

RF Exposure Evaluation declaration

Product Name : Nport Device Server
Model No. : NPort W2250A, NPort W2150A,
NPort W2250A-T, NPort W2150A-T
FCC ID : SLE-W2X50A

Applicant : Moxa Inc.

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Taipei, Taiwan, R.O.C.

Date of Receipt : Apr. 13, 2012

Date of Declaration : Apr. 24, 2012

Report No. : 124312R-RFUSP42V01

The declaration results relate only to the samples calculated.

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

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

P_d is the limit of MPE, 1 mW/cm². 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°C and 78% RH.

1.3. Test Result of RF Exposure Evaluation

Product : Nport Device Server
 Test Item : RF Exposure Evaluation
 Test Site : No.3 OATS

(802.11b) Output Power Into Antenna & RF Exposure Evaluation Distance (1.21dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
01	2412.00	53.5797	0.014084
06	2437.00	55.7186	0.014646
11	2462.00	49.5450	0.013024

Power density in column 4 is much lower than the limit (1 mW/cm²).

(802.11g) Output Power Into Antenna & RF Exposure Evaluation Distance (1.21dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
01	2412.00	91.6220	0.024084
06	2437.00	158.1248	0.041565
11	2462.00	84.1395	0.022117

Power density in column 4 is much lower than the limit (1 mW/cm²).

(802.11a) Output Power Into Antenna & RF Exposure Evaluation Distance (1.73dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
36	5180.00	28.4446	0.008428
44	5220.00	29.2415	0.008664
48	5240.00	31.4775	0.009327
52	5260.00	31.2608	0.009263
60	5300.00	26.6073	0.007884
64	5320.00	27.2270	0.008067
100	5500.00	21.7771	0.006453
120	5600.00	20.5116	0.006078
140	5700.00	19.8153	0.005871

Power density in column 4 is much lower than the limit (1 mW/cm²).

(802.11a) Output Power Into Antenna & RF Exposure Evaluation Distance (1.73dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
149	5745.00	94.4061	0.027972
157	5785.00	92.2571	0.027336
165	5805.00	86.4968	0.025629

Power density in column 4 is much lower than the limit (1 mW/cm²).