

RF Exposure Report

Report No.: SA190220D10

FCC ID: RK9-CGA0112

Test Model: CGA0112

Received Date: Feb. 20, 2019

Test Date: Mar. 11 to 26, 2019

Issued Date: Apr. 1, 2019

Applicant: CastleNet Technology Inc.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

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**FCC Registration /
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Release Control Record

Issue No.	Description	Date Issued
SA190220D10	Original release.	Apr. 1, 2019

1 Certificate of Conformity

Product: DOCSIS3.0 Wireless Cable modem Router

Brand: Technicolor

Test Model: CGA0112

Sample Status: Engineering sample

Applicant: CastleNet Technology Inc.

Test Date: Mar. 11 to 26, 2019

Standards: FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

The above equipment 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 RF characteristics under the conditions specified in this report.

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Date: Apr. 1, 2019

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Approved by :

Rex Lai

Date: Apr. 1, 2019

Rex Lai / Associate Technical Manager

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				
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	...	...	f/1500	30
1500-100,000	...	...	1.0	30

f = Frequency in MHz ; *Plane-wave equivalent power density

2.2 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

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

Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2412-2462	24.48	5.8	20	0.2122	1
5180-5240	20.96	6.47	20	0.1101	1
5745-5825	21.26	5.8	20	0.1011	1

NOTE:

2.4GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 5.8\text{dBi}$

5.0GHz (5180-5240MHz): Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 6.47\text{dBi}$

5.0GHz (5745-5825MHz): Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 5.8\text{dBi}$

Conclusion:

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz + WLAN 5GHz = $0.2122 + 0.1101 = 0.3223$

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

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