

## **EMISSIONS TEST REPORT**

**Report Number: 3139325BOX-001a**  
**Project Number: 3139325**

**Testing performed on the**

**VCA100 Radio**

**Model: BAEVCA100-V1PCGX-LF**

**To**

**FCC Part 15 Subpart B "Unintentional Radiators"**

**FCC Part 15 Subpart C "Intentional Radiators"**

**FCC Part 22 Subpart E "Public Mobile Radio – Paging and Radiotelephone Service"**

**FCC Part 74 Subpart H "Experimental Radio, Auxiliary, Special Broadcast And Other  
Program Distributional Services – Low Power Auxiliary Stations"**

**FCC Part 90 Subpart I**

**"Private Land Mobile Radio Services – General Technical Requirements"**

**For**

**BAE Systems – Homeland Security Solutions**

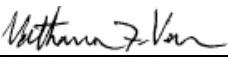
Test Performed by:

Intertek – ETL SEMKO  
70 Codman Hill Road  
Boxborough, MA 01719

Test Authorized by:

BAE Systems – Homeland Security Solutions  
2 Forbes Road  
Lexington, MA 02420

Prepared by:

  
Vathana F. Ven

Date: 06/16/2008

Reviewed by:

  
Jeff Goulet

Date: 06/19/08

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## 1.0 Job Description

### 1.1 Client Information

This EUT has been tested at the request of:

**Company:** BAE Systems – Homeland Security Solutions  
2 Forbes Road  
Lexington, MA 02420

**Contact:** Mr. Ralph Lombardo

**Telephone:** 603-885-7172

**Fax:** N/A

**Email:** [Ralph.lombardo@baesystems.com](mailto:Ralph.lombardo@baesystems.com)

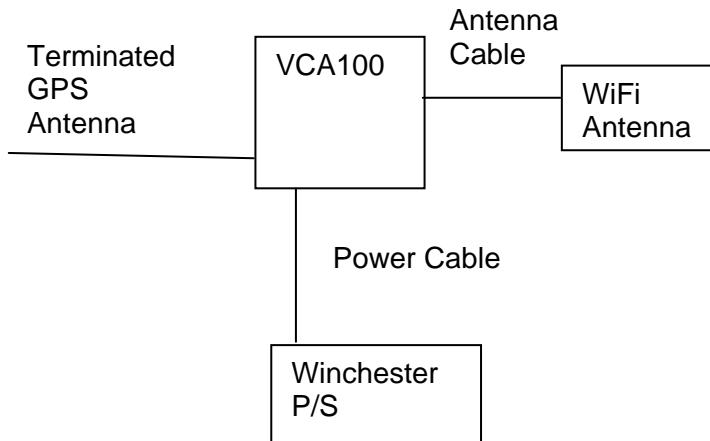
### 1.2 Equipment Under Test

**Equipment Type:** VCA100 Radio  
**Model Number(s):** BAEVCA100-V1PCGX-LF  
**Serial number(s):** 0716HNH000085  
**Manufacturer:** BAE Systems – Homeland Security Solutions  
**EUT receive date:** 06/02/2008  
**EUT received condition:** Prototype in Good Condition  
**Test start date:** 06/02/2008  
**Test end date:** 06/12/2008

**1.3 Test Plan Reference:** Tested according to the standards listed, ANSI C63.4:2003, and ANSI/TIA-603-C-2004.

### 1.4 Test Configuration

#### 1.4.1 Block Diagram



**1.4.2. Cables:**

Cable	Shielding	Connector	Length (m)	Qty.
WiFi Antenna Cable	Braid	SMA	4.2	1
GPS Antenna Cable	Braid	SMA	5.5	1
Power Cable	None	Plastic/Wire	3.25	1

**1.4.3. Support Equipment:**

Name: Antenex WiFi Antenna 2.4-2.5 GHz  
Model No.: A10245  
Serial No.: N/L

Name: All-Start Winchester Portable Power Generator  
Model No.: WPG103  
Serial No.: N/L

**1.5 Mode(s) of Operation:**

During testing, the EUT was powered from a nominal 12V DC power supply. During the FCC Part 15 Subpart B testing, the EUT was fully powered but no transmissions were occurring. During the FCC Part 15 Subpart C testing, the EUT was fully powered but only the WiFi transmitter was transmitting at maximum duty cycle. For the FCC Part 90 testing, the EUT was fully powered and was transmitting an unmodulated one second burst with one second intervals.

**1.6 Floor Standing Equipment:** Applicable:        Not Applicable: X

## 2.0 Test Summary

TEST STANDARD	RESULTS	
FCC Part 15 Subpart B FCC Part 15 Subpart C FCC Part 22 Subpart E FCC Part 74 Subpart H FCC Part 90 Subpart I		
SUB-TEST	TEST PARAMETER	COMMENT
<b>FCC Part 15 Subpart B</b>		
Radiated Emissions Receiver Verification FCC §15.109	Spurious emissions must not exceed the FCC Part 15 Subpart B Class B limits.	Pass
<b>FCC Part 22 Subpart E, FCC Part 74 Subpart H, FCC Part 90 Subpart I</b>		
RF Output Power FCC §22.565(a), FCC §74.861(d)(1), FCC §90.205(d)	Power must not exceed the following: FCC Part 22: 152-153 MHz – 1400 Watts ERP, 157-159 MHz – 150 Watts ERP FCC Part 74: Licensees may not operate at higher than 1 Watt ERP. FCC Part 90: Power limitation is dependant on the device antenna's height above average terrain (HAAT) and on the required service area, and will be authorized according to the HAAT table found in FCC §90.205(d) Table 1.	Pass
Radiated Emissions FCC §22.359(a), FCC §74.861(d)(3), FCC §90.210	Spurious emissions must not exceed -13 dBm ERP.	Pass
<b>FCC Part 15 Subpart C</b>		
RF Output Power FCC §15.247(b)(3)	Conducted RF Output Power must not exceed 1 Watt (30 dBm). EIRP must not exceed 4 Watts (36 dBm).	Pass
Radiated Emissions FCC §15.205, §15.209, §15.247(d)	Spurious emissions must be at least 20 dB lower than the fundamental field strength when measured with a 100 kHz bandwidth. Emissions which fall in the restricted bands of 15.205 must meet the general limits of 15.209.	Pass

Notes:

### 3.0 Sample Calculations

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG$$

Where  $FS$  = Field Strength in  $\text{dB}\mu\text{V}/\text{m}$

$RA$  = Receiver Amplitude (including preamplifier) in  $\text{dB}\mu\text{V}$

$CF$  = Cable Attenuation Factor in dB

$AF$  = Antenna Factor in dB

$AG$  = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows.

Assume a receiver reading of 52.0  $\text{dB}\mu\text{V}$  is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32  $\text{dB}\mu\text{V}/\text{m}$ . This value in  $\text{dB}\mu\text{V}/\text{m}$  was converted to its corresponding level in  $\mu\text{V}/\text{m}$ .

$RA = 52.0 \text{ dB}\mu\text{V}$

$AF = 7.4 \text{ dB}/\text{m}$

$CF = 1.6 \text{ dB}$

$AG = 29.0 \text{ dB}$

$FS = 32 \text{ dB}\mu\text{V}/\text{m}$

$$\text{Level in } \mu\text{V}/\text{m} = [10(32 \text{ dB}\mu\text{V}/\text{m})/20] = 39.8 \mu\text{V}/\text{m}$$

The following is how net line-conducted readings were determined:

$$NF = RF + LF + CF + AF$$

Where  $NF$  = Net Reading in  $\text{dB}\mu\text{V}$

$RF$  = Reading from receiver in  $\text{dB}\mu\text{V}$

$LF$  = LISN Correction Factor in dB

$CF$  = Cable Correction Factor in dB

$AF$  = Attenuator Loss Factor in dB

To convert from  $\text{dB}\mu\text{V}$  to  $\mu\text{V}$  or  $\text{mV}$  the following was used:

$$UF = 10^{(NF/20)} \text{ where } UF = \text{Net Reading in } \mu\text{V}$$

#### Example:

$$NF = RF + LF + CF + AF = 28.5 + 0.2 + 0.4 + 20.0 = 49.1 \text{ dB}\mu\text{V}$$

$$UF = 10^{(49.1 \text{ dB}\mu\text{V}/20)} = 254 \mu\text{V}/\text{m}$$

### **3.1 Measurement Uncertainty**

Compliance of the product is based on the measured value. However, the measurement uncertainty is included for informational purposes.

The expanded uncertainty ( $k = 2$ ) for radiated emissions from 30 to 1000 MHz has been determined to be:

$\pm 3.5$  dB at 10m,  $\pm 3.8$  dB at 3m

The expanded uncertainty ( $k = 2$ ) for mains conducted emissions from 150 kHz to 30 MHz has been determined to be:

$\pm 2.6$  dB

The expanded uncertainty ( $k = 2$ ) for telecom port conducted emissions from 150 kHz to 30 MHz has been determined to be:

$\pm 3.2$  for ISN and voltage probe measurements

$\pm 3.1$  for current probe measurements

### 3.2 Site Description

**Test Site(s):** 1 and 2

Our OATS are 3m and 10m sheltered emissions measurement ranges located in a light commercial environment in Boxborough, Massachusetts. They meet the technical requirements of ANSI C63.4-2003 and CISPR 22:1993/EN 55022:1994 for radiated and conducted emission measurements. The shelter structure is entirely fiberglass and plastic, with outside dimensions of 33 ft x 57 ft. The structure resembles a quonset hut with a center ceiling height of 16.5 ft.

The testing floor is covered by a galvanized sheet metal groundplane that is earth-grounded via copper rods around the perimeter of the site. The joints between individual metal sheets are bridged with a 2 inch wide metal strips to provide low RF impedance contact throughout. The sheets are screwed in place with stainless steel, round-head screws every three inches. Site illumination and HVAC are provided from beneath the ground reference plane through flush entry ports, the port covers are electrically bonded to the ground plane.

A flush metal turntable with 12 ft. diameter and 5000 lb. load capacity (12,000 lb. in Site 3) is provided for floor-standing equipment. A wooden table 80 cm high is used for table-top equipment. The turntable is electrically connected to the ground plane with three copper straps. The straps are connected to the turntable at the center of it with ground braid. The copper strap is directly connected to the groundplane at the edges of the turntable. The turntable is located on the south end of the structure and the antennas are mounted 3 and 10 meters away to the north. The antenna mast is a non-conductive with remote control of antenna height and polarization. The antenna height is adjustable from 1 to 4 meters.

All final radiated emission measurements are performed with the testing personnel and measurement equipment located below the ground reference plane. The site has a full basement underneath the turntable where support equipment may be remotely located. Operation of the antenna, turntable and equipment under test is controlled by remote controls that manipulate the antenna height and polarization and with a turntable control. Test personnel are located below the ellipse when measurements are performed, however the site maintains the ability of having personnel manipulate cables while monitoring test equipment. Ambient radiated emissions are 6 dB or more below the relevant FCC emission limits.

AC mains power is brought to the equipment under test through a power line filter, to remove ambient conducted noise. 50 Hz (240 VAC single phase), 60 Hz power (120 VAC single phase, 208 VAC three phase), and 60 Hz (480 VAC three phase) are available. Conducted emission measurements are performed with a Line Impedance Stabilization Network (LISN) or Artificial Mains Network (AMN) bonded to the ground reference plane. A removable vertical groundplane (2 meter X 2 meter area) is used for line-conducted measurements for table top equipment. The vertical groundplane is electrically connected to the reference groundplane.

The EMC Lab has two Semi-anechoic Chambers and one Shielded Chamber. AC Mains Power is available at 120, 230, and 277 Single Phase; 208, 400, and 480 3-Phase. Large reference groundplanes are installed in the general lab area to facilitate EMC work not requiring a shielded environment.

**Test Results:** Pass

**Test Standard:** FCC Part 15 Subpart B

**Test:** Radiated Emissions Receiver Verification, FCC §15.109

**Performance Criterion:** Spurious emissions must not exceed the FCC Part 15 Subpart B Class B limits.

**Test Environment:**

Environmental Conditions During Testing:	Ambient (°C):	21	Humidity (%):	68	Pressure (hPa):	1011
Pretest Verification Performed	Yes		Equipment under Test:	BAEVCA100-V1PCGX-LF		
Test Engineer(s):	Vathana Ven			EUT Serial Number:	0716HNH000085	

**Test Equipment Used:**

TEST EQUIPMENT LIST					
Item	Equipment Type	Make	Model No.	Serial No.	Next Cal. Due
1	4 Line Digital Barometer *	Mannix	0ABA116	SAF291	01/30/2009
2	10 Meter in floor cable for site 2	ITS	RG214B/U	S2 10M FLR	09/17/2008
3	ANTENNA	EMCO	3142	9711-1225	06/05/2008
4	9kHz to 3GHz EMI Test Receiver	Rohde & Schwartz	ESCI 1166.5950K03	100067	01/25/2009

**Software Utilized:**

Name	Manufacturer	Version
EXCEL 2000	Microsoft Corporation	9.0.6926 SP-3
EMI BOXBOROUGH	Intertek	3/07/07 Revision

**Test Details:**
**Special Radiated Emissions**

Company: BAE Systems  
 Model #: BAEVCA100-V1PCGX-LF  
 Serial #: 0716HNH000085  
 Engineers: Vathana Ven  
 Project #: 3139325 Date(s): 06/05/08  
 Standard: FCC Part 15 Subpart B, Class B  
 Receiver: R&S ESCI (ROS002)  
 PreAmp: NONE.

Location: Site 2  
 Antenna & Cables: N Bands: N, LF, HF, SHF  
 Antenna: LOG4 06-05-08 V10.txt LOG4 06-05-08 H10.txt  
 Cable(s): S2 10M FLR 9-17-08.txt NONE.  
 Barometer: SAF291

Limit Distance (m): 3 Temp/Humidity/Pressure: 21 deg. C 68% 1011 mB  
 Test Distance (m): 10

Note: ***Operational code, WiFi transmitting a beacon and LMR on but not transmitting***

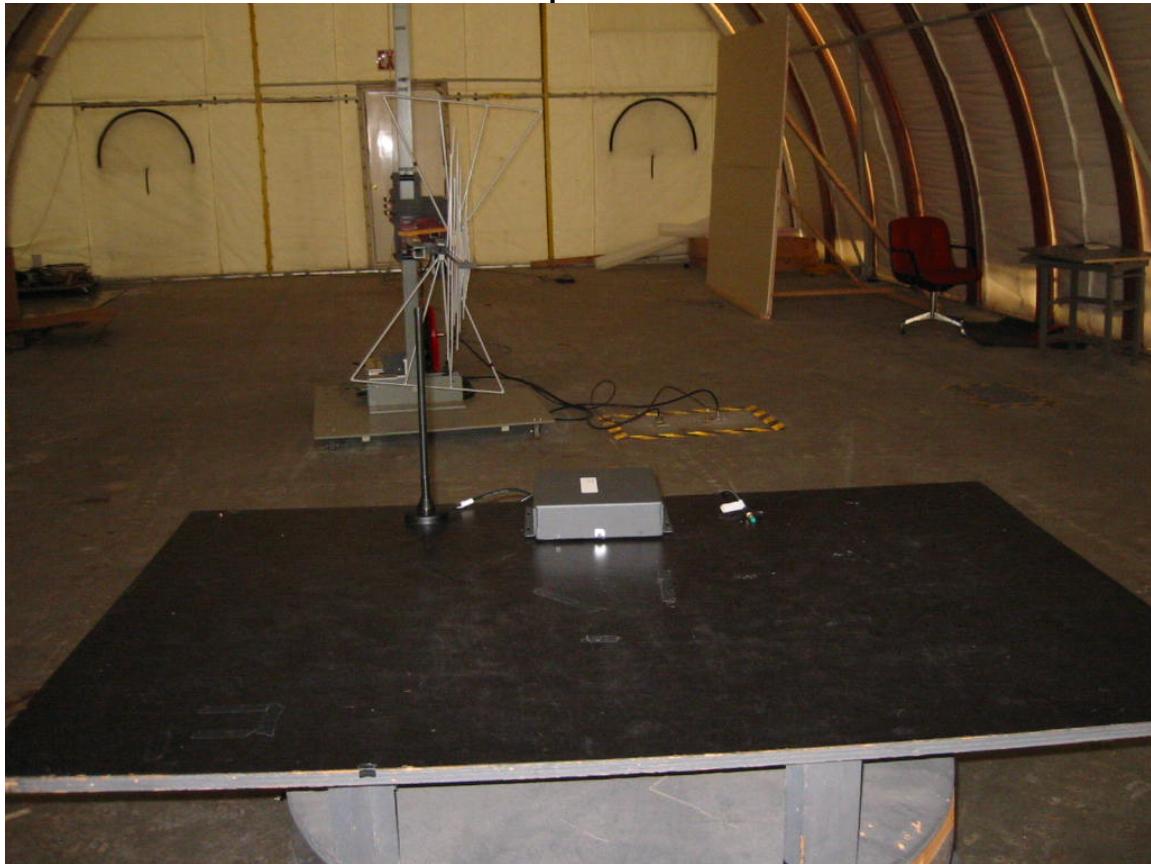
PreAmp Used? (Y or N): N Voltage/Frequency: Fresh 12VDC Battery Frequency Range: 30-1000 MHz

Net = Reading (dBuV/m) + Antenna Factor (dB1/m) + Cable Loss (dB) - Preamp Factor (dB) - Distance Factor (dB)

Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor, RB = Restricted Band; Bandwidth denoted as RBW/VBW

Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Bandwidth
QP	V	111.000	11.0	7.4	1.7	0.0	-10.5	30.5	43.5	-13.0	120/300 kHz
QP	V	113.360	12.0	7.2	1.7	0.0	-10.5	31.4	43.5	-12.1	120/300 kHz
QP	V	138.600	14.0	7.3	1.9	0.0	-10.5	33.7	43.5	-9.8	120/300 kHz
QP	V	140.580	15.0	7.5	1.9	0.0	-10.5	34.8	43.5	-8.7	120/300 kHz
QP	V	163.560	10.0	9.0	2.1	0.0	-10.5	31.6	43.5	-11.9	120/300 kHz
QP	V	261.750	10.0	12.7	2.7	0.0	-10.5	35.8	46.0	-10.2	120/300 kHz
QP	V	266.380	11.0	12.8	2.7	0.0	-10.5	36.9	46.0	-9.1	120/300 kHz
QP	V	299.720	6.0	13.5	2.9	0.0	-10.5	32.8	46.0	-13.2	120/300 kHz
QP	V	326.948	9.0	14.5	3.0	0.0	-10.5	37.0	46.0	-9.0	120/300 kHz
QP	V	333.444	10.0	14.8	3.0	0.0	-10.5	38.3	46.0	-7.7	120/300 kHz
QP	H	392.294	9.5	16.7	3.3	0.0	-10.5	40.0	46.0	-6.0	120/300 kHz
QP	H	399.746	8.0	16.6	3.3	0.0	-10.5	38.4	46.0	-7.6	120/300 kHz
QP	V	417.000	10.0	16.4	3.4	0.0	-10.5	40.3	46.0	-5.7	120/300 kHz
QP	V	425.000	12.3	16.5	3.5	0.0	-10.5	42.7	46.0	-3.3	120/300 kHz

**Setup Photos**



30-1000 MHz Radiated Emissions

Setup Photos



30-1000 MHz Radiated Emissions

**Test Results:** Pass

**Test Standard:** FCC Part 22, FCC Part 74, FCC Part 90

**Test:** RF Output Power, FCC §22.565(a), FCC §74.861(d)(1), FCC §90.205(d)

**Performance Criterion:** Power must not exceed the following values:

FCC Part 22: 152-153 MHz – 1400 Watts ERP, 157-159 MHz – 150 Watts ERP

FCC Part 74: Licensees may not operate at higher than 1 Watt ERP.

FCC Part 90: Power limitation is dependant on the device antenna's height above average terrain (HAAT) and on the required service area, and will be authorized according to the HAAT table found in FCC §90.205(d) Table 1.

**Test Environment:**

Environmental Conditions During Testing:	Ambient (°C):	21	Humidity (%):	68	Pressure (hPa):	1011
Pretest Verification Performed	Yes		Equipment under Test:	BAEVCA100-V1PCGX-LF		
Test Engineer(s):	Vathana Ven			EUT Serial Number:	0716HNH000085	

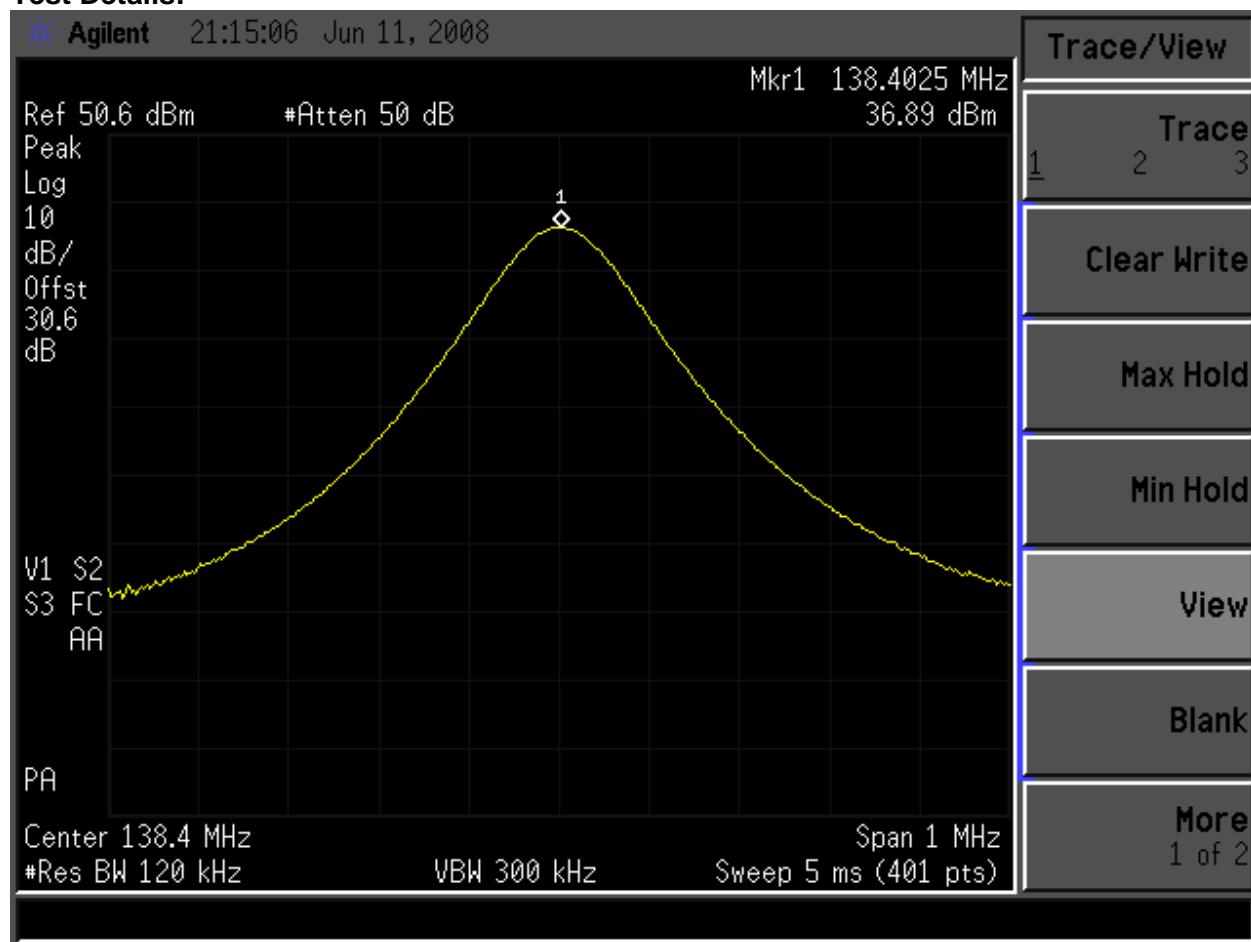
**Test Equipment Used:**

TEST EQUIPMENT LIST					
Item	Equipment Type	Make	Model No.	Serial No.	Next Cal. Due
1	4 Line Digital Barometer *	Mannix	0ABA116	SAF291	01/30/2009
2	Attenuator, 30dB	Weinschel Corp	47-30-34	BD4327	09/13/2008
3	High Frequency Cable 40GHz	Megaphase	TM40 K1K1 80	CBL030	12/06/2008
4	Spectrum Analyzer	Agilent	E7405A	US40240205	08/09/2008

**Software Utilized:**

Name	Manufacturer	Version
EXCEL 2000	Microsoft Corporation	9.0.6926 SP-3
EMI BOXBOROUGH	Intertek	3/07/07 Revision

Test Details:



**Test Results:** Pass

**Test Standard:** FCC Part 22, FCC Part 74, FCC Part 90

**Test:** Radiated Emissions, FCC §22.359(a), FCC §74.861(d)(3), FCC §90.210

**Performance Criterion:** Spurious emissions must not exceed -13 dBm ERP.

**Test Environment:**

Environmental Conditions During Testing:	Ambient (°C):	21	Humidity (%):	68	Pressure (hPa):	1011
Pretest Verification Performed	Yes		Equipment under Test:	BAEVCA100-V1PCGX-LF		
Test Engineer(s):	Vathana Ven			EUT Serial Number:	0716HNH000085	

**Test Equipment Used:**

TEST EQUIPMENT LIST					
Item	Equipment Type	Make	Model No.	Serial No.	Next Cal. Due
1	4 Line Digital Barometer *	Mannix	0ABA116	SAF291	01/30/2009
2	ANTENNA	EMCO	3142	9711-1224	12/05/2008
3	HORN ANTENNA	EMCO	3115	9602-4675	09/24/2008
4	Spectrum Analyzer	Agilent	E7405A	US40240205	08/09/2008
5	3 Meter In floor cable for site 1	ITS	RG214B/U	S1 3M FLR	09/07/2008
6	High Frequency Cable 40GHz	Megaphase	TM40 K1K1 80	CBL030	12/06/2008
7	High Frequency Cable 40GHz	Megaphase	TM40 K1K1 197	CBL028	12/06/2008
8	ANTENNA	Compliance Design	B100	1852	09/13/2008
9	ANTENNA	Compliance Design	B200	1850	09/13/2008
10	ANTENNA	Compliance Design	B300	00674	09/13/2008
11	HORN ANTENNA	EMCO	3115	9610-4980	06/18/2008
12	Sweep Generator	Hewlett Packard	83620A	3213A01244	02/06/2009

**Software Utilized:**

Name	Manufacturer	Version
EXCEL 2000	Microsoft Corporation	9.0.6926 SP-3
EMI BOXBOROUGH	Intertek	3/07/07 Revision

**Test Details:**
**Radiated Emissions, Substitution**

Company: BAE Systems  
 Model #: BAEVCA100-V1PCGX-LF  
 Serial #: 0716HNH000085  
 Engineer(s): Vathana Ven  
 Project #: 3139325 Date(s): 06/12/08  
 Standard: FCC Part 90  
 Barometer: SAF291 Temp/Humidity/Pressure: 24 deg. C 34% 1013 mB  
 Test Distance (m): 3 Voltage/Frequency: Fresh 12VDC Battery Frequency Range: 30 MHz -2 GHz  
 Net = Generator Level (0.00 dBm) + (EUT reading - Generator reading) - Cable Loss + Antenna Gain (dBi or dBd)  
 Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS: NF = Noise Floor RB = Restricted Band; Bandwidth denoted as RBW/VBW

Detector Type	Ant. Pol. (V/H)	Frequency MHz	EUT Reading dB(uV)	Generator Reading dB(uV)	Transmit Cable Loss dB	Transmit Antenna dBi	Generator Level dBm	Net dBm	Limit dBm	Margin dB	Bandwidth
PK	V	48.588	11.7	63.7	0.1	-5.9	-20.0	-80.2	-13.0	-67.2	120/300 kHz
PK	V	86.035	13.0	67.9	0.2	0.2	-20.0	-77.1	-13.0	-64.1	120/300 kHz
PK	V	110.163	15.4	67.6	0.2	-2.5	-20.0	-77.1	-13.0	-64.1	120/300 kHz
PK	V	112.188	16.0	67.7	0.2	-2.5	-20.0	-76.6	-13.0	-63.6	120/300 kHz
PK	V	116.925	19.1	67.7	0.2	-2.2	-20.0	-73.2	-13.0	-60.2	120/300 kHz
PK	V	128.675	19.2	69.0	0.2	-1.3	-20.0	-73.5	-13.0	-60.5	120/300 kHz
PK	V	138.405	28.5	67.3	0.2	0.6	-20.0	-60.6	-13.0	-47.6	120/300 kHz
PK	V	141.885	22.8	68.6	0.2	0.6	-20.0	-67.6	-13.0	-54.6	120/300 kHz
PK	V	150.085	14.2	66.0	0.3	0.0	-20.0	-74.3	-13.0	-61.3	120/300 kHz
PK	V	166.535	12.0	65.0	0.3	-1.6	-20.0	-77.1	-13.0	-64.1	120/300 kHz
PK	V	196.255	12.0	58.3	0.3	-1.0	-20.0	-69.8	-13.0	-56.8	120/300 kHz
PK	V	233.070	12.0	57.2	0.3	0.2	-20.0	-67.5	-13.0	-54.5	120/300 kHz
PK	V	266.420	11.0	57.4	0.3	-0.9	-20.0	-69.8	-13.0	-56.8	120/300 kHz
PK	H	276.790	12.9	63.3	0.4	-0.1	-20.0	-73.1	-13.0	-60.1	120/300 kHz
PK	H	299.910	13.9	61.5	0.4	-1.6	-20.0	-71.8	-13.0	-58.8	120/300 kHz
PK	V	309.160	20.3	57.1	0.4	-0.5	-20.0	-59.9	-13.0	-46.9	120/300 kHz
PK	H	327.060	28.4	62.0	0.4	-0.8	-20.0	-57.0	-13.0	-44.0	120/300 kHz
PK	H	332.960	27.3	61.0	0.4	-0.8	-20.0	-57.1	-13.0	-44.1	120/300 kHz
PK	H	392.610	29.0	57.2	0.4	-1.6	-20.0	-52.4	-13.0	-39.4	120/300 kHz
PK	H	399.260	30.0	58.0	0.4	-1.0	-20.0	-51.6	-13.0	-38.6	120/300 kHz
PK	H	417.560	30.0	51.0	0.4	-0.1	-20.0	-43.7	-13.0	-30.7	120/300 kHz
PK	V	1107.200	16.0	60.0	0.7	12.4	-20.0	-54.5	-13.0	-41.5	1/3 MHz
PK	V	1245.600	18.0	57.2	0.7	13.4	-20.0	-48.7	-13.0	-35.7	1/3 MHz
PK	V	1384.000	16.0	53.2	0.9	11.4	-20.0	-48.9	-13.0	-35.9	1/3 MHz
PK	V	1532.400	16.0	56.2	0.9	14.8	-20.0	-48.5	-13.0	-35.5	1/3 MHz
PK	V	1660.800	16.0	58.0	0.9	15.9	-20.0	-49.2	-13.0	-36.2	1/3 MHz
PK	V	1799.200	15.0	55.9	1.1	6.5	-20.0	-57.7	-13.0	-44.7	1/3 MHz

Setup Photos



30-1000 MHz Radiated Emissions

Setup Photos



30-1000 MHz Radiated Emissions

Setup Photos



1-2 GHz Radiated Emissions

Setup Photos



1-2 GHz Radiated Emissions

**Test Results:** Pass**Test Standard:** FCC Part 15 Subpart C**Test:** RF Output Power, FCC §15.247(b)(3)**Performance Criterion:** Conducted RF Output Power must not exceed 1 Watt (30 dBm). EIRP must not exceed 4 Watts (36 dBm).**Test Environment:**

Environmental Conditions During Testing:	Ambient (°C):	21	Humidity (%):	68	Pressure (hPa):	1011
Pretest Verification Performed	Yes		Equipment under Test:	BAEVCA100-V1PCGX-LF		
Test Engineer(s):	Vathana Ven			EUT Serial Number:	0716HNH000085	

**Test Equipment Used:**

TEST EQUIPMENT LIST					
Item	Equipment Type	Make	Model No.	Serial No.	Next Cal. Due
1	Spectrum Analyzer 20Hz - 40 GHz	Rohde & Schwartz	FSEK-30	100225	11/26/2008
2	High Frequency Cable 40GHz	Megaphase	TM40 K1K1 80	CBL030	12/06/2008
3	Attenuator, 30dB	Weinschel Corp	47-30-34	BD4327	09/13/2008

**Software Utilized:**

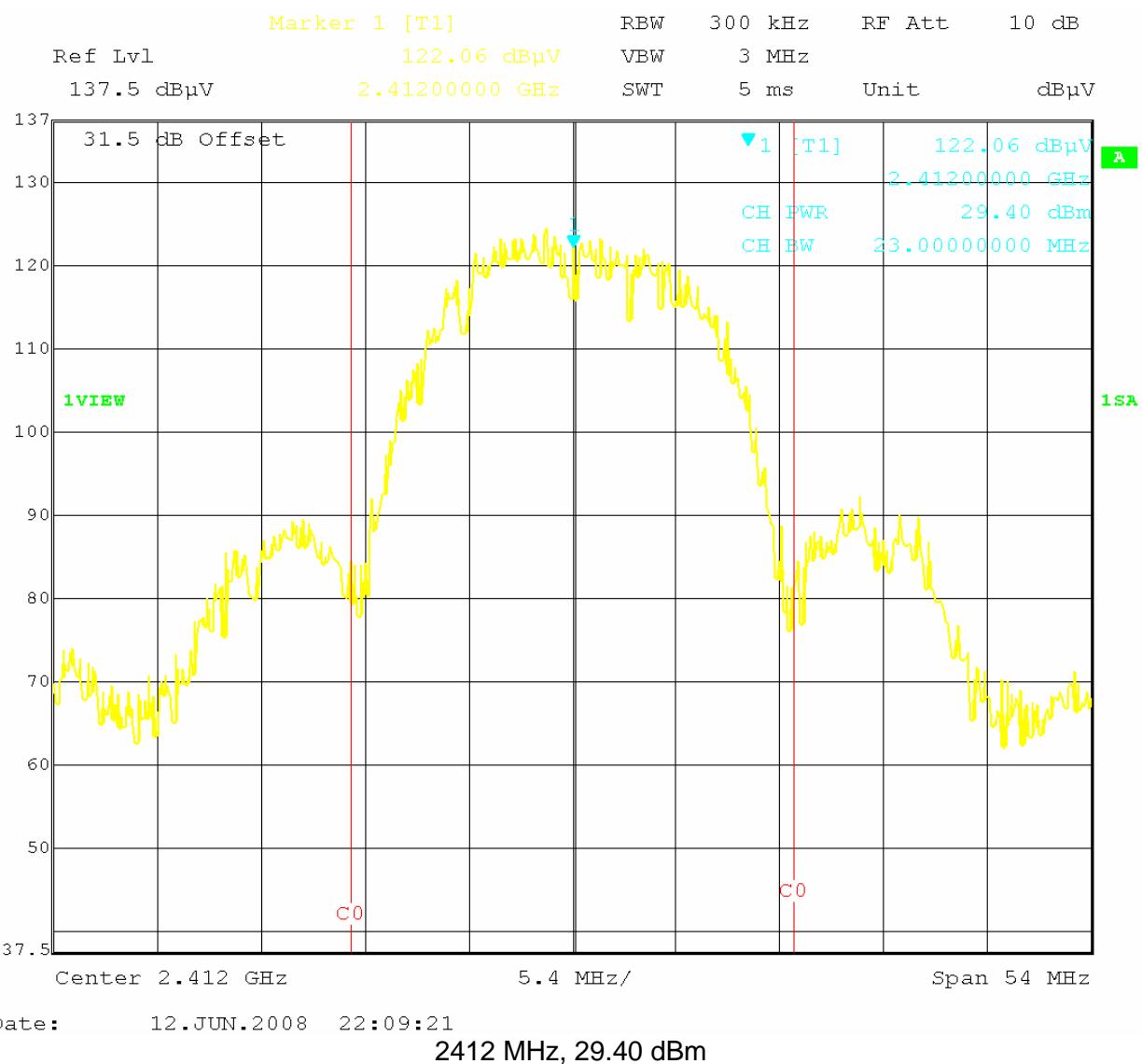
Name	Manufacturer	Version
EXCEL 2000	Microsoft Corporation	9.0.6926 SP-3
EMI BOXBOROUGH	Intertek	3/07/07 Revision

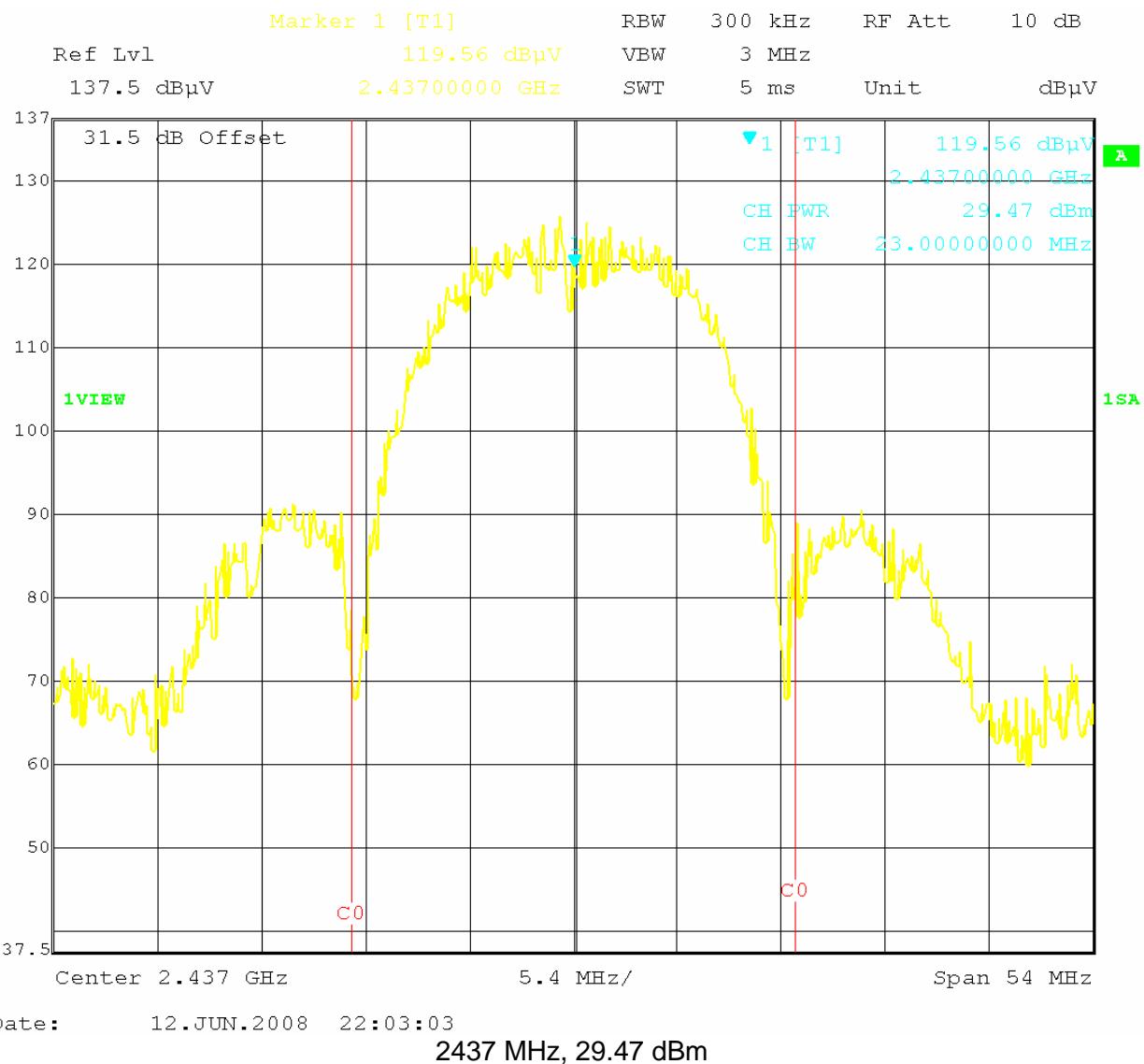
**Test Details:**

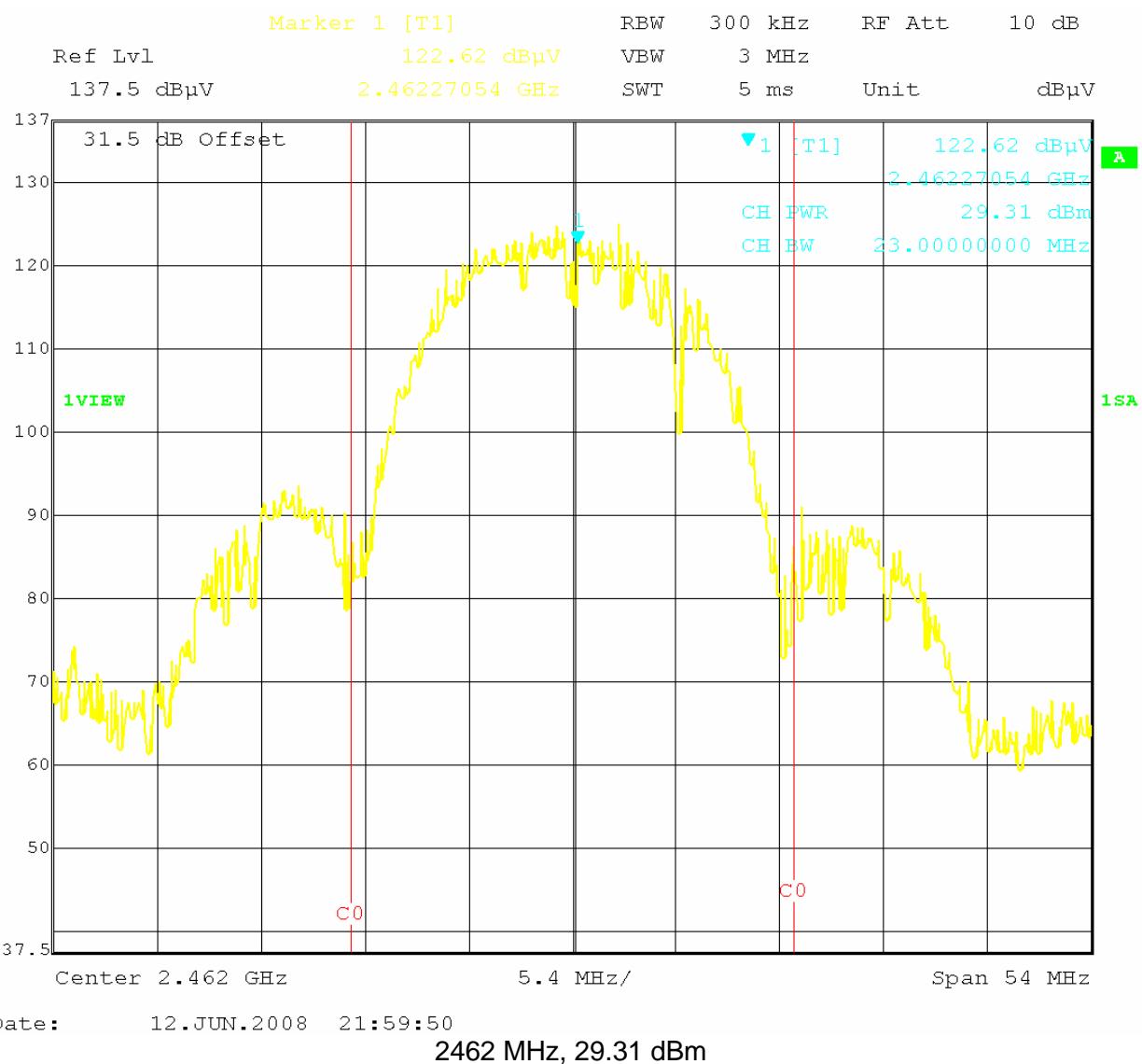
Channel 1 (2412 MHz): 29.40 dBm

Channel 6 (2437 MHz): 29.47 dBm

Channel 11 (2462 MHz): 29.31 dBm







**Test Results:** Pass**Test Standard:** FCC Part 15 Subpart C**Test:** Radiated Emissions, FCC §15.205, §15.209, §15.247(d)**Performance Criterion:** Spurious emissions must be at least 20 dB lower than the fundamental field strength when measured with a 100 kHz bandwidth. Emissions which fall in the restricted bands of 15.205 must meet the general limits of 15.209.**Test Environment:**

Environmental Conditions During Testing:	Ambient (°C):	21	Humidity (%):	66	Pressure (hPa):	1010
Pretest Verification Performed	Yes		Equipment under Test:		BAEVCA100-V1PCGX-LF	
Test Engineer(s):	Vathana Ven			EUT Serial Number:	0716HNH000085	

**Test Equipment Used:**

TEST EQUIPMENT LIST					
Item	Equipment Type	Make	Model No.	Serial No.	Next Cal. Due
1	4 Line Digital Barometer *	Mannix	0ABA116	SAF291	01/30/2009
2	High Frequency Cable 40GHz	Megaphase	TM40 K1K1 197	CBL027	12/06/2008
3	10 Meter in floor cable for site 2	ITS	RG214B/U	S2 10M FLR	09/17/2008
4	High Frequency Cable 40GHz	Megaphase	TM40 K1K1 80	CBL030	12/06/2008
5	ANTENNA	EMCO	3142	9711-1223	02/22/2009
6	HORN ANTENNA	EMCO	3115	9610-4980	03/03/2009
7	100MHz-40GHz Preamplifier	MITEQ	NSP4000-NFG	1260417	03/27/2009
8	ANTENNA, RIDGED GUIDE, 18-40 GHZ	EMCO	3116	2090	12/26/2008
9	Spectrum Analyzer 20Hz - 40 GHz	Rohde & Schwartz	FSEK-30	100225	11/26/2008
10	9kHz to 3GHz EMI Test Receiver	Rohde & Schwartz	ESCI 1166.5950K03	100067	01/25/2009
11	1GHz High Pass Filter	Reactel, Inc	7HS-1G/10G-S11	06-1	09/18/2008
12	3GHz High Pass Filter	Reactel, Inc	7HSX-3G/18G-S11	06-1	09/18/2008

**Software Utilized:**

<b>Name</b>	<b>Manufacturer</b>	<b>Version</b>
EXCEL 2000	Microsoft Corporation	9.0.6926 SP-3
EMI BOXBOROUGH	Intertek	3/07/07 Revision

**Test Details:**
**Radiated Emissions**

Company: BAE Systems

Model #: BAEVCA100-V1PCGX-LF

Serial #: 0716HNH000085

Engineers: Vathana Ven

Project #: 3139325

Date(s): 06/06/08

Location: Site 2

Antenna &amp; Cables: N Bands: N, LF, HF, SHF

Antenna: LOG2 2-22-09 V10m.txt LOG2 2-22-09 H10m.txt

Cable(s): S2 10M FLR 9-17-08.txt NONE.

Barometer: SAF291

Standard: FCC Part 15 Subpart C 15.247

Temp/Humidity/Pressure: 21 deg.C 66% 1010 mB

Receiver: R&amp;S ESCI (ROS002)

Limit Distance (m): 3

PreAmp: NONE.

Test Distance (m): 10

 Note: **Channel 1 ( 2412 MHz)**

PreAmp Used? (Y or N): N Voltage/Frequency: Fresh 12VDC Battery Frequency Range: 30-1000 MHz

Net = Reading (dBuV/m) + Antenna Factor (dB1/m) + Cable Loss (dB) - Preamp Factor (dB) - Distance Factor (dB)

Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor, RB = Restricted Band; Bandwidth denoted as RBW/VBW

Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Bandwidth
QP	V	112.180	11.0	8.5	1.7	0.0	-10.5	31.7	43.5	-11.8	FCC
QP	V	113.900	10.0	8.5	1.7	0.0	-10.5	30.6	43.5	-12.9	RB
QP	V	126.120	16.0	8.3	1.8	0.0	-10.5	36.5	43.5	-7.0	RB
PK	V	142.110	24.0	9.4	1.9	0.0	-10.5	45.8	90.1	-44.3	RB
PK	V	146.377	22.3	10.2	1.9	0.0	-10.5	44.9	90.1	-45.2	RB
PK	V	222.020	17.0	12.0	2.4	0.0	-10.5	41.9	90.1	-48.2	RB
PK	V	228.980	10.0	12.7	2.5	0.0	-10.5	35.6	90.1	-54.5	RB
QP	V	327.125	16.2	15.2	3.0	0.0	-10.5	44.9	46.0	-1.1	RB
QP	V	333.025	13.3	15.4	3.0	0.0	-10.5	42.2	46.0	-3.8	RB
PK	V	392.544	20.1	17.9	3.3	0.0	-10.5	51.8	90.1	-38.3	RB
PK	V	399.584	23.9	19.2	3.3	0.0	-10.5	56.9	90.1	-33.2	RB
PK	V	414.244	25.4	17.4	3.4	0.0	-10.5	56.7	90.1	-33.4	RB
PK	V	421.764	22.1	17.5	3.5	0.0	-10.5	53.5	90.1	-36.6	RB
PK	V	424.998	12.0	17.6	3.5	0.0	-10.5	43.5	90.1	-46.6	RB
PK	V	436.274	14.0	17.8	3.6	0.0	-10.5	45.8	90.1	-44.3	RB

**Test Details continue:**
**Radiated Emissions**

Company: BAE Systems  
 Model #: BAEVCA100-V1PCGX-LF  
 Serial #: 0716HNH000085  
 Engineers: Vathana Ven  
 Project #: 3139325 Date(s): 06/06/08  
 Standard: FCC Part 15 Subpart C 15.247  
 Receiver: R&S ESCI (ROS002)  
 PreAmp: NONE.  
 Note: **Channel 6 (2437 MHz)**  
 PreAmp Used? (Y or N): N Voltage/Frequency: Fresh 12VDC Battery Frequency Range: 30-1000 MHz  
 Net = Reading (dBuV/m) + Antenna Factor (dB1/m) + Cable Loss (dB) - Preamp Factor (dB) - Distance Factor (dB)  
 Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor, RB = Restricted Band; Bandwidth denoted as RBW/VBW

Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Bandwidth
QP	V	112.180	13.0	8.5	1.7	0.0	-10.5	33.7	43.5	-9.8	120/300 kHz
QP	V	113.900	11.0	8.5	1.7	0.0	-10.5	31.6	43.5	-11.9	120/300 kHz
QP	V	126.120	17.0	8.3	1.8	0.0	-10.5	37.5	43.5	-6.0	120/300 kHz
PK	V	143.350	25.0	9.6	1.9	0.0	-10.5	47.0	90.1	-43.1	120/300 kHz
PK	V	146.377	22.3	10.2	1.9	0.0	-10.5	44.9	90.1	-45.2	120/300 kHz
PK	V	222.020	18.0	12.0	2.4	0.0	-10.5	42.9	90.1	-47.2	120/300 kHz
PK	V	228.980	14.0	12.7	2.5	0.0	-10.5	39.6	90.1	-50.5	120/300 kHz
QP	H	327.125	14.0	14.3	3.0	0.0	-10.5	41.8	46.0	-4.2	120/300 kHz
QP	H	333.025	13.3	14.6	3.0	0.0	-10.5	41.4	46.0	-4.6	120/300 kHz
PK	V	392.485	19.0	17.9	3.3	0.0	-10.5	50.7	90.1	-39.4	120/300 kHz
PK	V	399.685	19.0	19.2	3.3	0.0	-10.5	52.0	90.1	-38.1	120/300 kHz
PK	V	414.244	26.0	17.4	3.4	0.0	-10.5	57.3	90.1	-32.8	120/300 kHz
PK	V	421.764	23.0	17.5	3.5	0.0	-10.5	54.4	90.1	-35.7	120/300 kHz
PK	V	424.998	15.0	17.6	3.5	0.0	-10.5	46.5	90.1	-43.6	120/300 kHz
PK	V	436.274	14.0	17.8	3.6	0.0	-10.5	45.8	90.1	-44.3	120/300 kHz

**Test Details continue:**
**Radiated Emissions**

Company: BAE Systems  
 Model #: BAEVCA100-V1PCGX-LF  
 Serial #: 0716HNH000085  
 Engineers: Vathana Ven  
 Project #: 3139325 Date(s): 06/06/08  
 Standard: FCC Part 15 Subpart C 15.247  
 Receiver: R&S ESCI (ROS002)  
 PreAmp: NONE.  
 Location: Site 2  
 Limit Distance (m): 3  
 Test Distance (m): 10  
 Temp/Humidity/Pressure: 21 deg.C 66% 1010 mB

**Note: Channel 11 (2462 MHz)**

PreAmp Used? (Y or N): N Voltage/Frequency: Fresh 12VDC Battery Frequency Range: 30-1000 MHz

Net = Reading (dBuV/m) + Antenna Factor (dB1/m) + Cable Loss (dB) - Preamplifier Factor (dB) - Distance Factor (dB)

Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor, RB = Restricted Band; Bandwidth denoted as RBW/VBW

Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Bandwidth
QP	V	112.180	13.5	8.5	1.7	0.0	-10.5	34.2	43.5	-9.3	120/300 kHz
QP	V	113.900	12.0	8.5	1.7	0.0	-10.5	32.6	43.5	-10.9	120/300 kHz
QP	V	126.120	17.5	8.3	1.8	0.0	-10.5	38.0	43.5	-5.5	120/300 kHz
PK	V	143.350	25.0	9.6	1.9	0.0	-10.5	47.0	90.1	-43.1	120/300 kHz
PK	V	146.377	22.3	10.2	1.9	0.0	-10.5	44.9	90.1	-45.2	120/300 kHz
PK	V	222.020	18.0	12.0	2.4	0.0	-10.5	42.9	90.1	-47.2	120/300 kHz
PK	V	228.980	15.0	12.7	2.5	0.0	-10.5	40.6	90.1	-49.5	120/300 kHz
QP	V	327.125	16.5	15.2	3.0	0.0	-10.5	45.2	46.0	-0.8	120/300 kHz
QP	V	333.082	14.0	15.4	3.0	0.0	-10.5	42.9	46.0	-3.1	120/300 kHz
PK	V	359.835	16.0	16.5	3.2	0.0	-10.5	46.1	90.1	-44.0	120/300 kHz
PK	V	392.485	19.0	17.9	3.3	0.0	-10.5	50.7	90.1	-39.4	120/300 kHz
PK	V	399.685	19.3	19.2	3.3	0.0	-10.5	52.3	90.1	-37.8	120/300 kHz
PK	V	415.135	22.0	17.4	3.4	0.0	-10.5	53.3	90.1	-36.8	120/300 kHz
PK	V	421.764	23.0	17.5	3.5	0.0	-10.5	54.4	90.1	-35.7	120/300 kHz
PK	V	424.995	16.0	17.6	3.5	0.0	-10.5	47.5	90.1	-42.6	120/300 kHz
PK	V	436.274	16.0	17.8	3.6	0.0	-10.5	47.8	90.1	-42.3	120/300 kHz

**Test Details continue:**
**Special Radiated Emissions**

Company: BAE Systems  
 Model #: BAEVCA100-V1PCGX-LF  
 Serial #: 0716HNH000085  
 Engineers: Vathana Ven  
 Project #: 3139325 Date(s): 06/07/08  
 Standard: FCC Part 15 Subpart C 15.247  
 Receiver: R&S ESCI (ROS002) and R&S FSEK-30 (ROS001) Limit Distance (m): 3  
 PreAmp: PRE9 03-27-09.txt Test Distance (m): 3  
 PreAmp Used? (Y or N): N Voltage/Frequency: Fresh 12VDC Battery Frequency Range: 1- 4GHz  
 Net = Reading (dBuV/m) + Antenna Factor (dB1/m) + Cable Loss (dB) - Preamp Factor (dB) - Distance Factor (dB)  
 Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor, RB = Restricted Band; Bandwidth denoted as RBW/VBW

Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Bandwidth
Note: Fundamental Power Reference											
PK	V	2412.000	78.0	29.1	4.5	0.0	0.0	111.7	-	-	1/3 MHz
PK	V	2437.000	79.0	29.2	4.6	0.0	0.0	112.8	-	-	1/3 MHz
PK	V	2462.000	77.5	29.2	4.6	0.0	0.0	111.3	-	-	1/3 MHz
Note: WiFi Channel 11 (2462 MHz)											
PK	V	1179.400	17.0	24.9	2.8	0.0	0.0	44.7	74.0	-29.3	1/3 MHz
AVG	V	1179.400	-4.0	24.9	2.8	0.0	0.0	23.7	54.0	-30.3	1/3 MHz
PK	V	2163.000	20.0	28.6	4.1	0.0	0.0	52.8	90.5	-37.7	1/3 MHz
PK	V	2696.000	20.0	29.8	4.8	0.0	0.0	54.6	74.0	-19.4	1/3 MHz
AVG	V	2696.000	-10.0	29.8	4.8	0.0	0.0	24.6	54.0	-29.4	1/3 MHz
Note: WiFi Channel 6 (2437 MHz)											
PK	V	1183.400	16.0	25.0	2.8	0.0	0.0	43.8	74.0	-30.2	1/3 MHz
AVG	V	1183.400	-5.0	25.0	2.8	0.0	0.0	22.8	54.0	-31.2	1/3 MHz
PK	V	2136.200	25.0	28.6	4.1	0.0	0.0	57.7	90.5	-32.8	1/3 MHz
PK	V	2698.400	21.0	29.9	4.8	0.0	0.0	55.7	74.0	-18.3	1/3 MHz
AVG	V	2698.000	-5.0	29.9	4.8	0.0	0.0	29.7	54.0	-24.3	1/3 MHz
Note: WiFi Channel 1 (2412 MHz)											
PK	V	1185.800	23.0	25.0	2.8	0.0	0.0	50.8	74.0	-23.2	1/3 MHz
AVG	V	1185.800	-6.0	25.0	2.8	0.0	0.0	21.8	54.0	-32.2	1/3 MHz
PK	V	2114.200	22.0	28.5	4.1	0.0	0.0	54.6	90.5	-35.9	1/3 MHz
PK	V	2695.247	27.0	29.8	4.8	0.0	0.0	61.6	74.0	-12.4	1/3 MHz
AVG	V	2695.247	-3.0	29.8	4.8	0.0	0.0	31.6	54.0	-22.4	1/3 MHz

**Test Details continue:**
**Special Radiated Emissions**

Company: BAE Systems  
 Model #: BAEVCA100-V1PCGX-LF  
 Serial #: 0716HNH000085  
 Engineers: Vathana Ven  
 Project #: 3139325 Date(s): 06/09/08  
 Standard: FCC Part 15 Subpart C 15.247  
 Receiver: R&S ESCI (ROS002) and R&S FSEK-30 (ROS001) Limit Distance (m): 3  
 PreAmp: PRE9 03-27-09.txt Test Distance (m): 3  
 PreAmp Used? (Y or N): Y Voltage/Frequency: Fresh 12VDC Battery Frequency Range: 4-18GHz  
 Net = Reading (dBuV/m) + Antenna Factor (dB1/m) + Cable Loss (dB) - Preamp Factor (dB) - Distance Factor (dB)  
 Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor, RB = Restricted Band; Bandwidth denoted as RBW/VBW

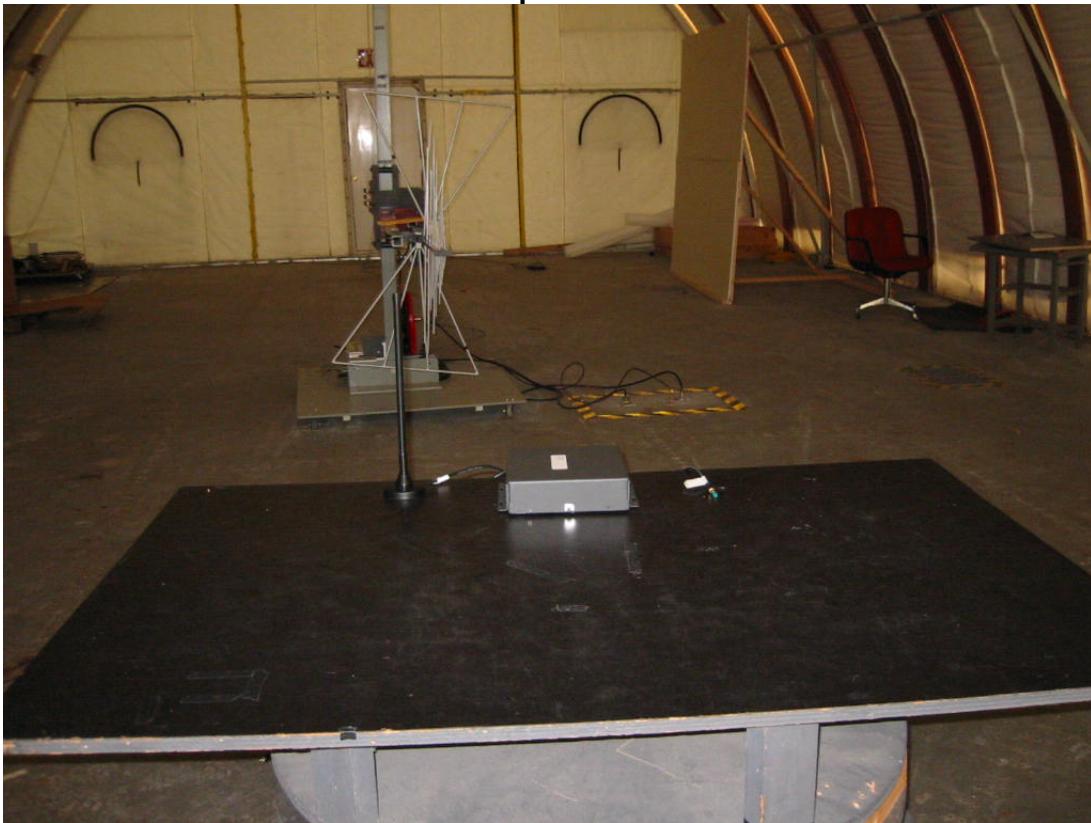
Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Bandwidth	FCC
Note: WiFi Channel 1 (2412 MHz)												
PK	V	4824.000	36.0	34.4	6.3	29.3	0.0	47.4	74.0	-26.6	1/3 MHz	RB
AVG	V	4824.000	25.0	34.4	6.3	29.3	0.0	36.4	54.0	-17.6	1/3 MHz	RB
PK	V	7236.000	25.0	37.2	8.0	28.4	0.0	41.8	90.5	-48.7	100/300 kHz	
PK	V	9648.000	24.0	39.8	9.5	27.4	0.0	45.9	90.5	-44.6	100/300 kHz	
PK	V	12060.000	35.0	39.3	11.0	27.4	0.0	57.9	74.0	-16.1	1/3 MHz	RB
AVG	V	12060.000	25.0	39.3	11.0	27.4	0.0	47.9	54.0	-6.1	1/3 MHz	RB
PK	V	14472.000	35.0	42.3	12.3	27.6	0.0	62.0	74.0	-12.0	1/3 MHz	RB
AVG	V	14472.000	23.0	42.3	12.3	27.6	0.0	50.0	54.0	-4.0	1/3 MHz	RB
PK	V	16884.000	36.0	42.0	13.6	28.1	0.0	63.4	90.5	-27.1	100/300 kHz	
Note: WiFi Channel 6 (2437 MHz)												
PK	V	4874.000	37.0	34.5	6.4	29.3	0.0	48.6	74.0	-25.4	1/3 MHz	RB
AVG	V	4874.000	26.0	34.5	6.4	29.3	0.0	37.6	54.0	-16.4	1/3 MHz	RB
PK	V	7311.000	37.0	37.4	8.1	28.4	0.0	54.1	74.0	-19.9	1/3 MHz	RB
AVG	V	7311.000	25.0	37.4	8.1	28.4	0.0	42.1	54.0	-11.9	1/3 MHz	RB
PK	V	9748.000	24.0	40.0	9.6	27.4	0.0	46.2	90.5	-44.3	100/300 kHz	
PK	V	12185.000	34.0	39.3	11.1	27.4	0.0	57.0	74.0	-17.0	1/3 MHz	RB
AVG	V	12185.000	23.0	39.3	11.1	27.4	0.0	46.0	54.0	-8.0	1/3 MHz	RB
PK	V	14622.000	23.0	42.2	12.4	27.6	0.0	50.0	90.5	-40.5	100/300 kHz	
PK	V	17059.000	22.0	42.9	13.7	28.1	0.0	50.5	90.5	-40.0	100/300 kHz	
Note: WiFi Channel 11 (2462 MHz)												
PK	V	4924.000	36.0	34.7	6.4	29.3	0.0	47.8	74.0	-26.2	1/3 MHz	RB
AVG	V	4924.000	25.0	34.7	6.4	29.3	0.0	36.8	54.0	-17.2	1/3 MHz	RB
PK	V	7386.000	35.0	37.6	8.2	28.3	0.0	52.4	74.0	-21.6	1/3 MHz	RB
AVG	V	7386.000	25.0	37.6	8.2	28.3	0.0	42.4	54.0	-11.6	1/3 MHz	RB
PK	V	9848.000	23.0	40.2	9.7	27.4	0.0	45.5	90.5	-45.0	100/300 kHz	
PK	V	12310.000	33.0	39.4	11.1	27.4	0.0	56.1	74.0	-17.9	1/3 MHz	RB
AVG	V	12310.000	23.0	39.4	11.1	27.4	0.0	46.1	54.0	-7.9	1/3 MHz	RB
PK	V	14772.000	25.0	42.1	12.4	27.6	0.0	52.0	74.0	-22.0	100/300 kHz	
PK	V	17234.000	23.0	44.3	13.7	28.2	0.0	52.8	54.0	-1.2	100/300 kHz	

**Test Details continue:**
**Special Radiated Emissions**

Company: BAE Systems  
 Model #: BAEVCA100-V1PCGX-LF  
 Serial #: 0716HNH000085  
 Engineers: Vathana Ven  
 Project #: 3139325 Date(s): 06/06/08  
 Standard: FCC Part 15 Subpart C 15.247  
 Receiver: R&S ESCI (ROS002) and R&S FSEK-30 (ROS001) Limit Distance (m): 3  
 PreAmp: PRE9 03-27-09.txt Test Distance (m): 3  
 PreAmp Used? (Y or N): Y Voltage/Frequency: Fresh 12VDC Battery Frequency Range: 18 - 26GHz  
 Net = Reading (dBuV/m) + Antenna Factor (dB1/m) + Cable Loss (dB) - Preamp Factor (dB) - Distance Factor (dB)  
 Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS: NF = Noise Floor, RB = Restricted Band; Bandwidth denoted as RBW/VBW

Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Bandwidth
Note: WiFi Channel 1 (2412 MHz)											
PK	V	19296.000	34.0	45.3	9.8	28.7	0.0	60.4	74.0	-13.6	1/3 MHz
AVG	V	19296.000	24.0	45.3	9.8	28.7	0.0	50.4	54.0	-3.6	1/3 MHz
PK	V	21708.000	25.0	45.4	9.7	28.0	0.0	52.1	90.5	-38.4	100/300 kHz
PK	V	24120.000	23.0	45.6	10.3	26.7	0.0	52.2	90.5	-38.3	100/300 kHz
Note: WiFi Channel 6 (2437 MHz)											
PK	V	19496.000	35.0	45.4	9.7	28.8	0.0	61.4	74.0	-12.6	1/3 MHz
AVG	V	19496.000	23.0	45.4	9.7	28.8	0.0	49.4	54.0	-4.6	1/3 MHz
PK	V	21933.000	24.0	45.3	9.7	27.9	0.0	51.2	90.5	-39.3	100/300 kHz
PK	V	24370.000	25.0	45.9	10.4	26.6	0.0	54.8	90.5	-35.7	100/300 kHz
Note: WiFi Channel 11 (2462 MHz)											
PK	V	19696.000	34.0	45.4	9.7	28.8	0.0	60.3	74.0	-13.7	1/3 MHz
AVG	V	19696.000	23.0	45.4	9.7	28.8	0.0	49.3	54.0	-4.7	1/3 MHz
PK	V	22158.000	33.0	45.4	9.8	27.7	0.0	60.4	74.0	-13.6	1/3 MHz
AVG	V	22158.000	23.0	45.4	9.8	27.7	0.0	50.4	54.0	-3.6	1/3 MHz
PK	V	24620.000	23.0	46.2	10.5	26.4	0.0	53.3	90.5	-37.2	100/300 kHz

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