LED STREETLIGHTING

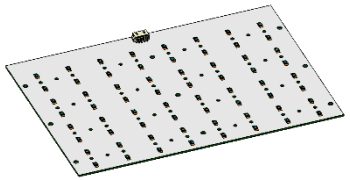
PAUO PAIS MAMEDE

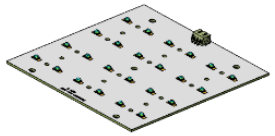
15-04-19

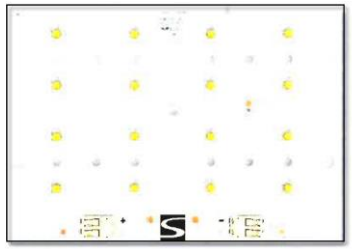
BEKA Schréder

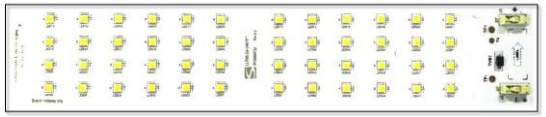
Experts in lightability™

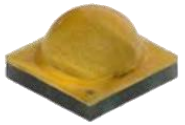
WHICH LED CHIP TO CHOOSE ?











Binning, AML, PN, packges etc …

NICHIA

OSRAM Opto Semiconductors

CREE

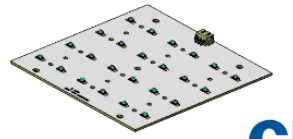
+

IMI

COFIDUR EMS

Module Performances ☞no Binning
Module datasheet

LG Innotek



CREE

Binning

No Binning

BEKA Schréder

HOW TO CHOOSE ?

Lm/W	+++	++	-	+
Lm/$	-	+++	+++	++
Lumen maintenance	+++	+	--	++
Interoperability	+++	---	+++	+++
Optical control	+++	+	+	+

LUMEN / WATT : WHAT'S THE LIMIT ?

The limit of efficacy of phosphor converted white LEDs is 242lm/W, which is projected to be achieved by 2025
(US Department of Energy, 2015)

Mid-Power @ 65 mA Ts 25°C

☞ *Standard Indoor Lighting !*

LED @ 65 mA Ts 25°C (Cold)

⇩

LED @ 65 mA Ts 85°C (Hot)

⇩

LED @ 150 mA MP or 500 mA HP

⇩

Optic Efficacy

⇩

Driver efficacy

=

System Efficacy

	Losses	lm/W
LED @ 65 mA Ts 25°C (Cold)		242
LED @ 65 mA Ts 85°C (Hot)	-6%	227
LED @ 150 mA MP or 500 mA HP	-6%	214
Optics Efficiency	-10%	192
Driver Efficiency	-7%	179

☞ *Max. System Efficacy for an outdoor fixture around 180 lm/W in 2025*

LUMINAIRE SPECIFICATIONS

FEATURES

- 36W – 5700lm (154lm/W source)
- 55W – 6995lm (127lm/W source)
- Incorporated inclination arrangement
- IK10
- One compartment, incl. SPD
- More efficient optical performance
- Nema Socket compatible
- Three compartment design
- Toolless access
- Marine Grade Aluminium AC 44300
- UV-stabilised, calciumfilled Polypropylene

LUMINAIRE SPECIFICATIONS

ZIYA-E

ZIYA-1

Easy access to gear and optical compartment

Provision for Nema socket

Internal spigot rake adjustent: +10° to -10°
Easily accessible terminal block for simplified power connection (ten lacs)

Spigot fixation by means of a clamping bracket

schreder

LED & HID COMPARISON CASESTUDY

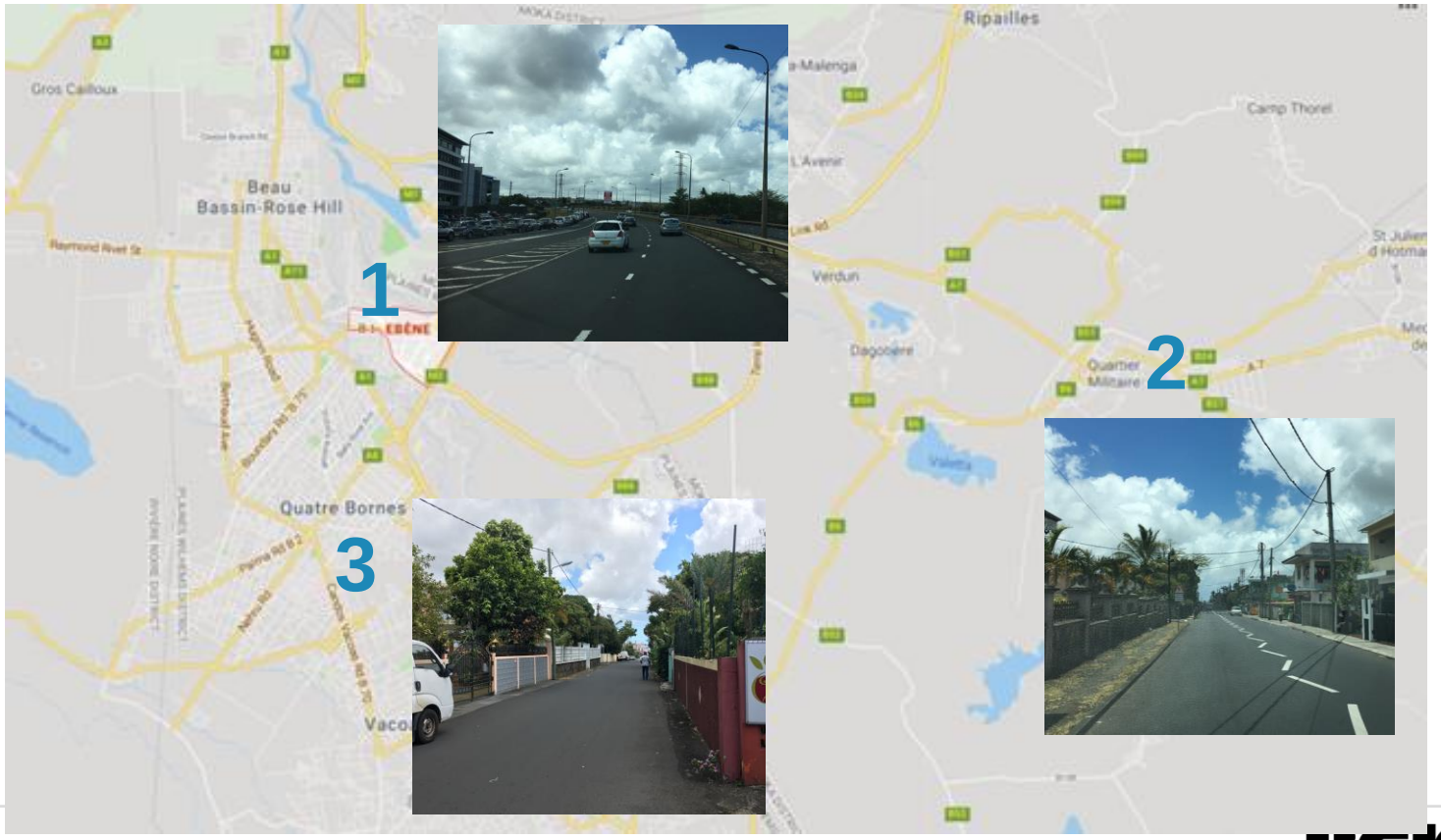
THE PROJECT

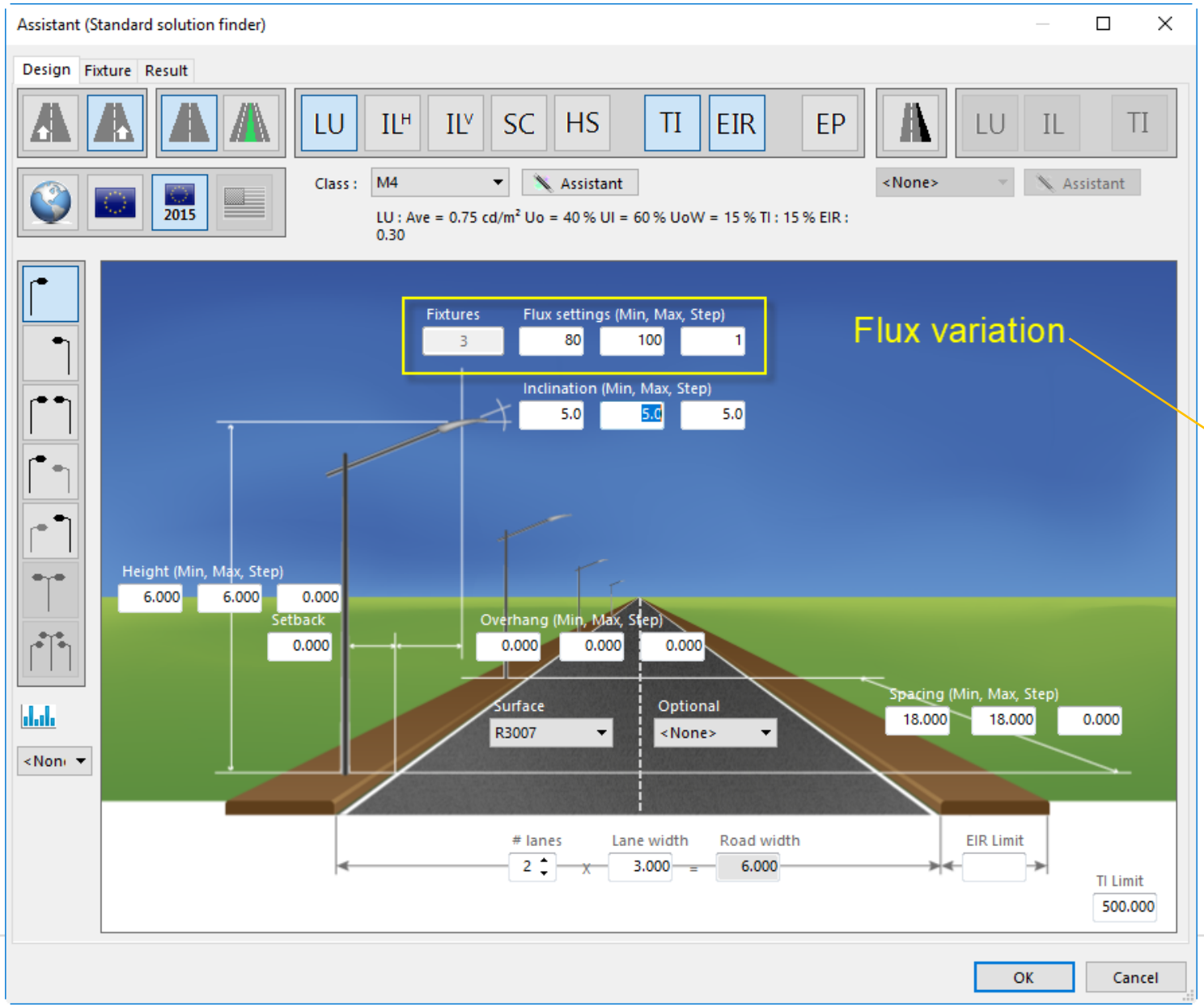
ENERGY EFFICIENCY IN STREETLIGHTING

TO DETERMINE IF LED LUMINAIRES ARE SUITABLE TO REPLACE EXISTING HID LUMINAIRES ENSURING LIGHTING LEVELS AND REDUCE BOTH ENERGY CONSUMPTION AND MAINTENANCE COSTS.

PILOT INSTALLATIONS:

1. 250W HPS
2. 150W HPS
3. 70W HPS





Parameters already existing in Ulysse 3

- Spacing
- Mounting Height
- Overhang
- Tilt angle

New Parameter : Flux Variation

Flux varies (from 80 % to 100 % step 1 %)
-> current variation
-> power recalculation *

* Based on Adriana characterization and UED Driver Matrix

DESIGNS

Ulysse 3

Schréder

MAURITIUS CEB PILOT PROJECT - TYPE A ROAD

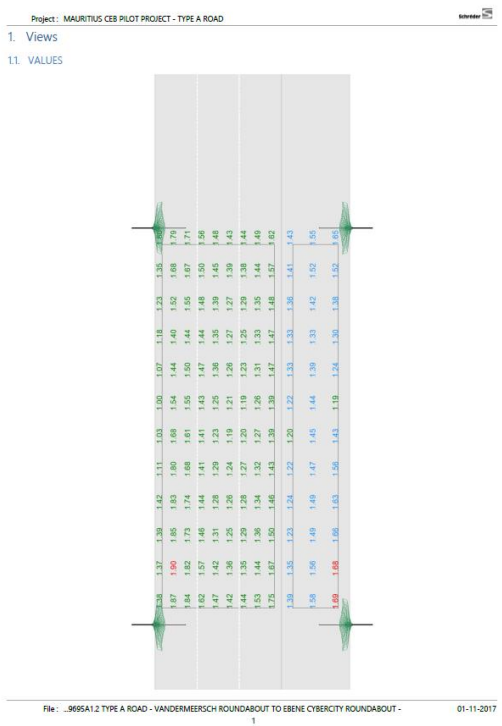
(CIE 140)

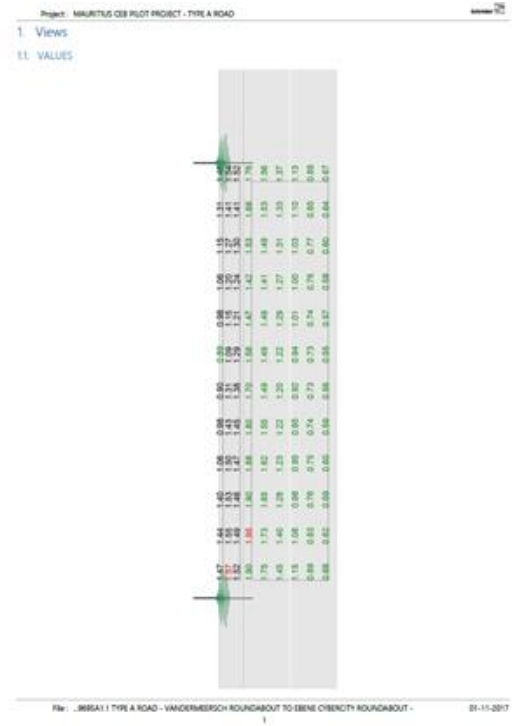
Designer : Morena Chabalala
Study # : A1.2
Project # : TK9695
Date : 01-11-2017

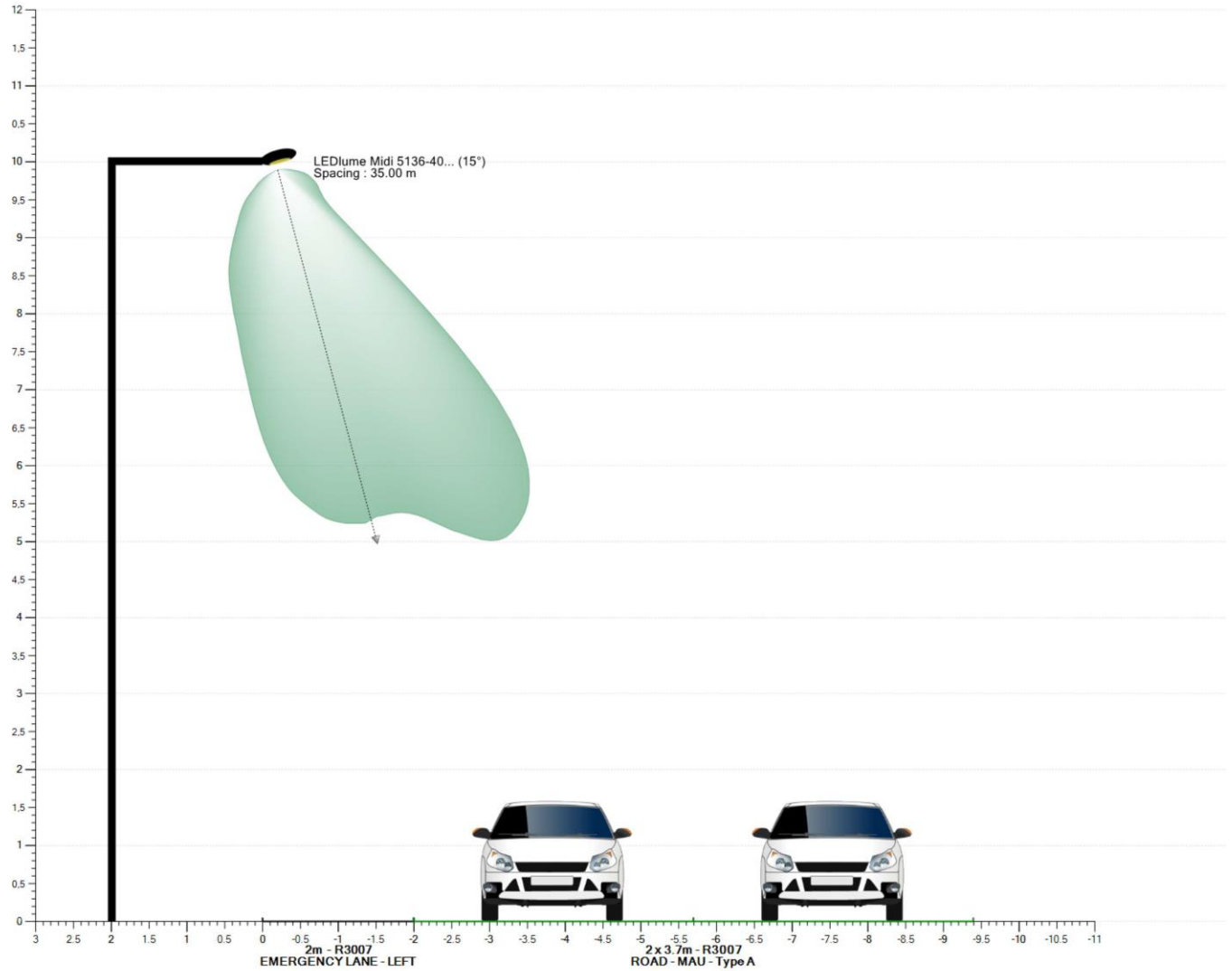
VANDERMEERSCH ROUNDABOUT TO EBENE CYBERCITY ROUNDABOUT - CROSS-SECTION 02 - 3 LANES

LED LIGHTING PROPOSAL USING BEKA SCHREDER LEDLUME-MIDI 32LED/108W OPTIC 5136 - 1000mA
MOUNTED ON 9M POLES - OPPOSITE SIDE ARRANGEMENT WITH 35M MAXIMUM SPACING AND 15° TILT ANGLE
POLES WITH 2M SETBACK FROM THE CURB, WITH 2M OUTREACH ARM
LIGHTING LEVELS - TYPE A - AS PER CLIENT'S REQUEST.

BEKA Schréder * 13 West View Road *
Olifantsfontein, 1666 * Tel: 011 238 0000






LEDlume Midi 5136-40... (15°)
Spacing : 35.00 m
2m - R3007
EMERGENCY LANE - LEFT
2 x 3.7m - R3007
ROAD - MAU - Type A

ONSITE VERIFICATION SURVEY AND REPORT

WERKSKALIBRIERUNG (TechnoTeam)

Kalibrierung für optische Strahlungsmeßgrößen
Calibration for optical radiometry

TechnoTeam Bildverarbeitung GmbH

	0195
Kalibrierschein Calibration Certificate	Kalibrierzeichen Calibration mark: WK-K 2018-07

Gegenstand Object	Bildaufnehmendes Leuchtdichtemessgerät auf der Basis einer digitalen CMOS- Kamera mit verschiedenen Objektiven Spatially resolved luminance measuring system based on a digital CMOS camera with different changeable lenses
Hersteller Manufacturer	TechnoTeam Bildverarbeitung GmbH
Typ Type	LMK mobile air
Fabrikate/Serien-Nr. Serial number	20302400481
Auftraggeber Customer	BEKA Schréder (Pty) Ltd. 13 West View Road 1665 Olifantsfontein Johannesberg South Africa
Auftragsnummer Order No.	PO 108545
Anzahl der Seiten des Kalibrierscheines Number of pages of the certificate	4
Datum der Kalibrierung Date of calibration	9. Juli 2018 2018-07-09

Dieser Kalibrierschein darf nur vollständig und unverändert weiterverarbeitet werden. Auszüge oder Änderungen bedürfen der Genehmigung der ausstellenden Kalibrierseinrichtung.
Kalibrierscheine ohne Unterschrift und Stempel haben keine Gültigkeit.

This calibration certificate may not be reproduced other than in full except with the permission of the issuing institution.
Calibration certificates without signature and seal or not valid.

Stempel Seal	Datum Date	Geschäftsführer Manager	Bearbeiter Person in charge
	9. Juli 2018 2018-07-09	Dr.-Ing. Udo Krüger	Dr.-Ing. Benjamin Ruggaber

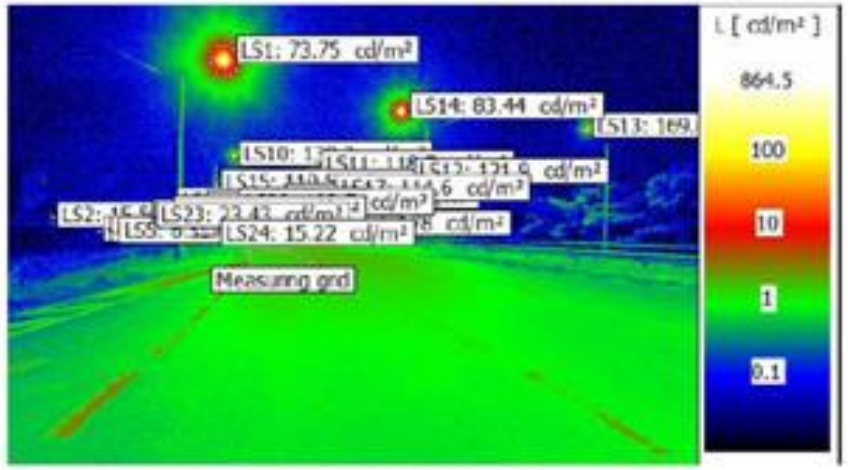
ONSITE SURVEY AND REPORT

ONSITE SURVEY AND REPORT

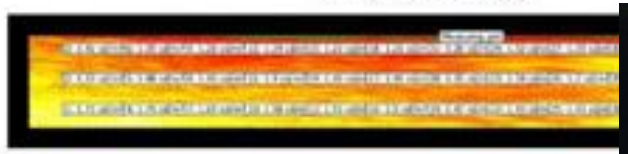
ONSITE SURVEY AND REPORT

ONSITE SURVEY AND REPORT

Luminance image



S = 35 m, N = 12 (H)

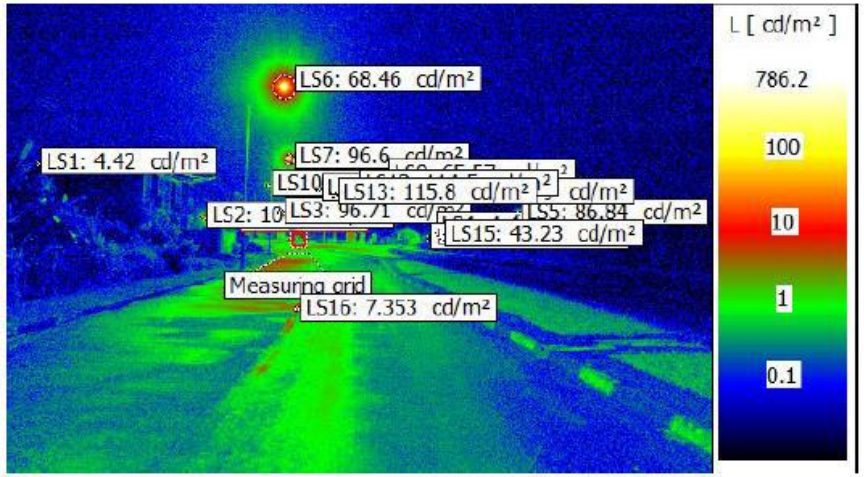


Uniformity table

Number of grid lines	1	2	3	4	5	6	7	8	9	10	11	12
3	1.41	1.35	1.26	1.24	1.21	1.21	1.26	1.32	1.35	1.39	1.44	1.
2	1.53	1.48	1.41	1.4	1.41	1.41	1.35	1.34	1.3	1.47	1.47	1.
1	1.73	1.75	1.65	1.58	1.51	1.5	1.47	1.43	1.41	1.45	1.51	1.

Lengthwise Uniformity	Overall Uniformity
0.831	0.64
0.852	
0.806	

Luminance image



S = 35 m, N = 12 (H)

Uniformity table

Number of grid lines	1	2	3	4	5	6	7	8	9	10	11	12
3	2.71	2.97	4.74	4.38	2.54	2.05	1.39	1.17	1.04	0.96	1.1	1.
2	2.09	2.27	4.55	3.84	1.98	2.08	1.36	0.986	0.926	0.936	1.08	1.
1	0.707	1.07	2.22	2.32	1.8	1.62	1.18	1	0.884	0.943	0.992	1.

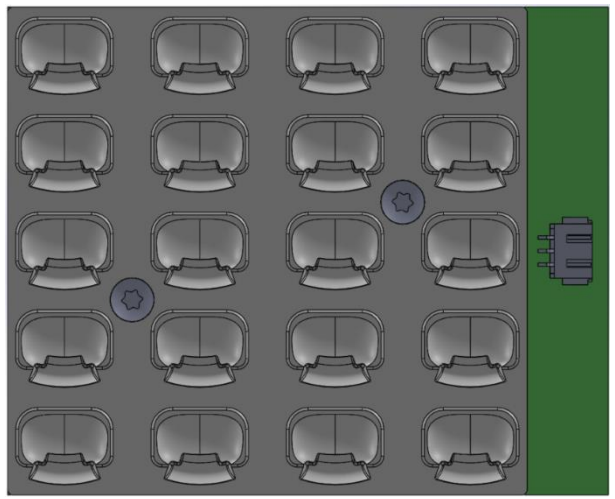
L_Avg	Lengthwise Uniformity	Overall Uniformity
1.82	0.203	0.389
	0.203	
	0.304	

CONCLUSIONS

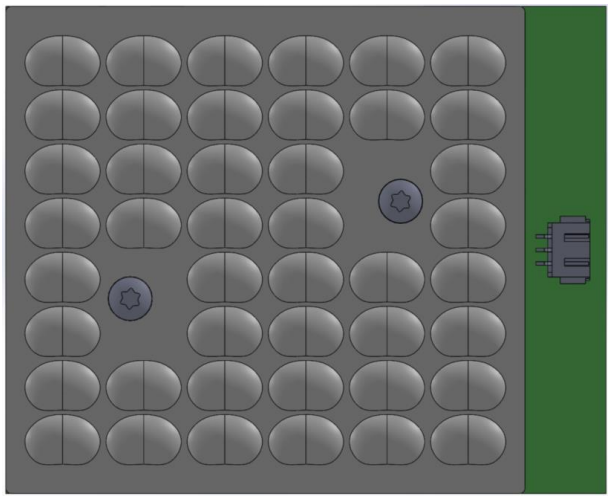
- THE FOLLOWING WATTAGES WERE USED IN REPLACING THE HPS LUMINAIRES:
  - 250W HPS- 108W LED
  - 150W HPS- 75W
  - 70W HPS- 26W
  - SITE 1 ENERGY SAVING: 67%
  - SITE 2 ENERGY SAVING: 50%
  - SITE 3 ENERGY SAVING: 63%
  - **LED LUMINAIRES MEET AND EXCEED LIGHTING REQUIREMENTS WITH SIGNIFICANT ENERGY SAVING**
  - TOGETHER WITH THE SAVINGS ON MAINTENANCE YOUR ROI PERIOD IS GREATLY REDUCED
    - Kw/Hr RATE AND MAINTENANCE COST DEPENDANT

WHAT'S NEXT?

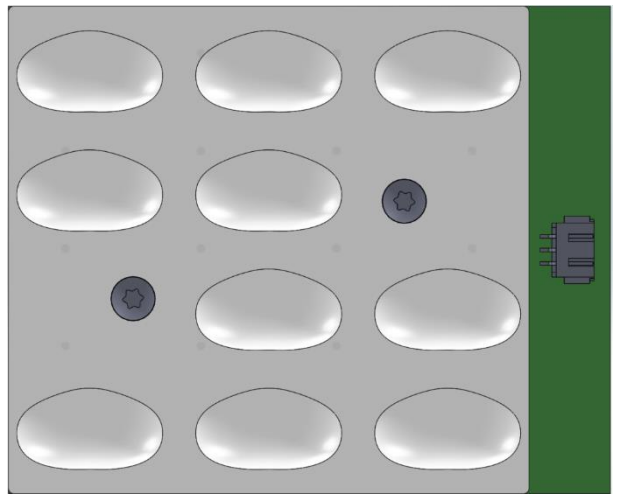
Premium
20 High Power



Entry
44 Mid Power

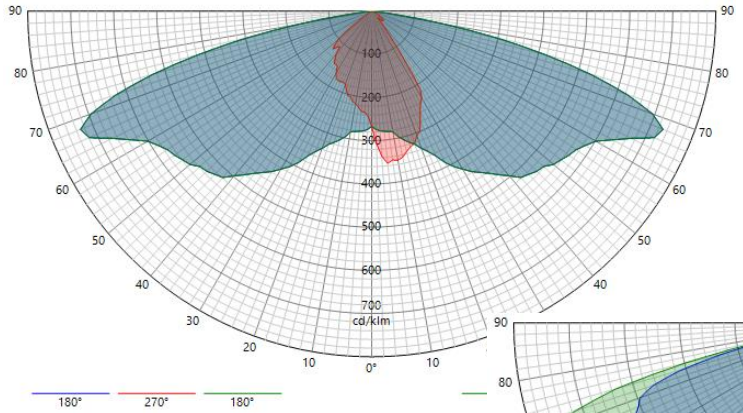


Entry (alternative)
10 X 5050 Package

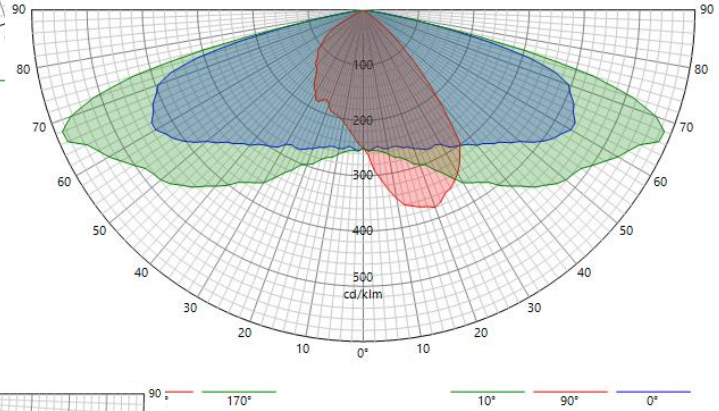


CONTINUE OPTICS DEVELOPMENT

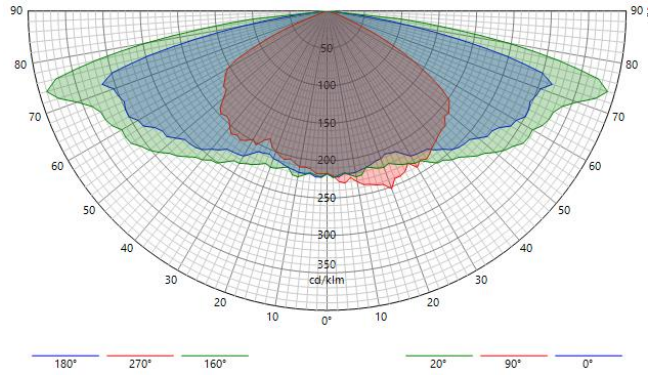
5256 close to 5136



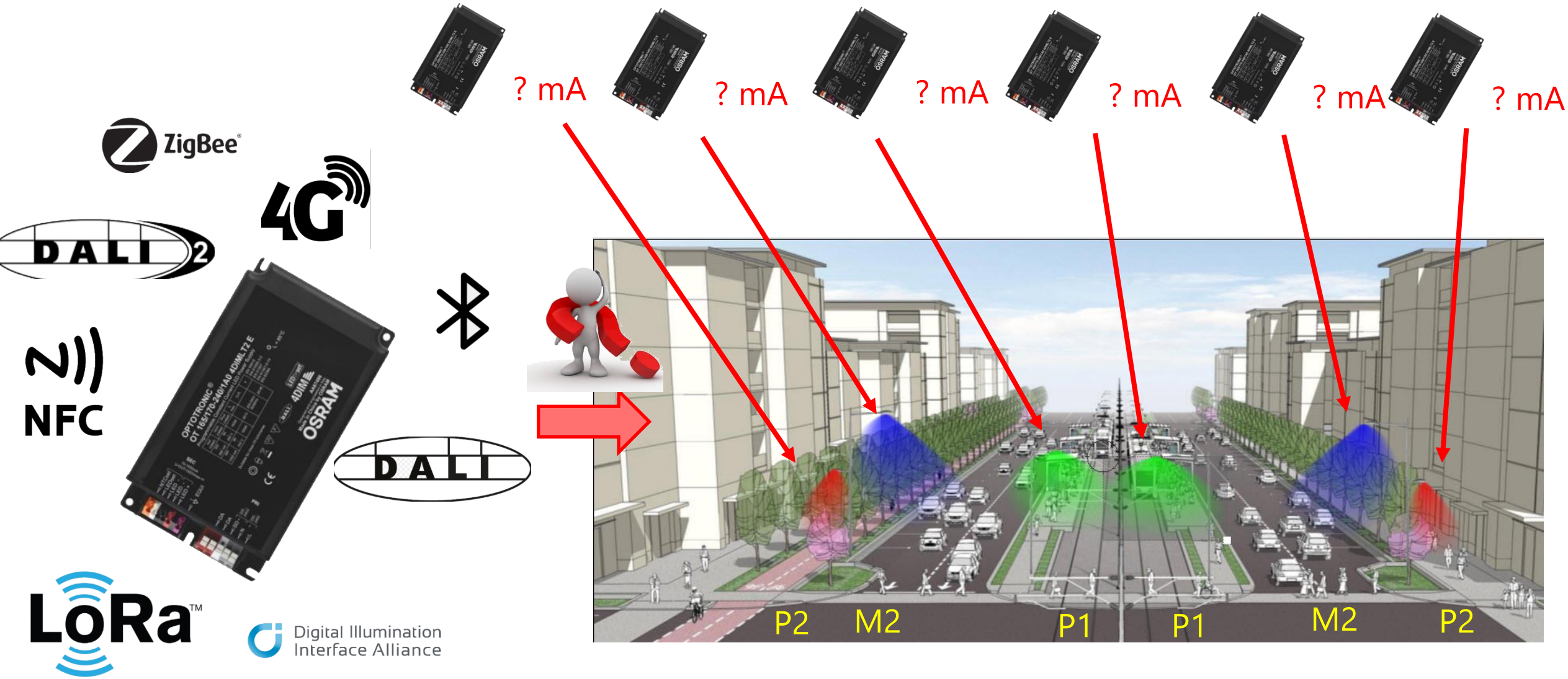
5259 Close to 5137



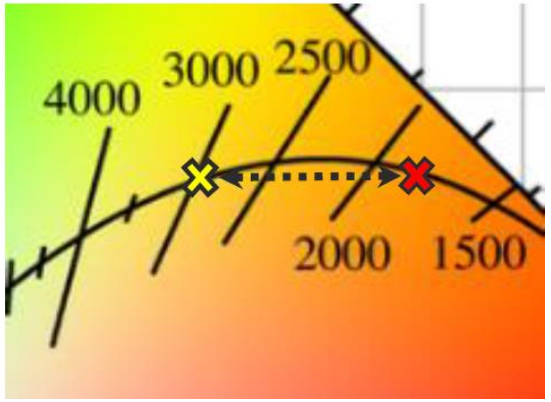
5261 Close to 5068



SMART DRIVER :



Tunable white



THANK YOU

PAULO PAIS MAMEDE

14/03/2019