

FCC RF Exposure Evaluation

Report Number:

F251065E4

Equipment under Test (EUT):

ISC-BDL2-WP12G

Applicant:

Radionix LLC

Manufacturer:

Keenfinity S.A.



Deutsche
Akkreditierungsstelle
D-PL-17186-01-00

References

- [1] **CFR 47 Rule part 1** Practice and Procedure
- [2] **CFR 47 Rule part 2** Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
- [3] **KDB 447498 D04** Interim General RF Exposure Guidance v01

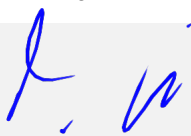
Assessed and
written by:



Sebastian KREHS
16.04.2026

Signature

Reviewed and
approved by:



Thomas KÜHN
16.04.2026

Signature

This evaluation report is only valid in its original form.

Any reproduction of its contents in extracts without written permission of the accredited test laboratory PHOENIX TESTLAB GmbH is prohibited.

The evaluation results herein refer only to the tested sample. PHOENIX TESTLAB GmbH is not responsible for any generalisations or conclusions drawn from these evaluation results concerning further samples. Any modification of the evaluated samples is prohibited and leads to the invalidity of this evaluation report. Each page necessarily contains the PHOENIX TESTLAB Logo and the EVALUATION REPORT NUMBER.

Contents:	Page
1 Identification	4
1.1 Applicant.....	4
1.2 Manufacturer	4
1.3 Test Laboratory	4
1.4 EUT (Equipment Under Test).....	5
1.5 Technical data of equipment	5
2 Evaluation Methods	6
2.1 RF exposure test exemptions for single sources	6
2.1.1 General exemption CFR 47 §1.1307(b)(3)(i)(A)	6
2.1.2 SAR based exemption CFR 47 §1.1307(b)(3)(i)(B)	6
2.1.3 MPE based exemption CFR 47 §1.1307(b)(3)(i)(C)	6
2.1.4 Stand alone MPE evaluation limits	7
2.2 RF exposure test exemptions for simultaneous transmission sources	8
2.2.1 1 mW test exemption for simultaneous transmission sources	8
2.2.2 Simultaneous transmission SAR based and MPE based test exemptions	8
2.2.3 Test exemption based on the SAR to Peak Location Separation Ratio	9
3 Results of evaluation.....	10
3.1 Used evaluation methods.....	10
3.2 General exemption	11
4 Conclusion.....	11
5 Report History.....	11

1 Identification

1.1 Applicant

Name:	Radionix LLC
Address:	130 Perinton Parkway Fairport, NY 14450
Country:	United States of America
Name for contact purposes:	Mr Peter NAMISNAK
Phone:	+1 585 678 – 34 62
eMail Address:	peter.namismak@keenfinity-group.com
Applicant represented during the test by the following person:	---

1.2 Manufacturer

Name:	Keenfinity S.A.
Address:	EN109/IC1, Zona Industrial de Ovar Lugar da Pardala - S. João de Ovar 3880-728 Ovar
Country:	Portugal
Name for contact purposes:	Mr. Antonio PEREIRA
Phone:	+351 256 596 - 110
eMail Address:	AntonioMaria.Pereira@keenfinity-group.com
Manufacturer represented during the test by the following person:	---

1.3 Test Laboratory

The tests were carried out at: **PHOENIX TESTLAB GmbH**
Königswinkel 10
32825 Blomberg
Germany

accredited by *Deutsche Akkreditierungsstelle GmbH (DAkkS)* according to DIN EN ISO/IEC 17025:2018. The accreditation is only valid for the scope of accreditation listed in the annex of the certificate D-PL-17186-01-00. FCC Test Firm Designation Number DE0004, FCC Test Firm Registration Number 469623, CAB Identifier DE0003 and ISED# 3469A.

1.4 EUT (Equipment Under Test)

Test object: *	Blue Line Gen 2 Combined PIR/Microwave Motion Detector
PMN: *	BLG2
HVIN: *	ISC-BDL2-WP12G
FCC ID: *	T3X-BLG2B
Serial number: *	042163657328100138
PCB identifier: *	F01U424565_01
Software version / FVIN: *	V3.02
Lowest internal frequency: *	8 MHz

*: Declared by the applicant.

1.5 Technical data of equipment

Duty cycle: *	<0.5 %		
Receiver category: *	1		
Rated RF output power: *	<20 mW (e.i.r.p.)		
Antenna type:	Integral patch antenna		
Operation frequency range: *	10.500 GHz to 10.550 GHz		
Kind of transmission: *	Unmodulated pulse		
Bit rate of transmitter: *	N/A		
Supply Voltage (EUT): *	$U_{Nom} = 12.0 V_{DC}$	$U_{Min} = 9.0 V_{DC}$	$U_{Max} = 15.0 V_{DC}$
Power Supply: *	External		
Temperature range: *	-20 °C to +55 °C		

*: Declared by the applicant.

Ports/Connectors

Identification	Connector type		Length *
	EUT	Ancillary	
Connection cable (DC _{in} , tamper and NC)	Six pole terminal block	Banana plug	3 m
-	-	-	-
-	-	-	-

2 Evaluation Methods

2.1 RF exposure test exemptions for single sources

2.1.1 General exemption CFR 47 §1.1307(b)(3)(i)(A)

The available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(ii)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(ii)(A).

2.1.2 SAR based exemption CFR 47 §1.1307(b)(3)(i)(B)

The available maximum time-averaged power of effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz inclusive.

For the following separation distances [d] and frequency ranges P_{th} is given by the following formulas

	0.5 cm ≤ d ≤ 20cm	20 cm < d ≤ 40 cm
0.2 GHz ≤ f < 1.5 GHz	$P_{th}(mW) = ERP_{20cm} \left(\frac{d}{20} \right)^x$ $ERP_{20cm}(mW) = 2040f$ $x = -\log_{10} \left(\frac{60}{ERP_{20cm}\sqrt{f}} \right)$	$P_{th}(mW) = ERP_{20cm}$ $ERP_{20cm}(mW) = 2040f$
1.5 GHz ≤ f ≤ 6 GHz	$P_{th}(mW) = ERP_{20cm} \left(\frac{d}{20} \right)^x$ $ERP_{20cm}(mW) = 3060$ $x = -\log_{10} \left(\frac{60}{ERP_{20cm}\sqrt{f}} \right)$	$P_{th}(mW) = ERP_{20cm}$ $ERP_{20cm}(mW) = 3060$

2.1.3 MPE based exemption CFR 47 §1.1307(b)(3)(i)(C)

By using Table 1 and the minimum separation distance (d in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. For the exemption in Table 1 to apply, d must be at least $\lambda/2\pi$, where λ is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

RF Source frequency [MHz]	Threshold ERP [W]
0.3 - 1.34	$1920 d^2$
1.34 – 30	$3450 d^2/f^2$
30 – 300	$3.83 d^2$
300 – 1500	$0.0128 d^2/f$
1500 - 100000	$19.2 d^2$

d: Minimal separation distance from antenna to the user

2.1.4 Stand alone MPE evaluation limits

The human exposure to RF emissions from such devices could be evaluated based on the MPE limits adopted by the FCC for electric and magnetic field strength and / or power density. The limits for General Population / Uncontrolled Exposure are given in the following table from CFR 47 §1.1310(e)1:

Frequency range [MHz]	Electric field strength (E) [V/m]	Magnetic field strength (H) [A/m]	Power density (S) [mW/cm ²]	Averaging time [min]
(i)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
(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/f ²)	< 30
30 – 300	27.5	0.073	0.2	< 30
300 – 1500			f/1500	< 30
1500 – 100,000			1.0	< 30

Note: f = frequency in MHz; * Plane – wave equivalent power density

The power density is calculated as follows:

$$S = \frac{P \cdot G \cdot D}{4 \cdot \pi \cdot d^2}$$

Where:

P: conducted power

G: Antenna gain (linear)

D: Duty Cycle

d: Minimal separation distance from antenna to the user

2.2 RF exposure test exemptions for simultaneous transmission sources

2.2.1 1 mW test exemption for simultaneous transmission sources

As discussed in CFR 47 §1.1307(b)(3)(ii)(A) [1] the 1 mW exemption intended for single transmitters may be also applied to simultaneous transmission conditions, within the same host device, according one of the following criteria:

- a. When the maximum available power each individual transmitting antenna with the same time averaging period is ≤ 1 mW, and the nearest parts of the antenna structures of the simultaneously operating transmitters are separated by at least 2 cm
- b. When the aggregate maximum available power of all transmitting antennas is ≤ 1 mW in the same time-averaging period

This exemption may not be combined with any other exemption.

2.2.2 Simultaneous transmission SAR based and MPE based test exemptions

Although this is not a module integration in the sense of product approval, the procedure for simultaneous transmission specified in KDB 447498 D04 Interim General RF Exposure Guidance v01 [3] in chapter 2.2 was taken into account:

According to the RF exposure KDB 447498 D04 General RF Exposure Guidance v01 [3] in chapter 2.2.2: This case is described in detail in CFR 47 §1.1307(b)(3)(ii)(B) and covers the situations where both SAR-based and MPE-based exemption may be considered for test exemption in fixed, mobile, or portable device exposure conditions. For these cases, a device with multiple RF sources transmitting simultaneously will be considered an RF exempt device if the condition of the following formula is satisfied.

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

For these test exemptions to apply, the maximum output power, duty factor, and other applicable parameters used in the standalone ERP determination tests, must be the same, or corresponding to a more conservative choice, than those required for simultaneous transmission.

Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0 , according to calculated/estimated, numerically modelled, or measured field strengths or power density. The MPE ratio of each antenna is determined at the minimum test separation distance required by the operating configurations and exposure conditions of the host device, according to the ratio of field strengths or power density to the MPE limit at the test frequency.

2.2.3 Test exemption based on the SAR to Peak Location Separation Ratio

When the ERP-based condition in the previous section does not apply, a test exemption may be still applicable based on the SAR to peak location separation ratio (SPLSR) procedure.

In this case, the simultaneously transmitting antennas in each operating mode and exposure condition combination must be considered one pair at a time to determine the SPLSR that qualifies for the additional test exemption.

This ratio is defined as:

$$SPLSR = (SAR_1 + SAR_2)^{\frac{1.5}{R_i}}$$

Where: SAR_1 and SAR_2 = highest reported SAR or estimated SAR values for the two sources in the pair i , and R_i is their distance in mm.

When $SPLSR \leq 0.04$ (rounded to two decimal digits), for all antenna pairs in the configuration, then the device qualifies for 1 g SAR test exemption.

When 10 g SAR applies (e.g. for extremities) the corresponding test exemption condition is $SPLSR \leq 0.10$.

If any antenna pair does not qualify for simultaneous transmission SAR test exemption, then the device must be tested for SAR compliance, according to the enlarged zoom scan and volume scan post-processing procedures in KDB Pub. 865664 D01.

3 Results of evaluation

3.1 Used evaluation methods

RF Exposure test exemptions for single sources			
Used	Method	See sub-clause	Comment
☒	General Exemption acc. CFR 47 §1.1307(b)(3)(i)(A)	2.1.1	-
☐	SAR Based Exemption acc. CFR 47 §1.1307(b)(3)(i)(B)	2.1.2	-
☐	MPE Based Exemption acc. CFR 47 §1.1307(b)(3)(i)(C)	2.1.3	-
☐	MPE Calculation	2.1.4	-

RF Exposure test exemptions for simultaneous transmission sources			
Used	Method	See sub-clause	Comment
☐	Not applicable	-	-
☐	1 mW test Exemption acc. 2.2.1 [3]	2.2.1	-
☐	SAR Based Exemption acc. 2.2.2 [3]	2.2.2	
☐	MPE Based Exemption acc. 2.2.2 [3]	2.2.2	
☐	SAR to Peak location separation ratio acc. 2.2.3 [3]	2.2.3	

3.2 General exemption

The following information are based on test report F251065E4 of PHOENIX TESTLAB GmbH.

Limit for General exemption CFR 47 §1.1307(b)(3)(i)(A): 1 mW.

The wanted signal of the EUT was measured as field strength (refer to clause 5.3.2.4 of test report F251065E4 issued by PHOENIX TESTLAB GmbH) and was converted to a EIRP according to [2] with the following formula (G.1):

$$EIRP = \frac{(E \cdot d)^2}{30}$$

Where

E is the electric field strength in V/m

d is the measurement distance in meters (m)

With:

E: 46.6 dBµV/m / 214 µV/m (average value, refer clause refer clause 5.3.2.4 of test report F251065E4)

d: 3 m (refer clause refer clause 5.3.2.4 of test report F251065E4)

$$EIRP = \frac{(E \cdot d)^2}{30} = \frac{(214 \cdot 10^{-6} \cdot 3)^2}{30} = 13.7 \mu W$$

The value of the average EIRP is below the general exemption limit of CFR 47 §1.1307(b)(3)(i)(A).

4 Conclusion

The ISC-BDL2-WP12G is exempt from the FCC RF exposure routine evaluation.

5 Report History

Report Number	Date	Comment
F251065E5	16.04.2026	Initial Evaluation Report
-	-	-
-	-	-

----- end of evaluation report -----