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## Calypso patents & license

### **Two major patents are included in the Calypso licenses.**

Setting-up a Calypso ticketing system requires using two patents:

- Session patent, which guarantees the data integrity within the card in all possible situations, even if the card is removed from the transaction area during the exchanges of information with the reader.
- Ratification, which allows correctly ending a transaction even if a problem occurs during the final acknowledge of data transmission.

The fees resulting from the use of these two Calypso patents are known under the wording "Calypso license".

### **Why is a license needed to access Calypso technology?**

The Calypso license meets two objectives:

- It ensures, as usual in the industrial world, a return on investment for the expenses of Research and Development that have been achieved by the inventors, particularly the private partner, Innovatron in this case.
- It ensures the main income for CNA, which represents the operators/users of Calypso, in order to allow them to keep control on Calypso specifications and security. It finances the development of complementary evolutions of Calypso, which are required to ensure the sustainability of this solution. So the incomes from licenses directly benefit all the community of users of Calypso.

**A license strictly compliant to all the rules imposed by the standardization bodies.**

Calypso license respects to the rules imposed by the standardization bodies at European and global levels, which very often establish standards integrating patents and fees: the license has to be “reasonable and non-discriminatory”. As such, the Calypso license is recognized to be compliant with this rule. Similar to whatever industrial product which always integrates some fees resulting from patents, it concerns only manufacturers and not final users (transport operators, for example).

### **Who is concerned by the Calypso license?**

The users of Calypso (transit authorities, transport operators) have nothing to achieve by this license, neither to negotiate nor to buy. They only have to benefit, through truly open tenders, from the large industrial offer of Calypso products, which is the direct result of the strong willingness of the Calypso founders to avoid any monopoly.

Calypso license addresses manufacturers, both for terminal equipment (readers) and portables objects (cards, SIM, USB keys ...).

In order to simplify the license policy, given the huge number of terminal manufacturers and given the diversification of portable objects (cards, mobile phones, USB keys), today the license only addresses:

- The SAM (Secure Application Module), mandatory in a Calypso terminal or a system; today the SAM is provided by two vendors (Spiritech and ASK). The manufacturers of terminal have no license to acquire; they only have to integrate these SAM.
- IC components used in the portable objects; the related fees are generally paid by IC manufacturers, or card embedders.

### **A license for the benefit of Calypso users.**

Calypso license management is ensured by Innovatron, who in the nineties co-financed the R&D development of the Calypso solution. RATP, the proprietary of the Calypso patents, has delegated an exclusive mandate of gesture of Calypso license to Innovatron, who is consequently the only one able to negotiate and sell a license to a manufacturer. In counterpart of this exclusivity, Innovatron has no authorization to manufacture whatever Calypso product. In consequence, for Innovatron, the return on investment is ensured only through the selling of license, which guarantees the users that they will benefit from the maximum number of manufacturers in competition for buying their Calypso products. All the Calypso licensees benefit from the same

conditions and fees, ensuring a true and loyal competition between them in tendering process.

Regarding the costs of the Calypso products, the fees linked to the Calypso license have no impact, or a favorable one: in all products, one part of the selling cost is always dedicated to the return on investment of the R&D program of the manufacturer who designed this product. For a Calypso product, this part of the cost is shared between all the licensees through the Calypso fee, which represent an amount less important than in the case of a product of a single manufacturer (there is only one R&D cost for all manufacturers selling Calypso products).

### **Calypso license for cardlets (or applets)**

With the emergence of Javacard platforms for portable objects, there is an alternative to native Calypso components through the use of a purely software Calypso application, called "Calypso applet or cardlet", which can be downloaded on a Java component, like a SIM card for example, through the use of standardized GlobalPlatform mechanisms.

First of all, CNA provides free of charge all Calypso manufacturers or users the "Calypso applet", realized under its responsibility (and developed by Trusted Logic company). CNA ensures the maintenance of the "Calypso applet". A free of charge license has to be signed between CNA and the acquirer.

Secondly, the Calypso license process is adapted to the applet, because there is no physical component on which the traditional fee could be applied:

- Activation module

When the Calypso applet is used to be downloaded and activated through GlobalPlatform mechanisms, by an entity (for example, a TSM-Trusted Service Manager) which is not a Calypso licensee: an activation module is provided by Innovatron to the entity, which guarantees the exclusivity of the serial number of the application and allows for the activation of a fixed number of applets. The license fees are consequently paid in "prepayment" by purchasing the activation module.

Of course, the fee due as Calypso license is paid only at the first activation within a package of the applet. If other instantiations are activated later, no fee has to be paid.

It is possible to register for purchase of activation modules on the Innovatron web site.

- Applet for a Calypso licensee.

When the Calypso applet is diffused and activated by an entity which is already a Calypso licensee: in this case, the licensee follows the usual licensing conditions, in the usual post payment form based on the registration by the licensee of the sold products. This process can be consulted in the Innovatron website.

Of course, the fee due as Calypso license is paid only at the first activation within a package of the applet. If other instantiations are activated later, no fee has to be paid.

### **Fee amounts**

The amounts of the fees of the Calypso license are indicated on the Innovatron website.