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**Datasheet for the decision  
of 13 December 2023**

**Case Number:** T 0098/21 - 3.5.01

**Application Number:** 10819222.0

**Publication Number:** 2481015

**IPC:** G06Q10/08, G06K17/00, H04B5/02,  
G06K7/10, G06K7/00

**Language of the proceedings:** EN

**Title of invention:**  
RFID TAG MONITORING SYSTEM

**Applicant:**  
NeWave Sensor Solutions LLC

**Headword:**  
RFID tag monitoring/NEWAVE

**Relevant legal provisions:**  
EPC Art. 54, 111(1)  
RPBA 2020 Art. 11

**Keyword:**  
Novelty - Main request (no), first auxiliary request (yes)  
Remittal to the department of first instance (yes)



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Case Number: T 0098/21 - 3.5.01

**D E C I S I O N**  
**of Technical Board of Appeal 3.5.01**  
**of 13 December 2023**

**Appellant:** NeWave Sensor Solutions LLC  
(Applicant) 9011 Heritage Drive  
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**Representative:** Findlay, Alice Rosemary  
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**Decision under appeal:** **Decision of the Examining Division of the  
European Patent Office posted on 17 September  
2020 refusing European patent application No.  
10819222.0 pursuant to Article 97(2) EPC.**

**Composition of the Board:**

**Chairman** M. Höhn  
**Members:** L. Falò  
E. Mille

## **Summary of Facts and Submissions**

- I. This is an appeal against the examining division's decision to refuse European patent application No. 10819222.0.
- II. The application was refused on the grounds of lack of novelty (Article 54 EPC) of the main, first, second and fourth auxiliary requests, lack of inventive step (Article 56 EPC) of the third auxiliary request and added subject-matter (Article 123(2) EPC) in the fourth auxiliary request.
- III. In the statement setting out the grounds of appeal, the appellant requested that the decision of the examining division be set aside and a patent be granted on the basis of the main request or of the first to eleventh auxiliary requests, all filed or re-filed with the statement of grounds of appeal. The main request and the first, fifth, ninth and tenth auxiliary requests correspond to the requests refused by the division. There was a further auxiliary request for oral proceedings in case the main request was deemed unallowable.
- IV. In a communication pursuant to Rule 100(2) EPC, the Board informed the appellant that it considered the main request not novel in view of D5, and it was minded to remit the case to the first instance for further prosecution on the basis of the first auxiliary request.
- V. In a letter of reply, the appellant informed the Board that they agreed with the remittal of the case on the

basis of the first auxiliary request and withdrew the request for oral proceedings.

VI. Claim 1 of the main request reads:

*An RFID tag monitoring system comprising a main computer (14), a plurality of RFID reader units (13) and a plurality of RFID antennas (AT1 - AT4) connected to the reader units,*

*the reader units (13) being located near an associated zone or zones (11) where RFID tagged items are expected to be present and being connected to the main computer (14) by a network (26),*

*each of said reader units (13) being operably connected to at least one antenna (AT1 - AT4), each antenna being arranged to illuminate and detect RFID tags in an associated one of said zones (11),*

*characterized in that*

*the reader units (13) each have a microprocessor and have sufficient electronic processing capacity and memory to enable the unit to autonomously register in its memory the identity of all of the RFID tagged items expected to be present at the zone or zones*

*and each reader unit (13) being programmed to operate autonomously to process signals from RFID tags detected by an associated antenna (AT1 - AT4) to develop RFID tag inventory data for each zone or zones associated with the antenna (AT1 - AT4) and to transmit said inventory data to the main computer (14) through said network (26).*

VII. Claim 1 of the first auxiliary request, apart from minor editorial changes, differs from the main request in that it specifies that each reader unit is connected to "*a plurality of the plurality of antennas*", that each antenna has a coverage range, and by the addition of the following features in the characterising portion:

*"each reader unit (13) comprises a plurality of antennas (AT1 -AT4) for each associated zone (11), the plurality of antennas (AT1 - AT4) for each zone being located at the zone (11), and each zone (11) having dimensions less than the coverage ranges of the plurality of antennas (AT1 - AT4) in the zone (11)"*

and

*"each reader unit (13) is programmed to successively drive each of the plurality of antennas (AT1 - AT4) in each zone to collect data from RFID tags located in the zone (11)".*

VIII. The appellant's arguments, in so far as relevant to the present decision, can be summarised as follows:

D5 does not disclose a plurality of RFID readers being part of the same RFID tag monitoring system, and the further feature of each unit being programmed to operate autonomously. Claim 1 of the main request is therefore novel. D5 also does not disclose the feature, included in claim 1 of the first auxiliary request, of providing a plurality of antennas associated with each zone and also located therein.

## Reasons for the Decision

1. The invention concerns the real-time monitoring of the presence of goods at a particular location (paragraph [0002]). In known systems, RFID readers associated with a given zone periodically read the RFID tags of goods located in proximity, and transmit the read information to a central server. According to the description, a first drawback associated with such systems is that they may require the periodic transmission of a massive amount of data (paragraph [0004]). A further drawback is that the readings of the RFID tags may be inaccurate, for example due to fading of the RF signals (paragraph [0016]).
2. Object of the invention is to overcome the shortcomings associated with the prior art.

Looking at Figure 2, the invention associates each zone to be monitored with a plurality of antennas (AT1 to AT4) organised in different sets. Each set of antennas is connected to a respective reader unit (13) over a common RF switch (18). The reader unit includes data processing means (17) and is adapted to communicate with a main computer (14) over a telecommunication network.

The antennas are located at the zone to be monitored and are positioned so as to provide spatial and orientation diversity. This increases the probability of detecting all the items located at the zone (paragraph [0016]). Moreover, in some embodiments the processing means of the reader units may compress the data read from the RFID tags before transmitting them to the main computer, so as to reduce the bandwidth

occupancy. For example, the reader may inform the server only when an item has been added to or removed from a given zone (paragraphs [0043], [0044]).

Main request - novelty

3. The Board agrees with the contested decision (see point 20) that document D5, US 2008/266092 discloses all the features of claim 1 in paragraphs [0024], [0025], [0034], [0065], [0066] to [0069], [0073] to [0075], [0081], [0083] to [0086], [0093], [0094], [0098] and in Figure 11.

Therefore, claim 1 lacks novelty over D5 (Article 54 EPC).

4. The appellant essentially argued that, even when mapping the Location Assignment Systems (LAS) of D5 to the claimed RFID reader units, D5 still failed to disclose a plurality of RFID readers being part of the same RFID tag monitoring system, and the further feature of each unit being programmed to operate autonomously. In principle, each LAS of D5 could be programmed to communicate with each other and/or with the remote application (Figure 11, 170), in which case they would not be autonomous.
5. The Board finds these arguments unconvincing.

In D5, the function of each LAS is to detect RFID tags located in a given area. Paragraph [0084] discloses an embodiment in which several LAS may share the same local and/or main databases. If only for this reason, they can be considered part of the same RFID monitoring system. The autonomous operation of each LAS is implicit in that none of the operations concerning the

tag detection process requires interaction with an external element (i.e. other LASs, the remote application or the main database of Figure 11). Even though there may be a connection to the remote application, this is only optional (paragraph [0083]).

First auxiliary request - novelty

6. The Board agrees with the appellant that at least the features of each reader comprising *"a plurality of antennas (AT1 -AT4) for each associated zone (11), the plurality of antennas (AT1 - AT4) for each zone being located at the zone (11)"* are not disclosed in D5.
7. The contested decision appears to derive these features from paragraphs [0035] to [0038] of the description, as well as from Figures 3A, 3B and Table 2. According to the embodiments described therein, objects detected by a plurality of antennas are assigned to "virtual zones" located between the antennas or proximate to their borders, while objects detected by a single antenna are considered to be located at that antenna (see in particular paragraph [0038]).
8. The Board observes however that, while the virtual zones are effectively associated with a plurality of antennas, the remaining zones ("actual read zones") are associated with a single antenna. Hence, D5 does not disclose associating a plurality of antennas with each zone. Moreover, the antennas associated with the virtual zone are not located at said zone, but at their respective actual read zone.

Claim 1 is therefore novel over D5 (Article 54 EPC).



Remittal to the first instance

9. The features introduced into claim 1 of the first auxiliary request solve the problem of improving the detection of RFID tags in each zone and, in particular, of reducing signal fading problems. This problem is expressly formulated in paragraph [0016] of the description.
  
10. The Board notes that these features were introduced at a late stage of the first instance proceedings, that is, only after receipt of the summons to oral proceedings, and that none of the documents cited in the search report concerns improving signal detection or reducing signal fading problems by providing antenna diversity in the context of RFID systems.

In view of this, the Board has reason to doubt that this aspect has been thoroughly searched, and considers that a further examination of the prior art is necessary before assessing inventive step. This constitutes a special reason for remitting the case to the first instance (Article 111(1) EPC; Article 11 RPBA).

11. Accordingly, the Board decides to remit the case for further prosecution on the basis of the first auxiliary request.

## Order

### For these reasons it is decided that:

The contested decision is set aside.

The case is remitted to the examining division for further prosecution, which shall include a search, on the basis of the first auxiliary request.

The Registrar:

The Chairman:



T. Buschek

M. Höhn

Decision electronically authenticated