

RF Exposure Report

Report No.: SA170505C03

FCC ID: 2AHBN-AP21

Test Model: AP21

Received Date: May 05, 2017

Test Date: May 09 ~ Jun. 28, 2017

Issued Date: Jul. 13, 2017

Applicant: Mist Systems, Inc.

Address: 1601 South De Anza Blvd. Suite 248 Cupertino California United States
95014

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

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City
33383, TAIWAN (R.O.C.)



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Release Control Record

Issue No.	Description	Date Issued
SA170505C03	Original release.	Jul. 13, 2017

1 Certificate of Conformity

Product: Wi-Fi & BLE Array AP

Brand: Mist

Test Model: AP21

Sample Status: Engineering sample

Applicant: Mist Systems, Inc.

Test Date: May 09 ~ Jun. 28, 2017

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 :



Date:

Jul. 13, 2017

Polly Chien / Specialist

Approved by :



Date:

Jul. 13, 2017

Ken Liu / Senior 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 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

3 Calculation Result Of Maximum Conducted Power

CDD mode:

Frequency Band (MHz)	TX Function	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
Radio 1						
2412-2462	1TX	22.82	3.63	20	0.088	1
	2TX	25.39	6.54	20	0.310	1
Radio 2						
5180-5240	1TX	21.13	4.93	20	0.080	1
	2TX	23.46	7.87	20	0.270	1
5745-5825	1TX	23.03	4.96	20	0.125	1
	2TX	24.29	7.97	20	0.335	1
Radio 3						
BT LE	-	5.22	4.98	20	0.002	1

Beamforming Mode

Frequency Band (MHz)	TX Function	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
Radio 1						
2412-2462	2TX	19.55	6.54	20	0.081	1
Radio 2						
5180-5240	2TX	23.26	7.87	20	0.258	1
5745-5825	2TX	23.98	7.97	20	0.312	1

Note:

2412-2462MHz:

1TX: Max. antenna gain: 3.63dBi

2TX: Directional gain = $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2/N]$ = 6.54dBi

5180-5240MHz:

1TX: Max. antenna gain: 4.93dBi

2TX: Directional gain = $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2/N]$ = 7.87dBi

5745-5825MHz:

1TX: Max. antenna gain: 4.96dBi

2TX: Directional gain = $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2/N]$ = 7.97dBi

	MAX POWER (dBm)		TOTAL POWER (dBm)	POWER LIMIT (dBm)
	Radio 1: WLAN	Radio 3: BT		
2.4GHz	25.39	5.22	25.43	30

CONCLUSION:

Both of the WLAN 2.4G & WLAN 5G & BT 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

Radio 1: 2.4G + Radio 2: 5G + Radio 3: BT = $0.310 + 0.335 + 0.002 = 0.647 < 1$

---END---