

FCC MPE Evaluation Report

Report No. : SA140402C09

Applicant : Morse Project Inc.

Address : 149 New Montgomery St., San Francisco, CA 94105

Product : Cone

Brand : Aether

Model No. : CNUS0x (where "x" can be numerical 0-9 or alpha a-z)

Standards : FCC Part 2 (Section 2.1091)

KDB 447498 D01

Sample Received Date : Apr. 02, 2014

Date of Evaluation : Apr. 18, 2014

CERTIFICATION: The above equipment have been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch – Lin Kou Laboratories**, 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 SAR characteristics under the conditions specified in this report. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product certification, approval, or endorsement by TAF or any government agencies.

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Taf

Testing Laboratory
2021

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Report Format Version 5.0.0 Page No. : 1 of 7
Report No.: SA140402C09 Issued Date : Apr. 23, 2014

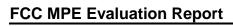
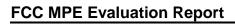




Table of Contents

Rel	ease Co	ontrol Record	. 3
		ption of Equipment Under Test	
		Maximum Permissible Exposure) Assessment	
		Introduction	
	2.2	RF Radiation Exposure Limits	. 5
		MPE Assessment Method	
	_	MPE Calculation for Standalone Operations	_
		nation on the Testing Laboratories	

Report Format Version 5.0.0 Page No. : 2 of 7





Release Control Record

Report No.	Reason for Change	Date Issued
SA140402C09	Initial release	Apr. 23, 2014

Report Format Version 5.0.0 Page No. : 3 of 7



1. Description of Equipment Under Test

EUT Type	Cone		
Brand Name	Aether		
Model Name	CNUS0x (where "x" can be numerical 0-9 or alpha a-z)		
Tx Frequency Bands	WLAN : 2412 ~ 2462, 5180 ~ 5240, 5745 ~ 5825		
(Unit: MHz)	Bluetooth: 2402 ~ 2480		
	802.11b: DSSS		
Uplink Modulations	802.11a/g/n : OFDM		
	Bluetooth : GFSK		
Antenna Type	PIFA Antenna		
EUT Stage	Production Unit		

Note:

1. The following models are provided to this EUT.

MODEL	DESCRIPTION
CNUS0x (where "x" can be numerical 0-9 or alpha a-z)	For marketing purpose.

1. The above EUT information is declared by manufacturer and for more detailed features description please refers to the manufacturer's specifications or User's Manual.

List of Accessory:

	Brand Name	Chicony		
	Model Name	ADUS0x (x can be 1-9)		
AC Adapter	Power Rating	I/P:100-240Vac, 50-60Hz, 1A;		
		O/P: 12Vdc, 3A		
	DC Power Cord Type	1.8 meter shielded cable without ferrite core		
	Brand Name	Getac		
Battery	Model Name	NU1		
Daller y	Power Rating	7.2Vdc, 5200mAh		
	Type	Li-ion		
W/I AN Chin	Brand Name	Marvell		
WLAN Chip	Model Name	8797		

Report Format Version 5.0.0 Page No. : 4 of 7

Report No.: SA140402C09 Issued Date : Apr. 23, 2014



2. MPE (Maximum Permissible Exposure) Assessment

2.1 Introduction

According to 47 CFR §2.1091, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 cm is normally maintained between the transmitting antenna and the body of the user or nearby persons. In this context, the term "fixed location" means that the device is physically secured at one location and is not able to be easily moved to another location. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 cm separation requirement. The limits to be used for MPE evaluation are specified in §1.1310. All unlicensed personal communications service (PCS) devices and unlicensed NII devices shall be subject to the limits for general population/uncontrolled exposure.

2.2RF Radiation Exposure Limits

According to 47 CFR §1.1310, the criteria listed in below table shall be used to evaluate the environmental impact of human exposure to RF radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093.

Frequency Electric Field Range (MHz) Strength (V/m)		Magnetic Field Strength (A/m)	Power Density (mW/cm²)	Averaging Time (min)			
(A) Limits for Occupational / Controlled Exposures							
0.3 - 3.0	614	1.63	100	6			
3.0 – 30	1842/f	4.89/f	900/f ²	6			
30 – 300	61.4	0.163	1.0	6			
300 – 1500	-	-	f/300	6			
1500 – 100000	-	-	5	6			
(B) Limits for General Population / Uncontrolled Exposures							
0.3 – 1.34	614	1.63	100	30			
1.34 – 30	824/f	2.19/f	180/f ²	30			
30 – 300	27.5	0.073	0.2	30			
300 – 1500	300 – 1500 -		f/1500	30			
1500 – 100000	-	-	1.0	30			

Limits for maximum permissible exposure (MPE)

Notes:

- 1. f = frequency in MHz
- 2. Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided they are made aware of the potential for exposure.
- 3. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Report Format Version 5.0.0 Page No. : 5 of 7
Report No.: SA140402C09 Issued Date : Apr. 23, 2014



2.3 MPE Assessment Method

Calculations can be made to predict RF field strength and power density levels around typical RF sources. For example, in the case of a single radiating antenna, a prediction for power density in the far-field of the antenna can be made by use of the general Equations below. This equation is generally accurate in the far-field of an antenna but will over-predict power density in the near field, where they could be used for making a "worst case" or conservative prediction.

ower Density (S) =
$$\frac{PG}{4\pi R^2} = \frac{EIRP}{4\pi R^2}$$

Where

S = Power Density, unit in mW/cm²

P = Power input to the antenna, unit in mW

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, unit in cm

EIRP = Effective isotropically radiated power

2.4 MPE Calculation for Standalone Operations

The manufacturer expects that the radiated component of this device will not close to the human body during normal usage and the warning statement was also stated in the user instruction. Since the transmitting antenna will be kept at least 20 cm away from the human body, the MPE level is calculated based on this condition and the result is listed in below table.

Band	Max. Time-averaged Power (dBm)	Peak Antenna Gain (dBi)	Max. Time-averaged EIRP (mW)	Max. Time-averaged ERP (W)	Calculated Power Density (mW/cm²)	MPE Limit (mW/cm²)	Result
WLAN 2.4G	15.45	1.35	47.86	0.03	0.01	1.00	PASS
WLAN 5.2G	11.44	1.7	20.61	0.01	0.00	1.00	PASS
WLAN 5.8G	12.49	1.62	25.76	0.02	0.01	1.00	PASS
Bluetooth	6.62	1.35	6.27	0.00	0.00	1.00	PASS

Summary:

Since the ERP (effective radiated power) operated at < 1.5 GHz is less than 1.5 watts and > 1.5 GHz is less than 3 watts, the routine environmental evaluation is not required, and the MPE result calculated for this device complies with the MPE limit as specified in 47 CFR §1.1310.

Report Format Version 5.0.0 Page No. : 6 of 7
Report No.: SA140402C09 Issued Date : Apr. 23, 2014





3. Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Taiwan HwaYa EMC/RF/Safety/Telecom Lab:

Add: No. 19, Hwa Ya 2nd Rd, Wen Hwa Vil., Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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Taiwan LinKo EMC/RF Lab:

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The road map of all our labs can be found in our web site also.

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Report Format Version 5.0.0 Page No. : 7 of 7

Report No.: SA140402C09 Issued Date : Apr. 23, 2014