

RF EXPOSURE REPORT

REPORT NO.: SA140729C08A

MODEL NO.: DCH-G021

FCC ID: KA2CHG021A1

RECEIVED: Oct. 24, 2014

TESTED: Oct. 29 ~ Nov. 03, 2014

ISSUED: Nov. 04, 2014

APPLICANT: D-LINK CORPORATION

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ISSUED BY: Bureau Veritas Consumer Products Services
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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA140729C08A	Original release	Nov. 04, 2014

1. CERTIFICATION

PRODUCT: Wireless smart hub
MODEL: DCH-G021
BRAND: D-Link
APPLICANT: D-LINK CORPORATION
TESTED: Oct. 29 ~ Nov. 03, 2014
TEST SAMPLE: ENGINEERING SAMPLE
STANDARDS: **FCC Part 2 (Section 2.1091)**
KDB 447498 D03
IEEE C95.1

The above equipment (Model: DCH-G021) 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 : Polly Chien , **DATE:** Nov. 04, 2014
Polly Chien / Specialist

APPROVED BY : Ken Liu , **DATE:** Nov. 04, 2014
Ken Liu / Senior Manager

NOTE: This is a duplicate report of SA140729C08. The difference compared with the original report is adding one adapter. Due to no effect on any test item and we didn't re-test.

2. RF EXPOSURE

2.1 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

2.2 MPE CALCULATION FORMULA

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

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

2.3 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**.

2.4 CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

Mode	Frequency band (MHz)	Conducted power (mW)	Conducted power (dBm)	Antenna Gain (dBi)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WiFi 2.4G	2412~2462	274.157	24.38	2.10	0.088	1
BT EDR	2402~2480	9.016	9.55	2.10	0.003	1
Zigbee	2405 ~ 2480	79.433	19.00	1.72	0.023	1

**Zigbee can transmit simultaneously with WLAN or BT but not WLAN and BT. WLAN and BT cannot transmit at the same time.

CONCLUSION:

Zigbee can transmit simultaneously with WLAN or BT, the formula of the calculated MPE is:

$$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

Conducted power:

$$\text{WiFi 2.4G} + \text{Zigbee} = 274.157 + 79.433 = 353.59(\text{mW}) = 25.48(\text{dBm}) < 30(\text{dBm})$$

$$\text{BT EDR} + \text{Zigbee} = 9.016 + 79.433 = 88.449(\text{mW}) = 19.47(\text{dBm}) < 30(\text{dBm})$$

Power density:

$$\text{WiFi 2.4G} + \text{Zigbee} = 0.088 + 0.023 = 0.111$$

$$\text{BT EDR} + \text{Zigbee} = 0.003 + 0.023 = 0.026$$

Therefore the maximum calculations of the above situations are less than the "1" limit.

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