



Test Report No:
23A0149R-RFUSV17S-A

RF EXPOSURE EVALUATION DECLARATION

Product Name	Mesh Wi-Fi Router
Brand Name	Castlenet
Model No.	EBM522CUP, EBM522C, EBM522, EBM522CP, EBM522CU
FCC ID	RK9-EBM522C
Applicant's Name / Address	CastleNet Technology Inc. No. 14, Ln. 141, Sec. 3, Beishen Rd., Shenkeng Dist., New Taipei City 22244, Taiwan (R.O.C.)
Manufacturer's Name / Address	CastleNet Technology Inc. No. 14, Ln. 141, Sec. 3, Beishen Rd., Shenkeng Dist., New Taipei City 22244, Taiwan (R.O.C.)
Test Method Requested, Standard	FCC CFR Title 47 Part 2.1091 Radiofrequency radiation exposure evaluation: mobile devices.
Verdict Summary	IN COMPLIANCE
Documented By	<i>Amelia Wu</i> Amelia Wu
Approved By	<i>Rueyyan Lin</i> Rueyyan Lin
Date of Receipt	Oct. 06, 2023
Date of Issue	Nov. 21, 2023
Report Version	V1.0

INDEX

page

Competences and Guarantees.....	3
General Conditions.....	3
Revision History.....	4
1. General Information.....	5
1.1. EUT Description.....	5
1.2. Testing Location Information.....	5
2. RF Exposure Evaluation.....	6
2.1. Test Limit.....	6
2.2. Test Result of RF Exposure Evaluation.....	8

Competences and Guarantees

DEKRA is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

IMPORTANT: No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of DEKRA.

General Conditions

1. The test results relate only to the samples tested.
2. The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.
3. This report must not be used to claim product endorsement by TAF or any agency of the government.
4. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.
5. Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Revision History

Version	Description	Issued Date
V1.0	Initial issue of report	Nov. 21, 2023

1. General Information

1.1. EUT Description

RF General Information			
Evaluation Mode	Frequency Range (MHz)	Operating Frequency (MHz)	Modulation Type
WiFi 2.4 GHz	2400 ~ 2483.5	2412 ~ 2462	802.11b: DSSS 802.11g/n/ac: OFDM 802.11ax: OFDMA
WiFi 5 GHz	5150 ~ 5250 5250 ~ 5350 5470 ~ 5725 5725 ~ 5850	5180 ~ 5240 5260 ~ 5320 5500 ~ 5720 5745 ~ 5825	802.11a/n/ac: OFDM 802.11ax: OFDMA

The difference for each model is shown as below:

Configuration	Model No.	USB port	Power button
1	EBM522C, EBM522	X	X
2	EBM522CP	X	V
3	EBM522CU	V	X
4	EBM522CUP	V	V

From the above models, model: EBM522CUP was selected as representative model for the test and its data was recorded in this report.

EBM522 and EBM522C are the same, just for marketing purpose.

Note: The above EUT information is declared by the manufacturer.

1.2. Testing Location Information

Testing Location Information	
Test Laboratory : DEKRA Testing and Certification Co., Ltd.	
1 (TAF: 3024)	ADD: No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C. TEL: +886-3-582-8001 FAX: +886-3-582-8958
2 (TAF: 3024)	ADD: No.372, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C. TEL: +886-3-582-8001 FAX: +886-3-582-8958
Test site number for address 1 includes HC-SR02. Test site number for address 2 includes HC-CB02, HC-CB03, HC-CB04, HC-SR10 and HC-SR12.	

2. RF Exposure Evaluation

2.1. Test Limit

(A) Test Limit for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	*(100)	<6
3.0-30	1842/f	4.89/f	*(900/f ²)	<6
30-300	61.4	0.163	1.0	<6
300-1500	-	-	f/300	<6
1500-100,000	-	-	5	<6

(B) Test Limit for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
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

Note: f = frequency in MHz; *Plane-wave equivalent power density

Power Density (S) is calculated by the following formula:

$$S = (P \cdot G) / 4\pi R^2$$

where:

S = power density (in appropriate units, e.g. mW/ cm²)

P = power input to the antenna (in appropriate units, e.g., mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

π = 3.1416

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

2.2. Test Result of RF Exposure Evaluation

Exposure Environment: General Population / Uncontrolled Exposure

Evaluation Mode	E.I.R.P (dBm)	E.I.R.P (mW)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Test Result (PASS/FAIL)
WiFi 2.4 GHz	27.471	558.599	0.111	1.000	PASS
WiFi 5 GHz Band 1	32.114	1627.047	0.324	1.000	PASS
WiFi 5 GHz Band 2	28.011	632.557	0.126	1.000	PASS
WiFi 5 GHz Band 3	28.264	670.502	0.133	1.000	PASS
WiFi 5 GHz Band 4	32.656	1843.317	0.367	1.000	PASS

Distance (cm): 20 for Maximum Permissible Exposure.

Note:

1. The above EUT information is declared by the manufacturer.
2. The results are evaluated using the maximum power.