

Title (en)  
SECURITY ELEMENT COMPRISING MICRO- AND MACROSTRUCTURES

Title (de)  
SICHERHEITSELEMENT MIT MIKRO- UND MAKROSTRUKTUREN

Title (fr)  
ELEMENT DE SECURITE COMPORTANT DES MICROSTRUCTURES ET DES MACROSTRUCTURES

Publication  
**EP 1492679 B2 20140625 (DE)**

Application  
**EP 03714917 A 20030403**

Priority  
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• EP 0303482 W 20030403

Abstract (en)  
[origin: US7680274B2] A security element which is difficult to copy includes a layer composite which has microscopically fine, optically effective structures of a surface pattern, which are embedded between two layers of the layer composite. In a plane of the surface pattern, which is defined by co-ordinate axes x and y, the optically effective structures are shaped into an interface between the layers in surface portions of a holographically non-copyable security feature. In at least one surface portion the optically effective structure (9) is a diffraction structure formed by additive superimposition of a macroscopic superimposition function (M) with a microscopically fine relief profile (R). Both the relief profile (R), the superimposition function (M) and also the diffraction structure are functions of the co-ordinates x and y. The relief profile (R) is a light-diffractive or light-scattering optically effective structure and, following the superimposition function (M), retains the predetermined profile height. The superimposition function (M) is at least portion-wise steady and is not a periodic triangular or rectangular function. In comparison with the relief profile (R) the superimposition function (M) changes slowly. Upon tilting and rotation of the layer composite the observer sees on the illuminated surface portions light, continuously moving strips which are dependent on the viewing direction.

IPC 8 full level  
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Opponent :  
• JP S6366300 U 19880502  
• WO 03043832 A1 20030530 - OVD KINEGRAM AG [CH], et al  
• WO 0061386 A1 20001019 - OVD KINEGRAM AG [CH], et al  
• DE 2701176 B1 19771208 - LANDIS & GYR AG

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**WO 03084764 A2 20031016; WO 03084764 A3 20040205**; AT E487611 T1 20101115; AU 2003219126 A1 20031020; AU 2003219126 A8 20031020; CN 100537267 C 20090909; CN 1646331 A 20050727; DE 10216562 C1 20031211; DE 50313255 D1 20101223; EP 1492679 A2 20050105; EP 1492679 B1 20101110; EP 1492679 B2 20140625; ES 2356227 T3 20110406; ES 2356227 T5 20141010; JP 2005528633 A 20050922; JP 2011008273 A 20110113; JP 5695357 B2 20150401; PL 206879 B1 20100930; PL 371208 A1 20050613; RU 2004132228 A 20050410; RU 2311304 C2 20071127; US 2005082819 A1 20050421; US 7680274 B2 20100316

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