



# RF EXPOSURE EVALUATION REPORT

**APPLICANT** : Anker Innovations Limited  
**PRODUCT NAME** : Video Doorbell 2K (Wired)  
**MODEL NAME** : T8200  
**BRAND NAME** : eufy Security  
**FCC ID** : 2AOKB-T8200  
**STANDARD(S)** : 47CFR 2.1091  
: KDB 447498  
**RECEIPT DATE** : 2019-03-14  
**TEST DATE** : 2019-04-01  
**ISSUE DATE** : 2019-05-09

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# DIRECTORY

<b>1. Technical Information.....</b>	<b>4</b>
<b>1.1 Applicant and Manufacturer Information.....</b>	<b>4</b>
<b>1.2 Equipment under Test (EUT) Description.....</b>	<b>4</b>
<b>1.3 Identification of all used EUT.....</b>	<b>5</b>
<b>1.4 Applied Reference Documents.....</b>	<b>5</b>
<b>2. Device Category and RF Exposure Limit.....</b>	<b>6</b>
<b>3. RF Output Power.....</b>	<b>7</b>
<b>4. RF Exposure Evaluation.....</b>	<b>9</b>
<b>Annex A General Information.....</b>	<b>10</b>
<b>Annex B Photographs of the EUT.....</b>	<b>11</b>



<b>Change history</b>		
<b>Version</b>	<b>Date</b>	<b>Reason of changed</b>
1.0	2019-05-09	First edition



# 1. Technical Information

**Note:** Provide by manufacturer.

## 1.1 Applicant and Manufacturer Information

<b>Applicant:</b>	Anker Innovations Limited
<b>Applicant Address:</b>	Room 1318-19,Hollywood Plaza,610 Nathan Road, Mongkok, Kowloon, Hong Kong
<b>Manufacturer:</b>	Anker Innovations Limited
<b>Manufacturer Address:</b>	Room 1318-19,Hollywood Plaza,610 Nathan Road, Mongkok, Kowloon, Hong Kong

## 1.2 Equipment under Test (EUT) Description

<b>EUT Type:</b>	Video Doorbell 2K (Wired)
<b>Hardware Version:</b>	V03
<b>Software Version:</b>	V12
<b>Frequency Bands:</b>	WLAN 2.4GHz: 2412MHz ~2462MHz Bluetooth: 2402MHz ~2480MHz
<b>Modulation Mode:</b>	802.11b: DSSS 802.11g/n-HT20: OFDM BLE: GFSK
<b>Antenna Type:</b>	LDS Antenna
<b>Antenna Gain:</b>	0dBi

**Note :**For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.



### 1.3 Identification of all used EUT

The EUT identity consists of numerical and letter characters, the letter character indicates the test sample, and the following two numerical characters indicate the software version of the test sample.

EUT Identity	Hardware Version	Software Version
1#	V03	V12

### 1.4 Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	47 CFR§2.1091	Radio Frequency Radiation Exposure Evaluation: mobile devices
2	KDB 447498 D01v06	General RF Exposure Guidance



## 2. Device Category and RF Exposure Limit

Per user manual, Based on 47CFR 2.1091, this device belongs to mobile device category with General Population/Uncontrolled exposure.

### Mobile Devices:

47CFR 2.1091(b)

For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. In this context, the term "fixed location" means that the device is physically secured at one location and is not able to be easily moved to another location. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 centimeter separation requirement.

### GENERAL POPULATION / UNCONTROLLED EXPOSURE

The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity. Warning labels placed on low-power consumer devices such as cellular telephones are not considered sufficient to allow the device to be considered under the occupational/controlled category, and the general population/uncontrolled exposure limits apply to these devices.

**TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	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



### 3. RF Output Power

#### <2.4GHz WLAN >

2.4GHz WLAN ANT0	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-up Limit (dBm)
	802.11b 1Mbps	CH 1	2412	21.12	21.50
		CH 6	2437	21.24	21.50
		CH 11	2462	21.27	21.50
	802.11g 6Mbps	CH 1	2412	21.58	22.00
		CH 6	2437	21.62	22.00
		CH 11	2462	21.63	22.00
	802.11n-HT20 MCS0	CH 1	2412	21.64	22.00
		CH 6	2437	21.73	<b>22.00</b>
		CH 11	2462	21.71	22.00

2.4GHz WLAN ANT1	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-up Limit (dBm)
	802.11b 1Mbps	CH 1	2412	17.41	17.50
		CH 6	2437	17.46	17.50
		CH 11	2462	17.55	18.00
	802.11g 6Mbps	CH 1	2412	19.47	19.50
		CH 6	2437	18.30	18.50
		CH 11	2462	19.58	20.00
	802.11n-HT20 MCS0	CH 1	2412	19.37	19.00
		CH 6	2437	19.62	<b>20.00</b>
		CH 11	2462	19.58	20.00



<Bluetooth>

Mode	Channel	Frequency (MHz)	Peak power (dBm)
			GFSK
LE	CH 00	2402	-1.57
	CH 19	2440	-0.30
	CH 39	2480	<b>0.51</b>
Tune-up Limit (dBm)			1.00

**Note:** According to KDB 447498 Section 4.3, SAR test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.



## 4. RF Exposure Evaluation

### Standalone transmission evaluation:

Bands	Frequency (MHz)	Antenna Gain (dBi)	Maximum Tune-up Limit (dBm)	EIRP (mW)	Power density (mW/cm <sup>2</sup> )	Limit for MPE (mW/cm <sup>2</sup> )
2.4GHz WLAN ANT0	2437	0.0	22.00	158.49	0.032	1.0
2.4GHz WLAN ANT1	2437	0.0	20.00	100.00	0.020	1.0
Bluetooth	2480	0.0	1.00	1.26	0.001	1.0

### MPE transmit simultaneously evaluation:

Transmit Condition	Power density 1 (mW/cm <sup>2</sup> )	Limit 1 (mW/cm <sup>2</sup> )	Power density 2 (mW/cm <sup>2</sup> )	Limit 2 (mW/cm <sup>2</sup> )	Result (mW/cm <sup>2</sup> )	Limit for MPE (mW/cm <sup>2</sup> )
2.4GHz WLAN ANT0+ANT1	0.032	1	0.020	1	0.052	1.0

### Note:

- According to KDB 447498, SAR test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.
- MPE calculation method
 
$$\text{Power Density} = \text{EIRP}/4\pi R^2$$
 Where: EIRP = P+G  
 P = Output Power (dBm)  
 G = Antenna Gain (dBi)  
 R = Separation Distance (20cm)
- 2.4GHz WLAN and Bluetooth cannot transmit simultaneously.



## Annex A General Information

### 1. Identification of the Responsible Testing Laboratory

<b>Laboratory Name:</b>	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
<b>Laboratory Address:</b>	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
<b>Telephone:</b>	+86 755 36698555
<b>Facsimile:</b>	+86 755 36698525

### 2. Identification of the Responsible Testing Location

<b>Name:</b>	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
<b>Address:</b>	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

# Annex B Photographs of the EUT

EUT Front View



EUT Back View

