

RF Exposure Evaluation declaration

Product Name	Play-Fi Receiver
Model No.	Play-Fi Receiver
FCC ID	PPQ-PLAYFIR1

Applicant	Lite-On Technology Corp.
Address	4F, 90, Chien 1 Road, Chung-Ho, Taipei Hsien 235, Taiwan, R.O.C.

Date of Receipt	Mar. 20, 2012
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Report No.	123306R-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: $Pd = (Pout * G) / (4 * \pi * r^2)$

Where

Pd = power density in mW/cm²

Pout = 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

Pd 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 : Play-Fi Receiver
 Test Item : RF Exposure Evaluation
 Test Site : No.3 OATS

Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 4.29 dBi in logarithm scale.

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802.11b (1Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (4.29dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
1	2412.00	51.2861	0.027399
6	2437.00	45.6037	0.024363
11	2462.00	33.6512	0.017978

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

802.11g (6Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (4.29dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
1	2412.00	75.5092	0.040340
6	2437.00	73.4514	0.039240
11	2462.00	59.7035	0.031896

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

802.11n-20MHz_14.4Mbps

Output Power Into Antenna & RF Exposure Evaluation Distance (4.29dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
1	2412.00	81.0961	0.043324
6	2437.00	79.6159	0.042533
11	2462.00	81.6582	0.043625

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

802.11n-40MHz_30Mbps

Output Power Into Antenna & RF Exposure Evaluation Distance (4.29dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
1	2422.00	78.5236	0.041950
4	2437.00	83.1764	0.044436
7	2452.00	76.3836	0.040807

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

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802.11b (1Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (4.29dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
1	2412.00	55.9758	0.029904
6	2437.00	44.8745	0.023973
11	2462.00	37.5837	0.020078

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

802.11g (6Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (4.29dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
1	2412.00	83.1764	0.044436
6	2437.00	73.7904	0.039421
11	2462.00	62.9506	0.033630

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

802.11n-20MHz_14.4Mbps

Output Power Into Antenna & RF Exposure Evaluation Distance (4.29dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
1	2412.00	88.3080	0.047177
6	2437.00	87.0964	0.046530
11	2462.00	88.7156	0.047395

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

802.11n-40MHz_30Mbps**Output Power Into Antenna & RF Exposure Evaluation Distance (4.29dBi):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
1	2422.00	85.5067	0.045680
4	2437.00	89.1251	0.047614
7	2452.00	82.0352	0.043826

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