

RF Exposure Report

Report No.: SA160219E04

FCC ID: RSL-AP500

Test Model: AT-AP500

Received Date: Feb. 19, 2016

Test Date: Mar. 11, 2016

Issued Date: Apr. 14, 2016

Applicant: Allied Telesis K.K.

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

Release Control Record

Issue No.	Description	Date Issued
SA160219E04	Original release.	Apr. 14, 2016



A D T

1 Certificate of Conformity

Product: Cloud-Managed Enterprise-class Wireless Access Point with IEEE802.11a/b/g/n/ac Dual Radio

Brand: Allied Telesis

Test Model: AT-AP500

Sample Status: ENGINEERING SAMPLE

Applicant: Allied Telesis K.K.

Test Date: Mar. 11, 2016

Standards: FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

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 EMC characteristics under the conditions specified in this report.

Prepared by : C. C., **Date:** Apr. 14, 2016
Claire Kuan / Specialist

Approved by : May Chen, **Date:** Apr. 14, 2016
May Chen / Manager

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

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

where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 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 26cm away from the body of the user.

So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

2.4GHz					
Transmitter Circuit	Brand	Model	Antenna Type	Antenna Gain(dBi) Including cable loss	Connector type
Chain (0)	Aristotle	RFA-02-G133-70B-110R	PIFA	3.1	i-pex(MHF)
Chain (1)		RFA-52-G181-58-90		2.47	
Chain (2)		RFA-02-G133-70B-180		1.75	
5 GHz					
Transmitter Circuit	Brand	Model	Antenna Type	Antenna Gain(dBi) Including cable loss	Connector type
Chain (0)	Aristotle	RFA-05-G134-70-230C	PIFA	2.65	i-pex(MHF)
Chain (1)		RFA-52-G181-58-90		5.55	
Chain (2)		RFA-05-G134-70-105C		4.15	
Chain (3)		RFA-05-G134-70-75C		4.04	

3 Calculation Result Of Maximum Conducted Power

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2412-2462	362.092	7.47	26	0.23805	1
5180-5240	374.366	10.18	26	0.45934	1
5745-5825	348.113	10.18	26	0.42713	1

NOTE:

2412-2462MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 7.47\text{dBi}$

5180-5240MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 10.18\text{dBi}$

5745-5825MHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 10.18\text{dBi}$

Conclusion:

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

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

CPD = Calculation power density

LPD = Limit of power density

Therefore, the worst-case situation is $0.23805 / 1 + 0.45934 / 1 = 0.69739$, which is less than "1".

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

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