# RF Exposure Evaluation Declaration

| | | |
|---|---|---|
| Product Name | : | Q Light Engine |
| Model No. | : | QPI-1 |
| FCC ID | : | 2AA45-QPI-1 |

| | | |
|---|---|---|
| Applicant | : | Q-Point Technology Inc |
| Address | : | 4F., No.90, XinHu 1st Rd., NeiHu Dist., Taipei City 11494, Taiwan |

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|---|---|---|
| Date of Receipt | : | Sep. 15, 2013 |
| Issued Date | : | Apr. 02, 2014 |
| Report No. | : | 1430403R-RF-US-P20V01 |
| Report Version | : | V 1.0 |

# Test Report Certification

Issued Date : Apr. 02, 2014
Report No. : 1430403R-RF-US-P20V01

| | | |
|---|---|---|
| Product Name | : | Q Light Engine |
| Applicant | : | Q-Point Technology Inc |
| Address | : | 4F., No.90, XinHu 1st Rd., NeiHu Dist., Taipei City 11494, Taiwan |
| Manufacturer | : | Q-Point Technology Inc |
| Address | : | 4F., No.90, XinHu 1st Rd., NeiHu Dist., Taipei City 11494, Taiwan |
| Model No. | : | QPI-1 |
| FCC ID | : | 2AA45-QPI-1 |
| EUT Voltage | : | DC 5V |
| Brand Name | : | Q-Point |
| Applicable Standard | : | KDB 447498 D01V05V02<br>FCC Part1.1310(b) |
| Test Result | : | Complied |
| Performed Location | : | Suzhou EMC Laboratory<br>No.99 Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech Development Zone., Suzhou, China<br>TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098<br>FCC Registration Number: 800392 |

| | | |
|---|---|---|
| Documented By | : | Alice Ni |
| Reviewed By | : | Jamie Yuan |
| Approved By | : | Jeff Chen |

## 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:

| | | |
|---|---|---|
| **Taiwan R.O.C.** | **:** | **BSMI, NCC, TAF** |
| **Germany** | **:** | **TUV Rheinland** |
| **Norway** | **:** | **Nemko, DNV** |
| **USA** | **:** | **FCC** |
| **Japan** | **:** | **VCCI** |
| **China** | **:** | **CNAS** |

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 :**
No.75-2, 3rd Lin, Wangye Keng, Yonghxing Tsuen, Qionglin Shiang, Hsinchu County 307, Taiwan, R.O.C.
TEL:+886-3-592-8858 / FAX:+886-3-592-8859 E-Mail : service@quietek.com

**LinKou Testing Laboratory :**
No.5-22, Ruishukeng, Linkou Dist., New Taipei City 24451, Taiwan, R.O.C.
TEL : 886-2-8601-3788 / FAX : 886-2-8601-3789 E-Mail : service@quietek.com

**Suzhou Testing 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 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/cm2) | 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: Pd = (Pout*G)/(4*pi*r2)

Where

Pd = power density in mW/cm2

Pout = 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

Pd id the limit of MPE, 1 mW/cm2 . 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℃and 78％ RH.

## 1.3. Test Result of RF Exposure Evaluation

| | | |
|---|---|---|
| Product | : | Q Light Engine |
| Test Item | : | RF Exposure Evaluation |
| Test Site | : | AC-6 |

**Antenna Gain:**
Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2.6dBi in logarithm scale.

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

| Frequency Band (MHz) | Maximum Output Power to Antenna (mW) | Power Density at R = 20 cm (mW/cm2) |
|---|---|---|
| 2412 ~ 2462 MHz | 110.1539 | 0.039878 |
| 2422 ~ 2452 MHz | 59.2925 | 0.021465 |
| 2402 ~ 2480 MHz | 6.2806 | 0.002274 |

Note:
The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm2.

The End