Contactless Technology for Secure Physical Access: Technology and Standards Choices

A Smart Card Alliance Report

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About the Smart Card Alliance

The Smart Card Alliance is the leading not-for-profit, multi-industry association of member firms working to accelerate the widespread acceptance of multiple applications for smart card technology. The Alliance membership includes leading companies in banking, financial services, computer, telecommunications, technology, health care, retail and entertainment industries, as well as a number of government agencies. Through specific projects such as education programs, market research, advocacy, industry relations and open forums, the Alliance keeps its members connected to industry leaders and innovative thought. The Alliance is the single industry voice for smart cards, leading industry discussion on the impact and value of smart cards in the U.S. For more information, visit **www.smartcardalliance.org**.

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Executive Summary

Contactless Cards Provide Advantages for Physical Access

Contactless cards are increasingly accepted as the credential of choice for controlling physical access. They are both robust and flexible, giving security professionals the ability to reduce maintenance costs, improve employee productivity and increase security.

Contactless smart cards offer advantages to both the organization issuing the card and the cardholder. The issuing organization can support multiple applications on a single card, consolidating an appropriate mix of technologies and supporting a variety of security policies for different situations. Applications such as logical access to computer networks, electronic payment, electronic ticketing and transit can be combined with physical access to offer a multi-application and multi-technology ID credential. The issuer can also record and update appropriate privileges from a single central location. The organization as a whole incurs lower maintenance costs over the system life, due to the elimination of mechanical components and reader resistance to vandalism and harsh environmental conditions. With hybrid and dual-interface cards, issuers can also implement systems that benefit from multiple card technologies.

Three Primary Contactless Technologies Support Physical Access Control Applications

There are three primary contactless technologies considered for physical access control applications: 125 kHz, ISO/IEC 14443, and ISO/IEC 15693 technologies.

125 kHz read-only technology is used by the majority of today's RFID access control systems and is based on de facto industry standards rather than international standards. 125 kHz technology allows for a secure, uniquely coded number to be transmitted and processed by a back-end system. The back-end system then determines the rights and privileges associated with that card.

Contactless smart card technology is based on ISO/IEC 14443 and ISO/IEC 15693 standards. Cards that comply with these standards are intelligent, read/write devices capable of storing different kinds of data and operating at different ranges. Standards-based contactless smart cards can authenticate a person's identity, determine the appropriate level of access, and admit the cardholder to a facility, all from data stored on the card. These cards can include additional authentication factors (such as biometric templates or personal identification numbers) and other card technologies, including a contact smart card chip, to satisfy the requirements of legacy applications or applications for which a different technology is more appropriate.

Cards complying with these standards are developed commercially and have an established market presence. Multiple vendors are capable of supplying the standards-based components necessary to implement a contactless physical access system, providing buyers with interoperable equipment and technology at a competitive cost.

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