

Technology Request

Optical lens design for adaptation of traditional lights to LED

Summary

An Italian company operating in the field of renewable energy has developed a system to customize traditional lights adapting them with LED lighting. The company is looking for research institutes that can develop further applications (i.e. optical lens design for LED lighting) under technical cooperation agreement.

Creation Date	11 July 2016
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Reference	TRIT20160711001

Details

Description

The company's activity concerns the customization of traditional lights adapting them with LED lights technology.

LED lights technology can offer the advantage to have high reduction of energy consuming compared with traditional lights or energy saving lights. Another advantage of the LED technology is its long life. LED bulbs have an outstanding operational life time expectation of up to 50.000 hours. This is around 17 years considering 8 working hour per day before one would have to replace the LED bulb. LED lights are also eco-friendly because they are free of toxic chemicals. Most conventional fluorescent lighting bulbs contain a multitude of materials like e.g mercury that are dangerous for the environment. LED lights contain no toxic materials and are 100% recyclable. The long operational life time span mentioned above also means that one LED light bulb can save material and production of 25 incandescent light bulbs.

Also, LED lights can switched off and on frequently and without affecting the LED's lifetime or light emission. In contrast, traditional lighting may take several seconds to reach full brightness, and frequent on/off switching does drastically reduce operational life expectancy. During the design stage the company considers the wattage and the luminous flux of the original lamps, the type of LED to install can this be chosen.

The aim of the company is to offer specific products for customers' needs; thus, they are seeking collaborations with institutes under technical cooperation agreement. The ideal partner would be able to develop specific applications like for example optical lens for LED lighting. A lens is an optical device which transmits and refracts light, converging or diverging the beam. A simple lens consists of a single optical element. A compound lens is an array of simple lenses (elements) with a common axis; the use of multiple elements allows more optical aberrations for correction than what would be possible with a single element. Lenses are typically made of glass or transparent plastic.

Commercial LEDs are usually provided with an optical lens with beam angle of 120°. This characteristic could be a limit of the LED lighting. Depending on the ambience to illuminate, a customer could need a spot light or a light with an wider angle. According to the company's policy of customers support in their specific needs, the company is seeking for University and R&D institutions to collaborate with to develop optical lens with different beam angle.

Technical Specification or Expertise Sought

Others important aspects to consider are the Colour Temperature (CCT), according to the ambience where the lamp will be installed, and the Colour Rendering Index (CRI)

One more important aspect to consider is the heat sink, whose design is basic for the life span of the LED.

Stage of Development

Already on the market

IPR Status

Design Rights

Keywords

Technology

004008	Energy efficiency
02006004	Installations related to construction (energy, lighting, ...)
04005005	Solar/Thermal energy
04007002	Lighting, illumination

Market

06	ENERGY
06003001	Solar/thermal energy
06010002	Energy for the community/public sector
08002001	Energy management

NACE

C.27.4.0	Manufacture of electric lighting equipment
D.35.1.1	Production of electricity
F.43.9.9	Other specialised construction activities n.e.c.

Network Contact

Issuing Partner

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Open for EOI : **Yes**

Dissemination

Send to Sector Group

Environment

Client

Type and Size of Organisation Behind the Profile

Industry SME 11-49

Year Established

1975

Already Engaged in Trans-National Cooperation

No.

Languages Spoken

English

Italian

Client Country

Italy

Partner Sought

Type and Role of Partner Sought

The company is looking for research institutes that can develop further applications and adaptation of traditional lights to LED lights technology (i.e. optical lens for LED lights, OLED applications) under technical cooperation agreement.

Type of Partnership Considered. Technical cooperation agreement