

RF Exposure Evaluation Report

Product Name : Wireless AP/ Bridge/ Client

Model No. : AWK-3121B

FCC ID : SLE-AWK-3121B

Applicant : Moxa Inc.

Address : No. 1111, Heping Rd., Bade Dist., Taoyuan City 334004, Taiwan

Date of Receipt : May 21, 2022

Date of Declaration : Aug. 17, 2022

Report No. : 2250634R-RFUSMPEV02-A

Report Version : V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF or any agency of the government.

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Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Issued Date: Aug. 17, 2022
 Report No.: 2250634R-RFUSMPEV02-A



Product Name	Wireless AP/ Bridge/ Client	
Applicant	Moxa Inc.	
Address	No. 1111, Heping Rd., Bade Dist., Taoyuan City 334004, Taiwan	
Manufacturer	Moxa Inc.	
Model No.	AWK-3121B	
FCC ID	SLE-AWK-3121B	
Trade Name	MOXA	
Applicable Standard	KDB 447498 D01 v06	<input checked="" type="checkbox"/> Minimum test separation distance \geq 20 cm <input type="checkbox"/> For low power devices
Test Result	Complied	

Documented By : Jinn Chen
 (Supervisor / Jinn Chen)

Tested By : Alan Chen
 (Senior Engineer / Alan Chen)

Approved By : Tim Sung
 (Manager / Tim Sung)

Revision History

Report No.	Version	Description	Issued Date
2250634R-RFUSMPEV02-A	V1.0	Initial issue of report.	Aug. 17, 2022

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Wireless AP/ Bridge/ Client
Trade Name	MOXA
Model No.	AWK-3121B
FCC ID	SLE-AWK-3121B
Frequency Range	802.11g: 2412-2462MHz
Channel Control	Auto
Antenna Type	Dipole Antenna, Panel Antenna
Antenna Gain	Refer to the table “Antenna List”

1.2. Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	MOXA	ANT-WDB-ANM-0306	Dipole Antenna	3.80dBi for 2.4 GHz
2	MOXA	ANT-WDB-ANM-0502	Dipole Antenna	4.62dBi for 2.4 GHz
3	MOXA	MAT-WDB-PA-NF-2-0708	Panel Antenna	7.63dBi for 2.4 GHz
4	MOXA	ANT-WDB-PNF-1011	Panel Antenna	11.0dBi for 2.4 GHz
5	MOXA	ANT-WDB-ONM-0707	Dipole Antenna	7.10dBi for 2.4 GHz
6	MOXA	ANT-WDB-ONF-0709	Dipole Antenna	7.40dBi for 2.4 GHz
7	MOXA	ANT-WSB-PNF-12-02	Panel Antenna	12.34dBi for 2.4 GHz

2. Test Facility

USA : FCC Registration Number: TW0033

Canada : CAB Identifier Number: TW3023 / Company Number: 26930

Site Description : Accredited by TAF
Accredited Number: 3023

Test Laboratory : DEKRA Testing and Certification Co., Ltd

Address : No. 5-22, Ruishukeng Linkou District, New Taipei City, 24451, Taiwan

Performed Location : No. 26, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan, R.O.C.

Phone number : +886-3-275-7255

Fax number : +886-3-327-8031

Email address : info.tw@dekra.com

Website : <http://www.dekra.com.tw>

3. RF Exposure Evaluation

3.1. Standard Applicable

According to KDB 447498 D01 (7.1), A minimum test separation distance ≥ 20 cm is required between the antenna and radiating structures of the device and nearby persons to apply mobile device exposure limits.

3.2. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)
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)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0

3.3. Test Result of RF Exposure Evaluation

Product : Wireless AP/ Bridge/ Client
 Test Item : RF Exposure Evaluation

WLAN 2.4GHz Peak Gain: 7.40dBi (Dipole Ant no.6)

Band	Frequency (MHz)	Conducted maximum Peak Power (dBm)	Antenna Gain (dBi)	Power Density at R = 23 cm (mW/cm2)	Limit (mW/cm2)
2.4GHz	2462	25.88	7.4	0.3201	1

Note: The conducted output power is refer to report No.: 2250634R-RFUSWL2V01-A from the DEKRA.

WLAN 2.4GHz Peak Gain: 12.34dBi (Panel Ant no.7)

Band	Frequency (MHz)	Conducted maximum Peak Power (dBm)	Antenna Gain (dBi)	Power Density at R = 23 cm (mW/cm2)	Limit (mW/cm2)
2.4GHz	2462	25.88	12.34	0.9985	1

Note: The conducted output power is refer to report No.: 2250634R-RFUSWL2V01-A from the DEKRA.