RF Exposure Evaluation declaration

Product Name : G.hn Powerline Wireless Extender

Model No. : PWS-8121, PWS-8131

FCC ID : YG7-PWS812131

Applicant : Zinwell Corporation

Address : 7F., No.512, Yuanshan Rd., Zhonghe Dist., New Taipei City 235, Taiwan (R.O.C.)

Date of Receipt : Jun. 21, 2017

Date of Declaration : Jul. 25, 2017

Report No. : 1760527R-RFUSP63V00

Issued Date: Jul. 25, 2017
Report No.: 1760527R-RFUSP63V00

Product Name	G.hn Powerline Wireless Extender
Applicant	Zinwell Corporation
Address	7F., No.512, Yuanshan Rd., Zhonghe Dist., New Taipei City 235, Taiwan (R.O.C.)
Manufacturer	Zinwell Corporation
Model No.	PWS-8121, PWS-8131
FCC ID.	YG7-PWS812131
EUT Rated Voltage	AC 100-240V, 50/0Hz
EUT Test Voltage	AC 120V/60Hz
Trade Name	ZINWELL
Applicable Standard	FCC 47 CFR 1.1310
Test Result	Complied

Documented By : Jinn Chen

(Senior Adm. Specialist / Jinn Chen)

Tested By : Henk Huang

(Senior Engineer / Henk Huang)

Approved By :

(Director / Vincent Lin)

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 : G.hn Powerline Wireless Extender
Test Item : RF Exposure Evaluation
Test Site : No.3 OATS

For 2.4GHz:

Operation Frequency	2412-2462MHz, 2422-2452MHz
Maximum Conducted output power	28.68dBm
Antenna gain	2.76dBi

Output Power Into Antenna & RF Exposure Evaluation Distance:

Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm2)
737.9042301	0.277160

Power density is lower than the limit (1 mW/cm2).

For 5GHz:

Operation Frequency	5180-5240MHz, 5745-5825MHz 5190-5230, 5755-5795MHz 5210MHz, 5775MHz
Maximum Conducted output power	22.05dBm
Antenna gain	3.66dBi

Output Power Into Antenna & RF Exposure Evaluation Distance:

Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm2)
160.3245391	0.074085

Power density is lower than the limit (1 mW/cm2).