

# RF Exposure Evaluation declaration

Product Name	Intel® Centrino® Advanced-N 6205
Model No.	62205ANHMW
FCC ID	PD962205ANH

Applicant	Intel Corporation
Address	100 Center Point Circle Suite 200 Columbia, SC 29210

Date of Receipt	Sep. 28, 2011
Date of Declaration	Sep. 30, 2011
Report No.	11A037R-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  $\text{mW/cm}^2$

$P_{out}$  = 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,  $1 \text{ mW/cm}^2$ . 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:  $18^\circ\text{C}$  and 78% RH.

### 1.3. Test Result of RF Exposure Evaluation

Product : Intel® Centrino® Advanced-N 6205  
 Test Item : RF Exposure Evaluation  
 Test Site : No.3 OATS

#### 802.11b (1Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (2.88dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
1	2412.00	45.4988	0.017568
6	2437.00	52.8445	0.020405
11	2462.00	44.4631	0.017168

The RF exposure at 20 cm is below limit.

#### 802.11g (6Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (2.88dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
1	2412.00	83.3681	0.032191
6	2437.00	107.3989	0.041470
11	2462.00	83.5603	0.032265

The RF exposure at 20 cm is below limit.

#### 802.11a (6Mbps) 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 <sup>2</sup> )
149	5745.00	37.3250	0.021814
157	5785.00	30.7610	0.017978
165	5825.00	31.0456	0.018144

The RF exposure at 20 cm is below limit.

**802.11n-20MHz\_14.4Mbps - 2.4G Band**
**Output Power Into Antenna & RF Exposure Evaluation Distance (2.88 dBi):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
1	2412.00	21.6272	0.008351
6	2437.00	35.8922	0.013859
11	2462.00	22.7510	0.008785

The RF exposure at 20 cm is below limit.

**802.11n-40MHz\_30Mbps - 2.4G Band**
**Output Power Into Antenna & RF Exposure Evaluation Distance (2.88 dBi):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
03	2422.00	8.6696	0.003348
06	2437.00	34.5939	0.013358
09	2452.00	12.5314	0.004839

The RF exposure at 20 cm is below limit.

**802.11n-20MHz\_14.4Mbps - 5G Band**
**Output Power Into Antenna & RF Exposure Evaluation Distance (4.68 dBi):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
149	5745.00	35.2371	0.020594
157	5785.00	35.6451	0.020832
165	5825.00	32.9610	0.019263

The RF exposure at 20 cm is below limit.

**802.11n-40MHz\_30Mbps - 5G Band**
**Output Power Into Antenna & RF Exposure Evaluation Distance (4.2 dBi):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
151	5755.00	133.6596	0.069941
159	5795.00	125.6030	0.065725

The RF exposure at 20 cm is below limit.

**802.11a (6Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (4.17 dBi):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
36	5180.00	27.1644	0.014117
44	5220.00	27.7332	0.014412
48	5240.00	28.0543	0.014579

The RF exposure at 20 cm is below limit.

**802.11a (6Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (4.17dBi):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
52	5260.00	26.3633	0.013700
60	5300.00	27.8612	0.014479
64	5320.00	26.4850	0.013764

The RF exposure at 20 cm is below limit.

**802.11a (6Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (4.9 dBi):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
100	5500.00	29.3089	0.018019
120	5600.00	30.3389	0.018652
140	5700.00	33.9625	0.020880

The RF exposure at 20 cm is below limit.

**802.11n-20MHz\_14.4Mbps**
**Output Power Into Antenna & RF Exposure Evaluation Distance (4.17 dBi):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
36	5180.00	22.9087	0.011905
44	5220.00	25.4683	0.013235
48	5240.00	24.4343	0.012698

The RF exposure at 20 cm is below limit.

### 802.11n-20MHz\_14.4Mbps

#### Output Power Into Antenna & RF Exposure Evaluation Distance (4.17 dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
52	5260.00	23.8232	0.012380
60	5300.00	24.2103	0.012581
64	5320.00	22.0800	0.011474

The RF exposure at 20 cm is below limit.

### 802.11n-20MHz\_14.4Mbps

#### 802.11a (6Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (4.9 dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
100	5500.00	26.2422	0.016134
120	5600.00	31.6957	0.019486
140	5700.00	31.6957	0.019486

The RF exposure at 20 cm is below limit.

### 802.11n-40MHz\_30Mbps

#### Output Power Into Antenna & RF Exposure Evaluation Distance (4.17 dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
38	5190.00	13.9316	0.007240
46	5230.00	26.2422	0.013637

The RF exposure at 20 cm is below limit.

### 802.11n-40MHz\_30Mbps

#### Output Power Into Antenna & RF Exposure Evaluation Distance (4.17 dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
54	5270.00	25.7040	0.013358
62	5310.00	11.8304	0.006148

The RF exposure at 20 cm is below limit.

**802.11n-40MHz\_30Mbps****802.11a (6Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (4.9 dBi):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
102	5510.00	23.0675	0.014182
118	5590.00	26.7917	0.016471
134	5670.00	28.5759	0.017568

The RF exposure at 20 cm is below limit.