

CLAIMS

1. An electronic device (40; 75) comprising:

- a secure element (ES) comprising a plurality of contacts (54), said secure element being configured to co-operate with a first external reader (RD1) that is external to said electronic device in a contact mode by using at least one of said contacts;

- a processor unit (44) external to the secure element, said processor unit being configured to send a command (CMD2) to the secure element (ES) via at least one of said contacts (54);

the electronic device being characterized in that it further comprises:

- a first detector unit (UD1) for detecting whether a communication by contact is ongoing in contact mode between the secure element (ES) and the first electronic reader (RD1); and

- a control unit (UC1) configured to block the sending of each command (CMD2) from the processor unit (44) to the secure element (ES) via at least one predefined contact from among said plurality of contacts, so long as a said communication by contact is ongoing,

wherein the first detector unit (UD1) is connected to one of said contacts (54-1), referred to as the power contact, that is to receive electrical power when the secure element (ES) is co-operating in contact mode with the first external reader (RD1) in order to power said secure element electrically,

the first detector unit (UD1) being configured to convert a first voltage detected on the power contact (54-1) into a second voltage that is different from the first voltage,

wherein the processor unit (44) is configured to determine that a said communication by contact is ongoing between the secure element (ES) and the first external reader (RD1) only if the second voltage is not less than a first predetermined threshold value.

2. An electronic device according to claim 1, wherein said contacts (54) are in compliance with the ISO 7816 standard.

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3. An electronic device according to claim 2, wherein at least one predefined contact comprises the contacts (54-1, 54-2, 54-3, 54-4) defined in said ISO 7816 standard as Vcc, RST, CLK, GND, and IO.

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4. An electronic device according to any one of claims 1 to 3, wherein the control unit (UC1) is configured to block the sending of each command from the processor unit to the secure element via each of said contacts (54) of the secure element (ES) so long as a said communication by contact is ongoing.

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5. An electronic device according to any one of claims 1 to 4, wherein the secure element (ES) includes a first radiofrequency antenna (52), said secure element being configured to co-operate with a second external reader (RD2) that is external to said electronic device in a contactless mode by using said first radiofrequency antenna, said electronic device including:

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25 - a second detector unit (UD2) configured to detect whether a contactless communication is ongoing in contactless mode between the secure element (ES) and the second external reader (RD2);

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the control unit (UC1) being configured to block the sending of each command (CMD2) from the processor unit (44) to the secure element (ES) via said at least one predefined contact so long as at least one of a said communication by contact and a said contactless communication is ongoing.

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6. An electronic device according to claim 5, including a second radiofrequency antenna (78) isolated from the first radiofrequency antenna (52),

5 the second detector unit (UD2) being configured to use the second radiofrequency antenna (78) to detect a radiofrequency signal transmitted or received by the first radiofrequency antenna (52), indicating that a said contactless communication is ongoing between the secure element (ES) and the second electronic reader (RD2).

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7. An electronic device according to claim 5 or claim 9, wherein the second detector unit (UD2) is configured to convert an AC voltage obtained from the first radiofrequency antenna (52) into a DC voltage.

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8. An electronic device according to claim 7, wherein the processor unit (44) is configured to determine that a said contactless communication is ongoing only if the DC voltage is not less than a second predetermined threshold value.

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9. An electronic device according to any one of claims 1 to 8, wherein the control unit (UC1) comprises a switch at the interface between the secure element (ES) and the processor unit (44), said switch being configured to switch between a blocking state and a conductive state,

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the switch being configured to occupy the blocking state when the control unit blocks said sending of each command from the processor unit via said at least one predefined contact, so as to isolate the secure element (ES) electrically relative to the processor unit (44).

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10. An electronic device according to any one of claims 1 to 9, wherein the processor unit (44) is configured to co-operate with the secure element (ES) to select an application to be executed by the secure element,

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the processor unit being configured to perform this selection on the basis of an instruction from a user received via an actuator (68) of the electronic device.

5 11. An electronic device according to any one of claims 1 to 10, wherein the processor unit (44) is configured to obtain information from data received from the secure element (ES) and for causing said information to be displayed by using a display unit of the electronic
10 device.

12. An electronic device according to any one of claims 1 to 11, wherein said electronic device (40; 75) is a smart
15 card.

13. A blocking method implemented by an electronic device (40; 75) comprising:

- a secure element (ES) comprising a plurality of contacts (54), said secure element being configured to
20 co-operate with a first external reader (RD1) that is external to said electronic device in a contact mode by using at least one of said contacts; and

- a processor unit (44) external to the secure element (ES), said processor unit being configured to
25 send a command (CMD2) to the secure element via at least one of said contacts (54);

the method being characterized in that it comprises:

- first verification (S4) to determine whether a communication by contact is ongoing in contact mode
30 between the secure element and the first external reader; and

- blocking (S6) the sending of each command from the processor unit (44) to the secure element (ES) via at least one predefined contact from among said plurality of
35 contacts (54), so long as a said communication by contact is ongoing,

wherein the first verification comprises converting a first voltage detected on one of said contacts (54-1), referred to as the power contact, into a second voltage that is different from the first voltage, said power
5 contact being for receiving electrical power when the secure element (ES) is co-operating in contact mode with the first external reader (RD1) in order to power said secure element electrically

wherein the processor unit (44) determines that a
10 said communication by contact is ongoing between the secure element (ES) and the first external reader (RD1) only if the second voltage is not less than a first predetermined threshold value.

15 14. A blocking method according to claim 13, wherein the secure element (ES) includes a first radiofrequency antenna (52), said secure element being configured to co-operate with a second external reader (RD2) that is external to said electronic device in a contactless mode
20 by using said first radiofrequency antenna, said electronic device comprising:

- second verification (S4) to determine whether a contactless communication is ongoing in contactless mode between the secure element (ES) and the second external
25 reader (RD2); and

- blocking (S6) the sending of each command from the processor unit to the secure element via at least one predefined contact, so long as at least one of a said communication by contact and a said communication without
30 contact is ongoing.

15. A computer program (PG2) including instructions for executing steps of a blocking method according to claim 13 or claim 14 when said program is executed by a
35 computer.

16. A computer readable data medium storing a computer program (PG1) including instructions for executing the steps of a blocking method according to claim 13 or claim 14.