

Title (en)

LED traffic signal and optical element therefor

Title (de)

LED-Verkehrssignal und optisches Element dafür

Title (fr)

Feu de signalisation à DEL et élément optique correspondant

Publication

EP 2495489 A3 20140604 (EN)

Application

EP 12157934 A 20120302

Priority

US 201113040874 A 20110304

Abstract (en)

[origin: EP2495489A2] A lighting device includes a housing (28,68) having an open end and a geometrical axis and at least one light source (12,52) disposed along an optical axis. The lighting device further includes an outer optical element (10,50) having a focal point and closing the open end of the housing, the optical element comprising a converging outer surface and a diverging inner surface that cooperates with the light coming from the inner optical element. Additionally, the lighting device includes an inner optical element between the light source and the outer optical element, the inner optical element redirecting light from a light source that is offset from the focal point toward the outer optical element.

IPC 8 full level

F21V 5/04 (2006.01); **G08G 1/095** (2006.01)

CPC (source: CN EP US)

F21V 5/008 (2013.01 - EP US); **F21V 5/04** (2013.01 - CN); **F21V 5/045** (2013.01 - EP US); **F21V 7/00** (2013.01 - CN); **F21W 2111/02** (2013.01 - EP); **F21Y 2115/10** (2016.07 - EP US)

Citation (search report)

- [X] WO 2010028239 A2 20100311 - LUMINATION LLC [US], et al
- [XY] DE 4329332 A1 19940303 - KOITO MFG CO LTD [JP]
- [X] EP 1302719 A1 20030416 - HONDA MOTOR CO LTD [JP], et al
- [Y] US 2002034081 A1 20020321 - SERIZAWA TOMOAKI [JP]
- [XY] GB 157070 A 19211222 - MCKENZIE HOLLAND AND WESTINGHO
- [Y] GB 2329011 A 19990310 - HOWELLS RAILWAY PRODUCTS LIMIT [GB]

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

EP 2495489 A2 20120905; **EP 2495489 A3 20140604**; CN 102679207 A 20120919; CN 105757469 A 20160713; EP 2881654 A2 20150610; EP 2881654 A3 20150715

DOCDB simple family (application)

EP 12157934 A 20120302; CN 201210066223 A 20120305; CN 201610136271 A 20120305; EP 14196410 A 20120302