



# CE EMF Test Report

Equipment : RouterBOARD wAP G-60ad  
Brand Name : RouterBOARD  
Model No. : RBwAPG-60ad  
Standard : EN 62311:2008  
Applicant : Mikrotiks SIA  
Pernavas 46, Riga, LV-1009 Latvia  
Manufacturer : Mikrotiks SIA  
Pernavas 46, Riga, LV-1009 Latvia

The product sample received on Jun. 29, 2017 and completely tested on Jul. 26, 2017. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in EN 62311:2008 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

  
Cliff Chang  
SPORTON INTERNATIONAL INC.





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# 1 General Description

## 1.1 EUT General Information

RF General Information			
Evaluation Mode	Frequency Range (GHz)	Operating Frequency (GHz)	Modulation Type
60GHz	57 – 66	58.32 GHz 60.48 GHz 62.64 GHz	$\pi / 2 - BPSK, \pi / 2 - QPSK, \pi / 2 - 16QAM$

## 1.2 Evaluation Distance

Evaluation Distance
Evaluation distance 20cm as a distance between the equipment and the operator or user when it is used normally. The distance used for the assessment had be specified by the manufacturer and be consistent with the intended usage of the equipment.

## 1.3 Evaluation Method

Evaluation Method
Far field region, For calculating the field in the far-field region the free space formula: $E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d}$ $\text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$ <p><b>E</b> = Electric field (V/m)  <b>G</b> = EUT Antenna numeric gain (numeric)  <b>P</b> = RF output power (W)  <b>d</b> = Separation distance between radiator and human (m)</p> <p>The formula can be changed to</p> $Pd = \frac{30 \times P \times G}{377 \times d^2}$

## 1.4 Basic Restrictions

Restrictions on exposure to time-varying electric, magnetic, and electromagnetic fields which are based directly on established health effects and biological considerations are termed “basic restrictions”. Depending upon the frequency of the field, the physical quantities used to specify these restrictions are specific absorption rate (SAR), and power density.

## 1.5 Reference Levels

Levels of field strength and currents that can be compared with corresponding measured or calculated values. The reference levels are derived from the basic restrictions using worst-case assumptions about exposure. If the reference levels are met, then the basic restrictions will be complied with, but if the reference levels are exceeded, it does not necessarily mean that the basic restrictions will not be met.

## 1.6 Compliance criteria

If the average power emitted by apparatus operating in the frequency range 10 MHz – 300 GHz is less than or equal to 20 mW then the apparatus is deemed to comply with the basic restrictions without testing. The evaluation of power is only valid if it is made with an uncertainty of less than 30 %.

## 2 Assessment Result

### 2.1 Reference Levels Limits

According to Council Recommendation 99/519/EC Annex III  
Reference levels limits for electric, magnetic and electromagnetic fields (0 Hz to 300 GHz)

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (μT)	Equivalent plane wave power density Seq (W/m <sup>2</sup> )
0-1 Hz	-	$3.2 \times 10^4$	$4 \times 10^4$	-
1-8 Hz	10000	$3.2 \times 10^4 / f^2$	$4 \times 10^4 / f^2$	-
8-25 Hz	10000	4000/f	5000/f	-
0.025-0.8 kHz	250/f	4/f	5/f	-
0.8-3 kHz	250/f	5	6.25	-
3-150 kHz	87	5	6.25	-
0.15-1 MHz	87	0.73/f	0.92/f	-
1-10 MHz	$87 / f^{1/2}$	0.73/f	0.92/f	-
10-400 MHz	28	0.073	0.092	2
400-2000 MHz	$1.375 f^{1/2}$	$0.0037 f^{1/2}$	$0.0046 f^{1/2}$	f/200
<b>2-300 GHz</b>	<b>61</b>	<b>0.16</b>	<b>0.2</b>	<b>10</b>

### 2.2 Reference Levels Evaluation

Evaluation Mode	Maximum E.I.R.P. (dBm)	Power Density (W/m <sup>2</sup> )	Limit of Power Density (W/m <sup>2</sup> )
60 GHz	30.58	2.2748	10
<b>Result</b>		<b>Complied</b>	

Note: For more detailed e.i.r.p. power measurement description, please refer to ER760927AA radio test report.