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# RF EXPOSURE REPORT

**REPORT NO.:** SA140515E07

**MODEL NO.:** PLINK-HUB1

**FCC ID:** 2AAAH-GW0001

**RECEIVED:** May 15, 2014

**TESTED:** May 23, 2014

**ISSUED:** July 01, 2014

**APPLICANT:** Quirky, Inc.

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**ISSUED BY:** Bureau Veritas Consumer Products Services (H.K.)  
Ltd., Taoyuan Branch Hsin Chu Laboratory

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R.O.C.

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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA140515E07	Original release	July 01, 2014



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## 1. CERTIFICATION

**PRODUCT:** Link Hub

**BRAND NAME:** distributed by Quirky Inc.

**MODEL NO.:** PLINK-HUB1

**TEST SAMPLE:** ENGINEERING SAMPLE

**APPLICANT:** Quirky, Inc.

**TESTED DATE:** May 23, 2014

**STANDARDS:** FCC Part 2 (Section 2.1091)

FCC OET Bulletin 65, Supplement C (01-01)

IEEE C95.1

The above equipment (Model: PLINK-HUB1) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**PREPARED BY :** Midoli Peng , **DATE:** July 01, 2014  
( Midoli Peng, Specialist )

**APPROVED BY :** May Chen , **DATE:** July 01, 2014  
( May Chen, Manager )



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## 2. RF EXPOSURE LIMIT

### 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)
LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE				
300-1500	...	...	F/1500	30
1500-100,000	...	...	1.0	30

F = Frequency in MHz

## 3. MPE CALCULATION FORMULA

$$Pd = (Pout \cdot G) / (4 \cdot \pi \cdot r^2)$$

where

Pd = power density in mW/cm<sup>2</sup>

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

## 4. CLASSIFICATION

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

## 5. ANTENNA GAIN

The antennas provided to the EUT, please refer to the following table:

Zigbee Antenna Spec.				
Brand	Antenna Type	Antenna Connector	Gain(dBi)	Frequency range (GHz)
WNC	PIFA	i-pex(MHF)	3.24	2.4~2.4835
WLAN Antenna Spec.				
Brand	Antenna Type	Antenna Connector	Gain(dBi)	Frequency range (GHz)
WNC	PIFA	i-pex(MHF)	2.85	2.4~2.4835



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## 6. CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

### For WLAN

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
2412-2462	271.644	2.85	20	0.10417	1.00

### For Zigbee

FREQUENCY BAND (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
2405 - 2480	8.75	3.24	20	0.00367	1.00

### CONCLUSION:

Both of the WLAN and Zigbee can transmit simultaneously, the formula of calculated the MPE is:

$$CPD_1 / LPD_1 + CPD_2 / LPD_2 + \dots \text{etc.} < 1$$

**CPD** = Calculation power density

**LPD** = Limit of power density

Therefore, the worst-case situation is  $0.10417 / 1 + 0.00367 / 1 = 0.108$ , which is less than "1". This confirmed that the device comply with FCC 1.1310 MPE limit.

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