RF Exposure Evaluation Report

APPLICANT	:	AltoBeam Inc.
EQUIPMENT	:	ATBM6132
BRAND NAME	:	ALTOBEAM
MODEL NAME	:	ATBM6132
FCC ID	:	2BAVSATBM6132
STANDARD	:	47 CFR Part 2.1091 FCC KDB 447498 D01 v06

The product evaluation date was started from Jun. 12, 2024 and completed on Jun. 12, 2024. We, Sporton International Inc. (Shenzhen), would like to declare that the device has been evaluated in accordance with 47 CFR Part 2.1091 and FCC KDB 447498 D01 v06, and pass the limit. Without written approval of Sporton International Inc. (Shenzhen), the test report shall not be reproduced except in full.

Si Zhang

Approved by: Si Zhang

Sporton International Inc. (Shenzhen)
1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055
People's Republic of China

Table of Contents

Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA431203	Rev. 01	Initial issue of report.	Jun. 14, 2024

1. Administration Data

1.1. Testing Laboratory

Sporton International Inc. (Shenzhen) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Testing Laboratory			
Test Firm	Sporton International Inc. (Shenzhen)		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	SAR01-SZ	CN1256	421272

Applicant	
Company Name	AltoBeam Inc.
Address	B808,Tsinghua Tongfang Hi-Tech Plaza,Haidian Beijing China

Manufacturer	
Company Name	AltoBeam Inc.
Address	B808,Tsinghua Tongfang Hi-Tech Plaza,Haidian Beijing China

2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	ATBM6132
Brand Name	ALTOBEAM
Model Name	ATBM6132
FCC ID	2BAVSATBM6132
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Mode	WLAN 2.4GHz 802.11b/g WLAN 2.4GHz 802.11n HT20/HT40 WLAN 5GHz 802.11a WLAN 5GHz 802.11n HT20/HT40 Bluetooth LE
Antenna Type	WLAN/Bluetooth: Rod Antenna
Antenna Gain	WLAN2.4GHz/Bluetooth: 2.52 dBi WLAN5.2GHz: 3.40 dBi WLAN5.3GHz: 2.88 dBi WLAN5.5GHz: 3.67 dBi WLAN5.8GHz: 2.88 dBi
HW Version	V1.2
SW Version	V2.10.120
EUT Stage	Production Unit

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

Comments and Explanations:
1. The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.
2. The maximum RF output tune up power, antenna gain also the safe distance used for evaluate RF exposure were declared by manufacturer.

3. Maximum RF average output tune up power among production units

<WLAN 2.4GHz>

Mode		Maximum Average Power (dBm)
2.4GHz	802.11b	14.0
	802.11g	21.0
	802.11n-HT20	21.0
	802.11n-HT40	14.0

<Bluetooth>

Mode	Maximum Average Power (dBm)
Bluetooth LE	9.0

<WLAN 5GHz>

Mode		Maximum Average Power (dBm)
5.2GHz	802.11a	21.0
	802.11n-HT20	21.0
	802.11n-HT40	20.0
5.3GHz	802.11a	21.0
	802.11n-HT20	21.0
	802.11n-HT40	20.0
5.5GHz	802.11a	21.0
	802.11n-HT20	21.0
	802.11n-HT40	20.0
5.8GHz	802.11a	21.0
	802.11n-HT20	21.0
	802.11n-HT40	20.0

4. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f2)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(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/f2)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

Where:
S = Power Density
P = Output Power at Antenna Terminals
G = Gain of Transmit Antenna (linear gain)
R = Distance from Transmitting Antenna

5. Radio Frequency Radiation Exposure Evaluation

5.1. Standalone Power Density Calculation

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Average EIRP (mW)	Power Density at 20cm (mW/cm^2)	Limit (mW/cm^2)
2.4GHz WLAN	2412.0	2.52	21.00	23.520	224.905	0.045	1.000
5.2GHz WLAN	5180.0	3.40	21.00	24.400	275.423	0.055	1.000
5.3GHz WLAN	5260.0	2.88	21.00	23.880	244.343	0.049	1.000
5.5GHz WLAN	5500.0	3.67	21.00	24.670	293.089	0.058	1.000
5.8GHz WLAN	5745.0	2.88	21.00	23.880	244.343	0.049	1.000
Bluetooth	2402.0	2.52	9.00	11.520	14.191	0.003	1.000

Note:

1. For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band.
2. Chose the maximum power to do MPE analysis.
3. According to the EUT characteristic, WLAN 2.4GHz and WLAN 5GHz can't transmit simultaneously.
4. According to the EUT characteristic, WLAN 2.4GHz/5GHz and Bluetooth can't transmit simultaneously.

Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.

------THE END------