

RF Exposure Report

Report No.: SA171128C32

FCC ID: UCC-AX500

Test Model: AX500-X, AX500-S, AX500-T

Received Date: Nov. 28, 2017

Test Date: Dec. 15, 2017 ~ Mar. 06, 2018

Issued Date: Mar. 12, 2018

Applicant: Altai Technologies Limited

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

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Release Control Record

Issue No.	Description	Date Issued
SA171128C32	Original release	Mar. 12, 2018

1 Certificate of Conformity

Product: Wireless 802.11 abgn/ac device

Brand: Altai

Model: AX500-X, AX500-S, AX500-T

Sample Status: Engineering sample

Applicant: Altai Technologies Limited

Test Date: Dec. 15, 2017 ~ Mar. 06, 2018

Standards: FCC Part 2 (Section 2.1091)
KDB 447498 D03 (January 17, 2014)
IEEE C95.1

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Polly Chen, **Date:** Mar. 12, 2018
Polly Chen / Specialist

Approved by : Bruce Chen, **Date:** Mar. 12, 2018
Bruce Chen / Project Engineer

2 RF Exposure

2.1 Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
300-1500	...	...	F/1500	30
1500-100,000	...	...	1.0	30

F = Frequency in MHz

2.2 MPE Calculation Formula

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

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

2.3 Classification

The antenna of this product, under normal use condition, is at least 36cm away from the body of the user. So, this device is classified as **Mobile Device**.

3 Calculation Result of Maximum Conducted Power

Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
EUT Model: AX500-X					
2412-2462	26.54	8.01	36	0.185	1
5180-5240	4.75	19.01	36	0.015	1
5745-5825	19.69	19.01	36	0.482	1
EUT Model: AX500-S					
2412-2462	27.19	11.81	36	0.488	1
5180-5240	6.88	17.11	36	0.015	1
5745-5825	21.77	17.11	36	0.474	1
EUT Model: AX500-T					
2412-2462	20.44	9.61	36	0.062	1
5180-5240	12.90	10.91	36	0.016	1
5745-5825	27.59	10.91	36	0.460	1

Note:

EUT Model: AX500-X

2.4GHz Band: Directional gain = 5dBi + 10log(2) = 8.01dBi

5GHz Band: Directional gain = 16dBi +10log (2) = 19.01dBi

EUT Model: AX500-S

2.4GHz Band: Directional gain = 8.8dBi + 10log(2) = 11.81dBi

5GHz Band: Directional gain = 14.10dBi +10log (2) = 17.11dBi

EUT Model: AX500-T

2.4GHz Band: Directional gain = 6.6dBi + 10log(2) = 9.61dBi

5GHz Band: Directional gain = 7.90dBi +10log (2) = 10.91dBi

Conclusion:

2.4GHz & 5GHz Band 1 or 2.4GHz & 5GHz Band 4 can transmit at same time.

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

EUT Model: AX500-X

WLAN 2.4GHz + WLAN 5GHz = $0.185 + 0.482 = 0.667$

EUT Model: AX500-S

WLAN 2.4GHz + WLAN 5GHz = $0.488 + 0.474 = 0.962$

EUT Model: AX500-T

WLAN 2.4GHz + WLAN 5GHz = $0.062 + 0.460 = 0.522$

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

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