



Calypso Application

License for card and terminal manufacturers.

1. License Policy General Presentation

Innovatron is at the origin of the developments of the smart card technology since 1974.

Since 1992, a major program of Research & Development in partnership with the RATP and the SNCF has resulted in Innovatron extending the application of the Smart Card technology, enabling its use through a contactless communication interface, particularly suitable for public transport applications.

During this program, Innovatron developed proprietary technology, the subject of many patent applications protecting the investments made, and used in particular in the European remote ticketing projects, called *Icare* and *Calypso*.

The *Calypso* technology and the international standard *ISO/IEC 14443 B* directly result from the research done by Innovatron.

Innovatron favors a wide deployment of these technologies and offers licenses of various kinds suiting the situations of different licensees, under fair and non-discriminatory conditions.

Besides patents license, Innovatron also offers licenses to access the Calypso specification, masked components and know-how transfer in order to ensure the best compatibility between the products for public transport.

Only manufacturers implementing these technologies need to be licensed.

A product integrator or user (public transport company or authority, parking applications, etc.) do not have to take a license. If you are a user, you might find the right solution for your needs by contacting other Calypso users. In this case, please contact the Calypso Network Association (<http://www.calypsonet-asso.org>).

2. The “ISO14443 Type B” Patents

Some patents managed by Innovatron relate to contactless communication technologies used for example in the ISO/IEC 14443 standard. The license for these patents concern mainly the chip manufacturers (if you are a chip manufacturer, contact us for more information).

3. The Calypso Patents

The Applicative (Session/Ratification) patent family and technical elements are accessible under license to allow the manufacturing of Calypso cards or terminals.

The licenses are accessible to any company, under fair and non-discriminatory conditions, and include access to the Calypso specifications. Indicative license conditions are given in the following pages.

Note that integrators and users utilizing readers and cards manufactured under license do not need to take a license nor pay any fee for them. For example a system integrator manufacturing terminals from Calypso OEM readers, and selling cards bought to a Calypso card manufacturer, may freely manufacture and sell terminals and cards.

Anyone may access the Calypso specifications for use on licensed equipment. The Calypso specifications describe in detail the Calypso transaction between a Calypso contactless reader and a Calypso microprocessor card. They include the Calypso card and SAM specifications (see Chapter 7).

For more information, please contact us:

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5. License for Portable Objects Manufacturers (microprocessor cards)

The licenses for portable objects (e.g. cards) allow the use of the Applicative Patents to develop a Calypso compliant software and market the portable objects including it.

The duration of the license is the duration of the patents for the patents license and specification, and of the market for the contractual products. The acquirer has the possibility of terminating the contract at any time.

The financial conditions of the contract include an initial payment and royalties. The initial payment depends on the licensed territory and royalties chosen.

Indicative examples of typical financial conditions for the license agreements for portable objects are given below.

“Applicative Patents for Portable Objects”

<i>License</i>	<i>Low Royalties</i>		<i>Low Initial Payment</i>
Initial Payment	75 k€	or	10 k€
Royalties (on the net selling prices, base of 2.5 euros min)	2% 1.5% after 5 millions units		4% 3% after 5 millions units

Note that integrators and users of cards and components manufactured under license do not need to take a license nor pay any fee (e.g. card embedders integrating OEM Calypso components).

This is the case for example when buying such products as:

- CD21 from STMicroelectronics, for embedding and card manufacturing,
- Tango for Calypso from ASK.

For more information about Calypso products, please visit the Calypso web site at:

<http://www.calypsonet-asso.org>

6. License for Terminals or OEM readers Manufacturers

The license for terminals is necessary for terminals and OEM readers managing Calypso microprocessor cards. The license allows using the Applicative Patents to develop the terminal software compatible with the Calypso specifications.

The duration of the license is the duration of the patents. The licensee has the possibility of terminating the agreement at any time.

The financial conditions of the license include an initial payment and royalties. The amount of the initial payment depends on the licensed territory and royalties chosen.

Indicative examples of typical financial conditions for the license agreements for terminals are given below:

“Applicative Patents for Terminals and OEM Readers”

<i>License</i>	<i>Low Royalties</i>		<i>Low Initial Payment</i>
<i>Initial Payment</i>	40 k€	or	10 k€
<i>Royalties</i> <i>(on the net selling prices)</i>	4% 4 euros minimum 9 euros maximum		6% 8 euros minimum 12 euros maximum

Note : Contact us for possible discounts when upgrading existing contactless terminals to the Calypso technology.

Note that integrators and users of cards and components manufactured under license do not need to take a license nor pay any fee (e.g. manufacturers integrating OEM Calypso readers).

For more information about Calypso products, please visit the Calypso web site at:

<http://www.calypsonet-asso.org>

7. Indicative summary of the Calypso specifications

The Calypso specifications define precisely the card / terminal transaction and allow the compatibility between different suppliers.

They also describe the security features of the Calypso transaction, including the SAM management.

The Calypso specification comply with the following standard:

- ISO 7816 for the smartcard application.
- ISO 14443B for the contactless communication.
- ENV1545 for the transport data structures.

The Calypso specifications presently include the main following documents:

Calypso Specification for Ticketing

<i>Documentation</i>	<i>Reference</i>
Functional Card Application	010608-NT-CalypsoGenSpec
Detailed Card Application	010209-MU-CalypsoCardSpec

Calypso Technical Notes (to help implementing Calypso)

<i>Documentation</i>	<i>Reference</i>
Calypso Technical Notes	CalypsoTNxxx

First Generation Calypso Cards

<i>Documentation</i>	<i>Reference</i>
CD Light	020906-MU-CDLight
CD97-BX	030312-MU-CD97BX
CD97	000530-SE-SDI-CD97

The following specifications are also available from the Calypso technical resource:

CD21 Calypso Cards

<i>Documentation</i>	<i>Reference</i>
CD21	UmCd21_Orga_Comm

SAM S1 Specification

<i>Documentation</i>	<i>Reference</i>
SAM S1	000522-SE-SDI-SAMS1

These specifications are available upon request. Please visit <http://www.innovatron.com> for more information.

8. Indicative summary of the Applicative patents

Name	Summary	Application Number	Application Date	Priority claimed
Session	Writing all the new data without erasing the previous data, and validation of all the new data at the end of the session	PCT/FR99/00837	9/4/1999	FR 98 04453
Ratification	Registering in the memory of the portable object a ratification bit according to whether or not the transaction has been completed after debit with the delivery of the counterpart service and, at the next transaction, delivery of the counterpart service with or without debit according to the state of the ratification bit	PCT/FR99/02470	13/10/1999	FR 98 12770

Countries:

ARIPO (GH GM KE LS MW SD SZ UG ZW)

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