FCC RF EXPOSURE REPORT

FCC ID: 2AVUGAP4220

Project No.	:	1903C114A
Equipment	:	Wireless LAN Access Point
Brand Name	:	Alibaba Cloud
Test Model	:	AP4220
Series Model	:	N/A
Applicant	:	Alibaba Cloud Comuting Co.,Ltd
Address	:	Building 8, No.16, Zhuan Tang Jing Ji Qu Kuai, Xihu District,Hangzhou, Zhejiang, China
Manufacturer	:	Alibaba Cloud Comuting Co.,Ltd
Address	:	Building 8, No.16, Zhuan Tang Jing Ji Qu Kuai, Xihu District,Hangzhou, Zhejiang, China
Factory	:	Joy Technology (ShenZhen) Corporation
Address	:	HengKeng Ind., Shangpai, Shangwu,Aiqun Rd., Shiyan Town,Shenzhen 518108 China
Date of Receipt	:	Jan. 08, 2020
Date of Test	:	Jan. 08, 2020 ~ Jan. 15, 2020
Issued Date	:	Apr. 14, 2020
Report Version	:	R01
Test Sample	:	Engineering Sample No.: D190302460
Standard(s)	:	FCC Guidelines for Human Exposure IEEE C95.1 & FCC Part 2.1091 FCC Title 47 Part 2.1091, OET Bulletin 65 Supplement C

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

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REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue.	Apr. 07, 2020
R01	Modified the comments of TCB.	Apr. 14, 2020

1. MPE CALCULATION METHOD

Calculation Method of RF Safety Distance:

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

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 LE:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Internal	N/A	4.7

For 2.4G:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Internal	N/A	5.8
2	N/A	N/A	Internal	N/A	5.8

Note:
1. This EUT supports MIMO 2X2, any transmit signals are correlate with each other, so Directional gain = G_{ANT}+10log(N)dBi, that is Directional gain=5.8+10log(2)dBi=8.8; So, the output power limit is 30-8.8+6=27.20, the power density limit is 8-8.8+6=5.2.
2. Beamformign gain = 3dBi. So Directional gain= 5.8+3=8.8dBi. So, the output power limit is 30-8.8+6=27.20, the power density limit is 8-8.8+6=5.2.

For 5G:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Internal	N/A	5.5
2	N/A	N/A	Internal	N/A	5.5

Note:
1. This EUT supports MIMO 2X2, any transmit signals are correlate with each other, so Directional gain = G_{ANT}+10log(N)dBi, that is Directional gain=5.5+10log(2)dBi=8.5; So, the out power limit for UNII-1 and UNII-3 is 30-8.5+6=27.50, the power density limit for UNII-1 is 17-8.5+6=14.5, for UNII-3 is 30-8.5+6=27.50
2. Beamformign gain = 3dBi. So Directional gain= 5.5+3=8.5dBi, So, the out power limit for UNII-1 and UNII-3 is 30-8.5+6=27.50, the power density limit for UNII-1 is 14-8.5+6=11.5, for UNII-3 is 30-8.5+6=27.50

2. TEST RESULTS

For LE:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Peak Output Power (dBm)	Max. Peak Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
4.70	1.8621	9.00	7.9433	0.00294	1	Complies

For 2.4GHz:

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
8.80	7.5858	23.00	199.5262	0.30127	1	Complies

For 5GHz:

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
8.5	7.0795	23.00	199.5262	0.28116	1	Complies

For the max simultaneous transmission MPE:

Power Density (S) (mW/cm^2)	Power Density (S) (mW/cm^2)	Power Density (S) (mW/cm^2)	Total	Limit of Power Density (S) (mW/cm^2)	Test Result
LE	2.4GHz	5GHz			
0.00294	0.30127	0.28116	0.585	1	Complies

Note:
(1) The calculated distance is 20 cm.
(2) Output power including tune up tolerance.

End of Test Report