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Datasheet for the decision of 17 June 2026

Case Number: T 0944/24 - 3.3.03

Application Number: 18717892.6

Publication Number: 3609955

IPC: C08K7/14

Language of the proceedings: EN

Title of invention:
ALIPHATIC POLYAMIDE COMPOSITIONS AND CORRESPONDING MOBILE ELECTRONIC DEVICE COMPONENTS

Patent Proprietor:
Syensqo Specialty Polymers USA, LLC

Opponent:
ARKEMA FRANCE

Relevant legal provisions:
EPC Art. 54, 56, 83, 84, 107
EPC R. 101(1)
RPBA 2020 Art. 12(4)

This datasheet is not part of the Decision
It can be changed at any time and without notice

Keyword:
Admissibility of appeal - appeal of the patent proprietor rejected as inadmissible
Amendment to case - amendment admitted (yes)
Claims - clarity (yes)
Sufficiency of disclosure - (yes)
Novelty - (yes)
Inventive step - (yes)

Decisions cited:
T 0244/85, T 0392/91, T 0506/91, T 0434/00, T 1409/16

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Case Number: T 0944/24 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 17 June 2026

Appellant: (Opponent)	ARKEMA FRANCE 420, Rue d'Estienne d'Orves 92700 Colombes (FR)
Representative:	Regimbeau 20, rue de Chazelles 75847 Paris Cedex 17 (FR)
Respondent: (Patent Proprietor)	Syensqo Specialty Polymers USA, LLC 4500 McGinnis Ferry Road Alpharetta, GA 30005-3914 (US)
Representative:	Kraus & Lederer PartGmbB Thomas-Wimmer-Ring 15 80539 München (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted/ electronically transmitted on 13 May 2024 concerning maintenance of the European Patent No. 3609955 in amended form.**

Composition of the Board:

Chairman	D. Semino
Members:	D. Marquis
	L. Basterreix

Summary of Facts and Submissions

I. The appeals of the patent proprietor and the opponent lie against the decision of the opposition division concerning maintenance of European patent No. 3 609 955 on the basis of the claims of the main request filed at the oral proceedings before the opposition division and a description adapted thereto.

II. The decision under appeal was based on that request whose claim 1 read as follows:

"1. An aliphatic polyamide composition comprising:

an aliphatic polyamide polymer and

from 30 wt.% to 60 wt.% of glass fiber, relative to the total weight of the polyamide composition,

wherein the glass fiber has:

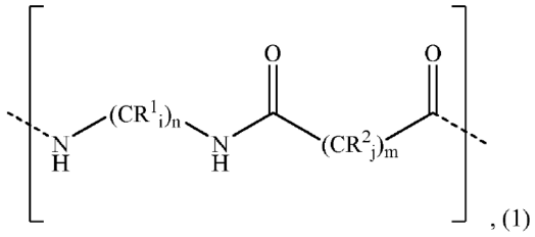
a dielectric constant at 1 MHz measured according to ASTM D150 of from 5.1 to 5.5, preferably from 5.2 to 5.4, and

a tensile modulus measured according to ASTM D2343 of from 75 GPa to 100 GPa and

the aliphatic polyamide composition being characterized by either features A or features B:

features A: the aliphatic polyamide polymer has at least 50 mol% of a recurring unit (R_{PA}), relative

to the total number of moles of recurring units in the aliphatic polyamide,
said recurring unit (R_{PA}) is represented by the following formula –[-Ma-Mb-]- :



, (1)

where R^1 and R^2, at each instance, are independently selected from the group consisting of an alkyl, an alkenyl, an alkynyl, an aryl, an ether, a thioether, a carboxylic acid, an ester, an amide, an imide, an alkali or alkaline earth metal sulfonate, an alkyl sulfonate, an alkali or alkaline earth metal phosphonate, an alkyl phosphonate, an amine, and a quaternary ammonium; each i and j is zero; n is an integer from 4 to 12; and m is an integer from 6 to 18; and

where in Formula (1), the carbon atom in each –(CR^1_i)- and each –(CR^2_j)- has, respectively, 2-i and 2-j hydrogen atoms bonded to it;

features B: the aliphatic polymer composition has a dielectric constant at 1 MHz of less than 4.0, preferably less than 3.9, more preferably less than 3.8, more preferably less than 3.75, more preferably less than 3.7, most preferably less than 3.6".

III. The following documents were *inter alia* submitted during the opposition proceedings:

D1: WO 2015/132510 A1

D2: Technical Paper, agy "High Strength Glass Fibers", D. Hartman, M.E. Greenwood and D.M Miller, 2006, 10 pages

D4: WO 2014/195226 A1

D11: F. T. Wallenberger et al., "Glass Fibers" ASM Handbook, 2001, Vol. 21: Composites (#06781G), pages 27-34

D12: AGY Advanced Materials, S-3 UHM™ High Performance Fibers, The Highest Stiffness in Glass Fibers, Printed 11/12, 2 pages

D14: Mirko Dinulović et Boško Rašuo, "Dielectric Properties Modeling of Composite Materials", FME Transactions (2009), pages 117-122

IV. The decision under appeal, as far as it is relevant to the present appeal, can be summarized as follows:

- The main request submitted at the oral proceedings before the opposition division was admitted into the proceedings.

- Claim 1 of the main request was admissible under Rule 80 EPC and met the requirements of Article 123(2) and (3) EPC and Article 84 EPC.

- Claim 1 of the main request was novel over the example 5 of D1. While the composition disclosed in example 5 could be seen as an aliphatic composition and it was shown with D2 and D12 that the commercially available glass fibre S-2 used in example 5 had a dielectric constant (5.3) according to claim 1, the argumentation of the opponent regarding the dielectric constant of the aliphatic polyamide composition relied on unproven assumptions and an exact reproduction of the

composition of example 5 of D1 was not possible.

- Claim 1 of the main request was inventive over D4 as the closest prior art. The problem was to provide an aliphatic polyamide composition having improved mechanical properties and improved dielectric performance. The use of a glass fibre having a dielectric constant at 1 MHz measured according to ASTM D150 of from 5.1 to 5.5 according to claim 1 that was identified as the solution to that problem was not obvious in view of D4, D2 and D11.

- The subject-matter of the main request was also sufficiently disclosed.

V. The patent proprietor (appellant 1) and the opponent (appellant 2) lodged an appeal against the decision of the opposition division. Appellant 2 submitted the following documents with their statement of grounds of appeal:

D15: Report # C20-6175-R1 on the relative permittivity measurement of resin materials, 23 August 2024, 3 pages

D16: Report of sample measurement results, 12 July 2024, 3 pages

D17: "either-or" from the Cambridge Dictionary, https://dictionary.cambridge.org/dictionary/english/either-or

D18: "Guinlist Advanced Grammar and Vocabulary in Academic & Professional English", https://guinlist.wordpress.com/tag/expressingalternatives/

Appellant 1 submitted D19 (US 4 698 083) with their rejoinder.

VI. Oral proceedings before the Board were held on 17 June 2026 in the absence of both appellants as announced in writing on 22 April 2026 by appellant 1 and on 22 May 2026 by appellant 2.

VII. The final requests of the parties were as follows:

- Appellant 1 requested that the appeal of the opponent be dismissed or, in the alternative, that the patent be maintained on the basis of the new auxiliary request 1 filed on 9 February 2024 or any of the auxiliary request 2 (corresponding to the new auxiliary request filed at the oral proceedings before the opposition division), auxiliary request 3 (corresponding to the main request filed on 17 March 2023), auxiliary requests 4-9 (corresponding to auxiliary requests 2-7 filed on 9 February 2024) or auxiliary requests 10-22 (corresponding to auxiliary requests 1-13 filed on 17 March 2023). In addition appellant 1 requested that documents D15 and D16 not be admitted into the appeal proceedings and that document D19 be admitted into the appeal proceedings.

- Appellant 2 requested that the decision under appeal be set aside and the patent be revoked. Appellant 2 also requested that the appeal of appellant 1 be rejected as inadmissible and that documents D15-D18 be admitted into the proceedings.

Reasons for the Decision

1. Admissibility of the appeal

1.1 Appellant 2 argued in their statement of grounds of appeal, section 1.1, that the appeal lodged by the patent proprietor was not admissible. Pursuant to Article 107 EPC, only those parties whose requests have been rejected by a decision may lodge an appeal against that decision. Following the oral proceedings, the opposition division upheld the patent on the basis of the main request (see decision, in particular the cover page). On that basis appellant 2 concluded that the patent proprietor was not adversely affected by the decision and their appeal was not admissible.

1.2 Under Article 107 EPC, any party to proceedings adversely affected by a decision may appeal. A party is adversely affected within the meaning of Article 107 EPC if the decision under appeal does not accede to that party's requests (see decision T 244/85, point 3 of the Reasons, and further decisions cited in Case Law of the Boards of Appeal, 11th edition 2025, V.A.2.4.2 a)). The relevant issue in this respect is the difference between the submitted requests and the order of the appealed decision (T 434/00, point 3 of the Reasons). A party is therefore adversely affected if the decision under appeal does not accede to its main request or to auxiliary requests preceding the allowed auxiliary request (see e.g. decision T 392/91). Whether this is the case has to be assessed by comparing the final requests submitted at the first-instance proceedings with the substance of the decision under appeal (see for example decisions T 244/85, supra,

point 4 of the Reasons, and T 506/91, point 2.3 of the Reasons).

1.3 In the case at hand, the opposition division decided that the patent proprietor's main request did not meet the requirements of Rule 80 EPC (see Reasons for the decision under appeal, point 3.2, and minutes of the oral proceedings, section 3.1.5), admitted the new main request and new auxiliary request 1 submitted by the patent proprietor during the oral proceedings into the proceedings, and considered that the new main request fulfilled the requirements of Rule 80, Article 123(2) and (3) and Article 84 EPC, as well as Article 54, Article 56 and Article 83 EPC (see Reasons for the decision under appeal, points 3.2, 4.2, 5.2.2, 6 and 7.2, and minutes, sections 4.1.3, 4.2.4 and 4.3.7).

1.4 Therefore, according to its reasons, the decision under appeal did not accede to the patent proprietor's initial main request. However, it is clear from the file, in particular from the cover page of the decision, point 9 of section I and section III of the decision and section 6.1 of the minutes of the oral proceedings, that the patent has been maintained in amended form based on the main request and the amended description submitted during the oral proceedings. The final main request of the patent proprietor was therefore granted.

1.5 Hence the patent proprietor was not adversely affected by the decision under appeal, and their appeal is rejected as inadmissible (Rule 101(1) EPC).

1.6 In what follows the opponent is therefore indicated as the appellant and the patent proprietor as the

respondent.

2. Admittance

2.1 D15 and D16 are experimental reports submitted by the appellant with their statement of grounds of appeal in support of an objection of lack of novelty over D1 which was pursued on appeal against claim 1 of the main request. D15 and D16 were argued to address the question of the dielectric constant at 1 MHz of the aliphatic polyamide composition corresponding to feature B of claim 1 of the main request (statement of grounds of appeal of the appellant, pages 14 and 15). The admittance of D15 and D16 was contested by the respondent on the ground that both reports had been filed late (rejoinder, section 3.2).

2.2 The objection of lack of novelty in view of examples 5 and 6 of D1 was originally raised with the notice of opposition against the granted claims (section 4.1). It was contested by the respondent in their reply of 17 March 2023 and discussed with regard to a new amended main request submitted therewith (section II.1.3.1). It was in particular argued that D1 did not disclose the dielectric constant at 1 MHz of the aliphatic polyamide composition newly defining independent claim 2 of the then main request (reply to the notice of opposition, page 12). The opposition division also addressed this objection in their summons to oral proceedings dated 15 September 2023 (pages 4 and 5), noting that the appellant had not commented on claim 2 of the main request filed on 17 March 2023 and raising the question of the implicit disclosure of the dielectric constant at 1 MHz of the aliphatic polyamide composition.

2.3 The novelty of the main request was addressed by the appellant in their letter dated 9 February 2024 (page 7), including arguments concerning the implicit disclosure of the dielectric constant at 1 MHz of the aliphatic polyamide composition in examples 5 and 6 of D1. The appellant's arguments were based on an analysis of the compositions disclosed in examples 5 and 6 of D1 and relied on the rule of mixtures applied to known dielectric constants of the components of those composition as discussed in D14.

2.4 In section 5.2.2 of the decision under appeal, the opposition division rejected the arguments of the appellant on the ground that they relied on assumptions (page 9) rather than on a reproduction of examples 5 and 6 of D1 (page 8, penultimate paragraph). The opposition division also added that a reproduction of the examples 5 and 6 of D1 would not be possible, since D1 did not contain a detailed disclosure of the monomer contents of the polymers used in the compositions (decision under appeal, page 9, first paragraph).

2.5 The facts of the case show that the filing of D15 and D16 at the outset of the appeal proceedings was justified. An objection of lack of novelty against the subject-matter corresponding to feature B of claim 1 of the present main request was raised in reaction to the filing of the main request on 17 March 2023. The appellant also addressed, in its letter of 9 February 2024, the question of implicit disclosure raised by the opposition division in the summons dated 15 September 2023. How that question was to be addressed was a matter for the appellant, in the sense that there was no requirement, or even indication on file, that a reproduction of examples 5 and 6 of D1 was necessary. Indeed, the remarks made by the opposition division in

its decision on the reproducibility of the examples of D1 indicate that such a reproduction would not have been valid. In any event, the Board considers that the line of argument chosen by the appellant in its reply was not unreasonable per se.

2.6 The appellant's argumentation was not further discussed during the written phase of the opposition proceedings. It appears to have been addressed only later, at the oral proceedings before the opposition division, in relation to claim 1 of the new main request. The Board finds that the appellant could not have anticipated the rejection of its arguments, and thus had no reason to consider a reworking of D1, before the reasons for that rejection were made known to it, namely in the decision under appeal. The Board therefore decided to admit D15 and D16 into the appeal proceedings (Article 12(4) RPBA).

2.7 D17 and D18 are definitions of common terms used in the claim whose admittance is not contested. Without any reason against their admittance and in view of their potential relevance, the Board decided to admit D17 and D18 into the proceedings.

2.8 D19 is a US patent document submitted by the respondent with their rejoinder. D19 is cited in D4 considered as the closest prior art in the present case. D19 is allegedly relevant to consider the preparation of the glass fibres used in D4. The admittance of D19 is not contested. In the absence of any reason against its admittance and in view of its potential relevance, the Board decided to admit D19 into the proceedings.

Main request

3. Clarity of claim 1

3.1 The objection of lack of clarity raised by the appellant at the oral proceedings before the opposition division against claim 1 of the main request, and addressed in section 4.2 of the decision under appeal, was pursued on appeal. The appellant, relying on the definitions provided in D17 and D18, considered that the formulation of claim 1 implied a mutual exclusion of features A and B from its scope as a result of the use of the word "or" in the claim. The appellant argued that the formulation of claim 1 as a composition containing mutually exclusive alternatives in the form of feature A or feature B was inconsistent with the disclosure of the patent in suit, in particular its examples.

3.2 According to the case law of the boards of appeal, however, while both exclusive and inclusive disjunctions can be expressed by the term "or" — also in the sense of "either … or" — that term is to be understood as an exclusive "or" only where the two alternatives are, by their very nature, mutually exclusive, i.e. technically incompatible with each other (T 1409/16, Reasons 1.3.2 to 1.3.5). Thus, the default position in the case law is that "or", even in the expression "either … or", is inclusive, unless the technical context makes exclusivity unavoidable.

3.3 In the present situation, feature A of claim 1 is described in paragraph 8 of the patent in suit and concerns the definition of the structural units present in the aliphatic polyamide of the composition. Feature B concerns the dielectric constant at 1 MHz of the

aliphatic polyamide compositions as a whole, containing the aliphatic polyamide and glass fibres, and is described in paragraph 16 of the patent in suit. There is nothing in these paragraphs nor in the whole of the patent in suit that would indicate that features A and B are mutually exclusive. On the contrary, the exemplified compositions with polyamide 6,10 as defined in paragraph 8 have dielectric constants of less than 4.0, therefore supporting the inclusive form of the wording "or" in claim 1 of the main request. In view of this, the Board cannot follow the definitions provided in D17 and D18 by the appellant and there is no contradiction between claim 1 of the main request and the examples of the patent in suit.

3.4 Claim 1 of the main request therefore fulfils the requirements of Article 84 EPC.

4. Sufficiency of disclosure

4.1 The objection of lack of sufficiency of disclosure raised in opposition and addressed in the impugned decision (section 7) was maintained in appeal. The appellant in particular considered that the patent in suit (i) did not contain sufficient guidance as to the preparation of the glass fibres defined in operative claim 1 and (ii) did not disclose the method to determine the inherent viscosity of the aliphatic polyamide defined in claim 11 of the present main request.

4.2 According to the established case law of the boards of appeal, a successful objection of insufficient disclosure presupposes the existence of serious doubts substantiated by verifiable facts. In inter partes proceedings, the burden of proof initially lies with

the appellant, who must establish, on the balance of probabilities, that a skilled person reading the patent and using common general knowledge would be unable to carry out the invention. This initial burden on the appellant may shift to the patent proprietor once the appellant has successfully discharged its burden of proof (Case Law of the Boards of Appeal, 11th edition 2025, II.C.9.1).

4.3 The Board does not see in the appellant's argumentation set out in the statement of grounds of appeal (section 3) any verifiable facts that would support its submissions on any of points (i) and (ii) identified above. In particular, it has not been shown that the skilled person would have lacked the necessary guidance to prepare aliphatic polyamide compositions according to operative claim 1.

4.4 Nor has it been shown that the skilled person, relying on common general knowledge, could not have obtained glass fibres having a dielectric constant at 1 MHz, measured according to ASTM D150, of from 5.1 to 5.5 and a tensile modulus, measured according to ASTM D2343, of from 75 GPa to 100 GPa. On the contrary, such glass fibres were commercially available, as shown in the patent in suit, and were therefore available for use in the preparation of aliphatic polyamide compositions.

4.5 As regards the preparation of compositions according to claim 11 defined by their intrinsic viscosity, the statement of grounds of appeal did not contain any argument addressing the reasoning of the opposition division. Under these circumstances, the Board sees no reason to depart from the opposition division's conclusion on sufficiency of disclosure.

4.6 The Board therefore finds that it has not been shown that claim 1 of the main request is insufficiently disclosed.

5. Novelty over D1

5.1 The opposition division decided on novelty with respect to example 5 of D1 (decision under appeal, section 5.1). It was established that the composition according to that example could be seen as an aliphatic polyamide composition and contained commercially available glass fibres "S-2®" sold by AGY, the technical information (D2 and D12) of which showed that these fibres had a dielectric constant at 1 MHz measured according to ASTM D150 and a tensile modulus measured according to ASTM D2343 according to operative claim 1 (ibid, page 7).

5.2 Novelty over D1 was acknowledged on the grounds that it had not been established that the aliphatic polymer composition of example 5 had a dielectric constant at 1 MHz of less than 4.0. The opposition division in particular concluded in section 5.2.2 of the decision under appeal that (i) the appellant relied on assumptions that did not meet the standard of proof required to conclude that the dielectric constant at 1 MHz of the composition of example 5 of D1 was according to claim 1 and that (ii) D1 did not disclose the exact amount of monomers present in the individual polyamides "PAam2", "PAam3" and "PAam4" of examples 5 and 6 which meant that these examples could in principle not be reproduced.

5.3 The appellant argued that the calculation of the dielectric constant submitted in its letter of 9 February 2024 (pages 7 to 9) reasonably showed that the compositions of examples 5 and 6 were according to

operative claim 1 (statement of grounds of appeal, page 12, third paragraph). The appellant also contested the opposition division's conclusion on the reproducibility of the examples of D1, arguing that the skilled person could identify the monomer content of the polymers, as shown in D15 and D16 (ibid., page 13, third paragraph).

5.4 The reasoning of the opposition division concerning the validity of the calculation based on the rule of mixtures presented in the appellant's letter of 9 February 2024 (pages 7 to 9) is set out in section 5.2.2 of the decision under appeal (page 9, first paragraph). That reasoning relies on the fact that the appellant provided a table of values for the dielectric constants of certain polymer types — PA 11, PA 12/BI/BT and PA 11/B10 — on the basis of which the rule of mixtures was applied, but did not provide a source, i.e. evidence that those values could be regarded as representative of polymers of the same types, namely PA 11, PA 12/BI/BT and PA 11/B10, disclosed in examples 5 and 6 of D1. This left uncertainty as to the validity of the calculation made.

5.5 There is, as a matter of fact, no source cited in the appellant's letter showing that the values of the dielectric constant at 1 MHz according to ASTM D150 — 3.0 for PA 11, 2.9 for PA 12/BI/BT and 2.9 for PA 11/B10 — were known in the prior art and could be verified. The ASTM standard cited in the same passage of the appellant's letter was not filed, and therefore it cannot be concluded that that standard provided the values relied upon by the appellant. While the appellant did not directly address this aspect of the opposition division's reasoning in their statement of grounds of appeal, it referred to D14 as a document showing that such a calculation had already been

applied in the literature.

5.6 D14 concerns the application of the rule of mixtures to the calculation of dielectric constants also for reinforced composition materials (page 117, second column, second paragraph of chapter 2). The appellant however made no reference to parts of D14 containing a source for the values of dielectric constant at 1 MHz measured according to ASTM D150 for the cited polymers, nor does the Board find these values in D14. In that respect it can only be concluded that there is no source on file for the values of dielectric constant at 1 MHz measured according to ASTM D150. The Board therefore concludes that the argumentation provided in appeal is not such that it justifies a departure from the conclusion reached by the opposition division on that point.

5.7 The appellant filed D15 and D16 in reaction to the opposition division's remark that calculations had been used rather than a reproduction of examples 5 and 6 of D1 (decision under appeal, page 8, ninth paragraph). On appeal, the appellant argued that, although an exact reproduction of the examples of D1 was not possible due to a lack of data on the monomer content of the polymers, the skilled person, using common general knowledge, would have been in a position to identify ranges for the monomer contents which would result in values of the critical feature according in claim 1 (statement of grounds of appeal, page 13, third paragraph). However, the common general knowledge relied upon was not further explained, nor were the ranges in question identified.

5.8 In their communication under Article 15(1) RPBA, the Board indicated that the relevant question was whether

the compositions analysed in D15 and D16 could be regarded as valid representations of the compositions disclosed in examples 5 and 6 of D1. Since the monomer contents of the polymers used in the compositions of D1 were not known, it was questionable whether it could be concluded that the examples of D1 could be accurately reproduced. This also raised the question of what monomer contents had been used in the compositions of D15 and D16. The statement of grounds of appeal did not provide conclusive evidence regarding the monomer contents of the polymers disclosed in D1 and those used in D15 and D16, and thus raised issues as to the reproducibility and validity of that evidence.

5.9 The appellant did not filed any further submission to reply to the concerns of the Board. They had previously argued that the exact monomer contents of the polymers used in examples 5 and 6 of D1 were not critical since the dielectric constants at 1 MHz measured according to ASTM D150 for the compositions referred to in D15 and D16 were well within the range of dielectric constants at 1 MHz measured according to ASTM D150 for the composition defined in operative claim 1: 3.22 for the composition alleged to represent example 5 of D1 and 3.21 for the composition alleged to represent example 6 of D1. However, these argument do not reply to the concerns of the Board expressed in the communication. Even if one accepts that D15 and D16 used the same types of polymers as in examples 5 and 6 of D1, the fact that the dielectric constants measured at 1 MHz according to ASTM D150 in D15 and D16 were well within the range according to operative claim 1 is not sufficient to establish that the critical feature is met in the absence of any detail on the common general knowledge relied upon for choosing the monomer contents of the polymers in D15 and D16 and without any

indications of which contents were used.

5.10 Under these circumstances, the Board concludes that it has not been shown that claim 1 of the main request lacks novelty over D1.

6. Inventive step over D4

6.1 The opposition division concluded that D4 and in particular its example 3 represented the closest prior art for claim 1 of the main request. That point was not contested in appeal. The decision under appeal addressed the alternatives (features A and B) present in claim 1 of the main request and established that the claim differed from example 3 of D4 in that its glass fibre had a dielectric constant at 1 MHz measured according to ASTM D150 of from 5.1 to 5.5 for both alternatives and additionally in that the dielectric constant at 1 MHz of the polyamide composition was less than 4.0 when claim 1 was limited by feature B (point 6, page 10 of the decision).

6.2 The composition of example 3 of D4 chosen as the closest prior art is disclosed in Tables 1 and 2 on pages 27 and 28 of that document. The glass fibres are of the type GF1 said on page 26 to have an elastic modulus of 85 GPa according to ASTM C1557-03. While the respondent noted that the ASTM norms for the determination of the elastic modulus in claim 1 of the main request (ASTM D2343) and in D4 (ASTM C1557-03) were formally different, they did not consider in the end in their argument that the tensile/elastic modulus was a further distinguishing feature (rejoinder, page 15, paragraph 37) over D4. The Board does not see any reason to take a different view. Also, it was undisputed and is acknowledged by the Board that D4 did

not disclose the dielectric constants of the glass fibres and of the composition of any of the examples.

6.3 The opposition division concluded that a comparison between the composition of example 12 and that of comparative example 13 of the patent in suit established the presence of an effect over D4. The problem was formulated as the provision of an aliphatic polyamide composition having improved mechanical properties and improved dielectric performance (decision under appeal, page 11). The solution was identified in the decision as the use of a glass fibre having a dielectric constant at 1 MHz, measured according to ASTM D150, of from 5.1 to 5.5, as defined in claim 1 for both alternatives. That conclusion was contested by the appellant on the ground that the composition of example 13 was not representative of D4 in view of the difference in tensile modulus and therefore could not establish the presence of an effect (statement of grounds of appeal, page 18, second paragraph).

6.4 It is true that, according to the established case law of the boards of appeal, comparative tests with the prior art must be conducted in such a way that any effect can be attributed to the distinguishing feature. However, it is also permissible, and may even be necessary, to modify prior-art embodiments in line with the invention to such an extent that the only remaining difference is the distinguishing feature of the claim. Thus, comparative tests do not always have to be carried out using the closest prior art itself; intrinsic comparative tests may also serve as evidence of an effect.

6.5 In the present case, the fact that the tensile modulus of the composition of example 13 in the patent in suit is lower than that of the composition of example 3 of D4, which represents the closest prior art, is not relevant to the assessment of inventive step because it is doubtful that the numerical values of tensile modulus obtained under different conditions in the patent in suit and in D4 can be meaningfully compared. Furthermore, it has not been shown that the difference between the value of tensile modulus for the glass fibre GF1 used in example 3 of D4 (85 GPa) and the range of 70 to 80 GPa for the comparative type V glass fibres used in example 13 of the patent in suit would be relevant at all. Under the present circumstances the Board concludes that the difference between the values of tensile modulus disclosed in the patent in suit for example 13 and that given in D4 is not a reason not to consider example 13 as providing meaningful information on a possible effect over the closest prior art D4 even if the composition of example 13 is not an exact representation of the composition of example 3 of D4.

6.6 Examples 12 and 13 of the patent in suit differ from one another in their glass fibres (dielectric constant at 1 MHz measured according to ASTM D150 and tensile modulus) and in the value of dielectric constant of the composition. Paragraphs 5 and 6 of the patent in suit give some context to the discussion of the examples by the parties in appeal. The passage discloses that aliphatic polyamide compositions with high mechanical properties and low wireless signal loss are sought after and three categories of glass fibres that can be added to aliphatic polyamide compositions are introduced:

- Standard glass fibres with high tensile moduli — E of from 70 GPa to 80 GPa — are known to impart excellent mechanical properties to aliphatic polyamide compositions. These glass fibres are, however, known to have high dielectric constants — from 6.0 to 7.0 — which result in high dielectric constants, and therefore poor dielectric performance, in the compositions. This type of "standard" glass fibre appears to be exemplified by the type V glass fibres used in example 13 of the patent in suit, which have a dielectric constant of 6.0 to 7.0 and a tensile modulus of 70 GPa to 80 GPa.

- Low dielectric constant glass fibres (at 1 MHz) with dielectric constants of 4.5 to 5.0, improve the dielectric performance of the aliphatic polyamide compositions to which they are added by lowering the dielectric constant. However, these fibres are known to compromise the mechanical properties of aliphatic polyamide compositions, since low-dielectric-constant glass fibres have low tensile moduli — E of from 60 GPa to 65 GPa. This type of "low-dielectric-constant" glass fibre appears to be exemplified by the type IV glass fibres used in example 11 of the patent in suit, which have a dielectric constant of 4.5 and a tensile modulus of 60 GPa.

- Selected glass fibres with dielectric constants of 5.2-5.4 at 1 MHz and tensile moduli of 75 GPa to 100 GPa which impart both high dielectric performance and high mechanical properties. These "selected" glass fibres seem to be exemplified in the type III glass fibres (dielectric constant of 5.3 and tensile modulus of 87 GPa) used in example

12 of the patent in suit.

In view of that information the Board considered that the discussion of inventive step included example 11 of the patent in suit (communication of the Board, section 9.5), a point that was not disputed by the parties in the written appeal procedure. The compositions of examples 11-13 and their properties can be compared to one another since all these compositions contain the same amount of glass fibres and do not contain additives (Table 3 of the patent in suit).

6.7 Table 3 of the patent in suit shows that the incorporation of glass fibres of type III in example 12 having a dielectric constant from 5.3 at 1 MHz and a tensile modulus of 87 GPa (referred to as "selected" glass fibres in paragraph 6) results in an aliphatic polyamide composition having a dielectric performance (dielectric constant at 1 MHz of the aliphatic polyamide composition) of 3.80, substantially similar to that of the composition of example 11 (dielectric constant of the aliphatic polyamide composition of 3.75) which includes low dielectric glass fibre (glass fibre of type IV with a dielectric constant of 4.5).

6.8 The aliphatic polyamide composition of example 12 however has mechanical properties (tensile modulus of 19.6 GPa; tensile strength of 249 MPa; and Un-Izod of 115 kJ/m^2) that are better than the aliphatic polyamide composition including the low dielectric glass fibre IV of example 11 (tensile modulus of 15.4 GPa; tensile strength of 213 MPa; and Un-Izod of 96 kJ/m^2). It can also be seen that the composition of example 12 with the "selected" glass fibre has a better dielectric performance (dielectric constant at 1 MHz of 3.80) than the composition of example 13 with the standard modulus

glass fibres (dielectric constant at 1 MHz of 4.17) with comparable mechanical properties.

6.9 It can be concluded that examples 11-13 reflect the teaching provided in paragraphs 5 and 6 of the patent in suit by which the inclusion of a glass fibre having a dielectric constant from 5.2 to 5.4 at 1 MHz and a tensile modulus of from 75 GPa to 100 GPa ("selected glass fibre") provides aliphatic polyamide compositions with a dielectric performance substantially similar to that of corresponding aliphatic polyamide compositions including low dielectric glass fibre and, simultaneously, a mechanical performance greater than corresponding aliphatic polyamide compositions including a low dielectric glass fibre or standard modulus glass fibre.

6.10 Considering the distinguishing feature over example 3 of D4 common to both alternatives, the effect relevant for inventive step over that starting point is therefore not related to improving the mechanical properties of aliphatic polyamide compositions as laid out by the respondent (rejoinder, page 17, paragraph 43) but rather linked to improving their dielectric performance as laid out by the appellant (statement of grounds of appeal, page 21, second paragraph).

6.11 In view of this, the problem for both alternatives of claim 1 of the main request is the provision of aliphatic polyamide compositions with improved dielectric performance (lower dielectric constant at 1 MHz), whereby the mechanical properties of the aliphatic polyamide compositions remain at a satisfactory level. The question of obviousness decisive to conclude on the issue of inventive step is therefore whether a skilled person starting from

example 3 of D4 using glass fibres having a non-circular cross section as required in that document would have considered using glass fibres with a lower dielectric constant (at 1 MHz measured according to ASTM D150) with comparable tensile modulus in order to obtain aliphatic polyamide compositions with an improved dielectric performance and satisfactory mechanical properties.

6.12 The appellant pointed to D2 as a document describing the properties of glass fibres (statement of grounds of appeal, pages 24 and 25). Among the properties disclosed in D2, the tensile modulus and the dielectric constants of the glass fibres are discussed as being parameters that can be appropriately selected in order to modify resin compositions (page 2, in particular second column, last paragraph and third column, discussion of D Glass and S-2 Glass). These properties are also addressed on page 3 (first column), Table 3 on page 8 (dielectric properties) and also on page 5 (third column, first paragraph). Table 3 of D2 in particular discloses the existence of several types of glass fibres (among which D Glass and S-2 Glass fibres) with low dielectric constant at 1 MHz (3.8 for D Glass and 5.3 for S-2 Glass fibres). Even though the method of measurement for the determination of the values of dielectric constant at 1 MHz is not provided in D2, it can be appreciated that the values disclosed can be in the range of claim 1 of the main request for S-2 Glass type fibres. In view of this, using glass fibres of the type S-2 Glass with low dielectric constant at 1 MHz would have been open to the skilled person as it can be derived from D2 that this type of fibres was commercially available and they were known to have good mechanical properties (Table 5 showing elastic and strength properties of S-2 Glass fibres and Figures 2

and 4 showing its tensile strength).

6.13 The respondent however considered, relying on D4 itself and on D19, that the glass fibres disclosed in the prior art D2 would structurally - because of their composition and because of their cross section - not be adapted to be used in D4 (rejoinder, sections 49, 50 and 56) and therefore the question arises as to whether the skilled person would have considered the known glass fibres of D2 in the context of D4. As a matter of fact, in order for the skilled person to consider using the glass fibres known from D2 — namely D-glass and S2-glass — which have advantageous dielectric and mechanical properties, in the aliphatic polyamide compositions of D4, it would have to be established that the glass fibres of the prior art, in particular D2, fulfil the essential requirements for the glass fibres considered in the closest prior art D4. In this respect, D4 explicitly sets out in claim 1 and throughout its description, such as on page 20, that "the polymer composition (C) also comprises at least one specific glass fiber having a non-circular cross section and an elastic modulus of at least 76 GPa as measured according to ASTM C1557-03". Thus, the glass fibres used in D4 must have a non-circular cross-section, i.e. they must be so-called "flat glass fibres" (D4, page 20). This specific requirement of D4 appears to be important for the definition of the size of the glass fibres, namely their diameter and aspect ratio, which is disclosed as providing "excellent results" (page 21, first two paragraphs). On this basis, the skilled person would not consider to replace the glass fibres of D4 with different ones not fulfilling this requirement.

6.14 The relevance of the requirement concerning the non-circular cross-section of the glass fibre, which is repeated throughout D4, was highlighted by the Board in its communication (section 9.11), but was not further addressed, let alone established, by the appellant in the written appeal proceedings. The Board does not find in D2 any explicit disclosure concerning the cross-section of the glass fibres mentioned. It can therefore not be concluded, on the basis of D2 alone, that the glass fibres of that document which were found as potentially relevant because of their dielectric and mechanical properties — i.e. D-glass and S2-glass — among many other types of glass fibres, namely A-glass, C-glass, E-glass, ECR-glass, AR-glass and R-glass fibres, would actually be compatible with the requirements of D4, namely a non-circular cross-section and an elastic modulus of at least 76 GPa as measured according to ASTM C1557-03. In view of this, the Board does not find that the subject-matter of claim 1 of the main request is rendered obvious starting from D4 and taking into account the teaching of D2.

6.15 The appellant also considered D11 as being relevant to the question of inventive step. D11 discusses the use of glass fibres and their properties in polymer compositions or composites (pages 31-32). While it can be seen that Table 2 of D11 points to S-glass fibres as having low dielectric constants at 1 MHz and good mechanical properties (tensile strength and Young's modulus), there is also no information in D11 on the cross section of these glass fibre types. The reasoning laid out above as to the use of the teaching contained in D2 also applies to the teaching of D11 relative to the use of S-glass fibres and the Board reaches the same conclusion, namely that it cannot be concluded that the subject matter of claim 1 of the main request

starting from D4 is rendered obvious considering the teaching of D11.

6.16 As the reasoning on inventive step has been based on the distinguishing feature common to both alternatives, the conclusion is valid for both of them and no separate treatment is needed.

6.17 On that basis, the arguments of the appellant are not suitable to overturn the conclusion on inventive step of the opposition division.

Order

For these reasons it is decided that:

1. The appeal of the patent proprietor is rejected as inadmissible.

2. The appeal of the opponent is dismissed.

The Registrar: The Chairman:

A. Vottner D. Semino

Decision electronically authenticated