PfB Prüfzentrum für Bauelemente
Dipl.-Ing. (FH) Rüdiger Müller

Fenster · windows
Rollläden · shutters
Türen + Tore · doors
Fassaden · curtain walling
Baubeschläge · building hardware

July 13, 2016 WT/YA

TEST REPORT NO. 16/06-A001-B2

Version 1.en

PfB-Internal-No. 16/08-A328

Thermal transmittance of frames U_f calculated according to DIN EN ISO 10077-2: 2012-06 "Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - Part 2: Numerical method for frames (ISO/DIS 10077-2 : 2003) German version EN ISO 10077-2 : 2012"

Order No.	16/06-A001
Applicant	Deceuninck Ege Profil Tic. ve San.A.Ş. 10003 Sokak No:5 AOSB 35620 Çiğli / İzmir Türkiye
Product type	Inward opening single sash sliding door with fixed side part, PVC , double glazing
Product name	**Legend Slide**
Conducted Calculation	Thermal transmittance
Test Certificate	No. 16/06-A001-Z2 of July 13, 2016 issued by **PfB**
Responsible test person	Dipl.-Ing. (FH) Rüdiger Müller

This report consists of 5 pages. The following are included as appendix:
- 1 Pages calculation (attachment 1 to 1 of 4)
- 3 Pages technical documentation (attachment 2 to 4 of 4)

Content

1 Assigned Scope of Testing

With the delivery of drawings, the applicant requested Prüfzentrum für Bauelemente (here in after referred to as **PfB**) to calculate the thermal transmittance U_f for PVC profiles in accordance with EN 10077-2.

2 Subject Matter of the Calculation

2.1 Sampling and Test Sample Labelling

For the calculation, sectional drawings of the test sample were submitted to **PfB** by the applicant as PDF files and DXF files. The drawings have been created by Burcu Salman on 30.06.2016

2.2 Technical documentation

The technical drawings and fact sheets were only checked for technical correctness and marked.

- Legend Sürme 1A
- Legend Sürme 1B
- Legend Sürme Kesit

2.3 Test Sample Construction

Inward opening tilt and turn, single casement window, PVC, double glazing

Frame	(w x h)	approx. 149 x 65 mm.
Casement	(w x h)	approx. 76 x 69 mm.
Reinforcement	Frame:	steel, wall thickness 1.2 mm
	Sash:	steel, wall thickness 1.5 mm
Sealing:	TPE	

More details of the configuration are given in 2.2 Technical Documentation.

3 Calculation Bases

The calculations were performed using a calculation software program (WinIso2D Professional, Version 7.50, from Sommer Informatik GmbH, Germany) based on the finite element system (rectangular elements and iterative solution process) with which the validation examples of EN ISO 10077-2:2012 were correctly reproduced within the tolerances defined by the standard.

Material characteristics (rated values of thermal conductivity) as specified in EN ISO 10077-2:2012, EN 10456:2010-05.

3.1 Applied Standards

The calculations were performed according to the following standards:

EN 10077-2:2012-06	"Thermal performance of windows, doors and shutters – Calculation of thermal transmittance – Part 2: Numerical method for frames"

4 Input Values for Calculation

The following ambient conditions were used for calculation:

- Outside air temperature	Θ_e =	0°C
- Inside air temperature	Θ_i =	20°C
- Surface thermal resistance, **external**	R_{se} =	0.04 $(m^2K)/W$
- Surface thermal resistance, **internal**	R_{si} =	0.13 $(m^2K)/W$
- Surface thermal resistance, **internal** (Reduced radiation/convection in corner areas)	R_{si} =	0.20 $(m^2K)/W$
- Radiation emissivity for all other surfaces	ε =	0.9

The following rated values were used for the thermal conductivity of the materials:

- EPDM	λ =	0.250 W/(m K)
- PVC hard	λ =	0.170 W/(m K)
- Calibrating panel	λ =	0.035 W/(m K)
- Structural steel	λ =	50.00 W/(m K)

5 Calculation Results

The individual results of the calculated thermal transmittance values U_f are given in the representations of the calculation models in the attachment to this Test Report.

Profile types	Width b_f [mm]	U_f calculated [W/m²K]	U_f rounded [W/m²K]
Legend Slide	125	1,425	**1,4**

6 Transferability and Application of the Calculation Results

A transfer of the results of this Test Report to windows is only permitted if the design, size and materials comply with the calculation bases.

According to EN ISO 10077-2:2012-06, the U-values must be calculated to three decimal places and indicated rounded to two significant digits.

7 General Information

This Test Report is intended for the applicant only and must not be published, wholly or in part, without prior permission of both the applicant and **PfB**.

Test Certificate No. 16/06-A001-Z2 was issued for publication purposes.

The original document will be sent to the customer. The customer also receives a copy of the document in pdf format. One copy remains with **PfB**.

The test results apply only to the calculated profile combinations and the calculation bases specified in this Test Report **PfB** declares that they can not be claimed for recourse with regard to the content of the report.

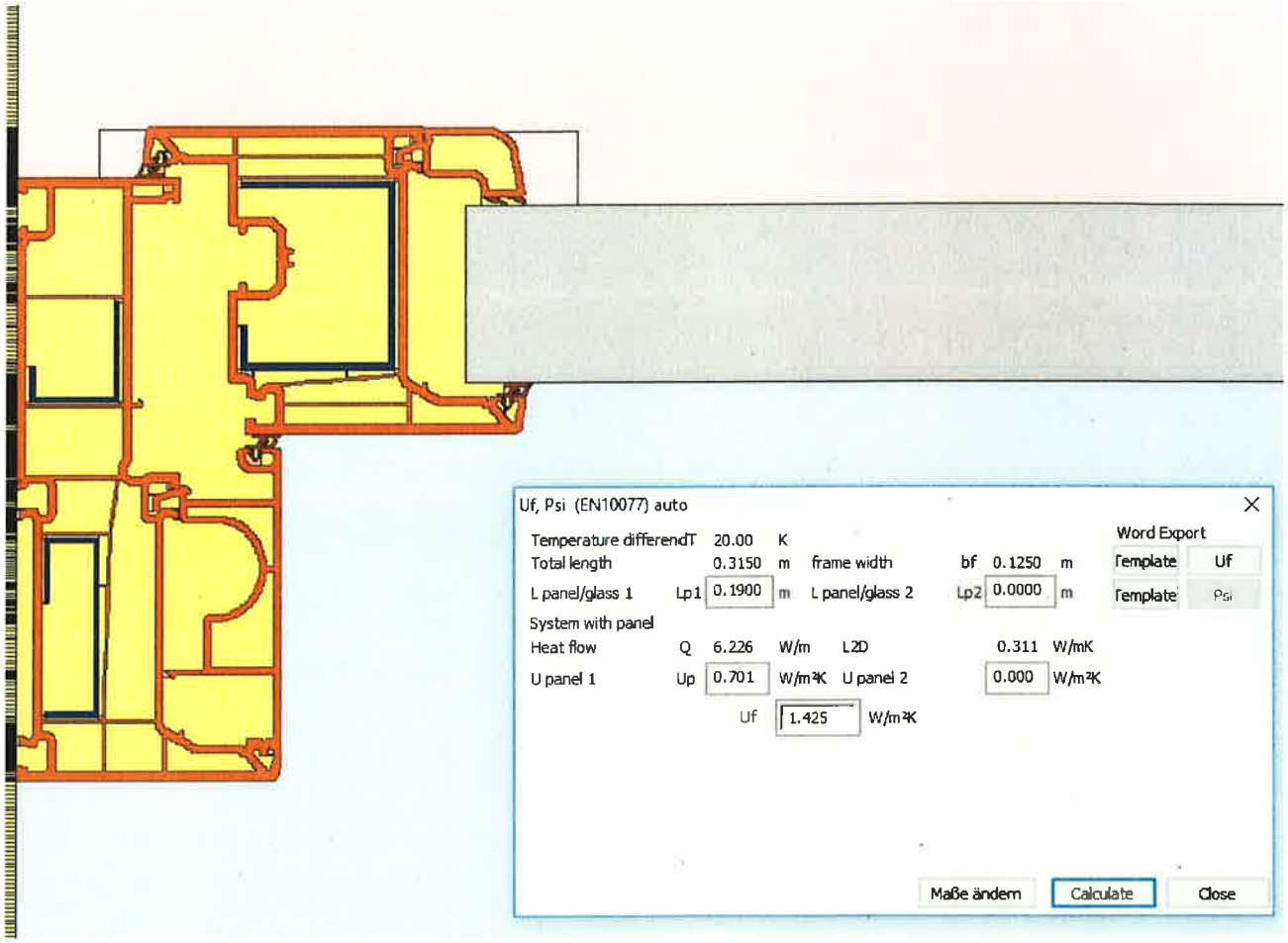
This report is valid as long as the Standard DIN EN ISO 10077-2: 2012-06 is in force and no essential changes of the structure and/or production procedure has been taken place.

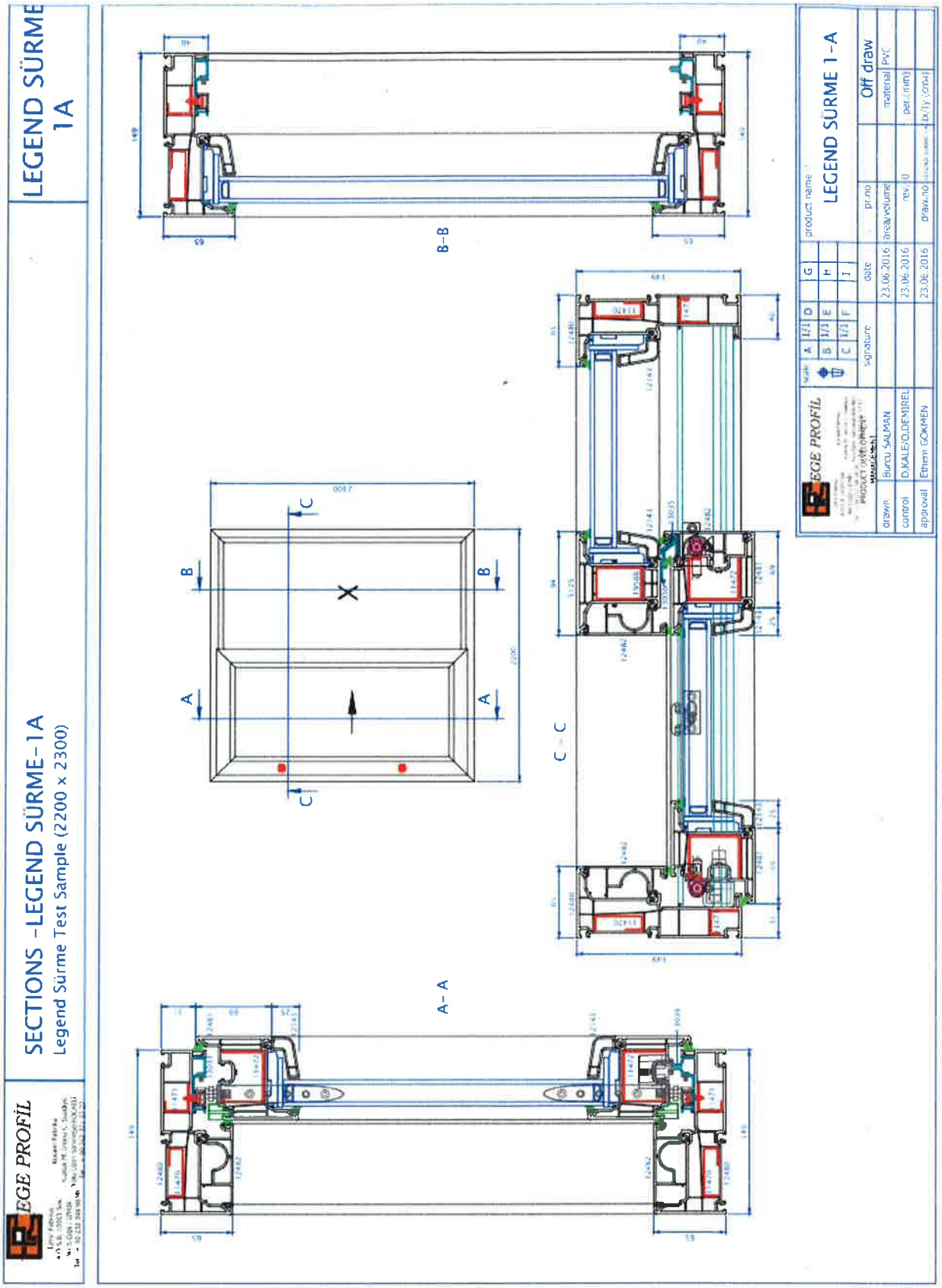
Dipl.-Ing. (FH) Rüdiger Müller
Head of Institute

Stephanskirchen
July 13, 2016

Yiğit Altuğ
Responsible Official

Test Report No: 16/06-A001-B2
Legend Series




LEGEND SÜRME 1A
SECTIONS -LEGEND SÜRME-1A
Legend Sürme Test Sample (2200 x 2300)
EGE PROFİL
B-B
C - C
A - A
LEGEND SURME 1-A
Off draw
material PVC
drawn Burcu SALMAN
control D.KALE/O.DEMİREL
approval Ethem GÖKMEN

PfB Prüfzentrum für Bauelemente
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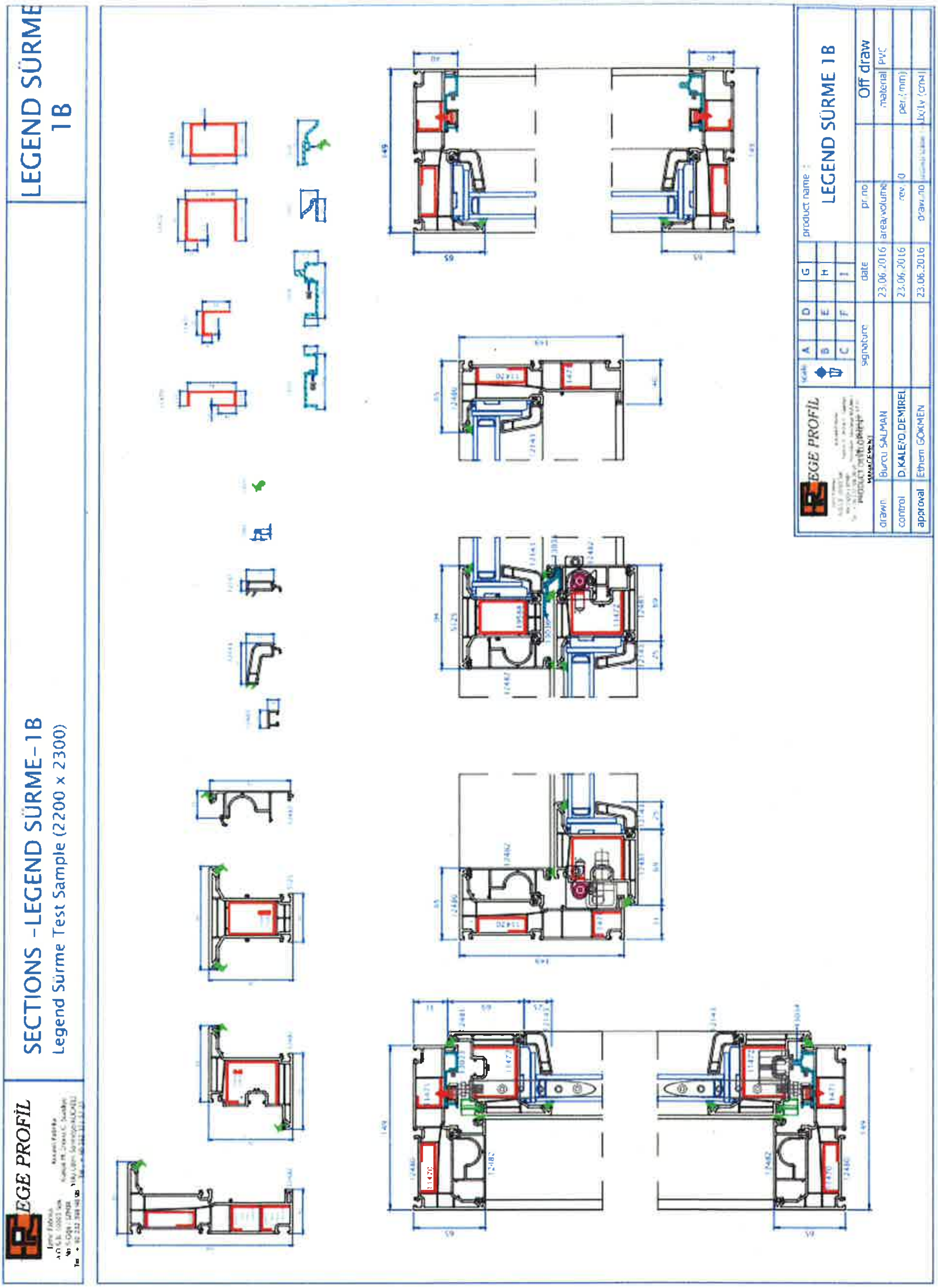
Deceuninck-Ege Profil Tic. ve San.A.Ş.,İzmir, Türkiye



	LEGEND SURME KESİT