

ETICS-CoA-015-2018



ETICS *European Testing Inspection and Certification System*

CERTIFICATE OF ACCEPTANCE

EZU – Elektrotechnický zkušební ústav, s.p

Pod Lisem 129, 171 02 Praha 8 – Troja Czech Republic

has been assessed and determined to fully comply with the requirements of EN-ISO/IEC 17065, PD ECS 050 and the Rules of Procedure relevant to the European Schemes for which the responsible CB is member.

EZU Elektrotechnický zkušební ústav, s.p

is therefore entitled to operate as Certification Body within the European Schemes ENEC, ENEC+, HAR, CCA, CCA-EMC and KMK for the Scope (Product Category(ies) and Standard(s)) as listed in the relevant part of the ETICS Web Site at

www.etics.org.

This certificate remains valid until 24th January 2021, at which time it will be reissued by the ETICS Secretary General upon successful completion of the normally scheduled 3-year Reassessment Programme administered by the ETICS.

Brussels, 14 April 2018

Giancarlo Zappa, Secretary General



Sygnatury EA MLA
EA MLA Signatory

CERTYFIKAT AKREDYTACJI
JEDNOSTKI CERTYFIKUJĄCEJ WYROBY
ACCREDITATION CERTIFICATE FOR PRODUCT CERTIFICATION BODY
Nr AC 005

Potwierdza się, że: / This is to confirm that:

ZAKŁADY BADAŃ I ATESTACJI „ZETOM”
im. Prof. F. Stauba w Katowicach Sp. z o.o.
ZAKŁAD CERTYFIKACJI

ul. Ks. Bpa H. Bednorza 17, 40-384 Katowice

spełnia wymagania normy PN-EN 45011:2000
meets requirements of the PN-EN 45011:2000 standard

Akredytowana działalność jest określona w Zakresie Akredytacji Nr AC 005
Accredited activity is defined in the Scope of Accreditation No AC 005

Akredytacja pozostaje w mocy pod warunkiem przestrzegania
wymagań jednostki akredytującej określonych w kontrakcie Nr AC 005
This accreditation remains in force provided the Body observes
the requirements of Accreditation Body defined in the Contract No AC 005

Certyfikat akredytacji ważny do dnia 21.12.2018 r.
The certificate of accreditation is valid until 21.12.2018

Akredytacji udzielono dnia 22.12.1993 r.
Accreditation was granted on 22.12.1993



DYREKTOR
POLSKIEGO CENTRUM AKREDYTACJI

EUGENIUSZ W. ROGUSKI

ZAKRES AKREDYTACJI JEDNOSTKI CERTYFIKUJĄCEJ WYROBY Nr AC 005

wydany przez
POLSKIE CENTRUM AKREDYTACJI
01-382 Warszawa, ul. Szczotkarska 42

Wydanie nr 16 Data wydania: 11 sierpnia 2015 r.



AC 005

Nazwa i adres jednostki certyfikującej

ZAKŁADY BADAŃ I ATESTACJI „ZETOM”
im. Prof. F. Stauba w Katowicach Sp. z o.o.
ZAKŁAD CERTYFIKACJI
ul. Ks. Bpa H. Bednorza 17
40-384 Katowice

Certyfikacja :

- zgodności wyrobów, kod ICS: **13.220, 23.040, 25.120, 25.140, 25.160, 29.020, 29.140, 29.180, 33.100, 35.020, 53.040, 70.140, 75.200, 77.140, 77.150, 79.060, 83.200, 91.060, 91.140, 97.030, 97.040, 97.100, 97.200**
- wyrobów budowlanych na certyfikat zgodności, decyzje KE: **97/597/WE, 99/472/WE, 2002/359/WE**
- zakładowej kontroli produkcji, decyzje KE: **98/214/WE**

Ocena zgodności w obszarze rozporządzenia Parlamentu Europejskiego i Rady (UE) nr 305/2011 (CPR), decyzje KE: **96/579/WE, 98/214/WE, 99/472/WE**

Wersja strony: A

**KIEROWNIK
DZIAŁU AKREDYTACJI
JEDNOSTEK CERTYFIKUJĄCYCH
I INSPEKCYJNYCH**

KRZYSZTOF WOŹNIAK

Niniejszy dokument jest załącznikiem do Certyfikatu Akredytacji Nr AC 005 z dnia 11.08.2015 r.
Status akredytacji oraz aktualność zakresu akredytacji można potwierdzić na stronie internetowej PCA www.pca.gov.pl

Rodzaj działalności:

CERTYFIKACJA ZGODNOŚCI WYROBÓW

Nazwa wyrobu / grupy wyrobów	Program certyfikacji	Norma / dokument normatywny	ICS
Urządzenia transportu bliskiego ciągłego (taśmy przenośnikowe, części składowe)	PDCWC	PN-EN 12882:2012	13.220 53.040
Rury stalowe i żeliwne	PDCWH	PN-EN 10216-1:2014-02 PN-EN 10216-2:2014-02 PN-EN 10216-3:2014-02 PN-EN 10216-4:2014-02 PN-EN 10216-5:2014-02 PN-EN 10217-1:2004 PN-EN 10217-1:2004/A1:2006 PN-EN 10217-2:2004 PN-EN 10217-2:2004/A1:2006 PN-EN 10217-3:2004 PN-EN 10217-3:2004/A1:2006 PN-EN 10217-4:2004 PN-EN 10217-4:2004/A1:2006 PN-EN 10217-5:2004 PN-EN 10217-5:2004/A1:2006 PN-EN 10217-6:2004 PN-EN 10217-6:2004/A1:2006 PN-EN 10217-7:2014-12	23.040
Rury z metali nieżelaznych (wyroby z miedzi)		PN-EN 12449:2012 PN-EN 12451:2012	23.040 77.150
Rury z tworzyw sztucznych (systemy odwadniające)	PDCWC	PN-EN 1453-1:2002 PN-EN 1453-1:2002/Ap1:2003	23.040 91.140
Przewody giętkie		PN-EN 854:2002 PN-EN 855:2002 PN-EN 856:2002 PN-EN 857:2002 PN-EN 12115:2011 PN-EN ISO 8029:2010 PN-EN ISO 1403:2009 PN-EN ISO 2398:2009 PN-EN ISO 3994:2011 PN-EN ISO 4641:2011 PN-EN ISO 5774:2008 PN-EN ISO 6134:2006 PN-EN ISO 6224:2011	23.040
Urządzenia do obróbki bezwiórowej (kuźnicze, prasy, nożyce)	PCMBT	PN-EN 693+A2:2012 PN-EN 12622+A1:2014-02 PN-EN 13736+A1:2012	25.120

Wersja strony: A

Nazwa wyrobu / grupy wyrobów	Program certyfikacji	Norma / dokument normatywny	ICS
Narzędzia z napędem elektrycznym	PDCWEEIM	PN-EN 50580:2012 PN-EN 50580:2012/A1:2014-04 PN-EN 50144-2-9:2001 PN-EN 60335-2-45:2007 PN-EN 60335-2-45:2007/A1:2008 PN-EN 60335-2-45:2007/A2:2012 PN-EN 60745-1:2009 PN-EN 60745-1:2009/AC:2010 PN-EN 60745-1:2009/A11:2011 PN-EN 60745-2-1:2010 PN-EN 60745-2-2:2010 PN-EN 60745-2-3:2011 PN-EN 60745-2-3:2011/A2:2014-01 PN-EN 60745-2-4:2010 PN-EN 60745-2-4:2010/A11:2012 PN-EN 60745-2-5:2011 PN-EN 60745-2-6:2010 PN-EN 60745-2-8:2009 PN-EN 60745-2-11:2010 PN-EN 60745-2-14:2009 PN-EN 60745-2-14:2009/A2:2010 PN-EN 60745-2-15:2009 PN-EN 60745-2-15:2009/A1:2010 PN-EN 60745-2-17:2010	25.140
Urządzenia do spawania, zgrzewania i lutowania (węże)	PDCWC	PN-EN 1327:1999 PN-EN ISO 3821:2010 PN-EN ISO 14113:2014-02	25.160
Wypożyczenie ochronne (bezpieczeństwo) maszyn	PDCWEEIM	PN-EN 60204-1:2010 PN-EN 60204-1:2010/AC:2011	29.020
Lampy i ich wyposażenie (zakres EMC – emisja)		PN-EN 55015:2013-10	29.140 33.100
Lampy i ich wyposażenie (oprawy oświetleniowe)		PN-EN 60598-1:2011 PN-EN 60598-2-2:2012 PN-EN 60598-2-3:2006 PN-EN 60598-2-3:2006/A1:2012 PN-EN 60598-2-4:2002 PN-EN 60598-2-5:2000 PN-EN 60598-2-6:2000 PN-EN 60598-2-7:2000 PN-EN 60598-2-8:2013-12 PN-EN 60598-2-9:2002	29.140

Wersja strony: A

Nazwa wyrobu / grupy wyrobów	Program certyfikacji	Norma / dokument normatywny	ICS
Lampy i ich wyposażenie (oprawy oświetleniowe)	PDCWEEIM	PN-EN 60598-2-10:2005 PN-EN 60598-2-10:2005/AC:2006 PN-EN 60598-2-11:2014-01 PN-EN 60598-2-12:2013-12 PN-EN 60598-2-13:2007 PN-EN 60598-2-13:2007/A1:2012 PN-EN 60598-2-14:2009 PN-EN 60598-2-17:2002 PN-EN 60598-2-18:2002 PN-EN 60598-2-18:2002/A1:2012 PN-EN 60598-2-19:2002 PN-EN 60598-2-19:2002/AC:2006 PN-EN 60598-2-20:2010 PN-EN 60598-2-20:2010/AC:2010 PN-EN 60598-2-22:2004 PN-EN 60598-2-22:2004/AC:2006 PN-EN 60598-2-22:2004/A2:2010 PN-EN 60598-2-23:2005 PN-EN 60598-2-24:2014-02 PN-EN 60598-2-25:2000 PN-EN 60598-2-25:2000/A1:2005 PN-IEC 598-2-1:1994 PN-IEC 598-2-1:1994/Ap1:2000	29.140
Lampy i ich wyposażenie (urządzenia do lamp)		PN-EN 61347-1:2010 PN-EN 61347-1:2010/A1:2011 PN-EN 61347-1:2010/A2:2013-06 PN-EN 61347-2-2:2012 PN-EN 61347-2-11:2005 PN-EN 61347-2-11:2005/AC:2011 PN-EN 61347-2-13:2008 PN-EN 61347-2-13:2008/AC 2011	
Transformatory. Dławiki		PN-EN 61558-1:2009 PN-EN 61558-1:2009/A1:2009 PN-EN 61558-2-1:2010	29.180
Odbiorniki energii elektrycznej (zakres EMC – emisja)		PN-EN 55014-1:2012	33.100
Urządzenia techniki informatycznej (urządzenia biurowe)		PN-EN 60950-1:2007 PN-EN 60950-1:2007/A11:2009 PN-EN 60950-1:2007/A1:2011 PN-EN 60950-1:2007/A12:2011 PN-EN 60950-1:2007/A2:2014-05	35.020

Wersja strony: A

Nazwa wyrobu / grupy wyrobów	Program certyfikacji	Norma / dokument normatywny	ICS
Urządzenia transportu bliskiego ciągłego (taśmy przenośnikowe, części składowe)	PDCWC	PN-EN ISO 14890:2013-06 PN-EN ISO 22721:2009 PN-EN ISO 15236-1:2006	53.040
Urządzenia do transportu ropy naftowej, produktów naftowych i gazu ziemnego (węże)		PN-EN 1360:2013-11 PN-EN ISO 6808:2014-09	75.200
Wyroby z żeliwa i stali	PDCWH	PN-EN 10272:2009	77.140
Stale wysokojakościowe		PN-EN 10088-2:2014-12 PN-EN 10088-3:2015-01	
Stale sprężynowe		PN-EN 10089:2005 PN-EN 10270-1:2011 PN-EN 10270-2:2011 PN-EN 10270-3:2011 PN-H-93005:1996	
Stale sprężynowe. Wyroby i półwyroby płaskie stalowe		PN-EN 10132-4:2004	77.140 70.140
Stale na zbiorniki ciśnieniowe		PN-EN 10028-1+A1:2010 PN-EN 10028-1+A1:2010/AC:2010 PN-EN 10028-2:2010 PN-EN 10028-3:2010 PN-EN 10273:2009	77.140
Wyroby i półwyroby płaskie stalowe		PN-EN 10025-2:2007 PN-EN 10025-3:2007 PN-EN 10025-4:2007 PN-EN 10025-5:2007 PN-EN 10025-6+A1:2009 PN-EN 10120:2011 PN-EN 10130:2009 PN-EN 10132-1:2004 PN-EN 10132-2:2004 PN-EN 10132-3:2004 PN-EN 10139:2001 PN-EN 10268+A1:2014-02 PN-EN 10346:2011	
Pręty i walcówka stalowa		PN-EN ISO 16120-1:2011 PN-EN ISO 16120-2:2012 PN-EN ISO 16120-3:2012 PN-EN ISO 16120-4:2012 PN-EN 10277-1:2009 PN-EN 10277-2:2009 PN-H-93000:1984 PN-H-93027:1984	77.140

Wersja strony: A

Nazwa wyrobu / grupy wyrobów	Program certyfikacji	Norma / dokument normatywny	ICS
Drut stalowy, liny stalowe i łańcuchy ogniowe	PDCWH	PN-ISO 8369:2000 PN-ISO 10092:2000 PN-EN 10223-4:2013-05 PN-EN 10223-5:2013-05 PN-EN 10264-1:2012 PN-EN 10264-2:2012 PN-EN 10264-3:2012 PN-EN 10264-4:2012 PN-EN 12385-1+A1:2009	77.140
Kształtowniki stalowe		PN-EN 10248-1:1999 PN-EN 10249-1:2000 PN-H-93441-1:2013-12	
Rurociągi i rury stalowe specjalnego stosowania		PN-EN 39:2003 PN-EN 10305-1:2011 PN-EN 10305-2:2011 PN-EN 10305-3:2011 PN-EN 10305-5:2011 PN-H-74247:1996	
Wyroby z metali nieżelaznych (z aluminium)		PN-EN 754-1:2009 PN-EN 755-1:2009	77.150
Wyroby z metali nieżelaznych (z miedzi)		PN-EN 1172:2012 PN-EN 1652:1999 PN-EN 1652:1999/AC:2004 PN-EN 1653:1999 PN-EN 1653:1999/A1:2004 PN-EN 12163:2011 PN-EN 12166:2011 PN-EN 12167:2011	
Płyty z materiałów drewnopochodnych (wiórowe i pilśniowe)	PDCWC	PN-EN 300:2007 PN-EN 312:2011 PN-EN 622-1:2005 PN-EN 622-2:2006 PN-EN 622-2:2006/AC:2006 PN-EN 622-3:2006 PN-EN 622-4:2010 PN-EN 622-5:2010	79.060
Maszyny dla przemysłu gumowego i tworzyw sztucznych	PCMBT	PN-EN 201:2011 PN-EN 289:2014-11 PN-EN 422:2010 PN-EN 1114-1:2011 PN-EN 1114-3+A1:2008	83.200

Wersja strony: A

Nazwa wyrobu / grupy wyrobów	Program certyfikacji	Norma / dokument normatywny	ICS
Maszynty dla przemysłu gumowego i tworzyw sztucznych	PCMBT	PN-EN 1417+A1:2008 PN-EN 1417+A1:2008/AC:2009 PN-EN 1612-1+A1:2008 PN-EN 12012-1+A1:2009 PN-EN 12012-3+A1:2008 PN-EN 12013+A1:2008 PN-EN 12301+A1:2008 PN-EN 12409+A1:2012	83.200
Elementy budynków (drzwi i okna)	PDCWEEIM	PN-EN 60335-2-103:2005 PN-EN 60335-2-103:2005/A11:2009	91.060
Małe urządzenia kuchenne		PN-EN 60335-2-9:2007 PN-EN 60335-2-9:2007/A12:2008 PN-EN 60335-2-9:2007/A13:2011 PN-EN 60335-2-12:2004 PN-EN 60335-2-12:2004/A1:2008 PN-EN 60335-2-13:2010 PN-EN 60335-2-13:2010/A11:2012 PN-EN 60335-2-14:2009 PN-EN 60335-2-14:2009/A1:2009 PN-EN 60335-2-14:2009/A11:2012 PN-EN 60335-2-15:2007 PN-EN 60335-2-15:2007/A2:2009 PN-EN 60335-2-15:2007/AC:2007 PN-EN 60335-2-15:2007/A11:2012 PN-EN 60335-2-16:2004 PN-EN 60335-2-16:2004/A1:2008 PN-EN 60335-2-16:2004/A2:2012 PN-EN 60335-2-63:2002 PN-EN 60335-2-64:2002 PN-EN 60335-2-64:2002/A1:2005 PN-EN 60335-2-64:2002/AC:2008 PN-EN 60335-2-74:2008 PN-EN 60335-2-74:2008/A2:2010	97.040
Ogrzewacze elektryczne		PN-EN 60335-2-30:2010 PN-EN 60335-2-30:2010/A11:2012 PN-EN 60335-2-53:2012 PN-EN 60335-2-61:2008 PN-EN 60335-2-61:2008/A2:2009 PN-EN 60335-2-96:2005 PN-EN 60335-2-96:2005/Ap1:2005 PN-EN 60335-2-96:2005/A2:2009	97.100

Wersja strony: A

Nazwa wyrobu / grupy wyrobów	Program certyfikacji	Norma / dokument normatywny	ICS
Inny sprzęt rekreacyjny	PDCWEEIM	PN-EN 60335-2-82:2004 PN-EN 60335-2-82:2004/A1:2008	97.200

Wersja strony: A

ICS – International Classification for Standards (Międzynarodowa Klasyfikacja Norm).

Zastosowane oznaczenia:

PDCWH – Program dobrowolnej certyfikacji wyrobów hutniczych – program typ 4 wyd. 17 z 06.2015 r.

PDCWEEIM – Program dobrowolnej certyfikacji wyrobów elektrotechnicznych, elektronicznych i maszyn – program typ 4 wyd. 15 z 06.2015 r.

PCMBT – Program certyfikacji maszyn – program typ 1a wyd. 11 z 06.2015 r.

PDCWC – Program dobrowolnej certyfikacji wyrobów chemicznych – program typ 4 wyd. 18 z 06.2015 r.

Rodzaj działalności:	Dokument odniesienia:
CERTYFIKACJA WYROBÓW BUDOWLANYCH NA CERTYFIKAT ZGODNOŚCI (System 1+, 1) CERTYFIKACJA ZKP (System 2+)	Rozporządzenie Ministra Infrastruktury z dnia 11 sierpnia 2004 r. w sprawie sposobów deklarowania zgodności wyrobów budowlanych oraz sposobu znakowania ich znakiem budowlanym (Dz. U. 2004 Nr 198, poz. 2041 z późn. zm.)

Numer decyzji Komisji	Wyrób(y)	System oceny zgodności	Dokument kryterialny (specyfikacja techniczna)
97/597/WE	Stal zbrojeniowa i sprężająca do betonu	1+	PN-ISO 6935-1:1998 PN-ISO 6935-1/AK:1998 PN-ISO 6935-2:1998 PN-ISO 6935-2/AK:1998 PN-ISO 6935-2:1998/Ap1:1999 PN-H-93220:2006 PN-H 93247-1:2008 PN-H-93247-2:2008 PN-EN 10080:2007 Aprobaty Techniczne, IBDiM Aprobaty Techniczne, ITB
98/214/WE	Metalowe wyroby konstrukcyjne i elementy pomocnicze	2+	PN-EN 10111:2009 PN-EN 10130:2009 PN-EN 10149-1:2014-02 PN-EN 10149-2:2014-02 PN-EN 10149-3:2014-02 PN-EN 10248-1:1999 PN-EN 10249-1:2000 PN-EN 10277-1:2009 PN-EN 10277-2:2009 PN-EN 13674-1:2011
99/472/WE	Rury, zbiorniki i elementy pomocnicze nieprzeznaczone do kontaktu z wodą do spożycia przez ludzi	1	PN-EN 1555-1:2012 PN-EN 1555-2:2012 PN-EN 1555-3+A1:2013-05 PN-EN 1555-5:2012 PN-EN ISO 3183:2013-05 PN-EN 10216-1:2014-02 PN-EN 10216-2:2014-02 PN-EN 10216-3:2014-02 PN-EN 10216-4:2014-02 PN-EN 10216-5:2014-02 PN-EN 10217-1:2004 PN-EN 10217-1:2004/A1:2006

Wersja strony: A

Numer decyzji Komisji	Wyrób(y)	System oceny zgodności	Dokument kryterialny (specyfikacja techniczna)
99/472/WE	Rury, zbiorniki i elementy pomocnicze nieprzeznaczone do kontaktu z wodą do spożycia przez ludzi	1	PN-EN 10217-2:2004 PN-EN 10217-2:2004/A1:2006 PN-EN 10217-3:2004 PN-EN 10217-3:2004/A1:2006 PN-EN 10217-4:2004 PN-EN 10217-4:2004/A1:2006 PN-EN 10217-5:2004 PN-EN 10217-5:2004/A1:2006 PN-EN 10217-6:2004 PN-EN 10217-6:2004/A1:2006 PN-EN 10217-7:2014-12 PN-EN 10296-1:2006 PN-EN 10296-2:2007 PN-EN 10297-1:2005 PN-EN 10297-2:2007 PN-EN ISO 11299-1:2013-06 PN-EN ISO 11299-3:2013-07 PN-H-74200:1998 PN-H-74220:1984
2002/359/WE	Wyroby kontaktujące się z wodą przeznaczoną do spożycia przez ludzi	1+	PN-EN 12201-2:+A1:2013-12 PN-EN 12201-3+A1:2013-05

Wersja strony: A

Rodzaj działalności:	Dokument odniesienia:
CERTYFIKACJA STAŁOŚCI WŁAŚCIWOŚCI UŻYTKOWYCH WYROBU BUDOWLANEGO (System 1) CERTYFIKACJA ZGODNOŚCI ZAKŁADOWEJ KONTROLI PRODUKCJI (System 2+)	Rozporządzenie Parlamentu Europejskiego i Rady (UE) Nr 305/2011 z dnia 9 marca 2011 r. ustanawiające zharmonizowane warunki wprowadzania do obrotu wyrobów budowlanych i uchylające dyrektywę Rady 89/106/EWG (Dz. Urz. UE L 88 z 4.4.2011 z późn.zm.)

Numer decyzji Komisji	Wyrób(y)	System oceny i weryfikacji stałości właściwości użytkowych	Zharmonizowane specyfikacje techniczne
96/579/WE	Urządzenia bezpieczeństwa ruchu drogowego	1	PN-EN 40-5:2004 PN-EN 40-6:2004
98/214/WE	Metalowe wyroby konstrukcyjne i elementy pomocnicze	2+	PN-EN 1090-1+A1:2012 PN-EN 10025-1:2007 PN-EN 10210-1:2007 PN-EN 10219-1:2007 PN-EN 15088:2006
99/472/WE	Rury, zbiorniki i elementy pomocnicze nieprzeznaczone do kontaktu z wodą do spożycia przez ludzi	1	PN-EN 1057+A1:2010

Wersja strony: A

Aktualna „Lista podwykonawców” jest dostępna na każde żądanie w akredytowanym podmiocie.

Aktualna „Lista badań wykonywanych w laboratoriach producenta” jest dostępna na każde żądanie w akredytowanym podmiocie.

Jednostka certyfikująca spełnia wymagania określone w Rozporządzeniu Nr 305/2011 z dnia 9 marca 2011 r. w powyższym zakresie.

Wykaz zmian Zakresu Akredytacji Nr AC 005

Status zmian: wersja pierwotna – A

**Zatwierdzam status zmian
KIEROWNIK
DZIAŁU AKREDYTACJI
JEDNOSTEK CERTYFIKUJĄCYCH
I INSPEKCYJNYCH**

KRZYSZTOF WOŹNIAK
dnia: 11.08.2015 r.



LUG Light Factory Ltd.
Producer of Professional Lighting Fittings

Zielona Góra, 26.07.2013

EC Declaration of Conformity

RoHS2 Directive 2011/65/EU

LUG Light Factory Ltd. hereby declare that our all products are in full compliance with EU Directive 2011/65/EC (the RoHS2 Directive) that restricts the use of the hazardous substances in electrical and electronic equipment.

We have confirmed our suppliers' statements regarding the absence of the restricted substances.

Compiled by :

LUG Light Factory Sp. z o.o.
Inżynier Laboratorium
Laboratory Engineer
mgr inż. Marcin Białas

Approved by:

LUG Light Factory Sp. z o.o.
DYREKTOR OS. TECHNICZNYCH
mgr inż. Mariusz Ejmont

LUG LIGHT FACTORY Sp. z o.o.
65-127 Zielona Góra, ul. Gorzowska 11
tel. (068) 45 33 200, fax (068) 45 33 201
NIP 929-17-85-452



NÁRODNÍ AKREDITAČNÍ ORGÁN

EA MLA Signatory
Český institut pro akreditaci, o.p.s.
Olšanská 54/3, 130 00 Praha 3

issues

according to section 16 of Act No. 22/1997 Coll., on technical requirements for products, as amended

CERTIFICATE OF ACCREDITATION

No. 42/2017

Elektrotechnický zkušební ústav, s.p.
with registered office Pod Lisem 129, 171 02 Praha 8 - Troja, Company Registration No. 00001481

to the Certification Body No. 3018
Product Certification Body

Scope of accreditation:

Certification of products in the field of electrical engineering industry and in the field of medical devices, certification of information systems and software including certification according to the National standard of electronic document management systems (NSESSS), certification of electronic tools according to the Regulation No. 9/2011 Coll., verification of Environmental Product Declaration (EPD), trust service certification according to the Regulation (EU) No. 910/2014 of the EP and of the Council (eIDAS) to the extent as specified in the appendix to this Certificate.

This Certificate of Accreditation is a proof of Accreditation issued on the basis of assessment of fulfillment of the accreditation criteria in accordance with

ČSN EN ISO/IEC 17065:2013

In its activities performed within the scope and for the period of validity of this Certificate, the Body is entitled to refer to this Certificate, provided that the accreditation is not suspended and the Body meets the specified accreditation requirements in accordance with the relevant regulations applicable to the activity of an accredited Conformity Assessment Body.

This Certificate of Accreditation replaces, to the full extent, Certificate No.: 620/2015 of 3 September 2015, or any administrative acts building upon it.

This Certificate is valid until: **8. 11. 2018**

Prague: 20. 1. 2017




Jiří Růžička
Director
Czech Accreditation Institute
Public Service Company

**The Appendix is an integral part of
Certificate of Accreditation No. 42/2017 of 20/01/2017**

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Certification of products (including material products, processes, services)

Ordinal number ¹⁾	Product name	Certification scheme	Specification of standards (normative documents)
1*	Other rubber products (limited to technical rubber for electrical engineering)	EZÚ Certificate	ČSN EN 60903 ed. 2
2*	Radiators and boilers, including repair and maintenance (limited to heat exchangers, water heaters and heat exchange stations of central heating and hot water systems)	EZÚ Certificate	ČSN EN 60335-1 ed. 3 ČSN EN 60335-1 ed. 2 ČSN EN 60335-1 ČSN EN 60335-2-21 ed. 2 ČSN EN 60335-2-35 ed. 2
3*	Furnaces and furnace burners, including their parts, installation, repair and maintenance (limited to electric laboratory furnaces and ovens)	EZÚ Certificate	ČSN EN 60335-1 ed. 3 ČSN EN 60335-1 ed. 2 ČSN EN 60335-1 ČSN EN 61010-1 ed. 2 ČSN EN 61010-2-010 ed. 2
4*	Cooling, ventilation and air-conditioning machines /except household appliances/, including their parts, installation, repair and maintenance	EZÚ Certificate	ČSN EN 60204-1 ed. 2 ČSN EN 60335-1 ed. 3 ČSN EN 60335-1 ed. 2 ČSN EN 60335-1 ČSN EN 60335-2-24 ed. 5 ČSN EN 60335-2-30 ed. 3 ČSN EN 60335-2-40 ed. 2 ČSN EN 60335-2-65 ed. 2 ČSN EN 60335-2-80 ed. 2 ČSN EN 60335-2-88 ed. 2
5*	Electro-mechanical hand tools with self-contained electric motor	EZÚ Certificate	ČSN 361559-1 ČSN 361559-2-15 ČSN EN 61029-1 ed. 2 ČSN EN 61029-1 ed. 3 ČSN EN 1870-10 ČSN EN 1870-11 ČSN EN 1870-12 ČSN EN 60745-1 ed. 2 ČSN EN 60745-1 ed. 3 ČSN EN 60745-2-1 ed. 2 ČSN EN 60745-2-2 ed. 2 ČSN EN 60745-2-3 ed. 2 ČSN EN 60745-2-4 ed. 2 ČSN EN 60745-2-5 ed. 3 ČSN EN 60745-2-6 ed. 2 ČSN EN 60745-2-8 ed. 2 ČSN EN 60745-2-9 ed. 2 ČSN EN 60745-2-11 ed. 2 ČSN EN 60745-2-12 ed. 2 ČSN EN 60745-2-13 ČSN EN 60745-2-14 ČSN EN 60745-2-15



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Ordinal number ¹⁾	Product name	Certification scheme	Specification of standards (normative documents)
			ČSN EN 60745-2-17 ed. 2 ČSN EN 60745-2-18 ed. 2 ČSN EN 60745-2-19 ČSN EN 60745-2-20 ed. 2 ČSN EN 60745-2-21 ČSN EN 61029-2-8 ČSN EN 61029-2-11 ed. 3
6*	Machinery for food and tobacco processing, including their parts, installation, repair and maintenance (limited to machines and devices for public catering and sale)	EZÚ Certificate	ČSN EN 60335-1 ed. 2 ČSN EN 60335-1 ed. 3 ČSN EN 60335-1 ČSN EN 60335-2-36 ed. 3 ČSN EN 60335-2-37 ed. 3 ČSN EN 60335-2-38 ed. 3 ČSN EN 60335-2-39 ed. 3 ČSN EN 60335-2-42 ed. 3 ČSN EN 60335-2-47 ed. 3 ČSN EN 60335-2-48 ed. 3 ČSN EN 60335-2-49 ed. 3 ČSN EN 60335-2-50 ed. 3 ČSN EN 60335-2-58 ed. 2 ČSN EN 60335-2-62 ed. 2 ČSN EN 60335-2-64 ed. 2 ČSN EN 60335-2-70 ed. 2 ČSN EN 60335-2-71 ed. 2 ČSN EN 60335-2-90 ed. 3 ČSN EN 60204-1 ed. 2
7*	Machinery for textile, apparel and leather production, including their parts, installation, repair and maintenance (limited to machines and devices for cleaning, washing, ironing and hairdressing)	EZÚ Certificate	ČSN EN 60335-1 ed. 2 ČSN EN 60335-1 ed. 3 ČSN EN 60335-1 ČSN EN 60335-2-67 ed. 4 ČSN EN 60335-2-68 ed. 4 ČSN EN 60335-2-69 ed. 4 ČSN EN 60335-2-72 ed. 2 ČSN EN 60335-2-79 ed. 4 ČSN EN ISO 10472-1 ČSN EN ISO 10472-2 ČSN EN ISO 10472-3 ČSN EN ISO 10472-4 ČSN EN ISO 10472-5 ČSN EN ISO 10472-6 ČSN EN 60204-1 ed. 2 ČSN EN ISO 8230-1
8*	Electric household appliances, their parts	EZÚ Certificate	ČSN EN 60335-1 ed. 2 ČSN EN 60335-1 ed. 3 ČSN EN 60335-1 ČSN EN 60335-2-2 ed. 3 ČSN EN 60335-2-3 ed. 2 ČSN EN 60335-2-4 ed. 3 ČSN EN 60335-2-5 ed. 2 ČSN EN 60335-2-6 ed. 2 ČSN EN 60335-2-7 ed. 4



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Ordinal number ¹⁾	Product name	Certification scheme	Specification of standards (normative documents)
			ČSN EN 60335-2-8 ed. 2 ČSN EN 60335-2-9 ed. 2 ČSN EN 60335-2-10 ed. 2 ČSN EN 60335-2-11 ed. 4 ČSN EN 60335-2-12 ed. 2 ČSN EN 60335-2-13 ed. 3 ČSN EN 60335-2-14 ed. 3 ČSN EN 60335-2-15 ed. 2 ČSN EN 60335-2-16 ed. 2 ČSN EN 60335-2-17 ed. 3 ČSN EN 60335-2-21 ed. 2 ČSN EN 60335-2-23 ed. 2 ČSN EN 60335-2-24 ed. 5 ČSN EN 60335-2-25 ed. 5 ČSN EN 60335-2-26 ed. 2 ČSN EN 60335-2-27 ed. 4 ČSN EN 60335-2-28 ed. 2 ČSN EN 60335-2-29 ed. 2 ČSN EN 60335-2-30 ed. 3 ČSN EN 60335-2-31 ed. 2 ČSN EN 60335-2-32 ed. 2 ČSN EN 60335-2-34 ed. 4 ČSN EN 60335-2-35 ed. 2 ČSN EN 60335-2-36 ed. 3 ČSN EN 60335-2-37 ed. 3 ČSN EN 60335-2-38 ed. 3 ČSN EN 60335-2-39 ed. 3 ČSN EN 60335-2-40 ed. 2 ČSN EN 60335-2-41 ed. 2 ČSN EN 60335-2-42 ed. 3 ČSN EN 60335-2-43 ed. 2 ČSN EN 60335-2-44 ed. 2 ČSN EN 60335-2-45 ed. 2 ČSN EN 60335-2-47 ed. 3 ČSN EN 60335-2-48 ed. 3 ČSN EN 60335-2-49 ed. 3 ČSN EN 60335-2-50 ed. 3 ČSN EN 60335-2-51 ed. 2 ČSN EN 60335-2-52 ed. 2 ČSN EN 60335-2-53 ed. 3 ČSN EN 60335-2-54 ed. 3 ČSN EN 60335-2-55 ed. 2 ČSN EN 60335-2-56 ed. 2 ČSN EN 60335-2-58 ed. 2 ČSN EN 60335-2-59 ed. 2 ČSN EN 60335-2-60 ed. 2 ČSN EN 60335-2-61 ed. 2 ČSN EN 60335-2-62 ed. 2 ČSN EN 60335-2-64 ed. 2



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Ordinal number ¹⁾	Product name	Certification scheme	Specification of standards (normative documents)
			ČSN EN 60335-2-65 ed. 2 ČSN EN 60335-2-66 ed. 2 ČSN EN 60335-2-67 ed. 4 ČSN EN 60335-2-68 ed. 4 ČSN EN 60335-2-69 ed. 4 ČSN EN 60335-2-70 ed. 2 ČSN EN 60335-2-71 ed. 2 ČSN EN 60335-2-72 ed. 2 ČSN EN 60335-2-73 ed. 2 ČSN EN 60335-2-74 ed. 2 ČSN EN 60335-2-75 ed. 2 ČSN EN 60335-2-76 ed. 2 ČSN EN 60335-2-77 ed. 3 ČSN EN 60335-2-78 ed. 2 ČSN EN 60335-2-79 ed. 4 ČSN EN 60335-2-80 ed. 2 ČSN EN 60335-2-81 ed. 2 ČSN EN 60335-2-82 ed. 2 ČSN EN 60335-2-83 ČSN EN 60335-2-84 ed. 2 ČSN EN 60335-2-85 ed. 2 ČSN EN 60335-2-86 ed. 2 ČSN EN 60335-2-87 ed. 2 ČSN EN 60335-2-88 ed. 2 ČSN EN 60335-2-89 ed. 2 ČSN EN 60335-2-90 ed. 3 ČSN EN 60335-2-91 ČSN EN 60335-2-92 ČSN EN 60335-2-95 ed. 2 ČSN EN 60335-2-96 ČSN EN 60335-2-97 ed. 2 ČSN EN 60335-2-98 ed. 2 ČSN EN 60335-2-99 ČSN EN 60335-2-101 ČSN EN 60335-2-103 ČSN EN 60335-2-105 ČSN EN 60204-1 ed. 2 ČSN EN 60065 ČSN EN 60519-1 ed. 3 ČSN EN 62233
9*	Office machinery and computers	EZÚ Certificate	ČSN EN 62040-1 ČSN EN 60065 ČSN EN 60950-1 ed. 2 ČSN EN 61010-1 ed. 2
10*	Electric motors, generators and transformers, including their parts, installation, repair and maintenance (limited	EZÚ Certificate	ČSN 350000-1-1 ČSN EN 60034-1 ed. 2 ČSN EN 60034-5 ed. 2

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Ordinal number ¹⁾	Product name	Certification scheme	Specification of standards (normative documents)
	to electric motors, power transformers and ballasts, generating sets and electric drive systems)		ČSN EN 60034-7 + A1 ČSN EN 60034-8 ed. 2 ČSN EN 60034-12 ČSN EN 60034-14 ed. 2 ČSN EN 60065 ČSN EN 60950-1 ed. 2 ČSN EN 61558-1 ČSN EN 61558-1 ed. 2 ČSN EN 61558-2-1 ed. 2 ČSN EN 61558-2-2 ed. 2 ČSN EN 61558-2-3 ed. 2 ČSN EN 61558-2-4 ed. 2 ČSN EN 61558-2-5 ed. 2 ČSN EN 61558-2-6 ed. 2 ČSN EN 61558-2-7 ed. 2 ČSN EN 61558-2-8 ed. 2 ČSN EN 61558-2-12 ed. 2 ČSN EN 61558-2-13 ed. 2 ČSN EN 61558-2-15 ed. 2 ČSN EN 61558-2-20 ed. 2 ČSN EN 61558-2-23 ed. 2
11*	Electricity distribution and control apparatus, including their parts, installation, repair and maintenance	EZÚ Certificate	ČSN 34 0350 ed. 2 ČSN 35 4516 ČSN 35 4701-2 ed. 2 ČSN 35 4701-3 ed. 2 ČSN EN 50085-1 ed. 2 ČSN EN 50085-2-1 ČSN EN 50085-2-3 ed. 2 ČSN EN 50262 ČSN EN 60269-1 ed. 3 ČSN EN 60309-1 ed. 3 ČSN EN 60309-2 ed. 3 ČSN EN 60400 ed. 3 ČSN EN 60669-1 ed. 2 ČSN EN 60669-2-1 ed. 3 ČSN EN 60669-2-2 ed. 2 ČSN EN 60669-2-3 ed. 2 ČSN EN 60670-1 ČSN EN 60730-1 ed. 3 ČSN EN 60730-2-1 ČSN EN 60730-2-2 ed. 2 ČSN EN 60730-2-3 ed. 2 ČSN EN 60730-2-4 ed. 2 ČSN EN 60730-2-5 ed. 2 ČSN EN 60730-2-6 ed. 2 ČSN EN 60730-2-7 ed. 2 ČSN EN 60730-2-8 ed. 2 ČSN EN 60730-2-9 ed. 3



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			ČSN EN 60730-2-10 ed. 2 ČSN EN 60730-2-11 ed. 2 ČSN EN 60730-2-12 ed. 2 ČSN EN 60730-2-13 ed. 2 ČSN EN 60730-2-14 ČSN EN 60730-2-15 ed. 2 ČSN EN 60730-2-19 ČSN EN 60898-1 ČSN EN 60898-2 ed. 2 ČSN EN 60947-1 ed. 4 ČSN EN 60947-2 ed. 3 ČSN EN 60947-3 ed. 3 ČSN EN 60947-4-1 ed. 3 ČSN EN 60947-4-2 ed. 3 ČSN EN 60947-4-3 ČSN EN 60947-5-1 ed. 2 ČSN EN 60947-5-2 ed. 3 ČSN EN 60947-5-3 ČSN EN 60947-5-4 ed. 2 ČSN EN 60947-5-5 ČSN EN 60947-5-7 ČSN EN 60947-6-1 ed. 2 ČSN EN 60947-6-2 ed. 2 ČSN EN 60947-7-1 ed. 3 ČSN EN 60947-7-2 ed. 3 ČSN EN 60947-7-3 ed. 2 ČSN EN 60947-8 ČSN EN 60998-1 ed. 2 ČSN EN 60998-2-1 ed. 2 ČSN EN 60998-2-2 ed. 2 ČSN EN 60998-2-3 ed. 2 ČSN EN 60998-2-4 ed. 2 ČSN EN 61008-1 ed. 3 ČSN EN 61008-2-1 ČSN EN 61009-1 ed. 3 ČSN EN 61009-2-1 ČSN EN 61010-1 ed. 2 ČSN EN 61010-2-010 ed. 2 ČSN EN 61010-2-032 ed. 3 ČSN EN 61010-2-040 ČSN EN 61010-2-051 ed. 2 ČSN EN 61010-2-061 ed. 2 ČSN EN 61010-031 ČSN EN 61058-1 ČSN EN 61058-2-1 ed. 2 ČSN EN 61058-2-5 ed. 2 ČSN EN 61242 ČSN EN 61537 ed. 2 ČSN IEC 60884-1



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Ordinal number ¹⁾	Product name	Certification scheme	Specification of standards (normative documents)
			ČSN IEC 884-2-5 ČSN EN 12675 ČSN EN 50075 ČSN EN 61386-1 ed. 2 ČSN EN 61386-21 ČSN EN 61386-22 ČSN EN 61386-23 ČSN EN 61386-24 ČSN EN 61386-25 ČSN EN 61439-1 ed. 2 ČSN EN 61439-2 ed. 2 ČSN EN 61439-3 ČSN EN 61439-4 ČSN EN 61439-5 ČSN EN 61914 ČSN EN 62208 ed. 2 ČSN EN 62275
12*	Cables and wires	EZÚ Certificate	ČSN EN 60228 ČSN 34 7402 ČSN 34 7614 -1 ČSN 34 7614 -3A ČSN 34 7614 -3C ČSN 34 7614 -3I ČSN 34 7614 -3L ČSN 34 7614 -4B ČSN 34 7614 -4E ČSN 34 7614 -4F ČSN 34 7614 -4G ČSN 34 7614 -4J ČSN 34 7614 -4K ČSN 34 7614 -4M ČSN 34 7614 -4N ČSN 34 7614 -5D ČSN 34 7614 -5I ČSN 34 7614 -6B ČSN 34 7614 -6D ČSN 34 7614 -6E ČSN 34 7614 -6J ČSN 34 7614 -6K ČSN 34 7614 -6N ČSN 34 7614 -7H ČSN 34 7614 -8H ČSN 34 7614 -9F ČSN 34 7614 -9G ČSN 34 7614 -9I ČSN 34 7614 -9N ČSN 34 7614 -10N ČSN 34 7659-1 ČSN 34 7659-3A



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			ČSN 34 7659-3B ČSN 34 7659-3D ČSN 34 7659-3E ČSN 34 7659-3F ČSN 34 7659-3G ČSN 34 7659-3H ČSN 34 7659-3L ČSN 34 7659-3M ČSN 34 7659-4A ČSN 34 7659-4C ČSN 34 7659-5A ČSN 34 7659-5B ČSN 34 7659-5C ČSN 34 7659-5D ČSN 34 7659-5E ČSN 34 7659-5F ČSN 34 7659-5G ČSN 34 7659-5H ČSN 34 7659-5N ČSN 34 7659-5O ČSN 34 7659-5P ČSN 34 7659-5U ČSN 34 7659-7A ČSN 34 7659-7B ČSN 34 7659-7C ČSN 34 7660-1 ed. 2 ČSN 34 7660-3A ČSN 34 7660-3B ČSN 34 7660-3C ČSN 34 7660-3D ed.2 ČSN 34 7660-3F ČSN 34 7660-4A ČSN 34 7660-4B ČSN 34 7660-4C ČSN 34 7660-4D ČSN 34 7660-4F ČSN 34 7660-5B ČSN 34 7660-5C ČSN 34 7660-5D ČSN 34 7660-5F ČSN 34 7660-5G ČSN 34 7660-5H ed.2 ČSN 34 7660-5I ed.2 ČSN 34 7660-5J ČSN EN 50200 ed. 2 ČSN EN 50267-2-1 ČSN EN 50267-2-2 ČSN EN 50267-2-3 ČSN EN 50290-2-21



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Ordinal number ¹⁾	Product name	Certification scheme	Specification of standards (normative documents)
			ČSN EN 50290-2-22 ČSN EN 50290-2-23 ČSN IEC 60331-21 ČSN IEC 60331-23 ČSN IEC 60331-25 ČSN EN 60332-1-2 ČSN EN 60332-2-2 ČSN EN 60332-2-1 ČSN EN 60332-3-21 ČSN EN 60332-3-22 ČSN EN 60332-3-23 ČSN EN 60332-3-24 ČSN EN 60332-3-25 ČSN EN 50363-1 ČSN EN 50363-2-1 ČSN EN 50363-2-2 ČSN EN 50363-3 ČSN EN 50363-4-1 ČSN EN 50363-4-2 ČSN EN 50363-5 ČSN EN 50363-6 ČSN EN 50363-7 ČSN EN 50363-8 ČSN EN 50363-9-1 ČSN EN 50363-10-1 ČSN EN 50363-10-2 ČSN EN 50399 ČSN EN 50395 ČSN EN 50396 ČSN EN 50525-1 ČSN EN 50525-2-11 ČSN EN 50525-2-12 ČSN EN 50525-2-21 ČSN EN 50525-2-22 ČSN EN 50525-2-31 ČSN EN 50525-2-41 ČSN EN 50525-2-42 ČSN EN 50525-2-51 ČSN EN 50525-2-71 ČSN EN 50525-2-72 ČSN EN 50525-2-81 ČSN EN 50525-2-82 ČSN EN 50525-2-83 ČSN EN 50525-3-11 ČSN EN 50525-3-21 ČSN EN 50525-3-41 ČSN EN 61034-1



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			ČSN EN 61034-2
13*	Accumulators, primary cells and primary batteries, including their parts	EZÚ Certificate	ČSN EN 50342-1 ČSN EN 60086-1 ed. 4 ČSN EN 60086-2 ed. 4 ČSN EN 60086-3 ed. 3 ČSN EN 60086-4 ed. 2 ČSN EN 60086-5 ed. 3 ČSN EN 60254-1 ed. 2 ČSN EN 60254-2 ed. 2 ČSN EN 60623 ed. 2 ČSN EN 61960 ed. 2 ČSN EN 60896-21 ČSN EN 61951-1 ed. 3 ČSN EN 61951-2 ed. 3 ČSN EN 62133 ed. 2 ČSN EN 62259
14*	Lighting equipment and electric lamps, including their parts	EZÚ Certificate	ČSN EN 12352 ČSN EN 12368 ČSN EN 60598-1 ed. 5 ČSN EN 60598-2-1 ČSN EN 60598-2-2 ed.2 ČSN EN 60598-2-3 ed. 2 ČSN EN 60598-2-4 ČSN EN 60598-2-5 ČSN EN 60598-2-6 ČSN EN 60598-2-7 ČSN EN 60598-2-8 ČSN EN 60598-2-8 ed. 2 ČSN EN 60598-2-9 ČSN EN 60598-2-10 ed. 2 ČSN EN 60598-2-11 ČSN EN 60598-2-11 ed. 2 ČSN EN 60598-2-12 ČSN EN 60598-2-12 ed. 2 ČSN EN 60598-2-14 ČSN EN 60598-2-17 ČSN EN 60598-2-18 ČSN EN 60598-2-19 ČSN EN 60598-2-20 ed. 2 ČSN EN 60598-2-22 ed. 2 ČSN EN 60598-2-23 ČSN EN 60598-2-24 ČSN EN 60598-2-24 ed. 2 ČSN EN 60598-2-25 ČSN EN 61347-1 ed. 2 ČSN EN 61347-2-1

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			ČSN EN 61347-2-2 ed. 2 ČSN EN 61347-2-3 ed. 2 ČSN EN 61347-2-7 ed. 3 ČSN EN 61347-2-8 ČSN EN 61347-2-9 ed. 2 ČSN EN 61347-2-10 ČSN EN 61347-2-11 ČSN EN 61549 ed. 2 L-14 – ICAO - Aerodromes Annex 14 FAA - AC 150/5345-43E ČSN ISO 6742-1 ČSN EN 12899-1 ČSN EN 60432-1 ed. 2 ČSN EN 60432-2 ed. 2 ČSN EN 60432-3 ed. 2 ČSN EN 60570 ed. 2 ČSN EN 61167 ČSN EN 62493 ČSN EN 12966-1+A1 ČSN EN 61347-2-13 ČSN EN 60598-2-13 ČSN EN 62031 ČSN EN 62471
15*	reserved	---	---
16*	Television and radio transmitters; apparatus for line telephony and telegraphy, including their parts, installation, repair and maintenance	EZÚ Certificate	ČSN EN 60065
17*	Television and radio receivers; sound or video recording or reproducing apparatus and associated goods, including their parts	EZÚ Certificate	ČSN EN 60065 ČSN EN 60335-1 ed. 2 ČSN EN 60335-1 ed. 3 ČSN EN 60335-1 ČSN EN 60950-1 ed. 2 ČSN EN 61010-1 ed. 2 ČSN EN 60950-21
18*	reserved	---	---
19*	Instruments and appliances for measuring, checking, testing, navigating and other purposes, including their parts, installation, repair and maintenance (limited to electric measuring devices, electronic measuring devices and electron microscopes, machines and instruments for the determination of properties and defects of materials, scientific and laboratory instruments, vacuum devices, automatic control systems, meters and devices for measurement of geometric	EZÚ Certificate	ČSN EN 60065 ČSN EN 60825-1 ed. 2 ČSN EN 60825-2 ed. 2 ČSN EN 60825-4 ed. 2 ČSN EN 60950-1 ed. 2 ČSN EN 61010-1 ed. 2 ČSN EN 61010-2-091 ČSN EN 61243-3 ed. 2 ČSN EN 61010-031 ČSN EN 61010-2-032 ed. 3 ČSN EN 61010-2-033 ČSN EN 60730-1

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Ordinal number ¹⁾	Product name	Certification scheme	Specification of standards (normative documents)
	quantities / with supply voltage from 50V to 380 V only/)		ČSN EN 60730-1 ed. 2 ČSN EN 60730-1 ed. 3 ČSN EN 60730-2-1 ČSN EN 60730-2-2 ed. 2 ČSN EN 60730-2-3 ed. 2 ČSN EN 60730-2-4 ed. 2 ČSN EN 60730-2-5 ed. 2 ČSN EN 60730-2-6 ed. 2 ČSN EN 60730-2-7 ed. 2 ČSN EN 60730-2-8 ed. 2 ČSN EN 60730-2-9 ed. 3 ČSN EN 60730-2-10 ed. 2 ČSN EN 60730-2-11 ed. 2 ČSN EN 60730-2-12 ed. 2 ČSN EN 60730-2-13 ed. 2 ČSN EN 60730-2-14 ČSN EN 60730-2-15 ed. 2 ČSN EN 60730-2-19 ČSN EN 60044-8 ČSN EN 62052-11 ČSN EN 62053-11 ČSN EN 62053-21 ČSN EN 62053-22 ČSN EN 62053-23 ČSN EN 62056-21 ČSN EN 62056-62 ed. 2 ČSN EN 50129 ČSN EN 50470-1 ČSN EN 50470-2 ČSN EN 50470-3
20*	reserved	---	---
21*	Games and toys (limited to technical equipment for public entertainment)	EZÚ Certificate	ČSN EN 60335-1 ed. 2 ČSN EN 60335-1 ed. 3 ČSN EN 60335-1 ČSN EN 60065
22*	Miscellaneous manufactured goods n.e.c. (limited to teaching aids)	EZÚ Certificate	ČSN EN 60065 ČSN EN 61010-1 ed. 2 ČSN EN 60950-1 ed. 2
23*	Products containing electric and electronic systems, including equipment and installations – EMC tests	EZÚ Certificate	ČSN EN 61000-3-2 ČSN EN 61000-3-3 ČSN EN 61000-3-11 ČSN EN 61000-6-1 ČSN EN 61000-6-2 ČSN EN 61000-6-3 ČSN EN 61000-6-4 ČSN EN 50130-4 ČSN EN 55014 ČSN EN 55015 ČSN EN 55011

**The Appendix is an integral part of
Certificate of Accreditation No. 42/2017 of 20/01/2017**

Accredited entity according to ČSN EN ISO/IEC 17065:2013:

Elektrotechnický zkušební ústav, s.p.
Product Certification Body
Pod Lisem 129, 171 02 Praha 8 – Troja

Ordinal number ¹⁾	Product name	Certification scheme	Specification of standards (normative documents)
			ČSN EN 55013 ČSN EN 55020 ČSN EN 55022 ČSN EN 60601-1-2 ČSN EN 55103-1 ČSN EN 55103-2 ČSN EN 12015 ČSN EN 12016 ČSN EN 50148 ČSN EN 55024 ČSN EN 61800-3 ČSN EN 60521 ČSN EN 61326-1 ČSN EN 61547 ČSN EN 60118-13 ČSN EN 60730-1 ČSN EN 60730-2-1 ČSN EN 60730-2-2 ČSN EN 60730-2-3 ČSN EN 60730-2-4 ČSN EN 60730-2-5 ČSN EN 60730-2-6 ČSN EN 60730-2-7 ČSN EN 60730-2-8 ČSN EN 60730-2-9 ČSN EN 60730-2-10 ČSN EN 60730-2-11 ČSN EN 60730-2-12 ČSN EN 60730-2-13 ČSN EN 60730-2-14 ČSN EN 60730-2-15 ČSN EN 60870-2-1 ČSN EN 300339 ČSN ETS 300683 ČSN ETS 300445 ČSN ETS 300342-1 ČSN ETS 300342-2 ČSN ETS 300680-2 ČSN ETSI EN 301489-1 ČSN ETSI EN 301489-3 ČSN ETSI EN 300 220-1 ČSN ETSI EN 300 220-2 ČSN ETSI EN 300 220-3 ČSN ETSI EN 300 330-1 ČSN ETSI EN 300 330-2 ČSN EN 50370-2 ČSN EN 62041 ČSN EN 50293 ČSN EN 50121-3-2



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Accredited entity according to ČSN EN ISO/IEC 17065:2013:

Elektrotechnický zkušební ústav, s.p.
Product Certification Body
Pod Lisem 129, 171 02 Praha 8 – Troja

Ordinal number ¹⁾	Product name	Certification scheme	Specification of standards (normative documents)
24	reserved	---	---
25	Information systems, software	SW Certification	ISO/IEC 15288 ISO/IEC 12207 ISO/IEC 25051 National standard of electronic document management systems (NSESSS)
26	Electronic tools and electronic operations carried out within the process of public contracts ²⁾	Regulation No. 9/2011, part three: Certification of the conformity of electronic tools	Annex to the Regulation No. 9/2011

Explanations:

- 1) Asterisk at the ordinal number identifies that within the scope of accreditation, the certification body is allowed to include new/updated/revised normative documents from time to time provided that the product group and certification scheme don't change. Updated list of activities provided within the scope of accreditation is available at the Certification Body from the Quality Manager.
- 2) according to Act No. 137/2006 Coll. on Public Contracts, as amended
- Gov. Reg. Government Regulation
IT Information Technologies
SW Software
NSESSS MoI CR Bulletin

Explanations to Certification Schemes:

EZÚ Certificate, Regulation No. 9/2011, GR 336/2004 Coll. Annex 3, 4; GR 154/2004 Coll. Annex 3, 4; corresponding to the Certification System No. 1 and ČSN EN ISO/IEC 17067:2014 standard;
SW Certification - Certification system corresponding to the Certification System No. 6 of ČSN EN ISO/IEC 17067:2014;



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Certificate of Accreditation No. 42/2017 of 20/01/2017**

Accredited entity according to ČSN EN ISO/IEC 17065:2013:

Elektrotechnický zkušební ústav, s.p.
Product Certification Body
Pod Lisem 129, 171 02 Praha 8 – Troja

**Verification of Environmental Product Declaration
Verification of Product Declaration creation process**

Ordinal number	Product name	Certification scheme	Specification of standards ¹⁾ (normative documents)
1	Chemistry and chemical products		ČSN ISO 14025 The International EPD® System - General Programme Instruction The Norwegian EPD Foundation - General Programme Instruction Institute Construction and Environment e.V. - General Programme Instruction Instructions INIES - General Programme Instruction ČSN EN 15804 Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products.
2	Rubber and plastic products		
3	Other non-metallic mineral products		
4	Basic metals and metallurgical products		
5	Metallic products		
6	Office equipment and computers		
7	Electric equipment and apparatuses		
8	Radio, television and communication equipment		
9	Transport equipment		
10	Furniture		
11	Recycling		
12	Generation and distribution of electricity, gas and water		
13	Disposal of waste, sanitation		
14	Construction		

Explanations:

¹⁾ International EPD system - General programme instruction (Swedish system) – <http://www.environdec.com>
Norwegian EPD Foundation - General programme instruction (Norwegian system) - <http://www.epd-norge.no>
Institute Construction and Environment - General programme instruction (German system) - <http://bau-umwelt.de>
INIES - General programme instruction (French system) - <http://www.inies.fr>

If no PCR are available for a specific product, the Certification Body proceeds in accordance with the General Programme Instructions (GPI, available at www.environdec.com) and Rules set in the National programme of environmental labelling.



**The Appendix is an integral part of
Certificate of Accreditation No. 42/2017 of 20/01/2017**

Accredited entity according to ČSN EN ISO/IEC 17065:2013:

Elektrotechnický zkušební ústav, s.p.
Product Certification Body
Pod Lisem 129, 171 02 Praha 8 – Troja

Trust service certification ²⁾

Ordinal number	Process/service name	Certification scheme	Specification of standards (normative documents)
1.	Trust service certification - Issuing qualified certificates for electronic signatures	ČSN ETSI EN 319 403 V2.2.2 in connection with DKP version 2	Regulation (EU) No. 910/2014 of the European Parliament and of the Council: • Clause 5. • Clause 13. • Clause 15. • Clause 19. • Clause 24. • Clause 28. • Annex I.
2.	Trust service certification – Issuing qualified certificates for electronic seals	ČSN ETSI EN 319 403 V2.2.2 in connection with DKP version 2	Regulation (EU) No. 910/2014 of the European Parliament and of the Council: • Clause 5. • Clause 13. • Clause 15. • Clause 19. • Clause 24. • Clause 38. • Annex III.
3.	Trust service certification - Issuing qualified certificates for website authentication	ČSN ETSI EN 319 403 V2.2.2 in connection with DKP version 2	Regulation (EU) No. 910/2014 of the European Parliament and of the Council: • Clause 5. • Clause 13. • Clause 15. • Clause 19. • Clause 24. • Clause 45. • Annex IV.
4.	Trust service certification – Issuing qualified electronic stamps	ČSN ETSI EN 319 403 V2.2.2 in connection with DKP version 2	Regulation (EU) No. 910/2014 of the European Parliament and of the Council: • Clause 5. • Clause 13. • Clause 15. • Clause 19. • Clause 24. • Clause 42.
5.	Trust service certification – qualified service for the verification of qualified	ČSN ETSI EN 319 403 V2.2.2 in connection with	Regulation (EU) No. 910/2014 of the European Parliament and of the Council:

**The Appendix is an integral part of
Certificate of Accreditation No. 42/2017 of 20/01/2017**

Accredited entity according to ČSN EN ISO/IEC 17065:2013:

Elektrotechnický zkušební ústav, s.p.
Product Certification Body
Pod Lisem 129, 171 02 Praha 8 – Troja

Ordinal number	Process/service name	Certification scheme	Specification of standards (normative documents)
	electronic signatures or qualified electronic seals	DKP version 2	• Clause 5. • Clause 13. • Clause 15. • Clause 19. • Clause 24. • Clause 32. • Clause 33. • Clause 40 (verification of qualified electronic seals)
6.	Trust service certification – Qualified service for keeping qualified electronic signatures or qualified electronic seals	ČSN ETSI EN 319 403 V2.2.2 in connection with DKP version 2	Regulation (EU) No. 910/2014 of the European Parliament and of the Council: • Clause 5. • Clause 13. • Clause 15. • Clause 19. • Clause 24. • Clause 34. • Clause 40 (keeping qualified electronic seals)

Explanations:

- 2) – acc. to the Regulation (EU) No 910/2014 of the European Parliament and of the Council of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC.

DKP - Document specifying the requirements for qualified trust service providers and the qualified trust services provided by them. The document is available at <http://www.mvcr.cz/informace-pro-odborniky.aspx>



**The Appendix is an integral part of
Certificate of Accreditation No. 42/2017 of 20/01/2017**

Accredited entity according to ČSN EN ISO/IEC 17065:2013:

Elektrotechnický zkušební ústav, s.p.
Product Certification Body
Pod Lisem 129, 171 02 Praha 8 – Troja

Assessment of conformity for notification purposes

Ordinal number ¹⁾	Product/Product group name	Conformity assessment procedure/module	Standards/normative documents
1 ^x	Medical devices (MDD)	Gov. Reg. No. 54/2015 Coll. Annex 2, 3, 4, 5, 6 ²⁾	ČSN EN 1060-3 ČSN EN 1060-4 ČSN EN 45502-1 ČSN EN 45502-2-1 ČSN EN 50077 ČSN EN 60601-1 ČSN EN 60601-1 ed. 2 ČSN EN 60601-1-1 ed. 2 ČSN EN 60601-1-2 ed. 2 ČSN EN 60601-1-3 ed. 2 ČSN EN 60601-1-4 ČSN EN 60601-1-6 ed. 3 ČSN EN 60601-1-8 ed. 2 ČSN EN 60601-1-10 ČSN EN 60601-1-11 ČSN EN 60601-2-1 ČSN EN 60601-2-2 ed. 3 ČSN EN 60601-2-3 ČSN EN 60601-2-4 ČSN EN 60601-2-5 ČSN EN 60601-2-8 ČSN EN 60601-2-10 ČSN EN 60601-2-11 ČSN EN 60601-2-12 ČSN EN 60601-2-13 ČSN EN 60601-2-16 ČSN EN 60601-2-17 ČSN EN 60601-2-18 ČSN EN 60601-2-19 ČSN EN 60601-2-2 ČSN EN 60601-2-20 ed. 2 ČSN EN 60601-2-21 ed. 2 ČSN EN 60601-2-22 ČSN EN 60601-2-23 ČSN EN 60601-2-24 ČSN EN 60601-2-25 ČSN EN 60601-2-26 ed. 2 ČSN EN 60601-2-27 ed. 2 ČSN EN 60601-2-28 ed. 2 ČSN EN ISO 19054 ČSN EN 60601-2-29 ed. 2 ČSN EN 60601-2-3 ČSN EN 60601-2-31 ČSN EN 60601-2-32 ČSN EN 60601-2-33 ed. 3 ČSN EN 60601-2-34 ed. 2 ČSN EN 60601-2-36 ČSN EN 60601-2-37 ed. 2



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Accredited entity according to ČSN EN ISO/IEC 17065:2013:

Elektrotechnický zkušební ústav, s.p.
Product Certification Body
Pod Lisem 129, 171 02 Praha 8 – Troja

Ordinal number ¹⁾	Product/Product group name	Conformity assessment procedure/module	Standards/normative documents
			ČSN EN 60601-2-39 ed. 2 ČSN EN 60601-2-4 ČSN EN 60601-2-40 ČSN EN 60601-2-41 ed. 2 ČSN EN 60601-2-43 ed. 2 ČSN EN 60601-2-44 ed. 3 ČSN EN 60601-2-45 ed. 2 ČSN EN 60601-2-46 ČSN EN 60601-2-47 ČSN EN 60601-2-49 ČSN EN 60601-2-50 ed.2 ČSN EN 60601-2-51 ČSN EN 60601-2-52 ČSN EN 60601-2-54 ČSN EN 60601-2-5 ČSN EN 60601-2-7 ČSN EN 60601-2-8 ČSN EN 60601-2-9 ČSN EN 60601-3-1 ČSN EN 80601-2-30 ČSN EN 80601-2-35 ČSN EN 80601-2-58 ČSN EN 80601-2-59 ČSN EN 60645-1 ČSN EN 60645-2 ČSN EN 60645-3 ed. 2 ČSN EN 60645-4 ČSN EN 60118-13 ed. 2 ČSN EN 60825-1 ČSN EN 60825-2 ČSN EN 60825-4 ČSN EN 61262-1 ČSN EN 61262-2 ČSN EN 61262-3 ČSN EN 61262-4 ČSN EN 61262-5 ČSN EN 61262-6 ČSN EN 61262-7 ČSN EN 61846 ČSN EN 61010-1 ČSN EN 61010-2-010 ČSN EN 61010-2-020 ČSN EN 61010-2-031 ČSN EN 61010-2-032 ČSN EN 61010-2-040 ČSN EN 61010-2-051 ČSN EN 61010-2-061 ČSN EN 61010-2-081 ČSN EN 62304



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Accredited entity according to ČSN EN ISO/IEC 17065:2013:

Elektrotechnický zkušební ústav, s.p.
Product Certification Body
Pod Lisem 129, 171 02 Praha 8 – Troja

Ordinal number ¹⁾	Product/Product group name	Conformity assessment procedure/module	Standards/normative documents
			ČSN EN 62366 ČSN EN 737-1 ČSN EN 737-2 ČSN EN 737-3 ČSN EN 737-4 ČSN EN 794-1 ČSN EN 794-3 ČSN EN ISO 8185 ČSN EN ISO 10079-1 ČSN EN ISO 10079-2 ČSN EN ISO 10079-3 ČSN EN ISO 21647 ČSN EN ISO 11197 ČSN EN ISO 7494-1 ČSN EN ISO 9680 ČSN EN 285 ČSN EN 12342 ČSN EN 1282-2 ČSN EN 1820 ČSN EN ISO 14408 ČSN EN ISO 4135 ČSN EN ISO 5356-1 ČSN EN ISO 5356-2 ČSN EN ISO 5360 ČSN EN ISO 5366-1 ČSN EN 1041 ČSN EN 13867 ČSN EN 1707 ČSN EN 20594-1 ČSN EN ISO 10555-1 ČSN EN ISO 15747 ČSN EN ISO 21649 ČSN EN ISO 3826-2 ČSN EN ISO 3826-3 ČSN EN ISO 7886-3 ČSN EN ISO 7886-4 ČSN EN 1985 ČSN EN ISO 14155 ČSN EN ISO 14971 ČSN EN ISO 10328 ČSN EN ISO 22523 ČSN EN ISO 22675 ČSN EN 12470-1 ČSN EN 12470-2 ČSN EN ISO 81060-1 ČSN EN 14139 ČSN EN ISO 12870



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Accredited entity according to ČSN EN ISO/IEC 17065:2013:

Elektrotechnický zkušební ústav, s.p.
Product Certification Body
Pod Lisem 129, 171 02 Praha 8 – Troja

Ordinal number ¹⁾	Product/Product group name	Conformity assessment procedure/module	Standards/normative documents
			ČSN EN ISO 14889 ČSN EN ISO 15798 ČSN EN ISO 21987 ČSN EN 14683 ČSN EN 1618 ČSN EN 27740 ČSN EN 455-1 ČSN EN 455-3 ČSN EN 455-4 ČSN EN ISO 11810-1 ČSN EN ISO 11810-2 ČSN EN ISO 16061 ČSN EN ISO 21171 ČSN EN ISO 22610 ČSN EN ISO 22612 ČSN EN ISO 4074 ČSN EN 13624 ČSN EN 13727 ČSN EN 14348 ČSN EN 14561 ČSN EN 14562 ČSN EN 14563 ČSN EN 12006-2 ČSN EN ISO 25539-1 ČSN EN ISO 25539-2 ČSN EN ISO 5840 ČSN EN ISO 14602 ČSN EN ISO 21534 ČSN EN ISO 21535 ČSN EN ISO 21536 ČSN EN ISO 14630 ČSN EN ISO 7197 ČSN EN ISO 9713 ČSN EN ISO 11979-8 ČSN EN ISO 14607 ČSN EN 13726-1 ČSN EN 13726-2 ČSN EN 14079 ČSN EN 1639 ČSN EN 15986 ČSN EN 1641 ČSN EN 1642 ČSN EN 13544-1 ČSN EN 13544-2 ČSN EN 13544-3 ČSN EN 14931 ČSN EN ISO 10651-2 ČSN EN ISO 10651-4 ČSN EN ISO 10651-6

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Accredited entity according to ČSN EN ISO/IEC 17065:2013:

Elektrotechnický zkušební ústav, s.p.
Product Certification Body
Pod Lisem 129, 171 02 Praha 8 – Troja

Ordinal number ¹⁾	Product/Product group name	Conformity assessment procedure/module	Standards/normative documents
			ČSN EN ISO 15001 ČSN EN ISO 18778 ČSN EN ISO 23328-1 ČSN EN ISO 23328-2 ČSN EN ISO 23747 ČSN EN ISO 26782 ČSN EN ISO 7376 ČSN EN ISO 8835-2 ČSN EN ISO 8835-3 ČSN EN ISO 8835-4 ČSN EN ISO 8835-5 ČSN EN ISO 9360-1 ČSN EN ISO 9360-2 ČSN EN 1640 ČSN EN 13060 ČSN EN 14180 ČSN EN 1422 ČSN EN ISO 15883-1 ČSN EN ISO 15883-2 ČSN EN ISO 15883-3 ČSN EN ISO 15883-4 ČSN EN ISO 16201 ČSN EN 12183 ČSN EN 12184 ČSN EN 13976-1 ČSN EN 13976-2 ČSN EN 1789 ČSN EN 1865-3 ČSN EN 1865-4 ČSN EN 1865-5 ČSN EN ISO 10535 ČSN EN ISO 10524-1 ČSN EN ISO 10524-2 ČSN EN ISO 10524-3 ČSN EN ISO 10524-4 ČSN EN ISO 15002 ČSN EN ISO 18777 ČSN EN ISO 18779 ČSN EN ISO 21969 ČSN EN ISO 5359 ČSN EN ISO 7396-1 ČSN EN ISO 7396-2 ČSN EN ISO 8359 ČSN EN ISO 9170-1 ČSN EN ISO 9170-2 ČSN EN 60522 ČSN EN 60580 ČSN EN 60627 ČSN EN 61676



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Accredited entity according to ČSN EN ISO/IEC 17065:2013:

Elektrotechnický zkušební ústav, s.p.
Product Certification Body
Pod Lisem 129, 171 02 Praha 8 – Troja

Ordinal number ¹⁾	Product/Product group name	Conformity assessment procedure/module	Standards/normative documents
			ČSN EN 62220-1 ČSN EN 62220-1-2 ČSN EN 62220-1-3 ČSN EN 12470-3 ČSN EN 12470-4 ČSN EN 12470-5 ČSN EN ISO 17510-1 ČSN EN ISO 17510-2 ČSN EN 61217 ed. 2 ČSN EN 62083 ed. 2 ČSN EN ISO 22442-1 ČSN EN ISO 22442-2 ČSN EN ISO 22442-3 ČSN EN ISO 17664 ČSN EN ISO 17665-1 ČSN EN ISO 13408-1 ČSN EN ISO 13408-2 ČSN EN ISO 13408-3 ČSN EN ISO 13408-4 ČSN EN ISO 13408-5 ČSN EN ISO 13408-6 ČSN EN ISO 11135-1 ČSN EN ISO 11137-1 ČSN EN ISO 11137-2 ČSN EN ISO 11138-2 ČSN EN ISO 11138-3 ČSN EN ISO 11140-1 ČSN EN ISO 11140-3 ČSN EN 556-1 ČSN EN 556-2 ČSN EN ISO 11607-1 ČSN EN ISO 11607-2 ČSN EN ISO 11737-1 ČSN EN ISO 11737-2 ČSN EN ISO 14937 ČSN EN 13718-1 ČSN EN ISO 10993-1 ČSN EN ISO 10993-11 ČSN EN ISO 10993-12 ČSN EN ISO 10993-13 ČSN EN ISO 10993-14 ČSN EN ISO 10993-15 ČSN EN ISO 10993-16 ČSN EN ISO 10993-17 ČSN EN ISO 10993-18 ČSN EN ISO 10993-3 ČSN EN ISO 10993-4 ČSN EN ISO 10993-5 ČSN EN ISO 10993-6



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Accredited entity according to ČSN EN ISO/IEC 17065:2013:

Elektrotechnický zkušební ústav, s.p.
Product Certification Body
Pod Lisem 129, 171 02 Praha 8 – Troja

Ordinal number ¹⁾	Product/Product group name	Conformity assessment procedure/module	Standards/normative documents
2 ^x	Medical devices - active implantable (AIMD)	Gov. Reg. No. 55/2015 Coll. Annex 2, 3, 4, 5 ³⁾	ČSN EN ISO 10993-7 ČSN EN ISO 10993-9 ČSN EN 45502-1 ČSN EN 45502-2-1 ČSN EN 50077 ČSN EN 60601-1 ČSN EN 60601-1 ed. 2 ČSN EN 60601-1-1 ed. 2 ČSN EN 60601-1-2 ed. 2 ČSN EN 60601-1-3 ed. 2 ČSN EN 60601-1-4 ČSN EN 60601-1-6 ed. 3 ČSN EN 60601-1-8 ed. 2 ČSN EN 60601-1-10 ČSN EN 61010-1 ČSN EN 62304 ČSN EN 62366 ČSN EN ISO 14971

1/ Asterisk at the ordinal number identifies that within the scope of accreditation, the certification body is allowed to include new/updated/revised technical specifications listed in the relevant conformity assessment procedure for the assessment of conformity with safety requirements. The precondition is that the product area, regulations and conformity assessment procedure must not change. Updated list of activities provided within the flexible scope of accreditation is available at the Certification Body from the Medical Devices Product Manager.

2/ Government Regulation No. 54/2015 Coll., laying down technical requirements for medical devices and amending the Government Regulation No. 251/2003 Coll., amending some of the Government Regulations implementing the Act No. 22/1997 Coll. on product technical requirements and on change and amendment of some relating acts, as amended, as amended by Government Regulation No. 212/2007 Coll., Government Regulation No. 245/2009 Coll. and Government Regulation No. 65/2011 Coll. (corresponds to the Council Directive 93/42/EEC, as amended)

3/ Government Regulation No. 55/2015 Coll., laying down technical requirements for active implantable medical devices, amending Government Regulation No. 251/2003 Coll., amending some government regulations issued as implementing for Act No 22/1997 Coll., on Technical Requirements for Products and Amendments to Some Related Acts, as amended (corresponds to the Council Directive 90/385/EEC, as amended)

The Certificate of Accreditation does not replace the Decision on Notification issued by the Authorizing Body.





EA MLA Signatory
Český institut pro akreditaci, o.p.s.
Olšanská 54/3, 130 00, Praha 3

issues

according to section 16 of Act No. 22/1997 Coll., on technical requirements for products, as amended

CERTIFICATE OF ACCREDITATION

No. 48/2018

Elektrotechnický zkušební ústav, s.p.
with registered office Pod lisem 129/2, Troja, 182 00 Praha 8, Company Registration No.
00001481

to the Inspection Body No. **4037**
EZU Inspection Body

Scope of accreditation:

Type A inspection activity in the field of inspection of gambling devices and technical equipment to run betting games including accessories and certification of Public Administration Information Systems to the extent as specified in the appendix to this Certificate.

This Certificate of Accreditation is a proof of Accreditation issued on the basis of assessment of fulfillment of the accreditation criteria in accordance with

ČSN EN ISO/IEC 17020:2012

In its activities performed within the scope and for the period of validity of this Certificate, the Body is entitled to refer to this Certificate, provided that the accreditation is not suspended and the Body meets the specified accreditation requirements in accordance with the relevant regulations applicable to the activity of an accredited Conformity Assessment Body.

The Certificate of Accreditation is valid until: **1. 2. 2023**

Prague: 1. 2. 2018



Jiří Růžička
Jiří Růžička
Director
Czech Accreditation Institute
Public Service Company

**The Appendix is an integral part of
Certificate of Accreditation No. 48/2018 of 01/02/2018**

Accredited entity according to ČSN EN ISO/IEC 17020:2012:

**Elektrotechnický zkušební ústav, s. p.
EZÚ Inspection Body
Pod lisem 129/2, Troja, 182 00 Praha 8**

Ordinal number	Inspection field	Inspection type and scope	Inspection procedure
1	Inspection of gambling devices and technical equipment to run betting games including accessories, its software and hardware	Inspection of new and operated gambling devices and technical equipment to run betting games including accessories: - game manual and plan - completeness, correctness, genuineness and validity of documentation from the viewpoint of fulfilment of specified requirements and/or conformity with specified type - technical qualification of SW - technical qualification of HW - technical design	MP - 2.17 (Issue No. 3, rev. 0)
2	ISVS Certification	Act No. 365/2000 Coll. within the scope of Decree No. 529/2006 Coll., on long-term management of public administration information systems	MP - 2.11 (Issue No. 1, rev. 1)
3	ISVS Certification	Act No. 365/2000 Coll. within the scope of Decree No. 53/2007 Coll., on reference interface	MP - 2.10 (Issue No. 1, rev. 1)

Explanations:

- HW - Hardware
ISVS - Public Administration Information Systems
MP - Methodological Procedure (Internal inspection procedure prepared by the EZÚ Inspection body)
SW - Software





NÁRODNÍ AKREDITAČNÍ ORGÁN

Signatář EA MLA
Český institut pro akreditaci, o.p.s.
Olšanská 54/3, 130 00 Praha 3

vydává

v souladu s § 16 zákona č. 22/1997 Sb., o technických požadavcích na výrobky, ve znění pozdějších předpisů

OSVĚDČENÍ O AKREDITACI

č. 383/2018

Elektrotechnický zkušební ústav, s.p.
se sídlem Pod lisem 129/2, Troja, 182 00 Praha 8, IČ 00001481

pro zkušební laboratoř č. **1056**
Zkušební laboratoř

Rozsah udělené akreditace:

Zkoušení výrobků, dílů, součástí, materiálů a pomůcek vymezené přílohou tohoto osvědčení.

Toto osvědčení je dokladem o udělení akreditace na základě posouzení splnění akreditačních požadavků podle

ČSN EN ISO/IEC 17025:2005

Subjekt posuzování shody je při své činnosti oprávněn odkazovat se na toto osvědčení v rozsahu udělené akreditace po dobu její platnosti, pokud nebude akreditace pozastavena, a je povinen plnit stanovené akreditační požadavky v souladu s příslušnými předpisy vztahujícími se k činnosti akreditovaného subjektu posuzování shody.

Toto osvědčení o akreditaci nahrazuje v plném rozsahu osvědčení č.: 603/2017 ze dne 12. 10. 2017, popřípadě správní akty na ně navazující.

Udělení akreditace je platné do 12. 10. 2022

V Praze dne 20. 7. 2018



Ing. Jiří Růžička, MBA, Ph.D.
ředitel
Českého institutu pro akreditaci, o.p.s.

**The Appendix is an integral part of
Certificate of Accreditation No. 603/2017 of 12/10/ 2017**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

Elektrotechnický zkušební ústav, s. p.

Testing Laboratory

Pod Lisem 129/2, Troja, 171 02 Praha 8

Testing laboratory locations:

- | | |
|-----------------------|--|
| 1. EZÚ Site | Pod lisem 129/2, Troja, 18200, Praha 8 |
| 2. PRAKAB Site | Ke Kablu 278, 102 09 Praha 15 |

The Laboratory is qualified to update standards identifying the test procedures.

The Laboratory provides expert opinions and interprets test results.

1. EZÚ Site

Tests:

Ord. number ¹	Test procedure/method name	Test procedure/method identification	Tested object
1*	Noise test	ČSN EN ISO 11201 cl. 1, Annex 13 ČSN EN ISO 11202 cl. 1 to 13, Annex A, B, C ČSN EN ISO 11204, Annex C ČSN EN ISO 1680 cl. 1 to 13, Annex A, B ČSN EN ISO 7779 cl. 3 to 10 ČSN ISO 11094 cl. 4 to 10, Annex A ČSN EN ISO 3744 cl. 1 to 10, Annex A, B, C, D, E ČSN EN ISO 3746 cl. 1 to 10, Annex A, B, C, D ČSN ISO 6396 cl. 1 to 11 GR No. 9/2002 Coll., Annex 3	Products, parts, components, materials and tools
2	EMC test of arc welding equipment	ČSN EN 60974-10 ed. 3 cl. 4 to 7, Annex B	Arc welding equipment, including parts, components and accessories
3	Test for the verification of safety and characteristics	70/338/EEC, Annex I 72/245/EEC, Annex I, II, III 76/757/EEC, Annex 0, V, VI 76/758/EEC, Annex IV 76/759/EEC, Annex 0, I, IV, V 76/760/EEC, Annex 0, II, IV 76/761/EEC, Annex I, II, V 76/762/EEC, Annex 0, II, IV, V 77/538/EEC, Annex 0, II, II 77/539/EEC, Annex 0, II, IV 77/540/EEC, Annex I, II, V, VI 93/30/EEC, Annex II 97/24/EEC, Annex I, II, III ECE Regulation No. 1 cl. 2 to 6, 8, Annex 2, 4, 7 ECE Regulation No. 10 cl. 5 to 8, Annex 4 - 9 ECE Regulation No. 104 cl. 4 to 7, Annex 5 to 8 ECE Regulation No. 112 cl. 3 to 7, Annex 4, 6	Electric equipment of road vehicles, including related parts, components and accessories

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Ord. number ¹	Test procedure/method name	Test procedure/method identification	Tested object
		ECE Regulation No. 113 cl. 3 to 7, Annex 4, 6 ECE Regulation No. 119 cl. 3 to 8, Annex 3, 4 ECE Regulation No. 19 cl. 3 to 7, Annex 4, 5 ECE Regulation No. 20 cl. 3 to 7, 9, Annex 4, 6 ECE Regulation No. 23 cl. 3 to 9, Annex 4, 6 ECE Regulation No. 27 cl. 4 to 7, Annex 5 ECE Regulation No. 28 cl. 4 to 6, 13, 14 ECE Regulation No. 3 cl. 2, 4 to 6, Annex 4 to 8, 10, 13, 14 ECE Regulation No. 37 cl. 2, 3 ECE Regulation No. 38 cl. 3 to 9, Annex 3 ECE Regulation No. 4 cl. 3 to 7, 9, Annex 4, 5 ECE Regulation No. 45 cl. 4 to 7, Annex 4 ECE Regulation No. 5 cl. 4 to 9, Annex 1, 5, 6 ECE Regulation No. 50 cl. 4 to 9, Annex 5 ECE Regulation No. 56 cl. 4 to 8, Annex 3 ECE Regulation No. 57 cl. 4 to 8, Annex 3, 4, 6 ECE Regulation No. 6 cl. 3 to 8 ECE Regulation No. 65 cl. 3 to 7, Annex 4, 5 ECE Regulation No. 69 cl. 4 to 7, Annex 5 to 10 ECE Regulation No. 7 cl. 3 to 8 ECE Regulation No. 70 cl. 4 to 7, Annex 5 to 10 ECE Regulation No. 72 cl. 4 to 9, Annex 5, 6 ECE Regulation No. 76 cl. 4 to 8, Annex 3 ECE Regulation No. 77 cl. 4 to 9 ECE Regulation No. 8 cl. 4 to 7, 9, Annex 5, 6 ECE Regulation No. 82 cl. 4 to 7, Annex 3, 4 ECE Regulation No. 87 cl. 4 to 11 ECE Regulation No. 91 cl. 4 to 9 ECE Regulation No. 98 cl. 3 to 6, Annex 4, 5 ECE Regulation No. 99 cl. 2, 3 ECE Regulation No. 118 cl., Annex 6, 7, 8 95/28/EC cl., Annex 4, 5, 6 ECE Regulation No. 97 cl. 5, 6, 7, 8, 17, 18, 31, 32	
4*	Test for the verification of safety and characteristics	ČSN EN 50148 cl. 11	Electric instrumentation, including related parts, components and accessories
5	Test for the verification of nominal values and labelling	ČSN EN 60445 ed. 4 cl. 5 to 7	Products, parts, components, materials and tools



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Ord. number ¹	Test procedure/method name	Test procedure/method identification	Tested object
6	Test for the verification of characteristics of enclosures	ČSN EN 60529 cl. 12 to 15 ČSN EN 62262	Electric equipment, including related parts, components and accessories
7	Test for the verification of safety and characteristics	ČSN EN 60204-31 ed. 2 cl. 4 to 20 ČSN EN 60204-1 ed. 2 cl. 4 to 18	Electric devices and machines, their parts, components and accessories
8*	EMC Test	ČSN EN 50370-2 cl. 4, 5, Annex A to C ČSN EN 61000-3-11 cl. 1 to 6, Annex B ČSN EN 61000-4-29 cl. 4 to 10 ČSN EN 61000-4-7 ed. 2 cl. 1 to 9, Annex A to E ČSN EN 61000-4-8 ed. 2 cl. 1 to 9, Annex A, B ČSN EN 61000-4-9 cl. 1 to 9, Annex A to C ČSN EN 61000-6-2 ed. 3 cl. 5 to 8 ČSN EN 61000-3-12 ed. 2 cl. 4 to 7, Annex A ČSN EN 61000-4-3 ed. 3 cl. 6, 8 ČSN EN 61000-4-10 cl. 8, 9, 10 +Z1 5 to 9 ČSN EN 61000-4-12 ed. 2 cl. 5 to 9 ČSN EN 61000-4-18 cl. 6 to 10 ČSN EN 61000-4-2 ed.2 cl. 1 to 9 ČSN EN 61000-4-17 cl. 7 to 9 ČSN EN 61000-4-28 cl. 7 to 9 ČSN EN 61000-6-1 ed. 2 cl. 4 to 8 ČSN EN 61000-6-3 ed. 2 cl. 4 to 8 ČSN EN 61000-6-4 ed. 2 cl. 4 to 8 ČSN EN 61000-4-11 ed. 2 cl. 3 to 6, Annex A to C ČSN EN 61000-3-2 ed. 4 cl. 5,6,7, Annex A to C ČSN EN 61000-3-3 ed. 3 cl. 4,5,6, Annex A, B ČSN EN 61000-4-4 ed. 3 cl. 5 to 10 ČSN EN 61000-4-5 ed. 3 cl. 5 to 10, Annex A ČSN EN 61000-4-6 ed. 4 cl. 5 to 10, Annex A ČSN EN 61000-4-9 ed. 2 cl. 1 to 9, Annex A to C	Electrification system equipment, including related parts, components and accessories
9*	Test for the verification of safety and characteristics - Electromagnetic compatibility	ČSN EN 12015 cl. 1 to 8 ČSN EN 12016	Elevators, escalators and moving sidewalks, their parts, components and accessories



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Ord. number ¹	Test procedure/method name	Test procedure/method identification	Tested object
10*	Test for the verification of safety and characteristics	ČSN EN 50121-4 ed. 2 cl. 5, 6 ČSN EN 50121-3-2 ed. 2 cl. 7, 8 ČSN EN 50121-4 ed. 3 ČSN EN 50121-3-2 ed. 3 cl. 4 to 6 4 to 8, Annex A	Electric equipment of rail vehicles, including related parts, components and accessories
11	Test of safety and function	ČSN EN 50155 ed. 3 cl. 5, 12.2.7, 12.2.8 ČSN EN 50293 ed. 2 cl. 4 to 8	Transport equipment, including related parts, components and accessories
12	Test of protection of radio reception against interference	ČSN EN 55014-2 cl. 3 to 10 ČSN EN 55024 ed. 2 cl. 1 to 8, tab. 1 to 4, Annex A to H ČSN EN 55103-2 ed. 2 cl. 1 to 8, Annex A to D ČSN EN 55014-1 ed. 3 cl. 4, 5, 6 ČSN EN 55011 ed. 3 cl. 5 to 9, 11 ČSN EN 55020 ed. 3 cl. 4 to 6 ČSN EN 55014-2 ed. 2 cl. 4, 5, 6, 7, 8 ČSN EN 55015 ed. 4 cl. 4 to 9, Annex B to D ČSN EN 55032 ed. 2 cl. 4 to 9, Annex A to D, H ČSN EN 55011 ed. 4 cl. 5 to 9, 11	Products, parts, components, materials and tools
13*	EMC test of alarm systems.	ČSN EN 50130-4 ed. 2 cl. 4 to 14	Electric control equipment, including related parts, components and accessories
14*	Test for the verification of characteristics - EMC and radio spectrum	ČSN EN 300 220-1 V1.2.1 cl. 4 to 9 ČSN EN 300 220-2 V1.2.1 cl. 4, Annex A ČSN EN 300 339 V1.1.1 cl. 4 to 10, Annex A ČSN ETS 300 279 ed. 1 cl. 4 to 3, Annex A to C ČSN ETS 300 342-1 ed. 1 cl. 4 to 9, Annex A ČSN ETS 300 342-1 ed. 2 cl. 4 to 9, Annex A ČSN ETS 300 342-2 ed. 1 cl. 4 to 9 ČSN ETS 300 445 ed. 1 cl. 4 to 9, Annex A ČSN ETS 300 683 ed. 1 cl. 4 to 9, Annex A ČSN ETSI EN 300 220-1 V2.1.1 cl. 4 to 9, Annex AD ČSN ETSI EN 300 220-2 V2.1.2 cl. 8, 9 ČSN ETSI EN 300 330-2 V1.5.1 cl. 5, Annex A ČSN ETSI EN 300 220-1 V2.3.1 cl. 4 to 9, Annex AD ČSN ETSI EN 300 220-2 V2.3.1 cl. 8, 9 ČSN ETSI EN 300 330-1 V1.7.1 cl. 4, 5 Annex A ČSN ETSI EN 301 489-1 V1.9.2 cl. 4 to 9 ČSN ETSI EN 301 489-3 V1.4.1 cl. 4 to 6, Annex B ČSN ETSI EN 300 330-1 V1.8.1 cl. 4 to 8, Annex G, H	Radio equipment. EMC and radio spectrum - products, parts, components, materials and tools

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Ord. number ¹	Test procedure/method name	Test procedure/method identification	Tested object
		ČSN ETSI EN 300 220-2 V2.4.1 cl. 4,5, Annex A ČSN ETSI EN 300 330-2 V1.6.1 cl. 4, 5 ČSN ETSI EN 301 489-3 V1.6.1 cl. 4 to 7 ČSN ETSI EN 300 220-1 V2.4.1 cl. 5 to 8	
15	Test for the verification of safety and characteristics	ČSN EN 60519-1 ed. 3 cl. 4, 5.1 to 5.5, 5.8, 6 to 14, Annex A	Electrothermal equipment, including related parts, components and accessories
16	Test for the verification of safety and characteristics	ČSN 34 0350 ed. 2 cl. 4 to 5	Movable lead cables and cords, their parts, components and accessories
17	Test for the verification of safety and characteristics	ČSN EN 61210 ed. 2 cl. 7 to 9	Electric connections and terminals, their parts, components and accessories
18	Test for the verification of safety and characteristics	ČSN 34 1382 cl. 4, 6	Special electric equipment, including related parts, components and accessories
19	Test for the verification of safety and characteristics	ČSN EN 60695-11-20 cl. 8 UL 94 cl. 7, 8 ČSN EN 60695-11-5 cl. 9 to 11 ČSN EN 60695-2-12 ed. 2 cl. 4 to 10 ČSN EN 60695-2-13 ed. 2 cl. 4 to 11 ČSN EN 60695-2-10 ed. 2 cl. 5 to 7 ČSN EN 60695-11-10 ed. 2 cl. 8 to 9 ČSN EN 60695-11-2 ed. 2 cl. 6 ČSN EN 60060-1 cl. 5 to 7 ČSN EN 60695-10-2 ed. 2 cl. 3 to 10. ČSN EN 60695-2-11 ed. 2 cl. 6 to 10	Electric equipment, including related parts, components and accessories



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Ord. number ¹	Test procedure/method name	Test procedure/method identification	Tested object
20	Environmental testing	ČSN 34 5791-2-11 cl. 4 to 8 ČSN EN 60068-2-1 ed. 2 cl. 5, 6 ČSN EN 60068-2-18 cl. 5 to 7 ČSN EN 60068-2-42 cl. 4 to 6 ČSN EN 60068-2-52 cl. 5 to 10 ČSN EN 60068-2-67 cl. 7 ČSN EN 60068-2-68 cl. 4 ČSN EN 60068-2-75 cl. 4 to 7 ČSN EN 60068-2-30 ed. 2 cl. 3 to 7 ČSN EN 60068-2-10 cl. 5 to 12 ČSN EN 60068-2-2 cl. 5, 6 ČSN EN 60068-2-64 ed. 2 cl. 4 to 12 ČSN EN 60068-2-27 ed. 2 ČSN EN 60068-2-5 cl. 4-10 ČSN EN 60068-2-14 ed. 2 cl. 4 to 10 ČSN EN 60068-2-6 ed. 2 cl. 4 to 13 ČSN EN 60068-2-38 cl. 3 to 8 ČSN EN 60068-2-53 cl. 3 to 6 ČSN EN 60068-2-78 ed. 2 cl. 4 to 5 ČSN EN 60068-2-75 ed. 2	Products, parts, components, materials and tools
21	Test of corrosion	ČSN ISO 6988 cl. 3 to 8 ČSN EN ISO 9227 cl. 3 to 10	Products, parts, components, materials and tools
22	Test for the verification of characteristics	ČSN EN 60243-1 ed. 2 cl. 9 ČSN EN 61621 cl. 6, 7 ČSN IEC 167 cl. 13 ČSN IEC 250 cl. 5 ČSN IEC 93 cl. 10, 11 ČSN EN 60112 cl. 8 to 11 ČSN EN 61340-5-1 ed. 2 cl. 5 ČSN EN 60243-1 ed. 2 cl. 10	Electroinsulating materials
23	Test for the verification of characteristics	ČSN IEC 674-2 cl. 3 to 5, 10, 12, 14 to 16, 29, 30 ČSN EN 60893-2 ed. 2 cl. 4 to 7 ČSN EN 60684-2 ed. 2 cl. 3, 6, 9, 13, 14, 19, 21 to 23, 25, 26, 36, 39	Electroinsulating materials
24	Test for the verification of safety and characteristics	ČSN 34 7010-82 cl. 2 to 5 IEC 60800 ed.3 cl. 3 ČSN EN 50363-1 cl. 4 ČSN EN 50363-2-1 cl. 4 ČSN EN 50363-2-2 cl. 4 ČSN EN 50363-3 cl. 4 ČSN EN 50363-4-1 cl. 4	Wires and cables, their parts, components and materials



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Ord. number ¹	Test procedure/method name	Test procedure/method identification	Tested object
		ČSN EN 50363-4-2 cl. 4 ČSN EN 50363-5 cl. 4 ČSN EN 50363-6 cl. 4 ČSN EN 50363-7 cl. 4 ČSN EN 50363-8 cl. 4 ČSN EN 50363-9-1 cl. 4 ČSN EN 50363-10-1 cl. 4 ČSN EN 50363-10-2 cl. 4 ČSN EN 60811-100 cl. 3 to 7 ČSN EN 60811-201 cl. 3 to 5 ČSN EN 60811-202 cl. 3 to 5 ČSN EN 60811-203 cl. 3 to 5 ČSN EN 60811-501 cl. 3 to 5 ČSN EN 60811-401 cl. 3 to 4 ČSN EN 60811-412 cl. 3 to 5 ČSN EN 60811-402 cl. 3 to 5 ČSN EN 60811-502 cl. 3 to 5 ČSN EN 60811-503 cl. 3 to 5 ČSN EN 60811-504 cl. 3 to 5 ČSN EN 60811-505 cl. 3 to 5 ČSN EN 60811-506 cl. 3 to 5 ČSN EN 60811-403 cl. 3 to 5 ČSN EN 60811-404 cl. 3 to 5 ČSN EN 60811-507 cl. 3 to 5 ČSN EN 60811-508 cl. 3 to 5 ČSN EN 60811-509 cl. 3 to 5 ČSN EN 60811-405 cl. 3 to 5 ČSN EN 60811-409 cl. 3 to 7 ČSN EN 60811-605 cl. 3 to 5 ČSN EN 60811-510 cl. 3 to 5 ČSN EN 60811-512 cl. 3 to 5 ČSN EN 60811-513 cl. 3 to 5 ČSN EN 50363-0 ed. 2 cl. 4 to 5 ISO 6722-1 Edition 4 cl. 4, 5 IEC 60800 ed. 3 ČSN EN 50483-4 cl. 8.2.5 except 8.2.5.2.3.1 ČSN EN 50483-6 cl. 8.1, 8.2, 8.3, 8.4.1, 8.4.2, 8.5.2 ČSN EN 50618 cl. 5 to 7	



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Ord. number ¹	Test procedure/method name	Test procedure/method identification	Tested object
25*	Test for the verification of fire safety and characteristics	ČSN EN 60332-1-1 cl. 4 ČSN EN 60332-1-2 cl. 4 ČSN EN 60332-2-1 cl. 4 to 6 ČSN EN 60332-2-2 cl. 4 to 6 ČSN EN 60332-1-3 cl. 5, 6, Annex A ČSN EN 60754-1 cl. 4 to 10 ČSN EN 60754-2 cl. 4 to 10 ČSN EN 50618 cl. 7.3.13	Wires and cables, their parts, components and materials
26	Test for the verification of characteristics	ČSN EN 60228 cl. 4 to 7	Conductors of insulated cables
27	Test for the verification of safety and characteristics	ČSN 34 7471-3 cl. 5 ČSN EN 60702-1 cl. 10 ČSN EN 60702-2 cl. 5 DIN VDE 0207 Teil 2 cl. 3 DIN VDE 0207 Teil 20 cl. 3 DIN VDE 0207 Teil 21 cl. 3 DIN VDE 0207 Teil 22 cl. 3 DIN VDE 0207 Teil 23 cl. 2 DIN VDE 0207 Teil 24 cl. 2 DIN VDE 0207 Teil 3 cl. 3 DIN VDE 0207 Teil 4 cl. 3 DIN VDE 0207 Teil 5 cl. 3 DIN VDE 0207 Teil 6 cl. 3 DIN VDE 0207 Teil 7 cl. 3 DIN VDE 0815 cl. 4, 5, 6, tab.1 ČSN EN 50395 cl. 3 to 12 ČSN EN 50396 cl. 3 to 10 ČSN EN 50214 ed. 2 cl. 5 to 9 ČSN IEC 60502-1 cl. 4 to 18 ČSN EN 50525-1 cl. 4 to 8 ČSN EN 50525-2-11 cl. 4 to 5 ČSN EN 50525-2-12 cl. 2.5, 3.5 ČSN EN 50525-2-21 cl. 4, 5 ČSN EN 50525-2-22 cl. 4 ČSN EN 50525-2-31 cl. 4, 5 ČSN EN 50525-2-41 cl. 4 ČSN EN 50525-2-42 cl. 4 ČSN EN 50525-2-51 cl. 4 ČSN EN 50525-2-71 cl. 4 ČSN EN 50525-2-72 cl. 4 ČSN EN 50525-2-81 cl. 4	Power conductors, their parts, components and materials

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Ord. number ¹	Test procedure/method name	Test procedure/method identification	Tested object
		ČSN EN 50525-2-82 cl. 4 ČSN EN 50525-2-83 cl. 4 ČSN EN 50525-3-11 cl. 4 ČSN EN 50525-3-21 cl. 4 ČSN EN 50525-3-41 cl. 4 ČSN EN 50525-3-31 cl. 4 ČSN 34 7411 cl. 4 to 7	
28	Test for the verification of safety and characteristics	ČSN 34 7503 cl. 10 to 21, Annex IV ČSN EN 60799 cl. 4 to 7 ČSN EN 61138 ed. 2 cl. 4 to 6	Special cords and conductors, their parts, components and materials
29	Test for the verification of safety and characteristics	ČSN 34 7614-1 cl. 3 to 6 ČSN 34 7614-10N cl. 2, 3 ČSN 34 7614-2 cl. 3 ČSN 34 7614-3A cl. 3 ČSN 34 7614-3C cl. 3 ČSN 34 7614-3I cl. 3 ČSN 34 7614-3L cl. 3 ČSN 34 7614-4B cl. 3 ČSN 34 7614-4E cl. 3 ČSN 34 7614-4F cl. 3 ČSN 34 7614-4G cl. 3 ČSN 34 7614-4J cl. 3 ČSN 34 7614-4K cl. 3 ČSN 34 7614-4M cl. 3 ČSN 34 7614-4N cl. 3 ČSN 34 7614-5D cl. 3 ČSN 34 7614-5I cl. 3 ČSN 34 7614-6B cl. 3 ČSN 34 7614-6D cl. 3 ČSN 34 7614-6E cl. 3 ČSN 34 7614-6J cl. 3 ČSN 34 7614-6K cl. 3 ČSN 34 7614-6N cl. 3 ČSN 34 7614-7H cl. 3 ČSN 34 7614-8H cl. 3 ČSN 34 7614-9F cl. 3 ČSN 34 7614-9G cl. 3 ČSN 34 7614-9I cl. 3 ČSN 34 7614-9N cl. 3 ČSN 34 7659-1 cl. 3 to 6 ČSN 34 7659-3A cl. 3	Power cables, their parts, components and materials



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		ČSN 34 7659-3B cl. 3 ČSN 34 7659-3D cl. 3 ČSN 34 7659-3E cl. 3 ČSN 34 7659-3F cl. 3 ČSN 34 7659-3G cl. 3 ČSN 34 7659-3H cl. 3 ČSN 34 7659-3L cl. 3 ČSN 34 7659-3M cl. 3 ČSN 34 7659-4A cl. 3 ČSN 34 7659-4C cl. 3 ČSN 34 7659-5A cl. 3 ČSN 34 7659-5B cl. 3 ČSN 34 7659-5C cl. 3 ČSN 34 7659-5D cl. 3 ČSN 34 7659-5E cl. 3 ČSN 34 7659-5F cl. 3 ČSN 34 7659-5G cl. 3 ČSN 34 7659-5H cl. 3 ČSN 34 7659-5N cl. 3 ČSN 34 7659-5O cl. 3 ČSN 34 7659-5P cl. 3 ČSN 34 7659-5U cl. 3 ČSN 34 7659-7A cl. 3 ČSN 34 7659-7B cl. 3 ČSN 34 7659-7C cl. 3 ČSN 34 7660-3A cl. 3.4 ČSN 34 7660-3B cl. 3.4 ČSN 34 7660-3C cl. 3.4 ČSN 34 7660-3F cl. 3.4 ČSN 34 7660-4A cl. 3.4 ČSN 34 7660-4B cl. 3.4 ČSN 34 7660-4C cl. 3.4 ČSN 34 7660-4D cl. 3.4 ČSN 34 7660-4F cl. 3.4 ČSN 34 7660-5B cl. 4 ČSN 34 7660-5C cl. 4 ČSN 34 7660-5D cl. 4	



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		ČSN 34 7660-5F cl. 4 ČSN 34 7660-5G cl. 4 ČSN 34 7660-5J cl. 4 ČSN EN 50305 cl. 4 to 10 ČSN EN 50306-1 cl. 4 to 9 ČSN EN 50306-2 cl. 4 to 9 ČSN EN 50306-3 cl. 4 to 9 ČSN EN 50306-4 cl. 4 to 9 ČSN 34 7660-1 ed. 2 cl. 2 to 6 ČSN 34 7660-3D ed. 2 cl. 2 to 4 ČSN 34 7660-5H ed. 2 cl. 2 to 4 ČSN 34 7660-5I ed. 2 cl. 2 to 4 ČSN EN 50264-1 ed. 2 cl. 4 to 9 ČSN EN 50264-2-1 cl. 7 to 9 ČSN EN 50264-2-2 cl. 4 to 9 ČSN EN 50264-3-2 cl. 4 to 7 ČSN EN 50264-3-1 cl. 4 to 7 ČSN 34 7660-5L cl. 4 to 9 ČSN 34 7660-4G cl. 2 to 4	
30	Test for the verification of safety and characteristics	ČSN EN 50117-1 cl. 8 to 11 ČSN EN 60966-1 cl. 5, 7 to 12 ČSN EN 50117-2-1 ed. 2 cl. 4 to 5 IEC 60189-1 ed.3:07 cl. 5 to 8 IEC 60189-2ed.4:07 cl. 4 to 7	Communication wires and cords, LF, HF and coaxial cables, their parts, components and materials
31	Test for the verification of safety and characteristics	ČSN EN 50290-2-21 cl. 3 ČSN EN 50290-2-22 cl. 3 ČSN EN 50290-2-24 cl. 3 ČSN EN 50290-2-26 cl. 3 ČSN EN 50290-2-27 cl. 3 ČSN EN 50290-2-28 cl. 3 ČSN EN 50290-2-29 cl. 3 ČSN EN 50290-2-30 cl. 3 ČSN EN 50289-1-6 cl. 6 ČSN EN 50289-4-17 cl. 4 method A, 5 to 7 ČSN EN 50290-2-23 ed. 2 ČSN EN 50290-2-25 ed. 2 ČSN EN 50289-4-17 ed. 2 cl. 5 to 7 ČSN EN 50290-2-23 ed. 2 cl. 3 ČSN EN 50290-2-25 ed. 2 cl. 3	LF instrument, signalling and communication cables, their parts, components and materials

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Ord. number ¹	Test procedure/method name	Test procedure/method identification	Tested object
32	Test for the verification of safety and characteristics	ČSN 35 0000-1-1 cl. 4 to 7, tab 1: 1 to 7, 11, 13, 14, tab 2: 1 to 7, 11, 13, 14, 16, tab 3: 1 to 7, 11, 13 to 16, 18 ČSN 35 0010 cl. 4, 7 to 10	Rotating electrical machines, their parts, components and accessories
33	Test for the verification of safety and characteristics	ČSN EN 61558-2-12 ed. 2 cl. 6 to 28 ČSN EN 61558-2-2 ed. 2 cl. 6 to 28 ČSN EN 61558-2-20 ed. 2 cl. 6 to 28 ČSN EN 61558-2-23 ed. 2 cl. 6 to 28 ČSN EN 62041 ed. 2 cl. 5 ČSN EN 61558-2-1 ed. 2 cl. 4 to 28 ČSN EN 61558-2-3 ed. 2 cl. 4 to 28 ČSN EN 61558-2-4 ed. 2 cl. 4 to 28 ČSN EN 61558-2-5 ed. 2 cl. 4 to 28 ČSN EN 61558-2-6 ed. 2 cl. 4 to 28 ČSN EN 61558-2-7 ed. 2 cl. 4 to 28 ČSN EN 61558-2-8 ed. 2 cl. 4 to 28 ČSN EN 61558-2-9 ed. 2 cl. 4 to 28 ČSN EN 61558-1 ed. 2 cl. 4 to 28 ČSN EN 61558-2-13 ed. 2 cl. 6 to 28 ČSN EN 61558-2-16 cl. 6 to 28 ČSN EN 61558-2-15 ed. 2 cl. 4 to 28	Measuring, isolating and instrument transformers
34	EMC Test	ČSN EN 61204-3 cl. 6, 7	Power semiconductor converters and rectifiers
35	EMC Test	ČSN EN 61800-3 ed. 2 cl. 3 to 7, Annex A to E	Thyristor drives
36	Test for the verification of safety and characteristics	ČSN EN 60352-1 cl. 5 to 6 ČSN EN 60352-2 ed. 2 cl. 7 to 17 ČSN EN 60352-3 cl. 11 to 13 ČSN EN 60352-4 cl. 11 to 13 ČSN EN 60352-6 cl. 5	Electronic parts
37	Test for the verification of safety and characteristics	ČSN EN 60898-1 cl. 6 to 9.7, 9.14 to 9.16 ČSN EN 60898-2 ed. 2 cl. 6 to 9.7, 9.14 to 9.16 ČSN EN 60947-3 ed. 3 cl. 4 to 7.1, 7.2.3, 7.3, 8.1, 8.2, 8.3.3.2, 8.4 ČSN EN 60947-4-1 ed. 3 cl. 5 to 8.1, 8.2.3, 8.3, 9.1, 9.2, 9.3.3.4, 9.4 ČSN EN 60947-4-3 ed. 2 cl. 5 to 8.1, 8.2.3, 8.3, 9.1, 9.2, 9.3.3.4, 9.4 ČSN EN 60947-7-1 ed. 3 cl. 4 to 7.1, 7.2.1, 7.2.2, 7.2.4, 7.3, 8.1 to 7.4.5, 8.5, 8.6 ČSN EN 60947-7-2 ed. 3 cl. 4 to 7.1, 7.2.1, 7.2.2, 7.2.4, 7.3, 8.1 to 7.4.5, 8.5, 8.6	Power cables, their parts, components and materials

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Ord. number ¹	Test procedure/method name	Test procedure/method identification	Tested object
		ČSN EN 61008-2-1 cl. 5 to 7, 9.1 to 9.8, 9.13, 9.14, 9.22, 9.24 ČSN EN 61009-2-1 cl. 5 to 7, 9.1 to 9.8, 9.13, 9.14, 9.22, 9.24 ČSN EN 61058-2-1 ed. 2 cl. 5 to 16, 18 to 22, 25 ČSN EN 60669-1 ed. 2 cl. 5 to 17, 20 to 26 ČSN EN 60947-1 ed. 4 cl. 4 to 7.1, 7.2.3, 7.3, 8.1, 8.2, 8.3.3.4, 8.4 ČSN EN 60947-5-1 ed. 2 cl. 4 to 7.1, 7.2.3, 7.3, 8.1, 8.2, 8.3.3.4 ČSN EN 60669-2-1 ed. 3 cl. 5 to 17, 20 to 26 ČSN EN 60947-2 ed. 3 cl. 4 to 7.1, 7.2.3, 7.3, 8.1, 8.2, 8.3.3.2 ČSN EN 61058-1 cl. 5 to 16, 18 to 22, 25 ČSN EN 61008-1 ed. 3 cl. 5 to 7, 9.1 to 9.8, 9.13, 9.14, 9.22, 9.24 ČSN EN 61009-1 ed. 3 cl. 5 to 7, 9.1 to 9.8, 9.13, 9.14, 9.22, 9.24	
38	Test for the verification of safety and characteristics	ČSN 35 4516 cl. 3 to 29 ČSN EN 50075 cl. 3 to 17 ČSN EN 60309-2 ed. 3 cl. 4 to 30 ČSN EN 60320-1 ed. 3 cl. 4 to 29 ČSN EN 60320-2-1 ed. 2 cl. 4 to 29 ČSN EN 60320-2-2 ed. 2 cl. 4 to 29 ČSN EN 60320-2-3 cl. 4 to 29 ČSN EN 61242 cl. 4 to 27 ČSN IEC 60884-1 cl. 6 to 12, 14, 16, 17, 19, 23 to 25, 27, 28 ČSN IEC 60884-2-7+A1 cl. 6 to 30	Sockets and plugs, their parts, components and materials
39	Test for the verification of safety and characteristics	ČSN EN 60269-4 ed. 3 cl. 3 to 8 ČSN EN 60269-1 ed. 3 cl. 3 to 8 ČSN 35 4701-2 ed. 3 cl. 6 to 8 ČSN 35 4701-3 ed. 2 cl. 6 to 8	LV and HV fuses, their parts, components and materials



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Ord. number ¹	Test procedure/method name	Test procedure/method identification	Tested object
40	Test for the verification of safety and characteristics	ČSN EN 62052-11 cl. 4 to 8 ČSN EN 62053-11 cl. 4 to 9 ČSN EN 62053-21 cl. 5 to 8 ČSN EN 62053-22 cl. 4 to 8 ČSN EN 62053-23 cl. 4 to 8 ČSN EN 62054-11 cl. 5 to 8 ČSN EN 62054-21 cl. 5 to 8 ČSN EN 62052-21 cl. 5 to 8 ČSN EN 50470-1 cl. 5.2.2, 5.8, 5.9, 6.3, 7.3 ČSN EN 50470-2 cl. 5.2.2, 5.8, 5.9, 6.3, 7.3 ČSN EN 50470-3 cl. 5.2.2, 5.8, 5.9, 6.3, 7.3	Energy meters, their parts, components and accessories
41	Test for the verification of safety and characteristics	ČSN EN 61010-031 cl. 4 to 16 ČSN EN 61010-2-101 cl. 4 to 16 ČSN EN 61010-2-040 cl. 4 to 16 ČSN EN 61010-1 ed. 2 cl. 4 to 17 ČSN EN 61010-2-033 cl. 4 to 101, Annex AA ČSN EN 61010-2-032 ed. 3 cl. 5 to 17, 101 to 102, Annex D, K ČSN EN 61326-1 ed. 2 cl. 5 to 8, Annex A	Electric instrumentation, including nuclear technology, their parts, components and accessories
42	Test for the verification of safety and characteristics	ČSN EN 62208 ed. 2 cl. 9.7, 9.8, 9.9.3, 9.13 ČSN EN 62208 ed. 2 cl. 4 to 9	Distribution boards, racks and assemblies, their parts, components and accessories
43	Test for the verification of safety and characteristics	ČSN EN 61439-2 ed. 2 cl. 6 to 10 ČSN EN 61439-1 ed. 2 cl. 8 to 10.2, 10.12, 10.13 ČSN EN 61439-3 cl. 5 to 10 ČSN EN 61439-4 cl. 5 to 10 ČSN EN 61439-6 cl. 5 to 10 ČSN EN 61439-5 ed. 2 cl. 5 to 10	Power panels, their parts, components and accessories
44	Test for the verification of safety and characteristics	ČSN EN 60903 ed. 2 cl. 8	Personal protective equipment, including related parts, components and materials
45	Measurement of light and light characteristics	ČSN 36 0010 cl. 4 to 7 ČSN EN 61547 ed. 2 cl. 4 to 8 ČSN EN 62493 cl. 4 ČSN EN 62493 ed. 2 cl. 4 to 6	Lighting equipment, including related parts, components and materials



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Ord. number ¹	Test procedure/method name	Test procedure/method identification	Tested object
46	Test for the verification of safety and characteristics	ČSN EN 60838-2-1 cl. 3 to 19 ČSN EN 60238 ed. 4 cl. 3 to 21 ČSN EN 60838-1 ed. 2 cl. 3 to 17 ČSN EN 60400 ed. 3 cl. 3 to 18	Light sockets and holders, their parts, components and materials
47	Test for the verification of safety and characteristics	ČSN EN 50285 cl. 4 to 6 ČSN EN 61347-2-1 cl. 5 to 26 ČSN EN 61347-2-10 cl. 6 to 23 ČSN EN 61347-2-11 cl. 6 to 19 ČSN EN 61347-2-3 ed. 2 cl. 6 to 22 ČSN EN 61347-2-8 cl. 6 to 21 ČSN EN 61347-2-9 ed. 2 cl. 6 to 21 ČSN EN 61347-1 ed. 2 cl. 7 to 20 ČSN EN 61347-2-13 ed. 2 cl. 7 to 21 ČSN EN 61347-1 ed. 3 cl. 4 to 15	Parts and components of lighting fixtures
48	Test for the verification of safety and characteristics	ČSN EN 60570 ed. 2 cl. 6 to 18 ČSN EN 60598-2-1 cl. 3 to 15 ČSN EN 60598-2-10 ed. 2 cl. 3 to 15 ČSN EN 60598-2-17 +A2 cl. 3 to 15 ČSN EN 60598-2-18 cl. 3 to 15 ČSN EN 60598-2-19 cl. 3 to 15 ČSN EN 60598-2-22 ed. 2 cl. 3 to 15 ČSN EN 60598-2-23 cl. 3 to 15 ČSN EN 60598-2-24 ed. 2 cl. 3 to 15 ČSN EN 60598-2-25 cl. 3 to 15 ČSN EN 60598-2-3 ed. 2 cl. 3 to 15 ČSN EN 60598-2-4 cl. 3 to 15 ČSN EN 60598-2-5 cl. 3 to 15 ČSN EN 60598-2-7 cl. 3 to 15 ČSN EN 60598-2-9 cl. 4 to 16 ČSN EN 60598-2-11 ed. 2 cl. 3 to 15 ČSN EN 60598-2-12 ed. 2 cl. 3 to 15 ČSN EN 60598-1 ed. 6 cl. 3 to 15 ČSN EN 60598-2-13 cl. 3 to 15 ČSN EN 60598-2-14 cl. 6 to 17 ČSN EN 60598-2-20 ed. 3 cl. 6 to 16 ČSN EN 60598-2-2 ed. 2 cl. 3 to 16	Electric lighting fixtures, their parts, components and accessories
49	Test for the verification of safety	ČSN EN 62031 cl. 5 to 19 ČSN EN 62560 cl. 4 to 14	LED modules for general lighting



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Ord. number ¹	Test procedure/method name	Test procedure/method identification	Tested object
50	Test for the verification of safety and characteristics	ČSN EN 60335-1 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G ČSN EN 60335-2-10 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-101 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-103 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-105 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-12 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-14 ed. 3 cl. 4 to 11, 13, 15 to 32, C, F, G, J to N ČSN EN 60335-2-15 ed. 2 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G ČSN EN 60335-2-16 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-21 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-23 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-26 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-28 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-3 ed. 2 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G ČSN EN 60335-2-31 ed. 3 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-32 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-35 ed. 2 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G ČSN EN 60335-2-36 ed. 3 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G ČSN EN 60335-2-37 ed. 3 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G ČSN EN 60335-2-38 ed. 3 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G ČSN EN 60335-2-39 ed. 3 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G ČSN EN 60335-2-40 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-41 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-42 ed. 3 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G ČSN EN 60335-2-43 ed. 2 cl. 4 to 11, 13, 15 to 32,	Electric home appliances, their parts, components and accessories

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Ord. number ¹	Test procedure/method name	Test procedure/method identification	Tested object
		B to O ČSN EN 60335-2-44 ed. 2 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G ČSN EN 60335-2-45 ed. 2 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G ČSN EN 60335-2-47 ed. 3 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G ČSN EN 60335-2-48 ed. 3 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G ČSN EN 60335-2-49 ed. 3 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G ČSN EN 60335-2-5 ed. 3 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-50 ed. 3 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G ČSN EN 60335-2-51 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-52 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-55 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-56 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-58 ed. 2 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G ČSN EN 60335-2-59 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-6 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-60 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-61 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-62 ed. 2 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G ČSN EN 60335-2-64 ed. 2 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G ČSN EN 60335-2-65 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-66 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-70 ed. 2 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G ČSN EN 60335-2-71 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O	



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Ord. number ¹	Test procedure/method name	Test procedure/method identification	Tested object
		ČSN EN 60335-2-73 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-74 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-76 ed. 2 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G ČSN EN 60335-2-78 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-8 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-80 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-81 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-82 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-83 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G ČSN EN 60335-2-84 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-85 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-86 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-87 ed. 2 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G ČSN EN 60335-2-88 ed. 2 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G ČSN EN 60335-2-9 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-90 ed. 3 cl. 4 to 11, 13, 15 to 32, AA, BB, CC ČSN EN 60335-2-96 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-97 ed. 2 cl. 4 to 11, 13, 15-32, B to O ČSN EN 60335-2-98 ed. 2 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60335-2-99 cl. 4 to 11, 13, 15 to 32, B to O ČSN EN 60704-1 ed. 2 cl. 3 to 10 ČSN EN 60704-2-13 ed. 2 cl. 3 to 10, Annex AA ČSN EN 60704-2-2 ed. 2 cl. 3 to 10 ČSN EN 60335-2-29 ed. 2 cl. 4 to 32, Annex A, ZA ČSN EN 60335-2-75 ed. 2 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G	

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Ord. number ¹	Test procedure/method name	Test procedure/method identification	Tested object
		ČSN EN 60335-2-95 ed. 2 cl. 4 to 11, 13, 15 to 32, C, F, J to N, E, G ČSN EN 60704-3 ed. 2 cl. 4 to 6, Annex A ČSN EN 62233 cl. 4 to 6 ČSN EN 60335-1 ed. 3 cl. 4 to 11, 13, 15 to 32, Annex B to R ČSN EN 60335-1 ed. 2 cl. 4 to 11, 13, 15 to 32, Annex C, E ČSN EN 60335-2-54 ed. 3 cl. 4 to 11, 13, 15 to 32, Annex B to R ČSN EN 60335-2-77 ed. 3 cl. 4 to 11, 13, 15 to 32, Annex B to R ČSN EN 60335-2-89 ed. 2 cl. 4 to 11, 13, 15 to 32, Annex B to R ČSN EN 60335-2-11 ed. 4 cl. 4 to 11, 13, 15 to 32, Annex B to O, AA ČSN EN 60335-2-13 ed. 3 cl. 4 to 11, 13, 15 to 32, Annex B to O ČSN EN 60335-2-17 ed. 3 cl. 4 to 11, 13, 15 to 32, Annex B to R, AA, CC ČSN EN 60335-2-24 ed. 5 cl. 4 to 11, 13, 15 to 32, Annex C, D, P, AA, BB ČSN EN 60335-2-34 ed. 4 cl. 4 to 11, 13, 15 to 32, Annex B, E to R ČSN EN 60335-2-67 ed. 4 cl. 4 to 11, 13, 15 to 32, Annex B, C, E to G, J to N, AA, BB, CC, DD ČSN EN 60335-2-68 ed. 4 cl. 4 to 11, 13, 15 to 32, Annex B, C, E to G, J to N, AA, BB ČSN EN 60335-2-69 ed. 4 cl. 4 to 11, 13, 15 to 32, Annex B to R, EE, FF ČSN EN 60335-2-72 ed. 2 cl. 4 to 11, 13, 15 to 32, Annex B to R, AA to EE ČSN EN 60335-2-79 ed. 4 cl. 4 to 11, 13, 15 to 32, Annex B to R, BB to EE ČSN EN 60335-2-2 ed. 3 cl. 4 to 11, 13, 15 to 32, Annex B to O	
51	Test for the verification of safety	ČSN EN 60745-2-15 cl. 4 to 30,31.2, Annex A, B, F, G, I, J, K, L, M ČSN EN 60745-2-12 ed. 2 cl. 4 to 29, Annex B, C, D, I ČSN EN 60745-2-14 cl. 4 to 29, Annex B, C, D, I ČSN EN 60745-2-4 ed. 2 cl. 4 to 29, Annex B, C, D, I ČSN EN 60745-2-8 ed. 2 cl. 4 to 29, Annex B, C, D, I ČSN EN 61029-1 ed. 3 cl. 4 to 29, Annex B, C, Z ČSN EN 61029-2-11 ed. 3 cl. 4 to 29, Annex B, C, D, Z	Electric hand tools, their parts, components and accessories



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Ord. number ¹	Test procedure/method name	Test procedure/method identification	Tested object
		ČSN EN 61029-2-8 cl. 4 to 29, Annex B, C, D, Z ČSN EN 60745-1 ed. 3 cl. 4 to 30, 31.2, Annex A, B, F, G, I, J, K, L, M ČSN EN 60745-2-13 cl. 4 to 30, 31.2, Annex A, B, F, G, I, J, K, L, M ČSN EN 60745-2-9 ed. 2 cl. 4 to 30, 31.2, Annex A, B, F, G, I, J, K, L, M ČSN EN 60745-2-1 ed. 2 cl. 4 to 30, Annex A, B, F, G, I, M ČSN EN 60745-2-11 ed. 2 cl. 4 to 30, Annex A, B, F, G, I, M ČSN EN 60745-2-17 ed. 2 cl. 4 to 30, Annex A, B, F, G, I, M ČSN EN 60745-2-2 ed. 2 cl. 4 to 30, Annex A, B, F, G, I, M ČSN EN 60745-2-5 ed. 3 cl. 4 to 30, Annex A, B, F, G, I, M ČSN EN 60745-2-6 ed. 2 cl. 4 to 30, Annex A, B, F, G, I, M ČSN EN 60745-2-3 ed. 2 cl. 4 to 30, Annex A, B, F to M ČSN EN 50580 cl. 4, 5, 7 to 32, A, B, F, G, I to M ČSN EN 62841-1 cl. 5, 6 to 28, Annex B,C,D, I,K,L ČSN EN 62841-2-2 cl. 5, 6 to 28, Annex B,C,D, I,K,L ČSN EN 62841-2-4 cl. 5, 6 to 28, Annex B,C,D, I,K,L ČSN EN 62841-2-5 cl. 5, 6 to 28, Annex B,C,D,I,K,L,AA,BB ČSN EN 62841-2-9 cl. 5, 6 to 28, Annex B,C,D, I,K,L ČSN EN 62841-2-11 cl. 5, 6 to 28, Annex B,C,D, I,K,L ČSN EN 62841-2-14 cl. 5, 6 to 28, Annex B,C,D, I,K,L ČSN EN 62841-3-1 cl. 5, 6 to 28, Annex B,C,D, I,K,L ČSN EN 62841-3-6 cl. 5, 6 to 28, Annex B,C,D, I,K,L ČSN EN 62841-3-9 cl. 5, 6 to 28, Annex B,C,D, I,K,L ČSN EN 62841-3-10 cl. 5, 6 to 28, Annex B,C,D, I,K,L	



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Ord. number ¹	Test procedure/method name	Test procedure/method identification	Tested object
52	Electrical safety test	ČSN EN 60730-1 cl. 5 to 27 ČSN EN 60730-2-1 cl. 5 to 27 ČSN EN 60730-2-14 cl. 5 to 27 ČSN EN 60730-2-15 ed. 2 cl. 5 to 27 ČSN EN 60730-2-19 cl. 5 to 27 ČSN EN 60730-2-2 ed. 2 cl. 5 to 27 ČSN EN 60730-2-5 ed. 2 cl. 5 to 27 ČSN EN 60730-2-8 ed. 2 cl. 5 to 27 ČSN EN 60730-2-12 ed. 2 cl. 5 to 27 ČSN EN 60730-2-10 ed. 2 cl. 5 to 27 ČSN EN 60730-2-11 ed. 2 cl. 5 to 27 ČSN EN 60730-2-13 ed. 2 cl. 5 to 27 ČSN EN 60730-2-3 ed. 2 cl. 5 to 27 ČSN EN 60730-2-4 ed. 2 cl. 5 to 27 ČSN EN 60730-1 ed. 2 cl. 3 to 28 ČSN EN 60730-2-6 ed. 2 cl. 3 to 28 ČSN EN 60730-2-7 ed. 2 cl. 3 to 28 ČSN EN 60730-2-9 ed. 3 cl. 5 to 27	Home control equipment, including related parts, components and accessories
53	Test for the verification of safety and characteristics	ČSN EN 60086-1 ed. 4 cl. 4 to 8 ČSN EN 60086-2 ed. 4 cl. 4 to 6 ČSN EN 60086-3 ed. 3 cl. 4 to 8 ČSN EN 60086-4 ed. 2 cl. 4 to 9 ČSN EN 60086-5 ed. 3 cl. 4 to 9	Primary cells and batteries
54	Test for the verification of safety and characteristics	ČSN EN 60622 ed. 2 cl. 2 to 6 ČSN EN 60623 ed. 2 cl. 3, 4 ČSN EN 62133 ed. 2 cl. 2 to 6 ČSN EN 62259 cl. 5 to 10 ČSN EN 50342-1 cl. 1.3 to 5, Annex A to C ČSN EN 60896-11 cl. 4 to 24, Annex ZA ČSN EN 50342-2 cl. 4 to 6 ČSN EN 50342-4 cl. 4 to 6 ČSN EN 60254-2 ed. 2 cl. 4 to 5 ČSN EN 61951-1 ed. 3 ČSN EN 61951-2 ed. 3	Accumulators, their parts, components and accessories
55	Test for the verification of safety and characteristics	ČSN EN 60601-1 cl. 3 to 7, 10, 13 to 25, 28 to 45, 47 to 59 ČSN EN 60601-1-1 ed. 2 cl. 3 to 7, 10, 13 to 25, 28 to 45, 48 to 59 ČSN EN 60601-1-2 ed. 2 cl. 3 to 7, 10, 13 to 25, 28 to 45, 48 to 59 ČSN EN 60601-2-10 cl. 3 to 7, 10, 13 to 25, 28 to 45, 48 to 59 ČSN EN 60601-2-16 cl. 3 to 7, 10, 13 to 25, 28 to 45, 48 to 59	Medical devices, their parts, components and accessories

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Certificate of Accreditation No. 603/2017 of 12/10/ 2017**

Accredited entity according to ČSN EN ISO/IEC 17025:2005:

Elektrotechnický zkušební ústav, s. p.
Testing Laboratory
Pod Lisem 129/2, Troja, 171 02 Praha 8

Ord. number ¹	Test procedure/method name	Test procedure/method identification	Tested object
		48 to 59 ČSN EN 60601-2-18 cl. 3 to 7, 10, 13 to 25, 28 to 45, 48 to 59 ČSN EN 60601-2-24 cl. 3 to 7, 10, 13 to 25, 28 to 45, 48 to 59 ČSN EN 60601-2-25 cl. 3 to 7, 10, 13 to 25, 28 to 45, 48 to 59 ČSN EN 60601-2-26 ed. 2 cl. 3 to 7, 10, 13 to 25, 28 to 45, 48 to 59 ČSN EN 60601-2-3 cl. 3 to 7, 10, 13 to 25, 28 to 45, 48 to 59 ČSN EN 60601-2-34 ed. 3 cl. 3 to 7, 10, 13 to 25, 28 to 46, 48 to 59 ČSN EN 60601-2-36 cl. 3 to 7, 10, 13 to 26, 28 to 45, 48 to 59 ČSN EN 60601-2-40 cl. 3 to 7, 10, 13 to 25, 28 to 46, 48 to 59 ČSN EN 60601-2-47 cl. 3 to 7, 10, 13 to 25, 28 to 45, 48 to 59 ČSN EN 60601-2-49 cl. 3 to 7, 10, 13 to 25, 28 to 45, 48 to 59 ČSN EN 60601-2-5 cl. 3 to 7, 10, 13 to 25, 28 to 45, 48 to 59 ČSN EN 60601-1 ed. 2 cl. 4 to 17, Annex L ČSN EN 60601-2-27 ed. 2 cl. 3 to 7, 10, 13 to 25, 28 to 45, 48 to 59 ČSN EN 60601-1-2 ed. 2 cl. 6 ČSN EN 60601-2-39 ed. 2 cl. 201.4 to 201.17, 202, 206 ČSN EN 60601-1-6 ed. 3 cl. 4, 5 ČSN EN 62366 cl. 4 to 7 ČSN EN 60601-1-11 cl. 4 to 13 ČSN EN 60601-1-8 ed. 2 cl. 4 to 6 ČSN EN 60601-2-2 ed. 3 cl. 201.4 to 201.17, 202, 208 ČSN EN 80601-2-35 cl. 201.4 to 201.17, 202, 208, Annex BB, CC, DD, EE, FF, GG, HH ČSN EN 60601-2-31 ed. 2 cl. 201.4 to 201.17 ČSN EN 60601-1-10 cl. 4 to 8 ČSN EN 80601-2-30 cl. 201.4-201.17, 201. 101 to 201.106, 202 ČSN EN 60601-2-46 ed. 2 cl. 201.4 to 201.17, 202 ČSN EN 60601-2-28 ed. 2 cl. 201.4 to 201.17, 203 ČSN EN 60601-2-41 ed. 2 cl. 201.4 to 201.17 ČSN EN 60601-2-43 ed. 2 cl. 201.4 to 201.17, 202, 203	

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Elektrotechnický zkušební ústav, s. p.

Testing Laboratory

Pod Lisem 129/2, Troja, 171 02 Praha 8

Ord. number ¹	Test procedure/method name	Test procedure/method identification	Tested object
		ČSN EN 60601-2-44 ed. 3 cl. 201.4 to 201.17, 203 ČSN EN 60601-2-50 ed. 2 cl. 201.4 to 201.17, 202 ČSN EN 60601-2-52 cl. 201.4 to 201.17 ČSN EN 60601-2-54 cl. 201.4 to 201.17, 202, 203 ČSN EN 60601-2-19 cl. 201.4 to 201.17, 202, 210 ČSN EN 60601-2-33 ed. 3 cl. 201.4 to 201.17, 202 ČSN EN 60601-2-22 ed. 2 IEC 60601-2-22 ed. 3 cl. 201.4 to 201.17 IEC 60601-1 ed. 3 cl. 4 to 17, Annex L ČSN EN 60601-2-10 ed. 2 cl. 201.4 to 201.17, 202 IEC 60601-2-10 ed. 2 cl. 201.4 to 201.17, 202 IEC 60601-1-2 ed. 3 cl. 4 to 6 IEC 60601-1-2 ed. 4 cl. 4 to 9 ČSN EN 60601-2-3 ed. 2 cl. 201.4 to 201.17 IEC 60601-2-3 ed. 3 cl. 201.4 to 201.17 ČSN EN 60601-2-5 ed. 2 cl. 201.4 to 201.17, 202 IEC 60601-2-5 ed. 3 cl. 201.4 to 201.17, 202 ČSN EN 60601-1-2 ed. 3 cl. 5 to 9, Annex F to I ČSN EN 60601-1-11 ed. 2 cl. 4 to 13 ČSN EN 60601-1-12 cl. 4 to 11 ČSN EN 60601-1-3 ed. 2 cl. 6, 29 ČSN EN 60601-2-18 ed. 2 cl. 201.4 to 201.17, 202 ČSN EN 60601-2-24 ed. 2 cl. 201.4 to 201.17, 202, 206, 208 ČSN EN 60601-2-36 ed. 2 cl. 201.4 to 201.17, 202	
56	Test for the verification of safety and characteristics	ČSN EN ISO 81060-1 cl. 4 to 12	Medical devices, their parts, components and accessories
57	Test for the verification of safety and characteristics	ČSN EN 45502-1 cl. 5, 7 to 13, 15 to 21, 23 to 28 ČSN EN 45502-2-1 cl. 5, 7 to 13, 15 to 21, 23 to 28 ČSN EN 45502-2-2 cl. 5 to 13, 15 to 21, 23 to 28	Active implantable medical devices, their parts, components and accessories
58	Test for the verification of parameters	ČSN 36 5601-1 cl. 3 to 8	Light signalling devices, their parts, components and accessories
59	Test for the verification of safety and characteristics	ČSN EN 60065 cl. 4 to 17, 19, 20 ČSN EN 62040-1 cl. 4 to 9	Audio, video and similar electronic apparatus, their parts, components and accessories



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Testing Laboratory

Pod Lisem 129/2, Troja, 171 02 Praha 8

Ord. number ¹	Test procedure/method name	Test procedure/method identification	Tested object
60*	Test for the verification of safety and characteristics	ČSN EN 62471 cl. 5, 6 ČSN EN 60825-1 ed. 3 cl. 4 to 9 IEC 60825-1 ed. 2 cl. 4 to 9 IEC 60825-1 ed. 3 cl. 4 to 9	Lasers, laser light sources and systems
61	Test for the verification of characteristics	ČSN EN 60118-13 ed. 3 cl. 6, 7	Equipment for the measurement and correlation of electroacoustic quantities, their parts, components and accessories
62	Test for the verification of safety and characteristics	ČSN EN 60950-1 ed. 2 cl. 1.4 to 7, Annex A to ZC MP 3.8 (ČSN ISO/IEC 12119) cl. 4	Information technology and software
63	Test for the verification of safety and characteristics	ČSN EN 61386-24 cl. 4 to 15 ČSN EN 50085-2-1 cl. 5 to 15	Cable trunking and ducting systems for electrical installations, their parts, components and materials
64	Test for the verification of safety and characteristics	ČSN EN 60670-1 cl. 5 to 16	Installation products for interior LV distribution 2, their parts, components
65	Test for the verification of safety and characteristics	ČSN EN 60998-1 ed. 2 cl. 8 to 19 ČSN EN 60998-2-2 ed. 2 cl. 8 to 19 ČSN EN 60998-2-1 ed. 2 cl. 8 to 19 ČSN EN 60998-2-3 ed. 2 cl. 8 to 19 ČSN EN 60998-2-4 ed. 2 cl. 8 to 19	Connections and terminals, their parts, components and materials
66*	Test for the verification of safety and characteristics	ČSN EN 60947-7-3 ed. 2 cl. 5, 5.1, 5.2, 7.1.3, 8.4.3	Terminal blocks, their parts, components and materials
67	Test for the verification of safety and characteristics	ČSN EN 1870-10 ČSN EN 1870-11 ČSN EN 1870-12	Wood processing machines, their parts, components and accessories
68	Test for the determination of characteristics	ČSN EN ISO 62 ČSN EN ISO 4892-2	Rigid plastics
69	Test for the verification of safety and characteristics	ČSN EN ISO 2409 cl. 6	Paints and varnishes and varnishes for electrical installations



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Pod Lisem 129/2, Troja, 171 02 Praha 8

Ord. number ¹	Test procedure/method name	Test procedure/method identification	Tested object
70	Vibration conditioning test	ČSN EN 1859+A1 cl. 4.5.2.2	Metal chimneys and their parts
71	Test of safety and function	ČSN EN 12352 cl. 4.1.2, 4.1.5, 4.2, 6.1 to 6.5, 6.7 ČSN EN 12368 ed. 2 cl. 5.2, 8, 9 ČSN EN 12899-1 cl. 5.2, 5.4, 6.1 to 6.5 ČSN EN 12675 cl. 5 to 7 ČSN EN 12966 cl. 4 to 13	Traffic control equipment, including related parts, components and accessories
72	Test for the verification of safety aspects	ČSN EN ISO 13849-1 cl. 5	Machines, their parts, components and accessories
73	Test of safety and characteristics	ČSN EN ISO 13850 cl. 4	Machine protection systems, their parts, components and accessories
74	Test for the determination of the content of substances in materials	ZP 344/02 cl. 3	Products, parts, components, materials and tools
75	Test of safety and characteristics	ZP No. 3694301/1 cl. 3, 4	Gambling devices, their parts, components and accessories

¹⁾ Asterisk at the test procedure number identifies the tests carried out outside / also outside the laboratory premises.

Explanations and abbreviations:

- MP Guideline (Internal test procedure prepared by ZL EZÚ)
 UL Underwriters Laboratories standards
 ZP Test Procedure (Internal test procedure prepared by ZL EZÚ)



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Testing Laboratory
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2. PRAKAB SITE

Tests:

Ordinal number	Test procedure/ method name	Test procedure/method identification		Tested object
1	Test for the verification of safety and characteristics	ČSN EN 61034-1 ČSN EN 61034-2	cl. 4÷10 cl. 5÷9	Wires and cables, their parts, components and materials
2	Fire resistance test	ČSN EN 50200 ed. 2 ČSN EN 50362 ČSN EN 50399 ČSN EN 60332-1-1 ČSN EN 60332-1-2 ČSN EN 60332-1-3 ČSN EN 60332-2-1 ČSN EN 60332-2-2 ČSN EN 60332-3-10 ČSN EN 60332-3-21 ČSN EN 60332-3-22 ČSN EN 60332-3-23 ČSN EN 60332-3-24 ČSN EN 60332-3-25 ČSN EN 60754-1 ČSN EN 60754-2 ČSN IEC 60331-11 ČSN IEC 60331-21 ČSN IEC 60331-23 ČSN IEC 60331-25	cl. 4÷10 cl. 4÷11 cl. 1÷8 except cl. 4.7.2 cl. 4 cl. 4 cl. 5, 6, Annex A cl. 4÷6 cl. 4÷6 cl. 4÷6 cl. 4÷9 cl. 4÷9 cl. 4÷9 cl. 4÷9 cl. 4÷9 cl. 4÷10 cl. 4÷10 cl. 5 cl. 6 cl. 6 cl. 6	Wires and cables, their parts, components and materials

- ¹⁾ Asterisk at the ordinal number identifies the tests, which the Laboratory is qualified to carry out outside the permanent laboratory premises.





NÁRODNÍ AKREDITAČNÍ ORGÁN

EA MLA Signatory
Český institut pro akreditaci, o.p.s.
Olšanská 54/3, 130 00 Praha 3

issues

according to section 16 of Act No. 22/1997 Coll., on technical requirements for products, as amended

CERTIFICATE OF ACCREDITATION

No. 487/2017

Elektrotechnický zkušební ústav, s.p.
with registered office Pod lisem 129/2, Troja, 171 02 Praha 8, Company Registration No. 00001481

to Certification Body No. 3004
EZÚ Certification Body for Certification of Management Systems

Scope of accreditation:

Certification of quality management system, environmental management system, occupational health and safety management system, information security management system, IT management system and medical devices quality management system; verification and approval of Environmental Declarations (EMAS) to the extent as specified in the appendix to this Certificate.

This Certificate of Accreditation is a proof of Accreditation issued on the basis of assessment of fulfillment of the accreditation criteria in accordance with

ČSN EN ISO/IEC 17021-1:2016

In its activities performed within the scope and for the period of validity of this Certificate, the Body is entitled to refer to this Certificate, provided that the accreditation is not suspended and the Body meets the specified accreditation requirements in accordance with the relevant regulations applicable to the activity of an accredited Conformity Assessment Body.

This Certificate of Accreditation replaces, to the full extent, Certificate No.: 158/2017 of 13. 3. 2017, or any administrative acts building upon it.

The Certificate of Accreditation is valid until: **16. 12. 2021**

Prague: 15. 8. 2017



Jiří Růžička
Jiří Růžička
Director
Czech Accreditation Institute
Public Service Company

**The Appendix is an integral part of
Certificate of Accreditation No. 487/2017 of 15/8/2017**

Accredited entity according to ČSN EN ISO/IEC 17021-1:2016:

Elektrotechnický zkušební ústav, s.p.
EZÚ Certification Body for Certification of Management Systems
Pod Lisem 129, 171 02 Praha 8 - Troja

Ordinal number	Field code ¹⁾	Field name ¹⁾	Limited to (CZ-NACE codes) ²⁾	Specification of standards (normative documents) ³⁾
1	12	Manufacture of chemicals, chemical products and man-made fibres		ČSN EN ISO 9001:2016 EN ISO 9001:2015 ISO 9001:2015
		Manufacture of other chemical products n.e.c. - Manufacture of photographic chemicals	20.59	ČSN EN ISO 9001:2009 EN ISO 9001:2008 ISO 9001:2008
		Manufacture of soap and detergents, cleaning and polishing preparations	20.41	ČSN OHSAS 18001:2008 BS OHSAS 18001:2008 ČSN EN ISO 14001:2016 EN ISO 14001:2015 ISO 14001:2015 ČSN EN ISO 14001:2005 EN ISO 14001:2004 ISO 14001:2004
2	14	Manufacture of rubber and plastic products		ČSN EN ISO 9001:2016 EN ISO 9001:2015
		Manufacture of other rubber products	22.19	ISO 9001:2015 ČSN EN ISO 9001:2009
		Manufacture of plastics products	22.2	EN ISO 9001:2008 ISO 9001:2008 ČSN OHSAS 18001:2008 BS OHSAS 18001:2008 ČSN EN ISO 14001:2016 EN ISO 14001:2015 ISO 14001:2015 ČSN EN ISO 14001:2005 EN ISO 14001:2004 ISO 14001:2004



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Elektrotechnický zkušební ústav, s.p.
EZÚ Certification Body for Certification of Management Systems
Pod Lisem 129, 171 02 Praha 8 - Troja

Ordinal number	Field code ¹⁾	Field name ¹⁾	Limited to (CZ-NACE codes) ²⁾	Specification of standards (normative documents) ³⁾
3	15	Manufacture of other non-metallic mineral products		ČSN EN ISO 9001:2016 EN ISO 9001:2015
		Manufacture of other porcelain and ceramic products	23.4	ISO 9001:2015 ČSN EN ISO 9001:2009 EN ISO 9001:2008 ISO 9001:2008 ČSN OHSAS 18001:2008 BS OHSAS 18001:2008 ČSN EN ISO 14001:2016 EN ISO 14001:2015 ISO 14001:2015 ČSN EN ISO 14001:2005 EN ISO 14001:2004 ISO 14001:2004
4	17	Manufacture of basic metals and fabricated metal products		ČSN EN ISO 9001:2016 EN ISO 9001:2015
		Manufacture of fabricated metal products, except machinery and equipment	25 except 25.4	ISO 9001:2015 ČSN EN ISO 9001:2009 EN ISO 9001:2008
		Repair of fabricated metal products	33.11	ISO 9001:2008 ČSN OHSAS 18001:2008 BS OHSAS 18001:2008 ČSN EN ISO 14001:2016 EN ISO 14001:2015 ISO 14001:2015 ČSN EN ISO 14001:2005 EN ISO 14001:2004 ISO 14001:2004
5	18	Manufacture of machinery and equipment n.e.c.		ČSN EN ISO 9001:2016 EN ISO 9001:2015
		Manufacture of machinery and equipment n.e.c.	28 except 28.23	ISO 9001:2015 ČSN EN ISO 9001:2009
		Repair of machinery	33.12	EN ISO 9001:2008

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Elektrotechnický zkušební ústav, s.p.
EZÚ Certification Body for Certification of Management Systems
Pod Lisem 129, 171 02 Praha 8 - Troja

Ordinal number	Field code ¹⁾	Field name ¹⁾	Limited to (CZ-NACE codes) ²⁾	Specification of standards (normative documents) ³⁾
				ISO 9001:2008
		Installation of industrial machinery and equipment	33.20	ČSN OHSAS 18001:2008 BS OHSAS 18001:2008 ČSN EN ISO 14001:2016 EN ISO 14001:2015 ISO 14001:2015 ČSN EN ISO 14001:2005 EN ISO 14001:2004 ISO 14001:2004
6	19	Manufacture of electrical and optical equipment		ČSN EN ISO 9001:2016 EN ISO 9001:2015
		Manufacture of computer, electronic and optical products	26	ISO 9001:2015 ČSN EN ISO 9001:2009
		Manufacture of electrical equipment	27	EN ISO 9001:2008 ISO 9001:2008
		Repair of electronic and optical equipment	33.13	ČSN OHSAS 18001:2008 BS OHSAS 18001:2008
		Repair of electrical equipment	33.14	ČSN EN ISO 14001:2016 EN ISO 14001:2015
		Repair of computers and communication equipment	95.1	ISO 14001:2015 ČSN EN ISO 14001:2005 EN ISO 14001:2004 ISO 14001:2004
7	22	Manufacture of motor vehicles and other transport equipment		ČSN EN ISO 9001:2016 EN ISO 9001:2015 ISO 9001:2015
		Manufacture of electrical and electronic equipment for motor vehicles	29.31	ČSN EN ISO 9001:2009 EN ISO 9001:2008



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Elektrotechnický zkušební ústav, s.p.
EZÚ Certification Body for Certification of Management Systems
Pod Lisem 129, 171 02 Praha 8 - Troja

Ordinal number	Field code ¹⁾	Field name ¹⁾	Limited to (CZ-NACE codes) ²⁾	Specification of standards (normative documents) ³⁾
		Manufacture of railway locomotives and rolling stock	30.20	ISO 9001:2008 ČSN OHSAS 18001:2008 BS OHSAS 18001:2008 ČSN EN ISO 14001:2016 EN ISO 14001:2015 ISO 14001:2015 14001:2005 EN ISO 14001:2004 ISO 14001:2004
8	23	Manufacture of furniture; other manufacturing		ČSN EN ISO 9001:2016 EN ISO 9001:2015 ISO 9001:2015 ČSN EN ISO 9001:2009
		Manufacture of medical and dental instruments and supplies	32.50	EN ISO 9001:2008 ISO 9001:2008 ČSN OHSAS 18001:2008 BS OHSAS 18001:2008 ČSN EN ISO 14001:2016 EN ISO 14001:2015 ISO 14001:2015 ČSN EN ISO 14001:2005 EN ISO 14001:2004 ISO 14001:2004
9	24	Recycling	38.3	ČSN EN ISO 9001:2016 EN ISO 9001:2015 ISO 9001:2015 ČSN EN ISO 9001:2009 EN ISO 9001:2008 ISO 9001:2008 ČSN OHSAS 18001:2008 BS OHSAS 18001:2008 ČSN EN ISO 14001:2016 EN ISO 14001:2015
		Materials recovery		



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EZÚ Certification Body for Certification of Management Systems
Pod Lisem 129, 171 02 Praha 8 - Troja

Ordinal number	Field code ¹⁾	Field name ¹⁾	Limited to (CZ-NACE codes) ²⁾	Specification of standards (normative documents) ³⁾
				ISO 14001:2015 ČSN EN ISO 14001:2005 EN ISO 14001:2004 ISO 14001:2004
10	25	Electric power generation, transmission and distribution		ČSN EN ISO 9001:2016 EN ISO 9001:2015
		Production, transmission and distribution of electricity	35.1	ISO 9001:2015 ČSN EN ISO 9001:2009 EN ISO 9001:2008 ISO 9001:2008 ČSN OHSAS 18001:2008 BS OHSAS 18001:2008 ČSN EN ISO 14001:2016 EN ISO 14001:2015 ISO 14001:2015 ČSN EN ISO 14001:2005 EN ISO 14001:2004 ISO 14001:2004
11	27	Collection, purification and distribution of water, steam and hot water supply Steam and air conditioning supply, production of ice	35.3	ČSN EN ISO 9001:2016 EN ISO 9001:2015 ISO 9001:2015 ČSN EN ISO 9001:2009 EN ISO 9001:2008 ISO 9001:2008 ČSN OHSAS 18001:2008 BS OHSAS 18001:2008 ČSN EN ISO 14001:2016 EN ISO 14001:2015 ISO 14001:2015 ČSN EN ISO 14001:2005 EN ISO 14001:2004 ISO 14001:2004



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Pod Lisem 129, 171 02 Praha 8 - Troja

Ordinal number	Field code ¹⁾	Field name ¹⁾	Limited to (CZ-NACE codes) ²⁾	Specification of standards (normative documents) ³⁾
12	28	Construction		ČSN EN ISO 9001:2016
		Development of building projects	41.1	EN ISO 9001:2015
		Construction of residential and non-residential buildings	41.2	ISO 9001:2015 ČSN EN ISO 9001:2009
		Construction of roads and railways	42.1	EN ISO 9001:2008 ISO 9001:2008
		Construction of utility projects	42.2	ČSN OHSAS 18001:2008
		Specialised construction activities	43	BS OHSAS 18001:2008 ČSN EN ISO 14001:2016 EN ISO 14001:2015 ISO 14001:2015 ČSN EN ISO 14001:2005 EN ISO 14001:2004 ISO 14001:2004
13	29	Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods		ČSN EN ISO 9001:2016 EN ISO 9001:2015 ISO 9001:2015 ČSN EN ISO 9001:2009
		Wholesale trade, except of motor vehicles and motorcycles	46	EN ISO 9001:2008
		Retail trade, except of motor vehicles and motorcycles	47 except 47.3	ISO 9001:2008 ČSN OHSAS 18001:2008
		Repair of computers and personal and household goods	95.2	BS OHSAS 18001:2008 ČSN EN ISO 14001:2016 EN ISO 14001:2015 ISO 14001:2015 ČSN EN ISO 14001:2005 EN ISO 14001:2004 ISO 14001:2004
14	31	Transport, storage and communication		ČSN EN ISO 9001:2016 EN ISO 9001:2015

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Ordinal number	Field code ¹⁾	Field name ¹⁾	Limited to (CZ-NACE codes) ²⁾	Specification of standards (normative documents) ³⁾
		Warehousing and support activities for transportation	52.1	ISO 9001:2015 ČSN EN ISO 9001:2009 EN ISO 9001:2008 ISO 9001:2008 ČSN OHSAS 18001:2008 BS OHSAS 18001:2008 ČSN EN ISO 14001:2016 EN ISO 14001:2015 ISO 14001:2015 ČSN EN ISO 14001:2005 EN ISO 14001:2004 ISO 14001:2004
16	33	Information technology activities		ČSN EN ISO 9001:2016 EN ISO 9001:2015
		Software publishing	58.2	ISO 9001:2015
		Information technology activities	62	ČSN EN ISO 9001:2009 EN ISO 9001:2008
		Data processing, hosting and related activities; web portals	63.1	ISO 9001:2008 ČSN OHSAS 18001:2008 BS OHSAS 18001:2008 ČSN EN ISO 14001:2016 EN ISO 14001:2015 ISO 14001:2015 ČSN EN ISO 14001:2005 EN ISO 14001:2004 ISO 14001:2004
17	34	Research and development, architectural and engineering activities and related technical consultancy		ČSN EN ISO 9001:2016 EN ISO 9001:2015 ISO 9001:2015
		Architectural and engineering activities; technical testing and analysis	71	ČSN EN ISO 9001:2009 EN ISO 9001:2008
		Research and development	72	ISO 9001:2008 ČSN OHSAS 18001:2008
		Specialised design activities and Other professional, scientific and technical activities n.e.c.	74 except 74.2 and 74.3	BS OHSAS 18001:2008 ČSN EN ISO 14001:2016 EN ISO 14001:2015 ISO 14001:2015 ČSN EN ISO 14001:2005

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EZÚ Certification Body for Certification of Management Systems
Pod Lisem 129, 171 02 Praha 8 - Troja

Ordinal number	Field code ¹⁾	Field name ¹⁾	Limited to (CZ-NACE codes) ²⁾	Specification of standards (normative documents) ³⁾
				EN ISO 14001:2004 ISO 14001:2004
18	35	Other business activities		ČSN EN ISO 9001:2016
		Security and investigation activities	80.2	EN ISO 9001:2015
		Cleaning activities	81.2	ISO 9001:2015
		Combined facilities support activities	81.1	ČSN EN ISO 9001:2009 EN ISO 9001:2008 ISO 9001:2008 ČSN OHSAS 18001:2008 BS OHSAS 18001:2008 ČSN EN ISO 14001:2016 EN ISO 14001:2015 ISO 14001:2015 ČSN EN ISO 14001:2005 EN ISO 14001:2004 ISO 14001:2004
19	37	Education		ČSN EN ISO 9001:2016 EN ISO 9001:2015 ISO 9001:2015
		Other education	85.5	ČSN EN ISO 9001:2009 EN ISO 9001:2008 ISO 9001:2008 ČSN OHSAS 18001:2008 BS OHSAS 18001:2008
20	39	Other community, social and personal service activities		ČSN EN ISO 9001:2016 EN ISO 9001:2015
		Waste collection	38.1	ISO 9001:2015 ČSN EN ISO 9001:2009 EN ISO 9001:2008
		Waste treatment and disposal	38.2	ISO 9001:2008
		Remediation activities and other waste management services	39	ČSN OHSAS 18001:2008 BS OHSAS 18001:2008
		Other information service activities n.e.c.	63.99	ČSN EN ISO 14001:2016 EN ISO 14001:2015



**The Appendix is an integral part of
Certificate of Accreditation No. 487/2017 of 15/8/2017**

Accredited entity according to ČSN EN ISO/IEC 17021-1:2016:

Elektrotechnický zkušební ústav, s.p.
EZÚ Certification Body for Certification of Management Systems
Pod Lisem 129, 171 02 Praha 8 - Troja

Ordinal number	Field code ¹⁾	Field name ¹⁾	Limited to (CZ-NACE codes) ²⁾	Specification of standards (normative documents) ³⁾
		Library and archives activities	91.01	ISO 14001:2015 ČSN EN ISO 14001:2005 EN ISO 14001:2004 ISO 14001:2004
21	---	Information technology – Service management	---	ČSN EN ISO/IEC 20000-1:2012 ISO/IEC 20000-1:2011

¹⁾ According to Annex 1 of MPA 50-01-...

²⁾ According to ČSÚ Notice of 18 September 2007. Classification of CZ-NACE is the same as classification of NACE Revision 2, which was implemented by the Regulation of the European Parliament and Council (EC) No. 1893/2006. This classification is also equal to the SK-NACE classification according to the Regulation of Statistic office of Slovak Republic No. 306/2007 of Statute book from 18th of June 2007.

³⁾ The specified scope of accreditation for certifications according to standards identical to ISO 9001:2008 and ISO 14001:2004 is effective until 15/09/2018.



Accredited entity according to ČSN EN ISO/IEC 17021-1:2016:

Elektrotechnický zkušební ústav, s.p.
EZÚ Certification Body for Certification of Management Systems
Pod Lisem 129, 171 02 Praha 8 - Troja

Certification of Information Security Management Systems

Certification body for Information Security Management Systems certification fulfils the requirements of ČSN EN ISO/IEC 17021-1:2016 in connection with ČSN ISO/IEC 27006:2016

Ordinal number	Field code ¹⁾	Field name ¹⁾	Limited to (CZ-NACE codes) ²⁾	Specification of standards (normative documents)
1	---	Certification of Information Security Management Systems	---	ČSN ISO/IEC 27001:2014 ISO/IEC 27001:2013

¹⁾ According to Annex 1 of MPA 50-01- ...

²⁾ According to ČSÚ Notice of 18 September 2007 Classification of CZ-NACE is the same as classification of NACE Revision 2, which was implemented by the Regulation of the European Parliament and Council (EC) No. 1893/2006. This classification is also equal to the SK-NACE classification according to the Regulation of Statistic office of Slovak Republic No. 306/2007 of Statute book from 18th of June 2007.



**The Appendix is an integral part of
Certificate of Accreditation No. 487/2017 of 15/8/2017**

Accredited entity according to ČSN EN ISO/IEC 17021-1:2016:

Elektrotechnický zkušební ústav, s.p.
EZÚ Certification Body for Certification of Management Systems
Pod Lisem 129, 171 02 Praha 8 - Troja

Environmental verifier of the Eco-Management Audit Scheme (EMAS).

For the purpose of verification, the environmental auditor fulfils the requirements of ČSN EN ISO/IEC 17021-1:2016 in connection with the corresponding sections of the Regulation No. 1221/2009 of the European Parliament and of the Council (EC).

The following EMAS number has been assigned to the Environmental verifier: CZ-V-5003.

Ordinal number	Field code ¹⁾	Field name ¹⁾	Limited to (CZ-NACE codes) ²⁾	Specification of standards (normative documents)
1	14	Manufacture of rubber and plastic products	22	Regulation (EC) No. 1221/2009 of the European Parliament and of the Council
2	17	Manufacture of basic metals and fabricated metal products	25 except 25.4, 33.11	
3	18	Manufacture of machinery and equipment n.e.c.	25.4, 28, 30.4, 33.12	
4	19	Manufacture of electrical and optical equipment	26, 27, 33.13, 33.14, 95.1	
5	22	Manufacture of motor vehicles and other transport equipment	29, 30.2, 30.9, 33.17	
6	24	Recycling	38.3	
7	25	Power generation and distribution	35.1, 35.2	
8	27	Collection, purification and distribution of water, steam and hot water supply	35.3, 36	
9	28	Construction	41, 42, 43	
10	29	Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods	46, 47 except 47.3, 95.2	
11	33	Information technology activities	58.2, 62, 63.1	
12	34	Research and development, architectural and engineering activities and related technical consultancy	71, 72, 74 except 74.2 and 74.3	
13	36	Public administration and defence; compulsory social security	84	
14	37	Education	85	
15	38	Health and social work; veterinary activities	75, 86, 87, 88	

**The Appendix is an integral part of
Certificate of Accreditation No. 487/2017 of 15/8/2017**

Accredited entity according to ČSN EN ISO/IEC 17021-1:2016:

Elektrotechnický zkušební ústav, s.p.
EZÚ Certification Body for Certification of Management Systems
Pod Lisem 129, 171 02 Praha 8 - Troja

Ordinal number	Field code ¹⁾	Field name ¹⁾	Limited to (CZ-NACE codes) ²⁾	Specification of standards (normative documents)
16	39	Other community, social and personal service activities	37, 38.1, 38.2, 39, 60, 63.9, 79, 93.11	

¹⁾ According to Annex 1 of MPA 50-01-..

²⁾ According to ČSÚ Notice of 18 September 2007 Classification of CZ-NACE is the same as classification of NACE Revision 2, which was implemented by the Regulation of European Parliament and board (EC) No. 1893/2006. This classification is also equal to the SK-NACE classification according to the Regulation of Statistic office of Slovak Republic No. 306/2007 of Statute book from 18th of June 2007.



Accredited entity according to ČSN EN ISO/IEC 17021-1:2016:

Elektrotechnický zkušební ústav, s.p.
EZÚ Certification Body for Certification of Management Systems
Pod Lisem 129, 171 02 Praha 8 - Troja

Certification of Medical Device Quality Management Systems

Ordinal number	Main Technical Areas / Technical Areas ⁴⁾	Specification of standards (normative documents)
1	Non-active medical devices - General non-active, non-implantable medical devices - Non-active implants - Devices for wound care - Non-active dental devices and accessories - Non-active medical devices other than specified above	ČSN EN ISO 13485:2012 EN ISO 13485:2012 ISO 13485:2003 ČSN EN ISO 13485 ed.2:2016 EN ISO 13485:2016
2	Active (non-implantable) medical devices - General active medical devices - Devices for imaging - Monitoring devices - Devices for radiation therapy and thermo therapy - Active (non-implantable) medical devices other than specified above	ČSN EN ISO 13485:2012 EN ISO 13485:2012 ISO 13485:2003 ČSN EN ISO 13485 ed.2:2016 EN ISO 13485:2016
3	Active implantable medical devices - General active implantable medical devices - Implantable medical devices other than specified above	ČSN EN ISO 13485:2012 EN ISO 13485:2012 ISO 13485:2003 ČSN EN ISO 13485 ed.2:2016 EN ISO 13485:2016
4	In Vitro Diagnostic Medical Devices (IVD): - Reagents and reagent products, calibrators and control materials, - In Vitro diagnostic instruments and software, IVD medical devices other than specified above	ČSN EN ISO 13485:2012 EN ISO 13485:2012 ISO 13485:2003 ČSN EN ISO 13485 ed.2:2016 EN ISO 13485:2016
5	Sterilization methods for medical devices: - Ethylene oxide gas sterilization (EOG) - Damp heat - Aseptic processing - Radiation sterilization (e.g. gamma, x-ray, electron beam) - Sterilization methods other than specified above	ČSN EN ISO 13485:2012 EN ISO 13485:2012 ISO 13485:2003 ČSN EN ISO 13485 ed.2:2016 EN ISO 13485:2016

Accredited entity according to ČSN EN ISO/IEC 17021-1:2016:

Elektrotechnický zkušební ústav, s.p.
EZÚ Certification Body for Certification of Management Systems
Pod Lisem 129, 171 02 Praha 8 - Troja

Ordinal number	Main Technical Areas / Technical Areas ⁴⁾	Specification of standards (normative documents)
6	Devices incorporating / utilizing specific substances / technologies: – Medical devices incorporating medicinal substances, – Medical devices utilizing tissues of animal origin, – Medical devices utilizing micromechanics, – Medical devices utilizing nanomaterials, Medical devices using biologically active coatings or materials and medical devices intended for partial or full absorption by human body	ČSN EN ISO 13485:2012 EN ISO 13485:2012 ISO 13485:2003 ČSN EN ISO 13485 ed.2:2016 EN ISO 13485:2016

⁴⁾ According to Annex 1 Scope of Accreditation of IAF MD 8:2015 or according to Annex A Medical Devices Technical Areas of IAF MD 9:2015.





NÁRODNÍ AKREDITAČNÍ ORGÁN

Signatář EA MLA

Český institut pro akreditaci, o.p.s.
Olšanská 54/3, 130 00 Praha 3

vydává

v souladu s § 16 zákona č. 22/1997 Sb., o technických požadavcích na výrobky, ve znění pozdějších předpisů

OSVĚDČENÍ O AKREDITACI

č. 560 / 2015

Elektrotechnický zkušební ústav, s.p.
se sídlem Pod Lisem 129, 171 02 Praha 8 - Troja, IČ 00001481

pro kalibrační laboratoř č. 2294
Kalibrační laboratoř

Rozsah udělené akreditace:

Kalibrace měřidel elektrických veličin, světelných veličin, frekvence a teploty vymezené přílohou tohoto osvědčení.

Toto osvědčení je dokladem o udělení akreditace na základě posouzení splnění akreditačních požadavků podle

ČSN EN ISO/IEC 17025:2005

Subjekt posuzování shody je při své činnosti oprávněn odkazovat se na toto osvědčení v rozsahu udělené akreditace po dobu její platnosti, pokud nebude akreditace pozastavena, a je povinen plnit stanovené akreditační požadavky v souladu s příslušnými předpisy vztahujícími se k činnosti akreditovaného subjektu posuzování shody.

Toto osvědčení o akreditaci nahrazuje v plném rozsahu osvědčení č.: 111/2014 ze dne 21.02.2014, popřípadě správní akty na ně navazující.

Udělení akreditace je platné do **21.02.2019**

V Praze dne 27.07.2015



Ing. Jiří Růžička, MBA
ředitel

Českého institutu pro akreditaci, o.p.s.

**Příloha je nedílnou součástí
osvědčení o akreditaci č.: 560/2015 ze dne: 27.07.2015**

List 1 z 19

Akreditovaný subjekt podle ČSN EN ISO/IEC 17025:2005:

Elektrotechnický zkušební ústav, s. p.
Kalibrační laboratoř
Pod Lisem 129, 171 02 Praha 8

Obor měřené veličiny: **elektrické veličiny**

Kalibrace:

Nominální teplota pro kalibraci v laboratoři: $(23 \pm 2) ^\circ\text{C}$

Nominální teplota pro kalibraci mimo laboratoř: $(23 \pm 5) ^\circ\text{C}$

Pořadové číslo ¹⁾	Měřená veličina a rozsah měření		Frekvence nebo jiný parametr	Měřicí schopnost kalibrace $[\pm]$ ^{2), 3)}	Identifikace kalibračního postupu
1.	Napětí stejnosměrné	0 až 200 mV		0,00086 % + 0,3 μV	MK4, MK8, MK9
		0,2 V až 0,5 V		0,00095 %	
		0,5 V až 20 V		0,00075 %	
		20 V až 1100 V		0,0012 %	
1.*	Napětí stejnosměrné	0 až 330 mV		0,0020 % + 1 μV	MK4, MK8, MK9
		0,33 V až 1 V		0,0017 %	
		1 V až 3,3 V		0,0013 %	
		3,3 V až 10 V		0,0018 %	
		10 V až 33 V		0,0014 %	
		33 V až 1020 V		0,0023 %	
		1 kV až 15 kV		0,50 %	MK10
		15 kV až 30 kV		240 V	
		30 kV až 50 kV		400 V	
		50 kV až 100 kV		800 V	
2.	Napětí střídavé	0,1 mV až 200 mV	10 Hz až 40 Hz	0,031 % + 4 μV	MK4, MK8, MK9
			40 Hz až 10 kHz	0,028 % + 4 μV	
			10 kHz až 30 kHz	0,041 % + 8 μV	
			30 kHz až 100 kHz	0,078 % + 22 μV	
			100 kHz až 330 kHz	0,21 % + 60 μV	MK4, MK8, generování
			300 kHz až 1 MHz	0,61 % + 0,4 mV	
		0,2 V až 0,5 V	10 Hz až 40 Hz	0,028 %	MK4, MK8, MK9
			40 Hz až 10 kHz	0,025 %	
			10 kHz až 30 kHz	0,043 %	
			30 kHz až 100 kHz	0,058 %	
			100 kHz až 330 kHz	0,23 %	
			300 kHz až 1 MHz	1,4 %	
		0,5 V až 1 V	10 Hz až 40 Hz	0,023 %	
			40 Hz až 10 kHz	0,019 %	
			10 kHz až 30 kHz	0,033 %	
			30 kHz až 100 kHz	0,046 %	

**Příloha je nedílnou součástí
osvědčení o akreditaci č.: 560/2015 ze dne: 27.07.2015**

List 2 z 19

Akreditovaný subjekt podle ČSN EN ISO/IEC 17025:2005:

Elektrotechnický zkušební ústav, s. p.

Kalibrační laboratoř

Pod Lisem 129, 171 02 Praha 8

Pořadové číslo ¹⁾	Měřená veličina a rozsah měření		Frekvence nebo jiný parametr	Měřicí schopnost kalibrace [±] ^{2), 3)}	Identifikace kalibračního postupu
2.	Napětí střídavé	0,5 V až 1 V	100 kHz až 330 kHz	0,18 %	MK4, MK8, MK9
			300 kHz až 1 MHz	1,2 %	
		1 V až 2 V	10 Hz až 40 Hz	0,021 %	
			40 Hz až 10 kHz	0,017 %	
			10 kHz až 30 kHz	0,026 %	
			30 kHz až 100 kHz	0,038 %	
			100 kHz až 330 kHz	0,14 %	
			300 kHz až 1 MHz	0,90 %	
		2 V až 5 V	10 Hz až 40 Hz	0,028 %	
			40 Hz až 10 kHz	0,025 %	
			10 kHz až 30 kHz	0,043 %	
			30 kHz až 100 kHz	0,058 %	
			100 kHz až 330 kHz	0,23 %	
			300 kHz až 1 MHz	1,4 %	
		5 V až 10 V	10 Hz až 40 Hz	0,023 %	
			40 Hz až 10 kHz	0,019 %	
			10 kHz až 30 kHz	0,033 %	
			30 kHz až 100 kHz	0,046 %	
			100 kHz až 330 kHz	0,18 %	
			300 kHz až 1 MHz	1,2 %	
		10 V až 20 V	10 Hz až 40 Hz	0,021 %	
			40 Hz až 10 kHz	0,017 %	
			10 kHz až 30 kHz	0,026 %	
			30 kHz až 100 kHz	0,038 %	
			100 kHz až 330 kHz	0,14 %	
			300 kHz až 1 MHz	0,90 %	
		20 V až 50 V	10 Hz až 40 Hz	0,028 %	
			40 Hz až 10 kHz	0,025 %	
			10 kHz až 30 kHz	0,043 %	
			30 kHz až 100 kHz	0,060 %	
		50 V až 100 V	10 Hz až 40 Hz	0,023 %	
			40 Hz až 10 kHz	0,019 %	
			10 kHz až 30 kHz	0,033 %	
			30 kHz až 100 kHz	0,048 %	

**Příloha je nedílnou součástí
osvědčení o akreditaci č.: 560/2015 ze dne: 27.07.2015**

List 3 z 19

Akreditovaný subjekt podle ČSN EN ISO/IEC 17025:2005:

Elektrotechnický zkušební ústav, s. p.

Kalibrační laboratoř

Pod Lisem 129, 171 02 Praha 8

Pořadové číslo ¹⁾	Měřená veličina a rozsah měření		Frekvence nebo jiný parametr	Měřicí schopnost kalibrace [±] ^{2), 3)}	Identifikace kalibračního postupu
2.	Napětí střídavé	100 V až 200 V	10 Hz až 40 Hz	0,021 %	MK4, MK8, MK9, MK11
			40 Hz až 10 kHz	0,017 %	
			10 kHz až 30 kHz	0,026 %	
			30 kHz až 100 kHz	0,040 %	
		200 V až 300 V	45 Hz až 10 kHz	0,026 %	
			10 kHz až 30 kHz	0,047 %	
		300 V až 500 V	45 Hz až 10 kHz	0,032 %	
			10 kHz až 30 kHz	0,050 %	
		500 V až 1100 V	45 Hz až 330 Hz	0,046 %	
			300 Hz až 10 kHz	0,038 %	
			10 kHz až 33 kHz	0,046 %	
		1 kV až 15 kV	40 Hz až 60 Hz	0,10 %	MK10
2.*	Napětí střídavé	1 mV až 33 mV	10 Hz až 45 Hz	0,080 % + 6 μV	MK4, MK8, MK9
			45 Hz až 10 kHz	0,015 % + 6 μV	
			10 kHz až 20 kHz	0,020 % + 6 μV	
			20 kHz až 50 kHz	0,10 % + 6 μV	
			50 kHz až 100 kHz	0,35 % + 12 μV	
			100 kHz až 500 kHz	0,80 % + 50 μV	
		33 mV až 100 mV	10 Hz až 45 Hz	0,054 %	
			45 Hz až 20 kHz	0,040 %	
			20 kHz až 50 kHz	0,059 %	
			50 kHz až 100 kHz	0,18 %	
			100 kHz až 500 kHz	0,41 %	
		100 mV až 330 mV	10 Hz až 45 Hz	0,038 %	
			45 Hz až 20 kHz	0,024 %	
			20 kHz až 50 kHz	0,043 %	
			50 kHz až 100 kHz	0,11 %	
			100 kHz až 500 kHz	0,27 %	
		0,33 V až 1 V	10 Hz až 45 Hz	0,045 %	
			45 Hz až 10 kHz	0,033 %	
			10 kHz až 20 kHz	0,037 %	
			20 kHz až 50 kHz	0,045 %	
			50 kHz až 100 kHz	0,11 %	
			100 kHz až 500 kHz	0,42 %	

**Příloha je nedílnou součástí
osvědčení o akreditaci č.: 560/2015 ze dne: 27.07.2015**

List 4 z 19

Akreditovaný subjekt podle ČSN EN ISO/IEC 17025:2005:

Elektrotechnický zkušební ústav, s. p.
Kalibrační laboratoř
Pod Lisem 129, 171 02 Praha 8

Pořadové číslo ¹⁾	Měřená veličina a rozsah měření		Frekvence nebo jiný parametr	Měřicí schopnost kalibrace [±] ^{2), 3)}	Identifikace kalibračního postupu
2.*	Napětí střídavé	1 V až 3,3 V	10 Hz až 45 Hz	0,035 %	MK4, MK8, MK9
			45 Hz až 10 kHz	0,021 %	
			10 kHz až 20 kHz	0,025 %	
			20 kHz až 50 kHz	0,035 %	
			50 kHz až 100 kHz	0,083 %	
			100 kHz až 500 kHz	0,30 %	
		3,3 V až 10 V	10 Hz až 45 Hz	0,050 %	
			45 Hz až 10 kHz	0,033 %	
			10 kHz až 20 kHz	0,042 %	
			20 kHz až 50 kHz	0,053 %	
			50 kHz až 100 kHz	0,14 %	
		10 V až 33 V	10 Hz až 45 Hz	0,037 %	
			45 Hz až 10 kHz	0,021 %	
			10 kHz až 20 kHz	0,030 %	
			20 kHz až 50 kHz	0,041 %	
			50 kHz až 100 kHz	0,11 %	
		33 V až 100 V	45 Hz až 1 kHz	0,025 %	
			1 kHz až 10 kHz	0,038 %	
			10 kHz až 20 kHz	0,043 %	
			20 kHz až 50 kHz	0,048 %	
			50 kHz až 100 kHz	0,35 %	
		100 V až 330 V	45 Hz až 1 kHz	0,021 %	
			1 kHz až 10 kHz	0,026 %	
			10 kHz až 20 kHz	0,031 %	
			20 kHz až 50 kHz	0,036 %	
			50 kHz až 100 kHz	0,25 %	
		330 V až 1020 V	45 Hz až 1 kHz	0,033 %	
			1 kHz až 5 kHz	0,028 %	
			5 kHz až 10 kHz	0,033 %	
		1 kV až 15 kV	40 Hz až 60 Hz	0,50 %	MK10
		15 kV až 30 kV	40 Hz až 60 Hz	240 V	
		30 kV až 50 kV	40 Hz až 60 Hz	400 V	
		50 kV až 100 kV	40 Hz až 60 Hz	800 V	

**Příloha je nedílnou součástí
osvědčení o akreditaci č.: 560/2015 ze dne: 27.07.2015**

List 5 z 19

Akreditovaný subjekt podle ČSN EN ISO/IEC 17025:2005:

Elektrotechnický zkušební ústav, s. p.

Kalibrační laboratoř

Pod Lisem 129, 171 02 Praha 8

Pořadové číslo ¹⁾	Měřená veličina a rozsah měření		Frekvence nebo jiný parametr	Měřicí schopnost kalibrace [±] ^{2), 3)}	Identifikace kalibračního postupu
3.	Proud stejnosměrný	0 až 20 nA		0,6 % + 0,5 pA	MK4, MK8, MK9
		20 nA až 1 µA		0,25 %	
		1 µA až 200 µA		0,01 % + 2 nA	
		200 µA až 20 mA		0,011 %	
		20 mA až 50 mA		0,015 %	
		50 mA až 200 mA		0,012 %	
		200 mA až 500 mA		0,031 %	
		0,5 A až 2 A		0,024 %	
		2 A až 105 A		0,050 %	
3.*	Proud stejnosměrný	0 až 0,33 mA		0,015 % + 20 nA	MK4, MK8, MK9
		0,33 mA až 3,3 mA		0,025 %	
		3,3 mA až 10 mA		0,018 %	
		10 mA až 33 mA		0,013 %	
		33 mA až 100 mA		0,018 %	
		100 mA až 330 mA		0,013 %	
		330 mA až 1,1 A		0,032 %	
		1,1 A až 3,0 A		0,042 %	
		3,0 A až 11 A		0,065 %	
		11 A až 105 A		0,10 %	
		105 A až 5000 A		1,5 %	MK9, měření
	Klešťové ampérmetry	1 A až 105 A		0,50 %	
		105 A až 1050 A		1,5 %	MK4, MK8, MK9
4.	Proud střídavý	1 µA až 10 µA	10 Hz až 5 kHz	0,042 % + 20 nA	
		10 µA až 200 µA	10 Hz až 5 kHz	0,042 % + 20 nA	
		200 µA až 500 µA	10 Hz až 5 kHz	0,10 %	
		0,5 mA až 1 mA	10 Hz až 5 kHz	0,073 %	
		1 mA až 2 mA	10 Hz až 5 kHz	0,054 %	
		2 mA až 5 mA	10 Hz až 5 kHz	0,10 %	
		5 mA až 10 mA	10 Hz až 5 kHz	0,073 %	
		10 mA až 20 mA	10 Hz až 5 kHz	0,054 %	
		20 mA až 50 mA	10 Hz až 5 kHz	0,10 %	
		50 mA až 100 mA	10 Hz až 5 kHz	0,073 %	

**Příloha je nedílnou součástí
osvědčení o akreditaci č.: 560/2015 ze dne: 27.07.2015**

List 6 z 19

Akreditovaný subjekt podle ČSN EN ISO/IEC 17025:2005:

**Elektrotechnický zkušební ústav, s. p.
Kalibrační laboratoř
Pod Lisem 129, 171 02 Praha 8**

Pořadové číslo ¹⁾	Měřená veličina a rozsah měření		Frekvence nebo jiný parametr	Měřicí schopnost kalibrace [±] ^{2), 3)}	Identifikace kalibračního postupu
4.	Proud střídavý	100 mA až 200 mA	10 Hz až 5 kHz	0,054 %	MK4, MK8, MK9
		200 mA až 500 mA	10 Hz až 1 kHz	0,12 %	
			1 kHz až 5 kHz	0,17 %	
		0,5 A až 1 A	10 Hz až 1 kHz	0,070 %	
			1 kHz až 5 kHz	0,13 %	
		1 A až 2 A	10 Hz až 5 kHz	0,10 %	
		2 A až 11 A	40 Hz až 1 kHz	0,050 %	
		11 A až 105 A	40 Hz až 60 Hz	0,070 %	
		0,15 A až 0,30 A	45 Hz až 65 Hz	0,014 % + 0,094 mA	MK9
		0,30 A až 0,60 A	45 Hz až 65 Hz	0,014 % + 0,19 mA	
		0,60 A až 1,3 A	45 Hz až 65 Hz	0,014 % + 0,38 mA	
		1,3 A až 2,6 A	45 Hz až 65 Hz	0,023 % + 0,75 mA	
		2,6 A až 5,2 A	45 Hz až 65 Hz	0,014 % + 1,5 mA	
		5,2 A až 10 A	45 Hz až 65 Hz	0,012 % + 3,0 mA	
		10 A až 20,5 A	45 Hz až 65 Hz	0,012 % + 6,0 mA	
4.*	Proud střídavý	0,03 mA až 0,33 mA	10 Hz až 20 Hz	0,20 % + 0,10 μA	MK4, MK8, MK9
			20 Hz až 45 Hz	0,15 % + 0,10 μA	
			45 Hz až 1 kHz	0,13 % + 0,10 μA	
			1 kHz až 5 kHz	0,30 % + 0,15 μA	
			5 kHz až 10 kHz	0,8 % + 0,20 μA	
			10 kHz až 30 kHz	1,6 % + 0,40 μA	
		0,33 mA až 1 mA	10 Hz až 20 Hz	0,25 %	
			20 Hz až 45 Hz	0,17 %	
			45 Hz až 1 kHz	0,15 %	
			1 kHz až 5 kHz	0,26 %	
			5 kHz až 10 kHz	0,59 %	
			10 kHz až 30 kHz	1,2 %	
		1 mA až 3,3 mA	10 Hz až 20 Hz	0,22 %	
			20 Hz až 45 Hz	0,14 %	
			45 Hz až 1 kHz	0,12 %	
			1 kHz až 5 kHz	0,22 %	
			5 kHz až 10 kHz	0,53 %	
			10 kHz až 30 kHz	1,1 %	

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Akreditovaný subjekt podle ČSN EN ISO/IEC 17025:2005:

Elektrotechnický zkušební ústav, s. p.

Kalibrační laboratoř

Pod Lisem 129, 171 02 Praha 8

Pořadové číslo ¹⁾	Měřená veličina a rozsah měření		Frekvence nebo jiný parametr	Měřicí schopnost kalibrace [±] ^{2), 3)}	Identifikace kalibračního postupu
4.*	Proud střídavý	3,3 mA až 10 mA	10 Hz až 20 Hz	0,24 %	MK4, MK8, MK9
			20 Hz až 45 Hz	0,15 %	
			45 Hz až 1 kHz	0,10 %	
			1 kHz až 5 kHz	0,14 %	
			5 kHz až 10 kHz	0,29 %	
			10 kHz až 30 kHz	0,52 %	
		10 mA až 33 mA	10 Hz až 20 Hz	0,20 %	
			20 Hz až 45 Hz	0,11 %	
			45 Hz až 1 kHz	0,060 %	
			1 kHz až 5 kHz	0,10 %	
			5 kHz až 10 kHz	0,23 %	
			10 kHz až 30 kHz	0,44 %	
		33 mA až 100 mA	10 Hz až 20 Hz	0,24 %	
			20 Hz až 45 Hz	0,15 %	
			45 Hz až 1 kHz	0,10 %	
			1 kHz až 5 kHz	0,25 %	
			5 kHz až 10 kHz	0,50 %	
			10 kHz až 30 kHz	1,0 %	
		100 mA až 330 mA	10 Hz až 20 Hz	0,20 %	
			20 Hz až 45 Hz	0,11 %	
			45 Hz až 1 kHz	0,060 %	
			1 kHz až 5 kHz	0,15 %	
			5 kHz až 10 kHz	0,30 %	
			10 kHz až 30 kHz	0,60 %	
		330 mA až 1,1 A	10 Hz až 45 Hz	0,21 %	
			45 Hz až 1 kHz	0,070 %	
			1 kHz až 5 kHz	0,90 %	
			5 kHz až 10 kHz	4,0 %	
		1,1 A až 3 A	10 Hz až 45 Hz	0,19 %	
			45 Hz až 1 kHz	0,069 %	
			1 kHz až 5 kHz	0,69 %	
			5 kHz až 10 kHz	3,0 %	

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Akreditovaný subjekt podle ČSN EN ISO/IEC 17025:2005:

Elektrotechnický zkušební ústav, s. p.
Kalibrační laboratoř
Pod Lisem 129, 171 02 Praha 8

Pořadové číslo ¹⁾	Měřená veličina a rozsah měření		Frekvence nebo jiný parametr	Měřicí schopnost kalibrace [±] ^{2), 3)}	Identifikace kalibračního postupu
4.*	Proud střídavý	3 A až 11 A	45 Hz až 65 Hz	0,070 %	MK4, MK8, MK9
			65 Hz až 100 Hz	0,13 %	
			100 Hz až 1 kHz	0,17 %	
			1 kHz až 5 kHz	3,0 %	
		11 A až 20,5 A	45 Hz až 65 Hz	0,070 %	
			65 Hz až 100 Hz	0,14 %	
			100 Hz až 1 kHz	0,20 %	
			1 kHz až 5 kHz	3,0 %	
		20,5 A až 105 A	40 Hz až 60 Hz	0,12 %	
		105 A až 4000 A	40 Hz až 60 Hz	1,5 %	
	Klešťové ampérmetry	1 A až 105 A	40 Hz až 60 Hz	0,25 %	MK4, MK8
		105 A až 1050 A	40 Hz až 60 Hz	1,5 %	
5.	Odpor stejnosměrný	0 Ω až 20 Ω		0,0019 % + 30 μΩ	MK4, MK8, MK11, MK12, MK13
		20 Ω až 200 Ω		0,0015 %	
		200 Ω až 20 kΩ		0,0012 %	
		20 kΩ až 200 kΩ		0,0015 %	
		200 kΩ až 500 kΩ		0,0028 %	MK4, MK8, MK11, MK13, MK14
		500 kΩ až 2 MΩ		0,0025 %	
		2 MΩ až 5 MΩ		0,0078 %	
		5 MΩ až 20 MΩ		0,0058 %	
		20 MΩ až 50 MΩ		0,078 %	
		50 MΩ až 200 MΩ		0,050 %	MK13
		1 GΩ až 11 GΩ	1000 V až 2500 V	1,6 %	
		1 GΩ až 11 GΩ	2500 V až 5000 V	0,84 %	
		0,1 mΩ		0,05 %	MK11, MK12, MK13, etalony
		1 mΩ		0,0035 %	
		10 mΩ		0,0018 %	
		100 mΩ		0,0022 %	
		1 Ω		0,0018 %	
		10 Ω		0,0022 %	
		100 Ω		0,0022 %	
		1 kΩ		0,0024 %	
		10 kΩ		0,0024 %	

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Akreditovaný subjekt podle ČSN EN ISO/IEC 17025:2005:

Elektrotechnický zkušební ústav, s. p.

Kalibrační laboratoř

Pod Lisem 129, 171 02 Praha 8

Pořadové číslo ¹⁾	Měřená veličina a rozsah měření		Frekvence nebo jiný parametr	Měřicí schopnost kalibrace [±] ^{2), 3)}	Identifikace kalibračního postupu
5.	Odpor stejnosměrný	100 kΩ		0,0030 %	MK11, MK12, MK13, etalony
		1 MΩ		0,0060 %	
		10 MΩ		0,012 %	
		100 MΩ		0,047 %	
		1 GΩ	100 V až 1000 V	0,030 %	MK13, MK14, etalony
		10 GΩ	100 V až 1000 V	0,20 %	
		100 GΩ	100 V až 1000 V	0,40 %	
		1 TΩ	100 V až 1000 V	0,50 %	
		10 TΩ	100 V až 1000 V	1,5 %	MK14, etalony
		100 TΩ	100 V až 1000 V	3,0 %	
5.*	Odpor stejnosměrný	0 Ω až 11 Ω		0,0040 % + 0,001 Ω	MK4, MK8, MK12, MK13
		11 Ω až 33 Ω		0,017 %	
		33 Ω až 110 Ω		0,0070 %	
		110 Ω až 330 Ω		0,0046 %	
		330 Ω až 1,1 kΩ		0,0034 %	
		1,1 kΩ až 3,3 kΩ		0,0046 %	
		3,3 kΩ až 11 kΩ		0,0034 %	
		11 kΩ až 33 kΩ		0,0046 %	
		33 kΩ až 110 kΩ		0,0034 %	
		110 kΩ až 330 kΩ		0,0050 %	MK4, MK8, MK13, MK14
		330 kΩ až 1,1 MΩ		0,0038 %	
		1,1 MΩ až 3,3 MΩ		0,0087 %	
		3,3 MΩ až 11 MΩ		0,015 %	
		11 MΩ až 33 MΩ		0,048 %	
		33 MΩ až 110 MΩ		0,059 %	
		100 MΩ až 1,1 GΩ		0,50 %	MK11, MK13, MK14
		1 GΩ až 11 GΩ	100 V až 1000 V	1,0 %	
		1 GΩ až 11 GΩ	1000 V až 5000 V	2,0 %	MK14
		0,1 mΩ		0,10 %	MK12, etalony
		1 mΩ		0,010 %	
		10 mΩ		0,010 %	
		100 mΩ		0,010 %	

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Akreditovaný subjekt podle ČSN EN ISO/IEC 17025:2005:

Elektrotechnický zkušební ústav, s. p.

Kalibrační laboratoř

Pod Lisem 129, 171 02 Praha 8

Pořadové číslo ¹⁾	Měřená veličina a rozsah měření		Frekvence nebo jiný parametr	Měřicí schopnost kalibrace [±] ^{2), 3)}	Identifikace kalibračního postupu
5.*	Odpor stejnosměrný	1 Ω		0,010 %	MK12, etalony
		10 Ω		0,010 %	
		100 Ω		0,010 %	
		1 kΩ		0,010 %	
		10 kΩ		0,010 %	
6.	Odpor střídavý	0,1 Ω	1 kHz	0,50 %	MK15, etalony
		1 Ω	1 kHz	0,10 %	
		10 Ω	1 kHz	0,10 %	
		100 Ω	1 kHz	0,050 %	
		1 kΩ	1 kHz	0,050 %	
		10 kΩ	1 kHz	0,050 %	
		100 kΩ	1 kHz	0,050 %	
		100 Ω	1 kHz až 1 MHz	0,060 %	
		1 kΩ	1 kHz až 1 MHz	0,060 %	
		10 kΩ	1 kHz až 1 MHz	0,10 %	
		100 kΩ	1 kHz až 100 kHz	0,25 %	
		0,1 Ω až 1 Ω	1 kHz	0,50 %	MK15, měření
		1 Ω až 10 Ω	1 kHz	0,30 %	
		10 Ω až 10 kΩ	1 kHz	0,10 %	
		10 kΩ až 100 kΩ	1 kHz	0,20 %	
		100 Ω až 1 kΩ	1 kHz až 100 kHz	0,13 %	
		100 Ω až 1 kΩ	100 kHz až 1 MHz	0,23 %	
		1 kΩ až 100 kΩ	1 kHz až 100 kHz	0,40 %	
		1 kΩ až 10 kΩ	100 kHz až 1 MHz	0,50 %	
7.	Modul impedance	100 mΩ	1 kHz	0,10 %	MK15, etalony
		1 Ω	1 kHz	0,10 %	
		10 Ω	1 kHz	0,10 %	
		100 Ω	1 kHz	0,050 %	
		1 kΩ	1 kHz	0,050 %	
		10 kΩ	1 kHz	0,050 %	
		100 kΩ	1 kHz	0,050 %	
		0,1 Ω až 1 Ω	1 kHz	0,50 %	MK15, měření
		1 Ω až 10 Ω	1 kHz	0,30 %	
		10 Ω až 10 kΩ	1 kHz	0,10 %	
		10 kΩ až 100 kΩ	1 kHz	0,20 %	

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Akreditovaný subjekt podle ČSN EN ISO/IEC 17025:2005:

Elektrotechnický zkušební ústav, s. p.

Kalibrační laboratoř

Pod Lisem 129, 171 02 Praha 8

Pořadové číslo ¹⁾	Měřená veličina a rozsah měření		Frekvence nebo jiný parametr	Měřicí schopnost kalibrace [±] ^{2), 3)}	Identifikace kalibračního postupu
7.*	Modul impedance	0,5 Ω až 20 kΩ	50 Hz	0,10 % + 50 mΩ	MK11, impedance sítě
		1 mΩ	50 Hz	0,10 %	MK11, etalony
		10 mΩ	50 Hz	0,10 %	
		100 mΩ	50 Hz	0,10 %	
8.	Kapacita	1 pF	1 kHz	0,060 %	MK15
		10 pF	1 kHz	0,025 %	
		100 pF	1 kHz	0,015 %	
		1 nF	1 kHz	0,015 %	
		10 nF	1 kHz	0,015 %	
		100 nF	1 kHz	0,015 %	
		1 μF	100 Hz až 1 kHz	0,015 %	
		10 μF až 100 μF	100 Hz až 1 kHz	0,25 %	
		1 pF	1 kHz až 1 MHz	0,10 %	
		10 pF	1 kHz až 1 MHz	0,10 %	
		100 pF	1 kHz až 1 MHz	0,10 %	
		1 nF	1 kHz až 1 MHz	0,15 %	
		10 pF až 100 pF	1 kHz	0,30 %	
		100 pF až 1 nF	1 kHz	0,20 %	
		1 nF až 1 μF	1 kHz	0,10 %	
		1 μF až 100 μF	100 Hz až 1 kHz	0,30 %	
		1 pF až 10 pF	10 kHz až 1 MHz	0,30 %	MK15, měření
		10 pF až 1 nF	1 kHz až 1 MHz	0,20 %	
9.	Indukčnost	2 mH	1 kHz	0,10 %	MK15, etalony
		5 mH	1 kHz	0,10 %	
		10 mH	1 kHz	0,050 %	
		20 mH	1 kHz	0,10 %	
		50 mH	1 kHz	0,10 %	
		100 mH	1 kHz	0,050 %	
		200 mH	1 kHz	0,050 %	
		500 mH	1 kHz	0,050 %	
		1 H	1 kHz	0,050 %	
		2 H	1 kHz	0,10 %	
		5 H	1 kHz	0,10 %	
		10 H	1 kHz	0,10 %	

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Akreditovaný subjekt podle ČSN EN ISO/IEC 17025:2005:

Elektrotechnický zkušební ústav, s. p.
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Pod Lisem 129, 171 02 Praha 8

Pořadové číslo ¹⁾	Měřená veličina a rozsah měření		Frekvence nebo jiný parametr	Měřicí schopnost kalibrace [±] ^{2), 3)}	Identifikace kalibračního postupu
9.	Indukčnost	100 µH	10 kHz až 1 MHz	0,20 %	MK15, etalony
		100 mH	1 kHz až 100 kHz	0,20 %	
		1 mH až 10 mH	1 kHz	0,20 %	MK15, měření
		10 mH až 500 mH	1 kHz	0,10 %	
		500 mH až 5 H	1 kHz	0,20 %	
		5 H až 10 H	1 kHz	0,50 %	
10.	Ztrátový činitel ⁴⁾	0 až 0,01	1 kHz, 1 pF až 100 pF	2,0 % + 0,0010	MK15
		0 až 0,01	10 kHz až 1 MHz, 1 pF	0,53 % + 0,0013	
		0 až 1,6	1 kHz, 1 nF	1,0 % + 0,0010	
		0 až 1,6	1 kHz, 10 nF až 1 µF	0,50 % + 0,00050	
		0 až 1,6	10 kHz až 1 MHz, 10 pF až 1 nF	0,32 % + 0,00052	
11.*	NF výkon 20 mW až 15 kW	0,03 A až 0,3 A	6 V až 60 V,	7,4 mW	MK 7
		0,3 A až 0,6 A	45 Hz až 65 Hz, účinník 0 až 1	15 mW	
		0,6 A až 1,3 A		30 mW	
		1,3 A až 2,6 A		61 mW	
		2,6 A až 5,2 A		0,12 W	
		5,2 A až 10 A		0,24 W	
		10 A až 20,5 A		0,49 W	
		0,03 A až 0,3 A	60 V až 130 V,	15 mW	
		0,3 A až 0,6 A	45 Hz až 65 Hz, účinník 0 až 1	30 mW	
		0,6 A až 1,3 A		63 mW	
		1,3 A až 2,6 A		0,13 W	
		2,6 A až 5,2 A		0,25 W	
		5,2 A až 10 A		0,50 W	
		10 A až 20,5 A		1,0 W	
		0,03 A až 0,3 A	130 V až 270 V,	31 mW	
		0,3 A až 0,6 A	45 Hz až 65 Hz, účinník 0 až 1	62 mW	
		0,6 A až 1,3 A		0,13 W	
		1,3 A až 2,6 A		0,26 W	
		2,6 A až 5,2 A		0,51 W	
		5,2 A až 10 A		1,0 W	
		10 A až 20,5 A		2,1 W	
		0,03 A až 0,3 A	270 V až 560 V,	63 mW	
		0,3 A až 0,6 A	45 Hz až 65 Hz, účinník 0 až 1	0,13 W	

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Elektrotechnický zkušební ústav, s. p.
Kalibrační laboratoř
Pod Lisem 129, 171 02 Praha 8

Pořadové číslo ¹⁾	Měřená veličina a rozsah měření		Frekvence nebo jiný parametr	Měřicí schopnost kalibrace [±] ^{2), 3)}	Identifikace kalibračního postupu
11.*	NF výkon 20 mW až 15 kW	0,6 A až 1,3 A	270 V až 560 V,	0,26 W	MK 7
		1,3 A až 2,6 A	45 Hz až 65 Hz, účiník 0 až 1	0,52 W	
		2,6 A až 5,2 A		1,0 W	
		5,2 A až 10 A		2,0 W	
		10 A až 20,5 A		4,2 W	
		0,03 A až 0,3 A	560 V až 720 V,	0,11 W	
		0,3 A až 0,6 A	45 Hz až 65 Hz, účiník 0 až 1	0,21 W	
		0,6 A až 1,3 A		0,44 W	
		1,3 A až 2,6 A		0,88 W	
		2,6 A až 5,2 A		1,8 W	
		5,2 A až 10 A		3,5 W	
		10 A až 20,5 A		7,1 W	
	NF výkon 10 mW až 21 kW	3,3 mA až 20,5 A	3,3 V až 1020 V, 45 Hz až 65 Hz, účiník 0 až 1	0,12 % ⁵⁾	MK3, MK7
	NF výkon 120 W až 86 kW	20,5 A až 120 A	6 V až 720 V, 45 Hz až 65 Hz, účiník 0 až 1	0,18 % ⁵⁾	MK7, měření
12.*	Účíník ⁶⁾	0,0 až 0,8	45 Hz až 65 Hz	0,0012	MK3, MK7
		0,8 až 1,0	45 Hz až 65 Hz	0,0007	
13.*	Harmonické zkreslení ⁷⁾	3,3 V až 33 V	45 Hz až 5 kHz	0,1 % + 4 mV	MK9, MK11
		33 V až 330 V	45 Hz až 440 Hz	0,2 % + 20 mV	
			440 Hz až 660 Hz	0,25 % + 20 mV	
			660 Hz až 1,2 kHz	0,35 % + 25 mV	
			1,2 kHz až 2 kHz	0,5 % + 40 mV	
		330 V až 720 V	45 Hz až 440 Hz	0,25 % + 100 mV	
			440 Hz až 660 Hz	0,25 % + 100 mV	
			660 Hz až 1,2 kHz	0,4 % + 100 mV	
			1,2 kHz až 2 kHz	0,6 % + 160 mV	
		33 mA až 330 mA	45 Hz až 5 kHz	0,1 % + 0,1 mA	
		330 mA až 3 A	45 Hz až 2 kHz	0,1 % + 1 mA	
			2 kHz až 5 kHz	0,2 % + 1,3 mA	
		3 A až 20,5 A	45 Hz až 2 kHz	0,1 % + 10 mA	
			2 kHz až 5 kHz	0,2 % + 10 mA	
14.*	VF výkon	-67 dBm až 23 dBm (0,2 nW až 200 mW)	9 kHz až 100 MHz	1,3 % + 0,1 nW	MK 16, MK17
			100 MHz až 3 GHz	1,5 % + 0,1 nW	
			3 GHz až 6 GHz	1,9 % + 0,1 nW	MK 16, MK17, měření

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Elektrotechnický zkušební ústav, s. p.

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Pořadové číslo ¹⁾	Měřená veličina a rozsah měření		Frekvence nebo jiný parametr	Měřicí schopnost kalibrace [±] ^{2), 3)}	Identifikace kalibračního postupu
14.*	VF výkon	-57 dBm až -47 dBm	9 kHz až 100 MHz	1,8 % + 10 pW	MK 16, generování
		(2 nW až 20 nW)	100 MHz až 3 GHz	2,1 % + 10 pW	
		-127 dBm až -57 dBm	9 kHz až 100 MHz	3,0 % + 0,1 fW	
		(0,2 fW až 2 nW)	100 MHz až 3 GHz	3,3 % + 0,1 fW	
15.*	VF napětí, mezivrcholová hodnota	5 mV až 5,5 V	50 kHz až 100 MHz	1,5 % + 0,1 mV	MK 16
			100 MHz až 250 MHz	2,0 % + 0,1 mV	
		5 mV až 2,8 V	250 MHz až 2 GHz	2,0 % + 0,1 mV	
16.*	VF proud, mezivrcholová hodnota	0,1 mA až 110 mA	50 kHz až 100 MHz	1,5 % + 2 µA	MK 16
			100 MHz až 250 MHz	2,0 % + 2 µA	
		0,1 mA až 90 mA	250 MHz až 2 GHz	2,0 % + 2 µA	
17.*	Modul činitele odrazu r ⁸⁾	0 až 1, 50 Ω	300 kHz až 1 MHz	0,011 + 0,03r ²	MK 16
			1 MHz až 2 GHz	0,009 + 0,03r ²	
			2 GHz až 3 GHz	0,009 + 0,06r ²	
18.*	Doba náběhu impulsu, udána je mezivrcholová hodnota parametru	0,6 ns až 0,7 ns	50 mV až 1,0 V	0,11 ns	MK16, generování
		0,80 ns	2,5 V	0,10 ns	
		≥ 0,6 ns	50 mV až 100 V	1,5 % + 0,11 ns	MK16, měření
		≥ 4 ns	5 mV až 4 kV	1,5 % + 0,2 ns	
		≥ 10 ns	4 kV až 30 kV	1,5 % + 0,5 ns	
		≥ 0,6 ns	0,2 A až 60 A	1,5 % + 0,11 ns	
		≥ 50 ns	5 mA až 500 A	2,0 % + 3 ns	
		≥ 1 µs	500 A až 2 kA	2,0 % + 30 ns	
19.*	Amplituda impulsu, mezivrcholová hodnota	1,8 mV až 2,2 V	10 Hz až 10 kHz, 50 Ω	0,25 % + 0,1 mV	MK16, generování
		1,8 mV až 100 V	10 Hz až 10 kHz	0,25 % + 0,1 mV	
		5 mV až 100 V		1,5 % + 0,1 mV	MK16
		100 V až 30 kV		3,0 %	
		5 mA až 2 kA		3,0 %	
20.*	Časové parametry impulsu	2 ns až 10 s	dobu periody	0,0025 %	MK16, generování
		2 ns až 10 s		0,2 % + 0,1 ns	MK11, MK16

**Příloha je nedílnou součástí
osvědčení o akreditaci č.: 560/2015 ze dne: 27.07.2015**

List 15 z 19

Akreditovaný subjekt podle ČSN EN ISO/IEC 17025:2005:

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Pořadové číslo ¹⁾	Měřená veličina a rozsah měření		Frekvence nebo jiný parametr	Měřicí schopnost kalibrace [±] ^{2), 3)}	Identifikace kalibračního postupu
21.*	Simulace termoelektrického napětí typu K ⁹⁾	-200 °C až < -100 °C		0,33 °C	MK8
		-100 °C až < -25 °C		0,18 °C	
		-25 °C až 120 °C		0,16 °C	
		> 120 °C až 1000 °C		0,26 °C	
		> 1000 °C až 1372 °C		0,40 °C	
	Simulace termoelektrického napětí typu J ⁹⁾	-210 °C až < -100 °C		0,27 °C	
		-100 °C až < -30 °C		0,16 °C	
		-30 °C až 150 °C		0,14 °C	
		> 150 °C až 760 °C		0,17 °C	
		> 760 °C až 1200 °C		0,23 °C	
	Simulace termoelektrického napětí typu T ⁹⁾	-250 °C až < -150 °C		0,63 °C	
		-150 °C až < 0 °C		0,24 °C	
		0 °C až < 120 °C		0,16 °C	
		120 °C až 400 °C		0,14 °C	
	Simulace termoelektrického napětí typu S ⁹⁾	0 °C až < 250 °C		0,47 °C	
		250 °C až 1000 °C		0,36 °C	
		> 1000 °C až 1400 °C		0,37 °C	
		> 1400 °C až 1767 °C		0,46 °C	
	Simulace termoelektrického napětí typu B ⁹⁾	600 °C až < 800 °C		0,44 °C	
		800 °C až < 1000 °C		0,34 °C	
		1000 °C až 1550 °C		0,30 °C	
		> 1550 °C až 1820 °C		0,33 °C	
	Simulace termoelektrického napětí typu E ⁹⁾	-250 °C až < -100 °C		0,50 °C	
		-100 °C až < -25 °C		0,16 °C	
		-25 °C až 350 °C		0,14 °C	
		> 350 °C až 650 °C		0,16 °C	
		> 650 °C až 1000 °C		0,21 °C	
22.*	Simulace odporového teplotního snímače	-200 °C až 0 °C		0,05 °C	MK8
		> 0 °C až 100 °C		0,07 °C	
		> 100 °C až 300 °C		0,09 °C	
		> 300 °C až 400 °C		0,10 °C	
		> 400 °C až 630 °C		0,12 °C	
		> 630 °C až 800 °C		0,14 °C	

Akreditovaný subjekt podle ČSN EN ISO/IEC 17025:2005:

Elektrotechnický zkušební ústav, s. p.

Kalibrační laboratoř

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Měřené přístroje či zařízení:

(v souladu s výše uvedeným přehledem měřených veličin a jejich rozsahu měření mohou být měřeny následující typy přístrojů či zařízení)

Pořadové číslo	Typ měřeného přístroje či zařízení
1.	Číslicové voltmetry, ampérmetry a multimetry
2.	Číslicové wattmetry, kalibrátory výkonu
3.	Analogové voltmetry, ampérmetry a multimetry
4.	Analogové wattmetry
5.	Zdroje a kalibrátory napětí a proudu
6.	Vysokonapěťové zdroje a voltmetry
7.	Revizní přístroje
8.	Měřidla malých odporů
9.	Odpory a odporové dekády
10.	Měřidla izolačních odporů
11.	Měřidla a etalony RLC
12.	Analogové a digitální osciloskopy, napětěvé a proudové sondy, impulsní a signální generátory, další zařízení kalibrovaná využitím měření VF výkonu a činitele odrazu
13.	Teplotní vstupy multimetrů, indikátory elektronických teploměrů, měřicí ústředny

- ¹⁾ v případě, že laboratoř je schopna provádět kalibrace mimo/i mimo své stálé prostory, jsou tyto kalibrace u pořadového čísla označeny hvězdičkou
- ²⁾ vyjádřená obdobně jako nejistota v souladu s požadavky dokumentu EA 4/02 při $k = 2$
- ³⁾ hodnoty uvedené relativně v % nebo bezrozměrně, jsou vztaženy k měřené hodnotě, kromě:
- ⁴⁾ ztrátového činitele D , kde se jedná o bezrozměrnou hodnotu ztrátového činitele,
- ⁵⁾ NF výkonu, kde jsou vztaženy ke zdánlivému výkonu (součinu napětí a proudu),
- ⁶⁾ účinníku, kde se jedná o bezrozměrnou hodnotu účinníku (kosinu fázového posuvu mezi napětím a proudem),
- ⁷⁾ harmonického zkreslení, kde jsou vztaženy k základní harmonické a
- ⁸⁾ činitele odrazu, kde se jedná o bezrozměrnou hodnotu činitele odrazu.
- ⁹⁾ měřicí schopnost kalibrace zahrnuje i vliv CJC

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Kalibrace: Nominální teplota pro kalibraci: $(23 \pm 5) ^\circ\text{C}$

Pořadové číslo ¹⁾	Měřená veličina	Rozsah měření	Měřicí schopnost kalibrace [±] ^{2), 3)}	Identifikace kalibračního postupu
23.	Frekvence pro časový interval 10 s	0,1 Hz až 3 GHz	10 ⁻⁷	MK17
24.	Funkční test čítače pro časový interval 1 s	1 Hz až 10 kHz	2·10 ⁻¹⁰	MK17
		10 kHz až 3 GHz	2·10 ⁻¹¹	
	Funkční test čítače pro časový interval 10 s	0,1 Hz až 100 Hz	2·10 ⁻¹¹	
		100 Hz až 3 GHz	10 ⁻¹¹	
	Krátkodobá stabilita frekvence pro časový interval 24 hodin	0,1 Hz až 50 MHz	10 ⁻¹⁰	
25.	Časový interval, T je v sekundách	5 ns až 10 ⁵ s	(0,9 + 100T) ns	MK17, MK18
26.*	Otáčky, pro interval 10 s	30 až 500 min ⁻¹	0,10 %	MK19
		500 až 10000 min ⁻¹	0,050 %	
	Otáčky, elektrický vstup	6 až 100000 min ⁻¹	0,0020 %	

(v souladu s výše uvedeným přehledem měřených veličin a jejich rozsahu měření mohou být měřeny následující typy přístrojů či zařízení)

Pořadové číslo	Typ měřeného přístroje či zařízení
1.	Čítače a generátory
2.	Elektronické a mechanické stopky, generátory časového intervalu
3.	Otáčkoměry s mechanickým snímačem, optickým snímačem nebo elektrickým vstupem

- 1) v případě, že laboratoř je schopna provádět kalibrace mimo/i mimo své stálé prostory, jsou tyto kalibrace u pořadového čísla označeny hvězdičkou
- 2) vyjádřená obdobně jako nejistota v souladu s požadavky dokumentu EA 4/02 při $k = 2$
- 3) hodnoty uvedené relativně v % nebo bezrozměrně, jsou vztaženy k měřené hodnotě

Akreditovaný subjekt podle ČSN EN ISO/IEC 17025:2005:

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Obor měřené veličiny: **teplota**

Kalibrace: Nominální teplota pro kalibraci: $(23 \pm 5) ^\circ\text{C}$

Pořadové číslo ¹⁾	Měřená veličina	Rozsah měření	Měřicí schopnost kalibrace $[\pm]$ ²⁾	Identifikace kalibračního postupu
27.*	Teplota - elektronické teploměry	-20 °C až < 0 °C	0,1 °C	MK20
		0 °C až 90 °C	0,05 °C	
		> 90 °C až 200 °C	0,1 °C	
		> 200 °C až 420 °C	0,2 °C	
28.*	Teplota - teploměry teplotních komor	-50 °C až < 0 °C	0,5 °C	MK20
		0 °C až 50 °C	0,3 °C	
		> 50 °C až 250 °C	0,4 °C	

Měřené přístroje či zařízení:

(v souladu s výše uvedeným přehledem měřených veličin a jejich rozsahu měření mohou být měřeny následující typy přístrojů či zařízení)

Pořadové číslo	Typ měřeného přístroje či zařízení
1.	Elektronické teploměry
2.	Teploměry teplotních komor

¹⁾ v případě, že laboratoř je schopna provádět kalibrace mimo/i mimo své stálé prostory, jsou tyto kalibrace u pořadového čísla označeny hvězdičkou

²⁾ vyjádřená obdobně jako nejistota v souladu s požadavky dokumentu EA 4/02 při $k = 2$

Akreditovaný subjekt podle ČSN EN ISO/IEC 17025:2005:

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Obor měřené veličiny: **světelné veličiny**

Kalibrace: Nominální teplota pro kalibraci: $(23 \pm 2) ^\circ\text{C}$

Pořadové číslo ¹⁾	Měřená veličina	Rozsah měření	Měřicí schopnost kalibrace [$\pm$] ^{2), 3)}	Identifikace kalibračního postupu
29.	Svitivost	1 cd až 10000 cd	1,3 %	MK22
30.	Světelný tok	50 lm až 10000 lm	1,3 %	MK23
31.	Teplota chromatická	2000 K až 2900 K	40 K	MK24
32.	Osvětlení	1 lx až 300 lx	1,2 %	MK25
		300 lx až 10000 lx	1,5 %	
		10 klx až 50 klx	2 %	
33.	Jas	5 cd/m ² až 500 cd/m ²	2 %	MK26
		500 cd/m ² až 700 cd/m ²	3 %	
		900 cd/m ²	2,5 %	

Měřené přístroje či zařízení:

(v souladu s výše uvedeným přehledem měřených veličin a jejich rozsahu měření mohou být měřeny následující typy přístrojů či zařízení)

Pořadové číslo	Typ měřeného přístroje či zařízení
1.	Etalony svítivosti
2.	Etalony světelného toku
3.	Etalony teploty chromatičnosti
4.	Luxmetry
5.	Jasoměry

¹⁾ v případě, že laboratoř je schopna provádět kalibrace mimo/i mimo své stálé prostory, jsou tyto kalibrace u pořadového čísla označeny hvězdičkou

²⁾ vyjádřená obdobně jako nejistota v souladu s požadavky dokumentu EA 4/02 při $k = 2$

³⁾ hodnoty uvedené relativně v % nebo bezrozměrně, jsou vztaženy k měřené hodnotě

Cree® XLamp® XT-E White LEDs



INFORMATION REQUIRED BY LM-80-08

Cree classifies these LEDs as "LED packages" per Sep 9, 2011 ENERGY STAR guidelines¹.

1. Number of LED light sources tested	See individual data sets on following pages.
2. Description of LED light sources	XLamp XT-E White LEDs (Series: XTEAWT) This LM-80 report is applicable to the following order codes: XTEAWT-xx-xxxx-xxxxxxxxxx All measurements provided are LED package measurements.
3. Description of test and auxiliary equipment	Instrument Systems ISP-500 Integrating Sphere Instrument Systems CAS-140 Spectrometer Keithley 2420 Sourcemeter
4. Operating cycle	LED packages are driven at constant current.
5. Ambient conditions	LED packages are operated in environmental control chambers. The temperature of the ambient air around the LED packages is actively controlled by air flowing through the chamber. T_A : See individual data sets on following pages RH : < 45% Air flow : 800 CFM
6. Case temperature	See individual data sets on following pages.
7. Drive current of the LED light source during life-time test.	See individual data sets on following pages.
8. Initial luminous flux and forward voltage at photometric measurement current	See individual data sets on following pages.
9. Lumen maintenance data for each individual LED light source	See individual data sets on following pages.
10. Observation of LED light source failures	Ambient temperature during luminous flux testing set to 25°C ±2°C.
11. LED light source monitoring interval	No failures occurred during testing.
12. Photometric measurement uncertainty	See individual data sets on following pages.
13. Chromaticity shift reported over the measurement time	Cree maintains a tolerance of ±2.0% on flux measurements for LM-80 testing.
Test Report Authorization	See individual data sets on following pages.
	Ambient temperature during chromaticity testing set to 25°C ±2°C.
	Arthur Pun, Components Reliability Laboratory Manager

1 http://www.energystar.gov/ia/partners/prod_development/new_specs/downloads/luminaires/ENERGY_STAR_Final_Lumen_Maintenance_Guidance.pdf

REVISION HISTORY

Revision	Date	Change
0	Mar 29, 2012	Date of first issue
1	Sep 27, 2012	Removed successor data set 1. Added data set 2.
2	Oct 23, 2012	Added data set 3.
3	Nov 14, 2012	Added data set 4.
4	Apr 17, 2013	Revised data sets 2 & 4 to add additional test duration. Added data sets 5 & 6.
5	Aug 22, 2013	Revised data sets 2-6 to add additional test duration.
6	Nov 13, 2013	Revised data sets 5 & 6 to add additional test duration.
7	Sep 29, 2014	Removed data sets 3 & 4. Added data sets 3+ & 4+. Revised data sets 2 & 5 to add additional test duration.
8	Nov 20, 2015	Added data sets 8 & 9. Revised report format.
9	Jun 06, 2016	Added data sets 10 & 11. Removed data sets 2 & 4+. Extended data sets 8 & 9 with additional test duration.
10	Sep 22, 2016	Extended data sets 8 & 9 with additional test duration. Updated mechanical drawings and product photograph.

TEST RESULTS SUMMARY

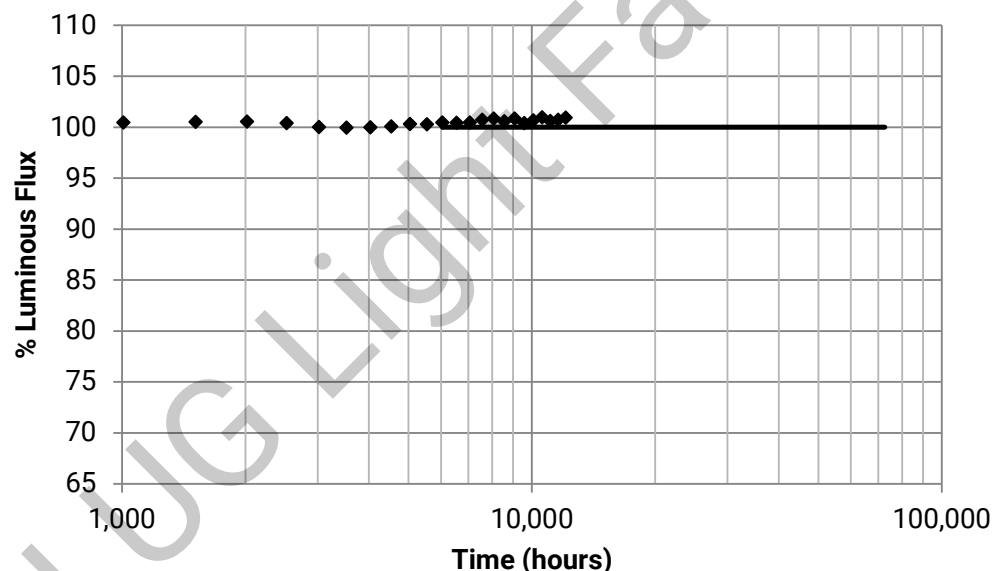
Data Set	Case Temp. [T _s]	Ambient Temp. [T _A]	Drive Current [I _F]	ANSI CCT Target	Sample Count	Test Duration	Reported TM-21 Lifetimes
8	85°C	85°C	500 mA	3000K	20	12,096 hrs	L90(12k) > 72,600 hrs L80(12k) > 72,600 hrs L70(12k) > 72,600 hrs
9	105°C	105°C	500 mA	3000K	20	13,104 hrs	L90(13k) > 78,600 hrs L80(13k) > 78,600 hrs L70(13k) > 78,600 hrs
3+	55°C	55°C	1000 mA	3000K	16	18,144 hrs	L90(18k) = 45,600 hrs L80(18k) = 88,500 hrs L70(18k) > 99,800 hrs
10	85°C	85°C	1000 mA	3000K	20	10,080 hrs	L90(10k) > 60,500 hrs L80(10k) > 60,500 hrs L70(10k) > 60,500 hrs
11	105°C	105°C	1000 mA	3000K	20	10,080 hrs	L90(10k) > 60,500 hrs L80(10k) > 60,500 hrs L70(10k) > 60,500 hrs
5	55°C	55°C	1250 mA	3000K	25	10,080 hrs	L90(10k) = 46,100 hrs L80(10k) > 60,500 hrs L70(10k) > 60,500 hrs
6	85°C	85°C	1250 mA	3000K	25	9,072 hrs	L90(9k) = 19,300 hrs L80(9k) = 41,400 hrs L70(9k) > 54,400 hrs

DATA SET 8: 85°C; 500 mA

LED Package Series	XLamp XT-E White LEDs (Series: XTEAWT)
	This LM-80 report is applicable to the following order codes: XTEAWT-xx-xxxx-xxxxxxxxxx
Tested Model Number	XTEAWT-00-0000-00000LBE7
Drive Current [I_F]	500 mA
Testing Initiation Date	December 4, 2014
Case Temperature [T_s]	85°C
Ambient Temperature [T_A]	85°C
Failures observed	None

Projection Generated By Cree's Internal TM-21 Calculator:

Test duration	12,096 hours
Test duration used for projection	t=6,048 to t=12,096
α	-5.311E-07
β	1.002E+00
Reported Lifetimes	L90(12k) > 72,600 hours
	L80(12k) > 72,600 hours
	L70(12k) > 72,600 hours



LM-80 Data For The Official TM-21 Calculator*

Time (hours)	Lumen Maintenance
0	100.00%
3024	100.02%
3528	99.95%
4032	99.98%
4536	100.07%
5040	100.30%
5544	100.28%
6048	100.46%
6552	100.45%
7056	100.47%
7560	100.74%
8064	100.85%
8568	100.59%
9072	100.85%
9576	100.41%
10080	100.66%
10584	100.96%
11088	100.62%
11592	100.73%
12096	100.93%

* <http://www.energystar.gov/TM-21calculator>

Note: Data points t=168 hr through t=2520 hr are intentionally excluded from this table, since the ENERGY STAR tool has a 20 data point input limit. Per TM-21 methodology, data points t=168 hr through t=2520 hr would be excluded, so the projection is unaffected.

DATA SET 8: 85°C; 500 mA

Lamp #	Initial (0 hrs)				Lumen Maintenance (%)											
	LF (lm)	V _F (V)	Calc. CCT	ANSI Target	168	1008	1512	2016	2520	3024	3528	4032	4536	5040	5544	6048
1	176.3	3.12	3284	3000	100.27	100.47	100.66	100.66	101.06	100.51	100.13	100.14	100.74	100.76	100.45	100.71
2	190.0	3.10	3177	3000	99.77	99.49	99.87	100.00	100.09	100.04	99.86	99.80	100.09	100.01	99.81	100.17
3	171.9	3.10	3240	3000	100.25	100.41	100.87	101.29	101.06	100.34	100.08	100.03	100.01	100.37	100.05	100.74
4	190.6	3.07	3295	3000	100.49	100.59	100.69	100.75	100.85	100.07	99.87	99.98	100.18	100.69	100.45	100.46
5	171.4	3.07	3233	3000	100.73	100.66	100.97	101.14	101.01	100.10	99.98	99.74	99.95	100.07	100.05	100.45
6	187.6	3.07	3190	3000	100.29	101.01	100.98	100.95	101.10	100.64	100.44	100.60	100.47	100.76	101.12	101.07
7	170.0	3.09	3183	3000	100.64	100.69	101.00	101.08	100.39	100.05	99.68	99.99	100.26	100.25	99.80	99.95
8	189.8	3.05	3227	3000	100.41	100.99	101.08	101.04	101.01	100.33	100.42	100.54	100.83	101.25	101.16	101.53
9	168.1	3.16	3159	3000	100.46	100.97	101.25	101.03	100.09	100.20	100.08	100.17	100.07	100.33	100.09	99.81
10	174.2	3.08	3228	3000	100.80	100.58	100.48	100.99	100.96	100.72	100.40	100.45	100.83	100.68	100.39	100.49
11	187.5	3.06	3232	3000	99.84	100.59	100.56	100.42	100.29	99.71	99.47	99.49	99.78	100.27	100.20	100.56
12	187.3	3.07	3272	3000	100.10	100.40	100.00	100.16	99.62	99.54	100.00	99.35	99.37	99.84	99.67	100.10
13	189.7	3.08	3170	3000	100.19	100.82	101.06	100.83	100.56	100.27	100.20	100.29	100.57	100.93	100.78	101.24
14	185.3	3.05	3170	3000	99.77	100.47	100.45	100.62	100.50	99.87	99.82	99.98	100.31	100.67	100.50	100.87
15	174.2	3.11	3216	3000	100.72	100.31	100.56	100.39	100.20	100.29	100.28	100.24	99.94	99.85	99.55	99.64
16	193.1	3.09	3279	3000	100.73	100.57	100.45	100.65	100.35	99.81	99.86	100.04	100.00	100.21	100.76	100.70
17	188.5	3.07	3266	3000	99.76	99.92	99.89	99.91	99.78	99.55	99.74	99.50	99.42	99.78	100.09	100.17
18	187.6	3.07	3203	3000	99.68	99.78	99.34	99.29	99.34	99.19	99.23	99.33	99.21	99.63	99.92	100.00
19	185.8	3.11	3226	3000	100.35	100.44	100.32	100.01	100.15	99.66	99.77	99.97	99.58	99.65	100.30	100.27
20	188.9	3.06	3195	3000	99.91	100.36	100.08	99.63	99.68	99.52	99.68	99.89	99.74	100.06	100.53	100.34
n	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Mean	182.9	3.08			100.26	100.48	100.53	100.54	100.41	100.02	99.95	99.98	100.07	100.30	100.28	100.46
Median	187.4	3.08			100.28	100.52	100.56	100.66	100.37	100.06	99.92	99.99	100.04	100.26	100.25	100.46
σ	8.3	0.03			0.37	0.39	0.50	0.55	0.54	0.41	0.32	0.37	0.47	0.45	0.45	0.48
Min.	168.1	3.05			99.68	99.49	99.34	99.29	99.34	99.19	99.23	99.33	99.21	99.63	99.55	99.64
Max.	193.1	3.16			100.80	101.01	101.25	101.29	101.10	100.72	100.44	100.60	100.83	101.25	101.16	101.53

Lamp #	Initial (0 hrs)				Chromaticity Shift (Δu'v')											
	CCx	CCy	Calc. CCT	ANSI Target	168	1008	1512	2016	2520	3024	3528	4032	4536	5040	5544	6048
1	0.4218	0.4048	3284	3000	0.0007	0.0011	0.0013	0.0015	0.0016	0.0017	0.0018	0.0019	0.0020	0.0020	0.0020	0.0020
2	0.4297	0.4097	3177	3000	0.0005	0.0013	0.0014	0.0017	0.0018	0.0020	0.0021	0.0021	0.0021	0.0022	0.0021	0.0023
3	0.4245	0.4056	3240	3000	0.0006	0.0012	0.0014	0.0015	0.0015	0.0016	0.0017	0.0017	0.0019	0.0020	0.0020	0.0020
4	0.4217	0.4059	3295	3000	0.0005	0.0011	0.0013	0.0014	0.0016	0.0018	0.0019	0.0020	0.0020	0.0021	0.0022	0.0022
5	0.4263	0.4090	3233	3000	0.0006	0.0011	0.0014	0.0014	0.0015	0.0017	0.0019	0.0019	0.0019	0.0020	0.0020	0.0021
6	0.4275	0.4062	3190	3000	0.0006	0.0011	0.0015	0.0017	0.0019	0.0019	0.0021	0.0021	0.0021	0.0022	0.0022	0.0022
7	0.4278	0.4060	3183	3000	0.0006	0.0012	0.0014	0.0014	0.0015	0.0016	0.0018	0.0017	0.0018	0.0019	0.0018	0.0019
8	0.4248	0.4047	3227	3000	0.0006	0.0012	0.0014	0.0016	0.0018	0.0019	0.0020	0.0020	0.0022	0.0023	0.0023	0.0022
9	0.4292	0.4064	3159	3000	0.0007	0.0013	0.0015	0.0014	0.0016	0.0017	0.0018	0.0019	0.0019	0.0019	0.0020	0.0020
10	0.4254	0.4062	3228	3000	0.0006	0.0011	0.0013	0.0014	0.0014	0.0017	0.0017	0.0017	0.0017	0.0018	0.0020	0.0019
11	0.4274	0.4115	3232	3000	0.0004	0.0010	0.0012	0.0014	0.0014	0.0016	0.0017	0.0018	0.0017	0.0020	0.0021	0.0021
12	0.4239	0.4084	3272	3000	0.0003	0.0012	0.0015	0.0017	0.0018	0.0018	0.0020	0.0020	0.0021	0.0023	0.0022	0.0022
13	0.4306	0.4108	3170	3000	0.0006	0.0013	0.0015	0.0016	0.0017	0.0018	0.0020	0.0021	0.0022	0.0023	0.0023	0.0024
14	0.4282	0.4054	3170	3000	0.0005	0.0012	0.0015	0.0019	0.0019	0.0020	0.0021	0.0022	0.0021	0.0023	0.0023	0.0023
15	0.4261	0.4063	3216	3000	0.0004	0.0009	0.0012	0.0014	0.0014	0.0014	0.0017	0.0016	0.0017	0.0017	0.0018	0.0019
16	0.4223	0.4054	3279	3000	0.0006	0.0012	0.0015	0.0018	0.0018	0.0019	0.0020	0.0020	0.0022	0.0022	0.0022	0.0023
17	0.4241	0.4080	3266	3000	0.0003	0.0010	0.0012	0.0014	0.0014	0.0015	0.0017	0.0017	0.0019	0.0019	0.0020	0.0021
18	0.4266	0.4058	3203	3000	0.0004	0.0008	0.0010	0.0012	0.0012	0.0012	0.0015	0.0015	0.0017	0.0017	0.0017	0.0019
19	0.4264	0.4084	3226	3000	0.0005	0.0010	0.0012	0.0014	0.0014	0.0014	0.0016	0.0016	0.0019	0.0019	0.0018	0.0019
20	0.4262	0.4039	3195	3000	0.0004	0.0013	0.0013	0.0014	0.0014	0.0016	0.0020	0.0018	0.0020	0.0020	0.0019	0.0020
n	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Mean					0.0005	0.0011	0.0014	0.0015	0.0016	0.0017	0.0019	0.0019	0.0020	0.0020	0.0021	0.0021
Median					0.0005	0.0011	0.0014	0.0014	0.0015	0.0017	0.0018	0.0019	0.0019	0.0020	0.0020	0.0021
σ					0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Min.					0.0003	0.0008	0.0010	0.0012	0.0012	0.0012	0.0015	0.0015	0.0017	0.0017	0.0017	0.0019
Max.					0.0007	0.0013	0.0015	0.0019	0.0019	0.0020	0.0021	0.0022	0.0022	0.0023	0.0023	0.0024

DATA SET 8: 85°C; 500 mA

Lamp #	Initial (0 hrs)				Lumen Maintenance (%)											
	LF (lm)	V _F (V)	Calc. CCT	ANSI Target	6552	7056	7560	8064	8568	9072	9576	10080	10584	11088	11592	12096
1	176.3	3.12	3284	3000	100.57	100.65	101.04	101.20	100.74	100.46	101.08	100.92	101.30	100.79	100.34	100.51
2	190.0	3.10	3177	3000	100.17	100.54	100.65	100.95	101.30	101.19	100.32	100.68	101.21	100.68	100.95	101.05
3	171.9	3.10	3240	3000	100.17	100.55	100.51	100.05	99.63	100.22	100.10	100.38	100.58	100.58	100.23	100.76
4	190.6	3.07	3295	3000	100.77	101.02	100.84	101.13	101.20	100.99	99.83	101.22	101.26	100.63	100.73	100.89
5	171.4	3.07	3233	3000	100.22	100.13	100.25	100.65	99.92	101.01	100.68	100.37	101.23	101.11	101.05	101.05
6	187.6	3.07	3190	3000	101.02	101.35	101.56	101.90	101.70	101.93	101.41	101.67	102.24	101.60	101.71	101.87
7	170.0	3.09	3183	3000	100.07	100.02	100.16	100.51	99.43	100.65	100.15	100.25	101.00	100.94	100.12	101.00
8	189.8	3.05	3227	3000	100.92	101.35	101.55	101.65	101.78	101.60	101.26	101.45	102.11	101.48	101.95	101.95
9	168.1	3.16	3159	3000	100.27	100.43	100.52	100.50	100.18	101.02	100.88	100.51	100.89	101.31	100.59	101.19
10	174.2	3.08	3228	3000	100.62	100.80	101.10	101.43	100.52	101.28	100.73	100.71	101.15	101.66	100.86	101.61
11	187.5	3.06	3232	3000	100.20	100.27	100.67	101.04	101.13	101.14	100.31	101.01	101.01	100.53	100.91	100.91
12	187.3	3.07	3272	3000	100.01	99.92	100.20	100.52	100.65	100.73	99.95	100.38	100.53	100.11	100.43	100.37
13	189.7	3.08	3170	3000	100.93	100.96	101.30	100.53	100.54	100.82	100.19	100.30	100.69	100.21	100.37	100.37
14	185.3	3.05	3170	3000	100.50	100.67	100.91	101.22	100.95	100.85	100.10	101.17	101.40	100.92	101.24	101.24
15	174.2	3.11	3216	3000	100.28	99.77	100.83	100.78	100.50	100.71	100.59	100.04	100.40	99.83	99.94	100.06
16	193.1	3.09	3279	3000	100.78	100.66	101.04	101.41	101.16	101.01	100.78	101.14	101.04	100.57	101.04	101.66
17	188.5	3.07	3266	3000	100.19	99.93	100.49	100.72	100.45	100.60	100.20	100.12	100.00	99.68	100.53	100.27
18	187.6	3.07	3203	3000	100.17	99.94	100.45	99.67	99.42	99.82	99.45	100.30	100.16	99.84	100.69	100.27
19	185.8	3.11	3226	3000	100.53	100.15	100.29	100.18	99.88	100.08	99.66	100.00	100.22	99.73	100.00	100.86
20	188.9	3.06	3195	3000	100.54	100.25	100.43	101.00	100.62	100.90	100.53	100.61	100.69	100.11	101.01	100.69
n	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Mean	182.9	3.08			100.45	100.47	100.74	100.85	100.59	100.85	100.41	100.66	100.96	100.62	100.73	100.93
Median	187.4	3.08			100.39	100.48	100.66	100.86	100.58	100.87	100.31	100.56	101.01	100.61	100.71	100.90
σ	8.3	0.03			0.31	0.47	0.43	0.55	0.69	0.49	0.52	0.48	0.58	0.62	0.53	0.54
Min.	168.1	3.05			100.01	99.77	100.16	99.67	99.42	99.82	99.45	100.00	100.00	99.68	99.94	100.06
Max.	193.1	3.16			101.02	101.35	101.56	101.90	101.78	101.93	101.41	101.67	102.24	101.66	101.95	101.95

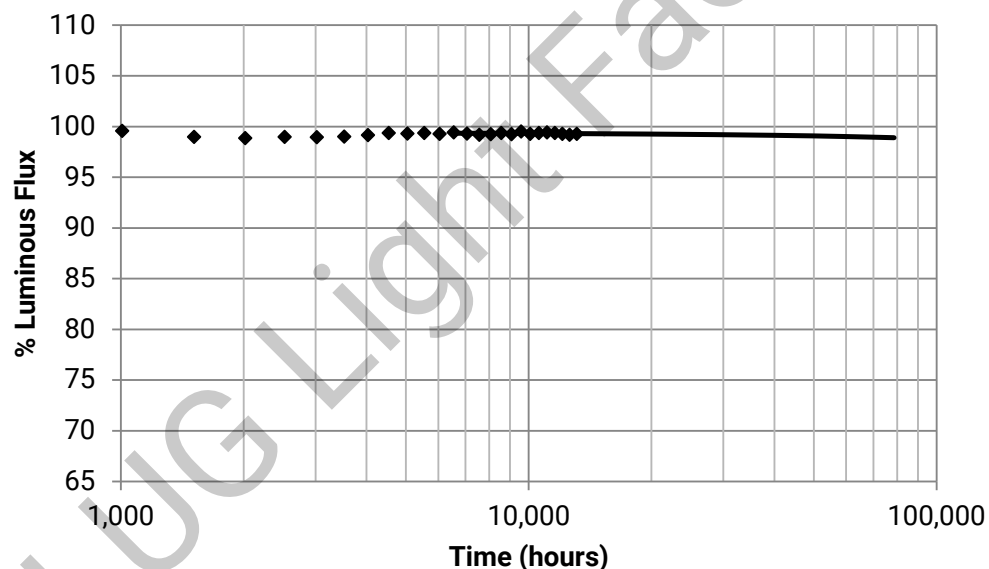
Lamp #	Initial (0 hrs)				Chromaticity Shift ($\Delta u'v'$)											
	CCx	CCy	Calc. CCT	ANSI Target	6552	7056	7560	8064	8568	9072	9576	10080	10584	11088	11592	12096
1	0.4218	0.4048	3284	3000	0.0021	0.0023	0.0024	0.0023	0.0024	0.0023	0.0023	0.0021	0.0021	0.0022	0.0023	0.0022
2	0.4297	0.4097	3177	3000	0.0023	0.0025	0.0025	0.0024	0.0025	0.0024	0.0024	0.0024	0.0024	0.0024	0.0026	0.0025
3	0.4245	0.4056	3240	3000	0.0021	0.0023	0.0023	0.0022	0.0022	0.0023	0.0022	0.0021	0.0021	0.0022	0.0024	0.0022
4	0.4217	0.4059	3295	3000	0.0022	0.0024	0.0025	0.0024	0.0024	0.0024	0.0024	0.0022	0.0022	0.0023	0.0025	0.0024
5	0.4263	0.4090	3233	3000	0.0022	0.0022	0.0023	0.0022	0.0022	0.0022	0.0022	0.0019	0.0020	0.0022	0.0022	0.0021
6	0.4275	0.4062	3190	3000	0.0023	0.0024	0.0026	0.0025	0.0024	0.0024	0.0024	0.0023	0.0022	0.0023	0.0024	0.0023
7	0.4278	0.4060	3183	3000	0.0019	0.0019	0.0020	0.0019	0.0019	0.0019	0.0020	0.0017	0.0018	0.0019	0.0019	0.0019
8	0.4248	0.4047	3227	3000	0.0023	0.0024	0.0026	0.0024	0.0025	0.0026	0.0025	0.0024	0.0023	0.0024	0.0025	0.0024
9	0.4292	0.4064	3159	3000	0.0020	0.0020	0.0022	0.0021	0.0021	0.0022	0.0022	0.0018	0.0018	0.0019	0.0020	0.0020
10	0.4254	0.4062	3228	3000	0.0021	0.0021	0.0022	0.0021	0.0022	0.0021	0.0022	0.0020	0.0020	0.0020	0.0021	0.0021
11	0.4274	0.4115	3232	3000	0.0022	0.0022	0.0024	0.0023	0.0025	0.0024	0.0023	0.0023	0.0021	0.0023	0.0024	0.0024
12	0.4239	0.4084	3272	3000	0.0024	0.0024	0.0025	0.0025	0.0026	0.0025	0.0025	0.0025	0.0023	0.0024	0.0025	0.0025
13	0.4306	0.4108	3170	3000	0.0026	0.0026	0.0027	0.0026	0.0026	0.0026	0.0025	0.0024	0.0023	0.0024	0.0024	0.0024
14	0.4282	0.4054	3170	3000	0.0024	0.0025	0.0026	0.0025	0.0024	0.0024	0.0024	0.0024	0.0023	0.0023	0.0024	0.0024
15	0.4261	0.4063	3216	3000	0.0019	0.0018	0.0021	0.0022	0.0022	0.0020	0.0019	0.0018	0.0018	0.0020	0.0019	0.0018
16	0.4223	0.4054	3279	3000	0.0025	0.0024	0.0026	0.0026	0.0026	0.0024	0.0024	0.0024	0.0023	0.0024	0.0024	0.0023
17	0.4241	0.4080	3266	3000	0.0021	0.0022	0.0022	0.0024	0.0024	0.0023	0.0022	0.0023	0.0023	0.0024	0.0024	0.0024
18	0.4266	0.4058	3203	3000	0.0018	0.0021	0.0022	0.0022	0.0023	0.0022	0.0021	0.0022	0.0022	0.0022	0.0023	0.0022
19	0.4264	0.4084	3226	3000	0.0020	0.0021	0.0022	0.0021	0.0022	0.0022	0.0021	0.0021	0.0022	0.0023	0.0023	0.0022
20	0.4262	0.4039	3195	3000	0.0020	0.0020	0.0021	0.0022	0.0023	0.0022	0.0021	0.0022	0.0022	0.0022	0.0021	0.0022
n	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Mean					0.0022	0.0022	0.0024	0.0023	0.0023	0.0023	0.0023	0.0022	0.0021	0.0022	0.0023	0.0022
Median					0.0022	0.0022	0.0024	0.0023	0.0024	0.0023	0.0023	0.0022	0.0022	0.0023	0.0024	0.0022
σ					0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Min.					0.0018	0.0018	0.0020	0.0019	0.0019	0.0019	0.0019	0.0017	0.0018	0.0019	0.0019	0.0018
Max.					0.0026	0.0026	0.0027	0.0026	0.0026	0.0026	0.0025	0.0025	0.0024	0.0024	0.0026	0.0025

DATA SET 9: 105°C; 500 mA

LED Package Series	XLamp XT-E White LEDs (Series: XTEAWT)
	This LM-80 report is applicable to the following order codes: XTEAWT-xx-xxxx-xxxxxxxxxx
Tested Model Number	XTEAWT-00-0000-00000LBE7
Drive Current [I_F]	500 mA
Testing Initiation Date	December 4, 2014
Case Temperature [T_s]	105°C
Ambient Temperature [T_A]	105°C
Failures observed	None

Projection Generated By Cree's Internal TM-21 Calculator:

Test duration	13,104 hours
Test duration used for projection	t=6,552 to t=13,104
α	6.205E-08
β	9.938E-01
Reported Lifetimes	L90(13k) > 78,600 hours
	L80(13k) > 78,600 hours
	L70(13k) > 78,600 hours



LM-80 Data For The Official TM-21 Calculator*

Time (hours)	Lumen Maintenance
0	100.00%
4032	99.16%
4536	99.35%
5040	99.29%
5544	99.37%
6048	99.29%
6552	99.43%
7056	99.31%
7560	99.20%
8064	99.23%
8568	99.38%
9072	99.25%
9576	99.53%
10080	99.26%
10584	99.36%
11088	99.43%
11592	99.37%
12096	99.27%
12600	99.18%
13104	99.28%

* <http://www.energystar.gov/TM-21calculator>

Note: Data points t=168 hr through t=3528 hr are intentionally excluded from this table, since the ENERGY STAR tool has a 20 data point input limit. Per TM-21 methodology, data points t=168 hr through t=3528 would be excluded, so the projection is unaffected.

DATA SET 9: 105°C; 500 mA

Lamp #	Initial (0 hrs)				Lumen Maintenance (%)												
	LF (lm)	V _F (V)	Calc. CCT	ANSI Target	168	1008	1512	2016	2520	3024	3528	4032	4536	5040	5544	6048	6552
1	176.6	3.14	3264	3000	99.78	100.05	99.43	99.17	99.18	99.22	99.49	99.62	99.60	99.18	99.72	99.37	99.12
2	195.3	3.11	3243	3000	100.04	100.06	99.23	99.29	99.25	99.07	99.11	99.25	99.78	99.25	99.63	99.64	100.07
3	193.5	3.07	3288	3000	99.70	99.95	99.46	98.96	98.91	98.94	98.89	99.38	99.68	99.12	99.04	99.67	100.04
4	188.5	3.06	3125	3000	99.90	99.49	99.06	98.98	99.04	98.92	99.04	99.45	99.67	99.15	99.16	99.86	100.17
5	174.7	3.05	3230	3000	100.43	100.26	99.03	98.40	98.73	98.75	98.68	98.41	98.74	98.43	98.56	98.86	98.88
6	176.1	3.08	3187	3000	100.39	99.87	99.38	99.17	99.05	99.89	99.53	99.71	99.33	99.19	99.38	99.15	99.70
7	174.8	3.07	3253	3000	100.08	99.84	98.34	98.32	98.56	98.37	98.29	98.55	98.78	98.73	99.59	98.75	98.45
8	191.7	3.06	3233	3000	99.72	99.19	98.85	98.85	99.11	98.98	99.19	99.38	99.52	99.74	99.47	99.20	98.95
9	191.5	3.06	3222	3000	99.62	99.63	99.27	99.28	99.57	99.41	99.32	99.57	99.71	99.77	99.73	99.60	99.33
10	189.2	3.05	3147	3000	100.38	100.08	99.98	99.87	99.69	99.57	99.60	100.27	100.30	100.46	100.45	100.37	100.31
11	177.8	3.07	3227	3000	100.25	99.56	99.16	99.09	99.18	99.44	99.74	99.80	99.63	99.39	99.54	99.29	98.92
12	178.8	3.14	3269	3000	100.41	98.40	97.95	98.09	98.31	98.55	98.53	98.63	98.49	98.51	98.94	98.65	99.11
13	195.4	3.12	3262	3000	100.01	98.86	98.41	98.61	98.75	98.48	98.38	98.40	98.71	99.34	99.05	98.68	99.71
14	171.3	3.07	3200	3000	100.54	99.43	98.04	97.71	98.19	98.22	98.36	98.47	98.51	98.32	98.90	98.72	98.69
15	191.7	3.08	3200	3000	99.63	98.78	98.24	98.45	98.39	98.27	98.28	98.29	98.81	99.15	98.76	98.51	99.18
16	174.4	3.07	3235	3000	100.17	99.32	98.01	97.71	97.94	97.89	98.03	97.90	98.23	97.99	98.47	98.81	98.44
17	187.6	3.06	3204	3000	100.17	99.28	98.87	98.75	98.65	98.46	98.46	98.71	99.24	99.75	99.09	99.06	99.83
18	192.7	3.06	3193	3000	100.23	100.13	99.59	99.49	99.65	99.59	99.27	99.58	99.97	100.45	99.89	99.98	99.77
19	174.9	3.06	3226	3000	100.10	100.12	99.70	99.41	99.89	99.48	100.01	99.97	99.94	99.48	99.51	99.40	99.50
20	191.0	3.05	3200	3000	100.38	100.03	99.81	99.81	99.76	99.63	99.72	99.85	100.41	100.43	100.45	100.18	100.44
n	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Mean	184.4	3.08			100.10	99.57	98.99	98.87	98.99	98.96	99.00	99.16	99.35	99.29	99.37	99.29	99.43
Median	188.0	3.07			100.13	99.60	99.11	98.97	99.05	98.96	99.07	99.38	99.56	99.22	99.43	99.24	99.41
σ	8.6	0.03			0.29	0.54	0.63	0.62	0.55	0.57	0.59	0.67	0.63	0.69	0.54	0.55	0.61
Min.	171.3	3.05			99.62	98.40	97.95	97.71	97.94	97.89	98.03	97.90	98.23	97.99	98.47	98.51	98.44
Max.	195.4	3.14			100.54	100.26	99.98	99.87	99.89	99.89	100.01	100.27	100.41	100.46	100.45	100.37	100.44

Lamp #	Initial (0 hrs)				Chromaticity Shift (Δu'v')												
	CCx	CCy	Calc. CCT	ANSI Target	168	1008	1512	2016	2520	3024	3528	4032	4536	5040	5544	6048	6552
1	0.4230	0.4051	3264	3000	0.0008	0.0015	0.0017	0.0019	0.0019	0.0019	0.0019	0.0018	0.0019	0.0019	0.0015	0.0020	0.0019
2	0.4240	0.4049	3243	3000	0.0008	0.0015	0.0017	0.0016	0.0017	0.0017	0.0017	0.0017	0.0019	0.0019	0.0016	0.0017	0.0019
3	0.4225	0.4071	3288	3000	0.0008	0.0013	0.0016	0.0015	0.0016	0.0016	0.0017	0.0016	0.0017	0.0019	0.0014	0.0017	0.0019
4	0.4318	0.4079	3125	3000	0.0006	0.0011	0.0013	0.0013	0.0013	0.0011	0.0013	0.0014	0.0016	0.0015	0.0012	0.0015	0.0016
5	0.4236	0.4022	3230	3000	0.0009	0.0017	0.0017	0.0017	0.0017	0.0017	0.0019	0.0018	0.0019	0.0019	0.0014	0.0018	0.0017
6	0.4286	0.4086	3187	3000	0.0010	0.0016	0.0018	0.0017	0.0017	0.0016	0.0017	0.0017	0.0018	0.0019	0.0015	0.0018	0.0019
7	0.4241	0.4063	3253	3000	0.0003	0.0006	0.0008	0.0007	0.0007	0.0009	0.0010	0.0010	0.0010	0.0011	0.0010	0.0011	0.0011
8	0.4247	0.4053	3233	3000	0.0004	0.0010	0.0011	0.0013	0.0013	0.0014	0.0015	0.0014	0.0014	0.0013	0.0014	0.0014	0.0014
9	0.4254	0.4054	3222	3000	0.0006	0.0012	0.0013	0.0013	0.0012	0.0014	0.0015	0.0014	0.0013	0.0014	0.0014	0.0013	0.0013
10	0.4293	0.4050	3147	3000	0.0006	0.0013	0.0014	0.0014	0.0014	0.0015	0.0016	0.0016	0.0014	0.0015	0.0015	0.0017	0.0016
11	0.4259	0.4072	3227	3000	0.0008	0.0013	0.0011	0.0012	0.0012	0.0014	0.0015	0.0014	0.0014	0.0014	0.0014	0.0015	0.0015
12	0.4232	0.4062	3269	3000	0.0005	0.0009	0.0009	0.0010	0.0009	0.0011	0.0011	0.0013	0.0012	0.0011	0.0011	0.0012	0.0011
13	0.4232	0.4053	3262	3000	0.0007	0.0011	0.0012	0.0011	0.0012	0.0013	0.0014	0.0014	0.0014	0.0015	0.0014	0.0014	0.0014
14	0.4276	0.4077	3200	3000	0.0006	0.0009	0.0010	0.0010	0.0010	0.0011	0.0012	0.0011	0.0012	0.0012	0.0012	0.0012	0.0011
15	0.4280	0.4087	3200	3000	0.0006	0.0010	0.0011	0.0012	0.0011	0.0012	0.0014	0.0013	0.0014	0.0012	0.0012	0.0013	0.0013
16	0.4252	0.4067	3235	3000	0.0006	0.0012	0.0012	0.0012	0.0012	0.0014	0.0016	0.0015	0.0015	0.0015	0.0015	0.0016	0.0015
17	0.4256	0.4036	3204	3000	0.0005	0.0007	0.0008	0.0009	0.0009	0.0010	0.0011	0.0010	0.0010	0.0010	0.0010	0.0011	0.0010
18	0.4291	0.4105	3193	3000	0.0006	0.0010	0.0012	0.0012	0.0010	0.0012	0.0013	0.0013	0.0013	0.0012	0.0012	0.0014	0.0013
19	0.4251	0.4054	3226	3000	0.0006	0.0012	0.0012	0.0012	0.0011	0.0013	0.0013	0.0013	0.0013	0.0012	0.0012	0.0015	0.0012
20	0.4276	0.4077	3200	3000	0.0007	0.0010	0.0011	0.0013	0.0014	0.0015	0.0017	0.0016	0.0016	0.0014	0.0014	0.0017	0.0015
n	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Mean					0.0006	0.0011	0.0013	0.0013	0.0013	0.0014	0.0015	0.0014	0.0015	0.0015	0.0013	0.0015	0.0015
Median					0.0006	0.0011	0.0012	0.0013	0.0012	0.0014	0.0015	0.0014	0.0014	0.0014	0.0014	0.0015	0.0015
σ					0.0002	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002	0.0003	0.0003	0.0002	0.0002	0.0003
Min.					0.0003	0.0006	0.0008	0.0007	0.0007	0.0009	0.0010	0.0010	0.0010	0.0010	0.0010	0.0011	0.0010
Max.					0.0010	0.0017	0.0018	0.0019	0.0019	0.0019	0.0019	0.0018	0.0019	0.0019	0.0016	0.0020	0.0019

DATA SET 9: 105°C; 500 mA

Lamp #	Initial (0 hrs)				Lumen Maintenance (%)												
	LF (lm)	V _F (V)	Calc. CCT	ANSI Target	7056	7560	8064	8568	9072	9576	10080	10584	11088	11592	12096	12600	13104
1	176.6	3.14	3264	3000	99.24	98.94	98.95	99.39	99.45	99.65	99.19	99.21	99.32	99.26	99.09	99.43	99.72
2	195.3	3.11	3243	3000	99.57	100.05	99.56	99.39	100.00	99.60	99.95	99.54	99.13	99.74	99.85	100.00	99.54
3	193.5	3.07	3288	3000	99.41	99.64	99.84	99.72	99.87	99.57	99.83	99.59	100.00	99.90	99.95	99.64	99.64
4	188.5	3.06	3125	3000	99.43	99.70	99.39	99.28	99.90	99.72	99.82	99.63	100.11	99.79	99.79	99.20	99.42
5	174.7	3.05	3230	3000	99.28	99.26	99.41	99.50	99.15	99.57	98.92	99.08	99.66	99.77	98.91	99.43	99.20
6	176.1	3.08	3187	3000	99.85	99.48	99.61	99.86	99.76	99.74	99.36	99.66	100.00	99.32	99.20	99.38	99.32
7	174.8	3.07	3253	3000	98.70	98.78	98.95	98.78	98.81	99.08	98.55	98.80	98.63	98.68	98.34	98.17	98.40
8	191.7	3.06	3233	3000	99.21	99.08	99.60	99.75	99.76	100.10	99.61	99.84	100.00	99.90	99.69	99.84	99.74
9	191.5	3.06	3222	3000	99.37	99.37	99.49	99.60	99.67	99.98	99.66	99.90	100.16	100.00	99.90	99.48	99.53
10	189.2	3.05	3147	3000	99.93	100.11	99.50	99.74	99.65	99.95	99.55	99.84	99.95	99.89	99.79	99.74	100.00
11	177.8	3.07	3227	3000	99.50	99.07	99.54	99.82	99.07	99.45	99.46	99.78	99.83	99.61	99.72	99.55	99.83
12	178.8	3.14	3269	3000	98.85	98.45	98.18	98.23	98.22	98.47	98.13	97.93	97.71	98.32	97.93	97.99	98.15
13	195.4	3.12	3262	3000	99.01	98.75	99.12	99.30	98.95	99.62	99.21	99.54	99.54	99.59	99.85	99.28	99.95
14	171.3	3.07	3200	3000	98.50	98.61	98.42	99.13	98.42	98.56	98.19	98.07	97.90	98.19	97.72	97.72	98.42
15	191.7	3.08	3200	3000	98.62	98.35	98.74	99.01	98.70	99.23	99.39	99.17	99.11	99.06	99.32	98.70	99.17
16	174.4	3.07	3235	3000	98.64	98.42	98.44	98.19	98.64	98.45	98.56	98.62	98.45	98.57	97.94	97.82	98.11
17	187.6	3.06	3204	3000	99.27	98.92	99.25	99.70	99.27	99.96	99.46	99.73	99.73	99.31	99.52	99.52	99.09
18	192.7	3.06	3193	3000	100.08	99.72	100.14	99.58	99.17	99.87	99.50	99.64	99.64	99.22	99.53	99.53	99.48
19	174.9	3.06	3226	3000	99.49	99.07	99.04	99.69	99.12	99.98	99.11	99.94	99.66	99.89	99.49	99.31	99.54
20	191.0	3.05	3200	3000	100.27	100.18	99.53	99.89	99.43	99.99	99.78	99.74	100.00	99.48	99.79	99.90	99.42
n	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Mean	184.4	3.08			99.31	99.20	99.23	99.38	99.25	99.53	99.26	99.36	99.43	99.37	99.27	99.18	99.28
Median	188.0	3.07			99.32	99.07	99.40	99.54	99.22	99.63	99.42	99.61	99.66	99.53	99.53	99.43	99.45
σ	8.6	0.03			0.49	0.57	0.50	0.50	0.52	0.52	0.54	0.59	0.73	0.55	0.72	0.71	0.58
Min.	171.3	3.05			98.50	98.35	98.18	98.19	98.22	98.45	98.13	97.93	97.71	98.19	97.72	97.72	98.11
Max.	195.4	3.14			100.27	100.18	100.14	99.89	100.00	100.10	99.95	99.94	100.16	100.00	99.95	100.00	100.00

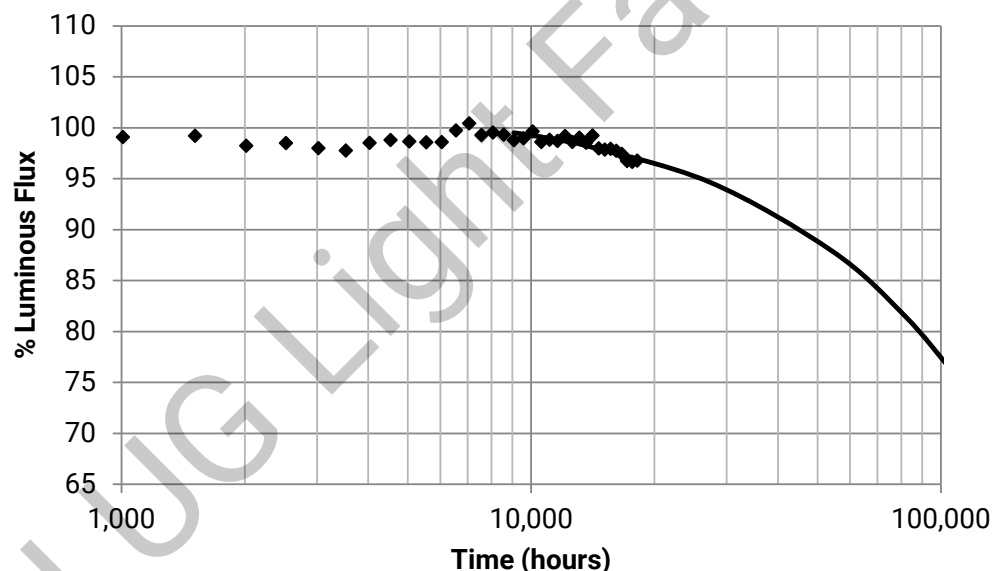
Lamp #	Initial (0 hrs)				Chromaticity Shift ($\Delta u'v'$)												
	CCx	CCy	Calc. CCT	ANSI Target	7056	7560	8064	8568	9072	9576	10080	10584	11088	11592	12096	12600	13104
1	0.4230	0.4051	3264	3000	0.0019	0.0020	0.0020	0.0020	0.0020	0.0019	0.0019	0.0020	0.0020	0.0018	0.0020	0.0020	0.0020
2	0.4240	0.4049	3243	3000	0.0019	0.0019	0.0018	0.0019	0.0019	0.0017	0.0018	0.0019	0.0019	0.0017	0.0018	0.0017	0.0018
3	0.4225	0.4071	3288	3000	0.0018	0.0017	0.0018	0.0018	0.0018	0.0017	0.0018	0.0018	0.0018	0.0017	0.0018	0.0018	0.0019
4	0.4318	0.4079	3125	3000	0.0015	0.0016	0.0016	0.0017	0.0017	0.0015	0.0017	0.0017	0.0017	0.0016	0.0016	0.0017	0.0017
5	0.4236	0.4022	3230	3000	0.0018	0.0018	0.0017	0.0019	0.0019	0.0017	0.0016	0.0017	0.0017	0.0017	0.0017	0.0018	0.0018
6	0.4286	0.4086	3187	3000	0.0018	0.0019	0.0018	0.0020	0.0020	0.0017	0.0017	0.0017	0.0018	0.0018	0.0017	0.0018	0.0019
7	0.4241	0.4063	3253	3000	0.0012	0.0012	0.0013	0.0013	0.0012	0.0012	0.0013	0.0011	0.0013	0.0012	0.0012	0.0012	0.0012
8	0.4247	0.4053	3233	3000	0.0015	0.0014	0.0016	0.0015	0.0015	0.0015	0.0015	0.0015	0.0016	0.0015	0.0015	0.0016	0.0016
9	0.4254	0.4054	3222	3000	0.0013	0.0014	0.0015	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0015	0.0012
10	0.4293	0.4050	3147	3000	0.0015	0.0016	0.0017	0.0016	0.0016	0.0017	0.0016	0.0015	0.0016	0.0016	0.0016	0.0017	0.0015
11	0.4259	0.4072	3227	3000	0.0015	0.0014	0.0016	0.0016	0.0016	0.0015	0.0014	0.0013	0.0015	0.0014	0.0014	0.0015	0.0015
12	0.4232	0.4062	3269	3000	0.0014	0.0013	0.0013	0.0013	0.0011	0.0012	0.0012	0.0011	0.0011	0.0011	0.0011	0.0012	0.0013
13	0.4232	0.4053	3262	3000	0.0015	0.0016	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0016	0.0015
14	0.4276	0.4077	3200	3000	0.0013	0.0013	0.0014	0.0013	0.0011	0.0011	0.0011	0.0012	0.0012	0.0012	0.0010	0.0012	0.0011
15	0.4280	0.4087	3200	3000	0.0013	0.0014	0.0014	0.0014	0.0013	0.0013	0.0013	0.0013	0.0013	0.0012	0.0012	0.0014	0.0014
16	0.4252	0.4067	3235	3000	0.0016	0.0017	0.0017	0.0016	0.0014	0.0014	0.0014	0.0014	0.0014	0.0015	0.0016	0.0016	0.0017
17	0.4256	0.4036	3204	3000	0.0012	0.0013	0.0012	0.0013	0.0012	0.0013	0.0013	0.0012	0.0012	0.0014	0.0013	0.0014	0.0014
18	0.4291	0.4105	3193	3000	0.0013	0.0014	0.0015	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0013	0.0014	0.0014
19	0.4251	0.4054	3226	3000	0.0014	0.0014	0.0015	0.0014	0.0013	0.0012	0.0012	0.0011	0.0011	0.0013	0.0012	0.0013	0.0013
20	0.4276	0.4077	3200	3000	0.0016	0.0016	0.0020	0.0019	0.0019	0.0018	0.0019	0.0017	0.0018	0.0018	0.0017	0.0019	0.0018
n	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Mean					0.0015	0.0015	0.0016	0.0016	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0016	0.0016
Median					0.0015	0.0015	0.0016	0.0015	0.0015	0.0015	0.0015	0.0014	0.0015	0.0015	0.0015	0.0016	0.0015
σ					0.0002	0.0002	0.0002	0.0003	0.0003	0.0002	0.0002	0.0003	0.0003	0.0002	0.0003	0.0002	0.0003
Min.					0.0012	0.0012	0.0012	0.0013	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0010	0.0012	0.0011
Max.					0.0019	0.0020	0.0020	0.0020	0.0020	0.0019	0.0019	0.0020	0.0020	0.0018	0.0020	0.0020	0.0020

DATA SET 3+: 55°C; 1000 mA

LED Package Series	XLamp XT-E White LEDs (Series: XTEAWT)
	This LM-80 report is applicable to the following order codes: XTEAWT-xx-xxxx-xxxxxxxxxx
Tested Model Number	XTEAWT-00-0000-00000LBE7
Drive Current [I_F]	1000 mA
Testing Initiation Date	December 19, 2011
Case Temperature [T_s]	55°C
Ambient Temperature [T_A]	55°C
Failures observed	None

Projection Generated By Cree's Internal TM-21 Calculator:

Test duration	18,144 hours
Test duration used for projection	t=9,072 to t=18,144
α	2.745E-06
β	1.020E+00
Reported Lifetimes	L90(18k) = 45,600 hours
	L80(18k) = 88,500 hours
	L70(18k) > 99,800 hours



* <http://www.energystar.gov/TM-21calculator>

LM-80 Data For The Official TM-21 Calculator*

Time (hours)	Lumen Maintenance
0	100.00%
9072	98.78%
9576	98.96%
10080	99.64%
10584	98.61%
11088	98.83%
11592	98.71%
12096	99.19%
12600	98.61%
13104	99.03%
13608	98.53%
14112	99.24%
14616	97.98%
15120	97.86%
15624	97.94%
16128	97.74%
16632	97.44%
17136	96.74%
17640	96.65%
18144	96.78%

Note: Data points t=168 hr through t=8568 hr are intentionally excluded from this table since the ENERGY STAR tool has a 20 data point input limit. Per TM-21 methodology, data points t=168 hr to t=8568 hr would be excluded, so the projection is unaffected.

DATA SET 3+: 55°C; 1000 mA

Lamp #	Initial (0 hrs)				Lumen Maintenance (%)											
	LF (lm)	V _F (V)	Calc. CCT	ANSI Target	168	1008	1512	2016	2520	3024	3528	4032	4536	5040	5544	6048
1	268.5	3.43	3009	3000	100.66	98.74	99.60	98.68	98.00	98.15	97.49	98.44	98.41	98.14	98.96	99.53
2	261.7	3.39	3046	3000	99.40	98.40	98.46	97.27	97.94	97.54	97.81	99.14	98.69	98.52	98.73	98.42
3	260.1	3.41	3064	3000	99.79	99.64	99.85	99.06	99.15	98.34	98.77	99.95	99.49	99.40	99.57	99.37
4	239.5	3.40	2897	3000	101.40	99.58	100.01	98.93	98.80	97.61	97.70	98.23	98.94	98.60	99.24	100.34
5	258.3	3.43	3004	3000	98.32	97.84	98.06	97.57	97.42	96.91	97.21	97.28	96.97	96.87	97.22	97.12
6	243.1	3.42	2984	3000	99.90	98.33	98.50	97.86	97.70	97.25	97.52	98.54	98.45	98.26	98.45	98.30
7	253.7	3.44	3022	3000	100.10	98.82	99.76	98.38	98.09	97.62	97.54	97.22	98.24	97.85	98.01	99.38
8	256.4	3.39	2941	3000	100.86	100.66	101.14	99.92	100.15	99.70	99.96	100.83	100.60	100.27	100.69	100.49
9	267.5	3.43	3202	3000	100.86	100.37	100.41	99.33	99.54	98.00	97.93	97.81	99.01	98.54	98.75	100.28
10	271.5	3.42	2903	3000	100.33	98.89	98.21	97.96	98.76	98.29	97.48	98.17	98.52	99.63	97.98	97.64
11	256.9	3.40	2957	3000	99.79	99.78	99.16	98.26	98.95	98.69	97.84	98.91	99.30	99.12	98.64	98.56
12	262.4	3.43	3030	3000	100.01	99.47	99.66	98.12	98.90	98.75	98.32	99.11	99.35	99.41	98.54	98.69
13	260.7	3.46	2983	3000	98.47	97.88	97.93	96.41	97.13	96.87	96.18	97.36	97.67	97.18	97.25	96.21
14	255.4	3.41	3025	3000	100.84	98.03	99.00	98.21	98.74	98.49	98.09	98.96	99.47	99.01	98.96	98.45
15	258.0	3.49	3046	3000	101.06	100.00	98.88	98.16	98.76	97.95	96.55	97.52	98.58	99.05	97.61	96.60
16	256.4	3.43	3080	3000	100.73	99.00	98.79	97.66	97.96	97.83	97.89	98.81	99.09	98.72	98.59	98.16
n	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Mean	258.1	3.42			100.16	99.09	99.21	98.24	98.50	98.00	97.77	98.52	98.80	98.66	98.57	98.60
Median	258.2	3.43			100.21	98.94	99.08	98.18	98.75	97.98	97.76	98.49	98.82	98.66	98.61	98.50
σ	8.3	0.03			0.88	0.88	0.90	0.84	0.80	0.73	0.85	0.99	0.83	0.88	0.87	1.28
Min.	239.5	3.39			98.32	97.84	97.93	96.41	97.13	96.87	96.18	97.22	96.97	96.87	97.22	96.21
Max.	271.5	3.49			101.40	100.66	101.14	99.92	100.15	99.70	99.96	100.83	100.60	100.27	100.69	100.49

Lamp #	Initial (0 hrs)				Chromaticity Shift (Δu'v')											
	CCx	CCy	Calc. CCT	ANSI Target	168	1008	1512	2016	2520	3024	3528	4032	4536	5040	5544	6048
1	0.4359	0.4023	3009	3000	0.0004	0.0005	0.0006	0.0007	0.0008	0.0008	0.0009	0.0009	0.0009	0.0008	0.0009	0.0008
2	0.4320	0.3986	3046	3000	0.0006	0.0011	0.0012	0.0010	0.0014	0.0015	0.0015	0.0017	0.0018	0.0016	0.0019	0.0018
3	0.4302	0.3969	3064	3000	0.0005	0.0008	0.0008	0.0008	0.0009	0.0009	0.0009	0.0010	0.0010	0.0008	0.0009	0.0008
4	0.4406	0.3987	2897	3000	0.0005	0.0007	0.0009	0.0009	0.0010	0.0010	0.0012	0.0013	0.0013	0.0013	0.0012	0.0011
5	0.4293	0.3881	3004	3000	0.0009	0.0009	0.0008	0.0009	0.0008	0.0008	0.0009	0.0010	0.0009	0.0010	0.0007	0.0007
6	0.4389	0.4055	2984	3000	0.0004	0.0005	0.0005	0.0006	0.0006	0.0005	0.0005	0.0007	0.0007	0.0006	0.0005	0.0005
7	0.4374	0.4071	3022	3000	0.0006	0.0007	0.0011	0.0011	0.0013	0.0013	0.0013	0.0016	0.0016	0.0016	0.0016	0.0017
8	0.4392	0.4010	2941	3000	0.0011	0.0011	0.0013	0.0012	0.0013	0.0013	0.0013	0.0015	0.0015	0.0014	0.0013	0.0013
9	0.4280	0.4091	3202	3000	0.0004	0.0007	0.0011	0.0011	0.0012	0.0013	0.0012	0.0014	0.0015	0.0015	0.0015	0.0016
10	0.4432	0.4045	2903	3000	0.0005	0.0008	0.0008	0.0009	0.0010	0.0011	0.0012	0.0013	0.0013	0.0014	0.0011	0.0014
11	0.4406	0.4057	2957	3000	0.0004	0.0005	0.0005	0.0006	0.0007	0.0008	0.0006	0.0009	0.0009	0.0009	0.0009	0.0010
12	0.4354	0.4039	3030	3000	0.0002	0.0006	0.0007	0.0007	0.0008	0.0009	0.0008	0.0009	0.0010	0.0009	0.0008	0.0010
13	0.4353	0.3981	2983	3000	0.0004	0.0008	0.0008	0.0009	0.0010	0.0012	0.0012	0.0012	0.0014	0.0014	0.0014	0.0014
14	0.4366	0.4058	3025	3000	0.0004	0.0003	0.0005	0.0007	0.0008	0.0010	0.0010	0.0011	0.0011	0.0011	0.0011	0.0012
15	0.4329	0.4005	3046	3000	0.0004	0.0005	0.0002	0.0004	0.0005	0.0006	0.0002	0.0007	0.0008	0.0007	0.0005	0.0009
16	0.4371	0.4138	3080	3000	0.0005	0.0007	0.0009	0.0010	0.0010	0.0012	0.0012	0.0014	0.0015	0.0014	0.0014	0.0015
n	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Mean					0.0005	0.0007	0.0008	0.0008	0.0009	0.0010	0.0010	0.0012	0.0012	0.0011	0.0011	0.0012
Median					0.0005	0.0007	0.0008	0.0009	0.0009	0.0010	0.0011	0.0012	0.0012	0.0012	0.0011	0.0012
σ					0.0002	0.0002	0.0003	0.0002	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0004	0.0004
Min.					0.0002	0.0003	0.0002	0.0004	0.0005	0.0005	0.0002	0.0007	0.0007	0.0006	0.0005	0.0005
Max.					0.0011	0.0011	0.0013	0.0012	0.0014	0.0015	0.0015	0.0017	0.0018	0.0016	0.0019	0.0018

DATA SET 3+: 55°C; 1000 mA

Lamp #	Initial (0 hrs)				Lumen Maintenance (%)											
	LF (lm)	V _F (V)	Calc. CCT	ANSI Target	6552	7056	7560	8064	8568	9072	9576	10080	10584	11088	11592	12096
1	268.5	3.43	3009	3000	99.64	101.27	98.44	100.09	99.21	98.07	98.47	99.30	98.16	98.76	98.51	98.53
2	261.7	3.39	3046	3000	99.24	100.19	99.75	99.74	99.94	99.15	99.67	99.44	99.51	99.16	98.92	99.25
3	260.1	3.41	3064	3000	100.31	101.31	100.83	100.87	100.87	100.38	100.63	100.90	100.38	99.98	99.80	100.35
4	239.5	3.40	2897	3000	100.89	102.33	99.06	100.63	99.77	98.62	98.44	99.79	97.68	98.80	98.94	98.94
5	258.3	3.43	3004	3000	98.05	98.95	98.48	98.59	98.73	98.24	98.65	98.78	98.50	98.21	97.77	98.42
6	243.1	3.42	2984	3000	99.24	100.06	99.28	99.66	99.82	99.33	99.47	99.77	98.76	98.98	98.73	99.10
7	253.7	3.44	3022	3000	100.25	101.33	97.88	99.51	98.51	97.64	97.23	98.73	96.73	97.34	97.21	97.87
8	256.4	3.39	2941	3000	101.58	102.37	102.16	101.96	102.29	101.79	101.89	101.98	102.13	101.39	101.10	101.61
9	267.5	3.43	3202	3000	101.34	102.22	99.03	100.36	99.55	98.22	97.92	99.11	98.16	98.65	98.69	98.83
10	271.5	3.42	2903	3000	99.57	99.55	98.40	99.98	99.16	98.27	98.27	99.88	98.13	98.43	98.33	98.86
11	256.9	3.40	2957	3000	99.91	99.96	99.75	99.31	98.55	99.73	99.62	100.04	99.35	99.21	99.18	99.90
12	262.4	3.43	3030	3000	100.10	100.37	100.02	99.35	99.73	99.69	99.56	100.11	98.68	99.06	99.22	99.95
13	260.7	3.46	2983	3000	97.94	98.05	97.85	96.60	96.56	97.20	97.68	98.36	96.72	97.52	97.56	98.16
14	255.4	3.41	3025	3000	99.68	100.02	99.65	98.69	99.33	97.87	99.60	100.01	98.56	99.12	99.14	99.67
15	258.0	3.49	3046	3000	98.71	99.16	98.53	98.70	97.75	98.34	97.48	98.90	98.05	98.16	97.66	98.47
16	256.4	3.43	3080	3000	99.37	99.79	99.51	98.50	99.38	97.92	98.79	99.16	98.19	98.45	98.53	99.16
n	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Mean	258.1	3.42			99.74	100.43	99.29	99.53	99.32	98.78	98.96	99.64	98.61	98.83	98.71	99.19
Median	258.2	3.43			99.66	100.13	99.17	99.59	99.36	98.31	98.72	99.61	98.35	98.78	98.71	99.02
σ	8.3	0.03			1.03	1.27	1.12	1.22	1.26	1.18	1.22	0.90	1.32	0.95	0.95	0.94
Min.	239.5	3.39			97.94	98.05	97.85	96.60	96.56	97.20	97.23	98.36	96.72	97.34	97.21	97.87
Max.	271.5	3.49			101.58	102.37	102.16	101.96	102.29	101.79	101.89	101.98	102.13	101.39	101.10	101.61

Lamp #	Initial (0 hrs)				Chromaticity Shift (Δu'v')											
	CCx	CCy	Calc. CCT	ANSI Target	6552	7056	7560	8064	8568	9072	9576	10080	10584	11088	11592	12096
1	0.4359	0.4023	3009	3000	0.0010	0.0009	0.0010	0.0010	0.0010	0.0011	0.0011	0.0014	0.0012	0.0015	0.0010	0.0014
2	0.4320	0.3986	3046	3000	0.0019	0.0019	0.0020	0.0020	0.0020	0.0020	0.0021	0.0024	0.0022	0.0026	0.0026	0.0026
3	0.4302	0.3969	3064	3000	0.0009	0.0008	0.0008	0.0008	0.0010	0.0009	0.0010	0.0013	0.0010	0.0011	0.0012	0.0013
4	0.4406	0.3987	2897	3000	0.0014	0.0013	0.0015	0.0014	0.0014	0.0015	0.0014	0.0014	0.0014	0.0016	0.0016	0.0016
5	0.4293	0.3881	3004	3000	0.0007	0.0006	0.0008	0.0007	0.0007	0.0008	0.0011	0.0010	0.0007	0.0010	0.0010	0.0010
6	0.4389	0.4055	2984	3000	0.0006	0.0006	0.0006	0.0006	0.0007	0.0007	0.0007	0.0009	0.0007	0.0009	0.0009	0.0010
7	0.4374	0.4071	3022	3000	0.0018	0.0017	0.0019	0.0019	0.0020	0.0021	0.0021	0.0023	0.0020	0.0023	0.0021	0.0024
8	0.4392	0.4010	2941	3000	0.0013	0.0012	0.0012	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0014	0.0014	0.0014
9	0.4280	0.4091	3202	3000	0.0017	0.0016	0.0017	0.0018	0.0019	0.0017	0.0019	0.0020	0.0020	0.0022	0.0022	0.0022
10	0.4432	0.4045	2903	3000	0.0015	0.0016	0.0017	0.0016	0.0018	0.0020	0.0020	0.0019	0.0020	0.0021	0.0021	0.0022
11	0.4406	0.4057	2957	3000	0.0009	0.0011	0.0011	0.0010	0.0009	0.0012	0.0012	0.0012	0.0011	0.0013	0.0013	0.0014
12	0.4354	0.4039	3030	3000	0.0009	0.0011	0.0010	0.0009	0.0010	0.0011	0.0011	0.0011	0.0010	0.0011	0.0013	0.0013
13	0.4353	0.3981	2983	3000	0.0014	0.0017	0.0017	0.0013	0.0013	0.0017	0.0019	0.0020	0.0016	0.0023	0.0023	0.0023
14	0.4366	0.4058	3025	3000	0.0011	0.0012	0.0013	0.0011	0.0012	0.0012	0.0015	0.0015	0.0013	0.0015	0.0016	0.0015
15	0.4329	0.4005	3046	3000	0.0009	0.0008	0.0010	0.0009	0.0008	0.0011	0.0011	0.0010	0.0012	0.0011	0.0011	0.0010
16	0.4371	0.4138	3080	3000	0.0016	0.0016	0.0017	0.0013	0.0017	0.0015	0.0018	0.0019	0.0014	0.0020	0.0020	0.0021
n	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Mean					0.0012	0.0012	0.0013	0.0012	0.0013	0.0014	0.0015	0.0015	0.0014	0.0016	0.0016	0.0017
Median					0.0012	0.0012	0.0012	0.0012	0.0013	0.0012	0.0014	0.0014	0.0013	0.0015	0.0015	0.0015
σ					0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0005	0.0005	0.0005	0.0005	0.0006
Min.					0.0006	0.0006	0.0006	0.0006	0.0007	0.0007	0.0007	0.0009	0.0007	0.0009	0.0009	0.0010
Max.					0.0019	0.0019	0.0020	0.0020	0.0020	0.0021	0.0021	0.0024	0.0022	0.0026	0.0026	0.0026

DATA SET 3+: 55°C; 1000 mA

Lamp #	Initial (0 hrs)				Lumen Maintenance (%)											
	LF (lm)	V _F (V)	Calc. CCT	ANSI Target	12600	13104	13608	14112	14616	15120	15624	16128	16632	17136	17640	18144
1	268.5	3.43	3009	3000	98.17	99.11	97.29	98.62	97.23	98.01	96.73	95.51	96.22	96.08	96.17	96.01
2	261.7	3.39	3046	3000	98.83	99.48	98.77	99.50	98.17	98.45	98.18	98.33	97.61	97.56	97.28	97.49
3	260.1	3.41	3064	3000	99.59	100.23	99.64	100.42	98.83	99.09	98.95	98.66	97.96	97.47	96.83	96.91
4	239.5	3.40	2897	3000	98.44	99.00	98.25	98.96	97.55	97.89	97.77	96.75	96.87	96.68	96.82	96.40
5	258.3	3.43	3004	3000	97.78	98.52	98.14	98.09	97.29	97.42	97.38	97.71	96.92	96.62	96.39	96.43
6	243.1	3.42	2984	3000	98.69	99.17	98.96	99.62	98.35	98.39	98.40	98.53	97.92	97.74	97.27	97.53
7	253.7	3.44	3022	3000	97.40	98.21	97.28	97.96	97.01	96.57	97.08	96.36	96.20	95.75	95.99	95.87
8	256.4	3.39	2941	3000	101.02	102.00	101.37	102.04	100.65	100.43	100.71	100.76	100.37	99.71	99.75	99.94
9	267.5	3.43	3202	3000	97.92	98.67	97.84	98.24	96.89	96.71	96.57	96.38	96.19	95.77	95.84	95.71
10	271.5	3.42	2903	3000	98.43	98.18	97.75	98.64	97.57	97.69	97.29	96.69	97.87	96.10	95.85	96.75
11	256.9	3.40	2957	3000	99.41	99.15	99.16	100.06	98.63	98.14	98.68	97.95	98.19	97.08	97.01	97.08
12	262.4	3.43	3030	3000	99.02	99.16	99.20	100.10	98.33	97.86	98.47	98.88	97.97	97.11	97.06	97.13
13	260.7	3.46	2983	3000	97.57	97.75	97.55	98.31	97.13	96.75	97.17	97.44	96.19	95.34	95.45	95.76
14	255.4	3.41	3025	3000	99.17	99.64	99.26	100.10	98.93	98.42	98.50	99.19	98.47	97.50	97.32	97.58
15	258.0	3.49	3046	3000	97.78	97.22	97.42	98.06	97.36	96.95	97.50	97.33	97.21	95.88	95.94	96.27
16	256.4	3.43	3080	3000	98.50	98.95	98.64	99.08	97.74	97.00	97.59	97.40	96.86	95.44	95.49	95.61
n	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Mean	258.1	3.42			98.61	99.03	98.53	99.24	97.98	97.86	97.94	97.74	97.44	96.74	96.65	96.78
Median	258.2	3.43			98.47	99.05	98.45	99.02	97.66	97.88	97.68	97.58	97.41	96.65	96.60	96.59
σ	8.3	0.03			0.92	1.08	1.08	1.12	0.97	1.01	1.03	1.31	1.11	1.13	1.05	1.08
Min.	239.5	3.39			97.40	97.22	97.28	97.96	96.89	96.57	96.57	95.51	96.19	95.34	95.45	95.61
Max.	271.5	3.49			101.02	102.00	101.37	102.04	100.65	100.43	100.71	100.76	100.37	99.71	99.75	99.94

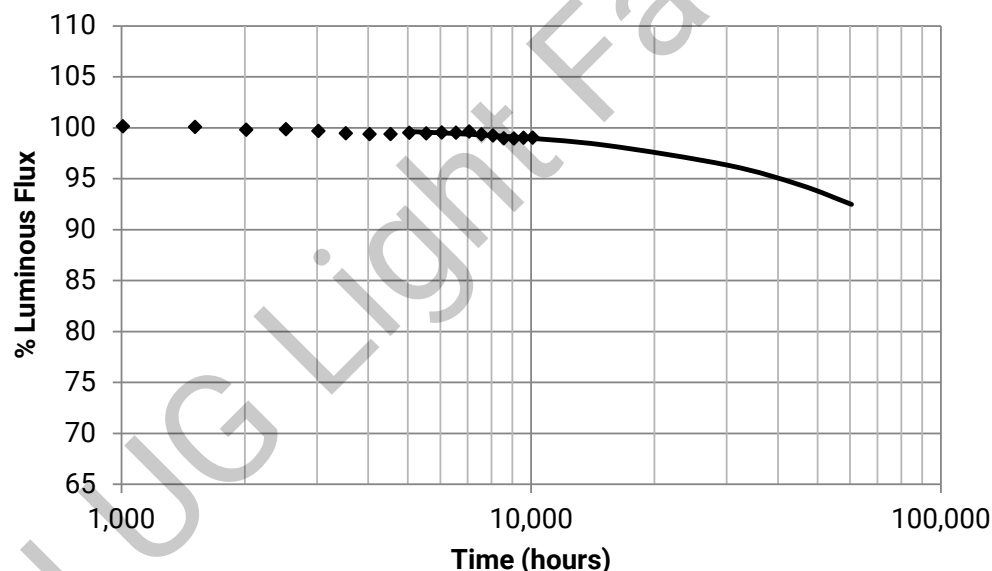
Lamp #	Initial (0 hrs)				Chromaticity Shift (Δu'v')											
	CCx	CCy	Calc. CCT	ANSI Target	12600	13104	13608	14112	14616	15120	15624	16128	16632	17136	17640	18144
1	0.4359	0.4023	3009	3000	0.0015	0.0013	0.0013	0.0014	0.0014	0.0013	0.0012	0.0014	0.0012	0.0012	0.0009	0.0006
2	0.4320	0.3986	3046	3000	0.0026	0.0028	0.0029	0.0031	0.0032	0.0033	0.0034	0.0035	0.0034	0.0035	0.0034	0.0034
3	0.4302	0.3969	3064	3000	0.0012	0.0011	0.0011	0.0011	0.0012	0.0010	0.0009	0.0010	0.0007	0.0004	0.0004	0.0002
4	0.4406	0.3987	2897	3000	0.0017	0.0016	0.0018	0.0019	0.0017	0.0017	0.0017	0.0017	0.0015	0.0014	0.0012	0.0010
5	0.4293	0.3881	3004	3000	0.0010	0.0008	0.0009	0.0010	0.0011	0.0008	0.0009	0.0009	0.0009	0.0009	0.0008	0.0006
6	0.4389	0.4055	2984	3000	0.0010	0.0008	0.0009	0.0011	0.0011	0.0010	0.0011	0.0010	0.0010	0.0008	0.0006	0.0005
7	0.4374	0.4071	3022	3000	0.0026	0.0026	0.0027	0.0029	0.0029	0.0028	0.0029	0.0028	0.0028	0.0027	0.0024	0.0023
8	0.4392	0.4010	2941	3000	0.0016	0.0015	0.0015	0.0016	0.0017	0.0015	0.0013	0.0014	0.0015	0.0013	0.0012	0.0011
9	0.4280	0.4091	3202	3000	0.0023	0.0023	0.0024	0.0026	0.0026	0.0025	0.0024	0.0025	0.0024	0.0023	0.0020	0.0021
10	0.4432	0.4045	2903	3000	0.0021	0.0023	0.0022	0.0022	0.0025	0.0024	0.0024	0.0023	0.0024	0.0026	0.0025	0.0025
11	0.4406	0.4057	2957	3000	0.0015	0.0014	0.0014	0.0014	0.0014	0.0013	0.0013	0.0010	0.0011	0.0007	0.0006	0.0005
12	0.4354	0.4039	3030	3000	0.0013	0.0012	0.0013	0.0012	0.0011	0.0012	0.0011	0.0010	0.0009	0.0007	0.0006	0.0007
13	0.4353	0.3981	2983	3000	0.0024	0.0024	0.0023	0.0025	0.0024	0.0026	0.0026	0.0027	0.0027	0.0028	0.0030	0.0030
14	0.4366	0.4058	3025	3000	0.0017	0.0018	0.0017	0.0016	0.0018	0.0016	0.0015	0.0015	0.0016	0.0014	0.0011	0.0010
15	0.4329	0.4005	3046	3000	0.0012	0.0012	0.0012	0.0012	0.0014	0.0014	0.0013	0.0014	0.0013	0.0012	0.0011	0.0008
16	0.4371	0.4138	3080	3000	0.0022	0.0022	0.0022	0.0022	0.0021	0.0022	0.0021	0.0019	0.0019	0.0017	0.0016	0.0013
n	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Mean					0.0017	0.0017	0.0017	0.0018	0.0018	0.0018	0.0018	0.0018	0.0017	0.0016	0.0015	0.0014
Median					0.0016	0.0015	0.0016	0.0016	0.0017	0.0016	0.0014	0.0015	0.0015	0.0013	0.0011	0.0010
σ					0.0006	0.0006	0.0006	0.0007	0.0007	0.0008	0.0008	0.0008	0.0008	0.0009	0.0009	0.0010
Min.					0.0010	0.0008	0.0009	0.0010	0.0011	0.0008	0.0009	0.0009	0.0007	0.0004	0.0004	0.0002
Max.					0.0026	0.0028	0.0029	0.0031	0.0032	0.0033	0.0034	0.0035	0.0034	0.0035	0.0034	0.0034

DATA SET 10: 85°C; 1000 mA

LED Package Series	XLamp XT-E White LEDs (Series: XTEAWT)
	This LM-80 report is applicable to the following order codes: XTEAWT-xx-xxxx-xxxxxxxxxx
Tested Model Number	XTEAWT-00-0000-00000LBE7
Drive Current [I_F]	1000 mA
Testing Initiation Date	December 4, 2014
Case Temperature [T_s]	85°C
Ambient Temperature [T_A]	85°C
Failures observed	None

Projection Generated By Cree's Internal TM-21 Calculator:

Test duration	10,080 hours
Test duration used for projection	t=5,040 to t=10,080
α	1.341E-06
β	1.003E+00
Reported Lifetimes	L90(10k) > 60,500 hours
	L80(10k) > 60,500 hours
	L70(10k) > 60,500 hours



* <http://www.energystar.gov/TM-21calculator>

LM-80 Data For The Official TM-21 Calculator*

Time (hours)	Lumen Maintenance
0	100.00%
1008	100.15%
1512	100.08%
2016	99.81%
2520	99.86%
3024	99.69%
3528	99.46%
4032	99.38%
4536	99.39%
5040	99.51%
5544	99.45%
6048	99.54%
6552	99.52%
7056	99.64%
7560	99.36%
8064	99.24%
8568	98.97%
9072	98.95%
9576	99.02%
10080	99.03%

Note: The data point t=168 hr is intentionally excluded from this table, since the ENERGY STAR tool has a 20 data point input limit. Per TM-21 methodology, the data point t=168 hr would be excluded, so the projection is unaffected.

DATA SET 10: 85°C; 1000 mA

Lamp #	Initial (0 hrs)				Lumen Maintenance (%)											
	LF (lm)	V _F (V)	Calc. CCT	ANSI Target	168	1008	1512	2016	2520	3024	3528	4032	4536	5040	5544	6048
1	300.0	3.25	3298	3000	100.31	99.75	99.52	99.56	99.22	99.08	98.62	98.73	98.88	98.97	98.94	99.12
2	336.6	3.27	3279	3000	100.14	100.37	100.03	99.92	100.11	99.76	99.48	99.33	99.94	100.35	100.01	99.74
3	298.6	3.23	3251	3000	100.37	100.49	100.35	99.74	99.56	99.12	98.68	98.99	98.61	98.96	99.09	99.52
4	328.7	3.24	3276	3000	100.40	100.28	100.19	100.08	100.17	100.10	99.97	100.01	99.98	100.37	99.88	99.69
5	302.4	3.27	3237	3000	100.11	100.16	99.71	99.74	99.25	99.40	99.03	98.64	98.87	98.84	98.69	99.37
6	331.1	3.26	3280	3000	99.70	100.19	99.91	99.81	99.74	99.39	99.31	99.32	99.39	99.74	99.62	100.09
7	307.4	3.31	3145	3000	99.49	99.61	99.43	99.18	99.48	99.15	99.00	98.97	99.10	99.50	99.54	99.67
8	334.3	3.23	3264	3000	99.93	100.44	100.37	100.21	100.36	100.11	99.69	99.88	100.11	100.56	100.48	100.39
9	306.2	3.24	3240	3000	100.45	99.41	99.43	99.29	99.32	99.40	99.26	99.22	99.37	99.15	99.24	99.65
10	310.7	3.33	3303	3000	100.75	100.03	100.25	99.79	100.04	99.91	99.43	99.36	99.06	99.15	98.85	98.81
11	329.8	3.23	3218	3000	100.15	100.13	100.10	99.55	99.52	99.35	99.34	99.20	99.21	99.64	99.95	100.10
12	333.4	3.21	3197	3000	100.02	99.57	99.64	98.88	98.98	99.07	98.56	98.82	98.87	99.42	99.79	99.76
13	307.3	3.35	3285	3000	100.21	100.26	100.58	100.15	100.21	100.22	100.44	100.20	100.25	99.59	99.60	99.42
14	337.7	3.29	3255	3000	100.74	100.65	100.29	100.04	99.99	99.55	99.61	99.62	99.52	99.73	100.01	99.66
15	303.8	3.26	3305	3000	100.41	100.53	100.43	100.06	100.42	100.45	100.56	100.08	99.71	99.68	99.57	99.49
16	337.4	3.26	3317	3000	99.70	99.58	99.80	99.64	99.78	99.00	99.07	99.09	98.84	99.02	99.22	99.27
17	298.9	3.23	3232	3000	100.15	100.50	100.31	99.93	100.31	100.10	99.65	99.01	99.07	98.76	98.62	99.23
18	331.9	3.22	3238	3000	100.30	100.51	100.54	100.41	100.44	100.61	100.24	100.42	100.17	100.15	99.85	99.42
19	302.4	3.24	3283	3000	100.73	100.60	100.57	100.48	100.61	100.42	99.74	99.27	99.34	99.29	98.97	99.30
20	302.4	3.30	3207	3000	100.16	99.89	100.25	99.76	99.75	99.58	99.54	99.41	99.43	99.36	99.10	99.05
n	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Mean	317.1	3.26			100.21	100.15	100.08	99.81	99.86	99.69	99.46	99.38	99.39	99.51	99.45	99.54
Median	309.1	3.25			100.18	100.23	100.22	99.80	99.89	99.56	99.45	99.29	99.35	99.46	99.56	99.51
σ	15.6	0.04			0.34	0.39	0.38	0.40	0.47	0.52	0.56	0.51	0.50	0.53	0.51	0.38
Min.	298.6	3.21			99.49	99.41	99.43	98.88	98.98	99.00	98.56	98.64	98.61	98.76	98.62	98.81
Max.	337.7	3.35			100.75	100.65	100.58	100.48	100.61	100.61	100.56	100.42	100.25	100.56	100.48	100.39

Lamp #	Initial (0 hrs)				Chromaticity Shift (Δu'v')											
	CCx	CCy	Calc. CCT	ANSI Target	168	1008	1512	2016	2520	3024	3528	4032	4536	5040	5544	6048
1	0.4208	0.4041	3298	3000	0.0003	0.0009	0.0010	0.0013	0.0013	0.0014	0.0015	0.0014	0.0013	0.0015	0.0015	0.0015
2	0.4209	0.4019	3279	3000	0.0009	0.0016	0.0018	0.0021	0.0021	0.0022	0.0024	0.0024	0.0023	0.0025	0.0023	0.0025
3	0.4236	0.4048	3251	3000	0.0010	0.0015	0.0016	0.0017	0.0017	0.0019	0.0019	0.0020	0.0018	0.0019	0.0020	0.0018
4	0.4230	0.4066	3276	3000	0.0010	0.0017	0.0019	0.0020	0.0020	0.0022	0.0024	0.0024	0.0023	0.0023	0.0023	0.0023
5	0.4250	0.4063	3237	3000	0.0008	0.0013	0.0013	0.0016	0.0015	0.0017	0.0017	0.0018	0.0018	0.0018	0.0018	0.0017
6	0.4208	0.4018	3280	3000	0.0006	0.0015	0.0015	0.0018	0.0017	0.0018	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019
7	0.4293	0.4048	3145	3000	0.0008	0.0016	0.0018	0.0019	0.0020	0.0021	0.0022	0.0021	0.0021	0.0021	0.0022	0.0023
8	0.4229	0.4047	3264	3000	0.0009	0.0016	0.0018	0.0019	0.0019	0.0020	0.0021	0.0022	0.0023	0.0022	0.0023	0.0022
9	0.4248	0.4063	3240	3000	0.0008	0.0016	0.0018	0.0018	0.0017	0.0019	0.0020	0.0020	0.0018	0.0021	0.0021	0.0021
10	0.4198	0.4022	3303	3000	0.0008	0.0014	0.0015	0.0017	0.0016	0.0017	0.0017	0.0018	0.0019	0.0018	0.0017	0.0018
11	0.4261	0.4066	3218	3000	0.0008	0.0013	0.0014	0.0014	0.0014	0.0015	0.0017	0.0017	0.0017	0.0016	0.0017	0.0017
12	0.4261	0.4040	3197	3000	0.0009	0.0011	0.0012	0.0013	0.0014	0.0016	0.0016	0.0016	0.0017	0.0017	0.0017	0.0017
13	0.4235	0.4090	3285	3000	0.0006	0.0013	0.0016	0.0016	0.0018	0.0018	0.0018	0.0019	0.0020	0.0022	0.0022	0.0022
14	0.4229	0.4037	3255	3000	0.0006	0.0017	0.0019	0.0018	0.0021	0.0021	0.0022	0.0021	0.0023	0.0024	0.0023	0.0025
15	0.4189	0.4003	3305	3000	0.0007	0.0014	0.0016	0.0017	0.0021	0.0021	0.0023	0.0023	0.0023	0.0023	0.0025	0.0025
16	0.4205	0.4057	3317	3000	0.0004	0.0010	0.0010	0.0012	0.0013	0.0014	0.0015	0.0016	0.0015	0.0017	0.0019	0.0019
17	0.4264	0.4090	3232	3000	0.0008	0.0012	0.0013	0.0014	0.0015	0.0015	0.0017	0.0015	0.0017	0.0019	0.0019	0.0019
18	0.4235	0.4030	3238	3000	0.0008	0.0016	0.0018	0.0018	0.0021	0.0023	0.0022	0.0022	0.0022	0.0024	0.0021	0.0023
19	0.4202	0.4007	3283	3000	0.0008	0.0016	0.0017	0.0018	0.0020	0.0019	0.0021	0.0020	0.0021	0.0021	0.0020	0.0022
20	0.4269	0.4070	3207	3000	0.0008	0.0016	0.0017	0.0018	0.0020	0.0020	0.0021	0.0021	0.0021	0.0021	0.0022	0.0022
n	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Mean					0.0008	0.0014	0.0016	0.0017	0.0018	0.0019	0.0019	0.0020	0.0020	0.0020	0.0020	0.0021
Median					0.0008	0.0015	0.0016	0.0017	0.0018	0.0019	0.0020	0.0020	0.0020	0.0021	0.0021	0.0021
σ					0.0002	0.0002	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Min.					0.0003	0.0009	0.0010	0.0012	0.0013	0.0014	0.0015	0.0014	0.0013	0.0015	0.0015	0.0015
Max.					0.0010	0.0017	0.0019	0.0021	0.0021	0.0023	0.0024	0.0024	0.0023	0.0025	0.0025	0.0025

DATA SET 10: 85°C; 1000 mA

Lamp #	Initial (0 hrs)				Lumen Maintenance (%)							
	LF (lm)	V _F (V)	Calc. CCT	ANSI Target	6552	7056	7560	8064	8568	9072	9576	10080
1	300.0	3.25	3298	3000	99.39	99.35	98.78	98.49	98.11	98.14	97.81	97.78
2	336.6	3.27	3279	3000	99.64	99.74	99.88	99.82	99.49	98.71	99.21	99.78
3	298.6	3.23	3251	3000	99.74	99.66	98.91	98.71	98.12	97.63	97.87	97.95
4	328.7	3.24	3276	3000	99.47	99.57	99.87	99.91	99.56	99.80	99.71	99.72
5	302.4	3.27	3237	3000	99.44	99.58	98.43	98.51	98.14	98.58	98.18	97.98
6	331.1	3.26	3280	3000	99.86	99.91	99.70	99.80	99.07	99.47	99.83	99.40
7	307.4	3.31	3145	3000	99.76	99.96	99.36	99.29	98.77	99.06	98.69	99.15
8	334.3	3.23	3264	3000	100.20	100.34	99.96	100.13	99.80	99.60	99.64	99.58
9	306.2	3.24	3240	3000	99.66	100.02	98.99	98.81	98.98	98.48	99.06	99.11
10	310.7	3.33	3303	3000	98.99	99.62	99.33	98.62	98.56	98.51	98.95	97.90
11	329.8	3.23	3218	3000	99.75	99.38	99.79	99.82	99.68	99.54	99.56	99.43
12	333.4	3.21	3197	3000	99.73	99.61	100.03	99.77	99.48	99.40	99.46	99.49
13	307.3	3.35	3285	3000	99.43	99.40	99.77	99.93	99.87	100.09	99.91	99.94
14	337.7	3.29	3255	3000	99.59	99.50	99.30	99.56	99.64	99.58	99.55	99.69
15	303.8	3.26	3305	3000	99.18	99.41	99.72	99.46	99.40	99.34	99.35	99.39
16	337.4	3.26	3317	3000	99.25	99.52	98.93	98.77	98.45	98.31	98.45	98.51
17	298.9	3.23	3232	3000	98.72	99.17	99.00	98.27	97.86	97.74	98.01	98.30
18	331.9	3.22	3238	3000	99.57	99.68	98.77	99.18	99.20	99.03	98.84	98.65
19	302.4	3.24	3283	3000	99.56	99.78	99.49	98.94	98.45	99.05	99.27	99.76
20	302.4	3.30	3207	3000	99.44	99.55	99.13	99.10	98.69	98.93	99.07	99.14
n	20	20	20	20	20	20	20	20	20	20	20	20
Mean	317.1	3.26			99.52	99.64	99.36	99.24	98.97	98.95	99.02	99.03
Median	309.1	3.25			99.57	99.59	99.35	99.24	99.02	99.04	99.14	99.27
σ	15.6	0.04			0.32	0.27	0.47	0.58	0.64	0.68	0.66	0.72
Min.	298.6	3.21			98.72	99.17	98.43	98.27	97.86	97.63	97.81	97.78
Max.	337.7	3.35			100.20	100.34	100.03	100.13	99.87	100.09	99.91	99.94

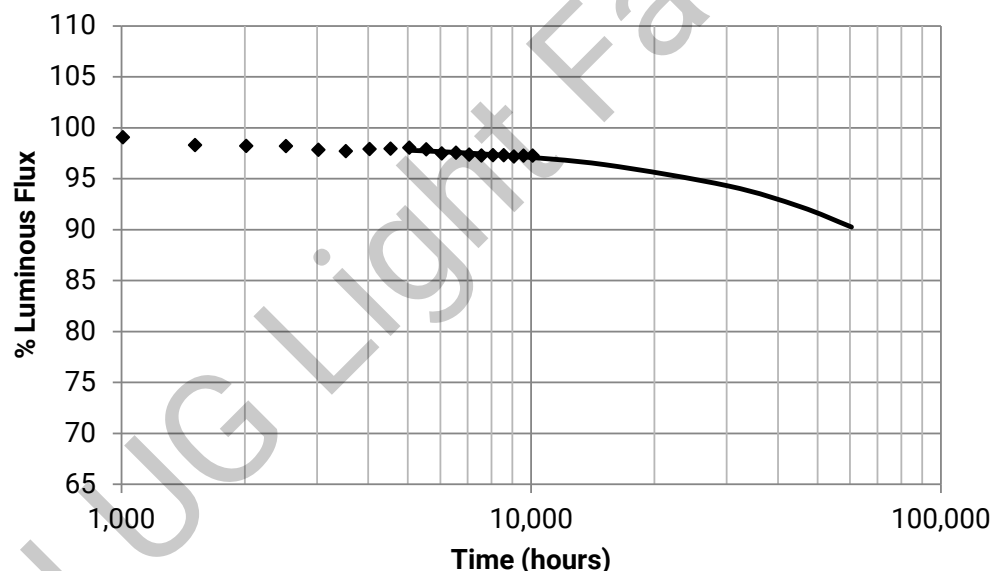
Lamp #	Initial (0 hrs)				Chromaticity Shift (Δu'v')							
	CCx	CCy	Calc. CCT	ANSI Target	6552	7056	7560	8064	8568	9072	9576	10080
1	0.4208	0.4041	3298	3000	0.0015	0.0017	0.0017	0.0017	0.0017	0.0017	0.0016	0.0015
2	0.4209	0.4019	3279	3000	0.0024	0.0025	0.0026	0.0026	0.0026	0.0027	0.0025	0.0025
3	0.4236	0.4048	3251	3000	0.0018	0.0020	0.0020	0.0021	0.0021	0.0021	0.0023	0.0020
4	0.4230	0.4066	3276	3000	0.0024	0.0024	0.0024	0.0026	0.0025	0.0026	0.0024	0.0023
5	0.4250	0.4063	3237	3000	0.0018	0.0018	0.0018	0.0019	0.0019	0.0018	0.0020	0.0017
6	0.4208	0.4018	3280	3000	0.0019	0.0019	0.0018	0.0020	0.0018	0.0020	0.0019	0.0018
7	0.4293	0.4048	3145	3000	0.0023	0.0023	0.0023	0.0024	0.0024	0.0024	0.0024	0.0024
8	0.4229	0.4047	3264	3000	0.0022	0.0023	0.0022	0.0024	0.0024	0.0025	0.0023	0.0023
9	0.4248	0.4063	3240	3000	0.0020	0.0022	0.0021	0.0021	0.0022	0.0021	0.0021	0.0019
10	0.4198	0.4022	3303	3000	0.0017	0.0019	0.0018	0.0019	0.0019	0.0018	0.0017	0.0017
11	0.4261	0.4066	3218	3000	0.0016	0.0017	0.0017	0.0017	0.0017	0.0016	0.0016	0.0016
12	0.4261	0.4040	3197	3000	0.0017	0.0018	0.0017	0.0017	0.0019	0.0018	0.0019	0.0018
13	0.4235	0.4090	3285	3000	0.0022	0.0022	0.0021	0.0022	0.0022	0.0023	0.0021	0.0021
14	0.4229	0.4037	3255	3000	0.0024	0.0024	0.0025	0.0026	0.0025	0.0026	0.0024	0.0022
15	0.4189	0.4003	3305	3000	0.0024	0.0024	0.0025	0.0026	0.0025	0.0026	0.0026	0.0023
16	0.4205	0.4057	3317	3000	0.0018	0.0019	0.0019	0.0020	0.0019	0.0020	0.0017	0.0018
17	0.4264	0.4090	3232	3000	0.0018	0.0019	0.0021	0.0021	0.0020	0.0022	0.0021	0.0019
18	0.4235	0.4030	3238	3000	0.0022	0.0022	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023
19	0.4202	0.4007	3283	3000	0.0020	0.0021	0.0023	0.0023	0.0022	0.0022	0.0022	0.0021
20	0.4269	0.4070	3207	3000	0.0020	0.0021	0.0022	0.0022	0.0021	0.0021	0.0021	0.0021
n	20	20	20	20	20	20	20	20	20	20	20	20
Mean					0.0020	0.0021	0.0021	0.0022	0.0021	0.0022	0.0021	0.0020
Median					0.0020	0.0021	0.0021	0.0021	0.0022	0.0022	0.0021	0.0020
σ					0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Min.					0.0015	0.0017	0.0017	0.0017	0.0017	0.0016	0.0016	0.0015
Max.					0.0024	0.0025	0.0026	0.0026	0.0026	0.0027	0.0026	0.0025

DATA SET 11: 105°C; 1000 mA

LED Package Series	XLamp XT-E White LEDs (Series: XTEAWT)
	This LM-80 report is applicable to the following order codes: XTEAWT-xx-xxxx-xxxxxxxxxx
Tested Model Number	XTEAWT-00-0000-00000LBE7
Drive Current [I_F]	1000 mA
Testing Initiation Date	December 12, 2014
Case Temperature [T_s]	105°C
Ambient Temperature [T_A]	105°C
Failures observed	None

Projection Generated By Cree's Internal TM-21 Calculator:

Test duration	10,080 hours
Test duration used for projection	t=5,040 to t=10,080
α	1.448E-06
β	9.852E-01
Reported Lifetimes	L90(10k) > 60,500 hours
	L80(10k) > 60,500 hours
	L70(10k) > 60,500 hours



* <http://www.energystar.gov/TM-21calculator>

LM-80 Data For The Official TM-21 Calculator*

Time (hours)	Lumen Maintenance
0	100.00%
1008	99.07%
1512	98.30%
2016	98.22%
2520	98.21%
3024	97.84%
3528	97.71%
4032	97.91%
4536	97.95%
5040	98.05%
5544	97.89%
6048	97.48%
6552	97.56%
7056	97.37%
7560	97.28%
8064	97.31%
8568	97.31%
9072	97.18%
9576	97.27%
10080	97.27%

Note: The data points t=168 hr is intentionally excluded from this table, since the ENERGY STAR tool has a 20 data point input limit. Per TM-21 methodology, the data point t=168 hr would be excluded, so the projection is unaffected.

DATA SET 11: 105°C; 1000 mA

Lamp #	Initial (0 hrs)				Lumen Maintenance (%)											
	LF (lm)	V _F (V)	Calc. CCT	ANSI Target	168	1008	1512	2016	2520	3024	3528	4032	4536	5040	5544	6048
1	293.0	3.36	3246	3000	99.91	98.97	97.99	97.65	97.71	97.49	97.36	97.77	97.75	97.63	98.15	97.15
2	330.7	3.24	3247	3000	100.39	97.60	97.06	97.02	97.13	96.73	96.60	96.85	96.41	96.66	96.37	96.05
3	329.5	3.29	3309	3000	99.59	99.24	99.00	98.79	98.71	98.22	98.16	98.64	98.37	98.71	98.26	97.84
4	304.1	3.32	3318	3000	99.58	99.22	97.11	96.58	96.75	96.93	96.89	96.92	96.66	96.36	97.04	96.32
5	327.2	3.27	3227	3000	100.27	99.23	98.37	98.46	98.72	98.06	97.69	98.35	98.42	98.82	98.35	98.17
6	322.2	3.24	3152	3000	99.88	99.56	98.77	98.69	98.64	98.15	97.87	98.50	98.43	98.73	98.29	98.18
7	292.0	3.26	3172	3000	100.16	99.89	97.67	97.46	97.49	97.54	97.86	97.57	97.99	97.46	97.58	96.79
8	335.2	3.22	3219	3000	100.03	99.28	98.80	99.07	99.08	98.65	98.57	98.52	98.57	99.13	98.41	98.03
9	305.4	3.25	3203	3000	99.87	99.11	98.41	98.14	98.55	98.44	98.34	98.75	98.90	97.84	97.55	97.44
10	298.9	3.24	3295	3000	100.26	99.54	99.53	99.42	98.56	98.01	97.81	98.01	98.09	97.61	98.38	97.13
11	334.1	3.24	3315	3000	99.91	99.11	98.97	98.93	99.03	98.32	98.01	98.21	98.50	98.94	98.33	97.95
12	331.5	3.26	3226	3000	100.39	99.32	98.41	98.57	98.61	97.91	97.70	97.75	98.08	98.41	97.79	97.40
13	326.6	3.23	3171	3000	99.16	98.17	97.91	97.82	97.79	97.33	97.02	97.01	97.19	97.42	96.83	96.64
14	316.5	3.27	3189	3000	100.36	99.33	98.71	98.70	98.56	98.25	98.31	98.09	98.52	98.93	98.19	98.16
15	297.9	3.23	3180	3000	100.01	98.53	97.72	97.65	97.74	97.57	97.47	97.50	97.38	96.56	96.95	96.71
16	324.7	3.28	3212	3000	100.12	99.11	99.01	98.87	98.86	98.38	98.33	98.52	98.59	99.01	98.51	98.42
17	335.9	3.28	3277	3000	99.57	99.18	98.77	98.38	98.35	97.73	97.45	97.55	97.90	98.87	98.64	98.16
18	327.7	3.26	3254	3000	99.98	98.85	97.83	97.99	98.04	97.85	97.79	98.07	97.84	98.69	98.36	98.00
19	333.6	3.22	3301	3000	100.61	99.13	98.18	98.26	98.26	97.95	97.71	98.01	97.73	98.20	98.03	97.87
20	289.3	3.27	3159	3000	100.62	99.04	97.86	97.97	97.54	97.27	97.25	97.71	97.71	96.99	97.73	97.28
n	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Mean	317.8	3.26			100.03	99.07	98.30	98.22	98.21	97.84	97.71	97.91	97.95	98.05	97.89	97.48
Median	325.6	3.26			100.02	99.16	98.39	98.32	98.45	97.93	97.75	98.01	98.03	98.31	98.17	97.64
σ	16.5	0.04			0.37	0.50	0.66	0.72	0.65	0.51	0.52	0.57	0.65	0.91	0.64	0.70
Min.	289.3	3.22			99.16	97.60	97.06	96.58	96.75	96.73	96.60	96.85	96.41	96.36	96.37	96.05
Max.	335.9	3.36			100.62	99.89	99.53	99.42	99.08	98.65	98.57	98.75	98.90	99.13	98.64	98.42

Lamp #	Initial (0 hrs)				Chromaticity Shift (Δu'v')											
	CCx	CCy	Calc. CCT	ANSI Target	168	1008	1512	2016	2520	3024	3528	4032	4536	5040	5544	6048
1	0.4234	0.4038	3246	3000	0.0002	0.0009	0.0008	0.0008	0.0008	0.0008	0.0008	0.0010	0.0007	0.0008	0.0008	0.0009
2	0.4243	0.4060	3247	3000	0.0006	0.0009	0.0009	0.0007	0.0007	0.0007	0.0009	0.0009	0.0008	0.0007	0.0008	0.0009
3	0.4198	0.4032	3309	3000	0.0007	0.0014	0.0015	0.0015	0.0014	0.0015	0.0015	0.0012	0.0015	0.0015	0.0015	0.0016
4	0.4189	0.4020	3318	3000	0.0004	0.0007	0.0007	0.0007	0.0008	0.0007	0.0008	0.0007	0.0007	0.0007	0.0008	0.0008
5	0.4252	0.4056	3227	3000	0.0008	0.0014	0.0014	0.0014	0.0013	0.0013	0.0014	0.0013	0.0013	0.0012	0.0012	0.0015
6	0.4305	0.4083	3152	3000	0.0008	0.0011	0.0011	0.0011	0.0012	0.0011	0.0012	0.0011	0.0010	0.0011	0.0011	0.0013
7	0.4280	0.4053	3172	3000	0.0004	0.0003	0.0004	0.0002	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002	0.0004	0.0007
8	0.4249	0.4040	3219	3000	0.0008	0.0011	0.0011	0.0011	0.0010	0.0011	0.0011	0.0011	0.0010	0.0010	0.0013	0.0013
9	0.4264	0.4054	3203	3000	0.0010	0.0018	0.0018	0.0017	0.0017	0.0018	0.0018	0.0017	0.0016	0.0016	0.0014	0.0017
10	0.4208	0.4039	3295	3000	0.0007	0.0011	0.0012	0.0012	0.0012	0.0012	0.0013	0.0013	0.0013	0.0014	0.0013	0.0015
11	0.4204	0.4052	3315	3000	0.0008	0.0011	0.0011	0.0012	0.0011	0.0012	0.0013	0.0013	0.0013	0.0014	0.0014	0.0015
12	0.4242	0.4031	3226	3000	0.0007	0.0012	0.0012	0.0012	0.0012	0.0013	0.0014	0.0013	0.0013	0.0015	0.0014	0.0015
13	0.4288	0.4068	3171	3000	0.0004	0.0009	0.0008	0.0008	0.0009	0.0009	0.0009	0.0010	0.0010	0.0010	0.0010	0.0011
14	0.4269	0.4049	3189	3000	0.0004	0.0009	0.0009	0.0009	0.0009	0.0009	0.0008	0.0010	0.0008	0.0009	0.0009	0.0011
15	0.4294	0.4095	3180	3000	0.0003	0.0007	0.0007	0.0006	0.0006	0.0007	0.0006	0.0008	0.0007	0.0006	0.0007	0.0009
16	0.4251	0.4034	3212	3000	0.0009	0.0010	0.0010	0.0010	0.0011	0.0011	0.0011	0.0012	0.0011	0.0011	0.0012	0.0014
17	0.4207	0.4014	3277	3000	0.0008	0.0010	0.0012	0.0012	0.0012	0.0014	0.0014	0.0014	0.0012	0.0013	0.0014	0.0015
18	0.4228	0.4035	3254	3000	0.0006	0.0012	0.0011	0.0014	0.0014	0.0014	0.0015	0.0013	0.0013	0.0014	0.0014	0.0015
19	0.4196	0.4016	3301	3000	0.0010	0.0014	0.0014	0.0015	0.0015	0.0015	0.0017	0.0016	0.0014	0.0013	0.0015	0.0016
20	0.4308	0.4099	3159	3000	0.0009	0.0014	0.0015	0.0013	0.0014	0.0014	0.0016	0.0015	0.0014	0.0013	0.0015	0.0014
n	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Mean					0.0007	0.0011	0.0011	0.0011	0.0011	0.0011	0.0012	0.0012	0.0011	0.0011	0.0012	0.0013
Median					0.0007	0.0011	0.0011	0.0012	0.0011	0.0011	0.0013	0.0012	0.0011	0.0012	0.0013	0.0014
σ					0.0002	0.0003	0.0003	0.0004	0.0003	0.0004	0.0004	0.0003	0.0003	0.0004	0.0003	0.0003
Min.					0.0002	0.0003	0.0004	0.0002	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002	0.0004	0.0007
Max.					0.0010	0.0018	0.0018	0.0017	0.0017	0.0018	0.0018	0.0017	0.0016	0.0016	0.0015	0.0017

DATA SET 11: 105°C; 1000 mA

Lamp #	Initial (0 hrs)				Lumen Maintenance (%)							
	LF (lm)	V _F (V)	Calc. CCT	ANSI Target	6552	7056	7560	8064	8568	9072	9576	10080
1	293.0	3.36	3246	3000	97.40	96.88	97.28	97.41	97.19	96.79	96.91	96.97
2	330.7	3.24	3247	3000	96.10	96.07	95.99	96.27	95.93	95.88	96.32	96.37
3	329.5	3.29	3309	3000	98.05	98.12	98.15	98.03	97.83	97.88	97.78	97.74
4	304.1	3.32	3318	3000	96.60	96.49	96.36	96.28	96.36	96.35	96.47	96.38
5	327.2	3.27	3227	3000	98.17	97.52	97.82	97.67	97.68	97.61	97.74	98.01
6	322.2	3.24	3152	3000	98.23	97.90	97.78	97.73	97.50	97.61	97.56	97.58
7	292.0	3.26	3172	3000	96.74	96.67	96.28	96.52	96.45	96.38	96.40	96.40
8	335.2	3.22	3219	3000	98.49	98.15	98.26	97.95	97.83	97.91	98.06	97.97
9	305.4	3.25	3203	3000	97.65	97.01	96.82	97.00	96.66	96.78	97.00	96.94
10	298.9	3.24	3295	3000	97.65	97.44	97.17	97.08	97.05	96.99	96.93	97.01
11	334.1	3.24	3315	3000	97.19	97.45	97.50	97.30	97.87	97.37	97.27	97.41
12	331.5	3.26	3226	3000	97.17	97.20	97.12	97.01	97.10	97.07	97.37	97.34
13	326.6	3.23	3171	3000	96.28	96.10	96.32	96.96	96.43	96.21	96.40	96.23
14	316.5	3.27	3189	3000	98.07	97.70	98.11	97.77	97.84	97.72	97.79	97.84
15	297.9	3.23	3180	3000	96.50	96.89	96.63	96.23	96.90	96.46	96.43	96.29
16	324.7	3.28	3212	3000	98.54	98.11	98.52	98.19	98.01	98.14	98.17	98.07
17	335.9	3.28	3277	3000	98.56	98.34	97.56	97.94	98.06	97.89	98.27	97.65
18	327.7	3.26	3254	3000	98.17	97.95	97.32	97.82	97.85	97.63	97.81	98.06
19	333.6	3.22	3301	3000	98.10	97.78	97.21	97.68	97.77	97.54	97.69	98.19
20	289.3	3.27	3159	3000	97.46	97.54	97.34	97.41	97.87	97.42	96.98	96.95
n	20	20	20	20	20	20	20	20	20	20	20	20
Mean	317.8	3.26			97.56	97.37	97.28	97.31	97.31	97.18	97.27	97.27
Median	325.6	3.26			97.65	97.49	97.30	97.41	97.59	97.39	97.32	97.38
σ	16.5	0.04			0.78	0.68	0.72	0.62	0.66	0.66	0.64	0.68
Min.	289.3	3.22			96.10	96.07	95.99	96.23	95.93	95.88	96.32	96.23
Max.	335.9	3.36			98.56	98.34	98.52	98.19	98.06	98.14	98.27	98.19

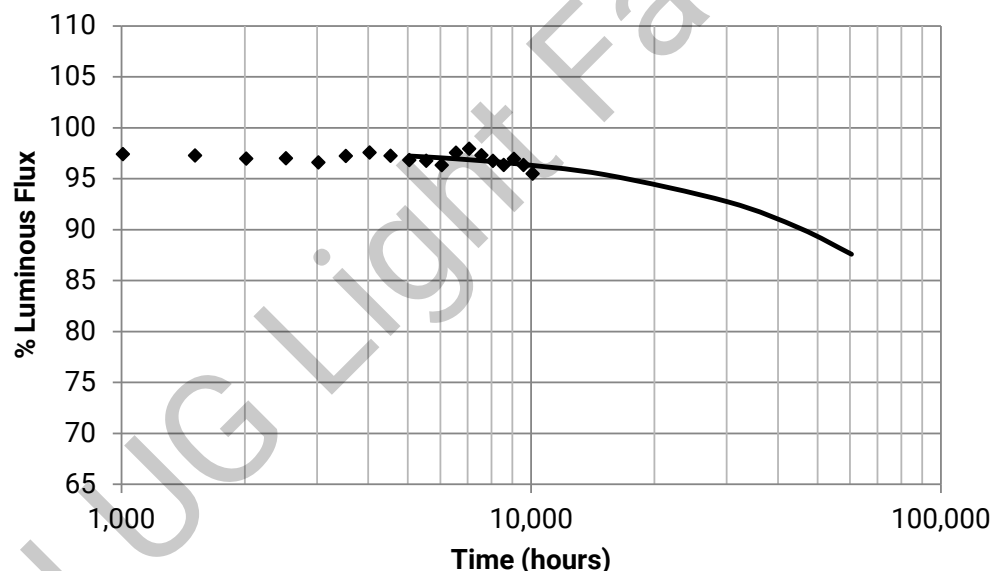
Lamp #	Initial (0 hrs)				Chromaticity Shift (Δu'v')							
	CCx	CCy	Calc. CCT	ANSI Target	6552	7056	7560	8064	8568	9072	9576	10080
1	0.4234	0.4038	3246	3000	0.0008	0.0007	0.0010	0.0011	0.0010	0.0011	0.0011	0.0011
2	0.4243	0.4060	3247	3000	0.0008	0.0010	0.0011	0.0011	0.0012	0.0011	0.0010	0.0009
3	0.4198	0.4032	3309	3000	0.0017	0.0018	0.0019	0.0019	0.0021	0.0019	0.0020	0.0019
4	0.4189	0.4020	3318	3000	0.0009	0.0010	0.0010	0.0008	0.0013	0.0011	0.0010	0.0011
5	0.4252	0.4056	3227	3000	0.0015	0.0016	0.0018	0.0016	0.0017	0.0017	0.0018	0.0018
6	0.4305	0.4083	3152	3000	0.0014	0.0015	0.0015	0.0015	0.0017	0.0016	0.0016	0.0019
7	0.4280	0.4053	3172	3000	0.0007	0.0008	0.0008	0.0008	0.0010	0.0012	0.0012	0.0012
8	0.4249	0.4040	3219	3000	0.0014	0.0016	0.0016	0.0015	0.0017	0.0017	0.0017	0.0019
9	0.4264	0.4054	3203	3000	0.0018	0.0019	0.0017	0.0018	0.0021	0.0020	0.0017	0.0020
10	0.4208	0.4039	3295	3000	0.0017	0.0016	0.0018	0.0016	0.0018	0.0016	0.0016	0.0020
11	0.4204	0.4052	3315	3000	0.0016	0.0016	0.0017	0.0015	0.0017	0.0016	0.0018	0.0019
12	0.4242	0.4031	3226	3000	0.0016	0.0018	0.0019	0.0019	0.0020	0.0020	0.0021	0.0022
13	0.4288	0.4068	3171	3000	0.0012	0.0014	0.0014	0.0014	0.0013	0.0012	0.0011	0.0011
14	0.4269	0.4049	3189	3000	0.0012	0.0013	0.0013	0.0013	0.0013	0.0010	0.0012	0.0014
15	0.4294	0.4095	3180	3000	0.0009	0.0010	0.0011	0.0011	0.0012	0.0012	0.0011	0.0014
16	0.4251	0.4034	3212	3000	0.0015	0.0016	0.0017	0.0017	0.0019	0.0019	0.0019	0.0021
17	0.4207	0.4014	3277	3000	0.0017	0.0017	0.0018	0.0019	0.0019	0.0020	0.0020	0.0021
18	0.4228	0.4035	3254	3000	0.0015	0.0016	0.0017	0.0018	0.0019	0.0019	0.0016	0.0017
19	0.4196	0.4016	3301	3000	0.0015	0.0017	0.0018	0.0020	0.0020	0.0020	0.0020	0.0020
20	0.4308	0.4099	3159	3000	0.0014	0.0016	0.0016	0.0016	0.0018	0.0018	0.0017	0.0016
n	20	20	20	20	20	20	20	20	20	20	20	20
Mean					0.0013	0.0014	0.0015	0.0015	0.0016	0.0016	0.0016	0.0017
Median					0.0015	0.0016	0.0017	0.0016	0.0017	0.0017	0.0016	0.0018
σ					0.0004	0.0004	0.0003	0.0004	0.0004	0.0004	0.0004	0.0004
Min.					0.0007	0.0007	0.0008	0.0008	0.0010	0.0010	0.0010	0.0009
Max.					0.0018	0.0019	0.0019	0.0020	0.0021	0.0020	0.0021	0.0022

DATA SET 5: 55°C; 1250 mA

LED Package Series	XLamp XT-E White LEDs (Series: XTEAWT)
	This LM-80 report is applicable to the following order codes: XTEAWT-xx-xxxx-xxxxxxxxxx
Tested Model Number	XTEAWT-00-0000-00000LBE7
Drive Current [I_F]	1250 mA
Testing Initiation Date	January 8, 2012
Case Temperature [T_s]	55°C
Ambient Temperature [T_A]	55°C
Failures observed	None

Projection Generated By Cree's Internal TM-21 Calculator:

Test duration	10,080 hours
Test duration used for projection	t=5,040 to t=10,080
α	1.885E-06
β	9.817E-01
Reported Lifetimes	L90(10k) = 46,100 hours
	L80(10k) > 60,500 hours
	L70(10k) > 60,500 hours



LM-80 Data For The Official TM-21 Calculator*

Time (hours)	Lumen Maintenance
0	100.00%
1008	97.42%
1512	97.28%
2016	96.97%
2520	97.01%
3024	96.60%
3528	97.23%
4032	97.57%
4536	97.25%
5040	96.83%
5544	96.76%
6048	96.33%
6552	97.55%
7056	97.94%
7560	97.30%
8064	96.75%
8568	96.35%
9072	96.95%
9576	96.35%
10080	95.50%

* <http://www.energystar.gov/TM-21calculator>

Note: The data point t=168 hr is intentionally excluded from this table, since the ENERGY STAR tool has a 20 data point input limit. Per TM-21 methodology, the data point t=168 hr would be excluded, so the projection is unaffected.

DATA SET 5: 55°C; 1250 mA

Lamp #	Initial (0 hrs)				Lumen Maintenance (%)											
	LF (lm)	V _F (V)	Calc. CCT	ANSI Target	168	1008	1512	2016	2520	3024	3528	4032	4536	5040	5544	6048
1	266.7	3.60	2981	3000	96.90	97.46	97.17	96.29	96.81	96.42	96.60	98.33	98.02	96.18	97.41	96.09
2	283.7	3.66	3042	3000	96.44	97.10	97.52	97.97	97.62	97.32	98.77	98.84	98.11	98.07	97.83	97.31
3	262.7	3.57	2979	3000	95.62	96.45	95.81	95.12	95.70	95.28	94.81	95.70	95.43	93.77	94.65	93.48
4	281.7	3.59	3035	3000	97.11	97.55	97.04	96.71	97.16	97.42	98.53	98.40	98.07	97.66	97.84	97.24
5	265.5	3.60	3036	3000	96.45	96.62	96.58	95.21	95.95	95.19	95.44	95.61	95.35	95.34	95.69	94.48
6	287.5	3.66	3070	3000	98.73	97.92	97.50	97.52	97.34	97.45	98.58	98.59	98.00	97.87	97.74	97.14
7	283.8	3.63	3014	3000	98.02	97.61	96.63	96.41	97.10	97.06	98.01	97.99	97.36	97.38	96.95	96.60
8	275.6	3.63	2997	3000	95.96	95.95	96.38	96.00	96.26	96.07	95.42	96.27	95.87	95.36	95.57	94.77
9	262.5	3.55	2911	3000	97.42	98.00	97.14	96.28	96.77	96.22	97.29	98.05	97.00	95.71	96.95	96.85
10	282.5	3.68	3016	3000	99.33	97.74	98.61	98.40	98.07	96.67	98.45	98.12	98.54	97.94	97.10	96.99
11	267.4	3.63	3082	3000	97.28	97.15	96.55	95.72	96.28	95.44	96.03	96.03	95.62	94.91	95.13	95.07
12	295.8	3.56	3004	3000	97.26	96.83	96.89	97.26	97.28	97.35	97.64	97.48	97.42	97.05	97.21	96.69
13	261.7	3.68	2991	3000	96.31	96.66	96.84	96.24	97.01	96.01	96.13	97.61	97.06	96.25	96.62	96.87
14	285.1	3.61	2971	3000	97.30	96.27	96.38	96.35	96.07	96.02	97.04	97.17	96.28	96.46	96.24	95.68
15	269.5	3.64	2995	3000	98.06	97.44	97.23	96.88	97.11	97.08	97.82	97.77	97.29	97.33	97.11	96.62
16	279.2	3.58	2990	3000	98.79	96.94	97.76	97.23	97.57	96.48	96.33	98.22	97.43	96.73	97.06	97.20
17	262.6	3.59	3220	3000	96.78	96.74	97.60	97.28	97.23	95.64	96.72	97.17	96.80	97.29	96.52	96.76
18	288.2	3.60	3156	3000	99.98	100.06	98.96	98.23	97.66	98.55	99.18	99.26	98.73	97.94	98.78	97.92
19	270.7	3.58	3021	3000	97.08	96.50	97.05	97.22	97.07	95.87	96.33	96.80	97.01	96.85	95.77	96.07
20	285.3	3.63	3047	3000	99.15	98.01	97.50	97.20	96.41	96.85	97.74	97.74	97.59	97.36	97.10	96.54
21	261.7	3.60	2943	3000	99.52	97.02	97.55	98.00	97.96	96.79	97.14	97.25	97.72	97.30	96.28	96.30
22	279.1	3.66	3013	3000	99.93	99.15	98.19	98.28	97.54	97.80	98.61	98.48	98.20	98.12	97.47	97.01
23	279.7	3.61	2955	3000	98.80	99.11	98.14	97.81	97.26	97.58	98.61	98.54	98.22	98.16	97.69	97.08
24	271.3	3.67	2977	3000	98.49	96.87	98.02	97.65	97.78	95.74	96.08	96.55	96.80	96.62	95.41	95.16
25	290.9	3.60	3117	3000	99.04	98.23	96.99	97.09	96.23	96.71	97.49	97.37	97.37	97.15	96.89	96.36
n	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Mean	276.0	3.62			97.83	97.41	97.28	96.97	97.01	96.60	97.23	97.57	97.25	96.83	96.76	96.33
Median	279.1	3.61			97.42	97.15	97.17	97.20	97.11	96.67	97.29	97.74	97.37	97.15	96.95	96.62
σ	10.4	0.04			1.28	0.97	0.74	0.93	0.65	0.86	1.21	0.98	0.95	1.12	0.98	1.04
Min.	261.7	3.55			95.62	95.95	95.81	95.12	95.70	95.19	94.81	95.61	95.35	93.77	94.65	93.48
Max.	295.8	3.68			99.98	100.06	98.96	98.40	98.07	98.55	99.18	99.26	98.73	98.16	98.78	97.92

Lamp #	Initial (0 hrs)				Chromaticity Shift (Δu'v')											
	CCx	CCy	Calc. CCT	ANSI Target	168	1008	1512	2016	2520	3024	3528	4032	4536	5040	5544	6048
1	0.4382	0.4039	2981	3000	0.0002	0.0003	0.0004	0.0005	0.0005	0.0006	0.0006	0.0006	0.0006	0.0006	0.0007	0.0006
2	0.4322	0.3985	3042	3000	0.0009	0.0006	0.0005	0.0005	0.0005	0.0005	0.0006	0.0007	0.0008	0.0008	0.0008	0.0009
3	0.4365	0.4000	2979	3000	0.0011	0.0004	0.0006	0.0006	0.0005	0.0006	0.0004	0.0007	0.0007	0.0008	0.0008	0.0008
4	0.4324	0.3982	3035	3000	0.0007	0.0006	0.0004	0.0007	0.0006	0.0006	0.0006	0.0008	0.0009	0.0009	0.0010	0.0009
5	0.4309	0.3951	3036	3000	0.0010	0.0007	0.0008	0.0007	0.0007	0.0009	0.0005	0.0008	0.0009	0.0009	0.0009	0.0009
6	0.4305	0.3983	3070	3000	0.0003	0.0004	0.0004	0.0005	0.0005	0.0005	0.0006	0.0006	0.0006	0.0006	0.0007	0.0006
7	0.4359	0.4030	3014	3000	0.0006	0.0004	0.0006	0.0007	0.0005	0.0005	0.0005	0.0008	0.0008	0.0008	0.0009	0.0008
8	0.4365	0.4021	2997	3000	0.0011	0.0004	0.0005	0.0006	0.0005	0.0005	0.0004	0.0005	0.0006	0.0007	0.0007	0.0007
9	0.4466	0.4122	2911	3000	0.0003	0.0005	0.0005	0.0006	0.0007	0.0008	0.0008	0.0007	0.0007	0.0008	0.0008	0.0007
10	0.4346	0.4007	3016	3000	0.0004	0.0005	0.0004	0.0004	0.0004	0.0006	0.0007	0.0005	0.0006	0.0005	0.0006	0.0006
11	0.4301	0.3989	3082	3000	0.0005	0.0003	0.0002	0.0003	0.0002	0.0003	0.0003	0.0004	0.0005	0.0004	0.0005	0.0006
12	0.4371	0.4043	3004	3000	0.0009	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0008	0.0009	0.0009	0.0010	0.0011
13	0.4396	0.4079	2991	3000	0.0006	0.0003	0.0004	0.0004	0.0005	0.0005	0.0005	0.0006	0.0005	0.0005	0.0006	0.0007
14	0.4407	0.4078	2971	3000	0.0002	0.0006	0.0005	0.0007	0.0007	0.0007	0.0008	0.0007	0.0007	0.0007	0.0007	0.0007
15	0.4391	0.4074	2995	3000	0.0006	0.0004	0.0003	0.0003	0.0005	0.0004	0.0005	0.0004	0.0005	0.0005	0.0004	0.0004
16	0.4394	0.4072	2990	3000	0.0005	0.0005	0.0004	0.0005	0.0004	0.0005	0.0005	0.0006	0.0007	0.0007	0.0007	0.0009
17	0.4168	0.3849	3220	3000	0.0006	0.0007	0.0006	0.0006	0.0006	0.0007	0.0008	0.0008	0.0009	0.0008	0.0008	0.0010
18	0.4200	0.3852	3156	3000	0.0003	0.0005	0.0005	0.0005	0.0005	0.0007	0.0007	0.0008	0.0008	0.0008	0.0009	0.0011
19	0.4363	0.4048	3021	3000	0.0003	0.0004	0.0006	0.0007	0.0006	0.0007	0.0007	0.0007	0.0007	0.0006	0.0007	0.0007
20	0.4334	0.4018	3047	3000	0.0005	0.0005	0.0006	0.0006	0.0005	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
21	0.4432	0.4093	2943	3000	0.0005	0.0005	0.0005	0.0005	0.0005	0.0006	0.0005	0.0006	0.0006	0.0007	0.0008	0.0008
22	0.4352	0.4015	3013	3000	0.0005	0.0008	0.0008	0.0010	0.0009	0.0010	0.0010	0.0010	0.0010	0.0009	0.0010	0.0010
23	0.4409	0.4062	2955	3000	0.0002	0.0007	0.0005	0.0005	0.0005	0.0006	0.0006	0.0007	0.0006	0.0006	0.0007	0.0007
24	0.4395	0.4060	2977	3000	0.0005	0.0007	0.0007	0.0007	0.0007	0.0008	0.0007	0.0007	0.0008	0.0008	0.0008	0.0007
25	0.4294	0.4017	3117	3000	0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	0.0004	0.0003	0.0004	0.0002	0.0003	0.0003
n	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Mean					0.0005	0.0005	0.0005	0.0006	0.0005	0.0006	0.0006	0.0007	0.0007	0.0007	0.0007	0.0008
Median					0.0005	0.0005	0.0005	0.0006	0.0005	0.0006	0.0006	0.0007	0.0007	0.0007	0.0007	0.0007
σ					0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Min.					0.0001	0.0002	0.0001	0.0001	0.0001	0.0002	0.0003	0.0003	0.0004	0.0002	0.0003	0.0003
Max.					0.0011	0.0008	0.0008	0.0010	0.0009	0.0010	0.0010	0.0010	0.0010	0.0009	0.0010	0.0011

DATA SET 5: 55°C; 1250 mA

Lamp #	Initial (0 hrs)				Lumen Maintenance (%)							
	LF (lm)	V _F (V)	Calc. CCT	ANSI Target	6552	7056	7560	8064	8568	9072	9576	10080
1	266.7	3.60	2981	3000	97.60	97.88	97.29	96.13	95.29	96.95	96.62	95.38
2	283.7	3.66	3042	3000	99.18	99.34	98.67	98.37	97.92	98.00	97.34	97.14
3	262.7	3.57	2979	3000	95.16	95.17	94.75	93.80	93.93	94.65	94.35	93.30
4	281.7	3.59	3035	3000	98.94	99.27	98.83	98.37	98.00	98.29	97.99	97.27
5	265.5	3.60	3036	3000	94.77	95.36	94.63	94.00	94.32	94.48	94.38	93.27
6	287.5	3.66	3070	3000	98.91	99.26	98.83	98.19	97.74	97.95	97.61	97.15
7	283.8	3.63	3014	3000	98.35	98.57	98.06	97.48	97.30	97.18	96.65	96.31
8	275.6	3.63	2997	3000	95.88	96.45	95.91	95.61	95.07	95.49	95.08	94.40
9	262.5	3.55	2911	3000	97.54	97.21	96.68	95.55	95.12	95.73	94.75	93.68
10	282.5	3.68	3016	3000	98.68	98.46	97.89	98.04	97.34	97.80	96.83	95.96
11	267.4	3.63	3082	3000	94.90	95.00	94.39	93.70	93.75	94.38	93.92	92.93
12	295.8	3.56	3004	3000	98.52	98.94	98.49	98.02	97.92	97.97	97.30	96.86
13	261.7	3.68	2991	3000	96.66	97.36	96.85	96.36	95.65	96.67	96.21	95.52
14	285.1	3.61	2971	3000	97.06	97.92	97.47	96.93	96.56	96.61	96.30	95.81
15	269.5	3.64	2995	3000	98.41	98.93	98.51	97.87	97.70	97.64	97.05	96.63
16	279.2	3.58	2990	3000	97.00	97.96	97.28	96.85	96.45	96.85	96.63	96.13
17	262.6	3.59	3220	3000	97.73	97.90	96.98	96.09	95.29	96.93	96.39	94.21
18	288.2	3.60	3156	3000	99.50	100.24	99.24	98.87	98.44	98.53	97.75	96.60
19	270.7	3.58	3021	3000	97.00	97.20	96.52	95.83	95.07	96.97	95.89	94.46
20	285.3	3.63	3047	3000	98.22	98.70	97.83	97.46	97.00	97.14	96.48	95.47
21	261.7	3.60	2943	3000	96.84	97.56	96.62	96.18	95.37	97.95	96.47	95.28
22	279.1	3.66	3013	3000	98.73	99.16	98.20	97.69	97.37	97.62	97.11	96.23
23	279.7	3.61	2955	3000	98.81	99.26	98.43	97.98	97.71	97.86	97.15	96.45
24	271.3	3.67	2977	3000	95.89	96.80	95.91	95.55	94.77	96.32	95.04	94.12
25	290.9	3.60	3117	3000	98.59	98.59	98.30	97.92	97.68	97.81	97.36	96.82
n	25	25	25	25	25	25	25	25	25	25	25	25
Mean	276.0	3.62			97.55	97.94	97.30	96.75	96.35	96.95	96.35	95.49
Median	279.1	3.61			97.73	97.96	97.47	96.93	96.56	97.14	96.62	95.81
σ	10.4	0.04			1.39	1.38	1.37	1.49	1.45	1.19	1.14	1.34
Min.	261.7	3.55			94.77	95.00	94.39	93.70	93.75	94.38	93.92	92.93
Max.	295.8	3.68			99.50	100.24	99.24	98.87	98.44	98.53	97.99	97.27

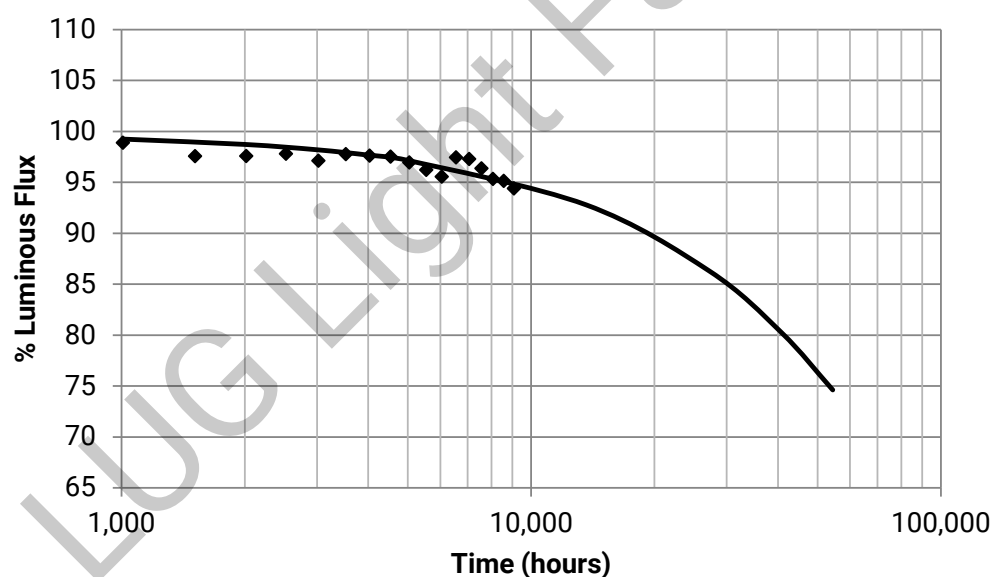
Lamp #	Initial (0 hrs)				Chromaticity Shift (Δu'v')							
	CCx	CCy	Calc. CCT	ANSI Target	6552	7056	7560	8064	8568	9072	9576	10080
1	0.4382	0.4039	2981	3000	0.0006	0.0008	0.0007	0.0007	0.0006	0.0008	0.0006	0.0006
2	0.4322	0.3985	3042	3000	0.0008	0.0009	0.0009	0.0009	0.0008	0.0008	0.0008	0.0007
3	0.4365	0.4000	2979	3000	0.0007	0.0010	0.0009	0.0009	0.0009	0.0011	0.0011	0.0010
4	0.4324	0.3982	3035	3000	0.0009	0.0011	0.0012	0.0012	0.0010	0.0011	0.0010	0.0009
5	0.4309	0.3951	3036	3000	0.0007	0.0010	0.0011	0.0010	0.0010	0.0011	0.0013	0.0011
6	0.4305	0.3983	3070	3000	0.0007	0.0008	0.0009	0.0007	0.0007	0.0007	0.0007	0.0006
7	0.4359	0.4030	3014	3000	0.0008	0.0008	0.0008	0.0007	0.0005	0.0004	0.0005	0.0004
8	0.4365	0.4021	2997	3000	0.0006	0.0008	0.0008	0.0008	0.0008	0.0009	0.0010	0.0009
9	0.4466	0.4122	2911	3000	0.0009	0.0010	0.0010	0.0012	0.0013	0.0011	0.0009	0.0009
10	0.4346	0.4007	3016	3000	0.0005	0.0006	0.0006	0.0005	0.0005	0.0007	0.0006	0.0007
11	0.4301	0.3989	3082	3000	0.0005	0.0005	0.0006	0.0006	0.0004	0.0005	0.0006	0.0005
12	0.4371	0.4043	3004	3000	0.0009	0.0012	0.0012	0.0011	0.0011	0.0012	0.0012	0.0010
13	0.4396	0.4079	2991	3000	0.0005	0.0006	0.0007	0.0006	0.0006	0.0008	0.0007	0.0006
14	0.4407	0.4078	2971	3000	0.0007	0.0008	0.0008	0.0008	0.0007	0.0008	0.0007	0.0007
15	0.4391	0.4074	2995	3000	0.0004	0.0005	0.0006	0.0005	0.0005	0.0005	0.0006	0.0004
16	0.4394	0.4072	2990	3000	0.0007	0.0009	0.0009	0.0009	0.0009	0.0010	0.0011	0.0010
17	0.4168	0.3849	3220	3000	0.0009	0.0010	0.0010	0.0010	0.0009	0.0013	0.0012	0.0011
18	0.4200	0.3852	3156	3000	0.0008	0.0010	0.0011	0.0011	0.0011	0.0013	0.0012	0.0012
19	0.4363	0.4048	3021	3000	0.0007	0.0008	0.0008	0.0007	0.0007	0.0008	0.0007	0.0006
20	0.4334	0.4018	3047	3000	0.0007	0.0007	0.0008	0.0009	0.0008	0.0009	0.0008	0.0007
21	0.4432	0.4093	2943	3000	0.0007	0.0008	0.0008	0.0008	0.0008	0.0007	0.0007	0.0006
22	0.4352	0.4015	3013	3000	0.0012	0.0012	0.0012	0.0013	0.0013	0.0014	0.0013	0.0013
23	0.4409	0.4062	2955	3000	0.0006	0.0007	0.0007	0.0007	0.0007	0.0007	0.0006	0.0006
24	0.4395	0.4060	2977	3000	0.0008	0.0008	0.0008	0.0009	0.0008	0.0009	0.0008	0.0007
25	0.4294	0.4017	3117	3000	0.0003	0.0003	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002
n	25	25	25	25	25	25	25	25	25	25	25	25
Mean					0.0007	0.0008	0.0008	0.0008	0.0008	0.0009	0.0008	0.0008
Median					0.0007	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0007
σ					0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0003	0.0003
Min.					0.0003	0.0003	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002
Max.					0.0012	0.0012	0.0012	0.0013	0.0013	0.0014	0.0013	0.0013

DATA SET 6: 85°C; 1250 mA

LED Package Series	XLamp XT-E White LEDs (Series: XTEAWT)
	This LM-80 report is applicable to the following order codes: XTEAWT-xx-xxxx-xxxxxxxxxx
Tested Model Number	XTEAWT-00-0000-00000LBE7
Drive Current [I_F]	1250 mA
Testing Initiation Date	January 7, 2012
Case Temperature [T_s]	85°C
Ambient Temperature [T_A]	85°C
Failures observed	None

Projection Generated By Cree's Internal TM-21 Calculator:

Test duration	9,072 hours
Test duration used for projection	t=4,032 to t=9,072
α	5.337E-06
β	9.977E-01
Reported Lifetimes	L90(9k) = 19,300 hours
	L80(9k) = 41,400 hours
	L70(9k) > 54,400 hours



LM-80 Data For The Official TM-21 Calculator*

Time (hours)	Lumen Maintenance
0	100.00%
168	98.72%
1008	98.89%
1512	97.57%
2016	97.58%
2520	97.81%
3024	97.12%
3528	97.77%
4032	97.62%
4536	97.52%
5040	96.95%
5544	96.22%
6048	95.56%
6552	97.45%
7056	97.29%
7560	96.37%
8064	95.34%
8568	95.14%
9072	94.40%

* <http://www.energystar.gov/TM-21calculator>

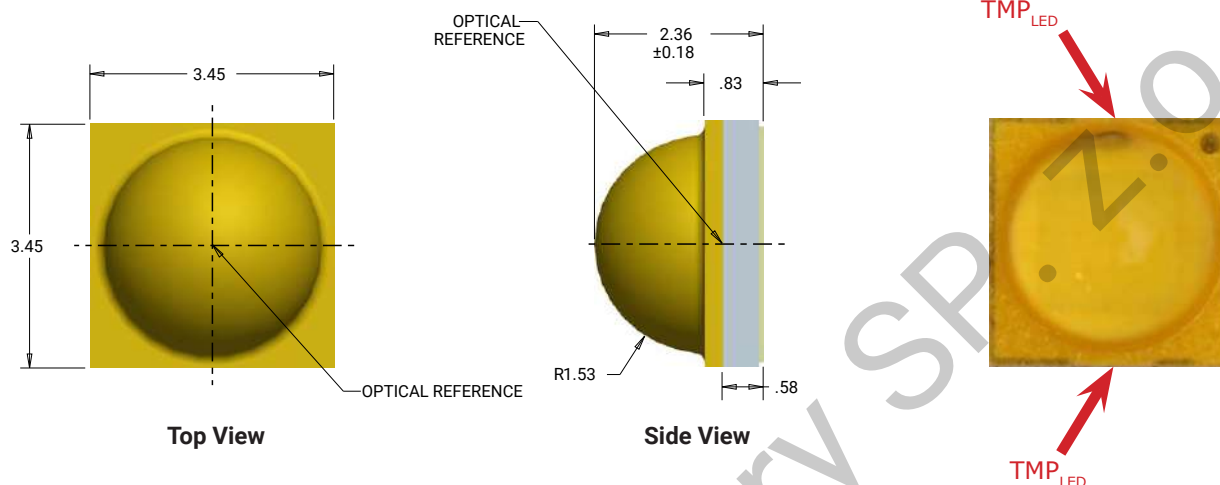
DATA SET 6: 85°C; 1250 mA

Lamp #	Initial (0 hrs)				Lumen Maintenance (%)																	
	LF (lm)	V _F (V)	Calc. CCT	ANSI Target	168	1008	1512	2016	2520	3024	3528	4032	4536	5040	5544	6048	6552	7056	7560	8064	8568	9072
1	261.9	3.54	3198	3000	98.97	98.59	96.65	97.18	98.89	96.84	97.64	98.00	97.85	97.06	96.21	95.35	97.20	97.12	96.97	95.06	94.70	94.74
2	284.7	3.61	3176	3000	98.82	98.93	98.05	97.91	97.73	97.42	98.56	97.99	98.16	97.75	97.06	96.30	98.75	97.94	97.80	97.22	97.12	96.43
3	269.8	3.51	3193	3000	99.28	99.18	97.59	98.22	98.44	97.44	97.97	98.33	98.12	97.41	96.02	95.82	97.96	98.06	97.33	95.66	95.53	95.66
4	289.7	3.63	3161	3000	99.36	99.81	98.43	98.38	98.30	98.03	99.13	98.76	98.68	98.16	97.54	96.53	98.66	97.68	96.87	95.69	94.95	93.89
5	287.1	3.55	3199	3000	99.18	98.76	97.65	97.47	97.39	96.90	98.07	97.62	97.74	97.12	96.59	95.81	98.17	97.44	96.64	95.69	95.40	94.13
6	271.6	3.58	3207	3000	100.60	99.89	98.15	98.71	98.66	97.90	97.62	97.89	97.63	97.05	96.13	95.22	97.47	97.06	96.48	95.78	95.69	96.02
7	288.6	3.60	3194	3000	98.88	98.58	97.71	97.63	97.27	97.10	98.17	97.66	97.73	97.39	96.58	96.23	98.28	98.10	97.64	97.27	96.42	96.40
8	273.6	3.55	3217	3000	98.15	97.44	97.02	96.14	97.06	96.53	95.90	96.40	96.09	95.31	94.73	93.96	95.80	97.49	95.66	94.24	93.80	93.33
9	287.2	3.70	3206	3000	99.00	98.87	98.02	98.11	97.86	97.43	98.73	98.16	98.18	97.80	96.93	96.48	98.71	98.30	97.15	96.49	95.47	95.22
10	284.0	3.60	3186	3000	99.73	99.07	97.98	97.58	97.66	97.48	98.36	98.06	98.13	97.80	97.03	96.19	98.59	98.65	97.92	97.52	96.34	96.20
11	269.9	3.60	3177	3000	97.63	97.80	96.99	96.76	97.30	96.14	96.25	96.46	96.24	95.51	94.61	93.67	94.62	95.76	93.09	91.93	90.61	91.67
12	257.2	3.54	2989	3000	98.28	99.01	97.08	97.44	98.42	97.26	97.12	97.94	97.57	96.95	96.48	95.59	96.36	97.03	96.05	93.67	95.20	93.77
13	271.7	3.58	2993	3000	98.89	99.11	97.73	97.50	97.62	97.47	98.39	97.66	98.00	97.68	96.99	96.58	98.35	97.88	97.66	97.19	96.86	96.14
14	280.8	3.55	3091	3000	97.74	98.59	97.14	97.24	97.20	97.22	98.30	97.69	97.83	97.38	96.77	96.34	97.92	97.46	97.06	96.22	95.29	94.03
15	254.7	3.55	2929	3000	99.13	99.30	97.85	98.14	98.93	97.38	97.77	98.11	97.73	97.12	96.46	95.61	97.05	97.14	96.34	95.09	96.75	95.41
16	269.8	3.60	2973	3000	98.71	99.38	97.84	97.65	97.68	97.67	98.78	98.06	98.16	97.76	97.03	96.43	98.08	97.86	96.80	95.54	94.43	93.26
17	273.8	3.56	3025	3000	98.70	99.72	98.26	98.10	97.93	98.00	98.80	98.21	98.48	97.78	97.33	96.75	98.54	98.42	97.53	96.93	96.19	94.93
18	259.2	3.59	3074	3000	98.64	99.61	97.33	97.72	98.27	96.89	97.28	97.30	97.10	96.49	95.71	95.13	97.07	96.82	96.15	95.27	96.77	95.65
19	289.0	3.62	3196	3000	98.46	98.46	97.26	97.20	96.83	96.36	96.76	96.16	96.19	95.83	95.14	94.82	97.01	96.48	95.93	95.80	95.30	94.78
20	265.9	3.58	3159	3000	97.30	98.21	96.75	96.78	97.32	96.11	96.83	97.20	96.81	95.97	95.15	94.25	95.91	95.78	94.44	92.30	93.11	92.15
21	288.9	3.65	3179	3000	97.72	97.54	97.18	97.24	96.97	96.46	96.84	96.39	96.14	95.60	94.88	94.36	96.24	96.65	93.87	92.59	91.24	90.18
22	264.5	3.62	2994	3000	98.71	99.15	97.33	97.36	97.89	96.83	97.18	97.45	97.04	96.23	95.50	94.70	96.70	96.55	95.63	94.26	96.17	94.82
23	276.1	3.63	3124	3000	98.57	98.46	97.34	97.22	97.17	96.69	97.85	97.37	97.33	96.85	96.18	95.65	97.69	97.33	96.49	96.01	95.15	94.07
24	281.8	3.64	2996	3000	99.07	99.03	98.06	97.70	97.88	97.52	98.58	98.16	98.16	97.61	97.02	96.44	98.54	98.20	97.44	96.93	96.18	95.11
25	264.4	3.69	2997	3000	98.50	99.64	97.87	98.20	98.46	96.98	97.30	97.42	97.00	96.19	95.49	94.69	96.57	95.96	94.29	93.03	93.91	92.04
n	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Mean	274.6	3.59			98.72	98.89	97.57	97.58	97.80	97.12	97.77	97.62	97.52	96.95	96.22	95.56	97.45	97.29	96.37	95.34	95.14	94.40
Median	273.6	3.60			98.71	99.01	97.65	97.58	97.73	97.22	97.85	97.69	97.73	97.12	96.46	95.65	97.69	97.44	96.64	95.69	95.40	94.78
σ	11.0	0.05			0.70	0.66	0.49	0.57	0.61	0.55	0.85	0.67	0.76	0.83	0.86	0.90	1.10	0.87	1.28	1.62	1.62	1.61
Min.	254.7	3.51			97.30	97.44	96.65	96.14	96.83	96.11	95.90	96.16	96.09	95.31	94.61	93.67	94.62	95.65	93.09	91.93	90.61	90.18
Max.	289.7	3.70			100.60	99.89	98.43	98.71	98.93	98.03	99.13	98.76	98.68	98.16	97.54	96.75	98.75	98.65	97.92	97.52	97.12	96.43

Lamp #	Initial (0 hrs)				Chromaticity Shift (Δu'v')																	
	CCx	CCy	Calc. CCT	ANSI Target	168	1008	1512	2016	2520	3024	3528	4032	4536	5040	5544	6048	6552	7056	7560	8064	8568	9072
1	0.4181	0.3856	3198	3000	0.0006	0.0011	0.0010	0.0012	0.0016	0.0013	0.0013	0.0017	0.0016	0.0016	0.0016	0.0017	0.0017	0.0016	0.0019	0.0019	0.0024	0.0028
2	0.4199	0.3871	3176	3000	0.0005	0.0009	0.0009	0.0010	0.0012	0.0013	0.0012	0.0013	0.0013	0.0014	0.0014	0.0015	0.0017	0.0016	0.0019	0.0020	0.0022	0.0026
3	0.4182	0.3851	3193	3000	0.0006	0.0009	0.0008	0.0009	0.0011	0.0010	0.0009	0.0011	0.0010	0.0010	0.0010	0.0011	0.0012	0.0013	0.0014	0.0012	0.0014	0.0019
4	0.4206	0.3869	3161	3000	0.0004	0.0009	0.0008	0.0010	0.0011	0.0012	0.0011	0.0012	0.0012	0.0013	0.0014	0.0015	0.0017	0.0016	0.0021	0.0023	0.0025	0.0024
5	0.4188	0.3872	3199	3000	0.0005	0.0010	0.0009	0.0011	0.0011	0.0013	0.0012	0.0013	0.0014	0.0014	0.0016	0.0016	0.0019	0.0020	0.0026	0.0027	0.0032	0.0036
6	0.4197	0.3903	3207	3000	0.0007	0.0009	0.0009	0.0011	0.0012	0.0011	0.0010	0.0012	0.0010	0.0012	0.0011	0.0012	0.0014	0.0012	0.0014	0.0014	0.0017	0.0021
7	0.4180	0.3849	3194	3000	0.0003	0.0007	0.0007	0.0008	0.0009	0.0010	0.0009	0.0010	0.0010	0.0010	0.0011	0.0011	0.0012	0.0013	0.0015	0.0019	0.0021	0.0023
8	0.4191	0.3901	3217	3000	0.0003	0.0007	0.0005	0.0006	0.0008	0.0007	0.0006	0.0008	0.0008	0.0008	0.0009	0.0010	0.0010	0.0016	0.0017	0.0018	0.0021	0.0021
9	0.4172	0.3844	3206	3000	0.0002	0.0008	0.0007	0.0009	0.0009	0.0011	0.0010	0.0011	0.0012	0.0012	0.0014	0.0016	0.0019	0.0023	0.0028	0.0029	0.0032	0.0031
10	0.4179	0.3836	3186	3000	0.0004	0.0008	0.0007	0.0009	0.0008	0.0008	0.0009	0.0009	0.0009	0.0009	0.0009	0.0011	0.0013	0.0014	0.0019	0.0020	0.0024	0.0029
11	0.4222	0.3926	3177	3000	0.0004	0.0007	0.0005	0.0005	0.0007	0.0006	0.0005	0.0007	0.0007	0.0008	0.0008	0.0011	0.0014	0.0019	0.0022	0.0024	0.0024	0.0026
12	0.4372	0.4026	2989	3000	0.0004	0.0006	0.0005	0.0005	0.0007	0.0007	0.0007	0.0007	0.0006	0.0007	0.0006	0.0007	0.0007	0.0011	0.0011	0.0007	0.0005	0.0008
13	0.4374	0.4036	2993	3000	0.0003	0.0005	0.0006	0.0005	0.0006	0.0007	0.0007	0.0007	0.0008	0.0008	0.0007	0.0008	0.0008	0.0007	0.0008	0.0008	0.0009	0.0008
14	0.4282	0.3957	3091	3000	0.0007	0.0004	0.0004	0.0005	0.0006	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0008	0.0008	0.0009	0.0011	0.0008	0.0007
15	0.4412	0.4037	2929	3000	0.0004	0.0006	0.0005	0.0006	0.0007	0.0008	0.0007	0.0008	0.0007	0.0009	0.0010	0.0010	0.0010	0.0009	0.0010	0.0009	0.0010	0.0010
16	0.4371	0.4006	2973	3000	0.0004	0.0006	0.0005	0.0007	0.0008	0.0008	0.0008	0.0009	0.0009	0.0010	0.0010	0.0009	0.0009	0.0010	0.0010	0.0013	0.0022	0.0028
17	0.4328	0.3979	3025	3000	0.0004	0.0005	0.0006	0.0007	0.0008	0.0009	0.0009	0.0011	0.0011	0.0010	0.0010	0.0010	0.0010	0.0009	0.0008	0.0008	0.0011	0.0014
18	0.4268	0.3908	3074	3000	0.0003	0.0004	0.0005	0.0006	0.0007	0.0007	0.0008	0.0008	0.0009	0.0009	0.0011	0.0010	0.0010	0.0009	0.0009	0.0009	0.0008	0.0009
19	0.4186	0.3864	3196	3000	0.0003	0.0010	0.0011	0.0013	0.0014	0.0015	0.0015	0.0016	0.0016	0.0016	0.0017	0.0019	0.0019	0.0021	0.0026	0.0028	0.0031	0.0037
20	0.4202	0.3859	3159	3000	0.0011	0.0008	0.0007	0.0008	0.0009	0.0007	0.0009	0.0012	0.0012	0.0012	0.0014	0.0015	0.0017	0.0024	0.0030	0.0031	0.0032	0.0032
21	0.4203	0.3884	3179	3000	0.0006	0.0014	0.0014	0.0017	0.0018	0.0019	0.0019	0.0020	0.0022	0.0023	0.0024	0.0028	0.0030	0.0039	0.0048	0.0048	0.0045	0.0041
22	0.4363	0.4015	2984	3000	0.0004	0.0006	0.0005	0.0005	0.0006	0.0007	0.0006	0.0007	0.0008	0.0008	0.0007	0.0008	0.0008	0.0009	0.0010	0.0010	0.0011	0.0009
23	0.4266	0.3962	3124	3000	0.0003	0.0004	0.0005	0.0006	0.0006	0.0007	0.0007	0.0007	0.0007	0.0006	0.0006	0.0007	0.0006	0.0008	0.0010	0.0009	0.0006	0.0005
24	0.4367	0.4025	2996	3000	0.0003	0.0005	0.0005	0.0005	0.0007	0.0007	0.0007	0.0007	0.0007	0.0008	0.0008	0.0008	0.0008	0.0009	0.0012	0.0011	0.0008	0.0008
25	0.4372	0.4037	2997	3000	0.0003	0.0006	0.0006	0.0006	0.0006	0.0007	0.0008	0.0009	0.0009	0.0009	0.0008	0.0008	0.0007	0.0008	0.0008	0.0011	0.0017	0.0025
n	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Mean					0.0004	0.0007	0.0007	0.0008	0.0009	0.0009	0.0009	0.0010	0.0011	0.0011	0.0011	0.0012	0.0013	0.0014	0.0017	0.0018	0.0019	0.0021
Median					0.0004	0.0007	0.0006	0.0007	0.0008	0.0008	0.0009	0.0009	0.0010	0.0010	0.0010	0.0011	0.0012	0.0013	0.0014	0.0014	0.0021	0.0024
σ					0.0002	0.0002	0.0002	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0004	0.0004	0.0005	0.0006	0.0007	0.0009	0.0010	0.0010	0.0011
Min.					0.0002	0.0004	0.0004	0.0005	0.0006	0.0006	0.0005	0.0006	0.0007	0.0006	0.0006	0.0007	0.0006	0.0007	0.0008	0.0007	0.0005	0.0005
Max.					0.0011	0.0014	0.0014	0.0017	0.0018	0.0019	0.0019	0.0020	0.0022	0.0023	0.0024	0.0028	0.0030	0.0039	0.0048	0.0048	0.0045	0.0041

MECHANICAL DIMENSIONS & TEMPERATURE MEASUREMENT POINT

All measurements are ± 0.13 mm unless otherwise indicated.



The LED temperature measurement point (TMP_{LED}) should be measured on the PCB surface, as close to the LED's thermal pad as possible (shown in the picture above). It is not required to use a solder footprint for the thermal pad that is larger than the LED itself. In testing, Cree has found such a solder pad to have insignificant impact on the resulting temperature measurement. Either one of the two shown TMP_{LED} locations may be used and are equivalent to each other.

**LUG®**

LUG Light Factory Ltd.
Producer of Professional Lighting Fittings



Zielona Góra 13.04.2017

Сертификат - Гарантия

Настоящим письмом подтверждаем, что гарантия на уличные светильники Urbano, Urbino и Urbini производства компании LUG Light Factory это 5 лет. Все общие условия гарантии Вы можете узнать на официальном сайте компании.

Ссылка на Общие Условия Гарантии:

http://www.luglightfactory.ru/resources/lug-com-pl/Pliki/Do_pobrania/gwarancje/LUG_warranty_conditions_102016_RU.pdf

LUG® LIGHT FACTORY Sp. z o.o.
65-127 Zielona Góra, ul. Gorzowska 11
tel. (068) 45 33 200, fax (068) 45 33 201
NIP 929-17-95-452 (6)

С уважением,



ОБЩИЕ УСЛОВИЯ ГАРАНТИИ НА ОСВЕТИТЕЛЬНУЮ ПРОДУКЦИЮ КОМПАНИИ LUG LIGHT FACTORY SP. Z O. O.

1. Общие условия гарантии

- 1.1. Компания LUG Light Factory Sp. z o. o., зарегистрированная по адресу: ул. Гожовска, 11, 65-127 Зелена-Гура, KRS 0000290498 (далее – «Гарант»), настоящим предоставляет гарантию на осветительную продукцию в соответствии с положениями, определенными в настоящем документе.
- 1.2. Гарант заявляет, что вышеназванные продукты не имеют производственных дефектов и дефектов материала и в случае использования по назначению будут действовать надлежащим образом в период не короче срока действия гарантийной защиты, с оговоркой случаев, описанных в настоящем документе.
- 1.3. Гарант дает гарантию на продаваемую продукцию на срок:
 - 5 лет на всю продукцию бренда LUG, содержащие светодиодный источник света;
 - 5 лет на всю продукцию бренда FLASH&DQ;
 - 3 года на продукцию бренда LUGBOX;
 - 2 года на традиционные светильники (не содержащие светодиодного источника света);
 - 1 год на светильники в аварийном исполнении.
- 1.4. Гарантия действует только при выполнении следующих условий:
 - 1.4.1. Гарантия распространяется только на производственные дефекты и дефекты, возникшие по причинам, связанным с товаром, т. е. дефекты, возникшие в результате производственных дефектов или скрытых дефектов материалов;
 - 1.4.2. Светильники используются, устанавливаются и хранятся согласно информации, содержащейся в каталожной карте и монтажной инструкции;
 - 1.4.3. Если в каталожной карте не указано иначе, светильники LUG Light Factory Sp. z o. o. предназначены для стандартных условий работы;
 - 1.4.4. Стандартные условия – это температура окружающей среды от -10°C до +25°C, влажность: <85%, давление: 690-1060 гПа;
 - 1.4.5. Светильники не следует применять в среде с условиями, создающими опасность для конструкции, лакового покрытия и электрооснастки светильника. К таким условиям относятся высокая влажность, температура, запыление, присутствие в воздухе неинертных химических веществ, УФ-излучение, а также тряска и вибрации;



- 1.4.6. Каталогная карта содержит детальное описание продукции с общими указаниями по применению, которые относятся к стандартным условиям работы;
 - 1.4.7. Если продукция предназначена для среды использования, требующей специальных технических свойств, эти свойства описываются в каталожной карте. Если специальные технические свойства не указаны, применение светильника следует согласовать с техническим отделом LUG;
 - 1.4.8. Если условия, в которых должны применяться светильники, отличаются от условий, для которых эти светильники предназначены, Покупатель перед покупкой сообщил Гаранту об условиях, преобладающих в месте монтажа светильников, а Гарант подтвердил возможность их применения в такой среде;
 - 1.4.9. Продукция эксплуатируется по назначению в соответствии с приложенной спецификацией продукции (монтажная инструкция, каталожная карта, этикетка); кроме того, проводились техосмотры, проконсультированные с техническим отделом LUG Light Factory Sp. z o. o., если такое требование предусмотрено в документации, приложенной к продукции;
 - 1.4.10. Установка продукции проводится профессионально, уполномоченным персоналом, согласно условиям, приведенным в монтажной инструкции, приложенной к продуктам, и каталожной карте, а также принятой практике и техническим знаниям;
 - 1.4.11. Модификацию функций продукции или обновления программного обеспечения проводит исключительно производитель светильников или назначенное ним третье лицо;
 - 1.4.12. Все ремонты или техуход за продуктами производился согласно профессиональным знаниям и рекомендациям производителя;
 - 1.4.13. Продукция не подвергалась механическим и/или химическим нагрузкам, не соответствующим ее назначению и создающим опасность для конструкции светильника, лакового покрытия или электронных компонентов, находящихся внутри светильника;
 - 1.4.14. Температура окружающей среды и напряжение в сети питания не превышали номинальных величин, указанных для данной продукции в спецификации или технических стандартах.
- 1.5. Нарушение вышеперечисленных и других приведенных в настоящем документе положений ведет к утрате прав по гарантии.

2. Объем гарантии

- 2.1. Гарантия действует с даты покупки продукта Покупателем, указанной в счете-фактуре НДС, которая подтверждает факт покупки товара.



- 2.2. Исключаются права Покупателя по ответственности за дефекты, о которой говорится в гражданском кодексе. Это положение также относится к программному обеспечению.
- 2.3. Настоящая Гарантия распространяется исключительно на дефекты продукции, возникшие по причине ошибок в конструкции, материале или производстве, а также превышения среднего номинального показателя аварийности, который для электронных компонентов (блоки питания, контроллеры, стабилизаторы, светодиодные модули) составляет 0,2% повреждений на 1000 ч работы, если технические карты / брошюры о продукции предусматривают иное.
- 2.4. Гарантия не распространяется на:
- 2.4.1. Любые сменные элементы, такие как традиционные источники света, стартеры, конденсаторы, аккумуляторы, батареи и другие элементы, подверженные нормальному износу в ходе эксплуатации;
 - 2.4.2. Компоненты, поставленные внешними субъектами, такие как жесткие диски, компьютеры, серверы и т. д. На такое оборудование производитель может дать свою гарантию, что требует подтверждения у этого производителя оборудования;
 - 2.4.3. Естественный износ используемых материалов, например, обесцвечивание или утрата эластичности деталей из пластмассы (например, пожелтение поликарбонатных колпаков), утрата блеска лаковых покрытий в результате действия атмосферных факторов, процесса старения и т. д.;
 - 2.4.4. Дефекты, возникшие из-за поврежденного программного обеспечения, вирусов, услуг, связанных с обновлением программного обеспечения или перезапуском, ошибочных настроек компонентов в результате износа, загрязнения, действия третьих лиц (в частности, монтажников, использующих продукты, на которые распространяется гарантия) и т. д.;
 - 2.4.5. Дефекты, возникающие из-за воздействия химических, тепловых, механических, световых и иных факторов, воздействие которых на продукцию противоречит инструкциям по обслуживанию и техническим знаниям;
 - 2.4.6. Дополнительные затраты, связанные с принятием гарантии и устранением дефектов, состоящие из стоимости монтажа и демонтажа дефектного продукта, стоимости транспортировки этого продукта производителю и отправления нового или отремонтированного продукта, а также иные аналогичные затраты. Эти затраты оплачивает Покупатель;
 - 2.4.7. Продукты со снятыми, закрытыми или нечитабельными серийными номерами, номерами артикулов, названием светильника, знаками, указывающими на их производителя, или иной маркировкой, дающей возможность их идентификации.



- 2.5. Уменьшение светового потока в течение срока службы продукции до 0,6%/1000 ч и изменение цвета модулей светодиодов – это нормальное явление, на которое гарантия не распространяется.
- 2.6. Общее время свечения светильников в течение года не может превышать 4300 ч.
- 2.7. Параметры новых светодиодных светильников (модулей) имеют допуск +/-10% для светового потока, мощности и цветовой температуры.

3. Требования по гарантии

- 3.1. Заявление вносится при помощи рекламационного заявления, образец которого доступен на веб-сайте LUG Light Factory Sp. z o. o. по адресу: <http://www.lug.com.pl/download/dokumenty>
- 3.2. Клиент, вносящий рекламацию, обязан заполнить рекламационное заявление и немедленно отправить его Гаранту.
- 3.3. Требования по гарантии имеют силу только при внесении их Гаранту в письменной форме, по факсу или по электронной почте по адресу: service@lug.com.pl с детальным описанием обнаруженного дефекта, приложенным подтверждением факта покупки продукта (счет-фактура НДС, кассовый чек или копия договора купли-продажи) и документированным описанием возникшего дефекта.
- 3.4. Гарант рассматривает заявление в течение 14 дней с даты поставки ему дефектного товара и документов, перечисленных в пункте 3.3, с возможностью продления этого срока при необходимости проведения детальных технических исследований, о чем Гарант немедленно сообщит Покупателю.
- 3.5. О рассмотрении заявления Гарант сообщит заявителю в письменной форме, по телефону, факсу или электронной почте.
- 3.6. Ответственность Гаранта ограничивается стоимостью продукта на дату его покупки.
- 3.7. В случае принятия гарантийного требования Гарант в каждом случае принимает решение о ремонте дефектного продукта, его замене на продукт без дефектов, снижении его цены или замене на продукт с аналогичным назначением и схожими техническими параметрами, когда продукт, по которому была заявлена рекламация, уже не продается.
- 3.8. Гарант, ремонтируя дефектный продукт, допускает замену компонентов на бывшие в употреблении или восстановленные компоненты, которые с точки зрения продуктивности, функциональности и надежности эквивалентны новым компонентам, не имеют дефектов и брака материала.
- 3.9. По мере осуществления гарантийного процесса ремонт продукта или его замена на продукт без дефектов проводятся бесплатно.



- 3.10. Если в результате принятия гарантийного заявления в дефектном продукте меняются какие-либо элементы, гарантийный срок не начинается отсчитываться с начала.
- 3.11. В случае принятия рекламации Гарант исполнит гарантийное обязательство в течение 21 дня, если не наступят не зависящие от Гаранта обстоятельства, которые могут повлиять на продление этого срока, такие как необходимость проведения дополнительных лабораторных тестов и заказ нестандартных компонентов, которые будут использоваться в ремонтируемом светильнике и должны заказываться у поставщиков, и т. д.
- 3.12. Если заявление будет признано необоснованным, Покупатель обязан сам забрать продукт. Если после получения требования Гаранта забрать товар Покупатель его не заберет, он обязан оплатить стоимость его хранения и, возможно, стоимость его отправления Покупателю.
- 3.13. Все затраты, связанные с рассмотрением Гарантом необоснованного гарантийного заявления, несет Покупатель.

4. Другие положения

- 4.1. Если Покупатель или назначенные им третьи лица вмешиваются в конструкцию светильника, ремонтируют его, меняют что-либо или устраняют дефекты в продуктах без письменного согласия Гаранта, все претензии по настоящей гарантии становятся недействительными в момент выполнения вышеперечисленных действий.
- 4.2. Гарантия также аннулируется при использовании продукции не по назначению.
- 4.3. В случае получения от Покупателя рекламационного заявления Гарант оставляет за собой право на проверку дефектов продуктов на месте их использования. Отсутствие согласия Покупателя на проведение такой проверки Гарантом или назначенным им представителем рассматривается как отзыв рекламационного заявления.
- 4.4. Гарант допускает возможность выполнения платных сервисных ремонтов продукции, в том числе послегарантийных, условия которых будут в каждом случае подлежать согласованию между Покупателем и Гарантом.
- 4.5. Компания LUG Light Factory Sp. z o. o. в рамках, установленных действующим законодательством, не несет ответственности за какие-либо потери, ущерб, возросшие расходы или издержки, потерю возможности пользоваться продуктом, его функциями, повреждение продукта, а также какую-либо утраченную выгоду, экономию, контракты, поступления, потери или дополнительные затраты, которые не возникли непосредственно по вине LUG Light Factory Sp. z o. o.
- 4.6. Настоящая гарантия регулируется законодательством Польши.
- 4.7. Условия гарантия доступны на веб-сайте производителя: www.lug.com.pl.



Management Service

CERTIFICATE

The Certification Body
of TÜV SÜD Management Service GmbH

certifies that



LUG LIGHT FACTORY Sp. z o.o.

ul. Gorzowska 11
65-127 Zielona Góra
Poland

including the sites and scope of application
see enclosure

has established and applies
a Quality Management System.

An audit was performed, Report No. **73423157**.

Proof has been furnished that the requirements
according to

ISO 9001:2015

are fulfilled.

The certificate is valid from **2018-04-03** until **2021-03-06**.

Previous certificate valid until 2018-03-06.

Certificate Registration No.: **12 100 23152 TMS**.

Product Compliance Management
Munich, 2018-04-05





Management Service

Enclosure of Certificate Registration No.: 12 100 23152 TMS

Sites	Scope of application
LUG LIGHT FACTORY Sp. z o.o. ul. Gorzowska 11 65-127 Zielona Góra Poland	Designing, production and sales of lighting systems.
Lug Light Factory Sp. z o.o. ul. Nowa 7 66-002 Nowy Kisielin Poland	Designing and production of lighting systems.

Product Compliance Management
Munich, 2018-04-05

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Management Service

CERTIFICATE

The Certification Body
of TÜV SÜD Management Service GmbH

certifies that



LUG LIGHT FACTORY Sp. z o.o.

ul. Gorzowska 11
65-127 Zielona Góra
Poland

including the sites and scope of application
see enclosure

has established and applies
an Environmental Management System.

An audit was performed, Report No. **73423157**.

Proof has been furnished that the requirements
according to

ISO 14001:2015

are fulfilled.

The certificate is valid from **2018-04-03** until **2021-04-02**.

Certificate Registration No.: **12 104 23152 TMS**.

Product Compliance Management
Munich, 2018-04-05





Management Service

Enclosure of Certificate Registration No.:
12 104 23152 TMS

Sites	Scope of application
LUG LIGHT FACTORY Sp. z o.o. ul. Gorzowska 11 65-127 Zielona Góra Poland	Designing, production and sales of lighting systems.
Lug Light Factory Sp. z o.o. ul. Nowa 7 66-002 Nowy Kisielin Poland	Designing and production of lighting systems.

Product Compliance Management
Munich, 2018-04-05

Page 2 of 2



Management Service

CERTIFICATE

The Certification Body
 of TÜV SÜD Management Service GmbH
 certifies that



LUG LIGHT FACTORY Sp. z o.o.

ul. Gorzowska 11
 65-127 Zielona Góra
 Poland

Scope of application

**Designing, production and sales of
 lighting systems**

ul. Nowa 7
 66-002 Nowy Kisielin
 Poland

Scope of application

**Designing and production of
 lighting systems**

has established and applies
 an Energy Management System.

An audit was performed, Report No. **73424335**.

Proof has been furnished that the requirements according to

ISO 50001:2011

are fulfilled.

The certificate is valid from **2018-04-18** until **2021-04-17**.

Certificate Registration No.: **12 340 23152 TMS**.

M. Wegner

Product Compliance Management
 Munich, 2018-04-18



Deutsche
 Akkreditierungsstelle
 D-ZM-14143-01-00



CERTIFICATE OF LABORATORY APPROVAL

No. TSP-17025-LB-001.00

Laboratory for Photometric, Thermal, Leak,
Colorimetric and Electrical Tests

LUG LIGHT FACTORY Sp. z o.o.

ul. Gorzowska 11
65-127 Zielona Góra, Polska

Branch: **ul. Nowa 7, 66-002 Nowy Kisielin**

having met the criteria regarding technical requirements
specified in point 5 of the standard PN-EN ISO/IEC 17025:2005
has been approved by TÜV SÜD Polska for performing of
photometric, thermal, leak, colorimetric and electrical tests.

The scope of approved test methods is specified in the attachment to this
certificate.

This certificate is valid from 04.04.2018 to 04.04.2021.

TÜV SÜD Polska Sp. z o.o.
00-252 Warszawa, ul. Podwale 17



[Signature]
M. Obiedziński
Head of Industry Service Department

Warszawa, on the 23rd of May 2018



Poland

No.	Tested object, object group	Tested features/Method	Standard
1.	Luminaires - general requirements	• CLASSIFICATION OF LUMINAIRES • MARKING • STRUCTURE • INTERNAL AND EXTERNAL WIRING • ADJUSTMENT TO EARTHING • PROTECTION AGAINST ELECTRIC SHOCK • RESISTANCE TO DUST, SOLIDS AND MOISTURE • RESISTANCE AND ELECTRICAL STRENGTH OF INSULATION • TOUCH CURRENT AND PROTECTIVE CONDUCTOR CURRENT • CLEARANCES AND CREEPAGE DISTANCES • DURABILITY TEST AND THERMAL TEST • RESISTANCE TO HEAT, FIRE AND CREEPING CURRENT • SCREW CLAMPS • SCREWLESS CLAMPS AND ELECTRICAL CONNECTORS	PN-EN 60598-1:2015- 04
2.	Surface-mounted luminaires	• CLASSIFICATION OF LUMINAIRES • MARKING • STRUCTURE • INTERNAL AND EXTERNAL WIRING • ADJUSTMENT TO EARTHING • PROTECTION AGAINST ELECTRIC SHOCK • RESISTANCE TO DUST, SOLIDS AND MOISTURE • RESISTANCE AND ELECTRICAL STRENGTH OF INSULATION • TOUCH CURRENT AND PROTECTIVE CONDUCTOR CURRENT • CLEARANCES AND CREEPAGE DISTANCES • DURABILITY TEST AND THERMAL TEST • RESISTANCE TO HEAT, FIRE AND CREEPING CURRENT • SCREW CLAMPS • SCREWLESS CLAMPS AND ELECTRICAL CONNECTORS	EN 60598-2-1:1989

3.	Flush-mounted luminaires	• CLASSIFICATION OF LUMINAIRES • STAMPING • STRUCTURE • CLEARANCES AND CREEPAGE DISTANCES • INTERNAL AND EXTERNAL WIRING • ADJUSTMENT TO EARTHING • PROTECTION AGAINST ELECTRIC SHOCK • RESISTANCE TO DUST, SOLIDS AND MOISTURE • RESISTANCE AND ELECTRICAL STRENGTH OF INSULATION • TOUCH CURRENT AND PROTECTIVE CONDUCTOR CURRENT • CLEARANCES AND CREEPAGE DISTANCES • DURABILITY TEST AND THERMAL TEST • RESISTANCE TO HEAT, FIRE AND CREEPING CURRENT • CLAMPS	PN-EN 60598-2-2:2012
4.	Road and street luminaires	• CLASSIFICATION OF LUMINAIRES • STAMPING • STRUCTURE • INTERNAL AND EXTERNAL WIRING • ADJUSTMENT TO EARTHING • PROTECTION AGAINST ELECTRIC SHOCK • RESISTANCE TO DUST, SOLIDS AND MOISTURE • RESISTANCE AND ELECTRICAL STRENGTH OF INSULATION • TOUCH CURRENT AND PROTECTIVE CONDUCTOR CURRENT • CLEARANCES AND CREEPAGE DISTANCES • DURABILITY TEST AND THERMAL TEST • RESISTANCE TO HEAT, FIRE AND CREEPING CURRENT • SCREW CLAMPS • SCREWLESS CLAMPS AND ELECTRICAL CONNECTORS	PN-EN 60598-2-3:2016/A1:2012
5.	Portable luminaires	• CLASSIFICATION OF LUMINAIRES • STAMPING • STRUCTURE • INTERNAL AND EXTERNAL WIRING • ADJUSTMENT TO EARTHING • PROTECTION AGAINST ELECTRIC SHOCK • RESISTANCE TO DUST, SOLIDS AND MOISTURE • RESISTANCE AND ELECTRICAL STRENGTH OF INSULATION • TOUCH CURRENT AND PROTECTIVE CONDUCTOR CURRENT • CLEARANCES AND CREEPAGE DISTANCES • DURABILITY TEST AND THERMAL TEST • RESISTANCE TO HEAT, FIRE AND CREEPING CURRENT • CLAMPS	PN-EN 60598-2-4:2002

6.	Floodlights	• CLASSIFICATION OF LUMINAIRES • STAMPING • STRUCTURE • INTERNAL AND EXTERNAL WIRING • ADJUSTMENT TO EARTHING • PROTECTION AGAINST ELECTRIC SHOCK • RESISTANCE TO DUST, SOLIDS AND MOISTURE • RESISTANCE AND ELECTRICAL STRENGTH OF INSULATION • TOUCH CURRENT AND PROTECTIVE CONDUCTOR CURRENT • CLEARANCES AND CREEPAGE DISTANCES • DURABILITY TEST AND THERMAL TEST • RESISTANCE TO HEAT, FIRE AND CREEPING CURRENT • SCREW CLAMPS • SCREWLESS CLAMPS AND ELECTRICAL CONNECTORS	PN-EN 60598-2-5:2016-02
7.	Luminaires for hospital clinical zones	• CLASSIFICATION OF LUMINAIRES • STAMPING • STRUCTURE • INTERNAL AND EXTERNAL WIRING • ADJUSTMENT TO EARTHING • PROTECTION AGAINST ELECTRIC SHOCK • RESISTANCE TO DUST, SOLIDS AND MOISTURE • RESISTANCE AND ELECTRICAL STRENGTH OF INSULATION • TOUCH CURRENT AND PROTECTIVE CONDUCTOR CURRENT • CLEARANCES AND CREEPAGE DISTANCES • DURABILITY TEST AND THERMAL TEST • RESISTANCE TO HEAT, FIRE AND CREEPING CURRENT • SCREW CLAMPS • SCREWLESS CLAMPS AND ELECTRICAL CONNECTORS	PN-EN 60598-2- 25:2000 +A1:2005
8.	Ground recessed luminaires	• CLASSIFICATION OF LUMINAIRES • STAMPING • STRUCTURE • INTERNAL AND EXTERNAL WIRING • ADJUSTMENT TO EARTHING • PROTECTION AGAINST ELECTRIC SHOCK • RESISTANCE TO DUST, SOLIDS AND MOISTURE • RESISTANCE AND ELECTRICAL STRENGTH OF INSULATION • TOUCH CURRENT AND PROTECTIVE CONDUCTOR CURRENT • CLEARANCES AND CREEPAGE DISTANCES • DURABILITY TEST AND THERMAL TEST • RESISTANCE TO HEAT, FIRE AND CREEPING CURRENT • SCREW CLAMPS • SCREWLESS CLAMPS AND ELECTRICAL CONNECTORS	PN-EN 60598-2-13:2017+A1:2012

9.	Luminaires for swimming pools	• CLASSIFICATION OF LUMINAIRES • STAMPING • STRUCTURE • INTERNAL AND EXTERNAL WIRING • ADJUSTMENT TO EARTHING • PROTECTION AGAINST ELECTRIC SHOCK • RESISTANCE TO DUST, SOLIDS AND MOISTURE • RESISTANCE AND ELECTRICAL STRENGTH OF INSULATION • TOUCH CURRENT AND PROTECTIVE CONDUCTOR CURRENT • CLEARANCES AND CREEPAGE DISTANCES • DURABILITY TEST AND THERMAL TEST • RESISTANCE TO HEAT, FIRE AND CREEPING CURRENT • SCREW CLAMPS • SCREWLESS CLAMPS AND ELECTRICAL CONNECTORS	PN-EN 60598-2-18:2002+A1:2012
10.	Luminaires with limited surface temperatures	• CLASSIFICATION OF LUMINAIRES • STAMPING • STRUCTURE • INTERNAL AND EXTERNAL WIRING • ADJUSTMENT TO EARTHING • PROTECTION AGAINST ELECTRIC SHOCK • RESISTANCE TO DUST, SOLIDS AND MOISTURE • RESISTANCE AND ELECTRICAL STRENGTH OF INSULATION • TOUCH CURRENT AND PROTECTIVE CONDUCTOR CURRENT • CLEARANCES AND CREEPAGE DISTANCES • DURABILITY TEST AND THERMAL TEST • RESISTANCE TO HEAT, FIRE AND CREEPING CURRENT • SCREW CLAMPS • SCREWLESS CLAMPS AND ELECTRICAL CONNECTORS	PN-EN 60598-2- 24:2014-02

11.	Emergency luminaires	• CLASSIFICATION OF LUMINAIRES • STAMPING • STRUCTURE • INTERNAL AND EXTERNAL WIRING • ADJUSTMENT TO EARTHING • PROTECTION AGAINST ELECTRIC SHOCK • RESISTANCE TO DUST, SOLIDS AND MOISTURE • RESISTANCE AND ELECTRICAL STRENGTH OF INSULATION • TOUCH CURRENT AND PROTECTIVE CONDUCTOR CURRENT • CLEARANCES AND CREEPAGE DISTANCES • DURABILITY TEST AND THERMAL TEST • RESISTANCE TO HEAT, FIRE AND CREEPING CURRENT • SCREW CLAMPS • SCREWLESS CLAMPS AND ELECTRICAL CONNECTORS • PHOTOMETRIC DATA • SWITCHING OPERATION • WORK AT A HIGH TEMPERATURE	PN-EN 60598-2- 22:2015-01+AC:2016- 11
12.	Luminaires - light and lighting, measurement and presentation of lamps and luminaires photometric data: LED lamps, modules and luminaires	• LABORATORY REQUIREMENTS • PREPARATION, ASSEMBLY AND WORKING CONDITIONS • PHOTOMETRIC VALUE MEASUREMENT • COLORIMETRIC VALUE MEASUREMENT • TEST RESULTS PRESENTATION	PN-EN 13032-4:2015- 09
13.	Luminaires – Electrical and photometric tests of LED luminaires and modules	• LABORATORY REQUIREMENTS • TESTED OBJECTS POWER PARAMETERS • SEASONING OF TEST SAMPLES • STABILIZATION OF TEST SAMPLES • ELECTRICAL MEASUREMENTS • PREPARATION, ASSEMBLY AND WORKING CONDITIONS • METHODS OF PHOTOMETRIC VALUE MEASUREMENT • METHODS OF COLORIMETRIC VALUE MEASUREMENT • PRESENTATION OF TEST RESULTS • PERFORMANCE MEASUREMENT	IES LM-79-08
14.	Luminaires	• EVALUATION OF RISK TO RETINA DUE TO BLUE LIGHT EXPOSURE, RISK GROUP RG0, RG1, RG2, RG3 • Lb ENERGY LUMINANCE MEASUREMENT • Eb RADIATION INTENSITY MEASUREMENT • Es ACTINIC DOSE MEASUREMENT	PN-EN 62471:2010 & IEC/TR 62778:2104

15	Luminaires	DEFINING THE LEVEL OF PROTECTION AGAINST EXTERNAL MECHANICAL IMPACT PROVIDED BY ELECTRICAL APPLIANCES HOUSINGS (CODE IK)	PN-EN 62262.2003 REPLACES PN-EN 50102:2001
16	Luminaires	DEFINING THE LEVEL OF PROTECTION PROVIDED BY ELECTRICAL APPLIANCES HOUSINGS (CODE IP), (IP2X-IP6X, IPX3-IPX7)	PN-EN 60529:2003+AC:2017-12
17.	Devices for lamps – general requirements	- CLASSIFICATION - MARKING - CLAMPS - PROTECTIVE EARTHING - PROTECTION AGAINST INCIDENTAL TOUCH OF ACTIVE PARTS - RESISTANCE TO MOISTURE AND INSULATION - ELECTRIC STRENGTH - FAULT CONDITIONS - STRUCTURE - CLEARANCES AND CREEPAGE DISTANCES - SCREWS, POWER LEADING PARTS AND CONNECTIONS - RESISTANCE TO HEAT, FIRE AND CREEPING CURRENT - RESISTANCE TO CORROSION - OUTPUT VOLTAGE WITHOUT LOAD	PN-EN 61347-1:2015- 09
18.	Devices for lamps – LED drivers	- CLASSIFICATION - MARKING - CLAMPS - PROTECTIVE EARTHING - PROTECTION AGAINST INCIDENTAL TOUCH OF ACTIVE PARTS - RESISTANCE TO MOISTURE AND INSULATION - ELECTRIC STRENGTH - FAULT CONDITIONS - STRUCTURE - CLEARANCES AND CREEPAGE DISTANCES - SCREWS, POWER LEADING PARTS AND CONNECTIONS - RESISTANCE TO HEAT, FIRE AND CREEPING CURRENT - RESISTANCE TO CORROSION	PN-EN 61347-2- 13:2015-04

19.	Devices for lamps – Emergency modules	• CLASSIFICATION • MARKING • CLAMPS • PROTECTIVE EARTHING • PROTECTION AGAINST INCIDENTAL TOUCH OF ACTIVE PARTS • RESISTANCE TO MOISTURE AND INSULATION • ELECTRIC STRENGTH • FAULT CONDITIONS • STARTING CONDITIONS • LAMP CURRENT • INPUT CURRENT • EBLF FUNCTIONAL SAFETY • SWITCHING FUNCTION • RELOADING DEVICE • PROTECTION AGAINST EXCESSIVE DISCHARGING • INDICATOR • REMOTE CONTROL, SLEEP MODE, LOCK MODE • REGULAR THERMAL TESTS AND DURABILITY TESTS • STRUCTURE • POLARITY REVERSAL • CLEARANCES AND CREEPAGE DISTANCES • SCREWS, POWER LEADING PARTS AND CONNECTIONS • RESISTANCE TO HEAT, FIRE AND CREEPING CURRENT • RESISTANCE TO CORROSION • ABNORMAL LAMP CONDITIONS • PROTECTION OF ASSOCIATED SUBASSEMBLIES	PN-EN 61347-2-7:2012
20.	LED modules for general lighting purposes – safety requirements	• CLASSIFICATION • MARKING • CLAMPS • PROTECTIVE EARTHING • PROTECTION AGAINST INCIDENTAL TOUCH OF ACTIVE PARTS • RESISTANCE TO MOISTURE AND INSULATION • ELECTRIC STRENGTH • FAULT CONDITIONS • STRUCTURE • CLEARANCES AND CREEPAGE DISTANCES • SCREWS, POWER LEADING PARTS AND CONNECTIONS • RESISTANCE TO HEAT, FIRE AND CREEPING CURRENT • RESISTANCE TO CORROSION	PN-EN 62031:2010+A1:2013-06

/round stamp /
TUV SUD Polska Sp. z o.o.
TUV SUD
Industrie Service

/signature illegible/
P. Kukula
Head of Industrie Service Department

Proiectant:
Michał Wierzykowski , Lighting
designer / Export Dept.

Adresă proiect:
com. Greblești, mun. Strășeni

Data:
22.12.2018



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Michal.Wierzykowski@lug.co
m.pl

Iluminat stradal s. Greblești

Reconstrucția și modernizarea sistemului de iluminat stradal din com. Greblești, r.Strașeni

Cuprins

Iluminat stradal s. Greblești

Iluminat stradal s. Greblești

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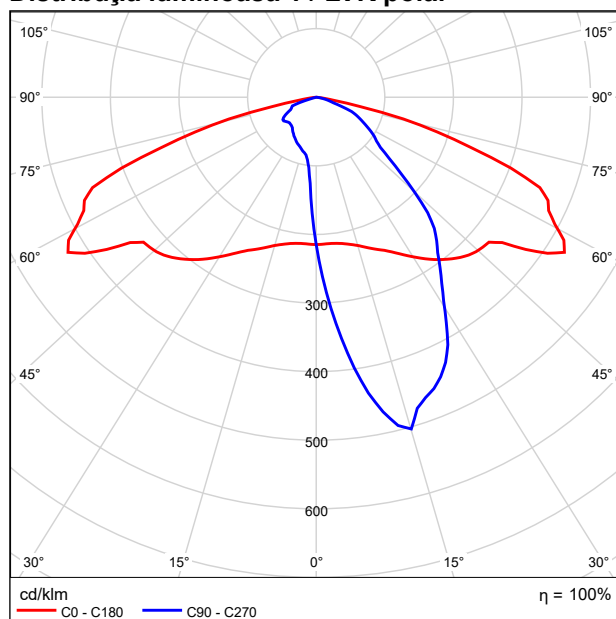
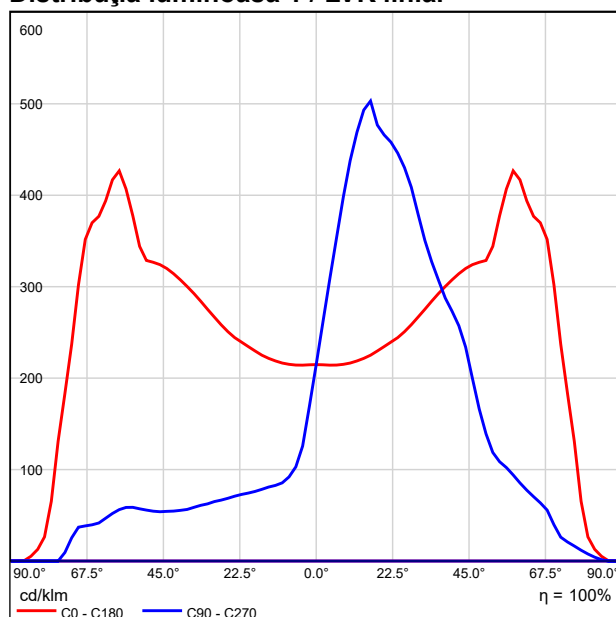
Stradă Auxiliara 1,2,3,4 ,5,6: Alternativă 4 / Stradă Auxiliara 1,2,3,4 ,5,6 (M6)

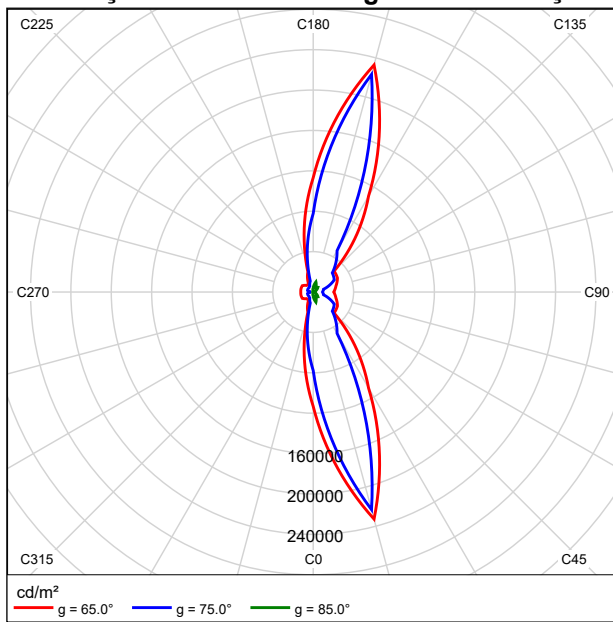
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**LUG LIGHT FACTORY 130222.5L131.041 4399_1 URBINO 16 LED 740 O5
1xMODUL LED 4000K**

Vedeți catalogul nostru
de corpuri de iluminat
pentru o imagine a
corpului de iluminat.

Randament luminos: 100%
Flux luminos corpuri de iluminat: 4100 lm
Putere: 37.0 W
Eficiența luminoasă: 110.8 lm/W

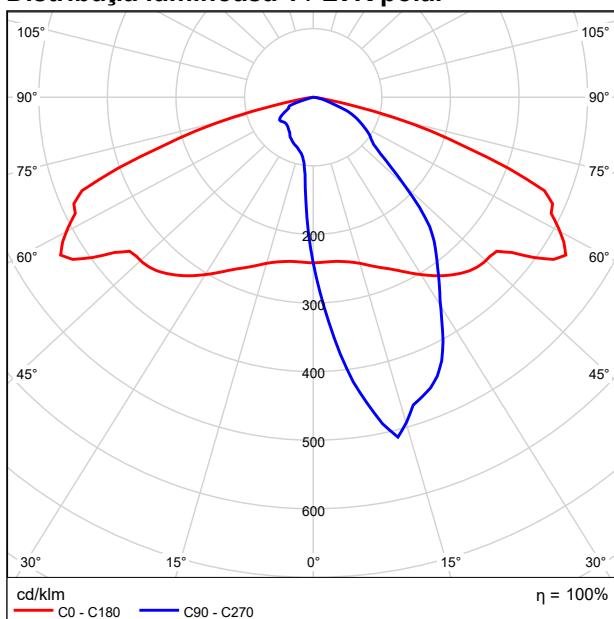
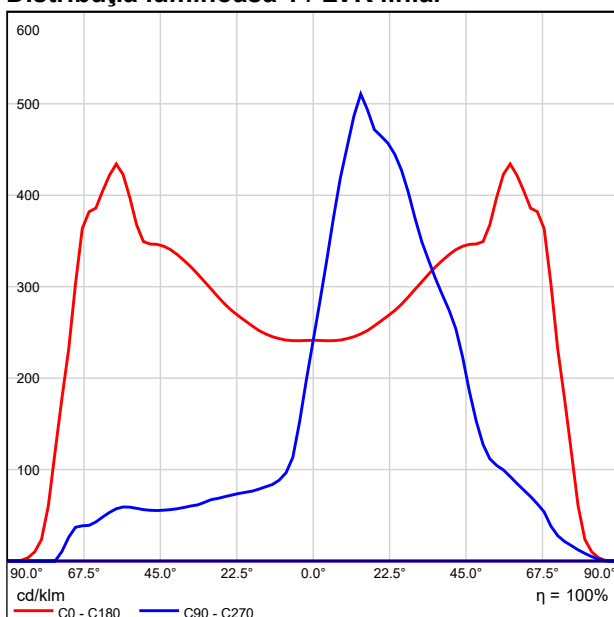
Distribuția luminoasă 1 / LVK polar**Distribuția luminoasă 1 / LVK liniar**

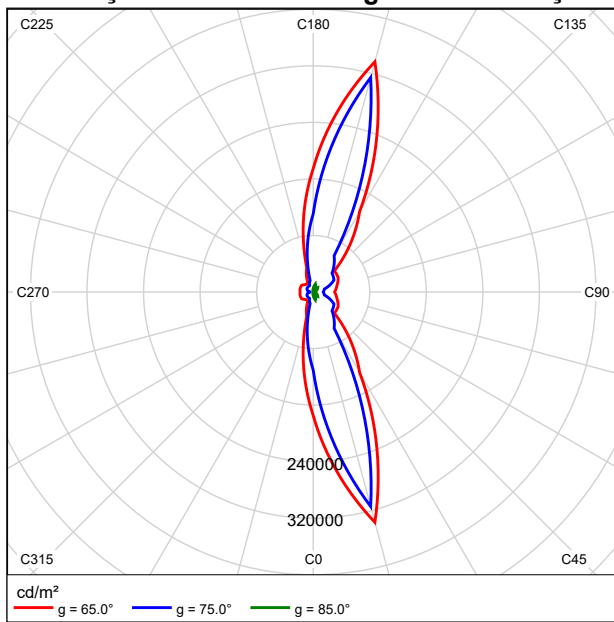
Distribuția luminoasă 1 / Diagrama luminanță

LUG LIGHT FACTORY 130222.5L041.041 4403 URBINO LED 740 O5 1xLED 4000K

Vedeți catalogul nostru
de corpuri de iluminat
pentru o imagine a
corpului de iluminat.

Randament luminos: 100%
Flux luminos corpuri de iluminat: 6150 lm
Putere: 55.0 W
Eficiența luminoasă: 111.8 lm/W

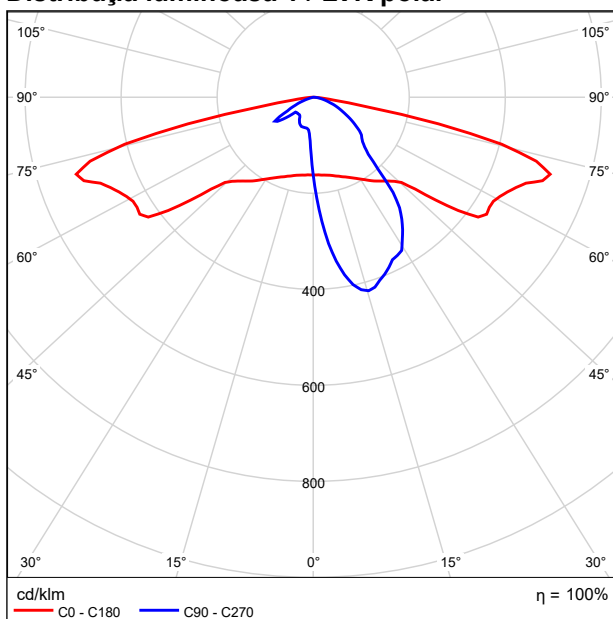
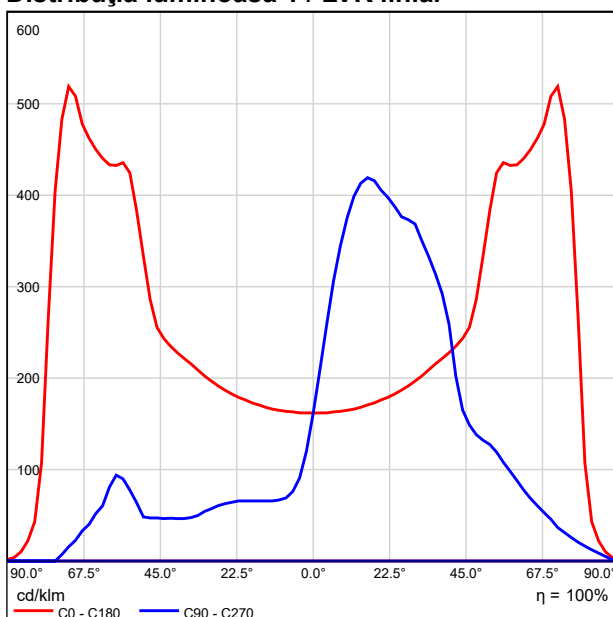
Distribuția luminoasă 1 / LVK polar**Distribuția luminoasă 1 / LVK liniar**

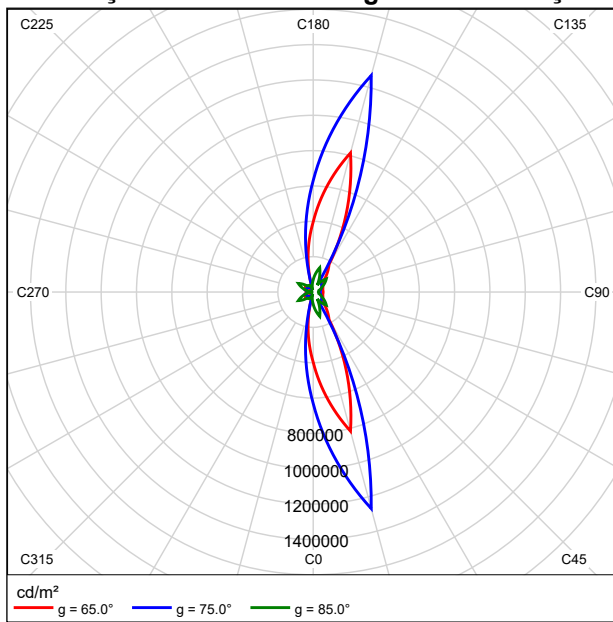
Distribuția luminoasă 1 / Diagrama luminanță

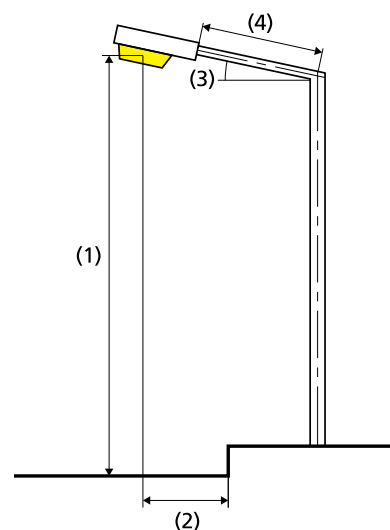
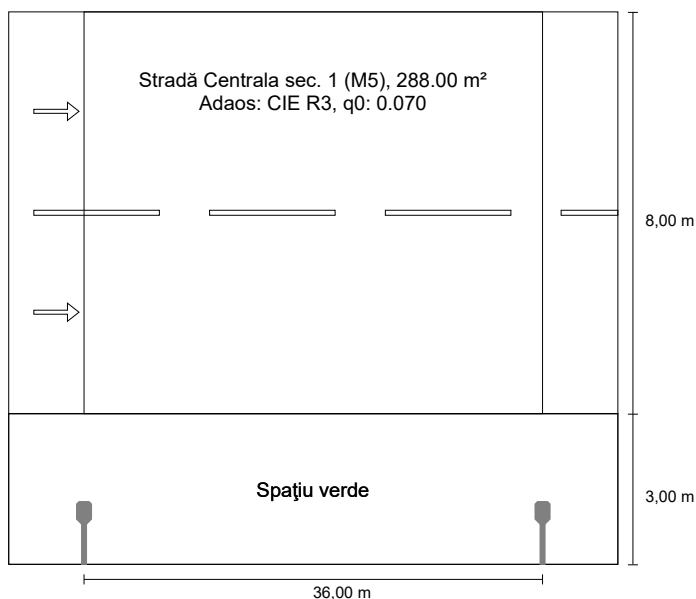
LUG LIGHT FACTORY 130232.5L041.111 4768 URBINI LED 740 O10 500 1xLED 4000K

Vedeți catalogul nostru
de corpuri de iluminat
pentru o imagine a
corpului de iluminat.

Randament luminos: 100.02%
Flux luminos corpuri de iluminat: 2401 lm
Putere: 20.0 W
Eficiența luminoasă: 120.0 lm/W

Distribuția luminoasă 1 / LVK polar**Distribuția luminoasă 1 / LVK liniar**

Distribuția luminoasă 1 / Diagrama luminanță

Stradă Centrala sec. 1 până la EN 13201:2015**LUG LIGHT FACTORY 130222.5L041.041 4403 URBINO LED 740 O5**
Rezultate pentru câmpurile de evaluare
 Factorul de menținere: 0.85
Stradă Centrala sec. 1 (M5)

Lm [cd/m²] ≥ 0.50	Uo ≥ 0.35	UI ≥ 0.40	TI [%] ≤ 15	EIR ≥ 0.30
✓ 0.59	✓ 0.38	✓ 0.60	✓ 13	✓ 0.34

Rezultate pentru indicatorii de eficiență energetică
Indicatorul densității de putere (Dp) 0.017 W/lxm²

Densitatea consumului de energie

Aranjament: 4403 URBINO LED 740 O5 (220.0 kWh/an) 0.8 kWh/m² an

Lampă: 1xLED 4000K
 Flux luminos (corp de iluminat): 6150.03 lm
 Flux luminos (lampă): 6150.00 lm
 Ore de lucru
 4000 h: 100.0 %, 55.0 W
 W/km: 1540.0

Aranjament: Pe o parte Jos
 Distanță stâlp: 36.000 m
 Înclinare consolă (3): 10.0°
 Lungime consolă (4): 1.000 m
 Înălțimea deasupra planului util (1): 8.000 m
 Înălțimea în consolă a punctului de lumină (2): -1.998 m

ULR: 0.00
 ULOR: 0.00
 Valori maxime ale intensității luminoase
 La 70°: 725 cd/klm
 La 80°: 235 cd/klm
 La 90°: 11.8 cd/klm
 Clasă intensitate luminoasă: /

Orice direcție ce formează unghiul dat cu verticala în jos a corpurilor de iluminat instalate pentru utilizare.

Aranjamentul respectă clasa cu indici de orbie D.1

Stradă Centrala sec. 1 (M5)

Factorul de menținere: 0.85

Raster: 12 x 6 Puncte

Lm [cd/m ²] ≥ 0.50	Uo ≥ 0.35	UI ≥ 0.40	TI [%] ≤ 15	EIR ≥ 0.30
✓ 0.59	✓ 0.38	✓ 0.60	✓ 13	✓ 0.34

Observatori atașați (2):

Observator	Poziție [m]	Lm [cd/m ²] ≥ 0.50	Uo ≥ 0.35	UI ≥ 0.40	TI [%] ≤ 15
Observator 1	(-60.000, 5.000, 1.500)	0.59	0.41	0.60	13
Observator 2	(-60.000, 9.000, 1.500)	0.66	0.38	0.74	6

Stradă Centrala sec. 1 (M5)

Iluminare orizontală [lx]

10.333	6.87	6.18	5.45	5.25	5.04	4.18	4.18	5.04	5.25	5.45	6.18	6.87
9.000	9.73	9.08	8.02	7.55	6.43	5.42	5.42	6.43	7.55	8.02	9.08	9.73
7.667	14.3	12.9	11.0	9.00	7.60	6.79	6.79	7.60	9.00	11.0	12.9	14.3
6.333	20.9	17.7	13.4	9.87	8.62	6.95	6.95	8.62	9.87	13.4	17.7	20.9
5.000	27.9	23.1	15.4	10.3	8.11	6.21	6.21	8.11	10.3	15.4	23.1	27.9
3.667	28.5	23.0	14.5	8.83	6.91	5.28	5.28	6.91	8.83	14.5	23.0	28.5
m	1.500	4.500	7.500	10.500	13.500	16.500	19.500	22.500	25.500	28.500	31.500	34.500

Raster: 12 x 6 Puncte

Em [lx]	Emin [lx]	Emax [lx]	g1	g2
11.0	4.18	28.5	0.379	0.147

Observator 1**Densitate a luminii cu carosabil uscat [cd/m²]**

10.333	0.25	0.25	0.26	0.27	0.28	0.27	0.28	0.31	0.28	0.26	0.24	0.25
9.000	0.33	0.34	0.35	0.38	0.38	0.39	0.40	0.43	0.43	0.37	0.34	0.33
7.667	0.48	0.44	0.44	0.46	0.48	0.53	0.56	0.57	0.56	0.51	0.48	0.48
6.333	0.67	0.60	0.54	0.54	0.58	0.61	0.69	0.77	0.73	0.73	0.71	0.70
5.000	0.88	0.78	0.64	0.62	0.65	0.70	0.80	0.95	0.94	0.98	1.02	0.94
3.667	0.92	0.82	0.67	0.65	0.78	0.88	0.96	1.12	1.03	1.07	1.15	0.98
m	1.500	4.500	7.500	10.500	13.500	16.500	19.500	22.500	25.500	28.500	31.500	34.500

Raster: 12 x 6 Puncte

Lm [cd/m²]	Lmin [cd/m²]	Lmax [cd/m²]	g1	g2
0.59	0.24	1.15	0.413	0.212

Densitate a luminii cu lampă nouă [cd/m²]

10.333	0.30	0.30	0.31	0.32	0.33	0.32	0.33	0.37	0.33	0.31	0.29	0.29
9.000	0.39	0.40	0.41	0.45	0.45	0.46	0.47	0.51	0.50	0.43	0.40	0.39
7.667	0.56	0.52	0.52	0.54	0.57	0.63	0.65	0.67	0.66	0.60	0.56	0.57
6.333	0.79	0.71	0.64	0.63	0.68	0.72	0.81	0.91	0.86	0.86	0.84	0.82
5.000	1.03	0.92	0.76	0.73	0.76	0.82	0.95	1.12	1.11	1.15	1.20	1.11
3.667	1.08	0.97	0.79	0.77	0.91	1.03	1.13	1.32	1.21	1.26	1.35	1.15
m	1.500	4.500	7.500	10.500	13.500	16.500	19.500	22.500	25.500	28.500	31.500	34.500

Raster: 12 x 6 Puncte

Lm [cd/m²]	Lmin [cd/m²]	Lmax [cd/m²]	g1	g2
0.70	0.29	1.35	0.413	0.212

Observator 2**Densitate a luminii cu carosabil uscat [cd/m²]**

10.333	0.26	0.27	0.28	0.29	0.30	0.29	0.30	0.33	0.30	0.27	0.25	0.26
9.000	0.35	0.36	0.38	0.42	0.41	0.42	0.43	0.46	0.45	0.38	0.35	0.34
7.667	0.50	0.48	0.50	0.52	0.54	0.60	0.61	0.62	0.61	0.55	0.51	0.50
6.333	0.73	0.68	0.63	0.62	0.68	0.72	0.80	0.86	0.81	0.79	0.75	0.74
5.000	0.97	0.90	0.76	0.77	0.86	0.88	0.96	1.12	1.05	1.05	1.09	0.99
3.667	0.97	0.92	0.80	0.84	0.99	1.09	1.18	1.30	1.15	1.14	1.20	1.02
m	1.500	4.500	7.500	10.500	13.500	16.500	19.500	22.500	25.500	28.500	31.500	34.500

Raster: 12 x 6 Puncte

Lm [cd/m ²]	Lmin [cd/m ²]	Lmax [cd/m ²]	g1	g2
0.66	0.25	1.30	0.382	0.194

Densitate a luminii cu lampă nouă [cd/m²]

10.333	0.31	0.31	0.33	0.34	0.36	0.34	0.35	0.39	0.35	0.32	0.30	0.30
9.000	0.41	0.42	0.44	0.50	0.49	0.49	0.50	0.54	0.53	0.45	0.41	0.40
7.667	0.59	0.56	0.59	0.61	0.63	0.70	0.72	0.72	0.71	0.65	0.59	0.59
6.333	0.86	0.80	0.75	0.73	0.80	0.84	0.94	1.01	0.96	0.93	0.88	0.87
5.000	1.14	1.06	0.90	0.91	1.01	1.04	1.13	1.32	1.24	1.24	1.28	1.17
3.667	1.14	1.08	0.94	0.98	1.16	1.28	1.39	1.53	1.35	1.35	1.41	1.20
m	1.500	4.500	7.500	10.500	13.500	16.500	19.500	22.500	25.500	28.500	31.500	34.500

Raster: 12 x 6 Puncte

Lm [cd/m ²]	Lmin [cd/m ²]	Lmax [cd/m ²]	g1	g2
0.78	0.30	1.53	0.382	0.194

Stradă Centrala sec. 1 (M5)

Factorul de menținere: 0.85

Raster: 12 x 6 Puncte

Lm [cd/m ²] ≥ 0.50	Uo ≥ 0.35	UI ≥ 0.40	TI [%] ≤ 15	EIR ≥ 0.30
✓ 0.59	✓ 0.38	✓ 0.60	✓ 13	✓ 0.34

Iluminare orizontală

