UNIVERSITY OF MINING AND GEOLOGY "Engineering" LTD
Laboratory "Lighting" www.light-bg.eu

MEASUREMENT REPORT NUMBER 2014-171/30.05.2014

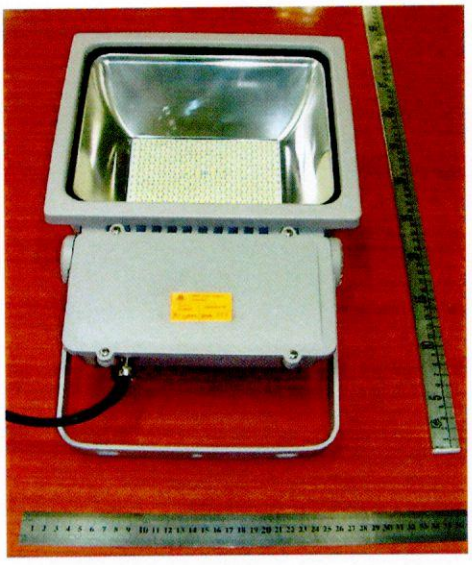
testing samples of products

Model number or type, referring to the manufacturer: LED luminarie Floodlight 150
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-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 2м;
- 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
- spectroradiometer MK350 ID HS0313220158, test source MK002, calibration certificate of UPRtek lab № A012001 / 2013/7/5

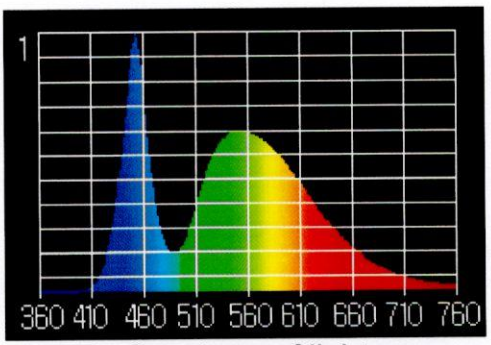
Technical specifications of documentation:
LED luminarie Floodlight 150
Optics - aluminum reflector



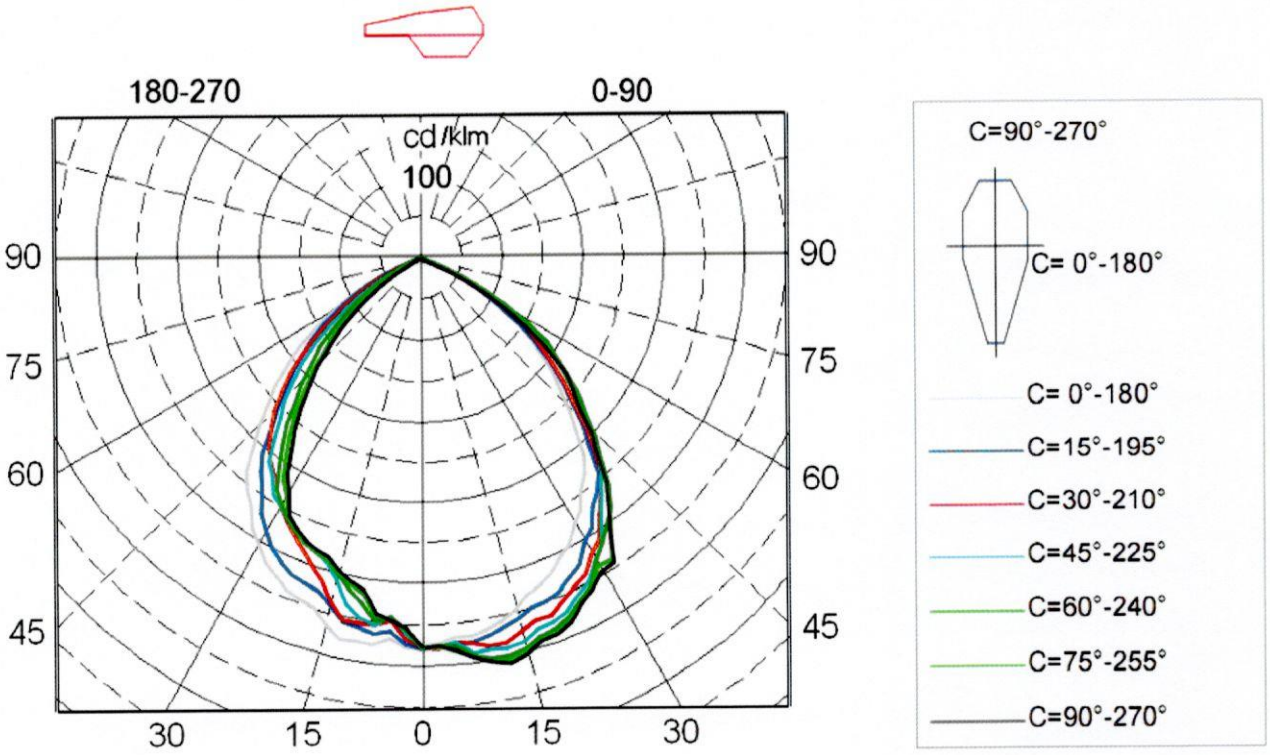
Luminaire

Results of test

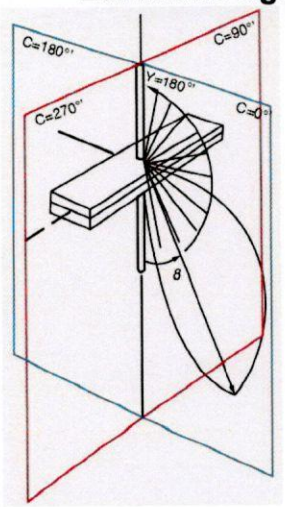
Operating voltage	**AC 230V**
Operating Current	**AC 0.599A**
Wattage including ballast (watts)	**134.3W**
Power factor	**0.97**
color temperature	**6108K**
Color rendering index CRI	**73**
color coordinates CIE 1931	**x=0.3194, y=0.3379**
color coordinates CIE 1976	**u'=0.1991, v'= 0.4740**
Luminous flux emitted by a luminaire	**13305 lm**
Light output of the luminaire	**99.1 lm/W**

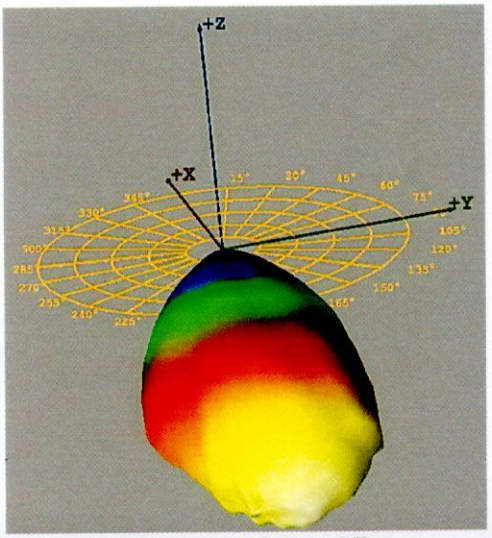


Spectrum of light



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

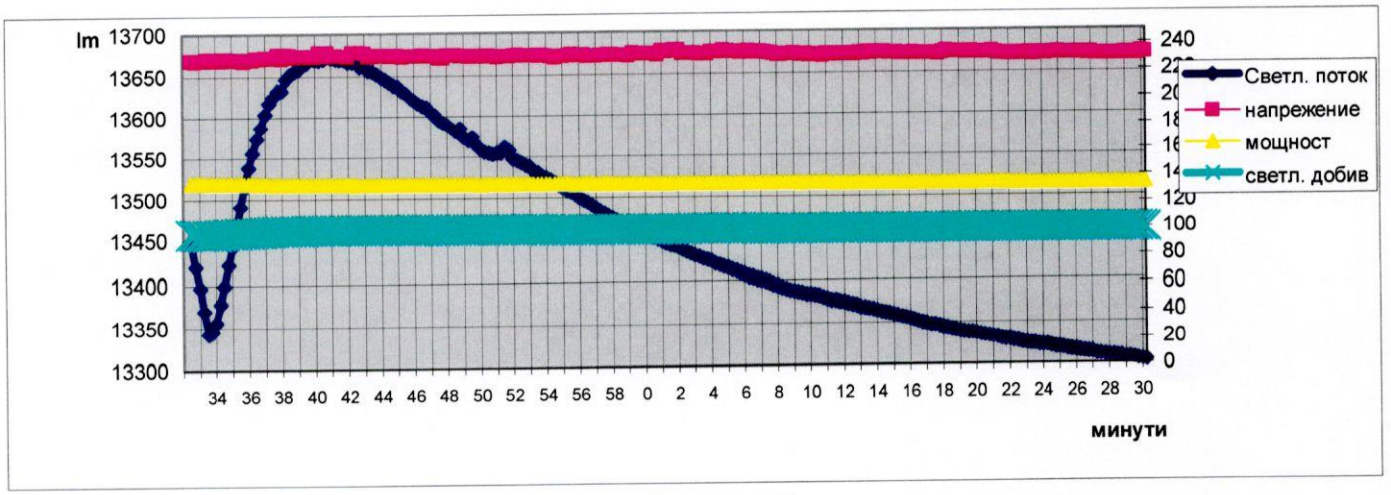




Luminaire light distribution of the 3D

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

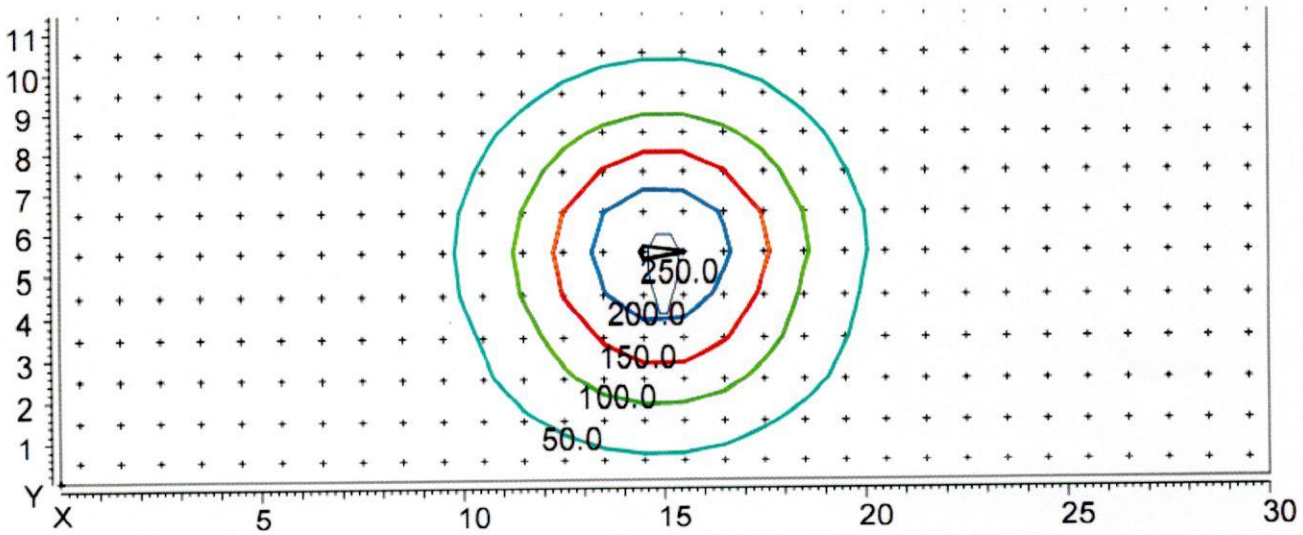
0.0	478	479	479	479	480	480	480	480	481	481	481	481	481
2.5	475	480	481	479	478	478	478	478	478	477	478	480	479
5.0	468	475	474	474	480	485	485	484	480	475	468	467	469
7.5	469	477	478	490	494	494	495	494	493	494	486	476	478
10.0	464	472	484	489	499	504	504	504	505	497	493	481	477
12.5	458	466	485	492	501	505	510	510	506	506	494	487	479
15.0	449	460	475	490	498	501	504	503	502	496	488	477	465
17.5	435	452	468	479	489	493	495	495	494	487	478	465	450
20.0	430	451	469	477	486	492	493	493	492	487	474	460	445
22.5	421	446	458	472	478	483	486	487	486	481	473	456	440
25.0	408	435	448	460	466	470	471	473	472	469	461	450	429
27.5	399	426	441	451	457	459	460	462	462	460	454	443	420
30.0	380	406	423	432	434	439	447	446	441	441	436	426	404
32.5	368	394	411	418	419	441	445	447	431	427	426	411	391
35.0	346	372	385	390	402	412	410	414	415	399	398	388	368
37.5	334	360	367	369	388	385	384	387	393	383	379	373	355
40.0	315	343	348	349	363	358	359	362	365	368	355	355	337
42.5	285	309	319	326	331	325	324	328	332	335	328	327	308
45.0	262	285	290	306	307	300	301	300	308	310	306	302	284
47.5	235	254	257	280	275	269	268	272	279	284	274	269	257
50.0	215	229	233	258	258	248	247	250	259	269	253	245	237
52.5	190	203	205	229	229	225	229	228	230	246	226	216	210
55.0	167	174	180	202	205	200	196	199	210	216	202	187	185
57.5	141	148	158	174	187	169	164	171	186	188	177	157	158
60.0	116	118	133	145	152	140	134	137	156	159	150	128	131
62.5	91	90	108	119	116	105	98	105	124	128	122	101	103
65.0	65	66	80	88	85	74	67	74	89	95	94	77	76
67.5	40	42	55	57	52	44	37	42	57	63	66	53	49
70.0	22	25	37	36	31	22	15	20	32	40	45	35	29
72.5	10	11	18	19	13	6	6	6	12	22	25	17	11
75.0	8	9	7	7	5	5	4	5	5	8	9	9	9
77.5	6	7	6	4	4	4	4	4	4	4	5	7	7
80.0	5	5	4	3	3	3	3	3	3	3	4	6	5
82.5	3	3	3	2	2	2	2	3	3	3	3	4	4
85.0	3	3	2	2	2	2	2	2	2	2	3	3	3
87.5	2	2	2	2	1	1	1	1	2	2	2	2	2
90.0	1	1	1	1	1	0	0	1	1	1	1	1	1
92.5	1	1	1	1	0	0	0	0	0	1	1	1	1
95.0	1	1	1	1	0	0	0	0	0	1	1	1	1



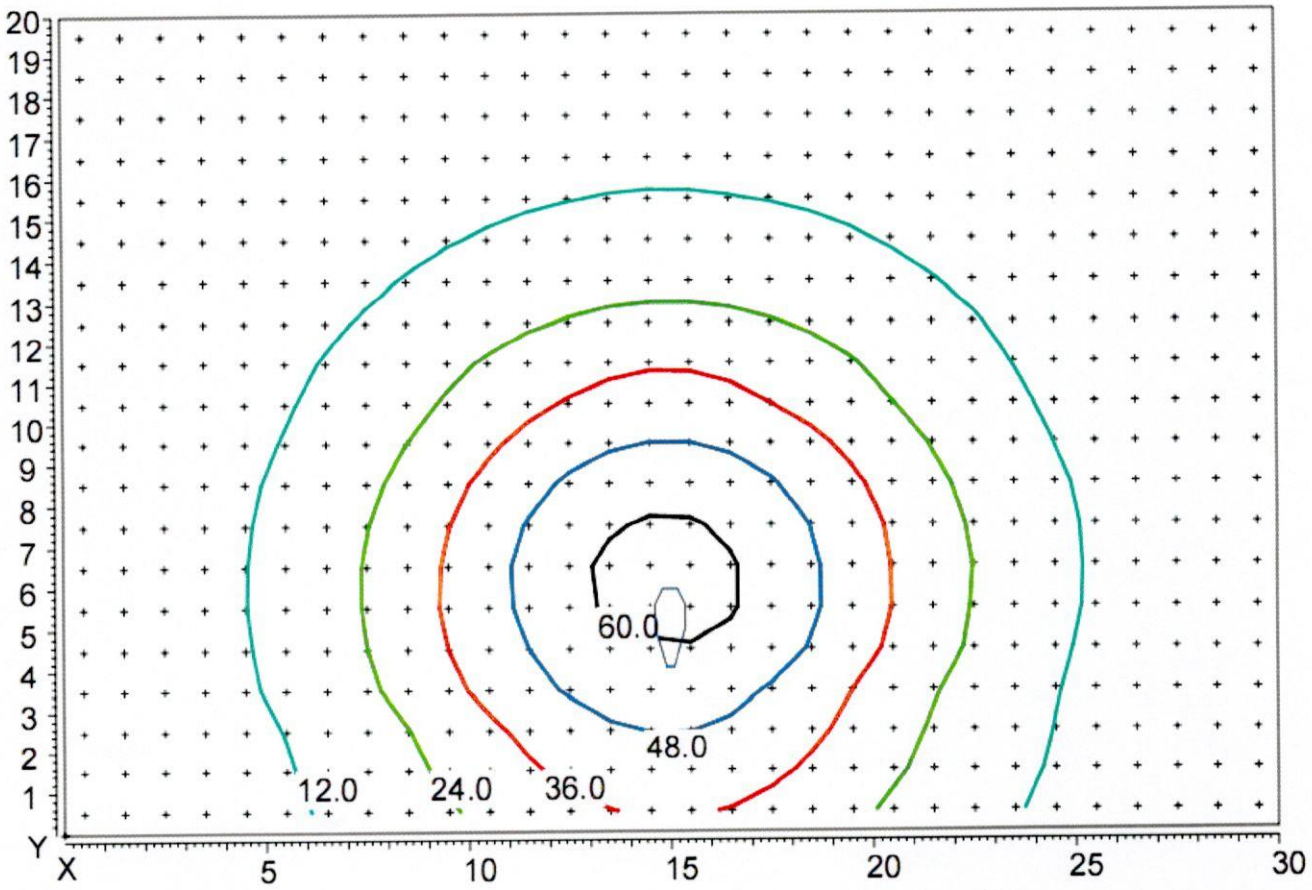
Changing the light flux

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	481	481	481	480	480	479	479	478	478	477	477	477	478
2.5	479	475	469	462	458	456	455	455	456	458	461	467	475
5.0	469	460	447	442	444	446	447	448	448	448	448	455	468
7.5	478	465	454	455	450	444	440	440	445	452	453	452	469
10.0	477	460	455	448	431	419	415	415	420	434	449	449	464
12.5	479	457	456	436	417	410	407	407	408	414	435	445	458
15.0	465	442	439	409	402	399	397	397	399	401	414	438	449
17.5	450	428	415	391	388	387	385	386	388	388	393	425	435
20.0	445	425	400	384	383	382	381	381	382	381	384	414	430
22.5	440	420	386	378	378	377	375	375	375	374	375	398	421
25.0	429	411	374	369	369	368	366	366	366	364	365	379	408
27.5	420	401	362	360	360	359	356	357	356	355	356	365	399
30.0	404	385	350	349	347	335	330	329	340	341	341	346	380
32.5	391	370	341	341	334	319	309	310	320	334	333	334	368
35.0	368	344	320	322	307	293	280	282	289	311	313	313	346
37.5	355	326	308	310	283	269	257	259	269	291	301	300	334
40.0	337	306	293	283	259	244	232	234	245	265	287	287	315
42.5	308	275	275	258	230	214	205	204	216	238	268	261	285
45.0	284	251	257	239	208	188	182	183	194	216	244	241	262
47.5	257	225	232	213	182	161	151	156	170	191	216	216	235
50.0	237	207	212	193	163	141	130	130	148	170	193	197	215
52.5	210	184	184	165	139	114	103	107	121	147	165	175	190
55.0	185	162	157	139	114	91	80	85	99	122	139	154	167
57.5	158	141	132	112	91	71	58	63	79	95	114	131	141
60.0	131	117	106	87	67	44	36	36	53	70	87	105	116
62.5	103	94	81	62	43	25	13	17	31	48	65	82	91
65.0	76	72	59	43	22	6	5	5	11	30	44	59	65
67.5	49	48	38	23	6	5	4	5	5	12	27	37	40
70.0	29	30	23	12	5	4	4	4	5	5	15	21	22
72.5	11	13	12	5	4	4	3	4	4	4	7	9	10
75.0	9	7	5	4	4	3	3	3	4	4	4	6	8
77.5	7	6	4	4	3	3	3	3	3	3	4	5	6
80.0	5	5	3	3	3	3	2	3	3	3	3	4	5
82.5	4	4	3	3	2	2	2	2	2	2	2	3	3
85.0	3	3	3	3	2	2	2	2	2	2	2	3	3
87.5	2	2	2	2	2	2	2	2	2	2	2	2	2
90.0	1	1	1	1	1	1	1	1	1	1	1	1	1
92.5	1	1	1	1	1	1	1	1	1	1	1	1	1
95.0	1	1	1	1	1	1	1	1	1	1	1	1	1



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



Distribution of illumination in height hanging lamp 10 м
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
- 2014-171.ldt
Test results relate only to test samples.

Sofia 30.05.2014

The measurements made:

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

Manager:

/ prof. d-r. L. Totev/