**Innovation of Diffractive Optically Variable Image Device for Electronic ID Cards (eID)**

Technical specification

ANNEX 1 to the Framework Agreement for supply of security elements for Czech electronic ID cards

No. [•]/OS/2020

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1. **Subject of the order**

Diffractive optically variable image device (DOVID) for the Czech biometric identification card.

Subject of performance: 1. Design (approved by STC)

2. Masterhologram (approved by STC)

3. Polycarbonate foil with security element DOVID and printed marks (the first 200 Pilot sheets will be approved by STC and then the AQL acceptance according to the standard ISO 2859-1 will be done for each delivery of the material)

STC requirements to DOVID: 1. Mainly transparent (HRI element) supplemented by a finer metallic element

2. laser engravable in the photo area and other place of personalized data

1. **Design**

STC requires that the design of DOVID should be inspired by Symbols of Czech Republic (e.g. leaves of linden tree, coat of arms) or Czech Crown Jewels and can be supplemented by another feature. The final shape of the element can be various. DOVID should include a first level, a second level and also a third level of security features. See the closest requirements in the table no. 1 below. STC is open to use also some special or new features.

The Czech ID card shall comply with the requirements set out in the Regulation (EU) 2019/1157 of the European Parliament and of the Council of 20 June 2019. Regarding this regulation the DOVID shall be used on the front of the card with advanced design and features, including an enhanced diffractive element for advanced machine verification.

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| *Security level* | *Minimum quantity of type of security features* | *Example* |
| Overt features (1st level) | 6 | 3D effect, kinetic, achromatic, switch effect, matte effect |
| Covert features (2nd level) | 4 | Hidden feature, negative and positive microtext, microlenses |
| Forensic features (3rd level) | 2 | Nanotext, nanoimage |

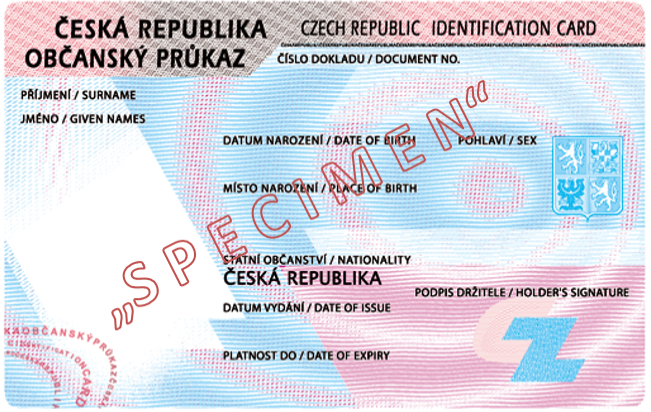
*Tab. no. 1: Numbers of required security features in individual levels.*

The minimum size: 25 x 40 mm; maximum is not specified (full coverage is also possible)

The location on a card: must partly cover the photo area and personalized data. Final position will be fitted according to the final submitted size and design.

Printed design of the current eID card:

The current design will be changed slightly due to the requirement for situating the flag of European Union (regarding the Regulation mentioned above). The placement of the photo area and personalized data remain the same.



*Pic. no. 1: Current design of the Czech eID card*

1. **Application**

The security element has to be applied on a sheet of polycarbonate foil (not in reel) and has to be resistant to hot lamination process. It has to be also well resistant to delamination and copying. The sheet of polycarbonate foil has to contain the printed black registration marks according to the attachment no.1

Foil specification: transparent polycarbonate foil, thickness 100 µm, laser engravable.

Polycarbonate foil must be compatible with the Makrofol® ID foils from company Covestro in order to maintain the compatibility of the lamination process with existing foils.

In the case of the use of polycarbonate sheets different than Makrofol® ID foils, STC requires an explicit compatibility guarantee with the Makrofol® ID layers in production process at the client conditions.

The polycarbonate foil containing DOVID must be prepared to endure machine cleaning against impurities. STC uses the sheet machines from TEKNEK company.

Sheet size: 295 x 330 mm

Number of positions on sheet: 15 positions on the sheet

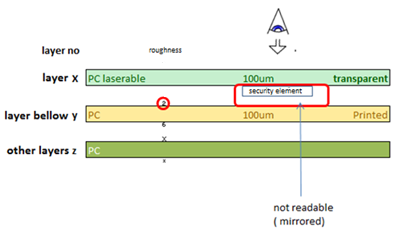
Positioning on sheet: layout in the attachment no. 1

Application position tolerance: ± 1 mm in x and y axis (tolerance of the center of the DOVID to the right registration mark, closer to the reference corner, marked in the layout)

Orientation on the PC sheet: mirrored

Position in the card construction: front side of the card,

inner side of the overlay layer (see the picture), will be attached to the smoother side of printed layer (roughness 2)

 *Pic. no. 2: Card construction*

1. **Packaging**

The sheets will be packed in cardboard boxes with a plastic infilling, 2x 100 pc of sheets, marked according to the specification of the Client. Each cardboard box will be numbered in ascending order. The cardboard boxes will be stored in a transport box (container), which has to be also numbered and sealed.

1. **Attachments**

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| No. | Description |
| 1 | Attachment no. 1 – position of the registration marks |
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