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**Datasheet for the decision
of 8 October 2024**

Case Number: T 1158/22 - 3.4.02

Application Number: 18180741.3

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H01F37/00, H02M1/12

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Title of invention:
Noise filter

Applicant:
Yazaki Corporation
Toyota Jidosha Kabushiki Kaisha

Relevant legal provisions:
EPC Art. 84

Keyword:
Claims - clarity - all requests (no)

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T 3097/19, G 0002/88



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Case Number: T 1158/22 - 3.4.02

D E C I S I O N
of Technical Board of Appeal 3.4.02
of 8 October 2024

Appellant:
(Applicant 1)

Yazaki Corporation
8-15, Konan 1-Chome,
Minato-ku,
Tokyo (JP)

Appellant:
(Applicant 2)

Toyota Jidosha Kabushiki Kaisha
1, Toyota-cho
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Aichi-ken Aichi (JP)

Representative:

Grünecker Patent- und Rechtsanwälte
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Decision under appeal:

**Decision of the Examining Division of the
European Patent Office posted on 23 December
2021 refusing European patent application No.
18180741.3 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman G. Flyng
Members: C.D. Vassoille
C. Heath

Summary of Facts and Submissions

- I. The appeal is against the decision of the examining division to refuse European patent application No. 18 180 741.3.
- II. The contested decision was based on novelty and inventive step of the subject-matter of claim 1 of the main request and of the auxiliary requests.
- III. In a communication under Article 15(1) RPBA, annexed to the summons to oral proceedings, the board raised an objection under Article 84 EPC regarding the term "ring-shaped" included in claim 1 of all requests filed with the statement of grounds of appeal (main and auxiliary requests I, IA, IB and II).
- IV. By letter of 6 September 2024, the appellants filed two additional auxiliary requests IAa and IAb and submitted arguments concerning the board's objection under Article 84 EPC.
- V. Oral proceedings before the board took place on 6 October 2024.

The appellants (applicants) requested that the contested decision be set aside and that a European patent be granted on the basis of the main request or, if that was not possible, on the basis of one of the auxiliary requests I, IA, IB or II, all of which were filed with the statement of grounds of appeal, or on the basis of one of auxiliary requests IAa, IAb filed with letter dated 6 September 2024 and to be discussed after ARI.

VI. Claim 1 of the main request has the following wording (feature denotations added by the board in squared brackets):

"**[a]** A noise filter (10) used for a plurality of conducting members (20), the noise filter (10) comprising,

[b] a ring-shaped core (30) made from a magnetic material, the ring-shaped core (30) being attached to the plurality of conducting members (20) to reduce noise of currents flowing through each of the plurality of the conducting members (20), the ring-shaped core (30) including:

[b1] a base core (41) having a plurality of support pillar portions extending outward in radial directions (42); and

[b2] a plurality of divisional cores (45) each being placed between two of the plurality of the support pillar portions (42) adjacent to each other in the circumferential direction, and each having two end surfaces (48) connected to associated end portions (43) of the two of the plurality of the support pillar portions (42),

[c] the plurality of the divisional cores (45) being configured to allow the plurality of the conducting members (20) to be wound on the plurality of the divisional cores (45),

[d] a magnetic path being formed between each end surface (48) of each of the plurality of the divisional cores (45) and the associated end portion (43) of each of the plurality of the support pillar portions (42)

contacting the associated end surface (48) of the associated divisional core (45) of the plurality of the divisional cores (45),

[e1] the ring-shaped core (30) being configured to form a common-mode magnetic path (Bc), which is a ring-shaped magnetic path passing through all of the plurality of the divisional cores (45) and all of the end portions (43) of the plurality of the support pillar portions (42) and

[e2] normal-mode magnetic paths (Bn) which are ring-shaped magnetic paths each of which passing through one of the plurality of the divisional cores (45) and the two of the plurality of the support pillar portions (42) connected to the one of the plurality of the divisional cores (45), the normal-mode magnetic paths (Bn) being the same in number as the conducting members (20)."

VII. Claim 1 of auxiliary request I essentially differs from claim 1 of the main request essentially in that features b1 and b2 are amended as follows:

"[b1] a base core (41) having a plurality of support pillar portions extending outward in radial directions (42), wherein two side surfaces of an end portion of each support pillar portion (42) are joining surfaces (43); and

[b2] a plurality of divisional cores (45) each being placed between two of the plurality of the support pillar portions (42) adjacent to each other in the circumferential direction, and each having two end surfaces (48) connected to the associated joining

surfaces associated end portions-(43) of the two of the plurality of the support pillar portions (42)".

VIII. Claim 1 of auxiliary request IAa differs from claim 1 of auxiliary request I in that feature b2 is amended as follows:

"**[b2]** a plurality of divisional cores (45) each being placed between two of the plurality of the support pillar portions (42) adjacent to each other in the circumferential direction, and each having two end surfaces (48) connected to the associated joining surfaces (43) of the two of the plurality of the support pillar portions (42) such that the ring-shaped core (30) is formed,".

IX. Claim 1 of auxiliary request IAb differs from claim 1 of auxiliary request I in that the end of feature b is amended as follows:

"**[b]** [...] the ring-shaped core (30) being shaped like a triangle or a square in a front view and including".

X. Claim 1 of auxiliary request IA differs from claim 1 of auxiliary request I in that features b1 and b2 have been amended as follows:

"**[b1]** a base core (41) having a plurality of support pillar portions extending outward in radial directions (42), wherein two side surfaces in the circumferential direction of an end portion of each support pillar portion (42) are joining surfaces (43); and

[b2] a plurality of divisional cores (45) each being placed between two of the plurality of the support pillar portions (42) adjacent to each other in the

circumferential direction, and each having two end surfaces (48) in the circumferential direction connected to the associated joining surfaces (43) of the two of the plurality of the support pillar portions (42),".

XI. Further to the amendments to claim 1 of auxiliary request IA, claim 1 of auxiliary request IB comprises the following additional amendment in feature d:

"**[d]** a magnetic path being formed between each end surface (48) of each of the plurality of the divisional cores (45) and the associated end portion ~~(43)~~ of each of the plurality of the support pillar portions (42) contacting the associated end surface (48) of the associated divisional core (45) of the plurality of the divisional cores (45) at one of the two side surfaces being joining surfaces (43) and contacting the associated end surface (48) of the adjacent associated divisional core (45) of the plurality of the divisional cores (45) at the other of the two side surfaces being joining surfaces (43),".

XII. In addition to the amendments to claim 1 of auxiliary request I, claim 1 of the auxiliary request II comprises the following additional feature:

"**[f]** wherein the end surface (48) of each of the plurality of the divisional cores (45) and the end portion of each of the plurality of the support pillar portions (42) contacting the end surface (48) are connected through an adhesive member (60) capable of containing a magnetic material".

XIII. The appellants essentially argued that the term "ring-shaped" did not give rise to any objections under

Article 84 EPC, since the term should be understood in the sense of a closed loop and thus encompassed many other shapes than circular.

The appellants' detailed arguments will be referred to in the reasons below.

Reasons for the Decision

1. Main request - Article 84 EPC

- 1.1 Claim 1 of the main request does not meet the requirements of Article 84 EPC.
- 1.2 Article 84 EPC stipulates that "[t]he claims shall define the matter for which protection is sought" and that "[t]hey shall be clear and concise and be supported by the description". The purpose of claims under the EPC is to enable the determination of the protection conferred by the patent or patent application (Article 69 EPC) and thus the rights of the patent owner within the designated contracting states (Article 64 EPC), having regard to the patentability requirements of Article 52 to 57 EPC. Therefore, the claimed subject-matter must be defined so that the public is left in no doubt as to which subject-matter is covered and which is not. The board considers that this includes the requirement that the claims and the description must be consistent with each other, thereby providing legal certainty and fairness in the patent system (cf. Case Law of the Boards of Appeal of the European Patent Office, 10th edition, 2022, II.A 1.1 and II.A.5.1; see also decision **G 2/88**, OJ EPO 1990, 93, reasons 2.5; see also **T 3097/19**, Reasons 27 to 34).
- 1.3 In the present case, the requirements of Article 84 EPC are not met, since the application as a whole is self-contradictory in view of an inconsistency between the description and claim 1 of the main request which raises doubts as to the scope of protection and thus affects the clarity of claim 1 under Article 84 EPC. This inconsistency arises from what the person skilled

in the art normally understands by the term "ring-shaped" in claim 1, namely a circular shape, and what is suggested as "ring-shaped" in the description and drawings, namely what is described there as a triangular or square shape.

- 1.4 The appellants essentially argued that the term "ring-shaped", in the context of the application, was not to be understood in a strictly geometrical sense. Rather, the person skilled in the art would understand the term to refer to any closed trajectory or loop surrounding an at least partially hollow area that was suitable for configuring a magnetic path as defined in feature e1 of claim 1. Reference was particularly made to the specific examples of a "ring-shaped core" disclosed in the description and the drawings, namely what was referred to in the published version of the application as filed (EP 3 422 372 A1) as being "shaped like a triangle" (para. [0021] and figures 1-4) and "shaped like a square" (para. [0039] and figure 5). Reference was also made to para. [0035] which, in their view, made it clear that the invention was not limited to the shapes disclosed in the embodiments of the application. Furthermore, the term "ring-shaped" was a compound adjective that was not generally used to describe a perfect circle.

In summary, the appellants contended that a person skilled in the art would understand "ring-shaped" as a closed loop and thus, to include both circular and non-circular shapes provided that they were suitable to form a common-mode magnetic path as defined in feature e1.

- 1.5 The board is not convinced by the appellants' arguments. According to the board's personal knowledge

and experience, the normal meaning of the word "ring" in English usage implies a circular shape. In very specific contexts, and particularly in other languages such as German, the word "ring" may have a more general meaning, referring to any closed loop that begins and ends at the same point. However, such nuances are not normally applicable in English technical language, in particular not in the technical field of the invention.

1.6 This understanding is supported by English dictionaries, such as the Cambridge dictionary entry for the term "ring", a printout of which was handed over to the appellants during the oral proceedings and was annexed to the minutes (see: <https://dictionary.cambridge.org/de/worterbuch/englisch/ring?q=Ring>):

ring *noun* (CIRCLE): a circle of any material, or any group of things or people in a circular shape or arrangement

1.7 The above English dictionary definition thus supports the view that the term "ring" clearly refers to a structure that is typically circular in shape. Whilst the term "ring" can also describe a general encircling arrangement or space (e.g., a boxing ring or a ring of suburbs), it is used in this sense only in very specific contexts. Its most common implication in both technical and everyday English usage is undoubtedly a circular configuration.

1.8 As the appellants have rightly pointed out, the term "ring-shaped" is a compound adjective consisting of the noun "ring" and the adjective "shaped". However, contrary to the appellants' argument, the use of a compound adjective does not serve to render the term

"ring" broader. On the contrary, it describes an object which has the geometric shape or appearance of a ring, which is circular in the normal sense. Thus, "ring-shaped" clearly conveys the idea of a circular shape and not any closed loop having a completely different shape such as triangular or square. Ring-shaped, in the understanding of the board, excludes any figurative meaning of the word ring (that may not necessarily be circular) because "shape" refers to the geometry of the ring. In other words, even if (arguendo) "ring" could be understood more broadly than a circular object, "ring-shaped" has a geometrical connotation and must be understood as "circular".

- 1.9 The appellants did not provide convincing arguments or evidence to show that the term "ring-shaped" is normally understood differently in the technical field of noise filters and in English usage, in particular in the sense of a closed loop and thus encompassing many shapes other than circular.

- 1.10 In particular, the English translations of Japanese and Chinese documents submitted by the appellants with letter of 6 September 2024 fail to demonstrate that the term "ring-shaped" should be interpreted broadly within the context of the claimed subject matter. The board finds that the English machine translations of these documents do not support any interpretation of the term "ring-shaped" in the context of the present application. Such translations do not provide a reliable basis for concluding how the term is used in the original language. Rather, the decisive factor is how the term would be understood by a person skilled in the art in the technical context of the respective language of the application. Machine translations can easily overlook nuances or technical subtleties that

are precisely present in the original text, and they may not reflect the specific or extended meaning that the term has in the particular linguistic and technical tradition.

1.11 The board also finds the appellants' reliance on mathematical definitions from the German-language website "<https://www.mathematische-basteleien.de/ring.htm>" unpersuasive. The various abstract definitions of geometric "Kreisring" on the German-language website do not reflect a normal meaning of the respective term "ring-shaped" in English usage and thus what a person skilled in the art would normally understand by the term "ring-shaped" in the context of claim 1 of the main request.

1.12 As to the appellants' argument that the application could constitute its own dictionary: Even if that argument were to be accepted, there is no other consequence for the assessment of the clarity of the present claim 1. The description discloses only two specific shapes of a magnetic core, a triangular one and a square one, which the person skilled in the art would clearly not consider to correspond to a circular shape, as explained above. Furthermore, nowhere in the application is there a clear definition in general terms which would support a broad understanding of the term "ring-shaped" in the sense of a closed loop surrounding an at least partially hollow area and thus encompassing many shapes other than circular. Consequently, nothing in the description provides the person skilled in the art with a clear dictionary definition which could change their normal understanding of the term "ring-shaped" and, in particular, lead the person skilled in the art to

believe that the term means something other than its normal geometric meaning of a circular shape.

- 1.13 The same applies in principle to the appellants' argument that the person skilled in the art would understand from the application as a whole, and in particular from claim 1 itself, that the ring-shaped core can have any shape of closed loop suitable for creating a magnetic path within the meaning of feature e1.

The board does not find this argument convincing. In claim 1, the term "ring-shaped core" (feature b) is first introduced in a general way as part of the noise filter. In doing so, feature b introduces the "ring-shaped core" as a tangible, physical object ("...made from a magnetic material, the ring-shaped core (30) being attached to the plurality of conducting members (20)..."). There is no indication in this feature of claim 1 that the term "ring-shaped" refers merely to a functional concept and thus implies a general meaning of closed loop. Instead, feature b emphasises that the core has a particular physical structure which interacts with the conducting members. In addition, the subsequent features b1 and b2 define that the core includes a "base core" with "support pillar portions" and a plurality of divisional cores, thereby further defining the structural nature of the core. The relationship between the base core, divisional cores and support pillar portions is described in physical, geometric terms in features b, b1 and b2 of claim 1, using specific geometric features such as "radial directions" and "circumferential direction". This reinforces the notion that the structure of the ring-shaped core is defined with a specific geometric configuration in mind, namely a circle in the normal

understanding of the term ring-shaped (see above), and does not support a purely functional interpretation in terms of a closed loop suitable for establishing the common-mode magnetic path defined in feature e1.

1.14 In conclusion, the term "ring-shaped" is used ambiguously in the context of the present application, with the result that it is unclear which specific core shapes fall within the scope of claim 1 of the main request. While a normal meaning of the term implies a circular shape (see the board's explanations above), the description only discloses non-circular shapes (triangular and square) of the magnetic core, which contradict this normal understanding. Consequently, the description is not aligned with this normal (geometric) meaning of "ring-shaped" as a circular shape. Furthermore, neither the claims nor the description provide any basis for the broad interpretation (closed loop) suggested by the appellants, leading to further uncertainty as to the protection sought by claim 1. It follows that the description renders claim 1 unclear since it implies that the scope of protection could be different from that defined in the claims, which overall leads to a self-contradiction of the present application.

1.15 In the light of the above considerations, the board concluded that claim 1 of the main request does not meet the requirements of Article 84 EPC.

2. Auxiliary request I - Article 84 EPC

2.1 The amendment made to claim 1 of auxiliary request I was made initially for the purpose of overcoming the objections under Articles 54 and 56 EPC. Nevertheless, the appellants argued that the amendments made to

features b1 and b2 (see point VII. above) were suitable to overcome the clarity objections to claim 1 of the main request.

In particular, they argued that the further specification of the structural configuration of the ring-shaped core would emphasise the continuity of the core in the circumferential direction, implying its closed loop shape. Therefore, the skilled person would understand, in the light of this structural definition, that it is not a matter of a strict geometric understanding of the term "ring-shaped" in the sense of circular, but that the "ring-shaped core" is defined purely by the closed loop structure defined in claim 1.

2.2 The board does not agree with the appellants' arguments. The structural definition of the core in features b1 and b2 does not allow any conclusions to be drawn about the shape of the core. It may be true that, without taking the term "ring-shaped" into account, a variety of shapes are possible that are compatible with the structural instructions of claim 1, in particular features b1 and b2. However, the shape of the core is clearly defined in feature b at the beginning of claim 1 as being ring-shaped, and this explicit initial definition of the shape of the core is not reversed or changed by anything in features b1 and b2. Therefore, the "ring-shaped core" defined in feature b undoubtedly provides the overall framework within which the construction, comprising the base core with the support pillar portions and the divisional cores, has to fit. This means in particular that a person skilled in the art would understand features b1 and b2 to imply that the shape and lengths of the individual elements (divisional cores, support pillar portions), that are not further defined in features b1 and b2, must be such

that a ring-shaped core within the meaning of feature b is ultimately obtained.

2.3 The amendments made by the appellants to claim 1 of auxiliary request I do not change anything in this respect, since they merely add further details of the structural connection between the support pillar portions and the divisional cores, which do not influence the skilled person's normal understanding of the term "ring-shaped" within the meaning of feature b. Further reference is made to the board's observations in point 1.13 above.

2.4 In the light of the foregoing, the board concludes that claim 1 of auxiliary request I does not meet the requirements of Article 84 EPC for the above reasons and for the reasons already set out with respect to claim 1 of the main request (see point 1. above).

3. Auxiliary requests IAa and IAb - Article 13(2) RPBA

3.1 After notification of the communication from the board under Article 15(1) RPBA, the appellants filed auxiliary requests IAa and IAb, in which the appellants addressed the board's objection under Article 84 EPC to claim 1 of the main request. They requested that these auxiliary requests be taken into account in the appeal proceedings on the ground that the new objection raised by the board under Article 84 EPC constituted an exceptional circumstance within the meaning of Article 13(2) RPBA.

3.2 In the board's communication, an objection under Article 84 EPC was raised which was not in fact part of the contested decision. Despite the fact that the examining division had already raised the objection

under Article 84 EPC in the examination proceedings, the board decided to take auxiliary requests IAa and IAb into account in the appeal proceedings under Article 13(2) RPBA (see the Case Law of the Boards of Appeal, 10th edition 2020, V.A.4.5.5 b)).

4. Auxiliary request IAa - Article 84 EPC

4.1 Claim 1 of the new auxiliary request IAa attempts to define the "ring-shaped core" by means of the relative arrangement of the divisional cores and the support pillar portions as defined in claim 1 of the main request according to feature b2 (see point VIII. above). The board does not see how such an amendment could overcome the objection under Article 84 EPC against claim 1 of the main request. Rather, as set out above with respect to auxiliary request I, the constructional definition of the divisional cores and the support pillar portions does not allow any further conclusions to be drawn as to the final shape of the "ring-shaped core". In particular, it does not imply anything that deviates from the normal meaning of the term "ring-shaped" in a circular sense within the meaning of feature b. The amendment is therefore not suitable for overcoming the contradiction between claim 1 and the description as found with respect to claim 1 of the main request and auxiliary request I.

4.2 In the light of the foregoing, the board concludes that claim 1 of auxiliary request IAa does not meet the requirements of Article 84 EPC for the above reasons and for the reasons already set out with respect to claim 1 of the main request (see point 1. above) and auxiliary request I (see point 2. above).

5. Auxiliary request IAb - Article 84 EPC

5.1 Claim 1 of auxiliary request IAb does not meet the requirements of Article 84 EPC.

5.2 By defining that the "ring-shaped core" has the shape of a triangle or a square, claim 1 of the auxiliary request IAb is rendered self-contradictory. As explained above in relation to the main request and auxiliary requests I and IAa, a skilled person would understand "ring-shaped" in the overall structure of claim 1 in the sense of its normal geometric meaning, and thus as circular. Defining it as being also triangular or square directly contradicts this normal meaning leading to unclarity whether a circular shape still falls within the scope of claim 1 of the auxiliary request IAb or not. The reasons provided with respect to claim 1 of the main claim therefore also apply to claim 1 of auxiliary request IAb.

5.3 In the light of the foregoing, the board concludes that claim 1 of auxiliary request IAb does not meet the requirements of Article 84 EPC for the above reasons and for the reasons already set out with respect to claim 1 of the main request (see point 1. above).

6. Auxiliary requests IA and IB - Article 84 EPC

6.1 The amendments made to claim 1 of each of auxiliary requests IA and IB add further design details of the ring-shaped core and in particular details concerning the type of connection between its individual elements (see points X. and XI. of the present decision). These amendments are not suitable to justify a broader interpretation of the term "ring-shaped" within the meaning of feature b, in particular in the sense of a

closed loop as argued by the appellants. Reference is made to the corresponding reasons of the board on auxiliary request I (see point 2. above).

- 6.2 This assessment also applies with regard to the term "circumferential", which is now present several times in claim 1 of auxiliary requests IA and IB. According to the appellants, the amendments further highlighted the continuity of the shape of the core in the sense of a closed loop.

The board observes that the term "circumferential" is directly related to a circle, since it normally describes something that is on the circumference of a circle or a circular object. At most, the term thus supports the normal understanding of the skilled person, according to which "ring-shaped" in the sense of feature b is to be understood as circular.

- 6.3 The board concludes that claim 1 of auxiliary requests IA and IB does not meet the requirements of Article 84 EPC for the above reasons and for the reasons already set out with respect to claim 1 of the main request (see point 1. above) and auxiliary request I (see point 2. above).

- 6.4 Therefore, the question of whether auxiliary requests IA and IB were to be admitted into the appeal proceedings could be left open.

7. Auxiliary request II - Article 84 EPC

- 7.1 Claim 1 of auxiliary request II merely adds to claim 1 of auxiliary request I a feature f relating to an adhesive connection between the divisional cores and the end portions of the support pillar portions. The

appellants have not presented any further arguments in this regard.

7.2 The board concludes that claim 1 of auxiliary request II does not meet the requirements of Article 84 EPC and refers to the reasons provided with respect to the main request and to auxiliary request I, which apply equally to auxiliary request II (see points 1. and 2. above).

8. Result

As none of the appellants' requests met the requirements of Article 84 EPC, the board was not in a position to accede to any of them.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



L. Gabor

G. Flyng

Decision electronically authenticated