

## Innovatron Contactless Patents Presentation

This document introduces the *Contactless Patents* licensed by Innovatron.

### About Innovatron

Innovatron is at the origin of the developments of 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 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.

To contact Innovatron, please contact Aude BENICHOU:

*email:* aude.benichou@innovatron.fr

*Address:* Innovatron • 27 rue de Bassano • 75008 Paris • France

### Innovatron Contactless Patents

*The Contactless Patents are utilized in ISO 14443B products, and in some other contactless products.*

The expiration date of this license is the expiration date of the last patent of the family: 18 October 2021.

These patents are mainly of concern to manufacturers of components. The patents disclose:

- *Contactless modulation technology.*
- *Anti-collision technology.*

A brief summary of the patents is given below:

Reference	US #	Europe #	Brief description
BID119	6,636,146	EP0901670	Discloses the inductive communication system with 10% AM modulation, power and transmission/reception clock recovered from the field.
BID120	6,646,543	EP1016023	Discloses the contactless terminal/card anti-collision system with terminal-supplied parameter for the probability of response.
BID152	6,690,263	EP0976084	Discloses the contactless terminal/card anti-collision system with parameter for the probability of response in a query message and additional marker messages.

The patents are filed and/or delivered in many countries besides Europe and the USA, including:

- Europe, Turkey, Israel,
- Canada, Mexico and USA,
- Argentina, Brazil,
- China, Japan, Korea, Singapore, Taiwan,
- Armenia, Azerbaijan, Byelorussia, Kirghistan, Kazakhstan, Moldova, Russia, Tadjikistan, Turkmenistan, Ukraine,
- Ghana, Gambia, Kenya, Lesotho, Malawi, Sudan, Swaziland, Uganda, Zimbabwe,
- India, Australia,
- and other countries.

## Licensing information

Many international standards include intellectual property that must be licensed from their owners. This is often listed within the standard itself, when the intellectual property is known during the standard establishment. This is also the case for the ISO14443 type A, for which a license from Philips is necessary. For ISO 14443 type B, a license from Innovatron is necessary.

For a detailed analysis of our patents coverage of the ISO 14443 standard, please, refer to the Claim Charts describing the correspondence between the contactless patents and ISO 14443 (ClaimChart-US6636146-ID119, ClaimChart-US6646543-ID120, ClaimChart-US6690263-ID152).

The Claim Charts use the US patent as an example for the correspondence, however the same correspondence may be made with the patent extension of other countries.

Companies utilizing the components manufactured under license do not have to take a license nor pay any fee to Innovatron.

Please, note that, although the patents describe a “system”, a “portable object” or a “terminal”, the manufacturers of contactless ICs need a license because the ICs are “suited and intended” to work in a system or portable object or terminal implementing the technology protected by the patents. This constitutes a contributory infringement, and a license for the patents is needed.

Note to component manufacturers:

- simple memories that do not include the anti-collision of the standard,
- micro-controllers that are delivered without the anti-collision mechanism,

still need to be licensed for the BID119 patent covering the signal modulation. Furthermore, since all the customers of micro-controllers will have to add the anti-collision management in the smartcard software, a license for the anti-collision patents is required to avoid your customers to each separately sign a license.

Specific licensing conditions apply to components designed to comply with the NFC (ISO 18092) standard (see indicative conditions below).

Finally, products including the Type A and Type B modulation of the standard need to be licensed, even if the manufacturer has no control over which modulation type will be actually in use in the final products. If such is the case, please contact us for a possible adaptation of the royalties.

The financial conditions of the license include an initial payment and royalties. The amount of the initial payment depends on the royalty rate chosen. The royalty is based on the selling price of each finished contractual product.

Indicative examples of the financial conditions for the patent license for components concerning the communication interface of the ISO 14443 standard are given below:

### Patents “ISO 14443 for components”

<i>License</i>	<i>Low Royalty</i>	<i>or</i>	<i>Low Initial Payment</i>
<b>Initial Payment</b>	75 k€		10 k€
<b>Royalty</b> <i>(on the net selling prices)</i>	2% 1.5% after 50 millions components		4% 3% after 50 millions components
<b>Royalty NFC</b> <i>(on the net selling prices)</i>	0.67%		1.33%