

# Maximum Permissible Exposure Evaluation

**FCC ID: 2ALN5-RL19002**

## 1. Client Information

<b>Applicant</b>	:	Siffron
<b>Address</b>	:	8181 Darrow Road Twinsburg, OH 44087 USA
<b>Manufacturer</b>	:	Shenzhen Allcomm Electronic Co. Ltd.
<b>Address</b>	:	Block A, 101A, 302, 401 of Block B, No. 272 Guangtian Road, Tangxiayong, Yanluo Street, Baoan District, Shenzhen City, Guangdong Province, China

## 2. General Description of EUT

<b>EUT Name</b>	:	Echo USB-Connect Box
<b>Models No.</b>	:	RL-19002-1
<b>Model Different</b>	:	----
<b>Product Description</b>	:	Operation Frequency: 802.11b/g/n(HT20): 2412MHz~2462MHz
	:	Number of Channel: 802.11b/g/n(HT20):11 channels
	:	RF Output Power: 802.11b: 10.96dBm (MAX)
	:	Antenna Gain: 0dBi PCB Antenna
<b>Power Rating</b>	:	USB Input: DC 5V1.0A Input: DC 4.5V by 3*1.5V AA Battery
<b>Software Version</b>	:	V1.0
<b>Hardware Version</b>	:	V1.0
<b>Connecting I/O Port(S)</b>	:	Please refer to the User's Manual
<b>Remark</b>	:	the evaluation report used the EUT (20210816-04-02).

**MPE Calculations for WIFI**

**1. Antenna Gain:**

PCB Antenna: 0dBi.

**2. EUT Operation Condition:**

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

**3. Exposure Evaluation:**

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S=(PG)/4\pi R^2$$

Where

**S:** power density

**P:** power input to the antenna

**G:** power gain of the antenna in the direction of interest relative to an isotropic radiator.

**R:** distance to the center of radiation of the antenna

**4. Test Result:**

**2.4G WiFi**

Mode	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/ cm <sup>2</sup> ) [S]	Limit of Power Density (mW/ cm <sup>2</sup> ) (S)
802.11B	10.96	10±1	11	0	20	0.00250	1
802.11G	8.94	8±1	9	0	20	0.00158	1
802.11N(HT20)	8.83	8±1	9	0	20	0.00158	1

**5. Conclusion:**

As specified in Table 1B of 47 CFR 1.1310- Limits for Maximum Permissible Exposure (MPE),

**Limits for General Population/ Uncontrolled Exposure**

Frequency Range (MHz)	Power density (mW/ cm <sup>2</sup> )
300-1,500	F/1500
1,500-100,000	1.0

For 2.4WIFI:2412~2462 MHz  
MPE limit S: 1mW/ cm<sup>2</sup>

The MPE is calculated as **0.00250 mW / cm<sup>2</sup> < limit 1mW / cm<sup>2</sup>**. So, RF exposure limit warning or SAR test are not required.

The EUT will only be used with a separation of 20cm or greater between the antenna and nearby persons and can therefore be considered a mobile transmitter per 47 CFR2.1091 (b).

The RF Exposure Information page from the manual is included here for reference.

**Note**

For a more detailed features description, please refer to the RF Test Report.

**6. Conclusion:**

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

-----END OF REPORT-----