

# TRAVEL DOCUMENTS AND ID CARDS COUNTERFEITING IN SLOVAK REPUBLIC

Review Article

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Matej Barta<sup>1</sup>

Department of Criminalistics and Forensic Sciences  
Academy of the Police Force in Bratislava

**Abstract:** The aim of the paper is to describe the state of counterfeiting of documents in the Slovak Republic. The structure of the article has the character of the procedure from general to concrete, which means that the first part of the article briefly describes the division of documents and methods of counterfeiting as well as statistics on the counterfeiting of documents for selected years. In the next part of the article the author deals with case studies.

**Keywords:** *documents, travel document, ID cards, counterfeiting*

## INTRODUCTION

Banknotes, travel documents, ID cards and control marks are of great importance to society and are therefore protected by law. In the conditions of the Slovak Republic we can mention, for example, § 270 counterfeiting, alteration and unauthorized production of money and securities, § 271 listing of counterfeit, altered and unauthorized production of money and securities, § 272 production and possession of counterfeit tools, § 274 counterfeiting, alteration and illicit production stamps, postage stamps, stickers and postage stamps, § 275 forgery and alteration of control technical measures for marking goods, § 352 forgery and alteration of public deed, official seal, official emblem and official mark. (Act no. 300/2005 Coll. Criminal law)

From a criminal point of view and when proving individual criminal offenses related to forgery and alteration, it is important to know and identify a document or deed, the alteration or forgery of which may affect the object protected by law. In the case of the mentioned crimes, another important information is what traces are secured at the crime scene and the identification of the object that created the trace (evidence). When investigating the alteration and falsification of protected documents, a number of relevant circumstances are identified, both from a legal and a criminal point of view. These are closely related

<sup>1</sup> Corresponding author: Matej Barta, Department of Criminalistics and Forensic Sciences, Academy of the Police Force in Bratislava, Slovak republic. E-mail: matej.barta@minv.sk

to the subject of the investigation and to the amount of evidence, which also includes seized criminal records, inspection of documents and papers, etc. (Viktoryová, Straus, et al., 2013). Falsification can be defined as any copy of travel documents or ID cards without legal authorization. We also consider counterfeiting if the fake document is made up of parts of genuine documents (Burda, Čentěš, Kolesár, Záhora, a kol., 2011). We consider a genuine document to be one that is made of original base materials and to use genuine printing techniques and security features. Altered documents are objects whose essence is the original, but contain an altered part of the original, e.g. exchange of a photograph in personal documents, adjustment of the validity of the document, etc. The false document is made with the help of false base materials, printing techniques and other security features (Kurilovská, Svoboda, a kol., 2017).

Technical protection of documents consists in the creation of such security features that make forgery and alteration as difficult as possible. Nowadays, there are a large number of variants of security features. They start with the production of paper with predefined properties, special composition of printing inks, special printing technology and end with the so-called memory elements of protection such as biometric elements of passports or memory chip.

Elements of technical protection are in some cases hidden and unknown to the public and are classified. They may be visible only under certain devices or using certain chemical methods such as chemical analysis of printing ink. Visible elements of technical protection are used by the public to assess the authenticity of a document and must be of such a nature that even an ordinary citizen who is not equipped with technical means can evaluate them and recognize the absence of these elements.

The protection of documents against forgery can be divided into:

1. The production of the base material and the protection applied in the production of this material, such as: the composition of a security paper or polycarbonate, a watermark, protective fibers and strips, and the like.
2. Protection consisting of printing techniques and inks used (Straus, a kol., 2012).
3. Biometric elements - we can divide them into two groups:  
*stable data* - based on physical and physiological aspects that measure the physiological properties of a natural person. They include: fingerprints, retinal analysis, head mark analysis, ear shape, body odor, DNA analysis.  
*dynamic data* - based on measuring a person's behavior and include: signature verification, keystroke analysis. (Rak, Matyáš, Říha, 2008).
4. Other elements of technical protection such as: hologram, kinegram, etc.

Counterfeiters can be divided into 5 groups:

1. "Primitive" counterfeiters - who do not use digital technologies, but create counterfeits by modifying part of the currency, e.g. in order to increase its value and thus obtain a financial profit.
2. Counterfeiters who perceive counterfeiting as a hobby - sometimes counterfeit and use typical desktop equipment and available craft supplies.
3. Small (limited) counterfeiters - counterfeit in a targeted manner and actively invest in special computer equipment and materials.
4. Professional counterfeiters - large organized groups. It is a sophisticated production with the help of original printing technologies and the distribution of counterfeits.
5. A special and last group are state-sponsored counterfeiters - who can use the same equipment that is used to produce money (Schafrik, 2007).

## TRAVEL DOCUMENTS AND ID CARDS COUNTERFEITING

Documents in the Slovak Republic resp. most of them, with the exception of the passport (also made of security paper), are made of multilayer polycarbonate and personalized by laser engraving technology. The photo and personal data are laser engraved into plastic foil or card. During laser engraving, the data is recorded by blackening the laser-sensitive film.

*Table 1. Travel documents (passports, identification cards, other travel documents) according to the type of forgery detected in the territory of the Border Police Department in Bratislava.*

		Overall (a-l)	a	b	c	d	e	f	g	h	i	j	k	l
2018	Passports	13	2	-	1	-	1	-	7	-	-	-	1	1
	ID cards	26	-	-	-	-	-	-	-	-	22	2	2	-
	Other travel documents	0	-	-	-	-	-	-	-	-	-	-	-	-
	OVERALL	39	2	0	1	0	1	0	7	0	22	2	3	1
2019	Passports	19	2	-	3	-	4	-	1	-	6	-	3	-
	ID cards	20	-	-	-	-	-	-	-	-	18	-	2	-
	Other travel documents	0	-	-	-	-	-	-	-	-	-	-	-	-
	OVERALL	39	2	0	3	0	4	0	1	0	24	0	5	0

- a. photo exchange
- b. data transcription / correspondence
- c. exchange of the entire data page
- d. exchange of internal pages (except data)

- e. pasting of the data page (several changes at the same time - exchange of a photo, including rewriting / writing of some data)
- f. electronic device (any changes, interventions or damage)
- g. performing unauthorized interventions (damage, covering of a certain part, removal of wet stamps) h. stolen (stolen) clean copy (unauthorized personalized)
- i. fake (made by a counterfeiter)
- j. fictional / deceptive (no legal validity)
- k. real document misused by another person (look a like / impostor)
- l. genuine document obtained by fraud (eg issued to an unauthorized person who has provided false information about himself or as a result of corruption)

When comparing the data of seized Border Police counterfeits from 2018 (13 cases) and 2019 (19 cases), it is clear that in 2019 travel documents were forged to a greater extent. The given table shows that the most common way was the total falsification of the document produced by the forger as well as the exchange of the data page.

### Case Study

On 17 July 2019 at 12.20 am at the Border Police Department in Bratislava, at the site workplace no. 8, applied for the registration of permanent residence and the issuance of a certificate by a foreigner who submitted a fake ID card of Slovakia during the identity check (see pictures below). It was a plastic card made by inkjet printing. Upon request, she submitted the Ukraine electronic passport, while it was found that she was staying in the territory of the Slovak Republic illegally. The ID card of the Slovak Republic (hereinafter "IDC SR) is made of multilayer polycarbonate in the ID-1 format and is personalized by laser engraving technology. There is a contact chip on the back. Note: all upcoming figures (no. 1-6) come from Border Police Department in Bratislava.



Figure 1 showing a) - counterfeit IDC SR                      b) - original IDC SR



Figure 2 showing a) counterfeit IDC SR illuminated UV light,

b) original IDC SR illuminated UV light

In Figure 2a is a false IDC SR under UV light compared to the original specimen (Figure 2b), significant differences in UV graphics and protection are visible.

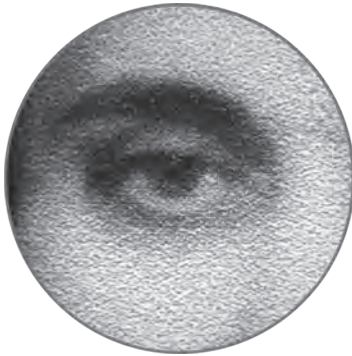


Figure 3 showing a) - inkjet printing,

b) - laser engraving

In Figure 3a is a counterfeit IDC SR in which the inkjet printing was used. The Slovak Republic uses laser engraving to personalize documents. Microscopic examination (60x magnification) was used to compare the disputed material with the original.



Figure 4 showing a)- inkjet printing,

b) - offset printing

In Figure 4a is a counterfeit IDC SR in which an inkjet print was used. Microscopic examination(60x magnification) was used to compare the disputed material with the original. Compared to the original print (Figure 4b), the microtexts that the document contains when using the original printing techniques are absent.

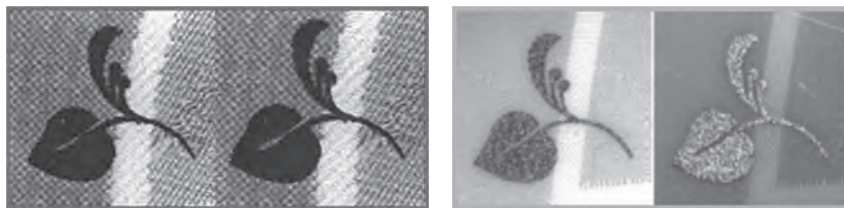


Figure 5 showing a) - counterfeit OVI, b) - original OVI

Figure 5a shows a counterfeit element OVI (optically variable ink) where when the viewing angle of the original (Figure 5b) changes, the color element of the document changes color. Optically variable ink (OVI) - a color containing pigments that act as interference filters, thanks to which significant color changes occur when changing the angle of view, e.g. change of linden leaf color from purple to green on the identity card(Glossary of Documents – REGULA, 2020).



Figure 6 showing a) - counterfeit kinegram, b) - original kinegram

Figure 5a shows a counterfeit kinegram. In a counterfeit IDC SR, the transparent kinegram at different lighting angles showed a visible refraction of light rays from the reflective layer, which may give the impression of authenticity of the document. Kinegram - a transparent optically variable element with color effects. a computer-generated hologram that can create high-resolution, multi-color images. Contains special types of diffractive optical elements that can be arranged to create color change, motion effect, contrast change and other special effects(Glossary of Documents – REGULA, 2020).

## SECURITY FEATURES OF ID CARDS SR

Protective printing - serves as protection against data manipulation, which consists of printed patterns and protective elements such as. guilloche, iris color gradient, microprint, hidden pattern. The basic motif of the protective print is the graphics of hexagons in combination with five-pointed stars.

Rainbow printing - line printing with smooth color transitions. A dyeing process that is used to protect against color separation or copying by gently blending the colors to produce a smooth color change (Glossary of Documents – REGULA, 2020).

Microtext - resp. microprints are lines that consist of very small and hard-to-see letters, numbers or images. They are visible only at magnification and are often used as elements of protective printing and on protective strips. Microprinting cannot be achieved by conventional reproduction means and is therefore often illegible in false documents. The term infinite text is often used for this type of text, which is repeated on the protective strips and is usually without spaces.(Straus, a kol., 2012) In the conditions of the Slovak Republic, positive and negative microtext are used for document protection, which means small-sized letters printed in a positive and negative image visible only at magnification.

UV security features - the main element of UV graphics is a fluorescent color that fluoresces under UV (ultraviolet) light. Fluorescent printing is created by printed security features on the film, which are usually located on the inside of the film to protect them from abrasion or tampering with the authenticity of the document. Fluorescent fibers are added in the process of manufacturing a paper substrate in which they have a protective function. They are located on each side in random places and at random depth (original IDC SR UV security feature in Figure 2b).

Hologram - a diffractive optically variable image element that belongs to the traditional types of technical protection. We know 2D holograms (two-dimensional) with a change in structure and color or 3D holograms (three-dimensional) with motion effects(Glossary of Documents – REGULA, 2020).

Laminate embossing - consists in the transfer of foil using a heated embossing mold. It is one of the forms of printing from above. Relief structure created from the text “Slovak Republic” and the abbreviation “SVK”(Ministry of Interior of the Slovak republic, 2020).

Contact chip / microchip - an integrated circuit for storing and processing data on the holder of an identity card, which contains, for example: name and surname, date and place of birth, digital version of the holder's form. The chip enables electronic use of the document and is secured by active and passive authentication mechanisms. The visible part of the chip are gold-colored contacts(Glossary of Documents – REGULA, 2020).

Machine Readable Zone (MRZ) - contains information about the holder and the document in the form of alphanumeric characters and the symbol "<", which consists of two to three lines. Readers can read this series of characters to simplify document control. The ID1 ID card format used in Slovakia contains three lines of 30 characters on the back of the document. For passports, the ID3 format contains two lines of 44 characters at the bottom of the personal data page.

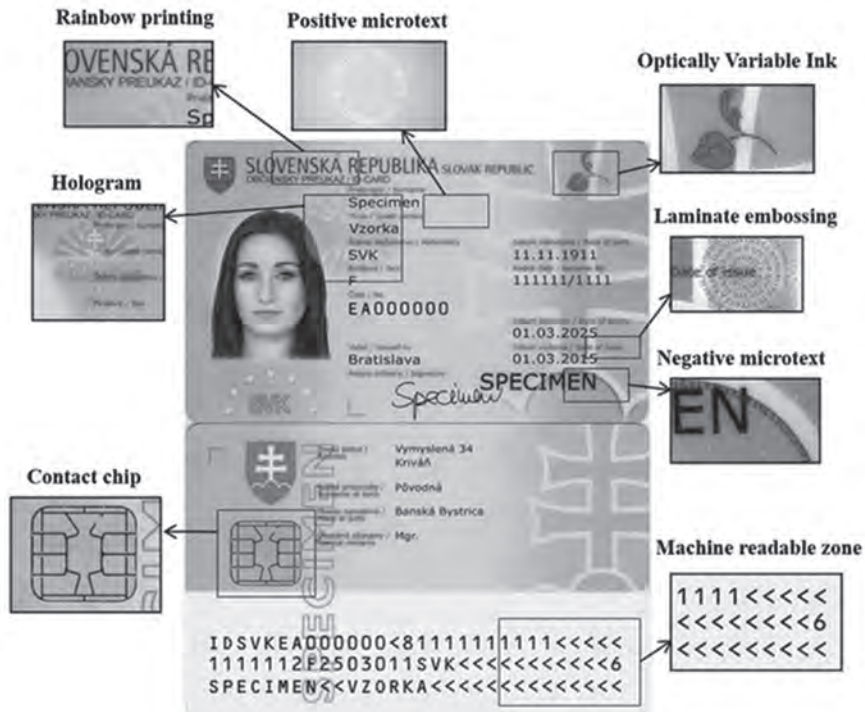


Figure 7 showing security features of ID card SR

Table 2. Comparison of security features of ID cards of V4 countries

Security features	Slovak republic	Czech republic	Poland	Hungary
Rainbow printing	✓	✓	✓	✓
Microtext	✓	✓	✓	✓
Optically variable ink (OVI)	✓	✓	✓	✓
UV graphics	✓	✓	✓	?
Hologram	✓	✓	X	✓
Laminate embossing	✓	✓	✓	X
Contact chip	✓	✓	X	✓



Security features	Slovak republic	Czech republic	Poland	Hungary
Machine readable zone (MRZ)	✓	✓	✓	✓
Elevated engraving	x	✓	x	x
Two-dimensional bar code	x	✓	x	x
Variable laser pattern (CLI/MLI)	x	x	✓	✓
Kinegram	x	x	✓	x
Braille	x	x	✓	x
Secondary shape of the holder	x	x	✓	x

The compared ID cards are made of multilayer polycarbonate and personalized by laser engraving technology. In the case of an identity card issued in Hungary, control under UV light was not possible, so it is possible that it may contain UV graphics. When comparing security features, we see that each country prefers a different type of protection. Identity cards of the Slovak Republic have traditional security features such as a hologram, optically variable color, printing technique, etc. However, there are no more advanced security features such as the variable shape and the secondary shape of the holder, which contribute significantly to the protection against alteration. The Czech Republic was the only one to add elevated engraving and a two-dimensional bar code to the elements of technical protection. Poland has added braille to the security features, which makes it easier for the visually impaired to work with the document.

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### CONCLUSION

When comparing individual statistical data, it is obvious that forgery of documents is still a great threat even with the constant improvement of security features. There are a large number of security features that are used in technical protection and therefore it is very difficult to assess whether the feature is more important and significant for the protection of the document. In the case of passports, it is important to mention the elements of biometric protection, which will continue to play an important role in the protection and identification of the passport holder. EU member states must, according to the EU Council Regulation no. 2252/2004 on standards for security features and biometrics in passports and travel documents, to issue passports that contain

biometric features such as facial image and fingerprints. We can assume that in the future, biometric protection will include elements such as retinal analysis, ear shape, body odor, voice recognition and DNA analysis. When comparing the data, it is obvious that in 2019 travel documents were forged to a greater extent, and the most common way was the total forgery of the document produced by the forger as well as the exchange of the data page.

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