

RF Exposure Evaluation declaration

Product Name	Push2TV
Model No.	PTV2000
FCC ID	PY310400146

Applicant	NETGEAR, Inc.
Address	350 East Plumeria Drive, San Jose, CA 95134, USA

Date of Receipt	Oct. 20, 2010
Date of Declaration	Nov. 25, 2010
Report No.	10A309R-RFUS46V01

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 : Push2TV
 Test Item : RF Exposure Evaluation
 Test Site : No.3 OATS

External Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 5.72 dBi in logarithm scale.

802.11b

Output Power Into Antenna & RF Exposure Evaluation Distance (5.72 dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
1	2412.00	96.3829	0.071570
6	2437.00	81.0961	0.060219
11	2462.00	68.3912	0.050784

802.11g

Output Power Into Antenna & RF Exposure Evaluation Distance (5.72 dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
1	2412.00	178.6488	0.132657
6	2437.00	165.9587	0.123234
11	2462.00	139.6368	0.103688

802.11n-20MHz

Output Power Into Antenna & RF Exposure Evaluation Distance (5.72 dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
1	2412.00	255.8586	0.189990
6	2437.00	269.1535	0.199862
11	2462.00	248.3133	0.184387

802.11n-40MHz

Output Power Into Antenna & RF Exposure Evaluation Distance (5.72 dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
1	2422.00	271.6439	0.201711
4	2437.00	270.3958	0.200785
7	2452.00	200.9093	0.149187

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

802.11a
Output Power Into Antenna & RF Exposure Evaluation Distance (6.41 dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
149	5745.00	213.7962	0.186093
157	5785.00	92.8966	0.080859
165	2462.00	96.6051	0.084087

802.11a-20MHz
Output Power Into Antenna & RF Exposure Evaluation Distance (6.41 dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
149	5745.00	135.8313	0.118231
157	5785.00	141.2538	0.122951
165	2462.00	158.4893	0.137953

802.11a-40MHz
Output Power Into Antenna & RF Exposure Evaluation Distance (6.41 dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
151	5755.00	154.8817	0.134813
159	5795.00	133.3521	0.116073

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

802.11a
Output Power Into Antenna & RF Exposure Evaluation Distance (5.88 dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
36	5180.00	17.8649	0.013764
44	5220.00	16.0325	0.012352
48	5240.00	19.0546	0.014680

802.11a-20MHz
Output Power Into Antenna & RF Exposure Evaluation Distance (5.88 dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
36	5180.00	19.2752	0.014850
44	5220.00	18.9234	0.014579
48	5240.00	18.2390	0.014052

802.11a-40MHz
Output Power Into Antenna & RF Exposure Evaluation Distance (5.88 dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
38	5190.00	17.7828	0.013700
46	5230.00	19.0546	0.014680

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