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RF Exposure Evaluation Report

Client:	**Xetawave LLC**
Address:	**258 S Taylor Ave, Louisville, CO 80027, USA**
Model:	**Xeta8**
Test Report No.:	**RFE230711-20-M1A**

Approved By: 

Fox Lane,
EMC Test Engineer

Date: **May 2, 2024**

Total Pages: **8**

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Revision Page

Rev. No.	Date	Description
Original	8 April 2024	Issued by FLane Prepared by FLane
A	15 April 2024	Responded to TCB Comments – 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.

EUT:

Model:	**Xeta8**
FCC ID:	**PEJ-9283080**
IC:	**11169A-08001**
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	%	
896.00	3366.000	7.94	26737.09	29410.80	0.590	0.60	98.719	PASS
901.00	3366.000	7.94	26737.09	29410.80	0.590	0.60	98.171	PASS
935.00	3366.000	7.94	26737.09	29410.80	0.590	0.62	94.601	PASS
940.00	3366.000	7.94	26737.09	29410.80	0.590	0.63	94.098	PASS

Distance (d)	63	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 63cm 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

5.3.2 Electric field strength levels, magnetic field strength levels and power density levels (10 MHz to 300 GHz)

The electric and magnetic field strength reference levels, power density reference levels, and associated reference period for devices employed by the general public (uncontrolled environment) and controlled-use devices (controlled environment) are specified in table 7 and table 8. Note that the power density limits specified in these tables apply to whole body exposure conditions.

Table 7: RF field strength and power density limits for devices used by the general public (uncontrolled environment)

Frequency range (MHz)	Electric field (V_{RMS}/m)	Magnetic field (A_{RMS}/m)	Power density (W/m^2)	Reference period (minutes)
10-20	27.46	0.0728	2	6
20-48	$58.07 / f^{0.25}$	$0.1540 / f^{0.25}$	$8.944 / f^{0.5}$	6
48-300	22.06	0.05852	1.291	6
300-6000	$3.142 f^{0.3417}$	$0.008335 f^{0.3417}$	$0.02619 f^{0.6834}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	$616000/ f^{1.2}$
150000-300000	$0.158 f^{0.5}$	$4.21\times10^{-4} f^{0.5}$	$6.67\times10^{-5} f$	$616000/ f^{1.2}$

Note: f is frequency in MHz.

RSS 102, Issue 6, Section 5.3.2

Occupational/Controlled	☐
General Population/uncontrolled	☒

ISED Power Density Calculations

Frequency	Cond. 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	%	
896.00	3366.000	19.95	67160.53	73876.58	2.661	2.73	97.579	PASS
901.00	3366.000	19.95	67160.53	73876.58	2.661	2.74	97.209	PASS
935.00	3366.000	19.95	67160.53	73876.58	2.661	2.81	94.779	PASS
940.00	3366.000	19.95	67160.53	73876.58	2.661	2.82	94.434	PASS

Distance (d)	47	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)

Result:

The user's manual will stipulate that a 47cm distance from the user is to be maintained. The EUT was found to be **COMPLIANT** with exposure calculation limits set by the FCC and ISED.

REPORT END