



**FCC CFR47 PART 15 SUBPART E  
CLASS II PERMISSIVE CHANGE  
TEST REPORT**

**FOR**

**802.11 a/b/g/n WLAN WITH BLUETOOTH 2.1 PCI-E CARD**

**MODEL NUMBER: BCM94321COEX2**

**FCC ID: QDS-BRCM1027**

**REPORT NUMBER: 07U11490-2**

**ISSUE DATE: JANUARY 14, 2008**

*Prepared for*  
**BROADCOM CORP.  
190 MATHILDA PLACE  
SUNNYVALE, CA 94086, USA**

*Prepared by*  
**COMPLIANCE CERTIFICATION SERVICES  
47173 BENICIA STREET  
FREMONT, CA 94538, U.S.A.  
TEL: (510) 771-1000  
FAX: (510) 661-0888**

Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
<u>--</u>	<u>01/14/08</u>	<u>Initial Issue</u>	<u>M. Heckrotte</u>

## TABLE OF CONTENTS

<b>1. ATTESTATION OF TEST RESULTS.....</b>	<b>4</b>
<b>2. TEST METHODOLOGY .....</b>	<b>5</b>
<b>3. FACILITIES AND ACCREDITATION .....</b>	<b>5</b>
<b>4. CALIBRATION AND UNCERTAINTY.....</b>	<b>5</b>
4.1. MEASURING INSTRUMENT CALIBRATION.....	5
4.2. MEASUREMENT UNCERTAINTY.....	5
<b>5. EQUIPMENT UNDER TEST.....</b>	<b>6</b>
5.1. DESCRIPTION OF EUT .....	6
<b>6. TEST AND MEASUREMENT EQUIPMENT .....</b>	<b>6</b>
<b>7. LIMITS AND RESULTS .....</b>	<b>7</b>
7.1. DYNAMIC FREQUENCY SELECTION: SLAVE NON-OCCUPANCY.....	7
7.1.1. Support Equipment .....	8
7.1.2. 20 MHz BANDWIDTH.....	9
7.1.3. 40 MHz BANDWIDTH.....	11
<b>8. SETUP PHOTOS.....</b>	<b>13</b>

## 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** BROADCOM CORP.  
190 MATHILDA PLACE  
SUNNYVALE, CA 94086, USA

**EUT DESCRIPTION:** 802.11 a/b/g/n WLAN WITH BLUETOOTH 2.1 PCI-E CARD

**MODEL:** BCM94321COEX2

**SERIAL NUMBER:** 107 & 316

**DATE TESTED:** JULY 17 – NOVEMBER 20, 2007

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART E	NO NON-COMPLIANCE NOTED

Compliance Certification Services, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:



MICHAEL HECKROTTE  
ENGINEERING MANAGER  
COMPLIANCE CERTIFICATION SERVICES

Tested By:



YOBİ ZHOU  
EMC ENGINEER  
COMPLIANCE CERTIFICATION SERVICES

## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15 and FCC 06-96 APPENDIX "COMPLIANCE MEASUREMENT PROCEDURES FOR UNLICENSED-NATIONAL INFORMATION INFRASTRUCTURE DEVCIES OPERATING IN THE 5250-5350 MHz AND 5470-5725 MHz BANDS INCORPORATING DYNAMIC FREQUENCY SELECTION".

## 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

## 4. CALIBRATION AND UNCERTAINTY

### 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

### 4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Radiated Emission, 30 to 200 MHz	+/- 3.3 dB
Radiated Emission, 200 to 1000 MHz	+4.5 / -2.9 dB
Radiated Emission, 1000 to 2000 MHz	+4.5 / -2.9 dB
Power Line Conducted Emission	+/- 2.9 dB

Uncertainty figures are valid to a confidence level of 95%.

## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

The EUT is an 802.11 a/b/g/n WLAN WITH BLUETOOTH 2.1 PCI-E CARD, model number BCM94321COEX2.

The radio module is manufactured by Broadcom Corporation.

## 6. TEST AND MEASUREMENT EQUIPMENT

### TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the DFS tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	Cal Due
Spectrum Analyzer 3 Hz ~ 44 GHz	Agilent / HP	E4446A	US42070220	7/29/2007
Vector Signal Generator 250kHz-20GHz	Agilent / HP	E8267C	US43320336	11/2/2007
High Speed Digital I/O Card	National Instruments	PCI-6534	HA1612845	1/16/2008

## **7. LIMITS AND RESULTS**

### **7.1. DYNAMIC FREQUENCY SELECTION: SLAVE NON-OCCUPANCY**

#### **TEST PROCEDURE**

The spectrum analyzer is monitoring the emissions from the Slave.

The AP and Slave are linked in a 20 MHz bandwidth mode, with streaming video. The spectrum analyzer trace is started, then the radar is triggered, and the channel is monitored for > 30 minutes.

Then the AP is powered down. The spectrum analyzer trace is started, then the Slave is rebooted, and the channel is monitored for > 30 minutes.

The above process is repeated with the link in a 40 MHz bandwidth mode.

### 7.1.1. Support Equipment

The following test and measurement equipment was utilized for the 20 MHz bandwidth DFS tests documented in this report:

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	DELL	Dell Inspiron 4150	CN-04P449-48643-2CH-2011	DoC
AC Adapter	DELL	ADP-70EB	TH-09364U-17971-248-8PDP	DoC
Laptop	Compaq	Presario 3000	CNU327025L	DoC
AC Adapter	Compaq	PA-1900-05H	3300371601	DoC
Access Point	CISCO	AIR-AP1242AG-A-K9	FTX1042B5E0	LDK102056
AC Adapter	Delta	ADP-18PB	PZT0628359656	DoC

The following test and measurement equipment was utilized for the 40 MHz bandwidth DFS tests documented in this report:

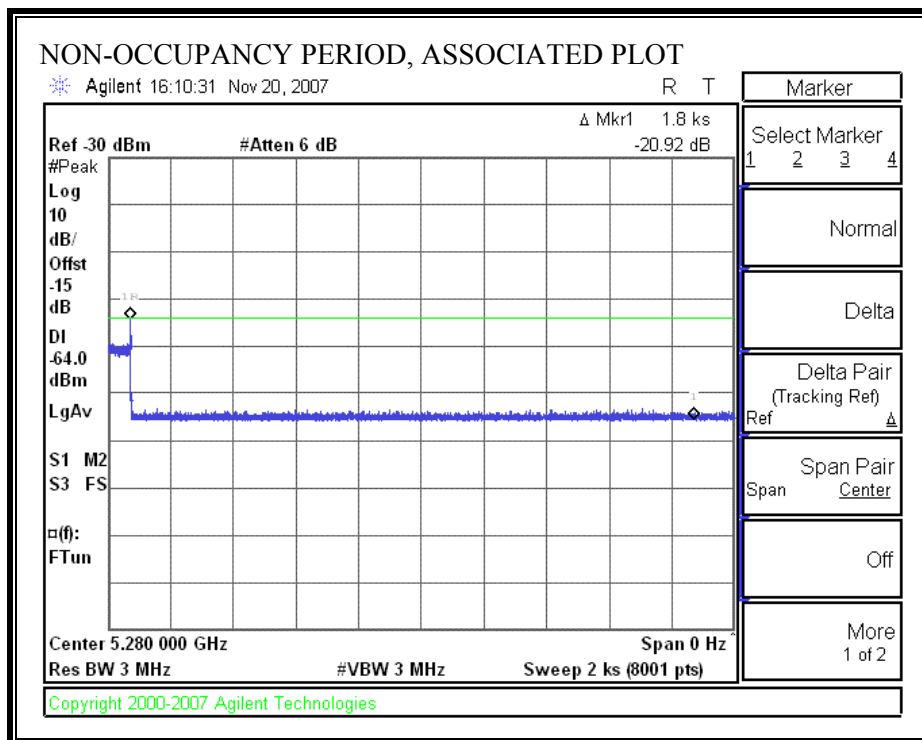
PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	HP	PA-1121-12HD	PPP017L	DoC
AC Adapter	HP	HP Pavilion zv6000	CND52904s1	DoC
Laptop	DELL	ADP-70EB	TH-09364U-17971-248-8PDP	DoC
AC Adapter	DELL	Dell Inspiron 4150	CN-04P449-48643-2CH-2011	DoC
Access Point	Broadcom	BCM94705LMP	Prototype	QDS-BRCM1025
AC Adapter	Bothhand	M1-10S05	R00031106975B	DoC



## 7.1.2. 20 MHz BANDWIDTH

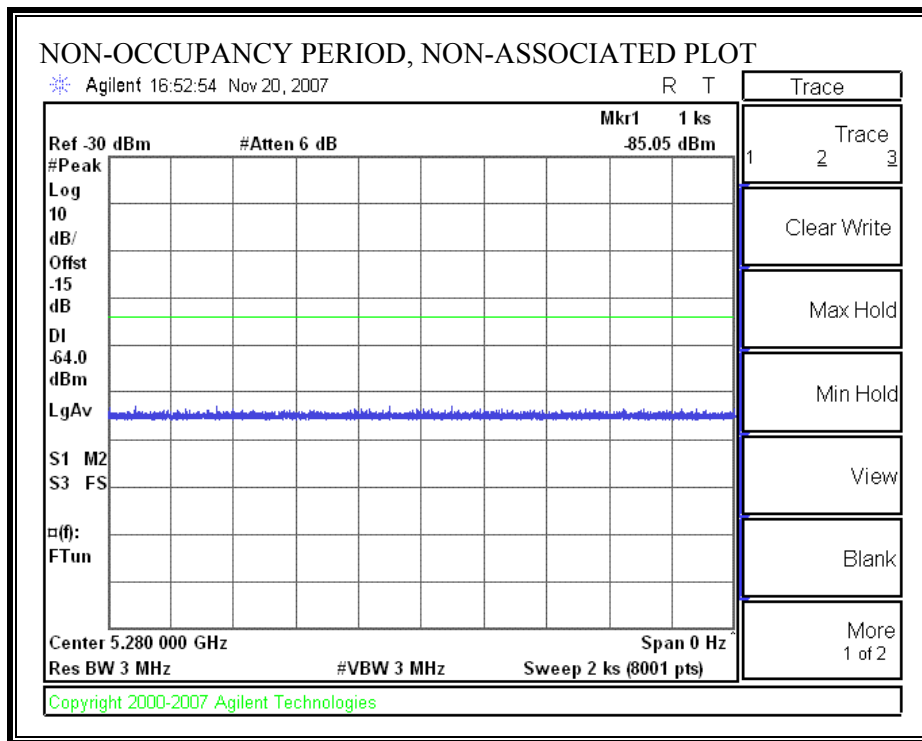
### ASSOCIATED TEST RESULTS

No EUT transmissions were observed on the test channel during the 30-minute observation time.



## NON-ASSOCIATED TEST RESULTS

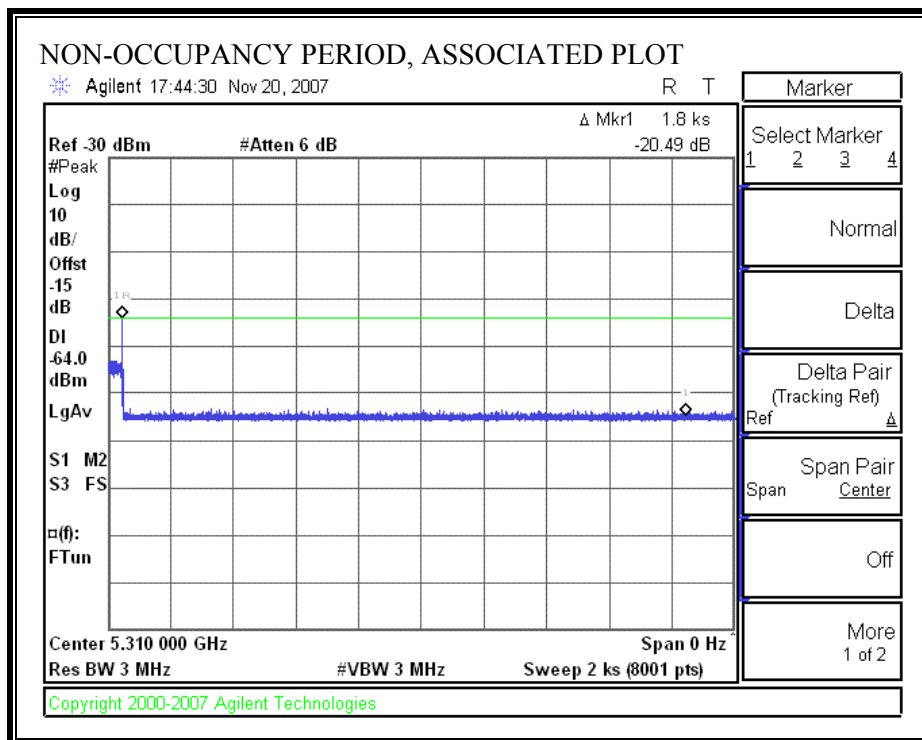
No EUT transmissions were observed on the test channel during the 30-minute observation time.



### 7.1.3. 40 MHz BANDWIDTH

#### ASSOCIATED TEST RESULTS

No EUT transmissions were observed on the test channel during the 30-minute observation time.



## NON-ASSOCIATED TEST RESULTS

No EUT transmissions were observed on the test channel during the 30-minute observation time.

