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**Datasheet for the decision
of 19 January 2012**

Case Number: T 1676/07 - 3.5.02
Application Number: 00957491.4
Publication Number: 1216180
IPC: B61L 3/12, B61L 27/00,
H04L 12/28
Language of the proceedings: EN

Title of invention:

Method of transferring files and analysis of train operational data

Patentee:

New York Air Brake Corporation

Opponent:

Siemens Aktiengesellschaft

Headword:

Inventive step (no)

Relevant legal provisions:

EPC Art. 56

Relevant legal provisions (EPC 1973):

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Keyword:

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Decisions cited:

-

Catchword:

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Case Number: T 1676/07 - 3.5.02

D E C I S I O N
of the Technical Board of Appeal 3.5.02
of 19 January 2012

Appellant:
(Opponent)

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Respondent:
(Patent Proprietor)

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Representative:

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Decision under appeal:

Interlocutory decision of the Opposition
Division of the European Patent Office posted
1 August 2007 concerning maintenance of
European patent No. 1216180 in amended form.

Composition of the Board:

Chairman: M. Ruggiu
Members: M. Léouffre
P. Mühlens

Summary of Facts and Submissions

- I. This is an appeal of the opponent against the interlocutory decision of the opposition division to maintain the European patent No. 1216180 in amended form, on the basis of claim 1 filed with letter of 18 March 2005 and claims 2 to 26 of the patent specification.
- II. The following documents of the state of the art played a role in the appeal proceedings:
- E1: JP-A-10 203 369 and its English translation filed with the notice of opposition dated 23 July 2004;
 - E2: US-A-5 533 695;
 - E3: US-A-5 420 883; and
 - E5: Helmut Tornsdorf and Manfred Tornsdorf "Windows 98", München Wien : Hanser 1998, pages 406 and 407.
- III. Oral proceedings before the board took place on 19 January 2012.
- 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.
- IV. Claim 1 filed with the letter of 18 March 2005 reads as follows:
- "A method of establishing communication and transferring files between a computer (18) on-board a

train (12, 14, 16) and remote stations (28) comprising:
collecting one or more of event recorder data,
train performance data and track data in files on the
on-board computer (18),
determining whether a remote station (28) is
within range,
establishing wireless communication between the
on-board computer (18) and the in-range remote station
(28), and
determining which of the files are new since last
transmission and transferring the new files,
characterised in that
the determination whether a remote station (28) is
within range is made, and the wireless communication is
initiated, by the on-board computer (18), and
that the transfer of files is made from the on-
board computer (18) to the in-range remote station
(28)."

Claims 2 to 26 of the patent as granted are dependent
on claim 1.

V. The appellant opponent essentially argued as follows:

E1 (cf. pages 11, 12 and 13 of the translation,
sections [0012], [0013], [0015] and [0018]) disclosed a
bidirectional transmission of data between the on-board
computer of a train and a ground station. The on-board
computer recorded the train speed and location which
was transmitted from the on-board computer to the
ground station.

In the light of E1 the problem to be solved might be
seen as "finding an alternative way of establishing a
communication between an on-board computer and a ground

station". The appellant agreed with the board that claim 1 differed from E1 by the three following features:

- (i) the determination whether a remote station was within range was made by the on-board computer,
- (ii) the wireless communication between the on-board computer and the in-range remote station was initiated by the on-board computer, and
- (iii) it was determined which of the files were new since last transmission and the new files were transmitted.

Concerning feature (iii), E1 disclosed to check the version number of the files to be transmitted to the on-board computer before transmitting the files from the ground station to the on-board computer. Hence, E1 suggested to transmit only the new files when updating records.

The term "determination" found in feature (i) was broad. According to E1 (page 13, section [0016]) the processor on-board the train knew its position and therefore was able to determine whether the remote station was within range. The train of E1 had a position detector as was apparent from the second embodiment and from claim 2.

Furthermore feature (i) was obvious in view of E2 according to which a train computer memorised the track profile (cf. E2, figure 5 and column 7, paragraph 2) and requested authority to transmit, and to request information at a certain position from the ground station.

Concerning feature (ii), the term "initiated" was

general too and covered different possibilities that were to be regarded as being an initiation of a communication.

In the first embodiment of E1 the communication was initiated automatically when the train was at the station, while in another embodiment, because of the data volume to be transmitted, a request was sent by the train when it was ready to receive the data. Sending of the request could be regarded as initiation of the communication.

In E3 (figure 5 and column 7, paragraph 2, line 3) a communication system on-board a train performed "a network acquisition" operation. The on-board system therefore initiated communication. Table 1, column 10 of E3 mentioned a "Network acquisition message" and a response to this message. Therefore, it was obvious to have the "network acquisition" performed by the train in E1.

Thus, the subject-matter of claim 1 was obvious to the skilled person and did not involve an inventive step.

VI. The arguments of the respondent proprietor can be summarised as follows:

It was important to consider what data were transmitted according to the invention and when. The second paragraph of claim 1 of the patent in suit defined which files were to be transmitted. The files comprised performance data, track data and/or event recorder data collected during running of the train. These files were voluminous and needed to be transmitted as soon as possible to unload the on-board computer before the train arrived at the station. The train initiated the

transmission at a suitable time, so that the on-board computer was released for more important tasks when arriving at the station. The collected data should not be transmitted at a time which could hinder the train control. None of the cited prior art documents related to the transmission of voluminous files from the train to the ground station. In particular E1 was concerned with controlling the train when approaching the station. Therefore only the actual train speed and train position were transmitted from the on-board computer to make sure the train stopped at the right position (cf. page 13, sections [0016] and [0018] "stopping target position"). There was no log file to be transmitted in E1. Rather instant information was transmitted to stop the train exactly at a certain position.

E2 similarly concerned the speed of the train when approaching a switch in the track. Exact position of the train was therefore requested in E2 like in E1. E5 provided simply a general teaching that had little to do with a program to be updated like the program in E1 wherein the transmission took place in a reverse direction from ground station to on-board computer.

In the patent in suit, the communication was established while the train was moving to maximise the transmission window time. The objective was to guarantee a transmission of the log file to the ground station as effective as possible and at a good quality. Lots of data were transmitted but not at a time when the computer might be busy with other important functions.

Reasons for the Decision

1. The appeal is admissible.
2. The novelty of the subject-matter of claim 1 of the patent in suit is not in dispute.
3. The board, like the parties, is of the opinion that document E1 can be regarded as the prior art closest to the invention defined in claim 1. Document E1 discloses a method in which data are transferred between equipment 2a, 2b or 2c on-board a train and ground equipment 1a, 1b, 1c. The on-board equipment of the train comprises an on-board processor 21 and a memory section 24 that "records data used to control the train and records information on train location and speed and stopping target position. In addition, data such as that during preparation of messages transmitted to the ground equipment 1a-1c is also temporarily recorded". The on-board equipment transmits information on the train location and speed via an on-board wireless unit 22 to a ground wireless station 12 (see in particular sections [0013], [0016] and [0018] of the translation of E1). It appears therefore that in the method of E1 at least train performance data (train location and speed) are collected (recorded) on a computer (processor 21 and memory 24) on-board the train and transferred from the on-board computer to a remote station by wireless communication. Therefore data must be collected in files in the on-board computer of the train. The files are then transferred when wireless communication is established between the on-board computer and an in-range remote (ground) station.

The respondent proprietor submitted that in E1 only the actual, instant location and speed of the train were transmitted from the on-board equipment to the ground station, so that the data were not data collected during a period of time as in claim 1.

In this respect the board notes that E1 discloses that the memory section 24 of the on-board equipment "records information on train location and speed" (section [0018] of E1) and that the on-board processor 21 "transmits information on the train location and speed" to the ground station (section [0016] of E1). In the view of the board this is to be understood in the sense that recorded data, i.e. collected data relating to location and speed of the train along the track are to be transmitted to the ground station. This understanding of E1 appears to be confirmed by the indication in section [0003] of the patent in suit that trains "generally include event recorders. The information on the event recorders is data and status of different variables and operating conditions on the train recorded as a function of time. This information is downloaded and used for various analyses".

Thus, the method specified in claim 1 differs from what is disclosed in E1 in that:

- (i) the determination whether a remote station is within range is made by the on-board computer,
- (ii) the wireless communication between the on-board computer and the in-range remote station is initiated by the on-board computer, and
- (iii) determining which of the files are new since last transmission and transferring the new files.

4. Features (i) and (ii) identified above appear to relate to aspects of the communication between the on-board equipment and the ground station. In the method of E1, "on the basis of the stopping target position information transmitted from the ground equipment 1a-1b, the speed of the train is controlled via the train speed control section 7" (cf. section [0016] and figure 3) which is on-board the train. It follows that, at least to control the speed, the on-board equipment must be aware of the location of the remote station. Hence, the train has the possibility to know steadily if the remote station is within range in the same way as in the patent in suit which recites in the description, sections [0007], [0018], that "to determine whether a remote station is within range includes determining the location of the train and knowing location(s) of the next remote station(s)".

A method of communication between a train and a ground station is known from E2 (see column 7, lines 6 to 20) in which an "on-board computer (OBC) 48 commands the data radio 50 (FIG. 3) to go to its transmit mode and request an authority from the wayside control unit 34 due to the approaching interlocking 88, it being remembered that the OBC 48 on train 94 is continuously provided with the exact location of train 94 along track 80. The OBC 48 has in memory the profile of the local area which it previously received from the wayside control unit 34 upon entry into the area under its control. That profile established a prompt location on track 80 at which an authority is to be requested as illustrated in FIG. 5". Thus in E2, the train determines a location on the track at which communication can be established. Therefore, feature

(i) is considered to be an obvious possibility for the skilled person.

5. Furthermore E1 (claim 2) discloses that the on-board wireless equipment "transmits an updating request for data recorded in said on-board database when said train has arrived at a station". The on-board equipment needs therefore to determine if the station is within range. This suggests to the skilled person to perform an analysis by the on-board computer of the available data in order to determine whether the remote station is within range when establishing wireless communication for transmitting data recorded in the on-board memory.
6. Feature (ii), namely "the wireless communication is initiated by the on-board computer", is broad. It appears therefore that the sending of the updating request mentioned under item 5 above can be seen as a message sent by the on-board equipment for initiating a wireless communication.

In the view of the board, it would be obvious to also send an initiating message to the ground station before transmitting the data recorded in the memory of the on-board equipment, especially because it seems obvious that the on-board computer, which controls the speed of the train, should decide when to transmit, so as not to be overloaded by the transmission of data files to the ground station. Thus, in the view of the board, feature (ii) is an obvious possibility for the skilled person.

According to the respondent proprietor, the transmission of the files should take place at a moment convenient for the train, that is to say when its

on-board computer is not busy with more important tasks like train control. Suitable times may be indeed when the train is on its way but far from the station and/or when the train is already at the station. But, on the one hand, claim 1, even interpreted in the light of the description, does not define the time of the transmission, and on the other hand E1 suggests transmitting the files when the train is running (cf. page 13, section [0016]) or when the train is at the station. Furthermore, E1 considers the problem of transmission of a large amount of data and the influence of this transmission on the train control (cf. E1, [0003], [0020], [0024], [0025], [0027], [0029], [0034] and [0038]). It should be noted here that the influence of the transmission time on the train control is independent of the transmission direction i.e. from the on-board computer to the remote station or from the remote station to the on-board computer.

7. Feature (iii) aims at avoiding transfer of redundant, useless data that have already been transmitted. This is a common practice in communication systems. It is therefore obvious that data files already available at the ground station would not be (re)transmitted by the on-board computer in order to save transmission capacity over the air interface.
8. Thus, the board comes to the conclusion that the method defined by claim 1 of the patent in suit is not to be considered as involving an inventive step in the sense of Article 56 EPC.

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:

C. Moser

M. Ruggiu