

RF Exposure Report

Report No.: SABEAD-WTW-P21116029

FCC ID: M82-EKI6333AC2GA

Test Model: EKI-6333AC-2GD

Series Model: EKI-6333AC-2GDXXXXXX, EKI6333AC2GDXXXXXX (where "X" maybe any alphanumeric character, blank or "-") (refer to item 3.1 for more details)

Received Date: Dec. 10, 2021

Test Date: Dec. 10, 2021 ~ Mar. 15, 2022

Issued Date: May 17, 2022

Applicant: ADVANTECH CO., LTD

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lin Kou Laboratories

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Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City
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**FCC Registration /
Designation Number:** 788550 / TW0003



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Table of Contents

Release Control Record	3
1 Certificate of Conformity	4
2 RF Exposure	5
2.1 Limits for Maximum Permissible Exposure (MPE).....	5
2.2 MPE Calculation Formula	5
2.3 Classification	5
3 Calculation Result of Maximum Conducted Power	6

Release Control Record

Issue No.	Description	Date Issued
SABEAD-WTW-P21116029	Original release	May 17, 2022

1 Certificate of Conformity

Product: Ethernet Device

Brand: Advantech

Test Model: EKI-6333AC-2GD

Series Model: EKI-6333AC-2GDXXXXXX, EKI6333AC2GDXXXXXX (where "X" maybe any alphanumeric character, blank or "-")

Sample Status: Engineering sample

Applicant: ADVANTECH CO., LTD

Test Date: Dec. 10, 2021 ~ Mar. 15, 2022

Standards: FCC Part 2 (Section 2.1093)

References Test Guidance: KDB 447498 D01 General RF Exposure Guidance v06

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.

Prepared by : Pettie Chen , **Date:** May 17, 2022
Pettie Chen / Senior Specialist

Approved by : Jeremy Lin , **Date:** May 17, 2022
Jeremy Lin / 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

$$Pd = (Pout * G) / (4 * \pi * r^2)$$

where

Pd = power density in mW/cm²

Pout = output power to antenna in mW

G = gain of antenna in linear scale

pi = 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.

3 Calculation Result of Maximum Conducted Power

Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WLAN 2412~2462	25.81	8.04	20	0.483	1
WLAN 5180~5240	15.87	8.02	20	0.049	1
WLAN 5260~5320	23.62	8.02	20	0.290	1
WLAN 5500~5700	23.96	8.02	20	0.314	1
WLAN 5745~5825	25.58	8.02	20	0.456	1

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

WLAN 2.4GHz: Directional gain = 5.03dBi + 10log(2) = 8.04dBi

WLAN 5.0GHz: Directional gain = 5.01dBi + 10log(2) = 8.02dBi

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 Band + 5GHz Band = $0.483 / 1 + 0.456 / 1 = 0.939$

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

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