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**Datasheet for the decision  
of 12 June 2015**

**Case Number:** T 2261/13 - 3.5.02

**Application Number:** 05812515.4

**Publication Number:** 1861303

**IPC:** B61L27/00

**Language of the proceedings:** EN

**Title of invention:**

Communication, Monitor and Control Method for Railway Traffic

**Patent Proprietor:**

ASTRAINS S.r.l.

**Opponent:**

Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR)

**Relevant legal provisions:**

EPC Art. 56, 123(2)

**Keyword:**

Inventive step - main request (no)

Amendments - auxiliary requests 1 and 2 - allowable (no)



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Case Number: T 2261/13 - 3.5.02

**D E C I S I O N  
of Technical Board of Appeal 3.5.02  
of 12 June 2015**

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**Decision under appeal:** **Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
28 August 2013 concerning maintenance of the  
European Patent No. 1861303 in amended form.**

**Composition of the Board:**

**Chairman** R. Lord  
**Members:** H. Bronold  
R. Cramer

## **Summary of Facts and Submissions**

I. The appeal concerns the interlocutory decision of the opposition division that, account being taken of the amendments made by the patent proprietor, the patent and the invention to which it relates meet the requirements of the EPC. The basis for this decision was the first auxiliary request filed during the oral proceedings of 9 April 2013.

II. Oral proceedings before the board were held on 12 June 2015.

The appellant (opponent) requested that the decision under appeal be set aside and that the patent be revoked.

The respondent (patent proprietor) requested that the appeal be dismissed, or alternatively that the decision under appeal be set aside and the patent be maintained on the basis of the first or second auxiliary request filed with the letter of 12 May 2015.

III. Reference will be made in this decision to the following documents cited before the opposition division:

C1: EP O 958 987 A2,  
C2: WO 02/064415 A1,  
C4: US 2003/0236598 A1 and  
C5: US 5,757,291 A.

IV. The single claim of the main request reads:

"Method for monitoring and controlling traffic of public transport means, in particular trains, characterized in that it provides:

- mounting, in said transport means, devices (12) apt to receive and transmit data signals,
- spreading, in the area where the traffic has to be monitored, centralized electronic and computerized units (11) dedicated to control adjacent traffic areas with a predetermined layout and extension,
- transmitting, by said devices (12), to said centralized units (11), identification data pertaining to said transport means where said devices are mounted in, the transmission being carried out through via satellite receiving/transmitting means (21'),
- performing, by said centralized units (11), definite procedures for processing said data in order to:
  - defining the position of the transport means which are in the monitored area,
  - displaying in specific visualization means (16) the geographical location of the transport means in the monitored area,
  - detecting possible anomalous traffic situations with respect to the traffic parameters which are stored in said centralized units (11),
  - sending to the devices (12) mounted in the vehicles involved in possible anomalous traffic situations, signals which activate alarm procedures and alarm means,
  - sending to said devices (12), in case the anomalous traffic situation persists, signals which run breaking means of the vehicles interfaced with said devices wherein the method further provides:
    - direct transmission, at regular intervals, via radio or other means, of data and information among devices mounted in vehicles which are within a certain distance range one from the other, in order to monitor their

location and to automatically manage said transport means whenever specific dangerous situations occur,  
- as well as automatic starting of alarm procedures in case that anomalous traffic situations are detected,  
and  
- automatic starting of breaking means of the vehicles in case that said anomalous traffic situations persist."

- V. The single claim of the first auxiliary request differs from the claim of the main request in that the feature relating to direct transmission reads:

"- direct transmission, at regular intervals, via radio or other means, of data and information among devices mounted in vehicles which are within a certain distance range one from the other, in order to monitor their location and to automatically manage said transport means *by activating alarm procedures and drive means of the trains* whenever specific dangerous situations occur, *such as unexpected stops or impact alert,*"

(emphasis of newly-inserted text added by the board).

- VI. The single claim of the second auxiliary request differs from the claim of the main request in that the feature relating to direct transmission reads:

"- direct transmission, at regular intervals, via radio or other means, of data and information among devices mounted in vehicles which are within a certain distance range one from the other, in order to monitor their location and to automatically manage said transport means *by activating alarm procedures and putting into action the breaking means of the vehicles* whenever specific dangerous situations occur, *such as unattended*

*stops or collision alert in single-track branches of the railway,"*

(emphasis of newly-inserted text added by the board).

VII. The appellant essentially argued as follows:

Main request

The starting point for assessing inventive step was document C4, which disclosed all features of the claim according to the main request except the feature dealing with satellite communication and the feature dealing with direct transmission.

The last two features of the claim, dealing with starting of alarm procedures and starting of braking means, were defined with respect to "anomalous traffic situations", an expression exclusively used in relation to actions of the centralized unit. In contrast, the feature of direct transmission referred to "dangerous situations". Consequently, the features dealing with starting of alarm procedures and starting of braking means had to be understood as referring to steps performed by the centralized unit which was able to remotely activate the braking units on board of the vehicles. As a consequence, these two features did not relate to the direct transmission between devices mounted in vehicles. An external activation of braking units carried out by another vehicle was impossible because of safety restrictions.

The two features of the claim immediately preceding the direct transmission feature, dealing with signalling of possible anomalous traffic situations and with sending of signals which run braking means, were related to

actions performed by the centralized unit. The last two features of the claim merely defined the corresponding actions carried out in the vehicles. All of those features were disclosed in figure 3 of document C4, showing a "loco break interface", taken together with the corresponding description.

Thus the only features of the claim which were not disclosed in C4 were those relating to satellite communication and direct transmission between devices mounted on vehicles, and these were known from document C1, paragraphs [0010], [0011], [0028], and [0033]. The feature of direct transmission was also disclosed in document C5, figures 1, 2 and 6 together with columns 3, 5 and 8 of the description. The skilled person would have combined the teaching of documents C1 or C5 with the teaching of document C4 and would thereby have arrived in an obvious manner at a method according to the claim of the main request.

Therefore, the subject-matter of the main request lacked an inventive step.

Auxiliary requests 1 and 2

The auxiliary requests 1 and 2 had no basis in the original application. The wording added to the first auxiliary request "*by activating alarm procedures and drive means of the trains*" had a basis only in page 5, lines 13 to 14 of the A1-publication (WO 2006/097788). That disclosure was however only in the context of anomalous traffic situations which were handled by the centralized units, and thus did not correspond to what was defined in this request. The same argument was valid for the addition to the second auxiliary request, which was disclosed only at page 11, lines 6 to 11 of

the A1-publication and only in the context of the centralized unit. Thus, the first and second auxiliary requests contravened Article 123(2) EPC.

VIII. The respondent essentially argued as follows:

Main request

Neither of the last two features of the claim (those relating to automatic starting of alarm procedures and automatic starting of braking means) was disclosed in document C4, since these features related to the automatic management of vehicles following a direct transmission between devices mounted in vehicles. These features were consistently mentioned in the patent in context of direct transmission between vehicles.

The fact that in the original disclosure the term "as well" was positioned between the mentioning of direct transmission and that of automatic starting of alarm procedures and automatic starting of braking means had no effect in this respect. Hence the skilled person would have read these features together.

Further, document C1 disclosed neither transmission via satellite nor direct transmission between devices mounted in vehicles. In document C1 satellites were used for determination of the vehicle position in the sense of normal GPS-positioning. The phrase "in order to automatically manage said transport means" in the present claim defined that the transport means acted on the brakes of another transport means, and did not merely transmit a warning, which was what was disclosed in document C1. Moreover, the claimed method was dedicated to public transport means. Since document C1 in column 3 excluded public transport means, its



teaching was not to be combined with the teaching of C4. The distinguishing features were also not disclosed in document C5.

Thus, the subject-matter of the main request involved an inventive step.

Auxiliary requests 1 and 2

The subject-matter of the first and second auxiliary request was disclosed in the patent in column 1, lines 20, 39 and 40, column 2, lines 26, 27 and 45 to 47, column 3, lines 11 and 18 as well as column 5, lines 30 to 38. Further, the skilled person would have interpreted "dangerous situations" and "anomalous traffic situations" as synonyms. Therefore, the subject-matter of the first and second auxiliary requests did not contravene Article 123(2) EPC.

## **Reasons for the Decision**

1. The appeal is admissible.
2. Main request – Article 56 EPC
  - 2.1 It is undisputed that document C4 represents the closest prior art. C4 discloses:

A method for monitoring and controlling traffic of public transport means, in particular trains (paragraph [0002]: "...system for controlling the interaction among trains..."), characterized in that it provides:  
- mounting, in said transport means, devices apt to receive and transmit data signals (paragraph [0033],

"...onboard data processor and communication unit 14...")

- spreading, in the area where the traffic has to be monitored, centralized electronic and computerized units dedicated to control adjacent traffic areas with a predetermined layout and extension (paragraph [0040], "...central control and dispatch system..."),

- transmitting, by said devices, to said centralized units identification data pertaining to said transport means where said devices are mounted in (paragraph [0033], "...Position information is received by the unit 14 through channel 22 and simultaneously transmitted to the control center...", it being implicit that identification data must be included, since this is necessary for any such communication system),

- performing, by said centralized units, definite procedures for processing said data in order to:

- define the position of the transport means which are in the monitored area (paragraph [0040], "...software for composing train graphs...", the position of each train is a prerequisite for composing a train graph),

- display in specific visualization means the geographical location of the transport means in the monitored area (paragraph [0040], "...displayed ...at the dispatch center..."),

- detect possible anomalous traffic situations with respect to the traffic parameters which are stored in said centralized units (paragraph [0037], "...When a sensor ... detects an axle temperature above a predetermined safe threshold..."),

- send to the devices mounted in the vehicles involved in possible anomalous traffic situations, signals which activate alarm procedures and alarm means (paragraph [0037], "an alarm is transmitted...for immediate alert..."), and

- send to said devices, in case the anomalous traffic situation persists, signals which run braking means of the vehicles interfaced with said devices (paragraph [0033], "This unit similarly receives ... automatic train control signals (such as for emergency braking)", wherein the method further provides:
  - automatic starting of alarm procedures in case that anomalous traffic situations are detected (paragraph [0037], "an alarm is transmitted...for immediate alert..."), and
  - automatic starting of braking means of the vehicles in case that said anomalous traffic situations persist (paragraph [0033], "This unit similarly receives ... automatic train control signals (such as for emergency braking)").

2.2 The respondent has disputed that the last two features of the claim are disclosed in C4, this argument being based on the alleged link between these features and the direct transmission feature. These features, relating to automatic starting of alarm procedures and automatic starting of braking means, are, according to their wording, dependent on the occurrence of "anomalous traffic situations". The expression "anomalous traffic situation" is however not reflected in the feature of direct transmission (i.e. the feature which immediately precedes these two features in the claim), which is defined only with respect to "dangerous situations". The expression "anomalous traffic situation" is used in other features of the claim of the main request, namely in the feature of detecting possible anomalous traffic situations, in the feature of sending signals which activate alarm procedures and in the feature of sending signals which run braking means. The steps of these features are all performed by the centralized units. The board therefore

agrees with the appellant that the last two features of the claim relate to the same method steps as the two features immediately preceding the direct transmission feature, and merely define them from the viewpoint of the devices in the vehicles, not of the centralized units.

Document C4 discloses in figure 4 and the corresponding description on page 3, paragraph [0033] that "This unit similarly receives and transmits automatic train control signals (such as for emergency braking..." and in paragraph [0034] that "it is possible to monitor continuously the condition of all essential components of the train and provide a real-time backup for signalling any condition that warrants an alarm."

Therefore, the board concludes that the last two features of the claim are disclosed in document C4.

2.3 Consequently, the method of the claim of the main request differs from that disclosed in document C4 only by:

- the transmission being carried out via satellite receiving/transmitting means, and by
- direct transmission at regular intervals, via radio or other means, of data and information among devices mounted in vehicles which are within a certain distance range one from the other, in order to monitor their location and to automatically manage said transport means whenever specific dangerous situations occur.

2.4 These two differences provide distinct solutions of unrelated technical problems. The first difference solves the problem of providing an alternative

communication for transport means. The second difference solves the problem of reducing latency in communication between transport means.

- 2.4.1 Regarding the first of these problems, document C1 discloses in paragraphs [0028] and [0029] details of the centralized unit ("Zugsteuerzentrale"). According to paragraph [0028] position information can be delivered to the centralized unit ("Die Zugsteuerzentrale verfügt über eine Eingangsschnittstelle ESS, über die Ortsinformationen ... zuführbar sind") and the transmission is carried out via a satellite ("Die Zuführung der Ortsinformationen kann ... von einem Satelliten erfolgen"). As the cited passage of C1 discusses the transmission of information about the position of the transport means to the centralized unit, it can not mean the mere reception of GPS signals via satellite, as these could only be used to determine the position of the centralized unit itself instead of transmitting information about the position of the transport means to the centralized unit. Therefore, the feature of transmission via satellite is disclosed in document C1 as a solution to the first problem.

Moreover, document C2 also discloses transmission via satellite receiving/transmitting means as one type of communication between transport means and a centralized unit on page 7, paragraph [0022].

Since documents C1 and C2 are both directed to controlling railway traffic and each of them teaches an alternative communication for transport means, the skilled person would have combined the disclosure of either C1 or C2 with the disclosure of C4. Therefore, the claimed solution to the first problem is obvious.

2.4.2 Regarding the second problem identified above, document C1 discloses a direct transmission between devices mounted in vehicles, at regular intervals, which are within a certain distance range, (column 3, paragraph [0011] "daß unmittelbar aufeinander folgende Schienenfahrzeuge drahtlos und direkt miteinander kommunizieren..." and paragraph [0010], "...müssen die Schienenfahrzeuge sehr genau und kontinuierlich über den Ort des jeweils vorausfahrenden Schienenfahrzeugs ... informiert sein"). Further, document C1 describes that the purpose of the direct transmission in column 3, paragraph [0011], is to reduce reaction time. Moreover, document C1 discloses that the direct transmission is used to manage said transport means whenever specific dangerous situations occur, see column 8, paragraphs [0031] to [0033], disclosing an automatic braking procedure according to a predefined braking distance.

Similarly, document C5 discloses direct transmission between devices mounted in vehicles at regular intervals in order to transmit inter alia the GPS-determined location of a train to other trains within the RF range for the purpose of enhancing safety and operating efficiency (see column 4, lines 13 to 36).

Documents C1 and C5 both disclose systems for controlling railway traffic. Document C5 does not specify whether it concerns public transport or freight or both. Document C1 does not exclude the application of its teaching to public transport either. In column 3, paragraph [0009], the criteria for application of the teaching of C1 to public transport are given ("Für den Personenverkehr ist ein Fahren im relativen Bremswegabstand daher nur dann vertretbar, wenn ein

abruptes Stehenbleiben eines Schienenfahrzeugs mit praktisch 100%iger Sicherheit ausgeschlossen werden kann"). The term "abruptes Stehenbleiben" is defined at the end of column 2 of C1 as being for example the "Auffahrens auf einen herabgerutschten Bahndamm", i.e. the collision with parts of the railway embankment that accidentally slid onto the track. Since it appears possible to comply with these criteria by technical means, neither the application of the teaching of C1 nor that of C5 to public transport is excluded.

Thus, the skilled person looking for a solution to the second problem could and would combine the disclosure of document C4 with either of the disclosures of documents C1 or C5 and would thereby arrive at the claimed solution of the second problem in an obvious manner.

2.5 Since the two distinct solutions to the two identified unrelated problems defined in the claim are obvious, the subject matter of the main request does not involve an inventive step in the sense of Article 56 EPC.

3. Auxiliary requests 1 and 2 - Article 123(2) EPC

3.1 The addition to the first auxiliary request "*by activating alarm procedures and drive means of the trains*" is attributed through its context in the claim to the feature of direct transmission between devices mounted in vehicles.

However, this wording was originally disclosed only in another context, namely, "in case that anomalous traffic situations occur", see page 5, lines 13 and 14 of the A1-publication (WO 2006/097788). Detection of

"possible anomalous traffic situations" is defined as a step performed by the centralized units, see page 4, lines 21 and 22 and page 5, lines 3 and 4 of the A1-publication.

The respondent argued that the combination now claimed was originally disclosed because the expressions "anomalous traffic situations" and "dangerous situations" were used in the original application as synonyms. The board is not convinced by this argument, because the two expressions are used there consistently in the two distinct contexts of actions initiated by the centralized units and those performed by the vehicles, thus implying that they have different meanings, as argued by the appellant.

Thus, there is no basis for the addition to the first auxiliary request in the originally filed documents.

- 3.2 Regarding the second auxiliary request, similar arguments apply. The addition "*by activating alarm procedures and putting into action the breaking means of the vehicles*" was disclosed on page 11, lines 8 to 10 of the A1-publication, but only in the context of a step performed by the centralized units, namely "in case of detection of anomalous traffic situations", see page 11, lines 10 and 11 of the A1-publication.

Thus, there is no basis for the addition to the second auxiliary request in the originally filed documents either.

- 3.3 Therefore, the first and second auxiliary requests contravene Article 123(2) EPC.



4. Since none of the respondent's requests provides a basis for maintenance of the patent in amended form, the board has to accede to the the appellant's request to revoke the patent.

## Order

### For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:



U. Bultmann

R. Lord

Decision electronically authenticated