

FCC RF EXPOSURE REPORT

FCC ID: TE7EC440-G4U

Project No. : 1812C143
Equipment : AC2600 Wireless Dual Band Gigabit Router
Test Model : EC440-G4u
Series Model : N/A
Applicant : TP-Link Technologies Co., Ltd.
Address : TP-Link Technologies Co., Ltd. Building 24 (floors 1,3,4,5) and 28 (floors1-4), Central Science and Technology Park, Nanshan Shenzhen, 518057 China

According : FCC Part 2, Subpart J (§2.1093)
KDB 447498 D01 General RF Exposure Guidance v06
IEEE Std C95.1-2005

Authorized Signatory

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MPE CALCULATION METHOD:

**Table 4: RF Field Strength Limits for Devices Used by the General Public
(Uncontrolled Environment)**

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m ²)	Reference Period (minutes)
0.003-10 ²¹	83	90	-	Instantaneous*
0.1-10	-	0.73/ f	-	6**
1.1-10	87/ $f^{0.5}$	-	-	6**
10-20	27.46	0.0728	2	6
20-48	58.07/ $f^{0.25}$	0.1540/ $f^{0.25}$	8.944/ $f^{0.5}$	6
48-300	22.06	0.05852	1.291	6
300-6000	3.142 $f^{0.3417}$	0.008335 $f^{0.3417}$	0.02619 $f^{0.6834}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	616000/ $f^{1.2}$
150000-300000	0.158 $f^{0.5}$	4.21 x 10 ⁻⁴ $f^{0.5}$	6.67 x 10 ⁻⁵ f	616000/ $f^{1.2}$

Note: f is frequency in MHz.
 *Based on nerve stimulation (NS).
 ** Based on specific absorption rate (SAR).

Table for Filed Antenna:

For WLAN

Ant.	Brand	Model	Type	Connector	Gain (dBi)
1	TP-Link	3101502192	PCB	I-PEX	3.77
2	TP-Link	3101502193	PCB	I-PEX	5.00
3	TP-Link	3101502194	PCB	I-PEX	4.49
4	TP-Link	3101502195	PCB	I-PEX	5.65

For RLAN

UNII-1:

Ant.	Brand	Model	Type	Connector	Gain (dBi)
1	TP-Link	3101502192	PCB	I-PEX	4.8
2	TP-Link	3101502193	PCB	I-PEX	5.09
3	TP-Link	3101502194	PCB	I-PEX	4.64
4	TP-Link	3101502195	PCB	I-PEX	4.83

UNII-3:

Ant.	Brand	Model	Type	Connector	Gain (dBi)
1	TP-Link	3101502192	PCB	I-PEX	5.4
2	TP-Link	3101502193	PCB	I-PEX	5.66
3	TP-Link	3101502194	PCB	I-PEX	4.67
4	TP-Link	3101502195	PCB	I-PEX	6.47

NOTE:

- (a) The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and receivers (4T4R). 2.4 GHz and 5GHz can transmit simultaneously.

Test Result

For WLAN 2.4 GHz:

Frequency (MHz)	Average Power (dBm)	Average Power (W)	Antenna Gain (dBi)	Distance (cm)	Power Density (W/m ²)	Power Density Limit(W/m ²)
2412-2462	29.70	0.9339	5.65	25	0.4364	1

For RLAN 5 GHz:

Frequency (MHz)	Average Power (dBm)	Average Power (W)	Antenna Gain (dBi)	Distance (cm)	Power Density (W/m ²)	Power Density Limit(W/m ²)
5180-5240 (CDD mode)	25.53	0.3574	5.09	25	0.1469	1
5180-5240 (beamforming mode)	23.84	0.2423	12.33	25	0.5271	1
5745-5825 (CDD mode)	29.37	0.8650	6.47	25	0.4886	1
5745-5825 (beamforming mode)	23.94	0.2478	12.33	25	0.4624	1

NOTE:

- WLAN 2.4GHz:
For $N_{ANT} = 4 < 5$,
Direction gain = $G_{ANT} + 0 = 5.65 + 0 = 5.65$ dBi .

- For RLAN 5GHz:

Mode		Maximum Directional Gain (dBi.)
UNII-1	CDD NOTE(1)	5.09
	Beamforming NOTE(2)	12.33
UNII-3	CDD NOTE(1)	6.47
	Beamforming NOTE(2)	12.33

NOTE:

- For CDD Mode:
For $N_{ANT} = 4 < 5$,
Direction gain = $G_{ANT} + 0$
- For Beamforming Mode:
Directional Gain = $G_{ANT} + 10\log(N_{ANT}/N_{SS}) + \text{Beamforming Gain}$

Conclusion:

The formula of calculated the MPE is:

$$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

$$\text{WLAN 2.4 GHz} + \text{RLAN 5 GHz} = 0.4364 / 1 + 0.5271 / 1 = 0.9635$$

Therefore the maximum calculations of above situations are less than the "1" limit.

End of Test Report