

# RF EXPOSURE REPORT

|           |                                                                                                                        |
|-----------|------------------------------------------------------------------------------------------------------------------------|
| Applicant | TP-Link Technologies Co., Ltd.                                                                                         |
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|                                     |                                                                                                                        |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Manufacturer or Supplier            | TP-Link Technologies Co., Ltd.                                                                                         |
| Address                             | Building 24(floors1,3,4,5) and 28(floors1-4) Central Science and Technology Park, Shennan Rd, Nanshan, Shenzhen, China |
| Product                             | AC1200 Wireless Dual Band Gigabit Router                                                                               |
| Brand Name                          | tp-link                                                                                                                |
| Model                               | Archer C5                                                                                                              |
| Additional Model & Model Difference | Archer C1210; TSP EC220-G5U;                                                                                           |
| Date of tests                       | Oct. 25, 2017 ~ Nov. 27, 2017                                                                                          |

- ☒ FCC Part 2 (Section 2.1091)
- ☒ KDB 447498 D01
- ☒ IEEE C95.1

**CONCLUSION:** The submitted sample was found to COMPLY with the test requirement

|                                                                                     |                                                                                                                  |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| Tested by Harry Li<br>Project Engineer/ EMC Department                              | Approved by Glyn He<br>Supervisor/ EMC Department                                                                |
|  | <br><br>Date: Dec. 11, 2017 |

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Test Report No.: FS171025N006

## RELEASE CONTROL RECORD

| ISSUE NO.    | REASON FOR CHANGE | DATE ISSUED   |
|--------------|-------------------|---------------|
| FS171025N006 | Original release  | Dec. 11, 2017 |

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Test Report No.: FS171025N006

## 1. CERTIFICATION

**PRODUCT:** AC1200 Wireless Dual Band Gigabit Router

**BRAND NAME:** tp-link

**MODEL NO.:** Archer C5

**ADDITIONAL MODEL:** Archer C1210; TSP EC220-G5U;

**DEVIATION AMONG MODELS** Model name only

**FCC ID:** TE7C5SPV4

**TEST SAMPLE:** ENGINEERING SAMPLE

**APPLICANT:** TP-Link Technologies Co., Ltd.

**TESTED DATE:** Nov. 27, 2017

**STANDARDS:** FCC Part 2 (Section 2.1091)  
KDB 447498 D01  
IEEE C95.1

## 2. RF EXPOSURE LIMIT

### LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

| FREQUENCY RANGE (MHz)                                 | ELECTRIC FIELD STRENGTH (V/m) | MAGNETIC FIELD STRENGTH (A/m) | POWER DENSITY (mW/cm <sup>2</sup> ) | AVERAGE TIME (minutes) |
|-------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|------------------------|
| LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE |                               |                               |                                     |                        |
| 300-1500                                              | ...                           | ...                           | F/1500                              | 30                     |
| 1500-100,000                                          | ...                           | ...                           | 1.0                                 | 30                     |

F = Frequency in MHz

## 3. MPE CALCULATION FORMULA

$$P_d = (P_{out} * G) / (4 * \pi * r^2)$$

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = 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

## 4. CLASSIFICATION

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

## 5. ANTENNA GAIN

The antennas provided to the EUT, please refer to the following table:

| Frequency Band | Antenna 0 Peak Gain (dBi) | Antenna 1 Peak Gain (dBi) | Total Gain (dBi) | Antenna Type   |
|----------------|---------------------------|---------------------------|------------------|----------------|
| 2.4GHz         | 5                         | 5                         | 8.01             | Dipole Antenna |
| 5GHz           | 5                         | 5                         | 8.01             | Dipole Antenna |

Note: 2.4GHz: Total gain=3dBi+10log(2)=6.01dBi; 5GHz: Total gain=5dBi+10log(2)=8.01dBi

## 6. CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

| FREQUENCY BAND (MHz)      | MAX POWER (mW) | ANTENNA GAIN (dBi) | DISTANCE (cm) | POWER DENSITY (mW/cm <sup>2</sup> ) | LIMIT (mW/cm <sup>2</sup> ) |
|---------------------------|----------------|--------------------|---------------|-------------------------------------|-----------------------------|
| WLAN 2.4GHz               | 229.67         | 5                  | 20            | 0.144489                            | 1.0                         |
| WLAN 5GHz<br>5180-5240MHz | 228.071        | 5                  | 20            | 0.143483                            | 1.0                         |
| WLAN 5GHz<br>5745-5850MHz | 343.815        | 5                  | 20            | 0.216299                            | 1.0                         |

### CONCLUSION:

Both of the WLAN 2.4GHz and 5GHz can transmit simultaneously, the formula of calculated the MPE is:

$$CPD_1 / LPD_1 + CPD_2 / LPD_2 + \dots \text{etc.} < 1$$

**CPD = Calculation power density**

**LPD = Limit of power density**

Therefore, the worst-case situation is  $0.144489 / 1 + 0.216299 / 1 = 0.360788$ , which is less than "1". This confirmed that the device comply with FCC 1.1310 MPE limit.

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