

DATE: 16 May 2008

I.T.L. (PRODUCT TESTING) LTD.

FCC EMC Test Report

(Equipment Authorization Under FCC
Declaration of Conformity Process)


for


MOTOROLA INC

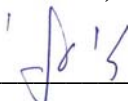
Equipment under test:

W24 Wi-Fi Module

W24

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1. General Information

1.1 Administrative Information

Manufacturer:	MOTOROLA INC
Manufacturer's Address:	3 Kremenetski St. Tel Aviv 67899 Israel Tel: +972-3-565-8888 Fax: +972-3-565-9692
Manufacturer's Representative:	Gil Cahlon
Equipment Under Test (E.U.T):	W24 Wi-Fi Module
Equipment Model No.:	W24
Equipment Serial No.:	UQT00040
Date of Receipt of E.U.T:	14.05.08
Start of Test:	14.05.08
End of Test:	15.05.08
Test Laboratory Location:	I.T.L (Product Testing) Ltd. Kfar Bin Nun, ISRAEL 99780
Test Specifications:	See Section 2

1.2 Abbreviations and Symbols

The following abbreviations and symbols are applicable to this test report:

AC	alternating current
ARA	Antenna Research Associates
Aux	auxiliary
Avg	average
CDN	coupling-decoupling network
cm	centimeter
dB	decibel
dBm	decibel referred to one milliwatt
db μ V	decibel referred to one microvolt
db μ V/m	decibel referred to one microvolt per meter
DC	direct current
EMC	electromagnetic compatibility
E.U.T.	equipment under test
GHz	gigahertz
HP	Hewlett Packard
Hz	Hertz
kHz	kilohertz
kV	kilovolt
LED	light emitting diode
LISN	line impedance stabilization network
m	meter
mHn	millihenry
MHz	megahertz
msec	millisecond
N/A	not applicable
QP	quasi-peak
PC	personal computer
RF	radio frequency
RE	radiated emission
sec	second
V	volt

1.3 List of Accreditations

The EMC laboratory of I.T.L. is accredited by the following bodies:

1. The American Association for Laboratory Accreditation (A2LA) (U.S.A.), Certificate No. 1152.01.
2. The Federal Communications Commission (FCC) (U.S.A.), Registration No. 90715.
3. The Israel Ministry of the Environment (Israel), Registration No. 1104/01.
4. The Voluntary Control Council for Interference by Information Technology Equipment (VCCI) (Japan), Registration Numbers: C-1350, R-1285.
5. Industry Canada (Canada), File No. IC 4025.
6. TUV Product Services, England, ASLLAS No. 97201.
7. Nemko (Norway), Authorization No. ELA 207.

I.T.L. Product Testing Ltd. is accredited by the American Association for Laboratory Accreditation (A2LA) and the results shown in this test report have been determined in accordance with I.T.L.'s terms of accreditation unless stated otherwise in the report.

1.4 Product Description

The W24 is a self-contained Wi-Fi module, supporting IEEE 802.11 b/g systems in the 2.4 GHz band.

The E.U.T. can also be used as a computer peripheral connected via RS232 or USB ports.

1.5 Test Methodology

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

1.6 Test Facility

The radiated emission tests were performed at I.T.L.'s testing facility at Kfar Bin-Nun, Israel. This site is an FCC listed tested laboratory (FCC registration No. 90715, date of listing 22 August 2006).

I.T.L.'s EMC Laboratory is also accredited by A2LA, certificate no. 1152.01.

1.7 Measurement Uncertainty

A) Conducted Emission

The uncertainty for this test is ± 2 dB.

B) Radiated Emission

The Open Site complies with the ± 4 dB Normalized Site Attenuation requirements of ANSI C63.4: 2003. In accordance with Paragraph 5.4.6.1 of this standard, this tolerance includes instrumentation calibration errors, measurement technique errors, and errors due to site anomalies.

2. Applicable Documents

- 2.1 **Code of Federal Regulations Title 47,
Federal Communications Commission
Part 15, Subpart B.
Rev. September 20, 2007** *Unintentional Radiators.*
- 2.2 **ANSI C63.4-2003** *American National Standards for
Methods of Measurement of Radio-
Noise Emissions from Low-Voltage
Electrical and Electronic Equipment
in the Range of 9 kHz to 40 GHz.*
- 2.3 **CISPR 16-1: 1999** *Specification for Radio Disturbance
and Immunity Measuring Apparatus
and Methods, Part 1. Radio
Disturbance and Immunity Measuring
Apparatus*
- 2.4 **CISPR 16-2: 1999** *Specification for Radio Disturbance
and Immunity Measuring Apparatus
and Methods, Part 2. Methods of
measurement of disturbances and
immunity*

3. System Test Configuration

3.1 Justification

The E.U.T. was tested in an evaluation board in order simulate normal operation.

Exploratory radiated emission testing was performed in order to determine which configuration (connection via RS232 or USB port) was the “worst” case.

Based on the exploratory emission test, the connection via USB port was selected as the “worst” case.

3.2 E.U.T. Exercise Software

Manufacturing software was used for the tests.

3.3 Equipment Modifications

No modifications were necessary in order to achieve compliance.

3.4 Configuration of the Tested System

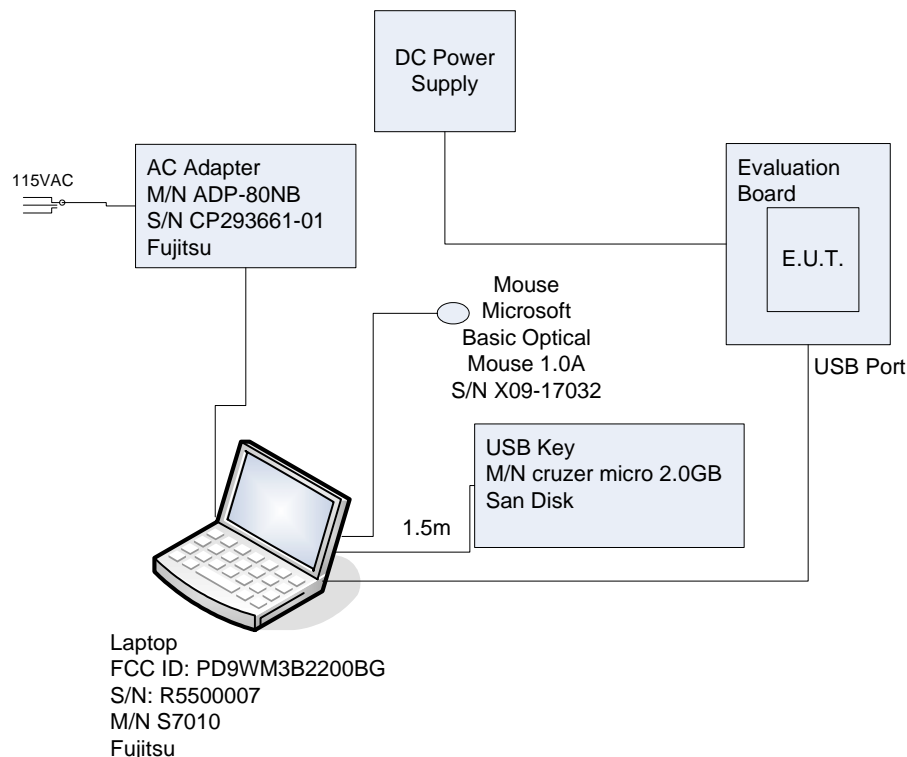


Figure 1. Configuration of the Tested System

4. Summary of Test Results

Test	Results
<p>Conducted Emissions FCC Part 15, Subpart B Class B</p>	<p>The E.U.T met the performance requirements of the specification.</p> <p>The margin between the emission levels and the specification limit was, in the worst case, 10.2 dB for the phase line at 7.37 MHz and 10.9 dB for the neutral line at 7.37 MHz.</p>
<p>Radiated Emissions FCC Part 15, Subpart B Class B</p>	<p>The E.U.T met the performance requirements of the specification.</p> <p>The margin between the emission level and the specification limit was 5.9 dB in the worst case at the frequency of 454.70 MHz, vertical polarization.</p>

Notes:

1. Exploratory radiated emission testing was performed in order to determine which configuration (connection via RS232 or USB port) was the “worst” case.
2. Based on the exploratory emission test, the connection via USB port was selected as the “worst” case.

5. Conducted Emission Test Data

5.1 Test Specification

0.15 - 30 MHz, FCC Part 15, Subpart B, CLASS B

5.2 Test Procedure

The E.U.T operation mode and test configuration are as described in Section 4. In order to minimize background noise interference, the conducted emission testing was performed inside a shielded room (see Section 3), with the E.U.T placed on an 0.8 meter high wooden table, 0.4 meter from the room's vertical wall. In the case of a floor-standing E.U.T., it was placed on the horizontal ground plane.

The E.U.T was powered from 115 V AC / 60 Hz via 50 Ohm / 50 μ Hn Line Impedance Stabilization Network (LISN) on the phase and neutral lines. The LISN's were grounded to the shielded room ground plane (floor), and were kept at least 0.8 meters from the nearest boundary of the E.U.T

The center of the E.U.T.'s AC cable was folded back and forth, in order to form a bundle less than 0.40 meters and a total cable length of 1 meter.

The effect of varying the position of the cables was investigated to find the configuration that produces maximum emission. The configuration tested is shown in the photograph, *Figure 12. Conducted Emission From AC Mains Test Front.*

The emission voltages at the LISN's outputs were measured using a computerized receiver, complying to CISPR 16 requirements. The specification limits are loaded to the receiver via a 3.5" floppy disk and are displayed on the receiver's spectrum display.

A frequency scan between 0.15 and 30 MHz was performed at 9 kHz I.F. band width, using peak detection.

The spectral components having the highest level on each line were measured using a quasi-peak and average detector.

5.3 Test Data

JUDGEMENT: Passed by 10.2 dB

The E.U.T met the requirements of the FCC Part 15, Subpart B, Class B specification.

The details of the highest emissions are given in *Figure 2* to *Figure 7*.

Notes:

3. Exploratory radiated emission testing was performed in order to determine which configuration (connection via RS232 or USB port) was the “worst” case.
4. Based on the exploratory emission test, the connection via USB port was selected as the “worst” case.

Conducted Emission

E.U.T Description W24 Wi-Fi Module
 Type W24
 Serial Number: UQT00040

Specification: FCC Part 15, Subpart B, Class B
 Lead: Phase
 Detectors: Peak, Quasi-peak, Average

Frequency (MHz)	Peak Amplitude (dB μ V)	Quasi-peak Amplitude (dB μ V)	Specification (dB μ V)	Pass/Fail	Margin (dB)
0.21	41.5	40.2	63.5	Pass	-23.3
0.51	36.3	35.8	56.0	Pass	-20.2
0.70	36.2	15.7	56.0	Pass	-40.3
4.79	40.0	36.3	56.0	Pass	-19.7
7.37	41.2	38.1	60.0	Pass	-21.9
10.25	33.3	32.3	60.0	Pass	-27.7

Figure 2. Conducted Emission: PHASE. Detectors: Peak, QUASI-PEAK


Frequency (MHz)	Peak Amplitude (dB μ V)	Average Amplitude (dB μ V)	Specification (dB μ V)	Pass/Fail	Margin (dB)
0.21	41.5	21.9	53.5	Pass	-31.6
0.51	36.3	15.2	46.0	Pass	-30.8
0.70	36.2	8.9	46.0	Pass	-37.1
4.79	40.0	21.0	46.0	Pass	-25.0
7.37	41.2	39.8	50.0	Pass	-10.2
10.25	33.3	29.4	50.0	Pass	-20.6

Figure 3. Detectors: Peak, AVERAGE .

Conducted Emission

E.U.T Description W24 Wi-Fi Module
 Type W24
 Serial Number: UQT00040

Specification: FCC Part 15, Subpart B, Class B
 Lead: Phase
 Detectors: Peak, Quasi-peak, Average

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ACTV DET: PEAK
 MEAS DET: PEAK QP AVG
 MKR 6.23 MHz
 27.94 dB μ V

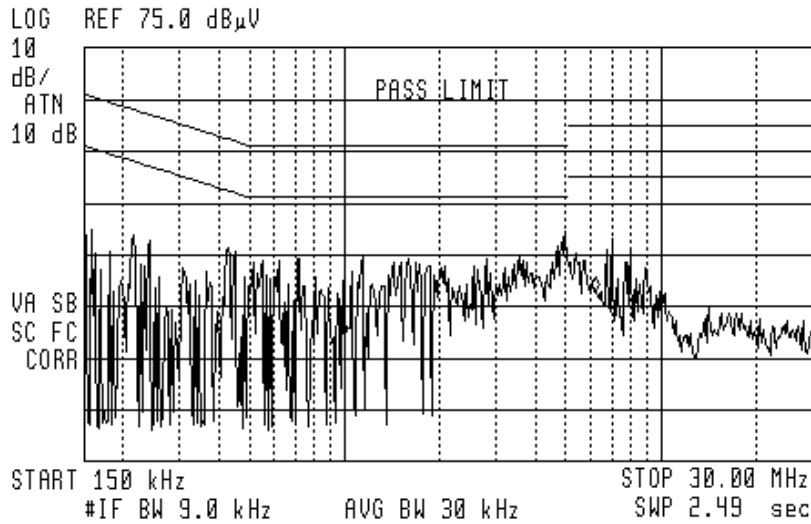


Figure 4. Detectors: Peak, Quasi-peak, Average

Conducted Emission

E.U.T Description W24 Wi-Fi Module
 Type W24
 Serial Number: UQT00040

Specification: FCC Part 15, Subpart B, Class B
 Lead: Neutral
 Detectors: Peak, Quasi-peak, Average

Frequency (MHz)	Peak Amplitude (dB μ V)	Quasi-peak Amplitude (dB μ V)	Specification (dB μ V)	Pass/Fail	Margin (dB)
0.16	36.3	27.5	65.3	Pass	-37.8
0.20	38.2	29.3	63.5	Pass	-34.2
0.43	35.5	15.3	57.3	Pass	-42.0
0.64	36.0	27.2	56.0	Pass	-28.8
1.90	38.1	20.5	56.0	Pass	-35.5
7.37	40.6	40.1	60.0	Pass	-19.9

Figure 5. Detectors: Peak, QUASI-PEAK


Frequency (MHz)	Peak Amplitude (dB μ V)	Average Amplitude (dB μ V)	Specification (dB μ V)	Pass/Fail	Margin (dB)
0.16	36.3	12.4	55.3	Pass	-42.9
0.20	38.2	17.7	53.5	Pass	-35.8
0.43	35.5	7.3	47.3	Pass	-40.0
0.64	36.0	18.2	46.0	Pass	-27.8
1.90	38.1	16.5	46.0	Pass	-29.5
7.37	40.6	39.1	50.0	Pass	-10.9

Figure 6. Detectors: Peak, AVERAGE

Conducted Emission

E.U.T Description W24 Wi-Fi Module
 Type W24
 Serial Number: UQT00040

Specification: FCC Part 15, Subpart B, Class B
 Lead: Neutral
 Detectors: Peak, Quasi-peak, Average

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ADRS / OPERATION ACTV DET: PEAK
 MEAS DET: PEAK QP AVG
 MKR 6.23 MHz
 27.32 dB μ V

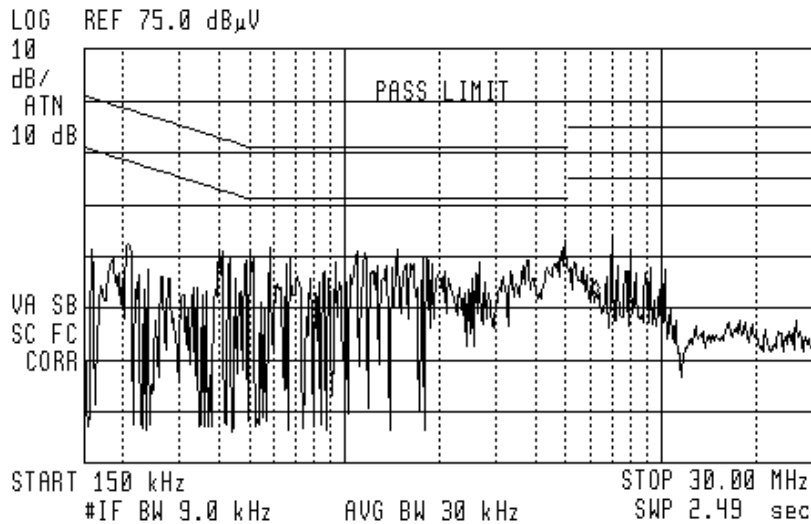


Figure 7 Conducted Emission: NEUTRAL
Detectors: Peak, Quasi-peak, Average

5.4 Test Instrumentation Used, Conducted Measurement

Instrument	Manufacturer	Model	Serial No.	Last Calibration Date	Period
LISN	Fischer	FCC-LISN-2A	127	March 8, 2008	1 Year
LISN	Fischer	FCC-LISN-2A	128	March 8, 2008	1 Year
EMI Receiver	HP	85422E	3906A00276	November 12, 2007	1Year
RF Filter Section	HP	85420E	3705A00248	November 12, 2007	1Year
Printer	HP	LaserJet 2200	JPKG19982	N/A	N/A

6. Radiated Emission Test Data

6.1 Test Specification

30-25000 MHz, FCC Part 15, Subpart B, CLASS B

6.2 Test Procedure

The E.U.T operation mode and test configuration are as described in section 4.

A preliminary measurement to characterize the E.U.T was performed inside the shielded room at a distance of 3 meters, using peak detection mode and broadband antennas. The preliminary measurements produced a list of the highest emissions. The E.U.T was then transferred to the open site, and placed on a remote-controlled turntable. The E.U.T was placed on a non-metallic table, 0.8 meters above the ground. The effect of varying the position of the cables was investigated to find the configuration that produces maximum emission. The configuration tested is shown in photograph *Figure 13. Radiated Emission Test Front*.

The E.U.T. highest frequency source or used frequency is 2.4 GHz.

The frequency range 30-25000 MHz was scanned, and the list of the highest emissions was verified and updated accordingly.

The emissions were measured using a computerized EMI receiver complying to CISPR 16 requirements. The specification limits and applicable correction factors are loaded to the receiver via a 3.5" floppy disk.

In the frequency range 2.9 - 25 GHz, a spectrum analyzer including a low noise amplifier was used. The test distance was 3 meters. During peak measurements, the I.F. bandwidth was 1 MHz, and video bandwidth 3 MHz. During average measurements, the I.F. bandwidth was 1 MHz and video bandwidth was 100 Hz.

The readings were maximized by adjusting the antenna height between 1-4 meters, the turntable azimuth between 0-360°, and the antenna polarization.

Verification of the E.U.T emissions was based on the following methods: turning the E.U.T on and off; using a frequency span less than 10 MHz; observation of the signal level during turntable rotation. (Background noise is not affected by the rotation of the E.U.T.)

The emissions were measured at a distance of 3 meters.

6.3 Test Data

JUDGEMENT: Passed by 5.9 dB

The E.U.T met the requirements of the FCC Part 15, Subpart B, Class B specification.

The signals in the band 1.0 – 25 GHz were below the spectrum analyzer noise level, at least 20dB below the specification limit.

The details of the highest emissions are given in *Figure 8* to *Figure 11*.

Notes:

1. Exploratory radiated emission testing was performed in order to determine which configuration (connection via RS232 or USB port) was the “worst” case.
2. Based on the exploratory emission test, the connection via USB port was selected as the “worst” case.

Radiated Emission

E.U.T Description W24 Wi-Fi Module
 Type W24
 Serial Number: UQT00040

Specification: FCC Part 15, Subpart B, Class B

Antenna Polarization: Horizontal
 Antenna: 3 meters distance

Frequency range: 30 MHz to 1000 MHz
 Detectors: Peak, Quasi-peak

Signal Number	Frequency (MHz)	Peak dBuV/m	QP dBuV/m	QP Delta L 1 (dB)	Avg dBuV/m	Av Delta L 2 (dB)	Corr (dB)
1	215.372575	35.9	31.5	-12.0			18.5
2	239.990425	28.9	25.3	-20.7			19.8
3	294.375425	33.6	29.0	-17.0			23.0
4	335.897088	32.2	27.7	-18.3			17.3
5	461.300000	23.7	18.2	-27.8			20.6
6	560.000000	26.6	22.3	-23.7			23.1

**Figure 8. Radiated Emission. Antenna Polarization: HORIZONTAL.
 Detectors: Peak, Quasi-peak**

Note: QP Delta refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.

Radiated Emission

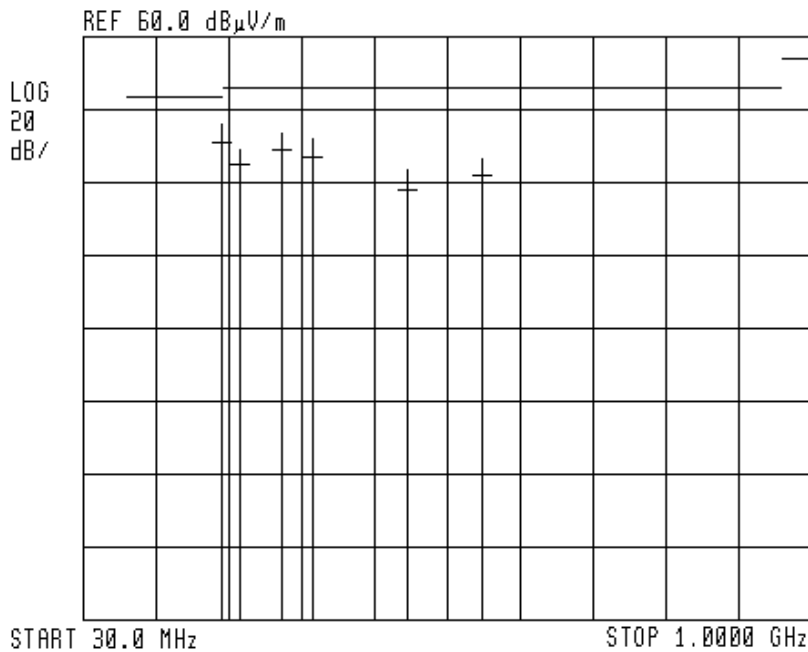
E.U.T Description W24 Wi-Fi Module
 Type W24
 Serial Number: UQT00040

Specification: FCC Part 15, Subpart B, Class B

Antenna Polarization: Horizontal
 Antenna: 3 meters distance

Frequency range: 30 MHz to 1000 MHz
 Detectors: Peak, Quasi-peak

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**Figure 9. Radiated Emission. Antenna Polarization: HORIZONTAL
 Detectors: Peak, Quasi-peak**

Note:

1. Horizontal axis shows logarithmic frequency scale.
2. The vertical axis shows amplitude (in dB μ V/m).
3. Peak detection is designated by the top of each vertical line.
4. Quasi-peak detection is designated by the first dash mark (from the top) of each vertical line.

Radiated Emission

E.U.T Description W24 Wi-Fi Module
 Type W24
 Serial Number: UQT00040

Specification: FCC Part 15, Subpart B, Class B

Antenna Polarization: Vertical
 Antenna: 3 meters distance

Frequency range: 30 MHz to 1000 MHz
 Detectors: Peak, Quasi-peak

Signal Number	Frequency (MHz)	Peak dBuV/m	QP dBuV/m	QP Delta L 1 (dB)	Avg dBuV/m	Av Delta L 2 (dB)	Corr (dB)
1	129.541721	38.3	33.1	-10.4			13.9
2	287.114279	37.2	32.1	-13.9			22.5
3	324.668878	31.9	26.5	-19.5			16.9
4	328.621051	31.9	26.6	-19.4			17.1
5	440.587439	35.9	29.9	-16.1			20.3
6	454.695437	45.8	40.1	-5.9			20.5
7	777.725546	41.8	35.8	-10.2			26.0

**Figure 10. Radiated Emission. Antenna Polarization: VERTICAL.
 Detectors: Peak, Quasi-peak**

Note: QP Delta refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.

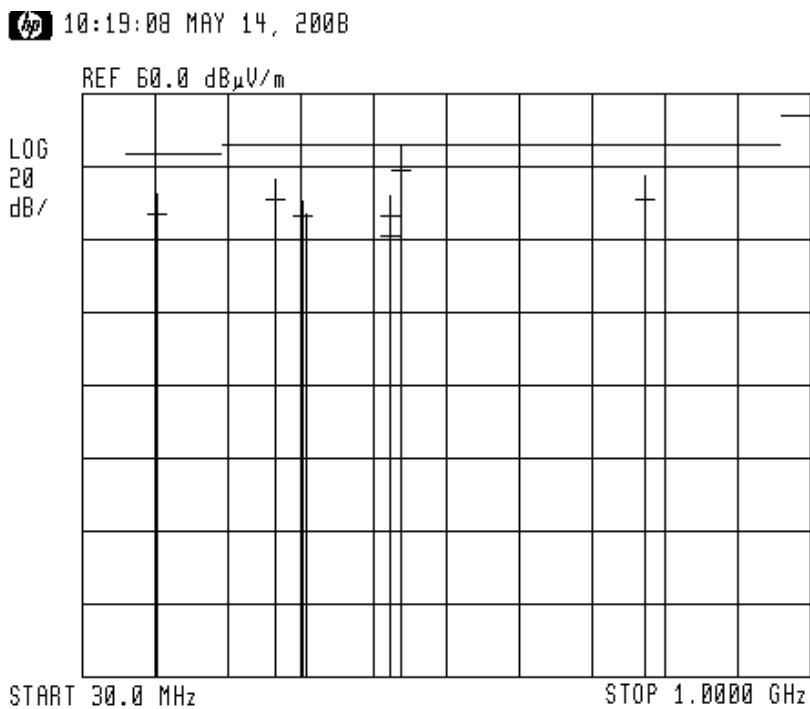
Radiated Emission

E.U.T Description W24 Wi-Fi Module
 Type W24
 Serial Number: UQT00040

Specification: FCC Part 15, Subpart B, Class B

Antenna Polarization: Vertical
 Antenna: 3 meters distance

Frequency range: 30 MHz to 1000 MHz
 Detectors: Peak, Quasi-peak



**Figure 11. Radiated Emission. Antenna Polarization: VERTICAL.
 Detectors: Peak, Quasi-peak**

Note:

1. Horizontal axis shows logarithmic frequency scale.
2. The vertical axis shows amplitude (in dB μ V/m).
3. Peak detection is designated by the top of each vertical line.
4. Quasi-peak detection is designated by the first dash mark (from the top) of each vertical line.

6.4 Test Instrumentation Used, Radiated Measurements

Instrument	Manufacturer	Model	Serial No.	Last Calibration Date	Period
EMI Receiver	HP	85422E	3906A00276	November 12, 2007	1 Year
RF Filter Section	HP	85420E	3705A00248	November 12, 2007	1 Year
Antenna Biconical	ARA	BCD 235/B	1041	March 23, 2008	1 Year
Antenna Log Periodic	ARA	LPD-2010/A	1038	November 22, 2007	1 Year
Antenna Log Periodic	A.H. Systems	SAS-200/511	253	February 4, 2007	2 Years
Double Ridged Waveguide Horn Antenna	EMCO	3115	29845	March 16, 2008	2 Years
Horn Antenna	ARA	SWH-28	1008	December 8, 2006	2 Years
Low Noise Amplifier	DBS MICROWAVE	LNA-DBS-0411N313	013	November 2, 2007	1 Year
Low Noise Amplifier	Sophia Wireless	LNA 28-B	232	January 9, 2008	1 Year
Spectrum Analyzer	HP	8592L	3826A01204	March 5, 2008	1 Year
Spectrum Analyzer	HP	8546E	3442A00275	November 14, 2007	1 Year
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKGC19982	N/A	N/A

6.5 Field Strength Calculation

The field strength is calculated directly by the EMI Receiver software, and a “Correction Factors” data disk, using the following equation:

$$FS = RA + AF + CF$$

Where:

FS: Field strength [dB μ V/m]

RA: Receiver Amplitude [dB μ V]

AF: Receiving Antenna Correction Factor [dB/m]

CF: Cable attenuation Factor [dB]

No external pre-amplifiers are used.

7. Set Up Photographs





Figure 12. Conducted Emission From AC Mains Test Front



Figure 13. Radiated Emission Test Front

8. Signatures of the E.U.T's Test Engineers

Test	Test Engineer Name	Signature	Date
Conducted Emissions	A. Sharabi		15.05.08
Radiated Emissions	A. Sharabi		15.05.08

9. APPENDIX A - CORRECTION FACTORS

9.1 Correction factors for CABLE from EMI receiver to test antenna at 3 meter range.

FREQUENCY (MHz)	CORRECTION FACTOR (dB)	FREQUENCY (MHz)	CORRECTION FACTOR (dB)
10.0	0.3	1200.0	7.3
20.0	0.6	1400.0	7.8
30.0	0.8	1600.0	8.4
40.0	0.9	1800.0	9.1
50.0	1.1	2000.0	9.9
60.0	1.2	2300.0	11.2
70.0	1.3	2600.0	12.2
80.0	1.4	2900.0	13.0
90.0	1.6		
100.0	1.7		
150.0	2.0		
200.0	2.3		
250.0	2.7		
300.0	3.1		
350.0	3.4		
400.0	3.7		
450.0	4.0		
500.0	4.3		
600.0	4.7		
700.0	5.3		
800.0	5.9		
900.0	6.3		
1000.0	6.7		

NOTES:

1. The cable type is RG-214.
2. The overall length of the cable is 27 meters.
3. The above data is located in file 27MO3MO.CBL on the disk marked "Radiated Emission Tests EMI Receiver".

**9.2 Correction factors for CABLE
from EMI receiver
to test antenna
at 3 meter range.**

FREQUENCY (GHz)	CORRECTION FACTOR (dB)
1.0	1.2
2.0	1.6
3.0	2.0
4.0	2.4
5.0	3.0
6.0	3.4
7.0	3.8
8.0	4.2
9.0	4.6
10.0	5.0
12.0	5.8

NOTES:

- 1. The cable type is RG-8.*
- 2. The overall length of the cable is 10 meters.*

9.3 Correction factors for CABLE
from spectrum analyzer
to test antenna above 2.9 GHz

FREQUENCY (GHz)	CORRECTION FACTOR (dB)	FREQUENCY (GHz)	CORRECTION FACTOR (dB)
1.0	1.9	14.0	9.1
2.0	2.7	15.0	9.5
3.0	3.5	16.0	9.9
4.0	4.2	17.0	10.2
5.0	4.9	18.0	10.4
6.0	5.5	19.0	10.7
7.0	6.0	20.0	10.9
8.0	6.5	21.0	11.2
9.0	7.0	22.0	11.6
10.0	7.5	23.0	11.9
11.0	7.9	24.0	12.3
12.0	8.3	25.0	12.6
13.0	8.7	26.0	13.0

NOTES:

1. *The cable type is SUCOFLEX 104 E manufactured by SUHNER.*
2. *The cable is used for measurements above 2.9 GHz.*
3. *The overall length of the cable is 10 meters.*

**12.6 Correction factors for LOG PERIODIC ANTENNA
Type LPD 2010/A
at 3 and 10 meter ranges.**

Distance of 3 meters

FREQUENCY (MHz)	AFE (dB/m)
200.0	9.1
250.0	10.2
300.0	12.5
400.0	15.4
500.0	16.1
600.0	19.2
700.0	19.4
800.0	19.9
900.0	21.2
1000.0	23.5

Distance of 10 meters

FREQUENCY (MHz)	AFE (dB/m)
200.0	9.0
250.0	10.1
300.0	11.8
400.0	15.3
500.0	15.6
600.0	18.7
700.0	19.1
800.0	20.2
900.0	21.1
1000.0	23.2

NOTES:

1. Antenna serial number is 1038.
2. The above lists are located in file number 38M30.ANT for a 3 meter range, and file number 38M100.ANT for a 10 meter range.
3. The files mentioned above are located on the disk marked "Radiated Emission Test EMI Receiver".

9.4 Correction factors for

LOG PERIODIC ANTENNA

Type SAS-200/511 at 3 meter range.

FREQUENCY (GHz)	ANTENNA FACTOR (dB)
1.0	24.9
1.5	27.8
2.0	29.9
2.5	31.2
3.0	32.8
3.5	33.6
4.0	34.3
4.5	35.2
5.0	36.2
5.5	36.7
6.0	37.2
6.5	38.1

FREQUENCY (GHz)	ANTENNA FACTOR (dB)
7.0	38.6
7.5	39.2
8.0	39.9
8.5	40.4
9.0	40.8
9.5	41.1
10.0	41.7
10.5	42.4
11.0	42.5
11.5	43.1
12.0	43.4
12.5	44.4
13.0	44.6

NOTES:

1. Antenna serial number is 253.
2. The above lists are located in file number SAS3M0.ANT for a 3 meter range.
3. The files mentioned above are located on the disk marked "Antenna Factors".

9.5 Correction factors for **BICONICAL ANTENNA** **Type BCD-235/B,** **at 3 meter range**

FREQUENCY (MHz)	AFe (dB/m)
20.0	19.4
30.0	14.8
40.0	11.9
50.0	10.2
60.0	9.1
70.0	8.5
80.0	8.9
90.0	9.6
100.0	10.3
110.0	11.0
120.0	11.5
130.0	11.7
140.0	12.1
150.0	12.6
160.0	12.8
170.0	13.0
180.0	13.5
190.0	14.0
200.0	14.8
210.0	15.3
220.0	15.8
230.0	16.2
240.0	16.6
250.0	17.6
260.0	18.2
270.0	18.4
280.0	18.7
290.0	19.2
300.0	19.9
310	20.7
320	21.9
330	23.4
340	25.1
350	27.0

NOTES:

1. Antenna serial number is 1041.
2. The above list is located in file 19BC10M1.ANT on the disk marked "Radiated Emissions Tests EMI Receiver".

9.6 Correction factors for Double-Ridged Waveguide Horn

**Model: 3115, S/N 29845
at 3 meter range.**

FREQUENCY (GHz)	ANTENNA FACTOR (dB 1/m)	ANTENNA Gain (dBi)	FREQUENCY (GHz)	ANTENNA FACTOR (dB 1/m)	ANTENNA Gain (dBi)
1.0	24.8	5.4	10.0	38.8	11.4
1.5	26.1	7.6	10.5	38.9	11.8
2.0	28.6	7.7	11.0	39.0	12.1
2.5	29.8	8.4	11.5	39.6	11.8
3.0	31.4	8.4	12.0	39.8	12.0
3.5	32.4	8.7	12.5	39.6	12.5
4.0	33.7	8.6	13.0	40.0	12.5
4.5	33.4	9.9	13.5	39.8	13.0
5.0	34.5	9.7	14.0	40.2	13.0
5.5	35.1	9.9	14.5	40.6	12.9
6.0	35.4	10.4	15.0	41.3	12.4
6.5	35.6	10.8	15.5	39.5	14.6
7.0	36.2	10.9	16.0	38.8	15.5
7.5	37.3	10.4	16.5	40.0	14.6
8.0	37.7	10.6	17.0	41.4	13.4
8.5	38.3	10.5	17.5	44.8	10.3
9.0	38.5	10.8	18.0	47.2	8.1
9.5	38.7	11.1			

9.7 Correction factors for

Horn Antenna Model: SWH-28 at 1 meter range.

FREQUENCY (GHz)	AFE (dB /m)	Gain (dB1)
18.0	40.3	16.1
19.0	40.3	16.3
20.0	40.3	16.1
21.0	40.3	16.3
22.0	40.4	16.8
23.0	40.5	16.4
24.0	40.5	16.6
25.0	40.5	16.7
26.0	40.6	16.4