

Advanced anti-counterfeit technologies in everyday business

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There is a countless number of items that need to be protected against counterfeiting. Governments, national banks and security printing companies are responsible for some of them. But the others belong to ordinary firms or public organisations – employee cards, tickets, vouchers, products, components etc.

Counterfeiters have more opportunities now than ever before – just because better technologies are available, from high-quality printing through 3D printing to laser engraving. Whatever you try to imitate, you find useful commercial products.

On the other hand, also protection elements benefit from technological development. The best products are inimitable, and all of them are available on the market without restrictions. You cannot buy high-resolution holograms that protect first class polycarbonate ID cards. Nobody can copy or imitate such holograms. But you can order another hologram with the same technical parameters, such as resolution and unique visual effects. You cannot buy microholograms that protect stamps and drug packaging, but you can order microholograms with your size, shape, logo and hologram. After all, Optaglio has delivered its microholograms to virtually any sector. Budget is the only limitation. And what was just said about Optaglio, can be said of any leading company in anti-counterfeit protection industry.

For the implementation of effective protection measure, you need to answer the following seven questions. We will demonstrate some practical aspects on Optaglio products. Optaglio delivers high-end protection products for premium pricing, but the same principles can be applied at anti-counterfeit protection products of any maturity and any price.

Firstly. What reward can the attacker get through successful faking of the product? It is crucial to see the entire impact of the possible successful attack. E.g. price of employee card can be one dollar. However, a counterfeited card can lead to stealing a disc with information for millions.

Secondly. What will be the costs for counterfeiters? The costs for the counterfeiters are usually much higher than the costs for original producer. Holograms are a good example. With starting mass production, the costs don't fall to zero because quality and security must be guarded attentively. Anyway, they are much lower than the production price of the first series, including creating a master.

Thirdly. How is the requirement for inimitability covered? It is critical that the attacker is not able to imitate the element for acceptable costs. Optaglio's solution is based on a huge resolution of millions of DPI. Even for sophisticated scientific laboratories, it is challenging to manage such resolution. Moreover, the hologram creating beam is navigated with mathematic algorithms that cannot be derived from a ready hologram. Any protection element should include similar barriers, even if not so strong.

Fourth. How is the requirement for discernability covered? The protection works only when the inspector can identify genuine element among fakes (and vice versa). Optaglio's solution insists on the development of unique visual effects and applying them into optical illusions of its holograms. These illusions cannot be created with any other technology. The same principle should be used everywhere. Even low-end security elements should include something relatively unique.

Fifth. How is the security element integrated with the protected item? Even the best element would not enhance security if it were possible to strip it and put somewhere else. Seamless integration is thus a critical issue for any anti-counterfeit protection. Optaglio offers unique patented technology for integrating holograms into polycarbonate cards to create a single unit without any heterogenous adhesive. Other companies use hot stamping or self-destruction foils. In any case, integration needs to be covered.

Sixth. How is ensured that any handling attempt results in visible damage to security element? Optaglio's holograms consist of hundreds of tiny pieces, so any manipulation causes irreversible disintegration. There are also other technical solutions, but it is essential that this requirement is somehow fulfilled.

Seventh. What about document issuing or adding security elements to products? Attackers often target weak points in processes, such as the distribution of ID cards. Other criminals try to steal security elements and add them to fakes. Having sufficient security measures in place is crucial.

Most organisations cannot afford the same protection products as rich government. However, everybody can apply the basic principles. They can be implemented through the advanced technologies (most of them are scalable) or low-cost solutions. Both strategies can work.

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