



08/07/2015

Sayı/Issue: 05 06 15 SÖ 074/00

İlgi/Subject:

Interest on request, samples were sent to our laboratory for lighting fixtures, physical examination and tests. The following results were obtained.

**Rapor Tarihi-Report Date / Rapor Numarası-Report Number/ Ticari Marka-TradeMark/Model-Type**

08.07.2015 / 15-123 / ODSER ELEKTRONİK / 3600-406-KR40TNN, 3600-406-KR40XNN

Numbers in above-mentioned report, the date of the inspection and test reports of the samples will be sent to our letter attached.

Best Regards,

Prof.Dr. Zafer UTLU

Laboratory Manager

EK/EKLER:

(ANNEX/ANNEXES)

Not: Muayene ve Deney amacı ile gönderilen numuneler, firma veya yetkilisi tarafından 30 gün içerisinde alınmadığı takdirde tasfiye edilecektir.

The samples are sent in order to inspection and test, will be liquidated if it will taken back within 30 days by representative of company.

İAÜ Florya Halit Aydın Kampüsü İnönü Cad. No:38 Beşyol mah. Küçükçekmece / İSTANBUL  
Tel:(0212) 444 1 428 Dahili : 14630



## MUAYENE VE DENEY RAPORU

### TEST REPORT

IAU
15-123
08.07.2015

**Deneyi Talep Eden** : ODSER LKTRONİK SAN. Ve TİC. A.Ş.  
(Adı,Adresi,Şehir v.b.) Orta Ölçekli Sanayi Bölgesi, 14.Sokak No:4 Muradiye 45140 Manisa / TÜRKİYE  
*Customer (Name,Address, City etc.)*

**Deney Talep Tarihi /No** : 02.07.2015  
*Order Date /No*

**Numunenin Kabul Tarihi** : 02.07.2015  
*Test Item Receipt Date*

**Deneylerin Yapıldığı Tarih** : 06.07.2015  
*Date of Test*

**Uygulanan Standart /Metod** : TS EN13032-1:2004 +A1:2012LightandLighting –Measurement and Presentation of  
*Applied Standart/Method* Photometric Data of Lampsand Luminaires-Part1: Measurementand File

**Raporun Sayfa Sayısı** : 26

**Açıklamalar** :

Deney ve/veya ölçüm sonuçları,genişletilmiş ölçüm belirsizlikleri (olması halinde) ve deney metodları bu raporun 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.*

**Mühür**

*Seal*

**Tarih**

*Date*

**Deney Sorumlusu**

*Person in charge of tests*

Sercan ÖZKAN

*Lab. Tech.*

**Kontrol Eden**

*Reviewer*

Temel SÖNMEZOCAK

*Quality Manager*

**Onaylayan**

*Approved By*

Prof.Dr. Zafer UTLU

*Lab. Manager*

Bu rapor , hazırlayan laboratuvarın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz. İmzasız ve mühürlü raporlar geçersizdir. Bu rapor , sadece deneyiyapılan numune için geçerlidir ve "Ürün Belgesi" yerine geçmez.

*This test report shall not be reproduced other than in full except with the written permission of the laboratory .Test reports without signature and seal are not valid. This report represents only tested samples,and shall not be used as product Certificate.*

**İSTANBUL AYDIN ÜNİVERSİTESİ AYDINLATMA TEST-ÖLÇÜM ve ANALİZ LABORATUARLARI**

( ISTANBUL AYDIN UNIVERSITY LIGHTING TEST MEASUREMENT AND ANALYSIS LABORATORIES)

**MUAYENE – DENEY SONUÇLARI / TEST RESULTS****FOTOMETRİK ÖLÇÜM SONUÇLARI****PHOTOMETRIC MEASUREMEN RESULTS**

<b>Kullanılan Cihaz/EquipmentUsed.....:</b>	NFMS Goniophotometer LabSphere Sphere System
<b>Uygulanan Standart-Metot/Applied Standard-Method.....:</b>	TS EN13032-1:2004 +A1:2012LightandLighting – Measurementand Presentation of Photometric Data of Lampsand Luminaires-Part1: Measurementand File.
<b>Deney Ortam Şartları/ExperimentalAmbientConditions.....:</b>	25°C ±5°C, 35%RH±5%RH
<b>Armatüre Uygulanan Gerilim / AppliedVoltage.....:</b>	220V
<b>Armatür Markası-Üretici /LuminaireBrand-Producer.....:</b>	ODSEL ELEKTRONİK
<b>Armatür Kodu-Modeli / LuminaireCode-Model.....:</b>	3600-406-KR40XNN
<b>Armatür Lamba Tipi-açıklama/Lamptype-description of Luminaire.....:</b>	LED

**İSTANBUL AYDIN ÜNİVERSİTESİ AYDINLATMA TEST-ÖLÇÜM ve ANALİZ LABORATUARLARI**

( İSTANBUL AYDIN UNIVERSITY LIGHTING TEST MEASUREMENT AND ANALYSIS LABORATORIES)

**MUAYENE – DENEY SONUÇLARI / TEST RESULTS****FOTOMETRİK ÖLÇÜM SONUÇLARI / PHOTOMETRIC MEASUREMENT RESULTS**

Armatürde Ölçülen Toplam Güç/Measured Total Power of Luminaire.....:	26 W
Armatürün Ölçülen Işık Akısı /MeasuredLuminousFlux of Luminaire.....:	3033 lm (Effective Value)
Lamba Katalog Işık Akısı / LampCatalogLuminousFlux.....:	--
Armatür verimliliği (lm/Watt) / Luminousefficacy.....:	116,65 lm/Watt
Armatür Geri Verim (LOR)% / Luminousefficacy %.....:	--

**FOTOMETRİK ÖLÇÜM BELİRSİZLİK TABLOSU / PHOTOMETRIC MEASUREMENT UNCERTAINTY BUDGET**

Deney/Test(Unit)	Ölçüm Belirsizliği/Uncertainty
Radiant Flux (Watt)	1,3%
Luminous flux (Lumen / Lm)	1,08%
Correlated Color Temperature [CCT – Kelvin(K)]	7K
Chromaticity x coord	0,02
Chromaticity y coord	0,02
Chromaticity u' coord	0,02
Chromaticity v' coord	0,02
Color Rendering Index	1,4

**MUAYENE – DENEY SONUÇLARI / TEST RESULTS**

Numunenin fotoğrafları / Photos of the Test Sample





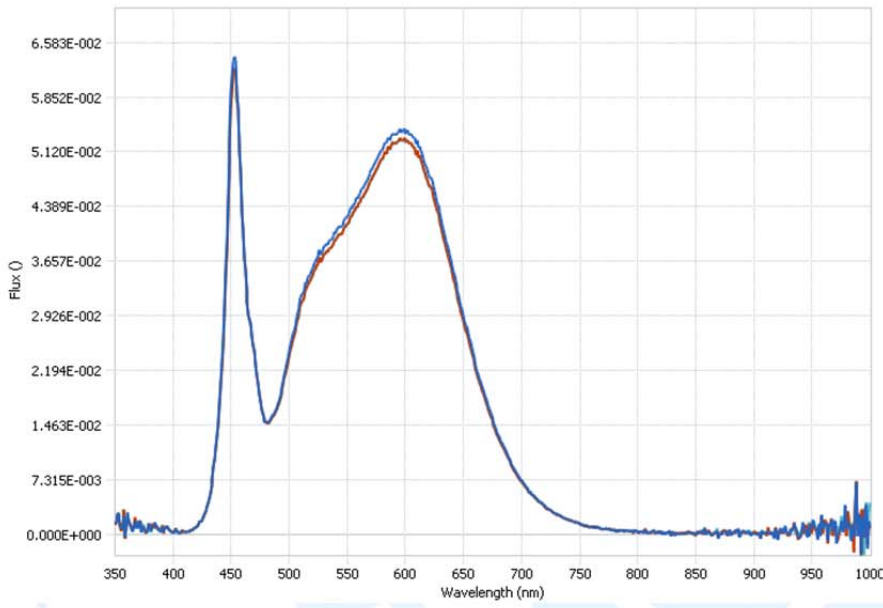
**MUAYENE – DENEY SONUÇLARI / TEST RESULTS****Fotometrik Ölçümler / Photometric measurements**

## Derived Data

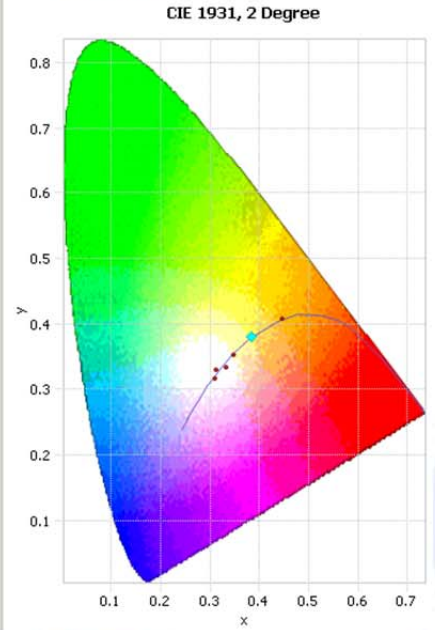
Parameter	Scan 3
Date/Time	06.07.2015 15:23
Radiant Flux (Watts)	9,43
Luminous Flux (lumens)	3033,00
Scotopic Luminous Flux (lm')	5083,00
Chromaticity x coord	0,3851
Chromaticity y coord	0,38
Chromaticity u coord	0,2268
Chromaticity v coord	0,3358
Delta uv	0,0001
Chromaticity u' coord	0,2268
Chromaticity v' coord	0,5037
Peak Wavelength (nm)	452,9
Center Wavelength (nm)	454
Centroid Wavelength (nm)	569,7
Dominant Wavelength (nm)	579,3
Full Width Half Max Bandwidth (nm)	19,4
Excitation Purity (%)	29,6
Correlated Color Temperature (deg. K)	3898
Correlation	0,0054
Correlation Coefficient	0,000245832
Color Rendering Index Average (RA)	84,31587525
Color Rendering Index (R1)	83,1
Color Rendering Index (R2)	90,8
Color Rendering Index (R3)	95,6
Color Rendering Index (R4)	82,7
Color Rendering Index (R5)	82,7
Color Rendering Index (R6)	86,7
Color Rendering Index (R7)	86,5
Color Rendering Index (R8)	66,4
Color Rendering Index (R9)	15,3
Color Rendering Index (R10)	77,6
Color Rendering Index (R11)	81,9
Color Rendering Index (R12)	60,8
Color Rendering Index (R13)	85,3
Color Rendering Index (R14)	97,8

MUAYENE – DENEY SONUÇLARI / TEST RESULTS

▼ SPECTRAL FLUX GRAPH:

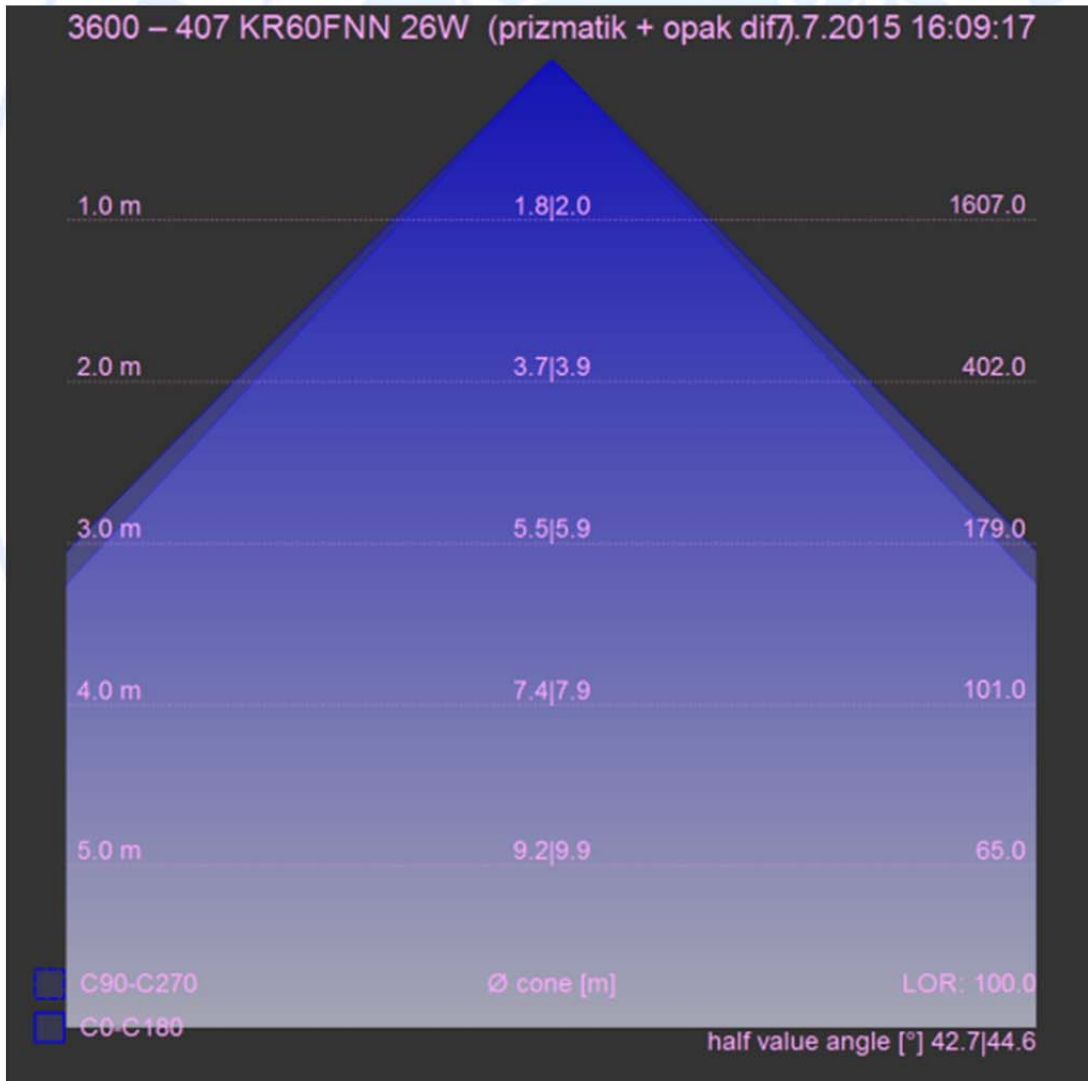


▼ CHROMATICITY DIAGRAM:



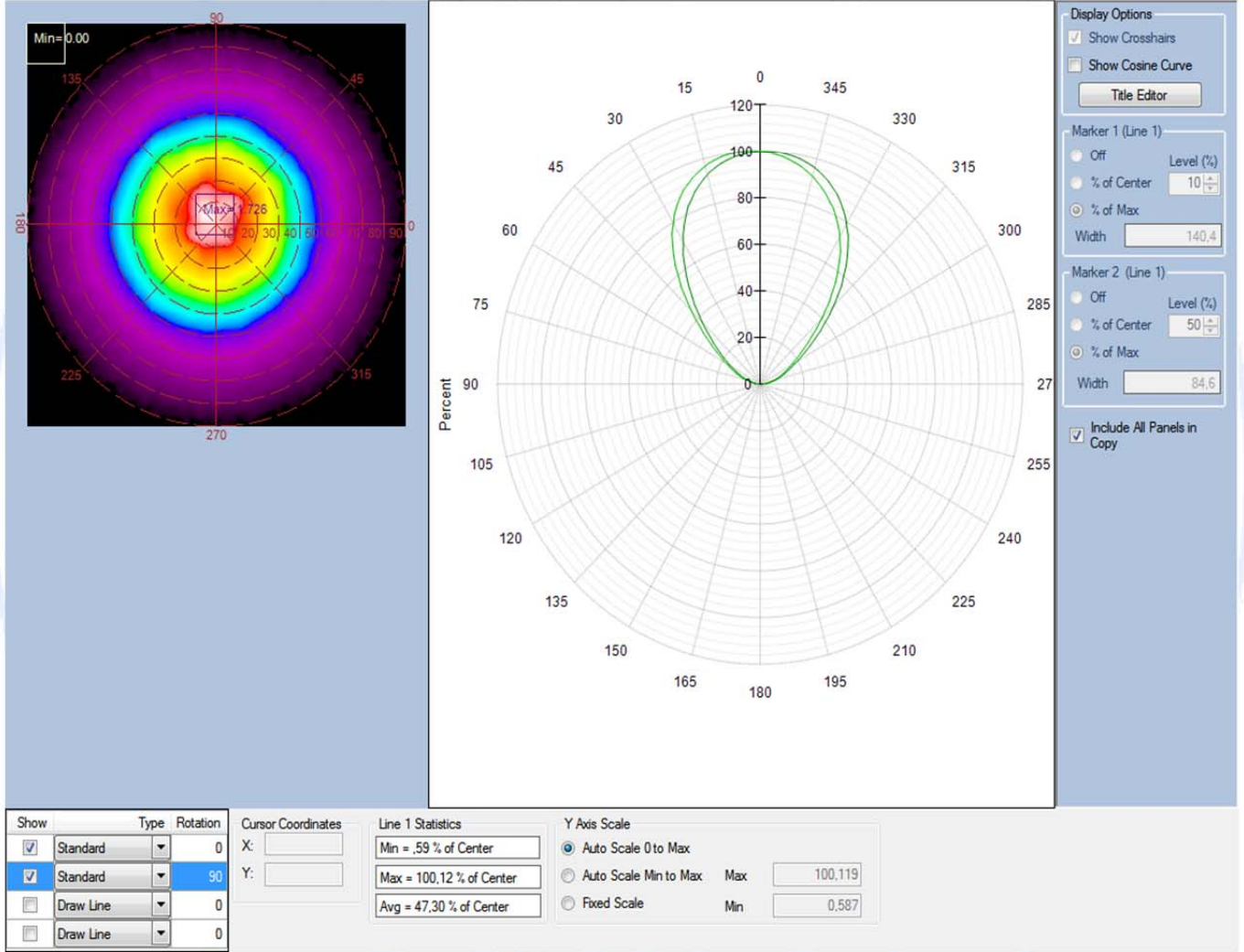
MUAYENE – DENEY SONUÇLARI / TEST RESULTS

Cone Diagram ;

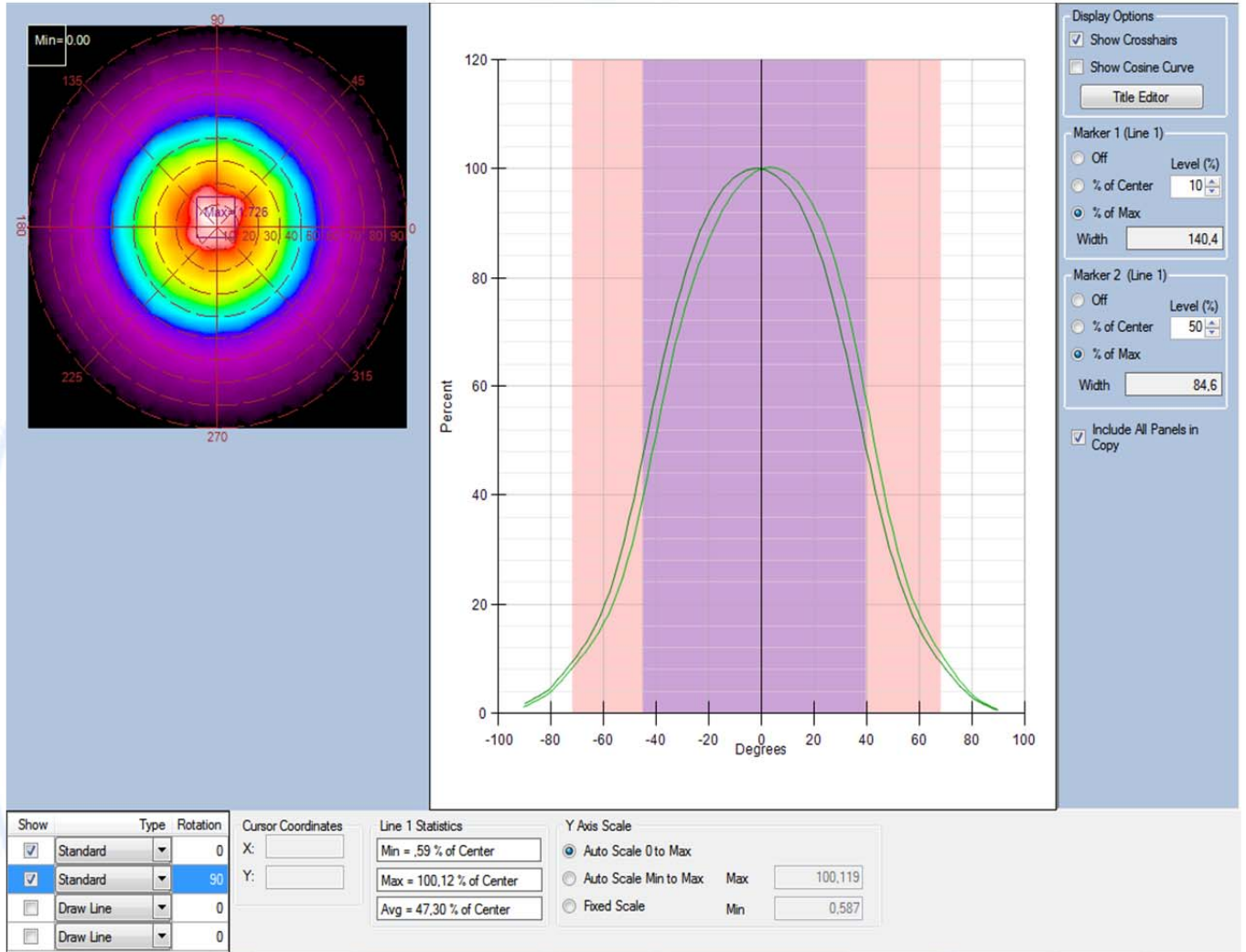




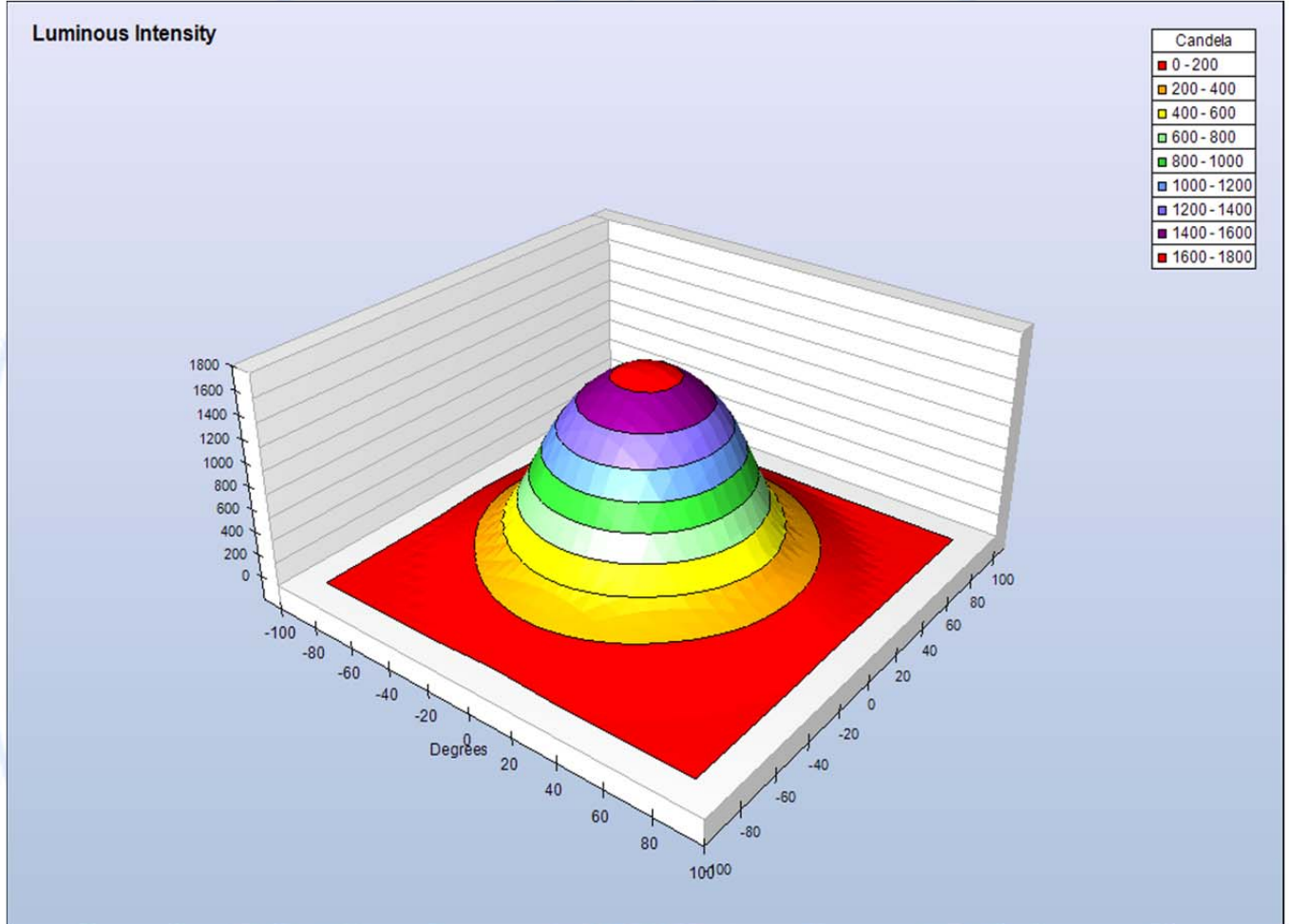
MUAYENE – DENEY SONUÇLARI / TEST RESULTS



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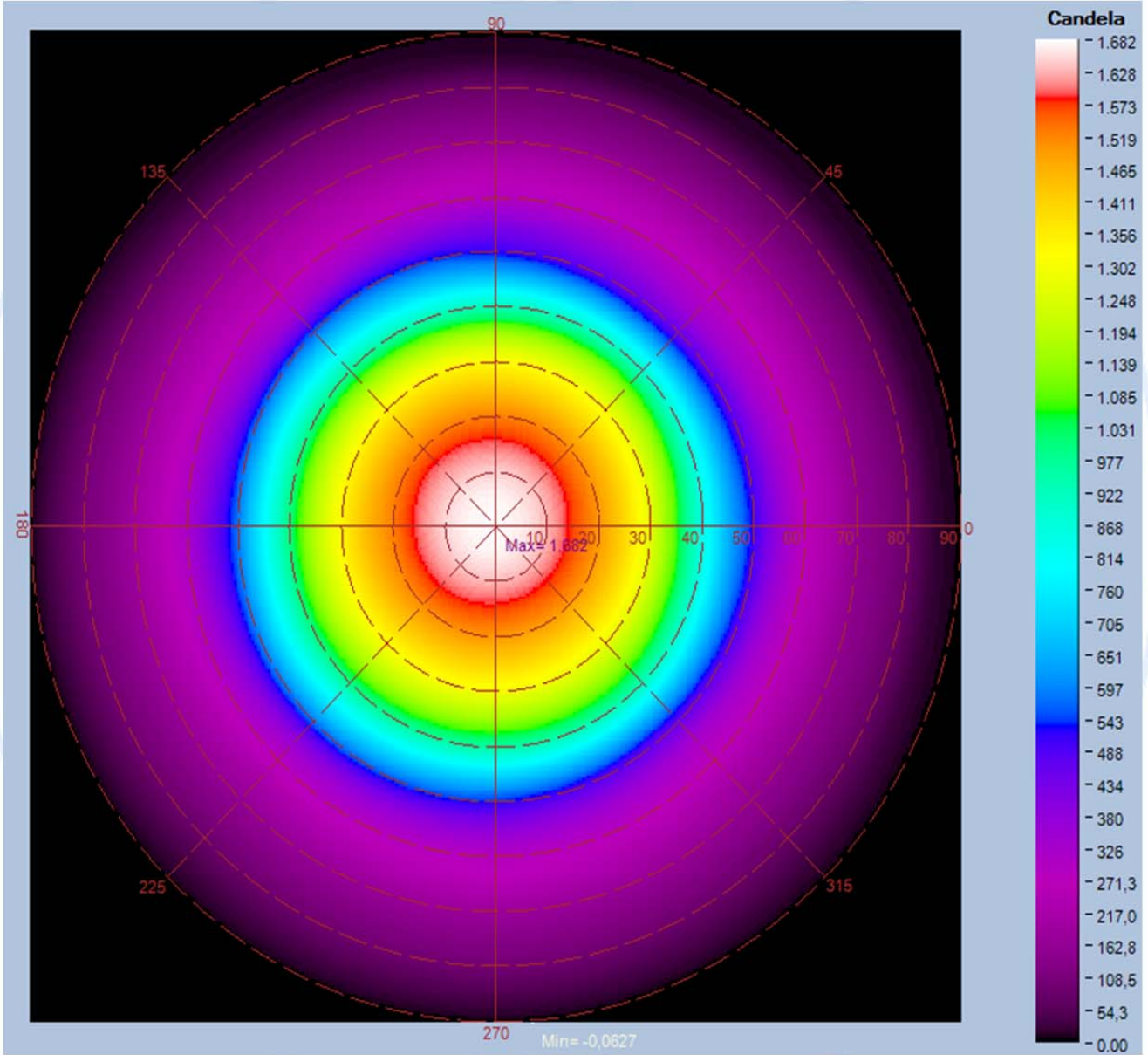


MUAYENE – DENEY SONUÇLARI / TEST RESULTS

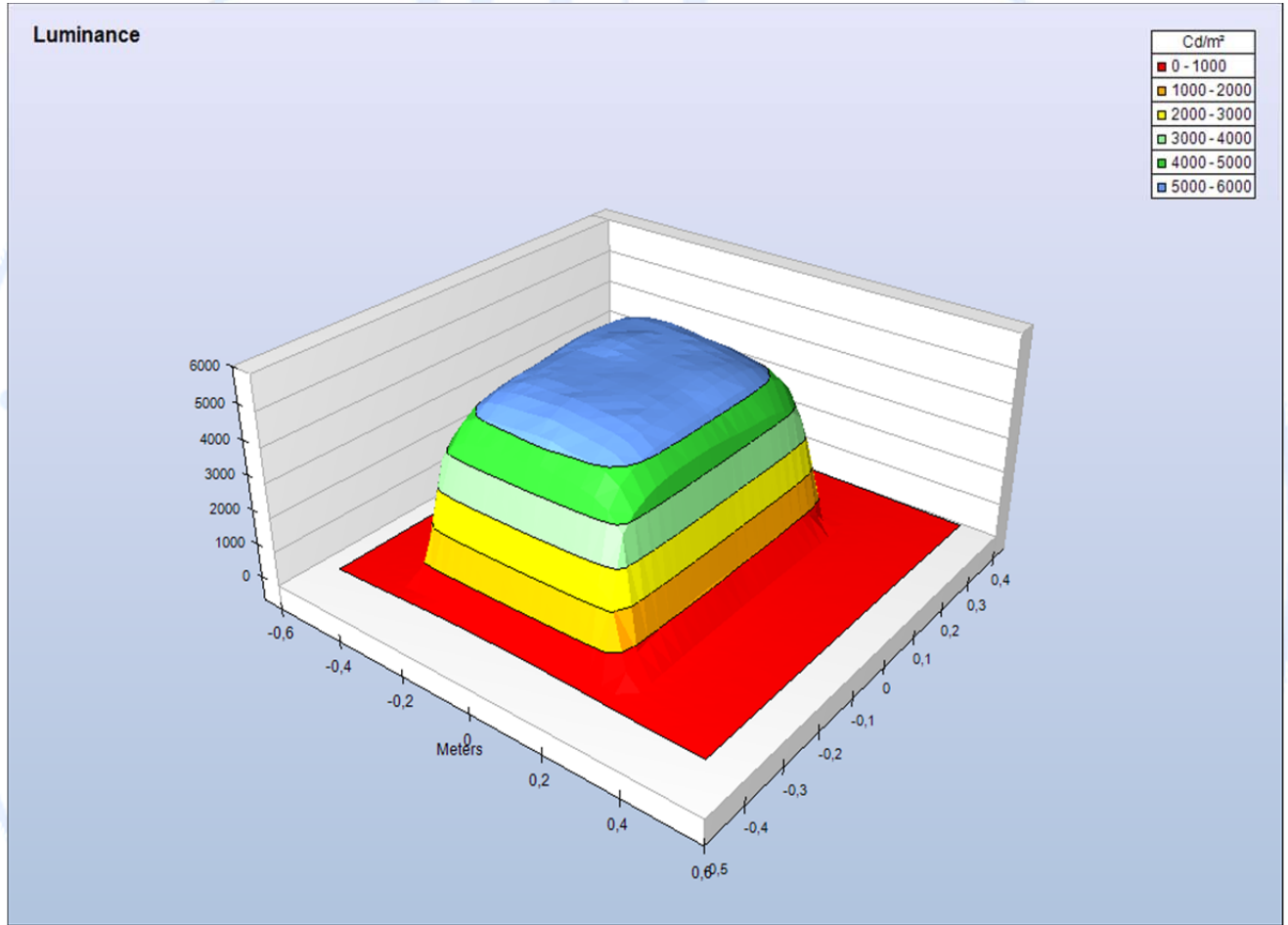




MUAYENE – DENEY SONUÇLARI / TEST RESULTS



MUAYENE – DENEY SONUÇLARI / TEST RESULTS

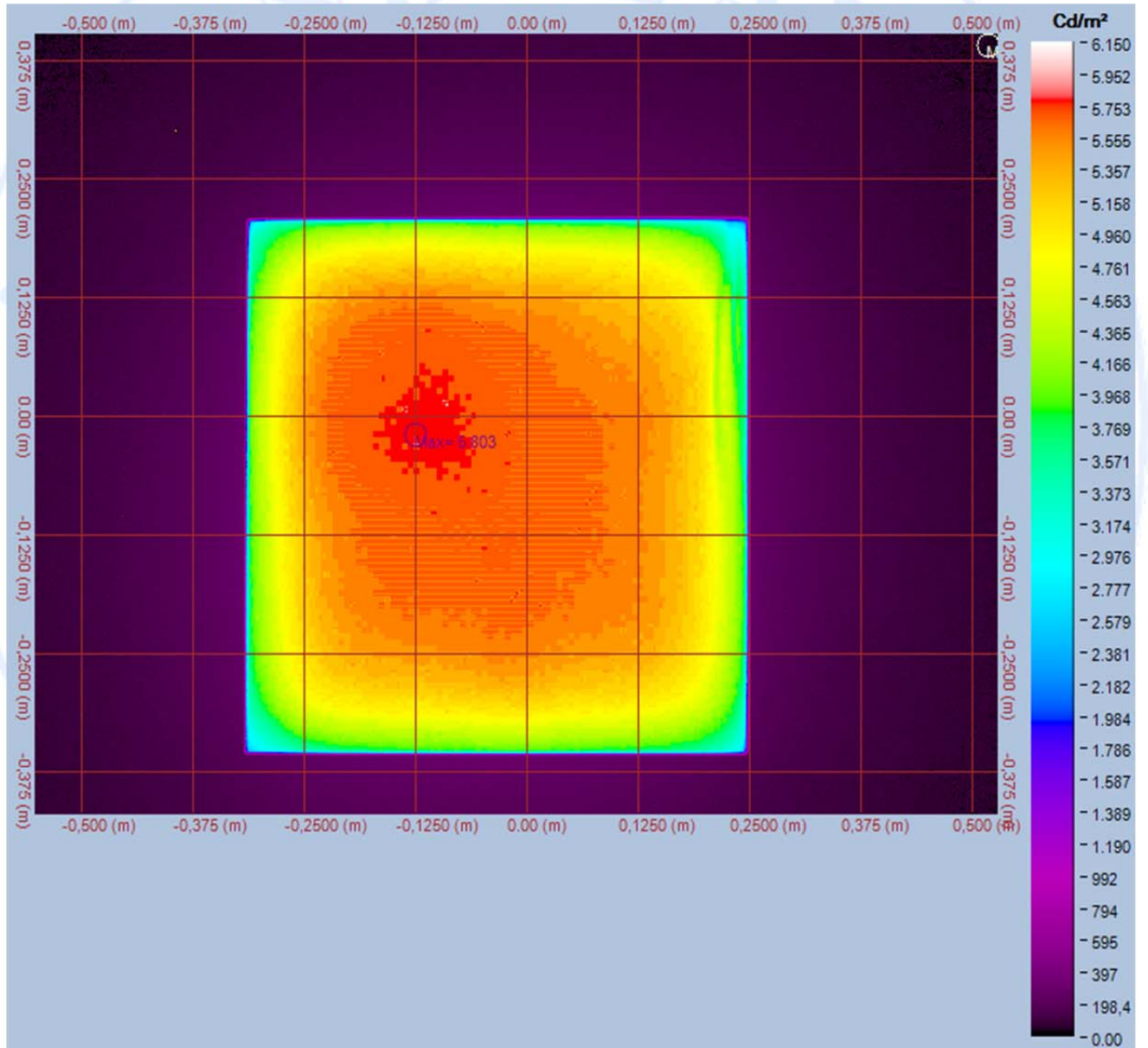




# İSTANBUL AYDIN ÜNİVERSİTESİ AYDINLATMA TEST-ÖLÇÜM ve ANALİZ LABORATUARLARI

( ISTANBUL AYDIN UNIVERSITY LIGHTING TEST MEASUREMENT AND ANALYSIS LABORATORIES)

## MUAYENE – DENEY SONUÇLARI / TEST RESULTS



**İSTANBUL AYDIN ÜNİVERSİTESİ AYDINLATMA TEST-ÖLÇÜM ve ANALİZ LABORATUARLARI**

( ISTANBUL AYDIN UNIVERSITY LIGHTING TEST MEASUREMENT AND ANALYSIS LABORATORIES)

**MUAYENE – DENEY SONUÇLARI / TEST RESULTS****FOTOMETRİK ÖLÇÜM SONUÇLARI****PHOTOMETRIC MEASUREMEN RESULTS**

<b>Kullanılan Cihaz/EquipmentUsed.....:</b>	NFMS Goniophotometer LabSphere Sphere System
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<b>Deney Ortam Şartları/ExperimentalAmbientConditions.....:</b>	25°C ±5°C, 35%RH±5%RH
<b>Armatüre Uygulanan Gerilim / AppliedVoltage.....:</b>	220V
<b>Armatür Markası-Üretici /LuminaireBrand-Producer.....:</b>	ODSEL ELEKTRONİK
<b>Armatür Kodu-Modeli / LuminaireCode-Model.....:</b>	3600-406-KR40TNN
<b>Armatür Lamba Tipi-açıklama/Lamptype-description of Luminaire.....:</b>	LED

**İSTANBUL AYDIN ÜNİVERSİTESİ AYDINLATMA TEST-ÖLÇÜM ve ANALİZ LABORATUARLARI**  
( *ISTANBUL AYDIN UNIVERSITY LIGHTING TEST MEASUREMENT AND ANALYSIS LABORATORIES* )

**MUAYENE – DENEY SONUÇLARI / TEST RESULTS**

*FOTOMETRİK ÖLÇÜM SONUÇLARI / PHOTOMETRIC MEASUREMENT RESULTS*

Armatürde Ölçülen Toplam Güç/Measured Total Power of Luminaire.....:	26 W
Armatürün Ölçülen Işık Akısı /MeasuredLuminousFlux of Luminaire.....:	3429 lm (Effective Value)
Lamba Katalog Işık Akısı / LampCatalogLuminousFlux.....:	--
Armatür verimliliği (lm/Watt) / Luminousefficacy.....:	131,88 lm/Watt
Armatür Geri Verim (LOR)% / Luminousefficacy %.....:	--

*FOTOMETRİK ÖLÇÜM BELİRSİZLİK TABLOSU / PHOTOMETRIC MEASUREMENT UNCERTAINTY BUDGET*

Deney/Test(Unit)	Ölçüm Belirsizliği/Uncertainty
Radiant Flux (Watt)	1,3%
Luminous flux (Lumen / Lm)	1,08%
Correlated Color Temperature [CCT – Kelvin(K)]	7K
Chromaticity x coord	0,02
Chromaticity y coord	0,02
Chromaticity u' coord	0,02
Chromaticity v' coord	0,02
Color Rendering Index	1,4

**MUAYENE – DENEY SONUÇLARI / TEST RESULTS**

**Numunenin fotoğrafları / Photos of the Test Sample**



**MUAYENE – DENEY SONUÇLARI / TEST RESULTS****Fotometrik Ölçümler / Photometric measurements**

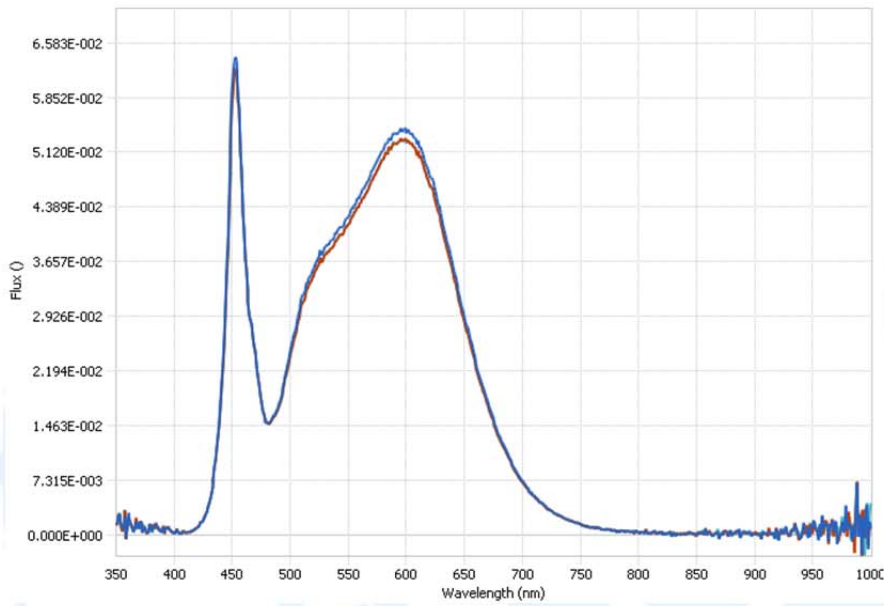
## Derived Data

Parameter	Scan 1
Date/Time	06.07.2015 15:36
Radiant Flux (Watts)	10,64
Luminous Flux (lumens)	3429,00
Scotopic Luminous Flux (lm')	5781,00
Chromaticity x coord	0,3835
Chromaticity y coord	0,3788
Chromaticity u coord	0,2263
Chromaticity v coord	0,3353
Delta uv	0
Chromaticity u' coord	0,2263
Chromaticity v' coord	0,5029
Peak Wavelength (nm)	452,9
Center Wavelength (nm)	453,9
Centroid Wavelength (nm)	568,4
Dominant Wavelength (nm)	579,3
Full Width Half Max Bandwidth (nm)	19,3
Excitation Purity (%)	28,8
Correlated Color Temperature (deg. K)	3930
Correlation	0,0054
Correlation Coefficient	0,000144913
Color Rendering Index Average (RA)	84,35918904
Color Rendering Index (R1)	83,2
Color Rendering Index (R2)	90,8
Color Rendering Index (R3)	95,5
Color Rendering Index (R4)	82,8
Color Rendering Index (R5)	82,8
Color Rendering Index (R6)	86,7
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Color Rendering Index (R11)	82
Color Rendering Index (R12)	60,7
Color Rendering Index (R13)	85,3
Color Rendering Index (R14)	97,8

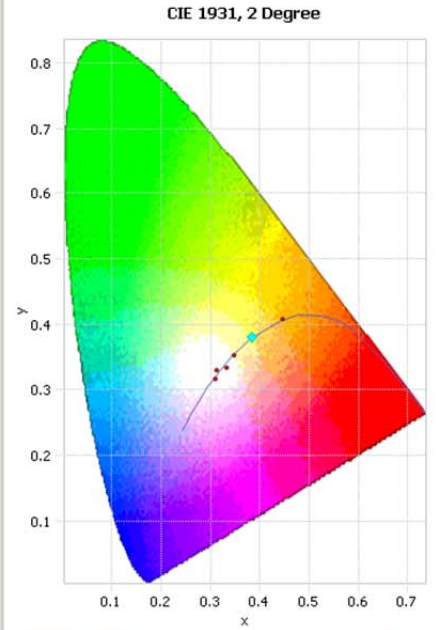


MUAYENE – DENEY SONUÇLARI / TEST RESULTS

▼ SPECTRAL FLUX GRAPH:

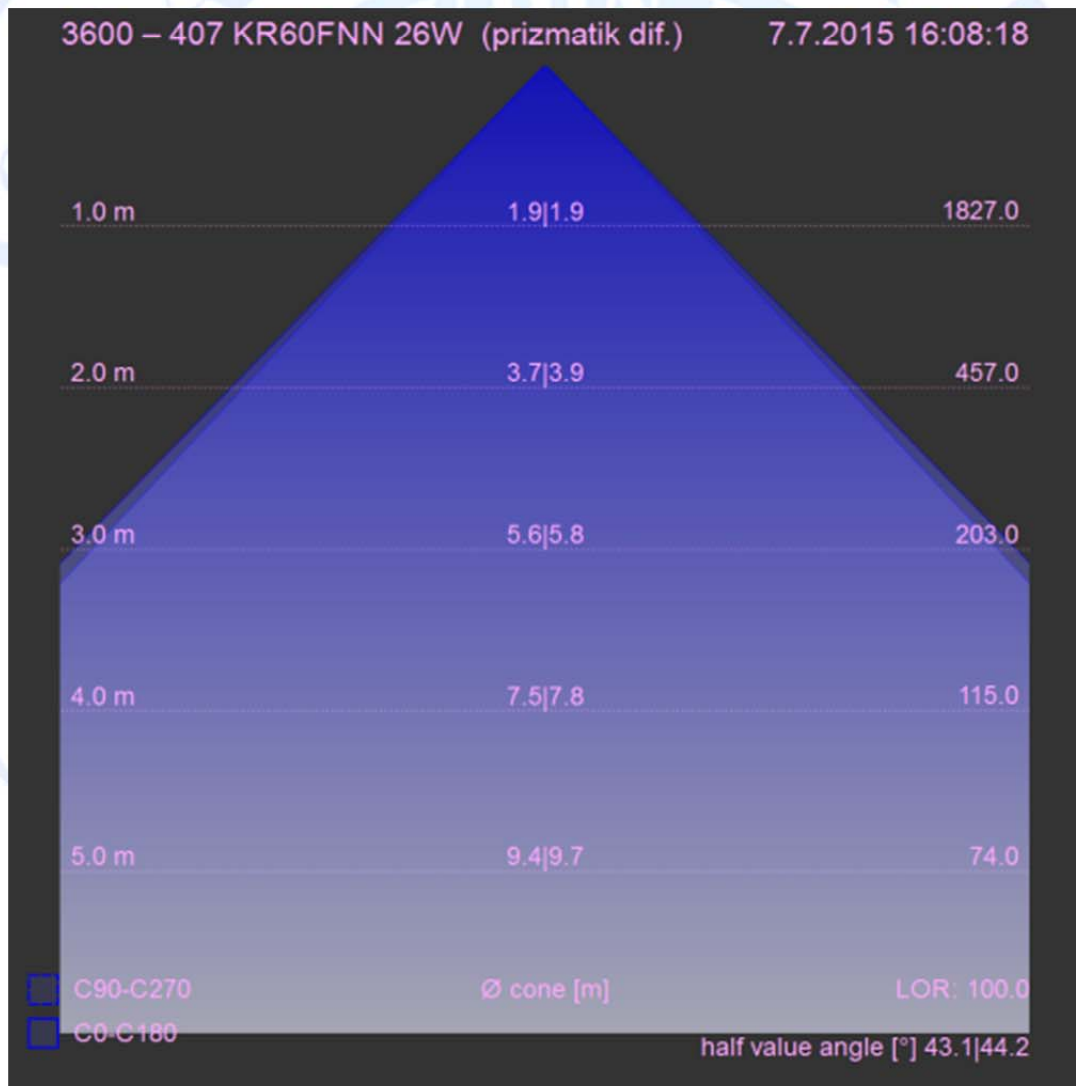


▼ CHROMATICITY DIAGRAM:

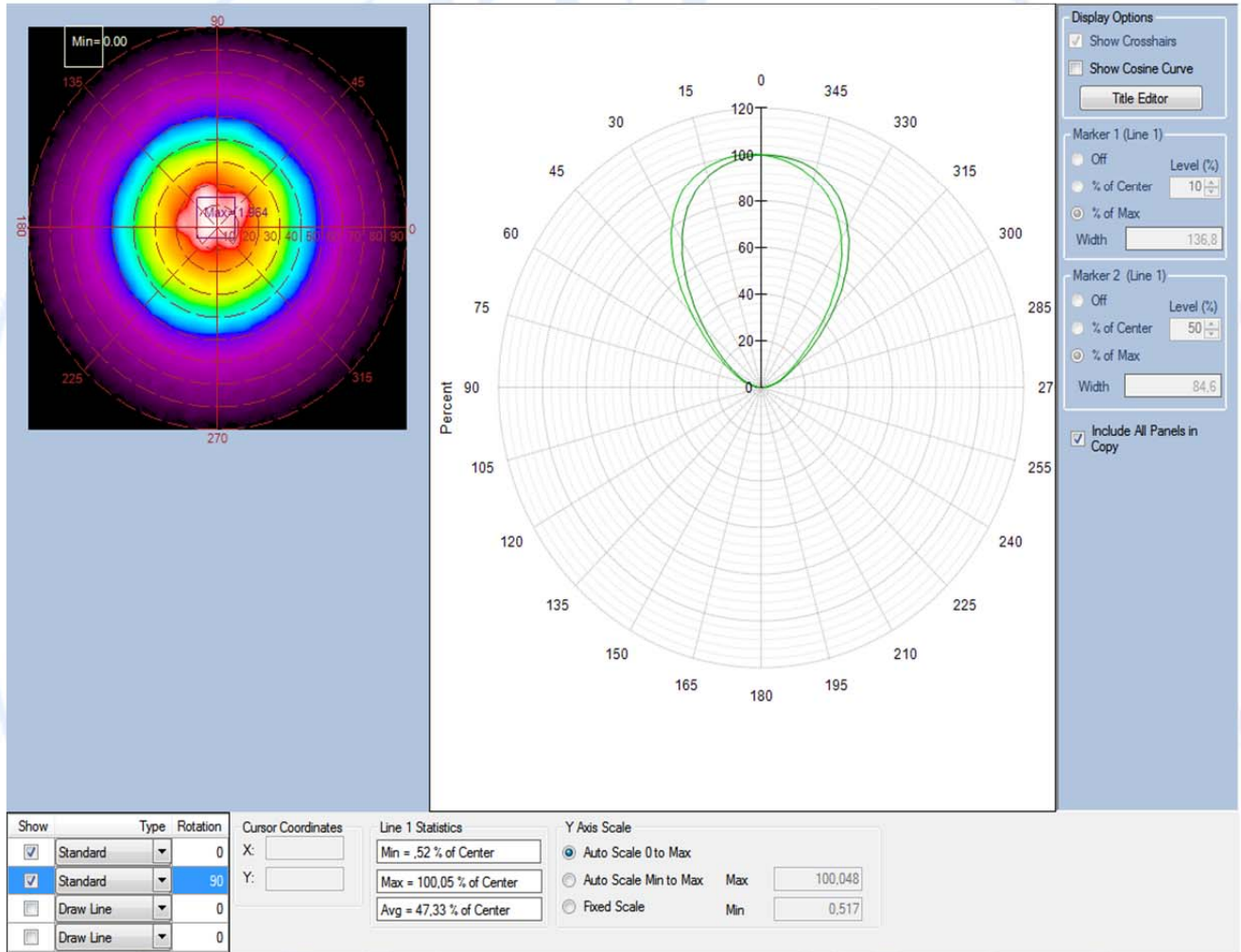


MUAYENE – DENEY SONUÇLARI / TEST RESULTS

Cone Diagram ;



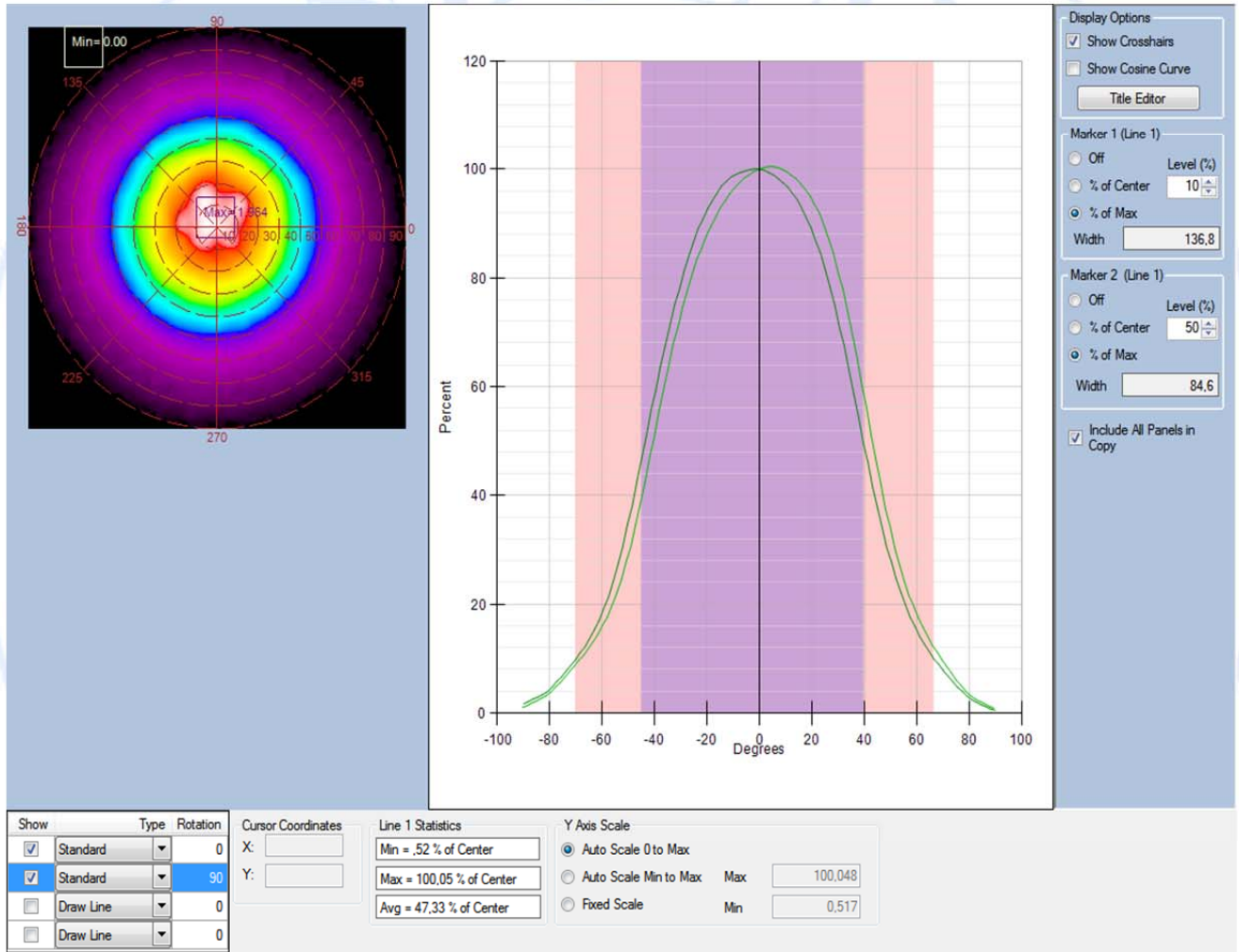
MUAYENE – DENEY SONUÇLARI / TEST RESULTS



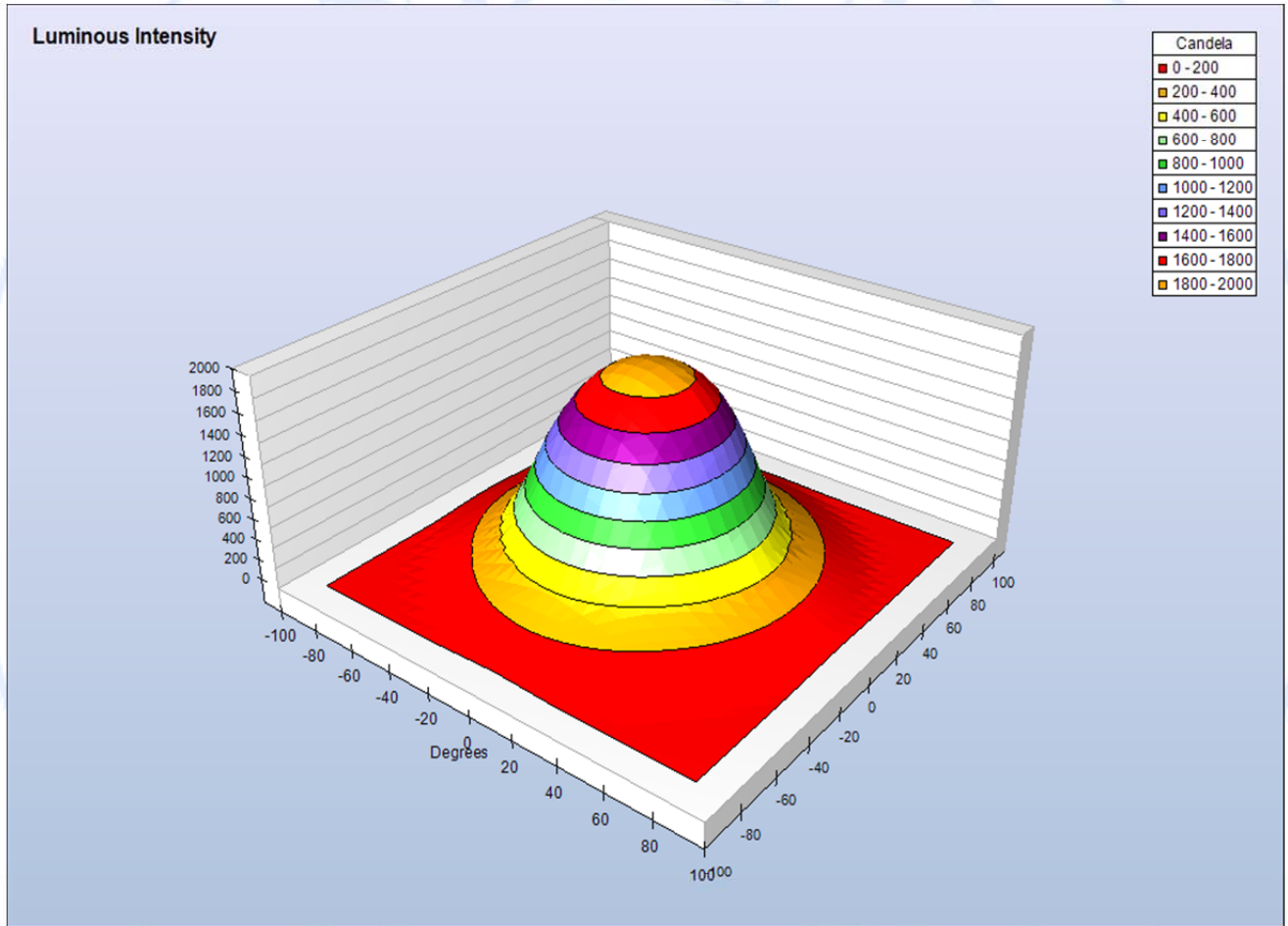
# İSTANBUL AYDIN ÜNİVERSİTESİ AYDINLATMA TEST-ÖLÇÜM ve ANALİZ LABORATUARLARI

( ISTANBUL AYDIN UNIVERSITY LIGHTING TEST MEASUREMENT AND ANALYSIS LABORATORIES)

## MUAYENE – DENEY SONUÇLARI / TEST RESULTS

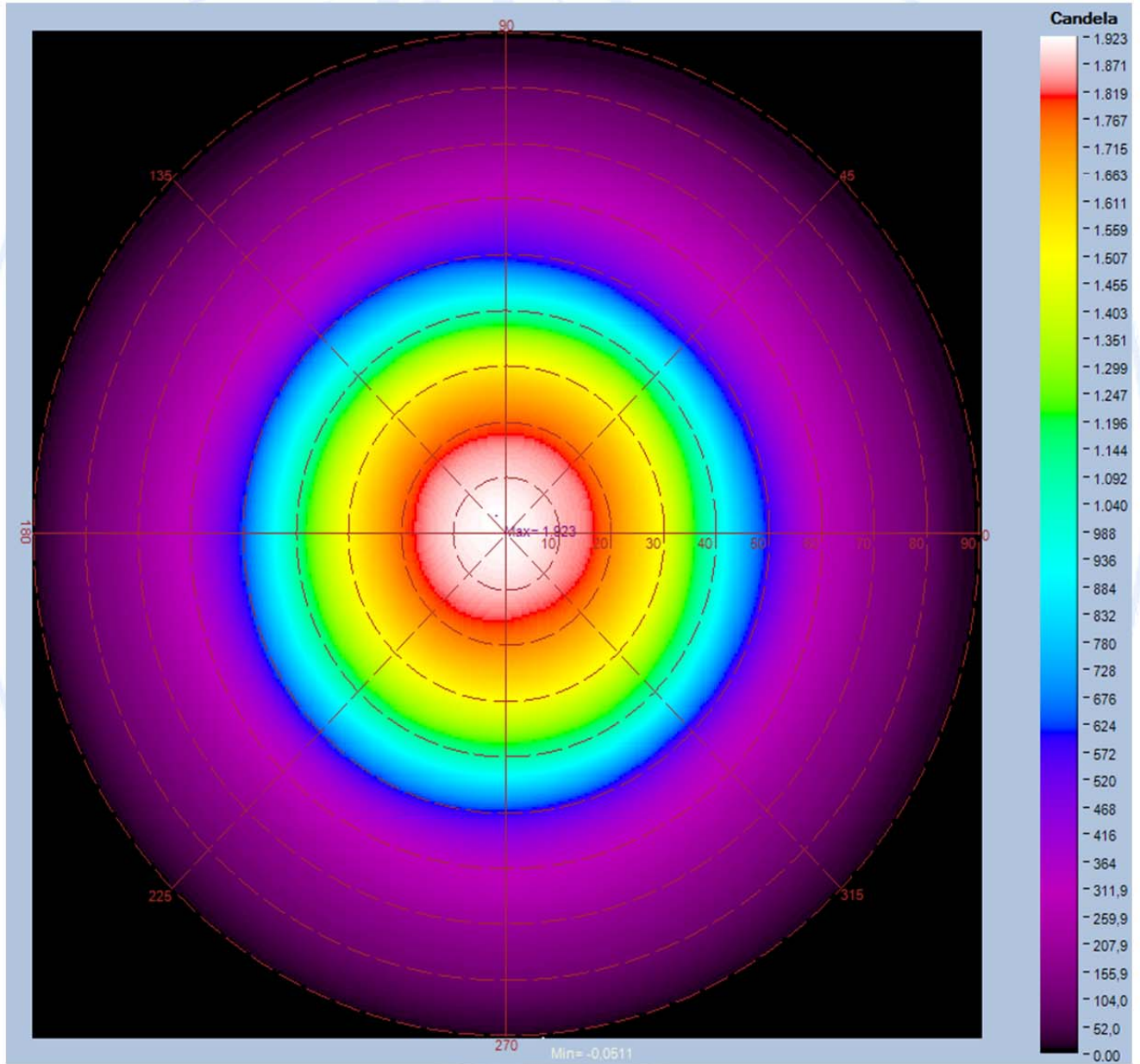


MUAYENE – DENEY SONUÇLARI / TEST RESULTS





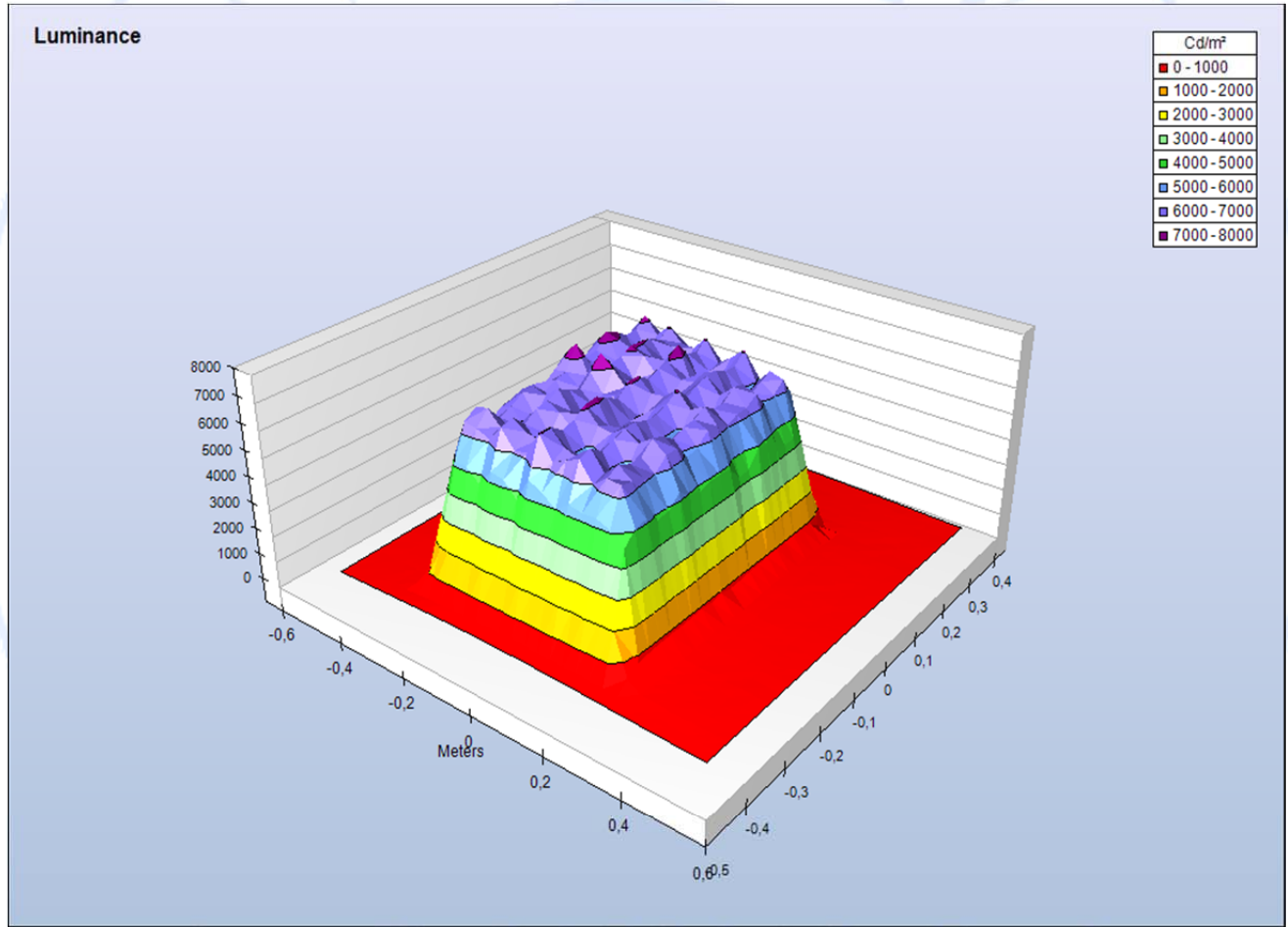
MUAYENE – DENEY SONUÇLARI / TEST RESULTS



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## MUAYENE – DENEY SONUÇLARI / TEST RESULTS



MUAYENE – DENEY SONUÇLARI / TEST RESULTS

