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**Datasheet for the decision
of 5 September 2017**

Case Number: T 2550/11 - 3.4.01

Application Number: 07115733.3

Publication Number: 2034429

IPC: G06K19/077

Language of the proceedings: EN

Title of invention:

Manufacturing method for a card and card obtained by said method

Applicant:

ASSA ABLOY AB

Headword:

Relevant legal provisions:

EPC 1973 Art. 56

Keyword:

Inventive step - (no)

Decisions cited:

Catchword:



Beschwerdekammern
Boards of Appeal
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Case Number: T 2550/11 - 3.4.01

D E C I S I O N
of Technical Board of Appeal 3.4.01
of 5 September 2017

Appellant: ASSA ABLOY AB
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted on 13 July 2011 refusing European patent application No. 07115733.3 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman G. Assi
Members: F. Neumann
R. Winkelhofer

Summary of Facts and Submissions

I. The Examining Division refused European patent application No. 07 115 733 for lack of inventive step in view of a combination of the teachings of the following documents:

D1: EP-A-0 706 152;

D3: DE-A-195 00 925.

II. The Appellant (Applicant) filed an appeal against the decision.

With the statement setting out the grounds of appeal, the Appellant requested that a patent be granted "*on the basis of the pending documents of the application*", i.e. the application documents as originally filed.

III. A summons to oral proceedings was issued.

IV. In a communication pursuant to Art. 15(1) RPBA, the Appellant was informed that the subject-matter of claim 1 did not appear to involve an inventive step.

V. In reply, the Appellant indicated that it would not attend the oral proceedings. No substantive response to the issues raised in the Board's communication was filed.

VI. Oral proceedings took place in the absence of the Appellant.

VII. Claim 1 reads as follows:

"A method for manufacturing a dual interface card comprising a dual interface module (14) showing free contact electrodes at the surface of the card for contact-type communication, and pads (16) connected to an antenna (3) embedded in the card body (12) for contactless-type communication, the method comprising at least the following step:

- collocating multiple card support sheets (1, 5, 6, 8, 9) one onto the other, some of these sheets showing holes (2, 7), in order to form a recess (13) adapted to receive the dual interface module (14), one of the sheets supporting the antenna (3) having solid metallic contact pads (4) at least partially freely accessible in the recess (13)
- depositing a conductive adhesive (10) onto the contact pads (4)
- positioning the dual interface module (14) in the recess (13) such that the pads (16) of the module are contacting the conductive adhesive
- executing one single lamination step of the sheets with the module in order to:
 - laminate the multiple layers (1, 5, 6, 8, 9) together in order to form the card body (12)
 - embed the dual interface module (14) in the recess (13)
 - achieve the curing of the isotropic conductive adhesive (10), and the permanent electrical contact between the antenna (3) and the dual interface module (14)."

Reasons for the Decision

1. Art. 56 EPC 1973

1.1 D3 is considered to represent the closest prior art.

D3 discloses a dual interface card comprising a dual interface module (7) having contact electrodes (20) at the surface of the card for contact-type communication (column 4, lines 15-17) and pads (21) connected to an antenna (4,5) embedded in the card body (2) for contactless-type communication (column 3, lines 11-24).

Although D3 is mainly directed to the card itself and does not describe the method for manufacturing the card in any detail, it nevertheless gives some indication of the manufacturing steps involved.

In particular D3 states that the card may be fabricated from several sheets 2A which are joined by lamination (column 4, lines 55-57 and claim 31). The chip module 7 is built into the card body (column 3, lines 20-24; Figures 2, 16), implying that the multiple card support sheets 2,9 are collocated and laminated together before the chip module is positioned in the card body. From the references to the holes in the sheets in column 3, lines 31-36 and claim 31, in combination with Figure 2, it may be seen that the sheets are provided with holes before they are collocated and laminated. Moreover, Figures 2 and 16 show that the contact pads 6 of the antenna are freely accessible in the recess. The contact pads 21 of the chip module 7 may be connected to the contact pads of the antenna by a number of methods, one of which is by using a conductive adhesive (column 3, line 61 to column 4, line 1; Fig. 16).

- 1.2 The subject-matter of claim 1 is therefore distinguished from the disclosure of D3 in that a single lamination step is executed to laminate the layers together, embed the dual interface module into the recess and cure the conductive adhesive.
- 1.3 Based on this difference, the objective technical problem may be formulated as the provision of an alternative bonding procedure for the card of D3.
- 1.4 D1 discusses some disadvantages of the conventional production methods in which the chip is glued into place. In particular, the differing thermal expansion coefficients for the various materials can lead to warping and potential delamination of the layers (column 2, lines 8-28).
- 1.5 In order to overcome this problem, D1 proposes a manufacturing method in which a conductive adhesive 7 is applied to the connection pads 5 of the antenna. The chip is then connected to the base sheet 1 and a central sheet 2 is stacked onto the base sheet so that the chip is positioned in a recess in the central sheet. The central sheet is then covered with a further sheet and the complete assembly is laminated. The lamination parameters are such as to both laminate the sheets and cure the conductive adhesive (column 4, lines 30-46 and 55-58). The one-step lamination-and-curing procedure of D1 overcomes the aforementioned disadvantage.
- 1.6 So starting from D3 and having knowledge of D1, the skilled person would be likely to reject the conventional two-step lamination and gluing method used in D3 and adopt the bonding process outlined in D1.

Although D1 relates to a chip-on-board (COB) assembly, the principle of one-step lamination may be applied to the manufacture of the card of D3. The order in which the recess is constructed and the chip is attached to the antenna is irrelevant in the context of the problem to be solved.

It would thus be obvious, based on the teaching of D1, to form the card illustrated in Figure 2 of D3 by stacking the sheets 2 and 9 together, the upper sheet 2 being provided with an opening which is dimensioned to expose the contact pads of the antenna and to accommodate the chip, depositing the conductive adhesive onto the antenna contact pads, then positioning the chip in the recess formed by the opening in upper sheet 2 and executing a single lamination step in order to laminate the multiple layers together, embed the chip in the recess and cure the conductive adhesive.

In this manner the skilled person would arrive at the subject-matter of claim 1 without the use of an inventive step.

- 1.7 The Appellant argues that the Figure 6 embodiment of D1 (i.e. the dual contact chip card) did not show free contact electrodes at the surface of the card. This presented an obstacle to the skilled person wishing to provide a simple dual interface card manufacturing process since the Figure 6 embodiment would require the provision of additional contacts.

This argument cannot be followed since the passage in column 5, lines 3-7 of D1 makes clear that external contacts, as in the Figure 3 embodiment, are provided

in the dual contact chip card of Figure 6. In this respect, there is therefore nothing in D1 which would discourage the skilled person from employing the assembly process of D1 to manufacture the card of D3.

- 1.8 The Appellant also argues that D1 contains no indication of how the recess in layer 2 is formed but that claim 1 of the application requires that holes are necessarily provided in the sheets before they are collocated.

It is clear from D1 that the central layer 2 is provided with a hole before it is mounted on the base layer 1. Column 3, lines 15-26 explains that a module consisting of the base layer and the chip is prepared first and then the other layers are stacked onto the COB layer before the whole assembly is laminated. Column 2, lines 35-40 makes clear that the chip is arranged on the base layer and is surrounded by the correspondingly punched central layer. From this it may be seen that it is known from D1 to provide a pre-punched sheet to form the recess in which the chip is accommodated. As shown above, the upper layer 2 and the layer 9 in D3 are also provided with holes before they are stacked together. So also in this respect, there is nothing in D1 which would discourage the skilled person from employing the assembly process of D1 to manufacture the card of D3.

- 1.9 For these reasons, the subject-matter of claim 1 lacks inventive step.

- 1.10 Therefore, the appellant's request is not allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



G. Magouliotis

G. Assi

Decision electronically authenticated