

DENEY RAPORU TEST REPORT

www.labbee.com.tr

Sınav Mhri İstanbul Tüyü 26. Km. Rızkpa Gıda Bldnı C Blok No:1 Kat:2 Yenimahalle /

ANKARA

Tel: 0312 551 76 66



TEST
TS EN ISO/IEC 17025
AB-1333-T

AB-1333-T

OPT2508

02-25

Müşterinin Adı / Adresi: BSI AYDINLATMA SAN. TİC. A.Ş./ Başkent OSB,20.Cad. B/3 Blok NO:4
(Customer Name / Address) Malıköy/Sincan/ANKARA

Talep Numarası: 250206-1
(Order No)

Ürünün Adı ve tarifi: FL9222 iErgo
(Name and Identity of Test Item)

Ürünün Kabul Tarihi: 6.02.2025
(The Date of Receipt of Test Item)

Deney Tarihi: 07.02.2025 - 10.02.2025
(Date of Test)

Açıklamalar: Numuneye IESNA LM 79-19 standardı uyarınca testler uygulanmıştır.
(Comments) Test were applied to sample according to IESNA LM 79-19 standards.

Türk Akreditasyon Kurumu (TÜRKAK) deney raporlarının tanınırlığı konusunda Avrupa Akreditasyon Birliği (EA) ile Çok Taraflı Anlaşma ve Uluslararası Laboratuvar Akreditasyon Birliği (ILAC) ile karşılıklı tanıma anlaşması imzalamıştır.

Turkish Accreditation Agency (TURKAK) is a signatory to the European co-operation for Accreditation (EA) Multilateral Agreement (MLA) and to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) for the recognition of test reports.

Deney ve/veya ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri (olması halinde) ve deney metodları bu sertifikanın tamamlayıcı kısmı olan takip eden sayfalarda verilmiştir.

The test and/or measurement results, the uncertainties (if applicable) with confidence probability and test methods are given on the following pages which are part of this report.

Bu rapor; firmamıza ulaşan numunelere deney ve/veya deneyler uygulanarak elde edilmiştir.

This report was prepared after applying test/tests to the samples that are sent to our company.

Müşteriye ait diğer numuneleri kapsamaz.

Note that this report does not involve other samples of the customer.

* İşaretli deneyler veya akreditasyon numarasının yer almadığı sayfalar, akreditasyon kapsamı dahilinde değildir.

*signed tests or the papers which have not the accreditation number are not in the scope of accreditation.

Onay Tarihi

Date of Approval



Mühür / Seal

Deney Sorumlusu

Person in Charge of Test

Burakcan GÜNAYDIN

Laboratuvar Genel Müdürü

Head of Testing Laboratory

Burakcan GÜNAYDIN

Bu rapor laboratuvarın yazılı izni olmadan kısmen veya tamamen kopyalanıp çoğaltılamaz. İmzasız ve mühürsüz raporlar geçersizdir.

This report shall not be reproduced other than in full except with the permission of the laboratory. Testing reports without signature and seal are not valid.



İÇİNDEKİLER (CONTEST)

1. DÖKÜMANTASYON (DOCUMENTATION)

1.1 Rapor Kapağı (Report Cover)	1
1.2 İçindekiler (Contents)	2
1.3 Ürün Bilgileri (Information of Test Item)	3
1.4 Çevre Şartları (Environmental Conditions)	3
1.5 Deney Standartları (Test Standard)	4
1.6 Belirsizlik Açıklamaları (Uncertainty Explanations)	4
1.7 Elektriksel Ölçüm Sonuçları (Electrical Measurement Results)	5
1.8 Ölçüm Sonuçları Özeti (Measurement Results Summary)	5

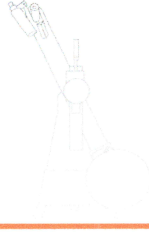
2. DENEY SONUÇLARI (TEST RESULTS)

2.1 Entegre Küre Sonuçları (Integrating Sphere Measurement Results)	6-7
2.2 Gonyofotometre Sonuçları (Goniophotometer Measurement Results)	8-16

3. EKLER (ATTACHMENTS)

3.1 Deney Bileşenleri (Test Components)	17
3.2 Ürün Fotoğrafları (Photos of Test Items)	18-19



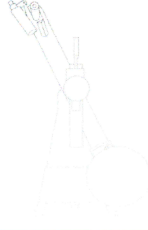
**1.3 Ürün Bilgileri (Information of Test Item)**

Ürünün Adı: (Name of Test Item)	FL9222 iErgo
Marka / Model: (Mark / Model)	BSI AYDINLATMA/ FL9222 iErgo
Ürünün Tanımı / Tipi: (Product description / Type)	DEKORATİF LED AYDINLATMA ARMATÜRÜ DECORATIVE LED LIGHTING ARMATURE
Sürücü Tipi / Modeli: (Model of Driver)	VOSSLOH-SCHWABE/ ECXe 400.667
Lens Marka/Modeli: (Lens Mark/ Model)	—
LED Modülü: (LED Module)	—
LED Modeli: (LED Model)	NICHIA219FT V2X36
Ürünün Boyutları / cm: (Product dimensions / cm) (Müşteri Beyanı)	Uzunluk / Çap: 13 (length / diameter) Genişlik: 23 (Width) Yükseklik: 12 (height)
Ürünün Ağırlığı / kg: (Product weight / kg)	2.1kg
Beyan Besleme Gerilimi/Beyan Gücü (Rated Supply Voltage/Rated Power)	220-240 V AC / 12W

1.4 Çevre Şartları (Environmental Conditions)

Sıcaklık - °C: (Temperature - °C)	24.9
Nem: (Humidity)	%33
Hava Akımı - m/s: (Air flow - m/s)	0

Bu rapor laboratuvarın yazılı izni olmadan kısmen veya tamamen kopyalanıp çoğaltılamaz. İmzasız ve mühürlü raporlar geçersizdir.
This report shall not be reproduced other than in full except with the permission of the laboratory. Testing reports without signature and seal are not valid.



1.5 Deney Standartları (Test Standard)

Deneyler aşağıdaki standartlara göre yapılmıştır.

(The tests were performed according to following standards)

IESNA LM 79-19	Katı Hal Aydınlatma Ürünlerinin Elektriksel ve Fotometrik Ölçümleri. Electrical and Photometric Measurements of Solid State Lighting Products.
-----------------------	---

1.6 Belirsizlik Açıklamaları (Uncertainty Explanations)

Ölçüm belirsizliği, genişletilmiş belirsizlik olup belirsizlik kapsam faktörü $k = 2.0$ çarpılarak elde edildi. Güvenirlilik düzeyi %95'tir.

(The measurement is sum uncertainty and extended uncertainty, and the composite uncertainty coverage factor $k = 2.0$ is derived. Reliability level is 95%.)



Bu rapor laboratuvarın yazılı izni olmadan kısmen veya tamamen kopyalanıp çoğaltılamaz. İmzasız ve mühürsüz raporlar geçersizdir.
This report shall not be reproduced other than in full except with the permission of the laboratory. Testing reports without signature and seal are not valid.

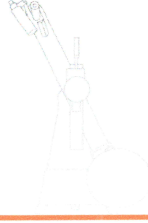
**1.7 Elektriksel Ölçüm Sonuçları (Electrical Measurement Results)**

Gerilim -Volt (Voltage - Volt)	Akım - Amper (Current - Amper)	Güç - Watt (Power - Watt)	Güç Faktör (Power Factor)
220.6	0.642	13.18	0.9308

1.8 Ölçüm Sonuçları Özeti (Measurement Results Summary)

Işık Akısı - Lümen: (Luminous Flux - Lumen)	1847
Toplam Yukarı Işık(lümen-%): Total Up Light(lumen-%)(ULOR)	0.197 - %0
Verimlilik - lm/w: (Efficiency - lm/w)	140.09
Renksel Geri Verim / CRI: (CRI: Color Render Index)	72.9
Renk Sıcaklığı / Kelvin: (CCT: Colarated Color temprature / Kelvin)	3059
Test sırasında SSL ürünün yanma pozisyonu: (Burn position of SSL during testing)	Kullanım amacına uygun olarak In accordance with the intended use
Stabilizasyon süresi /dakika: (Stabilization time / Minute)	90 dakika 90 minutes
Stabilizasyon dahil olmak üzere ürünün toplam çalışma süresi	130 dakika 130 minutes
Uygulanan düzeltme faktörleri: (Applied correction factors)	-





2. Deney Sonuçları (Test Results)

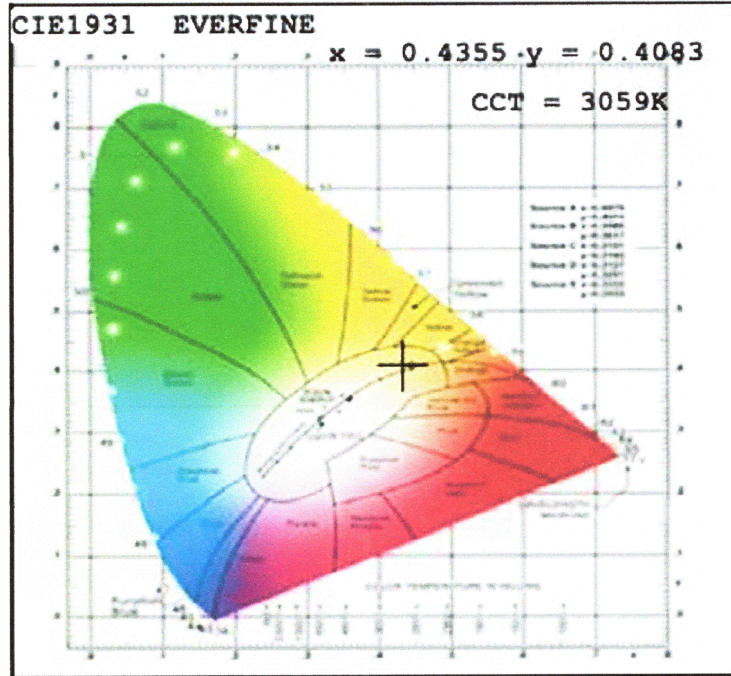
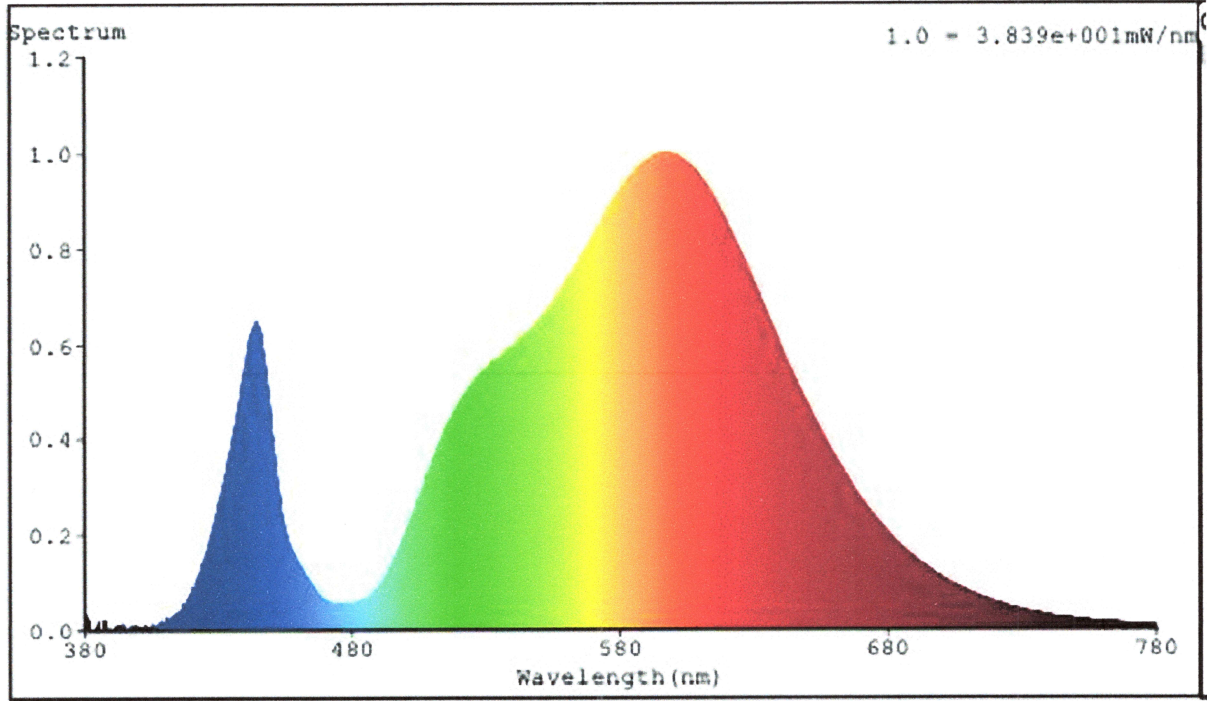
2.1 Entegre Küre Sonuçları (Integrating Sphere Measurement Results)

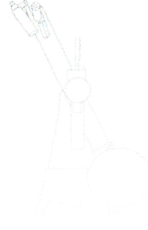
Renklilik Koordinatı: (Chromaticity Coordinate)	x: 0.4355 y:0.4083/ u':0.2478 v':0.5228 (duv:-1.89e-03) Dx,Dy:0.0027, 0.0057
Renk Sıcaklığı - Kelvin: (CCT: Colarated Color temprature - Kelvin)	3059
Renksel Geri Verim: (CRI: Color Render Index)	72.9
Ld:Baskın Dalga boyu -nm: (Ld:dominant wavelength - nm)	581.9
Lp:Tepe Dalga boyu -nm: (Lp:Peak wavelength - nm)	597





2.1.1 Entegre Küre Renkserlik Grafiği ve Spektrum (Integrating Sphere Chromaticity Diagram and Spectrum)



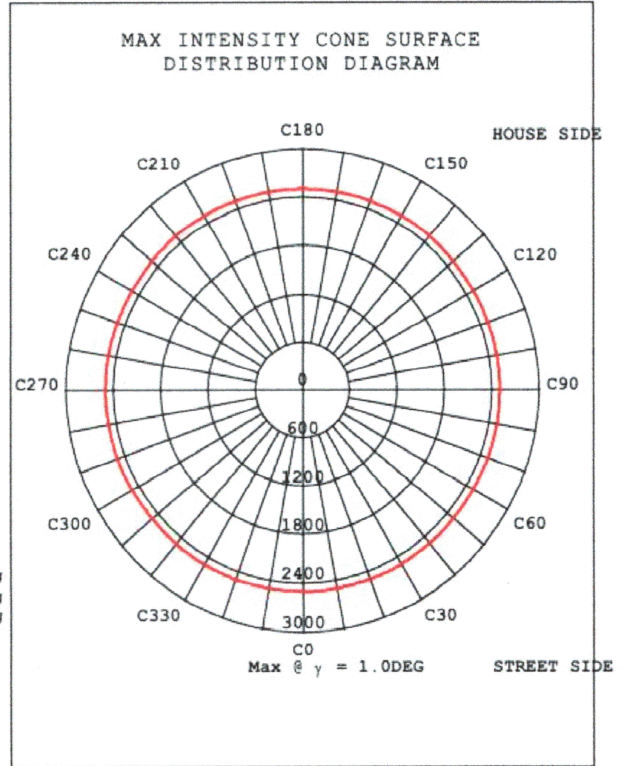
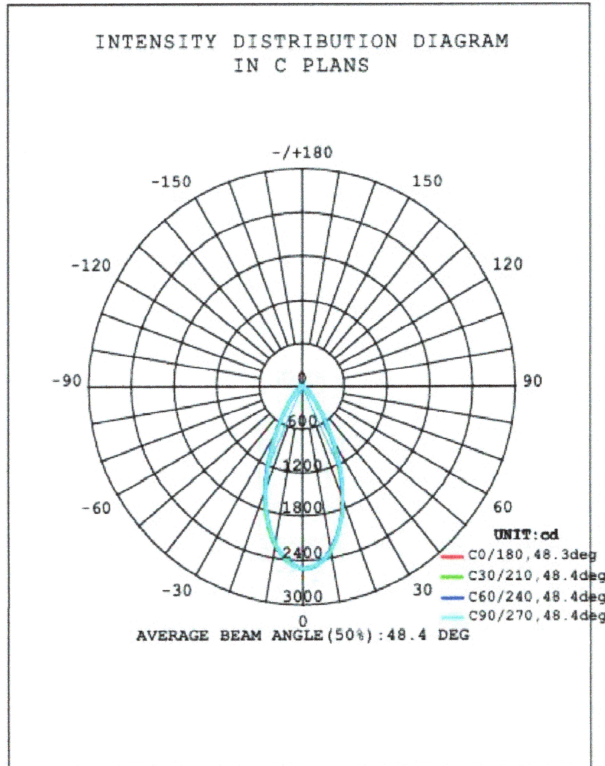


2.2 Gonyofotometre Sonuçları (Goniophotometer Measurement Results)

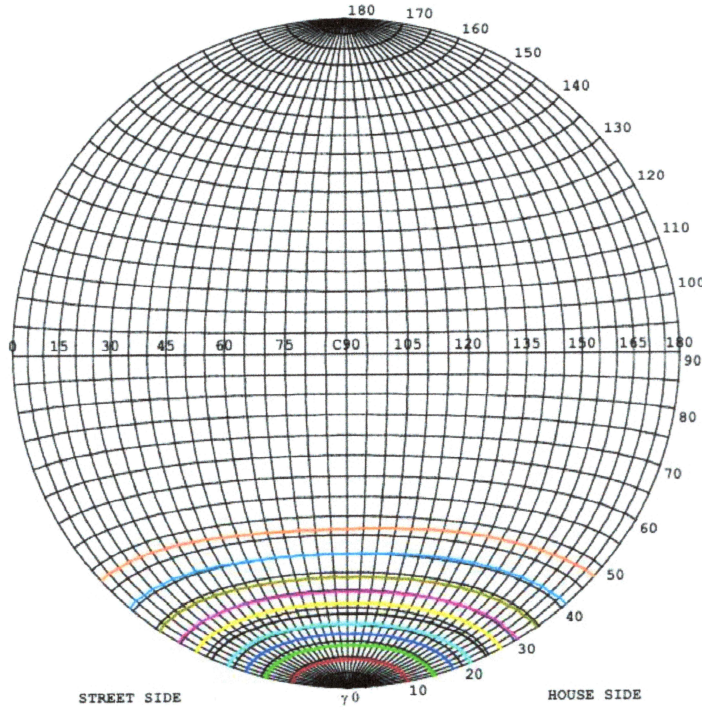
Işık Şiddeti (I max): Luminous intensity(Cd)	2507	C: (C Range)	0-360 derece 0-360 degree
Aydınlatma Çıkış Oranı: (LOR:Lighting Output Ratio)	100%	Düzlemler arası açı adımı C: (C Interval)	5 derece 5 degree
Ort. Işıma Açısı: (Average Beam Angle)	48.4 derece 48.4 degree	Gama: (Gamma range)	0-180 derece 0-180 degree
Ölçme uzaklığı(metre): (Test Distance (meter)	2.459	Düzlem içi açı adımı Y: (Y Interval)	1 derece 1 degree
Toplam Akı(lm): (Total flux)	1847		

2.2.1 Işık Yeğirliği Polar Eğrisi

(Luminous Intensity Distribution Diagram)



2.2.3 Isocandela Diyagramı (Isocandela Diagram)



Classification:

IES:Type V - Very Short
CIE:Narrow - Short
IES:Cut-off
CIE:Full cut-off
Max.At80:2.562cd/klm
Max.At90:0.0384cd/klm
Max.80-90:2.562cd/klm
NRB 5101:Limited[0.5%]

ISOCANDELA DIAGRAM	
UNIT	cd
Imax=100%	2507
90%	2257
80%	2006
70%	1755
60%	1504
50%	1254
40%	1003
30%	752
20%	501
10%	251
5%	125

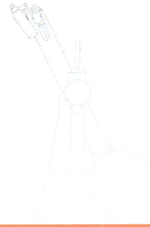
Açıklamalar (Descriptions)

House Side: Aydınlatma Armatürünün bağlantı direği tarafına attığı ışık şiddeti

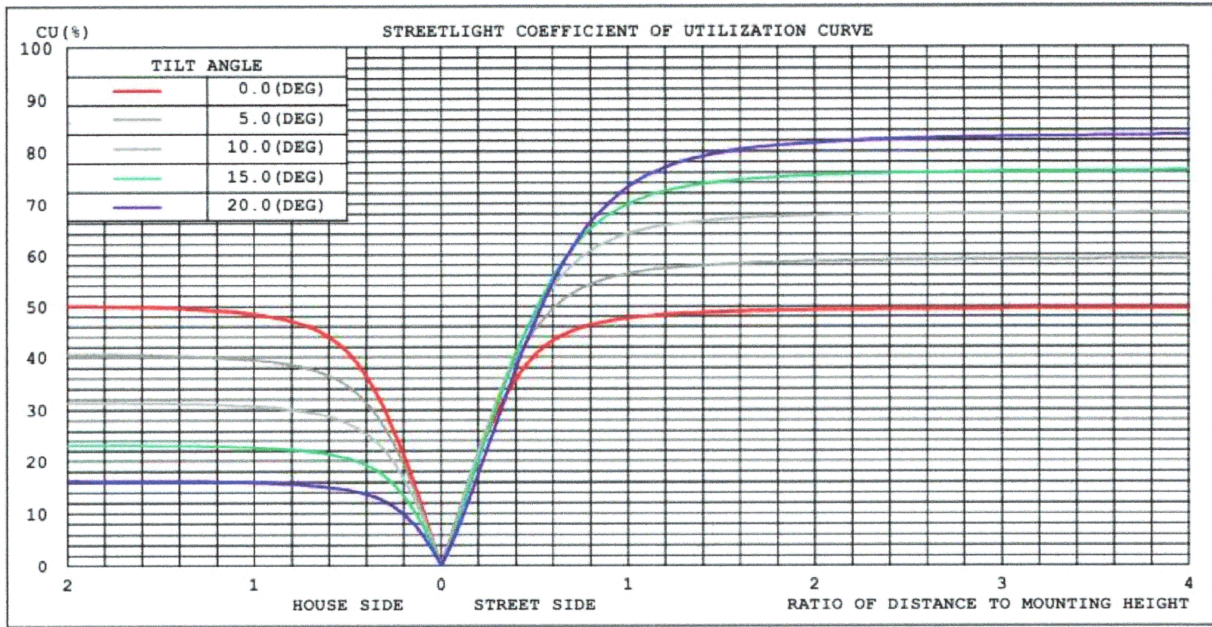
Street Side: Aydınlatma Armatürünün yol tarafına attığı ışık şiddeti



Bu rapor laboratuvarın yazılı izni olmadan kısmen veya tamamen kopyalanıp çoğaltılamaz. İmzasız ve mühürsüz raporlar geçersizdir.
This report shall not be reproduced other than in full except with the permission of the laboratory. Testing reports without signature and seal are not valid.



2.2.4 Isolux Diyagramı (Isolux Diagram)



Açıklamalar (Descriptions)

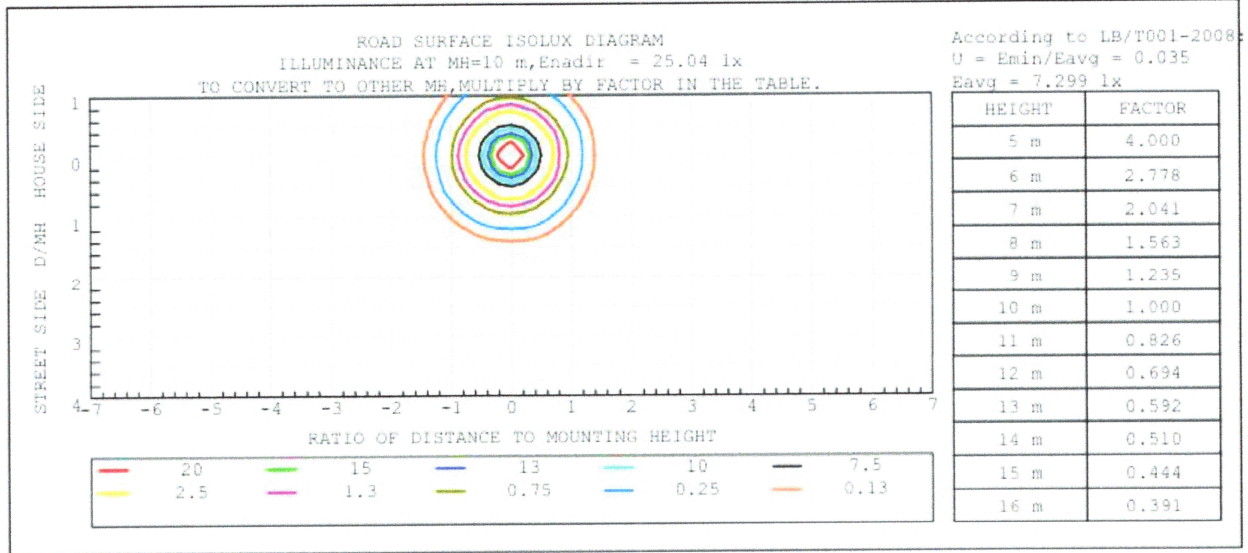
Tilt Angle: Montaj açısı



Bu rapor laboratuvarın yazılı izni olmadan kısmen veya tamamen kopyalanıp çoğaltılamaz. İmzasız ve mühürlü raporlar geçersizdir.
This report shall not be reproduced other than in full except with the permission of the laboratory. Testing reports without signature and seal are not valid.



2.2.5 Yol Düzlemi Isolux Diyagramı (Road Surface Isolux Diagram)

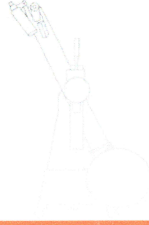


Açıklamalar (Descriptions)

Yol düzlemi üzerine aydınlatma armatürünün düşürdüğü aydınlanma düzeyini ifade etmektedir.
It refers to the level of illumination dropped by the lighting luminaire on the road surface



Bu rapor laboratuvarın yazılı izni olmadan kısmen veya tamamen kopyalanıp çoğaltılamaz. İmzasız ve mühürsüz raporlar geçersizdir.
This report shall not be reproduced other than in full except with the permission of the laboratory. Testing reports without signature and seal are not valid.



2.2.6 Bölgesel Işıklık Diyagramı (Zonal Flux Diagram)

ZONAL FLUX DIAGRAM

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	2238	2219	2215	2245	2273	2293	2297	2259	0- 10	226.8	226.8	12.3, 12.3
20	1573	1542	1524	1562	1636	1674	1673	1615	10- 20	544.1	770.9	41.7, 41.7
30	770.4	734.6	715.1	745.7	794.8	847.3	862.6	826.7	20- 30	937.5	1308	70.8, 70.8
40	267.2	259.3	246.8	267.8	279.9	300.5	309.1	293.8	30- 40	304.8	1613	87.3, 87.3
50	98.86	95.82	91.67	98.15	102.4	110.0	110.5	107.6	40- 50	132.5	1746	94.5, 94.5
60	42.35	41.29	39.79	42.27	44.16	46.46	47.24	45.69	50- 60	60.87	1806	97.8, 97.8
70	17.03	16.26	15.76	16.57	17.76	18.47	19.25	18.32	60- 70	28.75	1835	99.4, 99.4
80	3.724	3.396	3.069	3.467	3.980	4.325	4.730	4.235	70- 80	10.35	1846	99.9, 99.9
90	0.0339	0.0310	0.0324	0.0306	0.0407	0.0546	0.0710	0.0452	80- 90	1.297	1847	100, 100
100	0.0307	0.0304	0.0307	0.0298	0.0312	0.0315	0.0302	0.0309	90-100	0.0345	1847	100, 100
110	0.0309	0.0307	0.0304	0.0298	0.0304	0.0310	0.0302	0.0304	100-110	0.0323	1847	100, 100
120	0.0306	0.0299	0.0304	0.0304	0.0309	0.0312	0.0304	0.0298	110-120	0.0303	1847	100, 100
130	0.0301	0.0304	0.0321	0.0309	0.0307	0.0313	0.0304	0.0276	120-130	0.0275	1847	100, 100
140	0.0304	0.0304	0.0313	0.0317	0.0326	0.0321	0.0323	0.0304	130-140	0.0242	1847	100, 100
150	0.0317	0.0321	0.0323	0.0328	0.0336	0.0329	0.0337	0.0325	140-150	0.0204	1847	100, 100
160	0.0323	0.0323	0.0323	0.0331	0.0342	0.0340	0.0340	0.0331	150-160	0.0154	1847	100, 100
170	0.0326	0.0326	0.0326	0.0333	0.0350	0.0342	0.0345	0.0331	160-170	0.0095	1847	100, 100
180	0.0321	0.0313	0.0313	0.0315	0.0334	0.0321	0.0315	0.0298	170-180	0.0033	1847	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

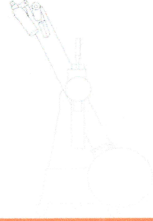
Açıklamalar (Descriptions)

NOT : Eğriler , aydınlatılmış alanı ve armatür farklı mesafede olduğunda ortalama aydınlatmayı gösterir

NOTE: The curves indicate the illuminated area and the average illuminaton when the luminaire is at different distance



Bu rapor laboratuvarın yazılı izni olmadan kısmen veya tamamen kopyalanıp çoğaltılamaz. İmzasız ve mühürsüz raporlar geçersizdir.
This report shall not be reproduced other than in full except with the permission of the laboratory. Testing reports without signature and seal are not valid.



2.2.7 Işık Şiddeti Yoğunluğu Dağılımına Ait Veriler (Luminous Distribution Intensity Data)

Zone	Lumens	Luminaire %
UL - Uplight-Low(90-100)	0.034476	0.0
UH - Uplight-High(100-180)	0.16293	0.0
Total Up Light	0.19741	0.0

Table--1

UNIT: cd

C (DEG) Y (DEG)	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
0	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502
5	2424	2427	2424	2423	2418	2421	2418	2415	2415	2418	2414	2413	2409	2411	2413	2411	2412	2417	2414
10	2238	2242	2237	2242	2231	2232	2226	2224	2219	2219	2212	2214	2208	2206	2207	2209	2208	2215	2215
15	1942	1954	1946	1942	1934	1937	1924	1926	1914	1916	1906	1907	1900	1901	1900	1906	1903	1912	1905
20	1573	1580	1569	1567	1556	1555	1548	1550	1539	1542	1532	1532	1522	1525	1523	1523	1521	1530	1524
25	1156	1161	1151	1150	1137	1136	1127	1124	1118	1118	1110	1107	1100	1102	1102	1101	1095	1105	1099
30	770	773	765	760	755	752	746	742	737	735	730	725	719	719	715	719	713	722	715
35	460	468	455	461	450	456	446	450	438	441	430	435	426	429	422	428	422	430	423
40	267	273	267	271	265	269	262	264	258	259	252	254	248	250	245	249	244	250	247
45	158	161	159	160	159	160	157	158	154	154	149	149	146	147	146	147	145	148	146
50	98.9	100	99.1	99.6	98.5	99.4	98.2	98.1	96.1	95.8	93.6	93.2	91.6	91.6	90.9	91.2	90.5	91.5	91.7
55	64.0	65.0	64.3	64.8	63.9	64.7	63.4	63.8	62.6	62.4	60.9	61.0	59.9	60.1	59.6	59.9	59.3	60.2	59.5
60	42.4	43.1	42.3	42.8	42.0	42.4	41.6	41.9	41.1	41.3	40.4	40.5	40.0	40.2	39.7	39.9	39.5	40.2	39.8
65	27.7	28.0	27.5	27.7	27.2	27.5	26.9	27.2	26.7	26.9	26.3	26.5	26.1	26.3	26.1	26.2	25.9	26.3	26.0
70	17.0	17.3	16.8	17.0	16.6	16.7	16.3	16.5	16.2	16.3	16.0	16.2	15.9	16.1	15.9	16.0	15.8	16.0	15.8
75	9.27	9.29	9.16	9.05	8.93	8.86	8.73	8.66	8.58	8.58	8.53	8.52	8.48	8.49	8.47	8.43	8.38	8.40	8.34
80	3.72	3.86	3.65	3.72	3.52	3.58	3.42	3.49	3.32	3.40	3.23	3.31	3.19	3.28	3.17	3.26	3.12	3.23	3.07
85	0.69	0.76	0.66	0.69	0.60	0.63	0.57	0.60	0.53	0.57	0.50	0.54	0.49	0.54	0.50	0.54	0.49	0.52	0.47
90	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
95	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
100	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
105	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
110	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
115	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
120	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
125	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
130	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
135	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
140	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
145	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
150	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
155	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
160	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
165	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
170	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
175	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
180	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03



Bu rapor laboratuvarın yazılı izni olmadan kısmen veya tamamen kopyalanıp çoğaltılamaz. İmzasız ve mühürsüz raporlar geçersizdir.
This report shall not be reproduced other than in full except with the permission of the laboratory. Testing reports without signature and seal are not valid.



2.2.8 Işık Şiddeti Yoğunluğu Dağılımına Ait Veriler (Luminous Distribution Intensity Data)

Table--2

UNIT: cd

C (DEG) y (DEG)	95	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185
0	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502
5	2418	2415	2420	2424	2429	2425	2427	2426	2434	2435	2439	2440	2447	2442	2448	2446	2452	2451	2448
10	2223	2219	2227	2227	2236	2235	2240	2234	2245	2247	2251	2253	2260	2255	2264	2262	2275	2273	2274
15	1916	1909	1921	1924	1930	1928	1933	1935	1946	1950	1962	1963	1973	1975	1986	1989	2004	2006	2002
20	1532	1528	1534	1536	1542	1542	1550	1550	1562	1569	1580	1584	1597	1603	1616	1622	1637	1636	1628
25	1104	1103	1109	1113	1119	1121	1128	1127	1140	1146	1155	1160	1170	1178	1190	1192	1205	1206	1204
30	724	719	725	730	733	738	741	743	746	753	758	764	773	790	781	780	794	795	797
35	434	429	439	435	447	442	451	446	454	448	457	452	462	459	470	467	481	482	474
40	253	251	258	257	263	261	266	264	268	263	267	264	270	267	274	272	280	280	277
45	149	150	153	154	157	157	159	158	159	157	158	157	159	158	161	161	165	168	164
50	92.9	93.1	95.0	95.8	97.6	97.5	98.8	98.0	98.2	97.5	98.3	97.7	98.6	98.4	99.9	99.9	102	102	102
55	60.7	60.6	62.0	62.0	63.3	63.0	63.9	63.2	64.0	63.2	63.9	63.4	64.3	64.0	65.4	65.1	66.4	66.7	66.9
60	40.4	40.2	41.0	40.8	41.5	41.4	42.0	41.7	42.3	41.9	42.3	41.9	42.6	42.4	43.2	43.0	43.9	44.2	43.6
65	26.3	26.1	26.6	26.4	26.9	26.7	27.1	26.9	27.3	27.1	27.5	27.2	27.8	27.6	28.2	28.1	28.7	28.7	28.4
70	16.0	15.8	16.1	16.0	16.3	16.2	16.5	16.3	16.6	16.4	16.7	16.7	17.1	16.9	17.4	17.3	17.8	17.8	17.3
75	8.34	8.33	8.38	8.40	8.47	8.51	8.60	8.68	8.77	8.83	8.96	9.04	9.13	9.23	9.33	9.41	9.56	9.55	9.51
80	3.19	3.07	3.20	3.12	3.28	3.20	3.36	3.28	3.47	3.39	3.59	3.53	3.73	3.70	3.89	3.82	4.00	3.98	3.81
85	0.49	0.45	0.51	0.49	0.56	0.53	0.58	0.55	0.61	0.60	0.67	0.64	0.69	0.67	0.73	0.71	0.80	0.81	0.76
90	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.04	0.04
95	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
100	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
105	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
110	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
115	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
120	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
125	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
130	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
135	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
140	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
145	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
150	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
155	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
160	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
165	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
170	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.03
175	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04
180	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03



Bu rapor laboratuvarın yazılı izni olmadan kısmen veya tamamen kopyalanıp çoğaltılamaz. İmzasız ve mühürsüz raporlar geçersizdir.
This report shall not be reproduced other than in full except with the permission of the laboratory. Testing reports without signature and seal are not valid.



2.2.9 Işık Şiddeti Yoğunluğu Dağılımına Ait Veriler (Luminous Distribution Intensity Data)

Table--3

UNIT: cd

C (DEG) y (DEG)	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280
0	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502
5	2452	2453	2457	2459	2463	2456	2461	2463	2459	2456	2457	2453	2459	2452	2455	2452	2453	2454	2452
10	2282	2285	2291	2291	2295	2291	2294	2293	2295	2291	2292	2287	2295	2290	2293	2288	2297	2292	2289
15	2007	2012	2020	2021	2030	2026	2030	2028	2031	2022	2027	2024	2032	2027	2032	2023	2029	2024	2022
20	1640	1642	1651	1655	1666	1666	1675	1674	1673	1668	1672	1667	1670	1665	1674	1667	1673	1668	1667
25	1216	1220	1230	1233	1248	1244	1253	1256	1261	1262	1270	1265	1269	1263	1272	1266	1269	1261	1258
30	803	809	817	825	836	839	846	847	850	851	855	855	859	860	862	860	863	861	861
35	488	488	502	499	511	506	517	512	522	514	523	517	526	518	528	520	531	524	530
40	286	287	295	295	303	300	306	301	304	299	303	299	304	301	306	302	309	305	311
45	171	170	178	176	182	179	183	179	181	177	181	175	180	176	181	177	182	179	186
50	104	105	108	108	111	110	112	110	110	109	109	108	109	108	109	109	111	111	112
55	68.0	68.6	69.6	70.4	71.4	71.4	71.7	71.7	71.3	71.0	70.7	70.5	70.6	70.8	70.9	71.1	71.7	72.4	72.2
60	44.7	44.7	45.7	45.7	46.7	46.3	46.9	46.5	47.0	46.5	47.1	46.4	47.0	46.6	47.1	46.7	47.2	46.8	47.5
65	29.0	28.9	29.6	29.5	30.2	29.9	30.4	30.1	30.5	30.2	30.6	30.2	30.7	30.5	30.9	30.5	31.1	30.7	31.0
70	17.8	17.6	18.1	18.0	18.5	18.3	18.7	18.5	18.8	18.6	19.1	18.9	19.2	19.0	19.3	19.0	19.2	19.0	19.2
75	9.61	9.68	9.75	9.82	9.92	9.99	10.1	10.2	10.3	10.4	10.5	10.5	10.6	10.7	10.7	10.7	10.7	10.6	10.6
80	4.01	3.96	4.17	4.12	4.31	4.22	4.40	4.32	4.51	4.43	4.62	4.53	4.70	4.59	4.73	4.58	4.73	4.55	4.69
85	0.85	0.81	0.88	0.84	0.92	0.88	0.98	0.96	1.04	1.00	1.06	1.01	1.08	1.01	1.09	1.04	1.13	1.08	1.15
90	0.04	0.04	0.05	0.04	0.06	0.05	0.06	0.05	0.07	0.06	0.07	0.06	0.07	0.06	0.07	0.06	0.07	0.06	0.07
95	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
100	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
105	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
110	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
115	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
120	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
125	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
130	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
135	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
140	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
145	0.03	0.08	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
150	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
155	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
160	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
165	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
170	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
175	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
180	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03



Bu rapor laboratuvarın yazılı izni olmadan kısmen veya tamamen kopyalanıp çoğaltılamaz. İmzasız ve mühürsüz raporlar geçersizdir.
This report shall not be reproduced other than in full except with the permission of the laboratory. Testing reports without signature and seal are not valid.



2.2.10 Işık Şiddeti Yoğunluğu Dağılımına Ait Veriler (Luminous Distribution Intensity Data)

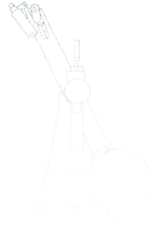
Table--4

UNIT: cd

C (DEG) γ (DEG)	285	290	295	300	305	310	315	320	325	330	335	340	345	350	355				
0	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502	2502				
5	2449	2454	2448	2453	2444	2439	2440	2441	2437	2437	2437	2435	2429	2425	2422				
10	2287	2287	2280	2281	2272	2266	2259	2260	2251	2254	2246	2248	2243	2242	2236				
15	2018	2023	2012	2012	2000	1991	1982	1980	1966	1966	1954	1953	1946	1947	1940				
20	1666	1667	1656	1651	1636	1629	1615	1617	1607	1602	1592	1589	1583	1579	1572				
25	1250	1252	1244	1243	1232	1225	1217	1218	1204	1199	1188	1182	1172	1171	1160				
30	856	856	850	847	841	834	827	820	812	806	800	792	780	778	772				
35	524	531	520	525	512	514	500	503	491	492	477	481	468	470	459				
40	308	313	308	311	303	303	294	296	286	286	278	279	272	274	267				
45	181	187	182	186	180	182	174	176	169	171	164	164	161	161	158				
50	111	113	112	113	111	110	108	107	104	104	102	101	99.7	99.8	98.5				
55	72.6	73.1	72.3	72.6	72.5	71.2	69.9	68.9	67.9	67.0	65.5	65.7	64.5	64.9	63.7				
60	47.2	47.9	47.3	47.7	46.8	46.8	45.7	45.7	44.6	44.5	43.6	43.7	42.9	43.1	42.3				
65	30.7	31.1	30.7	30.9	30.4	30.5	29.7	29.8	29.2	29.3	28.7	28.8	28.1	28.2	27.6				
70	18.9	19.2	18.9	19.1	18.7	18.9	18.3	18.5	18.1	18.2	17.7	17.8	17.4	17.5	17.0				
75	10.6	10.5	10.5	10.4	10.3	10.2	10.2	10.1	9.97	9.89	9.77	9.62	9.47	9.34	9.25				
80	4.54	4.64	4.46	4.57	4.37	4.44	4.24	4.32	4.20	4.21	4.01	4.07	3.87	3.92	3.73				
85	1.07	1.11	1.00	1.04	0.96	0.99	0.91	0.95	0.86	0.89	0.78	0.80	0.71	0.75	0.68				
90	0.06	0.07	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03	0.03				
95	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03				
100	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03				
105	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03				
110	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03				
115	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03				
120	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03				
125	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03				
130	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03				
135	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03				
140	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03				
145	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03				
150	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03				
155	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.04	0.03	0.03				
160	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.04	0.04	0.04				
165	0.03	0.03	0.03	0.03	0.04	0.04	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04				
170	0.03	0.04	0.03	0.04	0.04	0.04	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04				
175	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04				
180	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03				



Bu rapor laboratuvarın yazılı izni olmadan kısmen veya tamamen kopyalanıp çoğaltılamaz. İmzasız ve mühürsüz raporlar geçersizdir.
This report shall not be reproduced other than in full except with the permission of the laboratory. Testing reports without signature and seal are not valid.

**3. EKLER (Attachments)****3.1 Deney Bileşenleri (Test Components)**

Envanter No (Inventory Number)	Cihaz Adı (Device Name)	Seri No (Serial Number)	Kal./Doğ. Tarihi (Cal./Ver. Date)
LAB-002	Integrating Sphere 2 m.	G121960CF1 341163D	-
LAB-004	Power Meter	G103508CD1331128	09/2024
LAB-005	Spectroradiometer	G112048JC1341124	09/2024
LAB-006	AC Power Supply	G119885CF1341123	09/2024
LAB-008	Analog Meter	ŞM-1555	09/2024
LAB-021	Standard Light Source	M147803CN1391114	05/2024
LAB-024	Terazi	1704254	09/2024
LAB-025	Auxiliary Lamp	M133803CD1391147	05/2024
LAB-027	Full Field Speed Goniophotometer	0110133CA1341113	05/2023
LAB-030	AC Power Supply	G120984CF1341115	09/2024
LAB-031	Power Meter	G103508TO1331122	09/2024
LAB-059	Küre Termokupl	13200840	09/2024
LAB-067	Anemometer	3558004	09/2024
LAB-029	Near Field Measur. Dedector	G108513CM1321114	05/2024
LAB-022	Standard Light Source	M133806CJ1401124	05/2024





3.2 Ürün Fotoğrafları (Photos of Test Items)

3.2.1 Ön-Arka Görünüm (Front-Back view)



3.2.2 Görünüm (View)



Bu rapor laboratuvarın yazılı izni olmadan kısmen veya tamamen kopyalanıp çoğaltılamaz. İmzasız ve mühürsüz raporlar geçersizdir.
This report shall not be reproduced other than in full except with the permission of the laboratory. Testing reports without signature and seal are not valid.

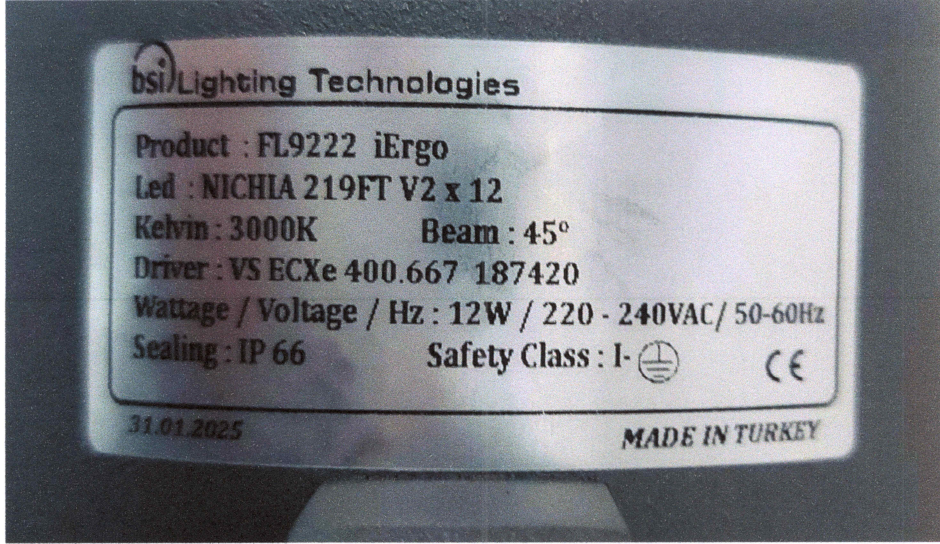


AB-1333-T

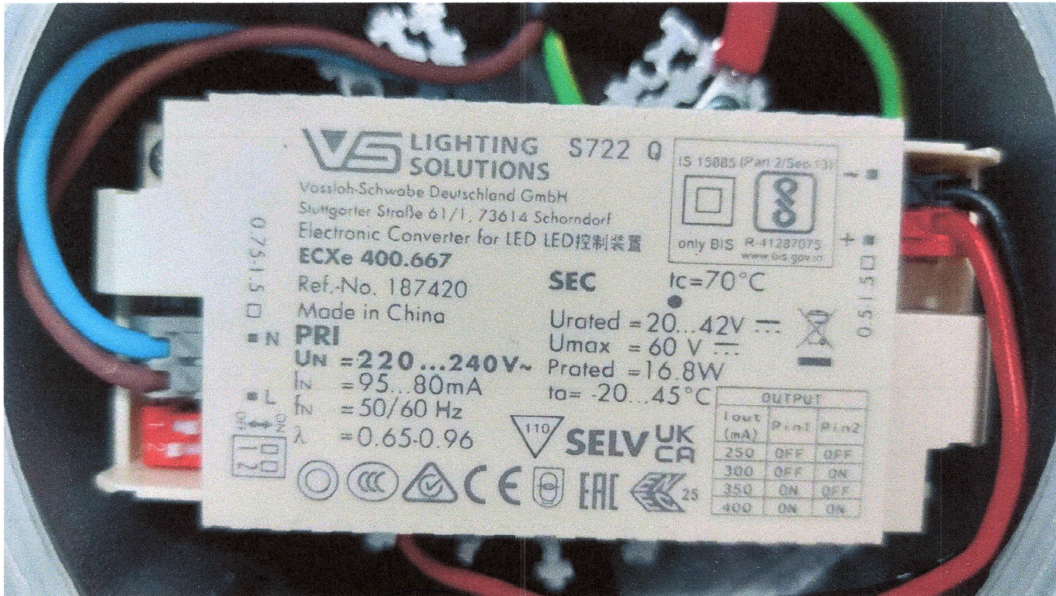
OPT2508

02-25

3.2.3 Görünüm (View)



3.2.4 Görünüm (View)



Bu rapor laboratuvarın yazılı izni olmadan kısmen veya tamamen kopyalanıp çoğaltılamaz. İmzasız ve mühürlü raporlar geçersizdir.
This report shall not be reproduced other than in full except with the permission of the laboratory. Testing reports without signature and seal are not valid.