

# RF Exposure Evaluation Declaration

Product Name : Home Gateway  
Model No. : EchoLife HG531, EchoLife HG531a  
FCC ID : QISHG531X

Applicant : Huawei Technologies Co., Ltd.  
Address : Administration Building, Huawei Base, Bantian,  
Longgang District, Shenzhen 518129 P.R.C.

Date of Receipt : 2009/06/12  
Issued Date : 2009/06/27  
Report No. : 096S069R-RF-US  
Report Version : 1.3

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 CNLA, 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 : 2009/06/27

Report No. : 096S069R-RF-US



Product Name : Home Gateway

Applicant : Huawei Technologies Co., Ltd.

Address : Administration Building, Huawei Base, Bantian,  
Longgang District, Shenzhen 518129 P.R.C.

Manufacturer : Huawei Technologies Co., Ltd.

Model No. : EchoLife HG531, EchoLife HG531a

FCC ID : QISHG531X

Rated Voltage : AC 100~240 / 50~60Hz

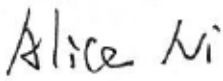
EUT Voltage : DC 12 V

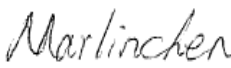
Trade Name : HUAWEI

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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## 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 by the following accreditation Bodies in compliance with ISO 17025, EN 45001 and Guide 25:

|                      |                          |
|----------------------|--------------------------|
| <b>Taiwan R.O.C.</b> | <b>: BSMI, DGT, CNLA</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://tw.quietek.com/modules/myalbum/>

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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TEL:+886-3-592-8858 / FAX:+886-3-592-8859 E-Mail : service@quietek.com



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TEL : +86-512-6251-5088 / FAX : 86-512-6251-5098 E-Mail : 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) |
|-----------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|------------------------|
| (A) Limits for Occupational/ Control Exposures            |                               |                               |                                     |                        |
| 300-1500                                                  | --                            | --                            | F/300                               | 6                      |
| 1500-100,000                                              | --                            | --                            | 5                                   | 6                      |
| (B) Limits for General Population/ Uncontrolled Exposures |                               |                               |                                     |                        |
| 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   | : | Home Gateway           |
| Test Item | : | RF Exposure Evaluation |
| Test Site | : | AC-6                   |

### Antenna Gain:

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2dBi or 1.58 in linear scale.

### 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/cm <sup>2</sup> ) |
|--------------------|----------------------|--------------------------------------|--------------------------------------------------|
| 802.11b/g/n(20MHz) | 2412~2462            | 61                                   | 0.0192                                           |
| 802.11n(40MHz)     | 2422~2452            | 33                                   | 0.0103                                           |

The calculation result as shown above was based on EchoLife HG531 and equipped with power adapter AMS9-1201000FU2 manufactured by Global Yeou Diann Electric Industrial Co., Ltd.