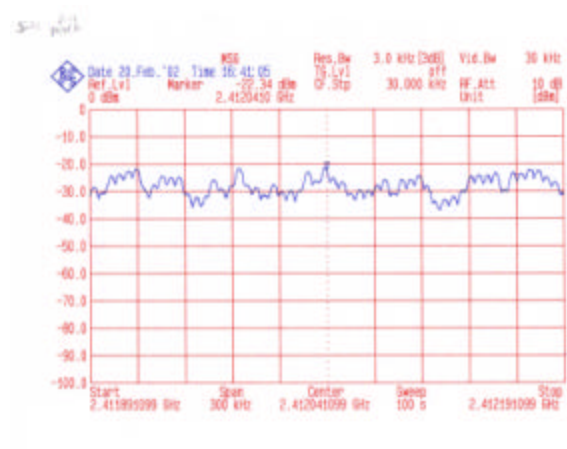
PORT B



Channel 1



Channel 6



Channel 11



7. BAND EDGES MEASUREMENT

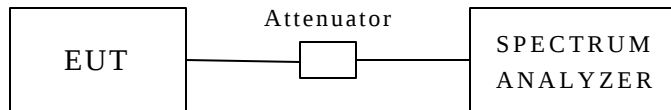
7.1 TEST EQUIPMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ TEST RECEIVER	ESMI	842088/005 841978/008	JUL. 18, 2001
HP ATTENUATOR	8496B	3247A18505	Cal. on use
HP PLOTTER	HP7750A	725A 852141	N/A

NOTE

- The measurement uncertainty is less than $\pm 2.6\text{dB}$, which is calculated as per the NAMAS document NIS81.
- 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 BAND EDGES MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100KHz Resolution Bandwidth).



7.4 TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer via a low loss cable.

Set both RBW and VBW of spectrum analyzer to 100KHz with suitable frequency span including 100KHz bandwidth from band edge. The band edges were measured and recorded.

2. Radiated emission test: Applies to harmonics/spurs that fall in the restricted bands listed in Section 15.205. The maximum permitted average field strength is listed in Section 15.209. A pre-amp (and possibly a high-pass filter) is necessary for this measurement. For measurements above 1 GHz, set RBW= 1MHz, VBW= 10Hz, Sweep: Auto. If the emission is pulsed, modify the unit for continuous operation, use the setting shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation.

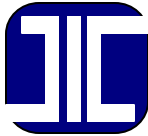
7.5 UNCERTAINTY OF CONDUCTED EMISSION

The uncertainty of conducted emission is $\pm 1.82\text{dB}$.

7.6 TEST RESULTS

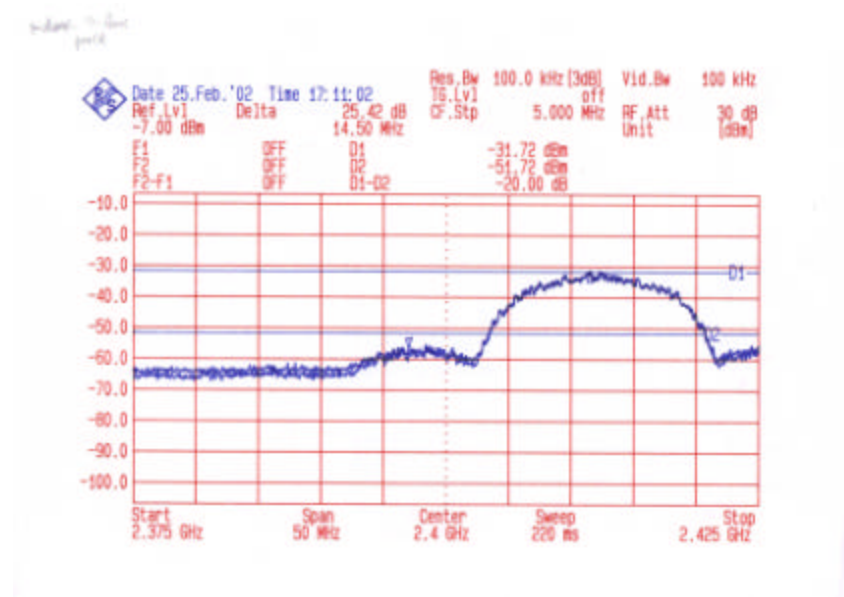
EUT	Access Point	MODEL	WA304-UF
INPUT POWER (SYSTEM)	120VAC, 60Hz	ENVIRONMENTAL CONDITIONS	27 °C, 70%RH,
TESTED BY M. C. Huang			

PORT	CHANNEL FREQUENCY (MHz)	Required Limit (dBc)	PASS / FAIL
A	<2400	>20	PASS
A	>2483.5	>20	PASS
B	<2400	>20	PASS
B	>2483.5	>20	PASS

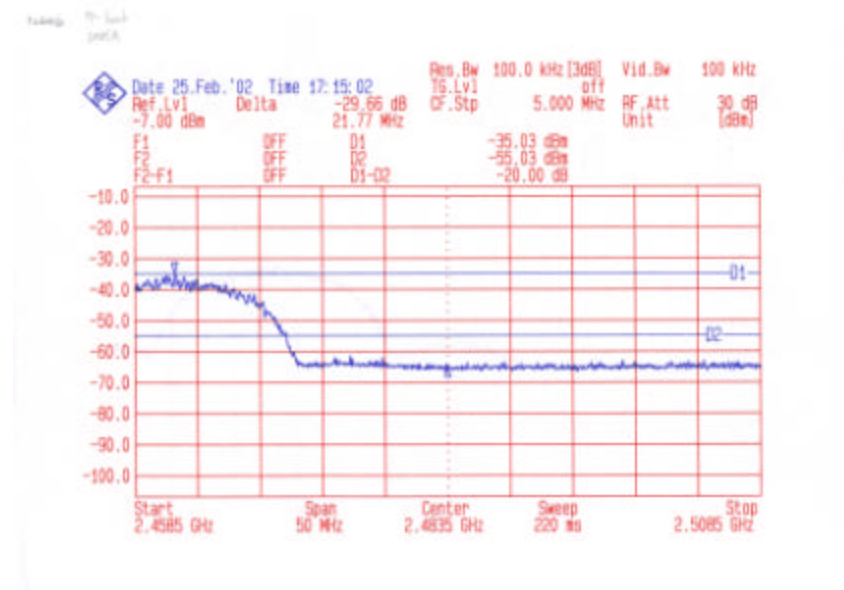


7.7 PHOTO OF BAND EDGES MEASUREMENT

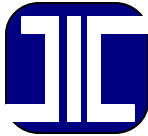
PORT A



FRONT

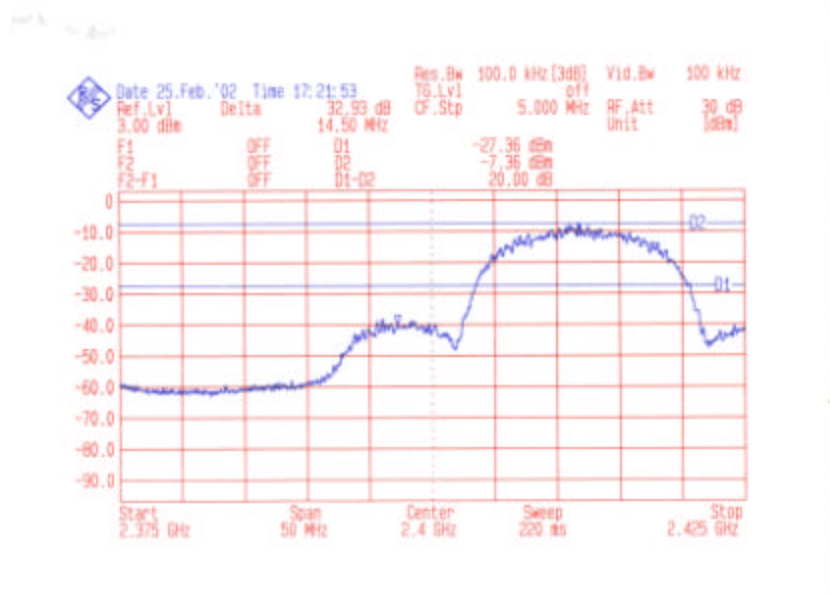


BACK

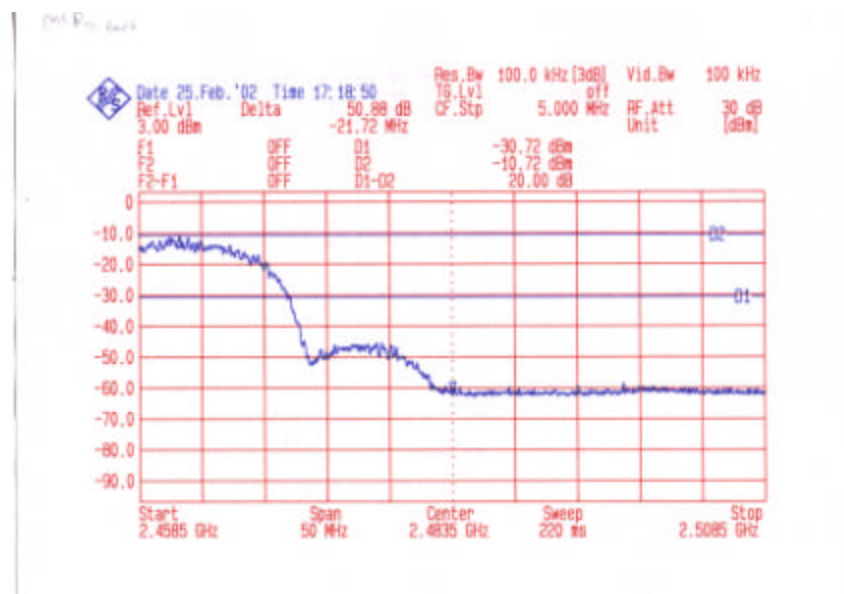


7.7 PHOTO OF BAND EDGES MEASUREMENT

PORT B



FRONT



BACK



8. ANTENNA REQUIREMENT

8.1 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.

8.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is $1/2\lambda$ dipole antenna. The antenna connector is MMCX. And the maximum Gain of this antenna is only 2dBi.



9. RF EXPOSURE EVALUATION

According to FCC 1.1310 : The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b) LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time
(A) Limits for Occupational / Control Exposures				
300-1,500	--	--	F/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Population / Uncontrol Exposures				
300-1,500	--	--	F/1500	6
1,500-100,000	--	--	1	30

9.1 FRIIS FORMULA

Friis transmission formula : $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

9.2 EUT OPERATING CONDITION

A software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.



9.3 TEST RESULT OF RF EXPOSURE EVALUATION

Product Wireless Access Point
Test Item RF Exposure Evaluation Data
Test Mode Normal Operation

9.3.1 ANTENNA GAIN

Antenna Gain The maximum Gain measured in fully anechoic chamber is 2dBi linear scale.

9.3.2 OUTPUT POWER INTO ANTENNA & RF EXPOSURE EVALUATION DISTANCE

Channel	Channel Frequency (MHz)	Output Power to Antenna (dBm)	Minimum Allowable Distance ® From Skin(cm)
Port B CH1	2412.00	4.41	0.59053
Port B CH6	2437.00	2.74	0.48685
Port B CH11	2642.00	0.6	0.380535

Note: PORT B is the worse case so we didn't report the PORT A data
The distance r (4th column) calculated from the Friis transmission formula is far shorter than 20cm separation requirement. So, RF exposure limit warning or SAR test are not required.



10. PROCESSING GAIN

10.1 TEST CONDITION

Standard Temperature and Humidity, Standard Test Voltage
And the test data is given by manufacture

10.2 MINIMUM STANDARD

The processing gain shall be at least 10dB.

10.3 METHOD OF MEASUREMENT

The processing gain of this spread spectrum was measured the CW jamming method. The Section 9.1 illustrates the measurement setup. The output power of the spread spectrum transmitter is fixed and the output power of jammed is adjustable. The frequency of jammer was stopped through the pass band of nominal channel in 50kHz steps. In each frequency step of the jammed, the output power of jammed is adjusted to cause the Bit Error Rate (BER) to be 1.0×10^{-6} . The power levels are recorded to calculate the J/S as shown in Table 1.

10.4 CALCULATION OF PROCESSING GAIN

The processing gain was determined by measuring the jamming margin of the EUT and using the following formula :

$$G_p = (S/N)_0 + M_j + L_{sys}$$

Where $(S/N)_0$ is the required signal to noise ratio at the receiver output

M_j is the jammer to signal ratio (J/S)

L_{sys} is the system loss

The $(S/N)_0$ is calculated from :

$$P_e = 1/2 \exp(-1/2(S/N)_0) ; P_e = \text{probability of error (BER)}$$

For the $P_e(\text{BER}) = 1.0 \times 10^{-6}$, the required $(S/N)_0$ is 16.4dB

From Measurement, the minimum J/S(M_j) is $\geq 8.4\text{dB}$

We assume the system loss is 2dB.

Therefore the processing gain is calculated below :

$$G_p = (S/N)_0 + M_j + L_{sys} = 16.4 + (-8.4) + 2 = 10(\text{dB})$$



10.5 TEST RESULT OF PROCESSING GAIN

Product Wireless AP/Ethernet to Wireless Adapter
Test Item RF Exposure Evaluation Data
Test Site No.1 OATS
Test Mode Normal Operation

11Mbps CHANNEL 11						
Processing Gain						
$G_p = (S/N)_0 + M_j + L_{sys}$						
Freq. (MHz)	Gp (dB)	(S/N) (dB)	Mj=J/S (dB)	Lsys (dB)	Jammer (dBm)	PER (%)
2453.50	25.40	16.40	7.00	2.00	-55.20	<=8.0
2453.55	24.70	16.40	6.30	2.00	-55.90	<=8.0
2453.60	24.20	16.40	5.80	2.00	-56.40	<=8.0
2453.65	24.00	16.40	5.60	2.00	-56.60	<=8.0
2453.70	24.00	16.40	5.60	2.00	-56.60	<=8.0
2453.75	24.20	16.40	5.80	2.00	-56.40	<=8.0
2453.80	24.30	16.40	5.90	2.00	-56.30	<=8.0
2453.85	24.30	16.40	5.90	2.00	-56.30	<=8.0
2453.90	24.20	16.40	5.80	2.00	-56.40	<=8.0
2453.95	24.20	16.40	5.80	2.00	-56.40	<=8.0
2454.00	24.00	16.40	5.60	2.00	-56.60	<=8.0
2454.05	24.40	16.40	6.00	2.00	-56.20	<=8.0
2454.10	24.40	16.40	6.00	2.00	-56.20	<=8.0
2454.15	24.40	16.40	6.00	2.00	-56.20	<=8.0
2454.20	24.50	16.40	6.10	2.00	-56.10	<=8.0
2454.25	24.50	16.40	6.10	2.00	-56.10	<=8.0
2454.30	23.70	16.40	5.30	2.00	-56.90	<=8.0
2454.35	23.70	16.40	5.30	2.00	-56.90	<=8.0
2454.40	23.60	16.40	5.20	2.00	-57.00	<=8.0
2454.45	23.20	16.40	4.80	2.00	-57.40	<=8.0
2454.50	23.30	16.40	4.90	2.00	-57.30	<=8.0
2454.55	23.20	16.40	4.80	2.00	-57.40	<=8.0
2454.60	22.80	16.40	4.40	2.00	-57.80	<=8.0
2454.65	21.90	16.40	3.50	2.00	-58.70	<=8.0
2454.70	22.30	16.40	3.90	2.00	-58.30	<=8.0
2454.75	22.10	16.40	3.70	2.00	-58.50	<=8.0
2454.80	22.00	16.40	3.60	2.00	-58.60	<=8.0



11Mbps CHANNEL 11						
Processing Gain						
$G_p = (S/N)_0 + M_j + L_{sys}$						
Freq. (MHz)	Gp (dB)	(S/N) (dB)	Mj=J/S (dB)	Lsys (dB)	Jammer (dBm)	PER (%)
2454.85	25.40	16.40	7.00	2.00	-55.20	<=8.0
2454.90	24.70	16.40	6.30	2.00	-55.90	<=8.0
2454.95	24.20	16.40	5.80	2.00	-56.40	<=8.0
2455.00	24.00	16.40	5.60	2.00	-56.60	<=8.0
2455.05	24.00	16.40	5.60	2.00	-56.60	<=8.0
2455.10	24.20	16.40	5.80	2.00	-56.40	<=8.0
2455.15	24.30	16.40	5.90	2.00	-56.30	<=8.0
2455.20	24.30	16.40	5.90	2.00	-56.30	<=8.0
2455.25	24.20	16.40	5.80	2.00	-56.40	<=8.0
2455.30	24.20	16.40	5.80	2.00	-56.40	<=8.0
2455.35	24.00	16.40	5.60	2.00	-56.60	<=8.0
2455.40	24.40	16.40	6.00	2.00	-56.20	<=8.0
2455.45	24.40	16.40	6.00	2.00	-56.20	<=8.0
2455.50	24.40	16.40	6.00	2.00	-56.20	<=8.0
2455.55	24.50	16.40	6.10	2.00	-56.10	<=8.0
2455.60	24.50	16.40	6.10	2.00	-56.10	<=8.0
2455.65	23.70	16.40	5.30	2.00	-56.90	<=8.0
2455.70	23.70	16.40	5.30	2.00	-56.90	<=8.0
2455.75	23.60	16.40	5.20	2.00	-57.00	<=8.0
2455.80	23.20	16.40	4.80	2.00	-57.40	<=8.0
2455.85	23.30	16.40	4.90	2.00	-57.30	<=8.0
2455.90	23.20	16.40	4.80	2.00	-57.40	<=8.0
2455.95	22.80	16.40	4.40	2.00	-57.80	<=8.0
2456.00	21.90	16.40	3.50	2.00	-58.70	<=8.0
2456.05	22.30	16.40	3.90	2.00	-58.30	<=8.0
2456.10	22.10	16.40	3.70	2.00	-58.50	<=8.0
2456.15	22.00	16.40	3.60	2.00	-58.60	<=8.0
2456.20	22.00	16.40	3.60	2.00	-58.60	<=8.0
2456.25	22.00	16.40	3.60	2.00	-58.60	<=8.0
2456.30	22.00	16.40	3.60	2.00	-58.60	<=8.0
2456.35	22.00	16.40	3.60	2.00	-58.60	<=8.0
2456.40	22.00	16.40	3.60	2.00	-58.60	<=8.0
2456.45	22.00	16.40	3.60	2.00	-58.60	<=8.0



11Mbps CHANNEL 11						
Processing Gain						
$G_p = (S/N)_0 + M_j + L_{sys}$						
Freq. (MHz)	Gp (dB)	(S/N) (dB)	Mj=J/S (dB)	Lsys (dB)	Jammer (dBm)	PER (%)
2456.50	15.90	16.40	-2.50	2.00	-64.70	<=8.0
2456.55	15.80	16.40	-2.60	2.00	-64.80	<=8.0
2456.60	15.70	16.40	-2.70	2.00	-64.90	<=8.0
2456.65	15.40	16.40	-3.00	2.00	-65.20	<=8.0
2456.70	15.40	16.40	-3.00	2.00	-65.20	<=8.0
2456.75	15.20	16.40	-3.20	2.00	-65.40	<=8.0
2456.80	15.10	16.40	-3.30	2.00	-65.50	<=8.0
2456.85	14.90	16.40	-3.50	2.00	-65.70	<=8.0
2456.90	15.10	16.40	-3.30	2.00	-65.50	<=8.0
2456.95	15.10	16.40	-3.30	2.00	-65.50	<=8.0
2457.00	15.10	16.40	-3.30	2.00	-65.50	<=8.0
2457.05	15.10	16.40	-3.30	2.00	-65.50	<=8.0
2457.10	15.00	16.40	-3.40	2.00	-65.60	<=8.0
2457.15	14.90	16.40	-3.50	2.00	-65.70	<=8.0
2457.20	14.90	16.40	-3.50	2.00	-65.70	<=8.0
2457.25	14.90	16.40	-3.50	2.00	-65.70	<=8.0
2457.30	14.90	16.40	-3.50	2.00	-65.70	<=8.0
2457.35	14.70	16.40	-3.70	2.00	-65.90	<=8.0
2457.40	14.40	16.40	-4.00	2.00	-66.20	<=8.0
2457.45	14.50	16.40	-3.90	2.00	-66.10	<=8.0
2457.50	14.70	16.40	-3.70	2.00	-65.90	<=8.0
2457.55	14.70	16.40	-3.70	2.00	-65.90	<=8.0
2457.60	14.50	16.40	-3.90	2.00	-66.10	<=8.0
2457.65	14.40	16.40	-4.00	2.00	-66.20	<=8.0
2457.70	14.30	16.40	-4.10	2.00	-66.30	<=8.0
2457.75	14.30	16.40	-4.10	2.00	-66.30	<=8.0
2457.80	14.10	16.40	-4.30	2.00	-66.50	<=8.0
2457.85	13.90	16.40	-4.50	2.00	-66.70	<=8.0
2457.90	13.50	16.40	-4.90	2.00	-67.10	<=8.0
2457.95	13.70	16.40	-4.70	2.00	-66.90	<=8.0
2458.00	13.70	16.40	-4.70	2.00	-66.90	<=8.0
2458.05	13.60	16.40	-4.80	2.00	-67.00	<=8.0
2458.10	13.60	16.40	-4.80	2.00	-67.00	<=8.0



11Mbps CHANNEL 11						
Processing Gain						
$G_p = (S/N)_0 + M_j + L_{sys}$						
Freq. (MHz)	G_p (dB)	(S/N) (dB)	$M_j = J/S$ (dB)	L_{sys} (dB)	Jammer (dBm)	PER (%)
2458.15	13.60	16.40	-4.80	2.00	-67.00	≤ 8.0
2458.20	13.50	16.40	-4.90	2.00	-67.10	≤ 8.0
2458.25	13.50	16.40	-4.90	2.00	-67.10	≤ 8.0
2458.30	13.70	16.40	-4.70	2.00	-66.90	≤ 8.0
2458.35	13.70	16.40	-4.70	2.00	-66.90	≤ 8.0
2458.40	13.60	16.40	-4.80	2.00	-67.00	≤ 8.0
2458.45	13.50	16.40	-4.90	2.00	-67.10	≤ 8.0
2458.50	13.40	16.40	-5.00	2.00	-67.20	≤ 8.0
2458.55	13.50	16.40	-4.90	2.00	-67.10	≤ 8.0
2458.60	13.30	16.40	-5.10	2.00	-67.30	≤ 8.0
2458.65	13.00	16.40	-5.40	2.00	-67.60	≤ 8.0
2458.70	13.00	16.40	-5.40	2.00	-67.60	≤ 8.0
2458.75	12.90	16.40	-5.50	2.00	-67.70	≤ 8.0
2458.80	13.10	16.40	-5.30	2.00	-67.50	≤ 8.0
2458.85	13.00	16.40	-5.40	2.00	-67.60	≤ 8.0
2458.90	12.60	16.40	-5.80	2.00	-68.00	≤ 8.0
2458.95	13.20	16.40	-5.20	2.00	-67.40	≤ 8.0
2459.00	13.30	16.40	-5.10	2.00	-67.30	≤ 8.0
2459.05	13.40	16.40	-5.00	2.00	-67.20	≤ 8.0
2459.10	13.30	16.40	-5.10	2.00	-67.30	≤ 8.0
2459.15	13.20	16.40	-5.20	2.00	-67.40	≤ 8.0
2459.20	13.00	16.40	-5.40	2.00	-67.60	≤ 8.0
2459.25	13.00	16.40	-5.40	2.00	-67.60	≤ 8.0
2459.30	13.00	16.40	-5.40	2.00	-67.60	≤ 8.0
2459.35	12.90	16.40	-5.50	2.00	-67.70	≤ 8.0
2459.40	12.40	16.40	-6.00	2.00	-68.20	≤ 8.0
2459.45	12.60	16.40	-5.80	2.00	-68.00	≤ 8.0
2459.50	12.60	16.40	-5.80	2.00	-68.00	≤ 8.0
2459.55	12.60	16.40	-5.80	2.00	-68.00	≤ 8.0
2459.60	12.60	16.40	-5.80	2.00	-68.00	≤ 8.0
2459.65	12.70	16.40	-5.70	2.00	-67.90	≤ 8.0
2459.70	12.60	16.40	-5.80	2.00	-68.00	≤ 8.0
2459.75	12.80	16.40	-5.60	2.00	-67.80	≤ 8.0



11Mbps CHANNEL 11						
Processing Gain						
$G_p = (S/N)_0 + M_j + L_{sys}$						
Freq. (MHz)	Gp (dB)	(S/N) (dB)	Mj=J/S (dB)	Lsys (dB)	Jammer (dBm)	PER (%)
2459.80	12.80	16.40	-5.60	2.00	-67.80	<=8.0
2459.85	12.60	16.40	-5.80	2.00	-68.00	<=8.0
2459.90	12.30	16.40	-6.10	2.00	-68.30	<=8.0
2459.95	12.50	16.40	-5.90	2.00	-68.10	<=8.0
2460.00	12.50	16.40	-5.90	2.00	-68.10	<=8.0
2460.05	12.50	16.40	-5.90	2.00	-68.10	<=8.0
2460.10	12.60	16.40	-5.80	2.00	-68.00	<=8.0
2460.15	12.70	16.40	-5.70	2.00	-67.90	<=8.0
2460.20	12.80	16.40	-5.60	2.00	-67.80	<=8.0
2460.25	12.80	16.40	-5.60	2.00	-67.80	<=8.0
2460.30	12.80	16.40	-5.60	2.00	-67.80	<=8.0
2460.35	12.80	16.40	-5.60	2.00	-67.80	<=8.0
2460.40	12.50	16.40	-5.90	2.00	-68.10	<=8.0
2460.45	12.90	16.40	-5.50	2.00	-67.70	<=8.0
2460.50	12.80	16.40	-5.60	2.00	-67.80	<=8.0
2460.55	12.80	16.40	-5.60	2.00	-67.80	<=8.0
2460.60	12.70	16.40	-5.70	2.00	-67.90	<=8.0
2460.65	12.40	16.40	-6.00	2.00	-68.20	<=8.0
2460.70	12.50	16.40	-5.90	2.00	-68.10	<=8.0
2460.75	12.50	16.40	-5.90	2.00	-68.10	<=8.0
2460.80	12.50	16.40	-5.90	2.00	-68.10	<=8.0
2460.85	12.50	16.40	-5.90	2.00	-68.10	<=8.0
2460.90	12.60	16.40	-5.80	2.00	-68.00	<=8.0
2460.95	12.80	16.40	-5.60	2.00	-67.80	<=8.0
2461.00	12.90	16.40	-5.50	2.00	-67.70	<=8.0
2461.05	13.00	16.40	-5.40	2.00	-67.60	<=8.0
2461.10	13.10	16.40	-5.30	2.00	-67.50	<=8.0
2461.15	13.10	16.40	-5.30	2.00	-67.50	<=8.0
2461.20	13.00	16.40	-5.40	2.00	-67.60	<=8.0
2461.25	13.20	16.40	-5.20	2.00	-67.40	<=8.0
2461.30	13.20	16.40	-5.20	2.00	-67.40	<=8.0
2461.35	13.10	16.40	-5.30	2.00	-67.50	<=8.0
2461.40	12.40	16.40	-6.00	2.00	-68.20	<=8.0



11Mbps CHANNEL 11						
Processing Gain						
$G_p = (S/N)_0 + M_j + L_{sys}$						
Freq. (MHz)	Gp (dB)	(S/N) (dB)	Mj=J/S (dB)	Lsys (dB)	Jammer (dBm)	PER (%)
5461.45	13.00	16.40	-5.40	2.00	-67.60	<=8.0
5461.50	13.00	16.40	-5.40	2.00	-67.60	<=8.0
5461.55	13.00	16.40	-5.40	2.00	-67.60	<=8.0
5461.60	12.40	16.40	-6.00	2.00	-68.20	<=8.0
5461.65	12.70	16.40	-5.70	2.00	-67.90	<=8.0
5461.70	13.00	16.40	-5.40	2.00	-67.60	<=8.0
5461.75	13.10	16.40	-5.30	2.00	-67.50	<=8.0
5461.80	13.00	16.40	-5.40	2.00	-67.60	<=8.0
5461.85	12.90	16.40	-5.50	2.00	-67.70	<=8.0
5461.90	12.80	16.40	-5.60	2.00	-67.80	<=8.0
5461.95	12.80	16.40	-5.60	2.00	-67.80	<=8.0
5462.00	12.80	16.40	-5.60	2.00	-67.80	<=8.0
5462.05	12.80	16.40	-5.60	2.00	-67.80	<=8.0
5462.10	12.70	16.40	-5.70	2.00	-67.90	<=8.0
5462.15	12.70	16.40	-5.70	2.00	-67.90	<=8.0
5462.20	12.80	16.40	-5.60	2.00	-67.80	<=8.0
5462.25	12.80	16.40	-5.60	2.00	-67.80	<=8.0
5462.30	13.00	16.40	-5.40	2.00	-67.60	<=8.0
5462.35	13.10	16.40	-5.30	2.00	-67.50	<=8.0
5462.40	13.10	16.40	-5.30	2.00	-67.50	<=8.0
5462.45	13.00	16.40	-5.40	2.00	-67.60	<=8.0
5462.50	13.10	16.40	-5.30	2.00	-67.50	<=8.0
5462.55	12.70	16.40	-5.70	2.00	-67.60	<=8.0
5462.60	12.80	16.40	-5.60	2.00	-67.50	<=8.0
5462.65	12.60	16.40	-5.80	2.00	-67.90	<=8.0
5462.70	12.80	16.40	-5.60	2.00	-67.80	<=8.0
5462.75	12.50	16.40	-5.90	2.00	-68.00	<=8.0
5462.80	12.10	16.40	-6.30	2.00	-67.80	<=8.0
5462.85	12.90	16.40	-5.50	2.00	-68.10	<=8.0
5462.90	12.90	16.40	-5.50	2.00	-68.50	<=8.0
5462.95	13.00	16.40	-5.40	2.00	-67.70	<=8.0
5463.00	13.10	16.40	-5.30	2.00	-67.70	<=8.0
5463.05	13.10	16.40	-5.30	2.00	-67.60	<=8.0



11Mbps CHANNEL 11						
Processing Gain						
$G_p = (S/N)_0 + M_j + L_{sys}$						
Freq. (MHz)	G _p (dB)	(S/N) (dB)	M _j =J/S (dB)	L _{sys} (dB)	Jammer (dBm)	PER (%)
2463.10	13.10	16.40	-5.30	2.00	-67.50	<=8.0
2463.15	13.10	16.40	-5.30	2.00	-67.50	<=8.0
2463.20	13.20	16.40	-5.20	2.00	-67.40	<=8.0
2463.25	13.10	16.40	-5.30	2.00	-67.50	<=8.0
2463.30	13.10	16.40	-5.30	2.00	-67.50	<=8.0
2463.35	13.10	16.40	-5.30	2.00	-67.50	<=8.0
2463.40	12.50	16.40	-5.90	2.00	-68.10	<=8.0
2463.45	13.00	16.40	-5.40	2.00	-67.60	<=8.0
2463.50	13.00	16.40	-5.40	2.00	-67.60	<=8.0
2463.55	12.90	16.40	-5.50	2.00	-67.70	<=8.0
2463.60	12.80	16.40	-5.60	2.00	-67.80	<=8.0
2463.65	12.80	16.40	-5.60	2.00	-67.80	<=8.0
2463.70	12.90	16.40	-5.50	2.00	-67.70	<=8.0
2463.75	13.00	16.40	-5.40	2.00	-67.60	<=8.0
2463.80	13.00	16.40	-5.40	2.00	-67.60	<=8.0
2463.85	13.00	16.40	-5.40	2.00	-67.60	<=8.0
2463.90	12.90	16.40	-5.50	2.00	-67.70	<=8.0
2463.95	12.90	16.40	-5.50	2.00	-67.70	<=8.0
2464.00	12.80	16.40	-5.60	2.00	-67.80	<=8.0
2464.05	12.70	16.40	-5.70	2.00	-67.90	<=8.0
2464.10	12.70	16.40	-5.70	2.00	-67.90	<=8.0
2464.15	12.70	16.40	-5.70	2.00	-67.90	<=8.0
2464.20	12.70	16.40	-5.70	2.00	-67.90	<=8.0
2464.25	12.80	16.40	-5.60	2.00	-67.80	<=8.0
2464.30	12.80	16.40	-5.60	2.00	-67.80	<=8.0
2464.35	12.80	16.40	-5.60	2.00	-67.80	<=8.0
2464.40	12.80	16.40	-5.60	2.00	-67.80	<=8.0
2464.45	12.80	16.40	-5.60	2.00	-67.80	<=8.0
2464.50	13.00	16.40	-5.40	2.00	-67.60	<=8.0
2464.55	12.80	16.40	-5.60	2.00	-67.80	<=8.0
2464.60	12.70	16.40	-5.70	2.00	-67.90	<=8.0
2464.65	12.60	16.40	-5.80	2.00	-68.00	<=8.0
2464.70	12.40	16.40	-6.00	2.00	-68.20	<=8.0



11Mbps CHANNEL 11						
Processing Gain						
$G_p = (S/N)_0 + M_j + L_{sys}$						
Freq. (MHz)	G_p (dB)	(S/N) (dB)	$M_j = J/S$ (dB)	L_{sys} (dB)	Jammer (dBm)	PER (%)
2464.75	12.30	16.40	-6.10	2.00	-68.30	≤ 8.0
2464.80	12.60	16.40	-5.80	2.00	-68.00	≤ 8.0
2464.85	12.30	16.40	-6.10	2.00	-68.30	≤ 8.0
2464.90	12.50	16.40	-5.90	2.00	-68.10	≤ 8.0
2464.95	12.60	16.40	-5.80	2.00	-68.00	≤ 8.0
2465.00	12.50	16.40	-5.90	2.00	-68.10	≤ 8.0
2465.05	12.50	16.40	-5.90	2.00	-68.10	≤ 8.0
2465.10	12.80	16.40	-5.60	2.00	-67.80	≤ 8.0
2465.15	12.90	16.40	-5.50	2.00	-67.70	≤ 8.0
2465.20	13.00	16.40	-5.40	2.00	-67.60	≤ 8.0
2465.25	13.30	16.40	-5.10	2.00	-67.30	≤ 8.0
2465.30	13.40	16.40	-5.00	2.00	-67.20	≤ 8.0
2465.35	13.40	16.40	-5.00	2.00	-67.20	≤ 8.0
2465.40	12.90	16.40	-5.50	2.00	-67.70	≤ 8.0
2465.45	13.20	16.40	-5.20	2.00	-67.40	≤ 8.0
2465.50	13.40	16.40	-5.00	2.00	-67.20	≤ 8.0
2465.55	13.50	16.40	-4.90	2.00	-67.10	≤ 8.0
2465.60	13.50	16.40	-4.90	2.00	-67.10	≤ 8.0
2465.65	12.70	16.40	-5.70	2.00	-67.90	≤ 8.0
2465.70	13.50	16.40	-4.90	2.00	-67.10	≤ 8.0
2465.75	13.60	16.40	-4.80	2.00	-67.00	≤ 8.0
2465.80	13.60	16.40	-4.80	2.00	-67.00	≤ 8.0
2465.85	13.10	16.40	-5.30	2.00	-67.50	≤ 8.0
2465.90	13.60	16.40	-4.80	2.00	-67.00	≤ 8.0
2465.95	13.80	16.40	-4.60	2.00	-66.80	≤ 8.0
2466.00	13.90	16.40	-4.50	2.00	-66.70	≤ 8.0
2466.05	14.00	16.40	-4.40	2.00	-66.60	≤ 8.0
2466.10	14.00	16.40	-4.40	2.00	-66.60	≤ 8.0
2466.15	13.60	16.40	-4.80	2.00	-67.00	≤ 8.0
2466.20	13.80	16.40	-4.60	2.00	-66.80	≤ 8.0
2466.25	14.00	16.40	-4.40	2.00	-66.60	≤ 8.0
2466.30	13.90	16.40	-4.50	2.00	-66.70	≤ 8.0
2466.35	14.10	16.40	-4.30	2.00	-66.50	≤ 8.0



11Mbps CHANNEL 11						
Processing Gain						
$G_p = (S/N)_0 + M_j + L_{sys}$						
Freq. (MHz)	G _p (dB)	(S/N) (dB)	M _j =J/S (dB)	L _{sys} (dB)	Jammer (dBm)	PER (%)
2466.40	14.10	16.40	-4.30	2.00	-66.50	<=8.0
2466.45	14.10	16.40	-4.30	2.00	-66.50	<=8.0
2466.50	14.40	16.40	-4.00	2.00	-66.20	<=8.0
2466.55	14.40	16.40	-4.00	2.00	-66.20	<=8.0
2466.60	14.40	16.40	-4.00	2.00	-66.20	<=8.0
2466.65	14.50	16.40	-3.90	2.00	-66.10	<=8.0
2466.70	14.50	16.40	-3.90	2.00	-66.10	<=8.0
2466.75	14.40	16.40	-4.00	2.00	-66.20	<=8.0
2466.80	14.40	16.40	-4.00	2.00	-66.20	<=8.0
2466.85	14.20	16.40	-4.20	2.00	-66.40	<=8.0
2466.90	14.20	16.40	-4.20	2.00	-66.40	<=8.0
2466.95	14.20	16.40	-4.20	2.00	-66.40	<=8.0
2467.00	14.40	16.40	-4.00	2.00	-66.20	<=8.0
2467.05	14.50	16.40	-3.90	2.00	-66.10	<=8.0
2467.10	14.60	16.40	-3.80	2.00	-66.00	<=8.0
2467.15	14.70	16.40	-3.70	2.00	-65.90	<=8.0
2467.20	14.80	16.40	-3.60	2.00	-65.80	<=8.0
2467.25	15.10	16.40	-3.30	2.00	-65.50	<=8.0
2467.30	15.40	16.40	-3.00	2.00	-65.20	<=8.0
2467.35	15.50	16.40	-2.90	2.00	-65.10	<=8.0
2467.40	15.30	16.40	-3.10	2.00	-65.30	<=8.0
2467.45	15.60	16.40	-2.80	2.00	-65.00	<=8.0
2467.50	15.60	16.40	-2.80	2.00	-65.00	<=8.0
2467.55	15.60	16.40	-2.80	2.00	-65.00	<=8.0
2467.60	15.70	16.40	-2.70	2.00	-64.90	<=8.0
2467.65	15.70	16.40	-2.70	2.00	-64.90	<=8.0
2467.70	15.80	16.40	-2.60	2.00	-64.80	<=8.0
2467.75	15.80	16.40	-2.60	2.00	-64.80	<=8.0
2467.80	16.00	16.40	-2.40	2.00	-64.60	<=8.0
2467.85	16.10	16.40	-2.30	2.00	-64.50	<=8.0
2467.90	16.30	16.40	-2.10	2.00	-64.30	<=8.0
2467.95	16.30	16.40	-2.10	2.00	-64.30	<=8.0
2468.00	16.60	16.40	-1.80	2.00	-64.00	<=8.0



11Mbps CHANNEL 11						
Processing Gain						
$G_p = (S/N)_0 + M_j + L_{sys}$						
Freq. (MHz)	Gp (dB)	(S/N) (dB)	Mj=J/S (dB)	Lsys (dB)	Jammer (dBm)	PER (%)
2468.05	16.80	16.40	-1.60	2.00	-63.80	<=8.0
2468.10	16.90	16.40	-1.50	2.00	-63.70	<=8.0
2468.15	16.90	16.40	-1.50	2.00	-63.70	<=8.0
2468.20	17.20	16.40	-1.20	2.00	-63.40	<=8.0
2468.25	17.10	16.40	-1.30	2.00	-63.50	<=8.0
2468.30	17.20	16.40	-1.20	2.00	-63.40	<=8.0
2468.35	17.30	16.40	-1.10	2.00	-63.30	<=8.0
2468.40	17.60	16.40	-0.80	2.00	-63.00	<=8.0
2468.45	17.60	16.40	-0.80	2.00	-63.00	<=8.0
2468.50	17.70	16.40	-0.70	2.00	-62.90	<=8.0
2468.55	17.70	16.40	-0.70	2.00	-62.90	<=8.0
2468.60	17.70	16.40	-0.70	2.00	-62.90	<=8.0
2468.65	17.70	16.40	-0.70	2.00	-62.90	<=8.0
2468.70	18.00	16.40	-0.40	2.00	-62.60	<=8.0
2468.75	17.90	16.40	-0.50	2.00	-67.70	<=8.0
2468.80	18.10	16.40	-0.30	2.00	-62.50	<=8.0
2468.85	18.10	16.40	-0.30	2.00	-62.50	<=8.0
2468.90	18.20	16.40	-0.20	2.00	-62.40	<=8.0
2468.95	18.70	16.40	0.30	2.00	-61.90	<=8.0
2469.00	19.10	16.40	0.70	2.00	-61.50	<=8.0
2469.05	19.10	16.40	0.70	2.00	-61.50	<=8.0
2469.10	19.80	16.40	1.40	2.00	-60.80	<=8.0
2469.15	20.50	16.40	2.10	2.00	-60.10	<=8.0
2469.20	20.80	16.40	2.40	2.00	-59.80	<=8.0
2469.25	20.80	16.40	2.40	2.00	-59.80	<=8.0
2469.30	20.80	16.40	2.40	2.00	-59.80	<=8.0
2469.35	21.40	16.40	3.00	2.00	-59.20	<=8.0
2469.40	21.40	16.40	3.00	2.00	-59.20	<=8.0
2469.45	21.40	16.40	3.00	2.00	-59.20	<=8.0
2469.50	21.50	16.40	3.10	2.00	-59.10	<=8.0
2469.55	21.50	16.40	3.10	2.00	-59.10	<=8.0
2469.60	21.70	16.40	3.30	2.00	-58.90	<=8.0
2469.65	21.70	16.40	3.30	2.00	-58.90	<=8.0



11Mbps CHANNEL 11						
Processing Gain						
$G_p = (S/N)_0 + M_j + L_{sys}$						
Freq. (MHz)	Gp (dB)	(S/N) (dB)	Mj=J/S (dB)	Lsys (dB)	Jammer (dBm)	PER (%)
2469.70	21.70	16.40	3.30	2.00	-58.90	<=8.0
2469.75	21.80	16.40	3.40	2.00	-58.80	<=8.0
2469.80	21.80	16.40	3.40	2.00	-58.80	<=8.0
2469.85	22.70	16.40	4.30	2.00	-57.90	<=8.0
2469.90	23.50	16.40	5.10	2.00	-57.10	<=8.0
2469.95	24.00	16.40	5.60	2.00	-56.60	<=8.0
2470.00	24.00	16.40	5.60	2.00	-56.60	<=8.0
2470.05	23.90	16.40	5.50	2.00	-56.70	<=8.0
2470.10	24.10	16.40	5.70	2.00	-56.50	<=8.0
2470.15	24.30	16.40	5.90	2.00	-56.30	<=8.0
2470.20	24.70	16.40	6.30	2.00	-55.90	<=8.0
2470.25	25.00	16.40	6.60	2.00	-55.60	<=8.0
2470.30	25.00	16.40	6.60	2.00	-55.60	<=8.0
2470.35	25.00	16.40	6.60	2.00	-55.60	<=8.0
2470.40	25.20	16.40	6.80	2.00	-55.40	<=8.0
2470.45	25.20	16.40	6.80	2.00	-55.40	<=8.0
2470.50	25.30	16.40	6.90	2.00	-55.30	<=8.0

Product AP-WA304-UF

TX Firmware **1D010001, PK010005, SF010304**

RX Firmware **1D010001, PK010005, SF010304**

Software **Ver. 3.0.24**

Mode **11 MB Pseudo IBSS**

Pkt Size **1024**

Pkt Dly **1**

Pkt Burst **6**

Intersil Chips on Card : **ISL3984 ISL3685 HFA3783 ISL3183 ISL3873**