

CLAIMS

1. Multilayer contactless smartcard (10) comprising an electronic chip embedded in the card, the chip being connected to an antenna (22) printed on an opaque antenna carrier layer (20), and two card bodies, one on each side of said opaque antenna carrier layer, each comprising at least one plastic layer,

the opaque antenna carrier layer further comprising a first cut-out forming a void (23) filled with a transparent plastic;

the plastic layers of the two card bodies each comprising a second cut-out forming two identical voids (43 and 63) the outlines of which superimpose,

such that a transparent zone is formed in the thickness of the card, forming a transparent logo (18) in the shape of said second cut-outs.

2. The multilayer smartcard of claim 1, wherein said card is a hybrid contactless smartcard.

3. The multilayer smartcard of claim 1, wherein said card is exclusively contactless.

4. Process for manufacturing a contactless smartcard comprising:

preparing an antenna carrier layer (20) in a strip of a non-flowable material, and producing cut-outs at suitable intervals in order to form voids (23);

producing an antenna (22), around the voids (23) thus formed, by printing, with a conductive ink, on said carrier layer, at least one turn and two connection pads (24 and 25);

preparing a filling layer (31) in a strip of a plastic;

superposing the filling layer (31) on the carrier layer (20) on the same side as the antenna (22);

laminating the layers (20 and 31) together by a heat treatment under pressure in order to obtain an inlay;

preparing two printing layers (40 and 60), corresponding to the front side and back side of the card, respectively, from two plastic strips by printing, on one of their faces, graphics personalized to the card, and by producing cut-outs (43) and (63), of identical size and shape, the location of said cut-outs (43) and (63) in the first and second printing layers (40) and (60) being set so that their outlines superimpose exactly once the layers of the card have been joined together;

depositing the first printing layer (40) on the inlay on the antenna side and therefore on the filling layer (31), depositing the second printing layer (60) on the antenna carrier layer (20) on the face opposite that which carries the antenna in order to place the graphics on the exterior; depositing a first coating layer (50) on the first printing layer (40), and a second coating layer (70) on the second printing layer (60), the two coating layers (50 and 70) being prepared from two strips of transparent plastic material; and

laminating said two printing layers (40 and 60), said two coating layers (50 and 70) and said inlay together, in order to weld them to one another by hot pressing.

5. The manufacturing process of claim 4, wherein the plastic used to prepare filling layer (31) is a strip of PVC or transparent PEGT.

6. The manufacturing process of claim 4, further comprising

the step of printing the antenna is followed by a step of connecting an electronic chip to the connection pads (24 and 25) of the antenna, such that the cards manufactured are purely contactless smartcards.

7. The manufacturing process of claim 4, further comprising:

countersinking a cavity in the card in order to expose said connection pads (24 and 25) of the antenna; and

adhesively bonding a module containing an electronic chip in order to seal it in the card and simultaneously connect it electrically to said antenna pads, such that the cards manufactured are hybrid contactless smartcards.

8. The manufacturing process of claim 4, wherein the material of said filling layer (31) is identical to that of said coating layers (50 and 70), in order to be perfectly compatible with one another.

9. The manufacturing process of claim 4, wherein said antenna carrier layer (20) is made of a synthetic paper.

10. The manufacturing process of claim 4, wherein said antenna carrier layer (20) is made of a polyester.

11. The manufacturing process of claim **10**, wherein said polyester is PET.

12. The manufacturing process of claim **4**, in which said cut-outs (**43** and **63**) in said printing layers (**40** and **60**) are produced simultaneously.