

MPE REPORT

案 號： 1907C038
產 品 名 稱： AC1900 MU-MIMO Wi-Fi 路由器
型 號： Archer C80
申請廠商（名稱）： 聯洲國際有限公司
申請廠商（地址）： 新北市板橋區中山路一段156號13樓

According to : LP0002 第 5.20.2 節

報告簽署人：

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發行日期： 108 年 11 月 06 日

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報告發行歷史紀錄

報告版本	內容	發行日期
R00	初始報告。	108年10月25日
R01	修改機構comments。	108年11月06日

MPE CALCULATION METHOD:

Calculation Method of RF Safety Distance:

$$S = \frac{PG}{4\pi^2} = \frac{EIRP}{4\pi^2}$$

where:

S = power density

P = power input to the antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

Table for Filed Antenna:

For 2.4GHz:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	TP-LINK	3101502663	Dipole	Weld	3
2	TP-LINK	3101502666	Dipole	Weld	3
3	TP-LINK	3101502664	Dipole	Weld	3

Note:

This EUT supports CDD, and all antennas have the same gain, Directional gain = $G_{ANT} + \text{Array Gain}$, where Array Gain is as follows:

(1) Non Beamforming Function,

For power spectral density measurements, $N_{ANT} = 3$, $N_{SS} = 1$. So Directional gain = $G_{ANT} + \text{Array Gain} = 10\log(N_{ANT}/N_{SS}) \text{ dB} = 3 + 10\log(3/1) \text{ dBi} = 7.77$. Then, the power density limit is $8 - (7.77 - 6) = 6.23$.

For power measurements, Array Gain = 0 dB ($N_{ANT} \leq 4$), so the Directional gain = 3.

(2) Beamforming Function, Beamforming Gain: 4.77 dB. So Directional gain = $4.77 + 3 = 7.77$. Then, the average output power limit is $30 - (7.77 - 6) = 28.23$. The power density limit is $8 - (7.77 - 6) = 6.23$.

For 5GHz:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	TP-LINK	3101502665	Dipole	Weld	3
2	TP-LINK	3101502664	Dipole	Weld	3
3	TP-LINK	3101502663	Dipole	Weld	3

Note:

This EUT supports CDD, and all antennas have the same gain,
Directional gain = $G_{ANT} + \text{Array Gain}$, where Array Gain is as follows:

(1) Non Beamforming Function,

For power spectral density measurements, $N_{ANT} = 3$, $N_{SS} = 1$. So

Directional gain = $G_{ANT} + \text{Array Gain} = 10\log(N_{ANT}/N_{SS}) \text{ dB} = 3 + 10\log(3/1) \text{ dBi} = 7.77$.

Then, the UNII-1 power spectral density limit is $17 - (7.77 - 6) = 15.23$, the UNII-3 power density limit is $30 - (7.77 - 6) = 28.23$.

For power measurements, Array Gain = 0 dB ($N_{ANT} \leq 4$), so the Directional gain = 3.

(2) Beamforming Function, Beamforming Gain: 4.77 dB. So Directional gain =

$4.77 + 3 = 7.77$. Then, the UNII-1 and UNII-3 output power limit is $30 - (7.77 - 6) = 28.23$; the UNII-1 power density limit is $17 - (7.77 - 6) = 15.23$, the UNII-3 power density limit is $30 - (7.77 - 6) = 28.23$.

TEST RESULTS:

For 2.4GHz Non Beamforming

測試頻道: IEEE vht20

測試模式: 發射

檢測器: RMS

測試日期: 108/07/20

環境溫度: 27°C

環境濕度: 56%

Directional gain (dBi)	Directional Gain (numeric)	Max. Average Output Power (dBm)	Max. Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
3.00	1.9953	27.99	629.5062	0.14793	1	Complies

For 2.4GHz With Beamforming

測試頻道: IEEE vht20

測試模式: 發射

檢測器: RMS

測試日期: 108/07/20

環境溫度: 27°C

環境濕度: 56%

Directional gain (dBi)	Directional Gain (numeric)	Max. Average Output Power (dBm)	Max. Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
7.77	5.9841	27.64	580.7644	0.40932	1	Complies

For 5GHz Non Beamforming

測試頻道: IEEE 802.11ac (VHT40) /
5.2 GHz 頻帶

測試模式: 發射

檢測器: RMS

測試日期: 108/07/20

環境溫度: 27°C

環境濕度: 56%

Directional gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
3.00	1.9953	26.57	453.9416	0.10668	1	Complies

測試頻道: IEEE 802.11ac (VHT40) /
5.8 GHz 頻帶

測試模式: 發射

檢測器: RMS

測試日期: 108/07/20

環境溫度: 27°C

環境濕度: 56%

Directional gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
3.00	1.9953	28.10	645.6542	0.15173	1	Complies

For 5GHz With Beamforming

測試頻道: IEEE 802.11ac (VHT40) /
5.2 GHz 頻帶

測試模式: 發射

檢 測 器: RMS

測試日期: 108/07/20

環境溫度: 27°C

環境濕度: 56%

Directional gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
7.77	5.9841	26.46	442.5884	0.31193	1	Complies

測試頻道: IEEE 802.11ac (VHT40) /
5.8 GHz 頻帶

測試模式: 發射

檢 測 器: RMS

測試日期: 108/07/20

環境溫度: 27°C

環境濕度: 56%

Directional gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
7.77	5.9841	27.85	609.5369	0.42960	1	Complies

Note: The evaluated distance is 26cm.

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