

## Deckblatt Übersetzung

### Daten der Übersetzung:

|  |                          |
|--|--------------------------|
| Court/Gericht:                             | Bundesgerichtshof        |
| Date of Decision / Datum der Entscheidung: | 2020-07-13               |
| Docket Number / Aktenzeichen:              | X ZR 90/18               |
| Name of Decision / Name der Entscheidung:  | Signalübertragungssystem |

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**Arbeitskreis**  
**Patentgerichtswesen**  
in Deutschland e.V.



# FEDERAL COURT OF JUSTICE

## ORDER

X ZR 90/18

of

July 13, 2020

in the patent nullity proceedings

Signalübertragungssystem/  
Signal transmission system

Patent Act Sec. 81

The interest in legal protection required for an action for nullity of a patent after the expiry of the term of protection of the patent is to be denied only if a claim under the protective right is seriously no longer possible (confirmation of Federal Court of Justice, order of February 14, 1995 – X ZB 19/94, GRUR 1995, 342 f. – *Tafelförmige Elemente*).

Federal Court of Justice, order of July 13, 2020 – X ZR 90/18 –

Federal Patent Court

The X. Civil Senate of the Federal Court of Justice ordered on July 13, 2020 with participation of the presiding judge Dr. Bacher, the judges Dr. Grabinski, Hoffmann and Dr. Deichfuß as well as the judge Dr. Rombach

that:

The defendant, having withdrawn the appeal against the judgment of the 6<sup>th</sup> Senate (Nullity Senate) of the Federal Patent Court pronounced on November 28, 2017, is declared to have lost this appeal.

The defendant shall bear the costs of the legal dispute.

The amount in dispute for the appeal proceedings is set at 2,812,500 EUR.

Grounds of the order:

1 I. The defendant is the proprietor of European patent 821 848 (patent in suit), which was granted with effect for the Federal Republic of Germany and was filed on January 31, 1997, claiming the priority of a European application dated February 15, 1996. The patent in suit concerns a signal transmission system with reduced complexity and comprises ten patent claims. Claim 1 reads, in the language of the proceeding:

1. Transmission system comprising a transmitter (2) for transmitting an input signal to a receiver (10) via a transmission channel (8), the transmitter (2) comprising an encoder (4) with an excitation signal generator (50) for deriving from a main sequence, a plurality of excitation sequences being parts from the main sequence, said parts being mutually displaced over a plurality of positions, selection means (40,44) for selecting an excitation sequence resulting in a minimum error between a synthetic signal,  $p[n]$ , derived from said excitation sequence, and a target signal,  $t[n]$ , derived from the input signal, the transmitter (2) being arranged for transmitting a signal representing an optimal excitation sequence to the receiver (10), the receiver (10) comprising a decoder (14) with an excitation signal generator (122) for deriving the selected excitation sequence from the signal representing the optimal excitation sequence, and a synthesis filter (132) for deriving a synthetic signal from the optimal sequence of excitation signal samples, characterised in that the selection means (40, 44) are arranged for deriving at least one further excitation sequence from the main sequence, the further excitation sequence being displaced with respect to the selected sequence over a distance smaller than the displacement between the excitation sequences, and in that the selection means (40, 44) are arranged for selecting from the selected excitation sequence and the at least one further excitation sequence

that excitation sequence resulting in a minimum error between the synthetic signal,  $p[n]$ , derived from said further excitation sequence, and the selected excitation sequence, and the target signal,  $t[n]$ , derived from the input signal, as the optimal sequence.

2            Claims 5, 7, 9 and 10 protect, *mutatis mutandis*, a transmitter, an encoder, a transmission method and an encoding method having corresponding features. The further patent claims are related back to one of the other claims.

3            Originally, all plaintiffs challenged the patent in suit in its entirety on the grounds of lack of patentability. After the expiry of the property right, the second and third plaintiffs, who are claiming infringement of the patent in suit against the defendant on the basis of claim 7, declared that the dispute was settled on the merits insofar as the subject matter of claims 7 and 8 was not affected. The defendant concurred. The first plaintiff, whose operating system is used by the other plaintiffs and other providers, continued to pursue its original claim in full.

4            The Patent Court declared the patent in suit null and void to the extent of claims 7 and 8 and dismissed the further-reaching action as inadmissible. In their appeals, the first plaintiff and the defendant initially pursued their original claims. The other two plaintiffs opposed the defendant's appeal.

5            In the course of the appeal proceedings, the defendant waived the assertion of rights arising from the patent in suit. The first plaintiff then declared the legal dispute to be settled on the merits to the extent of the action dismissed by the Patent Court. The defendant concurred and withdrew its appeal.

6            II        The decision is based on Sec. 110(8) Patent Act, Sec. 516(3) Code of Civil Procedure, insofar as it concerns the loss of the appeal and the defendant's obligation to bear the costs caused by the withdrawn appeal. With regard to the costs attributable to the part of the action, which was declared settled by agreement, the decision is based on Sec. 121(2) Patent Act,

Sec. 91a Code of Civil Procedure.

7           It is equitable to order the defendant also to pay the part of the costs relating to the part of the action that was dismissed at first instance. According to the state of affairs and the dispute prior to the declaration of the settlement of the appeal of the first plaintiff was admissible and well-founded.

8           1.       The patent in suit concerns a system consisting of a transmitter and a receiver for the transmission of an input signal based on an acoustic signal, such as converted human speech.

9           a) The patent in suit explains that in modern systems for speech transmission, the speech signals are often encoded using the analysis-by-synthesis technique. For this purpose, different synthetic signals are generated on the basis of several excitation sequences and compared with a target signal derived from the input signal. On this basis, the excitation sequence is selected that results in the smallest deviation of the synthetic signal from the target signal. This is transmitted in coded form and restored in the receiver and fed to a filter, which again generates the corresponding synthetic signal (para. 5 f.).

10          Good quality signal transmission, he said, requires a large number of excitation sequences and a large number of filtering operations. This in turn results in a considerable computational effort. To reduce this, a so-called one-dimensional codebook is often used. Such a codebook comprises a main sequence with samples from which the excitation sequence is selected. Since adjacent sequences have a large number of samples in common, a recursive method can be used, which considerably reduces the computational effort. The memory requirement is also lower. To further reduce the number of calculations required, U.S. Patent 5,140,638 (D4) suggests that not all subsequences of the main sequence be considered, but only those whose boundaries are a certain distance apart. This would entail a certain loss of quality (para. 7).

11          b) Against this background, the patent in suit is based on the task of providing a transmission system of the type described with an improved quality

of coding, but without a substantial increase in the required computing power.

12 To solve this task, the patent in suit proposes in claim 7, which is the focus of the first-instance decision, an encoder whose features can be broken down as follows:

- 7 The encoder (4) comprises
  - 7a an excitation signal generator (50) for deriving a number of excitation sequences from a main sequence,
    - 7a1 which are each part of the main sequence and
    - 7a2 are shifted from each other by a number of positions,
  - 7b means (40, 44) for selecting an excitation sequence which results in a minimum error in a comparison of a synthetic signal  $p[n]$  derived from said excitation sequence with a target signal  $t[n]$  derived from the output signal.
  - 7c The encoder (4) is arranged to generate a signal representing an optimal excitation sequence.
  - 7d The selection means (40, 44) are arranged to derive from the main sequence at least one further excitation sequence, which is
    - 7d1 displaced by a distance smaller than that between the excitation sequences.
  - 7e The selection means (40, 44) are further provided for selecting, from the selected excitation sequence and the at least one further excitation sequence, that excitation sequence, which results in a minimum error between the following signals:
    - 7e1 the synthetic signal  $p[n]$  derived from said further excitation sequence, and
    - 7e2 the target signal,  $t[n]$ , derived from the input signal as the optimal sequence.

13           The devices and methods protected by claims 1, 5, 9 and 10 make use  
of the same operating principle.

14           c)     Some features require further discussion.

15           aa)    From the point of view of the skilled person, correctly described  
by the Patent Court as a graduate engineer in electrical engineering and  
information technology with a university degree and several years of  
experience in the field of signal coding, a main sequence within the meaning  
of feature 7a is a sequence of samples (para. 7). Excitation sequences in the  
sense of this feature are shorter sequences of samples contained in the main  
sequence.

16           According to patent claim 7, the manner, in which the codebook  
containing the main sequence is created and stored, is left to the skilled  
person. In particular, he is free to use a fixed or an adaptive codebook, i.e. to  
store constant or variable values calculated on the basis of excitation  
sequences (paras. 10, 36).

17           bb)    Insofar as the patent in suit provides in features 7a2 and 7d1  
that excitation sequences are shifted with respect to each other by a number  
of positions, this is to be understood as meaning that their initial and final  
positions are differ from each other.

18           Positions in this sense are, as the Patent Court correctly pointed out  
and without objection by the parties, the individual samples present in the  
main sequence. Not envisaged are the beginning or the end of a sequence at  
an intermediate position, which has been derived from the existing sample  
values by interpolation or in any other way.

19           cc)    Central importance for the desired improvement of the quality  
without a substantial increase of the computational effort is attached to the  
selection, provided for in features 7d and 7e, of at least one further excitation  
sequence in the vicinity of the sequence determined to be suitable according  
to features 7a and 7b.

20           The first selection process makes it possible to reduce the

computational time by not examining every excitation sequence under consideration, but only a subset of sequences that are displaced from one another by a few positions. This coarse screening leads to the quality losses mentioned in the description. In order to counteract these at least to some extent, it is examined in a second step whether other sequences, which lie in the proximity of the sequence determined first, lead to a better result. The additional computational effort for this is kept within limits, because only a relatively small number of further sequences have to be included in the consideration, which are also close to each other.

21           2.     Contrary to the opinion of the Patent Court, the action was  
admissible as a whole.

22           a)     The Patent Court essentially stated in this regard:

23           As far as the first plaintiff attacks the patent in suit beyond claims 7 and  
8, the action had become inadmissible with the expiration of the term of  
protection due to lack of interest in legal protection. It is true that the interest of  
the first plaintiff in protecting the customers of its products must be taken into  
consideration. However, even in this respect, a claim based on other patent  
claims was no longer to be expected after the defendant had declared that it  
would not extend the pending infringement actions based on patent claim 7 to  
other secondary claims. This declaration constituted a waiver of action within  
the meaning of Sec. 306 Code of Civil Procedure. Concrete indications for a  
renewed filing of an action were neither submitted nor evident. In addition, the  
objection of contradictory conduct (Sec. 242 Civil Code) would stand in the  
way of such a filing because of the declaration of waiver made.

24           b)     These statements do not stand up to scrutiny in the appeal  
proceedings.

25           aa)    The Patent Court correctly assumed that an action for nullity after  
expiry of the patent protection is only admissible to the extent that the plaintiff  
demonstrates an own interest in legal protection. Such an interest can arise,  
as the Patent Court also correctly assumed, from the fact that the nullity  
plaintiff is being sued for infringement of the patent in suit or that such a claim

is to be feared, but also from the fact that the nullity plaintiff has a legitimate interest in averting a claim by a third party for infringement of the patent in suit.

26           bb)    The Patent Court also rightly decided that the first plaintiff has a legitimate interest in ensuring that other companies that use software provided by it are not sued for infringement of a patent that is to be declared null and void.

27           cc)    Contrary to the opinion of the Patent Court, in view of the course of the infringement litigation there was a sufficiently concrete concern that the defendant would assert claims against the first plaintiff or other companies from its circle of customers for infringement of the patent in suit.

28           The question whether there is an own interest in legal protection must not be judged according to too strict standards. If an action for nullity is to serve as a preventive defense against claims, it is not decisive whether these have already been asserted or even announced. Rather, there is sufficient cause to seek judicial protection if the plaintiff has reason to fear that he may still be exposed to claims based on past acts even after expiration of the term of protection. In such cases, an interest in legal protection may only be denied if such a claim is seriously no longer possible (Federal Court of Justice, judgment of February 14, 1995 – X ZB 19/94, GRUR 1995, 342 f. – *Tafelförmige Elemente*).

29           Based on these principles, the Federal Court of Justice has affirmed an interest in legal protection, for example, in the event that the patent proprietor withdraws an infringement action that has already been filed, but refuses to waive any possible claims from the patent in suit (Federal Court of Justice, judgment of September 9, 2010 – Xa ZR 14/10, GRUR 2010, 1084 marginal no. 10 – *Windenergiekonverter*). A constellation comparable to this also exists in the case in dispute.

30           It is true that the defendant based the infringement actions already pending exclusively on patent claims 7 and 8 and, after the expiry of the patent in suit, declared that it would not base this action on further patent claims. However, this declaration does not contain a waiver of action within

the meaning of Sec. 306 Code of Civil Procedure. The infringement plaintiff has thus not waived already pending claims, but merely announced that it will not assert further claims in the already pending lawsuit. Thus, there is no room for a judgment of waiver pursuant to Sec. 306 Code of Civil Procedure.

31           Whether the defendant would have been prevented from bringing a new infringement action against the customers of the first plaintiff already sued under Sec. 242 Civil Code or Sec. 145 Patent Act does not require a final decision. With its declaration limited to the already pending proceedings and the refusal of a comprehensive waiver, the defendant has in any case reserved the possibility of bringing such actions. In view of the fact that the defendant had already filed infringement actions on the basis of patent claims 7 and 8 and that the subject matter of the remaining claims differed only slightly from the subject matter of these two claims, the plaintiff could not be expected in this situation to accept the uncertainty thus created. Rather, it had a legitimate interest in continuing the litigation concerning the legal status of the property right, which was already pending at the time the patent in suit lapsed.

32           3.       The action was well-founded in its entirety.

33           a)       The Patent Court essentially gave the following reasons for its decision with respect to claims 7 and 8 of the patent in suit, which were decided on the merits:

34           The subject matter of claims 7 and 8 was suggested by D4 and the general skill in the art. The skilled person had not only been able to deduce from D4 that the computational effort would decrease if individual existing excitation sequences were disregarded, but also that this procedure would result in a degradation of the speech quality. This had given the skilled person reason to look for a possibility to reduce the negative effects on the speech quality. In this respect, the skilled person could learn from D4 that neighboring excitation sequences were similar to each other and were initially omitted in the rough search, although they possibly led to a lower error and thus to a better speech quality. Therefore, it seemed worthwhile to the skilled person to have the previously omitted excitation sequences examined in their

vicinity in an additional step after completion of the coarse search with determination of the provisionally best excitation sequence. The principle of a two-stage search expressed in this way was part of general skilled person knowledge, which was substantiated by the corresponding passages in a draft for technical specifications for GSM standard (Tdoc SMG 111/96, D2) and in US patent 5 371 853 (D6). Accordingly, the skilled person had already decided on the basis of his technical knowledge to supplement the encoder known from D4 with a second search step in the sense mentioned.

35           This was not contradicted by the fact that D2 and D6 showed a two-step procedure with integer and fractional delay values. Starting from D4, which teaches only a coding method based on integer delay values, the skilled person, who is concerned with reducing the computational effort, will not consider fractional delay values, if only because they are accompanied by a significant increase in complexity and computational effort.

36           b)     This assessment is correct in the result and would have led to the nullity of the patent in suit also beyond claims 7 and 8.

37           aa)    The Patent Court correctly and not challenged by the defendant assumed that an encoder with the features 7 to 7c is disclosed in D4 and that this encoder only uses a one-stage search method, which is why feature groups 7d and 7e are not disclosed.

38           bb)    The Patent Court also correctly came to the conclusion that an addition of a second search step in the sense of feature groups 7d and 7e to the coding method disclosed in D4 was obvious to the skilled person.

39           (1)    The Patent Court rightly assumed that the skilled person had reason to search for possibilities to improve the quality with the least possible computational effort on the basis of D4.

40           The fact that skipping partial sequences leads to quality losses is already explicitly addressed in D4. There, these losses are classified as acceptable. Nevertheless, it was already apparent to the skilled person from D4 that the solution disclosed there represents a compromise between the goals of the lowest possible computing power and the highest possible quality.

This gave him reason to look for improvement possibilities that would lead to a lower loss of quality with comparable computing effort.

41           Contrary to the opinion of the appeal, the skilled person was not prevented from further considerations by the fact that in D4 an enlargement of the codebook is cited as a means of improving quality. It is true that this measure was not necessarily associated with a significant increase in the computational effort. For in D4 this step is described as advantageous only in the case that not every output sequence resulting from the codebook is examined (D4 column 3 lines 47-54). From this, however, it resulted at the same time that an increase of the codebook without substantial increase of the computational effort is possible only within certain limits and must inevitably with an increase of the distance between the examined sequences must be accompanied. In view of this, the skilled person had reason to look for other for other improvement possibilities, which are afflicted with fewer disadvantages.

42           (2)    The Patent Court rightly decided that the skilled person, starting from D4, had reason to carry out a second search with a finer grid in the vicinity of the excitation sequence initially determined by means of a rather coarse grid.

43           However, this does not already follow from the fact that such a search appears worthwhile, as the Patent Court pointed out, because the high degree of correspondence between closely adjacent excitation sequences keeps the additional computational effort within limits and at the same time establishes a relatively high probability that a sequence in the vicinity of the sequence initially determined to be advantageous will prove to be even more suitable. These advantages speak for the coding protected by the patent in suit. However, they did not give the skilled person any reason to consider this modification without further ado.

44           It is not necessary to decide whether D2 or D6 gave cause to do so. The appealed decision is already supported by the finding of the Patent Court that a two-stage search with a relatively coarse first grid and a finer grid applied only in the vicinity of the value selected in the first pass belonged to the general technical knowledge as a generally available means.

45 (a) There are no concrete indications from the appellant's submissions that give rise to doubts about the completeness and correctness of the Patent Court's findings in this respect (Sec. 117 Patent Act and Sec. 529(1), first sentence No. 1, Code of Civil Procedure).

46 Contrary to the view of the appeal, the Patent Court did not base its finding on the disclosure content of D2 and D6. It merely saw in these citations a confirmation of its assumption, based on general considerations, that the principle of the two-stage search was part of the common knowledge on the priority date.

47 In view of this, it can be left open whether D2 was accessible to the public on the priority date. Even if this were to be answered in the negative, this would not call into question the Patent Court's assumption that the document constitutes evidence of the then existing knowledge in the art. This assumption is based on the fact that the authors of the citation – which originated before the priority date – made use of this technical knowledge.

48 (b) On the basis of these findings, the Patent Court rightly concluded that the application of general technical knowledge to the coding method disclosed in D4 was obvious to the skilled person even without a corresponding suggestion.

49 According to the case law of the Senate, the application of a certain means may be obvious even without a corresponding suggestion if this means, as a general means to be considered for a multitude of applications, belongs by its nature to the general expertise of the addressed skilled person, the use of the functionality in question presents itself as objectively expedient in the context to be assessed and no special circumstances are ascertainable, which make an application appear impossible, associated with difficulties or otherwise impractical from a technical point of view (Federal Court of Justice, judgment of March 11, 2014 – X ZR 139/10, GRUR 2014, 647 marginal no. 26 – *Farbversorgungssystem*; judgment of March 27, 2018 – X ZR 59/16, GRUR 2018, 716 marginal no. 29 – *Kinderbett*).

50 Applying this standard, the subject matter of patent claim 7 in the

dispute is to be regarded as not based on inventive step.

51 (aa) It follows from the aforementioned findings of the Patent Court that a two-stage search with a coarser and a finer grid presented itself to the skilled person as a general means to be considered for a multitude of applications in order to keep the search effort as low as possible.

52 (bb) A generally available means presents itself as objectively expedient if it was readily apparent to a skilled person that a technical initial situation existed in which the use of the solvent in question presented itself as objectively expedient (Federal Court of Justice, judgment of March 27, 2018 – X ZR 59/16, GRUR 2018, 716 marginal no. 29 – *Kinderbett*). This requirement is also fulfilled in the case in dispute.

53 Contrary to the defendant's view, the addition of a second stage with a finer grid to the search method proposed in D4 is not a departure from the proposal disclosed in D4 to use a rather coarse grid in order to keep the computational effort low. This idea also underlies the principle of the two-stage search, which, according to the findings of the patent court, belongs to the general technical knowledge, because the first stage also serves here to land a comparatively good hit with relatively little effort. The addition to this approach of a second search with a smaller grid but relatively narrow search range does not represent a departure from this approach, but rather a consistent addition.

54 Starting from D4, the skilled person was also not faced with a fundamentally different starting position than in the application examples documented in D2 and D6, because the second search stage in D2 and D6 requires additional calculation steps for the formation of intermediate values, which do not occur in the first stage. In D6, the combination of integer and fractional delays is generally presented as a suitable measure to improve speech quality by increasing resolution. Therefore, in the embodiment example described in D6, 128 integer delays are combined with 128 fractional delays (D6 column 12 line 64 to column 13 line 9). However, these are not searched in their entirety. Rather, only the integer delays are included in the search in a first step, and the fractional delays in the vicinity of the search

result are examined in a second step (D6 column 12 lines 51-58). Thus, as in D4, the idea is to simplify a search across a large number of possibilities by first performing a coarser sifting across the entire range and then a finer sifting in a relatively small range.

55 (cc) Particular difficulties that would have prevented the skilled person from following the path suggested by the general expertise for the reasons stated are neither asserted nor otherwise evident.

56 cc) Nothing else applies to claims 1, 5, 9 and 10.

57 These claims also provide for a two-step search according to the feature groups 7b to 7e, which for the reasons explained in connection with patent claim 7, which was suggested by the state of the art. Insofar as claims 1, 5, 9 and 10 contain further features, these do not lead to a different assessment.

58 dd) The fact that the subject matter of the other claims would have to be assessed differently has neither been asserted nor otherwise evident.

Bacher

Grabinski

Hoffmann

Deichfuß

Rombach

Previous instance:

Federal Patent Court, judgment of November 28, 2017 – 6 Ni 32/16 (EP)