RF Exposure Evaluation Declaration

Product Name	:	300Mbps Wi-Fi Range Extender with Power Outlet Pass-through
Model No.	:	TL-WA860RE
FCC ID	:	TE7WA860REV4

Applicant	:	TP-Link Technologies Co., Ltd.
Address	:	Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central Science and Technology Park,Shennan Rd, Nanshan, Shenzhen,China

Date of Receipt	:	Sep. 08th, 2017
Test Date	:	Sep. 08th, 2017 ~ Sep. 20th, 2017
Issued Date	:	Oct. 19th, 2017
Report No.	:	1792036R-RF- US- P20V01
Report Version	:	V1.0

Test Report Certification

Issued Date : Oct. 19th, 2017
Report No. : 1792036R-RF-US-P20V01

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Applicant	:	TP-Link Technologies Co., Ltd.
Address	:	Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central Science and Technology Park,Shennan Rd, Nanshan, Shenzhen,China
Manufacturer	:	TP-Link Technologies Co., Ltd.
Address	:	Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central Science and Technology Park,Shennan Rd, Nanshan, Shenzhen,China
Model No.	:	TL-WA860RE
FCC ID	:	TE7WA860REV4
EUT Voltage	:	AC 120V/60Hz
Test Voltage	:	AC 120V/60Hz
Brand Name		tp-link
Applicable Standard	:	KDB 447498D01V06 FCC Part1.1310
Test Result	:	Complied
Performed Location	:	DEKRA Testing and Certification (Suzhou) Co., Ltd. No.99 Hongye Rd., Suzhou Industrial Park, Suzhou, 215006, Jiangsu, China TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098 FCC Registration Number: CN1199

Documented By : Kathy Feng
(Adm. Specialist: Kathy Feng)

Reviewed By : Frank he
(Senior Engineer: Frank He)

Approved By : Harry Zhao
(Engineering Manager : Harry Zhao)

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/cm2)	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*r2)

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℃and 78％ RH.

1.3. Test Result of RF Exposure Evaluation

Product	:	300Mbps Wi-Fi Range Extender with Power Outlet Pass-through
Test Item	:	RF Exposure Evaluation
Test Site	:	AC-6

Antenna Information:

Model No.	N/A					
Antenna manufacturer	N/A					
Antenna Delivery	☐	1*TX+1*RX	☒	2*TX+2*RX	☐	3*TX+3*RX
Antenna technology	☐	SISO				
	☒	MIMO	☐	Basic		
			☒	CDD		
			☐	Sectorized		
			☐	Beam-forming		
Antenna Type	☒	External	☒	Dipole		
			☐	Sectorized		
	☐	Internal	☐	PIFA		
			☐	PCB		
			☐	Ceramic Chip Antenna		
			☐	Metal plate type F antenna		

Antenna Technology	Ant Gain (dBi)	Directional Gain (dBi)	
		For Power	For PSD
☒ CDD	Ant 0: 2 Ant 1: 2	2	5

- **Output Power into Antenna & RF Exposure Evaluation Distance**

Test Mode	Frequency Band (MHz)	Maximum Output Power to Antenna (dBm)	Directional Gain (dBi)	Power Density at R = 20 cm (mW/cm2)	Power Density Limit at R = 20 m (mW/cm2)
802.11b/g/n(20MHz)	2412 ~ 2462	25.16	2.0	0.103	1.0
802.11n(40MHz)	2422 ~ 2452	24.34	2.0	0.086	1.0

Note: The simultaneous transmission power density is 0.103mW/cm^2 for 300Mbps Wi-Fi Range Extender with Power Outlet Pass-through without any other radio equipment.

The End