

Internal distribution code:

- (A) [-] Publication in OJ
- (B) [-] To Chairmen and Members
- (C) [-] To Chairmen
- (D) [X] No distribution

**Datasheet for the decision
of 20 October 2021**

Case Number: T 0440/19 - 3.5.05

Application Number: 06124204.6

Publication Number: 1758286

IPC: H04L1/18

Language of the proceedings: EN

Title of invention:

Avoiding stall conditions and sequence number ambiguity in an automatic repeat request protocol

Patent Proprietor:

Telefonaktiebolaget LM Ericsson (publ)

Opponent:

KELTIE LLP

Headword:

Retransmission and receiving windows in ARQ protocol/ERICSSON

Relevant legal provisions:

EPC Art. 54, 56

RPBA 2020 Art. 13(2)

Keyword:

Novelty - main request (yes)

Inventive step - main request (yes)

Amendment after summons - cogent reasons (no)

Decisions cited:

Catchword:



Beschwerdekammern

Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 0440/19 - 3.5.05

D E C I S I O N
of Technical Board of Appeal 3.5.05
of 20 October 2021

Appellant: Telefonaktiebolaget LM Ericsson (publ)
(Patent Proprietor) 164 83 Stockholm (SE)

Representative: Hoffmann Eitle
Patent- und Rechtsanwälte PartmbB
Arabellastraße 30
81925 München (DE)

Appellant: KELTIE LLP
(Opponent) No.1 London Bridge
London SE1 9BA (GB)

Representative: Ahmad, Sheikh Shakeel
Keltie LLP
No.1 London Bridge
London SE1 9BA (GB)

Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
4 December 2018 concerning maintenance of the
European Patent No. 1758286 in amended form.**

Composition of the Board:

Chair A. Ritzka
Members: P. Cretaine
F. Blumer

Summary of Facts and Submissions

- I. This appeal is against the opposition division's interlocutory decision, issued on 4 December 2018, to maintain European patent No. 1 758 286 in amended form according to claims 1 to 7 of a first auxiliary request B filed by letter of 9 September 2014.

The opposition was based on the grounds of Article 100(a), (b) and (c) EPC. In a first interlocutory decision taken in oral proceedings on 20 November 2013, the opposition division decided to maintain the patent in amended form according to an auxiliary request 1 filed during the oral proceedings. In the first appeal proceedings (T 396/14), this board, in the same composition, found that the patent as granted met the requirements of Article 83 EPC and decided in oral proceedings on 20 December 2016 to remit the case to the opposition division for further prosecution.

In the impugned interlocutory decision, the opposition division found that claim 1 as granted did not meet the requirements of Article 54 EPC over the disclosure of

D1: "COMPUTER NETWORKS", A. S. Tanenbaum, 1996, pages XV to XVII and 182, 183, 202 to 219.

Furthermore, the opposition division found that claim 1 according to a first auxiliary request D filed by letter of 17 August 2018 did not meet the requirements of Article 84 EPC.

Finally, the opposition division found that the claims of the first auxiliary request B met the requirements

of Article 123(2) and (3) EPC and that their subject-matter involved an inventive step with regard to the disclosure of D1 and of

D2: IUT-T Recommendation X.75, October 1996, pages i to iv and 1 to 122 and

D3: WO 00/57594.

- II. The proprietor's notice of appeal was received on 11 February 2019, and the appeal fee was paid on the same day. The statement setting out the grounds of appeal was received on 15 April 2019. The proprietor (appellant) requested that the decision be set aside and that the patent be maintained as granted, or in amended form according to a first auxiliary request C filed on 18 November 2016, a first auxiliary request E filed on 15 April 2019, a first auxiliary request D filed on 17 August 2018, or a first auxiliary request A filed on 9 September 2014. All the auxiliary requests were refiled with the statement setting out the grounds of appeal. Oral proceedings were requested on an auxiliary basis.
- III. The opponent's notice of appeal was received on 14 February 2019, and the appeal fee was paid on the same day. The statement setting out the grounds of appeal was received on 15 April 2019. The opponent (appellant) requested that the patent be revoked in its entirety. Oral proceedings were requested on an auxiliary basis.
- IV. By letter of 3 September 2019, the opponent responded to the statement setting out the proprietor's grounds of appeal and requested that the proprietor's appeal be

rejected in its entirety.

- V. By letter of 3 September 2019, the proprietor responded to the statement setting out the opponent's grounds of appeal and requested that the opponent's appeal be rejected and that the patent be maintained as granted (main request) or according to the first auxiliary requests C, E, D or A. On a further auxiliary basis, the proprietor requested that the patent be maintained in amended form according to the first auxiliary request B filed on 9 September 2014, second to seventh auxiliary requests filed on 9 September 2014, second and third auxiliary requests C filed on 27 September 2017, fourth to seventh auxiliary requests C filed on 18 November 2016, second and third auxiliary requests D filed on 17 August 2018, and fourth and fifth auxiliary requests D filed by letter of 3 September 2019.
- VI. A summons to oral proceedings was issued on 29 April 2021.
- VII. By letter dated 28 June 2021, the proprietor maintained all its previous requests and provided further arguments.
- VIII. In a communication pursuant to Article 15(1) RPBA, the board indicated the points which would be discussed during the oral proceedings. It also expressed its preliminary opinion that claims 1 and 2 according to the main request (claims as granted) were novel over the disclosure of D1 and D2, respectively.
- IX. By letter dated 6 October 2021, the opponent provided further arguments in respect of the main request

(claims as granted) and the first auxiliary request B (claims as maintained by the opposition division).

X. By letter dated 6 October 2021, the proprietor maintained all its previous requests and provided further arguments.

XI. Oral proceedings were held before the board on 20 October 2021.

The appellant/patent proprietor requested that the decision under appeal be set aside and that the patent be maintained as granted (main request) or that the patent be maintained on the basis of any one of the following requests:

- the first auxiliary request C of 18 November 2016 (filed in the first appeal);
- the first auxiliary request E of 15 April 2019;
- the first auxiliary request D of 17 August 2018;
- the first auxiliary request A of 9 September 2014;
- the first auxiliary request B of 9 September 2014 (as maintained in the second opposition oral proceedings);
- the second auxiliary request of 9 September 2014 (corresponding to the second auxiliary request of 18 October 2013);
- the third auxiliary request of 9 September 2014 (corresponding to the third auxiliary request of 18 October 2013);
- the fourth auxiliary request of 9 September 2014 (corresponding to the fourth auxiliary request of 18 October 2013);
- the fifth auxiliary request of 9 September 2014 (corresponding to the fifth auxiliary request of 18 October 2013);

- the sixth auxiliary request of 9 September 2014 (corresponding to the sixth auxiliary request of 18 October 2013);
- the seventh auxiliary request of 9 September 2014 (corresponding to the seventh auxiliary request of 18 October 2013);
- the second auxiliary request C of 27 September 2017;
- the third auxiliary request C of 27 September 2017;
- the fourth auxiliary request C of 18 November 2016 (filed in the first appeal);
- the fifth auxiliary request C of 18 November 2016 (at the first appeal);
- the sixth auxiliary request C of 18 November 2016 (at the first appeal);
- the seventh auxiliary request C of 18 November 2016 (at the first appeal);
- the second auxiliary request D of 17 August 2018;
- the third auxiliary request D of 17 August 2018;
- the fourth auxiliary request D of 3 September 2019;
- the fifth auxiliary request D of 3 September 2019.

The appellant/opponent requested that the decision under appeal be set aside and that European patent No. 1 758 286 be revoked.

At the end of the proceedings, the board's decision was pronounced.

XII. Claim 1 of the main request (claims as granted) reads as follows:

"A method in a transmitter (310) for use in data unit transmissions between a transmitter (310) and a receiver (500), where each data unit includes a corresponding sequence number and is transmitted in sequence modulo-N, N being the largest sequence number,

including the step of establishing a retransmission window (430) having a size corresponding to a number of data units less than N ; and characterized by using said retransmission window (430) to avoid sequence number ambiguity in the receiver between originally-transmitted data units and retransmitted data units by only permitting (64,66,68) retransmission of one or more data units having a sequence number within a current position of the retransmission window (430) in the sequence; positioning an upper end of the retransmission window (430) at a sequence number that is less than or equal to a difference between a highest sequence number most recently transmitted and the window size; and moving the retransmission window (430) to a next sequence number position in the modulo- N sequence after each data unit is transmitted."

Independent claim 2 of the main request reads as follows:

"A method in a receiver (500) for use in data unit transmissions between a transmitter (310) and a receiver (500), where each data unit includes a corresponding sequence number and is transmitted by the transmitter in sequence modulo- N , N being the largest sequence number, the receiver comprising a receiving window (630) corresponding to a number of data units less than N in order to avoid sequence number ambiguity in the receiver (500) between originally-transmitted data units and retransmitted data units, characterized by discarding (92) a recently-received data unit inside the receiving window (630) if said data unit has been previously received (90Yes);

storing (94) a recently-received data unit in a reordering buffer (610) in a position corresponding to the recently-received data unit sequence number if said data unit has not been previously received (90No); and, if a recently-received data unit is outside the receiving window (80No), advancing (96) the receiver window (630) so that the sequence number of the recently-received data unit forms the upper end and removing (98) from the buffer (610) any data units having a sequence number less than the lower end of the receiver window."

The main request further comprises an independent claim (claim 5) directed to a transmitter corresponding to method claim 1 and an independent claim (claim 6) directed to a receiver corresponding to method claim 2.

Due to the outcome of the appeal proceedings, there is no need to detail the claims of the auxiliary requests.

Reasons for the Decision

1. The proprietor's appeal and the opponent's appeal both comply with the provisions of Articles 106 to 108 EPC (cf. points II. and III. above) and are therefore admissible.
2. Main request - claim 1
 - 2.1 The following numbering of features of claim 1 was used in the proceedings:
 - A. A method in a transmitter (310) for use in data unit transmissions between a transmitter (310) and a receiver (500),

- B. where each data unit includes a corresponding sequence number and is transmitted in sequence modulo-N, N being the largest sequence number,
- C. including the step of establishing a retransmission window (430) having a size corresponding to a number of data units less than N; and characterized by
- D. using said retransmission window (430) to avoid sequence number ambiguity in the receiver between originally-transmitted data units and retransmitted data units by only permitting (64,66,68) retransmission of one or more data units having a sequence number within a current position of the retransmission window (430) in the sequence;
- E. positioning an upper end of the retransmission window (430) at a sequence number that is less than or equal to a difference between a highest sequence number most recently transmitted and the window size; and
- F. moving the retransmission window (430) to a next sequence number position in the modulo-N sequence after each data unit is transmitted.

2.2 Interpretation of claim 1

The opponent argued that the opposition division was right in considering that the retransmission window defined in claim 1 could have a variable size between 0 and 1.

However, the board agrees with the proprietor that regarding the window size, there are several sections in claim 1 which at least implicitly define that the window has a fixed size. The fixed window size is already implicitly disclosed in feature C by the wording "a retransmission window having a size corresponding to a number of data units less than N".

This statement implies that, once said number of data units less than N is determined, this number and accordingly the window size is not varied while the method is being performed. Furthermore, since the retransmission window is "established" in feature C and then in feature E the upper end of the same retransmission window is positioned to permit specific data units to be retransmitted, first establishing a retransmission window with a specific size and then changing the size does not make technical sense. Moreover, feature C recites "a retransmission window" and features E and F recite "the retransmission window", and therefore features E and F clearly refer to the previously established retransmission window. The entire disclosure of the patent does not allow for a different interpretation either, since all the embodiments and examples only describe retransmission windows of fixed sizes. The board is also not convinced by the argument in point 19.4 of the decision that how the edges of the retransmission window were moved or what was performed on the retransmission window when an ACK was received were out of the scope of the claim because step F only required that, after each data unit was transmitted, the transmission window was moved to the next sequence number position. Indeed, step F has to be considered in combination with features C and E. In that respect, feature C establishes, i.e. fixes, the retransmission window, and in feature E the upper end of the same window is positioned so that the lower end is necessarily positioned too.

With regard to the opponent's argument that the retransmission window in claim 1 could be of size 1, the board agrees with the proprietor that the fixed window size according to claim 1 is at least 2 due to the use of the wording "a number of data units" in

feature C. According to several dictionaries, "a number of" means "several", which is in line with the use of the plural in the term "units". The case N=2 mentioned by the opponent is also excluded by the use of the wording

"a number of data units", implying that there must be at least 2 data units in the retransmission window. This understanding is fully in line with the description, in particular paragraphs [0031] to [0033] and Figures 6 and 8A of the patent. Moreover, the wording "permitting retransmission of one or more data units having a sequence number within a current position of the retransmission window in the sequence" in feature D is not to be understood, as argued by the opponent, as meaning that the window size could be 1, but instead that the retransmission window comprises data units which could be retransmitted if needed, e.g. if they have not been acknowledged, and that, in some cases, only one data unit of the several data units in the retransmission window needs retransmission.

Furthermore, the opponent argued that the functionality of avoiding ambiguity at the receiver may still be achieved with a retransmission window of size 1; however, even if this were right, the wording of feature C would define a retransmission window of size 2 at least, as detailed above.

Moreover, with regard to feature F, the opponent asserted that the wording "after each data unit is transmitted" did not imply that the movement of the retransmission window was triggered by the transmission of the next sequence number, but instead only specified that said window was moved at a certain point in time after transmission of the next sequence number, which could be after an acknowledgement had been received, as

in D1. The board is not convinced by this argument and, as argued by the proprietor, holds that the skilled person would construe the term "after" as meaning "when" on the basis of the context of the entire application.

2.3 Article 54 EPC

The opposition division decided that claim 1 as granted lacked novelty over D1.

D1 discloses sliding window protocols in a wired communication network. In Figure 3-12 a sender's window size changes from 0 to 1 and back to 0. The sender's window in Figure 3-12 is created by advancing its upper edge by 1 whenever a new packet arrives from the network layer, and is suppressed by advancing the lower edge by 1 when an acknowledgement comes in. Therefore, in D1 the sender's window grows to its maximum size of 1 and shrinks again so that its upper and lower edges change at different times and the change to the window is driven by an acknowledgement from the receiver and may stall if no ACK is received or the ACK is corrupted.

In another protocol discussed in section 3.4.3, the sender's window size starts out at 0 and grows to a predefined maximum. The sender's window covers sequence numbers ahead of the currently transmitted sequence number and changes once an acknowledgement is received, as shown in Figure 3-19.

While the board may agree with the opponent that the sender's window described in D1 is a retransmission window, feature C of claim 1 is not disclosed in D1 since, in the two embodiments/protocols quoted by the

opponent, the window does not have a fixed size of at least 2.

This difference in the definition of the retransmission window means that the positioning and moving features E and F are not disclosed in D1 either. In both protocols, D1 teaches a variable size window which moves its upper edge and its lower edge based on a received acknowledgement. In Figure 3.12 of D1, the retransmission window is not moved at all to the next sequence number after a data unit is transmitted because there is no window before it, i.e. the window is created after the data unit is transmitted and disappears once a frame is acknowledged. Feature F in particular is thus not disclosed in the example in Figure 3-12 of D1, since after the first frame has been sent in Figure 3-12(b), the window appears for the first time, and after the first acknowledgement has been received in Figure 3-12(d), there is no window once again. In Figure 3.19 of D1, the window relates to a different mechanism covering sequence numbers ahead of the currently transmitted sequence number. In particular, section 3.4.3 relating to Figure 3.19 teaches that the position of the sender's window in Figure 3-19 does not change with currently transmitted frames. Despite recently transmitted frames, the position of the window remains the same and the sender waits for acknowledgements. By contrast, features E and F define positioning and movement of the upper end, and by virtue of the fixed size of the window, define simultaneous positioning of the lower end, based on the highest sequence number most recently transmitted.

With regard to feature F, the opponent also argued that the use of the term "after" did not imply that the movement of the window was triggered by the

transmission of a data unit, but instead that it was performed at a certain point in time after transmission of a data unit. Therefore, feature F was anticipated by the disclosure of the movement of the window in D1 which occurred after an acknowledgement for a data unit had been received and thus necessarily after the data unit had been transmitted. However, the board agrees with the proprietor that the wording "after each data unit is transmitted" has to be construed as meaning "when a data unit has been transmitted", i.e. that the transmission triggers the movement, based on the context of the entire application.

Therefore, the board holds that at least features C, E and F are not disclosed in D1 and that the subject-matter of claim 1 is novel (Article 54 EPC). The same considerations apply to the subject-matter of the corresponding system claim 5.

2.4 Article 56 EPC

2.4.1 The technical effect of the distinguishing features C, E and F is that a retransmission window of fixed size is forced to move forward after each new data unit is transmitted for the first time. Even when an acknowledgement is not received or is misinterpreted as a negative acknowledgement, the window always advances and the system does not stall.

The objective technical problem can thus be formulated as that of avoiding stall conditions and sequence number ambiguity in a windowing scheme, as stated in paragraphs [0009], [0011] and [0012] of the patent. In that respect, the board disagrees with the opponent that the problem would be limited to avoiding sequence number ambiguity on retransmission.

2.4.2 The skilled person would not be prompted by D1 to modify the principles governing the movement and size of the retransmission window. Actually, the window in D1 is not moved, but it is opened for a new data unit only when an acknowledgement for a previous data unit is received. D1 is based on the assumption that no misinterpretation in the ACK/NACK feedback occurs. This may lead to a stall condition when an NACK is misinterpreted as an ACK, leading the sender in D1 to open a window for a new data unit while the receiver is still waiting for the previous data unit, which the sender is no longer able to retransmit. In order to solve this stalling problem, the skilled person would instead attempt to suppress its cause, namely the errors in the ACK/NACK scheme, and would not attempt to modify the elaborated retransmission scheme of shrinking, enlarging, shrinking, etc., from D1. Even if they were to do so, they would not arrive at the solution proposed by claim 1, in particular features C, E and F, without the benefit of hindsight.

The opponent argued that D1 disclosed on page 203 that some sliding window protocols may use fixed-size windows and disclosed on pages 204 and 206 that windows of a size greater than 1 may also be used; however, the board agrees with the proprietor that combining this teaching with the embodiments illustrated in Figures 3-12 and 3-19 would be based on hindsight. Moreover, even if this teaching of fixed-size windows were used in Figures 3-12 and 3-19, the skilled person would not be prompted to modify the procedure for moving the windows.

The opponent also argued that the skilled person knew from their own common general knowledge that dragging

the window was the only option for avoiding a stall condition and that they would apply it to the window of D1; however, the board is not convinced by such an *ex post facto* argument.

For these reasons, the board holds that the subject-matter of claim 1 and of the corresponding system claim 5 involves an inventive step over the disclosure of D1 (Article 56 EPC).

2.4.3 Finally, the opponent argued that the skilled person would have been prompted by D3 to arrive at the solution to the objective technical problem of avoiding stall conditions and ambiguity. The opponent referred to page 19, lines 4 to 17 of D3, which mentioned that a transmission window could be advanced forward in order to avoid stall conditions.

D3 relates to a discard mechanism in a transmission window for a selective repeat ARQ protocol. The transmission window is of fixed size and its first sequence number is associated with the data unit having the lowest sequence number of any data units at the sender that are unacknowledged (see page 17, lines 1 and 2). The board agrees with the proprietor that the ends of the transmission window in D3 are defined differently from the subject-matter of claim 1. Moreover, since the window in D3 contains data units which are eligible for transmission to avoid sequence number ambiguities so that some of the sequence numbers correspond to data units that have not yet transmitted, it cannot be considered a retransmission window, wherein all the packets have already been transmitted at least once. Furthermore, the movement of the window in D3 is quite different to that in claim 1: the transmission window is shifted by discarding data units

at the bottom of the window, and this is allowed only to the extent that the top of the window does not exceed the sequence number corresponding to the cumulative acknowledgement point plus the maximum window size (see page 17, lines 20 to 22).

Due to the above-mentioned significant differences between the schemes in D1 and D3, the skilled person would not combine the teaching of these documents. Moreover, even if the skilled person were to combine D3 and D1, they would not arrive at the specific window movement defined in claim 1.

For these reasons, the board holds that the subject-matter of claim 1 and of the corresponding system claim 5 involves an inventive step over the disclosure of D1 in combination with D3 (Article 56 EPC).

3. Main request - claim 2

3.1 The following numbering of features of claim 2 was used in the proceedings:

G. A method in a receiver (500) for use in data unit transmissions between a transmitter (310) and a receiver (500),

H. where each data unit includes a corresponding sequence number and is transmitted in sequence modulo-N, N being the largest sequence number,

I. the receiver comprising a receiving window (630) corresponding to a number of data units less than N in order to avoid sequence number ambiguity in the receiver (500) between originally-transmitted data units and retransmitted data units, characterized by

J. discarding (92) a recently received data unit inside the receiving window if said data unit has previously been received (90Yes);
K. storing a recently-received data unit in a re-ordering buffer (610) in a position corresponding to the recently-received data unit sequence number if said data unit has not been previously received(90No), and
L. if a recently-received data unit is outside the receiving window (80No) advancing (96) the receiver window (630) so that the sequence number of the recently-received data unit forms the upper end and
M. removing (98) from the buffer (610) any data units having a sequence number less than the lower end of the receiver window.

3.2 Article 54 EPC

The opposition division decided that claim 2 of the first auxiliary request B, which merely differed from the granted claims in that it further specified that the receiving window size was $N/2$ data units, was novel over the disclosure of D2. In particular, the opposition division found that D2 did not disclose feature L.

The opponent argued that feature L was disclosed in sections 2.5.3.2.9 and 2.5.3.2.10 of D2. According to it, the receive window and the guard region described therein corresponded to the receiving window and the outside of it, respectively, defined in claim 2. In order to equate the guard region in D2 with the outside of the receiving window in claim 2, the opponent relied on the sentence in section 2.5.3.2.10 which stated that "The range of MX shall be large enough for the receiving MLP to recognize the highest MN(S) outside of its receive window that it may legitimately receive

after a multilink frame loss has occurred". According to it, this demonstrated that the guard region was chosen to be large enough to recognise all data units that fell outside of the receive window that the receiver might receive, meaning that the guard region had to extend from the upper edge of the receiving window, all the way around the modulo-N sequence to the lower edge of the receiving window. The opponent further argued that section 2.5.3.2.9 of D2 stated that for a modulo 4096 system, the size MW of the receiving window could never exceed 4095 - the size MX of the guard region. Therefore, D2 would have specifically described an upper limit for the size of the guard region that encompassed all the sequence numbers outside the receiving window.

However, the board agrees with the proprietor that the guard region shown in Figures 3 and 4 of D2, which are the illustrations of the receiving window protocol, does not include all the sequence numbers outside of the receive window. Moreover, the only indications given in D2 of calculating the value MX of the guard region with respect to the value MW of the receiving window, as set out in section 2.5.3.2.10 (see "NOTE"), do not make it possible to deduce that the guard region corresponds to the entire outside of the receiving window. Therefore, the scheme in D2 divides the sequence number range into three regions, whereas claim 2 uses only two regions, namely the receiving window and the outside of the receiving window.

With regard to the movement of the receiving window in D2, the opponent argued that it was clear and unambiguous from sections 2.5.3.2.9 and 2.5.3.2.10 of D2 that, upon receipt of a data unit which was outside the receiving window, the receiving window was

repositioned such that the sequence number of this data unit formed the upper end of the receiving window.

However, D2 discloses in section 2.5.3.2.10 that when a data unit in the guard region is received, the lower end of the receiving window is moved to the sequence number of this data unit minus the receiving window size plus 1 (see "MV(R) is then updated to [Y-MW+1]"). Moreover, as argued by the proprietor, this movement is only an intermediate step, as explained in section 2.5.4.4, point iii). Indeed, after the lower end of the receiving window has been moved as detailed above, it is incremented further until the first unacknowledged data unit is encountered (see Figure 4).

The board thus holds that at least feature L is not disclosed in D2 and that claim 2 is novel (Article 54 EPC). The same considerations apply to the subject-matter of the corresponding system claim 6 and of dependent claims 3, 4 and 7.

3.3 Article 56 EPC

3.3.1 The subject-matter of claim 2 differs in substance from the disclosure of D2 in that, *inter alia*, the positioning of the receiving window in feature L of claim 2 is not dependent on the lower end of the window positioned at the sequence number of the first unacknowledged data unit, as in D2, but is defined by the upper end formed by the sequence number of the recently received data unit. In other words, the sequence numbers covered by the receiving window according to claim 2 are defined by counting the sequence number covered by the window backwards from the upper end to the lower end and not counting the numbers from the oldest multi-link sequence number not

yet acknowledged to an upper end, thus leading to different receiving window upper and lower ends, i.e. positions. Additionally, data units with numbers higher than the sequence numbers in the guard region are discarded in D2 and do not lead to a window movement as in claim 2.

Based on these differences, the objective technical problem may be formulated as that of avoiding stall conditions and ambiguity.

The opponent argued that the window in D2 was moved to the same position as in claim 2 and that D2 hinted that the guard region could be oversized and represent the entire region outside the receiving window.

The board agrees with the proprietor that the skilled person would not be prompted by D2 to modify the guard region. Furthermore, the skilled person would also not be motivated to modify the complex movement of the window in D2, ultimately based on the first unacknowledged data unit encountered, to a more simple forced forward movement based on the recently received data unit.

For these reasons, the board holds that the subject-matter of claim 2 involves an inventive step (Article 56 EPC) with regard to the disclosure of D2. The same considerations apply to the subject-matter of the corresponding system claim 6 and of dependent claims 3, 4 and 7.

- 3.3.2 At the oral proceedings, the opponent raised an objection under Article 56 EPC against claim 2 based on a combination of D2 and D3.

The proprietor rightfully asserted that such an objection had never been raised before in the appeal proceedings, either in the opponent's statement setting out the grounds of appeal or in its subsequent letters of reply. Furthermore, the proprietor referred to point 34.2 of the impugned decision, which demonstrates that an objection of lack of inventive step based on a combination of D2 with D3 had already been ruled out by the opposition division.

Taking all this into account, the board has decided not to admit the opponent's objection into the appeal proceedings under Article 13(2) RPBA 2020.

4. Conclusion

The grounds of opposition under Article 100(a) EPC do not prejudice the maintenance of the patent as granted.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is maintained as granted.

The Registrar:

The Chair:



K. Götz-Wein

A. Ritzka

Decision electronically authenticated