

RF Exposure Evaluation Report

Product Name : MOXA IEEE 802.11 a/b/g/n

Model No. : WAPN008

FCC ID : SLE-WAPN008

Applicant : Moxa Inc.

Address : FL.4, NO. 135. LANE 235, BAOQIAO RD.

XINDIAN DIST.,NEW TAIPEI CITY, TAIWAN

Date of Receipt : Apr. 16, 2019

Date of Declaration : June 03, 2019

Report No. : 1940228R-SAUSP03V00

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.

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Issued Date: June 03, 2019

Report No.: 1940228R-SAUSP03V00



Product Name	MOXA IEEE 802.11 a/b/g/n
Applicant	Moxa Inc.
Address	FL.4, NO. 135. LANE 235, BAOQIAO RD. XINDIAN DIST.,NEW TAIPEI CITY, TAIWAN
Manufacturer	Moxa Inc.
Model No.	WAPN008
FCC ID.	SLE-WAPN008
Trade Name	MOXA
Applicable Standard	FCC 47 CFR 1.1310
Test Result	Complied

Documented By : 
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Tested By : 
(Engineer / Wen Lee)

Approved By : 
(Director / Vincent Lin)

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	MOXA IEEE 802.11 a/b/g/n
Trade Name	MOXA
Model No.	WAPN008
FCC ID.	SLE-WAPN008
Frequency Range	802.11b/g/n-20MHz:2412-2462MHz, 802.11n-40MHz:2422-2452MHz 802.11a/n-20MHz: 5180-5240MHz, 5745-5825MHz 802.11n-40MHz: 5190-5230, 5755-5795MHz
Number of Channels	802.11b/g/n-20MHz: 11, n-40MHz: 7 802.11a/n-20MHz: 9; 802.11n-40MHz: 4
Data Speed	802.11b: 1-11Mbps, 802.11g: 6-54Mbps, 802.11n: up to 300Mbps 802.11a: 6 - 54Mbps, 802.11n: up to 300Mbps
Channel separation	802.11b/g/n-20/n-40MHz: 5 MHz 802.11a/n-20: 20MHz; 802.11n-40: 40MHz
Type of Modulation	802.11b:DSSS, DBPSK, DQPSK, CCK 802.11a/g/n: OFDM, BPSK, QPSK, 16QAM, 64QAM
Antenna Type	Patch Antenna
Antenna Gain	Refer to the table "Antenna List"

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain	Peak gain with cable loss
1	ANTONICS	100-57-61-02.4	Patch Antenna	8.4dBi For 2.4GHz	3.85 dBi For 2.4GHz
				9.1dBi For 5GHz	0.7 dBi For 5GHz

2. RF Exposure Evaluation

2.1. 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: $P_d = (P_{out} * G) / (4 * \pi * r^2)$

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

2.2. Test Result of RF Exposure Evaluation

Product : MOXA IEEE 802.11 a/b/g/n
 Test Item : RF Exposure Evaluation

WLAN 2.4G Antenna Gain: 4.55 dBi (Antenna Gain=Peak Gain- Cable loss)

Band	Frequency	Conducted Peak Power (dBm)	Worst Case Duty Cycle (%)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm ²)	Pass/Fail
802.11n20	2437	29.85	94.12	1026.4	0.58	1	Pass

Note: The conducted output power is refer to report No.: 1940228R-RFUSP26V00 from the DEKRA.

WLAN 5G Antenna Gain: 8.4 dBi (Antenna Gain=Peak Gain- Cable loss)

Band	Frequency	Conducted Peak Power (dBm)	Worst Case Duty Cycle (%)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm ²)	Pass/Fail
802.11n40	5230	23.47	94.48	235.3	0.32	1	Pass

Note: The conducted output power is refer to report No.: 1940228R-RFUSP48V00 from the DEKRA.