

IESNA LM79 - 2008 Test Report

Photometric testing and evaluation in accordance with LM79-2008

Report prepared for:	R. STAHL Schaltgeräte GmbH Nordstraße 10 99427 Weimar / Germany
Report number:	LM79-20180516-10700 / 01

Sample tested:	6002/4.44-.....-850. or 6402/4.44-.....-850.
Manufacturer:	R. STAHL Schaltgeräte GmbH

Testing performed by :	ILEXA GbR Werner-von-Siemens-Straße 4a 98693 Ilmenau / Germany Tel.: (+49) 3677 / 466 33 0 Fax: (+49) 3677 / 466 33 14 Internet: www.ilexa.de
-------------------------------	--

Laboratory :	Ilmenau University of Technology Group of Lighting Engineering Prof.-Schmidt-Str. 26 98693 Ilmenau / Germany
---------------------	---

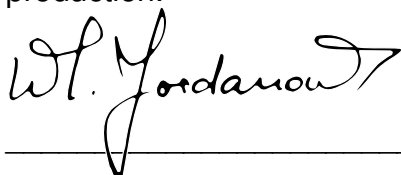
Table of contents

1.	Description of test sample.....	3
1.1.	General Informationen.....	3
1.2.	Manufacturer specifications.....	3
1.3.	Pictures.....	4
2.	Scope of testing.....	5
3.	Equipment.....	5
4.	Additional information.....	5
5.	Test Results.....	6
6.	Results goniophotometer.....	7
6.1.	Illuminance plots.....	7
6.2.	Candela plots.....	8
7.	Results spectroradiometer.....	10
7.1.	Relative spectral distribution.....	10
7.2.	Chromaticity diagram.....	11
7.3.	Color calculation.....	12

General Information

This report may not be reproduced except in full without permission of ILEXA GbR.

This technical report may only be quoted in full. Any use for advertising purposes must be granted in writing. This report is the result of a single examination of the object in question and is not generally applicable evaluation of the quality of other products in regular production.



Wladimir Jordanow
ILEXA GbR president

1. Description of test sample

1.1. General Informationen

Sample received:	02.05.2018
Manufacturer:	R. STAHL Schaltgeräte GmbH Nordstraße 10 99427 Weimar / Germany
Model number:	Size: 4 / Diffuser: without / LED: 5000K R 3Z S / Power supply: 6045 + i-Modul
Model type:	Luminaire
Length / Width / Height:	1310mm / 185mm / 125mm

1.2. Manufacturer specifications

Voltage [V]:	230.0 AC
Current [A]:	-/-
Frequency [Hz]:	50.0

1.3. Pictures

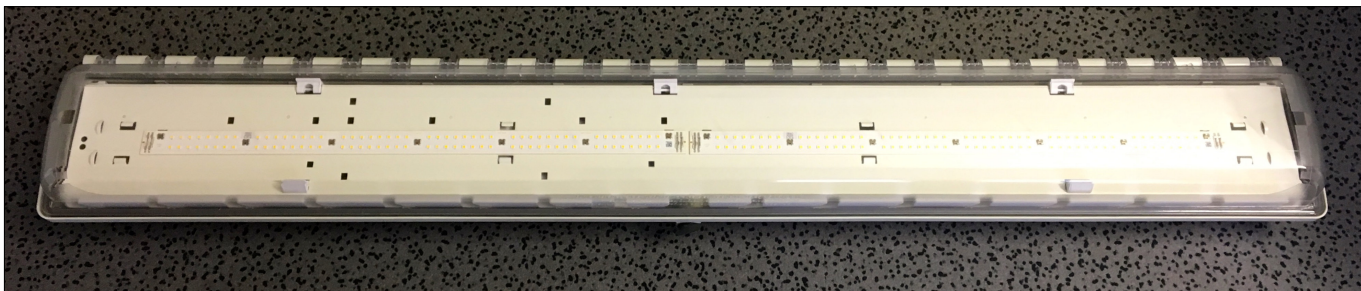


Figure 1: Luminaire (picture similar)

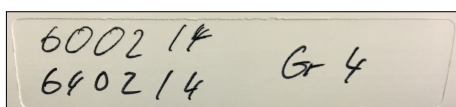


Figure 2: Luminaire ID



Figure 3: LED source label

2. Scope of testing

Photometric and electrical testing in accordance with IESNA LM 79-2008 IES (Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products). All measurements are made using the goniophotometer / spectroradiometer test method.

The spectral values are measured at a given direction with vertical angle $\theta = 0^\circ$.

Date of test: 16.05.2018
Report and test prepared by: Kranhold / ILEXA GbR

3. Equipment

Testing is performed in accordance with the procedures outlined in IESNA LM79-2008. The sample is evaluated for photometric and electrical characteristics using a goniophotometer, located in an temperature - controlled, draft free photometric laboratory.

Item	Manufacturer	Model	Calibration due
Goniophotometer	TechnoTeam	RiGo801	yearly
Spectroradiometer	Jeti	specbos 1211	yearly
Power Supply	Statron AG	BE2/01H-IP-R20-B	N/A
Digital Power Meter	Yokogawa	WT110	N/A

Table 3.1: Test Instrumentation

4. Additional information

(none)

5. Test Results

The results were obtained after stabilization of the sample in accordance with the requirements set forth in section 5.0 of IES LM79-2008.

	Goniophotometer	Spectroradiometer
Total luminous flux [lm]	6541.3	-
Luminous efficacy [lm/W]	156.1	-
Correlated color temperature (CCT) [K]	-	4926
Color rendering index (CRI - R _a)	-	82.8
Chromaticity (x / y)	-	0.3478 / 0.3586

Table 5.1: Photometric results

Input power [W]	41.9
Input voltage [V]	230.0 AC
Input current [A]	0.1927
Input frequency [Hz]	50.0

Table 5.2: Electrical results

Orientation (burning position) during test	horizontal
Prior operation time [minutes]	5
Stabilization time [minutes]	15
Total operating time [minutes]	60
Ambient temperature [°C]	24.5

Table 5.3: Additional Parameters

6. Results goniophotometer

6.1. Illuminance plots

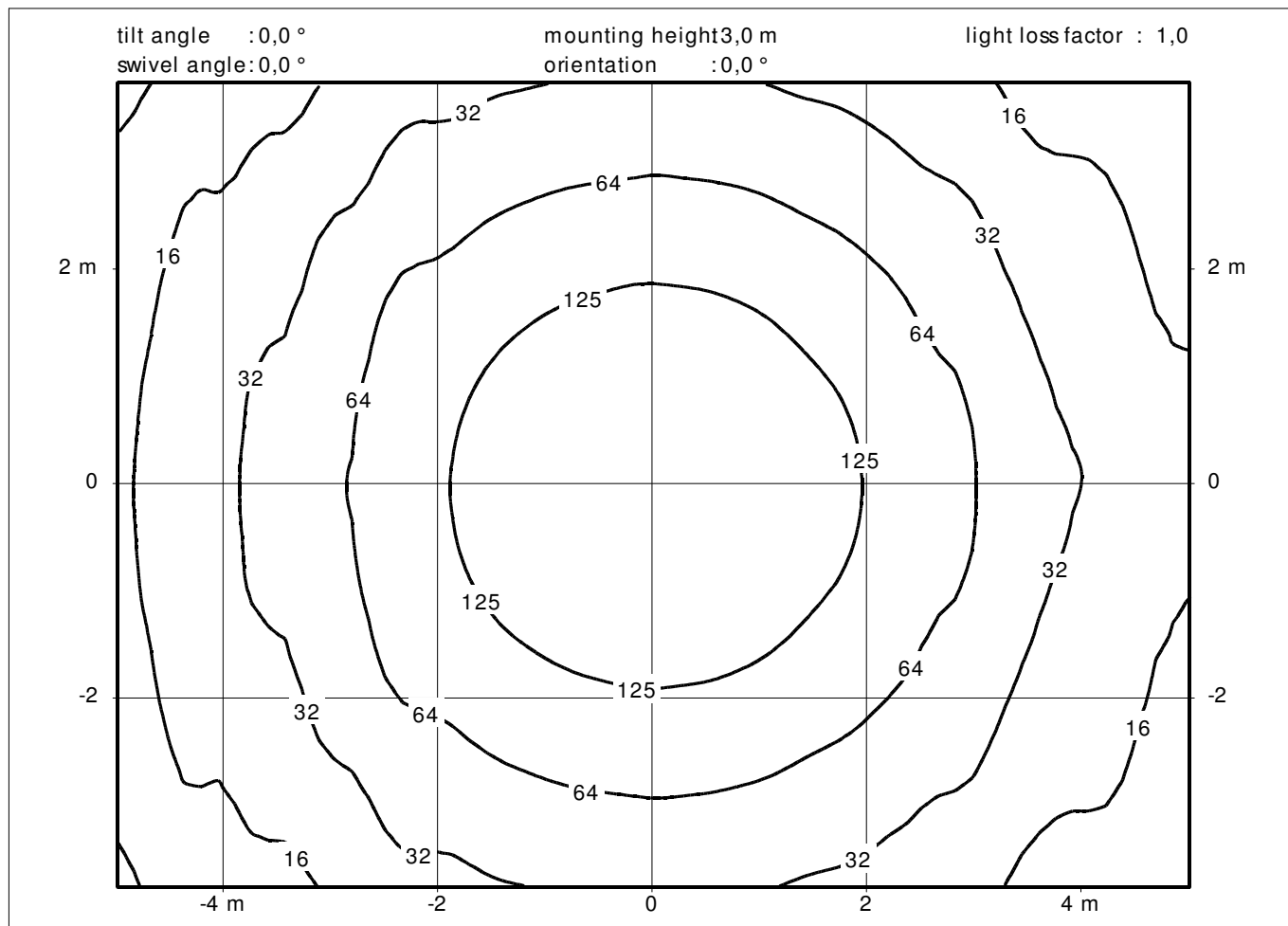


Figure 4: Isolux diagram (mounting height 3m)

6.2. Candela plots

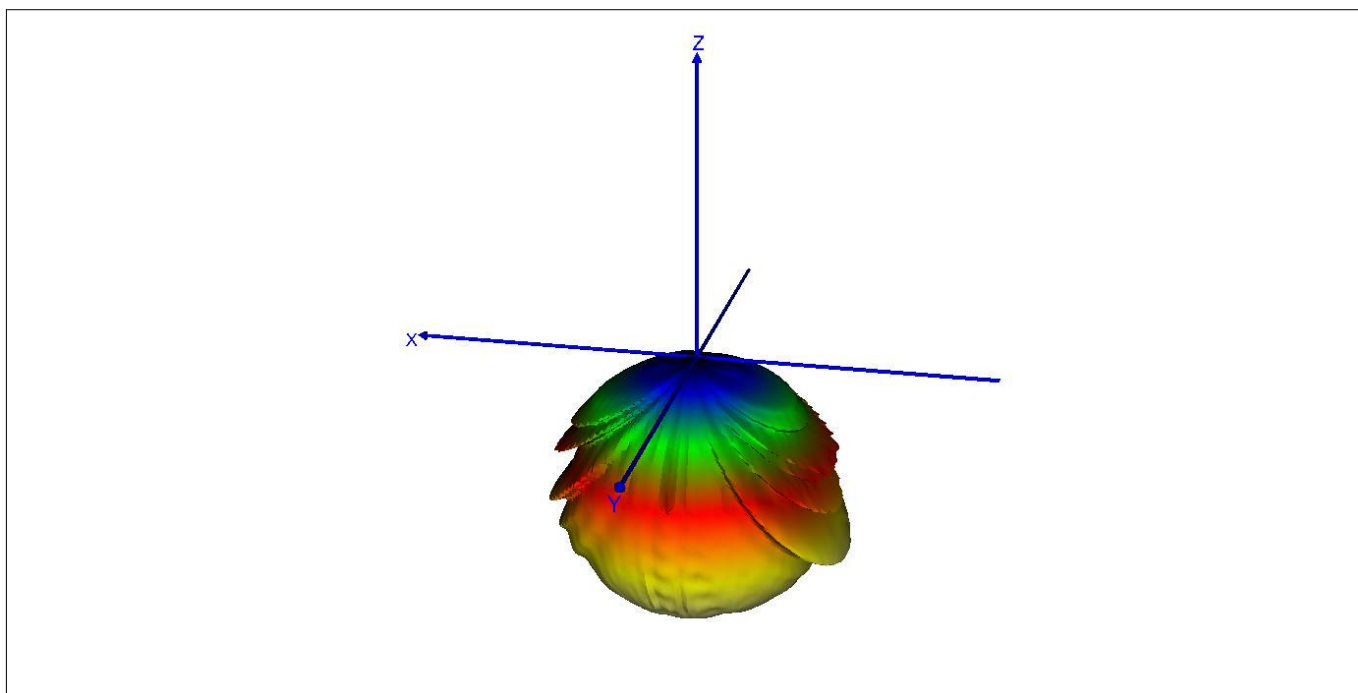


Figure 5: 3D - luminous intensity distribution

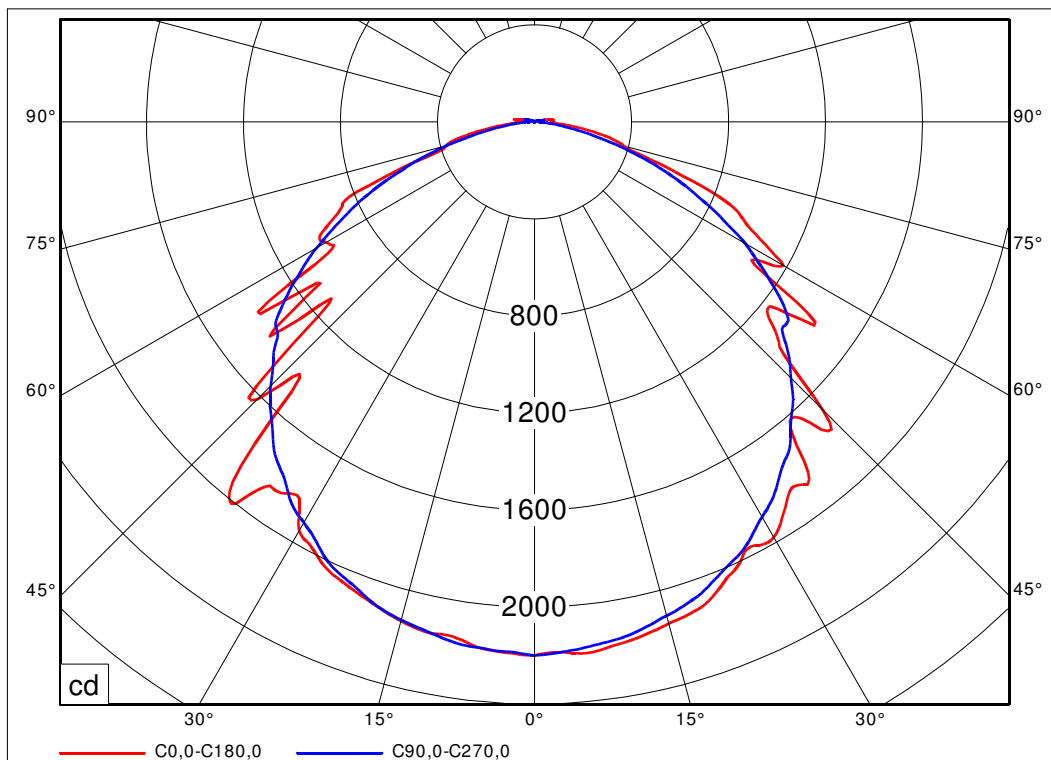


Figure 6: Polar candela distribution

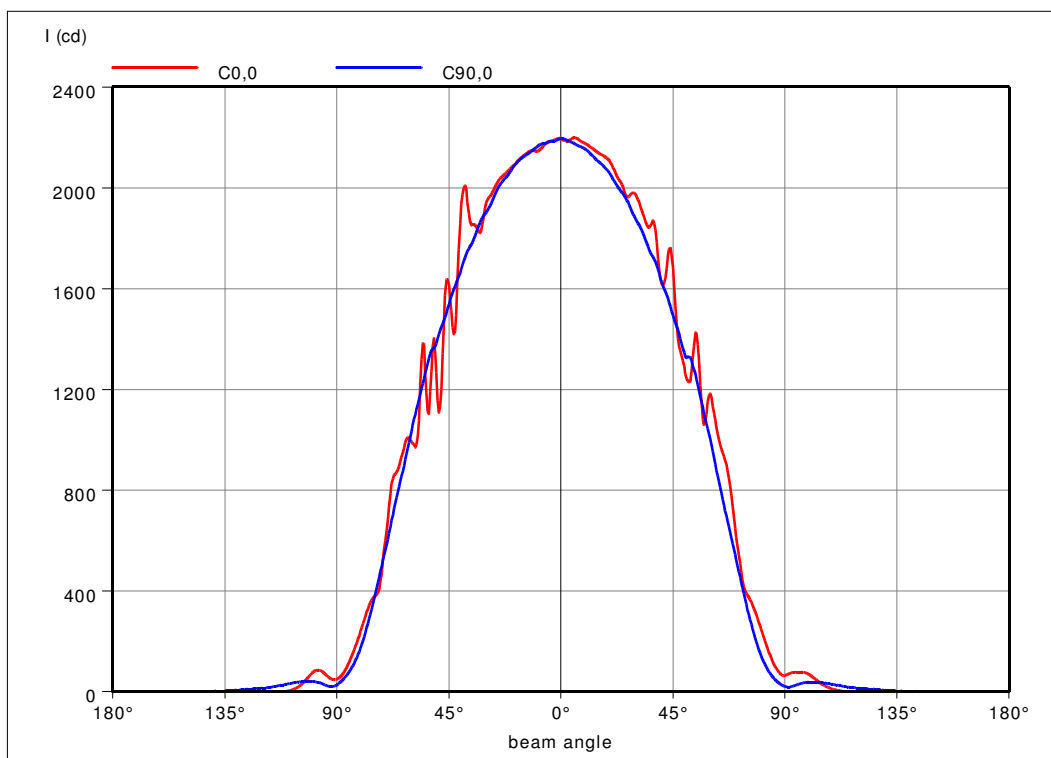


Figure 7: Cartesian candela distribution

7. Results spectroradiometer

7.1. *Relative spectral distribution*

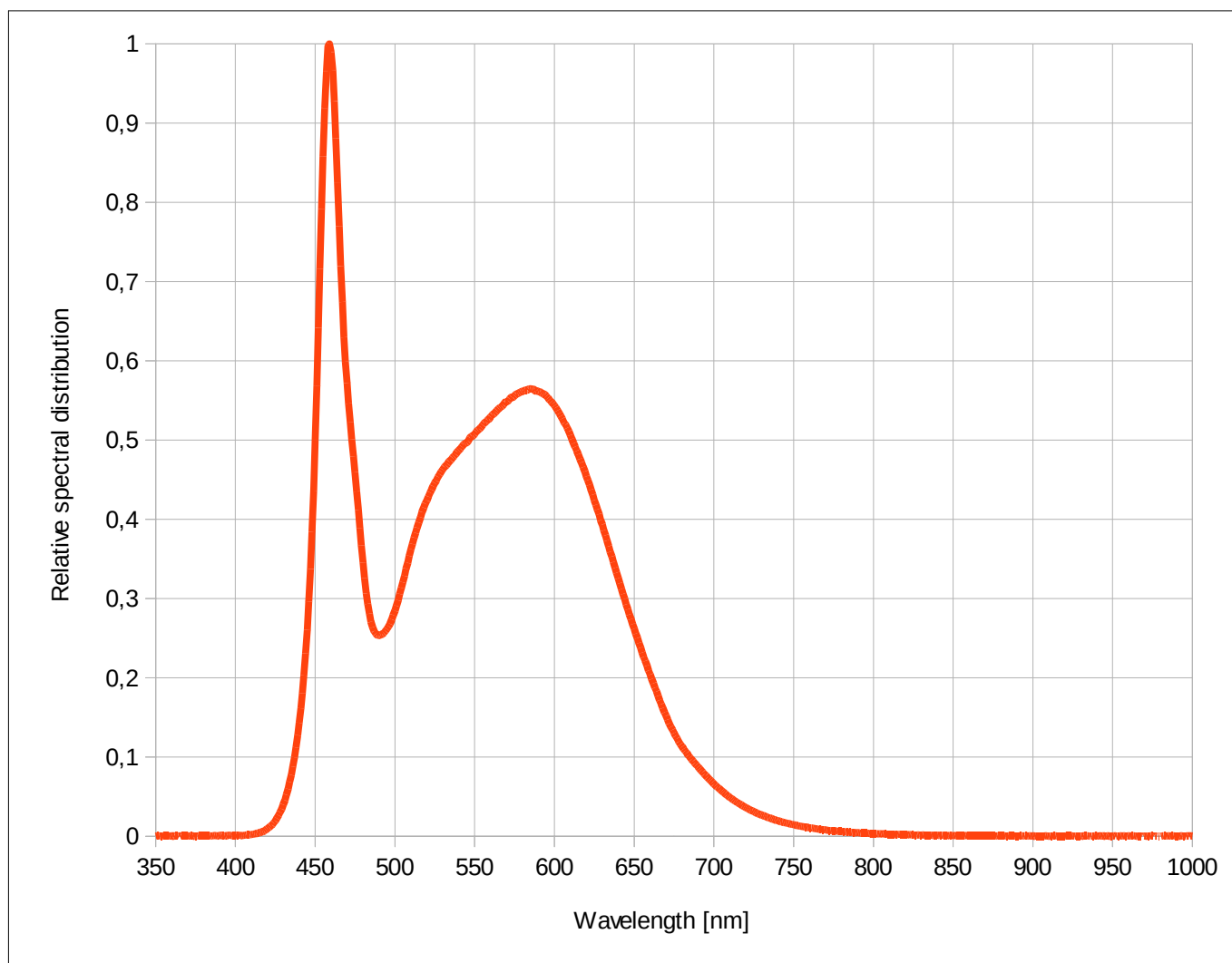


Figure 8: Relative spectral distribution

7.2. Chromaticity diagram

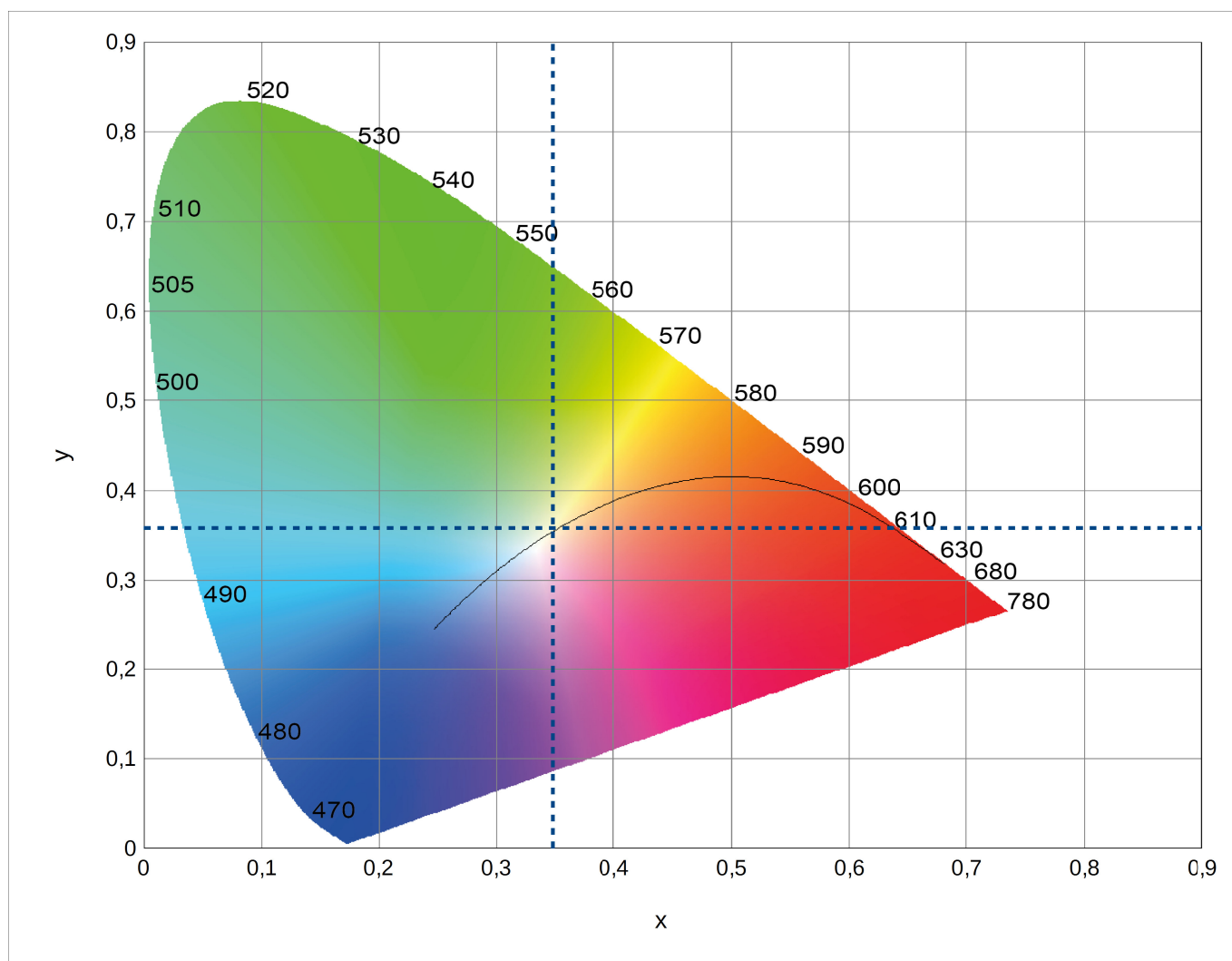


Figure 9: Chromaticity diagram

Tristimulus Value	
x	0.3478
y	0.3586

Table 7.1: Chromaticity coordinates

The location of the tristimulus coordinates is indicated by the blue cross on the diagram.

7.3. Color calculation

color sample	CRI	color sample	CRI
R1	82.5	R9	12.1
R2	93.9	R10	82.3
R3	94.3	R11	73.6
R4	75.0	R12	52.6
R5	80.1	R13	86.6
R6	88.0	R14	97.7
R7	83.2	R15	76.6
R8	65.1		
Ra	82.8	CCT	4926 K

Table 7.2: Color calculation – CRI R1-R15, R_a and correlated color temperature