RF-Enabled Applications' Requirements and Technology Use

Application	Application use of RF technology	Technology typically being replaced	Information typically stored on RF chip	Read-only information or read/write capability	Typical range needed for reading stored information	Security requirement	Type of technology currently used	RF technology standard used
Animal tagging	Tag includes an ID number that identifies a specific animal	Visual tags or marks	Number (static)	Read-only	Medium, couple of yards (meters)	Low	RFID tag; low frequency (124/135KHz)	ISO/IEC 11784 and ISO/IEC 11785
Material logistics & inventory management	Tag includes an ID number that allows retailers and/or supply chain partners to track inventory	Bar code	Number (electronic product code, static)	Read-only, typically (Some advanced production line uses also write to tag.)	Varies, inches to several yards (meters)	Low	RFID tag; high frequency (13.56MHz) and ultra high frequency (~900MHz)	ISO/IEC 18000-3 and ISO/IEC 18000-6
Door access	Card or tag that includes an ID number to grant the cardholder access to physical facilities	Plastic photo cards, magnetic stripe cards	Number (programmed after manufacture)	Read-only	Short-medium (inches to 1 yard)	Low – high, depending on facility	RFID tag (proprietary "prox" technology)or contactless smart card, depending on security requirement	ISO/IEC 15693 (13.56MHz); ISO/IEC 14443 (13.56MHz)
Transit payment	Payment card used at transit stations for fast, convenient payment of fares	Coins, bills, paper tickets, magnetic stripe tickets	Fare value and passes	Read/write (Balances are updated, counters are advanced or dates are validated.)	Short, typically less than 4 in (10 cm)	Medium – high	Contactless smart card	ISO/IEC 14443

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Credit and debit card payment	Payment card or device used at merchants for fast, convenient payment for goods and services	Magnetic stripe payment cards	Financial account information	Read-only (Writing occurs during card personalization after the device is manufactured.)	Short, typically less than 4 in (10 cm)	High	Contactless smart card	ISO/IEC 14443 and ISO/IEC 7816
Secure employee ID for physical and logical access	ID card that is used to prove an individual's identity for access to physical facilities and networks and to sign and encrypt documents	Magnetic stripe ID cards, RFID-based physical access cards, paper documents	Personal information, employee or other ID number, digital signatures, security keys, biometrics	Read/write (Cards can be updated after issuance but only by issuing authority.)	Short, typically less than 4 in (10 cm)	High	Contactless smart card	ISO/IEC 14443 and ISO/IEC 7816
ePassports and travel identity documents	Travel document that is used to prove an individual's identity for crossing borders	Paper documents	Personal biographic information about the traveler	Read/write (Cards can be updated after issuance but only by issuing authority.)	Short, typically less than 4 in (10 cm)	High	Contactless smart card	ISO/IEC 14443 and ISO/IEC 7816