



## Module STRIP P130-3

Modules EOS

### Product description

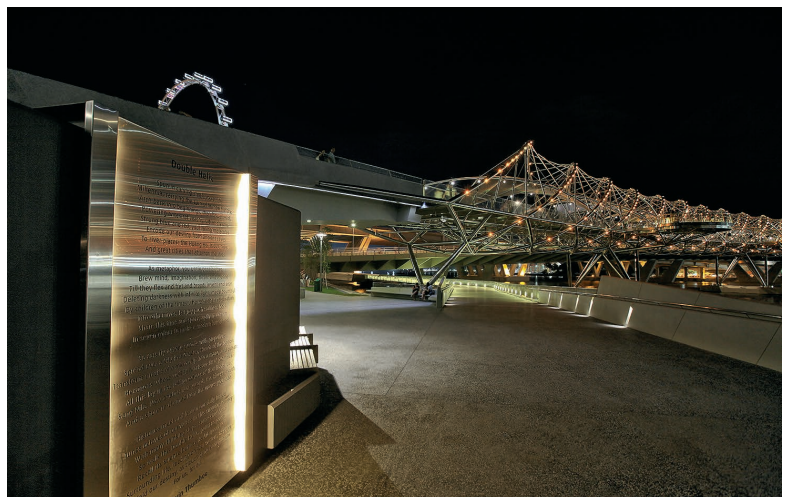
- LED strip module for linear illumination, highlighting of lines and edges and for side injection
- For safety lighting, general lighting, effect lighting and shelf lighting
- Edge injection of transparent or diffuse materials
- With maximum possible beam angle for uniform illumination
- Low-profile
- Simple installation thanks to pre-fitted adhesive tape
- High-power LED in chip-on-board technology (COB)
- Dimmable by pulse width modulation (PWM)
- Integrated current source to stabilise luminous flux
- Wide 140° distribution of light for uniform illumination
- Attached with premounted thermally conductive double-sided adhesive tape
- Connection: cable 200 mm



Colour temperatures and tolerances, page 7, 8



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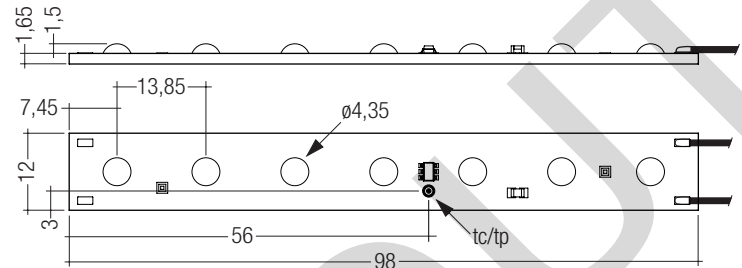
Typical applications

### Module STRIP P130-3

Modules EOS

#### Technical data

|                            |                |
|----------------------------|----------------|
| Ambient temperature range  | -30 ... +40 °C |
| $t_c^{①}$                  | 75 °C          |
| Risk group (EN 62471:2008) | 0              |



#### Ordering data

| Type                             | Article number  | Colour <sup>③</sup> | Colour temperature | Packaging carton | Weight per pc. |
|----------------------------------|-----------------|---------------------|--------------------|------------------|----------------|
| <b>7 light points per module</b> |                 |                     |                    |                  |                |
| <b>P130-3 DL</b>                 | <b>89601755</b> | Daylight white      | 6,500 K            | 20 pc(s).        | 0.007 kg       |
| <b>P130-3 NW</b>                 | <b>89601754</b> | Neutral white       | 4,200 K            | 20 pc(s).        | 0.007 kg       |
| <b>P130-3 WW</b>                 | <b>89601753</b> | Warm white          | 3,000 K            | 20 pc(s).        | 0.007 kg       |
| <b>P130-3 GOLD</b>               | <b>89601752</b> | Gold                | 2,700 K            | 20 pc(s).        | 0.007 kg       |
| <b>P130-3 FM</b>                 | <b>89601921</b> | Fresh meat          | -                  | 20 pc(s).        | 0.007 kg       |
| <b>P130-3 CM+</b>                | <b>89601756</b> | Cool meat +         | -                  | 20 pc(s).        | 0.007 kg       |

#### Specific technical data

| Type                             | Luminous flux at $t_p = 25\text{ °C}^{②}$ | Supply voltage DC <sup>④</sup> | Power consumption <sup>②</sup> | Luminous efficacy module at $t_p = 25\text{ °C}^{②}$ | Colour rendering index CRI |
|----------------------------------|---|--------------------------------|--------------------------------|--|----------------------------|
| <b>7 light points per module</b> |   |                                |                                |  |                            |
| <b>P130-3 DL</b>                 | 285 lm                                    | 24 V                           | 2,4 W                          | 119 lm/W   | 80                         |
| <b>P130-3 NW</b>                 | 265 lm                                    | 24 V                           | 2,4 W                          | 110 lm/W   | 85                         |
| <b>P130-3 WW</b>                 | 235 lm                                    | 24 V                           | 2,4 W                          | 98 lm/W  | 85                         |
| <b>P130-3 GOLD</b>               | 200 lm                                    | 24 V                           | 2,4 W                          | 83 lm/W  | 90                         |
| <b>P130-3 FM</b>                 | 245 lm                                    | 24 V                           | 2,4 W                          | 102 lm/W   | 85                         |
| <b>P130-3 CM+</b>                | 200 lm                                    | 24 V                           | 2,4 W                          | 83 lm/W  | 75                         |

<sup>①</sup>  $R_{th,j-hs}$  = Thermal Resistance (Junction - Heat Sink). Exceeding the max. temperature limits leads to a reduced life or the module can be damaged. Measuring of the temperature at the  $t_c$ -point in the thermally stable state with a temperature sensor.

<sup>②</sup> Tolerance range for optical and electrical data:  $\pm 15\%$ .

<sup>③</sup> Exceeding the max. operating voltage leads to an overload on the LED module. This may in turn result in a reduction in life-time or even in destruction. Tolerance range for the supply voltage: 12 V: +2 V / -0 V; 24 V: +2 V / -0 V.

<sup>④</sup> Gold: light colour for cheese and pastries, cool meat: light colour for fresh meat and sausages.

All values at  $t_a = 25\text{ °C}$ .

## LED Driver matrix – Module STRIP P130-3

| IN-BUILT LCU          |                  |      |                  |      | REMOTE LCU            |      |                          |      |                  |      | Max. chaining |
|-----------------------|------------------|------|------------------|------|-----------------------|------|--------------------------|------|------------------|------|---------------|
| Type                  | 0010 K001<br>24V |      | 0010 K301<br>24V |      | 0025 K201<br>24V      |      | 0025 K210<br>24V one4all |      | 0025 K211<br>24V |      |               |
| Article number        | 86453122         |      | 86456215         |      | 86453418              |      | 86455937                 |      | 86455066         |      |               |
| Assignable LED Driver |                  |      |                  |      | Assignable LED Driver |      |                          |      |                  |      | Max. chaining |
| Type                  | Min.             | Max. | Min.             | Max. | Min.                  | Max. | Min.                     | Max. | Min.             | Max. |               |
| STRIP P130-3          | 1                | 4    | 1                | 4    | 1                     | 10   | 1                        | 10   | 1                | 9    | 30            |

## LED Driver matrix – Module STRIP P130-3

| REMOTE LCU            |                    |      |                    |      |                    |      |                    |      |                    |      |                    |      |                    |      |               | Max. chaining |
|-----------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|---------------|---------------|
| Type                  | LCU 035/24<br>E020 |      | LCU 060/24<br>E020 |      | LCU 100/24<br>E020 |      | LCU 150/24<br>E020 |      | LCU 060/24<br>D010 |      | LCU 100/24<br>D010 |      | LCU 150/24<br>D010 |      |               |               |
| Article number        | 24166320           |      | 24166324           |      | 24166328           |      | 24166333           |      | 22185184           |      | 22185185           |      | 22185186           |      |               |               |
| Assignable LED Driver |                    |      |                    |      |                    |      |                    |      |                    |      |                    |      |                    |      |               | Max. chaining |
| Type                  | Min.               | Max. | Min.               | Max. | Min.               | Max. | Min.               | Max. | Min.               | Max. | Min.               | Max. | Min.               | Max. | Max. chaining |               |
| STRIP P130-3          | 2                  | 14   | 3                  | 25   | 5                  | 30   | 9                  | 30   | 3                  | 25   | 5                  | 30   | 9                  | 30   | 30            |               |

## Lighting controls matrix – Module STRIP P130-3

| REMOTE                       |          |      |      |          |      |      |          |      |      | IN-BUILT                     |  |
|------------------------------|----------|------|------|----------|------|------|----------|------|------|------------------------------|--|
| Type                         | C001     |      |      | C002     |      |      | C004     |      |      | C003 DALI RGB                |  |
| Article number               | 86454974 |      |      | 86454968 |      |      | 24138760 |      |      | 86457912                     |  |
| Assignable lighting controls |          |      |      |          |      |      |          |      |      | Assignable lighting controls |  |
| Type                         | Min.     | Max. | Min. | Max.     | Min. | Max. | Min.     | Max. | Min. | Max.                         |  |
| STRIP P130-3                 | 1        | 48   | 1    | 48       | 1    | 48   | 1        | 48   | 1    | 12                           |  |

**Standards**

EN 62031

EN 62471

**Energy classification**

| Type        | Forward voltage | Energy classification |
|-------------|-----------------|-----------------------|
| P130-3 DL   | 24 V            | A++                   |
| P130-3 NM   | 24 V            | A++                   |
| P130-3 WW   | 24 V            | A++                   |
| P130-3 GOLD | 24 V            | A+                    |
| P130-3 FM   | 24 V            | A++                   |
| P130-3 CM+  | 24 V            | A+                    |

**Thermal design and heat sink**

The rated life of LED products depends to a large extent on the temperature. If the permissible temperature limits are exceeded, the life of the STRIP P130-3 will be greatly reduced or the STRIP P130-3 may be destroyed.

Therefore the STRIP P130-3 needs to be mounted onto a heat sink. However, it is allowed to operate the STRIP P130-3 without heat sink for a short period of time (30 seconds).

Tridonic's excellent thermal design for the STRIP products provides the lowest thermal resistance and therefore allowing new compact designs without sacrificing quality, safety and life-time.

**tc point, ambient temperature ta, temperature and life-time**

The temperature at tc reference point is crucial for the light output and life-time of a LED product.

Compliance with the maximum permissible reference temperature at the tc point must be checked under operating conditions in a thermally stable state. The maximum value must be determined under worst-case conditions for the relevant application.

**Life-time, lumen maintenance and failure rate**

The light output of an LED Module decreases over the life-time, this is characterized with the L value.

L70 means that the LED module will give 70 % of its initial luminous flux. This value is always related to the number of operation hours and therefore defines the life-time of an LED module.

As the L value is a statistical value and the lumen maintenance may vary over the delivered LED modules.

The B value defines the amount of modules which are below the specific L value, e.g. L70B10 means 10 % of the LED modules are below 70 % of the initial luminous flux, respectively 90 % will be above 70 % of the initial value. In addition the percentage of failed modules (fatal failure) is characterized by the C value.

**Lumen maintenance for Module STRIP P130-3**

Life-time declarations are informative and represent no warranty claim.

| tp temperature | L90 / B10 | L90 / B50 | L80 / B10 | L80 / B50 | L70 / B10 | L70 / B50 |
|----------------|-----------|-----------|-----------|-----------|-----------|-----------|
| 65 °C          | 21,000 h  | 31,000 h  | 45,000 h  | 65,000 h  | 72,000 h  | 100,000 h |

**Heat sink characteristics****STRIP P130-3**

| ta    | tc    | R <sub>th, hs-a</sub> |
|-------|-------|-----------------------|
| 0 °C  | 65 °C | 44.78 K/W             |
| 10 °C | 65 °C | 37.88 K/W             |
| 20 °C | 65 °C | 30.98 K/W             |
| 30 °C | 65 °C | 24.09 K/W             |
| 40 °C | 65 °C | 17.19 K/W             |

**Notes**

Above values are guidelines based on natural convection, heat sink material: aluminium ≥ 1mm thick,

R<sub>th, hs-a</sub> = required thermal resistance of heat sink

The actual required heat sink surface need to be corrected according to the actually measured temperature at tc.

**Storage and humidity**

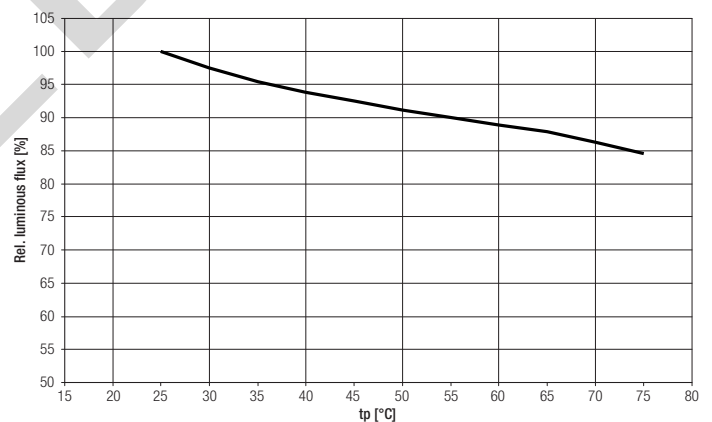
|                     |               |
|---------------------|---------------|
| storage temperature | -25... +80 °C |
|---------------------|---------------|

Operation only in non condensing environment.

Humidity during processing of the module should be between 30 to 70 %.

**Thermal behaviour**

Rel. luminous flux vs. tp temperature



The F value is the combination of the B and C value. That means for F degradation and complete failures are considered, e.g. L70F10 means 10 % of the LED modules may fail or be below 70 % of the initial luminous flux.

**Mounting instruction**

The LED module STRIP from Tridonic which have to be installed on a heat sink are equipped as standard with thermally conductive adhesive tape on the back of the pc board.

These LED products must be installed with this adhesive tape. To ensure permanent adhesion the fixing/cooling surface must be cleaned before installing the LED modules to remove all dirt, dust and grease.

The contact adhesion surface must have a surface energy of at least 38 mNm. The contact pressure must be at least 10 kg/cm<sup>2</sup> (ideally: 40 kg/cm<sup>2</sup>) for at least 3 seconds.

Processing must take place at an ambient temperature of 23 +/- 5°C. A dwell time of 24 hours is required after adhesion.

To avoid damaging the modules during processing you must not touch the components or the glob top. A suitable tool must be used.

For more information please call or email your Tridonic contact.



Chemical substance may harm the LED module. Chemical reactions could lead to colour shift, reduced luminous flux or a total failure of the module caused by corrosion of electrical connections.

Materials which are used in LED applications (e.g. sealings, adhesives) must not produce dissolver gas. They must not be condensation curing based, acetate curing based or contain sulfur, chlorine or phthalate.

Avoid corrosive atmosphere during usage and storage.

**EOS/ESD safety guidelines**

The device / module contains components that are sensitive to electrostatic discharge and may only be installed in the factory and on site if appropriate EOS/ESD protection measures have been taken. No special measures need be taken for devices/modules with enclosed casings (contact with the pc board not possible), just normal installation practice. Please note the requirements set out in the document EOS / ESD guidelines (Guideline\_EOS\_ESD.pdf) at: <http://www.tridonic.com/esd-protection>

**Electrical supply/choice of LED Driver**

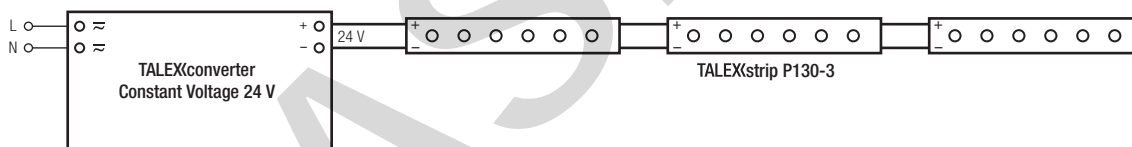
Module EOS from Tridonic are not protected against overvoltages, overcurrents, overloads or short-circuit currents. Safe and reliable operation can only be guaranteed in conjunction with a LED Driver which complies with the relevant standards. The use of a LED Driver from Tridonic in combination with Module EOS guarantees the necessary protection for safe and reliable operation.

If a LED Driver other than from Tridonic is used, it must provide the following protection:

- SELV
- Short-circuit protection
- Overload protection
- Overtemperature protection



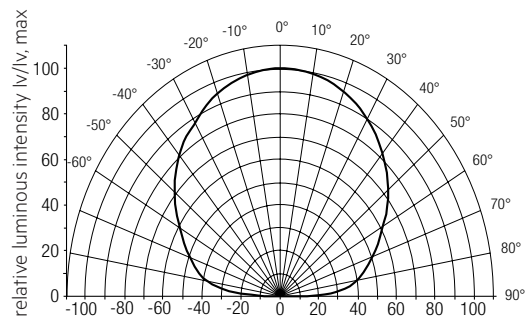
The STRIP P130-3 must be supplied by a constant current LED Driver. Operation with a constant voltage LED Driver will lead to an irreversible damage of the module. The STRIP P130-3 is protected against reversed polarity.

**Wiring example****Chaining:**

P130-3 → max. 30 pieces (max. cable length between modules = 100 mm)

## Optical characteristics Module STRIP P130-3

The optical design of the STRIP lens system ensures an optimum of homogeneity for the light distribution.

**Light distribution**

The diagrams based on statistic values.  
The real values can be different.

| Light colour        | Iv <sub>max</sub> . (cd) |
|---------------------|--------------------------|
| Warm white (WW)     | 55                       |
| Neutral white (NW)  | 62                       |
| Daylight white (DL) | 65                       |

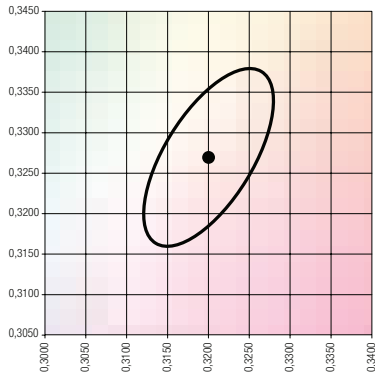
For further information see Design-in Guide, 3D data and photometric data on [www.tridonic.com](http://www.tridonic.com) or on request.

**Coordinates and tolerances according to CIE 1964**

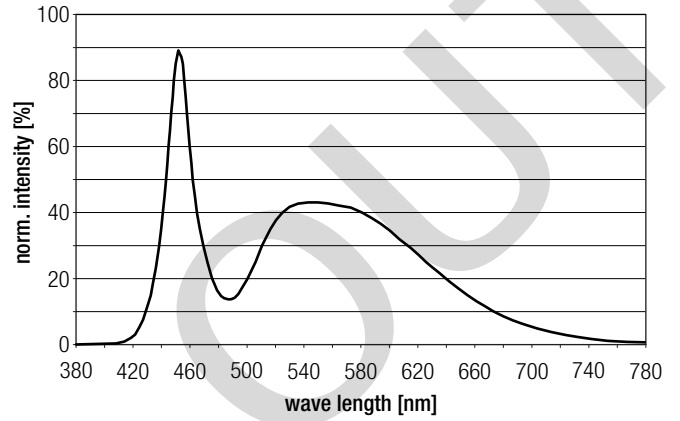
The specified colour coordinates are measured at a voltage impuls of 24 V integral after a settling time of 200 ms.  
The ambient temperature of the measurement is  $t_a = 25\text{ }^\circ\text{C}$ .

6,500 K

|        | x0     | y0     |
|--------|--------|--------|
| Centre | 0.3200 | 0.3270 |

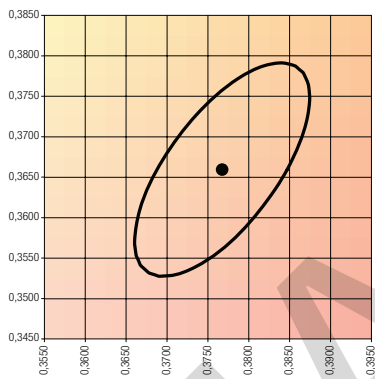


MacAdam ellipse: 5SDCM

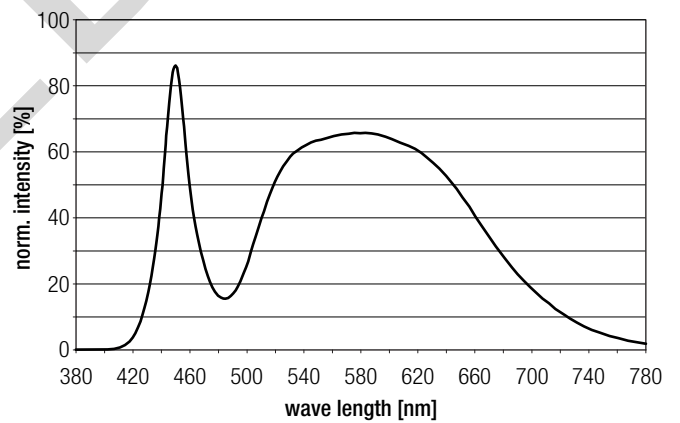


4,200 K

|        | x0     | y0     |
|--------|--------|--------|
| Centre | 0.3770 | 0.3660 |

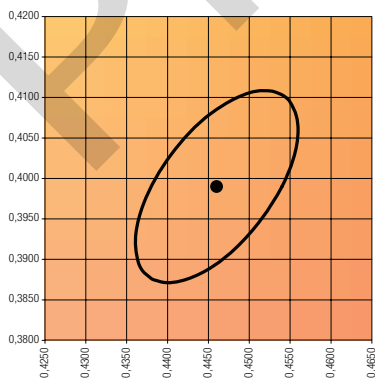


MacAdam ellipse: 5SDCM

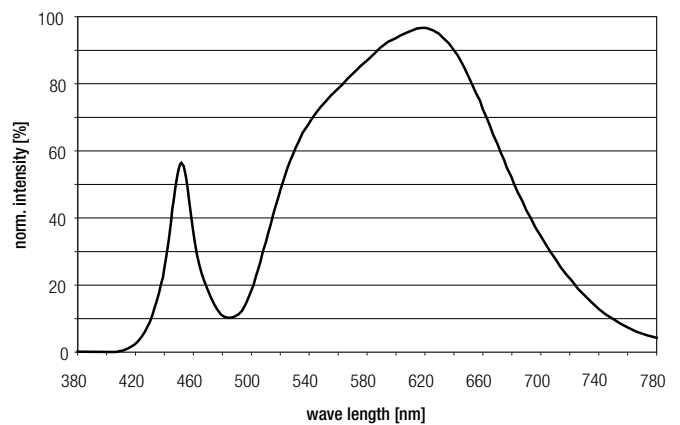


3,000 K

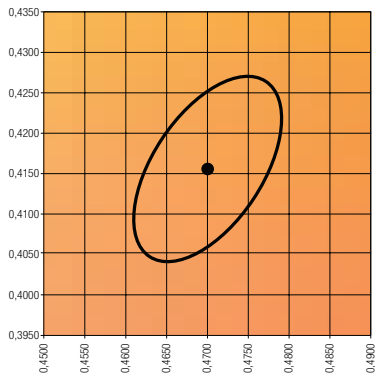
|        | x0     | y0     |
|--------|--------|--------|
| Centre | 0.4460 | 0.3990 |



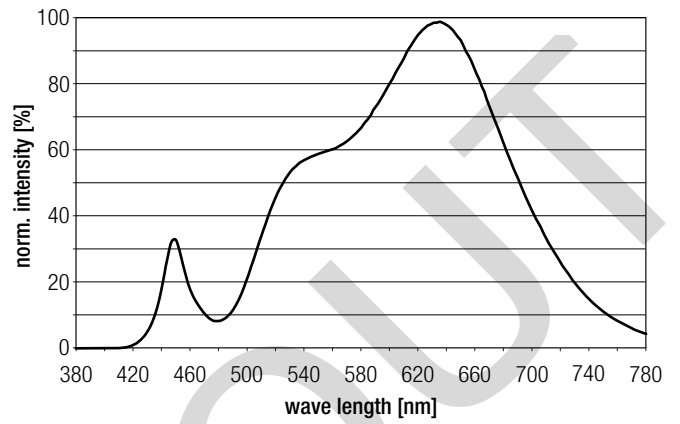
MacAdam ellipse: 5SDCM



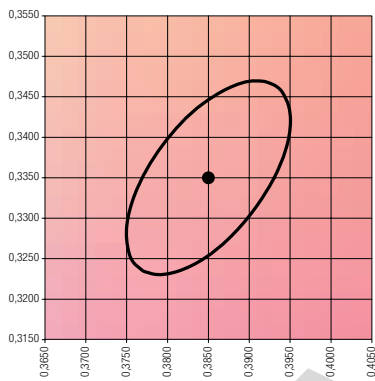
| Gold   | x0     | y0     |
|--------|--------|--------|
| Centre | 0.3630 | 0.3070 |



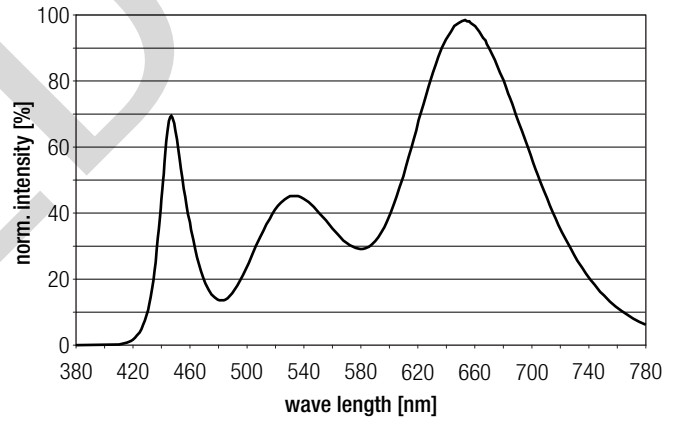
MacAdam ellipse: 5SDCM



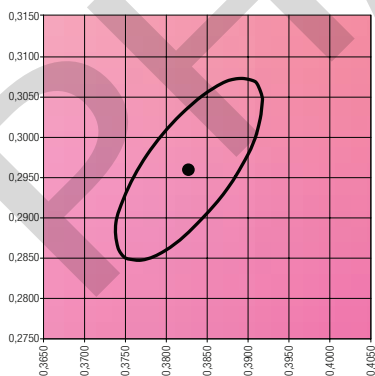
| Fresh meat | x0     | y0     |
|------------|--------|--------|
| Centre     | 0.3850 | 0.3350 |



MacAdam ellipse: 5SDCM



| Cool meat + | x0     | y0     |
|-------------|--------|--------|
| Centre      | 0.3827 | 0.2960 |



MacAdam Ellipse: 5SDCM

