

UNIVERSITY OF MINING AND GEOLOGY "Engineering" LTD

Laboratory "Lighting"

MEASUREMENT REPORT NUMBER 2013-241/20.08.2013

testing samples of products

Model number or type, referring to the manufacturer: LED luminarie SH-TP12AL-60
Company identification: ВИ-ТЕК ЕВРОПА ООД, София 1220, ул. Илиянско шосе No1.
Applicant testing: ВИ-ТЕК ЕВРОПА ООД, София 1220, ул. Илиянско шосе No 1.
Type of test: control measurements

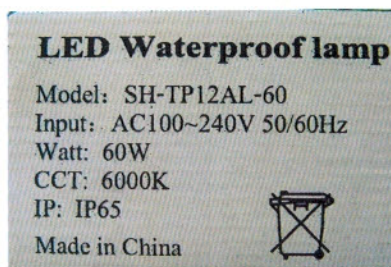
Measurements have been performed:

- luxmeter PU 550, ID 263621/2586, calibration certificate of the METRA BLANSKO a.s. №2887/2012, 19.12.2012;
- luxmeter KYORITSU 5202, ID K0017929, calibration certificate of the National Centre of Metrology 181-ОИ/15.12.2012;
- luminance-meter L 1003 of angular field 1°, producer "LMT" Germany, ID 0686191, calibration certificate of the National Centre of Metrology 130-ОИ/20.12.2010;
- Ulbricht photometer with diameter 2m;
- Automated goniophotometer.
- Power Meter HM8115-2 ID 015447345, calibration certificate of the National Centre of Metrology 148-ЕЕИ/14.12.2012;
- Digital thermometer with temperature sensor DS18B20 ID 0000011697CDH, calibration certificate of the National Centre of Metrology 268-ТИ/14.11.2012;
- Ampermeter Д5101 ID 737/1990, calibration certificate of 'ЛК УНИСИСТ' Ltd №733/21.11.2012;
- MEGER UT512 ID 1111074682, calibration certificate of 'ЛК УНИСИСТ' Ltd №732/21.11.2012;
- Laser rangefinder DLE-40

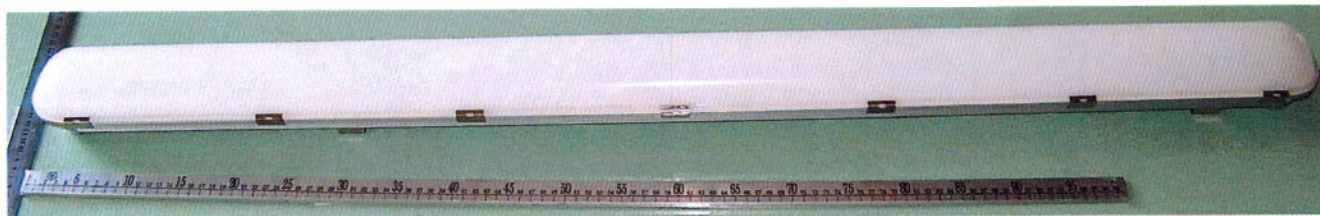
Technical specifications of documentation:

LED luminaries: SH-TP12AL-60

Optics - matt diffuser



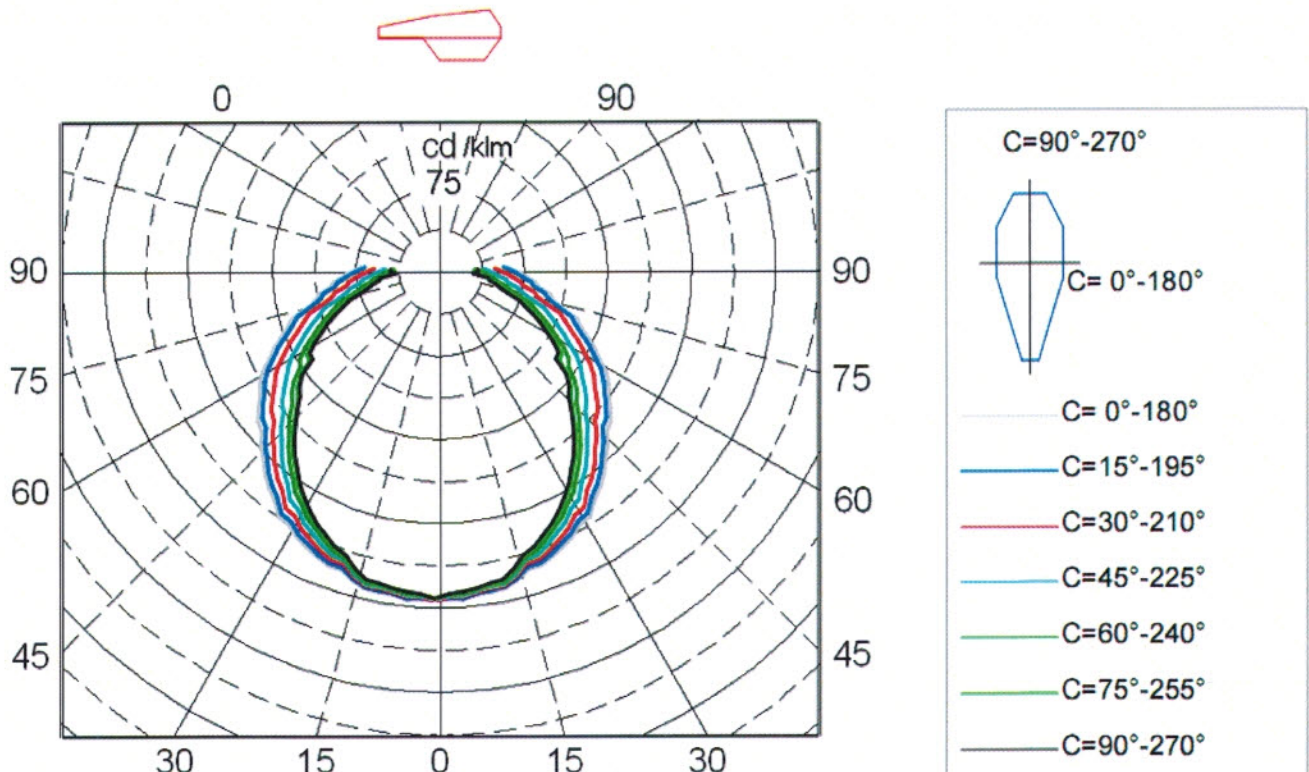
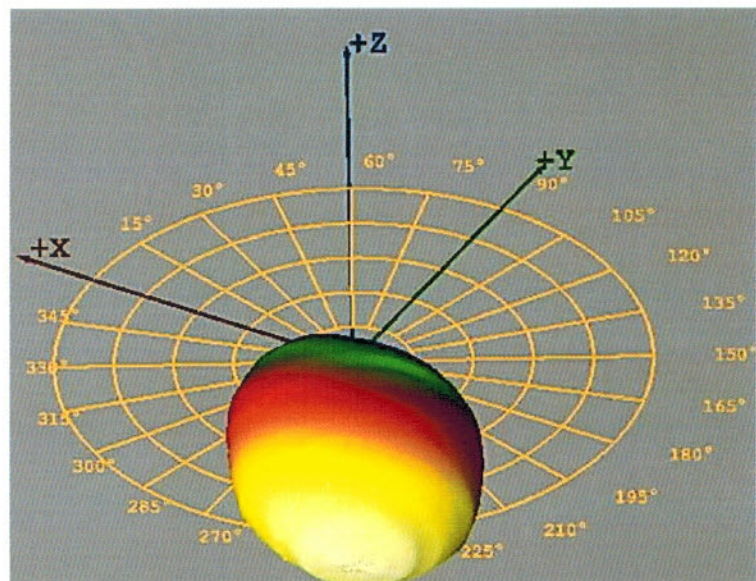
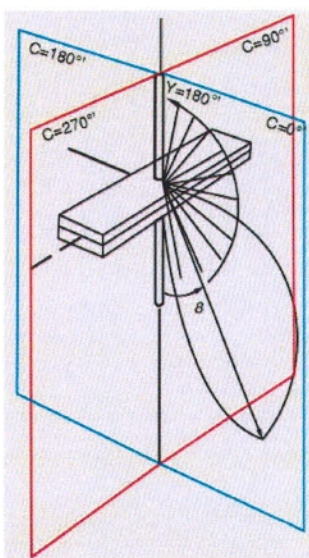
tabele



Luminaire

Results of test

	Lamp with power
Operating voltage	AC 230V
Operating Current	AC 0.274A
Wattage including ballast (watts)	60.3W
Power factor	0.95
Luminous flux emitted by a luminaire	6412 lm
Light output	106.3 lm/W

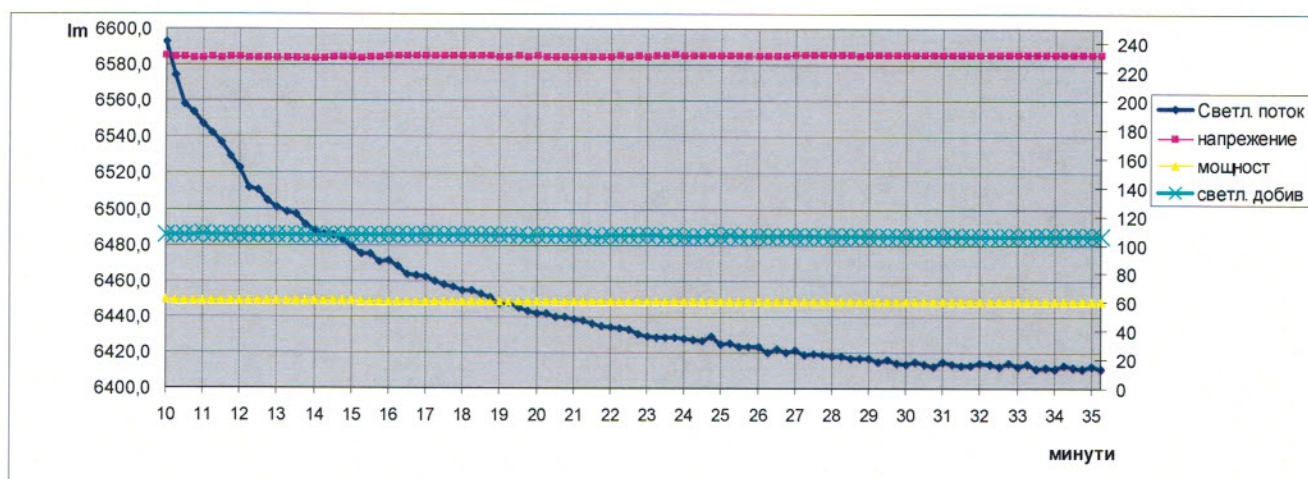
**Luminaire light distribution of polar coordinates in the conditional flux 1000lm****Luminaire light distribution of the 3D**

**Light distribution of luminaries are in tabular form
for conditional luminous flux 1000lm:**

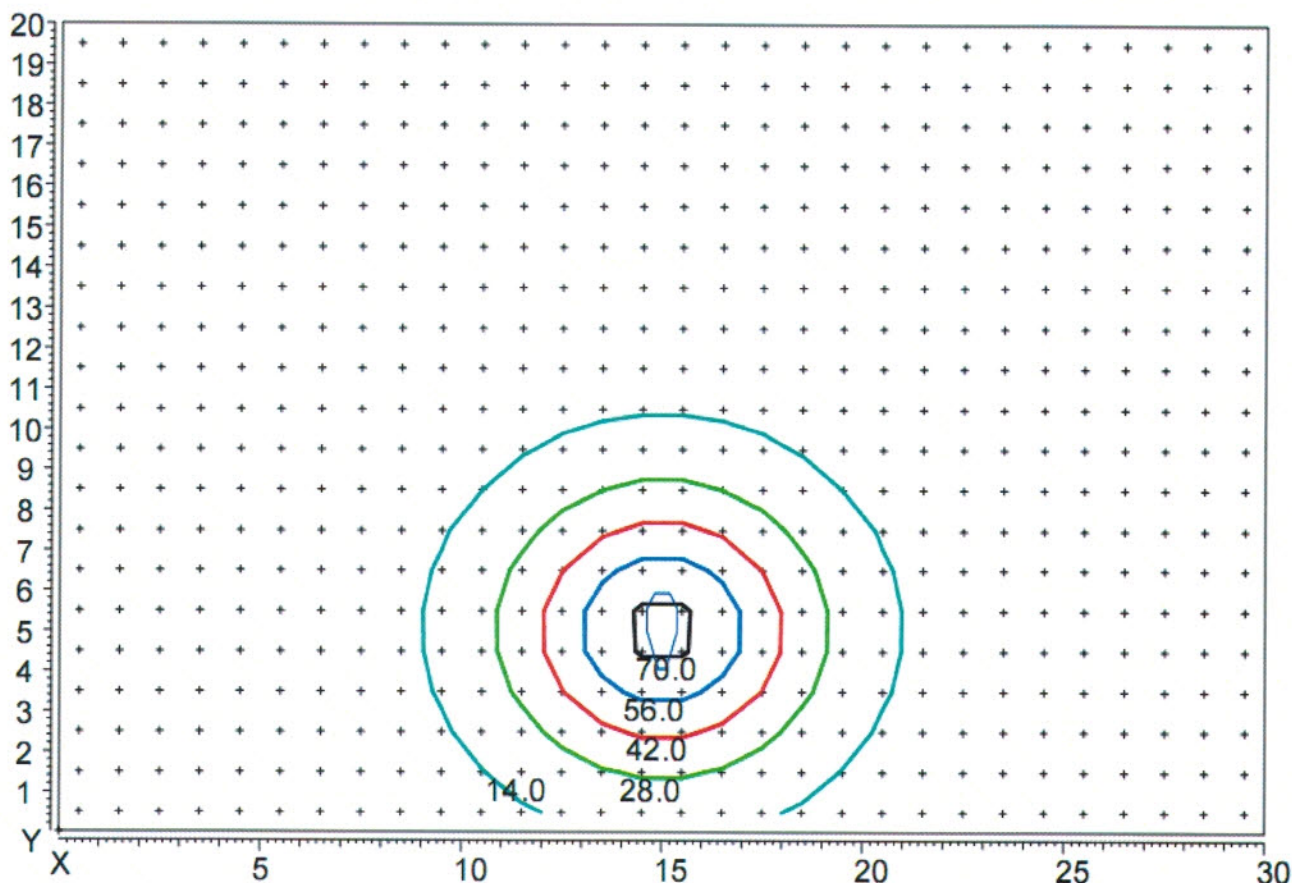
gm/C	0	15	30	45	60	75	90	105	120	135	150	165	180
0.0	295	294	294	294	294	294	293	294	294	294	294	294	295
2.5	294	293	292	291	290	290	290	290	290	291	292	293	294
5.0	295	294	293	291	290	289	289	289	290	291	293	294	295
7.5	292	291	290	289	287	287	287	287	287	289	290	291	292
10.0	292	290	289	287	286	285	284	285	286	287	289	290	292
12.5	291	290	289	287	286	284	283	284	286	287	289	290	291
15.0	287	285	283	281	279	277	276	277	279	281	283	285	287
17.5	280	278	274	272	270	268	267	268	270	272	274	278	280
20.0	280	278	275	271	267	263	262	263	267	271	275	278	280
22.5	276	274	270	266	261	257	256	257	261	266	270	274	276
25.0	273	269	265	259	254	251	250	251	254	259	265	269	273
27.5	269	265	260	254	249	244	242	244	249	254	260	265	269
30.0	262	258	252	246	240	235	234	235	240	246	252	258	262
32.5	261	257	250	242	233	228	226	228	233	242	250	257	261
35.0	251	247	239	231	223	217	215	217	223	231	239	247	251
37.5	245	240	233	223	215	208	206	208	215	223	233	240	245
40.0	237	233	224	214	205	199	196	199	205	214	224	233	237
42.5	228	223	214	203	194	187	185	187	194	203	214	223	228
45.0	221	216	207	195	184	176	174	176	184	195	207	216	221
47.5	211	205	196	185	174	167	164	167	174	185	196	205	211
50.0	208	202	192	179	167	161	158	161	167	179	192	202	208
52.5	200	195	184	171	159	152	150	152	159	171	184	195	200
55.0	192	187	176	162	148	137	134	137	148	162	176	187	192
57.5	186	181	170	156	143	136	133	136	143	156	170	181	186
60.0	179	173	162	148	134	127	124	127	134	148	162	173	179
62.5	168	163	152	137	124	116	114	116	124	137	152	163	168
65.0	160	154	143	129	116	108	105	108	116	129	143	154	160
67.5	150	144	133	119	106	99	96	99	106	119	133	144	150
70.0	141	135	125	111	97	90	87	90	97	111	125	135	141
72.5	135	129	118	104	91	84	81	84	91	104	118	129	135
75.0	119	114	104	91	79	72	69	72	79	91	104	114	119
77.5	110	105	95	82	70	64	61	64	70	82	95	105	110
80.0	106	101	91	77	66	60	57	60	66	77	91	101	106
82.5	96	91	80	68	57	52	50	52	57	68	80	91	96
85.0	92	87	78	65	54	49	49	49	54	65	78	87	92
87.5	84	80	71	59	49	44	41	44	49	59	71	80	84
90.0	79	74	65	54	45	41	35	41	45	54	65	74	79
92.5	72	68	59	49	41	38	40	38	41	49	59	68	72
95.0	66	63	55	45	38	36	39	36	38	45	55	63	66

**Light distribution of luminaries are in tabular form
for conditional luminous flux 1000lm:**

gm/C	180	195	210	225	240	255	270	285	300	315	330	345	360
0.0	295	294	294	294	294	294	293	294	294	294	294	294	295
2.5	294	293	292	291	290	290	290	290	290	291	292	293	294
5.0	295	294	293	291	290	289	289	289	290	291	293	294	295
7.5	292	291	290	289	287	287	287	287	287	289	290	291	292
10.0	292	290	289	287	286	285	284	285	286	287	289	290	292
12.5	291	290	289	287	286	284	283	284	286	287	289	290	291
15.0	287	285	283	281	279	277	276	277	279	281	283	285	287
17.5	280	278	274	272	270	268	267	268	270	272	274	278	280
20.0	280	278	275	271	267	263	262	263	267	271	275	278	280
22.5	276	274	270	266	261	257	256	257	261	266	270	274	276
25.0	273	269	265	259	254	251	250	251	254	259	265	269	273
27.5	269	265	260	254	249	244	242	244	249	254	260	265	269
30.0	262	258	252	246	240	235	234	235	240	246	252	258	262
32.5	261	257	250	242	233	228	226	228	233	242	250	257	261
35.0	251	247	239	231	223	217	215	217	223	231	239	247	251
37.5	245	240	233	223	215	208	206	208	215	223	233	240	245
40.0	237	233	224	214	205	199	196	199	205	214	224	233	237
42.5	228	223	214	203	194	187	185	187	194	203	214	223	228
45.0	221	216	207	195	184	176	174	176	184	195	207	216	221
47.5	211	205	196	185	174	167	164	167	174	185	196	205	211
50.0	208	202	192	179	167	161	158	161	167	179	192	202	208
52.5	200	195	184	171	159	152	150	152	159	171	184	195	200
55.0	192	187	176	162	148	137	134	137	148	162	176	187	192
57.5	186	181	170	156	143	136	133	136	143	156	170	181	186
60.0	179	173	162	148	134	127	124	127	134	148	162	173	179
62.5	168	163	152	137	124	116	114	116	124	137	152	163	168
65.0	160	154	143	129	116	108	105	108	116	129	143	154	160
67.5	150	144	133	119	106	99	96	99	106	119	133	144	150
70.0	141	135	125	111	97	90	87	90	97	111	125	135	141
72.5	135	129	118	104	91	84	81	84	91	104	118	129	135
75.0	119	114	104	91	79	72	69	72	79	91	104	114	119
77.5	110	105	95	82	70	64	61	64	70	82	95	105	110
80.0	106	101	91	77	66	60	57	60	66	77	91	101	106
82.5	96	91	80	68	57	52	50	52	57	68	80	91	96
85.0	92	87	78	65	54	49	49	49	54	65	78	87	92
87.5	84	80	71	59	49	44	41	44	49	59	71	80	84
90.0	79	74	65	54	45	41	35	41	45	54	65	74	79
92.5	72	68	59	49	41	38	40	38	41	49	59	68	72
95.0	66	63	55	45	38	36	39	36	38	45	55	63	66



Changing the light flux



Distribution of illumination in height hanging lamp 5 m
Coordinates of the luminaire X=15m, Y=5m.

Applications:

Files with the EULUMDAT format. Light distribution is captured in γ -C planes with step 2.5° in plane γ (от 0° - 95°) и 5° in plane C (от 0° - 360°) accordance with EN 13032-1 p 4.2.3.

Files with the measured values

- 2013-241-P2.ltd - photometric data in a standard format for two plane of symmetry $C = 0^\circ - 180^\circ$ и $C = 90^\circ - 270^\circ$,
- 2013-241.ocb - complete data in tabular form.

Test results relate only to test samples.

Sofia 20.08.2013

The measurements:

/assoc. prof. d-r. Krasimir Velinov/

Manager:

/prof. d-r. L. Totev/