

## RF Exposure Evaluation declaration

Product Name : ROS Video DMA

Model No. : 005-01004

FCC ID : BJM-ROS1000A

Applicant : TATUNG CO.

Address : 22, Chungshan N. Rd., 3rd Sec. Taipei, Taiwan, 10451, R.O.C.

Date of Receipt : Apr. 01, 2010

Date of Declaration : May. 13, 2010

Report No. : 104110R-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 <sup>2</sup> )	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/cm<sup>2</sup>

$P_{out}$  = 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

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. 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 Video DMA  
Test Item : RF Exposure Evaluation  
Test Site : No.3 OATS

#### 802.11b (1Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (4.69dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
1	2412.00	77.2681	0.045262
6	2437.00	81.6582	0.047833
11	2462.00	77.9830	0.045680

The RF exposure at 20 cm is below limit.

#### 802.11g (6Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (4.69dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
1	2412.00	300.6076	0.176088
6	2437.00	291.7427	0.170895
11	2462.00	314.7748	0.184387

The RF exposure at 20 cm is below limit.

#### 802.11a (6Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (2.97dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
149	5745.00	231.7395	0.091355
157	5785.00	232.8091	0.091776
165	5825.00	230.6747	0.090935

The RF exposure at 20 cm is below limit.

### 802.11n-20MHz\_13Mbps - 2.4G Band

#### Output Power Into Antenna & RF Exposure Evaluation Distance (4.69dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
01	2412.00	345.1437	0.202176
06	2437.00	353.9973	0.207363
11	2462.00	355.6313	0.208320

The RF exposure at 20 cm is below limit.

### 802.11n-40MHz\_27Mbps - 2.4G Band

#### Output Power Into Antenna & RF Exposure Evaluation Distance (4.69dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
01	2422.00	387.2576	0.226846
04	2437.00	391.7419	0.229472
07	2452.00	394.4573	0.231063

The RF exposure at 20 cm is below limit.

### 802.11n-20MHz\_13Mbps - 5G Band

#### Output Power Into Antenna & RF Exposure Evaluation Distance (2.97dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
149	5745.00	345.1437	0.136060
157	5785.00	341.1929	0.134503
165	5825.00	341.9794	0.134813

The RF exposure at 20 cm is below limit.

### 802.11n-40MHz\_27Mbps - 5G Band

#### Output Power Into Antenna & RF Exposure Evaluation Distance (2.97dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
151	5755.00	353.9973	0.139550
159	5795.00	355.6313	0.140194

The RF exposure at 20 cm is below limit.

**802.11a (6Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (4.87dBi):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
36	5180.00	36.9828	0.022580
44	5220.00	38.1944	0.023320
48	5240.00	38.4592	0.023482

The RF exposure at 20 cm is below limit.

**802.11a (6Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (4.87dBi):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
52	5260.00	38.1944	0.023320
60	5300.00	38.6367	0.023590
64	5320.00	38.2825	0.023374

The RF exposure at 20 cm is below limit.

**802.11a (6Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (4.87dBi):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
100	5500.00	39.1742	0.023918
120	5600.00	39.2645	0.023973
140	5700.00	38.8150	0.023699

The RF exposure at 20 cm is below limit.

**802.11n-20MHz\_13Mbps**
**Output Power Into Antenna & RF Exposure Evaluation Distance (4.87dBi):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
36	5180.00	38.6367	0.023590
44	5220.00	38.2825	0.023374
48	5240.00	37.9315	0.023160

The RF exposure at 20 cm is below limit.

### 802.11n-20MHz\_13Mbps

#### Output Power Into Antenna & RF Exposure Evaluation Distance (4.87dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
52	5260.00	38.1066	0.023266
60	5300.00	38.1066	0.023266
64	5320.00	39.0841	0.023863

The RF exposure at 20 cm is below limit.

### 802.11n-20MHz\_13Mbps

#### Output Power Into Antenna & RF Exposure Evaluation Distance (4.87dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
100	5500.00	39.3550	0.024029
120	5600.00	39.4457	0.024084
140	5700.00	38.1066	0.023266

The RF exposure at 20 cm is below limit.

### 802.11n-40MHz\_27Mbps

#### Output Power Into Antenna & RF Exposure Evaluation Distance (4.87dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
38	5190.00	38.8150	0.023699
46	5230.00	38.2825	0.023374

The RF exposure at 20 cm is below limit.

### 802.11n-40MHz\_27Mbps

#### Output Power Into Antenna & RF Exposure Evaluation Distance (4.87dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
54	5270.00	38.1944	0.023320
62	5310.00	38.1944	0.023320

The RF exposure at 20 cm is below limit.

**802.11n-40MHz\_27Mbps****Output Power Into Antenna & RF Exposure Evaluation Distance (4.87dBi):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
102	5510.00	39.6278	0.024195
118	5590.00	39.5367	0.024140
134	5670.00	39.1742	0.023918

The RF exposure at 20 cm is below limit.