

RF Exposure Report

Report No.: SABFPJ-WTW-P20090576

FCC ID: SWX-USWMC

Contains FCC ID: SWX-HL7800

Test Model: USW-Mission-Critical

Received Date: Sep. 25, 2020

Date of Evaluation: Mar. 05, 2021

Issued Date: Mar. 08, 2021

Applicant: Ubiquiti Inc.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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FCC Registration /
Designation Number: 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
SABFPJ-WTW-P20090576	Original Release	Mar. 08, 2021

1 Certificate of Conformity

Product: UniFi Network Mission Critical

Brand:  or  or 

Test Model: USW-Mission-Critical

Sample Status: Engineering Sample

Applicant: Ubiquiti Inc.

Date of Evaluation: Mar. 05, 2021

Standards: FCC Part 2 (Section 2.1091)

References Test Guidance : KDB 447498 D01 General RF Exposure Guidance v06
IEEE C95.3 -2002

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 : _____, **Date:** Mar. 08, 2021
Vera Huang / Specialist



Approved by : _____, **Date:** Mar. 08, 2021
Dylan Chiou / 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				
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	f/1500	30
1500-100,000	1.0	30

f = Frequency in MHz ; *Plane-wave equivalent power density

2.2 MPE Calculation Formula

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

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**.

2.4 Calculation Result of Maximum Conducted Power

Band	Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
LTE 2	1850-1910	24.5	3.1	20	0.114	1.00
LTE 4	1710-1755	24.5	1.5	20	0.079	1.00
LTE 12	699-716	24.5	0	20	0.056	0.47
LTE 13	777-787	24.5	1.7	20	0.083	0.52
BT LE	2402-2480	8.07	3.81	20	0.003	1.00

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
3. Only LTE B2/4/12/13 is supported by the module (Brand: AirPrime, Model: HL7800) and evaluated for co-location. Other bands are disabled.
4. Refer to SIERRA WIRELESS MPE report (Model: HL7800, FCC ID: N7NHL78) for conducted power.

Conclusion:

Both of the LTE and BT LE 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

$$\text{LTE} + \text{BT LE} = 0.083/0.52 + 0.003/1 = 0.163$$

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

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