

RF Exposure Report

Report No.: SABCYK-WTW-P21010405

FCC ID: TX2-RTL8822CE

Test Model: RTL8822CE

Received Date: Jan. 15, 2021

Date of Evaluation: Feb. 17, 2021

Issued Date: Feb. 20, 2021

Applicant: Realtek Semiconductor Corp.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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FCC Registration /
Designation Number: 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
SABCYK-WTW-P21010405	Original Release	Feb. 20, 2021

1 Certificate of Conformity

Product: 802.11a/b/g/n/ac RTL8822CE Combo module

Brand: Realtek

Test Model: RTL8822CE

Sample Status: Engineering Sample

Applicant: Realtek Semiconductor Corp.

Date of Evaluation: Feb. 17, 2021

Standards: FCC Part 2 (Section 2.1091)

References Test Guidance : KDB 447498 D01 General RF Exposure Guidance v06
IEEE C95.3 -2002

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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Approved by : Dylan Chiou, **Date:** Feb. 20, 2021
Dylan Chiou / Senior Project Engineer

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

Band	Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WLAN	2412-2462	28.98	5.25	20	0.527	1.00
	5180-5240	23.08	5	20	0.128	1.00
	5260-5320	23.09	5	20	0.128	1.00
	5500-5700	23.34	4.59	20	0.124	1.00
	5745-5825	24.88	4.8	20	0.185	1.00
BT LE	2402-2480	3.52	2.24	20	0.001	1.00
BT EDR	2402-2480	2.92	2.24	20	0.001	1.00

Note:

- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible
- 2.4GHz:** Directional gain = 2.24dBi + 10log(2) = 5.25dBi
5180-5240 MHz: Directional gain = 1.99dBi + 10log(2) = 5dBi
5260-5320 MHz: Directional gain = 1.99dBi + 10log(2) = 5dBi
5500-5700 MHz: Directional gain = 1.58dBi + 10log(2) = 4.59dBi
5745-5825 MHz: Directional gain = 1.79dBi + 10log(2) = 4.8dBi

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 + BT = $0.527 / 1 + 0.001 / 1 = 0.528$

WLAN 5GHz + BT = $0.185 / 1 + 0.001 / 1 = 0.186$

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

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