

Title (en)  
OPTICAL PROJECTION DEVICE

Title (de)  
OPTISCHES PROJEKTIONSGERÄT

Title (fr)  
APPAREIL DE PROJECTION OPTIQUE

Publication  
**EP 1997321 A1 20081203 (DE)**

Application  
**EP 07722007 A 20070309**

Priority  
• DE 2007000432 W 20070309  
• DE 102006012448 A 20060317  
• DE 102006031076 A 20060705

Abstract (en)  
[origin: DE102006031076A1] The device has multiple light emitting diode chips (1) and an optical unit with a light entry surface, which is attached to the light emitting diode chips. A light decoupling surface of the light emitting diode chips is optically attached to the light entry surface of the attached optical unit in a refractive index adjustable manner. A gap between the light decoupling surface of the light emitting diode chips and the light entry surface of the attached optical unit is filled with a material, which exhibits a refractive index of 1.3.

IPC 8 full level  
**H04N 9/31** (2006.01); **G02B 6/42** (2006.01); **H01L 33/48** (2010.01); **H01L 33/58** (2010.01); **F21K 99/00** (2010.01)

CPC (source: EP KR US)  
**G02B 26/10** (2013.01 - KR); **G03B 21/00** (2013.01 - KR); **G03B 21/2033** (2013.01 - EP US); **G03B 21/208** (2013.01 - EP US);  
**H04N 5/74** (2013.01 - KR); **H04N 9/3105** (2013.01 - EP US); **H04N 9/3155** (2013.01 - EP US); **F21K 9/00** (2013.01 - EP US);  
**H10K 50/858** (2023.02 - US)

Citation (search report)  
See references of WO 2007110029A1

Citation (examination)  
• WO 2005034523 A1 20050414 - UPSTREAM ENGINEERING OY [FI], et al  
• WO 2004043076 A2 20040521 - SONY INT EUROPE GMBH [DE], et al  
• US 2005173719 A1 20050811 - YONEKUBO MASATOSHI [JP], et al  
• EP 1566847 A1 20050824 - LUMILEDS LIGHTING LLC [US]  
• US 2004206971 A1 20041021 - ERCHAK ALEXEI A [US], et al  
• ZOU H ET AL: "SINGLE-PANEL LCOS COLOR PROJECTOR WITH LED LIGHT SOURCES", 2005 SID INTERNATIONAL SYMPOSIUM. BOSTON, MA, MAY 24 - 27, 20; [SID INTERNATIONAL SYMPOSIUM], SAN JOSE, CA : SID, US, vol. XXXVI, 24 May 2005 (2005-05-24), pages 1698 - 1701, XP007012378

Designated contracting state (EPC)  
DE

DOCDB simple family (publication)  
**DE 102006031076 A1 20070920**; CN 101401441 A 20090401; CN 101401441 B 20101201; EP 1997321 A1 20081203;  
JP 2009530671 A 20090827; JP 4996675 B2 20120808; KR 101299764 B1 20130823; KR 20080110626 A 20081218;  
TW 200745718 A 20071216; TW I344576 B 20110701; US 2009154155 A1 20090618; US 7976200 B2 20110712; WO 2007110029 A1 20071004

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**DE 102006031076 A 20060705**; CN 200780009001 A 20070309; DE 2007000432 W 20070309; EP 07722007 A 20070309;  
JP 2009500694 A 20070309; KR 20087025342 A 20070309; TW 96108892 A 20070315; US 27987307 A 20070309