



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 / ODSEL ELEKTRONİK / 3600-407-KR40FNN, 3600-407-KR40TNN 3600-410-KR40FNN
27,5W -38W

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 : ODSEL LEKTRONİK 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 : 38

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 mühürsüz raporlar geçersizdir. Bu rapor , sadece deneyiyapılan numune için geçerlidir ve "Ürün Belgesi" yerine geçmez.

This test report shall not be reproduced other than in fill 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**

Kullanılan Cihaz/EquipmentUsed.....:	NFMS Goniophotometer LabSphere Sphere System
Uygulanan Standart-Metot/Applied Standard-Method.....:	TS EN13032-1:2004 +A1:2012LightandLighting – Measurementand Presentation of Photometric Data of Lampsand Luminaires-Part1: Measurementand File.
Deney Ortam Şartları/ExperimentalAmbientConditions.....:	25°C ±5°C, 35%RH±5%RH
Armatüre Uygulanan Gerilim / AppliedVoltage.....:	220V
Armatür Markası-Üretici /LuminaireBrand-Producer.....:	ODSEL ELEKTRONİK
Armatür Kodu-Modeli / LuminaireCode-Model.....:	3600-407-KR40FNN
Armatür Lamba Tipi-açıklama/Lamptype-description of Luminaire.....:	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.....:	27,5 W
Armatürün Ölçülen Işık Akısı /Measured Luminous Flux of Luminaire.....:	3198 lm (Effective Value)
Lamba Katalog Işık Akısı / Lamp Catalog Luminous Flux.....:	--
Armatür verimliliği (lm/Watt) / Luminous efficacy.....:	116,29 lm/Watt
Armatür Geri Verim (LOR)% / Luminous efficacy %.....:	--

FOTOMETRİK ÖLÇÜM BELİRSİZLİK TABLOSU / PHOTOMETRIC MEASUREMENT UNCERTAINTY BUDGET

Deneysel/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



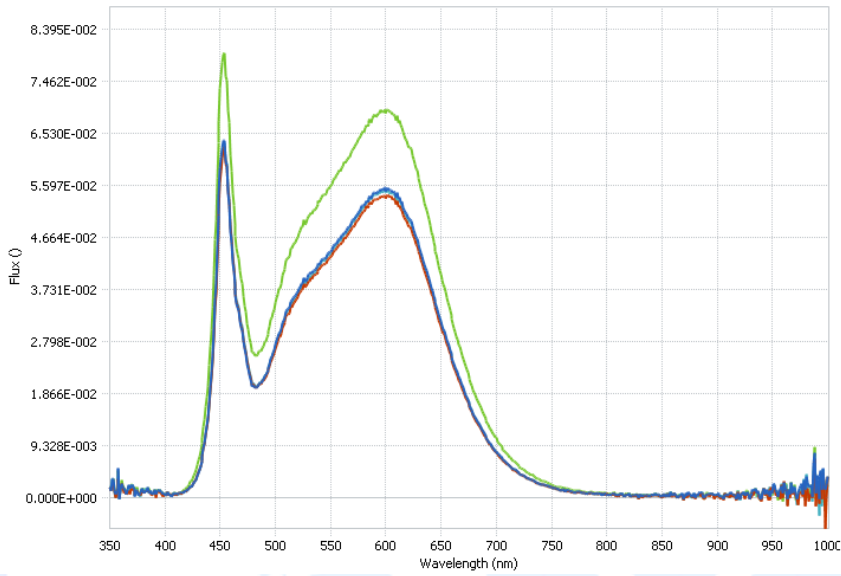
MUAYENE – DENEY SONUÇLARI / TEST RESULTS**Fotometrik Ölçümler / Photometric measurements**

Derived Data

Parameter	Scan 3
Date/Time	06.07.2015 17:15
Radiant Flux (Watts)	10,10
Luminous Flux (lumens)	3198,00
Scotopic Luminous Flux (lm')	5550,00
Chromaticity x coord	0,3818
Chromaticity y coord	0,3777
Chromaticity u coord	0,2256
Chromaticity v coord	0,3348
Delta uv	0
Chromaticity u' coord	0,2256
Chromaticity v' coord	0,5022
Peak Wavelength (nm)	453,4
Center Wavelength (nm)	456,5
Centroid Wavelength (nm)	569,2
Dominant Wavelength (nm)	579,2
Full Width Half Max Bandwidth (nm)	24,2
Excitation Purity (%)	27,9
Correlated Color Temperature (deg. K)	3968
Correlation	0,0054
Correlation Coefficient	0,000130473
Color Rendering Index Average (RA)	86,25919168
Color Rendering Index (R1)	85,6
Color Rendering Index (R2)	93,2
Color Rendering Index (R3)	96,5
Color Rendering Index (R4)	83,9
Color Rendering Index (R5)	85
Color Rendering Index (R6)	89,5
Color Rendering Index (R7)	87
Color Rendering Index (R8)	69,4
Color Rendering Index (R9)	24,4
Color Rendering Index (R10)	82,8
Color Rendering Index (R11)	83,3
Color Rendering Index (R12)	64,2
Color Rendering Index (R13)	87,9
Color Rendering Index (R14)	98,6

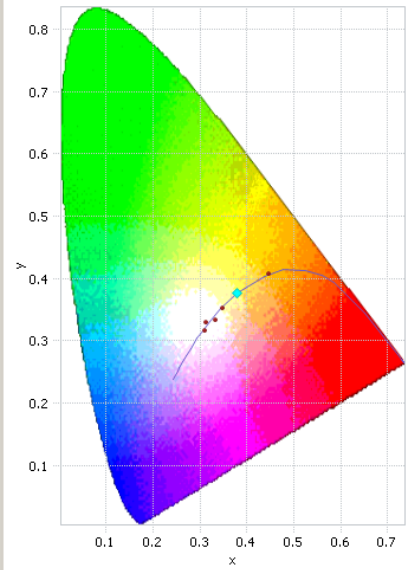
MUAYENE – DENEY SONUÇLARI / TEST RESULTS

▼ SPECTRAL FLUX GRAPH:



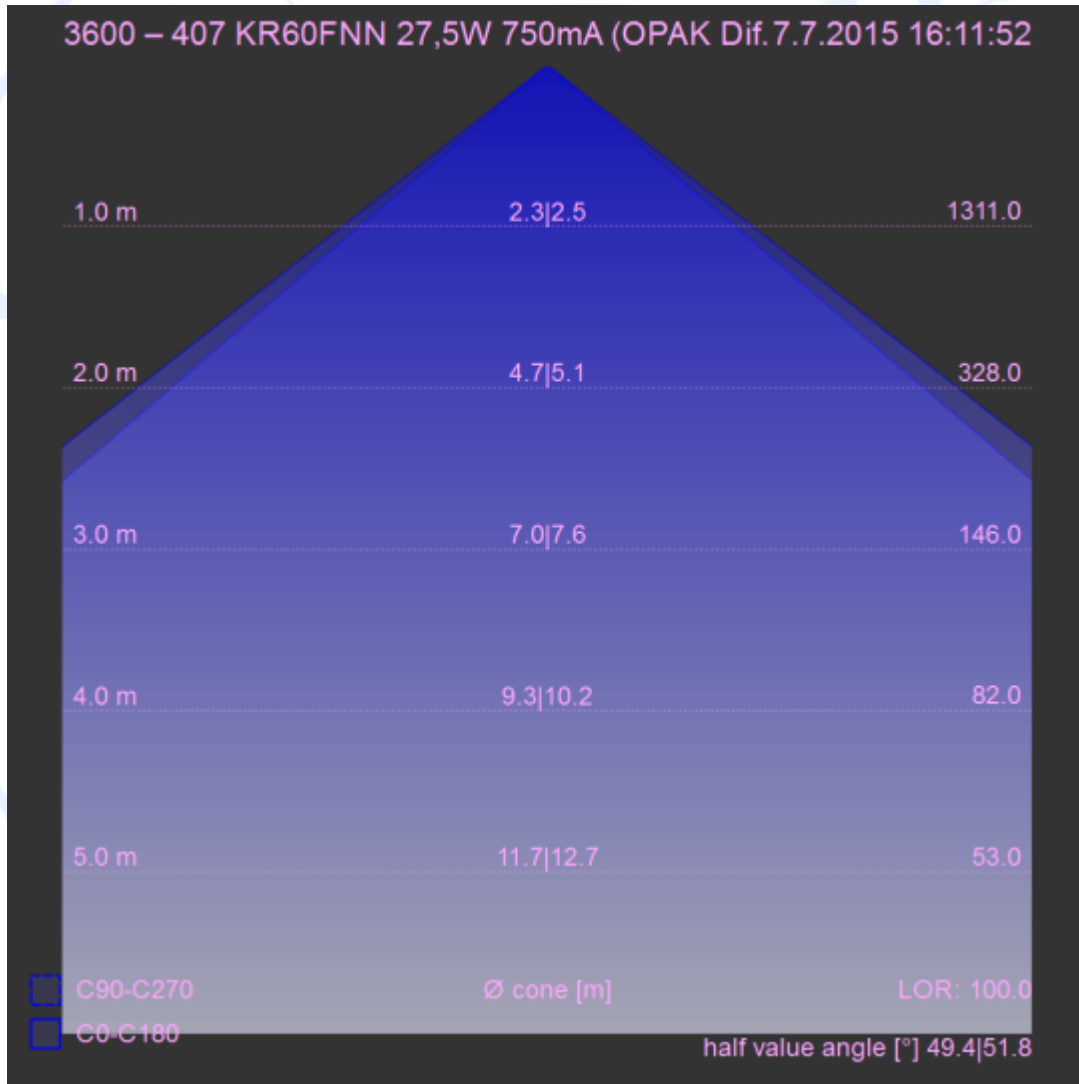
▼ CHROMATICITY DIAGRAM:

CIE 1931, 2 Degree



MUAYENE – DENEY SONUÇLARI / TEST RESULTS

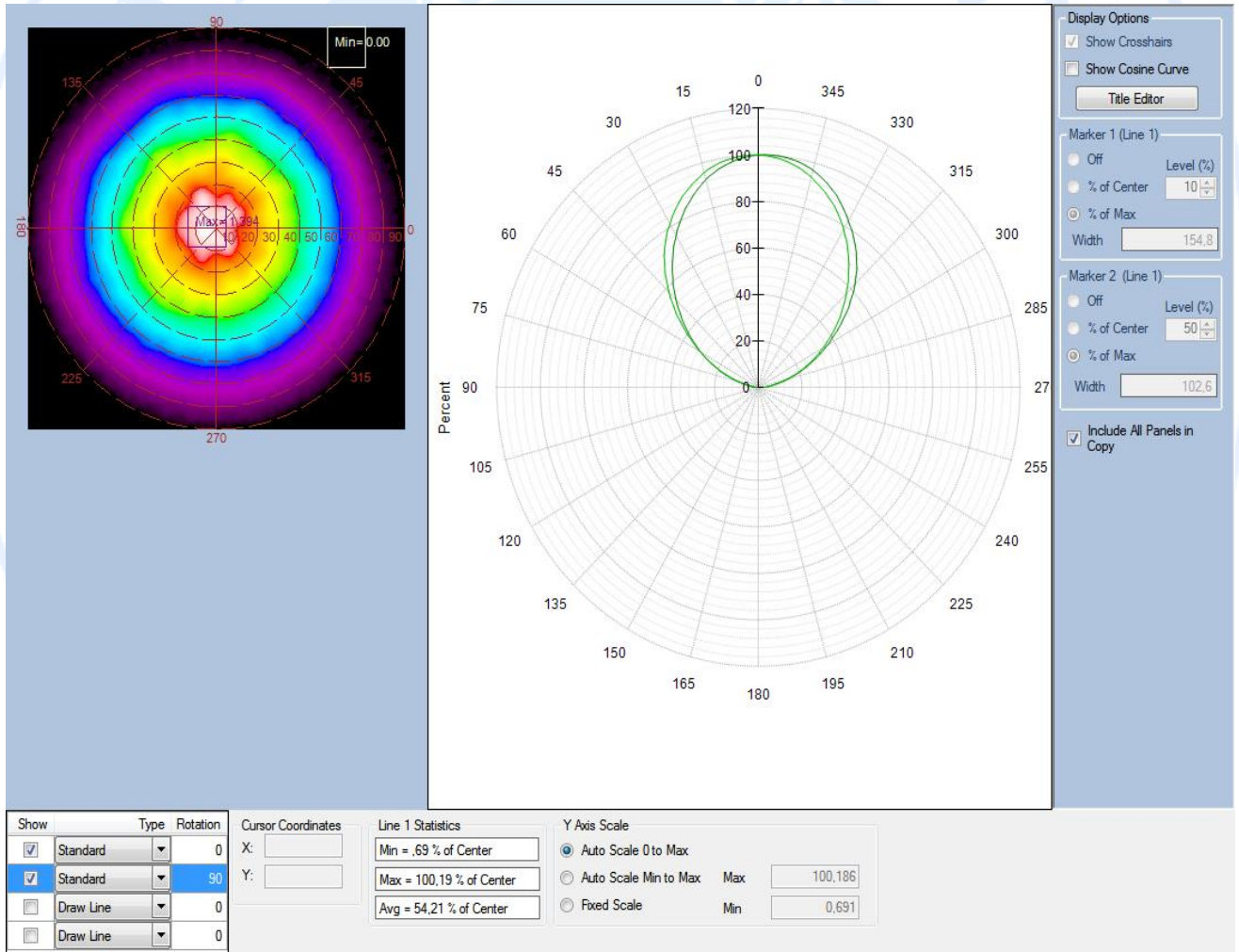
Cone Diagram ;



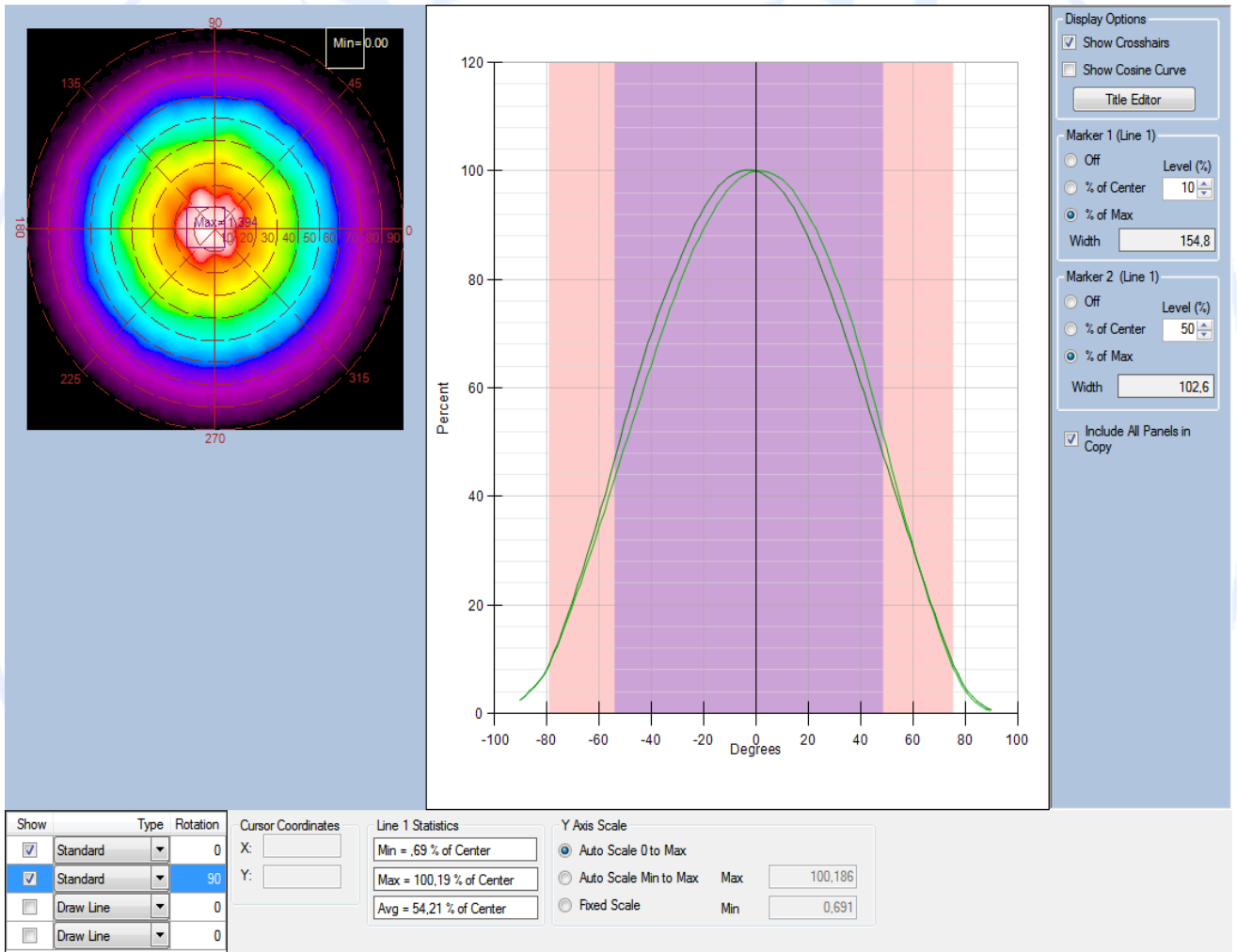
İSTANBUL AYDIN ÜNİVERSİTESİ AYDINLATMA TEST-ÖLÇÜM ve ANALİZ LABORATUARLARI

(ISTANBUL AYDIN UNIVERSITY LIGHTING TEST MEASUREMENT AND ANALYSIS LABORATORIES)

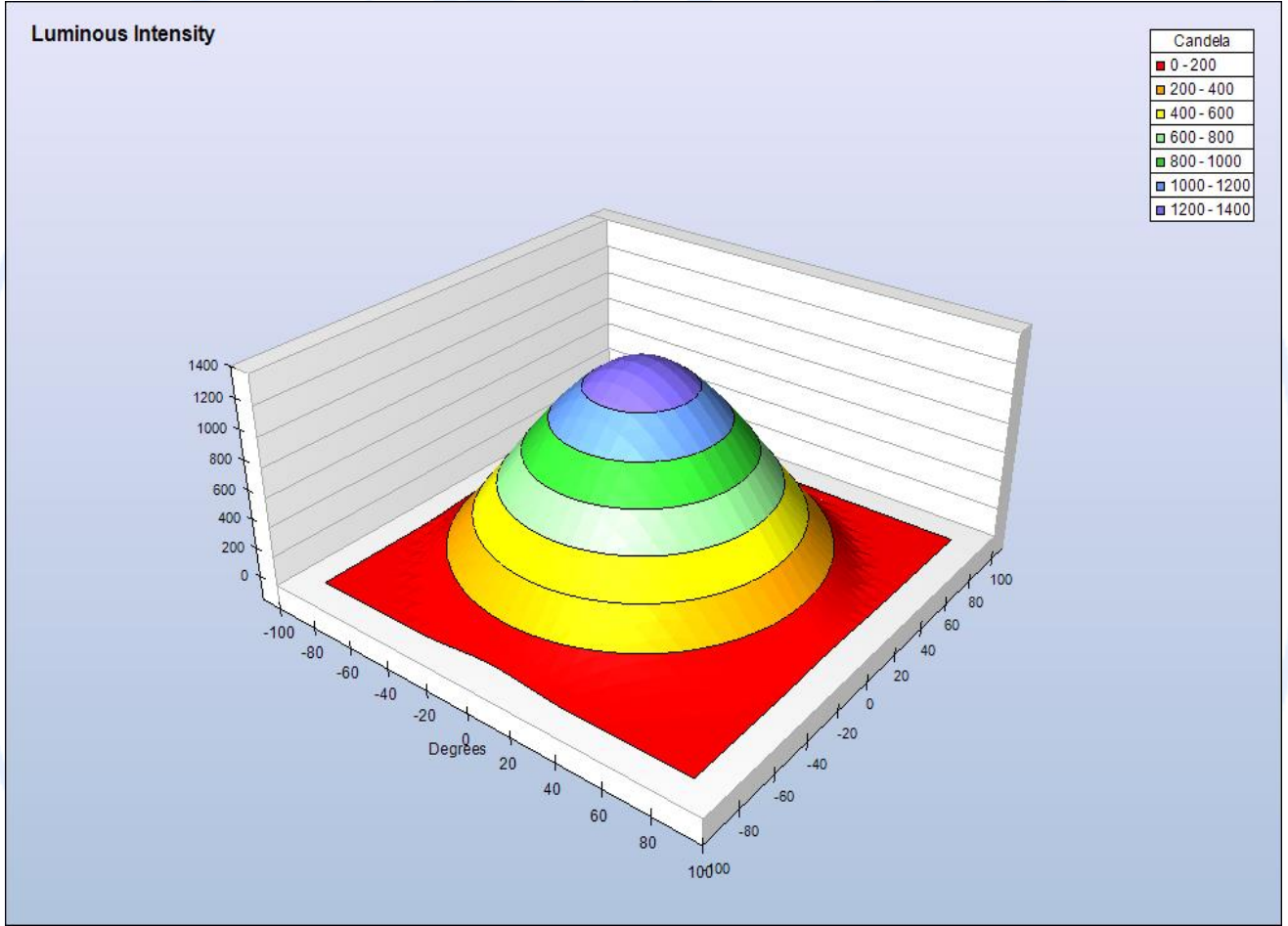
MUAYENE – DENEY SONUÇLARI / TEST RESULTS



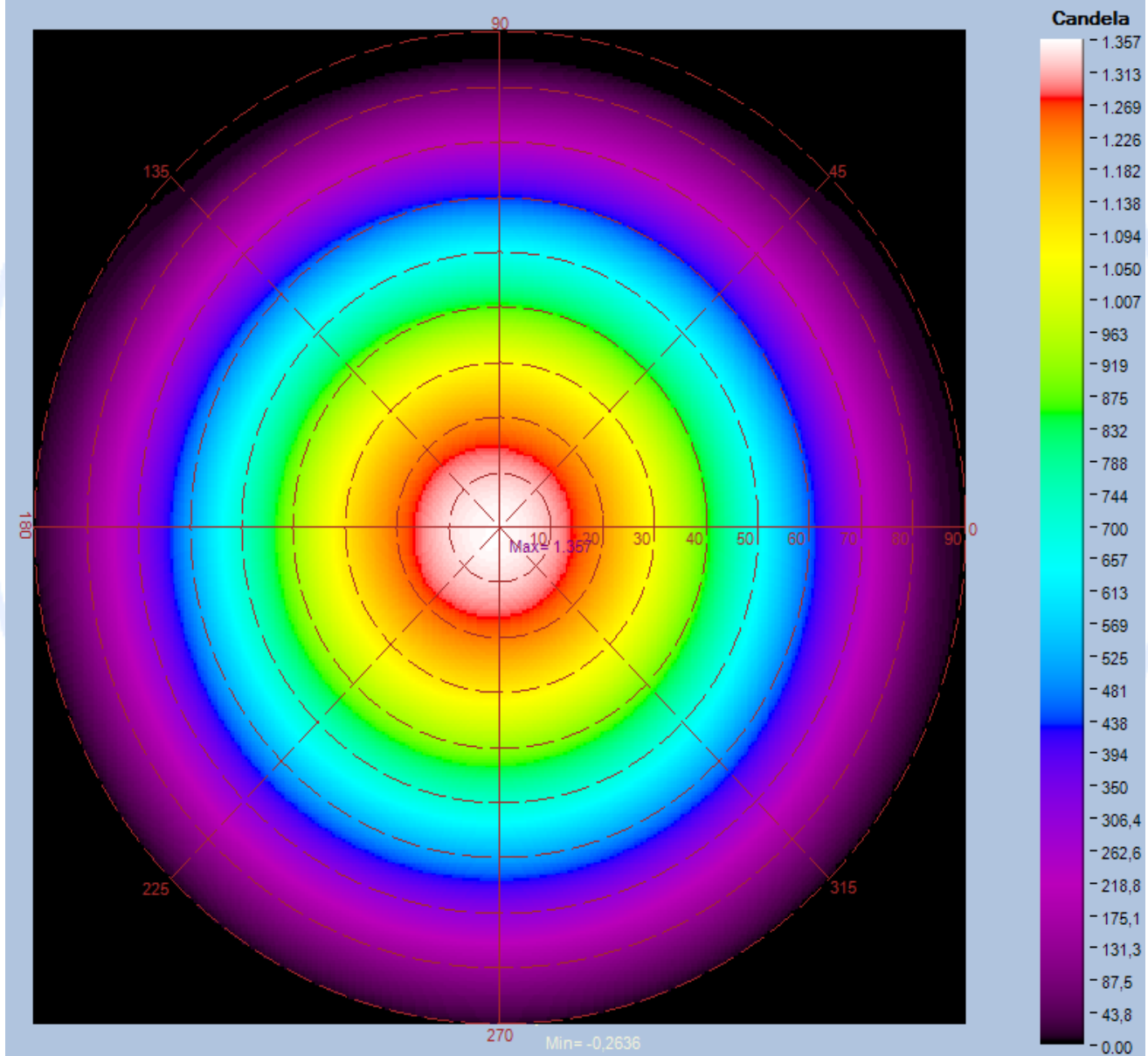
MUAYENE – DENEY SONUÇLARI / TEST RESULTS



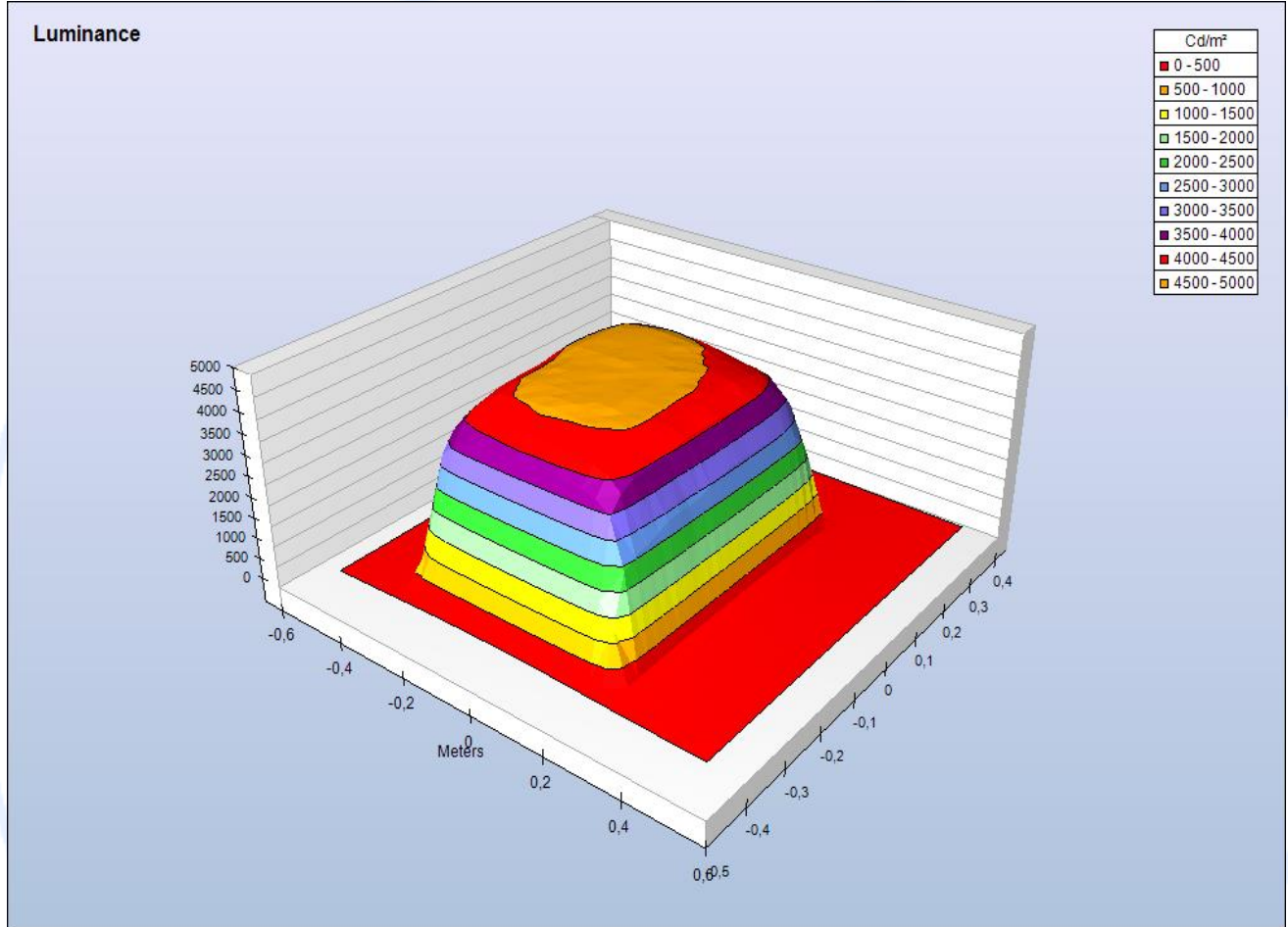
MUAYENE – DENEY SONUÇLARI / TEST RESULTS



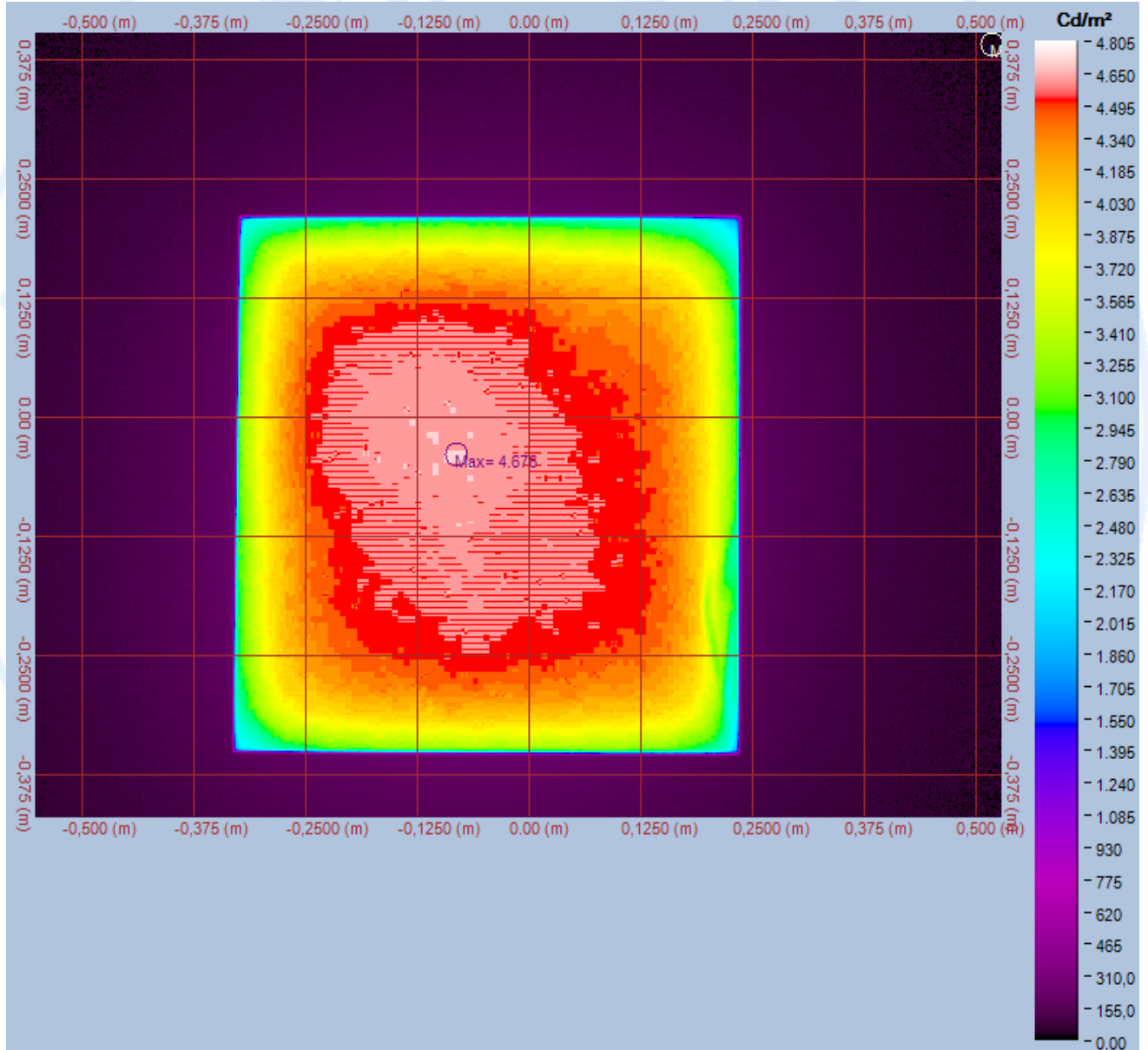
MUAYENE – DENEY SONUÇLARI / TEST RESULTS



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**FOTOMETRİK ÖLÇÜM SONUÇLARI****PHOTOMETRIC MEASUREMEN RESULTS**

Kullanılan Cihaz/EquipmentUsed.....:	NFMS Goniophotometer LabSphere Sphere System
Uygulanan Standart-Metot/Applied Standard-Method.....:	TS EN13032-1:2004 +A1:2012LightandLighting – Measurementand Presentation of Photometric Data of Lampsand Luminaires-Part1: Measurementand File.
Deney Ortam Şartları/ExperimentalAmbientConditions.....:	25°C ±5°C, 35%RH±5%RH
Armatüre Uygulanan Gerilim / AppliedVoltage.....:	220V
Armatür Markası-Üretici /LuminaireBrand-Producer.....:	ODSEL ELEKTRONİK
Armatür Kodu-Modeli / LuminaireCode-Model.....:	3600-407-KR40TNN
Armatür Lamba Tipi-açıklama/Lamptype-description of Luminaire.....:	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.....:	27,5 W
Armatürün Ölçülen Işık Akısı /MeasuredLuminousFlux of Luminaire.....:	3147 lm (Effective Value)
Lamba Katalog Işık Akısı / LampCatalogLuminousFlux.....:	--
Armatür verimliliği (lm/Watt) / Luminousefficacy.....:	114,43 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



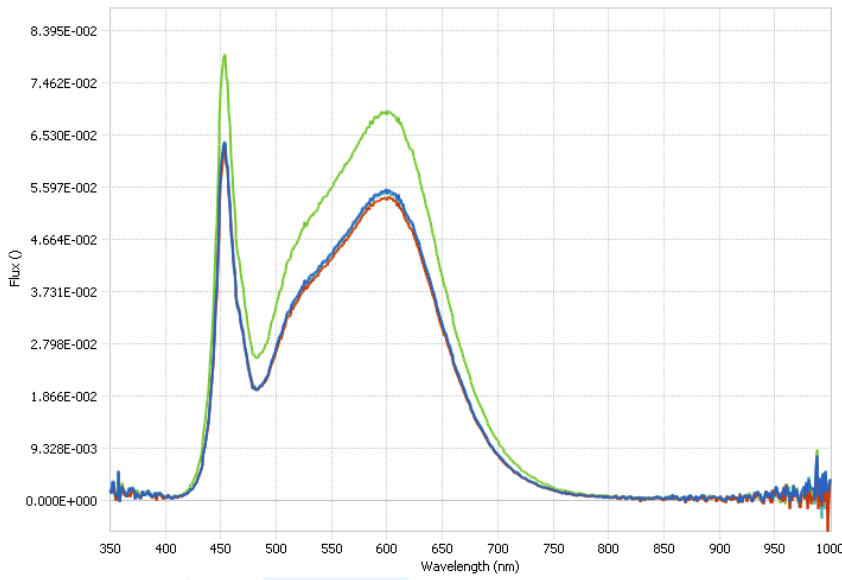
MUAYENE – DENEY SONUÇLARI / TEST RESULTS**Fotometrik Ölçümler / Photometric measurements**

Derived Data

Parameter	Scan 2
Date/Time	06.07.2015 16:55
Radiant Flux (Watts)	9,91
Luminous Flux (lumens)	3147,00
Scotopic Luminous Flux (lm')	5467,00
Chromaticity x coord	0,3816
Chromaticity y coord	0,3775
Chromaticity u coord	0,2256
Chromaticity v coord	0,3347
Delta uv	0
Chromaticity u' coord	0,2256
Chromaticity v' coord	0,5021
Peak Wavelength (nm)	453,5
Center Wavelength (nm)	456,6
Centroid Wavelength (nm)	568,2
Dominant Wavelength (nm)	579,2
Full Width Half Max Bandwidth (nm)	24,2
Excitation Purity (%)	27,8
Correlated Color Temperature (deg. K)	3972
Correlation	0,0054
Correlation Coefficient	0,000140366
Color Rendering Index Average (RA)	86,24788821
Color Rendering Index (R1)	85,6
Color Rendering Index (R2)	93,2
Color Rendering Index (R3)	96,5
Color Rendering Index (R4)	83,9
Color Rendering Index (R5)	85
Color Rendering Index (R6)	89,5
Color Rendering Index (R7)	87
Color Rendering Index (R8)	69,3
Color Rendering Index (R9)	24,3
Color Rendering Index (R10)	82,8
Color Rendering Index (R11)	83,3
Color Rendering Index (R12)	64,2
Color Rendering Index (R13)	87,9
Color Rendering Index (R14)	98,6

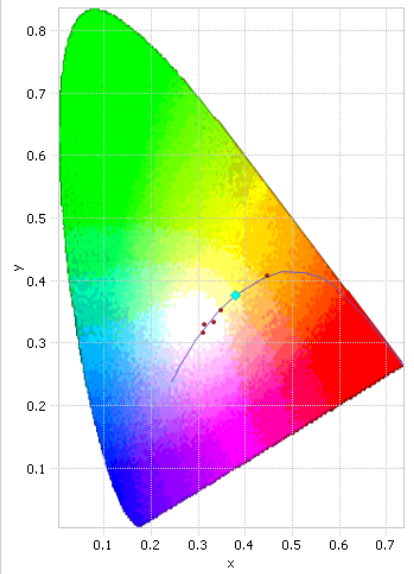
MUAYENE – DENEY SONUÇLARI / TEST RESULTS

▼ SPECTRAL FLUX GRAPH:



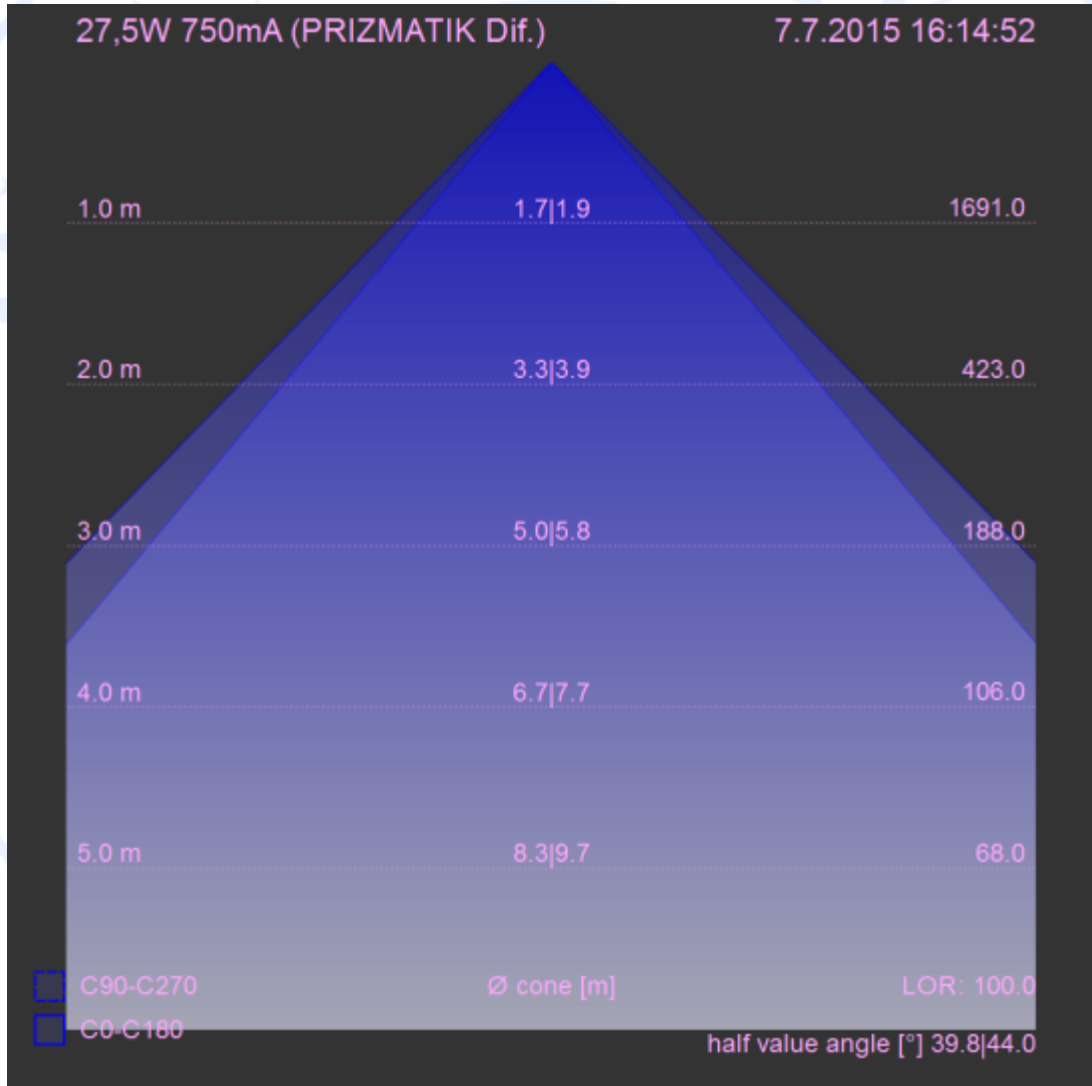
▼ CHROMATICITY DIAGRAM:

CIE 1931, 2 Degree

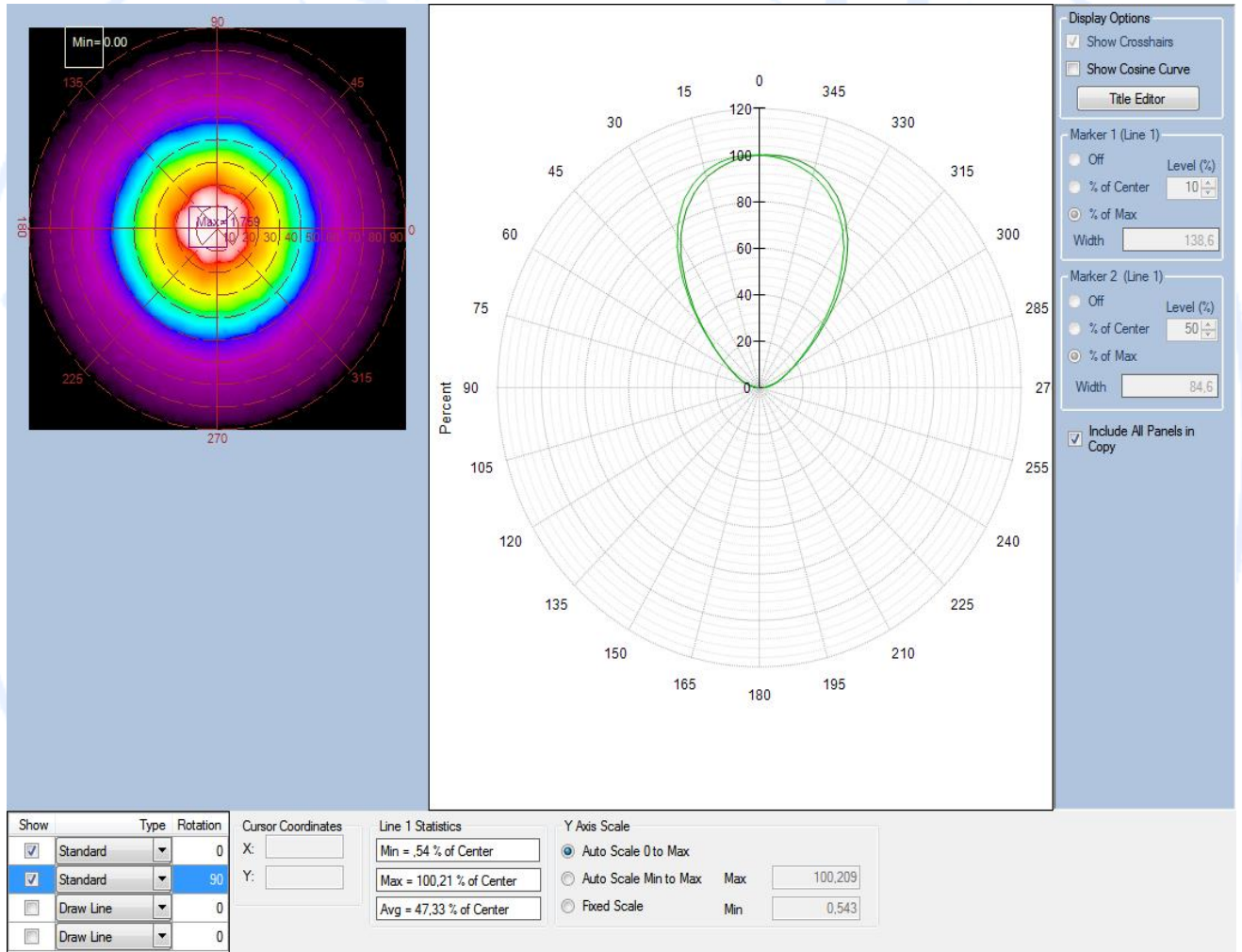


MUAYENE – DENEY SONUÇLARI / TEST RESULTS

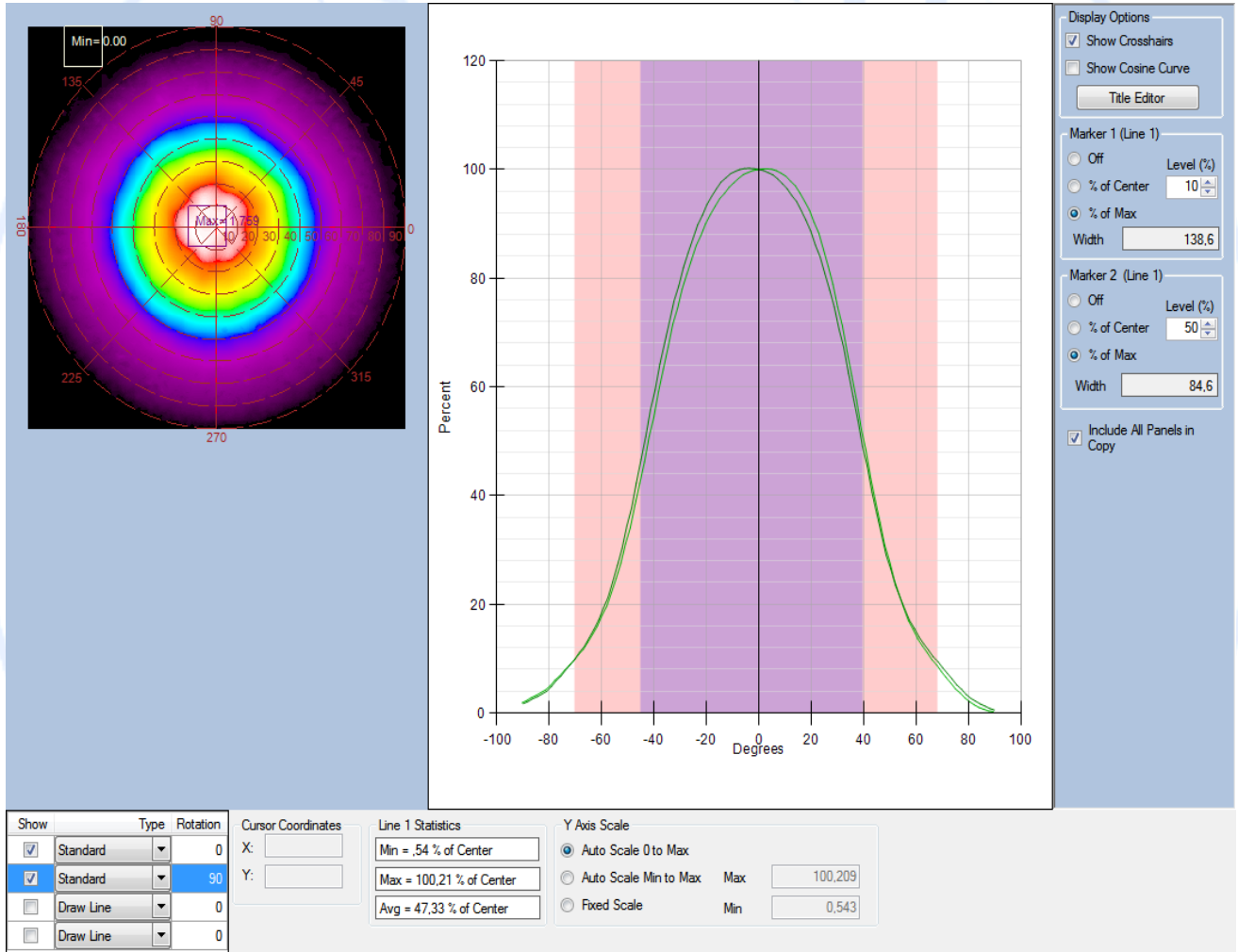
Cone Diagram ;



MUAYENE – DENEY SONUÇLARI / TEST RESULTS



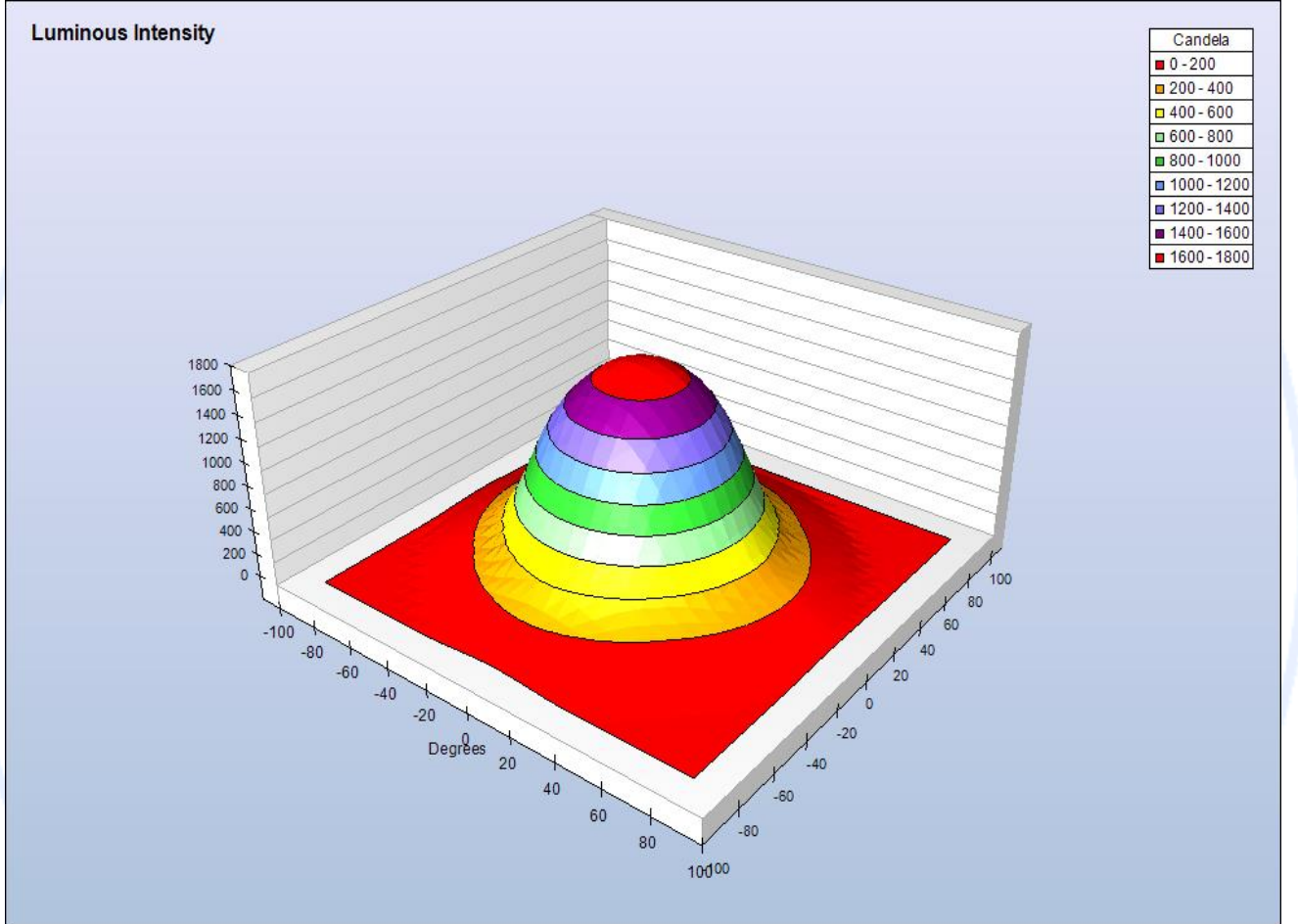
MUAYENE – DENEY SONUÇLARI / TEST RESULTS



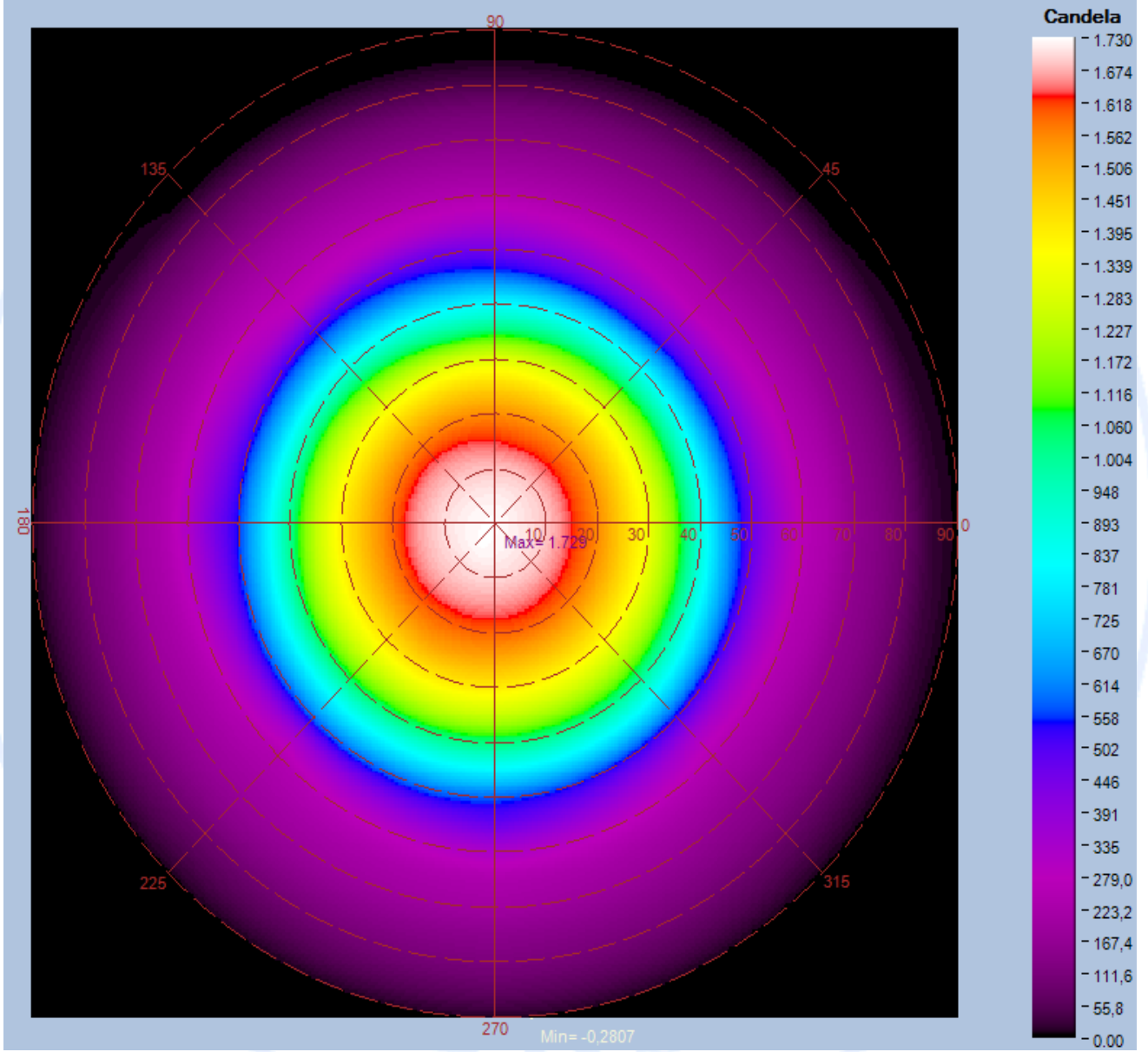
İSTANBUL AYDIN ÜNİVERSİTESİ AYDINLATMA TEST-ÖLÇÜM ve ANALİZ LABORATUARLARI

(ISTANBUL AYDIN UNIVERSITY LIGHTING TEST MEASUREMENT AND ANALYSIS LABORATORIES)

MUAYENE – DENEY SONUÇLARI / TEST RESULTS



MUAYENE – DENEY SONUÇLARI / TEST RESULTS

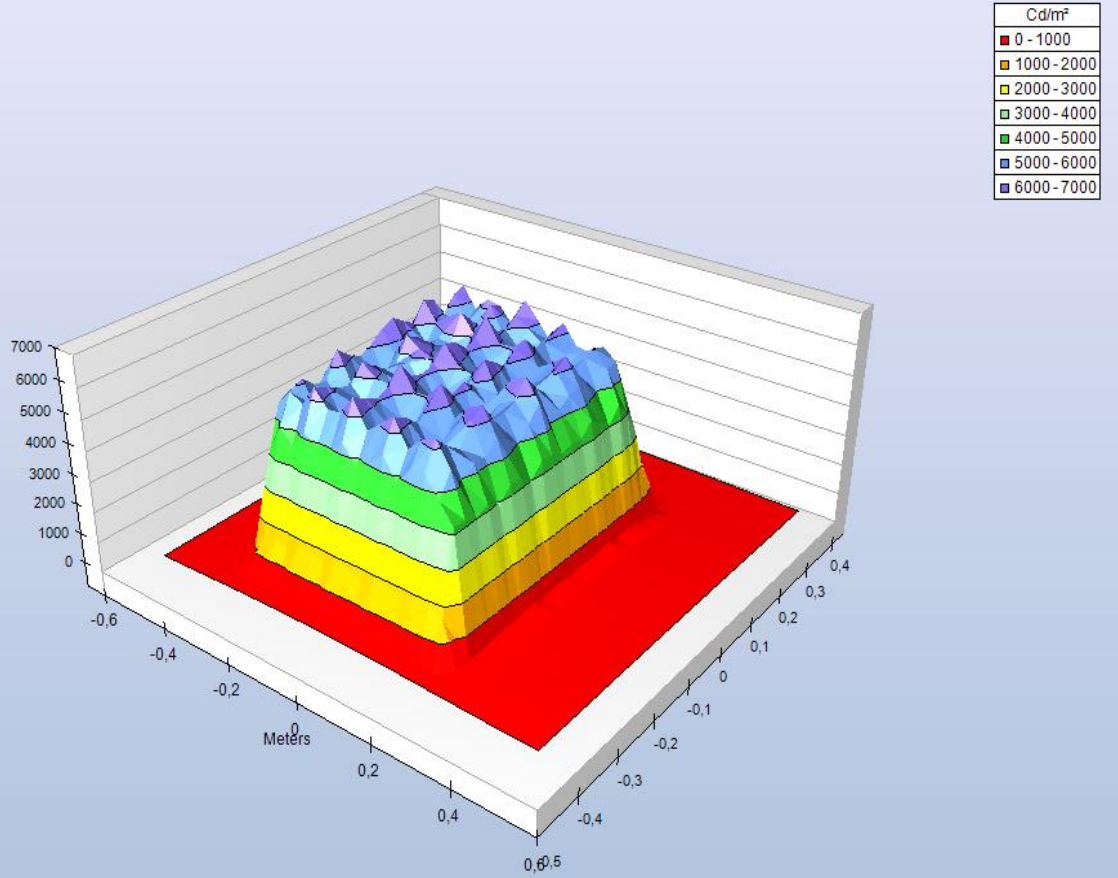


İSTANBUL AYDIN ÜNİVERSİTESİ AYDINLATMA TEST-ÖLÇÜM ve ANALİZ LABORATUARLARI

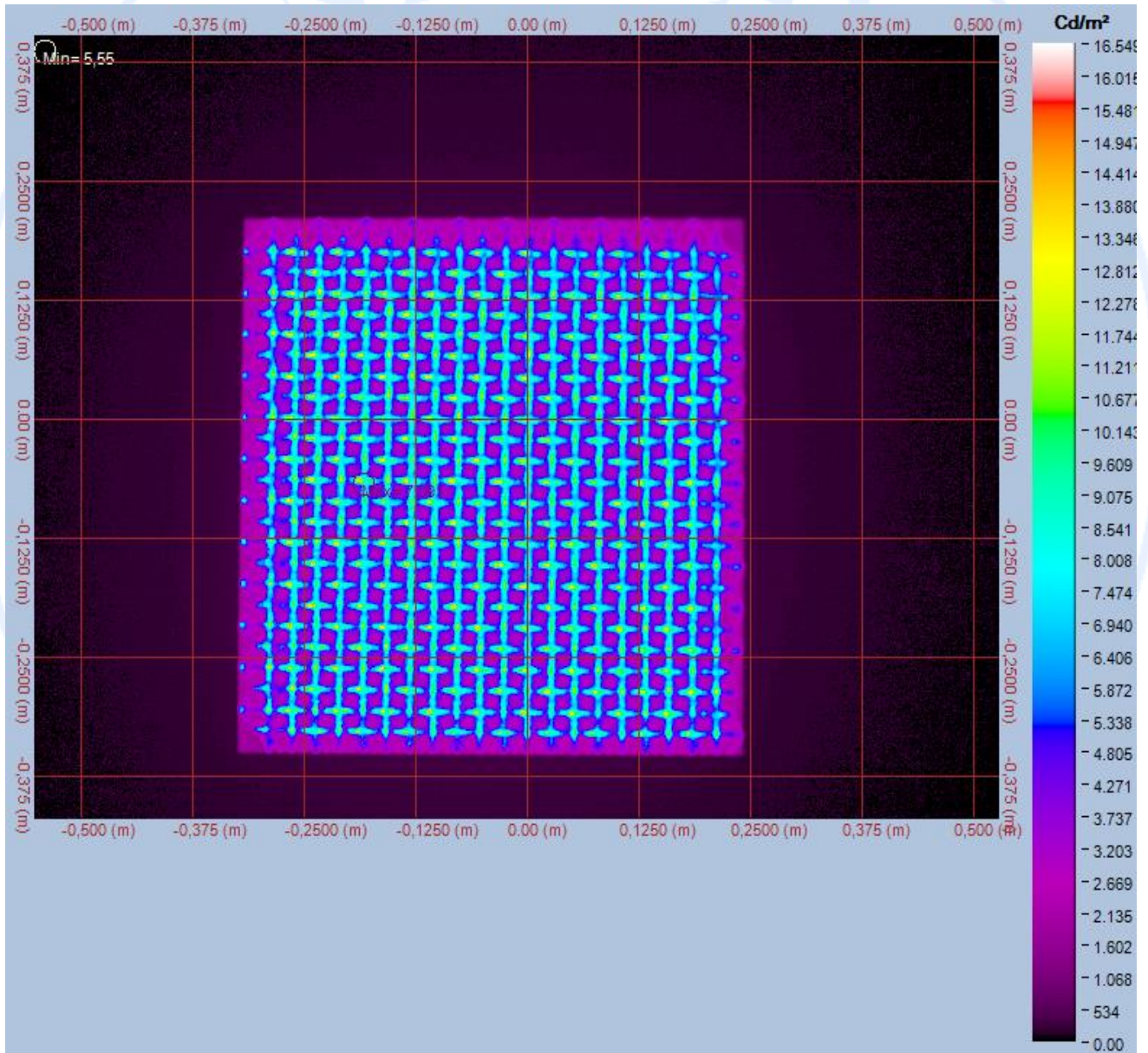
(ISTANBUL AYDIN UNIVERSITY LIGHTING TEST MEASUREMENT AND ANALYSIS LABORATORIES)

MUAYENE – DENEY SONUÇLARI / TEST RESULTS

Luminance



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**

Kullanılan Cihaz/EquipmentUsed.....:	NFMS Goniophotometer LabSphere Sphere System
Uygulanan Standart-Metot/Applied Standard-Method.....:	TS EN13032-1:2004 +A1:2012LightandLighting – Measurementand Presentation of Photometric Data of Lampsand Luminaires-Part1: Measurementand File.
Deney Ortam Şartları/ExperimentalAmbientConditions.....:	25°C ±5°C, 35%RH±5%RH
Armatüre Uygulanan Gerilim / AppliedVoltage.....:	220V
Armatür Markası-Üretici /LuminaireBrand-Producer.....:	ODSEL ELEKTRONİK
Armatür Kodu-Modeli / LuminaireCode-Model.....:	3600-410-KR40FNN
Armatür Lamba Tipi-açıklama/Lamptype-description of Luminaire.....:	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.....:	38 W
Armatürün Ölçülen Işık Akısı /MeasuredLuminousFlux of Luminaire.....:	4065 lm (Effective Value)
Lamba Katalog Işık Akısı / LampCatalogLuminousFlux.....:	--
Armatür verimliliği (lm/Watt) / Luminousefficacy.....:	106,97 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



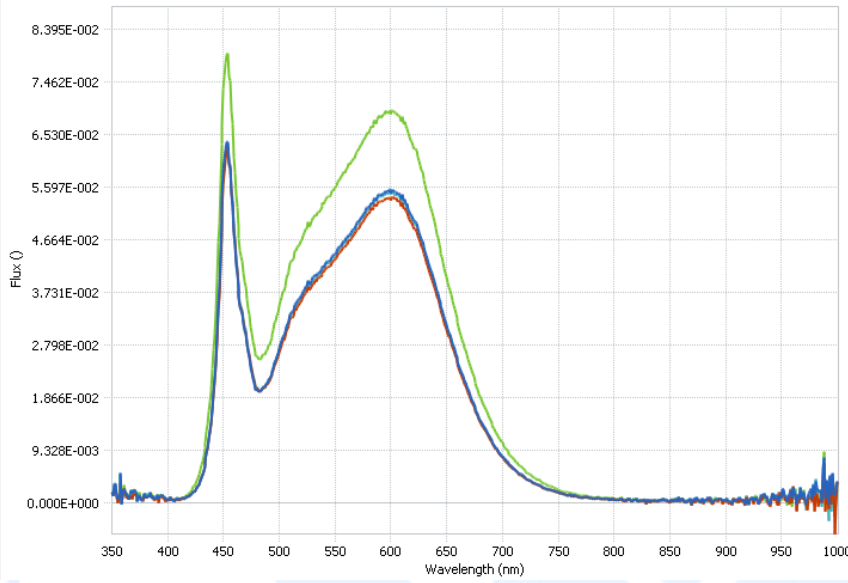
MUAYENE – DENEY SONUÇLARI / TEST RESULTS**Fotometrik Ölçümler / Photometric measurements**

Derived Data

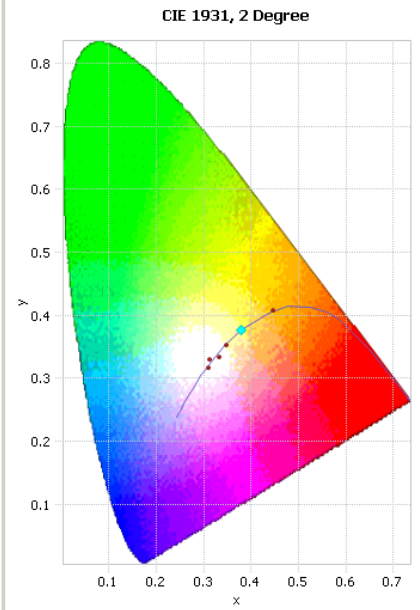
Parameter	Scan 4
Date/Time	06.07.2015 17:44
Radiant Flux (Watts)	12,88
Luminous Flux (lumens)	4065,00
Scotopic Luminous Flux (lm')	7091,00
Chromaticity x coord	0,3805
Chromaticity y coord	0,3766
Chromaticity u coord	0,2252
Chromaticity v coord	0,3343
Delta uv	0,0001
Chromaticity u' coord	0,2252
Chromaticity v' coord	0,5015
Peak Wavelength (nm)	453,1
Center Wavelength (nm)	456,3
Centroid Wavelength (nm)	568,6
Dominant Wavelength (nm)	579,1
Full Width Half Max Bandwidth (nm)	24,7
Excitation Purity (%)	27,2
Correlated Color Temperature (deg. K)	3994
Correlation	0,0054
Correlation Coefficient	0,000171261
Color Rendering Index Average (RA)	86,66851415
Color Rendering Index (R1)	86
Color Rendering Index (R2)	93,3
Color Rendering Index (R3)	96,5
Color Rendering Index (R4)	84,6
Color Rendering Index (R5)	85,4
Color Rendering Index (R6)	89,6
Color Rendering Index (R7)	87,5
Color Rendering Index (R8)	70,4
Color Rendering Index (R9)	26,6
Color Rendering Index (R10)	82,8
Color Rendering Index (R11)	84,1
Color Rendering Index (R12)	64,9
Color Rendering Index (R13)	88,2
Color Rendering Index (R14)	98,6

MUAYENE – DENEY SONUÇLARI / TEST RESULTS

▼ SPECTRAL FLUX GRAPH:

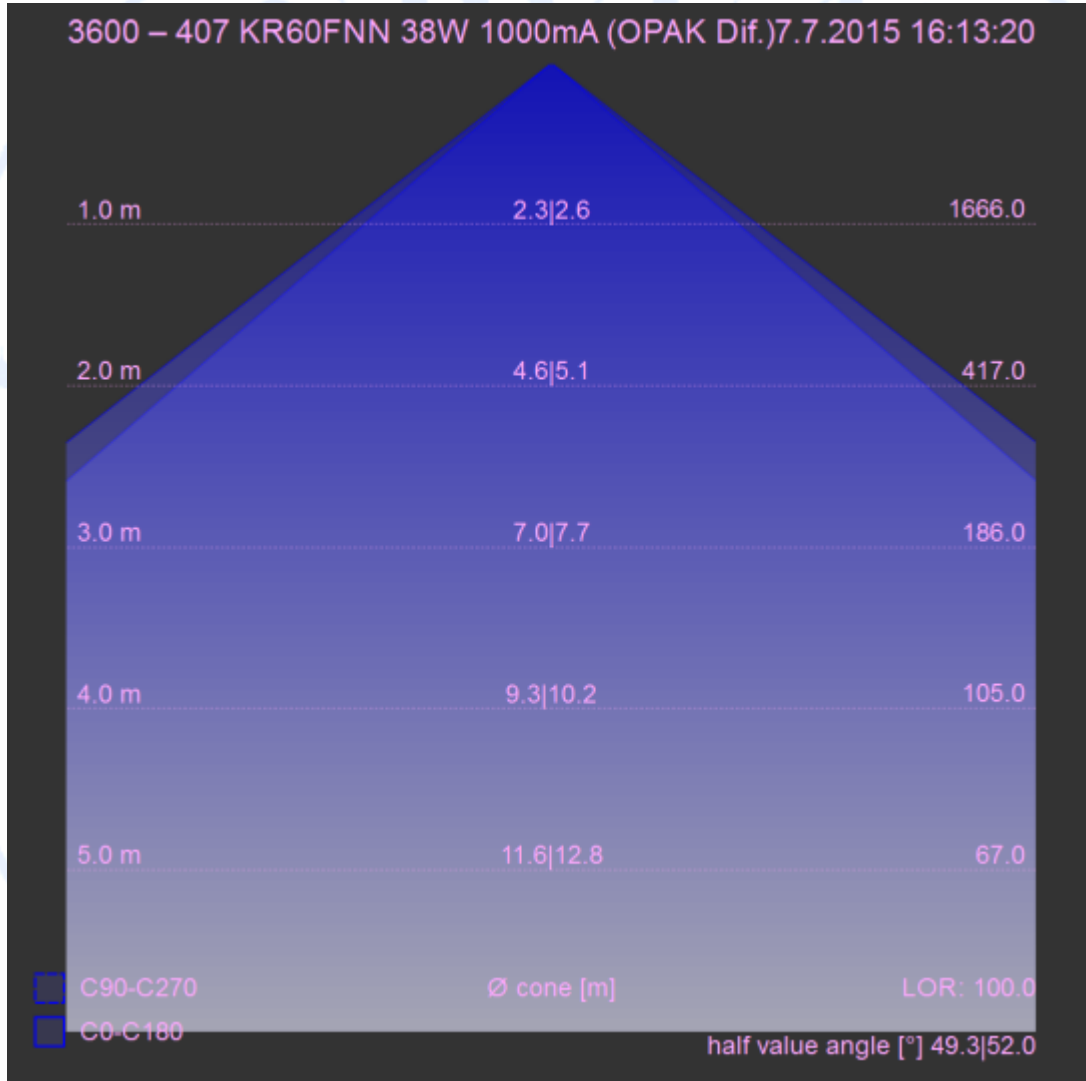


▼ CHROMATICITY DIAGRAM:

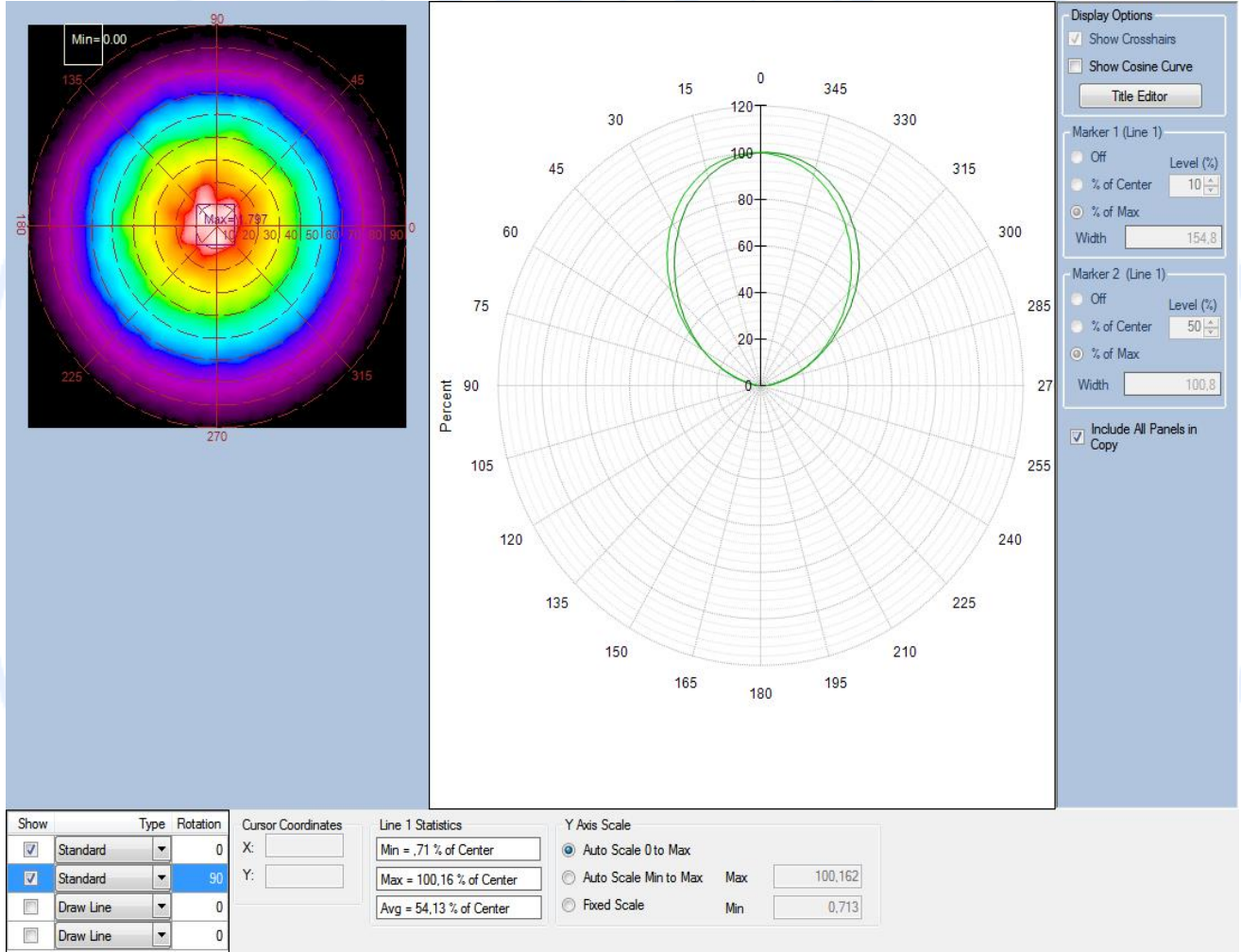


MUAYENE – DENEY SONUÇLARI / TEST RESULTS

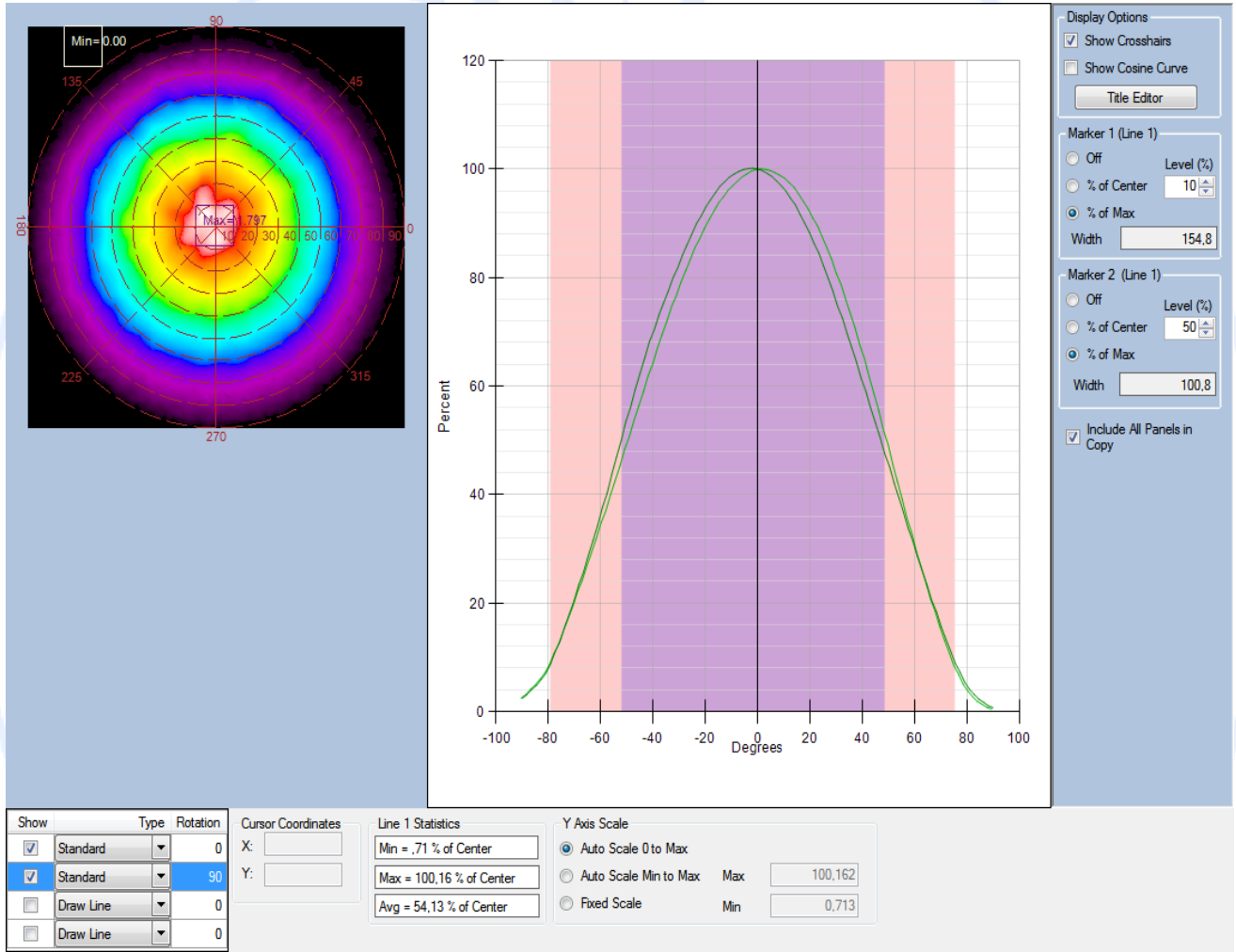
Cone Diagram ;



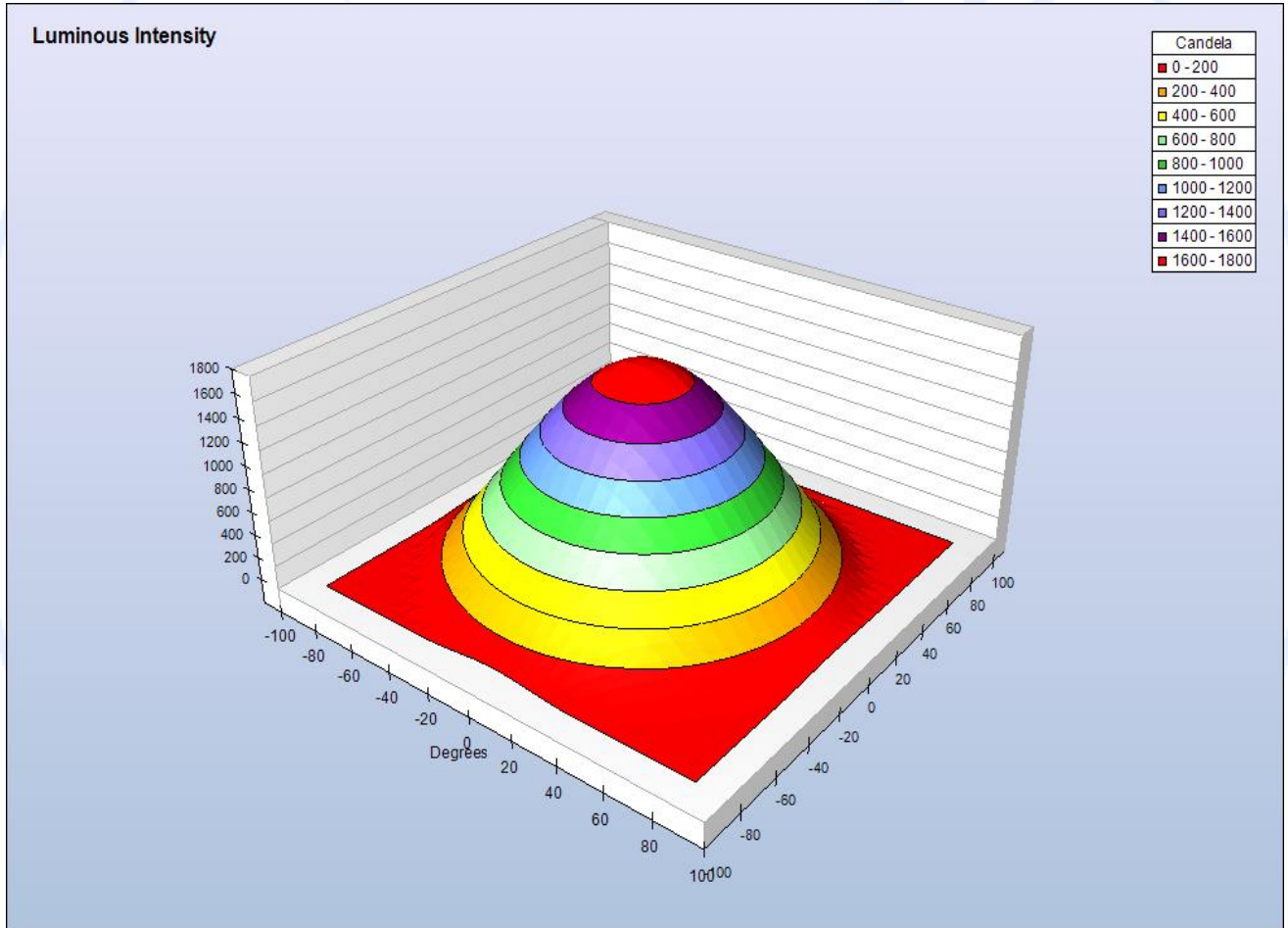
MUAYENE – DENEY SONUÇLARI / TEST RESULTS



MUAYENE – DENEY SONUÇLARI / TEST RESULTS



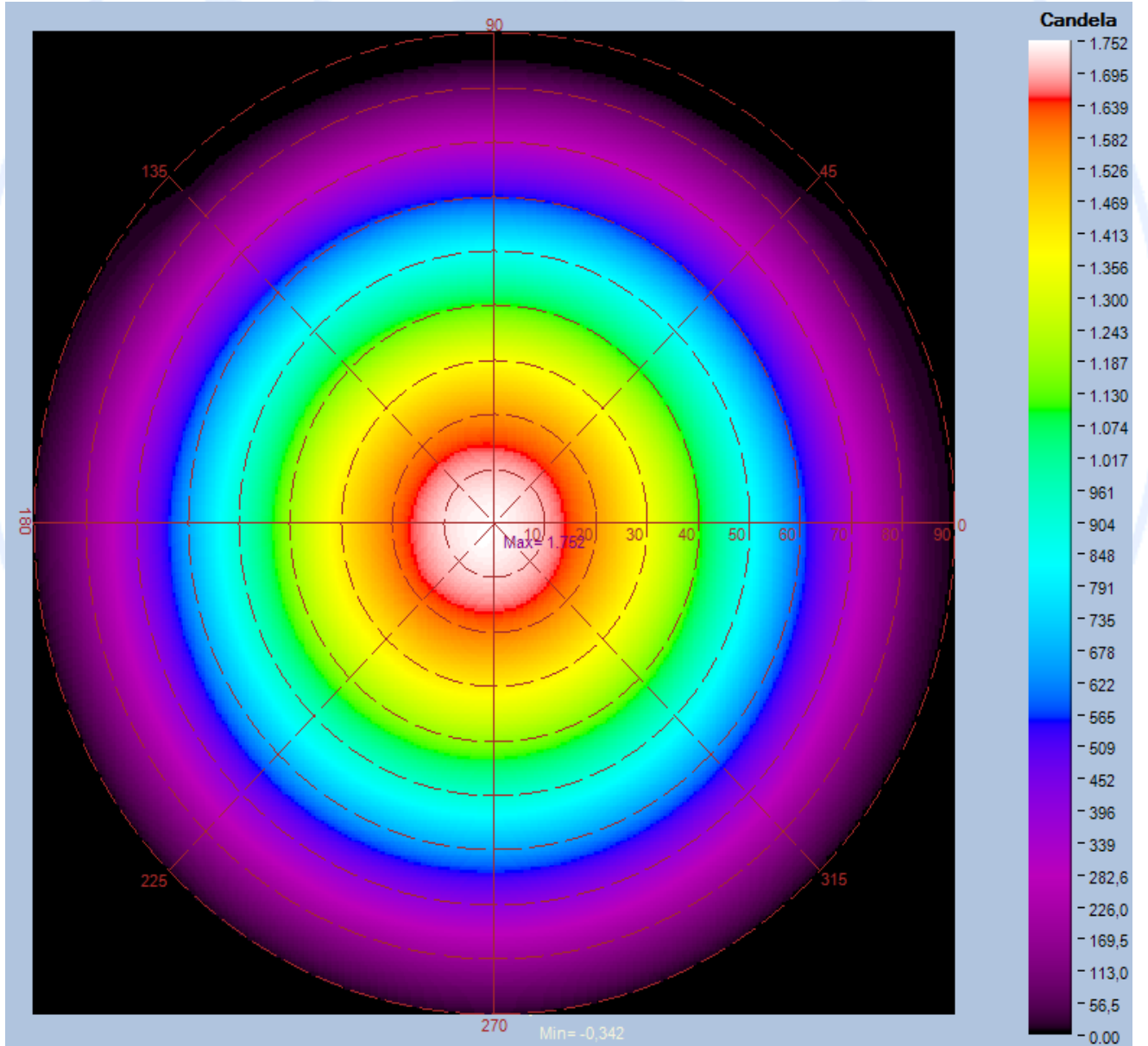
MUAYENE – DENEY SONUÇLARI / TEST RESULTS



İSTANBUL AYDIN ÜNİVERSİTESİ AYDINLATMA TEST-ÖLÇÜM ve ANALİZ LABORATUARLARI

(ISTANBUL AYDIN UNIVERSITY LIGHTING TEST MEASUREMENT AND ANALYSIS LABORATORIES)

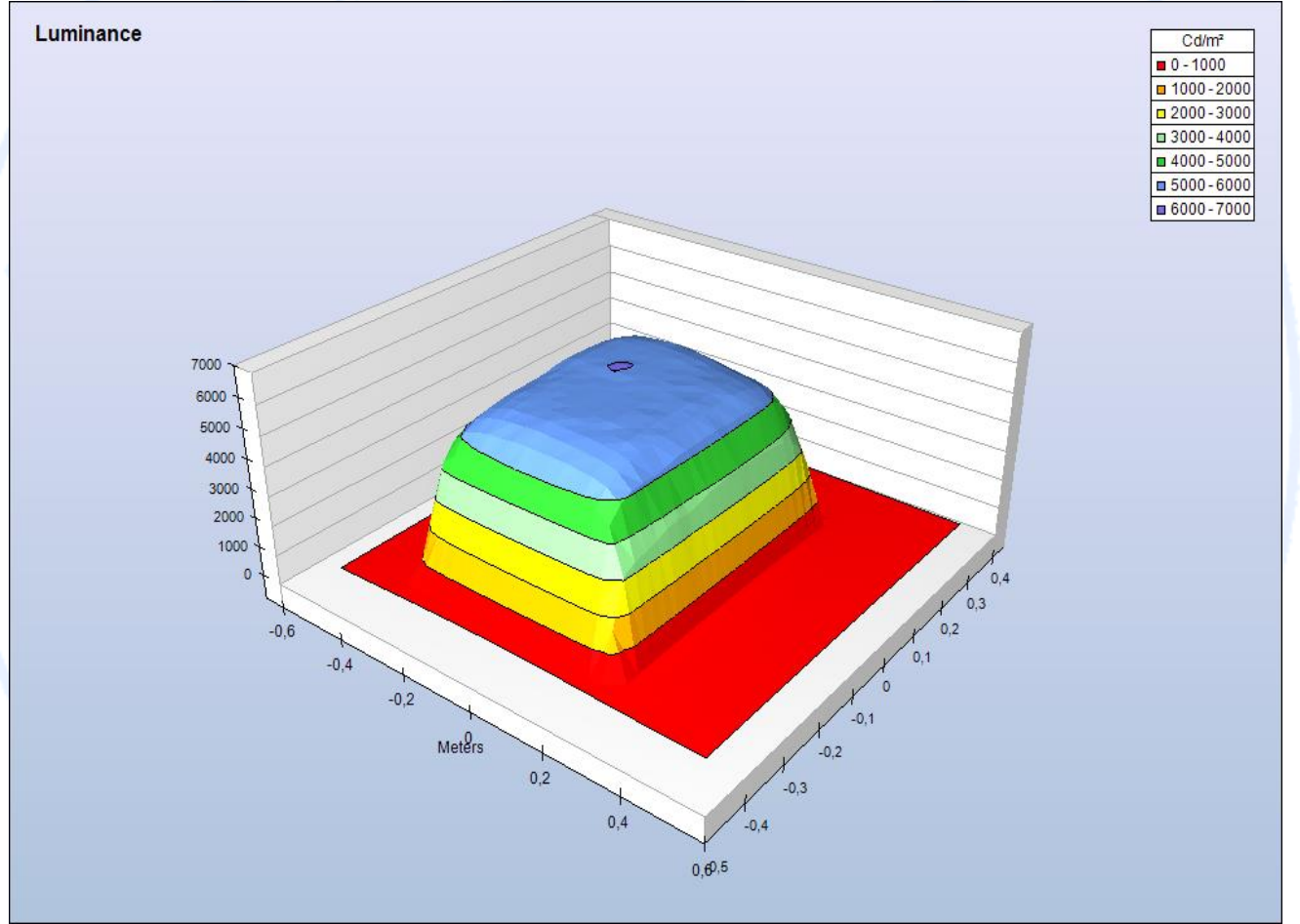
MUAYENE – DENEY SONUÇLARI / TEST RESULTS



İSTANBUL AYDIN ÜNİVERSİTESİ AYDINLATMA TEST-ÖLÇÜM ve ANALİZ LABORATUARLARI

(ISTANBUL AYDIN UNIVERSITY LIGHTING TEST MEASUREMENT AND ANALYSIS LABORATORIES)

MUAYENE – DENEY SONUÇLARI / TEST RESULTS



İSTANBUL AYDIN ÜNİVERSİTESİ AYDINLATMA TEST-ÖLÇÜM ve ANALİZ LABORATUARLARI

(ISTANBUL AYDIN UNIVERSITY LIGHTING TEST MEASUREMENT AND ANALYSIS LABORATORIES)

MUAYENE – DENEY SONUÇLARI / TEST RESULTS

