RF Exposure Evaluation declaration

Product Name : Industrial 802.11a/b/g/n Serial/Ethernet to Wireless Client

Model No. : AWK-1137C-XXXXX (x=0-9,A-Z, blank or dash for marketing purpose and no impact safety related critical components and constructions)

FCC ID : SLE-1137C

Applicant : MOXA Inc.

Address : FL.4, NO. 135. LANE 235, BAOQIAO RD. XINDIAN DIST.,NEW TAIPEI CITY, TAIWAN

Date of Receipt : Mar. 03, 2017

Date of Declaration : May 31, 2017

Report No. : 1730078R-RFUSP48V00

Issued Date: May 31, 2017
Report No.: 1730078R-RFUSP48V00

Product Name	Industrial 802.11a/b/g/n Serial/Ethernet to Wireless Client
Applicant	MOXA Inc.
Address	FL.4, NO. 135. LANE 235, BAOQIAO RD. XINDIAN DIST.,NEW TAIPEI CITY, TAIWAN
Manufacturer	MOXA Inc.
Model No.	AWK-1137C-XXXXX (x=0-9,A-Z, blank or dash for marketing purpose and no impact safety related critical components and constructions)
FCC ID.	SLE-1137C
EUT Rated Voltage	DC 24~110V
EUT Test Voltage	DC 24V
Trade Name	MOXA
Applicable Standard	FCC 47 CFR 1.1310
Test Result	Complied

Documented By : Joanne Lin

(Senior Adm. Specialist / Joanne Lin)

Tested By : Paul Jiang

(Engineer / Paul Jiang)

Approved By :

(Director / Vincent Lin)

1. RF Exposure Evaluation

1.1. 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: $Pd = (Pout*G)/(4*pi*r^2)$

Where

Pd = power density in mW/cm^2

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

Pd id the limit of MPE, 1 mW/cm^2. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18℃and 78％ RH.

1.3. Test Result of RF Exposure Evaluation

Product : Industrial 802.11a/b/g/n Serial/Ethernet to Wireless Client
Test Item : RF Exposure Evaluation
Test Site : No.3 OATS

Operation Frequency	2412-2462MHz, 2422-2452MHz
Maximum Conducted output power	26.89dBm
Antenna gain	1.8dBi

2.4G Output Power Into Antenna & RF Exposure Evaluation Distance:

Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm2)
488.6523593	0.1471

Power density is lower than the limit (1 mW/cm2).

Operation Frequency	5180-5240MHz, 5260-5320MHz, 5500-5700MHz, 5745-5825MHz, 5190-5230MHz, 5270-5310MHz, 5510-5670MHz, 5755-5795MHz
Maximum Conducted output power	23.68dBm
Antenna gain	1.8dBi

5G Output Power Into Antenna & RF Exposure Evaluation Distance:

Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm2)
233.3458062	0.0703

Power density is lower than the limit (1 mW/cm2).