



### Claim 1

*A wearable article in the form of an item of clothing, arm sleeve, leg sleeve, armband or wristband, the wearable article comprising an electronics module, the electronics module comprising:*

*A controller configured to process signals received from a sensing component;*

*A power source, coupled to the controller, and arranged to supply power to the controller;*

*A first antenna;*

*A printed circuit board structure comprising a first printed circuit board on which the first antenna is provided and a second printed circuit board on which the controller is provided; and*

*A housing comprising a top enclosure and a bottom enclosure, wherein the bottom enclosure is arranged to be closer to the skin of the user than the top enclosure in use;*

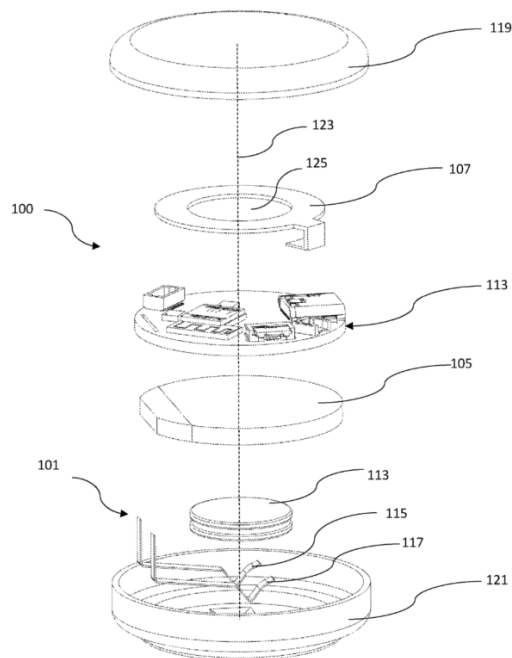
*Wherein the power source, controller and the first antenna are provided in the housing, and wherein the first antenna is provided proximate to the top enclosure and positioned above the power source and controller;*

*Wherein the electronic module is arranged to receive power from a mobile device via the first antenna to charge the power source and is further arranged to transmit information to the mobile device **via the first antenna.***

**(Emphasis Added to highlight alleged added matter)**

### The Application

- 6 I think it is helpful in cases like this to set out my understanding of the claimed invention. For that reason, I have reproduced Figure 7 below, which I believe sets out a physical embodiment of the invention although not necessarily the device of the claims.



- 7 The application is for a wearable device that includes an electronics module. To function as a device, it needs both to be chargeable and to communicate. To meet these needs the applicant has designed a device that has a housing, the bottom of which rests against the user's skin and has a power antenna near the top. This achieves the function of allowing it to be charged by a mobile device whilst on a patient. In the device itself, there are two circuit boards, the first carrying the antenna and a second carrying a controller. Importantly, and to meet the functional need of easy charging the board carrying the antenna is above both the circuit board and the battery.

### The Law

- 8 1(1) of the Act sets out what is required of a patentable invention as follows:

*1(1) A patent may be granted only for an invention in respect of which the following conditions are satisfied, that is to say-*

*(b) it involves an inventive step;*

*and references in this Act to a patentable invention shall be construed accordingly*

9 Section 2 of the Act sets out what 'new' means as follows:

*2(1) An invention shall be taken to be new if it does not form part of the state of the art.*

*2(2) The state of the art in the case of an invention shall be taken to comprise all matter (whether a product, a process, information about either, or anything else) which has at any time before the priority date of that invention been made available to the public (whether in the United Kingdom or elsewhere) by written or oral description, by use or in any other way*

*2(3) The state of the Art in the case on an invention to which an application for a patent or a patent relates shall be taken also to comprise matter contained in an application for another patent which was published on or after the priority date of that invention, if the following conditions are satisfied, that is to say:-*

*(a) That matter was contained in the application for that other patent both as filed and as published; and*

*(b) The [priority date of that matter is earlier than that of the invention*

10 Section 3 of the Act states

*An invention shall be taken to involve an inventive step if it is not obvious to a person skilled in the art, having regard to any matter which forms part of the state of the art by virtue only of section 2(2) above (and disregarding section 2(3) above).*

11 In addition to statute, the courts have long used the so called *Windsurfing* test to assess issues of inventive step. This test was reformulated by the Court of Appeal in *Pozzoli*<sup>1</sup>. Paragraph 23 of this decision lays out the test as:

*(1) (a) Identify the notional "person skilled in the art"*

*(b) Identify the relevant common general knowledge of that person;*

*(2) Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;*

*(3) Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed;*

*(4) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?*

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<sup>1</sup> *Pozzoli Spa v BDMO SA & Anor* [2007] EWCA Civ 588

12 Moving on to added matter, section 76(2) of the Act states:

*No amendment of an application for a patent shall be allowed under section 15A(6), 18(3) or 19(1) if it results in the application disclosing matter extending beyond that disclosed in the application as filed.*

13 As the case is a divisional, section 76(1) of the Act is also relevant. This states:

*An application for a patent which –*

*(a) is made in respect of matter disclosed in an earlier application, or in the specification of a patent which has been granted, and*

*(b) discloses additional matter, that is, matter extending beyond that disclosed in the earlier application, as filed, or the application for the patent, as filed,*

*may be filed under section 8(3), 12 or 37(4) above, or as mentioned in section 15(9) above, but shall not be allowed to proceed unless it is amended so as to exclude the additional matter.*

## **Analysis**

### **Added Matter**

14 As is often the case when there are two issues to be heard it is best to deal with the issue of added matter first to ensure that any analysis of a claim for issues of inventive step can be based on an allowable claim.

15 The final clause of claim 1 reads:

*Wherein the electronic module is arranged to receive power from a mobile device via the first antenna to charge the power source and is further arranged to transmit information to the mobile device **via the first antenna.***

16 In their report the Examiner has highlighted the addition of “via the first antenna” as added matter. In stating their objection, they rightly refer to the test for added matter set out by Aldous J in *Bonzel*<sup>2</sup> which I reproduce here:

*1) to ascertain through the eyes of the skilled addressee what is disclosed, both explicitly and implicitly, in the application as originally filed:*

*2) to do the same in respect of the amended application.*

*3) to compare the two disclosures and decide whether any subject matter relevant to the invention has been added whether by deletion or addition, The*

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<sup>2</sup> *Bonzel v Schneider* [1991] RPC 553

*comparison is strict in the sense that the subject matter is added unless such matter is clearly and unambiguously disclosed in the originally filed application, either explicitly or implicitly.*

- 17 The Examiner has argued that the specification would appear to describe a first antenna that either receives power or transfers data but not both. As a consequence, it is their view that adding the feature “*via the first antenna*” to the claim constitutes added matter.
- 18 Mr Bird made his case that it isn’t added matter by referring me to several paragraphs within the description:
  - a) On page 1 at line 32 he makes the point that the wearable article *has a structure that facilitates the transfer of power and/or data between the electronics module and an external device.*
  - b) On page 7 at lines 19-37 where the first antenna is described for both communication using a short range protocol such as NFC and also a power receiving antenna when not used for communication. This paragraph finishes by stating:

*Therefore, the electronics module has a structure that facilitates the transfer of power and/or data between the electronics module and an external device.*
  - c) On page 8 where the opening paragraph envisages a wearable device with some or all of the features of the various aspects of the disclosure.
  - d) On page 23 of the description, examples 14 and 15 which describe the first antenna as being a power receiving antenna and a communications antenna respectively and example 19 where it is made clear that the antenna is energised by the mobile device to transmit information over a first wireless protocol and may incorporate any of the features of any previous examples.
- 19 Turning to the *Bonzel* test, I must ask “what does the specification disclose either explicitly or implicitly?” I have some sympathy for the Examiner in this instance as I am not sure that the specification *explicitly* states that the first antenna can operate both as a power receiver and a communications antenna.
- 20 For Mr Bird’s part, I can also see his difficulty in this matter. Without any explicit disclosure he is relying on an implicit disclosure. In a practical sense, his argument is that the antenna can be either used for power or communications and in example 19 there is an example of where the antenna is arguably doing both.
- 21 For my part, I am conscious that the test makes reference to the skilled person and what they would read. I believe, given that this is about a wearable article that transmits data via a short range communication device, they will be someone who understands the principles of RFID tags or similar devices. In so far as that is the case, they would also be well aware of using an antenna to perform inductive power transfer to power the device and an antenna to transmit data.
- 22 The next part of my analysis focusses on the meaning of “and/or”. This phrasing is too often used by rote and thus needs to be treated carefully. Does it mean the

antenna can act simultaneously as both a communications antenna and a power antenna, either a communication or a power antenna or exclusively as only one or the other? On balance, I do not think that the last of these is how one would read “and/or” in this case. I think there is more than enough in the specification to suggest that the same antenna can operate in both modes which is exactly what is implied by the latest version of claim 1. Furthermore, I believe that such an interpretation is implicitly supported by the specification, in the sections highlighted by Mr Bird.

- 23 For this reason, I do not think that the skilled man would learn anything new from the amended claim. As such, I believe that claim 1, as quoted above, does not contain any added matter. I will thus proceed with my analysis for inventive step on the basis of the amended claim.

### **Inventive Step**

- 24 As is the norm, when considering issues of inventive step, it is necessary to follow the *Windsurfing/Pozzoli* test set out by the courts. The first step of that is to identify the skilled person and their common general knowledge.
- 25 I have already given some consideration to this point above and I do not see the need to deviate from that view. The skilled person is an electrical engineer who is familiar with the principles of operating RFID type devices. They would be well aware that a device can be wirelessly charged. The examiner in their report of 13<sup>th</sup> December 2021 has referred to specific knowledge of both resonant charging and uncoupled RF charging. Likewise, they would also be aware that the purpose of RFID is to receive/transmit information from a device via an antenna.
- 26 The next step is to construe the claim and identify the inventive concept. This requires some exploration of the claim to understand the interaction between the various components.
- 27 The housing itself is such that the bottom is intended to be closer to the skin of the user. The reasons for this become apparent when you view the specification at Lines 17-39 on page 6 where it is stated that the device may contain sensors that may include temperature or ECG sensors amongst several other examples. In short, when against the skin it can sense the condition of the user.
- 28 Within the housing the antenna is “proximate the top of the housing and above the power source and controller”. This arrangement according to line 1-6 on page 5 is “beneficial as it minimises the communication distance between the antenna and mobile device”. These reasons are repeated beginning at line 20 on Page 7 where it is also made clear that by minimising the distance between the antenna and the mobile device the effectiveness of the power transfer is increased.
- 29 Identifying the inventive concept in this instance is not straightforward. Firstly, as the Examiner notes the controller receives signals from a sensor apparatus that is not a feature of the claim.
- 30 A more fundamental issue is what is meant by the structure set out in the claim. The “first antenna” is claimed separately but it is clear that it is on the first circuit board of

a two board structure. The second board is the board housing the controller. Taking into account the later features of the claim, and that the antenna needs to be near the top of the housing, there is a defined structural order to the components. I note in passing that the antenna is referred to as the first antenna even though there is only one antenna described in the claim.

31 I also need to consider the location of the power source. According to the claim it is below the antenna and coupled to the controller. The power source is charged by locating a mobile device next to the antenna. Page 12 of the description, lines 4-16, disclose that the power source may be a rechargeable battery. The arrangement of the claim is discussed at page 18, lines 19-31, which clearly state that the circuit board and the antenna “may be formed from the same circuit board structure” and “a first circuit board on which the antenna is provided on the first circuit board”. The description, at this point draws on Fig 7 and it is very clear that the battery is below the first circuit board.

32 Having reviewed the arrangement, I am now content to construe it as a first circuit board comprising a first antenna, a second circuit board comprising a controller and a power source wherein the first board is located above the second board and the power source such that the antenna is proximate to the upper surface of the housing. In this context, ‘below’ means closer to the skin of the user when the wearable device is in use, and ‘above’ & ‘upper’ mean the opposite.

33 Secondly, the Examiner has not considered the “via the first antenna” in their formulation of the claim given they thought it was added matter. They have though construed the claim to include wirelessly transmitting information from the device. For completeness, I will construe this in light of the earlier discussion as “via the first antenna” which is perhaps a little narrower in scope.

34 Taking the construction above into account, I believe that the inventive concept is:

*A wearable device comprising an electronics module having a housing formed of top and bottom enclosures, the housing containing a controller wherein the housing comprises a first circuit board comprising a first antenna, a second circuit board comprising a controller and a power source wherein the first board is located above the second board and the power source such that the antenna is proximate the upper surface of the housing, the electronics module being able to receive power from a mobile device and to transmit information via the first antenna.*

35 The next step is to identify the state of the art and to determine the differences between that and the inventive concept.

36 The Examiner has cited CN 110575144 (TACSENSE) as forming the state of the Art. He has also referred to a paper “Wearable Pulse Wave Monitoring System based on MEMS sensors” attributed to Yu Sun amongst others which is referred to as SUN in connection with Claim 8.

37 He is of the view that Fig 6 of TACSENSE is of relevance and I reproduce it below:



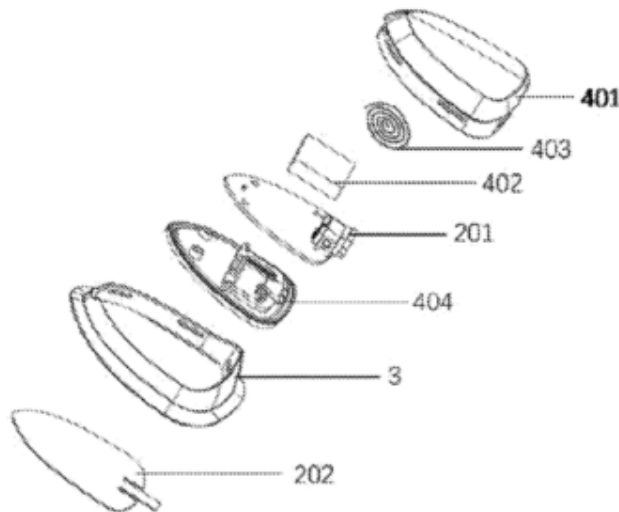


图6

- 38 There is clearly a housing comprising a top (401) and a bottom (404). There is also an antenna (403), a battery (402), and a circuit board (201). On the face of it certainly contains a number, though not all, of the components of the current application.
- 39 Mr Bird takes a different view. He places great emphasis on the fact that the drawing of TACSENSE is described only as “*schematic diagram of a device host architecture*”. His view is that this is not enabling as it “*does not necessarily reflect how the components are arranged in use*”. Furthermore, it does not show “*how the components are mounted and connected together. The drawing is incomplete and does not provide sufficient information to understand how the device should be assembled.*” If I were to put it simply, Mr Bird contends that there is not enough information in the drawing or the description as to how you would connect the various components nor whether what is shown is the actual order rather than just a convenient way to display them.
- 40 Mr Bird’s approach raises an interesting question of how much information can be inferred from a diagram in a specification. The available authorities, and in particular the EPO decisions in T204/83 and T2052/14 both discuss the issue of drawing conclusions from diagrams. The latter of these was referred to by the Hearing Officer in their decision in *Electric Shuffle IP Ltd*<sup>3</sup> In both of the EPO cases, the issue revolved around whether one could take dimensions from a drawing and recommended care in doing so.
- 41 In T204/85, the board made clear in paragraph 4 of their decision that:

*When a feature is shown solely in a drawing without any other clarifying description a careful check should be made to establish whether the mere*

<sup>3</sup> [Patent Decision O/482/22 \(ipo.gov.uk\)](http://ipo.gov.uk)

*diagrammatic representation enables a person skilled in the art to derive a practical technical teaching therefrom.*

42 In T2052/14 and reiterated in *Electric Shuffle*. The board stated:

*Even if the figures in Document D1 gave the examining division the impression that they correspond to the feature of the characterizing part of claim 1, in this case this does not constitute a direct and immediate disclosure for the person skilled in the art for the reasons given above because he knows that the figures in patent specification D1 are only schematic representations, from which he cannot derive any specific sizes or size ratios with regard to the corrugation profile of the outer tube in this case without appropriate information.*

43 Although there are no dimensions in the drawings, the key point for me to consider in this application is whether the skilled person can derive any practical technical teaching from the drawings. This is a not dissimilar problem to that faced by the hearing officer in *Electric Shuffle* and in that case, he considered there to be enough information in relation to an inventive step issue. If my understanding of that decision is correct, the disclosure was enough for the skilled man to be aware that the shuffleboard game could be played from one end rather than both as is conventional. However, whilst my colleagues view is certainly of interest, I am not bound by it as I would be if it was made by a higher UK court. Similarly, the EPO decisions are persuasive but not precedential.

44 The TACSENSE document is clearly part of the state of the art, but the question is “what would a skilled person learn from it, in a practical technical sense? That is important as without understanding that, I cannot define the difference between the inventive concept of the claim and the prior art.

45 TACSENSE shows me in Fig 6 a housing formed by a top (401) and a bottom (404). Within that housing there is an antenna (403), a battery box (402) and a circuit board (201). Furthermore, there is a pressure sensor (202) that is located below the bottom of the housing and held in place by a snap skirt (3). The specification provides little more information than that as it appears to concentrate on the operation of the device rather than the structure.

46 In and of itself, I am of the view that the skilled man is limited in what he learns from this document beyond a series of components that may form the device. He learns nothing of the circuit board nor how it and the antenna are attached to the power source. In short TACSENE teaches him that a wearable device with a sensor may contain certain components.

47 With this information I can now consider the difference between the state of the art and the inventive concept. For his part, Mr Bird argues that this is:

*a) A printed circuit board structure comprising a first printed circuit board on which the first antenna is provided and a second circuit board on which the controller is provided*

*b) The first antenna is provided proximate the top enclosure and positioned above the power source and controller*

*c) The electronics module is arranged to receive power from a mobile device via the first antenna to charge the power source and is further arranged to transmit information to said mobile device via the same antenna.*

48 I broadly agree with this view of the differences. There is clearly no two board arrangement in TACSENSE, nor is the antenna shown as being on a first board. Equally, while it is clear that the antenna in TACSENSE is used for wireless charging, it is unclear whether the same antenna is used for communication as well. TACSENSE does mention Bluetooth<sup>RTM</sup> but it provides no technical details of how this is done or what antenna it uses.

49 In summary there are thus a number of differences:

- a) The antenna is mounted on a first circuit board;
- b) The controller is mounted on a second circuit board;
- c) The first circuit board is above the second circuit board and the power source;
- d) The first antenna is used for both charging and communication.

50 The final step is to ask whether these differences are obvious. I do not believe that they are. There are simply too many of them and nothing in TACSENSE teaches towards them. It is thus my view that when one considers all of these differences then the current claim 1 involves the required inventive step.

## **Conclusion**

51 I have come to the view that the reference to the same antenna being used for both charging and communication does not constitute added matter. Furthermore, I believe the claims as they are currently written provide an inventive step over the prior art. As such, I remit the application back to the examiner for further processing.

**Dr Stephen Brown**

Deputy Director, acting for the Comptroller