

# RF Exposure Evaluation Declaration

Product Name : AirPcap Nx

Model No. : APC-NX

FCC ID : VHL-AIRPCAP-NX

Applicant : CACE Technologies, Inc.

Address : 1949 5th Street, Suite 103, Davis, CA 95616 USA

Date of Receipt : Sep. 16, 2010

Issued Date : Oct. 25, 2010

Report No. : 109S022R-RF-US

Report Version : V1.0

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF, NVLAP, NIST or any agency of the Government.

The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.

## Test Report Certification

Issued Date : Oct. 25, 2010  
Report No. : 109S022R-RF-US

# QuieTek

Product Name : AirPcap Nx  
Applicant : CACE Technologies, Inc.  
Address : 1949 5th Street, Suite 103, Davis, CA 95616 USA  
Manufacturer : CACE Technologies, Inc.  
Address : 1949 5th Street, Suite 103, Davis, CA 95616 USA  
Model No. : APC-NX  
FCC ID : VHL-AIRPCAP-NX  
EUT Voltage : DC 5V  
Trade Name : CACE Technologies  
Applicable Standard : FCC OET 65  
Test Result : Complied  
Performed Location : SuZhou EMC laboratory  
No.99 Hongye Rd., Suzhou Industrial Park Loufeng  
Hi-Tech Development Zone., SuZhou, China  
TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098  
FCC Registration Number: 800392

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( Engineering Manager: Dream Cao )

## Laboratory Information

We, **QuieTek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted(audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scope:

<b>Taiwan R.O.C.</b>	<b>: BSMI, NCC, TAF</b>
<b>Germany</b>	<b>: TUV Rheinland</b>
<b>Norway</b>	<b>: Nemko, DNV</b>
<b>USA</b>	<b>: FCC, NVLAP</b>
<b>Japan</b>	<b>: VCCI</b>

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site : <http://www.quietek.com/tw/ctg/cts/accreditations.htm>  
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : <http://www.quietek.com/>

If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

### **HsinChu Testing Laboratory :**

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### **LinKou Testing Laboratory :**

No. 5-22, Ruei-Shu Valley, Ruei-Ping Tsuen, Lin-Kou Shiang, Taipei, Taiwan, R.O.C.  
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### **Suzhou (China) Testing Laboratory :**

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TEL : +86-512-6251-5088 / FAX : +86-512-6251-5098      E-Mail : [service@quietek.com](mailto:service@quietek.com)



## 1. RF Exposure Evaluation

### 1.1. Limits

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

#### LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

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

F= Frequency in MHz

Friis Formula

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

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

$G$  = gain of antenna in linear scale

$\pi$  = 3.1416

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

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance  $r$  where the MPE limit is reached.

## 1.2. Test Procedure

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

The temperature and related humidity: 18°C and 78% RH.

## 1.3. Test Result of RF Exposure Evaluation

Product	:	AirPcap Nx
Test Item	:	RF Exposure Evaluation
Test Site	:	AC-6

### Antenna Gain:

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 5dBi for 2.4GHz.

### Output Power into Antenna & RF Exposure Evaluation Distance:

Test Mode	Frequency Band (MHz)	Maximum Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm2)
802.11b/g/n(20MHz)	2412 - 2462	460.2566	0.289555
802.11n(40MHz)	2422 - 2452	414.9540	0.261054