

UNIVERSITY OF MINING AND GEOLOGY "Engineering" LTD

Laboratory "Lighting"

MEASUREMENT REPORT NUMBER 2014-083/15.03.2014

testing samples of products

Model number or type, referring to the manufacturer: LED luminarie VT-4710 SKU 5352 10W

Company identification: V-TAC Europe Ltd., Sofia 1220, 1, Iliansko Shaussee Blvd.

Applicant testing: V-TAC Europe Ltd., Sofia 1220, 1, Iliansko Shaussee Blvd.

Type of test: control measurements

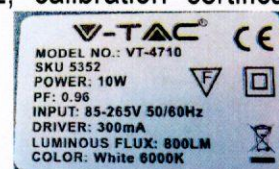
Measurements have been performed:

- 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-OI/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-OI/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-EEI/14.12.2012;
- Digital thermometer with temperature sensor DS18B20 ID 0000011697CDH, calibration certificate of the National Centre of Metrology 268-TI/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
- spectroradiometer MK350 ID HS0313220158, test source MK002, calibration certificate of UPRtek lab № A012001 / 2013/7/5

Technical specifications of documentation:

LED luminarie: VT-4710 SKU 5352 10W

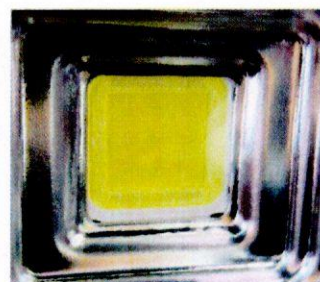
Optics - specular reflector



tabele



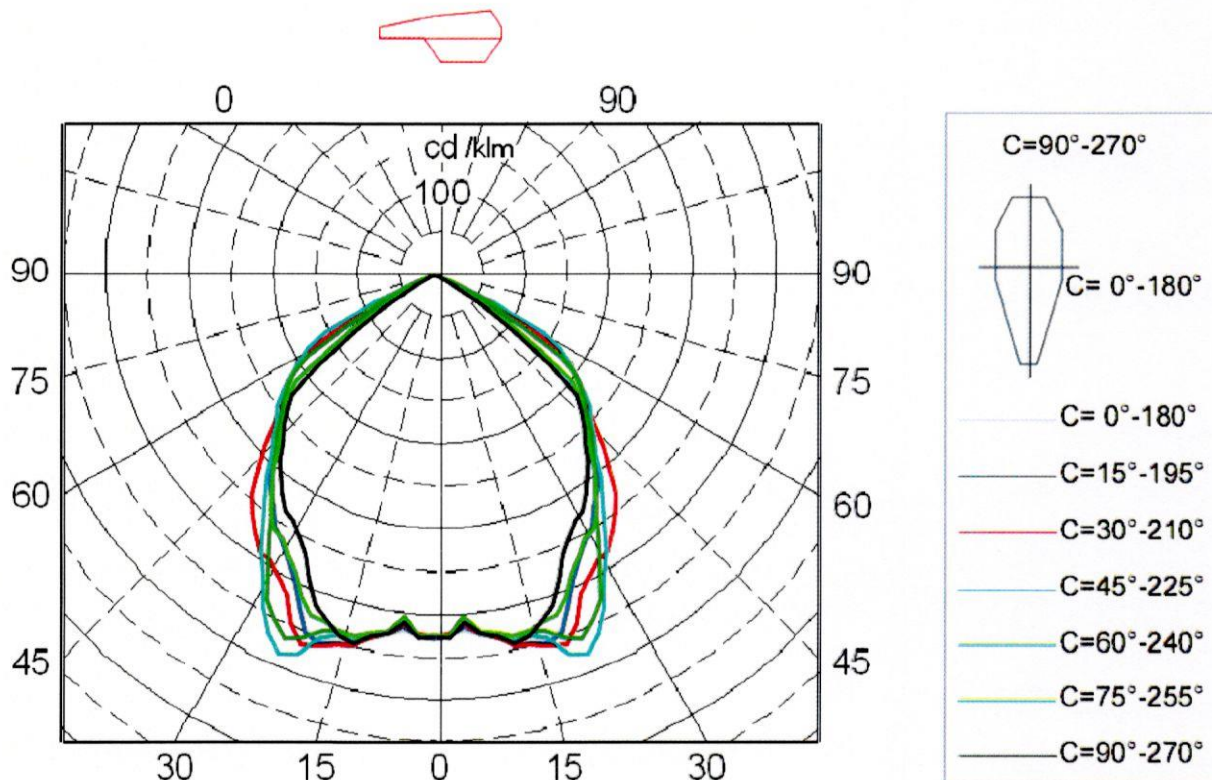
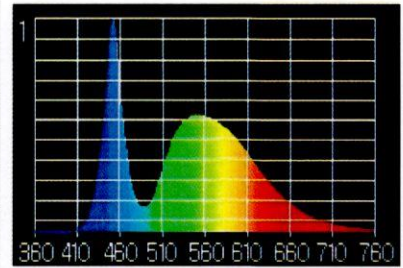
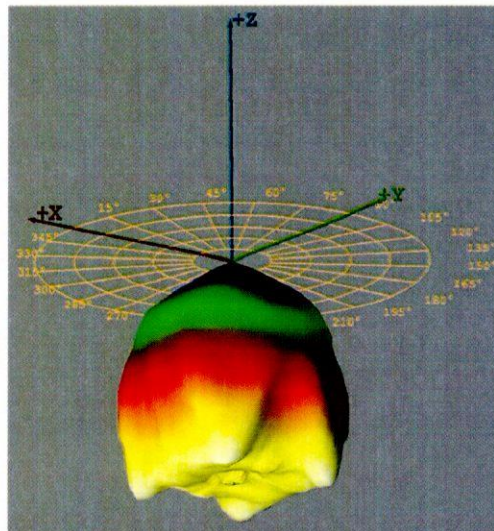
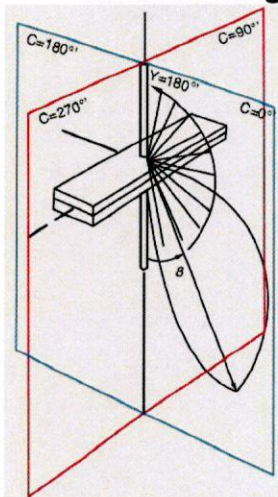
Luminaire



LED

Results of test

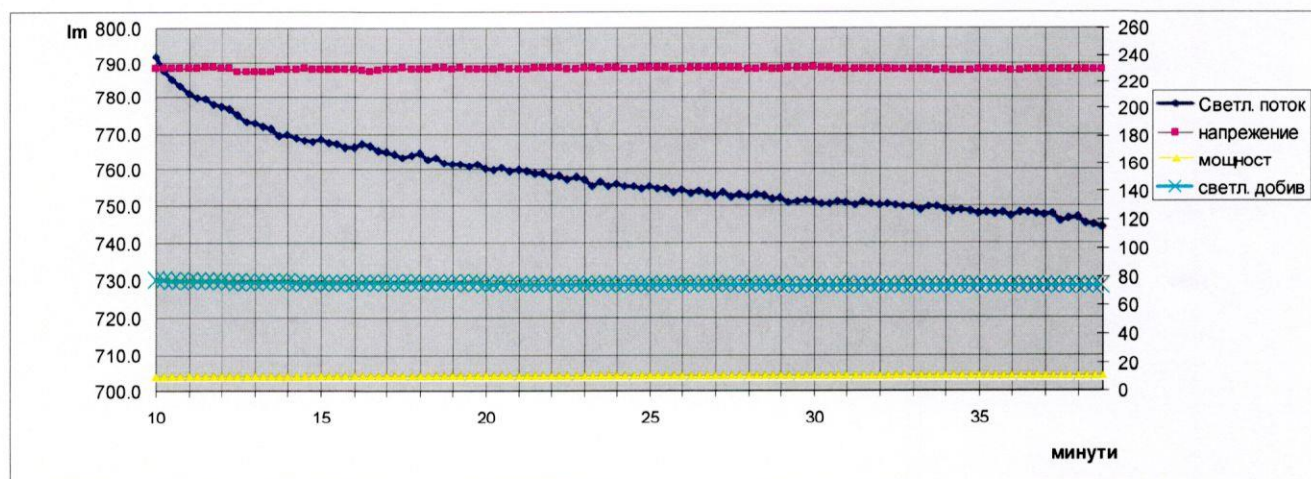
Operating voltage	AC 230V
Operating Current	AC 0.103A
Wattage including ballast (watts)	9.95W
Power factor	0.43
color temperature	6256K
Color rendering index CRI	73
color coordinates CIE 1931	$x=0.3168, y=0.3336$
color coordinates CIE 1976	$u'=0.1990, v'=0.4714$
Luminous flux emitted by a luminaire	744 lm
Light output of the luminaire	74.4 lm/W

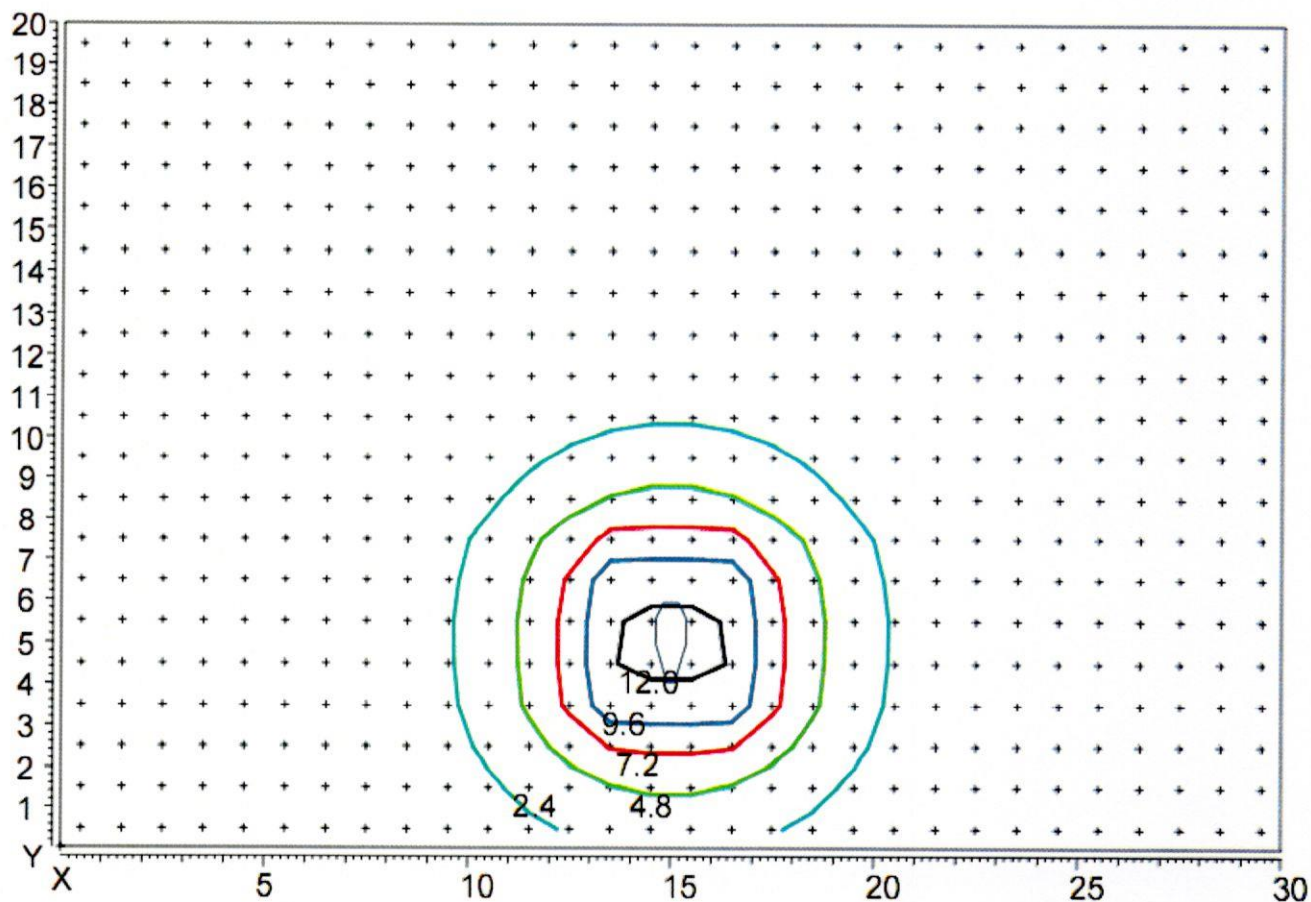
**Luminaire light distribution of polar coordinates in the conditional flux 1000lm****Luminaire light distribution of the 3D**

gm/°C	0	15	30	45	60	75	90	105	120	135	150	165	180
0.0	432	432	430	431	429	428	430	428	429	431	430	432	432
2.5	427	429	427	429	429	429	431	429	429	429	427	429	427
5.0	423	419	418	407	408	411	414	411	408	407	418	419	423
7.5	431	430	431	430	429	428	429	428	429	430	431	430	431
10.0	434	435	438	435	432	433	435	433	432	435	438	435	434
12.5	446	451	451	446	439	441	448	441	439	446	451	451	446
15.0	450	454	455	442	439	440	443	440	439	442	455	454	450
17.5	454	459	462	452	444	433	430	433	444	452	462	459	454
20.0	449	452	468	479	459	431	417	431	459	479	468	452	449
22.5	421	424	449	487	468	415	392	415	468	487	449	424	421
25.0	397	398	419	470	453	391	366	391	453	470	419	398	397
27.5	378	380	404	444	435	378	351	378	435	444	404	380	378
30.0	363	366	393	411	398	363	338	363	398	411	393	366	363
32.5	354	355	390	387	368	358	333	358	368	387	390	355	354
35.0	333	336	374	358	339	342	318	342	339	358	374	336	333
37.5	323	323	358	334	318	321	303	321	318	334	358	323	323
40.0	310	309	340	313	301	299	289	299	301	313	340	309	310
42.5	288	287	312	288	281	275	268	275	281	288	312	287	288
45.0	272	271	288	274	267	259	256	259	267	274	288	271	272
47.5	249	250	259	256	248	241	240	241	248	256	259	250	249
50.0	242	241	243	246	236	231	223	231	236	246	243	241	242
52.5	226	227	225	229	223	210	171	210	223	229	225	227	226
55.0	208	210	208	210	206	155	120	155	206	210	208	210	208
57.5	186	188	195	193	180	107	77	107	180	193	195	188	186
60.0	122	124	158	175	125	53	30	53	125	175	158	124	122
62.5	58	61	93	148	72	22	10	22	72	148	93	61	58
65.0	19	20	36	79	27	7	10	7	27	79	36	20	19
67.5	9	9	8	19	5	7	8	7	5	19	8	9	9
70.0	7	8	5	5	4	6	6	6	4	5	5	8	7
72.5	6	7	5	3	3	5	5	5	3	3	5	7	6
75.0	5	5	4	3	2	3	3	3	2	3	4	5	5
77.5	4	4	3	3	2	3	3	3	2	3	3	4	4
80.0	3	3	2	2	1	2	2	2	1	2	2	3	3
82.5	2	1	1	1	1	2	1	2	1	1	1	1	2
85.0	0	0	0	0	0	0	0	0	0	0	0	0	0
87.5	0	0	0	0	0	0	0	0	0	0	0	0	0
90.0	0	0	0	0	0</								

**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	432	432	430	431	429	428	430	428	429	431	430	432	432
2.5	427	429	427	429	429	429	431	429	429	429	427	429	427
5.0	423	419	418	407	408	411	414	411	408	407	418	419	423
7.5	431	430	431	430	429	428	429	428	429	430	431	430	431
10.0	434	435	438	435	432	433	435	433	432	435	438	435	434
12.5	446	451	451	446	439	441	448	441	439	446	451	451	446
15.0	450	454	455	442	439	440	443	440	439	442	455	454	450
17.5	454	459	462	452	444	433	430	433	444	452	462	459	454
20.0	449	452	468	479	459	431	417	431	459	479	468	452	449
22.5	421	424	449	487	468	415	392	415	468	487	449	424	421
25.0	397	398	419	470	453	391	366	391	453	470	419	398	397
27.5	378	380	404	444	435	378	351	378	435	444	404	380	378
30.0	363	366	393	411	398	363	338	363	398	411	393	366	363
32.5	354	355	390	387	368	358	333	358	368	387	390	355	354
35.0	333	336	374	358	339	342	318	342	339	358	374	336	333
37.5	323	323	358	334	318	321	303	321	318	334	358	323	323
40.0	310	309	340	313	301	299	289	299	301	313	340	309	310
42.5	288	287	312	288	281	275	268	275	281	288	312	287	288
45.0	272	271	288	274	267	259	256	259	267	274	288	271	272
47.5	249	250	259	256	248	241	240	241	248	256	259	250	249
50.0	242	241	243	246	236	231	223	231	236	246	243	241	242
52.5	226	227	225	229	223	210	171	210	223	229	225	227	226
55.0	208	210	208	210	206	155	120	155	206	210	208	210	208
57.5	186	188	195	193	180	107	77	107	180	193	195	188	186
60.0	122	124	158	175	125	53	30	53	125	175	158	124	122
62.5	58	61	93	148	72	22	10	22	72	148	93	61	58
65.0	19	20	36	79	27	7	10	7	27	79	36	20	19
67.5	9	9	8	19	5	7	8	7	5	19	8	9	9
70.0	7	8	5	5	4	6	6	6	4	5	5	8	7
72.5	6	7	5	3	3	5	5	5	3	3	5	7	6
75.0	5	5	4	3	2	3	3	3	2	3	4	5	5
77.5	4	4	3	3	2	3	3	3	2	3	3	4	4
80.0	3	3	2	2	1	2	2	2	1	2	2	3	3
82.5	2	1	1	1	1	2	1	2	1	1	1	1	2
85.0	0	0	0	0	0	0	0	0	0	0	0	0	0
87.5	0	0	0	0	0	0	0	0	0	0	0	0	0
90.0	0	0	0	0	0	0	0	0	0	0	0	0	0
92.5	0	0	0	0	0	0	0	0	0	0	0	0	0
95.0	0	0	0	0	0	0	0	0	0	0	0	0	0





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

- 2014-083-P2.ltd - photometric data in a standard format for two plane of symmetry $C = 0^\circ - 180^\circ$ и $C = 90^\circ - 270^\circ$,

- 2014-083.ocb - complete data in tabular form.

Test results relate only to test samples.

Sofia 15.03.2014

The measurements made:

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



Manager:

/ prof. d-r. L. Totev/