THALES
Building a future we can all trust

Technical and quality card guide

The Thales Cloud Protection and Licensing (CPL) business unit considers quality and customer satisfaction our highest priority. The purpose of this document is to share information about Thales smart card product capabilities and limitations in order to ensure we meet our customers' mutual quality standards.

This document does not replace any legal agreements or contracts entered into with Thales CPL, however it will act as a reference for the topics covered below in case the below does not conflict with what has been stated on any legal agreement and/or contract.

Card body types and main characteristics

As part of out smart card offering, Thales offers several types of card bodies. Card bodies vary based on the materials used to manufacture them. Each material has unique properties which affect environmental performance, cost and therefore the optimal use cases for each card.

The table below provides an overview of card body types.

Card Types	Max Ambient Temp (°Celcius)	Max Printing Temp (°Celcius)	Bending Resistance	Slot Punching	Life Expectancy (Years)	Recommended Application	Compatible Printing Technologies	Approved Printers
PVC	50	75	Low	Yes	3	Bank, loyalty, low end cards, Current default material for PKI cards	Thermal-transfer and re-transfer Printing/ laser/lamination & UV printing (ink)	EDC DC9K, MX6K, MX9K, CR805 Matica XID8600, S5200 LX HID HDPI, HDP5000 Evolis Primacy
PET	85	210	Very high	Yes	10	ID, transport, Recommended for PKI use cases	Thermal-transfer and re-transfer Printing/ laser/lamination & UV printing (ink)	EDC DC9K, MX6K, MX9K, CR805 Matica XID8600, S5200 LX HID HDPI, HDP5000 Evolis Primacy
PC	85	160	Medium high	Not tested	10	ID	Laser and UV printing (ink)	Not tested
Molded ABS	85	105	Very low	No	SIM only	SIM card	Laser and UV printing (ink)	Not tested

Table 1: Card Body Types

Third party card bodies (supplied by customers)

In addition to providing integrated smart cards, Thales also offers chip embedding into customer supplied card bodies. In such cases, Thales will perform an incoming inspection to ensure the quality of the card bodies along with manufacturing qualification. This is done to ensure that card milling and chip embedding meet ISO standards. In case a customer has repeat orders, the customer is committed to supplying the same card body material and quality consistent with previous orders.

Thales is responsible for the chip and chip embedding quality. Note that manufacturing yield losses while going through the chip embedding process may be as high as 10%. Therefore an additional 10% quantity of card bodies is required above the ordered quantity in order to meet the needed quantity. Any card Body Supplied by the Customer should be supplied with the Supplier's Part Number and electrical drawing (Data sheet).

All cards including the scrap will be returned to the customer. Scrap cards will be separated and marked as such.

Third party card bodies (supplied by Thales)

When cards are being produced using external card bodies, Thales purchases an additional 10% cards on top of the required quantity.

However, due to quality issues during the manufacturing process the final quantity to be supplied might vary from the ordered quantity.

Card body printing by Thales

Thales offers single artwork static offset printing of cards. This technology ensures a very high level of print quality output. If card by card personalized card printing is required, this should be performed by the customer. The printing performed by Thales is based on the graphics supplied by the customer in the following formats: AI/EPS.

It is essential to **take** into consideration the location of the contact and contactless chips.

Card body printing by customer

This section applies to customers purchasing blank white laminated cards from Thales. Table 1 above captures details of the card body types on which technology and printing card printers have been tested and approved by Thales. Upon request, Thales can assist in providing optimal parameters for card personalization printing for the printers that appear in the approved printer list.

Note: For optimal printing results, it is very important to set the correct printing parameters and to understand the print coverage limitations of each specific machine. For example, printing is limited to areas that do not hold components. These components may be external (e.g. Module, Magnetic stripe) or internal (e.g. Antenna, Module back side).

The card "Printable Area" differs depending on the card build. If you intend to perform personalization printing of a pure white card, there are several restrictions which you should take into consideration. The recommendations below refer to an example for D2T2 printing on PVC cards. Example of restrictions for D2T2 printing on PVC cards:

- 2.5 mm around module
- 2.5 mm up and down module
- 2 mm back side module
- 2.5 mm from edge
- 2 mm from preprinted data (related to personalization)
- 2 mm from contactless module

- Font size > 4 pt.
- No Micro text
- Laser engraving on the module or Chip area not permitted from both sides
- Printing on both sides of the antenna chip location is not permitted

An example of such keep out areas is shown in the diagram to the right.

As part of the approval process, you will need to sign and approve the acceptance form (CAC – Card Acceptance Criteria) & the "Simulation Approval" after testing the cards in your environment, on-site card printing you intend to do.

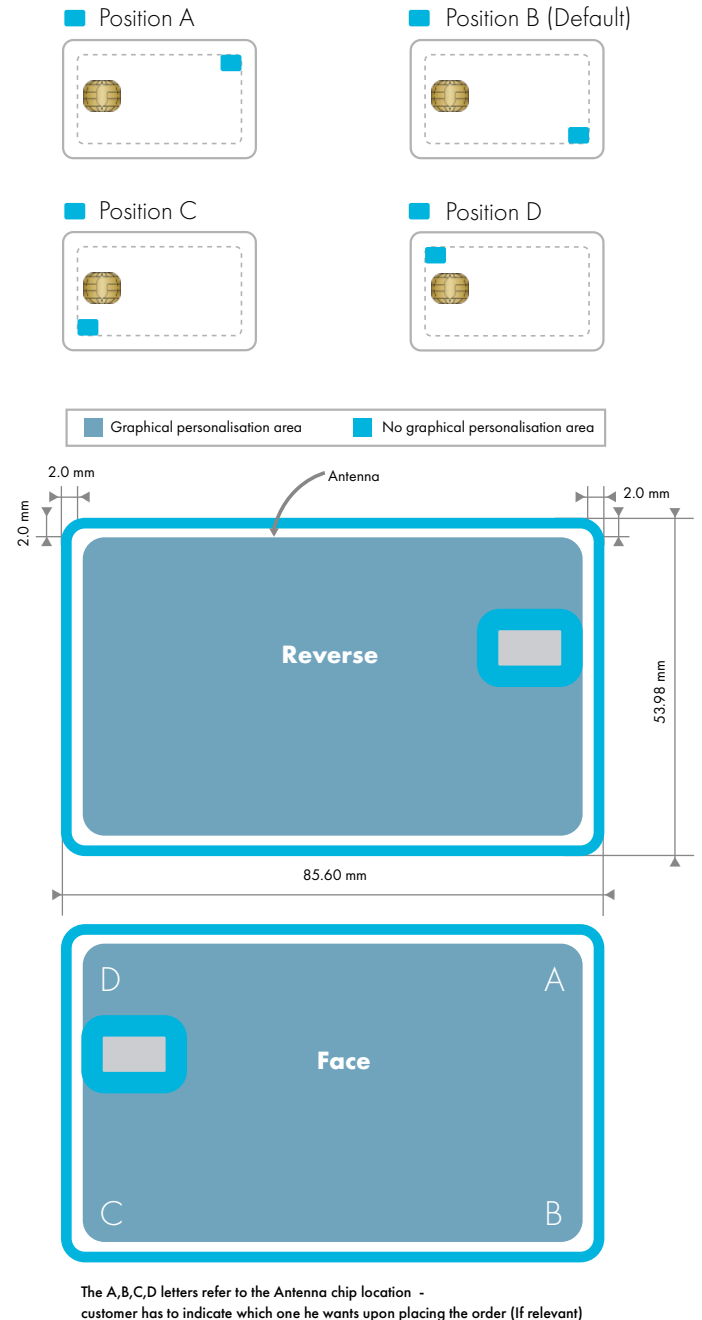## Card body quality parameters

Thales strives for the highest quality of manufactured products. Therefore we test and inspect cards throughout the manufacturing process. Inspections include incoming, in-process and outgoing inspections. We also test our cards to meet the relevant ISO standards. Thales cards are compliant with the following ISO standards (unless specified otherwise):

ISO 7810: Identification cards – Physical characteristics
ISO 7816-1: Identification cards – Integrated circuit(s) cards with contacts (Physical characteristic)
ISO 7816-2: Identification cards – Integrated circuit(s) cards with contacts (Dimensions and location of contacts)

Physical Access (RFID) Module Position for MIFARE and DESfire only.

Position A

Position B (Default)

Position C

Position D

Graphical personalisation area   No graphical personalisation area

The A,B,C,D letters refer to the Antenna chip location - customer has to indicate which one he wants upon placing the order (If relevant)

Unless specified otherwise, the tests are performed in accordance with the test methods described in ISO/IEC 10373-1 standards
The AQL for our white cards is dependent on the Criticality of the nature. (AQL: Minor 4 & Major 1).

The visual test parameters are:

Nature	Criteria	Criticality
Scratches	Thickness > 0.2mm AND Length > 30mm	Minor
Sporadic Fluff (Fiber)	Length > 3mm OR Diameter of covered area > 3mm	Minor
Surface distortion, Bump, Dents	Diameter > 0.5mm	Major
Optical spot/ Laminating flash	Diameter > 1.5mm	Major

Table 2: Visual test parameters for pure white cards

Logistical Information

The minimum order quantity for IDCore card family is 1000 units, and for the rest 500 units. It is important to highlight that shipment quantity may vary up-to 8% against requested quantity in customer purchase order. This is due to manufacturing yield losses observed during the manufacturing processes.

Post sale support

Please note that our standard warranty covers the product up-to one year. Depending on the issue you have, there are two possible channels that can be used for support:
1. Issue with order shipped: In case there is any issue with the order supplied please contact your sales rep or customer service representative with whom you have placed your order.
2. Technical support: In case there is a technical issue with the cards supplied, please contact client services.
Note: If the cards are suspected to be faulty, card samples might be requested from the customer to support internal investigation in order to identify the root cause of the problem before a replacement is made under warranty.

Relevant Documents and Contracts

For cards which are supplied by the customer:
- Responsibility of Thales in the provision of smart cards embedded by Thales on card body produced by third part

For Customized Cards:
- SOLISS On line system for submitting new customization request
- CAC – Card Acceptance Criteria
- Simulation Approval

About Thales

The people you rely on to protect your privacy rely on Thales to protect their data. When it comes to data security, organizations are faced with an increasing number of decisive moments. Whether the moment is building an encryption strategy, moving to the cloud, or meeting compliance mandates, you can rely on Thales to secure your digital transformation.

Decisive technology for decisive moments.

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