

**PATENT COOPERATION TREATY**

**TRANSLATION**

From the  
INTERNATIONAL SEARCHING AUTHORITY

**PCT**

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing (day/month/year)	<b>03.08.2015</b>
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Applicant's or agent's file reference <b>P201400401</b>
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<b>FOR FURTHER ACTION</b> See paragraph 2 below
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International application No. <b>PCT/ES2015/000064</b>	International filing date (day/month/year) <b>12.05.2015</b>	Priority date (day/month/year) <b>13.05.2014</b>
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International Patent Classification (IPC) or both national classification and IPC <b>G01R27/08 (2006.01)</b>
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Applicant <b>UNIVERSIDAD DE SEVILLA</b>
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1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/ES	Date of completion of this opinion	Authorized officer
Facsimile No.		Telephone No.

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/ES2015/000064

**Box No. I**      **Basis of this opinion**

1. With regard to the **language**, this opinion has been established on the basis of:
  - the international application in the language in which it was filed
  - a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
  
2.  This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
  
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:
  - a. (means)
    - on paper
    - in electronic form
  
  - b. (time)
    - in the international application as filed
    - together with the international application in electronic form
    - subsequently to this Authority for the purposes of search
  
4.  In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
  
5. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No. PCT/ES2015/000064
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<b>Box No. V</b>	<b>Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</b>
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1. Statement			
Novelty (N)	Claims	1-5	YES
	Claims	_____	NO
Inventive step (IS)	Claims	_____	YES
	Claims	1-5	NO
Industrial applicability (IA)	Claims	1-5	YES
	Claims	_____	NO

2. Citations and explanations:
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<b>Doc.</b>	<b>Publication or Identification Number</b>	<b>Pub. Date</b>
D01	YUFERA A et al. A CMOS bio-impedance measurement system. Design and Diagnostics of Electronic Circuits & Systems, 2009. DDECS '09. 12th International Symposium on, 20090415 IEEE, Piscataway, NJ, USA 15/04/2009 VOL: Pages: 252-257 ISBN 978-1-4244-3341-4; ISBN 1-4244-3341-X. Entire document.	15/04/2009
D02	WISSENWASSER J et al. Signal Generator for Wireless Impedance Monitoring of Microbiological Systems. IEEE TRANSACTIONS ON INSTRUMENTATION AND MEASUREMENT, 20110601 IEEE SERVICE CENTER, PISCATAWAY, NJ, US 01/06/2011 VOL: 60 No: 6 Pages: 2039-2046 ISSN 0018-9456 Doi: doi:10.1109/TIM.2011.2113127. Entire document.	01/06/2011
D03	MORRISON TIM et al. A 0.5 cm <sup>3</sup> Four-Channel 1.1 mW Wireless Biosignal Interface With 20 m Range. IEEE Transactions on Biomedical Circuits and Systems,	

**Box No. V** Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

20140201 IEEE, US 01/02/2014 VOL: 8 No: 1 Pages:  
138 147 ISSN 1932-4545 Doi:  
doi:10.1109/TBCAS.2013.2260337. Entire document.  
01/02/2014

D01 is considered to be the prior art document closest to the subject matter of the application.

### **Independent claims**

Claim 1: Document D01 discloses a bioimpedance measuring system for monitoring cell cultures, based on CMOS circuits and electrical modelling, with:

- a 2D electrode matrix; one central electrode e1 and one of larger area, reference electrode e2;
- a closed loop excitation and bioimpedance measurement circuit;

The differences between document D01 and claim 1 relate to:

- a circuit for transmitting and receiving (wireless) radiofrequency signals with the technical effect of enabling:
- wireless monitoring;
- monitoring and programming software based on

**Box No. V** Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

electrical modelling which is considered, in the generic sense expressed, an option commonly known in the technical field of the application, implemented by means of the corresponding controllers and data output systems, for example, and therefore obvious to a person skilled in the art. Wireless programming is illustrated in document D03.

The technical problem addressed would therefore appear to be how to achieve wireless monitoring of cell cultures. In turn, document D02 discloses a system for wireless measurement of cell culture impedance using an RFID tag.

Bearing in mind that the two documents belong to the same technical field and are complementary in nature, a person skilled in the art would tend to combine them to obtain the solution to the technical problem addressed.

As such, the combination of documents D01 and D02 would appear to affect the inventive step of claim 1 (PCT Article 33(3)).

**Dependent claims**

Claims 2-5: the content of these claims is contained in document D01.

Therefore, the combination of documents D01 and D02 would appear to affect the inventive step of claims 2-5 (PCT Article 33(3)).