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**Datasheet for the decision
of 24 March 2021**

Case Number: T 2241/15 - 3.5.02

Application Number: 02803685.3

Publication Number: 1446881

IPC: H03K17/96

Language of the proceedings: EN

Title of invention:

Molded/Integrated Touch Switch/Control Panel Assembly and
Method for Making Same

Patent Proprietor:

TouchSensor Technologies, L.L.C.

Opponents:

Leonhard Kurz Stiftung & Co. KG
Diehl AKO Stiftung & Co. KG

Relevant legal provisions:

EPC Art. 100(c), 123(2)

Keyword:

Grounds for opposition - added subject-matter (yes)
Auxiliary requests - added subject-matter (yes)
Substantial procedural violation (no)

Decisions cited:

R 0006/14, R 0015/09, R 0007/11



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Case Number: T 2241/15 - 3.5.02

D E C I S I O N
of Technical Board of Appeal 3.5.02
of 24 March 2021

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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 25 September
2015 revoking European patent No. 1446881
pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman R. Lord
Members: F. Giesen
 A. Bacchin

Summary of Facts and Submissions

- I. This appeal by the patent proprietor (appellant) lies from the decision of the Opposition Division posted on 25 September 2015 revoking European patent No. 1 446 881 pursuant to Article 101(3)(b) EPC. The grounds for the impugned decision were that the ground for opposition pursuant to Article 100(c) EPC prejudiced the maintenance of the opposed patent, and that none of the auxiliary requests met the requirements of Article 123(2) EPC.
- II. The parties' requests relevant for the present decision were as follows:

The appellant (proprietor) requested in writing that the impugned decision be set aside and that the case be remitted to the Opposition Division and the appeal fee be reimbursed because a substantial procedural violation had occurred. If this request was not allowed, the appellant requested that the patent be maintained in unamended form (in the following "main request") or, as an auxiliary measure, on the basis of the claims of one of the first to fifth auxiliary requests filed with the statement of grounds of appeal or on the basis of the sixth or seventh auxiliary request, filed on 11 January 2017. Oral proceedings were also requested.

Respondent 1 (opponent 1) requested in writing that the appellant's request for remittal and reimbursement of the appeal fee be rejected and that the appeal be dismissed. Oral proceedings were requested as an auxiliary measure.

Respondent 2 (opponent 2) requested in writing that the appeal be dismissed. Oral proceedings were requested as an auxiliary measure.

- III. In a notification pursuant to Article 15(1) RPBA, the Board informed the parties of its preliminary opinion that the independent claims according to all requests contained added subject-matter and summoned the parties for oral proceedings.
- IV. With letter dated 15 January 2021, the appellant informed the Board that they would not be represented at the oral proceedings and by fax dated 19 January 2021 they withdrew the request for oral proceedings. On 20 January 2021 the Board cancelled the oral proceedings.
- V. Claim 1 of the **main request**, i.e. as granted, reads as follows:

*"A method of making a control panel, comprising the steps of:
providing a touch switch (40,41) comprising at least one sensing electrode (60) disposed on a touch switch carrier (50); and
integrating said touch switch carrier (50) with a moldable touch surface substrate (51) using a thermoforming or injection molding process to substantially conform a surface of said moldable touch surface substrate (51) to said touch switch (40, 41) such that the interface between said touch surface substrate and said touch switch is substantially gap-free."*

Claim 1 of the **first auxiliary request** differs from claim 1 of the main request in that the words "*such*

that the interface [...] is substantially gap-free"
were replaced by the words

"such that the interface between said touch surface substrate and said touch switch is a substantially gap-free interface in which any air gap between the carrier and substrate is insignificant in that it does not adversely affect operation of the touch switch."

Claim 1 of the **second auxiliary request** differs from claim 1 of the main request in that the words "*substantially gap-free*" were replaced by "*gap-free*".

Claim 1 of the **third auxiliary request** differs from claim 1 of the main request in that the words "*such that the interface [...] is substantially gap-free*" were replaced by

"such that the interface between said touch surface substrate and said touch switch is a substantially gap-free interface due to elimination of bubbles."

Claim 1 of the **fourth auxiliary request** reads

*"A method of making a control panel, comprising the steps of:
providing a touch switch (40, 41) comprising at least one sensing electrode (60) disposed on a touch switch carrier (50); and integrating said touch switch carrier (50) with a moldable touch surface substrate (51) to include a touch surface and, using a thermoforming or injection molding process to substantially conform a surface of said moldable touch surface substrate (51) to said touch switch (40, 41) such that the interface between*

said touch surface substrate and said touch switch is a substantially gap-free interface in which any air gap between the carrier and substrate is insignificant in that it does not adversely affect operation of the touch switch, and such that said control panel exhibits texture, depressions or ridges proximate said touch surface that provide tactile feedback to a user."

Here and in the following, underlining and strike-through is added by the Board in order to highlight features added to or deleted from claim 1 of the main request.

Claim 1 of the **fifth auxiliary request** reads as follows

*"A method of making a control panel, comprising the steps of:
providing a touch switch (40, 41) comprising at least one sensing electrode (60) disposed on a touch switch carrier (50); and integrating said touch switch carrier (50) with a moldable touch surface substrate (51) using a thermoforming ~~or injection molding~~ process to substantially conform a surface of said moldable touch surface substrate (51) to said touch switch (40, 41) such that the interface between said touch surface substrate and said touch switch is a substantially gap-free interface in which any air gap between the carrier and substrate is insignificant in that it does not adversely affect operation of the touch switch."*

Claim 1 of the **sixth auxiliary request** reads as follows:

*"A method of making a control panel, comprising the steps of:
providing a touch switch (40, 41) comprising at least one sensing electrode (60), at least one integrated control circuit (62), and at least one trace (63), all of which are disposed on a touch switch carrier (50); disposing an adhesive between said touch switch carrier and a moldable touch surface substrate; and integrating said touch switch carrier (50) with ~~a~~the moldable touch surface substrate (51) using a thermoforming or injection molding process to substantially conform a surface of said moldable touch surface substrate (51) to said touch switch (40, 41) such that the interface between said touch surface substrate and said touch switch is a substantially gap-free interface due to the elimination of bubbles in the adhesive."*

Claim 1 of the **seventh auxiliary request** differed from claim 1 of the sixth auxiliary request in that the words "or injection molding" were deleted.

The various requests also contained corresponding independent apparatus claims. In view of the tenor of the decision their wording is not reproduced here.

VI. The arguments of the appellant which are relevant for the present decision were essentially as follows:

The Opposition Division had committed a substantial procedural violation. The representative for then opponent 1, Mr Zinsinger, spoke at considerable length

and with a rapid diction. The interpreters had not been able to keep up. On two further occasions, the appellant's representative asked the Chairman of the Opposition Division for a brief summary of the opponents' arguments. From the chairman's summary it appeared that the opponents' arguments did not go beyond what had already been put forward in writing. Due to this course of the proceedings, the appellant had not been able to comment on the distinction between bubbles and gaps concerning the main request, and the reasoning in point 2.2a of the impugned decision concerning the relationship between insignificant air-gaps and substantially gap-free interfaces. The decision was therefore based on grounds, on which the appellant had not been able to comment.

The opposed patent did not contain subject-matter going beyond the content of the application documents as filed. The application as filed when taken into account in its entirety did disclose an interface between said touch surface substrate and said touch switch which is substantially gap-free. Page 2, lines 3 to 20 as filed disclosed that stud and bracket attachments sometimes yielded inconsistent spacing. The skilled person understood that the reasons for this were that air gaps remained due to inconsistencies of contours, that adhesive attachment could yield inconsistent spacing if the adhesive were unevenly applied and also that bubbles in the adhesive and other inconsistencies in the composition of the adhesive could adversely affect the switch performance. A skilled person would recognise that each of these problems arose from air gaps. Bubbles were merely a specific form of an air gap. Furthermore, the expressions "integrate" and "conform" implied a substantially gap-free interface. The introduction of the patent cited above identified

air gaps as the problem of prior art touch switches. Since the touch switches according to the invention, which were "conform [to]" and "integrated", overcame the prior art drawbacks, it followed that their interfaces were substantially gap-free. The passage at page 9, lines 13 to 15 disclosed that a substantially gap-free interface might exist between the carrier and the substrate or where the materials are otherwise not optimally compatible, which was not limited to any particular forming technique. Numerous passages disclosed integrated touch switches and/or conforming layers. Since this implied a substantially gap-free interface, this feature was not disclosed only in combination with any particular forming technique. It was important to consider the application as filed as a whole. A skilled person in the field of the patent would consider air gaps and bubbles as equivalent because they caused the same adverse effects on the operation of the touch switch. Even if there was a difference, a skilled person would understand that "elimination" of bubbles inevitably also led to a substantially gap-free interface. Concerning the deletion of the step of "placing said carrier in abutment with a thermoformable substrate" from originally filed claim 8, a disclosure of "molded substrates" could be found on page 2, line 32. It was stated on page 18, lines 28 and 29 that "[t]he various aspects of the present invention described above can be combined in any way according to the requirements of the application for which the touch switch is intended", showing that aspects of embodiments could be combined without adding subject-matter. The schematic illustrations were suitable for disclosing features and could therefore serve as a basis for the dependent claims.

Claim 1 of auxiliary request 1 did not contain added subject-matter. The interpretation of claim 1 according to which gaps not filled with air could be of any size, would be contrary to the primary requirement of the feature according to which the interface is a substantially gap-free interface. The argument put forward in the context of the main request applied in equal measure to auxiliary requests 2 to 4. Auxiliary request 6 and 7 were in particular based on page 8, lines 4 to 6, as far as a gap-free interface formed by the elimination of bubbles was concerned.

VII. The arguments of respondent 1 in so far as they are relevant for the present decision were essentially as follows:

No procedural violation had occurred. The interpreters working for the EPO were very experienced. No evidence was offered for the allegation of inadequate translation. The allegedly new arguments had been put forward in writing and had thus been known to the appellant. According to the recollection of respondent 1 the arguments were extensively discussed during the oral proceedings by all parties including the representative of the proprietor, which was confirmed by the minutes in point 4.3. As an auxiliary measure, the interpreters should be heard as witnesses.

Concerning the ground for opposition pursuant to Article 100(c) EPC, original claim 7, which formed the basis for granted claim 1, had been substantially amended. The original application documents did not disclose a substantially gap-free interface. The passage on page 2, lines 3 to 14 concerned the prior art and was therefore not a disclosure of subject-matter according to the invention. Furthermore, the

passage concerned bubbles in adhesive layers between the touch switch carrier and the touch switch substrate. Gaps and bubbles were distinct phenomena. Gaps were not a particular form of bubbles or *vice versa*. A bubble was a spherical gas-filled void within the adhesive layer and thus presupposed an adhesive layer. A gap was a region at the interface where the two components did not touch. The appellant was furthermore incorrect in concluding that a skilled person recognised that bubbles and gaps caused the same adverse effects. As an example, the variation of the dielectric constant due to large gaps should not cause adverse effects for the touch switch. The further passages adduced by the appellant all contained a number of further features to which the claims were not limited. In particular bubbles were only disclosed in connection with an adhesive layer, but claim 1 was not restricted to having an adhesive layer. The dependent claims also contained added subject-matter. They concerned intermediate generalisations based solely on the schematic figures. These reasons applied also to claim 1 of auxiliary request 1. The added claim definition, that a substantially gap-free interface was an interface, in which any air gaps between the carrier and the substrate were insignificant, added further undisclosed subject-matter by allowing gaps not filled with air but instead with other fluids to be present, yet the interface could still be considered to be substantially gap-free. The added definition was furthermore unclear.

Auxiliary requests 2 to 4 should not be admitted. None of the auxiliary requests 2 to 5 adequately addressed the added subject-matter of the main request.

VIII. The arguments of respondent 2 which are relevant for the present discussion were essentially as follows:

The appeal was inadmissible. The appellant's arguments were confined to the issue of added subject-matter. This was, however, not sufficient to demonstrate why the request to maintain the patent in unamended form was justified. Even if the appellant's arguments concerning added subject-matter were correct, the various other objections raised by the then opponents would have had to be addressed as well. Since the appellant did not address those objections, the statement of grounds does not support the appellant's main request to maintain the patent in unamended form.

No substantial procedural violation had occurred. The interpreters had been of the usual high quality. The chairman had given the parties repeated opportunity to comment on the Opposition Division's and other representatives' submissions. The appellant's representative had not given the impression that he had not been able to follow due to the interpretation. The allegedly surprising new arguments had been discussed at the oral proceedings.

Claim 1 as granted contained subject-matter that went beyond the application documents as originally filed. While the appellant's view, according to which the application as a whole needed to be taken into account, was correct, this did not mean that passages from all over the application could be combined at will. A "substantially gap-free interface" was not explicitly disclosed in the original application documents. The only passage that mentioned a gap was that on page 9, line 15, according to which after thermoforming "an insignificant air gap might exist between the carrier

and substrate". A bubble was not a specific form of a gap. Rather, a bubble was a gas-filled volume with a closed surface within another fluid or solid medium. A gap, on the other hand, was a free volume with partially open interfaces. The originally filed passages adduced by the appellant mentioning avoiding bubbles could therefore not serve as a basis for a substantially gap-free interface for this reason alone.

Auxiliary requests 6 and 7 should not be admitted into the appeal proceedings because they were not filed in the first-instance proceedings. There was no original disclosure that elimination of bubbles led to gap-free interfaces.

Reasons for the Decision

1. *Admissibility of the Appeal*
 - 1.1 The appeal is admissible.
 - 1.2 The appeal was filed in due time and the respective fee was paid. It is undisputed that the appeal complies with the formal requirements of Article 108 and Rule 109 EPC.
 - 1.3 The appeal also meets the substantive requirements. Respondent 2 argued that the appeal was inadmissible because the appellant failed to substantiate sufficiently why their request concerning the maintenance of the patent in unamended form was justified. Concerning the main request, the

proprietor's statement of grounds of appeal was confined to arguing why it did not contain subject-matter going beyond the application as filed. However, there were no arguments against the various further objections against the patent as granted that had been raised during the opposition proceedings.

- 1.4 According to Rule 99(2) EPC, the appellant has to indicate in the statement of grounds of appeal the reasons for setting aside the decision impugned. The patent was revoked solely on the basis that Article 100(c) EPC prejudiced its maintenance. There is no obligation to deal with any other objection made by the opponents if the decision does not rely on them.

2. *Decision in Writing*

- 2.1 This decision is handed down in writing.
- 2.2 The parties' right to be heard pursuant to Article 113(2) EPC is respected. The Board informed the parties of the grounds on which this decision is based with the notification pursuant to Article 15(1) RPBA. The parties thus had a chance to comment on them.
- 2.3 The parties right to oral proceedings pursuant to Article 116 EPC is also respected. The appellant withdrew the request for oral proceedings with the fax dated 19 January 2021. Respondents 1 and 2 had requested oral proceedings only as an auxiliary measure if the Board did not accede to their main requests to dismiss the appeal, which is not the case here.

3. *Alleged Substantial Procedural Violation*

3.1 No procedural violation has occurred.

3.2 There is no evidence supporting the appellant's version of events according to which they did not have a chance to comment on the reasons for the impugned decision. The Board observes that the minutes are the only means of ascertaining what had actually occurred during oral proceedings (cf. R 0006/14, reasons 7, R 0015/09, reasons 4.1.1 and R 0007/11, reasons 2.4). Thus, they should be checked carefully and immediately on receipt and correction of any perceived deficiency should be requested promptly. In the present case, the minutes of the oral proceedings do not reflect any submission by the appellant that the interpretation did not allow them to fully comment on what was being said nor any request that the chairman summarise the submissions of opponent 1. If this incorrectly reflects the course of events at the oral proceedings, it would have been incumbent on the appellant to request that the minutes be corrected appropriately. In the appellant's own submission "it was clear that the translator was having difficulty in keeping up". If the appellant had the impression that there were potential problems with the interpretation, they were in a position - and indeed under the obligation - to react appropriately during the oral proceedings. Since they were aware of potential problems, it was also their responsibility to make sure that they fully understood the arguments presented at the oral proceedings. This responsibility cannot be passed on to the chairman by relying on his summary of what was said and then conclude from said summary that the arguments did not go beyond what had been put forward in the written procedure. From the minutes of the oral proceedings it actually appears

that the appellant did comment on the objection under Article 123(2) EPC as to whether "bubbles" and "gaps" are the same (cf. point 4.3 of the minutes), as well as on the meaning of "substantially gap-free" (cf. points 4.5 to 4.7). For the above reasons, it is immaterial to consider the allegedly surprising arguments in more detail.

In view of this finding, the interpreters do not need to be heard as requested by respondent 1.

4. *Article 100(c) EPC - Main Request*

4.1 The ground for opposition pursuant to

Article 100(c) EPC prejudices the maintenance of the patent.

4.2 In the following, references refer to the

WO-publication of the application underlying the patent in suit.

4.3 The appellant summarises what they consider to be the

general teaching of the application as filed. This general teaching cannot serve as an original disclosure of the specific combination of features of claim 1 of the main request.

4.4 The appellant quotes three statements from the passage

on page 2, lines 3 to 20 in which alleged drawbacks of the prior art are mentioned.

The first two statements refer to "inconsistent spacing". Inconsistent spacing is disclosed to be a problem of stud-and-bracket attachments or unevenly applied adhesive. Even accepting that consistent

spacing may be desirable, this passage merely suggests that the spacing should not vary along the interface, but not that there should be substantially no gap. In addition to this, an identification of a drawback in the prior art is not a direct and unambiguous disclosure of subject-matter of the invention not having that drawback, see for example, page 9, lines 13 to 15, which clearly states that even thermoformed switches according to the invention may still have air gaps, albeit insignificant ones. This introductory passage simply does not contain any information about the interface between the touch switch carrier and substrate according to the invention.

The third statement concerns bubbles in an adhesive layer between a touch switch carrier and substrate, but claim 1 according to the main request is not limited to the described arrangement. Furthermore, the Board is convinced by the respondents' view that the terms "bubbles" and "gap" describe different phenomena, bubbles being voids with an aspect ratio close to one confined within the adhesive layer, whereas gaps would be considered to be located at the interface of the adhesive and an adjacent layer and to have an aspect ratio substantially larger than one. The appellant has also not provided evidence for the allegation that both phenomena caused the same adverse effects, which was contested by respondent 1. For these reasons, the above passage simply does not allow any conclusion to be drawn concerning gaps at interfaces of the carrier and substrate with or without an adhesive layer.

4.5 In section 4.1.5 of their grounds of appeal the appellant argues that an interface with substantially no gaps followed from the terms "conform to" and "integrate". Neither expression implies that there was

(substantially) no gap between the touch switch carrier and the substrate for the following reasons:

The passage at page 9, lines 13 to 15, cited by the appellant expressly states that even when thermoforming is used, and hence the carrier and substrate conform to each other, an insignificant gap might nevertheless exist between carrier and substrate. The Board has doubts that a vague statement like an "insignificant air gap", without any explanations in what way such a gap is insignificant, can be considered a direct and unambiguous disclosure of another vague statement like "substantially gap-free interface". Furthermore, the feature "the interface is substantially gap-free" is mainly a statement about the number or the area coverage and width of the gaps at the interface, whereas the expression "the air gap is insignificant" is merely a statement about its significance and as such is silent on number, area coverage or width.

The term "integrate" as used in the application appears mainly to refer to joining the touch switch carrier and the substrate, see page 2, lines 3 to 4, where it is used for adhesively attached prior art sensors. It also refers to integrating the switch into door panels of a vehicle, see page 2, line 34 to page 3, line 2 or other structures, see page 6, lines 27 to 30. No conclusion can thus be drawn from these passages, especially not in view of the application as a whole, regarding the absence or presence of gaps.

- 4.6 The appellant further considers page 9, lines 11 to 15 to be a basis for a "substantially gap-free interface". Apart from the fact that the Board has expressed doubts that the explicit presence of an insignificant air gap is a disclosure of a substantially gap-free interface,

that passage concerns carriers and substrates which do not bond well or are otherwise incompatible and for which reason overlap (81) is created as shown in Figures 6B and 7B, or, in the alternative, anchors or rivets are introduced, see Figures 8A to 9B. Claim 1 according to the main request is not limited to any such arrangement and is therefore an intermediate generalisation.

The remaining passages adduced by the appellant are either silent on gaps (page 6, line 31 to page 7, line 3; page 8, lines 22 to 26), do not imply gap-free interfaces (page 14, lines 5 to 7: "conforms") or generally refer to contexts containing a great number of further features to which claim 1 is not limited (such as page 10, which concerns anchors or page 8, lines 2 to 7 which concerns adhesive layers). They can therefore not serve as a basis for the claimed feature combination.

- 4.7 The appellant further relied on page 8, lines 2 to 7. This passage clearly refers to situations where an adhesive layer is used, but claim 1 is not limited to the presence of an adhesive layer. There is no disclosure that gaps are to be regarded as an "inconsistency" due to the presence of an adhesive layer, also and especially when taking into account the application as a whole. The originally disclosed inconsistencies in, or due to the presence of, an adhesive layer are inconsistent spacing, bubbles in the adhesive or inconsistencies in the composition of the adhesive, see page 2, lines 10 to 14. None of these implies the presence or absence of gaps at interfaces with or without an adhesive layer.

- 4.8 While the Board agrees with the appellant's view that the application as a whole has to be taken into account when examining amendments, the appellant's approach is, in the Board's view, characterised by picking passages from across the entire application documents which were originally disclosed in clear and specific contexts (such as problems with adhesive layers) and then attempting to extract an alleged "general teaching" of the application by strongly abstracting from the specific content of the mosaicked passages (such as that the skilled person would recognise from passages describing bubbles in an adhesive, that air gaps are the root cause of all problems of touch switches). In both steps, subject-matter is added. Taking into account the application as a whole means that passages that belong together in the sense of describing different aspects of the same content need to be considered together. This remark also applies to the appellant's argument that a blanket statement to the effect that all aspects of the disclosure were combinable, such as that on page 18, line 28. Such a blanket statement cannot be considered as a direct and unambiguous disclosure of each of the specific combinations it tries to cover.
- 4.9 All drawings are schematic in nature and as such also cannot serve as a direct and unambiguous disclosure of a substantially gap-free interface.
- 4.10 Therefore, taking into account the application as a whole, the opposed patent contains subject-matter extending beyond the content of the application as filed. The ground for opposition pursuant to Article 100(c) EPC therefore prejudices the maintenance of the opposed patent.

4.11 The above remarks concerning claim 1 also apply to independent device claim 28 of the main request.

5. *Admissibility of auxiliary requests 1 to 7*

The Board is of the opinion that it is procedurally the most efficient course to admit all auxiliary requests and deal with them in substance. Auxiliary requests 1 and 3 formed the basis of the impugned decision. The Board has therefore no discretion to disregard these requests under Article 12(4) RPBA 2007. In addition, auxiliary requests 1 to 5 were filed with the statement of grounds of appeal. Divergence or unsuitability to overcome certain objections, as argued by respondent 1, are not the appropriate criteria to decide on their non-admittance pursuant to Article 12(4) RPBA 2007.

6. *Added subject-matter - Auxiliary Requests 1 to 7*

6.1 The amended claims 1 according to each of the auxiliary requests 1 to 7 do not meet the requirements of Article 123(2) EPC.

6.2 The various versions of claim 1 according to auxiliary requests 1 to 7 all require the presence of gap-free interfaces. The reasons that led the Board to its conclusion concerning the main request apply also to the auxiliary requests. In particular, the reasons in point 4.5 ("insignificant air gap") apply to auxiliary requests 1, 4 and 5. All reasons of the discussion of the amendments of the main request apply to claim 1 of auxiliary request 2, in which only the word "substantially" was deleted. The reasons in point 4.4

("bubbles are different from gaps") apply to auxiliary requests 3, 6 and 7.

6.3 The appellant's first to seventh auxiliary requests are therefore not allowable.

7. *Reimbursement of the Appeal Fee*

7.1 The proprietor's request for reimbursement of the appeal fee is not allowable.

7.2 Pursuant to Rule 103(1)(a) EPC, the appeal fee is reimbursed on the two conditions that the appeal is allowable and that reimbursement is equitable by virtue of a substantial procedural violation. Neither condition is satisfied in the present case.

8. *Conclusions*

There being no allowable claim request on file, the Board accedes to the respondents' main requests, i.e. dismissal of the appeal.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



U. Bultmann

R. Lord

Decision electronically authenticated