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**Datasheet for the decision
of 2 December 2022**

Case Number: T 1807/15 - 3.5.02

Application Number: 04758381.0

Publication Number: 1609239

IPC: H03F1/02

Language of the proceedings: EN

Title of invention:

High Efficiency Amplifier and Method of Designing Same

Patent Proprietor:

Andrew AG

Opponent:

Rohde & Schwarz GmbH & Co KG

Relevant legal provisions:

RPBA 2020 Art. 13(2)
EPC Art. 123(2), 104

Keyword:

Amendment after summons - taken into account (no)
Amendments - added subject-matter (yes)
Apportionment of costs - (no)

Decisions cited:

T 2279/16

Catchword:

If more than one summons are issued in appeal proceedings, both after the entry into force of the revised version of the Rules of Procedure, the first of these summons are the summons referred to in Article 13(2) RPBA 2020. Summons represent a predictable and objectively determinable trigger for the third level of convergence. This trigger function is independent of any subsequent procedural development, see reasons 2.

The postponement of oral proceedings due to a request for a referral of a question of law to the Enlarged Board of Appeal which was not announced in advance by the party making the request normally does not justify apportionment of costs. Since there is no guarantee that such a request will be successful, all parties will normally have to prepare for a discussion of the substance of the case irrespective of whether the request is announced in advance or not, see reasons 8.



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Case Number: T 1807/15 - 3.5.02

D E C I S I O N
of Technical Board of Appeal 3.5.02
of 2 December 2022

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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
7 August 2015 concerning maintenance of the
European Patent No. 1609239 in amended form.**

Composition of the Board:

Chairman R. Lord
Members: F. Giesen
W. Ungler

Summary of Facts and Submissions

I. The present appeal by the opponent (appellant) lies from the interlocutory decision of the opposition division posted on 7 August 2015 concerning maintenance of the European Patent No. 1609239 in amended form.

II. On 24 January 2020 the board informed the parties of its preliminary opinion on the case and summoned the parties to oral proceedings scheduled to be held on the EPO premises in Haar on 3 June 2020. The oral proceedings had to be rescheduled due to the Corona pandemic, and took place in the form of a video conference on 8 February 2021 ("first oral proceedings").

During the first oral proceedings, the appellant requested that a question of law concerning the legality of videoconference oral proceedings be referred to the Enlarged Board of Appeal. The board acceded to this request and, due to the nature of that question, no discussion as to the substance of the case took place during the first oral proceedings.

III. In a letter dated 18 July 2021, the appellant filed *inter alia* documents E7 to E11 and objections based on them, together with arguments concerning the requirements of Article 13(1) RPBA 2020. It is not necessary for the present decision to identify these documents in detail.

IV. Following the closure of the case before the Enlarged Board of Appeal, the board summoned the parties on 4 February 2022 to attend second oral proceedings which

took place on the EPO premises in Haar on 2 December 2022.

The final requests of the parties were as follows:

The appellant (opponent) requested that the decision under appeal be set aside and the patent be revoked and that the new submissions of 18 July 2021 be admitted into the proceedings.

The respondent (patent proprietor) requested that the appeal be dismissed (main request), or if that was not possible that

the decision under appeal be set aside and the case be remitted to the opposition division for consideration of the first to seventh auxiliary requests, or that

the patent be maintained in amended form on the basis of one of the first to fifth auxiliary requests filed with letter of 21 June 2016, or

on the basis of either the sixth or the seventh auxiliary request, both filed with letter dated 1 May 2020, also that

the objections based on the documents E7 to E11 not be admitted into the proceedings, and

that costs be apportioned in favour of the respondent relating to costs incurred because of the referral to the Enlarged Board and because of the submissions of 18 July 2021.

V. Claim 1 of the **main request** reads as follows:

"An amplifier (20) for amplifying an input signal (26) comprising:

a plurality of amplifier circuits (22,24) including a first amplifier circuit (22) and at least one second amplifier circuit (24), the amplifier circuits (22,24) having a reflection coefficient (Γ_{out}) at their output, looking into the outputs of the amplifier circuits (22,24);

at least one hybrid coupler circuit (44) having an output port (28) and an isolation port (29) and coupled to combine output signals (40,42) of the amplifier circuits at the hybrid coupler output port; and

a termination coupled at the isolation port (29) of the hybrid coupler circuit (44),

characterized in that:

the second amplifier circuit (24) is selectively operable with the first amplifier circuit (22) such that the second amplifier circuit (22) is configured to turn on and operate with the first amplifier circuit (22) when the input signal (26) exceeds a threshold and does not turn on and operate when the input signal is below the threshold, and

the termination comprises a length of transmission line (50) that is terminated with an electrical open circuit or an electrical short circuit, the termination having a reflection coefficient Γ_y ,

looking into the termination, related to the reflection coefficient Γ_{out} at the outputs of the amplifier circuits (22,24), according to one of the following relationships:

$$\text{ang}(\Gamma_y) = 180^\circ - \text{ang}(\Gamma_{out})$$

and

$$\text{ang}(\Gamma_y) = - \text{ang}(\Gamma_{out})."$$

Underlining was added by the board to highlight added features with respect to claim 1 as granted.

- VI. Claim 1 according to the **first auxiliary request** was amended by addition of the words

"the first and second amplifier circuits are configured to provide Doherty amplifier functionality such that"

between the words "*characterized in that*" and "*the second amplifier circuit (24) is selectively operable*" of claim 1 of the main request.

- VII. Claim 1 according to the **second auxiliary request** was amended by addition of the words

"the amplifier (20) comprising a gate control circuit (70) coupled to the at least one second amplifier circuit (24) to selectively operate the at least one second amplifier circuit (24)"

between the words "*when the input signal is below the threshold*" and "*and the termination comprises a length of transmission line*" of claim 1 of the main request.

VIII. Claim 1 of the **third auxiliary request** was amended by addition of the words

"and in that a matching network (64) or phasing line (46,48) is coupled proximate to the output of one of the amplifier circuits (22,24), the reflection coefficient Γ_{out} of the output of the amplifier circuit being a function of the matching network or phasing line."

at the end of claim 1 of the main request.

IX. Claim 1 of the **fourth auxiliary request** was amended by addition of the words

"a selectable effective length and"

between the words *"the termination having"* and *"a reflection coefficient Γ_y "* of claim 1 of the main request.

X. Claim 1 of the **fifth auxiliary request** was amended by addition of the words

"the at least one hybrid coupler circuit is a packaged hybrid coupler circuit"

between the words *"characterized in that"* and *"the second amplifier circuit (24) is selectively operable"* of claim 1 of the main request.

XI. Claim 1 of the **sixth auxiliary request** has been amended by addition of the words

"the at least one hybrid coupler circuit is surface-mounted on a printed circuit board"

between the words *"characterized in that"* and *"the second amplifier circuit (24) is selectively operable"* of claim 1 of the main request.

XII. Claim 1 of the **seventh auxiliary request** has been amended by addition of the words

"the at least one hybrid coupler circuit is surface-mounted on a printed circuit board, the hybrid coupler circuit implemented with a material of higher dielectric constant than the substrate of the printed circuit board"

between the words *"characterized in that"* and *"the second amplifier circuit (24) is selectively operable"* of claim 1 of the main request.

XIII. The arguments of the appellant that are relevant for the present decision can be summarised as follows:

Admittance - Documents E7 and E8

Article 13(2) RPBA 2020, second alternative referred to any amendment to a party's appeal case made after notification of a summons to oral proceedings. It had to be determined how the term "a summons to oral proceedings" in Article 13(2) RPBA 2020 should be interpreted in the present case where two summons had been issued and two oral proceedings took place. The revised version of the Rules of Procedure of the Boards of Appeal ("Rules of Procedure") established a "convergent approach" consisting of three levels, regulated in amended Articles 12(4), 13(1) and 13(2)

RPBA 2020. The motivation for the convergent approach was the procedural economy of the appeal proceedings. It was the purpose of the convergent approach that all parties had sufficient time to react to an amendment and to avoid any postponement necessary due to the introduction of complex new matter at a very late stage of the proceedings. Consequently, the purpose of Article 13(2) RPBA 2020 was to ensure that the parties filed all facts, evidence, arguments and requests as early and as completely as possible, in particular in good time before oral proceedings. In this light the term "a summons to oral proceeding" in Article 13(2) RPBA 2020 had to be interpreted - in the circumstances of the present proceedings - as relating to "the summons for oral proceedings" during which a substantive discussion of the grounds for appeal actually took place, and the parties had the possibility to present their case. Due to the referral to the Enlarged Board of Appeal, no discussion as to the substance took place at the first oral proceedings. The appellant filed the documents E7 to E11 and objections before the summons to the second oral proceedings. Article 13(2) RPBA 2020 was therefore not applicable in the present case.

Amendments - Main Request

Claim 1 of the main request contained subject-matter going beyond the content of the application documents as originally filed.

There was no verbatim disclosure of the added feature. Moreover, the original application did not disclose a selective operation of the second amplifier based on a threshold signal without the use of a gate control circuit. The passage on page 11, lines 9 to 17 only

disclosed that the second amplifier could be turned on in response to the input signal. However, there was no disclosure of processing the input signal on the basis of a threshold. This passage only disclosed that the second amplifier remained turned off until peak power requirements called for a higher power output, which was different from a threshold. The various references to classical Doherty amplifiers did not represent a basis for the amendment. In a classical Doherty amplifier, the second amplifier was not operated selectively. There was no clearly defined threshold above which the second amplifier was operated. Rather, the second amplifier was always in operation and the level of the input signal determined how much the second amplifier contributed to the output signal. Its contribution varied continuously, and no active "decision" was implemented as to when it was allowed to operate. The passage on page 7, line 6 to page 9, line 5 was consistent in that it only disclosed that the peaking amplifier was allowed to turn on, when the main amplifier went into saturation. The same conclusion applied to the passage on page 8, lines 1 to 3, which only described automatic operation of the second amplifier when the first amplifier went into saturation, rather than a selective operation based on a threshold, and also to the passage on page 15, lines 7 to 9 and figures 3A and 3B. The passage on page 20, line 21 to page 21, line 6 and figure 7 only contained a disclosure of a selective operation of the second amplifier using a gate control circuit which amended claim 1 did not contain. Even that passage, while describing a selective operation using a gate control circuit, did not contain a disclosure of processing the input signal based on a threshold. The passage on page 28, lines 10 to 14 also referred to the embodiment of

figure 7. The disclosure of signal peak detection was not equivalent to a disclosure of a threshold.

Remittal

The appellant did not comment on the question of remittal.

Amendments - First Auxiliary Request

Claim 1 of the first auxiliary request contained subject-matter going beyond the content of the application documents as originally filed.

The amendment made to claim 1 of the first auxiliary request did not overcome the problem of the main request. It was not really clear what was meant by the added feature. The first and second amplifiers did not form a Doherty amplifier but provided Doherty amplifier functionality. The disclosure on page 7 could not serve as a basis for this because its first paragraph referred only to classical Doherty amplifiers. In the context of the circuit of figure 7 there was no mention of a Doherty amplifier functionality.

Amendments - Second Auxiliary Request

Claim 1 of the second auxiliary request contained subject-matter going beyond the content of the application documents as originally filed.

The subject-matter of claim 1 was an intermediate generalisation of the specific embodiment of figure 7. The specific embodiment comprised further features which had not been added to the amended claim, namely an additional loop bypassing the hybrid coupler tapping

into the input signal and a detector connected as shown in the figure. The embodiment also made reference to the instantaneous power. This feature was also missing from claim 1 as amended. The respondent referred to the last sentence on page 20 emphasising the commas. However, the sentence nearly immediately following that sentence on page 21, lines 3 to 6 contradicted the respondent's argument concerning the commas. The overall disclosure did not justify the isolation of the gate control circuit from the remaining features of the embodiment. The gate control circuit of figure 7 was inextricably linked to the detector because the latter received the output from the detector.

Amendments - Third to Seventh Auxiliary Requests

The appellant had no comments going beyond those concerning the amendments of the higher ranking requests.

Apportionment of Costs

Apportionment of costs would not be appropriate. Many requests for referral were rejected. Consequently, the respondent could not assume that no discussion as to the substance would take place at the first oral proceedings. The preparatory work for that discussion was therefore necessary irrespective of whether the appellant announced their intention to request a referral or not.

As far as the alleged late-filing of documents and objections after the first summons were concerned, preparation for a corresponding discussion would also have been necessary if they had been filed earlier. In

the present case there was no abuse of procedure. Apportionment of costs was therefore not justified.

XIV. The arguments of the respondent that are relevant for the present decision can be summarised as follows:

Admittance - Documents E7 and E8

Article 13(2) RPBA 2020 referred to "summons", not the latest summons. It was not at the disposition of one of the parties, when the third level of convergence was to be triggered. This was in line with decision T 2279/16 in which case summons were issued, the appellant announced their non-attendance, the oral proceedings were cancelled, and the appellant then wanted to file further requests. The board in that case decided that the appellant should not be put in a more favourable position than they otherwise would have been in. The same applies here. A summons was issued which additionally set out substantive matters to be discussed. At the time when the appellant filed new submissions a summons had been issued and therefore Article 13(2) RPBA 2020 applied. Further summons could not subsequently put the appellant in a more favourable position. The appellant defined procedural economy too narrowly. This also concerned the question as to whether the other party had time to consider late filed submissions. If the appellant's stance were correct, anything could be filed late. If the appellant's new objections were admitted it would only be fair that the case be remitted. This was not in accordance with the requirement of procedural economy. Regarding the appellant's point concerning the discussion as to the substance at the first oral proceedings, such discussion did not take place because the appellant

filed their request for referral only during that oral proceedings.

Amendments - Main Request

Claim 1 of the main request did not contain subject-matter extending beyond the content of the application documents as originally filed.

Breaking down the wording of the amendment, there were two principle elements:

- the second amplifier circuit turned on and operated with the first amplifier circuit when the input signal exceeded a threshold and
- the second amplifier circuit did not turn on and operate when the input signal was below the threshold.

This particular threshold behaviour was entirely consistent with page 11, lines 11 to 14 of the published international application. Page 11, lines 14 to 17 proceeded to explain how this threshold behaviour was achieved, *i.e.* that "*the amplifier operational state changes in response to an external signal. That external signal may be, but is not limited to, the input signal to be amplified, an analog control signal, or a digital control signal.*" Substituting one of the listed examples, "the input signal to be amplified" into the more general wording of "an external signal", the skilled person derived that "the amplifier operational state changes in response to the input signal to be amplified". Moreover, the particular example of a C-class amplifier was given. The amendments therefore found a basis in the passages on page 11, lines 8 to 17. Moreover, the passage on page 15, lines 7 to 15 and figures 3A and 3B disclosed how

the amplifiers were turned on and off and that they provided Doherty functionality. Furthermore, the passage on page 9, lines 6 to 9 and the embodiment on pages 20 and 21 as well as figure 7 supported the amendment. The embodiment of figure 7 was merely a particular embodiment, so that the gate control circuit did not need to appear in the amended claim. Figure 6, as well as the passages on page 7, lines 1 to 8, page 8, lines 13 to 17, and page 9, lines 6 and 7 described how the invention of the patent may employ "Doherty functionality" using the different output circuitry as claimed, *i.e.* a hybrid coupler, without mentioning a gate control circuit. The passage on page 11, lines 9 to 17 taught the skilled person how the second amplifier would be set in operation. A skilled person would not have any difficulty to understand terms such as "peak power requirements" in particular in the context of Doherty amplifier functionality as disclosed on page 8, lines 13 to 17 and page 9, lines 6 and 7. The discontinuities in the graphs of figure 6 demonstrated how the second amplifier turned on at certain input signal levels. Figure 14 was similar in that respect. In addition, various passages referred to the classical Doherty amplifier, in particular page 7, lines 1 to 8, page 8, lines 13 to 17, page 9, lines 6 and 7, and page 20, lines 12 to 20. Such references also pertained to the amplifier according to the invention.

Remittal

The case should be remitted to the opposition division if the main request could not be allowed since there had not been an opportunity to discuss the auxiliary requests before the opposition division.

Amendments - First Auxiliary Request

Claim 1 of the first auxiliary request did not contain subject-matter extending beyond the content of the application documents as originally filed.

The board's position on the main request concerning a nuance in the precise meaning of the expressions "turns on", "is turned on" and "is allowed to turn on" was erroneous. Nevertheless, by providing a reference to "Doherty functionality" at the beginning of the feature clarification as to how to interpret the remainder of the claim was provided.

Amendments - Second Auxiliary Request

Claim 1 of the second auxiliary request did not contain subject-matter extending beyond the content of the application documents as originally filed.

The level of generality of the amendment concerning the addition of a gate control circuit was justified by the disclosure on page 20, line 21 to page 21, line 23. The gate control circuit was not inextricably tied to all other features of the embodiment of figure 7 described in the cited passage. Rather, figure 7 was merely an illustration of a more general concept of a gate control circuit for turning on the auxiliary amplifier circuit. The gate control circuit was in particular not tied to the detector diode. This became apparent from the last line of page 20 due to the commas around the expression "as illustrated in Figure 7". This sentence isolated the gate control circuit from figure 7. Moreover, page 21, lines 22 and 23 of the published PCT specification recited "*As discussed further herein below, the use of gate control may be used with any of*

the disclosed embodiments." Therefore, the specification expressly disclosed that the use of gate control was not limited to the particular embodiment of figure 7.

Amendments - Third to Seventh Auxiliary Request

The respondent presented no comments going beyond those concerning the amendments of the higher ranking requests.

Apportionment of Costs

The board should order apportionment of costs.

The appellant had caused postponement of the first oral proceedings by requesting referral of a question concerning the legality of videoconference oral proceedings to the Enlarged Board of Appeal. The appellant had not informed the respondent of their intention to make this request in advance. This caused the respondent's representatives unnecessary preparatory work for a discussion of the substance of the case for the first oral proceedings.

The late filing of an entirely new appeal case containing new objections and evidence also caused the respondent's representative unnecessary work.

Reasons for the Decision

1. *Admissibility of the Appeal*

The appeal meets the requirements of Articles 106 to 108 EPC and Rule 99 EPC. It is therefore admissible.

2. *Admittance of Documents E7 and E8*

2.1 While the non-admittance of documents E7 and E8 is not part of the grounds leading to the revocation of the patent, the board considers aspects of the discussion relevant beyond the case at hand. The board considers it therefore convenient to include the relevant reasons for non-admittance in this decision.

2.2 The board exercised its discretion pursuant to Article 13(2) RPBA 2020 so as not to admit documents E7 and E8.

2.3 Contrary to what the appellant argued, the reference to documents E7 and E8 in the context of an objection of insufficiency of disclosure raised for the first time after the first summons is not purely an argument. In the written proceedings document E8 was cited after the notification of the first summons in order to demonstrate that the characteristics of real world amplifiers did allegedly not allow the peaking amplifier to be turned on or off. As is clearly apparent, this objection concerns the admittance of new evidence as well as factual elements. The admittance of these documents and the corresponding objection is therefore at the discretion of the board.

2.4 The applicable provision for the exercise of the discretion is Article 13(2) RPBA 2020.

Article 13(2) RPBA 2020 is applicable if the summons to oral proceedings were notified after the entry into force of the amended version of the Rules of Procedure of the Boards of Appeal ("Rules of Procedure"), see Article 25(2) RPBA 2020. This is the case for both summons in the present appeal proceedings. There are previous decisions which deal with the case that a first summons was issued before the entry into force of the revised version of the Rule of Procedure and a second summons after that. Due to the differences in the underlying facts, this case law is not relevant here.

According to Article 13(2) RPBA 2020

"[a]ny amendment to a party's appeal case made after the expiry of a period specified by the Board in a communication under Rule 100, paragraph 2, EPC or, where such a communication is not issued, after notification of a summons to oral proceedings shall, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned."

The main question to be answered in the present case is which of the two summons that were issued count as the summons to oral proceedings within the meaning of Article 13(2) RPBA 2020.

2.5 The appellant argued that the rationale behind the convergent approach was procedural economy. The convergent approach implied that a party's appeal case should be filed as early as possible, but that meant merely sufficiently in advance of oral proceedings. The

main object and purpose of the convergent approach was to ensure that the board could decide at the end of oral proceedings. Considering the aim and purpose of Article 13(2) RPBA 2020 to safeguard procedural economy of the appeal proceedings the term "a summons to oral proceedings" in Article 13(2) RPBA 2020 had to be interpreted - in the circumstances of the present proceedings - as relating to "the summons for oral proceedings" in which a substantive discussion of the grounds for appeal actually took place, and the parties had the possibility to present their case. In the present case, during the first oral proceedings only a discussion of a possible referral took place, but the parties did not have an opportunity to have a substantive discussion. The appellant argued that since they filed documents E7 and E8 before the second summons was issued, the respondent and the board had enough time to react to these documents and their filing did not prejudice the taking of the decision at the end of the second oral proceedings. The applicable provision was therefore Article 13(1) RPBA 2020.

2.6 The appellant's argument does not convince the board.

2.6.1 Most importantly, the appellant's stance is not reconcilable with the wording of the legal provision. The provisions of Article 13(2) RPBA 2020 take effect either after the expiry of a period specified in a communication under Rule 100(2) EPC or "after notification of a summons to oral proceedings", and there is nothing in the wording of the article to indicate any exceptions to this, or that the application of Article 13(2) RPBA 2020 is dependent on the subsequent procedural history of the case, see T 2279/16, reasons 7.2.

2.6.2 Moreover, the appellant's stance is not reconcilable with the object and purpose of Article 13(2) RPBA 2020 in the context of the revised version of the Rules of Procedure. According to Article 12(3) RPBA 2020 the statement of grounds of appeal and the reply, respectively, must contain the parties' complete appeal cases. The notification of the summons then sets an objective and predictable trigger for the third level of the convergent approach. This is the point in the procedure when the board, in ordinary circumstances, can safely assume that all submissions of the parties are on file, so that the board can outline in the communication pursuant to Article 15(1) RPBA 2020, what the most important issues to be discussed will be without running the risk of missing any submissions. At this point normally, the framework of the discussion at the oral proceedings is defined, and further amendments to the appeal case are only taken into account in exceptional circumstances.

It follows that also in view of the object and purpose of Article 13(2) RPBA 2020, the subsequent procedural development is entirely immaterial for the function of the summons as objective and predictable start point for the third level of convergence.

2.6.3 The appellant recognises correctly that according to the convergent approach every party should file their complete case as early as possible. Surprisingly they go on to conclude that this requirement was fulfilled if submissions were made simply "sufficiently in advance of oral proceedings". This conclusion is in marked contradiction to the very clear requirements of Article 12(3) RPBA 2020, which states that the statement of grounds and the reply must contain the complete appeal case. If the appellant's stance were

correct, the provisions of Article 12(3) RPBA 2020 would be rendered meaningless. This would, in fact, also apply to those of Article 13(2) RPBA 2020 itself. By the logic of the appellant it would not even be important whether a further summons is issued. If submissions were to be admitted as long as their admittance does not prejudice the taking of a decision at the end of the oral proceedings, the board struggles to see for which cases requiring exceptional circumstances might be relevant, given the typical organisational time span of several months between notification of summons and oral proceedings.

2.6.4 The appellant also errs in that procedural economy was the sole rationale behind the convergent approach. Another is the implementation of the appeal proceedings as a judicial review of the decision under appeal, see Article 12(2) RPBA 2020. This principle limits the possibility to leave the legal and factual framework of the first instance proceedings at any point in the appeal procedure. However, the later an amendment of the appeal case is presented, the higher the likelihood that the case would need to be remitted. This is another reason for the introduction of the third level of convergence, at which amendments are in principle not taken into account unless special circumstances exist.

2.6.5 Moreover, the board pointed out above that the summons serve as an objective and predictable trigger for the third level of the convergent approach. If the appellant's stance were correct, this function of the summons would be lost as is explained in the following:

First, if subsequent procedural developments played a role in the determination of the start of the third

level of the convergent approach, this point in time could obviously only be determined in hindsight. It would no longer be predictable.

Second, it is a rather unclear criterion when a substantive discussion can be considered to take place at the oral proceedings. Clearly it is conceivable that a substantive discussion would take place at both or all oral proceedings. By relying on the content of the discussion at the oral proceedings, the determination of the start of the third level of convergence becomes a very complex and subjective exercise.

Third, if the appellant's view were correct, the start of the third level of the convergent approach would, to some degree, be put at the disposition of a single party or would be dependent on random events. A party could simply provoke postponement of oral proceedings, and thereby postpone also the start of the third level of the convergent approach. Likewise, a random event such as a board member being unable to attend the oral proceedings due to illness, would in retrospect change the start of the third level of the convergent approach. If such strategic or random postponing of oral proceedings also could postpone the application of Article 13(2) RPBA 2020, it would be quite meaningless that this provision requires exceptional circumstances for amendments to the appeal case to be admitted.

2.6.6 The appellant's argument is also problematic from a dogmatic point of view.

If the question of what is discussed at the oral proceedings were essential for the application of Article 13(2) RPBA 2020, this would also imply a fundamental asymmetry between communications according

to Rule 100(2) EPC and summons. With summons a postponement of oral proceedings could have a retroactive effect on whether and when the legal effect of Article 13(2) RPBA 2020 materialises. It is difficult to see how something analogous could happen in the case of a communication pursuant to Rule 100(2) EPC. Such asymmetrical treatment of the two trigger points for the third level of the convergent approach is not justified.

Moreover, the appellant argued that "in the circumstances of the present case" the second summons should be the ones triggering the effect of Article 13(2) RPBA 2020. The board cannot accept that a legal provision should be construed differently according to the individual circumstances of a given case. Provisions should codify what applies to all cases and be interpreted as such.

- 2.6.7 The appellant further argued it had been outside of the their sphere of influence that no discussion as to the substance of the case could take place in the first oral proceedings. During the oral proceedings, the appellant filed an auxiliary request for a referral to the Enlarged Board of Appeal, which was withdrawn with the appellant's letter dated 8 March 2021.

The main point here is that the subsequent procedural behaviour of a party, whether it can be qualified as legitimate or not, simply has no retrospective effect on the start of the third level of convergence.

However, the board wishes to point out that the appellant's characterisation of the proceedings as beyond their sphere of influence is a gross misrepresentation. It is quite clear that if a party

questions the legality of the format of videoconference oral proceedings, which is a fundamental question of procedural law, that party cannot expect a discussion as to the substance during the oral proceedings in which that topic has been raised for the first time. It is therefore not a realistic procedural approach to expect to be able to discuss the substance of the case when such an "auxiliary request" is pending. It is also evident that a withdrawal of the "auxiliary" request for referral after the board decided to refer the question to the Enlarged Board, *i.e.* after the board classified the question as a point of law of fundamental importance relevant for the present case, can have no retroactive effect in the sense that the fundamental legal question raised by the party is procedurally deemed not to have been raised at all and thus shall be ignored. Hence, assuming that the appellant's own actions should justify the submission of an entirely fresh appeal case at a late stage in the proceedings is very difficult to accept, and illustrative of why the application of Article 13(2) RPBA 2020 should not be dependent on the parties' procedural behaviour after the notification of the summons to oral proceedings.

2.7 It follows that if more than one summons is sent, all after entry into force of the revised version of the Rules of Procedure, Article 13(2) RPBA 2020 refers to the first summons.

3. *Main Request - Amendments (Article 123(2) EPC)*

3.1 Claim 1 of the main request contains subject-matter going beyond the content of the application as filed

(the international application published as WO 2004/088837 A2).

3.2 The feature in question is the following:

"the second amplifier circuit (24) is selectively operable with the first amplifier circuit (22) such that the second amplifier circuit (22) is configured to turn on and operate with the first amplifier circuit (22) when the input signal (26) exceeds a threshold and does not turn on and operate when the input signal is below the threshold".

3.3 According to page 11, lines 9 to 18 of the description as originally filed

"[...] the auxiliary amplifier circuit 24 is selectively operable to operate at selected times in combination with the main amplifier circuit 22. That is, the auxiliary amplifier circuit 24 may be kept OFF until peak power requirements call for a higher power output from the amplifier 20, at which time it is turned ON and operated to increase the power output of the amplifier 20. Herein, the term 'selectively operable' indicates the amplifier operational state changes in response to an external signal. That external signal may be, but is not limited to, the input signal to be amplified, an analog control signal, or a digital control signal. For example, the operational state of a Class-C amplifier changes in response to its input signal."

The claim wording differs subtly from this description passage. The description states that the auxiliary

amplifier (which corresponds to the second amplifier of the claim) may be "kept OFF" and that "it is turned ON". Both expressions imply active turning on and off, e.g. by a control circuit that causes the amplifier's transition between the operational states OFF and ON. The description passage then goes on to state that a class C amplifier changes its operational state in response to the input signal. The board notes in this context that a class C amplifier is biased in a certain way so as to amplify only those portions of an input sine-wave signal which lie above a bias voltage threshold while portions below it are cut-off. The board considers that a class C amplifier could be seen, for the present discussion, to have a "passive turn on" characteristic. There was some discussion between the parties as to whether it was problematic that real world amplifiers did not have an ideal amplifier characteristic, such as an ideal dog-leg curve which is zero up to a threshold value, but which presents a continuous and smooth transition. This was in the board's view not decisive. It is not a function of a claim to explain obvious technical details like the differences between real world and idealised amplifier characteristics. Even real world class C amplifiers could legitimately be considered to amplify above a threshold even though that threshold does not show as a non-differentiable point on the amplification curve.

3.4 In contrast to the above cited passage, claim 1 of the main request defines that the second amplifier is

"configured to turn on and operate with the first amplifier circuit (22) when the input signal (26) exceeds a threshold and does not turn on and operate when the input signal is below the threshold".

This formulation no longer implies active turn on or off. The claim wording "*configured to turn on*" and "*does not turn on*" describes a passive turn on or off, such as for example that of a class C type amplifier. However claim 1 does not specify that the second amplifier is a class C amplifier.

In the board's view, the appellant correctly reasoned that the problem with the amendment is that it attempts in a rather unclear manner to cover both situations envisaged in the cited description passage, an "active" turn on or off of the second amplifier, such as with a gate control circuit, and the "passive" turn on or off, such as that of a class C amplifier where this is achieved through the bias voltage and the inherent amplifier characteristics. This view is confirmed by the continued presence in the main request of dependent claim 7 which is directed at a gate control circuit. However, the amended claim uses slightly different language from the cited passage, which no longer implies an active turn on or off, while not limiting the claim to a class C amplifier. The mention of a single specific example of an amplifier with passive turn on and off characteristics (*viz.* a class C amplifier) is not a disclosure of the general concept of an amplifier with passive turn on in response to the input signal level. Thereby the amendment creates subject-matter going beyond the content of the application documents as originally filed.

- 3.5 A similar reasoning applies to the passage on page 7, lines 21 to 23, which reads "*Under a low input signal level drive condition, the peaking amplifier is turned OFF and its high output impedance is assumed to not significantly load the output circuit.*" The expression

"the peaking amplifier is turned off" implies again an active turn on or off, while according to the amended claim 1 a passive turn on or off is defined.

- 3.6 The passage on page 8, lines 1 to 3 reads *"When the input signal drive level is increased to where the carrier amplifier reaches saturation, the peaking amplifier is allowed to turn ON, thus contributing current to the output circuit."*

It is technically not clear in the context of the above amendment of the claim what it means to say that an amplifier is "allowed to turn ON". It is not derivable from this formulation whether the amplifier is always on but actively kept turned off ("allowed to") as long as the main amplifier is not yet saturated or whether this merely refers to a passive turn on. This passage is at least not unambiguous.

- 3.7 The board notes that the passage on page 20, lines 21 to 23 discloses that it may not be possible to achieve the desired efficiency curves, such as those in figure 6, using standard RF transistors because of their turn on characteristics. However, such reference to "standard RF transistors" also cannot be considered as a direct and unambiguous disclosure of amplifiers with passive turn on and off characteristics. The curves in figure 6 are clearly theoretical depictions of amplifier behaviour. While it is derivable that the second amplifier has an effect on the amplifier efficiency as a function of the output level, it is not derivable from these figures whether the amplifier is actively turned on or off or whether it turns on or off passively.

- 3.8 The respondent referred furthermore to the passages on page 9, lines 6 to 9, which merely deal with the output hybrid coupler. This passage has no bearing on the above issue.
- 3.9 The respondent further referred to a particular embodiment on pages 20 and 21 as well as in figure 7, which clearly uses an active turn on controlled by a gate control circuit. However, such gate control circuitry is not part of amended claim 1. If this passage were the basis for the amendment, the claimed subject-matter would be clearly an intermediate generalisation of the specific embodiment of figure 7 and would also mix passive and active turn on characteristics.
- 3.10 The respondent further made various references to passages referring to classical Doherty amplifiers, in particular page 7, lines 1 to 8, page 15, lines 7 to 9 and page 20, lines 12 to 20. Such a reference to a classical Doherty amplifier design is not a direct and unambiguous disclosure of the turn on characteristics of the second amplifier. The board disagrees with the parties' contention that classical Doherty amplifiers always used amplifiers with passive turn on characteristics. Rather, Doherty amplifiers can be used with various amplifier types, such as *inter alia* tubes or semiconductor based amplifiers. It remains an unproven assertion, that those amplifiers necessarily had to be ones with passive turn on characteristics.
- 3.11 For these reasons, claim 1 of the main request contravenes Article 123(2) EPC, as the appellant argued.

4. *Remittal*

- 4.1 The board decided not to remit the case before considering at least the issue of compliance of the auxiliary requests with Article 123(2) EPC.
- 4.2 The respondent requested that the case be remitted to the opposition division if the main request could not be granted because there had not been an opportunity to discuss the auxiliary requests with the opposition division.
- 4.3 The board considers it to be settled case law that parties do not have a fundamental right to have their case examined at two levels of jurisdiction, see Case Law of the Boards of Appeal, V.A.9.2.1, Tenth Edition, July 2022. Moreover, according to Article 11 RPBA 2020, the board shall not remit a case to the department whose decision was appealed for further prosecution, unless special reasons present themselves for doing so. This is in order to reduce a ping-pong effect between the levels of jurisdiction, see the explanatory notes to the revised version of the Rules of Procedure in CA/3/19, page 30.
- 4.4 The board does not see, and the respondent has not argued there were, any special reasons for remittal beyond the fact that the auxiliary requests had not been dealt with by the opposition division. In view of the principles enounced above, the board considered it appropriate to deal at least with the question of the compliance of the amendments with Article 123(2) EPC without remitting the case. This more formal question was exhaustively discussed between the parties in the appeal procedure. The board considers this also to be in line with the practice of the Boards of Appeal.

5. *First Auxiliary Request - Amendments (Article 123(2) EPC)*

5.1 Claim 1 of the first auxiliary request has been amended so as to contain subject-matter that goes beyond the content of the application documents as originally filed.

5.2 The amendment to claim 1 with respect to the main request concerns the addition of the feature:

"the first and second amplifier circuits are configured to provide Doherty amplifier functionality such that the second amplifier circuit (24) is selectively operable with the first amplifier circuit (22)".

(Underlining is added by the board to highlight the added feature).

5.3 As the appellant already correctly argued during the discussion of the main request, a general reference to "Doherty functionality" cannot replace a limitation of the claim to an amplifier type that was originally disclosed, contrary to the contention by the respondent. The respondent has not provided any evidence that the general expression "Doherty functionality" limited the peaking amplifier to an amplifier with defined turn on characteristics. This is also in line with the board's own impression. Doherty amplifier architectures using various different amplifier types exist. Originally the amplifiers were tubes and later semiconductor amplifiers. The reference to "Doherty functionality" therefore can not limit the

amplifier's turn on characteristics to either passive or active turn on, let alone limit the generalised concept of an amplifier with passive turn on characteristics in claim 1 implicitly to the originally disclosed class C amplifier.

- 5.4 The respondent's argument that the board's position on the main request concerning a nuance in the precise meaning of the expressions "turns on", "is turned on" and "is allowed to turn on" was erroneous did not convince the board. A claim cannot be taken to be merely a general sketch of the subject-matter for which protection is sought. This would be in contradiction to the requirement of Article 84 EPC according to which the claims "define" the subject-matter for which protection is sought. The cited expressions do imply different turn on characteristics which cannot be ignored.

6. *Second Auxiliary Request - Amendments (Article 123(2) EPC)*

- 6.1 Claim 1 of the second auxiliary request has been amended so as to contain subject-matter that goes beyond the content of the application documents as originally filed.

- 6.2 The amendment concerns the following additional feature with respect to claim 1 of the main request:

"the amplifier (20) comprising a gate control circuit (70) coupled to the at least one second amplifier circuit (24) to selectively operate the at least one second amplifier circuit (24)".

It is noteworthy in this context that dependent claim 7 as granted cannot serve as a basis because it was not present in the application as originally filed.

The features introduced with this request are taken from the specific embodiment of figure 7 (and similarly figure 13). A gate control circuit was originally only disclosed in a more specific context as described on page 21 and in figure 7, from which the claimed subject-matter is a generalisation. In particular, the claim is not limited to include a detector and an additional loop bypassing the hybrid coupler and tapping into input signal.

- 6.3 The respondent argued that the level of generality was justified by the disclosure on page 20, line 21 to page 21, line 23, and that the gate control circuit was not inextricably tied to all other features of figure 7. Rather, figure 7 was merely an illustration of a more general concept of a gate control circuit for turning on the auxiliary amplifier circuit. The gate control circuit was in particular not tied to the additional circuitry such as detector diode. Moreover, page 21, lines 22 and 23 of the published PCT specification read *"As discussed further herein below, the use of gate control may be used with any of the disclosed embodiments."* Therefore, according to the respondent, the specification expressly disclosed that the use of gate control was not limited to the particular embodiment of figure 7.

This argument did not convince the board. The board cannot recognise in what way the disclosure of the detailed embodiment on pages 20 and 21 together with figure 7 could be seen to be a teaching of the general concept of a gate control circuit. The application does

not contain any alternative technical elements showing how a gate control circuit could function without a detector. The respondent referred to the last line of page 20, emphasising the commas around the expression "as illustrated in Figure 7", reasoning that this isolated the mentioned gate control circuit from figure 7. However, the board cannot accept that this interpunctuation reduces the disclosure of what follows to a disclosure of a general gate control circuit in isolation. The fact that it is technically not apparent how the gate control circuit could work without the additional features disclosed in this context cannot be outweighed by interpunctuation. Moreover, in the board's view, and in the context of the sentence on page 21, lines 3 to 6 it is clear that the entire gate control circuitry of figure 7 could be used with other embodiments, such as with the main amplifier rather than the auxiliary amplifier or in cases where there are several auxiliary amplifiers. However, it cannot be inferred from this that the gate control circuit could be used in isolation without the remaining functionally essential components.

7. *Third to Seventh Auxiliary Requests - Amendments*
(Article 123(2) EPC)

7.1 The board left the question as to whether (at least some of the) third to seventh auxiliary requests were not to be admitted open. A discussion as to their substance was procedurally more efficient without disadvantaging either party.

7.2 The amendments of the third to seventh auxiliary requests do not have any bearing on the reasoning and conclusion concerning the compliance of the main

request with Article 123(2) EPC. There were no further comments by the parties in this respect.

7.3 It follows that the third to seventh auxiliary requests contravene Article 123(2) EPC for the same reasons as the main request.

8. *Apportionment of Costs*

8.1 The board refuses the request of the respondent to order apportionment of costs.

8.2 Article 16(1) RPBA 2020 provides that subject to Article 104, paragraph 1, EPC the Board may on request order a party to pay some or all of another party's costs. According to Article 104(1) EPC each party to the opposition proceedings shall bear the costs it has incurred, unless the opposition division, for reasons of equity, orders, in accordance with the Implementing Regulations, a different apportionment of costs.

8.3 The respondent argued that they were forced to do unnecessary work because the appellant had not announced their intention of requesting a referral in advance of the first oral proceedings. With that information the extensive preparation on the substance would not have been necessary.

However, the appellant is correct in arguing that there was no guarantee for the parties that the board would indeed refer the question to the Enlarged Board of Appeal. Therefore a preparation as to the substance would have been necessary irrespective of whether or not the intention to request a referral had been announced in advance. The appellant argued again that

they were not responsible for the referral. That argument cannot be accepted for the reasons explained above. However, it is a party's right to request a referral, and exercising this right is not a reason for a different apportionment of costs. The exercise of this right should in particular not be limited by the threat of apportionment of costs.

8.4 The respondent further argued that the late submission of evidence and new objections dated 18 July 2021 led to additional unnecessary work.

While the board tends to share with the respondent the strong impression that the appellant merely attempted to file a brand new appeal case in the guise of a reaction to the board's preliminary opinion, it is nevertheless to be determined whether such late filing incurred costs that would not have been incurred if the appellant had filed the new submissions with their statement of grounds of appeal. Preparation for discussions of admission and also for a discussion as to the substance in the case that late submission are taken into account is part of the normal preparatory work of each party. It is not apparent to the board, and it has not been substantiated by the respondent, that higher costs have been incurred by the timing of the submissions in question after the first summons, compared to the hypothetical situation that the appellant had filed them with the statement of grounds of appeal. Whether submissions are ultimately relevant for the decision normally does not play a role in deciding whether they justify a different apportionment of costs, unless maybe they are so irrelevant that they can be considered an abuse of the procedure. Again it is not apparent to the board, and has not been argued by the respondent, that this is the case here.

The board therefore concluded that the circumstances of the present case do not justify an apportionment of costs according to Article 16(1) RPBA 2020.

9. *Conclusions*

Since the main request and the first to seventh auxiliary requests do not meet the requirements of Article 123(2) EPC, the board had to accede to the substantive request of the appellant. The request for apportionment of costs is refused.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:



U. Bultmann

R. Lord

Decision electronically authenticated