Elliott Laboratories Inc.
www.elliottlabs.com
684 West Maude Avenue
Sunnyvale, CA 94085-3518
408-245-7800 Phone
408-245-3499 Fax

Electromagnetic Emissions Test Report per FCC Part 15, Subpart B Specifications for a Class B Digital Device and ICES-003 Class B on the Broadcom Corporation Model: BCM94322HM8L FCC ID: QDS-BRCM1031

COMPANY:	Broadcom Corporation 190 Mathilda Avenue Sunnyvale, CA 94086
TEST SITE:	Elliott Laboratories, Inc. 41039 Boyce Road. Fremont, CA. 94538-2435
REPORT DATE:	January 22, 2008
FINAL TEST DATES:	December 31, 2007 thru January 15, 2008
AUTHORIZED SIGNATORY:	Mark E. Hill Staff Engineer

ACCREDITED

Testing Cert #2016-01

REVISION HISTORY

Revision #	Date	Comments	Modified By
1	2/11/08	Initial Release	DG

TABLE OF CONTENTS

SCOPE

The Federal Communications Commission (FCC) establishes rules and regulations regarding the electromagnetic emissions of all electronic devices. An electromagnetic emissions test has been performed on the Broadcom Corporation model BCM94322HM8L pursuant to Subpart B of Part 15 of FCC Rules for digital devices. Conducted and radiated emissions data has been collected, reduced, and analyzed within this report in accordance with measurement guidelines set forth in ANSI C63.4-2003 as outlined in Elliott Laboratories test procedures. The test data has been provided as an appendix to this report for reference. Additionally the results are deemed satisfactory evidence of compliance with Industry Canada Interference-Causing Equipment Standard ICES-003 (Issue 4, February 2004)

The digital device above has been tested in a simulated typical installation to demonstrate compliance with the relevant FCC performance and procedural standards.

Final system data was gathered in a mode that tended to maximize emissions by varying orientation of EUT, orientation of power and I/O cabling, antenna search height, and antenna polarization.

Every practical effort was made to perform an impartial test using appropriate test equipment of known calibration. All pertinent factors have been applied to reach the determination of compliance.

The test results recorded herein are based on a single type test of the Broadcom Corporation model BCM94322HM8L and therefore apply only to the tested sample. The sample was selected and prepared by David Boldy of Broadcom Corporation.

OBJECTIVE

The primary objective of the company is compliance with Subpart B of Part 15 of FCC Rules for the radiated and conducted emissions of digital devices.

Prior to marketing in the USA, Class B personal computer peripherals must be approved using either the Declaration of Conformity or Certification methods. Broadcom has chosen the certification method.

Certification is a procedure where the manufacturer submits test data and technical information to a certification body and receives a certificate or grant of equipment authorization upon successful completion of the certification body's review of the submitted documents. Once the equipment authorization has been obtained, the label indicating compliance must be attached to all identical units, which are subsequently manufactured.

Maintenance of FCC compliance is the responsibility of the company. Any modification of the product that may result in increased emissions should be checked to ensure compliance has been maintained (i.e., printed circuit board layout changes, different line filter, different power supply, harnessing and/or I/O cable changes, etc.).

EMISSION TEST RESULTS

The following emissions tests were performed on the Broadcom Corporation model BCM94322HM8L. The actual test results are contained in an appendix of this report.

LIMITS OF CONDUCTED INTERFERENCE VOLTAGE

The EUT tested complied with the limits detailed in FCC Rules Part 15 Section 15.107(a).

The following measurement was extracted from the data recorded during the conducted emissions scan and represents the highest amplitude emission relative to the specification limit. The actual test data and any correction factors are contained in an appendix of this report.

120V, 60Hz

Frequency	Level	Power	Class B		Detector	Comments
MHz	dBuV	Lead	Limit	Margin	QP/Ave	
2.174	31.4	Neutral	46.0	-14.6	AVG	

LIMITS OF RADIATED INTERFERENCE FIELD STRENGTH

The EUT tested complied with the limits detailed in FCC Rules Part 15 Section 15.109(g).

The following measurement was extracted from the data recorded during the radiated electric field emissions scan and represents the highest amplitude emission relative to the specification limit. The actual test data and any correction factors are contained in an appendix of this report.

Frequency	Level	Pol	Class B		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	Degrees	Meters	
286.993	23.1	V	37.0	-13.9	QP	49	1.0	

MEASUREMENT UNCERTAINTIES

ISO Guide 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below were calculated using the approach described in CISPR 16-4-2:2003 using a coverage factor of k=2, which gives a level of confidence of approximately 95%. The levels were found to be below levels of *U*cispr and therefore no adjustment of the data for measurement uncertainty is required.

Measurement Type	Frequency Range (MHz)	Calculated Uncertainty (dB)
Conducted Emissions	0.15 to 30	± 2.4
Radiated Emissions	30 to 1000	± 3.6

EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL

The Broadcom Corporation model BCM94322HM8L is an 802.11ag/Draft 802.11n WLAN PCI-E Minicard that is designed to enable wireless data transmission in PCs. Since the EUT would be placed on a table top during operation, the EUT was treated as table-top equipment during testing to simulate the end-user environment. The electrical rating of the EUT is 3.3Vdc from the host.

The sample was received on December 31, 2007 and tested on December 31, 2007 thru January 15, 2008. The EUT consisted of the following component(s):

Manufacturer	Model	Description	Serial Number	FCC ID
Broadcom	BCM94322HM8L	802.11ag/Draft 802.11n WLAN PCI-E Minicard		QDS-BRCM1031

ANTENNA SYSTEM

The EUT antenna is a stamped metal sheet antenna with peak gains of 3.9dBi/2.4GHz and 5.8dBi/5GHz.

ENCLOSURE

The EUT does not have an enclosure as it is designed to be installed within the enclosure of a host computer or system.

MODIFICATIONS

The EUT did not require modifications during testing in order to comply with emissions specifications.

SUPPORT EQUIPMENT

The following equipment was used as local support equipment for testing:

Company	Model	Description	Serial Number	FCC ID
HP	C6490A	Printer	MY3883K42P	DoC
HP	-	Laptop Computer	-	DoC

The following equipment was used as remote support equipment for testing:

Company	Model	Description	Serial Number	FCC ID
Airlink	ASW18A4	Hub	0526A4A22481	DoC

EUT INTERFACE PORTS

The I/O cabling configuration during emissions testing was as follows:

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
USB	Printer	USB	Shielded	1.5
AC Power	AC Mains	3 wire	Unshielded	1.5
Ethernet	Hub	UTP	Unshielded	5.0

EUT OPERATION

During emissions testing, the EUT was configured to transmit continuously. The host PC was configured to have a H pattern displayed on the monitor.

TEST SITE

GENERAL INFORMATION

Final test measurements were taken on December 31, 2007 thru January 15, 2008 at the Elliott Laboratories Open Area Test Site # located at 684 West Maude Avenue, Sunnyvale, California. The test site contains separate areas for radiated and conducted emissions testing. Pursuant to section 2.948 of the Rules, construction, calibration, and equipment data has been filed with the Commission.

The FCC recommends that ambient noise at the test site be at least 6 dB below the allowable limits. Ambient levels are below this requirement with the exception of predictable local TV, radio, and mobile communications traffic. The test site contains separate areas for radiated and conducted emissions testing. Considerable engineering effort has been expended to ensure that the facilities conform to all pertinent FCC requirements.

CONDUCTED EMISSIONS CONSIDERATIONS

Conducted emissions testing is performed in conformance with ANSI C63.4-2003. Measurements are made with the EUT connected to the public power network through a nominal, standardized RF impedance, which is provided by a line impedance stabilization network, known as a LISN. A LISN is inserted in series with each current-carrying conductor in the EUT power cord.

RADIATED EMISSIONS CONSIDERATIONS

The FCC has determined that radiation measurements made in a non-anechoic shielded enclosure are not suitable for determining levels of radiated emissions. Radiated measurements are performed in an Open Area Test Site or anechoic chamber. The test site is maintained free of conductive objects within the CISPR defined elliptical area incorporated in ANSI C63.4 guidelines.

MEASUREMENT INSTRUMENTATION

RECEIVER SYSTEM

An EMI receiver as specified in CISPR 16-1 is used for emissions measurements. The receivers used can measure over the frequency range of 9 kHz up to 7 GHz. These receivers allow both ease of measurement and high accuracy to be achieved. The receivers have Peak, Average, and CISPR (Quasi-peak) detectors built into their design so no external adapters are necessary. The receiver automatically sets the required bandwidth for the CISPR detector used during measurements.

For measurements above the frequency range of the receivers, a spectrum analyzer is utilized because it provides visibility of the entire spectrum along with the precision and versatility required to support engineering analysis. Average measurements above 1000MHz are performed on the spectrum analyzer using the linear-average method with a resolution bandwidth of 1 MHz and a video bandwidth of 10 Hz.

INSTRUMENT CONTROL COMPUTER

The receivers utilize either a Rohde & Schwarz EZM Spectrum Monitor/Controller or contain an internal Spectrum Monitor/Controller to view and convert the receiver measurements to the field strength at an antenna or voltage developed at the LISN measurement port, which is then compared directly with the appropriate specification limit. This provides faster, more accurate readings by performing the conversions described under Sample Calculations within the Test Procedures section of this report. Results are printed in a graphic and/or tabular format, as appropriate. A personal computer is used to record all measurements made with the receivers.

The Spectrum Monitor provides a visual display of the signal being measured. In addition, the controller or a personal computer run automated data collection programs which control the receivers. This provides added accuracy since all site correction factors, such as cable loss and antenna factors are added automatically.

LINE IMPEDANCE STABILIZATION NETWORK (LISN)

Line conducted measurements utilize a fifty microhenry Line Impedance Stabilization Network as the monitoring point. The LISN used also contains a 250 uH CISPR adapter. This network provides for calibrated radio frequency noise measurements by the design of the internal low pass and high pass filters on the EUT and measurement ports, respectively.

FILTERS/ATTENUATORS

External filters and precision attenuators are often connected between the receiving antenna or LISN and the receiver. This eliminates saturation effects and non-linear operation due to high amplitude transient events.

ANTENNAS

A biconical antenna is used to cover the range from 30 MHz to 300 MHz and a log periodic antenna is utilized from 300 MHz to 1000 MHz. Narrowband tuned dipole antennas are used over the entire 30 to 1000 MHz range for precision measurements of field strength. Above 1000 MHz, a horn antenna is used. The antenna calibration factors are included in site factors that are programmed into the test receivers.

ANTENNA MAST AND EQUIPMENT TURNTABLE

The antennas used to measure the radiated electric field strength are mounted on a non-conductive antenna mast equipped with a motor-drive to vary the antenna height.

ANSI C63.4 specifies that the test height above ground for table mounted devices shall be 80 centimeters. Floor mounted equipment shall be placed on the ground plane if the device is normally used on a conductive floor or separated from the ground plane by insulating material up to 12 mm thick if the device is normally used on a non-conductive floor. During radiated measurements, the EUT is positioned on a motorized turntable in conformance with this requirement.

INSTRUMENT CALIBRATION

All test equipment is regularly checked to ensure that performance is maintained in accordance with the company's specifications. All antennas are calibrated at regular intervals with respect to tuned half-wave dipoles. An appendix of this report contains the list of test equipment used and calibration information.

TEST PROCEDURES

EUT AND CABLE PLACEMENT

The FCC requires that interconnecting cables be connected to the available ports of the unit and that the placement of the unit and the attached cables simulate the worst case orientation that can be expected from a typical installation, so far as practicable. To this end, the position of the unit and associated cabling is varied within the guidelines of ANSI C63.4, and the worst-case orientation is used for final measurements.

CONDUCTED EMISSIONS

Conducted emissions are measured at the plug end of the power cord supplied with the EUT. Excess power cord length is wrapped in a bundle between 30 and 40 centimeters in length near the center of the cord. Preliminary measurements are made to determine the highest amplitude emission relative to the specification limit for all the modes of operation. Placement of system components and varying of cable positions are performed in each mode. A final peak mode scan is then performed in the position and mode for which the highest emission was noted on all current carrying conductors of the power cord.

RADIATED EMISSIONS

Radiated emissions measurements are performed in two phases as well. A preliminary scan of emissions is conducted in which all significant EUT frequencies are identified with the system in a nominal configuration. At least two scans are performed from 30 MHz up to the frequency required by the regulation specified on page 1. One or more of these is with the antenna polarized vertically while the one or more of these is with the antenna polarized horizontally. During the preliminary scans, the EUT is rotated through 360˚, the antenna height is varied and cable positions are varied to determine the highest emission relative to the limit.

A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

Final maximization is a phase in which the highest amplitude emissions identified in the spectral search are viewed while the EUT azimuth angle is varied from 0 to 360 degrees relative to the receiving antenna. The azimuth that results in the highest emission is then maintained while varying the antenna height from one to four meters. The result is the identification of the highest amplitude for each of the highest peaks. Each recorded level is corrected in the receiver using appropriate factors for cables, connectors, antennas, and preamplifier gain. Emissions that have values close to the specification limit may also be measured with a tuned dipole antenna to determine compliance.

SPECIFICATION LIMITS AND SAMPLE CALCULATIONS

The limits for conducted and radiated emissions given below are taken from the first edition of CISPR Pub. 22 (1997), "Limits and Methods of Measurements of Radio Interference Characteristics of Information Technology Equipment." Data is measured in the logarithmic form of decibels relative to one microvolt, or dB microvolts (dBuV). For radiated emissions, the measured data is converted to the field strength at the antenna in dB microvolts per meter (dBuV/m). The limits are based on the use of an average or quasi-peak detector as indicated.

CONDUCTED EMISSIONS SPECIFICATION LIMITS,

Frequency Range (MHz)	Average Limit (dBuV)	Quasi Peak Limit (dBuV)
0.150 to 0.500	Linear decrease on logarithmic frequency axis between 56.0 and 46.0	Linear decrease on logarithmic frequency axis between 66.0 and 56.0
0.500 to 5.000	46.0	56.0
5.000 to 30.000	50.0	60.0

RADIATED EMISSIONS SPECIFICATION LIMITS

Frequency (MHz)	Limit (dBuV/m @ 10m)
30 to 230	30.0
230 to 1000	37.0

RADIATED EMISSIONS SPECIFICATION LIMITS

The limits for radiated emissions above 1000 MHz given below are as specified in Part 15 of FCC Rules. Data is measured in the logarithmic form of decibels relative to one microvolt, or dB microvolts (dBuV). The limits are based on the use of an average detector.

Frequency (MHz)	Average Limit (dBuV/m @ 10m)
above 1000	49.5

SAMPLE CALCULATIONS - CONDUCTED EMISSIONS

Receiver readings are compared directly to the conducted emissions specification limit (decibel form). The calculation is as follows:

$$R_r - S = M$$

where:

R_r = Receiver Reading in dBuV

S = Specification Limit in dBuV

M = Margin to Specification in +/- dB

Receiver readings are compared directly to the specification limit (decibel form). The receiver internally corrects for cable loss, preamplifier gain, and antenna factor. The calculations are in the reverse direction of the actual signal flow, thus cable loss is added and the amplifier gain is subtracted. The Antenna Factor converts the voltage at the antenna coaxial connector to the field strength at the antenna elements. A distance factor, when used for electric field measurements, is calculated by using the following formula:

$$F_d = 20*LOG_{10} (D_m/D_s)$$

where:

F_d = Distance Factor in dB

D_m = Measurement Distance in meters

D_s = Specification Distance in meters

Measurement Distance is the distance at which the measurements were taken and Specification Distance is the distance at which the specification limits are based. The antenna factor converts the voltage at the antenna coaxial connector to the field strength at the antenna elements.

The margin of a given emission peak relative to the limit is calculated as follows:

$$R_c = R_r + F_d$$

and

$$M = R_c - L_s$$

where:

R_r = Receiver Reading in dBuV/m

F_d = Distance Factor in dB

R_c = Corrected Reading in dBuV/m

L_s = Specification Limit in dBuV/m

M = Margin in dB Relative to Spec

EXHIBIT 1: Test Equipment Calibration Data

1 Page

Conducted Emissions - AC Power Ports, 10-Jan-08
Engineer: Mehran Birgani/Ben Jing

Manufacturer	Description	Model #	Asset #	Cal Due
EMCO	LISN, 10 kHz-100 MHz	3825/2	1293	19-Jan-08
Fischer Custom Comm.	LISN, 25 A	FCC-LISN-50/250-25-2-01	1575	15-Mar-08
Rohde& Schwarz	Pulse Limiter	ESH3 Z2	1594	11-Apr-08
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1630	11-Jan-08

Radiated Emissions, 30 - 1,000 MHz, 21-Jan-08
Engineer: Mehran Birgani

Manufacturer	Description	Model #	Asset #	Cal Due
Com-Power Corp.	Preamplifier, 30-1000 MHz	PA-103	1543	12-Nov-08
Sunol Sciences	Biconilog, 30-3000 MHz	JB3	1549	23-May-09

EXHIBIT 2: Test Measurement Data

8 Pages

Client:	Broadcom Corporation	Job Number:	J70300
Model:	BCM94322HM8L	T-Log Number:	T70322
		Account Manager:	Dean Eriksen
Contact:	David Boldy		-
Emissions Standard(s):	FCC 15.247/RSS-210	Class:	-
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

Broadcom Corporation

Model

BCM94322HM8L

Date of Last Test: 1/21/2008

Client:	Broadcom Corporation	Job Number:	J70300
Model:	BCM94322HM8L	T-Log Number:	T70322
		Account Manger:	Dean Eriksen
Contact:	David Boldy		
Emissions Standard(s):	FCC 15.247/RSS-210	Class:	-
Immunity Standard(s):	-	Environment:	-

EUT INFORMATION

The following information was collected during the test session(s).
The client agreed to provide the following information after the test session(s).

General Description

The EUT is an 802.11ag/Draft 802.11n WLAN PCI-E Minicard that is designed to enable wireless data transmission in PCs. Since the EUT would be placed on a table top during operation, the EUT was treated as table-top equipment during testing to simulate the end-user environment. The electrical rating of the EUT is 3.3Vdc from the host.

Equipment Under Test

Manufacturer	Model	Description	Serial Number	FCC ID
Broadc om	BCM94322HM8L	802.11ag/Draft 802.11n WLAN PCI-E Minicard		QDS-BRCM1031

EUT Antenna (Intentional Radiators Only)

The EUT antenna is a stamped metal sheet antenna with peak gains of 3.9dBi/2.4GHz and 5.8dBi/5GHz.

The antenna connects to the EUT via a non-standard I-PEX antenna connector, thereby meeting the requirements of FCC 15.203.

EUT Enclosure

The EUT does not have an enclosure as it is designed to be installed within the enclosure of a host computer or system.

Modification History

Mod. #	Test	Date	Modification
1			
2			
3			

Modifications applied are assumed to be used on subsequent tests unless otherwise stated as a further modification.

Client:	Broadcom Corporation	Job Number:	J70300
Model:	BCM94322HM8L	T-Log Number:	T70322
		Account Manger:	Dean Eriksen
Contact:	David Boldy		
Emissions Standard(s):	FCC 15.247/RSS-210	Class:	-
Immunity Standard(s):	-	Environment:	-

Test Configuration #1

The following information was collected during the test session(s).

Local Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
HP	C6490A	Printer	MY3883K42P	DoC
HP	-	Laptop Computer	-	DoC

Remote Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
Airlink	ASW18A4	Hub	0526A4A22481	DoC

Cabling and Ports

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
USB	Printer	USB	Shielded	1.5
AC Power	AC Mains	3 wire	Unshielded	1.5
Ethernet	Hub	UTP	Unshielded	5.0

EUT Operation During Emissions Tests

During emissions testing, the EUT was configured to transmit continuously. The host PC was configured to have a H pattern displayed on the monitor.

Client:	Broadcom Corporation	Job Number:	J70300
Model:	BCM94322HM8L	T-Log Number:	T70322
		Account Manager:	Dean Eriksen
Contact:	David Boldy		
Standard:	FCC 15.247/RSS-210	Class:	-

Radiated Emissions

(Elliott Laboratories Fremont Facility, Semi-Anechoic Chamber)

Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 1/21/2008
Test Engineer: Mehran Birgani
Test Location: SVOATS #5

Config. Used: 1
Config Change: None
Host Unit Voltage 120V/60Hz

General Test Configuration

The EUT and any local support equipment were located on the turntable for radiated emissions testing.

The test distance and extrapolation factor (if applicable) are detailed under each run description.

Note, **preliminary** testing indicates that the emissions were maximized by orientation of the EUT and elevation of the measurement antenna. **Maximized** testing indicated that the emissions were maximized by orientation of the EUT, elevation of the measurement antenna, and manipulation of the EUT's interface cables.

Ambient Conditions:

Temperature: 17 °C
Rel. Humidity: 63 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
2	RE, 30 - 1000 MHz Maximized Emissions	EN 55022 Class B	Pass	23.1dBµV/m (14.3µV/m) @ 286.993MHz (-13.9dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

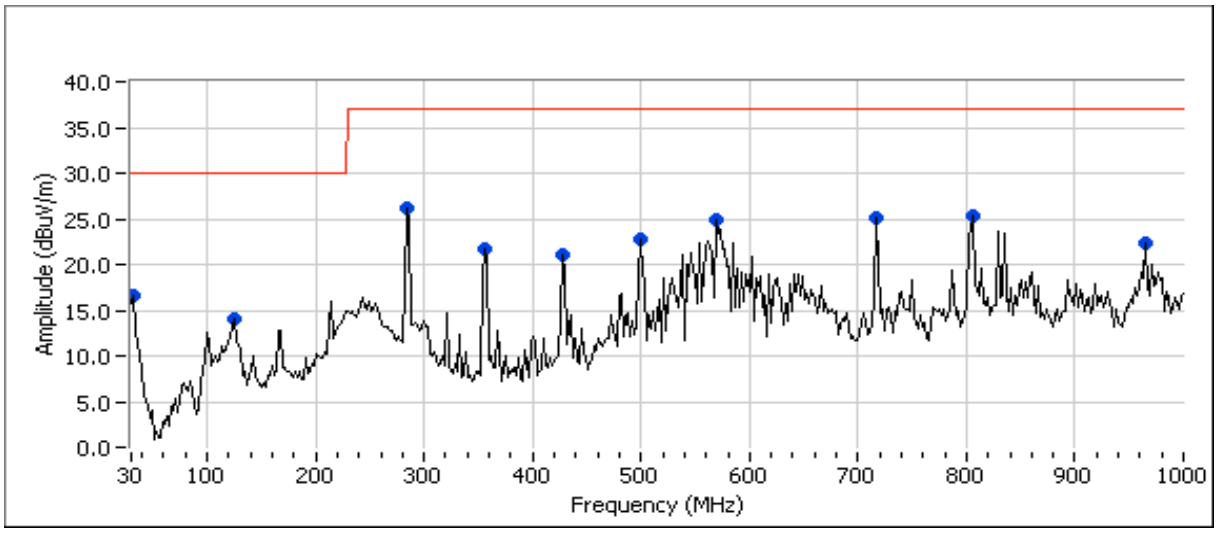
Deviations From The Standard

No deviations were made from the requirements of the standard.

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
30 - 1000 MHz	10	10	0.0

Client:	Broadcom Corporation	Job Number:	J70300
Model:	BCM94322HM8L	T-Log Number:	T70322
		Account Manager:	Dean Eriksen
Contact:	David Boldy		
Standard:	FCC 15.247/RSS-210	Class:	-

Run #1: Preliminary Radiated Emissions, 30 - 1000 MHz



Frequency	Level	Pol	EN 55022 Class B		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
286.993	23.1	V	37.0	-13.9	QP	49	1.0	
800.957	22.4	V	37.0	-14.6	QP	173	1.0	
716.787	22.2	V	37.0	-14.8	QP	275	2.0	
567.758	21.9	V	37.0	-15.1	QP	16	1.5	
30.240	13.6	V	30.0	-16.4	QP	102	1.0	
500.316	19.8	V	37.0	-17.2	QP	360	1.5	
963.202	19.3	V	37.0	-17.7	QP	336	2.5	
359.827	18.8	V	37.0	-18.2	QP	56	2.0	
125.869	14.0	V	30.0	-16.0	Pk	275	1.0	Peak reading with QP limit
428.112	21.0	V	37.0	-16.0	Pk	67	2.0	Peak reading with QP limit

Run #2: Maximized Readings From Run #1

Frequency	Level	Pol	EN 55022 Class B		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
286.993	23.1	V	37.0	-13.9	QP	49	1.0	
800.957	22.4	V	37.0	-14.6	QP	173	1.0	
716.787	22.2	V	37.0	-14.8	QP	275	2.0	
567.758	21.9	V	37.0	-15.1	QP	16	1.5	
30.240	13.6	V	30.0	-16.4	QP	102	1.0	
500.316	19.8	V	37.0	-17.2	QP	360	1.5	

Client:	Broadcom Corporation	Job Number:	J70300
Model:	BCM94322HM8L	T-Log Number:	T70322
		Account Manager:	Dean Eriksen
Contact:	David Boldy		
Standard:	FCC 15.247/RSS-210	Class:	-

Conducted Emissions

(Elliott Laboratories Fremont Facility, Semi-Anechoic Chamber)

Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 1/10/2008
Test Engineer: Ben Jing
Test Location: Fremont Chamber #4

Config. Used: 1
Config Change: None
EUT Voltage: Host at 120V/60Hz

General Test Configuration

For tabletop equipment, the EUT and host system were located on a wooden table inside the semi-anechoic chamber, 40 cm from a vertical coupling plane and 80cm from the LISN. A second LISN was used for all local support equipment. Remote support equipment was located outside of the semi-anechoic chamber. Any cables running to remote support equipment where routed through metal conduit and when possible passed through a ferrite clamp upon exiting the chamber.

Ambient Conditions:

Temperature: 19 °C
Rel. Humidity: 36 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	CE, AC Power,120V/60Hz	FCC Class B	Pass	31.4dBµV (37.2µV) @ 2.174MHz (-14.6dB)

Modifications Made During Testing

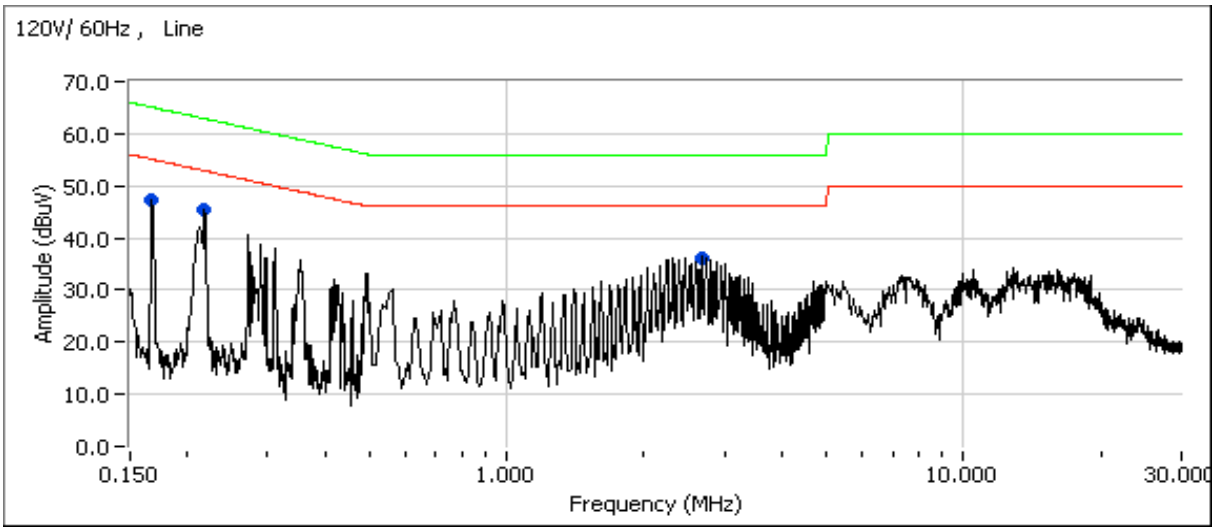
No modifications were made to the EUT during testing

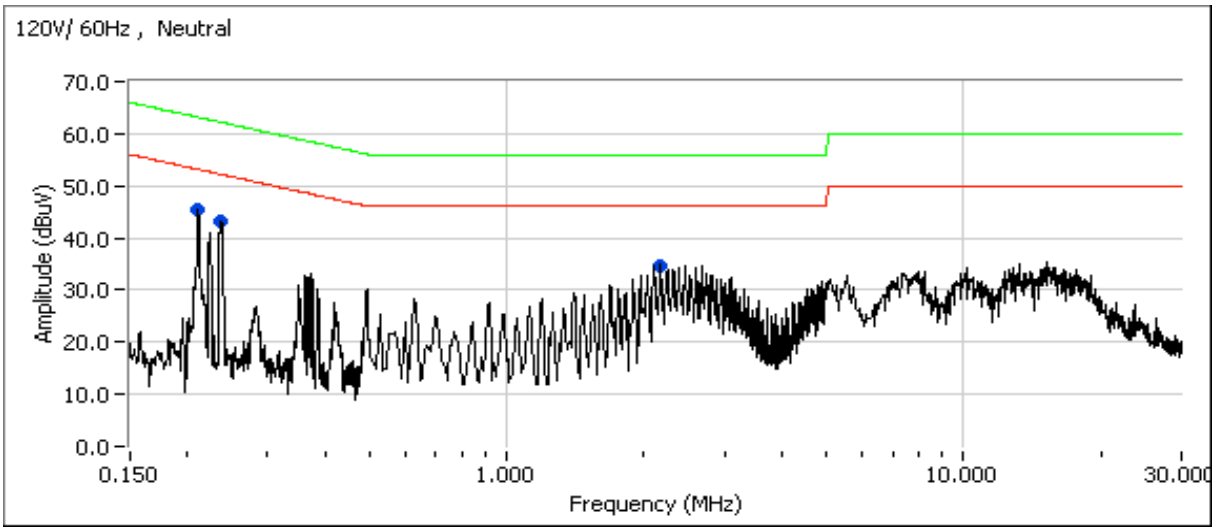
Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Broadcom Corporation	Job Number:	J70300
Model:	BCM94322HM8L	T-Log Number:	T70322
		Account Manager:	Dean Eriksen
Contact:	David Boldy		
Standard:	FCC 15.247/RSS-210	Class:	-

Run #1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 120V/60Hz





Client:	Broadcom Corporation	Job Number:	J70300
Model:	BCM94322HM8L	T-Log Number:	T70322
		Account Manager:	Dean Eriksen
Contact:	David Boldy		
Standard:	FCC 15.247/RSS-210	Class:	-

Run #1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 120V/60Hz

Preliminary peak readings captured during pre-scan (peak readings vs. average limit)

Frequency	Level	AC	FCC Class B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
0.218	45.5	Line 1	52.9	-7.4	Peak	
0.167	47.4	Line 1	55.1	-7.7	Peak	
0.211	45.4	Neutral	53.2	-7.8	Peak	
0.237	43.1	Neutral	52.2	-9.1	Peak	
2.663	36.0	Line 1	46.0	-10.0	Peak	
2.174	34.5	Neutral	46.0	-11.5	Peak	

Final quasi-peak and average readings

Frequency	Level	AC	FCC Class B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
2.174	31.4	Neutral	46.0	-14.6	AVG	
2.663	30.5	Line 1	46.0	-15.5	AVG	
0.167	44.3	Line 1	65.1	-20.8	QP	
0.211	32.3	Neutral	53.2	-20.9	AVG	
2.174	33.7	Neutral	56.0	-22.3	QP	
2.663	33.5	Line 1	56.0	-22.5	QP	
0.218	38.4	Line 1	62.9	-24.5	QP	
0.211	37.9	Neutral	63.2	-25.3	QP	
0.237	35.2	Neutral	62.2	-27.0	QP	
0.218	20.8	Line 1	52.9	-32.1	AVG	
0.167	17.6	Line 1	55.1	-37.5	AVG	
0.237	13.1	Neutral	52.2	-39.1	AVG	

EXHIBIT 3: Photographs of Test Configurations

4 Pages

EXHIBIT 4: Proposed FCC ID Label & Label Location

EXHIBIT 5: Detailed Photographs of Broadcom Corporation Model BCM94322HM8LConstruction

4 Pages

EXHIBIT 6: Operator's Manual for Broadcom Corporation Model BCM94322HM8L

18 Pages

EXHIBIT 7: Block Diagram of Broadcom Corporation Model BCM94322HM8L

1 Page

EXHIBIT 8: Schematic Diagrams for Broadcom Corporation Model BCM94322HM8L

4 Pages

EXHIBIT 9: Theory of Operation for Broadcom Corporation Model BCM94322HM8L

4 Pages

EXHIBIT 10: RF Exposure Information

2 Pages