



Ford Focus

2018

Highway Assist System



AD System Name	Co-Pilot 360 (Adaptive Cruise Control with Stop&Go, Lane-Centring and Speed Sign Recognition)	
Standard Active Safety Systems	AEB Car-to-Car	●
	AEB VRU	●
	LSS	●
	SAS	●
Available on	Ford Focus Ford Edge	

Comments

Adaptive Cruise Control with Stop&Go, Lane-Centring and Speed Sign Recognition as part of Co-Pilot360 on the Ford Focus gives the driver a high level of support while maintaining the impression of the driver being in control with the car assisting them. The system is readily perceived as a system to assist the driver which aligns well with the information provided.


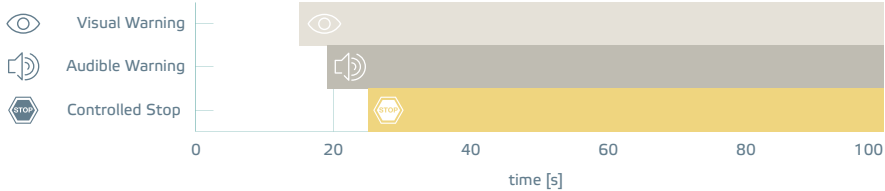
The name "Co-Pilot360" indicates that the system is a driver-assist system, not an autonomous one, and is not readily misunderstood. The limited scenarios tested provide a similar impression. The handbook mentions that the system has limited support on highways, but the system is not geofenced and can therefore be engaged on any road with distinct lane markings. The legally-required hands-off warning tells the driver to keep his hands on the wheel, where gentle steering input is sufficient to suppress this warning. In case of no response to the warning, the system will bring the car to a controlled stop.

Within the longitudinal scenarios, the Focus shows a high level of support in the slower-moving and braking car scenarios. When approaching a stationary car at higher speeds, and in the 'cut-in' and 'cut-out' scenarios, the system offers limited support, the driver being primarily required to handle the situation.

Co-Pilot360 provides subtle steering support resulting in a good balance between the driver and the system in the S-bend scenario. In the absence of lane markings Co-Pilot360 will automatically cancel and warn and will resume assistance when clear lane markings are detected.

Overall, the Ford system is balanced with little risk of the driver over-reliance on the system.

Human Machine Interaction

System Name	The system name, Co-Pilot 360, does not clearly indicate that this is an Assist System and gives a wrong impression about the system capabilities	
Official Manufacturer Information		
System Features	SPEED CONTROL	
	Automatic Speed Limit Adaptation	○
	Speed Adjustment for Road Features	—
	STEERING SUPPORT	
	Assisted Lane Change	—
User Manual	Description of Operational Design Domain (areas where the system can be used)	✘
	Description of the Driver's Role	●
	Description of Adaptive Cruise Control Limitations	●
	Description of Lane Centering Limitations	●
	Description of Hands OFF Warning Sequence	●
<p style="text-align: center;">Hands Off Warning timeline</p>  <p>The chart shows three warning phases over a 100-second period. Visual Warning starts at 0s and ends at 100s. Audible Warning starts at 20s and ends at 100s. Controlled Stop starts at 25s and ends at 100s.</p>		

- Explained in user manual
- Feature fitted as part of the system
- ✘ Not explained in user manual
- Feature not available as part of the system

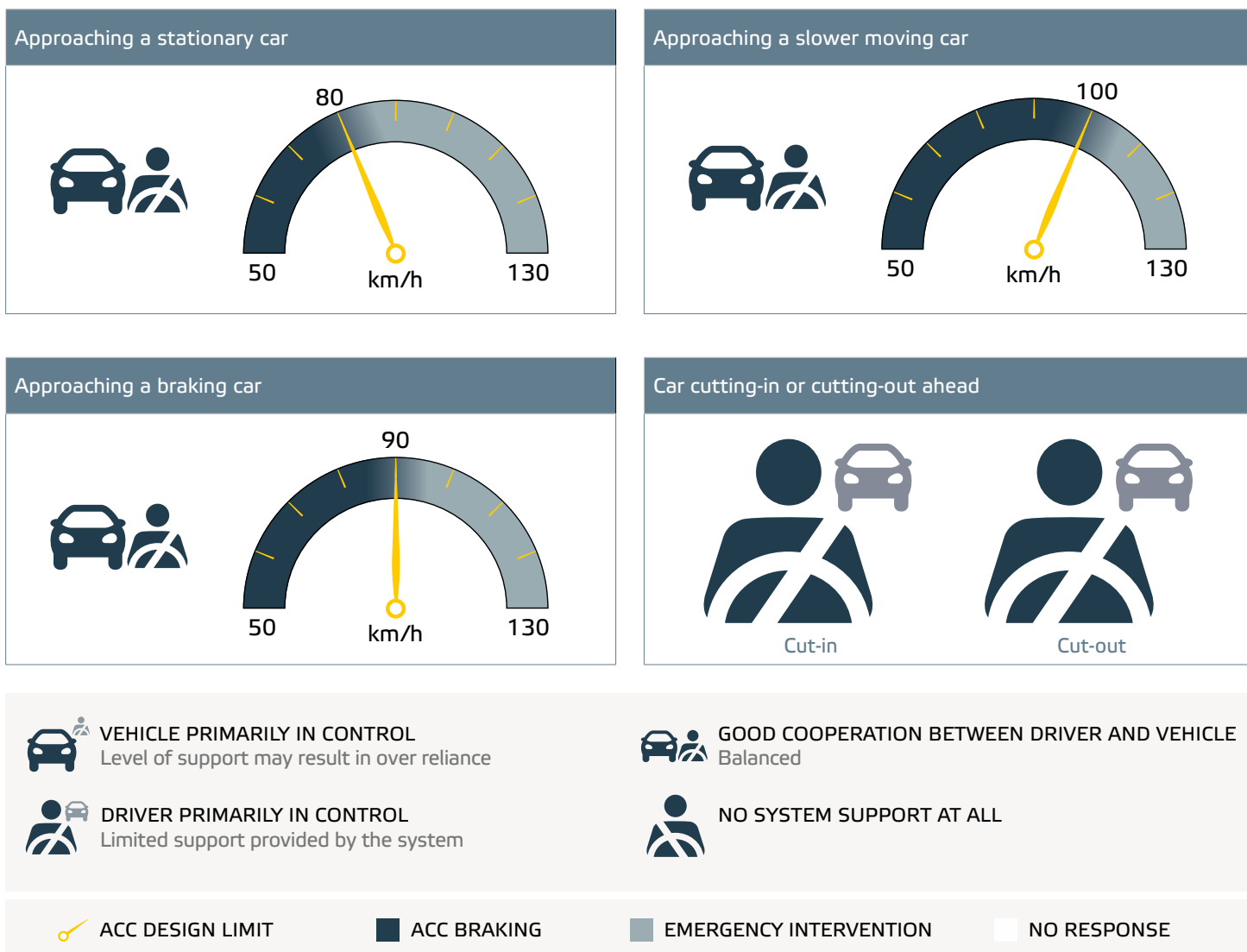
Comments

While the user manual clearly explains the limitations of the systems and where they can operate reliably, system use is not limited as geofencing is not implemented. The role of the driver during the use of the system is also clearly stated and is in line with the system design. Specific scenarios where the driver must be primarily in control or where no system response is expected are not mentioned in the handbook.

Enabling of the systems is performed using a button on the dashboard. Engaging the systems is simple and intuitive using a dedicated cluster of buttons on the steering wheel.

Marketing information from Ford clearly explains the design and intended use of the systems.

Adaptive Cruise Control Tests

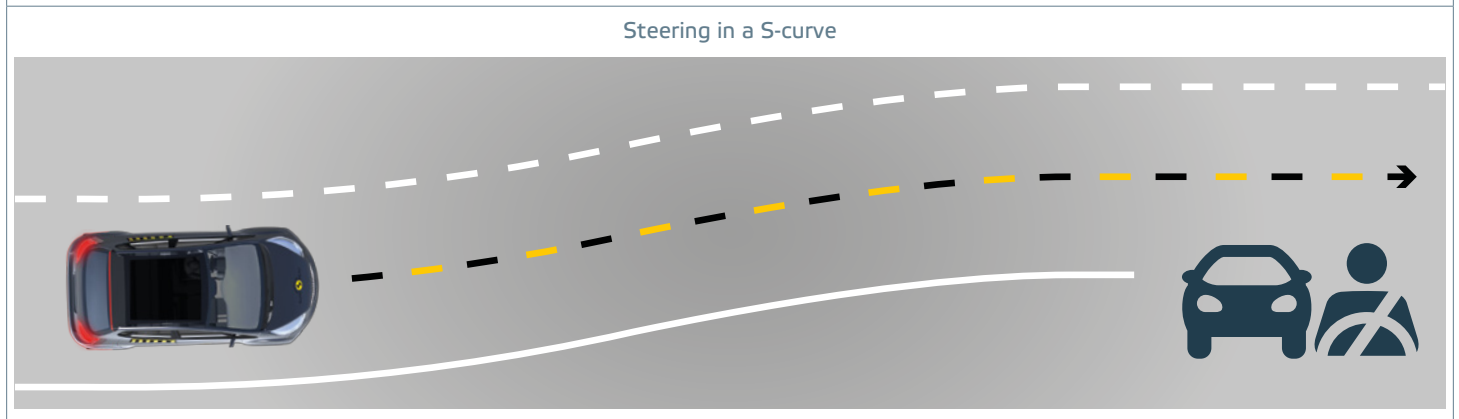
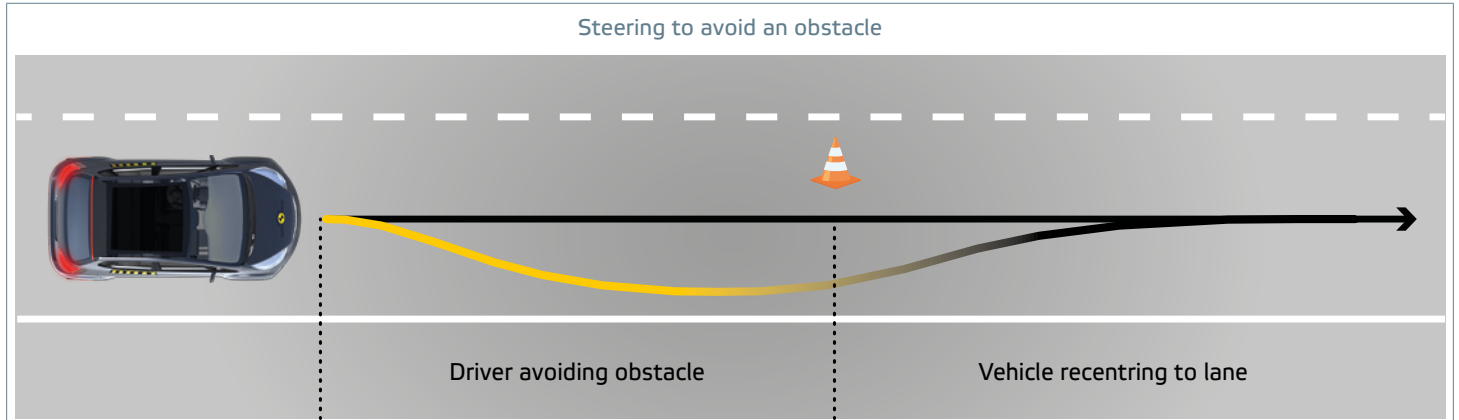






Comments


In the scenarios tested, Co-Pilot360 responds to a stationary vehicle directly ahead and the ACC function will bring the car to halt up to 80 km/h after which the AEB/FCW system keeps supporting the driver up to the maximum speed assessed. In both the slower-moving and braking lead vehicle scenarios, the car also responds well and provides full support in scenarios with a maximum speed differential of 80 km/h. Late or no system response was witnessed in the cut-in and cut-out scenarios which are critical and challenging for the system due to the rapidly changing conditions. Very late or no warning was issued to alert the driver of the possible crash in the most challenging test scenarios.

Overall the system performs well in the ACC scenarios and a good balance exists between the car and the driver. The driver clearly needs to stay alert and take appropriate action in more critical day-to-day scenarios such as the sudden cut-in situation.


Steering Support



 <p>VEHICLE PRIMARILY IN CONTROL Level of support may result in over reliance</p>	 <p>GOOD COOPERATION BETWEEN DRIVER AND VEHICLE Balanced</p>
 <p>DRIVER PRIMARILY IN CONTROL Limited support provided by the system</p>	 <p>NO SYSTEM SUPPORT AT ALL</p>



STEERING SUPPORT PATH



DRIVER STEERING PATH

Comments

In the scenarios tested Co-Pilot360 gives the impression that the driver is in control and the car is supporting them by providing steering assistance, which encourages good driver engagement. Where a driver wants to reposition the car within the lane, for example to avoid an obstacle or increase clearance to adjacent traffic, the system readily accommodates driver inputs and subsequently continues to provide steering assistance.