

RF Exposure Report

Report No.: SA181219C02D

FCC ID: 2ANBG-OR100

Regulatory Model: APOR100

Marketing Model: APOR100-B18, APOR100-X00, APOR100-C23, APOR100-C18

Received Date: Feb. 18, 2020

Test Date: Apr. 10 ~ Jun. 03, 2020

Issued Date: Jun. 08, 2020

Applicant: KeyWest Networks, Inc.

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

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FCC Registration / 788550 / TW0003
Designation Number:



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Release Control Record

Issue No.	Description	Date Issued
SA181219C02D	Original release	Jun. 08, 2020

1 Certificate of Conformity

Product: Outdoor Wireless Radios

Brand: KeyWest Radios

Regulatory Model: APOR100

Marketing Model: APOR100-B18, APOR100-X00, APOR100-C23, APOR100-C18

Sample Status: Engineering sample

Applicant: KeyWest Networks, Inc.

Test Date: Apr. 10 ~ Jun. 03, 2020

Standards: FCC Part 2 (Section 2.1091)
IEEE C95.3 -2002

References Test Guidance: KDB 447498 D01 General RF Exposure Guidance v06

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 : Celine Chou , **Date:** Jun. 08, 2020
Celine Chou / Senior Specialist

Approved by : Bruce Chen , **Date:** Jun. 08, 2020
Bruce Chen / Senior 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

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

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 165cm 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 AV Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2412-2462	23.16	6.00	165	0.002	1
EUT with Sector antenna					
4940-4990	24.96	21.01	165	0.116	1
5150-5250	17.51	21.01	165	0.021	1
5250-5350	11.79	21.01	165	0.006	1
5470-5725	11.67	21.01	165	0.005	1
5725-5850	17.96	21.01	165	0.023	1
EUT with Omni antenna					
4940-4990	24.59	13.01	165	0.017	1
5150-5250	25.12	13.01	165	0.019	1
5250-5350	19.97	13.01	165	0.006	1
5470-5725	19.96	13.01	165	0.006	1
5725-5850	25.84	13.01	165	0.022	1
EUT with Panel antenna					
4940-4990	24.77	23.00	165	0.175	1
5150-5250	15.44	23.00	165	0.020	1
5250-5350	6.82	23.00	165	0.003	1
5470-5725	6.91	23.00	165	0.003	1
5725-5850	29.28	23.00	165	0.494	1

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

2.4GHz: Directional gain = 3.70dBi + 10log(2) = 6.71dBi

5GHz: EUT with Sector antenna: Directional gain = 18dBi + 10log(2) = 21.01dBi

EUT with Omni antenna: Directional gain = 10dBi + 10log(2) = 13.01dBi

EUT with Panel antenna: Directional gain = 23dBi + 10log(2/2) = 23dBi

Conclusion:

2.4GHz & 5GHz & 4.9GHz 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

$WLAN\ 2.4GHz + WLAN\ 5GHz + 4.9GHz = 0.002 + 0.494 + 0.175 = 0.671$

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

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