

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.

ADDRESS: 606 W. 28th St. 7th Floor New York, NY 10001
United States

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

LAB ADDRESS: No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen,
Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan,
R.O.C.

This report should not be used by the client to claim
product certification, approval, or endorsement by any
government agencies.

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification

TABLE OF CONTENTS

RELEASE CONTROL RECORD	3
1. CERTIFICATION.....	4
2. RF EXPOSURE LIMIT.....	5
3. MPE CALCULATION FORMULA	5
4. CLASSIFICATION.....	5
5. ANTENNA GAIN.....	5
6. CALCULATION RESULT OF MAXIMUM CONDUCTED POWER.....	6



RELEASE CONTROL RECORD

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

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)

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 ²)	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

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

where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 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

6. CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

For WLAN

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
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 ²)	LIMIT (mW/cm ²)
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.

--- END ---