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This report enfolded 11 pages.

**tgm**

Staatliche Versuchsanstalt

Elektrotechnik und Elektronik

FEDERAL INSTITUTE OF TECHNOLOGY  
ELECTRICAL AND  
ELECTRONIC ENGINEERING

## EXPERTISE

TGM – VA EE 38713

Ball throwing safety for  
LED-Luminaire  
Series: CR2..

according to: DIN 57710-13/VDE 0710-13: 1981-05  
DIN 18032-3:1997-04

Commissioned by: Zumtobel Lighting GmbH.  
Address: A-6851 Dornbirn, Schweizer Straße 30  
Order reached: 2021-02-22 / Order Nr. 90070752  
Sign of order: Mr. S. Krenn / Mr. T. Egle  
Receiving of test sample(s): 18400 / 2021-02-10  
Test period: CW 06/2021  
TGM-number: 166/2/21



## 1 Test order

As ordered we carried out the tests for ball throwing safe luminaires (DIN 57710-13/VDE 0710-13:1981-05) according to DIN 18032-3:1997-04 for the luminaire type CR2...

## 2 Test item

### LED- Luminaires:

Series: CR2 ...

Type: CR2PL M17k-830 CH NB EVG E3 WH

Nominal voltage: 220-240 V, 0/50/60 Hz

Nominal current: 2,557 A

Nominal wattage: 1x120,4W

Weight: 8kg

Class: I

IP- Degree of protection: IP66

Mounting: recessed in ceiling (see mounting accessories on page 5)

Series: CR2 ...

Type: CR2 L35k-840 PC WB LDO WH

Nominal voltage: 220-240 V, 0/50/60 Hz

Nominal current: 0,995A

Nominal wattage: 1x222W

Weight: 15kg

Class: I

IP- Degree of protection: IP66

Mounting: recessed in ceiling (see mounting accessories on page 5)



Picture 1: CR2PL M17k-830 CH NB EVG E3 WH



Picture 2: CR L35k-840 PC WB LDO WH



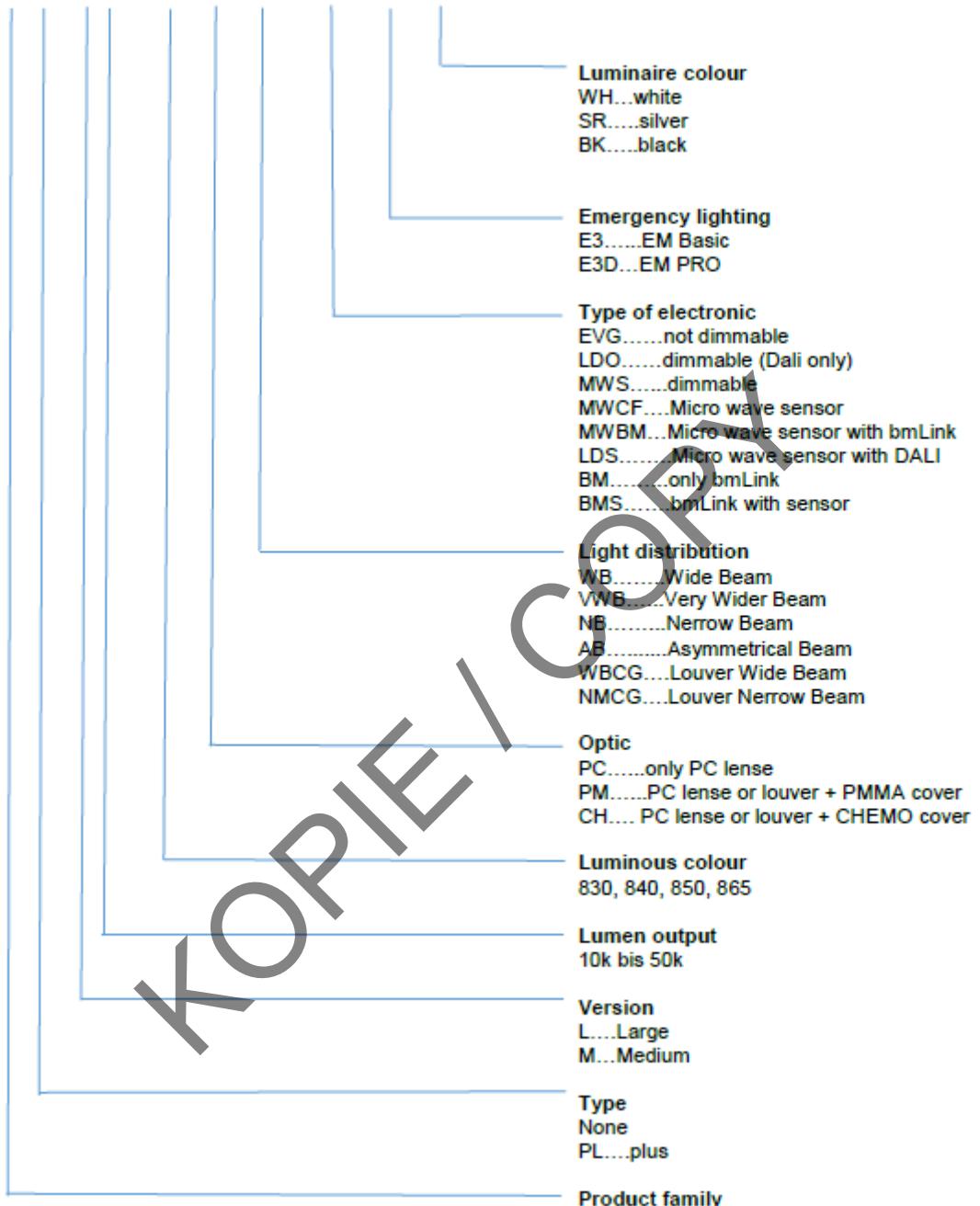
Picture 3: CR2PL M17k-830 CH NB EVG E3 WH – recessed in ceiling



Picture 4: CR L35k-840 PC WB LDO WH – recessed in ceiling



CR2\*\*\* \*\*\*\*k-\*\*\* \*\*\* \*\*\* \*\*\* \*\*\* \*\*\* \*\*\* \*\*\*



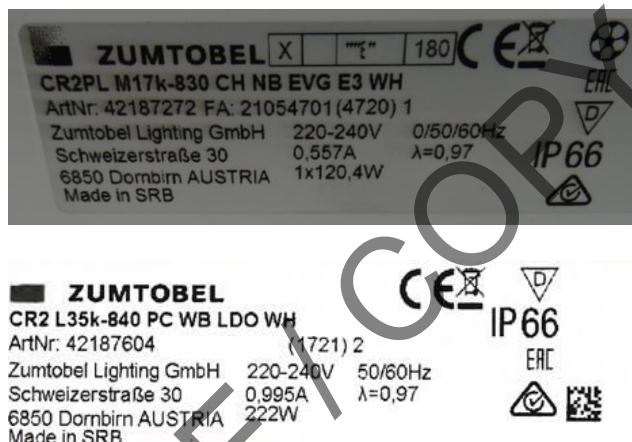
Picture 5: type code for CR2.. series



Article name	Item number	Item description
CR2PL M Mounting Frame	22171570	Einbaurahmen / mounting frame M CR2PL
CR2PL L Mounting Frame	22171571	Einbaurahmen / mounting frame L CR2PL
CR2 M Mounting Frame	22171572	Einbaurahmen / mounting frame M CR2
CR2 L Mounting Frame	22171573	Einbaurahmen / mounting frame L CR2

Table 1: mounting accessories for CR2... series

### 3 Marking



Picture 6: marking / label

### 4 Test specifications and Results

#### Specifications during the test:

The tests were performed according to DIN 57710-13/VDE 0710-13:1981-05 (Luminaires with operating voltage below 1000V; luminaires safety to ball throwing) in conjunction with DIN 18032-3:1997-04 (Sport halls – Halls for gymnastics, games and multi-purpose use – Part 3: Testing of safety against ball throwing)

The luminaire was mounted direct on the ceiling recessed in a wooden box on an 10cm thick wooden plate on the ceiling; fixed with a mounting frame.

Luminaires tested with all optics and light distributions according to type code on page 14.

Ball throwing test apparatus: similar picture 1 of DIN 18032-3:1997-04



Handball: mass: 430g  
diameter:  $\varnothing$  187mm  
overpressure: 1.2bar  
impact speed:  $(16.5 \pm 0.5)$  m/s

ball	shot - angle	shot quantity
Handball	90°	12
Handball	-60°	12
Handball	+60°	12

Table 2: luminaires safety to ball throwing – shot sequence

### Results:

After the test: The test sample fulfils the requirements of EN 60598-1:2015 for the protection against electric shock (section 8: no access to live parts with the test finger) and the electric strength (section 10: high voltage test).

There was no damage according to DIN 57710-13/VDE 0710-13:1981-05 detected, particularly:

- No access to live parts.
- Effectiveness of isolation barriers is not reduced.
- No reduction of the IP-degree of protection against the ingress of dust, solid objects and moisture.
- Covers could be removed or replaced without damaging the cover or isolation.

During the test no parts of the luminaire were falling down. The LED-modules shows no mechanical damage. The enclosure of the luminaire shows no damage which have an effect on the creepage distances and clearances.



Picture 7: ball throwing safety test on CR2PL M17k-830 CH NB EVG E3 WH – recessed



Picture 8: ball throwing safety test CR2PL M17k-830 CH NB EVG E3 WH – recessed



Picture 9: ball throwing tested luminaires

## 5 Summary

The test item described and pictured under clause 2 fulfils the requirements for ball throwing safe luminaires (DIN 57710-13/VDE 0710-13:1981-05) according to DIN 18032-3:1997-04. The test result relates to all luminaire versions of the CR2.. series, provided these are structurally identical to the tested luminaires (see type code).



The present report

is including 11 Pages  
0 Appendix(es) (with 0 pages)

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Vienna, 2021-04-27



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Representing the testing- and inspection body

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