

UNIVERSITY OF MINING AND GEOLOGY "Engineering" LTD

Laboratory "Lighting"

MEASUREMENT REPORT NUMBER 2013-242/20.08.2013

testing samples of products

Model number or type, referring to the manufacturer: LED luminarie SH-TP12PC-40
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

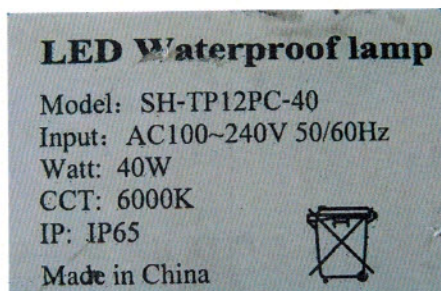
Measurements have been performed:

- 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

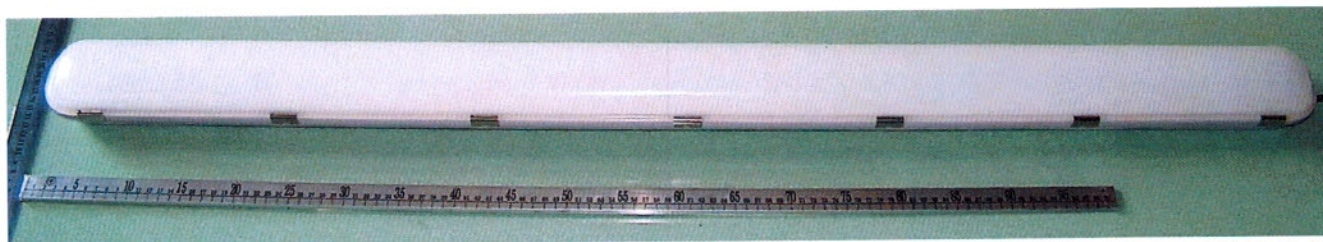
Technical specifications of documentation:

LED luminaries: SH-TP12PC-40

Optics - matt diffuser



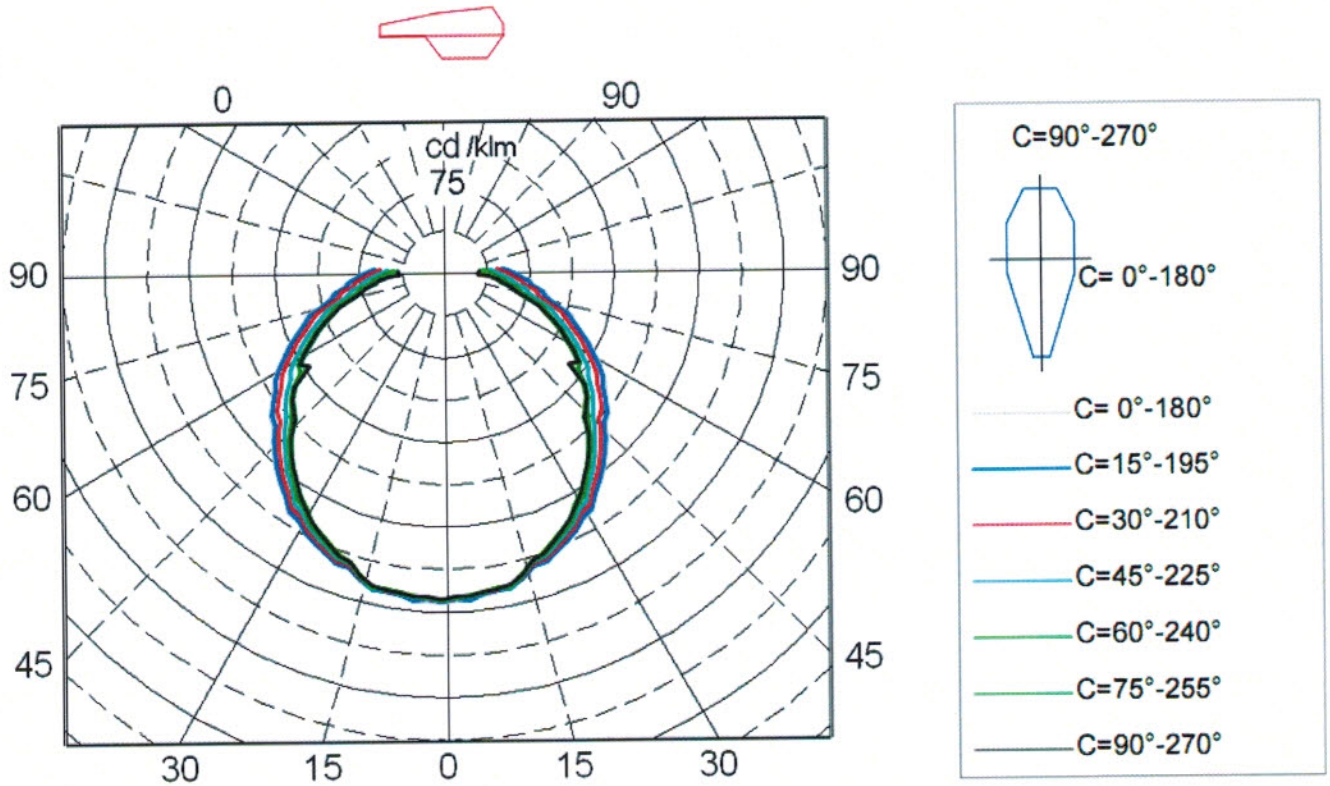
tabele



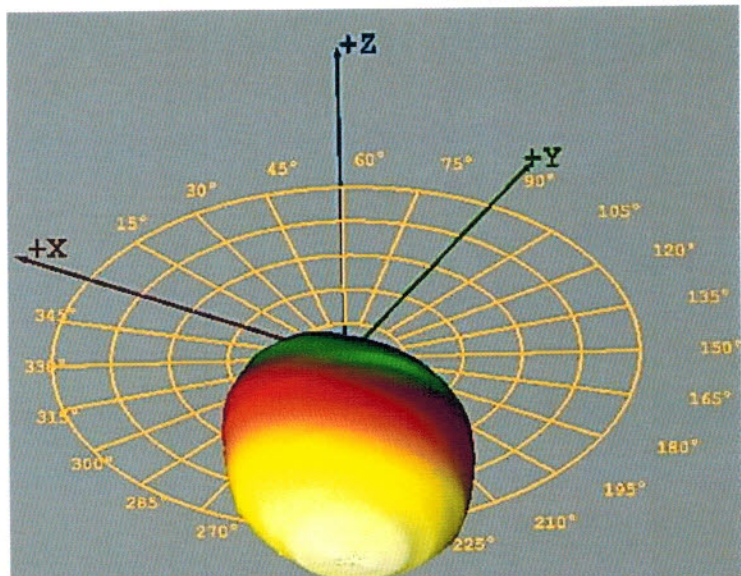
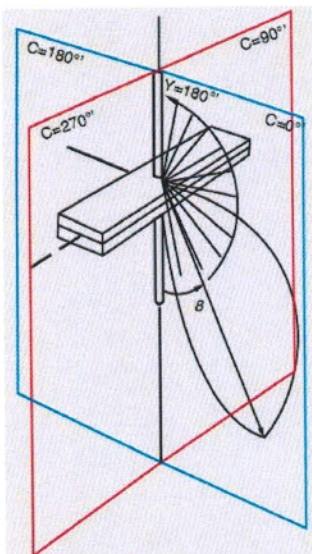
Luminaire

Results of test

	Lamp with power
Operating voltage	AC 230V
Operating Current	AC 0.176A
Wattage including ballast (watts)	38.3W
Power factor	0.95
Luminous flux emitted by a luminaire	4150 lm
Light output	108.3 lm/W



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



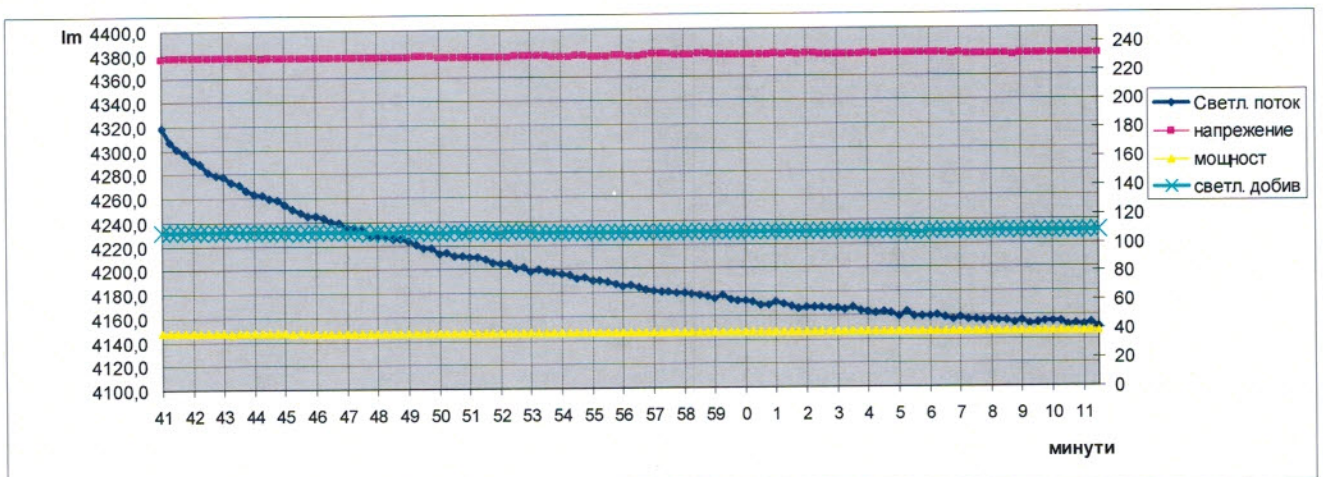
Luminaire light distribution of the 3D

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

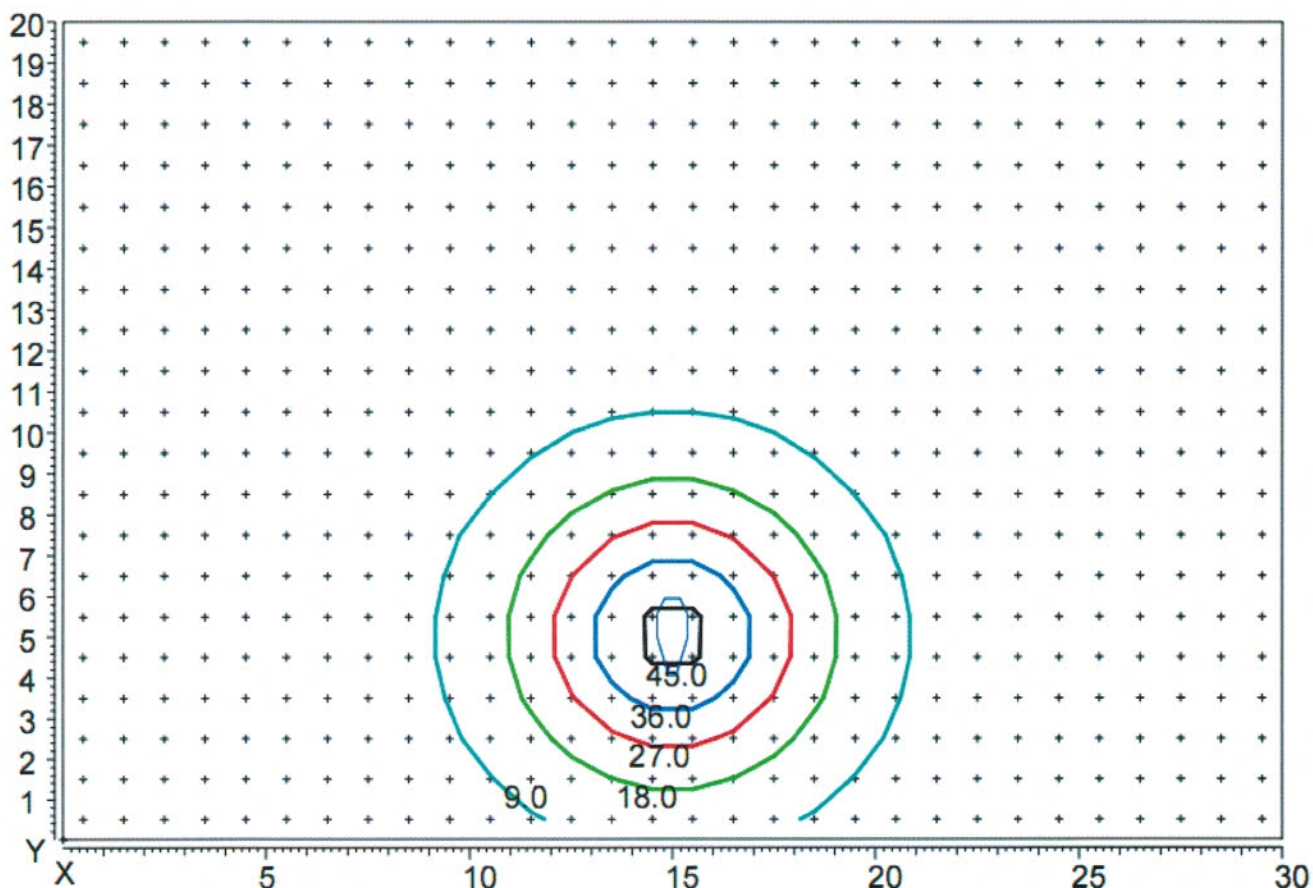
gm/C	0	15	30	45	60	75	90	105	120	135	150	165	180
0.0	293	293	293	292	292	292	291	292	292	292	293	293	293
2.5	292	291	291	290	289	289	288	289	289	290	291	291	292
5.0	292	292	291	290	289	288	288	288	289	290	291	292	292
7.5	289	289	288	288	288	287	287	287	288	288	288	289	289
10.0	288	287	287	286	285	286	286	286	285	286	287	287	288
12.5	287	288	287	287	287	286	285	286	287	287	287	288	287
15.0	282	282	281	280	279	279	278	279	279	280	281	282	282
17.5	275	274	273	271	270	270	269	270	270	271	273	274	275
20.0	275	275	273	270	268	266	267	266	268	270	273	275	275
22.5	269	269	268	265	262	260	260	260	262	265	268	269	269
25.0	265	265	262	260	256	254	254	254	256	260	262	265	265
27.5	261	260	258	254	251	249	248	249	251	254	258	260	261
30.0	254	253	249	246	242	239	240	239	242	246	249	253	254
32.5	252	250	246	242	237	233	233	233	237	242	246	250	252
35.0	241	240	236	231	227	224	223	224	227	231	236	240	241
37.5	235	233	229	224	218	215	215	215	218	224	229	233	235
40.0	227	226	221	214	209	206	206	206	209	214	221	226	227
42.5	219	217	211	204	199	196	196	196	199	204	211	217	219
45.0	211	209	203	195	188	182	183	182	188	195	203	209	211
47.5	201	198	193	185	179	176	176	176	179	185	193	198	201
50.0	196	194	188	179	173	171	171	171	173	179	188	194	196
52.5	188	186	180	171	164	161	162	161	164	171	180	186	188
55.0	180	178	171	162	151	143	141	143	151	162	171	178	180
57.5	174	172	166	157	149	146	147	146	149	157	166	172	174
60.0	166	164	157	148	140	137	139	137	140	148	157	164	166
62.5	156	154	147	138	130	127	128	127	130	138	147	154	156
65.0	148	146	139	129	122	119	120	119	122	129	139	146	148
67.5	137	136	129	120	112	109	110	109	112	120	129	136	137
70.0	129	127	121	111	104	100	101	100	104	111	121	127	129
72.5	124	121	114	105	97	93	93	93	97	105	114	121	124
75.0	108	107	100	92	84	80	80	80	84	92	100	107	108
77.5	100	98	91	83	75	71	71	71	75	83	91	98	100
80.0	96	94	88	79	71	66	66	66	71	79	88	94	96
82.5	86	84	76	69	62	57	57	57	62	69	76	84	86
85.0	83	81	74	66	59	53	53	53	59	66	74	81	83
87.5	75	74	67	60	53	47	45	47	53	60	67	74	75
90.0	70	68	62	55	48	43	35	43	48	55	62	68	70
92.5	64	62	57	50	43	39	36	39	43	50	57	62	64
95.0	59	57	52	46	40	37	36	37	40	46	52	57	59

**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	293	293	293	292	292	292	291	292	292	292	293	293	293
2.5	292	291	291	290	289	289	288	289	289	290	291	291	292
5.0	292	292	291	290	289	288	288	288	289	290	291	292	292
7.5	289	289	288	288	288	287	287	287	288	288	288	289	289
10.0	288	287	287	286	285	286	286	286	285	286	287	287	288
12.5	287	288	287	287	287	286	285	286	287	287	287	288	287
15.0	282	282	281	280	279	279	278	279	279	280	281	282	282
17.5	275	274	273	271	270	270	269	270	270	271	273	274	275
20.0	275	275	273	270	268	266	267	266	268	270	273	275	275
22.5	269	269	268	265	262	260	260	260	262	265	268	269	269
25.0	265	265	262	260	256	254	254	254	256	260	262	265	265
27.5	261	260	258	254	251	249	248	249	251	254	258	260	261
30.0	254	253	249	246	242	239	240	239	242	246	249	253	254
32.5	252	250	246	242	237	233	233	233	237	242	246	250	252
35.0	241	240	236	231	227	224	223	224	227	231	236	240	241
37.5	235	233	229	224	218	215	215	215	218	224	229	233	235
40.0	227	226	221	214	209	206	206	206	209	214	221	226	227
42.5	219	217	211	204	199	196	196	196	199	204	211	217	219
45.0	211	209	203	195	188	182	183	182	188	195	203	209	211
47.5	201	198	193	185	179	176	176	176	179	185	193	198	201
50.0	196	194	188	179	173	171	171	171	173	179	188	194	196
52.5	188	186	180	171	164	161	162	161	164	171	180	186	188
55.0	180	178	171	162	151	143	141	143	151	162	171	178	180
57.5	174	172	166	157	149	146	147	146	149	157	166	172	174
60.0	166	164	157	148	140	137	139	137	140	148	157	164	166
62.5	156	154	147	138	130	127	128	127	130	138	147	154	156
65.0	148	146	139	129	122	119	120	119	122	129	139	146	148
67.5	137	136	129	120	112	109	110	109	112	120	129	136	137
70.0	129	127	121	111	104	100	101	100	104	111	121	127	129
72.5	124	121	114	105	97	93	93	93	97	105	114	121	124
75.0	108	107	100	92	84	80	80	80	84	92	100	107	108
77.5	100	98	91	83	75	71	71	71	75	83	91	98	100
80.0	96	94	88	79	71	66	66	66	71	79	88	94	96
82.5	86	84	76	69	62	57	57	57	62	69	76	84	86
85.0	83	81	74	66	59	53	53	53	59	66	74	81	83
87.5	75	74	67	60	53	47	45	47	53	60	67	74	75
90.0	70	68	62	55	48	43	35	43	48	55	62	68	70
92.5	64	62	57	50	43	39	36	39	43	50	57	62	64
95.0	59	57	52	46	40	37	36	37	40	46	52	57	59



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

- 2013-242-P2.ltd - photometric data in a standard format for two plane of symmetry $C = 0^\circ - 180^\circ$ и $C = 90^\circ - 270^\circ$,
- 2013-242.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/