REPORT No. : SZ18110110S01

RF EXPOSURE

EVALUATION REPORT

APPLICANT	:	Anker Innovations Limited
PRODUCT NAME	:	Nebula Prizm II Pro
MODEL NAME	:	D2241
BRAND NAME	:	Nebula
FCC ID	:	2AOKB-D2241
STANDARD(S)	:	47CFR 2.1091 KDB 447498
RECEIPT DATE	:	2018-11-15
TEST DATE	:	2018-12-26
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Version	Date	Reason for changed
1.0	2018-12-26	Original

1. Technical Information

Note: Provide by manufacturer.

1.1 Applicant and Manufacturer Information

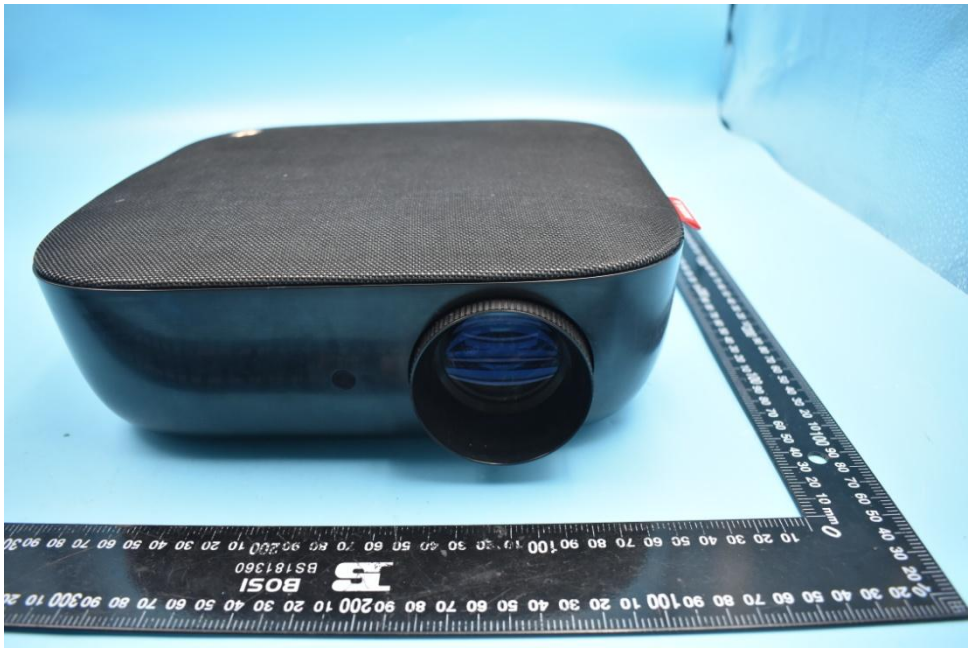
Applicant:	Anker Innovations Limited
Applicant Address:	Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok,Kowloon, Hong Kong
Manufacturer:	Anker Innovations Limited
Manufacturer Address:	Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok,Kowloon, Hong Kong

1.2 Equipment under Test (EUT) Description

EUT Type:	Nebula Prizm II Pro
Hardware Version:	A231C
Software Version:	1.23
Frequency Bands:	WLAN 2.4GHz: 2412 MHz~2462 MHz WLAN 5.2GHz: 5180 MHz~5240 MHz WLAN 5.8GHz: 5745 MHz~5825 MHz Bluetooth: 2402 MHz ~2480 MHz
Modulation Mode:	802.11 b: DSSS 802.11 a/g/n/ac: OFDM BR+EDR: GFSK, π /4-DQPSK, 8-DPSK BLE: GFSK
Antenna Type:	FPC Antenna
Antenna Gain:	2.4G: 2.84dBi; 5G: 3.04dBi;

1.3 Photographs of the EUT

1. **EUT Front View with camera**



2. **EUT Front without camera**

1.4 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#	A231C	1.23

1.5 Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	47 CFR§2.1091	Radiofrequency 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^2)	Averaging time (minutes)
(B) 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

3. Measurement of RF Output Power

<WLAN 2.4GHz>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	CH 1	2412	13.32	14.00	100.00
		CH 6	2437	13.40	14.00	
		CH 11	2462	**13.62**	**14.00**	
	802.11g 6Mbps	CH 1	2412	12.54	13.00	100.00
		CH 6	2437	12.60	13.00	
		CH 11	2462	12.88	13.00	
	802.11n-HT20 MCS0	CH 1	2412	12.20	13.00	100.00
		CH 6	2437	12.30	13.00	
		CH 11	2462	12.37	13.00	

<WLAN 5GHz>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	CH 36	5180	11.69	12.50	97.21
		CH 40	5200	11.95	12.50	
		CH 48	5240	12.02	12.50	
	802.11n-HT20 MCS0	CH 36	5180	11.82	12.50	97.03
		CH 40	5200	12.08	12.50	
		CH 48	5240	12.15	12.50	
	802.11n-HT40 MCS0	CH 38	5190	11.95	12.50	97.05
		CH 46	5230	11.89	12.50	
	802.11ac-VHT20 MCS0	CH 36	5180	11.92	12.50	93.62
		CH 40	5200	12.08	12.50	
		CH 48	5240	**12.16**	**12.50**	
	802.11ac-VHT40 MCS0	CH 38	5190	11.96	12.50	97.00
		CH 46	5230	11.85	12.50	
	802.11ac-VHT80 MCS0	CH 42	5210	11.53	12.50	88.22

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	CH 149	5745	12.83	13.50	97.21
		CH 157	5785	12.95	13.50	
		CH 165	5825	**13.49**	**13.50**	
	802.11n-HT20 MCS0	CH 149	5745	12.45	13.00	97.03
		CH 157	5785	12.66	13.00	
		CH 165	5825	13.18	13.50	
	802.11n-HT40 MCS0	CH 151	5755	12.58	13.00	97.05
		CH 159	5795	12.90	13.50	
	802.11ac-VHT20 MCS0	CH 149	5745	12.48	13.00	93.82
		CH 157	5785	12.78	13.00	
		CH 165	5825	13.14	13.50	
	802.11ac-VHT40 MCS0	CH 151	5755	12.50	13.00	97.00
		CH 159	5795	12.80	13.50	
	802.11ac-VHT80 MCS0	CH 155	5775	12.11	13.00	88.22

<Bluetooth>

Mode	Channel	Frequency (MHz)	Peak power (dBm)		
			1Mbps	2Mbps	3Mbps
BR / EDR	CH 00	2402	6.43	**7.65**	6.41
	CH 39	2441	6.35	7.36	6.29
	CH 78	2480	5.75	7.02	5.75
Tune-up Limit			6.5	8	7

Mode	Channel	Frequency (MHz)	Peak power (dBm)
			GFSK
LE	CH 00	2402	6.26
	CH 19	2440	6.98
	CH 39	2480	6.55
Tune-up Limit			7

4. RF Exposure Evaluation

Standalone transmission MPE evaluation

Bands	Frequency (MHz)	Maximum Tune-up Limit (dBm)	Antenna Gain (dBi)	EIRP (mW)	Power density (mW/cm²)	Limit for MPE (mW/cm²)
WLAN 2.4GHz	2462	14.0	2.84	48.31	0.01	1.0
WLAN 5.2GHz	5240	12.5	3.04	35.81	0.007	1.0
WLAN 5.8GHz	5825	13.5	3.04	45.08	0.009	1.0
Bluetooth	2402	8.0	2.84	12.13	0.002	1.0

Note:

1. 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.
2. Only the worst condition for WWAN & Bluetooth is calculated for transmit simultaneously in this report. Formula: Result=Power density 1/ limit 1 + power density 2/ limit 2. In this report, WLAN & Bluetooth share the same antenna, they cannot transmit simultaneously, therefore MPE of simultaneous transmission evaluation is not required.
3. MPE calculation method

$$\text{Power Density} = EIRP/4\pi R^2$$

Where: EIRP = P+G

P = Output Power (dBm)

G = Antenna Gain (dBi)

R = Separation Distance (20cm)

Annex A General Information

1. Identification of the Responsible Testing Laboratory

Company Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
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2. Identification of the Responsible Testing Location

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

END OF REPORT