

customer:

date: 23.08.2021

Harman Professional Denmark ApS.
Olof Plames Allé 14

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Denmark

project No.: 21000131-10

inspection order: colorimetric measurement according DIN EN 13032-4:2015

- evaluation of colour temperature
- evaluation of colour rendering

measurement procedure: - measurement with doublemonochromator 380-800nm

test sample specification:

luminaire: LED fixture for stage and studio, direct beam

description: MAC Ultra Wash - medium

Serial No.: 15064036359

power supply: Electronics, integrated

DMX settings: zoom: 19199
focus: 32768
Fans: Regulated

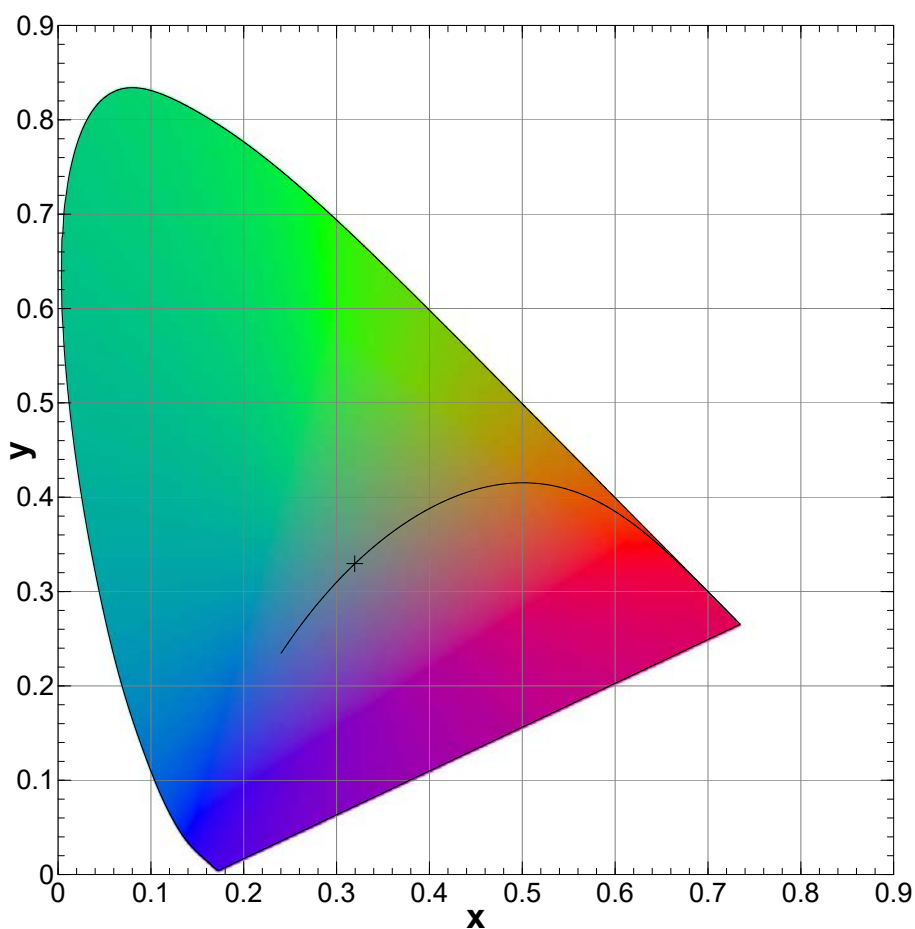
test conditions:

stabilisation time: 30 min.
 operating voltage: 230 V AC (const. <0.1%)
 ambient temperature: 25 ° C ± 1°C

colorimetric data:

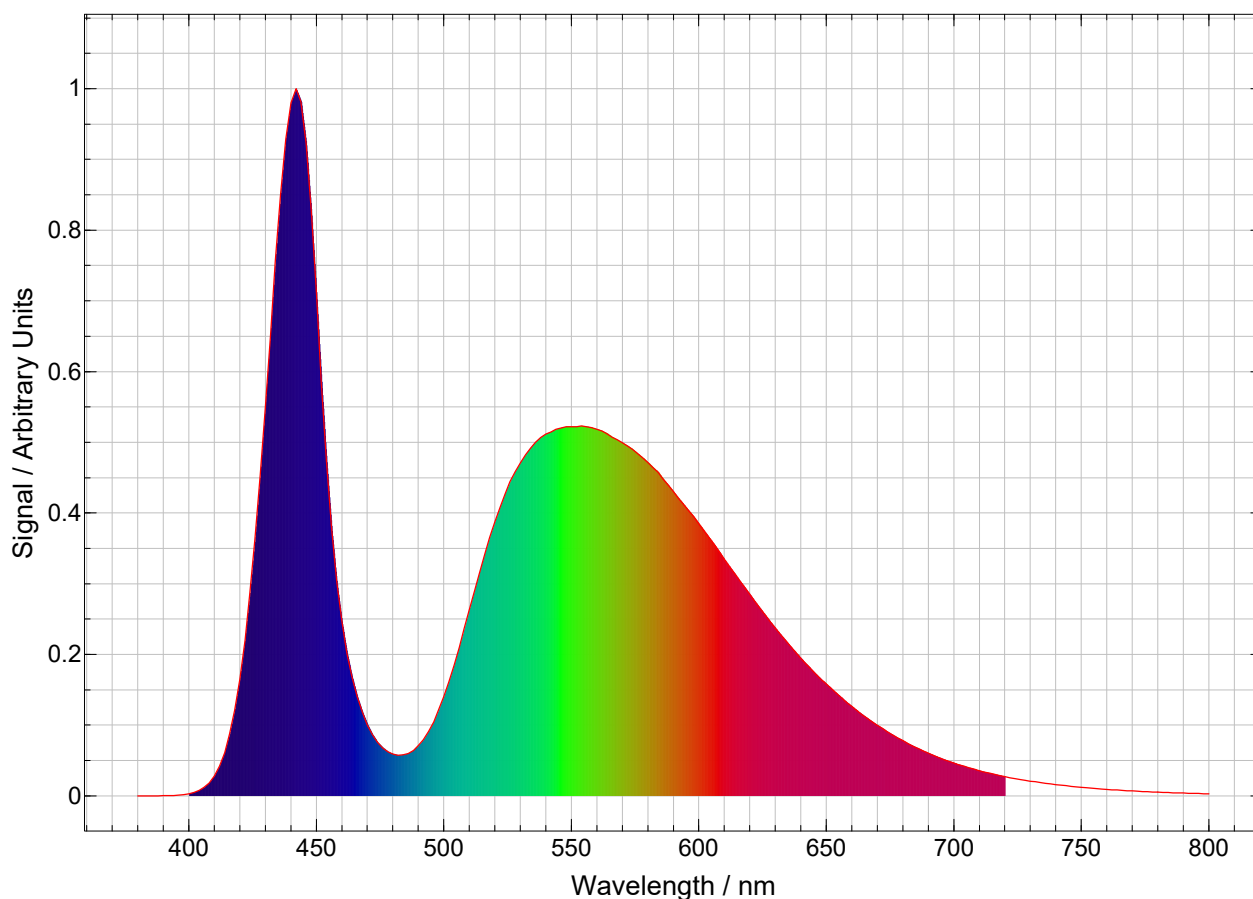
Test No.:	Color Temp. [K]	x- Coordinate	y- Coordinate	Δuv	CRI / Ra
21000131-10	6136	0,3196	0,3296	0,0001	65,7

Test No.:	TM 30 Rf	TM 30 Rg	TLCI	CQS
21000131-10	65	95	39	65

colour temperature at CIE - colour triangle:

x: 0.3196
 y: 0.3296
 z: 0.3508
 X: 42.1136
 Y: 43.4407
 Z: 46.2282
 u: 0.2024
 v: 0.3131
 u': 0.2024
 v': 0.4697
 Dominant Wavelength: 603 nm
 Purity: 2.1 %
 Colour Temperature: 6136 K
 Ra: 65.7
 R1: 66.2
 R2: 67.9
 R3: 67.1
 R4: 68.3
 R5: 67.5
 R6: 57.6
 R7: 72.7
 R8: 58.2
 R9: -35.0
 R10: 22.3
 R11: 67.9
 R12: 36.5
 R13: 64.3
 R14: 81.0

spectral light distribution:



The company ILUmetriX insures that all statements are made by the best of knowledge, according to European standards.

Meschede, 23.08.2021

F. Siepe

F. Siepe (Management Board)



annex: page 4 test sample
page 5 test equipment

testsample:

dimensions [L x W x H]: 300 x 450 x 855 mm



Test Equipment Spectrometry - ILUmetriX GmbH

IDR 300-PSL Spectroradiometer System, Bentham Instruments Ltd. UK

Monochromator configuration: Symmetric, Single Czerny-Turner
Monochromator focal length: Single 300mm, double 600mm
Bandwidth: Software controlled motorised slit
Number of gratings: 1-3 mounted on turret

Resolution:		Single	Double
	2400g/mm	-	0,075 nm
	1200g/mm	0,3 nm	0,15 nm
	400g/mm	0,9 nm	0,45 nm
Dispersion:	2400g/mm	-	0,68 nm/mm
	1200g/mm	2,7 nm/mm	1,35 nm/mm
	400g/mm	8,1 nm/mm	4,05 nm/mm
Wavelength accuracy:	2400g/mm	-	±0,1 nm
	1200g/mm	±0,2 nm	±0,2 nm
	400g/mm	±0,6 nm	±0,6 Nm

Detection Electronics

Current amplifier: Six decade trans-impedance amplifier
Gain ranges: 10^{10} - 10^5 V/A
Analogue digital converter: 100ms Integration

Input Optics

Light Transport: Flexible quartz fibre bundle, 200 - 1400 nm
Diffuser cosine response: f^2 error <1% 200 - 1100 nm
Sphere cosine response: f^2 error <5% 200 - 3000 nm
Telescope, fields of view: 1.7 + 11 mrad
Tel- measurement range: 200mm to 50m

Calibration Standards

Irradiance: CL6 Irradiance Standard / Serial No: 13449/1
Certificate No: E2015200701
Radiance: SRS12 Radiance Standard / Serial No: 13559/1
Certificate No: E2015200702
Traceability: NPL, UK

BTS256-EF Lux- and Luminous Color Lightmeter, Gigahertz-Optik GmbH

Serial No.: 50491
Calibration: K-BTS256-E-I / 2021