

Measurement of electric, photometric and colorimetric parameters of LED using in different ambient temperatures

Przemysław Tabaka

Lodz University of Technology
Poland

przemyslaw.tabaka@wp.pl

Andrzej Wiśniewski

Warsaw University of Technology
Poland

andrzej.wisniewski@ien.pw.edu.pl



12th European Lighting Conference
SEPTEMBER 17TH-19TH, 2013 KRAKOW, POLAND

SUBJECT AND SCOPE OF STUDY

SUBJECT OF STUDY

Chosen LED retrofit lamps to test are typical in the market, supply by line voltage (230 V) equipped with typical bases E27, E14 and GU10





SUBJECT AND SCOPE OF STUDY

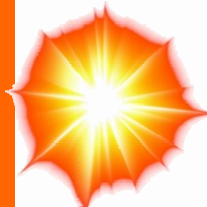
SCOPE OF STUDY

• electric parameters



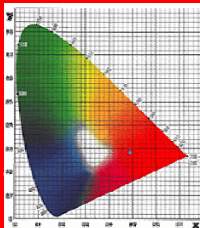
- power (P)
- power factor ($\cos \varphi$)
- Total Harmonic Distortion (THD_i)

• photometric parameters



- luminous flux (Φ)

• colorimetric parameters



- color temperature (T_c)
- color rendering index CRI



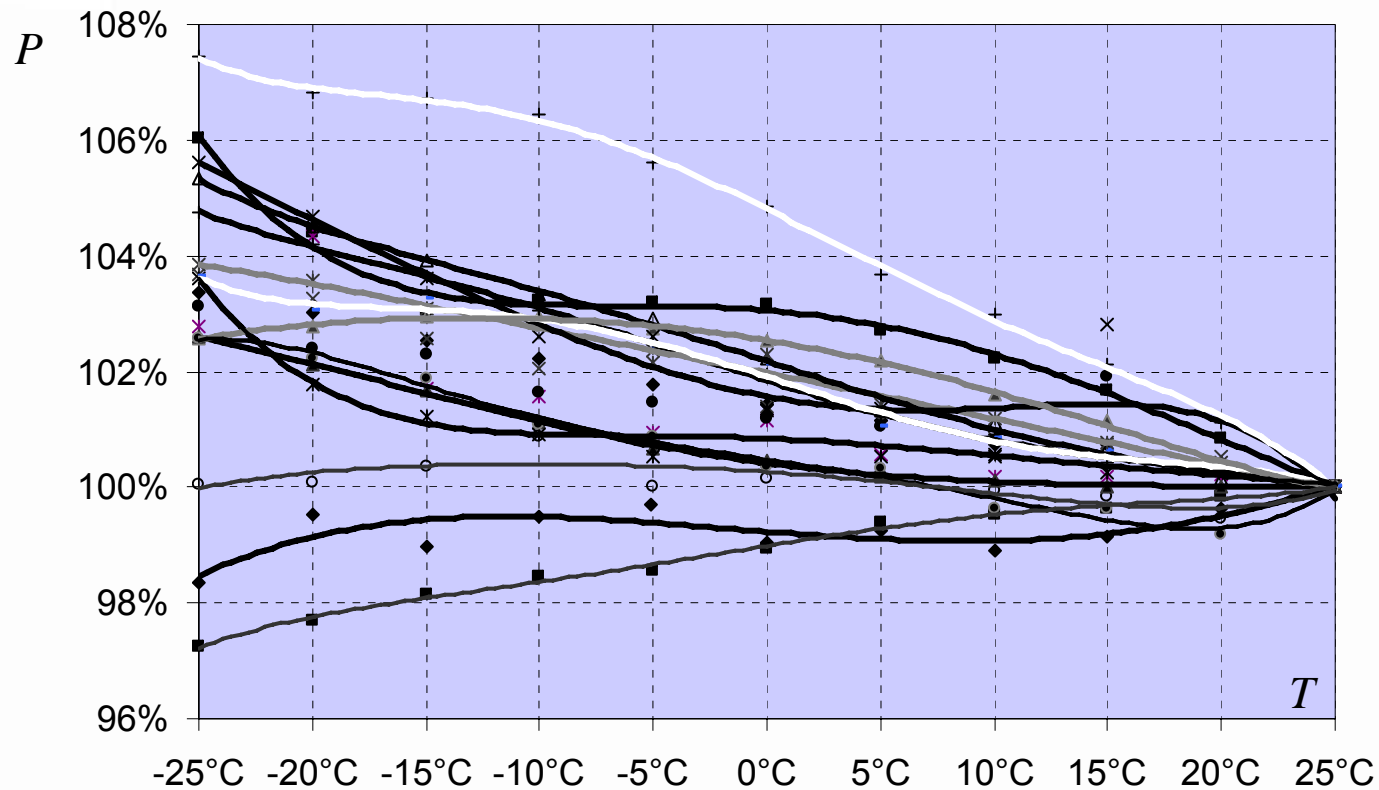


TABAKA P., WIŚNIEWSKI A.

THE PARAMETERS OF LEDs AT DIFFERENT AMBIENT TEMPERATURES

THE RESULTS OF MEASUREMENTS

The power in function of ambient temperature



12th European Lighting Conference

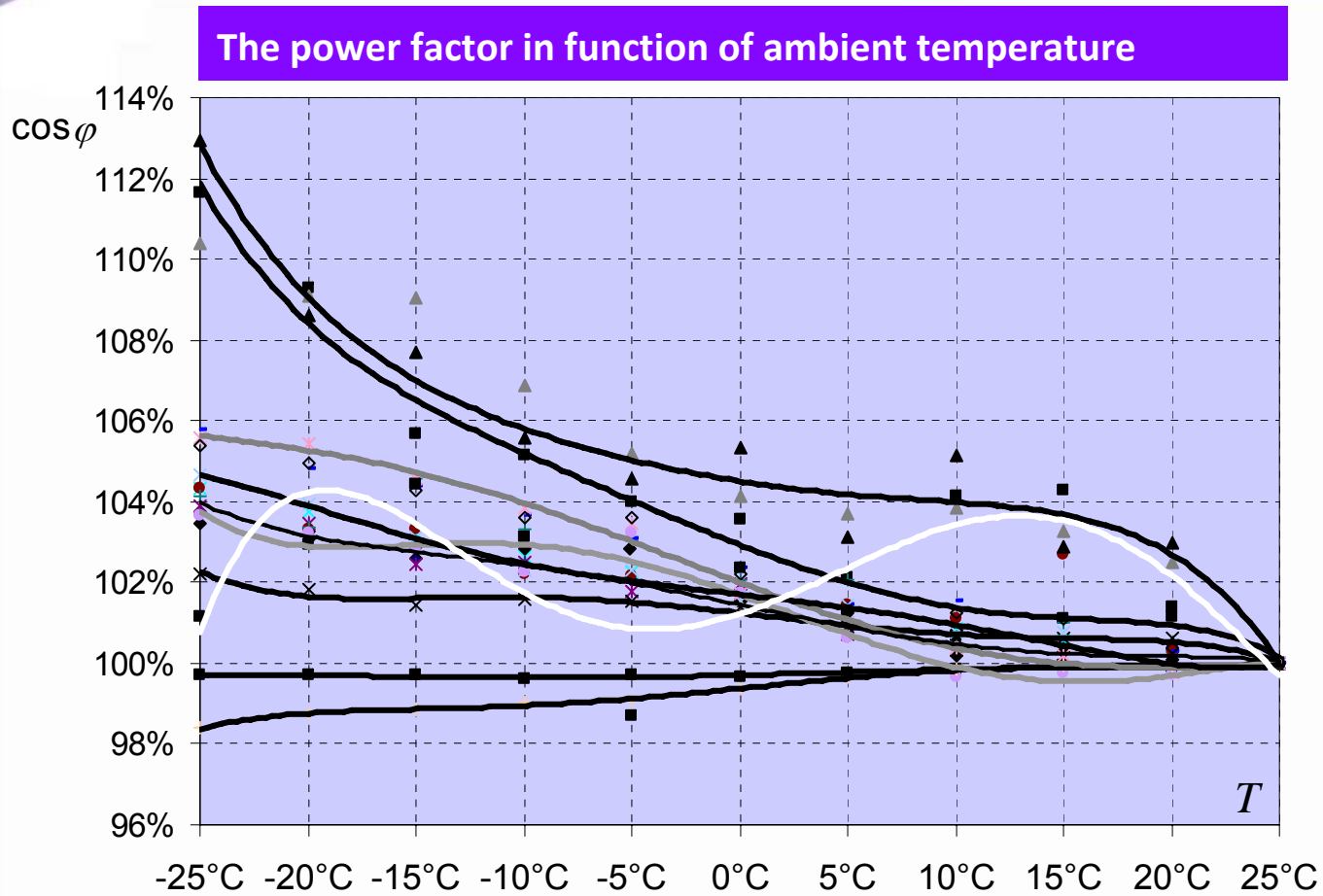
SEPTEMBER 17TH-19TH, 2013 KRAKOW, POLAND



TABAKA P., WIŚNIEWSKI A.

THE PARAMETERS OF LEDS AT DIFFERENT AMBIENT TEMPERATURES

THE RESULTS OF MEASUREMENTS

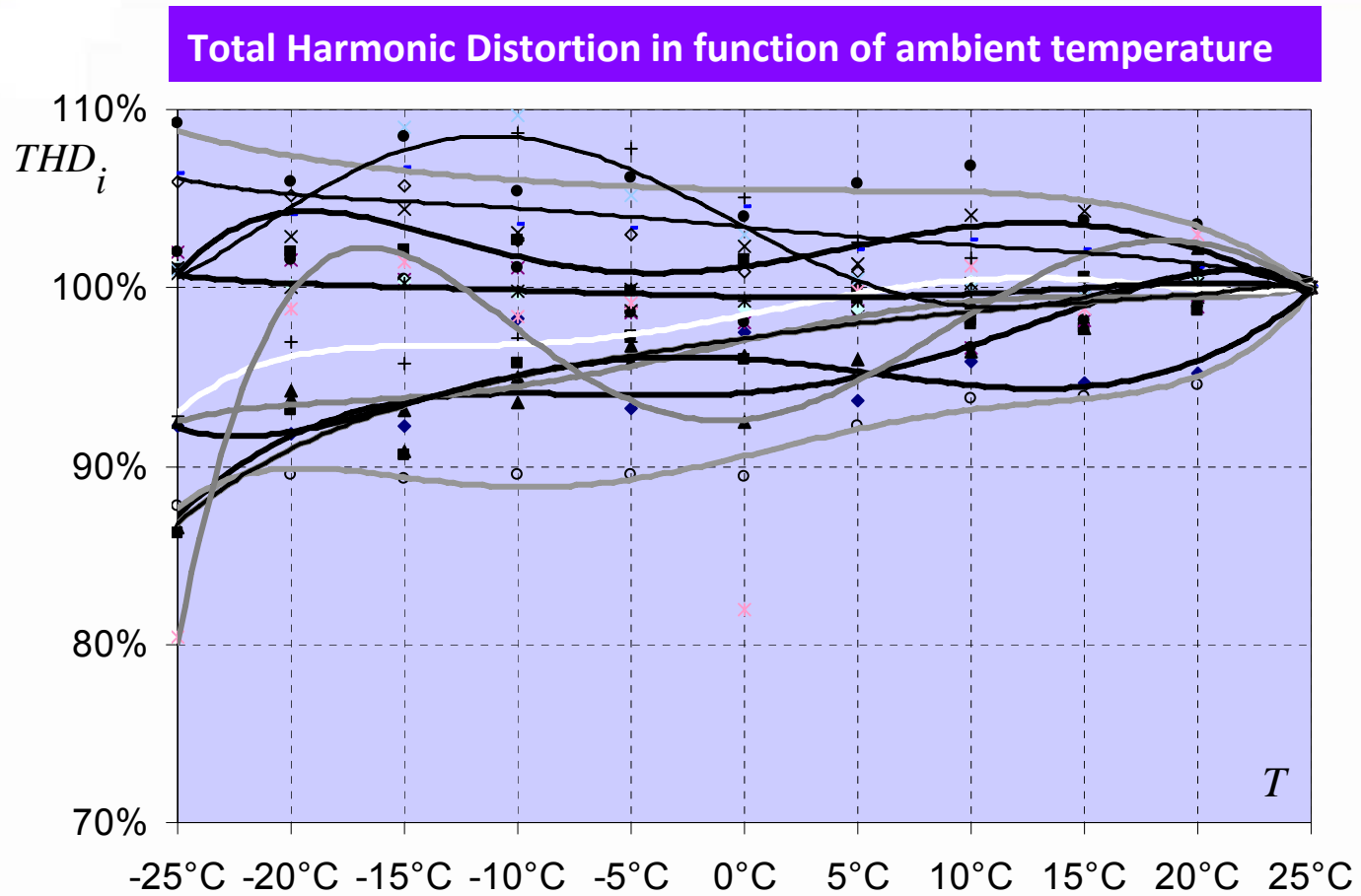


12th European Lighting Conference

SEPTEMBER 17TH-19TH, 2013 KRAKOW, POLAND



THE RESULTS OF MEASUREMENTS

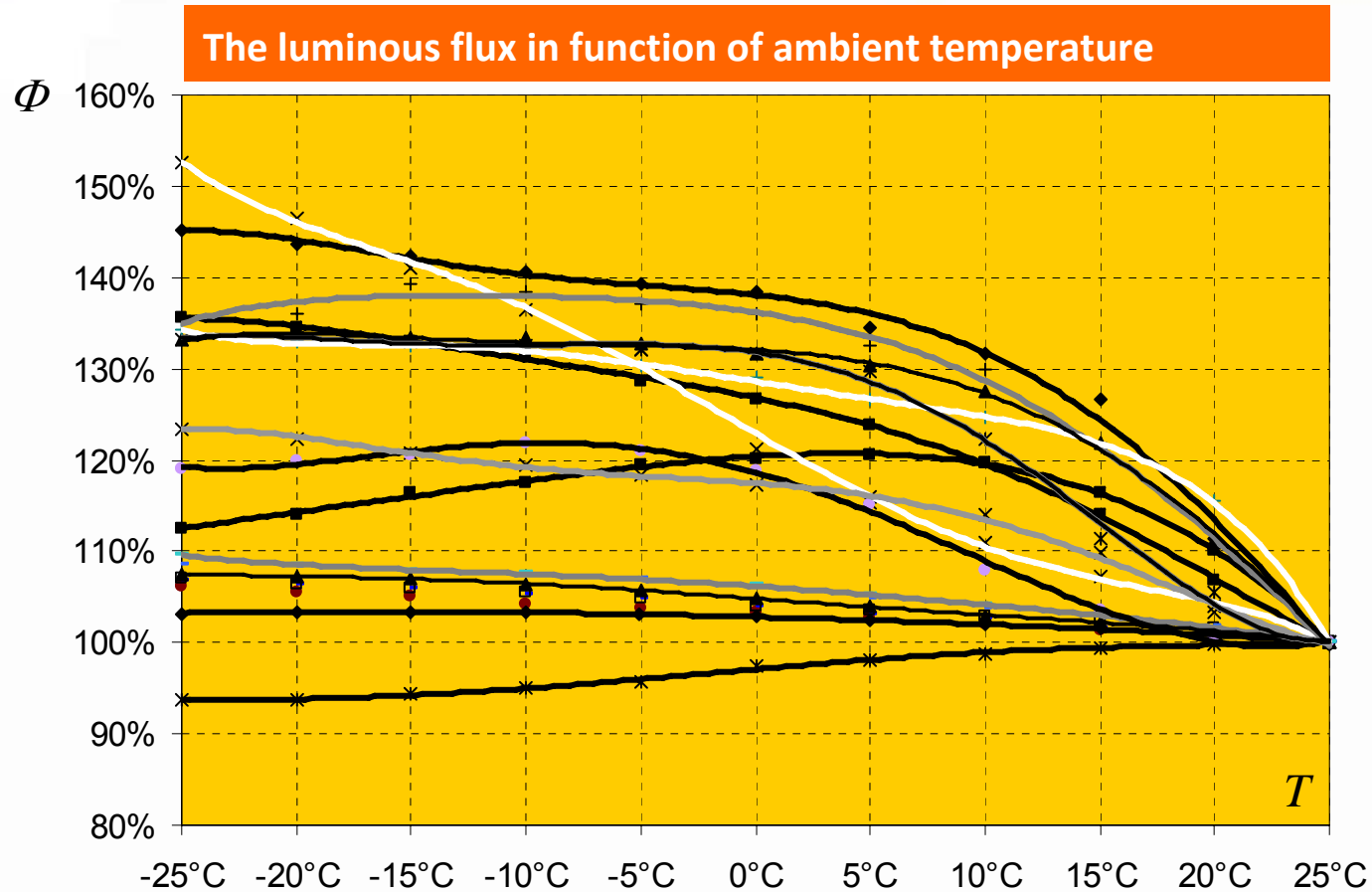




TABAKA P., WIŚNIEWSKI A.

THE PARAMETERS OF LEDs AT DIFFERENT AMBIENT TEMPERATURES

THE RESULTS OF MEASUREMENTS



12th European Lighting Conference

SEPTEMBER 17TH-19TH, 2013 KRAKOW, POLAND

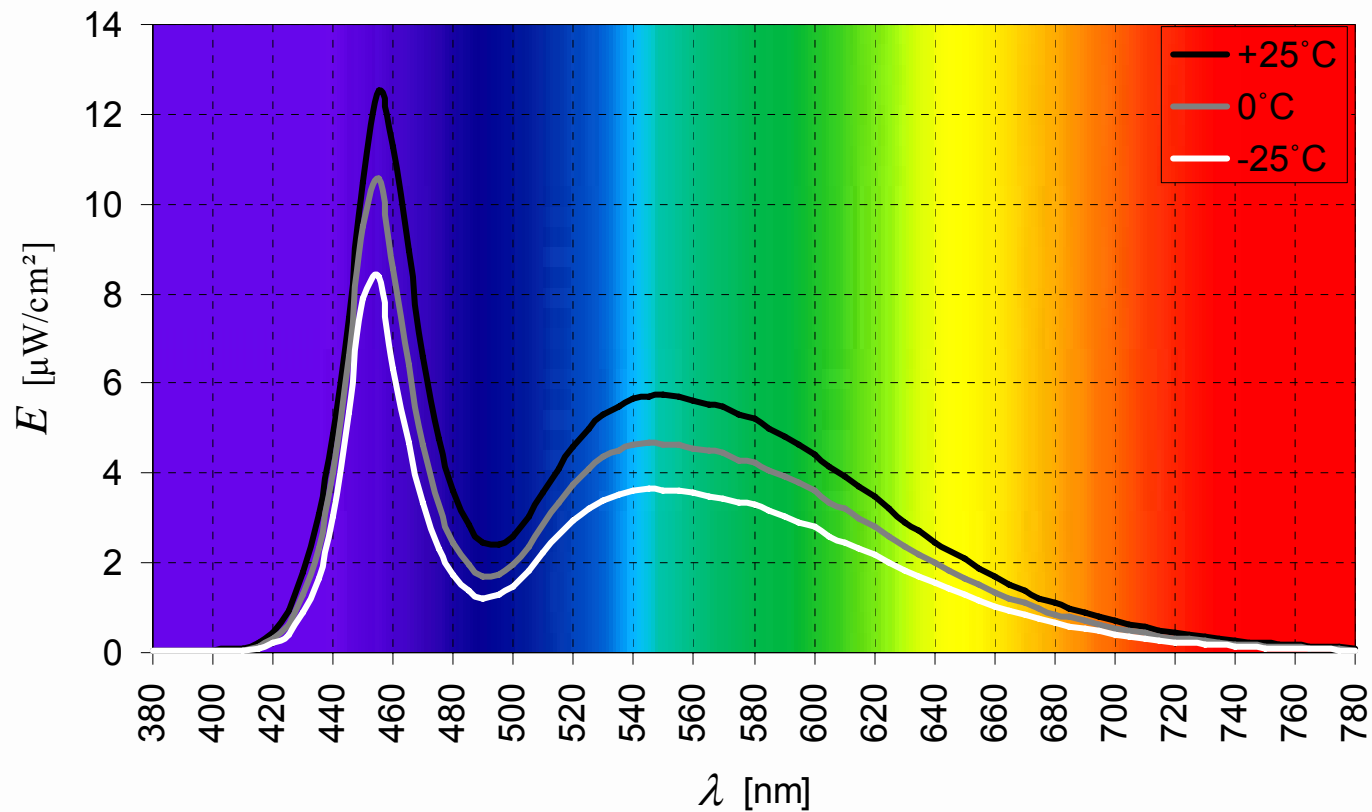


TABAKA P., WIŚNIEWSKI A.

THE PARAMETERS OF LEDs AT DIFFERENT AMBIENT TEMPERATURES

THE RESULTS OF MEASUREMENTS

Changes of spectral distribution



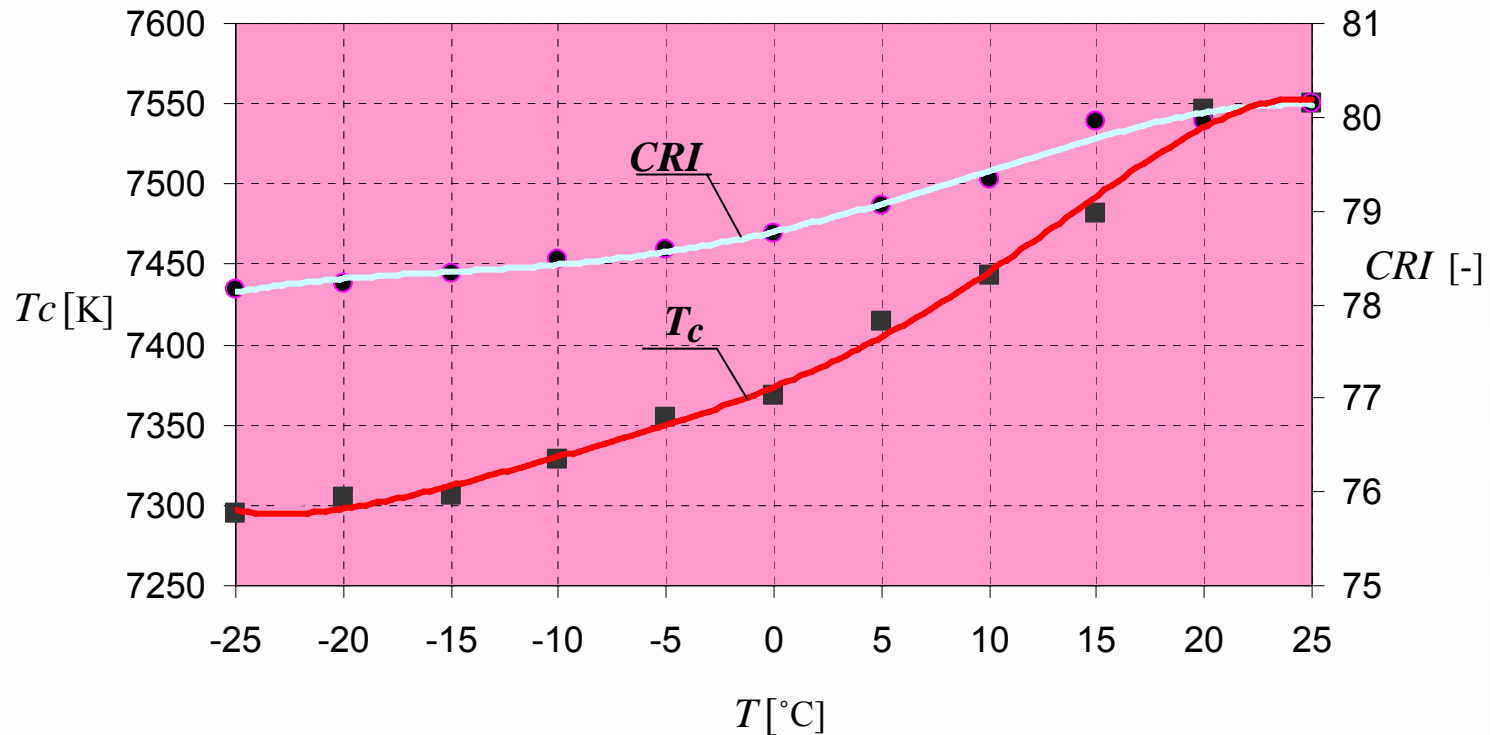
12th European Lighting Conference

SEPTEMBER 17TH-19TH, 2013 KRAKOW, POLAND



THE RESULTS OF CALCULATIONS

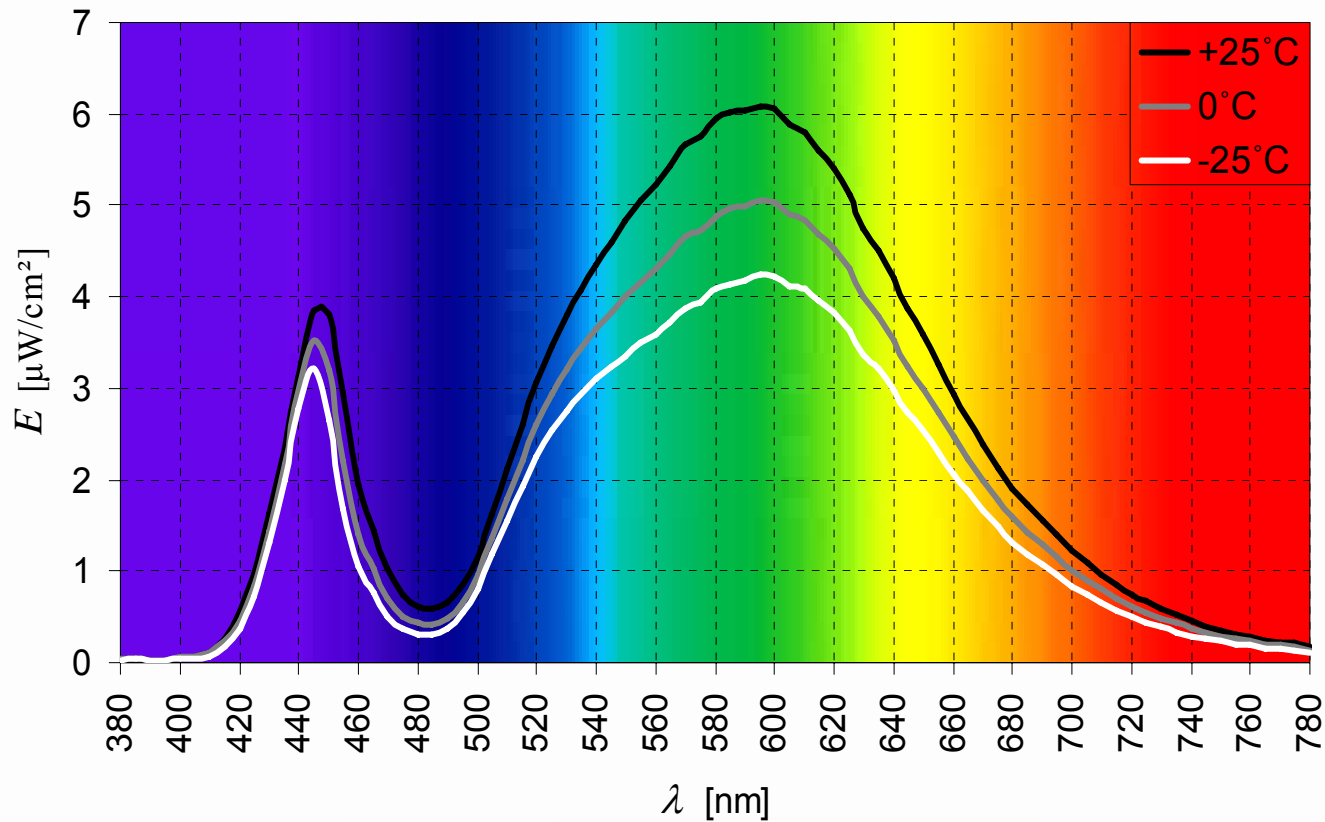
Changes of T_c and CRI in function of ambient temperature





THE RESULTS OF MEASUREMENTS

Changes of spectral distribution



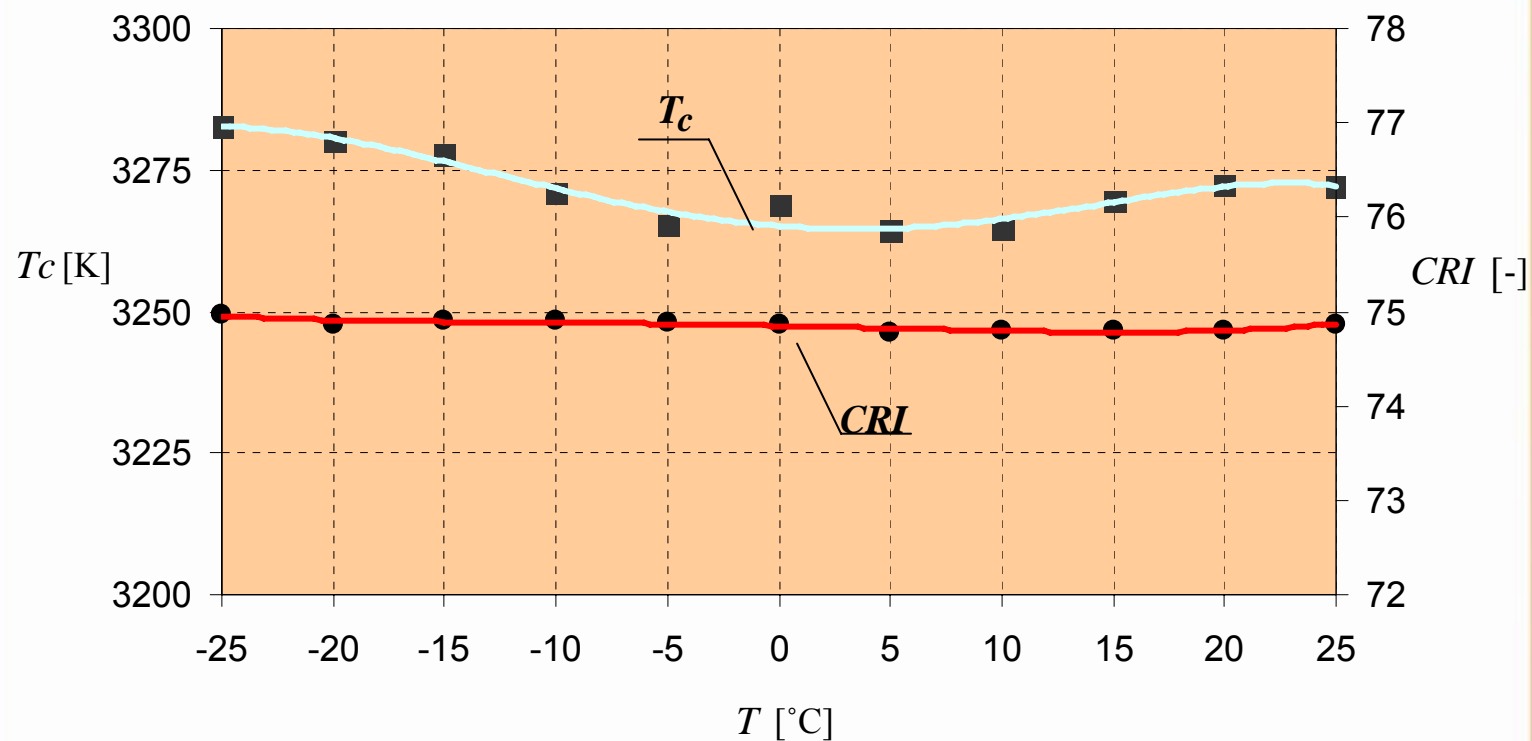
12th European Lighting Conference

SEPTEMBER 17TH-19TH, 2013 KRAKOW, POLAND



THE RESULTS OF CALCULATIONS

Changes of T_c and CRI in function of ambient temperature





TABAKA P., WIŚNIEWSKI A.

THE PARAMETERS OF LEDS AT DIFFERENT AMBIENT TEMPERATURES

End of the presentation

**Thank you for your
attention**

*12th European Lighting Conference
SEPTEMBER 17TH-19TH, 2013 KRAKOW, POLAND*