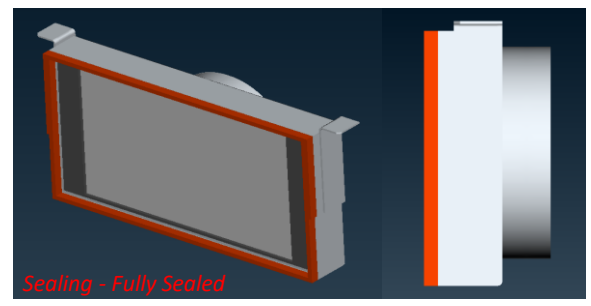
DrivAer CFD Data Exchange

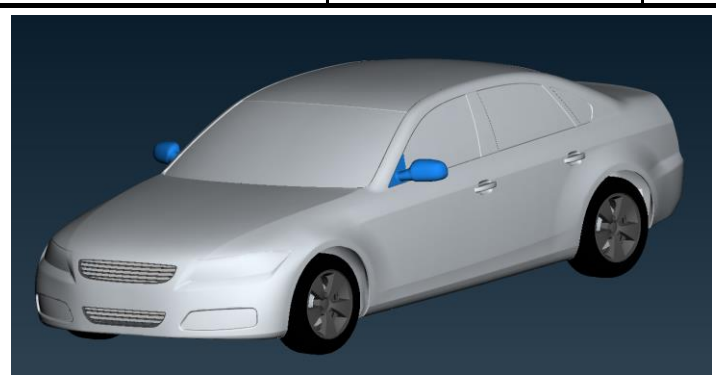
ECARA

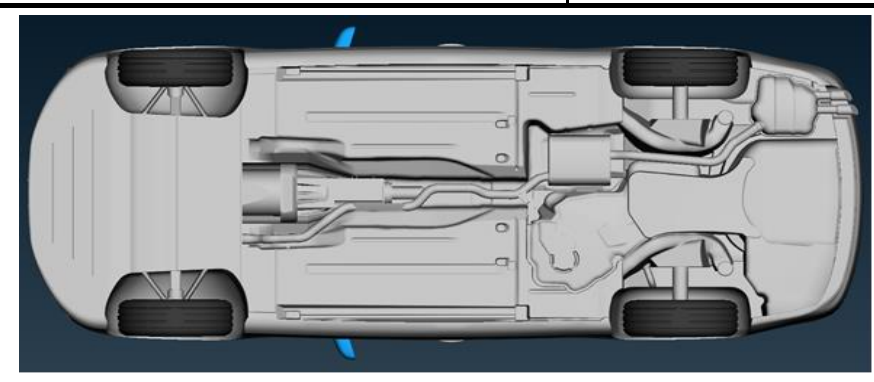
COMPANY	**Ford Motor Company**	*DATE*	**19/09/2017**	*CONTACT*	**Brendan Luneman**
DrivAer Configuration	**N_EB_wM_wW_woL_oG**			*EMAIL*	bluneman@ford.com

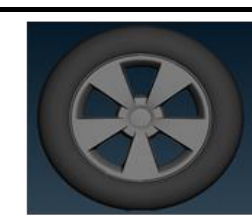
CFD Solver		*Mesh Settings*		*Tunnel Size*	
Vendor	**CD-adapco**	*Mesh Type*	**Trim**	*WT length upstream [m]*	**20**
Software	**STAR-CCM+**	*Minimum Cell Size [mm]*	**2,5**	*WT length downstream [m]*	**40**
Version	**v11.06.011**	*Total Number Cells [x10 ^{6}]*	**#RIF!**	*WT width / height [m]*	**22 / 9**

Flow Boundary Conditions		*Turbulence Settings*		*Vehicle Options*	
Yaw Angle [deg]	**0**	*Turbulence Model Class*	**DES**	*Bodystyle*	**Notchback**
Vehicle Speed [ms-1]	**38,89**	*Turbulence Model*	**k-w SST**	*Mirrors*	**OCDA**
Density [kg m-3]	**1,204**	*Near wall treatment*	**Hybrid**	*Front Ride Height (mm)*	**686**
Absolute Ref. Pressure [Pa]	**101325**	*Compressible Flow*	**No**	*Rear Ride Height (mm)*	**682**
Solution Method	**NS-Transient**				

Heat Exchanger/Cooling Package Data			*Cooling Configuration*	*Vehicle Configuration*	
Heat Exchanger		**Ford HX1 (baseline)**	 *Cooling Package (CAD)*	*UPPER COOLING INTAKE*	**Open**
HX Pressure Drop $\Delta p = A*v + B*v^2$	***A:***	**5,78**		*LOWER COOLING INTAKE*	**Open**
	B:	**17,31**		*Wheel Type*	**OC DrivAer**
HX x-Position [mm]		**35**		*Wheel Type (Comments)*	- rigid / no deformation - solid contact patch
HX Thickness [mm]		**27**		*Road Simulation*	**Static**
Fan Shroud x-Pos. [mm]		**209,44**		*Rim Simulation*	**Static**
Sealing		**Fully sealed**		*Tire Simulation*	**Static**
Leakage Area (mm ^{2})		**0**			





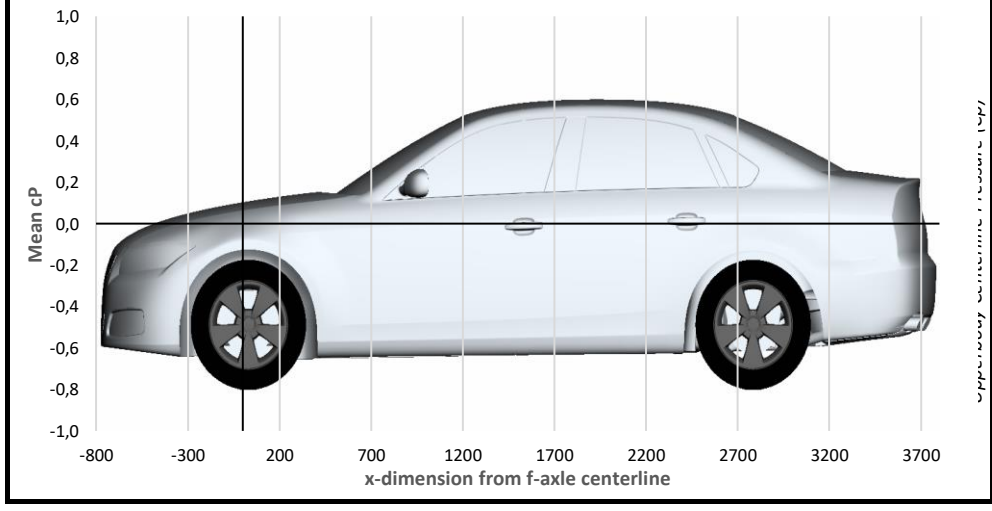


CFD Model

COMMENTS	**standard open bar grills** **mirrors included** **solid wheels (milled, as CAD data)** **wheel house air exit open** **rear lower engine exit open**

CFD Results					
Drag (Cx) [-]		*Radiator Mass Flow [kg/s]*		*Wheelhouse LHS Flow [kg/s]*	
Frontal Area [m2]	**2,170**	*Upper Grill Flow [kg/s]*		*Wheelhouse RHS Flow [kg/s]*	
Front Lift (Czf) [-]		*Lower Grill Flow [kg/s]*		*Tunnel Flow [kg/s]*	
Rear Lift (Czr) [-]					
Underhood Ref Pressure (#415) (Cp) [-]:			*Wheel-house Ref Pressure (#566) (Cp) [-]:*		

Upperbody Centerline Pressure (Cp)



Underbody Centerline Pressure (Cp)