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Datasheet for the decision of 16 May 2011

Case Number: T 1020/09 - 3.5.03

Application Number: 00300932.1

Publication Number: 1041747

IPC: H04B 10/08

Language of the proceedings: EN

Title of invention:
Optical bidirectional communication system with supervisory channel

Applicant:
Ericsson AB

Opponent:
-

Headword:
Supervisory channel/ERICSSON

Relevant legal provisions:
EPC Art. 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Inventive step - no"

Decisions cited:
-

Catchword:
-

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Case Number: T 1020/09 - 3.5.03

D E C I S I O N
of the Technical Board of Appeal 3.5.03
of 16 May 2011

Appellant: Ericsson AB
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Representative: Chisholm, Geoffrey David
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 16 December 2008 refusing European patent application No. 00300932.1 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman: A. S. Clelland
Members: B. Noll
M.-B. Tardo-Dino

Summary of Facts and Submissions

I. This appeal is against the decision of the examining division to refuse European patent application No. 00300932.1 on the ground that the subject-matter of claim 1 of a main and a second auxiliary request lacked an inventive step (Article 56 EPC) having regard, inter alia, to the following document:

D1: EP 0581138 A1.

A first auxiliary request was considered by the examining division as late filed and was not admitted into the procedure.

II. In the statement of grounds of appeal the appellant requested that the decision be set aside and that a patent be granted on the basis of a set of claims filed together with the statement of grounds.

III. In a communication accompanying a summons to oral proceedings the board inter alia gave a preliminary opinion on the claimed subject-matter as regards inventive step.

IV. In response to the board's communication the appellant filed on 15 April 2011 a replacement set of claims 1 to 10. Claim 1 reads as follows:

"An optical communication system including a transmitter (1) and a receiver (2) linked by a light guide (5, 6), means (8, 9, 21) for transmitting a traffic-carrying optical channel and a supervisory optical channel along said light guide,

control means (22) consequent upon a malfunction in the light guide for ceasing transmission of the traffic-carrying optical channel
means (10) utilising the supervisory optical channel to determine when the light guide is reusable for communication purposes
the supervisory optical channel is [sic] coupled into said light guide downstream of a laser amplifier (8, 15) which is operative to amplify the traffic-carrying optical channel(s) at said transmitter;
wherein the control means (22) is arranged to determine a malfunction in the light guide by detecting both a loss of signal condition in the traffic carrying optical signal and a loss of frame condition in the supervisory optical signal."

V. Oral proceedings before the board were held on 16 May 2011. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of claims 1 - 10 as submitted with the letter of 15 April 2011.

VI. The appellant's arguments submitted in writing and in the course of the oral proceedings can be summarized as follows:

Whilst it may be known from D1 that both the traffic carrying signal and the supervisory signal are monitored at a repeater, there is no hint in D1 that both signal conditions are commonly considered for detecting a malfunction in the light guide, e.g. a fibre break. In particular, the detection of an output fault at the output of a repeater in D1 has not been employed for the purpose of determining whether the

system has to be shut down due to a break in the fibre. The invention serves to minimize traffic disruption caused by a fault in system components while at the same time maintaining the system as fail-safe, and this object can only be met by simultaneously monitoring both the loss of signal condition in the traffic carrying signal and the loss of frame condition in the supervisory signal.

VII. At the end of the oral proceedings the board announced its decision.

Reasons for the decision

1. *Claim 1 - inventive step (Article 56 EPC)*

1.1 D1 is the single most relevant prior art document for assessing inventive step and discloses a bidirectional optical transmission system consisting of, for each direction, a transmitter (18; 22), a receiver (20; 24) and amplifiers (40a, 40b; 42a, 42b) arranged along a fibre-optic cable pair (14; 16) which constitutes light guides. Each amplifier includes an optical amplifier (40, figure 2) configured to amplify the traffic-carrying signals, and components (62-70) configured to insert into, and extract from the transmission paths, supervisory signals. Two amplifiers (40a, 42b) at a common location along the fibre-optic cable, one amplifying signals propagating in one direction and one signals propagating in the other, are paired to constitute a repeater (46a). Thus, the D1 repeater does not differ in structure or purpose from blocks 1 and 2 shown in the figure of the application so that a

"transmitter" or a "receiver" in the terminology of the application corresponds to a "repeater" in D1. The D1 system further includes telemetry and continuity signal generators (50; 52), one associated with each amplifier, and each generator includes a controller (60) configured to detect malfunctions in the transmission path (column 4, lines 25-28 and column 5, lines 3-6). The controller inserts the supervisory optical channel, referred to in D1 as "continuity signal", into the light guide downstream of the respective optical amplifier and detects an upstream continuity signal (column 4, lines 28-31 and 35-37). By means of the controller the amplifier is turned on upon reception of the upstream continuity signal (column 4, lines 38-41) and turned off in the absence of the upstream continuity signal (column 3, lines 10-23). The controller is further arranged to monitor the traffic signal output from the optical amplifier for the purpose of fault detection (column 4, lines 42-45). Thus, the controller monitors both the incoming continuity signal and the traffic-carrying signal for determining different kinds of malfunctions (fiber break, column 1 lines 15-19, or failure of an optical amplifier, column 4 lines 42-45) in the optical transmission system.

1.2 The system according to claim 1 differs from that of D1 in that a malfunction in the light guide is determined by detecting both a loss of signal condition in the traffic carrying signal and a loss of frame condition in the supervisory signal.

Although there is no explicit indication in the application as filed that the object of minimizing

traffic disruption was the specific problem to be solved by the invention, the board accepts this as the objective technical problem since the feature identified in the preceding paragraph contributes to solving this problem.

1.3 In the board's view, it is of general interest in the field of fault diagnostics that a fault in a system is analyzed as comprehensively as possible. For this reason the skilled person could be expected to use all information available from fault diagnostics. Specifically in the present case, starting out from D1 as the most relevant prior art, the skilled person would have available for analysis both the actual traffic signal and the supervisory signal to distinguish between a malfunction in the light guide and other fault causes. The use of framing signals for monitoring the condition of a network is common general knowledge in the art, a fact not contested by the appellant. Hence, it would be obvious for the skilled person to analyze, inter alia, the framing signals. In using both the traffic signal and the supervisory signal for the purpose of fault diagnostics as suggested in D1 and applying common general knowledge to their analysis, the skilled person would arrive at the subject-matter of claim 1 without the exercise of inventive skill.

1.4 As regards the appellant's arguments, the board is of the view that it is within the normal competence of the skilled person, knowing which kinds of malfunction are likely to occur in the D1 system, to associate, merely by trial and error, each malfunction scenario with a corresponding scenario of which signals are expected to

be present or lost. This association does not require inventive skill. For these reasons the appellant's arguments are not convincing.

1.5 It thus follows that claim 1 lacks an inventive step (Article 56 EPC).

2. Since claim 1 of the sole request fails to meet the requirement as to inventive step, the appeal has to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

G. Rauh A. S. Clelland