

Internal distribution code:

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

**Datasheet for the decision
of 19 March 2014**

Case Number: T 2100/09 - 3.4.01

Application Number: 00300310.0

Publication Number: 1033723

IPC: G21C3/62, G21C3/28

Language of the proceedings: EN

Title of invention:
Nuclear fuel pellets and nuclear fuel rod containing same

Patent Proprietor:
MITSUBISHI HEAVY INDUSTRIES, LTD.
Mitsubishi Nuclear Fuel Co., Ltd.

Opponent:
Areva NP

Headword:

Relevant legal provisions:
EPC 1973 Art. 52(1), 54(1), 54(2), 56

Keyword:
Novelty - main request (no)
Inventive step - auxiliary request (no)

Decisions cited:

Catchword:



**Beschwerdekammern
Boards of Appeal
Chambres de recours**

European Patent Office
D-80298 MUNICH
GERMANY
Tel. +49 (0) 89 2399-0
Fax +49 (0) 89 2399-4465

Case Number: T 2100/09 - 3.4.01

**D E C I S I O N
of Technical Board of Appeal 3.4.01
of 19 March 2014**

Appellant II: MITSUBISHI HEAVY INDUSTRIES, LTD.
(Patent Proprietor 1) 5-1, Marunouchi 2-chome,
Chiyoda-ku
Tokyo (JP)

Appellant II: Mitsubishi Nuclear Fuel Co., Ltd.
(Patent Proprietor 2) 622-1, Funaishikawa,
Tokai-mura
Naka-gun,
Ibaraki-ken (JP)

Representative: Williams, Ceili
Stevens Hewlett & Perkins
1, Pemberton Row
London
EC4A 3BG (GB)

Appellant I: Areva NP
(Opponent) Tour Areva
1 Place de la Coupole
92400 Courbevoie (FR)

Representative: Domenego, Bertrand
Cabinet Lavoix
2, place d'Estienne d'Orves
75441 Paris Cedex 09 (FR)

Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
24 July 2009 concerning maintenance of the
European Patent No. 1033723 in amended form.**

Composition of the Board:

Chairman: G. Assi
Members: F. Neumann
C. Schmidt

Summary of Facts and Submissions

- I. The present appeal concerns the interlocutory decision of the opposition division, dispatched on 24 July 2009, which held that, account being taken of the amendments made during the opposition proceedings, the European patent number 1033723 met the requirements of the EPC.
- II. An opposition had been filed against the patent as a whole based on Article 100(a) EPC 1973, objections being raised both against a lack of novelty and a lack of inventive step.
- III. In the contested decision, the opposition division held that the subject-matter of independent claim 1 of the main request on file at that time lacked novelty, the subject-matter of independent claim 1 of the first auxiliary request on file at that time lacked an inventive step, but that the claims of the second auxiliary request met the requirements of the EPC.
- IV. During the opposition proceedings, reference was made, inter alia, to the following prior art documents:
- D1: Rolstad, E. et al.; *"An In-Core Study of the Influence of Important Fuel Design Parameters on the Elongation and "Bamboo-ridge" Formation of Zircaloy-2 Clad UO₂ Fuel Rods"*; published in 1971 in the review of the congress Reaktortagung Bonn, 30 March - 2 April 1971, pages 539-542;
- D3: US-A-3 801 451;
- D5: Assmann, H. et al.; *"Anforderungen an LWR-Brennstoff aus der Sicht des Betriebsverhaltens"*; Journal of Nuclear Material 81 (1979), pages 19-30;
- D6: GB-A-1 454 618;

- D8: LaVake, J.C. et al.; "*High Burnup PWR Ramp Test Program, Topical Report, Background Ramp Test Results*"; published in 1982;
- V. Appellant I (opponent) lodged an appeal, received on 21 September 2009, against the interlocutory decision. The appeal fee was paid on the same day. The statement setting out the grounds of appeal was received on 25 November 2009.
- VI. Appellants II (patent proprietors) lodged an appeal, received on 2 October 2009, against the interlocutory decision and requested that the decision be set aside and the patent be maintained as granted. The appeal fee was paid on the same day. The statement setting out the grounds of appeal was received on 1 December 2009.
- VII. In the statement setting out the grounds of appeal, Appellant I (opponent) filed the following additional prior art documents to support his case:
- D10: Brown, C. et al.; "*In-Reactor Performance of Prototype SBR MOX Fuel*"; Published in 1998 in the IAEA review of the Technical Committee Meeting of 28 October - 1 November 1996 "*Advances in fuel pellet technology for improved performance at high burnup*", pages 399-408;
- D11: Arimescu, V.I. et al.; "*Thermal Performance Modelling in Candu-Type Fuel Codes and its Validation*"; published in 1998 in the OECD Proceedings of the seminar of 3-6 March 1998 on "*Thermal Performance of High Burn-Up LWR Fuel*", pages 275-287.
- Appellant I (opponent) held that the request of Appellants II (proprietors), filed with the notice of

appeal of 2 October 2009, to maintain the patent as granted could not be submitted in the present appeal proceedings because the decision under appeal did not deal with the claims of the patent as granted. Despite this finding, Appellant I (opponent) argued that such a request was not allowable for the following reasons:

- lack of novelty of claims 1, 2 and 5 of the granted patent with respect to D8 or D3,
- lack of inventive step of claim 3 of the granted patent having regard to a combination of D8 with any of D1, D5, D6 or D10 or a combination of D3 with any of D5, D6 or D10,
- lack of inventive step of claim 4 of the granted patent having regard to a combination of D8 with either of D10 or D11 or a combination of D3 with either of D10 or D11.

In particular, with regard to claim 3 of the granted patent, Appellant I (opponent) held that it was distinguished from the disclosure of D8 by the definition of the L/D ratio of the pellet. The objective technical problem to be solved was seen to be how to improve the manufacturing productivity of fuel rods and how to increase their rigidity. D1, D5, D6 and D10 all disclosed L/D ratios falling within the claimed range and it was considered that the skilled person would adopt these values to solve the above problem. A similar argumentation applied starting from D3 and having regard to D5, D6 or D10.

With regard to claim 4 of the granted patent, it was further distinguished from the disclosure of D8 by the dish depth h_0 . In order to solve the problem set out in the granted patent of improving the compactability of the pellets, the skilled person would look to D10 or D11, which both disclosed ranges of dish depths which

extended below 0.22 mm, and would thereby arrive at the claimed subject-matter. A similar argumentation applied starting from D3 and having regard to D10 or D11.

- VIII. In the statement setting out the grounds of appeal, Appellants II (proprietors) requested, as a new main request, that the patent be maintained in accordance with the claims of the first auxiliary request underlying the decision under appeal.

Appellants II (proprietors) held that D8 did not disclose the claimed ratio of L/D and that it was not justified to vary L/D without consideration of the knock-on effect this would have on other parameters. Starting from D8, the problem to be solved was how to improve the manufacturing process without compromising pellet performance. Since none of the cited prior art documents addressed the manufacturing process, and no motivation was provided in the prior art for modifying the L/D ratio of D8, the subject-matter of claim 1 of the new main request could not be considered obvious.

- IX. With letter of 13 April 2010, Appellant I (opponent) submitted further arguments concerning the new main request of Appellants II (proprietors). Moreover, Appellant I (opponent) filed a new document:

D12: US-A-3 365 371.

With letter of 26 April 2010, Appellants II (proprietors) requested, as an auxiliary request, that the patent be maintained in the form proposed in the interlocutory decision of the opposition division.

- X. On 25 November 2013 the Board issued a summons to oral proceedings. On 20 December 2013 the Board sent a

communication outlining the issues to be discussed at the oral proceedings.

- XI. By letter of 18 February 2014 Appellant I (opponent) submitted arguments in favour of admitting D12 into the proceedings.

With letter of 13 March 2014, Appellants II (proprietors) informed the Board that they would not be represented at the oral proceedings.

- XII. Oral proceedings before the Board took place on 19 March 2014 in the absence of Appellants II (proprietors).

- XIII. Appellant I (opponent) requested that the decision under appeal be set aside and that the patent be revoked in its entirety.

- XIV. The final requests of Appellants II (proprietors) during the written procedure were, as a main request, that the decision under appeal be set aside and that the patent be maintained on the basis of claims 1-3 of the first auxiliary request underlying the decision under appeal, i.e. filed with the letter of 2 June 2009, or alternatively, as an auxiliary request, on the basis of claims 1 and 2 of the second auxiliary request underlying the decision under appeal, i.e. filed with the letter of 2 June 2009.

- XV. Independent claim 1 of the main request of Appellants II (proprietors) reads as follows:

"A nuclear fuel pellet composed of a cylindrical body having a diameter D and a length L, wherein on an upper and lower end face of the cylindrical body a beveled

portion having an axial dimension A along an axis of said cylindrical body and a radial dimension B perpendicular to the axis is formed at an outer peripheral edge and a dish having a diameter d_0 and a depth h_0 is formed coaxially with the longitudinal axis, wherein the diameter d_0 of the dish is set to 70% to 78% of said diameter D of the cylindrical body, a ratio A/B of the axial dimension A to the radial dimension B of the beveled portion is within the range of 1/3 to 1/4 and a ratio L/D of the length L to the diameter D of the cylindrical body is within the range of 1.3 to 1.5."

Claims 2 and 3 are dependent claims.

XVI. The wording of independent claim 1 of the auxiliary request of Appellants II (proprietors) is the same as the wording of independent claim 1 of the main request, except that the wording "*, and the depth h_0 of the dish is 0.22 mm or less*" has been added to the end of the claim.

Claim 2 is a dependent claim.

Reasons for the Decision

1. The appeals are admissible.
2. Admissibility of documents D10, D11 and D12
 - 2.1 D10 and D11 were filed by Appellant I (opponent) with the statement setting out the grounds of appeal. D12 was also filed by Appellant I (opponent) just over one month before the date of the oral proceedings.

2.2 D10 and D11 each disclose a range of pellet dish depth h_0 , both ranges overlapping with the claimed values of 0.22 mm or less. D12 was cited to provide evidence of the independence of various pellet parameters from each other.

Since Appellants II (proprietors) did not object to their introduction into the proceedings and in view of the fact that they are prima facie relevant, the Board admitted D10 to D12 into the proceedings.

3. Main Request of Appellants II (proprietors)

3.1 Figure 3-3 of D8 illustrates a number of pellet geometries labelled PG1 to PG6. The pellet having the geometry PG5 has the same basic shape as the pellet defined in claim 1. The diameter D of the PG5 pellet is 9.12 mm and the diameter d_0 of the dish is 6.52 mm. The dish diameter d_0 is therefore 71.5% of the pellet diameter D and falls within the range of values set out in claim 1. The ratio A/B of the pellet PG5 is $0.18/0.56$ which results in a value of 0.32 which also falls in the range of values set out in claim 1. The length L of the pellet PG5 is 11.1 mm which would lead to a ratio of L/D of 1.22 which falls outside the claimed range of values. However, as convincingly argued by the Appellant I (opponent), the values given in Figure 3-3 do not accurately reflect the actual dimensions of the pellets after manufacture.

3.2 Table 3-4 of D8 lists various parameters of the fuel pellets. Appellant I (opponent) submitted during the oral proceedings that the values of pellet length and pellet diameter given in Table 3-4 represented the mean measured values of the pellets used in the batches

identified by the Fuel Rodlet Identification numbers. Appellant I (opponent) explained that whilst the diagrams in Figure 3-3 depicted the nominal (target) values of the pellet dimensions, the actual values obtained after manufacture showed some variation from these nominal values due to manufacturing tolerances. The dimensions of the pellets used in the fuel rodlets of Table 3-4 reflected these manufactured values.

From column 10 of Table 3-4 it could be seen that the mean length of the PG5 pellets in the fuel rodlets 2/3, 2/6-2/9 and 7/3-7/5 was 11.05 mm. Appellant I (opponent) argued convincingly that the column "Accuracy" showed that the actual measured lengths of the individual pellets were up to 0.9 mm longer than this average. Appellant I (opponent) noted that the acceptable manufacturing tolerance of the pellet diameter was much tighter than the tolerance of the pellet length, this being reflected by the "Accuracy" of 0.008 in Table 3-4. This difference in the tolerance requirements was due to the fact that the gap between the pellet and the cladding had to be very precisely controlled in order to minimise pellet clad interactions. In contrast thereto, the length of each of the individual pellets was not so critical since a large number of pellets were stacked along the length of the fuel rod and inconsistencies in the individual pellet length could be cancelled out by the remaining pellets.

Appellant I (opponent) noted that, on the basis of the values in Table 3-4, it could therefore be derived that manufactured PG5 pellets were actually measured as having lengths of up to 11.95 mm which deviated considerably from the nominal value of 11.1 mm given in Fig. 3-3. In a similar manner, the pellets used in the

PG5 fuel rodlets were measured as having an average diameter of 9.12 mm up to a maximum measured diameter of 9.128 mm.

Appellant I (opponent) concluded that, using the upper values of the measured pellet length (i.e. $L = 11.95$ mm), it could be seen that the ratio L/D (using the mean value of $D = 9.12$ mm) was 1.31. Even using the largest measured value of D (i.e. 9.128 mm, which would be the least favourable measurement for Appellant I's (opponent's) case) would lead to an L/D value of 1.309. In other words, when the actual measured dimensions of the PG5 pellets were taken into consideration, the L/D ratio would lie within the claimed range of 1.3 to 1.5. All features of claim 1 were therefore known from D8.

- 3.3 Since Appellants II (proprietors) did not attend the oral proceedings, no arguments were submitted against this finding.
- 3.4 The Board agrees with the analysis of Appellant I (opponent). In particular, it is clear from the values in Table 3-4 of D8 that the actual pellets used in the fuel rodlets do not all exhibit the precise pellet measurements depicted in Figure 3-3 due to unavoidable manufacturing tolerances. This is especially apparent when considering the lengths of the PG1 pellets reproduced in Table 3-4. As can be seen from columns 1 to 7, 13 and 14, the mean pellet lengths of the PG1 pellets in each of these batches vary between 10.94 mm (column 13) and 11.5 mm (column 2) even although the nominal, or target, value depicted in Figure 3-3 is 11.0 mm. The manufactured PG1 pellets therefore clearly do not all have length values corresponding exactly to the nominal value given in Fig. 3-3. This finding simply reflects manufacturing reality: the dimensions

of the finished product will deviate from the nominal, or target, values and will be spread over a certain range around the nominal value. From the final column of Table 3-4, it can be seen that the lengths of the fabricated pellets are measured to be up to 0.9 mm longer than the recorded mean values.

The interpretation of the values in Table 3-4 is corroborated by the teaching of D10. Table 1 of D10 shows the "*Fabrication Data*" for two test rods UK1 and UK2 from which it is clear that the lengths of the pellets used in these rods range from 8.560 mm to 11.099 mm. Appellant I (opponent) cited this data to show that it is indeed usual that the pellet lengths used in PWR fuel rods (the pellets of D8 are also destined for use in PWR fuel rods - see D8, "*Summary*", paragraph 1) exhibit a spread of values varying, in the case of D10, by up to 2.54 mm.

In conclusion, the Board considers that, taking account of the information which the skilled person would gather from Figure 3-3 (PG5) in combination with Table 3-4 of D8, all features of claim 1 are known from D8. The nuclear fuel pellet of claim 1 is therefore not novel (Articles 52(1) and 54(1), (2) EPC 1973).

4. Auxiliary request of Appellants II (proprietors)
 - 4.1 In addition to the dimensional specifications set out in claim 1 of the main request, claim 1 of the auxiliary request specifies that the depth h_0 of the dish is 0.22 mm or less.
 - 4.2 The PG5 pellet of D8, which is considered to represent the closest prior art, has a dish depth of 0.58 mm (see

Figure 3-3). The subject matter of claim 1 is therefore new.

4.3 Paragraph [0027] of the published patent indicates that the compactability of the pellet is improved as the depth of the dish becomes smaller. It is explained that this is due to the fact that unevenness in the entire configuration of the pellet is reduced and the pressure used during shaping of the pellet therefore becomes more uniform over the entire pellet.

4.4 Appellant I (opponent) submitted that the problem of improving compactability was not solved by the features of claim 1. In particular, it was argued that compactability depended not only on the depth of the dish but also on the radius of curvature (or the form) of the dish. A reduction of the dish depth with no change in the radius of curvature of the dish would not lead to an improvement of the compactability. In order to solve this problem, other details of the dish should be included in the claim. For this reason, in accordance with case law, the problem had to be reformulated to meet a less ambitious aim. Appellant I (opponent) suggested that, starting from the PG5 pellet of D8, the objective technical problem was simply to provide an alternative pellet geometry.

4.5 In their written submissions, Appellants II (proprietors) considered that, starting from PG5 of D8, the problem to be solved was to improve the manufacturing process without compromising pellet performance. Since claim 1 is directed to a nuclear fuel pellet and not to a manufacturing process, the Board has understood this statement of the problem to mean the provision of an alternative pellet geometry which enables the manufacturing process to be improved

but which does not compromise the pellet performance. Appellants II (proprietors) also submitted that an added advantage of the lower h_0 value was the improved workability of the pellet and a reduction of the effect of swelling due to radiation absorption (see letter of 26 April 2010, page 4, 4th paragraph).

4.6 The Board agrees with Appellant I (opponent) that an improved workability - at least in terms of the pellet compactability - is not achieved by just reducing the dish depth. Furthermore, the Board fails to see how the manufacturing process can be improved by simply reducing the dish depth. Any improvement in the manufacturing process in this respect seems to be closely coupled to the pellet workability. If the pellet workability is not credibly improved by reducing the dish depth, then the Board fails to see how the manufacturing process can be improved.

4.7 Moreover, the Board fails to see how the effect of swelling in an axial direction can be reduced by a pellet having a **reduced** dish depth. The axial elongation of the fuel pellets is compensated for by providing a free volume between the pellets due to the dish shape. Depending on the extent of axial elongation, reducing the dish depth may mean that the elongation cannot be accommodated by the dish. Specifically, in the extreme case of a dish depth approaching zero, which is covered by the wording of the claim, this free volume will be almost entirely eliminated and the pellet swelling in the axial direction will not be accommodated.

The Board therefore understands the "*reduction of the effect of swelling due to radiation absorption*" referred to by Appellants II (proprietors) to relate to

the effect of swelling on the pellet clad interaction (PCI).

- 4.8 In accordance with case law, the objective technical problem has to be based on exactly those features distinguishing the claim from the prior art and has to be as specific as possible without containing elements or pointers to the solution. The feature distinguishing claim 1 from the prior art of D8 concerns the reduction of the depth of the dish. Therefore the problem has to be based on this feature.

The pellet dishing is provided for two main reasons. Firstly, as discussed above, the axial elongation of the pellet can be accommodated by the inter-pellet cavities. Secondly, the plenum volume within the rod, which is provided to collect fission product gases given off by the fuel during operation of the reactor, can be supplemented by the inter-pellet cavities provided by the dishing.

Bearing this in mind, the Board considers that the objective technical problem is to provide an alternative pellet geometry which does not compromise the ability to accommodate axial elongation and released fission gases, yet minimises the pellet clad interactions.

- 4.9 Appellant I (opponent) submitted that the depth of the dish may be seen simply as a design option which may be adapted to the anticipated operating conditions. If it were to be expected that fewer fission gases would be released, then the plenum volume could be smaller and the dish depth could be made correspondingly shallower. Similarly, if less swelling of the pellets were to be expected, then less inter-pellet volume would be

required to accommodate the axial elongation and the dish depth could be correspondingly reduced. The skilled person would be free to choose dimensions tailored to the anticipated operating conditions.

Appellant I (opponent) submitted that it may be seen from Table I of D10 that it was known to have dish depths of between 0.191 mm and 0.292 mm. The dish depth in D11 (see Table 1) was given as 0.18 mm to 0.25 mm. Section 3.4.1 of D5 indicated that although a dishing is often provided to reduce the axial thermal elongation of the pellet stack in the fuel rod and to act as a collection volume for released fission gases, it was by no means absolutely necessary and the pellet end faces may in fact be planar. So it was known from the prior art that the dish can take on a variety of depths.

Knowing from these disclosures that the dish depth could be considerably lower than the 0.58 mm of the PG5 pellet of D8 (see Figure 3-3), the skilled person, in experimenting with various dish depths in order to find which values are best suited for which operating conditions, would arrive at values of the dish depth falling within the claimed range of 0.22 mm or less.

- 4.10 In their written submissions, Appellants II (proprietors) argued that, even if the skilled person were to consider modifying the dish depth of PG5 of D8, there was no incentive to select the lower end of the ranges disclosed in D10 and D11 in preference to the higher end of these ranges. Appellants II (proprietors) argued that, in fact, D11 provided a disincentive to modify the values of the dish depth of the pellet PG5 of D8 given the complex interrelationship between the parameters of a pellet.

4.11 As will be explained below, the Board agrees with Appellant I (opponent) that the skilled person would experiment with various pellet geometries in order to tailor the pellets to specific operating conditions. Contrary to the opinion of Appellants II (proprietors), the Board is of the view that the prior art does in fact provide the skilled person with an incentive to provide shallower dishes and that the lower values of the ranges set out in D10 and D11 would be considered by the skilled person.

4.12 It is clear from both D8 and D1 that it is normal practice for the skilled person to investigate alternative pellet geometries with the aim of optimising various aspects of the fuel rod performance. Both of these documents report on tests carried out on pellets having a variety of dimensions in order to investigate the effect of dimensional changes on the operating behaviour of the fuel.

D8, for example, examines the effect of various pellet designs on PCI behaviour with the apparent aim of reducing cladding strains (see "*Test Rodlet Description*", page 3-1, paragraph 5). It will be clear to the skilled person that the pellet clad interactions will be influenced by a number of factors, for example the L/D ratio, the geometry of the chamfered edges of the pellets and the design of the dish. The Board considers that the skilled person would experiment with all of these factors in an attempt to minimise strains experienced in the cladding.

In view of the fact that pellet clad interactions should be minimised, the Board considers that the specific teaching in D1 that dished pellets produce

"bamboo ridges" twice as large as flat ended pellets (see page 542, paragraph 3) provides the skilled person with an incentive to find a dish design which can balance the desired effects of the dish (additional plenum volume and ability to absorb axial elongation) with the inevitable disadvantages (pellet clad interactions). In the Board's view, where the modification of a particular parameter gives rise to both positive and negative effects, it would be a part of the normal activities of the skilled person to optimise the value of the parameter in such a way as to reach an acceptable compromise between the conflicting effects.

It follows from the foregoing that the skilled person, starting from the PG5 geometry of D8, would experiment with other known values of the dish depth specifically with a view to reducing pellet clad interactions.

The Board cannot agree with Appellants II (proprietors) that, in the absence of any direct motivation, the skilled person would necessarily exclude the lower end of the depth range of D10 or D11. The Board does not contest that there is no explicit pointer provided in the available prior art which directs the skilled person to values of h_0 lying within the claimed range. However, the Board considers that the motivation in the present case stems from the knowledge - derivable from D1 - that the pellet dishing is likely to have a detrimental effect on the pellet clad interactions. It is this information which points the skilled person to investigate the effect that the dish depth has on the pellet clad interaction and to optimise the effect of the inter-pellet volume while reducing the pellet clad interactions. In this regard, the skilled person is in a "try and see" situation and the investigation which

he performs is nothing more than routine experimentation (see Case Law of the Boards of Appeal of the European Patent Office, 7th Edition 2013, I.D.7.2, first paragraph). Specifically, the skilled person, wishing to find a balance between the positive and negative effects of the dishing, would investigate, without bias, throughout (and possibly beyond) the ranges of dish depths known from the prior art. In view of the fact that D5 teaches that even flat-ended pellets are a viable option under certain circumstances, the skilled person would not exclude *a priori* any value of dish depth presented as viable in the prior art, in particular in D5, D10 and D11. In doing so, the skilled person would arrive at a pellet having the dimensions set out in claim 1. No surprising effect can be identified in the result achieved. The Board therefore concurs with Appellant I (opponent) that the skilled person would arrive at a pellet having the dimensions set out in claim 1 without the use of an inventive step.

4.13 This conclusion is not impaired by the argument of Appellants II (proprietors) that D11 in fact provided a disincentive to vary the dish depth. The Board notes that D11 deals with the effects of pellet parameters with regard to fuel temperature. No statement is made, however, regarding the effect of the dish depth on PCI behaviour or the ability to absorb axial extension of the pellet stack.

4.14 For these reasons, claim 1 is considered to lack an inventive step with regard to the teachings of D8 and either D10 or D11 in combination with a general understanding of the problems associated with nuclear fuel rods (Articles 52(1) EPC and 56 EPC 1973).

Order

For these reasons it is decided that:

The decision under appeal is set aside.

The patent is revoked.

The Registrar:

The Chairman:



R. Schumacher

G. Assi

Decision electronically authenticated