RF Exposure Evaluation declaration

Product Name : Full HD Video Wireless Receiver Module

Model No.   : ZRF-32100

FCC ID   : YG7ZRF32100

Applicant : ZINWELL CORPORATION

Address   : 7F 512,Yuan Shan Road,Chung Ho City,Taipei Hsien 235, Taiwan

Date of Receipt   : May. 10, 2010

Date of Declaration : Jun. 01, 2010

Report No.   : 105198R-RFUSP42V01

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/cm^2

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 id the limit of MPE, 1 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℃ and 78％ RH.

1.3. Test Result of RF Exposure Evaluation

Product : Full HD Video Wireless Receiver Module
Test Item : RF Exposure Evaluation
Test Site : No.3 OATS

Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 3.83dBi(for Subpart C) and 3.42dBi(for Subpart E) in logarithm scale.

802.11n-20MHz

Output Power Into Antenna & RF Exposure Evaluation Distance (3.83dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm2)
1	5745.00	90.7821	0.043625
3	5785.00	88.7156	0.042631
5	5825.00	87.2971	0.041950

802.11n-40MHz

Output Power Into Antenna & RF Exposure Evaluation Distance (3.83dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm2)
01	5755.00	79.7995	0.038347
02	5795.00	79.6159	0.038259

802.11n-20MHz

Output Power Into Antenna & RF Exposure Evaluation Distance (3.42dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm2)
1	5180.00	19.1426	0.008370
2	5200.00	19.3197	0.008448
4	5240.00	19.3642	0.008467

802.11n-40MHz

Output Power Into Antenna & RF Exposure Evaluation Distance (3.42dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm2)
01	5190.00	19.4536	0.008506
02	5230.00	19.1426	0.008370

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