

RF Exposure Evaluation declaration

Product Name : ROS Home Center

Model No. : 005-02004

FCC ID : BJM-ROS2000A

Applicant : TATUNG CO.

Address : 22, Chungshan N. Rd., 3rd Sec. Taipei, Taiwan, 104, R.O.C.

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Report No. : 104111R-RFUSP29V01

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 : ROS Home Center
Test Item : RF Exposure Evaluation
Test Site : No.3 OATS

802.11b (2412~2462MHz)

Output Power Into Antenna & RF Exposure Evaluation Distance (6.01dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
1	2412.00	79.9834	0.063494
6	2437.00	78.5236	0.062335
11	2462.00	72.6106	0.057641

802.11g (2412~2462MHz)

Output Power Into Antenna & RF Exposure Evaluation Distance (6.01dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
1	2412.00	300.6076	0.238633
6	2437.00	283.7919	0.225284
11	2462.00	303.3891	0.240841

802.11a (5180~5240MHz)

Output Power Into Antenna & RF Exposure Evaluation Distance (4.68dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
36	5180.00	37.5837	0.021965
44	5220.00	39.1742	0.022894
48	5240.00	37.5837	0.021965

802.11a (5745~5825MHz)

Output Power Into Antenna & RF Exposure Evaluation Distance (5.64dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
149	5745.00	240.4363	0.175279
157	5785.00	243.2204	0.177309
165	5825.00	243.7811	0.177718

802.11n – 20BW (5180~5240MHz) -Antenna A+B
Output Power Into Antenna & RF Exposure Evaluation Distance (4.68dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
36	5180.00	37.5837	0.021965
44	5220.00	38.9045	0.022737
48	5240.00	38.4592	0.022477

802.11n – 40BW (5190~5230MHz) -Antenna A+B
Output Power Into Antenna & RF Exposure Evaluation Distance (4.68dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
38	5190.00	38.9045	0.022737
46	5230.00	39.3550	0.023000

802.11n - 20BW (2412~2462MHz) - Antenna A+B
Output Power Into Antenna & RF Exposure Evaluation Distance (6.01dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
1	2412.00	426.5795	0.338634
6	2437.00	427.5629	0.339415
11	2462.00	432.5138	0.343345

802.11n - 40BW (2422~2452MHz) - Antenna A+B
Output Power Into Antenna & RF Exposure Evaluation Distance (6.01dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
1	2422.00	416.8694	0.330926
4	2437.00	399.9447	0.317490
7	2452.00	402.7170	0.319691

802.11n - 20BW (5745~5825MHz) - Antenna A+B
Output Power Into Antenna & RF Exposure Evaluation Distance (5.64dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
149	5745.00	453.9416	0.330926
157	5785.00	413.9997	0.301808
165	5825.00	436.5158	0.318222

802.11n - 40BW (5755~5795MHz) - Antenna A+B**Output Power Into Antenna & RF Exposure Evaluation Distance (5.64dBi):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
151	5755.00	426.5795	0.310979
159	5795.00	421.6965	0.307419

The distance r (4th column) calculated from the Fries transmission formula is far shorter than 20 cm separation requirement.