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**Datasheet for the decision
of 21 February 2025**

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Application Number: 11837602.9

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Title of invention:

AN INTEGRITY MONITORING SYSTEM AND A METHOD OF MONITORING
INTEGRITY OF A STATIONARY STRUCTURE

Patent Proprietors:

NKT Cables Group A/S
Energinet.dk

Opponent:

AP Sensing GmbH

Relevant legal provisions:

EPC Art. 54(1), 100(a), 111(1)
RPBA 2020 Art. 11, 13(2)

Keyword:

Novelty - (no)
Amendment after summons - exceptional circumstances (no)
Remittal - (yes)



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Case Number: T 1807/22 - 3.4.02

D E C I S I O N
of Technical Board of Appeal 3.4.02
of 21 February 2025

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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted on
24 May 2022 concerning maintenance of the
European Patent No. 2635875 in amended form.

Composition of the Board:

Chairman R. Bekkering
Members: A. Hornung
 G. Decker

Summary of Facts and Submissions

I. Both the opponent and the patentees appealed against the interlocutory decision of the opposition division maintaining European patent No. 2 635 875 in amended form.

Opposition had been filed against the patent as a whole and based on the grounds for opposition under Article 100(a) EPC, together with Articles 54(1) and 56 EPC, Article 100(b) EPC, together with Article 83 EPC, and Article 100(c) EPC, together with Article 123(2) EPC.

The opposition division had found that the patent as amended according to a second auxiliary request then on file (i.e. filed with a letter of 21 February 2020 with the title "new auxiliary request 4") and the invention to which it related met the requirements of the EPC.

II. Oral proceedings before the board were held on 21 February 2025.

III. As its final requests, the patentees requested as a main request that the decision under appeal be set aside and the patent be maintained as granted, i.e. that the opposition be rejected. Alternatively, they requested that the decision under appeal be set aside and the patent be maintained in amended form on the basis of the claims according to one of auxiliary requests 1 or 2 filed with the statement of grounds of appeal, or according to auxiliary request 2A filed at the oral proceedings before the Board, or according to auxiliary request 3 to 20 filed with the statement of grounds of appeal.

IV. The opponent requested that the decision under appeal be set aside and the patent be revoked.

V. The following document, which was relied on in the first-instance opposition proceedings, is referred to in the present decision:

D13: WO 2006/035198 A1.

The patentees' written submissions are referred to as P1 to P3 as follows:

P1: statement of grounds of appeal, filed with the letter dated 30 September 2022, 33 pages,

P2: letter dated 16 February 2023 (reply to the opponent's statement of grounds of appeal), 22 pages,

P3: letter dated 3 April 2024, 13 pages.

The opponent's written submissions are referred to as O1 to O3 as follows:

O1: statement of grounds of appeal, filed with the letter dated 30 September 2022, 81 pages,

O2: letter dated 16 February 2023, 16 pages,

O3: letter dated 27 July 2023, 25 pages.

VI. Independent claim 1 according to the main request reads as follows (the features of claim 1 are preceded by the numbering **F1** to **F14**, as used in the appealed decision, point 1.25, and in the parties' submissions):

F1 "An integrity monitoring system for monitoring integrity of at least a part of a stationary structure (1, 11, 21, 21a, 21b, 31a, 31b, 41, 49a, 49b, 51, 61, 69),

F2 the system comprising at least one vibration sensor (2, 12, 22, 22a, 22b, 32a, 32b, 32c, 42a, 42b, 42c, 52, 62) adapted to sense vibration as a function of time,

F3 a computer (3, 13, 23(1), 23(2), 23(3), 33),

F4 transmitting means adapted to transmit vibration data from the at least one vibration sensor (2, 12, 22, 22a, 22b, 32a, 32b, 32c, 42a, 42b, 42c, 52, 62) to the computer (3, 13, 23(1), 23(2), 23(3), 33),

F5 means adapted to acquire and transmit position as a function of time data of a movable object (4a, 4b, 24a, 24b, 34, 44, 54, 64a, 64b) to said computer (3, 13, 23(1), 23(2), 23(3), 33)

F6 when said movable object (4a, 4b, 24a, 24b, 34, 44, 54, 64a, 64b) comprises a transmitter (5, 25a, 25b, 35, 55) and is within a selected distance (6a, 6b, SD) to a monitoring site,

F7 where the monitoring site comprises at least a part of the stationary structure (1, 11, 21, 21a, 21b, 31a, 31b, 41, 49a, 49b, 51, 61, 69) and

F8 the at least one vibration sensor (2, 12, 22, 22a, 22b, 32a, 32b, 32c, 42a, 42b, 42c, 52, 62) is arranged to sense vibrations within said monitoring site, and

F9 said at least one vibration sensor is adapted to transmit said vibration data to the computer (3, 13, 23(1), 23(2), 23(3), 33) as vibration as a function of time data

F10 or the computer (3, 13, 23(1), 23(2), 23(3), 33) is adapted to generate vibration as a function of time data from said vibration data,

characterised in that

F11 the computer (3, 13, 23(1), 23(2), 23(3), 33) comprises hardware and is programmed for comparing the vibration as

a function of time data with the position as a function of time data correlated to same time,

F12 preferably the stationary structure (1, 11, 21, 21a, 21b, 31a, 31b, 41, 49a, 49b, 51, 61, 69) is a substantially fixed structure,

F13 the structure (1, 11, 21, 21a, 21b, 31a, 31b, 41, 49a, 49b, 51, 61, 69) is preferably applied stationary by being a submarine structure (11, 21b, 31b laid on the seabed or buried and/or

F14 by being a trenched submarine structure (31b, 51)".

VII. Independent claim 1 of the first auxiliary request reads as follows (the features of claim 1 are preceded by the numbering **F1** to **F18** as follows, wherein features **F1** to **F14** are identical to features **F1** to **F14** of the main request, with the exception that the term "the" was added in feature **F4**):

F1 "An integrity monitoring system for monitoring integrity of at least a part of a stationary structure (1, 11, 21, 21a, 21b, 31a, 31b, 41, 49a, 49b, 51, 61, 69),

the integrity monitoring system for monitoring integrity being for:

F15 - preventing damage of the stationary structure (1, 11, 21, 21a, 21b, 31a, 31b, 41, 49a, 49b, 51, 61, 69), and/or

F16 - recording vibration data as a function of time for later examination of an incident and/or using for statistics for calibration;

F2 the system comprising at least one vibration sensor (2, 12, 22, 22a, 22b, 32a, 32b, 32c, 42a, 42b, 42c, 52, 62) adapted to sense vibration as a function of time,

F3 a computer (3, 13, 23(1), 23(2), 23(3), 33),

F4 transmitting means adapted to transmit **the** vibration data from the at least one vibration sensor (2, 12, 22, 22a, 22b, 32a, 32b, 32c, 42a, 42b, 42c, 52, 62) to the computer (3, 13, 23(1), 23(2), 23(3), 33),

F5 means adapted to acquire and transmit position as a function of time data of a movable object (4a, 4b, 24a, 24b, 34, 44, 54, 64a, 64b) to said computer (3, 13, 23(1), 23(2), 23(3), 33)

F6 when said movable object (4a, 4b, 24a, 24b, 34, 44, 54, 64a, 64b) comprises a transmitter (5, 25a, 25b, 35, 55) and is within a selected distance (6a, 6b, SD) to a monitoring site,

F7 where the monitoring site comprises at least a part of the stationary structure (1, 11, 21, 21a, 21b, 31a, 31b, 41, 49a, 49b, 51, 61, 69) and

F8 the at least one vibration sensor (2, 12, 22, 22a, 22b, 32a, 32b, 32c, 42a, 42b, 42c, 52, 62) is arranged to sense vibrations within said monitoring site, and

F9 said at least one vibration sensor is adapted to transmit said vibration data to the computer (3, 13, 23(1), 23(2), 23(3), 33) as vibration as a function of time data

F10 or the computer (3, 13, 23(1), 23(2), 23(3), 33) is adapted to generate vibration as a function of time data from said vibration data,

characterised in that

F11 the computer (3, 13, 23(1), 23(2), 23(3), 33) comprises hardware and is programmed for comparing the vibration as a function of time data with the position as a function of time data correlated to same time,

F12 preferably the stationary structure (1, 11, 21, 21a, 21b, 31a, 31b, 41, 49a, 49b, 51, 61, 69) is a substantially fixed structure,

F13 the structure (1, 11, 21, 21a, 21b, 31a, 31b, 41, 49a, 49b, 51, 61, 69) is preferably applied stationary by being a submarine structure (11, 21b, 31b laid on the seabed or buried and/or

F14 by being a trenched submarine structure (31b, 51),

wherein the integrity monitoring system further comprises

F17 • an alarm arranged to be activated upon potential or actual danger of damaging of the stationary structure (1, 11, 21, 21b, 31a, 31b, 41, 49a, 49b, 51, 61, 69), the computer (3, 13, 23(1), 23(2), 23(3), 33) is arranged to calculate the potential or actual danger of damaging of the stationary structure (1, 11, 21, 21b, 31a, 31b, 41, 49a, 49b, 51, 61, 69), based on at least some of the vibration data and the position as a function of time data; and/or

F18 • a recording medium for recording the transmitted vibration data as a function of time so as to be used for

later examination of an incident and/or for statistics for the calibration".

VIII. Independent claim 1 of the second auxiliary request reads as follows (the features of claim 1 are preceded by the numbering **F1** to **F16** and **F19** to **F27** as follows, wherein features **F1** to **F14** are identical to features **F1** to **F14** of the main request, with the exception that the term "the" was added in feature **F4**, and features **F15** and **F16** are identical to features **F15** and **F16** of claim 1 of the first auxiliary request):

F1 "An integrity monitoring system for monitoring integrity of at least a part of a stationary structure (1, 11, 21, 21a, 21b, 31a, 31b, 41, 49a, 49b, 51, 61, 69),

the integrity monitoring system for monitoring integrity being for:

F15 - preventing damage of the stationary structure (1, 11, 21, 21a, 21b, 31a, 31b, 41, 49a, 49b, 51, 61, 69), and/or

F16 - recording vibration data as a function of time for later examination of an incident and/or using for statistics for calibration;

F2 the system comprising at least one vibration sensor (2, 12, 22, 22a, 22b, 32a, 32b, 32c, 42a, 42b, 42c, 52, 62) adapted to sense vibration as a function of time,

F3 a computer (3, 13, 23(1), 23(2), 23(3), 33),

F4 transmitting means adapted to transmit **the** vibration data from the at least one vibration sensor (2, 12, 22,

22a, 22b, 32a, 32b, 32c, 42a, 42b, 42c, 52, 62) to the computer (3, 13, 23(1), 23(2), 23(3), 33),

F5 means adapted to acquire and transmit position as a function of time data of a movable object (4a, 4b, 24a, 24b, 34, 44, 54, 64a, 64b) to said computer (3, 13, 23(1), 23(2), 23(3), 33)

F6 when said movable object (4a, 4b, 24a, 24b, 34, 44, 54, 64a, 64b) comprises a transmitter (5, 25a, 25b, 35, 55) and is within a selected distance (6a, 6b, SD) to a monitoring site,

F19 where the position as a function of time data is disregarded, not acquired or not transmitted to the computer (3, 13, 23(1), 23(2), 23(3), 33) as long as the movable object (4a, 4b, 24a, 24b, 34, 44, 54, 64a, 64b) is not within the selected distance,

F7 where the monitoring site comprises at least a part of the stationary structure (1, 11, 21, 21a, 21b, 31a, 31b, 41, 49a, 49b, 51, 61, 69) and

F8 the at least one vibration sensor (2, 12, 22, 22a, 22b, 32a, 32b, 32c, 42a, 42b, 42c, 52, 62) is arranged to sense vibrations within said monitoring site, and

F9 said at least one vibration sensor is adapted to transmit said vibration data to the computer (3, 13, 23(1), 23(2), 23(3), 33) as vibration as a function of time data

F10 or the computer (3, 13, 23(1), 23(2), 23(3), 33) is adapted to generate vibration as a function of time data from said vibration data,

characterised in that

F11 the computer (3, 13, 23(1), 23(2), 23(3), 33) comprises hardware and is programmed for comparing the vibration as a function of time data with the position as a function of time data correlated to same time,

F20 wherein the stationary structure (1, 11, 21, 21a, 21b, 31a, 31b, 41, 49a, 49b, 51, 61, 69) comprises a cable, a pipe and/or an optical fibre, and

F21 wherein the vibration sensor (2, 12, 22, 22a, 22b, 32a, 32b, 32c, 42a, 42b, 42c, 52, 62) is an optical fibre acoustic sensor and/or comprises an optical fibre sensor,

F12 preferably the stationary structure (1, 11, 21, 21a, 21b, 31a, 31b, 41, 49a, 49b, 51, 61, 69) is a substantially fixed structure,

F13 the structure (1, 11, 21, 21a, 21b, 31a, 31b, 41, 49a, 49b, 51, 61, 69) is preferably applied stationary by being a submarine structure (11, 21b, 31b laid on the seabed or buried and/or

F14 by being a trenched submarine structure (31b, 51),

F22 wherein the integrity monitoring system is an offshore integrity monitoring system,

F23 the stationary structure (1, 11, 21, 21a, 21b, 31a, 31b, 41, 49a, 49b, 51, 61, 69) is a submarine structure and

F24 the movable object (4a, 4b, 24a, 24b, 34, 44, 54, 64a, 64b) is a vessel, and

F25 • wherein the means for acquiring and transmitting position as a function of time data to the computer (3, 13, 23(1), 23(2), 23(3), 33) comprises acquiring data from an Automatic Identification System (AIS),

F26 the data being acquired directly from the transmitter of the vessel, via internet transmission, via a vessel traffic service (VTS) and/or via an external antenna, the transmitter of the vessel being a transponder; or

F27 • wherein the computer is in communication with an Automatic Identification System (AIS)".

Reasons for the Decision

1. Main request - novelty

The subject-matter of claim 1 is anticipated by D13 (Article 100(a) EPC in combination with Article 54(1) EPC).

1.1 It is undisputed between the parties that D13 discloses all features of claim 1 except for features **F1**, **F4**, **F5** and **F11**. During oral proceedings before the board, the patentees only submitted arguments in favour of novelty of features **F1** and **F11**.

1.2 Feature **F1**

1.2.1 Interpretation of feature **F1**

In the board's opinion, feature **F1** defines a system suitable for generally monitoring integrity of a stationary structure, wherein both terms "monitoring" and "integrity" are to be interpreted as broadly as

technically meaningful. In particular, contrary to the view expressed in the appealed decision, page 11, fifth paragraph, claim 1 does not comprise any technical feature that implies that "the scope of claim 1 [is limited] to those systems that can 'at least detect severe damage'". As stated in the appealed decision, page 12, fifth paragraph, "[c]laim 1 does not contain any features that explicitly implement the 'monitoring of integrity' [...] other than through the functional feature in the claim heading". Furthermore, according to the wording of claim 1, "the 'monitoring of integrity' of **F1** is also not linked to the comparing step according to feature **F11**" (O1, page 19, penultimate paragraph).

1.2.2 D13 discloses feature **F1**

As submitted by the opponent (O2, pages 4 and 5), referring *inter alia* to D13, page 5, lines 7 and 8; page 18, last paragraph; page 19, first paragraph and figure 13, "D13 discloses a system which determines by fibre optical monitoring whether there is a disturbance of the fibre being in association with communication link 16" (O2, page 4, second paragraph). As shown in the embodiment of figure 13 of D13, a monitoring station 12 monitors acoustic disturbances applied by a ship 106 to an undersea fibre cable 16. This corresponds to "monitoring integrity" of the fibre cable as defined in feature **F1**, since detecting the presence of a ship within a certain distance of the fibre cable means detecting a potential risk of damage to the fibre cable.

Notwithstanding that feature **F1** is disclosed alone for the reason given above, it is to be noted that feature **F1** also is disclosed for the reason submitted by the opponent, referring *inter alia* to D13, page 4, lines 1 to 13 and to page 5, lines 6 to 11 (O2, page 5, last paragraph, to

page 6, third paragraph), that the system of D13 is a distributed acoustic sensing (DAS) system or an optical time domain reflectometry (OTDR) apparatus which inherently are suitable to detect a strain or a damage in an optical fibre, i.e. they are suitable to "monitor integrity" of the fibre.

1.2.3 Patentees' arguments in favour of novelty of feature **F1**

(a) The patentees submitted that feature **F1** should be understood as defining "means adapted to carry out the relevant steps/functions, i.e. 'detecting severe damage'" (P1, point 3.3.6; emphasis in the original). During oral proceedings before the board, the patentees stressed that claim 1 defined not only any "system" (suitable for monitoring integrity of a stationary system) but an "integrity monitoring system" which was specifically adapted or configured to monitor integrity. The patentees compared the situation by referring to a "beer glass" which was not only any "glass for drinking beer" but a glass with a very special shape. Nobody considered for instance a wine glass to be a beer glass, even though the wine glass would be suitable to drink beer.

The board is unable to follow the patentees' reasoning. As argued by the opponent during oral proceedings, claim 1 does not comprise technical structural features defining what exactly the expression "integrity monitoring system" means. The scope of a claim can generally not be limited by explanations provided in the patent description, such as the indication in paragraph [0025] of the patent description about the system's capability of detecting and even preventing severe damage to the structure. Moreover, it is established case law that a device

claim claiming a system for realising a function is to be interpreted as meaning a system *suitable for* realising the function. The example of a beer glass is also not convincing, since a patent claim defining a "beer glass" as such would have to be interpreted as a glass suitable for drinking beer, which would also encompass a "typical" wine glass. Furthermore, the patentees did not identify any technical feature in claim 1 which specifically configured the claimed system to be an "integrity monitoring system" and not just a "system suitable for monitoring integrity", and the board is also unable to identify any such technical feature in claim 1.

- (b) The patentees submitted that the device of D13 was "not even suitable for detecting severe [*sic*] damage of the fibre cable" (P1, point 3.3.11). During oral proceedings before the board, the patentees referred to paragraph [0025] of the patent, where it was explained that "[i]ntegrity monitoring means that the monitoring is at least capable of detecting if the part of the submarine structure to be monitored is severely damaged, such as damage that obstructs its ordinary operation". D13 (e.g. page 5, lines 7 to 11) merely disclosed a system capable of locating a fibre by detecting a physical disturbance (resulting only in a strain in the fibre) of the fibre. The physical disturbance emanated from sonar waves would not cause severe damage to the fibre.

The board is not convinced by these arguments because:

- (i) the claimed system is only *suitable for* monitoring integrity, as is the system of D13;
- (ii) "monitoring integrity" in claim 1 does not imply the detection of severe damage because claim 1 does not comprise any technical

features implying the detection of specifically severe damage;

- (iii) "monitoring integrity" covers what is disclosed in D13, namely detecting a potential risk of damage to the fibre cable by detecting the presence of a ship within a certain distance of the fibre cable by detecting the sonar waves emitted by the ship;
- (iv) the system of D13 is an OTDR and thus is intrinsically suitable to detect severe damage of the optical fibre.

- (c) During oral proceedings before the board, the patentees put forward that feature **F1** defined two distinct entities: (i) an integrity monitoring system (comprising a vibration sensor) and (ii) a stationary structure. In contrast, D13 disclosed a single entity: the fibre cable (16) of D13 played both the role of a vibration sensor and a stationary structure. A single entity could not anticipate two entities.

The board is not convinced by the patentees' argument. The wording of claim 1 does not exclude that the stationary structure whose integrity is monitored by the claimed system comprises the vibration sensor of the claimed system. As stated by the opponent during oral proceedings, the patentees' arguments generally refer to limiting features which are not present in claim 1.

1.3 Feature **F11**

The board concurs with the opposition division (appealed decision, point 5.1.5) and the opponent (e.g. O1, page 20, last paragraph to page 21, second paragraph) that D13 discloses feature **F11** for the following reasons:

- 1.3.1 In the embodiment of D13, figure 13, described on page 30, line 29 to page 31, line 2, the amplitude of the acoustic vibrations sensed by the optical fibre are modulated by an information signal. This information signal indicates the geographical position of the ship. Thus, the monitoring station (12) of D13 (which implicitly comprises a computer as claimed in the sense that it comprises microprocessors programmed to process the sensed data) receives not only vibration data but also position data of the ship. "In order to map the positions at which the cable is present, [...] a comparison step between the vibration data and the position data" is implicitly realised (O1, page 21, second paragraph). Indeed, claim 1 leaves open how the vibration and position data are effectively "compared", so that the analysis of the vibration data and the position data of the ship to deduce the position of the fibre cable falls under the term "comparing" in its broadest sense.
- 1.3.2 In order to determine the overall position of the fibre cable, measurements of vibration and position are taken at a number of points along the fibre cable at different points in time, so that the vibration data and the position data in D13 are compared in the computer "as a function of time", as claimed.
- 1.3.3 Finally, in order to determine the position of a particular point along the fibre cable, the corresponding vibration data and the position data of the ship are sensed at the same time, i.e. are "correlated at the same time", as claimed. Otherwise, comparing the two data sets would produce a meaningless result.
- 1.3.4 Patentees' arguments in favour of novelty of feature **F11**

During oral proceedings before the board, the patentees argued that D13 did not disclose any of the technical features defined by the following terms in feature **F11**:

- (a) "computer",
- (b) "programmed",
- (c) "comparing",
- (d) "function of time".

According to the patentees, D13 did not disclose a computer as defined in feature **F11**. Specifically, in the relevant embodiment of D13, described on page 30, line 29, to page 31, line 2, "a person on the shore can map the positions at which the cable is present". Contrary to the system of claim 1, in D13 no computer was programmed to compare vibration data and position data, but only a person listened to audio signals delivered by the signal processing unit (54) of the monitoring station (12), as disclosed in D13, e.g. on page 16, line 32, to page 17, line 9, and in figures 1 and 4. While listening, the person in D13 was mapping the positions at which the cable is present. No computer was required in D13 for mapping the positions at which the cable was present.

- 1.3.5 The board is not convinced by the patentees' arguments. As explained in point 1.3 above, the microprocessor of the monitoring station (12) of D13 is programmed to process the signal sensed by the optical fibre so as to provide temporally correlated vibration data and position data of the ship at a number of times, and to extract therefrom position data of the fibre cable. This programmed microprocessor of D13 falls under the broad expression of feature **F11** "the computer is programmed for comparing the vibration with the position correlated to same time". The fact that D13 (page 31, line 1) also mentions a person (using the monitoring station (12) with the programmed

microprocessor) does not change the finding that D13 discloses a computer as defined in feature **F11**.

1.4 Features **F4** and **F5**

1.4.1 In the embodiment of D13, described on page 30, line 29, to page 31, line 2, the acoustic signal sensed by the optical fibre is modulated by an information signal indicating the geographical position of the ship. As explained by the opposition division, "[a] computer on the shore (implicitly) demodulates the disturbance signal, so that both vibration data and position as function of time data are transmitted to the computer [which executes the demodulation]. Features **F4** and **F5** are therefore disclosed" (appealed decision, page 12, last paragraph).

1.4.2 The patentees' only argument in favour of novelty of features **F4** and **F5** was provided in writing (P1, point 3.5; P2, point 6.2.7). The patentees argued that D13 did not disclose that "it is one and the same computer which receives both vibration data as well as position as a function of time data" (P2, point 6.2.7).

1.4.3 The board is not convinced by the patentees' argument. The term "computer" in features **F3** to **F5** of claim 1 has a broad meaning and merely designates a general processing unit. The general processing unit referred to in the appealed decision, point 5.1.4, is covered by the broad term "computer".

1.4.4 Accordingly, the ground for opposition under Article 100(a) in combination with Article 54(1) EPC prejudices the maintenance of the patent as granted.

2. First auxiliary request - novelty

The subject-matter of claim 1 is anticipated by D13 (Article 54(1) EPC).

2.1 Claim 1 of the first auxiliary request differs from claim 1 of the main request in that it comprises features **F15** to **F18**, wherein features **F15** and **F16** are alternative features and features **F17** and **F18** are alternative features.

2.2 Claim 1 is anticipated by D13 because D13 discloses at least features **F16** and **F18** in addition to features **F1** to **F14** of claim 1 of the main request (see point 1. above). Concurring with the appealed decision, point 6.1.1, the board considers that D13 discloses processing means (monitoring station 12 with demodulator) which implicitly comprises a recording medium suitable for being used as defined by features **F16** and **F18**.

2.3 Patentees' arguments in favour of novelty of features **F16** and **F18**

2.3.1 During oral proceedings before the board, the patentees refuted that D13 implicitly disclosed a recording medium "for later examination". In fact, in the patentees' view, recording data "for later examination" implied a certain format of the data for being examined later and D13 did not disclose any specific format suitable "for later examination". In addition, recording data "for later examination" implied that data would be stored for a longer period of time. D13 implicitly disclosed, if at all, only a recording medium used during processing the signal provided by the optical fibre. Such a recording medium would only record data for a very short period of time, which would not be suitable "for later examination".

The board is not able to follow the patentees' arguments. As submitted by the opponent during oral proceedings,

claim 1 does not define what is meant by the expression "for later examination". In particular, claim 1 does not define a specific format of the data to be stored, nor does it define a duration of recording.

2.3.2 The patentees further argued that feature **F18** defined recording "transmitted vibration data". According to features **F4** and **F9** of claim 1, the "transmitted vibration data" was data (sensed by the vibration sensor) that was transmitted by the transmitting means from the vibration sensor to the computer. In contrast, in D13, if the vibration data was recorded at all, the vibration data sensed by the vibration sensor would be recorded directly at the monitoring station (12), but not the "transmitted vibration data" as claimed.

The board is not convinced by the patentees' argument. As argued by the opponent during oral proceedings, feature **F18** only defines a recording medium *suitable for* recording transmitted vibration data and the processing means of the monitoring station of D13 implicitly comprise a recording medium which is intrinsically suitable for recording any kind of data. Regardless of this, the expression "transmitted vibration data" refers to vibration data that has been sensed by the vibration sensor and then transmitted from the vibration sensor to the *input* interface of the computer (i.e. of the processing unit in the monitoring station (12) of D13). The "transmitted vibration data" has not yet been processed by the computer of D13. Since the computer of D13 implicitly comprises a recording medium for recording the vibration data at least during the processing of the vibration data, D13 discloses recording the "transmitted vibration data" as claimed in feature **F18**.

2.4 Accordingly, the patentees' first auxiliary request is not allowable.

3. Second auxiliary request - novelty

The subject-matter of claim 1 is anticipated by D13 (Article 54(1) EPC).

3.1 Claim 1 of the second auxiliary request differs from claim 1 of the first auxiliary request in that features **F17** and **F18** are no longer present and in that it comprises features **F19** to **F27**. The combination of features **F25** and **F26**, on the one hand, and feature **F27**, on the other hand, are alternative features.

3.2 Feature **F19**

According to the board's communication annexed to the summons to oral proceedings, point 9.3.2, "[t]he board provisionally agrees with the opposition division: "if the ship is far away, the vibration signal is too weak, so no position information can be demodulated, so it is 'not acquired'" (appealed decision, point 7.1.2). Therefore, feature **F19**, if clear at all, appears to be anticipated by D13".

The board sees no reason to deviate from its preliminary opinion, as the above statement of the board was not contradicted by the patentees. Accordingly, feature **F19** is considered to be anticipated by D13.

3.3 Features **F20** to **F24**

According to the board's communication annexed to the summons to oral proceedings, point 9.2, "novelty only of

features **F19** and **F25** to **F27** is in dispute between the parties".

This statement of the board was not contradicted by the patentees. Accordingly, features **F20** to **F24** are considered to be anticipated by D13.

3.4 Feature **F27**

3.4.1 Feature **F27** is anticipated by D13 for the following reasons:

(a) Construction of feature **F27**

Firstly, claim 1 is a device claim. Therefore, as discussed at the oral proceedings, the expression in feature **F27** "is in communication" relates to the functioning of the computer when in use, but does not define a clear structural technical feature of the computer as such. Feature **F27** must be construed as defining a computer *suitable for* communicating with an Automatic Identification System (AIS).

Secondly, in the absence of a precise definition of the type of communication, the communication in feature **F27**, in its broadest sense, is not necessarily a two-way communication (as submitted by the patentee), but may be a one-way communication (as disclosed in D13).

Thirdly, the AIS does not form part of claim 1. As discussed at the oral proceedings, the AIS in feature **F27** represents any kind of system which is in communication with the computer. Furthermore, in the context of claim 1, specifically in view of features **F5** and **F25**, this general system is communicating the position of the movable object (i.e. the ship) to the computer.

In conclusion, feature **F27** must be construed, in its broadest sense, as defining a computer suitable to receive the position data of the ship.

(b) D13 discloses feature **F27**

In the embodiment of D13, described on page 30, line 29, to page 31, line 2, figure 13, the ship (106) has a transducer (118) "coupled to a modulator (120), such that the amplitude of the acoustic vibrations produced by the transducer (118) can be modulated by an information signal. [...] The information signal will preferably indicate the geographical position of the ship". While the board acknowledges that D13 does not disclose a ship equipped with an AIS, it is implicit that a system is present on the ship of D13 for providing the ship's geographical position referred to above.

In D13, the computer corresponds to the monitoring station (12), more precisely to the signal processing unit (54). In order to retrieve the geographical position of the ship encoded in the acoustic signal, the computer of D13 demodulates the acoustic signal emitted by the ship and acquired by the fibre cable (16), the interferometer (20) and the photo-receiver (51). In other words, by demodulating the acoustic signal and retrieving the position data of the ship, the computer is indirectly in communication with a system providing position data and thus falls under the wording of feature **F27**.

3.4.2 Patentees' arguments in favour of novelty of feature **F27**

(a) During oral proceedings, the patentees argued that in the embodiment described in D13 on page 30, line 29, to page 31, line 2, figure 13, no computer in

communication with an AIS is disclosed. Even if the "person on the shore" (D13, page 32, line 1) were to use a computer, this computer would require specific hardware in order to communicate with an AIS. No such hardware was disclosed in D13.

The board is not convinced by the patentees' argument. As explained in point 3.4.1 above, no AIS forms part of the claimed system and the non-specific communication defined in feature **F27** encompasses the demodulation of the acoustic signal by the computer of D13.

- (b) The patentees argued that the board's reasoning mixed up the two systems AIS and GPS. Claim 1 required a communication with an AIS and not with a GPS.

The board is not convinced by the patentees' argument. As explained in point 3.4.1 above, since the AIS is not part of the claimed subject-matter, feature **F27** merely limits the claimed scope in that the computer must be suitable to be in communication with a system which provides the position of the movable object (i.e. the ship).

3.5 In conclusion:

- features **F1** to **F14** are anticipated by D13 for the reasons provided in point 1. above,
- features **F15** and **F16** are anticipated by D13 for the reasons provided in point 2. above,
- features **F19** to **F27** are anticipated by D13 for the reasons provided in points 3.2 to 3.4 above.

Therefore, claim 1 of the second auxiliary request, comprising features **F1** to **F16** and **F19** to **F27**, is anticipated by D13.

Accordingly, the patentees' second auxiliary request is not allowable.

4. Auxiliary request 2A - admission

Auxiliary request 2A is not taken into account pursuant to Article 13(2) RPBA.

4.1 The set of claims of auxiliary request 2A was not filed until during the oral proceedings before the board. Claim 1 of auxiliary request 2A differs from claim 1 of the second auxiliary request only in that the alternative feature **F27** is deleted.

4.2 According to Article 13(2) RPBA, "[a]ny amendment to a party's appeal case made after (...) notification of a communication under Article 15, paragraph 1, shall, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned".

4.3 The board is unable to see any such exceptional circumstances justifying filing auxiliary request 2A only at the oral proceedings. Indeed, the board informed the patentees, in point 9.6 of the communication annexed to the summons to oral proceedings, of its preliminary view that feature **F27** lacked novelty in view of D13. Therefore, the patentees could and should have filed auxiliary request 2A well in advance of the oral proceedings, in order to allow the board and the opponent to prepare for a detailed discussion of auxiliary request 2A. The board considers it unfair to the opponent to wait for the end of

the discussion of novelty of the higher ranking requests at the oral proceedings before filing auxiliary request 2A.

4.4 Patentees' arguments for admission of auxiliary request 2A

4.4.1 The patentees submitted that the amendment made to claim 1 of auxiliary request 2A (i.e. deletion of feature **F27**) could not have come as a surprise to the board and the opponent, since point 9.6 of the board's communication discussed lack of novelty of feature **F27** and point 9.7 indicated that a new claim deleting feature **F27** would be novel over D13.

The board does not agree with the patentees' argument. Despite the information regarding feature **F27** provided by the board to the parties, the fact that the patentees did not file a new request deleting feature **F27** from claim 1 in response to the board's communication (sent on 8 May 2024, i.e. 9,5 months in advance of the oral proceedings) led the board and the opponent to assume that the patentees were not interested in a claim 1 in which feature **F27** was deleted. Filing such a new claim 1 only the day of the oral proceedings took the board and the opponent by surprise.

4.4.2 The patentees argued that the deletion of the alternative feature **F27** from claim 1 was not a real amendment within the meaning of Article 13 RPBA, since after this amendment all the remaining features of claim 1 were features that had always been part of the patentees' appeal case.

The board is not convinced by the patentees' argument. By deleting the alternative feature **F27**, the patentees' appeal case was substantially changed, as the objection of lack of novelty against the subject-matter of claim 1, based

inter alia on the fact that feature **F27** was considered by the board to be anticipated by D13, became moot.

- 4.4.3 The patentees, referring to point 9.7 of the board's communication, put forward that claim 1 of auxiliary request 2A overcame *prima facie* all the objections at stake and, therefore, should be admitted into the proceedings.

In response to this argument, the opponent submitted that, in its view, claim 1 did not comply with all the requirements of the EPC. In particular, the opponent raised (for the first time) an objection of lack of clarity due to the multiple use of the term "and/or" in claim 1. It also maintained its view that feature **F26**, even if novel, did not involve an inventive step.

Irrespective of whether the board, after detailed discussion with the parties, would have come to the conclusion that claim 1 of the auxiliary request 2A meets all the requirements of the EPC, the board considers that auxiliary request 2A should have been filed sufficiently in advance of the oral proceedings in order to allow the board and the opponent to prepare for the ensuing discussion. Even in the present case, where the subject-matter of the amended claim 1 was preliminarily considered by the board to involve an inventive step, the board sees no exceptional circumstances, such as the absence of objections by the opponent against claim 1 of auxiliary request 2A, which would justify admitting auxiliary request 2A into the proceedings.

- 4.4.4 The patentees, referring to point 12 of the board's communication annexed to the summons, submitted that they thought that the board did not want to receive further submissions from the parties. Therefore, the patentees

refrained from filing auxiliary request 2A in response to the board's communication.

The board cannot follow the patentees' argument. Point 12 (in combination with point 6) of the board's communication points out that both parties had already set out their case in great detail in writing and that more written submissions (e.g. arguments) did not seem to further their case. However, if, as in the present case, the patentees intended to file auxiliary request 2A in response to the board's communication, the patentees should not have waited until the end of the oral proceedings to do so, but should have filed it as soon as possible to enable the board and the opponent to prepare for the new case.

5. Lack of novelty of the subject-matter of claim 1 of the second auxiliary request, found for the above reasons, precludes maintenance of the patent according to the interlocutory decision of the opposition division. The decision under appeal, therefore, must be set aside.

6. Remittal of the case

The board decides to exercise its discretion under Article 111(1) EPC and Article 11 RPBA in remitting the case to the opposition division for further prosecution.

6.1 The board notes that the patentees had filed a total of 20 auxiliary requests with their statement of grounds of appeal and that currently they maintained all these requests. Only the main request and the first and the second auxiliary requests have been decided by the board. Claim 1 of each of the 18 remaining auxiliary requests comprises different features compared to claim 1 of the requests underlying the present decision of the board. The decision under appeal did not deal with the subject-matter

as claimed in any of these auxiliary requests. The patentability of the subject-matter of claim 1 of the auxiliary requests would therefore have to be assessed for the first time during appeal proceedings.

In addition, in view of the numerous objections raised by the opponent throughout the appeal proceedings the board considers that the assessment of the patentability of claim 1 of the auxiliary requests comprises a complexity in terms of the number of new issues not compatible with the primary object of the appeal proceedings to review the decision under appeal in a judicial manner (Article 12(2) RPBA).

6.2 Neither the patentees nor the opponent submitted arguments for not remitting the case to the first instance.

6.3 In view of the above, there are special reasons within the meaning of Article 11 RPBA in the case in hand which justify remitting the case to the opposition division for further prosecution.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the opposition division for further prosecution.

The Registrar:

The Chairman:



T. Buschek

R. Bekkering

Decision electronically authenticated