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RADIO TEST REPORT – 446890APFWL

Type of assessment:

MPE Calculation report

Applicant:

Blinq Wireless, Inc

Product:

Base station

Model:

FW6-B48-46-NA

FCC ID:

ROR0011

Specifications:

- FCC 47 CFR Part 1 Subpart I, §§1.1307, 1.1310
- FCC 47 CFR Part 2 Subpart J, §2.1091
- FCC KDB 447498 D01 General RF Exposure Guidance v06

Date of issue: January 7, 2022

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Prepared by

Signature

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Test site identifier	**Organization**	**Ottawa/Almonte**	**Montreal**	**Cambridge**
	FCC:	CA2040	CA2041	CA0101
	ISED:	2040A-4	2040G-5	24676
Website	www.nemko.com			

Limits of responsibility

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.
This test report has been completed in accordance with the requirements of ISO/IEC 17025. All results contained in this report are within Nemko Canada's ISO/IEC 17025 accreditation.

Copyright notification

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Section 1 Evaluation summary

1.1 MPE calculation for standalone transmission

1.1.1 References, definitions and limits

FCC §2.1091(d)

(2) (2) For operations within the frequency range of 300 kHz and 6 GHz (inclusive), the limits for maximum permissible exposure (MPE), derived from whole-body SAR limits and listed in Table 1 in paragraph (e)(1) of this section, may be used instead of whole-body SAR limits as set forth in paragraphs (a) through (c) of this section to evaluate the environmental impact of human exposure to RF radiation as specified in §1.1307(b) of this part, except for portable devices as defined in §2.1093 of this chapter as these evaluations shall be performed according to the SAR provisions in §2.1093.

Table 1.1-1: *Table 1 to §1.1310(e)(1)—Limits for Maximum Permissible Exposure (MPE)*

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm²)	Averaging time (minutes)
(i) Limits for Occupational/Controlled Exposure				
0.3–3.0	614	1.63	*(100)	≤6
3.0–30	1842 / f	4.89 / f	*(900 / f²)	<6
30–300	61.4	0.163	1.0	<6
300–1500			f / 300	<6
1500–100000			5	<6
(ii) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	<30
1.34–30	824 / f	2.19 / f	*(180 / f²)	<30
30–300	27.5	0.073	0.2	<30
300–1500			f / 1500	<30
1500–100000			1.0	<30

Notes: f = frequency in MHz. * = Plane-wave equivalent power density.

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2}$$

where: S = power density (mW/cm² or W/m²)
P = power input to the antenna (mW or W)
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna (cm or m)

1.1.2 EUT technical information

	Transmitter 1 (CBRS)	Transmitter 2 (UNII-1)	Transmitter 3 (UNII-3)
Prediction frequency	3.57 GHz	5.2 GHz	5.8 GHz
Antenna type	Sector antenna	Dual slant sector antenna	Dual slant sector antenna
Antenna gain	24.5 dBi	19 dBi	19 dBi
Maximum transmitter conducted power	28.91 dBm	18.16 dBm	18.95 dBm
Prediction distance	160 cm	160 cm	160 cm

1.1.3 MPE calculation

	CBRS		UNII-1		UNII-3	
Fundamental transmit (prediction) frequency:	3570	MHz	5200	MHz	5800	MHz
Maximum measured conducted peak output power:	28.91	dBm	18.16	dBm	18.95	dBm
Cable and/or jumper loss:	1.5	dB	0	dB	0	dB
Maximum peak power at antenna input terminal:	27.41	dBm	18.16	dBm	18.95	dBm
Tx On time:	1.000	ms	1.000	ms	1.000	ms
Tx period time:	1.000	ms	1.000	ms	1.000	ms
Average factor:	100	%	100	%	100	%
Maximum calculated average power at antenna input terminal:	550.808	mW	65.4636	mW	78.5236	mW
Single Antenna gain (typical):	24.5	dBi	19	dBi	19	dBi
Number of antennae:	2		1		1	
Total system gain:	27.51	dBi	19.00	dBi	19.00	dBi
MPE limit for uncontrolled exposure at prediction frequency:	**1.000000**	**mW/cm²**	**1.000000**	**mW/cm²**	**1.000000**	**mW/cm²**
	10.00000	W/m²	10.00000	W/m²	10.00000	W/m²
Minimum calculated prediction distance for compliance:	157	cm	20	cm	22	cm
Typical (declared) distance:	160	cm	160	cm	160	cm
Average power density at prediction frequency:	**0.965117**	**mW/cm²**	**0.016164**	**mW/cm²**	**0.019389**	**mW/cm²**
	9.651174	W/m²	0.161640	W/m²	0.193888	W/m²
Combined MPE compliance:						
Margin of Compliance:	**0.15**	**dB**	**17.91**	**dB**	**17.12**	**dB**
Maximum allowable antenna gain:	27.66	dBi	36.91	dBi	36.12	dBi

1.1.4 Verdict

The calculation is below the limit; therefore, the product is passing the RF Exposure requirements for the declared distance.

End of the test report