



CASE STUDY - LABORATORY LIGHTING - NATIONAL PHYSICAL LABORATORY

Customise your environment with tuneable spectrum integrative lighting

ColorDyne (TM) specialise in tuneable spectrum LED colour mixing for scientific applications spanning the ultra-violet, visible and infra-red. Last year we were approached by the National Physical Laboratory about a new 'whole-of-room' lighting application that required a specific mix of LED colours for their Biometrology Lab.



"The lab lighting solution provided by Colordyne will enable us to vary the colour of the ambient light to avoid the activation wavelengths of our tools while not having to set up our experiments in the dark!"

ALEX

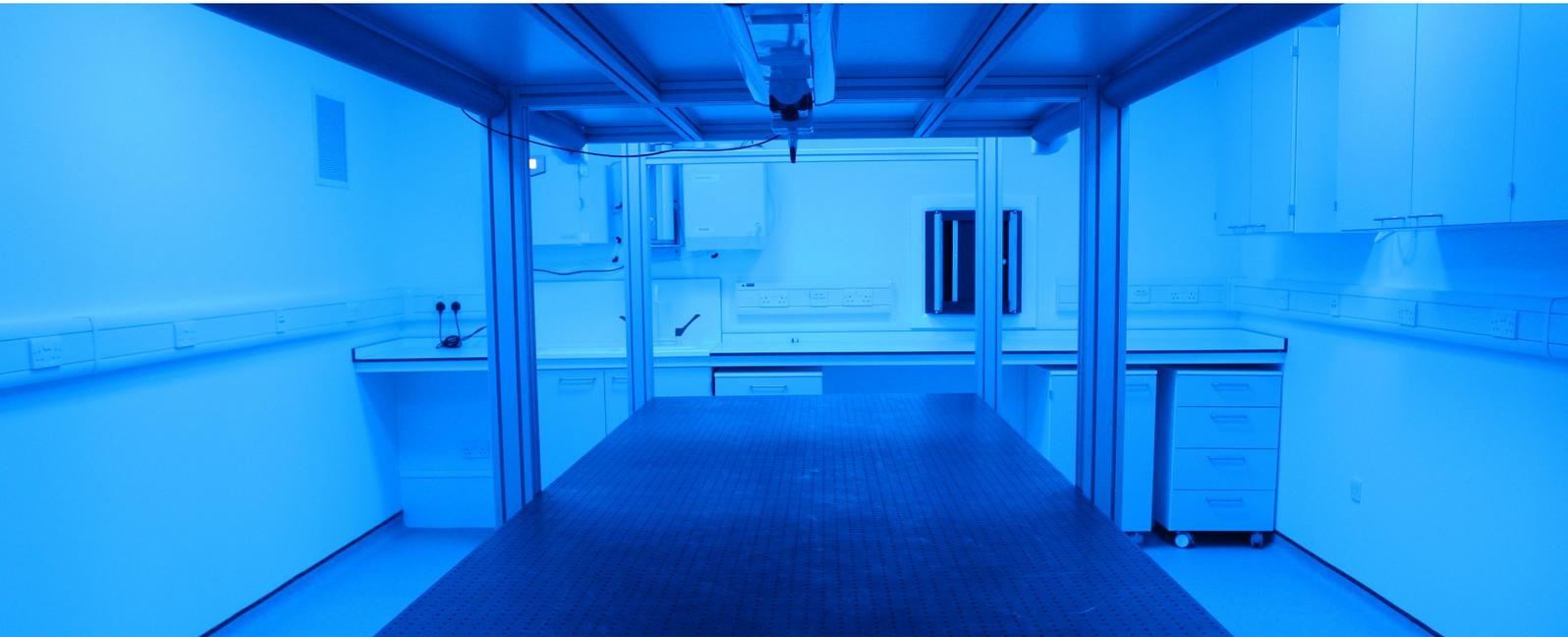
Biometrology Group, NPL

CHALLENGE

NPL's key requirements were:

- Laboratory illumination with colours and wavelengths defined by NPL
- Ability to exclude wavelengths that might incidentally activate their biometrology tools
- Adjustment of individual colours to form any hybrid spectrum desired
- Control of lighting from both a local and remote location
- Ease of installation within existing suspended ceiling
- Maximisation of light output from the fitting

The challenge for us was to adapt our proven LED lightbox technology to a whole-of-room lighting application. We achieved this with our ground breaking ColorZone (TM) Ceiling Tile.

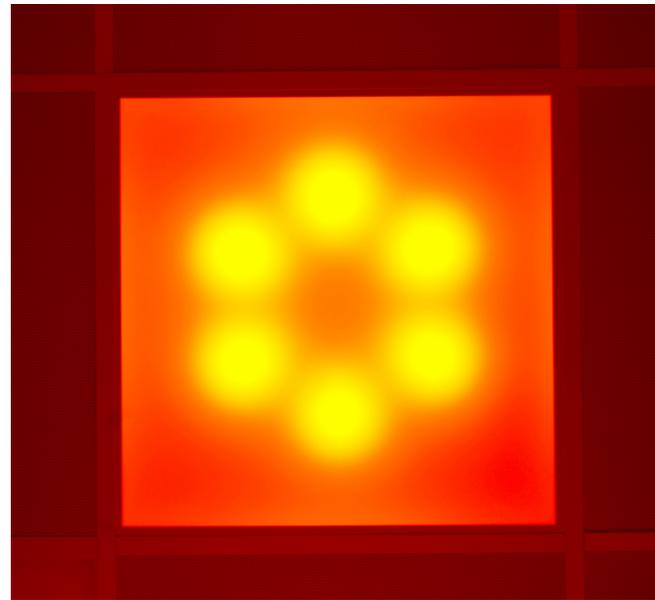


SOLUTION

Customised 6 Channel Tuneable Spectrum Ceiling Tile

The NPL Biometrology laboratory and several other areas were fitted with ColorZone ceiling tiles with the following features:

- Luminaire incorporating 6 user-defined LED wavelength channels
- Single colour as well as multi-colour hybrid spectral mixes of light for laboratory illumination
- Wavelength exclusion as needed
- Local and remote control of lighting system using a simple ethernet topology
- Optimal light efficiency using the ColorZone concept
- Installation compatible with room ceiling infrastructure
- Unique distinctive appearance



"We can program lighting schedules for experiments remotely via DMX over ethernet. Apart from enabling light-sensitive experiments in this way, it is also useful in general for our optics lab to have this tuneable colour lighting, for example to check filters, dichroics and detector arrays"

RICHARD

Biometrology Group, NPL

PRODUCT DEVELOPMENT

NPL was fully involved in the development of the ColorZone Ceiling Tile at every stage, from initial consultation through to installation. NPL defined the wavelengths for their laboratory lighting and we used our proprietary ColorMatrixx (TM) LED optimisation software to identify the appropriate LED selection. We then adapted our core LED lightbox technology and applied it within the ColorZone ceiling tile design. Rapid prototyping allowed for quick assessment and approval by NPL including, importantly, finalisation of the light diffuser, luminaire dimensions and control method. This consultative approach facilitated product design and manufacture within a period of a few months and an ongoing capability to supply a modular ceiling tile luminaire with custom wavelength selection on demand.



"The ColorDyne lighting system is essential for running experiments with light-sensitive samples without perturbing them. For example, a recent experiment involving spectroscopic measurements with a photoreceptor protein required tuning the the ambient light across various colours of the spectrum. The far-red lighting has also been used when working with a highly sensitive photoreceptor protein that would easily photoconvert at any other wavelength "

INES

Biometrology Group, NPL



"I needed to minimise the exposure of my samples to ultraviolet and blue light to avoid background creation of photoinduced species. The ColorDyne system enabled me to use red light to see. I found it particularly convenient to be able to easily adjust this room lighting to a comfortable level "

LIZ

Surface Technology Group , NPL

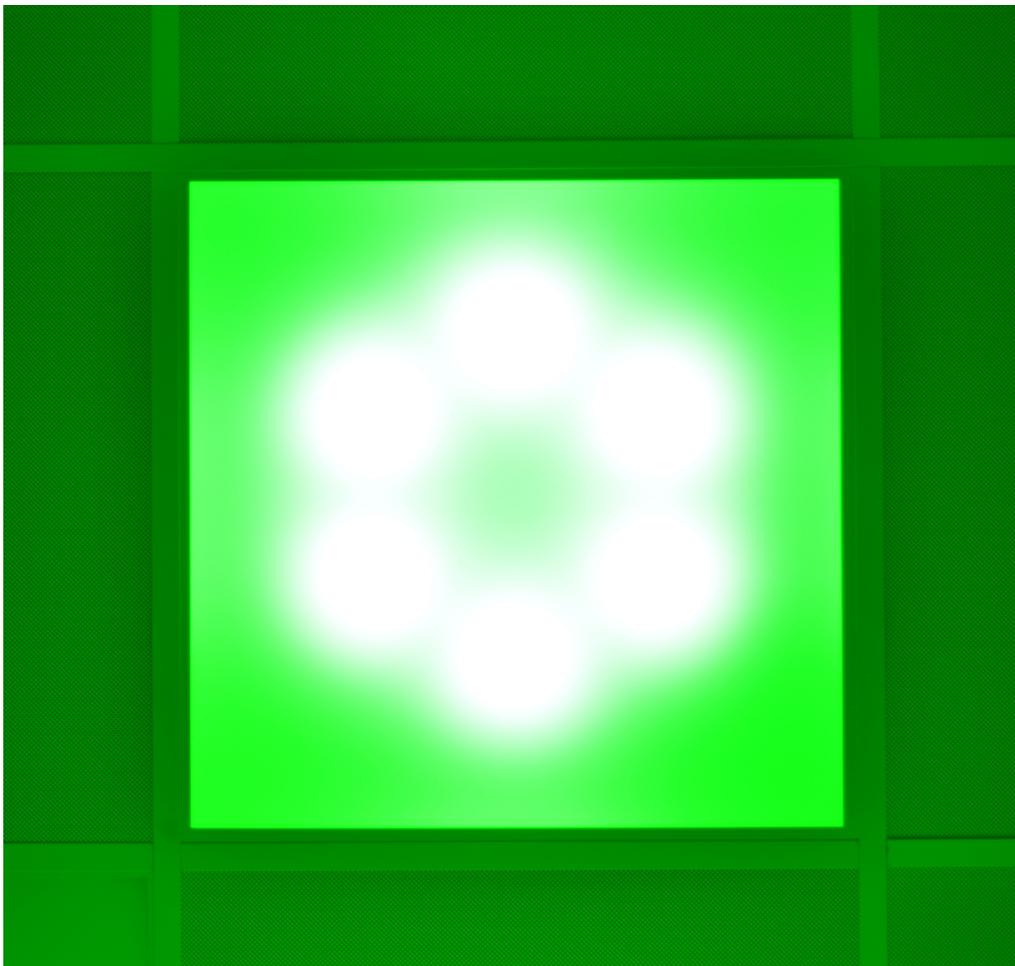


COLORZONE CEILING TILE

The ColorZone ceiling tile offers the ability to blend 18 channels of LED light in order to generate custom light spectra for the room environment. It is compatible with industry standard lighting control software and hardware. In addition, our own proprietary ColorMatryx software can be used for advanced colour functionality that includes precision light spectrum synthesis and sequencing.

COLORZONE APPLICATIONS

In addition to laboratory and other scientific lighting applications, the ColorZone ceiling tile can create any particular spectrum that is desired, for example: D65 artificial daylight, tungsten halogen, circadian lighting, sleep lighting and general mood lighting.



CONTACT US



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COLORDYNE LIMITED

ColorDyne Ltd is a UK company that offers high performance spectrally tuneable lighting systems across UV-VIS-NIR, incorporating up to 40 LED channels where required. Our products range from benchtop LED light boxes for use in research and development to 'whole of room' lighting solutions using the ColorZone technology. By using our proprietary optimisation software along with LEDs sourced from world leading suppliers, we are able to customise and optimise any light spectra for your application.



ABOUT NPL - BIOMETROLOGY GROUP

NPL is the UK's National Metrology Institute, providing the measurement capability that underpins the UK's prosperity and quality of life.

The Biometrology Group at NPL work on cutting edge measurement tools and have an exciting programme of work using light-activated tools. This supports their fundamental work on the better understanding of biological complexity and includes the development of new phototherapies for cancer and infectious diseases as well as informing the future of targeted, personalised medicine.

Based in Teddington, south-west London, NPL employs over 600 scientists. NPL also has regional bases across the UK, including at the University of Surrey, the University of Strathclyde, the University of Cambridge and the University of Huddersfield's 3M Buckley Innovation Centre.



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