

The logo for ILEXA features the word "ILEXA" in a bold, blue, sans-serif font. The letter "E" is stylized, with its left half in blue and its right half in yellow. Inside the yellow portion of the "E", there are five horizontal white bars of varying lengths, resembling a barcode or a light spectrum. The background of the logo area is a circular, abstract pattern of light blue and white lines that create a sense of depth and movement, similar to a tunnel or a lens flare.

ILEXA

LIGHT TECHNOLOGY SERVICES

scientific | reasoned | tested

OUR COMPANY

ILEXA is the embodiment of sophisticated skills in Light Technology, where tasks are confronted with a rich variety of ideas providing solutions on the basis of sound experience, gained in many previous projects. The staff of the company have specialized in Light Technology and can support the customer in putting complex developments in the field of lighting and radiation into practice.

ILEXA was founded in 2000 as a spin-off company from the Department of Light Technology at Ilmenau University of Technology. The team can unite profound academic knowledge of light with enduring practical experience and the application of powerful modern measuring equipment so us are to offer the customer precision, reliability and an exclusive product.





LIGHT TECHNOLOGY SERVICES

- Project development
- Independent photometric measurement
- Light Technology software
- Professionally competent advice

EXEMPLARY ACHIEVEMENT

- Development of an individual lighting solution from the first idea to the prototype
- In-house calculation and design of reflectors with near-field ray data (rayset)
- Simulation and calculation of and for optical components
- Investigation of production models, prototypes and products in the lighting sphere
- Customised and routine measurements either on site or in the ILEXA lab
- Evaluation and characterisation of lamps and lighting materials
- Calculation of light intensity distribution curves (LID)
- Creation of light source models in the photometric near- and far-field to permit precise optical calculations
- Luminance and spectral measurement triggered on site for a variety of ambient parameters (measurements by day and night; indoors and outdoors)
- Programming of user-friendly software modules and other lighting technology solutions: the ILEXA-Ray-Analysator, the ILEXA-Ray-Viewer
- Consultation and feasibility studies

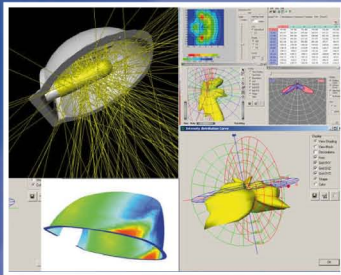
SOLUTIONS THAT WORK FOR YOUR BUSINESS



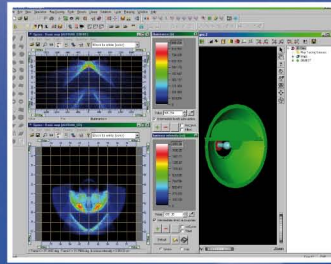


PHOTOMETRIC **DEVELOPMENT & SIMULATION**

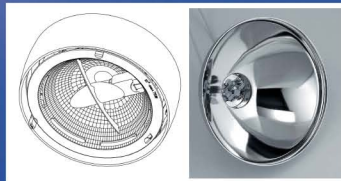
ILEXA will go hand in hand with the customer through the whole cycle of project development, addressing all the issues in turn: requirements analysis, brainstorming, feasibility study, prototype development and validation in practice. Throughout the process, the most up to date of knowledge from engineering and research will be built in to the product, so that it is not easily overtaken by new technology.



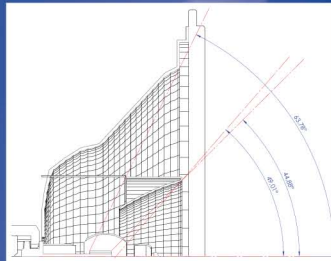
Simulation of a street lighting reflector



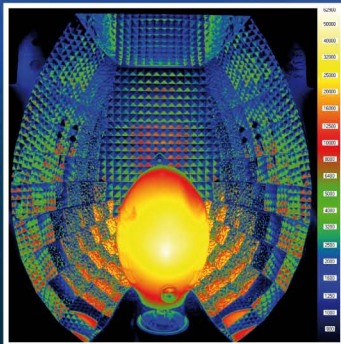
Simulation of an asymmetric floodlight



(left) Design for workplace illumination (right) Prototype reflector for validation of measurements



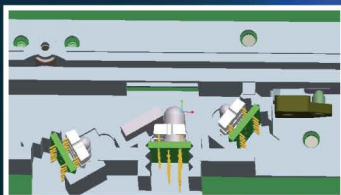
Design for a multi-component reflector



Luminance analysis for a street reflector



(left) Solar and weathering simulation for car bodywork (right) XBO lamp with lenses for solar simulation



LED lighting for a document scanner



Colour simulator light sources: tested for spectrum and luminance

SPHERES OF ACTION

- Brain storming, definition of task, feasibility studies, development or optimisation of equipment to customer specifications
- Design and dimensioning of lighting schemes, luminaire optimisation, light conduction and light simulation
- Design calculation and optimization of reflectors for lighting and radiation equipment such as solar simulators
- Design of lighting optics, measurements to support sample constructions, validation of prototypes
- Development of apparatus for use in lighting and radiation applications

REFERENCE PROJECTS

Here is a list of projects of the kind, which have culminated in mass production:

Micro lighting systems for document scanners and printers, solar simulator, camera light for reverse vending machines, drying reflectors for the printing industry, automotive interior lighting and headlamps, street lamps, tunnel signal lamps, sports illumination or front and searchlights for trains and ships

PHOTOMETRIC

DEVELOPMENT & SIMULATION

At ILEXA, there are the skills for mastering the entire process of light simulation, from the measurement at the light sources to the dimensioning, simulation and prototype validation, all at one site. Not a single detail of the project will be neglected.

All simulations are carried out with valid input data. This data will have been measured at ILEXA using redundancy. This means that it is possible to create equipment that uses sources of light or materials which are absolutely new or previously unknown or for which the manufacturer has not yet given a specification.

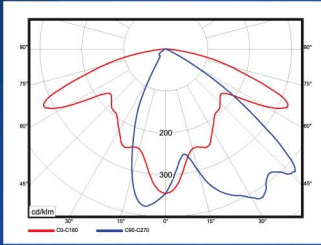
Lighting and radiation equipment has been made by ILEXA using established light sources from well-known manufacturers, and also by using unknown but no less effective no-name products. It is often possible to classify new products for sophisticated projects by making direct comparative measurements.

The commissioning customer will have unlimited rights to the development outcome. This is a way of achieving a market advantage, which will give an ROI that rapidly cancels out the development costs.

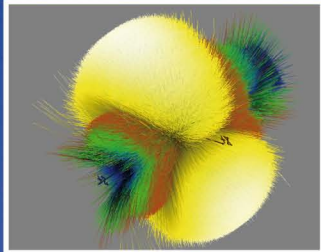


PHOTOMETRIC **MEASUREMENTS**

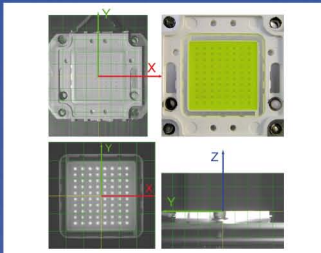
Being an independent laboratory for photometry and lighting engineering, ILEXA can offer precision measurement and evaluation of many parameters and how they match the various standards currently applicable.



Luminous intensity distribution curve (LID) for a light source



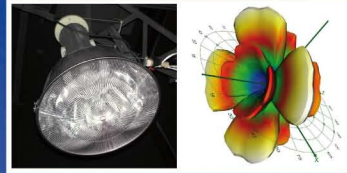
Model of rayset data for a gas-discharge lamp with 50 million rays



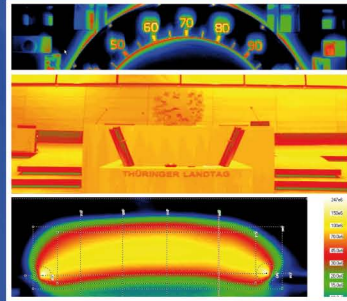
Positioning an LED module in the goniophotometer



Luminance distribution for an emergency rescue sign



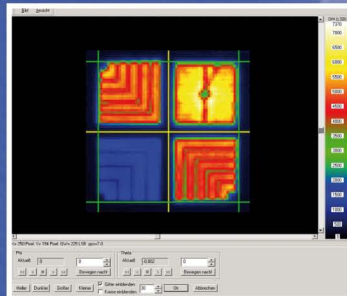
(left) LID measurement for industrial luminaire
(right) LID measured and shown in 3D



Luminance images: car speedometer, auditorium lighting, gas-discharge arc



Evaluation of stadium lighting



Chip structures for an RGB LED dye controller

NEAR-FIELD RAYSET MODELS

of light sources to support simulation of light

- Rayset models of light sources (e. g. LEDs, LED groups and modules), lighting units for technical apparatus and radiation units for the UV and IR bands of the spectrum
- Measurement of rayset data within various colour or spectral bands to support designs for colour mixing or to test optical components

PHOTOMETRY

for prototypes and finished goods

- luminous intensity distribution curves for luminaires both simple and complex, for optical illumination and technical lighting equipment
- Evaluation of the photometric properties of prototypes and lighting units – the luminous flux, the light intensity distribution, the light colour, the spectrum and the photometric properties of the materials (transmission, reflection)
- Temperature distribution, luminous efficacy, utilization factor, glare, conformity with currently applicable standards, etc.
- It is also possible, if the customer so requests, to evaluate the readings obtained in the context of practical usefulness, energy efficiency or observation of standards.

PHOTOMETRIC MEASUREMENTS

As the luminaires and sources of light may vary greatly in dimensions, weight, temperature regime, form of suspension, burning position, spectral and light distribution, additional fittings and types of function, the measurement procedure can be particularly demanding. At ILEXA, it is sine qua non to have regard to all the factors.

The photometry offered will give precise details of the radiation distribution in both the near-field and far-field and will store all the data with no loss. Such exactitude is of particular advantage for tiny light sources such as LEDs and for major floodlighting equipment.



PHOTOMETRIC **SOFTWARE**

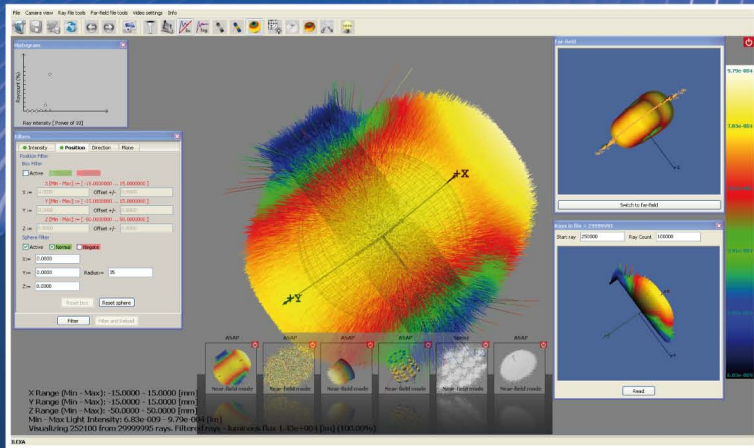
The ILEXA-Ray-Analysator and ILEXA-Ray-Viewer programs have been developed for all users of rayset data as an intuitive tool for the easy and reliable handling of photometric data.

ILEXA RAY-VIEWER 2010

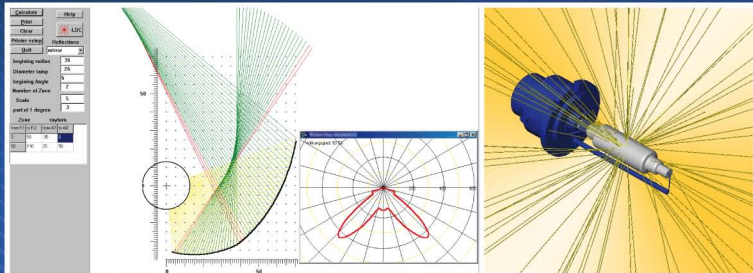
For the professional processing and conversion of rayset data:

ILEXA RAY-VIEWER
ILEXA RAY-ANALYSATOR
ILEXA iRAY

available free on www.ilexa.de
integral to ILEXA rayset data
full version requiring licence, also
as optimised iRay server if desired



Programming window for the ILEXA Ray Viewer, with parallel view of rayset and its corresponding far-field luminous intensity distribution to enable instantaneous alternation between near- and far-field



(left) Interactive configuration of the reflector shield geometry with simultaneous output of LID for the resulting photometric far-field (right) Rayset model for an actual lamp with rays connected to the real lamp surface

ADVANTAGE

of ILEXA ray technology

- Simultaneous switching between near- and far-field data, so that the right input data is always available for the lighting simulation
- Flexibility of choice between suitable rays for the simulation task, regardless of the size, composition, geometry, position or format of the available raysets
- Certainty that the input data for each lighting simulation are correct – given by inbuilt plausibility tests
- Freedom to evaluate and optimise – given by the intuitive gradual visualisation and real-time interaction with the data, plus an “undo” function
- Exclusion of any possible consequences of the "Garbage In, Garbage Out" syndrome – given by consistent data validation after each editing step
- savings in time – given by the hardware-accelerated handling of the data and the optimised computational algorithms

Further ILEXA tools have been developed for the specialised recurrent tasks in lighting engineering for instance, format converters, automation tools for the visualisation of data in the catalogue, simple calculation tools, control software and macros.

PHOTOMETRIC SOFTWARE

With the ray analyser software any type of radiation data in various formats can be rapidly converted. The photometric data will be displayed interactively in real time, offering the possibility of analysis and sorting by parameter - for instance, by intensity, direction or the site of the various light points in the distributed light.

The result is a quick visualisation with simultaneous checking of the data for photometric consistency. For complex lighting simulations, this tool ensures ideal quality of input data. It is only the rays, which are of relevance to the investigation in hand which are dealt with: in quasi real time they are filtered, cleaned up or adjusted in number. This saves simulation time because the "irrelevant" rays can be taken out of the time-consuming simulation loops.



PHOTOMETRIC EVALUATION & CONSULTANCY

At ILEXA, you will find a team that knows how lighting and the lighting industry work. Turn to our team and rely on our long experience! The help you receive will match your needs. Your project will take elegant shape, and where an alternative is necessary, it will be found. ILEXA works closely with Ilmenau University of Technology – among the alternatives are real innovations founded on interdisciplinary co-operation.

EVALUATION & CONSULTANCY IN LIGHT TECHNOLOGY

- Photometric investigation of prototypes
- Advice on practicable lighting design to meet the customer's specific technical process requirements or conditions for use
- Photometric validation of classic or customised luminaires, special lighting equipment and industrial irradiation devices (also on site).
- Advice on applicable standards or norms, and checks on compliance
- Optimisation and anti-glare optimization of major lighting units outdoors
- Evaluation of light pollution and glare
- Measurement of effects of light and radiation
- Layout of lighting components of weathering equipment and establishment of the photometric parameters on completion



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REFERENCE PROJECTS

- Rayset models for light sources, especially LEDs and special equipment
- Conversion filter for any photometric data format required
- Reflector development for indoor and outdoor lighting
- Solar simulator imitating the optical, spectral and energy features of the sun
- Weathering equipment for tests under desert conditions
- Signalling lamps and searchlights for railway and marine transport
- Automated camera test station and colour simulators, mobile luminance standard
- Euro-Chausseé - Software to enable DIN EN 13201 to be applied to street lighting
- ILEXA-Ray-Viewer/Analysator - Software for handling any photometric data required

REFERENCE CLIENTS

AUDI AG | Axelmeiselicht GmbH | Axel-Springer Verlag | Carl Zeiss Meditec AG
| Charité - Universitätsmedizin Berlin | CIBA Vision GmbH | DIEHL Luftfahrt
Elektronik GmbH | ESE GmbH | Feno GmbH | GAZ Notstromsysteme GmbH |
GBS GmbH | Hella KG Hueck & Co. | idee. design. licht. GmbH | Jordan
Reflektoren GmbH & Co. | Karl Dose GmbH | LEDON Lighting Jennersdorf GmbH
| Leipziger Leuchten GmbH | Magna Donnelly GmbH & Co.KG | NDR Fernsehen
| Nimbus Group | OEC AG | Opto Design, Inc. | OSRAM GmbH Werk Berlin |
OSRAM Opto Semiconductors GmbH | Pazdera AG | PerkinElmer ELCOS GmbH
| Phillips Technologie GmbH | Q-Cells AG | Rehau AG+Co | Robert Bosch AG |
RZB GmbH | Techno Team GmbH | Thüringer Landtag | Tridonic Optoelectronics
GmbH | TU Ilmenau | TÜV Thüringen GmbH | Volkswagen AG | WILA
Leuchten GmbH | Wilhelm Westholt GmbH | Wincor Nixdorf Technology GmbH
| Zumtobel Staff GmbH & Co. KG | etc.