FCC RF Exposure Result

Applicant	:	CastleNet Technology Inc.
Address	:	No.64, Chung-Shan Rd. Tu-Cheng District, New Taipei City, Taiwan
Equipment	:	WIFI cable modem router
Model No.	:	CBWH1000D3, CBW383G1IND, CBW383GU1IND
Trade Name	:	CASTLENET, CASTLENET
FCC ID	:	RK9-CBW383G1IND

I HEREBY CERTIFY THAT :

The sample was received on Nov. 02, 2016 and the testing was carried out on Nov. 08, 2016 at Cerpass Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of Cerpass Technology Corp., the test report shall not be reproduced except in full.

Approved by:

Ray Chou
Assistant Manager

Tested by:

Spree Yei
Engineer

Laboratory Accreditation:

☒ Cerpass Technology Corporation Test Laboratory

☐ Cerpass Technology(SuZhou) Co., Ltd.

Radio Frequency Exposure

Applicable Standards

The measurements shown in this test report were made in accordance with the procedures given in FCC Part 2 (Section 2.1091)

KDB 447498

EUT Specification

EUT	In Wall AP
Frequency band (Operating)	☒ WLAN: 2.412GHz ~ 2.462GHz ☐ WLAN: 5.150GHz ~ 5.250GHz ☐ WLAN: 5.725GHz ~ 5.850GHz ☐ Bluetooth: 2.402GHz ~ 2.480 GHz
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation)
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm^2) ☒ General Population/Uncontrolled exposure (S=1mW/cm^2)
Antenna diversity	☐ Single antenna ☒ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☒ Tx/Rx diversity
Max. output power	802.11b: 18.16dBm(65.46mW) 802.11g: 24.52dBm(283.14mW) 802.11n HT20: 24.39dBm(543.32mW) 802.11n HT40: 19.85dBm(188.02mW)
Antenna gain (Max)	Antenna A: 2.88dBi Antenna B: 3.26dBi
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ N/A
Remark:	

1. The maximum output power is 24.52dBm (28.14mW) at 2437MHz (with numeric 2.88 antenna gain.)
2. DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance.
3. For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is 1.0 mW/cm^2 even if the calculation indicates that the power density would be larger.

TEST RESULTS

No non-compliance noted.

Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{3770}$

Where *E = Field strength in Volts / meter*
P = Power in Watts
G = Numeric antenna gain
d = Distance in meters
S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{3770 d^2}$$

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and
d (cm) = d(m) / 100

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$ ***Equation 1***

Where *d = Distance in cm*
P = Power in mW
G = Numeric antenna gain
S = Power density in mW / cm^2

Maximum Permissible Exposure

Modulation Mode	Frequency band (MHz)	Max. Conducted output power(dBm)	Antenna gain (dBi)	Distance (cm)	Power density (mW/cm2)	Limit (mW/cm2)
802.11b	2412-2462	18.16	2.88	20	0.0253	1
802.11g	2412-2462	24.52	2.88	20	0.1093	1
802.11n HT20	2412-2462	27.35	3.26	20	0.2290	1
802.11n HT40	2422-2452	22.74	3.26	20	0.0792	1

NOTE:

Total (Chain0+Chain1) , the formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density