



RF EXPOSURE REPORT

REPORT NO.: SA140120C29B
MODEL NO.: HEOS Extend
FCC ID: U2M-MBRIDGEDM
RECEIVED: Mar. 12, 2014
TESTED: Apr. 11 ~ Apr. 15, 2014
ISSUED: Apr. 28, 2014

APPLICANT: Senao Networks, Inc.

ADDRESS: 3F, No. 529, Chung Cheng Rd., Hsintien, New Taipei City, R.O.C

ISSUED BY: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

LAB ADDRESS: No. 47, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.

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

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA140120C29B	Original release	Apr. 28, 2014



1. CERTIFICATION

PRODUCT: 802.11 abgn device

MODEL: HEOS Extend

BRAND: DENON

APPLICANT: Senao Networks, Inc.

TESTED: Apr. 11 ~ Apr. 15, 2014

TEST SAMPLE: ENGINEERING SAMPLE

STANDARDS: FCC Part 2 (Section 2.1091)

FCC OET Bulletin 65, Supplement C (01-01)

IEEE C95.1

The above equipment (model: HEOS Extend) 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 : Ivy Lin , **DATE :** Apr. 28, 2014
Ivy Lin / Specialist

APPROVED BY : Ken Liu , **DATE :** Apr. 28, 2014
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

$$Pd = (Pout * G) / (4 * pi * r^2)$$

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 28cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 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)
2412-2462	29.95	6.51	28	0.449	1
5180-5240	16.62	8.51	28	0.033	1
5260-5320	23.55	8.51	28	0.163	1
5500-5700	23.82	8.51	28	0.174	1
5745-5825	28.82	8.51	28	0.549	1

NOTE:

2.4GHz: Directional gain = 3.5dBi + 10log(2) = 6.51dBi

5GHz: Directional gain = 5.5dBi + 10log(2) = 8.51dBi

CONCLUSION:

Both of the WLAN 2.4G & WLAN 5G 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

$$\text{WLAN 2.4G} + \text{WLAN 5.0G} = 0.449 + 0.549 = 0.998$$

Therefore, the maximum calculation of this situation is 0.998, which is less than the "1" limit.

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