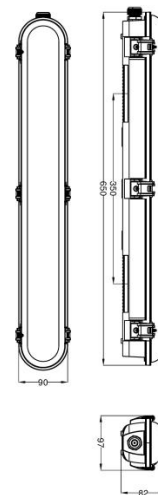




Product Overview

Product Name / Code	TITAN 20W Weatherproof Batten - LC5310
Description	650mm, IP66, 4000K, Non-Dim
Manufacturer	Decrolux Lighting Pty Ltd



Laboratory and Equipment

System Name / Model	LabSpion / Freedom VIS (Custom Viso)
Manufacturer / Serial Number	Ibsen Photonics, Denmark / 2417457569
Sensor Name	LabSensor Model2
Sensor Serial Number / Calibration Date	3430823524 / 7/12/2022

Measurement Details

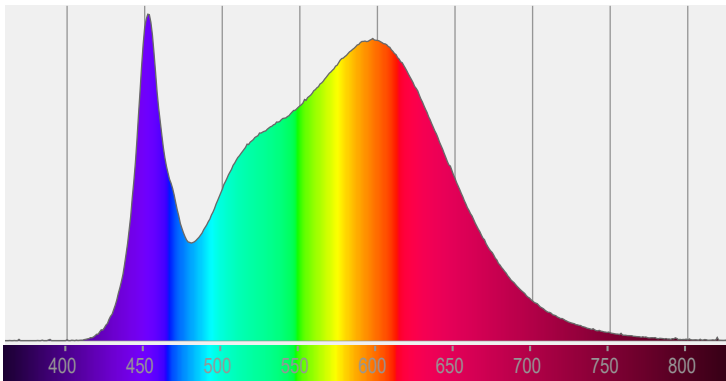
Test Date and Time	19/05/2023 12:40:03 PM
Operator	Johnny Elmer
C-Planes Measured	72
Measurement Resolution	5°
Measurement Distance	459.0cm
Measurement Number	VFR-230519-0090-MS
Tracking Link	http://www.visosystems.com/tracking/?id=VT230519-008250



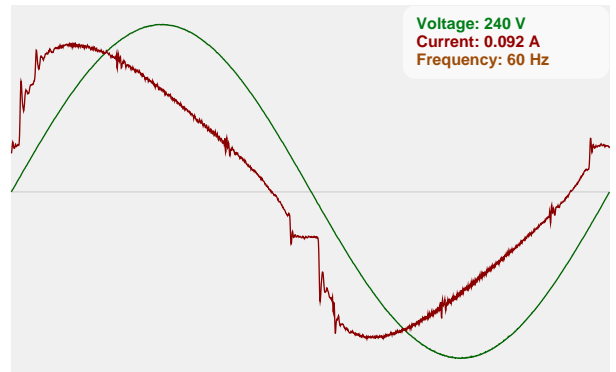
Performance

Total Lumen Output	2457 lm
Light Efficiency	132 Lumen/Watt
Peak (cd)	800 cd
Nominal Power	18.6 W
Input Voltage	240 V
Frequency of Input Power	60 Hz
Power Factor	0.84
Warm-up (stabilisation) Time	Lamp stabilized in 1 hour 1 min
Warm-up Variation	-8.5

Spectral Power Distribution (SPD)



Input Power Curve

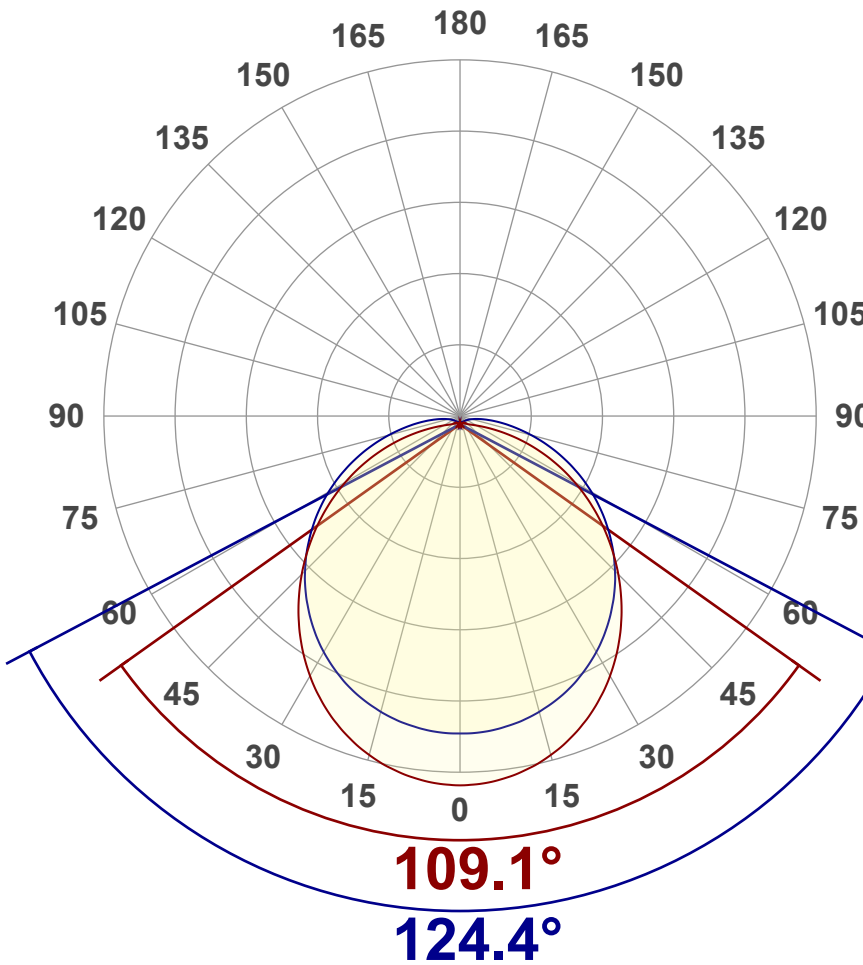


Optic Specifications

Correlated Colour Temperature, Target	4000K
Correlated Colour Temperature, Measured	3953K
Colour Rendering Index	CRI 85.2
R9 Value	R9 = 16.5
Colour Rendering TM30-18	R _f 85.5 - R _g 94.9
Colour Quality Scale	CQS = 84.4
Beam Angle	119.2°



Angular Distribution – 0° / 90° Plane



Main Values

Total Lumen Output	2457 lm
Lumen Up% / Down%	4.7 % / 95.3%
Peak Intensity	800 cd
Beam Angle (50%)	119.2°
Beam Angle (90%)	124.4°
Beam Angle (10%)	n/a°

Cut-off Angle

Average 2.5%	221.6°
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Field Angle

Average 10%	184.3°
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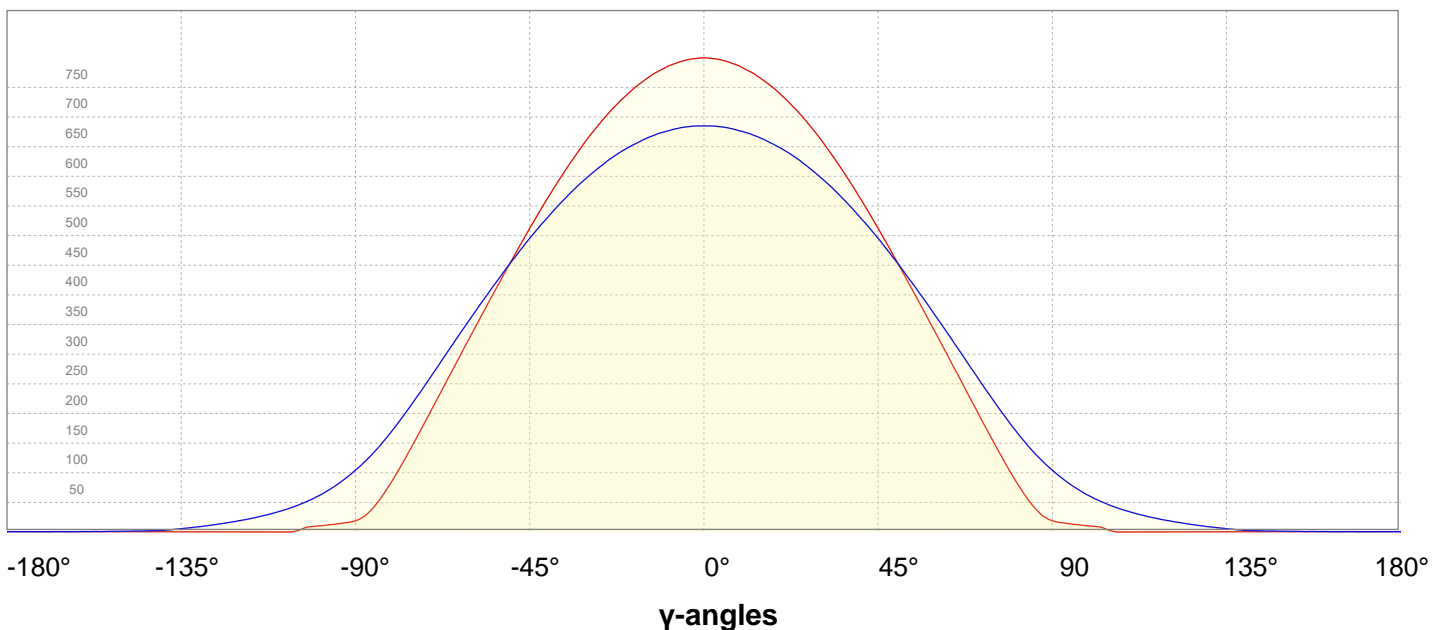
Intensity Ratio

In 120° Cone	69.4%
In 90° Cone	46.5%

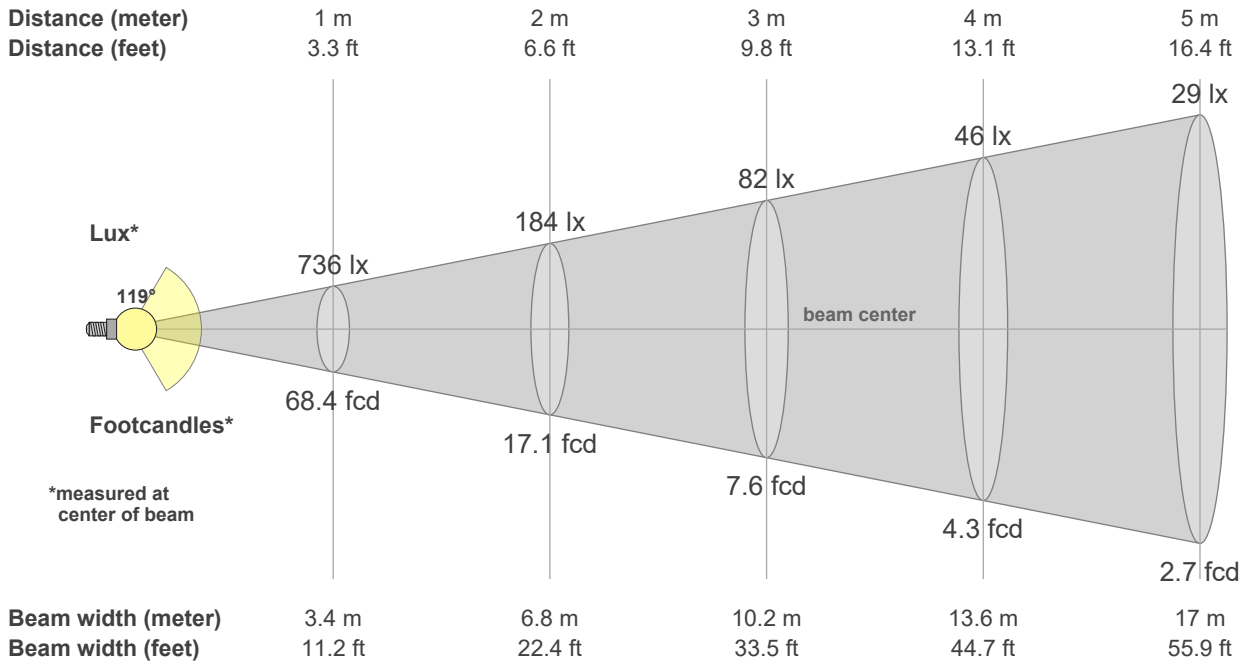
C000-C180

C090-C270

Linear Distribution Diagram – Intensity (candela) vs γ -angle



Beam Details



Beam intensities from 1 – 20m

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	m
3.3	6.6	9.8	13.1	16.4	19.7	23	26.2	29.5	32.8	36.1	39.4	42.7	45.9	49.2	52.5	55.8	59.1	62.3	65.6	ft
736	184	82	46	29	20	15	12	9	7	6	5	4	4	3	3	3	2	2	2	lux
68.4	17.1	7.6	4.3	2.7	1.9	1.4	1.1	0.8	0.7	0.6	0.5	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	fc

Intensities in 0° c-plane

0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°	γ	
736	786	749	688	608	512	407	297	186	81	19	11	0	0	0	1	1	1	1	1	1	cd
100%	107%	102%	94%	83%	70%	55%	40%	25%	11%	3%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	of 0°val

Intensities in 90° c-plane

0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°	γ	
736	677	654	615	562	495	418	335	248	167	104	63	38	23	13	6	2	1	1	1	1	cd
100%	92%	89%	84%	76%	67%	57%	45%	34%	23%	14%	9%	5%	3%	2%	1%	0%	0%	0%	0%	0%	of 0°val

Intensities in 180° c-plane

0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°	γ	
736	786	749	688	608	512	407	297	186	81	19	11	0	0	0	1	1	1	1	1	1	cd
100%	107%	102%	94%	83%	70%	55%	40%	25%	11%	3%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	of 0°val

Intensities in 270° c-plane

0°	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°	99°	108°	117°	126°	135°	144°	153°	162°	171°	γ	
736	677	654	615	562	495	418	335	248	167	104	63	38	23	13	6	2	1	1	1	1	cd
100%	92%	89%	84%	76%	67%	57%	45%	34%	23%	14%	9%	5%	3%	2%	1%	0%	0%	0%	0%	0%	Of 0°val

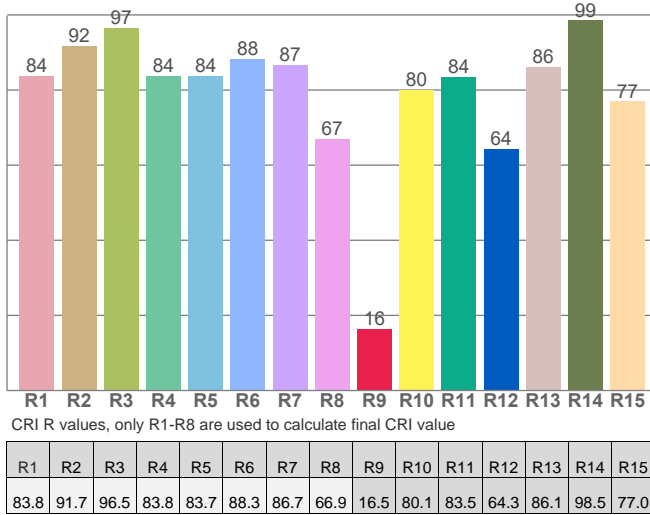


Colour Details

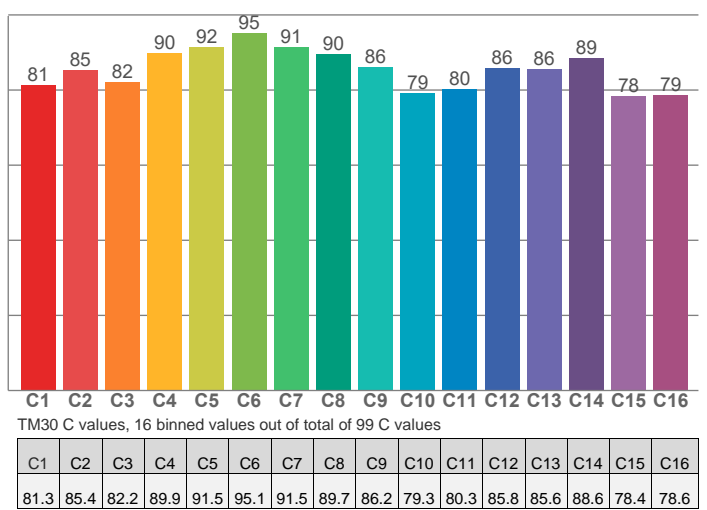
Correlated Colour Temperature, Target	CCT = 4000K
Correlated Colour Temperature, Measured	CCT = 3953K
Colour Rendering Index	CRI 85.2
Colour Rendering Index R9 Value	R9 = 16.5
Colour Rendering TM30-18	R _f 85.5, R _g 94.9
Colour Quality Scale	CQS = 84.4

MacAdam Steps	SDCM = 1.5
Colour Coordinates CIE 1931	(x;y) = (0.381;0.377)
Colour Coordinates CIEs 1960	(u;v) = (0.225; 0.334)
Colour Deviation from BBL	Duv = 0.0010
Colour Coordinate CIEs 1976 (CIELUV)	(u';v') = (0.225;0.225)

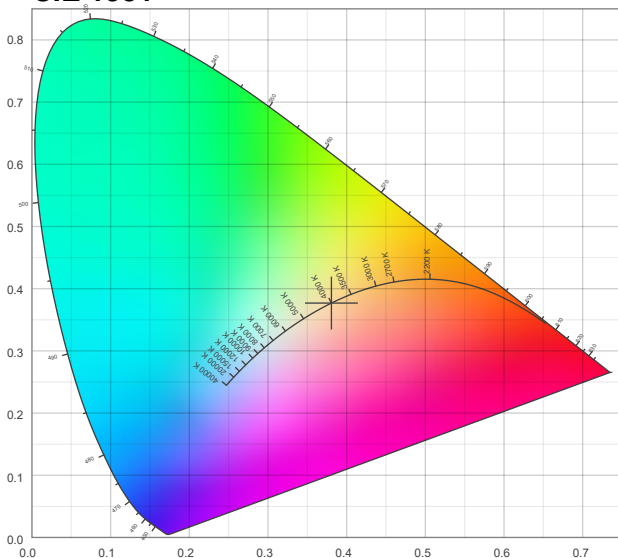
Colour Rendering Index per reference colour (CIE 1995)



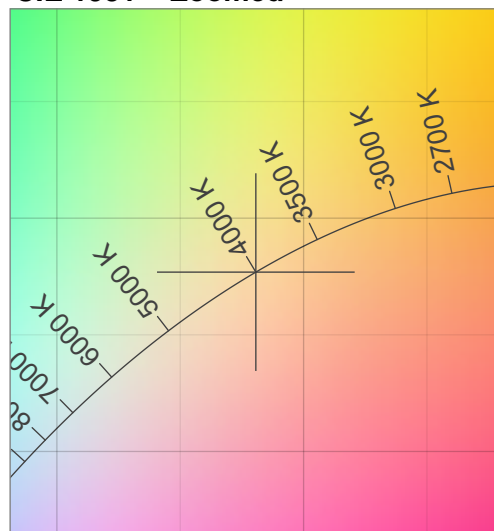
TM30-18 R_f-values per hue bin



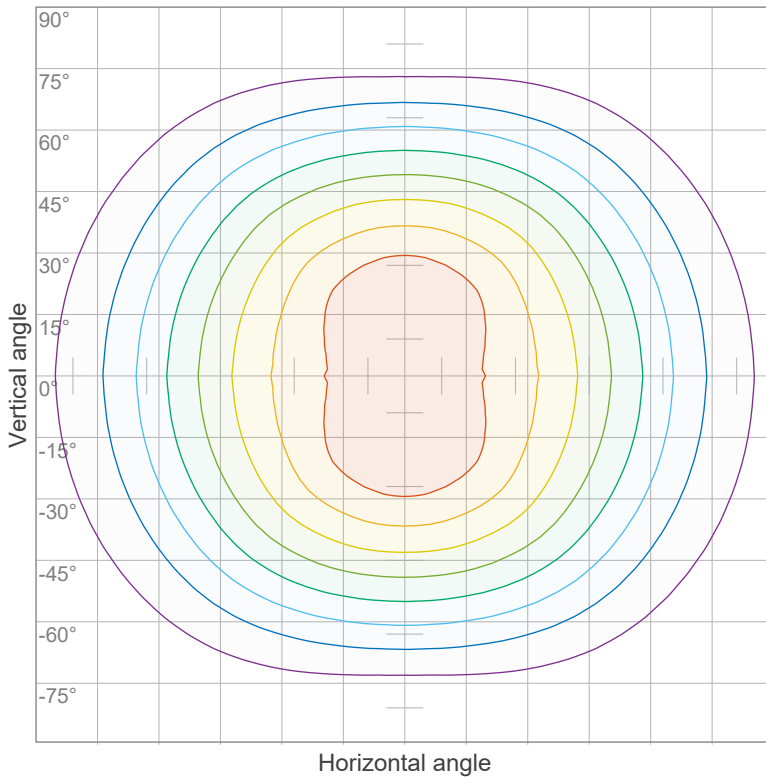
CIE 1931



CIE 1931 – Zoomed



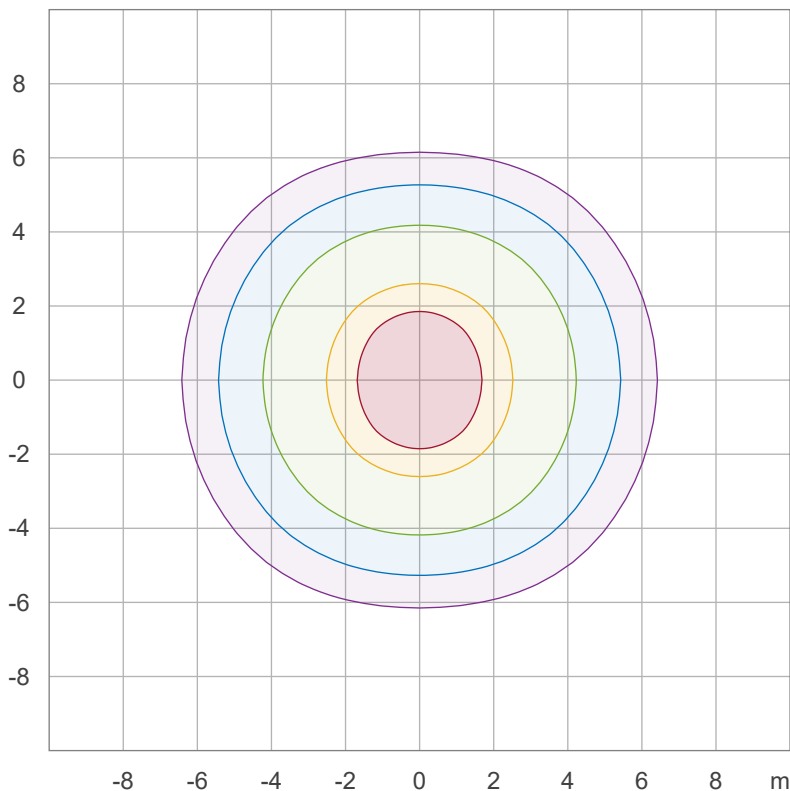
Iso-intensity Diagram (Iso-Candela)



90 %	719.4 cd
80 %	639.5 cd
70 %	559.5 cd
60 %	479.6 cd
50 %	399.7 cd
40 %	319.7 cd
30 %	239.8 cd
20 %	159.9 cd
10 %	79.9 cd

Peak intensity: 799.3 cd
Number of c-planes: 72

Iso-illuminance Diagram (Iso-lux)



50.0 %	44.4 lx
30.0 %	26.6 lx
10.0 %	8.9 lx
5.0 %	4.4 lx
3.0 %	2.7 lx

Peak illuminance: 88.8 lx
Mounting height: 3.0 m
Number of c-planes: 72

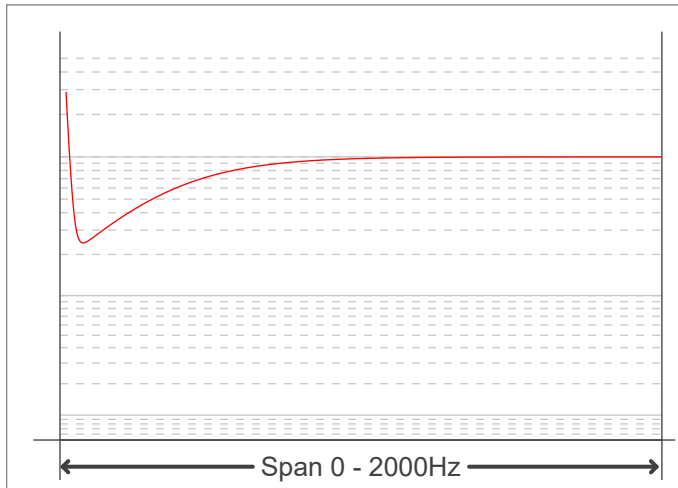
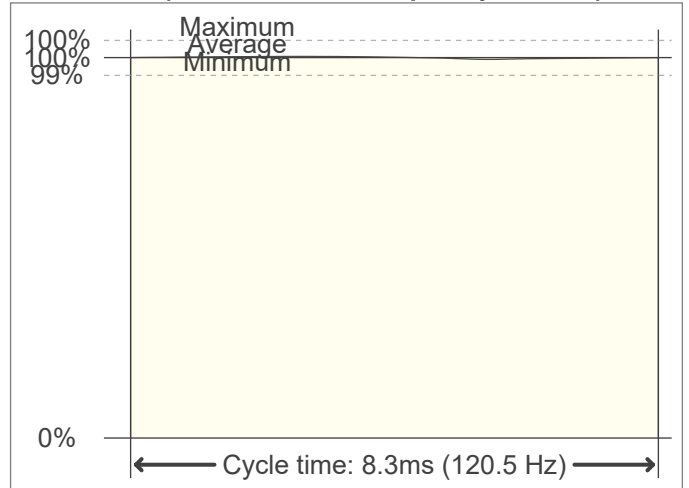


Flicker Details

Flicker Meter Type	Viso Systems LabFlicker
Frequency of Input Power	60 Hz
Flicker/TLA Sample Rate	20000 sample/s
Measurement Time	
PstLM	180 sec
All other indices	1.2 sec

Flicker Indices (IES)

Flicker Percentage	0.44%
Flicker Frequency	120.48 Hz
Flicker Index	0
Flicker SVM Value	0.01
Flicker PstLM Value	0.04

Flicker Frame

Flicker FFT (flicker curve in frequency domain)

IEEE 1789 Frequency/Modulation Plot
