



Test Report

Report No.: GZEE231100455331
Amendment 01
Date: 2026-02-10

The following sample(s) was/were submitted and identified on behalf of the client as:

Applicant: Shenzhen Chip Optech Co., Ltd.
5th Floor, Tower C, Baoshi Technological Park, Baoshi Road, Shiyuan Street,
Bao'an District, Shenzhen City, China

Manufacturer: Same as applicant

Factory: Huizhou Mepro Optech Co., Ltd.
Tower 12, Xinhua Av., No. 6, Chenjiang Street, Zhongkai Hi-Tech District,
Huizhou, Guangdong, China

Testing location/address: SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch
198 Kezhu Road, Science City, Economic & Technology Development Area,
Guangzhou, Guangdong, China

Standard: EN 12966-1: 2005 + A1: 2009
Road vertical signs - Variable message traffic signs

Test request: Clause 7 Visible performance

Test item description: VMS (Variable Message Sign)
LED display screen

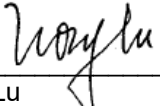
Trade Mark/Brand: —

Model/Type reference: VMS16S-4535RGB, VMS10S-4535RGB

Ratings: See page 2

Test result: The module was tested according to Clause 7 of EN 12966-1: 2005 + A1: 2009
and complied with the Class designation C2, L3(*)/L3, R3 & B6.

Remark: Throughout this report a comma is used as the decimal separator.


Ivory Lu
Reviewer
E&E Safety Laboratory


Alex Tan
Project Engineer



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Tests performed:

All the tests were performed at 230 V 50 Hz after Physical performance test & Electromagnetic test.

Possible test case verdicts:

- test case does not apply to the test object.....: N/A
- test object does meet the requirement: P (Pass)
- test object does not meet the requirement.....: F (Fail)

Testing

Date of receipt of test item.....: 2025-01-14, 2026-01-10
 Date (s) of performance of tests: 2025-01-14 to 2025-03-10
 2026-01-13 to 2026-01-17

General product information:

The product VMS is an outdoor full-color LED display. Each element has three LED dies including red, green and blue. The other colors could be displayed by the driver and software.
 The equipment under test, consists of a Variable Message Sign (VMS), made of metal and plastic enclosure.

The main technical characteristics are stated as below.

Function	Model	VMS16S-4535RGB	VMS10S-4535RGB
Photometric parameter			
Red, Green, Blue, Yellow & White Colour class:		C2	
Luminance (La):		L3, L3(*)	
Luminance ratio (LR):		R3	
Beam width:		B6	
Uniformity:		Pass	
Visible flicker:		Pass	
Physical environmental			
Working temperature (°C)		T1/T3	
Resistance to pollution:		D3	
Degrees of protection provided by enclosure:		P3 (IP56)	
Resistance to corrosion:		Pass	
Physical structural			
Passive safety:		Class 0	
Impact resistance:		Pass	
Vibration resistance:		Pass	
LED module specifications			



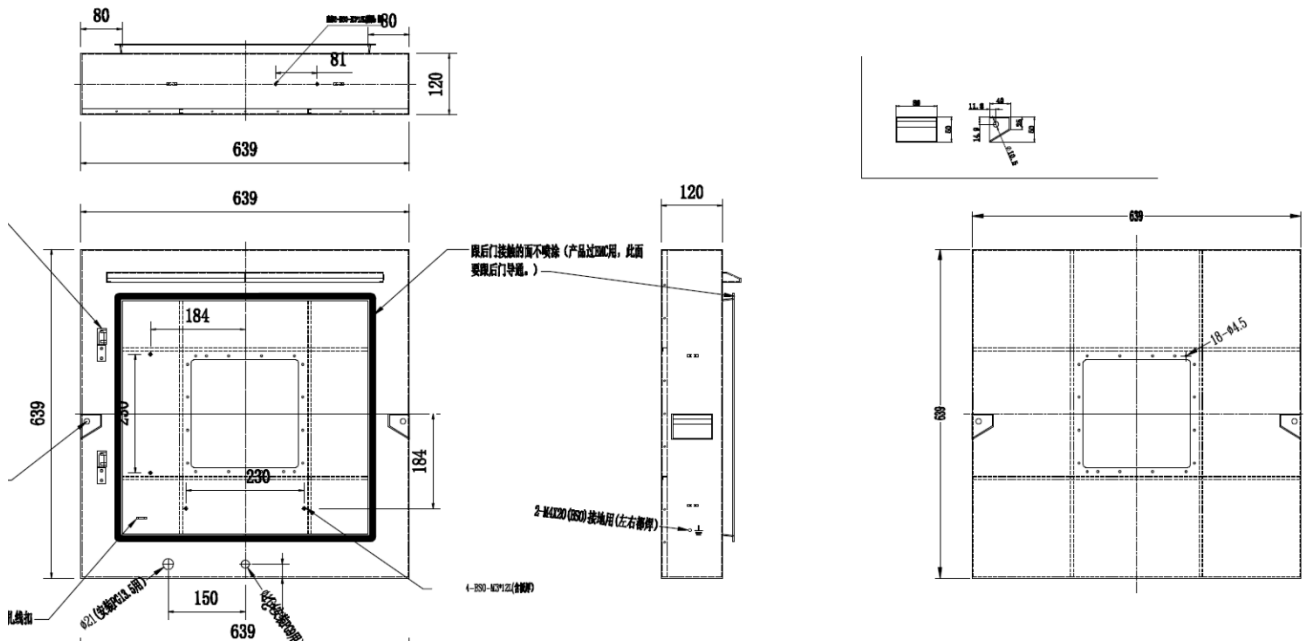
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Module size (mm) (H × W)	256 x 256	320 x 160
Dots per module (H × W)	16 x 16	32 x 16
Pitch (mm)	16	10
Single LED parameters	physical dimension: 4,5 * 3,5 mm wavelength (nm): R:620-625 G:531-534 B:469-472	
LED module Specifications		
Nominal full load current (A)	6	
Max. power consumption (W)	30	
Weight (kg)	1,2	
Cabinet Specifications		
Nominal voltage (V.a.c.)	100-240	
Nominal frequency (Hz)	50 / 60	
Nominal full load current (A)	0,2	
Max. power consumption (W)	40	
Size of cabinet (mm) (H × W × D)	639 × 639 × 120	
Construction	Metal enclosure	
Weight of cabinet (kg)	18	

VMS16S-4535RGB:



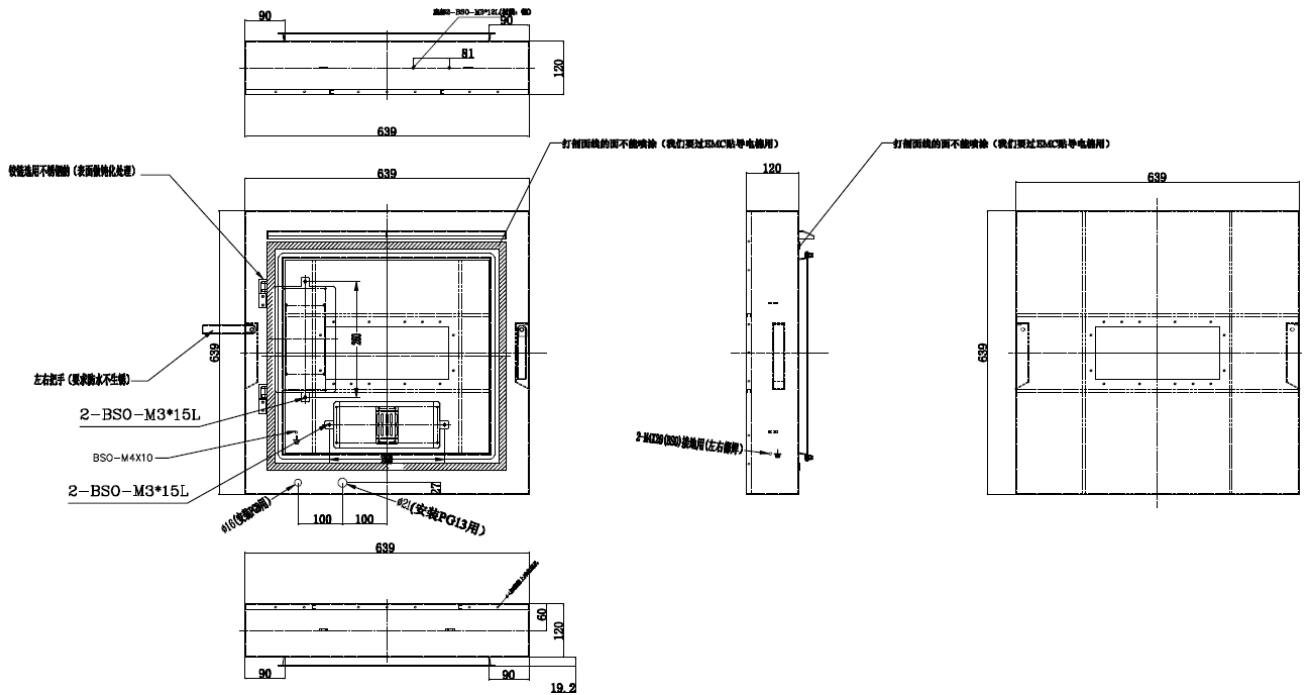
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VMS10S-4535RGB:



1st Reversion History:

Based on and superseded report GZEE231100455301, dated on 2025-04-10, and including follow change:

- Added a VMS model VMS10S-4535RGB.

After reviewed, Clause 7 Visible performance test for VMS10S-4535RGB need to be considered.



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Testing environmental conditions

 Ambient temperature 20 ± 3 °C, Relative humidity 55 ± 5 %

Method

The different levels of brightness of the panel were obtained by setting the general output level as shown in the following table:

Brightness levels	
Level on keyboard	Sign illuminance (lx)
100	40000
100	10000
40	4000
25	400
20	40
15	≤ 4

Equipment List:

Equipment No.	Equipment Name	Model No.	Manufacturer	Next calibration	Uncertainty
GZE113-20	Colour / Luminance Meter	CS-200	KONICA MINOLTA	2026/04/24	Luminance $\pm 3.0\%$
GZE113-19	Luminance Meter	CL-200A	KONICA MINOLTA	2026/04/02	Illuminance $\pm 2.0\%$
GZE113-9	Light Flickering Analyzer	LFA-3000_V200	Everfine	2026/05/16	Frequency $\pm 4.0\%$
GZE113-14	Chasing the lights	RPG-8M	Ouma	---	---
GZE031-1	Angle meter	0-360°/5'	Shanghai	2028/08/21	Angle $\pm 3'$
GZE129-5	Goniophotometric system	GO-2000A	Everfine	2026/08/24	Angle $\pm 0.01^\circ$
GZE113-10	Image Luminance Meter	CX-2B	Everfine	2026/07/27	Luminance $\pm 3.0\%$

Visible performance test requirement
7.2 Colour

Photometer angles listed in Table 19.

All colour measurements shall be made without solar simulator illumination

The colour of the light emitted shall be carried out for the highest and the lowest setting as representative.

 A minimum of $5 \times 5 = 25$ individual elements shall be measured; the minimum size is 100 mm x 100 mm.

The chromaticity for the colours of the colour C1 shall conform to Table 2. The chromaticity for the colors of the color C2 shall conform to Table 3.



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7.3 Luminance

The luminance shall be measured under external illumination from a solar simulator and with the test module switched on.
 Photometer angles listed in Table 20, only on reference axis, the test angles are dependent on the beam width class.
 A minimum of 5 x 5 = 25 individual elements shall be measured, the minimum size is 100 mm x 100 mm.
 The required luminance for the colors shall comply with Table 4a to Table 4f, respectively.
 Remark:
 L_a : Measured luminance of the sign in the ON-state when illuminated by sun simulator setting to Sign illuminance at 10° or 5°(only for 10000 lx).

7.4 Luminance ratio

A minimum of 5 x 5 = 25 individual elements shall be measured, the minimum size is 100 mm x 100 mm.
 Photometer angles listed in Table 20, the test angles are dependent on the beam width class.
 The luminance ratio values shall be maintained for all illuminances between 400 lx and 40000 lx
 The minimum luminance ratios for the various colors shall be in accordance with Table 5.
 Remark:
 L_a : Measured luminance of the sign in the ON-state when illuminated by sun simulator setting to Sign illuminance at 10° or 5°(only for 10000 lx).
 L_b : Measured luminance of the sign in the OFF-state when illuminated by sun simulator setting to Sign illuminance at 10° or 5°(only for 10000 lx)
 LR: Luminance ratio expressed by $LR = (L_a - L_b) / L_b$

7.5 Beam width

Measurements shall be without external illumination from the solar simulator
 A minimum of 5 x 5 = 25 individual elements shall be measured, the minimum size is 100 mm x 100 mm
 Photometer angles listed in Table 19.
 The luminance measurements shall be repeated with steps of 1°
 Any luminance at all measured angles within the horizontal and vertical beam width shall not be lower than 50 % of the measured luminance on the reference axis.
 Any luminance at all measured angles within the horizontal and vertical beam width shall not be more than 150 % of the measured luminance on the reference axis.
 Any luminance at all measured angles shall not exceed the maximum luminance in accordance with Table 4a to Table 4f.

7.6 Uniformity of luminous intensity

Luminous of 25 individual elements shall be measured.
 Measurements shall be *without* external illumination from the solar simulator, and carried out for luminance setting corresponding to external illumination of full brightness (40 000 lx for outside, 400 lx for tunnels) and at full dimming (≤ 4 lx).
 Photometer angles listed in Table 19.
 For the luminous intensities of any individual element of the test module the ratio of the average output from the highest 12% of the elements, to the lowest 12%, shall be less than 3:1. The ratio of the average output from the highest 4% of the elements, to the lowest 4%, shall be less than 5:1

7.7 Visible Flicker

Measurements shall be *without* external illumination from the solar simulator, and carried out for luminance setting corresponding to external illumination of brightness (40 000 lx, 4 000 lx, 400 lx, 40 lx & ≤ 4 lx).
 No light flicker shall be visible on light sources of a test module, this frequency shall not be less than 90 Hz.



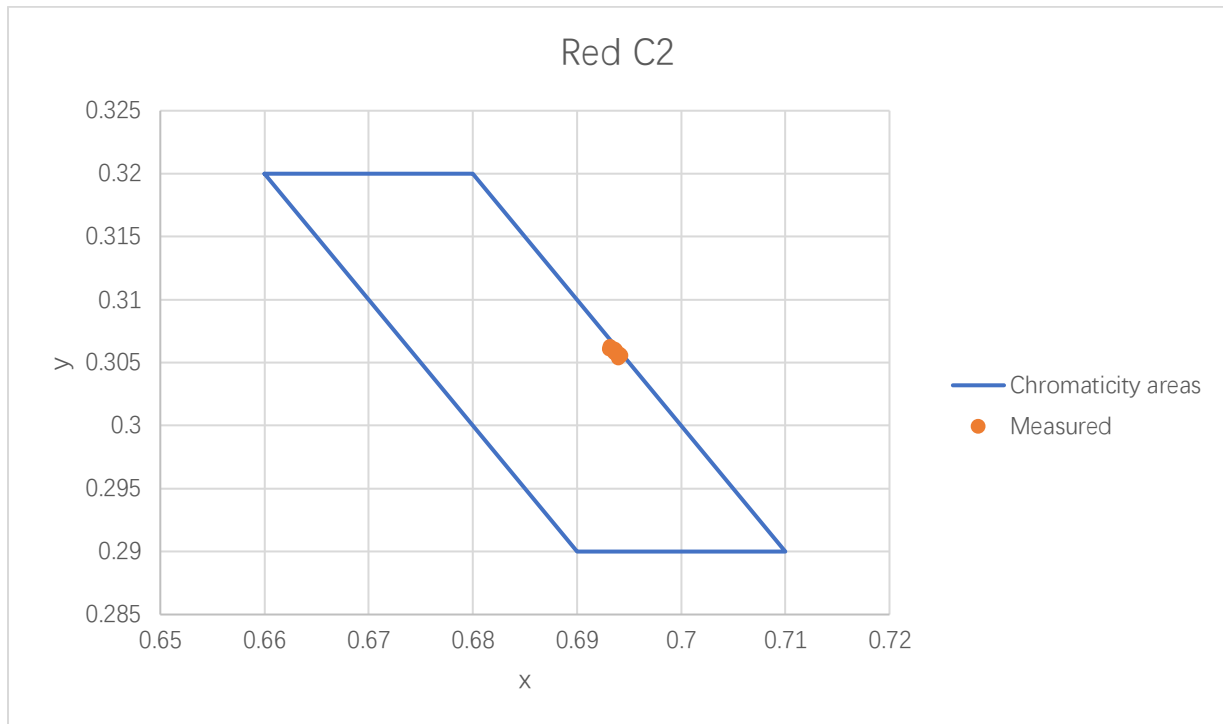
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VMS16S-4535RGB:
Photometric and colourmetric test data on Red colour

Table I	Colour – C2			Colour co-ordinates of corner points (x/y)
	Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	Chromaticity coordinate	
x			y	
40000	(0, 0)	0,6940	0,3054	(0,660/0,320) (0,680/0,320) (0,710/0,290) (0,690/0,290)
	(-15, 0)	0,6941	0,3057	
	(+15, 0)	0,6942	0,3056	
	(0, -10)	0,6936	0,3058	
≤ 4	(0, 0)	0,6931	0,3061	
	(-15, 0)	0,6937	0,3060	
	(+15, 0)	0,6932	0,3063	
	(0, -10)	0,6936	0,3061	



Chromaticity diagram



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Table II		Luminance for luminance class L3 & L3(*)		
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L _a (cd/m ²)	Limit	
			L _a (min) (cd/m ²)	L _a (max) (cd/m ²)
40000	(0, 0)	6484,6	3100	15500
10000	(0, 0)	6023,3	3100	15500
4000	(0, 0)	1196,9	550	2750
400	(0, 0)	288,25	150	750
40	(0, 0)	146,81	63	315
≤ 4	(0, 0)	65,43	19	95

Table III		Luminance Ratio R3			
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L _a	L _b	LR	LR limit
40000	(0, 0)	6484,6	673,30	8,63	≥ 4,2
	(-15, 0)	4542,2	390,55	10,63	≥ 2,1
	(+15, 0)	4267,6	416,45	9,25	
	(0, -2,5)	6278,0	698,66	7,99	
10000	(0, 0)	6023,3	211,95	27,42	≥ 4,2
	(-15, 0)	4358,0	206,42	20,11	≥ 2,1
	(+15, 0)	4058,1	206,97	18,61	
	(0, -2,5)	5785,7	206,38	27,03	
4000	(0, 0)	1196,9	67,33	16,78	≥ 4,2
	(-15, 0)	846,05	39,06	20,66	≥ 2,1
	(+15, 0)	790,23	41,65	17,97	
	(0, -2,5)	1154,4	69,87	15,52	
400	(0, 0)	288,25	6,73	41,83	≥ 4,2
	(-15, 0)	205,03	3,91	51,44	≥ 2,1
	(+15, 0)	190,73	4,17	44,74	
	(0, -2,5)	277,27	6,99	38,67	


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Table IV-1		Beam width Class – B6			
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L (cd/m ²)	Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L (cd/m ²)
40000	(0, 0)	5811,3	≤ 4	(0, 0)	65,43
	(-15, 0)	4151,6		(-15, 0)	46,15
	(+15, 0)	3851,1		(+15, 0)	43,46
	(0, -10)	3638,1		(0, -10)	41,12

Table IV-2		40000 lx external sign illumination			
Horizontal angle (°)	L (cd/m ²)	Horizontal angle (°)	L (cd/m ²)	Vertical angle (°)	L (cd/m ²)
-16	3951,4	1	5834,6	1	5669,0
-15	4151,6	2	5812,3	0	5811,3
-14	4396,4	3	5779,3	-1	5801,4
-13	4595,7	4	5739,3	-2	5684,7
-12	4795,9	5	5690,8	-3	5482,5
-11	4968,5	6	5629,5	-4	5169,1
-10	5112,2	7	5570,0	-5	4861,0
-9	5223,4	8	5479,9	-6	4573,9
-8	5317,4	9	5322,4	-7	4308,8
-7	5406,3	10	5139,1	-8	4062,5
-6	5478,0	11	4911,8	-9	3845,6
-5	5559,4	12	4653,1	-10	3638,1
-4	5623,1	13	4394,4	-11	3374,1
-3	5685,3	14	4124,9	—	—
-2	5758,5	15	3851,1	—	—
-1	5790,0	16	3582,9	—	—
0	5811,3	—	—	—	—
Off-axis lower limit [50% of the measured value on reference axis (0,0)]					2905,7
Off-axis upper limit [150% of the measured value on reference axis (0,0)]					8717,0



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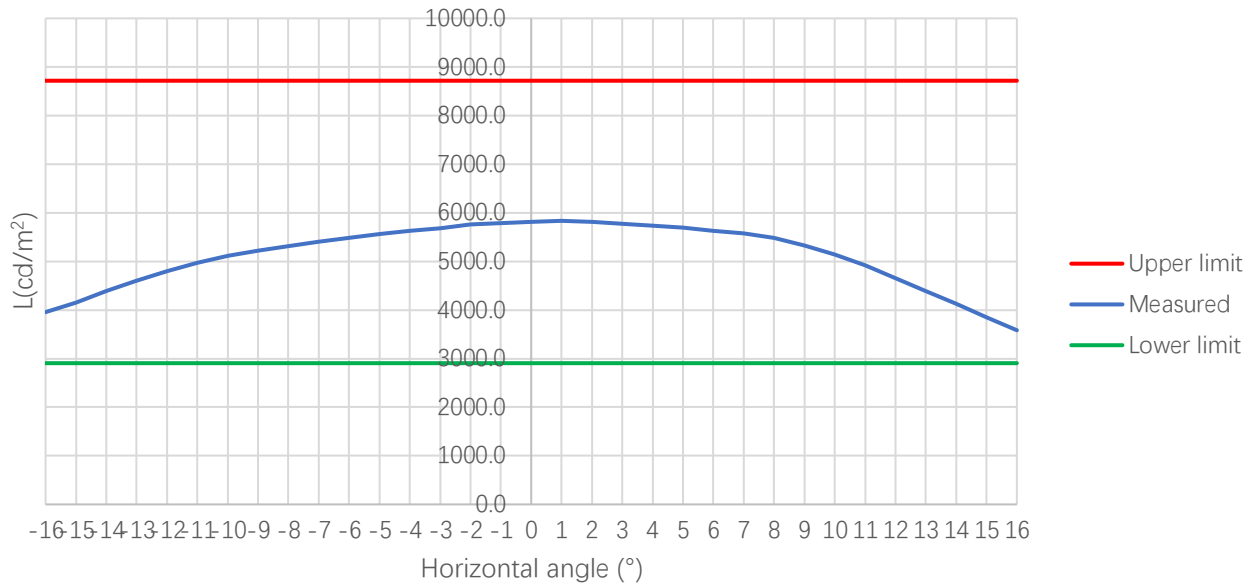
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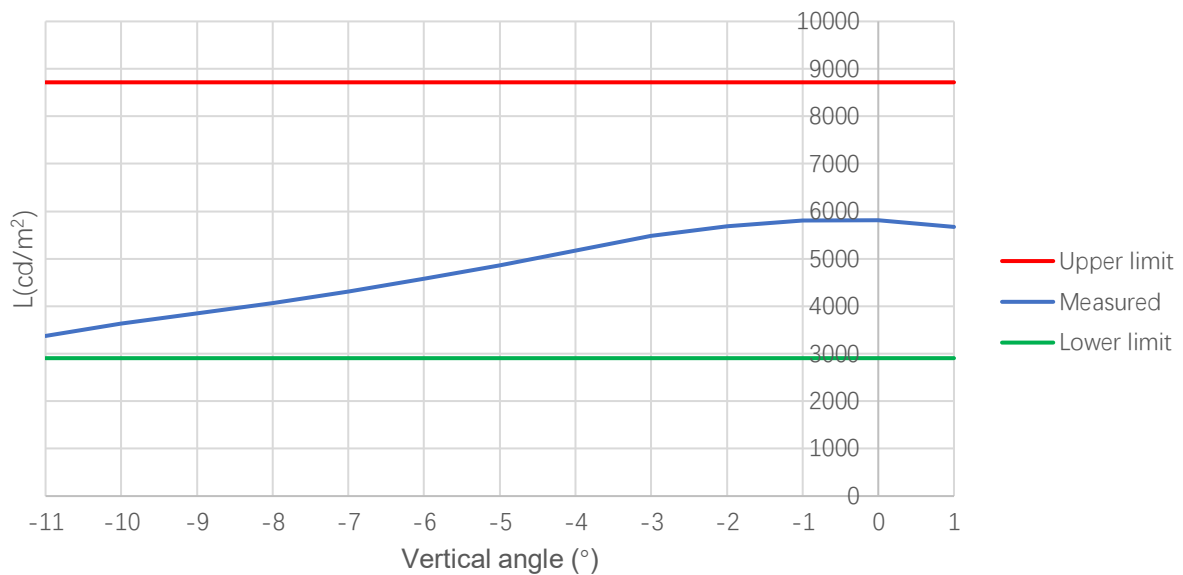
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Luminance distributions on Horizontal angular



Luminance distributions on Vertical angular



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Table V - Uniformity of luminous intensity

Sign illuminance (lx)	Photometer angle (Horizontal, Vertical)	Luminous intensity coordinate			
		Uniformity 12%	Limit	Uniformity 4%	Limit
40000	(0, 0)	1,52	≤ 3,0	1,66	≤ 5,0
	(-15, 0)	1,49		1,68	
	(+15, 0)	1,54		1,71	
	(0, -10)	1,56		1,70	
≤ 4	(0, 0)	1,48	≤ 3,0	1,64	≤ 5,0
	(-15, 0)	1,52		1,68	
	(+15, 0)	1,53		1,68	
	(0, -10)	1,58		1,70	

Table VI - Visible Flicker

Sign illuminance (lx)	Photometer angle (Horizontal, Vertical)	Flicker (Hz)	Limit (Hz)
40000	(0, 0)	Min. 2360	≥ 90
10000	(0, 0)		
4000	(0, 0)		
400	(0, 0)		
40	(0, 0)		
≤ 4	(0, 0)		



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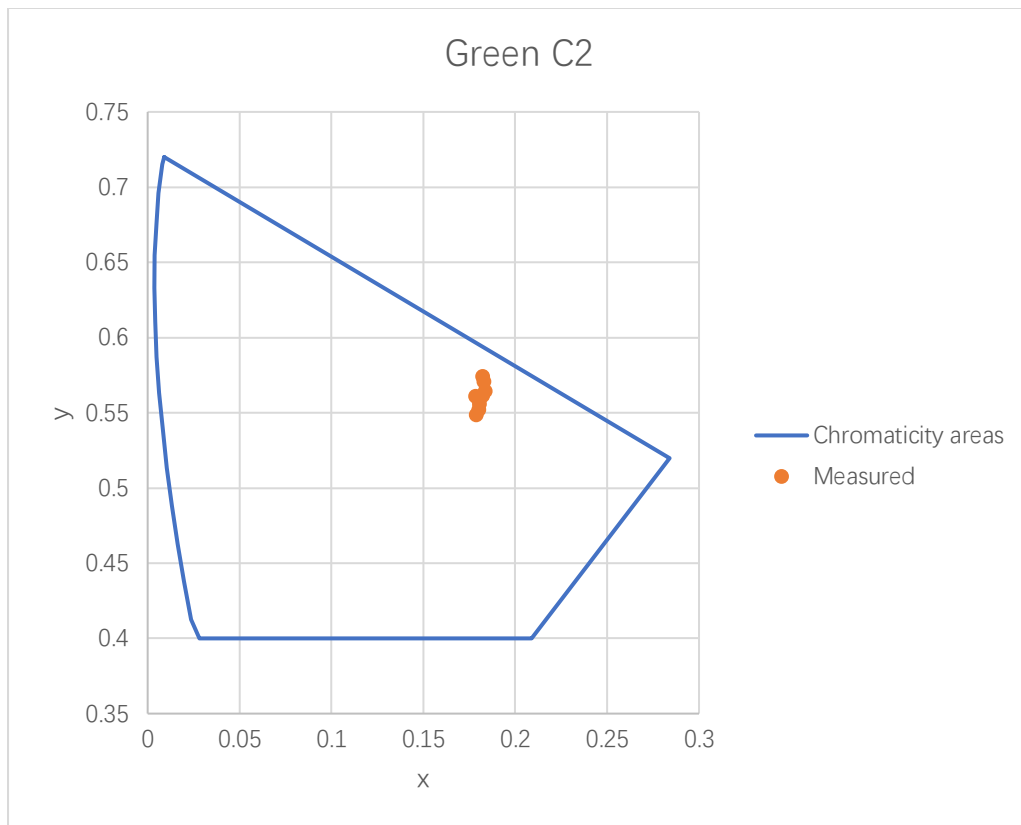
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Photometric and colourimetric test data on Green colour

Table I	Colour – C2			
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	Chromaticity coordinate		Colour co-ordinates of corner points (x/y)
		x	y	
40000	(0, 0)	0,1804	0,5559	(0,009/0,720) (0,284/0,520) (0,209/0,400) (0,028/0,400)
	(-15, 0)	0,1786	0,5609	
	(+15, 0)	0,1801	0,552	
	(0, -10)	0,1787	0,5485	
≤ 4	(0, 0)	0,1828	0,5707	
	(-15, 0)	0,1821	0,5742	
	(+15, 0)	0,1837	0,5642	
	(0, -10)	0,1822	0,5613	



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Table II		Luminance for luminance class L3 & L3(*)		
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L _a (cd/m ²)	Limit	
			L _a (min) (cd/m ²)	L _a (max) (cd/m ²)
40000	(0, 0)	11054	3720	18600
10000	(0, 0)	10593	3720	18600
4000	(0, 0)	2094,1	660	3300
400	(0, 0)	506,96	180	900
40	(0, 0)	256,71	75	375
≤ 4	(0, 0)	113,07	23	115

Table III		Luminance Ratio R3			
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L _a	L _b	LR	LR limit
40000	(0, 0)	11054	673,30	15,42	≥ 5
	(-15, 0)	6945,6	390,55	16,78	≥ 2,5
	(+15, 0)	7873,5	416,45	17,91	
	(0, -2,5)	11066	698,66	14,84	
10000	(0, 0)	10593	211,95	48,98	≥ 5
	(-15, 0)	6761,4	206,42	31,76	≥ 2,5
	(+15, 0)	7664,0	206,97	36,03	
	(0, -2,5)	10573	206,38	50,23	
4000	(0, 0)	2094,1	67,33	30,10	≥ 5
	(-15, 0)	1318,9	39,06	32,77	≥ 2,5
	(+15, 0)	1497,6	41,65	34,96	
	(0, -2,5)	2093,9	69,87	28,97	
400	(0, 0)	506,96	6,73	74,33	≥ 5
	(-15, 0)	319,78	3,91	80,78	≥ 2,5
	(+15, 0)	363,50	4,17	86,17	
	(0, -2,5)	506,55	6,99	71,47	



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Table IV-1		Beam width Class – B6			
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L (cd/m ²)	Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L (cd/m ²)
40000	(0, 0)	10381	≤ 4	(0, 0)	113,07
	(-15, 0)	6555,0		(-15, 0)	70,42
	(+15, 0)	7457,0		(+15, 0)	80,72
	(0, -10)	8211,2		(0, -10)	90,66

Table IV-2		40000 lx external sign illumination			
Horizontal angle (°)	L (cd/m ²)	Horizontal angle (°)	L (cd/m ²)	Vertical angle (°)	L (cd/m ²)
-16	6268,6	1	10446	1	10263
-15	6555,0	2	10482	0	10381
-14	6891,1	3	10519	-1	10434
-13	7214,9	4	10477	-2	10404
-12	7530,6	5	10390	-3	10360
-11	7838,8	6	10287	-4	10164
-10	8089,3	7	10134	-5	9953,5
-9	8324,5	8	9925,3	-6	9668,0
-8	8599,4	9	9626,8	-7	9362,5
-7	8895,4	10	9321,2	-8	9021,3
-6	9132,4	11	8981,9	-9	8608,3
-5	9402,8	12	8620,8	-10	8211,2
-4	9640,2	13	8257,3	-11	7787,7
-3	9857,2	14	7866,3	—	—
-2	10050	15	7457,0	—	—
-1	10227	16	7066,6	—	—
0	10381	—	—	—	—
Off-axis lower limit [50% of the measured value on reference axis (0,0)]					5190,5
Off-axis upper limit [150% of the measured value on reference axis (0,0)]					15571,5



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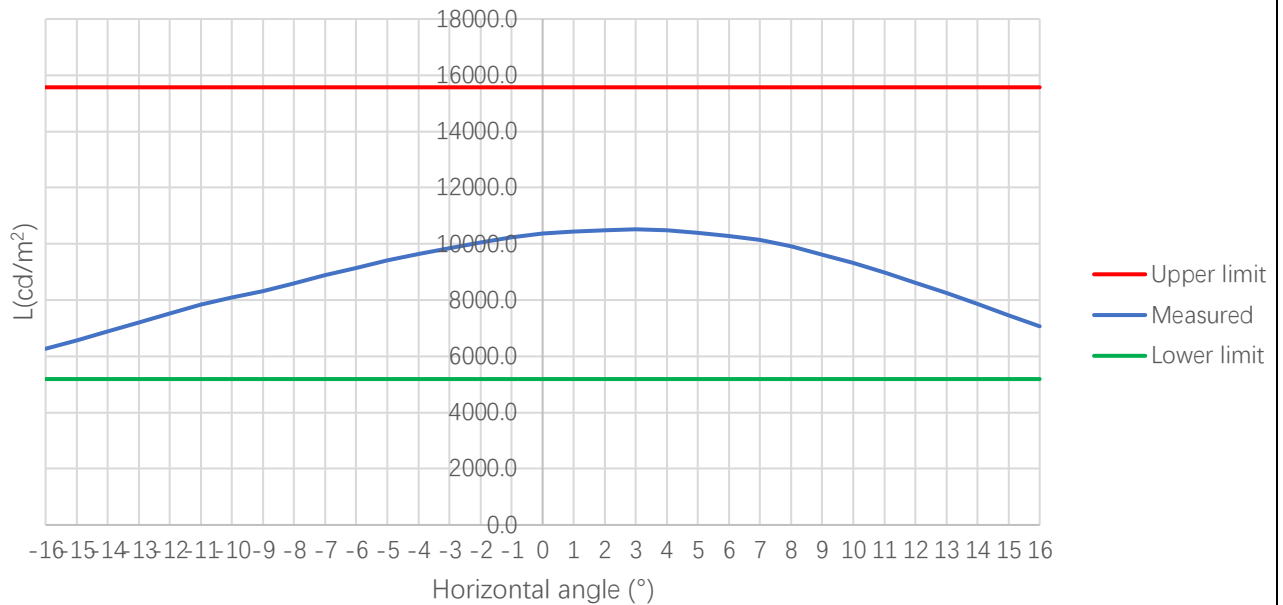
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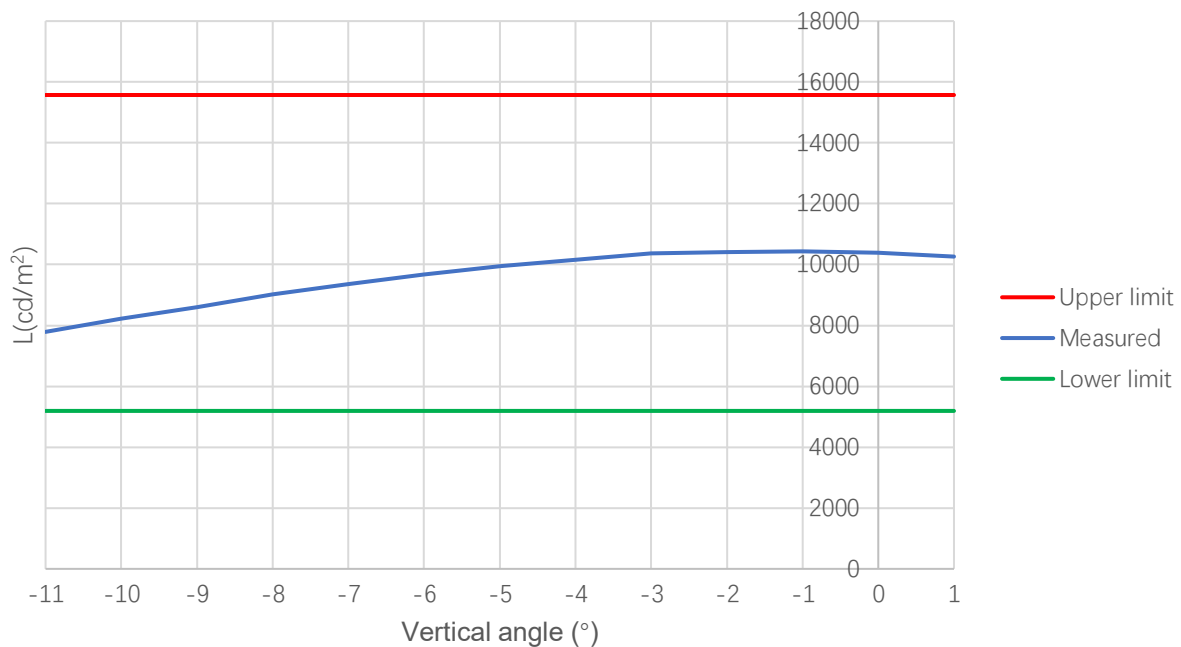
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Luminance distributions on Horizontal angular



Luminance distributions on Vertical angular



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Table V - Uniformity of luminous intensity

Sign illuminance (lx)	Photometer angle (Horizontal, Vertical)	Luminous intensity coordinate			
		Uniformity 12%	Limit	Uniformity 4%	Limit
40000	(0, 0)	1,52	≤ 3,0	1,66	≤ 5,0
	(-15, 0)	1,54		1,66	
	(+15, 0)	1,52		1,66	
	(0, -10)	1,55		1,70	
≤ 4	(0, 0)	1,51	≤ 3,0	1,64	≤ 5,0
	(-15, 0)	1,54		1,65	
	(+15, 0)	1,56		1,69	
	(0, -10)	1,53		1,69	

Table VI - Visible Flicker

Sign illuminance (lx)	Photometer angle (Horizontal, Vertical)	Flicker (Hz)	Limit (Hz)
40000	(0, 0)	Min. 2360	≥ 90
10000	(0, 0)		
4000	(0, 0)		
400	(0, 0)		
40	(0, 0)		
≤ 4	(0, 0)		



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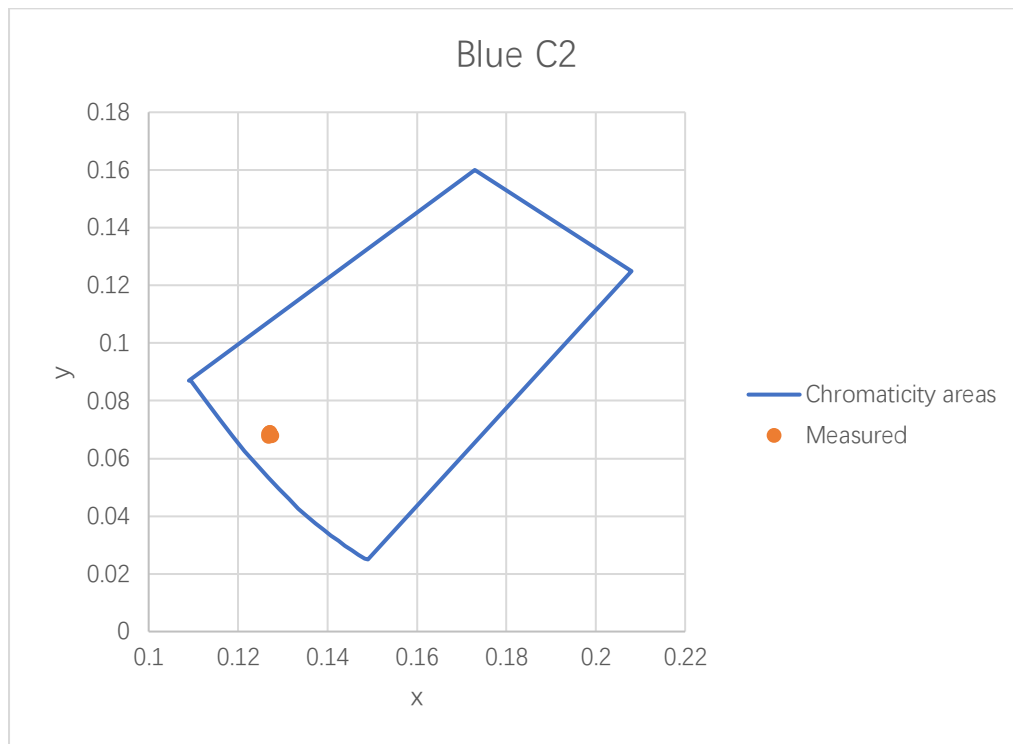
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Photometric and colourmetric test data on Blue colour

Table I	Colour – C2			Colour co-ordinates of corner points (x/y)
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	Chromaticity coordinate		
		x	y	
40000	(0, 0)	0,1270	0,0690	(0,109/0,087) (0,173/0,160) (0,208/0,125) (0,149/0,025)
	(-15, 0)	0,1272	0,0685	
	(+15, 0)	0,1270	0,0690	
	(0, -10)	0,1273	0,0682	
≤ 4	(0, 0)	0,1269	0,0681	
	(-15, 0)	0,1275	0,0680	
	(+15, 0)	0,1268	0,0687	
	(0, -10)	0,1268	0,0678	



Chromaticity diagram



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Table II		Luminance for luminance class L3 & L3(*)		
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L _a (cd/m ²)	Limit	
			L _a (min) (cd/m ²)	L _a (max) (cd/m ²)
40000	(0, 0)	2356,5	1240	6200
10000	(0, 0)	1895,2	1240	6200
4000	(0, 0)	389,26	220	1100
400	(0, 0)	85,42	60	300
40	(0, 0)	40,63	25	125
≤ 4	(0, 0)	17,79	7,5	37,5

Table III		Luminance Ratio R3			
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L _a	L _b	LR	LR limit
40000	(0, 0)	2356,5	673,30	2,50	≥ 1,7
	(-15, 0)	1412,9	390,55	2,62	≥ 0,85
	(+15, 0)	1664,3	416,45	3,00	
	(0, -2,5)	2412,6	698,66	2,45	
10000	(0, 0)	1895,2	211,95	7,94	≥ 1,7
	(-15, 0)	1228,7	206,42	4,95	≥ 0,85
	(+15, 0)	1454,8	206,97	6,03	
	(0, -2,5)	1920,3	206,38	8,30	
4000	(0, 0)	389,26	67,33	4,78	≥ 1,7
	(-15, 0)	234,59	39,06	5,01	≥ 0,85
	(+15, 0)	280,31	41,65	5,73	
	(0, -2,5)	397,67	69,87	4,69	
400	(0, 0)	85,42	6,73	11,69	≥ 1,7
	(-15, 0)	51,70	3,91	12,22	≥ 0,85
	(+15, 0)	62,50	4,17	13,99	
	(0, -2,5)	87,12	6,99	11,46	



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Table IV-1		Beam width Class – B6			
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L (cd/m ²)	Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L (cd/m ²)
40000	(0, 0)	1683,2	≤ 4	(0, 0)	17,79
	(-15, 0)	1022,3		(-15, 0)	10,76
	(+15, 0)	1247,8		(+15, 0)	13,16
	(0, -10)	1393,7		(0, -10)	14,99

Table IV-2		40000 lx external sign illumination					
Horizontal angle (°)	L (cd/m ²)	Horizontal angle (°)	L (cd/m ²)		Vertical angle (°)	L (cd/m ²)	
-16	968,95	1	1702,8		1	1661,0	
-15	1022,3	2	1713,3		0	1681,1	
-14	1067,6	3	1711,3		-1	1697,6	
-13	1119,7	4	1721,0		-2	1710,5	
-12	1172,2	5	1706,2		-3	1705,1	
-11	1218,7	6	1698,5		-4	1694,2	
-10	1267,0	7	1673,7		-5	1668,2	
-9	1314,4	8	1644,2		-6	1634,6	
-8	1366,2	9	1598,9		-7	1582,0	
-7	1412,1	10	1544,5		-8	1522,6	
-6	1459,8	11	1488,3		-9	1461,1	
-5	1500,9	12	1433,2		-10	1393,7	
-4	1547,3	13	1374,0		-11	1322,6	
-3	1588,0	14	1315,1		—	—	
-2	1625,4	15	1247,8		—	—	
-1	1659,7	16	1184,6		—	—	
0	1683,2	—	—		—	—	
Off-axis lower limit [50% of the measured value on reference axis (0,0)]						841,6	
Off-axis upper limit [150% of the measured value on reference axis (0,0)]						2524,8	



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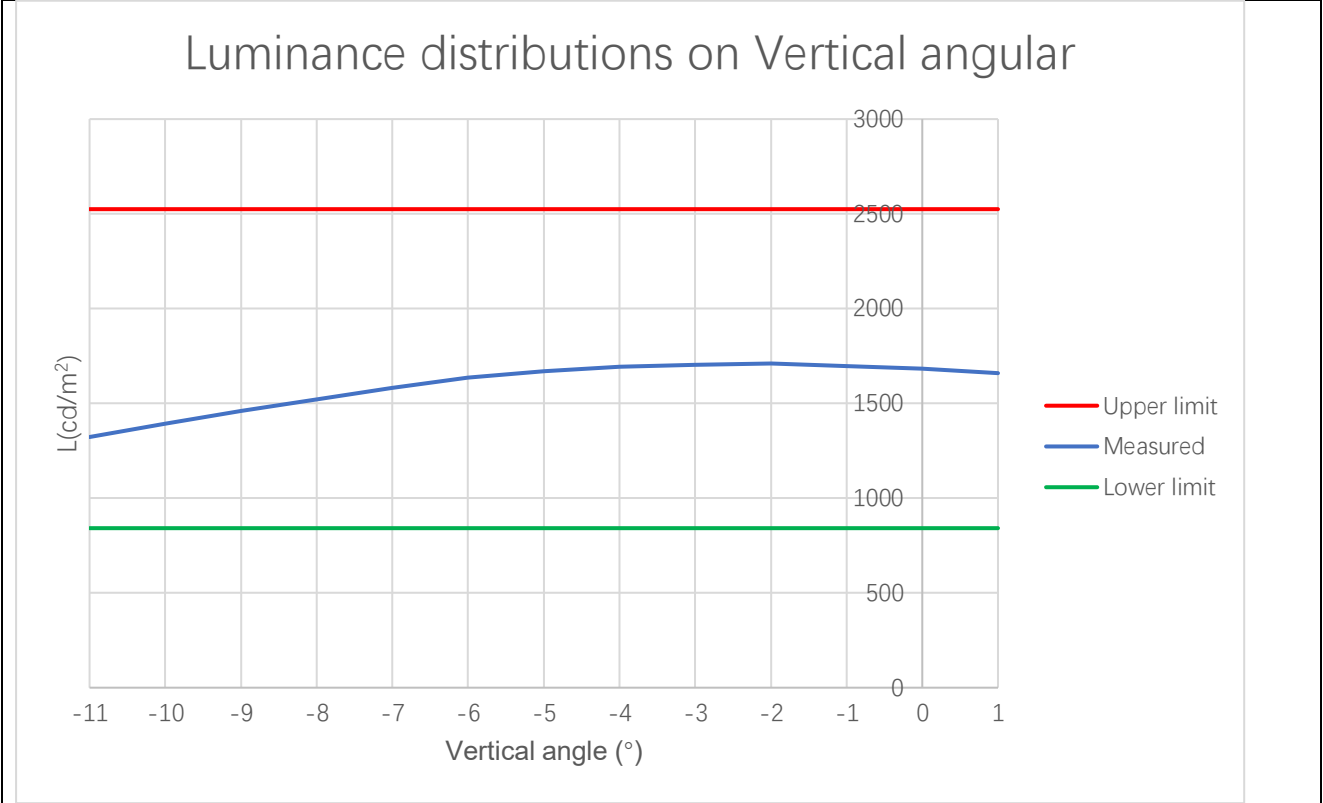
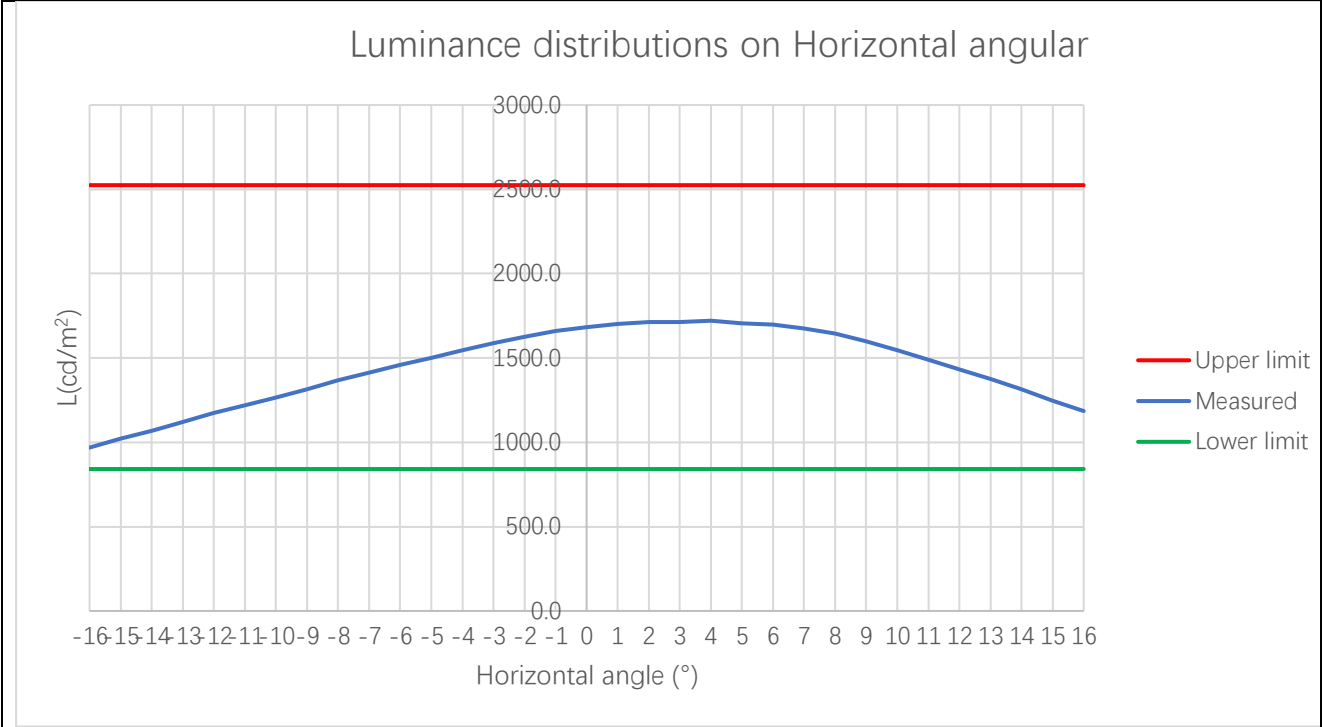
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Table V - Uniformity of luminous intensity

Sign illuminance (lx)	Photometer angle (Horizontal, Vertical)	Luminous intensity coordinate			
		Uniformity 12%	Limit	Uniformity 4%	Limit
40000	(0, 0)	1,53	≤ 3,0	1,65	≤ 5,0
	(-15, 0)	1,57		1,67	
	(+15, 0)	1,56		1,70	
	(0, -10)	1,58		1,69	
≤ 4	(0, 0)	1,47	≤ 3,0	1,66	≤ 5,0
	(-15, 0)	1,55		1,69	
	(+15, 0)	1,57		1,71	
	(0, -10)	1,58		1,70	

Table VI - Visible Flicker

Sign illuminance (lx)	Photometer angle (Horizontal, Vertical)	Flicker (Hz)	Limit (Hz)
40000	(0, 0)	Min. 2360	≥ 90
10000	(0, 0)		
4000	(0, 0)		
400	(0, 0)		
40	(0, 0)		
≤ 4	(0, 0)		



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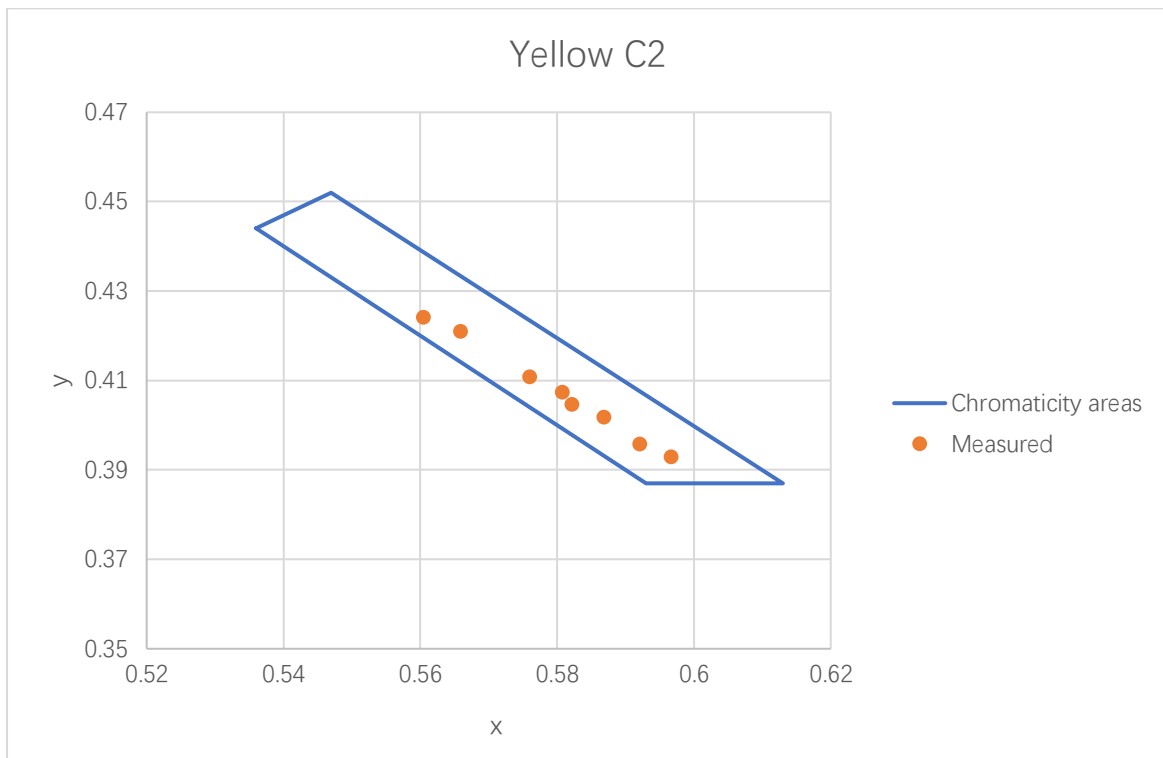
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Photometric and colourmetric test data on Yellow colour

Table I	Colour – C2			Colour co-ordinates of corner points (x/y)
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	Chromaticity coordinate		
		x	y	
40000	(0, 0)	0,5822	0,4048	(0,536/0,444) (0,547/0,452) (0,613/0,387) (0,593/0,387)
	(-15, 0)	0,5921	0,3959	
	(+15, 0)	0,5760	0,4109	
	(0, -10)	0,5605	0,4242	
≤ 4	(0, 0)	0,5869	0,4019	
	(-15, 0)	0,5967	0,3930	
	(+15, 0)	0,5808	0,4075	
	(0, -10)	0,5659	0,4210	



Chromaticity diagram



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Table II		Luminance for luminance class L3 & L3(*)		
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L _a (cd/m ²)	Limit	
			L _a (min) (cd/m ²)	L _a (max) (cd/m ²)
40000	(0, 0)	12327	7440	37200
10000	(0, 0)	11866	7440	37200
4000	(0, 0)	2429,7	1320	6600
400	(0, 0)	585,56	360	1800
40	(0, 0)	300,72	150	750
≤ 4	(0, 0)	134,89	45	225

Table III		Luminance Ratio R3			
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L _a	L _b	LR	LR limit
40000	(0, 0)	12327	673,30	17,31	≥ 10
	(-15, 0)	8351,6	390,55	20,38	≥ 5
	(+15, 0)	8417,6	416,45	19,21	
	(0, -2,5)	12111	698,66	16,33	
10000	(0, 0)	11866	211,95	54,98	≥ 10
	(-15, 0)	8167,4	206,42	38,57	≥ 5
	(+15, 0)	8208,1	206,97	38,66	
	(0, -2,5)	11618	206,38	55,30	
4000	(0, 0)	2429,7	67,33	35,09	≥ 10
	(-15, 0)	1652,8	39,06	41,32	≥ 5
	(+15, 0)	1663,6	41,65	38,94	
	(0, -2,5)	2383,2	69,87	33,11	
400	(0, 0)	585,56	6,73	86,01	≥ 10
	(-15, 0)	399,32	3,91	101,13	≥ 5
	(+15, 0)	401,57	4,17	95,30	
	(0, -2,5)	573,80	6,99	81,09	



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Table IV-1		Beam width Class – B6			
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L (cd/m ²)	Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L (cd/m ²)
40000	(0, 0)	11654	≤ 4	(0, 0)	134,89
	(-15, 0)	7961,0		(-15, 0)	90,38
	(+15, 0)	8001,1		(+15, 0)	91,57
	(0, -10)	8107,4		(0, -10)	93,89

Table IV-2		40000 lx external sign illumination			
Horizontal angle (°)	L (cd/m ²)	Horizontal angle (°)	L (cd/m ²)	Vertical angle (°)	L (cd/m ²)
-16	7549,3	1	11706	1	11443
-15	7961,0	2	11696	0	11654
-14	8365,6	3	11680	-1	11702
-13	8767,5	4	11606	-2	11557
-12	9141,5	5	11526	-3	11286
-11	9461,9	6	11407	-4	10860
-10	9770,7	7	11249	-5	10404
-9	10005	8	11024	-6	9924,0
-8	10242	9	10749	-7	9412,3
-7	10465	10	10401	-8	8980,6
-6	10694	11	9959,7	-9	8549,0
-5	10896	12	9506,8	-10	8107,4
-4	11085	13	9007,9	-11	7575,4
-3	11281	14	8509,3	—	—
-2	11439	15	8001,1	—	—
-1	11562	16	7503,0	—	—
0	11654	—	—	—	—
Off-axis lower limit [50% of the measured value on reference axis (0,0)]					5827
Off-axis upper limit [150% of the measured value on reference axis (0,0)]					17481



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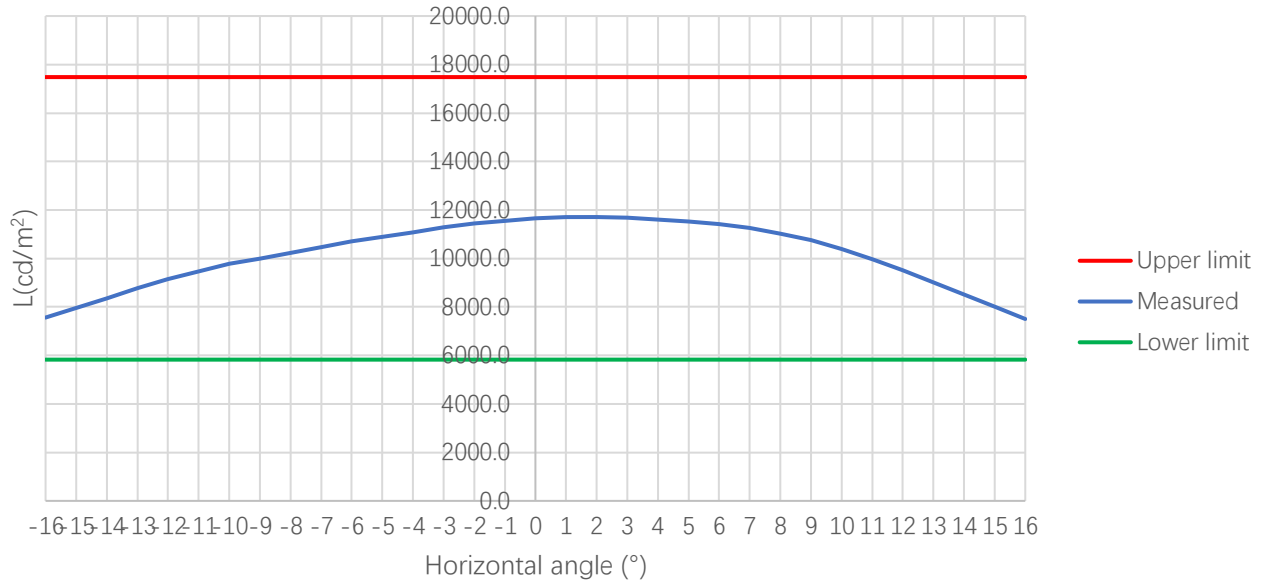
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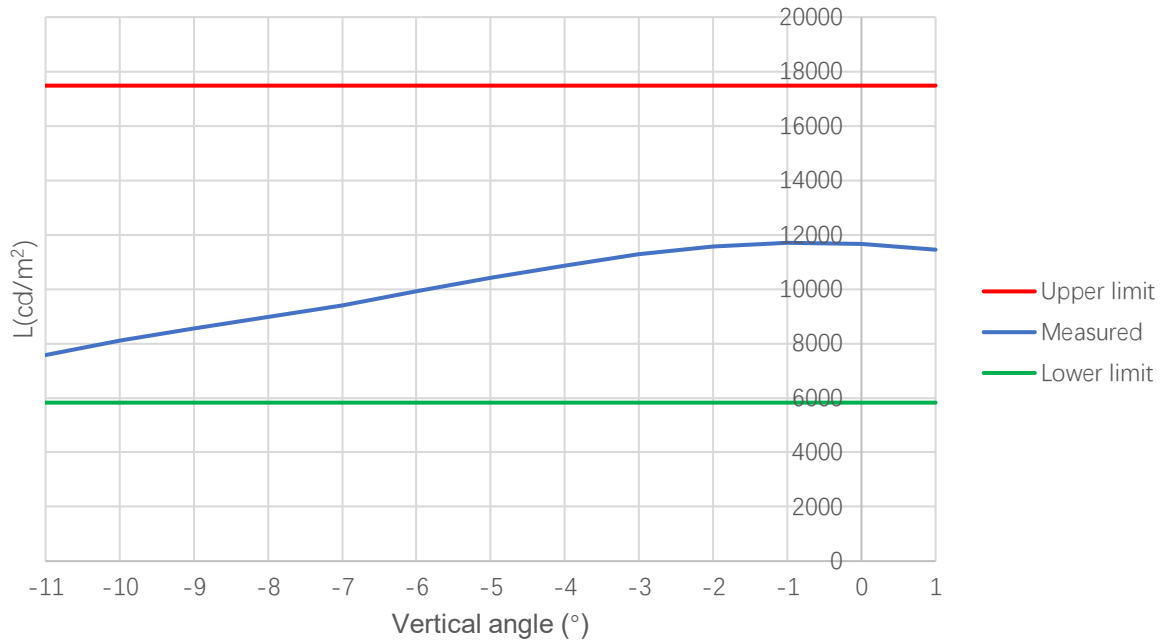
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Luminance distributions on Horizontal angular



Luminance distributions on Vertical angular



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Table V - Uniformity of luminous intensity

Sign illuminance (lx)	Photometer angle (Horizontal, Vertical)	Luminous intensity coordinate			
		Uniformity 12%	Limit	Uniformity 4%	Limit
40000	(0, 0)	1,52	≤ 3,0	1,68	≤ 5,0
	(-15, 0)	1,56		1,69	
	(+15, 0)	1,54		1,68	
	(0, -10)	1,59		1,72	
≤ 4	(0, 0)	1,51	≤ 3,0	1,66	≤ 5,0
	(-15, 0)	1,57		1,69	
	(+15, 0)	1,58		1,74	
	(0, -10)	1,58		1,73	

Table VI - Visible Flicker

Sign illuminance (lx)	Photometer angle (Horizontal, Vertical)	Flicker (Hz)	Limit (Hz)
40000	(0, 0)	Min. 2360	≥ 90
10000	(0, 0)		
4000	(0, 0)		
400	(0, 0)		
40	(0, 0)		
≤ 4	(0, 0)		



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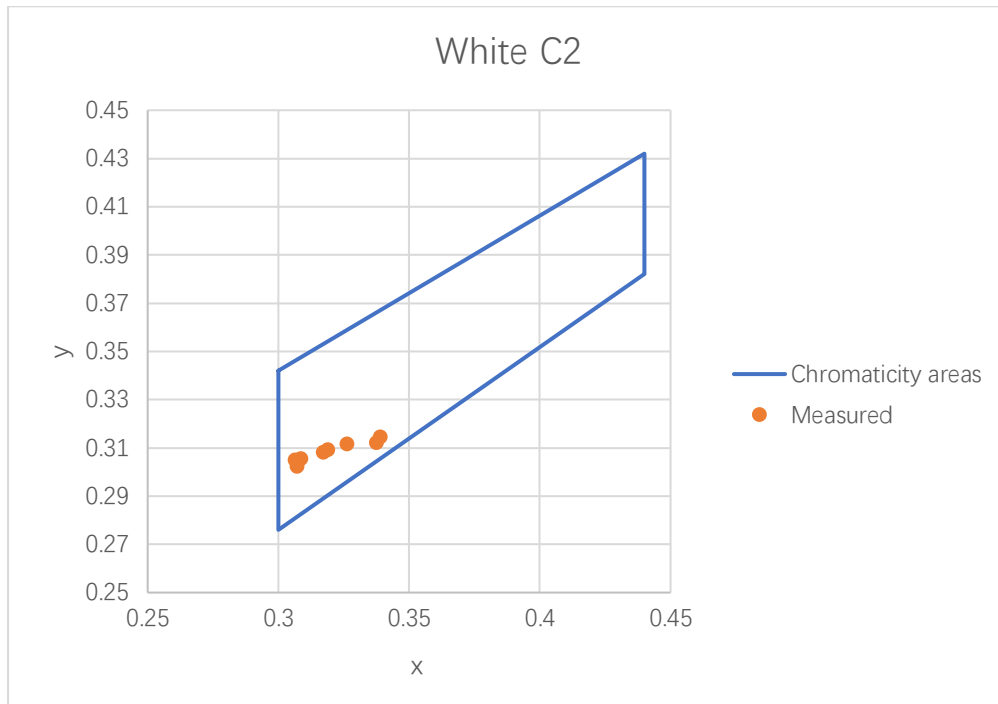
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EN 12966-1
Photometric and colourmetric test data on White colour

Table I	Colour – C2			Colour co-ordinates of corner points (x/y)
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	Chromaticity coordinate		
		x	y	
40000	(0, 0)	0,3189	0,3091	(0,300/0,342) (0,440/0,432) (0,440/0,382) (0,300/0,276)
	(-15, 0)	0,3376	0,3121	
	(+15, 0)	0,3086	0,3056	
	(0, -10)	0,3072	0,3022	
≤ 4	(0, 0)	0,3264	0,3116	
	(-15, 0)	0,3391	0,3144	
	(+15, 0)	0,3172	0,3082	
	(0, -10)	0,3065	0,3049	



Chromaticity diagram


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Table II		Luminance for luminance class L3 & L3(*)		
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L _a (cd/m ²)	Limit	
			L _a (min) (cd/m ²)	L _a (max) (cd/m ²)
40000	(0, 0)	17560	12400	62000
10000	(0, 0)	17099	12400	62000
4000	(0, 0)	3316,1	2200	11000
400	(0, 0)	802,40	600	3000
40	(0, 0)	411,76	250	1250
≤ 4	(0, 0)	183,91	75	375

Table III		Luminance Ratio R3			
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L _a	L _b	LR	LR limit
40000	(0, 0)	17560	673,30	25,08	≥ 16,7
	(-15, 0)	11423	390,55	28,25	≥ 8,35
	(+15, 0)	12184	416,45	28,26	
	(0, -2,5)	17476	698,66	24,01	
10000	(0, 0)	17099	211,95	79,67	≥ 16,7
	(-15, 0)	11238	206,42	53,44	≥ 8,35
	(+15, 0)	11975	206,97	56,86	
	(0, -2,5)	16983	206,38	81,29	
4000	(0, 0)	3316,1	67,33	48,25	≥ 16,7
	(-15, 0)	2161,4	39,06	54,34	≥ 8,35
	(+15, 0)	2305,6	41,65	54,36	
	(0, -2,5)	3297,5	69,87	46,19	
400	(0, 0)	802,40	6,73	118,23	≥ 16,7
	(-15, 0)	523,71	3,91	132,94	≥ 8,35
	(+15, 0)	558,65	4,17	132,97	
	(0, -2,5)	797,48	6,99	113,09	


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Table IV-1		Beam width Class – B6			
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L (cd/m ²)	Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L (cd/m ²)
40000	(0, 0)	16887	≤ 4	(0, 0)	183,91
	(-15, 0)	11032		(-15, 0)	118,97
	(+15, 0)	11768		(+15, 0)	129,19
	(0, -10)	12535		(0, -10)	138,32

Table IV-2		40000 lx external sign illumination			
Horizontal angle (°)	L (cd/m ²)	Horizontal angle (°)	L (cd/m ²)	Vertical angle (°)	L (cd/m ²)
-16	10468	1	16988	1	16536
-15	11032	2	16984	0	16887
-14	11552	3	17009	-1	16951
-13	12082	4	16921	-2	16872
-12	12637	5	16766	-3	16608
-11	13098	6	16580	-4	16165
-10	13616	7	16213	-5	15574
-9	13918	8	15838	-6	15096
-8	14284	9	15397	-7	14475
-7	14687	10	14872	-8	13851
-6	15127	11	14523	-9	13194
-5	15531	12	13676	-10	12535
-4	15826	13	13067	-11	11771
-3	16150	14	12406	—	—
-2	16466	15	11768	—	—
-1	16661	16	11047	—	—
0	16887	—	—	—	—
Off-axis lower limit [50% of the measured value on reference axis (0,0)]					8443,5
Off-axis upper limit [150% of the measured value on reference axis (0,0)]					25330,5



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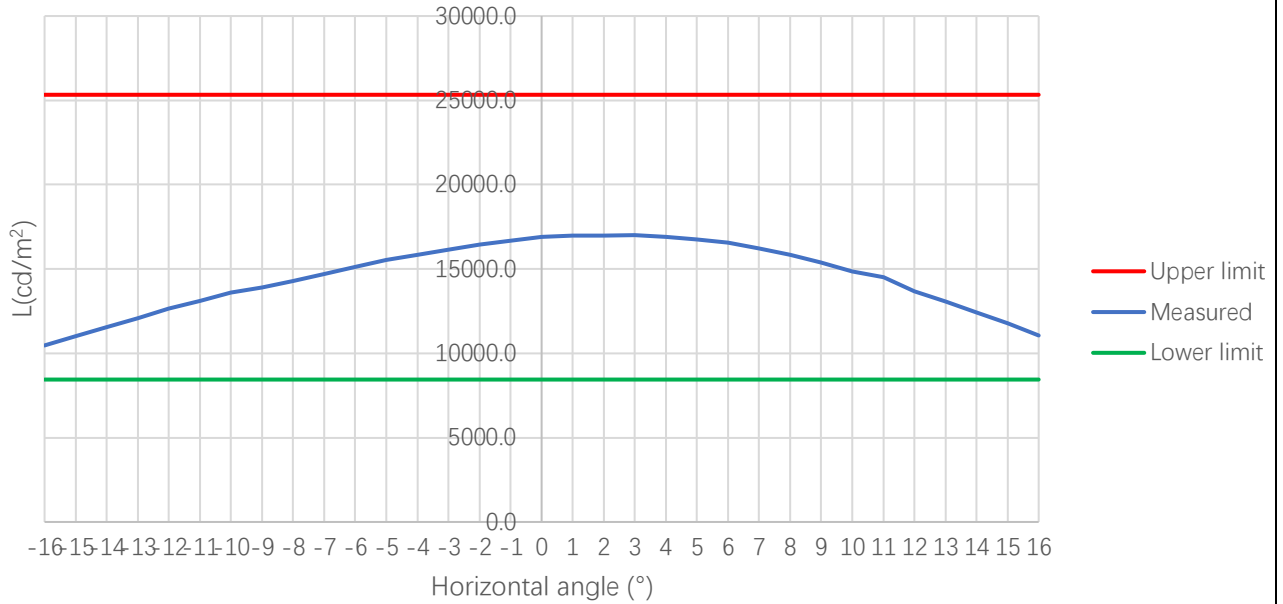
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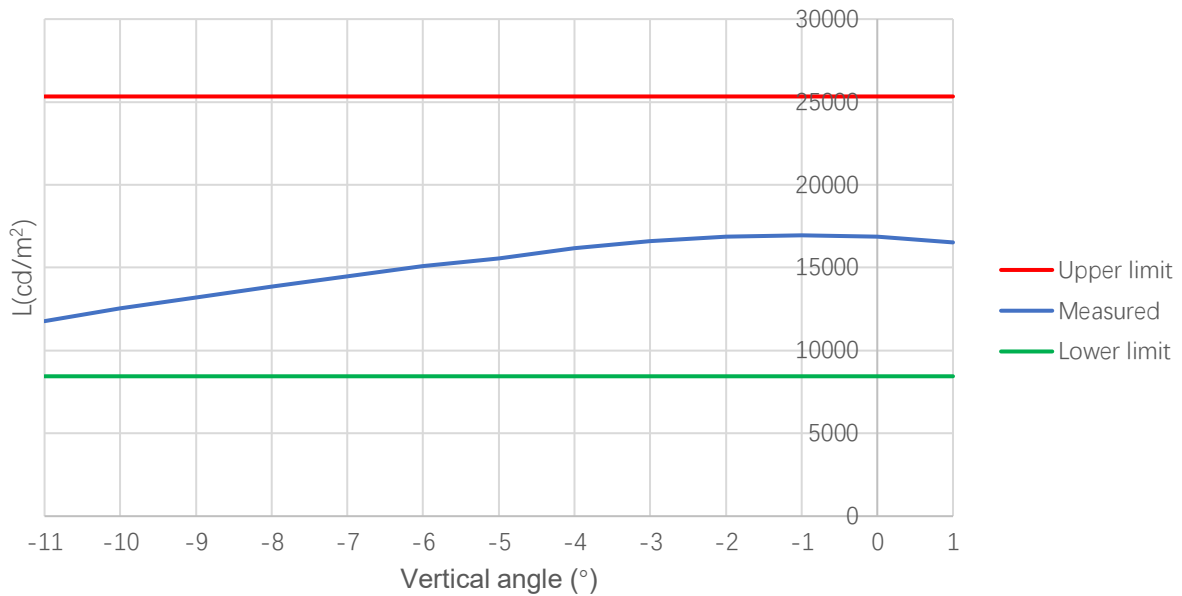
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Luminance distributions on Horizontal angular



Luminance distributions on Vertical angular



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Table V - Uniformity of luminous intensity

Sign illuminance (lx)	Photometer angle (Horizontal, Vertical)	Luminous intensity coordinate			
		Uniformity 12%	Limit	Uniformity 4%	Limit
40000	(0, 0)	1,51	≤ 3,0	1,65	≤ 5,0
	(-15, 0)	1,54		1,66	
	(+15, 0)	1,54		1,68	
	(0, -10)	1,59		1,70	
≤ 4	(0, 0)	1,51	≤ 3,0	1,64	≤ 5,0
	(-15, 0)	1,54		1,65	
	(+15, 0)	1,57		1,70	
	(0, -10)	1,58		1,69	

Table VI - Visible Flicker

Sign illuminance (lx)	Photometer angle (Horizontal, Vertical)	Flicker (Hz)	Limit (Hz)
40000	(0, 0)	Min. 2360	≥ 90
10000	(0, 0)		
4000	(0, 0)		
400	(0, 0)		
40	(0, 0)		
≤ 4	(0, 0)		



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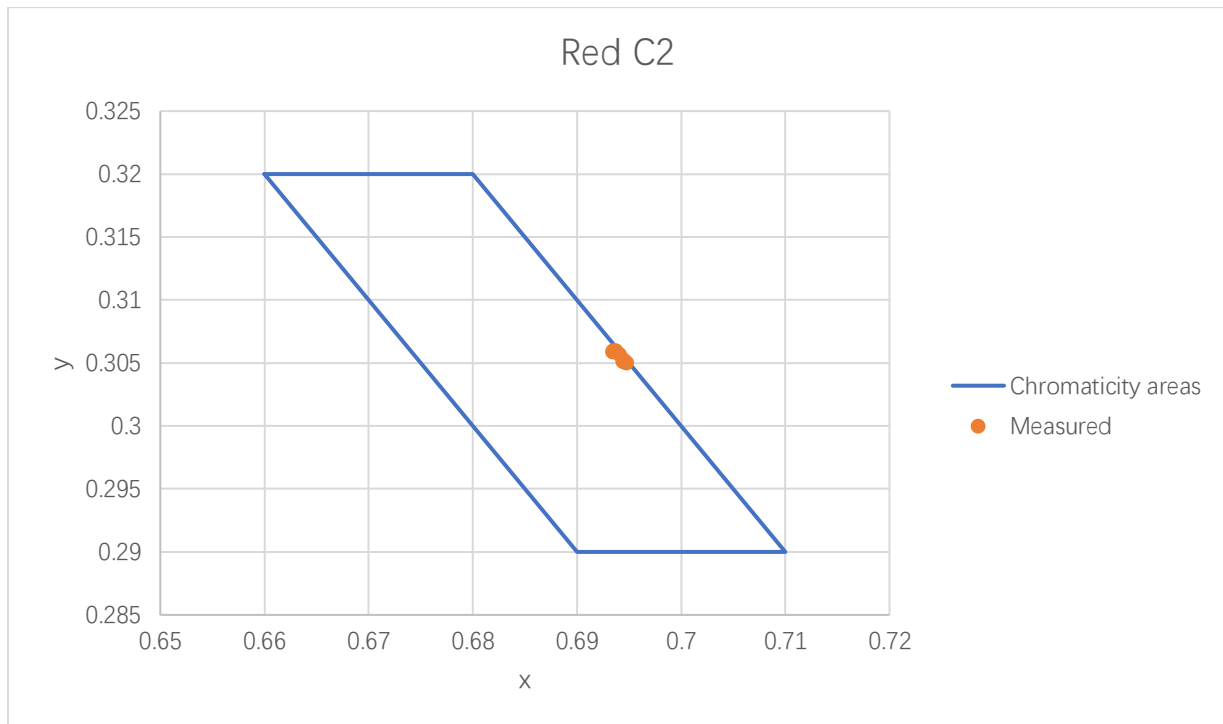
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**VMS10S-4535RGB:
Photometric and colourmetric test data on Red colour**

Table I	Colour – C2			
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	Chromaticity coordinate		Colour co-ordinates of corner points (x/y)
		x	y	
40000	(0, 0)	0,6945	0,3052	(0,660/0,320) (0,680/0,320) (0,710/0,290) (0,690/0,290)
	(-15, 0)	0,6947	0,3050	
	(+15, 0)	0,6948	0,3050	
	(0, -10)	0,6944	0,3051	
≤ 4	(0, 0)	0,6941	0,3057	
	(-15, 0)	0,6937	0,3060	
	(+15, 0)	0,6934	0,3059	
	(0, -10)	0,6935	0,3060	



Chromaticity diagram



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Table II		Luminance for luminance class L3/L3(T)/L3(*)		
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L _a (cd/m ²)	Limit	
			L _a (min) (cd/m ²)	L _a (max) (cd/m ²)
40000	(0, 0)	12967	3100	15500
10000	(0, 0)	12130	3100	15500
4000	(0, 0)	2131,3	550	2750
400	(0, 0)	642,26	150	750
40	(0, 0)	247,33	63	315
≤ 4	(0, 0)	60,06	19	95

Table III		Luminance Ratio R3			
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L _a	L _b	LR	LR limit
40000	(0, 0)	12967	1731,4	6,49	≥ 4,2
	(-15, 0)	10054	619,07	15,24	≥ 2,1
	(+15, 0)	8288	686,51	11,07	
	(0, -2,5)	12946	2000,9	5,47	
10000	(0, 0)	12130	893,95	12,57	≥ 4,2
	(-15, 0)	9639	203,92	46,27	≥ 2,1
	(+15, 0)	7859	258,29	29,43	
	(0, -2,5)	12307	1362,2	8,03	
4000	(0, 0)	2131,3	173,14	11,31	≥ 4,2
	(-15, 0)	1706,3	61,91	26,56	≥ 2,1
	(+15, 0)	1393,3	68,65	19,30	
	(0, -2,5)	2107,6	200,09	9,53	
400	(0, 0)	642,26	17,31	36,10	≥ 4,2
	(-15, 0)	530,98	6,19	84,78	≥ 2,1
	(+15, 0)	429,64	6,87	61,54	
	(0, -2,5)	628,77	20,01	30,42	



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Table IV-1		Beam width Class – B6			
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L (cd/m ²)	Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L (cd/m ²)
40000	(0, 0)	11236	≤ 4	(0, 0)	60,06
	(-15, 0)	9435,2		(-15, 0)	49,85
	(+15, 0)	7601,0		(+15, 0)	41,09
	(0, -10)	7152,7		(0, -10)	39,14

Table IV-2		40000 lx external sign illumination			
Horizontal angle (°)	L (cd/m ²)	Horizontal angle (°)	L (cd/m ²)	Vertical angle (°)	L (cd/m ²)
-16	9035,7	1	11207	1	10868
-15	9435,2	2	11206	0	11230
-14	9803,6	3	11198	-1	11341
-13	10067	4	11179	-2	11223
-12	10317	5	11114	-3	10886
-11	10540	6	11007	-4	10402
-10	10690	7	10845	-5	9826,9
-9	10810	8	10603	-6	9220,7
-8	10920	9	10308	-7	8637,1
-7	11014	10	9938,0	-8	8100,2
-6	11090	11	9544,4	-9	7624,8
-5	11144	12	9088,3	-10	7152,7
-4	11178	13	8613,0	-11	6645,2
-3	11200	14	8105,8	—	—
-2	11214	15	7601,0	—	—
-1	11226	16	7057,2	—	—
0	11236	—	—	—	—
Off-axis lower limit [50% of the measured value on reference axis (0,0)]					5618
Off-axis upper limit [150% of the measured value on reference axis (0,0)]					16854



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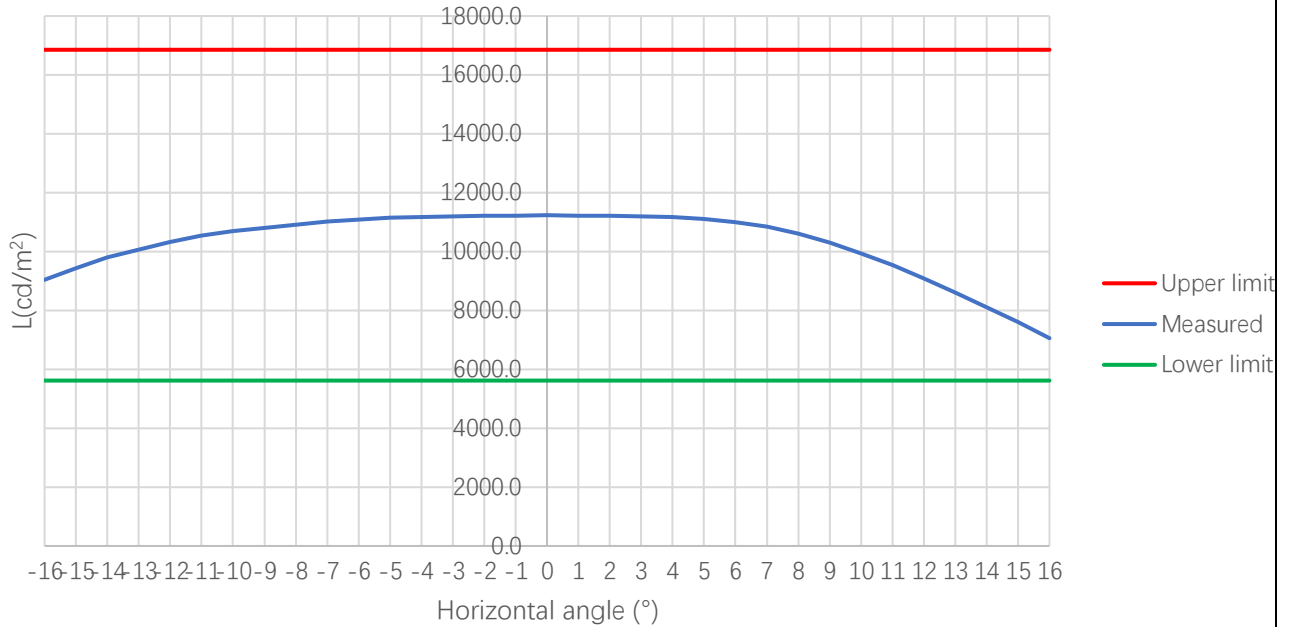
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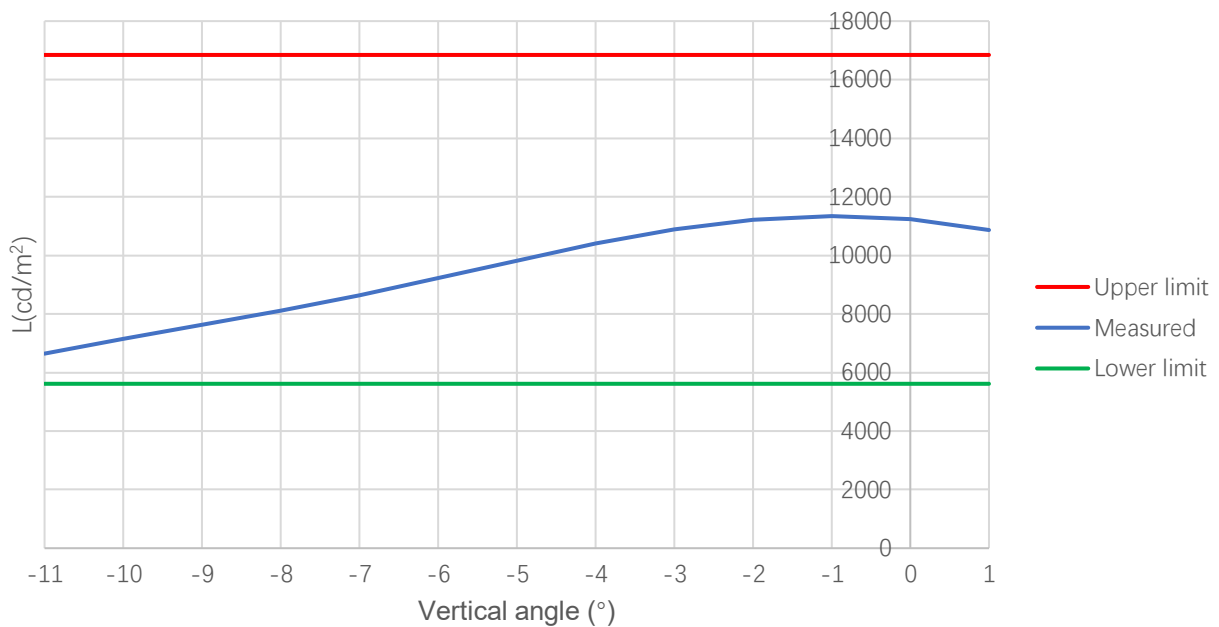
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Luminance distributions on Horizontal angular



Luminance distributions on Vertical angular



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Table V - Uniformity of luminous intensity

Sign illuminance (lx)	Photometer angle (Horizontal, Vertical)	Luminous intensity coordinate			
		Uniformity 12%	Limit	Uniformity 4%	Limit
40000	(0, 0)	1,38	≤ 3,0	1,60	≤ 5,0
	(-15, 0)	1,43		1,63	
	(+15, 0)	1,42		1,63	
	(0, -10)	1,45		1,66	
≤ 4	(0, 0)	1,38	≤ 3,0	1,61	≤ 5,0
	(-15, 0)	1,44		1,67	
	(+15, 0)	1,45		1,67	
	(0, -10)	1,48		1,68	

Table VI - Visible Flicker

Sign illuminance (lx)	Photometer angle (Horizontal, Vertical)	Flicker (Hz)	Limit (Hz)
40000	(0, 0)	Min. 3340	≥ 90
10000	(0, 0)		
4000	(0, 0)		
400	(0, 0)		
40	(0, 0)		
≤ 4	(0, 0)		



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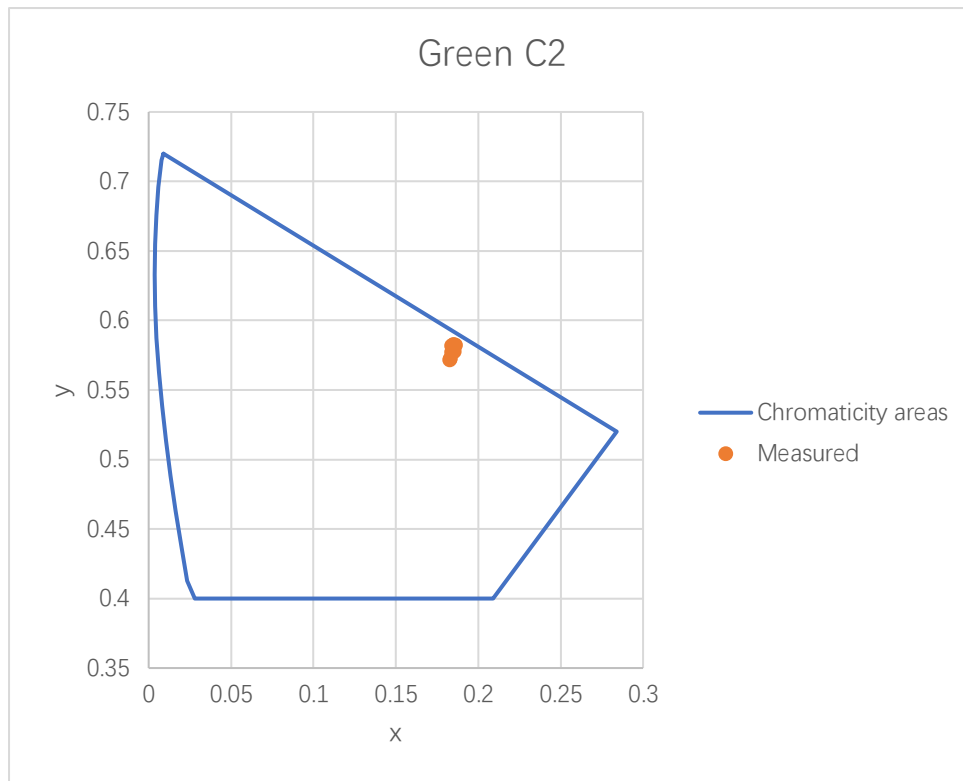
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Photometric and colourmetric test data on Green colour

Table I	Colour – C2			
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	Chromaticity coordinate		Colour co-ordinates of corner points (x/y)
		x	y	
40000	(0, 0)	0,1839	0,5773	(0,009/0,720) (0,284/0,520) (0,209/0,400) (0,028/0,400)
	(-15, 0)	0,1826	0,5718	
	(+15, 0)	0,1852	0,5829	
	(0, -10)	0,1841	0,5822	
≤ 4	(0, 0)	0,1853	0,5780	
	(-15, 0)	0,1832	0,5727	
	(+15, 0)	0,1862	0,5825	
	(0, -10)	0,1846	0,5813	



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Table II		Luminance for luminance class L3/L3(T)/L3(*)		
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L _a (cd/m ²)	Limit	
			L _a (min) (cd/m ²)	L _a (max) (cd/m ²)
40000	(0, 0)	13255	3720	18600
10000	(0, 0)	12418	3720	18600
4000	(0, 0)	2082,5	660	3300
400	(0, 0)	726,33	180	900
40	(0, 0)	237,43	75	375
≤ 4	(0, 0)	56,52	23	115

Table III		Luminance Ratio R3			
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L _a	L _b	LR	LR limit
40000	(0, 0)	13255	1731,4	6,66	≥ 5
	(-15, 0)	8637,1	619,07	12,95	≥ 2,5
	(+15, 0)	7977,4	686,51	10,62	
	(0, -2,5)	13600	2000,9	5,80	
10000	(0, 0)	12418	893,95	12,89	≥ 5
	(-15, 0)	8221,9	203,92	39,32	≥ 2,5
	(+15, 0)	7549,2	258,29	28,23	
	(0, -2,5)	12961	1362,2	8,51	
4000	(0, 0)	2082,5	173,14	11,03	≥ 5
	(-15, 0)	1390,4	61,91	21,46	≥ 2,5
	(+15, 0)	1276,7	68,65	17,60	
	(0, -2,5)	2121,9	200,09	9,60	
400	(0, 0)	726,33	17,31	40,96	≥ 5
	(-15, 0)	499,50	6,19	79,69	≥ 2,5
	(+15, 0)	455,45	6,87	65,29	
	(0, -2,5)	733,64	20,01	35,66	



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Table IV-1	Beam width Class – B6				
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L (cd/m ²)	Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L (cd/m ²)
40000	(0, 0)	11524	≤ 4	(0, 0)	56,52
	(-15, 0)	8018,0		(-15, 0)	39,95
	(+15, 0)	7290,9		(+15, 0)	36,25
	(0, -10)	9585,5		(0, -10)	47,66

Table IV-2		40000 lx external sign illumination					
Horizontal angle (°)	L (cd/m ²)	Horizontal angle (°)	L (cd/m ²)		Vertical angle (°)	L (cd/m ²)	
-16	7689,1	1	11511		1	11394	
-15	8018,0	2	11470		0	11524	
-14	8362,8	3	11372		-1	11595	
-13	8681,0	4	11232		-2	11606	
-12	8983,2	5	11052		-3	11570	
-11	9268,8	6	10792		-4	11443	
-10	9556,5	7	10500		-5	11265	
-9	9848,2	8	10156		-6	11066	
-8	10111	9	9806,6		-7	10750	
-7	10370	10	9410,4		-8	10424	
-6	10610	11	9005,3		-9	10037	
-5	10856	12	8581,0		-10	9585,5	
-4	11040	13	8153,1		-11	9114,5	
-3	11222	14	7722,5		—	—	
-2	11381	15	7290,9		—	—	
-1	11450	16	6855,5		—	—	
0	11524	—	—		—	—	
Off-axis lower limit [50% of the measured value on reference axis (0,0)]						5762	
Off-axis upper limit [150% of the measured value on reference axis (0,0)]						17286	



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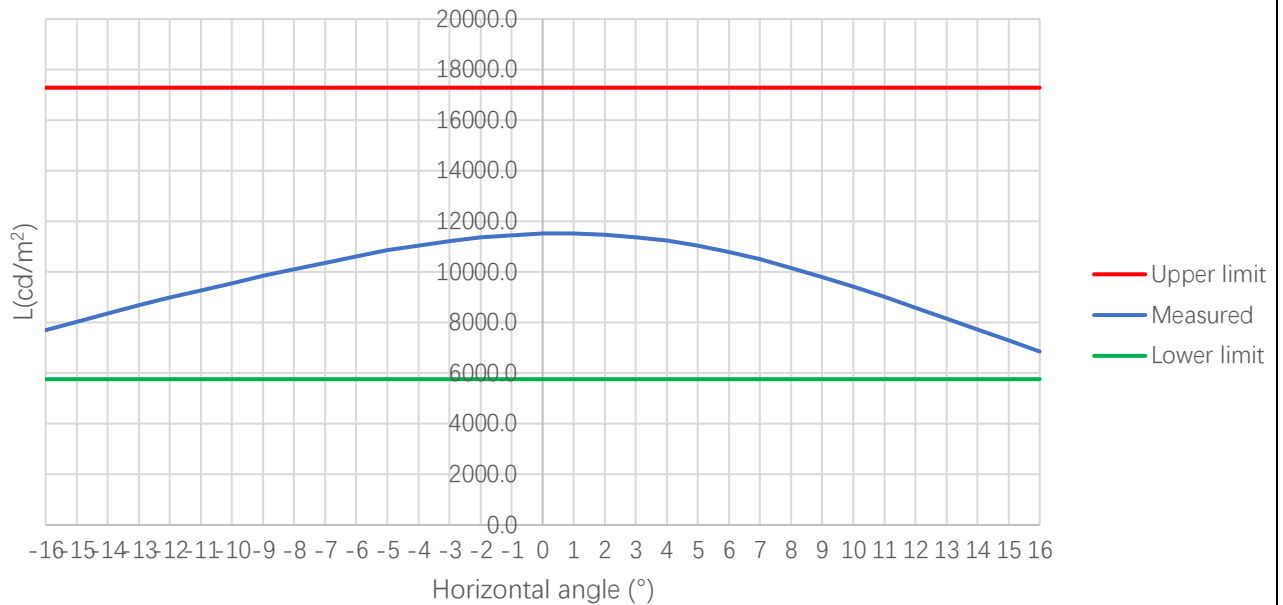
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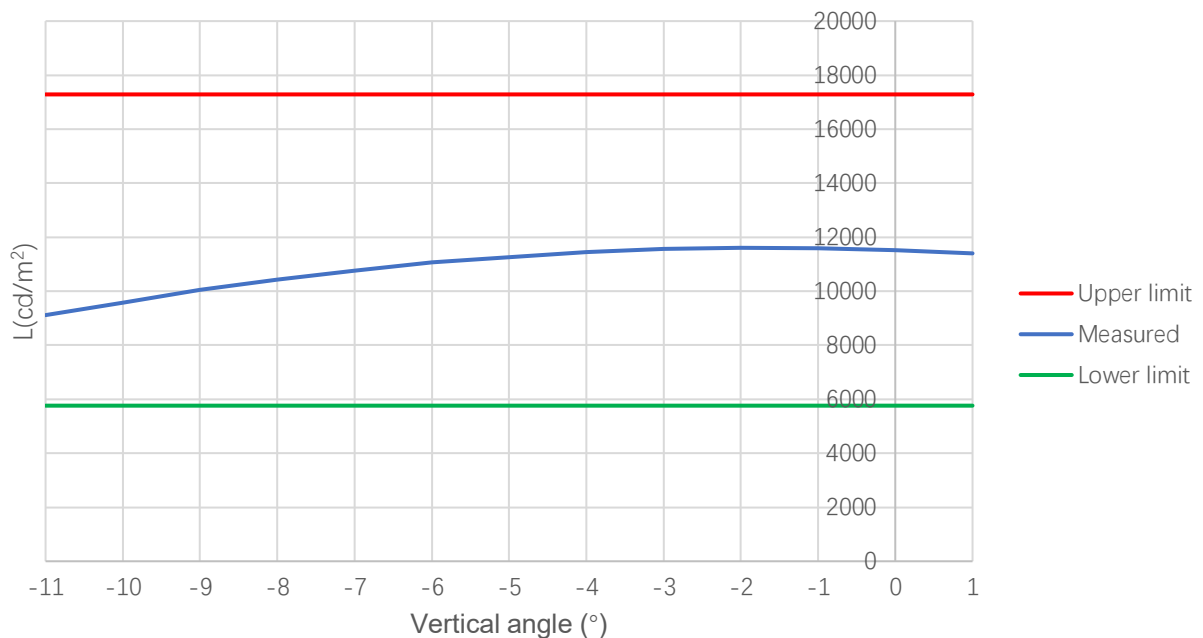
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Luminance distributions on Horizontal angular



Luminance distributions on Vertical angular



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EN 12966-1

Table V - Uniformity of luminous intensity

Sign illuminance (lx)	Photometer angle (Horizontal, Vertical)	Luminous intensity coordinate			
		Uniformity 12%	Limit	Uniformity 4%	Limit
40000	(0, 0)	1,42	≤ 3,0	1,65	≤ 5,0
	(-15, 0)	1,46		1,70	
	(+15, 0)	1,45		1,71	
	(0, -10)	1,48		1,72	
≤ 4	(0, 0)	1,44	≤ 3,0	1,64	≤ 5,0
	(-15, 0)	1,48		1,70	
	(+15, 0)	1,49		1,71	
	(0, -10)	1,51		1,73	

Table VI - Visible Flicker

Sign illuminance (lx)	Photometer angle (Horizontal, Vertical)	Flicker (Hz)	Limit (Hz)
40000	(0, 0)	Min. 3340	≥ 90
10000	(0, 0)		
4000	(0, 0)		
400	(0, 0)		
40	(0, 0)		
≤ 4	(0, 0)		



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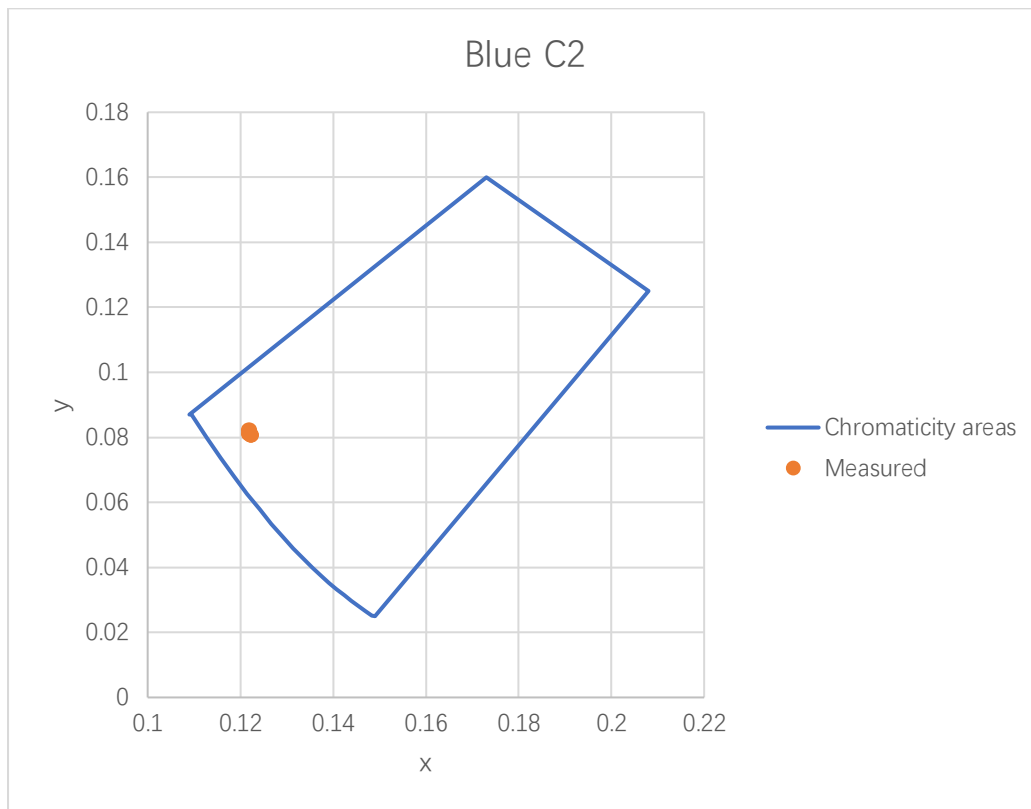
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Photometric and colourmetric test data on Blue colour

Table I	Colour – C2			Colour co-ordinates of corner points (x/y)
	Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	Chromaticity coordinate	
x			y	
40000	(0, 0)	0,1219	0,0817	(0,109/0,087) (0,173/0,160) (0,208/0,125) (0,149/0,025)
	(-15, 0)	0,1223	0,0808	
	(+15, 0)	0,1217	0,0823	
	(0, -10)	0,1222	0,0808	
≤ 4	(0, 0)	0,1217	0,0812	
	(-15, 0)	0,1225	0,0808	
	(+15, 0)	0,1220	0,0824	
	(0, -10)	0,1223	0,0808	



Chromaticity diagram



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Table II		Luminance for luminance class L3/L3(T)/L3(*)		
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L _a (cd/m ²)	Limit	
			L _a (min) (cd/m ²)	L _a (max) (cd/m ²)
40000	(0, 0)	5240,8	1240	6200
10000	(0, 0)	4403,4	1240	6200
4000	(0, 0)	757,37	220	1100
400	(0, 0)	232,58	60	300
40	(0, 0)	74,33	25	125
≤ 4	(0, 0)	17,17	7,5	37,5

Table III		Luminance Ratio R3			
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L _a	L _b	LR	LR limit
40000	(0, 0)	5240,8	1731,4	2,03	≥ 1,7
	(-15, 0)	3176,2	619,07	4,13	≥ 0,85
	(+15, 0)	2779,5	686,51	3,05	
	(0, -2,5)	5497,6	2000,9	1,75	
10000	(0, 0)	4403,4	893,95	3,93	≥ 1,7
	(-15, 0)	2761,0	203,92	12,54	≥ 0,85
	(+15, 0)	2351,3	258,29	8,10	
	(0, -2,5)	4858,9	1362,2	2,57	
4000	(0, 0)	757,37	173,14	3,37	≥ 1,7
	(-15, 0)	487,61	61,91	6,88	≥ 0,85
	(+15, 0)	417,08	68,65	5,08	
	(0, -2,5)	782,21	200,09	2,91	
400	(0, 0)	232,58	17,31	12,44	≥ 1,7
	(-15, 0)	163,04	6,19	25,34	≥ 0,85
	(+15, 0)	135,26	6,87	18,69	
	(0, -2,5)	234,50	20,01	10,72	


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Table IV-1		Beam width Class – B6			
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L (cd/m ²)	Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L (cd/m ²)
40000	(0, 0)	3509,4	≤ 4	(0, 0)	17,17
	(-15, 0)	2557,1		(-15, 0)	12,91
	(+15, 0)	2093,0		(+15, 0)	10,43
	(0, -10)	2788,4		(0, -10)	13,82

Table IV-2		40000 lx external sign illumination			
Horizontal angle (°)	L (cd/m ²)	Horizontal angle (°)	L (cd/m ²)	Vertical angle (°)	L (cd/m ²)
-16	2456,8	1	3486,6	1	3480,1
-15	2557,1	2	3444,5	0	3509,4
-14	2659,1	3	3400,3	-1	3514,0
-13	2746,9	4	3333,9	-2	3506,3
-12	2830,6	5	3259,7	-3	3480,9
-11	2919,0	6	3167,9	-4	3431,2
-10	2992,8	7	3065,9	-5	3364,9
-9	3071,5	8	2958,5	-6	3278,8
-8	3149,5	9	2847,8	-7	3177,9
-7	3222,9	10	2730,7	-8	3060,8
-6	3292,7	11	2602,4	-9	2928,6
-5	3360,8	12	2475,2	-10	2788,4
-4	3404,7	13	2347,0	-11	2635,3
-3	3455,6	14	2221,9	—	—
-2	3481,1	15	2093,0	—	—
-1	3499,6	16	1960,4	—	—
0	3509,4	—	—	—	—
Off-axis lower limit [50% of the measured value on reference axis (0,0)]					1754,1
Off-axis upper limit [150% of the measured value on reference axis (0,0)]					5264,1



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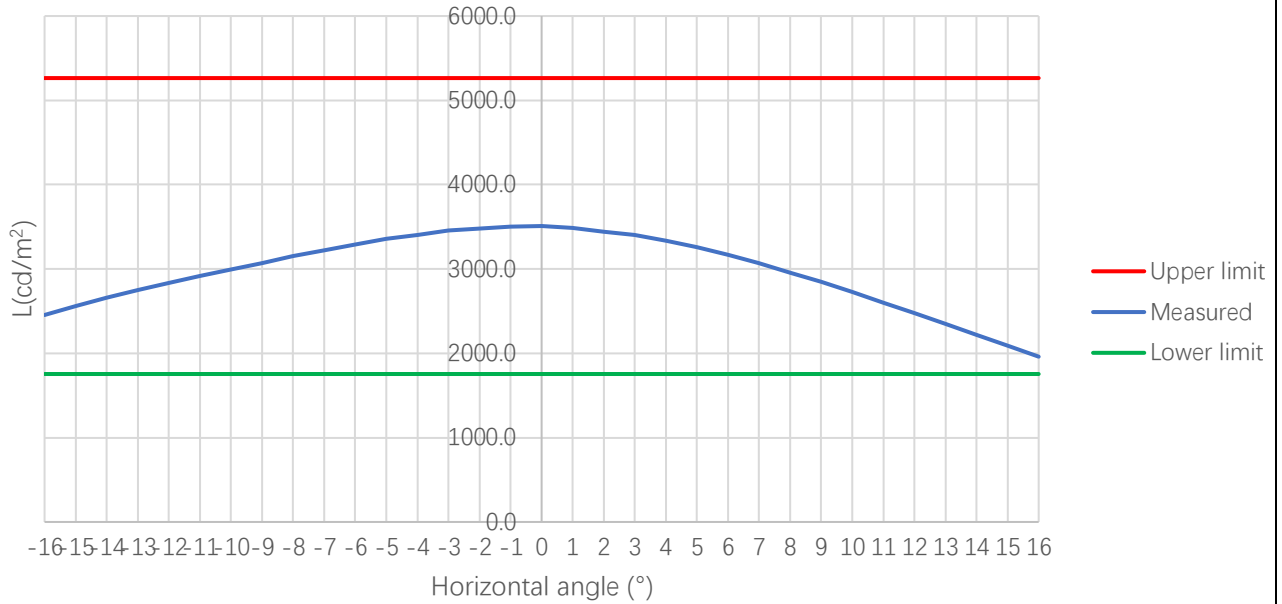
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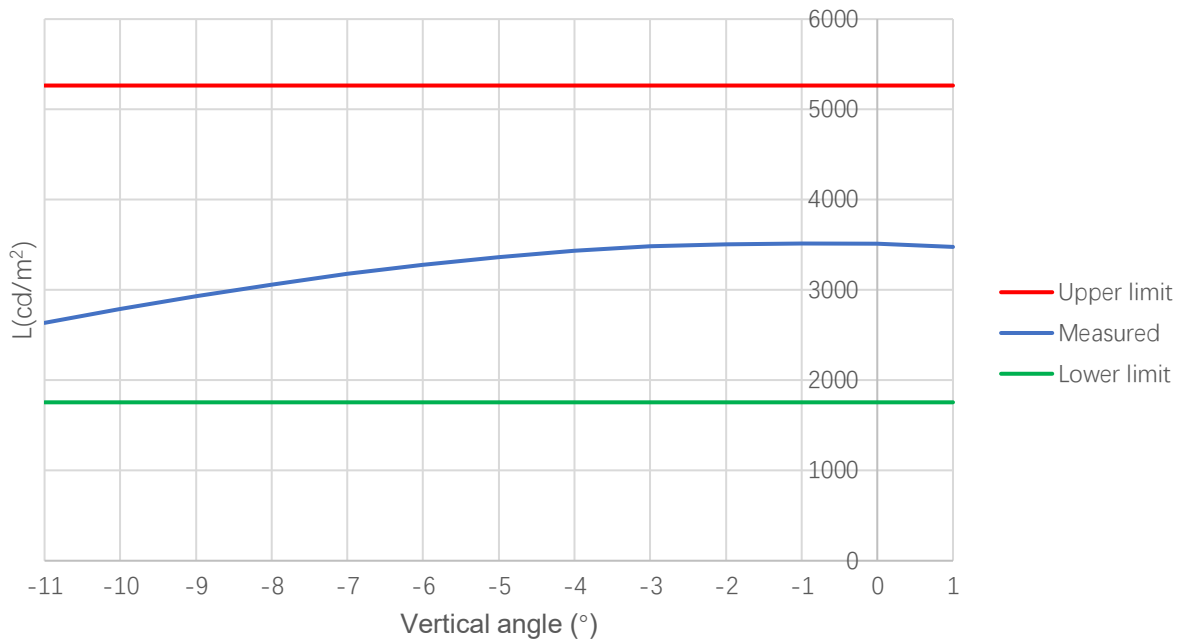
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Luminance distributions on Horizontal angular



Luminance distributions on Vertical angular



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Table V - Uniformity of luminous intensity

Sign illuminance (lx)	Photometer angle (Horizontal, Vertical)	Luminous intensity coordinate			
		Uniformity 12%	Limit	Uniformity 4%	Limit
40000	(0, 0)	1,36	≤ 3,0	1,58	≤ 5,0
	(-15, 0)	1,41		1,61	
	(+15, 0)	1,40		1,60	
	(0, -10)	1,43		1,63	
≤ 4	(0, 0)	1,36	≤ 3,0	1,59	≤ 5,0
	(-15, 0)	1,42		1,61	
	(+15, 0)	1,42		1,60	
	(0, -10)	1,44		1,63	

Table VI - Visible Flicker

Sign illuminance (lx)	Photometer angle (Horizontal, Vertical)	Flicker (Hz)	Limit (Hz)
40000	(0, 0)	Min. 3340	≥ 90
10000	(0, 0)		
4000	(0, 0)		
400	(0, 0)		
40	(0, 0)		
≤ 4	(0, 0)		



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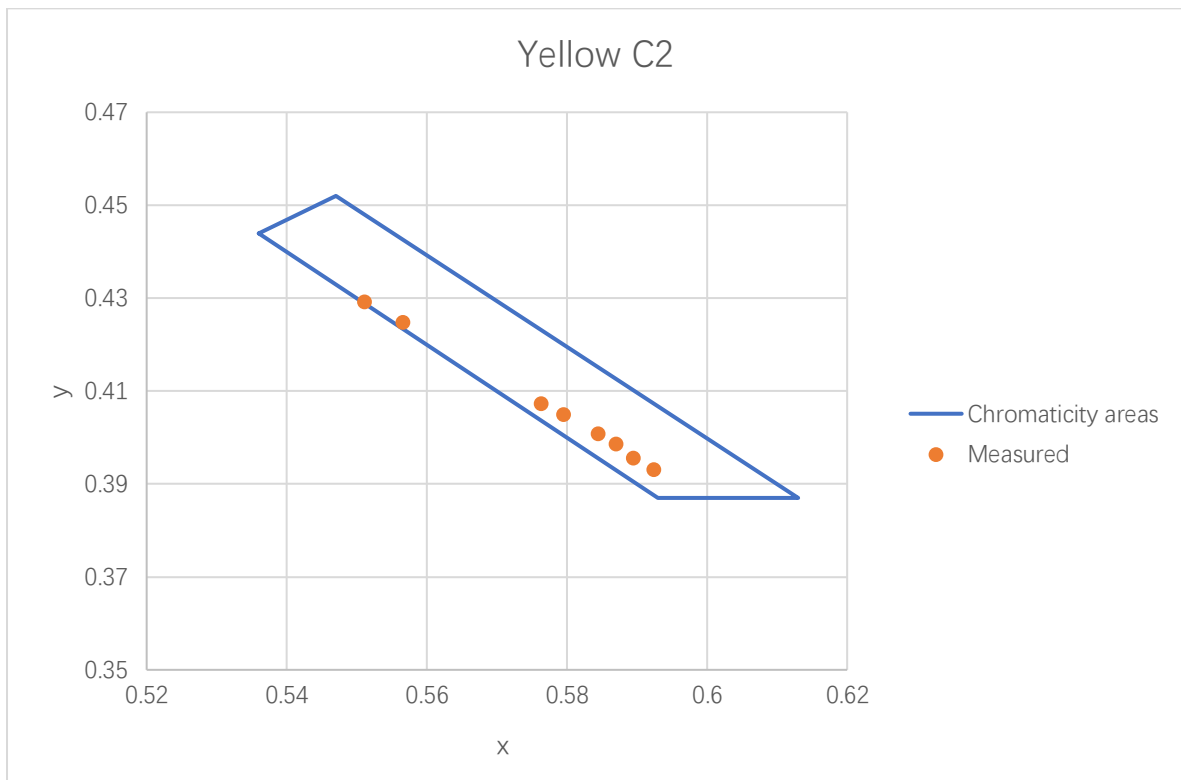
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EN 12966-1
Photometric and colourmetric test data on Yellow colour

Table I	Colour – C2			
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	Chromaticity coordinate		Colour co-ordinates of corner points (x/y)
		x	y	
40000	(0, 0)	0,5763	0,4074	(0,536/0,444) (0,547/0,452) (0,613/0,387) (0,593/0,387)
	(-15, 0)	0,5895	0,3957	
	(+15, 0)	0,5844	0,4009	
	(0, -10)	0,5511	0,4292	
≤ 4	(0, 0)	0,5795	0,4050	
	(-15, 0)	0,5924	0,3932	
	(+15, 0)	0,5870	0,3986	
	(0, -10)	0,5566	0,4248	



Chromaticity diagram



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Table II		Luminance for luminance class L3/L3(T)/L3(*)		
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L _a (cd/m ²)	Limit	
			L _a (min) (cd/m ²)	L _a (max) (cd/m ²)
40000	(0, 0)	21188	7440	37200
10000	(0, 0)	20351	7440	37200
4000	(0, 0)	3434,2	1320	6600
400	(0, 0)	1408,8	360	1800
40	(0, 0)	615,98	150	750
≤ 4	(0, 0)	140,40	45	225

Table III		Luminance Ratio R3			
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L _a	L _b	LR	LR limit
40000	(0, 0)	21188	1731,4	11,24	≥ 10
	(-15, 0)	15671	619,07	24,31	≥ 5
	(+15, 0)	13484	686,51	18,64	
	(0, -2,5)	21280	2000,9	9,64	
10000	(0, 0)	20351	893,95	21,77	≥ 10
	(-15, 0)	15256	203,92	73,81	≥ 5
	(+15, 0)	13055	258,29	49,55	
	(0, -2,5)	20641	1362,2	14,15	
4000	(0, 0)	3434,2	173,14	18,84	≥ 10
	(-15, 0)	2584,7	61,91	40,75	≥ 5
	(+15, 0)	2213,5	68,65	31,24	
	(0, -2,5)	3431,4	200,09	16,15	
400	(0, 0)	1408,8	17,31	80,39	≥ 10
	(-15, 0)	1082,7	6,19	173,90	≥ 5
	(+15, 0)	922,07	6,87	133,22	
	(0, -2,5)	1398,8	20,01	68,90	



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Table IV-1		Beam width Class – B6			
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L (cd/m ²)	Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L (cd/m ²)
40000	(0, 0)	19457	≤ 4	(0, 0)	140,40
	(-15, 0)	15052		(-15, 0)	109,83
	(+15, 0)	12797		(+15, 0)	93,00
	(0, -10)	14017		(0, -10)	103,20

Table IV-2		40000 lx external sign illumination			
Horizontal angle (°)	L (cd/m ²)	Horizontal angle (°)	L (cd/m ²)	Vertical angle (°)	L (cd/m ²)
-16	14424	1	19468	1	18991
-15	15052	2	19428	0	19457
-14	15622	3	19368	-1	19590
-13	16174	4	19219	-2	19460
-12	16667	5	19013	-3	19086
-11	17067	6	18736	-4	18552
-10	17460	7	18355	-5	17822
-9	17794	8	17851	-6	17045
-8	18096	9	17312	-7	16249
-7	18341	10	16666	-8	15495
-6	18619	11	15967	-9	14715
-5	18856	12	15222	-10	14017
-4	19041	13	14422	-11	13192
-3	19212	14	13616	—	—
-2	19326	15	12797	—	—
-1	19419	16	11966	—	—
0	19457	—	—	—	—
Off-axis lower limit [50% of the measured value on reference axis (0,0)]					9728,5
Off-axis upper limit [150% of the measured value on reference axis (0,0)]					29185,5



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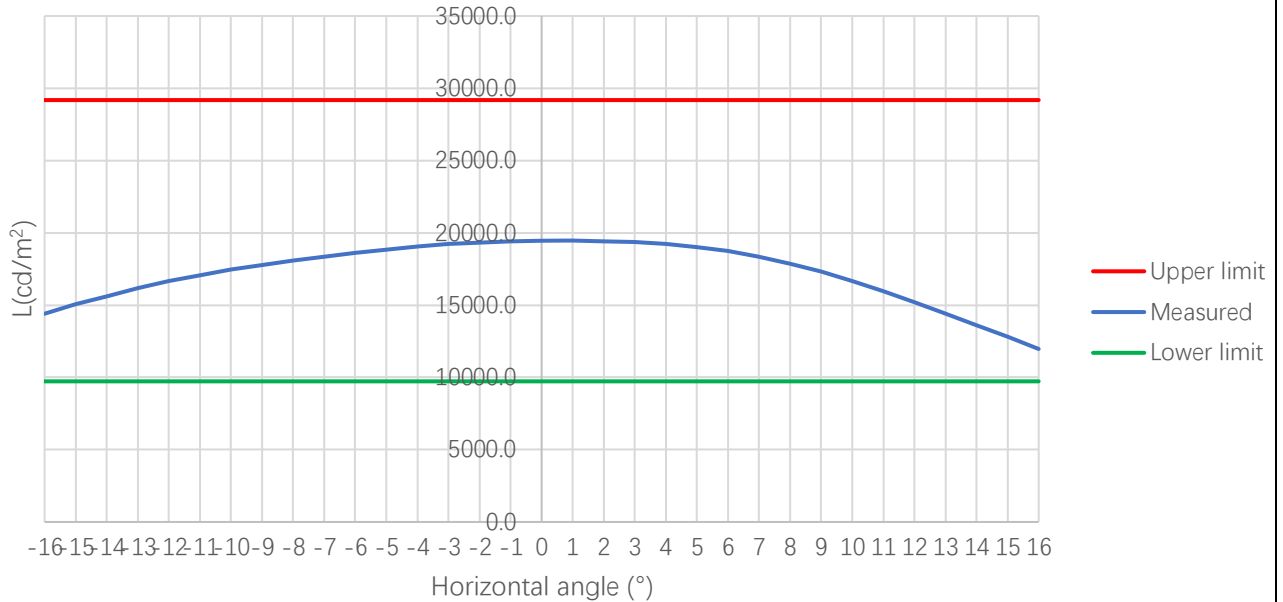
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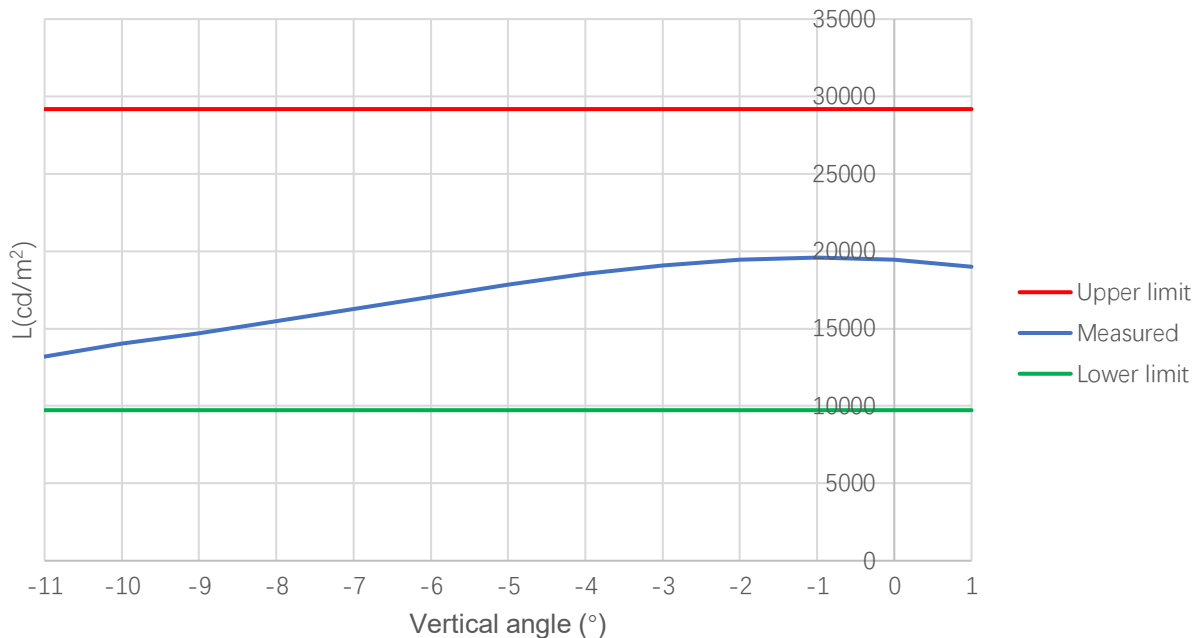
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Luminance distributions on Horizontal angular



Luminance distributions on Vertical angular



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Table V - Uniformity of luminous intensity

Sign illuminance (lx)	Photometer angle (Horizontal, Vertical)	Luminous intensity coordinate			
		Uniformity 12%	Limit	Uniformity 4%	Limit
40000	(0, 0)	1,43	≤ 3,0	1,67	≤ 5,0
	(-15, 0)	1,47		1,70	
	(+15, 0)	1,48		1,71	
	(0, -10)	1,49		1,74	
≤ 4	(0, 0)	1,44	≤ 3,0	1,68	≤ 5,0
	(-15, 0)	1,47		1,73	
	(+15, 0)	1,48		1,72	
	(0, -10)	1,50		1,72	

Table VI - Visible Flicker

Sign illuminance (lx)	Photometer angle (Horizontal, Vertical)	Flicker (Hz)	Limit (Hz)
40000	(0, 0)	Min. 3340	≥ 90
10000	(0, 0)		
4000	(0, 0)		
400	(0, 0)		
40	(0, 0)		
≤ 4	(0, 0)		



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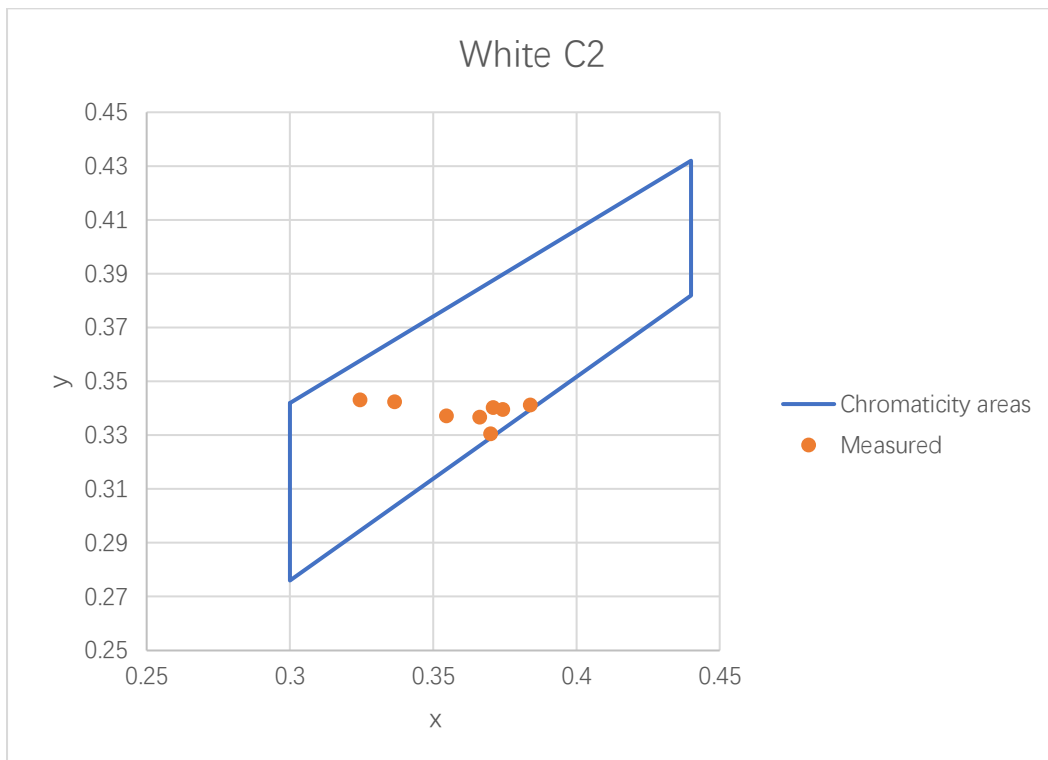
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Photometric and colourmetric test data on White colour

Table I	Colour – C2			Colour co-ordinates of corner points (x/y)
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	Chromaticity coordinate		
		x	y	
40000	(0, 0)	0,3545	0,3374	(0,300/0,342) (0,440/0,432) (0,440/0,382) (0,300/0,276)
	(-15, 0)	0,3700	0,3306	
	(+15, 0)	0,3709	0,3405	
	(0, -10)	0,3244	0,3432	
≤ 4	(0, 0)	0,3663	0,3369	
	(-15, 0)	0,3838	0,3413	
	(+15, 0)	0,3742	0,3398	
	(0, -10)	0,3366	0,3425	



Chromaticity diagram



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Table II		Luminance for luminance class L3/L3(T)/L3(*)		
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L _a (cd/m ²)	Limit	
			L _a (min) (cd/m ²)	L _a (max) (cd/m ²)
40000	(0, 0)	32457	12400	62000
10000	(0, 0)	31620	12400	62000
4000	(0, 0)	5525,7	2200	11000
400	(0, 0)	2307,5	600	3000
40	(0, 0)	1003,7	250	1250
≤ 4	(0, 0)	305,04	75	375

Table III		Luminance Ratio R3			
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L _a	L _b	LR	LR limit
40000	(0, 0)	32457	1731,4	17,75	≥ 16,7
	(-15, 0)	23513	619,07	36,98	≥ 8,35
	(+15, 0)	20376	686,51	28,68	
	(0, -2,5)	25439	2000,9	11,71	
10000	(0, 0)	31620	893,95	34,37	≥ 16,7
	(-15, 0)	23098	203,92	112,27	≥ 8,35
	(+15, 0)	19947	258,29	76,23	
	(0, -2,5)	24800	1362,2	17,21	
4000	(0, 0)	5525,7	173,14	30,91	≥ 16,7
	(-15, 0)	4050,1	61,91	64,42	≥ 8,35
	(+15, 0)	3498,6	68,65	49,96	
	(0, -2,5)	4283,1	200,09	20,41	
400	(0, 0)	2307,5	17,31	132,31	≥ 16,7
	(-15, 0)	1712,6	6,19	275,68	≥ 8,35
	(+15, 0)	1474,4	6,87	213,62	
	(0, -2,5)	1767,0	20,01	87,31	



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Table IV-1		Beam width Class – B6			
Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L (cd/m ²)	Sign illuminance (lx)	Photometer angle (°) (Horizontal, Vertical)	L (cd/m ²)
40000	(0, 0)	30726	≤ 4	(0, 0)	305,04
	(-15, 0)	22894		(-15, 0)	231,84
	(+15, 0)	19689		(+15, 0)	198,60
	(0, -10)	23438		(0, -10)	234,70

Table IV-2		40000 lx external sign illumination			
Horizontal angle (°)	L (cd/m ²)	Horizontal angle (°)	L (cd/m ²)	Vertical angle (°)	L (cd/m ²)
-16	21948	1	30714	1	30100
-15	22894	2	30619	0	30726
-14	23769	3	30422	-1	30951
-13	24627	4	30122	-2	30820
-12	25471	5	29685	-3	30488
-11	26110	6	29120	-4	29726
-10	26765	7	28436	-5	28958
-9	27381	8	27622	-6	27884
-8	27935	9	26637	-7	26801
-7	28532	10	25636	-8	25693
-6	29018	11	24503	-9	24580
-5	29470	12	23344	-10	23438
-4	29852	13	22145	-11	22099
-3	30225	14	20927	—	—
-2	30450	15	19689	—	—
-1	30653	16	18433	—	—
0	30726	—	—	—	—
Off-axis lower limit [50% of the measured value on reference axis (0,0)]					15363
Off-axis upper limit [150% of the measured value on reference axis (0,0)]					46089



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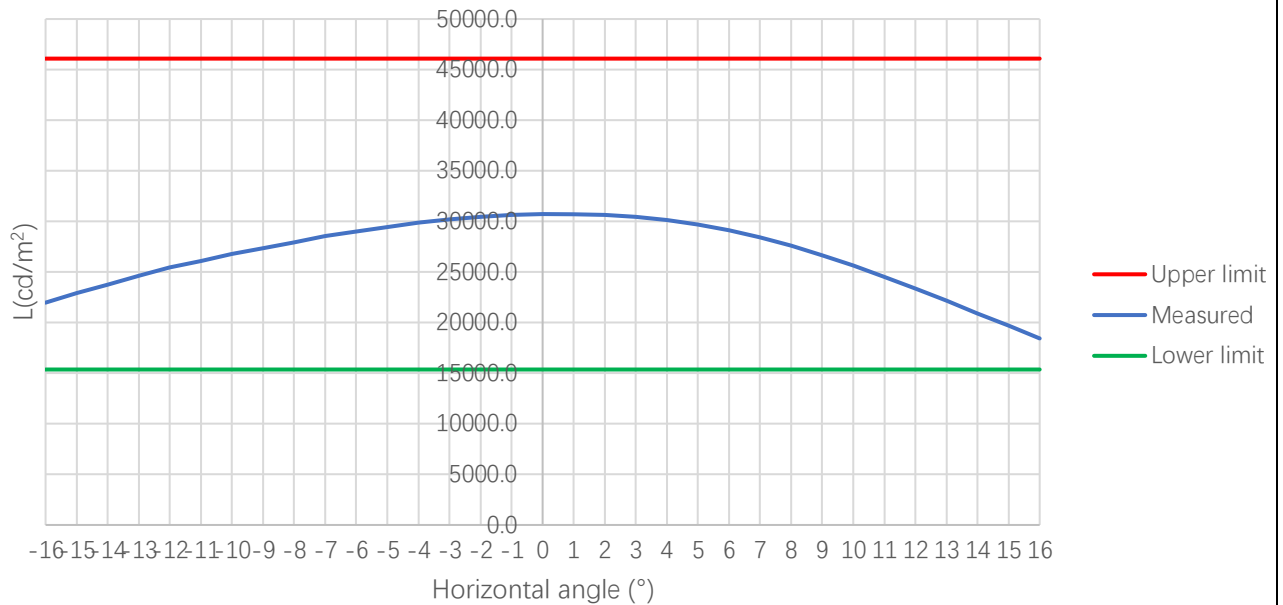
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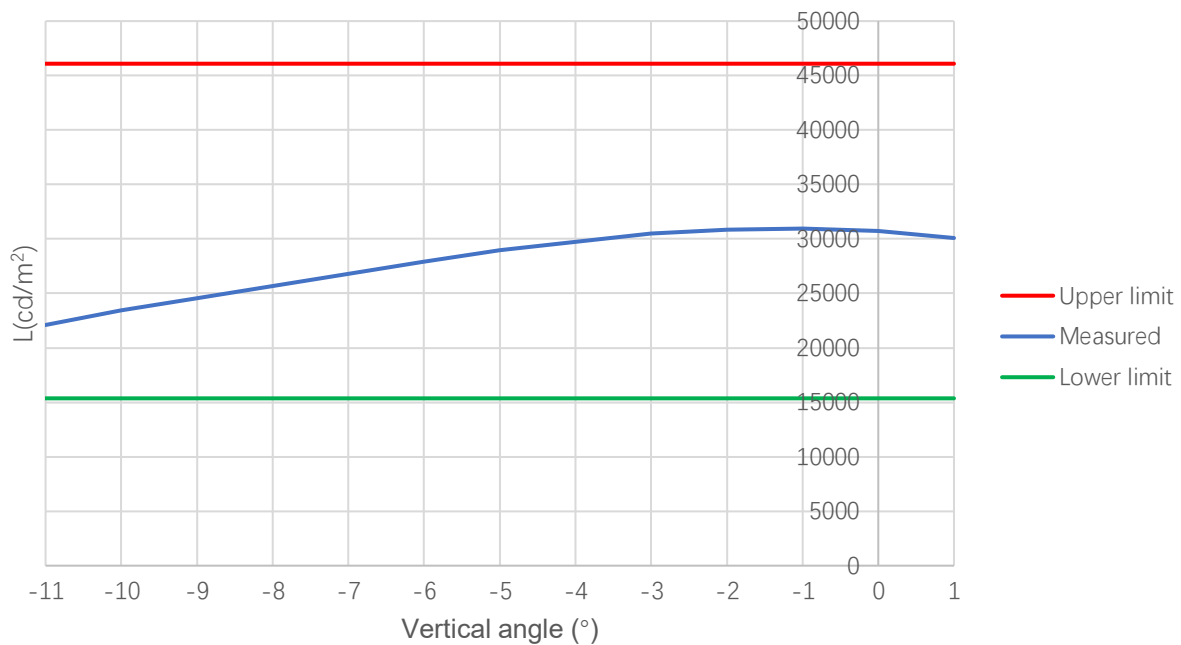
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Luminance distributions on Horizontal angular



Luminance distributions on Vertical angular



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Table V - Uniformity of luminous intensity

Sign illuminance (lx)	Photometer angle (Horizontal, Vertical)	Luminous intensity coordinate			
		Uniformity 12%	Limit	Uniformity 4%	Limit
40000	(0, 0)	1,41	≤ 3,0	1,63	≤ 5,0
	(-15, 0)	1,45		1,65	
	(+15, 0)	1,46		1,64	
	(0, -10)	1,46		1,67	
≤ 4	(0, 0)	1,43	≤ 3,0	1,63	≤ 5,0
	(-15, 0)	1,48		1,66	
	(+15, 0)	1,47		1,66	
	(0, -10)	1,49		1,69	

Table VI - Visible Flicker

Sign illuminance (lx)	Photometer angle (Horizontal, Vertical)	Flicker (Hz)	Limit (Hz)
40000	(0, 0)	Min. 3340	≥ 90
10000	(0, 0)		
4000	(0, 0)		
400	(0, 0)		
40	(0, 0)		
≤ 4	(0, 0)		



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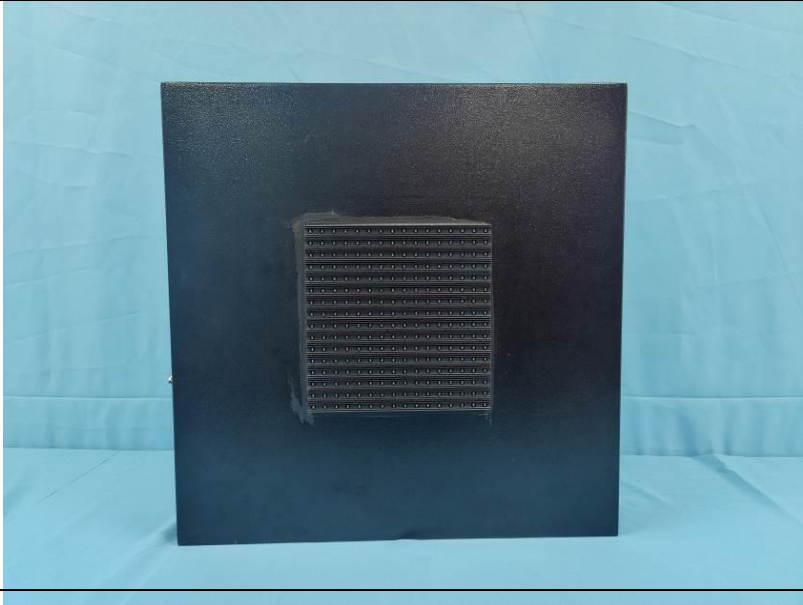
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Attachment 1: Photo documentation

Details of: Product view of VMS16S-4535RGB

<p>View:</p> <p><input type="checkbox"/> general</p> <p><input checked="" type="checkbox"/> front</p> <p><input type="checkbox"/> rear</p> <p><input type="checkbox"/> right</p> <p><input type="checkbox"/> left</p> <p><input type="checkbox"/> top</p> <p><input type="checkbox"/> bottom</p> <p><input type="checkbox"/> internal</p>	
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Details of: Product view of VMS16S-4535RGB

<p>View:</p> <p><input type="checkbox"/> general</p> <p><input type="checkbox"/> front</p> <p><input checked="" type="checkbox"/> rear</p> <p><input type="checkbox"/> right</p> <p><input type="checkbox"/> left</p> <p><input type="checkbox"/> top</p> <p><input type="checkbox"/> bottom</p> <p><input type="checkbox"/> internal</p>	
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Attachment 1: Photo documentation

Details of: LED module

View:

- general
- front
- rear
- right
- left
- top
- bottom
- internal

Details of: LED module

View:

- general
- front
- rear
- right
- left
- top
- bottom
- internal



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Attachment 1: Photo documentation

Details of: Product view of VMS10S-4535RGB

View:

general

front

rear

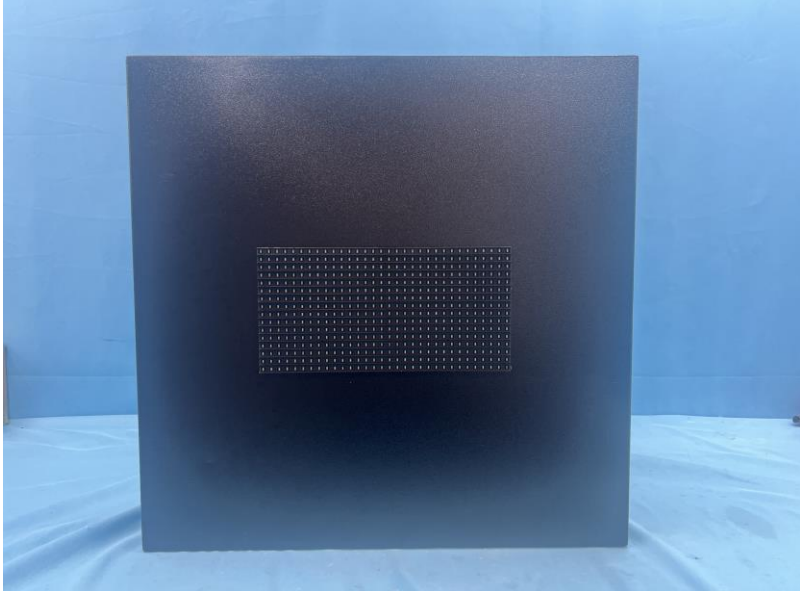
right

left

top

bottom

internal



Details of: Product view of VMS10S-4535RGB

View:

general

front

rear

right

left

top

bottom

internal





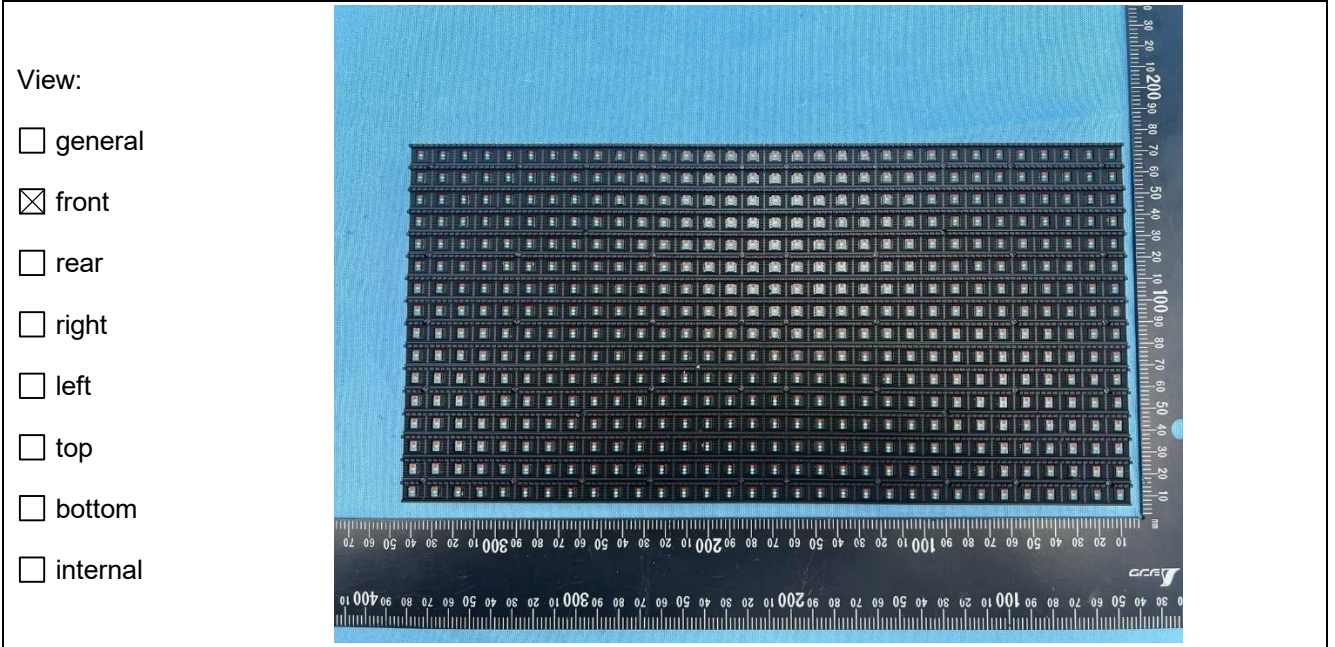
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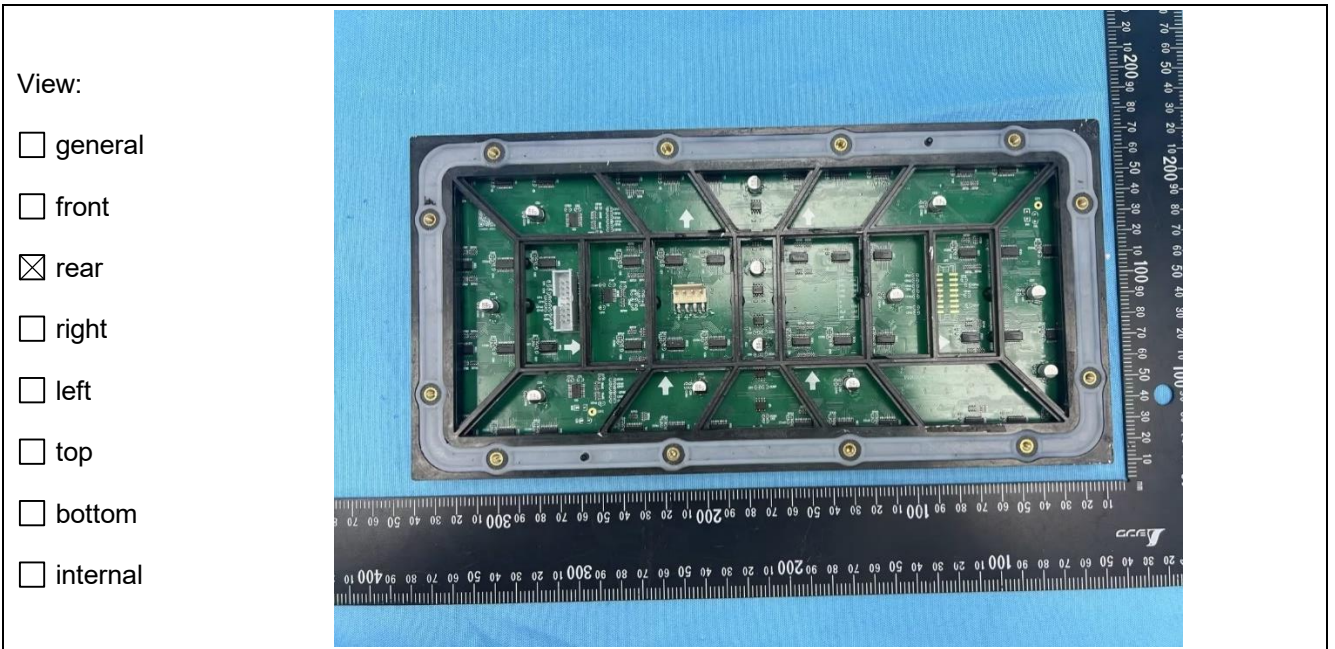
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Attachment 1: Photo documentation

Details of: LED module



Details of: LED module



- - - End of Report - - -



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