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RF Exposure Evaluation Report

Client:	**Hunter Douglas Fashion Design**
Address:	**1 Duette Way, Broomfield CO, USA, 68521**
Model:	**PowerView Gen 3 Gateway**
Test Report No.:	**RFE20210324-21-M3 Rev: E**

Approved By: Fox Lane

Fox Lane,
EMC Test Engineer

Date: **April 3, 24**

Total Pages: **8**

Revision Page

Rev. No.	Date	Description
Original	28 December 2023	Issued by FLane Prepared by FLane
Original	1 April 2024	Issued by FLane Prepared by FLane
E	3 April 2024	Updated Power values – FL

1. Regulatory Requirements:

FCC Part 1.1310, 2.1091, 2.1093
KDB 447498 D01
RSS-102, Issue 6

Summary:
The purpose of this report is to evaluate the EUT's transmitter for exemption from routine SAR testing for the 2.4GHz and 5GHz radio.

EUT:

Model:	**PowerView Gen 3 Gateway**
FCC ID:	**UXUPC7**
IC:	**7316A-PC7**
MPE Lab	Nebraska Center for Excellence in Electronics
MPE Labs FCC Cab Designation:	US1060
MPE Labs ISED Cab Designation:	US0177

2. FCC

FCC Limits, Part 1.1310

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
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
300-1,500			f/300	6
1,500-100,000			5	6
(B) 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
300-1,500			f/1500	30
1,500-100,000			1.0	30

Occupational/Controlled	☐
General Population/uncontrolled	☒

FCC Power Density Calculations								
Frequency	**Conducted Power**	**Antenna Gain**	**Peak Power EIRP**	**Peak Power EIRP +10% for Tolerance**	**Power Density**	**Limit at specified distance**	**% of limit**	**Result**
MHz	**mW**	**numerical**	**mW**	**mW**	**mW/cm^2**	**mW/cm^2**	%	
2402.00	5.499	**2.75**	**15.13**	**16.64**	**0.003**	1.00	**0.331**	**PASS**
2440.00	5.479	**2.75**	**15.07**	**16.58**	**0.003**	1.00	**0.330**	**PASS**
2480.00	5.546	**2.75**	**15.26**	**16.78**	**0.003**	1.00	**0.334**	**PASS**

Distance (d)	20	**cm**

S = (P x G)/(4 x π x d^2) – used to calculate exposure at "d" cm

EIRP = P x G, measured as field strength

d = √(S/(P x G) x 4 X π) – used to calculate minimum distance to meet limits

S = power density (mW/cm^2)

P = transmitter conducted power (in mW)

G = antenna numeric gain (Numerical)

d = distance to radiation center (cm)

Results: Complies

Note:
The user's manual will stipulate that a 20cm distance from the user is to be maintained.
EIRP values in mW were multiplied by 1.1 to account for a 10% tolerance.

3. ISED

RSS 102, Issue 6, Section 6.6 (for distances 20cm or greater)

Field reference level (FRL) exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm (i.e. mobile devices), except when the device operates as follows:

- below 20 MHz and the source-based, time-averaged maximum EIRP of the device is equal to or less than 1 W (adjusted for tune-up tolerance)
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum EIRP of the device is equal to or less than $4.49/f^{0.5} W$ (adjusted for tune-up tolerance), where f is in MHz
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum EIRP of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance)
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum EIRP of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834} W$ (adjusted for tune-up tolerance), where f is in MHz
- at or above 6 GHz and the source-based, time-averaged maximum EIRP of the device is equal to or less than 5 W (adjusted for tune-up tolerance)

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the EIRP was derived.

Powerview radio

ISED Power Density Calculations						
Frequency	Conducted Power	Antenna Gain	Peak EIRP Power	EIRP +10% Tolerance	Exemption Limit	Result
MHz	mW	Num.	mW	mW	mW	
2402.00	5.499	2.75	15.13	16.64	2676.42	PASS
2440.00	5.479	2.75	15.07	16.58	2705.29	PASS
2480.00	5.546	2.75	15.26	16.78	2735.52	PASS

WiFi radio. Data from WiFi module was taken from FCC ID:UXU1MW, C2PC from 7/132022

Test Mode	Frequency Band (MHz)	Conducted peak output power (mW)	Maximum EIRP (mW)	Maximum EIRP (mW) with +10% tolerance	PowerLimit (mW)	Max EIRP / Limit (%)
Bluetooth	2402 ~ 2480	7	16.03	17.63	2676.42	
802.11b/g/n	2412 ~ 2462	241.50	553.03	608.33	2684.03	
802.11a/n/ac	5180 ~ 5825	30.30	98.172	107.99	4525.27	22.7%

SUM	22.7%

Combined RF exposure = 0.334% + 22.70% = 23.034% limit =100%

Result:
The EUT was found to be exempt from routine SAR testing and **COMPLIANT** with FCC and ISED RF exposure requirements.

REPORT END