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Electric vehicle user-centric design for optimised energy efficiency

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Design OptiMisation for efficient electric vehicles based on a
USer-centric approach

DOMUS – Deliverable Report

D3.5 – Glazing insulation: thin coated windshield, backlite and front sidelites with defrosting/defogging function

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| Checked by | Hélder-Filipe DE CAMPOS GARCIA (HUT) | 2020-07-08 |
| Reviewed by (if applicable) | Hélder-Filipe DE CAMPOS GARCIA (HUT)) Jean di Martino (LIST) | 2020-07-08 |
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Publishable summary

The purpose of the presented document is to describe the way of definition and manufacturing of thin automotive glasses, WindShield (W/S), BackLite (B/L) and Front Door sidelites (FD) with IR-coating. IR-coating will provide thermal insulation plus defrosting/defogging function.

This document describes more precisely the way followed to define the glass configuration and design all the glazing, in order to comply with DOMUS requirements.

This document is structured in 3 main parts:

- Global descriptions of a glazing with IR-coating and of the manufacturing process used to produce an automotive laminated glass
- The way followed to design & define thin automotive glazing with IR-coating for insulation & defrosting/defogging function
- Results of glazing prototypes produced for DOMUS demo car.

Regarding the automotive glazing, the DOMUS project aims to reach a new glass configuration for future Electrical Vehicles (EV).

If we compare to standard automotive glazing, the prototypes glazing produced for DOMUS project are thinner (around -10% for weight reduction). They are equipped with IR-coating which allow to reach much better performances in terms of insulation (+600% in reflectance & more than 30% for transmittance factors) but also to add heating function which will be useful for defogging & deicing of the glazing, therefore to reduce the electrical consumption of the Heating Ventilation Air-Conditioning (HVAC).

The development of this thin glass structure with coating for all the glazing allow to establish the way to follow to propose an industrially validate thin coated glass configuration for future EV.

The activities of this task will enable to validate the gain generated by a thin coated glazing on an EV, thanks to testing on the real DOMUS demo vehicle.